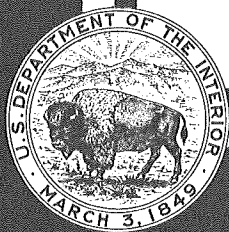


1965

# Water Resources Data for California

## Part 1. Surface Water Records

### Volume 2: Northern Great Basin and Central Valley



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

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



United States Department of the Interior  
Geological Survey - Water Resources Division

WATER RESOURCES DATA  
FOR  
CALIFORNIA  
1965

Part 1: Surface Water Records  
Volume 2: Northern Great Basin and  
Central Valley

Prepared in cooperation with

California Department of Water Resources  
Alameda County Flood Control and Water Conservation District  
Alameda County Water District  
Calaveras County Water District  
Contra Costa County Flood Control and Water Conservation District  
Lake County Flood Control and Water Conservation District  
Montecito County Water District  
Monterey County Flood Control and Water Conservation District  
San Bernardino County Flood Control District  
Santa Clara County Flood Control and Water Conservation District  
Orange County Flood Control District  
San Luis Obispo County Flood Control and Water Conservation District  
San Mateo County  
Santa Barbara County Water Agency  
Santa Cruz County Flood Control and Water Conservation District  
San Francisco (county and city)  
Santa Barbara (city)  
San Diego (city)  
Antelope Valley-East Kern Water Agency  
East Bay Municipal Utility District  
Georgetown Divide Public Utility District  
Imperial Irrigation District  
San Bernardino Valley Water Conservation District  
Santa Maria Valley Water Conservation District  
Ventura River Municipal Water District  
Corps of Engineers, U.S. Army  
U.S. Navy  
Bureau of Reclamation, U.S. Department of the Interior  
Forest Service, U.S. Department of Agriculture

Copies of this report may be obtained from  
District Chief, Water Resources Division  
U.S. Geological Survey  
345 Middlefield Road  
Menlo Park, California, 94025

Water-resources records, 1965, for California are in the following reports of the U.S. Geological Survey:

1. Water Resources Data for California  
Part 1: Surface Water Records  
Volume 1: Colorado River Basin, Southern Great Basin, and Pacific Slope Basins excluding Central Valley
2. Water Resources Data for California  
Part 1: Surface Water Records  
Volume 2: Northern Great Basin and Central Valley
3. Water Resources Data for California  
Part 2: Water Quality Records



# CALENDAR FOR WATER YEAR 1965

## OCTOBER 1964

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

## NOVEMBER 1964

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

## DECEMBER 1964

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

## JANUARY 1965

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

## FEBRUARY 1965

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

## MARCH 1965

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

## APRIL 1965

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

## MAY 1965

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

## JUNE 1965

S	M	T	W	T	F	S
		1	2	3	4	5
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20	21	22	23	24	25	26
27	28	29	30			

## JULY 1965

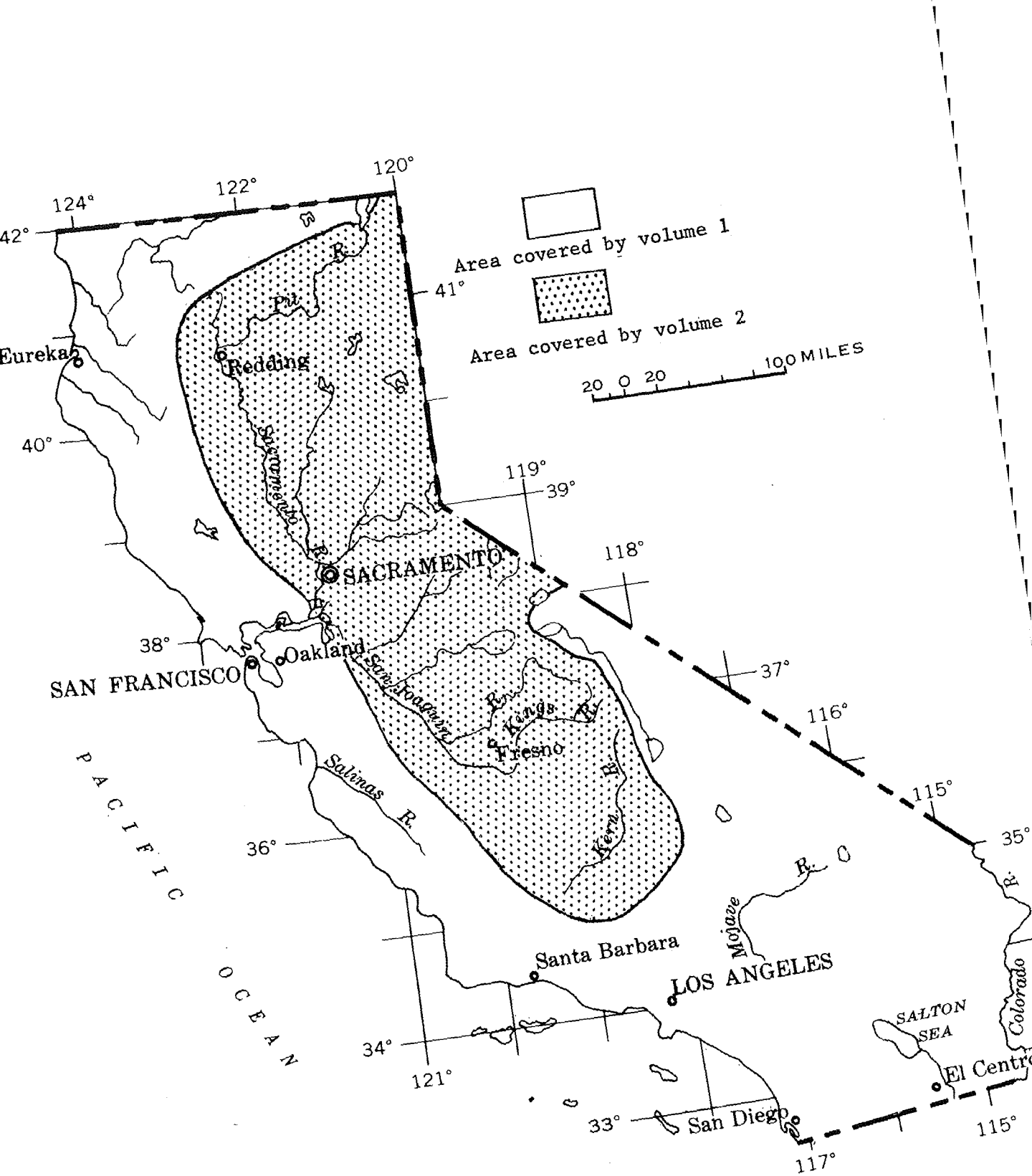
S	M	T	W	T	F	S
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4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

## AUGUST 1965

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

## SEPTEMBER 1965

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
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## WATER RESOURCES DATA FOR CALIFORNIA, 1965

### Part 1. SURFACE WATER RECORDS

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#### INTRODUCTION

The surface-water records for the 1965 water year for gaging stations, partial-record stations, and miscellaneous sites within California are given in this report. For convenience, also included are records for a few pertinent gaging stations in bordering States. The records were collected and computed by the Water Resources Division of the U.S. Geological Survey, under the direction of Walter Hofmann, district chief, Menlo Park, Calif.

Through September 30, 1960, the records of discharge and stage of streams and contents and stage of lakes or reservoirs were published in an annual series of U.S. Geological Survey water-supply papers entitled "Surface Water Supply of the United States." Since 1951 there have been 20 volumes in the series; each volume covered an area whose boundaries coincided with those of certain natural drainage areas. The records in California were contained in parts 9, 10, and 11 of that series.

Beginning with the 1961 water year, streamflow records and related data are being released by the Geological Survey in annual reports on a State-boundary basis. Distribution of these basic-data reports is limited and is made primarily for local needs. The records later will be published in Geological Survey water-supply papers at 5-year intervals. These water-supply papers will show daily discharge and will be compiled for the same geographical areas used for the annual series.

## COOPERATION

In California the work was done under cooperative agreements with:

California Department of Water Resources, W. E. Warne, Director.  
 Alameda County Flood Control and Water Conservation District,  
   Richard W. Karn, Engineer-Manager.  
 Alameda County Water District, M. P. Whitfield, General Manager.  
 Calaveras County Water District, Paul E. Lewis, Secretary-Manager.  
 Contra Costa County Flood Control and Water Conservation District,  
   C. C. Rich, Chief Engineer.  
 Lake County Flood Control and Water Conservation District, Willard D. Hansen,  
   Manager.  
 Montecito County Water District, Delbert D. Smith, General Manager.  
 Monterey County Flood Control and Water Conservation District,  
   Loren Bunte, Jr., District Engineer.  
 San Bernardino County Flood Control District, M. A. Nicholas, Chief Engineer.  
 Santa Clara County Flood Control and Water Conservation District,  
   Donald K. Currilin, Manager-Counsel.  
 Orange County Flood Control District, H. G. Osborne, Chief Engineer.  
 San Luis Obispo County Flood Control and Water Conservation District,  
   Robert H. Born, County Hydraulic Engineer.  
 Santa Barbara County Water Agency, Curtis Tunnell, Chairman.  
 Santa Cruz County Flood Control and Water Conservation District,  
   Warren M. Harrison, Director of Public Works.  
 San Mateo County, D. S. Wilson, County Engineer and Road Commissioner.  
 San Diego (city), R. E. Graham, Director of Utilities.  
 Santa Barbara City Water Department, Clyde Richardson, Director.  
 Antelope Valley-East Kern Water Agency, R. G. Lunt, Chief Engineer and  
   General Manager.  
 East Bay Municipal Utility District, J. W. McFarland, General Manager.  
 Georgetown Divide Public Utility District, J. E. Christensen, Manager.  
 Imperial Irrigation District, R. F. Carter, General Manager.  
 San Bernardino Valley Water Conservation District, E. F. Dibble, Engineer and  
   Secretary.  
 Santa Maria Valley Water Conservation District, L. H. Adam, President.  
 Ventura River Municipal Water District, L. G. Bennett, General Manager and  
   Chief Engineer.

Assistance in the form of funds or services was given by the Corps of Engineers, U.S. Army; U.S. Navy; Bureau of Reclamation and National Park Service, U.S. Department of the Interior; Forest Service, U.S. Department of Agriculture; and the city and county of San Francisco.

The following organizations and individuals aided in collecting records: Pacific Power and Light Co., California Water and Telephone Co., Irvine Ranch, Kings River Water Association, Los Angeles City Department of Water and Power, Los Angeles County Flood Control District, Rancho California, Pacific Gas and Electric Co., Placer County Water Agency, Sacramento Municipal Utility District, Southern California Edison Co., Kern County Land and Water Co., United Water Conservation District, Ventura County Water Resources Division, and Helix, Madera, Merced, Modesto, Nevada, Serrano and Carpenter, Turlock, Oakdale, Oroville-Wyandotte, South San Joaquin, Vista, and Woodbridge Irrigation Districts.

## DEFINITION OF TERMS AND ABBREVIATIONS

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

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of gage height or discharge are obtained. When used in connection with a discharge record, the term is applied only to those gaging stations where a continuous record of discharge is obtained.

Hydrologic bench mark is an area or basin in which the hydrologic regimen will likely be governed solely by natural conditions. Such a basin provides a reference for separating the effects of cultural changes in other basins with similar climate, physiography, and geology.

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

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

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

Runoff in inches (in.) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Acre-foot (ac-ft) is the quantity of water required to cover an acre to the depth of 1 foot and is equivalent to 43,560 cubic feet.

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

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

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

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

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

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

#### DOWNSTREAM ORDER AND STATION NUMBERS

Stations are listed in the same downstream order used in the water-supply papers. Records are listed in a downstream direction along the main stem with all stations on a tributary entering above a main-stem station listed before that station. If a tributary enters between two main-stem stations, it is listed between them. A similar order is followed listing stations on first rank, second rank, and other ranks of tributaries. To indicate the rank of any tributary on which a gaging station is situated and the stream to which it is immediately tributary, each indention in the listing of gaging stations in the table of contents of this report represents one rank. This downstream order and system of indention shows which gaging stations are on tributaries between any two stations on a main stem and the rank of the tributary on which each gaging station is situated.

As an added means of identification, each gaging station and partial-record station has been assigned a station number. The numbers have been assigned in the same downstream order used in the annual series of water-supply papers. In assigning station numbers, no distinction is made between partial-record and continuous-record gaging stations, so that the 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 numbers to allow for new stations that may be established; hence, the numbers are not consecutive.

The complete number for each station, such as 11-1208.00 includes the part number "11" and a six-digit station number. In this report, the part number and only the essential digits of the station number are shown. For example, the complete number 11-1208.00 would appear as 11-1208, just to the left of the station name. In this report, the records are listed in downstream order by parts. All records for a drainage basin encompassing more than one State could be arranged in downstream order by assembling pages from the various State reports by station number.

## EXPLANATION OF DATA

The base data collected at gaging stations consist of records of stage and measurements of discharge. In addition, observations of factors affecting the stage-discharge relation, weather records, and other information are used to supplement base data in determining the daily flow. Records of stage are obtained from a water-stage recorder that gives a continuous chart of the fluctuations (for digital recorders, a tape punched at 15-minute intervals) or from direct readings on a nonrecording gage. Measurements of discharge are made with a current meter by the general methods adopted by the Geological Survey on the basis of experience in stream gaging since 1888. These methods are described in Water-Supply Paper 888 and are also outlined in standard textbooks on the measurement of stream discharge.

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

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

At some gaging stations the stage-discharge relation is affected by ice during the winter, and computing the discharge in the usual manner is impossible. Discharge for periods of ice effect is computed on the basis of the gage-height record and occasional winter discharge measurements, consideration being given to the available information on temperature and precipitation, notes by gage observers and engineers, and comparable records of discharge for other stations in the same or nearby basins.

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 the daily discharge. This can happen when the recorder stops or otherwise fails to operate properly, when intakes are plugged, or when the float is held by ice. For such periods the daily discharges are estimated on the basis of recorded range in stage, adjacent good record, discharge measurements, weather records, and comparison with station records from the same or nearby basins.

The data in this report generally comprise a description of the station, a skeleton rating table, and a table showing the daily discharge and monthly and yearly discharge of the stream. Records are published for the water year which begins October 1 and ends September 30. A calendar for the 1965 water year is shown on page III.

The description of the station gives the location, drainage area, records available, type and history of gages, average discharge, extremes of discharge, and general remarks. The location of the gaging station and the drainage area are obtained from the most accurate maps available. Under "Records available" are given the periods for which there are published records for the present station or for generally equivalent stations. Under "Gage" are given the type of gage currently in use and the datum of the gage above mean sea level and a condensed history of the types, locations, and datums of previous gages used during the period of records available. The references to "datum of 1929" and adjustments of other years are to the datum and adjustments of the U.S. Coast and Geodetic Survey. Under "Average discharge" is given the average discharge for the number of years indicated. It is not given for stations having fewer than 5 complete years of record or for stations where changes in water development cause the figure to have little significance. Under "Extremes" are given the maximum discharge and gage height; the minimum discharge if there is little or no regulation; the minimum daily discharge if there is extensive regulation (also the minimum discharge if useful); and the minimum gage height if it is significant. In the first paragraph, the data given are for the complete current water year unless otherwise specified. In the second paragraph, the data given are for the periods of record within the calendar year dates in the heading (not necessarily those for the complete years indicated by the heading dates). Reliable information concerning major floods that have occurred outside the period of record are given in the third or last paragraph under "Extremes." Unless otherwise qualified, the maximum discharge corresponds to the crest stage obtained by use of a water-stage recorder, a crest-stage indicator, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur at the same time as the maximum discharge, it is given separately. Information pertaining to the accuracy of the records and to conditions which affect the natural flow at the gaging station is given under "Remarks."

Skeleton rating tables are published for all stations, except those for which the daily discharge for the greater part of the open-water (ice-free) period was determined by the shifting-control method, the slope method, or other special methods involving an equivalent adjustment to the gage height of more than 0.1 foot. Skeleton rating tables generally are not published for canals, ditches, or springs.

The daily table gives the discharge corresponding to the daily mean gage height, unless the discharge changes greatly during a day. For days having large or rapid changes, the discharge is computed by averaging the mean discharges for several parts of the day. For digital recorders, the daily mean discharge is the average of the discharges at each punched reading. For stations equipped with nonrecording gages, the daily discharge corresponds to once-daily readings of the gage or to the mean of twice-daily readings; but for periods of rapidly changing stage the discharge is determined from a gage-height graph based on gage readings.

In the monthly summary below the daily table, the "Total" is the sum of the daily figures; it is the total cfs-days for the month. The "Mean" is the average flow in cubic feet per second during the month. Discharge for the month is expressed in acre-feet ("Ac-ft"). For three stations only discharge for the month is expressed in cubic feet per second per square mile ("Cfsm"), in inches ("In."), and in acre-feet ("Ac-ft"). For those stations equipped with a tipping-bucket rain gage, precipitation, in inches, is given for the month.

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

Peak discharges and the times of their occurrence and corresponding gage heights for most stations are listed below the table of daily and monthly discharge. All independent peaks above the selected base are given. The base discharge, which is given in parentheses, is selected so that an average of about three peaks a year can be presented. Peak discharges are not published for any stream for which the peaks are subject to substantial control by man. Time of day is expressed in 24-hour time; for example, 12:30 a.m. is 0030 and 1:30 p.m. is 1330 hours.

Footnotes to the table of daily discharge indicate periods for which discharge was computed or estimated by unusual or special methods because of no gage-height record, ice effect, or other conditions that reduce the degree of accuracy of the records.

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

For those stations equipped with a thermograph, a table of daily maximum and minimum water temperatures is included.

## ACCURACY OF FIELD DATA AND COMPUTED RESULTS

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

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

Discharge at some stations, as indicated by the monthly mean, may vary widely from natural runoff, owing to diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes or to other factors. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur when large negative adjustments are made or when evaporation is large in comparison with the observed discharge.

## SUPPLEMENTAL DATA

Data from partial-record stations and measurements made at miscellaneous sites are given at the end of this report. Occasionally, discharge measurements are made within a short time period to investigate the seepage gains or losses along a reach of a stream or to determine the low-flow characteristics of an area. Such measurements are also at the end of this report. Data for most crest-stage partial-record stations in California are not included in this report. They are published separately in an annual report, "Floods from Small Drainage Areas," copies of which may be obtained from the district office.

More detailed information than that published for most of the gaging stations is on file in the district office; information, such as discharge measurements and recorder charts or nonrecording-gage readings. Most gaging-station records in the State through 1958 have been analyzed with an electronic computer to give: (1) The number of days in each year that the daily discharge was between selected limits (duration tables); (2) the lowest mean discharge for selected numbers of consecutive days in each year; and (3) the highest mean discharge for selected numbers of consecutive days in each year. A few of these gaging-station records have been further updated, some through 1965. Continuous temperature records are obtained from thermographs at some gaging stations. Water samples are collected at many gaging stations for analysis



to determine chemical quality, suspended-sediment load, and particle-size distribution. These data are published in part 2 of this report. A reference is made, under the "Remarks" paragraph of the gaging-station description, to regularly collected water-quality records.

## HYDROLOGIC CONDITIONS

The runoff for the first 2½ months of the 1965 water year was near median, except for southern California where it was deficient. Storms of extreme intensity occurred in northern California during the latter part of December and the first part of January and produced floods that were the most damaging in the history of that area. Peak discharges at many locations were the greatest of record. Thirty-one stream-gaging stations were destroyed and many others were severely damaged. A comprehensive report on the floods is being prepared. Nearly 50 percent of the water-year runoff occurred during December and January. For the remainder of the year streamflow was generally below median in the north, except for those streams affected by the melting of the above-average snowpack. Streamflow remained deficient in the south throughout the water year. Runoff in the north-coastal area ranged from about 100 to 200 percent of median and averaged 160 percent of median, whereas runoff in the south-coastal area averaged 50 percent of median. Runoff averaged about 115 percent of median in the central-coastal area and about 225 percent in the San Francisco Bay area. In the Sacramento and San Joaquin Valleys runoff averaged about 195 and 150 percent of median, respectively. Major reservoirs had their greatest carryover storage in recent years. Water stored in these reservoirs at the end of the water year totaled 65 percent of their combined capacities and 120 percent of their average carryover storage.

10-2890. Virginia Creek near Bridgeport, Calif.

Location.--Lat 38°11'30", long 119°12'30", near center of  $\frac{1}{4}$  sec. 22, T.4 N., R.25 E., on right bank  $\frac{1}{4}$  miles downstream from Clearwater Creek, 3 miles upstream from mouth, and  $\frac{1}{4}$  miles southeast of Bridgeport.

Drainage area.--63.6 sq mi.

Records available.--October 1953 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 6,700 ft (from topographic map).

Average discharge.--12 years, 14.4 cfs (10,430 acre-ft per year).

Extremes.--Maximum discharge during year, 152 cfs Dec. 23; maximum gage height, 4.18 ft; minimum discharge, 3.4 cfs Dec. 12, but may have been less during periods of ice effect.

1953-65: Maximum discharge, 1,300 cfs Dec. 23, 1955; (gage height, 8.40 ft), from rating curve extended above 170 cfs on basis of slope-area measurement of peak flow; minimum, 1.0 cfs Aug. 18, 1960 and July 28, 1961.

Remarks.--Records good except those for periods of ice effect, which are poor. Flow partly regulated by Virginia Lakes and other lakes near headwaters. Diversions for irrigation of about 3,000 acres above station.

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)  
(shifting-control method used Sept. 8-14)

Oct. 1 to Dec. 22				Dec. 23 to Sept. 30			
2.6	4.0	3.0	21	2.8	7.0	3.3	37
2.7	6.8	3.2	34	2.9	11	3.5	56
2.8	11			3.1	22	4.0	126

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.1	6.2	8.9	b7	10	12	12	26	49	29	26	14
2	5.1	6.2	8.9	b9	9.8	11	11	25	44	28	23	14
3	5.1	6.5	6.8	b11	9.4	11	12	26	32	30	20	14
4	5.4	6.2	6.8	b12	9.4	11	12	21	28	33	17	14
5	5.4	6.0	7.6	*14	9.8	11	12	19	31	35	17	14
6	5.4	6.0	6.8	*14	9.8	11	12	18	36	35	15	17
7	5.4	6.0	7.6	b12	9.0	11	12	21	38	37	14	37
8	5.4	6.2	7.6	b7	b8.5	11	11	20	47	35	12	23
9	5.4	6.2	8.5	b10	b*9.5	11	11	20	42	31	12	20
10	5.4	6.0	8.1	b11	b8	11	10	17	35	26	*14	18
11	5.4	6.8	8.5	b11	b8.5	12	11	16	35	24	23	17
12	5.4	7.2	b6	11	b8	12	12	16	41	22	22	17
13	5.4	b7	b5.5	b8	b9	11	12	17	39	21	22	15
14	5.4	b6.5	b7	b8.5	9.4	11	*12	18	34	*21	28	*14
15	*5.4	b6	7.2	b9	b8.5	*12	13	17	*31	27	35	14
16	5.4	b6	6.5	10	b8	11	14	17	29	31	39	14
17	5.4	b6	b5.5	10	9.0	11	17	23	25	35	41	15
18	5.4	b5.5	6.0	11	9.4	11	24	*31	23	31	34	16
19	5.4	b5	6.8	11	9.8	11	35	36	23	31	28	16
20	5.4	b5.2	6.8	11	10	12	37	36	23	28	24	16
21	5.7	b6	8.5	11	11	12	43	34	28	23	21	15
22	5.7	b7	33	11	11	13	31	31	33	21	20	15
23	5.7	b7.5	*106	11	10	15	24	34	39	20	20	14
24	5.7	8.1	69	b10	10	14	24	26	36	21	18	14
25	5.7	*8.9	29	b8.5	11	12	24	23	30	29	14	14
26	5.7	9.3	18	b9	12	12	24	21	27	26	14	14
27	5.7	8.1	12	9.8	13	13	25	21	23	21	13	14
28	6.0	8.9	b9	b9.5	12	12	26	22	26	18	12	14
29	7.6	9.3	b8	10	-----	12	30	26	27	20	12	14
30	6.5	8.5	b11	10	-----	14	29	31	27	27	13	14
31	6.2	-----	b11	10	-----	15	-----	34	-----	31	14	-----
Total	173.3	204.3	457.9	317.3	272.8	369	582	743	981	847	637	481
Mean	5.59	6.81	14.8	10.2	9.74	11.9	19.4	24.0	32.7	27.3	20.5	16.0
Ac-ft	344	405	908	629	541	732	1,150	1,470	1,950	1,680	1,260	954

Calendar year 1964 : Max 106 Min 1.7 Mean 9.49 Ac-ft 6,880  
Water year 1964-65 : Max 106 Min 5 Mean 16.6 Ac-ft 12,020

Peak discharge (base, 50 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0430	4.15	152	6- 8	2100	3.53	57
4-21	1800	3.64	76	8-17	1700	3.48	50
6- 1	1630	3.61	68				

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

10-2895. Green Creek near Bridgeport, Calif.

Location.--Lat 38°10'25", long 119°14'00", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 29, T.4 N., R.25 E., on right bank 130 ft downstream from county road bridge, 0.1 mile upstream from diversion to Summers Creek, and  $\frac{5}{8}$  miles south of Bridgeport.

Drainage area.--19.5 sq mi.

Records available.--October 1953 to September 1965.

Gage.--Digital water-stage recorder. Altitude of gage is 6,850 ft (from topographic map). Prior to July 26, 1964, analog water-stage recorder.

Average discharge.--12 years, 27.4 cfs (19,840 acre-ft per year).

Extremes.--Maximum discharge during year, 166 cfs Dec. 23 (gage height, 2.93 ft); minimum, 1.6 cfs Nov. 19, but may have been less during periods of ice effect.

1953-65: Maximum discharge, 307 cfs Dec. 23, 1955, from rating curve extended above 220 cfs on basis of slope-area measurement of peak flow and logarithmic plotting; maximum gage height, 4.09 ft Feb. 25, 1962 (backwater from ice); minimum discharge, 1.4 cfs Apr. 4, 1964.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Flow regulated by West, Green, East, Summit, and other lakes.

Rating tables, except periods of ice effect  
(gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 20				Apr. 21 to Sept. 30			
1.5	1.6	2.0	2.3	1.9	11	2.3	44
1.6	3.8	2.2	41	2.0	16	2.5	76
1.7	6.6	2.5	80	2.1	23	3.0	190
1.8	11	3.0	190				

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	4.2	7.2	7.9	10	18	14	18	68	97	101	80	50
2	4.2	6.2	7.5	12	15	12	16	58	87	101	80	47
3	4.1	6.3	b 7.0	15	15	12	16	49	74	108	74	46
4	4.2	6.0	b 3.0	16	15	12	17	43	74	120	68	43
5	4.4	5.9	b 5.8	* 17	17	12	18	39	89	120	61	40
6	4.5	5.6	5.3	* 16	17	12	17	37	106	114	58	42
7	4.6	5.5	b 5.0	14	17	12	16	33	108	123	58	47
8	4.5	b 4.8	6.3	11	13	14	15	32	116	120	56	42
9	4.4	b 4.0	6.4	14	16	13	15	30	106	114	53	39
10	4.4	2.9	6.3	20	13	13	15	29	101	108	* 53	37
11	4.5	6.8	6.5	26	13	14	15	30	114	99	62	34
12	4.7	3.7	b 3.5	25	9.0	14	16	32	127	91	74	33
13	4.6	b 4.0	b 3.0	15	10	13	18	38	125	86	74	30
14	4.7	b 4.0	b 5.4	12	12	14	* 19	46	110	* 89	86	* 26
15	* 4.8	b 4.0	6.2	12	11	* 15	18	42	93	97	89	24
16	4.6	b 5.0	b 6.0	21	* 10	16	19	50	* 84	99	86	22
17	4.5	b 4.5	b 3.8	21	10	15	21	66	74	103	76	22
18	4.5	b 3.7	b 3.8	21	10	15	22	* 89	68	97	69	20
19	4.5	b 2.7	b 4.5	21	10	16	27	95	71	95	61	20
20	4.6	b 3.0	5.1	21	10	17	34	91	80	95	55	19
21	4.5	b 4.0	6.2	21	11	17	38	86	93	91	47	18
22	4.6	b 6.0	* 12	20	13	18	50	73	110	82	43	17
23	4.6	b 6.0	100	20	11	19	42	62	118	74	39	17
24	4.6	* 7.0	70	16	11	18	42	55	118	73	36	16
25	4.5	8.3	40	13	12	17	46	49	112	76	33	15
26	4.4	8.4	27	15	13	16	49	49	99	74	31	15
27	4.4	7.3	17	21	14	15	53	52	89	71	56	15
28	4.6	8.5	16	19	15	15	59	61	91	68	58	14
29	6.9	8.5	13	19	-----	15	69	76	91	64	56	14
30	7.1	b 7.0	15	18	-----	18	69	87	95	66	55	14
31	6.5	-----	15	18	-----	19	-----	91	-----	78	53	-----
TOTAL	146.2	166.8	439.5	540	361.0	462	889	1,738	2,920	2,897	1,880	838
MEAN	4.72	5.56	14.2	17.4	12.9	14.9	29.6	56.1	97.3	93.5	60.6	27.9
AC-FT	290	331	872	1,070	716	916	1,760	3,450	5,790	5,750	3,730	1,660

CALENDAR YEAR 1964 MAX 100 MIN 2.7 MEAN 19.0 AC-FT 13,800  
WATER YEAR 1964-65 MAX 127 MIN 2.7 MEAN 36.4 AC-FT 26,340

\* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note.--No gage-height record Dec. 23 to Jan. 5, Feb. 16 to Apr. 13.

## 10-2903. Upper Twin Lake near Bridgeport, Calif.

Location.--Lat 38°09'10", long 119°21'30", in NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.6, T.3 N., R.24 E., on left bank, three-quarters of a mile above outlet and 10<sup>1</sup>/<sub>2</sub> miles southwest of Bridgeport.

Drainage area.--29.5 sq mi.

Records available.--December 1961 to February 1964, September 1964 to September 1965 (discontinued).

Gage.--Water-stage recorder. Datum of gage is project datum of U. S. Indian Irrigation Service.

Extremes.--Maximum contents observed during year, 2,470 acre-ft June 30 (elevation, 7,208.25 ft); minimum, 62 acre-ft Oct. 31, Nov. 1 (elevation, 7,200.22 ft).  
1961-65: Maximum contents observed, 2,870 acre-ft June 20, 1963 (elevation, 7,209.48 ft); minimum contents, that of Oct. 31, Nov. 1, 1964.  
No contents observed Oct. 17, 1961.

Remarks.--Contents regulated by dam at outlet. Figures given herein represent usable contents. Usable contents, 2,070 acre-ft between elevations 7,200 (natural rim) and 7,207 ft (spillway crest).

## Elevations and contents, water year October 1964 to September 1965

Date	Elevation (feet)	Contents (acre-ft)	Change in contents (acre-ft)
Oct. 31 . . . . .	7,200.22†	62	-138
Nov. 30 . . . . .	7,201.54†	431	+369
Dec. 21 . . . . .	7,203.49	982	+551
Calendar year 1964 . . . . .	---	---	---
Jan. 6 . . . . .	7,207.00	2,070	+1,088
Feb. 16 . . . . .	7,206.69	1,970	-100
May. 20 . . . . .	7,207.89	2,360	+390
June 30 . . . . .	7,208.25†	2,470	+110
July 23 . . . . .	7,208.00	2,390	-80
Aug. 9 . . . . .	7,207.74	2,310	-80
Sept. 30 . . . . .	---	g2,150	-160
Water year 1964-65 . . . . .	---	---	+1,950

† Elevation at 2400 hrs.

g Contents estimated from observstion Oct. 7, 1965.

## 10-2904. Lower Twin Lake near Bridgeport, Calif.

Location.--Lat 38°09'20", long 119°20'20", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.33, T.4 N., R.24 E., on right bank half a mile above outlet and 10 miles southwest of Bridgeport.

Drainage area.--38.9 sq mi.

Records available.--December 1961 to September 1965.

Gage.--Water-stage recorder. Datum of gage is at project datum of U. S. Indian Irrigation Service.

Extremes.--Maximum contents during year, 5,190 acre-ft between June 15 and July 13 (elevation, 7,202.74 ft); minimum recorded, 352 acre-ft Oct. 28 (elevation, 7,190.88 ft).  
1961-65: Maximum contents, 5,270 acre-ft June 20, 1963 (elevation, 7,202.94 ft); minimum recorded, that of Oct. 28, 1964.

Remarks.--Contents regulated by dam at outlet and by Upper Twin Lake. Figures given herein represent usable contents. Usable contents, 4,010 acre-ft between elevation 7,190 (natural rim) and 7,200 ft (spillway crest). One transarea diversion out of Tamarack Creek into Summers Creek.

## Month-end elevations and contents, water year October 1964 to September 1965

Date	Elevation (feet)†	Contents (acre-ft)	Change in contents (acre-ft)
Oct. 31 . . . . .	7,190.97	388	+28
Nov. 30 . . . . .	7,191.44	576	+188
Dec. 31 . . . . .	7,196.63	2,650	+2,074
Calendar year 1964 . . . . .	---	---	-730
Jan. 31 . . . . .	7,200.30	4,140	+1,490
Apr. 30 . . . . .	7,198.54	3,420	---
May 31 . . . . .	7,200.28	4,130	-710
June 30 . . . . .	g7,202.30	4,990	+860
July 31 . . . . .	7,201.78	4,770	-220
Aug. 31 . . . . .	7,200.36	4,160	-610
Sept. 30 . . . . .	g7,197.45	2,980	-1,180
Water year 1964-65 . . . . .	---	---	+2,620

† Elevation at 2400 hrs.

g Elevation interpolated from gage readings near end of month.

10-2905. Robinson Creek at Twin Lakes outlet, near Bridgeport, Calif.

Location.--Lat 38°10'20", long 119°19'25", in SE¼SE¼ sec.28, T.4 N., R.24 E., on left bank a quarter of a mile downstream from Twin Lakes and 8 miles southwest of Bridgeport.

Drainage area.--39.1 sq mi.

Records available.--October 1953 to September 1965.

Gage.--Digital water-stage recorder. Altitude of gage is 7,050 ft (from topographic map). Prior to July 27, 1964, analog water-stage recorder.

Average discharge.--12 years, 54.9 cfs (39,750 acre-ft per year), unadjusted.

Extremes.--Maximum discharge during year, 278 cfs June 14, July 8 (gage height, 3.74 ft); no flow for many days during winter months. 1953-65: Maximum discharge, 492 cfs June 20, 1963 (gage height, 4.47 ft); no flow for many days in some years. Maximum discharge known, 660 cfs June 21, 1911 (gage height, 5.2 ft), at site 2½ miles downstream.

Remarks.--Records excellent except those for periods of ice effect or snow block, which are fair. Flow regulated by Twin Lakes.

Rating table, except periods of ice effect  
(gage height, in feet, and discharge, in cubic feet per second)

1.0	0	2.5	83
1.1	1.2	3.0	141
1.2	3.9	3.5	225
1.6	19	4.0	343
2.0	41		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	19	8.0	0	0	24	23	23	93	113	191	166	137
2	18	8.2	b .10	0	23	22	22	94	133	197	169	130
3	17	8.2	b .10	0	23	22	23	94	102	205	165	127
4	17	8.2	b .10	0	23	22	23	94	75	222	156	125
5	16	8.2	b .10	0	23	21	24	93	108	239	146	124
6	16	8.2	b .10	0	23	21	23	92	140	249	138	122
7	15	8.2	b .20	.10	23	22	22	91	174	266	132	120
8	15	8.2	b .20	.10	23	22	23	91	208	275	127	118
9	14	8.2	b .20	.10	22	22	23	90	219	266	* 124	107
10	14	8.2	b .20	.10	22	22	25	87	212	254	122	91
11	13	8.2	.20	.10	* 21	22	22	86	215	235	129	91
12	14	8.2	b .10	b .20	21	22	23	85	236	215	144	90
13	14	8.2	.10	b .50	21	22	23	85	255	* 198	160	* 89
14	* 14	8.2	.10	b .70	20	22	* 23	85	258	187	173	88
15	14	7.4	0	b .70	20	22	23	85	233	188	207	89
16	14	7.4	0	b .70	20	* 21	24	84	208	201	224	83
17	14	3.9	0	b .70	20	21	20	84	* 184	223	208	86
18	14	.30	.10	.70	20	20	67	* 86	161	232	191	45
19	14	.30	.30	4.2	20	20	89	88	149	227	172	24
20	14	.30	.10	7.8	20	20	84	90	147	221	153	24
21	14	.30	.10	12	20	20	82	91	160	209	136	24
22	14	.10	* .20	15	20	20	79	92	183	194	123	24
23	15	.10	.20	16	20	21	87	93	207	179	112	24
24	17	* .10	.10	24	20	20	99	93	220	168	105	24
25	18	.10	0	28	20	14	98	94	223	162	95	24
26	18	.10	0	27	20	19	96	93	215	160	87	24
27	17	0	b .10	26	23	26	95	93	200	156	81	23
28	17	0	b .10	25	23	24	95	94	187	151	75	24
29	18	0	0	25	-----	24	94	94	166	145	114	24
30	15	0	0	24	-----	23	94	96	166	145	114	24
31	8.6	-----	0	24	-----	22	-----	100	-----	156	133	-----
TOTAL	471.6	135.00	3.10	262.70	598	664	1,548	2,810	5,497	6,316	4,381	2,154
MEAN	15.2	4.50	.10	8.47	21.4	21.4	51.6	90.6	183	204	141	71.8
AC-FT	935	268	6.1	521	1,190	1,320	3,070	5,570	10,900	12,530	8,690	4,270

CALENDAR YEAR 1964	MAX	108	MIN	0	MEAN	42.3	AC-FT	30,727
WATER YEAR 1964-65	MAX	275	MIN	0	MEAN	68.1	AC-FT	49,270

\* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

## WALKER LAKE BASIN

10-2915. Buckeye Creek near Bridgeport, Calif.

Location.--Lat 38°14'20", long 119°19'30", in NE¼NE¼ sec.4, T.4 N., R.24 E., on right bank at Buckeye Hot Springs, 0.6 mile downstream from Eagle Creek, and 5½ miles southwest of Bridgeport.

Drainage area.--44.1 sq mi.

Records available.--November 1910 to September 1914 (fragmentary), October 1953 to September 1965.

Gage.--Digital water-stage recorder. Altitude of gage is 6,900 ft (from topographic map). November 1910 to September 1914, staff gage at site half a mile downstream at different datum. Oct. 1, 1953 to Apr. 13, 1965, analog water-stage recorder at present site and datum.

Average discharge.--13 years (1911-12, 1953-65), 55.5 cfs (40,180 acre-ft per year).

Extremes.--Maximum discharge during year, 700 cfs Dec. 23 (gage height, 4.00 ft); minimum, 7.0 cfs Nov. 27, Dec. 15, but may have been less during periods of ice effect.

1953-65: Maximum discharge, 947 cfs Feb. 1, 1963 (gage height, 4.41 ft) from rating curve extended above 360 cfs on basis of slope-area measurement at gage height 4.00 ft and logarithmic plotting; minimum, 3.3 cfs Dec. 12, 1959, result of freezeup. Flood of June 21, 1911, reached an observed stage of 4.8 ft (discharge not determined), site and datum then in use.

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

Rating tables, except periods of ice effect  
(gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 12

Apr. 13 to Sept. 30

1.4	9.0	2.5	134	1.7	22	2.6	137
1.7	27	3.0	255	1.8	30	3.0	237
2.0	55	3.5	445	2.1	60	3.5	435

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	12	15	18	b 32	24	24	29	155	237	244	149	54
2	12	15	18	b 30	24	24	29	132	180	241	141	52
3	12	15	b 16	b 35	24	24	28	109	157	262	130	54
4	12	15	b 15	b 40	24	24	28	94	196	272	119	56
5	12	15	17	b 45	24	24	29	88	258	262	112	54
6	12	14	15	47	24	24	29	82	276	283	109	56
7	12	14	16	b 42	24	24	28	79	272	276	107	80
8	12	15	16	b 30	b 23	23	27	73	295	251	104	70
9	12	14	16	b 28	b 21	23	26	71	228	234	* 100	65
10	12	13	16	b 35	* b 25	23	24	70	240	219	105	58
11	12	15	18	40	b 30	24	28	73	318	207	132	52
12	12	13	b 12	34	b 30	24	26	79	342	194	147	49
13	12	b 12	b 14	b 30	b 26	23	* 25	88	275	* 194	145	* 42
14	* 12	b 11	b 13	b 28	b 22	23	24	102	244	199	216	43
15	12	b 11	b 12	28	21	23	26	102	213	222	213	42
16	11	b 10	b 11	28	21	* 23	30	133	188	241	180	42
17	12	b 11	b 10	27	21	24	32	183	164	228	150	41
18	12	b 10	b 10	26	21	24	36	231	* 155	225	130	41
19	12	b 10	b 11	26	22	24	47	* 237	176	248	110	40
20	12	b 11	12	26	23	26	62	228	228	216	95	39
21	12	b 12	* 17	25	24	27	76	199	251	191	68	39
22	12	b 13	62	25	24	30	86	153	276	171	82	38
23	12	* b 14	432	26	23	33	75	133	269	162	77	37
24	12	b 15	283	b 21	24	32	82	123	251	159	73	36
25	12	21	144	b 19	24	30	94	116	231	159	70	35
26	12	17	87	b 20	25	29	104	126	219	159	66	35
27	12	b 17	65	29	27	29	119	149	219	147	64	35
28	13	18	53	26	25	29	137	185	228	137	62	35
29	19	18	69	23	-----	29	149	210	224	132	60	35
30	16	17	71	23	-----	30	157	231	248	159	62	34
31	15	-----	b 50	24	-----	30	-----	228	-----	162	58	-----
TOTAL	386	421	1,619	918	670	803	1,692	4,262	7,162	6,456	3,454	1,389
MEAN	12.5	14.0	52.2	29.6	23.9	25.9	56.4	137	239	208	111	46.3
AC-FT	766	835	3,210	1,820	1,330	1,590	3,360	8,450	14,210	12,810	6,850	2,760

CALENDAR YEAR 1964 MAX 432 MIN 10 MEAN 39.3 AC-FT 28,532  
WATER YEAR 1964-65 MAX 432 MIN 10 MEAN 80.1 AC-FT 57,771

Peak discharge (base, 100 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	1100	4.00	700	6-11	2400	3.42	399
5-1	0115	2.81	183	8-14	2145	3.43	404

\* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note.--No gage-height record Aug. 15 to Sept. 13.

10-2920. Swager Creek near Bridgeport, Calif.

Location.--Lat 38°17'00", long 119°17'50", in SE  $\frac{1}{4}$  NW  $\frac{1}{4}$  sec. 23, T.5 N., R.24 E., on right bank three-quarters of a mile downstream from Yaney Canyon and 4 miles northwest of Bridgeport.

Drainage area.--52.8 sq mi.

Records available.--June 1911 to September 1915 (fragmentary), October 1953 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 6,620 ft (from topographic map). June 1911 to September 1915 staff gages at approximately same site at different datums.

Average discharge.--13 years (1911-12, 1953-65), 10.5 cfs (7,600 acre-ft per year).

Extremes.--Maximum discharge during year, 92 cfs Dec. 23 (gage height, 3.52 ft); minimum daily, 1.7 cfs Oct. 1, 1911-15, 1953-65; Maximum discharge, 585 cfs Dec. 23, 1955 (gage height, 6.24 ft), from rating curve extended above 175 cfs on basis of slope-area measurement of peak flow; minimum observed, 0.5 cfs Apr. 20, 1912.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Diversions for irrigation of about 1,000 acres above station.

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

2.0	1.0	2.5	16
2.1	2.0	3.0	48
2.2	4.1	3.5	90
2.3	7.0		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.7	4.7	5.6	4.0	8.6	9.4	11	29	35	12	11	7.4
2	1.9	4.1	5.6	5.0	8.6	8.6	9.8	27	27	9.8	9.4	7.4
3	2.0	4.1	b 3.9	6.5	8.6	9.0		24	25	9.0	8.2	7.4
4	2.0	4.4	b 4.5	6.5	9.0	9.0	10	23	24	7.8	6.4	7.4
5	2.0	5.0	5.8	b* 6.4	9.4	9.8	9.8	21	23	7.0	6.7	7.4
6	1.9	5.0	5.0	* 8.2	8.6	9.8	9.8	21	22	8.6	6.7	9.0
7	1.9	5.0	5.3	b 6.0	6.7	9.0	9.8	20	23	10	6.7	14
8	1.9	5.0	5.8	b 4.0	6.7	8.6	9.8	21	26	9.8	6.7	11
9	1.9	5.6	5.8	b 5.0	7.0	9.8	9.4	21	25	7.8	* 7.0	9.4
10	1.9	4.4	5.6	b 5.0	b* 6.4	10	9.4	20	24	7.4	5.8	9.0
11	1.9	4.4	5.8	b 5.0	6.4	12	9.0	19	24	8.2	5.6	9.0
12	1.9	4.1	3.3	5.3	b 6.0	11	11	19	23	6.1	6.1	8.6
13	2.0	b 3.3	b 3.0	b 4.5	b 6.5	9.4	* 10	19	23	* 5.8	7.0	* 8.2
14	* 2.0	b 3.0	b 4.0	b 5.0	8.2	9.8	9.4	20	21	7.8	13	7.8
15	1.9	4.1	b 3.7	b 5.5	7.4	* 11	9.8	18	* 20	10	19	7.4
16	2.0	4.4	b 3.6	6.4	6.7	11	11	19	20	14	17	7.8
17	2.0	b 4.7	b 3.5	7.0	7.0	11	11	21	20	15	15	8.2
18	2.2	b 2.7	4.1	7.8	8.2	11	13	22	18	14	14	8.6
19	2.0	b 2.5	5.3	8.2	8.2	10	16	* 18	18	17	11	3.6
20	1.8	b 3.0	5.8	8.2	8.6	12	18	18	18	13	9.8	3.6
21	1.9	b 3.5	6.7	7.8	9.4	12	27	20	17	9.4	9.4	8.2
22	2.0	b 5.0	* 15	8.2	9.0	12	32	20	14	10	9.4	8.2
23	2.8	5.3	60	7.8	7.4	12	30	21	11	9.8	9.0	8.2
24	3.5	* 5.6	40	7.0	7.8	12	32	20	9.8	7.4	8.2	7.8
25	3.7	6.7	15	b 5.0	9.8	10	35	20	9.8	9.4	7.0	7.8
26	3.7	5.8	10	b 5.0	11	10	35	20	10	9.4	7.0	8.2
27	3.7	4.4	8.0	5.6	13	12	36	20	12	5.8	6.7	8.2
28	3.9	6.1	5.0	6.1	10	10	37	20	14	5.6	6.7	8.6
29	5.6	5.6	7.0	7.8	-----	10	35	20	15	6.1	7.0	8.6
30	4.7	5.3	7.0	8.2	-----	12	30	24	14	9.8	7.0	8.6
31	4.4	-----	6.0	8.6	-----	12	-----	26	-----	12	7.4	-----
Total	78.7	136.8	274.7	196.6	230.2	325.2	546.0	651	585.6	294.8	276.8	254.6
Mean	2.54	4.56	8.86	6.34	8.22	10.5	18.2	21.0	19.5	9.51	8.93	8.49
Ac-ft	156	271	545	390	457	645	1,080	1,290	1,160	585	549	505

Calendar year 1964: Max 60 Min 1.4 Mean 5.21 Ac-ft 3,780  
 Water year 1964-65: Max 60 Min 1.7 Mean 10.6 Ac-ft 7,630

Peak discharge (base, 25 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	unknown	3.52	92	7-19	1300	2.76	33
4-21	1930	2.98	46	8-15	1700	2.92	43
6-1	1800	3.11	54				

\* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note.--No gage-height record Dec. 23 to Jan. 4.

## WALKER LAKE BASIN

10-2923. Bridgeport Reservoir tributary near Bridgeport, Calif.

Location.--Lat 38°17'15", long 119°12'50", in SE<sup>1</sup><sub>4</sub>SE<sup>1</sup><sub>4</sub> sec.16, T.5 N., R.25 E., on left bank on upstream side of State Highway 22, half a mile upstream from Rock Springs Canyon, and 2.4 miles north of Bridgeport.

Drainage area.--0.79 sq mi.

Records available.--Water year 1963 (annual maximum), October 1963 to September 1965.

Gage.--Water-stage recorder with rain-gage attachment and crest-stage gage. Altitude of gage is 6,500 ft (from topographic map). Oct. 1, 1962 to Sept. 30, 1963, crest-stage gage at same site and datum.

Extremes.--Maximum discharge during year, about 0.2 cfs Aug. 1 (gage height, 3.59 ft); no flow most of the time.  
1962-65: Maximum discharge, 55.5 cfs Jan. 31, 1963 (gage height, 7.1 ft from flood marks) on basis of indirect measurement of peak flow; no flow most of the time.

Remarks.--Records poor.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Mar. 15 . . . . .	*0.1	Mar. 19 . . . . .	0.1	Mar. 23 . . . . .	0.1	Mar. 27 . . . . .	0.1
16 . . . . .	.1	20 . . . . .	.1	24 . . . . .	.1	28 . . . . .	.1
17 . . . . .	.1	21 . . . . .	.1	25 . . . . .	.1	29 . . . . .	.1
18 . . . . .	.1	22 . . . . .	.1	26 . . . . .	.1	30 . . . . .	.1

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
March 1965 . . . . .	1.6	0.1	0	0.05	3.2
Calendar year 1964 . . . . .	1.2	.1	0	-	2.4
Water year 1964-65 . . . . .	1.6	.1	0	-	3.2

\* Discharge measurement made on this day.

Note.--Flow occurred only on days listed above. Discharge measurement or observation of no flow generally made once a month.



10-2925, Bridgeport Reservoir near Bridgeport, Calif.

Location.--Lat 38°19'30", long 119°12'50", in SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.34, T.6 N., R.25 E., at Bridgeport Dam on East Walker River,  $4\frac{1}{2}$  miles north of Bridgeport.

Drainage area.--358 sq mi.

Records available.--March 1926 to September 1965. Monthly contents only for some periods, published in WSP 1314.

Gage.--Float gage read once daily. Datum of gage is at mean sea level.

Extremes.--Maximum contents during year, 42,310 acre-ft Aug. 2-5, 17, 18 (elevation, 6,459.95 ft); minimum 7,600 acre-ft Oct. 22-25, 1926-65; Maximum contents, 44,580 acre-ft June 12, 1938, June 25, 26, 1958 (elevation 6,460.7 ft); no contents during fall of 1929, 1930, 1960.

Remarks.--Reservoir is formed by earth-fill, rock-faced dam. Storage began Dec. 8, 1923. Dam completed in November 1924. Capacity, 42,460 acre-ft between elevations 6,415 (approximate elevation of bottom of reservoir) and 6,460 ft (crest of spillway). Elevation of sill of outlet gate, 6,412 ft. No dead storage. Figures given herein represent total contents. Water is used for irrigation by Walker River Irrigation District.

Cooperation.--Elevation and capacity table furnished by Walker River Irrigation District.

Capacity table (elevation, in feet, and contents, in acre-feet)

6,441	7,120	6,452	22,580
6,443	9,100	6,456	31,570
6,445	11,380	6,460	42,460
6,449	17,060		

Contents, in acre-feet, at 0800 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8,130	7,890	10,440	18,960	25,980	29,760	32,840	27,440	21,210	35,040	42,170	37,460
2	8,030	7,940	10,550	19,060	26,200	29,880	32,840	26,980	21,890	35,440	42,310	37,040
3	7,980	7,940	10,610	19,240	26,420	30,120	32,840	26,750	22,290	35,960	42,310	36,630
4	7,940	7,980	10,670	19,520	26,640	30,240	32,840	26,530	22,380	36,360	42,310	36,100
5	7,940	8,030	10,790	19,700	26,860	30,360	32,840	26,200	22,480	36,900	42,310	35,570
6	7,890	8,080	10,910	20,070	27,090	30,610	32,840	25,760	22,680	37,460	42,170	35,040
7	7,890	8,130	11,030	20,440	27,320	30,730	32,710	25,430	23,100	37,870	42,020	34,900
8	7,840	8,180	11,140	20,720	27,550	30,970	32,590	25,210	23,410	38,430	41,880	34,900
9	7,840	8,230	11,570	20,820	27,660	31,090	32,330	24,880	24,040	38,840	41,730	34,640
10	7,790	8,340	11,690	21,010	27,660	31,330	32,460	24,560	24,450	39,260	41,440	34,240
11	7,790	8,390	11,820	21,110	27,780	31,570	31,950	24,140	24,880	39,400	41,440	33,980
12	7,740	8,440	12,000	21,500	27,900	31,820	31,820	23,620	25,540	39,540	41,290	33,600
13	7,740	8,540	12,000	21,700	28,010	31,950	31,570	23,310	26,310	39,690	41,290	33,220
14	7,740	8,590	12,070	21,890	28,120	32,080	31,330	23,000	26,980	39,540	41,580	32,840
15	7,740	8,640	-	22,090	28,360	32,200	31,090	22,680	27,550	39,540	42,020	32,590
16	7,740	8,740	-	22,290	28,470	32,200	30,850	22,380	28,010	39,830	42,170	32,080
17	7,700	8,790	-	22,480	28,580	32,330	30,610	22,090	28,580	40,120	42,310	31,950
18	7,700	8,900	-	22,680	28,700	32,460	30,240	21,890	28,930	40,560	42,310	31,700
19	7,650	8,950	-	23,000	28,820	32,590	30,120	21,890	29,160	41,000	42,170	31,450
20	7,650	9,000	-	23,200	28,930	32,710	29,880	21,800	29,280	41,730	41,880	31,210
21	7,650	9,100	-	23,410	29,040	32,710	29,760	21,700	29,640	41,730	41,580	31,090
22	7,600	9,160	-	23,520	29,280	32,710	29,520	21,600	30,000	41,880	41,440	30,970
23	7,600	9,270	-	23,720	29,280	32,840	29,280	21,600	30,610	41,880	41,150	30,850
24	7,600	9,380	-	24,040	29,400	32,840	29,040	21,400	31,210	41,880	40,710	30,730
25	7,600	9,480	-	24,350	29,520	32,840	28,820	21,400	31,700	41,730	40,420	30,730
26	7,650	9,700	-	24,560	29,640	32,840	-	21,210	32,200	42,020	40,120	30,610
27	7,650	9,920	-	24,770	29,760	32,970	-	21,110	32,840	42,020	39,830	30,490
28	7,650	10,040	-	24,990	29,640	32,840	28,120	21,010	33,350	42,020	39,400	30,490
29	7,700	10,090	18,090	25,210	-----	32,840	27,900	21,010	33,860	41,880	38,840	30,360
30	7,740	10,260	18,440	25,540	-----	32,840	27,660	21,010	34,380	41,580	38,430	30,360
31	7,790	-----	18,690	25,760	-----	32,970	-----	21,110	-----	41,880	38,010	-----
(+)	6,441.70	6,444.03	6,449.95	6,453.50	6,455.22	6,456.53	6,454.37	6,451.23	6,457.12	6,459.79	6,458.43	6,455.49
(+)	-390	+2,470	+8,430	+7,070	+3,880	+3,330	-5,310	-6,550	+13,270	+7,530	-3,870	-7,650

Calendar year 1964 . . . . . + -16,350

Water year 1964-65 . . . . . + +22,180

† Elevation, in feet, at end of month.

+ Change in contents, in acre-feet.

## WALKER LAKE BASIN

10-2930, East Walker River near Bridgeport, Calif.

Location.--Lat 38°19'40", long 119°12'50", in SW¼NE¼ sec.34, T.6 N., R.25 E., on right bank 1,500 ft downstream from Bridgeport Reservoir, 5 miles north of Bridgeport, and 10 miles upstream from Sweetwater Creek.

Drainage area.--359 sq mi.

Records available.--July 1911 to September 1914 (gage heights only), October 1921 to September 1965.

Gage.--Digital water-stage recorder. Altitude of gage is 6,400 ft (from topographic map). Prior to Oct. 1, 1921, staff gage at site half a mile upstream at different datum. Oct. 1, 1921 to Feb. 21, 1924, analog water-stage recorder at site 1 mile downstream at different datum. Feb. 22, 1924, to Sept. 30, 1931 analog water-stage recorder and Oct. 1, 1931, to May 25, 1939, staff gage, at present site at datum 2.34 ft lower. May 26, 1939 to Apr. 13, 1965, analog water-stage recorder at present site and datum.

Average discharge.--42 years (1922-24, 1925-65), 130 cfs (94,120 acre-ft per year), unadjusted.

Extremes.--Maximum discharge during year, 535 cfs Aug. 17, 18 (gage height, 2.62 ft); minimum daily, 6.8 cfs Dec. 21, 22, Jan. 20-22. 1921-65: Maximum discharge, 1,390 cfs June 19, 1963 (gage height, 4.64 ft); maximum gage height, 4.95 ft Jan. 22, 1943 (top of surge); minimum daily discharge, 0.2 cfs Nov. 2-29, Dec. 1-22, 25-28, 1955, Jan. 17-25, 1956.

Remarks.--Records good. Diversions for irrigation of meadow pasture lands near Bridgeport. Flow regulated by Bridgeport Reservoir.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

0.1	5.0	1.0	99
.2	7.8	1.5	210
.3	12	2.0	348
.5	28	3.0	675
.7	51		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	62	23	14	8.4	7.8	95	113	277	266	223	328	390
2	54	23	14	7.8	7.8	72	113	277	268	236	328	390
3	54	23	14	7.4	7.8	72	113	277	269	262	318	396
4	54	22	11	7.4	7.8	72	113	279	269	261	299	413
5	54	22	8.8	7.4	7.8	72	113	278	269	261	299	412
6	50	22	8.8	7.4	7.8	72	117	278	269	262	299	411
7	45	22	8.8	7.4	7.8	72	151	278	269	274	282	411
8	45	22	8.8	7.8	7.8	71	160	280	269	300	272	410
9	45	23	8.8	8.1	20	70	178	279	271	300	273	410
10	45	24	8.8	8.1	32	70	178	279	271	313	* 259	393
11	45	23	8.4	8.1	* 32	70	178	278	271	323	224	366
12	45	18	8.8	7.4	34	70	178	278	272	323	208	366
13	45	11	8.8	7.4	34	70	* 178	280	274	323	208	* 351
14	45	13	8.4	7.4	34	70	178	279	257	* 323	292	325
15	* 45	13	8.4	7.4	34	* 70	178	279	219	324	428	325
16	45	13	8.1	7.4	34	70	180	277	221	324	459	325
17	45	14	7.8	7.4	34	70	180	280	222	325	500	315
18	45	14	7.4	7.4	34	70	180	281	* 223	325	533	270
19	45	14	7.4	7.1	34	68	180	* 281	223	354	502	223
20	45	14	7.4	6.8	34	68	189	281	223	433	440	193
21	45	14	6.8	6.8	34	68	213	282	224	427	394	193
22	45	14	* 6.8	6.8	43	74	212	282	225	397	394	193
23	36	14	* 7.1	8.1	64	103	212	282	200	369	369	175
24	24	* 14	7.1	8.8	64	113	212	275	160	326	322	140
25	24	14	7.8	8.4	64	113	228	262	160	335	322	140
26	24	14	8.1	8.1	62	113	246	262	160	327	322	140
27	24	14	8.4	8.1	201	113	245	263	161	328	332	140
28	24	14	8.1	8.1	270	113	263	263	182	328	348	142
29	24	14	7.8	8.1	-----	113	279	264	223	328	348	142
30	24	14	7.4	7.8	-----	113	279	265	223	328	348	142
31	24	-----	8.1	7.8	-----	113	-----	265	-----	328	360	-----
TOTAL	1,276	513	270.2	237.9	1,254.4	2,583	5,537	8,541	7,013	9,890	10,610	8,642
MEAN	41.2	17.1	8.72	7.67	44.8	83.3	185	276	234	319	342	288
AC-FT	2,530	1,020	536	472	2,490	5,120	10,980	16,940	13,910	19,620	21,040	17,140

CALENDAR YEAR 1964	MAX 288	MIN 6.8	MEAN 94.9	AC-FT 68,906
WATER YEAR 1964-65	MAX 533	MIN 6.8	MEAN 154	AC-FT 111,798

\* Discharge measurement made on this day.

10-2935. East Walker River above Strosnider ditch, near Mason, Nev.

Location--Lat 38°48'50", long 119°02'50", in NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.14, T.11 N., R.26 E., on right bank 0.8 mile upstream from head of Strosnider ditch, 12 miles southeast of Mason, and 13 $\frac{1}{2}$  miles southeast of Yerington.

Drainage area--1,100 sq mi, approximately.

Records available--January 1947 to September 1965.

Gage--Digital water-stage recorder. Datum of gage is 4,574.10 ft above mean sea level, datum of 1929. Prior to Oct. 24, 1957, at site 400 ft upstream at datum 0.56 ft higher. Prior to July 22, 1964, analog water-stage recorder.

Average discharge--18 years (1947-65), 129 cfs (93,390 acre-ft per year).

Extremes--Maximum discharge during year, 813 cfs July 31 (gage height, 4.64 ft); minimum daily, 18 cfs Jan. 8, 1947-65; Maximum discharge, 2,380 cfs Feb. 1, 1963 (gage height, 7.60 ft); minimum, 3.1 cfs Mar. 21, 1948; minimum daily, 3.4 cfs Mar. 21-24, 1948, Apr. 5, 1961.

Remarks--Records good except those for periods of ice effect, which are poor. Diversions for irrigation above station. Flow regulated by Bridgeport Reservoir.

Rating table, except periods of ice effect  
(gage height, in feet, and discharge, in cubic feet per second)  
(shifting-control method used Aug. 1 to Sept. 30)

0.9	19	1.5	85
1.0	26	2.0	166
1.1	35	3.0	376
1.2	46	4.0	635

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	61	30	31	b 20	26	229	90	235	244	189	412	341
2	58	30	b 29	b 21	26	117	91	237	280	183	354	362
3	51	* 31	b 26	b 29	25	85	94	253	276	204	322	366
4	50	32	b 24	b 30	25	79	98	252	267	242	301	376
5	49	31	b 27	31	24	75	99	245	266	248	290	395
6	47	28	b 28	27	24	73	99	249	267	248	280	407
7	44	27	27	29	26	71	* 129	260	264	246	267	452
8	42	27	* 26	b 18	* 26	* 70	160	262	265	255	246	444
9	* 39	31	26	b 24	24	69	164	259	270	263	244	434
10	37	37	26	b 25	25	67	178	261	268	257	252	427
11	35	42	25	b 26	27	66	190	261	256	271	238	402
12	33	42	b 22	29	39	66	184	263	252	* 273	200	376
13	32	b 37	b 20	29	44	66	182	259	253	280	191	374
14	32	b 31	b 22	26	47	65	* 171	258	254	282	265	345
15	31	b 26	22	25	46	63	160	260	241	297	405	331
16	29	b 26	23	25	45	61	155	262	* 221	318	523	329
17	29	b 25	b 21	27	44	61	153	261	229	331	567	322
18	29	b 24	b 22	26	44	61	154	257	237	359	615	318
19	30	b 21	b 24	26	45	60	159	254	229	359	593	294
20	32	b 20	26	29	42	59	165	252	222	398	534	269
21	29	b 28	26	29	41	58	169	252	220	437	459	246
22	29	34	24	28	41	59	188	269	220	432	417	236
23	30	35	25	27	42	60	188	269	210	398	414	220
24	31	35	30	29	51	72	191	265	165	364	376	220
25	30	35	32	33	59	81	187	* 257	157	343	327	200
26	28	35	32	30	64	82	197	240	150	359	314	187
27	26	33	30	29	66	84	212	237	148	329	309	179
28	25	31	b 25	28	163	85	220	236	148	325	307	174
29	27	32	b 21	27	-----	88	227	239	164	325	318	170
30	30	32	*b 21	27	-----	89	233	240	196	338	* 320	164
31	29	-----	b 24	27	-----	91	-----	251	-----	610	327	-----
TOTAL	1,104	928	787	836	1,201	2,412	4,887	7,855	6,059	9,763	11,017	9,370
MEAN	35.6	30.9	25.4	27.0	42.9	77.8	163	253	229	315	355	312
AC-FT	2,190	1,840	1,560	1,660	2,380	4,780	9,690	15,580	13,600	19,360	21,850	18,390

CALENDAR YEAR 1964 MAX 240 MIN 20 MEAN 83.9 AC-FT 60,890  
WATER YEAR 1964-65 MAX 615 MIN 18 MEAN 156 AC-FT 113,100

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

## WALKER LAKE BASIN

10-2955. Little Walker River near Bridgeport, Calif.

Location.--Lat 38°21'30", long 119°26'30", in NW $\frac{1}{4}$  sec.22, T.6 N., R.23 E., on right bank three-quarters of a mile north of Sonora Junction,  $\frac{1}{2}$  miles upstream from mouth, and 14 miles northwest of Bridgeport.

Drainage area.--63.0 sq mi.

Records available.--April to August 1910, October 1944 to September 1965. Prior to October 1958, published as East Fork West Walker River near Bridgeport.

Gage.--Digital water-stage recorder. Altitude of gage is 6,790 ft (from topographic map). April to August 1910, staff gage at site 1 mile upstream at different datum. Dec. 2, 1944, to July 25, 1964, analog water-stage recorder at present site and datum.

Average discharge.--21 years (1944-65) 48.5 cfs (35,110 acre-ft per year).

Extremes.--Maximum discharge during year, 380 cfs July 18 (gage height, 2.05 ft); minimum, 6.9 cfs Nov. 18.

1910, 1944-65: Maximum discharge, 1,510 cfs Jan. 31, 1963 (gage height, 3.22 ft) from rating curve extended above 350 cfs on basis of slope-area measurement at gage height 2.80 ft and logarithmic plotting; maximum gage height recorded, 3.63 ft Jan. 3, 1945, (backwater from ice); minimum discharge recorded, 4.9 cfs Nov. 17, 1948, but may have been less during periods of ice effect.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Small diversions above station.

Rating tables, except periods of ice effect.  
(gage height, in feet, discharge, in cubic feet per second)  
(shifting-control method used May 13-16)

Oct. 1 to May 16

May 17 to Sept. 30

0	6.0	0.9	75	0.5	24	1.6	200
.1	9.0	1.2	130	.8	51		
.3	18	1.5	210	1.2	104	2.0	355
.6	39						

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	12	13	14	b 25	22	23	29	118	160	197	136	48
2	12	12	13	b 30	b 20	b 20	27	103	150	197	125	47
3	11	13	b 11	37	b 20	b 20	27	86	120	217	114	50
4	11	13	b 11	b 39	b 21	b 20	28	75	120	223	106	49
5	11	13	b 13	* 39	23	20	29	69	140	220	98	47
6	11	12	b 12	42	23	20	28	66	170	233	94	49
7	11	12	b 12	b 35	b 22	20	28	59	180	233	90	68
8	11	12	14	b 20	b 20	22	26	57	190	213	85	60
9	11	12	14	b 30	b 25	21	25	55	170	200	* 84	55
10	11	10	14	b 30	b 18	21	25	52	160	183	87	51
11	11	b 10	14	b 30	* b 20	22	26	55	180	163	106	48
12	11	14	b 13	b 35	b 16	22	26	59	210	155	123	46
13	* 11	b 12	b 11	b 20	b 17	21	* 28	62	200	* 150	115	* 41
14	11	b 10	b 14	b 20	19	22	29	68	180	155	123	38
15	11	b 10	b 15	b 20	b 18	* 23	29	70	160	186	134	37
16	11	b 11	b 16	b 22	b 17	24	34	86	150	194	123	37
17	11	b 10	b 15	b 22	b 17	23	37	* 110	* 140	197	112	37
18	11	b 8.0	b 15	b 22	b 17	23	45	140	134	217	99	37
19	11	b 7.0	b 17	b 22	b 17	24	62	150	138	240	85	37
20	11	b 8.0	b 19	23	b 17	25	77	140	155	203	75	37
21	11	b 9.0	* 21	23	b 18	27	112	130	186	171	72	56
22	11	b 13	70	22	20	30	98	120	200	153	69	35
23	11	* b 13	210	b 20	b 18	32	85	110	191	145	67	35
24	11	b 14	172	b 22	b 18	29	88	90	191	138	64	34
25	11	b 15	90	b 18	b 19	28	92	80	197	136	61	33
26	11	15	62	b 20	21	27	96	80	171	138	60	32
27	11	18	44	b 20	23	27	100	84	168	130	57	32
28	12	15	b 40	b 20	b 21	27	111	100	180	121	54	32
29	18	14	b 35	b 20	-----	28	123	110	186	110	53	31
30	14	b 13	b 38	b 20	-----	32	125	140	197	145	52	31
31	13	-----	b 38	22	-----	33	-----	150	-----	163	51	-----
TOTAL	356	361.0	1,097	790	547	756	1,695	2,874	5,074	5,526	2,774	1,250
MEAN	11.5	12.0	35.4	25.5	19.5	24.4	56.5	92.7	169	178	89.5	41.7
AC-FT	706	716	2,180	1,570	1,080	1,500	3,360	5,700	10,060	10,960	5,500	2,480

CALENDAR YEAR 1964 MAX 210 MIN 7.0 MEAN 29.1 AC-FT 21,110  
WATER YEAR 1964-65 MAX 240 MIN 7.0 MEAN 63.3 AC-FT 45,610

Peak discharge (base, 200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	1230	1.66	240	7- 6	2130	1.82	230
about 6-12	unknown	2.04	* 314	7-18	2130	2.05	380

\* Discharge measurement made on this day.

† From peak-stage indicator.

b Stage-discharge relation affected by ice.

Note.--No gage-height record Dec. 21-23, May 17 to June 17.

10-2960. West Walker River below Little Walker River, near Coleville, Calif.

Location.--Lat 38°22'45", long 119°27'00", in NW¼SE¼ sec.9, T.6 N., R.23 E., on left bank 100 ft downstream from Little Walker River, 200 ft upstream from bridge on U.S. Highway 395, and 13 miles southeast of Coleville.

Drainage area.--180 sq mi.

Records available.--April 1938 to September 1965. Prior to October 1958, published as "below East Fork."

Gage.--Water-stage recorder. Altitude of gage is 6,650 ft (from topographic map). Prior to Oct. 1, 1939, at site 125 ft downstream at datum 1.00 ft higher.

Average discharge.--27 years, 252 cfs (182,400 acre-ft per year).

Extremes.--Maximum discharge during year, 2,950 cfs Dec. 23 (gage height, 5.76 ft); minimum, 11 cfs Nov. 27, result of freezeup.

1938-65: Maximum discharge, 6,220 cfs Nov. 20, 1950 (gage height, 8.10 ft), from rating curve extended above 1,900 cfs on basis of slope-area measurement of peak flow; minimum, 4.0 cfs Nov. 18, 1948, result of freezeup.

Maximum discharge recorded prior to 1938, 5,800 cfs Dec. 11, 1937, by slope-area measurement.

Remarks.--Records good except those for periods of ice effect, which are poor. Station is above diversions except for a few small ranch ditches. Flow very slightly regulated by Poor Lake Reservoir (capacity unknown) 7 miles upstream.

Rating table, except periods of ice effect  
(gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 23

Dec. 24 to Sept. 30

0.7	20	3.0	648	1.6	76	4.0	1,320
1.0	50	4.0	1,260	2.0	186	5.0	2,200
1.5	136	5.0	2,100	2.5	390	6.0	3,270
2.0	257	6.0	3,250	3.0	650		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*27	38	*48	346	109	*112	*157	960	*1,230	*1,110	585	*176
2	27	*33	49	405	*112	109	148	794	911	1,080	550	176
3	26	36	37	327	115	107	145	*614	854	1,200	480	180
4	26	39	b36	288	117	109	142	510	1,120	1,290	430	164
5	26	38	45	296	117	109	142	465	1,340	1,190	395	154
6	26	36	37	263	117	107	142	430	1,420	1,250	390	154
7	25	35	b41	b160	115	107	140	376	1,370	1,210	381	210
8	25	34	43	b185	115	109	140	350	1,410	1,060	368	200
9	25	34	44	b185	112	107	134	340	1,190	967	354	176
10	25	22	44	b180	122	112	134	336	1,450	872	381	154
11	26	25	49	b155	122	115	134	376	1,630	788	495	145
12	26	30	33	b130	115	115	134	430	1,700	704	608	137
13	26	b26	b30	b130	115	109	137	505	1,410	728	545	131
14	26	b26	b46	b130	104	109	134	575	1,110	794	555	122
15	26	b25	b44	b118	99	115	137	570	911	1,000	638	117
16	25	b25	b42	b110	99	117	148	782	788	1,090	520	117
17	26	b24	b38	104	99	122	154	1,140	680	1,090	475	117
18	26	b23	39	104	99	125	170	1,270	644	1,040	425	115
19	26	b23	42	112	99	128	236	1,260	800	1,030	350	112
20	26	b23	43	109	102	131	345	1,200	1,010	878	300	109
21	26	b26	74	109	104	140	435	1,010	1,180	746	267	107
22	26	45	222	112	102	154	485	764	1,250	638	248	104
23	26	b38	2,320	117	99	167	445	626	1,180	614	232	102
24	26	45	2,230	112	104	160	470	555	1,100	626	218	97
25	26	60	1,010	120	107	151	545	540	1,130	650	196	94
26	26	57	590	b128	109	148	596	632	911	626	183	92
27	26	46	395	b120	117	151	668	776	890	565	170	92
28	28	48	304	b120	115	145	788	974	967	510	160	90
29	44	48	b250	b118	-----	145	918	1,140	1,020	490	154	90
30	37	43	280	117	-----	154	974	1,240	1,090	*614	151	88
31	36	-----	*280	115	-----	164	-----	1,260	-----	674	157	-----
Total	844	1,051	8,785	5,125	3,061	3,953	9,477	22,800	33,696	27,124	11,361	3,922
Mean	27.2	35.0	283	165	109	128	316	735	1,123	875	366	131
Ac-ft	1,670	2,080	17,420	10,170	6,070	7,840	18,800	45,220	66,840	53,800	22,530	7,780

Calendar year 1964 : Max 2,320 Min 22 Mean 171 Ac-ft 124,200  
Water year 1964-65 : Max 2,320 Min 22 Mean 359 Ac-ft 260,200

Peak discharge (base, 1,120 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	1630	5.76	2,950	6-22	0230	4.10	1,400
5-18	0100	4.25	1,520	7-4	0100	4.18	1,460
5-30	2300	4.08	1,380	7-15	2200	4.07	1,380
6-11	2200	4.82	2,030				

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

## WALKER LAKE BASIN

10-2965. West Walker River near Coleville, Calif.

Location.--Lat 38°30'55", long 119°27'15", in NW 1/4 sec. 28, T.8 N., R.23 E., on left bank a quarter of a mile downstream from Rock Creek and 5 miles southeast of Coleville.

Drainage area.--271 sq mi.

Records available.--October 1902 to July 1908 (published as West Fork of Walker River near Coleville 1903, 1905-8 and as Walker River (West Fork) near Coleville 1904), March 1909 to September 1910, June 1915 to March 1938, May 1957 to September 1965. Monthly discharge only for some periods, published in WSP 1314.

Gage.--Digital water-stage recorder. Altitude of gage is 5,520 ft (from topographic map). Prior to July 31, 1908, staff gage at site half a mile upstream at different datum. Mar. 1, 1909, to Aug. 31, 1910, staff gage, and June 18, 1915, to Aug. 15, 1919, analog water-stage recorder near present site at different datums. Aug. 16, 1919, to Mar. 31, 1938, analog water-stage recorder at site 1,000 ft upstream at different datum. May 26, 1957, to July 25, 1964, analog water-stage recorder at present site and datum.

Average discharge.--36 years (1902-7, 1909-10, 1915-37, 1957-65), 269 cfs (194,700 acre-ft per year).

Extremes.--Maximum discharge during year, 2,710 cfs Dec. 23 (gage height, 4.43 ft); minimum, 22 cfs Dec. 13, but may have been less during periods of ice effect.

1915-38, 1957-65: Maximum discharge, 6,500 cfs Dec. 11, 1937, from slope-area measurement of peak flow; minimum, 5 cfs Dec. 3, 1924, Aug. 27, 1931.

Remarks.--Records good except those for periods of ice effect, which are poor. Station is above diversions except for a few small ranch ditches. Flow very slightly regulated by Poor Lake Reservoir (capacity unknown) 17 miles upstream.

Rating table, except periods of ice effect  
(gage height, in feet, and discharge, in cubic feet per second)

0.3	25	2.0	575
.6	67	2.5	910
1.0	155	3.0	1,270
1.5	330	4.0	2,220

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	33	48	* 64	b 180	b 120	* b 127	* 159	854	* 1,080	1,040	613	* 184
2	33	* 44	65	b 200	* b 110	b 120	151	679	806	1,010	579	183
3	32	46	55	211	b 110	b 120	148	523	708	1,120	509	186
4	32	48	b 50	186	b 115	b 120	144	449	938	1,230	452	174
5	32	48	b 52	* 194	135	123	147	410	1,160	1,150	410	163
6	33	47	52	193	137	122	146	380	1,250	1,200	400	162
7	33	46	57	b 130	b 120	120	144	343	1,210	1,210	395	211
8	32	45	55	b 150	b 105	116	142	319	1,320	1,050	376	209
9	33	47	57	b 150	b 110	116	137	308	1,080	964	359	189
10	32	39	57	b 150	b 100	117	136	303	1,280	884	372	167
11	35	39	62	b 150	b 105	120	135	328	1,470	793	475	153
12	35	46	47	158	b 100	121	139	357	1,620	708	596	140
13	* 34	41	b 42	b 110	b 105	115	140	405	1,400	* 703	564	143
14	35	b 40	b 48	b 110	117	112	140	484	1,120	753	534	133
15	35	b 40	b 47	b 120	b 105	116	141	470	920	898	661	128
16	34	b 43	b 45	b 120	b 100	118	149	629	797	982	533	127
17	34	b 40	b 45	b 120	b 102	122	159	* 922	671	985	474	127
18	35	b 38	b 47	b 120	b 103	123	169	1,130	630	1,010	435	126
19	35	b 35	51	b 120	b 105	125	218	1,100	732	1,040	366	123
20	35	b 37	56	130	b 110	126	330	1,070	934	966	319	123
21	35	b 40	73	b 120	b 112	137	395	910	1,130	825	288	119
22	35	b 45	188	b 120	125	151	456	683	1,230	685	266	116
23	35	b 45	* 2,040	b 120	b 110	166	420	561	1,170	646	250	112
24	35	b 50	1,970	b 125	b 105	170	432	492	1,090	651	237	110
25	35	71	985	b 110	b 110	159	491	458	1,130	672	220	107
26	36	74	573	b 120	b 113	157	517	513	915	636	206	105
27	36	58	393	b 120	142	161	555	641	879	586	193	103
28	36	67	305	b 115	b 120	152	637	822	945	518	165	102
29	51	65	b 250	b 120	-----	155	789	991	995	496	176	101
30	48	62	b 270	b 120	-----	159	854	1,070	1,030	* 567	172	99
31	46	-----	b 260	b 120	-----	165	-----	1,080	-----	662	179	-----
TOTAL	1,100	1,434	8,366	4,312	3,151	4,135	8,720	19,689	31,570	26,640	11,794	4,231
MEAN	35.5	47.8	270	139	113	133	291	635	1,052	859	380	141
AC-FT	2,180	2,840	16,590	8,550	6,250	8,200	17,300	39,050	62,620	52,840	23,390	8,390

CALENDAR YEAR 1964 MAX 2,040 MIN 32 MEAN 181 AC-FT 131,660  
WATER YEAR 1964-65 MAX 2,040 MIN 32 MEAN 343 AC-FT 248,200

Peak discharge (base, 1,120 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	1630	4.43	2,710	6-12	0230	3.70	1,870
5-18	0330	3.03	1,270				

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

10-2970. Topaz Reservoir near Topaz, Calif.

Location.--Lat 38°41'35", long 119°21'10", in NW 1/4 sec.33, T.10 N., R.22 E., at outlet works of Topaz Reservoir, 5½ miles north of Topaz.

Records available.--December 1921 to September 1931 (monthly contents only published in WSP 1734), October 1931 to September 1965.

Gage.--Float and staff gages read once daily. Datum of gage is at mean sea level (levels by Walker River Irrigation District).

Extremes.--Maximum contents observed during year, 59,830 acre-ft July 20 (elevation 5,005.17 ft); minimum observed, 6,520 acre-ft Oct. 28 (elevation, 4,976.49 ft).

1921-65: Maximum contents observed, 60,240 acre-ft June 30, 1941 (elevation 5,005.35 ft); no contents observed Oct. 31, 1924, Sept. 22, 24-30, Oct. 1-15, 1960.

Remarks.--Topaz Reservoir, formerly known as Alkali Lake, was formed by the diversion of water from West Walker River through a feeder canal and the construction of an outlet tunnel through a low saddle in rim of lake. Storage began about December 1921. Usable capacity, 59,440 acre-ft between elevations 4,972.3 ft (lowest practical elevation for diversion through tunnel, bottom of outlet tunnel at elevation 4,970 ft) and 5,005 ft (3 ft below top of levee). Capacity of reservoir increased from about 45,000 acre-ft to 59,440 acre-ft in October 1937 by an earth-fill, rock-faced levee at south end. Figures given herein represent usable contents. Water is used for irrigation in Walker River Irrigation District.

Cooperation.--Elevations furnished by Walker River Irrigation District.

Capacity table (elevation, in feet, and contents, in acre-feet)

4,976	5,743	4,990	28,970
4,977	7,320	4,995	38,100
4,980	12,130	5,000	48,350
4,985	20,390	5,006	61,750

Contents, in acre-feet, at about 0700 hours, water year October 1964 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8,240	6,560	9,680	26,190	38,500	45,110	49,740	47,450	42,120	58,320	58,870	51,660
2	8,130	6,630	9,810	26,570	38,840	45,340	49,720	47,680	42,980	58,570	58,870	51,110
3	8,050	6,660	9,950	27,090	39,110	45,570	49,640	47,790	43,620	58,840	58,800	50,180
4	7,990	6,700	10,100	27,580	39,310	45,780	49,590	47,490	43,970	59,120	58,640	49,480
5	7,940	6,750	10,240	27,990	39,810	46,010	49,570	46,960	44,680	59,320	58,460	48,710
6	7,890	6,830	10,370	28,530	40,100	46,220	49,550	46,160	45,680	59,370	58,270	47,980
7	7,850	6,890	10,520	29,180	40,550	46,410	49,380	45,200	46,750	59,530	58,070	47,390
8	7,800	6,970	10,640	29,500	40,670	46,650	49,250	44,200	47,620	59,440	57,790	47,130
9	7,730	7,050	10,790	29,950	40,910	46,860	49,080	43,100	48,520	59,300	57,610	46,810
10	7,640	7,180	10,950	30,410	41,110	47,070	48,820	42,040	49,030	59,260	57,340	46,540
11	7,610	7,310	11,100	30,840	41,290	47,280	48,560	41,110	49,590	59,320	56,930	46,220
12	7,540	7,420	11,270	31,260	41,490	47,490	48,390	40,340	50,390	59,350	56,870	45,930
13	7,480	7,510	11,350	31,690	41,700	47,680	48,260	39,630	51,150	59,160	56,820	45,640
14	7,430	7,590	11,450	32,050	41,940	47,920	48,130	39,030	51,630	58,980	56,840	45,300
15	7,370	7,670	11,560	32,410	42,120	48,130	47,940	38,720	51,720	58,840	56,960	44,930
16	7,290	7,770	11,730	32,730	42,330	48,320	47,680	38,450	51,790	58,980	57,230	44,410
17	7,230	7,880	11,840	33,050	42,530	48,520	47,540	38,430	51,810	59,440	57,270	43,780
18	7,160	8,000	11,970	33,380	42,710	48,690	47,340	38,900	51,700	59,720	57,180	43,290
19	7,080	8,120	12,150	33,710	42,920	48,820	47,180	39,650	51,630	59,810	57,090	42,860
20	7,000	8,200	12,330	34,030	43,120	48,950	46,940	40,360	51,720	59,830	56,980	42,470
21	6,940	8,290	12,500	34,360	43,330	49,100	46,900	40,930	52,140	59,780	56,870	42,200
22	6,860	8,400	12,680	34,860	43,540	49,250	46,980	41,230	52,950	59,760	56,730	42,020
23	6,780	8,550	13,790	35,150	43,740	49,420	47,110	41,210	54,000	59,720	56,590	41,840
24	6,700	8,690	17,080	35,750	43,930	49,570	47,150	41,050	55,000	59,510	56,370	41,610
25	6,660	8,830	19,970	36,140	44,140	49,660	47,070	40,670	55,850	59,320	56,030	41,410
26	6,610	8,980	21,610	36,440	44,360	49,720	47,010	40,260	56,620	59,160	55,540	41,210
27	6,560	9,100	22,800	36,820	44,570	49,740	46,960	39,950	56,980	59,100	54,950	41,050
28	6,520	9,230	23,750	37,170	44,880	49,790	46,880	39,890	57,340	58,960	54,420	40,850
29	6,530	9,360	24,380	37,490	-----	49,790	46,960	40,100	57,770	58,750	53,710	40,670
30	6,530	9,520	25,120	37,800	-----	49,790	47,180	40,590	58,020	58,570	53,090	40,530
31	6,550	-----	25,670	38,170	-----	49,760	-----	41,310	-----	58,640	52,400	-----
(†)	4,976.51	4,978.38	4,988.10	4,995.04	4,998.36	5,000.66	4,999.45	4,996.62	5,004.38	5,004.65	5,001.87	4,996.23
(‡)	-1,790	+2,970	+16,150	+12,500	+6,710	+4,880	-2,580	-5,870	+16,710	+620	-6,240	-11,870

Calendar year 1964 . . . . . ‡ -14,530

Water year 1964-65 . . . . . ‡ +32,190

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

## WALKER LAKE BASIN

10-2975. West Walker River at Hoye bridge, near Wellington, Nev.

Location.--Lat 38°43'40", long 119°25'40", in NE¼SE¼ sec.17, T.10 N., R.23 E., on left bank 20 ft upstream from Hoye Bridge, 2 miles upstream from head of Saroni Canal, and 4 miles southwest of Wellington.

Drainage area.--504 sq mi.

Records available.--April to August 1910 (Published as West Walker River near Wellington), July 1920 to September 1923, March 1924 to September 1932, October 1957 to September 1965. Monthly discharge only for some periods published in WSP 1314.

Gage.--Digital water-stage recorder. Altitude of gage is 4,980 ft (from topographic map). April to August 1910 staff gage at same site at different datum. July 1, 1920, to Sept. 30, 1923, analog water-stage recorder at site 3 miles downstream (1 mile downstream from Saroni Canal) at different datum and supplemental staff gage on Saroni Canal 1 mile downstream from head. Mar. 1, 1924, to Sept. 30, 1932, analog water-stage recorder at same site at different datum. Oct. 1, 1957, to Aug. 12, 1964, analog water-stage recorder at present site and datum.

Average discharge.--18 years (1920-23, 1925-32, 1957-65), 209 cfs (151,300 acre-ft per year). Unadjusted.

Extremes.--Maximum discharge during year, 1,360 cfs June 12 (gage height, 7.11 ft); minimum daily, 15 cfs Dec. 16, 17. 1910, 1920-23, 1924-32, 1957-65: Maximum discharge, 2,180 cfs June 6, 1922; minimum observed, 4.8 cfs Jan. 5, 1961.

Remarks.--Records good except those for periods of ice effect, which are fair. Flow regulated by off-channel storage in Topaz Reservoir since Jan. 30, 1922. Diversions for irrigation of about 10,500 acres above station. Records include releases from Topaz Reservoir and all return flow from Antelope Valley.

Rating table, except periods of ice effect  
(gage height, in feet, and discharge, in cubic feet per second)

1.2	15	4.0	457
1.5	42	5.0	685
2.0	105	6.0	951
3.0	270	7.0	1,320

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	82	39	18	b24	31	44	151	688	700	812	559	451
2	72	37	18	b35	31	44	151	666	663	809	548	447
3	61	*36	18	b40	31	44	150	649	623	866	498	443
4	56	32	18	*44	31	44	148	671	651	971	453	453
5	55	31	18	41	30	44	158	690	718	1,040	419	451
6	53	30	19	45	31	44	171	758	791	1,060	402	451
7	53	29	19	48	31	*44	178	815	823	1,140	381	*459
8	55	29	*18	b34	36	44	211	809	960	*1,040	364	441
9	60	28	18	b35	*51	43	221	802	989	883	355	385
10	59	28	18	b37	57	43	234	750	1,020	778	385	356
11	59	28	18	36	51	43	236	680	1,150	688	408	328
12	*55	27	17	36	52	44	236	654	1,280	663	411	301
13	48	26	b16	35	50	42	236	644	1,300	693	455	293
14	51	b25	b17	b32	50	42	234	642	1,120	698	479	293
15	52	b26	17	b29	51	44	*234	644	919	723	557	320
16	56	b23	b15	b30	50	64	234	642	*804	796	632	347
17	61	b22	b15	b30	49	69	236	663	765	908	618	340
18	60	b21	b17	31	48	78	236	735	705	1,040	568	317
19	60	b23	17	32	46	78	236	770	656	1,030	481	306
20	60	b24	16	33	46	78	250	783	675	995	396	268
21	62	21	16	33	45	77	290	758	678	839	360	223
22	65	22	17	32	44	79	319	745	666	693	340	203
23	61	22	127	32	44	105	340	718	675	623	322	202
24	59	22	625	41	44	112	381	*700	647	596	344	200
25	53	22	541	39	44	147	431	680	685	594	360	188
26	52	20	247	34	44	150	451	671	700	594	389	161
27	55	19	161	33	44	151	513	656	656	561	406	158
28	53	18	91	33	44	151	559	651	668	532	396	156
29	49	18	b60	32	-----	150	618	685	745	494	373	156
30	46	18	b45	32	-----	150	666	710	794	477	400	153
31	40	-----	b31	31	-----	150	-----	713	-----	564	445	-----
TOTAL	1,763	766	2,308	1,079	1,206	2,442	8,709	21,842	24,226	24,200	13,504	9,250
MEAN	56.9	25.5	74.5	34.8	43.1	78.8	290	705	808	781	436	308
AC-FT	3,500	1,520	4,580	2,140	2,390	4,840	17,270	43,320	48,050	48,000	26,780	18,350

CALENDAR YEAR 1964	MAX	625	MIN	15	MEAN	172	AC-FT	125,000
WATER YEAR 1964-65	MAX	1,300	MIN	15	MEAN	305	AC-FT	220,700

\* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.



## CARSON RIVER BASIN

10-3045. Silver Creek below Pennsylvania Creek, near Markleeville, Calif.

Location.--Lat 38°36'00", long 119°46'30", in SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.28, T.9 N., R.20 E., on left bank a quarter of a mile downstream from Pennsylvania Creek, 4 miles upstream from mouth, and 6 $\frac{1}{2}$  miles south of Markleeville.

Drainage area.--19.6 sq mi.

Records available.--October 1946 to September 1965. October and November 1946 monthly discharge only, published in WSP 1314.

Gage.--Digital water-stage recorder. Altitude of gage is 6,500 ft (from topographic map). Prior to Aug. 3, 1954, at site 180 ft upstream at datum 5.20 ft higher. Aug. 3, 1954, to Sept. 16, 1957, at site 30 ft upstream at datum 3.00 ft higher. Sept. 17, 1957, to Aug. 22, 1963, at present site at datum 2.00 ft higher. Prior to Mar. 11, 1965, analog water-stage recorder.

Average discharge.--19 years (1946-65), 42.1 cfs (30,480 acre-ft per year).

Extremes.--Maximum discharge during year, 1,600 cfs Dec. 23 (gage height, 6.63 ft), from rating curve extended above 550 cfs on basis of slope-area measurement of peak flow; minimum daily, 2.1 cfs Oct. 1.  
1946-65: Maximum discharge, 2,220 cfs Feb. 1, 1963 (gage height, 5.28 ft), from rating curve extended above 400 cfs on basis of slope-area measurement of peak flow; minimum, 0.6 cfs Dec. 5, 1959, Nov. 13, 1961.

Remarks.--Records good except those for periods of backwater from beaver dams, which are poor. Flow partly regulated by three small reservoirs (total capacity, about 1,700 acre-ft).

Rating table, Dec. 23 to Sept. 30  
(gage height, in feet, and discharge, in cubic feet per second)

1.0	7.1	2.5	94
1.1	9.5	3.0	148
1.2	12	4.0	310
1.5	25	5.0	560
2.0	53	6.0	1,100

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	2.1	3.7	8.0	4.9	21	18	22	205	202	120	35	23
2	2.3	3.9	8.5	4.1	* 21	16	21	151	168	* 125	30	24
3	2.9	3.9	8.0	3.8	21	* 16	21	117	* 213	133	26	23
4	2.6	* 3.7	* 7.0	35	22	16	21	105	264	126	24	21
5	* 2.9	3.7	8.0	33	22	16	22	97	258	120	* 22	21
6	2.9	3.7	7.5	31	21	16	* 21	87	266	121	21	24
7	2.9	3.5	7.5	30	20	15	20	* 76	282	111	19	46
8	2.9	3.6	8.0	28	19	14	20	70	241	101	17	* 33
9	2.9	3.6	8.5	27	18	15	19	72	246	93	16	28
10	2.9	3.5	9.0	26	17	15	18	83	284	64	16	22
11	2.6	3.5	10	26	17	16	18	100	314	77	26	13
12	2.9	3.7	8.0	25	16	16	18	117	292	73	100	11
13	2.9	3.5	7.0	* 25	16	15	17	142	225	70	42	11
14	2.9	3.2	7.0	* 25	16	15	17	138	183	72	69	10
15	2.9	3.0	6.0	24	15	16	18	156	152	72	57	9.5
16	3.2	2.8	5.5	24	15	17	20	204	129	71	54	9.5
17	3.2	2.7	5.0	24	15	17	22	248	111	70	48	9.3
18	2.9	2.5	6.0	23	15	17	27	248	106	65	40	9.5
19	3.2	2.7	7.0	24	16	18	77	266	126	61	33	9.3
20	2.9	3.0	9.0	22	17	20	127	251	161	55	29	9.3
21	3.2	3.1	26	21	18	24	187	207	177	49	28	9.5
22	3.2	3.5	* 327	20	18	28	160	152	165	46	24	15
23	3.2	3.5	286	22	17	29	128	127	151	43	21	31
24	3.2	3.7	* 660	22	17	27	134	116	158	42	19	31
25	3.4	7.0	209	20	18	25	142	121	148	45	17	30
26	3.4	6.5	135	20	19	24	152	144	124	41	16	30
27	3.2	6.0	102	19	19	23	165	174	118	35	17	30
28	3.4	6.5	83	19	18	22	216	211	116	33	26	29
29	4.5	7.0	73	19	-----	22	243	243	121	31	25	29
30	4.0	8.0	64	20	-----	23	257	257	126	44	25	28
31	3.7	-----	56	21	-----	23	-----	251	-----	38	25	-----
TOTAL	95.3	122.2	2,871.5	803	504	594	2,350	4,936	5,607	2,267	967	628.4
MEAN	3.07	4.07	92.6	25.9	18.0	19.2	78.3	159	190	73.1	31.2	20.9
AC-FT	189	242	5,700	1,590	1,000	1,180	4,660	9,790	11,280	4,500	1,920	1,250

CALENDAR YEAR 1964 MAX 986 MIN 2.1 MEAN 34.8 AC-FT 25,256  
WATER YEAR 1964-65 MAX 986 MIN 2.1 MEAN 59.8 AC-FT 43,301

Peak discharge (base, 190 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0600	6.63	1,600	6-11	1830	4.44	405
4-30	1730	4.26	352	8-14	1545	3.33	194
5-19	1830	4.16	442				

\* Discharge measurement made on this day.  
Note.--Stage-discharge relation affected by ice, beaver dams, or both, Oct. 1 to Dec. 22. No gage-height record Jan. 2-13.

10-3082. East Fork Carson River below Markleeville Creek, near Markleeville, Calif.

Location.--Lat 38°42'50", long 119°45'50", in SW 1/4 sec.15, T.10 N., R.20 E., on right bank 0.5 mile downstream from Markleeville Creek and 1 1/2 miles north-northeast of Markleeville.

Drainage area.--276 sq mi.

Records available.--August 1960 to September 1965.

Gage.--Digital water-stage recorder. Altitude of gage is 5,400 ft (from topographic map). Prior to Nov. 23, 1963 analog water-stage recorder.

Average discharge.--5 years, 325 cfs (235,300 acre-ft per year).

Extremes.--Maximum discharge during year, 9,100 cfs Dec. 23 (gage height, 7.20 ft from high-water mark in well); minimum, 29 cfs

Oct. 2, 3.

1960-65; Maximum discharge, 15,100 cfs Jan. 31, 1963 (gage height, 8.21 ft); minimum, 16 cfs Nov. 17, 1961.

Remarks.--Records good except those for periods of ice effect, which are fair. A few small diversion for irrigation above station. Flow slightly regulated by several small reservoirs (total capacity, about 5,000 acre-ft).

Rating tables, except periods of ice effect  
(gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 22

Dec. 23 to Sept. 30

0.5	29	1.5	330	0.5	129	3.0	2,020
.6	40	2.0	640	1.0	315	5.0	4,470
.8	76	2.5	1,100	1.5	610	6.0	6,100
1.1	160	3.0	1,690	2.0	1,010	7.0	8,500

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	38	56	89	480	* 302	254	284	1,730	1,510	920	365	197
2	37	50	95	486	297	234	275	1,340	1,280	* 912	340	215
3	32	52	70	456	293	* 234	284	1,080	1,350	992	311	215
4	37	* 55	* 66	415	302	234	284	965	* 1,550	1,000	284	200
5	* 37	53	66	409	335	223	279	920	1,760	956	* 266	197
6	37	50	72	468	320	223	* 266	848	1,780	974	250	204
7	37	49	72	393	279	219	258	752	1,710	938	242	376
8	37	49	72	340	262	208	254	688	1,710	840	234	* 284
9	37	60	83	371	258	215	250	666	1,510	784	219	230
10	37	51	80	355	223	219	246	704	1,710	720	212	200
11	37	45	112	345	234	223	242	760	1,870	666	266	183
12	37	70	85	* 335	215	223	246	840	1,920	617	582	176
13	38	48	70	* 302	223	215	258	* 1,000	1,600	589	404	166
14	38	47	100	293	223	208	297	1,060	1,350	582	516	156
15	38	48	78	284	212	215	306	1,140	1,160	610	688	150
16	38	45	70	279	204	226	340	1,330	1,030	652	568	153
17	38	48	58	270	204	230	340	1,650	896	638	474	150
18	38	44	68	262	208	226	382	1,730	832	652	404	150
19	38	41	81	275	215	234	617	1,840	888	610	335	144
20	38	45	101	279	226	242	1,000	1,780	1,060	540	297	141
21	38	50	335	270	242	266	1,400	1,540	1,140	504	270	141
22	38	60	1,560	266	250	306	1,290	1,180	1,150	462	254	138
23	38	62	* 6,460	360	230	330	1,100	1,020	1,100	432	238	162
24	38	78	* 5,350	426	223	320	1,110	956	1,060	426	219	173
25	38	104	1,990	306	238	293	1,180	938	1,060	450	208	179
26	39	128	1,270	297	254	293	1,240	1,050	929	415	208	179
27	38	90	1,000	284	320	302	1,320	1,170	888	376	197	176
28	39	89	792	266	270	279	1,570	1,320	904	345	197	176
29	55	88	712	262	-----	279	1,840	1,510	912	325	190	176
30	54	83	645	270	-----	284	1,920	1,620	938	393	183	173
31	50	-----	561	293	-----	293	-----	1,610	-----	432	200	-----
TOTAL	1,209	1,838	22,263	10,397	7,062	7,750	20,678	36,737	38,557	19,752	9,621	5,560
MEAN	39.0	61.3	718	335	252	250	689	1,185	1,285	637	310	185
AC-FT	2,400	3,650	44,160	20,620	14,010	15,370	41,010	72,870	76,480	39,180	19,080	11,030

CALENDAR YEAR 1964 MAX 6,460 MIN 32 MEAN 266 AC-FT 193,100  
WATER YEAR 1964-65 MAX 6,460 MIN 32 MEAN 497 AC-FT 359,900

Peak discharge (base, 1,300 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0715	7.20	9,100	5-19	2330	3.15	2,200
4-30	2100	3.30	2,310	6-11	2345	3.24	2,310

\* Discharge measurement made on this day.  
Note.--Stage-discharge relation affected by ice  
Nov. 14-23, Dec. 3-5, 17, 18.

10-3090. East Fork Carson River near Gardnerville, Nev.

Location,--Lat 38°50'50", long 119°42'10", in SW 1/4 sec. 2, T.11 N., R.20 E., on left bank 0.1 mile downstream from Horseshoe Bend, 2 miles east of Mud Lake Reservoir, 4 1/2 miles downstream from Bryant Creek, and 7 miles southeast of Gardnerville.

Drainage area,--341 sq mi.

Records available,--January 1890 to December 1893, October 1900 to December 1906 (gage heights only August to December 1904 and July to December 1905), January 1908 to December 1910, June to October 1917, December 1924 to September 1928, June to September 1929, October 1935 to December 1937, May 1939 to September 1965. Monthly discharge only for some periods published in WSP 1314.

Gage,--Water-stage recorder with thermograph attachment. Datum of gage is 4,985.11 ft above mean sea level (levels by Bureau of Reclamation). Prior to May 19, 1939, staff gages at several sites within 2 miles of present site at various datums.

Average discharge,--39 years (1890-93, 1900-1903, 1908-10, 1925-28, 1935-37, 1939-65), 387 cfs (280,200 acre-ft per year).

Extremes,--Maximum discharge during year, 8,230 cfs Dec. 23 (gage height, 8.13 ft); minimum, 43 cfs Oct. 8-10.

1890-93, 1900-1906, 1908-10, 1917, 1924-28, 1929, 1935-37, 1939-65: Maximum discharge 17,600 cfs Dec. 23, 1955 (gage height, 11.88 ft), from rating curve extended above 6,000 cfs on basis of slope-area measurements at gage heights 9.66 and 11.88 ft; minimum observed, 8 cfs Dec. 4-10, 19-23, 1904.

Remarks,--Records good except those for periods of ice effect, which are fair. Station is above all diversions in Carson Valley.

Diversions for irrigation above station. Flow slightly regulated by several small reservoirs (total capacity, about 5,000 acre-ft). Records of water temperature for the water year 1965 are published in Part 2 of this report.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	45	65	96	492	332	247	*270	1,820	1,570	951	375	190
2	45	67	102	480	332	*247	266	1,430	1,310	930	340	212
3	44	63	*94	460	332	258	278	1,140	*1,370	993	*315	226
4	44	63	85	425	*332	258	266	1,020	1,590	1,020	286	204
5	*45	*65	96	421	344	247	278	986	1,780	979	262	198
6	45	62	89	516	380	251	266	923	1,820	*979	251	201
7	44	60	85	440	353	247	254	*818	1,740	965	236	*362
8	43	60	87	384	332	233	251	744	1,740	874	229	319
9	43	67	92	393	319	236	247	718	1,520	804	222	251
10	43	76	96	380	298	240	244	744	1,700	738	212	222
11	44	58	112	*375	274	240	244	811	1,850	680	247	194
12	44	83	114	380	266	244	254	881	1,950	630	551	187
13	47	68	79	358	258	233	254	1,020	1,650	594	458	177
14	48	60	102	336	254	222	290	1,120	1,410	594	446	165
15	48	60	98	323	251	229	323	1,140	1,220	612	750	161
16	47	60	83	319	244	236	353	1,330	1,080	686	900	155
17	48	62	70	311	240	247	358	1,640	958	654	498	158
18	50	64	85	302	236	240	375	1,740	888	686	440	158
19	50	64	110	306	236	247	588	1,820	923	642	349	152
20	50	66	114	319	236	244	1,030	1,810	1,070	564	302	149
21	50	70	290	315	240	266	1,430	1,610	1,170	504	282	147
22	50	72	1,270	311	251	302	1,400	1,240	1,180	455	262	141
23	50	72	6,120	402	258	327	1,160	1,050	1,140	425	244	158
24	50	79	5,140	624	251	323	1,140	993	1,080	412	226	171
25	50	98	1,970	384	251	290	1,250	951	1,100	440	215	184
26	51	130	1,300	362	254	290	1,290	1,060	972	416	204	184
27	51	94	1,050	340	311	298	1,360	1,200	916	380	198	184
28	51	98	812	323	290	274	1,560	1,330	930	344	198	184
29	62	98	725	315	-----	274	1,870	1,530	937	327	194	181
30	68	92	648	311	-----	278	1,900	1,660	965	336	181	181
31	63	-----	570	315	-----	278	-----	1,650	-----	460	201	-----
Total	1,513	2,196	21,784	11,722	7,955	8,046	21,049	37,929	39,529	20,074	10,074	5,756
Mean	48.8	73.2	70.3	378	284	260	702	1,224	1,318	648	325	192
Ac-ft	3,000	4,360	43,210	23,250	15,780	15,960	41,750	75,230	78,400	39,820	19,980	11,420

Calendar year 1964 : Max 6,120 Min 43 Mean 267 Ac-ft 193,700  
 Water year 1964-65 : Max 6,120 Min 43 Mean 514 Ac-ft 372,200

Peak discharge (base, 1,300 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	1000	8.13	8,230	5-20	0100	4.06	2,150
4-21	2000	3.83	1,870	6-12	0200	4.16	2,240
4-30	2400	4.22	2,320				

\* Discharge measurement made on this day.  
 Note,--Stage-discharge relation affected by ice  
 Nov. 15-23, Dec. 17, 18.

10-3100. West Fork Carson River at Woodfords, Calif.

Location.--Lat 38°46'10", long 119°49'55", in NW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.34, T.11 N., R.19 E., on left bank 0.3 mile downstream from bridge on State Highways 88 and 89, 0.6 mile southwest of Woodfords, and 3-3/4 miles downstream from Willow Creek.

Drainage area.--65.6 sq mi.

Records available.--October 1900 to May 1907, 1910-11 (fragmentary), October 1938 to September 1965. January 1890 to March 1892, June 1907 to September 1920 (except portions of 1910-11) at site 0.7 mile downstream; records not equivalent, owing to diversions for irrigation. Monthly discharge only for some periods, published in WSP 1314.

Gage.--Water-stage recorder. Altitude of gage is 5,760 ft (from river-profile map). Prior to Oct. 1, 1938, staff gage at about the same site at different datum. Oct. 1, 1938, to Nov. 11, 1958, water-stage recorder at same site at datum 1.02 ft lower. Nov. 13, 1958, to Jan. 30, 1963, water-stage recorder at site 150 ft downstream at datum 3.06 ft lower.

Average discharge.--34 years (1900-1907, 1938-65), 115 cfs (83,260 acre-ft per year).

Extremes.--Maximum discharge during year, 3,100 cfs Dec. 23 (gage height, 6.70 ft), minimum daily, 11 cfs Oct. 1, 2.

1900-1907, 1910-11, 1938-65: Maximum discharge, 4,890 cfs Feb. 1, 1963 (gage height, 9.0 ft), on basis of slope-area measurement of peak flow; minimum (1900-1907, 1938-65), about 5 cfs Dec. 23, 1961.

Flood of Dec. 11, 1937, reached a stage of 8.0 ft (present datum), from floodmarks (discharge, 3,500 cfs by slope-area measurement).

Remarks.--Records good except those for periods of ice effect, which are poor. One small diversion above station for irrigation. Flow slightly regulated by several small reservoirs (total capacity, about 1,500 acre-ft).

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second) (shifting-control method used Feb. 12 to Apr. 18, Sept. 8-26)

0.9	10	2.5	144	5.0	1,300
1.1	21	3.0	249	6.0	2,260
1.4	41	3.5	428	7.0	3,500
2.0	86	4.0	660		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	17	26	b150	92	86	126	715	494	222	85	66
2	11	18	28	b140	*90	*84	122	544	*454	215	81	68
3	12	18	*25	134	90	90	120	424	480	233	*76	64
4	12	19	26	132	90	*94	117	403	525	238	69	61
5	*12	17	28	140	92	91	*122	391	539	225	65	49
6	13	*17	25	122	91	90	119	341	530	*225	75	48
7	14	16	25	115	85	90	114	*296	498	215	76	98
8	13	16	26	b110	84	89	112	279	467	192	59	*89
9	13	18	30	126	84	89	93	296	416	177	53	74
10	12	14	31	126	84	90	103	323	458	165	52	64
11	12	16	40	122	b80	90	102	360	489	152	62	57
12	12	14	27	116	81	91	101	403	494	141	266	54
13	12	14	27	110	81	84	98	458	416	136	135	54
14	12	18	28	107	81	87	97	471	360	136	147	54
15	13	19	25	105	79	90	101	484	319	144	196	58
16	12	20	23	104	79	93	114	562	305	146	216	*58
17	13	21	b17	102	76	95	115	640	267	163	165	58
18	13	b20	22	101	78	94	120	645	246	150	138	53
19	13	b20	20	101	80	98	205	645	246	140	103	52
20	13	b20	17	99	81	101	368	640	279	128	89	52
21	13	21	30	96	83	108	586	572	316	115	80	51
22	13	22	355	94	84	132	539	450	312	106	76	50
23	12	22	*1970	97	80	140	471	399	289	99	72	54
24	12	22	*2280	87	80	138	494	383	273	97	67	55
25	12	30	711	96	87	128	548	387	279	98	62	53
26	14	29	407	96	86	126	610	416	238	97	58	47
27	14	27	234	93	92	124	615	441	227	90	53	41
28	14	26	*184	91	87	115	660	484	238	83	49	41
29	19	26	b180	90	-----	119	742	534	227	80	48	38
30	18	26	b170	91	-----	121	930	548	230	83	48	35
31	16	-----	b160	92	-----	132	-----	530	-----	89	58	-----
Total	405	603	7,197	3,385	2,357	3,199	8,664	14,464	10,911	4,580	2,879	1,696
Mean	13.1	20.1	232	109	84.2	103	289	467	364	148	92.9	56.5
Ac-ft	803	1,200	14,280	6,710	4,680	6,350	17,180	28,690	21,640	9,080	5,710	3,360

Calendar year 1964 : Max 2,280 Min 10 Mean 79.7 Ac-ft 57,850  
 Water year 1964-65 : Max 2,280 Min 11 Mean 165 Ac-ft 119,700

Peak discharge (base, 500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0600	6.70	3,100	5-17	2200	4.15	742
4-21	unknown	unknown	about 820	5-29	2300	3.90	610
4-30	unknown	unknown	1,060				

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

10-3365, Pyramid Lake near Nixon, Nev.

Location.--Lat 39°50'30", long 119°28'00", in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.24, T.23 N., R.22 E., at southwest corner of concrete bridge No. 296 B, 150 ft southwest of milepost 297, 6 miles west of Nixon, and 11.5 miles south along Southern Pacific Railroad from station at Sutcliffe.

Records available.--1867-1925 (occasional elevations in some years), June 1926 to September 1965 (occasional elevations in each year).

Gage.--Bench mark N-21 of U. S. Coast and Geodetic Survey at elevation of 3,940.29 ft above mean sea level, datum of 1929, supplementary adjustment of 1956. Prior to January 1934, elevations were determined from bench mark No. 1 of General Land Office using elevation of 3,882.26 ft adjustment of 1912 (to convert these records to supplementary adjustment of 1956, add 0.81 ft). January 1934 to September 1955, elevations were determined from bench mark N-21 using elevation of 3,940.04 ft, datum of 1929 (to convert these records to supplementary adjustment of 1956, add 0.25 ft).

Extremes.--1926-65: Maximum elevation observed, 3,848.75 ft June 1926; minimum observed, 3,786.9 ft Nov. 28, 1964. The highest elevation observed since 1867 was 3,884.9 ft in 1871.

Elevation, in feet, water year October 1964 to September 1965

Oct. 7	..... 3,787.4	Apr. 6	..... 3,788.8
Nov. 5	..... 3,787.1	May 6	..... 3,789.3
Nov. 28	..... 3,786.9	June 3	..... 3,789.7
Dec. 29	..... 3,787.6	July 7	..... 3,789.7
Feb. 4	..... 3,788.3	Aug. 3	..... 3,789.5
Mar. 2	..... 3,788.6	Sept. 8	..... 3,789.0

10-3366. Upper Truckee River near Meyers, Calif.

Location.--Lat 38°50'35", long 120°01'25", in NE 1/4 sec. 31, T.12 N., R.18 E., 0.1 mile east of State Highway 89, 1.1 miles southwest of Meyers, and 2.5 miles upstream from Angora Creek.

Drainage area.--33.1 sq mi.

Records available.--October 1960 to September 1965.

Gage.--Digital water-stage recorder. Datum of gage is 6,325 ft (from topographic map). Prior to Feb. 25, 1964, analog water-stage recorder.

Average discharge.--5 years, 63.3 cfs (45,830 acre-ft per year).

Extremes.--Maximum discharge during year, 2,490 cfs Dec. 23 (gage height, 12.32 ft); minimum, 3.2 cfs Oct. 6.  
1960-65: Maximum discharge 2,550 cfs Feb. 1, 1963 (gage height 12.41 ft); minimum, 2.0 cfs Jan. 13, 1961

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. No regulation. Some small diversions for domestic use above station.

Rating tables, except periods of ice effect  
(Gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 23

Dec. 24 to Sept. 30

3.6	2.5	4.5	37	7.0	400	4.0	11	6.0	184
3.7	4.3	5.0	74	9.0	650	4.3	22	7.0	355
3.8	6.8	5.5	134	8.0	970	4.7	44	9.0	920
4.0	14	6.0	210	12	2,300	5.0	68	11	1,800

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	4.1	6.0	12	76	50	42	45	345	328	180	44	22
2	4.1	6.6	14	77	50	41	44	263	318	180	41	22
3	3.9	6.3	11	80	49	41	43	209	384	194	38	21
4	4.1	6.3	9.4	83	49	40	43	188	422	187	36	20
5	4.1	6.6	9.4	85	51	39	43	184	434	176	34	19
6	4.1	6.0	8.7	b 82	b 48	39	43	167	414	171	34	21
7	4.1	5.6	8.7	b 80	b 45	39	42	151	395	158	32	37
8	4.1	5.8	8.7	b 72	b 42	38	41	145	355	143	30	33
9	4.3	7.4	*	b 66	b 42	38	40	152	322	131	29	27
10	4.3	7.4	15	71	b 38	37	40	166	395	118	29	23
11	4.3	6.0	b 14	71	b 40	38	39	194	437	107	36	22
12	4.3	7.8	b 11	69	b 41	38	39	225	414	99	148	20
13	4.3	6.3	b 12	66	42	37	39	262	332	97	67	19
14	4.3	b 5.8	13	66	42	36	39	265	281	96	69	18
15	4.3	b 5.6	12	* 66	40	37	40	286	244	98	351	17
16	4.3	b 5.4	11	66	40	38	43	373	224	107	181	17
17	4.6	b 5.2	b 10	65	40	39	43	442	200	102	98	17
18	4.8	* 6.8	11	64	40	* 39	49	434	192	94	70	17
19	4.6	* 6.8	11	64	40	40	100	432	210	88	53	17
20	4.8	5.8	12	64	41	42	185	419	247	79	44	17
21	5.3	5.8	34	61	42	45	246	336	263	72	40	17
22	4.8	5.8	471	57	43	50	221	241	249	66	36	16
23	4.6	5.8	* 1,840	b 53	42	55	180	209	231	* 60	34	16
24	4.6	6.3	* 1,540	b 52	* 42	53	197	209	227	57	31	16
25	4.8	12	563	b 51	42	48	224	224	221	56	29	15
26	4.8	13	310	b 52	43	48	239	* 270	190	54	28	15
27	4.8	9.4	186	b 51	48	47	258	312	163	50	25	15
28	* 4.8	9.0	130	52	44	45	308	349	* 188	45	24	16
29	7.1	9.7	98	51	-----	45	* 377	382	188	43	24	15
30	6.6	9.4	86	50	-----	45	398	395	191	44	22	15
31	5.6	-----	83	50	-----	46	-----	377	-----	47	* 22	-----
TOTAL	143.6	211.7	5,569.9	2,013	1,216	1,305	3,688	8,606	8,679	3,199	1,779	582
MEAN	4.63	7.06	180	64.9	43.4	42.1	123	278	289	103	57.4	19.4
AC-FT	285	420	11,050	3,990	2,410	2,590	7,320	17,070	17,210	6,350	3,530	1,150

CALENDAR YEAR 1964 MAX 1,840 MIN 3.9 MEAN 52.5 AC-FT 38,150  
WATER YEAR 1964-65 MAX 1,840 MIN 3.9 MEAN 101 AC-FT 73,380

Peak discharge (base, 200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2- 1-63	0200	12.41	2,550	4-29-64	2100	5.93	204	5-17-65	2200	7.83	560
5- 8-63	1920	6.76	409	5-19-64	2200	7.13	429	6-11-65	2230	7.86	568
5-21-63	2110	7.87	947	6- 7-64	0030	6.23	246	7- 3-65	2330	6.31	230
6-17-63	2130	8.12	1,220	12-23-64	0430	12.32	2,490	8-15-65	1800	11.69	2,140
11-15-63	0130	7.25	457	4-30-65	2100	7.66	516				

\* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note.--No gage-height record Dec. 28 to Jan. 5. Peak discharge data not available prior to water year 1963.

10-3366.6, Blackwood Creek near Tahoe City, Calif.

Location.--Lat 39°06'27", long 120°09'37", in NE $\frac{1}{4}$  sec.36, T.15 N., R.16 E., on left bank just downstream from bridge on State Highway 89, 700 ft upstream from Lake Tahoe, and 4.6 miles south of Tahoe City.

Drainage area.--11.2 sq mi.

Records available.--October 1960 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 6,235 ft (from topographic map).

Average discharge.--5 years, 33.8 cfs (24,470 acre-ft per year).

Extremes.-- Maximum discharge during year, 2,100 cfs Dec. 22 or 24; from indirect measurement of peak flow; maximum gage height, 9.90 ft Dec. 22; minimum discharge 1.8 cfs Oct. 1, 2.  
1960-65: Maximum discharge, that of Dec. 22 or 24, 1964; minimum, 0.4 cfs Aug. 14, 1961.

Remarks.--Records good, except those for periods of no gage-height record or indefinite stage-discharge relationship, which are poor.  
No known diversion or regulation.

Rating tables, except periods of indefinite stage-discharge relationship  
(gage height, in feet, and discharge, in cubic feet per second)  
(shifting-control method used June 7 to July 21; Aug. 9 to Sept. 30)

Oct. 1 to Dec. 22

Dec. 23 to Sept. 30

4.1	1.6	4.6	19	3.1	3.1	4.3	57
4.2	3.1	4.8	37	3.3	5.7	4.6	96
4.3	5.4	5.0	63	3.5	9.6	5.0	180
4.4	8.8	5.2	97	3.7	16	5.5	370
				4.0	31		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	* 2.0	2.6	* 7.7	6.0	22	* 20	* 25	210	* 170	62	12	5.9
2	2.0	* 2.6	8.1	56	* 21	20	24	150	167	61	* 11	5.9
3	2.1	2.4	6.0	55	21	20	24	113	186	60	11	5.7
4	2.2	2.7	5.4	54	21	20	24	108	204	57	10	5.5
5	2.2	2.9	5.4	57	22	19	24	103	207	54	9.8	5.1
6	2.2	2.9	5.1	52	21	19	24	92	186	51	9.6	5.1
7	2.2	2.9	5.1	47	20	19	24	78	170	49	9.4	5.7
8	2.4	3.3	5.1	* 40	20	19	23	73	154	45	9.4	5.9
9	2.6	4.9	8.8	38	19	19	22	81	145	42	9.2	5.7
10	2.7	5.1	9.2	37	18	19	22	98	159	37	9.0	5.5
11	2.6	4.6	22	36	18	20	21	111	172	33	9.4	5.4
12	2.6	5.1	14	35	18	20	21	126	162	31	12	5.1
13	2.7	4.6	10	34	18	20	21	147	139	29	11	4.9
14	2.9	4.4	9.2	34	18	20	21	157	119	28	12	* 4.8
15	3.1	4.4	8.8	33	* 19	20	22	167	99	27	12	4.8
16	3.1	4.4	7.7	33	18	21	24	207	98	27	14	5.5
17	2.7	4.4	7.0	32	19	22	22	238	103	26	13	4.5
18	2.1	4.4	7.0	32	19	22	27	228	99	25	12	4.1
19	2.4	4.6	8.4	32	19	23	75	217	99	22	12	3.6
20	2.6	4.9	11	32	19	24	143	217	103	20	10	3.6
21	2.4	5.1	89	31	20	28	189	175	99	18	10	3.4
22	2.4	5.1	* 1,080	28	20	34	162	134	96	19	9.6	3.5
23	2.6	5.1	1,340	29	20	37	128	124	88	* 18	9.2	3.4
24	2.6	5.1	* 1,200	30	20	35	136	122	90	17	8.8	3.5
25	2.7	5.7	325	28	20	32	152	124	86	16	7.9	3.4
26	2.7	5.7	214	27	20	30	159	141	80	16	7.7	3.8
27	2.9	5.4	132	26	22	29	170	152	72	15	7.1	3.4
28	3.1	5.7	100	25	20	26	217	175	73	13	7.0	3.7
29	2.9	6.0	86	24	-----	26	281	192	65	12	6.8	3.6
30	2.7	6.0	74	23	-----	26	* 273	201	* 66	13	6.4	4.1
31	2.5	-----	65	22	-----	26	192	-----	-----	14	* 6.1	-----
Total	78.9	133.0	4,876.0	1,122	552	735	2,500	4,653	3,756	957	304.4	138.1
Mean	2.55	4.43	157	36.2	19.7	23.7	83.3	150	125	30.9	9.82	4.60
Ac-ft	156	264	9,670	2,230	1,090	1,460	4,960	9,230	7,450	1,900	604	274

Calendar year 1964: Max 1,340 Min 1.2 Mean 38.5 Ac-ft 27,930

Water year 1964-65: Max 1,340 Min 2.0 Mean 54.3 Ac-ft 39,290

Peak discharge (base, 200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
5-10-61	unknown	5.98	200	11-15-63	0100	4.27	322
4-15-62	1800	6.02	211	5-19-64	1830	4.04	248
5-8-62	1800	6.13	238	12-22 or	-----	-----	-----
10-13-62	2230	6.45	366	24-64	--	Indef.	2,100
1-31-63	1600	8.90	2,000	4-29-65	1900	5.50	370
				5-17-65	2030	5.39	321

\* Discharge measurement made on this day.

Note.--No gage-height record Oct. 29 to Nov. 1, Jan. 4 to Feb. 16, July 22 to Aug. 8. Stage-discharge relation indefinite Dec. 22-24.

10-3367.8. Trout Creek near Tahoe Valley, Calif.

Location--Lat 38°55'12", long 119°58'17", in SE $\frac{1}{4}$  sec.3, T.12 N., R.18 E., on left bank 15 ft downstream from Martin Ave. bridge, 500 ft upstream from Heavenly Valley Creek, and 1.8 miles east of Tahoe Valley.

Drainage area--36.7 sq mi.

Records available--October 1960 to September 1965.

Gage--Digital water-stage recorder. Altitude of gage is 6,250 ft (from topographic map). Prior to Feb. 24, 1965 analog water-stage recorder.

Average discharge--5 years, 31.5 cfs (22,810 acre-ft per year).

Extremes--Maximum discharge during year, 411 cfs Dec. 24 (gage-height, 10.51 ft); minimum, 6.7 cfs Oct. 4.

1960-65: Maximum discharge, 535 cfs Feb. 1, 1963 (gage-height, 11.14 ft) from rating curve extended above 110 cfs on basis of computation of peak flow (weir formula) and logarithmic projection; minimum, 2.6 cfs Sept. 11, 1961.

Remarks--Records good except those for periods of ice effect, no gage-height record, and those above 150 cfs, which are fair. Minor diversion for local water supply.

Rating tables, except periods of ice effect  
(gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 22

Dec. 23 to Sept. 30

5.8	6.7	7.0	57	6.1	16	8.0	145
6.0	12	8.0	115	6.5	35	10	367
6.5	32	9.0	206	7.0	64		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	8.3	13	17	b 60	35	34	39	133	152	98	57	37
2	8.0	14	b 14	b 60	34	b 32	37	110	149	97	54	37
3	8.0	14	b 13	b 66	34	b 32	37	95	159	98	52	36
4	7.7	14	b 12	b 72	34	33	36	93	171	98	51	35
5	9.3	13	b 13	77	36	32	37	94	181	98	46	34
6	9.3	13	b 14	57	36	32	36	92	188	98	47	35
7	9.0	13	15	b 50	37	31	35	84	190	96	47	52
8	9.0	13	15	b 45	39	32	35	81	191	94	46	43
9	9.0	13	* 15	b 40	32	33	35	81	178	89	44	39
10	9.0	14	15	b 45	b 30	32	34	82	185	86	44	36
11	9.3	24	22	47	b 27	33	33	86	191	82	48	34
12	9.3	25	b 15	45	b 27	32	34	90	193	79	76	33
13	9.6	b 23	b 13	b 39	b 27	31	35	95	135	78	56	33
14	9.6	b 20	b 14	b 38	b 29	31	35	96	175	76	57	32
15	9.6	b 18	16	*b 38	b 30	33	36	97	165	77	73	32
16	9.6	b 18	26	b 38	b 31	34	39	109	157	79	64	32
17	10	b 16	b 16	38	31	33	39	121	143	82	57	32
18	10	*b 14	b 13	38	30	*33	41	125	132	78	53	32
19	10	b 14	16	38	30	33	56	133	126	73	50	32
20	11	b 14	17	38	30	34	76	136	125	69	47	32
21	13	b 14	32	37	30	36	90	130	127	66	46	32
22	12	b 14	*133	36	35	39	80	116	126	64	45	31
23	11	b 14	331	40	35	41	73	107	125	*64	44	31
24	11	14	347	b 37	*35	39	78	104	119	64	42	31
25	12	18	201	b 32	32	36	83	106	119	64	40	31
26	12	b 17	156	b 33	32	37	87	*117	112	63	40	31
27	12	b 14	100	b 35	37	37	94	124	106	60	38	30
28	* 12	15	80	b 34	36	37	*106	128	*107	59	38	32
29	15	15	b 74	36	-----	37	125	141	106	57	38	30
30	13	15	b 74	36	-----	38	137	151	103	59	38	30
31	12	-----	b 70	36	-----	38	-----	152	-----	60	* 38	-----
TOTAL	319.6	470	1,909	1,361	911	1,065	1,738	3,409	4,486	2,405	1,518	1,017
MEAN	10.3	15.7	61.6	43.9	32.5	34.4	57.9	110	150	77.6	49.0	33.9
AC-FT	634	932	3,790	2,700	1,810	2,110	3,450	6,760	8,900	4,770	3,010	2,020

CALENDAR YEAR 1964 MAX 347 MIN 7.7 MEAN 24.5 AC-FT 17,780  
WATER YEAR 1964-65 MAX 347 MIN 7.7 MEAN 56.5 AC-FT 40,890

Peak discharge (base, 100 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1960-61		(No peak above base)		6-18-63	0040	8.94	204
1961-62		(No peak above base)		12-24-64	0800	10.51	411
2-1-63	0040	11.14	535	4-30-65	2400	8.23	168
5-8-63	2210	8.18	126	6-12-65	0300	8.59	206

\* Discharge measurement made on this day.  
b Stage-discharge relation affected by ice.  
Note.--No gage-height record Oct. 15-27, Feb. 22, 23.



10-3370. Lake Tahoe at Tahoe City, Calif.

Location.--Lat 39°10'04", long 120°08'23", in NE $\frac{1}{4}$  sec.7, T.15 N., R.17 E., at Tahoe City, on pier 1,000 ft east of dam at lake outlet.

Drainage area.--506 sq mi at lake outlet.

Records available.--April 1900 to September 1965. End of month elevations only for October 1943 to September 1957, published in WSP 1734. Prior to October 1961, published as "at Tahoe".

Gage.--Water-stage recorder. Datum of gage is 6,220.00 ft above mean sea level, datum of Bureau of Reclamation (6,218.86 ft, datum of 1929, supplementary adjustment of 1959). Prior to Oct. 1, 1957, staff gages at several sites near outlet of lake at same datum. Oct. 1, 1957, to May 8, 1958, water-stage recorder on left wingwall of dam at outlet of lake at same datum.

Extremes.--Maximum elevation during year, 6,228.87 ft Aug. 17; minimum, 6,224.74 ft Dec. 18.  
1900-65: Maximum elevation, 6,231.26 ft July 14, 15, 17, 18, 1907; minimum, 6,221.74 ft Dec. 26, 1934.

Remarks.--Lake levels regulated by a 17-gate concrete dam at outlet of lake; storage began about 1874. Figures given herein represent usable contents. Usable capacity, 744,600 acre-ft between elevations 6,223 ft (natural rim of lake) and 6,229.1 ft (maximum permissible elevation by Federal Court decree). Water is used for domestic and recreational purposes in Lake Tahoe area and for irrigation and power in downstream areas. Lake elevations are referred to Bureau of Reclamation datum because that datum is used as the official reference point by all local, state, and federal agencies. One intermittent transmountain diversion from Echo Lake to South Fork American River for power and irrigation.

Capacity table (elevation, in feet, and contents, in acre-feet)

6,224	121,400
6,225	243,000
6,227	486,800
6,229	732,300

Elevation, in feet, at 2400 hours water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.29	4.97	4.82	6.77	7.24	7.04	7.13	7.56	8.15	8.65	8.68	8.70
2	5.27	4.93	4.84	6.80	7.24	7.02	7.14	7.59	8.17	8.65	8.66	8.70
3	5.27	4.95	4.82	6.82	7.23	7.02	7.14	7.60	8.19	8.66	8.66	8.69
4	5.26	4.93	4.82	6.84	7.22	7.02	7.14	7.61	8.21	8.68	8.67	8.67
5	5.25	4.93	4.81	6.90	7.21	7.02	7.14	7.61	8.24	8.69	8.66	8.66
6	5.25	4.91	4.79	7.00	7.20	7.02	7.13	7.63	8.27	8.69	8.66	8.67
7	5.21	4.88	4.79	7.00	7.17	7.02	7.13	7.64	8.29	8.70	8.66	8.71
8	5.22	4.87	4.79	7.03	7.15	7.02	7.13	7.65	8.31	8.69	8.65	8.69
9	5.20	4.88	4.78	7.05	7.12	7.02	7.16	7.66	8.34	8.67	8.63	8.69
10	5.20	4.95	4.78	7.05	7.10	7.02	7.17	7.67	8.36	8.66	8.66	8.67
11	5.21	4.95	4.82	7.06	7.06	7.02	7.19	7.69	8.37	8.66	8.68	8.65
12	5.17	5.00	4.82	7.05	7.06	7.03	7.21	7.70	8.38	8.65	8.76	8.65
13	5.17	4.99	4.81	7.05	7.05	7.03	7.21	7.72	8.40	8.66	8.74	8.64
14	5.15	4.99	4.79	7.06	7.06	7.03	7.21	7.74	8.41	8.66	8.81	8.63
15	5.13	5.00	4.80	7.06	7.02	7.03	7.22	7.76	8.46	8.69	8.82	8.62
16	5.13	4.92	4.79	7.06	7.00	7.03	7.22	7.78	8.46	8.71	8.84	8.66
17	5.11	4.97	4.78	7.07	7.00	7.02	7.22	7.81	8.48	8.71	8.87	8.57
18	5.08	4.87	4.75	7.07	7.00	7.02	7.24	7.85	8.50	8.72	8.86	8.54
19	5.08	4.86	4.82	7.11	7.00	7.03	7.25	7.86	8.51	8.70	8.84	8.49
20	5.07	4.86	4.87	7.12	7.00	7.03	7.29	7.87	8.52	8.69	8.83	8.50
21	5.06	4.84	5.01	7.12	7.01	7.04	7.30	7.92	8.55	8.69	8.80	8.49
22	5.04	4.84	5.44	7.12	7.00	7.04	7.35	7.94	8.56	8.68	8.81	8.48
23	5.04	4.83	5.89	7.21	6.99	7.04	7.36	7.94	8.57	8.68	8.79	8.48
24	5.02	4.83	6.19	7.23	7.00	7.05	7.39	7.96	8.57	8.69	8.77	8.47
25	4.99	4.81	6.29	7.23	7.00	7.04	7.41	7.97	8.57	8.71	8.77	8.46
26	4.97	4.82	6.40	7.23	6.95	7.05	7.44	7.99	8.58	8.68	8.74	8.42
27	4.97	4.83	6.55	7.23	7.03	7.11	7.46	8.02	8.60	8.68	8.74	8.42
28	4.95	4.82	6.61	7.24	7.04	7.12	7.48	8.04	8.60	8.67	8.73	8.40
29	4.98	4.82	6.65	7.24	-----	7.12	7.52	8.07	8.62	8.68	8.74	8.40
30	4.95	4.80	6.74	7.24	-----	7.13	7.56	8.09	8.62	8.68	8.73	8.37
31	4.93	-----	6.73	7.24	-----	7.14	-----	8.10	-----	8.69	8.71	-----
(+)	234,500	218,700	453,900	516,200	491,700	503,900	555,400	621,600	685,600	694,200	696,600	654,800
(+)	-43,800	-15,800	+235,200	+62,300	-24,500	+12,200	+51,500	+66,200	+64,000	+8,600	+2,400	-41,800

Calendar year 1964 .....† +76,900

Water year 1964-65 .....† +376,500

† Contents, in acre-feet, at end of month.

‡ Change in contents, in acre-feet.

Note.--Add 6,220 ft to obtain elevation above Bureau of Reclamation datum.

## PYRAMID AND WINNEMUCCA LAKES BASIN

10-3375. Truckee River at Tahoe City, Calif.

Location.--Lat 39°10'00", long 120°08'40", in NE  $\frac{1}{4}$  NW  $\frac{1}{4}$  sec. 7, T.15 N., R.17 E., at Tahoe City, on left bank 510 ft downstream from dam at outlet of Lake Tahoe.

Drainage area.--507 sq mi.

Records available.--July 1895 to February 1896, March 1900 to September 1965. Monthly discharge only for some periods, published in WSP 1314 and 1734. Prior to October 1961, published as "at Tahoe."

Gage.--Water-stage recorder. Datum of gage is 6,216.75 ft above mean sea level, datum of 1929. Prior to Nov. 12, 1912, staff gage at site 370 ft upstream at different datum. Nov. 12, 1912, to Sept. 30, 1937, staff gage and Oct. 1, 1937, to Aug. 21, 1957, water-stage recorder, at datum 2.26 ft higher and Aug. 22, 1957, to July 10, 1960, at datum 2.42 ft higher; all at site 270 ft upstream.

Average discharge.--65 years (1900-1965), 236 cfs (170,900 acre-ft per year), unadjusted.

Extremes.--Maximum discharge during year, 1,110 cfs Feb. 5 (gage height, 6.65 ft); minimum, 21 cfs Jan. 14.

1895-96, 1900-1965: Maximum discharge, 1,870 cfs Apr. 5, 6, 1958 (gage height, 7.30 ft, site and datum then in use); maximum gage height, 7.34 ft Apr. 5, 1958, site and datum then in use (backwater from snow in channel); no flow for parts of many years.

Remarks.--Records good. Flow regulated by Lake Tahoe (operating capacity, 744,600 acre-ft).

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(shifting-control method used Jan. 15-31, Apr. 26 to May 15, July 17 to Sept. 30)

Oct. 1 to Jan. 31

Feb. 1 to Sept. 30

2.0	18	4.0	225	2.0	27	5.0	510
2.1	23	5.0	440	2.5	63	6.0	850
2.5	48	5.1	470	3.0	113	7.0	1,280
3.0	92			4.0	270		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	* 183	151	* 142	50	468	* 52	* 50	42	* 57	* 51	51	67
2	183	* 151	142	51	* 589	52	51	40	58	52	* 49	67
3	183	151	142	51	* 751	52	50	36	59	51	60	68
4	183	150	141	50	744	52	51	34	59	51	71	68
5	183	150	141	42	835	52	51	48	58	51	71	68
6	183	133	139	40	1,030	52	51	48	58	51	71	69
7	182	106	138	42	1,030	52	51	48	56	51	71	69
8	164	112	139	38	* 1,030	52	50	55	52	50	70	68
9	152	112	141	38	1,030	52	49	57	52	50	70	68
10	152	112	141	37	1,030	51	48	54	52	50	70	68
11	151	112	103	35	1,040	51	48	55	49	50	70	67
12	150	112	72	32	* 746	50	49	56	47	50	71	67
13	150	112	79	26	519	50	49	56	47	57	68	67
14	150	111	* 83	* 21	516	49	* 49	56	47	60	68	67
15	* 150	111	83	77	* 619	* 50	50	56	47	59	69	67
16	148	76	82	88	986	51	51	56	47	58	69	66
17	148	* 36	82	88	710	51	49	56	* 47	58	134	66
18	146	85	81	94	196	51	48	56	52	58	221	66
19	146	122	88	104	57	51	52	57	52	58	221	66
20	144	130	73	104	57	52	54	* 58	52	58	121	66
21	148	132	55	104	57	52	54	54	52	55	71	65
22	154	136	97	104	57	52	52	52	52	53	71	65
23	198	137	116	106	55	53	52	55	52	52	71	65
24	237	137	92	106	* 55	52	43	56	52	52	72	65
25	242	138	55	226	55	51	40	55	52	51	72	65
26	238	139	47	304	55	49	43	56	52	55	72	65
27	234	141	53	304	56	49	43	56	52	56	72	64
28	234	141	58	304	55	49	42	56	52	55	72	63
29	233	142	58	356	-----	49	42	56	52	54	70	61
30	188	142	54	452	-----	50	* 42	57	53	55	69	65
31	152	-----	* 57	452	-----	50	-----	58	-----	55	* 67	-----
Total	5,489	3,720	2,974	3,926	14,427	1,581	1,454	1,635	1,568	1,667	2,545	1,988
Mean	177	124	95.9	127	515	51.0	48.5	52.7	52.3	53.8	82.1	66.3
Ac-ft	10,890	7,380	5,900	7,790	28,620	3,140	2,880	3,240	3,110	3,310	5,050	3,940

Calendar year 1964: Max 457 Min 36 Mean 138 Ac-ft 100,500  
Water year 1964-65: Max 1,040 Min 21 Mean 118 Ac-ft 85,250

\* Discharge measurement made on this day.

10-3385. Donner Creek at Donner Lake, near Truckee, Calif.

Location.--Lat 39°19'25", long 120°14'00", in SW 1/4 sec.17, T.17 N., R.16 E., on left bank 10 ft downstream from bridge on Donner Memorial State Park road, 0.2 mile downstream from Donner Lake outlet, 0.7 mile upstream from Cold Creek, and 2½ miles west of Truckee.

Drainage area.--14.5 sq mi.

Records available.--November 1909 to August 1910, January 1929 to October 1935, January 1936 to March 1938, July to October 1938, January 1939 to February 1943, June 1943 to December 1953, May 1955 to December 1957, October 1958 to September 1965. Monthly discharge only prior to October 1958, published in WSP 1314 and 1734.

Gage.--Water-stage recorder. Altitude of gage is 5,930 ft (from topographic map). Nov. 1, 1909, to Aug. 31, 1910, staff gage at different datum. January 1929 to December 1957, water-stage recorder at same site at unknown datum.

Average discharge.--28 years, (1929-35, 1936-37, 1939-42, 1943-52, 1955-57, 1958-65), 31.1 cfs (22,520 acre-ft per year), unadjusted.

Extremes.--Maximum discharge during year, 695 cfs Dec. 25 (gage height, 4.55 ft); no flow Oct. 23-26.

1909-10, 1929-53, 1955-57, 1958-65: Maximum daily discharge, 700 cfs (estimated) Nov. 21, 1950; maximum gage height, that of Dec. 25, 1964; no flow at times 1960-62, 1965.

Remarks.--Records excellent. Flow regulated by dam at outlet of Donner Lake (usable capacity, 9,500 acre-ft).

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(shifting control method used Dec. 29 to Apr. 30)

Oct. 1 to Apr. 30				May 1 to Sept. 30			
0.8	0	1.7	27	1.3	0.1	1.9	14
.9	.1	2.0	53	1.4	.5	2.2	31
1.0	.6	2.5	121	1.5	1.4	2.5	59
1.1	1.5	3.0	216	1.6	2.9	3.0	130
1.2	3.5	4.0	496	1.7	5.4	3.5	243
1.3	6.3	4.6	715	1.8	9.0		
1.4	10						

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*21	16	*13	406	*46	*38	*48	220	*9.7	*7.0	0.9	1.8
2	21	*16	4.1	363	46	37	47	205	13	5.7	*1.2	1.5
3	21	14	4.6	328	46	37	46	189	.4	4.0	1.2	1.4
4	21	14	4.9	298	44	36	46	170	.4	3.8	1.0	1.2
5	10	16	4.9	266	46	36	46	160	.5	3.9	.9	1.2
6	1.4	33	5.2	261	47	35	46	147	.4	3.6	1.0	1.4
7	1.0	64	5.2	232	46	34	46	134	.5	3.6	1.2	1.0
8	15	55	5.5	203	44	34	46	123	1.0	3.3	2.2	1.0
9	13	47	12	173	42	33	47	115	1.2	6.4	3.6	1.0
10	1.0	38	20	154	40	33	47	111	1.2	10	3.1	17
11	.8	33	30	135	39	34	45	113	1.0	9.5	2.7	29
12	.6	28	36	123	38	35	45	116	.6	9.6	2.5	28
13	.6	26	34	105	38	35	44	123	.5	8.2	3.3	28
14	.5	26	33	92	38	35	43	128	.4	8.2	4.3	28
15	.4	27	31	82	37	34	43	134	16	9.2	4.0	29
16	.4	27	30	72	35	33	48	141	27	9.2	16	28
17	.4	25	28	64	34	33	48	155	33	8.2	30	28
18	.4	36	26	60	34	34	49	162	64	8.2	37	29
19	.3	43	28	56	34	35	61	166	79	12	40	28
20	.3	39	32	54	35	35	87	170	79	16	39	28
21	.2	36	54	52	36	37	121	77	54	10	38	28
22	.1	33	178	50	35	38	140	3.8	37	7.0	37	28
23	0	30	452	51	35	42	142	3.1	33	3.8	15	28
24	0	28	608	61	35	46	149	2.2	38	2.0	3.6	28
25	0	29	647	58	36	48	156	2.0	42	1.6	3.1	29
26	0	30	647	56	36	49	164	1.9	38	1.5	2.9	29
27	1.9	28	619	52	39	52	171	1.8	38	1.4	2.5	29
28	2.8	27	575	50	39	50	184	1.6	26	1.2	2.2	28
29	1.9	26	531	48	-----	49	203	1.5	15	1.0	2.2	28
30	11	25	490	47	-----	48	*216	1.2	9.0	1.0	2.0	28
31	17	-----	453	46	-----	48	-----	1.2	-----	1.0	*2.0	-----
Total	165.0	915	5,641.4	4,098	1,100	1,203	2,624	3,078.3	658.8	178.0	305.6	592.5
Mean	5.32	30.5	182	132	39.3	38.8	87.5	99.3	22.0	5.74	9.86	19.8
Ac-ft	327	1,810	11,190	8,130	2,180	2,390	5,200	6,110	1,310	353	606	1,180

Calendar year 1964: Max 647 Min 0 Mean 38.6 Ac-ft 28,010  
Water year 1964-65: Max 647 Min 0 Mean 56.3 Ac-ft 40,790

\* Discharge measurement made on this day.

## PYRAMID AND WINNEMUCCA LAKES BASIN

10-3394. Martis Creek near Truckee, Calif.

Location.--Lat 39°20'20", long 120°07'00", in SE $\frac{1}{4}$  NW $\frac{1}{4}$  sec. 8, T.17 N., R.17 E., on left bank three-quarters of a mile upstream from mouth and  $3\frac{1}{2}$  miles northeast of Truckee.

Drainage area.--40.8 sq mi.

Records available.--October 1958 to September 1965.

Gage.--Digital water-stage recorder. Altitude of gage is 5,700 ft (from topographic map). Prior to July 24, 1964 analog water-stage recorder.

Average discharge.--7 years, 18.7 cfs (13,540 acre-ft per year).

Extremes.--Maximum discharge during year, 1,040 cfs Dec. 23 (gage height 5.04 ft); minimum, 3.1 cfs Oct. 2, 4, 7.  
1958-65: Maximum discharge, 1,880 cfs Feb. 1, 1963 (gage height, 6.16 ft); minimum, 1.1 cfs July 19, 20, 1961.

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

Rating table, except periods of ice effect  
(gage height, in feet, and discharge, in cubic feet per second)

1.0	3.1	2.5	124
1.1	5.1	3.0	220
1.3	11	4.0	530
1.6	26	4.3	655
2.0	58		

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	3.4	9.6	19	50	30	32	65	139	40	11	5.0	6.6
2	3.4	8.0	14	45	31	30	55	121	39	10	5.0	6.9
3	3.4	7.0	10	48	32	29	52	97	36	9.6	5.0	6.8
4	3.5	6.6	b 8.0	52	33	28	59	87	34	9.0	5.0	6.5
5	3.6	6.3	b 8.0	57	34	32	59	81	32	8.7	5.0	6.2
6	3.6	6.2	8.3	57	33	34	58	77	31	8.6	5.0	15
7	3.5	6.3	8.6	51	31	31	51	68	29	8.0	5.0	22
8	3.5	6.5	9.6	40	* 30	32	57	63	* 31	8.0	5.0	11
9	3.7	11	10	36	28	32	53	60	29	7.7	5.0	9.4
10	4.0	8.8	11	33	b 26	30	47	55	25	7.2	9.0	8.5
11	4.3	b 8.0	17	36	b 25	34	47	* 55	24	6.9	* 13	7.9
12	4.2	b 7.0	11	40	b 23	32	50	57	22	* 7.4	8.4	7.4
13	4.1	b 6.5	10	39	b 22	28	46	59	20	7.5	8.4	* 7.2
14	4.1	b 6.0	9.3	38	21	30	46	61	19	7.3	8.9	7.2
15	4.1	b 6.0	8.5	37	b 21	34	52	62	19	7.9	20	7.2
16	4.2	b 6.0	8.3	37	b 21	43	* 79	65	20	9.4	14	6.9
17	4.3	b 6.0	b 8.0	36	b 21	39	64	70	22	9.5	23	7.0
18	4.6	b 6.0	8.1	36	21	40	70	70	20	9.9	19	7.4
19	5.0	b 6.0	7.9	36	21	43	102	69	17	8.8	10	6.6
20	5.0	b 6.5	19	36	22	49	143	69	15	7.6	8.7	6.4
21	5.0	b 7.0	174	37	23	58	176	65	14	7.4	7.9	6.3
22	4.9	b 7.5	506	39	24	74	159	65	15	7.8	7.5	6.4
23	4.9	b 8.0	* 642	41	25	74	143	56	24	7.7	7.4	6.9
24	4.9	b 9.0	401	39	24	58	144	50	18	7.2	7.1	6.5
25	5.0	* b 12	182	36	24	53	144	46	14	9.5	6.7	6.6
26	5.0	14	188	32	* 25	53	145	44	13	11	7.0	6.6
27	5.0	9.9	114	31	41	53	144	42	13	8.0	6.7	6.6
28	5.3	9.8	76	31	37	52	148	41	12	7.1	6.5	6.7
29	* 8.8	10	69	31	-----	54	156	41	11	6.1	6.7	6.6
30	6.7	9.9	62	30	-----	57	155	40	11	5.8	6.6	6.6
31	6.2	-----	55	30	-----	60	-----	39	-----	5.8	6.6	-----
TOTAL	141.2	237.4	2,682.6	1,217	749	1,328	2,769	2,014	669	253.4	264.1	235.9
MEAN	4.56	7.91	86.5	39.3	26.8	42.8	92.3	65.0	22.3	8.17	8.52	7.86
AC-FT	280	471	5,320	2,410	1,490	2,630	5,490	3,990	1,330	503	524	468

CALENDAR YEAR 1964	MAX 642	MIN 1.6	MEAN 19.3	AC-FT 14,027
WATER YEAR 1964-65	MAX 642	MIN 3.4	MEAN 34.4	AC-FT 24,906

## Peak discharge (base, 170 cfs)

Date	Time	Gage height	Discharge
12-23	0415	5.04	1,040
4-20	2330	2.85	198

\* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note.--No gage-height record Jan. 1 to Feb. 7, July 31 to Aug. 13.

10-3399. Alder Creek near Truckee, Calif.

Location.--Lat 39°22'10", long 120°10'50", in SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.34, T.18 N., R.16 E., on right bank 2 miles upstream from mouth and 2 $\frac{1}{2}$  miles north of Truckee.

Drainage area.--7.36 sq mi.

Records available.--October 1958 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 5,800 ft (from topographic map).

Average discharge.--7 years, 7.82 cfs (5,660 acre-ft per year).

Extremes.--Maximum discharge during year, 680 cfs Dec. 23 (gage height, 4.80 ft in gage well, 5.11 ft from floodmarks); minimum, 0.8 cfs Oct. 11-16.

1958-65; Maximum discharge, 730 cfs Jan. 31, 1963 (gage height, 5.86 ft), from rating curve extended above 36 cfs on basis of measurement of peak flow through culvert; no flow for some periods in most years.

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

Rating tables, except periods of ice effect  
(gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 22

Dec. 23 to Sept. 30

1.3	0.5	0.8	1.1	1.2	7.0	2.5	118
1.4	1.1	.9	1.5	1.4	14	3.0	204
1.5	2.3	1.0	2.8	1.7	31	4.0	445
1.6	4.1	1.1	4.6	2.0	55	4.1	470

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.9	1.8	2.7	b 25	11	11	16	96	27	4.0	1.9	2.2
2	.9	1.8	3.1	b 20	11	10	16	75	26	4.0	1.7	2.4
3	.9	1.6	b 2.0	b 21	11	9.7	14	61	23	4.0	1.5	2.2
4	.9	* 1.7	b 1.5	23	11	9.1	16	56	22	4.0	1.5	2.0
5	.9	1.6	b 1.3	21	* 12	8.8	17	51	20	4.0	1.4	2.0
6	.9	1.5	b 1.4	19	12	8.5	16	47	18	3.8	1.5	5.6
7	.9	1.5	b 1.4	b 13	b 11	8.2	16	39	17	3.6	1.5	4.0
8	.9	1.4	1.5	b 10	b 11	* 8.5	16	37	* 18	3.4	1.5	2.8
9	.9	2.3	2.0	b 12	11	8.5	14	37	5.0	3.3	1.5	2.4
10	.9	1.6	2.0	14	b 10	8.5	14	36	13	3.1	1.6	1.9
11	.9	1.6	5.2	13	b 10	8.5	13	* 37	12	3.1	* 2.5	1.9
12	.9	2.4	b 3.6	* 13	b 9.5	9.1	13	39	12	* 3.1	4.0	1.8
13	.8	1.7	b 2.0	12	b 8.5	8.8	* 13	40	11	3.1	2.4	1.6
14	.9	b 1.5	b 2.0	11	7.6	8.8	13	41	10	3.1	2.6	* 1.7
15	.9	b 1.4	2.3	11	7.3	9.1	16	42	9.7	3.1	2.8	1.6
16	.9	b 1.3	b 2.8	11	b 7.0	10	19	44	9.4	3.6	2.8	1.6
17	.9	b 1.2	b 1.4	10	b 6.5	11	18	45	11	3.6	8.3	1.6
18	.9	b 1.1	a 1.3	9.4	b 6.5	10	21	44	9.1	3.6	5.0	1.6
19	.9	b 1.2	a 1.5	9.1	6.7	11	36	42	7.9	3.1	3.0	1.6
20	1.0	b 1.3	a 5.0	8.8	7.3	12	62	42	7.0	2.8	2.5	1.6
21	1.0	b 1.4	a 80	8.5	8.2	14	77	37	6.7	2.8	2.2	1.6
22	1.1	b 1.4	a 300	8.2	8.5	18	73	34	6.7	2.8	2.0	1.6
23	1.1	1.5	* a 470	10	9.4	21	69	32	6.7	2.6	1.9	1.6
24	1.2	1.6	344	16	10	21	76	30	6.0	2.5	1.8	1.5
25	1.2	2.7	170	b 11	9.7	18	81	28	5.3	2.8	1.9	1.5
26	1.2	2.6	133	b 10	11	16	85	28	5.0	2.8	2.0	1.4
27	1.3	* 2.0	96	12	12	16	89	28	4.8	2.5	2.0	1.5
28	1.4	1.7	70	12	11	14	93	28	4.6	2.4	1.9	1.6
29	2.0	1.7	53	11	-----	15	101	29	4.4	2.4	2.0	1.6
30	1.8	b 1.6	44	11	-----	16	103	29	4.2	2.4	2.0	1.6
31	1.4	-----	35	11	-----	16	-----	28	-----	2.4	2.0	-----
Total	32.7	49.7	1,841.0	407.0	267.7	374.1	1,226	1,282	342.5	97.8	73.2	59.6
Mean	1.05	1.66	59.4	13.1	9.56	12.1	40.9	41.4	11.4	3.15	2.36	1.99
Ac-Ft	65	99	3,650	807	531	742	2,430	2,540	679	194	145	118

Calendar year 1964 : Max 470 Min 0.7 Mean 11.1 Ac-ft 8,030  
 Water year 1964-65 : Max 470 Min 0.8 Mean 16.6 Ac-ft 12,000

Peak discharge (base, 25 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	unknown	4.80	680	8-17	1730	1.84	41
4-30	1930	2.60	132				

\* Discharge measurement made on this day.

a No gage-height record.

b Stage-discharge relation affected by ice.

## PYRAMID AND WINNEMUCCA LAKES BASIN

10-3403. Prosser Creek Reservoir near Boca, Calif.

Location.--Lat 39°22'45", long 120°08'25", in NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.30, T.18 N., R.17 E., in control house at Prosser Creek Dam,  $1\frac{1}{2}$  miles upstream from mouth of Prosser Creek, and 3 miles west of Boca.

Drainage area.--50 sq mi, approximately.

Records available.--January 1963 to September 1965.

Gage.--Water-stage recorder with surface follower, and telemark. Datum of gage is at mean sea level (levels by Bureau of Reclamation).

Extremes.--Maximum contents observed during year, 30,240 acre-ft June 25 (elevation, 5,743.28 ft); minimum observed, 6,500 acre-ft Feb. 19 (elevation 5,696.85 ft).

1963-65: Maximum contents observed, that of June 25, 1965; minimum observed, that of Feb. 19, 1965.

Remarks.--Reservoir is formed by rolled-earth and rockfill dam. Storage began Jan. 30, 1963. Usable capacity, 28,640 acre-ft between elevations 5,660.6 (top of inactive storage) and 5,741.2 ft (spillway crest). Inactive storage, 1,200 acre-ft (includes 83 acre-ft dead storage) below elevation 5,660.6 ft. Elevation of streambed at dam axis, 5,622 ft. Figures given herein represent usable contents. Reservoir is used for flood control, enhancement of fishery, and recreation.

Cooperation.--Records furnished by Bureau of Reclamation.

Month-end elevation and contents, at 0800 hours, October 1964 to September 1965

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Oct. 31 . . . . .	5,703.31	8,500	-6,340
Nov. 30 . . . . .	5,701.84	8,020	-480
Dec. 31 . . . . .	5,708.97	10,540	+2,520
Calendar year 1964 . . . . .	-	-	+1,870
Jan. 31 . . . . .	5,701.52	7,910	-2,630
Feb. 28 . . . . .	5,701.77	7,990	+80
Mar. 31 . . . . .	5,702.63	8,270	+280
Apr. 30 . . . . .	5,727.05	19,260	+10,990
May 31 . . . . .	5,734.76	24,070	+4,810
June 30 . . . . .	5,742.97	30,000	+5,930
July 31 . . . . .	5,742.00	29,250	-750
Aug. 31 . . . . .	-	28,940	-310
Sept. 30 . . . . .	5,724.31	17,710	-11,230
Water year 1964-65 . . . . .	-	-	+2,870

g Contents interpolated

10-3405. Prosser Creek near Boca, Calif.

Location.--Lat 39°22'10", long 120°07'10", in SW  $\frac{1}{4}$  sec. 32, T. 18 N., R. 17 E., on left bank a quarter of a mile upstream from mouth and 2 miles southwest of Boca.

Drainage area.--53.5 sq mi.

Records available.--October 1902 to June 1903 (gage heights only), October 1942 to December 1950, June 1951 to September 1965. Records for April 1889 to November 1890, published in the 11th and 12th Annual Reports, Pt. 2, have been found to be unreliable and should not be used. Monthly discharge only for October 1942 to December 1950, published in WSP 1734.

Gage.--Water-stage recorder. Datum of gage is 5,572.66 ft above mean sea level (levels by Bureau of Reclamation). April 1889 to November 1890 and October 1902 to June 1903, staff gages at same site at different datums. October 1942 to December 1950, water-stage recorder at approximately same site at different datum. June 1951 to September 1956, water-stage recorder at present site at datum 2.00 ft higher.

Average discharge.--22 years (1942-50, 1951-65), 81.6 cfs (59,080 acre-ft per year). Adjusted for storage.

Extremes.--Maximum discharge during year, 1,610 cfs Dec. 25 (gage height, 6.28 ft); minimum, 3.5 cfs Sept. 22, 1942-65; Maximum discharge, 4,560 cfs Dec. 23, 1955, (gage height, 10.13 ft, present datum), from rating curve extended above 910 cfs on basis of slope-area measurement of peak flow; maximum gage height, 11.0 ft, from floodmarks, (present datum) Nov. 20, 1950 (discharge, 4,320 cfs by slope-area measurement); minimum discharge, 0.4 cfs July 18, 1961, result of work on dam upstream.

Remarks.--Records excellent. Flow regulated by Prosser Creek dam since Jan. 31, 1963.

Rating table, (gage height, in feet, and discharge, in cubic feet per second)

1.4	8.1	2.0	52	4.0	496
1.5	12	2.5	120	5.0	910
1.7	24	3.0	218	6.0	1,440
				7.0	2,050

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*115	22	*11	518	94	*14	*148	412	*98	*132	46	128
2	112	22	11	327	*94	14	146	211	43	128	*44	186
3	112	22	11	327	94	14	146	*54	15	127	43	183
4	110	26	17	252	94	14	146	20	15	127	40	181
5	110	29	23	192	95	77	146	20	15	125	37	181
6	110	30	23	194	95	115	146	20	15	123	35	190
7	117	33	23	192	96	117	146	19	15	120	32	194
8	120	33	23	175	95	117	146	19	16	117	30	223
9	120	34	23	144	95	117	132	19	16	110	29	239
10	120	33	23	144	95	132	123	19	40	104	27	239
11	120	59	36	132	95	139	123	18	76	100	29	239
12	130	76	45	123	95	148	107	168	117	94	37	236
13	134	75	45	123	95	150	96	239	141	89	40	236
14	142	75	45	123	95	150	76	295	148	83	42	236
15	144	75	45	112	264	128	67	321	150	82	55	236
16	142	35	30	102	351	117	71	321	148	85	61	236
17	142	27	22	102	183	117	70	357	148	85	70	236
18	142	10	22	102	76	117	73	374	151	86	100	236
19	142	10	22	102	38	117	63	374	150	83	96	236
20	141	10	24	102	12	117	60	374	151	78	83	236
21	141	10	64	102	12	117	60	374	150	73	73	234
22	141	10	309	95	12	118	59	374	159	69	65	95
23	81	10	171	92	12	118	59	371	169	65	60	165
24	51	10	488	94	12	163	59	298	169	62	54	239
25	51	10	1,540	92	12	192	59	*268	165	60	49	239
26	43	11	1,490	92	13	175	36	251	155	56	45	236
27	39	10	1,480	92	14	167	24	239	148	54	47	236
28	39	10	1,440	92	14	167	119	239	141	51	46	236
29	*39	11	1,390	92	-----	165	159	239	135	48	43	234
30	39	11	1,350	92	-----	167	369	239	134	47	39	234
31	27	-----	944	94	-----	153	-----	143	-----	47	*36	-----
Total	3,216	821.7	11,190	4,617	2,352	3,733	3,234	6,689	3,193	2,710	1,533	6,455
Mean	104	27.4	361	149	84.0	120	108	216	106	87.4	49.5	215
Ac-ft	6,380	1,630	22,200	9,160	4,670	7,400	6,410	13,270	6,330	5,380	3,040	12,800

Adjusted for change in storage in Prosser Creek Reservoir

Mean	0.65	19.3	402	106	85.5	125	292	294	206	75.3	44.4	26.4
Ac-ft	40	1,150	24,720	6,530	4,750	7,680	17,400	18,080	12,260	4,630	2,730	1,570
Observed												
Adjusted												
Calendar year 1964:	Max	1,540	Min	3.5	Mean	89.5	Ac-ft	64,950	Mean	92.0	Ac-ft	66,820
Water year 1964-65:	Max	1,540	Min	9.7	Mean	136	Ac-ft	98,670	Mean	140	Ac-ft	101,500

\* Discharge measurement made on this day.

10-3420. Little Truckee River near Hobart Mills, Calif.

Location--Lat 39°30'05", long 120°16'35", in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 14, T. 19 N., R. 15 E., on left bank half a mile upatream from Independence Creek and 7 $\frac{1}{2}$  miles northwest of Hobart Mills.

Drainage area--36.6 sq mi.

Records available--December 1946 to September 1965.

Gage--Digital water-stage recorder. Altitude of gage is 6,290 ft (from topographic map). Prior to Nov. 9, 1962, analog water-stage recorder at site 100 ft downstream at datum 0.63 ft lower. Nov. 9, 1962, to Dec. 22, 1964, analog water-stage recorder at site 100 ft downstream at datum 0.78 ft lower. Dec. 23, 1964, to Aug. 5, 1965, twice monthly observations referred to bridge 75 ft upstream at present datum.

Average discharge--18 years (1947-65), 87.4 cfs (63,270 acre-ft per year).

Extremes--Maximum discharge during year, 7,760 cfs Dec. 23 (gage height, 8.70 ft); minimum, 2.0 cfs Oct. 1-3.  
1946-65: Maximum discharge, 7,910 cfs Feb. 1, 1963 (gage height, 7.76 ft), from rating curve extended above 1,100 cfs on basis of slope-area measurements at gage heights 6.97 and 7.68 ft; minimum, 1.1 cfs Aug. 19, 20, 23, 24, 1949.

Remarks--Records good except those for periods of ice effect or no gage-height record, which are poor. One transmountain diversion to Sierra Valley above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	2.0	7.4	12	100	70	64	72	420	370	150	36	18
2	2.0	7.6	13	80	70	60	70	350	350	150	32	19
3	2.5	7.9	12	75	75	58	75	320	470	150	26	17
4	3.7	*7.9	b 11	85	90	54	80	* 310	460	130	24	16
5	4.1	7.9	10	90	95	52	75	280	440	120	24	15
6	4.2	7.4	9.7	95	85	52	70	250	430	120	25	24
7	4.2	7.4	9.4	800	80	54	64	240	410	105	24	38
8	4.4	7.4	9.7	130	75	* 56	60	230	* 390	120	22	24
9	4.2	11	13	85	72	56	56	240	410	110	21	20
10	4.2	7.9	14	95	70	58	52	260	450	100	20	18
11	4.2	8.2	25	100	70	60	52	280	500	90	28	17
12	4.4	b 7.0	19	* 105	68	58	54	320	440	85	62	16
13	4.4	b 7.0	b 17	100	68	52	* 56	350	350	80	* 40	* 14
14	4.4	b 7.5	15	95	66	54	66	400	310	80	49	13
15	4.4	b 8.0	13	90	66	56	80	450	290	90	62	12
16	4.6	b 7.5	b 12	90	66	58	75	540	310	85	51	10
17	4.4	b 7.2	b 10	85	66	56	72	520	290	105	85	8.3
18	4.4	b 7.0	b 9.5	90	* 68	56	100	480	260	90	78	8.6
19	4.4	b 6.8	b 9.0	95	70	* 58	150	* 530	280	72	56	8.6
20	4.6	b 7.2	8.8	105	74	64	250	500	290	60	46	8.4
21	4.6	b 7.8	b 54	110	76	72	450	420	310	56	40	8.2
22	4.8	8.2	* 1,300	115	72	85	420	380	320	50	36	7.6
23	4.8	b 8.8	* 4,000	120	70	80	370	350	* 290	* 46	32	7.3
24	5.0	8.2	2,500	115	66	72	390	330	260	48	29	7.1
25	5.0	11	900	105	68	66	400	350	240	48	26	7.1
26	5.2	10	600	95	72	68	420	370	220	44	24	6.9
27	5.2	* 10	400	90	70	64	430	400	200	38	22	6.9
28	5.7	9.7	250	85	66	62	470	430	180	36	21	7.3
29	7.1	10	200	* 80	-----	68	540	460	170	34	19	7.1
30	7.1	11	150	75	-----	72	480	450	160	32	18	7.0
31	6.4	-----	140	75	-----	80	-----	410	-----	34	17	-----
TOTAL	140.6	247.9	10,746.1	3,655	2,024	1,925	5,999	11,620	9,850	2,558	1,095	397.4
MEAN	4.54	8.26	347	118	72.3	62.1	200	375	328	82.5	35.3	13.2
AC-FT	279	492	21,310	7,250	4,010	3,820	11,900	23,050	19,540	5,070	2,170	788

CALENDAR YEAR 1964 MAX 4,000 MIN 2.0 MEAN 84.8 AC-FT 61,550  
WATER YEAR 1964-65 MAX 4,000 MIN 2.0 MEAN 138 AC-FT 99,680

Peak discharge (base, 500 cfs)--Dec. 23 (time unknown) 7,760 cfs (8.70 ft). See footnote.

\* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note--No gage-height record Dec. 22 to Aug. 6. Peak discharges above the base probably occurred in January and during the spring runoff, but definition is not available, except for a discharge measurement of 526 cfs on May 19.



PYRAMID AND WINNEMUCCA LAKES BASIN

511

10-3435. Sagehen Creek near Truckee, Calif.

Location--Lat 39°25'50", long 120°14'10", in NE<sup>1</sup>/<sub>4</sub> sec. 7, T.18 N., R.16 E., on left bank 0.1 mile upstream and 0.1 mile downstream from 2 unnamed right bank tributaries, 2.2 miles upstream from bridge on State Highway 89, and 7.5 miles north of Truckee.

Drainage area--10.8 sq mi.

Records available--October 1953 to September 1965.

Gage--Water-stage recorder and concrete control. Altitude of gage is 6,320 ft (from topographic map). Prior to Dec. 2, 1953, staff gage at site 100 ft upstream at different datum.

Average discharge--12 years, 11.1 cfs (8,040 acre-ft per year).

Extremes--Maximum discharge during year, 528 cfs Dec. 23 (gage height, 4.32 ft) from rating curve extended above 70 cfs on basis of slope-area measurement at gage height 4.28 ft; minimum, 1.7 cfs Nov. 17, result of temporary obstruction upstream, but may have been less during period of no gage-height record.

1953-65: Maximum discharge, 765 cfs Feb. 1, 1963 (gage height, 4.64 ft, from floodmarks), from rating curve extended above 70 cfs on basis of slope-area measurement at gage height 4.28 ft; minimum, 0.6 cfs Aug. 8, 1960, Aug. 7, 1961, result of temporary regulation.

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

Rating table (gage height, in feet, and discharge, in cubic feet per second)

1.5	2.0	2.3	26
1.6	3.3	2.7	57
1.8	6.9	3.1	102
2.0	12.6	3.5	175
		4.0	350

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.0	3.5	5.1	b20	10	8.1	15	96	47	15	5.3	3.9
2	2.0	*3.4	4.7	b19	10	7.9	13	76	46	14	4.7	3.9
3	2.0	3.2	3.9	b18	9.7	7.9	13	67	46	14	4.6	3.8
4	2.0	3.3	3.6	b17	10	7.6	14	66	46	13	4.4	3.4
5	2.0	3.0	3.6	b16	*10	7.6	15	61	46	12	4.2	3.4
6	2.0	2.8	3.4	16	10	7.4	14	53	45	12	4.0	7.2
7	2.0	2.8	3.3	b14	9.4	7.4	13	47	43	11	3.9	6.9
8	2.0	3.0	3.6	b12	9.4	*7.6	13	46	*44	10	3.8	4.7
9	2.0	3.9	4.2	b13	9.1	7.6	12	46	40	9.7	3.8	4.2
10	2.0	3.4	4.4	14	b7.5	7.9	12	48	39	8.9	3.8	3.9
11	2.0	3.4	8.4	14	b7.5	8.1	11	*51	39	8.6	*5.8	3.8
12	2.0	3.4	4.9	13	b7.8	8.1	11	54	37	*8.4	9.4	3.6
13	2.0	3.4	4.0	13	b7.8	7.9	*10	57	34	8.4	5.6	*3.6
14	2.0	b3.1	3.8	12	b7.8	7.9	11	58	32	7.9	12	3.8
15	2.0	b2.8	3.6	*12	b7.8	8.4	13	61	31	8.4	10	3.8
16	2.0	b2.7	3.3	12	7.9	8.6	15	65	30	8.6	9.1	3.8
17	2.0	b2.5	3.2	11	7.9	8.9	14	68	32	8.4	20	3.8
18	2.0	b2.4	3.2	11	7.9	8.9	16	67	28	8.4	13	3.8
19	2.0	b2.3	3.3	11	8.1	9.1	33	68	25	7.4	7.9	3.9
20	2.5	b2.5	3.6	11	8.4	9.7	53	69	24	6.7	6.5	3.9
21	2.5	b2.6	3.6	11	8.4	11	63	64	23	6.5	6.0	3.9
22	2.5	b2.7	240	10	8.4	14	59	62	24	6.2	5.4	3.9
23	2.5	2.8	348	12	8.1	16	60	56	24	6.0	5.3	3.6
24	2.5	3.2	277	15	8.1	15	69	52	22	6.0	4.7	3.6
25	2.5	4.0	109	13	8.1	13	74	50	20	6.2	4.4	3.6
26	2.5	3.8	77	11	8.4	13	80	50	19	6.2	4.2	3.6
27	3.0	*3.4	53	11	8.6	13	84	49	18	5.6	3.9	3.8
28	3.0	3.6	47	10	8.1	12	95	50	17	5.3	3.9	3.9
29	4.0	3.6	37	10	-----	13	110	51	16	5.1	3.8	3.8
30	3.5	3.4	31	10	-----	14	117	51	16	5.3	3.8	3.8
31	3.0	-----	27	11	-----	14	-----	50	-----	5.6	3.6	-----
Total	72.0	93.9	1,363.1	403	240.2	310.6	1,132	1,809	953	264.8	190.8	120.6
Mean	2.32	3.13	44.0	13.0	8.58	10.0	37.7	58.4	31.8	8.54	6.15	4.02
Ac-ft	143	186	2,700	799	476	616	2,250	3,590	1,890	525	378	239

Calendar year 1964: Max 348 Min 1.7 Mean 11.4 Ac-ft 8,280  
Water year 1964-65: Max 348 Min 2.0 Mean 19.0 Ac-ft 13,790

Peak discharge (base, 50 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0330	4.32	528	5-16	1900	2.92	78
4-30	1600	3.43	160				

\* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note.--No gage-height record Oct. 1 to Nov. 1.

10-3444. Little Truckee River above Boca Reservoir, near Boca, Calif.

Location,--Lat 39°26'10", long 120°05'00", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 3, T.18 N., R.17 E., on left bank 1 mile upstream from Boca Reservoir,  $1\frac{1}{2}$  miles upstream from Dry Creek, and  $3\frac{1}{2}$  miles north of Boca.

Drainage area,--146 sq mi.

Records available,--June 1903 to October 1910, September 1939 to September 1965. Published as "at Pine Station" June 1903 to December 1907 and as "at Starr" January 1908 to October 1910. Monthly discharge only for some periods, published in WSP 1314 and 1734.

Gage,--Water-stage recorder and concrete control. Datum of gage is 5,618.67 ft above mean sea level (Bureau of Reclamation bench mark). June 1903 to October 1910, staff gages at different sites and datums.

Average discharge,--33 years (1903-10, 1939-65), 192 cfs (139,000 acre-ft per year).

Extremes,--Maximum discharge during year, 10,500 cfs Dec. 23 (gage height, 6.95 ft); minimum, 11 cfs Dec. 17.

1903-10, 1939-65: Maximum discharge, 13,300 cfs Feb. 1, 1963 (gage height, 9.00 ft), from rating curve extended above 1,600 cfs on basis of slope-area measurement of peak flow; minimum recorded, 2.2 cfs Dec. 5, 1959.

Remarks,--Records excellent except those for periods of ice effect, which are good. Flow slightly regulated by Independence Lake (capacity, about 17,500 acre-ft) and one transmountain diversion to Sierra Valley.

Rating table, except periods of ice effect  
(gage height, in feet, and discharge, in cubic feet per second)

0.6	18	1.5	209	3.5	2,140
.8	39	2.0	460	4.0	3,210
1.0	70	2.5	840	5.0	6,200
1.2	112	3.0	1,400	6.0	8,640

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	52	67	40	b 250	231	222	418	1,070	654	253	65	*40
2	52	67	50	b 170	218	209	385	920	590	*231	*56	42
3	52	63	40	b 200	218	222	385	750	654	235	49	40
4	53	63	b 29	b 210	231	222	406	662	710	235	46	39
5	53	39	b 29	b 220	286	213	430	646	710	205	45	38
6	53	29	31	b 230	281	209	412	583	694	198	50	45
7	53	27	31	b 1,600	249	213	385	527	662	186	50	89
8	52	26	31	b 220	240	218	335	466	622	165	47	62
9	52	33	37	b 180	227	231	315	460	562	182	46	53
10	52	40	43	b 200	198	240	305	460	583	175	43	70
11	52	33	78	b 210	201	249	281	502	630	158	53	76
12	52	40	63	218	194	276	286	555	734	149	114	76
13	53	b 29	b 33	213	190	258	286	*606	654	136	80	74
14	53	b 26	b 37	205	190	244	305	654	555	134	72	49
15	53	b 27	38	198	179	253	355	686	*502	131	157	43
16	53	b 25	b 27	190	175	267	*448	702	472	158	103	42
17	52	b 24	b 23	182	175	295	400	804	484	152	175	40
18	55	b 22	b 23	179	175	281	400	813	472	179	220	60
19	56	b 20	b 27	194	182	291	541	777	424	155	112	65
20	56	b 22	b 34	249	190	305	840	822	436	123	89	80
21	56	b 24	193	305	205	340	962	795	466	105	76	81
22	56	b 26	2,470	310	218	395	1,080	686	484	98	68	81
23	56	28	8,240	335	205	460	940	614	478	87	63	83
24	56	29	5,100	375	200	448	880	527	430	81	56	91
25	56	*33	1,870	335	205	380	910	520	418	83	52	91
26	56	40	1,200	305	*222	360	920	548	375	85	50	91
27	56	32	857	276	244	370	962	576	350	76	49	91
28	56	32	576	253	227	340	973	622	320	67	45	96
29	*63	35	b 450	*240	-----	345	1,090	678	286	63	43	96
30	62	33	b 400	235	-----	370	1,170	694	258	62	42	96
31	58	-----	b 370	231	-----	395	-----	694	-----	68	43	-----
Total	1,690	1,034	22,470	8,718	5,956	9,121	17,805	20,419	15,669	4,415	2,259	2,020
Mean	54.5	34.5	725	281	213	294	594	659	522	142	72.9	67.3
Ac-ft	3,350	2,050	44,570	17,290	11,810	18,090	35,320	40,500	31,080	8,760	4,480	4,010

Calendar year 1964: Max 8,240 Min 18 Mean 172 Ac-ft 124,700  
Water year 1964-65: Max 8,240 Min 20 Mean 306 Ac-ft 221,300

Peak discharge (base, 500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0630	6.95	10,500	5-17	1600	2.57	910
1-7	1030	4.24	3,830	6-12	1300	2.46	804
3-22	2300	2.07	508				
4-30	0300	2.93	1,320				

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

10-3444.9. Boca Reservoir at Boca, Calif.

Location,--Lat 39°23'20", long 120°05'40", in NE¼NW¼ sec.28, T.18 N., R.17 E., in control house at Boca Dam, 1,800 ft upstream from mouth of Little Truckee River and half a mile northwest of Boca.

Drainage area,--172 sq mi.

Records available,--December 1938 to September 1965. End of month contents only for December 1938 to September 1957, published in WSP 1734.

Gage,--Pressure gage with mercury column read once daily. Datum of gage is at mean sea level (levels by Bureau of Reclamation).

Extremes,--Maximum contents during year, 40,700 acre-ft July 6, 7 (elevation, 5,604.80 ft); minimum 1,680 acre-ft Feb. 18 (elevation, 5,536.50 ft).  
1939-65: Maximum contents, 41,440 acre-ft Dec. 23, 1955 (elevation, 5,605.55 ft); minimum, 37 acre-ft Mar. 4-9, 1955 (elevation, 5,521.65 ft).

Remarks,--Reservoir is formed by earth-fill, rock-faced dam. Storage began Dec. 8, 1938. Usuable capacity, 40,900 acre-ft between elevations 5,521 (outlet sill) and 5,605 ft (top of spillway gates). Elevation of spillway (gate open) is 5,589.01 ft. Dead storage, 240 acre-ft. Figures given herein represent usable contents. Water is used for irrigation in the State of Nevada and for power development.

Cooperation,--Daily elevations furnished by Washoe County Water Conservation District.

Capacity table (elevation, in feet, and contents, in acre-feet)

5,536	1,600	5,560	8,790	5,590	27,510
5,540	2,340	5,570	13,760	5,600	36,150
5,550	4,970	5,580	20,020	5,605	40,900

Contents, in acre-feet, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9,080	8,790	7,660	24,640	2,650	3,500	12,070	31,040	38,300	40,410	35,140	22,140
2	9,040	8,810	7,660	23,770	2,640	3,820	12,250	31,300	38,720	40,460	34,640	21,850
3	9,060	8,810	7,720	22,800	2,620	4,150	12,330	31,260	39,440	40,560	34,150	21,640
4	9,010	8,830	7,740	21,780	2,640	4,470	12,440	31,600	40,410	40,610	33,700	21,380
5	9,010	8,830	7,660	20,640	2,730	4,750	12,600	31,950	40,610	40,660	33,170	21,100
6	8,990	8,790	7,560	19,670	2,770	5,060	12,800	32,380	40,610	40,700	32,680	20,860
7	8,920	8,810	7,460	18,530	2,720	5,330	12,940	32,680	40,610	40,700	32,210	20,640
8	8,920	8,900	7,380	17,380	2,620	5,590	12,960	32,950	40,610	40,660	31,690	20,500
9	8,940	8,900	7,300	16,350	2,390	5,960	12,890	33,170	40,410	40,560	31,220	20,320
10	8,880	8,920	7,260	15,290	2,110	6,280	12,830	33,300	40,260	40,510	30,700	20,230
11	8,860	8,970	7,240	14,150	1,930	6,730	12,670	33,520	40,360	40,560	30,150	20,200
12	8,830	9,040	7,400	13,080	1,730	7,160	12,510	33,790	40,610	40,560	29,650	20,160
13	8,830	9,080	7,420	12,070	1,840	7,600	12,360	34,150	40,660	40,510	29,440	20,120
14	8,830	9,080	7,440	10,930	2,000	7,950	12,200	34,640	40,610	40,360	29,070	20,040
15	8,830	9,080	7,440	9,970	2,070	8,340	12,300	35,010	40,560	40,260	28,780	19,950
16	8,830	9,060	7,380	8,830	1,810	8,680	12,540	35,410	40,460	40,170	28,740	19,880
17	8,830	8,920	7,280	7,830	1,720	9,010	13,050	35,920	40,460	40,070	28,650	19,700
18	8,750	8,660	7,120	6,910	1,680	9,330	13,430	36,470	40,460	40,070	28,240	19,600
19	8,770	8,440	7,040	5,920	1,710	9,560	13,930	36,840	40,610	40,070	28,200	19,500
20	8,770	8,310	7,000	5,020	1,730	9,650	15,290	37,310	40,660	39,830	28,000	19,440
21	8,770	8,180	6,960	4,260	1,750	9,810	16,970	37,780	40,660	39,440	27,510	19,470
22	8,750	8,080	7,810	3,660	1,820	10,070	19,100	38,010	40,660	39,010	26,990	19,400
23	8,750	7,950	15,800	3,030	2,000	10,820	20,780	38,200	40,660	38,720	26,470	18,990
24	8,660	7,890	25,260	2,750	2,130	11,430	22,360	38,160	40,610	38,390	26,040	18,930
25	8,640	7,850	30,070	2,370	2,300	11,580	24,040	38,010	40,610	38,010	25,610	18,930
26	8,640	7,870	29,730	2,510	2,460	11,630	25,570	37,870	40,610	37,640	25,100	18,930
27	8,660	7,830	29,310	2,600	2,790	11,740	27,590	37,820	40,560	37,220	24,640	18,930
28	8,660	7,790	28,160	2,600	3,160	11,760	28,820	37,820	40,510	36,840	24,150	18,760
29	8,680	7,740	27,270	2,570	-----	11,760	29,860	37,780	40,510	36,420	23,620	18,500
30	8,680	7,700	26,550	2,620	-----	11,790	30,440	37,780	40,410	36,060	23,140	18,200
31	8,660	-----	25,690	2,640	-----	11,890	-----	37,820	-----	35,600	22,620	-----
(+)	5,559.68	5,557.45	5,587.70	5,541.40	5,543.65	5,566.50	5,593.55	5,601.80	5,604.50	5,599.40	5,583.65	5,577.32
(#)	-440	-960	+17,990	-23,050	+520	+8,730	+18,550	+7,380	+2,590	-4,810	-12,980	-4,420

Calendar year 1964 . . . . . +16,340  
Water year 1964-65 . . . . . +9,100

+ Elevation, in feet, at end of month.  
# Change in contents, in acre-feet.

10-3445. Little Truckee River at Boca, Calif.

Location.--Lat 39°23'10", long 120°05'40", in NE<sup>1</sup>/<sub>4</sub> sec.28, T.18 N., R.17 E., on right bank 800 ft upstream from mouth, 1,000 ft downstream from Boca Dam, and a third of a mile northwest of Boca.

Drainage area.--172 sq mi.

Records available.--April to October 1890 (monthly discharge only), January 1911 to September 1915, January 1939 to September 1965. Monthly discharge only for January 1939 to September 1957, published in WSP 1734.

Gage.--Water-stage recorder. Altitude of gage is 5,500 ft (from topographic map). Jan. 1, 1911, to Sept. 30, 1915, staff gage at site 650 ft downstream at different datum. January 1939 to September 1957, records computed from daily log of rated settings of needle valve in dam, and from computed flow over spillway.

Average Discharge.--30 years (1911-15, 1939-65), 185 cfs (133,900 acre-ft per year), unadjusted.

Extremes.--Maximum discharge during year, 1,990 cfs Dec. 25 (gage height, 5.59 ft); minimum, 1.7 cfs Dec. 11, 12. 1890, 1911-15, 1939-65: Maximum discharge, 8,800 cfs Dec. 24, 1955, from records of Washoe County Water Conservation District; no flow for many days in most years.

Remarks.--Records good prior to Aug. 11, fair thereafter. Flow regulated by Boca Reservoir (capacity, 40,900 acre-ft), Independence Lake (capacity, about 17,500 acre-ft), and one transmountain diversion to Sierra Valley.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Aug. 11 to Sept. 30)

0.9	20	3.5	537
1.4	60	4.0	775
2.0	147	5.0	1,470
2.5	247	6.0	2,410
3.0	372		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*56	30	* 56	889	*249	* 88	* 392	1,020	400	212	294	*196
2	56	* 44	37	883	249	80	392	960	272	*198	294	128
3	56	58	28	877	232	96	392	628	194	198	289	145
4	56	40	64	865	225	105	394	492	499	198	294	152
5	61	29	84	853	270	106	380	433	720	198	296	152
6	81	29	84	847	302	106	375	392	695	198	294	152
7	65	29	84	835	302	108	386	386	666	198	299	151
8	57	30	84	835	337	110	394	383	648	198	304	119
9	57	30	66	823	350	100	394	375	643	200	322	99
10	57	30	55	805	304	82	392	380	594	163	319	84
11	57	30	21	787	294	76	392	389	558	152	287	77
12	57	30	29	770	202	91	392	386	670	180	201	77
13	58	30	39	758	154	100	392	380	666	198	236	76
14	58	30	48	742	158	102	337	450	567	196	232	76
15	58	30	55	731	245	135	299	503	507	194	173	76
16	58	67	71	715	270	156	284	503	477	176	138	76
17	58	148	102	700	200	184	277	576	453	169	314	76
18	58	176	96	680	194	200	282	607	421	165	232	76
19	58	93	84	656	184	261	249	607	409	243	180	76
20	57	93	84	630	204	306	229	607	412	299	263	76
21	57	93	84	612	204	306	229	602	456	299	294	75
22	57	93	442	589	171	256	234	598	463	261	292	197
23	102	68	811	571	156	114	229	598	460	243	263	158
24	58	57	1,100	563	158	392	232	598	418	265	245	77
25	58	57	1,920	426	160	392	234	598	397	282	263	77
26	58	57	1,790	306	122	392	165	598	364	280	272	77
27	58	57	1,590	302	102	392	329	598	356	275	270	140
28	58	57	1,210	299	102	392	630	670	327	270	270	173
29	59	57	974	268	-----	392	974	695	309	272	270	200
30	64	57	895	247	-----	392	1,050	700	284	289	270	214
31	62	-----	895	249	-----	392	-----	516	-----	292	270	-----
Total	1,870	1,729	12,982	20,113	6,100	6,404	11,330	17,228	14,305	6,961	8,240	3,528
Mean	60.3	57.6	419	649	218	207	378	556	477	225	266	118
Ac-ft	3,710	3,430	25,750	39,890	12,100	12,700	22,470	34,170	28,370	13,810	16,340	7,000

Calendar year 1964: Max 1,920 Min 0.3 Mean 152 Ac-ft 110,000  
Water year 1964-65: Max 1,920 Min 21 Mean 304 Ac-ft 219,700

\* Discharge measurement made on this day.

## PYRAMID AND WINNEMUCCA LAKES BASIN

515

10-3460. Truckee River at Farad, Calif.

Location.--Lat 39°25'41", long 120°01'59", in NE $\frac{1}{4}$  sec. 12, T. 18 N., R. 17 E., on left bank half a mile upstream from Mystic Canyon, 0.7 mile downstream from Farad powerplant, 2.5 miles north of Floriston, 3.4 miles downstream from Bronco Creek, and 3.5 miles upstream from California-Nevada State line.

Drainage area.--932 sq mi.

Records available.--March to October 1890 (monthly discharge only), September 1899 to September 1965. Published as "near Boca" March to October 1890, "at or near Nevada-California State line" September 1899 to August 1912, and as "at Iceland" August 1912 to December 1937. Monthly discharge only for January 1944 to July 1957, published in WSP 1734.

Gage.--Digital water-stage recorder. Datum of gage is 5,153.21 ft above mean sea level (Bureau of Reclamation bench mark). March to October 1890, staff gage at site about 7 miles upstream at different datum. Sept. 7, 1899, to May 31, 1909, staff gage at approximately same location at different datum. June 1, 1909, to July 31, 1912, staff gage at site about  $2\frac{1}{2}$  miles downstream at different datum. Aug. 1, 1912, to Dec. 31, 1937, analog water-stage recorder at site 4.1 miles upstream at different datum. Jan. 1, 1938, to Aug. 27, 1957, analog water-stage recorder at approximately same location at different datum. Aug. 28, 1957, to July 24, 1964, analog water-stage recorder at present site and datum.

Average discharge.--66 years (1899-65), 780 cfs (564,700 acre-ft per year).

Extremes.--Maximum discharge during year, 12,000 cfs Dec. 23 (gage height, 11.67 ft); minimum, 156 cfs Dec. 21, result of upstream regulation.

1899-1965: Maximum discharge, 17,500 cfs Nov. 21, 1950, (gage height, 14.5 ft, present datum, from flood marks), from slope-area measurement of peak flow; minimum, 28 cfs Dec. 18, 1930.

Remarks.--Records good. Flow regulated by Lake Tahoe, Prosser Creek and Boca Reservoirs, Donner and Independence Lakes, and by several powerplants. Records of chemical analyses and water temperature for the water year 1965 are published in Part 2 of this report for Truckee River at Floriston, California. No appreciable inflow between sampling point and gaging station.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Jan. 11 to Feb. 4, Feb. 13-15, Feb. 18 to Apr. 2)

Oct. 1 to Dec. 22				Dec. 23 to Sept. 30			
2.0	230	4.0	1,230	2.0	300	6.0	3,120
2.5	415	5.0	1,990	3.0	720	10	8,900
3.0	650	8.0	5,750	4.0	1,310	11	10,700
				5.0	2,050		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	* 399	283	* 324	2,380	* 1,080	* 424	* 920	2,960	* 1,320	* 797	540	* 499
2	399	* 290	313	2,050	1,090	400	908	2,420	1,150	770	* 522	491
3	396	300	270	1,970	1,330	408	902	* 1,790	1,060	781	514	498
4	396	286	283	* 1,860	1,320	416	902	1,480	1,360	781	524	504
5	396	273	324	1,690	1,360	452	902	1,390	1,620	759	524	501
6	401	273	318	1,730	1,710	499	902	1,290	1,560	737	522	522
7	393	289	318	1,640	1,690	495	902	1,190	1,490	720	519	598
8	392	280	318	1,570	1,700	495	926	1,140	1,450	690	518	546
9	381	294	332	1,490	1,710	495	914	1,120	1,380	666	531	525
10	362	283	327	1,420	1,650	490	890	1,120	1,420	621	533	512
11	359	296	402	1,350	1,640	495	884	1,160	1,470	580	561	521
12	365	337	313	1,290	1,420	526	878	1,320	1,580	580	619	519
13	371	309	278	1,250	962	522	860	1,500	1,490	580	523	517
14	376	308	299	* 1,220	938	517	* 797	1,670	1,320	* 580	547	517
15	* 387	301	296	1,200	1,090	* 531	748	1,790	1,220	571	540	516
16	391	296	289	1,220	* 1,740	553	819	1,910	1,170	571	538	514
17	390	* 275	* 298	1,180	1,440	585	786	2,140	* 1,170	567	681	* 511
18	388	286	308	1,150	866	607	797	* 2,190	1,170	580	820	511
19	387	321	300	1,150	508	661	1,020	2,190	1,170	598	666	508
20	387	324	335	1,120	490	726	1,350	2,210	1,210	643	684	506
21	386	323	738	1,090	495	753	1,620	2,060	1,260	621	623	504
22	392	323	4,880	1,060	486	781	1,530	1,790	1,260	576	598	504
23	398	309	9,090	1,080	456	652	1,410	1,700	1,260	535	565	502
24	385	290	7,630	1,210	* 452	268	1,430	1,610	1,180	544	511	499
25	405	309	6,610	1,050	461	962	1,500	1,530	1,150	567	511	499
26	401	328	5,950	1,050	448	932	1,480	1,560	1,040	567	518	499
27	389	303	5,360	1,020	465	932	1,640	1,560	1,000	549	515	541
28	393	298	4,480	1,000	452	902	2,140	1,690	956	531	511	576
29	406	301	4,000	968	-----	902	2,770	1,790	902	522	508	595
30	396	300	3,720	1,060	-----	908	3,130	1,800	878	531	502	613
31	323	-----	3,110	1,060	-----	908	-----	1,580	-----	553	503	-----
TOTAL	11,990	8,988	61,813	41,578	29,449	19,897	36,657	52,650	37,666	19,268	17,291	15,668
MEAN	387	300	1,994	1,341	1,052	642	1,222	1,698	1,256	622	558	522
AC-FT	23,780	17,830	122,600	82,470	58,410	39,470	72,710	104,400	74,710	38,220	34,300	31,080

CALENDAR YEAR 1964 MAX 9,090 MIN 270 MEAN 647 AC-FT 469,790  
WATER YEAR 1964-65 MAX 9,090 MIN 270 MEAN 967 AC-FT 699,980

Peak discharge (base, 1,600 cfs)

\* Discharge measurement made on this day.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0730	11.67	12,000	4-30	2200	6.26	3,430
2-6	0230	4.61	1,740	5-17	2400	5.32	2,350
2-16	1330	4.70	1,810	6-6	0100	4.55	1,700

## PYRAMID AND WINNEMUCCA LAKES BASIN

10-3480. Truckee River at Reno, Nev.

Location,--Lat 39°31'55", long 119°47'05", in NW $\frac{1}{4}$  sec.7, T.19 N., R.20 E., on left bank 400 ft downstream from Kietzke Lane bridge, half a mile downstream from Scott Island,  $\frac{1}{2}$  miles east of Reno Post Office, and 5 miles upstream from Steamboat Creek.

Drainage area,--1,067 sq mi.

Records available,--July 1906 to September 1921, June 1925 to September 1926, January 1930 to December 1935, January to December 1943, January 1946 to September 1965. Monthly discharge only for some periods, published in WSP 1314 and 1734.

Gage,--Digital water-stage recorder. Datum of gage is 4,431.97 ft above mean sea level (levels by Corps of Engineers). July 1906 to September 1946, staff gage at site 1 mile upstream at different datum. Prior to Jan. 1, 1947 analog water-stage recorder at present site and datum.

Average discharge,--39 years (1906-21, 1925-26, 1930-34, 1946-65), 651 cfs (471,300 acre-ft per year).

Extremes,--Maximum discharge during year, 11,300 cfs Dec. 23 (gage height, 11.45 ft); minimum, 104 cfs Oct. 9. 1906-21, 1925-26, 1930-35, 1943, 1946-65: Maximum discharge, 20,800 cfs Dec. 23, 1955; maximum gage height, 13.83 ft Nov. 21, 1950; no flow Sept. 12, 14-24, 26-30, 1926.

Remarks,--Records excellent except those for period of no gage-height record, which are good. Flow regulated by Lake Tahoe, Prosser Creek and Boca Reservoirs, Donner and Independence Lakes, and by several powerplants. Many diversions above station.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(shifting-control method used Mar. 29 to Apr. 18)

Oct. 1 to Feb. 11

Feb. 12 to Sept. 30

2.0	89	5.0	1,740	2.2	115	4.0	1,000
2.5	227	6.0	2,700	2.5	215	5.0	1,810
3.0	425	8.0	5,200	3.0	420	7.0	4,100
4.0	975	11.0	10,400				

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	150	183	277	2,480	1,160	465	965	2,920	1,170	559	250	190
2	136	194	300	2,060	1,160	429	923	2,460	1,010	480	212	201
3	121	217	248	1,960	1,360	425	902	1,790	* 824	480	201	187
4	105	224	* 230	1,860	* 1,390	443	888	1,340	1,040	480	* 187	194
5	124	* 201	281	1,690	1,450	443	916	* 1,270	1,430	465	201	198
6	131	204	277	* 2,120	1,760	526	881	1,130	1,410	452	194	218
7	* 136	227	273	1,760	1,770	526	* 854	1,020	1,310	402	177	323
8	134	220	273	1,630	1,770	* 521	848	923	1,340	380	198	* 339
9	136	230	289	1,540	1,780	532	830	874	1,210	* 339	208	286
10	131	244	285	1,490	1,720	526	800	867	1,230	306	226	278
11	131	234	328	1,470	1,700	526	782	909	1,260	247	243	254
12	128	300	328	1,410	1,590	570	782	1,040	1,380	233	339	250
13	121	277	258	1,350	1,010	570	764	1,260	1,350	250	250	250
14	126	262	258	1,280	979	554	710	1,430	1,170	250	286	235
15	128	258	273	1,240	1,090	565	625	1,580	1,040	258	452	222
16	131	281	273	1,260	1,700	592	698	1,690	1,080	262	411	232
17	131	262	266	1,230	1,630	625	686	1,950	1,080	286	581	236
18	142	266	281	1,200	1,010	653	692	2,040	1,060	314	902	232
19	150	270	273	1,190	592	692	881	2,060	993	282	618	232
20	158	277	377	1,190	526	752	* 1,380	2,100	1,020	339	592	229
21	153	273	676	1,150	543	788	1,660	2,020	1,060	326	537	240
22	153	289	4,870	1,120	548	860	1,610	1,690	1,060	298	447	229
23	164	281	2,400	1,370	495	716	1,410	1,540	1,040	215	375	222
24	174	255	7,050	1,490	480	1,000	1,380	1,470	944	212	274	222
25	192	258	6,010	1,200	480	1,030	1,460	1,350	923	290	222	222
26	210	285	5,610	1,100	490	986	1,450	1,360	818	362	222	229
27	207	270	5,240	1,080	515	993	1,490	1,360	758	262	215	243
28	217	266	4,240	1,050	505	958	1,930	1,460	716	233	215	334
29	230	270	3,730	1,020	-----	951	2,590	1,590	658	222	222	348
30	230	266	3,440	1,080	-----	951	2,970	1,640	658	215	286	380
31	217	-----	3,020	1,140	-----	951	-----	1,500	-----	258	198	-----
TOTAL	4,797	7,544	58,934	44,210	31,203	21,119	34,757	47,633	32,042	9,957	9,941	7,526
MEAN	155	251	1,901	1,426	1,114	681	1,159	1,537	1,068	321	321	251
AC-FT	9,510	14,960	116,900	87,690	61,890	41,890	68,940	94,480	63,550	19,750	19,720	14,930

CALENDAR YEAR 1964 MAX 9,400 MIN 105 MEAN 479 AC-FT 347,870  
WATER YEAR 1964-65 MAX 9,400 MIN 105 MEAN 848 AC-FT 614,210

Peak discharge (base, 1,600 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	1000	11.45	11,300	2-16	1230	5.07	1,870
1-23	2100	5.98	2,770	5-1	0245	6.37	3,290
2-6	0630	5.03	1,840	5-20	0445	5.44	2,220

\* Discharge measurement made on this day.  
Note.--No gage-height record Oct. 1-6. Aug. 18 to Sept. 8, Sept. 14-30.

10-3547. Mill Creek at Milford, Calif.

Location.--Lat 40°10'15", long 120°22'14", in SE 1/4 sec. 26, T. 27 N., R. 14 E., on left bank 20 ft upstream from culvert on U.S. Highway 395 in Milford.

Drainage area.--2.26 sq mi.

Records available.--August 1963 to September 1965.

Gage.--Water-stage recorder and crest-stage gage. Altitude of gage is 4,200 ft (from topographic map).

Extremes.--Maximum discharge during year, 23 cfs Jan. 5 (gage height, 3.59 ft from crest-stage gage), computation of maximum flow through culvert; minimum daily, 0.1 cfs Oct. 11, 25; Sept. 5, 12, 19.

1963-65: Maximum discharge, that of Jan. 5, 1965; no flow Aug. 23, 1964.

Remarks.--Records fair except those for periods of no gage-height record, which are poor. Small diversions above station for irrigations.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

1.90	0	2.3	2.1
1.95	.1	2.4	3.1
2.0	.3	2.6	5.9
2.1	.7	2.8	9.0
2.2	1.3	3.0	13.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.7	0.6	0.6	2.7	3.1	1.5	4.5	2.1	1.3	0.9	0.2	0.7
2	.7	.6	.6	3.0	2.9	1.4	3.5	2.1	1.3	.8	.6	.8
3	.5	.6	.6	3.5	3.0	1.4	3.2	2.1	1.2	.6	.6	.7
4	.2	.6	.7	4.5	2.9	1.4	2.8	2.1	1.2	.3	.6	.6
5	.6	.6	.7	1.0	2.8	1.4	2.8	2.1	.8	.8	.6	.1
6	.6	.6	.7	9.0	3.0	1.4	2.8	2.1	.5	.8	.6	.7
7	.5	.6	.7	7.0	2.8	1.4	3.0	2.1	1.2	.8	.5	.7
8	.6	.6	.7	5.5	2.5	1.4	4.0	2.1	1.2	.8	.2	.7
9	.6	.6	.7	4.5	2.0	1.4	6.0	2.1	1.2	.7	.6	.7
10	.5	.7	.8	4.5	1.8	1.7	4.5	2.1	1.2	.5	.6	.5
11	.1	.8	.8	4.0	1.8	2.2	3.0	2.1	1.1	.3	.7	.4
12	.5	.8	.8	3.8	1.8	4.5	2.4	2.1	.8	.8	.7	.1
13	.6	.7	.8	3.7	1.9	3.5	2.5	2.1	.4	.8	.7	.8
14	.7	.6	.8	3.5	1.9	2.1	2.6	2	1.1	.8	.6	.8
15	.7	.6	.9	3.5	1.8	2.0	3.0	1.5	1.1	.8	.3	.8
16	.7	.6	.9	3.3	1.7	2.0	3.5	1.1	1.1	.8	.6	.8
17	.5	.6	.9	3.2	1.7	2.0	2.5	1.7	1.2	.5	.7	.9
18	.2	.6	1.0	3.0	1.6	2.0	2.3	1.6	1.2	.4	.7	.8
19	.5	.6	1.1	3.0	1.6	2.0	2.2	1.6	.8	.8	.7	.1
20	.5	.2	1.2	2.8	1.4	2.0	2.2	1.6	.5	.8	.7	.9
21	.6	.6	3.0	2.8	1.3	2.0	2.2	1.6	1.1	.8	.6	.8
22	.5	.6	6.4	2.8	1.3	2.0	2.2	1.2	1.1	.7	.2	.8
23	.5	.6	5.0	2.7	1.2	2.0	2.2	.8	1.1	.8	.7	.8
24	.4	.6	4.0	2.6	1.2	2.1	2.2	1.5	1.1	.5	.7	.8
25	.1	.6	2.9	2.6	1.3	2.2	2.1	1.4	1.1	.3	.7	.7
26	.6	.6	4.9	2.6	1.2	2.5	2.1	1.4	.7	.7	.7	.2
27	.6	.2	4.0	2.5	1.7	5.0	2.1	1.3	.4	.7	.6	.8
28	.6	.6	3.5	2.4	1.6	4.0	2.1	1.3	.8	.6	.5	.8
29	.6	.6	3.0	2.4	-----	3.5	2.1	.9	.9	.6	.2	.8
30	.6	.6	2.7	2.6	-----	2.7	2.1	.6	.9	.6	.7	.8
31	.6	-----	2.5	2.8	-----	3.0	-----	1.3	-----	.5	.7	-----
Total	16.2	17.8	57.9	116.8	54.8	69.7	84.7	51.7	29.6	20.6	17.8	19.9
Mean	0.52	0.59	1.87	3.77	1.96	2.25	2.82	1.67	0.99	0.66	.57	0.66
Ac-ft	32	35	115	232	109	138	168	103	59	41	35	40

Calendar year 1964 Max 6.4 Min 0 Mean 0.82 Ac-ft 592  
 Water year 1964-65 Max 10 Min 0.1 Mean 1.53 Ac-ft 1110

Note.--No gage-height record Oct. 19-21, Oct. 31 to Dec. 17, Dec. 21-24, Dec. 27 to Jan. 26, Mar. 3-9, Mar. 11 to May 12.

10-3565. Susan River at Susanville, Calif.

Location.--Lat 40°25'05", long 120°40'15", in NE $\frac{1}{4}$  sec.31, T.30 N., R.12 E., on left bank 0.5 mile west of Susanville and 1.1 miles upstream from Plute Creek.

Drainage area.--184 sq mi (revised).

Records available.--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 September 1965. Published as "near Susanville" 1900-1905. 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.

Gage.--Water-stage recorder. Datum of gage is 4,225.72 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1950, staff gages at several sites in vicinity of old powerplant about 0.9 mile upstream at various datums.

Average discharge.--21 years (1900-1901, 1903-5, 1917-20, 1950-65), 95.3 cfs (68,990 acre-ft per year).

Extremes.--Maximum discharge during year, 5,100 cfs Dec. 22 (gage height, 7.30 ft), from rating curve extended above 1,440 cfs on basis of slope-area measurement at gage height 6.62 ft; minimum daily, 3.3 cfs Oct. 2. 1900-05, 1913, 1917-21, 1950-65: Maximum discharge, that of Dec. 22, 1964; no flow Aug. 15, 1961.

Remarks.--Records good except those for periods of ice effect, which are fair. Flow regulated by McCoy Flat Reservoir, Hog Flat Reservoir, and Lake Levitt (combined usable capacity, 39,300 acre-ft). Diversions for irrigation of about 1,400 acres above station. Records of chemical analyses for the water year 1965 are published in Part 2 of this report.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 22				Dec. 23 to Sept. 30			
0.6	2.0	3.0	205	1.1	6.5	4.0	480
.7	3.4	3.5	330	1.3	11	5.0	1,000
.8	5.2	4.0	510	1.6	22	6.0	2,200
1.0	10	5.0	1,140	2.0	47	6.5	3,280
1.5	26	6.0	2,380	2.5	98		
2.0	57	6.5	3,300	3.0	186		
2.5	115			3.5	300		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.6	9.5	49	243	241	139	223	560	139	97	122	9.2
2	3.3	12	41	250	217	123	217	504	174	94	103	11
3	3.4	11	28	217	202	123	202	424	156	90	109	9.5
4	3.6	9.5	21	215	203	113	204	270	123	86	109	9.0
5	3.9	9.0	21	266	262	112	219	223	117	81	105	9.0
6	4.1	3.7	19	376	243	103	203	206	102	76	112	9.0
7	4.3	9.2	13	266	193	108	190	186	86	70	114	10
8	5.2	9.5	13	192	180	112	190	173	80	64	113	9.8
9	5.0	21	20	190	162	117	186	182	75	60	120	9.5
10	4.7	19	24	163	132	120	172	206	82	53	120	9.0
11	3.9	16	88	200	123	123	162	215	94	49	150	9.0
12	4.3	21	27	206	115	146	160	219	92	45	142	3.3
13	3.9	17	19	180	113	144	164	224	91	41	115	7.9
14	3.9	14	19	162	117	137	156	226	92	35	101	7.9
15	4.1	12	13	152	106	135	174	223	106	31	90	7.9
16	4.5	10	13	141	101	139	433	237	93	32	82	7.9
17	4.3	8.0	8.6	133	99	143	290	243	101	33	76	7.9
18	4.5	7.8	8.6	125	99	135	280	243	115	26	73	3.3
19	4.5	7.8	24	123	103	123	380	260	114	23	66	9.0
20	4.7	7.8	37	122	115	123	492	252	117	13	53	9.0
21	4.8	7.8	1170	114	123	143	615	250	106	15	44	3.5
22	5.0	9.0	3210	103	133	180	620	246	99	14	24	3.3
23	5.0	10	2380	344	113	194	620	223	93	13	16	3.5
24	5.2	15	1150	503	109	183	625	213	98	11	13	3.5
25	5.2	22	847	292	109	173	625	200	103	9.5	12	3.5
26	5.9	25	922	239	115	182	630	152	105	9.8	11	3.5
27	6.3	19	777	210	193	200	625	123	101	64	11	3.5
28	6.3	17	526	192	154	173	640	115	93	104	10	9.2
29	7.1	13	410	132	-----	180	640	112	104	102	10	9.0
30	3.2	13	344	202	-----	184	620	109	99	105	9.8	9.0
31	7.4	-----	286	235	-----	196	-----	109	-----	114	9.2	-----
Total	150.1	400.6	12,543.2	6,553	4,210	4,556	10,967	7,153	3,170	1,665.3	2,260.0	264.6
Mean	4.84	13.4	405	211	150	147	366	231	106	53.7	72.9	3.82
Ac-ft	293	795	24,380	13,000	8,350	9,040	21,750	14,190	6,290	3,300	4,480	525

Calendar year 1964 Max 3,210 Min 2.6 Mean 72.4 Ac-ft 52,530  
 Water year 1964-65 Max 3,210 Min 3.3 Mean 148 Ac-ft 106,900

Peak discharge (base, 400 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-22	1430	7.30	5,100	4-16	0500	4.35	625
1-6	0200	3.92	448	4-28	2100	4.45	675
1-23	2100	5.22	1,180				

Note.--Stage-discharge relation affected by ice Nov. 15-23, Dec. 12-18.



10-3585. Willow Creek near Susanville, Calif.

Location.--Lat 40°29', long 120°32', in NW $\frac{1}{4}$  sec. 5, T.30 N., R.13 E., on left bank 4 miles upstream from Peters Valley Creek and 8 miles northeast of Susanville.

Drainage area.--90.0 sq mi. (revised), excludes that of Eagle Lake basin.

Records available.--October 1950 to September 1965.

Gage.--Water-stage recorder (digital). Datum of gage is 4,836.27 ft above mean sea level, unadjusted.

Average discharge.--15 years, 31.8 cfs (23,020 acre-ft per year).

Extremes.--Maximum discharge during year, 744 cfs Dec. 23 (gage height, 5.43 ft), minimum daily, 11 cfs Oct. 1, May 30, June 3, 4. 1950-65: Maximum discharge, 816 cfs Feb. 1, 1963 (gage height, 5.59 ft), from rating curve extended above 534 cfs; minimum, 8.1 cfs Nov. 16, 1951.

Remarks.--Records good. Diversions for irrigation of about 5,200 acres above station. Some flow at times enters Willow Creek from Eagle Lake through abandoned tunnel.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1. to Dec. 23				Dec. 24 to Sept. 30			
2.1	9.8	3.2	93	2.1	9.5	3.2	98
2.2	12	3.5	133	2.2	12	3.5	143
2.3	15	4.0	225	2.4	20	4.0	240
2.5	26	4.5	350	2.6	35	4.5	380
2.7	41	5.0	550	2.9	63	5.0	560
2.9	60	5.5	775				

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	20	30	77	182	102	51	37	12	13	15	13
2	12	20	29	81	157	85	50	36	12	14	15	13
3	12	19	28	61	132	81	49	39	11	15	14	13
4	12	19	28	29	120	78	48	40	11	19	14	12
5	12	20	28	29	214	78	48	39	12	17	14	12
6	12	20	29	40	285	80	47	39	12	15	13	12
7	12	20	29	42	168	80	45	39	12	14	12	12
8	12	20	29	63	137	75	46	37	12	14	13	12
9	12	22	31	90	105	72	43	33	13	13	13	13
10	12	21	31	101	89	71	53	28	12	13	13	13
11	12	21	32	115	78	69	61	29	12	13	13	13
12	12	22	30	143	70	71	57	29	12	13	13	13
13	12	23	28	148	65	54	56	29	12	13	13	12
14	12	24	28	138	65	57	54	28	12	13	13	12
15	12	23	29	126	62	51	52	27	13	13	13	12
16	12	23	30	115	62	50	53	30	13	13	12	13
17	12	24	28	102	61	48	51	31	14	13	12	16
18	12	23	28	95	66	46	51	30	15	13	12	17
19	12	23	28	93	83	44	52	25	16	13	12	17
20	12	23	30	90	101	46	50	21	15	13	12	13
21	13	24	59	93	109	46	54	19	14	13	12	13
22	14	25	391	94	124	47	53	19	12	13	12	13
23	16	25	696	137	97	47	51	18	13	13	12	18
24	15	26	546	366	89	44	50	18	13	13	12	16
25	18	28	353	329	86	43	50	16	13	13	12	15
26	19	30	240	220	88	43	48	16	13	13	13	17
27	19	30	262	171	124	48	45	16	13	13	13	17
28	19	29	182	145	129	47	45	14	13	14	13	18
29	20	28	114	133	-----	46	46	13	12	14	14	18
30	20	28	95	146	-----	45	41	11	12	14	13	18
31	20	-----	75	173	-----	46	-----	12	-----	14	13	-----
Total	432	703	3,596	3,785	3,148	1,851	1,505	818	381	424	400	441
Mean	13.9	23.4	116	122	112	59.7	50.2	26.4	12.7	13.7	12.9	14.7
Ac-ft	357	1,390	7,130	7,510	6,240	3,670	2,990	1,620	756	941	793	875

Calendar year 1964 Max 696 Min 10 Mean 27.8 Ac-ft 20,210  
 Water year 1964-65 Max 696 Min 11 Mean 47.9 Ac-ft 34,670

Peak discharge (base, 200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0600	5.43	744	1-24	1900	4.56	401
12-26	1830	4.28	314	2- 6	0200	4.27	311

10-3593 (revised). Pine Creek near Susanville, Calif.

Location.--Lat 40°39'49", long 120°48'33", in SE $\frac{1}{4}$  sec.2, T.32 N., R.10 E., on right bank 1.8 miles upstream from Eagle Lake and 18 miles northwest of Susanville.

Drainage area.--226 sq mi (revised).

Records available.--October 1960 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 5,185 ft (from topographic map).

Average discharge.--5 years, 15.8 cfs (11,440 acre-ft per year).

Extremes.--Maximum discharge during year, 589 cfs Apr. 21 (gage height, 4.76 ft); no flow for several months.  
1960-65: Maximum discharge, 806 cfs Feb. 1, 1963 (gage height, 5.37 ft); no flow for several months in each year.

Remarks.--No storage or diversion above station except for minor stock ponds.

Cooperation.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			0	50	45	35	314	127	16			
2			0	40	45	30	312	122	15			
3			0	35	45	30	268	115	14			
4			0	35	40	30	302	104	12			
5			0	35	40	30	359	85	10			
6			0	35	45	30	304	77	8.9			
7			0	40	40	25	267	72	6.1			
8			0	40	40	25	217	72	4.3			
9			0	45	35	25	172	62	2.8			
10			0	50	35	25	170	54	1.7			
11			0	60	35	25	151	48	1.0			
12			0	70	35	25	143	47	.6			
13			0	55	35	25	185	48	0			
14			0	45	35	25	213	55	0			
15			0	35	30	25	257	53	.8			
16			0	35	30	25	435	47	.8			
17			0	30	30	25	418	43	1.4			
18			0	30	30	25	329	42	3.6			
19			0	30	30	30	405	43	3.5			
20			0	30	30	50	545	43	3.0			
21			0	35	30	90	579	43	2.6			
22			332	35	35	170	532	49	1.9			
23			546	40	35	240	430	51	1.5			
24			455	45	35	270	325	48	.9			
25			361	50	35	244	254	42	.3			
26			307	45	35	180	207	36	0			
27			222	40	35	174	184	29	0			
28			150	50	35	151	167	24	0			
29			110	50	-----	176	150	21	0			
30			85	50	-----	226	141	18	0			
31		-----	60	45	-----	244	-----	17	-----			-----
Total	0	0	2,628	1,310	1,005	2,730	8,735	1,737	112.7	0	0	0
Mean	0	0	84.8	42.3	35.9	88.1	291	56.0	3.76	0	0	0
Ac-ft	0	0	5,210	2,600	1,990	5,410	17,330	3,450	224	0	0	0

Calendar year 1964 Max 546 Min 0 Mean 19.0 Ac-ft 13,810  
Water year 1964-65 Max 579 Min 0 Mean 50.0 Ac-ft 36,210

Note.--No gage-height record Dec. 28 to Mar. 24.

10-3593.5 (revised). Eagle Lake tributary near Susanville, Calif.

Location.--Lat 40°44'10", long 120°42'20", in SW $\frac{1}{4}$  sec.11, T.33 N., R.11 E., at culvert on State Highway 139, at north end of Eagle Lake, and 22.2 miles north of Susanville.

Drainage area.--0.91 sq mi.

Records available.--October 1962 to September 1965, discontinued as a continuous-record station; converted to a crest-stage partial-record station.

Gage.--Crest-stage gage, Oct. 1, 1962 to Aug. 30, 1965. Water-stage recorder at same site and datum. Altitude of gage is 5,170 ft (from topographic map).

Extremes.--Maximum discharge during year, 8.8 cfs Jan. 23 (gage height, 4.06 ft); from rating curve extended above 1.3 cfs on basis of computation of flow through culvert at gage heights 4.00 ft, 5.14 ft, and 6.01 ft; no flow for several months.

1962-65: Maximum discharge, 21 cfs Feb. 1, 1963 (gage height, 5.14 ft), from rating curve based on computation of maximum flow through culvert; no flow most of each year.

Remarks.--Records good except those for the period Jan. 8-27, which are poor. No storage or diversion above station.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

2.6	0	3.1	1.2
2.7	.1	3.2	1.6
2.8	.2	3.4	2.8
2.9	.4	3.6	4.3
3.0	.7	3.9	7.0

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			0	0	0.9	0.2	0.3					
2			0	0	.6	.2	.1					
3			0	0	.4	.2	0					
4			0	0	.4	.2	0					
5			0	2.6	.8	.3	0					
6			0	4.3	.5	.3	0					
7			0	4.3	.3	.5	0					
8			0	4.3	.3	.6	0					
9			0	4.3	.3	.5	0					
10			0	4.3	.3	.6	.2					
11			0	5.5	.3	.6	.5					
12			0	6.0	.3	.9	.2					
13			0	5.0	.3	.7	0					
14			0	4.3	.3	.7	0					
15			0	4.3	.3	.6	0					
16			0	4.3	.3	.7	0					
17			0	4.3	.3	.5	0					
18			0	4.3	.3	.4	0					
19			0	4.3	.5	.4	0					
20			0	4.5	.5	.4	0					
21			0	5.0	.6	.4	0					
22			.9	5.5	.3	.4	0					
23			1.2	7.0	.3	.3	0					
24			.4	4.5	.3	.2	0					
25			.2	2.0	.4	.2	0					
26			.2	.7	.5	.2	0					
27			.1	.3	.6	.5	0					
28			0	.3	.3	.3	0					
29			0	.3		.2	0					
30			0	.7	-----	0	0					
31		-----	0	1.2	-----	0	-----		-----			-----
Total	0	0	3.0	98.4	11.5	12.2	1.3	0	0	0	0	0
Mean	0	0	0.10	3.17	0.41	0.39	0.04	0	0	0	0	0
Ac-ft	0	0.9	6.0	195	23	24	2.6	0	0	0	0	0
(†)	0	0	4.5		0.1	0.6	0.8	0.4	1.0	1.1	1.4	-

Calendar year 1964: Max 1.7 Min 0 Mean 0.03 Ac-ft 21  
 Water year 1964-65: Max 7.0 Min 0 Mean 0.35 Ac-ft 251

† Precipitation, in inches (some precipitation falling as snow may not be included).

Note.--No gage-height record Jan. 8-27, Aug. 31 to Sept. 30.

10-3609. Bidwell Creek below Mill Creek, near Fort Bidwell, Calif.

Location.--Lat 41°52'55", long 120°10'25", in SE $\frac{1}{4}$  sec.6, T.46 N., R.16 E., on right bank 0.9 mile downstream from Mill Creek and 2.0 miles northwest of Fort Bidwell.

Drainage area.--25.6 sq mi (revised).

Records available.--October 1960 to September 1965. Prior to October 1961, published as Bidwell Creek near Fort Bidwell, Calif.

Gage.--Water-stage recorder. Altitude of gage is 5,000 ft (from topographic map).

Average discharge.--5 years. 21.6 cfs (15,640 acre-ft per year).

Extremes.--Maximum discharge during year, 682 cfs Dec. 24 (gage height, 5.64 ft) from rating curve extended above 70 cfs on basis of slope-area measurement of maximum flow; minimum daily, 2.0 cfs Dec. 21.  
1960-65: Maximum discharge, that of Dec. 24, 1964; minimum, 1.4 cfs Nov. 5, 1960.

Remarks.--Less than 2 cfs diverted upstream for irrigation. No storage above station.

Cooperation.-- Records furnished by the California Department of Water Resources and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.1	4.6	9.8	53	69	22	20	184	104	27	12	6.9
2	4.0	5.3	7.5	38	60	21	20	160	94	29	11	6.5
3	3.9	4.7	6.0	35	52	20	19	143	88	25	11	6.3
4	3.9	4.6	4.9	37	47	20	21	121	88	23	10	6.2
5	3.9	4.4	4.7	30	46	22	24	108	88	22	9.9	6.7
6	3.8	4.2	4.3	29	40	21	26	98	87	21	9.6	7.0
7	3.9	4.2	4.6	27	34	22	25	90	87	20	9.3	6.5
8	4.0	4.2	4.9	25	30	22	23	85	87	19	9.0	5.9
9	4.0	4.7	5.3	25	25	24	22	78	87	18	8.9	6.1
10	3.9	4.5	11	27	23	25	21	73	75	17	9.1	5.4
11	4.0	4.2	11	38	21	23	19	70	73	17	14	5.6
12	3.9	4.3	7.6	30	18	27	19	73	73	16	11	5.6
13	3.9	4.1	7.4	29	17	27	19	81	73	15	9.6	5.5
14	3.8	4.2	6.6	26	16	25	18	95	67	15	9.3	5.4
15	4.1	4.3	5.2	26	16	26	19	102	65	14	8.6	5.5
16	4.3	4.4	5.1	26	18	26	22	114	58	15	8.3	5.4
17	4.2	4.2	5.0	27	18	27	20	130	59	14	8.6	5.9
18	4.2	4.0	4.8	26	17	26	37	129	58	14	9.3	6.0
19	4.3	3.8	4.9	27	19	26	91	126	61	13	8.9	5.9
20	4.3	3.8	4.5	29	20	25	128	116	56	13	8.7	5.8
21	4.2	3.8	2.0	29	21	25	144	113	58	14	9.4	5.6
22	4.4	3.6	35	27	21	29	137	116	56	13	8.5	5.3
23	4.3	3.5	350	27	20	29	137	108	58	13	8.0	5.4
24	4.1	3.1	462	29	19	29	140	102	47	12	8.0	5.0
25	4.0	3.9	259	29	20	27	143	93	49	12	8.2	5.3
26	4.1	2.8	184	23	20	26	148	86	44	12	7.8	5.1
27	4.3	2.6	137	24	21	23	148	81	38	12	7.6	5.4
28	4.2	2.7	96	24	19	20	172	89	33	11	7.4	5.2
29	6.5	3.1	78	39	-----	19	211	101	31	11	22	5.5
30	5.2	5.2	63	67	-----	18	199	110	30	11	6.9	5.5
31	4.6	-----	51	78	-----	18	-----	113	-----	11	6.5	-----
Total	130.3	121.0	1842.1	1006	757	740	2197	3288	1972	498	296.4	173.4
Mean	4.20	4.03	59.4	32.5	27.4	23.9	73.2	106	65.7	16.1	9.56	5.79
Ac-ft	258	240	3650	2000	1520	1470	4360	6520	3910	988	588	344

Calendar year 1964 Max 462 Min 2.0 Mean 23.9 Ac-ft 17,330  
 Water year 1964-65 Max 462 Min 2.0 Mean 35.7 Ac-ft 25,850

11-1853. Golden Trout Creek near Cartago, Calif.

Location.--Lat 36°22'20", long 118°17'15", in NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.10, T.18 S., R.34 E., on right bank 0.5 mile upstream from Tunnel Ranger Station and 15 miles west of Cartago.

Drainage area.--23.6 sq mi.

Records available.--October 1956 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 8,940 ft (from topographic map).

Average discharge.--9 years, 13.9 cfs (10,060 acre-ft per year).

Extremes.--Maximum discharge during year, 104 cfs May 18 (gage height, 3.44 ft); maximum gage height, 4.03 ft Nov. 14 (backwater from ice); minimum daily discharge, 7.0 cfs Dec. 28 to Jan. 1, Jan. 7.  
1956-65: Maximum discharge, 182 cfs May 31, 1958 (gage height, 4.05 ft); maximum gage height, 5.24 ft Feb. 12, 1959 (backwater from ice); minimum discharge, 0.2 cfs Feb. 11, 1959.

Remarks.--Records excellent except those for periods of ice effect, which are good. No storage or diversion above station.

Rating table, except periods of ice effect (gage height, in feet,  
and discharge, in cubic feet per second)

1.9	5.2
2.0	7.4
2.3	17
2.6	32
3.1	70

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.7	3.2	3.4	7.0	3.2	3.2	3.7	32	45	21	15	12
2	7.7	7.9	3.4	3.0	3.2	3.2	3.7	33	45	20	14	12
3	7.7	7.9	3.4	3.0	3.2	3.2	3.7	36	41	20	14	12
4	7.7	7.9	3.2	9.0	3.2	3.2	9.0	34	40	19	13	12
5	7.7	7.9	3.4	9.0	3.2	7.9	3.7	32	39	19	13	12
6	7.7	7.9	3.4	9.0	3.2	7.9	3.7	31	40	13	13	12
7	7.7	7.9	3.2	7.0	3.0	7.9	3.7	30	41	13	13	12
8	7.7	7.9	3.2	3.0	3.0	3.2	3.7	23	42	13	12	12
9	7.7	7.9	3.2	3.5	7.9	3.2	9.0	26	40	17	13	12
10	7.7	3.4	3.2	3.7	7.5	3.2	3.5	25	40	17	14	12
11	7.7	3.5	3.2	3.7	7.5	3.2	3.0	25	39	17	19	12
12	7.7	3.5	3.2	3.7	7.5	3.2	3.0	26	38	17	19	11
13	7.7	3.2	3.2	3.4	7.7	3.2	3.2	31	33	16	17	11
14	7.7	7.5	3.4	3.4	7.9	3.2	3.4	32	36	17	15	11
15	7.9	7.5	3.4	3.4	7.9	3.2	3.4	37	36	13	17	11
16	7.9	7.8	3.4	3.4	7.9	3.2	3.7	43	33	22	17	11
17	7.9	7.8	3.4	3.4	7.9	3.2	9.2	63	36	24	21	12
18	7.7	7.8	3.2	3.4	7.9	7.9	10	63	32	20	13	13
19	7.7	3.0	3.2	3.4	7.9	3.2	11	70	31	13	16	14
20	7.7	3.0	7.9	3.4	7.9	3.2	12	66	30	17	14	13
21	7.4	3.2	7.9	3.4	7.9	3.2	13	62	29	16	14	12
22	7.7	3.4	3.7	3.4	7.9	3.4	14	53	23	15	13	12
23	7.4	3.4	14	3.4	3.2	3.7	14	51	23	15	13	12
24	7.7	3.4	16	3.0	7.9	3.7	15	43	27	13	12	12
25	7.7	3.7	12	7.5	7.9	3.7	17	46	26	17	12	12
26	7.7	3.7	11	3.0	7.9	3.7	19	45	26	15	12	11
27	7.9	3.4	3.0	3.2	7.9	3.7	20	45	24	15	12	11
28	9.5	3.4	7.0	3.2	3.2	3.7	22	45	24	14	12	11
29	9.2	3.4	7.0	3.2	-----	3.7	25	45	23	14	12	12
30	9.0	3.4	7.0	3.2	-----	3.7	23	45	22	20	12	11
31	3.4	-----	7.0	3.2	-----	3.7	-----	45	-----	17	12	-----
Total	244.2	243.8	271.1	256.5	222.4	257.7	366.3	1,303	1,024	549	443	355
Mean	7.88	9.13	3.75	3.27	7.94	3.31	12.2	42.2	34.1	17.7	14.3	11.8
Ac-ft	484	484	533	509	441	511	727	2,590	2,030	1,090	879	704

Calendar year 1964 Max 24 Min 7.0 Mean 9.76 Ac-ft 7,060  
Water year 1964-65 Max 70 Min 7.0 Mean 15.2 Ac-ft 10,990

Peak discharge (base, 50 cfs) May 18 (1900 hrs) 104 cfs (3.44 ft).

Note.--Stage-discharge relation affected by ice Nov. 11-21, 23, Dec. 3, 4, 6-8, 12-14, 16-20, 27-31, Jan. 1-4, 7-9, 24-28, Feb. 7, 8, 10-13, 15-17, 19, 28, Mar. 1-3, 7-10, 13-17, Apr. 5, 9-15.

## BUENA VISTA LAKE BASIN

11-1853.5. Kern River near Quaking Aspen Camp, Calif.

Location.--Lat 36°08'05", long 118°25'45", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.32, T.20 S., R.33 E., on right bank 0.4 mile upstream from Little Kern River and 6.8 miles east of Quaking Aspen Camp.

Drainage area.--530 sq mi.

Records available.--October 1960 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 4,693 ft above mean sea level (river-profile survey).

Average discharge.--5 years, 439 cfs (317,800 acre-feet per year).

Extremes.--Maximum discharge during year, 3,000 cfs June 12 (gage height, 6.84 ft); minimum daily, 93 cfs Oct. 4, 5.  
1960-65: Maximum discharge, 4,060 cfs June 18, 1963 (gage height, 7.98 ft); minimum, 61 cfs Jan. 20, 1962.

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

Rating tables (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 23		Dec. 24 to Sept. 30	
2.0	87	2.5	194
2.3	140	3.0	335
2.6	208	3.5	520
3.0	322	4.0	760
3.5	490	5.0	1,370
		6.0	2,180
		7.0	3,180

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	97	134	155	306	256	267	273	1,170	2,060	1,690	1,010	322
2	95	132	157	319	256	265	267	1,110	1,770	1,640	898	313
3	95	127	153	325	259	262	259	1,010	1,500	1,710	776	303
4	93	127	146	325	262	262	267	864	1,450	1,740	690	297
5	93	127	150	332	267	259	267	810	1,890	1,780	635	285
6	95	123	144	332	267	259	273	750	2,270	1,870	610	282
7	97	121	146	332	259	253	270	705	2,480	1,890	592	273
8	97	121	146	279	253	248	270	660	2,470	1,830	552	267
9	97	129	146	300	256	245	267	630	1,850	1,730	547	262
10	97	132	144	276	227	240	262	601	1,840	1,590	565	253
11	97	129	146	267	242	240	259	601	2,300	1,400	798	245
12	97	159	148	259	235	240	288	606	2,710	1,270	1,280	265
13	98	159	136	251	237	235	273	645	2,630	1,220	936	235
14	100	136	146	248	237	229	273	690	2,360	1,250	930	229
15	100	150	146	248	227	229	285	745	1,960	1,420	832	224
16	101	161	140	251	224	224	297	925	1,610	1,400	804	219
17	101	161	140	253	224	224	313	1,250	1,400	1,520	782	219
18	100	150	142	256	224	227	329	1,590	1,330	1,590	832	235
19	100	148	144	256	227	229	374	1,700	1,500	1,330	675	279
20	98	153	159	259	232	232	440	1,750	1,680	1,180	588	288
21	98	153	163	253	235	245	480	1,590	1,850	1,050	534	285
22	98	150	166	253	240	256	538	1,400	1,890	936	492	273
23	100	150	434	259	240	267	552	1,290	1,800	864	452	259
24	100	150	1,270	303	240	267	588	1,160	1,610	898	430	245
25	100	155	929	265	245	262	680	1,070	1,650	914	398	240
26	100	157	639	276	251	265	771	1,120	1,530	854	377	232
27	101	155	658	270	267	267	886	1,250	1,460	760	360	227
28	116	153	464	262	267	259	974	1,500	1,570	695	346	222
29	144	155	405	256	-----	262	1,060	1,790	1,670	660	335	219
30	146	155	398	253	-----	265	1,120	1,870	1,720	832	329	219
31	139	-----	363	256	-----	267	-----	1,960	-----	1,070	335	-----
Total	3,189	4,312	8,823	8,580	6,856	7,751	13,455	34,312	55,810	40,583	19,720	7,716
Mean	103	144	285	277	245	250	448	1,123	1,860	1,309	636	257
Ac-ft	6,330	8,550	17,500	17,020	13,600	15,370	26,690	69,050	110,700	80,500	39,110	15,300

Calendar year 1964 Max 1,270 Min 93 Mean 261 Ac-ft 189,800  
Water year 1964-65 Max 2,710 Min 93 Mean 580 Ac-ft 419,700

Peak discharge (base, 1000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-24	1730	5.34	1,620	6-7	0700	6.54	2,700
5-1	0600	4.81	1,240	6-12	0800	6.84	3,000
5-20	0600	5.64	1,860	7-7	0800	5.88	2,070
6-1	0800	6.00	2,180	8-12	0400	5.09	1,430

11-1854. Little Kern River near Quaking Aspen Camp, Calif.

Location.--Lat 36°08'05", long 118°26'10", in SE<sup>1</sup>/<sub>4</sub> sec. 31, T.20 S., R.33 E., on left bank 600 ft upstream from mouth and 5 miles east of Quaking Aspen Camp.

Drainage area.--132 sq mi.

Records available.--August 1957 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 4,682 ft above mean sea level (river-profile survey).

Average discharge.--8 years, 93.9 cfs (67,980 acre-ft per year).

Extremes.--Maximum discharge during year, 1,060 cfs Dec. 24 (gage height, 4.40 ft); minimum daily, 9.5 cfs Oct. 1-6, 9-12.

1957-65: Maximum discharge, 7,370 cfs Feb. 1, 1963 (gage height, 9.19 ft), from rating curve extended above 560 cfs on basis of slope-area measurement of maximum flow; minimum, 3.5 cfs Nov. 18, 1961.

Flood of Dec. 23, 1955, reached a stage of 12.4 ft, from floodmarks (discharge not determined).

Remarks.--Records good. No regulation or diversion above station.

Rating tables, (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 23

Dec. 24 to Sept. 30

1.0	8.0	1.5	14
1.2	15	1.6	22
1.4	28	1.7	34
1.7	64	2.0	92
2.0	118	2.5	203
2.6	274	3.0	360
3.4	560	4.0	820

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.5	17	31	90	94	100	120	484	551	203	78	29
2	9.5	17	31	92	96	100	110	462	492	195	70	26
3	9.5	15	27	86	100	100	108	409	450	190	64	26
4	9.5	15	24	88	100	100	112	364	474	186	60	25
5	9.5	15	27	102	104	96	104	339	542	133	56	25
6	9.5	14	22	120	104	98	109	313	565	171	52	25
7	9.8	14	24	116	96	94	106	297	546	166	48	25
8	9.8	14	22	90	88	90	103	278	506	183	47	26
9	9.5	13	23	88	86	88	106	266	442	150	45	25
10	9.5	24	22	80	80	86	102	251	450	139	43	24
11	9.5	23	24	76	78	86	108	254	492	128	79	22
12	9.5	48	27	74	76	88	106	254	524	122	97	22
13	9.8	33	20	72	76	92	106	260	479	118	68	21
14	9.8	19	21	72	74	86	114	290	430	122	58	20
15	10	19	21	72	70	84	124	336	381	128	66	20
16	10	24	19	72	68	80	139	416	346	134	80	20
17	10	22	20	78	68	82	150	528	308	128	74	20
18	10	17	20	84	70	84	164	585	287	116	86	33
19	10	17	17	88	74	88	193	605	297	106	64	41
20	10	20	34	90	78	94	230	595	297	100	54	39
21	9.8	21	38	90	80	102	251	533	304	92	48	39
22	9.8	24	40	92	86	110	266	462	294	86	47	32
23	9.8	24	462	100	84	116	266	423	273	82	43	29
24	10	25	734	164	84	116	287	388	260	82	39	25
25	10	27	393	114	88	112	336	374	251	88	38	23
26	10	31	240	106	94	110	381	392	236	80	33	22
27	10	27	433	96	108	116	409	423	225	72	32	22
28	17	27	211	89	104	108	423	470	219	66	30	22
29	29	28	147	86	-----	108	442	506	216	66	30	23
30	24	30	126	86	-----	110	466	542	211	82	30	22
31	18	-----	104	90	-----	116	-----	575	-----	98	29	-----
Total	351.6	669	3,409	2,942	2,408	3,040	6,050	12,679	11,353	3,863	1,688	771
Mean	11.3	22.3	110	91.7	86.0	93.1	202	409	378	125	54.5	25.7
Ac-ft	697	1,330	6,760	5,640	4,780	6,030	12,000	25,150	22,520	7,660	3,350	1,530

Calendar year 1964 Max 734 Min 9.5 Mean 56.1 Ac-ft 40,700  
 Water year 1964-65 Max 734 Min 9.5 Mean 135 Ac-ft 97,450

Peak discharge (base, 400 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-24	1200	4.40	1060	5-31	2100	3.69	655
4-30	2300	3.44	533	6-6	2200	3.66	640
5-19	2100	3.79	705	6-12	2200	3.53	575

## BUENA VISTA LAKE BASIN

11-1856. Packsaddle Canyon Creek near Fairview, Calif.

Location.--Lat 35°56'40", long 118°28'30", in sec. 12, T.23 S., R.32 E., on right bank 1.8 miles northeast of Fairview.Drainage area.--4.05 sq mi.Records available.--October 1959 to September 1965.Gage.--Water-stage recorder, crest-stage gage, and tipping-bucket rain gage. Altitude of gage is about 3,600 ft (from topographic map).Average discharge.--6 years, 0.20 cfs (145 acre-ft per year).Extremes.--Maximum discharge during year, 26 cfs Dec. 27 (gage height, 5.07 ft); no flow for several months.

1959-65: Maximum discharge, 223 cfs Jan. 31, 1963 (gage height, 9.91 ft in gage well, 10.6 ft outside, from floodmarks), from rating curve extended above 19 cfs on basis of computation of flow through culvert and over highway; no flow for several months in each year.

Remarks.--Records fair. No regulation or diversion above station.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0	0	0		0	0.2				
2		0	0	0	0		0	.1				
3		0	0	0	0		0	.1				
4		0	0	0	0		0	.1				
5		0	0	0	0		0	0				
6		0	0	0	0		0	0				
7		0	0	0	0		0	0				
8		0	0	0	0		0	0				
9		0	0	0	0		0	0				
10		0	0	0	0		0	0				
11		0	0	0	0		.1	0				
12		0	0	0	0		.1	0				
13		.1	0	0	0		0	0				
14		0	0	0	0		1.0	0				
15		0	0	0	0		1.6	0				
16		0	0	0	0		1.8	0				
17		0	0	0	0		1.8	0				
18		0	0	0	0		1.5	0				
19		0	0	0	0		1.8	0				
20		0	0	0	0		2.0	0				
21		0	0	0	0		1.8	0				
22		0	0	0	0		1.6	0				
23		0	.3	0	0		1.4	0				
24		0	1.9	0	0		1.0	0				
25		0	2.0	.1	0		.9	0				
26		0	2.1	.1	0		.8	0				
27		0	14	0	0		.8	0				
28		0	.1	0	0		.7	0				
29		0	0	0	-----		.4	0				
30		0	0	0	-----		.3	0				
31		-----	0	0	-----		-----	0				
Total	0	0.1	20.4	0.2	0	0	21.4	0.5	0	0	0	0
Mean	0	0.003	0.66	0.01	0	0	0.71	0.02	0	0	0	0
Ac-ft	0	0.2	40	0.4	0	0	3.5	1.0	0	0	0	0
(†)	0.7	-	3.7	2.5	0.1	0.9	3.5	0	0	0.1	0	0.1

Calendar year 1964 Max 14 Min 0 Mean 0.06 Ac-ft 42  
 Water year 1964-65 Max 14 Min 0 Mean 0.12 Ac-ft 84

† Precipitation, in inches.



11-1860. Kern River near Kernville, Calif.

Location--Lat 35°56'00", long 118°29'10", in NE¼ sec.14, T.23 S., R.32 E., on left bank 3 miles upstream from Salmon Creek and 15 miles north of Kernville.

Drainage area--848 sq mi.

Records available--January 1912 to September 1965. Records for water year 1912 incomplete, yearly estimates published in WSP 1315-A. Prior to October 1953, records for river and canal published separately; combined only, October 1953 to September 1962.

Gage--Water-stage recorder on river; water-stage recorder and rectangular concrete-lined flume for canal diversion. Datum of gage is 3,542.3 ft above mean sea level (river-profile survey). Prior to Apr. 1, 1913, at site 0.2 mile downstream at different datum. Apr. 1 to Sept. 14, 1913, staff gage and Sept. 15, 1913, to Feb. 20, 1922, water-stage recorder, at present site at datum 5.00 ft higher.

Average discharge (river only)--9 years (1911-20), 790 cfs (571,900 acre-ft per year); 44 years (1921-65), 308 cfs (223,000 acre-ft per year); median of yearly mean discharges, 220 cfs (159,000 acre-ft per year).

(total flow)--54 years (1911-65), 692 cfs (501,000 acre-ft per year); median of yearly mean discharges, 620 cfs (449,000 acre-ft per year).

Extremes (river only)--Maximum discharge during year, 3,420 cfs Dec. 27 (gage height, 8.96 ft); minimum daily, 18 cfs Nov. 26.

1912-65: Maximum discharge, 27,200 cfs Dec. 23, 1955 (gage height, 17.55 ft), from rating curve extended above 6,000 cfs on basis of computed maximum flow over dam (basic data for computation furnished by Southern California Edison Co.); no flow July 31 to Nov. 7, Nov. 12 to Dec. 7, 1924, Jan. 16 to Feb. 7, 1925.

(combined)--Maximum discharge during year, 4,030 cfs Dec. 27; minimum daily, 105 cfs Oct. 5, 6.

1912-65: Maximum discharge, 27,400 cfs Nov. 19, 1950, Dec. 23, 1955; minimum daily, 78 cfs Aug. 30, 31, Sept. 17, 19, 1924.

Remarks--Records good. Since 1921 Kern River No. 3 Canal diverts up to 630 cfs (revised) 1 mile above station, from left bank of Kern River in sec.12, T.23 S., R.32 E., for power development; water is returned to river 12 miles below station. For records of combined discharge of river and canal, see following page. Records of water temperatures for the water year 1965 are published in Part 2 of this report.

Cooperation--Water-stage-recorder graph and 20 discharge measurements for Kern River and water-stage-recorder graph and 17 discharge measurements for canal furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	35	25	25	56	25	56	80	1,250	2,110	1,250	503	81
2	26	25	24	44	29	58	80	1,200	1,810	1,190	392	70
3	26	24	24	41	29	58	78	1,010	1,480	1,230	287	70
4	25	26	24	41	29	58	78	820	1,380	1,260	188	69
5	25	26	25	102	29	58	78	720	1,820	1,270	121	68
6	26	25	24	117	28	58	78	648	2,210	1,370	91	66
7	24	25	24	273	28	58	78	572	2,340	1,400	87	68
8	25	23	24	75	27	58	80	512	2,310	1,340	84	69
9	26	24	26	60	29	58	81	464	1,730	1,240	84	70
10	26	26	26	55	29	58	81	419	1,570	1,080	84	70
11	26	26	26	52	31	58	81	400	2,030	915	186	70
12	26	25	26	51	27	58	82	402	2,400	776	720	70
13	26	23	25	50	27	60	82	437	2,420	720	473	70
14	26	22	24	53	26	58	82	491	2,210	704	400	70
15	26	21	24	30	27	58	82	551	1,810	875	308	70
16	26	22	24	29	26	58	83	748	1,450	865	335	70
17	26	25	24	28	25	58	83	1,160	1,240	980	282	70
18	24	24	24	26	26	69	93	1,610	1,070	1,070	348	70
19	24	25	28	26	31	60	195	1,780	1,180	830	207	70
20	26	26	27	26	30	58	318	1,880	1,340	696	105	70
21	25	25	27	28	29	58	385	1,670	1,530	564	91	70
22	25	26	27	26	28	58	461	1,440	1,610	455	89	69
23	24	24	449	26	26	58	461	1,260	1,510	370	89	68
24	24	22	1,880	184	26	58	500	1,080	1,300	365	88	68
25	24	20	1,210	45	25	58	612	945	1,280	428	88	68
26	24	18	602	29	26	58	756	970	1,180	352	88	68
27	24	19	2,160	27	26	58	895	1,090	1,080	287	88	68
28	24	20	699	28	25	58	990	1,340	1,130	197	87	69
29	25	24	308	25	-----	58	1,090	1,700	1,220	159	87	69
30	25	25	209	24	-----	58	1,170	1,860	1,280	207	87	80
31	25	-----	104	24	-----	58	-----	2,000	-----	527	97	-----
Total	789	711	8,173	1,701	769	1,811	9,293	32,429	49,030	24,972	6,264	2,098
Mean	25.5	23.7	264	54.9	27.5	58.4	310	1,046	1,634	806	202	69.9
Ac-ft	1,560	1,410	16,210	3,370	1,530	3,590	18,430	64,320	97,250	49,530	12,420	4,160

Calendar year 1964 Max 2,160 Min 0.8 Mean 83.8 Ac-ft 60,800  
 Water year 1964-65 Max 2,420 Min 18 Mean 378 Ac-ft 273,800

11-1860. Kern River near Kernville, Calif.--Continued.

Combined discharge, in cubic feet per second, of Kern River and Kern River No. 3 Canal  
near Kernville, Calif., water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	108	175	206	578	491	465	525	1,860	2,710	1,860	1,120	400
2	108	177	214	576	489	464	515	1,820	2,410	1,800	1,010	384
3	106	158	214	595	490	459	488	1,620	2,080	1,840	907	368
4	106	156	192	617	493	452	512	1,430	1,980	1,860	808	357
5	105	161	197	720	510	446	497	1,320	2,420	1,880	743	346
6	105	159	191	734	523	446	495	1,250	2,820	1,980	709	335
7	108	153	187	885	490	453	497	1,180	2,940	2,000	682	329
8	107	145	188	636	463	446	500	1,130	2,910	1,960	640	324
9	106	164	189	620	464	428	506	1,070	2,340	1,850	620	315
10	107	194	187	562	420	412	480	1,030	2,180	1,690	626	305
11	106	183	190	525	424	420	506	1,000	2,650	1,520	806	296
12	106	351	222	503	415	427	539	1,010	3,000	1,380	1,340	289
13	108	292	190	477	417	437	527	1,030	3,020	1,330	1,100	283
14	109	202	185	461	414	420	552	1,100	2,810	1,310	1,030	276
15	113	183	190	458	400	413	597	1,150	2,410	1,480	936	269
16	114	209	184	461	393	415	639	1,350	2,050	1,480	961	262
17	117	204	180	475	390	407	683	1,760	1,840	1,590	910	263
18	117	189	181	488	392	405	713	2,210	1,670	1,680	976	289
19	112	183	200	502	401	412	813	2,380	1,780	1,440	835	346
20	112	192	224	520	413	422	936	2,480	1,940	1,310	729	363
21	110	193	257	493	418	440	1,000	2,270	2,130	1,170	639	353
22	112	192	255	487	431	462	1,060	2,040	2,220	1,070	589	334
23	114	192	980	497	428	487	1,070	1,860	2,120	981	547	313
24	116	190	2,480	785	426	491	1,120	1,680	1,910	976	510	298
25	116	190	1,810	623	431	474	1,230	1,550	1,890	1,040	479	286
26	119	204	1,200	567	447	471	1,370	1,560	1,790	966	450	279
27	119	199	2,770	538	489	493	1,510	1,700	1,680	901	425	273
28	141	192	1,310	509	497	481	1,600	1,940	1,740	812	405	267
29	194	200	923	488	-----	474	1,700	2,300	1,830	766	390	267
30	202	204	823	482	-----	476	1,780	2,460	1,890	827	375	261
31	176	-----	718	487	-----	495	-----	2,600	-----	1,140	390	-----
Total	3,699	5,786	17,437	17,349	12,459	13,893	24,960	51,140	67,160	43,889	22,687	9,330
Mean	119	193	562	560	445	448	832	1,650	2,239	1,416	732	311
Ac-ft	7,340	11,480	34,590	34,410	24,710	27,560	49,510	101,400	133,200	87,050	45,000	18,510

Calendar year 1964 Max 2,770 Min 105 Mean 374 Ac-ft 271,900  
 Water year 1964-65 Max 3,020 Min 105 Mean 794 Ac-ft 574,800

11-1863.4. Salmon Creek tributary B near Fairview, Calif.

Location (revised).--Lat 35°54'05", long 118°23'05", in SE 1/4 sec. 26, T.23 S., R.33 E., on left bank 0.15 mile upstream from junction with Salmon Creek, 6.3 miles east of Fairview, and 10.3 miles north of Kernville.

Drainage area.--0.46 sq mi.

Records available.--October 1962 to September 1965. December 1960 to September 1962 (incomplete) in files of U. S. Forest Service.

Gage.--Water-stage recorder with float-operated recording rain gage and sharp-crested 120° V-notch weir. Altitude of gage is 7,360 ft (from topographic map).

Extremes.--Maximum discharge during year, 2.30 cfs Apr. 30 (gage height, 0.77 ft); minimum daily discharge, 0.003 cfs Oct. 1-16, 21-27, Nov. 6-8, Dec. 19.

1962-65: Maximum discharge, 3.11 cfs Feb. 1, 1963 (gage height, 0.87 ft); maximum gage height, 0.93 ft Feb. 1, 1963 (backwater from debris); minimum daily, 0.003 cfs several days in 1964 and 1965.

Remarks.--Records good except those for period of no gage-height record, which are fair. No storage or diversion above station.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.003	0.006	0.006	0.06	0.03	0.03	0.10	1.94	0.95	0.18	0.07	0.02
2	.003	.004	.006	.05	.03	.04	.10	1.75	.91	.18	.06	.02
3	.003	.004	.006	.05	.03	.04	.09	1.51	.86	.18	.06	.02
4	.003	.004	.004	.05	.03	.04	.09	1.34	.86	.18	.05	.02
5	.003	.004	.004	.04	.03	.04	.09	1.23	.82	.17	.05	.02
6	.003	.003	.004	.04	.03	.03	.09	1.13	.74	.17	.05	.02
7	.003	.003	.004	.04	.03	.03	.09	1.04	.71	.15	.05	.02
8	.003	.003	.004	.03	.03	.03	.09	.95	.71	.15	.05	.02
9	.003	.004	.004	.03	.03	.03	.08	.86	.67	.15	.05	.02
10	.003	.004	.004	.03	.03	.03	.08	.82	.60	.14	.05	.01
11	.003	.004	.004	.03	.03	.03	.08	.82	.60	.13	.06	.01
12	.003	.004	.006	.03	.03	.03	.08	.82	.54	.13	.05	.01
13	.003	.004	.004	.03	.03	.03	.07	.91	.51	.11	.04	.01
14	.003	.004	.004	.03	.03	.03	.07	.99	.48	.11	.04	.01
15	.003	.004	.004	.03	.03	.03	.07	1.13	.45	.11	.04	.01
16	.003	.004	.004	.03	.03	.03	.08	1.34	.45	.12	.04	.01
17	.004	.004	.004	.03	.03	.03	.09	1.51	.42	.12	.04	.01
18	.004	.004	.004	.03	.02	.03	.13	1.62	.40	.11	.04	.01
19	.004	.004	.003	.03	.02	.03	.24	1.68	.37	.10	.03	.01
20	.004	.004	.004	.04	.03	.04	.40	1.62	.35	.10	.03	.01
21	.003	.004	.006	.04	.03	.04	.54	1.56	.32	.09	.03	.01
22	.003	.004	.04	.04	.03	.05	.71	1.51	.30	.09	.03	.01
23	.003	.004	.27	.04	.03	.06	.78	1.39	.28	.09	.03	.01
24	.003	.004	.46	.05	.03	.07	.95	1.29	.26	.08	.03	.01
25	.003	.004	.19	.04	.03	.07	1.18	1.18	.26	.08	.03	.01
26	.003	.004	.18	.04	.03	.07	1.39	1.13	.24	.08	.03	.01
27	.003	.004	.37	.04	.03	.07	1.56	1.09	.22	.07	.02	.01
28	.004	.004	.18	.04	.03	.07	1.88	1.04	.20	.07	.02	.01
29	.008	.004	.11	.03	-----	.08	1.94	.99	.20	.07	.02	.01
30	.006	.004	.09	.03	-----	.09	2.08	.99	.18	.08	.02	.01
31	.006	-----	.07	.03	-----	.10	-----	.99	-----	.07	.02	-----
Total	0.109	0.119	2.053	1.15	0.82	1.42	15.22	38.17	14.86	3.66	1.23	0.39
Mean	0.004	0.004	0.066	0.037	0.029	0.046	0.51	1.23	0.50	0.12	0.040	0.013
Ac-ft	0.2	0.2	4.1	2.3	1.6	2.8	30.2	75.7	29	7.3	2.4	0.8
(†)	1.1	1.6	4.6	2.2	0.1	1.3	3.3	0	0.4	0.3	0.9	0.1

Calendar year 1964 Max 0.48 Min 0.003 Mean 0.069 Ac-ft 49.9  
 Water year 1964-65 Max 2.08 Min 0.003 Mean 0.217 Ac-ft 157

Note.--No gage-height record July 16-28.

† Precipitation, in inches (some precipitation falling as snow may not be included).

11-1863.6. Salmon Creek tributary C near Fairview, Calif.

Location.--Lat 35°54'15", long 118°23'30", in NE 1/4 sec. 26, T.23 S., R.33 E., on left bank 0.1 mile upstream from junction with Salmon Creek, 6.0 miles east of Fairview, and 10.5 miles north of Kernville.

Drainage area.--0.30 sq mi.

Records available.--October 1962 to September 1965. December 1960 to September 1962 (incomplete) in the files of U. S. Forest Service.

Gage.--Water-stage recorder and sharp-crested 120° V-notch weir. Altitude of gage is 7,200 ft (from topographic map).

Extremes.--Maximum discharge during year, 0.91 cfs Apr. 29, 30 (gage height, 0.53 ft); minimum daily, 0.008 cfs Oct. 1-6, Sept. 5, 12-16.

1962-65: Maximum discharge, 2.68 cfs Feb. 1, 1963 (gage height, 1.03 ft); minimum daily, 0.006 cfs Sept. 10-13, 1963, Aug. 15-17, 19, Sept. 2, 1964.

Remarks.--Records good except those for periods of shifting control, which are fair.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.008	0.01	0.03	0.10	0.07	0.07	0.09	0.78	0.24	0.06	0.03	0.01
2	.008	.01	.03	.09	.07	.06	.09	.74	.24	.06	.03	.01
3	.008	.01	.03	.09	.07	.06	.09	.67	.24	.06	.02	.01
4	.008	.01	.02	.08	.07	.06	.09	.57	.22	.06	.02	.01
5	.008	.01	.02	.07	.07	.06	.09	.54	.20	.06	.02	.008
6	.008	.01	.02	.08	.07	.06	.08	.48	.20	.05	.02	.01
7	.01	.01	.02	.07	.06	.06	.08	.45	.18	.05	.03	.01
8	.01	.01	.02	.07	.06	.06	.08	.42	.18	.05	.03	.01
9	.01	.02	.02	.07	.06	.06	.08	.40	.17	.05	.03	.01
10	.01	.02	.02	.07	.06	.06	.07	.37	.17	.05	.03	.01
11	.01	.02	.03	.06	.05	.06	.07	.37	.15	.05	.03	.01
12	.01	.02	.03	.06	.05	.05	.07	.35	.15	.04	.03	.008
13	.01	.02	.02	.06	.05	.05	.07	.35	.14	.04	.02	.008
14	.01	.02	.02	.06	.06	.06	.08	.32	.14	.04	.02	.008
15	.01	.02	.02	.06	.06	.06	.09	.32	.13	.04	.02	.008
16	.01	.02	.03	.06	.06	.06	.10	.35	.13	.05	.02	.008
17	.01	.02	.03	.06	.06	.06	.10	.35	.13	.05	.02	.01
18	.01	.02	.03	.07	.06	.07	.13	.37	.11	.04	.02	.01
19	.01	.02	.03	.07	.06	.07	.18	.37	.10	.04	.01	.01
20	.01	.02	.04	.07	.05	.07	.22	.40	.10	.03	.01	.01
21	.01	.02	.05	.07	.06	.08	.28	.40	.09	.03	.01	.01
22	.01	.02	.08	.07	.06	.08	.35	.40	.09	.03	.01	.01
23	.01	.02	.20	.07	.06	.08	.37	.37	.09	.03	.01	.01
24	.01	.02	.24	.07	.06	.08	.42	.35	.08	.03	.01	.01
25	.01	.02	.14	.06	.06	.08	.48	.32	.08	.03	.01	.01
26	.01	.03	.19	.06	.06	.09	.57	.30	.08	.03	.01	.01
27	.01	.02	.33	.08	.07	.09	.64	.28	.08	.02	.01	.01
28	.02	.02	.17	.08	.07	.09	.74	.26	.07	.02	.01	.01
29	.03	.02	.13	.08	-----	.09	.78	.24	.07	.02	.01	.01
30	.01	.03	.11	.07	-----	.09	.82	.24	.06	.04	.01	.01
31	.01	-----	.10	.07	-----	.09	-----	.24	-----	.03	.01	-----
Total	0.328	0.54	2.25	2.20	1.72	2.16	7.40	12.37	4.11	1.28	0.57	0.288
Mean	0.011	0.018	0.073	0.071	0.061	0.070	0.247	0.399	0.137	0.041	0.018	0.010
Ac-ft	0.7	1.1	4.5	4.4	3.4	4.3	15	25	8.2	2.5	1.1	0.6

Calendar year 1964 Max 0.33 Min 0.006 Mean 0.039 Ac-ft 28

Water year 1964-65 Max 0.82 Min 0.008 Mean 0.096 Ac-ft 71

Note.--Shifting-control method used Oct. 14 to Nov. 7, Nov. 11 to Dec. 22, Aug. 6-13, Aug. 31 to Sept. 4, Sept. 20.

11-1863.8. Salmon Creek tributary E near Fairview, Calif.

Location.--Lat 35°54'15", long 118°23'45", in NW1/4 sec.26, T.23 S., R.33 E., on left bank 0.2 mile upstream from junction with Salmon Creek, 5.7 miles east of Fairview, and 10.5 miles north of Kernville.

Drainage area.--0.23 sq mi.

Records available.--October 1962 to September 1965. July 1961 to September 1962 in files of U.S. Forest Service.

Gage. Water-stage recorder and sharp-crested 120° V-notch weir. Altitude of gage is 7,200 ft (from topographic map).

Extremes.--Maximum discharge during year, 1.09 cfs Apr. 29 (gage height, 0.57 ft); minimum daily, 0.003 cfs Oct. 1-7, 14-19, 21-24. 1962-65: Maximum discharge, that of Apr. 29, 1965; minimum daily, 0.002 cfs Oct. 1-12, 1962, Sept. 17, 1963.

Remarks.--Records good except those for periods of shifting-control, which are fair. No storage or diversion above station.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.003	0.004	0.004	0.03	0.01	0.01	0.02	0.91	0.24	0.05	0.02	0.008
2	.003	.004	.006	.03	.01	.01	.02	.82	.24	.05	.02	.008
3	.003	.004	.006	.03	.01	.01	.02	.71	.22	.05	.01	.008
4	.003	.004	.006	.03	.01	.01	.02	.64	.22	.05	.01	.008
5	.003	.004	.006	.03	.01	.01	.02	.57	.20	.05	.01	.008
6	.003	.004	.006	.03	.01	.01	.02	.54	.20	.04	.01	.008
7	.003	.004	.006	.03	.01	.01	.02	.51	.18	.04	.01	.008
8	.004	.004	.006	.03	.01	.01	.02	.45	.17	.04	.01	.008
9	.004	.004	.006	.03	.01	.01	.02	.42	.15	.04	.01	.008
10	.004	.004	.006	.03	.01	.01	.02	.40	.14	.03	.01	.008
11	.004	.004	.008	.03	.01	.01	.02	.37	.14	.03	.01	.008
12	.004	.004	.008	.02	.01	.008	.02	.37	.13	.03	.01	.008
13	.004	.004	.008	.02	.01	.01	.02	.37	.11	.03	.01	.008
14	.003	.004	.008	.02	.01	.01	.02	.37	.11	.03	.01	.006
15	.003	.004	.008	.02	.01	.01	.02	.40	.10	.03	.01	.006
16	.003	.004	.008	.02	.008	.01	.02	.42	.09	.03	.01	.006
17	.003	.004	.006	.02	.008	.01	.03	.45	.09	.03	.01	.006
18	.003	.004	.006	.03	.008	.01	.05	.45	.08	.03	.01	.006
19	.003	.004	.006	.03	.008	.01	.08	.48	.08	.03	.01	.006
20	.004	.004	.008	.03	.008	.01	.13	.48	.08	.03	.01	.006
21	.003	.004	.008	.03	.008	.01	.15	.45	.07	.03	.01	.006
22	.003	.004	.01	.03	.01	.01	.22	.45	.07	.02	.01	.006
23	.003	.004	.12	.03	.01	.02	.28	.42	.07	.02	.01	.006
24	.003	.004	.17	.03	.008	.02	.40	.37	.06	.02	.01	.006
25	.004	.004	.08	.02	.008	.02	.54	.35	.06	.02	.008	.006
26	.004	.004	.08	.02	.01	.02	.67	.32	.06	.02	.008	.006
27	.004	.004	.22	.01	.01	.02	.78	.30	.05	.02	.008	.006
28	.007	.004	.08	.01	.01	.02	.91	.28	.05	.02	.008	.006
29	.008	.004	.05	.01	-----	.02	.95	.26	.05	.02	.008	.006
30	.006	.004	.05	.01	-----	.02	.91	.26	.05	.02	.008	.006
31	.004	-----	.04	.01	-----	.02	-----	.24	-----	.02	.008	-----
Total	0.116	0.120	1.046	0.75	0.264	0.398	6.42	13.83	3.56	0.97	0.316	0.206
Mean	0.004	0.004	0.034	0.024	0.009	0.013	0.214	0.446	0.119	0.031	0.010	0.007
Ac-ft	0.2	0.2	2.1	1.5	0.5	0.8	12.7	27.4	7.1	1.9	0.6	0.4
Calendar year 1964	Max	0.22	Min	0.003	Mean	0.022	Ac-ft	15.6				
Water year 1964-65	Max	0.95	Min	0.003	Mean	0.077	Ac-ft	55.4				

Note.--Shifting-control method used Oct. 28 to Nov. 6, Nov. 9, 10, 14-29, Jan. 14-27, May 21-25, Aug. 22, 23, and Sept. 5, 6, 19-27.

## BUENA VISTA LAKE BASIN

11-1870. Kern River at Kernville, Calif.

Location.--Lat 35°45'15", long 118°25'25", in NE¼SW¼ sec.15, T.25 S., R.33 E., on right bank 300 ft downstream from highway bridge at new town of Kernville, 1.1 miles upstream from Caldwell Creek, 8.9 miles upstream from Isabella Dam, and 41 miles northeast of Bakersfield.

Drainage area.--1,009 sq mi.

Records available.--January 1905 to December 1912, October 1953 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder. Datum of gage is 2,621.57 ft above mean sea level (levels by Corps of Engineers). January 1905 to September 1912, staff gage at two sites ¾ miles downstream at different datums.

Average discharge.--19 years, 820 cfs (593,700 acre-ft per year); median of yearly mean discharges, 720 cfs (521,000 acre-ft per year).

Extremes.--Maximum discharge during year, 6,840 cfs Dec. 27 (gage height, 10.37 ft); minimum daily, 102 cfs Oct. 6.

1905-12, 1953-65: Maximum discharge, 29,400 cfs Dec. 23, 1955 (gage height, 16.20 ft in gage well, 16.8 ft outside, from floodmarks), from rating curve extended above 7,200 cfs on basis of slope-area measurement of peak flow; maximum gage height, 16.76 ft in gage well, 17.33 ft outside, from floodmarks Feb. 1, 1963; minimum discharge, 74 cfs Oct. 27, 1954, Aug. 1, Oct. 4, 1961. Maximum stage known since at least 1912, 18.4 ft Nov. 19, 1950 (discharge about 38,000 cfs).

Remarks.--Records excellent. Slight regulation at times by operation of Kern River No. 3 Canal and powerplant. A few small diversions for irrigation above station. Gilbert irrigation ditch diverts up to 7 cfs around station during irrigation season. Records of water temperatures for the water year 1965 are published in Part 2 of this report.

Cooperations.--Eleven discharge measurements furnished by the Southern California Edison Co.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used May 5 to July 10, July 18)

3.6	92	6.0	1,080
4.0	172	7.0	1,930
4.5	320	9.0	4,400
5.0	520		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	134	160	234	665	583	520	610	2,230	2,390	1,940	1,140	395
2	113	167	243	650	583	534	615	2,130	2,550	1,380	1,020	371
3	106	154	246	670	583	524	592	1,900	2,210	1,900	910	355
4	106	149	219	720	583	516	615	1,630	2,080	1,950	803	352
5	104	151	217	790	596	506	596	1,490	2,480	1,960	740	341
6	102	149	214	820	615	502	596	1,360	2,360	2,050	710	333
7	107	145	203	1,020	573	506	596	1,270	3,200	2,100	685	327
8	106	145	203	760	547	502	596	1,200	3,180	2,040	640	324
9	106	160	203	710	542	484	615	1,140	2,600	1,750	620	320
10	106	214	203	645	483	467	583	1,090	2,400	1,360	625	306
11	104	197	211	606	483	475	625	1,060	2,360	1,600	710	292
12	106	413	264	583	480	483	660	1,060	3,350	1,450	1,380	285
13	106	375	223	547	484	502	650	1,080	3,350	1,370	1,140	279
14	109	267	203	524	475	484	690	1,160	3,000	1,360	1,010	270
15	109	211	219	550	463	480	750	1,220	2,560	1,540	916	270
16	113	240	211	552	459	480	314	1,430	2,200	1,530	954	264
17	113	231	203	570	451	480	363	1,380	1,930	1,660	880	267
18	115	214	203	583	447	467	380	2,370	1,750	1,740	954	292
19	111	203	234	606	459	484	1,020	2,560	1,360	1,510	333	355
20	107	211	270	635	471	493	1,180	2,680	2,050	1,370	725	375
21	106	214	320	601	480	516	1,260	2,470	2,210	1,220	645	363
22	109	211	306	592	483	542	1,350	2,200	2,290	1,090	592	343
23	111	214	352	596	493	574	1,370	2,010	2,210	1,000	552	324
24	111	217	2,960	957	484	583	1,380	1,930	2,010	963	516	306
25	115	219	2,390	790	483	560	1,610	1,670	1,970	1,050	484	292
26	115	237	1,320	690	506	556	1,690	1,740	1,390	961	455	282
27	117	234	4,020	650	573	574	1,850	1,790	1,780	910	427	276
28	134	222	1,680	610	570	570	1,950	2,050	1,910	920	407	270
29	192	225	1,070	592	-----	560	2,070	2,410	1,910	760	395	270
30	211	231	937	573	-----	560	2,160	2,550	1,980	773	383	261
31	180	-----	340	583	-----	583	-----	2,700	-----	1,140	379	-----
Total	3,684	6,385	21,256	20,460	14,472	16,077	30,946	55,370	71,520	45,257	22,640	9,370
Mean	119	213	686	660	517	519	1,027	1,786	2,380	1,460	730	312
Ac-ft	7,310	12,660	42,160	40,580	28,700	31,390	61,180	109,300	141,900	89,770	44,910	18,590

Calendar year 1964 Max 4,020 Min 94 Mean 412 Ac-ft 299,300  
Water year 1964-65 Max 4,020 Min 102 Mean 869 Ac-ft 629,400

Peak discharge (base, 2,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-24	1930	9.29	4,860	5-20	1000	7.95	2,800
12-27	0700	10.37	6,840	6-12	1300	8.68	3,740
5-1	0900	7.38	2,310				

11-1875. Borel Canal below Isabella Dam, Calif.

Location.--Lat 35°38'30", long 118°28'10", in NE¼ sec.30, T.26 S., R.33 E., on right bank 500 ft downstream from Isabella Dam and 3 miles upstream from point where canal crosses Erakine Creek.

Records available.--January 1910 to September 1914, October 1925 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A. Published as Kern River Power Co.'s Canal at or near Kernville 1910-14. Published as "at Tillie Creek" 1925-51.

Gage.--Water-stage recorder. Altitude of gage is 2,540 ft (from topographic map). Prior to Apr. 29, 1952, at site 4 miles upstream at different datum.

Average discharge.--44 years, 361 cfs (261,400 acre-ft per year).

Extremes.--1910-14, 1925-65: Maximum daily discharge, 634 cfs Mar. 13, 14, 1952; no flow at times.

Remarks.--Records excellent. Canal diverts from right bank of Kern River 5.5 miles upstream from Isabella Dam, and above South Fork. When capacity of Isabella Reservoir is above 110,000 acre-ft, the diversion is at the dam. Canal is used to supply Borel power-plant of Southern California Edison Co., 6 miles downstream from station, at which point water is returned to Kern River. Water temperatures for the water year 1965 are published in Part 2 of this report.

Cooperation.--Water-stage-recorder graph and 41 discharge measurements furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	124	113	234	543	525	538	542	562	551	528	539	591
2	119	110	244	542	526	538	543	561	551	528	491	590
3	120	124	253	541	528	538	544	561	550	529	2	589
4	119	150	227	546	531	538	545	561	551	528	0	591
5	130	151	221	524	531	537	543	560	551	526	129	592
6	134	148	222	527	530	537	542	560	550	526	528	591
7	143	145	208	525	531	537	542	560	551	527	563	590
8	146	146	213	525	531	539	544	562	552	527	564	587
9	143	159	209	524	531	542	546	560	551	526	575	533
10	141	215	210	522	529	541	545	560	551	527	591	582
11	139	204	211	526	511	492	546	558	553	527	599	581
12	136	365	253	524	510	505	545	558	553	530	600	580
13	133	379	230	524	501	540	546	556	551	536	596	579
14	131	250	207	523	520	538	546	556	551	534	597	578
15	129	215	216	523	531	540	547	558	548	535	597	576
16	126	238	210	524	530	542	549	557	546	535	598	573
17	125	233	202	523	534	525	552	558	548	536	597	570
18	125	222	203	524	536	498	554	558	548	537	594	571
19	123	207	221	524	536	497	551	556	546	537	593	571
20	122	212	250	525	535	497	557	557	548	539	591	570
21	120	217	303	524	534	503	558	553	545	538	589	573
22	118	216	292	524	535	528	560	551	547	533	592	571
23	117	219	475	524	536	542	561	553	546	533	589	550
24	115	217	553	526	538	544	561	553	547	533	588	550
25	114	221	547	529	537	543	561	553	547	534	591	548
26	114	235	549	527	537	542	561	553	542	536	590	553
27	114	238	528	528	537	542	562	553	538	535	592	543
28	115	223	520	526	538	543	562	552	539	535	591	547
29	114	227	544	529	-----	543	561	552	526	535	591	545
30	115	231	544	526	-----	542	562	552	527	537	589	544
31	116	-----	544	527	-----	542	-----	552	-----	536	588	-----
Total	3,880	6,230	9,843	16,349	14,829	16,473	16,538	17,256	16,405	16,503	16,434	17,164
Mean	125	208	318	527	530	531	551	557	547	532	530	572
Ac-ft	7,700	12,360	19,520	32,430	29,410	32,670	32,800	34,230	32,540	32,730	32,600	34,040

Calendar year 1964 Max 600 Min 67 Mean 360 Ac-ft 261,500  
 Water year 1964-65 Max 600 Min 0 Mean 460 Ac-ft 333,000

11-1882. South Fork Kern River near Olancho, Calif.

Location.--Lat 36°11'00", long 118°07'40", in NW¼SW¼ sec.18, T.20 S., R.36 E., on left bank 50 ft upstream from small unnamed left bank tributary, 2.0 miles downstream from Snake Creek, and 9.7 miles southwest of Olancho.

Drainage area.--146 sq mi.

Records available.--October 1956 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 7,840 ft (from topographic map).

Average discharge.--9 years, 43.4 cfs (31,420 acre-ft per year).

Extremes.--Maximum discharge during year, 486 cfs Apr. 30 (gage height, 3.87 ft); minimum daily, 1.2 cfs Nov. 13.  
1956-65: Maximum discharge, 1,280 cfs May 10, 1958 (gage height, 5.50 ft); maximum gage height, 5.85 ft Apr. 18, 1958 (backwater from ice); minimum, 0.1 cfs July 20 to Aug. 3, 1961.

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

Rating table, except periods of ice effect (gage height, in feet,  
and discharge, in cubic feet per second)

0.8	0.8	2.0	55
.9	1.8	2.5	115
1.0	3.2	3.0	208
1.1	5.2	3.5	335
1.3	11	4.0	510
1.6	25		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.0	11	6.2	7.2	15	14	44	414	143	42	29	14
2	5.0	10	6.4	7.0	15	14	44	363	157	40	24	14
3	5.0	9.7	6.6	8.4	15	14	41	333	153	38	22	13
4	5.0	9.7	6.7	11	15	14	39	298	145	36	20	13
5	5.0	9.1	6.8	12	15	14	37	292	133	34	13	13
6	5.2	9.1	6.9	13	15	14	35	265	123	32	17	13
7	5.7	3.4	7.0	12	15	14	33	250	117	31	16	13
8	5.7	3.8	7.0	9.6	14	14	29	231	117	30	15	13
9	5.5	3.8	7.0	3.6	12	14	27	215	121	29	15	13
10	5.5	5.2	7.0	9.0	8.8	14	26	204	109	27	16	13
11	5.5	3.6	6.9	10	3.6	14	26	193	102	26	27	13
12	5.7	2.2	6.9	11	9.0	14	25	186	97	25	43	13
13	6.2	1.2	6.9	12	9.4	14	25	183	89	24	34	13
14	6.5	1.3	6.9	13	10	15	26	195	86	24	23	12
15	6.8	1.4	6.9	14	10	15	34	190	83	30	29	12
16	7.0	1.6	6.9	14	11	15	45	206	88	39	53	12
17	7.0	1.8	6.9	15	12	15	80	222	103	45	40	13
18	7.0	2.1	6.9	16	12	15	120	236	93	43	40	15
19	6.8	2.5	7.0	17	13	16	170	236	80	35	39	20
20	6.8	3.0	7.0	17	13	16	200	236	73	33	27	18
21	7.0	3.5	7.0	18	13	17	240	229	66	29	23	17
22	7.5	4.0	3.2	18	13	19	260	215	63	24	21	15
23	7.5	4.4	32	18	13	20	270	226	60	23	19	14
24	7.5	4.6	120	18	13	23	323	217	62	26	19	14
25	7.8	4.9	110	18	14	26	356	186	63	42	16	13
26	3.1	5.2	150	18	14	30	372	174	59	31	15	13
27	3.1	5.4	70	17	14	33	356	163	54	27	15	13
28	9.7	5.7	20	16	14	37	356	159	51	24	15	13
29	15	5.9	10	15	-----	39	407	155	49	22	14	13
30	15	6.0	3.4	15	-----	41	413	150	45	33	14	13
31	12	-----	7.6	15	-----	44	-----	143	-----	37	14	-----
Total	223.1	160.1	680.0	422.8	355.8	613	4,464	6,990	2,799	981	741	411
Mean	7.20	5.34	21.9	13.6	12.7	19.9	149	225	93.3	31.6	23.9	13.7
Ac-ft	443	313	1,350	839	706	1,230	8,850	13,860	5,550	1,950	1,470	815

Calendar year 1964 Max 150 Min 1.2 Mean 16.8 Ac-ft 12,190

Water year 1964-65 Max 418 Min 1.2 Mean 51.6 Ac-ft 37,380

Peak discharge (base, 150 cfs).--Dec. 24 (time unknown) about 250 cfs (gage height, unknown); Apr. 30 (0330) 486 cfs (3.87 ft).

Note.--No gage-height record Nov. 14 to Jan. 18, Apr. 20-22. Stage-discharge relation affected by ice Jan. 19 to Apr. 19.



11-1895. South Fork Kern River near Onyx, Calif.

Location.--Lat 35°44', long 118°10', in SW $\frac{1}{4}$  sec.24, T.25 S., R.35 E., on left bank three-quarters of a mile north of State Highway 178, 1.4 miles upstream from Canebrake Creek, and 5 miles northeast of Onyx.

Drainage area.--530 sq mi.

Records available.--September 1911 to August 1914, January 1919 to September 1942, October 1947 to September 1965. Yearly estimate for water year 1927 (incomplete) and monthly discharge only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder and broad-crested weir. Altitude of gage is 2,900 ft (from topographic map). Sept. 12, 1911, to Aug. 31, 1914, staff gage and Jan. 23, 1919, to Apr. 17, 1936, water-stage recorder, at site 140 ft upstream at same datum.

Average discharge.--41 years (1911-13, 1919-25, 1926-27, 1929-42, 1946-65), 100 cfs (72,400 acre-ft per year); median of yearly mean discharges, 75 cfs (54,300 acre-ft per year).

Extremes.--Maximum discharge during year, 659 cfs May 1 (gage height, 3.97 ft), minimum daily, 1.3 cfs, Oct. 1.

1911-14, 1919-42, 1947-65: Maximum discharge, 3,460 cfs Feb. 1, 1963 (gage height, 6.79 ft) from rating curve extended above 1,900 cfs; but may have been exceeded by flood of Jan. 25, 1914 (observed maximum gage height, 7.2 ft and rising, at site then in use); no flow for several days in 1929, 1934, 1960-61.

Remarks.--Records good. Lowell and Thomas ditches divert above station for irrigation of about 160 acres below station; combined capacity, about 7 cfs.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
Oct. 1 to Jan. 31 Feb. 1 to Sept. 30

1.2	1.2	1.6	13	1.5	8.6	2.8	180
1.3	2.9	1.8	24	1.7	18	3.3	335
1.4	5.3	2.0	42	2.0	44	4.0	670
1.5	8.6	2.2	65	2.4	97		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.3	9.9	27	36	63	52	153	615	263	86	47	13
2	1.6	9.4	27	33	63	51	143	576	263	83	40	13
3	1.9	9.0	29	46	62	54	135	520	276	75	34	17
4	1.8	3.3	27	53	62	57	137	460	263	70	31	16
5	1.8	8.3	24	66	63	59	129	433	250	63	29	16
6	1.8	3.6	24	71	65	61	127	395	235	62	25	16
7	2.1	3.6	23	82	63	61	125	371	226	57	19	15
8	1.6	3.3	23	55	59	61	119	351	217	51	17	13
9	1.5	9.0	24	55	57	57	121	324	217	47	15	13
10	1.6	17	24	54	46	59	103	307	205	46	15	13
11	1.6	19	24	53	51	63	84	293	192	45	24	13
12	1.8	22	24	52	50	67	102	286	182	45	55	13
13	1.9	21	24	50	52	67	127	279	172	43	57	13
14	2.1	16	21	51	54	60	153	279	165	42	50	13
15	2.3	14	21	52	52	60	190	279	153	42	42	12
16	2.3	13	23	53	43	61	232	286	153	46	39	12
17	2.9	13	21	53	49	57	276	307	162	54	67	12
18	2.9	12	22	61	43	63	300	335	163	57	60	14
19	2.9	12	24	64	50	70	359	343	149	53	53	16
20	2.9	13	23	63	50	73	433	375	135	45	44	20
21	2.9	16	30	66	50	86	490	375	125	41	39	22
22	3.1	19	30	64	50	97	515	359	115	37	34	20
23	3.4	21	33	65	50	111	520	355	110	34	33	13
24	3.6	21	82	92	43	131	505	355	111	34	29	13
25	3.9	22	195	76	50	135	535	324	117	37	24	17
26	4.1	23	176	63	51	127	560	300	121	56	21	17
27	3.9	23	300	61	52	133	560	290	110	46	13	17
28	4.6	23	140	63	52	137	571	279	104	37	13	17
29	6.3	24	63	61	-----	135	583	272	97	36	13	17
30	3.3	25	57	63	-----	141	604	263	91	36	17	17
31	9.4	-----	51	61	-----	149	-----	263	-----	45	17	-----
Total	94.1	473.4	1,650	1,353	1,509	2,600	9,011	10,364	5,167	1,556	1,031	473
Mean	3.04	15.8	53.2	59.9	53.9	83.9	300	350	172	502	33.3	15.8
Ac-ft	187	939	3,270	3,690	2,990	5,160	17,370	21,550	10,250	3,090	2,040	938

Calendar year 1964 Max 300 Min 0.2 Mean 34.4 Ac-ft 24,990  
Water year 1964-65 Max 615 Min 1.3 Mean 99.4 Ac-ft 71,970

Peak discharge (base, 180 cfs)--Dec. 27 (0800 hrs) 375 cfs (3.40 ft); May 1 (1500-1700 hrs) 659 cfs (3.97 ft).

11-1897. Kelso Creek near Weldon, Calif.

Location.--Lat 35°34'10", long 118°15'05", in NW¼ sec.20, T.27 S., R.35 E., on left bank 0.5 mile upstream from Woolstaff Creek and 7 miles southeast of Weldon.

Drainage area.--101 sq mi.

Records available.--August 1958 to September 1965.

Gage.--Water-stage recorder and sharp-crested steel weir. Altitude of gage is 3,180 ft (from topographic map).

Average discharge.--7 years, 1.37 cfs (992 acre-ft per year).

Extremes.--Maximum discharge during year, 1,340 cfs Aug. 15 (gage height, 6.20 ft, from floodmarks), from rating curve extended above 7 cfs on basis of slope-area measurement at gage height 6.00 ft; minimum daily, 0.7 cfs Apr. 18.  
1958-65: Maximum discharge, that of Aug. 15, 1965; minimum, 0.5 cfs July 23, 1962.

Remarks.--Records good except those above 7 cfs, which are fair. Small diversions for irrigation above station.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Aug. 15-24)

1.55	0.7	2.2	4.8
1.6	.9	2.4	7.0
1.7	1.4	2.7	13
1.8	1.9	3.0	26
2.0	3.2	3.2	44

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.9	0.9	1.0
2	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	1.1
3	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	1.1
4	.9	.9	.9	.9	.9	.9	.9	.9	.8	.9	.9	1.1
5	.9	.9	.9	.9	.9	.9	.8	.9	.8	.9	.9	1.1
6	.9	.9	.9	.9	.9	.9	.8	.9	.8	.9	.9	1.1
7	.9	.9	.9	.9	.9	.9	.8	.9	.8	.8	.9	1.1
8	.9	.9	.9	.9	.9	.9	.8	.9	.8	.8	.9	1.2
9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.8	.9	1.1
10	.9	.9	.9	.9	.9	.9	.8	.9	.8	.8	.9	1.0
11	.9	.9	.9	.9	.9	1.0	.8	.9	.8	.9	.9	1.0
12	.9	.9	.9	.9	.9	.9	.9	.9	.8	.9	.9	1.0
13	.9	.9	.9	.9	.9	.9	.8	.9	.8	.9	.9	1.0
14	.9	.9	.9	.9	.9	.9	.8	.9	.9	.9	.9	1.0
15	.9	.9	.9	.9	.9	.9	.8	.9	.9	.9	3.6	1.0
16	.9	.9	.9	.9	.9	.9	.8	.9	.9	.9	3.6	1.0
17	.9	.9	.9	.9	.9	.9	.8	.9	.9	.9	1.0	1.0
18	.9	.9	.9	.9	.9	.9	.7	.9	.9	.9	.9	1.0
19	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	1.0
20	.9	.9	.9	.9	.9	.9	.8	.9	.9	.9	.8	1.0
21	.9	.9	.9	.9	.9	.9	.9	.8	.9	.9	.8	1.0
22	.9	.9	.9	.9	.9	.9	.8	.9	.9	.9	.8	1.0
23	1.0	.9	.9	.9	.9	.9	.8	.9	.9	.9	.9	1.0
24	1.0	.9	.9	1.0	.9	.9	.8	.9	.9	.9	.9	1.0
25	1.0	.9	.9	.9	.9	.9	.9	.8	.9	.9	1.0	1.0
26	1.0	.8	1.0	.9	.9	.9	.9	.8	.9	.9	.9	1.0
27	.9	.8	1.1	.9	.9	.9	.9	.8	.9	.9	.9	.9
28	.9	.8	1.0	.9	.9	.8	.9	.8	.9	.9	.9	.9
29	.9	.9	.9	.9	-----	.9	.9	.9	.9	.9	.9	.9
30	.9	.9	.9	.9	-----	.8	.9	.9	.9	1.0	1.0	.9
31	.9	-----	.9	.9	-----	.9	-----	.8	-----	.9	1.0	-----
Total	28.3	26.7	28.3	28.0	25.2	27.8	25.2	27.2	26.0	27.6	65.8	30.5
Mean	0.91	0.89	.91	0.90	0.90	0.90	0.84	0.88	0.87	0.89	2.12	1.02
Ac-ft	56	53	56	56	50	55	50	54	52	55	131	60

Calendar year 1964 Max 1.3 Min 0.8 Mean 0.98 Ac-ft 712

Water year 1964-65 Max 3.6 Min 0.7 Mean 1.00 Ac-ft 728

Peak discharge (base, 10 cfs).-- Aug. 15 (1530) 1,340 cfs (6.20 ft); Aug. 16 (1600) 26 cfs (3.32 ft)

11-1905. Isabella Reservoir near Isabella, Calif.

Location.--Lat 35°38'50", long 118°28'50", in SW $\frac{1}{4}$  sec.19, T.26 S., R.33 E., in main control tower near left abutment of main dam on Kern River, 1.5 miles north of new town of Isabella and 2.8 miles upstream from Erskine Creek.

Drainage area.--2,07 $\frac{1}{4}$  sq mi.

Records available.--October 1953 to September 1965

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers).

Extremes.--Maximum contents during year, 288,900 acre-ft July 9, 10 (elevation, 2,576.5 $\frac{1}{4}$  ft); minimum, 94,500 acre-ft Dec. 18 (elevation; 2,544.53 ft).

1953-65: Maximum contents 455,200 acre-ft June 28, 1958 (elevation, 2,594.83 ft); minimum since appreciable storage was first attained, 4,330 acre-ft Apr. 21, 1955.

Remarks.--Reservoir is formed by earthfill dam with sidehill spillway and auxiliary earthfill dam, completed in 1954; regulation began Apr. 15, 1954. Minor detention storage occurred during construction of dam prior to this date, the maximum being 1,750 acre-ft on Apr. 27, 1953. Usable capacity, 569,700 acre-ft between elevations 2,470.0 (invert of main outlet) and 2,605.5 ft (spillway crest) above mean sea level. Dead storage, 326 acre-ft, not available for release. Surcharge flood control storage, 271,800 acre-ft between ungated spillway crest and elevation 2,627.0 ft (maximum design spillway flood pool). Records represent total contents. Water is released to Kern River through tunnel in left abutment of main dam and to Borel Canal (see p. 533) through concrete conduit in auxiliary dam.

Cooperation.--Records furnished by Corps of Engineers.

Capacity table (elevation, in feet, and contents, in acre-feet)

2,544	92,370
2,550	118,500
2,560	172,700
2,570	239,000
2,580	317,500

Contents, in thousands of acre-feet, at 2400 hours, October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	96.88	95.07	94.87	119.7	129.8	123.1	117.8	159.9	227.5	283.2	275.5	242.2
2	96.84	95.07	94.95	119.9	129.9	122.7	118.1	163.3	230.6	284.0	274.8	240.9
3	96.80	94.99	94.91	119.5	129.1	122.3	118.5	165.7	233.0	285.0	273.7	239.6
4	96.72	94.99	94.87	120.0	129.2	121.8	118.7	167.7	235.2	285.9	272.5	238.3
5	96.64	94.95	94.87	120.6	129.3	121.4	118.9	169.0	238.3	286.7	271.3	237.1
6	96.60	94.91	94.83	121.4	129.6	120.8	119.1	170.6	241.9	287.5	270.2	235.7
7	96.51	94.87	94.78	122.4	129.7	120.2	119.3	172.1	245.9	289.2	268.9	234.4
8	96.39	94.83	94.78	123.0	129.7	119.6	119.6	173.3	249.6	289.7	267.7	233.3
9	96.23	94.91	94.74	123.4	129.7	118.9	120.2	174.5	252.5	288.9	266.2	232.2
10	96.14	95.07	94.74	123.6	129.7	118.1	120.5	175.4	254.9	288.9	264.8	231.2
11	96.02	95.20	94.70	123.8	129.6	117.9	120.8	176.4	258.1	289.6	263.9	230.1
12	95.94	95.32	94.66	124.0	129.6	118.0	121.3	177.1	262.2	289.1	263.9	229.0
13	95.86	95.32	94.66	124.1	129.5	117.9	121.8	178.0	265.9	287.6	263.8	227.9
14	95.77	95.28	94.62	124.1	129.4	117.7	122.4	179.3	268.7	287.2	263.2	226.7
15	95.69	95.28	94.58	124.2	129.3	117.4	123.1	180.5	270.7	287.0	262.6	225.4
16	95.61	95.32	94.58	124.3	129.1	117.3	124.1	182.2	272.0	287.1	261.9	224.0
17	95.53	95.28	94.54	124.4	128.9	117.1	125.2	184.4	272.6	287.3	261.0	222.8
18	95.48	95.28	94.50	124.6	128.6	117.1	126.3	187.5	273.0	287.7	260.1	222.0
19	95.40	95.28	94.62	124.8	128.2	117.1	127.7	190.8	273.7	287.4	259.0	221.0
20	95.36	95.24	94.62	125.0	127.9	117.1	129.6	194.6	274.6	286.7	257.7	220.3
21	95.32	95.20	94.62	125.2	127.3	117.1	131.6	197.9	275.9	285.8	256.4	219.4
22	95.28	95.20	94.66	125.3	126.8	117.1	134.1	200.7	277.3	284.6	254.9	218.3
23	95.20	95.20	95.53	125.5	126.3	117.1	136.3	203.3	278.5	283.5	253.7	217.2
24	95.16	95.16	99.97	126.6	125.7	117.2	138.6	205.5	279.3	282.6	252.4	216.1
25	95.11	95.11	103.2	127.2	125.1	117.2	141.3	207.5	279.8	281.6	251.1	214.8
26	95.03	95.03	105.1	127.6	124.3	117.2	144.1	209.4	280.2	280.2	249.9	213.5
27	95.07	94.99	112.7	127.9	124.0	117.2	147.1	211.6	280.5	278.8	248.7	212.1
28	95.20	94.99	115.5	129.1	123.5	117.2	150.2	214.1	281.0	277.3	247.4	210.8
29	95.20	94.95	116.8	128.3	-----	117.3	153.4	217.2	281.7	275.9	246.3	209.8
30	95.20	94.91	117.7	128.5	-----	117.3	156.6	220.6	282.6	275.5	244.9	209.0
31	95.20	-----	119.3	128.6	-----	117.4	-----	223.8	-----	275.5	243.5	-----
(+)	2,544.70	2,544.63	2,549.95	2,552.06	2,511.04	2,549.76	2,557.26	2,567.85	2,575.75	2,754.84	2,570.62	2,565.68
(-)	-1,770	-290	+23,390	+10,300	-5,100	-6,100	+39,200	+67,200	+58,900	-7,100	-32,000	-34,500
(++)	2,057	849	635	595	857	1,049	1,369	3,257	4,729	6,012	5,400	4,167

Calendar year 1964.....+ - 51,700

Water year 1964-65.....+ 112,030

+ Elevation, in feet, at end of month.

+ Change in contents, in acre-feet.

++ Evaporation, in acre-feet.

11-1910. Kern River below Isabella Dam, Calif.

Location.--Lat 35°38'30", long 118°28'55", in S<sup>1</sup>W<sup>1</sup> sec. 30, T.26 S., R.33 E., on right bank 200 ft downstream from highway bridge, 0.6 mile downstream from Isabella Dam, and 1.6 miles southwest of Isabella.

Drainage area.--2,074 sq mi.

Records available.--April 1945 to September 1965. Prior to October 1952, published as "below Isabella dam site."

Gage.--Water-stage recorder (digital). Datum of gage is 2,435.07 ft above mean sea level (levels by Corps of Engineers). Prior to Mar. 12, 1952, water-stage recorder at site 0.6 mile upstream at different datum. Mar. 12, 1952, to July 26, 1953, staff gage at present site and datum.

Average discharge.--20 years, 756 cfs (547,300 acre-ft per year), adjusted for diversion to Borel Canal since 1945 and for change in storage and evaporation from Isabella Reservoir since 1954.

Extremes.--Maximum discharge during year, 1,490 cfs Aug. 5 (gage height, 8.62 ft); minimum daily, 3 cfs many days.

1945-53 (prior to regulation by Isabella Reservoir): Maximum discharge, 39,000 cfs Nov. 19, 1950 (gage height, 28.6 ft from floodmark, present site and datum), from rating curve extended above 1,100 cfs on basis of slope-area measurement of maximum flow; minimum, 2.1 cfs (regulated) Nov. 27, 1951.

1954-65: Maximum discharge, 4,260 cfs June 28, 1958 (gage height, 15.14 ft); no flow Oct. 29, 1954, Mar. 22, 1960.

Remarks.--Records excellent. Flow regulated by Isabella Reservoir (see preceding page) beginning Apr. 15, 1954. Borel Canal (see p. 533) diverts above station. Diversion for irrigation of about 3,500 acres between head of Isabella Reservoir and upstream stations. An additional 6,500 acres in reservoir can be irrigated when reservoir stage is low.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

2.4	2.1	3.6	4.0	5.5	240
2.6	5.5	4.0	63	6.0	354
2.9	12	4.5	103	7.0	665
3.2	22	5.0	158	9.0	1,670

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5	76	13	3	3	220	5	242	555	1,010	513	465
2	5	59	13	3		188	5	242	578	942	776	465
3	5	36	13	3	3	182	5	432	578	989	1,400	417
4	5	17	13	3	3	199	5	501	578	934	1,420	367
5	5	17	13	3	3	220	5	502	578	1,030	1,240	367
6	5	17	13	3	3	243	5	455	641	1,100	786	367
7	5	17	13	3	3	273	5	365	705	1,200	746	346
8	5	17	13	3	3	322	5	377	741	1,240	748	318
9	5	17	13	3	3	367	5	416	760	1,200	784	318
10	5	17	13	3	3	366	5	416	760	1,170	794	260
11	5	17	13	3	3	123	5	416	760	1,130	779	224
12	5	3	13	3	3	5	5	416	782	1,080	696	254
13	5	4	13	3	3	62	5	376	868	1,070	682	278
14	5	4	13	3	10	102	5	317	985	1,060	709	296
15	5	4	13	3	17	73	5	336	1,020	1,060	729	320
16	5	4	13	3	30	40	5	377	1,070	1,020	769	309
17	5	4	13	3	62	16	5	433	1,130	986	785	261
18	5	4	13	3	92	5	5	497	1,130	991	831	208
19	5	10	13	3	111	5	5	509	1,090	1,050	831	191
20	5	13	13	3	137	5	5	518	1,100	1,100	732	207
21	5	13	13	3	185	5	5	524	1,110	1,130	643	227
22	5	13	13	3	206	5	5	473	1,080	1,120	645	329
23	5	13	6	3	226	5	5	431	1,080	1,010	608	370
24	5	13	3	3	267	5	5	418	1,080	953	516	357
25	5	13	3	3	293	5	5	428	1,070	988	489	357
26	5	13	3	3	294	5	18	449	1,050	1,060	489	357
27	5	13	3	3	291	5	96	440	1,060	1,060	468	344
28	15	13	3	3	278	5	165	431	1,080	1,010	432	333
29	63	13	3	3	—	5	249	456	1,050	962	422	268
30	76	13	3	3	—	5	265	515	1,030	750	465	96
31	76	-----	3	3	-----	5	-----	539	-----	623	465	-----
Total	365	492	316	93	2,538	3,076	918	13,247	27,109	31,938	22,492	9,276
Mean	11.8	16.4	10.2	3.0	90.6	99.2	30.6	427	904	1,030	726	309
Ac-ft	724	976	627	184	5,030	6,100	1,820	26,280	53,770	63,350	44,610	18,400
Mean†	142	234	718	707	544	548	1,260	2,130	2,520	1,540	823	372
Ac-ft†	3,710	13,900	44,170	43,510	30,200	33,720	75,190	131,000	149,800	94,980	50,610	22,110

Calendar year 1964: Max 911 Min 2.1 Mean 112 Ac-ft 81,330 Mean† 440 Ac-ft† 319,600  
 Water year 1964-65: Max 1,420 Min 3 Mean 306 Ac-ft 221,900 Mean† 964 Ac-ft† 697,900

† Adjusted for change in contents and evaporation from Isabella Reservoir and for diversion to Borel Canal.

11-1925. Kern River near Democrat Springs, Calif.

Location.--Lat 35°31'20", long 118°40'40", in NE¼SE¼ sec.6, T.28 S., R.31 E., on left bank 1.0 mile southwest of Democrat Springs and 2.1 miles upstream from Cow Creek.

Drainage area.--2,258 sq mi.

Records available.--July 1950 to September 1965. Prior to October 1954, records for river and conduit published separately; combined only, October 1954 to September 1962.

Gage.--Water-stage recorder on river; water-stage recorder for conduit diversion. Altitude of gage is 1,850 ft (from topographic map).

Average discharge (river only).--15 years, 462 cfs (334,500 acre-ft per year), unadjusted.  
(total flow).--15 years, 802 cfs (580,600 acre-ft per year), adjusted for storage.

Extremes (river only).--Maximum discharge during year, 1,380 cfs July 9 (gage height, 9.58 ft); maximum gage height, 10.57 ft Dec. 28; minimum daily discharge, 1.6 cfs Oct. 13-23.

1950-65: Maximum discharge, 40,000 cfs Nov. 19, 1950 (gage height, 30.7 ft), from rating curve extended above 8,700 cfs on basis of computation of maximum flow over dam (basic data for computation furnished by Southern California Edison Co.); minimum daily, 0.1 cfs Oct. 30 to Nov. 12, 1955.

(combined).--Maximum discharge during year, 1,760 cfs July 9; minimum daily, 120 cfs Oct. 26, 27.

1950-65: Maximum discharge, 40,000 cfs Nov. 19, 1950; minimum daily, 99 cfs Oct. 3, 1961.

Remarks.--Records good except those for period of indefinite stage-discharge relation, which are fair. Kern River No. 1 conduit diverts up to about 420 cfs from left bank of Kern River in sec.13, T.28 S., R.30 E., for power development; water is returned to river 7 miles below station. Flow regulated by Isabella Reservoir beginning in 1954 (see p. 537). Many diversions above station for irrigation. For records of combined discharge of river and conduit, see following page.

Cooperation.--Water-stage-recorder graph and 11 discharge measurements for river and water-stage-recorder graph and 17 discharge measurements for conduit furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

Rating table, except period of indefinite stage-discharge relation (gage height, in feet, and discharge, in cubic feet per second)

3.2	1.6	4.5	74	7.0	495
3.3	4.0	5.0	124	8.0	785
3.5	12	5.5	192	9.0	1,150
3.8	27	6.0	280	10.0	1,590
4.1	45				

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	140	2.0	264	575	163	406	204	433	672	1,170	714	609
2	130	2.0	275	570	156	356	214	424	699	1,170	768	609
3	132	2.0	288	580	167	345	217	478	708	1,250	967	600
4	131	2.0	273	620	162	355	220	651	708	1,260	1,000	540
5	135	1.8	253	610	166	385	204	672	708	1,160	956	520
6	148	1.8	260	580	174	404	190	654	720	1,210	872	515
7	150	1.8	244	600	172	444	183	576	806	1,260	890	510
8	156	1.8	244	580	158	470	220	532	844	1,360	858	488
9	159	2.0	242	580	135	544	220	568	880	1,350	908	461
10	156	2.1	290	575	127	544	241	579	886	1,310	939	447
11	95	2.1	250	580	129	444	242	579	886	1,280	978	402
12	1.7	2.3	260	570	119	160	242	576	890	1,230	911	389
13	1.6	50	275	565	120	198	245	568	932	1,210	830	413
14	1.6	2.0	245	550	129	279	249	520	1,070	1,210	852	422
15	1.6	1.8	245	530	143	280	256	485	1,130	1,200	855	447
16	1.6	1.8	245	540	198	243	266	518	1,160	1,190	908	452
17	1.6	1.7	240	560	203	201	271	530	1,240	1,150	911	440
18	1.6	1.7	240	551	237	160	273	609	1,270	1,130	956	395
19	1.6	1.7	245	450	258	150	268	642	1,240	1,140	978	368
20	1.6	1.7	280	271	298	144	268	648	1,220	1,220	950	354
21	1.6	1.7	315	210	358	143	264	669	1,260	1,240	858	360
22	1.6	1.7	340	190	370	150	258	642	1,230	1,270	820	391
23	1.6	1.7	430	205	380	165	251	594	1,220	1,170	838	500
24	1.7	1.7	540	208	408	175	249	562	1,220	1,180	729	492
25	1.7	1.7	560	216	416	181	246	555	1,220	1,220	663	482
26	1.8	1.7	560	182	446	182	237	573	1,200	1,120	645	482
27	1.7	1.7	860	173	467	180	274	576	1,190	1,110	639	480
28	1.8	1.7	780	192	447	182	336	565	1,200	1,120	609	465
29	2.0	1.7	670	191	-----	179	425	565	1,210	1,120	576	461
30	51	610	174	-----	-----	162	450	606	1,180	984	606	334
31	2.0	-----	580	167	-----	164	-----	663	-----	778	609	-----
Total	1,566.0	152.4	11,403	13,145	6,706	8,375	7,683	17,812	30,799	36,772	25,593	13,828
Mean	50.5	5.08	368	424	240	270	256	575	1,027	1,186	826	461
Ac-ft	3,110	302	22,620	26,070	13,300	16,610	15,240	35,330	61,090	72,940	50,760	27,430

Calendar year 1964 Max 1,100 Min 1.6 Mean 195 Ac-ft 141,500  
Water year 1964-65 Max 1,360 Min 1.6 Mean 476 Ac-ft 344,800

Note.--Stage-discharge relation indefinite Dec. 10 to Apr. 30.

11-1925. Kern River near Democrat Springs, Calif.--Continued.

Combined discharge, in cubic feet per second, of Kern River and Kern River No. 1 conduit near Democrat Springs, Calif., water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	140	198	264	575	565	800	600	831	1,070	1,560	1,100	986
2	130	192	275	570	565	750	610	826	1,100	1,560	1,150	987
3	132	166	288	580	565	740	615	890	1,110	1,640	1,350	977
4	131	172	273	620	565	750	620	1,060	1,110	1,650	1,380	917
5	135	171	253	610	570	780	605	1,070	1,110	1,550	1,340	898
6	148	171	260	580	580	800	590	1,050	1,120	1,600	1,250	893
7	150	167	244	600	580	840	585	975	1,210	1,650	1,270	890
8	156	166	244	580	570	870	620	930	1,250	1,740	1,240	870
9	159	171	242	580	545	940	620	966	1,280	1,730	1,290	844
10	156	216	290	575	545	940	640	978	1,300	1,690	1,320	830
11	162	239	250	580	545	840	640	973	1,300	1,670	1,360	783
12	156	281	260	570	540	560	640	972	1,290	1,620	1,290	771
13	143	427	275	565	540	600	645	962	1,330	1,600	1,210	797
14	140	296	245	550	550	680	645	912	1,470	1,600	1,240	805
15	137	248	245	530	560	680	650	883	1,530	1,590	1,240	831
16	135	230	245	540	590	640	660	916	1,560	1,580	1,300	835
17	132	238	240	560	605	600	665	928	1,640	1,540	1,300	822
18	132	233	240	560	655	560	665	1,010	1,670	1,520	1,350	775
19	130	212	245	580	650	550	660	1,040	1,640	1,530	1,370	749
20	129	218	280	605	690	540	660	1,040	1,610	1,690	1,320	737
21	129	231	315	580	750	540	660	1,060	1,650	1,630	1,200	746
22	127	231	340	560	760	550	660	1,040	1,620	1,660	1,160	772
23	124	231	430	575	770	565	650	991	1,610	1,560	1,190	875
24	122	232	540	580	800	575	645	962	1,610	1,570	1,090	871
25	122	233	560	600	810	580	640	951	1,610	1,600	1,040	865
26	120	242	560	590	840	580	635	969	1,590	1,500	1,020	865
27	120	254	860	580	860	580	680	976	1,580	1,490	1,010	863
28	125	240	780	580	840	580	740	962	1,590	1,500	984	846
29	145	235	670	585	-----	580	830	958	1,600	1,500	950	842
30	195	209	610	570	-----	560	850	1,000	1,570	1,370	986	713
31	197	-----	580	565	-----	560	-----	1,060	-----	1,160	989	-----
Total	4,359	6,750	11,403	17,875	18,005	20,710	19,625	30,141	42,730	48,850	37,289	25,255
Mean	141	225	368	577	643	668	654	972	1,424	1,576	1,203	842
Ac-ft	8,650	13,390	22,620	35,450	35,710	41,080	38,930	59,780	84,750	96,890	73,960	50,090
Calendar year 1964	Max	1,500	Min	115	Mean	476	Ac-ft	345,400				
Water year 1964-65	Max	1,740	Min	120	Mean	775	Ac-ft	561,300				

11-1940. Kern River near Bakersfield, Calif.

Location.--Lat 35°25'54", long 118°56'43", in NW 1/4 sec. 2, T.29 S., R.28 E., on left bank 1.9 miles upstream from Sacramento Gulch, 0.8 mile northeast of Oil City and 5.8 miles northeast of Bakersfield Post Office.

Drainage area.--2,407 sq mi.

Records available.--October 1893 to September 1965. Daily discharges for period October 1953 to September 1963 are in files of California district office of Geological Survey. Monthly discharge only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder and wooden control. Altitude of gage is 450 ft (from topographic map).

Average discharge.--72 years, 925 cfs (669,700 acre-ft per year).

Extremes.--Maximum daily discharge during year, 1,750 cfs July 8; minimum, 119 cfs Oct. 3.

1893-1954 (prior to regulation by Isabella Reservoir): Maximum discharge, 36,000 cfs Nov. 19, 1950 (gage height, 14.2 ft); minimum daily, 74 cfs Sept. 19, 1948.

1955-65: Maximum daily discharge, 3,940 cfs June 18, 1958; minimum daily, 103 cfs Oct. 9, 1961.

Remarks.--Flow regulated by Isabella Reservoir beginning in 1954 (see p. 537), and three powerplants; many diversions above station for irrigation. Records of chemical analyses for the water year 1965 are published in Part 2 of this report.

Cooperation.--Records furnished by Kern County Land Company.

Discharge, in cubic feet per second, water year October 1964 to September 1965.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	124	202	236	582	569	805	603	886	1090	1570	1180	1030
2	131	202	266	578	570	755	604	891	1120	1540	1250	1040
3	119	185	292	583	567	724	614	985	1120	1490	1360	1000
4	126	186	281	619	567	763	620	1080	1120	1510	1370	927
5	131	182	259	609	577	789	602	1090	1120	1580	1310	939
6	143	167	260	585	586	814	597	1070	1170	1630	1300	940
7	139	175	252	607	579	845	595	966	1220	1720	1300	933
8	150	181	253	593	563	885	623	944	1260	1750	1290	885
9	151	186	247	585	550	926	622	996	1280	1740	1320	872
10	151	223	303	573	557	956	649	997	1300	1700	1320	863
11	203	254	253	582	550	859	653	1000	1320	1660	1370	911
12	185	329	265	573	545	567	646	1000	1350	1620	1290	823
13	150	427	286	570	543	601	643	964	1430	1600	1270	855
14	142	326	250	559	547	681	655	900	1502	1590	1290	864
15	139	253	249	531	570	680	657	879	1560	1590	1300	872
16	137	263	252	538	588	646	675	932	1620	1560	1340	871
17	137	264	246	563	605	602	670	959	1690	1540	1350	854
18	133	260	244	563	653	560	670	1050	1700	1550	1370	813
19	131	228	251	596	655	552	669	1060	1660	1580	1360	779
20	131	242	287	611	686	535	669	1060	1640	1620	1280	779
21	120	251	333	573	750	545	670	1080	1640	1640	1200	801
22	123	243	342	566	756	553	665	1050	1610	1610	1190	851
23	123	252	417	569	775	577	657	1010	1620	1530	1180	912
24	130	253	565	629	803	586	657	991	1620	1490	1100	914
25	132	252	573	602	827	577	637	976	1600	1500	1040	918
26	130	247	571	587	843	581	641	1010	1580	1550	1060	917
27	132	256	865	580	869	580	694	997	1600	1540	1050	912
28	130	257	770	585	843	582	747	979	1600	1500	1010	892
29	163	252	663	592	-----	583	858	995	1600	1460	982	879
30	203	187	610	563	-----	566	897	1040	1580	1340	1020	674
31	209	-----	584	570	-----	579	-----	1080	-----	1220	1020	-----
Total	4,463	7,189	11,535	13,041	13,103	20,864	19,864	30,917	43,340	48,520	39,072	26,425
Mean	144	240	372	582	647	673	662	997	1,445	1,565	1,223	881
Ac-ft	8,850	14,260	22,880	35,780	35,910	41,380	39,400	61,320	85,960	96,240	75,510	52,410

Calendar year 1964: Max 1,540 Min 112 Mean 498 Ac-ft 358,600  
 Water year 1964-65: Max 1,750 Min 119 Mean 787 Ac-ft 569,900

## BUENA VISTA LAKE BASIN

11-1955. San Emigdio Creek at San Emigdio Ranchhouse, Calif.

Location.--Lat 34°58'54", long 119°11'03", in San Emigdio Grant, Kern County, on left bank 50 ft downstream from unnamed tributary 0.8 mile upstream from San Emigdio ranchhouse headquarters, and 13 miles west of Wheeler Ridge.

Drainage area.--48.8 sq mi.

Records available.--March 1959 to September 1965.

Gage.--Water-stage recorder and broad-crested weir with rectangular flume for flows below 15 cfs. Datum of gage is 1,617.57 ft above mean sea level.

Average discharge.--6 years, 1.09 cfs (789 acre-ft per year).

Extremes.--Maximum discharge during year, 150 cfs Aug. 15 (gage height, 10.94 ft from floodmarks), from rating curve extended above 25 cfs on basis of slope area measurement of maximum flow; minimum 0.4 cfs for many days.

1959-65: Maximum discharge, 6,690 cfs Aug. 5, 1961 (gage height, 19.87 ft, from floodmarks), from rating curve extended above 25 cfs on basis of slope-area measurement of maximum flow; minimum daily, 0.3 cfs Apr. 23, 24, 1962.

Maximum stage known since at least 1938 (from information by local residents), that of Aug. 5, 1961.

Remarks.--Records good except those for period of no gage-height record and above 30 cfs, which are poor. Small diversions for stock and domestic use.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 5

Apr. 6 to Sept. 30

8.0	0.7	8.5	3.2	7.95	0.4	8.3	1.9
8.1	1.0	8.7	5.0	8.0	0.5	8.7	4.0
8.3	1.8	9.0	9.6	8.1	0.9	9.1	8.0

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.0	0.9	1.0	1.0	1.0	0.9	0.9	0.7	0.6	0.5	0.5	0.5
2	1.0	.8	1.0	1.0	1.0	.9	.9	.7	.6	.5	.4	.5
3	.9	.8	1.0	1.1	1.0	.9	5.2	.7	.5	.5	.4	.5
4	.9	.8	1.0	1.4	1.0	.9	7.3	.7	.5	.4	.4	.5
5	.9	.8	1.0	1.3	1.0	.9	1.5	.7	.5	.4	.4	.5
6	.9	.8	1.0	1.2	1.8	1.0	1.1	.8	.5	.5	.4	.5
7	.9	.8	1.0	2.5	1.1	1.0	1.1	.8	.5	.5	.4	.6
8	.9	.8	1.0	1.2	1.0	1.0	1.9	.7	.6	.4	.4	.6
9	.9	1.0	1.0	1.1	1.0	1.0	1.3	.7	.6	.4	.4	.6
10	.9	1.2	1.0	1.1	1.0	1.0	1.2	.7	.5	.5	.5	.5
11	.9	1.0	1.0	1.0	1.0	1.1	1.3	.7	.5	.5	.4	.6
12	.9	1.0	1.1	1.0	1.0	1.0	2.5	.7	.5	.4	.5	.6
13	.9	1.0	1.0	1.0	.9	1.0	.9	.6	.5	.4	.5	.6
14	.9	1.2	.9	1.0	1.0	1.0	.9	.6	.5	.4	.5	.6
15	.9	1.1	.9	1.0	.9	1.0	1.2	.6	.5	.4	3.9	.6
16	.9	1.0	.9	1.0	.9	1.0	1.5	.6	.5	.5	1.4	.6
17	.9	1.1	.9	1.0	.9	1.0	1.4	.6	.5	.5	1.0	.6
18	.9	1.1	.9	1.0	.9	1.0	1.2	.6	.6	.5	.7	.6
19	.9	1.1	.9	1.0	.9	1.0	1.2	.6	.6	.5	.7	1.0
20	.9	1.0	.9	2.0	.9	.9	1.9	.6	.6	.5	.5	.6
21	.9	1.0	.8	1.0	.9	.9	2.0	.6	.5	.5	.5	.5
22	.9	1.0	.8	1.0	.9	.9	1.7	.6	.5	.5	.4	.5
23	.9	1.0	.8	1.0	.9	.9	1.2	.6	.5	.5	.4	.5
24	1.0	1.0	.8	1.2	.9	.8	1.0	.6	.6	.5	.4	.5
25	1.0	1.0	.8	1.0	.9	.8	.9	.6	.6	.4	.4	.5
26	1.0	1.0	.8	1.0	.9	.8	.9	.6	.6	.5	.4	.4
27	1.0	1.0	1.2	1.0	1.0	.8	.7	.6	.6	.5	.5	.4
28	1.0	1.0	1.1	1.0	1.0	.9	.7	.6	.5	.5	.4	.4
29	2.3	1.0	1.0	1.0	-----	.8	.7	.5	.5	.5	.4	.4
30	.9	1.0	1.0	1.0	-----	.8	.7	.5	.5	.6	.4	.4
31	.9	-----	1.0	1.0	-----	.8	-----	.5	-----	.5	.4	-----
Total	30.0	29.3	29.5	35.1	27.6	28.7	46.9	19.6	16.1	14.7	13.9	16.2
Mean	0.97	0.98	0.95	1.13	0.99	0.93	1.56	0.63	0.54	.47	0.61	.54
Ac-ft	60	58	59	70	55	57	93	39	32	29	37	32

Calendar year 1964 Max 2.9 Min 0.8 Mean 1.04 Ac-ft 754  
 Water year 1964-65 Max 7.3 Min 0.4 Mean 0.86 Ac-ft 621

Peak discharge (base, 40 cfs)--Aug. 15 (2200) 150 cfs (10.94 ft)

Note.--No gage-height record Aug. 20, Sept. 19-30.



11-1956, Pastoria Creek near Lebec, Calif.

Location.--Lat 34°54'35", long 118°48'55", in Los Alamos Y Agua Caliente Grant, on right bank just upstream from unnamed tributary and 5.8 miles northeast of Lebec, Kern County.

Drainage area.--27.5 sq mi.

Records available.--October 1964 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 1,970.93 ft above mean sea level, unadjusted.

Extremes.--1964-65: Maximum discharge during year, 9.5 cfs Apr. 3 (gage height, 1.58 ft), from rating curve extended above 1.2 cfs; no flow Oct. 1 to Feb. 8, July 31 to Sept. 30.

Remarks.--Records good. No regulation or diversion above station.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1					0	0.2	0.6	0.6	0.5	0.1		
2					0	.2	.5	.6	.5	.1		
3					0	.2	2.0	.6	.5	.1		
4					0	.2	1.6	.6	.5	.1		
5					0	.2	.9	.6	.5	.1		
6					0	.2	.9	.7	.5	.1		
7					0	.2	.9	.6	.4	.1		
8					0	.2	2.0	.6	.5	.1		
9					.1	.2	1.5	.5	.5	.1		
10					.1	.2	1.3	.5	.5	.1		
11					.1	.2	1.6	.5	.5	.1		
12					.1	.2	1.3	.5	.5	.1		
13					.1	.2	1.3	.4	.5	.1		
14					.1	.2	1.1	.4	.5	.1		
15					.1	.2	1.0	.4	.5	.1		
16					.1	.2	1.0	.4	.5	.1		
17					.1	.2	1.0	.4	.5	.1		
18					.1	.2	.9	.4	.5	.1		
19					.1	.2	.9	.4	.5	.1		
20					.1	.2	.9	.5	.5	.1		
21					.1	.2	.9	.5	.5	.1		
22					.1	.5	.9	.5	.5	.1		
23					.1	.5	.9	.4	.5	.1		
24					.1	.2	.8	.4	.5	.1		
25					.1	.2	.7	.4	.5	.1		
26					.2	.2	.7	.4	.5	.1		
27					.2	.5	.7	.5	.5	.1		
28					.1	.5	.7	.5	.5	.1		
29					-----	.5	.7	.5	.1	.1		
30					-----	.5	.6	.5	.1	.1		
31					-----	.6	-----	.5	-----	0		-----
Total	0	0	0	0	2.2	7.2	30.8	15.3	7.2	3.0	0	0
Mean	0	0	0	0	0.08	0.23	1.03	0.49	0.24	0.10	0	0
Ac-ft	0	0	0	0	4.4	14	51	30	14	6.0	0	0

Calendar year 1964 Max - Min - Mean - Ac-ft -  
 Water year 1964-65 Max 2.0 Min 0 Mean 0.18 Ac-ft 129

Peak discharge (base, 10 cfs).--No peak above base.

11-1964. Caliente Creek above Tehachapi Creek, near Caliente, Calif.

Location.--Lat 35°18'40", long 118°34'10", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 17, T.30 S., R. 32 E., on right bank 0.5 mile upstream from Harper Canyon, 1.0 mile upstream from Oiler Canyon, and 3.6 miles northeast of Caliente.

Drainage area.--165 sq mi.

Records available.--October 1961 to September 1965.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 1,575 ft (from topographic map).

Extremes.--Maximum discharge during year, 444 cfs Aug. 11 (gage height, 4.90 ft from flood marks) from rating curve extended above 51 cfs as explained below, no flow for several months.

1961-65: Maximum discharge, 1,410 cfs Aug. 8, 1963 (gage height, 7.48 ft, from floodmarks), from rating curve extended above 51 cfs on basis of slope-area measurement of maximum flow; no flow for several months each year.

Remarks.--Records good, except those for periods of no gage-height record, which are poor. Small diversions above station for stock and domestic use.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			0	2.3	1.7	1.5	1.7	6.6	0.7	0.1	0.1	
2			0	1.8	1.6	1.4	1.8	6.0	.9	.1	.1	
3			0	2.0	1.6	1.4	2.7	6.0	.7	.1	.1	
4			0	1.7	1.5	1.4	2.6	5.8	.6	.1	.1	
5			0	1.7	1.4	1.3	2.9	5.8	.5	.1	.1	
6			0	1.4	1.9	1.3	1.3	5.6	.4	.1	.1	
7			0	1.9	1.6	1.4	1.2	5.3	.5	.1	.1	
8			0	1.2	1.5	1.6	1.0	4.9	.9	.1	.1	
9			0	1.0	1.4	1.7	1.1	4.5	.8	.1	.1	
10			0	1.0	1.4	1.6	1.9	4.3	.7	.1	.1	
11			0	1.1	1.3	3.9	3.5	4.1	.4	.2	21	
12			0	1.1	1.3	2.4	4.3	3.7	.3	.1	6.6	
13			0	1.2	1.3	2.3	4.7	3.3	.2	.1	.1	
14			0	1.1	1.3	2.0	4.4	3.2	.2	.1	0	
15			0	1.0	1.3	2.0	4.5	3.2	.4	.1	0	
16			0	1.0	1.4	1.9	4.0	2.7	.3	.1	0	
17			0	.9	1.5	1.9	3.4	2.4	.2	.1	0	
18			0	.9	1.6	1.9	2.4	2.2	.2	.1	0	
19			0	1.0	1.6	1.8	2.2	2.0	.1	0	0	
20			0	1.2	1.5	1.7	2.0	2.0	.1	0	0	
21			0	1.2	1.4	1.6	1.6	2.0	.1	.1	0	
22			0	.9	1.5	1.6	1.6	2.2	.1	.1	0	
23			0	.9	1.4	1.6	1.3	2.3	.1	.1	0	
24			.1	3.5	1.3	1.6	1.2	1.8	.2	.1	0	
25			0	2.2	1.4	1.6	1.1	1.6	.2	.1	0	
26			0	1.8	1.4	1.5	9.9	1.3	.2	.1	0	
27			5.5	1.8	1.5	1.5	8.3	1.1	.1	.1	0	
28			93.7	1.8	1.5	1.6	7.8	.9	.1	.1	0	
29			93.3	1.7	-----	1.5	7.3	.8	.1	.1	0	
30			3.0	1.6	-----	1.4	6.6	.8	.1	.1	0	
31			3.3	1.7	-----	1.4	-----	.7	-----	.1	0	
Total	0	0	13.9	45.6	41.1	53.3	533.6	99.1	10.4	3.0	28.7	
Mean	0	0	0.61	1.47	1.47	1.72	18.0	3.20	0.35	0.10	0.93	
Ac-ft	0	0	37	90	82	106	1,070	197	21	6.0	57	

Calendar year 1964 Max 5.5 Min 0 Mean 0.60 Ac-ft 436

Water year 1964-65 Max 47 Min 0 Mean 2.30 Ac-ft 1670

Peak discharge (base, 50 cfs).--April 13 (0600) 55 cfs (2.31 ft); Aug. 11 (2030) 444 cfs (4.90 ft).

Note.--No gage-height record Dec. 28, 29, July 14-16, Aug. 13-19.

11-1964.2. Tehachapi Creek near Tehachapi, Calif.

Location.--Lat 35°10'25", long 118°28'45", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 6, T.32 S., R.33 E., on right bank 1.3 miles downstream from Brite Creek and 3.2 miles northwest of Tehachapi.

Drainage area.--53.2 sq mi.

Records available.--September 1962 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 3,534.48 ft above mean sea level. Prior to Aug. 5, 1964 at site 0.2 mile upstream at different datum.

Extremes.--No flow during year.

1962-65: Maximum discharge, 1,700 cfs Aug. 8, 1963 (gage height, 5.30 ft in gage well, 6.40 ft outside from floodmarks), from slope-area measurement of maximum flow; no flow for all or part of most years.

Remarks.--No flow since Sept. 26, 1963.

11-1972.5. Avenal Creek near Avenal, Calif.

Location.--Lat 35°51'15", long 120°07'35", in NW¼ sec.10, T.24 S., R.17 E., on right bank 550 ft downstream from road ford, 0.4 mile downstream from unnamed tributary, and 10 miles south of town of Avenal.

Drainage area.--57.1 sq mi.

Records available.--October 1961 to September 1965.

Gage.--Water-stage recorder and crest-stage gages. Altitude of gage is 825 ft (from topographic map).

Extremes.--Maximum discharge during year, 99 cfs Jan. 6 (gage height, 2.50 ft); no flow for several months.

1961-65: Maximum discharge, 400 cfs Feb. 9, 1962 (gage height, 4.10 ft, from floodmarks), from rating curve extended above 90 cfs on basis of slope-area measurement of peak flow; no flow for several months each year.

Remarks.--Records good. Minor diversions for stock.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

1.22	0	1.7	11
1.3	.1	1.8	18
1.4	.9	2.0	36
1.5	3.6	2.2	67
1.6	7.2		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0	0	0		0	0					
2	0	0	0	0		0	0					
3	0	0	0	0		0	0					
4	0	0	0	11		0	0					
5	0	0	0	41		0	0					
6	0	0	0	41		0	0					
7	0	0	0	48		0	0					
8	0	0	0	12		0	0					
9	0	0	0	5.1		0	20					
10	0	.5	0	2.1		0	19					
11	0	0	0	.7		0	9.5					
12	0	0	0	.1		0	5.8					
13	0	0	0	0		0	5.8					
14	0	0	0	0		0	3.0					
15	0	0	0	0		0	1.3					
16	0	0	0	0		0	.6					
17	0	0	0	0		0	.4					
18	0	0	0	0		0	.1					
19	0	0	.3	0		0	0					
20	0	0	0	0		0	0					
21	0	0	0	0		0	0					
22	0	0	0	0		0	0					
23	0	0	0	0		0	0					
24	0	0	0	0		0	0					
25	0	0	0	0		0	0					
26	0	0	0	0		0	0					
27	0	0	0	0		0	0					
28	0	0	0	0		0	0					
29	.2	0	0	0		0	0					
30	0	0	0	0		0	0					
31	0	-----	0	0		1.7	-----		-----			-----
Total	0.2	0.5	0.3	161.0	0	1.7	65.5	0	0	0	0	0
Mean	0.006	0.02	0.01	5.19	0	0.05	2.18	0	0	0	0	0
Ac-ft	0.4	1.0	0.6	319	0	3.4	130	0	0	0	0	0

Calendar year 1964 Max 1.3 Min 0 Mean 0.009 Ac-ft 6.6

Water year 1964-65 Max 48 Min 0 Mean 0.63 Ac-ft 454

## TULARE LAKE BASIN

11-1978. Poso Creek near Oildale, Calif.

Location.--Lat 35°30'50", long 118°54'15", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.6, T.28 S., R.29 E., opposite mouth of Hillvale Canyon, on highway bridge 10 miles northeast of Oildale and 12 miles northeast of Bakersfield.

Drainage area.--230 sq mi.

Records available.--July 1959 to September 1965.

Gage.--Water-stage recorder (digital). Altitude of gage is 700 ft (from topographic map).

Extremes.--Maximum discharge during year, 359 cfs Dec. 28 (gage height, 6.38 ft); minimum daily, 2.5 cfs Oct. 5.

1959-65: Maximum discharge, that of Dec. 28, 1964; minimum, 0.9 cfs July 26, 1961.

Flood of Apr. 4, 1958, reached a stage of 8.6 ft, from floodmarks (discharge, 2,750 cfs, furnished by Kern County Land Co.).

Remarks.--Records good except those for periods of no gage-height record, which are poor. Oilfield waste comprises most of low flow.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	3.5	6.0	6.4	45	57	34	36	78	25	4.7	3.3	3.4
2	3.4	5.4	6.4	37	54	31	45	74	25	4.3	3.3	3.4
3	3.2	5.7	6.3	35	51	29	60	74	24	4.0	3.2	3.6
4	3.3	5.7	6.1	62	48	27	81	71	23	3.6	3.2	3.6
5	2.5	6.0	6.0	105	46	26	92	65	22	3.4	3.1	3.6
6	3.2	6.0	5.7	84	51	27	74	62	21	3.2	2.7	3.4
7	3.3	6.1	5.7	76	61	29	71	61	19	3.0	3.2	3.7
8	3.4	6.0	5.8	78	59	41	59	59	19	2.6	3.8	3.7
9	3.6	5.7	5.9	60	58	35	113	57	22	2.7	3.6	3.8
10	3.4	6.5	6.0	54	56	33	166	53	24	2.7	3.1	3.7
11	3.1	6.5	6.2	50	54	56	222	53	20	2.8	3.2	3.7
12	2.9	7.1	6.4	47	52	59	229	53	17	3.0	3.1	3.8
13	2.9	6.4	5.3	45	50	62	252	51	15	3.0	3.1	3.7
14	2.9	6.0	5.8	43	48	80	296	48	14	3.0	3.0	3.7
15	3.2	5.0	5.8	41	46	65	295	47	15	3.1	2.8	3.6
16	3.7	6.0	6.0	40	44	59	288	45	16	3.0	2.7	4.2
17	3.7	6.0	5.8	39	42	54	265	43	16	3.1	2.9	4.6
18	3.3	6.0	6.0	40	40	53	240	40	15	4.0	2.7	4.5
19	3.4	5.0	5.0	42	38	48	218	37	13	3.5	2.8	4.8
20	3.6	6.0	5.8	47	36	45	199	38	11	2.9	2.8	4.2
21	3.7	6.0	5.6	53	34	43	183	37	13	3.1	2.9	4.3
22	3.7	6.0	5.4	49	32	40	163	38	12	3.2	2.7	4.0
23	3.7	6.0	5.7	46	30	39	148	40	11	3.0	2.7	3.2
24	4.1	6.0	5.8	67	28	33	134	42	9.6	3.1	2.9	3.0
25	3.8	6.0	5.9	158	28	37	123	37	7.8	3.1	2.9	3.0
26	4.0	6.4	6.0	96	27	35	113	35	6.9	3.0	2.9	3.2
27	5.5	6.4	31	74	27	34	103	32	8.7	3.1	3.1	3.1
28	6.6	5.5	317	66	32	35	94	29	8.6	3.2	3.1	3.1
29	5.6	6.2	163	63	-----	36	86	27	7.1	3.3	3.1	3.2
30	5.8	6.3	99	61	-----	34	81	25	5.7	3.5	3.4	3.4
31	6.2	-----	60	59	-----	33	-----	25	-----	3.3	3.2	-----
TOTAL	118.2	183.9	818.8	1,862	1,229	1,312	4,558	1,477	468.4	100.7	34.5	110.6
MEAN	3.81	6.13	26.4	60.1	43.9	42.3	152	47.6	15.6	3.25	3.05	3.69
AC-FT	234	365	1,620	3,690	2,440	2,600	9,040	2,930	929	200	187	220

CALENDAR YEAR 1964	MAX 317	MIN 2.4	MEAN 11.9	AC-FT 8,600
WATER YEAR 1964-65	MAX 317	MIN 2.5	MEAN 33.8	AC-FT 24,460

## Peak discharge (base, 70 cfs)

Note.--No gage-height record Nov. 14-25, Feb. 8-25.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-28	0530	6.38	359	3-14	1545	4.23	83
1-5	0530	4.38	110	4-5	0245	4.51	105
1-25	0945	5.31	181	4-14	1345	6.44	320

11-2020. North Fork of Middle Fork Tule River near Springville, Calif.

Location--Lat 36°10'29", long 118°41'41", in T.20 S., R.30 E. (unsurveyed), on right bank 1.2 miles upstream from mouth, 2.2 miles downstream from Hossack Creek, and 7.4 miles northeast of Springville.

Drainage area--39.3 sq mi.

Records available--October 1939 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A. January 1909 to December 1912 at site 2 miles upstream, records not equivalent. Prior to October 1954, records for river and conduit published separately; combined only, October 1954 to September 1962.

Gage--Water-stage recorder and, since Aug. 6, 1958, concrete control on river; water-stage recorder and rectangular concrete channel for conduit diversion. Altitude of gage is 2,920 ft (from topographic map).

Average discharge (river only)--26 years, 22.8 cfs (16,510 acre-ft per year).  
(total flow)--26 years, 54.3 cfs (29,310 acre-ft per year).

Extremes (river only)--Maximum discharge during year, 824 cfs Dec. 27 (gage height, 5.74 ft); minimum daily, 0.3 cfs Oct. 5, 20. 1939-65: Maximum discharge, 12,400 cfs Dec. 23, 1955 (gage height, 12.47 ft, from floodmarks), from rating curve extended above 100 cfs on basis of critical-depth determination; maximum gage height, 13.06 ft Nov. 19, 1950, from floodmarks; no flow Sept. 10, 11, 1955.

(combined)--Maximum discharge during year, 872 cfs Dec. 27; minimum daily, 12 cfs Oct. 1-12, 14-25. 1939-65: Maximum discharge, 12,400 cfs Dec. 23, 1955; minimum daily, 7.2 cfs Aug. 18, Oct. 17, 1961.

Remarks--Records good. Pacific Gas & Electric Co. conduit diverts 2.5 miles upstream from station; water is returned to North Fork of Middle Fork Tule River 1.1 miles downstream from station. For records of combined discharge of river and conduit, see following page.

Cooperation--Water-stage-recorder graph and nine discharge measurements for the river and water-stage-recorder graph and 11 discharge measurements for the conduit furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.5	0.8	1.3	28	11	3.1	4.4	133	92	9.8	1.2	0.8
2	.5	.9	1.7	25	11	3.0	5.0	116	82	9.8	1.1	.8
3	.5	.7	2.5	29	10	3.0	4.8	92	73	9.8	1.1	.8
4	.4	.6	1.6	35	9.8	3.7	5.5	74	73	9.8	1.1	.8
5	.3	.6	1.4	41	10	2.8	5.8	61	86	9.5	1.1	.9
6	.4	.6	1.4	46	14	2.4	5.6	54	94	9.5	1.0	.8
7	.5	.6	1.3	69	12	2.6	8.9	46	88	8.9	1.0	.9
8	.5	.6	1.2	39	11	2.6	8.6	40	77	8.9	1.0	1.0
9	.5	2.4	1.2	33	10	2.6	10	37	59	5.3	1.0	.8
10	.5	4.3	1.8	29	9.5	2.4	10	31	56	1.7	1.0	.8
11	.5	6.5	1.5	26	9.5	2.6	10	31	63	1.5	1.4	.7
12	.5	34	2.3	22	9.5	5.7	11	28	70	1.5	1.9	.7
13	.6	15	1.6	14	9.5	8.6	11	30	62	1.4	1.5	.6
14	.5	3.7	1.5	12	9.2	4.8	12	35	51	1.4	1.3	.6
15	.4	2.5	1.4	12	9.2	4.2	14	41	43	1.3	1.3	.6
16	.4	1.8	1.3	11	8.6	3.8	16	62	37	1.3	1.2	.7
17	.4	1.6	1.2	11	8.6	3.7	16	94	26	1.3	1.5	.7
18	.4	1.5	1.2	11	8.3	3.6	22	112	23	1.3	1.6	1.7
19	.4	1.6	2.1	12	8.6	3.5	47	117	22	1.3	1.3	1.1
20	.3	1.5	2.1	14	8.6	3.4	68	117	20	1.3	1.2	.9
21	.4	1.4	1.8	12	8.6	3.4	80	100	19	1.2	1.2	.8
22	.4	1.4	1.8	11	8.6	3.2	83	86	19	1.2	1.2	.8
23	.4	1.4	186	12	8.0	3.2	76	69	16	1.2	1.2	.7
24	.5	1.3	428	84	7.1	3.6	85	57	13	1.1	1.1	.6
25	.5	1.3	135	39	5.2	3.5	96	51	12	1.1	1.1	.6
26	.6	1.3	119	27	3.1	3.1	111	52	9.8	1.1	1.1	.6
27	.6	1.3	363	22	2.7	4.7	121	55	8.0	1.1	1.0	.6
28	1.0	1.3	118	16	3.2	4.1	130	67	8.6	1.1	.8	.7
29	1.7	1.3	59	12	-----	3.7	131	81	10	1.1	.8	.8
30	.8	1.2	48	11	-----	3.5	133	86	9.8	1.2	.8	.8
31	.6	-----	37	11	-----	3.5	-----	96	-----	1.3	.8	-----
Total	16.5	95.0	1,528.2	776	244.4	111.6	1,341.6	2,151	1,322.2	109.3	35.9	23.7
Mean	0.53	3.17	49.3	25.0	8.73	3.60	44.7	69.4	44.1	3.53	1.16	0.79
Ac-ft	33	188	3,030	1,540	485	221	2,660	4,270	2,620	217	71	47

Calendar year 1964 Max 428 Min 0.2 Mean 8.42 Ac-ft 6,110  
 Water year 1964-65 Max 428 Min 0.3 Mean 21.2 Ac-ft 15,380

11-2020. North Fork of Middle Fork Tule River near Springville, Calif.--Continued.

Combined discharge, in cubic feet per second, of North Fork of Middle Fork Tule River and Pacific Gas and Electric Co. conduit near Springville, Calif., water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	19	26	69	67	53	56	202	159	59	32	21
2	12	18	28	63	67	52	56	185	149	57	31	21
3	12	16	26	67	67	52	55	160	140	55	30	21
4	12	16	24	75	67	52	56	142	140	53	29	21
5	12	15	23	90	69	51	56	129	153	50	29	21
6	12	15	21	104	74	49	56	122	161	50	28	21
7	12	15	20	134	66	49	60	114	154	47	27	22
8	12	15	20	91	61	48	59	108	143	45	27	21
9	12	23	20	77	60	47	59	105	125	45	26	21
10	12	27	20	70	56	45	60	99	122	45	26	20
11	12	34	24	65	54	46	59	99	129	44	30	20
12	12	86	27	71	52	51	59	96	136	42	34	20
13	13	43	23	61	52	52	58	98	127	41	30	20
14	12	26	22	59	50	49	61	103	116	40	27	19
15	12	22	20	59	49	47	68	109	108	40	27	19
16	12	21	20	59	48	47	73	130	102	39	26	19
17	12	20	19	66	49	47	78	162	90	39	34	20
18	12	18	19	74	48	48	91	180	87	38	31	25
19	12	19	25	76	52	48	120	185	86	37	26	23
20	12	20	28	79	53	51	139	185	84	36	25	22
21	12	20	28	72	53	53	149	168	83	35	25	21
22	12	20	33	69	54	55	152	154	83	34	24	21
23	12	21	241	77	52	54	145	137	79	34	24	20
24	12	22	472	145	51	55	154	125	76	33	24	20
25	12	23	187	97	52	52	165	119	75	33	23	19
26	13	25	173	84	53	51	179	120	72	33	22	19
27	13	22	412	78	57	56	189	122	68	32	22	19
28	19	21	173	79	54	54	199	134	65	31	22	20
29	26	23	107	68	-----	54	200	148	63	31	22	20
30	19	26	93	67	-----	54	202	153	61	33	22	20
31	17	-----	79	67	-----	54	-----	163	-----	34	21	-----
Total	408	711	2,453	2,412	1,587	1,576	3,113	4,256	3,236	1,265	826	616
Mean	13.2	23.7	79.1	77.8	56.7	50.8	104	137	108	40.8	26.6	20.5
Ac-ft	809	1,410	4,870	4,780	3,150	3,130	6,170	8,440	6,420	2,510	1,640	1,220

Calendar year 1964 Max 472 Min 10 Mean 37.2 Ac-ft 27,040  
 Water year 1964-65 Max 472 Min 12 Mean 61.5 Ac-ft 44,550

11-2031. North Fork Tule River at Springville, Calif.

Location.--Lat 36°08'22", long 118°48'15", in SE¼ sec.35, T.20 S., R.29 E., on left bank 0.1 mile upstream from Middle Fork Tule River, three-quarters of a mile northeast of Springville, and 12.9 miles northeast of Porterville.

Drainage area.--97.6 sq mi.

Records available.--February 1957 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 1,040 ft (from topographic map).

Average discharge.--8 years, 31.6 cfs (22,880 acre-ft per year).

Extremes.--Maximum discharge during year, 1,490 cfs Dec. 27 (gage height, 8.61 ft); minimum daily, 0.1 cfs Oct. 2-6, 20, 21, Nov. 8. 1957-65: Maximum discharge, 4,600 cfs Jan. 31, 1963 (gage height, 10.29 ft); no flow for many days in 1958, 1960-62, 1964.

Remarks.--Numerous small diversions above station for irrigation.

Cooperation.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.2	0.2	12	75	75	44	63	133	52	10	0.5	0.4
2	0.1	0.3	12	68	73	42	72	113	50	9.0	0.5	0.4
3	0.1	0.3	16	67	71	40	71	104	45	9.2	1.6	0.5
4	0.1	0.3	13	107	68	39	109	92	42	7.0	1.7	0.5
5	0.1	0.3	11	185	70	37	91	85	43	6.6	0.7	0.5
6	0.1	0.3	10	171	91	36	87	81	46	5.7	0.6	1.5
7	0.3	0.2	9.2	373	83	36	143	76	47	4.2	0.5	1.0
8	0.2	0.1	8.8	185	70	36	150	70	46	2.8	0.6	0.7
9	0.3	0.9	3.5	123	68	35	233	67	45	2.6	0.5	0.5
10	0.7	5.3	3.2	104	63	33	262	64	41	2.1	0.3	0.5
11	0.6	5.6	3.6	94	59	35	204	61	39	2.0	0.6	0.5
12	0.7	71	15	87	55	55	157	59	38	1.8	1.0	0.5
13	0.6	61	15	82	53	74	154	56	37	1.2	0.9	0.3
14	0.3	24	12	77	52	54	146	59	35	0.9	0.8	0.3
15	0.2	13	11	76	50	51	155	59	34	1.0	1.1	0.3
16	0.3	9.1	10	73	49	47	176	61	32	0.8	1.1	0.3
17	0.6	6.9	9.9	75	47	46	165	70	29	1.0	0.9	0.3
18	0.7	6.2	9.3	83	47	49	170	77	25	0.7	0.9	0.6
19	0.2	5.6	11	89	46	47	204	74	24	0.7	0.6	0.8
20	0.1	5.7	21	100	47	50	248	73	21	0.7	1.2	0.9
21	0.1	5.8	22	89	47	49	252	72	20	0.6	0.5	0.7
22	0.4	5.9	19	81	46	43	239	69	19	0.6	0.3	0.8
23	0.3	6.5	112	80	46	43	205	64	19	0.5	0.6	1.0
24	0.3	7.1	267	253	43	49	190	57	17	0.7	0.5	1.0
25	0.5	3.0	161	145	43	47	186	51	17	1.0	0.6	1.0
26	0.4	9.7	105	112	42	43	184	48	16	0.6	0.6	0.8
27	0.4	12	681	99	44	51	179	45	15	0.8	0.5	0.8
28	0.7	10	306	91	47	53	170	45	14	0.6	0.6	0.8
29	0.9	8.7	143	84	-----	43	156	47	12	0.5	0.4	0.8
30	0.3	10	101	78	-----	46	141	43	10	0.6	0.6	0.9
31	0.2	-----	90	77	-----	46	-----	49	-----	0.9	0.6	-----
Total	11.0	300.0	2,338.5	3,498	1,595	1,414	4,967	2,134	930	76.4	22.4	19.9
Mean	0.35	10.0	72.2	113	57.0	45.6	166	63.8	31.0	2.46	0.72	0.66
Ac-ft	22	595	4,440	6,940	3,160	2,800	9,850	4,230	1,840	152	44	39
Calendar year 1964:	Max	681	Min	0	Mean	23.2	Ac-ft	16,870				
Water year 1964-65:	Max	681	Min	0.1	Mean	47.1	Ac-ft	34,110				

## TULARE LAKE BASIN

11-2032. Tule River near Springville, Calif.

Location.--Lat 36°05'41", long 118°50'09", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 15, T.21 S., R.29 E., on left bank 15 ft upstream from highway bridge, 2 miles southwest of Springville, and 4 miles downstream from North Fork.

Drainage area.--225 sq mi.

Records available.--October 1957 to September 1965.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 800 ft (from topographic map).

Average discharge.--8 years, 99.2 cfs (71,820 acre-ft per year).

Extremes.--Maximum discharge during year, 3,330 cfs Dec. 27 (gage height, 7.27 ft); minimum daily, 2.0 cfs Oct. 8.  
1957-65: Maximum discharge, 10,100 cfs Jan. 31, 1963 (gage height, 10.80 ft); no flow for many days in 1961.  
Flood in December 1955 reached a stage of 13.7 ft, from floodmarks (discharge, about 21,000 cfs).

Remarks.--Records good. Many small diversions above station for irrigation. Power is developed on Middle Fork and tributaries.  
Records of chemical analyses for the water year 1965 are published in Part 2 of this report.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Oct. 31		Nov. 1 to Dec. 31		Jan. 1 to Sept. 30	
2.7	0.7	3.1	17	3.0	11
2.8	2.8	3.2	25	3.1	18
2.9	6.3	3.3	36	3.2	26
3.0	11.0	3.5	67	3.3	38
3.1	18.0	3.7	108	3.6	90
3.2	26.0	4.0	195	4.0	204
3.3	38.0	4.5	410	4.5	435
		5.0	730	5.0	745
		6.0	1,680		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.1	20	53	219	190	129	152	484	289	84	27	14
2	3.7	23	50	190	187	126	180	452	276	82	25	14
3	3.7	21	60	187	184	124	170	386	255	74	24	14
4	4.0	13	55	267	180	113	231	340	246	63	23	13
5	3.7	13	49	413	180	113	215	312	259	65	21	12
6	2.8	19	50	386	234	111	203	284	276	62	20	14
7	2.2	21	46	737	212	103	293	263	271	56	19	15
8	2.0	20	44	424	184	106	302	246	255	52	19	17
9	3.1	35	44	316	170	102	413	234	231	50	17	17
10	4.0	63	43	267	153	97	502	227	212	47	16	14
11	4.0	52	43	242	152	99	424	215	212	47	13	13
12	3.1	319	65	219	146	129	350	215	219	46	33	13
13	3.4	224	53	204	140	180	350	212	212	41	23	12
14	3.4	95	50	187	137	143	340	231	194	37	24	13
15	3.7	65	49	184	135	135	355	233	180	33	20	13
16	4.3	53	46	177	132	126	391	263	170	37	20	14
17	5.5	46	44	187	126	126	380	316	152	37	17	14
18	5.9	43	43	212	126	129	386	355	140	35	29	13
19	5.3	40	47	223	129	126	457	365	129	35	23	25
20	4.3	40	71	250	129	129	556	370	124	30	20	24
21	3.4	40	73	223	132	135	562	345	121	30	19	22
22	3.1	41	71	204	132	135	562	321	113	23	19	13
23	3.4	43	450	197	129	137	502	289	116	26	17	17
24	4.0	43	1,070	560	126	140	496	263	113	25	17	16
25	5.1	44	616	355	124	135	503	242	111	27	17	15
26	5.1	49	333	289	124	129	520	234	103	26	17	15
27	5.5	53	1,660	255	126	140	532	231	102	25	19	17
28	11	47	792	231	137	149	526	242	97	23	13	13
29	33	44	417	212	-----	140	514	259	83	23	14	19
30	34	49	304	201	-----	135	490	271	86	25	14	13
31	24	-----	254	197	-----	137	-----	284	-----	30	14	-----
Total	211.8	1,683	7,060	8,415	4,261	3,963	11,872	8,989	5,362	1,311	623	478
Mean	6.33	56.3	223	271	152	123	396	290	179	42.3	20.3	15.9
Ac-ft	420	3,350	14,000	16,690	8,450	7,870	23,550	17,830	10,640	2,600	1,250	943

Calendar year 1964 Max 1,660 Min 1.1 Mean 77.8 Ac-ft 56,490  
Water year 1964-65 Max 1,660 Min 2.0 Mean 149 Ac-ft 107,600

Peak discharge (base, 350 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-12	1800	4.48	400	1-7	1000	5.38	1,050
12-24	1500-1600	6.10	1,790	1-24	0600	5.22	916
12-27	0300	7.27	3,330	4-9	2300	4.83	630
				4-21	0100-0300	4.75	580



11-2045. South Fork Tule River near Success, Calif.

Location.--Lat 36°02'30", long 118°51'25", in NW 1/4 sec. 4, T.22 S., R.29 E., on left bank 0.5 miles upstream from Crew Creek, 4 miles southeast of Success, and 5 miles upstream from mouth.

Drainage area.--109 sq mi.

Records available.--June 1930 to November 1954, February 1956 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 770 ft (from topographic map). Prior to June 26, 1951, at site 0.4 mile downstream at different datum.

Average discharge.--33 years, 38.2 cfs (27,660 acre-ft per year): median of yearly mean discharges, 28 cfs (20,300 acre-ft per year).

Extremes.--Maximum discharge during year, 782 cfs Dec. 27 (gage height, 6.42 ft): no flow many days.

1930-1954, 1956-65: Maximum discharge, 7,100 cfs Nov. 19, 1950 (gage height, 11.36 ft, present site and datum), from rating curve extended above 3,100 cfs on basis of slope-area measurement of maximum flow; no flow at times in most years.

Remarks.--Records good. Diversions for irrigation of about 1,600 acres.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Oct. 11-14, Oct. 29 to Nov. 12, Dec. 1-23, July 8 to Sept. 30)

2.7	0	3.3	6.4	5.5	365
2.8	.1	3.5	14	6.0	575
2.9	.4	3.7	25		
3.0	.7	4.0	50		
3.1	1.6	4.5	120		
3.2	3.6	5.0	219		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	2.1	12	63	66	43	54	93	46	13	3.4	0.5
2	0	3.6	13	63	63	42	66	94	46	13	6.7	.6
3	0	2.9	17	64	61	40	57	83	44	16	6.4	.7
4	0	2.1	13	113	60	39	77	82	42	16	6.1	.8
5	0	1.5	12	134	61	33	67	80	40	16	5.5	1.0
6	0	1.4	12	120	90	33	66	77	39	14	4.4	1.4
7	0	1.2	11	185	74	37	77	74	39	13	2.7	2.5
8	0	1.1	11	118	66	38	80	70	41	12	2.5	2.7
9	0	7.4	11	96	66	36	96	67	41	12	2.3	2.5
10	0	19	11	82	60	35	113	62	33	11	1.6	1.6
11	.4	12	10	75	57	33	109	61	34	11	1.6	1.5
12	.4	110	20	70	55	46	93	53	34	11	3.4	1.5
13	.2	73	16	63	54	57	110	56	33	9.9	5.5	1.4
14	0	27	13	61	51	50	107	57	31	9.5	3.6	1.4
15	0	19	12	61	52	47	115	56	32	9.5	2.5	1.4
16	0	16	12	61	50	44	124	57	32	9.1	1.8	1.3
17	0	14	12	64	49	46	113	53	31	9.1	1.4	1.3
18	0	14	12	70	48	46	120	62	31	9.1	1.3	3.4
19	0	13	14	72	47	43	131	62	28	3.4	1.4	6.4
20	0	13	22	82	47	44	133	63	26	3.4	1.8	3.9
21	0	12	23	70	47	47	134	64	24	3.0	2.3	1.9
22	0	11	20	63	47	47	131	64	23	3.0	2.3	1.5
23	0	11	97	61	46	47	115	64	23	7.7	3.6	1.5
24	0	12	225	203	44	47	112	60	23	7.4	3.1	1.4
25	0	12	152	122	43	46	112	54	21	7.7	3.1	1.4
26	0	14	76	93	42	44	110	50	22	7.7	2.7	1.6
27	0	14	465	87	45	48	107	43	21	3.0	2.1	2.1
28	0	13	255	81	46	51	106	46	21	7.4	.7	2.9
29	6.1	12	133	75	-----	48	102	45	20	7.0	.6	3.4
30	5.8	13	99	72	-----	44	99	45	13	3.4	.6	2.9
31	2.5	-----	82	63	-----	44	-----	45	-----	11	.5	-----
Total	15.4	477.3	1893	2732	1537	1360	3051	1967	944	329.3	97.5	53.4
Mean	0.50	15.9	61.2	83.1	54.9	43.9	102	63.5	31.5	10.6	3.15	1.95
Ac-ft	31	947	3760	5420	3050	2700	6050	3900	1870	653	193	116

Calendar year 1964 Max 465 Min 0 Mean 21.3 Ac-ft 15,440  
Water year 1964-65 Max 465 Min 0 Mean 39.6 Ac-ft 28,690

Peak discharge (base, 200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-24	1800	5.84	503	1-24	0600	5.50	365
12-27	0600	6.42	782				
1-7	1000	5.17	260				

## TULARE LAKE BASIN

11-2046.8. Pioneer ditch below Success Dam, Calif.

Location.--Lat 36°03'34", long 118°55'22", in NW $\frac{1}{4}$  sec.35, T.21 S., R.28 E., on left bank 0.1 mile downstream from Success Dam and 5.5 miles east of Porterville.

Records available.--April 1959 to September 1965. Prior to October 1960, monthly diversions only, published with Tule River near Porterville.

Average discharge.--6 years, 8.11 cfs (5,870 acre-ft per year).

Gage.--Water-stage recorder and Parshall flume. Datum of gage is 549.00 ft above mean sea level (levels by Corps of Engineers). Prior to Feb. 1, 1961, at site 0.5 mile downstream at different datum.

Extremes.--1960-65: Maximum daily discharge, 29 cfs Apr. 15, 16, 1961; no flow at times in most years.

Remarks.--Records good. Ditch receives water from Lake Success (usable capacity, 83,900 acre-ft); see following page.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	14	0					0	11	14	14	16	14
2	14	0					0	11	14	14	16	14
3	15	0					0	10	14	14	16	14
4	15	0					0	10	14	14	16	14
5	15	0					0	10	14	14	16	14
6	15	0					0	10	14	14	16	14
7	15	0					0	10	14	14	16	13
8	15	0					0	10	14	14	16	12
9	12	0					0	10	14	14	16	12
10	10	0					0	10	14	14	16	12
11	10	0					0	11	14	14	16	12
12	10	0					0	12	14	14	16	12
13	10	0					0	12	14	14	16	12
14	10	0					0	12	14	14	16	12
15	11	0					0	12	14	15	16	12
16	13	0					0	12	14	16	16	12
17	12	0					0	12	14	16	16	12
18	12	0					0	12	14	16	16	12
19	12	0					0	13	14	16	15	12
20	12	0					0	14	14	16	14	12
21	12	2					0	14	14	16	14	12
22	12	4					0	14	14	16	14	12
23	12	4					0	14	14	16	14	12
24	12	1					0	14	14	16	14	13
25	12	0					0	14	14	16	14	13
26	11	0					0	14	14	16	14	13
27	10	0					0	14	14	16	14	13
28	10	0					0	14	14	16	14	13
29	4	0					0	14	14	16	14	13
30	0	0					8	14	14	16	14	13
31	0	-----					-----	14	-----	16	14	-----
Total	347	11	0	0	0	0	9	378	420	467	471	380
Mean	11.2	0.37	0	0	0	0	0.27	12.2	14.0	15.1	15.2	12.7
Ac-ft	688	22	0	0	0	0	16	750	833	926	934	754

Calendar year 1964 Max 16 Min 0 Mean 7.52 Ac-ft 5,460  
 Water year 1964-65 Max 16 Min 0 Mean 6.80 Ac-ft 4,920

11-2047. Lake Success near Success, Calif.

Location.--Lat 36°03'40", long 118°55'18", in SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.35, T.21 S., R.28 E., in control tower near right abutment of Success Dam on Tule River, 5 miles east of Porterville.

Drainage area.--391 sq mi.

Records available.--November 1961 to September 1965. Prior to October 1962, published as Success Reservoir near Success.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (levels by Corps of Engineers).

Extremes.--Maximum contents during year, 66,100 acre-ft June 22-26 (elevation 642.7 ft); minimum, 6,830 acre-ft Jan. 23 (elevation, 587.06 ft).

1961-65: Maximum contents, that of June 22-26, 1965; minimum since initial season of operation, 6,780 acre-ft Nov. 24, 1963 (elevation, 586.95 ft).

Remarks.--Lake is formed by earthfill dam and dike. Storage began November 1961. Usable capacity, 83,900 acre-ft, between elevations 559.0 ft (invert of outlet structure) and 652.5 ft (spillway crest). Spillway design flood pool elevation, 686.8 ft (capacity, 205,500 acre-ft). No dead storage. Records, including extremes, represent contents at 2400 hours.

Cooperation.--Records of contents and evaporation furnished by Corps of Engineers.

Capacity table (elevation, in feet, and contents, in acre-feet)

585	5,900	620	32,000
590	8,300	630	44,400
600	14,400	640	60,800
610	22,200	650	82,300

Contents, in acre-feet, at 2400 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9,200	8,350	10,000	11,900	10,100	14,900	23,200	50,500	62,700	65,700	49,300	27,500
2	9,140	8,410	10,000	10,800	10,400	15,100	23,700	51,300	63,100	65,600	48,500	26,800
3	9,070	8,450	10,000	10,200	10,700	15,300	24,200	52,000	63,400	65,500	47,800	26,100
4	9,020	8,490	10,000	10,200	11,000	15,500	24,800	52,600	63,700	65,300	47,000	25,400
5	8,960	8,530	10,000	10,300	11,300	15,700	25,400	53,000	64,000	65,200	46,300	24,700
6	8,880	8,560	10,000	10,400	11,700	15,900	26,000	53,400	64,300	64,800	45,600	24,100
7	8,800	8,600	10,000	10,900	12,100	16,000	26,700	53,800	64,500	64,200	44,900	23,900
8	8,720	8,610	10,000	10,400	12,300	16,200	27,500	54,200	64,700	63,600	44,200	23,800
9	8,620	8,740	10,000	10,200	12,500	16,400	28,600	54,400	64,900	63,000	43,400	23,700
10	8,520	8,910	10,000	10,300	12,600	16,500	29,800	54,700	65,100	62,400	42,700	23,600
11	8,410	9,050	10,000	10,200	12,500	16,700	30,900	55,000	65,200	61,800	42,000	23,600
12	8,360	9,790	10,100	10,200	12,500	16,900	31,700	55,300	65,300	61,300	41,300	23,500
13	8,330	10,100	10,100	10,200	12,500	17,300	32,600	55,500	65,400	60,700	40,600	23,400
14	8,310	9,990	10,100	10,300	12,500	17,600	33,500	55,800	65,500	60,100	39,900	23,400
15	8,300	9,980	10,100	10,200	12,500	17,800	34,300	56,100	65,600	59,600	39,200	23,300
16	8,280	9,090	10,100	10,200	12,600	18,100	35,300	56,500	65,700	59,000	38,500	23,200
17	8,260	10,020	10,100	10,200	12,500	18,300	36,300	56,900	65,800	58,400	37,900	23,200
18	8,230	10,000	10,100	10,200	12,500	18,600	37,300	57,400	65,800	57,900	37,100	23,100
19	8,220	10,000	10,000	9,680	12,500	18,800	38,300	57,900	65,900	57,300	36,500	23,100
20	8,200	10,000	10,100	9,090	12,600	19,100	39,600	58,500	66,000	56,800	35,800	23,000
21	8,180	10,000	10,100	8,390	12,800	19,400	40,700	59,100	66,000	56,200	35,100	23,000
22	8,150	10,000	10,000	7,610	13,100	19,700	41,800	59,600	66,100	55,600	34,400	22,900
23	8,140	10,000	10,200	6,830	13,300	19,900	42,900	60,100	66,100	55,000	33,700	22,700
24	8,120	10,000	11,400	7,000	13,600	20,200	43,800	60,400	66,100	54,500	33,100	22,500
25	8,100	10,000	11,500	7,320	13,800	20,600	44,900	60,700	66,100	53,900	32,400	22,300
26	8,080	10,000	11,200	7,780	14,100	20,900	45,900	61,000	66,100	53,400	31,600	22,100
27	8,070	10,000	14,000	8,260	14,400	21,300	46,900	61,200	66,000	52,700	30,900	21,900
28	8,090	10,000	14,900	8,710	14,600	21,700	47,900	61,500	66,000	52,000	30,300	21,700
29	8,190	10,000	14,600	9,100	-----	22,000	48,800	61,800	65,900	51,300	29,600	21,400
30	8,260	10,000	13,800	9,440	-----	22,400	49,700	62,100	65,800	50,700	28,900	21,200
31	8,310	-----	12,600	9,760	-----	22,700	-----	62,400	-----	50,000	28,200	-----
(†)	590.01	593.07	597.31	592.64	600.33	610.58	633.55	640.85	642.55	633.77	616.38	608.82
(‡)	- 950	+1,690	+2,600	-2,840	+4,840	+8,100	+27,000	+12,700	+3,400	-15,800	-21,800	-7,000
(††)	284	96	51	44	85	177	390	1,082	1,306	1,542	1,066	574

Calendar year 1964.....† + 5,800

Water year 1964-65.....‡ +11,900

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-ft

†† Evaporation in acre-ft.

## TULARE LAKE BASIN

11-2049. Tule River below Success Dam, Calif.

Location.--Lat 36°03'23", long 118°55'22", in SW $\frac{1}{4}$  sec.35, T.21 S., R.28 E., on right bank 1,000 ft downstream from Success Dam and 5 miles east of Porterville.

Drainage area.--393 sq mi.

Records available.--October 1953 to September 1965. Prior to October 1960, published as "at Worth Bridge, near Porterville".

Gage.--Water-stage recorder and broad-crested weir. Datum of gage is 536.00 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to October 1960 at site 0.5 mile downstream at different datum.

Average discharge.--12 years, 129 cfs (93,390 acre-ft per year), adjusted for storage, diversion and evaporation.

Extremes.--Maximum discharge during year, 1,200 cfs Dec. 23 (gage height, 7.29 ft); no flow Apr. 2-19.

1953-61 (prior to regulation by Lake Success): Maximum discharge, 27,000 cfs Dec. 23, 1955 (gage height, 21.65 ft, site and datum then in use), from rating curve extended above 1,400 cfs on basis of studies of upstream peaks; no flow at times in 1954-57, 1959-61.

1961-65: Maximum discharge, 2,980 cfs Jan. 31, 1963 (gage height, 9.25 ft), from rating curve extended above 1,200 cfs; no flow for several months in 1961-62, 1965.

Remarks.--Records good. Flow regulated by Lake Success beginning Nov. 23, 1961 (see preceding page). Pioneer ditch (see p. 552) diverts above station for irrigation. Records of chemical analyses for the water year 1965 are published in Part 2 of this report.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-Control method used Oct. 1 to Nov. 11, Feb. 12-20, Mar. 31 to Apr. 19, July 6, Sept. 17)

Oct. 1 to July 6

July 7 to Sept. 30

0.9	0	2.1	11	4.5	146	2.5	22	4.5	157
1.0	0.2	2.5	22	5.0	230	3.0	41	5.0	249
1.1	.6	3.0	40	5.5	345	3.5	65	6.0	515
1.2	1.2	3.5	64	6.0	500	4.0	97		
1.4	2.5	4.0	95	7.0	980				
1.7	5.3								

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	21	1	63	825	107	42	3	107	112	114	358	347
2	21	1	68	829	99	47	0	104	110	114	369	350
3	21	1	84	529	99	58	0	97	108	114	373	348
4	21	1	73	394	99	61	0	97	100	114	373	340
5	18	1	59	505	113	61	0	102	99	114	367	338
6	22	1	64	475	122	61	0	111	110	220	358	335
7	24	1	67	652	122	61	0	111	132	314	353	119
8	24	1	62	330	125	61	0	109	142	303	353	44
9	37	1	59	519	125	61	0	109	142	303	350	42
10	48	1	61	334	207	61	0	95	149	303	355	39
11	44	1	62	343	241	61	0	101	149	303	360	37
12	11	15	62	336	208	70	0	111	149	295	360	37
13	2	218	74	262	205	63	0	111	149	315	360	33
14	2	164	72	243	197	53	0	105	140	301	360	30
15	1	95	62	277	189	50	0	97	131	295	360	30
16	1	70	59	273	186	50	0	92	115	295	360	27
17	1	45	55	256	186	50	0	100	99	293	360	27
18	1	60	60	320	186	50	0	104	93	293	352	34
19	1	56	64	567	182	45	0	104	94	293	348	34
20	1	54	83	674	178	42	44	91	93	293	347	30
21	1	53	98	698	78	42	96	81	81	293	350	30
22	1	50	94	700	40	42	81	80	77	293	348	40
23	1	49	408	700	40	42	75	80	84	293	345	84
24	1	51	519	698	40	24	68	89	97	284	345	98
25	1	58	725	333	46	11	58	96	108	274	350	98
26	1	60	594	171	46	9	75	96	111	276	348	98
27	1	70	556	118	46	7	92	99	109	325	348	98
28	1	75	634	94	46	6	98	100	103	341	348	101
29	1	72	748	108	-	6	108	100	99	345	345	103
30	1	62	840	115	-----	6	112	107	106	348	342	105
31	1	-----	825	116	-----	5	-----	112	-----	350	342	-----
Total	333	1,388	7,354	13,294	3,558	1,308	910	3,098	3,391	8,411	10,987	3,476
Mean	10.7	45.3	23.7	429	127	42.2	30.3	99.9	113	271	354	116
Ac-ft	660	2,750	14,590	26,370	7,060	2,590	1,800	6,140	6,730	16,680	21,790	6,890
Mean†	11.1	76.6	380	383	216	177	491	336	206	54.5	32.4	20.5
Ac-ft†	682	4,560	17,240	23,570	11,980	10,870	29,210	20,670	12,270	3,350	1,990	1,220

Calendar year 1964: Max 840 Min 0.4 Mean 77.2 Ac-ft 56,050  
Water year 1964-65: Max 840 Min 0 Mean 158 Ac-ft 114,000

† Adjusted for change in contents and evaporation from Lake Success and for diversion to Pioneer ditch.

11-2065. Middle Fork Kaweah River near Potwisha Camp, Calif.

Location.--Lat 36°30'45", long 118°47'25", in NW¼ sec.25, T.16 S., R.29 E., on right bank 0.7 mile southeast of Potwisha Camp and 0.9 mile upstream from confluence with Marble Fork Kaweah River.

Drainage area.--102 sq mi.

Records available.--July 1949 to September 1965. Monthly discharge only for water years 1956, 1957, published in WSP 1735. Prior to October 1954, records for No. 3 conduit published separately; combined only, October 1954 to September 1962.

Gage.--Water-stage recorder and concrete control on river; water-stage recorder and concrete-lined channel for conduit diversion. Altitude of gage is 2,100 ft (from topographic map). Prior to October 1955, at datum 0.70 ft higher.

Average discharge (river only).--16 years, 118 cfs (85,430 acre-ft per year).  
(total flow).--16 years, 160 cfs (115,800 acre-ft per year).

Extremes (river only).--Maximum discharge during year, 2,370 cfs Dec. 23 (gage height, 9.00 ft); minimum daily, 8.7 cfs Oct. 1, 2. 1949-65: Maximum discharge, 46,800 cfs Dec. 23, 1955 (gage height, 29.0 ft, from floodmarks, datum then in use), by slope-area measurement of maximum flow; minimum daily, 0.1 cfs Nov. 12-15, 1949.  
 (combined).--Maximum discharge during year, 2,370 cfs Dec. 23; minimum daily, 12 cfs Oct. 3-8, 12. 1949-65: Maximum discharge, 46,800 cfs Dec. 23, 1955; minimum daily, 8.8 cfs Sept. 23-25, 1949.

Remarks.--Records fair. Middle Fork No. 3 conduit diverts from left bank of Middle Fork Kaweah River 0.5 mile upstream from station in NE¼ sec.26, T.16 S., R.29 E. Flow from this conduit joins with that of Marble Fork Kaweah River No. 3 conduit, and the combined flow passes through Kaweah River No. 3 powerhouse of Southern California Edison Co.; water is returned to Kaweah River 2.7 miles downstream from confluence of Marble and Middle Forks. For records of combined discharge of river and conduit, see following page.

Cooperation.--Water-stage-recorder graph and 13 discharge measurements for river and water-stage-recorder graph and 15 discharge measurements for conduit furnished by Southern California Edison Co.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

3.1	8.0	3.8	49	6.0	500
3.2	9.4	4.0	70	7.0	880
3.3	12	4.5	143	8.0	1,470
3.4	18	5.0	234		
3.6	32	5.5	355		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.7	10	12	159	100	86	90	485	518	389	104	14
2	8.7	11	15	148	100	83	90	434	467	380	89	9.1
3	8.8	10	12	159	102	82	84	338	443	395	70	9.3
4	8.8	10	10	192	102	80	98	275	500	378	56	9.4
5	8.8	10	10	266	106	79	89	234	605	375	44	9.4
6	8.8	12	10	305	121	76	96	209	671	380	38	9.4
7	9.0	14	10	382	102	74	102	189	656	372	33	9.4
8	9.3	14	10	239	91	68	100	176	542	340	28	9.4
9	9.9	16	10	205	87	64	100	174	402	305	24	9.6
10	10	16	9.9	189	74	60	96	162	517	268	23	9.4
11	10	17	14	169	70	60	98	171	617	232	45	9.3
12	10	104	12	159	66	71	97	181	667	207	114	9.1
13	12	38	10	149	63	69	94	205	573	192	80	9.4
14	12	16	10	127	60	66	100	226	500	202	58	9.6
15	11	16	10	100	57	64	120	298	443	228	134	9.4
16	11	15	9.9	97	57	61	140	431	360	224	80	9.4
17	11	37	9.9	104	59	61	153	570	290	241	104	9.6
18	11	32	9.9	115	64	64	176	619	278	215	99	10
19	11	15	12	120	69	68	239	622	352	176	54	12
20	11	15	12	122	74	78	268	570	419	153	37	11
21	11	16	4.7	108	79	89	278	485	467	138	27	11
22	11	16	78	100	79	98	298	370	446	121	20	11
23	11	16	1.110	102	71	97	285	308	386	108	20	10
24	11	15	1.350	275	71	89	312	257	368	108	23	10
25	11	16	587	143	73	80	355	230	332	98	23	10
26	11	23	446	116	80	73	392	295	315	96	22	9.9
27	11	12	806	110	103	87	419	389	352	87	21	9.9
28	13	10	376	103	91	82	434	473	375	74	21	9.9
29	14	12	266	98	-----	78	452	546	413	66	21	10
30	11	12	228	98	-----	78	494	602	419	80	21	10
31	10	-----	189	102	-----	78	-----	591	-----	116	21	-----
Total	325.8	576	5,701.6	4,861	2,271	2,343	6,149	11,115	13,693	6,744	1,554	298.9
Mean	10.5	19.2	184	157	81.1	75.6	205	359	456	218	50.1	9.96
Ac-ft	646	1,140	11,310	9,640	4,500	4,650	12,200	22,050	27,160	13,380	3,080	593

Calendar year 1964 Max 1,350 Min 0.8 Mean 72.0 Ac-ft 52,260  
 Water year 1964-65 Max 1,350 Min 8.7 Mean 152 Ac-ft 110,300

Note.--No gage-height record at river station June 5-14.

11-2065. Middle Fork Kaweah River near Potwisha Camp, Calif.--Continued.

Combined discharge, in cubic feet per second, of Middle Fork Kaweah River and Middle Fork Kaweah River  
No. 3 conduit near Potwisha Camp, Calif., water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	36	67	159	156	141	145	540	576	436	152	46
2	13	40	71	148	156	138	145	489	525	427	137	47
3	12	31	67	159	158	137	139	392	508	442	122	45
4	12	29	58	192	158	135	153	330	570	425	115	44
5	12	27	57	266	163	134	144	288	665	422	105	42
6	12	29	53	305	178	131	151	263	725	427	101	41
7	12	30	50	382	158	128	157	243	710	412	96	42
8	12	29	48	239	147	122	155	231	595	387	91	41
9	13	50	48	205	143	118	155	229	455	351	87	40
10	13	57	47	189	129	114	151	217	570	314	87	36
11	13	56	60	169	126	114	153	226	670	278	110	35
12	12	168	62	159	122	125	152	236	720	253	177	34
13	14	96	50	149	119	123	149	261	625	238	141	32
14	14	64	48	140	116	120	154	282	552	248	119	31
15	13	60	46	149	112	118	175	354	495	274	196	29
16	14	57	44	146	111	115	195	488	411	270	142	28
17	14	55	43	153	114	115	208	627	341	287	164	29
18	14	53	41	164	119	118	231	676	329	260	160	43
19	14	51	61	169	124	122	294	679	402	221	116	58
20	13	52	67	171	129	132	323	627	469	198	99	49
21	13	55	59	157	134	143	333	542	517	183	89	51
22	13	59	78	149	134	153	353	427	496	167	81	48
23	13	62	1,110	151	126	152	340	365	435	154	75	44
24	13	65	1,350	325	126	144	367	314	417	154	68	41
25	13	71	587	197	128	135	410	287	381	144	64	39
26	14	82	446	173	135	128	447	316	363	142	59	37
27	14	66	806	167	158	142	474	391	400	133	54	36
28	27	61	376	158	146	137	489	510	422	120	51	35
29	52	65	266	153	-----	133	507	605	460	113	49	35
30	35	67	228	154	-----	133	549	661	466	128	47	32
31	30	-----	189	158	-----	133	-----	650	-----	164	47	-----
Total	496	1,723	6,583	5,755	3,825	4,033	7,798	12,746	15,270	8,172	3,201	1,190
Mean	16.0	57.4	212	186	137	130	260	411	509	264	103	39.7
Ac-ft	984	3,420	13,060	11,410	7,590	8,000	15,470	25,280	30,290	16,210	6,350	2,360
Calendar year 1964	Max	1,350	Min	12	Mean	114	Ac-ft	82,940				
Water year 1964-65	Max	1,350	Min	12	Mean	194	Ac-ft	140,400				

11-2080. Marble Fork Kaweah River at Potwisha Camp, Calif.

Location--Lat 36°31'10", long 118°48'10", in SE¼ sec.23, T.16 S., R.29 E., on left bank 0.1 mile north of Potwisha Camp and 0.3 mile upstream from confluence with Middle Fork Kaweah River.

Drainage area--51.4 sq mi.

Records available--March 1950 to September 1965. Monthly discharge only for March 1950, published in WSP 1315-A. Prior to October 1954, records for river and conduit published separately; combined only, October 1954 to September 1962.

Gage--Water-stage recorder and concrete control on river; water-stage recorder and concrete control for conduit diversion. Altitude of gage is 2,150 ft (from topographic map).

Average discharge (river only)--15 years, 65.5 cfs (47,420 acre-ft per year); median of yearly mean discharges, 58 cfs (42,000 acre-ft per year).

(total flow)--15 years, 91.6 cfs (66,320 acre-ft per year); median of yearly mean discharges, 84 cfs (60,800 acre-ft per year).

Extremes (river only)--Maximum discharge during year, 2,370 cfs Aug. 15 (gage height, 8.62 ft); minimum daily, 1.4 cfs Nov. 4, 5. 1950-65: Maximum discharge, 12,500 cfs Dec. 23, 1955 (gage height, 13.4 ft), from rating curve extended above 1,100 cfs on basis of slope-area measurement of maximum flow; no flow Sept. 5-15, Oct. 24-28, 1953, Oct. 26-31, 1957.

(combined)--Maximum discharge during year, 2,380 cfs Aug. 15; minimum daily, 2.9 cfs Oct. 13.

1950-65: Maximum discharge, 12,500 cfs Dec. 23, 1955; minimum daily, 1.6 cfs July 30, Sept. 14-16, 1961.

Remarks--Records good. Marble Fork Kaweah River No. 3 conduit diverts from left bank of Marble Fork 0.3 mile above station; water is returned to Kaweah River 2.7 miles downstream from confluence of Marble and Middle Forks. For records of combined discharge of river and conduit, see following page. Records of water temperatures for the water year 1965 are published in Part 2 of this report.

Cooperation--Water-stage recorder graph and 13 discharge measurements for river and water-stage-recorder graph and 15 discharge measurements for conduit furnished by Southern California Edison Co.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Sept. 5-7)

1.7	0.7	3.0	60
1.8	1.9	3.5	117
1.9	3.4	4.0	205
2.0	5.3	5.0	485
2.2	10	6.0	800
2.5	23		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.0	1.7	2.2	57	30	35	35	360	390	221	20	3.4
2	1.8	1.7	2.4	56	31	35	32	325	342	221	15	3.0
3	1.8	1.7	2.2	56	33	35	29	219	350	221	10	3.1
4	1.8	1.4	1.9	63	34	35	29	171	441	211	9.3	3.1
5	1.8	1.4	2.0	84	37	34	28	147	501	219	7.9	3.0
6	1.8	1.7	2.2	96	40	30	30	134	504	221	7.1	3.0
7	1.8	1.7	2.2	120	29	27	30	120	480	195	6.7	2.8
8	1.8	1.7	2.2	83	26	23	28	109	390	205	6.2	2.8
9	1.8	2.0	2.2	69	24	20	26	109	290	161	6.2	3.1
10	1.8	2.4	2.2	63	19	20	25	104	390	123	6.2	3.6
11	1.8	2.8	2.4	58	18	20	28	110	501	102	36	3.6
12	1.8	19	2.2	56	17	22	27	118	486	99	50	3.4
13	2.0	3.1	1.9	52	15	20	27	139	417	83	27	3.4
14	2.2	2.0	2.0	26	14	17	28	151	355	84	172	3.4
15	1.8	2.0	2.2	9.6	13	17	36	207	288	86	442	3.2
16	1.8	1.9	2.2	7.9	13	17	46	320	227	124	266	3.2
17	1.8	1.9	2.0	12	13	18	56	435	181	117	210	3.2
18	1.7	1.9	2.0	16	17	20	67	465	203	73	96	3.4
19	1.7	1.9	2.4	19	22	24	104	474	245	57	35	3.8
20	1.7	1.9	2.5	21	27	32	124	417	279	47	18	3.6
21	1.7	1.8	17	17	29	40	130	338	302	41	10	3.4
22	1.7	1.8	25	17	31	48	163	251	285	40	6.7	3.1
23	1.7	1.8	581	18	27	46	160	205	249	24	4.2	3.0
24	1.7	1.8	683	90	27	39	193	175	245	25	3.4	3.1
25	1.7	1.8	226	40	30	31	233	171	245	18	3.8	3.1
26	1.7	1.9	178	33	36	28	265	179	191	20	4.0	3.1
27	1.7	1.9	350	29	45	32	288	227	223	13	4.2	3.1
28	1.8	2.0	133	25	38	29	332	340	235	10	4.2	3.2
29	1.9	2.2	94	23	-----	30	330	420	247	13	3.8	3.2
30	1.8	2.2	80	24	-----	32	345	474	243	19	3.8	3.4
31	1.7	-----	68	27	-----	35	-----	450	-----	30	4.0	-----
Total	55.6	75.0	2,478.5	1,367.5	735	891	3,274	7,864	9,725	3,123	1,498.7	96.8
Mean	1.79	2.50	80.0	44.1	26.2	28.7	109	254	324	101	48.3	3.23
Ac-ft	110	149	4,920	2,710	1,460	1,770	6,490	15,600	19,290	6,190	2,970	192

Calendar year 1964 Max 683 Min 0.1 Mean 35.3 Ac-ft 25,650  
Water year 1964-65 Max 683 Min 1.4 Mean 85.4 Ac-ft 61,850

11-2080. Marble Fork Kaweah River at Potwisha Camp, Calif.--Continued.

Combined discharge, in cubic feet per second, of Marble Fork Kaweah River and Marble Fork Kaweah River  
No. 3 conduit at Potwisha Camp, Calif., water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.8	15	34	57	69	73	74	400	426	261	64	15
2	3.5	15	35	56	71	73	70	364	378	261	55	17
3	3.5	14	30	56	73	73	68	258	362	260	43	16
4	3.3	12	26	63	74	73	69	211	441	250	37	16
5	3.3	12	26	84	77	70	68	187	527	257	33	15
6	3.2	12	22	96	80	67	70	174	543	259	29	14
7	3.3	11	21	120	68	65	69	160	520	241	26	15
8	3.5	10	20	83	64	61	67	149	429	243	22	16
9	3.5	16	20	69	62	60	65	149	330	201	20	14
10	3.5	20	20	63	57	60	63	144	430	161	19	13
11	3.3	20	26	58	56	60	67	150	540	140	62	13
12	3.3	56	28	56	55	61	65	158	524	137	87	12
13	2.9	41	22	52	55	59	65	179	456	121	49	12
14	3.2	27	21	57	56	57	67	189	394	122	188	12
15	3.3	24	21	62	53	57	76	245	326	126	459	11
16	3.3	23	18	61	53	57	86	360	264	164	292	10
17	3.5	21	18	61	55	58	96	475	219	156	242	11
18	3.4	19	17	63	58	60	107	503	242	111	127	13
19	3.2	18	20	66	62	64	144	511	285	97	70	23
20	3.1	19	28	68	67	72	164	455	319	87	53	26
21	3.1	20	25	64	69	80	170	374	341	81	44	23
22	3.2	22	25	64	71	88	203	287	323	80	39	19
23	3.2	24	581	65	67	86	200	241	287	66	31	17
24	3.4	26	683	137	66	79	233	211	284	68	25	15
25	3.4	30	226	82	68	71	273	207	283	60	23	14
26	3.4	38	178	72	74	68	305	249	229	62	20	13
27	3.4	30	350	68	83	72	328	315	261	55	19	13
28	5.8	26	133	63	76	69	372	395	273	50	17	13
29	15	28	94	61	-----	70	370	457	286	51	16	13
30	15	32	80	63	-----	72	385	512	283	61	15	12
31	14	-----	68	67	-----	75	-----	487	-----	76	15	-----
Total	139.8	681	2,916	2,157	1,839	2,110	4,459	9,156	10,805	4,365	2,241	446
Mean	4.51	22.7	94.1	69.6	65.7	68.1	149	295	360	141	72.3	14.9
Ac-ft	277	1,350	5,780	4,280	3,650	4,190	8,840	18,160	21,430	8,660	4,440	885

Calendar year 1964 Max 68.3 Min 2.9 Mean 51.9 Ac-ft 37,660  
 Water year 1964-65 Max 68.3 Min 2.9 Mean 11.3 Ac-ft 81,940



11-2087.3. East Fork Kaweah River near Three Rivers, Calif.

Location.--Lat 36°27'05", long 118°47'15", in NW¼ sec.14, T.17 S., R.29 E., on left bank just downstream from diversion dam and 6.6 miles east of Three Rivers.

Drainage area.--85.8 sq mi.

Records available.--May 1952 to September 1955, October 1957 to September 1965. Prior to October 1962, combined only.

Gage.--Water-stage recorder and Parshall flume on river; water-stage recorder and Parshall flume for conduit diversion. Altitude of gage is 2,500 ft (from topographic map). May 15, 1952, to Sept. 30, 1955, at site 200 ft downstream at different datum.

Average discharge (river only).--11 years, 65.4 cfs (47,350 acre-ft per year).

(total flow).--11 years, 94.5 cfs (68,420 acre-ft per year).

Extremes (river only).--Maximum discharge during year, 1,510 cfs Dec. 23 (gage height, 7.65 ft); minimum daily, 0.6 cfs for several days.

1952-55, 1957-65: Maximum discharge, 2,850 cfs Feb. 1, 1963 (gage height, 11.00 ft); no flow Jan. 22, Oct. 18-20, 1962.

(combined).--Maximum discharge during year, 1,530 cfs Dec. 23; minimum daily, 8.7 cfs Oct. 27.

1952-55, 1957-65: Maximum discharge, 2,850 cfs Feb. 1, 1963; minimum daily, 3.5 cfs Sept. 28, 29, 1960.

Remarks.--East Fork Kaweah River No. 1 conduit diverts up to 30 cfs from left bank of river near diversion dam. Flow from this conduit passes through Hammond powerhouse of Southern California Edison Co.; water is returned to Middle Fork Kaweah River in sec. 8, T.17 S., R.29 E., 1.9 miles downstream from mouth of East Fork. For records of combined discharge of river and conduit, see following page.

Cooperation.--Records furnished by Southern California Edison Co. and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.7	1.7	4.5	78	46	44	58	365	503	282	59	14
2	.7	10	5.9	77	46	43	59	349	491	285	54	11
3	.7	.8	4.6	80	46	42	60	283	440	272	51	10
4	.6	.8	2.2	104	46	42	70	227	516	256	43	9.6
5	.7	.8	2.7	140	49	43	58	214	650	253	39	9.0
6	.9	.7	1.7	149	53	42	60	225	700	250	36	9.9
7	.7	.7	1.1	179	49	41	62	252	640	226	34	10
8	.6	.7	.6	87	44	38	60	231	536	214	30	10
9	.7	6.2	1.0	81	43	38	62	214	426	222	33	9.6
10	.8	5.5	.6	59	38	36	63	212	482	192	35	9.0
11	.8	4.1	7.8	54	38	40	65	214	606	170	37	8.8
12	.8	48	14	49	37	43	64	212	654	153	67	8.5
13	.8	21	4.0	44	37	41	62	235	573	134	59	7.4
14	.8	6.0	2.0	44	37	37	64	268	495	145	86	7.0
15	.8	3.8	1.2	43	34	37	73	308	423	149	164	7.2
16	.8	2.7	1.0	44	34	37	82	343	351	160	153	6.7
17	.8	2.4	.9	46	33	38	88	476	285	156	177	6.8
18	.8	1.5	.7	50	33	40	105	542	271	123	135	13
19	.8	.6	8.6	53	35	44	158	553	307	100	77	17
20	.8	.6	9.5	54	40	48	201	521	340	88	63	15
21	.7	.6	8.0	50	39	53	230	452	361	80	52	14
22	.7	.6	12	46	40	59	248	338	333	73	44	12
23	.8	.8	640	55	37	60	223	363	288	71	36	11
24	.8	1.2	965	125	37	58	271	326	274	73	30	9.9
25	.8	2.9	410	56	39	52	312	289	284	72	23	8.3
26	5.6	6.1	282	50	41	48	309	281	257	68	20	8.0
27	8.7	2.7	492	48	50	53	320	326	271	60	18	7.9
28	17	1.5	209	45	46	49	330	411	286	52	18	8.7
29	28	2.4	127	44	-----	48	352	490	286	48	16	9.4
30	16	4.5	106	46	-----	50	373	547	288	61	15	7.2
31	14	-----	80	46	-----	52	-----	559	-----	71	14	-----
Total	108.2	157.2	3,405.6	2,126	1,147	1,396	4,542	10,626	12,617	4,559	1,718	295.9
Mean	3.49	5.24	110	68.6	41.0	45.0	151	343	421	147	55.4	9.86
Ac-ft	215	312	6,750	4,220	2,280	2,770	9,010	21,080	25,030	9,040	3,410	587

Calendar year 1964 Max 965 Min 0.6 Mean 52.9 Ac-ft 38,410  
 Water year 1964-65 Max 965 Min 0.6 Mean 117 Ac-ft 84,700

11-2087.3. East Fork Kaweah River near Three Rivers, Calif.--Continued

Combined discharge, in cubic feet per second, of East Fork Kaweah River and East Fork  
Kaweah River No. 1 conduit near Three Rivers, Calif., water year October 196 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	17	30	84	71	69	82	384	521	304	82	38
2	12	17	32	77	71	68	81	368	509	306	76	36
3	11	17	31	90	71	67	83	301	458	292	74	35
4	11	17	26	129	71	68	93	244	534	276	65	35
5	10	16	29	164	74	69	81	229	669	273	60	34
6	10	15	27	173	78	68	83	237	719	270	55	35
7	10	15	25	203	74	67	84	263	658	247	52	35
8	11	15	25	109	69	64	82	240	555	235	47	34
9	10	27	25	97	67	63	82	223	443	243	46	33
10	10	28	25	83	62	61	83	221	502	212	46	31
11	10	26	34	78	62	65	85	223	627	190	47	30
12	10	75	39	73	60	69	83	221	676	173	77	30
13	10	47	29	68	60	67	82	245	595	156	71	27
14	10	31	27	68	60	63	85	278	516	167	98	27
15	10	26	26	67	58	63	94	318	445	172	176	27
16	10	25	25	68	58	63	102	353	373	183	157	28
17	11	23	24	70	58	63	107	486	308	179	177	28
18	10	22	24	74	58	63	124	553	294	146	135	35
19	10	22	34	77	61	66	178	565	329	122	77	39
20	9.8	23	34	78	66	69	221	534	362	110	74	37
21	9.6	24	32	74	65	74	251	466	383	103	71	36
22	9.6	25	37	70	66	78	269	352	355	96	63	34
23	9.8	24	660	79	63	80	244	377	311	94	56	32
24	10	25	989	150	63	79	292	341	296	95	51	31
25	10	29	434	80	65	74	332	306	306	94	46	29
26	9.2	32	305	74	67	71	328	300	278	90	43	28
27	8.7	28	514	72	75	77	339	344	292	83	40	28
28	17	26	233	69	71	73	350	430	307	76	38	29
29	28	27	150	68	-----	72	372	508	308	72	37	28
30	16	30	131	70	-----	74	392	565	310	84	37	27
31	14	-----	105	71	-----	76	-----	577	-----	94	37	-----
Total	349.7	774	4,161	2,807	1,844	2,143	5,164	11,052	13,239	5,237	2,211	956
Mean	11.3	25.8	134	90.5	65.9	69.1	172	357	441	169	71.3	31.9
Ac-ft	694	1,540	8,250	5,570	3,660	4,250	10,240	21,920	26,260	10,390	4,390	1,900

Calendar year 1964 Max 989 Min 8.7 Mean 73.4 Ac-ft 53,290  
 Water year 1964-65 Max 989 Min 8.7 Mean 137 Ac-ft 99,060

11-2099. Kaweah River at Three Rivers, Calif.

Location.--Lat 36°26'38", long 118°54'09", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 13, T.17 S., R.28 E., on right bank opposite schoolhouse in Three Rivers, 0.25 mile downstream from North Fork Kaweah River.

Drainage area.--418 sq mi.

Records available.--October 1958 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 809.62 ft above mean sea level, datum of 1929.

Average discharge.--7 years, 364 cfs (263,500 acre-ft).

Extremes.--Maximum discharge during year, 6,050 cfs Dec. 23 (gage height, 8.45 ft); minimum daily, 25 cfs for many days in October. 1958-65: Maximum discharge, 30,900 cfs Feb. 1, 1963 (gage height, 13.68 ft), from rating curve extended above 6,000 cfs on basis of slope-area measurement of maximum flow; minimum, 14 cfs Sept. 9, 10, 1959, Oct. 16, 1961. Flood of Dec. 23, 1955, reached a stage of 17.9 ft, from floodmarks.

Remarks.--Records good. Diversions for irrigation of about 200 acres above station. Power is developed on Middle and East Forks. Records of chemical analyses for the water year 1965 are published in Part 2 of this report.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 30

Dec. 1 to Sept. 30

1.8	23	3.5	232	2.3	62	5.0	660
1.9	29	4.0	340	2.6	93	5.5	940
2.0	36	5.0	700	3.0	142	6.0	1,380
2.5	82			3.5	223	7.0	2,680
3.0	144			4.0	327	8.0	4,800
				4.5	467		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	29	77	149	481	461	427	494	1920	1930	1220	314	109
2	23	97	152	455	461	414	487	1760	1800	1200	276	105
3	27	82	161	470	464	414	464	1450	1690	1210	233	102
4	26	72	135	669	470	411	545	1250	1870	1170	212	100
5	26	70	123	1340	487	399	484	1120	2160	1140	194	97
6	25	63	122	1120	575	391	516	1050	2280	1140	183	96
7	25	64	115	1820	494	374	660	963	2210	1100	172	98
8	25	61	114	934	436	360	633	914	2010	1010	162	100
9	25	95	112	755	420	344	697	894	1630	927	156	94
10	25	156	112	651	372	332	755	863	1810	921	153	91
11	25	123	116	575	362	334	705	882	2090	730	203	85
12	25	463	176	523	347	391	651	883	2190	651	403	83
13	25	384	135	474	342	394	660	940	2010	603	285	80
14	25	174	122	442	340	350	633	1020	1810	611	217	77
15	26	134	117	433	323	347	685	1170	1600	680	865	73
16	25	125	111	414	313	334	755	1530	1380	694	641	71
17	25	110	109	420	313	334	788	1970	1170	761	573	70
18	26	110	106	461	334	344	821	2320	1140	620	605	85
19	26	106	127	487	354	357	997	2220	1280	531	303	123
20	26	104	177	527	383	383	1620	2110	1420	461	232	124
21	26	106	159	464	397	427	1590	1880	1510	420	193	121
22	25	111	153	433	411	474	1300	1590	1470	367	180	112
23	26	117	2610	433	383	481	1250	1400	1330	340	166	103
24	26	122	3650	1110	383	455	1320	1250	1250	334	152	96
25	26	132	1580	670	383	411	1480	1160	1290	325	143	89
26	27	154	1110	575	408	385	1590	1250	1090	316	135	85
27	27	150	3340	531	484	442	1680	1430	1170	285	124	81
28	50	130	1420	487	455	417	1720	1680	1210	253	117	82
29	109	130	903	461	-----	405	1810	1890	1260	240	115	83
30	104	144	730	442	-----	403	1840	2050	1280	259	111	80
31	77	-----	603	452	-----	424	-----	2110	-----	352	110	-----
Total	1033	3981	18864	19509	11375	12163	29640	44929	48340	20771	7943	2800
Mean	33.5	133	609	629	406	392	983	1449	1611	670	256	93.3
Ac-ft	2060	7900	37420	38700	22560	24120	58790	89120	95880	41200	15760	5550

Calendar year 1964 Max 3,650 Min 25 Mean 305 Ac-ft 221,500  
 Water year 1964-65 Max 3,650 Min 25 Mean 606 Ac-ft 439,100

Peak discharge (base, 1,800 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	1300	8.45	6,050	4-30	2300	6.68	2,190
12-27	0500	8.43	5,990	5-17	2300	6.97	2,630
1- 5	0400	6.47	1,900	6- 5	2400	7.02	2,710
1- 7	0600	7.24	3,090	8-15	2100	6.50	1,940
1-24	0500	6.53	1,980				

11-2101. South Fork Kaweah River at Three Rivers, Calif.

Location.--Lat 36°25'00", long 118°54'48", in SE<sup>1</sup>/<sub>4</sub> sec.26, T.17 S., R.28 E., on right bank 200 ft upstream from unnamed tributary, 0.5 mile upstream from mouth, and 1.8 miles southwest of Three Rivers.

Drainage area.--86.7 sq mi.

Records available.--October 1958 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 807.22 ft above mean sea level, datum of 1929.

Average discharge.--7 years, 44.3 cfs (32,070 acre-ft per year).

Extremes.--Maximum discharge during year, 658 cfs Dec. 27 (gage height, 3.76 ft); minimum daily, 0.3 cfs Oct. 4-8.  
1958-65: Maximum discharge, 2,440 cfs Feb. 1, 1963 (gage height, 4.95 ft); no flow at times in 1960-62.  
Flood in December 1955 reached a stage of 9.5 ft, from floodmarks (discharge not determined).

Remarks.--Records good. Several small diversions above station for irrigation.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

1.1	0.2	1.9	39
1.2	.6	2.1	63
1.3	1.9	2.4	114
1.4	4.4	2.7	185
1.5	9.1	3.0	275
1.7	21	3.4	430

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.4	6.6	14	75	54	41	55	263	349	89	16	4.0
2	.4	3.1	15	73	53	40	62	242	292	79	12	4.0
3	.4	6.6	17	73	51	40	60	185	257	74	11	4.0
4	.3	6.2	14	123	51	39	110	143	314	69	10	4.0
5	.3	5.8	14	184	54	39	76	127	365	63	8.6	3.6
6	.3	5.8	13	146	74	37	75	121	390	59	7.6	3.6
7	.3	5.3	12	251	64	37	101	110	365	55	6.2	4.0
8	.3	4.8	12	125	55	36	95	101	317	50	5.8	4.0
9	.4	9.6	12	99	54	36	121	95	239	47	5.3	3.6
10	.4	15	12	86	49	35	146	89	279	43	4.8	3.4
11	.4	14	12	76	50	35	127	89	329	41	6.2	3.1
12	.4	4.4	19	72	43	38	109	85	353	33	19	3.1
13	.4	5.9	15	66	43	43	116	95	310	33	15	3.1
14	.4	2.7	12	62	47	40	112	127	260	29	11	2.8
15	.4	1.9	11	60	46	40	121	170	227	30	90	2.8
16	.4	1.7	11	59	46	38	127	245	183	32	49	2.8
17	.4	1.4	11	53	44	38	125	324	159	35	39	2.8
18	.4	1.2	11	63	43	38	129	353	150	32	40	3.4
19	.4	1.1	11	63	43	38	153	353	169	23	26	9.1
20	.4	1.1	15	74	41	38	175	342	175	24	19	8.6
21	.4	1.1	16	64	42	37	185	289	175	21	15	9.6
22	.4	1.1	15	60	42	39	182	239	172	19	13	8.1
23	.5	1.1	113	60	42	41	160	194	150	17	12	7.1
24	.5	1.1	361	154	41	41	165	165	138	15	11	5.8
25	.5	1.1	229	92	40	40	194	172	138	16	9.1	4.8
26	.6	1.2	122	73	41	39	213	209	125	15	9.1	4.8
27	.7	1.3	369	72	44	44	224	239	112	14	7.6	5.3
28	2.8	1.2	205	63	43	44	239	296	103	12	6.6	5.3
29	13	1.2	117	63	-----	41	251	323	103	11	6.2	5.8
30	9.6	1.3	97	59	-----	42	251	345	99	11	5.3	5.3
31	6.6	-----	83	53	-----	43	-----	353	-----	17	4.4	-----
Total	43.1	413.8	1995	2736	1350	1215	4268	6486	6803	1116	493.8	140.7
Mean	1.39	14.0	64.4	88.3	48.2	39.2	142	209	227	36.0	16.1	4.69
Ac-ft	85	331	3960	5430	2680	2410	8470	12860	13490	2210	989	279

Calendar year 1964 Max 369 Min 0.3 Mean 40.6 Ac-ft 29,450  
Water year 1964-65 Max 390 Min 0.3 Mean 74.2 Ac-ft 53,690

Peak discharge (base, 500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-24	1800	3.57	522	6-6	2300	3.55	504
12-27	0300	3.76	658				

11-2108.5. Lemnecove ditch below Terminus Dam, Calif.

Location.--Lat 36°24'55", long 119°00'22", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.25, T.17 S., R.27 E., on left bank 250 ft downstream from outlet tunnel of Terminus Dam and 2.4 miles northeast of Lemnecove.

Records available.---June 1962 to September 1965.

Gage.--Water-stage recorder and Parshall flume. Datum of gage is 546.3 ft above mean sea level (levels by Corps of Engineers).

Extremes.--1962-65: Maximum daily discharge, 8.4 cfs Sept. 16, 1963, Oct. 24-27, 1964; no flow June 1-3, 23, 1962.

Remarks.--Records excellent. Ditch receives water from Lake Keweah (see following page) for irrigation. At times up to 3 cfs is diverted 200 ft upstream into Doffelmyer ditch for irrigation.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8	2	2	2	1	1	2	5	8	8	8.1	8
2	8	2	2	2	1	1	1	5	8	8	8.1	8
3	8	2	2	2	1	1	1	6	8	8	8.1	8
4	8	2	2	2	1	1	1	7	8	8	8.1	8
5	8	2	2	2	1	1	1	7	8	8	8.1	8
6	8	2	2	2	1	1	1	7	8	8	8.1	8
7	8	2	2	1	1	1	1	7	8	8	8.1	8
8	8	2	2	1	1	1	1	7	8	8	8.1	8
9	8	2	2	1	1	1	1	7	8	8	8.1	8
10	8	2	2	1	1	2	1	7	8	8	8.1	8
11	8	2	2	1	1	2	1	7	8	8	8.1	8
12	8	2	2	1	1	1	1	7	8	8	8.1	8
13	8	2	2	1	1	1	1	7	8	8	8.1	8
14	8	2	2	1	1	1	1	7	8	8	8.1	8
15	8	2	2	1	1	1	1	7	8	8	8.1	8
16	8	2	2	1	1	1	1	7	8	8	8.1	8
17	8	2	2	1	1	1	1	7	8	8	8.1	8
18	8	2	2	1	1	1	1	7	8	8	8	8
19	8	2	2	1	1	1	1	7	8	8	8	8
20	8	2	2	1	1	1	1	7	8	8	8	8
21	8	2	2	1	1	1	1	8	8	8	8	8
22	8	2	2	1	1	2	1	8	8	8	8	8
23	8	2	2	1	1	3	1	8	8	8	8	8
24	8	2	2	1	1	3	1	8	8	8	8	8
25	8	2	2	1	1	3	1	8	8	8	8	8
26	8	2	2	1	1	3	2	8	8	8	8	8
27	8	2	2	1	1	3	3	8	8	8	8	8
28	7	2	2	1	1	3	3	8	8	8	8	8
29	6	2	2	1	-----	3	4	8	8	8	8	8
30	2	2	2	1	-----	3	5	8	8	8	8	8
31	2	-----	2	1	-----	3	-----	8	8	8	8	-----
Total	233	60	62	37	28	52	43	223	240	248	249.7	240
Mean	7.52	2.00	2.00	1.19	1.00	1.68	1.43	7.19	8.00	8.00	8.05	8.00
Ac-ft	462	119	123	73	56	103	85	442	476	492	495	476

Calendar year 1964 Max 8.3 Min 0.7 Mean 5.18 Ac-ft 3,760  
 Water year 1964-65 Max 8.1 Min 1 Mean 4.70 Ac-ft 3,400

11-2109. Lake Kaweah near Lemoncove, Calif.

Location.--Lat 36°24'53", long 119°00'07", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.25, T.17 S., R.27 E., in control tower near left abutment of Terminus Dam on Kaweah River, 2.1 miles northeast of Lemoncove.

Drainage area.--560 sq mi.

Records available.--October 1961 to September 1965. Fragmentary prior to March 1962. Prior to October 1962, published as Terminus Reservoir near Lemoncove.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to May 22, 1962, staff gage at same site and datum.

Extremes.--Maximum contents during year, 139,900 acre-ft June 14 (elevation, 688.96 ft); minimum, 4,420 acre-ft Jan. 23 (elevation, 557.23 ft).  
1961-65: Maximum contents, that of June 14, 1965; minimum since initial season of operation, 2,870 acre-ft Oct. 11-13, 1962; minimum elevation, 549.62 ft Oct. 13, 1962.

Remarks.--Reservoir is formed by earthfill dam and earthfill auxiliary dam; completed and storage began in February 1962. Usable capacity, 149,400 acre-ft between elevations 520.0 (invert of outlet structure) and 694.0 ft (spillway crest). Dead storage, 166 acre-ft. Spillway design flood pool elevation, 745.1 ft (capacity, 266,000 acre-ft). Records, including extremes, represent total contents.

Cooperation.--Records furnished by Corps of Engineers.

Capacity table (elevation, in feet, and contents, in acre-ft)

555	3,920	620	39,400
560	5,090	640	61,700
570	8,110	660	89,800
580	12,000	680	123,400
600	22,800	700	161,500

Contents, in acre-feet at 2400 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.490	8.100	7.900	7.020	7.100	7.860	8.200	57.400	118.500	120.000	45.900	15.300
2	7.490	8.260	7.930	7.000	7.130	7.840	8.490	59.300	121.400	118.800	43.100	14.800
3	7.470	8.400	7.950	6.980	7.150	7.820	8.850	60.500	124.000	117.500	40.200	14.300
4	7.470	8.500	7.900	7.140	7.150	7.800	9.520	61.100	127.000	116.200	37.800	13.800
5	7.460	8.580	7.900	7.810	7.190	7.760	10.000	61.700	130.200	114.700	35.800	13.300
6	7.440	8.660	7.900	8.190	7.380	7.700	10.600	62.100	132.800	113.000	34.000	12.900
7	7.440	8.730	7.880	9.920	7.380	7.600	11.500	62.400	134.400	111.200	32.400	12.700
8	7.440	8.790	7.860	8.510	7.360	7.560	12.600	62.700	135.400	109.100	30.900	12.600
9	7.430	8.940	7.850	8.090	7.360	7.510	13.800	62.900	135.500	106.900	29.400	12.400
10	7.430	9.250	7.850	8.080	7.320	7.480	15.200	63.000	136.000	104.600	27.900	12.200
11	7.420	9.260	7.870	8.080	7.320	7.490	16.500	63.100	137.500	102.100	26.500	11.900
12	7.420	9.500	8.040	8.110	7.280	7.600	17.700	63.400	138.900	99.600	25.500	11.700
13	7.420	9.400	8.120	8.110	7.230	7.750	19.000	63.800	139.700	97.000	24.200	11.500
14	7.410	8.750	8.130	8.040	7.180	7.800	20.300	64.700	139.900	94.400	22.900	11.400
15	7.410	8.050	8.120	8.040	7.150	7.830	21.600	66.200	139.600	92.000	23.100	11.200
16	7.420	7.770	8.110	8.030	7.140	7.840	23.100	68.600	138.600	89.500	23.200	11.000
17	7.420	7.760	8.100	8.020	7.130	7.840	24.600	71.900	137.000	87.300	23.100	10.800
18	7.420	7.750	8.090	7.660	7.140	7.860	26.100	76.000	135.400	84.900	23.000	10.600
19	7.420	7.750	8.110	7.100	7.190	7.880	28.100	80.300	134.100	82.200	22.500	10.500
20	7.420	7.730	8.280	6.440	7.300	7.930	30.500	84.500	133.000	79.500	22.000	10.500
21	7.430	7.720	8.290	5.640	7.420	8.040	32.700	88.000	132.300	76.800	21.500	10.400
22	7.430	7.720	8.160	4.810	7.500	8.120	35.400	90.900	131.400	74.000	21.000	10.200
23	7.430	7.730	10.800	4.420	7.520	8.150	37.700	93.200	130.300	71.200	20.400	10.100
24	7.440	7.750	14.000	6.270	7.530	8.110	40.100	95.200	129.000	68.300	19.900	9.950
25	7.440	7.780	13.000	6.840	7.530	8.060	42.800	97.000	127.800	65.500	19.300	9.760
26	7.450	7.850	10.200	6.960	7.570	7.980	45.400	99.100	126.200	62.700	18.700	9.570
27	7.440	7.880	13.300	6.960	7.720	8.040	48.000	101.400	124.900	59.900	18.100	9.360
28	7.480	7.860	12.700	6.950	7.830	8.070	50.400	104.300	123.600	57.000	17.500	9.150
29	7.680	7.860	10.400	6.990	-----	8.010	52.700	107.800	122.400	54.200	16.900	8.940
30	7.890	7.890	7.740	7.020	-----	7.990	55.000	111.600	121.300	51.300	16.400	8.720
31	7.990	-----	6.880	7.080	-----	8.020	-----	115.400	-----	48.700	15.900	-----
(†)	569.66	569.36	566.25	566.90	569.18	569.76	634.44	675.45	678.80	628.92	588.14	571.73
(‡)	+ 490	- 100	- 1010	+200	+ 750	+190	+46.980	+60.400	+5.900	- 72.600	-32.800	-7.180
(††)	204	64	33	25	44	73	243	828	1.176	1.280	577	253

Calendar year 1964..... ‡ -1,140  
Water year 1964-65..... ‡ +1,220

† Elevation, in feet, at end of month.  
‡ Change in contents, in acre feet.  
†† Evaporation, in acre feet.

11-2109.3. Foothill ditch below Terminus Dam, Calif.

Location.--Lat 36°24'48", long 119°00'47", in NE¼ sec.35, T.17 S., R.27 E., on left bank 0.7 mile downstream from Terminus Dam and 2.1 miles northeast of Lemoncove.

Records available.--October 1961 to September 1965.

Gage.--Water-stage recorder (digital) and Parshall flume. Datum of gage is 492.8 ft above mean sea level (levels by Corps of Engineers).

Extremes.--1961-65: Maximum daily discharge, 50 cfs Feb. 10, 1962; minimum daily, 1.0 cfs Feb. 1-2, 1962.

Remarks.--Records good.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18	18	21	23	24	25	25	27	26	31	30	25
2	18	17	21	24	24	25	25	27	26	31	30	24
3	18	17	22	24	24	25	24	27	26	31	30	24
4	19	17	21	24	24	25	24	27	27	31	29	24
5	16	17	21	24	24	25	24	27	29	31	29	24
6	16	17	21	25	24	25	23	27	30	31	28	23
7	15	17	21	26	25	25	23	27	31	31	28	23
8	11	17	21	26	24	25	23	27	31	31	28	22
9	12	17	21	25	24	25	22	27	31	31	28	22
10	13	17	21	25	24	25	22	27	31	31	28	22
11	14	20	21	24	24	24	22	27	31	31	28	22
12	13	23	21	24	24	24	21	26	31	31	28	22
13	12	24	21	24	24	24	21	26	31	31	28	22
14	11	24	21	24	24	24	20	26	31	31	28	22
15	10	24	21	24	24	24	21	26	31	31	27	22
16	10	22	21	24	24	24	21	26	31	30	27	22
17	12	20	21	24	24	24	21	26	31	30	27	22
18	13	20	21	25	24	24	21	25	31	30	26	22
19	13	20	21	25	24	25	21	24	31	30	26	22
20	8	20	21	25	24	25	21	24	31	30	26	22
21	11	20	22	25	24	25	22	24	31	30	26	22
22	11	20	22	25	24	25	22	24	31	30	25	22
23	11	20	25	24	24	25	22	23	31	30	25	22
24	12	20	28	24	24	25	23	24	31	30	25	22
25	12	20	29	24	24	25	23	24	31	30	25	22
26	13	20	29	24	24	25	25	24	31	30	25	22
27	15	21	29	24	24	25	25	24	31	30	25	22
28	16	21	28	24	24	25	26	25	31	30	25	22
29	17	21	28	24	-----	25	27	25	31	30	25	22
30	17	21	28	24	-----	25	27	25	31	30	25	22
31	19	-----	15	24	-----	25	-----	25	-----	30	24	-----
Total	426	592	704	755	673	767	687	793	908	945	834	673
Mean	13.7	19.7	22.7	24.4	24.0	24.7	22.9	25.6	30.3	30.5	26.9	22.4
Ac-ft	845	1,170	1,400	1,500	1,330	1,520	1,360	1,570	1,800	1,870	1,650	1,330
Calendar year 1964	Max	29	Min	8	Mean	17.5	Ac-ft	12,740				
Water year 1964-65	Max	31	Min	8	Mean	24.0	Ac-ft	17,340				

11-2109.5. Kaweah River below Terminus Dam, Calif.

Location.--Lat 36°24'51", long 119°00'42", in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.26, T.17 S., R.27 E., on left bank 0.6 mile downstream from Terminus Dam and 2.2 miles northeast of Lemoncove.

Drainage area.--561 sq mi.

Records available.--October 1961 to September 1965.

Gage.--Water-stage recorder (digital) and concrete control. Datum of gage is 495.90 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Extremes.--Maximum discharge during year, 2,430 cfs Dec. 25 (gage height, 6.51 ft); no flow Oct. 2, 6-28.  
1961-65: Maximum discharge, 5,080 cfs Jan. 31, 1963 (gage height, 8.28 ft); no flow at times in 1961-62, 1964-65.

Remarks.--Records excellent. Flow regulated by Lake Kaweah (see p. 564). Lemoncove ditch (see p. 563) diverts water from Lake Kaweah for irrigation. Foothill ditch (see preceding page) diverts water from the gage pool for irrigation. Doffelmyer ditch diverts up to 3 cfs above the station for irrigation; at times some of this water is returned to the river above the station. Records of chemical analyses for the water year 1965 are published in Part 2 of this report.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

0.02	0	0.5	19	2.5	225	6.0	1,930
.1	1.5	1.0	51	3.0	327	7.0	3,020
.2	4.6	1.5	92	4.0	640		
.3	8.4	2.0	148	5.0	1,150		
.4	13						

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1	17	141	478	495	446	445	967	527	1,800	1,680	325
2	0	9	153	510	487	451	397	979	526	1,760	1,670	329
3	1	8	165	521	494	451	323	998	496	1,750	1,680	330
4	2	8	169	613	502	451	301	976	529	1,760	1,400	332
5	1	10	141	1,200	502	452	301	905	890	1,820	1,190	333
6	0	10	120	1,030	530	454	268	890	1,310	1,870	1,060	230
7	0	10	119	1,400	546	454	250	864	1,660	1,940	919	165
8	0	11	114	1,500	497	420	261	827	1,760	1,970	887	158
9	0	11	106	1,000	474	405	217	818	1,690	1,940	872	160
10	0	11	101	725	441	385	215	840	1,630	1,900	875	160
11	0	121	100	638	424	372	214	835	1,640	1,890	870	159
12	0	300	98	555	420	374	164	770	1,770	1,870	874	154
13	0	465	98	541	419	377	114	747	1,820	1,860	918	141
14	0	519	113	527	419	377	86	597	1,840	1,860	892	136
15	0	472	115	492	391	377	117	523	1,860	1,880	692	134
16	0	290	110	473	374	375	119	530	1,930	1,840	604	132
17	0	119	104	473	374	374	107	595	1,950	1,820	611	129
18	0	110	98	629	374	374	115	513	1,940	1,820	607	129
19	0	106	98	802	374	383	140	386	1,920	1,800	564	129
20	0	103	99	896	374	391	151	344	1,930	1,780	499	135
21	0	106	162	920	374	391	161	330	1,920	1,760	455	139
22	0	105	228	920	407	443	176	293	1,910	1,770	435	141
23	0	105	1,130	726	422	482	185	245	1,910	1,770	420	143
24	0	112	2,240	297	422	489	207	243	1,890	1,750	412	143
25	0	118	2,380	451	422	468	255	281	1,870	1,740	410	149
26	0	119	2,340	572	422	457	440	308	1,840	1,710	401	151
27	0	148	2,220	572	424	436	574	330	1,820	1,670	392	153
28	0	147	2,000	554	432	457	708	372	1,800	1,660	386	155
29	2	134	2,070	476	-----	466	853	413	1,790	1,660	381	157
30	12	133	2,060	476	-----	451	939	469	1,800	1,670	356	158
31	18	-----	1,160	476	-----	442	-----	511	-----	1,670	334	-----
Total	37	3,937	20,352	21,543	12,336	13,130	8,803	18,704	48,168	55,760	23,746	5,389
Mean	1.19	131	657	695	437	424	293	603	1,606	1,799	766	180
Ac-ft	73	7,810	40,370	42,730	24,270	26,040	17,460	37,100	95,540	110,600	47,100	10,690
Meant	33.7	152	665	724	476	454	1,111	1,631	1,763	677	277	936
Ac-ft†	2,070	9,060	40,920	44,530	26,450	27,930	66,130	100,300	104,900	41,640	17,020	5,570

Calendar year 1964: Max 2,380 Min 0 Mean 320 Ac-ft 232,000 Meant 345 Ac-ft† 250,300  
Water year 1964-65: Max 2,380 Min 0 Mean 635 Ac-ft 459,800 Meant 672 Ac-ft† 486,500

† Adjusted for diversions to Lemoncove ditch and Foothill ditch, change in contents and evaporation from Lake Kaweah.



## TULARE LAKE BASIN

567

11-2113. Dry Creek near Lemoncove, Calif.

Location.--Lat 36°25'30", long 119°01'20", in NW<sup>1</sup>/<sub>4</sub> sec. 26, T.17 S., R.27 E., on left bank 400 ft downstream from Pogue Canyon, 1.3 miles upstream from mouth, and 2.8 miles north of Lemoncove.

Drainage area.--80.4 sq mi.

Records available.--October 1959 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 515 ft (from topographic map).

Average discharge.--6 years, 8.78 cfs (6,360 acre-ft per year).

Extremes.--Maximum discharge during year, 770 cfs Jan. 7 (gage height, 4.20 ft); no flow for several months.

1959-65: Maximum discharge, 1,600 cfs Feb. 1, 1963 (gage height, 5.08 ft); no flow about half of each year.

Remarks.--Records good except those for period of no gage-height record, which are fair. Small diversions above station for irrigation.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

2.22	0	2.6	31	3.5	320
2.3	1.0	2.7	48	4.0	620
2.4	6.4	2.8	70		
2.5	18	3.0	120		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			0	21	27	11	29	30	7.4	1.2		
2			0	16	26	12	34	29	7.4	1.0		
3			0	14	24	12	30	29	7.4	.8		
4			0	26	23	12	30	29	6.4	.3		
5			0	402	23	11	27	27	5.5	.2		
6			0	144	31	10	34	26	4.7	0		
7			0	413	30	10	77	24	4.7	0		
8			0	147	26	13	102	23	5.5	0		
9			0	80	24	12	174	22	6.4	0		
10			0	59	22	11	226	21	6.4	0		
11			0	46	13	12	182	21	5.5	0		
12			0	40	13	16	132	13	4.7	0		
13			0	34	17	31	154	13	4.7	0		
14			0	31	17	22	135	13	4.7	0		
15			0	30	16	13	112	13	4.7	0		
16			0	27	16	14	105	17	5.5	0		
17			0	26	15	14	90	16	5.5	0		
18			0	24	15	14	79	16	4.7	0		
19			0	23	14	13	72	16	4.0	0		
20			0	24	14	13	70	14	3.4	0		
21			0	23	13	12	66	14	2.8	0		
22			0	23	13	11	59	16	2.8	0		
23			1.2	21	12	11	52	16	2.3	0		
24			23	103	12	13	45	16	2.3	0		
25			22	61	11	13	43	13	1.9	0		
26			9.1	43	11	12	40	12	1.9	0		
27			291	33	11	17	36	11	1.9	0		
28			131	36	11	22	34	9.6	1.9	0		
29			62	33	-----	16	33	9.6	1.6	0		
30			29	30	-----	14	31	8.5	1.2	0		
31			23	23	-----	16	-----	7.4	-----	0		
Total	0	0	591.3	2,071	510	433	2,331	562.1	1,298	3.5	0	0
Mean	0	0	19.1	66.8	13.2	14.1	77.7	18.1	4.33	0.11	0	0
Ac-ft	0	0	1,170	4,110	1,010	869	4,620	1,110	257	6.9	0	0

Calendar year 1964 Max 291 Min 0 Mean 5.30 Ac-ft 3,840  
 Water year 1964-65 Max 418 Min 0 Mean 18.2 Ac-ft 13,150

Peak discharge (base, 50 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-27	0800	3.95	585	1-24	1000	3.23	210
1-4	0600	4.06	662	4-10	0100	3.34	246
1-7	0930	4.20	770				

Note.--No gage-height record Feb. 12-24.

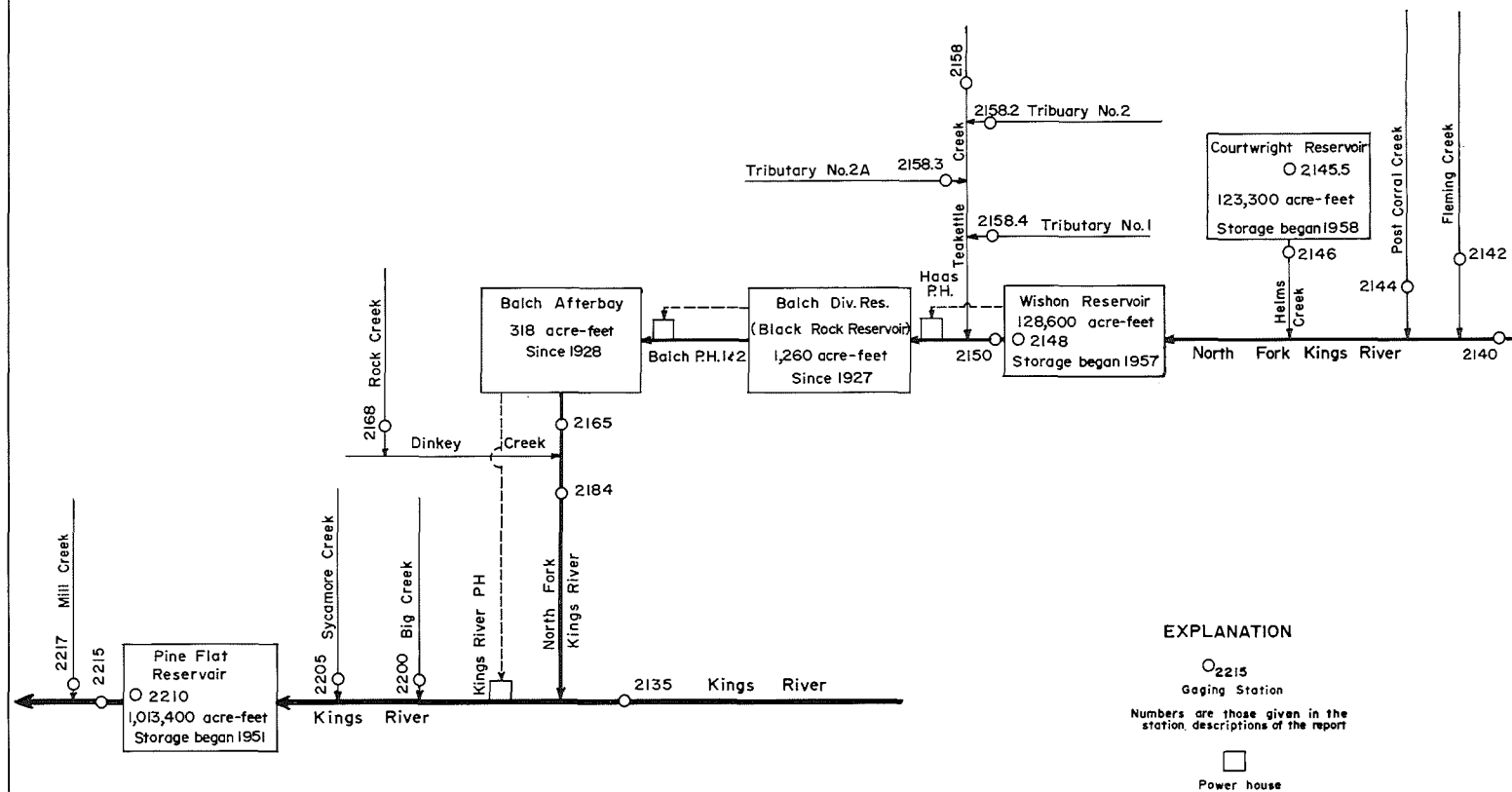


Figure 1.--Schematic diagram showing diversion and storage in Kings River basin

11-2135. Kings River above North Fork, Calif.

Location.--Lat 36°51'45", long 119°07'25", in NE $\frac{1}{4}$  sec.27, T.12 S., R.26 E., on left bank at Rogers Crossing, 0.9 mile upstream from North Fork and 2.9 miles south of Balch Camp.

Drainage area.--952 sq mi.

Records available.--October 1926 to December 1928, October 1931 to September 1965. Monthly figures only for some periods published in WSP 1315-A.

Gage.--Water-stage recorder. Datum of gage is 1,003.5 ft above mean sea level (river-profile survey). March 1927 to December 1928, at site 0.5 mile downstream at different datum.

Average discharge.--36 years, 1,386 cfs (1,003,000 acre-ft per year).

Extremes.--Maximum discharge during year, 11,700 cfs Dec. 24 (gage height, 7.05 ft); minimum daily, 105 cfs Oct. 11-21.

1926-28, 1931-65: Maximum discharge, 59,100 cfs Dec. 23, 1955 (gage height, 16.26 ft), from rating curve extended above 8,000 cfs on basis of slope-area measurement of maximum flow; minimum daily, 70 cfs Jan. 14, 1963.

Remarks.--Records good except those for period of no gage-height record, which are fair. No diversion or regulation above station. See schematic diagram, preceding page.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Jan. 13-19, 21-23, Jan. 28 to Feb. 8)

0.2	100	2.5	1,030
.6	170	3.0	1,470
1.0	280	4.0	2,880
1.5	460	5.0	5,120
2.0	705	6.0	8,260

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	110	210	331	1,150	913	832	974	4,530	6,340	4,700	2,040	540
2	110	229	356	1,100	911	807	939	4,360	5,150	4,550	1,940	514
3	110	193	373	1,110	904	807	870	3,640	4,460	4,730	1,680	500
4	110	188	324	1,200	911	795	884	2,950	4,890	4,890	1,470	484
5	110	182	324	2,240	946	783	884	2,620	6,470	4,810	1,300	463
6	110	180	320	2,120	1,040	777	913	2,480	7,430	5,070	1,240	443
7	110	173	295	2,490	932	753	981	2,200	7,560	5,120	1,190	440
8	110	172	292	1,690	870	723	983	2,000	7,330	4,760	1,110	423
9	110	233	283	1,440	844	694	1,010	1,940	5,180	4,580	1,080	404
10	110	370	277	1,280	747	683	1,060	1,900	5,430	4,050	1,090	384
11	105	292	302	1,170	759	683	1,050	1,930	7,240	3,640	1,830	366
12	105	674	392	1,090	717	735	1,050	2,000	9,070	3,240	3,400	352
13	105	592	314	1,020	705	735	1,040	2,300	7,590	3,100	2,620	334
14	105	412	304	1,010	694	700	1,050	2,660	6,080	3,060	2,120	320
15	105	376	301	1,010	666	694	1,130	3,020	5,040	2,950	2,590	307
16	105	362	283	983	656	672	1,210	4,030	4,100	3,440	2,780	293
17	105	342	277	981	650	672	1,270	5,520	3,460	3,900	2,990	304
18	105	310	274	983	650	683	1,270	6,660	3,200	3,570	2,620	314
19	105	301	334	1,010	666	717	1,510	6,760	3,910	3,200	1,750	392
20	105	293	404	1,030	705	759	1,900	6,560	4,550	2,990	1,390	404
21	105	301	404	983	729	825	1,960	5,670	5,180	2,680	1,170	400
22	110	301	465	953	759	904	2,380	4,380	5,320	2,220	1,020	376
23	110	307	5,600	932	741	960	2,330	3,720	5,180	2,010	913	356
24	110	307	7,850	1,660	729	939	2,490	3,280	4,650	1,960	833	331
25	110	324	4,220	1,150	741	870	2,950	3,120	4,410	1,940	771	320
26	115	370	2,600	1,070	765	853	3,360	3,480	3,910	1,880	705	310
27	120	352	4,140	1,030	870	913	3,790	3,770	3,860	1,720	644	304
28	124	334	2,400	995	870	884	4,100	4,830	4,260	1,550	600	293
29	252	323	1,840	946	-----	853	4,480	5,370	4,410	1,450	575	307
30	262	330	1,590	913	-----	864	4,530	6,150	4,630	1,570	550	317
31	219	-----	1,350	913	-----	884	-----	6,370	-----	2,030	555	-----
Total	3,786	9,353	38,819	37,677	22,095	24,473	54,353	120,300	159,090	101,363	46,576	11,320
Mean	122	312	1,252	1,215	789	790	1,812	3,881	5,303	3,270	1,502	377
Ac-ft	7,510	18,550	77,000	74,730	43,920	48,550	107,900	238,600	315,600	201,000	92,380	22,450

Calendar year 1964 Max 7,850 Min 105 Mean 886 Ac-ft 643,200  
Water year 1964-65 Max 8,070 Min 105 Mean 1,724 Ac-ft 1,248,000

Peak discharge (base, 6,300 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-24	1400	7.05	11,700	6-12	0200	6.33	9,320
5-19	0200	5.81	7,650				
6-1	0300	5.64	7,110				

Note.--No gage-height record Oct. 1-8, 10-27.

## TULARE LAKE BASIN

11-2140. North Fork Kings River below Meadow Brook, Calif.

Location.--Lat 37°04'53", long 118°51'43", in NE¼ sec.12, T.10 S., R.28 E., on left bank 800 ft downstream from Nichols Canyon, 0.6 mile downstream from Meadow Brook, 3.9 miles west of Blackcap Mountain, 5.9 miles east of Courtright Dam, and 23 miles southeast of town of Huntington Lake.

Drainage area.--37.7 sq mi.

Records available.--October 1921 to September 1935, October 1956 to September 1965. Monthly discharge only for some periods and yearly estimates for some incomplete years, published in WSP 1315-B. Records for Jan. 1-23, and Dec. 1-21, 1934, published in WSP 551 and 766, respectively, have been found to be unreliable and should not be used.

Gage.--Water-stage recorder. Datum of gage is 8,144.66 ft above mean sea level, unadjusted (levels by Pacific Gas & Electric Co.)

Average discharge.--23 years, 64.7 cfs (46,840 acre-ft per year).

Extremes.--Maximum discharge during year, 1,030 cfs Dec. 23 (gage height, 5.00 ft); minimum, 0.8 cfs Oct. 3-6.

1921-35, 1956-65: Maximum discharge, 1,280 cfs June 17, 1963 (gage height, 5.26 ft); minimum recorded, 0.3 cfs Sept. 12-14, 1924.

Flood of Dec. 23, 1955, reached a stage of 5.85 ft, from floodmarks (discharge, 2,000 cfs).

Remarks.--Records good except those for periods of ice effect, which are fair. No regulation or diversion above station. See schematic diagram, p. 568.

Cooperation.--Water-stage-recorder graph and six discharge measurements furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.5	0.8	2.0	12	3.5	208
1.6	1.3	2.3	32	4.0	385
1.7	2.2	2.6	56	4.5	645
1.8	4.0	3.0	105		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.9	7.6	21	48	31	34	36	288	426	298	60	15
2	.9	5.0	21	50	33	34	36	232	349	294	54	14
3	.8	6.1	18	52	34	32	33	177	353	305	48	13
4	.9	8.8	17	55	34	34	32	146	450	298	41	13
5	.9	7.2	17	55	34	31	33	146	515	302	36	12
6	.9	5.8	15	54	32	30	33	131	505	305	34	11
7	.9	5.0	14	54	30	30	34	109	490	280	30	11
8	.9	5.0	14	61	28	30	33	104	426	249	28	10
9	1.0	3.1	14	50	27	30	30	112	329	222	27	9.7
10	.9	2.9	13	41	27	26	36	114	421	194	27	8.4
11	.9	9.2	14	37	27	25	39	114	527	169	165	8.0
12	.9	24	14	35	25	26	34	140	536	148	212	7.6
13	1.0	34	16	33	25	27	33	177	465	134	114	6.8
14	1.0	38	16	33	25	28	34	201	369	134	108	6.4
15	1.0	30	14	33	23	27	35	261	302	140	265	6.1
16	1.0	26	14	31	23	27	43	377	235	233	252	5.8
17	1.0	22	13	30	27	28	46	462	194	235	208	5.8
18	1.0	20	12	32	28	29	51	454	189	169	150	7.2
19	1.0	18	13	32	31	34	84	470	258	132	92	13
20	1.0	17	21	34	34	40	99	426	342	114	68	12
21	1.0	15	24	30	39	46	100	337	373	98	54	11
22	1.0	16	37	29	40	50	121	232	369	80	46	10
23	1.0	17	563	28	34	51	123	191	353	72	40	9.2
24	1.0	19	379	29	35	42	150	182	291	70	35	8.4
25	1.0	21	168	33	38	37	177	196	219	66	29	7.6
26	1.0	24	98	33	42	38	208	227	219	61	24	6.4
27	1.2	19	74	32	42	37	219	284	256	55	22	6.1
28	5.0	19	66	29	38	36	235	345	277	50	19	6.1
29	5.0	21	64	28	-----	37	270	403	291	45	18	5.8
30	8.0	22	59	28	-----	38	294	435	305	52	16	5.8
31	8.0	-----	51	30	-----	38	-----	435	-----	64	16	-----
Total	52.0	487.7	1,894	1,179	886	1,052	2,731	7,908	10,634	5,068	2,338	272.2
Mean	1.68	16.3	61.1	38.0	31.6	33.9	91.0	255	354	163	75.4	9.07
Ac-ft	103	967	3,760	2,340	1,760	2,090	5,420	15,690	21,090	10,050	4,640	540

Calendar year 1964 Max 563 Min 0.8 Mean 47.1 Ac-ft 34,190  
 Water year 1964-65 Max 563 Min 0.8 Mean 94.5 Ac-ft 63,450

Peak discharge (base, 400 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	1000	5.00	1,030	6-22	2030	4.20	480
5-17	1800	4.49	639	7-16	1800	4.32	541
8-5	2030	4.56	684	8-15	1900	4.61	717
6-11	2000	4.63	731				

Note.--Stage-discharge relation affected by ice Nov. 15-25, Jan. 3.

11-2142. Fleming Creek near Blackcap Mountain, Calif.

Location.--Lat 37°05'55", long 118°51'40", in SE¼ sec.36, T.9 S., R.28 E., on left bank 0.9 mile upstream from mouth, 4.2 miles west of Blackcap Mountain, and 23 miles southeast of town of Huntington Lake.

Drainage area.--15.0 sq mi.

Records available.--October 1956 to September 1965 (discontinued).

Gage.--Water-stage recorder. Altitude of gage is 8,590 ft (from topographic map).

Average discharge.--9 years, 30.6 cfs (22,150 acre-ft per year).

Extremes.--Maximum discharge during year, 350 cfs June 5, (gage height, 2.57 ft); maximum gage height, 3.62 ft Jan. 8 (ice jam); minimum discharge, 0.2 cfs Oct. 7, 23-25.

1956-65: Maximum discharge, 452 cfs June 23, 1958 (gage height, 2.61 ft); maximum gage height, 5.28 ft Feb. 14, 1962 (ice jam); no flow Sept. 5-11, 1959, Aug. 21 to Oct. 1, 1960.

Flood of Dec. 23, 1955, reached a stage of 3.5 ft, from floodmarks (discharge, about 800 cfs).

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. No regulation or diversion above station. See schematic diagram, p. 568.

Cooperation.--Water-stage-recorder graph and five discharge measurements furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Rating table, except periods of ice effect, (gage height, in feet, and discharge, in cubic feet per second)

0.4	0	1.1	36
.5	.4	1.5	83
.6	1.6	2.0	180
.7	5.6	2.5	325
.8	12		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.3	1.1	5.8	13	8.5	9.2	10	144	230	171	17	5.3
2	.3	1.4	5.6	14	8.7	9.2	10	113	188	164	14	4.8
3	.3	1.4	5.0	14	9.2	8.7	9.4	73	190	164	12	4.6
4	.3	1.4	4.7	15	9.2	9.0	9.2	55	245	157	9.2	4.4
5	.3	1.2	4.6	15	9.1	8.5	9.3	52	278	157	8.2	4.2
6	.3	1.2	4.1	15	8.6	8.2	9.4	48	281	157	7.6	3.9
7	.2	1.1	3.8	15	8.0	8.1	9.4	40	275	146	7.0	3.7
8	.3	1.1	3.7	16	7.6	8.1	9.4	40	222	131	6.2	4.0
9	.3	1.5	3.7	14	7.3	8.0	8.4	38	192	108	5.8	4.1
10	.3	4.6	3.6	12	7.2	7.1	9.5	41	251	91	5.7	4.0
11	.3	6.0	3.8	10	7.2	6.8	11	38	269	76	30	3.5
12	.3	8.8	3.9	9.2	6.8	7.0	10	49	278	61	52	3.0
13	.3	11	4.3	9.0	6.8	7.3	9.8	69	236	55	38	3.0
14	.3	10	4.4	9.0	6.7	7.5	10	83	180	54	45	2.8
15	.3	8.4	3.9	8.8	6.2	7.3	11	118	157	55	94	2.7
16	.3	7.2	3.8	8.5	6.2	7.2	13	173	126	83	118	2.7
17	.3	6.2	3.6	8.1	7.1	7.5	15	225	108	83	118	2.7
18	.3	5.5	3.3	8.3	7.6	7.7	19	248	113	63	79	3.1
19	.3	5.1	3.5	8.6	8.3	8.8	27	245	137	34	44	3.8
20	.3	4.8	5.8	8.5	9.1	11	34	222	182	41	35	5.0
21	.3	4.2	8.2	8.2	10	12	33	178	195	34	31	4.3
22	.3	4.3	15	8.0	11	13	41	114	198	28	26	3.7
23	.2	4.6	208	7.8	9.3	14	48	88	185	25	23	3.5
24	.2	5.1	126	7.8	9.5	12	58	79	157	23	22	3.0
25	.2	5.7	82	8.4	10	10	72	94	150	21	18	2.8
26	.3	6.6	46	8.4	11	11	88	124	150	19	9.0	2.6
27	.4	5.3	26	8.3	11	10	102	155	159	16	7.6	2.2
28	.9	5.2	20	8.0	10	10	122	225	166	14	6.3	1.9
29	1.6	5.7	17	7.6	-----	10	153	225	171	13	5.8	1.7
30	1.4	6.0	15	7.4	-----	10	155	245	178	16	5.5	1.6
31	1.1	-----	14	8.0	-----	10	-----	269	-----	24	5.5	-----
Total	12.8	141.7	662.1	318.9	237.2	284.2	1,125.8	3,910	5,847	2,284	905.4	102.6
Mean	0.41	4.72	21.4	10.3	8.47	9.17	37.5	126	195	73.7	29.2	3.42
Ac-ft	25	281	1,310	633	470	564	2,230	7,760	11,600	4,530	1,800	204

Calendar year 1964 Max 208 Min 0.2 Mean 20.1 Ac-ft 14,580

Water year 1964-65 Max 281 Min 0.2 Mean 43.4 Ac-ft 31,410

Peak discharge (base, 110 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0900	2.47	314	6-5	1900	2.57	350
4-30	1800	2.10	205	6-12	1830	2.56	346
5-17	1700	2.45	308	6-22	1900	2.32	266
5-31	1800	2.46	311	8-16	1430	2.26	236

Note.--Stage-discharge relation affected by ice Nov. 9 to Dec. 22, Dec. 27 to Apr. 17. No gage-height record July 19 to Aug. 10, Aug. 29 to Sept. 29.

## TULARE LAKE BASIN

11-2144. Post Corral Creek near Blackcap Mountain, Calif.

Location.--Lat 37°06'25", long 118°53'45", in NW¼ sec.35, T.9 S., R.28 E., on right bank 1.6 miles upstream from mouth, 6.2 miles west of Blackcap Mountain, and 20 miles southeast of town of Huntington Lake.

Drainage area.--27.9 sq mi.

Records available.--October 1956 to September 1965 (discontinued).

Gage.--Water-stage recorder. Altitude of gage is 8,145 ft (from river-profile map).

Average discharge.--9 years, 55.2 cfs (39,960 acre-ft per year).

Extremes.--Maximum discharge during year, 1,110 cfs June 11 (gage height, 4.39 ft), from rating curve extended above 390 cfs; maximum gage height, 4.72 ft Dec. 23 (ice jam); minimum, 0.3 cfs Oct. 1-26.

1956-65: Maximum discharge, 1,310 cfs June 17, 1963 (gage height, 4.61 ft), from rating curve extended above 390 cfs; maximum gage height, 8.01 ft Apr. 16, 1958 (ice jam); no flow Dec. 30, 1959, to Jan. 1, 1960.

Flood of Dec. 23, 1955, reached a stage of 4.7 ft, from floodmarks (discharge, 1,400 cfs).

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor. No regulation or diversion above station. See schematic diagram, p. 568.

Cooperation.--Water-stage-recorder graph and five discharge measurements furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 23					Dec. 24 to Sept. 30		
0.9	0.2	2.0	66		1.0	1.1	2.0
1.0	1.4	2.5	146		1.1	3.6	2.5
1.1	5.6	3.0	290		1.2	6.4	3.0
1.5	28	3.5	510		1.3	11	3.5
					1.4	16	4.0
					1.6	29	810

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.3	1.4	7.2	42	28	30	28	353	516	220	13	3.6
2	.3	1.4	7.2	45	30	29	26	272	365	180	9.8	3.3
3	.3	2.0	6.0	47	31	28	26	192	401	160	8.8	3.3
4	.3	1.4	5.7	49	31	28	24	154	587	132	6.8	3.0
5	.3	1.4	5.6	51	30	27	26	147	632	129	6.1	3.0
6	.3	1.4	5.0	55	29	24	26	143	604	114	5.5	2.6
7	.3	1.1	4.7	60	26	27	26	116	592	95	4.9	2.6
8	.3	1.1	4.7	68	25	25	24	106	415	79	4.6	2.8
9	.3	1.4	4.7	44	25	24	24	103	337	70	4.3	2.8
10	.3	2.6	4.5	38	24	23	29	103	526	63	4.3	2.6
11	.3	5.0	4.8	34	22	21	30	106	614	55	5.3	2.3
12	.3	9.6	5.0	31	22	21	25	123	638	50	8.2	2.0
13	.3	14	5.4	30	23	21	24	174	460	43	38	2.0
14	.3	13	5.4	29	22	21	24	219	370	34	21	1.8
15	.3	11	4.8	29	21	22	30	290	308	37	9.5	1.8
16	.3	9.2	4.8	27	21	24	33	450	280	67	14.5	1.8
17	.3	8.0	4.4	27	22	24	36	620	260	56	100	1.8
18	.3	7.0	4.1	28	24	23	37	674	300	42	61	2.0
19	.3	6.4	5.0	28	28	28	60	644	374	42	36	3.0
20	.3	5.6	7.2	28	32	33	74	543	440	37	26	3.6
21	.3	5.2	10	27	36	38	77	383	450	26	20	3.0
22	.3	5.4	23	26	35	42	103	243	465	20	15	2.6
23	.3	5.9	334	26	30	40	110	197	460	19	12	2.3
24	.3	6.5	318	26	30	35	137	203	406	18	10	2.0
25	.3	7.2	176	28	31	32	176	243	310	15	7.4	1.8
26	.3	8.0	96	28	36	30	203	246	310	13	5.2	1.8
27	.4	6.4	57	27	38	29	217	318	360	12	4.6	1.8
28	1.4	6.6	49	26	33	30	258	445	380	9.8	4.0	1.8
29	2.2	7.3	46	25	-----	30	329	548	320	9.3	3.8	1.6
30	2.2	7.3	45	25	-----	30	353	570	270	12	3.8	1.6
31	2.2	-----	43	26	-----	30	-----	592	-----	19	3.8	-----
Total	16.2	169.8	1,303.2	1,080	785	869	2,595	9,520	12,750	1,878.1	814.7	72.0
Mean	0.52	5.66	42.0	34.8	28.0	28.0	86.5	307	425	60.6	26.3	2.40
Ac-ft	32	337	2,580	2,140	1,560	1,720	5,150	18,880	25,290	3,730	1,620	143

Calendar year 1964 Max 370 Min 0.3 Mean 33.5 Ac-ft 24,340  
 Water year 1964-65 Max 674 Min 0.3 Mean 87.3 Ac-ft 63,180

Peak discharge (base, 400 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	1100	3.79	674	6-5	1900	4.34	1,070
4-30	1830	3.48	500	6-11	1930	4.39	1,110
5-18	1800	4.21	968	6-22	2030	3.70	620
5-31	1930	4.10	880				

Note.--Stage-discharge relation affected by ice Nov. 11 to Dec. 20, Dec. 29 to Feb. 2. No gage-height record June 16-18, June 25 to July 3, July 11-13.

11-2146. Helms Creek below Courtright Dam, Calif.

Location.--Lat 37°04'40", long 118°58'05", in NW¼ sec. 7, T.10 S., R.28 E., on left bank 500 ft downstream from Courtright Dam, 2.5 miles upstream from North Fork Kings River, and 17 miles southeast of town of Huntington Lake.

Drainage area.--39.7 sq mi.

Records available.--October 1958 to September 1965.

Gage.--Water-stage recorder and broad-crested weir with V-notch. Altitude of gage is 7,840 ft (from Pacific Gas & Electric Co. survey).

Average discharge.--7 years, 61.7 cfs (44,670 acre-ft per year), adjusted for storage.

Extremes.--Maximum discharge during year, 756 cfs Aug. 14 (gage height, 5.51 ft); minimum daily, 20 cfs Oct. 1 to Nov. 17.  
1958-65: Maximum discharge, 767 cfs June 2, 1961 (gage height, 6.52 ft); minimum daily, 0.9 cfs Oct. 30 to Nov. 6, 1958.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Flow regulated since Oct. 17, 1958, by Courtright Reservoir (see following page). No diversion above station. See schematic diagram, p. 568.

Cooperations.--Water-stage-recorder graph and five discharge measurements furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

2.5	20	3.8	164
2.7	28	4.4	305
3.0	56	5.0	505
3.4	102	5.5	750

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	20	20	22	22	22	22	23	25	28	32	299	684
2	20	20	22	23	22	22	23	25	28	32	299	684
3	20	20	22	23	22	22	23	25	28	32	299	684
4	20	20	22	23	22	22	23	25	28	32	400	684
5	20	20	22	23	22	22	22	25	28	33	466	678
6	20	20	22	23	22	22	22	25	29	33	466	678
7	20	20	22	23	22	22	22	25	29	33	466	673
8	20	20	22	23	22	22	22	25	29	34	466	668
9	20	20	22	23	22	22	23	25	29	34	597	668
10	20	20	22	23	22	22	23	25	29	34	738	466
11	20	20	22	23	22	22	23	25	29	35	739	344
12	20	20	22	23	22	22	23	25	30	35	734	344
13	20	20	22	23	22	22	23	26	30	134	734	344
14	20	20	22	23	22	22	23	26	31	270	728	188
15	20	20	22	23	22	22	23	26	31	302	712	32
16	20	20	22	23	22	22	23	26	30	302	706	32
17	20	20	22	23	22	22	23	26	30	302	712	32
18	20	21	22	23	22	22	23	26	30	302	712	31
19	20	21	23	23	22	23	24	26	30	302	717	31
20	20	21	23	22	22	23	24	26	30	302	717	31
21	20	21	23	22	22	23	24	27	30	302	712	30
22	20	21	23	22	22	23	24	27	31	302	712	30
23	20	21	26	22	22	23	24	27	31	302	706	30
24	20	21	26	22	22	23	24	27	31	302	706	30
25	20	21	23	22	22	23	25	27	31	299	700	30
26	20	21	22	22	22	23	25	28	32	299	700	30
27	20	21	22	22	22	23	25	28	32	299	700	30
28	20	21	22	22	22	23	25	28	32	299	700	30
29	20	22	22	22	-----	23	25	28	32	299	695	30
30	20	22	22	22	-----	23	25	28	32	299	690	30
31	20	-----	22	22	-----	23	-----	28	-----	299	684	-----
Total	620	615	695	700	616	695	704	811	900	5,916	19,412	8,276
Mean	20.0	20.5	22.4	22.6	22.0	22.4	23.5	26.2	30.0	191	626	276
Ac-ft	1,230	1,220	1,380	1,390	1,220	1,380	1,400	1,610	1,790	11,730	38,500	16,420

Calendar year 1964 Max 307 Min 18 Mean 31.3 Ac-ft 22,710  
Water year 1964-65 Max 739 Min 20 Mean 109 Ac-ft 79,270

Note.--No gage-height record Aug. 27-31, Sept. 2, 3, 6-14.

## TULARE LAKE BASIN

## Reservoirs in Tulare Lake basin, Calif.

11-2145.5. Courtright Reservoir.--Lat 37°04'40", long 118°58'05", in NW¼ sec.7 T.10 S., R.28 E., at left end of dam on Helms Creek, 2.5 miles upstream from mouth, 4.6 miles east of Nelson Mountain, and 9.7 miles west of Blackcap Mountain. Drainage area, 39.7 sq mi. Records available, October 1958 to September 1965. Gage, water-stage recorder attached to surface follower. Datum of gage is at mean sea level (levels by Pacific Gas & Electric Co.). Maximum contents during year, 115,900 acre-ft July 8 (elevation, 8,179.35 ft); minimum, 59,600 acre-ft Dec. 18 (elevation, 8,134.84 ft). Maximum contents during period 1958-65, that of July 8, 1965; no contents June 26 to Oct. 21, 1961, Oct. 23, 1961 to Mar. 31, 1962.

Reservoir is formed by rock-fill dam completed in 1958. Usable capacity, 123,300 acre-ft (revised) between elevations 7,902 (invert of tunnel) and 8,184 ft (elevation of spillway). Dead storage negligible. See schematic diagram, p. 568. Record of contents furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

11-2148. Wishon Reservoir.--Lat 37°00'20", long 118°58'00", in NW¼ sec.6, T.11 S., R.28 E., on right end of dam on North Fork Kings River, 1.2 miles north of Cliff Camp, 1.3 miles upstream from Cliff Camp gaging station, and 20 miles southeast of town of Big Creek. Drainage area, 177 sq mi. Records available, December 1957 to September 1965. Gage, water-stage recorder attached to surface follower. Datum of gage is at mean sea level (levels by Pacific Gas & Electric Co.). Maximum contents during year, 117,800 acre-ft June 24 (elevation, 6,539.15 ft); minimum, 12,200 acre-ft Feb. 26 (elevation, 6,386.36 ft). Maximum contents during period 1957-65, 129,700 acre-ft July 29, 1958 (elevation, 6,551.1 ft); no contents Sept. 21 to Nov. 21, 1960.

Reservoir is formed by rock-fill dam completed in 1957. Capacity, 128,600 acre-ft between elevations 6,317 (bottom of slide gates) and 6,550 ft (operating crest of spillway gates). Dead storage negligible. Water is diverted to Haas powerhouse for power. See schematic diagram, p. 568. Record of contents furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

## Month-end elevation and contents, water year October 1964 to September 1965

Date	Elevation (feet)†	Contents (acre-feet)	Change in contents (acre-feet)	Elevation (feet)†	Contents (acre-feet)	Change contents (acre-feet)
	Courtright Reservoir			Wishon Reservoir		
Sept. 30.....	8,136.9	61,700	-	6,470.3	59,000	-
Oct. 31.....	8,135.7	60,400	-1,300	6,438.2	38,400	-20,600
Nov. 30.....	8,135.4	60,100	-300	6,413.1	24,800	-13,600
Dec. 31.....	8,139.4	64,200	+4,100	6,416.6	26,600	+1,800
Calendar year 1964	-	-	+8,400	-	-	+14,900
Jan. 31.....	8,141.3	66,200	+2,000	6,405.5	21,100	-5,500
Feb. 28.....	8,141.9	66,900	+700	6,389.5	13,600	-7,500
Mar. 31.....	8,143.4	68,500	+1,600	6,404.7	20,600	+7,000
Apr. 30.....	8,149.8	75,600	+7,100	6,443.1	41,300	+20,700
May 31.....	8,168.0	99,000	+23,400	6,505.0	86,600	+45,300
June 30.....	8,179.0	115,200	+16,200	6,538.9	117,500	+30,900
July 31.....	8,173.0	106,100	-9,100	6,522.2	101,800	-15,700
Aug. 31.....	8,149.1	74,900	-31,200	6,513.7	94,200	-7,600
Sept. 30.....	8,135.8	60,500	-14,400	6,472.3	60,400	-33,800
Water year 1964-65	-	-	-1,200	-	-	+1,400

† Elevation at 2400 hours.



11-2150. North Fork Kings River near Cliff Camp, Calif.

Location.--Lat 36°59'38", long 118°58'50", in NE¼NW¼ sec.12, T.11 S., R.27 E., on right bank at Cliff Camp Bridge, 1 mile northwest of Cliff Camp, 1.2 miles downstream from Wishon Dam, and 2 miles downstream from Woodchuck Creek.

Drainage area.--181 sq mi.

Records available.--August 1921 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder. Datum of gage is 6,143.95 ft above mean sea level, adjustment of 1912 (levels by San Joaquin Light and Power Corp). Prior to Nov. 24, 1922, at site 1 mile upstream at different datum.

Average discharge.--44 years, 353 cfs (255,600 acre-ft per year), adjusted for storage and diversion.

Extremes.--Maximum discharge during year, 278 cfs Dec. 23 (gage height, 4.78 ft); minimum daily, 7.6 cfs Dec. 10.  
1921-57 (prior to regulation by Wishon Reservoir): Maximum discharge, 14,000 cfs Dec. 11, 1937 (gage height, 18.0 ft, from floodmarks), from rating curve extended above 4,200 cfs on basis of velocity-area studies; minimum, 0.6 cfs Dec. 30, 1930.  
1957-65: Maximum discharge, 4,880 cfs May 28, 1958 (gage height, 11.75 ft); minimum daily, 0.8 cfs Dec. 14, 1957.

Remarks.--Records good. Flow regulated by Wishon Reservoir since Dec. 5, 1957, and Courtright Reservoir since Oct. 17, 1958 (see preceding page). Water diverted for power from Wishon Reservoir by tunnel to Haas powerhouse since Dec. 10, 1958. See schematic diagram, p. 568.

Cooperation.--Water-stage-recorder graph and seven discharge measurements furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

2.6	6.2	3.2	30
2.7	8.0	3.5	57
2.9	13	4.0	124

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.0	10	11	8.4	13	12	15	25	14	16	17	17
2	8.2	8.8	12	7.8	13	12	13	21	17	16	17	17
3	8.2	8.6	10	8.0	14	12	12	16	16	16	17	17
4	8.2	8.6	8.8	7.8	14	12	12	14	17	16	17	17
5	8.4	8.4	8.4	11	17	11	12	13	17	16	17	17
6	8.8	8.4	8.2	39	16	11	12	13	17	16	17	16
7	8.8	8.4	8.0	42	12	10	12	12	17	17	16	17
8	8.6	8.4	7.8	17	10	9.2	11	12	17	17	16	17
9	8.6	10	7.8	14	9.4	8.6	9.4	12	17	17	17	17
10	8.4	9.8	7.6	12	8.2	9.2	9.2	12	16	17	17	17
11	8.4	9.4	12	11	8.6	9.2	9.2	12	16	17	18	17
12	8.6	12	10	11	10	9	8.6	12	17	17	18	17
13	8.6	11	8.4	11	9.8	9.8	8.8	12	16	17	18	17
14	8.4	9.4	8.4	11	9.8	10	11	13	17	16	18	17
15	8.4	9.0	8.6	11	9.4	10	16	13	17	16	19	17
16	8.2	8.8	8.4	10	9.4	11	21	14	20	16	19	17
17	8.2	8.8	8.2	10	9.8	11	20	15	18	16	18	17
18	8.2	8.6	8.0	12	11	11	23	15	17	16	18	17
19	8.2	8.4	9.0	13	12	12	28	14	16	17	17	17
20	8.6	8.6	9.4	13	13	13	26	13	16	17	17	17
21	8.6	8.8	12	11	15	14	30	18	17	17	17	18
22	8.4	9.4	33	11	15	15	31	15	16	17	17	18
23	8.4	9.6	119	26	14	15	27	13	16	17	17	18
24	8.2	9.8	96	42	13	13	29	12	16	17	17	18
25	8.2	12	21	14	13	11	31	11	16	17	17	18
26	8.2	14	27	12	13	11	31	11	16	17	17	17
27	8.8	10	41	11	23	13	32	12	16	17	17	17
28	9.2	10	15	12	16	14	32	12	16	17	17	17
29	11	11	12	9.8	-----	13	29	12	16	17	17	16
30	9.0	11	10	11	-----	13	27	12	16	17	17	16
31	8.6	-----	9.2	12	-----	13	-----	12	-----	17	17	-----
Total	264.6	289.0	575.2	451.8	351.4	358.0	588.2	423	496	516	535	512
Mean	8.54	9.63	18.6	14.6	12.6	11.5	19.6	13.6	16.5	16.6	17.3	17.1
Ac-ft	524	573	1,140	896	697	710	1,170	839	984	1,020	1,060	1,020

Calendar year 1964 Max 119 Min 6.4 Mean 9.55 Ac-ft 6,930  
Water year 1964-65 Max 119 Min 7.6 Mean 14.7 Ac-ft 10,630

## TULARE LAKE BASIN

11-2158. Teakettle Creek at site No. 3, near Patterson Mountain, Calif.

Location.--Lat 36°57'40", long 119°01'35", in NE¼ sec.21, T.11 S., R.27 E., 1.6 miles east of Patterson Mountain, 1.8 miles upstream from mouth, and 2.9 miles north of Black Rock Reservoir.

Drainage area.--0.86 sq mi.

Records available.--October 1957 to September 1965.

Gage.--Water-stage recorder, 90° sharp-crested V-notch weir, and sharp-crested Cipolletti weir. Datum of gage is 6,705.4 ft above mean sea level (levels by U. S. Forest Service). Prior to Oct. 1, 1961, at datum 4.00 ft lower.

Average discharge.--8 years, 1.07 cfs (775 acre-ft per year).

Extremes.--Maximum discharge during year, 16.7 cfs Dec. 23 (gage-height, 2.15 ft); minimum daily, 0.18 cfs for several days in October. 1957-65: Maximum discharge, 99.0 cfs Feb. 1, 1963 (gage-height, 3.81 ft); minimum daily, 0.08 cfs Sept. 6, 12-15, 1961.

Remarks.--No diversion or regulation above station. This station is operated in connection with studies to develop and test methods of managing forest and other lands for improved water yield. See schematic diagram, p. 568.

Cooperation.--Records furnished by U. S. Forest Service and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.19	0.45	0.50	1.16	0.89	1.20	1.23	5.57	5.73	1.97	0.96	0.59
2	.19	.40	.48	1.01	.92	1.21	1.19	4.81	5.32	1.90	.93	.58
3	.19	.39	.47	.97	.93	1.23	1.16	4.18	5.26	1.85	.89	.59
4	.18	.37	.45	.90	.94	1.22	1.14	3.88	5.39	1.78	.87	.59
5	.18	.34	.43	.94	.99	1.22	1.11	3.84	5.48	1.72	.85	.58
6	.18	.33	.42	1.01	1.00	1.20	1.10	3.50	5.34	1.67	.82	.60
7	.18	.32	.42	1.07	.95	1.16	1.08	3.23	5.13	1.63	.80	.63
8	.19	.31	.42	.92	.93	1.11	1.07	3.25	4.84	1.58	.78	.61
9	.19	.35	.44	.89	.92	1.11	.95	3.27	4.50	1.54	.77	.57
10	.19	.39	.46	.86	.89	1.11	1.17	3.15	4.33	1.51	.78	.55
11	.18	.45	.64	.83	.87	1.10	1.07	3.15	4.26	1.47	1.28	.54
12	.18	.43	.52	.80	.86	1.08	1.02	3.55	4.12	1.42	1.00	.53
13	.19	.46	.47	.78	.86	1.05	1.00	3.99	3.82	1.36	.89	.52
14	.18	.42	.46	.78	.86	1.01	1.08	4.09	3.64	1.32	.82	.51
15	.18	.40	.45	.78	.85	1.03	1.11	4.58	3.55	1.34	.79	.50
16	.19	.41	.44	.76	.84	1.03	1.24	5.45	3.47	1.33	.86	.50
17	.19	.40	.43	.76	.86	1.04	1.27	6.15	3.24	1.30	.83	.51
18	.18	.40	.43	.79	.90	1.07	1.53	6.49	3.10	1.27	.80	.61
19	.18	.39	.43	.82	.95	1.12	1.91	6.72	2.97	1.24	.80	.73
20	.18	.39	.52	.82	1.01	1.20	1.89	6.38	2.84	1.20	.76	.60
21	.18	.39	.58	.80	1.03	1.28	2.28	6.28	2.75	1.15	.74	.55
22	.18	.39	1.87	.81	1.08	1.41	2.64	5.43	2.63	1.11	.71	.51
23	.18	.39	7.53	.99	1.07	1.39	2.74	4.94	2.61	1.09	.71	.50
24	.18	.39	6.60	1.17	1.08	1.35	3.12	4.68	2.51	1.08	.68	.48
25	.18	.42	2.55	.96	1.12	1.28	3.57	4.78	2.43	1.06	.66	.47
26	.18	.45	2.12	.92	1.16	1.26	4.01	4.89	2.35	1.04	.63	.47
27	.29	.43	2.13	.91	1.23	1.25	4.44	5.09	2.25	1.01	.62	.48
28	.50	.42	1.55	.91	1.20	1.27	4.95	5.48	2.15	.97	.62	.50
29	.56	.46	1.42	.87	-----	1.29	5.36	5.76	2.08	.95	.62	.50
30	.44	.48	1.24	.85	-----	1.29	5.62	6.05	2.02	1.02	.61	.42
31	.42	-----	1.13	.87	-----	1.27	-----	5.98	-----	.99	.60	-----
Total	6.98	12.02	39.00	27.71	27.19	36.84	63.05	149.59	110.11	41.87	24.48	16.32
Mean	0.225	0.401	1.23	0.894	0.971	1.19	2.10	4.79	3.67	1.35	0.790	0.544
Ac-ft	13.8	23.8	75.4	55.0	53.9	73.1	125	295	219	83.0	49.6	32.4

Calendar year 1964 Max 7.53 Min 0.18 Mean 0.708 Ac-ft 514  
 Water year 1964-65 Max 7.53 Min 0.18 Mean 1.52 Ac-ft 1,097

11-2158.2. Teakettle Creek tributary No. 2 near Patterson Mountain, Calif.

Location.--Lat 36°57'35", long 119°02'00", in SE $\frac{1}{4}$  NW $\frac{1}{4}$  sec. 21, T.11 S., R.27 E., 0.8 mile upstream from junction with Teakettle Creek, 1.2 miles east of Patterson Mountain, and 2.8 miles north of Black Rock Reservoir.

Drainage area.--0.85 sq mi.

Records available.--October 1957 to September 1965.

Gage.--Water-stage recorder, sharp-crested 90° V-notch weir, and sharp-crested Cipolletti weir. Datum of gage is 6,905.4 ft above mean sea level (levels by U. S. Forest Service). Prior to Oct. 1, 1961, at datum 2.00 ft lower.

Average discharge.--8 years, 0.92 cfs (668 acre-ft per year).

Extremes.--Maximum discharge during year, 13.1 cfs Dec. 23 (gage height 1.95 ft); minimum daily, 0.15 cfs Oct. 19-23.  
1957-65: Maximum discharge, 53.7 cfs Jan. 31, 1963 (gage height, 3.35 ft); minimum, 0.04 cfs Dec. 5, 1957, Sept. 12, 1961.

Remarks.--No regulation or diversion above station. This station is operated in connection with studies to develop and test methods managing forest and other lands for improved water yields. See schematic diagram, p. 568.

Cooperation.--Records furnished by U. S. Forest Service and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.16	0.39	0.32	0.80	0.59	0.69	0.72	3.69	6.15	2.25	1.03	0.56
2	.16	.34	.32	.71	.59	.70	.70	3.20	5.80	2.20	1.00	.55
3	.16	.32	.30	.70	.59	.70	.68	2.76	5.60	2.15	.96	.55
4	.16	.27	.31	.64	.60	.71	.67	2.59	5.90	2.08	.93	.55
5	.16	.26	.30	.66	.62	.70	.66	2.64	5.95	2.03	.91	.54
6	.16	.24	.30	.71	.63	.70	.66	2.38	5.70	2.00	.88	.56
7	.16	.24	.30	.76	.60	.67	.64	2.20	5.40	1.97	.86	.57
8	.16	.24	.29	.69	.58	.64	.61	2.23	5.20	1.92	.84	.56
9	.16	.22	.29	.66	.58	.64	.56	2.29	4.95	1.87	.83	.52
10	.16	.25	.29	.65	.56	.64	.66	2.35	4.75	1.78	.84	.50
11	.16	.37	.39	.63	.56	.64	.62	2.47	4.70	1.74	1.24	.49
12	.16	.33	.34	.62	.56	.63	.60	2.80	4.55	1.70	1.00	.49
13	.16	.35	.30	.60	.55	.62	.59	3.05	4.30	1.66	.90	.47
14	.16	.32	.29	.60	.50	.62	.62	3.45	4.10	1.62	.85	.46
15	.16	.31	.29	.59	.54	.61	.65	3.85	3.90	1.60	.82	.45
16	.16	.30	.28	.57	.54	.61	.73	4.40	3.85	1.58	.82	.46
17	.16	.29	.27	.57	.53	.62	.74	4.80	3.65	1.54	.81	.46
18	.16	.28	.28	.58	.55	.65	.89	5.30	3.50	1.49	.76	.54
19	.15	.28	.27	.62	.58	.67	1.18	5.60	3.35	1.46	.74	.68
20	.15	.27	.34	.63	.60	.71	1.16	5.50	3.20	1.39	.72	.55
21	.15	.28	.36	.61	.63	.76	1.42	5.30	3.10	1.34	.70	.50
22	.15	.28	1.22	.60	.65	.83	1.58	4.90	3.00	1.28	.68	.46
23	.15	.28	5.87	.66	.65	.83	1.62	4.55	2.90	1.26	.66	.44
24	.16	.27	5.53	.82	.64	.81	1.88	4.25	2.85	1.23	.65	.42
25	.16	.29	1.94	.68	.65	.75	2.20	4.40	2.75	1.19	.63	.41
26	.16	.31	1.42	.65	.68	.73	2.53	4.60	2.65	1.17	.61	.41
27	.24	.31	1.46	.63	.71	.72	2.86	4.75	2.55	1.12	.60	.41
28	.41	.30	1.03	.62	.70	.72	3.21	5.10	2.50	1.08	.60	.43
29	.46	.30	1.00	.60	-----	.73	3.47	5.70	2.40	1.05	.59	.43
30	.37	.31	.89	.59	-----	.74	3.64	6.10	2.35	1.11	.58	.41
31	.33	-----	.81	.59	-----	.74	-----	6.20	-----	1.06	.57	-----
Total	5.92	8.80	27.60	20.04	16.76	21.53	33.75	123.40	124.55	43.92	24.61	14.83
Mean	0.191	0.293	0.890	0.646	0.599	0.695	1.29	3.98	4.05	1.58	0.794	0.494
Ac-ft	11.7	17.5	54.7	39.7	33.2	42.7	76.9	245	241	97.0	43.8	29.4

Calendar year 1964 Max 5.87 Min 0.15 Mean 0.578 Ac-ft 420  
Water year 1964-65 Max 6.20 Min 0.15 Mean 1.30 Ac-ft 938

Note.--No gage-height record Mar. 2, 3, 10-15, May 10 to July 13, Aug. 20-23.

11-2158.3 Teakettle Creek tributary No. 2A near Patterson Mountain, Calif.

Location.--Lat 36°57'25", long 119°01'50", in NW 1/4 sec. 21, T.11 S., R.27 E., 0.1 mile upstream from Junction with Teakettle Creek tributary No. 2, 1.3 miles east of Patterson Mountain, and 2.6 miles north of Black Rock Reservoir.

Drainage area.--0.27 sq mi.

Records available.--October 1957 to September 1965.

Gage.--Water-stage recorder and 90° sharp-crested V-notch weir. Datum of gage is 6,924 ft above mean sea level (levels by U. S. Forest Service). Prior to Oct. 1, 1961, at datum 4.00 ft lower.

Average discharge.--8 years, 0.31 cfs (224 acre-ft per year).

Extremes.--Maximum discharge during year, 6.72 cfs Dec. 23 (gage height, 1.49 ft); minimum daily, 0.02 cfs Oct. 1-26.  
1957-65: Maximum discharge, 34.7 cfs Feb. 1, 1963 (gage height, 2.89 ft); minimum daily, 0.01 cfs for many days in 1960-62.

Remarks.--No regulation or diversion above station. This station is operated in connection with studies to develop and test methods of managing forest and other lands for improved water yield. See schematic diagram, p. 568.

Cooperation.--Records furnished by U. S. Forest Service and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.02	0.09	0.10	0.30	0.25	0.31	0.32	1.58	2.26	0.71	0.29	0.15
2	.02	.07	.10	.28	.25	.31	.31	1.29	2.11	.68	.28	.15
3	.02	.07	.10	.26	.25	.32	.31	1.13	2.07	.66	.27	.15
4	.02	.06	.09	.24	.26	.31	.30	1.10	2.14	.64	.26	.15
5	.02	.06	.09	.25	.27	.30	.29	1.13	2.18	.61	.25	.15
6	.02	.05	.08	.31	.28	.30	.29	1.04	2.12	.59	.24	.15
7	.02	.05	.08	.36	.26	.29	.29	.95	2.09	.56	.23	.16
8	.02	.05	.08	.27	.26	.27	.29	1.00	2.01	.55	.23	.16
9	.02	.06	.08	.26	.25	.28	.28	1.03	1.86	.53	.22	.14
10	.02	.08	.08	.26	.25	.29	.29	1.06	1.83	.51	.23	.14
11	.02	.08	.16	.25	.24	.29	.28	1.10	1.83	.50	.42	.13
12	.02	.10	.13	.23	.24	.26	.27	1.25	1.76	.48	.30	.13
13	.02	.09	.10	.23	.24	.27	.26	1.39	1.60	.45	.25	.12
14	.02	.08	.09	.22	.23	.26	.28	1.41	1.49	.44	.23	.12
15	.02	.08	.09	.21	.23	.27	.30	1.54	1.43	.45	.22	.12
16	.02	.07	.08	.21	.22	.27	.35	1.78	1.41	.44	.23	.12
17	.02	.07	.08	.21	.22	.28	.35	1.97	1.29	.43	.22	.12
18	.02	.07	.08	.22	.23	.28	.45	2.08	1.22	.42	.21	.16
19	.02	.07	.08	.24	.24	.30	.60	2.19	1.16	.41	.20	.23
20	.02	.07	.09	.25	.25	.33	.57	2.15	1.11	.39	.19	.16
21	.02	.07	.11	.24	.26	.36	.74	2.20	1.07	.38	.19	.14
22	.02	.07	.43	.23	.28	.40	.83	1.89	1.01	.36	.20	.12
23	.02	.07	2.97	.28	.28	.40	.81	1.74	.99	.35	.19	.12
24	.02	.07	2.78	.50	.27	.38	.95	1.70	.95	.34	.18	.11
25	.02	.07	.70	.34	.28	.35	1.08	1.76	.91	.34	.18	.11
26	.02	.08	.65	.30	.29	.34	1.19	1.85	.87	.33	.17	.11
27	.06	.09	.89	.29	.32	.32	1.29	1.95	.83	.32	.16	.11
28	.11	.08	.50	.27	.32	.33	1.42	2.11	.79	.30	.16	.12
29	.13	.08	.41	.26	-----	.34	1.51	2.23	.76	.30	.16	.12
30	.09	.09	.35	.24	-----	.34	1.56	2.37	.73	.32	.16	.11
31	.08	-----	.32	.25	-----	.34	-----	2.35	-----	.30	.16	-----
Total	0.99	2.19	11.97	3.26	7.22	9.69	19.06	50.32	43.88	14.09	6.88	4.08
Mean	0.032	0.073	0.386	0.266	0.258	0.313	0.602	1.62	1.46	0.455	0.222	0.136
Ac-ft	2.0	4.3	23.7	16.4	14.3	19.2	35.8	99.8	87.0	27.9	13.6	8.1

Calendar year 1964 Max 2.97 Min 0.02 Mean 0.168 Ac-ft 122  
Water year 1964-65 Max 2.97 Min 0.02 Mean 0.487 Ac-ft 352

11-2158.4. Teakettle Creek tributary No. 1 near Patterson Mountain, Calif.

Location.--Lat 36°57'00", long 119°01'10", in NW $\frac{1}{4}$  sec. 27, T.11 S., R.27 E., 0.2 mile upstream from confluence with Teakettle Creek, 2.1 miles north of Black Rock Reservoir, and 2.2 miles east of Patterson Mountain.

Drainage area.--0.77 sq mi.

Records available.--October 1957 to September 1965.

Gage.--Water-stage recorder, 90° sharp-crested V-notch weir, and sharp-crested Cipolletti weir. Datum of gage is 6,407.7 ft above mean sea level (levels by U. S. Forest Service). Prior to August 1959 at datum 4.0 ft lower.

Average discharge.--8 years, 0.99 cfs (718 acre-ft per year).

Extremes.--Maximum discharge during year, 13.3 cfs Dec. 24 (gage height, 1.96 ft); minimum daily, 0.15 cfs Oct. 20.  
1957-65: Maximum discharge, 117 cfs Feb. 1, 1963 (gage height, 4.21 ft); minimum daily, 0.06 cfs Sept. 12, 13, 1961.

Remarks.--No regulation or diversion above station. This station is operated in connection with studies to develop and test methods of managing forest and other lands for improved water yield. See schematic diagram, p. 568.

Cooperation.--Records furnished by U. S. Forest Service and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	.17	0.41	0.38	1.30	1.11	1.15	1.25	5.19	6.54	2.04	0.94	0.52
2	.17	.32	.41	1.20	1.10	1.14	1.22	4.59	6.02	1.96	.90	.52
3	.17	.28	.39	1.23	1.10	1.14	1.20	4.05	5.97	1.90	.87	.52
4	.17	.27	.36	1.04	1.10	1.14	1.19	3.85	6.21	1.85	.85	.52
5	.16	.26	.36	1.21	1.18	1.14	1.17	3.78	6.32	1.78	.83	.50
6	.16	.25	.34	1.67	1.21	1.15	1.17	3.61	6.07	1.72	.80	.52
7	.16	.25	.34	2.02	1.12	1.12	1.18	3.37	5.82	1.67	.78	.55
8	.17	.25	.33	1.56	1.09	1.10	1.12	3.38	5.43	1.62	.76	.54
9	.17	.33	.33	1.40	1.07	1.09	0.91	3.43	5.09	1.59	.74	.50
10	.16	.31	.33	1.40	1.04	1.10	1.19	3.42	4.93	1.55	.74	.48
11	.16	.39	.65	1.38	1.02	1.10	1.21	3.39	4.86	1.52	1.15	.48
12	.16	.56	.49	1.35	1.00	1.10	1.10	3.76	4.65	1.47	.98	.47
13	.16	.53	.39	1.32	1.00	1.08	1.08	4.14	4.27	1.43	.85	.46
14	.16	.39	.36	1.29	1.00	1.05	1.13	4.31	4.04	1.38	.78	.45
15	.16	.35	.36	1.29	0.98	1.05	1.16	4.70	3.89	1.38	.76	.44
16	.17	.34	.34	1.29	0.97	1.06	1.24	5.57	3.81	1.35	.77	.44
17	.17	.33	.33	1.29	0.96	1.06	1.26	6.30	3.53	1.33	.73	.45
18	.16	.33	.33	1.36	0.96	1.07	1.44	6.80	3.35	1.29	.69	.53
19	.16	.32	.29	1.46	0.97	1.10	1.84	7.18	3.19	1.27	.66	.65
20	.15	.31	.50	1.51	0.99	1.16	1.89	6.98	3.05	1.22	.66	.54
21	.16	.31	.49	1.51	1.01	1.23	2.28	6.95	2.95	1.18	.64	.48
22	.16	.31	1.21	1.50	1.04	1.31	2.49	6.00	2.83	1.14	.63	.46
23	.16	.31	5.94	1.73	1.04	1.33	2.52	5.46	2.72	1.10	.62	.44
24	.16	.30	6.71	1.88	1.04	1.30	2.85	5.26	2.65	1.09	.61	.42
25	.16	.32	3.21	1.30	1.04	1.24	3.31	5.38	2.56	1.07	.59	.42
26	.16	.38	3.31	1.22	1.06	1.22	3.70	5.68	2.49	1.05	.57	.42
27	.21	.37	4.34	1.18	1.19	1.25	4.09	5.93	2.36	1.01	.55	.43
28	.38	.34	2.52	1.15	1.16	1.21	4.53	6.37	2.25	0.97	.55	.45
29	.48	.34	2.08	1.14	-----	1.23	4.89	6.67	2.16	0.95	.55	.44
30	.33	.36	1.75	1.11	-----	1.25	5.08	7.00	2.10	1.01	.54	.42
31	.29	-----	1.52	1.11	-----	1.27	-----	6.88	-----	0.97	.53	-----
Total	5.92	10.12	40.69	42.40	29.55	35.94	60.70	159.38	122.11	42.86	22.62	14.46
Mean	0.191	0.337	1.31	1.37	1.06	1.16	2.02	5.14	4.07	1.38	0.730	0.482
Ac-ft	11.7	20.1	80.7	84.1	58.6	71.3	120	316	242	85.0	44.9	28.7

Calendar year 1964 Max 6.71 Min 0.15 Mean 0.653 Ac-ft 474

Water year 1964-65 Max 7.18 Min 0.15 Mean 1.61 Ac-ft 1,163

11-2165. North Fork Kings River above Dinkey Creek, at Balch Camp, Calif.

Location.--Lat 36°54'10", long 119°07'15", in NW¼ sec.10, T.12 S., R.26 E., on left bank 100 ft downstream from bridge at Balch Camp, 200 ft upstream from Dinkey Creek, and 9.3 miles east of Trimmer.

Drainage area.--250 sq mi.

Records available.--October 1919 to September 1930, March 1960 to September 1965. Records for water year 1920 incomplete, yearly estimate and monthly discharge only for some months, published in WSP 1315-A. Prior to October 1962, published as "above Dinkey Creek."

Gage.--Water-stage recorder. Altitude of gage is 1,240 ft (from river-profile map). October 1919 to Sept. 30, 1930, at datum 1.00 ft higher.

Average discharge.--11 years (1919-30), 387 cfs (280,200 acre-ft per year), prior to storage and diversion.

Extremes.--Maximum discharge during year, 1,620 cfs Dec. 23; minimum daily, 0.3 cfs Nov. 3.

1919-30 (prior to regulation by Wishon and Courtright Reservoirs): Maximum discharge, 6,080 cfs June 4, 1922 (gage height, 13.18 ft, present datum); minimum about 4 cfs Aug. 29 to Sept. 1, 1924.

1960-65: Maximum discharge 14,000 cfs Feb. 1, 1963 (gage height, 13.24 ft, backwater from Dinkey Creek), from rating curve extended above 890 cfs; minimum daily, 0.3 cfs Nov. 3, 1964.

Remarks.--Records good except those for periods of backwater from Dinkey Creek, which are fair. Flow regulated by Courtright and Wishon Reservoirs (see p. 574), Black Rock Reservoir (capacity, 1,000 acre-ft), Balch afterbay (capacity, 125 acre-ft), and Haas and Balch powerplants. Diversion from Balch afterbay to Kings River powerhouse began Mar. 1, 1962. See schematic diagram, p. 568.

Cooperation.--Water-stage-recorder graph and nine discharge measurements furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Rating table, except periods of backwater from Dinkey Creek (gage height, in feet, and discharge, in cubic feet per second)

0.5	0.3	1.2	4.0	2.5	89
.6	.5	1.4	7.5	2.9	170
.7	.8	1.6	13	3.3	285
.8	1.1	1.9	27		
1.0	2.2	2.2	50		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.8	8.5	8.2	10	8.2	8.0	9.0	11	16	14	16	16
2	7.8	6.4	9.2	12	8.2	8.0	12	11	16	15	16	17
3	8.2	.3	9.5	12	8.2	8.0	7.1	11	16	15	18	17
4	8.0	1.1	9.8	15	8.0	7.5	6.9	11	16	16	18	15
5	7.8	7.5	8.8	20	7.8	7.5	8.0	11	16	16	18	15
6	8.0	5.9	8.2	17	8.4	7.5	10	11	17	15	20	15
7	8.0	7.8	7.5	16	8.6	7.5	13	10	17	15	17	16
8	8.0	8.0	10	14	8.8	7.3	15	11	17	17	16	16
9	8.0	9.8	11	13	8.5	6.9	19	11	17	17	16	17
10	8.0	12	8.5	12	8.5	7.3	25	11	17	17	16	17
11	8.0	11	8.8	12	8.5	8.5	22	11	17	17	16	17
12	8.2	18	8.0	10	8.2	11	18	10	17	17	17	17
13	8.2	13	8.2	12	8.2	12	17	10	17	17	18	16
14	8.5	10	8.2	12	7.8	9.2	15	10	17	17	18	16
15	8.5	9.2	8.2	12	7.8	9.0	14	10	16	16	16	16
16	8.0	9.5	8.2	12	7.1	8.8	13	10	16	16	16	16
17	8.0	9.5	8.2	12	7.3	8.8	12	10	16	16	16	16
18	8.2	9.5	8.0	12	7.3	8.5	12	11	16	16	16	17
19	8.0	9.2	10	10	7.3	8.2	12	11	17	16	16	17
20	7.8	8.2	9.5	9.8	7.1	8.0	12	11	17	16	16	16
21	8.2	8.2	9.0	9.2	7.3	7.5	11	11	16	16	16	16
22	8.2	8.2	10	8.8	8.0	7.3	11	11	16	16	16	16
23	8.2	8.2	280	9.5	9.2	7.3	10	11	16	16	17	16
24	8.8	8.2	257	12	9.0	7.3	10	8.0	15	16	17	16
25	9.0	8.2	17	11	8.8	7.1	10	8.8	15	16	17	16
26	9.0	8.5	18	10	8.8	7.1	10	11	15	16	17	16
27	9.0	8.5	20	9.2	9.2	9.2	10	13	14	16	16	16
28	9.2	8.2	17	9.0	8.2	7.3	10	14	14	16	16	16
29	9.5	8.2	20	8.8	-----	6.5	10	15	13	16	17	16
30	7.8	8.2	13	8.5	-----	5.7	10	16	14	16	16	16
31	8.0	-----	12	8.5	-----	5.9	-----	16	-----	16	16	-----
Total	255.9	257.0	849.0	359.3	228.3	245.7	374.0	347.8	479	497	517	485
Mean	8.25	8.57	27.4	11.6	8.15	7.93	12.5	11.2	16.0	16.0	16.7	16.2
Ac-ft	508	510	1,680	713	453	487	742	690	950	986	1,030	962

Calendar year 1964 Max 280 Min 0.3 Mean 10.1 Ac-ft 7,330  
 Water year 1964-65 Max 280 Min 0.3 Mean 13.4 Ac-ft 9,710

Note.--No gage-height record Nov. 28 to Dec. 4, Dec. 23-25. Backwater from Dinkey Creek Dec. 26-31, Jan. 2-14, Feb. 6, 7, Apr. 19 to May 5, May 12 to June 19, June 22-28, June 30 to July 2.

11-2168. Rock Creek at Dinkey Creek, Calif.

Location.--Lat 37°05'25", long 119°09'40", in SE 1/4 sec. 5, T.10 S., R.26 E., on right bank 0.4 mile northwest of town of Dinkey Creek and 0.5 mile upstream from mouth.

Drainage area.--7.60 sq mi.

Records available.--July 1960 to September 1965.

Gage.--Water-stage recorder and low-flow concrete control. Altitude of gage is 6,150 ft (from topographic map).

Average discharge.--5 years, 15.1 cfs (10,930 acre-ft per year).

Extremes.--Maximum discharge during year, 602 cfs Dec. 23 (gage height, 6.18 ft); no flow Oct. 1-27.

1960-65: Maximum discharge, 2,850 cfs Feb. 1, 1963 (gage height, 8.68 ft), from rating curve extended above 400 cfs on basis of slope-area measurement of maximum flow; no flow at times in 1961-62, 1964-65.

Remarks.--Records good. No diversions or regulation above station. See schematic diagram, p. 568.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

1.9	0	2.8	9.0
2.0	.2	3.0	15
2.1	.4	3.5	37
2.2	.8	4.0	73
2.3	1.3	4.5	133
2.4	2.0	5.0	220
2.5	3.0	5.5	350
2.6	4.5		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	1.6	11	13	13	13	19	130	63	9.2	1.7	0.5
2	0	1.4	11	20	14	13	17	91	53	7.8	1.5	.5
3	0	1.2	7.8	17	14	19	16	63	55	7.2	1.4	.4
4	0	1.2	6.5	13	14	19	15	59	58	6.5	1.2	.4
5	0	1.0	5.5	13	15	13	15	65	56	6.1	1.2	.4
6	0	.7	4.5	20	14	16	15	55	43	5.7	1.1	.4
7	0	.6	4.4	25	11	14	14	44	45	5.3	1.0	.5
8	0	.6	4.4	24	10	13	12	44	40	4.9	.9	.5
9	0	1.3	5.3	13	9.9	12	11	47	36	4.7	.8	.5
10	0	1.4	5.7	17	9.0	12	14	56	36	4.4	.8	.4
11	0	2.9	13	15	3.0	12	14	60	35	4.0	1.4	.4
12	0	3.4	12	14	3.0	12	12	76	32	3.9	1.6	.4
13	0	4.5	7.5	14	7.8	11	10	92	29	3.8	1.2	.4
14	0	4.0	6.1	14	7.5	11	11	102	26	3.6	1.0	.3
15	0	3.9	4.7	14	7.2	12	13	116	24	3.6	1.0	.3
16	0	4.2	4.0	13	7.0	13	17	140	22	3.9	5.8	.3
17	0	3.8	3.6	13	3.0	14	21	146	20	3.8	5.1	.3
18	0	3.6	3.2	14	9.3	16	30	139	19	3.4	2.0	.5
19	0	3.3	2.5	15	12	20	52	126	13	3.2	1.6	.6
20	0	3.6	4.2	15	14	26	55	112	13	3.2	1.2	.5
21	0	3.8	4.5	14	16	30	70	109	17	2.8	1.2	.4
22	0	4.4	35	14	17	36	81	71	15	2.6	1.1	.4
23	0	5.3	31.1	17	16	34	75	57	14	2.3	1.0	.3
24	0	5.7	32.4	29	16	29	87	53	14	2.1	1.0	.2
25	0	7.8	96	17	17	22	110	70	13	2.0	.9	.2
26	0	10	43	14	19	20	114	76	12	1.9	.8	.2
27	0	7.8	44	12	22	20	126	82	10	1.9	.7	.2
28	0.2	7.2	32	11	20	19	136	91	9.9	1.7	.6	.2
29	1.0	10	27	10	-----	20	139	90	9.0	1.6	.6	.2
30	1.2	11	25	10	-----	20	139	90	3.8	1.7	.6	.3
31	1.0	-----	20	12	-----	20	-----	81	-----	1.8	.6	-----
Total	3.4	121.2	1093.4	496	355.7	576	1460	2633	864.7	119.6	42.6	11.1
Mean	0.11	4.04	35.3	16.0	12.7	13.6	43.7	85.1	23.8	3.86	1.37	0.37
Ac-ft	6.7	240	2170	984	706	1140	2900	5,230	1,720	237	84	22

Calendar year 1964 Max 324 Min 0 Mean 11.3 Ac-ft 8,180  
 Water year 1964-65 Max 324 Min 0 Mean 21.3 Ac-ft 15,440

Peak discharge (base, 70 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0600	6.18	602	5-17	1600	5.13	262
4-28	1800	4.98	230	5-28	1700	4.47	138

11-2184. North Fork Kings River below Dinkey Creek, near Balch Camp, Calif.

Location.--Lat 36°52'50", long 119°07'40", in NW¼ sec.22, T.12 S., R.26 E., on right bank 1.1 miles upstream from mouth, 1.7 miles south of Balch Camp, 2.1 miles downstream from Dinkey Creek, and 9 miles east of Trimmer.

Drainage area.--387 sq mi.

Records available.--March 1960 to September 1965. Prior to October 1962, published as "below Dinkey Creek."

Gage.--Water-stage recorder. Altitude of gage is 1,035 ft (from river-profile map).

Extremes.--Maximum discharge during year, 6,020 cfs Dec. 23 (gage height, 11.10 ft), from rating curve extended above 1,900 cfs; minimum daily, 15 cfs Oct. 8, 9, 16, 17.

1960-65: Maximum discharge, 18,200 cfs Feb. 1, 1963 (gage height, 19.20 ft), from rating curve extended above 1,900 cfs; minimum daily, 14 cfs Aug. 26-30, 1964.

Remarks.--Records good. Flow regulated by Courtright and Wishon Reservoirs (see p. 574), Black Rock Reservoir (capacity, 1,000 acre-ft), Balch afterbay (capacity, 125 acre-ft), and Haas and Balch powerplants. Diversion from Balch afterbay to Kings River powerhouse began Mar. 1, 1962. See schematic diagram, p. 568.

Cooperation.--Water-stage-recorder graph and 10 discharge measurements furnished by Pacific Gas & Electric Co. in cooperation with a Federal Power Commission project.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 23				Dec. 23 to Sept. 30			
0.4	12	2.5	178	1.0	32	4.0	510
.6	18	3.0	270	1.5	62	5.0	930
.9	30	4.0	530	2.0	105	6.0	1,450
1.2	45	5.0	940	2.5	167	9.0	3,800
1.5	65	7.0	2,100	3.0	252		
2.0	110	9.0	3,800				

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16	42	93	233	241	258	297	1,250	1,080	271	66	40
2	16	59	103	235	244	254	284	1,040	945	246	63	39
3	16	36	92	235	248	254	254	731	910	226	60	39
4	16	30	72	285	246	252	246	615	1,040	215	58	39
5	16	34	73	556	267	250	250	598	1,140	198	55	38
6	16	30	62	781	318	241	267	573	1,080	187	56	38
7	16	29	62	715	252	229	271	492	1,020	174	53	39
8	15	28	62	373	226	213	267	465	890	163	50	40
9	15	51	63	311	220	203	273	468	950	150	49	39
10	16	94	65	273	198	201	275	465	1,160	139	47	38
11	16	65	85	246	193	206	284	498	1,240	132	48	36
12	16	182	125	229	185	222	267	556	1,240	126	69	36
13	16	130	76	219	185	228	265	651	1,070	117	63	36
14	16	71	71	210	185	210	258	749	910	111	58	34
15	16	64	67	213	179	213	286	875	776	106	52	33
16	15	63	58	203	178	217	320	1,180	744	112	51	33
17	15	62	57	201	179	217	355	1,320	647	103	138	33
18	16	53	56	215	192	226	373	1,350	623	104	137	36
19	16	57	77	237	210	237	520	1,330	601	98	90	51
20	16	55	100	248	235	267	587	1,200	462	93	71	44
21	16	58	93	224	248	295	604	1,140	471	89	63	40
22	16	62	176	219	256	328	713	830	562	83	58	38
23	16	65	2,920	228	237	340	671	671	623	79	55	36
24	16	71	2,820	606	237	306	784	619	556	75	53	34
25	17	76	1,090	309	241	265	923	623	520	75	51	34
26	17	107	639	262	256	250	1,020	740	468	72	48	33
27	18	91	951	241	297	280	1,090	830	439	70	45	33
28	22	77	480	226	277	265	1,230	1,000	363	66	44	34
29	67	84	355	217	-----	267	1,270	1,120	286	64	42	34
30	63	96	323	215	-----	258	1,270	1,200	277	64	41	34
31	40	-----	284	231	-----	265	-----	1,180	-----	68	41	-----
Total	624	2,022	11,650	9,196	6,430	7,717	15,774	26,359	23,093	3,876	1,875	1,111
Mean	20.1	67.4	376	297	230	249	526	850	770	125	60.5	37.0
Ac-ft	1,240	4,010	23,110	18,240	12,750	15,310	31,290	52,280	45,800	7,690	3,720	2,200

Calendar year 1964 Max 2,920 Min 14 Mean 141 Ac-ft 102,100  
 Water year 1964-65 Max 2,920 Min 15 Mean 301 Ac-ft 217,600



## 11-2185. Kings River below North Fork, Calif.

Location.--Lat 36°52'30", long 119°08'30", in NE $\frac{1}{4}$  sec.21, T.12 S., R.26 E., on right bank 0.8 mile downstream from North Fork, 2.4 miles southwest of Balch Camp, and 8.5 miles southeast of Trimmer.

Drainage area.--1,342 sq mi.

Records available.--October 1951 to September 1965. Prior to January 1952 monthly discharge only, published in WSP-1735.

Gage.--Water-stage recorder. Datum of gage is 942.42 ft above mean sea level (levels by Corps of Engineers).

Average discharge.--14 years, 2,000 cfs (1,448,000 acre-ft per year), adjusted for change in contents in Wishon and Courtright Reservoirs and diversion to Kings River powerplant.

Extremes.--Maximum discharge during year, 16,700 cfs Dec. 24; minimum daily, 118 cfs Oct. 17, 18.

1951-65: Maximum discharge, 85,200 cfs Dec. 23, 1955 (gage height, 23.08 ft), from rating curve extended above 18,000 cfs on basis of slope-area measurement of maximum flow; minimum daily, 97 cfs Jan. 13, 1963.

Flood of Nov. 19, 1950, reached a stage of 21.6 ft, from floodmarks (discharge, 74,200 cfs).

Remarks.--Records good. Flow regulated by Courtright and Wishon Reservoirs (see p. 574). Records include flow diverted to Kings River powerplant since Mar. 1, 1962. This station measures inflow to Pine Flat Reservoir. See schematic diagram, p. 568.

Cooperation.--Ten discharge measurements furnished by Kings River Water Association. Records of diversion to Kings River powerplant furnished by Pacific Gas and Electric Co.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	667	260	980	1,630	1,900	1,350	1,520	6,750	8,020	5,740	2,940	2,340
2	703	826	982	1,540	1,640	1,380	1,400	6,240	6,840	5,500	2,800	2,320
3	149	788	976	1,500	1,600	1,300	1,500	5,200	6,200	5,740	2,620	2,290
4	123	682	928	2,240	1,820	1,420	1,470	4,460	6,650	5,870	2,420	2,280
5	604	559	414	3,650	1,810	1,420	1,390	4,010	8,190	5,790	2,110	2,240
6	654	652	591	3,650	1,950	1,160	1,440	3,700	9,080	5,990	2,140	2,220
7	591	234	850	4,080	1,330	1,110	1,580	3,630	9,080	6,000	2,130	2,220
8	625	212	597	2,740	1,700	1,200	1,620	3,410	8,840	5,680	2,040	2,210
9	544	877	795	2,110	1,590	1,120	1,610	3,370	7,030	5,360	2,010	2,180
10	120	968	843	1,570	1,540	1,030	1,470	3,290	7,630	4,580	2,020	2,160
11	120	883	910	2,080	1,560	1,110	1,440	3,380	9,040	4,140	2,740	2,130
12	583	1,580	710	1,820	1,360	1,540	1,560	3,520	9,800	3,910	4,200	2,110
13	692	1,500	405	1,760	1,180	1,180	1,680	3,880	9,200	3,810	3,280	2,090
14	586	529	813	1,680	949	995	1,860	4,060	7,790	3,910	2,970	2,020
15	671	463	823	1,640	1,340	1,120	1,940	4,500	6,730	3,840	3,400	1,810
16	539	770	811	1,280	1,310	1,260	1,810	5,760	5,780	4,200	3,520	2,040
17	118	939	810	1,360	1,400	1,130	2,060	7,410	5,080	4,670	3,880	2,040
18	118	779	828	1,660	1,380	1,160	1,990	7,360	4,790	4,320	3,530	2,060
19	573	853	692	1,710	1,450	1,190	2,660	8,520	5,340	4,050	2,740	2,170
20	643	810	619	1,780	1,140	1,250	3,060	8,120	5,890	3,870	2,220	2,180
21	631	438	923	1,670	1,140	1,220	3,140	7,330	6,510	3,530	2,160	2,110
22	558	381	1,090	1,600	1,260	1,510	3,680	5,810	6,790	3,110	2,000	2,110
23	604	825	9,260	1,420	1,540	1,690	3,670	4,950	6,720	2,900	1,890	2,130
24	137	956	11,100	2,790	1,560	1,550	3,530	4,500	6,110	2,860	1,930	1,370
25	125	822	5,860	1,940	1,550	1,410	4,260	4,290	5,860	2,850	1,760	2,080
26	609	505	3,740	1,920	1,560	1,570	4,920	4,780	5,120	2,790	1,680	2,060
27	705	1,020	6,020	1,870	1,370	1,480	5,580	5,460	5,120	2,640	1,630	2,050
28	727	534	3,120	1,850	1,340	1,340	5,890	6,560	5,450	2,480	1,590	2,040
29	780	436	2,780	1,750	-----	1,360	6,580	7,530	5,420	2,400	1,530	2,040
30	834	1,010	2,500	1,740	-----	1,220	6,630	7,960	5,670	2,480	1,540	2,050
31	260	-----	2,250	1,350	-----	1,270	-----	8,120	-----	2,930	1,540	-----
Total	15,393	22,096	64,020	61,480	41,169	40,045	82,940	167,860	205,770	127,940	74,860	63,650
Mean	497	737	2,065	1,983	1,470	1,292	2,765	5,415	6,859	4,127	2,415	2,122
Ac-ft	30,530	43,830	127,000	121,900	81,660	79,430	164,500	332,900	408,100	253,800	148,500	126,200
Mean†	140	503	2,161	1,926	1,348	1,432	3,232	6,531	7,650	3,724	1,784	1,311
Ac-ft†	8,630	29,930	132,900	118,400	74,860	88,030	192,300	401,600	455,200	229,000	109,700	78,000
Calendar year 1964:	Max	11,100	Min	118	Mean	1,249	Ac-ft	906,400	Mean†	1,281	Ac-ft†	929,800
Water year 1964-65:	Max	11,100	Min	118	Mean	2,650	Ac-ft	1,918,000	Mean†	2,651	Ac-ft†	1,919,000

† Adjusted for change in contents in Wishon and Courtright Reservoirs.

## TULARE LAKE BASIN

11-2200. Big Creek above Pine Flat Reservoir, Calif.

Location.--Lat 36°55'05", long 119°14'45", in NE¼ sec. 4, T. 12 S., R. 25 E., on right bank 2.4 miles upstream from mouth and 2.7 miles northeast of Trimmer.

Drainage area.--69.9 sq mi.

Records available.--October 1953 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 962.04 ft above mean sea level (levels by Corps of Engineers).

Average discharge.--12 years, 42.2 cfs (30,550 acre-ft per year); median of yearly mean discharge, 30 cfs (21,700 acre-ft per year).

Extremes.--Maximum discharge during year, 1,600 cfs Dec. 23 (gage height, 5.50 ft); minimum daily, 0.2 cfs Oct. 5-8.

1953-65: Maximum discharge, 10,400 cfs Dec. 23, 1955 (gage height, 9.21 ft), from rating curve extended above 1,300 cfs on basis of slope-area measurement of maximum flow; no flow at times in 1955, 1959-62, 1964.

Remarks.--Records good. This station measures inflow to Pine Flat Reservoir. No regulation or diversion above station. See schematic diagram, p. 568. Records of chemical analyses for the water year 1965 are published in Part 2 of this report.

Cooperation.--Eight discharge measurements furnished by Kings River Water Association.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.8	4.4	11	87	84	58	112	124	47	21	9.1	3.1
2	.7	7.8	12	73	82	55	122	117	47	20	8.4	3.1
3	.4	5.9	14	97	79	54	100	106	46	20	7.4	3.3
4	.3	4.0	11	220	75	53	90	93	43	18	6.4	3.1
5	.2	3.3	9.8	750	80	51	90	97	42	18	6.2	3.1
6	.2	3.1	9.5	1,110	150	52	150	95	39	18	6.2	3.3
7	.2	2.9	9.1	837	111	54	181	90	39	16	5.9	4.0
8	.2	2.7	8.8	326	90	53	193	87	39	16	5.4	5.2
9	.3	12	9.8	215	84	51	204	88	42	14	5.4	4.6
10	.4	34	9.1	168	79	51	252	83	40	14	4.9	4.0
11	.4	32	10	142	74	50	226	83	37	14	5.2	3.1
12	.4	236	24	124	70	71	184	80	36	14	9.1	3.1
13	.4	120	14	112	68	95	229	79	34	13	8.4	2.9
14	.4	43	11	103	68	79	218	79	33	13	7.1	2.7
15	.4	30	11	98	65	73	245	77	33	13	5.6	2.5
16	.4	23	9.8	91	63	73	245	77	33	12	5.2	2.5
17	.4	19	9.1	88	61	65	226	75	33	12	4.6	2.5
18	.6	16	8.8	88	61	64	206	72	33	12	4.4	2.5
19	.7	14	25	93	61	60	220	70	32	12	4.2	2.5
20	.7	13	67	103	61	59	220	67	31	11	4.4	4.6
21	.4	12	41	88	61	59	201	73	29	11	4.2	3.5
22	.4	12	35	83	61	58	198	73	29	9.8	4.2	3.1
23	.4	11	617	92	59	58	172	68	27	9.8	4.4	2.7
24	.4	11	609	378	57	56	166	64	26	9.5	4.6	2.5
25	.7	11	240	148	56	53	162	59	25	9.1	4.6	2.2
26	1.1	13	218	119	56	51	152	56	24	9.5	4.4	2.2
27	1.3	14	680	107	60	92	146	52	24	9.5	4.2	2.5
28	3.8	12	239	98	62	77	142	51	24	9.5	3.8	2.9
29	18	11	142	93	-----	64	134	49	23	9.1	3.5	3.5
30	13	12	114	87	-----	59	126	47	21	9.1	3.3	3.3
31	5.4	-----	107	86	-----	59	-----	47	-----	9.8	3.3	-----
Total	53.4	775.1	3,334.8	6,309	2,037	1,906	5,312	2,383	1,010	406.7	1,670	95.1
Mean	1.72	25.8	108	204	72.8	51.5	177	76.9	33.7	13.1	5.39	3.17
Ac-ft	106	1,540	6,610	12,510	4,040	3,780	10,540	4,730	2,000	807	331	189

Calendar year 1964 Max 680 Min 0 Mean 24.7 Ac-ft 17,920

Water year 1964-65 Max 1,110 Min 0.2 Mean 65.2 Ac-ft 47,180

Peak discharge (base, 500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-12	1300	3.99	516	1- 6	2130	5.46	1,560
12-23	1000	5.50	1,600	1-24	0300	4.54	814
12-27	0300	5.31	1,410				

11-2205. Sycamore Creek above Pine Flat Reservoir, Calif.

Location.--Lat 36°55'15", long 119°18'30", in NW $\frac{1}{4}$  sec.1, T.12 S., R.24 E., on right bank 0.1 mile downstream from Little Dry Creek, 1.7 miles northwest of Trimmer, and 4.8 miles upstream from mouth.

Drainage area.--56.1 sq mi.

Records available.--April 1953 to September 1965.

Gage.--Water-stage recorder and concrete control. Datum of gage is 1,141.96 ft above mean sea level (levels by Corps of Engineers).

Average discharge.--12 years, 18.9 cfs (13,680 acre-ft per year), median of yearly mean discharges, 11.0 cfs (8,000 acre-feet per year).

Extremes.--Maximum discharge during year, 1,320 cfs Jan. 7 (gage height, 5.21 ft); no flow for several months.

1953-65: Maximum discharge, 6,760 cfs Dec. 24, 1955 (gage height, 9.78 ft) from rating curve extended above 2,900 cfs on basis of slope-area measurement of maximum flow; no flow for several months each year.

Remarks.--Records good. This station measures inflow to Pine Flat Reservoir. No regulation or diversion above station. See schematic diagram, p. 568.

Cooperation.--Five discharge measurements furnished by Kings River Water Association.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

0.7	0	1.3	32	1.6	72	4.5	870
.8	.4	1.5	57	2.0	140	5.0	1,170
.9	1.5	2.0	143	3.0	313	Same as preceding table below 1.6 ft	
1.0	4.3	2.5	243	3.5	426		
1.1	10	3.0	345	4.0	605		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0.7	42	22	11	55	27	8.7	2.1		
2		0	1.0	33	22	10	39	26	9.5	2.1		
3		0	1.3	71	21	9.5	36	26	9.5	1.7		
4		0	.8	237	20	8.7	32	24	8.7	1.5		
5		0	.8	556	21	8.7	34	24	8.0	1.2		
6		0	.7	754	50	8.7	97	24	7.3	1.2		
7		0	.7	527	36	9.5	126	21	7.3	.8		
8		0	.7	151	26	10	175	21	7.3	.7		
9		0	.7	89	24	9.5	257	20	8.0	.6		
10		31	.7	63	21	9.5	451	20	7.3	.4		
11		14	.9	52	20	9.5	275	19	6.7	.4		
12		159	1.9	47	20	17	164	18	6.1	.4		
13		55	1.5	39	20	74	337	17	5.6	.4		
14		9.5	1.3	36	19	32	201	16	5.1	.3		
15		4.0	1.2	31	18	25	171	16	5.6	.3		
16		2.1	1.0	28	17	19	135	15	6.1	.3		
17		1.5	.9	25	15	17	106	14	5.6	.1		
18		1.2	.9	24	15	17	86	14	5.6	.1		
19		1.0	17	24	14	15	75	14	5.1	.1		
20		.9	25	26	14	14	68	14	4.7	.1		
21		.9	8.0	24	13	13	60	14	4.0	.1		
22		.8	4.7	21	13	12	54	15	3.6	.1		
23		.7	337	28	13	12	48	15	3.6	.1		
24		.7	220	181	12	11	45	14	3.6	0		
25		.7	61	48	12	10	44	14	3.6	0		
26		.7	175	38	11	9.5	40	13	3.6	0		
27		.7	403	33	12	44	37	11	3.6	0		
28		.7	135	30	13	27	34	9.5	3.2	0		
29		.7	60	27	-----	17	31	9.5	2.6	.1		
30		.7	44	25	-----	14	30	8.7	2.1	0		
31		-----	53	22	-----	15	-----	8.7	-----	.1		
Total	0	286.5	1,560.4	3,332	534	519.1	3,343	522.4	171.3	15.3	0	0
Mean	0	9.55	50.3	107	19.1	16.7	111	16.9	5.71	0.49	0	0
Ac-ft	0	563	3,090	6,610	1,060	1,030	6,630	1,040	340	.30	0	0

Calendar year 1964 Max 403 Min 0 Mean 8.83 Ac-ft 6,400  
 Water year 1964-65 Max 754 Min 0 Mean 28.2 Ac-ft 20,400

Peak discharge (base, 300 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-12	1030	3.26	410	1-24	0200	3.92	569
12-23	0900	4.95	1,190	4-8	1530	3.79	516
12-27	0230	4.96	1,150	4-10	1700	4.49	864
1-7	0500	5.21	1,320	4-13	0530	4.06	635

## TULARE LAKE BASIN

11-2210. Pine Flat Reservoir near Piedra, Calif.

Location.--Lat 36°49'55", long 119°19'25", in NE $\frac{1}{4}$  sec.2, T.13 S., R.25 E., near center of Pine Flat Dam on Kings River, 1.9 miles upstream from Mill Creek, 3.5 miles northeast of Piedra, and 16 miles northeast of Sanger.

Drainage area.--1,545 sq mi.

Records available.--October 1951 to September 1965.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers). Prior to Apr. 8, 1952, non-recording mercury gage on dam at same datum.

Extremes.--Maximum contents during year, 744,500 acre-ft June 14 (elevation, 904.59 ft); minimum, 189,600 acre-ft Oct. 4, 5, (elevation, 755.26 ft).

1951-65: Maximum contents, 1,000,300 acre-ft June 28, 1958 (elevation, 951.31 ft); minimum, less than 13 acre-ft during many months in 1951-54.

Remarks.--Reservoir is formed by gravity-type concrete dam; regulation of discharge from reservoir began Dec. 4, 1951. Capacity, 1,013,400 acre-ft between elevation 565.5 (bottom of lower tier of river outlets) and 953.5 ft (top of spillway gates) above mean sea level. No dead storage. Reservoir is used for flood control and conservation storage. Water is released down Kings River for diversion by the Kings River Water Association. Records, including extremes, show contents at 2400 hours. See schematic diagram, p. 568.

Cooperation.--Records furnished by Corps of Engineers.

Capacity table (elevation, in feet, and contents, in acre-ft)

755	189,000	820	383,600
760	201,400	840	457,800
770	227,600	860	538,800
780	255,400	890	673,400
800	316,200	920	824,200

Contents, in thousands of acre-feet, at 2400 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	191.5	211.3	255.6	392.0	511.7	534.4	501.6	632.7	698.6	704.2	554.5	451.0
2	191.3	212.6	257.6	395.2	513.8	532.3	500.4	639.5	700.3	702.0	551.7	446.6
3	190.5	214.0	259.5	398.3	515.8	530.2	499.3	643.1	700.5	700.4	548.5	442.4
4	189.6	215.4	261.2	403.9	518.2	528.3	498.2	644.5	701.4	699.2	544.6	438.0
5	189.6	216.4	262.0	414.6	520.8	526.7	497.0	644.8	705.6	697.6	540.0	433.7
6	189.9	217.6	263.1	426.8	524.3	525.0	496.3	644.5	711.7	696.3	535.4	429.3
7	190.3	218.0	264.6	438.8	526.5	523.0	496.5	643.9	717.3	695.1	530.4	425.0
8	190.9	218.4	265.7	445.3	529.3	520.9	497.9	642.7	722.3	693.4	525.3	421.5
9	191.6	228.0	267.1	449.9	531.9	518.9	500.0	641.4	723.2	691.1	520.5	419.3
10	191.6	222.3	268.7	453.5	534.2	516.5	503.5	639.6	725.2	687.6	516.0	418.1
11	191.7	224.1	274.0	457.4	536.5	514.5	507.1	637.5	730.3	683.1	513.0	417.1
12	192.6	228.0	271.8	460.8	538.9	514.4	510.6	635.7	737.2	677.9	513.0	416.4
13	193.8	231.4	272.5	463.9	540.8	514.5	515.4	634.7	742.6	672.6	511.5	415.7
14	194.9	232.7	273.9	466.7	541.8	514.5	519.6	634.1	744.5	667.4	509.5	415.0
15	196.2	233.6	275.3	469.5	543.1	514.6	523.8	634.7	744.4	662.1	508.5	414.4
16	197.2	234.9	276.6	471.4	544.1	514.9	527.7	637.9	742.5	657.0	507.8	414.1
17	197.4	236.6	278.0	473.0	545.0	515.1	532.1	644.3	739.3	652.8	507.6	414.3
18	197.5	238.2	279.4	475.1	546.0	515.4	536.2	652.3	735.3	647.7	506.6	415.3
19	198.4	239.7	280.9	477.4	547.5	515.6	541.1	660.6	732.1	641.9	504.0	416.1
20	199.7	241.8	282.1	479.8	548.1	515.3	547.0	667.9	729.8	635.6	500.1	416.7
21	200.8	242.2	283.7	482.1	547.3	515.1	552.5	673.3	728.8	628.7	496.0	416.8
22	201.8	243.9	285.7	484.4	546.2	515.5	559.1	676.6	728.1	621.0	491.5	416.5
23	202.9	244.4	306.2	486.5	545.3	516.4	565.5	677.9	727.1	613.2	486.6	416.6
24	203.1	246.2	330.6	492.4	544.0	516.5	571.3	677.7	724.9	605.6	481.8	416.6
25	203.3	247.7	342.9	495.7	542.1	514.3	578.4	677.1	722.2	598.1	477.0	416.8
26	204.3	248.7	351.1	498.7	540.4	513.1	586.4	677.4	718.4	590.9	471.9	417.0
27	205.5	250.7	365.2	501.1	538.5	511.8	595.2	677.7	714.6	583.8	468.3	417.1
28	206.9	251.8	372.3	503.2	536.8	509.9	604.2	680.1	711.5	576.8	465.1	417.5
29	208.6	252.6	378.2	505.4	-----	507.6	614.1	684.4	708.4	569.6	461.8	418.3
30	210.2	253.8	383.6	507.7	-----	505.1	623.6	689.4	705.9	562.9	458.7	419.3
31	210.8	-----	388.5	509.4	-----	503.0	-----	694.2	-----	557.6	455.2	-----
(+)	763.65	779.42	821.40	852.95	859.54	851.38	879.31	894.35	896.77	864.42	839.34	829.87
(+)	+18.900	+43.000	+134.700	+120.900	+27.400	-33.800	+120.600	+70.600	+11.700	-148.300	-102.400	-35.900
(+)	1.035	308	169	244	444	742	966	2,233	2,593	3,169	2,887	1,994

Calendar year 1964..... + 242,100

Water year 1964-65..... + 227,400

+ Elevation, in feet, at end of month.

+ Change in contents, in acre-feet.

++ Evaporation, in acre-feet.

11-2215. Kings River below Pine Flat Dam, Calif.

Location.--Lat 36°49'50", long 119°20'05", in NW¼ sec.2, T.13 S., R.24 E., on right bank 3,200 ft downstream from Pine Flat Dam and 2.9 miles northeast of Piedra.

Drainage area.--1,545 sq mi.

Records available.--October 1953 to September 1965.

Gage.--Water-stage recorder and concrete control. Datum of gage is 556.97 ft above mean sea level (levels by Corps of Engineers). Prior to Oct. 1, 1956, at site 0.2 mile downstream at datum 3.48 ft lower.

Average discharge.--12 years, 1,987 cfs (1,439,000 acre-ft per year), adjusted for storage and evaporation.

Extremes.--Maximum discharge during year, 7,210 cfs June 24 (gage height, 7.59 ft); minimum daily, 25 cfs Nov. 13, 14, Dec. 28, 29, 1953-65; Maximum discharge, 12,700 cfs May 3, 1958 (gage height, 9.35 ft); minimum, 1.1 cfs Feb. 26, 27, 1962.

Remarks.--Records excellent. Flow regulated by Pine Flat Reservoir (see preceding page) and Wishon and Courtright Reservoirs (see p. 574). See schematic diagram, p. 568.

Cooperation.--Ten discharge measurements furnished by Kings River Water Association.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 26

Apr. 27, to Sept. 30

0.4	20	4.0	1,150	5.0	2,160
.7	48	5.0	2,120	6.0	3,750
1.0	86	6.0	3,660	7.0	5,760
2.0	252	3.0	570	8.0	8,320
3.0	570	4.0	1,190		

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	842	50	48	49	646	2,550	2,380	2,280	5,970	6,610	4,470	3,620
2	791	50	47	83	662	2,490	2,230	2,870	6,030	6,510	4,260	3,660
3	552	50	47	87	678	2,340	2,100	3,480	6,080	6,460	4,280	3,570
4	526	50	47	66	624	2,340	2,100	3,850	6,120	6,420	4,370	3,590
5	524	50	47	26	571	2,240	2,060	3,940	6,180	6,480	4,450	3,580
6	496	50	47	27	474	2,100	1,990	4,020	6,280	6,600	4,500	3,600
7	375	50	47	26	400	2,130	1,830	4,020	6,430	6,550	4,590	3,530
8	285	50	47	32	360	2,240	1,500	4,060	6,580	6,440	4,600	3,160
9	241	50	47	144	330	2,240	1,180	4,160	6,600	6,360	4,460	2,400
10	148	50	47	218	407	2,220	734	4,310	6,600	6,310	4,260	1,900
11	91	50	64	250	414	2,140	285	4,570	6,600	6,400	4,200	1,760
12	80	48	77	297	206	1,820	234	4,510	6,640	6,460	4,210	1,650
13	52	25	85	349	270	1,260	114	4,450	6,790	6,400	4,060	1,580
14	50	25	86	378	476	1,060	223	4,460	6,830	6,410	3,980	1,510
15	50	35	86	404	715	1,120	276	4,310	6,820	6,460	3,850	1,390
16	50	41	116	413	808	1,150	259	4,270	6,700	6,590	3,860	1,310
17	50	44	117	636	961	1,070	218	4,420	6,600	6,700	3,940	1,020
18	50	40	115	672	882	1,030	270	4,600	6,760	6,820	4,020	703
19	50	29	117	689	663	1,130	349	4,690	6,830	6,880	4,090	853
20	50	29	112	698	846	1,420	351	4,740	6,960	6,930	4,140	955
21	50	30	110	654	1,560	1,360	512	4,770	7,030	6,960	4,230	1,240
22	50	30	126	570	1,780	1,310	528	4,250	7,100	6,860	4,270	1,390
23	50	32	115	563	1,990	1,260	612	4,400	7,150	6,820	4,280	1,190
24	50	38	49	388	2,240	2,060	732	4,640	7,150	6,640	4,230	1,080
25	50	40	60	492	2,440	2,070	707	4,660	7,080	6,520	4,170	1,080
26	50	42	94	597	2,480	2,200	992	4,660	6,990	6,400	4,180	1,110
27	50	46	27	773	2,280	2,470	1,210	5,300	6,930	6,160	3,410	1,070
28	50	48	25	792	2,280	2,440	1,410	5,390	6,920	5,940	3,110	976
29	51	48	25	715	-----	2,580	1,700	5,390	6,860	5,960	3,120	781
30	50	48	35	638	-----	2,510	2,000	5,540	6,790	5,940	3,050	654
31	50	-----	52	642	-----	2,510	-----	5,790	-----	5,600	3,260	-----
Total	5,904	1,268	2,164	12,368	28,443	58,860	31,086	136,800	200,400	200,590	125,900	55,912
Mean	190	42.3	69.8	399	1,016	1,899	1,036	4,413	6,680	6,471	4,061	1,864
Ac-ft	11,710	2,520	4,290	24,530	56,420	116,700	61,660	271,300	397,500	397,900	249,700	110,900
Mean†	161	536	2,360	2,311	1,395	1,500	35,480	6,713	7,712	3,695	1,810	486
Ac-ft†	9,880	31,880	145,100	142,100	77,460	92,260	211,100	412,800	458,900	227,200	111,300	28,940
Calendar year 1964:	Max	6,410	Min	25	Mean	1,572	Ac-ft	1,141,000	Mean†	1,294	Ac-ft†	939,200
Water year 1964-65:	Max	7,150	Min	25	Mean	2,355	Ac-ft	1,705,000	Mean†	2,692	Ac-ft†	1,949,000

† Adjusted for change in contents in Wishon, Courtright, and Pine Flat Reservoirs, and evaporation from Pine Flat Reservoir.

11-2217. Mill Creek near Piedra, Calif.

Location.--Lat 36°49'05", long 119°20'25", in NE 1/4 sec. 10, T.13 S., R.24 E., on left bank 150 ft upstream from road bridge, 0.7 mile upstream from mouth, and 2.3 miles east of Piedra.

Drainage area.--120 sq mi.

Records available.--October 1957 to September 1965 in reports of Geological Survey. November 1938 to September 1957 in reports of Kings River Water Association.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 550 ft (from topographic map). Prior to July 14, 1958, at site 150 ft upstream at same datum.

Average discharge.--8 years, 27.1 cfs (19,620 acre-ft per year).

Extremes.--Maximum discharge during year, 1,160 cfs Jan. 5, 7 (gage height, 5.25 ft); no flow for several months.

1957-65: Maximum discharge, 5,000 cfs Mar. 22, 1958 (gage height, 7.29 ft), from rating curve extended above 760 cfs; no flow for several months in each year.

Remarks.--Records good. Some small diversions above station for irrigation. See schematic diagram, p. 568.

Cooperation.--Ten discharge measurements furnished by Kings River Water Association.

Rating tables (gage-height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Dec. 23 to Feb. 13, May 7-15)

Oct. 1 to Mar. 31				Apr. 1 to Sept. 30			
2.25	0	2.9	33	2.25	0	2.8	30
2.3	.1	3.2	79	2.3	.4	3.0	63
2.4	2.0	3.5	150	2.4	1.8	3.2	104
2.5	4.1	4.0	340	2.5	4.8	3.5	188
2.6	8.4	4.5	610	2.6	10	4.0	380
2.7	15	5.0	990	2.7	19	4.5	620

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	2.6	92	60	29	53	49	14	3.0		
2		0	2.8	68	56	28	69	48	16	2.7		
3		0	3.5	63	54	27	56	48	15	2.2		
4		0	3.7	115	50	26	56	44	14	1.8		
5		0	3.5	726	52	25	49	41	13	1.6		
6		0	3.3	440	65	24	61	41	12	1.1		
7		0	3.3	700	65	24	114	40	11	1.0		
8		0	3.3	318	54	27	194	38	11	.8		
9		0	3.3	198	49	25	304	36	13	.6		
10		0	3.3	150	48	24	500	35	13	.5		
11		0	3.5	125	45	24	389	35	11	.4		
12		25	5.4	105	42	27	264	33	9.8	.3		
13		63	5.4	90	42	58	389	32	9.8	.2		
14		23	5.4	79	40	45	264	30	9.2	.2		
15		12	5.0	72	40	37	227	30	9.2	.2		
16		7.5	4.5	65	37	33	220	29	9.8	.1		
17		5.4	4.5	60	36	30	192	28	9.8	.1		
18		4.5	4.5	56	34	29	163	27	9.2	0		
19		3.9	5.8	56	34	29	151	26	7.8	0		
20		3.7	11	61	34	28	146	26	6.7	0		
21		3.5	13	56	33	26	126	27	6.2	0		
22		3.3	11	52	32	24	114	28	5.8	0		
23		3.0	36	50	32	24	102	28	5.3	0		
24		2.9	108	240	29	24	89	27	4.8	0		
25		2.8	79	122	29	24	80	23	4.5	0		
26		2.8	61	94	28	23	74	21	4.8	0		
27		2.8	569	81	29	33	67	19	4.8	0		
28		2.6	331	75	29	38	60	17	4.8	0		
29		2.6	171	72	-----	30	56	16	4.1	0		
30		2.6	110	68	-----	27	51	14	3.0	0		
31		-----	112	63	-----	28	-----	13	-----	0		
Total	0	1769	1688.6	4,612	1,173	900	4,680	949	272.4	16.8	0	0
Mean	0	5.90	54.5	149	42.1	29.0	156	30.6	9.08	0.54	0	0
Ac-ft	0	351	3,350	9,150	2,340	1,790	9,280	1,880	540	33.3	0	0

Calendar year 1964 Max 569 Min 0 Mean 12.6 Ac-ft 9,160

Water year 1964-65 Max 726 Min 0 Mean 39.7 Ac-ft 28,710

Peak discharge (base, 250 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-27	0500	5.16	1,080	1-24	0600	3.97	358
1- 5	0500	5.25	1,160	4-10	2000	4.47	605
1- 7	0800	5.25	1,160	4-13	0600	4.32	530

11-2245. Los Gatos Creek above Nunez Canyon, near Coalinga, Calif.

Location--Lat 36°12'55", long 120°28'10", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 5, T.20 S., R.14 E., on right bank 50 ft downstream from highway bridge, 1.1 miles upstream from Nunez Canyon, 3.0 miles downstream from White Creek, and 8 miles northwest of Coalinga.

Drainage area--95.8 sq mi.

Records available--May 1945 to September 1965. Prior to October 1949 monthly discharge only, published in WSP 1315-A.

Gage--Water-stage recorder. Altitude of gage is 1,100 ft (from topographic map). Prior to Aug. 2, 1959, at site 100 ft downstream at same datum.

Average discharge--20 years, 2.67 cfs (1,930 acre-ft per year); median of yearly mean discharges, 0.8 cfs (580 acre-ft per year).

Extremes--Maximum discharge during year, 119 cfs Jan. 6 (gage height, 4.39 ft, from floodmark); no flow for several months.

1949-65: Maximum discharge, 2,560 cfs Apr. 3, 1958, Feb. 9, 1962, from rating curves extended above 110 and 180 cfs on basis of contracted-opening measurements of maximum flow; maximum gage height, 7.25 ft Feb. 9, 1962; no flow for several months in each year.

Remarks--Records good except those for periods of no gage-height record, which are poor. Minor diversions for irrigation and stock ponds.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Jan. 5

Jan. 6 to Sept. 30

3.2	0	3.2	0	3.7	7.8
3.3	.2	3.3	.2	3.8	14
3.4	1.1	3.4	.8	3.9	21
3.5	3.7	3.5	2.2	4.0	32
		3.6	4.2	4.2	67

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0	0.1	0.3	0.1	1.0	0.3				
2		0	0	0	.3	.1	1.4	.4				
3		0	0	0	.2	.1	1.3	.6				
4		0	0	0	.2	.1	.6	.5				
5		0	0	1.8	.5	.1	.3	.5				
6		0	0	3.0	.6	.1	.4	.5				
7		0	0	3.5	.5	.1	1.3	.5				
8		0	0	3.0	.4	.1	.9	.4				
9		0	0	3.0	.3	.1	5.9	.3				
10		.3	0	2.0	.3	.1	10	.3				
11		0	0	1.8	.2	.1	4.8	.2				
12		0	0	.9	.1	.1	6.2	.2				
13		0	0	.7	.1	.1	22	.2				
14		0	0	.7	.1	.1	7.8	.1				
15		0	0	.6	.1	.2	4.8	.1				
16		0	0	.5	.1	.2	3.3	.1				
17		0	0	.4	0	.2	2.7	0				
18		0	0	.3	0	.2	2.2	0				
19		0	0	.3	0	.2	1.6	0				
20		0	0	.5	0	.2	1.0	0				
21		0	0	.3	0	.2	1.0	0				
22		0	0	.3	0	.2	1.0	0				
23		0	0	.2	0	.2	1.0	0				
24		0	0	.6	.1	.2	.9	0				
25		0	0	.6	.1	.2	.7	0				
26		0	0	.6	.1	.2	.6	0				
27		0	.4	.6	.1	.2	.6	0				
28		0	1.6	.6	.1	.1	.5	0				
29		0	.4	.5	-----	.1	.4	0				
30		0	.2	.5	-----	.1	.4	0				
31		-----	.3	.4	-----	.2	-----	0	-----			-----
Total	0	0.3	2.9	64.8	4.8	4.5	86.6	5.2	0	0	0	0
Mean	0	0.01	0.09	2.09	0.17	0.15	2.89	0.17	0	0	0	0
Ac-ft	0	0.6	5.8	129	9.5	9.9	172	10	0	0	0	0

Calendar year 1964 Max 34 Min 0 Mean 0.19 Ac-ft 136

Water year 1964-65 Max 35 Min 0 Mean 0.46 Ac-ft 336

Peak discharge (base, 40 cfs)--Jan. 6 (unknown) 119 cfs (4.39 ft), Apr. 12 (2400 hrs) 61 cfs (4.13 ft).

Note.--No gage-height record Jan. 6-10.

11-2260. North Fork San Joaquin River below Iron Creek, Calif.

Location.--Lat 37°36'50", long 119°14'00", in SE¼ sec.4, T.4 S., R.25 E., on right bank 0.8 mile downstream from Iron Creek and 27 miles northeast of town of Bass Lake.

Drainage area.--38.0 sq mi.

Records available.--October 1920 to September 1928 (fragmentary prior to July 1921), October 1951 to September 1958 (no winter records), October 1958 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder. Altitude of gage is 6,800 ft (from topographic map). Prior to May 22, 1922, staff gages at approximately same site at different datums.

Average discharge.--14 years (1921-28, 1958-65), 106 cfs (76,740 acre-ft per year).

Extremes.--Maximum discharge during year, 2,490 cfs Dec. 23 (gage height, 7.60 ft); minimum, 2.8 cfs Oct. 26. 1920-28, 1951-65; Maximum discharge recorded, 3,860 cfs July 24, 1956 (gage height, 8.15 ft), from rating curve extended above 1,100 cfs; minimum, 0.4 cfs Nov. 13, 1955, Jan. 17, 1963.

Remarks.--Records good except those for periods of no gage-height record, which are fair. No storage or diversion above station.

Cooperation.--Water-stage-recorder graph and five discharge measurements furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Stage-discharge relation affected by ice Nov. 13, 16, 17)

3.4	1.4	4.5	64
3.5	3.4	5.0	142
3.6	6.0	5.5	285
3.8	12	6.0	535
4.0	22	6.5	930
4.2	36	7.1	1,640

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.0	28	35	57	43	45	47	334	511	330	282	73
2	5.0	28	36	50	43	42	43	226	366	330	254	69
3	5.0	37	31	48	44	41	40	151	431	350	214	67
4	5.0	40	28	49	45	41	40	118	649	360	185	61
5	5.0	34	27	54	47	37	40	118	813	370	174	55
6	5.0	29	26	70	50	36	40	109	734	360	185	53
7	5.8	26	26	110	45	35	38	92	726	330	180	56
8	6.3	22	26	80	40	33	36	96	505	310	162	49
9	7.2	19	28	65	37	33	36	120	410	280	167	43
10	7.2	36	28	50	34	36	40	146	726	250	185	40
11	6.9	49	36	47	32	37	34	174	885	230	321	40
12	6.6	55	31	45	32	39	33	214	876	210	380	38
13	6.0	45	28	40	31	36	32	264	621	200	238	37
14	5.8	44	28	43	31	36	32	282	442	220	252	36
15	5.2	41	26	48	30	36	36	334	343	235	397	38
16	5.0	38	24	47	30	39	44	475	282	230	257	41
17	4.7	36	23	44	31	45	45	635	214	290	174	40
18	4.4	33	21	43	32	54	53	642	190	240	155	36
19	4.0	31	22	46	35	65	100	642	360	220	125	36
20	3.4	32	30	48	38	77	114	458	430	230	116	35
21	3.2	33	36	45	42	94	109	321	500	240	102	33
22	3.2	33	217	43	44	106	155	211	510	247	90	33
23	3.2	33	1,550	52	40	87	144	185	430	254	90	33
24	3.0	35	627	70	40	63	174	174	350	268	88	35
25	3.0	44	227	47	40	52	217	190	280	254	81	36
26	3.0	48	123	42	46	49	244	282	250	254	72	35
27	3.0	36	92	39	66	48	278	380	270	223	68	31
28	9.6	31	88	36	52	46	338	499	300	193	70	28
29	4.5	33	83	37	-----	49	400	628	330	199	73	24
30	3.8	36	74	40	-----	51	400	607	350	368	87	21
31	3.2	-----	65	42	-----	52	-----	614	-----	330	88	-----
Total	254.7	1,065	3,742	1,577	1,120	1,540	3,382	9,721	14,084	8,405	5,312	1,252
Mean	8.22	35.5	121	50.9	40.0	49.7	113	314	469	271	171	41.7
Ac-ft	505	2,110	7,420	3,130	2,220	3,050	6,710	19,280	27,940	16,670	10,540	2,480
Calendar year 1964	Max 1,550	Min 3.0	Mean 84.6	Ac-ft 61,490								
Water year 1964-65	Max 1,550	Min 3.0	Mean 141	Ac-ft 102,100								

Note.--No gage-height record Jan. 1 to Mar. 3, June 18 to July 21.



11-2265. San Joaquin River at Miller Crossing, Calif.

Location.--Lat 37°30'35", long 119°11'50", in NE¼ sec.11, T.5 S., R.25 E., on right bank at Miller Crossing, 2.4 miles downstream from North Fork San Joaquin River, 4.6 miles east of Clover Meadow ranger station, and 23 miles northeast of town of Bass Lake.

Drainage area.--254 sq mi.

Records available.--October 1921 to September 1928, October 1951 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A. Prior to October 1954, published as Middle Fork San Joaquin River at Miller Bridge.

Gage.--Water-stage recorder. Altitude of gage is 4,570 ft (from topographic map). Prior to Mar. 24, 1922, staff gage at same site and datum.

Average discharge.--21 years, 574 cfs (415,600 acre-ft per year).

Extremes.--Maximum discharge during year, 9,680 cfs Dec. 23 (gage height, 19.00 ft); minimum, 38 cfs Oct. 20-27.

1921-28, 1951-65: Maximum discharge, 16,600 cfs Dec. 23, 1955 (gage height, 21.28 ft), from rating curve extended above 5,100 cfs on basis of contracted-opening measurement of maximum flow; minimum, 19 cfs Nov. 17, 1961.

Remarks.--Records good. No regulation or diversion above station.

Cooperation.--Water-stage-recorder graph and five discharge measurements furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

9.0	37	12.0	590
9.3	54	13.0	1,090
9.5	67	14.0	1,810
10.0	119	15.0	2,810
10.5	194	16.0	4,080
11.0	290	18.0	7,440

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	46	107	161	440	361	361	391	2,040	2,770	2,190	1,020	290
2	44	88	175	440	364	332	364	1,660	2,140	2,200	946	278
3	44	95	147	440	367	322	338	1,240	2,260	2,350	820	270
4	43	110	134	440	373	325	330	1,030	2,910	2,410	702	260
5	43	102	140	460	409	308	335	964	3,580	2,490	638	254
6	43	90	118	558	427	308	352	885	3,550	2,490	638	236
7	43	84	127	566	352	292	338	760	3,460	2,320	622	240
8	44	78	125	534	330	282	330	710	3,060	2,070	576	234
9	44	104	126	481	310	280	322	780	2,380	1,920	562	212
10	46	102	126	421	284	286	328	885	3,180	1,720	594	198
11	46	129	184	391	276	288	328	1,010	3,800	1,550	901	189
12	45	214	167	382	268	302	335	1,120	4,020	1,420	1,440	183
13	44	178	134	343	262	286	346	1,340	3,420	1,400	1,100	175
14	44	178	140	376	264	282	349	1,470	2,680	1,510	1,300	168
15	43	167	133	418	254	280	388	1,590	2,150	1,630	2,500	165
16	42	159	118	385	250	278	451	2,130	1,760	1,590	1,840	165
17	42	154	116	361	256	295	484	2,820	1,500	2,020	1,360	170
18	40	143	108	379	276	330	514	3,090	1,430	1,670	1,130	167
19	39	134	120	403	300	370	678	3,240	1,810	1,550	805	167
20	38	133	172	400	335	406	825	2,820	2,500	1,450	662	162
21	38	140	260	376	364	466	855	2,300	2,890	1,280	562	154
22	38	141	1,070	361	376	511	1,110	1,670	3,010	1,050	493	148
23	38	136	6,270	476	338	508	1,020	1,430	2,820	988	457	144
24	38	144	4,640	552	325	442	1,160	1,330	2,360	1,020	427	143
25	38	176	1,950	370	340	382	1,360	1,300	1,970	1,000	391	143
26	38	242	1,170	343	376	364	1,480	1,570	1,770	1,050	346	143
27	38	173	965	320	472	391	1,650	1,890	1,880	910	318	140
28	47	154	741	305	427	370	1,870	2,300	2,030	785	305	134
29	132	152	681	318	-----	379	2,140	2,780	2,150	755	295	126
30	107	159	606	338	-----	382	2,190	2,980	2,320	1,000	312	118
31	99	-----	544	361	-----	385	-----	3,000	-----	1,120	328	-----
Total	1,514	4,166	21,668	12,738	9,336	10,793	22,961	54,134	77,560	49,908	24,390	5,576
Mean	48.8	139	699	411	333	348	765	1,746	2,585	1,578	787	186
Ac-ft	3,000	8,260	42,980	25,270	18,520	21,410	45,540	107,400	153,800	97,010	48,380	11,060

Calendar year 1964 Max 6,270 Min 38 Mean 422 Ac-ft 306,100  
 Water year 1964-65 Max 6,270 Min 38 Mean 805 Ac-ft 582,600

Peak discharge (base, 2,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0800	19.00	9,680	6-21	2030	15.63	3,590
4-29	2000	14.94	2,740	7-5	1930	15.15	2,990
5-17	2100	15.96	4,020	7-17	1500	17.07	5,690
6-11	2200	16.52	4,830	8-15	1800	16.59	4,940

## SAN JOAQUIN RIVER BASIN

11-2285. Granite Creek near Cattle Mountain, Calif.

Location.--Lat 37°31'35", long 119°15'30", in NE¼ sec.5, T.5 S., R.25 E., on right bank 0.7 mile downstream from confluence of East and West Forks of Granite Creek, 1.6 miles northwest of Cattle Mountain, and 21 miles northeast of town of Bass Lake.

Drainage area.--47.8 sq mi.

Records available.--October 1921 to September 1928, May 1952 to September 1965 (no winter records). Monthly discharge only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder. Altitude of gage is 6,800 ft (from topographic map). Prior to May 14, 1922, staff gage at same site at different datum.

Average discharge.--7 years (1921-28), 110 cfs (79,640 acre-ft per year).

Extremes.--Maximum discharge recorded during year, 3,140 cfs Dec. 23 (gage height, 9.49 ft), from rating curve extended above 1,100 cfs; minimum daily, 0.2 cfs Oct. 4-8.  
1921-28, 1952-65: Maximum discharge recorded, that of Dec. 23, 1964; no flow at times in 1924, 1926.

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

Cooperation.--Water-stage-recorder graph and six discharge measurements furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Aug. 17					Aug. 18 to Sept. 30		
3.8	0	4.5	13	7.0	460	3.9	3.0
3.9	.3	4.7	22	7.5	740	4.1	5.0
4.0	1.0	5.0	42	8.0	1,210	4.3	8.5
4.1	2.2	5.5	96	8.5	1,770	4.5	14
4.2	4.0	6.0	170	9.0	2,420	4.9	36
4.3	6.6	6.5	280			5.5	95

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.3	20	23			75	80	594	740	391	82	13
2	.3	16	24			70	73	446	622	407	66	11
3	.3	18	20			68	68	274	684	415	50	9.5
4	.2	26	18			68	66	225	920	395	41	8.3
5	.2	24	18			63	65	241	990	415	34	7.5
6	.2	20	17			60	65	225	883	375	32	6.7
7	.2	17	17			58	63	175	856	319	29	7.3
8	.2	15	18			55	60	157	610	271	24	8.3
9	.3	13	19			55	59	177	535	232	22	7.3
10	.3	22	19			60	58	234	820	210	23	6.5
11	.3	32	24			61	60	283	930	175	54	5.9
12	.3	37	20			66	56	350	865	154	77	6.9
13	.3	30	19			60	55	474	670	151	58	4.8
14	.3	29	18			59	55	510	550	157	86	4.4
15	.4	27	17			60	60	588	442	364	153	4.0
16	.4	26	16			64	71	726	350	262	199	3.7
17	.4	24	15			73	77	920	286	337	122	4.4
18	.4	22	14			85	88	970	289	227	95	5.0
19	.4	21	16			97	143	910	496	234	49	7.7
20	.4	21	18			112	180	740	652	177	34	11
21	.4	22	21			138	196	594	670	135	27	7.7
22	.4	22	400			154	277	344	634	96	22	6.2
23	.4	22	2,220			154	262	271	500	85	20	5.3
24	.4	24	1,340			119	322	286	456	90	18	4.8
25	.4	28	451			99	387	379	415	89	14	4.3
26	.4	31	216			95	442	594	347	84	13	3.9
27	.5	24	157			90	510	691	403	71	11	3.8
28	2.6	20	150			84	588	820	433	53	10	3.8
29	17	22	140		-----	84	622	901	469	47	9.8	3.5
30	18	24	125		-----	84	634	892	451	88	9.5	
31	20	-----	110		-----	85	-----	865	-----	116	13	-----
Total	66.6	699	5,700	-	-	2,555	5,742	15,856	17,968	6,622	1,497.3	196.5
Mean	2.15	23.3	184	-	-	82.4	191	511	599	214	48.3	6.55
Ac-ft	132	1,390	11,310	-	-	5,070	11,390	31,450	35,640	13,130	2,970	390

Calendar year 1964 Max Min Mean Ac-ft  
Water year 1964-65 Max Min Mean Ac-ft

Note.--No gage-height record Nov. 10 to Dec. 22, Dec. 28-31, Mar. 1-17.

11-2295. Ward tunnel intake at Florence Lake, Calif.

Location.--Lat 37°16', long 118°58', in NW¼ sec.1, T.8 S., R.27 E., in gatehouse at entrance to tunnel.Records available.--April 1925 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A. Published as Florence Lake tunnel at intake 1925-36 and as Ward tunnel at intake 1937-62.Gage.--Water-stage recorder, concrete control, and Venturi meter. Datum of gage is 7,213.89 ft above mean sea level (levels by Southern California Edison Co.).Average discharge.--40 years, 273 cfs (197,600 acre-ft per year).Extremes.--1925-65: Maximum daily discharge, 1,990 cfs Apr. 30, 1926; no flow at times.Remarks.--Records excellent. Ward tunnel diverts from Florence Lake, a reservoir on South Fork San Joaquin River, to Huntington Lake for use in Big Creek powerplants.Cooperation.--Water-stage-recorder graph and rating table for Venturi meter furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	20	0.3	1.6	574	129	131	129	868	1,130	546	392	677
2	20	.3	1.6	554	130	122	127	774	1,220	548	675	672
3	18	.3	1.6	532	131	118	122	642	1,230	554	794	671
4	18	.3	1.6	576	131	122	117	506	1,230	740	793	669
5	18	.3	1.6	616	132	118	123	423	1,150	901	790	666
6	17	.3	1.6	689	128	116	126	376	1,030	973	636	663
7	16	.3	1.6	666	116	107	128	342	955	1,010	395	660
8	15	.3	1.6	513	110	106	126	313	930	1,020	395	655
9	15	.3	1.6	292	106	102	122	296	942	1,020	395	651
10	16	.7	1.6	216	94	102	119	289	951	966	393	672
11	16	1.3	1.6	190	96	101	126	301	969	897	397	690
12	16	1.3	1.9	169	94	103	134	326	998	720	862	686
13	16	1.3	1.9	151	92	99	135	386	1,020	595	1,200	683
14	16	1.5	.77	146	95	102	134	450	932	522	1,190	569
15	16	1.5	234	148	90	101	149	495	880	390	1,250	504
16	15	1.6	247	146	90	99	168	675	884	726	1,300	502
17	15	1.6	239	140	90	101	183	900	884	624	1,300	502
18	13	1.6	448	135	94	107	180	1,060	881	659	1,400	502
19	13	1.6	497	135	100	113	232	1,170	880	863	1,440	502
20	13	1.6	402	134	107	126	300	1,220	881	887	947	535
21	13	1.6	290	129	116	138	312	1,210	890	839	700	606
22	13	1.6	173	128	122	151	378	1,140	899	780	700	600
23	13	1.6	147	123	113	161	376	987	911	750	699	593
24	13	1.6	1.3	125	112	143	404	678	825	750	696	586
25	13	1.6	1.6	117	116	124	477	569	522	749	693	582
26	13	1.6	1.8	127	126	123	540	828	528	747	688	579
27	8.6	1.6	1.9	125	145	120	617	929	528	746	686	569
28	.3	1.6	1.9	119	140	118	680	961	530	746	685	568
29	.3	1.6	389	116	-----	123	787	689	535	745	682	546
30	.3	1.6	604	117	-----	127	858	1.8	540	588	680	526
31	.3	-----	591	125	-----	132	-----	540	-----	392	679	-----
Total	409.8	34.3	4,367.9	3,073	3,145	3,656	9,409	20,344.8	26,685	22,993	24,532	18,086
Mean	13.2	1.14	141	260	112	118	280	656	890	742	791	603
Ac-ft	813	68	3,660	16,010	6,240	7,250	16,680	40,350	52,930	45,610	48,660	35,870

Calendar year 1964 Max 604 Min 0.3 Mean 189 Ac-ft 136,900  
 Water year 1964-65 Max 1,440 Min 0.3 Mean 386 Ac-ft 279,100

11-2296. Florence Lake near Big Creek, Calif.

Location.--Lat 37°16'25", long 118°58'20", in NW¼ sec.1, T.8 S., R.27 E., in gatehouse of Ward tunnel intake, near dam on South Fork San Joaquin River, 16 miles northeast of town of Big Creek.

Drainage area.--171 sq mi.

Records available.--November 1925 to September 1965.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Southern California Edison Co.).

Extremes.--Maximum contents during year, 62,900 acre-ft Aug. 16, 17; maximum elevation, 7,325.97 ft Aug. 17; minimum contents, 233 acre-ft Oct. 5, 6 (elevation, 7,224.42 ft).

1925-65: Maximum contents, 66,000 acre-ft July 3, 1932 (elevation, 7,329.14 ft); no available contents Oct. 2-4, 1926, Nov. 30 to Dec. 2, 1927.

Note.--Prior to 1960 maximum and minimum daily contents were published.

Remarks.--Lake is formed by multiple-arch concrete dam; storage began in April 1925. Usable capacity, 64,400 acre-ft between elevations 7,220.9 (throat of Venturi tube in Ward tunnel intake) and 7,327.5 ft (top of spillway drum gates) above mean sea level. Additional storage of 168 acre-ft is not available for diversion. Water is diverted through Ward tunnel to Huntington Lake and used for power development in Big Creek plants. Figures given herein represent usable contents.

Cooperation.--Record of contents furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

Capacity table (elevation, in feet, and contents, in acre-feet)

7,224	201	7,245	4,670	7,280	24,600
7,225	281	7,250	6,650	7,290	32,000
7,230	887	7,260	11,600	7,310	48,300
7,235	1,770	7,270	17,800	7,326	63,000
7,240	2,980				

Contents, in acre-feet, at 2400 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	235	571	3,470	6,480	378	374	374	1,440	9,700	41,900	61,800	48,700
2	234	613	3,590	5,770	380	368	368	1,270	9,630	43,600	61,900	47,700
3	234	666	3,710	5,060	379	367	362	1,040	9,200	45,500	61,400	46,700
4	234	719	3,820	4,200	378	365	367	883	9,460	47,200	60,900	45,600
5	233	765	3,940	3,240	378	363	370	805	10,800	48,600	60,200	44,600
6	233	809	4,020	2,260	373	361	372	761	12,500	50,100	59,800	43,500
7	234	852	4,140	1,300	362	358	372	713	14,300	51,400	59,800	42,500
8	241	896	4,250	688	365	352	370	666	15,900	52,500	59,800	41,400
9	243	954	4,350	526	347	348	370	644	16,500	53,300	59,700	40,300
10	243	1,010	4,450	473	353	347	373	650	17,900	54,000	59,700	39,200
11	243	1,090	4,580	437	350	346	383	678	20,100	54,400	61,000	38,000
12	243	1,210	4,670	412	347	348	384	745	22,500	55,000	62,400	36,800
13	243	1,330	4,770	399	348	352	383	833	24,300	55,800	62,100	35,700
14	243	1,460	4,730	397	340	348	395	892	25,400	56,700	61,700	34,800
15	243	1,600	4,300	397	342	347	417	1,040	26,100	58,000	62,600	33,900
16	243	1,730	3,830	392	342	348	440	1,480	26,300	59,200	62,900	33,100
17	243	1,850	3,380	388	342	351	443	2,200	26,300	60,600	62,700	32,300
18	244	1,960	2,480	382	345	357	488	2,910	26,200	61,600	61,600	31,500
19	246	2,070	1,590	381	350	365	609	3,530	26,400	62,100	60,000	30,800
20	246	2,180	906	380	358	380	648	3,680	27,300	62,400	59,100	29,900
21	246	2,280	463	375	366	394	728	3,390	28,500	62,400	58,500	28,900
22	246	2,390	510	373	365	409	764	2,560	29,900	62,300	57,800	27,800
23	246	2,490	3,340	377	359	403	761	1,860	31,200	62,100	57,100	26,800
24	246	2,590	6,250	365	358	380	849	1,720	32,200	62,000	56,300	25,800
25	246	2,710	7,170	384	366	369	949	1,860	33,400	61,800	55,400	24,800
26	246	2,840	7,850	383	373	367	1,050	1,720	34,300	61,600	54,500	23,800
27	254	2,970	8,380	377	400	366	1,140	1,760	35,400	61,200	53,500	22,800
28	301	3,100	8,890	371	386	370	1,300	2,170	36,800	60,800	52,500	21,800
29	386	3,220	8,700	367	-	370	1,420	3,730	38,300	60,200	51,500	20,800
30	450	3,340	7,990	371	-----	377	1,490	7,140	40,200	60,300	50,600	19,800
31	507	-----	7,240	377	-----	375	-----	9,010	-----	61,000	49,600	-----
(+)	7,227.10	7,241.15	7,251.36	7,225.97	7,226.05	7,225.95	7,233.53	7,255.12	7,300.38	7,323.98	7,311.53	7,273.15
(+)	+270	+2830	+3,900	-6,860	+9	-11	+1,120	+7,520	+31,200	+20,800	-11,400	-29,800

Calendar year 1964..... ++6,960

Water year 1964-65..... ++19,600

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

11-2300. South Fork San Joaquin River near Florence Lake, Calif.

Location.--Lat 37°16'20", long 118°57'50", in SE¼ sec.36, T.7 S., R.27 E., on left bank just downstream from spillway of Florence Lake Dam and 6 miles upstream from Bear Creek.

Drainage area.--171 sq mi.

Records available.--October 1921 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A. Prior to October 1925, published as "near Lake Florence."

Gage.--Water-stage recorder, Parshall flume, and concrete control. Altitude of gage is 7,200 ft (from topographic map).

Average discharge.--44 years, 306 cfs (221,500 acre-ft per year), combined flow of South Fork San Joaquin River and Ward tunnel at intake.

Extremes.--Maximum discharge during year, 16 cfs July 17 (gage height, 9.47 ft); minimum daily, 0.1 cfs Apr. 29 to May 1. 1921-65: Maximum discharge, 4,320 cfs June 6, 1940 (gage height, 15.38 ft); no flow at times.

Remarks.--Records good. Flow regulated by Florence Lake beginning in 1925 (see preceding page) and by diversion into Ward tunnel (see p. 593).

Cooperation.--Water-stage-recorder graph and 2 discharge measurements furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

7.9	0.1	8.5	3.8
8.0	.5	8.7	5.5
8.1	1.0	8.9	7.6
8.3	2.2	9.1	9.8

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.8	3.7	3.8	4.0	3.0	3.1	3.2	0.1	4.3	7.2	8.7	7.6
2	3.8	3.3	3.8	3.9	3.0	3.0	3.1	2.3	4.3	7.3	8.7	7.6
3	3.8	3.3	3.8	3.9	3.0	3.0	3.0	3.5	4.0	7.4	8.7	7.6
4	3.8	3.3	3.8	3.8	3.0	3.0	3.0	3.4	3.6	7.5	8.7	7.6
5	3.8	3.3	3.8	3.8	3.0	3.0	3.1	3.4	3.5	7.5	8.6	7.6
6	3.8	3.3	3.8	3.6	3.0	3.0	3.1	3.4	3.6	7.5	8.5	7.6
7	3.8	3.3	3.8	3.4	3.0	3.0	3.1	3.4	3.7	7.9	8.5	7.5
8	3.8	3.3	3.8	3.3	3.0	3.0	3.1	3.4	5.0	8.0	8.5	7.3
9	3.8	3.4	3.8	3.1	3.0	3.0	3.1	3.4	6.0	8.2	8.5	7.3
10	3.8	3.5	3.8	3.1	3.0	3.0	3.1	3.4	6.1	8.3	8.5	7.3
11	3.8	3.5	3.9	3.1	3.0	3.0	3.1	3.4	6.2	8.6	8.8	7.3
12	3.8	3.5	3.8	3.1	3.0	3.0	3.2	3.4	6.3	8.6	8.7	7.2
13	3.8	3.5	3.8	3.1	3.0	3.0	3.1	3.4	6.4	8.5	8.7	6.2
14	3.8	3.5	3.8	3.1	3.0	3.0	3.2	3.4	6.4	8.6	8.9	5.9
15	3.8	3.5	3.8	3.1	3.0	3.0	3.2	3.4	6.5	8.7	8.9	5.9
16	3.8	3.5	3.8	3.1	3.0	3.0	3.2	3.5	6.8	8.7	8.8	5.9
17	3.8	3.5	3.7	3.1	3.0	3.1	3.1	3.6	6.6	9.0	8.8	5.9
18	3.8	3.6	3.6	3.1	3.0	3.1	3.2	3.8	6.5	8.9	8.7	5.9
19	3.8	3.6	3.4	3.1	3.0	3.1	3.2	3.8	6.5	8.9	8.6	5.8
20	3.8	3.6	3.4	3.1	3.0	3.1	3.2	3.8	6.5	8.9	8.5	5.8
21	3.8	3.7	3.2	3.1	3.0	3.1	3.3	3.9	6.6	8.9	8.5	5.7
22	3.8	3.7	3.7	3.1	3.0	3.1	3.3	3.8	6.6	8.8	8.5	5.7
23	3.8	3.7	5.0	3.2	3.0	3.1	3.3	3.8	6.7	8.8	8.4	5.7
24	3.8	3.8	4.5	3.3	3.0	3.0	3.3	3.6	6.8	8.8	8.3	5.6
25	3.8	3.8	4.0	3.4	3.0	3.0	3.3	3.6	6.8	8.7	8.2	5.5
26	3.8	3.8	4.1	3.3	3.1	3.1	3.3	3.6	6.9	8.7	8.2	5.5
27	3.8	3.8	4.3	3.0	3.2	3.1	3.3	3.6	6.9	8.7	8.2	5.5
28	4.0	3.8	4.2	3.0	3.1	3.1	1.2	3.6	7.0	8.7	8.0	5.4
29	4.1	3.8	4.1	3.0	-----	3.0	.1	3.8	7.0	8.6	7.9	5.4
30	3.9	3.8	4.1	3.0	-----	3.0	.1	4.1	7.2	8.6	7.8	5.3
31	3.9	-----	4.0	3.0	-----	3.0	-----	4.3	-----	8.6	7.7	-----
Total	118.5	106.7	120.2	101.3	84.4	94.1	87.1	106.9	177.3	260.1	263.0	192.1
Mean	3.82	3.56	3.88	3.27	3.01	3.04	2.90	3.45	5.91	8.39	8.48	6.40
Ac-ft	235	212	238	201	167	187	173	212	352	516	522	381

Calendar year 1964	Max 6.8	Min 2.6	Mean 4.02	Ac-ft 2,920
Water year 1964-65	Max 9.0	Min 0.1	Mean 4.69	Ac-ft 3,400

## SAN JOAQUIN RIVER BASIN

11-2305. Bear Creek near Lake Thomas A. Edison, Calif.

Location.--Lat 37°20'20", long 118°58'20", in SW¼ sec.12, T.7 S., R.27 E. (unsurveyed), on right bank 0.2 mile upstream from diversion dam, 1.7 miles upstream from mouth, 2.1 miles south of Lake Thomas A. Edison, and 2.4 miles northeast of Mono Hot Springs.

Drainage area.--53.5 sq mi.

Records available.--October 1921 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A. Prior to October 1954, published as "near Vermilion Valley."

Gage.--Water-stage recorder. Datum of gage is 7,366.94 ft above mean sea level (levels by Southern California Edison Co.).

Average discharge.--44 years, 87.1 cfs (63,060 acre-ft per year).

Extremes.--Maximum discharge during year, 822 cfs Aug. 11 (gage height, 5.72 ft); minimum daily, 4.8 cfs Oct. 20-27. 1921-65: Maximum discharge, 1,680 cfs July 26, 1956 (gage height, 7.12 ft); minimum recorded, 1.2 cfs Sept. 29 to Oct. 5, 1924.

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

Cooperation.--Water-stage-recorder graph and 11 discharge measurements furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.9	2.5	3.3	20	4.5	250
3.0	5.0	3.5	40	5.0	440
3.1	8.5	3.7	67	5.4	640
3.2	14	4.0	121		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.4	9.0	18	44	33	21	36	229	334	390	247	53
2	5.4	7.4	18	45	34	24	36	182	283	415	223	50
3	5.4	9.0	16	43	33	23	33	134	286	450	192	48
4	5.0	9.0	16	41	33	22	33	107	362	465	160	46
5	5.0	8.5	16	40	33	21	34	101	500	475	143	44
6	5.0	8.2	15	39	31	21	34	92	515	480	141	43
7	5.0	7.8	15	41	28	22	33	80	495	475	136	40
8	5.0	8.2	15	54	27	21	32	73	475	460	123	38
9	5.0	7.8	15	55	24	20	28	73	346	435	121	34
10	5.0	5.4	15	42	23	20	30	80	450	390	121	32
11	5.0	9.8	16	38	23	19	33	85	570	342	331	30
12	5.0	16	16	35	22	20	33	96	605	301	550	29
13	5.0	18	16	33	21	22	32	130	525	292	322	27
14	5.0	19	17	33	21	20	33	143	410	289	259	25
15	5.0	23	16	34	21	20	35	167	322	280	334	24
16	5.0	22	15	34	21	20	39	265	253	358	326	24
17	5.0	20	14	32	23	22	44	358	226	430	314	23
18	5.0	18	13	31	24	24	50	410	198	358	226	24
19	5.0	17	14	30	27	28	80	420	250	314	172	27
20	4.8	16	17	30	24	33	90	358	354	298	143	26
21	4.8	16	20	30	22	41	85	298	415	268	121	24
22	4.8	16	81	29	21	46	109	226	435	226	103	23
23	4.8	16	442	30	24	46	101	184	450	209	92	21
24	4.8	16	358	28	24	39	121	167	374	217	85	21
25	4.8	20	177	29	22	34	145	167	301	220	77	20
26	4.8	21	111	31	18	33	170	203	265	214	67	19
27	4.8	18	83	30	16	32	192	247	295	190	61	19
28	6.4	17	78	28	19	34	206	283	326	167	57	17
29	10	18	72	27	-----	36	238	334	310	160	54	17
30	10	19	64	29	-----	38	253	382	362	198	56	15
31	8.5	-----	48	32	-----	37	-----	362	-----	277	56	-----
Total	169.5	436.1	1,847	1,097	692	859	2,418	6,436	11,292	10,043	5,413	883
Mean	5.47	14.5	59.6	35.4	24.7	27.7	80.6	208	376	324	175	29.4
Ac-ft	336	865	3,660	2,180	1,370	1,700	4,800	12,770	22,400	19,920	10,740	1,750

Calendar year 1964 Max 442 Min 4.6 Mean 56.0 Ac-ft 40,660  
 Water year 1964-65 Max 605 Min 4.8 Mean 114 Ac-ft 82,490

Peak discharge (base, 440 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0930	5.58	738	7- 5	2300	5.20	540
5-17	2000	5.24	560	7-16	1930	5.12	500
6- 5	2200	5.51	696	8-11	2030	5.72	822
6-11	2000	5.62	762	8-17	1530	5.27	575
6-22	2200	5.15	515				

Note.--Stage-discharge relation affected by ice Nov. 11 to Dec. 21, Dec. 31 to Mar. 20, Apr. 7-17 (no gage-height record Jan. 1-6).

11-2310. Lake Thomas A. Edison near Big Creek, Calif.

Location.--Lat 37°22'10", long 118°59'15", in sec.26, T.6 S., R.27 E. (unsurveyed), in outlet works of dam on Mono Creek at lower end of Vermillion Valley, 18.1 miles northeast of town of Big Creek.

Drainage area.--88.9 sq mi.

Records available.--October 1954 to September 1965.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Southern California Edison Co.).

Extremes.--Maximum contents during year, 121,600 acre-ft Aug. 20 (elevation, 7,640.65 ft); minimum, 7,550 acre-ft Apr. 20 (elevation, 7,557.23).

1954-65: Maximum contents, 125,900 acre-ft Aug. 18, 1958 (elevation, 7,642.95 ft); minimum since appreciable storage was attained, that of Apr. 20, 1965.

Note.--Prior to 1960, maximum and minimum daily contents were published.

Remarks.--Lake is formed by earth fill dam; dam completed and storage began on Oct. 12, 1954. Usable capacity, 125,000 acre-ft between elevations 7,508.9 (invert of outlet works) and 7,642.5 ft (top of gates in service spillway) above mean sea level. Water is released for diversion to Ward tunnel via Mono Creek diversion works. Figures given herein represent usable contents.

Cooperation.--Record of contents furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

Capacity table (elevation, in feet, and contents, in acre-ft)

7,557	7,390	7,590	40,500
7,560	9,520	7,600	53,800
7,565	13,600	7,620	85,000
7,570	18,100	7,641	122,300
7,580	28,500		

Contents, in thousands of acre-feet, at 2400 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	50.0	49.7	47.4	47.2	32.4	13.5	15.2	13.4	37.9	76.9	106.8	117.4
2	50.0	49.6	47.2	47.4	31.8	13.0	15.3	14.1	39.0	78.2	107.4	116.9
3	50.0	49.2	46.9	47.6	31.1	12.7	15.0	14.6	40.0	79.6	107.8	116.5
4	50.0	48.9	46.8	47.9	30.3	12.7	14.8	15.1	41.3	81.1	108.3	116.0
5	50.0	48.5	46.7	48.1	29.5	12.6	14.6	15.6	43.0	82.5	108.6	115.5
6	50.0	48.1	46.6	48.3	28.9	12.6	14.4	16.0	44.8	84.1	109.0	115.0
7	50.0	47.9	46.2	48.5	28.1	12.5	14.0	16.4	46.5	85.4	109.4	114.5
8	50.0	47.9	45.8	48.6	27.4	12.4	13.5	16.8	48.2	86.8	109.7	113.9
9	50.0	47.7	45.5	48.1	26.7	12.3	13.0	17.2	49.5	88.1	110.0	113.3
10	49.9	47.6	45.2	47.5	25.9	12.3	12.4	17.6	51.1	89.2	110.3	112.6
11	49.9	47.6	45.0	46.8	25.2	12.4	11.8	17.9	53.0	90.2	111.1	111.9
12	49.9	47.7	44.9	46.2	24.6	12.6	11.3	18.3	55.0	91.1	112.1	111.3
13	49.8	47.7	44.8	45.5	23.8	12.6	10.7	18.8	56.8	92.0	113.3	110.6
14	49.8	47.7	44.5	44.8	23.1	12.7	10.2	19.3	58.3	92.9	115.5	110.3
15	49.8	47.7	44.5	44.2	22.4	12.8	9.61	19.9	59.5	93.8	117.1	110.3
16	49.8	47.8	44.1	43.5	21.6	12.9	9.04	20.7	60.5	95.1	118.4	110.1
17	49.8	47.8	43.6	42.8	21.0	13.0	8.50	21.8	61.3	96.5	118.8	110.0
18	49.8	47.8	43.6	42.1	20.3	13.2	8.02	23.1	62.1	97.6	120.6	109.9
19	49.7	47.8	43.5	41.5	19.6	13.3	7.60	24.5	63.0	98.6	121.3	109.8
20	49.7	47.8	43.1	40.8	18.9	13.4	7.64	25.9	64.1	99.5	121.6	109.7
21	49.7	47.8	42.5	40.1	18.3	13.5	7.91	27.2	65.4	100.3	121.5	109.6
22	49.7	47.9	42.1	39.4	17.6	13.7	8.23	28.1	66.9	101.0	121.3	109.5
23	49.7	47.9	43.7	38.8	16.9	13.8	8.55	28.9	68.3	101.6	121.0	109.4
24	49.6	47.9	45.3	38.1	16.2	14.0	8.94	29.5	69.6	102.2	120.7	109.3
25	49.6	48.0	46.0	37.4	15.6	14.1	9.40	30.2	70.6	102.8	120.3	109.2
26	49.6	48.0	46.3	36.7	15.2	14.3	9.91	30.9	71.6	103.4	119.9	109.1
27	49.6	48.0	46.3	36.0	14.7	14.4	10.5	31.8	72.5	103.9	119.5	109.0
28	49.6	48.1	46.3	35.3	14.1	14.6	11.1	32.9	73.6	104.4	119.1	108.8
29	49.7	48.1	46.4	34.6	-	14.7	11.8	34.0	74.6	104.9	118.7	108.7
30	49.7	47.7	46.7	33.8	-----	14.8	12.6	35.3	75.7	105.5	118.3	108.6
31	49.7	-----	46.9	33.1	-----	15.0	-----	36.6	-----	106.2	117.8	-----
(†)	7,597.03	7,595.59	7,595.00	7,584.04	7,565.57	7,566.58	7,563.84	7,586.91	7,614.42	7,632.13	7,638.59	7,633.51
(‡)	-400	-2,000	-800	-13,800	-19,000	+900	-2,400	+24,000	+39,100	+30,500	+11,600	-9,200

Calendar year 1964..... †-22,800

Water year 1964-65..... ‡+58,500

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

## SAN JOAQUIN RIVER BASIN

11-2315. Mono Creek below Lake Thomas A. Edison, Calif.

Location.--Lat 37°21'40", long 118°59'25", in SW¼ sec.35, T.6 S., R.27 E. (unsurveyed), on left bank 0.6 mile upstream from diversion dam, 1 mile downstream from Lake Thomas A. Edison, and 1.9 miles northeast of Mono Hot Springs.

Drainage area.--92.0 sq mi.

Records available.--October 1921 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A. Prior to October 1954, published as "near Vermilion Valley."

Gage.--Water-stage recorder. Altitude of gage is 7,400 ft (from topographic map).

Average discharge.--44 years, 148 cfs (107,100 acre-ft per year), adjusted for storage.

Extremes.--Maximum discharge during year, 455 cfs Feb. 13, 14 (gage height, 6.47 ft); minimum daily, 12 cfs Oct. 1-28, June 5-15. 1921-65: Maximum discharge, 1,760 cfs June 2, 1938 (gage height, 8.62 ft); minimum daily, 0.3 cfs Nov. 11, 12, 1954.

Remarks.--Records good. Flow regulated by Lake Thomas A. Edison beginning Oct. 12, 1954 (see preceding page). No diversion above station.

Cooperation.--Water-stage recorder graph and 12 discharge measurements furnished by Southern California Edison Co. in connection with Federal Power Commission project.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

4.9	11	5.6	117
5.0	16	6.0	245
5.1	24	6.5	470
5.3	51		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	13	185	16	430	380	17	20	13	13	15	330
2	12	119	156	16	435	370	87	18	13	13	15	330
3	12	198	144	16	430	210	201	16	13	13	15	321
4	12	198	144	16	435	114	201	16	13	13	15	321
5	12	192	47	16	435	117	198	15	12	13	15	321
6	12	192	107	16	435	117	198	15	12	13	15	321
7	12	116	191	16	435	117	321	15	12	13	15	343
8	12	43	248	124	440	117	390	15	12	13	15	380
9	12	192	192	375	445	117	380	15	12	13	15	390
10	12	86	192	425	445	52	385	13	12	13	15	390
11	12	16	163	425	445	16	395	18	12	13	15	395
12	12	16	63	420	400	16	385	19	12	13	16	400
13	12	16	72	420	455	16	375	20	12	13	16	395
14	12	16	131	415	455	16	375	20	12	13	16	203
15	12	16	16	430	450	16	380	19	12	13	16	97
16	12	16	255	430	450	16	380	20	13	13	16	97
17	12	15	250	430	372	16	375	21	13	14	16	97
18	12	15	42	425	445	16	370	20	13	14	16	100
19	12	15	166	425	445	16	370	16	13	15	15	100
20	12	15	223	430	445	16	101	16	13	15	162	100
21	12	15	317	430	440	16	18	16	13	15	293	100
22	12	15	390	430	425	16	18	16	13	15	321	100
23	12	15	42	430	420	16	18	15	13	15	334	100
24	12	15	15	435	420	16	18	14	13	15	334	100
25	12	15	59	440	410	16	17	13	13	15	334	100
26	12	15	188	440	348	16	18	13	13	15	334	100
27	12	15	192	440	395	16	20	13	13	15	334	100
28	12	15	192	435	390	16	20	13	13	15	334	88
29	13	84	79	435	-----	16	20	13	13	15	330	79
30	13	198	16	435	-----	16	20	13	13	15	330	79
31	13	-----	15	430	-----	16	-----	13	-----	15	330	-----
Total	375	1,907	4,492	10,066	11,975	2,047	6,071	499	379	431	4,062	6,377
Mean	12.1	63.6	145	325	428	66.0	202	16.1	12.6	13.9	131	213
Ac-ft	744	3,780	8,910	19,970	23,750	4,060	12,040	990	752	855	8,060	12,650

Calendar year 1964 Max 400 Min 11 Mean 127 Ac-ft 92,270  
 Water year 1964-65 Max 455 Min 12 Mean 133 Ac-ft 96,560



11-2325. Jackass Creek near Bass Lake, Calif.

Location.--Lat 37°29'20", long 119°18'10", in SW¼ sec.13, T.5 S., R.24 E., on left bank 1.6 miles east of Jackass Meadow, 10 miles upstream from West Fork, and 18 miles northeast of town of Bass Lake.

Drainage area.--12.8 sq mi.

Records available.--October 1921 to September 1928, November 1951 to September 1965 (no winter records except water year 1963). Monthly discharge only for some periods, published in WSP 1315-A. Prior to October 1962, published as "near Jackass Meadow."

Gage.--Water-stage recorder. Altitude of gage is 6,900 ft (from topographic map). Prior to May 5, 1922, staff gage at same site and datum.

Average discharge.--8 years (1921-28, 1962-63), 21.2 cfs (15,350 acre-ft per year).

Extremes.--Maximum discharge recorded during year, 554 cfs Dec. 23 (gage height, 10.17 ft); no flow Oct. 1-27.  
1921-28, 1951-65: Maximum discharge recorded, 786 cfs Dec. 23, 1955 (gage height, 11.37 ft); no flow at times.

Remarks.--Records fair. No regulation or diversion above station.

Cooperation.--Water-stage-recorder graph and six discharge measurements furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.4	6.0					161	145	36	3.8	0.2
2	0	.4	8.8					127	135	36	3.4	.2
3	0	.3	8.0					88	137	36	3.0	.2
4	0	.4	5.6					76	149	34	2.5	.2
5	0	.3	4.9					91	151	32	2.2	.2
6	0	.3	4.7					76	135	29	1.9	.2
7	0	.3	4.5					66	127	26	1.7	.2
8	0	.4	4.5					56	105	22	1.5	.2
9	0	.4	5.0					62	93	19	1.3	.2
10	0	.4	5.5					74	108	16	1.0	.2
11	0	.4	6.5					84	112	14	1.8	.2
12	0	.2	9.5					100	101	12	3.0	.1
13	0	.3	6.7					121	86	10	2.5	.1
14	0	.3	5.4					125	72	9.3	1.9	.1
15	0	.8	4.7					143	63	16	2.5	.1
16	0	1.5	4.5					184	61	19	5.6	.1
17	0	3.0	4.2					207	56	20	9.1	.1
18	0	7.0	3.8					213	51	18	6.7	.1
19	0	5.0	3.7					202	53	19	4.0	.4
20	0	3.5	15					166	56	14	3.0	1.1
21	0	3.7	14					165	58	9.5	2.2	.8
22	0	3.7	19					112	57	8.0	1.5	.4
23	0	3.7	333					90	53	6.7	1.4	.3
24	0	4.0	426					89	49	6.0	1.1	.2
25	0	4.7	180					97	46	6.9	.8	.2
26	0	6.7	72					125	42	5.6	.6	.2
27	0	6.7	37					135	40	4.7	.4	.2
28	.1	4.9	25					152	39	4.2	.4	.2
29	.4	4.7	20		-----			160	39	4.0	.3	.2
30	.4	5.2	17		-----			162	38	3.8	.2	.2
31	.3	-----	15		-----		-----	162	-----	4.0	.2	-----
Total	1.2	73.6	1,279.5	-	-	-	-	3,871	2,457	500.7	71.5	7.3
Mean	0.04	2.45	41.3	-	-	-	-	125	81.9	16.2	2.31	0.24
Ac-ft	2.4	146	2,540	-	-	-	-	7,680	4,870	993	142	14

Calendar year 1964	Max	Min	Mean	Ac-ft
Water year 1964-65	Max	Min	Mean	Ac-ft

Note.--No gage-height record Nov. 15-24, Dec. 7-10, 29-31.

## SAN JOAQUIN RIVER BASIN

11-2345. Chiquito Creek near Bass Lake, Calif.

Location.--Lat 37°24'45", long 119°22'50", in NE¼ sec.18, T.6 S., R.24 E., on right bank 0.5 mile downstream from Beasore Creek, 0.6 mile southwest of Arnold Meadow, and 12 miles northeast of town of Bass Lake.

Drainage area.--59.6 sq mi.

Records available.--September 1921 to September 1928, November 1951 to September 1965 (no winter records 1952-54, 1956). Monthly discharge only for some periods, published in WSP 1315-A. Prior to October 1962, published as "near Arnold Meadow."

Gage.--Water-stage recorder. Altitude of gage is 4,800 ft (from topographic map). Prior to Apr. 30, 1922, staff gage at same site and datum.

Average discharge.--17 years (1921-28, 1954-55, 1956-65), 81.5 cfs (59,000 acre-ft per year).

Extremes.--Maximum discharge during year, 2,670 cfs Dec. 23 (gage height, 10.84 ft), from rating curve extended above 1,100 cfs as explained below; minimum, 2.3 cfs Oct. 13.

1921-28, 1951-65: Maximum discharge, 8,630 cfs Dec. 23, 1955 (gage height, 16.38 ft), from rating curve extended above 1,100 cfs on basis of slope-area measurement of maximum flow; minimum, 1.2 cfs Sept. 7, 9, 1961.

Remarks.--Records good except those for Feb. 25 to May 28, which are poor. No regulation or diversion above station.

Cooperation.--Water-stage-recorder graph and 10 discharge measurements furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

Rating table, except periods of ice effect (gage height, in feet,  
and discharge, in cubic feet per second)  
(Shifting-control method used Feb. 10-18)

4.5	1.0	5.0	27	6.5	350
4.6	3.4	5.2	50	7.0	515
4.7	6.8	5.5	100	8.0	940
4.8	11	6.0	206	10.0	2,080
4.9	19	6.5	350		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.1	16	25	84	74	82	150	480	438	147	36	15
2	2.8	16	28	82	74	82	147	374	401	141	34	13
3	2.8	13	24	93	72	84	147	311	401	137	31	13
4	2.8	15	21	98	74	84	150	314	428	133	29	13
5	2.6	14	22	108	77	82	150	320	442	127	28	13
6	2.6	11	19	133	79	77	150	317	417	119	27	13
7	2.6	10	20	141	70	75	154	308	401	110	25	14
8	2.6	11	19	119	67	75	156	308	368	102	24	15
9	2.8	13	21	113	67	75	158	323	326	93	23	13
10	2.8	16	22	110	91	80	162	329	362	87	22	12
11	2.8	20	33	106	102	80	167	341	374	80	32	11
12	2.6	30	36	102	102	84	164	350	356	75	32	11
13	2.6	24	24	96	110	87	164	386	317	70	29	10
14	2.6	16	24	98	111	82	164	389	278	68	25	9.8
15	2.6	16	23	100	104	82	167	410	252	89	28	9.8
16	2.6	16	20	98	104	87	178	512	232	93	36	9.4
17	2.8	15	19	96	110	89	189	599	214	86	37	9.4
18	2.8	15	17	102	110	89	189	611	199	84	28	9.8
19	2.8	14	19	115	108	100	224	595	209	74	24	13
20	2.8	15	32	119	108	108	227	515	229	65	22	13
21	2.8	16	36	115	108	119	243	487	232	59	21	11
22	2.8	16	113	113	113	123	272	353	222	52	20	9.8
23	2.8	17	1,510	121	104	127	272	332	206	47	20	9.4
24	2.8	19	1,410	89	100	131	290	329	192	46	19	8.9
25	3.1	27	324	80	106	131	299	344	184	47	18	8.4
26	3.1	35	96	77	107	131	305	371	169	44	17	8.4
27	3.1	26	93	74	95	139	350	392	164	40	16	8.0
28	6.8	23	91	72	86	139	410	445	162	38	15	8.4
29	33	23	88	70	-----	145	448	470	160	35	15	8.9
30	20	25	86	72	-----	147	476	480	156	35	14	8.9
31	17	-----	86	74	-----	150	-----	473	-----	38	15	-----
Total	151.8	543	4,401	3,070	2,633	3,166	6,722	12,568	8,491	2,461	762	330.3
Mean	4.90	18.1	142	99.0	94.0	102	224	405	283	79.4	24.6	11.0
Ac-ft	301	1,080	8,730	6,090	5,220	6,280	13,330	24,930	16,840	4,880	1,510	655

Calendar year 1964 Max 1,510 Min 2.6 Mean 55.2 Ac-ft 40,070  
Water year 1964-65 Max 1,510 Min 2.6 Mean 124 Ac-ft 89,850

Peak discharge (base, 500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0930	10.84	2,670	5-17	2030	7.67	773
4-30	2100	7.64	743	5-30	2300	7.14	571

Note.--Stage-discharge relation affected by ice  
Nov. 9-21, Dec. 28 to Jan. 2.

11-2347. Mammoth Pool Reservoir near Big Creek, Calif.

Location.--Lat 37°19'45", long 119°19'15", in SW¼ sec.11, T.7 S., R.24 E., in gatehouse of power tunnel intake near dam on San Joaquin River, 10 miles northwest of town of Big Creek.

Drainage area.--1,002 sq mi.

Records available.--October 1959 to September 1965.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Southern California Edison Co.).

Extremes.--Maximum contents during year, 123,000 acre-ft June 12 (elevation, 3,332.76 ft); minimum, 5,120 acre-ft Apr. 18 (elevation, 3,143.06 ft).

1959-65: Maximum contents, 123,200 acre-ft June 18, 1963 (elevation, 3,332.93 ft); minimum since appreciable storage was attained, 4,720 acre-ft Mar. 31, 1962.

Remarks.--Reservoir is formed by an earth-filled dam; storage began Oct. 8, 1959. Usable capacity, 119,900 acre-ft between elevations 3,100.00 (invert of power tunnel) and 3,330.00 ft (crest of spillway) above mean sea level. Additional storage of 2,780 acre-ft is not available for release. Water is diverted through tunnel for power development; water is returned to river 8.5 miles downstream from dam. Figures given herein represent usable contents.

Cooperation.--Records of contents furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

Capacity table (elevation, in feet, and contents, in acre-feet)

3,143	5,110	3,240	42,800
3,160	8,620	3,270	64,000
3,180	14,100	3,300	89,800
3,200	21,400	3,333	123,300
3,220	31,100		

Contents, in thousands of acre-feet, at 2400 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	26.6	21.1	24.4	81.8	61.7	36.1	5.34	46.7	122.1	121.1	115.1	92.6
2	26.3	21.1	24.3	80.2	60.0	35.3	5.44	50.9	121.7	121.2	115.0	90.8
3	25.9	21.0	24.2	78.5	58.2	33.8	5.37	53.1	122.0	121.3	114.6	89.0
4	25.7	20.9	23.9	77.0	56.5	32.2	5.30	54.2	122.7	121.3	113.9	87.1
5	24.9	20.8	23.6	76.8	55.2	30.4	5.29	55.3	122.9	121.4	113.0	85.2
6	24.4	20.7	23.1	81.0	55.0	28.5	5.36	56.1	122.6	121.3	112.1	83.3
7	24.1	20.6	22.8	84.1	54.4	26.5	5.47	56.2	122.6	121.1	111.1	81.4
8	23.7	20.6	22.9	85.2	53.6	24.4	5.51	56.0	122.0	120.9	110.1	79.5
9	23.5	20.7	23.0	85.4	52.9	22.4	5.35	55.9	121.9	120.7	109.0	78.1
10	23.6	20.9	23.1	85.5	51.8	21.0	5.28	56.3	122.6	120.4	107.9	76.2
11	23.7	21.1	22.7	84.7	50.8	20.1	5.32	57.2	122.9	120.1	107.3	74.7
12	23.2	22.3	22.3	83.1	49.7	19.3	5.26	58.4	122.8	119.4	108.2	73.1
13	23.0	22.2	22.2	81.1	48.6	18.5	5.23	60.5	122.2	119.3	108.5	71.5
14	22.7	22.4	22.2	79.8	47.7	17.6	5.23	63.3	121.7	119.1	108.4	69.9
15	22.4	22.6	22.2	79.3	46.6	16.7	5.53	66.6	121.3	119.6	111.0	68.3
16	22.1	22.7	22.1	78.6	45.4	15.8	5.81	72.3	121.1	119.8	113.3	66.7
17	22.2	22.6	22.1	78.0	44.2	14.9	5.47	80.3	120.8	120.8	113.7	65.1
18	22.3	22.7	22.1	76.5	43.1	14.2	5.15	89.0	120.6	120.4	114.2	63.5
19	21.9	22.7	21.9	75.4	42.1	13.7	5.49	97.5	121.2	120.1	113.3	61.9
20	21.6	22.7	21.7	75.1	41.2	13.2	6.40	104.7	121.7	119.8	112.1	60.4
21	21.3	22.8	21.9	74.1	40.5	13.1	7.12	110.5	121.9	118.9	110.8	58.8
22	20.9	23.0	24.3	72.9	40.0	12.5	9.01	113.7	121.9	118.3	109.5	57.3
23	20.6	23.1	51.9	71.7	39.2	12.0	10.5	115.6	121.6	117.9	108.1	55.7
24	20.6	23.1	74.1	73.3	38.4	11.0	12.5	117.1	121.4	117.6	106.7	54.0
25	20.7	23.3	80.1	72.4	37.6	9.68	15.4	118.7	121.1	117.2	105.2	52.4
26	20.4	23.8	82.6	71.2	36.9	8.22	18.8	121.2	120.9	116.9	103.5	50.8
27	20.1	24.2	86.1	69.7	36.8	8.71	23.0	121.8	120.9	116.4	101.8	48.8
28	19.9	24.3	86.2	68.1	36.6	9.08	28.4	122.3	121.0	115.7	99.9	46.7
29	20.0	24.3	85.7	66.4	-	7.77	34.6	122.5	121.2	115.1	98.1	44.6
30	20.4	24.4	84.8	65.0	-----	6.37	41.2	122.6	121.2	114.8	96.3	42.4
31	20.7	-----	83.5	63.5	-----	5.14	-----	122.6	-----	115.2	94.5	-----
(†)	3,198.42	3,206.64	3,293.17	3,269.35	3,229.84	3,143.16	3,237.51	3,332.37	3,331.15	3,325.55	3,304.98	3,239.44
(‡)	-6.300	+3.700	+59.100	-20.000	-26.900	-31.460	+36.060	+81.400	-1.400	-6.000	-20.700	-52.100

Calendar year 1964..... +63,900

Water year 1964-65..... +15,400

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

11-2347.6. San Joaquin River above Shakeflat Creek, near Big Creek, Calif.

Location.--Lat 37°19'05", long 119°19'40", in SW¼ sec.14, T.7 S., R.24 E., on right bank 1,500 ft upstream from Shakeflat Creek, 4,900 ft downstream from Mammoth Pool dam, and 10 miles northwest of town of Big Creek.

Drainage area.--1,003 sq mi.

Records available.--October 1959 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 2,865.50 ft above mean sea level (levels by Southern California Edison Co.).

Extremes.--Maximum discharge during year, 4,990 cfs June 6 (gage height, 11.66 ft); minimum daily, 11 cfs many days.  
1959-65: Maximum discharge, 5,780 cfs May 6, 1962 (gage height, 11.90 ft); minimum daily, 0.3 cfs Oct. 14, Dec. 5, 1959.

Remarks.--Records good. Flow regulated by Mammoth Pool Reservoir (see preceding page). Flow partly regulated by Florence Lake (see p. 594), Lake Thomas A. Edison (see p. 597) and diversions through Ward tunnel (see p. 593) and through Mono-Bear conduit to Ward tunnel.

Cooperation.--Water-stage-recorder graph and 18 discharge measurements furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Mar. 27 to July 10)

2.3	11	4.5	265
2.5	20	5.0	385
2.7	31	6.0	700
3.0	52	7.0	1,120
3.5	100	8.5	2,020
4.0	170	11.0	4,320

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	13	11	16	13	13	13	39	3,430	1,110	26	29
2	13	11	11	16	13	13	13	48	2,400	1,000	26	29
3	13	11	11	18	13	13	12	47	2,060	1,140	26	27
4	13	11	11	26	13	13	13	47	3,010	1,250	26	26
5	13	12	11	33	14	13	13	47	4,000	1,240	27	26
6	13	11	11	55	17	13	14	48	4,180	1,290	27	26
7	14	11	11	31	14	13	13	48	3,700	1,220	27	26
8	14	11	11	22	14	13	16	48	3,580	896	27	26
9	14	13	11	20	14	13	16	47	2,050	644	27	26
10	13	16	11	18	14	11	15	47	2,940	452	27	25
11	13	15	11	17	13	12	13	47	3,900	179	27	25
12	13	21	11	16	13	14	13	47	4,300	58	27	25
13	13	14	11	16	13	14	18	48	3,790	57	27	25
14	13	11	11	16	13	13	28	48	2,520	44	30	25
15	13	11	11	16	13	13	28	48	1,700	26	26	24
16	13	11	11	15	13	12	28	49	1,120	27	26	24
17	13	11	11	15	13	12	28	50	760	66	26	24
18	13	11	11	14	13	11	27	50	385	555	26	24
19	13	11	16	15	13	11	27	51	581	136	27	24
20	13	11	12	14	13	11	27	51	1,430	75	27	24
21	13	11	12	14	13	11	26	52	2,110	40	27	24
22	13	11	18	14	13	11	25	52	2,280	26	27	24
23	13	11	33	18	13	11	29	52	2,160	26	27	24
24	13	11	30	18	13	12	34	52	1,620	26	27	24
25	13	11	18	16	13	12	35	53	1,140	26	27	24
26	13	11	24	15	13	11	35	137	788	26	27	24
27	13	11	29	14	14	14	36	1,670	708	26	26	24
28	13	11	22	14	13	12	29	2,370	868	26	26	23
29	17	11	18	14	-----	11	24	3,220	976	26	26	23
30	13	11	18	14	-----	11	25	3,590	1,120	26	27	23
31	13	-----	17	14	-----	12	-----	3,560	-----	26	29	-----
Total	410	357	465	574	374	379	673	15,763	65,606	11,765	831	747
Mean	13.2	11.9	15.0	18.5	13.4	12.2	22.4	508	2,187	380	26.8	24.9
Ac-ft	813	708	922	1,140	742	752	1,330	31,270	130,100	23,340	1,650	1,480
Calendar year 1964	Max	33	Min	11	Mean	12.9	Ac-ft	9,390				
Water year 1964-65	Max	4,300	Min	11	Mean	268	Ac-ft	194,200				

11-2355. Ward tunnel outlet at Huntington Lake, Calif.

Location.--Lat 37°15'15", long 119°09'35", in SW 1/4 sec.5, T.8 S., R.26 E., at tunnel outlet at east end of Huntington Lake, 6 miles northeast of Big Creek.

Records available.--October 1927 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A. Prior to October 1962, published as Ward tunnel at outlet.

Gage.--Water-stage recorder until May 23, 1956, none thereafter. Datum of gage was 6,999.00 ft above mean sea level (levels by Southern California Edison Co.).

Average discharge.--38 years, 465 cfs (336,600 acre-ft per year).

Extremes.--1927-65: Maximum daily discharge, 2,080 cfs June 21, 1935; no flow at times in 1961, 1964.

Remarks.--Records fair. Daily discharge computed as the sum of Ward tunnel at intake, Mono-Bear conduit, Camp Creek conduit, and corrected for change in contents of Portal Forebay. Tunnel diverts from Florence Lake to Huntington Lake, receives diversions from Bear and Mono Creeks and at times from several other small tributaries of South Fork San Joaquin River. See record for Ward tunnel intake at Florence Lake, page 594.

Cooperations.--Discharge of Camp Creek conduit and contents of Portal Forebay furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	36	0	211	642	594	571	185	1,180	1,600	959	657	1,060
2	43	195	171	621	588	537	259	1,010	1,570	965	915	1,050
3	26	208	162	596	589	365	364	831	1,590	985	1,000	1,040
4	34	208	162	646	608	260	354	718	1,660	1,200	969	1,040
5	34	201	46	701	609	246	353	591	1,650	1,300	940	1,030
6	33	201	148	722	602	256	344	534	1,540	1,380	810	1,030
7	32	113	22	735	593	248	480	438	1,440	1,410	538	1,040
8	31	52	291	719	584	246	565	423	1,420	1,420	524	1,070
9	31	213	215	732	582	241	501	406	1,360	1,400	531	1,070
10	32	80	203	708	547	157	531	418	1,440	1,380	529	1,090
11	32	0	203	655	572	169	582	417	1,490	1,200	746	1,110
12	32	0	60	626	479	141	544	448	1,500	947	1,550	1,110
13	32	92	78	613	609	139	562	578	1,500	901	1,540	1,100
14	32	0	250	582	573	140	554	655	1,400	868	1,460	796
15	32	74	255	621	574	134	534	730	1,260	701	1,630	624
16	31	0	427	612	527	138	593	965	1,190	1,060	1,650	622
17	31	78	611	617	480	142	616	1,350	1,160	1,090	1,640	621
18	29	0	397	599	585	150	622	1,620	1,120	1,060	1,650	625
19	29	73	678	586	498	160	644	1,690	1,180	1,200	1,630	629
20	29	0	652	596	578	152	590	1,690	1,280	1,210	1,200	661
21	29	71	645	603	588	211	426	1,630	1,330	1,110	1,040	730
22	29	0	621	583	578	209	517	1,360	1,340	1,040	1,120	722
23	29	0	732	597	583	250	544	1,230	1,350	970	1,130	713
24	29	101	426	590	573	189	517	861	1,240	987	1,120	706
25	29	0	279	486	588	177	723	773	868	988	1,100	701
26	89	0	331	665	470	181	746	1,080	837	980	1,090	697
27	0	93	281	617	564	165	815	1,340	870	954	1,080	687
28	0	0	274	534	501	145	972	1,340	840	939	1,080	672
29	0	151	451	636	-----	210	1,120	1,110	889	913	1,070	641
30	66	219	692	583	-----	184	1,200	461	938	822	1,070	619
31	0	-----	662	583	-----	188	-----	1,030	-----	679	1,060	-----
Total	941	2,423	10,636	19,406	15,816	6,701	17,357	23,907	38,852	33,018	34,069	25,306
Mean	30.4	80.8	343	626	565	216	579	932	1,295	1,065	1,099	844
Ac-ft	1,870	4,810	21,100	38,490	31,370	13,290	34,430	57,340	77,060	65,490	67,570	50,190

Calendar year 1964: Max: 740 Min: 0 Mean: 377 Ac-ft: 274,000  
 Water year 1964-65: Max: 1,690 Min: 0 Mean: 640 Ac-ft: 463,000

11-2360. Huntington Lake near Big Creek, Calif.

Location.--Lat 37°14'05", long 119°12'40", in SW¼ sec.14, T.8 S., R.25 E., in gate tower of dam 1 on Big Creek, 2 miles northeast of town of Big Creek.

Drainage area.--79.0 sq mi.

Records available.--April 1913 to September 1965.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Southern California Edison Co.). Prior to June 19, 1920, staff gage at same site and datum.

Extremes.--Maximum contents during year, 89,100 acre-ft July 21, 22 (elevation, 6,949.94 ft); minimum, 2,770 acre-ft Dec. 4 (elevation, 6,842.24 ft).

1913-65: Maximum contents, 90,500 acre-ft May 31, 1926 (elevation, 6,950.92 ft); minimum, 2,100 acre-ft Nov. 6, 1937 (elevation, 6,838.53 ft).

Note.--Prior to 1960, maximum and minimum daily contents were published.

Remarks.--Lake is formed by four dams; storage began Apr. 11, 1913. Dams were raised in 1914 and again in 1917. Usable capacity, 89,200 acre-ft between elevations 6,819.9 (invert of outlet tunnel No. 1) and 6,950 ft (spillway crest at dam 1) above mean sea level. Additional storage of 600 acre-ft is not available for release. Huntington-Shaver conduit has diverted water from Huntington Lake to Shaver Lake since Apr. 21, 1928 (see p. 607). Water is used for power development in Big Creek plants. Figures given herein represent usable contents.

Cooperation.--Record of contents furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

Capacity table (elevation, in feet, and contents, in acre-feet)

6,840	2,350	6,890	22,900
6,850	4,480	6,910	40,200
6,860	7,430	6,930	62,600
6,870	11,300	6,950	89,200
6,880	16,400		

Contents, in thousands of acre-feet, at 2400 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	48.2	16.7	3.22	23.1	41.9	30.5	10.5	26.6	43.1	82.4	88.8	88.0
2	46.8	16.6	3.16	23.9	42.2	30.2	10.0	27.6	44.4	83.2	88.8	87.9
3	43.4	16.6	3.02	24.9	42.6	29.6	9.87	27.8	46.0	83.7	88.8	87.9
4	43.9	16.4	2.88	26.2	43.1	28.8	9.62	27.6	47.9	84.2	88.7	87.9
5	42.4	16.3	2.83	27.9	43.5	28.0	9.38	27.3	50.1	84.8	88.5	87.9
6	40.9	16.3	2.95	29.6	43.8	27.2	9.15	26.8	51.8	85.2	88.4	87.8
7	39.3	16.5	2.91	30.7	44.0	26.4	9.10	26.3	53.9	85.6	88.3	87.7
8	37.8	16.5	3.04	31.3	44.1	25.6	9.35	25.8	55.9	86.1	88.2	87.7
9	36.2	16.5	3.05	31.9	44.3	25.0	9.38	25.4	57.5	86.7	88.0	87.7
10	34.7	16.1	3.04	32.3	44.3	24.1	9.49	25.0	59.4	87.4	87.9	87.7
11	33.2	15.4	3.09	32.9	44.4	23.5	9.70	24.7	61.5	87.6	88.0	87.8
12	31.7	14.7	3.14	33.3	44.3	22.9	9.81	24.6	63.6	87.6	88.1	87.8
13	30.3	14.1	3.11	33.8	44.4	22.1	9.97	24.8	65.3	87.7	87.7	87.9
14	28.9	13.3	3.17	34.3	44.5	21.4	10.2	25.3	66.6	88.1	87.5	87.9
15	27.5	12.7	3.21	34.8	44.6	20.6	10.2	26.1	67.4	88.3	87.7	87.9
16	26.3	11.8	3.55	35.3	44.0	19.9	10.5	27.6	68.0	88.3	87.8	87.8
17	25.5	11.2	4.34	35.8	42.5	19.1	10.9	29.8	68.4	88.6	87.3	87.7
18	24.7	10.3	4.56	36.2	41.1	18.4	11.2	32.4	68.6	88.5	86.7	87.6
19	23.9	9.65	5.44	36.7	39.7	17.8	11.8	34.8	68.9	88.7	86.8	87.6
20	23.1	8.84	6.30	37.1	38.6	17.1	12.4	37.0	69.5	89.0	87.0	87.6
21	22.3	8.14	7.20	37.6	37.5	16.6	12.6	38.7	70.5	89.1	86.8	87.7
22	21.5	7.34	8.27	37.7	36.5	16.1	13.1	39.2	71.6	89.0	86.8	87.9
23	20.7	6.55	11.3	38.0	35.5	15.7	13.6	39.3	73.0	88.9	86.8	88.0
24	19.8	5.91	14.2	38.3	34.5	15.2	14.2	38.6	74.7	88.9	86.8	88.2
25	19.1	5.11	15.7	38.3	33.7	14.6	15.3	37.7	75.9	88.9	86.7	88.3
26	18.4	4.28	17.2	38.6	32.6	14.0	16.6	37.6	77.0	88.9	86.7	88.3
27	17.6	3.66	18.3	38.8	31.9	13.4	18.2	38.4	78.0	88.7	86.8	88.4
28	17.5	3.27	19.1	38.9	31.0	12.8	20.3	39.5	79.0	88.6	87.0	88.5
29	17.1	3.14	19.9	39.3	-	12.3	22.6	40.7	80.1	88.4	87.2	88.5
30	16.9	3.20	21.1	40.5	-----	11.7	24.9	40.4	81.2	88.3	87.4	88.4
31	16.6	-----	22.1	41.5	-----	11.1	-----	41.4	-----	88.6	87.8	-----
(†)	6.880.44	6.844.38	6.888.97	6.911.23	6.900.15	6.869.56	6.892.64	6.911.16	6.944.33	6.949.57	6.949.01	6.949.49
(‡)	-33,000	-13,400	+18,900	+19,400	-10,500	-19,900	+13,800	+16,500	+39,800	+7,400	-800	+600

Calendar year 1964..... +53,000  
 Water year 1964-65..... +38,800

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

11-2370. Big Creek below Huntington Lake, Calif.

Location--Lat 37°13'10", long 119°12'50", in NW¼ sec.23, T.8 S., R.25 E., on right bank 1,200 ft upstream from Grouse Creek and 1 mile downstream from Huntington Lake.

Drainage area--80.0 sq mi.

Records available--June 1925 to September 1965.

Gage--Water-stage recorder, Parshall flume, and concrete control. Altitude of gage is 6,600 ft (from topographic map). Prior to Oct. 1, 1942, at datum 1.00 ft lower and from Oct. 1, 1942, to Sept. 30, 1948, at datum 1.00 ft higher.

Extremes--Maximum discharge during year, 21 cfs Dec. 23 (gage height, 2.93 ft); minimum daily, 0.3 cfs Dec. 6-10, 18.  
1925-65: Maximum discharge, 2,040 cfs June 23, 1925 (gage height, 11.3 ft, present datum), siphon spillways operating at Huntington Lake; minimum daily recorded, 0.1 cfs Jan. 18-21, Aug. 21 to Sept. 24, Oct. 7-18, Dec. 5-16, 1931.

Remarks--Records good. Flow regulated by Huntington Lake beginning in 1913 (see preceding page). During most of year flow is diverted for power development at Big Creek powerhouse No. 1. Records of water temperatures for the water year 1965 are published in Part 2 of this report.

Cooperation--Water-stage-recorder graph furnished by Southern California Edison Co. in connection with a Federal Power Commission Project.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

1.2	0.2	1.6	1.3	2.6	5.6
1.3	.4	2.0	2.8	2.7	7.8
1.4	.7	2.2	3.6	2.8	12
1.5	1.0	2.4	4.6		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.2	2.5	0.4	1.2	1.3	1.4	1.5	5.0	2.9	2.4	2.2	2.6
2	2.2	2.4	.5	1.1	1.3	1.4	1.5	4.5	2.8	2.4	2.2	2.6
3	2.2	2.3	.4	1.0	1.3	1.4	1.4	4.0	2.7	2.4	2.2	2.6
4	2.3	2.3	.4	1.0	1.3	1.4	1.4	3.8	2.6	2.3	2.2	2.6
5	2.3	2.3	.4	1.0	1.4	1.4	1.4	3.8	2.5	2.3	2.2	2.6
6	2.4	2.3	.3	1.2	1.3	1.4	1.4	3.6	2.4	2.3	2.2	2.6
7	2.4	2.2	.3	1.5	1.2	1.3	1.4	3.4	2.4	2.3	2.2	2.6
8	2.3	2.3	.3	1.2	1.2	1.3	1.3	3.4	2.4	2.2	2.1	2.6
9	2.1	2.4	.3	1.0	1.1	1.2	1.3	3.4	2.3	2.2	2.1	2.6
10	1.8	2.4	.3	1.0	1.1	1.3	1.3	3.4	2.3	2.2	2.2	2.6
11	2.2	2.2	1.1	1.0	1.1	1.2	1.2	3.4	2.2	2.2	2.6	2.6
12	2.2	2.4	.8	1.0	1.0	1.2	1.2	3.5	2.2	2.2	2.6	2.6
13	2.3	2.4	.5	1.0	1.0	1.2	1.2	3.7	2.1	2.2	2.0	2.5
14	2.3	2.4	.5	1.0	1.0	1.2	1.9	3.6	2.2	2.2	1.1	2.5
15	2.3	2.3	.4	1.0	1.0	1.2	2.9	3.7	2.2	2.5	1.0	2.5
16	2.3	2.2	.4	1.0	1.0	1.2	2.6	4.0	2.3	2.4	1.7	2.5
17	2.4	2.1	.4	1.0	1.1	1.3	2.1	4.1	2.3	2.4	2.3	2.5
18	2.4	2.1	.3	1.0	1.1	1.3	2.5	4.1	2.2	2.4	2.7	2.5
19	2.4	2.1	.4	1.0	1.2	1.3	2.9	4.0	2.2	2.4	2.7	2.5
20	2.4	2.0	.4	1.0	1.2	1.5	2.9	3.9	2.4	2.4	2.7	2.5
21	2.4	1.9	.4	1.0	1.3	1.5	3.2	4.3	2.6	2.8	2.6	2.5
22	2.3	2.2	1.9	1.0	1.3	1.6	3.4	3.9	2.6	2.8	2.6	2.3
23	2.2	2.1	8.9	1.2	1.3	1.7	3.2	3.7	2.6	2.6	2.6	2.6
24	2.3	1.7	7.6	1.7	1.3	1.6	3.2	3.5	2.5	2.6	2.6	2.6
25	2.4	1.8	3.2	1.3	1.3	1.5	3.5	3.4	2.5	2.4	2.5	2.6
26	2.4	.8	2.3	1.3	1.3	1.5	3.8	3.3	2.5	2.3	2.6	2.6
27	2.4	.5	2.4	1.2	1.5	1.5	4.3	3.2	2.5	2.3	2.6	2.6
28	2.4	.4	1.9	1.2	1.4	1.5	4.7	3.2	2.4	2.2	2.6	2.6
29	2.8	.4	1.6	1.2	-----	1.5	4.8	3.1	2.4	2.2	2.6	2.6
30	2.5	.4	1.5	1.2	-----	1.5	5.0	3.1	2.4	2.3	2.6	2.6
31	2.4	-----	1.3	1.2	-----	1.5	-----	3.0	-----	2.3	2.6	-----
Total	71.9	57.8	41.8	34.7	33.9	43.0	74.4	114.0	72.6	73.1	71.7	76.8
Mean	2.32	1.93	1.35	1.12	1.21	1.39	2.48	3.68	2.42	2.36	2.31	2.56
Ac-ft	14.3	11.5	8.3	6.9	6.7	8.5	14.8	22.6	14.4	14.5	14.2	15.2

Calendar year 1964 Max 8.9 Min 0.3 Mean 2.37 Ac-ft 1,720  
Water year 1964-65 Max 8.9 Min 0.3 Mean 2.10 Ac-ft 1,520

Note--No gage-height record Jan. 1-13.

11-2375. Pitman Creek below Tamarack Creek, Calif.

Location.--Lat 37°11'55", long 119°12'45", in NW¼ sec.35, T.8 S., R.25 E., on right bank 0.8 mile downstream from confluence of Tamarack Creek and South Fork Tamarack Creek, 1.4 miles upstream from mouth, and 1.9 miles east of town of Big Creek.

Drainage area.--22.7 sq mi.

Records available.--October 1927 to September 1965. Records for water year 1928 incomplete, yearly estimate published in WSP 1315-A.

Gage.--Water-stage recorder, Parshall flume, and concrete control. Altitude of gage is 7,005 ft (from Southern California Edison Co. contour map). Prior to Sept. 29, 1940, at site 10 ft downstream at same datum.

Average discharge.--38 years, 37.6 cfs (27,220 acre-ft per year).

Extremes.--Maximum discharge during year, 651 cfs May 17 (gage height, 6.86 ft); minimum daily, 0.2 cfs Oct. 1-16, 19-25.

1927-65: Maximum discharge, 3,670 cfs Dec. 23, 1955 (gage height, 11.20 ft), from rating curve extended above 1,100 cfs on basis of slope-area measurement at gage height 10.77 ft; no flow Oct. 15-18, 1931.

Remarks.--Records good except those for period of ice effect, which are fair. No diversion above station; practically all flow diverted below station to Huntington-Shaver conduit.

Cooperation.--Water-stage-recorder graph and eight discharge measurements furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

Rating table, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.9	0.2	3.0	6.4	4.5	119
2.0	.4	3.2	11	5.0	185
2.2	1.0	3.4	19	5.5	274
2.4	1.7	3.7	39	6.0	390
2.6	2.6	4.0	65	6.5	530
2.8	3.9				

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.2	1.5	4.0	30	16	28	35	289	309	48	11	2.1
2	.2	1.3	4.2	30	16	28	33	225	270	43	9.6	2.0
3	.2	1.2	3.9	30	17	28	31	156	258	41	9.1	1.9
4	.2	1.2	3.0	28	18	28	30	139	303	37	8.8	1.9
5	.2	1.3	3.1	22	19	28	30	143	325	35	8.3	1.9
6	.2	1.2	2.6	21	20	27	30	139	289	33	8.1	1.9
7	.2	1.2	2.8	19	20	26	30	118	276	30	7.5	2.1
8	.2	1.4	2.8	19	16	25	28	109	229	27	6.7	2.3
9	.2	1.6	2.9	19	16	25	29	109	200	25	5.8	2.1
10	.2	1.5	2.9	19	16	25	30	113	221	23	5.4	1.8
11	.2	1.7	5.7	18	16	24	35	125	230	22	7.5	1.7
12	.2	1.7	6.7	18	16	25	30	146	218	20	9.9	1.6
13	.2	1.8	4.1	17	16	24	28	190	174	19	8.6	1.5
14	.2	1.9	3.6	17	16	24	28	225	150	18	7.9	1.4
15	.2	1.3	3.3	18	16	23	29	264	132	29	7.7	1.3
16	.2	1.0	2.6	17	18	23	31	352	118	28	9.1	1.3
17	.3	1.2	2.4	16	20	24	33	415	107	24	15	1.3
18	.3	1.2	2.5	16	20	25	38	485	107	20	17	1.4
19	.2	1.9	2.8	17	21	26	56	400	112	20	11	2.2
20	.2	1.8	3.3	17	22	29	68	355	111	19	9.1	2.1
21	.2	1.7	4.4	17	23	33	79	316	109	17	8.1	1.7
22	.2	1.7	8.6	16	25	38	100	216	106	16	7.3	1.5
23	.2	1.7	256	17	24	41	104	172	94	14	6.2	1.3
24	.2	1.7	399	18	24	41	125	176	82	14	5.0	1.1
25	.2	1.9	178	16	25	37	156	208	77	13	4.0	1.1
26	.3	2.9	78	16	27	36	182	238	67	13	3.3	1.1
27	.3	3.2	55	16	29	35	216	268	61	11	2.8	1.0
28	.6	2.9	41	16	30	33	250	327	58	11	2.6	1.1
29	2.0	3.1	37	16	-----	34	274	355	56	10	2.5	1.3
30	1.4	3.7	36	16	-----	35	300	370	52	11	2.3	1.3
31	1.2	-----	29	16	-----	36	-----	348	-----	11	2.1	-----
Total	11.0	53.4	1,191.2	588	562	914	2,468	7,491	4,901	702	229.3	48.3
Mean	0.35	1.78	38.4	19.0	20.1	29.5	82.3	242	163	22.6	7.40	1.61
Ac-ft	22	106	2,360	1,170	1,110	1,810	4,900	14,860	9,720	1,390	455	96

Calendar year 1964 Max 399 Min 0.2 Mean 22.7 Ac-ft 16,480  
 Water year 1964-65 Max 485 Min 0.2 Mean 52.5 Ac-ft 38,000

Peak discharge (base, 200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-24	1600	6.81	634	5-17	1900	6.86	651
4-30	1800	6.17	432	5-30	1830	6.40	500

Note.---Stage-discharge relation affected by ice Jan. 1 to Feb. 16.



11-2390. Huntington-Shaver conduit outlet near Shaver Lake, Calif.

Location.--Lat 37°09'15", long 119°13'50", in NW¼ sec.15, T.9 S., R.25 E., on left bank at tunnel outlet, 2.3 miles northeast of Shaver Lake, and 3.5 miles south of town of Big Creek.

Records available.--October 1928 to September 1965. Monthly discharge only for October 1928, published in WSP 1315-A. Prior to October 1962, published as Huntington-Shaver conduit at outlet.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 6,680 ft (from topographic map).

Average discharge.--37 years, 214 cfs (154,900 acre-ft per year).

Extremes.--1928-65: Maximum daily discharge, 1,780 cfs June 3, 4, 1938; minimum daily, 0.9 cfs Sept. 8-11, 1955.

Remarks.--Records good. Conduit diverts from Huntington Lake to Shaver Lake, with additions from Pitman Creek and seepage en route.

Cooperation.--Water-stage-recorder graph and 12 discharge measurements furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	350	1.4	2.5	33	18	365	36	788	1,530	56	12	488
2	343	1.4	2.5	33	18	243	34	897	1,520	195	302	488
3	335	1.4	2.5	33	19	238	31	882	1,510	426	498	488
4	326	1.4	2.4	31	20	229	31	851	1,540	534	496	488
5	377	1.4	2.4	25	21	218	30	825	1,550	660	493	488
6	438	1.4	2.2	24	22	204	31	766	1,540	772	315	488
7	421	1.4	2.2	22	20	188	30	682	1,230	851	4.0	488
8	404	1.4	2.2	22	18	142	28	619	991	746	3.8	488
9	388	1.4	2.2	22	18	102	28	562	976	653	3.6	488
10	385	1.4	2.2	21	18	56	24	521	1,020	653	3.6	488
11	390	1.4	2.7	20	18	24	29	500	1,050	630	4.0	487
12	382	1.3	3.6	20	18	24	27	500	1,040	479	793	487
13	357	1.3	2.9	19	18	23	26	548	1,020	375	1,300	487
14	331	1.3	2.7	19	18	22	26	635	1,010	215	1,070	187
15	346	1.3	2.5	20	24	22	27	746	995	192	1,070	31
16	220	1.3	2.2	19	335	22	32	941	985	490	1,200	31
17	5.7	1.3	2.2	18	766	22	35	1,190	978	570	1,480	31
18	4.8	1.3	2.0	18	742	24	39	1,400	980	662	1,480	31
19	3.8	1.3	2.0	19	698	26	57	1,530	987	640	1,060	32
20	3.4	1.3	2.0	19	667	29	74	1,530	987	585	612	31
21	2.7	1.3	2.7	19	653	34	84	1,510	827	610	569	31
22	2.2	1.3	3.6	18	637	40	106	1,470	730	570	550	31
23	1.8	1.3	135	19	615	45	111	1,450	554	494	550	31
24	1.7	1.3	373	20	594	43	134	1,450	321	476	550	31
25	1.4	1.3	184	18	572	39	168	1,460	89	476	548	31
26	1.4	1.8	86	18	553	37	196	1,480	79	475	511	31
27	1.4	2.0	61	18	537	36	230	1,490	73	475	486	31
28	1.4	2.0	45	18	519	34	268	1,520	68	474	486	31
29	1.6	2.0	32	18	-----	35	326	1,540	65	474	487	31
30	1.7	2.2	33	18	-----	35	548	1,550	61	302	487	31
31	1.4	-----	33	18	-----	37	-----	1,540	-----	14	488	-----
Total	5,829.4	43.6	1,036.4	659	8,176	2,638	2,846	33,373	26,306	15,224	17,912.0	7,025
Mean	188	1.45	33.4	21.3	292	85.1	94.9	1,077	877	491	578	234
Ac-ft	11,560	86	2,060	1,310	16,220	5,230	5,640	66,190	52,180	30,200	35,530	13,930

Calendar year 1964 Max 624 Min 1.3 Mean 124 Ac-ft 90,300  
 Water year 1964-65 Max 1,550 Min 1.3 Mean 332 Ac-ft 240,100

11-2395. Shaver Lake near Big Creek, Calif.

Location.--Lat 37°08'40", long 119°18'10", in SE $\frac{1}{4}$  sec.13, T.9 S., R.24 E., near center of dam on Stevenson Creek, 6 miles southwest of town of Big Creek.

Drainage area.--29.1 sq mi.

Records available.--November 1909 to September 1965. Prior to January 1927, monthly contents only, published in WSP 1315-A.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Southern California Edison Co.). Prior to Jan. 11, 1927, gage on rock-filled dam a short distance upstream at different datum.

Extremes.--Maximum contents during year, 135,200 acre-ft July 21, 22; maximum elevation, 5,369.98 ft July 22; minimum contents, 9,950 acre-ft Apr. 16 (elevation, 5,281.37 ft).  
1909-65: Maximum contents, 135,900 acre-ft July 5, 1946 (elevation, 5,370.25 ft); minimum, 26 acre-ft Jan. 29, 1927, during period of construction.

Note.--Prior to 1960, maximum and minimum daily contents were published.

Remarks.--Storage began prior to 1905. Original lake formed by rock-filled dam (usable capacity, 5,500 acre-ft). Water diverted by Fresno Flume and Lumber Co.'s flumes Nos. 1 and 2 beginning prior to 1907 and discontinued July 7, 1920. Present lake formed by concrete-arch dam; dam completed Nov. 18, 1927. Usable capacity of present lake, 135,300 acre-ft between elevations 5,225 (trashrack foundation) and 5,370 ft (crest of spillway) above mean sea level. Water is received from Pitman Creek (since Feb. 22, 1928) and Huntington Lake (since Apr. 21, 1928) through Huntington-Shaver conduit and released for power development in Big Creek plants. Figures given herein represent usable contents.

Cooperation.--Record of contents furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

Capacity table (elevation, in feet, and contents, in acre-feet)

5,280	9,190	5,320	46,800
5,285	12,100	5,330	60,900
5,290	15,600	5,340	76,700
5,295	19,500	5,355	104,200
5,300	24,000	5,370	135,300
5,310	34,500		

Contents, in thousands of acre-feet, at 2400 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16.0	25.1	26.6	34.0	33.3	29.4	21.8	21.4	93.3	133.0	131.5	133.0
2	16.4	25.1	26.7	34.1	33.5	29.0	21.0	23.4	96.4	132.9	130.9	132.8
3	17.0	25.1	26.7	34.4	33.7	29.4	20.1	25.3	99.4	132.6	130.8	132.7
4	17.6	25.1	26.8	34.7	33.9	29.9	19.3	27.2	102.5	132.8	130.6	132.4
5	18.2	25.1	26.8	35.2	34.1	30.4	18.5	29.1	105.6	133.0	130.5	132.2
6	19.0	25.1	26.8	36.4	33.7	31.0	17.7	30.8	108.7	133.4	130.0	132.1
7	19.4	25.1	26.9	36.3	33.1	31.4	16.9	32.4	111.1	134.0	128.9	132.1
8	19.9	25.1	26.9	35.9	32.3	31.8	16.2	33.8	113.1	134.4	127.8	132.0
9	20.7	25.4	26.9	36.2	31.4	32.2	15.4	35.1	115.1	134.5	126.8	131.6
10	21.3	25.6	27.0	36.4	30.5	31.7	14.7	36.3	117.1	134.7	125.6	131.4
11	22.1	25.7	27.0	36.6	29.6	30.8	13.8	37.4	119.2	134.9	124.6	131.3
12	22.8	25.9	27.1	36.8	28.7	30.1	13.0	38.6	121.3	134.7	125.0	131.1
13	23.4	26.0	27.0	36.9	27.8	29.6	12.1	39.9	123.3	134.6	126.4	130.9
14	24.0	26.1	27.1	36.5	26.9	28.7	11.3	41.4	124.6	134.8	127.8	130.2
15	24.7	26.1	27.1	35.4	26.0	27.9	10.5	43.0	125.5	134.9	129.0	129.2
16	25.1	26.1	27.1	34.3	25.7	27.0	9.99	45.1	126.4	134.7	130.2	128.2
17	25.1	26.1	27.2	33.3	26.3	26.1	10.2	47.7	127.3	134.7	131.9	127.2
18	25.1	26.1	27.2	33.2	26.8	25.3	10.4	50.6	128.1	134.9	133.7	126.1
19	25.1	26.1	27.4	33.0	27.2	24.4	10.8	53.8	129.0	135.1	134.7	125.1
20	25.1	26.1	27.5	32.0	27.6	23.6	11.3	57.0	129.9	135.1	134.8	124.1
21	25.1	26.2	27.6	31.6	28.0	22.8	11.8	60.2	130.5	135.2	134.8	123.0
22	25.1	26.2	27.9	31.4	28.3	22.5	12.4	63.2	131.1	135.2	134.7	122.0
23	25.1	26.2	29.2	31.8	28.5	22.7	13.0	66.1	131.6	135.1	134.7	121.0
24	25.1	26.2	31.0	32.2	28.8	22.7	13.6	69.0	132.2	135.0	134.7	120.0
25	25.1	26.3	31.6	32.4	29.0	22.8	14.4	71.9	132.4	134.8	134.7	119.0
26	25.1	26.4	32.2	32.6	29.2	22.9	15.1	74.9	132.5	134.6	134.6	117.9
27	25.1	26.4	32.8	32.7	29.4	22.7	16.0	77.9	132.7	134.4	134.4	116.9
28	25.2	26.5	33.1	32.8	29.6	22.4	16.9	80.9	132.7	134.2	134.1	115.9
29	25.4	26.5	33.4	32.8	-	22.4	18.0	84.0	132.8	134.0	133.8	114.9
30	25.4	26.5	33.6	33.0	-----	22.5	19.4	87.1	132.9	133.6	133.6	113.9
31	25.0	-----	33.8	33.2	-----	22.5	-----	90.2	-----	132.5	133.3	-----
(†)	5,301.07	5,302.61	5,309.43	5,308.85	5,305.55	5,298.36	5,294.87	5,347.68	5,368.92	5,368.74	5,369.07	5,359.85
(‡)	+9,500	+1,500	+7,300	-600	-3,600	-7,100	-3,100	+70,800	+42,700	-400	+800	-19,400

Calendar year 1964..... ‡+1,800

Water year 1964-65..... ‡+93,400

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

11-2420. San Joaquin River above Willow Creek, near Auberry, Calif.

Location.--Lat 37°08'40", long 119°27'00", in SW¼ sec.15, T.9 S., R.23 E., on right bank 1,000 ft downstream from diversion dam, 0.4 mile upstream from Willow Creek, and 4.2 miles northeast of Auberry.

Drainage area.--1,299 sq mi.

Records available.--March 1951 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 1,175.54 above mean sea level (levels by Southern California Edison Co.).

Average discharge.--14 years, 368 cfs (266,400 acre-ft per year).

Extremes.--Maximum discharge during year, 4,600 cfs June 7 (gage height, 13.55 ft); minimum daily, 3.2 cfs Dec. 25, Jan. 4, 6, 8.  
1951-65: Maximum discharge, 73,200 cfs Dec. 23, 1955 (gage height, 54.2 ft, from floodmarks), from rating curve extended above 7,000 cfs on basis of computed flow over dam; no flow Sept. 25, 1951.

Remarks.--Records good. Flow regulated by nine powerplants and six reservoirs with combined capacity of about 559,900 acre-ft. Conduit to powerhouse No. 4 diverts 1,000 ft above station.

Cooperation.--Water-stage-recorder graph and 14 discharge measurements furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Dec. 23 to Mar. 9)

2.7	3.1	3.6	14	6.0	223
2.8	3.8	4.0	26	7.0	415
3.0	5.5	4.5	48	8.0	730
3.2	7.6	5.0	85	10.0	1,860
3.4	10	5.5	144	13.0	4,100

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	22	18	14	3.6	4.0	5.2	4.4	4.3	3,210	636	15	20
2	22	17	14	3.7	4.0	4.6	4.4	4.5	2,130	689	15	20
3	22	17	12	3.7	4.0	3.7	4.3	4.6	1,440	1,310	15	20
4	21	20	12	3.2	4.0	4.0	4.3	4.6	2,320	1,220	16	20
5	21	20	14	4.2	4.0	4.4	4.3	4.5	1,990	1,400	16	20
6	21	20	14	3.2	4.3	5.2	4.3	4.5	3,140	1,760	19	20
7	21	20	14	3.3	4.1	6.2	4.2	4.5	3,870	1,400	18	20
8	21	20	14	3.2	4.0	6.9	4.5	4.6	3,490	1,060	18	20
9	21	19	14	3.8	4.0	7.2	4.4	4.6	3,180	643	18	20
10	21	10	14	3.9	3.9	6.5	4.8	4.6	1,760	462	18	19
11	20	11	14	4.0	3.9	3.6	4.4	4.6	2,080	339	17	18
12	20	6.0	6.8	4.0	3.9	3.9	4.4	4.6	3,680	26	18	18
13	20	4.5	6.5	3.7	3.9	5.4	4.3	4.5	3,830	19	18	18
14	20	6.4	7.7	4.0	3.9	3.5	4.2	4.5	3,400	17	18	18
15	20	11	11	4.0	4.0	5.4	4.1	4.4	2,230	16	18	19
16	20	13	13	4.0	4.0	3.8	4.1	4.4	1,420	16	18	19
17	20	15	14	4.0	4.0	3.8	4.0	4.4	940	17	18	19
18	20	16	14	4.0	4.0	5.4	4.0	4.4	613	16	19	19
19	20	17	13	4.0	4.0	4.0	4.0	4.4	340	19	19	19
20	20	16	6.7	4.0	4.0	4.4	4.0	4.4	1,210	23	19	19
21	20	16	6.6	4.0	4.0	4.4	4.0	4.4	2,140	23	19	19
22	20	16	6.6	4.0	4.0	4.4	3.9	4.4	2,390	17	19	19
23	21	16	12	4.0	4.0	4.4	3.8	4.3	2,090	15	19	19
24	21	16	3.5	3.6	4.0	4.5	3.9	4.3	1,420	16	19	19
25	20	16	3.2	3.8	4.0	4.4	3.8	4.2	960	15	19	19
26	20	16	3.7	3.9	4.0	4.4	3.8	9.1	325	15	20	19
27	20	16	3.4	3.9	4.0	4.0	3.9	18	127	15	20	19
28	20	16	3.4	3.9	4.0	4.1	3.8	14	415	15	20	19
29	13	16	3.8	4.2	-----	4.4	3.7	20	423	16	20	18
30	16	15	3.8	4.0	-----	4.3	3.7	115	557	15	20	18
31	17	-----	3.7	4.0	-----	4.3	-----	3,320	-----	15	20	-----
Total	621	455.9	296.4	118.8	111.9	144.7	123.7	3,607.6	57,120	11,265	565	573
Mean	20.0	15.2	9.56	3.83	4.00	4.67	4.12	116	1,904	363	18.2	19.1
Ac-ft	1,230	904	588	236	222	287	245	7,160	113,300	22,340	1,120	1,140

Calendar year 1964 Max 22 Min 3.2 Mean 13.8 Ac-Ft 10,030  
Water year 1964-65 Max 3,870 Min 3.2 Mean 205 Ac-Ft 149,800

## SAN JOAQUIN RIVER BASIN

11-2424, North Fork Willow Creek near Sugar Pine, Calif.

Location.--Lat 37°23'50", long 119°33'55", in NE¼ sec.21, T.6 S., R.22 E., on right bank at road bridge 0.6 mile downstream from Soquel Campground, 3.0 miles upstream from Chilkoot Creek, and 4.6 miles southeast of Sugar Pine.

Drainage area.--16.9 sq mi.

Records available.--August to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 5,200 ft (from topographic map).

Extremes.--Maximum discharge during period August to September, 15 cfs Aug. 11 (gage height, 2.54 ft); minimum daily, 5.2 cfs Sept. 23-26.

Remarks.--Records good. No storage above station. Madera Irrigation District diverts up to 50 cfs through Soquel ditch 2.2 miles upstream to the Fresno River basin. No flow was diverted to Soquel ditch during August and September.

Discharge, in cubic feet per second, August to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1											-	5.5
2											-	5.8
3											-	5.8
4											-	5.8
5											-	5.8
6											-	6.1
7											11	8.9
8											11	8.6
9											11	7.3
10											10	6.4
11											13	6.1
12											13	5.8
13											12	5.5
14											11	5.5
15											11	5.5
16											9.9	5.5
17											9.6	5.5
18											8.9	5.8
19											8.6	7.0
20											8.0	6.7
21											8.0	6.1
22											8.0	5.5
23											7.6	5.2
24											7.3	5.2
25											7.0	5.2
26											6.4	5.2
27											6.4	5.5
28											5.8	6.4
29											5.8	6.4
30											5.8	5.5
31											5.5	-----
Total											-	181.1
Mean											-	6.04
Ac-ft											-	359
Calendar year		Max	Min	Mean	Mean	Ac-ft						
Water year		Max	Min	Mean	Mean	Ac-ft						

11-2434. Bass Lake near Bass Lake, Calif.

Location.--Lat 37°17'36", long 119°31'40", in NE¼ sec.26, T.7 S., R.22 E., at outlet tower at dam on North Fork Willow Creek, 2.2 miles southeast of town of Bass Lake, and 5 miles north of town of North Fork.

Drainage area.--50.5 sq mi.

Records available.--January 1912 to September 1965. Bass Lake was formerly called Crane Valley Reservoir.

Gage.--Water-stage recorder. Datum of gage is mean sea level (levels by Pacific Gas & Electric Co.).

Extremes.--Maximum contents during year, 45,720 acre-ft June 7 (elevation, 3,376.67 ft); minimum, 19,930 acre-ft Dec. 7 (elevation, 3,350.35 ft).  
1911-65: Maximum contents, 45,960 acre-ft June 17, 1923 (elevation, 3,376.8 ft); minimum, 35 acre-ft Nov. 19, 1953 (elevation, 3,270.2 ft).

Remarks.--Reservoir formed by earth- and rock-fill dam; completed in 1901 and raised in 1910. Since 1910 usable contents 45,100 acre-ft between elevations, 3,280.22 (invert of outlet conduit No. 3) and 3,376.40 ft (top of spillway gates) above mean sea level. Additional storage of 300 acre-ft not available for release. Water is released through Crane Valley powerhouse below dam for use in three small powerhouses before being discharged into Kerckhoff Reservoir at Wishon powerhouse. Water diverted from South Fork Willow Creek via Browns Creek ditch into Bass Lake near left end of dam. Madera Irrigation District has water rights to divert up to 50 cfs from North Fork Willow Creek through Soquel ditch into Nelder Creek (Fresno River basin) during October and March to July each year. Chilkoot ditch can divert up to 7 cfs from Chilkoot Creek into North Fork Willow Creek just upstream from diversion dam from Oct. 1 to Aug. 1 each water year if available.

Cooperation.--Record of contents furnished by Pacific Gas & Electric Co.

Month-end contents, in acre-feet, at 2400 hours, water year October 1964 to September 1965

Date	Contents
Sept. 30.....	24,200
Oct. 31.....	22,260
Nov. 30.....	20,910
Dec. 31.....	28,780
Jan. 31.....	34,900
Feb. 28.....	34,550
Mar. 31.....	33,960
Apr. 30.....	39,080
May 31.....	45,410
June 30.....	44,320
July 31.....	39,610
Aug. 31.....	30,990
Sept. 30.....	23,330

## SAN JOAQUIN RIVER BASIN

11-2435. Pacific Gas &amp; Electric Co. conduit No. 3 near Bass Lake, Calif.

Location.--Lat 37°17'25", long 119°31'45", in SE¼ sec.26, T.7 S., R.22 E., on left bank 1,000 ft downstream from Crane Valley powerhouse and dam and 2.5 miles southeast of town of Bass Lake.

Records available.--October 1940 to September 1965. Prior to October 1954, published as "near Crane Valley Reservoir."

Gage.--Water-stage recorder (digital) and concrete flume. Altitude of gage is 3,300 ft (from topographic map).

Average discharge.--25 years, 66.4 cfs (48,070 acre-ft per year).

Extremes.--1940-65: Maximum daily discharge, 167 cfs June 23, 24, 1965; no flow at times.

Remarks.--Records good except those for period of no gage-height record, which are fair. Conduit diverts from Bass Lake in sec.26, T.7 S., R.22 E. Water passed through Crane Valley powerhouse, then to powerhouse No. 3, and is stored temporarily at Manzanita Lake on North Fork Willow Creek; flow then diverted to powerhouses No. 2 and No. 1A before it enters San Joaquin River Kerckhoff Reservoir through Wishon powerhouse No. 1.

Cooperation.--Water-stage-recorder graph and 11 discharge measurements furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	61	149	47	141	149	149	150	150	117	159	152	146
2	44	118	47	140	150	150	150	150	153	122	152	148
3	.9	.6	97	139	150	150	150	150	155	.5	151	149
4	.9	7.0	149	139	150	150	150	151	156	8.0	151	149
5	.9	.8	149	140	150	149	151	151	157	.8	150	151
6	.9	7.0	148	142	149	149	151	151	157	131	150	153
7	.9	.5	39	143	143	145	151	150	158	148	150	154
8	.9	7.5	.8	143	151	149	147	149	159	148	150	152
9	1.0	.9	68	144	151	149	144	150	159	94	150	152
10	1.3	5.0	.4	144	151	149	145	149	159	.9	150	153
11	1.6	.5	7.1	144	151	148	145	149	159	9.2	150	152
12	1.9	7.0	.4	145	151	144	149	149	159	130	150	153
13	1.8	35	6.7	145	151	137	152	150	159	149	150	151
14	1.7	1.0	.4	145	151	143	152	151	158	149	150	149
15	1.6	4.2	8.3	145	150	148	151	150	159	149	150	148
16	1.4	68	.4	145	150	148	147	150	160	149	151	147
17	1.4	61	6.7	145	150	148	147	129	158	150	152	78
18	1.4	67	.4	145	150	148	148	150	162	150	153	144
19	1.4	69	6.9	145	149	148	148	151	163	151	154	142
20	1.4	99	1.0	139	149	148	19	151	165	152	154	52
21	1.4	143	5.8	147	150	148	57	152	166	153	153	0
22	7.9	149	.8	147	150	149	145	152	166	154	151	0
23	39	148	46	147	150	149	145	153	167	154	149	0
24	.3	149	145	148	149	130	136	153	167	150	148	0
25	6.7	149	144	148	149	148	134	153	163	156	148	0
26	99	149	143	149	150	149	134	152	161	157	147	0
27	155	149	142	149	150	149	148	152	159	157	146	0
28	153	149	142	149	150	149	149	153	159	156	147	0
29	150	149	142	149	-----	149	149	154	144	156	85	0
30	149	123	140	149	-----	149	150	154	159	155	147	0
31	149	-----	140	149	-----	149	-----	155	-----	153	146	-----
TOTAL	1,038.6	2,165.0	1,974.1	4,489	4,194	4,567	4,194	4,664	4,743	3,851.4	4,587	2,823.0
MEAN	33.5	72.2	63.7	145	150	147	140	150	158	124	148	94.1
AC-FT	2,060	4,290	3,920	8,900	8,320	9,060	8,320	9,250	9,410	7,640	9,100	5,600

CALENDAR YEAR 1964 MAX 155 MIN 0.2 MEAN 39.3 AC-FT 28,560  
 WATER YEAR 1964-65 MAX 167 MIN 0 MEAN 119 AC-FT 85,870

Note.--No gage-height record Oct. 6-19.

11-2440. North Fork Willow Creek near Bass Lake, Calif.

Location.--Lat 37°17'20", long 119°31'45", in SE¼ sec.26, T.7 S., R.22 E., on right bank 1,500 ft downstream from Bass Lake spillway and 2.5 miles southeast of town of Bass Lake.

Drainage area.--50.8 sq mi.

Records available.--May 1940 to September 1965. Prior to October 1944, published as Willow Creek below Crane Valley Reservoir. October 1944 to September 1954, published as "below Crane Valley Reservoir."

Gage.--Water-stage recorder and, since Dec. 21, 1961, broad-crested weir with V-notch. Altitude of gage is 3,200 ft (from topographic map).

Average discharge.--25 years, 14.8 cfs (10,710 acre-ft per year).

Extremes.--Maximum discharge during year, 447 cfs June 1 (gage height, 4.98 ft); minimum daily, 0.3 cfs for many days. 1940-65: Maximum discharge, 847 cfs Feb. 11, 1941 (gage height, 5.85 ft); minimum daily, 0.1 cfs Nov. 13-16, 1940.

Remarks.--Records good except those for period of no gage-height record, which are poor. Flow regulated by Bass Lake (see p. 611) and by diversion into Pacific Gas & Electric Co. conduit No. 3 near Bass Lake (see preceding page). At times in October and March to July, up to 50 cfs may be diverted through Soquel ditch into Nelder Creek in Fresno River basin. Brown's Creek ditch diverted 31,350 acre-ft from South Fork Willow Creek into Bass Lake in 1965 water year.

Cooperation.--Water-stage-recorder graph and 14 discharge measurements furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Jan. 6

Jan. 7 to Sept. 30

2.4	21	1.4	0.3	2.4	21
2.6	35	1.6	.7	2.6	33
2.9	62	1.8	1.4	2.9	56
Note.--Same as following table		2.0	2.5	3.3	96
below 2.4 ft.		2.2	10	3.7	152

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.4	0.5	0.5	1.0	48	22	1.8	1.2	80	1.0	0.8	0.4
2	.4	.4	.5	1.0	46	20	1.3	1.2	3.5	1.0	.8	.4
3	.4	.4	.5	1.0	44	17	1.0	1.2	4.7	.9	.8	.4
4	.4	.3	.5	1.5	42	14	.9	1.2	5.9	.9	.8	.3
5	.4	.3	.5	4.0	44	13	1.0	1.2	8.7	.9	.8	.3
6	.4	.3	.5	4.0	63	11	1.4	1.3	12	.9	.8	.3
7	.4	.3	.5	4.3	65	9.5	1.6	1.3	26	.9	.7	.3
8	.4	.3	.5	1.9	60	7.9	1.8	1.3	145	1.0	.7	.3
9	.4	.7	.5	1.5	54	6.3	2.0	1.4	120	1.0	.7	.3
10	.4	1.0	.5	1.3	49	3.5	1.8	1.4	29	.9	.7	.3
11	.4	1.3	.4	1.2	42	1.7	1.7	1.3	1.2	.9	.7	.3
12	34	2.5	.4	1.1	38	2.4	1.5	1.3	1.2	.9	.7	.3
13	57	1.2	.4	1.2	34	5.9	1.9	1.4	1.1	.9	.7	.3
14	57	.9	.4	1.4	32	5.5	1.9	1.4	1.1	1.0	.7	.3
15	.3	.8	.4	1.8	29	4.7	1.8	1.4	1.2	1.0	.6	.3
16	.3	1.4	.4	6.3	27	3.5	1.4	1.4	1.2	1.0	.6	.3
17	.3	1.0	.4	7.5	25	2.4	1.4	1.4	35	1.0	.6	50
18	.3	1.0	.4	9.1	23	1.8	1.3	1.4	44	1.0	.6	.4
19	.3	.9	.6	12	22	1.4	1.2	1.5	11	.9	.6	.3
20	.3	.9	.8	18	20	1.2	1.2	1.5	1.2	.9	.6	75
21	.3	.9	.8	21	20	1.0	1.2	1.6	1.1	.9	.5	125
22	.3	.8	.8	24	20	.8	1.2	1.6	1.1	.9	.5	125
23	.3	.8	2.0	27	20	.8	1.1	1.6	1.2	.9	.5	125
24	.3	.8	3.0	69	19	.9	1.1	1.6	1.1	.9	.5	78
25	.3	.7	2.5	75	19	1.0	1.1	1.6	1.0	.9	.5	.6
26	.3	.7	2.5	70	18	.9	1.1	1.6	1.0	.9	.5	.5
27	.4	.7	2.5	67	19	3.5	1.1	1.6	1.0	.9	.4	84
28	.4	.6	2.0	60	21	3.5	1.1	1.6	1.0	.9	.4	124
29	.8	.6	1.5	56	-----	3.1	1.1	1.6	1.0	.9	.4	111
30	.4	.6	1.0	54	-----	2.8	1.2	1.6	1.0	.9	.4	122
31	.3	-----	1.0	51	-----	2.5	-----	1.7	-----	.8	.4	-----
Total	158.3	23.6	29.2	655.1	963	175.5	41.2	44.4	543.5	28.7	19.0	1,025.9
Mean	5.11	0.79	0.94	21.1	34.4	5.66	1.37	1.43	18.1	0.93	0.61	34.2
Ac-ft	314	47	58	1,300	1,910	348	82	88	1,080	57	38	2,030

Calendar year 1964 Max 57 Min 0.2 Mean 0.98 Ac-ft 715  
 Water year 1964-65 Max 145 Min 0.3 Mean 10.2 Ac-ft 7,350

Note.--No gage-height record Nov. 17 to Jan. 6.

11-2465. Willow Creek at mouth, near Auberry, Calif.

Location.--Lat 37°09'10", long 119°27'30", in NE¼ sec.16, T.9 S., R.23 E., on left bank 40 ft upstream from bridge, 0.4 mile upstream from mouth, 1.3 miles downstream from Whiskey Creek, and 4.3 miles northeast of Auberry.

Drainage area.--130 sq mi.

Records available.--January 1952 to September 1965.

Gage.--Water-stage-recorder and, since Oct. 22, 1964, concrete control. Datum of gage is 1,174.69 ft above mean sea level (levels by Southern California Edison Co.).

Average discharge.--13 years, 46.3 cfs (33,520 acre-ft per year).

Extremes.--Maximum discharge during year, 4,940 cfs Dec. 23 (gage height, 15.70 ft); no flow Oct. 1-21.

1952-65: Maximum discharge, 15,700 cfs Dec. 23, 1955 (gage height, 28.5 ft, from floodmarks), from rating curve extended above 4,700 cfs; no flow at times in 1955, 1959-62, 1964-65.

Remarks.--Records good. Flow regulated by Bass Lake (see p. 611) and diversion into Pacific Gas & Electric Co. conduit No. 1. Records of water temperatures for the water year 1965 are published in Part 2 of this report.

Cooperation.--Water-stage-recorder graph and 23 discharge measurements furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

Revisions (water years).--1963 Report: 1956-58(M).

Rating table (gage height, in feet, and discharge, in cubic feet per second)

3.5	0	4.5	10	6.5	146
3.6	.2	4.8	16	7.0	225
3.7	.7	5.1	26	8.0	455
3.8	1.4	5.5	46	9.0	770
4.0	3.2	6.0	86	12.0	2,450
4.2	5.5				

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	3.1	11	170	194	120	95	305	108	12	4.9	1.5
2	0	6.4	8.2	156	188	106	113	265	124	12	4.3	1.6
3	0	3.4	12	205	385	103	86	197	114	11	4.0	1.7
4	0	2.6	8.3	277	375	95	65	162	111	11	3.8	1.6
5	0	2.1	7.4	715	205	91	64	150	111	10	3.8	1.6
6	0	1.8	7.0	1,310	395	45	123	145	105	9.8	3.6	1.7
7	0	1.6	6.5	1,060	247	43	160	128	112	8.6	3.5	2.2
8	0	1.4	6.4	468	218	41	191	112	197	8.3	3.3	2.6
9	0	5.0	6.5	332	197	40	205	108	283	7.8	2.9	2.4
10	0	20	6.8	273	177	39	201	107	139	7.8	2.8	2.2
11	0	13	9.0	225	163	40	162	109	61	7.7	2.8	1.9
12	0	161	41	183	152	61	135	106	24	7.6	3.5	1.7
13	0	56	19	160	142	111	178	109	21	7.2	3.4	1.7
14	0	18	15	149	135	73	168	122	20	7.0	3.1	1.5
15	0	11	9.7	150	127	56	164	119	20	6.5	2.8	1.5
16	0	8.3	8.2	140	123	51	149	132	21	6.4	2.5	1.4
17	0	7.0	7.6	135	118	49	143	152	22	6.3	2.2	1.4
18	0	6.0	7.0	150	115	47	136	153	54	6.5	2.1	1.5
19	0	5.6	14	156	117	49	181	154	25	5.8	2.2	1.6
20	0	5.5	31	170	123	67	199	136	18	5.4	2.1	1.8
21	0	5.1	21	157	126	67	183	120	17	5.1	2.1	1.6
22	.1	5.0	56	152	126	68	231	107	16	5.1	1.8	1.5
23	.1	5.3	2,120	167	120	51	220	87	15	4.8	1.6	1.3
24	.1	5.3	2,280	609	113	50	235	74	15	4.7	1.6	1.3
25	.1	5.5	694	352	108	44	263	66	15	4.9	1.7	1.1
26	.1	8.2	466	291	106	43	291	56	15	4.9	1.7	1.3
27	.1	10	1,200	241	132	99	295	53	15	5.1	1.6	1.6
28	.3	7.2	522	218	136	82	310	63	14	4.9	1.5	1.8
29	11	6.5	301	202	-----	60	332	66	13	4.7	1.4	2.0
30	6.0	6.8	231	194	-----	55	325	62	12	4.8	1.5	1.9
31	3.1	-----	201	196	-----	53	-----	62	-----	5.3	1.5	-----
Total	21.0	403.7	8,333.6	9,363	4,863	1,999	5,603	3,787	1,837	219.0	81.6	50.5
Mean	0.68	13.5	269	302	174	64.5	187	122	61.2	7.06	2.63	1.68
Ac-ft	42	801	16,530	18,570	9,650	3,960	11,110	7,510	3,640	434	162	100

Calendar year 1964 Max 2,280 Min 0 Mean 31.5 Ac-ft 22,900  
 Water year 1964-65 Max 2,280 Min 0 Mean 100 Ac-ft 72,510



11-2470. San Joaquin River below Kerckhoff powerhouse, near Prather, Calif.

Location.--Lat 37°04'45", long 119°33'35", in NW¼ sec.10, T.10 S., R.22 E., on left bank 1.1 miles downstream from Kerckhoff powerhouse, 1.4 miles upstream from Big Sandy Creek, and 3.8 miles southeast of Prather.

Drainage area.--1,480 sq mi.

Records available.--April 1910 to September 1914, December 1936 to December 1937, December 1942 to September 1965. Published as "near North Fork" 1910-14 and as "below Kerckhoff powerhouse" 1915-62.

Gage.--Water-stage recorder. Datum of gage is 563.4 ft above mean sea level (levels by Bureau of Reclamation). Prior to Oct. 1, 1914, at site 11 miles upstream at different datum.

Average discharge.--26 years (1910-14, 1943-65), 2,289 cfs (1,657,000 acre-ft per year).

Extremes.--Maximum discharge during year, 8,750 cfs Dec. 23 (gage height, 20.76 ft); minimum daily, 78 cfs Oct. 1, 3, 11.

1910-14, 1936-37, 1942-65: Maximum discharge, 92,200 cfs Dec. 23, 1955 (gage height, 51.0 ft, from floodmarks), from rating curve extended above 20,000 cfs on basis of records for San Joaquin River above Willow Creek, near Auberry and Willow Creek at mouth, near Auberry; minimum daily, 71 cfs Nov. 7, 1949.

Remarks.--Records excellent. Flow regulated by 12 powerplants and eight reservoirs with total usable capacity of about 609,300 acre-ft. Earliest storage began in 1901 at Bass Lake (see p. 611). See records for Florence, Lake Thomas A. Edison, Mammoth Pool Reservoir, Huntington, and Shaver Lakes, given elsewhere in this report. Backwater from Millerton Lake has affected record at times since November 1947, when spillway gates were installed at Friant Dam. Records of water temperatures for the water year 1965 are published in Part 2 of this report.

Cooperation.--Water-stage-recorder graph, telemark readings, and 13 discharge measurements furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

5.3	71	12.0	1,600
5.6	89	14.0	2,720
6.0	120	16.0	4,210
7.0	224	18.0	5,910
8.0	380	20.0	7,900
10.0	870		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	78	512	712	2,830	3,060	3,090	3,020	3,720	6,520	4,100	2,580	2,940
2	482	484	730	2,750	2,960	2,900	2,870	3,670	5,780	4,070	2,690	2,850
3	78	419	638	2,860	3,000	2,840	2,820	3,530	5,010	4,510	2,650	2,870
4	84	371	892	2,850	3,020	3,540	2,760	3,320	5,680	4,490	2,510	2,930
5	528	365	684	4,390	3,040	3,190	2,730	3,300	6,780	4,630	2,620	2,870
6	431	359	858	4,870	3,310	2,630	2,840	3,290	7,100	4,690	2,550	2,860
7	372	366	661	4,900	3,150	2,580	2,940	3,280	6,610	4,740	2,580	2,940
8	438	493	479	3,400	3,080	2,610	2,930	3,200	6,680	4,550	2,510	2,890
9	417	708	684	2,600	3,170	2,860	3,820	3,140	5,600	4,110	2,530	2,900
10	146	1,000	509	2,520	3,110	2,970	3,970	3,160	5,440	3,830	2,600	2,890
11	78	502	607	2,150	3,100	2,860	3,840	3,220	6,740	3,630	2,480	2,650
12	344	1,320	835	2,820	2,900	2,930	3,740	3,250	6,960	3,580	2,530	2,860
13	248	1,580	759	3,040	2,860	3,050	3,780	3,210	6,860	3,480	2,610	2,850
14	82	667	497	3,060	2,930	2,870	3,740	3,220	5,780	3,230	2,490	2,860
15	277	690	693	2,890	2,610	3,020	3,680	3,170	5,360	3,010	2,460	2,870
16	299	542	501	2,930	2,900	2,930	3,660	3,160	4,750	3,460	2,620	2,860
17	294	1,090	684	3,050	2,890	2,940	3,650	3,390	4,410	3,440	2,730	2,860
18	259	623	639	3,110	2,950	2,960	3,440	3,500	4,070	3,460	2,350	2,330
19	339	716	715	3,040	2,870	2,950	3,290	3,460	3,910	3,460	2,720	2,400
20	294	978	1,430	2,850	2,960	2,890	3,580	3,460	4,690	3,480	2,780	2,330
21	944	753	1,180	3,000	3,000	2,930	3,390	3,440	5,510	3,530	2,710	2,380
22	492	829	1,250	2,980	2,920	2,950	3,410	3,440	5,730	3,280	2,600	2,340
23	801	799	4,850	3,270	3,000	2,790	3,410	3,340	5,390	2,850	2,580	2,380
24	584	918	5,660	3,820	2,980	2,800	3,360	3,180	4,670	2,860	2,580	2,420
25	261	823	4,310	3,220	2,910	2,920	3,420	3,160	4,390	2,790	2,710	1,850
26	663	823	3,070	3,060	2,900	2,950	3,530	3,180	3,780	2,800	2,270	1,500
27	795	868	4,820	3,060	2,960	2,530	3,740	3,360	3,650	2,800	2,360	1,470
28	663	839	3,460	3,150	2,970	2,430	3,720	3,440	3,800	2,710	2,330	1,740
29	711	520	2,520	3,010	-----	3,020	3,750	3,480	3,950	2,600	2,460	1,670
30	893	710	2,780	2,450	-----	2,930	3,750	3,850	4,000	2,570	2,530	1,520
31	502	-----	3,170	2,420	-----	3,540	-----	5,900	-----	2,530	2,300	-----
Total	12,877	21,667	51,277	96,350	83,510	90,400	102,580	106,420	159,600	109,270	79,920	75,080
Mean	415	722	1,654	3,108	2,982	2,916	3,419	3,433	5,320	3,525	2,578	2,503
Ac-ft	25,540	42,980	101,700	191,100	165,600	179,300	203,500	211,100	316,600	216,700	158,500	148,900

Calendar year 1964 Max 5,660 Min 78 Mean 1,398 Ac-ft 1,015,000  
 Water year 1964-65 Max 7,100 Min 78 Mean 2,709 Ac-ft 1,962,000

## SAN JOAQUIN RIVER BASIN

11-2495. Friant-Madera Canal at Friant, Calif.

Location.--Lat 37°00'10", long 119°42'20", in NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 5, T.11 S., R.21 E., at Friant Dam 0.9 mile northeast of Friant.Records available.--October 1943 to September 1965. Prior to October 1954, published as Madera Canal near Friant.Gage.--Discharge computed on basis of valve openings in dam and head on valves. Prior to Oct. 1, 1948, water-stage recorder at several sites at various datums. Oct. 1, 1948, to Sept. 30, 1949, water-stage recorder at site 8.8 miles downstream.Average discharge.--22 years, 248 cfs (179,500 acre-ft per year).Extremes.--1943-65: Maximum daily discharge, 1,322 cfs June 27, 1964; no flow for several months in each year.Remarks.--Canal diverts from Millerton Lake at right end of Friant Dam for irrigation between San Joaquin and Fresno Rivers.Cooperation.--Records furnished by Bureau of Reclamation and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0	101	322	439	530	777	1137	1132	843
2				0	101	343	421	531	834	1097	1127	837
3				0	100	418	378	531	851	1096	1182	833
4				0	100	472	357	532	852	1055	1209	815
5				0	100	503	358	563	835	1078	1200	770
6				0	99	535	342	580	812	1216	1192	750
7				0	99	572	333	554	790	1277	1184	732
8				0	99	582	181	505	742	1275	1176	694
9				0	35	624	79	508	762	1273	1167	673
10				0	0	659	68	538	812	1200	1136	665
11				0	0	682	69	582	829	1155	1115	613
12				0	0	687	70	601	855	1202	1072	582
13				0	0	548	58	635	864	1251	1046	574
14				0	0	471	50	654	863	1259	987	548
15				0	0	468	50	673	891	1267	959	531
16				0	0	490	73	684	929	1270	972	526
17				0	0	515	86	683	942	1255	1011	561
18				0	0	520	93	681	942	1245	1041	580
19				0	0	496	87	695	994	1239	1047	574
20				0	0	484	81	703	1023	1259	1010	570
21				0	0	484	101	701	1055	1256	986	567
22				0	276	484	114	699	1183	1245	979	566
23				0	399	538	115	697	1250	1201	987	566
24				0	234	566	214	652	1243	1175	971	567
25				42	166	594	264	592	1227	1205	943	566
26				85	190	609	291	573	1219	1232	917	563
27				103	202	590	458	619	1217	1253	890	559
28				102	296	576	526	670	1214	1256	877	555
29				102	-----	576	527	708	1212	1248	869	551
30				102	-----	514	528	725	1210	1227	860	565
31				101	-----	477	-----	727	-----	1163	850	-----
Total	0	0	0	637	2597	16399	6811	19326	29229	37567	32094	18896
Mean	0	0	0	20.5	92.8	529	227	623	974	1212	1035	630
Ac-ft	0	0	0	1,260	5,150	32,530	13,510	38,330	57,970	74,510	63,660	37,480

Calendar year 1964 Max 1,322 Min 0 Mean 299 Ac-ft 217,400  
 Water year 1964-65 Max 1,277 Min 0 Mean 448 Ac-ft 324,400

## 11-2500. Friant-Kern Canal at Friant, Calif.

Location.--Lat 36°59'53", long 119°42'11", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.5, T.11 S., R.21 E., at Friant Dam 0.9 mile northeast of Friant.

Records available.--March 1949 to September 1965.

Gage.--Discharge computed on basis of valve openings in dam and head on valves. Prior to July 8, 1949, staff gages at various sites and datums. July 8, 1949, to Sept. 30, 1949, water-stage recorder at site 0.25 mile downstream.

Average discharge.--16 years, 1,210 cfs (876,000 acre-feet per year).

Extremes.--1949-65: Maximum daily discharge, 4,564 cfs Apr. 17, 1962; no flow for several months in most years.

Remarks.--Canal diverts from Millerton Lake at left end of Friant Dam for irrigation in upper San Joaquin Valley.

Cooperation.--Records furnished by Bureau of Reclamation and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	616	96		0	4,501	4,503	1,713	1,991	3,899	3,537	2,934	3,071
2	541	47		0	4,509	4,508	1,391	2,144	4,075	3,393	3,152	2,921
3	532	0		0	4,504	4,502	1,282	2,276	4,150	3,229	3,312	2,632
4	552	0		0	4,505	4,502	1,315	2,271	4,092	3,364	3,475	2,380
5	579	0		0	4,506	4,505	1,271	2,333	3,576	3,593	3,475	2,440
6	635	0		0	4,505	4,497	1,166	2,314	3,328	3,757	3,326	2,562
7	645	0		0	4,504	4,500	1,173	2,282	3,263	3,802	3,158	2,689
8	620	0		0	4,505	4,502	1,122	2,249	3,331	3,735	3,300	3,018
9	551	0		0	4,507	4,506	955	2,291	3,345	3,516	3,510	3,703
10	472	0		0	4,504	4,503	841	2,426	3,311	3,293	3,624	3,896
11	483	0		0	4,506	4,501	841	2,553	3,175	3,444	3,601	3,790
12	530	0		0	4,507	4,503	840	2,828	3,055	3,605	3,423	3,998
13	529	0		0	4,513	4,505	851	2,946	3,262	3,617	3,151	4,042
14	482	0		0	4,510	4,506	786	3,100	3,441	3,625	3,031	3,829
15	454	0		0	4,502	4,519	772	3,247	3,509	3,609	3,309	3,607
16	433	0		0	4,505	4,508	900	3,415	3,548	3,500	3,483	3,340
17	395	0		0	4,502	4,207	1,065	3,641	3,520	3,402	3,506	3,168
18	409	0		0	4,501	3,618	1,076	3,896	3,365	3,574	3,505	2,964
19	442	0		0	4,505	3,117	1,163	4,043	3,252	3,690	3,498	2,683
20	449	0		0	4,506	2,497	1,260	4,025	3,351	3,735	3,365	2,440
21	449	0		502	4,509	2,488	1,309	3,834	3,508	3,756	3,182	2,026
22	451	0		2,169	4,510	2,503	1,363	3,851	3,617	3,648	3,343	1,758
23	457	0		3,168	4,505	2,531	1,430	3,745	3,671	3,426	3,511	1,758
24	450	0		4,169	4,509	2,536	1,523	3,673	3,654	3,191	3,516	1,691
25	450	0		4,503	4,511	2,521	1,704	3,643	3,407	3,226	3,548	1,582
26	443	0		4,503	4,506	2,262	1,681	3,685	3,211	3,330	3,488	1,569
27	431	0		4,502	4,502	2,005	1,837	3,127	3,256	3,381	3,264	1,648
28	392	0		4,500	4,503	1,924	2,022	3,091	3,305	3,383	3,114	1,699
29	269	0		4,504	-----	1,944	2,097	3,087	3,340	3,335	3,310	1,733
30	159	0		4,503	-----	1,961	2,075	3,146	3,371	3,093	3,517	1,726
31	109	-----		4,495	-----	1,910	-----	3,353	-----	2,885	3,370	-----
Total	14,419	143	0	41,518	126,162	110,094	38,334	94,506	104,189	107,673	104,301	80,363
Mean	465	4.77	0	1,339	4,506	3,551	1,294	3,049	3,473	3,473	3,365	2,679
Ac-ft	28,600	284	0	82,350	250,200	218,400	77,030	187,400	206,700	213,600	206,900	159,400

Calendar year 1964 Max 3,117 Min 0 Mean 1,040 Ac-ft 754,800  
 Water year 1964-65 Max 4,519 Min 0 Mean 2,253 Ac-ft 1,631,000

11-2501. Millerton Lake at Friant, Calif.

Location.--37°00'00", long 119°42'10", in SW $\frac{1}{4}$  sec. 5, T.11 S., R.21 E., near center of Friant Dam on San Joaquin River, immediately upstream from Cottonwood Creek, and 0.9 mile northeast of Friant.

Drainage area.--1,637 sq mi.

Records available.--October 1941 to September 1965. Month-end contents only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Bureau of Reclamation). Prior to May 29, 1944, staff gages on left bank at same datum.

Extremes.--Maximum contents during year, 446,000 acre-ft Jan. 23 (elevation, 562.14 ft); minimum, 158,400 acre-ft Oct. 20 (elevation, 478.63 ft).

1951-65: Maximum contents, 528,200 acre-ft June 20, 1963 (elevation, 579.56 ft); minimum since initial season of normal operation, 42,700 acre-ft Nov. 8, 1949 (elevation, 406.6 ft).

Remarks.--Reservoir is formed by gravity-type concrete dam with spillway near center, completed in December 1942. Control valves installed in February 1944, and spillway gates installed in November 1947. Usable capacity, 503,200 acre-ft between elevations 375.4 ft (invert of river outlet) and 578.0 ft (top of drum-type spillway gates) above mean sea level. Not available for release, 17,400 acre-ft. Millerton Lake is one of the storage units in Central Valley project. Records represent total contents.

Cooperation.--Records furnished by Bureau of Reclamation.

Capacity table (elevation, in feet, and contents, in acre-ft)

470	138,400	520	279,400
480	161,700	530	314,900
490	187,500	540	353,000
500	215,600	550	393,400
510	246,300	570	482,200

Contents, in thousands of acre-feet, at 2400 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	171.1	163.5	202.2	310.8	420.8	335.5	272.5	390.9	369.2	410.9	326.8	212.3
2	170.7	164.2	203.6	316.4	417.8	331.8	274.7	392.4	371.0	409.6	323.4	210.4
3	169.6	164.9	204.7	322.2	414.6	327.8	276.9	393.5	370.9	409.6	319.5	209.2
4	168.4	165.5	206.3	328.4	411.6	325.0	278.9	394.2	372.3	409.4	315.2	208.4
5	167.8	166.0	207.5	337.9	408.9	321.5	281.0	394.5	377.3	409.1	310.9	207.7
6	167.2	166.5	209.0	349.5	406.8	317.0	283.9	394.9	383.4	408.2	306.9	206.6
7	166.5	167.1	210.3	361.8	404.3	312.3	287.0	395.5	388.4	407.2	303.3	205.6
8	165.8	167.8	211.1	369.6	401.4	307.6	291.3	396.2	393.7	406.0	299.1	204.0
9	165.4	169.0	212.3	375.2	398.9	303.2	297.6	396.6	396.5	404.3	294.6	201.1
10	164.7	171.1	213.1	380.6	396.3	299.0	305.4	396.8	398.8	402.4	290.0	197.8
11	163.6	171.9	214.1	385.2	393.6	294.5	312.3	396.5	404.0	399.9	285.4	194.6
12	163.0	174.7	215.5	391.1	390.7	290.8	318.4	395.9	414.0	396.9	281.4	191.4
13	162.3	177.8	217.0	397.2	387.5	287.4	324.8	394.8	415.4	393.9	278.1	188.2
14	161.2	178.9	217.8	403.2	384.6	283.5	330.9	393.5	418.1	389.7	275.1	185.3
15	160.7	180.0	219.1	409.0	381.1	280.0	337.0	391.9	419.9	385.6	271.3	182.9
16	160.2	180.8	219.8	414.9	378.1	276.2	342.5	389.7	420.1	382.5	267.5	181.0
17	159.8	182.9	221.0	421.0	375.1	272.9	347.6	387.6	419.6	379.6	263.8	179.3
18	159.3	183.8	222.1	427.1	372.2	270.7	352.1	385.1	418.9	376.4	260.9	177.0
19	158.9	185.2	223.3	433.1	369.2	269.3	356.2	382.3	417.9	373.2	257.2	175.3
20	158.4	186.8	226.0	438.9	366.1	269.1	360.6	379.6	418.2	369.7	253.9	173.9
21	158.9	188.0	228.1	443.7	363.3	269.0	364.5	377.1	419.9	366.4	250.8	173.6
22	158.9	189.4	230.5	445.3	359.7	268.8	363.2	374.7	421.5	363.0	247.2	173.5
23	159.3	191.0	241.7	445.7	355.9	268.2	371.8	372.2	422.3	359.2	243.4	173.5
24	159.6	192.6	254.4	445.5	352.7	267.5	374.9	369.8	421.7	355.9	239.5	173.6
25	159.0	194.1	263.0	443.3	349.2	267.0	377.5	367.4	420.8	352.3	235.8	173.1
26	159.1	195.6	269.4	440.5	345.8	267.0	380.5	365.1	419.2	348.6	231.6	171.8
27	159.6	197.3	280.4	437.7	342.4	267.1	383.1	364.1	417.2	344.7	228.0	170.2
28	160.1	198.8	287.5	434.9	338.9	266.9	385.1	363.3	415.4	340.7	224.7	169.0
29	161.0	199.7	292.6	431.9	-----	267.8	387.0	362.4	413.8	336.6	221.4	167.7
30	162.1	201.0	298.3	427.8	-----	268.6	388.9	362.0	412.2	333.0	217.8	166.1
31	163.0	-----	304.9	423.6	-----	270.8	-----	365.3	-----	329.8	214.4	-----
(+)	480.51	494.91	527.26	557.08	536.38	517.49	548.90	543.12	554.44	533.98	499.56	481.77
(+)	- 9.3	+ 38.0	+ 103.9	+ 118.7	- 84.7	- 68.1	+ 118.1	- 23.6	+ 46.9	- 82.4	- 115.4	- 48.3
(+)	1.040	340	240	270	520	950	1310	3.080	3.430	4.080	3.270	1.730

Calendar year 1964..... + -24.3

Water year 1964-65..... + - 6.2

+ Elevation, in feet, at end of month.

+ Change in contents, in thousands of acre-feet.

++ Evaporation, in acre-feet.

11-2510. San Joaquin River below Friant, Calif.

Location.--Lat 36°59'04", long 119°43'24", in SW $\frac{1}{4}$  sec. 7, T.11 S., R.21 E., on left bank 0.5 mile west of Friant, 1.5 miles downstream from Cottonwood Creek, 2 miles downstream from Friant Dam, and at mile 268.1.

Drainage area.--1,675 sq mi.

Records available.--October 1907 to September 1965. Published as "near Pollasky" October 1907 to December 1908 and as "near Friant" January 1909 to September 1938. Monthly discharge only for October 1907 to November 1908, published in WSP 1315-A.

Gage.--Water-stage recorder. Datum of gage is 294.00 ft above mean sea level (levels by Bureau of Reclamation). Oct. 18, 1907, to Nov. 9, 1913, staff gage at site 4.5 miles upstream at different datum. Nov. 10, 1913, to Sept. 30, 1938, water-stage recorder at site 2.5 miles upstream at different datum.

Average discharge.--58 years, 2,306 cfs (1,669,000 acre-ft per year), including diversions to Friant-Madera Canal, 1944-65, Friant-Kern Canal, 1949-65, and adjusted for change in contents and evaporation from Millerton Lake 1941-65.

Extremes.--Maximum discharge during year, 215 cfs July 10 (gage height, 2.70 ft); minimum daily, 35 cfs Dec. 30, Jan. 2.

1907-41 (prior to regulation by Millerton Lake): Maximum discharge, 77,200 cfs Dec. 11, 1937 (gage height, 23.8 ft, site and datum then in use); minimum, 38 cfs (regulated) July 29, 1940.

1941-65: Maximum discharge, 11,200 cfs Jan. 23, 1943 (partially regulated, prior to installation of outlet gate), and 8,000 cfs Apr. 14, May 13, 1952 (fully regulated); minimum, 5.5 cfs Oct. 20, 1941.

Remarks.--Records good. Flow regulated by Millerton Lake beginning in 1944 (see p. 618) and by other reservoirs described in Remarks for San Joaquin River below Kerkhoff powerhouse. Uncontrolled pondage in Millerton Lake began in September 1941. Diversion for irrigation through Friant-Madera and Friant-Kern Canals (see p. 616, 617).

Cooperation.--Eleven discharge measurements furnished by Bureau of Reclamation.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	109	83	64	38	46	58	78	79	84	132	96	99
2	108	82	64	35	46	58	70	79	90	132	96	101
3	108	78	64	36	44	56	60	82	96	132	99	101
4	108	71	64	38	44	56	59	91	96	132	118	101
5	109	70	63	41	46	55	59	99	98	132	128	99
6	109	70	63	50	51	55	60	99	98	132	128	101
7	109	71	64	88	48	55	65	99	99	140	160	101
8	109	71	65	61	43	55	57	99	101	149	188	102
9	109	73	65	54	42	55	49	98	113	180	193	108
10	109	74	65	50	41	59	67	98	118	212	204	104
11	108	71	65	48	41	65	70	98	120	210	193	102
12	106	73	65	46	40	69	55	98	126	210	164	101
13	108	73	65	44	40	68	56	98	128	207	153	101
14	108	71	64	43	41	55	55	98	128	207	151	101
15	106	71	64	47	41	54	49	98	130	207	151	101
16	101	67	64	49	39	54	47	99	128	207	151	101
17	99	60	64	48	39	54	45	99	128	207	151	99
18	99	61	64	48	42	54	44	99	128	204	151	99
19	94	61	65	49	52	54	42	99	130	204	151	99
20	91	60	65	53	54	53	42	99	132	204	151	99
21	91	60	64	49	54	53	42	99	130	170	153	96
22	90	60	65	47	55	54	42	101	132	130	153	93
23	90	60	68	46	55	60	41	101	132	130	149	96
24	90	60	68	58	55	70	39	99	132	130	138	88
25	90	62	69	50	55	70	39	94	132	118	132	83
26	90	63	69	47	55	70	38	88	132	106	132	83
27	90	61	68	47	57	73	47	88	132	106	120	74
28	98	61	53	46	58	74	73	83	132	99	109	67
29	94	61	36	46	-----	72	73	83	130	96	109	67
30	91	63	35	48	-----	71	76	83	132	96	109	63
31	85	-----	38	46	-----	73	-----	83	-----	96	104	-----
Total	3106	2022	1919	1496	1324	1382	1639	2910	3587	4817	4385	2830
Mean	100	67.4	61.9	48.3	47.3	60.7	54.6	93.9	120	155	141	94.3
Ac-ft	6160	4010	3810	2970	2630	3730	3250	5770	7110	9550	8700	5610
Mean†	431	716	1756	3344	3129	3049	3583	3431	5413	3566	2718	2620
Ac-ft†	26500	42630	108000	205600	173800	187500	213200	211000	322100	219300	167100	155900
Calendar year 1964:	Max	181	Min	35	Mean	101	Ac-ft	73,180	Mean†	1,431	Ac-ft†	1,039,000
Water year 1964-65:	Max	212	Min	35	Mean	87.4	Ac-ft	63,300	Mean†	2,808	Ac-ft†	2,033,000

† Adjusted for change in contents and evaporation from Millerton Lake and for diversions to Friant-Madera and Friant-Kern Canals.

†† Diversion to Friant-Kern Canal, in acre-feet.

## SAN JOAQUIN RIVER BASIN

11-2555. Panoche Creek below Silver Creek, near Panoche, Calif.

Location.--Lat 36°37'08", long 120°40'22", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec. 16, T.15 S., R.12 E., on right bank 1.1 miles downstream from Silver Creek, 9 miles east of Panoche, and 18 miles southwest of Mendota.

Drainage area.--293 sq mi.

Records available.--October 1949 to September 1953, October 1958 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 558.26 ft above mean sea level, datum of 1929.

Average discharge.--11 years, 1.85 cfs (1,340 acre-ft per year); median of yearly mean discharges, 0.65 cfs (470 acre-ft per year).

Extremes.--Maximum discharge during year, 147 cfs Oct. 28 (gage height, 2.96 ft); no flow for several months.

1949-53, 1958-65: Maximum discharge, 3,160 cfs Jan. 12, 1952 (gage height, 7.05 ft from floodmarks), from rating curve extended above 870 cfs on basis of slope-area measurements at gage heights 6.25 ft and 7.01 ft; no flow for several months in each year.

The flood of Apr. 2, 1958, reached a stage of 7.01 ft (discharge, 5,090 cfs, by slope-area measurement).

Remarks.--Records fair. Some very small dams for stock use above station.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Jan. 7-9, Apr. 1-3, Apr. 7 to May 13)

1.25	0	1.7	3.0
1.3	.1	1.8	5.4
1.4	.2	1.9	8.6
1.5	.6	2.0	13
1.6	1.4		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0			0	0.2	0.1	0.7	0.1				
2	0			0	.2	.1	1.9	.1				
3	0			0	.2	.1	1.6	.2				
4	0			0	.2	.1	.9	.3				
5	0			0	.2	.1	.7	.2				
6	0			0	.3	.2	.7	.2				
7	0			1.7	.4	.2	1.4	.3				
8	0			2.0	.3	.9	1.1	.2				
9	0			1.2	.2	.5	1.6	.2				
10	0			.8	.2	.3	5.2	.1				
11	0			.7	.2	.2	3.5	.1				
12	0			.6	.2	.2	2.5	.1				
13	0			.4	.2	.6	2.2	.1				
14	0			.4	.2	.8	1.7	0				
15	0			.4	.2	.4	1.6	0				
16	0			.4	.2	.2	1.4	0				
17	0			.3	.2	.2	1.3	0				
18	0			.2	.1	.2	1.2	0				
19	0			.2	.2	.1	1.0	0				
20	0			.4	.2	.1	.7	0				
21	0			.4	.1	.1	.6	0				
22	0			.3	.1	.1	.6	0				
23	0			.2	.1	.1	.5	0				
24	0			.2	.1	.1	.4	0				
25	0			.4	.1	.1	.3	0				
26	0			.4	.1	.1	.2	0				
27	0			.3	.1	.1	.2	0				
28	11			.3	.1	.1	.1	0				
29	4.0			.3	-----	.1	.1	0				
30	0			.2	-----	.1	.1	0				
31	0	-----		.2	-----	.1	-----	0	-----			-----
Total	15.0	0	0	12.9	5.1	6.7	36.0	2.2	0	0	0	0
Mean	0.48	0	0	0.42	0.18	0.22	1.20	0.07	0	0	0	0
Ac-ft	30	0	0	26	10	13	71	4.4	0	0	0	0

Calendar year 1964 Max 12 Min 0 Mean 0.12 Ac-ft 85

Water year 1964-65 Max 11 Min 0 Mean 0.21 Ac-ft 154

Peak discharge (base, 50 cfs).--Oct. 28 (2200) 147 cfs (2.96 ft)

11-2571. Miami Creek near Oakhurst, Calif.

Location.--Lat 37°23'37", long 119°39'12", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.22, T.6 S., R.21 E., on left bank 200 ft downstream from county road and 4.6 miles north of Oakhurst.

Drainage area.--10.6 sq mi.

Records available.--October 1960 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 3,500 ft (from topographic map).

Average discharge.--5 years, 6.41 cfs (4,640 acre-ft per year).

Extremes.--Maximum discharge during year, 549 cfs Dec. 23 (gage height, 7.11 ft) from rating curve extended above 210 cfs; minimum daily, 0.2 cfs Oct. 5, 7.  
1960-65: Maximum discharge, 1,140 cfs Feb. 1, 1963 (gage height, 9.08 ft), from rating curve extended above 210 cfs; no flow for many days in most years.

Remarks.--No known diversions above station.

Cooperation.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.4	2.4	2.9	13	16	12	18	22	8.9	5.5	3.1	1.7
2	.3	2.8	3.5	13	16	11	23	21	9.2	5.5	2.7	1.7
3	.3	3.1	4.5	14	15	11	20	20	9.4	5.2	2.6	1.7
4	.3	1.3	4.0	18	15	10	18	18	9.6	5.0	2.7	1.6
5	.2	1.1	3.7	40	21	10	18	18	8.8	4.8	2.7	1.6
6	.3	1.0	3.3	193	27	10	22	18	6.0	4.8	2.7	1.8
7	.2	1.0	3.1	89	20	11	23	17	8.0	4.4	2.6	2.0
8	.3	1.0	2.9	38	17	10	22	17	8.5	4.3	2.6	2.1
9	1.2	5.1	2.9	28	16	10	21	18	8.7	4.3	2.6	2.0
10	1.0	9.5	2.9	24	15	10	19	17	8.2	4.4	2.5	2.0
11	.4	5.7	4.3	22	14	10	19	16	7.7	4.2	2.6	1.9
12	.3	29	6.3	20	14	12	18	15	7.3	4.1	3.0	1.8
13	.3	11	4.2	19	13	13	20	16	7.4	4.2	3.0	1.8
14	.3	4.8	3.5	18	13	12	22	14	7.1	3.9	2.8	1.7
15	.4	3.8	3.2	17	12	13	27	14	7.3	3.9	2.6	1.7
16	.3	3.4	3.1	17	12	13	32	14	7.9	3.6	2.4	1.7
17	.4	3.0	2.9	18	12	13	32	13	7.6	3.7	2.4	1.7
18	.4	2.7	2.7	19	11	13	35	13	7.2	3.6	2.4	1.7
19	.3	2.6	5.8	20	12	12	37	12	6.9	3.5	2.3	1.7
20	.3	2.3	9.4	21	12	12	36	12	6.8	3.4	2.2	1.7
21	.3	2.2	8.7	19	12	12	34	13	6.7	3.2	2.2	1.7
22	.3	2.1	27	18	12	11	33	13	6.6	3.2	2.2	1.6
23	.3	2.1	237	21	12	11	30	12	6.1	3.2	2.1	1.7
24	.3	2.1	176	43	11	11	30	12	6.2	3.0	2.2	1.7
25	.4	2.3	46	24	11	11	30	11	6.4	3.2	2.1	1.6
26	.5	3.0	39	20	11	11	30	9.2	6.4	3.1	2.2	1.6
27	.5	3.3	69	18	15	21	28	10	6.5	3.0	2.2	1.8
28	1.7	3.2	34	17	14	17	27	9.7	5.9	3.1	2.1	2.1
29	6.4	3.1	23	16	-----	15	25	9.3	5.5	3.0	2.0	2.1
30	2.2	2.9	19	16	-----	14	23	9.0	5.5	2.9	1.8	1.9
31	1.3	-----	17	16	-----	14	-----	8.8	-----	3.1	1.8	-----
Total	22.1	122.9	774.8	889	401	376	772	442.0	220.3	120.3	75.4	53.4
Mean	0.71	4.10	25.0	28.7	14.3	12.1	25.7	14.3	7.34	3.88	2.43	1.78
Ac-ft	44	244	1,540	1,760	795	746	1,530	877	437	239	150	106

Calendar year 1964 Max 237 Min 0.2 Mean 5.00 Ac-ft 2,630  
 Water year 1964-65 Max 237 Min 0.2 Mean 1.78 Ac-ft 8,470

## SAN JOAQUIN RIVER BASIN

11-2575. Fresno River near Knowles, Calif.

Location.--Lat 37°14'15", long 119°46'25", in NW¼ sec.15, T.8 S., R.20 E., on left bank at Fresno Crossing, 0.1 mile downstream from Bean Gulch and 6 miles northeast of Knowles.

Drainage area.--133 sq mi.

Records available.--September 1911 to December 1913, November 1915 to September 1965.

Gage.--Water-stage recorder (digital). Datum of gage is 1,086.4 ft above mean sea level (river-profile survey). Prior to June 13, 1930, staff gage 10 ft upstream and June 13, 1930, to Jan. 13, 1931, water-stage recorder at site 40 ft upstream at datum about 0.34 ft lower.

Average discharge.--50 years (1911-12, 1916-65), 76.1 cfs (55,090 acre-ft per year); median of yearly mean discharges, 60 cfs (43,400 acre-ft per year).

Extremes.--Maximum discharge during year, 3,000 cfs Dec. 23 (gage height, 5.59 ft); minimum daily, 1.6 cfs Oct. 5.

1911-13, 1915-65: Maximum discharge, 13,300 cfs Dec. 23, 1955 (gage height, 11.52 ft), from rating curve extended above 2,500 cfs on basis of slope-area measurement of maximum flow; no flow at times in some years.

Remarks.--Records good. Diversions for irrigation of about 160 acres above station. Diversions into Fresno River basin above station up to 50 cfs at times since 1897 from San Joaquin River basin and up to 50 cfs at times since about 1888 from Merced River basin, for irrigation downstream from station.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 30

May 1 to Sept. 30

0.9	1.0	1.7	121	1.0	3.3	1.5	57
1.0	2.3	2.0	226	1.1	6.4	1.7	121
1.1	4.9	2.5	437	1.2	11	1.9	190
1.2	10	3.0	695	1.3	20		
1.3	20	3.5	1,010	1.4	35		
1.4	35	4.0	1,380				
1.5	57						

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	2.2	15	22	199	137	100	210	178	124	65	21	8.4
2	2.2	20	25	176	132	118	302	174	128	63	17	8.5
3	2.2	16	37	320	126	127	226	171	120	62	15	8.6
4	2.2	15	31	313	125	119	197	164	122	60	14	8.5
5	1.6	12	27	585	145	116	184	158	120	56	13	8.5
6	2.6	11	25	1,420	262	119	257	155	113	52	13	8.5
7	2.6	9.5	25	1,150	183	123	310	154	112	49	12	9.6
8	2.6	9.5	23	488	158	123	402	148	114	48	12	11
9	2.6	17	23	342	149	116	461	151	115	47	11	11
10	3.1	100	25	283	137	113	638	145	112	46	11	9.6
11	3.1	58	27	245	130	114	486	137	109	44	10	8.5
12	2.6	167	47	220	124	151	387	136	106	43	12	7.1
13	3.1	147	36	197	123	199	504	135	104	41	13	6.7
14	2.6	57	30	182	123	148	451	130	103	40	13	6.5
15	2.8	33	28	171	119	137	403	127	103	38	11	6.1
16	2.8	27	26	161	113	137	375	125	111	36	11	5.9
17	2.8	23	25	158	110	129	350	122	105	34	9.7	6.2
18	3.1	21	23	158	109	127	330	119	99	36	9.4	7.3
19	3.3	18	33	162	108	126	337	118	97	34	9.4	8.1
20	3.1	18	74	184	108	125	327	116	96	30	8.9	9.0
21	3.1	18	58	158	107	120	283	128	93	29	8.5	9.1
22	2.8	18	78	149	104	117	276	124	90	28	8.4	8.3
23	2.6	18	1,340	150	104	116	254	121	88	27	8.9	7.9
24	3.3	18	1,370	389	100	106	239	115	85	26	8.6	8.3
25	3.9	18	480	221	99	125	235	110	83	25	9.1	7.9
26	4.4	22	314	183	98	127	226	107	83	25	11	7.6
27	4.4	28	793	164	119	236	213	111	81	25	10	7.9
28	6.4	24	625	155	121	204	201	122	75	25	10	9.0
29	39	21	323	150	-----	161	193	121	70	23	9.4	9.7
30	34	22	261	144	-----	153	186	121	67	22	9.2	9.8
31	17	-----	249	141	-----	154	-----	120	-----	23	8.6	-----
TOTAL	174.1	1,001.0	6,503	9,118	3,573	4,186	9,443	4,163	3,028	1,202	348.1	249.1
MEAN	5.62	33.4	210	294	128	135	315	134	101	38.8	11.2	8.30
AC-FT	345	1,990	12,900	18,090	7,090	8,300	18,730	8,260	6,010	2,380	690	494

CALENDAR YEAR 1964	MAX	1,370	MIN	.1	MEAN	53.8	AC-FT	39,040
WATER YEAR 1964-65	MAX	1,420	MIN	1.6	MEAN	118	AC-FT	85,280

Peak discharge (base, 590 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	1115	5.59	3,000	4-10	1945	3.12	767
12-27	0530	3.49	1,000	4-13	1345	2.83	602
1-6	1515	4.60	1,910				



11-2577. Picayune Creek near Coarsegold, Calif.

Location.--Lat 37°13'15", long 119°42'25", in NW¼ sec.20, T.8 S., R.21 E., at culvert on State Highway 41, 3.0 miles south of Coarsegold.

Drainage area.--7.96 sq mi.

Records available.--Water years 1959-64 (annual maximum), October 1964 to September 1965.

Gage.--Water-stage recorder, crest-stage gages, and tipping bucket rain gage. Altitude of gage is 1,860 ft (from topographic map). Sept. 21, 1959 to Sept. 11, 1964 crest-stage gage at same site and datum.

Extremes.--Maximum discharge during year, 174 cfs Jan. 6 (gage height, 4.55 ft); no flow for several months.

1959-65: Maximum discharge, 216 cfs Feb. 10, 1962 (gage height, 5.12 ft), from rating curve extended above 67 cfs on basis of computation of flow through culvert at gage height 5.12 ft; no flow for several months of each year.

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

Rating table, (gage height, in feet, and discharge, in cubic feet per second)

1.43	0	2.2	16
1.5	0.2	2.5	28
1.6	1.8	3.0	56
1.8	5.5	4.0	130
2.0	10		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0.1	3.0	5.8	3.2	20	6.2	2.1	0.1		
2		0	.1	7.0	4.7	2.8	23	6.0	2.1	.1		
3		0	.1	12	4.5	2.6	11	5.5	2.0	.1		
4		0	.1	12	4.3	2.6	3.8	5.3	1.8	.1		
5		0	.1	21	6.0	2.5	8.2	5.1	1.6	.1		
6		0	.1	54	9.2	2.5	23	4.9	1.5	0		
7		0	.1	45	7.2	2.8	33	4.9	1.3	0		
8		0	.1	20	6.0	3.3	64	4.5	1.5	0		
9		0	.1	13	4.9	2.8	64	4.3	1.3	0		
10		0.2	.1	11	5.9	2.8	85	4.1	1.2	0		
11		.1	.1	9.1	10	2.8	43	4.1	1.0	0		
12		.5	.1	8.2	4.1	9.6	30	3.7	0.8	0		
13		.2	.1	7.5	4.1	21	40	3.5	.7	0		
14		.1	.1	7.2	4.1	7.2	25	3.5	.7	0		
15		.1	.1	6.8	4.1	5.1	21	3.3	.8	0		
16		.1	.1	6.6	4.1	3.7	19	3.2	.8	0		
17		.1	.1	6.4	4.9	3.5	17	3.0	.8	0		
18		.1	.1	6.3	4.5	3.5	15	2.6	.7	0		
19		.1	.2	6.3	4.1	3.5	14	2.6	.5	0		
20		.1	.3	7.6	3.9	3.5	13	2.6	.4	0		
21		.1	.2	7.5	3.7	3.5	12	3.0	.4	0		
22		.1	.3	7.4	3.3	3.5	11	3.2	.2	0		
23		.1	50	9.4	3.0	3.5	10	2.8	.2	0		
24		.1	24	15	2.8	3.5	9.5	2.3	.2	0		
25		.1	7.5	9.0	2.8	3.3	9.2	2.1	.2	0		
26		.1	13	7.6	2.8	3.2	8.5	2.1	.2	0		
27		.1	29	7.4	3.7	12	3.0	2.1	.2	0		
28		.1	22	6.7	3.5	8.5	7.2	2.1	.1	0		
29		.1	13	6.5	-----	5.8	7.0	2.1	.1	0		
30		.1	9.7	6.2	-----	5.1	6.5	2.1	.2	0		
31		-----	12	6.2	-----	5.8	-----	2.0	-----	0		-----
Total	0	2.7	183.0	363.9	132.0	149.0	670.9	103.8	25.6	0.5	0	0
Mean	0	0.09	5.90	11.7	4.71	4.81	22.4	3.51	0.85	0.02	0	0
Ac-ft	0	5.4	363	722	262	296	1330	216	51	1.0	0	0
(†)	2.2	5.6	-	-	0.9	2.4	5.0	-	-	-	-	-

Calendar year 1964: Max - Min - Mean - Ac-ft -  
 Water year 1964-65: Max 85 Min 0 Mean 4.48 Ac-ft 3,250

Peak discharge (base, 40 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	Unknown	4.00	130	4-1	2100	3.32	78
12-27	0200	2.93	52	4-8	1200	4.07	136
1-6	Unknown	4.55	174	4-13	0700	2.89	49
3-13	0100	2.83	46	4-10	1500	3.77	112

Note.--No gage-height record Dec. 19-23, Jan. 1-29.  
 † Precipitation, in inches.

11-2580. Fresno River near Daulton, Calif.

Location.--Lat 37°05'50", long 119°53'20", in NW¼ sec.3, T.10 S., R.19 E., on left bank 0.5 mile downstream from Willow Creek and 5.3 miles southeast of Daulton.

Drainage area.--258 sq mi.

Records available.--October 1941 to September 1965.

Gage.--Water-stage recorder (digital). Datum of gage is 382.4 ft above mean sea level (levels by Corps of Engineers). October 1941 to Sept. 27, 1946, at site 300 ft downstream and Sept. 27, 1946, to Sept. 28, 1949, at present site, at datum 3.37 ft higher. Sept. 28, 1949, to Mar. 19, 1963, at datum 1.00 ft higher.

Average discharge.--24 years, 96.6 cfs (69,940 acre-ft per year); median of yearly mean discharges, 74 cfs (53,600 acre-ft per year).

Extremes.--Maximum discharge during year, 3,460 cfs Dec. 23 (gage height, 6.73 ft), no flow Oct. 1-8.

1941-65: Maximum discharge, 17,500 cfs Dec. 23, 1955 (gage height, 12.64 ft, present datum), from rating curve extended above 6,400 cfs; no flow at times most years.

Remarks.--Records good. No diversion for irrigation between this station and station near Knowles. Some regulation at low flow by mining operations above station. See Remarks for station near Knowles.

Discharge, in cubic feet per second, water year October 1964 to September 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	0	20	23	314	182	131	257	222	125	58	22	8.6
2	0	23	22	234	170	126	379	186	127	56	19	8.2
3	0	17	31	380	160	131	317	187	124	53	17	8.3
4	0	14	36	467	151	128	260	180	120	53	14	7.7
5	0	11	32	739	166	128	232	173	121	52	12	8.4
6	0	8.7	32	1,750	387	123	297	166	116	46	11	9.0
7	0	7.2	29	1,970	296	128	480	167	110	43	12	9.2
8	0	10	28	919	219	133	570	157	113	44	11	9.8
9	.3	19	28	625	201	128	766	154	116	43	11	10
10	.4	91	27	495	183	123	1,120	152	111	39	11	11
11	.6	103	28	424	175	123	938	142	107	34	11	9.7
12	.5	122	35	372	161	133	694	139	103	32	11	8.4
13	.6	284	40	324	153	257	790	136	103	33	12	7.1
14	.7	120	31	284	155	197	760	131	101	33	14	5.7
15	.5	72	31	266	153	161	628	127	99	30	13	4.9
16	.7	54	29	245	141	150	560	125	104	26	12	4.6
17	1.1	43	28	230	134	144	515	124	105	28	11	4.0
18	1.3	36	28	221	131	142	470	119	98	26	10	4.2
19	1.8	29	28	215	128	139	465	118	88	26	9.0	5.1
20	1.7	24	50	271	129	136	460	115	88	25	8.3	5.3
21	1.4	21	62	236	128	133	397	119	88	23	7.9	5.9
22	1.3	20	57	203	126	131	374	131	86	23	7.4	6.0
23	1.4	22	1,290	185	125	128	343	123	87	23	7.4	5.6
24	2.4	23	1,600	580	117	123	317	116	86	22	7.4	5.4
25	3.7	22	793	420	112	131	309	108	79	22	7.8	5.4
26	4.6	23	341	293	110	136	297	105	73	22	8.8	5.2
27	5.9	30	1,090	250	122	222	271	108	71	23	9.7	5.2
28	18	31	988	232	158	313	250	124	70	23	9.8	5.4
29	50	25	557	215	-----	206	229	132	66	23	8.5	6.4
30	30	23	396	200	-----	182	212	128	62	23	11	7.4
31	21	-----	364	191	-----	176	-----	127	-----	23	9.3	-----
TOTAL	149.9	1,347.9	8,154	13,750	4,573	4,742	13,957	4,341	2,947	1,030	346.3	207.1
MEAN	4.84	44.9	263	444	163	153	465	140	98.2	33.2	11.2	6.90
AC-FT	297	2,670	16,170	27,270	9,070	9,410	27,680	8,610	5,850	2,040	687	411

CALENDAR YEAR 1964 MAX 1,600 MIN 0 MEAN 60.6 AC-FT 43,970  
 WATER YEAR 1964-65 MAX 1,970 MIN 0 MEAN 152 AC-FT 110,200

Peak discharge (base, 600 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	1430	6.73	3,460	1-24	1430	3.88	838
12-27	1015	4.95	1,390	4-10	2315	4.90	1,380
1-6	1945	6.15	2,650				

Note.--No gage-height record Sept. 22-30.

11-2588, East Fork Chowchilla River near Ahwahnee, Calif.

Location.--Lat 37°20'10", long 119°48'55", in NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 8, T.7 S., R.20 E., on right bank 1.1 miles upstream from mouth and 5.5 miles west of Ahwahnee.

Drainage area.--57.8 sq mi.

Records available.--October 1957 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 980 ft (from topographic map).

Average discharge.--8 years, 27.9 cfs (20,200 acre-ft per year).

Extremes.--Maximum discharge during year, 3,190 cfs Dec. 23 (gage height, 9.85 ft); no flow for many days.  
1957-65: Maximum discharge, 3,710 cfs Jan. 31, 1963 (gage height, 10.34 ft); no flow for many days in 1959-64.

Remarks.--No known diversions above station.

Cooperation.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	4.9	9.7	114	56	38	83	78	29	14	4.1	1.0
2	0	9.4	9.1	101	54	36	99	77	31	14	3.4	1.2
3	0	5.8	12	204	55	35	82	73	30	13	2.9	1.3
4	0	4.3	11	204	56	33	70	69	28	12	2.8	1.1
5	0	3.5	9.2	290	72	32	67	65	26	10	2.6	1.0
6	0	3.1	7.8	947	111	33	113	63	25	8.7	2.5	1.1
7	0	2.9	8.1	452	81	36	136	61	24	7.7	2.2	1.4
8	0	2.8	8.2	329	71	41	192	56	25	6.5	1.9	2.0
9	0	13	8.7	177	67	36	196	54	26	7.2	1.9	2.1
10	0	82	9.0	150	61	36	274	51	24	7.2	1.9	1.6
11	0	60	10	135	59	34	200	50	21	7.0	2.1	1.4
12	0	219	21	122	55	61	175	46	19	6.7	2.3	1.4
13	0	95	15	109	53	82	244	46	19	6.5	2.7	1.2
14	0	35	13	100	52	59	226	44	19	6.3	2.7	1.2
15	0	22	13	94	51	51	202	42	19	5.5	2.1	1.2
16	0	19	13	90	49	45	183	40	20	4.9	1.9	1.2
17	0	15	13	88	46	43	163	41	20	4.6	1.6	1.3
18	0	13	13	86	46	43	154	39	18	4.9	1.5	1.3
19	0	13	59	89	44	41	153	37	17	4.6	1.4	1.4
20	0	11	67	97	42	38	150	37	16	4.5	1.4	1.7
21	0	11	43	84	42	36	135	40	16	4.1	1.2	1.6
22	0	10	73	78	41	33	126	41	16	4.1	1.2	1.8
23	0	9.8	1130	79	39	34	115	41	15	4.0	1.6	1.6
24	0	9.6	746	194	37	34	110	38	15	3.8	1.6	1.5
25	0	9.3	201	105	37	33	105	35	15	3.7	1.6	1.4
26	.1	10	223	89	36	33	99	33	15	3.5	1.6	1.5
27	.1	13	526	82	47	106	92	31	15	4.1	1.4	1.9
28	.2	10	328	72	44	75	86	29	15	4.1	1.4	2.3
29	15	9.4	180	62	-----	54	82	29	15	3.7	1.1	3.0
30	12	8.6	151	61	-----	46	78	28	14	3.8	1.2	2.7
31	5.6	-----	146	59	-----	51	-----	27	-----	4.0	1.0	-----
Total	33.0	734.4	4,076.8	4,843	1,504	1,388	4,190	1,440	607	198.7	60.8	46.4
Mean	1.06	24.5	132	156	53.7	44.8	140	46.5	20.2	6.41	1.96	1.55
Ac-ft	65	1,460	8,090	9,610	2,980	2,750	8,310	2,860	1,200	394	121	92

Calendar year 1964 Max 1,130 Min 0 Mean 22.2 Ac-ft 16,110  
Water year 1964-65 Max 1,130 Min 0 Mean 52.4 Ac-ft 37,930

Note.--No gage-height record July 4-17.

11-2589. West Fork Chowchilla River near Mariposa, Calif.

Location.--Lat 37°25'15", long 119°52'25", in SW 1/4 sec.10, T.6 S., R.19 E., on left bank 15 ft downstream from bridge on Indian Peak Road, 0.5 mile downstream from Humberg Creek, and 6.7 miles southeast of Mariposa.

Drainage area.--33.6 sq mi.

Records available.--October 1957 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 1,680 ft (from topographic map).

Average discharge.--8 years, 15.0 cfs (10,860 acre-ft per year).

Extremes.--Maximum discharge during year, 2,260 cfs Dec. 23 (gage height, 7.70 ft); no flow for many days.  
1957-65: Maximum discharge, 3,590 cfs Apr. 3, 1958 (gage height, 8.67 ft); no flow for many days in each year.

Remarks.--No known diversions above station.

Cooperation.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.1	0.7	72	27	18	59	33	7.7	1.0		
2	0	.1	.8	62	26	16	49	32	8.4	.9		
3	0	0	1.0	122	24	14	52	30	7.9	.8		
4	0	0	1.0	154	23	14	45	28	7.3	.7		
5	0	0	.8	186	42	13	44	26	6.9	.6		
6	0	0	.8	922	39	14	87	25	6.1	.5		
7	0	0	.8	543	27	17	118	24	6.3	.4		
8	0	0	.8	166	25	17	173	22	6.4	.4		
9	0	.6	.8	120	24	15	183	21	7.0	.4		
10	0	19	.8	99	21	14	247	20	6.0	.3		
11	0	21	1.0	86	21	14	209	19	5.2	.3		
12	0	157	1.4	75	20	32	170	13	4.4	.3		
13	0	42	1.0	65	19	43	202	17	3.9	.3		
14	0	8.2	.9	59	19	26	166	16	4.2	.2		
15	0	3.3	.9	55	18	22	140	16	4.3	.2		
16	0	2.2	1.0	50	17	20	128	15	4.4	.2		
17	0	1.5	1.0	47	18	18	113	14	3.9	.2		
18	0	1.2	.9	44	18	18	98	13	3.6	.2		
19	0	1.2	1.4	44	17	18	88	12	3.3	.2		
20	0	1.0	1.2	46	17	17	79	12	2.8	.1		
21	0	1.0	6.2	39	16	16	72	14	2.7	.1		
22	0	.9	71	37	16	16	67	14	2.4	.1		
23	0	.8	823	50	15	16	60	14	2.0	.1		
24	0	.8	467	92	14	17	56	12	2.0	.1		
25	0	.7	91	50	14	17	53	11	1.9	0		
26	0	.9	174	42	14	16	49	10	1.9	0		
27	0	.9	337	39	26	90	45	9.1	1.9	0		
28	0	.9	210	37	20	53	41	8.4	1.6	0		
29	.1	1.0	100	34	-----	37	38	7.7	1.4	0		
30	0	.8	102	32	-----	31	35	7.2	1.1	0		
31	0	-----	105	30	-----	35	-----	7.2	-----	0		
Total	0.1	267.1	2528.6	3,499	597	724	2,966	527.6	128.9	8.6	0	0
Mean	0.003	8.90	81.6	113	21.3	23.4	98.9	17.0	4.30	0.28	0	0
Ac-ft	0.2	530	5,020	6,940	1,180	1,440	5,880	1,050	256	17	0	0
Calendar year 1964	Max	823	Min	0	Mean	11.0	Ac-ft	7,980				
Water year 1964-65	Max	922	Min	0	Mean	30.8	Ac-ft	22,310				

11-2589.2 Middle Fork Chowchilla River near Nipinnawasee, Calif.

Location.--Lat 37°23'00", long 119°50'12", in SW  $\frac{1}{4}$  sec. 25, T.6 S., R.19 E., on right bank 3.4 miles upstream from West Fork and 6 miles west of Nipinnawasee.

Drainage area.--13.6 sq mi.

Records available.--October 1958 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 1,520 ft (from topographic map).

Average discharge.--7 years, 6.44 cfs (4,660 acre-ft per year).

Extremes.--Maximum discharge during year, 1,010 cfs Dec. 23 (gage height, 8.56 ft); no flow for many days.

1958-65: Maximum discharge, 1,280 cfs Feb. 1, 1963 (gage height, 10.10 ft); no flow for several months in most years.

Revisions.--The maximum discharge for the water years 1959 and 1960 have been revised to 320 cfs Feb. 16, 1959 (gage height, 4.82 ft) and 353 cfs Mar. 28, 1960 (gage height, 4.94 ft) superseding figures published in WSP 1635 and 1715, respectively.

Remarks.--Small diversion above station for irrigation.

Cooperation.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.1	1.0	40	14	8.9	23	15	5.5	2.1	0.4	0.1
2	0	.1	1.1	35	13	8.6	22	15	5.6	1.9	.2	.1
3	0	.1	1.5	80	13	7.7	18	15	5.7	1.9	.2	.1
4	0	0	2.0	102	12	7.6	14	14	5.2	1.8	.2	.1
5	0	0	1.4	127	17	7.4	15	14	4.7	1.7	.2	.1
6	0	0	1.3	371	23	7.3	39	14	4.4	1.5	.2	.1
7	0	0	1.1	193	15	7.6	55	13	4.4	1.4	.1	.2
8	0	0	1.0	73	13	10	79	13	4.4	1.3	.1	.2
9	0	1.3	1.0	54	13	8.5	76	12	5.2	1.3	.1	.1
10	0	8.6	1.0	48	12	8.1	99	11	4.6	1.2	.1	.1
11	0	7.5	1.4	42	11	7.8	69	10	4.1	1.2	.2	.1
12	0	84	2.0	34	11	14	61	9.7	3.5	1.1	.2	.1
13	0	19	1.8	29	11	24	105	8.7	2.5	.8	.2	.1
14	0	6.9	1.4	27	11	14	99	8.6	3.5	.8	.2	.1
15	0	4.1	1.3	25	10	11	70	8.1	3.6	.7	.2	.1
16	0	3.6	1.2	23	9.5	9.7	50	7.7	3.3	.6	.1	.1
17	0	2.7	1.1	21	9.7	9.2	41	7.4	3.6	.6	.1	.1
18	0	2.2	1.1	19	9.9	8.8	36	7.6	3.5	.5	.1	.2
19	0	1.8	8.8	20	9.2	8.8	32	6.9	3.0	.5	.1	.2
20	0	1.5	12	22	9.1	8.6	30	7.2	3.0	.5	.1	.2
21	0	1.3	6.0	19	8.9	8.5	28	7.8	2.8	.4	.1	.1
22	0	1.2	20	17	8.9	8.1	27	8.0	2.7	.4	.1	.1
23	0	1.2	409	19	8.5	7.8	25	7.7	2.8	.3	.1	.1
24	0	1.1	277	70	8.2	8.0	24	7.0	2.6	.3	.1	.1
25	0	1.1	56	27	8.1	8.2	23	6.3	2.6	.4	.1	.1
26	0	1.3	69	22	7.5	7.6	21	6.3	2.6	.4	.2	.1
27	0	1.3	205	19	11	35	20	6.0	2.7	.3	.1	.2
28	.1	1.3	115	18	11	22	19	5.2	2.5	.3	.1	.2
29	1.2	1.1	54	17	-----	14	18	5.3	2.4	.3	.1	.2
30	.1	1.0	52	16	-----	12	16	5.3	2.1	.3	.1	.2
31	-----	-----	51	15	-----	13	-----	5.0	-----	.4	.1	-----
Total	1.4	155.4	1358.5	1644	318.5	341.8	1254	287.8	109.1	27.2	4.5	3.9
Mean	0.05	5.18	43.8	53.0	11.4	11.0	41.8	9.28	3.64	0.88	0.15	0.13
Ac-ft	2.8	308	2690	3260	632	678	2490	571	216	54	8.9	7.7

Calendar year 1964 Max 409 Min 0 Mean 6.17 Ac-ft 4,470

Water year 1964-65 Max 409 Min 0 Mean 15.1 Ac-ft 10,920

## SAN JOAQUIN RIVER BASIN

11-2590. Chowchilla River at Buchanan damsite, near Raymond, Calif.

Location.--Lat 37°13'02", long 119°59'03", in SW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.22, T.8 S., R.18 E., on right bank 1.9 miles upstream from Raynor Creek and 4.3 miles west of Raymond.

Drainage area.--235 sq mi.

Records available.--October 1921 to September 1923, October 1930 to September 1965. Prior to Oct. 1, 1962, published as "at Buchanan damsite."

Gage.--Water-stage recorder (digital). Datum of gage is 407.30 ft above mean sea level, adjustment of 1912 (levels by Merced Irrigation District). October 1921 to September 1923 at site 2.5 miles upstream at different datum.

Average discharge.--37 years (1921-23, 1930-65), 96.6 cfs (69,940 acre-ft per year); median of yearly mean discharges, 68 cfs (49,200 acre-ft per year).

Extremes.--Maximum discharge during year, 8,380 cfs Dec. 23 (gage height, 11.15 ft); no flow for many days.

1921-23, 1930-65: Maximum discharge, 30,000 cfs Dec. 23, 1955 (gage height, 16.50 ft), from rating curve extended above 6,000 cfs on basis of slope-area measurement at gage height 15.06 ft; no flow for part of each year except 1937-38, 1940-43.

Remarks.--Records good. No storage or large diversion above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1		0	12	441	157	95	182	148	46	16	2.4	0
2		0	12	314	149	87	178	142	49	15	2.3	0
3		0	12	476	142	82	181	143	49	14	1.9	0
4		0	13	589	136	77	149	136	46	12	1.6	0
5		.8	13	776	153	75	135	129	43	12	1.4	0
6		1.5	13	2,450	265	73	179	125	41	11	1.1	0
7		1.5	13	2,330	195	77	395	125	39	10	1.0	0
8		1.5	13	906	156	85	434	118	38	9.3	.8	0
9		5.8	13	591	145	82	593	114	41	8.6	.7	0
10		57	13	488	136	78	1,190	111	41	8.1	.6	.2
11		104	14	421	130	77	950	105	38	7.8	.7	.4
12		455	17	365	124	83	611	99	34	7.7	1.0	.5
13		344	23	317	119	211	670	94	31	7.4	.9	.4
14		109	19	285	120	149	674	91	30	7.1	.9	.3
15		57	17	265	117	116	580	88	29	6.7	1.0	.2
16		38	15	241	109	99	487	84	31	6.1	1.0	.2
17		28	15	223	104	90	420	79	31	5.3	.7	.1
18		22	14	212	102	88	377	76	30	5.1	.5	.2
19		18	18	207	100	85	349	72	28	4.8	.4	.2
20		16	90	234	98	81	334	70	26	4.4	.3	.2
21		15	64	205	97	78	310	71	24	3.9	.2	.1
22		14	54	187	94	75	288	78	23	3.8	.2	.2
23		13	3,130	177	91	73	260	78	22	3.7	.2	.2
24		12	2,540	463	87	72	240	73	21	3.5	.2	.4
25		12	757	305	84	72	226	67	20	3.0	.1	.4
26		13	423	232	81	70	211	62	20	2.8	.1	.4
27		14	1,900	205	90	178	194	58	20	2.8	.1	.4
28		14	1,390	194	118	282	178	54	20	2.7	.1	.4
29		12	698	184	-----	146	167	51	19	2.7	.1	.5
30		12	545	173	-----	113	157	48	17	2.7	0	.6
31		-----	555	163	-----	103	-----	47	-----	2.9	0	-----
TOTAL	0	1,390.1	12,425	14,619	3,499	3,152	11,299	2,836	947	212.9	22.5	6.5
MEAN	0	46.3	401	472	125	102	377	91.5	31.6	6.87	.73	.22
AC-FT	0	2,760	24,640	29,000	6,940	6,250	22,410	5,630	1,880	422	45	13

CALENDAR YEAR 1964 MAX 3,130 MIN 0 MEAN 55.1 AC-FT 40,000  
WATER YEAR 1964-65 MAX 3,130 MIN 0 MEAN 138 AC-FT 99,990

## Peak discharge (base, 770 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	1115	11.15	8,380	1- 7	0845	8.87	4,180
12-27	0830	8.05	3,080	4-10	2000	6.85	1,840

11-2602. Bear Creek near Cathays Valley, Calif.

Location.--Lat 37°28'40", long 120°06'45", in SE 1/4 sec. 21, T.5 S., R.17 E., on downstream side of bridge, 0.9 mile upstream from Raster Gulch, and 3.3 miles north of town of Cathays Valley.

Drainage area.--24.9 sq mi.

Records available.--January 1958 to September 1965. Prior to October 1963, published as "near Cathay."

Gage.--Water-stage recorder. Altitude of gage is 1,210 ft (from topographic map).

Average discharge.--7 years, 11.0 cfs (7,960 acre-ft per year).

Extremes.--Maximum discharge during year, 2,490 cfs Jan. 7 (gage height, 9.97 ft) from rating curve extended above 800 cfs; no flow for many days.

1958-65: Maximum discharge, 2,520 cfs (revised) Feb. 1, 1963 (gage height, 10.07 ft revised), from rating curve extended above 1,200 cfs; no flow for many days in each year.

Revisions.--The maximum discharge for the water years 1958 and 1962 have been revised to 2,280 cfs Apr. 3, 1958 (gage height, 9.36 ft) and 1,840 cfs Feb. 9, 1962 (gage height, 8.46 ft) superseding figures published in WSP 1635 and Surface Water Records of California, Vol. 2 1963.

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

Cooperation.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

Revisions.--Revised figures of discharge, in cubic feet per second, for the water year 1963, superseding those published in Surface Water Records of California, 1963 Vol. 2, are given herewith:

1963  
Jan. 31 ..... 797  
Feb. 1 ..... 803

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-ft
January 1963.....	935.0	797	0.2	30.2	1,850
February 1963.....	2,151.6	803	2.3	76.8	4,270
Water year 1963 .....	-	803	0	18.7	13,510
Calendar year 1963.....	-	803	0	18.8	13,590

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0.7	157	5.9	2.5	9.2	4.3	0.3	0.1		
2		0	.8	89	5.3	2.1	29	4.0	.3	.1		
3		0	1.0	273	4.7	1.9	29	3.7	.3	0		
4		0	1.1	197	4.3	1.8	16	3.6	.3	0		
5		0	.9	144	7.9	1.6	13	3.3	.3	0		
6		0	.8	862	25	1.7	65	2.9	.3	0		
7		0	.8	781	12	1.6	99	2.7	.2	0		
8		0	.7	134	9.6	1.8	288	2.4	.2	0		
9		0	.7	63	8.3	1.6	312	2.2	.2	0		
10		2.4	.7	39	7.1	1.6	660	1.9	.2	0		
11		36	.8	27	6.4	1.6	299	1.7	.2	0		
12		185	1.0	20	5.8	2.1	144	1.5	.2	0		
13		99	1.0	16	5.3	6.4	182	1.3	.1	0		
14		19	.9	13	5.3	4.3	113	1.3	.1	0		
15		9.4	.9	11	4.7	3.2	67	1.2	.1	0		
16		5.4	.9	9.1	4.2	2.7	45	1.1	.2	0		
17		3.3	.9	7.7	3.8	2.6	31	.8	.1	0		
18		2.4	.9	6.8	3.5	2.4	22	.7	.1	0		
19		1.9	3.3	7.0	3.1	2.1	18	.7	.1	0		
20		1.5	6.8	7.1	3.0	2.1	14	.8	.1	0		
21		1.2	6.9	6.0	2.9	2.0	13	.9	.1	0		
22		1.0	45	5.4	2.7	1.8	11	1.1	.1	0		
23		.9	937	5.6	2.4	1.8	9.2	1.0	.1	0		
24		.9	911	39	2.2	1.7	8.3	.8	.1	0		
25		.8	142	17	2.0	1.6	7.6	.7	.1	0		
26		1.0	350	12	2.0	1.6	6.9	.7	.1	0		
27		.9	395	10	3.4	2.1	6.4	.5	.1	0		
28		.9	365	8.9	3.7	1.7	5.8	.5	.1	0		
29		.8	162	7.9	-----	8.8	5.2	.4	.1	0		
30		.7	224	7.0	-----	6.3	4.8	.3	.1	0		
31		-----	458	6.4	-----	5.8	-----	.3	-----	0		
Total	0	374.4	4021.5	2988.9	156.5	117.1	2533.4	49.3	4.9	0.2	0	0
Mean	0	12.5	130	96.4	5.59	3.78	84.4	1.59	0.16	0.006	0	0
Ac-ft	0	743	7980	5930	310	232	5020	98	10	0.4	0	0

Calendar year 1964 Max 937 Min 0 Mean 13.8 Ac-ft 10,030  
Water year 1964-65 Max 937 Min 0 Mean 28.1 Ac-ft 20,320

## SAN JOAQUIN RIVER BASIN

11-2602.25 Burns Creek at Hornitos, Calif.

Location.--Lat 37°29'52", long 120°14'17", in NW 1/4 sec. 17, T.5 S., R.16 E., on right bank 0.3 mile south of Hornitos and 12.4 miles upstream from Burns Dam.

Drainage area.--26.7 sq mi.

Records available.--October 1964 to September 1965. December 1958 to September 1964 in reports of California Department of Water Resources.

Gage.--Water-stage recorder. Altitude of gage is 780 ft (from topographic map).

Extremes.--Maximum discharge during year, 5,900 cfs, Jan. 6 (gage height, 9.30 ft); no flow for many days.  
Flood of Feb. 15, 1962, reached a stage of 10.66 ft (discharge, 9,200 cfs), from rating curve extended above 400 cfs on basis of slope-conveyance computation of peak flow.

Remarks.--There is no known diversion above station.

Cooperation.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0.4	44	5.0	2.4	1.9	1.7	0.7	0.2		0
2		0	.4	24	4.3	2.2	2.1	1.8	.7	.1		0
3		0	.5	82	4.5	2.0	2.2	1.7	.6	.2		0
4		0	.5	31	4.4	1.8	1.6	1.6	.5	.1		0
5		0	.4	20	22	1.7	1.3	1.7	.4	.1		0
6		0	.3	571	16	1.8	2.6	1.7	.4	.1		0
7		0	.3	730	6.6	1.8	5.3	1.5	.3	.1		0
8		0	.3	62	5.2	1.6	60	1.3	.4	.1		0
9		.2	.3	35	4.9	1.5	74	1.2	.4	.1		0
10		15	.3	24	4.3	1.4	300	1.0	.4	.1		0
11		13	.4	18	4.2	1.3	90	.8	.4	.1		0
12		41	.3	14	3.8	2.2	27	.7	.3	.1		0
13		44	.3	11	3.7	3.1	91	.6	.4	.1		0
14		5.8	.3	8.9	3.7	1.7	30	.7	.4	.1		0
15		3.1	.4	7.6	3.4	1.4	15	.7	.3	.1		0
16		2.1	.3	6.5	3.1	1.3	10	.6	.3	.1		0
17		1.6	.4	5.8	2.9	1.3	7.5	.6	.3	0		0
18		1.3	.4	5.4	2.6	1.4	5.8	.6	.3	.1		0
19		1.0	.9	6.4	2.5	1.3	5.2	.7	.3	.1		0
20		.9	.8	6.6	2.5	1.3	4.4	.8	.3	0		0
21		.8	.9	5.4	2.6	1.0	4.3	1.0	.2	0		0
22		.7	3.7	4.8	2.2	1.1	3.5	1.1	.2	0		0
23		.6	332	24	2.1	1.2	3.1	1.2	.3	0		0
24		.6	585	34	2.0	1.1	2.9	1.0	.3	0		0
25		.6	49	9.8	1.8	1.1	2.8	1.2	.3	0		0
26		.8	228	7.9	1.9	1.1	2.5	1.0	.2	0		0
27		.6	132	6.7	3.9	9.8	2.4	1.1	.2	0		0
28		.5	188	6.2	2.9	3.8	2.2	.9	.2	0		0
29		.4	64	6.2	-----	2.0	2.0	.9	.2	0		.1
30		.4	80	5.5	-----	1.8	1.8	.8	.2	0		.1
31		-----	234	5.2	-----	1.8	-----	.8	-----	0		-----
Total	0	135.0	1904.8	1828.9	129.0	60.3	764.4	33.0	10.4	2.0	0	0.2
Mean	0	4.50	61.4	59.0	4.61	1.95	25.5	1.06	0.35	0.06	0	0.007
Ac-ft	0	268	3780	3630	256	120	1520	65	21	4.0	0	0.4

Calendar year 1964	Max	-	Min	-	Mean	-	Ac-ft	-
Water year 1964-65	Max	730	Min	0	Mean	13.3	Ac-ft	9,660



11-2604.8. Mariposa Creek near Catheys Valley, Calif.

Location.--Lat 37°23'55", long 120°00'10", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.21, T.6 S., R.18 E., on downstream side of bridge on White Rock Road, 0.3 mile downstream from China Gulch and 5.7 miles southeast of town of Catheys Valley.

Drainage area.--65.7 sq mi.

Records available.--October 1958 to September 1965. Prior to October 1963, published as "near Cathay."

Gage.--Water-stage recorder. Altitude of gage is 1,230 ft (from topographic map).

Average discharge.--7 years, 20.8 cfs (15,060 acre-ft per year).

Extremes.--Maximum discharge during year, 5,200 cfs Dec. 23 (gage height, 10.81 ft, from floodmarks); no flow for many days.  
1958-65: Maximum discharge, 5,290 cfs Feb. 1, 1963 (gage height, 10.69 ft); no flow for many days in each year.  
Flood of Apr. 3, 1958, reached a stage of 11.62 ft (discharge, 7,180 cfs).

Remarks.--Probably minor diversions above the station for irrigation.

Cooperation.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	3.1	207	30	17	35	22	5.3	0.7		
2		0	3.4	139	28	16	28	20	5.7	.6		
3		0	3.7	257	27	14	30	20	5.4	.5		
4		0	3.4	315	25	13	26	18	5.2	.4		
5		0	3.0	273	44	13	23	17	4.9	.3		
6		0	2.8	1430	55	13	56	16	4.5	.3		
7		0	2.7	1090	39	13	90	15	4.4	.2		
8		0	2.6	311	32	13	242	14	4.3	.2		
9		1.2	2.6	186	31	13	347	14	4.7	.2		
10		69	2.6	139	28	12	725	14	4.4	.2		
11		76	3.0	111	26	11	513	14	3.9	.2		
12		301	3.6	90	24	16	317	13	3.2	.1		
13		114	3.3	76	24	27	323	13	2.9	.1		
14		26	3.0	64	24	17	248	12	2.9	.1		
15		11	2.8	58	22	15	168	12	2.8	.1		
16		7.0	2.8	51	21	13	124	11	2.8	.1		
17		5.7	2.7	45	20	13	98	11	2.6	.1		
18		4.6	2.6	40	19	12	79	9.5	2.6	.1		
19		4.0	9.4	41	18	12	69	9.5	2.4	.1		
20		3.8	17	40	19	11	61	9.2	2.0	.1		
21		3.6	8.7	35	17	11	55	10	1.8	.1		
22		3.5	33	32	17	11	48	11	1.6	0		
23		3.2	1540	38	16	11	42	10	1.4	0		
24		3.2	1170	116	15	11	39	9.2	1.3	0		
25		3.1	189	60	15	11	36	9.2	1.1	0		
26		3.6	367	49	14	11	33	8.1	1.1	0		
27		3.5	677	44	22	62	30	7.1	1.1	0		
28		3.1	533	42	20	46	27	6.6	1.1	0		
29		2.8	251	39	-----	27	24	5.9	1.0	0		
30		2.6	287	35	-----	22	23	5.3	0.8	0		
31		-----	414	33	-----	22	-----	5.3	-----	0		
Total	0	655.5	5549.8	5486	692	529	3959	371.9	89.2	4.8	0	0
Mean	0	21.8	179	177	24.7	17.1	132	12.0	2.97	0.15	0	0
Ac-ft	0	1300	11010	10880	1370	1050	7850	738	177	9.5	0	0

Calendar year 1964 Max 1,540 Min 0 Mean 21.5 Ac-ft 15,620  
Water year 1964-65 Max 1,540 Min 0 Mean 47.5 Ac-ft 34,380

## SAN JOAQUIN RIVER BASIN

11-2610. Salt Slough near Los Banos, Calif.

Location.--Lat 37°09'35", long 120°48'45", in Sanjon de Santa Rita Grant on left bank at San Luis Ranch, 600 yards downstream from confluence with Mud Slough, and 7.0 miles north of Los Banos, Merced County.

Records available.--October 1940 to September 1965. Monthly discharge only for October to December 1940, published in WSP 1315-A.

Gage.--Water-stage recorder (digital). Datum of gage is 70.60 ft above mean sea level (levels by Bureau of Reclamation).

Average discharge.--25 years, 203 cfs (147,000 acre-ft per year).

Extremes.--Maximum discharge during year, 230 cfs Apr. 9 (gage height, 4.60 ft); minimum daily, 4.0 cfs Oct. 20, 1964.  
1941-65: Maximum daily discharge, 2,420 cfs Mar. 9, 1941; minimum daily, 4.0 cfs Oct. 27, 1961, and Oct. 20, 1964

Remarks.--Records good. Flow regulated by irrigation operations above station. Salt slough is a continuation of Pick Anderson Slough system. Records of chemical analyses for the water year 1965 are published in Part 2 of this report.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Oct. 31, Aug. 30 to Sept. 30)

Oct. 1-31		Nov. 1 to Sept. 30	
2.0	2.0	2.6	36
2.1	7.0	3.0	63
2.2	17	3.5	105
2.5	27	4.0	158
3.0	63	5.0	286
3.5	104		
4.0	151		
4.5	203		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	46	164	101	156	81	181	149	134	86	65	95	79
2	57	147	103	154	79	184	155	147	90	56	87	86
3	65	122	102	154	81	174	168	160	85	64	79	88
4	61	115	100	151	77	158	172	144	86	76	84	81
5	63	117	101	151	59	132	151	127	86	77	83	73
6	65	112	98	155	55	146	127	131	76	75	92	63
7	55	108	93	166	70	162	126	111	77	74	99	71
8	47	104	92	178	79	162	164	99	96	75	106	84
9	44	102	85	178	73	157	225	101	109	80	102	75
10	40	103	77	178	76	144	213	108	93	85	104	65
11	40	106	81	170	74	136	194	102	99	97	104	60
12	32	110	85	162	73	139	171	104	94	102	92	50
13	24	116	85	151	75	132	157	99	86	94	94	46
14	23	132	85	147	77	130	155	106	93	79	95	52
15	23	150	87	152	74	135	149	110	87	77	77	41
16	23	154	93	143	71	130	142	104	76	80	73	38
17	24	154	95	136	67	130	133	91	85	86	73	41
18	20	150	91	128	66	133	134	80	87	95	70	47
19	15	146	92	124	62	123	137	79	85	104	81	54
20	4.0	130	92	124	66	118	141	101	62	106	86	67
21	13	126	91	115	71	113	147	115	65	83	74	73
22	38	129	90	112	84	106	147	109	74	79	86	58
23	32	126	87	109	91	99	154	96	73	85	91	52
24	28	119	92	105	95	106	153	100	97	85	97	53
25	25	115	110	100	107	130	151	94	87	93	76	55
26	18	93	113	96	127	130	154	94	77	99	64	58
27	30	94	139	92	155	132	151	85	64	92	63	63
28	34	93	151	84	163	135	145	74	78	81	69	69
29	75	96	160	81	-----	145	132	71	79	90	74	65
30	113	100	157	83	-----	135	121	75	70	84	83	55
31	177	-----	158	83	-----	135	-----	78	-----	93	83	-----
Total	1,354.0	3,633	3,186	4,118	2,326	4,272	4,618	3,229	2,511	2,611	2,651	1,862
Mean	43.7	121	103	133	83.1	138	154	104	83.7	84.2	85.5	62.1
Ac-ft	2,690	7,210	6,320	8,170	4,610	8,470	9,160	6,400	4,980	5,180	5,260	3,690

Calendar year 1964 Max 177 Min 4.0 Mean 90.1 Ac-ft 65,380  
Water year 1964-65 Max 225 Min 4.0 Mean 99.6 Ac-ft 72,140

11-2615. San Joaquin River at Fremont Ford Bridge, Calif.

Location.--Lat 37°18'35", long 120°55'45", in Orestimba Grant, on left bank 30 ft downstream from Fremont Ford Bridge, Merced County, 2.1 miles downstream from Salt Slough, 4.5 miles west of Stevenson, and 6.7 miles upstream from Merced River.

Drainage area.--7,619 sq mi.

Records available.--March 1937 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder (digital). Datum of gage is at mean sea level. Prior to Oct. 1, 1959, at datum 3.77 ft below mean sea level (levels by Topographic Division). Prior to Dec. 8, 1949, on downstream side of Fremont Ford Bridge near left bank.

Average discharge.--28 years, 778 cfs (563,200 acre-ft per year).

Extremes.--Maximum discharge during year, 3,120 cfs Jan. 10 (gage height, 64.62 ft); minimum daily, 12 cfs Oct. 20.

1944-65: Maximum discharge, 5,910 cfs Apr. 6, 1958 (gage height, 67.37 ft (revised), present datum); minimum, 9.5 cfs Oct. 30, 1960.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Natural flow of stream affected by storage reservoirs, ground-water withdrawals, diversions for irrigation, and imported water from Delta-Mendota Canal (see p. 709). During periods of high flow, water bypasses this station through Mud Slough; low flows consist mainly of return water from irrigated areas. Stage affected at times by backwater from the Merced River. Records of chemical analyses for the water year 1965 are published in Part 2 of this report. See Remarks for stations upstream.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Nov. 1, 2, 4-14, 18-27, Dec. 25 to Jan. 6,  
Jan. 8 to Mar. 19, Apr. 11-20, May 3-21)

53.8	8	57.0	481
54.0	28	59.0	1,040
55.0	138	61.0	1,770
56.0	279	64.0	3,250

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	86	144	126	2,540	452	257	317	333	237	260	201	231
2	83	163	125	2,580	413	269	306	349	259	236	198	253
3	88	177	124	2,380	371	290	323	345	288	207	189	259
4	95	167	121	2,080	349	409	308	385	279	200	176	254
5	90	158	120	1,840	339	470	302	377	274	217	180	244
6	81	156	120	1,780	329	270	288	353	279	220	184	229
7	76	148	119	1,870	333	311	248	373	300	222	170	224
8	71	142	115	2,500	387	415	287	363	343	216	192	233
9	53	150	103	3,060	383	435	448	345	365	202	198	235
10	58	158	103	3,100	343	437	854	323	412	195	196	283
11	52	158	100	2,880	343	403	1,220	287	431	207	201	274
12	42	155	101	2,520	329	375	1,690	267	440	234	202	254
13	26	156	99	2,180	308	337	2,080	247	432	216	192	254
14	24	158	99	1,770	300	254	2,120	217	416	206	211	224
15	19	204	99	1,400	309	309	2,100	216	425	193	223	226
16	20	237	101	1,210	302	355	2,020	234	411	175	210	235
17	20	187	106	1,080	279	357	1,920	235	373	157	211	265
18	20	169	103	974	248	349	1,810	237	292	163	204	277
19	13	172	102	851	223	255	1,630	231	270	173	216	265
20	12	166	105	743	195	257	1,250	234	258	179	207	272
21	15	155	103	677	190	242	947	217	242	173	214	289
22	20	155	108	625	188	235	800	237	215	155	204	259
23	23	160	112	590	195	232	728	277	192	151	224	220
24	18	158	156	575	197	222	761	270	209	173	222	222
25	16	155	615	612	188	226	680	255	237	184	224	228
26	14	154	1,380	719	197	255	600	226	252	182	217	217
27	16	143	1,780	746	217	250	622	235	269	203	223	234
28	19	137	2,020	722	237	252	552	229	253	185	231	242
29	46	124	2,380	582	-----	276	461	195	285	171	235	228
30	85	120	2,650	494	-----	331	379	224	290	183	232	214
31	121	-----	2,720	457	-----	329	-----	239	-----	195	239	-----
Total	1,432	4,786	16,230	46,237	8,144	9,664	28,051	8,555	9,233	6,033	6,426	7,342
Mean	46.2	160	524	1,492	291	312	935	276	303	195	207	245
Ac-ft	2,840	9,490	32,190	91,710	16,150	19,170	55,640	16,970	18,310	11,980	12,750	14,560

Calendar year 1964 Max 2,720 Min 12 Mean 172 Ac-ft 124,700  
Water year 1964-65 Max 3,100 Min 12 Mean 417 Ac-ft 301,800

Note.--No gage-height record Oct. 14, 16-27.

## SAN JOAQUIN RIVER BASIN

11-2628. Los Banos Creek near Los Banos, Calif.

Location.--Lat 37°01'00", long 120°54'05", in SE  $\frac{1}{4}$  sec. 32, T.10 S., R.10 E., at Delta-Mendota Canal siphon crossing, 4.3 miles southwest of Los Banos.

Drainage area.--159 sq mi.

Records available.--October 1958 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 175 ft (from topographic map). Prior to Sept. 9, 1959, at datum 1.00 ft higher.

Average discharge.--7 years (1958-65), 5.38 cfs (3,890 acre-ft per year).

Extremes.--Maximum discharge during year, 716 cfs, Dec. 23 (gage height, 2.92 ft); no flow for several months.

1958-65: Maximum discharge, 2,640 cfs Feb. 1, 1963 (gage height, 4.80 ft), from rating curve extended above 1,300 cfs on basis of slope-area measurement at gage height 12.07 ft; no flow for several months in most years.

Flood of Dec. 23, 1955, reached a stage of 12.07 ft (present datum), from floodmark in well, 14.05 ft outside from profile of floodmarks (discharge, 11,400 cfs by slope-area measurement).

Remarks.--Records good. Records of suspended sediment loads for the water year 1965 are published in Part 2 of this report.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 23				Dec. 23 to Sept. 30			
0.54	0	1.2	35	0.42	0	1.0	15
.6	.8	1.4	61	.5	.4	1.2	32
.7	2.9	1.7	115	.6	1.1	1.4	57
.8	6.2	2.0	195	.7	2.5	1.7	120
.9	11	2.3	310	.8	4.7	2.0	220
1.0	16			.9	8.4	2.3	350

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			0	110	9.4	0	0					
2			0	56	9.0	0	2.0					
3			0	44	7.1	0	4.2					
4			0	41	6.3	0	2.6					
5			0	32	5.6	0	1.3					
6			0	67	.4	0	.4					
7			0	336	5.0	0	.3					
8			0	137	7.1	3.2	.6					
9			0	67	5.6	9.0	.4					
10			0	46	4.4	11	1.8					
11			0	35	3.7	6.7	6.4					
12			0	29	3.0	2.8	6.4					
13			0	24	2.6	1.7	4.7					
14			0	19	2.4	2.5	4.1					
15			0	18	2.0	3.1	3.2					
16			0	15	1.2	2.4	3.4					
17			0	12	1.3	1.9	2.9					
18			0	8.0	1.2	1.2	2.4					
19			0	.5	.4	9.9	2.3					
20			0	7.5	.4	6.7	2.1					
21			0	9.0	.1	5.3	2.0					
22			0	6.3	0	4.0	1.7					
23			295	5.0	0	2.4	1.2					
24			232	2.9	0	1.6	9.9					
25			111	6.2	0	.5	6.3					
26			41	2.6	0	0	4.0					
27			334	2.0	0	0	.4					
28			328	1.7	0	0	0					
29			169	1.4	-----	0	0					
30			178	1.2	-----	0	0					
31		-----	171	1.1	-----	0	-----					
Total	0	0	1,858	1,313.3	77.2	172.8	460.2	0	0	0	0	0
Mean	0	0	59.9	42.4	2.76	5.57	15.3	0	0	0	0	0
Ac-ft	0	0	3,690	2,600	153	343	913	0	0	0	0	0
Calendar year 1964 Max 334 Min 0 Mean 5.08 Ac-ft 3,690												
Water year 1964-65 Max 336 Min 0 Mean 10.6 Ac-ft 7,700												

Peak discharge (base, 100 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	1200	2.92	716	1-7	0900	2.83	651
				1-25	0500	1.72	126
12-27	0500	2.70	570	4-11	1200	1.70	120

11-2645. Merced River at Happy Isles Bridge, near Yosemite, Calif.

Location.--Lat 37°43'54", long 119°33'28", on right bank 10 ft downstream from Happy Isles Bridge, 0.4 mile downstream from Illilouette Creek, and 2.0 miles southeast of Yosemite National Park Headquarters, Mariposa County.

Drainage area.--181 sq mi.

Records available.--August 1915 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 4,016.58 ft above mean sea level, datum of 1929. Prior to Nov. 2, 1916, staff gage at datum 0.55 ft lower.

Average discharge.--50 years, 337 cfs (244,000 acre-ft per year).

Extremes.--Maximum discharge during year, 9,240 cfs Dec. 23 (gage height, 11.50 ft); minimum daily, 1.7 cfs Oct. 19.

1915-65: Maximum discharge, 9,860 cfs Dec. 23, 1955 (gage height, 12.73 ft), from rating curve extended above 4,000 cfs on basis of contracted-opening measurements at gage heights 10.4 and 11.55 ft; minimum, 1.5 cfs Sept. 30, 1926.

Remarks.--Records good except those for period of no gage-height record, which are fair. About 1 cfs diverted above station for Yosemite Valley water supply.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

0.7	1.4	1.8	48	5.0	1,180
.8	2.7	2.1	80	6.0	1,960
.9	4.5	2.5	137	7.0	3,040
1.0	6.8	3.0	250	8.0	4,600
1.2	13	3.5	420	10.0	7,940
1.5	27	4.0	640		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.8	36	100	420	215	220	233	1,470	1,770	1,280	626	135
2	3.6	35	103	474	215	203	232	1,200	1,400	1,250	554	114
3	3.4	34	96	423	215	203	220	890	1,330	1,320	464	104
4	3.2	35	85	383	220	203	215	775	1,790	1,360	373	97
5	3.1	35	86	370	225	193	213	730	2,210	1,320	320	92
6	2.9	33	73	392	223	193	222	685	2,290	1,380	314	84
7	2.6	31	76	334	200	179	220	586	2,180	1,360	314	85
8	2.7	29	73	334	191	175	215	541	1,990	1,190	292	85
9	2.6	34	80	345	177	171	215	541	1,400	1,070	262	78
10	2.3	45	80	324	164	169	210	577	1,800	976	277	67
11	2.2	43	116	310	160	171	220	640	2,330	870	420	60
12	2.3	73	100	280	156	175	220	715	2,460	775	695	52
13	2.3	84	85	270	150	164	203	895	2,050	730	640	43
14	1.9	79	87	270	156	160	202	1,010	1,600	745	564	45
15	2.0	80	81	270	143	160	215	1,130	1,290	1,010	810	41
16	1.9	80	73	250	146	160	238	1,490	1,100	1,100	760	33
17	1.8	73	69	240	143	166	271	1,910	935	1,190	770	33
18	1.8	69	63	240	152	177	301	2,180	800	1,080	590	41
19	1.7	72	72	250	164	195	383	2,190	953	930	380	49
20	2.0	69	80	250	177	222	546	1,930	1,320	905	286	54
21	2.6	70	95	230	191	265	554	1,640	1,640	750	230	56
22	2.3	76	705	220	193	298	715	1,140	1,680	613	193	54
23	2.3	76	7,350	230	189	317	705	935	1,560	536	169	43
24	2.2	80	6,000	250	191	295	800	925	1,330	564	154	44
25	2.4	101	2,310	212	199	259	952	940	1,210	559	141	42
26	2.4	137	1,270	212	215	243	1,080	1,180	1,010	546	123	41
27	2.6	111	933	202	265	256	1,290	1,400	1,080	500	114	39
28	2.9	100	653	193	242	245	1,440	1,520	1,190	403	106	37
29	16	97	660	193	-----	233	1,430	1,310	1,250	373	104	36
30	26	93	609	200	-----	232	1,520	1,980	1,330	416	102	32
31	29	-----	530	212	-----	232	-----	1,920	-----	725	132	-----
Total	140.8	2,032	22,813	8,793	5,290	6,564	15,500	37,475	46,283	27,831	11,289	1,836
Mean	4.54	67.7	736	284	189	212	517	1,209	1,543	893	364	61.2
Ac-ft	279	4,030	45,250	17,440	10,490	13,020	30,740	74,330	91,800	55,200	22,390	3,640

Calendar year 1964 Max 7,350 Min 1.7 Mean 249 Ac-ft 180,600

Water year 1964-65 Max 7,350 Min 1.7 Mean 509 Ac-ft 368,600

Peak discharge (base, 1,900 cfs)

Note.--No gage-height record January 12-23.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	1100	11.50	9,240	6- 6	0200	6.65	2,620
5-18	2400	6.51	2,470	6-12	0200	6.85	2,860
5-30	0200	6.19	2,150				

11-2665. Merced River at Pohono Bridge, near Yosemite, Calif.

Location.--Lat 37°43'01", long 119°39'55", on left bank 150 ft upstream from Pohono Bridge, 0.4 mile upstream from Artist Creek, and 4.8 miles southwest of Yosemite National Park Headquarters, Mariposa County.

Drainage area.--321 sq mi.

Records available.--October 1916 to September 1965. Monthly discharge only for October and November 1916, published in WSP 1315-A.

Gage.--Water-stage recorder (digital). Datum of gage is 3,861.66 ft above mean sea level, datum of 1929. Prior to Sept. 5, 1918, at datum 1.8 ft higher and Sept. 5, 1918, to Sept. 30, 1955, at datum 1.0 ft higher.

Average discharge.--49 years, 590 cfs (427,100 acre-ft per year).

Extremes.--Maximum discharge during year, 18,000 cfs Dec. 23 (gage height, 16.96 ft); minimum daily, 12 cfs Oct. 20, 21. 1916-65: Maximum discharge, 23,400 cfs Dec. 23, 1955 (gage height, 21.52 ft, from floodmark in well), from rating curve extended above 16,300 cfs on basis of computation of flow over diversion dam for Yosemite powerhouse 1 mile downstream at gage heights 20.1 and 20.98 ft, present datum; minimum, 3.3 cfs Sept. 29, Oct. 1, 1924.

Remarks.--Records good. No diversions between stations at Happy Isles Bridge and Pohono Bridge. About 1 cfs sewage effluent returns between stations. See Remarks for Merced River at Happy Isles Bridge, near Yosemite.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	14	59	140	711	470	492	533	3,000	3,290	1,750	702	219
2	13	64	150	797	470	457	512	2,520	2,710	1,700	605	219
3	13	59	160	745	469	461	474	1,850	2,710	1,770	522	193
4	13	58	140	721	474	464	464	1,580	3,330	1,790	447	172
5	14	59	130	713	502	442	470	1,520	3,800	1,720	393	161
6	14	59	136	758	506	429	479	1,460	3,840	1,760	374	145
7	14	55	144	650	441	397	473	1,250	3,620	1,730	370	156
8	14	54	136	603	428	388	459	1,160	3,420	1,530	344	165
9	14	67	147	627	397	381	447	1,180	2,600	1,370	316	149
10	14	89	156	593	367	380	387	1,280	3,120	1,250	319	123
11	14	93	236	568	363	379	429	1,420	3,660	1,110	414	100
12	14	152	221	540	353	393	445	1,550	3,790	970	696	86
13	15	152	189	503	351	374	442	1,920	3,260	901	684	75
14	16	137	199	505	365	362	434	2,140	2,640	892	637	67
15	16	141	181	519	343	367	468	2,370	2,230	1,150	956	62
16	16	139	154	502	338	365	518	3,010	1,990	1,340	865	60
17	16	136	145	488	342	381	556	3,700	1,770	1,520	890	60
18	15	123	136	494	356	409	597	4,070	1,510	1,380	736	62
19	13	125	149	509	384	448	768	4,070	1,640	1,280	466	72
20	12	125	160	512	419	506	1,050	3,690	2,090	1,270	337	76
21	12	128	177	488	446	583	1,060	3,290	2,420	953	265	83
22	13	137	1,180	475	467	661	1,380	2,430	2,470	769	219	80
23	13	139	12,700	483	438	694	1,350	2,010	2,340	667	185	72
24	13	145	11,600	567	434	666	1,510	1,960	2,020	658	161	68
25	13	170	4,620	449	448	572	1,840	1,950	1,880	670	139	66
26	13	174	2,340	463	486	554	2,070	2,340	1,590	639	120	64
27	14	149	1,780	456	572	560	2,440	2,710	1,590	591	100	63
28	19	154	1,190	436	526	533	2,880	2,880	1,700	510	83	61
29	38	135	1,090	437	-----	541	2,910	3,320	1,730	463	76	60
30	45	130	1,010	444	-----	533	3,060	3,570	1,830	475	92	57
31	48	-----	880	465	-----	530	-----	3,510	-----	766	170	-----
TOTAL	525	3,407	41,776	17,221	11,955	14,702	30,905	74,710	76,590	35,344	12,683	3,096
MEAN	16.9	114	1,348	556	427	474	1,030	2,410	2,553	1,140	409	103
AC-FT	1,040	6,760	82,860	34,160	23,710	29,160	61,300	148,200	151,900	70,100	25,160	6,140

CALENDAR YEAR 1964	MAX 12,700	MIN 12	MEAN 441	AC-FT 320,100
WATER YEAR 1964-65	MAX 12,700	MIN 12	MEAN 885	AC-FT 640,500

## Peak discharge (base, 2,900 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	1330	16.96	18,000	5-31	0130	8.03	3,890
4-30	2400	7.78	3,540	6-6	0300	8.43	4,330
5-18	0015	8.77	4,730	6-12	0330	8.40	4,300

11-2673. South Fork Merced River at Wawona, Calif.

Location.--Lat 37°32'20", long 119°39'40", in SW $\frac{1}{4}$  sec.34, T.4 S., R.21 E., on left bank in Yosemite National Park, Mariposa County, 1,000 ft downstream from highway bridge at Wawona, and 1,200 ft upstream from Big Creek.

Drainage area.--100 sq mi.

Records available.--October 1958 to September 1965.

Gage.--Water-stage recorder (digital). Altitude of gage is 4,030 ft (from topographic map).

Average discharge.--7 years, 162 cfs (117,300 acre-ft per year).

Extremes.--Maximum discharge during year, 9,030 cfs Dec. 23 (gage-height, 9.83 ft in gage well, 10.5 ft outside, from floodmarks); minimum daily, 1.3 cfs Oct. 5-8, 13, 14.

1958-65: Maximum discharge, that of Dec. 23, 1964; minimum, 0.6 cfs Sept. 5, 1960.

Flood of Dec. 23, 1955, reached a stage of about 12 ft, from floodmarks (discharge, about 15,000 cfs).

Remarks.--Records good. Diversion of about 0.5 cfs above station for town of Wawona. Small amount diverted above station during summer for irrigation of Wawona Golf Course.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 23				Dec. 23 to Sept. 30			
1.0	0.9	2.6	178	1.4	6.0	3.5	440
1.1	2.7	3.0	290	1.5	9.0	4.0	680
1.2	5.1	3.5	485	1.6	13	5.0	1,380
1.3	8.0	4.0	750	1.8	27	6.0	2,340
1.5	17	5.0	1,480	2.0	49	7.0	3,620
1.7	30	6.0	2,520	2.5	131	8.0	5,220
2.0	64	7.0	3,840	3.0	260		
2.3	115	8.0	5,500				

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.6	17	59	245	182	173	190	1,070	1,270	430	71	19
2	1.6	17	70	227	185	173	182	842	1,100	416	59	14
3	1.6	14	55	213	185	175	163	595	1,100	405	50	12
4	1.6	14	47	221	189	175	163	493	1,460	372	44	12
5	1.3	17	45	245	206	163	164	485	1,590	357	39	12
6	1.3	15	33	499	215	159	166	476	1,460	335	33	11
7	1.3	13	40	359	182	152	161	400	1,440	296	35	11
8	1.3	13	38	243	163	142	159	353	1,110	254	31	12
9	1.6	33	47	213	164	142	157	342	973	221	23	12
10	1.8	37	43	200	157	139	143	363	1,300	193	30	11
11	1.6	33	101	195	143	139	152	424	1,500	174	50	9.6
12	1.4	79	72	185	144	146	143	493	1,350	154	53	9.2
13	1.3	45	50	175	146	142	146	660	1,060	142	46	3.7
14	1.3	34	45	175	142	135	152	770	864	133	45	3.3
15	1.4	31	43	180	140	137	163	930	703	175	93	3.1
16	1.6	30	33	175	135	137	180	1,300	569	214	91	8.0
17	1.8	27	35	175	140	144	190	1,590	493	283	85	7.9
18	2.0	27	33	185	145	150	200	1,640	472	223	63	3.1
19	1.8	23	56	209	150	166	304	1,510	663	153	41	9.5
20	1.6	27	70	209	164	192	383	1,280	825	135	31	9.2
21	1.6	23	80	192	173	221	376	1,050	823	124	26	12
22	1.6	31	739	182	183	254	472	704	774	99	23	11
23	1.6	32	5,340	210	173	254	490	580	653	86	21	9.0
24	2.0	36	4,030	301	173	230	605	580	611	87	19	3.2
25	2.2	53	1,310	206	173	195	770	655	603	89	17	3.0
26	2.2	88	684	180	190	190	867	860	482	83	16	7.8
27	2.2	56	611	170	227	206	986	1,000	490	72	14	7.6
28	3.2	43	390	166	192	182	1,100	1,170	497	60	13	7.4
29	23	43	337	164	-----	182	1,120	1,370	502	55	13	7.2
30	15	56	304	170	-----	173	1,160	1,460	483	57	12	7.1
31	12	-----	269	180	-----	182	-----	1,460	-----	80	24	-----
Total	102.4	1,032	15,124	6,664	4,790	5,365	11,637	26,920	27,250	5,982	1,236	296.9
Mean	3.30	34.4	483	215	171	173	383	863	903	193	39.9	9.90
Ac-ft	203	2,050	30,000	13,220	9,500	10,640	23,080	53,400	54,050	11,870	2,450	589

Calendar year 1964 Max 5,340 Min 1.3 Mean 143 Ac-ft 104,100  
 Water year 1964-65 Max 5,340 Min 1.3 Mean 292 Ac-ft 211,100

Peak discharge (base, 1,200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0800	9.83	9,030	5-30	2100	5.70	2,020
4-30	2100	5.16	1,510	6-5	2030	5.93	2,260
5-17	2100	6.04	2,390	6-11	2015	5.86	2,180

11-2680. South Fork Merced River near El Portal, Calif.

Location.--Lat 37°39'05", long 119°53'05", in NW¼NE¼ sec.29, T.3 S., R.19 E., on right bank 1,400 ft upstream from mouth and 6.2 miles west of El Portal.

Drainage area.--241 sq mi.

Records available.--November 1950 to September 1965.

Gage.--Water-stage recorder (digital). Altitude of gage is 1,400 ft (from topographic map).

Average discharge.--14 years, 324 cfs (234,600 acre-ft per year); median of yearly mean discharges, 270 cfs (195,000 acre-ft per year).

Extremes.--Maximum discharge during year, 14,200 cfs Dec. 23 (gage height, 13.62 ft); minimum daily, 5.8 cfs Oct. 8, 9.  
1950-65: Maximum discharge, 46,500 cfs Dec. 23, 1955 (gage height, 18.70 ft), from rating curve extended above 4,000 cfs on basis of slope-area measurement at gage height 17.63 ft; minimum, 2.2 cfs Aug. 26, 27, 1961.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Big Creek ditch diverts up to 50 cfs at times into Fresno River basin. Diversion of 0.5 cfs at Wawona for domestic use and irrigation of golf course.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)

4.6	4.0	6.5	305
4.7	6.7	7.0	505
4.8	11	7.5	805
4.9	16	8.0	1,220
5.0	24	9.0	2,420
5.3	52	10.0	4,120
5.6	89	12.0	9,000
6.0	165		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	6.3	38	97	700	414	341	395	1,610	1,580	535	104	41
2	6.4	68	111	700	407	323	411	1,380	1,350	493	92	34
3	6.4	43	134	700	402	319	383	1,010	1,290	485	81	31
4	6.2	35	102	700	399	319	376	856	1,650	469	74	28
5	6.0	33	92	1,000	440	310	363	818	1,820	426	70	27
6	6.1	34	85	3,500	535	303	388	818	1,720	417	66	27
7	5.9	30	79	2,600	435	293	417	715	1,660	388	64	28
8	5.8	28	78	1,500	396	281	489	647	1,450	339	61	34
9	5.8	103	78	900	377	275	540	624	1,090	303	56	33
10	6.0	273	87	700	341	271	555	631	1,460	271	53	31
11	6.3	146	103	582	338	267	536	699	1,670	245	57	28
12	6.4	558	193	535	319	295	499	746	1,570	221	88	25
13	6.3	343	118	496	312	304	496	955	1,290	203	78	24
14	6.2	150	105	464	310	289	515	1,090	1,060	195	68	23
15	6.0	80	95	464	297	287	575	1,200	919	193	110	22
16	6.1	75	90	446	291	287	619	1,620	740	270	104	21
17	6.1	70	77	438	286	287	621	1,970	661	273	109	21
18	6.3	70	73	450	286	293	629	2,030	579	364	92	21
19	6.6	70	137	487	299	304	721	1,750	702	221	74	21
20	6.9	70	252	510	316	330	873	1,700	960	192	60	24
21	6.6	70	207	468	328	360	823	1,510	950	176	53	24
22	6.3	70	676	438	339	396	922	1,080	906	147	48	27
23	6.3	70	7,960	442	327	394	932	879	817	129	45	26
24	6.3	75	6,100	960	313	374	945	852	681	123	43	23
25	6.6	80	2,170	599	312	335	1,160	889	735	122	41	21
26	7.0	137	1,240	515	323	325	1,280	1,110	598	119	38	20
27	7.4	129	1,300	476	394	424	1,400	1,280	571	111	35	21
28	9.8	98	1,000	443	380	377	1,600	1,410	581	99	33	22
29	74	90	815	424	-----	362	1,600	1,660	577	89	31	23
30	71	93	710	411	-----	348	1,650	1,760	582	87	30	23
31	38	-----	710	415	-----	347	-----	1,770	-----	106	29	-----
TOTAL	363.4	3,229	25,074	23,463	9,916	10,020	22,713	37,069	32,229	7,811	1,987	774
MEAN	11.7	108	809	757	354	323	757	1,196	1,074	252	64.1	25.8
AC-FT	721	6,400	49,730	46,540	19,670	19,870	45,050	73,530	63,930	15,490	3,940	1,540

CALENDAR YEAR 1964 MAX 7,960 MIN 5.8 MEAN 220 AC-FT 56,850  
WATER YEAR 1964-65 MAX 7,960 MIN 5.8 MEAN 478 AC-FT 346,400

Peak discharge (base, 2,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0930	13.62	14,200	5-17	2330	9.27	2,830
12-27	0515	8.92	2,180	5-30	2400	8.94	2,340
1-6	1530	10.17	4,460	6-5	2315	9.06	2,500
5-1	0100	8.73	2,040	6-11	2245	8.96	2,360

Note.--No gage-height record Nov. 14-24, Dec. 14-16, 28, Dec. 31 to Jan. 5, Jan. 8, 9.



11-2685. Merced River at Bagby, Calif.

Location.--Lat 37°36'40", long 120°07'50", in SE $\frac{1}{4}$  sec. 6, T.4 S., R.17 E., on left bank 800 ft upstream from highway bridge at Bagby and 0.3 mile upstream from Flyaway Gulch.

Drainage area.--911 sq mi.

Records available.--October 1922 to September 1965. Published as "at Horseshoe Bend" November 1922 to September 1931 and as "at Kittridge" October 1931 to September 1947. Monthly and yearly discharge only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder. Datum of gage is 779.52 ft above mean sea level, datum of 1929. Prior to Nov. 24, 1928, water-stage recorder at site 5.0 miles downstream at different datum. Nov. 24, 1928, to Nov. 3, 1947, water-stage recorder at site 3.8 miles downstream at different datum. Nov. 4, 1947 to Nov. 19, 1950, water-stage recorder at present site and datum. Nov. 20, 1950, to Nov. 4, 1951, wire-weight gage at site 800 ft downstream at datum 51.62 ft lower.

Average discharge.--43 years, 1,164 cfs (842,700 acre-ft per year).

Extremes.--Maximum discharge during year, 33,800 cfs Dec. 23 (gage height, 14.79 ft in gage well, 16.3 ft outside); minimum daily, 16 cfs Oct. 22.

1922-65: Maximum discharge, 92,500 cfs Dec. 23, 1955 (gage height, 26.80 ft), from rating curve extended above 25,000 cfs on basis of change in contents in Leke McClure; minimum, 13 cfs Oct. 5, 1925.

Remarks.--Records good. No regulation. Some diversion above station (see preceding page).

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Oct. 29 to Dec. 22, Aug. 10, Aug. 23 to Sept. 30)

Oct. 1 to Dec. 23						Dec. 23 to Sept. 30			
0.4	10	1.1	130	4.0	2,640	1.5	265		
.5	18	1.5	265	6.0	6,580	2.0	550		
.6	29	2.0	530	8.0	11,800	3.0	1,450		
.7	43	2.5	890	10.0	17,800	4.0	2,700		
.9	80	3.0	1,350	13.0	27,600	6.0	6,580		

Note.--Same as preceding table below 1.5 ft and above 6.0 ft.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	23	125	310	2,400	1,250	1,120	1,330	5,640	5,570	2,460	987	214
2	23	163	330	2,140	1,220	1,020	1,370	4,980	4,540	2,360	756	225
3	23	166	410	2,380	1,200	1,010	1,340	3,700	4,300	2,380	676	204
4	23	136	330	2,350	1,190	1,000	1,270	3,080	5,040	2,410	585	190
5	27	125	292	3,580	1,270	977	1,220	2,890	5,970	2,280	515	181
6	27	121	283	11,300	1,590	941	1,340	2,810	6,120	2,320	463	175
7	27	121	253	10,500	1,320	914	1,570	2,520	5,640	2,260	456	172
8	27	112	253	4,210	1,190	878	2,070	2,300	5,570	2,020	444	175
9	26	151	245	2,890	1,130	852	2,590	2,250	4,010	1,800	408	181
10	17	611	265	2,390	1,000	844	2,960	2,320	4,620	1,630	384	172
11	21	506	288	2,110	995	836	2,700	2,550	5,480	1,470	402	160
12	26	1,310	560	1,900	923	878	2,550	2,690	5,770	1,310	660	148
13	27	1,060	393	1,680	923	995	2,640	3,260	5,200	1,190	844	136
14	26	513	345	1,580	923	914	2,720	3,840	4,130	1,140	724	130
15	19	366	330	1,530	878	887	2,600	4,040	3,480	1,250	986	122
16	21	310	296	1,470	852	869	2,450	5,040	2,990	1,590	1,100	115
17	21	273	265	1,410	836	869	2,260	6,320	2,730	1,830	1,170	110
18	21	253	248	1,410	844	896	2,160	6,990	2,330	1,930	977	108
19	26	229	319	1,460	869	941	2,280	6,960	2,390	1,460	740	105
20	25	225	632	1,550	923	1,020	2,780	6,300	3,070	1,690	550	110
21	24	213	545	1,430	977	1,150	2,700	5,640	3,540	1,260	450	120
22	16	218	1,560	1,340	1,020	1,310	3,040	4,340	3,630	1,030	390	125
23	17	225	25,600	1,300	995	1,380	3,130	3,430	3,480	869	345	128
24	17	225	25,400	2,370	950	1,360	3,130	3,240	2,990	804	310	122
25	18	237	11,200	1,720	950	1,220	3,750	3,180	2,890	828	283	115
26	22	330	5,900	1,540	995	1,130	4,170	3,770	2,460	788	261	108
27	22	437	7,000	1,430	1,200	1,540	4,620	4,460	2,330	743	241	105
28	29	335	4,830	1,330	1,260	1,480	5,310	4,600	2,420	676	222	102
29	93	301	3,460	1,260	-----	1,330	5,310	5,420	2,460	606	204	102
30	225	296	2,920	1,230	-----	1,270	5,550	5,810	2,550	613	197	100
31	143	-----	2,950	1,240	-----	1,220	-----	5,860	-----	716	190	-----
Total	1,132	9,703	98,012	76,330	23,673	33,051	82,910	130,240	117,700	45,713	16,825	4,260
Mean	36.5	324	3,162	2,482	1,060	1,066	2,764	4,201	3,923	1,475	543	142
Ac-ft	2,250	19,260	194,400	152,600	58,860	65,560	164,400	258,300	233,500	90,680	33,370	8,450

Calendar year 1964 Max 25,600 Min 16 Mean 843 Ac-ft 611,900  
Water year 1964-65 Max 25,600 Min 16 Mean 1,770 Ac-ft 1,282,000

Peak discharge (base, 6,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	1100	14.79	33,800	5-31	0400	5.96	6,680
1-7	0200	9.97	17,700	6-6	0400	6.10	7,010
5-1	0500	5.96	6,510	6-12	0400	5.94	6,630
5-18	0300	6.59	8,200				

## SAN JOAQUIN RIVER BASIN

11-2693. Maxwell Creek at Coulterville, Calif.

Location.--Lat 37°42'58", long 120°11'20", in SE $\frac{1}{4}$  sec.34, T.2 S., R.16 E., on Dogtown road bridge, 0.40 mile downstream from Cuneo Creek and 0.5 mile northeast of Coulterville.

Drainage area.--17.0 sq mi.

Records available.--October 1959 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 1,740 ft (from topographic map).

Average discharge.--6 years, 6.04 cfs (4,370 acre-ft per year).

Extremes.--Maximum discharge during year, 1,770 cfs Dec. 22 (gage height, 5.71 ft), from rating curve extended above 700 cfs; no flow for many days.

1959-65: Maximum discharge, that of Dec. 22, 1964; no flow for many days in each year.

Revisions.--Figures of maximum discharge for the water years 1960, and 1962 have been revised to 1,720 cfs Feb. 8, 1960 (gage height, 5.73 ft) and 1,550 cfs Feb. 15, 1962 (gage height, 5.64 ft), superseding figures published in WSP 1715 and Surface Water Records of California, Vol. 2 for 1962, respectively.

Remarks.--No diversion or storage above station.

Cooperation.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.1	0.4	44	5.3	3.0	4.5	5.0	2.3	0.7	0.1	0.1
2	0	.2	5.7	31	4.8	2.9	34	5.2	2.3	.6	.1	0
3	0	.1	5.4	65	4.5	2.8	22	5.0	1.9	.6	.1	0
4	0	.1	2.2	83	4.2	2.7	13	4.9	1.9	.6	.1	0
5	0	.1	1.5	76	7.5	2.6	8.6	4.7	1.8	.6	.1	0
6	0	.1	1.1	656	11	2.6	25	4.5	1.7	.5	.1	.1
7	0	.1	1.2	355	7.0	2.7	24	4.7	1.6	.5	.1	.1
8	0	.1	1.0	77	6.3	2.6	137	4.3	1.7	.5	.1	.1
9	0	1.4	.9	39	5.9	2.3	137	4.0	1.7	.5	.1	.1
10	0	8.2	.9	26	5.3	2.5	183	3.8	1.6	.4	.1	0
11	0	8.3	3.0	19	4.8	2.5	117	3.7	1.5	.4	.1	0
12	0	78	3.1	14	4.5	3.3	116	3.6	1.4	.4	.1	0
13	0	33	2.1	10	4.5	4.0	199	3.2	1.5	.2	.1	0
14	0	5.4	1.6	8.8	4.6	3.6	146	3.4	1.3	.3	.1	0
15	0	2.5	1.4	7.5	4.4	3.1	86	3.1	1.4	.2	.1	0
16	0	1.6	1.2	6.1	3.8	2.8	52	3.0	1.3	.2	.1	0
17	0	1.1	1.1	5.2	3.6	2.5	32	3.0	1.3	.2	0	.1
18	0	.8	1.0	4.9	3.4	2.6	23	2.9	1.2	.2	0	.1
19	0	.6	12	5.1	3.4	2.5	18	2.8	1.2	.2	0	.1
20	0	.5	11	5.0	3.2	2.2	13	2.7	1.2	.2	0	0
21	0	.5	10	4.2	3.2	2.1	11	2.8	1.1	.1	0	0
22	0	.5	224	4.1	3.4	1.8	9.7	2.8	1.1	.1	0	0
23	0	.4	760	6.9	3.1	1.8	7.9	2.4	1.2	.1	0	0
24	0	.4	578	23	3.0	1.8	7.5	2.4	1.0	.1	0	0
25	0	.3	57	10	2.9	1.6	6.9	2.3	1.0	.1	0	0
26	0	1.2	143	9.6	2.9	1.7	6.2	2.4	1.1	.1	0	0
27	0	.7	232	7.2	4.2	25	5.8	2.3	1.1	.1	.1	0
28	0	.5	137	7.0	3.5	11	5.5	2.1	1.0	.1	.1	0
29	.2	.4	60	6.3	-----	6.4	5.4	2.1	.9	.1	.1	0
30	0	.4	50	6.2	-----	4.5	5.2	2.2	.8	.1	.1	0
31	0	-----	88	5.8	-----	4.1	-----	2.2	-----	.1	.1	-----
Total	0.2	147.6	2396.8	1626.9	128.2	117.6	1461.2	103.5	42.1	9.1	2.1	0.8
Mean	0.006	4.92	77.3	52.5	4.58	3.79	48.7	3.34	1.40	0.29	0.07	0.03
Ac-ft	0.4	293	4750	3230	254	233	2900	205	84	18	4.2	1.6

Calendar year 1964 Max 760 Min 0 Mean 8.01 Ac-ft 5,810  
 Water year 1964-65 Max 760 Min 0 Mean 16.5 Ac-ft 11,970

11-2695. Lake McClure at Exchequer, Calif.

Location.--Lat 37°35'10", long 120°16'05", near center of sec.13, T.4 S., R.15 E., at center of upstream face of Exchequer Dam on Merced River, 1 mile east of Exchequer, and 5.5 miles northeast of Merced Falls.

Drainage area.--1,037 sq mi.

Records available.--April 1926 to September 1930 (daily gage heights; also summary of yearly contents in WSP 881), October 1930 to September 1965.

Gage.--Staff gage read once daily at 1200 hours. Datum of gage is at mean sea level (levels by Merced Irrigation District). Prior to Oct. 1, 1964, indicator in powerhouse at same datum.

Extremes.--Maximum contents observed during year, 280,800 acre-ft July 1 (elevation, 706.8 ft); minimum, 510 acre-ft Oct. 6-8 (elevation, 446.0 ft).  
1926-65: Maximum contents, 290,800 acre-ft Dec. 4, 1950 (elevation, 710.5 ft); practically no storage at times in 1926, 1930-31, 1934, 1964-65.

Remarks.--Reservoir is formed by concrete gravity-type dam completed in 1926; storage began in April 1926. Usable capacity, 280,900 acre-ft between elevations 442.6 ft (bottom of sluice valve) and 707.0 ft (top of spillway gates). Dead storage, 400 acre-ft or less. Water passes down Merced River to diversion dam of Merced Irrigation District's main canal. Records including extremes represent total contents at 1200 hours.

Cooperation.--Gage-height record, furnished by Merced Irrigation District, obtained in connection with a Federal Power Commission project.

Capacity table (elevation, in feet, and contents, in acre-feet)

445	470	520	13,800	620	106,700
450	710	540	24,300	640	137,800
460	1,420	560	38,600	660	173,500
470	2,340	580	57,000	680	215,200
480	3,520	600	79,900	710	289,400
500	7,400				

Contents, in acre-feet, at 1200 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	534	856	1,780	227,600	256,200	262,000	166,700	206,800	245,400	280,300	241,800	170,100
2	534	851	1,320	232,400	258,800	257,200	166,800	209,700	249,000	280,200	239,300	167,600
3	534	872	1,340	237,400	261,000	250,500	167,200	209,700	251,500	280,000	237,400	165,100
4	534	907	1,580	241,300	259,300	243,700	169,100	207,700	254,000	280,000	234,800	162,400
5	534	886	2,560	247,500	258,800	241,000	166,700	205,100	259,000	280,000	232,200	159,900
6	510	855	3,440	256,300	257,500	235,000	165,000	202,100	265,100	280,000	229,500	157,500
7	510	1,030	4,310	265,300	255,000	228,300	163,300	199,200	270,000	280,000	226,700	155,000
8	510	915	4,950	260,000	254,800	221,900	162,700	195,400	272,900	280,000	223,900	152,500
9	518	800	5,500	254,500	257,000	215,000	163,500	191,600	273,100	279,400	221,200	150,000
10	518	1,270	6,100	251,300	259,200	207,900	164,800	187,500	271,800	278,900	218,200	147,700
11	518	1,960	6,850	251,200	261,200	201,900	165,300	184,100	272,400	277,800	215,200	145,300
12	542	2,600	7,950	255,500	262,500	196,000	167,400	180,900	274,200	276,800	212,800	142,700
13	610	4,240	8,910	258,200	259,500	197,300	172,000	180,100	275,500	275,200	211,000	140,400
14	530	3,370	9,990	256,500	256,800	191,200	171,100	180,900	275,000	273,700	209,300	138,000
15	575	2,270	10,800	254,500	254,200	185,300	173,700	183,100	272,600	271,800	207,300	135,500
16	585	1,570	11,600	252,500	252,000	178,900	173,100	185,100	270,000	270,500	206,000	133,200
17	581	1,040	12,300	250,800	251,000	172,200	169,300	190,300	270,500	270,000	204,900	130,800
18	573	998	12,900	251,200	250,500	165,700	166,300	197,500	270,500	269,500	203,800	128,400
19	575	830	13,600	254,000	250,500	164,600	168,200	204,900	269,800	269,200	202,500	126,000
20	550	1,300	14,600	257,200	252,000	163,300	171,800	211,500	270,300	268,200	200,600	123,600
21	590	788	16,000	260,000	251,000	162,400	176,300	217,000	272,100	267,200	198,500	121,400
22	590	837	17,600	262,800	250,300	161,500	174,300	221,000	275,000	265,600	196,000	119,000
23	575	893	44,800	261,000	250,500	160,900	172,700	221,900	277,600	263,500	193,700	116,800
24	575	1,460	110,200	259,000	250,800	160,800	170,300	222,100	280,000	261,200	191,200	114,500
25	575	1,590	153,400	256,800	252,800	160,000	169,900	222,100	280,000	258,800	188,500	112,100
26	615	1,540	168,000	253,500	254,800	159,000	173,500	222,300	279,400	256,500	185,900	109,700
27	590	1,480	183,500	252,000	257,000	158,200	179,100	223,900	273,300	254,200	183,300	107,400
28	605	2,080	196,400	255,000	259,500	158,400	185,700	226,500	278,900	251,800	180,700	105,200
29	716	1,700	205,500	257,500	-----	159,300	192,900	230,400	279,400	249,000	178,100	102,900
30	865	1,320	212,300	257,200	-----	162,000	199,800	235,000	280,200	246,300	175,500	101,400
31	861	-----	220,300	255,800	-----	164,400	-----	240,600	-----	243,900	172,700	-----
(†)		453.7	682.2	697.1	693.6	655.2	672.9	690.9	706.6	692.3	659.6	616.2
(‡)	+ 327	+459	+218,980	+35,500	+3,700	-95,100	+35,400	+40,800	+39,600	-36,300	-71,200	-71,300

Calendar year 1964..... ‡ +106,400  
Water year 1964-65..... ‡ +100,900

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

11-2710. Merced River at Merced Falls, Calif.  
(Formerly published as Merced River at Exchequer)

Location.--Lat 37°31'15", long 120°19'55", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 4, T.5 S., R.15 E., on right bank 0.15 mile south of Merced Falls and 0.25 mile downstream from Merced Falls, Dam.

Drainage area.--1,052 sq mi.

Records available.--April 1901 to September 1965. Records for water year 1914-16 incomplete, yearly estimates published in WSP 1315-A. Published as "near Merced Falls" 1901-13 and as "at Exchequer" 1914-64. Records of daily discharge after Sept. 30, 1964 do not include diversion to North Side Canal.

Gage.--Water-stage recorder. Datum of gage is 310.55 ft above mean sea level. Prior to Sept. 30, 1964, at site about 7 miles up-stream at different datum.

Average discharge.--64 years, 1,322 cfs (957,100 acre-ft per year), adjusted for diversion to North Side Canal and change in contents in Lake McClure since 1965.

Extremes.--Maximum discharge during year, 17,100 cfs Jan. 7 (gage height 15.54 ft); minimum daily, 6.6 cfs Apr. 3-4. 1901-13, 1915-65: Maximum discharge observed, 47,700 cfs Jan. 31, 1911 (gage height, 23.3 ft, site and datum then in use); no flow for part of Nov. 21, 1901.

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

Rating table (gage height, in feet, and discharge, in cubic feet per second)

2.4	6.0	4.5	420
2.5	8.0	5.0	650
2.7	12	6.0	1,240
2.9	25	8.0	2,940
3.2	54	10.0	5,500
3.5	108	12.0	8,900
4.0	245	15.0	15,600

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	25	112	453	73	1130	722	7.0	2,530	3,260	2,270	1,820	1,480
2	26	106	410	40	20	4,380	6.8	4,250	3,260	2,590	1,850	1,480
3	26	139	308	36	143	4,450	6.6	4,280	3,260	2,310	1,850	1,460
4	25	118	212	37	1,880	3,780	6.6	4,270	3,260	2,310	1,850	1,430
5	26	105	23	300	2,090	2,740	1,840	4,210	3,260	2,300	1,850	1,430
6	25	77	21	6,500	2,240	4,340	1,750	4,210	3,300	2,220	1,830	1,420
7	25	93	20	14,100	2,670	4,310	2,130	4,170	3,680	2,100	1,800	1,420
8	23	41	18	8,220	765	4,300	2,540	4,160	4,520	2,100	1,790	1,420
9	25	54	17	5,420	22	4,240	2,770	4,140	4,940	2,110	1,780	1,380
10	26	350	17	3,400	30	4,240	3,700	4,130	5,080	2,020	1,780	1,340
11	24	540	16	1,620	22	4,140	3,950	4,100	5,010	1,960	1,780	1,330
12	20	675	16	80	954	2,300	936	3,790	5,040	1,960	1,740	1,330
13	38	1,380	15	1,310	2,440	1,840	750	3,000	5,040	1,950	1,700	1,320
14	39	968	15	2,410	2,370	3,980	1,490	3,000	5,010	1,940	1,700	1,300
15	40	750	15	2,660	2,000	4,040	4,030	2,990	5,010	1,940	1,700	1,280
16	34	560	14	2,550	1,710	4,240	4,030	3,000	3,770	1,940	1,680	1,280
17	33	373	22	2,060	1,300	4,170	4,000	3,020	2,450	1,980	1,620	1,270
18	40	285	31	432	1,090	3,090	3,550	3,070	2,450	2,020	1,570	1,250
19	39	216	28	47	919	1,500	769	3,080	2,450	1,980	1,570	1,230
20	45	253	27	50	536	1,600	675	3,090	2,450	1,960	1,570	1,230
21	46	292	67	36	1,370	1,620	1,510	3,130	2,320	1,960	1,580	1,230
22	33	236	73	1,180	1,210	1,620	3,960	3,150	2,180	1,950	1,570	1,210
23	27	191	53	2,380	1,160	1,480	3,980	3,140	2,140	1,940	1,580	1,200
24	27	203	121	3,140	953	1,650	3,970	3,140	2,360	1,920	1,550	1,200
25	28	200	128	3,300	17	1,680	3,520	3,130	2,540	1,920	1,550	1,200
26	33	380	98	2,970	12	1,680	1,650	3,140	2,540	1,920	1,520	1,200
27	36	320	117	1,520	13	1,700	1,610	3,140	2,270	1,920	1,500	1,180
28	42	400	102	41	12	1,700	1,620	3,130	2,090	1,920	1,500	1,170
29	75	448	89	33	-----	577	1,800	3,140	2,110	1,910	1,500	1,050
30	128	195	57	2,170	-----	90	1,970	3,160	2,090	1,900	1,490	749
31	172	-----	74	1,920	-----	8.0	-----	3,180	-----	1,850	1,480	-----
Total	1,251	10,060	2,677	70,035	29,078	82,126.0	64,527.0	107,070	99,140	63,070	51,650	38,469
Mean	40.3	335	86.4	2,259	1,038	2,649	2,151	3,454	3,305	2,035	1,670	1,282
Ac-ft	2,480	19,950	5,310	138,900	57,680	162,900	128,000	212,400	196,600	125,100	102,400	76,300
(+)	50	61	81	0	0	1,194	663	4,312	4,201	4,491	4,239	3,483
Mean†	45.7	344	3,649	2,836	1,105	1,122	2,758	4,189	4,040	1,517	576	143
Ac-ft†	2,810	20,470	224,400	174,400	61,380	68,990	164,100	257,500	240,400	93,290	35,440	8,480
Calendar year 1964:	Max	1,990	Min	14	Mean	707	Ac-ft	513,400	Mean†	1,010	Ac-ft†	733,400
Water year 1964-65:	Max	14,100	Min	6.6	Mean	1,696	Ac-ft	1,228,000	Mean†	1,867	Ac-ft†	1,352,000

† Diversion in acre-ft to North Side Canal; furnished by Merced Irrigation District.

\* Adjusted for change in contents in Lake McClure and diversion to North Side Canal.

Note.--When inflow to the reservoir is small and other quantities are large, discordant figures of net runoff may appear. This arises primarily from the difficulty of computing net runoff as the residual of several large quantities, which are not susceptible to measurement with a precision necessary to produce a final answer within desirable limits of accuracy. Records of evaporation from Lake McClure are not available.

No gage-height record Feb. 1-6.

Record Oct. 1 to Nov. 9 obtained from site 7 miles upstream, adjusted for North Side Canal.

11-2725. Merced River near Stevinson, Calif.

Location--Lat 37°22'15", long 120°55'45", in SW 1/4 sec. 36, T.6 S., R.9 E., on right bank 5 miles upstream from mouth and 6 miles northwest of Stevinson.

Drainage area--1,273 sq mi.

Records available--October 1940 to September 1965.

Gage--Water-stage recorder. Datum of gage is at mean sea level (levels by Topographic Division). Prior to Aug. 16, 1955, at datum 55.74 ft higher, and Aug. 16, 1955, to Sept. 30, 1959, at datum 54.74 ft higher.

Average discharge--25 years, 681 cfs (493,000 acre-ft per year).

Extremes--Maximum discharge during year, 11,000 cfs Jan. 8 (elevation, 72.09 ft); minimum daily, 60 cfs Oct. 11.  
1940-65: Maximum discharge, 13,600 cfs Dec. 5, 1950 (elevation, 73.79 ft, present datum); no flow July 19 to Aug. 21, 1961, result of temporary dam below station.

Remarks--Records good. Practically entire flow is diverted above station during irrigation season; some return flow enters above station. Flow regulated by Lake McClure (see p. 641) Records of chemical analyses for the water year 1965 are published in Part 2 of this report.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	79	98	454	550	1,850	283	346	429	1,410	372	225	231
2	89	99	372	510	1,140	272	295	480	1,420	375	233	238
3	81	98	430	389	595	2,600	270	2,000	1,380	552	202	222
4	66	111	446	320	440	3,680	256	2,280	1,410	527	201	229
5	81	114	374	302	1,220	3,210	249	2,300	1,440	473	201	263
6	69	113	356	273	1,770	2,060	457	2,260	1,460	441	216	277
7	67	122	267	3,370	2,180	3,210	1,460	2,260	1,480	443	225	281
8	71	131	223	9,280	2,520	3,400	1,670	2,260	1,650	390	240	296
9	66	133	202	8,960	1,480	3,430	2,040	2,280	2,280	366	264	283
10	61	131	185	6,530	640	3,340	2,320	2,290	2,640	325	227	259
11	60	143	173	4,380	459	3,150	3,120	2,200	2,770	299	254	272
12	63	187	169	2,900	384	3,010	3,410	2,150	2,850	266	305	276
13	61	373	159	1,360	410	2,120	1,680	1,980	2,890	245	291	289
14	77	813	150	1,280	1,740	1,270	962	1,430	2,890	203	281	273
15	75	1,170	145	2,440	2,110	2,590	940	1,310	2,870	194	286	250
16	74	929	139	2,680	2,100	2,720	2,840	1,300	2,870	177	284	243
17	76	776	134	2,700	1,710	2,840	3,200	1,320	2,220	179	225	259
18	84	640	132	2,630	1,340	2,880	3,300	1,290	1,150	179	223	258
19	86	510	134	1,360	1,150	2,220	3,000	1,290	917	190	237	242
20	83	426	135	764	1,090	869	1,360	1,300	903	174	235	273
21	81	374	134	593	640	635	673	1,330	806	164	227	250
22	74	347	134	513	1,050	553	665	1,370	743	202	221	229
23	63	356	136	616	1,120	480	2,480	1,440	603	193	253	228
24	64	322	192	2,000	1,090	432	2,720	1,480	525	192	244	226
25	82	310	1,180	2,910	1,050	406	2,620	1,440	493	213	230	229
26	86	295	720	3,150	572	410	2,380	1,460	902	236	223	233
27	75	293	522	2,990	394	412	1,080	1,480	1,120	225	223	251
28	84	362	723	2,040	329	470	602	1,460	990	226	226	252
29	92	380	557	903	-----	495	460	1,400	523	213	239	254
30	106	413	584	583	-----	493	424	1,390	413	195	272	234
31	98	-----	472	1,310	-----	390	-----	1,420	-----	202	246	-----
Total	2,379	10,589	10,133	70,610	32,572	54,340	47,283	50,073	46,033	8,643	7,464	7,600
Mean	76.7	353	327	2,273	1,163	1,753	1,576	1,615	1,534	279	241	253
Ac-ft	4,720	21,000	20,100	140,100	64,610	107,800	93,780	99,330	91,310	17,140	14,800	15,070

Calendar year 1964	Max	1,180	Min	46	Mean	150	Ac-ft	108,700
Water year 1964-65	Max	9,280	Min	60	Mean	953	Ac-ft	689,800

## SAN JOAQUIN RIVER BASIN

11-2730. Merced River Slough near Newman, Calif.

Location (revised).--Lat 37°21'36", long 121°57'37", in NE¼NE¼ sec.3, T.7 S., R.9 W., on left bank 0.1 mile downstream from bridge, 0.2 mile downstream from head of slough between Merced and San Joaquin Rivers, and 4.5 miles northeast of Newman.

Records available.--October 1941 to September 1965.

Gage.--Water-stage recorder. Datum of gage is at mean sea level. Prior to July 31, 1948, at datum 56.44 ft higher and Aug. 1, 1948, to Sept. 30, 1959, at datum 54.36 ft (corrected) higher.

Average discharge.--24 years, 62.2 cfs (45,030 acre-ft per year).

Extremes.--Maximum discharge during year, 805 cfs Jan. 8 (gage height, 65.23 ft); no flow most of year.  
1941-65: Maximum daily discharge, 7,770 cfs Apr. 6, 1958; no flow for several months in each year.

Remarks.--Slough flows from Merced River to San Joaquin River, bypassing gaging station on San Joaquin River near Newman. Flow at times consists of return flow from irrigated fields.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0		0			0			
2				0		0			0			
3				0		0			0			
4				0		0			0			
5				0		0			0			
6				0		0			0			
7				3.5		0			0			
8				488		0			0			
9				692		0.3			0			
10				305		.6			0			
11				53		.4			0			
12				8.5		.4			0			
13				1.1		.3			0			
14				.6		.1			0.1			
15				.6		0			.2			
16				.6		.1			2.2			
17				.6		.2			1.2			
18				.6		.4			.1			
19				.4		.4			0			
20				.1		.2			0			
21				0		0			0			
22				0		0			0			
23				0		.1			0			
24				0		2.3			0			
25				0		2.8			0			
26				0		2.2			0			
27				0		0			0			
28				0		0			1.1			
29				0	-----	0			.6			
30				0	-----	0			0			
31				0	-----	0			-----			
Total	0	0	0	1,559.6	0	10.8	0	0	5.5	0	0	0
Mean	0	0	0	50.3	0	0.35	0	0	0.18	0	0	0
Ac-ft	0	0	0	3,090	0	21	0	0	11	0	0	0

Calendar year 1964 Max 1.6 Min 0 Mean 0.01 Ac-ft 10  
 Water year 1964-65 Max 692 Min 0 Mean 4.32 Ac-ft 3,120

11-2740. San Joaquin River near Newman, Calif.

Location.--Lat 37°21'02", long 120°58'34", in SW $\frac{1}{4}$  sec.3, T.7 S., R.9 E., on left bank 300 ft downstream from bridge on Hills Ferry road, 500 ft downstream from Merced River, and 3.5 miles northeast of Newman.

Drainage area.--9,524 sq mi.

Records available.--April 1912 to September 1965. Prior to Oct. 1, 1937, and subsequent to Oct. 1, 1943, flow that bypassed station at discharges above about 9,000 cfs not included in records.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Topographic Division). Prior to Mar. 3, 1931, staff gage at various sites within 240 ft of bridge and Mar. 3, 1931, to Sept. 30, 1959, water-stage recorder within 300 ft of bridge at datum 47.31 ft higher. Oct. 1, 1959 to Aug. 9, 1960, 70 ft upstream at same datum.

Average discharge.--53 years, 2,055 cfs (1,488,000 acre-ft per year).

Extremes.--Maximum discharge during year, 11,300 cfs Jan. 10 (elevation, 62.69 ft); minimum daily, 336 cfs July 23. 1912-65: Maximum discharge, 33,000 cfs Mar. 7, 1938 (elevation, 65.81 ft, present site and datum), including flow in Merced River Slough; minimum, 15 cfs Aug. 9, 10, 1924.

Remarks.--Records good. Natural flow of stream affected by storage reservoirs, ground-water withdrawals, diversions for irrigation, and imported water; low flows consist mainly of return water from irrigated areas. Record for Merced River Slough (see preceding page) shows flow bypassing station.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	622	1,070	706	3,890	2,420	672	843	964	1,660	724	414	466
2	629	643	640	3,820	1,960	644	752	956	1,680	704	446	495
3	640	481	622	3,520	1,260	2,270	703	1,960	1,710	844	387	491
4	650	481	685	3,040	1,050	3,620	676	2,610	1,710	844	361	491
5	650	463	604	2,580	1,640	3,750	656	2,710	1,740	804	360	512
6	636	463	618	2,370	2,150	2,560	740	2,680	1,740	776	373	533
7	612	457	533	3,720	2,460	3,210	1,530	2,680	1,780	784	379	520
8	613	451	478	8,010	2,870	3,600	1,820	2,690	1,910	720	401	539
9	601	466	422	10,600	2,340	3,680	2,350	2,700	2,520	672	457	557
10	601	473	499	11,100	1,330	3,660	2,900	2,740	2,980	600	423	543
11	584	490	517	9,780	1,060	3,490	3,940	2,630	3,230	564	434	569
12	601	511	532	7,670	932	3,340	4,930	2,530	3,350	580	506	543
13	640	632	481	5,290	872	2,870	4,270	2,420	3,400	532	505	563
14	571	886	403	3,770	1,880	1,630	3,420	1,820	3,400	466	483	521
15	571	1,320	385	3,880	2,440	2,680	3,190	1,580	3,370	427	510	513
16	565	1,270	385	3,910	2,510	3,000	4,440	1,560	3,370	392	514	501
17	563	1,100	362	3,840	2,260	3,120	5,190	1,580	2,910	351	447	543
18	577	950	351	3,620	1,880	3,170	5,240	1,550	1,670	343	412	574
19	580	833	360	2,780	1,630	2,900	5,040	1,550	1,300	386	445	539
20	577	752	370	1,920	1,530	1,510	3,400	1,540	1,260	362	440	572
21	574	699	374	1,620	1,140	1,100	2,030	1,550	1,160	353	435	583
22	571	654	375	1,470	1,320	980	1,640	1,590	1,060	356	411	530
23	556	674	383	1,400	1,520	880	2,830	1,700	900	336	463	484
24	556	650	451	2,400	1,490	804	3,490	1,750	816	355	469	463
25	577	640	1,420	3,240	1,430	763	3,470	1,720	803	401	477	475
26	601	626	2,120	3,660	1,040	804	3,210	1,690	1,130	427	454	477
27	577	613	2,370	3,720	792	792	2,140	1,720	1,400	441	452	495
28	674	636	2,840	3,210	724	856	1,460	1,710	1,350	441	452	523
29	683	654	3,180	1,980	-----	892	1,180	1,600	964	383	470	514
30	954	643	3,610	1,400	-----	984	1,030	1,590	820	356	513	473
31	986	-----	3,850	1,670	-----	892	-----	1,670	-----	384	491	-----
Total	19,407	20,696	30,941	124,880	45,930	65,123	78,520	59,740	57,093	16,113	13,793	15,637
Mean	626	690	993	4,023	1,640	2,101	2,617	1,927	1,903	520	445	521
Ac-ft	38,490	41,050	61,370	247,700	91,100	129,200	155,700	118,500	113,300	31,970	27,370	31,020

Calendar year 1964 Max 3,850 Min 168 Mean 431 Ac-ft 313,200  
 Water year 1964-65 Max 11,100 Min 336 Mean 1,501 Ac-ft 1,087,000

11-2745. Orestimba Creek near Newman, Calif.

Location.--Lat 37°19'09", long 121°07'12", on line between secs. 17 and 20, T.7 S., R.8 E., at left bank pier of county road bridge, 3 miles downstream from Oso Creek, and 5 miles west of Newman.

Drainage area.--134 sq mi.

Records available.--January 1932 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 188.86 ft above mean sea level, adjustment of 1929. Prior to Oct. 1, 1958, at site 120 ft downstream at datum 3.00 ft higher.

Average discharge.--33 years, 14.8 cfs (10,710 acre-ft per year); median of yearly mean discharges, 7.9 cfs (5,700 acre-ft per year).

Extremes.--Maximum discharge during year, 560 cfs Jan. 6 (gage height, 6.20 ft); no flow for several months.

1932-65: Maximum discharge, 10,200 cfs Apr. 2, 1958 (gage height, 6.57 ft, site and datum then in use), from rating curve extended above 5,000 cfs; no flow for several months in each year.

Remarks.--Records fair. No storage or diversion except for minor stock ponds.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Dec. 27-31, May 12, 13, 18, 19, June 19-22)

4.80	0	5.1	24
4.85	.4	5.3	62
4.90	1.7	5.5	120
4.95	4.1	6.0	400
5.0	8.7		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			0	78	18	4.7	6.7	1.7	0.7	0.3		
2			0	47	14	4.7	16	1.4	.8	.3		
3			0	125	11	3.0	11	1.7	.7	.3		
4			0	140	10	2.1	7.5	1.4	.7	.3		
5			0	73	16	1.7	4.7	.8	.6	.3		
6			0	359	22	2.1	3.5	.8	.6	.2		
7			0	334	21	3.0	3.5	.4	.7	.2		
8			0	123	16	4.1	4.7	.6	.4	.2		
9			0	72	14	3.5	12	.8	.2	.2		
10			0	47	11	3.0	216	1.1	.6	0		
11			0	38	10	2.1	132	1.1	.6	.2		
12			0	31	8.7	1.1	78	1.1	.6	.1		
13			0	24	8.7	1.1	62	1.2	.6	0		
14			0	19	8.7	1.4	45	1.1	.5	0		
15			0	16	7.5	2.1	32	.9	.4	0		
16			0	13	6.4	1.7	26	.9	.4	0		
17			0	10	5.5	1.7	21	.8	.4	0		
18			0	8.7	4.1	2.1	16	.5	.3	0		
19			0	11	4.1	2.1	13	.3	.3	0		
20			0	18	4.1	1.4	8.7	.3	.2	0		
21			0	13	3.5	1.1	7.5	.3	.2	0		
22			0	10	3.0	1.4	6.4	.4	.3	0		
23			0	8.7	3.5	1.4	5.5	.4	.3	0		
24			0	38	2.5	2.1	3.5	.4	.3	0		
25			0	41	1.4	1.1	3.0	.3	.3	0		
26			0	34	2.1	1.1	2.5	.3	.3	0		
27			.3	29	2.5	.8	3.0	.4	.4	0		
28			38	26	3.0	.8	2.1	.6	.4	0		
29			52	24	-----	1.4	2.5	.6	.4	0		
30			54	21	-----	.8	2.1	.7	.3	0		
31			91	19	-----	1.1	-----	.7	-----	0		
Total	0	0	235.3	1860.4	242.3	61.8	757.4	24.0	13.5	2.6	0	0
Mean	0	0	7.59	60.0	8.65	1.99	25.2	0.77	0.45	0.08	0	0
Ac-ft	0	0	467	3,690	481	123	1,500	49	27	5.2	0	0

Calendar year 1964 Max 91 Min 0 Mean 1.02 Ac-ft 737  
Water year 1964-65 Max 359 Min 0 Mean 8.76 Ac-ft 6,340

Peak discharge (base, 50 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-31	1500	5.57	148	1-24	1200	5.30	62
1-3	1600	5.75	240	4-10	1100	5.80	270
1-6	0700	6.20	560				



11-2746. Del Puerto Creek tributary No. 1 near Patterson, Calif.

Location.--Lat 37°24'15", long 121°26'10", in NE¼ sec. 21, T.6 S., R.5 E., at culvert on county road, 300 feet upstream from Del Puerto Creek, and 17.5 miles southwest of Patterson.

Drainage area.--0.71 sq mi.

Records available.--Water years 1959-63 (annual maximum), October 1963 to September 1965.

Gage.--Water-stage recorder and crest-stage gage. Altitude of gage is 1,760 ft (from topographic map). Oct. 2, 1958 to Oct. 22, 1963, crest-stage gage at same site at datum 85.20 ft lower.

Extremes.--Maximum discharge during water year, 9.0 cfs Dec. 22 (gage height, 7.94 ft); no flow for most of year.

1958-65: Maximum discharge, 20 cfs Feb. 1, 1963 (gage height, 8.53 ft, present datum), from rating curve extended above 7 cfs on basis of computations of flow through culvert at gage heights 8.36 ft, 8.50 ft, 8.85 ft, 9.40 ft; no flow for most of each year.

Remarks.--No regulation or diversion above station.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			0	0.2	0.1	0	0					
2			0	.2	.1	0	0					
3			0	.2	.1	0	0					
4			0	.2	.1	0	0					
5			0	.3	.2	0	0					
6			0	.5	.1	0	0					
7			0	.3	.1	0	0					
8			0	.3	.1	0	0					
9			0	.2	0	0	.6					
10			0	.2	0	0	1.4					
11			0	.2	0	0	.4					
12			0	.2	0	0	.2					
13			0	.2	0	0	.1					
14			0	.2	0	0	.1					
15			0	.2	0	0	0					
16			0	.1	0	0	0					
17			0	.1	0	0	0					
18			0	.1	0	0	0					
19			0	.1	0	0	0					
20			0	.1	0	0	0					
21			0	.1	0	0	0					
22			.7	.1	0	0	0					
23			2.6	.1	0	0	0					
24			.4	.2	0	0	0					
25			.2	.2	0	0	0					
26			.2	.1	0	0	0					
27			.2	.1	0	0	0					
28			.4	.1	0	0	0					
29			.3	.1	-----	0	0					
30			.3	.1	-----	0	0					
31		-----	.3	.1	-----	0.1	-----		-----			-----
Total	0	0	5.6	5.4	0.9	0.1	2.8	0	0	0	0	0
Mean	0	0	0.18	0.17	0.03	0.003	0.09	0	0	0	0	0
Ac-ft	0	0	1.1	1.1	1.8	0.2	5.6	0	0	0	0	0
(†)	1.10	3.10	7.00	2.70	0.60	2.00	3.70	0	0	0	0	0
Calendar year 1964:	Max	2.6	Min	0	Mean	0.02	Ac-ft	12				
Water year 1964-65:	Max	2.6	Min	0	Mean	0.04	Ac-ft	30				

† Precipitation, in inches.

## SAN JOAQUIN RIVER BASIN

11-2746.3. Del Puerto Creek near Patterson, Calif.

Location.--Lat 37°29'15", long 121°12'25", in SE<sup>1</sup>/<sub>4</sub> NW<sup>1</sup>/<sub>4</sub>, sec. 21 T.5 S., R.7 E., on left bank 1.0 mile upstream from Delta-Mendota Canal crossing, and 4.4 miles west of Patterson.

Drainage area.--73.1 sq mi.

Records available.--October 1958 to May 1965 (annual maximums only), June to September 1965.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 200 ft (from topographic map). Prior to June 1965, crest-stage gage at site 1.0 mile downstream at different datum.

Extremes.--Maximum discharge during water year, 104 cfs Dec. 27, Apr. 29 (gage height, 10.80 ft at site and datum then in use); minimum recorded, no flow June 30 to Sept. 30.  
1958-65: Maximum discharge, 1,800 cfs Feb. 16, 1959 (gage height, 14.68 ft, site and datum then in use), from rating curve extended above 690 cfs.

Remarks.--Records fair. Some stock ponds and small diversions above station.

Discharge, in cubic feet per second, June to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1									-			
2									-			
3									-			
4									-			
5									-			
6									-			
7									-			
8									-			
9									-			
10									-			
11									-			
12									-			
13									-			
14									-			
15									-			
16									-			
17									-			
18									0.9			
19									.8			
20									.7			
21									.7			
22									.7			
23									.7			
24									.7			
25									.6			
26									.7			
27									.7			
28									.5			
29									.3			
30									0			
31									-			
Total									-	0	0	0
Mean									-	0	0	0
Ac-ft									-	0	0	0

Calendar year 1964 Max - Min - Mean - Ac-ft -  
 Water year 1964-65 Max - Min - Mean - Ac-ft -

11-2750. Falls Creek near Hetch Hetchy, Calif.

Location.--Lat 37°58'15", long 119°45'45", in SE¼ sec.3, T.1 N., R.20 E., on right bank in Yosemite National Park, 0.2 mile upstream from Wampana Falls, 0.6 mile upstream from mouth, and 2 miles northeast of Hetch Hetchy.

Drainage area.--46.0 sq mi.

Records available.--October 1915 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A. Prior to Oct. 1, 1918, published as "near Sequoia."

Gage.--Water-stage recorder. Altitude of gage is 5,350 ft (from topographic map).

Average discharge.--50 years, 142 cfs (102,800 acre-ft per year).

Extremes.--Maximum discharge during year, 5,490 cfs Dec. 23 (gage height, 8.66 ft), from rating curve extended above 2,500 cfs as explained below; no flow Oct. 1-28.

1915-65: Maximum discharge, 6,660 cfs Nov. 19, 1950, Dec. 23, 1955 (gage height, 9.0 ft, from floodmarks), from rating curve extended above 2,500 cfs on basis of velocity-area studies; no flow at times in many summers.

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

Cooperation.--Water-stage-recorder graph and five discharge measurements furnished by city and county of San Francisco.

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 23

Dec. 24 to Sept. 30

1.1	0	1.9	1.9	3.0	55	6.0	1,170	1.9	3.9	3.0	68
1.2	.1	2.0	2.8	3.5	135	7.0	2,270	2.1	7.5	3.5	142
1.4	.2	2.2	6.0	4.0	250	8.0	3,800	2.4	18	4.0	250
1.6	.5	2.4	12	4.5	380	9.0	6,660	2.7	39		
1.7	.8	2.6	20	5.0	560						
1.8	1.2	2.8	34	5.5	830						

Note.--Same as preceding table above 4.0 ft.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	4.7	86	85	94	86	100	585	655	508	104	17
2	0	8.8	99	80	91	75	96	452	488	470	98	17
3	0	5.8	77	85	90	75	84	285	424	524	88	16
4	0	7.5	60	95	90	79	83	210	660	575	78	15
5	0	8.0	55	100	108	73	83	190	872	516	66	14
6	0	6.8	48	122	100	69	86	178	872	524	59	14
7	0	5.8	45	90	80	64	84	146	759	516	58	19
8	0	5.0	47	91	70	61	78	134	818	428	55	24
9	0	11	58	104	67	62	73	147	548	368	52	23
10	0	25	65	117	65	66	72	184	806	325	49	22
11	0	30	224	108	59	67	70	232	978	288	56	18
12	0	68	109	100	57	68	69	288	1,030	250	98	16
13	0	39	71	93	56	69	67	342	860	230	135	13
14	0	35	56	93	56	67	72	410	605	242	123	12
15	0	30	52	98	55	68	91	442	466	278	166	10
16	0	30	45	93	56	72	104	544	417	392	140	9.0
17	0	31	42	90	58	78	106	726	345	410	123	8.5
18	0	32	37	94	66	84	122	860	270	374	119	7.5
19	0	33	44	103	76	91	172	764	386	272	94	8.0
20	0	34	60	100	84	98	232	720	610	232	70	8.0
21	0	36	127	93	90	112	305	605	824	208	55	8.0
22	0	41	1,100	88	91	125	345	401	800	168	46	8.0
23	0	43	4,630	104	84	139	342	280	698	142	38	7.3
24	0	46	3,440	128	79	134	345	250	540	135	34	6.5
25	0	72	1,250	88	81	106	395	262	620	139	30	5.9
26	0	104	555	80	88	97	445	338	488	130	26	5.3
27	0	74	335	78	127	97	488	480	417	123	23	5.0
28	0	63	188	75	100	103	532	600	442	104	19	4.9
29	5.7	65	150	76	-----	108	595	671	470	93	18	4.9
30	4.4	71	110	87	-----	106	625	726	484	88	16	4.4
31	.8	-----	95	94	-----	104	-----	676	-----	108	16	-----
Total	10.9	1,065.4	13,360	2,932	2,218	2,703	6,361	13,128	18,652	9,160	2,152	351.2
Mean	0.35	35.5	431	94.6	79.2	87.2	212	423	622	295	69.4	11.7
Ac-ft	22	2,110	26,500	5,820	4,400	5,360	12,620	26,040	37,000	18,170	4,270	697

Calendar year 1964 Max 4,630 Min 0 Mean 124 Ac-ft 89,840  
 Water year 1964-65 Max 4,630 Min 0 Mean 198 Ac-ft 143,000

Peak discharge (base, 900 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	1000	8.66	5,490	6-12	0730	6.05	1,210
5-18	0600	5.70	950	6-21	0930	5.72	964

Note.--Stage-discharge relation affected by ice Nov. 14-19, Dec. 29 to Jan. 5.

## SAN JOAQUIN RIVER BASIN

11-2755. Hetch Hetchy Reservoir at Hetch Hetchy, Calif.

Location.--Lat 37°56'55", long 119°47'10", in NW¼ sec.16, T.1 N., R.20 E., near center of O'Shaughnessy Dam on Tuolumne River at Hetch Hetchy in Yosemite National Park, 1.5 miles downstream from Falls Creek.

Drainage area.--455 sq mi.

Records available.--May 1923 to September 1965. Prior to October 1930 month-end contents, published in WSP 1315-A.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by city and county of San Francisco). Prior to Oct. 1, 1927, staff gage at same site and datum.

Extremes.--Maximum contents during year, 359,800 acre-ft Aug. 15 (elevation, 3,805.7 ft); minimum, 137,700 acre-ft Dec. 21 (elevation, 3,673.7 ft).

1923-65: Maximum contents, 369,100 acre-ft Dec. 3, 1950 (elevation, 3,810.4 ft); no contents at times in 1929-31.

Remarks.--Reservoir is formed by concrete gravity-type dam, completed to crest elevation 3,726.5 ft in 1923 and raised to 3,812.0 ft in 1937; storage began Apr. 6, 1923. Ten-foot drum gates were installed on spillway in 1949. Usable capacity, 360,400 acre-ft between elevations, 3,512.0 (somewhat above bottom outlet) and 3,806.0 ft (top of drum-type spillway gates) above mean sea level. Water flows down Tuolumne River 15 miles to Early Intake, where part is diverted through Hetch Hetchy aqueduct to Moccasin Creek powerplant. At Moccasin Creek diversion dam, water re-enters Hetch Hetchy aqueduct and flows into Crystal Springs Reservoir, which supplies city of San Francisco. Surplus water is spilled into Don Pedro Reservoir at Red Mountain Bar. Hetch Hetchy Reservoir is main storage unit of Hetch Hetchy water-supply system for San Francisco.

Cooperation.--Water-stage-recorder graph furnished by city and county of San Francisco.

Capacity table (elevation, in feet, and contents, in acre-feet)

3,673	136,800	3,760	273,700
3,680	146,200	3,790	329,300
3,700	175,000	3,806	360,400
3,730	222,200		

Contents, in thousands of acre-feet, at 2400 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	229.0	184.1	153.1	261.5	238.4	183.4	154.3	138.1	192.9	325.7	356.6	343.7
2	227.7	182.9	152.5	262.2	236.4	181.8	152.6	139.7	196.0	330.6	356.2	342.8
3	226.2	181.5	151.8	262.7	234.2	180.2	151.1	139.6	198.9	336.6	355.4	341.6
4	224.7	180.3	150.8	263.3	232.3	178.5	149.4	138.5	206.5	342.4	355.2	340.6
5	223.4	179.1	150.0	263.6	230.5	177.0	147.7	136.9	217.3	347.8	354.9	339.5
6	221.7	177.6	149.0	265.5	228.8	175.5	145.9	135.1	228.5	351.7	354.7	338.3
7	220.6	176.2	147.9	266.2	226.5	173.7	144.2	132.8	238.7	352.9	354.3	337.4
8	218.9	174.7	147.2	266.6	224.5	172.2	142.6	130.5	249.3	352.5	353.9	336.4
9	217.6	173.7	146.2	266.8	222.2	170.3	140.9	128.5	255.9	351.3	353.3	335.4
10	216.1	172.9	145.3	267.0	219.9	168.8	139.0	126.8	265.4	349.4	352.7	334.5
11	214.4	171.9	145.0	267.1	217.6	167.3	137.2	125.5	275.8	346.8	352.7	333.3
12	211.6	171.4	144.6	267.3	215.3	166.3	135.5	124.8	285.3	345.7	353.7	332.2
13	210.2	170.6	144.0	267.3	212.1	165.5	133.9	124.8	291.7	347.0	354.9	330.8
14	208.9	169.5	142.7	267.3	210.0	165.1	132.2	125.8	295.2	349.6	358.0	329.7
15	207.4	168.2	142.0	267.5	207.8	165.7	130.7	127.1	296.8	352.7	358.6	328.5
16	206.2	167.2	141.3	267.7	205.5	166.4	128.9	130.4	297.5	355.6	355.0	327.2
17	205.2	166.0	140.1	267.8	203.3	167.3	126.7	136.5	297.4	356.6	354.1	325.7
18	203.6	164.9	138.9	267.0	201.3	168.3	124.6	143.2	298.1	356.2	354.7	324.7
19	202.2	163.8	138.4	265.0	199.4	169.4	122.7	149.7	303.3	355.8	353.9	323.4
20	200.8	162.7	137.8	263.1	197.5	170.1	121.7	155.0	310.0	353.9	353.3	321.9
21	199.5	161.5	137.7	261.0	195.7	169.1	120.8	158.7	316.2	352.5	353.1	320.7
22	197.9	160.5	151.7	258.7	194.0	167.7	120.7	159.5	319.8	351.9	352.7	319.6
23	196.5	159.5	200.0	256.8	192.2	166.7	120.5	159.4	320.9	352.3	352.1	318.3
24	195.1	158.2	234.0	255.4	190.4	165.5	120.4	158.4	320.2	353.3	351.3	317.0
25	193.5	157.5	244.9	253.3	188.7	164.0	121.1	157.3	319.4	354.1	350.7	316.0
26	192.1	157.1	251.1	251.1	187.2	162.6	122.2	158.0	318.5	355.0	350.0	314.1
27	190.7	156.4	255.0	248.8	186.1	161.4	124.6	161.7	317.7	355.4	348.8	313.0
28	189.0	155.4	256.8	246.6	184.9	159.8	127.3	167.0	317.5	355.6	347.8	311.7
29	188.1	154.6	258.5	244.4	-	158.4	130.9	173.4	317.3	355.8	346.8	310.4
30	186.7	153.9	259.8	242.5	-----	157.0	134.7	180.8	320.4	356.0	345.9	309.1
31	185.3	-----	260.8	240.4	-----	155.6	-----	187.2	-----	356.6	344.9	-----
(†)	3,706.8	3,685.5	3,752.7	3,740.9	3,706.5	3,686.7	3,671.5	3,708.0	3,785.3	3,804.1	3,798.1	3,779.3
(‡)	-45,000	-31,400	+106,900	-20,400	-55,500	-29,300	-20,900	+52,500	+133,200	+36,200	-11,700	-35,800

Calendar year 1964..... †\$59,400

Water year 1964-65..... †\$78,800

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

11-2765. Tuolumne River near Hetch Hetchy, Calif.

Location.--Lat 37°56'15", long 119°47'50", in SW¼SE¼ sec.17, T.1 N., R.20 E., in Yosemite National Park, on left bank 1 mile downstream from O'Shaughnessy Dam at Hetch Hetchy and 2.5 miles downstream from Falls Creek.

Drainage area.--457 sq mi.

Records available.--October 1910 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A. Published as "at Hetch Hetchy damsite, near Sequoia" 1910-14 and as "below Hetch Hetchy damsite, near Sequoia" 1915-18.

Gage.--Water-stage recorder. Altitude of gage is 3,430 ft (from topographic map). Prior to Jan. 1, 1915, at site 1 mile upstream, at damsite, at different datum.

Average discharge.--55 years, 1,000 cfs (724,000 acre-ft per year).

Extremes.--Maximum discharge during year, 4,730 cfs June 23, 24 (gage height, 10.71ft); minimum daily, 4.1 cfs Mar. 18, 19. 1910-65: Maximum discharge, 12,900 cfs June 1, 1943 (gage height, 13.90 ft); minimum daily, 1.3 cfs Nov. 2, 3, 1923.

Remarks.--Records excellent. Flow regulated by Hetch Hetchy Reservoir beginning in April 1923 (see preceding page). No diversion above station.

Cooperation.--Water-stage-recorder graph and four discharge measurements furnished by city and county of San Francisco.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

0.6	4.0	2.5	98	7.0	1,090
.9	7.0	3.0	151	8.0	1,640
1.2	15	4.0	292	9.0	2,440
1.5	25	5.0	480	10.0	3,570
2.0	55	6.0	730	11.0	5,290

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	739	742	742	733	1,740	1,360	1,450	2,540	2,010	1,040	1,120	754
2	733	739	751	733	1,740	1,350	1,440	2,560	2,030	1,060	1,140	754
3	745	733	748	736	1,720	1,330	1,430	2,570	2,040	1,100	1,190	754
4	751	727	745	739	1,710	1,320	1,420	2,560	1,220	1,130	889	751
5	745	739	739	745	1,700	1,300	1,500	2,550	751	1,160	739	751
6	739	739	736	790	1,690	1,300	1,540	2,520	775	2,160	736	751
7	686	736	730	769	1,680	1,280	1,520	2,490	797	3,280	736	751
8	794	730	727	751	1,660	1,270	1,510	2,470	822	3,570	736	751
9	772	727	721	748	1,650	1,260	1,490	2,430	839	3,570	733	748
10	766	727	736	748	1,630	1,240	1,480	2,400	853	3,570	733	748
11	757	739	748	745	1,610	1,230	1,460	2,390	1,650	3,570	733	745
12	751	730	745	745	1,600	962	1,450	2,370	2,610	2,850	733	745
13	745	742	742	742	1,580	748	1,440	2,360	2,650	1,190	736	745
14	739	748	1,090	742	1,560	476	1,410	2,370	2,650	763	1,180	742
15	730	742	733	742	1,540	4.5	1,490	2,380	2,650	775	2,620	742
16	721	739	730	742	1,530	4.2	1,820	2,410	2,680	1,130	3,710	739
17	721	733	724	739	1,520	4.2	1,990	2,480	2,680	2,150	2,130	751
18	733	730	718	1,470	1,500	4.1	1,970	2,560	1,530	2,600	1,300	754
19	727	724	730	1,890	1,480	4.1	2,160	2,630	994	2,780	1,320	754
20	748	727	739	1,880	1,460	418	2,320	2,720	1,000	3,050	1,060	754
21	760	733	736	1,870	1,450	1,400	2,310	2,760	1,800	2,410	733	751
22	751	727	781	1,850	1,440	1,380	2,300	2,770	3,600	1,730	730	751
23	745	724	622	1,840	1,420	1,370	2,300	2,770	4,490	1,030	730	751
24	736	718	736	1,840	1,410	1,430	2,300	2,770	4,730	775	730	748
25	754	730	709	1,820	1,400	1,440	2,300	2,750	4,510	781	730	748
26	742	736	730	1,820	1,390	1,420	2,320	2,040	3,640	784	742	751
27	760	733	754	1,800	1,380	1,400	2,360	1,790	3,640	787	760	757
28	754	730	739	1,790	1,370	1,450	2,400	1,820	3,640	787	757	757
29	751	727	733	1,780	-----	1,480	2,440	1,870	3,640	787	757	754
30	748	724	733	1,760	-----	1,470	2,490	1,910	2,540	787	757	754
31	742	-----	733	1,750	-----	1,460	-----	1,960	-----	923	757	-----
Total	23,085	21,975	23,080	37,849	43,560	32,565.1	55,810	74,970	69,461	54,079	32,457	22,506
Mean	745	732	744	1,221	1,556	1,050	1,860	2,418	2,315	1,744	1,047	750
Ac-ft	45,790	43,590	45,780	75,070	86,400	64,590	110,700	148,700	137,800	107,300	64,380	44,640

Calendar year 1964 Max 1,090 Min 537 Mean 742 Ac-ft 538,500  
 Water year 1964-65 Max 4,730 Min 4.1 Mean 1,346 Ac-ft 974,700

11-2772. Cherry Lake near Hetch Hetchy, Calif.

Location.--Lat 37°58'30", long 119°53'45", in NW¼ sec.5, T.1 N., R.19 E., on upstream face of Cherry Valley Dam on Cherry Creek, 4.2 miles upstream from Eleanor Creek, 7 miles north of Early Intake, and 7.3 miles northwest of Hetch Hetchy.

Drainage area.--117 sq mi.

Records available.--August 1956 to September 1965. Prior to October 1959, published as Lake Lloyd near Hetch Hetchy.

Gage.--Staff gage read once daily. Datum of gage is at mean sea level (levels by city and county of San Francisco).

Extremes.--Maximum contents during year, 240,200 acre-ft July 8, 9 (elevation, 4,683.8 ft); minimum, 30 acre-ft Dec. 5 (elevation, 4,438.0 ft).

1956-65: Maximum contents, 269,300 acre-ft July 1-3, 1957 (elevation, 4,700.6 ft); minimum, that of Dec. 5, 1964.

Remarks.--Reservoir is formed by a rock-fill dam completed in 1956; storage began in December 1955. Usable capacity, 268,180 acre-ft between elevations 4,430 (bottom of sluice gates) and 4,700 ft (top of spillway gates) above mean sea level. Additional storage of 20 acre-ft is not available for release. Water is released down Cherry Creek for power development and domestic supply as part of Hetch Hetchy system of city and county of San Francisco. Unmeasured diversion from Lake Eleanor into Cherry Lake began Mar. 6, 1960. Diversion from Cherry Lake through tunnel to Cherry powerhouse near mouth of Cherry Creek began on Aug. 1, 1960.

Cooperation.--Record of gage heights furnished by city and county of San Francisco.

Capacity table (elevation, in feet, and contents, in acre-feet)

4435	30	4480	1,100	4540	39,800
4440	40	4490	2,800	4560	61,900
4450	84	4500	6,400	4600	112,300
4460	200	4510	12,400	4650	183,200
4470	500	4520	20,400	4684	240,500

Contents, in acre-feet, at 0800 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	24,900	25,000	2,080	98,900	121,100	110,700	96,400	122,600	183,200	234,400	228,400	195,200
2	24,800	25,000	1,130	100,400	120,900	110,400	96,100	125,800	185,000	235,100	227,400	194,200
3	24,800	-	420	-	120,400	110,000	95,500	128,700	186,800	235,800	226,100	193,200
4	24,800	23,600	50	103,700	120,200	109,600	95,300	129,900	189,100	-	224,600	192,300
5	24,800	22,900	30	104,800	120,000	109,200	95,300	131,400	192,400	238,100	223,200	191,500
6	24,800	22,000	730	106,400	120,200	108,800	94,600	132,600	195,900	239,000	221,900	190,900
7	24,700	21,100	1,250	108,300	120,000	108,500	94,100	133,600	199,000	239,900	220,600	190,500
8	24,700	20,300	1,730	109,600	120,200	108,700	93,500	134,500	201,100	240,200	219,300	189,600
9	24,700	20,200	2,440	110,800	119,800	108,100	93,000	135,500	202,800	240,200	218,300	-
10	24,700	19,800	3,100	111,900	119,600	107,300	92,400	137,300	204,600	240,000	216,800	187,600
11	24,700	-	3,880	113,300	118,800	106,500	92,200	138,700	207,400	240,000	215,200	186,600
12	-	19,400	5,440	114,100	-	105,900	91,800	140,000	210,600	239,900	214,000	185,800
13	-	19,100	6,240	114,800	118,000	105,300	91,200	141,800	213,700	239,200	213,000	185,400
14	24,700	18,600	7,120	115,500	117,300	104,800	90,500	143,700	215,800	238,700	211,800	184,400
15	24,700	18,200	7,900	116,200	117,100	104,400	89,900	146,700	216,600	238,300	211,100	183,400
16	24,700	18,100	8,440	117,000	116,400	103,700	89,400	147,900	216,900	238,800	211,100	182,600
17	24,700	17,100	8,860	117,800	116,200	102,700	89,000	151,000	217,400	239,200	211,100	181,400
18	24,700	15,900	9,340	118,900	114,600	102,200	89,000	154,500	217,300	239,700	211,800	-
19	24,600	15,000	9,760	119,500	114,000	101,600	89,100	157,900	217,400	240,000	211,100	179,700
20	24,600	13,800	10,500	120,000	113,300	101,200	90,100	160,800	218,900	239,700	210,000	179,100
21	24,600	12,600	11,500	120,300	112,900	100,800	92,200	163,600	222,200	239,200	208,800	178,200
22	24,600	11,800	14,500	120,600	-	100,900	94,300	165,600	224,400	238,500	207,500	177,100
23	24,600	11,200	36,700	120,600	112,700	100,600	96,700	166,300	226,400	237,500	206,600	176,300
24	24,600	10,200	60,000	121,700	112,400	-	98,800	166,900	227,400	236,600	205,100	175,400
25	24,500	8,860	-	122,200	111,500	100,000	101,600	167,500	228,600	235,800	203,500	174,300
26	24,500	-	80,700	122,000	111,000	99,300	105,200	168,600	229,700	235,100	202,000	173,600
27	24,400	7,360	85,800	122,100	110,400	98,900	108,000	170,100	230,400	234,000	200,700	173,100
28	24,400	6,000	89,400	121,700	110,600	98,400	111,400	172,200	231,500	232,900	199,500	172,200
29	24,700	4,800	92,400	121,300	-----	97,900	114,900	174,900	232,400	231,700	198,400	171,100
30	25,100	3,580	94,900	121,000	-----	97,400	118,800	177,700	233,700	230,500	197,400	170,200
31	25,100	-----	97,200	120,900	-----	96,700	-----	180,400	-----	229,400	196,300	-----
(†)	4,525.1	4,492.6	4,588.7	4,606.2	4,598.7	4,588.3	4,604.7	-	4,679.8	4,677.4	4,657.1	4,640.2
(‡)	-600	-21,520	+23,620	+23,700	-10,300	-13,900	+22,100	+61,600	+53,300	-4,300	-33,100	-26,100

Calendar year 1964..... †- 51,300

Water year 1964-65..... ‡+144,500

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

Note.--No elevation record; month-end contents interpolated for May.

11-2773. Cherry Creek below Cherry Valley Dam, near Hetch Hetchy, Calif.

Location.--Lat 37°58'04", long 119°54'59", in SW¼ sec.5, T.1 N., R.19 E., on right bank 0.7 mile downstream from Cherry Valley Dam, 3.5 miles upstream from Eleanor Creek, 6.7 miles north of Early Intake, and 7.2 miles west of Hetch Hetchy.

Drainage area.--118 sq mi.

Records available.--November 1956 to September 1965.

Gage.--Water-stage recorder and concrete control. Datum of gage is 4,337.08 ft above mean sea level (levels by city and county of San Francisco).

Extremes.--Maximum discharge during year, 855 cfs Dec. 3 (gage height, 6.67 ft); minimum daily, 4.7 cfs Oct. 2, Dec. 6.  
1956-65: Maximum discharge, 3,830 cfs Apr. 25, 1958 (gage height, 9.95 ft); minimum daily, 1.6 cfs Apr. 10, 1957.

Remarks.--Records fair. Flow regulated by Cherry Lake (see preceding page). Diversion between Lake Eleanor and Cherry Lake began Mar. 6, 1960. Diversion from Cherry Lake to Cherry powerhouse began Aug. 1, 1960.

Cooperation.--Water-stage-recorder graph and three discharge measurements furnished by city and county of San Francisco.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

2.7	3.5	3.4	33
2.8	5.5	3.8	71
2.9	8.0	4.2	125
3.0	11	4.8	235
3.2	20	5.5	410

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.7	6.0	6.5	10	9.5	6.0	5.8	6.2	6.0	16	16	15
2	4.7	5.3	6.5	9.8	9.5	5.8	6.0	6.2	6.0	16	16	15
3	5.1	5.3	294	9.8	9.5	5.8	5.8	6.0	6.0	16	16	15
4	5.1	5.3	368	9.5	9.5	5.8	5.5	6.0	6.0	16	16	15
5	4.9	5.5	106	10	10	5.5	5.5	6.0	6.0	16	16	15
6	4.9	5.3	4.7	22	9.8	5.8	5.8	6.0	6.0	16	16	15
7	4.9	5.5	5.5	18	9.2	5.5	6.0	6.0	6.0	16	16	15
8	5.1	5.5	5.5	14	9.2	5.5	6.0	6.0	6.0	16	16	15
9	5.1	6.8	5.8	13	8.9	5.5	6.0	6.0	6.0	16	16	15
10	5.1	6.2	5.8	12	8.9	5.5	6.0	5.8	6.0	16	16	15
11	5.1	6.2	6.5	11	8.9	5.3	6.0	5.8	6.0	16	16	15
12	5.1	11	6.0	11	8.6	5.8	6.0	5.8	6.0	16	16	15
13	5.1	6.5	5.8	10	8.3	5.5	6.0	5.8	6.0	16	16	15
14	5.1	6.0	5.8	10	8.3	5.5	6.2	5.5	6.0	16	16	15
15	5.1	6.0	22	10	8.0	5.3	6.8	5.5	6.0	16	16	15
16	5.1	5.8	30	9.8	8.0	5.3	7.0	5.5	6.2	16	16	15
17	5.1	5.5	5.8	9.8	7.8	5.1	7.0	5.3	6.2	16	16	15
18	5.1	5.3	5.8	9.5	7.8	5.3	7.0	5.3	6.2	16	16	15
19	5.1	5.3	7.0	10	5.3	5.5	7.0	5.3	6.2	16	16	15
20	5.1	5.3	7.0	10	5.2	5.5	7.0	5.8	6.2	16	16	15
21	5.1	5.3	7.2	9.8	6.2	5.3	7.2	6.2	6.2	16	16	15
22	5.1	5.3	18	10	6.0	5.3	7.0	6.2	6.0	16	15	15
23	5.1	5.5	35	12	6.0	5.3	6.8	6.0	6.0	16	15	15
24	5.3	5.5	29	14	6.0	5.3	6.8	6.0	6.2	16	15	15
25	6.0	5.8	16	12	6.0	5.3	6.5	6.0	6.2	16	15	15
26	6.0	6.0	18	11	5.8	5.5	6.5	6.0	6.2	16	15	15
27	6.0	5.8	23	10	7.0	6.5	6.5	6.0	6.2	16	15	15
28	6.0	5.5	16	10	6.2	6.0	6.5	6.0	6.0	16	15	15
29	7.0	5.5	13	10	-----	5.8	6.2	6.0	6.0	16	15	15
30	6.2	5.8	11	9.8	-----	5.5	6.2	6.0	11	16	15	15
31	6.0	-----	11	9.8	-----	5.8	-----	6.0	-----	16	15	-----
Total	169.4	175.6	1,107.2	347.6	219.4	172.4	190.6	182.2	187.0	496	486	450
Mean	5.46	5.85	35.7	11.2	7.84	5.56	6.35	5.88	6.23	16.0	15.7	15.0
Ac-ft	336	348	2,200	689	435	342	378	361	371	984	964	893

Calendar year 1964 Max 368 Min 4.7 Mean 11.1 Ac-ft 8,030  
Water year 1964-65 Max 368 Min 4.7 Mean 11.5 Ac-ft 8,300

11-2775. Lake Eleanor near Hetch Hetchy, Calif.

Location.--Lat 37°58'30", long 119°52'45", in NW¼ sec.3, T.1 N., R.19 E., on downstream side of dam on Eleanor Creek, 720 ft from left bank, 1.7 miles upstream from Miguel Creek, and 5.5 miles northwest of Hetch Hetchy.

Drainage area.--78.1 sq mi.

Records available.--June 1918 to September 1965. Prior to October 1930, published in WSP 1315-A. Published as "near Sequoia" 1919-20.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by city and county of San Francisco). Prior to Oct. 1, 1927, staff gage on upstream side of dam at same site and datum.

Extremes.--Maximum contents during year, 28,800 acre-ft Dec. 24 (elevation, 4,662.7 ft); minimum, not determined.  
1919-65: Maximum contents, 31,000 acre-ft Dec. 11, 1937, from capacity table then in use (elevation, 4,663.4 ft); no usable contents at times in 1921, 1929-30, 1956-60.

Remarks.--Reservoir is formed by multiple-arch dam completed in 1918; storage began June 23, 1918. Usable capacity, 26,100 acre-ft between elevations 4,620.9 (natural outlet of old lake) and 4,660.0 ft (top of 5-foot flashboards) above mean sea level. Water is released down Eleanor Creek for power development and domestic supply as part of Hetch Hetchy system of city and county of San Francisco. Figures given herein represent usable contents.

Cooperation.--Water-stage-recorder graph furnished by city and county of San Francisco.

Capacity table (elevation, in feet, and contents, in acre-feet)

4,626	550	4,636	5,960
4,628	1,480	4,640	8,710
4,630	2,450	4,644	11,900
4,633	4,140	4,662	28,100

Contents, in acre-feet, at 2400 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,650	3,970	1,480	-	2,840	2,400	2,560	11,700	23,900	26,300	26,100	24,900
2	4,590	4,030	2,010	-	2,900	2,350	2,510	12,000	24,300	26,300	26,100	24,500
3	4,540	4,080	1,960	-	2,900	2,400	2,450	11,600	24,700	26,300	26,100	24,100
4	4,540	4,140	2,730	-	2,900	2,260	2,400	11,200	25,400	26,400	26,100	23,600
5	4,540	4,200	2,560	-	3,130	2,210	2,350	10,900	26,300	26,300	26,100	23,200
6	4,540	4,250	2,160	16,600	3,240	2,160	2,300	10,500	27,000	26,300	26,100	22,700
7	4,480	3,920	1,960	15,900	3,180	2,160	2,300	9,980	27,300	26,300	26,100	22,300
8	4,480	3,410	1,870	14,900	3,010	2,060	2,300	9,420	26,900	26,300	26,100	22,000
9	4,420	3,070	1,870	13,900	2,730	2,060	2,300	9,100	26,700	26,100	26,100	21,500
10	4,420	2,730	1,820	12,900	2,450	2,060	2,260	9,020	26,800	26,100	26,100	21,100
11	4,420	2,350	2,450	12,000	2,350	2,060	2,210	9,100	26,900	26,100	26,100	20,700
12	4,420	2,060	2,450	10,900	2,210	2,060	2,210	9,420	26,900	26,100	26,100	20,200
13	4,370	950	2,260	9,900	2,060	2,110	2,160	9,900	26,800	26,000	26,200	19,800
14	4,370	1,380	2,110	8,950	2,010	2,110	2,160	10,500	26,600	26,000	26,500	19,300
15	4,370	1,430	2,010	8,160	1,960	2,110	2,260	11,100	26,500	26,000	26,700	18,900
16	4,310	1,380	1,870	7,330	1,960	2,060	2,350	12,000	26,400	26,100	27,000	18,300
17	4,310	-	1,720	6,440	1,960	2,110	2,450	13,300	26,400	26,300	27,200	17,900
18	4,310	-	1,620	5,610	1,960	2,160	2,620	14,600	26,300	26,400	27,300	17,300
19	4,250	-	1,720	5,160	2,010	2,260	3,010	15,700	26,400	26,400	27,300	16,900
20	4,250	-	1,920	4,700	2,110	2,350	3,520	16,600	26,500	26,400	27,200	16,500
21	4,140	-	2,620	4,250	2,160	2,450	4,310	17,800	26,700	26,400	27,100	16,000
22	3,970	-	8,710	3,860	2,260	2,560	4,930	18,200	26,700	26,300	27,100	15,400
23	3,860	-	25,000	3,800	2,210	2,730	5,270	18,300	26,700	26,200	27,100	15,000
24	3,800	-	28,000	4,140	2,260	2,730	5,680	18,400	26,500	26,100	27,100	14,500
25	3,800	-	27,300	3,860	2,260	2,680	6,300	18,700	26,500	26,000	27,100	14,100
26	3,750	950	27,100	3,580	2,300	2,560	6,990	19,100	26,400	25,900	26,900	13,500
27	3,750	-	26,700	3,350	2,560	2,620	7,880	19,800	26,300	25,900	26,600	13,000
28	3,800	-	25,800	3,130	2,560	2,560	8,870	20,500	26,300	25,900	26,500	12,500
29	3,860	-	-	2,840	-	2,560	9,980	21,400	26,400	26,000	26,100	12,100
30	3,860	-	-	2,730	-----	2,560	11,000	22,400	26,400	26,000	25,800	11,600
31	3,860	-----	22,300	2,790	-----	2,560	-----	23,300	-----	26,100	25,400	-----
(†)	4,632.5	-	-	4,630.6	4,630.2	4,630.2	4,642.9	4,656.9	4,660.3	4,659.9	4,659.2	4,643.7
(‡)	-790	-	-	-19,510	-230	0	+8,440	+12,300	+3,100	-300	-700	-13,800

Calendar year 1964..... †+14,140

Water year 1964-65..... †+6,950

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

Note.--No reliable capacity table Nov. 17-25, 27-30. No elevation record Dec. 29 to Jan. 5; month-end contents interpolated for December



11-2780. Eleanor Creek near Hetch Hetchy, Calif.

Location.--Lat 37°58'10", long 119°52'50", in SW¼ sec.3, T.1 N., R.19 E., in Yosemite National Park, on right bank 0.5 mile downstream from Lake Eleanor Dam, 1.1 miles upstream from Miguel Creek, and 5.5 miles northwest of Hetch Hetchy.

Drainage area.--78.4 sq mi.

Records available.--October 1909 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A. Published as "near Sequoia" 1910-18.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 4,500 ft (from topographic map). November 1909 to November 1915, staff gage and water-stage recorder at site 1 mile upstream at different datum.

Average discharge.--50 years (1909-59), 223 cfs (161,400 acre-ft per year), prior to diversion to Cherry Lake.

Extremes.--Maximum discharge during year, 6,920 cfs Dec. 24 (gage height, 9.94 ft), from rating curve extended above 1,600 cfs on basis of slope-area measurements at gage heights 9.94 and 12.24 ft; minimum daily, 0.3 cfs Sept. 29, 30.

1909-65: Maximum discharge, 11,700 cfs Nov. 19, 1950 (gage height, 14.95 ft), from rating curve extended above 2,000 cfs on basis of velocity-area studies; no flow at times in 1910, 1930-31, 1933, 1956.

Remarks.--Records good. Flow regulated by Lake Eleanor beginning in 1918 (see preceding page). Diversion from Lake Eleanor to Cherry Lake began in March 1960.

Cooperation.--Water-stage-recorder graph and five discharge measurements furnished by city and county of San Francisco.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

1.1	0.1	2.5	111
1.2	.8	3.0	218
1.3	2.9	4.0	570
1.5	11	5.0	1,150
1.7	22	6.0	2,000
2.0	44	8.0	4,200

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	6.6	8.2	14	7.5	8.4	7.9	9.7	61	374	25	14
2	5.9	6.2	9.2	12	7.5	7.9	7.9	10	88	363	23	14
3	5.5	6.6	7.9	11	7.5	8.4	8.4	9.7	106	360	25	14
4	6.2	7.0	6.6	11	7.5	8.8	8.8	9.7	137	377	23	14
5	6.2	7.0	5.5	14	8.4	8.4	9.2	9.7	186	364	20	15
6	6.2	7.0	6.6	23	8.8	8.4	7.5	9.7	275	352	19	15
7	6.2	166	7.0	14	8.4	8.4	7.9	9.7	552	352	18	15
8	6.2	281	6.6	12	8.4	7.9	8.8	9.2	924	326	18	15
9	6.2	278	6.6	11	7.9	7.9	9.7	9.2	1,020	287	18	15
10	6.2	275	6.6	11	7.9	7.9	9.2	8.8	692	260	18	16
11	6.2	269	7.9	11	7.9	7.9	9.2	8.8	785	218	19	15
12	6.2	346	7.5	11	7.9	8.8	8.4	8.8	834	203	20	14
13	6.2	413	7.0	10	7.0	8.8	9.2	8.8	768	200	20	14
14	6.2	294	6.6	10	7.0	8.8	10	8.8	620	196	20	14
15	6.2	162	6.6	10	7.0	8.8	9.7	8.8	509	182	20	14
16	6.2	157	6.6	9.7	7.0	8.8	8.8	8.8	437	164	20	14
17	6.2	196	6.6	9.7	7.0	8.8	8.4	8.8	441	164	23	14
18	6.2	234	6.6	9.7	7.5	8.4	7.9	8.8	394	170	188	14
19	6.6	145	7.5	10	7.5	8.4	7.9	8.8	363	172	170	14
20	6.6	170	7.5	9.7	7.5	8.4	7.9	8.8	417	170	131	14
21	51	139	9.7	9.2	7.5	8.4	8.4	9.2	538	170	90	14
22	122	129	26	8.8	7.5	8.4	8.8	9.2	575	168	65	7.5
23	66	109	47	11	7.5	8.4	8.4	9.2	548	164	48	3.3
24	7.0	125	4.140	9.7	7.5	8.4	8.8	9.2	473	160	40	3.3
25	7.0	133	1.270	8.8	7.5	8.4	9.2	8.8	457	153	39	3.6
26	7.0	139	357	8.4	7.5	8.4	9.7	8.8	425	151	35	4.0
27	7.0	227	296	7.9	9.2	8.8	8.4	8.8	374	85	29	4.0
28	7.5	203	221	7.9	8.8	9.2	8.4	8.8	349	47	23	.8
29	7.9	193	145	7.9	-----	8.4	8.4	8.4	352	30	17	.3
30	7.0	188	84	7.5	-----	8.4	9.2	9.2	364	25	15	.3
31	6.6	-----	40	7.5	-----	8.8	-----	28	-----	25	14	-----
Total	4256	5,011.4	6,850.7	328.4	216.1	262.3	260.4	301.0	14,064	6,432	1,253	329.1
Mean	13.7	167	221	10.6	7.72	8.46	8.68	9.71	469	207	40.4	11.0
Ac-ft	844	9,940	13,590	651	429	520	516	597	27,900	12,760	2,490	653

Calendar year 1964 Max 4.140 Min 4.0 Mean 4.10 Ac-ft 29,780  
 Water year 1964-65 Max 4.140 Min 0.3 Mean 97.9 Ac-ft 70,890

Location.--Lat 37°53'36", long 119°57'15", in S½ sec.36, T.1 N., R.18 E., on left bank 1.3 miles northeast of Early Intake and 10 miles southwest of Hetch Hetchy.

Gage.--Water-stage recorder. Altitude of gage is 2,700 ft (from topographic map).

Extremes.--1956-65: Maximum daily discharge, 194 cfs July 30, 1959; no flow June 19, 20, 23, 1964.

Remarks.--Records good. Canal diverts from left bank of Cherry Creek near Early Intake for power development at Early Intake as part of Hetch Hetchy system of city and county of San Francisco.

Cooperation.--Water-stage-recorder graph and six discharge measurements furnished by city and county of San Francisco.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10	9.5	6.6	1.3	12	11	9.0	8.7	8.2	6.9	7.8	7.5
2	9.5	9.5	6.3	1.1	10	10	9.2	8.7	8.4	7.2	7.8	7.2
3	9.4	9.4	6.7	1.2	10	10	9.2	8.7	8.2	7.4	7.8	7.2
4	8.7	9.4	6.7	1.2	10	10	9.0	8.4	8.6	7.4	8.0	7.2
5	8.7	9.2	6.5	1.5	11	10	9.0	8.2	8.7	7.5	8.0	7.2
6	8.9	9.2	5.9	4.0	11	10	9.2	8.6	8.9	7.5	8.1	7.2
7	8.9	9.7	5.9	4.1	10	10	9.0	8.6	9.5	7.5	8.2	7.2
8	8.9	11	5.9	2.7	10	10	9.4	8.6	10	7.5	8.2	7.5
9	8.9	10	5.9	2.0	10	9.8	9.5	8.4	10	7.5	8.2	7.6
10	9.0	9.7	5.8	1.8	10	9.8	9.5	8.4	9.4	7.6	8.2	7.6
11	9.0	9.7	6.3	1.6	10	9.5	9.5	8.4	8.4	7.6	8.1	7.4
12	9.0	9.7	6.3	1.5	10	9.7	9.5	8.2	8.4	7.5	8.1	7.5
13	9.0	9.8	6.2	1.4	10	9.7	9.5	8.1	8.2	7.5	8.1	7.5
14	9.0	9.7	6.2	1.3	10	9.7	9.4	8.1	8.1	7.5	8.1	7.5
15	8.9	9.7	7.5	1.3	10	9.7	9.5	8.1	8.0	7.5	8.1	7.5
16	9.2	9.5	10	1.2	10	9.7	9.5	8.1	7.8	7.4	8.2	7.5
17	9.2	9.4	9.2	1.2	10	9.7	9.5	8.1	7.8	7.4	8.2	7.6
18	9.4	9.4	9.2	1.2	10	9.5	9.5	8.1	7.6	7.4	8.7	7.6
19	9.4	8.9	9.4	1.4	10	9.5	9.5	8.0	7.6	7.5	8.4	7.8
20	9.4	8.2	9.4	.8	11	9.5	9.4	8.0	7.6	11	8.2	7.8
21	8.4	8.2	9.5	2.5	11	9.2	9.4	8.1	7.8	16	8.2	7.8
22	34	8.1	10	3.8	11	9.4	9.4	7.8	8.0	11	8.0	7.8
23	7.9	8.1	10	4.0	11	9.4	9.4	8.0	7.8	7.2	8.0	7.6
24	13	8.0	9.0	4.5	11	9.4	9.5	8.0	7.5	7.4	7.6	7.5
25	8.5	8.0	6.5	4.7	11	9.4	9.5	7.8	7.4	7.5	7.8	7.4
26	11	8.1	5.9	10	11	9.4	9.5	7.8	7.4	7.8	8.0	7.5
27	11	7.4	6.3	11	11	9.5	9.4	7.8	7.0	7.8	7.8	7.6
28	11	7.0	5.4	11	11	9.5	8.9	8.0	7.0	7.6	7.6	7.8
29	11	7.0	2.9	4.7	-----	9.5	8.7	7.8	6.9	7.8	7.6	7.8
30	9.8	6.9	2.2	7.1	-----	9.4	8.7	7.8	7.8	7.8	7.6	8.0
31	9.5	-----	1.8	5.3	-----	9.4	-----	8.0	-----	7.8	7.6	-----
Total	388.6	267.4	211.4	256.3	293	300.3	279.2	253.4	243.0	248.0	248.3	225.9
Mean	12.5	8.91	6.82	8.27	10.5	9.69	9.31	8.17	8.10	8.00	8.01	7.53
Ac-ft	771	530	419	508	581	596	554	503	482	492	492	448

Calendar year 1964	Max	79	Min	0	Mean	8.87	Ac-ft	6,440
Water year 1964-65	Max	79	Min	0.8	Mean	8.81	Ac-ft	6,380

11-2783. Cherry Creek near Early Intake, Calif.

Location.--Lat 37°53'40", long 119°57'42", in SE¼ sec.35, T.1 N., R.18 E., on right bank 1.2 miles upstream from mouth, 1.3 miles north of Early Intake, and 10.3 miles southwest of Hetch Hetchy.

Drainage area.--226 sq mi.

Records available.--May 1956 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 2,272.00 ft above mean sea level (levels by city and county of San Francisco).

Extremes.--Maximum discharge during year, 8,660 cfs Dec. 24 (gage height, 12.12 ft); minimum daily, 2.3 cfs Oct. 26, 27.

1956-65: Maximum discharge, 16,500 cfs Feb. 1, 1963 (gage height, 14.50 ft), from rating curve extended above 4,600 cfs; minimum daily, 0.3 cfs Apr. 5, 6, 1964.

Remarks.--Records good. Flow regulated by Cherry Lake (see p. 652) and Lake Eleanor (see p. 654). Cherry Creek Canal diverts about 1.0 mile upstream from station (see preceding page). Diversion from Cherry Lake to Cherry powerhouse began Aug. 1, 1960. Water is returned to creek 1.2 miles below station.

Cooperation.--Water-stage-recorder graph and five discharge measurements furnished by city and county of San Francisco.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 14

Nov. 15 to Sept. 30

2.0	1.8	3.7	67	2.5	10	5.0	300	8.0	1,860
2.2	3.8	4.0	100	3.0	29	5.5	445	9.0	2,840
2.4	6.6	4.5	177	3.5	61	6.0	630	10.0	4,200
2.7	13	5.0	290	4.0	115	6.5	840	11.0	6,100
3.0	24	5.5	440	4.5	190	7.0	1,120		
3.3	38								

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	23	5.8	140	151	123	84	75	63	77	380	38	27
2	9.7	7.9	22	134	120	74	78	61	107	371	37	27
3	4.1	3.8	194	138	115	69	73	61	125	362	37	28
4	4.1	3.2	368	132	113	66	66	58	150	377	35	28
5	4.6	3.5	194	151	134	63	60	55	194	371	34	28
6	4.4	3.6	22	400	167	63	67	55	270	359	32	28
7	4.4	8.1	15	426	132	63	74	54	527	359	31	28
8	4.6	260	16	238	114	59	82	52	900	340	31	28
9	4.7	278	15	201	108	58	86	51	738	308	31	27
10	4.6	278	15	187	101	57	88	49	682	278	31	26
11	4.6	265	30	175	93	55	79	47	759	242	33	26
12	4.3	374	35	168	90	61	79	45	822	217	34	26
13	4.6	401	24	159	87	64	84	51	759	213	33	26
14	4.7	293	22	155	84	64	92	46	630	207	33	26
15	4.7	156	16	163	81	60	111	44	522	198	33	26
16	4.4	156	21	157	78	56	127	42	448	180	33	26
17	4.4	167	17	155	75	53	124	41	452	173	32	25
18	4.4	240	14	165	74	52	127	39	404	178	144	26
19	4.4	160	24	182	74	50	127	39	368	182	183	26
20	4.4	146	52	192	71	48	124	38	407	178	146	26
21	4.8	150	53	171	72	46	124	44	532	171	111	26
22	74	128	349	151	71	45	113	44	578	173	83	26
23	19	119	1,080	160	68	43	99	42	558	173	67	17
24	2.5	115	5,130	277	65	42	90	39	490	170	56	15
25	2.6	131	1,630	175	63	41	82	38	459	165	52	15
26	2.3	144	636	152	61	45	76	36	417	162	50	16
27	2.3	202	729	142	108	80	73	35	380	126	44	16
28	2.7	203	452	135	110	78	82	34	350	66	36	16
29	14	188	330	97	-----	75	72	32	350	52	32	14
30	5.6	183	256	66	-----	70	66	32	365	38	28	12
31	4.3	-----	198	82	-----	67	-----	39	-----	38	28	-----
Total	247.2	4,845.8	12,099	5,437	2,652	1,851	2,700	1,406	13,820	6,807	1,628	707
Mean	7.97	162	390	175	94.7	59.7	90.0	45.4	461	220	52.5	23.6
Ac-ft	490	9,610	24,000	10,780	5,260	3,670	5,360	2,790	27,410	13,500	3,230	1,400

Calendar year 1964 Max 5.130 Min 0.3 Mean 63.8 Ac-ft 46,290  
 Water year 1964-65 Max 5.130 Min 2.3 Mean 148 Ac-ft 107,500

11-2784. Cherry Creek below Cherry powerhouse, near Mather, Calif.

Location.--Lat 37°53'25", long 119°58'10", in NW¼ sec.2, T.1 S., R.18 E., on left bank 600 ft upstream from mouth, 0.5 mile downstream from powerhouse, 1.2 mile northwest of Early Intake, and 5.3 miles west of Mather.

Drainage area.--234 sq mi.

Records available.--March 1963 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 2,150 ft (from topographic map).

Extremes.--1963: Maximum discharge during period March to September, 2,130 cfs May 20 (gage height, 9.96 ft); minimum daily, 216 cfs Mar. 17.

1963-64: Maximum discharge during water year, 1,020 cfs Apr. 2 (gage height, 8.65 ft); minimum daily, 135 cfs July 19.

1964-65: Maximum discharge during water year, 8,530 cfs Dec. 24 (gage height, 13.55 ft), from rating curve extended above 1,700 cfs; minimum, 3.6 cfs Oct. 26, 27.

Remarks.--Records fair. Flow regulated by Cherry Lake (see p. 652) and Lake Eleanor (see p. 654). Cherry Creek Canal diverts about 2 miles upstream from station (see p. 656).

Cooperation.--Water-stage-recorder graph and 16 discharge measurements furnished by city and county of San Francisco.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used June 8 to Sept. 30, 1965)

4.2	2.8	5.7	73	9.0	1,270
4.4	5.6	6.0	106	10.0	2,170
4.6	9.6	6.5	190	11.0	3,410
4.8	15	7.0	305	12.0	5,100
5.1	28	7.5	460		
5.4	46	8.0	666		

Discharge, in cubic feet per second, March to September 1963

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	512	691	1,550	839	687	381
2						-	508	674	1,360	862	702	638
3						-	492	625	1,550	862	549	719
4						-	564	442	1,400	777	375	731
5						-	520	238	1,290	893	699	714
6						-	572	618	1,250	787	703	706
7						-	616	628	1,210	588	697	629
8						-	572	638	1,050	882	699	372
9						-	552	682	918	836	700	639
10						-	544	672	1,250	834	554	726
11						-	532	526	1,390	831	366	720
12						-	520	336	1,390	830	700	725
13						-	508	659	1,310	734	688	728
14						-	572	596	1,190	524	693	645
15						600	588	610	1,120	816	708	375
16						475	568	641	1,000	820	697	725
17						216	624	677	1,410	770	546	723
18						610	612	552	1,580	720	357	732
19						605	608	831	1,840	715	701	721
20						606	580	1,020	1,880	605	695	721
21						632	532	1,650	2,000	425	689	638
22						708	613	1,610	1,820	740	693	375
23						612	551	1,570	1,600	710	699	712
24						508	566	1,390	1,620	710	553	704
25						667	572	1,150	1,330	720	375	705
26						618	583	1,030	1,110	615	704	714
27						633	624	1,460	764	520	704	714
28						772	624	1,720	776	450	702	620
29						702	628	1,660	595	605	709	366
30						560	629	1,510	420	610	702	717
31						272		1,610		590	557	
Total						-	17,086	29,516	38,973	22,220	19,603	19,335
Mean						-	570	952	1,299	717	632	644
Ac-ft						-	33,890	58,540	77,300	44,070	38,880	38,350
Calendar year	Max	Min	Mean	Ac-ft								
Water year	Max	Min	Mean	Ac-ft								

Note.--No gage-height record May 22-24, 28, 29, July 16-31.

11-2784. Cherry Creek below Cherry powerhouse, near Mather, Calif.--Continued.

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	696	644	390	706	685	210	786	858	918	632	465	634
2	689	432	692	781	560	670	793	785	918	625	175	628
3	686	440	686	772	818	660	766	456	882	637	635	627
4	686	440	691	702	819	660	673	818	912	526	632	630
5	580	444	675	508	820	660	417	857	912	142	632	516
6	322	476	682	780	818	675	760	870	912	645	636	150
7	694	456	621	788	817	582	764	862	912	644	639	422
8	690	448	369	765	690	266	749	878	906	643	444	633
9	663	448	683	768	648	672	745	821	468	641	171	635
10	691	448	683	760	818	680	733	492	540	638	645	616
11	700	444	691	694	817	676	824	876	490	518	632	618
12	589	444	688	504	690	682	460	866	500	147	642	406
13	322	444	693	775	813	693	863	863	940	630	655	152
14	693	444	602	771	820	604	863	866	920	636	643	637
15	685	476	375	774	720	272	859	864	920	641	472	631
16	680	456	690	772	460	685	862	791	920	644	176	633
17	682	452	688	777	840	685	870	460	920	633	634	632
18	676	452	692	713	920	687	930	840	930	524	631	632
19	570	452	697	500	910	685	930	873	920	135	625	404
20	325	472	701	809	920	685	930	918	910	640	625	144
21	684	460	616	918	930	596	930	918	920	641	624	630
22	682	456	381	906	900	277	930	918	910	642	456	623
23	678	468	700	900	890	688	930	918	910	636	174	625
24	682	488	800	900	920	729	930	918	910	631	641	622
25	691	460	800	858	930	924	930	918	910	520	607	626
26	569	444	800	858	920	930	930	918	910	138	623	409
27	336	444	800	906	920	936	924	886	910	623	629	146
28	683	444	800	906	920	942	924	900	910	632	626	618
29	690	444	800	900	920	948	930	900	910	634	468	625
30	684	444	828	906	-----	948	918	900	910	627	163	625
31	681	-----	834	912	-----	942	-----	900	-----	628	644	-----
Total	19,379	13,764	20,848	24,289	23,653	20,949	24,853	25,908	25,760	17,273	16,464	15,929
Mean	625	459	673	784	816	676	828	836	859	557	531	531
Ac-ft	38,440	27,300	41,350	48,180	46,920	41,550	49,300	51,390	51,090	34,260	32,660	31,590
Calendar year 1963:	Max -	Min -	Mean -	Ac-ft -								
Water year 1963-64:	Max 948	Min 135	Mean 681	Ac-ft 494,000								

Note.--No gage-height record Feb. 14 to Mar. 5, June 10-30.

## SAN JOAQUIN RIVER BASIN

11-2784. Cherry Creek below Cherry powerhouse, near Mather, Calif.--Continued.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	77	146	1,010	469	748	690	801	586	805	1,120	656	783
2	11	492	900	615	741	672	796	278	810	1,120	800	776
3	5.6	489	509	448	735	673	651	696	816	1,040	795	777
4	5.3	477	363	729	735	671	516	700	846	960	805	698
5	5.8	482	177	761	765	672	779	689	795	1,040	795	496
6	5.8	506	18	1,080	691	576	790	686	700	1,110	800	500
7	5.8	508	13	1,090	476	285	788	684	1,260	1,090	750	829
8	5.6	417	13	803	736	664	782	558	1,650	1,070	588	823
9	67	794	13	726	733	686	803	288	1,540	1,040	795	779
10	7.2	776	13	614	719	761	670	685	1,480	930	800	775
11	6.9	548	25	784	711	764	572	727	1,560	810	805	698
12	5.4	890	29	772	711	769	797	888	1,530	960	800	496
13	5.4	912	21	757	622	667	802	888	1,330	942	795	785
14	6.1	616	18	754	449	556	814	888	1,420	936	755	779
15	6.3	310	14	769	711	777	829	888	1,310	936	590	774
16	8.0	638	16	674	722	773	858	888	1,190	912	795	773
17	5.6	787	15	465	768	776	705	888	1,180	834	795	772
18	5.4	749	12	759	776	776	620	888	1,130	745	918	693
19	5.4	640	20	781	775	776	821	888	1,000	906	948	492
20	5.4	725	44	792	675	748	717	888	822	906	906	777
21	6.0	730	46	770	532	552	722	894	1,280	900	840	773
22	65	620	401	759	528	784	709	894	1,330	894	621	774
23	21	822	1,270	687	769	864	689	894	1,310	900	834	764
24	4.6	888	5,010	660	767	870	513	888	1,220	822	822	766
25	3.7	900	1,580	834	766	870	224	888	1,180	735	834	681
26	3.6	900	617	806	766	870	670	888	1,060	888	828	468
27	3.6	1,030	739	811	709	900	667	882	770	852	822	766
28	4.0	1,050	414	802	548	900	676	882	1,100	795	765	766
29	15	1,040	421	763	-----	900	679	882	1,100	790	660	764
30	54	1,040	600	649	-----	900	671	882	1,120	765	810	754
31	134	-----	556	464	-----	894	-----	876	-----	695	795	-----
Total	570.5	20,922	14,897	22,647	19,384	23,036	21,131	24,319	34,644	28,443	24,322	21,551
Mean	18.4	697	481	731	692	743	704	784	1,155	918	785	718
Ac-ft	1,130	41,500	29,550	44,920	38,450	45,690	41,910	48,240	68,720	56,420	48,240	42,750

Calendar year 1964 Max 5,010 Min 3.6 Mean 632 Ac-ft 459,100  
 Water year 1964-65 Max 5,010 Min 3.6 Mean 701 Ac-ft 507,500

11-2810. South Fork Tuolumne River near Oakland Recreation Camp, Calif.

Location.--Lat 37°49'16", long 120°00'48", in SE¼ sec.29, T.1 S., R.18 E., on right bank 75 ft downstream from highway bridge on Big Oak Flat Road, 0.5 mile southwest of Oakland Recreation Camp, and 0.6 mile upstream from Middle Tuolumne River.

Drainage area.--87.0 sq mi.

Records available.--March 1923 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 2,800 ft (from topographic map). Prior to Nov. 22, 1931, at site 50 ft upstream at same datum.

Average discharge.--42 years, 90.0 cfs (65,160 acre-ft per year).

Extremes.--Maximum discharge during year, 2,120 cfs Dec. 23 (gage height, 6.27 ft); minimum, 4.1 cfs Oct. 6.

1923-65: Maximum discharge, 11,900 cfs Dec. 23, 1955 (gage height, 10.9 ft, from floodmarks), from rating curve extended above 1,300 cfs on basis of slope-area measurements at gage heights 7.48 and 10.9 ft; minimum, 0.3 cfs Aug. 23, 1934.

Remarks.--Records good. No storage or diversion above station.

Cooperation.--Water-stage recorder graph and five discharge measurements furnished by city and county of San Francisco.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 11					Apr. 11 to Sept. 30				
0.7	4.2	2.4	81		1.2	11	2.5	87	
.9	6.5	2.9	148		1.4	16	3.0	160	
1.1	9.5	3.4	250		1.7	26	3.5	275	
1.3	14	4.0	455		2.0	42	4.0	455	
1.7	25	5.0	980						
2.0	43	6.0	1,850						

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.8	16	21	130	151	133	148	423	293	83	25	15
2	4.6	18	29	126	148	127	151	375	255	77	24	15
3	4.5	13	31	140	145	123	144	305	287	75	23	15
4	4.4	12	23	148	145	122	138	275	302	71	22	14
5	4.3	12	21	215	192	119	134	270	314	66	22	14
6	4.2	9.7	19	1,090	226	119	145	268	305	62	21	14
7	4.2	9.2	20	764	176	115	150	242	293	56	21	16
8	4.2	9.2	19	507	155	110	160	230	302	53	20	16
9	4.3	4.2	19	226	146	107	167	228	222	50	19	16
10	4.6	5.9	20	190	136	107	151	228	258	48	19	14
11	4.8	3.2	30	173	132	106	151	245	268	46	20	14
12	4.6	120	45	156	125	116	146	260	248	43	25	14
13	4.3	5.9	25	142	122	112	147	281	210	41	26	13
14	4.3	2.7	24	136	120	112	162	296	180	40	23	13
15	4.3	2.0	24	136	115	109	190	293	158	41	24	13
16	4.4	1.7	20	134	112	109	212	363	129	46	25	13
17	4.5	1.7	19	136	111	109	208	407	151	43	62	12
18	4.8	1.4	19	145	111	109	220	415	132	41	32	12
19	4.9	1.5	8.7	167	114	111	252	403	134	38	25	13
20	4.8	1.5	10.7	182	118	116	311	363	146	37	23	13
21	4.5	1.4	7.9	167	122	123	317	363	139	35	21	13
22	4.4	1.5	195	156	126	132	326	296	136	34	20	12
23	4.4	1.5	1,280	201	120	138	314	258	128	32	20	12
24	4.9	1.6	1,340	434	115	136	320	248	122	31	19	12
25	4.9	1.8	481	236	114	123	347	238	115	30	18	11
26	5.1	3.0	380	196	116	120	371	258	103	29	18	11
27	5.2	2.8	509	176	173	174	383	296	94	28	17	12
28	6.3	2.2	283	162	150	151	403	299	93	28	16	13
29	3.9	2.0	206	153	-----	142	423	335	92	26	16	13
30	2.0	2.0	176	151	-----	138	431	320	88	26	15	12
31	1.3	-----	148	151	-----	138	-----	320	-----	26	15	-----
Total	201.5	734.1	5,699	7,026	3,836	3,806	7,122	9,401	5,697	1,382	696	400
Mean	6.50	24.5	184	227	137	123	237	303	190	44.6	22.5	13.3
Ac-ft	400	1,460	11,300	13,940	7,610	7,550	14,130	18,650	11,300	2,740	1,380	793

Calendar year 1964 Max 1,340 Min 4.2 Mean 54.6 Ac-ft 39,640  
 Water year 1964-65 Max 1,340 Min 4.2 Mean 126 Ac-ft 91,250

Peak discharge (base, 370 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0600	6.27	2,120	1-24	0100	4.65	772
12-27	0400	4.38	630	4-30	2300	4.16	522
1-6	2400	5.95	1,800	5-18	2330	4.23	555

## SAN JOAQUIN RIVER BASIN

11-2820. Middle Tuolumne River at Oakland Recreation Camp, Calif.

Location.--Lat 37°49'40", long 120°00'40", in NW¼ sec.28, T.1 S., R.18 E., on left bank 1,000 ft downstream from Oakland Recreation Camp, 0.5 mile upstream from South Fork Tuolumne River, and 4 miles east of Buck Meadows Post Office.

Drainage area.--73.5 sq mi.

Records available.--October 1916 to September 1965. Monthly discharge only for October 1916, published in WSP 1315-A. Published as Middle Fork of Tuolumne River near Buck Meadows 1917-32 and as "near Buck Meadows" 1933-40.

Gage.--Water-stage recorder. Altitude of gage is 2,800 ft (from topographic map).

Average discharge.--49 years, 72.7 cfs (52,630 acre-ft per year).

Extremes.--Maximum discharge during year, 1,430 cfs Dec. 24 (gage height, 7.06 ft); minimum, 0.1 cfs Oct. 7. 1916-65: Maximum discharge, 4,920 cfs Dec. 23, 1955 (gage height, 11.75 ft from flood profile, 11.05 ft from floodmarks inside gage well), from rating curve extended above 1,400 cfs on basis of slope-area measurement of maximum flow; no flow Sept. 4-14, 1924, Aug. 12 to Oct. 5, 1931, Sept. 11-17, 1934 Sept. 7-14, 1961.

Remarks.--Records good except those for periods of no gage height record, which are fair. No regulation; small diversion above station for irrigation.

Cooperation.--Water-stage-recorder graph and six discharge measurements furnished by city and county of San Francisco.

Rating table (gage height, in feet, and discharge in cubic feet per second)  
(Shifting-control method used Oct. 1 to Nov. 26)

0.5	0.5	1.5	18	4.0	320
.6	1.0	1.8	30	5.0	590
.7	1.8	2.2	53	6.0	950
.9	4.2	2.6	88	7.0	1,400
1.1	7.5	3.0	137		
1.3	12	3.5	217		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.0	7.3	8.8	116	98	98	111	372	390	104	20	10
2	1.1	7.0	12	116	96	91	110	338	316	98	19	11
3	1.1	6.6	15	140	95	90	103	273	358	92	19	11
4	.9	5.7	10	128	95	88	99	246	412	85	18	9.6
5	.8	5.0	9.8	177	114	87	98	242	435	77	17	9.4
6	.7	4.5	9.0	665	129	88	106	240	418	72	16	9.2
7	.6	4.1	7.9	320	107	85	109	215	390	66	15	9.4
8	.5	3.9	8.6	158	99	81	120	203	351	61	14	10
9	.6	14	8.3	143	95	80	123	204	290	57	13	11
10	.7	27	8.3	128	86	80	109	206	338	53	13	10
11	.8	15	11	113	86	79	114	225	351	51	16	9.0
12	.8	42	20	102	83	84	114	242	331	48	18	8.3
13	.7	23	14	96	85	81	111	266	283	45	20	7.9
14	.7	10	12	92	85	78	105	298	248	42	16	7.5
15	.8	9.0	10	92	79	78	101	318	226	46	18	7.1
16	1.5	7.3	8.8	91	79	78	111	382	204	54	20	6.8
17	2.0	7.5	7.9	91	78	78	128	470	203	51	54	6.4
18	2.4	6.1	8.6	98	78	79	128	509	182	48	38	6.4
19	2.7	6.1	40	111	80	82	133	509	180	45	22	6.4
20	2.8	6.1	37	114	82	84	162	464	180	42	19	6.6
21	3.0	6.1	28	107	84	89	172	446	201	39	17	6.8
22	3.0	6.8	90	104	87	99	194	342	179	37	16	6.8
23	3.2	6.6	889	124	85	104	194	294	169	36	15	6.4
24	3.4	6.8	1,160	166	83	104	201	294	168	35	15	6.2
25	3.7	7.3	443	123	83	97	234	294	158	32	15	5.7
26	3.8	11	293	111	84	96	256	329	143	30	14	5.6
27	4.1	12	300	109	109	124	285	358	132	28	13	5.4
28	4.8	9.8	184	107	107	106	298	356	127	26	12	5.7
29	11	9.2	154	100	-----	105	324	410	120	25	12	5.7
30	9.8	8.8	140	99	-----	104	356	430	112	23	12	5.7
31	9.0	-----	119	99	-----	106	-----	410	-----	22	10	-----
Total	82.0	301.6	4,067.0	4,340	2,551	2,803	4,809	10,185	7,595	1,570	556	2,330
Mean	2.65	10.1	131	140	91.1	90.4	160	329	253	50.6	17.9	7.77
Ac-ft	163	598	8,070	8,610	5,060	5,560	9,540	20,200	15,060	3,110	1,100	462

Calendar year 1964 Max 1.160 Min 0.5 Mean 45.4 Ac-ft 32,960  
Water year 1964-65 Max 1.160 Min 0.5 Mean 107 Ac-ft 77,530

Peak discharge (base, 370 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-24	1000	7.06	1,430	5-18	0130	5.19	647
1- 6	2100-2300	5.85	890	6- 5	0030	5.00	590
5- 1	0200	4.50	440				

Note.--No gage-height record Jan. 11-18, July 9 to Aug. 24.



11-2831. Lily Creek near Pinecrest, Calif.

Location.--Lat 38°08'40", long 119°54'05", in T.3 N., R.19 E., 1,500 ft downstream from Mud Lake, and 5.7 miles southeast of Pinecrest.

Drainage area.--11.9 sq mi.

Records available.--July 1964 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 6,990 ft (from topographic map).

Extremes.--1964: Maximum daily discharge during period July to September 1964, 1.0 cfs July 21-24 (gage height, 1.92 ft); minimum daily, 0.1 cfs Sept. 16-30.

1964-65: Maximum discharge during water year, 1,700 cfs Dec. 23 (gage height, 10.77 ft), from rating curve extended above 180 cfs; minimum daily, 0.1 cfs, Oct. 1-27.

Flood of Feb. 1, 1963, reached a stage of 11.7 ft, from floodmarks, (discharge, about 2,030 cfs).

Remarks.--Records good except those for periods of ice effect, which are fair. Small regulation by Y Meadow Reservoir (capacity, 180 acre-ft). No diversion above station.

Discharge, in cubic feet per second, 1964

Day	July	Aug.	Sept.	Day	July	Aug.	Sept.	Day	July	Aug.	Sept.	Day	July	Aug.	Sept.
1	-	0.7	0.7	9	-	.5	.2	17	-	.3	.1	25	.9	.2	.1
2	-	.6	.3	10	-	.5	.2	18	-	.3	.1	26	.9	.2	.1
3	-	.6	.3	11	-	.5	.2	19	-	.3	.1	27	.9	.2	.1
4	-	.6	.2	12	-	.4	.2	20	-	.3	.1	28	.9	.2	.1
5	-	.6	.2	13	-	.4	.2	21	1.0	.3	.1	29	.8	.2	.1
6	-	.6	.2	14	-	.4	.2	22	1.0	.3	.1	30	.7	.2	.1
7	-	.6	.2	15	-	.4	.2	23	1.0	.3	.1	31	.7	.6	
8	-	.5	.2	16	-	.4	.1	24	1.0	.3	.1				
Total.....													-	12.5	5.2
Mean.....													-	0.40	0.17
Runoff in acre-feet.....													-	25	10

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0.8	24	36	28	26	29	204	172	79	2.5	1.5
2	.1	2.3	26	36	29	26	27	133	156	79	2.3	1.4
3	.1	2.4	19	36	28	29	24	79	194	83	1.8	1.4
4	.1	1.9	16	34	28	30	26	76	254	73	1.5	1.3
5	.1	1.4	14	31	31	27	27	84	251	68	1.4	1.2
6	.1	1.3	13	29	25	26	27	76	214	67	1.2	1.1
7	.1	1.4	13	27	23	23	24	54	209	59	1.0	4.1
8	.1	1.5	16	33	22	21	23	54	161	48	.8	8.2
9	.1	3.4	37	35	21	22	21	75	152	42	.7	4.3
10	.1	4.5	26	28	21	22	21	111	212	35	.7	2.8
11	.1	7.5	39	26	19	25	20	141	239	29	1.0	2.2
12	.1	6.9	27	25	19	25	19	182	206	24	37	1.7
13	.1	6.8	19	23	20	22	18	198	148	23	21	1.5
14	.1	6.8	16	24	20	21	18	191	117	22	23	1.3
15	.1	6.8	14	23	20	22	23	216	93	37	122	1.3
16	.1	6.7	12	23	20	24	32	272	94	39	102	1.1
17	.1	6.6	11	23	21	28	27	295	81	40	241	1.0
18	.1	6.6	9.6	24	23	31	30	265	75	47	93	.9
19	.1	6.4	9.3	29	26	39	84	267	119	24	27	.9
20	.1	7.5	14	27	30	49	137	230	160	18	16	.8
21	.1	9.3	40	26	32	56	166	198	156	14	10	.7
22	.1	12	417	24	32	62	183	101	123	10	7.3	.7
23	.1	11	1,240	22	28	67	146	87	102	8.0	5.4	.6
24	.1	15	870	24	28	56	180	106	92	6.9	4.3	.6
25	.1	26	250	22	29	38	197	135	101	6.0	3.7	.5
26	.1	36	108	20	31	32	197	179	75	5.4	3.1	.5
27	.1	20	69	20	33	31	208	180	72	4.6	2.6	.5
28	.2	16	57	20	28	29	235	227	83	3.6	2.2	.5
29	2.3	21	53	21	-----	30	254	243	88	3.0	1.9	.5
30	1.5	22	45	25	-----	33	251	237	92	2.7	1.7	.5
31	1.0	-----	38	28	-----	35	-----	221	-----	2.6	1.5	-----
Total	7.7	277.8	3,560.9	824	715	1,007	2,674	5,116	4,288	1,000.8	740.6	45.6
Mean	0.25	9.26	115	26.6	25.5	32.5	89.1	165	143	32.3	23.9	1.52
Ac-ft	15	551	7,060	1,630	1,420	2,000	5,300	10,150	8,510	1,990	1,470	90

Calendar year 1964 Max - Min - Mean - Ac-ft -  
 Water year 1964-65 Max 1,240 Min 0.1 Mean 55.5 Ac-ft 40,190

Peak discharge (base, 160 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0900	10.77	1,700	6-4	2000	6.06	412
4-29	2000	5.86	374	6-20	2200	5.43	297
5-17	2200	6.25	450	8-17	1800	8.16	880

Note.--Stage-discharge relation affected by ice Nov. 13-16, Dec. 31, Jan. 1, 2, 6-9, 15-17, 31, Feb. 1-4, 6, 7, 17-28.

## SAN JOAQUIN RIVER BASIN

11-2832. Bell Creek near Pinecrest, Calif.

Location.--Lat 38°09'45", long 119°56'35", in NE¼ sec.36, T.4 N., R.18 E., on right bank 1,400 ft downstream from Bell Meadows, and 3 miles southeast of Pinecrest.

Drainage area.--9.11 sq mi.

Records available.--September 1963 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 6,450 ft (from topographic map).

Extremes.--1963-65: Maximum discharge during year, 934 cfs Dec. 23 (gage height, 7.54 ft), from rating curve extended above 150 cfs on basis of slope-area measurement at gage height 8.79 ft; no flow for many days in October.  
Flood of Feb. 1, 1963, reached a stage of 8.79 ft, from floodmarks (discharge, 1,410 cfs), from slope-area measurement of maximum flow.

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

Revision.--Revised figures of discharge, in cubic feet per second, for some days in the 1964 water year, superseding those published in Surface Water Records of California, Vol. 2, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1963		1963-Con.		1963-Con.		1963-Con.		1963-Con.	
Oct. 11	0.7	Oct. 15	0.4	Oct. 19	0.2	Oct. 23	0.9	Oct. 27	0.5
12	.5	16	.3	20	.2	24	1.6	28	.2
13	1.3	17	.3	21	.2	25	.7	30	1.6
14	.7	18	.2	22	.2	26	.4		

Month	cfs-days	Maximum	Minimum	Mean	Runoff in ac-ft
October 1963.....	13.0	1.7	0	0.42	26
water year 1963-64	-	112	0	16.7	12,120

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	1.0	5.3	35	27	26	26	145	110	52	3.8	1.8
2	0	1.4	6.0	35	23	26	24	111	131	55	3.3	1.7
3	0	2.7	4.8	35	27	23	23	81	149	57	2.9	1.5
4	0	2.7	4.4	37	27	23	24	74	152	49	2.7	1.4
5	0	1.9	3.4	34	30	25	24	76	139	48	2.5	1.4
6	0	1.2	3.8	27	27	24	23	69	133	46	2.3	1.3
7	0	.9	3.5	25	23	22	22	56	105	41	2.0	4.4
8	0	.9	3.5	34	22	20	21	53	111	36	1.8	4.4
9	0	1.8	6.7	37	21	20	21	61	126	32	1.8	2.7
10	0	2.5	5.5	33	20	21	22	76	137	23	1.9	2.0
11	0	5.0	3.5	23	19	21	20	87	123	23	3.9	1.6
12	0	6.0	6.7	21	13	21	13	105	100	21	3.0	1.4
13	0	7.0	5.5	20	19	20	17	117	83	20	9.5	1.3
14	0	3.1	5.5	20	19	19	17	121	71	19	5.6	1.1
15	0	6.7	5.0	22	13	20	20	133	67	19	32	1.0
16	0	5.8	4.8	22	18	22	24	164	59	16	20	.9
17	0	4.5	4.6	21	19	24	23	182	55	16	36	.8
18	0	4.2	4.6	22	22	26	26	175	73	16	17	.8
19	0	4.1	4.7	26	25	31	55	173	83	15	3.1	.8
20	0	4.4	6.1	25	29	37	84	155	82	13	5.6	.8
21	0	4.7	17	24	32	42	112	126	74	10	4.5	.8
22	0	4.1	243	22	32	46	115	89	65	3.5	4.0	.8
23	0	3.7	651	24	23	43	99	87	63	7.5	3.7	.7
24	0	4.7	531	32	23	42	117	86	63	7.3	3.2	.6
25	0	3.0	174	24	30	33	131	111	53	6.9	2.3	.6
26	0	10	105	21	32	30	135	117	47	6.2	2.5	.5
27	0	5.3	70	21	33	23	145	131	53	5.5	2.1	.6
28	.1	4.0	56	21	23	27	156	149	54	4.5	1.9	.6
29	.5	5.5	50	21	-----	27	166	150	60	4.1	1.8	.6
30	.7	5.0	45	23	-----	23	166	142	53	4.1	1.7	.5
31	1.4	-----	41	26	-----	29	-----	122	-----	4.0	1.4	-----
Total	2.7	127.8	2,085.9	813	701	961	1,876	3,529	2,684	690.6	195.2	39.4
Mean	0.09	4.26	67.3	26.2	25.0	27.8	62.5	114	89.5	22.3	6.30	1.31
Ac-ft	5.4	253	4,140	37	1,390	1,710	3,720	7,000	5,320	1,370	387	73

Calendar year 1964 Max 651 Min 0 Mean 21.3 Ac-ft 15,540  
Water year 1964-65 Max 651 Min 0 Mean 37.3 Ac-ft 26,940

Peak discharge (base, 125 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0600	7.54	934	6-3	about 2100	4.72	212
4-29	1900	4.82	228	6-10	about 2100	4.53	182
5-17	2000	5.03	266	6-19	about 2100	4.19	135
5-28	2100	4.60	193	8-15	1700	4.52	181

Note.--Stage-discharge relation affected by ice Nov. 11-13, Dec. 15-17, Jan. 1, 2, 25, 26, Feb. 10-12.

11-2835. Clavey River near Buck Meadows, Calif.

Location.--Lat 37°54'00", long 120°04'15", in SE 1/4 sec. 35, T.1 N., R.17 E., on right bank 300 ft upstream from Forest Service road bridge, 1.7 miles downstream from Gilty Creek, and 6 miles north of Buck Meadows Post Office.

Drainage area.--144 sq mi.

Records available.--October 1959 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 2,374.08 ft above mean sea level.

Average discharge.--6 years, 203 cfs (147,000 acre-ft per year).

Extremes.--Maximum discharge during year, 12,400 cfs Dec. 23 (gage height, 18.60 ft), from rating curve extended above 1,200 cfs as explained below; minimum daily, 7.5 cfs Oct. 5.

1959-65: Maximum discharge, 19,200 cfs Feb. 1, 1963 (gage height, 21.40 ft), from rating curve extended above 1,200 cfs on basis of slope-area measurement of maximum flow; minimum, 3.4 cfs Sept. 7, 8, 1961.

Remarks.--Records good. No storage or diversion above station.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Mar. 11-24, June 25)

Oct. 1 to Dec. 23

Dec. 23 to Sept. 30

1.9	7.1	6.0	322	2.2	19	8.0	880
2.1	11	7.0	538	2.5	28	10.0	1,740
2.5	21	8.0	820	3.0	47	12.0	3,090
3.0	36	10.0	1,680	4.0	109	14.0	5,070
3.5	57	12.0	3,090	5.0	209	17.0	9,300
4.0	86	14.0	5,070	6.0	365		
5.0	178	17.0	9,300				

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.2	23	77	512	502	421	430	1,310	663	254	45	27
2	3.0	36	114	483	495	399	430	1,050	560	229	43	27
3	7.5	24	111	465	485	395	407	760	582	234	41	26
4	7.6	22	80	442	480	393	411	685	670	233	39	25
5	7.5	21	76	521	610	375	413	692	719	203	37	25
6	7.6	19	61	1,790	672	373	430	663	675	199	36	25
7	7.6	17	66	1,670	552	349	415	578	613	187	34	23
8	7.6	17	62	833	503	331	421	542	603	165	33	36
9	3.0	53	68	662	475	322	428	542	463	151	32	39
10	3.2	92	91	600	442	325	413	620	562	139	33	33
11	3.2	67	179	543	419	322	397	655	612	126	37	29
12	3.0	243	184	512	399	345	387	736	590	116	83	27
13	7.6	128	103	475	389	325	389	832	512	110	129	25
14	7.6	66	93	453	381	313	399	826	425	105	74	24
15	7.6	53	86	465	367	313	433	829	377	102	94	24
16	7.6	50	72	460	353	313	500	1,000	351	121	214	23
17	3.0	46	66	455	351	327	510	1,140	385	109	215	22
18	8.5	33	65	463	359	329	548	1,080	303	129	390	22
19	8.4	40	163	515	379	347	695	1,040	333	107	107	22
20	3.2	41	363	542	395	369	984	931	397	93	75	22
21	3.2	40	430	515	413	403	1,230	943	452	84	59	22
22	3.2	43	2,460	490	425	417	1,230	682	375	76	50	22
23	3.0	44	8,580	536	403	450	1,070	573	339	69	45	22
24	3.2	46	7,810	979	389	440	1,100	585	290	64	42	21
25	8.5	54	2,540	653	389	391	1,260	570	306	61	39	20
26	8.7	90	1,640	575	397	389	1,260	650	274	58	36	20
27	8.9	90	2,020	535	490	438	1,360	660	241	56	33	21
28	11	70	1,170	502	470	413	1,450	675	254	53	31	22
29	51	57	836	480	-----	413	1,470	754	254	50	30	22
30	31	72	690	473	-----	423	1,460	754	264	43	29	21
31	19	-----	594	493	-----	432	-----	721	-----	47	27	-----
Total	323.3	1,732	30,965	19,132	12,389	11,610	22,335	24,093	13,468	3,773	2,212	744
Mean	10.6	57.7	999	617	442	375	744	777	449	122	71.4	24.8
Ac-ft	651	3,440	61,420	37,950	24,570	23,030	44,300	47,790	26,710	7,490	4,390	1,480

Calendar year 1964 Max 8,580 Min 7.5 Mean 205 Ac-ft 148,300  
Water year 1964-65 Max 8,580 Min 7.5 Mean 391 Ac-ft 283,200

Peak discharge (base, 1,300 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0730	18.60	12,400	1-24	0200	9.11	1,300
12-27	0300	11.86	2,980	4-29	2400	10.19	1,840
1-6	2400	11.79	2,920	5-17	2400	9.66	1,570

## SAN JOAQUIN RIVER BASIN

11-2845. Big Creek near Groveland, Calif.

Location.--lat 37°51'28", long 120°12'02", in NE $\frac{1}{4}$  sec.15, T.1 S., R.16 E., on right bank 0.5 mile downstream from unnamed tributary and 2.0 miles northeast of Groveland.

Drainage area.--24.7 sq mi.

Records available.--October 1931 to September 1933, July 1959 to September 1965.

Gage.--Water-stage recorder (digital) and concrete control. Altitude of gage is 2,450 ft (from topographic map).

Average discharge.--8 years, 9.46 cfs (6,850 acre-ft per year).

Extremes.--Maximum discharge during year, 1,830 cfs Jan. 6 (gage height, 5.70 ft); no flow for several months.

1931-33, 1959-65: Maximum discharge, 4,530 cfs Feb. 1, 1963 (gage height, 7.71 ft), from rating curve extended above 1,300 cfs on basis of slope-area measurement of maximum flow; no flow for several months.

Flood of December 1955 reached a stage of 7.6 ft, from floodmarks (discharge, about 4,300 cfs).

Remarks.--Records good except those for periods of no gage-height record, which are fair. No storage or diversion above station.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

1.60	0	2.3	24
1.65	.1	2.5	44
1.7	.3	2.7	74
1.8	1.2	3.0	140
1.9	3.1	3.5	310
2.0	6.5	4.0	565
2.1	11	5.0	1,220

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1		0.2	0.5	34	12	6.3	9.6	9.3	3.1	0.5	0	
2		.3	1.9	29	11	5.8	25	9.1	3.0	.5	0	
3		.1	2.3	70	9.9	5.2	19	9.0	3.1	.4	0	
4		0	1.5	95	9.4	4.9	14	8.5	3.4	.3	0	
5		0	1.2	183	17	4.7	12	8.0	3.7	.3	0	
6		0	1.0	1,020	18	4.9	25	7.9	3.9	.3	0	
7		0	.8	550	12	5.4	26	7.8	3.8	.3	0	
8		0	.8	123	11	5.0	97	7.3	3.9	.3	0	
9		1.4	.8	71	9.9	4.6	128	7.1	4.0	.2	0	
10		7.4	.7	48	9.2	4.6	115	6.6	3.9	.2	0	
11		4.6	1.9	39	8.8	4.5	95	5.9	3.7	.2	0	
12		37	2.1	30	8.4	9.4	97	6.0	3.4	.2	.2	
13		23	1.3	26	8.2	9.7	148	5.6	3.1	.2	.1	
14		5.0	1.2	22	8.2	6.9	125	5.4	3.1	.2	.1	
15		2.1	1.1	20	7.8	5.9	89	5.0	3.1	.2	.1	
16		1.3	1.0	17	7.4	5.2	66	4.6	3.1	.1	0	
17		1.0	.8	15	6.9	4.9	47	4.4	3.1	.1	0	
18		.7	.8	14	6.9	4.7	36	4.2	2.7	.1	0	
19		.6	67	15	6.5	4.5	30	4.1	2.2	.1	0	
20		.5	32	15	6.5	4.2	26	4.3	1.7	.1	0	
21		.5	17	12	6.1	4.1	24	4.8	1.3	.1	0	
22		.5	129	11	6.1	3.8	21	5.3	.9	.1	0	
23		.4	542	21	5.7	3.8	18	5.0	.7	.1	0	
24		.4	504	53	5.5	3.8	16	4.4	.6	0	0	
25		.4	87	28	5.3	3.8	15	4.0	.6	0	0	
26		1.0	131	21	5.2	4.6	13	3.6	.6	0	0	
27		.8	352	17	11	39	12	3.3	.6	0	0	
28		.7	179	16	7.8	18	11	3.1	.6	0	0	
29		.5	76	15	-----	11	10	3.0	.6	0	0	
30		.5	57	14	-----	9.0	9.7	2.8	.6	0	0	
31		-----	51	12	-----	8.5	-----	2.9	-----	0	0	-----
TOTAL	0	90.9	2,245.7	2,656	247.7	220.7	1,379.3	172.3	72.1	5.1	0.5	0
MEAN	0	3.03	72.4	85.7	8.85	7.12	46.0	5.56	2.4	0.17	0.02	0
AC-FT	0	180	4,450	5,270	491	438	2,740	342	143	10	1.0	0

CALENDAR YEAR 1964 MAX 542 MIN 0 MEAN 7.99 AC-FT 5,800  
 WATER YEAR 1964-65 MAX 1,020 MIN 0 MEAN 19.4 AC-FT 14,070

## Peak discharge (base, 220 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0715	4.74	1,030	1-6	2330	5.70	1,830
12-27	0200	4.06	598				

Note.--No gage-height record June 4-29, July 5 to Aug. 3.

11-2847. North Fork Tuolumne River near Long Barn, Calif.

Location.--Lat 38°05'55", long 120°06'00", in NW 1/4 sec. 22, T.3 N., R.17 E., on right bank 0.6 mile upstream from small tributary, 1.5 miles east of town of Long Barn, and 3.8 miles upstream from Wrights Creek.

Drainage area.--23.1 sq mi.

Records available.--August 1962 to September 1965.

Gage.--Water-stage recorder (digital). Altitude of gage is 4,650 ft (from topographic map).

Extremes.--Maximum discharge during year, 1,060 cfs Dec. 23 (gage height, 6.39 ft); minimum daily, 0.3 cfs Oct. 1.

1962-65: Maximum discharge, 1,570 cfs Feb. 1, 1963 (gage height, 7.23 ft), from rating curve extended above 650 cfs on basis of slope-area measurement at gage height 9.8 ft; minimum daily, 0.2 cfs Sept. 18-25, 1962.

Flood of Dec. 23, 1955, reached a stage of 9.8 ft, from floodmarks (discharge, 2,560 cfs by slope-area measurement).

Remarks.--Records good except those for periods of ice effect, which are fair. No storage or diversions above station.

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 23

Dec. 23 to Sept. 30

2.4	0.1	3.1	21	2.5	0.9	3.5	60
2.5	.6	3.3	36	2.6	2.2	4.0	137
2.6	1.6	3.6	67	2.7	4.2	4.5	258
2.7	3.4	4.0	127	2.8	6.9	5.0	420
2.8	6.3	4.5	240	2.9	10	6.0	850
2.9	9.8	5.0	400	3.1	22		
3.0	15	6.0	840				

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.3	3.8	7.0	65	70	47	52	135	37	7.2	2.8	1.7
2	.4	4.0	16	60	63	45	53	113	34	6.9	2.6	1.7
3	.4	2.8	13	56	66	44	51	100	31	6.7	2.4	1.7
4	.4	2.6	9.4	51	65	43	50	83	29	6.5	2.2	1.7
5	.4	2.2	8.4	72	103	41	50	79	28	6.2	2.2	1.7
6	.4	1.9	7.0	227	104	42	52	75	27	5.9	2.1	1.8
7	.4	1.8	6.6	173	85	41	51	63	24	5.6	2.0	3.3
8	.9	2.1	6.0	118	76	33	52	62	24	5.5	1.9	2.9
9	1.4	11	6.0	96	70	37	50	59	22	5.3	1.9	2.8
10	.9	3.8	6.0	86	65	33	43	59	20	5.3	1.9	2.4
11	.7	6.3	20	73	53	37	43	59	19	5.1	2.5	2.1
12	.7	19	17	71	53	40	45	59	19	4.9	3.6	2.0
13	.6	10	12	65	51	33	45	62	17	4.7	5.2	1.8
14	.7	7.5	9.4	61	49	38	47	65	16	4.4	3.7	1.8
15	.6	5.4	3.4	61	46	37	53	66	15	4.3	3.3	1.7
16	.6	4.5	7.4	59	43	37	73	71	16	4.2	4.2	1.7
17	.6	4.0	7.2	60	42	37	75	76	16	4.1	4.0	1.7
18	.6	3.5	7.0	66	41	37	83	79	14	4.0	3.4	1.7
19	.6	3.3	19	79	42	37	93	75	13	3.8	3.3	1.7
20	.6	3.2	45	83	42	37	120	70	13	3.7	2.8	1.7
21	.6	3.0	82	80	43	38	143	71	12	3.6	2.6	1.7
22	.6	3.0	233	75	43	41	139	62	12	3.5	2.4	1.5
23	.6	3.7	622	105	41	42	131	56	11	3.4	2.3	1.5
24	.6	3.0	694	156	40	42	129	50	10	3.2	2.2	1.4
25	.6	4.3	240	111	39	40	131	46	9.7	3.1	2.1	1.4
26	.6	10	230	94	39	42	133	44	9.4	3.1	2.0	1.4
27	.6	7.7	257	83	53	51	143	43	9.3	3.0	1.9	1.5
28	1.1	6.6	154	75	51	47	159	42	9.4	2.9	1.9	1.4
29	3.4	6.0	116	70	-----	47	154	42	7.7	2.8	1.8	1.5
30	3.2	5.7	94	70	-----	47	143	41	7.5	2.9	1.7	1.4
31	2.2	-----	73	72	-----	48	-----	40	-----	2.9	1.7	-----
Total	31.3	160.7	3,042.8	2,683	1,593	1,276	2,610	2,061	530.0	133.7	85.6	54.3
Mean	1.01	5.36	98.2	86.7	56.9	41.2	87.0	66.5	17.7	4.47	2.76	1.81
Ac-ft	62	319	6,040	5,330	3,160	2,530	5,180	4,090	1,050	275	170	103

Calendar year 1964 Max 694 Min 0.3 Mean 19.3 Ac-ft 14,000

Water year 1964-65 Max 694 Min 0.3 Mean 39.1 Ac-ft 28,310

Peak discharge (base, 150 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0600	6.39	1,060	1-23	2200	4.52	264
12-24	0800	6.31	1,020	4-27	2100-2400	4.14	167
1-6	2200	4.65	303				

Note.--Stage-discharge relation affected by ice Nov. 14-21, Dec. 13, 17, 18, Jan. 1, 2.

## SAN JOAQUIN RIVER BASIN

11-2850. North Fork Tuolumne River above Dyer Creek, near Tuolumne, Calif.

Location.--Lat 37°58'53", long 120°12'20", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.34, T.2 N., R.16 E., on left bank at Riverside Guard Station, 0.2 mile upstream from Dyer Creek, and 2.2 miles northeast of Tuolumne.

Drainage area.--69.2 sq mi.

Records available.--October 1958 to September 1965.

Gage.--Water-stage recorder (digital) and concrete control. Altitude of gage is 2,200 ft (from topographic map).

Average discharge.--7 years, 54.9 cfs (39,750 acre-ft per year).

Extremes.--Maximum discharge during year, 2,990 cfs Dec. 23 (gage height, 5.16 ft in gage well, 5.3 ft outside, from floodmark); minimum daily, 3.2 cfs Oct. 3-9, 12-14, 22-28.

1958-65: Maximum discharge, 4,130 cfs Jan. 31, 1963 (gage height, 5.79 ft), from rating curve extended above 2,300 cfs; minimum, 0.3 cfs Aug. 25, 26, 1961.

Flood of December 1955 reached a stage of 10.7 ft, from floodmarks (discharge unknown).

Remarks.--Records good except those for period of indefinite stage discharge relation, which are fair. No storage or large diversions above station.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

1.2	3.2	2.5	295
1.3	9.2	3.0	560
1.4	18	3.5	940
1.6	42	4.0	1430
1.8	78	4.5	2020
2.1	153		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.7	13	33	229	194	113	139	240	62	25	13	9.1
2	3.7	13	52	203	187	112	150	222	60	24	12	9.5
3	3.2	10	55	215	181	110	145	194	57	23	11	9.6
4	3.2	6.9	44	213	173	105	139	172	54	22	10	9.5
5	3.2	6.4	39	302	285	102	136	156	52	21	10	9.5
6	3.2	5.2	34	1140	291	110	159	150	50	20	10	10
7	3.2	4.7	33	1000	236	105	162	139	49	19	10	12
8	3.2	5.2	31	560	215	100	181	123	47	20	10	14
9	3.2	3.7	30	415	193	93	187	122	47	19	10	12
10	4.2	5.3	30	345	181	93	194	113	44	13	10	11
11	3.7	4.6	77	295	165	96	172	112	42	18	11	10
12	3.2	18.9	72	263	156	115	172	110	41	18	25	10
13	3.2	7.3	50	236	147	110	184	110	33	17	20	10
14	3.2	4.1	44	213	142	110	203	112	37	17	15	9.6
15	3.7	3.1	39	211	136	103	243	110	33	17	13	9.1
16	3.7	2.5	37	204	123	102	279	115	39	17	12	8.7
17	3.7	2.2	33	204	122	98	279	120	33	17	12	8.6
18	4.2	1.9	31	215	113	96	287	122	37	16	12	8.8
19	4.2	1.9	104	240	115	93	313	113	35	16	12	9.0
20	4.2	1.3	217	251	115	93	350	115	35	15	11	8.7
21	3.7	1.7	277	236	115	96	385	115	33	15	11	8.1
22	3.2	1.3	1000	222	115	96	360	103	33	16	10	8.0
23	3.2	1.9	2020	296	110	93	322	98	31	15	11	3.8
24	3.2	1.9	1920	512	103	100	295	89	30	15	10	8.4
25	3.2	2.2	861	345	105	93	287	82	29	14	10	8.1
26	3.2	4.4	765	287	102	105	279	73	29	14	10	3.2
27	3.2	3.9	1070	259	147	175	267	74	23	14	9.7	9.1
28	3.2	3.3	649	233	131	142	283	70	27	14	9.0	10
29	2.6	3.1	446	213	-----	136	267	69	26	13	3.8	9.7
30	1.2	2.3	353	203	-----	131	255	64	25	13	8.7	9.0
31	6.4	-----	292	201	-----	131	-----	64	-----	13	3.1	-----
Total	141.5	922.4	10,743	9,986	4,423	3,387	7,084	3,695	535	355.3	286.1	
Mean	4.56	30.7	347	322	153	109	236	119	39.8	17.3	11.5	9.54
Ac-ft	281	1,830	21,310	19,810	8,770	6,720	14,050	7,330	2,370	1,060	705	567

Calendar year 1964 Max 2,020 Min 2.8 Mean 61.4 Ac-ft 44,550

Water year 1964-65 Max 2,020 Min 3.2 Mean 117 Ac-ft 84,810

Peak discharge (base, 600 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0100	5.16	2,990	1- 7	0030	4.21	1,660
12-27	0200	4.13	1,570	1-23	2300	3.44	892

Note.--Stage-discharge relation indefinite Oct. 23-28.

11-2865. Woods Creek near Jacksonville, Calif.

Location.--Lat 37°51'30", long 120°23'45", in SE $\frac{1}{4}$  sec.11, T.1 S., R.14 E., on right bank 200 ft downstream from Blue Gulch, 1.5 mile upstream from mouth, and 1.5 mile northwest of Jacksonville.

Drainage area.--97.2 sq mi.

Records available.--October 1925 to September 1965.

Gage.--Water-stage recorder (digital). Datum of gage is 653.65 ft above mean sea level. Prior to Oct. 1, 1947, at datum 2.00 ft higher.

Average discharge.--40 years, 59.7 cfs (43,220 acre-ft per year) median of yearly mean discharges, 50 cfs (36,200 acre-ft per year).

Extremes.--Maximum discharge during year, 8,650 cfs Dec. 23 (gage height, 12.40 ft); no flow for many days.

1925-65: Maximum discharge, 14,400 cfs Dec. 23, 1955 (gage height, 14.66 ft), from rating curve extended above 4,600 cfs on basis of slope-area measurement of maximum flow; no flow for parts of most years.

Remarks.--Records good. Tuolumne Canal (see p. 690) diverts water from the Stanislaus River Basin into Woods Creek Basin for power, irrigation, and domestic supply in the vicinity of Sonora upstream from the station. Some of the diverted water, up to 2 cfs, returns to the Stanislaus River Basin, and up to 4 cfs enters the Tuolumne River basin upstream from Woods Creek.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	0	24	14	308	75	65	90	73	14	16	0.9	0.2
2	0	49	15	216	72	61	276	73	17	15	.8	.1
3	0	18	23	334	69	58	192	70	17	14	.6	.2
4	0	13	17	368	66	56	107	64	19	13	.3	.4
5	0	11	16	347	167	56	93	61	24	13	.2	.5
6	0	9.8	15	2,600	220	61	190	60	24	12	.1	.5
7	0	9.3	14	1,580	114	63	197	59	25	11	0	.6
8	0	11	13	457	94	61	401	54	26	11	0	1.0
9	0	77	13	293	89	55	579	54	26	11	0	1.6
10	0	224	13	231	84	54	1,240	52	25	9.6	0	1.6
11	0	123	37	188	80	54	731	49	23	8.4	0	1.3
12	0	500	41	157	77	201	473	48	20	7.4	.4	1.1
13	0	263	26	132	77	270	503	45	17	7.6	4.9	.9
14	0	78	22	120	76	107	408	44	18	6.7	3.4	.8
15	0	41	19	111	73	84	312	41	19	5.7	2.4	.7
16	0	29	19	102	72	75	251	40	20	6.8	1.9	.8
17	0	25	19	95	69	70	204	38	21	5.9	1.5	.9
18	0	21	18	90	68	68	170	38	22	6.4	1.4	.8
19	0	19	199	94	68	67	148	37	20	6.0	.9	.8
20	0	18	234	99	66	61	128	27	19	6.0	.6	.7
21	0	16	289	84	63	58	136	18	18	5.3	.6	.8
22	0	15	1,720	79	62	56	123	29	18	5.2	.6	.9
23	0	14	3,890	132	59	54	101	32	17	4.0	.6	1.0
24	0	13	3,020	460	61	55	92	20	15	2.8	.6	1.0
25	0	14	470	159	59	54	95	17	15	2.0	.7	1.1
26	0	19	695	117	58	58	91	15	17	1.7	.6	1.0
27	0	18	1,530	102	97	235	80	16	17	1.4	.5	1.3
28	0	15	867	95	78	123	75	15	16	1.3	.6	1.8
29	35	15	448	90	-----	80	70	14	15	1.2	.6	2.1
30	22	14	446	85	-----	70	74	12	15	1.2	.4	2.1
31	11	-----	568	80	-----	69	-----	12	-----	1.0	.3	-----
TOTAL	68	1,716.1	14,730	9,405	2,313	2,559	7,630	1,227	579	219.6	26.4	28.6
MEAN	2.19	57.2	475	303	82.6	82.5	254	39.6	19.3	7.08	.85	.95
AC-FT	135	3,400	29,220	18,650	4,590	5,080	15,130	2,430	1,150	436	52	57

CALENDAR YEAR 1964	MAX	3,890	MIN	0	MEAN	63.3	AC-FT	45,970
WATER YEAR 1964-65	MAX	3,890	MIN	0	MEAN	111	AC-FT	80,330

## Peak discharge (base, 900 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-12	0715	6.35	935	1-6	1530	10.45	5,070
12-23	0715	12.40	8,650	1-24	0015	6.37	1,100
12-27	0245	9.08	3,300	4-10	0115	7.34	1,720

## SAN JOAQUIN RIVER BASIN

11-2875. Don Pedro Reservoir near La Grange, Calif.

Location.--Lat 37°42'48", long 120°24'14", in SW¼ sec.35, T.2 S., R.14 E., 300 ft from left bank on upstream face of Don Pedro Dam on Tuolumne River, 1 mile downstream from Rogers Creek, and 5.5 miles upstream from La Grange.

Drainage area.--1,530 sq mi.

Records available.--September 1923 to September 1965. 1923-24 (year-end contents only) and October 1924 to September 1930 month-end contents, published in WSP 1315-A.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Turlock Irrigation District). Prior to Feb. 1, 1941, staff gage at same site and datum.

Extremes.--Maximum contents during year, 291,200 acre-ft July 21 (elevation, 605.8 ft); minimum, 74,000 acre-ft Oct. 28, 29 (elevation, 517.2 ft).

1924-65: Maximum contents, 292,100 acre-ft June 13, 1937 (elevation, 606.1 ft); minimum, 29,200 acre-ft Sept. 1-3, 5, 1934; minimum elevation, 475.0 ft Sept. 1, 2, 1934.

Remarks.--Reservoir is formed by concrete gravity-type dam, completed about Jan. 1, 1923; storage began Nov. 14, 1922. Total capacity, 290,400 acre-ft at elevation 605.55 ft (top of drum type spillway gates), of which 30,000 acre-ft below elevation 476 ft (mutually agreed-upon minimum) is not available for release. Water passes through powerplant at dam and down Tuolumne River to La Grange Dam, 4 miles downstream, where it is diverted into Turlock and Modesto Canals for irrigation. This reservoir is operated jointly by Turlock and Modesto Irrigation Districts. Figures given herein represent total contents.

Cooperation.--Water-stage-recorder graph furnished by Turlock and Modesto Irrigation Districts.

Capacity table (elevation, in feet, and contents, in acre-feet)

515	71,000	570	185,600
520	78,100	580	213,400
530	94,100	590	242,400
540	113,500	600	272,900
550	135,800	606	291,800
650	159,900		

Contents, in thousands of acre-feet, at 2400 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	110.1	74.6	90.5	180.1	186.4	187.8	202.9	230.1	290.5	288.0	277.6	243.6
2	107.9	74.7	91.9	172.3	188.1	187.8	202.9	232.8	290.2	286.4	276.7	241.6
3	106.3	75.5	93.1	164.9	190.0	188.9	201.5	235.9	289.9	284.5	276.0	239.5
4	104.9	75.8	93.3	158.2	191.1	190.5	199.5	238.3	289.9	282.6	275.1	237.4
5	102.4	76.2	93.8	152.1	191.6	191.9	198.5	239.5	288.6	281.0	273.5	235.1
6	100.0	76.7	94.0	169.2	192.1	193.0	199.5	240.1	288.0	279.8	272.0	232.8
7	98.1	77.4	92.9	183.5	191.1	192.7	200.4	240.7	288.0	282.0	270.1	230.4
8	96.3	78.7	92.2	181.7	189.7	192.1	202.6	241.0	288.6	284.5	268.2	228.3
9	94.3	79.3	91.5	176.4	190.8	191.6	204.0	240.7	288.9	287.4	265.8	226.3
10	92.9	81.9	90.7	168.7	187.5	192.1	208.8	241.9	289.3	289.6	264.2	224.3
11	91.7	83.4	90.2	160.4	187.3	193.0	209.0	245.1	289.6	290.5	262.4	222.0
12	89.7	87.4	90.5	151.8	186.4	193.5	206.3	247.8	289.9	290.8	261.1	219.6
13	88.0	89.8	90.7	143.8	186.2	193.0	203.5	250.5	288.9	289.3	259.6	217.1
14	86.5	89.8	89.5	142.9	185.4	191.9	197.9	253.5	289.6	286.4	258.1	214.8
15	84.3	89.0	89.0	144.1	185.1	191.1	193.2	256.6	290.5	283.6	258.1	212.5
16	82.9	86.9	88.0	145.0	185.9	189.7	190.2	259.9	289.3	281.7	262.1	210.5
17	82.0	85.9	86.9	145.5	186.7	188.6	190.0	263.0	289.3	282.0	265.1	208.0
18	81.3	84.9	85.4	146.5	187.3	187.5	189.2	265.8	289.9	283.9	265.1	205.7
19	80.1	83.7	85.1	150.3	188.1	186.7	189.4	268.6	288.6	286.1	265.5	203.2
20	79.0	82.6	87.0	154.3	188.6	185.6	191.9	271.7	287.4	289.3	264.8	200.4
21	77.9	81.7	87.8	157.9	189.2	185.9	194.6	273.8	284.8	291.2	263.6	197.9
22	77.0	80.8	96.5	161.1	188.3	186.2	197.4	274.8	284.2	290.5	261.8	195.7
23	76.1	80.2	144.1	164.4	187.3	187.5	199.8	274.8	286.1	290.2	260.2	193.2
24	75.8	80.7	190.2	172.8	186.2	188.9	201.8	275.1	287.6	288.9	258.4	190.8
25	75.5	81.7	196.5	175.9	185.6	190.0	203.8	277.3	290.2	287.4	256.6	188.3
26	75.1	83.2	196.3	176.9	185.9	191.3	206.3	279.8	290.5	286.1	255.1	185.6
27	74.4	84.7	204.5	178.5	187.0	194.3	209.9	281.3	289.6	284.8	253.2	182.7
28	74.0	86.4	204.3	180.6	187.8	196.3	214.8	282.9	289.3	283.6	251.4	180.1
29	74.0	88.0	199.3	182.2	-	198.2	219.6	284.8	289.9	282.0	249.6	177.5
30	74.3	89.3	193.8	183.8	-----	200.1	224.6	287.0	289.9	280.4	247.5	174.9
31	74.4	-----	188.3	184.8	-----	201.8	-----	288.9	-----	278.9	245.7	-----
(†)	517.5	527.2	571.0	569.7	570.8	575.9	583.9	605.1	605.4	601.9	591.1	565.9
(‡)	-36,800	+14,900	+99,000	-3,500	+3,000	+14,000	+22,800	+64,300	+1,000	-11,000	-33,200	-70,800

Calendar year 1964..... +129,600

Water year 1964-65..... +63,700

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.



11-2880. Tuolumne River above La Grange Dam, near La Grange, Calif.

Location.--Lat 37°42'35", long 120°24'45", in NE¼ sec.3, T.3 S., R.14 E., on left bank 0.5 mile downstream from Don Pedro Dam, 3.5 miles upstream from La Grange Dam, and 5 miles upstream from La Grange.

Drainage area.--1,532 sq mi.

Records available.--August 1895 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A. Published as "at La Grange," 1895-1912, as "near La Grange" or "at La Grange Dam, near La Grange," 1913-17. August 1895 to September 1917 at La Grange Dam, 3.5 miles downstream, records equivalent if flow of Sierra and San Francisco Power Co.'s canal (abandoned in 1926) and Modesto and Turlock Canals is added to flow at La Grange Dam.

Gage.--Water-stage recorder (digital). Altitude of gage is 330 ft (from topographic map). Prior to Mar. 31, 1908, and Sept. 25 to Dec. 5, 1908, staff gage at site 5 miles downstream below point of re-entrance of Sierra and San Francisco Power Co.'s canal, at different datum. Apr. 1 to Sept. 24, 1908, and Dec. 5, 1908, to Feb. 29, 1916, staff gage at site 3.5 miles downstream at La Grange Dam, diversion point of Turlock and Modesto Canals, at different datum.

Average discharge.--69 years (1896-1965), 2,518 cfs (1,823,000 acre-ft per year), adjusted for Hetch Hetchy diversion to San Francisco.

Extremes.--Maximum discharge during year, 8,450 cfs Jan. 7 (gage height, 13.90 ft); minimum daily, 597 cfs Nov. 8.  
1895-1965: Maximum discharge, 61,000 cfs Dec. 8, 1950 (gage height, 43.8 ft); minimum daily, 2.1 cfs Dec. 27, 1922.

Remarks.--Records excellent. Flow regulated by Don Pedro powerplant, Don Pedro Reservoir (see preceding page), Hetch Hetchy Reservoir (see p. 650), Cherry Lake (see p. 652) and Lake Eleanor (see p. 654). Tuolumne Canal (see p. 690) diverts water from the Stanislaus River basin into the Tuolumne River basin for power, irrigation, and domestic supply in the vicinity of Sonora upstream from station. Diversion through Hetch Hetchy aqueduct to San Francisco began Oct. 19, 1934; an average of 234 cfs was diverted during 1965 water year.

Cooperation.--Five discharge measurements furnished by city and county of San Francisco.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

6.4	550	10.0	3,400
7.0	900	12.0	5,730
8.0	1,590	14.0	8,600
9.0	2,410		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,610	652	1,270	7,590	3,020	3,030	2,950	3,440	3,610	4,050	2,320	2,410
2	1,710	881	1,040	7,450	3,010	3,040	4,060	3,430	4,490	3,390	2,330	2,420
3	1,440	848	1,110	7,310	3,030	2,480	4,370	3,420	4,480	3,390	2,330	2,420
4	1,160	894	1,150	7,230	3,300	2,130	4,350	3,750	4,480	3,380	2,340	2,440
5	1,730	900	871	7,320	4,090	2,150	3,780	4,400	4,050	3,380	2,340	2,420
6	1,760	943	828	7,890	4,690	2,150	3,510	4,400	3,410	3,380	2,350	2,420
7	1,450	705	1,160	7,290	4,710	2,710	3,510	4,410	3,410	3,390	2,350	2,420
8	1,470	597	1,110	7,340	4,670	2,990	3,760	4,410	3,410	3,400	2,350	2,460
9	1,500	941	1,090	7,520	4,700	3,030	4,800	4,410	3,410	3,390	2,350	2,480
10	1,300	949	1,140	7,840	4,190	2,560	5,270	3,720	3,410	3,400	2,350	2,490
11	1,160	990	1,180	7,980	3,870	2,250	5,790	3,430	3,770	3,920	2,360	2,500
12	1,570	1,100	1,020	7,880	3,870	2,480	6,470	3,420	5,360	4,480	2,380	2,490
13	1,470	1,560	868	7,350	3,890	2,560	6,890	3,420	5,690	3,400	2,370	2,500
14	1,500	1,910	1,430	3,580	3,830	2,500	7,310	3,410	4,730	3,380	2,370	2,510
15	1,470	1,900	1,440	2,590	3,290	2,300	7,590	3,410	4,490	3,370	2,370	2,520
16	1,260	2,200	1,370	2,580	3,010	2,550	6,270	3,410	5,460	2,640	2,370	2,540
17	1,100	2,090	1,350	2,520	3,000	2,440	5,180	4,100	4,740	2,330	2,370	2,540
18	1,010	2,120	1,490	2,420	3,010	2,410	5,120	4,440	3,790	2,330	2,360	2,550
19	1,190	2,170	1,360	2,430	3,010	2,420	4,900	4,430	3,390	2,330	2,370	2,550
20	1,130	2,070	1,190	2,460	2,970	2,600	4,360	4,440	3,390	2,330	2,380	2,560
21	1,110	2,020	1,610	2,550	2,900	2,560	4,370	4,450	4,580	2,760	2,370	2,590
22	1,090	1,870	2,200	2,510	3,500	2,570	4,390	4,920	5,470	3,400	2,370	2,610
23	1,150	1,630	4,680	2,490	3,840	2,600	4,380	5,390	5,470	2,330	2,380	2,620
24	919	1,330	6,960	2,440	3,900	2,600	4,340	4,720	5,490	2,320	2,390	2,630
25	774	1,080	7,120	3,330	3,630	2,610	4,310	3,890	5,140	2,320	2,390	2,640
26	815	948	7,270	4,180	3,040	2,610	4,320	3,410	5,420	2,320	2,390	2,610
27	868	972	7,270	3,660	3,040	2,570	3,780	3,410	5,490	2,320	2,390	2,640
28	789	973	7,490	3,360	3,020	2,530	3,490	3,410	5,470	2,320	2,390	2,680
29	798	982	7,490	3,350	-----	2,530	3,470	3,400	4,790	2,320	2,410	2,700
30	716	1,080	7,410	3,330	-----	2,540	3,450	3,410	4,720	2,320	2,420	2,690
31	653	-----	7,600	3,240	-----	2,520	-----	3,410	-----	2,320	2,420	-----
Total	37,672	39,305	90,567	151,010	100,030	79,020	140,540	121,520	135,010	92,110	73,430	76,050
Mean	1,215	1,310	2,922	4,871	3,573	2,549	4,685	3,920	4,500	2,971	2,369	2,535
Ac-ft	74,720	77,960	179,600	299,500	198,400	156,700	278,800	241,000	267,800	182,700	145,600	150,800
Calendar year 1964	Max	7,600	Min	469	Mean	1,627	Ac-ft	1,181,000				
Water year 1964-65	Max	7,980	Min	597	Mean	3,113	Ac-ft	2,254,000				

11-2890. Modesto Canal near La Grange, Calif.

Location.--Lat 37°40'04", long 120°27'26", in SW¼ sec.17, T.3 S., R.14 E., on right bank 0.5 mile northeast of La Grange and 1 mile downstream from intake at La Grange Dam.

Records available.--April 1903 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder (digital) and since Mar. 19, 1963, V-notch sharp-crested weir. Datum of gage is 272.4 ft above mean sea level (levels by Modesto Irrigation District). Prior to July 1904, staff gage at approximately present site at different datum. July 1904 to March 1920, staff gage in concrete well 0.9 mile upstream and 460 ft below intake, set by water surface elevation to read same as previous gage. March 1920 to February 1924, staff gage and February 1924 to March 1932, water-stage recorder, 0.9 mile upstream and 500 ft below intake at different datum.

Average discharge.--62 years, 395 cfs (286,000 acre-ft per year).

Extremes.--1903-65: Maximum daily discharge, 1,820 cfs July 1, 1935; no flow at times.

Remarks.--Records excellent. Canal diverts from right bank of Tuolumne River at La Grange Dam for irrigation in Modesto and Waterford Irrigation Districts.

Cooperation.--Seven discharge measurements furnished by city and county of San Francisco.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	451	4.4	4.3	4.2	0.9	103	907	957	1,160	1,110	826	783
2	444	4.1	4.4	4.3	1.0	103	972	956	1,230	1,090	830	784
3	436	4.1	4.1	4.4	1.0	102	896	981	1,230	1,110	804	785
4	422	4.2	4.2	4.3	1.0	278	854	1,010	1,230	1,110	796	806
5	445	4.1	3.8	4.5	1.1	397	748	1,040	1,210	1,110	773	798
6	380	4.0	3.8	4.8	1.0	397	708	1,040	1,160	1,110	777	804
7	340	4.1	3.9	3.7	1.0	400	709	1,150	1,160	1,120	789	746
8	351	3.7	4.0	1.3	1.0	402	710	1,210	1,150	1,130	776	734
9	344	3.7	3.8	1.2	1.0	547	721	1,210	888	1,140	806	737
10	342	4.3	3.8	1.2	1.0	589	727	1,170	1,140	1,140	849	740
11	347	4.1	3.9	1.2	1.0	578	732	1,150	1,160	1,190	814	742
12	319	4.2	4.0	1.1	1.0	646	738	1,150	1,250	1,360	822	741
13	291	4.5	4.1	1.1	1.0	673	743	1,150	1,270	1,200	823	740
14	291	4.5	4.0	1.0	1.0	674	653	1,150	1,230	1,140	822	743
15	283	4.6	4.0	.9	1.0	658	605	1,150	1,220	1,140	822	740
16	281	4.4	4.0	.9	1.0	745	594	1,150	1,260	896	819	741
17	669	4.5	4.1	.9	1.0	774	584	1,200	1,240	762	816	742
18	971	4.8	4.2	.9	1.0	785	583	1,230	1,180	763	816	743
19	1,070	4.8	4.4	.9	1.0	787	582	1,230	1,130	762	808	743
20	1,030	4.8	4.3	.9	1.0	804	576	1,220	1,130	808	793	622
21	1,030	4.7	4.4	.9	.9	777	576	1,230	1,200	860	783	606
22	998	4.6	4.5	1.0	1.93	771	576	1,230	1,260	1,060	781	608
23	1,070	4.8	4.7	1.0	21	829	576	1,250	1,250	1,090	781	609
24	871	4.3	5.5	1.0	6.6	870	720	1,240	1,260	1,110	785	615
25	292	4.2	4.0	1.0	4.8	883	792	1,290	1,200	1,110	786	616
26	17	4.2	4.3	1.0	4.6	894	792	1,150	1,180	943	787	616
27	16	4.2	4.3	1.0	59	867	783	1,180	1,180	866	787	615
28	15	4.2	4.2	1.0	103	870	920	1,190	1,180	866	787	563
29	9.5	4.2	4.1	1.0	-----	887	977	1,150	1,130	840	792	495
30	5.0	4.2	4.1	1.0	-----	884	960	1,150	1,120	826	794	496
31	4.7	-----	4.1	.9	-----	474	-----	1,150	-----	827	785	-----
TOTAL	13,835.2	129.5	129.3	54.5	412.9	19,448	22,014	35,714	35,588	31,589	24,829	20,853
MEAN	446	4.32	4.17	1.76	14.7	627	734	1,152	1,186	1,019	801	695
AC-FT	27,440	257	256	108	819	38,570	43,660	70,840	70,590	62,660	49,250	41,360

CALENDAR YEAR	1964	MAX	1,070	MIN	0.2	MEAN	403	AC-FT	292,300
WATER YEAR	1964-65	MAX	1,360	MIN	0.9	MEAN	561	AC-FT	405,800

11-2895. Turlock Canal near La Grange, Calif.

Location.--Lat 37°40'00", long 120°26'25", in NE 1/4 sec. 21, T.3 S., R.14 E., on right bank 2,400 ft downstream from intake at La Grange Dam and 1.2 miles east of La Grange.

Records available.--October 1898 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder (digital) and concrete control. Altitude of gage is 265 ft (from topographic map). July 1, 1899, to Sept. 14, 1915, staff gage at different sites and datums near canal intake; Sept. 15, 1915, to Apr. 15, 1924, staff gage and Apr. 16, 1924, to winter of 1936-37, water-stage recorder, both at present site and datum 0.25 ft higher.

Average discharge.--67 years, 586 cfs (424,200 acre-ft per year).

Extremes.--1898-1965: Maximum daily discharge, 2,280 cfs June 12, 1949; no diversion for irrigation during some periods in each year. Prior to 1939, unmeasured small discharge during winter called zero; no flow Nov. 5, 6, 1961, Dec. 12-14, 23-26, 1962.

Remarks.--Records excellent. Canal diverts from left bank of Tuolumne River at La Grange Dam for irrigation in Turlock Irrigation District and to supply town of La Grange. During fall and winter some unmeasured flow is diverted from canal at tunnel 0.3 mile above gage, passed through La Grange powerplant and returned to river.

Cooperation.--Two discharge measurements furnished by city and county of San Francisco.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	1,120	25	21	19	10	13	1,140	1,830	1,650	1,810	1,420	1,540
2	1,170	158	20	17	10	13	769	1,830	1,840	1,680	1,410	1,540
3	1,000	158	20	33	10	13	742	1,800	1,890	1,750	1,450	1,550
4	585	215	20	24	11	13	690	1,850	1,880	1,750	1,450	1,410
5	1,210	226	20	22	11	13	725	1,890	1,770	1,740	1,400	1,550
6	1,240	70	19	19	12	13	749	1,900	1,580	1,750	1,430	1,550
7	1,050	41	20	16	12	13	709	1,880	1,590	1,730	1,490	1,600
8	1,060	21	20	15	12	13	894	1,880	1,550	1,730	1,490	1,650
9	1,130	69	20	14	12	333	994	1,890	1,610	1,720	1,410	1,660
10	847	101	20	13	12	1,250	982	1,760	1,570	1,720	1,370	1,670
11	790	103	19	13	12	1,280	943	1,710	1,650	1,800	1,460	1,670
12	1,130	132	19	11	12	1,740	967	1,710	1,920	1,900	1,470	1,670
13	1,100	218	19	11	11	1,770	978	1,710	1,890	1,660	1,470	1,670
14	1,140	219	19	11	11	1,720	715	1,710	1,890	1,670	1,470	1,640
15	1,100	645	19	11	11	1,420	572	1,700	1,790	1,680	1,470	1,690
16	919	1,240	19	11	11	1,680	581	1,710	1,650	1,590	1,460	1,700
17	385	849	19	11	11	1,460	682	1,860	1,600	1,480	1,430	1,700
18	14	26	19	11	11	1,370	733	1,870	1,620	1,490	1,440	1,700
19	15	26	19	10	12	1,470	719	1,960	1,550	1,480	1,490	1,700
20	14	26	18	10	12	1,690	725	1,840	1,570	1,430	1,510	1,430
21	14	26	18	11	12	1,680	725	1,800	1,760	1,610	1,520	1,390
22	14	25	18	11	12	1,700	725	1,930	1,870	2,070	1,510	1,380
23	14	24	18	11	12	1,640	731	1,930	1,870	1,140	1,510	1,380
24	12	24	239	11	13	1,310	727	1,440	1,870	1,130	1,520	1,230
25	192	24	504	11	13	1,300	726	1,190	1,850	1,130	1,520	1,190
26	225	23	520	11	13	1,300	731	1,340	1,860	1,280	1,520	1,190
27	143	23	516	10	13	1,620	733	1,400	1,880	1,380	1,520	1,190
28	108	23	190	10	13	1,590	727	1,490	1,880	1,380	1,520	1,090
29	154	22	19	9.7	-----	1,210	1,400	1,640	1,830	1,410	1,530	913
30	19	21	19	9.5	-----	1,250	1,810	1,640	1,840	1,420	1,550	848
31	19	-----	19	10	-----	1,240	-----	1,650	-----	1,420	1,550	-----
TOTAL	17,933	4,803	2,469	417.2	327	33,127	25,044	53,740	52,570	48,930	45,760	44,091
MEAN	578	160	79.6	13.5	11.7	1,069	835	1,734	1,752	1,578	1,476	1,470
AC-FT	35,570	9,530	4,900	828	649	65,710	49,670	106,600	104,300	97,050	90,760	87,450

CALENDAR YEAR	1965	MAX	1,640	MIN	12	MEAN	713	AC-FT	517,700
WATER YEAR	1964-65	MAX	2,070	MIN	9.5	MEAN	902	AC-FT	653,000

## SAN JOAQUIN RIVER BASIN

11-2900. Tuolumne River at Modesto, Calif.

Location.--Lat 37°37'38", long 120°59'20", in SW $\frac{1}{4}$  sec.33, T.3 S., R.9 E., on left bank at bridge on U. S. Highway 99 in Modesto and 0.2 mile downstream from Dry Creek.

Drainage area.--1,884 sq mi.

Records available.--1878-84, 1891-94, 1897 (gage heights only), January 1895 to December 1896, April 1940 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder (digital). Datum of gage is at mean sea level, unadjusted (levels by Modesto Irrigation District). Prior to July 11, 1947, at site 1,700 ft downstream, and July 11, 1947, to Nov. 16, 1953 at site 1,000 ft downstream at same datum.

Average discharge.--26 years (1895-96, 1940-65), 1,418 cfs (1,027,000 acre-ft per year).

Extremes.--Maximum discharge during year, 11,100 cfs Jan. 7 (elevation, 55.35 ft); minimum daily 199 cfs Oct. 22-24. 1895-96, 1940-65: Maximum discharge observed, 57,000 cfs Dec. 9, 1950 (elevation, 69.19 ft); minimum, 85 cfs Oct. 25, 1961.

Remarks.--Records good except those for period of no gage-height record, which are fair. Flow regulated by reservoirs and power-plants above station. In addition to diversions into Modesto and Turlock Canals (see pp. 672, 673), there are diversions for irrigation of about 1,300 acres between stations above LaGrange Dam and at Modesto. See Remarks for Tuolumne River above LaGrange Dam. Water temperatures for the period July to September 1965 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	259	773	1,140	7,910	3,290	2,860	1,180	903	700	1,700	377	308
2	261	731	1,320	7,640	3,110	2,860	1,480	826	848	1,900	393	300
3	265	742	1,120	7,410	3,090	2,850	2,640	815	1,390	790	393	300
4	265	742	1,160	7,220	3,070	2,330	3,010	773	1,410	750	369	308
5	267	731	1,210	7,130	3,420	1,870	3,040	948	1,410	710	361	338
6	257	705	994	7,430	4,090	1,780	2,650	1,430	1,280	700	377	369
7	264	774	925	10,300	4,530	1,770	2,500	1,480	903	710	369	361
8	264	733	1,140	9,220	4,580	2,300	2,520	1,420	881	715	338	345
9	315	706	1,170	7,900	4,570	2,490	2,660	1,390	925	700	338	338
10	338	791	1,150	7,740	4,580	1,940	3,520	1,380	950	680	322	345
11	338	968	1,180	8,030	4,000	1,050	4,710	994	905	660	377	353
12	353	1,060	1,220	8,100	3,800	753	5,070	742	900	640	524	361
13	338	1,130	1,100	7,940	3,790	1,540	5,350	773	1,400	1,260	524	361
14	338	1,270	971	7,120	3,770	1,050	5,830	731	3,000	910	401	345
15	393	1,790	1,390	3,940	3,740	518	6,500	720	2,100	600	353	361
16	353	1,550	1,500	2,970	3,180	506	6,580	710	1,500	600	353	361
17	264	1,240	1,440	2,820	2,990	426	4,990	720	2,200	460	338	434
18	250	1,110	1,420	2,700	2,970	449	4,320	1,030	2,400	308	330	434
19	224	2,060	1,560	2,680	2,970	473	4,240	1,350	1,500	300	315	434
20	218	2,370	1,470	2,620	2,940	423	3,780	1,290	900	292	315	353
21	205	2,360	1,300	2,620	2,910	371	3,530	1,400	810	315	315	497
22	199	2,270	1,630	2,660	2,840	336	3,480	1,470	930	300	315	742
23	199	2,110	2,480	2,570	3,270	354	3,450	1,800	2,300	425	300	784
24	199	1,970	6,360	2,520	3,690	339	3,390	2,080	2,500	322	308	826
25	205	1,500	8,780	2,540	3,740	498	3,080	2,010	2,500	300	330	960
26	212	1,370	7,230	3,520	3,420	622	2,910	1,420	2,500	285	338	1,050
27	434	1,100	7,450	4,180	3,020	737	2,870	1,080	2,250	338	322	1,060
28	762	1,040	7,650	3,660	2,900	571	2,320	948	2,650	353	315	1,120
29	848	1,050	7,880	3,450	-----	446	1,970	881	2,600	345	308	1,270
30	837	1,070	7,700	3,410	-----	603	1,280	752	2,400	361	338	1,490
31	804	-----	7,530	3,370	-----	719	-----	710	-----	361	285	-----
TOTAL	10,728	37,816	90,570	163,320	98,270	35,834	104,850	34,976	48,942	19,090	10,941	16,908
MEAN	346	1,261	2,922	5,268	3,510	1,156	3,495	1,128	1,631	616	353	564
AC-FT	21,280	75,010	179,600	323,900	194,900	71,080	208,000	69,370	97,080	37,860	21,700	33,540

CALENDAR YEAR 1964 MAX 8,780 MIN 140 MEAN 657 AC-FT 476,560  
 WATER YEAR 1964-65 MAX 10,300 MIN 199 MEAN 1,842 AC-FT 1,333M

Note.--No gage height record Apr. 14-21, June 10 to July 18.

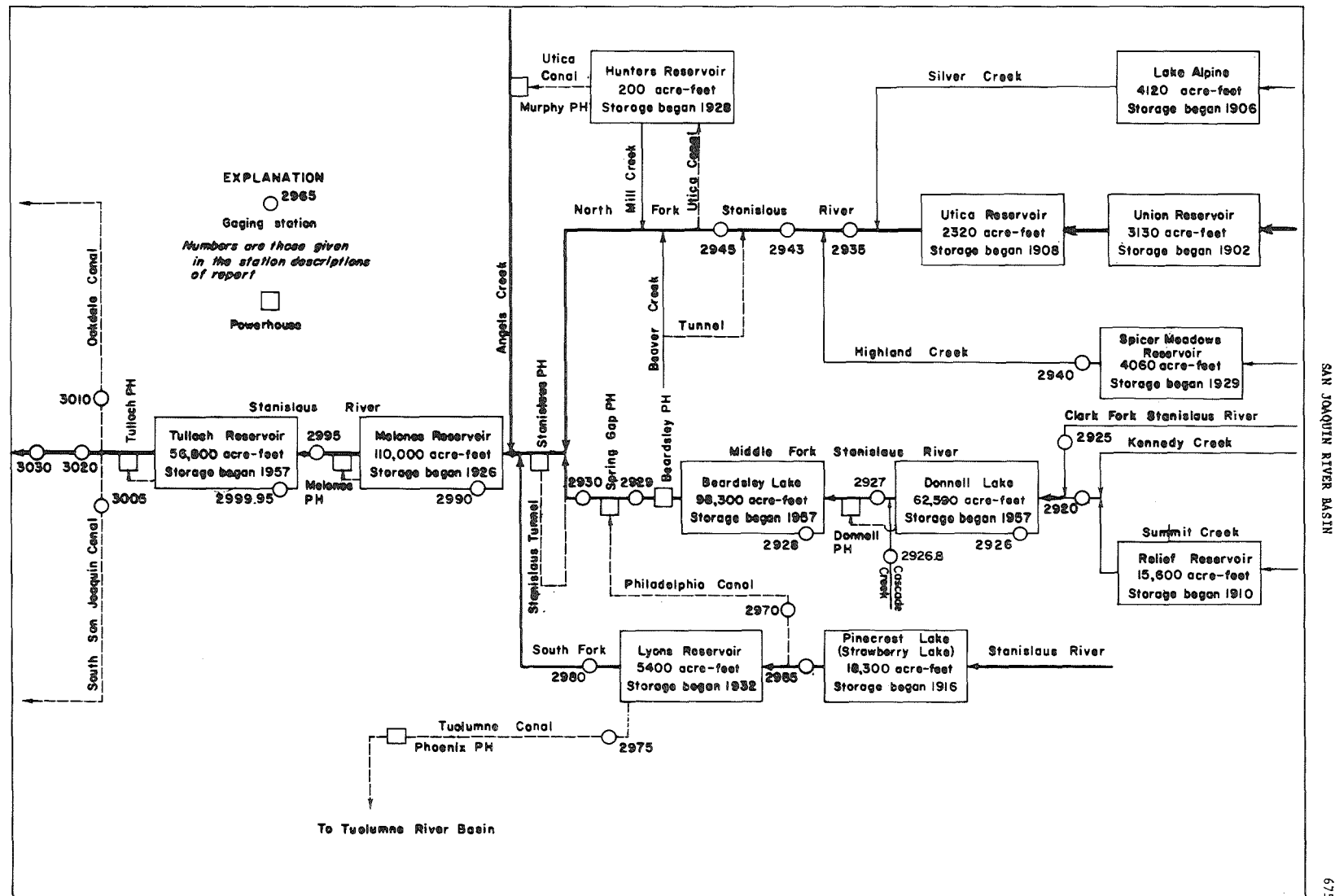


Figure 2.--Schematic diagram showing diversions and storage in Stanislaus River basin

## SAN JOAQUIN RIVER BASIN

11-2920. Middle Fork Stanislaus River at Kennedy Meadows, near Dardanelle, Calif.

Location--Lat 38°17'50", long 119°44'25", in NE¼ sec.11, T.5 N., R.20 E., on right bank at upper end of Kennedy Meadows, 1.3 miles upstream from Deadman Creek, 1.6 miles downstream from Relief Reservoir, and 5.8 miles southwest of Dardanelle.

Drainage area--47.5 sq mi.

Records available--October 1938 to September 1965. Records for water year 1946 incomplete, yearly estimate published in WSP 1315-A. Prior to October 1962, published as "at Kennedy Meadows."

Gage--Water-stage recorder. Datum of gage is 6,320.1 ft above mean sea level (river-profile survey).

Average discharge--27 years, 132 cfs (95,560 acre-ft per year) unadjusted.

Extremes--Maximum discharge during year, 1,220 cfs Dec. 23 (gage height, 5.96 ft); minimum daily, 12 cfs Nov. 19-21, Dec. 17. 1938-65: Maximum discharge recorded, 1,700 cfs Nov. 20, 1950 (gage height, 6.66 ft); minimum daily recorded, 7.2 cfs Feb. 11, 1948.

Remarks--Records good except those for periods of ice effect, which are fair. Flow regulated by Relief Reservoir (usable capacity, 15,600 acre-ft). Contents of Relief Reservoir was 11,500 acre-ft on Sept. 30, 1964, and 4,300 acre-ft on Sept. 30, 1965. No diversion above station. See schematic diagram, preceding page.

Cooperation--Water-stage-recorder graph and seven discharge measurements furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 23				Dec. 23 to Sept. 30			
1.1	10	3.5	221	1.8	37	4.0	330
1.2	13	4.0	345	2.0	48	4.5	480
1.5	23	4.5	505	2.5	82	5.0	670
2.0	47	5.0	700	3.0	135	5.5	905
2.5	80	5.5	950	3.5	220		
3.0	133						

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	103	206	20	66	47	49	71	558	610	508	244	153
2	103	29	21	63	47	48	70	424	480	504	240	151
3	102	29	20	60	47	48	70	305	459	590	208	148
4	102	32	18	56	47	48	70	250	626	602	177	116
5	101	27	17	52	48	47	70	224	742	566	161	101
6	100	16	16	50	46	47	70	197	742	550	161	88
7	122	16	15	46	46	46	68	172	706	562	161	92
8	144	16	15	46	44	46	68	151	626	452	153	147
9	143	17	20	45	43	46	67	145	365	391	145	141
10	141	16	21	44	41	46	66	157	513	373	151	101
11	141	18	24	43	40	47	64	186	809	342	200	84
12	140	17	22	43	40	47	64	234	885	308	335	73
13	140	16	20	44	39	46	63	280	697	315	272	68
14	139	16	18	45	40	46	62	330	543	345	272	186
15	139	15	16	45	39	46	64	355	412	452	400	352
16	137	14	14	45	39	47	68	452	342	515	355	345
17	136	14	12	45	39	47	67	614	274	504	285	345
18	134	13	21	45	40	48	70	720	262	558	230	340
19	208	12	18	44	41	49	85	674	376	515	175	332
20	305	12	19	45	44	53	99	638	558	470	132	328
21	300	12	30	46	45	55	122	543	679	352	113	325
22	295	14	159	47	46	58	137	385	674	276	104	320
23	285	17	847	49	47	61	138	292	662	254	96	312
24	278	17	637	50	48	59	149	256	540	270	93	312
25	270	21	281	50	49	58	175	250	536	278	84	308
26	302	22	172	45	50	58	192	295	433	274	76	302
27	351	20	121	44	52	58	218	301	361	258	73	322
28	330	19	103	43	50	55	236	486	436	210	72	338
29	321	19	94	43	-----	63	373	634	508	173	71	330
30	399	19	84	45	-----	73	543	679	526	218	73	322
31	429	-----	70	47	-----	73	-----	692	-----	254	108	-----
Total	6,340	731	2,965	1,481	1,244	1,618	3,679	11,879	16,382	12,239	5,420	6,882
Mean	205	24.4	95.6	47.8	44.4	52.2	123	383	546	395	175	229
Ac-ft	12,580	1,450	5,880	2,940	2,470	3,210	7,300	23,560	32,490	24,280	10,750	13,650

Calendar year 1964 Max 847 Min 12 Mean 95.0 Ac-ft 68,940  
 Water year 1964-65 Max 885 Min 12 Mean 194 Ac-ft 140,600

Note--Stage-discharge relation affected by ice Nov. 13-15, 17-22, Dec. 3-9, 13-17, Jan. 1-6, 8-21, 26-30, Feb. 9-23.

11-2925. Clark Fork Stanislaus River near Dardanelle, Calif.

Location.--Lat 38°21'50", long 119°52'30", in SE¼ sec. 15, T.6 N., R.19 E., on right bank 0.3 mile upstream from mouth, and 3 miles northwest of Dardanelle.

Drainage area.--67.5 sq mi.

Records available.--October 1950 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 5,507.3 ft above mean sea level (river-profile survey).

Average discharge.--15 years, 147 cfs (106,400 acre-ft per year).

Extremes.--Maximum discharge during year, 3,020 cfs Dec. 23 (gage height, 10.08 ft); minimum daily, 17 cfs Oct. 3-7, 12, 13, 18-23. 1950-65: Maximum discharge, 4,350 cfs Nov. 20, 1950 (gage height, 11.88 ft), from rating curve extended above 1,100 cfs on basis of slope-area measurement of maximum flow; minimum, 11 cfs Apr. 3, 1958.

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

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Jan. 13-23, Jan. 26 to Mar. 20, Mar. 28 to Apr. 18)

2.3	14	4.0	282
2.5	31	5.0	530
2.7	52	7.0	1,240
3.0	91	9.0	2,300

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	19	29	45	220	110	105	112	605	656	509	158	74
2	18	29	48	200	112	104	109	509	566	530	149	70
3	17	30	40	195	112	104	105	430	611	572	138	69
4	17	32	40	176	114	102	105	395	731	551	129	69
5	17	29	37	164	117	101	107	375	822	539	124	68
6	17	26	34	164	112	101	105	345	822	545	119	68
7	17	26	36	151	107	97	104	308	812	503	116	90
8	19	26	36	150	105	96	104	293	752	462	110	80
9	19	31	45	138	104	96	102	291	704	432	105	70
10	18	23	44	131	104	96	97	311	832	395	104	67
11	18	26	69	128	99	96	96	333	936	355	124	64
12	17	32	45	122	97	96	96	362	924	333	220	63
13	17	31	40	117	96	93	94	418	787	326	147	60
14	18	30	35	117	96	91	94	440	677	328	252	58
15	18	30	30	117	93	93	97	468	581	343	250	57
16	18	30	25	114	93	96	104	578	509	338	226	57
17	18	30	23	114	93	97	102	698	452	352	180	57
18	17	25	30	114	96	99	109	724	428	345	147	57
19	17	25	52	117	101	104	162	762	472	302	128	57
20	17	25	43	114	104	109	230	717	560	273	114	56
21	17	25	75	110	105	122	264	626	623	244	107	56
22	17	30	600	109	109	135	289	500	644	222	102	54
23	17	35	2,220	117	105	140	280	442	602	210	97	53
24	18	35	1,990	124	104	135	317	412	566	210	91	52
25	18	60	842	115	105	126	365	402	545	208	88	52
26	19	56	564	109	112	124	405	448	488	194	83	51
27	19	38	443	105	117	124	442	495	480	176	78	51
28	20	37	360	104	109	116	495	566	492	162	76	51
29	36	39	311	104	-----	116	596	653	503	155	74	49
30	28	40	276	109	-----	116	626	701	518	186	73	48
31	26	-----	247	110	-----	117	-----	707	-----	174	76	-----
Total	588	960	8,725	4,079	2,931	3,347	6,313	15,314	19,095	10,474	3,985	1,828
Mean	19.0	32.0	281	132	105	108	210	494	636	338	129	60.9
Ac-ft	1,170	1,900	17,310	8,090	5,810	6,640	12,520	30,370	37,870	20,770	7,900	3,630

Calendar year 1964 Max 2,220 Min 17 Mean 112 Ac-ft 81,620  
Water year 1964-65 Max 2,220 Min 17 Mean 213 Ac-ft 154,000

Peak discharge (base, 600 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0800	10.08	3,020	6-11	2000	6.93	1,210
4-30	2100	5.72	752	6-21	2000	5.86	801
5-17	2100	6.13	896	8-14	1900	5.57	701

Note.--Stage-discharge relation affected by ice Nov. 14-24, Dec. 12-18, Jan. 1-3, 8, 25.

## SAN JOAQUIN RIVER BASIN

11-2926. Donnell Lake near Dardanelle, Calif.

Location(revised).--Lat 38°19'46", long 119°57'37", in SE $\frac{1}{4}$  sec.35, T.6 N., R.18 E., on left bank in hoist house of Donnell Dam on Middle Fork Stanislaus River, 1.2 miles downstream from Niagara Creek, and 6.9 miles west of Dardanelle.

Drainage area.--230 sq mi.

Records available.--October 1957 to September 1965. Prior to October 1962, published as Donnell Reservoir near Dardanelle.

Gage.--Water-stage recorder. Datum of gage is 4.84 ft above mean sea level (levels by Oakdale and South San Joaquin Irrigation Districts).

Extremes.--Maximum contents during year, 64,300 acre-ft July 16, 18 (gage height, 4,916.0 ft); minimum 4,800 acre-ft Apr. 19. (gage height, 4,735.3 ft).

1957-65: Maximum contents, 64,900 acre-ft May 8, 1963 (gage height, 4,917.3 ft); minimum, that of Apr. 19, 1965.

Remarks.--Records fair. Lake is formed by concrete arch-type dam completed in 1957. Capacity, 62,590 acre-ft between gage heights 4,720.0 ft (minimum operating head) and 4,917.0 ft (top of spillway gates). Lake is for power and conservation storage. Water passes through 7.2-mile tunnel to powerplant and down Middle Fork Stanislaus River to Beardsley Lake (see p. 681). Records represent total contents, of which 2,150 acre-ft is below minimum operating head. See schematic diagram, p. 675.

Capacity table (gage height, in feet, and contents, in acre-feet)

4,735	4,730	4,770	13,400	4,820	28,400
4,740	5,830	4,780	16,200	4,850	38,700
4,750	8,220	4,790	19,100	4,880	49,800
4,760	10,800	4,800	22,100	4,916	64,300

Contents, in thousands of acre-feet, at 2400 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	21.0	16.9	21.2	56.7	42.0	30.4	12.5	29.8	63.6	63.8	63.0	54.8
2	20.0	17.0	21.5	56.6	41.5	30.4	11.9	32.2	63.4	63.9	62.5	54.5
3	20.2	17.2	21.7	56.4	40.9	30.3	11.2	33.7	63.8	64.0	62.3	54.1
4	20.4	17.3	21.9	56.1	40.3	30.1	10.5	34.9	63.9	63.9	61.9	53.7
5	19.7	17.4	22.0	55.8	39.8	29.4	9.92	36.0	63.9	63.9	61.6	53.2
6	18.8	17.5	22.1	55.6	39.3	28.7	9.28	36.9	63.6	64.0	61.5	52.8
7	19.0	17.6	22.3	55.3	38.6	28.0	8.60	37.5	63.6	63.9	61.4	52.2
8	19.3	17.7	22.5	54.8	38.0	27.2	7.95	37.9	63.2	63.9	61.3	51.9
9	19.6	17.9	22.7	54.4	37.4	26.5	7.92	38.4	62.4	63.9	60.9	51.6
10	19.9	18.1	22.9	53.9	36.7	25.7	8.12	39.0	62.5	64.1	60.7	51.1
11	20.2	18.2	23.5	53.4	36.0	25.0	8.02	39.8	63.3	64.1	60.7	50.6
12	19.4	18.5	23.8	52.9	35.2	24.3	7.63	41.1	63.7	64.2	61.3	50.1
13	18.4	18.6	24.0	52.4	34.5	23.5	6.85	42.7	63.3	64.2	61.6	49.5
14	17.5	18.8	24.3	51.8	33.8	22.8	6.62	44.5	62.8	64.2	62.4	49.1
15	16.5	18.9	24.4	51.2	33.0	22.0	6.08	46.6	62.8	64.3	63.5	49.1
16	15.5	19.0	24.6	50.7	32.2	21.2	5.65	49.7	62.6	64.2	63.8	49.0
17	14.6	19.1	24.8	50.1	31.4	20.5	5.21	53.5	62.6	64.3	64.2	49.0
18	13.6	19.3	25.0	49.5	30.6	19.8	4.86	57.7	62.5	64.2	64.2	49.0
19	12.7	19.4	25.2	49.0	30.0	19.1	5.03	61.9	62.7	64.2	63.7	49.0
20	12.0	19.5	25.5	48.5	29.9	18.5	5.65	63.8	63.7	64.0	63.0	48.9
21	11.3	19.6	26.4	48.0	30.1	18.0	7.00	63.4	63.9	64.2	62.3	48.8
22	10.6	19.8	33.4	47.4	30.3	17.6	8.27	63.2	64.0	64.1	61.5	48.7
23	10.7	19.9	52.3	47.0	30.2	17.3	9.20	62.6	63.9	64.0	60.7	48.6
24	11.3	20.0	59.2	46.7	30.0	16.9	10.4	62.6	63.7	64.0	59.8	48.4
25	11.8	20.2	57.7	46.2	30.0	16.4	12.0	63.0	63.7	63.9	59.9	48.3
26	12.3	20.3	57.5	45.6	30.1	15.8	13.7	63.7	63.6	63.8	59.1	48.1
27	13.0	20.4	57.3	45.0	30.3	15.3	16.1	63.7	63.7	63.7	57.4	48.0
28	13.6	20.6	57.1	44.4	30.4	14.7	19.3	63.8	63.7	63.3	56.7	48.0
29	14.4	20.8	57.1	43.7	-----	14.2	22.6	63.6	63.7	62.9	55.9	47.9
30	15.2	21.0	57.0	43.1	-----	13.6	26.3	63.6	63.7	63.0	55.4	47.7
31	16.2	-----	56.9	42.6	-----	13.0	-----	63.6	-----	63.0	55.2	-----
(#)	-5.800	+4.800	+35.900	-14.300	-12.200	-17.400	+13.300	+37.300	+100	-700	-7.800	-7.500

Calendar year 1964..... # +31,500  
 Water year 1964-65..... # +25,700

# Change in contents, in acre-feet.



11-2926.8. Cascade Creek near Pinecrest, Calif.

Location.--Lat 38°16'45", long 119°58'10", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.14, T.5 N., R.18 E., at culvert on State Highway 108, 6.4 miles northeast of town of Pinecrest.

Drainage area.--4.97 sq mi.

Records available.--October 1962 to August 1965, discontinued as a continuous-record station; converted to a crest-stage partial-record station.

Gage.--Water-stage recorder, crest-stage gage, and float-operated recording rain gage. Altitude of gage is 6,020 ft (from topographic map).

Extremes.--Maximum discharge during year, 519 cfs Dec. 24 (gage height, 10.21 ft, in gage well, 10.55 ft outside) from rating curve extended above 220 cfs as explained below; no flow for many days.

1962-65: Maximum discharge, 532 cfs Feb. 1, 1963 (gage height, 10.35 ft in gage well, 10.5 ft outside, from profile of flood-marks), from rating curve extended above 220 cfs on basis of computation of maximum flow through culvert; no flow for many days each year.

Remarks.--Records fair except those for periods of no gage-height record, which are poor. No regulation or diversions above station.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0.1	1.5	15	9.4	9.4	8.8	76	47	5.1	0.2	
2		.3	1.6	15	9.6	9.4	8.6	55	39	4.8	.2	
3		.3	1.1	15	9.5	9.4	8.6	40	42	4.8	.2	
4		0	.8	16	9.5	9.4	8.6	33	47	3.9	.2	
5		0	.5	14	9.8	9.4	8.6	32	47	3.5	.2	
6		0	.4	12	9.4	9.3	8.5	25	43	3.0	.3	
7		0	.3	10	9.0	9.3	8.4	22	35	2.3	.6	
8		0	.3	11	8.9	9.3	8.4	20	26	1.7	.6	
9		.2	.6	12	8.8	9.3	8.3	20	21	1.6	.8	
10		.3	.6	10	8.7	9.3	8.3	20	21	1.4	.8	
11		.2	.8	9.0	8.6	9.2	8.2	20	21	1.1	.8	
12		1.1	.6	8.8	8.6	9.2	8.1	28	20	1.1	2.1	
13		.6	.5	8.8	8.6	9.2	8.0	40	19	.9	.8	
14		.3	.5	8.8	8.6	9.2	8.0	47	18	.8	.8	
15		.2	.5	8.9	8.6	9.2	8.2	55	17	1.1	5.9	
16		.1	.4	8.9	8.6	9.1	8.4	63	18	.9	6.7	
17		.1	.3	8.8	8.6	9.1	8.4	79	18	.6	5.4	
18		.1	.3	8.9	8.9	9.1	8.6	79	17	.5	4.8	
19		.1	.6	9.2	9.0	9.1	16	77	16	.4	4.5	
20		.1	1.6	9.0	9.2	9.1	28	65	16	.4	4.1	
21		.1	6.2	9.0	9.5	9.2	51	58	15	.4	3.8	
22		.1	92	8.9	9.5	9.3	51	47	14	.3	3.5	
23		.1	293	9.0	9.4	9.4	47	37	13	.3	3.5	
24		.1	337	10	9.4	9.5	53	35	12	.3		
25		1.0	95	9.0	9.5	9.3	56	37	11	.3		
26		1.4	61	8.8	9.5	9.2	61	45	10	.3	-	
27		.9	47	8.8	9.5	9.0	72	47	9.0	.3	-	
28		.6	35	8.8	9.4	9.0	82	52	8.0	.3	-	
29		.9	30	8.8	-----	9.0	89	55	7.0	.2	-	
30		.8	25	9.0	-----	9.0	90	55	6.0	.2	-	
31		-----	20	9.2	-----	9.0	-----	55	-----	.2	-	-----
Total	0	10.1	1055.0	318.4	255.6	285.9	847.0	1419	653.0	43.0	-	-
Mean	0	0.34	34.2	10.3	9.13	9.22	28.2	45.8	21.8	1.39	-	-
Ac-ft	0	20	2090	632	507	567	1680	2810	1300	85	-	-
(†)	2.17	4.11	-	-	1.89	2.50	5.56	0.87	1.44	0.17	-	-

Calendar year 1964: Max 337 Min 0 Mean 7.27 Ac-ft 5,280

Water year 1964-65: Max - Min - Mean - Ac-ft -

Peak discharge (base, 30 cfs).

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-24	0430	10.21	519	5-30	1900	4.78	69
4-30	1900	5.39	116	8-15	1600	4.23	44
5-17	1700	5.38	116				

† Precipitation, in inches (some precipitation falling as snow may not be included).

Note.--No gage-height record, Dec. 10-19, Dec. 28 to Apr. 19, June 12-30.

## SAN JOAQUIN RIVER BASIN

11-2927. Middle Fork Stanislaus River at Hells Half Acre Bridge, Calif.

Location.--Lat 38°14'49", long 120°02'02", in NE $\frac{1}{4}$  sec.31, T.5 N., R.18 E., on left bank 200 ft upstream from Donnell powerhouse, 800 ft downstream from Hells Half Acre Bridge, 1.1 miles upstream from Cow Creek, and 3.7 miles northwest of Strawberry.

Drainage area.--287 sq mi.

Records available.--February 1956 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 3,410.94 ft above mean sea level (Oakdale and South San Joaquin Irrigation Districts bench mark). Prior to Aug. 9, 1961, at site 1,600 ft upstream at different datum.

Average discharge.--9 years, 228 cfs (165,100 acre-ft per year).

Extremes.--Maximum discharge during year 10,200 cfs Dec. 24 (gage height, 13.64 ft in gage well, 14.2 ft outside, from floodmarks), from rating curve extended above 2,100 cfs on basis of computation of peak inflow to Beardsley Lake at 12.20 ft; minimum daily, 8.4 cfs Nov. 4.

1956-65: Maximum discharge, that of Dec. 24, 1964; minimum, 3.3 cfs Nov. 9, 10, 1957.

Maximum stage known since at least 1905, about 23 ft Dec. 23, 1955, from floodmarks at present site (discharge, 26,600 cfs by slope-area measurement).

Remarks.--Records good. Flow regulated by Relief Reservoir since 1909 (capacity, 15,600 acre-ft), and by Donnell Lake (see p. 678), and by diversion around station through Donnell powerhouse. See schematic diagram, p. 675.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used May 20 to June 5)

Oct. 1 to Dec. 24, June 7 to Sept. 30

Dec. 24 to June 6

2.3	6.0	3.2	56	7.0	1,280	4.0	130	7.0	1,240
2.4	9.0	3.5	85	9.0	3,020	4.5	207	9.0	3,020
2.5	12	4.0	150	11.0	5,610	5.0	312	11.0	5,610
2.6	18	4.5	238	13.0	9,040	5.5	455	13.0	9,040
2.8	29	5.0	360			6.0	660		
3.0	41	6.0	725						

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	33	20	24	317	246	187	182	598	1,840	890	34	34
2	33	25	39	287	238	180	177	506	1,510	743	33	33
3	32	11	33	276	234	176	170	408	1,240	960	32	33
4	32	9.4	26	254	232	176	174	384	1,790	1,040	31	33
5	32	27	24	254	279	172	177	378	2,170	905	31	33
6	32	21	21	425	285	168	177	350	2,330	965	31	33
7	31	15	20	396	244	159	168	312	1,990	935	30	39
8	33	15	20	307	228	153	166	298	2,000	702	30	36
9	33	23	21	287	216	152	164	298	1,760	619	30	35
10	34	33	23	280	202	154	156	314	1,680	375	34	33
11	34	20	116	265	193	156	156	319	1,750	417	35	33
12	34	54	89	252	187	165	153	341	2,120	247	67	33
13	33	31	50	238	182	154	154	378	2,020	232	51	31
14	33	16	41	238	179	152	154	390	1,620	288	43	31
15	33	12	37	252	170	150	168	417	1,160	390	55	30
16	32	11	34	244	170	148	200	469	815	595	81	30
17	32	11	31	244	166	150	213	502	640	506	207	30
18	31	10	29	252	168	152	232	494	615	694	689	30
19	31	9.4	37	278	174	159	312	486	615	496	192	31
20	31	12	64	282	180	165	411	1,370	623	516	47	30
21	34	16	247	265	187	180	594	2,260	1,100	188	44	33
22	33	16	2,020	252	193	195	655	1,470	1,300	106	42	33
23	33	17	4,090	284	180	202	538	1,320	1,320	25	40	33
24	33	18	7,410	420	174	195	554	926	1,100	31	36	31
25	34	21	3,820	312	174	176	586	720	1,040	32	34	31
26	34	36	2,360	285	177	174	602	755	870	30	34	31
27	34	31	1,820	267	218	185	635	1,170	619	29	33	32
28	35	22	995	252	205	172	655	1,470	761	28	33	32
29	42	20	715	246	-----	176	685	2,030	870	34	32	35
30	20	21	552	254	-----	174	670	2,160	910	34	34	33
31	18	-----	418	259	-----	179	-----	2,120	-----	34	34	-----
Total	999	602.8	25,225	8,724	5,680	5,236	10,038	25,413	40,178	13,086	2,179	975
Mean	32.2	20.1	814	281	203	169	335	820	1,339	422	70.3	32.5
Ac-ft	1,980	1,200	50,030	17,300	11,270	10,390	19,910	50,410	79,690	25,960	4,320	1,930

Calendar year 1964 Max 7,410 Min 8.4 Mean 154 Ac-ft 111,900  
Water year 1964-65 Max 7,410 Min 8.4 Mean 379 Ac-ft 274,400

11-2928. Beardsley Lake near Strawberry, Calif.

Location.--Lat 38°12'17", long 120°04'31", in NW $\frac{1}{4}$  sec.14, T.4 N., R.17 E., in hoist house of Beardsley Dam on Middle Fork Stanislaus River, 2.4 miles upstream from Spring Gap powerhouse, 3.9 miles west of Strawberry, and 4.7 miles west of Pinecrest.

Drainage area.--309 sq mi.

Records available.--June 1957 to September 1965. Prior to October 1960, published as Lake Hartley near Strawberry.

Gage.--Water-stage recorder. Datum of gage is 7.84 ft above mean sea level (levels by Oakdale and South San Joaquin Irrigation Districts).

Extremes.--Maximum contents during year, 97,900 acre-ft July 15, 16 (gage height, 3,397.2 ft); minimum, 36,900 acre-ft Dec. 21 (gage height, 3,297.5 ft).

1957-65: Maximum contents, 98,700 acre-ft June 27, 1957 (gage height, 3,398.2 ft); no contents at times during period of no gage-height record in November 1957.

Remarks.--Records good. Reservoir is formed by rock-fill, earth-core dam completed in 1957. Capacity, 98,300 acre-ft between gage heights 3,145.0 ft (tunnel invert) and 3,398.0 ft (top of spillway gates). No dead storage. Reservoir is used for power and conservation storage. Water passes through powerplant and down Middle Fork Stanislaus River to Malones Reservoir (see p. 692). See schematic diagram, p. 675.

Capacity table (gage height, in feet, and contents, in acre-ft)

3,290	33,100
3,300	38,100
3,320	48,800
3,350	66,400
3,380	85,900
3,398	98,500

Contents, in acre-ft, at 2400 hours, October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	77,300	79,400	52,800	78,400	78,300	77,000	78,400	78,800	97,300	97,400	97,800	96,700
2	77,700	78,200	51,700	78,400	78,300	76,900	78,400	78,700	97,500	97,600	97,800	96,400
3	76,900	77,100	51,000	78,400	78,300	76,900	78,300	78,600	97,600	97,800	97,800	96,200
4	76,000	76,400	50,200	78,300	78,300	76,900	78,300	78,600	97,500	97,700	97,800	95,900
5	76,100	75,100	49,200	78,400	78,400	77,400	78,300	78,900	97,700	97,500	97,900	95,600
6	76,200	74,100	48,300	78,700	78,400	77,900	78,400	79,000	97,400	97,600	97,700	95,400
7	75,300	73,200	47,400	78,500	78,300	78,200	78,400	78,900	96,800	97,600	97,400	95,200
8	74,400	72,100	46,500	78,400	78,300	78,200	78,400	78,800	96,600	97,500	97,200	95,000
9	73,400	71,300	45,700	78,400	78,200	78,200	78,100	78,800	97,700	97,700	97,100	94,600
10	72,500	70,400	44,800	78,400	78,300	78,300	77,800	78,800		97,400	97,100	94,400
11	71,500	69,600	44,300	78,400	78,300	78,300	77,700	78,800		97,700	97,100	94,000
12	72,500	68,900	43,600	78,300	78,300	78,300	77,800	78,800		97,800	97,200	93,700
13	73,700	68,400	42,800	78,300	78,300	78,300	78,200	78,900		97,700	97,200	93,400
14	74,900	67,600	42,000	78,300	78,300	78,300	78,000	79,600		97,700	97,200	93,000
15	76,100	66,700	41,200	78,300	78,200	78,300	78,200	80,700		97,900	97,200	92,700
16	77,300	65,900	40,300	78,300	78,400	78,300	78,300	81,800	93,300	97,700	97,500	92,400
17	78,600	65,000	39,400	78,300	78,400	78,300	78,300	83,100	93,800	97,700	97,400	92,100
18	79,800	64,000	38,400	78,300	78,400	78,300	78,300	84,300	94,300	97,800	97,400	91,800
19	81,000	63,000	37,800	78,400	78,300	78,300	78,400	85,500	94,800	97,700	97,700	91,300
20	82,200	62,000	37,300	78,400	78,000	78,300	78,600	88,300	95,300	97,800	97,700	91,000
21	83,400	60,900	36,900	78,400	77,700	78,300	78,800	90,700	96,900	97,700	97,800	90,700
22	84,600	59,900	40,400	78,300	77,400	78,400	78,800	90,500	97,500	97,800	97,900	90,400
23	85,100	58,900	49,600	78,400	77,400	78,400	78,700	90,600	97,500	97,800	97,800	90,000
24	85,100	58,000	65,900	78,500	77,400	78,400	78,700	90,400	97,400	97,700	97,900	89,700
25	85,100	57,200	74,000	78,400	77,300	78,400	78,700	90,400	97,700	97,800	97,800	89,400
26	85,100	56,400	79,000	78,400	77,100	78,400	78,800	90,600	97,600	97,900	97,700	89,000
27	84,500	55,900	79,400	78,400	77,100	78,400	78,800	91,700	97,600	97,900	97,700	88,600
28	83,900	55,400	79,000	78,300	77,100	78,400	78,700		97,400	97,900	97,700	88,200
29	83,000	54,500	78,800	78,400	-----	78,400	78,800	95,900	97,600	97,800	97,700	87,900
30	81,800	53,700	78,600	78,400	-----	78,300	78,800	97,600	97,700	97,800	97,400	87,500
31	80,500	-----	78,500	78,400	-----	78,400	-----	97,500	-----	97,800	97,000	-----
(+)	3,372.1	3,372.7	3,369.0	3,368.8	3,366.8	3,368.8	3,369.5	3,396.6	3,396.8	3,397.0	3,395.9	3,382.4
(+)	+3,500	-26,800	+24,800	-100	-1,300	+1,300	+400	+18,700	+200	+100	-800	-9,500

Calendar year 1964:..... # +26,800

Water year 1964-65:..... # +10,500

† Elevation, in feet, at end of month.

# Change in contents, in acre-feet.

## SAN JOAQUIN RIVER BASIN

11-2929. Middle Fork Stanislaus River below Beardsley Dam, Calif.

Location.--Lat 38°11.'36", long 120°05.'53", in NW $\frac{1}{4}$  sec.22, T.4 N., R.17 E., on right bank 0.5 mile downstream from Beardsley powerhouse afterbay dam, 1.5 miles downstream from Beardsley Dam, and 5.7 miles west of town of Pinecrest.

Drainage area.--316 sq mi.

Records available.--December 1956 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 3,044.7 ft above mean sea level (river-profile survey).

Average discharge.--8 years, 555 cfs (401,800 acre-ft per year).

Extremes.--Maximum discharge during year, 3,430 cfs June 5 (gage height, 9.26 ft); minimum daily, 36 cfs Oct. 19, 25, 26.  
1956-65: Maximum discharge, 5,860 cfs May 23, 1958 (gage height, 10.48 ft); minimum daily, 3.0 cfs Oct. 10, 11, 1958.

Remarks.--Records good. No diversion above station. Flow regulated by Relief Reservoir (capacity, 15,600 acre-ft), Donnell Lake from April 1957 (see p. 678), and by Beardsley Lake since January 1957 (see preceding page). See schematic diagram, p. 675.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	465	610	532	1100	986	624	970	1590	2710	1710	642	612
2	458	610	508	1010	980	624	964	1440	2130	1420	608	612
3	458	608	493	1010	975	620	948	1250	1850	1620	612	616
4	458	568	496	975	975	620	948	1200	2560	1860	512	620
5	458	496	496	970	1010	624	948	1050	2830	1750	588	620
6	472	536	493	1190	1080	624	970	1070	3230	1670	548	620
7	482	520	496	1320	1020	720	958	1200	3100	1670	596	624
8	490	524	493	1130	992	843	970	1110	3040	1490	576	624
9	493	512	479	1040	953	870	785	1090	2990	1270	524	629
10	496	500	454	1020	932	876	656	1090	2930	1240	520	634
11	500	496	462	1000	958	876	638	1100	2870	980	508	634
12	113	496	458	986	953	898	642	1080	2850	887	496	634
13	39	256	472	970	948	898	780	1120	2850	986	512	634
14	43	440	486	964	953	882	800	829	2660	1020	504	638
15	42	454	490	975	948	876	805	620	1920	1010	516	638
16	40	451	490	980	953	882	914	624	1350	1420	624	638
17	40	465	486	975	948	887	970	624	1110	1190	612	642
18	37	528	500	980	948	898	986	629	1110	1390	688	647
19	36	528	444	1010	942	898	1040	634	1130	1250	683	647
20	38	552	401	1040	826	898	1170	696	1130	1170	775	656
21	40	556	463	1010	634	920	1380	1870	1130	1020	745	656
22	39	548	477	997	624	936	1600	2460	1690	720	750	660
23	40	528	507	1000	629	953	1460	2040	2110	765	750	665
24	38	496	619	1240	620	948	1400	1840	1890	770	760	665
25	36	512	696	1120	620	936	1470	1490	1670	696	770	665
26	36	528	862	1050	624	936	1480	1420	1700	735	725	665
27	227	326	2910	1010	629	970	1550	1430	1350	755	600	678
28	610	243	2220	997	624	948	1320	1470	1540	755	612	683
29	610	458	1700	992	-----	948	1500	1520	1590	735	612	683
30	610	520	1420	1000	-----	942	1630	2090	1640	674	612	683
31	610	-----	1230	992	-----	948	-----	3070	-----	647	612	-----
Total	8554	14,865	22,733	32,053	24,284	26,323	32,652	40,746	62,660	35,275	19,292	19,322
Mean	276	496	733	1,034	867	849	1,088	1,314	2,089	1,138	622	644
Ac-ft	16,970	29,480	45,090	63,580	48,170	52,210	64,760	80,820	124,300	69,970	38,270	38,320

Calendar year 1964 Max 2,910 Min 26 Mean 416 Ac-ft 301,700  
Water year 1964-65 Max 3,230 Min 36 Mean 928 Ac-ft 671,900

11-2930. Middle Fork Stanislaus River at Sand Bar Flat, near Avery, Calif.

Location.--Lat 38°11'12", long 120°08'28", in SE¼ sec.19, T.4 N., R.17 E., on left bank 1 mile upstream from diversion dam of Pacific Gas & Electric Co. at Sand Bar Flat, 6.5 miles north of Long Barn, and 13 miles southeast of Avery.

Drainage area.--325 sq mi.

Records available.--September 1905 to September 1965. Records for water year 1909 incomplete, yearly estimate published in WSP 1315-A.

Gage.--Water-stage recorder. Datum of gage is 2,755 ft above mean sea level (river-profile survey). Prior to Mar. 19, 1928, staff gage at diversion dam 1 mile downstream at different datum. Mar. 19, 1928, to October 1938, water-stage recorder at site 150 ft downstream at present datum.

Average discharge.--60 years, 691 cfs (500,300 acre-ft per year) unadjusted.

Extremes.--Maximum discharge during year, 3,510 cfs June 6 (gage height, 9.66 ft); minimum daily, 55 cfs Oct. 19, 25, 26.

1905-57 (prior to regulation by Donnell and Beardsley Lakes): Maximum discharge, 26,000 cfs Dec. 23, 1955 (gage height, 20.2 ft, from floodmarks), from rating curve extended above 6,000 cfs on basis of computation of maximum flow over dam; minimum daily, 30 cfs Nov. 28, 1919, Aug. 24, 1924.

1957-65: Maximum discharge, 6,030 cfs May 23, 1958 (gage height, 11.60 ft); minimum daily, 12 cfs Oct. 11, 1958.

Remarks.--Records good. Flow regulated by Relief Reservoir since 1909 (capacity, 15,600 acre-ft), Donnell Lake since April 1957 (see p. 678), and Beardsley Lake since January 1957 (see p. 681). Water diverted by Philadelphia Canal (see p. 689) from South Fork Stanislaus River through Spring Gap powerhouse into Middle Fork above station. Stanislaus tunnel diverts 1 mile downstream to Stanislaus powerhouse on Stanislaus River at Stanislaus. See schematic diagram, p. 675.

Cooperation.--Water-stage-recorder graph and nine discharge measurements furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	519	674	547	1,140	1,050	698	1,020	1,520	2,760	1,620	642	642
2	519	666	534	1,080	1,040	694	1,020	1,400	2,240	1,390	622	638
3	516	650	519	1,060	1,040	694	1,000	1,260	2,100	1,540	642	646
4	513	596	519	1,020	1,040	694	1,000	1,220	2,530	1,790	638	646
5	513	507	522	1,020	1,080	694	1,010	1,100	2,870	1,720	618	646
6	516	544	519	1,330	1,140	698	1,020	1,110	3,350	1,620	558	646
7	513	531	519	1,430	1,090	778	1,020	1,220	3,190	1,620	589	654
8	516	534	522	1,200	1,040	890	1,020	1,160	3,150	1,420	578	654
9	519	547	519	1,120	995	918	846	1,140	3,100	1,240	531	658
10	522	540	498	1,100	950	922	738	1,140	3,040	1,230	534	662
11	522	540	504	1,080	975	922	710	1,160	3,000	965	522	662
12	163	540	495	1,040	970	945	714	1,140	2,990	850	516	662
13	58	287	504	1,030	965	936	818	1,160	3,000	945	522	658
14	60	477	504	1,020	965	926	846	932	2,820	1,020	522	662
15	59	486	504	1,040	945	926	838	734	2,040	980	528	662
16	62	480	504	1,040	945	926	931	738	1,410	1,350	646	666
17	60	495	522	1,030	936	931	990	726	1,170	1,170	634	666
18	56	550	534	1,040	931	936	1,000	726	1,170	1,340	714	666
19	55	550	491	1,080	926	940	1,040	722	1,190	1,220	698	666
20	56	572	454	1,110	846	945	1,170	758	1,190	1,130	786	678
21	59	575	522	1,080	706	960	1,360	1,850	1,190	995	762	674
22	58	568	608	1,060	698	975	1,580	2,530	1,750	746	758	678
23	58	554	711	1,080	702	1,000	1,450	2,110	2,140	770	766	682
24	58	528	907	1,310	694	995	1,400	1,900	1,910	778	766	682
25	55	534	960	1,180	694	985	1,440	1,510	1,620	714	778	682
26	55	544	1,070	1,120	694	995	1,450	1,460	1,640	742	750	682
27	129	382	2,890	1,090	702	1,040	1,500	1,450	1,300	742	630	694
28	429	238	2,220	1,060	694	1,010	1,340	1,500	1,470	738	638	702
29	483	480	1,690	1,060	-----	1,000	1,450	1,570	1,510	730	638	702
30	674	534	1,450	1,070	-----	995	1,570	2,100	1,590	678	638	702
31	662	-----	1,290	1,060	-----	990	-----	3,020	-----	642	634	-----
Total	9,037	15,703	24,552	34,180	25,453	27,958	33,291	42,066	64,430	34,435	19,798	20,020
Mean	292	523	792	1,103	909	902	1,110	1,357	2,148	1,111	639	667
Ac-ft	17,920	31,150	48,700	67,800	50,490	55,450	66,030	83,440	127,800	68,300	39,270	39,710

Calendar year 1964 Max 2,890 Min 55 Mean 467 Ac-ft 339,300  
 Water year 1964-65 Max 3,350 Min 55 Mean 961 Ac-ft 696,100

Note.--No gage-height record June 16-22.

11-2935. North Fork Stanislaus River below Silver Creek, Calif.

Location.--Lat 38°26'22", long 120°00'53", in SE¼ sec.20, T.7 N., R.18 E., on right bank 100 ft downstream from Silver Creek and 5.6 miles northeast of Big Meadow.

Drainage area.--27.8 sq mi.

Records available.--October 1952 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 6,677.3 ft above mean sea level (river-profile survey).

Average discharge.--13 years, 70.6 cfs (51,110 acre-ft per year).

Extremes.--Maximum discharge during year, 2,780 cfs Dec. 24 (gage height, 11.16 ft, from floodmarks), from rating curve extended above 500 cfs; minimum daily, 4.0 cfs Sept. 6.

1952-65: Maximum discharge, that of Dec. 24, 1964; minimum daily, 0.3 cfs Oct. 10, 1958.

Flood of Nov. 20, 1950, reached a stage of 11.17 ft, from Pacific Gas & Electric Co. recorder chart (discharge, 2,790 cfs).

Remarks.--Records fair. Flow regulated by Lake Alpine, Union, and Utica Reservoirs (combined capacity, 9,600 acre-ft). No diversion above station. See schematic diagram, p. 675.

Cooperation.--Water-stage-recorder graph and six discharge measurements furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 22

Dec. 23 to Sept. 30

1.9	5.3	4.2	70	1.7	3.5	4.0	69	8.0	820
2.1	7.2	5.0	136	2.0	6.2	4.5	104	9.0	1,270
2.4	11	6.0	283	2.5	13	5.0	156	10.0	1,880
3.0	21	7.0	520	3.0	25	6.0	296		
3.6	41			3.5	43	7.0	507		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	26	5.8	27	61	72	70	89	447	340	114	8.5	5.0
2	20	7.5	29	56	71	66	83	349	301	102	8.6	4.6
3	20	8.8	23	62	71	67	76	264	326	101	8.3	4.3
4	20	7.6	21	67	70	70	78	261	365	102	7.8	4.1
5	20	6.4	20	70	76	67	82	270	377	93	7.2	4.1
6	20	6.9	19	85	78	66	81	248	359	85	6.8	4.0
7	20	12	19	63	70	65	78	210	229	74	6.1	4.5
8	20	12	20	64	62	62	75	205	306	66	5.9	4.8
9	20	14	28	71	61	62	78	242	285	56	5.3	4.2
10	19	15	27	81	59	65	81	299	313	50	5.0	4.2
11	19	15	56	75	58	68	73	236	327	43	5.5	5.4
12	19	16	38	68	56	74	68	355	318	40	4.3	5.9
13	19	16	26	66	56	72	68	391	285	39	101	6.0
14	19	17	24	65	56	64	64	391	242	37	60	6.1
15	19	18	24	67	56	65	70	407	209	20	72	6.0
16	19	18	22	70	55	72	81	467	192	9.7	138	6.0
17	19	18	21	67	56	79	86	507	170	10	96	5.7
18	18	18	20	65	60	78	98	494	164	16	94	5.4
19	18	19	19	66	68	90	190	471	166	20	46	5.4
20	18	19	19	70	76	99	329	443	205	23	29	5.4
21	17	20	63	69	81	124	418	302	231	21	21	5.3
22	17	19	333	65	84	147	431	294	221	18	16	5.3
23	17	19	803	65	78	153	357	248	207	16	13	5.2
24	17	13	1,700	89	71	132	351	261	185	14	10	5.2
25	16	17	621	86	74	98	383	285	184	14	8.9	5.2
26	16	22	367	70	83	98	398	317	161	13	8.7	5.2
27	14	20	220	63	95	107	415	359	128	11	7.8	5.2
28	12	18	125	62	84	89	438	363	116	10	7.1	20
29	12	22	100	61	-----	86	510	375	112	9.4	6.3	36
30	9.5	22	77	67	-----	89	504	385	116	8.7	6.0	36
31	7.8	-----	66	72	-----	91	-----	353	-----	8.6	5.7	-----
Total	547.3	462.0	4,977	2,128	1,937	2,635	6,133	10,499	7,140	1,244.4	864.5	229.7
Mean	17.7	15.4	161	68.6	69.2	85.0	204	339	238	40.1	27.9	7.66
Ac-ft	1,090	916	9,870	4,220	3,840	5,730	12,160	20,820	14,160	2,470	1,710	456

Calendar year 1964 Max 1,700 Min 4.1 Mean 63.6 Ac-ft 46,150  
 Water year 1964-65 Max 1,700 Min 4.0 Mean 106 Ac-ft 76,940

Peak discharge (base, 300 cfs)

Note.--No gage-height record Dec. 27 to Jan. 13.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-24	0800	11.16	2,780	5-18	0030	7.28	583
4-29	2230	7.26	578	6-4	0430	6.55	400

11-2940. Highland Creek below Spicer Meadows Reservoir, Calif.

Location.--Lat 38°23'50", long 119°59'30", in SW¼ sec.3, T.6 N., R.18 E., on right bank just downstream from Spicer Meadows Reservoir dam, 5.5 miles upstream from mouth and 7 miles east of Big Meadow.

Drainage area.--42.4 sq mi.

Records available.--October 1952 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 6,374.8 ft above mean sea level (river-profile survey).

Average discharge.--13 years, 114 cfs (82,530 acre-ft per year).

Extremes.--Maximum discharge during year, 7,400 cfs Dec. 23 (gage height, 10.96 ft), from rating curve extended above 1,200 cfs; no flow Oct. 1 to Dec. 1, Dec. 4-6.

1952-65: Maximum discharge, 9,860 cfs Jan. 31, 1963 (gage height, 11.88 ft), from rating curve extended above 1,200 cfs; no flow Sept. 28 to Dec. 1, Dec. 4-6, 1964.

Flood of Nov. 20, 1950, reached a stage of 11.50 ft, from Pacific Gas & Electric Co. recorder chart (discharge, 8,800 cfs).

Remarks.--Records good except those for periods of no gage-height record or ice effect, which are fair. Flow regulated by Spicer Meadows Reservoir (capacity, 4,060 acre-ft). See schematic diagram, p. 675.

Cooperation.--Water-stage-recorder graph and six discharge measurements furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission Project.

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 23							Dec. 24 to Sept. 30				
0	0	0.8	3.4	3.0	84	6.0	890	1.7	20	4.5	350
.1	.2	1.0	5.6	3.5	130	7.0	1,550	2.0	30	5.0	500
.2	.4	1.3	10	4.0	206	8.5	3,020	2.5	54	6.0	910
.3	.7	1.6	17	4.5	309	10.0	5,260	3.0	87	7.0	1,550
.4	1.0	2.0	30	5.0	450			3.5	145	8.5	3,020
.6	2.0	2.5	52	5.5	645			4.0	235	10.0	5,260

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			0	180	85	98	124	709	556	249	37	37
2			.1	165	87	92	108	432	479	259	30	37
3			.1	150	92	94	104	378	570	271	26	42
4			0	145	102	98	108	365	645	239	28	45
5			0	140	117	94	113	372	677	223	29	45
6			0	135	106	93	112	335	633	217	32	45
7			.1	130	85	84	103	275	605	189	34	45
8			.1	110	82	80	100	267	535	160	40	45
9			.1	105	79	82	98	320	500	140	44	44
10			.1	100	64	87	92	372	591	112	44	44
11			.2	97	69	89	86	414	633	107	44	44
12			.1	94	69	102	82	486	591	96	71	43
13			.1	92	69	85	83	560	482	91	90	42
14			.1	90	70	81	83	570	408	88	68	42
15			.1	90	66	86	99	617	352	112	126	42
16			.1	90	64	94	130	761	310	93	115	41
17			.1	90	69	102	129	830	269	96	140	40
18			.1	90	76	105	146	825	265	96	106	40
19			.1	90	90	124	302	810	305	78	64	40
20			.1	90	103	138	465	753	375	69	50	38
21			.5	85	110	170	621	673	390	63	44	36
22			419	87	117	207	591	438	381	54	44	36
23			4,710	90	103	215	472	370	342	48	44	35
24			4,120	92	99	185	570	384	312	46	44	35
25			1,220	87	104	145	580	417	328	45	44	34
26			585	83	115	136	598	510	271	42	44	34
27			386	81	132	133	633	574	259	38	43	42
28			280	80	110	118	665	629	261	31	43	34
29			239	80	-----	121	820	689	263	28	43	21
30			215	82	-----	125	825	677	269	30	43	21
31			195	84	-----	129	-----	621	-----	49	40	-----
Total	0	0	12,371.2	3,204	2,534	3,592	9,042	16,433	12,857	3,459	1,694	1,169
Mean	0	0	399	103	90.5	116	301	530	429	112	54.6	39.0
Ac-ft	0	0	24,540	6,360	5,030	7,120	17,930	32,590	25,500	6,860	3,360	2,320

Calendar year 1964 Max 4,710 Min 0 Mean 106 Ac-ft 76,680  
 Water year 1964-65 Max 4,710 Min 0 Mean 182 Ac-ft 131,600

Peak discharge (base, 500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	1500	10.96	7,400	5-17	2130	6.50	1,210
4-21	1830	6.06	946	5-29	2200	5.96	890
4-29	2030	6.42	1,160	6-4	2030	5.88	850

Note.--No gage-height record Dec. 30 to Jan. 28. Stage-discharge relation affected by ice Jan. 29 to Feb. 3, Feb. 7, 10-13, 15-17.

## SAN JOAQUIN RIVER BASIN

11-2943. North Fork Stanislaus River below Ganns damsite, near Big Meadow, Calif.

Location.--Lat 38°24'05", long 120°06'40", in SW<sup>1</sup>/<sub>4</sub> sec. 4, T. 6 N., R. 17 E., on left bank 0.25 mile upstream from Big Meadow Creek and 0.9 mile south of Big Meadow.

Drainage area.--111. sq mi.

Records available.--October 1960 to September 1965. Prior to October 1963, published as "below Ganns damsite."

Gage.--Water-stage recorder. Datum of gage is 5,405 ft above mean sea level (from river-profile survey).

Average discharge.--5 years, 294 cfs (212,800 acre-ft per year).

Extremes.--Maximum discharge during year, 17,300 cfs Dec. 24 (gage height, 15.22 ft), from rating curve extended above 2,000 cfs as explained below; minimum daily, 5.4 cfs Nov. 6.

1960-65: Maximum discharge, 21,000 cfs Jan. 31, 1963 (gage height, 16.12 ft; 16.4 ft from floodmarks), from rating curve extended above 2,000 cfs on basis of slope-area measurement of maximum flow; minimum, that of Nov. 6, 1964.

Flood of December 1955 reached a stage of 17.0 ft, from floodmarks on right bank (discharge, about 18,000 cfs).

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Flow regulated at low and medium stages by four reservoirs (combined capacity, 13,600 acre-ft). See schematic diagram, p. 675.

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 29

Apr. 30 to Sept. 30

1.2	5.0	4.5	272	2.2	37	4.0	186
1.4	8.5	5.0	402	2.5	51	4.5	276
1.6	14	6.0	750	3.0	80	5.0	402
2.0	29	7.0	1,270	3.5	121		
2.5	56	8.0	2,040				
3.0	87	10.0	4,240				
3.5	126	12.0	7,880				
4.0	186	14.0	13,100				

Note.--Same as preceding table above 5.0 ft.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	26	7.9	55	500	276	266	315	2,000	1,320	388	47	42
2	13	12	69	450	272	243	287	1,400	1,130	366	41	41
3	18	11	44	400	263	254	264	955	1,330	388	37	42
4	18	9.2	35	375	272	264	281	950	1,550	377	37	45
5	18	6.4	30	350	323	250	299	985	1,580	333	39	45
6	18	5.4	30	330	304	241	290	850	1,450	320	39	45
7	18	3.3	27	310	250	227	266	679	1,320	289	40	50
8	18	11	30	300	231	217	254	663	1,170	252	40	48
9	18	20	51	290	224	224	243	782	985	224	45	46
10	18	23	51	280	220	239	241	1,020	1,210	192	44	45
11	19	20	264	270	200	241	224	1,200	1,270	170	47	45
12	17	27	109	260	195	270	217	1,390	1,200	149	166	46
13	17	23	80	250	192	239	215	1,590	935	133	212	45
14	18	21	49	245	195	224	215	1,650	750	133	106	45
15	17	22	44	240	186	232	256	1,760	646	144	222	44
16	17	21	35	243	183	250	344	2,120	624	117	262	44
17	17	21	27	243	194	274	355	2,350	527	100	335	43
18	17	22	35	241	215	279	414	2,250	486	125	265	42
19	17	23	37	256	247	323	773	2,190	543	101	125	42
20	17	24	85	254	279	361	1,340	2,000	656	93	86	42
21	16	25	633	243	299	442	2,100	1,770	693	83	70	41
22	16	26	4,170	236	313	527	1,960	1,090	673	72	63	40
23	16	26	10,200	287	283	543	1,440	890	607	63	59	40
24	16	21	10,400	429	266	477	1,510	955	530	60	56	39
25	15	36	2,640	270	279	365	1,730	1,040	551	60	54	39
26	15	43	1,560	240	303	350	1,820	1,260	467	55	52	39
27	13	33	993	231	353	350	1,950	1,460	399	50	51	40
28	12	28	900	222	306	304	2,130	1,540	396	44	49	46
29	20	38	750	227	-----	313	2,460	1,650	382	40	43	50
30	14	38	650	254	-----	326	2,370	1,650	403	39	46	50
31	3.1	-----	550	274	-----	339	-----	1,490	-----	52	46	-----
Total	521.1	657.7	34,633	9,010	7,143	9,465	26,574	43,573	25,803	5,022	2,927	1,311
Mean	16.8	21.9	1,117	291	255	305	986	1,406	860	162	91.2	43.7
Ac-ft	1,030	1,300	68,700	17,870	14,180	18,770	52,710	86,440	51,180	9,960	5,610	2,600

Calendar year 1964 Max 10,400 Min 5.4 Mean 271 Ac-ft 196,800  
 Water year 1964-65 Max 10,400 Min 5.4 Mean 456 Ac-ft 330,400

Peak discharge (base, 1,400 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-24	0600	15.22	17,300	5-17	2200	9.02	3,030
4-21	2000	8.97	2,980	5-29	2300	8.00	2,040
4-29	2100	9.20	3,230	6-4	2300	7.88	1,930

Note.--No gage-height record Dec. 28 to Jan. 15. Stage-discharge relation affected by ice Dec. 4, 6, 13, 16-18, Jan. 25, 26, Feb. 10-12.



11-2945. North Fork Stanislaus River near Avery, Calif.

Location.--Lat 38°14'45", long 120°17'20", in NE¼ sec.35, T.5 N., R.15 E., on right bank 700 ft upstream from intake of Utical Canal, 3.3 miles upstream from Beaver Creek, and 5.1 miles northeast of Avery.

Drainage area.--163 sq mi.

Records available.--July 1914 to September 1925, November 1928 to September 1965. Yearly discharge only for some years, published in WSP 1315-A.

Gage.--Water-stage recorder. Datum of gage is 3,388.3 ft above mean sea level (river-profile survey). Prior to September 1922, staff gage at same site at datum 0.05 ft lower.

Average discharge.--48 years, 410 cfs (296,800 acre-ft per year).

Extremes.--Maximum discharge during year, 29,000 cfs Dec. 24 (gage height, 14.00 ft); minimum daily, 13 cfs Nov. 7.

1914-22, 1928-65: Maximum discharge, 36,000 cfs Jan. 31, 1963 (gage height, 15.00 ft, from floodmarks), from rating curve extended above 14,000 cfs on basis of slope-area measurement at gage height 13.8 ft; minimum daily, 5.5 cfs Dec. 6, 7, 1929.

Remarks.--Records good. Flow regulated at low and medium stages by Lake Alpine, Spicer Meadows, Union and Utica Reservoirs (combined capacity, 13,600 acre-ft). Diversion of a maximum of 10 cfs during summer from Beaver Creek into river above station. See schematic diagram, p. 675.

Cooperation.--Water-stage-recorder graph and eight discharge measurements furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

0.6	11	2.5	206	6.0	2,100
.8	19	3.0	320	7.0	3,340
1.0	30	3.5	475	8.0	5,000
1.3	53	4.0	680	10.0	10,000
2.0	125	5.0	1,250	13.0	22,500

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	38	34	93	800	640	518	582	2,590	1,720	489	87	70
2	32	41	163	755	630	468	562	1,960	1,510	447	77	66
3	23	35	118	760	604	458	510	1,450	1,660	454	68	65
4	22	28	85	750	599	472	506	1,380	1,850	454	64	65
5	22	22	76	750	795	458	542	1,450	1,910	413	63	67
6	22	17	64	1,500	858	444	546	1,330	1,810	389	64	67
7	22	13	65	1,190	648	428	522	1,130	1,670	365	63	81
8	22	14	61	842	566	404	496	1,050	1,570	310	65	83
9	22	65	76	775	538	398	482	1,130	1,310	268	66	78
10	22	93	93	735	478	422	468	1,380	1,520	241	70	72
11	22	78	480	702	468	422	447	1,560	1,570	216	79	69
12	22	150	284	658	447	468	444	1,740	1,520	192	176	68
13	20	86	138	599	437	458	440	1,960	1,310	175	305	67
14	20	52	118	608	434	425	437	2,040	1,100	168	200	66
15	20	47	102	644	419	425	486	2,110	970	165	162	66
16	20	45	88	630	404	440	648	2,490	930	196	358	66
17	20	43	82	612	401	475	755	2,730	852	155	288	64
18	20	38	79	622	422	468	760	2,680	698	172	464	64
19	20	43	124	666	464	518	1,180	2,580	760	160	218	63
20	22	43	345	680	510	554	1,860	2,440	880	144	146	63
21	20	46	1,050	635	538	648	2,670	2,240	990	135	119	62
22	20	47	7,060	599	578	785	2,660	1,590	946	124	104	61
23	19	50	17,800	677	534	864	1,970	1,310	880	112	96	60
24	19	51	17,800	1,220	496	805	2,020	1,370	740	104	90	58
25	19	58	4,250	770	489	644	2,290	1,420	750	100	87	58
26	18	117	2,890	666	522	586	2,350	1,610	648	98	84	57
27	18	88	2,300	617	626	617	2,470	1,770	546	91	81	57
28	23	70	1,470	574	617	570	2,670	1,870	518	84	79	63
29	59	72	1,220	570	-----	562	3,020	1,970	500	78	75	66
30	51	81	1,100	617	-----	570	2,940	2,030	510	72	74	69
31	29	-----	990	644	-----	586	-----	1,860	-----	72	72	-----
Total	748	1,667	60,664	22,867	15,162	16,360	37,733	56,220	34,148	6,643	4,044	1,981
Mean	24.1	55.6	1,957	738	542	528	1,258	1,814	1,138	214	130	66.0
Ac-ft	1,480	3,310	120,300	45,360	30,070	32,450	74,840	111,500	67,730	13,180	8,020	3,930

Calendar year 1964 Max 17,800 Min 13 Mean 417 Ac-ft 302,500  
 Water year 1964-65 Max 17,800 Min 13 Mean 707 Ac-ft 512,200

Peak discharge (base, 2,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-24	0600	14.00	29,000	5-18	0030	7.13	3,530
4-21	2200	7.32	3,830	5-30	0200	6.23	2,350
4-29	2230	7.92	4,860				

11-2965. South Fork Stanislaus River at Strawberry, Calif.

Location.--Lat 38°11'51", long 120°00'27", in SW¼ sec.16, T.4 N., R.18 E., on right bank 0.3 mile downstream from bridge on State Highway 108 at Strawberry, 0.6 mile downstream from Herring Creek, and 1.2 miles downstream from Pinecrest Lake.

Drainage area.--44.8 sq mi.

Records available.--October 1911 to January 1917, August 1938 to September 1965. Monthly discharge only for October 1913 and yearly estimates for 1912-13, published in WSP 1315-A. Published as "near Confidence," 1911-13.

Gage.--Water-stage recorder (digital). Datum of gage is 5,235.1 ft above mean sea level (river-profile survey). October 1911 to January 1917, staff gage at site 1 mile downstream at different datum.

Average discharge.--32 years (1911-16, 1938-65), 126 cfs (91,220 acre-ft per year).

Extremes.--Maximum discharge during year, 1,810 cfs Dec. 24 (gage height, 6.52 ft); minimum daily, 28 cfs Nov. 25, 28-30. 1911-17, 1938-65: Maximum discharge, 3,900 cfs Nov. 21, 1950 (gage height, 9.25 ft), from rating curve extended above 1,100 cfs on basis of contracted-opening measurement of maximum flow at bridge 0.3 mile below station; minimum, 1.3 cfs Nov. 22, 23, 1946.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Flow regulated at low and medium stages by Pinecrest Lake beginning in 1916 (capacity, 18,300 acre-ft). No diversion above station. See schematic diagram, p. 675.

Cooperation.--Water-stage-recorder graph and eleven discharge measurements furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Feb. 25

Feb. 26 to Sept. 30

1.7	26	3.5	346	1.8	36	4.0	500
2.0	54	4.0	505	2.0	56	5.0	905
2.5	128	5.0	950	2.5	125		
3.0	228	6.0	1,500	3.0	222		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	69	38	29	156	86	92	92	607	603	408	40	69
2	69	38	30	153	86	93	90	449	437	382	64	69
3	69	38	30	153	88	93	88	307	549	413	74	69
4	69	38	29	174	88	93	88	262	725	396	71	68
5	69	38	29	170	88	89	88	198	827	352	70	69
6	49	38	29	228	88	89	87	203	772	340	52	71
7	35	38	30	239	86	87	86	185	717	305	47	74
8	35	38	42	188	85	86	85	176	659	264	51	73
9	35	39	49	147	84	86	84	182	507	224	51	72
10	35	40	49	114	82	86	82	177	705	188	50	72
11	35	40	57	100	80	86	84	242	827	155	51	71
12	35	39	53	96	80	86	82	351	846	130	63	71
13	35	38	82	94	80	84	81	356	671	119	61	71
14	35	38	108	94	80	84	81	449	527	126	54	70
15	34	38	110	92	84	84	83	516	417	135	122	69
16	34	38	81	92	79	85	86	654	356	159	192	68
17	34	38	50	94	78	86	85	770	318	128	127	68
18	34	38	50	96	79	87	87	794	283	133	91	69
19	34	38	51	102	82	90	112	779	388	114	68	70
20	35	38	52	105	85	94	156	613	511	105	68	70
21	37	38	56	102	88	100	190	557	652	83	69	70
22	37	38	211	94	90	107	290	394	568	58	68	69
23	37	39	1,090	99	88	111	332	308	516	51	67	69
24	37	34	1,350	110	88	108	381	302	440	50	67	69
25	37	28	922	99	90	101	457	267	458	50	68	69
26	37	29	564	97	92	98	483	402	366	47	69	69
27	37	29	377	96	96	97	549	515	332	42	68	69
28	37	28	262	92	93	95	585	592	391	36	67	69
29	38	28	224	90	-----	94	644	677	418	37	68	69
30	38	28	204	88	-----	93	658	707	438	38	69	68
31	38	-----	176	86	-----	94	-----	683	-----	40	69	-----
TOTAL	1,289	1,085	6,476	3,740	2,393	2,858	6,376	13,674	16,224	5,108	2,216	2,093
MEAN	41.6	36.2	209	121	85.5	92.2	213	441	541	165	71.5	69.8
AC-FT	2,560	2,150	12,840	7,420	4,750	5,670	12,650	27,120	32,180	10,130	4,400	4,150

CALENDAR YEAR 1964	MAX	1,350	MIN	26	MEAN	101	AC-FT	73,030
WATER YEAR 1964-65	MAX	1,350	MIN	28	MEAN	174	AC-FT	126,000

Note.--No gage-height record Jan. 8-13, 27, Jan. 30 to Feb. 7.



## SAN JOAQUIN RIVER BASIN

11-2975. Tuolumne Canal near Long Barn, Calif.

Location.--Lat 38°05'35", long 120°10'03", in SW¼ sec.24, T.3 N., R.16 E., on left bank 300 ft downstream from intake, 350 ft downstream from Lyons Reservoir on South Fork Stanislaus River, 2 miles west of Long Barn, and 15 miles northeast of Sonora.

Records available.--October 1937 to September 1965.

Gage.--Water-stage recorder and concrete control. Datum of gage is 4,110.0 ft above mean sea level (river-profile survey). Prior to June 1938, at site 200 ft downstream at different datum.

Average discharge.--28 years, 24.6 cfs (17,810 acre-ft per year).

Extremes.--1937-65: Maximum daily discharge, 56 cfs May 30, 1963; no flow at times in some years.

Remarks.--Records excellent. Canal diverts from left bank of South Fork Stanislaus River into Tuolumne River basin for power and domestic supply in vicinity of Sonora. See schematic diagram, p. 675.

Cooperation.--Water-stage-recorder graph and seven discharge measurements furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	26	16	10	20	20	35	36	36	43	47	30	30
2	26	14	10	20	20	35	36	36	49	46	30	30
3	26	14	11	20	20	35	36	35	52	47	30	30
4	26	13	11	20	17	35	36	36	52	46	30	30
5	24	12	11	20	30	35	36	36	52	46	30	30
6	23	11	11	16	31	35	36	36	52	46	30	30
7	23	10	10	20	30	35	36	36	52	46	30	30
8	23	10	10	20	31	35	36	36	52	47	30	30
9	23	10	10	20	32	35	36	36	46	46	35	30
10	23	16	10	19	32	35	36	36	43	46	37	30
11	23	21	11	20	32	35	36	36	44	46	35	30
12	22	15	11	20	33	35	36	37	43	46	34	30
13	22	17	10	20	34	35	36	38	43	43	35	27
14	23	10	11	20	34	35	36	38	43	51	35	26
15	23	10	11	20	33	35	37	38	43	50	35	26
16	22	10	11	20	34	35	36	38	42	46	35	27
17	22	10	11	20	35	35	36	38	43	46	35	27
18	23	10	15	20	35	35	36	37	43	46	35	27
19	23	10	23	20	35	35	26	37	43	44	35	27
20	23	10	23	20	35	35	36	36	43	42	35	26
21	23	11	15	20	35	35	29	36	46	32	35	26
22	23	10	10	20	35	35	27	35	42	26	35	27
23	23	11	3,3	21	35	35	27	34	42	26	35	27
24	23	9,6	11	21	35	35	36	35	41	25	35	27
25	23	10	8,9	20	35	36	36	36	46	25	35	27
26	23	10	8,0	20	35	36	26	36	46	25	31	27
27	23	10	8,8	20	35	37	37	37	45	25	30	27
28	23	9,9	20	20	35	37	37	37	46	25	30	27
29	18	8,9	20	20	-----	36	37	37	47	25	30	27
30	15	9,9	20	20	-----	36	36	37	47	25	30	27
31	15	-----	20	20	-----	36	-----	37	-----	29	30	-----
Total	701	349.3	386.0	617	883	1,094	1,039	1,129	1,371	1,211	1,017	842
Mean	22.6	11.6	12.5	19.9	31.5	35.3	34.6	36.4	45.7	39.1	32.8	28.1
Ac-ft	1,390	693	766	1,220	1,750	2,170	2,060	2,240	2,720	2,400	2,020	1,670
Calendar year 1964	Max	54	Min	3.3	Mean	24.5	Ac-ft	17,810				
Water year 1964-65	Max	52	Min	3.3	Mean	29.1	Ac-ft	21,100				

11-2980. South Fork Stanislaus River near Long Barn, Calif.

Location.--Lat 38°05'33", long 120°10'02", in SW¼ sec.24, T.3 N., R.16 E., on left bank 600 ft downstream from Lyons Dam, 2 miles west of Long Barn, and 15 miles northeast of Sonora.

Drainage area.--66.9 sq mi.

Records available.--October 1937 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder and masonry control. Datum of gage is 4,073.4 ft above mean sea level (river-profile survey).

Average discharge.--28 years, 86.3 cfs (62,480 acre-ft per year).

Extremes.--Maximum discharge during year, 2,350 cfs Dec. 24 (gage height, 7.20 ft), from rating curve extended above 1,100 cfs as explained below; minimum daily, 1.3 cfs Oct. 30 to Nov. 1.  
1937-65: Maximum discharge, 4,900 cfs Nov. 21, 1950 (gage height, 9.3 ft), from rating curve extended above 1,100 cfs on basis of computation of maximum flow over Lyons Dam; no flow at times in 1937-39, 1952.

Remarks.--Records good. Flow regulated by Lyons Reservoir (capacity, 5,400 acre-ft) and Pinecrest Lake (capacity, 18,300 acre-ft). Tuolumne Canal (see preceding page) diverts at Lyons Dam; other diversions, see schematic diagram, p. 675.

Cooperation.--Water-stage-recorder graph and eight discharge measurements furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

0.8	1.3	1.5	34	4.0	480
.9	3.8	1.7	51	5.0	880
1.0	6.9	2.0	83	6.0	1,420
1.1	10	2.5	150	7.0	2,170
1.2	15	3.0	240		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.8	1.3	2.0	168	85	28	33	588	580	314	2.0	2.6
2	1.8	2.6	2.0	160	80	24	39	430	378	273	2.0	2.3
3	1.8	2.8	2.0	160	75	23	36	268	400	294	2.0	2.0
4	1.8	1.8	2.0	131	79	22	31	197	588	299	2.0	2.0
5	1.8	1.8	2.0	150	101	22	30	160	760	254	2.0	1.8
6	1.8	2.0	2.0	508	121	22	36	111	744	234	2.0	1.8
7	2.0	2.0	2.0	471	91	22	38	111	640	216	2.0	2.0
8	2.0	2.0	2.0	273	90	22	41	98	640	141	2.0	1.8
9	2.0	2.3	2.0	209	73	22	44	90	400	135	2.0	1.8
10	2.0	2.0	2.0	173	63	22	45	109	570	98	2.0	1.8
11	1.8	2.0	2.3	146	46	22	35	102	744	69	2.0	1.8
12	1.8	2.3	2.0	131	41	22	33	210	820	40	2.0	1.8
13	1.8	1.8	2.0	116	41	22	35	268	668	20	2.0	2.0
14	1.8	1.8	2.0	108	39	21	40	321	471	10	2.0	2.0
15	1.8	1.6	2.8	107	36	21	61	388	360	17	2.0	2.0
16	1.8	1.6	1.6	105	29	21	82	517	214	43	1.8	2.0
17	1.8	1.6	1.8	107	23	19	84	680	214	36	2.0	2.0
18	1.8	1.6	2.6	111	20	16	85	772	113	26	2.3	2.0
19	1.8	1.8	5.0	134	21	15	111	736	78	19	2.3	1.8
20	1.6	2.0	8.6	155	22	15	155	624	269	13	2.3	1.8
21	1.6	2.0	6.7	141	25	15	207	504	573	5.4	2.0	1.8
22	1.6	2.0	4.4	127	27	15	258	358	489	2.3	2.0	1.8
23	1.8	2.3	6.38	151	26	16	331	252	459	2.3	2.0	2.0
24	2.0	2.7	1,920	273	25	16	321	236	303	2.0	2.0	2.6
25	2.0	2.3	1,220	190	23	15	402	242	370	2.0	2.0	2.6
26	2.0	2.6	860	156	22	15	425	310	288	2.0	2.0	2.0
27	2.0	2.6	756	131	29	27	480	456	218	2.0	2.6	2.0
28	2.0	2.3	425	116	33	35	520	528	275	2.3	2.6	2.0
29	1.8	2.0	317	104	-----	34	566	612	308	2.3	2.6	2.0
30	1.3	2.0	268	96	-----	30	596	648	336	2.3	2.6	2.0
31	1.3	-----	230	93	-----	28	-----	640	-----	2.0	2.6	-----
Total	56.0	61.5	6,695.8	5,201	1,386	669	5,200	11,566	13,270	2,577.9	65.7	59.9
Mean	1.81	2.05	216	168	49.5	21.6	173	373	442	83.2	2.11	2.00
Ac-ft	111	122	13,280	10,320	2,750	1,330	10,310	22,940	26,320	5,110	130	119
Calendar year 1964	Max	1.920	Min	0.9	Mean	47.6	Ac-ft	34,540				
Water year 1964-65	Max	1.920	Min	1.3	Mean	128	Ac-ft	92,840				

## SAN JOAQUIN RIVER BASIN

11-2990. Melones Reservoir at Melones Dam, Calif.

Location.--Lat 37°57'15", long 120°30'45", near center of sec.11, T.1 N., R.13 E., at gate tower near left bank at Melones Dam on Stanislaus River, 0.1 mile downstream from Bear Creek, and 7.5 miles southwest of Sonora.

Drainage area.--904 sq mi.

Records available.--1926 (year-end content only, published in WSP 1315-A), June 1927 to September 1965.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Pacific Gas & Electric Co.). Prior to Feb. 28, 1961, staff gage at same site and datum.

Extremes.--Maximum contents during year, 115,600 acre-ft Dec. 24 (elevation, 736.6 ft); minimum, 8,190 acre-ft Oct. 20 (elevation, 633.4 ft).

1927-65: Maximum contents observed, 115,800 acre-ft May 27, 1951 (elevation, 736.7 ft); minimum observed, 3,220 acre-ft Dec. 7, 1957 (elevation, 613.5 ft).

Remarks.--Reservoir is formed by concrete overflow dam; storage began Aug. 21, 1926; dam completed in December 1926. Capacity for power development 1 mile below dam is 106,100 acre-ft between elevations 628.0 (minimum operating level) and 735.0 ft (top of drum-type spillway gates) above mean sea level; usable capacity for irrigation, 110,000 acre-ft between elevations 610.0 (floor of outlet tunnel) and 735.0 ft above mean sea level. Figures given herein represent total contents, of which 2,630 acre-ft is not available for release. Released water flows down Stanislaus River to Tulloch Reservoir (see p. 694). See schematic diagram, p. 675.

Cooperation.--Record of elevation furnished by Oakdale Irrigation District. Capacity table furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Capacity table (elevation, in feet, and contents, in acre-feet)

630	7,070	660	21,500	710	72,200
635	8,750	670	28,900	720	86,900
640	10,700	680	37,600	730	103,500
645	12,900	690	47,600	736	114,500
650	15,400	700	59,100		

Contents, in thousands of acre-feet, at 2400 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10.4	11.5	12.6	94.6	94.1	92.2	93.5	96.2	109.8	114.1	89.1	47.6
2	10.5	11.8	14.4	94.1	94.0	92.0	93.5	95.1	112.4	113.9	87.4	45.5
3	10.6	11.9	16.3	94.6	94.0	91.5	93.5	93.3	113.4	113.9	85.7	44.4
4	10.8	11.9	17.9	94.5	94.0	91.2	93.5	92.5	113.9	114.1	83.9	42.8
5	10.6	11.8	19.3	96.2	94.6	91.0	93.5	92.0	113.7	114.1	82.1	41.3
6	10.7	11.5	20.6	103.1	95.0	90.9	93.5	92.8	114.1	113.9	80.4	39.8
7	10.5	11.4	22.0	102.8	94.6	90.7	93.5	89.3	113.9	114.1	78.4	38.4
8	10.1	11.0	23.3	98.0	94.5	90.5	95.3	85.7	113.9	113.7	76.5	37.0
9	9.76	10.9	24.6	96.3	94.0	90.5	95.8	82.3	113.4	113.5	74.5	35.5
10	9.41	11.7	26.1	95.8	93.6	90.7	96.0	79.0	113.2	113.0	72.8	34.5
11	9.22	12.3	28.1	95.3	93.5	90.9	95.3	76.2	113.5	112.4	70.9	33.8
12	8.53	13.4	30.6	95.0	93.3	92.0	94.6	74.5	113.7	111.3	69.1	33.3
13	7.33	14.7	32.6	94.6	93.3	92.5	94.5	73.2	113.5	110.2	67.8	32.8
14	7.07	13.2	33.8	94.5	93.1	92.7	94.3	73.2	112.6	109.7	66.0	32.1
15	7.20	11.9	35.6	94.3	93.0	92.7	93.3	75.1	111.7	109.3	64.4	31.6
16	7.39	11.1	36.9	94.3	92.8	92.7	92.8	79.5	111.9	109.1	63.1	31.1
17	7.61	11.3	37.9	94.1	92.7	92.7	92.7	85.1	112.1	108.9	62.0	30.3
18	7.78	11.4	38.2	94.1	92.7	92.7	92.7	90.7	112.6	108.4	61.1	29.5
19	7.95	11.5	39.3	94.3	92.7	92.7	92.3	94.1	113.0	108.2	60.6	28.7
20	8.19	11.4	41.7	94.5	92.8	92.7	93.1	95.2	113.0	107.5	60.5	28.0
21	8.43	11.7	44.4	94.5	92.5	92.8	95.7	95.7	113.9	106.6	59.6	27.5
22	8.61	11.7	63.1	94.3	92.3	93.0	97.0	95.8	113.4	105.6	58.3	26.8
23	8.71	11.4	104.6	93.8	92.2	93.1	96.5	94.6	113.9	104.0	57.7	26.3
24	8.93	11.0	109.7	96.3	92.0	93.8	96.0	93.1	113.7	102.4	57.1	25.7
25	9.15	10.5	100.9	95.8	91.8	93.6	96.3	91.5	113.2	100.7	56.3	25.2
26	9.26	10.5	99.9	95.3	91.8	93.5	97.0	90.5	113.2	99.2	55.6	24.7
27	9.49	10.6	100.7	94.8	92.2	93.6	97.2	89.9	112.8	97.7	54.5	24.1
28	10.4	9.91	98.9	94.6	92.2	93.5	96.8	91.8	113.5	96.0	53.3	23.7
29	11.0	9.95	97.3	94.5	-----	93.5	96.8	95.0	113.9	94.5	51.9	23.3
30	11.2	11.0	96.8	94.5	-----	93.5	97.0	99.0	114.1	93.0	50.7	22.8
31	11.4	-----	95.3	94.1	-----	93.3	-----	104.6	-----	91.0	49.1	-----
(†)	641.6	640.8	725.2	724.5	723.3	724.0	726.2	730.6	735.8	722.6	691.3	661.9
(‡)	+1,000	-400	+84,300	-1,200	-1,900	+1,100	+3,700	+7,600	+9,500	-23,100	-41,900	-26,300

Calendar year 1964..... †19,900  
 Water year 1964-65..... †12,400

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

11-2995. Stanislaus River below Melones powerhouse, near Sonora, Calif.

Location.--Lat 37°56'50", long 120°31'45", in SW¼SE¼ sec.10, T.1 N., R.13 E., on right bank 300 ft downstream from powerhouse, 0.5 mile upstream from Bean Gulch, 1 mile downstream from Melones Dam, and 8.4 miles southwest of Sonora.

Drainage area.--905 sq mi.

Records available.--January 1931 to September 1965. Prior to October 1962, published as "below Melones powerhouse."

Gage.--Water-stage recorder. Datum of gage is 500.65 ft above mean sea level (levels by Corps of Engineers).

Average discharge.--34 years, 1,482 cfs (1,073,000 acre-ft per year), unadjusted.

Extremes.--Maximum discharge during year, 38,700 cfs Dec. 24 (gage height, 24.35 ft, from floodmarks), from rating curve extended above 14,000 cfs on basis of computed flow over Melones Dam; minimum daily, 2.5 cfs Dec. 1.  
1931-65: Maximum discharge, 62,800 cfs Dec. 23, 1955 (gage height, 29.0 ft, from floodmarks), from rating curve extended above 14,000 cfs on basis of computed flow over Melones Dam; minimum daily, 0.4 cfs Jan. 19, 20, 1943.

Remarks.--Records good except those for periods Dec. 25 to Jan. 10, Jan. 22-31, which are fair. Flow regulated by Melones Reservoir (see preceding page), Pincrest, Beardsley, Donnell Lakes, Lyons and Relief Reservoirs (combined capacity, 312,300 acre-ft). Several diversions above station. Backwater from Tulloch Reservoir affects record at times since storage began on Nov. 25, 1957. See schematic diagram, p. 675.

Cooperation.--Water-stage-recorder graph and 12 discharge measurements furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Rating tables, except for periods of backwater from Tulloch Reservoir (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Nov. 30 to Dec. 17, Dec. 23)

Oct. 1 to Dec. 23						Dec. 23 to Sept. 30					
2.2	2.5	3.0	54	5.0	690	5.7	940	13.0	9,900		
2.3	5.0	3.3	102	6.0	1,260	7.0	1,850	15.0	13,800		
2.4	8.5	3.6	165	7.0	2,020	9.0	3,850	17.0	18,200		
2.6	18	4.0	275	9.0	4,200	10.0	5,100	19.0	23,000		
2.8	32	4.5	460	12.0	8,940	11.0	6,500	21.0	28,500		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	577	700	2.5	4,200	2,530	1,680	2,080	6,010	2,780	2,620	1,640	1,530
2	554	705	2.8	3,500	2,490	1,660	2,190	5,480	3,230	2,590	1,640	1,520
3	514	705	2.8	3,300	2,440	1,630	2,280	4,760	3,950	2,420	1,640	1,510
4	523	700	2.8	3,200	2,400	1,630	2,200	3,770	4,820	2,640	1,620	1,510
5	546	700	2.8	3,100	2,480	1,630	2,140	3,550	6,370	2,740	1,600	1,490
6	559	700	2.8	6,500	3,040	1,630	2,190	3,500	6,520	2,560	1,600	1,490
7	618	700	2.8	11,000	2,960	1,630	2,250	4,220	6,240	2,370	1,600	1,490
8	690	695	2.8	7,000	2,680	1,630	2,350	4,460	6,020	2,250	1,600	1,490
9	690	715	2.8	4,000	2,520	1,630	2,740	4,630	5,650	1,960	1,600	1,480
10	685	710	2.8	3,750	2,320	1,630	3,530	4,590	5,460	1,800	1,470	1,280
11	685	705	3.0	3,430	2,260	1,550	3,710	4,570	5,620	1,730	1,570	980
12	680	997	3.0	3,200	2,150	1,640	2,990	4,530	5,740	1,710	1,550	980
13	636	724	3.0	2,980	2,070	1,760	2,720	4,330	5,610	1,700	1,550	970
14	193	1,250	3.0	2,780	2,030	1,830	2,640	3,710	5,310	1,690	1,550	970
15	5.7	1,230	3.0	2,700	1,980	1,820	2,980	2,840	4,120	1,450	1,550	1,080
16	5.0	925	3.0	2,660	1,900	1,800	2,970	1,880	2,760	1,570	1,550	995
17	5.0	586	297	2,600	1,830	1,770	2,940	1,640	2,050	1,690	1,420	1,040
18	5.0	595	505	2,550	1,820	1,790	2,890	1,650	1,690	1,680	1,550	1,060
19	4.8	618	500	2,620	1,800	1,790	3,300	2,560	1,710	1,680	1,240	1,080
20	4.8	645	505	2,760	1,600	1,810	3,720	3,970	1,860	1,680	1,000	1,040
21	4.5	645	1,070	2,760	1,820	1,850	4,160	4,640	2,440	1,680	1,190	1,080
22	4.2	640	1,570	2,600	1,750	1,930	5,250	4,880	3,070	1,620	1,560	1,050
23	5.7	775	8,960	2,600	1,710	2,080	5,450	4,670	3,300	1,670	1,280	1,030
24	4.5	862	27,800	3,930	1,650	2,000	5,090	4,400	3,360	1,670	1,300	1,010
25	4.5	812	14,000	3,900	1,570	2,180	5,100	4,190	3,010	1,670	1,190	1,010
26	4.5	720	8,000	3,340	1,620	2,140	5,200	4,140	2,900	1,660	1,270	1,000
27	4.5	690	9,800	3,100	1,660	2,190	5,310	4,100	2,640	1,660	1,350	988
28	5.7	685	8,000	2,850	1,700	2,260	5,830	3,130	1,890	1,660	1,330	952
29	329	572	6,000	2,670	-----	2,180	5,900	2,730	2,290	1,660	1,330	976
30	577	213	5,200	2,630	-----	2,100	5,970	2,740	2,470	1,670	1,330	976
31	670	-----	4,800	2,550	-----	2,080	-----	2,760	-----	1,660	1,450	-----
Total	9,794.4	21,919	97,052.7	110,760	58,780	56,930	108,070	119,030	114,880	58,810	45,120	35,057
Mean	316	731	3,131	3,573	2,099	1,836	3,602	3,840	3,829	1,897	1,455	1,169
Ac-ft	19,430	43,480	192,500	219,700	116,600	112,900	214,400	236,100	227,900	116,600	89,490	69,530

Calendar year 1964 Max 27,800 Min 2.5 Mean 1,124 Ac-ft 815,700  
Water year 1964-65 Max 27,800 Min 2.5 Mean 2,291 Ac-ft 1,659,000

Note.--Backwater from Tulloch Reservoir Dec. 25 to Jan. 10, Jan. 22-31, May 29 to June 15, June 22 to Sept. 20.

11-2999.95 Tulloch Reservoir near Knights Ferry, Calif.

Location (Revised)--Lat 37°52'34", long 120°36'12", in SW $\frac{1}{4}$  sec.1, T.1 S., R.12 E., in center of dam on Stanislaus River 1.9 miles upstream from Goodwin Dam, and 5.3 miles northeast of Knights Ferry.

Drainage area--980 sq mi.

Records available--November 1957 to September 1965.

Gage--Water-stage recorder. Datum of gage is at mean sea level (levels by Oakdale and South San Joaquin Irrigation Districts).

Extremes--Maximum contents during year, 69,500 acre-ft Jan. 7 (elevation, 512.0 ft); minimum, 13,200 acre-ft Oct. 27 (elevation, 436.4 ft).

1957-65: Maximum contents, that of Jan. 7, 1965; minimum, 4,580 acre-ft Oct. 3, 1960 (elevation, 404.0 ft).

Remarks--Records good. Reservoir is formed by gravity-type concrete dam completed in October 1957. Usable capacity, 56,840 acre-ft between elevations 431.0 ft (normal minimum water surface) and 511.0 ft (top of radial gates) above mean sea level. Dead storage, 11,560 acre-ft. Reservoir is used for conservation and power. Water passes down Stanislaus River, some first passing through powerplant at dam. Part of flow is diverted at Goodwin dam to Oakdale Canal (see p. 696) and South San Joaquin Canal (see following page). Records represent total contents. See schematic diagram, p. 675.

Capacity table (elevation, in feet, and contents, in acre-feet)

436	13,000
450	18,500
470	29,600
490	45,300
512	69,500

Contents, in thousands of acre-feet, at 2400 hours, water year October 1964 to September 1965.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	22.8	16.4	55.1	62.3	50.5	48.5	45.2	40.1	64.9	67.1	65.6	65.2
2	21.7	17.6	54.9	60.7	50.3	48.5	45.5	39.7	65.0	67.0	65.6	65.0
3	20.4	13.8	54.7	61.3	50.1	48.5	45.9	39.3	65.6	66.3	65.5	64.7
4	19.2	20	54.4	64.5	50.4	48.4	46.1	38.8	66.3	66.7	65.5	64.5
5	18.1	21.2	54.2	66.7	51.2	48.3	46.2	38.6	66.6	67.0	65.4	64.2
6	17.0	22.4	54.0	69.3	53.0	48.3	46.4	39.6	66.2	66.6	65.2	64.0
7	16.5	23.7	53.8	65.7	54.4	49.2	46.6	39.0	65.5	66.3	65.2	64.0
8	16.4	24.9	53.6	60.4	55.3	48.2	47.4	39.3	64.6	66.3	65.1	64.1
9	16.4	26.3	53.4	57.6	55.8	48.1	49.5	39.3	63.3	66.3	65.0	64.4
10	16.3	27.8	53.3	54.4	56.0	48.0	54.3	39.3	61.8	66.5	64.6	64.5
11	16.2	29.2	53.3	52.7	55.7	47.8	54.7	39.3	60.9	66.5	64.5	63.9
12	16.2	31.4	53.1	51.7	55.5	47.9	53.2	39.3	60.2	66.5	64.5	63.4
13	16.0	33.0	52.9	51.2	55.2	47.6	51.3	39.7	59.4	66.6	64.6	62.9
14	15.6	35.4	52.8	51.1	54.7	47.1	49.1	39.3	59.2	66.5	65.0	62.3
15	15.5	37.8	52.6	51.3	54.2	46.6	47.4	39.2	58.3	66.0	65.2	61.8
16	15.3	39.6	51.5	51.3	53.6	46.2	45.3	39.0	57.8	65.7	65.7	61.3
17	15.1	40.6	51.3	51.2	52.9	45.6	43.5	38.7	57.9	65.7	66.0	60.8
18	14.8	41.5	51.9	51.0	52.3	45.2	42.2	38.4	57.7	65.8	66.5	60.4
19	14.8	42.6	52.8	51.2	51.5	44.7	41.3	39.9	57.6	65.8	66.2	60.1
20	14.5	43.6	53.6	51.6	50.6	44.2	40.9	44.3	57.8	66.0	65.7	59.6
21	14.4	44.8	54.2	51.4	50.0	43.9	40.8	48.6	59.3	66.0	65.5	59.3
22	14.1	46.1	56.4	48.2	49.4	43.7	41.3	50.6	61.8	65.6	66.0	59.0
23	13.8	47.6	65.2	44.9	48.6	43.8	41.3	51.2	64.7	65.7	65.8	58.6
24	13.8	49.3	65.4	45.1	48.4	43.9	40.7	51.9	66.3	65.7	65.5	58.3
25	13.5	50.7	66.1	46.5	48.3	43.8	40.7	52.5	66.1	65.7	65.2	57.9
26	13.5	52.0	66.8	48.4	48.2	44.2	40.7	54.2	65.8	65.7	65.2	57.6
27	13.2	53.3	63.5	50.0	48.3	44.6	40.2	57.7	65.8	65.7	65.2	57.2
28	13.2	54.6	66.2	50.7	48.4	45.0	40.1	59.9	66.0	65.7	65.4	56.8
29	13.4	55.5	64.0	50.8	-----	45.1	40.0	61.3	66.5	65.7	65.4	56.5
30	14.2	55.5	63.5	50.7	-----	45.2	40.1	62.6	66.7	65.7	65.2	56.3
31	15.3	-----	64.0	50.6	-----	45.1	-----	64.1	-----	65.6	65.2	-----
(+)	442.2	500.2	507.6	495.5	493.2	489.7	484.0	507.7	509.8	508.9	508.6	500.9
(#)	- 8,600	+ 40,200	+ 8,500	- 13,400	- 2,200	- 3,300	- 5,000	+ 24,000	+ 2,600	- 1,100	- 400	- 8,900

Calendar year 1964..... † 17,700  
 Water year 1964-65..... † 32,400

† Elevation, in feet, at end of month.  
 # Change in contents, in acre-feet.



11-3005. South San Joaquin Canal near Knights Ferry, Calif.

Location.--Lat 37°51'10", long 120°38'15", in sec.15, T.1 S., R.12 E., on left bank 0.8 mile downstream from headgate at Goodwin Dam and 3 miles upstream from Knights Ferry.

Records available.--May 1914 to September 1965. Monthly and yearly discharge only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder (digital) and concrete control. Datum of gage is 334.18 ft above mean sea level (levels by Oakdale Irrigation District). Prior to Mar. 12, 1915, staff gage 100 ft downstream. Mar. 12, 1915, to July 1, 1921, staff gage at present site and datum.

Average discharge.--51 years, 408 cfs (295,400 acre-ft per year).

Extremes.--1914-65: Maximum discharge, 1,330 cfs May 2, 1962; no flow at times each year except 1951.

Remarks.--Records good. Canal diverts from right bank of Stanislaus River at Goodwin Dam for irrigation in Oakdale and South San Joaquin Irrigation districts. See schematic diagram, p. 675.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	759	13	3.6	0.7	.1	2.4	590	1140	1130	1140	1150	1040
2	759	6.0	5.0	.6	.1	2.6	454	1140	1150	1140	1150	1120
3	759	3.9	3.9	.6	0	2.6	455	1160	1150	1140	1150	1110
4	755	1.4	2.4	.5	0	2.6	461	1170	1150	1150	1150	1110
5	758	1.5	.5	.5	.1	3.4	464	1170	1150	1140	1150	1110
6	759	1.5	.5	1.7	.1	6.4	544	1170	1150	1140	1150	1110
7	485	1.4	.5	1.4	.2	6.4	629	1160	1150	1150	1150	1000
8	334	.9	.4	.6	.1	6.4	444	1140	1140	1150	1150	924
9	331	1.0	.4	.2	.1	6.4	312	1150	1130	1160	1150	833
10	329	1.0	.4	.2	.2	108	309	1180	1080	1150	1150	790
11	325	.8	.2	.2	29	354	314	1170	1060	1150	1150	786
12	322	1.0	0	.1	43	305	120	1150	1060	1150	1100	783
13	314	.8	1.6	.1	43	160	.7	1150	1060	1120	1030	769
14	157	.7	2.1	0	43	160	.7	1150	1070	1120	929	762
15	15	.7	2.1	0	43	160	36	1160	1080	1130	919	756
16	13	.7	1.9	0	346	160	100	1160	1070	1130	861	749
17	11	1.5	.3	0	572	160	100	1170	1040	1130	828	748
18	13	1.4	1.4	0	537	161	99	1170	968	1140	828	747
19	11	.4	2.3	0	537	162	277	1180	978	1140	829	747
20	10	.4	2.3	0	537	164	376	1180	1000	1140	831	748
21	10	1.2	2.4	0	535	266	392	1190	1030	1140	828	752
22	12	2.4	3.1	0	535	329	443	1190	1080	1140	824	749
23	11	.4	4.2	.1	535	556	649	1190	1120	1140	822	749
24	9.0	0	4.8	.2	219	706	759	1180	1130	1150	822	751
25	8.6	0	2.4	.1	2.6	870	775	1130	1130	1150	821	751
26	6.7	0	2.6	.1	2.4	969	926	1120	1130	1150	819	749
27	10	0	3.9	.1	2.6	731	1030	1110	1130	1160	817	749
28	9.4	0	2.1	.1	2.6	691	1040	1120	1140	1160	815	744
29	6.0	0	.9	.1	-----	700	1050	1120	1120	1150	815	717
30	17	0	.8	.1	-----	706	1110	1120	1110	1150	861	713
31	18	-----	.8	0	-----	712	-----	1120	-----	1150	944	-----
Total	7,336.7	44.0	59.8	8.3	4,565.2	9,329.2	14,259.4	35,810	32,886	35,450	29,993	25,166
Mean	237	1.47	1.93	0.27	163	301	475	1155	1096	1144	968	839
Ac-ft	14,550	87	119	16	9,050	18,500	28,280	71,030	65,230	70,310	59,490	49,920
Calendar year 1964	Max	1,170	Min	0	Mean	526	Ac-ft	382,000				
Water year 1964-65	Max	1,190	Min	0	Mean	534	Ac-ft	386,600				

## SAN JOAQUIN RIVER BASIN

11-3010. Oakdale Canal near Knights Ferry, Calif.

Location.--Lat 37°51'30", long 120°38'00", in SE $\frac{1}{4}$  sec.10, T.1 S., R.12 E., on left bank 1,835 ft downstream from headgate at Goodwin Dam and 4 miles upstream from Knights Ferry.

Records available.--May 1914 to September 1965. Records for water years 1933-36 incomplete, monthly and yearly estimates published in WSP 1315-A.

Gage.--Water-stage recorder. Altitude of gage is 350 ft (from topographic map). Prior to Apr. 29, 1916, staff gage at site 1,000 ft upstream at different datum. Apr. 29, 1916, to July 3, 1925, staff gage and July 4, 1925, to Apr. 3, 1949, water-stage recorder, at present site at datum 0.18 ft higher.

Average discharge.--51 years, 148 cfs (107,100 acre-ft per year).

Extremes.--1914-65: Maximum daily discharge, 554 cfs May 21, 1965; no flow at times in each year.

Remarks.--Records good. Canal diverts water from left bank of Stanislaus River at Goodwin Dam for irrigation in Oakdale Irrigation District. See schematic diagram, p. 675.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	350	26	2.7	0.2	0.4	0	2.0	514	553	552	516	498
2	351	26	3.5	0	.5	0	0	521	553	552	517	501
3	350	26	3.5	0	.5	0	0	523	552	552	516	500
4	349	26	1.5	0	.5	0	0	527	552	553	516	499
5	350	25	.5	0	.7	0	0	531	552	553	516	498
6	351	25	.5	2.5	.5	0	0	530	552	552	516	498
7	398	26	.4	1.1	.3	0	0	530	551	552	517	497
8	416	26	.4	.5	.3	0	.5	530	552	552	517	459
9	414	26	.3	.4	.2	.4	1.8	530	552	552	518	450
10	413	26	.4	.4	.1	1.86	3.0	539	551	553	518	449
11	412	26	1.0	.4	0	343	1.5	542	551	552	519	450
12	412	26	1.3	.3	0	211	.4	547	551	551	505	450
13	412	26	1.3	.3	0	3.0	.4	552	552	514	498	451
14	174	25	1.0	.3	0	2.0	0	549	552	503	500	453
15	24	25	1.0	.3	0	1.8	0	550	552	505	500	451
16	24	25	1.3	.3	0	1.8	0	551	552	505	500	450
17	23	25	2.3	.3	0	1.8	3.0	553	552	505	499	450
18	24	26	2.0	.3	0	1.8	3.3	551	552	505	500	449
19	23	26	1.8	.3	0	1.8	7.0	552	552	504	500	448
20	22	26	1.7	.3	0	1.8	4.0	552	552	504	500	448
21	20	26	1.8	.3	0	71	30	554	553	511	498	450
22	22	25	2.9	.3	0	297	121	552	552	514	498	450
23	24	20	3.0	.4	0	370	244	552	552	515	498	450
24	26	5.7	1.5	.5	0	407	293	552	552	515	498	447
25	24	5.7	.2	.5	0	416	292	553	552	516	498	447
26	24	0	.4	.4	0	414	422	553	552	516	498	446
27	24	0	1.0	.4	0	83	453	553	552	519	498	449
28	22	0	.5	.4	0	4.9	471	553	551	516	498	447
29	22	0	.3	.4	-----	4.9	481	552	552	514	497	433
30	24	0	.4	.4	-----	4.9	512	553	552	515	497	424
31	24	-----	.7	.4	-----	4.9	-----	552	-----	516	497	-----
Total	5,548	596.4	41.1	12.6	4.0	2,886.4	3,350.9	16,857	16,558	16,338	15,663	13,792
Mean	179	19.9	1.33	0.41	0.14	93.1	112	544	552	527	505	460
Ac-ft	11,000	1,180	82	25	7.9	5,730	6,650	33,440	32,840	32,410	31,070	27,360
Calendar year 1964	Max	485	Min	0	Mean	236	Ac-ft	171,300				
Water year 1964-65	Max	554	Min	0	Mean	251	Ac-ft	181,800				

11-3020. Stanislaus River below Goodwin Dam, near Knights Ferry, Calif.

Location.--Lat 37°51'00", long 120°38'15", in N½ sec.15, T.1 S., R.12 E., on right bank 0.1 mile downstream from Owl Creek, 1.0 mile downstream from Goodwin Dam, and 3 miles northeast of Knights Ferry.

Drainage area.--986 sq mi.

Records available.--February 1957 to September 1965. Records equivalent to those published as Stanislaus River at Knights Ferry, 1903-14, and as Stanislaus River near Knights Ferry, 1915-32, if adjusted for diversions in Stanislaus and San Joaquin Water Company's canal, and Oakdale and South San Joaquin canals.

Gage.--Water-stage recorder. Datum of gage is 252.83 ft above mean sea level.

Average discharge.--8 years, 588 cfs (425,700 acre-ft per year).

Extremes.--Maximum discharge during year, 40,200 cfs Dec. 24 (gage height, 28.85 ft in gage well, 31.2 ft outside, from floodmarks) from rating curve extended above 14,000 cfs; minimum daily, 1.7 cfs Oct. 3-5.

1957-65: Maximum discharge, that of Dec. 24; minimum daily, 0.3 cfs Sept. 13, 14, Oct. 1, 1960.

Flood of Dec. 23, 1955, reached a peak discharge of 62,900 cfs (gage height, 37.7 ft, from floodmarks), by computation of flow over Goodwin Dam.

Remarks.--Records good except those for May 17-20, which are poor. Flow regulated by reservoirs and powerplants at Donnell, Beardsley Lake, Melones, Tulloch, and several smaller reservoirs above station. South San Joaquin Canal (see p. 695) and Oakdale Canal (see preceding page) divert at Goodwin Dam 1.0 mile upstream. See schematic diagram, p. 675.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.8	70	183	5,280	2,550	1,680	1,550	4,410	684	685	7.0	7.0
2	1.8	76	125	4,430	2,520	1,680	1,690	3,930	1,360	886	6.6	3.2
3	1.7	78	87	3,050	2,460	1,680	1,700	3,200	1,740	853	6.6	7.8
4	1.7	80	137	1,800	2,220	1,680	1,700	2,340	2,360	685	6.6	7.8
5	1.7	78	107	2,170	2,130	1,680	1,700	1,830	3,890	809	7.0	7.8
6	1.8	76	82	7,210	2,160	1,680	1,650	1,760	4,310	1,010	7.0	7.8
7	2.0	80	123	13,400	2,190	1,680	1,580	1,910	4,280	875	7.0	7.4
8	2.1	76	107	9,870	2,220	1,680	1,730	2,530	4,170	600	7.0	4.9
9	2.0	78	84	6,560	2,220	1,630	2,060	2,860	4,110	341	7.0	55
10	2.0	76	66	5,720	2,190	1,430	2,820	2,820	4,000	147	7.0	79
11	2.0	74	50	4,430	2,170	1,070	3,680	2,820	3,920	50	7.0	79
12	1.9	74	47	3,660	2,170	1,540	3,810	2,780	3,840	16	7.0	79
13	2.0	76	94	3,230	2,160	1,960	3,300	2,470	3,790	12	5.8	111
14	40	74	87	2,760	2,160	1,950	3,740	2,070	3,370	8.6	5.5	131
15	70	74	84	2,610	2,160	1,940	3,840	1,170	2,550	8.6	5.5	139
16	70	74	260	2,610	1,830	1,930	3,860	402	1,350	7.8	5.5	139
17	70	72	364	2,610	1,580	1,910	3,670	141	534	7.4	5.8	139
18	70	70	222	2,600	1,620	1,890	3,370	97	419	7.4	6.2	139
19	70	74	200	2,490	1,600	1,880	3,400	97	307	6.6	6.2	139
20	66	74	196	2,530	1,580	1,870	3,540	97	283	6.6	6.6	139
21	64	74	743	2,790	1,570	1,720	3,800	563	263	6.6	6.6	72
22	64	68	1,880	4,100	1,540	1,460	4,450	2,010	223	6.6	6.2	3.3
23	70	190	6,760	4,350	1,520	1,180	4,620	2,540	213	6.6	6.2	3.1
24	72	53	29,400	3,870	1,580	996	4,320	2,280	840	6.6	6.2	3.0
25	70	125	15,900	3,140	1,660	1,190	3,970	2,180	1,420	7.0	6.2	2.8
26	68	125	9,390	2,380	1,680	690	3,860	1,550	1,230	7.0	6.2	2.8
27	66	104	11,200	2,130	1,680	1,320	3,890	870	793	7.4	5.8	3.0
28	64	87	10,900	2,420	1,680	1,440	4,360	529	218	7.4	5.8	3.0
29	59	70	8,300	2,580	-----	1,450	4,410	427	401	7.0	5.8	2.4
30	60	51	6,210	2,580	-----	1,450	4,340	431	705	7.0	5.8	2.3
31	60	-----	5,740	2,570	-----	1,450	-----	399	-----	7.0	6.2	-----
Total	1,197.5	2,451	109,143	121,930	54,800	48,786	96,910	53,513	57,583	7,098.2	196.9	1,524.4
Mean	38.6	81.7	3,521	3,933	1,957	1,574	3,230	1,726	1,919	229	6.35	50.8
Ac-ft	2,380	4,860	216,500	241,800	108,700	96,770	192,200	106,100	114,200	14,080	391	3,020

Calendar year 1964 Max 29,400 Min 1.1 Mean 401 Ac-ft 290,800  
 Water year 1964-65 Max 29,400 Min 1.7 Mean 1,521 Ac-ft 1,101,000

## 11-3030. Stanislaus River at Ripon, Calif.

Location.--Lat 37°43'50", long 121°06'35", in SE¼ sec.29, T.2 S., R.8 E., on left bank 15 ft downstream from railroad bridge, 1 mile southeast of Ripon, and 15 miles upstream from mouth.

Drainage area.--1,075 sq mi.

Records available.--October 1940 to September 1965 in reports of Geological Survey. April to September 1940 in reports of California Department of Water Resources.

Gage.--Water-stage recorder (digital). Datum of gage is 0.72 ft above mean sea level, datum of 1929, adjustment of 1959. Prior to Nov. 17, 1953, at site 100 ft upstream at same datum.

Average discharge.--25 years, 1021 cfs (739,200 acre-ft per year).

Extremes.--Maximum discharge during year, 32,800 cfs Dec. 25 (gage height, 62.26 ft); minimum daily, 125 cfs Oct. 5.

1940-65: Maximum discharge, 62,500 cfs Dec. 24, 1955 (gage height, 63.25 ft); minimum, 40 cfs July 21, 1961.

Flood of Feb. 12, 1938, reached a stage of 64.4 ft. from floodmarks.

Remarks.--Records good. Flow regulated by reservoirs and powerplants above station (see Remarks for station below Goodwin Dam near Knights Ferry). South San Joaquin Canal (see p. 695) and Oakdale Canal (see p. 696) divert at Goodwin Dam 3¼ miles upstream. Diversions for irrigation of about 57,250 acres in vicinity Oakdale area. See schematic diagram, p. 675.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	143	206	193	6,220	2,420	1,740	1,670	4,500	564	790	201	229
2	153	204	192	5,850	2,400	1,750	1,720	4,540	700	735	183	222
3	133	200	233	5,250	2,380	1,750	1,890	4,300	1,350	890	191	239
4	131	202	222	3,920	2,320	1,740	1,940	3,610	1,770	932	183	277
5	125	203	206	2,630	2,160	1,740	1,940	2,700	2,360	793	174	263
6	123	200	224	2,930	2,100	1,740	2,010	2,260	3,500	842	179	288
7	127	200	213	7,060	2,120	1,740	1,950	2,170	4,120	1,040	195	274
8	141	202	199	11,800	2,130	1,740	1,830	2,320	4,260	902	244	257
9	143	206	216	8,750	2,150	1,780	2,070	2,820	4,300	666	231	275
10	141	216	209	6,560	2,160	1,770	2,600	3,100	4,310	505	199	262
11	151	307	197	5,880	2,140	1,510	3,080	3,050	4,200	420	190	252
12	132	302	183	5,030	2,130	1,230	3,880	3,000	4,100	359	261	263
13	123	286	170	4,190	2,130	2,030	4,210	2,970	4,050	324	295	269
14	130	292	163	3,600	2,140	2,200	4,240	2,610	4,030	284	285	260
15	154	243	183	2,990	2,140	2,050	4,080	2,310	3,670	260	267	257
16	161	220	187	2,720	2,130	2,020	4,080	1,580	2,910	232	271	267
17	193	207	183	2,660	1,840	1,990	4,090	1,020	1,770	226	213	322
18	185	202	331	2,630	1,670	1,960	3,970	656	1,020	255	209	324
19	177	197	326	2,610	1,660	1,950	3,690	556	855	241	225	326
20	176	195	302	2,490	1,640	1,930	3,670	522	703	209	223	351
21	175	195	293	2,490	1,630	1,910	3,780	476	652	200	222	361
22	170	193	434	2,750	1,610	1,770	3,980	644	564	196	226	303
23	171	200	1,670	3,940	1,590	1,560	4,460	2,060	492	193	220	292
24	174	193	5,210	4,460	1,560	1,300	4,740	2,590	473	182	203	252
25	179	255	24,700	4,140	1,620	1,080	4,610	2,420	810	187	216	276
26	185	211	11,900	2,890	1,700	988	4,340	2,390	1,470	196	240	297
27	183	222	10,300	2,410	1,720	930	4,160	1,770	1,370	202	227	326
28	185	224	11,300	2,180	1,740	1,330	4,160	1,110	1,060	198	224	277
29	203	215	10,700	2,340	-----	1,440	4,410	815	608	197	244	298
30	234	202	8,030	2,450	-----	1,470	4,590	642	542	184	250	283
31	217	-----	6,580	2,430	-----	1,490	-----	614	-----	184	217	-----
Total	5,039	6,615	95,459	128,250	55,130	51,628	101,840	66,125	62,593	13,029	6,918	8,447
Mean	163	220	3,079	4,137	1,969	1,665	3,395	2,133	2,086	420	223	282
Ac-ft	9,990	13,120	189,300	254,400	109,300	102,400	202,000	131,200	124,200	25,840	13,720	16,750

Calendar year 1964 Max 24,700 Min 90 Mean 483 Ac-ft 350,600  
 Water year 1964-65 Max 24,700 Min 125 Mean 1,646 Ac-ft 1,192,000

11-3035. San Joaquin River near Vernalis, Calif.

Location.--Lat 37°40'34", long 121°15'51", on left bank 30 ft upstream from Durham Ferry highway bridge, 3 miles downstream from Stanislaus River, and 3.4 miles northeast of Vernalis.

Drainage area.--13,540 sq mi.

Records available.--July 1922 to September 1965 (1922-23 and 1925-29, low-water records only).

Gage.--Water-stage recorder. Datum of gage is at mean sea level. July 1922, to September 1946, at various sites on or within 100 ft of Durham Ferry bridge. Prior to Apr. 1, 1931 at different datum. Apr. 1, 1931, to Sept. 30, 1959, at datum 5.06 ft above mean sea level and 8.4 ft above datum of Corps of Engineers.

Average discharge.--37 years (1924, 1929-65), 4,386 cfs (3,175,000 acre-ft per year).

Extremes.--Maximum discharge during year, 22,800 cfs Jan. 12 (elevation, 28.27 ft); minimum daily, 955 cfs Aug. 5.

1922-65: Maximum discharge recorded, about 79,000 cfs Dec. 9, 1950 (elevation, 32.81 ft, present datum), including flow through breaks in levee; minimum, 19 cfs Aug. 10, 1961.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Natural flow of stream affected by storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation; low flows consist mainly of return flow from irrigated areas. Records of chemical analysis and suspended sediment loads for the water year 1965 are published in Part 2 of this report.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1410	2120	2130	18200	8500	5940	4090	6890	3370	3720	1040	1180
2	1480	2140	2210	17800	8750	5740	4670	6410	3350	3690	1060	1290
3	1420	2050	2290	17300	8620	5610	5240	6290	3830	3190	1040	1300
4	1390	1860	2140	16600	8120	6050	6070	6350	4610	3020	1000	1320
5	1410	1820	2170	15200	7730	6740	6400	6150	5030	3080	955	1420
6	1430	1790	2150	14000	7940	7020	6390	5800	5970	2910	985	1540
7	1450	1770	2020	14300	8720	6780	6200	5890	6640	2850	1030	1530
8	1400	1790	1930	18100	9360	6700	6270	5920	6750	2860	1110	1600
9	1410	1780	2020	21800	9750	7320	6780	6320	6830	2740	1140	1510
10	1430	1790	2020	22000	9870	7700	7710	6740	7100	2590	1080	1470
11	1470	1900	1990	22000	9260	7150	9280	6780	7490	2500	1070	1490
12	1440	2050	2020	22700	8360	6300	11200	6400	7670	2320	1340	1570
13	1440	2080	2040	22100	7930	6090	12700	6200	8010	2300	1720	1610
14	1500	2150	1940	20500	7730	7180	13800	5960	9130	2300	1820	1510
15	1520	2460	1840	18000	7970	5990	14100	5380	9280	1920	1750	1360
16	1530	3010	2060	15100	8430	5460	14200	4610	8420	1760	1680	1360
17	1460	2950	2130	12800	8260	5710	14500	3980	7640	1600	1380	1510
18	1360	2610	2120	11500	7790	5780	14300	3540	6950	1440	1240	1690
19	1290	2660	2220	10800	7430	5820	13800	3580	5490	1220	1130	1690
20	1180	3190	2310	10100	7100	5740	13500	3670	4140	1200	1160	1760
21	1140	3280	2260	9220	6900	4860	12800	3610	3640	1120	1140	1570
22	1150	3240	2200	8650	6610	4060	11500	3740	3340	1080	1230	1710
23	1140	3120	2780	8670	6470	3600	10600	4540	3700	1100	1260	1850
24	1140	3000	4950	9220	6890	3290	10800	5890	3930	1080	1160	1860
25	1160	2750	14000	9630	7150	2920	11200	6280	3950	1120	1140	1950
26	1200	2520	19800	10100	7180	2880	11100	6140	4370	1100	1160	2180
27	1220	2300	18700	10400	6810	2910	10600	5540	4780	1110	1210	2290
28	1410	2180	20100	10500	6340	3270	9730	4520	5080	1100	1140	2270
29	1780	2150	20900	10200	-----	3430	8420	3930	4840	1080	1200	2400
30	1940	2150	20500	9600	-----	3420	7830	3620	4180	1050	1260	2560
31	2050	-----	19200	8800	-----	3660	-----	3500	-----	1010	1210	-----
Total	43,750	70,660	187,140	445,890	221,970	165,120	295,780	164,170	169,510	61,160	37,840	50,350
Mean	1411	2355	6037	14380	7928	5326	9859	5296	5650	1973	1221	1678
Ac-ft	86,780	140,200	371,200	884,400	440,300	327,500	586,700	325,600	336,200	121,300	75,050	99,870

Calendar year 1964 Max 20,900 Min 236 Mean 1,599 Ac-ft 1,161,000

Water year 1964-65 Max 22,700 Min 955 Mean 5,242 Ac-ft 3,795,000

Note.--No gage-height record May 1, 2, 9, 22, 25, July 15-18.

## SAN JOAQUIN RIVER BASIN

11-3040. Corral Hollow Creek near Tracy, Calif.

Location.--Lat 37°39'24", long 121°28'40", in SE 1/4 NW 1/4 sec. 24, T. 3 S., R. 4 E., on left bank just upstream from highway bridge, 0.8 mile downstream from Elk Ravine, and 6.3 miles southwest of Tracy.

Drainage area.--61.6 sq mi.

Records available.--October 1958 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 330 ft (from topographic map).

Average discharge.--7 years, 0.37 cfs (268 acre-ft per year).

Extremes.--Maximum discharge during year, 54 cfs Jan. 7 (gage height, 2.10 ft); no flow for several months.  
1958-65: Maximum discharge, 145 cfs Mar. 6, 1962 (gage height, 2.54 ft); no flow for several months in each year.

Remarks.--Records fair except those for period of no gage height record, which are poor. Small diversions by pumping from stream above station.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Nov. 23 to Jan. 4, June 4-27)

0.93	0	1.4	4.6
1.0	.1	1.5	8.3
1.1	.2	1.6	14
1.2	.4	1.7	20
1.3	2.0	1.9	38

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0.1	0.2	1.6	0.6	0.6	0.3	0.2			
2		0	.1	.2	1.4	.6	.7	.3	.2			
3		0	.1	.2	1.2	.6	.7	.4	.2			
4		0	.1	3.4	1.2	.5	.6	.4	.2			
5		0	.1	2.5	1.4	.5	.5	.3	.2			
6		0	.1	3.3	1.2	.6	.5	.4	.2			
7		0	.1	31	.9	.6	.5	.3	.2			
8		0	.1	13	.9	.6	.5	.3	.2			
9		0	.1	6.1	.9	.6	.9	.3	.2			
10		0	.1	3.9	.7	.6	4.8	.3	.2			
11		0	.1	2.7	.7	.5	4.2	.2	.1			
12		0	.1	2.0	.9	.6	1.8	.2	.1			
13		0	.1	1.6	.9	.7	1.8	.2	.1			
14		0	.1	1.2	.9	.6	.7	.2	.1			
15		0	.1	1.2	.9	.6	.5	.2	.1			
16		0	.1	.9	.9	.5	.5	.2	.1			
17		0	.1	.9	.9	.5	.5	.2	.1			
18		0	.1	.9	.9	.5	.6	.2	.1			
19		0	.2	1.8	.9	.6	.6	.2	.1			
20		0	.2	1.8	.7	.5	.6	.2	.1			
21		0	.2	1.4	.7	.6	.6	.2	.1			
22		0	.2	1.2	.6	.6	.6	.2	.1			
23		.1	.3	1.4	.6	.6	.4	.2	.1			
24		.1	.3	3.1	.6	.6	.4	.2	.1			
25		.1	.2	5.3	.6	.5	.3	.2	.1			
26		.1	.2	3.4	.6	.6	.3	.2	.1			
27		.1	.2	2.7	.7	.7	.3	.1	.1			
28		.1	.3	2.3	.6	.6	.4	.1	0			
29		.1	.2	2.0	-----	.6	.3	.1	0			
30		.1	.2	2.0	-----	.6	.3	.1	0			
31		-----	.2	1.8	-----	.7	-----	.1	-----			
Total		0.8	4.7	105.4	25.0	13.1	26.0	7.0	3.7	0	0	0
Mean		0.03	0.15	3.40	0.89	0.58	0.87	0.23	0.12	0	0	0
Ac-ft		1.6	9.3	209	50	36	52	14	7.3	0	0	0

Calendar year 1964 Max 2.0 Min 0 Mean 0.10 Ac-ft 76  
Water year 1964-65 Max 31 Min 0 Mean 0.52 Ac-ft 379

Peak discharge (base, 40 cfs).--Jan. 7 (0800 hrs) 54 cfs (2.10 ft).

Note.--No gage height record Dec. 8-26.

11-3060. South Fork Calaveras River near San Andreas, Calif.

Location.--Lat 38°08'40", long 120°39'50", in NW<sup>1</sup>/<sub>4</sub> sec. 4, T.3 N., R.12 E., on right bank 0.1 mile downstream from San Antonio Creek, and 3.7 miles south of San Andreas.

Drainage area.--118 sq mi.

Records available.--April 1950 to September 1965.

Gage.--Water-stage recorder (digital). Altitude of gage is 860 ft (from topographic map). Prior to Feb. 13, 1952, staff gage at same site and datum.

Average discharge.--15 years, 76.1 cfs (55,090 acre-ft per year); median of yearly mean discharges, 50 cfs (36,200 acre-ft per year).

Extremes.--Maximum discharge during year, 7,940 cfs Jan. 6 (gage height, 7.99 ft); no flow Oct. 1-11.

1950-65: Maximum discharge, 17,600 cfs Dec. 23, 1955 (gage height, 10.29 ft), from rating curve extended above 5,700 cfs on basis of slope-area measurement of maximum flow; no flow at times in most years.

Remarks.--Records good except those for period Oct. 8 to Feb. 8, which are fair. Some small diversions, mainly for irrigation, above station.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Nov. 18-26, 30, Dec. 1, 9, 10,  
19-31, Jan. 1-3, 6-8)

0.35	0	.08	4.4	2.0	110	4.5	1,600
.4	.1	1.0	9.8	2.4	220	5.0	2,200
.5	.3	1.2	18	3.0	480	6.0	3,720
.6	1.0	1.5	36	3.5	780	7.0	5,750
.7	2.4	1.7	57	4.0	1,140		

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	0	1.6	13	450	163	83	102	109	33	15	5.7	3.2
2	0	1.5	35	316	155	77	162	104	34	15	5.3	3.4
3	0	1.2	42	445	148	73	178	105	36	14	5.1	3.3
4	0	1.3	38	516	142	70	140	97	33	13	4.8	4.2
5	0	1.4	35	554	184	68	124	95	32	12	4.8	3.2
6	0	1.4	30	4,520	240	71	167	91	32	11	4.6	2.7
7	0	2.3	27	2,340	193	72	176	90	31	10	4.3	3.9
8	0	8.2	22	870	168	67	401	84	30	10	4.2	5.0
9	0	11	17	572	153	66	1,270	81	31	9.5	4.0	4.5
10	0	25	14	430	142	63	1,540	78	30	9.2	4.1	4.0
11	0	66	42	352	133	62	790	74	29	9.2	4.8	3.6
12	.1	200	62	304	124	145	488	70	28	8.4	11	3.2
13	.1	215	47	264	117	238	444	67	26	8.2	16	2.9
14	.1	45	40	232	114	130	356	63	25	7.7	9.3	3.1
15	.1	46	37	214	108	107	308	61	25	7.5	8.6	2.7
16	.1	37	34	205	104	96	337	58	28	6.9	6.8	2.7
17	.1	29	32	193	99	89	307	59	29	6.6	6.0	2.6
18	.1	20	30	193	95	84	265	54	28	6.7	5.6	2.6
19	.2	17	288	202	93	78	246	50	26	6.6	5.4	2.7
20	.3	10	486	214	91	73	252	48	25	6.6	5.2	2.7
21	.3	8.9	510	193	89	69	265	49	23	6.6	4.8	3.1
22	.3	8.1	1,800	184	87	66	261	51	22	7.2	4.6	3.1
23	.3	7.2	4,010	214	84	60	219	51	22	7.0	4.5	2.9
24	.3	6.6	2,890	534	31	60	196	46	21	6.5	4.2	2.9
25	.3	7.2	750	304	78	61	176	44	20	6.4	4.2	2.9
26	.5	20	1,000	252	76	65	160	42	19	6.3	4.1	2.9
27	.9	33	1,960	224	100	148	149	40	19	6.3	4.0	3.2
28	1.2	26	1,080	208	96	124	136	37	18	6.1	3.7	3.5
29	1.4	22	899	196	-----	94	125	36	17	5.9	3.3	3.6
30	1.4	13	826	181	-----	86	116	35	15	5.8	3.2	3.5
31	1.6	-----	899	172	-----	82	-----	34	-----	5.8	2.9	-----
TOTAL	9.7	891.9	18,005	16,048	3,457	2,727	9,856	2,003	787	263.0	169.1	97.8
MEAN	0.31	29.7	581	518	123	88.0	329	64.6	26.2	8.48	5.46	3.26
AC-FT	19	1,770	35,710	31,830	6,860	5,410	19,550	3,970	1,560	522	335	194

CALENDAR YEAR 1964 MAX 4,010 MIN 0 MEAN 77.8 AC-FT 56,470  
WATER YEAR 1964-65 MAX 4,520 MIN 0 MEAN 149 AC-FT 107,700

## Peak discharge (base, 1,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-22	2345	7.81	7,430	1-6	0945	7.99	7,940
12-27	1000	5.21	2,190	4-9	2115	5.51	2,950

Note.--No gage-height record Oct. 8 to Nov. 14.

11-3065. Calaveritas Creek near San Andreas, Calif.

Location.--Lat 38°09'50", long 120°39'30", in SW $\frac{1}{4}$  sec.28, T.4 N., R.12 E., on right bank 1.0 mile upstream from mouth and 2.6 miles southeast of San Andreas.

Drainage area.--53.0 sq mi.

Records available.--April 1950 to September 1965.

Gage.--Water-stage recorder (digital). Altitude of gage is 865 ft (from topographic map). Prior to Feb. 12, 1952, staff gage at same site and datum.

Average discharge.--15 years, 31.6 cfs (22,880 acre-ft per year); median of yearly mean discharges, 19 cfs (13,800 acre-ft per year).

Extremes.--Maximum discharge during year, 4,180 cfs Dec. 23 (gage height, 6.52 ft); no flow Oct. 1, 2.

1950-65: Maximum discharge, 4,410 cfs Apr. 2, 1958 (gage height, 6.65 ft); no flow at times in most years.

Remarks.--Records good. No regulation or diversion above station.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

0.4	0	1.7	47
.5	.1	2.0	80
.6	.4	2.5	165
.7	.9	3.0	305
.8	1.8	3.5	510
.9	3.2	4.0	790
1.0	5.3	4.5	1,160
1.2	12	5.0	1,700
1.4	24	5.5	2,340

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	0	2.3	5.3	190	44	24	37	36	12	5.5	1.9	1.1
2	0	2.2	5.3	141	41	21	52	35	13	5.2	1.7	1.1
3	.1	1.8	5.3	139	39	19	82	35	13	5.0	1.8	1.0
4	.2	1.7	7.4	242	37	19	68	32	13	4.9	1.8	1.0
5	.2	1.9	8.8	239	39	18	55	30	12	4.6	1.7	1.0
6	.2	2.0	8.0	1,750	54	19	61	28	11	4.5	1.6	1.0
7	.2	2.0	7.1	1,020	57	19	82	29	11	4.7	1.5	1.2
8	.2	2.0	7.1	356	48	19	99	27	11	4.6	1.4	1.0
9	.2	8.4	6.5	221	41	18	236	25	11	4.1	1.4	1.0
10	.2	15	5.9	170	38	18	475	25	11	3.9	1.4	1.0
11	.2	39	6.2	137	36	17	376	23	10	3.7	1.6	1.0
12	.2	80	34	119	34	28	275	22	9.4	3.6	2.6	1.1
13	.2	82	27	102	32	57	236	22	8.7	3.5	1.6	1.0
14	.2	39	18	88	31	51	200	22	8.3	3.3	1.9	1.0
15	.2	21	14	76	30	41	165	21	8.9	3.2	1.9	1.0
16	.2	14	12	70	29	34	153	20	8.9	2.9	1.9	1.1
17	.2	11	9.6	63	27	29	145	20	8.6	2.8	2.1	1.0
18	.2	8.0	8.4	61	26	27	122	19	8.8	2.6	2.2	1.0
19	.2	6.8	22	59	25	25	106	18	8.3	2.4	2.1	1.1
20	.2	6.2	141	61	24	24	95	18	7.5	2.5	1.9	1.0
21	.3	5.6	161	58	24	22	90	18	7.2	2.5	1.8	1.0
22	.3	5.3	600	54	24	21	84	18	7.5	2.5	1.7	1.0
23	.3	4.6	2,190	57	22	22	75	17	7.1	2.4	1.6	1.0
24	.3	4.6	1,810	82	22	21	65	17	7.5	2.3	1.5	1.0
25	.4	4.6	344	95	21	20	59	16	7.8	2.2	1.6	1.0
26	.5	4.9	305	79	21	20	54	15	6.7	2.1	1.5	1.0
27	.6	4.4	778	67	24	45	49	15	6.2	2.1	1.4	1.1
28	.6	4.9	432	60	25	75	45	14	5.8	2.1	1.3	1.1
29	1.8	4.9	293	55	-----	56	41	13	5.7	2.1	1.2	1.0
30	1.8	4.9	247	50	-----	42	38	12	5.6	2.0	1.1	1.0
31	1.7	-----	272	47	-----	36	-----	12	-----	2.0	1.1	-----
TOTAL	12.1	395.0	7,790.9	6,008	915	907	3,720	674	272.5	101.8	51.8	30.9
MEAN	.39	13.2	251	194	32.7	29.3	124	21.7	9.08	3.28	1.67	1.03
AC-FT	24	783	15,450	11,920	1,810	1,800	7,380	1,340	540	202	103	61

CALENDAR YEAR 1964 MAX 2,190 MIN 0 MEAN 30.9 AC-FT 22,400  
 WATER YEAR 1964-65 MAX 2,190 MIN 0 MEAN 57.2 AC-FT 41,410

Peak discharge (base, 500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0145	6.52	4,180	1- 6	1445	5.65	2,570
12-27	1245	4.49	1,100	4-10	2030	3.69	580



11-3080, North Fork Calaveras River near San Andreas, Calif.

Location.--Lat 38°13'05", long 120°41'55", in NW¼ sec.7, T.4 N., R.12 E., on right bank 0.5 mile upstream from Chile Gulch and 1.8 miles northwest of San Andreas.

Drainage area.--85.2 sq mi.

Records available.--March 1950 to September 1965.

Gage.--Water-stage recorder (digital). Altitude of gage is 750 ft (from topographic map). Prior to Feb. 14, 1952, staff gage at same site and datum.

Average discharge.--15 years, 47.3 cfs (34,240 acre-ft per year); median of yearly mean discharges, 30 cfs (21,700 acre-ft per year).

Extremes.--Maximum discharge during year, 4,800 cfs Dec. 23 (gage height, 11.22 ft); no flow for many days.

1950-65: Maximum discharge, 6,200 cfs Dec. 23, 1955 (gage height, 12.52 ft), from rating curve extended above 3,900 cfs; no flow at times in most years.

Remarks.--Records good. Small diversions above station for irrigation.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1		0	8.7	249	63	32	62	52	21	9.2	3.1	0.9
2		0	11	201	58	30	91	51	21	8.2	2.5	2.0
3		6.2	43	306	55	29	114	51	21	7.5	2.4	2.1
4		7.0	32	580	52	28	79	48	20	7.3	1.9	1.7
5		3.4	21	535	59	28	68	46	19	6.9	1.4	1.6
6		2.8	17	2,350	102	28	102	45	18	5.4	.9	2.6
7		2.7	15	1,430	69	29	111	44	18	5.5	.3	4.5
8		2.5	13	529	57	28	197	42	18	5.6	1.0	5.8
9		12	12	318	51	27	451	40	19	5.2	.8	5.8
10		124	11	244	48	26	695	39	18	4.8	1.2	4.0
11		122	59	196	46	26	573	38	19	4.9	2.6	2.6
12		315	93	168	44	46	489	36	18	5.1	12	2.5
13		106	40	140	42	140	563	35	20	5.0	13	2.7
14		45	24	120	41	69	419	34	20	4.3	8.2	2.7
15		27	19	110	40	49	265	33	20	3.8	7.2	2.1
16		18	17	98	39	40	253	32	20	3.8	6.0	2.2
17		13	15	91	37	35	210	31	21	3.0	4.6	1.1
18		11	14	86	36	33	157	30	21	3.2	4.0	.4
19		9.4	105	86	35	31	132	29	19	3.4	4.1	.4
20		8.4	408	97	34	30	119	28	18	3.1	3.7	.6
21		7.8	340	84	34	29	128	29	16	3.1	3.5	.6
22		7.2	890	76	33	28	110	30	16	3.3	3.5	.7
23		7.0	2,850	76	32	26	93	29	15	3.0	3.7	1.4
24		6.7	2,350	230	32	25	85	27	13	2.4	4.0	1.6
25		6.7	544	130	31	25	76	26	13	2.8	4.4	1.8
26		9.4	475	99	30	28	71	25	13	2.9	4.4	2.4
27		14	935	86	37	193	67	23	13	3.1	3.2	2.9
28		11	612	80	38	128	64	22	13	3.2	1.2	3.2
29		8.7	400	75	-----	79	58	21	11	3.0	2.1	5.1
30		8.1	441	70	-----	64	55	20	9.8	3.2	1.3	4.6
31		-----	352	66	-----	57	-----	20	-----	3.1	1.0	-----
TOTAL	0	922.0	11,166.7	9,006	1,275	1,466	5,957	1,056	521.8	138.3	113.2	72.6
MEAN	0	30.7	360	291	45.5	47.3	199	34.1	17.4	4.46	3.65	2.42
AC-FT	0	1,830	22,150	17,860	2,530	2,910	11,820	2,090	1,030	274	225	144

CALENDAR YEAR 1964 MAX 2,850 MIN 0 MEAN 48.5 AC-FT 35,220  
 WATER YEAR 1964-65 MAX 2,850 MIN 0 MEAN 86.8 AC-FT 62,860

Peak discharge (base, 1,300 cfs).--Dec.23 (0730) 4,800 cfs (11.22 ft); Jan. 6 (1315) 3,160 cfs (9.52 ft).

## SAN JOAQUIN RIVER BASIN

11-3087. New Hogan Reservoir near Valley Springs, Calif.

Location.--Lat 38°09'00", long 120°48'45", in SW $\frac{1}{4}$  sec. 31, T. 4 N., R. 11 E., at New Hogan Dam on the Calaveras River, 3.0 miles south of Valley Springs.

Drainage area.--362 sq. mi.

Records available.--December 1963 to September 1965.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers).

Extremes.--Maximum contents during year, 214,900 acre-ft May 8-12 (elevation, 685.12 ft); minimum 9,360 acre-ft Oct. 27 (elevation, 516.81 ft)  
1963-65: Maximum contents, that of May 8-12, 1965; minimum since initial season of normal operation, that of Oct. 27, 1964.

Remarks.--Reservoir is formed by an earthfill dam and four earthfill dikes. Storage began Dec. 20, 1963. Total capacity, 324,000 acre-ft between elevations 534.5 ft (invert of outlet valve) and 713.0 ft (top of spillway gates). Elevation of spillway crest is 679.5 ft. No dead storage. The reservoir is operated for flood control according to existing downstream channel conditions. Reservoir releases limited, insofar as possible, to amounts that will not cause flows greater than 6,000 cfs at Bellota. Release of conservation storage could provide about 40,000 acre-ft of additional water annually for irrigation. Records, including extremes, show contents at 2400 hours.

Cooperation.--Records furnished by Corps of Engineers.

Capacity table (elevation, in feet, and contents, in acre-feet)

570	6,140	610	39,200
580	11,100	630	70,500
590	18,000	660	138,700
600	27,300	690	232,000

Contents, in acre-feet, at 2400 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9,540	9,490	14,800	114,200	159,300	162,400	170,200	214,200	211,300	201,200	188,000	176,000
2	9,530	9,510	14,900	115,900	159,600	162,600	171,000	214,300	211,000	200,800	187,500	175,600
3	9,520	9,530	15,000	118,200	159,800	162,800	171,800	214,500	210,700	200,500	187,000	175,300
4	9,520	9,560	15,200	121,400	160,000	162,800	172,300	214,600	210,400	200,000	186,600	174,900
5	9,510	9,570	15,300	124,600	160,300	162,900	172,800	214,700	210,300	199,700	186,200	174,600
6	9,510	9,590	15,400	145,500	160,800	163,100	173,500	214,700	210,100	199,200	185,800	174,200
7	9,500	9,610	15,400	149,000	160,900	163,300	174,300	214,800	209,700	198,800	185,300	174,000
8	9,500	9,620	15,500	162,000	160,900	163,400	175,800	214,900	209,400	198,400	184,900	173,700
9	9,490	9,780	15,500	161,800	160,500	163,500	180,900	214,900	209,100	197,900	184,500	173,500
10	9,480	10,400	15,500	160,800	160,200	163,600	188,100	214,900	208,900	197,400	184,100	173,200
11	9,480	10,900	15,500	159,900	159,900	163,800	192,400	214,900	208,600	197,000	183,900	173,000
12	9,460	12,100	15,800	159,800	159,700	164,300	195,500	214,900	208,400	196,700	183,600	172,700
13	9,460	13,000	15,900	160,600	159,500	165,200	198,100	214,800	208,100	196,200	183,300	172,400
14	9,450	13,400	16,000	161,700	159,400	165,600	200,200	214,700	207,700	195,700	183,000	172,200
15	9,440	13,600	16,000	162,600	159,400	165,800	201,800	214,500	207,300	195,400	182,600	171,900
16	9,440	13,700	16,000	163,400	159,700	166,000	203,600	214,300	207,000	194,900	182,200	171,500
17	9,430	13,800	16,000	164,200	159,900	166,300	205,100	214,200	206,600	194,400	181,800	171,200
18	9,420	13,900	16,000	164,900	160,200	166,500	206,200	214,100	206,200	194,000	181,400	170,900
19	9,410	14,000	16,600	165,800	160,400	166,700	207,200	213,900	205,900	193,600	180,900	170,600
20	9,410	14,100	19,300	166,000	160,600	166,800	208,300	213,700	205,500	193,100	180,500	170,400
21	9,400	14,100	21,800	164,000	160,800	166,900	209,300	213,500	205,100	192,600	180,100	170,100
22	9,390	14,200	29,800	161,600	161,000	167,100	210,200	213,500	204,600	192,200	179,700	169,900
23	9,380	14,200	55,100	159,500	161,200	167,200	211,000	213,300	204,100	191,700	179,300	169,700
24	9,380	14,300	73,300	158,500	161,400	167,300	211,700	213,200	203,700	191,200	178,900	169,400
25	9,370	14,400	77,700	157,300	161,500	167,400	212,400	213,000	203,400	190,800	178,500	169,100
26	9,360	14,400	82,000	157,100	161,700	167,600	212,900	212,800	203,000	190,400	178,200	168,800
27	9,360	14,500	91,800	157,400	162,000	168,400	213,300	212,600	202,600	190,000	177,800	168,500
28	9,410	14,500	98,100	157,900	162,200	168,900	213,600	212,300	202,300	189,600	177,400	168,300
29	9,440	14,700	102,700	158,300	-----	169,300	213,800	212,100	201,800	189,200	177,100	168,100
30	9,440	14,700	107,000	158,700	-----	169,600	214,100	211,800	201,500	188,700	176,700	167,800
31	9,440	-----	111,600	159,000	-----	169,900	-----	211,600	-----	188,300	176,300	-----
(+)	576.97	585.60	649.33	667.29	668.39	670.99	684.87	684.14	681.10	676.99	673.11	670.29
(#)	-120	+ 5260	+ 96,900	+ 47,400	+ 3,200	+ 7,700	+ 44,200	- 2,500	- 10,100	- 13,200	- 12,000	- 8,500
(++)	266	91	105	239	406	627	830	1,801	1,950	2,649	2,474	1,630

Calendar year 1964..... † 110,400

Water year 1964-65..... † 158,200

† Elevation in feet at end of month.

# Change in contents, in acre-feet.

++ Evaporation in acre-feet.

11-3089, Calaveras River below New Hogan Dam, near Valley Springs, Calif.  
(Formerly published as Calaveras River below New Hogan Dam)

Location.--Lat 38°08'53", long 120°49'26", in NE¼ sec.1., T.3 N., R.10 E., on right bank at county road bridge, 0.5 mile upstream from Cosgrove Creek, 0.8 mile downstream from New Hogan Dam, and 3.0 miles south of Valley Springs.

Drainage area.--363 sq mi.

Records available.--January 1961 to September 1965. Published as "below Hogan Dam" 1961-63 and as "below New Hogan Dam" 1964.

Gage.--Water-stage recorder and concrete control. Datum of gage is 519.8 ft above mean sea level (levels by Corps of Engineers).  
Auxiliary staff gage 300 ft downstream at different datum used May 1, 1962 to Jan. 26, 1963.

Extremes.--Maximum discharge during year, 1,640 cfs Jan. 8-11, 21-25 (gage height, 3.34 ft); no flow for many days.  
1961-65: Maximum discharge, 7,020 cfs Feb. 1, 1963 (gage height, 6.76 ft); no flow for many days each year.

Remarks.--Records good. Flow regulated by New Hogan Reservoir (see preceding page). Some seepage of North Fork Stanislaus River water enters basin from diversion canals and reservoirs, normally not over 1.5 cfs. Small diversions above station for irrigation. Records of chemical analyses for the water year 1965 are published in Part 2 of this report.

Revisions.--Revised figures of discharge, in cubic feet per second, for the water years 1963, 1964 superseding those published in Surface Water Records of California, Vol. 2 are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge
1963		1963		1963	
Feb. 13	802	Apr. 21	1,600	Apr. 27	807
14	1,340	22	1,600	Nov. 20	632
15	447	23	1,570	21	720
Apr. 18	1,700	24	1,520		
19	1,600	25	1,470		
20	1,590	26	1,430		

Month	Cfs-Days	Maximum	Minimum	Mean	Adj. Mean	Runoff	
						Acre- Feet	Adjusted Ac-feet
February 1963	22,228.8	6,430	8.5	794		44,090	
April 1963	25,252	1,730	12	842		50,090	
Water year 1962-63	-	6,430	0	209		151,300	
November 1963	4,724.6	720	9.6	157	157	9,370	9,370
Calendar year 1963	-	6,430	-	220	222	159,400	160,600
Water year 1963-64	-	626	0	60.5	79.0	43,920	57,330

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0	2.4	154	64	75	119	174	201	196	165
2		0	0	1.4	154	63	63	119	201	201	201	157
3		0	1	2.0	154	63	49	116	192	201	206	150
4		0	0	1.4	154	63	49	116	170	201	192	138
5		0	0	1.6	210	63	49	116	165	201	192	135
6		0	0	7.2	250	63	51	113	170	210	196	135
7		0	13	7.7	250	63	51	113	174	220	196	127
8		0	23	843	372	63	51	107	178	220	196	121
9		1.0	30	1,640	463	63	53	110	178	210	201	121
10		2.2	38	1,640	463	63	49	127	170	210	201	107
11		0	38	1,390	463	63	49	133	174	210	183	97
12		0.5	38	837	344	73	51	146	178	210	174	99
13		0.1	38	236	260	99	53	154	178	210	165	105
14		0	54	.8	260	102	53	150	188	210	157	119
15		0	70	.6	162	102	54	165	206	210	170	131
16		0	51	.5	64	86	54	173	210	210	183	131
17		0	38	.4	64	77	54	170	225	210	201	119
18		0	49	.4	64	77	54	161	220	210	205	113
19		0	59	.8	64	77	54	161	220	215	206	116
20		0	59	366	64	77	54	165	220	225	196	113
21		0	32	1,480	64	77	54	154	220	225	188	107
22		0	10	1,640	64	77	56	150	225	220	178	107
23		0	28	1,640	64	77	56	150	230	215	178	113
24		0	14	1,640	64	77	56	161	235	210	174	127
25		0	2.7	1,340	64	77	56	170	225	210	165	135
26		0	3.9	741	64	77	68	165	220	206	165	138
27		0	7.3	314	64	77	97	165	215	196	170	131
28		0	6.5	170	64	75	107	161	201	196	170	116
29		0	5.7	170	-----	75	110	161	188	196	165	107
30		0	6.9	170	-----	75	119	165	196	196	154	102
31		-----	4.9	170	-----	75	-----	165	-----	196	165	-----
Total	0	3.8	720.0	16,454.2	4,960	2,303	1,849	4,508	5,946	6,461	5,695	3,682
Mean	0	1.27	23.2	531	177	74.3	61.6	145	193	208	184	123
Ac-ft	0	7.5	1,430	32,640	9,340	4,570	3,670	8,940	11,790	12,820	11,300	7,300
Mean†	2.37	90.1	1,600	1,310	242	210	813	134	61.2	36.9	28.8	7.23
Ac-ft†	146	5,360	98,440	80,280	13,450	12,900	48,700	8,240	3,640	2,270	1,770	430
Calendar year 1964:	Max	263	Min	0	Mean	44.9	Ac-ft	32,620	Mean†	203	Ac-ft†	147,300
Water year 1964-65:	Max	1,640	Min	0	Mean	144	Ac-ft	104,300	Mean†	381	Ac-ft†	275,600

† Adjusted for change in contents and evaporation from New Hogan Reservoir.

11-3090. Cosgrove Creek near Valley Springs, Calif.

Location.--Lat 38°08'10", long 120°50'05", in SE $\frac{1}{4}$  sec.35, T.4 N., R.10 E., on right bank 0.4 mile upstream from mouth and 2.7 miles south of Valley Springs.

Drainage area.--21.1 sq mi.

Records available.--October 1929 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 547.8 ft above mean sea level, datum of 1929. Prior to Mar. 17, 1930, staff gage at site a quarter of a mile downstream at different datum.

Average discharge.--36 years, 7.32 cfs (5,300 acre-ft per year); median of yearly mean discharges, 5.4 cfs (3,910 acre-ft per year).

Extremes.--Maximum discharge during year, 1,650 cfs Dec. 23 (gage height, 6.82 ft in gage well, 7.28 ft outside from floodmarks); no flow for several months.

1929-65: Maximum discharge, 3,240 cfs Dec. 23, 1955 (gage height, 8.96 ft), from rating curve extended above 1,400 cfs on basis of slope-area measurement of maximum flow; no flow for several months in each year.

Remarks.--Records good. No storage or diversion above station.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used June 1-12)

1.95	0	3.0	38
2.0	.1	3.3	74
2.1	.3	3.7	150
2.2	1.0	4.1	255
2.3	2.4	4.5	390
2.5	7.0	5.0	600
2.7	17	5.5	855

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0.8	39	5.8	2.0	2.8	1.0	0.1		0	
2		0	1.1	29	5.2	1.6	3.2	1.0	.1		0	
3		0	1.9	44	4.8	1.4	4.0	1.0	.1		0	
4		0	.9	32	4.8	1.2	2.8	.9	.1		0	
5		0	.9	30	3.5	1.1	2.0	.8	.1		0	
6		0	.8	130	12	1.2	2.2	.7	.1		0	
7		0	.6	134	6.2	1.8	2.6	.6	0		0	
8		0	.6	35	5.2	1.3	3.2	.7	0		0	
9		0.1	.5	26	4.8	1.2	11	.6	0		0	
10		25	.5	21	4.0	1.0	55	.5	0		0	
11		7.0	.5	18	3.6	1.0	34	.5	0		0	
12		48	.6	16	3.4	2.8	16	.4	0		0	
13		14	.5	16	3.4	6.0	26	.3	0		0	
14		5.8	.5	10	3.4	2.8	13	.3	0		0	
15		2.8	.6	9.0	3.0	2.2	7.5	.3	0		0	
16		1.4	.6	8.0	2.6	1.8	31	.3	0		0	
17		1.0	.5	7.0	2.6	1.4	19	.2	0		0	
18		.8	.5	6.8	2.4	1.3	10	.1	0		0	
19		.6	12	11	2.4	1.1	6.5	.1	0		0	
20		.5	51	14	2.4	1.0	6.2	.1	0		0	
21		.4	97	10	2.2	.9	3.0	.1	0		0	
22		.4	240	3.0	2.0	.8	5.5	.2	0		0	
23		.3	658	9.9	1.9	.8	4.2	.2	0		0	
24		.3	305	36	1.8	.8	3.6	.1	0		0	
25		.4	49	15	1.6	.8	2.8	.1	0		0	
26		.8	100	10	1.6	1.0	2.6	.1	0		0	
27		.5	147	3.0	2.0	4.2	2.0	.1	0		0	
28		.4	160	7.5	3.0	3.6	1.8	.1	0		0	
29		.3	87	7.0	-----	2.0	1.4	.1	0		.1	
30		.3	91	6.2	-----	1.4	1.2	.1	0		0	
31		-----	128	6.0	-----	1.4	-----	.1	-----		0	-----
Total	0	111.1	2127.9	759.4	106.6	52.9	291.1	11.7	0.6	0	0.1	0
Mean	0	3.70	68.6	24.5	3.81	1.71	9.70	0.38	0.02	0	0.003	0
Ac-ft	0	320.	4220	1510	211.	105	577	23.2	1.2	0	0.2	0

Calendar year 1964 Max 658 Min 0 Mean 7.70 Ac-ft 5,590  
Water year 1964-65 Max 658 Min 0 Mean 9.48 Ac-ft 6,870

Peak discharge (base, 500 cfs).-- Dec. 23 (2130) 1,650 cfs (6.82 ft); Jan. 6 (2400) 555 cfs (4.90 ft)

11-3095. Calaveras River at Jenny Lind, Calif.

Location.--Lat 38°05'20", long 120°51'53", in NW $\frac{1}{4}$  sec.27, T.3 N., R.10 E., on right bank 70 ft downstream from bridge on Milton road, 0.2 mile south of Jenny Lind, and 6.5 miles downstream from Cosgrove Creek.

Drainage area.--393 sq mi.

Records available.--January 1907 to September 1965. Yearly discharge only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder. Datum of gage is 207.1 ft above mean sea level. Prior to Dec. 3, 1925, staff gage on center pier of bridge. Prior to October 1917, at datum 7.00 ft higher, and October 1917 to May 1928 at datum 2.00 ft higher.

Average discharge.--57 years (1908-65) 216 cfs (156,400 acre-ft per year).

Extremes.--Maximum discharge during year, 2,570 cfs Dec. 23 (gage height, 6.84 ft); no flow Oct. 1 to Nov. 9.

1907-65: Maximum discharge observed, 50,000 cfs Jan. 31, 1911 (gage height, 21.0 ft, present datum), from rating curve extended above 11,000 cfs; no flow in most years.

Remarks.--Records good except those for period of no gage-height record, which are fair. Flow regulated by New Hogan Reservoir (see p. 704); prior to December 1963 flow regulated by Hogan Reservoir beginning in 1930 (usable capacity, 75,000 acre-ft). Some seepage of North Fork Stanislaus River water enters above station from diversion canals and reservoirs; normally not over 1.5 cfs. Small diversions above station for irrigation. Records of chemical analyses for the water year 1965 are published in Part 2 of this report.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used, Jan. 11-13, Feb. 5-15, Mar. 22 to Apr. 9, Apr. 11-29, May 8)

0.6	0	2.5	185
.7	.9	3.0	310
.8	3.4	3.5	475
.9	6.8	4.0	700
1.1	16	5.0	1,260
1.5	46	6.0	1,940
2.0	102		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0.1	77	156	67	74	118	169	193	197	162
2		0	.1	55	156	66	72	118	189	191	199	154
3		0	.1	74	154	66	56	118	193	191	203	147
4		0	1.3	61	154	66	54	118	167	191	189	135
5		0	1.3	44	204	65	53	119	165	189	189	132
6		0	.8	158	280	65	55	119	169	193	193	132
7		0	.6	260	270	65	55	116	171	203	193	124
8		0	21	720	344	65	58	109	181	205	193	118
9		0	26	1,690	443	65	73	113	179	203	188	118
10		3.4	43	1,670	443	65	116	130	171	199	188	104
11		19	42	1,420	443	65	103	139	171	197	180	94
12		44	42	839	365	73	73	145	175	193	171	96
13		26	42	303	275	101	84	152	177	195	162	102
14		8.9	51	15	275	99	68	149	183	195	154	116
15		4.8	74	13	211	98	62	160	205	193	167	128
16		3.1	62	12	68	88	82	175	215	197	185	137
17		1.8	43	10	68	76	77	165	220	199	198	128
18		1.1	48	10	67	76	65	152	215	199	203	119
19		.8	71	10	67	76	61	149	212	201	203	119
20		.5	126	222	67	75	61	158	218	205	193	115
21		.3	163	1,420	68	74	62	151	215	208	185	105
22		.2	355	1,650	68	73	60	147	218	205	175	105
23		.2	1,090	1,670	68	73	59	147	222	199	175	110
24		.2	578	1,690	68	73	57	151	222	199	171	126
25		.1	101	1,380	68	73	57	160	218	197	162	133
26		.1	148	788	68	73	61	163	208	197	162	133
27		.1	256	332	68	77	96	158	189	189	167	131
28		.1	233	160	68	76	105	158	193	193	167	116
29		.1	158	158	-----	73	108	152	171	195	162	103
30		.1	144	156	-----	73	118	161	179	195	151	98
31		-----	215	156	-----	73	-----	161	-----	195	162	-----
Total	0	114.9	4,136.3	17,223	5,054	2,293	2,185	4,431	5,780	6,104	5,587	3,640
Mean	0	3.83	133	556	180	74.0	72.8	143	193	197	180	121
Ac-ft	0	228	8,200	34,160	10,020	4,550	4,330	8,790	11,460	12,110	11,080	7,200

Calendar year 1964 Max 1,090 Min 0 Mean 59.6 Ac-ft 43,290  
Water year 1964-65 Max 1,690 Min 0 Mean 155 Ac-ft 112,100

Note.--No gage-height record Aug. 4 to Sept. 15.

## SAN JOAQUIN RIVER BASIN

11-3120. Bear Creek near Lockeford, Calif.

Location.--Lat 38°09'15", long 121°08'15", in NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 31, T.4 N., R.8 E., on right bank 15 ft downstream from county road bridge and 0.8 mile southeast of Lockeford.

Drainage area.--47.6 sq mi.

Records available.--October 1930 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A. October 1926 to November 1930 at site 3 miles downstream; records not equivalent.

Gage.--Water-stage recorder and low water concrete control. Datum of gage is 80.68 ft above mean sea level (levels by Corps of Engineers).

Average discharge.--35 years, 11.2 cfs (8,110 acre-ft per year); median of yearly mean discharges, 7.6 cfs (5,500 acre-ft per year).

Extremes.--Maximum discharge during year, 2,410 cfs Jan. 6 (gage height, 14.47 ft); no flow Oct. 20-22, 26-28, Dec. 1-3, 15-18. 1930-65: Maximum discharge, 2,930 cfs Apr. 3, 1958 (gage height, 15.13); no flow at times for several months in most years.

Remarks.--Records fair. No storage or diversion above station. Water may be released from East Bay Municipal Utility District aqueduct into Bear Creek at rare intervals.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting control method used Dec. 25 to Jan. 15, Jan. 19-26, Feb. 6, Aug. 15, 16)

Oct. 1 to Aug. 17

Aug. 17 to Sept. 30

3.3	0	3.21	0	4.2	30
3.4	.4	3.3	.1	5.0	9.3
3.5	1.7	3.4	.6	6.0	188
3.6	3.4	3.5	1.4	8.0	426
		3.6	3.0	11.0	1000
		3.7	5.4	14.0	2130
		3.9	12		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.3	0.6	0	98	8.5	2.4	0.5	0.4	0.2	0.5	0.2	1.2
2	.2	.8	0	46	7.8	1.2	.7	.6	1.2	.5	1.1	.8
3	.3	.6	0	157	6.8	.9	1.4	.4	.5	1.1	1.5	1.1
4	.6	.3	.8	212	6.5	.8	1.5	.2	.2	.8	.6	1.6
5	.2	.2	.8	65	12	.8	.8	.2	.1	1.1	.3	1.2
6	.3	.1	.4	1,640	19	.8	1.1	.1	.1	.7	.3	1.2
7	.3	.1	.3	508	14	.8	.6	.6	.4	.3	.6	.8
8	.3	.1	.2	96	9.6	.7	.6	.8	.5	.4	1.2	.6
9	.8	9.9	.2	41	7.1	.6	2.5	.4	.3	.5	.5	.8
10	.2	7.5	.1	30	5.1	.6	7.1	.3	.5	.4	.2	2.2
11	.1	4.8	.1	26	4.3	.7	7.4	.1	.4	1.0	.2	1.6
12	.1	3.3	.1	23	3.6	.8	6.5	.1	.4	1.0	.3	2.2
13	.4	9.6	.1	19	3.2	1.4	4.6	.3	.4	.3	.3	2.4
14	.5	2.8	.1	16	3.0	3.0	3.4	.3	1.2	.3	1.2	.7
15	.1	1.8	0	15	2.6	1.8	3.0	.3	.8	.6	1.1	.2
16	.1	.8	0	13	2.4	1.2	2.4	.3	.3	.3	.6	.3
17	.1	.4	0	12	2.1	.8	7.8	.6	.3	.4	.4	.4
18	.2	.3	0	11	1.9	.7	6.2	1.2	.3	.2	.2	.8
19	.1	.2	.1	14	1.8	.5	4.1	.4	.4	.2	.2	2.0
20	0	.1	227	24	1.8	.5	3.0	.3	.3	.2	.7	1.7
21	0	.1	186	19	1.8	.5	2.4	.3	.4	.3	1.4	1.4
22	0	.1	423	14	1.6	.6	2.4	.4	.4	.8	.6	1.2
23	.2	.1	1,780	20	1.4	1.1	1.8	.5	.4	.4	2.0	.6
24	.2	.1	1,140	96	1.2	.8	1.3	.5	.6	.2	2.0	.4
25	.1	.1	176	25	1.0	.9	.9	.2	.6	.2	.4	.2
26	0	.1	186	19	1.1	.4	.8	.8	.6	.5	.7	.3
27	0	.1	300	13	2.1	.8	.7	.7	.6	.2	.4	1.4
28	0	.1	429	11	1.2	.8	.7	.9	.3	.2	.2	1.4
29	3.4	.1	374	9.9	-----	1.2	.4	1.1	.3	.2	.2	1.6
30	4.3	.1	375	9.2	-----	.8	.4	1.1	.4	.2	.2	.7
31	1.1	-----	441	9.5	-----	.5	-----	1.0	-----	.2	1.4	-----
Total	14.5	79.0	6,040.3	3,310.6	134.5	29.4	77.0	15.4	13.4	14.2	21.2	33.0
Mean	0.47	2.63	195	107	4.80	0.95	2.57	0.50	0.45	0.46	0.68	1.10
Ac-ft	29	157	11,980	6,570	267	58	153	31	27	29	42	65

Calendar year 1964 Max 1,780 Min 0 Mean 19.0 Ac-ft 13,780

Water year 1964-65 Max 1,780 Min 0 Mean 26.8 Ac-ft 19,410

Peak discharge (base, 220 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-20	0700	7.20	322	12-31	1030	9.07	597
12-23	0500	14.00	2,130	1- 3	2300	7.86	401
12-26	2200	8.56	508	1- 6	0930	14.47	2,410
12-28	1800	9.36	652				

11-3130. Delta-Mendota Canal at Tracy pumping plant, near Tracy, Calif.

Location.--Lat 37°47'45", long 121°35'05", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.31, T.1 S., R.4 E., at Tracy pumping plant at intake to canal, 6 miles southeast of Byron and 10 miles northwest of Tracy.

Records available.--June 1951 to September 1965. Prior to October 1959, published as "near Tracy."

Gage.--Water-stage recorder on forebay, pressure gages on pump discharge lines, and operating time of pumps. Datum of gage is at mean sea level (levels by Bureau of Reclamation).

Average discharge.--14 years, 1,547 cfs (1,120,000 acre-ft per year).

Extremes.--1951-65: Maximum daily discharge, 4,934 cfs July 13, 1961; no flow for many days most years.

Remarks.--Discharge computed from records of operation of pumps. Water is diverted from Sacramento-San Joaquin Delta by way of Old River and a dredged channel to the Tracy Pumping Plant where it is lifted about 200 ft into canal. Water, less intermediate diversions, flows into Mendota Pool on San Joaquin River to replace water diverted at Friant Dam. The canal is a part of Central Valley project. Records of chemical analyses, water temperatures, and suspended sediment loads at or near this gaging station for the water year 1965 are published in Part 2 of this report.

Cooperation.--Records of daily discharge furnished by Bureau of Reclamation and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,750	1,560		0	1,520	2,382	1,432	2,849	3,073	3,640	4,151	2,809
2	2,737	716		0	575	2,380	1,367	3,030	3,281	3,701	4,152	2,599
3	2,520	642		0	683	2,522	868	2,850	3,287	3,772	4,025	2,455
4	2,522	642		0	720	2,530	868	2,849	3,286	3,762	4,221	2,456
5	2,519	643		0	721	2,551	869	2,909	3,282	3,950	4,408	2,458
6	2,523	536		0	722	2,591	863	3,064	3,383	3,885	4,403	2,459
7	2,655	537		0	721	2,273	869	3,061	3,378	4,220	4,289	2,169
8	2,993	537		0	859	2,238	870	3,125	3,377	4,322	4,291	1,956
9	2,414	538		0	938	2,243	726	3,123	3,377	4,256	4,226	1,846
10	2,415	536		0	1,081	2,208	506	3,139	3,383	4,343	4,167	1,535
11	2,379	536		0	1,036	2,247	432	3,123	3,390	4,344	4,065	1,499
12	2,302	535		0	1,227	2,271	432	3,069	3,391	4,305	3,867	1,498
13	2,281	536		0	1,201	2,134	432	3,448	3,455	4,364	3,700	1,503
14	2,304	716		0	1,206	1,812	433	3,569	3,491	4,235	3,636	1,542
15	2,046	715		0	1,223	1,814	578	3,573	3,491	4,297	3,639	1,728
16	2,043	715		0	1,369	1,813	577	3,568	3,713	4,301	3,635	1,735
17	1,992	533		0	1,466	2,343	723	3,505	3,777	4,296	3,506	1,919
18	2,053	525		0	1,670	2,342	723	3,376	3,765	4,286	3,507	1,920
19	2,055	566		0	1,669	2,127	787	3,378	3,958	4,285	3,503	1,812
20	1,990	558		0	1,739	1,946	1,141	3,372	3,957	4,425	3,506	1,811
21	1,930	717		0	1,952	1,946	1,518	3,064	3,956	4,419	3,901	1,847
22	1,729	716		0	2,020	1,948	1,729	3,043	3,767	4,422	3,842	1,775
23	1,737	701		0	2,300	1,943	1,201	2,975	3,767	4,430	3,845	1,777
24	1,737	716		0	2,626	1,944	1,667	2,974	3,761	4,436	3,585	1,779
25	1,834	775		0	2,736	2,269	1,671	2,690	3,762	4,426	3,520	1,779
26	1,666	789		0	2,846	2,249	1,672	2,764	3,764	4,414	3,156	1,813
27	1,664	786		0	2,784	2,199	1,742	2,771	3,827	4,426	3,132	1,864
28	1,661	571		114	2,384	1,873	2,248	2,771	3,835	4,358	3,025	1,943
29	1,661	570		1,700	-----	1,874	2,535	2,918	3,774	4,198	2,878	1,985
30	1,659	499		1,733	-----	1,813	2,601	2,924	3,646	4,157	2,884	2,017
31	1,723	-----		1,738	-----	1,820	-----	2,931	-----	4,151	2,815	-----
Total	66,499	19,662	0	5,285	41,994	66,645	34,085	95,804	107,354	130,825	115,485	58,288
Mean	2,145	655	0	170	1,500	2,150	1,136	3,090	3,578	4,220	3,725	1,943
Ac-ft	1,320,50	38,999	0	10,483	83,294	132,188	67,468	190,024	212,934	259,488	229,061	115,613
Calendar year 1964	Max	4,792	Min	0	Mean	2,286	Ac-ft	1,659,768				
Water year 1964-65	Max	4,436	Min	0	Mean	2,033	Ac-ft	1,471,602				

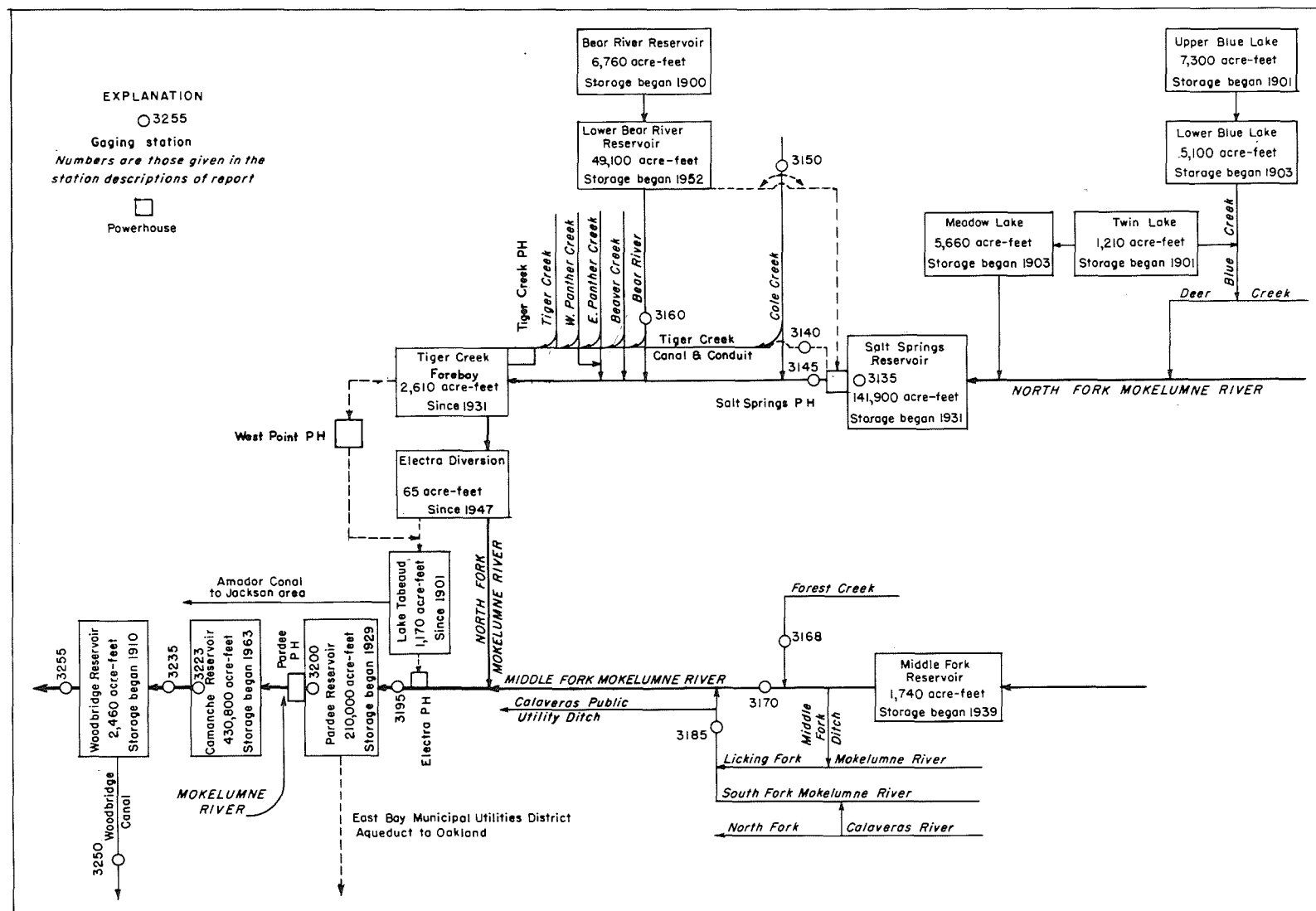


Figure.--Schematic diagram showing diversions and storage in Mokelumne River basin



11-3135. Salt Springs Reservoir near West Point, Calif.

Location.--Lat 38°30'00", long 120°12'55", in SE¼ sec.33, T.8 N., R.16 E., at right end of Salt Springs Dam on North Fork Mokelumne River, 2 miles upstream from Cole Creek, and 18 miles northeast of West Point.

Drainage area.--169 sq mi.

Records available.--March 1931 to September 1965. Prior to October 1964, records published as usable contents.

Gage.--Staff gage read once daily. Datum of gage is at mean sea level (levels by Pacific Gas & Electric Co.).

Extremes.--Maximum contents observed during year, 141,900 acre-ft June 21, June 28 to July 3 (elevation, 3,958.0 ft); minimum, 5,170 acre-ft Dec. 21 (elevation, 3,729.7 ft).

1931-65: Maximum contents observed, 141,900 acre-ft for several days in June or July each year 1948-54, 1956-58, 1960, 1962-63, 1965 (elevation, 3,958.0 ft); no contents at times in 1932-33, 1945, 1962.

Remarks.--Reservoir is formed by concrete-faced, rock-fill dam, completed in 1931; storage began in March 1931. Capacity, 141,900 acre-ft between elevations 3,667.75 (outlet drain) and 3,958.0 ft (top of radial gates) above mean sea level. Storage of 1,860 acre-ft is available for release to river only. Water is released through powerhouse just below dam and discharged into Tiger Creek powerhouse conduit (see following page). Figures given herein represent total contents. See schematic diagram, p. 710.

Cooperation.--Record of contents furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Capacity table (elevation, in feet, and contents, in acre-feet)

3,729.0	5,040	3,780.0	19,600	3,860.0	61,300
3,730.0	5,230	3,790.0	23,600	3,880.0	75,500
3,740.0	7,320	3,800.0	28,000	3,900.0	90,800
3,750.0	9,800	3,810.0	32,700	3,930.0	116,000
3,760.0	12,700	3,820.0	37,700	3,960.0	143,800
3,770.0	16,000	3,840.0	48,800		

Contents, in thousands of acre-feet, at 1700 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	75.1	43.0	16.1	81.8	75.9	63.1	51.0	82.2	140.0	141.9	131.0	121.6
2	74.1	42.2	15.5	81.8	75.6	62.6	50.8	84.7	139.2	141.9	130.2	120.7
3	73.0	41.4	14.9	77.3	75.3	62.1	50.6	86.1	139.2	141.9	129.7	119.9
4	71.8	40.5	13.9	76.9	74.9	61.6	50.1	87.0	140.8	141.6	129.0	119.0
5	70.7	39.6	13.4	78.8	74.6	61.1	49.7	88.0	140.0	141.8	128.5	117.8
6	69.5	38.7	12.5	79.9	74.4	60.6	49.2	89.0	139.2	141.7	127.8	116.9
7	68.4	37.8	11.5	81.0	74.2	60.0	48.9	89.4	139.2	141.6	127.0	116.2
8	67.3	37.0	10.6	81.1	73.8	59.4	48.5	89.6	139.7	141.6	126.2	115.8
9	66.3	36.2	9.61	81.1	73.3	58.8	48.1	90.0	138.9	141.4	125.5	115.2
10	65.2	35.4	8.99	80.9	72.4	58.2	47.9	90.8	139.5	141.1	125.0	114.5
11	64.2	34.8	9.02	80.7	71.5	58.0	47.4	92.7	139.7	140.7	124.8	113.6
12	63.2	34.5	8.89	80.2	71.5	57.6	47.1	94.6	139.8	140.5	126.1	112.8
13	62.2	34.2	8.64	79.6	71.0	57.2	46.7	96.8	139.4	140.6	127.5	112.1
14	61.1	33.2	7.67	79.6	70.4	56.8	46.3	99.1	139.0	140.2	127.3	111.3
15	60.0	32.0	6.88	79.6	69.8	56.2	46.0	101.0	139.0	139.8	127.5	110.4
16	59.0	30.9	6.44	79.6	69.2	55.7	45.9	104.2	139.0	139.6	127.6	109.5
17	57.9	29.9	6.02	79.4	68.6	55.1	45.7	108.0	139.0	139.2	128.1	108.5
18	56.8	28.8	6.04	79.2	68.0	54.6	45.6	112.5	139.5	139.1	128.3	107.5
19	55.8	27.8	6.13	79.0	67.5	54.0	45.9	116.7	140.0	138.7	128.3	106.5
20	54.7	26.9	6.27	79.0	66.8	53.6	47.3	120.9	141.2	138.1	128.3	105.4
21	53.7	25.8	5.17	78.7	66.5	53.4	50.6	125.0	141.9	137.6	127.9	104.5
22	52.6	24.7	5.98	78.4	66.1	53.3	54.2	126.2	140.9	137.1	127.7	103.4
23	51.5	23.6	31.8	78.1	65.8	53.2	56.4	127.1	141.2	136.4	127.2	102.4
24	50.5	22.4	54.2	78.6	65.2	53.0	58.4	128.0	141.7	135.8	126.9	101.4
25	49.4	21.3	64.5	78.3	64.7	52.9	60.9	128.9	141.5	135.0	126.6	100.4
26	48.5	20.6	69.9	78.1	64.2	52.8	63.4	130.1	141.8	134.4	126.4	99.2
27	47.5	19.9	73.6	77.7	63.9	52.4	66.1	132.4	141.8	133.8	125.6	98.1
28	46.6	18.9	76.6	77.4	63.6	52.1	69.3	135.2	141.9	133.2	124.8	97.1
29	45.7	18.0	78.4	77.1	-	51.8	73.3	136.6	141.9	132.6	124.0	95.9
30	44.8	17.0	79.9	76.6	-----	51.5	77.9	138.2	141.9	131.9	123.2	94.8
31	43.9	-----	81.5	76.2	-----	51.3	-----	139.7	-----	131.6	122.3	-----
(†)	3,831.5	3,772.9	3,888.0	3,881.0	3,863.3	3,844.2	3,883.3	3,955.8	3,958.0	3,947.2	3,937.0	3,905.0
(‡)	-32,300	-26,900	+64,500	-5,300	-12,600	-12,300	+26,600	+61,800	+2,200	-10,300	-9,300	-27,500

Calendar year 1964..... †† 24,300

Water year 1964-65..... †† 18,600

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

Note.--New capacity table put into use Oct. 1, 1964; contents on Sept. 30, 1964, from new table, 76,200 acre-ft. Change in contents for October 1964, calendar year 1964, and water year 1965 based on new table.

Location.--Lat 38°29'47", long 120°13'04", in SW¼ sec.33, T.8 N., R.16 E., on left bank 1,000 ft downstream from Salt Springs Dam and powerhouse.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 3,620 ft (from topographic map). Auxiliary staff gages in stilling wells upstream and downstream from control.

Extremes.--1931-65: Maximum daily discharge, 577 cfs June 22, 1945; no flow at times in each year except 1957, 1962, 1965.

Cooperation.--Water-stage-recorder graph and six discharge measurements furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	550	544	501	450	494	552	527	527	560	561	542	496
2	552	520	500	452	524	550	527	524	560	561	550	498
3	552	537	500	452	550	553	528	526	560	561	550	496
4	552	549	498	450	550	553	530	526	560	561	550	175
5	552	560	498	450	554	553	530	528	560	561	550	540
6	552	563	500	452	554	552	530	528	560	561	550	550
7	555	563	501	452	552	549	522	528	560	561	550	550
8	555	556	501	450	552	547	524	530	560	561	549	549
9	555	526	501	450	552	555	526	530	560	560	549	549
10	555	502	501	450	554	550	526	3.0	560	556	549	554
11	555	501	506	450	554	549	526	3.3	560	555	549	556
12	555	370	501	450	554	549	526	3.0	560	550	536	558
13	555	123	495	450	554	538	526	2.8	560	548	549	556
14	555	202	495	450	552	538	526	2.5	560	548	548	555
15	556	349	500	450	549	542	527	2.5	560	546	549	555
16	556	512	488	450	549	527	527	2.5	560	544	546	555
17	558	530	366	450	550	527	527	2.5	560	544	546	558
18	558	514	321	450	552	526	527	2.5	560	548	549	560
19	558	501	366	450	555	525	527	2.2	560	540	552	550
20	555	501	369	450	556	527	527	2.2	560	537	552	552
21	555	502	425	450	556	527	528	2.0	560	537	554	552
22	555	501	458	450	556	529	500	2.0	560	537	554	547
23	555	501	452	450	556	531	534	2.25	560	525	554	531
24	555	502	448	448	550	531	532	550	560	524	550	530
25	553	500	450	447	561	531	530	561	560	524	548	510
26	555	489	446	459	558	531	532	564	560	522	537	513
27	553	501	446	489	558	524	528	564	560	524	534	506
28	550	500	447	496	558	524	527	188	560	497	530	500
29	531	500	448	496	-----	524	528	4.5	560	520	526	494
30	520	500	450	495	-----	524	534	278	560	518	526	488
31	541	-----	450	495	-----	526	-----	561	-----	185	513	-----
Total	17,114	14,519	14,328	14,183	15,414	16,664	15,809	8,275.5	16,800	16,477	16,891	15,683
Mean	552	484	462	458	550	538	527	267	560	532	545	523
Ac-ft	33,940	28,800	28,420	28,130	30,570	33,050	31,360	16,410	33,320	32,680	33,500	31,110
Calendar year 1964	Max	563	Min	0	Mean	443	Ac-ft	321,700				
Water year 1964-65	Max	564	Min	2.0	Mean	499	Ac-ft	361,300				

11-3145. North Fork Mokelumne River below Salt Springs Dam, Calif.

Location.--Lat 38°29'37", long 120°13'12", in NE¼NW¼ sec.4, T.7 N., R.16 E., on left bank 0.3 mile downstream from Salt Springs Dam and 1.3 miles upstream from Cole Creek.

Drainage area.--170 sq mi.

Records available.--September 1926 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A. Published as "above Moore Creek" 1926-30.

Gage.--Water-stage recorder (digital). Altitude of gage is 3,590 ft (from topographic map). Prior to Sept. 12, 1928, at site 100 ft upstream and Sept. 12, 1928, to Sept. 23, 1940, at present site, at datum 2.0 ft higher.

Average discharge.--39 years, 459 cfs (332,300 acre-ft per year), combined flow of North Fork Mokelumne River and Tiger Creek powerhouse conduit minus Bear River-Cole Creek diversion.

Extremes.--Maximum discharge during year, 4,790 cfs Dec. 24 (gage height, 10.49 ft); minimum daily, 5.2 cfs Dec. 14. 1926-65: Maximum discharge, 16,000 cfs Nov. 21, 1950 (gage height, 17.20 ft), from rating curve extended above 3,900 cfs on basis of computations of flow over dam and discharge through powerhouse; minimum daily, 0.3 cfs Mar. 31, Apr. 1, 1931.

Remarks.--Records good. Flow regulated by Salt Springs Reservoir since 1931 (see p. 711). Diversion from Bear River and Cole Creek to Salt Springs powerhouse averaged 166 cfs during 1965 water year. Diversion above station through Tiger Creek powerhouse conduit (see preceding page). See schematic diagram, p. 710.

Cooperation.--Water-stage-recorder graph and 10 discharge measurements furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

1.0	2.8	2.0	72	5.0	860
1.1	5.4	2.5	139	6.0	1,340
1.2	8.8	3.0	229	8.0	2,550
1.4	19	3.5	345	10.0	4,300
1.7	42	4.0	495		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	11	8.8	71	379	321	237	224	288	1,830	718	14	331
2	11	6.8	36	378	295	158	224	297	1,520	703	14	329
3	11	6.7	43	379	265	151	222	301	1,460	890	14	330
4	11	6.4	102	379	261	158	219	303	1,970	829	13	621
5	12	6.4	118	382	265	226	218	306	3,460	503	13	282
6	11	6.4	100	402	265	225	217	314	2,710	699	13	274
7	11	6.4	77	391	264	225	213	319	1,940	549	13	275
8	11	6.4	55	385	262	224	214	323	1,930	387	13	277
9	11	7.7	33	383	261	123	212	328	1,870	384	13	277
10	11	7.8	15	382	259	120	210	279	2,010	387	13	276
11	11	8.1	11	381	258	216	209	532	2,450	290	13	276
12	11	11	17	312	257	236	206	567	2,570	98	14	281
13	11	323	8.1	375	257	239	205	835	2,050	16	13	277
14	11	391	5.2	378	257	239	203	843	1,440	16	13	277
15	11	259	6.0	377	258	225	200	849	1,040	15	13	255
16	11	118	6.1	376	258	235	200	855	1,020	15	13	313
17	11	68	5.9	376	257	235	200	860	601	15	25	310
18	11	77	5.7	371	251	234	199	869	376	15	88	314
19	11	42	7.6	376	250	230	200	838	377	15	112	307
20	11	44	693	283	248	231	203	844	577	15	94	330
21	11	120	753	375	247	229	217	888	1,890	15	78	333
22	11	147	2,370	374	247	227	183	894	1,700	15	78	341
23	11	145	4,180	375	246	227	227	685	571	15	78	314
24	11	135	1,870	378	196	227	233	367	961	15	80	362
25	11	122	350	372	235	225	242	354	1,110	14	84	369
26	11	39	372	366	240	228	246	358	782	14	222	376
27	11	42	382	315	241	230	246	361	722	14	296	382
28	12	114	379	327	240	229	270	1,060	809	14	300	385
29	12	122	379	326	-----	228	270	1,900	590	14	302	389
30	11	114	379	325	-----	227	279	1,710	813	14	300	391
31	11	-----	379	325	-----	226	-----	1,520	-----	14	316	-----
TOTAL	344	2,510.9	13,208.6	11,303	7,161	6,670	6,611	21,047	43,149	6,717	2,665	9,695
MEAN	11.1	83.7	426	365	256	215	220	679	1,438	217	86.0	330
AC-FT	682	4,980	26,200	22,420	14,200	13,230	13,110	41,750	85,580	13,320	5,290	19,630

CALENDAR YEAR	1964	MAX	4,180	MIN	4.9	MEAN	64.7	AC-FT	47,000
WATER YEAR	1964-65	MAX	4,180	MIN	5.2	MEAN	360	AC-FT	260,400

## SAN JOAQUIN RIVER BASIN

11-3150. Cole Creek near Salt Springs Dam, Calif.

Location.--Lat 38°31'26", long 120°12'28", in SE¼ sec.21, T.8 N., R.16 E., on right bank 1.8 miles north of Salt Springs Dam, 3.4 miles upstream from mouth, and 6.3 miles southwest of Mokelumne Peak.

Drainage area.--20.4 sq mi.

Records available.--July 1927 to November 1942, October 1943 to September 1965. Prior to October 1958, published as Cold Creek near Mokelumne Peak. October 1958 to September 1962, published as "near Mokelumne Peak."

Gage.--Water-stage recorder. Altitude of gage is 5,970 ft (from topographic map).

Average discharge.--37 years, 62.8 cfs (45,470 acre-ft per year).

Extremes.--Maximum discharge during year, 6,140 cfs Dec. 23 (gage height, 10.21 ft), from rating curve extended above 900 cfs on basis of slope-area measurement at gage height 9.69 ft; minimum daily, 0.1 cfs Oct. 1-26.

1927-65: Maximum discharge, that of Dec. 23, 1964; no flow for many days in 1931, 1948-49, 1954-55, 1960.

Remarks.--Records good except those for periods of no gage-height record, which are poor. Occasional pumping for domestic use in summer home tract began in September 1961. See schematic diagram, p. 710.

Cooperation.--Water-stage recorder graph and nine discharge measurements furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Rating table, (gage-height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used May 16 to June 13, June 20, 21)

0.3	0.1	0.9	3.6	3.0	220
.4	.2	1.0	5.5	4.0	520
.5	.4	1.3	14	5.0	975
.6	.8	1.5	22	6.0	1,590
.7	1.4	2.0	62	7.0	2,450
.8	2.3	2.5	126	9.0	4,670

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0.5	54	114	48	56	66	361	250	116	6.1	1.2
2	.1	.7	46	88	50	52	62	252	265	117	4.6	1.4
3	.1	.7	21	80	52	46	61	170	332	120	3.7	1.0
4	.1	.7	22	79	60	50	68	172	375	103	3.3	.9
5	.1	.5	14	71	67	49	57	188	369	93	2.0	.8
6	.1	.5	19	76	61	47	51	160	323	80	2.0	.7
7	.1	.4	12	72	54	44	44	134	295	69	1.7	1.0
8	.1	.6	14	66	48	42	43	134	230	57	1.4	4.7
9	.1	1.3	47	61	46	45	41	164	232	49	1.4	3.6
10	.1	1.6	32	58	39	48	45	214	323	33	1.3	2.5
11	.1	2.5	182	56	40	55	41	250	348	22	2.7	1.5
12	.1	3.6	56	54	42	61	38	290	278	18	212	1.3
13	.1	4.7	42	52	40	55	37	325	218	22	50	1.0
14	.1	6.0	21	52	40	53	38	337	184	19	78	1.0
15	.1	4.4	17	52	39	56	46	373	164	34	41	1.0
16	.1	3.2	23	52	38	64	50	440	184	44	34	1.1
17	.1	2.3	22	52	39	69	51	446	151	64	41	1.1
18	.1	1.8	24	51	43	68	72	432	149	52	27	1.2
19	.1	1.5	21	51	51	78	235	415	176	27	19	1.2
20	.1	1.2	23	50	59	85	355	409	210	18	13	1.3
21	.1	1.3	160	48	65	111	460	290	222	15	9.7	1.3
22	.1	1.3	2,330	49	68	129	409	176	188	13	7.7	1.3
23	.1	1.0	3,760	51	61	124	290	168	172	10	6.7	1.3
24	.1	1.2	2,590	52	58	107	316	202	170	8.9	6.1	1.3
25	.1	5.0	594	50	62	83	361	242	166	8.1	5.2	1.3
26	.1	10.3	337	47	70	74	370	298	132	7.7	4.0	1.3
27	.2	3.6	213	46	76	69	397	337	124	6.7	3.7	1.3
28	.2	2.1	155	46	64	70	454	361	128	4.9	3.3	1.3
29	1.0	4.2	131	46	-----	71	492	361	126	4.6	2.7	1.3
30	.5	3.2	114	47	-----	76	454	334	129	4.0	1.8	1.3
31	.3	-----	101	47	-----	74	-----	307	-----	5.8	1.7	-----
Total	4.8	665.9	11,197	1,816	1,480	2,111	5,504	8,742	6,613	1,245.7	597.8	42.5
Mean	0.15	22.2	361	58.6	52.9	68.1	183	282	220	40.2	19.3	1.42
Ac-ft	9.5	1,320	22,210	3,600	2,940	4,190	10,920	17,340	13,120	2,470	1,190	84

Calendar year 1964 Max 3,760 Min 0.1 Mean 69.5 Ac-ft 50,500  
Water year 1964-65 Max 3,760 Min 0.1 Mean 110 Ac-ft 79,390

Peak discharge (base, 500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0530	10.21	6,140	6- 5	2100	4.32	632
4-29	2000	4.57	760	8-12	1200	4.30	648
5-17	2000	4.59	720				

Note.--No gage-height record Jan. 8 to Feb. 25, Mar. 3-10, Apr. 5, 6, July 4-12, July 24 to Aug. 5, Aug. 18 to Sept. 30.

11-3160. Bear River near Salt Springs Dam, Calif.

Location.--Lat 38°29'37", long 120°17'18", in NW¼ sec.2, T.7 N., R.15 E., on right bank 200 ft upstream from diversion to Tiger Creek powerhouse conduit and highway bridge, 1.5 miles upstream from mouth, and 4 miles west of Salt Springs Dam.

Drainage area.--48.0 sq mi.

Records available.--October 1951 to September 1965.

Gage.--Water-stage recorder (digital) and broad-crested weir. Altitude of gage is 3,710 ft (from topographic map).

Average discharge.--14 years, 63.6 cfs (46,040 acre-ft per year).

Extremes.--Maximum discharge during year, 11,000 cfs Dec. 24 (gage height, 10.11 ft in gage well, 11.8 ft from flood profile), from rating curve extended above 560 cfs on basis of slope-area measurements of maximum flow; minimum daily, 3.6 cfs Nov. 8.

1951-65: Maximum discharge, that of Dec. 24, 1964; minimum daily, 1.0 cfs Aug. 23-28, 1961.

Flood in November 1950 reached a stage of 11.2 ft, from floodmarks (discharge, about 10,000 cfs).

Remarks.--Records good. Flow regulated by Bear River Reservoir since 1900 (capacity, 6,760 acre-ft) and Lower Bear River Reservoir since December 1952 (capacity, 49,100 acre-ft). Water diverted for power from Lower Bear River Reservoir through tunnel to Salt Springs powerhouse on North Fork Mokelumne River since December 1952. Water diverted occasionally from Cole Creek into Lower Bear River Reservoir. See schematic diagram, p. 710.

Cooperation.--Water-stage-recorder graph and eight discharge measurements furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 24

Dec. 24 to Sept. 30

0.6	2.5	1.4	43	3.0	640	0.8	2.2	1.7	125
.8	5.0	1.5	65	4.0	1,330	.9	4.4	2.0	209
1.0	8.4	1.7	116	5.0	2,310	1.0	8.1	2.5	390
1.1	12	2.0	205	6.0	3,580	1.1	14	3.0	640
1.2	18	2.5	388	8.0	6,700	1.2	25	4.0	1,330
1.3	28					1.4	59		

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNF	JULY	AUG.	SEPT.
1	4.2	10	12	88	62	40	39	692	495	36	5.0	4.3
2	4.3	9.6	21	75	60	38	37	497	439	15	5.0	4.4
3	4.3	7.7	12	69	59	37	34	295	530	12	4.9	4.4
4	4.4	7.1	9.6	63	59	36	35	233	606	10	5.5	4.3
5	4.4	6.4	9.1	69	91	34	36	274	582	7.6	5.6	4.2
6	4.5	3.8	8.5	148	84	34	37	238	556	7.2	5.5	4.2
7	4.6	3.7	8.2	118	70	32	34	175	491	6.8	5.3	6.1
8	4.6	3.6	8.2	90	64	30	33	156	437	6.8	5.2	4.8
9	4.8	10	8.8	81	59	30	33	166	287	6.8	5.2	4.7
10	4.7	8.8	12	77	54	31	32	356	449	6.7	5.3	4.7
11	4.8	8.4	100	73	50	29	31	450	480	6.5	8.0	4.5
12	5.0	27	28	67	47	33	31	503	448	6.5	20	4.4
13	4.9	9.3	18	61	46	33	32	548	332	6.5	7.3	4.4
14	5.1	7.7	15	63	44	32	33	564	238	6.5	7.5	4.4
15	5.2	6.8	13	67	41	31	36	574	182	6.5	6.5	4.4
16	5.2	5.9	12	63	40	31	51	660	199	6.4	7.3	4.4
17	5.4	5.6	11	65	39	31	50	677	200	6.1	6.1	4.4
18	5.4	5.3	10	71	39	30	59	637	162	6.1	5.7	4.4
19	5.5	5.3	20	77	40	30	81	624	242	6.1	5.5	4.4
20	5.4	5.6	49	74	41	31	113	607	383	6.1	5.3	4.4
21	5.5	5.8	137	69	42	32	140	508	326	6.0	5.4	4.4
22	5.4	6.5	804	65	42	34	133	292	266	5.7	5.3	4.4
23	5.5	6.4	988	87	40	34	113	209	194	5.7	5.0	4.2
24	5.5	6.8	6,470	111	38	34	110	239	163	5.7	4.9	4.2
25	5.6	10	1,070	85	37	31	108	289	175	5.7	4.8	4.2
26	5.6	15	839	77	37	34	105	404	133	5.6	4.7	4.2
27	5.6	9.0	568	70	52	37	102	473	65	5.4	4.7	4.2
28	6.7	8.4	315	65	43	34	99	602	62	5.4	4.6	4.2
29	13	8.7	203	62	-----	34	96	646	41	5.4	4.5	4.2
30	7.6	8.7	162	63	-----	34	314	631	48	5.4	4.4	4.4
31	6.7	-----	133	63	-----	36	-----	564	-----	5.3	4.3	-----
TOTAL	169.4	242.9	12,074.4	2,376	1,420	1,027	2,187	13,783	9,211	239.5	184.3	132.8
MEAN	5.47	8.10	389	76.6	50.7	33.1	72.9	445	307	7.73	5.95	4.43
AC-FT	336	482	23,950	4,710	2,820	2,040	4,340	27,340	18,270	475	366	263

CALENDAR YEAR 1964 MAX 6,470 MIN 3.6 MEAN 44.1 AC-FT 32,020  
 WATER YEAR 1964-65 MAX 6,470 MIN 3.6 MEAN 118 AC-FT 85,390

11-3168. Forest Creek near Wilseyville, Calif.

Location.--Lat  $38^{\circ}24'10''$ , long  $120^{\circ}26'45''$ , in SW $\frac{1}{4}$  NW $\frac{1}{4}$  sec. 4, T.6 N., R.14 E., on left bank 1.0 mile downstream from Lion Creek, 1.8 miles upstream from mouth, and  $\frac{1}{4}$  miles northeast of Wilseyville.

Drainage area.--20.8 sq mi.

Records available.--July 1960 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 2,950 ft (from topographic map).

Average discharge.--5 years, 22.0 cfs (15,930 acre-ft per year).

Extremes.--Maximum discharge during year, 1,770 cfs Dec. 24 (gage height, 7.68 ft) from rating curve extended above 190 cfs on basis of slope-area measurement at gage height 7.41 ft; minimum daily, 1.8 cfs Oct. 13.

1960-65: Maximum discharge, that of Dec. 24, 1964; minimum, 0.6 cfs Aug. 24, 25, 1961.

Remarks.--Records good except those for Dec. 27 to Jan. 14, which are fair. No regulation. Minor diversions above station for irrigation and domestic use. See schematic diagram, p. 710.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 24

Dec. 24 to Sept. 30

2.7	1.3	3.6	52	3.1	4.6	4.3	135
2.8	2.3	4.0	114	3.2	7.0	4.6	220
2.9	4.3	4.5	228	3.3	11	5.0	360
3.0	7.1	5.0	378	3.4	16	5.5	550
3.1	11	5.5	555	3.5	22	6.0	750
3.3	23	6.0	765	3.7	38	7.0	1,300
		7.0	1,300	4.0	77		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.0	8.3	11	87	86	47	50	80	24	13	6.8	6.8
2	3.0	8.0	15	79	82	45	53	77	23	12	7.0	6.5
3	2.8	6.2	18	82	79	45	50	70	22	12	7.0	6.8
4	2.8	4.8	14	84	76	44	47	62	21	11	6.5	6.8
5	2.8	4.5	12	107	104	42	46	58	21	9.8	6.8	6.8
6	2.8	4.3	10	484	107	42	53	56	21	10	7.0	6.0
7	2.8	4.1	9.9	316	89	41	49	52	20	10	6.5	7.4
8	2.8	4.1	9.0	175	82	39	54	49	20	11	6.3	6.8
9	2.8	13	9.0	138	77	38	61	47	19	10	6.3	7.0
10	2.8	15	9.0	115	71	38	59	45	19	10	6.5	6.8
11	2.8	24	61	105	66	38	54	42	18	10	8.2	6.5
12	2.6	58	29	98	62	45	57	41	18	10	17	6.5
13	1.8	23	21	92	59	45	66	40	18	10	11	6.3
14	2.1	14	18	98	58	45	66	39	18	9.8	12	6.3
15	2.2	9.9	16	92	54	44	77	38	18	9.8	9.8	6.0
16	2.3	8.6	15	89	50	42	105	37	19	9.8	9.8	6.0
17	3.0	8.0	14	87	48	41	98	36	18	9.0	14	5.8
18	2.8	7.1	13	87	46	40	92	35	17	8.2	9.8	5.8
19	2.8	7.1	32	96	45	38	98	35	16	8.2	9.0	5.8
20	2.6	6.8	81	100	44	38	109	35	16	9.0	8.2	5.8
21	2.6	6.8	109	92	42	37	131	34	15	8.6	7.8	5.8
22	2.5	6.8	377	89	41	37	131	34	16	9.0	7.4	5.6
23	2.5	6.8	913	121	39	38	117	33	14	8.6	6.3	5.1
24	2.5	6.5	1020	184	38	37	109	31	14	8.2	6.5	4.6
25	2.6	8.0	316	126	36	36	105	29	14	8.2	6.5	5.3
26	2.6	17	273	111	35	40	100	27	14	7.8	6.8	4.8
27	2.6	12	321	104	53	68	96	27	14	7.8	6.5	6.0
28	3.4	9.9	190	100	52	52	92	26	14	7.4	6.8	6.3
29	14	9.4	133	94	-----	47	89	26	14	7.4	6.8	6.0
30	6.2	8.6	120	91	-----	46	86	25	13	7.8	6.8	5.8
31	4.3	-----	104	89	-----	46	-----	24	-----	7.8	7.0	-----
Total	99.2	330.6	4,292.9	3,812	1,721	1,321	2,400	1,290	528	291.2	250.7	1,83.8
Mean	3.20	11.0	138	123	61.5	42.6	80.0	41.6	17.6	9.39	9.09	6.13
Ac-ft	197	656	8,510	7,560	3,410	2,620	4,760	2,560	1,050	578	497	365

Calendar year 1964 Max 1,020 Min 1.8 Mean 22.8 Ac-ft 16,540  
 Water year 1964-65 Max 1,020 Min 1.8 Mean 45.3 Ac-ft 32,760

Peak discharge (base, 120 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-24	0800	7.68	1,770	1-23	2130	4.85	308
1-6	2200	5.74	646	2-5	2300	4.36	150
				4-21	2300	4.34	145

11-3170. Middle Fork Mokelumne River at West Point, Calif.

Location.--Lat 38°23'23", long 120°31'32", in SE  $\frac{1}{4}$  NE  $\frac{1}{4}$  sec. 10, T. 6 N., R. 13 E., on right bank 200 ft downstream from highway bridge, 0.6 mile south of West Point, and 4.5 miles upstream from South Fork.

Drainage area.--68.4 sq mi.

Records available.--October 1911 to September 1965. Monthly discharge only for October 1911, published in WSP 1315-A.

Gage.--Water-stage recorder. Altitude of gage is 2,450 ft (from topographic map). Prior to Oct. 6, 1926, staff gage at site 1,200 ft upstream at different datum. Oct. 6, 1926, to Aug. 18, 1928, staff gage at present site and datum.

Average discharge.--54 years, 58.8 cfs (42,570 acre-ft per year).

Extremes.--Maximum discharge during year, 3,160 cfs Dec. 23 (gage height, 7.91 ft in gage well, 8.4 ft outside, from floodmarks); minimum daily, 5.9 cfs Oct. 8, 14, 15.

1911-65: Maximum discharge, 4,320 cfs Dec. 23, 1955 (gage height, 8.98 ft); no flow Aug. 23 to Sept. 14, 1931, Sept. 9, 1934.

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

Flow slightly regulated by Middle Fork Reservoir (capacity, 1,740 acre-ft), 6 miles above station, since January 1940. Several small diversions above station. Water diverted at times 4 miles above station to South Fork Mokelumne River via Middle Fork ditch (capacity, about 15 cfs) and Licking Fork Mokelumne River. See schematic diagram, p. 710.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.9	16	49	260	213	129	152	229	90	41	25	22
2	8.9	17	54	243	214	122	154	216	87	39	25	20
3	8.1	14	54	275	205	121	141	194	83	38	24	19
4	8.1	13	49	301	203	113	132	185	80	37	23	18
5	7.8	12	46	403	251	114	130	172	80	36	23	18
6	11	12	45	1,440	276	116	148	164	83	35	23	18
7	6.2	12	42	982	233	113	146	152	82	34	23	18
8	5.9	13	39	534	223	114	164	145	79	33	23	18
9	6.2	30	39	414	207	110	205	141	73	32	23	18
10	6.5	32	38	351	194	108	203	136	67	32	26	17
11	6.5	70	107	310	183	106	181	134	64	32	33	17
12	6.2	122	72	280	172	134	190	130	65	31	57	16
13	6.2	73	56	262	166	134	225	129	65	31	53	16
14	5.9	55	50	247	153	126	212	129	64	30	43	15
15	5.9	50	46	245	150	122	213	127	68	30	45	14
16	6.5	48	44	233	145	116	271	129	73	30	41	13
17	7.5	46	39	232	139	114	267	132	72	29	39	12
18	3.1	46	35	236	136	113	256	130	63	29	37	12
19	7.8	45	54	247	136	110	262	130	65	23	36	12
20	7.8	45	181	254	132	108	289	127	62	28	34	12
21	7.9	45	350	240	132	106	345	126	53	27	33	21
22	7.5	45	895	234	132	106	339	122	59	27	31	32
23	7.5	44	2,020	287	129	106	290	114	58	27	31	23
24	7.5	43	1,690	469	126	106	271	106	54	27	30	22
25	7.5	43	830	302	122	103	269	102	52	26	29	23
26	7.5	55	749	269	122	113	262	97	52	26	23	23
27	9.1	52	792	253	152	192	253	97	49	26	27	25
28	10	51	543	243	141	143	253	96	46	26	26	25
29	23	49	449	232	-----	130	251	94	42	26	25	25
30	15	46	361	229	-----	126	243	93	42	26	24	24
31	12	-----	290	225	-----	124	-----	92	-----	26	23	-----
Total	259.5	1,244	10,107	10,742	4,802	3,713	6,731	4,170	1,982	945	963	563
Mean	8.37	41.5	326	346	172	120	224	135	66.1	30.5	31.2	18.9
Ac-ft	515	2,470	20,050	21,310	9,520	7,360	13,350	8,270	3,930	1,870	1,920	1,130

Calendar year 1964 Max 2,020 Min 5.9 Mean 61.1 Ac-ft 44,340  
 Water year 1964-65 Max 2,020 Min 5.9 Mean 127 Ac-ft 91,700

Peak discharge (base, 400 cfs).

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	unknown	7.91	3,160				
1-6	2230	6.19	1,760				
1-24	0430	3.97	608				

Note.--No gage-height record Dec. 18 to Jan. 4, Aug. 14 to Sept. 15.  
 Stage-discharge relation indefinite June 21 to Aug. 13.

## SAN JOAQUIN RIVER BASIN

11-3185. South Fork Mokelumne River near West Point, Calif.

Location.--Lat 38°22'06", long 120°32'40", in SE<sup>1</sup>/<sub>4</sub> sec.16, T.6 N., R.13 E., on right bank 500 ft upstream from highway bridge, 2.4 miles southwest of West Point, and 2.5 miles upstream from mouth.

Drainage area.--75.1 sq mi.

Records available.--October 1933 to September 1965.

Gage.--Water-stage recorder (digital). Altitude of gage is 1,950 ft (from topographic map). Prior to Sept. 19, 1957, at site 1,100 ft downstream at different datum.

Average discharge.--32 years, 82.7 cfs (59,870 acre-ft per year); median of yearly mean discharges, 71 cfs (51,400 acre-ft per year).

Extremes.--Maximum discharge during year, 4,870 cfs Dec. 23 (gage height, 10.19 ft) from rating curve extended above 1,400 cfs on basis of floodmarks and rating at former site; minimum daily, 8.1 cfs Oct. 4, 6.

1933-65: Maximum discharge, 6,920 cfs Dec. 23, 1955 (gage height, 14.8 ft, from floodmarks, site and datum then in use), from rating curve extended above 1,800 cfs on basis of slope-area measurement of maximum flow; no flow Aug. 6, 7, Aug. 12 to Sept. 26, 1934.

Remarks.--Records good except those for periods of no gage-height record, which are poor. Several small diversions above station for domestic use and for irrigation of about 100 acres. Diversions into South Fork Mokelumne River basin above station at times from North Fork Calaveras River and from Middle Fork Mokelumne River, for use below station. See schematic diagram, p. 710.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Feb. 13 to Apr. 1, Apr. 3-7, May 6 to June 3, July 31 to Sept. 30)

1.9	6.0	4.5	368
2.0	8.6	5.0	530
2.2	16	5.5	750
2.5	34	6.0	1,020
3.0	78	7.5	2,030
3.5	144	9.0	3,400
4.0	238		

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	9.6	34	38	292	234	136	157	251	82	48	28	21
2	8.9	36	41	258	223	133	191	234	81	47	26	21
3	8.9	26	41	335	214	127	165	212	79	47	25	21
4	8.1	20	38	422	208	124	157	196	77	45	25	21
5	8.3	18	36	594	305	120	155	187	73	44	25	20
6	8.1	17	33	2,080	330	122	183	178	72	43	25	21
7	8.6	16	31	1,460	272	118	171	169	70	40	26	24
8	10	16	31	760	247	113	214	157	70	40	25	24
9	9.8	59	31	566	231	110	294	150	69	40	24	22
10	9.4	85	31	471	214	110	307	144	67	38	24	22
11	9.8	77	107	410	200	109	277	138	64	38	28	22
12	9.9	183	87	365	191	155	270	134	63	36	50	22
13	9.8	87	60	321	182	152	302	128	62	36	40	21
14	9.5	50	51	292	174	131	284	125	61	36	37	20
15	9.2	40	46	287	167	127	279	118	60	33	34	20
16	9.2	39	42	274	158	125	350	115	66	33	30	20
17	9.7	39	39	270	154	122	344	115	66	33	29	20
18	9.5	38	36	277	149	118	318	113	63	33	28	20
19	8.7	38	133	297	147	115	356	109	60	31	27	19
20	9.5	37	309	302	146	113	419	106	59	32	25	19
21	10	37	424	279	144	111	471	102	57	32	25	19
22	9.8	36	1,410	262	144	113	464	102	55	32	24	19
23	8.9	36	3,000	318	136	113	407	99	55	31	25	20
24	11	36	2,460	509	133	113	380	91	54	30	24	19
25	11	36	960	368	128	109	365	87	53	30	24	19
26	11	39	865	324	127	122	344	84	53	30	24	19
27	12	44	1,130	292	164	216	327	81	52	29	22	19
28	16	41	735	272	149	157	316	79	49	29	22	20
29	56	38	534	256	-----	146	294	77	47	29	21	19
30	31	37	438	249	-----	139	274	79	47	29	20	19
31	22	-----	374	242	-----	139	-----	84	-----	29	19	-----
TOTAL MEAN	383.2	1,335	13,591	13,704	5,271	3,958	8,835	4,044	1,886	1,103	831	612
AC-FT	12.4	44.5	438	442	188	128	295	130	62.9	35.6	26.8	20.4
	760	2,650	26,960	27,180	10,450	7,850	17,520	8,020	3,740	2,190	1,650	1,210

CALENDAR YEAR 1964	MAX	3,000	MIN	8.1	MEAN	76.8	AC-FT	55,740
WATER YEAR 1964-65	MAX	3,000	MIN	8.1	MEAN	152	AC-FT	110,200

## Peak discharge (base, 500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0600	10.19	4,870	1-24	0045	5.30	655
1-6	2245	8.11	2,520	4-21	2330	5.00	526

Note.--No gage height record Nov. 16 to Dec. 8, June 4.



11-3195. Mokelumne River near Mokelumne Hill, Calif.

Location.--Lat 38°18'46", long 120°43'09", SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 1, T.5 N., R.11 E., on downstream side of bridge, 1.2 miles northwest of Mokelumne Hill and 8 miles downstream from confluence of North and South Forks.

Drainage area.--544 sq mi.

Records available.--January to June 1901, May 1903 to December 1904, October 1927 to September 1965. Yearly estimate only for water year 1928 (incomplete), published in WSP 1315-A. Published as "at Electra" 1901, 1903-4.

Gage.--Water-stage recorder. Datum of gage is 589.88 ft above mean sea level (levels by California Division of Highways). Jan. 1 to June 30, 1901, and May 11, 1903, to Dec. 31, 1904, staff gage at site 3 miles upstream at different datum. Nov. 10, 1927, to Aug. 26, 1952, water-stage recorder at site 40 ft upstream at same datum.

Average discharge.--39 years (1903-4, 1927-65), 953 cfs (689,900 acre-ft per year).

Extremes.--Maximum discharge during year, 29,700 cfs Dec. 24 (gage height, 17.31 ft); minimum daily, 424 cfs Oct. 31. 1901, 1903-4, 1927-65: Maximum discharge, 33,700 cfs Dec. 3, 1950 (gage height, 18.5 ft); minimum observed, 5 cfs Aug. 13-15, 17, 18, 1904.

Remarks.--Records good except those for period of no gage height record, which are fair. Flow regulated by Salt Springs Reservoir beginning in 1931 (see p. 711), several smaller reservoirs, and four powerplants. Diversion above station for irrigation and domestic use. See schematic diagram, p. 710.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	562	661	760	2,370	1,750	1,200	1,290	2,920	3,390	1,720	487	974
2	604	624	726	2,210	1,760	1,180	7,510	2,500	3,290	1,380	638	890
3	624	700	734	2,280	1,950	1,140	1,280	2,120	3,050	1,510	631	905
4	430	518	762	2,550	1,810	1,110	1,370	1,960	3,410	1,740	684	949
5	554	566	667	2,610	1,900	1,130	1,330	1,910	4,770	1,350	699	896
6	583	627	786	6,730	2,320	1,200	1,350	1,900	4,660	1,250	555	795
7	544	581	706	6,400	1,960	1,230	1,380	1,750	3,600	1,420	701	958
8	590	643	615	3,650	1,840	1,170	1,360	1,630	3,410	1,190	512	956
9	526	638	505	3,060	1,690	1,130	1,740	1,580	3,120	1,050	647	840
10	634	918	656	2,870	1,610	1,080	1,930	1,600	3,400	1,120	608	980
11	542	744	860	2,490	1,760	1,070	1,720	1,440	3,860	1,030	714	883
12	524	1,000	399	2,470	1,580	1,180	1,530	1,740	3,980	939	732	938
13	610	700	821	2,340	1,530	1,370	1,730	1,940	3,580	857	804	887
14	572	608	723	2,120	1,430	1,170	1,690	2,180	2,840	792	749	841
15	592	785	736	2,210	1,450	1,220	1,590	2,250	2,240	757	686	954
16	630	698	569	2,190	1,320	1,080	1,900	2,450	2,100	764	703	876
17	546	656	658	2,180	1,290	1,320	2,010	2,610	2,090	675	695	945
18	532	760	478	2,130	1,490	1,200	1,910	2,670	1,300	661	691	927
19	626	772	478	2,100	1,320	1,130	1,910	2,560	1,440	643	717	892
20	606	734	1,410	2,160	1,310	1,150	2,220	2,560	1,780	728	582	910
21	514	658	2,490	2,130	1,290	1,170	2,500	2,440	2,760	728	775	981
22	634	732	9,340	2,030	1,330	1,140	2,620	2,020	3,020	590	783	895
23	530	688	22,000	2,130	1,250	1,090	2,290	1,780	1,910	628	650	960
24	591	756	21,200	3,100	1,300	1,250	2,250	1,700	1,810	555	739	933
25	510	662	7,180	2,470	1,110	1,150	2,170	1,780	2,260	685	709	986
26	598	736	5,560	2,240	1,230	1,170	2,190	1,900	1,650	613	653	970
27	621	794	5,900	2,130	1,320	1,520	2,200	2,170	1,730	669	980	904
28	564	690	4,340	2,090	1,400	1,330	2,090	2,230	1,540	655	884	976
29	766	710	3,370	1,920	-----	1,210	2,130	3,150	1,690	611	869	954
30	771	758	3,030	2,000	-----	1,280	2,180	3,240	1,390	529	874	962
31	424	-----	2,800	1,940	-----	1,100	-----	3,230	-----	476	908	-----
Total	17,959	21,122	101,764	81,300	43,300	36,870	55,270	67,910	81,070	28,315	22,259	27,717
Mean	579	704	3,282	2,623	1,546	1,189	1,842	2,191	2,702	913	718	924
Ac-ft	35,620	41,890	201,800	161,300	85,880	73,130	109,600	134,700	160,800	56,160	44,150	54,280

Calendar year 1964 Max 22,000 Min 134 Mean 820 Ac-ft 593,500

Water year 1964-65 Max 22,000 Min 424 Mean 1,602 Ac-ft 1,160,000

Note.--No gage-height record Apr. 20 to May 3.

11-3200. Pardee Reservoir near Valley Springs, Calif.

Location.--Lat 38°15'30", long 120°51'00", in N 36 W 1/4 sec. 26, T.5 N., R.10 E., at Pardee Dam on the Mokelumne River and 4.5 miles north of Valley Springs.

Drainage area.--578 sq mi.

Records available.--October 1961 to September 1965 in reports of Geological Survey. March 1929 to September 1961 in files of East Bay Municipal Utility District.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by East Bay Municipal Utility District).

Extremes.--Maximum contents during year, 217,200 acre-ft Dec. 23 (elevation, 570.82 ft); minimum, 180,400 acre-ft Apr. 24 (elevation, 553.88 ft).

1929-65: Maximum contents, 219,300 acre-ft Dec. 23, 1955 (elevation, 571.72 ft); minimum, 49,000 acre-ft Aug. 31, 1931 (elevation, 457.6 ft).

Remarks.--Reservoir is formed by a curved concrete gravity dam, completed in 1929; storage began Mar. 9, 1929. Usable capacity, 194,100 acre-ft between elevations 393.50 ft (diversion tunnel invert) and 567.65 ft (spillway crest) above mean sea level. Dead storage, 15,800 acre-ft. Water is diverted from reservoir for municipal use in the area on the east side of San Francisco Bay. Small intermittent diversions are made to Jackson Valley Irrigation District. Records including extremes represent total contents at 2400 hours. See schematic diagram, p. 710.

Cooperation.--Records of contents, diversions and evaporation furnished by East Bay Municipal Utility District.

Capacity table (elevation, in feet, and contents, in thousands of acre-feet)

550	172.7
560	193.2
570	215.3
580	239.1

Contents, in thousands of acre-feet, at 2400 hours, water year October 1963 to September 1964.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	188.9	189.2	196.3	196.0	182.8	182.5	182.5	182.7	211.0	209.5	207.9	203.3
2	188.7	189.2	196.6	190.7	182.9	182.6	183.1	181.4	211.2	209.4	207.7	202.9
3	189.3	189.2	197.0	189.6	182.9	182.4	182.4	181.2	211.5	209.7	207.5	202.5
4	189.6	188.9	197.3	190.2	182.7	182.7	182.5	181.4	211.6	209.5	207.3	202.2
5	189.2	188.7	197.4	189.8	183.1	182.7	180.9	181.5	211.6	209.6	207.2	201.9
6	189.0	188.5	197.8	197.5	182.6	182.6	182.9	181.6	211.2	209.9	206.8	201.3
7	188.6	189.1	198.0	204.0	183.4	182.5	182.7	181.4	211.3	210.5	206.7	201.0
8	188.4	189.8	198.1	205.2	182.9	183.0	183.1	180.9	211.4	210.5	207.2	200.8
9	188.0	189.9	197.9	204.9	182.5	182.7	183.0	180.7	210.7	210.3	207.0	200.2
10	188.6	190.4	198.1	200.8	182.7	182.8	182.5	181.0	210.2	210.2	206.7	200.0
11	189.1	191.4	198.7	199.1	182.8	182.7	181.7	181.4	209.8	210.1	206.8	199.6
12	188.7	192.3	199.3	197.3	182.9	182.1	181.7	182.6	209.5	209.8	206.8	199.3
13	188.5	192.4	199.8	195.1	182.6	182.9	182.6	182.7	208.4	209.3	206.9	198.8
14	188.2	192.7	200.2	192.6	182.7	182.4	183.0	182.6	208.0	208.6	207.0	198.3
15	187.9	192.7	200.6	190.3	182.8	182.8	182.8	182.1	207.8	207.8	207.6	199.1
16	187.7	192.6	200.7	184.8	182.4	182.3	183.4	182.0	208.7	208.0	207.4	197.6
17	188.2	192.5	200.9	182.6	182.6	182.9	182.9	182.2	208.6	208.1	207.4	197.3
18	188.7	192.7	200.5	183.5	182.6	182.7	182.6	182.7	208.2	208.1	207.3	197.0
19	188.5	192.9	200.3	184.0	182.5	182.5	182.2	182.4	208.9	208.1	207.2	196.6
20	188.3	193.0	201.8	184.0	182.5	182.8	182.5	181.9	209.5	208.2	207.2	196.6
21	187.9	193.3	202.5	184.0	182.4	183.2	183.3	182.6	209.6	208.4	207.2	197.1
22	187.7	193.6	211.9	184.0	182.5	182.9	182.8	184.4	209.4	208.4	208.0	197.5
23	187.3	193.8	217.2	182.6	182.9	182.5	181.2	185.7	209.1	208.3	207.6	197.9
24	187.9	194.1	216.3	181.1	182.6	182.1	180.4	186.8	209.8	208.1	206.9	198.3
25	188.3	194.3	212.3	182.2	182.7	182.5	181.4	189.1	209.6	208.2	206.2	198.8
26	188.1	194.6	211.9	182.6	182.8	182.8	182.3	189.7	208.6	208.2	205.4	199.3
27	187.8	195.0	211.6	182.7	182.7	182.9	183.0	191.7	208.0	208.1	205.1	199.7
28	187.8	195.2	210.4	182.8	182.7	182.4	183.1	193.9	208.8	208.2	204.7	200.1
29	188.1	195.4	207.7	183.2	-----	182.7	182.3	198.0	210.0	208.2	204.3	200.6
30	188.2	195.8	204.3	182.9	-----	183.0	181.6	202.3	210.0	208.0	203.9	201.0
31	188.5	-----	201.1	182.3	-----	182.6	-----	206.5	-----	207.7	203.5	-----
(+)	557.77	561.21	563.66	554.81	555.01	554.95	554.45	566.13	567.65	566.64	564.77	563.63
(+)	- 700	+ 7300	+ 5300	- 18800	+ 400	- 100	- 1000	+ 24900	+ 3500	- 2300	- 4200	- 2500
(+)	676	180	122	97	188	270	419	954	1092	1576	1333	951

Calendar year 1964..... # +1,800  
 Water year 1964-65..... # +1,800

† Elevation, in feet at end of month.

‡ Change in contents, in acre-feet.

†† Evaporation, in acre-feet.

11-3223. Camanche Reservoir near Clements, Calif.

Location.--Lat 38°13'31", long 121°01'17", in SD<sub>1</sub> sec.6, T.4 N., R.9 E., at Camanche Dam on the Mokelumne River, 4.3 miles northeast of Clements.

Drainage area.--621 sq mi.

Records available.--December 1963 to September 1965.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by East Bay Municipal Utility District).

Extremes.--Maximum contents during year 312,500 acre-ft Apr. 23 (elevation, 218.71 ft); minimum, 35,100 acre-ft Oct. 4 (elevation 147.40 ft)

Remarks.--Reservoir is formed by earthfill dam. Storage began Dec. 18, 1963. Usable capacity, 430,300 acre-ft between elevations 104.00 (invert of emergency valve release) and 235.50 ft (spillway crest) above mean sea level. Dead storage, 534 acre-ft. Camanche Reservoir provides holdover storage to meet downstream water requirements and flood control on the Mokelumne River. Records, including extremes, represents total contents at 2400 hours. See schematic diagram, p. 710.

Cooperation.--Records of contents and evaporation furnished by East Bay Municipal Utility District).

Capacity table (elevation, in feet, and contents, in acre-feet)

150	3,900
160	57,100
170	82,600
190	156,200
220	320,900

Contents, in thousands of acre-feet, at 2400 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	35.7	38.1	50.2	226.9	263.1	285.4	308.1	303.7	272.4	294.0	286.5	285.6
2	35.9	38.4	50.7	230.4	264.5	285.8	308.0	305.0	274.3	294.2	286.3	286.1
3	35.5	38.8	51.1	230.4	266.3	286.2	308.2	304.6	275.2	294.1	286.2	286.6
4	35.1	39.2	51.6	229.0	268.3	286.0	307.4	303.6	276.2	295.1	286.0	287.1
5	35.3	39.6	52.1	229.4	270.1	285.8	307.7	302.5	279.8	295.1	285.9	287.7
6	35.6	40.0	52.6	232.9	271.6	286.3	308.7	301.4	283.9	294.8	285.8	287.3
7	35.9	39.8	52.8	235.1	270.1	287.2	308.2	300.6	285.3	294.4	285.5	288.8
8	36.2	39.6	52.8	237.8	270.1	288.3	308.2	299.6	286.0	294.1	284.5	289.2
9	36.5	40.1	52.7	239.7	270.3	289.2	308.8	298.2	286.9	293.8	284.4	289.4
10	36.1	40.6	52.7	245.0	270.9	289.5	308.8	296.4	288.4	294.1	284.0	289.5
11	35.7	40.5	52.7	247.7	272.7	290.2	308.9	294.3	290.7	294.8	284.2	289.5
12	35.9	40.9	53.1	250.9	273.8	290.6	308.1	291.7	293.2	295.6	284.0	289.7
13	36.2	41.5	53.6	253.9	274.1	291.0	307.7	290.5	295.6	296.5	284.0	290.1
14	36.5	41.6	53.7	257.0	272.8	291.6	307.4	290.1	296.2	296.8	283.9	290.1
15	36.8	42.3	53.3	259.9	272.5	292.2	307.3	290.2	294.9	296.8	282.9	290.0
16	37.0	43.1	53.4	266.2	272.7	293.9	307.5	290.5	292.6	295.8	282.9	289.9
17	36.7	43.6	53.5	268.6	272.8	293.9	308.8	290.7	291.7	294.8	282.6	289.9
18	36.2	44.2	54.0	267.4	274.1	298.4	309.5	290.9	289.9	294.0	282.6	289.9
19	36.5	44.7	54.8	266.3	275.2	298.3	310.3	291.3	287.3	293.9	282.3	289.8
20	36.7	45.3	55.6	266.1	275.9	299.5	310.6	292.1	285.4	293.6	282.2	289.4
21	37.0	45.5	59.5	265.7	277.3	300.3	310.9	291.4	285.9	293.1	282.0	288.8
22	37.3	45.9	68.8	265.0	278.8	301.9	311.8	289.9	288.0	292.2	281.0	288.2
23	37.6	46.3	110.5	266.8	279.3	303.7	312.5	286.5	287.9	291.8	281.0	287.5
24	37.2	46.8	155.3	269.4	280.4	307.3	312.4	284.4	286.5	291.2	281.5	286.9
25	36.7	47.3	173.2	268.4	281.3	307.2	310.4	282.8	287.5	290.6	282.0	286.2
26	37.0	47.8	184.9	266.6	282.2	308.6	308.2	281.4	289.4	289.9	282.5	285.5
27	37.3	48.3	196.9	264.8	283.4	309.8	306.1	279.9	291.7	289.3	283.0	284.7
28	37.7	48.7	207.3	263.0	284.7	310.7	304.3	278.5	292.8	288.8	283.4	284.0
29	38.3	49.1	215.6	261.0	-----	308.2	303.8	277.0	292.9	288.3	284.0	283.0
30	38.6	49.7	219.9	261.7	-----	307.3	303.7	275.4	292.9	287.8	284.4	281.4
31	38.3	-----	223.2	262.9	-----	307.8	-----	273.9	-----	287.5	284.9	-----
(+)	149.59	156.34	203.69	210.70	214.31	217.98	217.35	212.55	215.64	214.76	214.34	213.77
(+)	+2,900	+11,400	+173,500	+39,700	+21,800	+23,100	-4,100	-29,800	+19,000	-5,400	-2,600	-3,500
(+)	555	230	456	602	767	1,282	1,587	3,119	3,211	4,235	3,562	2,737

Calendar year 1964.....+208,500  
 Water year 1964-65.....+246,000

† Elevation, in feet, at end of month.

‡ Change in content, in acre-feet

## Evaporation, in acre-feet

## SAN JOAQUIN RIVER BASIN

11-3235. Mokelumne River below Camanche Dam, Calif.

Location.--Lat 38°13'15", long 121°02'20", in NW 1/4 sec. 7, T.4 N., R.9 E., on left bank 0.7 mile downstream from Murphy Creek, 1.0 mile downstream from Camanche Dam, and 3.4 miles northeast of Clements.

Drainage area.--627 sq mi.

Records available.--October 1904 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A and WSP 1735. Prior to October 1961, published as "near Clements."

Gage.--Water-stage recorder. Datum of gage is 82.91 ft above mean sea level. Oct. 28, 1904, to Apr. 18, 1926, staff gage at bridge 3.3 miles downstream at datum 13.82 ft lower. Apr. 19, 1926, to Apr. 8, 1931, water-stage recorder, 75 ft downstream from bridge at datum 15.82 ft lower and Apr. 9, 1931, to Sept. 30, 1961, water-stage recorder 700 ft upstream from bridge at datum 15.75 ft lower.

Average discharge.--24 years (1904-28), 1,111 cfs (804,300 acre-ft per year); 36 years (1929-65), 822 cfs (595,100 acre-ft per year), adjusted for change in contents and evaporation from Camanche Reservoir since 1963. Storage and diversion by East Bay Municipal Utility District began in March 1929.

Extremes.--Maximum discharge during year, 3,760 cfs Feb. 17 (gage height, 8.66 ft); minimum daily, 145 cfs Dec. 12. 1904-65: Maximum discharge, 28,800 cfs Nov. 21, 1950 (gage height, 24.40 ft, site and datum then in use); no flow July 9, Aug. 15, 20-23, 1924.

Remarks.--Records good. Flow regulated by Camanche Reservoir beginning December 1963 (see preceding page), Salt Springs Reservoir beginning March 1931 (see p. 711), Pardee Reservoir beginning March 1929 (see p. 720), several smaller reservoirs, and four powerplants. Of several diversions above the station, East Bay Municipal Utility District aqueducts are the largest. Maximum capacity is 511 cfs with Pardee Reservoir full. Records of water temperatures, and suspended sediment loads for the water year 1965 are published in Part 2 of this report. See schematic diagram, p. 710.

Cooperation.--Seventy-seven discharge measurements and temperature record furnished by the East Bay Municipal Utility District.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Jan. 5				Jan. 5 to Sept. 30			
3.9	133	5.5	840	4.0	175	6.0	1,240
4.0	155	7.0	2,050	4.5	355	7.0	2,100
4.5	315	8.0	3,050	5.0	600	8.0	3,100
5.0	560						

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	251	201	151	2,840	1,270	730	1,120	2,020	1,490	1,000	480	418
2	252	174	152	2,840	812	834	1,140	2,020	1,800	1,000	445	400
3	251	151	152	2,820	808	923	1,510	2,010	2,000	1,010	451	400
4	250	151	151	2,770	787	971	1,510	2,010	2,310	1,010	450	400
5	246	151	151	2,650	796	954	878	2,000	2,520	1,010	453	399
6	245	151	151	2,480	1,500	955	790	2,000	2,520	947	454	399
7	237	150	251	2,120	2,110	841	1,540	2,000	2,510	942	456	400
8	240	151	434	1,720	1,880	766	1,180	2,000	2,520	979	465	479
9	242	152	448	2,060	1,500	728	1,510	2,000	2,510	913	449	608
10	240	152	364	2,050	1,030	904	2,050	2,000	2,520	508	452	611
11	240	151	403	1,820	667	694	2,060	2,010	2,400	277	452	616
12	240	152	145	1,580	867	953	1,870	2,000	2,520	271	450	625
13	240	153	147	1,580	1,400	1,030	1,450	2,000	2,520	272	449	630
14	240	153	352	1,570	1,730	1,110	1,530	2,000	2,280	493	450	682
15	240	153	557	1,560	1,370	777	1,600	2,000	2,530	703	450	748
16	240	151	368	1,570	1,270	300	1,610	2,000	2,350	730	450	747
17	240	153	147	1,860	1,060	286	1,600	2,010	2,110	731	450	746
18	240	153	150	2,050	741	287	1,600	2,010	2,020	575	450	752
19	240	151	150	2,060	673	287	1,600	2,020	2,010	404	450	752
20	240	151	150	2,050	587	287	1,720	2,020	2,010	335	449	752
21	240	151	155	2,060	473	287	1,920	2,020	1,870	520	448	752
22	242	151	235	2,050	500	287	2,130	2,020	1,780	630	449	757
23	240	151	303	2,070	652	271	2,410	2,020	1,760	500	451	756
24	240	150	171	2,050	661	257	2,530	1,750	1,750	500	455	755
25	240	151	151	2,480	479	257	2,540	1,500	1,470	562	452	755
26	240	151	162	2,800	571	622	2,520	1,500	758	575	450	760
27	240	151	162	2,790	569	1,420	2,520	1,500	579	548	450	765
28	221	151	182	2,780	645	1,680	2,520	1,500	216	522	450	768
29	202	151	633	2,660	-----	1,540	2,370	1,500	726	500	450	918
30	200	151	2,620	1,590	-----	1,180	2,120	1,500	1,000	499	450	1,330
31	201	-----	2,850	1,570	-----	922	-----	1,500	-----	506	451	-----
Total	7,360	4,614	12,598	66,950	27,408	23,340	53,448	58,440	57,359	19,972	14,011	19,880
Mean	237	154	406	2,160	979	753	1,782	1,885	1,912	644	452	663
Ac-ft	14,600	9,150	24,990	132,800	54,360	46,290	106,000	115,900	113,800	39,610	27,790	39,430
(†)	17,980	14,140	12,130	4,540	13,280	9,430	9,690	17,690	17,560	18,400	18,230	17,350
Mean‡	294	349	3,235	2,815	1,385	1,149	1,739	1,451	2,286	625	468	650
Ac-ft‡	18,060	20,780	198,900	173,100	76,930	70,670	103,500	89,220	136,000	38,440	28,750	38,670

Calendar year 1964: Max 2,850 Min 75 Mean 294 Ac-ft 213,700 Mean‡ 590 Ac-ft‡ 428,520  
 Water year 1964-65: Max 2,850 Min 145 Mean 1,001 Ac-ft 724,700 Mean‡ 1,372 Ac-ft‡ 993,000

† Diversions, in acre-feet from Pardee Reservoir to East Bay Municipal Utility District, and to Jackson Valley Irrigation District; furnished by East Bay Municipal Utility District.

‡ Adjusted for change in storage and evaporation from Camanche Reservoir.

11-3250. Woodbridge Canal at Woodbridge, Calif.

Location.--Lat 38°09'10", long 121°18'00", in SE $\frac{1}{4}$  sec.34, T.4 N., R.6 E., on right bank at Woodbridge at point of diversion.Records available.--April 1926 to September 1965.Gage.--Differential water-stage recorder and gate-opening recorder. Datum of gage is 32.18 ft above mean sea level (levels by East Bay Municipal Utility District). Prior to Mar. 15, 1931, water-stage recorder at site 0.2 mile downstream at different datum.Average discharge.--39 years, 135 cfs (97,740 acre-ft per year).Extremes.--1926-65: Maximum daily discharge, 482 cfs July 8, 1953; no flow part of each year.Remarks.--Records good except those for period of no gage-height record, which are poor. Discharge computed from records of gate openings and effective head as shown by recorders. Canal diverts from Woodbridge Reservoir on Mokelumne River for irrigation south and west of Woodbridge. See schematic diagram, p. 710.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	141	31				0	48	172	323	0	342	265
2	136	30				0	56	203	321	0	335	267
3	129	30				0	61	213	318	0	319	258
4	120	29				0	64	238	315	0	310	262
5	116	29				0	62	263	319	0	301	274
6	111	32				0	60	263	319	0	300	258
7	108	32				0	85	257	335	0	301	253
8	114	30				0	74	242	345	0	302	240
9	120	29				0	44	233	344	0	314	238
10	131	29				0	17	242	336	0	313	236
11	131	24				0	29	263	335	0	309	236
12	136	18				0	39	276	336	0	306	222
13	137	17				6	30	287	336	0	300	243
14	137	17				19	35	293	331	0	287	239
15	137	16				30	24	297	342	38	291	237
16	136	15				12	22	296	352	218	293	233
17	136	10				15	34	297	347	335	291	220
18	131	0				14	17	297	345	347	296	222
19	120	0				19	17	284	343	333	301	214
20	124	9				25	20	279	338	274	304	202
21	119	15				27	20	285	351	229	302	199
22	120	13				39	41	287	364	270	293	211
23	116	8				71	51	270	385	306	296	210
24	114	0				86	58	273	371	296	294	200
25	113	0				98	60	288	94.1	291	290	195
26	116	0				102	66	305	0	373	282	177
27	114	0				103	111	314	0	388	271	168
28	86	0				89	136	320	0	384	258	161
29	49	0				76	151	321	0	363	255	159
30	41	0				65	155	307	0	348	271	158
31	34	-----				44	-----	315	-----	345	269	-----
Total	3,573	463	0	0	0	940	1,687	8,485	8,245.1	5,138	9,196	6,656
Mean	115	15.4	0	0	0	30.3	56.2	274	275	166	297	222
Ac-ft	7,090	919	0	0	0	1,860	3,350	16,830	16,350	10,190	18,240	13,200

Calendar year 1964 Max 258 Min 0 Mean 104 Ac-ft 75,780  
 Water year 1964-65 Max 388 Min 0 Mean 122 Ac-ft 88,030

Note.--No gage-height record Nov. 16-23.

## SAN JOAQUIN RIVER BASIN

11-3255. Mokelumne River at Woodbridge, Calif.

Location.--Lat 38°09'30", long 121°18'10", in NE<sup>1</sup> sec.34, T.4 N., R.6 E., on left bank at Woodbridge, 0.3 mile downstream from county highway bridge, and 0.4 mile downstream from dam and canal intake of Woodbridge Irrigation District.

Drainage area.--661 sq mi.

Records available.--May 1924 to September 1965 (low-water records only 1924-25).

Gage.--Water-stage recorder. Datum of gage is 14.9 ft above mean sea level (levels by East Bay Municipal Utility District). May 1924 to July 1928, about 100 ft downstream from bridge at datum about 4 ft higher; July 1928 to March 1931, 400 ft downstream from bridge at about same datum.

Average discharge.--36 years (1929-65), since start of diversion through East Bay Municipal Utility District aqueduct, 624 cfs (451,800 acre-ft per year).

Extremes.--Maximum discharge during year, 3,300 cfs June 25 (gage height, 18.20 ft) caused by failure of Woodbridge Dam; minimum daily 23 cfs July 21.

1924-65: Maximum discharge, 27,000 cfs Nov. 22, 1950 (gage height, 29.58 ft), from rating curve extended above 6,200 cfs on basis of contracted-opening measurement of maximum flow; minimum daily, 1.4 cfs Sept. 19, 20, 22, 1927.

Remarks.--Records good. Concerning regulation and diversions see Remarks for Mokelumne River below Camanche Dam; between Woodbridge and Camanche Dam there are many additional diversions for irrigation, including Woodbridge Canal (see preceding page). See schematic diagram, p. 710. Records of chemical analyses and water temperatures at or near this gaging station for the water year 1965 are published in Part 2 of this report.

Cooperation.--Nine discharge measurements furnished by East Bay Municipal Utility District.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Dec. 4-7, June 26-29)

3.4	20	6.0	265
3.6	33	7.0	395
3.9	54	9.0	705
4.4	95	12.0	1,360
5.0	152	15.0	2,160
		18.0	3,220

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	27	121	109	2,720	1,580	604	768	1,890	1,050	846	27	46
2	30	124	107	2,810	1,010	687	914	1,780	1,140	846	30	36
3	38	94	109	2,880	836	734	1,110	1,730	1,530	852	26	36
4	43	76	109	2,860	793	842	1,310	1,720	1,650	852	25	36
5	73	75	108	2,810	775	834	1,250	1,680	970	846	25	36
6	161	73	108	2,620	815	826	528	1,680	2,080	836	25	42
7	27	72	110	2,430	1,880	814	908	1,680	2,080	749	25	48
8	37	72	219	1,850	1,970	380	1,320	1,690	2,040	777	25	104
9	41	83	375	1,870	1,720	410	955	1,700	2,070	954	25	209
10	42	91	325	2,020	1,020	667	1,720	1,690	2,080	735	25	237
11	46	88	359	2,020	814	622	1,930	1,660	2,060	347	27	243
12	48	90	283	1,650	606	675	1,950	1,660	1,960	263	27	258
13	48	85	128	1,540	1,260	762	1,600	1,620	2,050	237	27	254
14	51	83	128	1,530	1,460	892	1,350	1,620	2,030	215	27	251
15	51	81	313	1,520	1,520	914	1,460	1,620	1,910	123	27	335
16	50	80	412	1,520	1,350	437	1,500	1,630	2,030	38	30	338
17	51	83	341	1,560	1,140	264	1,480	1,630	1,810	116	30	382
18	53	103	262	1,950	781	239	1,490	1,640	1,560	168	29	377
19	58	105	140	2,030	711	224	1,500	1,640	1,560	46	29	386
20	56	102	129	2,050	635	158	1,490	1,650	1,560	27	29	426
21	53	159	126	2,040	528	186	1,670	1,650	1,530	23	29	395
22	55	100	152	2,050	446	181	1,860	1,650	1,250	24	30	365
23	60	486	349	2,060	549	136	2,120	1,660	1,240	38	31	374
24	64	172	252	2,070	590	121	2,370	1,640	1,220	27	30	377
25	69	134	150	2,060	508	118	2,420	1,150	2,110	27	30	414
26	72	117	128	2,630	502	123	2,450	1,090	971	53	36	428
27	68	113	139	2,820	514	699	2,390	1,080	671	46	46	426
28	135	110	147	2,830	516	1,380	2,320	1,070	350	31	61	424
29	172	109	156	2,840	-----	1,450	2,320	1,060	235	27	75	484
30	125	109	1,100	2,340	-----	1,260	2,120	1,060	766	26	70	563
31	117	-----	2,410	1,630	-----	900	-----	1,060	-----	26	47	-----
Total	2,021	3,390	9,283	67,610	26,834	18,539	48,573	47,780	46,563	10,221	1,025	8,430
Mean	65.2	113	299	2,181	958	598	1,619	1,541	1,552	330	33.1	281
Ac-ft	4,010	6,720	18,410	134,100	53,220	36,770	96,340	94,770	92,360	20,270	2,030	16,720

Calendar year 1964 Max 2,410 Min 10 Mean 111 Ac-ft 80,540  
Water year 1964-65 Max 2,880 Min 23 Mean 795 Ac-ft 575,700

11-3263. Dry Creek above Sutter Creek, near Ione, Calif.

Location.--Lat 38°24'54", long 120°54'18", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.32, T.7 N., R.10 E., on right bank 1,000 ft downstream from bridge on State Highway 104 and 4.6 miles northwest (corrected) of Ione.

Drainage area.--70.9 sq mi.

Records available.--February 1960 to September 1965. Prior to October 1961, published as "near Ione".

Gage.--Water-stage recorder. Altitude of gage is 500 ft (from topographic map).

Average discharge.--5 years, 30.0 cfs (21,720 acre-ft per year).

Extremes.--Maximum discharge during year, 7,300 cfs Jan. 6 (gage height, 11.30 ft) from rating curve extended above 1,800 cfs on basis of slope-area measurement of maximum flow; no flow for many days.

1960-65: Maximum discharge, that of Jan. 6, 1965, no flow for many days in each year.

Revisions.--The maximum discharge for the water year 1963 has been revised to 5,270 cfs (gage height, 10.22 ft), superseding figure published in Surface Water Records of California Vol. 2, 1963.

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

Cooperation.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	6.7	344	60	26	31	37	8.8	2.4		
2		0	9.9	238	55	23	36	35	9.8	2.2		
3		0	21	361	50	22	37	34	8.6	1.8		
4		0	16	543	45	20	32	33	8.2	1.5		
5		0	13	426	55	19	29	31	7.9	1.3		
6		0	10	2,960	60	22	34	30	7.7	1.0		
7		0	8.4	1,400	50	23	37	29	7.4	.9		
8		0	7.8	516	45	22	42	26	7.7	.8		
9		0	7.1	326	44	20	135	24	8.1	.7		
10		0	7.0	230	40	20	585	22	7.9	.5		
11		11	14	182	38	20	339	21	7.1	.5		
12		31	28	145	36	30	222	20	6.1	.5		
13		28	16	121	36	38	196	20	5.9	.4		
14		13	13	103	36	29	146	20	5.8	.4		
15		8.1	11	93	34	26	112	19	6.0	.3		
16		5.7	9.6	83	32	23	231	18	5.8	.2		
17		4.5	9.2	74	32	21	195	18	5.7	.1		
18		4.0	8.0	69	31	21	147	17	6.7	.1		
19		3.6	41	72	30	20	126	16	6.0	.1		
20		3.3	331	73	29	20	106	15	5.5	.1		
21		3.3	578	61	28	20	103	16	5.0	0		
22		3.1	1,320	57	27	19	85	17	4.8	0		
23		2.8	2,580	103	26	18	73	17	4.3	0		
24		2.9	1,430	212	25	18	66	15	4.2	0		
25		3.6	429	125	23	17	60	13	3.9	0		
26		5.7	289	103	22	19	54	12	3.5	0		
27		7.1	645	90	35	59	49	12	3.8	0		
28		5.9	664	80	31	46	45	11	3.2	0		
29		5.0	545	75	-----	35	42	9.5	2.8	0		
30		4.6	510	69	-----	31	39	8.5	2.3	0		
31		-----	528	64	-----	30	-----	8.4	-----	0		
Total	0	156.2	10,205.7	9,397	1,055	777	3,434	624.4	1,79.5	15.8	0	0
Mean	0	5.21	3.29	30.3	37.7	25.1	115	20.1	5.98	0.51	0	0
Ac-ft	0	310	20,240	18,640	2,090	1,540	6,310	1,240	356	31	0	0

Calendar year 1964 Max 2,680 Min 0 Mean 39.1 Ac-ft 28,390  
 Water year 1964-65 Max 2,960 Min 0 Mean 70.8 Ac-ft 51,260

## SAN JOAQUIN RIVER BASIN

11-3270. Sutter Creek near Sutter Creek, Calif.

Location.--Lat 38°23'45", long 120°46'50", in SE $\frac{1}{4}$  sec.5, T.6 N., R.11 E., on left bank 1.3 miles east of town of Sutter Creek.

Drainage area.--48.1 sq mi.

Records available.--October 1935 to December 1941, March 1960 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder. Altitude of gage is 1,220 ft (from topographic map). Prior to Oct. 29, 1937, staff gage 15 ft downstream at datum 4.00 ft lower. Oct. 29, 1937, to Dec. 7, 1938, staff gage at present site at datum 4.00 ft lower.

Average discharge.--11 years, 31.5 cfs (22,810 acre-ft per year).

Extremes.--Maximum discharge during year, 2,400 cfs Dec. 23 (gage height, 4.77 ft); no flow for many days.

1935-41, 1960-65: Maximum discharge, 5,770 cfs Jan. 31, 1963 (gage height, 6.27 ft), from rating curve extended above 700 cfs; no flow at times in each year except 1938 and 1941.

Remarks.--Small diversion for irrigation upstream.

Cooperation.--Records furnished by California Department of Water Resources and reviewed by the Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	8.1	187	62	36	39	47	21	8.9	3.7	1.6
2		2.8	12	151	60	34	52	48	21	8.4	3.2	1.5
3		2.7	17	212	57	31	48	47	20	8.1	3.2	1.1
4		1.8	14	348	55	27	44	44	19	7.9	3.0	1.2
5		1.3	12	402	65	26	40	44	19	7.7	2.6	1.3
6		1.1	11	1040	80	28	53	43	18	7.4	2.5	1.7
7		1.1	9.4	792	61	28	53	43	17	7.5	2.3	3.3
8		1	9.5	370	56	29	72	41	17	7.3	2.3	4.2
9		5.7	9.0	259	56	27	176	39	18	7.0	2.2	3.4
10		27	9.2	204	54	25	259	37	17	6.8	2.5	2.7
11		21	45	171	52	25	200	35	16	6.7	4.7	2.1
12		75	40	143	50	44	176	36	15	6.5	12	1.9
13		35	24	124	49	56	227	35	14	6.9	10	1.7
14		18	19	109	47	40	173	34	14	6.6	7.8	1.3
15		12	16	98	45	34	137	34	14	6.3	6.6	1.2
16		9.8	14	89	43	32	230	33	14	5.9	5.5	1.2
17		8.1	13	84	41	30	176	32	14	5.6	4.4	1.0
18		6.9	12	81	39	30	142	32	14	5.6	3.4	1.1
19		6.3	46	86	38	29	129	31	13	5.5	3.4	1.0
20		5.5	150	86	36	28	113	31	13	5.4	3.3	1.4
21		5.1	225	78	35	27	107	31	12	5.4	3.2	1.6
22		5.1	782	76	35	26	91	31	12	5.5	3.4	1.5
23		4.8	1460	103	34	25	81	30	12	5.2	2.9	1.3
24		4.8	1250	183	34	26	74	28	12	5.1	3.0	1.3
25		5.3	350	106	32	26	70	26	11	4.7	2.9	1.3
26		9.6	284	86	32	30	66	25	11	5.1	2.4	2.0
27		11	511	77	52	84	62	24	10	5.4	2.0	2.6
28		8.6	424	74	41	53	58	23	10	5.1	1.8	3.5
29		7.6	281	70	-----	40	53	22	9.2	4.3	1.5	3.6
30		7.3	262	68	-----	35	51	21	8.7	4.2	1.5	3.0
31		-----	256	63	-----	34	-----	20	-----	4.1	1.5	-----
Total	0	311.3	6575.2	6020	1341	1045	3252	1047	435.9	192.1	114.7	57.6
Mean	0	10.4	212	194	47.9	33.7	108	33.8	14.5	6.19	3.70	1.92
Ac-ft	0	617	13040	11940	2660	2070	6450	2080	865	381	228	114

Calendar year 1964 Max 1,460 Min 0 Mean 27.0 Ac-ft 19,640  
 Water year 1964-65 Max 1,460 Min 0 Mean 55.9 Ac-ft 40,440



11-3295. Dry Creek near Galt, Calif.

Location.--Lat 38°14'48", long 121°13'03", in NE $\frac{1}{4}$  sec. 32, T.5 N., R.7 E., on right bank of main channel just downstream from county road bridge, 2 miles downstream from Coyote Creek, and 4 miles east of Galt.

Drainage area.--329 sq mi.

Records available.--October 1926 to September 1933, October 1944 to September 1965. Monthly figures only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder. Datum of gage is at 52.83 ft above mean sea level (levels by East Bay Municipal Utility District). Dec. 4, 1926, to Sept. 30, 1933, at site 4 miles downstream at different datum. Oct. 1, 1944, to Sept. 30, 1945, at present site at datum 3.00 ft higher.

Average discharge.--28 years, 107 cfs (77,460 acre-ft per year); median of yearly mean discharges, 67 cfs (48,500 acre-ft per year).

Extremes.--Maximum discharge during year, 14,500 cfs Dec. 23 (gage height, 14.36 ft); no flow for several months. 1926-33, 1944-65: Maximum discharge, 24,000 cfs Apr. 3, 1958 (gage height, 15.28 ft); no flow for several months in each year.

Remarks.--Records good. Many small diversions above station for irrigation. Total storage of many small reservoirs, about 1,000 acre-ft and total number of acres irrigated, approximately 500.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0	1,360	203	93	97	109	6.7			
2		0	0	860	191	87	98	99	11			
3		0	0	948	183	80	125	96	8.2			
4		0	0	1,820	177	75	103	92	7.0			
5		0	.3	1,240	205	73	88	80	8.1			
6		0	1.0	6,550	283	72	92	80	6.9			
7		0	.3	5,680	229	84	120	76	5.2			
8		0	0	2,260	187	77	115	69	1.0			
9		0	0	1,170	170	75	191	65	0			
10		0	0	843	156	72	1,110	61	1.0			
11		.3	0	695	143	71	1,040	57	2.5			
12		2.5	4.8	581	136	71	635	56	2.2			
13		60	27	493	123	143	571	55	1.9			
14		10	8.3	429	125	119	497	53	0.9			
15		1.7	3.6	377	121	97	389	53	0.1			
16		.2	3.6	335	114	84	535	51	0			
17		0	3.2	306	103	73	739	46	0			
18		0	2.5	281	105	74	481	40	0			
19		0	2.0	292	102	71	399	40	0			
20		0	4.18	383	99	67	333	38	0			
21		0	9.29	303	97	63	321	32	0			
22		0	2,420	263	92	63	267	30	0			
23		0	11,200	259	89	61	221	30	0			
24		0	7,070	864	85	60	189	28	0			
25		0	3,030	519	83	59	178	24	0			
26		0	1,280	391	80	60	166	22	0			
27		0	2,490	323	92	93	153	17	0			
28		0	3,500	292	131	207	139	14	0			
29		0	2,310	270	-----	120	125	13	0			
30		0	1,920	243	-----	96	117	12	0			
31		-----	2,220	224	-----	90	-----	7.8	-----			
Total	0	74.7	38,843.6	30,854	3,924	2,650	9,634	15,458	62.7	0	0	0
Mean	0	2.49	1,253	9,953	140	855	321	499	2.09	0	0	0
Ac-ft	0	149	77,050	61,200	7,780	5,260	19,110	3,070	124	0	0	0

Calendar year 1964 Max 11,200 Min 0 Mean 137 Ac-ft 99,730

Water year 1964-65 Max 11,200 Min 0 Mean 240 Ac-ft 173,700

Peak discharge (base, 1,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	1600	14.36	14,500	1- 4	1100	12.10	2,040
12-28	1300	13.00	4,000	1- 6	1700	13.99	11,500
12-31	1200	12.75	2,640	4-10	1130	10.68	1,590

11-3330. Camp Creek near Somerset, Calif.

Location.--Lat 38°39'26", long 120°39'46", in SW $\frac{1}{4}$  sec.4, T.9 N., R.12 E., on right bank 0.2 mile upstream from mouth, 1.3 miles north-east of Somerset, and 5.6 miles south of Camino.

Drainage area.--62.6 sq mi.

Records available.--February to May 1924 (published as "near Pleasant Valley"), October 1954 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 1,820 ft (from topographic map). Feb. 1 to May 31, 1924, staff gage at site about 0.2 mile upstream at different datum.

Average discharge.--11 years (1954-65), 71.8 cfs (51,980 acre-ft per year), adjusted for storage, diversion, and evaporation from Jenkinson Lake.

Extremes.--Maximum discharge during year, 6,040 cfs Dec. 23 (gage height, 12.50 ft); minimum daily, 2.4 cfs Oct. 3-6, 14-16, 22, 23, 1924, 1954-64; Maximum discharge, that of Dec. 23, 1964; minimum, 0.5 cfs Aug. 1-3, 1961.

Remarks.--Records good except those for period of no gage-height record, which are fair. Flow partly regulated since January 1955 by Jenkinson Lake (usable capacity, 40,570 acre-ft). Water is released from Jenkinson Lake through Camino conduit for irrigation and domestic supply in North Fork Cosumnes and South Fork American River basins. Some water is released from Jenkinson Lake down Camp Creek for irrigation downstream from station.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

1.4	1.5	2.2	22	4.0	240	11.0	4,300
1.5	2.7	2.5	41	5.0	480	7.0	1,220
1.7	6.7	3.0	86	6.0	800	9.0	2,500
1.9	12	3.5	150				

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.6	11	6.3	313	238	122	121	266	62	7.7	10	6.7
2	2.6	18	11	272	228	113	126	242	57	17	9.7	6.5
3	2.4	11	13	298	216	108	119	212	52	17	9.2	6.5
4	2.4	8.7	9.2	337	212	105	112	182	51	16	8.7	6.5
5	2.4	7.0	7.4	350	258	102	109	168	51	15	8.4	6.3
6	2.4	6.3	6.3	1170	307	104	126	158	47	14	8.2	6.5
7	2.9	5.8	5.6	1180	266	103	122	141	44	14	8.0	7.4
8	2.6	5.4	5.1	788	240	97	125	131	39	13	7.7	8.7
9	2.6	14.0	4.9	576	222	93	153	125	33	13	7.4	8.4
10	2.6	34.0	5.1	450	198	89	193	118	30	12	7.4	8.2
11	2.6	23.0	6.3	387	182	88	160	113	27	12	9.7	8.0
12	2.6	30.0	27	330	165	101	147	108	25	12	21	7.7
13	2.6	17.0	14	290	154	102	175	109	21	12	21	7.4
14	2.4	9.7	10	264	146	92	168	113	16	12	14	7.2
15	2.4	6.7	8.4	258	135	86	170	117	14	11	16	7.0
16	2.4	5.6	7.2	256	128	83	327	119	14	11	13	6.7
17	2.6	4.9	6.3	256	119	81	414	125	13	11	11	6.5
18	2.7	4.5	5.8	260	113	79	377	132	12	11	11	6.5
19	2.7	4.1	10	284	110	78	377	134	11	11	11	5.6
20	2.7	3.9	4.3	307	108	76	414	131	10	12	10	5.8
21	2.6	3.9	108	292	108	76	462	127	10	12	10	5.8
22	2.4	3.7	1230	276	108	76	456	118	9.2	11	9.7	6.0
23	2.4	3.7	3460	310	107	78	404	108	9.2	11	9.2	5.8
24	2.6	3.7	2500	600	102	79	360	95	9.0	11	9.0	5.8
25	2.6	3.9	832	456	99	82	334	83	8.7	11	8.4	5.6
26	2.9	8.0	684	387	99	97	311					
27	2.9	7.0	725	337	134	186	302	73	8.4	11	8.2	5.6
28	3.0	5.1	468	294	135	144	298	69	8.2	11	8.0	6.0
29	13	4.9	422	266	-----	116	284	69	8.0	10	7.4	6.7
30	10	4.7	513	248	-----	108	-----	68	7.7	10	7.2	6.5
31	7.4	-----	442	244	-----	109	-----	63	-----	10	6.7	-----
Total	103.0	279.2	11652.6	12336	4637	3053	7538	3886	7156	371.7	313.9	200.6
Mean	3.32	9.31	376	398	166	98.5	251	125	23.9	12.0	10.1	6.69
Ac-ft	204	554	23110	24470	9200	6060	14950	7710	1420	737	623	398
(+)	-1560	+619	+13940	+13	-51	+6	+162	-259	-521	-3180	-2820	-2130
(+)	1555	357	165	288	278	307	297	1022	2995	3270	2634	1795
(+)	151	18	0	0	0	62	65	234	241	347	252	202
Mean**	5.69	26.0	605	403	170	105	260	142	69.5	19.0	11.2	4.45
Ac-ft**	350	1550	37220	24770	9430	6440	15470	8710	4140	1170	689	265
Calendar year 1964:	Max	3,460	Min	2.2	Mean	50.4	Ac-ft	36,560	Mean**	84.9	Ac-ft**	61,650
Water year 1964-65:	Max	3,460	Min	2.4	Mean	124	Ac-ft	89,440	Mean**	152	Ac-ft**	110,200

+ Change in contents, in acre-feet, in Jenkinson Lake, furnished by Bureau of Reclamation

\* Diversion, in acre-feet, from Jenkinson Lake, furnished by Bureau of Reclamation

\*\* Evaporation, in acre-feet, from Jenkinson Lake, furnished by Bureau of Reclamation

\*\* Adjusted for storage, diversion, and evaporation.

Note.--For months when inflow to the lake was small and other quantities were large, discordant figures of net runoff appear. This arises primarily from the difficulty of computing net runoff as the residual of several larger quantities, which are not susceptible to measurement with a precision necessary to produce a final answer within desirable limits of accuracy.

11-3335. North Fork Cosummes River near El Dorado, Calif.

Location.--Lat 38°35'20", long 120°50'38", in SW¼ sec.35, T.9 N., R.10 E., on downstream side of left abutment of county road bridge, 0.8 mile north of Nashville, 2.6 miles upstream from mouth, and 6 miles south of El Dorado.

Drainage area.--205 sq mi.

Records available.--August 1911 to December 1941, October 1948 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 840 ft (from topographic map). Prior to October 1933, staff gage at site about 1.5 miles upstream at different datum. October 1933 to December 1941, water-stage recorder at site 1,000 ft upstream at different datum.

Average discharge.--47 years, 200 cfs (144,800 acre-ft per year).

Extremes.--Maximum discharge during year, 13,700 cfs Dec. 23 (gage height, 13.85 ft); minimum daily, 2.0 cfs Oct. 1. 1911-41, 1948-65: Maximum discharge, 15,800 cfs Dec. 23, 1955 (gage height, 14.8 ft), from rating curve extended above 7,500 cfs on basis of slope-area measurement of maximum flow; no flow for part of 1924, 1926, 1931, 1933-34.

Remarks.--Records good. Flow partly regulated since January 1955 by Jenkinson Lake (usable capacity, 40,570 acre-ft). Camino conduit above the station diverts water out of the basin (see Remarks for station Camp Creek near Somerset). Numerous small diversions above station for irrigation and domestic use.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Oct. 1 to Dec. 2, Dec. 5-10, 17, 18, Dec. 29 to Jan. 11, Aug. 12 to Sept. 30)

Oct. 1 to Dec. 22

Dec. 23 to Sept. 30

1.5	0.9	3.5	238	1.7	5.6	4.0	410
1.6	2.5	4.0	358	1.8	10	5.0	810
1.7	5.1	4.5	530	2.0	24	6.0	1,440
1.8	8.8	5.0	730	2.4	63	7.0	2,220
1.9	14	6.0	1,280	3.0	150	9.0	4,580
2.0	21	7.0	2,040	3.5	260	12.0	9,800
2.4	59	9.0	4,540				
3.0	146	11.0	7,920				

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.0	17	44	905	630	344	338	725	225	56	23	8.7
2	2.3	51	64	830	606	320	356	642	218	59	23	10
3	2.3	40	121	1,150	578	308	350	570	208	61	25	9.1
4	3.5	22	83	1,840	558	305	323	490	206	58	22	11
5	4.3	13	65	1,740	602	296	314	446	206	54	20	15
6	5.5	8.1	54	5,150	860	296	347	407	204	48	18	14
7	4.6	4.6	47	4,100	702	299	350	377	196	47	18	18
8	5.1	4.1	44	2,390	622	281	347	350	188	45	20	25
9	7.0	17	41	1,800	582	269	440	335	174	41	15	30
10	8.1	104	42	1,440	518	263	1,100	323	170	38	15	28
11	8.8	97	274	1,190	470	258	810	317	166	36	22	24
12	9.3	175	286	982	437	287	602	314	156	35	42	20
13	8.4	155	169	820	410	308	678	314	147	38	52	18
14	8.8	71	123	720	395	278	578	317	131	34	28	17
15	11	43	100	682	374	260	522	320	120	31	24	14
16	11	34	81	662	353	255	1,250	326	117	29	22	12
17	12	27	71	646	338	252	1,280	338	116	27	17	12
18	13	25	63	646	326	248	1,070	350	114	28	30	22
19	14	23	80	698	320	245	1,100	359	104	27	38	20
20	15	22	509	785	314	242	1,180	356	98	27	37	20
21	18	22	1,190	735	314	240	1,360	350	92	28	38	21
22	19	22	4,560	686	314	242	1,320	320	89	28	30	23
23	22	22	9,310	766	314	248	1,160	305	87	32	20	24
24	23	21	6,530	1,620	305	250	1,020	281	83	30	22	25
25	25	23	2,690	1,210	299	255	958	258	75	28	20	28
26	26	37	2,260	1,050	293	266	890	242	71	25	15	29
27	27	74	2,680	910	365	538	840	232	68	26	14	32
28	28	48	2,090	815	389	425	830	230	65	25	12	34
29	35	39	1,500	730	-----	344	810	235	61	23	12	37
30	42	36	1,400	674	-----	320	785	235	56	22	11	38
31	19	-----	1,230	650	-----	308	-----	235	-----	22	10	-----
Total	440.0	1,296.8	37,813	39,022	12,588	9,050	23,308	10,899	4,011	1,108	715	638.8
Mean	14.2	43.2	1,219	1,259	450	292	777	352	134	35.7	23.1	21.3
Ac-ft	873	2,570	75,000	77,400	24,970	17,950	46,230	21,620	7,960	2,200	1,420	1,270

Calendar year 1964 Max 9,310 Min 1.9 Mean 178 Ac-ft 128,900  
Water year 1964-65 Max 9,310 Min 2.0 Mean 386 Ac-ft 279,500

Peak discharge (base, 1,800 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0700	13.85	13,700	1-6	2400	9.77	6,770
12-27	0700	7.74	2,970	1-24	0800	6.50	1,820

## SAN JOAQUIN RIVER BASIN

11-3342. Middle Fork Cosumnes River near Somerset, Calif.

Location.--Lat 38°37'29", long 120°42'02", in <sup>14</sup> sec. 19, T.9 N., R.12 E., on left bank 1,000 ft downstream from county road bridge, 0.2 mile downstream from Perry Creek, and 1.8 miles southwest of Somerset.

Drainage area.--107 sq mi.

Records available.--October 1957 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 1,647.95 ft above mean sea level, datum of 1929.

Average discharge.--8 years, 136 cfs (96,460 acre-ft per year).

Extremes.--Maximum discharge during year, about 11,000 cfs Dec. 23 (gage height, 17.8 from floodmarks), from rating curve extended above 2,500 cfs as explained below; minimum daily, 5.8 cfs Oct. 15.

1957-65: Maximum discharge, 11,800 cfs Feb. 1, 1963 (gage height, 16.20 ft, 18.4 ft, from floodmarks), from rating curve extended above 2,500 cfs on basis of computation of maximum flow over dam; minimum, 1.7 cfs probably Sept. 11, 1961.

Flood of Dec. 23, 1955, reached a stage of 18.1 ft, from floodmarks (discharge, 11,600 cfs).

Remarks.--Records good except those for periods of no gage-height record, which are poor. No storage above station. Small diversion above station into South Fork Cosumnes River basin through Garabaldi ditch for irrigation and industrial use.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Oct. 1 to Jan. 5, Aug. 24 to Sept. 3, Sept. 7, 9-11)

2.7	4.8	4.5	99	8.0	1,150
2.8	6.4	5.0	169	9.0	1,790
3.1	14	5.5	258	11.0	3,560
3.5	27	6.0	375	13.0	6,100
4.0	53	7.0	700		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Nar.	Apr.	May	June	July	Aug.	Sept.
1	6.6	27	39	557	466	291	273	547	240	70	25	19
2	6.6	42	90	505	457	280	289	487	222	67	25	13
3	6.4	30	85	602	448	273	269	424	216	65	23	18
4	6.2	24	72	624	451	269	262	385	220	62	23	17
5	6.1	21	63	672	541	260	260	375	220	59	22	17
6	6.1	20	46	2,450	640	258	282	355	216	55	21	17
7	5.9	19	42	2,250	535	248	265	328	202	52	21	20
8	6.1	18	39	1,300	490	238	284	311	192	49	20	24
9	6.1	34	39	985	454	231	323	302	175	47	20	21
10	6.2	71	90	840	415	229	390	300	174	46	21	19
11	6.2	43	300	752	388	227	325	302	169	46	24	18
12	6.2	135	188	668	362	250	309	314	164	45	59	17
13	6.1	86	114	596	342	238	342	320	150	43	49	17
14	5.9	46	93	535	330	229	318	328	137	40	33	17
15	5.8	34	80	502	314	224	320	328	130	39	31	17
16	5.9	31	72	490	298	222	477	342	128	37	29	17
17	6.1	28	65	490	284	224	573	365	135	36	36	16
18	6.2	25	58	505	278	220	571	368	125	36	31	16
19	6.4	24	110	550	276	213	652	365	116	34	28	16
20	6.2	25	469	585	276	213	788	352	116	34	25	16
21	5.9	25	870	560	280	224	925	335	115	32	24	17
22	5.9	25	3,000	526	280	231	905	295	107	32	23	17
23	5.9	25	5,700	614	278	236	776	273	103	31	23	16
24	5.9	24	3,900	970	280	238	716	252	97	30	22	16
25	6.2	26	1,600	768	265	231	688	242	92	29	22	16
26	6.4	49	1,200	664	260	240	652	242	88	28	21	16
27	6.6	49	1,500	592	330	330	636	248	85	27	20	16
28	6.8	38	1,470	535	311	265	624	246	81	27	20	17
29	34	36	955	496	-----	248	620	252	76	27	19	17
30	34	35	764	478	-----	248	596	258	73	26	19	17
31	23	-----	680	469	-----	254	-----	256	-----	25	18	-----
Total	263.9	1,120	23,793	23,130	10,329	7,592	14,720	10,097	4,364	1,276	797	521
Mean	8.51	37.3	768	746	369	245	491	326	145	41.2	25.7	17.4
Ac-ft	523	2,220	47,190	45,880	20,490	15,060	29,200	20,030	8,660	2,530	1,580	1,030

Calendar year 1964 Max 5,700 Min 5.8 Mean 128 Ac-ft 93,020  
Water year 1964-65 Max 5,700 Min 5.8 Mean 269 Ac-ft 194,400

Peak discharge (base, 700 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	unknown	17.8	about 11,000	2-6	unknown	unknown	about 700
1-6	2300	10.95	3,510	4-22	0200	7.73	1,020
1-24	0115	8.15	1,230				

Note.--No gage height record Nov. 16, 17, Dec. 2-11, 21-27.

11-3343. South Fork Cosumnes River near River Pines, Calif.

Location.--Lat 38°33'25", long 120°47'32", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.8, T.8 N., R.11 E., on left bank 2.4 miles upstream from mouth and 2.7 miles west of River Pines.

Drainage area.--64.3 sq mi.

Records available.--October 1957 to September 1965.

Gage.--Water-stage recorder (digital). Altitude of gage is 1,220 ft (from topographic map).

Average discharge.--8 years, 40.5 cfs (29,320 acre-ft per year).

Extremes.--Maximum discharge during year, 3,870 cfs Dec. 23 (gage height, 8.67 ft) from rating curve extended above 1,900 cfs as explained below; no flow Oct. 1-30.

1957-65: Maximum discharge, 5,540 cfs Feb. 1, 1963 (gage height, 10.90), from rating curve extended above 1,900 cfs on basis of slope-area measurement at gage height 9.90 ft; no flow at times in 1959-65.

Remarks.--Records good. Amount of water imported from Middle Fork Cosumnes River through Garabaldi ditch was negligible due to leakage in the ditch.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

0.1	0	1.0	16	3.0	400
.2	.1	1.2	28	3.5	625
.3	.3	1.4	42	4.0	920
.4	1.1	1.6	59	5.0	1,600
.5	2.1	2.0	122	6.0	2,160
.6	3.5	2.5	237	7.0	2,760
.8	8.0				

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	0	2.0	8.9	197	108	47	56	78	26	12	4.0	1.8
2	0	6.3	9.7	165	96	44	69	75	27	11	3.5	1.9
3	0	3.8	15	318	91	42	70	71	27	11	3.3	1.9
4	0	2.4	13	491	85	41	62	69	26	10	3.1	1.8
5	0	1.8	12	585	104	39	58	62	25	9.6	2.9	1.7
6	0	1.6	11	2,150	130	40	72	59	24	9.1	2.7	1.7
7	0	1.5	9.9	1,360	104	42	75	57	23	8.7	2.5	2.0
8	0	1.4	9.1	602	91	43	95	54	21	8.4	2.2	3.1
9	0	4.5	8.6	410	85	41	235	52	22	8.3	2.2	3.0
10	0	27	8.5	318	79	39	400	50	22	7.9	2.2	2.5
11	0	24	51	269	77	39	262	48	21	7.9	3.0	2.3
12	0	93	48	235	71	55	221	46	20	7.8	10	2.1
13	0	54	29	205	66	63	294	44	19	7.5	7.8	1.9
14	0	26	21	183	63	52	254	43	19	7.2	5.9	1.8
15	0	17	18	171	60	48	232	42	19	6.8	5.6	1.8
16	0	14	16	160	57	45	426	40	19	6.4	4.7	1.6
17	0	11	13	153	54	44	366	39	20	6.1	4.1	1.5
18	0	9.5	12	151	53	42	293	38	20	5.9	3.8	1.5
19	0	8.3	51	158	51	41	254	37	18	5.7	3.4	1.6
20	0	7.3	308	163	49	39	222	37	17	5.4	3.1	1.4
21	0	6.5	486	148	48	38	210	37	16	5.4	2.9	1.5
22	0	6.2	1,260	137	47	36	181	37	16	5.2	2.9	1.5
23	0	5.9	2,350	177	46	35	156	37	15	4.9	2.8	1.5
24	0	5.7	1,580	318	44	35	139	35	15	4.7	2.7	1.4
25	0	5.9	544	219	43	34	128	33	15	4.5	2.7	1.4
26	0	9.2	435	188	42	38	117	32	15	4.5	2.5	1.4
27	0	11	796	160	60	114	107	30	14	4.8	2.4	1.6
28	0	9.0	630	146	51	82	98	29	14	4.6	2.2	2.0
29	0	8.0	382	134	-----	62	89	27	13	4.2	2.1	2.2
30	0	7.5	337	122	-----	55	82	26	12	4.1	2.0	2.1
31	.2	-----	287	115	-----	52	-----	26	-----	4.1	1.9	-----
TOTAL	0.2	391.3	9,759.7	10,308	1,955	1,467	5,323	1,390	580	213.7	107.1	55.5
MEAN	0.006	13.0	315	333	69.8	47.3	177	44.8	19.3	6.89	3.46	1.85
AC-FT	0.4	776	19,360	20,450	3,880	2,910	10,560	2,760	1,150	424	212	110

CALENDAR YEAR 1964 MAX 2,350 MIN 0 MEAN 39.4 AC-FT 28,600  
 WATER YEAR 1964-65 MAX 2,350 MIN 0 MEAN 86.4 AC-FT 62,590

## Peak discharge (base, 600 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0545	8.67	3,870	1- 6	0315	7.62	3,160
12-27	1000	4.30	1,120	4-16	1415	3.46	615

11-3350. Cosumnes River at Michigan Bar, Calif.

Location.--Lat 38°30'00", long 121°02'45", in SE $\frac{1}{4}$  sec.36, T.8 N., R.8 E., on downstream side of midstream pier of highway bridge at Michigan Bar, 5.5 miles southwest of Latrobe, and 12 miles downstream from confluence of North and Middle Forks.

Drainage area.--536 sq mi.

Records available.--October 1907 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder. Datum of gage is 168.09 ft above mean sea level, datum of 1929. Prior to July 10, 1930, staff gage at same site and datum.

Average discharge.--58 years, 477 cfs (345,300 acre-ft per year).

Extremes.--Maximum discharge during year, 37,500 cfs Dec. 23 (gage height, 13.80 ft); minimum daily, 6.7 cfs Oct. 1.

1907-65: Maximum discharge, 42,000 cfs Dec. 23, 1955 (gage height, 14.59 ft); no flow for parts of many years.

Flood in March 1907 reached a stage of 16.3 ft.

Remarks.--Records good. Flow partly regulated by Jenkinson Lake (usable capacity, 40,570 acre-ft). Camino conduit above the station diverts water out of the basin (see Remarks for station Camp Creek near Somerset). Numerous small diversions above station for irrigation and domestic use. Records of suspended sediment for water year 1965 are published in Part 2 of this report.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Dec. 26 to Jan. 12, April 10, 11, 16, 17)

2.2	4.0	3.4	203	7.0	6,200
2.3	8.5	3.9	420	9.0	14,100
2.5	22	4.5	880	11.0	23,500
2.7	42	5.2	1,760	14.0	38,500
3.0	93	6.0	3,300		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.7	48	93	2,220	1,280	756	732	1,450	515	137	39	25
2	7.2	55	142	1,720	1,240	724	748	1,300	487	137	40	26
3	7.6	100	224	2,260	1,200	684	764	1,170	462	137	38	26
4	9.7	63	197	3,760	1,150	660	716	1,040	450	132	42	25
5	10	45	154	2,980	1,300	636	692	970	456	124	41	24
6	8.0	36	132	14,600	1,760	636	732	900	444	111	39	24
7	8.0	31	114	12,000	1,480	636	764	830	426	109	35	24
8	8.0	29	104	5,260	1,380	606	764	772	400	114	28	26
9	7.6	48	98	3,640	1,230	578	1,120	732	375	102	28	31
10	7.6	130	98	2,860	1,120	564	3,060	716	360	85	26	36
11	7.6	231	238	2,380	1,020	557	2,180	700	345	81	28	33
12	7.6	375	759	2,110	960	626	1,540	708	335	81	41	29
13	7.6	395	380	1,860	910	756	1,610	708	311	79	107	28
14	7.6	206	272	1,650	860	628	1,420	716	289	79	95	26
15	7.6	124	231	1,540	820	592	1,260	724	268	70	64	25
16	7.6	93	203	1,480	810	564	2,770	732	257	73	64	24
17	8.0	79	177	1,420	740	550	2,820	764	257	75	56	23
18	8.0	79	159	1,410	716	536	2,240	790	261	70	56	22
19	8.0	61	210	1,540	700	529	2,240	790	242	68	53	23
20	7.2	56	1,530	1,720	692	515	2,280	772	231	55	48	23
21	7.6	56	3,500	1,590	692	515	2,710	756	224	52	42	23
22	7.2	53	9,990	1,480	692	515	2,600	700	214	52	38	23
23	8.0	50	28,500	1,510	684	529	2,240	668	206	52	36	23
24	8.0	49	19,300	3,430	660	536	2,000	599	197	49	34	24
25	8.5	52	8,050	2,420	644	536	1,890	557	190	48	32	24
26	8.5	61	5,790	2,060	636	550	1,760	529	174	46	31	23
27	9.1	116	7,280	1,810	756	1,090	1,690	515	171	48	30	23
28	10	119	5,660	1,620	890	970	1,650	508	162	48	29	24
29	20	93	4,100	1,480	-----	756	1,590	515	148	46	28	25
30	53	85	3,590	1,370	-----	692	1,560	522	139	42	27	26
31	68	-----	3,520	1,300	-----	668	-----	522	-----	40	25	-----
Total	365.1	3,018	104,795	88,480	27,022	19,692	50,142	23,675	8,996	2,442	1,320	761
Mean	11.8	101	3,380	2,850	965	635	1,671	764	300	78.8	42.6	25.4
Ac-ft	724	5,990	207,900	175,500	53,600	39,060	99,460	46,960	17,840	4,840	2,620	1,510

Calendar year 1964 Max 28,500 Min 3.5 Mean 460 Ac-ft 333,700  
Water year 1964-65 Max 28,500 Min 6.7 Mean 906 Ac-ft 656,000

Peak discharge (base, 4,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0900	13.80	37,500	4-16	1700	6.50	4,240
1-6	0830	10.47	19,800				

11-3357. Deer Creek near Sloughhouse, Calif.

Location.--Lat 38°33'06", long 121°06'30", in NW $\frac{1}{4}$  NW $\frac{1}{4}$  sec.16, T.8 N., R.8 E., on right bank 0.2 mile upstream from bridge on Scott Road, 0.4 mile upstream from Little Deer Creek, and 5.9 miles northeast of Sloughhouse.

Drainage area.--46.0 sq mi.

Records available.--November 1959 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 160 ft (from topographic map).

Average discharge.--5 years, 23.9 cfs (17,300 acre-ft per year).

Extremes.--Maximum discharge during year, 4,900 cfs Dec. 22 (gage height, 11.86 ft); no flow for several months.

1959-65: Maximum discharge, 6,560 cfs Oct. 13, 1962 (gage height, 12.86 ft), from rating curve extended above 2,200 cfs; no flow for several months in each year.

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

Cooperation.--Records furnished by the California Department of Water Resources and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	5.2	140	30	13	27	13	1.9			
2		0	7.4	98	27	12	21	11	2.1			
3		0	22	484	25	11	18	10	2.2			
4		0	19	724	26	10	16	9.9	2.3			
5		0	11	723	47	9.0	15	9.3	2.5			
6		0	8.5	1,360	46	8.8	16	8.9	2.5			
7		0	6.9	714	32	11	15	9.1	2.6			
8		0	6.2	191	26	9.0	19	7.6	2.6			
9		22	5.6	117	23	8.4	219	7.6	3.0			
10		112	5.7	87	21	8.9	689	7.1	2.9			
11		45	23	74	20	9.5	173	6.7	2.5			
12		129	28	62	19	83	91	7.6	1.9			
13		27	16	52	20	66	67	6.6	1.3			
14		12	13	46	20	29	56	6.5	1.0			
15		6.8	13	42	18	21	44	6.5	.7			
16		5.1	12	38	17	16	336	5.5	.2			
17		3.9	11	35	16	14	127	5.1	.1			
18		3.1	10	34	15	14	77	4.4	.1			
19		2.4	68	61	15	13	62	3.9	.3			
20		2.0	478	74	14	13	49	3.8	.6			
21		1.5	799	46	14	12	56	4.2	.5			
22		1.6	1,690	40	13	12	41	4.5	.4			
23		1.3	1,760	36	12	12	36	4.5	.3			
24		1.2	477	159	12	11	30	3.6	.3			
25		1.6	149	63	11	11	27	2.5	.3			
26		2.7	337	51	11	13	24	2.3	.2			
27		3.7	358	41	20	106	20	2.1	.2			
28		3.0	248	39	19	50	13	1.7	.1			
29		2.4	318	36	-----	29	16	1.4	.1			
30		2.4	398	35	-----	23	15	1.4	0			
31		-----	398	32	-----	20	-----	1.6	-----			
Total	0	391.7	7,701.5	5,390	589	6,786	2,420	1,799	35.7	0	0	0
Mean	0	13.1	248	174	21.0	21.9	30.7	5.80	1.19	0	0	0
Ac-ft	0	777	15,280	10,690	1,170	1,350	4,800	357	71	0	0	0
Calendar year 1964	Max	1,760	Min	0	Mean	30.1	Ac-ft	21,850				
Water year 1964-65	Max	1,760	Min	0	Mean	47.6	Ac-ft	34,500				

11-3360. Cosumnes River at McConnell, Calif.

Location.--Lat 38°21'29", long 121°20'34", in sec.20, T.6 N., R.6 E., on downstream side of bridge on U. S. Highway 99, 0.2 mile south of McConnell, 1 mile downstream from Deer Creek, and 7 miles north of Galt.

Drainage area.--724 sq mi.

Records available.--October 1941 to September 1965 in reports of Geological Survey. Monthly figures only for some periods, published in WSP 1315-A. Gage heights only during high-water periods 1931-40, in reports of California Department of Water Resources.

Gage.--Water-stage recorder. Gage is set to datum of Corps of Engineers.

Average discharge.--24 years, 547 cfs (396,000 acre-ft per year); median of yearly mean discharges, 420 cfs (304,000 acre-ft per year).

Extremes.--Maximum discharge during year, 32,200 cfs Dec. 23 (gage height, 45.35 ft); no flow Oct. 1 to Nov. 1, Aug. 4-13, Aug. 24 to Sept. 30  
1943-65: Maximum discharge, 54,000 cfs Dec. 23, 1955 (gage height, 46.26 ft), from rating curve extended above 36,000 cfs; no flow for parts of each year.

Remarks.--Records good except those below 10 cfs and above 13,000 cfs, which are poor. Diversions for irrigation of about 2,100 acres between stations at Michigan Bar and at McConnell. Records of suspended sediment loads for the water year 1965 are published in Part 2 of this report.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	66	3,650	1,320	730	676	1,440	483	92	5.4	
2		49	76	2,290	1,260	672	706	1,320	453	84	3.8	
3		63	145	2,590	1,210	627	774	1,190	429	81	1.3	
4		68	205	5,710	1,170	602	693	1,040	423	84	0	
5		39	156	4,620	1,220	582	655	953	423	76	0	
6		23	128	9,460	1,750	561	648	898	417	63	0	
7		13	110	15,000	1,630	582	758	850	393	58	0	
8		7.5	97	8,440	1,410	555	706	774	380	57	0	
9		9.5	84	4,450	1,270	525	886	730	358	57	0	
10		45	73	3,200	1,170	507	2,650	694	330	43	0	
11		196	78	2,590	1,060	493	3,340	672	320	38	0	
12		280	538	2,260	986	516	1,960	666	302	39	0	
13		462	456	1,930	914	832	1,710	662	285	38	0	
14		330	328	1,710	866	710	1,610	672	258	38	45	
15		171	238	1,560	830	592	1,380	676	235	37	46	
16		113	196	1,470	770	540	1,960	680	203	36	31	
17		83	171	1,400	730	513	3,770	706	196	35	26	
18		63	151	1,370	686	498	2,580	734	214	35	21	
19		58	392	1,400	669	483	2,380	746	196	35	17	
20		43	673	1,770	655	474	2,330	734	175	32	14	
21		44	3,140	1,660	652	468	2,660	730	163	27	3.4	
22		41	6,760	1,510	644	468	2,660	690	153	22	.8	
23		38	21,500	1,420	634	477	2,400	638	142	17	.3	
24		37	20,000	3,190	616	483	2,090	592	140	15	0	
25		36	11,500	2,750	596	483	1,930	546	133	13	0	
26		37	6,220	2,190	579	480	1,810	510	123	13	0	
27		46	7,680	1,910	613	678	1,710	495	120	11	0	
28		107	7,800	1,710	850	1,260	1,650	486	116	8.0	0	
29		87	5,520	1,550	-----	862	1,600	480	108	6.6	0	
30		70	5,150	1,430	-----	710	1,550	483	102	5.8	0	
31		-----	5,110	1,360	-----	652	-----	486	-----	5.0	0	-----
Total	0	2,674	104,746	97,550	26,760	18,620	52,237	22,979	7,783	1,211.4	215.0	0
Mean	0	89.1	3,380	3,150	956	601	1,741	741	259	391	6.94	0
Ac-ft	0	5,300	208,000	193,000	53,080	36,930	103,600	45,580	15,440	2,400	426	0

Calendar year 1964 Max 21,500 Min 0 Mean 449 Ac-ft 326,000  
Water year 1964-65 Max 21,500 Min 0 Mean 917 Ac-ft 663,800

Peak discharge (base, 3,600 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	1800	45.35	32,200	1- 7	1400	43.14	15,700
12-27	2100	41.03	8,670	1-24	1430	37.91	4,060
1- 4	1700	40.03	6,710	4-11	0500	38.03	3,980
				4-17	0400	38.31	4,240



11-3365.8. Morrison Creek near Sacramento, Calif.

Location.--Lat 38°29'55", long 121°27'06", in SW 1/4 sec. 32, T.8 N., R.5 E., on right bank 750 ft upstream from Florin Road, 1.6 miles upstream from Elder Creek, and 2 miles south of Sacramento city limits. Prior to Sept. 13, 1965, at site 475 ft upstream.

Drainage area.--48.6 sq mi.

Records available.--July 1959 to September 1965

Gage.--Water-stage recorder (digital). Datum of gage is 7.60 ft above means sea level, datum of 1929. Prior to June 29, 1960, at site 650 ft downstream at datum 1.55 ft higher. June 29, 1960, to Sept. 12, 1965, at site 475 ft upstream at datum 2.71 ft higher.

Average discharge.--6 years, 14.6 cfs (10,570 acre-ft per year).

Extremes.--Maximum discharge during year, 1,040 cfs Dec. 23 (gage height, 6.00 ft); no flow, June 1-5.  
1959-65: Maximum discharge, 1,320 cfs Oct. 14, 1962 (gage height, 7.09 ft); no flow at times in 1960, 1962, 1965.

Remarks.--Records good except those for period of no gage-height record, which are poor. No regulation or diversion above station. Summer flow sustained by waste water from domestic and industrial use.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Dec. 22-26, Sept. 13-30)

Oct. 1 to Sept. 12				Sept. 13-30	
1.34	0	2.1	42	0.8	3.6
1.4	.4	2.5	102	.9	5.6
1.5	1.9	3.0	206	1.0	8.1
1.6	4.0	4.0	434	1.1	11
1.7	8.0	5.0	698		
1.8	14	6.0	990		
1.9	24				

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	4.8	21	7.9	84	11	5.4	8.1	6.1	0	2.7	6.2	3.8
2	5.1	28	12	64	12	5.4	17	5.0	0	2.7	6.2	3.8
3	5.6	15	13	154	11	5.0	12	5.2	0	2.7	6.2	3.8
4	5.4	10	12	312	12	5.8	9.3	5.1	0	2.7	6.2	3.8
5	5.2	7.7	7.1	241	24	5.0	8.2	5.4	0	2.7	6.2	3.8
6	4.8	7.3	5.0	494	19	5.8	6.4	5.7	3.8	2.7	6.2	7.0
7	6.5	9.6	5.0	213	14	5.4	12	5.6	3.8	2.7	6.2	7.0
8	7.6	7.2	6.6	89	10	4.6	33	5.5	3.8	2.7	6.2	7.0
9	6.9	57	9.0	53	8.6	5.4	89	5.3	3.8	2.7	6.2	7.0
10	7.1	71	5.8	39	7.6	5.4	53	6.7	3.8	2.7	6.2	7.0
11	6.8	40	6.2	31	6.6	5.0	22	7.3	3.8	2.7	6.2	7.0
12	4.7	24	5.0	26	7.1	19	20	5.7	3.8	2.7	6.2	7.0
13	4.3	16	4.6	21	6.6	22	26	5.7	3.8	2.7	6.2	7.4
14	4.8	9.3	5.0	18	6.2	12	15	7.2	3.8	2.7	6.2	7.4
15	4.3	7.6	5.0	16	6.6	9.3	18	7.8	3.8	2.7	6.2	9.5
16	5.1	6.5	5.0	16	7.1	7.6	80	8.2	3.8	2.7	3.8	10
17	5.8	7.5	5.4	14	7.1	6.1	36	8.4	3.8	2.7	3.8	8.3
18	5.4	7.3	6.2	12	6.2	5.8	18	7.5	3.8	2.7	3.8	5.0
19	5.8	7.3	32	26	6.6	6.6	13	5.2	3.8	2.7	3.8	4.2
20	5.1	7.3	58	33	7.6	6.5	13	5.2	3.8	13	3.8	8.1
21	5.4	5.8	128	20	6.6	6.4	13	5.2	3.8	6.0	3.8	6.8
22	4.7	6.4	502	18	4.3	5.5	10	5.2	3.8	6.0	3.8	7.7
23	5.4	6.8	790	41	4.0	5.8	8.9	5.2	2.7	6.0	3.8	7.6
24	5.3	8.6	279	71	5.4	5.9	8.1	5.2	2.7	6.0	3.8	6.5
25	5.5	9.9	138	32	5.4	5.6	7.7	5.2	2.7	6.0	3.8	6.2
26	5.3	7.7	140	21	5.0	7.2	7.6	5.2	2.7	6.0	3.8	6.9
27	5.1	6.0	182	16	11	51	8.4	5.2	2.7	6.0	3.8	6.5
28	12	5.6	100	14	7.6	15	9.0	5.2	2.7	6.0	3.8	6.2
29	59	4.1	90	14	-----	7.8	9.8	5.2	2.7	6.0	3.8	6.6
30	29	5.0	177	13	-----	6.9	8.3	5.2	2.7	6.0	3.8	6.3
31	13	-----	156	12	-----	14	-----	5.2	-----	6.0	3.8	-----
TOTAL	260.8	432.5	2,897.8	2,228	246.2	284.2	599.8	181.0	86.2	130.3	153.8	195.2
MEAN	8.41	14.4	93.5	71.9	8.79	9.17	20.0	5.84	2.87	4.20	4.96	6.51
AC-FT	517	858	5,750	4,420	488	564	1,190	359	171	258	305	387

Calendar Year 1964: Max 790 Min 2.4 Mean 16.1 Ac-ft 11,720  
Water Year 1964-65: Max 790 Min 0 Mean 21.1 Ac-ft 15,270

Peak discharge (base, 150 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
10-29	0030	2.82	166	12-30	1130	3.06	215
11-10	0615	2.87	177	1-6	1015	5.59	849
12-23	0700	6.00	1040	4-9	1445	3.19	248
12-26	2400	2.91	213	4-16	0615	2.78	158

Note.--No gage-height record May 18 to Sept. 13 during channel rectification.

## SAN JOAQUIN RIVER BASIN

11-3370. Contra Costa Canal near Oakley, Calif.

Location.--Lat 37°59'45", long 121°42'00", in NE $\frac{1}{4}$  sec.25, T.2 N., R.2 E., at Pumping Plant No. 1, 0.7 mile east of Oakley and 2.6 miles northwest of Knightsen.

Records available.--February 1950 to September 1965.

Gage.--Recording flow meters on pumps. Prior to Jan. 1, 1953, water-stage recorder at site 3.2 miles downstream at datum 121.72 ft above mean sea level (levels by Bureau of Reclamation).

Average discharge.--15 years, 77.4 cfs (56,040 acre-ft per year).

Extremes.--1950-65: Maximum daily discharge, 210 cfs July 14, 1961; minimum daily, 8.0 cfs Jan. 12, 1952.

Remarks.--Water is diverted from Sacramento-San Joaquin Delta by way of Old River, Rock Slough, and a dredged channel. A series of four pumping plants lifts the water about 115 ft into canal. Water is used for municipal, agricultural, and industrial purposes. The canal is a part of the Central Valley project.

Cooperation.--Records of daily discharge furnished by Bureau of Reclamation and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	142	117	107	50	46	63	61	82	113	130	173	166
2	140	116	97	50	51	75	57	80	112	135	172	161
3	121	113	73	50	56	109	57	76	111	134	173	152
4	131	113	73	50	55	64	63	74	114	135	180	151
5	121	99	59	49	54	63	76	78	110	130	179	153
6	124	109	68	49	52	64	91	82	110	134	190	120
7	117	117	67	49	54	64	74	87	101	134	192	135
8	115	114	67	50	57	66	96	92	107	135	188	128
9	112	115	67	51	54	72	59	91	105	134	188	129
10	112	110	68	50	61	70	59	97	113	128	188	123
11	113	98	64	50	69	70	75	101	115	121	184	125
12	113	89	61	50	69	65	80	104	113	122	179	123
13	112	86	56	50	68	64	69	109	116	122	190	123
14	114	83	54	50	69	60	63	102	117	130	169	128
15	110	77	57	54	70	65	63	102	120	127	164	128
16	119	73	55	53	66	62	62	99	122	136	171	127
17	113	74	55	53	64	60	63	102	121	130	176	121
18	116	71	55	52	64	57	61	105	115	134	175	119
19	133	75	56	54	63	64	54	107	114	134	179	129
20	141	73	59	55	63	61	55	107	114	137	180	126
21	137	67	57	63	64	64	56	110	115	136	178	135
22	135	71	54	62	64	64	55	101	118	148	172	131
23	137	82	51	61	63	59	70	106	121	162	175	129
24	121	75	47	62	60	73	62	105	121	154	178	122
25	121	78	49	60	59	70	59	110	119	146	177	121
26	122	74	53	58	65	74	68	125	121	155	179	115
27	130	75	50	67	65	75	74	135	121	159	181	113
28	140	91	53	59	64	70	74	140	122	163	182	112
29	134	107	54	53	-----	74	79	128	127	172	176	110
30	116	79	51	51	-----	69	85	121	128	168	179	112
31	122	-----	52	49	-----	70	-----	120	-----	169	174	-----
Total	3,934	2,726	1,889	1,664	1,709	2,100	2,030	3,178	3,476	4,354	5,541	3,867
Mean	124	90.9	60.9	53.7	61.0	67.7	67.7	103	116	140	179	129
Ac-ft	7,615	5,407	3,747	3,300	3,390	4,165	4,021	6,303	6,895	8,636	10,990	7,670

Calendar year 1964 Max 196 Min 47 Mean 119 Ac-ft 86,539

Water year 1964-65 Max 192 Min 46 Mean 99.6 Ac-ft 72,139

11-3375. Marsh Creek near Byron, Calif.

Location.--Lat 37°52'25", long 121°43'35", in Los Meganos Grant, on right bank 40 ft downstream from highway bridge on Marsh Creek road, 1.2 miles upstream from Marsh Creek Dam, and 5.0 miles west of Byron, Contra Costa County.

Drainage area.--42.6 sq mi.

Records available.--February 1953 to September 1965.

Gage.--Water-stage recorder and concrete control. Datum of gage is 177.87 ft above mean sea level, datum of 1929.

Average discharge.--12 years, 7.80 cfs (5,650 acre-ft per year); median of yearly mean discharge, 1.8 cfs (1,300 acre-ft per year).

Extremes.--Maximum discharge during year, 1,570 cfs Dec. 23 (gage height, 7.84 ft); no flow for several months.

1953-65: Maximum discharge, 3,880 cfs Jan. 31, 1963 (gage height, 11.62 ft), from rating curve extended above 880 cfs on basis of slope-area measurement at gage height 10.90 ft; maximum gage height, 12.98 ft Dec. 23, 1955; no flow for several months in each year.

Remarks.--Records good. No regulation or diversion above station.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

1.92	0	2.5	2.5	3.6	100
2.1	.1	2.6	4.5	4.0	172
2.2	.3	2.8	12	4.5	285
2.3	.7	3.0	25	5.0	415
2.4	1.5	3.3	55	6.0	740

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			0	79	15	6.2	13	7.0	0			
2			0	68	14	5.6	7.3	7.0	.1			
3			0	228	13	5.6	5.6	6.6	.2			
4			0	182	14	5.2	4.8	5.2	.6			
5			0	145	22	4.8	4.1	5.2	.1			
6			0	255	16	7.3	3.7	4.5	0			
7			0	224	12	5.9	3.9	4.1	0			
8			0	110	12	5.6	4.5	3.9	.1			
9			0	78	11	5.2	7.3	3.7	0			
10			0	58	10	5.2	7.5	3.7	0			
11			0	49	10	4.8	3.6	3.3	0			
12			0	38	9.6	7.2	2.6	2.4	0			
13			0	31	9.2	12	1.9	2.0	0			
14			0	27	9.6	8.4	1.6	2.0	0			
15			0	24	8.8	6.6	1.5	1.8	0			
16			0	22	8.4	5.6	7.5	1.3	0			
17			0	19	8.0	5.2	4.2	1.0	0			
18			0	17	8.0	5.2	3.4	1.2	0			
19			0	22	7.6	5.2	2.8	1.0	0			
20			0	19	7.3	4.3	2.4	1.2	0			
21			0	16	7.3	4.1	2.6	1.3	0			
22			352	15	7.3	3.9	1.9	1.6	0			
23			680	29	6.6	3.7	1.6	1.3	0			
24			176	63	6.6	3.7	1.4	.8	0			
25			83	29	6.6	3.5	1.2	.6	0			
26			76	24	6.2	3.7	1.0	.6	0			
27			127	22	7.3	6.2	1.0	.6	0			
28			147	20	7.0	5.6	7.6	.8	0			
29			201	19	-----	3.3	7.0	.3	0			
30			165	17	-----	3.3	7.0	.1	0			
31			165	16	-----	6.8	-----	0	-----			
Total	0	0	2,172	1,965	280.4	168.9	638.5	76.1	1.1	0	0	0
Mean	0	0	70.1	63.4	10.0	5.45	21.3	2.45	0.04	0	0	0
Ac-ft	0	0	4,310	3,900	556	335	1,270	151	2.2	0	0	0

Calendar year 1964 Max 680 Min 0 Mean 7.20 Ac-ft 5,230  
 Water year 1964-65 Max 680 Min 0 Mean 14.5 Ac-ft 10,520

Peak discharge (base, 100 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0600	7.84	1,570	1-24	0300	3.88	111
12-29	2030	5.05	372	4- 9	2300	4.16	160
1- 3	1800	5.08	380	4-16	0600	3.85	106
1- 6	2400	5.27	442				

11-3420. Sacramento River at Delta, Calif.

Location.--Lat 40°56'20", long 122°24'55", in NW¼ sec.35, T.36 N., R.5 W., on left bank 0.2 mile downstream from Dog Creek, 0.6 mile southeast of Delta, and 2.8 miles south of LaMoine.

Drainage area.--425 sq mi (revised).

Records available.--October 1944 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder. Datum of gage is 1,075.00 feet above mean sea level (levels by Bureau of Reclamation).

Average discharge.--21 years, 1,135 cfs (821,700 acre-ft per year).

Extremes.--Maximum discharge during year, 38,800 cfs Dec. 22 (gage height, 20.10 ft) from rating curve extended above 19,000 cfs on basis of slope-area measurement at gage height 19.50 ft; minimum daily, 162 cfs Oct. 5-7, 12.  
1944-65: Maximum discharge, that of Dec. 22, 1964; minimum, 141 cfs Sept. 3-5, 1950.

Remarks.--Records good. No regulation. Some minor diversions for irrigation above station. Records of chemical analyses and water temperatures for the water year 1965 are published in Part 2 of this report.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Dec. 23-26, Jan. 7-17, 25-31, Feb. 1-15, Sept. 1-8)

3.4	140	6.0	1,530
3.5	165	7.0	2,600
3.7	215	9.0	5,800
4.0	310	12.0	13,100
4.5	505	15.0	22,700
5.0	760	19.0	35,500

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	168	467	1,660	1,990	1,610	820	932	2,300	820	359	248	208
2	165	556	1,290	1,890	1,480	790	936	1,960	772	345	242	210
3	165	359	950	1,770	1,390	772	814	1,750	738	334	248	210
4	165	286	760	1,630	1,310	754	784	1,640	722	338	239	210
5	162	260	656	5,560	1,440	760	957	1,550	700	320	230	210
6	162	245	580	6,440	1,350	749	999	1,400	688	310	224	212
7	162	233	536	4,260	1,220	727	964	1,300	661	306	221	212
8	165	328	514	2,940	1,160	722	1,050	1,270	635	303	215	208
9	165	1,730	541	2,300	1,100	727	1,240	1,260	615	296	215	208
10	165	1,360	801	2,070	1,040	744	1,170	1,250	575	289	212	208
11	165	949	1,350	2,430	1,010	754	1,110	1,290	546	286	233	205
12	162	874	908	2,340	964	766	1,170	1,370	528	286	285	205
13	165	661	744	2,120	943	749	1,300	1,440	510	282	254	205
14	165	518	694	1,980	929	738	2,260	1,410	532	275	236	202
15	168	444	650	2,070	880	749	6,180	1,350	532	272	236	200
16	170	404	585	2,210	868	749	7,240	1,370	487	263	227	198
17	168	373	528	2,130	844	754	3,900	1,370	492	263	236	195
18	168	356	523	2,110	832	732	4,370	1,190	510	263	282	199
19	165	342	749	2,140	838	722	7,320	1,170	456	260	286	202
20	165	334	1,780	2,060	838	705	7,520	1,140	432	257	260	202
21	168	338	1,370	1,950	844	727	6,950	1,090	420	257	289	202
22	165	362	34,400	1,790	856	760	5,010	1,050	404	251	278	202
23	165	359	21,500	3,360	826	766	4,000	957	412	248	257	202
24	168	388	13,100	4,500	814	760	3,480	908	428	245	251	202
25	170	625	8,160	3,120	802	732	3,230	874	408	245	251	200
26	178	600	6,920	2,480	808	744	3,150	868	428	248	248	202
27	218	570	5,480	2,100	1,040	716	3,060	880	400	251	236	205
28	348	985	4,020	1,860	862	694	3,060	894	380	245	230	205
29	528	880	3,190	1,730	-----	722	2,930	901	366	239	224	202
30	366	865	2,670	1,860	-----	722	2,670	894	352	239	221	200
31	266	-----	2,280	1,720	-----	732	-----	868	-----	242	212	-----
Total	6,045	17,551	132,219	78,910	28,398	23,058	89,706	38,964	15,949	8,617	7,527	6,130
Mean	195	585	4,265	2,545	1,032	744	2,990	1,257	532	278	243	204
Ac-ft	11,990	34,310	262,300	156,503	57,320	45,730	177,900	77,280	31,630	17,090	14,930	12,160

Calendar year 1964 Max 34,400 Min 155 Mean 841 Ac-ft 610,700  
Water year 1964-65 Max 34,400 Min 162 Mean 1,243 Ac-ft 899,600

Peak discharge (base, 8,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-22	1300	20.10	38,800	4-15	2200	11.64	12,100
1-5	1500	10.22	8,410	4-20	2400	10.29	8,580



## SACRAMENTO RIVER BASIN

11-3435. North Fork Pit River near Alturas, Calif.

Location.--Lat 41°30', long 120°29', in NE $\frac{1}{4}$  sec.8, T.42 N., R.13 E., on right bank 1.5 miles downstream from Parker Creek, 3 miles northeast of Alturas, and 4 miles upstream from mouth.

Drainage area.--203 sq mi, excluding Goose Lake Basin.

Records available.--May 1929 to November 1932, October 1957 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 4,391 ft above mean sea level.

Average discharge.--11 years, 50.4 cfs (36,490 acre-ft per year).

Extremes.--Maximum discharge during year, 1,670 cfs Dec. 22 (gage height, 7.82 ft); minimum daily, 1.0 cfs Aug. 3, 4.  
1929-32, 1957-65: Maximum discharge, 2,530 cfs Oct. 14, 1962 (gage height, 11.07 ft); no flow Apr. 29, 30, 1931, June 6, 1959.

Remarks.--Records good. Flow regulated by many small reservoirs (total capacity, about 2,480 acre-ft). Diversions above gage for irrigation of about 7,100 acres. See schematic diagram, p. 739.

Rating tables, (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Apr. 6-9)

Oct. 1 to Dec. 22				Dec. 22 to July 5				July 5 to Sept. 30			
0.8	0.5	2.0	107	1.4	15	2.5	300	0.8	1.0		
.9	1.6	2.3	175	1.6	26	3.0	370	.9	3.7		
1.0	7.9	2.6	260	1.8	44	4.0	690	1.0	8.8		
1.2	13	3.0	420	2.0	70	5.0	970	1.1	16		
1.4	26	3.5	600	2.2	113	6.0	1,220	1.2	26		
1.6	45	4.0	750					1.4	49		
1.8	73	5.0	980					1.6	76		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.5	3.9	76	120	377	84	53	209	21	50	2.6	3.2
2	1.5	4.5	100	100	296	76	67	197	21	45	1.5	2.9
3	1.5	4.9	60	84	272	76	59	170	13	38	1.0	2.9
4	1.5	5.5	30	104	307	74	53	143	20	33	1.0	2.6
5	1.5	7.9	25	106	318	64	74	113	15	24	1.3	2.4
6	1.5	7.9	25	167	276	48	116	106	25	19	1.3	2.1
7	1.6	7.9	23	183	212	46	118	92	25	23	1.3	2.1
8	1.6	8.4	83	183	200	48	68	41	22	20	1.3	2.1
9	1.3	12	220	182	167	52	88	15	29	13	1.3	2.1
10	1.9	13	234	203	135	55	116	58	27	12	2.6	1.8
11	1.9	14	247	697	135	58	182	38	16	12	3.4	1.3
12	1.9	14	53	573	132	66	237	38	18	12	4.2	1.8
13	1.8	15	30	447	143	60	132	37	28	13	2.6	1.8
14	1.3	13	34	293	132	60	154	74	42	27	2.1	1.8
15	1.8	10	33	279	126	61	161	53	78	34	1.5	1.8
16	1.8	8.4	28	310	111	62	212	43	52	35	1.5	1.5
17	1.6	8.9	16	272	116	60	176	39	237	41	1.8	1.5
18	1.6	7.9	19	276	124	55	203	46	325	75	2.4	1.3
19	1.6	7.4	27	282	132	55	310	46	137	56	5.2	1.3
20	1.6	6.9	25	310	137	56	352	43	62	44	4.7	1.3
21	1.6	7.4	166	328	129	62	402	56	36	41	10	1.3
22	1.6	9.9	996	276	113	63	352	129	25	38	13	1.3
23	1.6	12	803	737	90	70	293	72	29	36	7.8	1.3
24	1.6	16	304	952	95	67	268	43	35	35	5.7	1.3
25	1.8	33	476	333	95	66	254	34	60	35	3.7	1.3
26	1.8	30	440	276	99	70	240	32	104	34	3.4	1.3
27	1.1	21	381	276	121	78	230	28	62	33	3.4	1.5
28	9.9	20	244	342	97	68	234	28	34	26	3.2	1.5
29	5.7	34	203	607	-----	62	237	29	36	12	3.2	1.3
30	3.3	28	170	793	-----	55	221	28	40	3.2	3.2	1.3
31	3.0	-----	143	541	-----	46	-----	29	-----	2.6	3.2	-----
Total	76.2	393.7	6219	10692	4687	1928	5721	2144	1679	921.8	104.4	53.5
Mean	2.46	13.1	201	345	167	62.2	191	69.2	56.0	29.7	3.37	1.78
Ac-ft	151	781	12340	21310	9300	3320	11350	4250	3330	1830	207	105

Calendar year 1964 Max 1,770 Min 0.9 Mean 69.2 Ac-ft 50,130  
Water year 1964-65 Max 996 Min 1.0 Mean 94.8 Ac-ft 68,670

11-3455. South Fork Pit River near Likely, Calif.

Location.--Lat 41°13'51", long 120°26'10", in NE 1/4 sec. 11, T. 39 N., R. 13 E., on left bank 100 ft downstream from highway bridge, 1.4 miles downstream from West Valley Creek, and 3.5 miles east of Likely.

Drainage area.--247 sq mi.

Records available.--October 1928 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder. Datum of gage is 4,508 ft above mean sea level. Prior to Oct. 1, 1931, at site 1,000 ft downstream at different datum.

Average discharge.--37 years, 73.6 cfs (53,280 acre-ft per year).

Extremes.--Maximum discharge during year, 542 cfs May 1 (gage height, 4.43 ft); minimum daily, 27 cfs Oct. 26-28.

1928-65: Maximum discharge, 1,520 cfs (revised) Apr. 27, 1932 (gage height, 5.55 ft); minimum, 0.2 cfs Feb. 3, 1941.

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

WSP	WATER YEAR	DATE	DISCHARGE (cfs)	GAGE HEIGHT
736	1932	Apr. 27, 1932	1,520	5.55
861	1938	May 16, 1938	900	4.90
1245	1952	Apr. 5, 1952	852	4.84

Remarks.--Records good except those for periods of ice effect, which are poor. Flow regulated by West Valley Creek Reservoir beginning in May 1937 (usable capacity, 21,000 acre-ft). Diversions for irrigation of about 3,800 acres above station. See schematic diagram, p. 739. Records of chemical analyses for the water year 1965 are published in Part 2 of this report.

Revisions.--Revised figures of discharge, in cubic feet per second, for the high-water period in water year 1932 superseding figures published in WSP 736 are given herewith:

Apr. 27, 1932.....531  
Apr. 28, 1932.....502

Month	Cfs-days	Maximum	Minimum	Mean	Acre-ft
April 1932	3,865	531	59	129	7,670
Water year 1932	-	531	-	78.3	56,880
Calendar year 1932	-	531	-	80.1	58,170

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	30	33	47	63	179	54	63	534	272	125	141	141
2	31	39	59	54	161	53	68	494	258	117	143	141
3	32	37	48	55	161	53	60	452	242	106	143	139
4	32	34	34	64	159	50	58	421	235	100	141	139
5	32	32	31	76	178	48	61	397	250	94	139	141
6	30	32	30	92	170	45	62	364	275	89	134	139
7	32	32	34	88	136	44	62	334	262	81	130	141
8	34	32	59	82	134	44	58	307	260	70	125	143
9	40	33	94	81	129	44	58	286	242	76	122	146
10	40	33	83	71	117	43	64	280	221	78	118	150
11	39	33	96	103	120	42	74	283	217	72	141	148
12	38	36	54	93	100	44	129	283	221	68	170	146
13	38	34	45	80	87	42	150	313	217	56	146	145
14	34	36	45	74	83	41	143	355	221	54	137	145
15	32	35	47	80	82	43	110	361	217	50	137	116
16	33	36	42	85	62	43	102	373	193	56	129	72
17	33	36	40	80	51	41	106	400	240	62	130	71
18	34	36	42	80	64	40	106	407	340	68	118	72
19	33	36	45	85	73	41	136	400	270	66	102	73
20	33	35	48	93	74	42	189	397	206	60	94	74
21	33	35	70	94	70	44	250	397	176	84	94	73
22	33	36	274	82	68	48	292	407	159	103	126	76
23	33	34	340	128	54	49	295	376	154	102	146	77
24	34	37	390	141	57	49	322	337	164	100	96	77
25	31	48	337	99	60	48	355	304	178	112	150	58
26	27	47	283	73	63	46	373	286	191	136	150	45
27	27	36	200	68	77	54	404	272	159	129	146	45
28	27	35	141	65	60	52	435	260	139	122	139	48
29	34	37	108	134	-----	46	486	248	122	115	143	40
30	36	35	89	212	-----	45	522	248	120	122	139	37
31	34	-----	76	208	-----	45	-----	262	-----	137	137	-----
Total	1,029	1,070	3,331	2,883	2,829	1,423	5,593	10,838	6,421	2,810	4,106	3,058
Mean	33.2	35.7	107	93.0	101	45.9	186	350	214	90.6	132	102
Ac-ft	2,040	2,120	6,610	5,720	5,610	2,820	11,090	21,500	12,740	5,570	8,140	6,070

Calendar year 1964 Max 736 Min 14 Mean 99.2 Ac-ft 71,800  
Water year 1964-65 Max 534 Min 27 Mean 124 Ac-ft 90,030

Note.--Stage-discharge relation affected by ice Nov. 15-20, Dec. 4-7, 13, 14, 16-19, Jan. 1-3, 7-9, 12-14, Feb. 25.

11-3485. Pit River near Canby, Calif.

Location.--Lat 41°24', long 120°55', in SW¼ sec. 10, T.41 N., R.9 E., on right bank at lower end of Warm Spring Valley, 4 miles southwest of Canby.

Drainage area.--1,431 sq mi, excluding Goose Lake basin.

Records available.--January 1904 to December 1905, May 1929 to September 1965 (1929-31 incomplete).

Gage.--Water-stage recorder (digital). Datum of gage is 4,266 ft above mean sea level (levels by Topographic Division). January 1904, to December 1905 staff gage and May 6, 1929, to Sept. 30, 1931, water-stage recorder, at site 100 ft upstream at different datum.

Average discharge.--35 years (1905, 1931-65), 234 cfs (169,400 acre-ft per year).

Extremes.--Maximum discharge during year, 4,020 cfs Dec. 24 (gage height, 8.32 ft); minimum daily, 5.7 cfs Aug. 8.

1904-5, 1929-65: Maximum discharge observed, 13,000 cfs Mar. 8, 1904 (gage height, 15.0 ft, site and datum then in use); minimum 0.1 cfs Apr. 29, Aug. 5, Sept. 18, 1934, Aug. 18-21, 1935.

Remarks.--Records good except those below 40 cfs, which are fair. Flow regulated by many small reservoirs (total capacity now, about 144,000 acre-ft). Diversions for irrigation of about 39,000 acres above station. See schematic diagram, p. 739.

Records of chemical analyses and water temperatures for the water year 1965 are published in Part 2 of this report.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 24		Dec. 24 to Sept. 30	
2.3	15	3.5	410
2.4	28	4.0	690
2.6	68	6.0	2,050
3.0	190	9.0	4,700
4.0	660	Note.--Same as preceding table below 2.6 ft.	
6.0	1,980		
9.0	4,700		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	37	71	169	1,000	2,760	493	258	858	292	268	78	119
2	37	73	198	739	2,350	445	300	958	210	242	76	101
3	37	73	218	548	1,980	415	356	858	346	229	73	100
4	90	76	222	493	1,720	385	333	852	290	233	72	71
5	119	71	166	618	1,740	360	328	816	233	218	86	27
6	95	90	140	930	1,890	351	351	763	194	196	84	37
7	68	87	137	1,030	1,570	351	385	702	125	157	61	32
8	61	82	131	1,160	1,260	356	405	642	86	127	5.7	36
9	61	79	246	1,120	1,000	338	370	582	130	104	38	31
10	59	73	485	1,060	840	328	385	482	215	96	94	46
11	59	79	555	1,160	714	324	430	476	347	91	67	40
12	55	84	585	1,690	666	324	515	425	328	56	136	133
13	20	87	346	2,070	654	333	630	320	322	66	142	240
14	25	113	198	2,030	642	310	738	155	302	38	150	244
15	66	200	180	1,750	618	310	798	482	333	22	136	185
16	61	79	169	1,440	576	297	846	548	392	20	159	217
17	55	90	125	1,240	537	292	823	510	498	35	183	235
18	55	71	110	1,080	482	279	732	450	623	102	143	197
19	53	76	119	1,040	515	270	648	395	713	134	145	167
20	66	76	180	1,080	582	253	702	375	739	112	161	149
21	110	76	350	1,220	612	262	828	297	763	114	173	147
22	61	76	1,050	1,340	606	266	912	243	627	93	166	147
23	57	68	2,840	1,710	520	254	954	493	413	56	148	183
24	55	107	3,830	2,840	435	230	954	515	162	25	131	143
25	53	137	3,520	2,930	400	238	930	696	151	21	107	125
26	55	131	3,320	2,840	415	270	912	636	215	31	114	124
27	61	146	3,340	2,000	493	310	882	542	417	66	118	124
28	64	140	2,900	1,720	548	315	864	515	501	63	130	97
29	71	122	2,230	1,690	-----	315	858	460	394	77	130	113
30	73	128	1,500	2,250	-----	288	864	395	312	128	117	109
31	76	-----	1,340	2,910	-----	266	-----	356	-----	99	111	-----
Total	1,915	2,861	30,899	46,727	27,125	9,833	19,298	16,702	10,673	3,319	3,534.7	3,719
Mean	61.8	95.4	997	1,507	969	317	643	539	356	107	114	124
Ac-ft	3,800	5,670	61,290	92,680	53,800	19,500	38,280	33,130	21,170	6,580	7,010	7,380
Calendar year 1964	Max		3,830	Min	7.8	Mean	282	Ac-ft	204,900			
Water year 1964-65	Max		3,830	Min	5.7	Mean	484	Ac-ft	350,300			



11-3490. Pit River near Lookout, Calif.

Location.--Lat 41°19'25", long 121°07'35", in NE $\frac{1}{4}$  sec. 11, T.40 N., R.7 E., on right bank 0.5 mile downstream from unnamed tributary and  $8\frac{1}{2}$  miles north of Lookout.

Drainage area.--1,585 sq mi, excluding Goose Lake basin.

Records available.--January 1929 to September 1931, August 1958 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 4,160 ft (from topographic map). January 1929 to September 1931, water-stage recorder at site approximately  $2\frac{1}{2}$  miles downstream at different datum.

Average discharge.--9 years, 227 cfs (164,300 acre-ft per year).

Extremes.--Maximum discharge during year, 4,820 cfs Dec. 24 (gage height, 16.75 ft); minimum daily, 20 cfs Aug. 9 1929-31, 1958-65: Maximum discharge, 8,170 cfs Oct. 14, 1962 (gage height, 19.39 ft, from floodmark in gage well); no flow Aug. 29, 1931.

Remarks.--Records good except those for periods of ice effect or no gage height record, which are fair. Flow regulated by many small reservoirs. See Remarks for station near Canby. Diversions for irrigation of about 41,000 acres above station. See schematic diagram, p. 739.

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Mar. 28 to Apr. 9)

Oct. 1 to Dec. 23      Dec. 24 to Sept. 30

5.0	28	4.7	18
5.5	58	5.0	32
6.0	102	5.5	66
6.5	163	6.0	121
7.0	250	7.0	270
9.0	800	10.0	1,130
11.0	1,400	13.0	2,250
13.0	2,100	15.0	3,390
15.0	3,210	17.0	5,100
17.0	5,100		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	42	75	142	1,400	3,340	707	317	920	314	282	93	124
2	39	75	212	1,000	2,920	614	398	914	228	259	75	116
3	39	78	203	750	2,500	578	446	911	308	243	73	102
4	44	78	230	600	2,220	554	418	902	301	239	70	101
5	113	75	186	900	2,200	548	393	875	250	236	77	49
6	106	77	149	1,200	2,410	527	407	824	218	221	93	35
7	81	95	131	1,300	2,080	530	440	758	165	194	72	40
8	65	88	130	1,450	1,670	557	468	695	131	172	47	37
9	62	88	174	1,400	1,330	545	477	641	111	135	20	41
10	61	83	436	1,300	1,050	522	545	530	140	114	65	40
11	61	81	557	1,500	887	502	596	496	299	119	80	45
12	59	83	617	1,800	800	499	650	463	326	92	85	66
13	52	90	434	2,300	779	485	725	382	303	61	165	187
14	28	95	230	2,600	764	457	812	228	303	60	144	241
15	37	116	191	2,500	728	443	875	356	299	43	154	205
16	69	165	175	2,300	680	407	1,050	569	354	32	138	196
17	56	72	131	2,020	644	384	1,040	527	471	36	199	212
18	55	68	84	1,640	611	354	950	460	584	56	165	224
19	54	64	121	1,370	638	334	899	443	659	143	152	183
20	52	64	197	1,390	734	317	865	407	704	144	159	165
21	99	64	1,090	1,550	794	312	1,050	283	731	125	179	156
22	80	64	3,060	1,690	842	312	1,090	259	668	121	202	151
23	58	66	3,490	2,250	716	305	1,130	449	488	83	164	179
24	56	72	4,570	3,750	611	276	1,120	491	260	46	151	163
25	54	121	4,200	3,540	542	272	1,080	629	170	31	128	140
26	54	137	3,920	3,630	575	292	1,030	683	199	35	114	133
27	58	140	3,930	2,810	815	362	995	560	310	49	120	133
28	64	149	3,390	2,280	785	362	962	530	505	73	133	122
29	66	132	3,000	2,190	-----	349	938	474	426	56	139	101
30	72	120	2,000	2,620	-----	334	929	410	334	113	134	125
31	78	-----	1,700	3,320	-----	305	-----	352	-----	130	116	-----
Total	1,914	2,774	39,080	60,250	34,665	13,345	23,095	17,426	10,559	3,745	3,706	3,817
Mean	61.7	92.5	1,261	1,944	1,238	430	770	562	352	121	120	127
Ac-ft	3,800	5,500	77,510	119,500	68,760	26,470	45,800	34,560	20,940	7,430	7,350	7,570

Calendar year 1964 Max 4,570 Min 18 Mean 330 Ac-ft 239,300  
 Water year 1964-65 Max 4,570 Min 20 Mean 587 Ac-ft 425,200

Note.--Stage-discharge relation affected by ice Nov. 17-24, Jan. 10-17. No gage-height record Dec. 29 to Jan. 10, Jan. 25.

11-3520. Pit River near Bieber, Calif.

Location.--Lat 41°00'55", long 121°09'13", in NE 1/4 sec. 27, T. 37 N., R. 7 E., on right bank 2.2 miles upstream from Spring Gulch and 7.4 miles south of Bieber.

Drainage area.--2,475 sq mi excluding Goose Lake basin.

Records available.--January 1904 to September 1908, December 1913 to August 1914, September 1921 to September 1926, November 1928 to September 1931, October 1951 to September 1965. Yearly figures only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder. Datum of gage is 4,080.4 ft above mean sea level. Prior to November 1928, staff gage at same site and datum.

Average discharge.--27 years (1903-8, 1921-26, 1928-31, 1951-65), 510 cfs (369,200 acre-ft per year).

Extremes.--Maximum discharge during year, 8,880 cfs Dec. 23 (gage height, 9.80 ft); minimum daily, 2.0 cfs Aug. 10.

1904-8, 1913-14, 1921-26, 1928-31, 1951-65: Maximum discharge, 33,800 cfs Mar. 19, 1907 (gage height, 16.7 ft), from rating curve extended above 15,000 cfs; no flow at times in 1923-24, 1926, 1929-31, 1955, 1961-63.

Remarks.--Records good except those for period of no gage-height record, which are fair. Flow regulated by many small reservoirs (total capacity now, about 204,000 acre-ft). Diversions for irrigation of about 33,000 acres between stations near Canby and near Bieber. See schematic diagram, p. 739.

Rating table, (gage height, in feet, and discharge, in cubic feet per second)

1.7	1.2	2.9	86	5.0	965
1.8	3.2	3.2	146	6.0	1,930
2.0	9.2	3.5	220	7.0	3,150
2.3	23	4.0	376	9.0	6,780
2.6	45	4.5	615	11.0	12,400

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	52	88	212	2,340	5,600	1,190	545	1,210	140	417	28	26
2	36	99	228	2,120	4,390	1,070	621	1,180	46	291	18	24
3	32	88	288	1,290	3,850	925	701	1,160	62	91	15	27
4	28	99	282	1,100	3,320	855	727	1,120	25	67	14	25
5	23	93	282	1,090	2,980	818	675	1,100	18	90	10	33
6	22	84	259	1,550	2,940	789	669	1,060	60	316	8.6	57
7	42	81	226	2,180	2,930	768	694	1,000	306	285	4.4	56
8	64	91	204	2,760	2,820	761	727	925	137	282	2.9	35
9	52	112	217	2,700	2,340	789	754	840	60	163	2.6	45
10	50	114	268	2,520	1,890	803	810	747	73	142	2.0	168
11	57	112	458	2,650	1,590	796	989	540	49	104	5.3	54
12	91	116	571	3,290	1,370	803	1,140	505	39	83	6.8	25
13	100	122	604	4,500	1,260	768	1,250	430	40	72	8.6	20
14	64	120	530	4,400	1,220	747	1,270	392	49	63	2.9	25
15	55	116	422	3,600	1,160	727	1,260	299	285	34	1.7	27
16	50	122	291	3,100	1,100	714	1,320	86	358	23	1.8	24
17	44	116	244	2,700	1,030	688	1,510	198	361	17	7.3	23
18	38	106	212	2,300	965	651	1,510	588	417	14	7.6	4.3
19	41	106	180	2,100	917	593	1,460	515	550	13	6.4	128
20	50	99	170	2,200	941	566	1,390	435	582	10	5.3	204
21	54	90	302	2,500	1,040	555	1,370	540	627	8.6	10.4	294
22	55	81	1,800	3,000	1,110	550	1,540	467	651	6.5	30.3	276
23	73	95	5,790	3,700	1,140	535	1,670	372	727	5.0	31.3	151
24	144	108	8,320	5,400	1,040	520	1,680	365	663	4.1	22.0	122
25	120	120	8,100	6,400	909	481	1,610	422	530	4.1	18.4	128
26	72	156	7,050	6,200	825	496	1,530	472	326	2.9	16.0	170
27	57	189	6,770	4,500	917	582	1,460	651	158	3.2	14.8	153
28	57	187	5,300	3,600	1,170	682	1,380	720	220	4.7	11.4	153
29	64	192	4,110	3,400	-----	657	1,320	540	369	6.5	5.2	120
30	67	189	3,400	4,600	-----	604	1,260	472	426	3.5	5.0	84
31	86	-----	2,860	6,200	-----	566	-----	426	-----	8.6	5.7	-----
Total	1,839	3,491	59,950	99,990	52,764	22,049	34,842	19,777	8,354	2,634.7	2,161.2	2,720
Mean	59.3	116	1,934	3,225	1,884	711	1,161	638	278	85.0	69.7	90.7
Ac-ft	3,650	6,920	113,900	198,300	104,700	43,730	69,110	39,230	16,570	5,260	4,270	5,400

Calendar year 1964 Max 8,320 Min 1.1 Mean 428 Ac-ft 310,800  
 Water year 1964-65 Max 8,320 Min 2.0 Mean 851 Ac-ft 616,000

Note.--No gage-height record Jan. 13 to Feb. 2.

11-3525. Horse Creek at Little Valley, near Pittville, Calif.

Location.--Lat 40°53'56", long 121°10'23", in NE $\frac{1}{4}$  sec.15, T.35 N., R.7 E., on left bank 100 ft downstream from railroad bridge, 0.5 mile northeast of Little Valley, and 13 miles southeast of Pittville.

Drainage area.--237 sq mi.

Records available.--December 1928 to September 1931, October 1959 to September 1965 (discontinued).

Gage.--Water-stage recorder and concrete control. Altitude of gage is 4,150 ft (from topographic map). Prior to 1959 at datum 0.1 ft lower.

Average discharge.--8 years, 22.2 cfs (16,060 acre-ft per year).

Extremes.--Maximum discharge during year, 760 cfs Jan. 24 (gage height, 4.06 ft); minimum daily, 3.9 cfs July 17, 18, 25, Sept. 24. 1928-31, 1959-65: Maximum discharge, 5,290 cfs Oct. 14, 1962 (gage height, 5.79 ft), from rating curve extended above 210 cfs; minimum, 2.6 cfs July 4, 1961.

Remarks.--Diversions for irrigation above station. See schematic diagram, p. 739.

Cooperation.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.9	10	14	50	250	73	156	90	19	7.2	5.4	7.5
2	7.5	12	16	55	242	67	172	83	18	8.5	5.1	8.6
3	6.3	13	15	52	220	67	134	76	18	7.2	6.0	7.3
4	6.9	13	13	51	196	63	122	72	15	7.2	4.8	7.9
5	3.7	13	11	106	182	60	117	55	13	7.3	4.8	8.6
6	7.4	13	11	274	185	57	115	50	12	7.0	4.8	8.9
7	6.6	16	10	300	166	54	110	51	9.8	7.9	5.4	8.4
8	6.3	13	11	268	154	52	103	48	11	8.2	5.4	8.8
9	6.6	11	15	222	124	49	99	46	13	8.4	5.7	10
10	6.3	12	15	189	111	48	111	41	15	8.9	6.0	9.8
11	6.0	12	15	248	98	55	139	40	13	8.9	17	7.8
12	6.1	13	13	258	86	71	135	35	11	8.9	17	7.1
13	8.8	14	11	210	80	76	156	34	9.8	8.9	10	6.9
14	10	13	9.8	170	73	78	196	32	12	7.0	8.2	5.5
15	11	11	10	182	64	82	209	32	15	4.8	7.4	8.4
16	11	10	11	198	58	84	221	29	16	4.5	7.3	9.1
17	19	9.7	8.6	185	54	90	207	27	21	3.9	9.0	9.3
18	15	9.0	8.9	198	50	96	185	25	27	3.9	14	8.7
19	13	8.9	8.9	200	49	102	167	24	24	4.5	11	8.2
20	12	8.9	11	212	53	104	154	25	15	4.5	30	8.2
21	12	9.2	39	232	54	104	148	27	11	4.5	44	8.8
22	12	9.6	470	220	56	108	141	45	8.2	4.8	19	7.7
23	11	10	574	285	56	113	135	41	6.4	5.1	14	5.4
24	11	12	268	668	55	114	129	32	6.9	4.2	12	3.9
25	10	12	166	518	63	115	123	28	6.9	3.9	9.6	4.8
26	11	13	210	312	61	114	119	26	7.9	5.1	8.1	4.8
27	10	12	200	220	80	123	115	24	7.5	4.8	9.0	7.6
28	10	12	111	185	80	129	112	24	6.6	4.2	8.6	8.0
29	10	11	77	168	-----	118	106	22	6.3	4.2	6.5	7.8
30	10	11	53	205	-----	116	100	21	6.3	4.2	6.2	8.0
31	10	-----	47	232	-----	119	-----	18	-----	4.5	6.0	-----
Total	298.4	347.3	2,453.2	6,873	3,000	2,701	4,236	1,223	381.6	187.1	327.3	231.8
Mean	9.63	11.6	79.1	222	107	87.1	141	39.5	12.7	6.04	10.6	7.73
Ac-ft	592	688	4,870	13,630	5,950	5,360	8,400	2,430	751	371	649	460
Calendar year 1964	Max	574	Min	3.8	Mean	20.4	Ac-ft	14,830				
Water year 1964-65	Max	668	Min	3.9	Mean	61.0	Ac-ft	44,160				

## SACRAMENTO RIVER BASIN

11-3555. Hat Creek near Hat Creek, Calif.

Location.--Lat 40°41'12", long 121°25'25", in SE $\frac{1}{4}$  sec.28, T.33 N., R.5 E., on right bank 0.8 mile northeast of Old Station Post Office and 8 miles southeast of Hat Creek Post Office. Prior to July 29, 1965, at site 80 ft upstream.

Drainage area.--122 sq mi; hydrologic drainage boundary uncertain owing to ground-water exchange.

Records available.--July 1926 to September 1929, April 1930 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 4,300 ft (from topographic map). July 1926 to April 1928 at site 0.5 mile upstream at different datum. May 1928 to July 1965 at site 80 ft upstream at datum 2.76 ft higher.

Average discharge.--38 years, 132 cfs (95,560 acre-ft per year).

Extremes.--Maximum discharge during year, 2,200 cfs Dec. 23 (gage height, 6.67 ft); minimum daily, 102 cfs Oct. 22-24.

1926-65: Maximum discharge, 3,320 cfs Dec. 11, 1937 (gage height, 7.75 ft, in gage well, affected by drawdown), from rating curve extended above 610 cfs on basis of slope-area measurement of maximum flow; minimum, 67 cfs Sept. 7, 1934.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Diversions for irrigations of about 260 acres above station. See schematic diagram, p. 739.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 22				Dec. 23 to July 29				July 30 to Sept. 30			
2.1	88	4.0	615	1.3	114	4.0	705	2.8	144		
2.5	172	5.0	1050	1.5	154	5.0	1090	3.1	171		
3.0	305			2.0	240	6.0	1660				
				3.0	446						

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	112	118	135	180	150	154	139	209	227	201	162	146
2	112	118	133	175	150	154	137	192	236	199	161	146
3	112	116	131	170	150	154	135	178	249	199	160	146
4	112	116	130	180	150	156	133	178	260	199	160	146
5	114	118	122	300	152	154	135	178	264	197	159	148
6	114	118	120	400	152	152	135	173	260	194	159	147
7	116	118	122	320	148	150	133	170	251	190	157	149
8	118	120	124	230	150	150	135	173	242	192	157	157
9	118	135	126	200	148	150	137	178	244	189	152	155
10	118	120	128	180	146	150	137	182	249	187	149	151
11	116	120	135	173	146	148	135	190	253	185	169	151
12	116	122	120	167	146	150	133	199	247	185	164	150
13	116	118	116	164	148	148	135	209	235	184	155	150
14	116	116	124	160	150	148	133	217	233	182	153	150
15	118	115	122	160	148	146	141	217	231	180	153	150
16	118	114	118	157	146	146	146	220	222	184	152	150
17	116	114	114	156	146	146	139	227	227	177	153	152
18	114	114	116	154	148	144	143	222	226	175	160	157
19	112	114	118	156	148	143	175	227	227	173	161	156
20	106	114	116	156	148	144	185	233	233	174	160	154
21	104	113	178	154	152	144	194	226	235	156	161	154
22	102	113	893	152	150	148	182	218	233	156	161	153
23	102	112	1300	162	150	146	175	213	236	154	159	152
24	102	112	543	165	150	146	177	215	233	154	158	153
25	104	112	347	159	150	144	180	217	229	157	157	154
26	104	114	290	156	152	146	185	222	218	156	156	154
27	104	116	242	152	157	144	194	226	208	156	151	154
28	114	118	213	148	156	137	206	226	202	154	150	154
29	120	130	202	148	-----	137	217	229	202	155	148	154
30	116	125	190	150	-----	137	215	233	202	159	148	153
31	116	-----	185	152	-----	137	-----	235	-----	163	147	-----
Total	3,482	3,523	7,053	5,636	4,187	4,553	4,746	6,432	7,014	5,466	4,852	4,546
Mean	112	117	228	182	150	147	158	207	234	176	157	152
Ac-ft	6,910	6,990	13,990	11,180	8,300	9,030	9,410	12,760	13,910	10,820	9,620	9,020

Calendar year 1964 Max 1,300 Min 97 Mean 135 Ac-ft 98,060  
 Water year 1964-65 Max 1,300 Min 102 Mean 168 Ac-ft 121,900

Peak discharge (base, 180 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0200	6.67	2,200	5-16	2300	2.03	245
1-23	2130	1.75	196	6-5	0100	2.20	278
4-28	2300	1.90	226	8-11	2030	3.30	191

Note.--No gage-height record Nov. 15 to Dec. 4, Dec. 30 to Jan. 11, Aug. 30 to Sept. 27.

11-3625. Pit River below Pit No. 4 Dam, Calif.

Location.--Lat 40°58'25", long 121°46'42", in SW¼ sec.17, T.36 N., R.2 E., on right bank 0.65 mile downstream from Ruling Creek, 1.3 miles downstream from Pit No. 4 Dam, and 2.7 miles downstream from Pit No. 3 powerhouse.

Drainage area.--4,647 sq mi, excluding Goose Lake basin.

Records available.--May 1922 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A. Published as "near Pecka Bridge" April to October 1922, and as "at Lindsay Flat" November 1922 to June 1927.

Gage.--Water-stage recorder (digital). Altitude of gage is 2,358 ft (from river-profile map). Prior to November 1922 at site at Peck Bridge 7.4 miles upstream at different datum. November 1922 to June 20, 1927, at site at Lindsay Flat 1.8 miles upstream at different datum.

Average discharge.--55 years (1910-65), 2,731 cfs (1,979,000 acre-ft per year), including diversion to Pit No. 4 powerhouse. Period 1910-22 extrapolated on basis of records for Pit River at Big Bend.

Extremes.--Maximum discharge during year 21,600 cfs Dec. 24 (gage height, 15.68 ft); minimum daily, 40 cfs Feb. 21. 1922-55 (prior to diversion to Pit No. 4 powerhouse): Maximum discharge, 30,200 cfs Dec. 12, 1937 (gage height, 17.90 ft), from rating curve extended above 12,000 cfs on basis of velocity-area studies; minimum daily, 234 cfs Sept. 13, 1953. 1955-65: Maximum discharge, that of Dec. 24, 1964; minimum daily, 40 cfs Feb. 21, 1965.

Remarks.--Records good. Flow regulated by many small reservoirs and powerplants (total usable reservoir capacity, about 252,700 acre-ft). Many diversions above station; diversion to Pit No. 4 powerhouse began June 9, 1955. See schematic diagram, p. 739.

Cooperation.--Water-stage-recorder graph and six discharge measurements furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

4.0	31	5.5	395	12.0	10,400
4.1	41	6.0	645	14.0	16,000
4.2	53	7.0	1,390	16.0	22,700
4.5	101	8.0	2,490		
5.0	215	10.0	5,890		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	96	87	70	6,630	7,310	103	92	872	122	170	173	151
2	97	75	63	5,850	7,180	239	97	4,120	122	168	159	155
3	105	67	53	5,620	7,640	112	103	4,130	116	172	171	155
4	107	67	54	4,730	7,440	57	97	2,670	120	176	172	155
5	103	67	60	4,820	7,070	105	94	298	120	173	165	154
6	103	72	51	6,170	6,510	59	96	141	124	175	170	154
7	103	73	49	7,640	6,570	57	97	130	124	178	168	153
8	105	73	49	7,530	6,470	56	99	128	122	176	158	152
9	103	78	48	7,550	6,150	54	101	124	105	171	168	153
10	103	78	51	7,070	5,430	56	99	133	135	176	171	163
11	107	77	49	6,960	4,990	56	99	135	120	167	169	172
12	105	83	47	7,370	4,710	54	99	193	122	180	175	158
13	101	73	47	7,350	4,420	54	99	155	120	153	162	153
14	101	70	46	7,310	4,280	1,450	97	128	135	166	157	155
15	101	70	46	6,870	4,170	69	101	130	170	165	153	151
16	105	70	47	6,730	4,100	61	596	128	165	165	154	154
17	103	69	46	6,450	3,860	57	968	118	166	163	126	154
18	103	69	46	6,110	3,940	56	968	120	171	157	156	151
19	103	69	57	5,990	3,270	56	1,070	124	185	175	155	150
20	103	69	60	6,070	405	56	1,260	124	161	162	147	154
21	103	70	75	6,390	40	1,290	1,280	126	177	162	151	153
22	101	70	2,130	6,510	92	63	1,350	122	179	156	153	156
23	103	70	9,800	6,870	199	57	1,380	120	180	157	149	155
24	105	70	19,700	9,000	297	57	1,280	124	169	159	148	149
25	103	70	16,000	10,200	85	56	1,200	150	173	169	151	155
26	103	75	15,300	10,300	77	57	1,050	126	175	160	150	155
27	105	73	14,100	9,240	59	60	872	120	168	158	150	154
28	107	81	12,500	8,850	59	57	1,230	124	180	166	147	153
29	105	75	10,500	7,790	-----	59	472	122	170	175	150	152
30	103	73	8,690	7,130	-----	59	557	122	183	164	145	153
31	105	-----	7,700	7,110	-----	59	-----	120	-----	160	155	-----
Total	3,200	2,183	117,534	220,210	106,823	4,741	17,003	15,477	4,479	5,174	4,878	4,632
Mean	103	72.8	3,791	7,104	3,815	153	567	499	149	167	157	154
Ac-ft	6,350	4,330	233,100	436,800	211,900	9,400	33,720	30,700	8,880	10,260	9,680	9,190
Mean†	2,162	2,350	5,782	7,104	4,983	3,563	4,208	3,349	2,512	2,327	2,192	2,333
Ac-ft†	132,900	139,800	355,500	436,800	276,800	219,100	250,400	205,900	149,500	143,100	134,800	138,800

Calendar year 1964 Max 19,700 Min 46 Mean 417 Ac-ft 302,800 Mean† 2,764 Ac-ft† 2,007,000  
 Water year 1964-65 Max 19,700 Min 40 Mean 1,387 Ac-ft 1,004,000 Mean† 3,568 Ac-ft† 2,583,000

† Adjusted for diversion to Pit No. 4 powerhouse.

## SACRAMENTO RIVER BASIN

11-3630. Pit River at Big Bend, Calif.

Location.--Lat 41°01'10", long 121°54'35" in NW¼SW¼ sec.31, T.37 N., R.1 E., on left bank at Big Bend, 0.4 mile downstream from Nelson Creek and 1.5 mile upstream from Kosk Creek.

Drainage area.--4,710 sq mi, excluding Goose Lake basin.

Records available.--October 1910 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A. Published as "at Henderson" 1910-23.

Gage.--Water-stage recorder (digital). Datum of gage is 1,674.47 ft above mean sea level, datum of 1929. Prior to Dec. 28, 1912, staff gage and Dec. 28, 1912, to June 21, 1924, water-stage recorder, at same site at datum 7.69 ft higher.

Extremes.--Maximum discharge during year, 40,200 cfs Dec. 23 (gage height, 16.88 ft), from rating curve extended above 13,000 cfs on basis of velocity-area studies; minimum daily, 57 cfs Dec. 7.  
1910-65: Maximum discharge, that of Dec. 23, 1964; minimum daily, 34 cfs Mar. 29, 1955.

Remarks.--Records good. Flow regulated by many reservoirs and powerplants (total usable reservoir capacity, about 253,000 acre-ft). Many diversions above station; diversion to Pit No. 5 powerhouse began May 1, 1944. See schematic diagram, p. 739.

Cooperation.--Water-stage-recorder graph and seven discharge measurements furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 20

Dec. 21 to Sept. 30

4.3	56	6.0	350	4.8	116	7.0	740	11.0	6,700
4.4	65	7.0	740	5.0	140	7.5	1,070	12.0	9,900
4.5	74			5.5	226	8.0	1,510	13.0	14,200
5.0	136			6.0	350	9.0	2,700	15.0	25,200
5.5	226			6.5	510	10.0	4,360		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	108	109	125	4,400	4,100	518	152	680	174	144	133	127
2	107	111	84	3,790	3,920	700	151	943	169	141	134	125
3	108	92	76	3,450	4,310	586	142	900	167	140	135	128
4	111	95	68	2,640	4,160	496	139	637	167	138	134	128
5	109	89	65	3,300	3,770	343	145	471	162	141	134	120
6	111	84	60	4,810	3,230	167	152	354	165	139	132	124
7	106	84	57	5,900	3,230	146	147	662	163	134	133	125
8	111	94	58	5,580	3,060	143	151	511	161	132	130	128
9	111	139	60	5,410	2,790	140	171	230	161	138	133	129
10	111	123	106	5,030	2,050	140	164	220	155	138	129	130
11	112	116	119	4,960	1,640	141	160	215	154	138	140	128
12	116	114	83	5,300	1,460	143	240	214	154	139	138	129
13	112	104	72	5,180	1,070	138	570	216	155	134	129	124
14	106	98	70	5,180	930	230	552	227	160	137	125	123
15	111	96	69	4,750	830	140	621	203	157	135	130	122
16	111	97	64	4,590	725	132	1,390	202	155	134	129	124
17	116	96	60	4,380	586	211	1,650	198	166	136	121	123
18	114	96	63	3,990	655	140	1,760	192	155	135	125	121
19	116	95	126	3,840	463	138	2,220	191	153	138	126	128
20	116	89	359	3,980	737	135	2,200	185	153	140	127	127
21	111	94	928	4,230	441	133	2,380	194	148	140	127	126
22	111	94	7,110	4,320	512	133	2,230	194	146	139	157	126
23	111	91	13,700	4,960	580	130	2,130	183	146	137	130	123
24	109	100	19,900	7,260	700	129	2,070	183	148	139	131	127
25	114	111	16,000	8,240	489	128	1,880	180	146	133	126	122
26	114	108	15,700	8,240	454	143	1,570	179	148	133	126	126
27	116	108	13,500	7,260	383	149	1,490	178	146	133	127	123
28	112	154	10,800	6,760	518	138	1,370	177	146	131	131	123
29	130	130	8,700	4,750	-----	135	1,200	176	141	132	129	123
30	123	126	6,740	3,980	-----	133	1,140	176	142	133	126	123
31	121	-----	5,650	3,820	-----	134	-----	173	-----	133	125	-----
TOTAL	3,495	3,137	120,572	154,280	47,793	6,412	30,337	9,644	4,663	4,234	4,052	3,755
MEAN	113	105	3,889	4,977	1,707	207	1,011	311	155	137	131	125
AC-FT	6,930	6,220	239,200	306,000	94,800	12,720	60,170	19,130	9,250	8,400	8,040	7,450

CALENDAR YEAR 1964 MAX 19,900 MIN 57 MEAN 431 AC-FT 312,600  
WATER YEAR 1964-65 MAX 19,900 MIN 57 MEAN 1,075 AC-FT 778,300

11-3650. Pit River near Montgomery Creek, Calif.

Location.--Lat 40°50'30", long 122°01'00", in SE¼ sec.31, T.35 N., R.1 W., on right bank 0.5 mile upstream from Potem Creek, 1.9 miles downstream from Pit No. 7 dam and powerhouse and 5.0 miles west of town of Montgomery Creek. Prior to May 21 at site 2.7 miles upstream.

Drainage area.--4,950 sq mi approximately, excluding Goose Lake basin.

Records available.--October 1944 to September 1965 (monthly discharge only December 1964 to May 1965). Monthly discharge only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder. Datum of gage is 1,036 ft (levels by Pacific Gas and Electric). October 1944 to Feb. 17, 1963, at site 1.9 miles upstream at different datum. Feb. 17, 1963, to May 21, 1965, at site 2.7 miles upstream at different datum.

Average discharge.--21 years, 3,759 cfs (2,721,000 acre-ft per year).

Extremes.--Maximum discharge during year not determined; minimum daily discharge recorded, 150 cfs July 19. 1944-65: Maximum discharge, 37,100 cfs Dec. 23, 1955 (gage height, 14.12 ft, site and datum then in use); minimum daily, that of July 19, 1965.

Remarks.--Records good except those for period of no gage-height record, which are poor. Flow regulated by many reservoirs and power-plants (total usable reservoir capacity, about 287,000 acre-ft). Many diversions above station for irrigation. See schematic diagram, p. 739. Records of chemical analysis for the water year 1965 are published in Part 2 of this report.

Cooperation.--Four discharge measurements furnished by Pacific Gas and Electric in connection with a Federal Power Commission project.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1850	3080	3750						2520	3220	1670	2030
2	2010	3180	2950						2720	2640	2160	2560
3	1980	2600	2740						3480	2800	1790	2420
4	2900	2130	3480						3490	3160	2660	2800
5	2030	2380	2560						3060	3000	2890	4580
6	2040	2220	2260						1150	2260	2220	1820
7	2060	2760	3000						630	2760	460	1910
8	2020	1930	2690						810	2760	2160	2520
9	2060	4140	2830						3320	2760	3210	2290
10	2070	3040	3230						2970	2760	2330	1610
11	2900	3350	3590						2770	2710	2440	3110
12	2070	3230	3230						3340	2680	2480	650
13	2020	2620	3130						2890	2900	2620	3110
14	2060	2750	3090						3070	4900	2440	4120
15	2040	2360	3090						2870	3380	2880	2590
16	2090	2540	3050						2850	2880	1550	1740
17	2100	2200	3030						2710	2350	2020	420
18	2910	2450	3060						3300	4320	1390	1930
19	2090	2690	-						2800	150	1750	770
20	2080	2260	-						3220	1620	1840	3580
21	2090	2400	-						2630	1740	2420	2140
22	2100	2180	-						450	1210	4100	3950
23	2080	2350	-						3140	900	320	1820
24	2080	2400	-						2870	3110	1880	4130
25	2940	3040	-						3000	2560	2070	1060
26	2090	2360	-						3540	1910	2620	2260
27	2140	2340	-						2970	1750	760	3090
28	2610	4200	-						3240	2400	4430	1900
29	3070	2760	-						2590	1000	1610	3090
30	3080	2950	-						2060	2460	2920	4240
31	3070	-----	-						-----	2000	2870	-----
Total	70730	80890	290000	352000	225000	150000	161100	141000	80460	77050	68960	74240
Mean	2282	2696	9355	11350	8036	4839	5370	4548	2682	2485	2225	2475
Ac-ft	140300	160400	575200	698200	446300	297500	319500	279700	159600	152800	136800	147300

Calendar year 1964 Max - Min 858 Mean 3,399 Ac-ft 2,467,000  
 Water year 1964-65 Max - Min 150 Mean 4,853 Ac-ft 3,514,000

Note.--No gage-height record Dec. 19 to Sept. 30. Records June 1 to Sept. 30 represent flow through Pit 7 Powerhouse and were furnished by Pacific Gas and Electric.

## 11-3655. Squaw Creek above Shasta Lake, Calif.

Location.--Lat 40°51'25", long 122°05'08", in SW<sup>1</sup>/<sub>4</sub> sec.29, T.35 N., R.2 W., on left bank 1.3 miles upstream from Salt Creek, about 2 miles upstream from Shasta Lake, and 10 miles west of town of Montgomery Creek.

Drainage area.--64.0 sq mi.

Records available.--October 1944 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A. Published as "above Shasta Reservoir" prior to 1950.

Gage.--Water-stage recorder. Altitude of gage is 1,170 ft (from topographic map).

Average discharge.--21 years, 230 cfs (166,500 acre-ft per year).

Extremes.--Maximum discharge during year, 12,300 cfs Dec. 22 (gage height, 19.46 ft), from rating curve extended above 4,200 cfs as explained below; minimum daily, 11 cfs Oct. 2-24.

1944-65: Maximum discharge, 17,800 cfs Dec. 21, 1955 (gage height, 21.90 ft), from rating curve extended above 4,200 cfs on basis of slope-area measurement at gage height 18.90 ft; minimum, 9.9 cfs Sept. 24-26, 27, 1962.

Remarks.--Records good. Small diversions above station for irrigation. See schematic diagram, p. 739.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

5.8	10	8.0	240
5.9	14	9.0	540
6.0	18	10.0	1,000
6.2	28	12.0	2,460
6.5	46	14.0	4,200
7.0	89	16.0	6,420
7.5	149	19.0	11,400

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	26	208	576	410	121	89	287	76	37	24	16
2	11	63	158	520	377	118	134	271	75	35	23	17
3	11	36	112	488	347	114	125	252	73	34	21	17
4	11	24	91	520	318	109	115	232	71	34	21	17
5	11	20	76	3,340	332	107	131	216	69	32	20	16
6	11	18	67	4,160	304	104	175	202	67	31	19	17
7	11	18	61	2,560	280	102	208	191	65	31	19	17
8	11	35	56	1,420	264	99	267	180	65	30	19	17
9	11	120	53	960	248	97	468	171	64	30	18	16
10	11	146	82	790	234	96	528	161	61	29	18	16
11	11	159	192	840	220	95	464	154	59	29	24	16
12	11	158	125	865	208	95	456	146	57	28	30	16
13	11	87	97	775	198	91	453	141	55	28	23	16
14	11	59	85	696	189	89	484	135	59	27	21	16
15	11	47	78	720	180	87	967	128	61	26	20	15
16	11	39	70	785	171	85	2,330	123	55	25	19	15
17	11	35	63	760	164	84	1,220	120	58	24	21	14
18	11	32	61	725	158	82	1,080	115	58	24	25	15
19	11	30	543	710	152	81	2,030	112	53	24	25	15
20	11	29	2,970	660	148	79	1,770	110	50	24	23	15
21	11	28	6,570	600	143	77	1,430	107	48	24	22	16
22	11	31	11,300	532	139	77	1,110	103	47	24	22	16
23	11	30	5,230	1,160	134	75	845	99	45	24	21	15
24	11	32	3,840	2,120	130	74	680	96	44	24	20	15
25	12	47	2,210	1,270	125	74	580	93	44	24	20	15
26	12	53	2,600	900	123	91	496	91	44	24	20	15
27	14	55	2,280	720	160	93	436	87	42	24	19	15
28	22	277	1,320	616	128	82	389	84	40	23	19	16
29	36	179	978	536	-----	77	350	82	38	23	17	15
30	33	120	860	488	-----	76	318	80	37	22	17	15
31	20	-----	705	450	-----	75	-----	78	-----	23	16	-----
Total	414	2,033	43,141	32,262	5,984	2,806	20,128	4,447	1,680	841	644	472
Mean	13.4	67.8	1,392	1,041	214	90.5	671	143	56.0	27.1	20.8	15.7
Ac-ft	821	4,030	85,570	63,990	11,870	5,570	39,920	8,920	3,330	1,670	1,280	936

Calendar year 1964 Max 11,300 Min 11 Mean 208 Ac-ft 150,900  
 Water year 1964-65 Max 11,300 Min 11 Mean 315 Ac-ft 227,800

Peak discharge (base, 2,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-22	0700	19.46	12,300	1-23	2200	12.25	2,660
12-26	1700	13.48	3,730	4-16	0200	12.67	3,000
1-5	1700	15.22	5,440	4-19	1500	11.80	2,300



11-3675. McCloud River near McCloud, Calif.

Location.--Lat 41°11'20", long 122°03'50", in NE $\frac{1}{4}$  sec.34, T.39 N., R.2 W., on right bank 0.4 mile downstream from Angel Creek and 6 miles southeast of McCloud.

Drainage area.--358 sq mi.

Records available.--April 1931 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 2,711.2 ft above mean sea level (river-profile survey).

Average discharge.--34 years, 904 cfs (654,500 acre-ft per year).

Extremes.--Maximum discharge during year, 6,590 cfs Dec. 22 (gage height, 6.40 ft); minimum daily, 713 cfs Oct. 1.

1931-65: Maximum discharge, 11,800 cfs Dec. 21, 1955 (gage height, 9.42 ft), from rating curve extended above 4,500 cfs on basis of slope-area measurement of maximum flow; minimum, 524 cfs Nov. 23, 24, 1932.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Two small diversions above station for irrigation, and one 22-inch pipe line for town of McCloud and millpond. See schematic diagram, p. 739.

Cooperation.--Water-stage recorder graph and ten discharge measurements furnished by Pacific Gas and Electric Co.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Feb. 18-26, Feb. 28 to Mar. 4)

1.2	665
1.5	850
2.0	1,200
3.0	2,080
4.0	3,190
6.0	5,970

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	713	737	767	1080	1080	902	1010	1460	1110	945	839	856
2	719	737	773	1060	1060	889	1040	1390	1110	940	889	856
3	725	725	767	1040	1050	889	1010	1330	1100	935	882	856
4	725	725	767	1030	1040	895	1000	1280	1100	930	882	856
5	725	719	755	1220	1060	902	1100	1240	1090	925	882	856
6	725	719	755	1790	1060	896	1130	1200	1090	920	882	856
7	731	719	749	1540	1030	902	1110	1170	1080	920	876	856
8	731	749	755	1300	1010	908	1080	1170	1070	915	876	850
9	731	779	755	1190	1000	915	1090	1170	1060	915	876	844
10	731	761	761	1140	980	928	1030	1170	1050	910	896	844
11	731	749	798	1150	960	934	1060	1170	1040	910	902	837
12	725	743	798	1120	954	943	1060	1170	1030	905	896	837
13	725	737	779	1090	954	941	1060	1170	1020	905	882	830
14	725	731	773	1080	948	943	1080	1170	1010	900	876	830
15	725	737	773	1060	948	954	1220	1170	1000	900	876	830
16	731	737	767	1060	934	960	1740	1170	990	900	876	837
17	731	731	761	1050	934	960	1500	1180	1000	895	889	837
18	731	731	761	1040	922	954	1470	1180	990	890	900	837
19	731	725	773	1040	922	954	1830	1180	985	885	910	837
20	731	725	837	1040	922	949	2350	1170	980	885	895	833
21	731	731	2020	1030	922	954	2200	1150	970	890	880	840
22	731	731	5650	1020	922	960	1920	1140	960	890	876	840
23	731	731	4810	1150	915	960	1730	1130	960	890	876	842
24	731	737	3210	1820	902	960	1600	1120	955	885	870	842
25	731	743	2200	1420	902	960	1540	1120	955	880	870	844
26	731	749	2040	1260	902	960	1500	1120	950	880	863	844
27	737	743	1910	1180	934	967	1500	1120	950	880	863	844
28	737	749	1480	1140	922	967	1480	1130	945	875	863	837
29	737	755	1320	1110	-----	960	1510	1120	945	875	863	837
30	731	761	1220	1090	-----	960	1480	1120	945	870	856	830
31	731	-----	1150	1080	-----	967	-----	1120	-----	870	856	-----
Total	22,601	22,146	42,434	36,420	27,089	23,103	41,380	36,700	30,440	27,315	27,268	25,280
Mean	729	738	1,369	1,175	967	939	1,379	1,184	1,014	900	880	843
Ac-ft	44,830	43,930	94,170	72,240	53,730	57,720	82,080	72,790	60,380	55,370	54,090	50,140

Calendar year 1964 Max 5,650 Min 713 Mean 864 Ac-ft 627,000  
Water year 1964-65 Max 5,650 Min 713 Mean 1,010 Ac-ft 731,500

Peak discharge (base, 1,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-22	1800	6.40	6,590	4-16	0900	2.74	1,830
1-6	1400	2.76	1,840	4-20	0600	3.25	2,330
1-24	0700	2.98	2,060				

Note.--No gage-height record May 8 to July 31, Aug. 18-21, and Sept. 20-24.

## SACRAMENTO RIVER BASIN

11-3678. McCloud River at Ah-Di-Na, near McCloud, Calif.

Location.--Lat 41°06'39", long 122°05'42", in NE 1/4 sec. 33, T. 38 N., R. 2 W., on right bank at Ah-Di-Na, 1.8 miles downstream from Squirrel Creek, and 9.6 miles south of McCloud.

Drainage area.--427 sq mi.

Records available.--October 1964 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 2,160 ft (from topographic map).

Extremes.--Maximum discharge during year, 9,660 cfs Dec. 22 (gage height, 9.34 ft from floodmark in gage well), from rating curve extended above 3,000 cfs; minimum daily, 868 cfs Oct. 1-26.  
Flood of Dec. 21, 1955, reached a stage of 12.5 ft (discharge, 16,800 cfs, from rating curve extended above 3,000 cfs).

Remarks.--Records good except those for periods of no gage-height record, which are fair. No diversion above station. See schematic diagram, p. 739.

Cooperation.--Water-stage recorder graph and eight discharge measurements furnished by Pacific Gas and Electric Company in connection with a Federal Power Commission project.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

3.0	850	6.0	3,940
3.5	1,200	7.0	5,360
4.0	1,630	8.0	6,980
5.0	2,670	9.0	8,800

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	868	886	925	1,610	1,610	1,330	1,330	2,020	1,280	1,080	1,010	966
2	868	886	925	1,580	1,590	1,310	1,430	1,850	1,260	1,070	1,010	966
3	868	886	915	1,540	1,580	1,300	1,370	1,750	1,260	1,060	1,010	966
4	868	874	920	1,520	1,570	1,270	1,430	1,700	1,260	1,060	1,000	959
5	868	874	920	2,060	1,580	1,250	1,520	1,650	1,260	1,050	1,000	959
6	868	874	905	3,190	1,610	1,250	1,600	1,590	1,250	1,050	994	959
7	868	874	905	2,380	1,610	1,250	1,580	1,560	1,240	1,060	994	959
8	868	910	905	2,020	1,590	1,240	1,560	1,520	1,230	1,060	994	959
9	868	1,030	915	1,890	1,580	1,230	1,430	1,500	1,210	1,050	994	959
10	868	959	915	1,780	1,550	1,220	1,430	1,470	1,200	1,040	994	966
11	868	924	950	1,710	1,530	1,220	1,430	1,480	1,190	1,040	1,010	959
12	868	900	960	1,640	1,510	1,210	1,430	1,500	1,180	1,040	1,010	959
13	868	890	960	1,620	1,480	1,200	1,560	1,510	1,180	1,030	1,010	966
14	868	895	960	1,560	1,460	1,200	1,650	1,510	1,180	1,030	987	966
15	868	895	960	1,540	1,440	1,200	2,080	1,510	1,180	1,020	980	966
16	868	895	915	1,540	1,410	1,200	3,220	1,510	1,150	1,020	987	966
17	868	895	915	1,530	1,390	1,210	2,490	1,520	1,160	1,020	1,010	952
18	868	890	915	1,530	1,380	1,220	2,440	1,470	1,160	1,030	1,030	952
19	868	890	1,010	1,560	1,360	1,230	3,240	1,470	1,150	1,030	1,000	952
20	868	890	2,000	1,580	1,340	1,240	3,930	1,480	1,130	1,030	994	952
21	868	890	4,810	1,570	1,330	1,240	3,630	1,440	1,130	1,030	994	945
22	868	895	7,100	1,540	1,310	1,250	3,120	1,430	1,120	1,030	987	945
23	868	905	6,240	2,140	1,300	1,250	2,660	1,400	1,110	1,020	980	945
24	868	935	4,610	3,270	1,290	1,260	2,430	1,370	1,110	1,020	980	945
25	868	915	3,060	2,450	1,290	1,270	2,300	1,330	1,120	1,020	980	945
26	868	895	2,750	1,920	1,330	1,270	2,210	1,320	1,110	1,020	973	938
27	874	905	2,430	1,750	1,350	1,260	2,170	1,320	1,100	1,020	973	938
28	880	895	1,920	1,730	1,340	1,250	2,140	1,320	1,090	1,010	973	938
29	886	915	1,810	1,660	-----	1,250	2,160	1,320	1,090	1,010	966	938
30	880	925	1,700	1,760	-----	1,250	2,100	1,310	1,090	1,010	966	938
31	880	-----	1,640	1,630	-----	1,250	-----	1,300	-----	1,020	966	-----
Total	26,968	27,092	57,765	56,800	40,710	38,580	63,070	46,430	35,180	32,080	30,756	28,623
Mean	870	903	1,863	1,832	1,454	1,245	2,102	1,498	1,173	1,035	992	954
Ac-ft	53,490	53,740	114,600	112,700	80,750	76,520	125,100	92,090	69,780	63,630	61,000	56,770

Calendar year 1964 Max - Min - Mean - Ac-ft -  
Water year 1964-65 Max 7,100 Min 868 Mean 1,326 Ac-ft 960,100

Note.--No gage-height record Nov. 12 to Jan. 12, Jan. 26 to Apr. 17.

11-3680. McCloud River above Shasta Lake, Calif.

Location.--Lat 40°57'30", long 122°13'05", in NW¼ sec.28, T.36 N., R.3 W., on right bank just upstream from Shasta Lake, 0.2 mile downstream from Big Bollibokka Creek, and 11.3 miles east of La Moine.

Drainage area.--604 sq mi.

Records available.--October 1945 to September 1965. Published as "above Shasta Reservoir" prior to 1950.

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

Average discharge.--20 years, 1,699 cfs (1,230,000 acre-ft per year).

Extremes.--Maximum discharge during year, 28,000 cfs Dec. 22 (gage height, 24.37 ft), from rating curve extended above 6,400 cfs as explained below; minimum daily, 875 cfs Oct. 18-25.

1945-65: Maximum discharge, 45,200 cfs Dec. 22, 1955 (gage height, 28.20 ft), from rating curve extended above 6,400 cfs on basis of slope-area measurement of maximum flow; minimum, 820 cfs Jan. 3, 1950.

Remarks.--Records excellent. Some very small diversions above station for domestic use. See schematic diagram, p. 739. Records of chemical analyses for the water year 1965 are published in Part 2 of this report.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Jan. 13-23, Jan. 28 to Feb. 22, Feb. 27, Apr. 5-15, May 2-17)

Oct. 1 to Aug. 31				Sept. 1-30	
10.9	840	14.0	3,750	11.0	900
11.0	910	16.0	6,320	11.2	1,020
11.2	1,050	18.0	9,700	11.5	1,230
11.6	1,360	20.0	14,200		
12.0	1,710	24.0	26,500		
13.0	2,680				

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	882	952	1,530	2,680	2,420	1,580	1,520	2,740	1,590	1,280	1,200	1,090
2	882	1,010	1,440	2,570	2,280	1,550	1,620	2,530	1,570	1,270	1,180	1,080
3	882	931	1,300	2,460	2,190	1,540	1,520	2,390	1,560	1,270	1,180	1,080
4	882	910	1,190	2,360	2,120	1,520	1,490	2,280	1,550	1,270	1,170	1,080
5	882	903	1,130	5,590	2,240	1,510	1,780	2,180	1,540	1,260	1,160	1,080
6	882	896	1,080	10,700	2,200	1,500	1,880	2,110	1,530	1,250	1,150	1,080
7	882	896	1,060	6,730	2,070	1,480	1,840	2,040	1,510	1,250	1,150	1,070
8	889	1,090	1,040	4,520	2,010	1,470	1,840	1,990	1,500	1,250	1,150	1,060
9	889	1,470	1,040	3,520	1,940	1,460	2,020	1,950	1,480	1,250	1,140	1,060
10	882	1,330	1,140	3,100	1,890	1,470	2,010	1,930	1,450	1,250	1,150	1,060
11	882	1,270	1,300	3,180	1,840	1,460	1,950	1,910	1,440	1,250	1,180	1,060
12	882	1,240	1,270	3,040	1,810	1,480	1,950	1,900	1,440	1,230	1,190	1,050
13	882	1,110	1,180	2,820	1,790	1,460	2,010	1,910	1,420	1,230	1,150	1,050
14	882	1,030	1,140	2,660	1,760	1,440	2,260	1,910	1,440	1,220	1,140	1,050
15	882	987	1,130	2,630	1,730	1,430	3,940	1,880	1,430	1,220	1,140	1,050
16	882	966	1,080	2,700	1,680	1,420	7,320	1,860	1,410	1,210	1,150	1,040
17	882	952	1,050	2,660	1,660	1,420	4,760	1,860	1,420	1,220	1,180	1,030
18	875	938	1,050	2,620	1,660	1,420	4,380	1,830	1,420	1,220	1,220	1,040
19	875	931	1,450	2,650	1,650	1,410	6,250	1,810	1,380	1,210	1,180	1,030
20	875	931	3,480	2,620	1,640	1,390	7,130	1,810	1,360	1,210	1,150	1,040
21	875	931	12,800	2,530	1,630	1,390	6,360	1,780	1,350	1,210	1,150	1,040
22	875	952	24,900	2,380	1,630	1,400	5,260	1,750	1,340	1,200	1,140	1,040
23	875	938	16,300	3,610	1,610	1,410	4,410	1,720	1,340	1,190	1,130	1,040
24	875	952	10,400	6,040	1,590	1,410	3,800	1,680	1,340	1,180	1,120	1,030
25	875	1,040	6,950	4,510	1,580	1,390	3,500	1,660	1,340	1,180	1,120	1,030
26	882	1,090	6,200	3,610	1,580	1,420	3,290	1,650	1,330	1,180	1,110	1,030
27	917	1,090	5,760	3,160	1,720	1,390	3,160	1,640	1,310	1,180	1,110	1,030
28	952	1,540	4,410	2,950	1,630	1,410	3,010	1,640	1,300	1,180	1,100	1,030
29	1,020	1,380	3,700	2,670	-----	1,420	2,980	1,640	1,300	1,180	1,090	1,030
30	938	1,280	3,310	2,540	-----	1,390	2,870	1,630	1,290	1,180	1,090	1,030
31	903	-----	2,940	2,490	-----	1,390	-----	1,630	-----	1,190	1,090	-----
Total	27,620	31,936	123,750	108,200	51,550	44,830	98,110	59,240	42,680	37,870	35,560	31,510
Mean	891	1,065	3,992	3,490	1,841	1,446	3,270	1,911	1,423	1,222	1,147	1,050
Ac-ft	54,780	63,340	245,500	214,600	102,200	88,920	194,600	117,500	84,650	75,110	70,530	62,500

Calendar year 1964 Max 24,900 Min 875 Mean 1,427 Ac-ft 1,036,000  
Water year 1964-65 Max 24,900 Min 875 Mean 1,898 Ac-ft 1,374,000

Peak discharge (base, 4,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-22	1400	24.37	28,000	4-16	0200	17.60	8,900
1-6	1100	18.94	11,700	4-20	0400	16.80	7,560
1-24	0730	16.13	6,500				

## SACRAMENTO RIVER BASIN

11-3700. Shasta Lake near Redding, Calif.

Location.--Lat 40°43'10", long 122°25'10", in NW $\frac{1}{4}$  sec.15, T.33 N., R.5 W., in Shasta Dam on Sacramento River near right bank, 2 miles downstream from Squaw Creek and 9.5 miles north of Redding.

Drainage area.--6,421 sq mi, excluding Goose Lake Basin.

Records available.--November 1942 to September 1965. Prior to 1950, published as Shasta Reservoir near Redding.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Bureau of Reclamation). Prior to July 10, 1944, staff gages at various sites near dam at same datum.

Extremes.--Maximum contents during year, 4,514,300 acre-ft May 9, 10 (elevation, 1,065.73 ft); minimum, 2,171,800 acre-ft Oct. 26 (elevation, 967.04 ft).  
1942-65: Maximum contents, 4,528,900 acre-ft May 18, 1957 (elevation, 1,066.22 ft); minimum since initial season of normal operation, 916,200 acre-ft Sept. 25, 26, 1944 (elevation, 877.31 ft).

Remarks.--Reservoir is formed by concrete gravity-type dam completed in 1949; regulation began Dec. 30, 1943. Usable capacity, 4,377,000 acre-ft between elevations 737.75 (bottom of lowest set of river outlets) and 1,065.0 ft (top of drum-type spillway gates) above mean sea level. Dead storage, 115,700 acre-ft. All water passes down Sacramento River, some first passing through powerplant at dam. Records represent total contents. See schematic diagram, p. 739.

Cooperation.--Record furnished by Bureau of Reclamation.

Capacity table, (elevation, in feet, and contents, in thousands of acre-feet)

960	2,046.8	1,010	3,051.8
970	2,226.1	1,020	3,286.9
980	2,416.0	1,030	3,533.5
990	2,616.6	1,050	4,063.1
1,000	2,828.5	1,066	4,552.3

Contents, in thousands of acre-feet, at 2400 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,196.4	2,193.2	2,366.0	3,257.1	3,240.4	3,282.8	3,573.6	4,440.7	4,490.1	4,401.8	4,110.7	3,808.2
2	2,192.3	2,199.5	2,377.6	3,261.4	3,233.0	3,293.9	3,587.4	4,458.6	4,492.2	4,395.1	4,100.1	3,801.1
3	2,189.4	2,202.0	2,385.5	3,253.3	3,230.1	3,304.8	3,592.2	4,475.1	4,493.9	4,089.5	4,089.5	3,795.0
4	2,189.4	2,202.8	2,395.0	3,244.9	3,226.8	3,316.4	3,599.4	4,491.0	4,495.7	4,381.5	4,079.8	3,788.6
5	2,187.9	2,204.8	2,401.0	3,285.0	3,225.6	3,324.1	3,609.4	4,506.1	4,497.2	4,374.8	4,070.8	3,785.4
6	2,197.2	2,205.9	2,406.1	3,304.0	3,220.1	3,332.8	3,620.2	4,512.6	4,494.2	4,366.4	4,059.5	3,778.3
7	2,185.2	2,207.7	2,412.1	3,280.7	3,213.9	3,343.3	3,630.5	4,512.3	4,489.8	4,359.2	4,045.7	3,768.7
8	2,184.5	2,216.9	2,419.6	3,238.4	3,208.5	3,352.3	3,647.2	4,513.2	4,485.4	4,350.2	4,034.1	3,761.6
9	2,183.2	2,230.3	2,424.2	3,197.6	3,202.8	3,362.0	3,671.6	4,512.9	4,486.0	4,341.5	4,026.1	3,754.5
10	2,182.3	2,245.5	2,434.6	3,194.0	3,195.7	3,371.6	3,690.8	4,512.3	4,484.8	4,332.2	4,015.7	3,746.6
11	2,182.9	2,259.9	2,445.4	3,195.4	3,193.5	3,382.3	3,703.6	4,512.0	4,483.0	4,322.1	4,007.1	3,740.3
12	2,181.6	2,268.6	2,453.7	3,200.9	3,193.3	3,391.7	3,723.7	4,511.7	4,482.4	4,312.0	3,998.1	3,729.8
13	2,181.4	2,273.1	2,462.0	3,203.2	3,193.3	3,399.3	3,740.8	4,509.3	4,479.8	4,304.2	3,988.3	3,723.7
14	2,180.3	2,276.3	2,469.7	3,204.2	3,193.8	3,403.4	3,760.8	4,504.6	4,478.9	4,298.4	3,977.9	3,719.5
15	2,179.4	2,278.6	2,477.3	3,203.7	3,190.2	3,418.5	3,810.6	4,504.9	4,477.1	4,291.2	3,968.9	3,713.5
16	2,178.9	2,280.8	2,485.0	3,204.0	3,191.9	3,427.9	3,874.5	4,507.0	4,475.1	4,292.9	3,956.9	3,703.6
17	2,177.2	2,283.1	2,490.7	3,201.6	3,193.5	3,438.3	3,914.9	4,503.4	4,472.1	4,273.7	3,946.6	3,692.6
18	2,178.3	2,285.5	2,498.7	3,197.3	3,194.2	3,446.0	3,963.2	4,507.3	4,469.5	4,268.6	3,936.0	3,684.3
19	2,177.8	2,283.7	2,527.0	3,196.1	3,196.6	3,454.7	4,030.2	4,502.8	4,465.0	4,254.5	3,925.7	3,674.2
20	2,176.1	2,291.2	2,576.4	3,194.7	3,202.5	3,463.2	4,094.5	4,497.2	4,461.2	4,252.8	3,914.4	3,669.2
21	2,175.2	2,294.4	2,733.9	3,194.2	3,207.5	3,472.2	4,155.0	4,495.4	4,455.6	4,232.3	3,905.5	3,661.4
22	2,174.1	2,296.8	3,052.9	3,193.8	3,212.3	3,481.2	4,200.7	4,496.0	4,446.3	4,220.3	3,899.2	3,656.0
23	2,173.2	2,299.4	3,204.7	3,219.9	3,218.2	3,489.7	4,238.0	4,495.4	4,442.1	4,206.4	3,885.6	3,648.8
24	2,172.1	2,303.6	3,276.6	3,250.4	3,226.1	3,497.0	4,270.3	4,494.2	4,436.9	4,193.2	3,873.2	3,645.9
25	2,172.7	2,309.0	3,305.0	3,265.3	3,234.6	3,505.8	4,293.7	4,493.6	4,431.6	4,183.5	3,863.0	3,637.1
26	2,171.8	2,312.3	3,319.5	3,271.8	3,245.4	3,515.8	4,326.2	4,493.0	4,428.1	4,176.7	3,855.0	3,631.2
27	2,173.2	2,317.6	3,310.1	3,273.0	3,253.8	3,525.2	4,350.8	4,494.5	4,423.7	4,165.4	3,844.6	3,626.9
28	2,176.5	2,333.4	3,286.2	3,270.3	3,270.8	3,534.7	4,376.2	4,496.3	4,418.7	4,155.8	3,840.3	3,620.2
29	2,182.1	2,342.2	3,278.3	3,265.5	-----	3,543.6	4,401.2	4,496.3	4,412.9	4,142.9	3,830.8	3,615.0
30	2,184.5	2,350.8	3,262.4	3,259.3	-----	3,552.7	4,422.8	4,494.2	4,405.8	4,132.8	3,822.5	3,612.4
31	2,186.5	-----	3,254.7	3,249.7	-----	3,561.4	-----	4,488.9	-----	4,122.1	3,815.6	-----
(+)	967.84	976.63	1,013.66	1,013.45	1,019.33	1,031.10	1,062.62	1,064.87	1,062.07	1,052.12	1,040.87	1,033.10
(+)	- 15.7	+ 164.3	+ 303.9	- 5.0	+ 21.1	+ 290.6	+ 861.4	+ 661.1	- 82.1	- 284.7	- 306.5	- 203.2
(+)	60.20	1,660.0	2,060.0	2,600.0	3,310.0	5,860.0	5,280.0	13,690.0	13,630.0	18,660.0	13,190.0	11,380.0

Calendar year 1964..... + 265.3

Water year 1964-65..... + 1,410.2

+ Elevation in feet at end of month.

+ Change in contents in thousands of acre-feet.

+ Evaporation in acre-feet.

11-3705. Sacramento River at Keswick, Calif.

Location.--Lat 40°36'05", long 122°26'35", in SW 1/4 sec. 28, T. 32 N., R. 5 W., on right bank 0.4 mile upstream from Middle Creek, 0.8 mile downstream from Keswick Dam, 1.6 miles downstream from Keswick, and 10 miles downstream from Shasta Dam.

Drainage area.--6,486 sq mi, excluding Goose Lake basin.

Records available.--October 1938 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder. Datum of gage is 479.81 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1939, at site 1.5 miles upstream at datum 20.2 ft higher and Oct. 1, 1939, to Apr. 30, 1942, at site 1.5 miles upstream at datum 15.2 ft higher. Since Aug. 20, 1960, auxiliary water-stage recorder at city of Redding pumping plant 2.1 miles downstream.

Average discharge.--27 years, 8,328 cfs (6,029,000 acre-ft per year), adjusted for change in contents and evaporation from Shasta Lake and transbasin diversion into Keswick Reservoir.

Extremes.--Maximum discharge during year, 54,000 cfs Dec. 27 (gage height, 27.59 ft); minimum daily, 2,770 cfs Dec. 18.

1938-43 (prior to regulation by Shasta Lake): Maximum discharge, 186,000 cfs Feb. 23, 1940 (gage height, 47.2 ft, site and datum then in use), from rating curve extended above 75,000 cfs on basis of peak discharge at Kennett plus 4,000 cfs estimated inflow; minimum observed, 2,730 cfs Aug. 22, 1939.

1944-65: Maximum discharge, 78,800 cfs Feb. 21, 1958 (gage height, 31.55 ft); minimum, 154 cfs May 15, 1948.

Remarks.--Records good. Flow regulated by Shasta Lake beginning Dec. 30, 1943 (see preceding page). Diurnal fluctuations from Shasta powerplant re-regulated by Keswick Reservoir (capacity, 4,170 acre-ft between normal operation elevations 579.0 and 586.0 ft) and powerplant. No diversion for irrigation between Shasta Dam and station at Keswick. Since December 1963, water is released from Whiskeytown Lake (see p. 759) at lat 40°37'03", long 122°31'31", through a tunnel to Spring Creek powerplant (see p. 758) and then into Keswick Reservoir. See schematic diagram p. 739. Records of chemical analyses for the water year 1965 are published in Part 2 of this report.

Cooperation.--Twelve discharge measurements furnished by Bureau of Reclamation.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7,610	4,620	3,240	19,500	21,200	4,080	3,600	5,110	7,990	9,390	11,100	9,690
2	6,960	4,590	3,170	19,300	20,000	4,080	3,600	5,120	8,000	9,890	11,000	9,460
3	6,190	4,580	3,140	23,600	17,500	4,080	3,570	5,130	9,000	9,390	11,100	9,470
4	5,520	4,580	2,920	23,600	17,300	4,090	3,570	5,120	8,000	9,890	11,000	9,460
5	5,540	4,570	2,880	36,400	17,300	4,100	3,580	5,140	8,000	9,890	11,000	9,460
6	5,520	4,250	2,880	53,000	17,200	4,100	3,580	7,380	8,040	9,890	11,100	9,460
7	5,550	4,250	2,860	53,400	17,300	4,230	3,560	9,890	8,080	9,990	11,100	9,480
8	5,550	4,430	2,780	52,800	17,000	4,420	3,640	9,700	8,060	10,200	11,100	9,460
9	5,550	4,360	2,780	48,100	16,200	4,200	3,820	9,620	8,080	10,500	11,100	9,480
10	5,550	4,320	2,790	25,700	15,200	4,090	3,720	9,590	8,090	10,900	11,100	9,480
11	5,550	4,330	2,780	22,400	12,700	4,090	3,540	9,500	8,090	11,000	11,100	9,500
12	5,540	4,180	2,780	19,900	11,100	4,090	3,490	9,500	8,020	10,300	11,100	9,500
13	5,260	4,120	2,790	19,300	11,200	3,680	3,480	9,890	8,050	11,000	11,100	9,500
14	5,240	4,100	2,780	19,500	11,200	3,670	3,480	9,800	8,040	11,000	11,100	9,480
15	5,250	4,090	2,780	19,500	11,000	3,670	3,560	9,990	8,040	11,000	11,100	9,480
16	5,250	4,060	2,780	19,500	9,730	3,680	3,560	9,890	8,050	11,000	11,100	9,440
17	5,260	4,050	2,780	19,900	9,240	3,670	3,540	10,900	8,610	11,000	11,100	9,470
18	5,260	3,930	2,770	19,900	9,300	3,700	3,660	10,900	9,260	11,000	11,100	9,470
19	5,260	3,980	2,960	18,600	8,890	3,730	3,750	10,900	9,220	11,000	11,100	9,500
20	5,280	3,980	2,920	17,700	7,460	3,740	3,730	10,900	9,300	11,000	11,100	9,540
21	5,270	3,930	4,650	17,000	7,540	3,780	3,730	10,500	9,430	11,000	11,100	9,510
22	5,270	3,980	13,900	15,900	7,540	3,740	3,630	9,890	9,400	11,000	11,100	9,540
23	5,280	3,930	26,600	15,000	6,730	3,660	3,530	9,890	9,430	11,000	11,100	9,120
24	5,280	3,950	40,500	19,400	6,480	3,700	3,490	9,660	9,440	11,000	11,100	8,870
25	5,270	3,880	44,400	20,600	5,890	3,690	3,480	8,980	9,410	11,000	11,200	8,900
26	5,260	3,840	48,800	21,500	5,380	3,670	3,480	8,520	9,410	11,000	10,400	8,830
27	5,270	3,880	52,900	21,500	4,230	3,660	3,470	8,050	9,440	11,000	10,100	8,800
28	5,250	4,000	50,100	21,500	4,210	3,630	3,650	7,970	9,510	11,000	10,100	8,730
29	5,260	3,960	35,800	21,500	-----	3,590	4,310	7,950	9,220	11,000	10,100	8,730
30	5,240	4,010	35,600	21,100	-----	3,570	5,130	7,970	9,370	11,100	10,100	8,390
31	5,260	-----	28,200	21,100	-----	3,580	-----	8,000	-----	11,000	10,200	-----
Total	170,600	124,730	439,010	767,700	326,020	119,460	109,930	271,250	259,080	331,930	338,300	279,200
Mean	5,503	4,158	14,160	24,760	11,540	3,854	3,664	8,750	8,636	10,707	10,913	9,307
Ac-ft	338,400	247,400	870,800	1,523,000	646,700	236,900	218,000	538,000	513,900	658,300	671,000	553,800
Mean†	3,583	5,596	27,270	22,510	10,720	7,333	17,180	7,977	4,813	4,198	3,651	3,884
Ac-ft†	220,300	333,000	1,677,000	1,384,000	595,200	450,900	1,022,000	490,500	296,400	258,100	224,500	231,100
Calendar year 1964:	Max	52,900	Min	2,780	Mean	8,431	Ac-ft	6,120,000	Mean†	7,109	Ac-ft†	5,161,000
Water year 1964-65:	Max	53,400	Min	2,770	Mean	9,691	Ac-ft	7,016,000	Mean†	9,908	Ac-ft†	7,173,000

† Adjusted for change in storage and evaporation from Shasta Lake and flow into Keswick Reservoir.

## SACRAMENTO RIVER BASIN

11-3710. Clear Creek at French Gulch, Calif.

Location.--Lat 40°41'40", long 122°38'10", in NE¼ sec.27, T.33 N., R.7 W., on right bank 1,200 ft downstream from Right Fork, 0.3 mile south of French Gulch, and 15 miles northwest of Redding.

Drainage area.--115 sq mi.

Records available.--July 1950 to September 1965.

Gage.--Water-stage recorder (digital) and concrete control. Datum of gage is 1,320.60 ft above mean sea level, datum of 1929, supplementary adjustment of 1956. Prior to Dec. 28, 1959, at datum 3.00 ft higher.

Average discharge.--15 years, 211 cfs (152,800 acre-ft per year).

Extremes.--Maximum discharge during year, 7,600 cfs Dec. 22 (gage height, 13.70 ft); minimum daily, 8.6 cfs Oct. 7. 1950-65: Maximum discharge, that of Dec. 22, 1964; minimum, 3.9 cfs Sept. 6-8, 1955.

Remarks.--Records good. No large diversion above station. See schematic diagram, p. 739. Records of suspended sediment loads for the water year 1965 are published in Part 2 of this report.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Dec. 22)

Oct. 1 to Dec. 22				Dec. 22 to Sept. 30			
3.4	5.0	6.0	750	3.5	13	6.0	910
3.5	11	7.0	1,280	3.7	38	7.0	1,510
3.7	33	9.0	2,650	4.0	91	8.0	2,210
4.0	81	11.0	4,330	4.5	215	10.0	3,940
4.5	193	13.0	6,440	5.0	400	12.0	5,840
5.0	350						

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	9.8	55	445	519	373	148	93	299	93	41	22	15
2	9.2	83	345	486	348	143	104	281	91	40	20	15
3	9.2	50	252	451	325	139	97	265	87	40	19	15
4	9.8	37	193	397	309	136	91	250	85	37	19	15
5	9.2	32	156	1,320	307	138	91	237	85	35	18	15
6	9.2	28	131	1,670	291	135	93	226	82	33	16	16
7	8.6	27	116	1,340	272	131	93	216	82	33	15	16
8	9.2	53	108	1,010	257	127	135	206	82	31	15	16
9	9.2	153	103	808	244	124	194	195	80	31	15	15
10	9.2	299	117	684	235	122	210	186	74	30	15	15
11	9.8	198	157	774	225	120	191	178	70	30	22	15
12	10	197	139	810	217	120	195	171	68	30	33	15
13	9.8	134	124	757	210	117	217	169	70	29	26	15
14	10	99	117	722	205	113	283	164	74	29	22	13
15	11	79	111	760	197	112	1,200	156	72	27	19	13
16	11	68	103	790	190	110	1,660	149	68	26	19	13
17	11	60	96	747	182	108	978	145	70	24	20	13
18	11	55	92	704	177	106	1,060	140	70	24	31	14
19	10	52	176	677	172	104	1,640	138	63	23	31	15
20	10	49	266	631	169	99	1,350	136	58	23	27	14
21	11	47	2,280	570	167	97	1,210	140	54	24	24	14
22	11	52	5,770	510	164	97	992	134	52	23	24	14
23	11	50	3,190	642	158	95	800	125	52	22	22	14
24	11	60	2,120	843	154	95	667	120	51	21	22	14
25	12	138	1,570	689	151	93	574	115	51	21	21	14
26	14	124	1,460	594	148	97	499	112	52	22	21	14
27	20	112	1,350	526	182	97	443	107	49	22	20	16
28	39	254	1,080	478	155	91	396	103	48	21	18	18
29	74	268	875	442	-----	91	356	101	44	20	18	18
30	47	240	731	415	-----	93	322	98	43	20	16	16
31	31	-----	613	396	-----	91	-----	95	-----	21	15	-----
TOTAL	477.2	3,153	24,386	22,162	6,184	3,489	16,234	5,157	2,020	853	645	445
MEAN	15.4	105	787	715	221	113	541	166	67.3	27.5	20.8	14.8
AC-FT	947	6,250	48,370	43,960	12,270	6,920	32,200	10,230	4,010	1,690	1,280	883

CALENDAR YEAR 1964	MAX	5,770	MIN	5.6	MEAN	136	AC-FT	98,840
WATER YEAR 1964-65	MAX	5,770	MIN	8.6	MEAN	233	AC-FT	169,000

Peak discharge (base, 1,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-22	0945	13.70	7,600	4-15	2145	8.32	2,470
1-5	1700	7.62	1,940	4-19	0930	7.36	1,760

11-5254.3. Judge Francis Carr powerplant near French Gulch, Calif.

Location.--Lat 40°38'49", long 122°37'34", at powerplant 1.6 miles downstream from Mill Creek and 3.8 miles south of French Gulch.Records available.--April 1963 to September 1965.Gage.--Recorded powerplant output.Extremes.--1963-65: Maximum daily discharge, 3,280 cfs for several days in May, August, September 1964; no flow May 6-9, 1963.Remarks.--Water is diverted from Trinity River at NW¼SE¼ sec.8, T.33 N., R.8 W., through a tunnel to powerplant and then into Whiskeytown Lake (see following page). See schematic diagram, p. 739.Cooperation.--Records furnished by Bureau of Reclamation.

Contents, in acre-feet, at 2400 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2121	1531	477	703	577	1476	1082	559	3257	2266	2591	2325
2	1838	1519	479	708	583	1496	1126	647	3023	2351	2396	2276
3	1503	1544	482	700	588	570	1048	2158	3033	2276	2425	2151
4	1696	1349	485	865	573	556	959	2565	3027	2206	2614	2171
5	1698	1419	560	1005	586	514	973	2684	2976	2221	2607	1901
6	1696	1486	568	717	606	1134	989	2020	2964	2205	2606	1906
7	1703	1594	559	859	610	2188	669	593	2977	2199	2673	2100
8	1657	1517	561	730	584	1370	749	667	2973	2300	2680	2090
9	1689	1548	478	694	869	1370	734	539	2835	2334	2676	2090
10	1714	1059	535	699	813	928	550	506	2529	2350	2676	2079
11	1685	715	548	639	801	1370	529	500	2512	2204	2674	2062
12	1697	857	562	604	660	1370	520	500	2475	2364	2665	2034
13	1651	585	557	634	802	1370	538	501	2437	2317	2672	2092
14	1678	713	568	695	787	1371	584	504	2401	2285	2555	2026
15	1671	716	559	566	781	1372	589	1093	2386	2280	2551	2239
16	1677	733	565	568	801	1223	587	2654	2402	2220	2571	2240
17	1679	847	553	560	790	1163	529	3218	2383	2312	2563	2140
18	1664	668	553	575	1109	1111	566	3257	2477	2126	2566	2246
19	1686	655	559	595	871	1006	622	3257	2428	2296	2490	2253
20	1686	656	542	596	1141	1049	837	2604	2477	2282	2569	2337
21	1681	655	602	604	1069	1105	726	2462	2524	2315	2533	2401
22	1680	657	1422	600	1049	1086	577	2895	2514	2123	2558	2481
23	1678	655	927	596	1864	1116	599	3043	2524	2294	2488	2484
24	1691	664	774	584	1870	1372	616	2719	2515	2234	2420	2474
25	1659	869	557	630	1850	1372	602	2676	2431	2152	2419	2362
26	1687	773	507	631	1844	1373	591	2341	2498	2221	2394	2155
27	1682	811	504	619	1240	1369	587	2037	2449	2236	2481	2208
28	1694	654	562	640	1225	1362	642	2106	2476	2226	2428	2208
29	1689	658	563	445	-----	1370	591	2077	2478	2222	2506	2228
30	1696	661	568	575	-----	1380	677	1993	2479	2254	2508	2220
31	1518	-----	561	549	-----	1374	-----	2374	-----	2197	2523	-----
Total	52,444	28,768	18,297	20,185	26,943	38,286	20,988	57,749	78,860	69,768	79,078	65,979
Mean	1692	959	590	651	962	1235	700	1863	2629	2251	2551	2199
Ac-ft	104,160	57,060	36,290	40,040	53,440	75,940	41,580	114,540	156,420	138,380	156,850	130,870
Calendar year 1964	Max	3,280	Min	477	Mean	1,756	Ac-ft	1,273,410				
Water year 1964-65	Max	3,257	Min	445	Mean	1,527	Ac-ft	1,105,570				

## SACRAMENTO RIVER BASIN

11-3716. Spring Creek powerplant at Keswick, Calif.

Location.--Lat 40°37'41", long 122°27'59", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.18, T.32 N., R.5 W., at powerplant on Spring Creek, 0.4 mile northwest of Keswick, and 4.9 miles northwest of Redding.

Records available.--December 1963 to September 1965.

Gage.--Discharge computed from powerplant output.

Extremes.--1963-65: Maximum daily discharge, 3,561 cfs Aug. 28, 1964; minimum daily, 10 cfs Dec. 15, 1963.

Remarks.--Water is released from Wiskeytown Lake (see p. 759) at lat 40°37'03", long 122°31'31", through a tunnel to powerplant and then into Keswick Reservoir. See schematic diagram, p. 739.

Cooperation.--Records furnished by U. S. Bureau of Reclamation.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,077	1,685	1,097	3,536	1,293	1,827	1,219	2,513	3,520	2,261	2,441	2,198
2	1,683	1,717	1,074	3,536	1,315	1,855	1,167	2,519	3,009	2,221	2,533	2,255
3	1,652	1,673	1,062	3,536	1,304	1,816	1,211	2,500	3,089	2,230	2,415	2,242
4	1,568	1,857	833	3,536	1,284	1,769	1,208	2,450	3,087	2,213	2,499	2,200
5	1,612	1,856	816	3,536	1,283	72	1,153	2,504	3,085	2,220	2,499	2,229
6	1,632	1,512	558	3,536	1,207	966	1,085	761	3,069	2,214	2,502	2,230
7	1,830	1,591	819	3,536	1,249	1,703	951	655	2,997	2,227	2,486	2,200
8	1,822	1,563	710	3,536	1,293	1,701	1,051	577	2,986	2,174	2,466	2,187
9	1,882	1,504	755	3,536	1,191	1,905	1,079	613	2,991	2,186	2,483	2,190
10	1,823	1,132	731	3,536	1,242	1,724	1,189	593	2,640	2,157	2,537	2,238
11	1,831	1,381	776	2,141	1,289	1,902	1,154	590	2,612	2,021	2,509	2,190
12	1,835	1,363	780	2,041	1,090	1,490	1,128	596	2,570	2,143	2,502	2,194
13	1,722	1,194	772	2,045	1,664	1,116	1,120	590	2,478	2,194	2,506	2,195
14	1,725	910	778	2,050	359	1,118	1,025	669	2,468	2,177	2,503	2,201
15	1,741	933	724	2,045	1,254	1,227	1,047	2,224	2,503	2,188	2,392	2,190
16	1,747	929	740	2,038	1,469	1,267	1,031	3,235	2,490	2,170	2,487	2,174
17	1,765	1,247	810	1,843	1,199	1,325	1,095	3,392	2,485	2,205	2,520	2,174
18	1,774	1,302	808	1,831	1,275	1,280	1,071	3,380	2,487	2,075	2,495	2,176
19	1,719	1,310	806	1,607	1,290	1,235	662	3,392	2,490	2,199	2,487	2,196
20	1,717	1,303	813	1,593	1,769	1,375	643	2,778	2,499	2,177	2,504	2,200
21	1,687	1,302	627	1,486	1,331	1,305	971	2,535	2,479	2,183	2,502	2,217
22	1,704	1,304	1,694	1,273	1,211	1,151	708	2,999	2,467	2,170	2,410	2,190
23	1,704	1,304	3,535	1,302	1,453	1,178	653	3,318	2,446	2,201	2,444	2,196
24	1,663	1,293	3,536	1,228	2,051	1,157	685	3,127	2,445	2,184	2,499	2,179
25	1,630	1,274	3,536	1,211	2,075	1,183	685	2,812	2,467	2,178	2,576	2,194
26	1,680	1,209	3,536	1,209	2,068	1,189	598	2,460	2,476	2,168	2,570	2,195
27	1,701	1,199	3,536	1,285	1,479	1,170	630	2,113	2,486	2,170	2,492	2,212
28	1,805	1,205	3,536	1,260	1,523	1,165	1,212	2,107	2,480	2,192	2,540	2,130
29	1,979	1,223	3,536	1,341	-----	1,087	1,721	2,114	2,421	2,182	2,503	2,209
30	1,974	1,213	3,536	1,299	-----	1,147	2,403	2,125	2,477	2,178	2,511	2,187
31	1,888	-----	3,536	1,185	-----	1,149	-----	1,927	-----	2,167	2,439	-----
Total	54,572	40,493	50,406	68,678	38,520	41,554	31,555	64,168	80,198	67,625	77,252	65,968
Mean	1,760	1,350	1,626	2,215	1,376	1,340	1,052	2,070	2,673	2,181	2,492	2,199
Ac-ft	108,380	80,320	99,980	136,220	76,400	82,420	62,530	127,280	159,070	134,130	153,230	130,850
Calendar year 1964:	Max	3,561	Min	12	Mean	1,803	Ac-ft	1,309,050				
Water year 1964-65:	Max	3,536	Min	72	Mean	1,866	Ac-ft	1,350,810				



11-3717. Whiskeytown Lake near Igo, Calif.  
(formerly published as Whiskeytown Reservoir near Igo, Calif.)

Location.--Lat 40°37'03", long 122°31'31", on Clear Creek at outlet works to Spring Creek powerplant, 1.8 miles downstream from Whiskey Creek and 7.8 miles northeast of Igo.

Drainage area.--200 sq mi.

Records available.--May 1963 to September 1965. Prior to October 1964 published as Whiskeytown Reservoir near Igo.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Bureau of Reclamation).

Extremes.--Maximum contents during year 245,200 acre-ft Dec. 23 (elevation, 1,211.27 ft); minimum, 194,000 acre-ft Mar. 4 (elevation, 194.47 ft).

1963-65: Maximum contents, that of Dec. 23, 1964; minimum since reservoir was first filled, 188,700 acre-ft Feb. 10, 1964, elevation, 1,192.60 ft.

Remarks.--Reservoir is formed by earth and rock-fill dam. Storage began in May 1963. Capacity, 241,100 acre-ft between elevation 1,100.00 ft (minimum operating level) and 1,210.00 ft (crest of spillway). No dead storage. Transbasin water enters the reservoir through Judge Francis Carr powerplant and is released through Spring Creek Tunnel to Spring Creek powerplant (see preceding page) and Keswick Reservoir. Records, including extremes, represents contents at 2400 hours. See schematic diagram, p. 739.

Cooperation.--Records of contents and evaporation furnished by Bureau of Reclamation.

Capacity table (elevation, in feet, and contents, in acre-ft)

1,190	181,500
1,200	210,100
1,210	241,100
1,220	274,400

Contents, in thousands of acre-feet, at 2400 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	233.6	226.4	211.7	221.1	202.2	197.4	203.0	235.6	238.7	237.6	237.4	237.4
2	233.5	226.4	211.4	217.6	201.8	197.3	203.4	232.9	238.7	237.7	237.1	237.3
3	233.4	225.9	210.8	213.6	201.4	195.3	203.3	233.0	238.7	237.8	236.8	236.9
4	233.5	225.0	210.5	209.8	201.1	194.0	203.0	233.9	238.7	237.8	236.9	236.8
5	233.4	224.1	210.3	213.3	200.7	195.0	203.1	234.8	238.5	237.7	236.9	236.1
6	233.3	223.8	210.5	214.3	200.3	195.6	203.2	237.8	238.3	237.6	236.9	235.4
7	232.9	223.8	210.2	213.3	199.8	196.9	203.0	238.3	238.3	237.5	237.1	235.2
8	232.4	224.5	210.0	210.9	199.2	196.7	203.6	239.1	238.3	237.5	237.2	234.9
9	231.9	225.0	209.6	207.8	199.2	196.2	204.2	239.4	238.0	237.6	237.4	234.6
10	231.5	226.6	209.6	204.4	198.8	195.0	203.9	239.8	238.0	237.7	237.5	234.1
11	231.0	226.5	209.5	203.7	198.3	194.4	203.4	240.2	237.9	237.9	237.8	233.7
12	230.5	226.0	209.3	203.2	198.1	194.6	203.0	240.6	237.7	238.1	239.1	233.3
13	230.3	225.1	209.1	202.5	196.8	195.6	202.9	240.8	237.7	238.2	238.3	233.0
14	230.1	224.9	208.8	201.9	198.2	196.5	203.0	241.1	237.6	238.1	238.3	232.5
15	229.8	224.6	208.6	201.1	197.8	197.2	207.9	239.4	237.5	238.1	238.4	232.4
16	229.4	224.2	208.3	200.3	197.1	197.4	212.6	238.7	237.4	238.0	238.4	232.4
17	229.1	223.5	207.8	199.8	196.8	197.3	214.6	238.6	237.4	238.1	238.4	232.2
18	228.7	222.2	207.5	199.2	197.0	197.4	217.3	238.6	237.4	238.1	238.6	232.1
19	228.4	221.0	208.8	199.0	196.6	197.3	222.0	238.6	237.4	238.1	239.0	232.1
20	228.2	219.7	209.5	198.7	195.8	197.1	227.0	238.5	237.4	238.1	239.0	232.3
21	228.0	218.5	221.6	198.4	195.7	197.1	230.5	238.8	237.4	238.2	238.9	232.4
22	227.8	217.2	242.4	198.4	195.8	197.2	233.2	238.8	237.6	237.8	239.0	232.7
23	227.6	215.9	245.2	200.1	197.0	197.3	235.4	238.5	237.6	238.0	239.0	233.1
24	227.5	214.8	243.9	201.5	197.2	198.0	237.2	238.1	237.9	237.8	238.7	233.5
25	227.3	214.2	241.9	202.3	197.2	198.8	238.7	238.0	237.6	237.7	238.4	233.7
26	227.1	213.4	240.6	202.8	197.5	199.6	240.1	237.9	237.5	237.8	238.0	233.6
27	227.3	212.9	238.6	203.0	197.7	200.4	241.4	238.0	237.4	237.7	237.9	233.5
28	227.4	212.6	236.0	203.2	197.6	200.9	241.4	238.0	237.4	237.5	237.6	233.5
29	227.5	212.2	232.8	202.8	-----	201.7	240.5	238.1	237.4	237.4	237.4	233.3
30	226.9	211.8	229.2	202.6	-----	202.3	238.3	238.1	237.4	237.4	237.3	233.2
31	226.1	-----	225.2	202.5	-----	203.0	-----	239.1	-----	237.3	237.4	-----
(†)	1205.25	1200.55	1204.95	1197.42	1195.72	1197.59	1209.13	1209.37	1208.85	1208.82	1208.84	1207.52
(‡)	- 7.6	- 14.3	+ 13.4	- 22.7	- 4.9	+ 5.4	+ 35.3	+ 0.8	- 1.7	- 0.1	+ 0.1	- 4.2
(††)	1.030	250	210	180	430	590	560	1.560	1.650	2.150	1.460	1.210

Calendar year 1964..... +3.2  
Water year 1964-65..... +0.5

† Elevation, in feet, at end of month.

‡ Change in contents, in thousands of acre-feet.

†† Evaporation, in inches

11-3720. Clear Creek near Igo, Calif.

Location.--Lat 40°30'50", long 122°31'20", in NE 1/4 sec. 27, T.31 N., R.6 W., on left bank at highway bridge on Redding-Igo road, 1.0 mile northeast of Igo, 8 miles southwest of Redding, and 11.1 miles upstream from mouth.

Drainage area.--228 sq mi.

Records available.--October 1940 to September 1965.

Gage.--Water-stage recorder (digital). Altitude of gage is 675 ft (from river-profile map).

Average discharge.--25 years, 410 cfs (296,800 acre-ft per year), adjusted for storage and diversions.

Extremes.--Maximum discharge during year, 9,940 cfs Dec. 22 (gage height, 9.23 ft); minimum daily, 50 cfs for many days.

1940-63: (Prior to regulation by Whiskeytown Reservoir): Maximum discharge, 24,500 cfs Dec. 21, 1955 (gage height, 13.75 ft); minimum, 8.6 cfs Sept. 4, 6, 7, 1950.

1963-65: Maximum discharge, that of Dec. 22, 1964; minimum daily, 50 cfs for many days in 1965.

Remarks.--Records good. Flow regulated by Whiskeytown Lake since May 1963 (see p. 759). Transbasin diversion from Trinity River through Judge Francis Carr powerplant to Whiskeytown Lake began in April 1963 (see p. 757). Diversion from Whiskeytown Lake to Spring Creek powerplant (see p. 758) began in December 1963. See schematic diagram, p. 739. Records of chemical analyses and water temperatures for the water year 1965 are published in Part 2 of this report.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 21				Dec. 22 to Sept. 30			
2.4	49	4.0	580	2.3	39	4.5	955
2.7	104	5.0	1,340	2.5	72	5.0	1,400
3.0	176	6.0	2,580	3.0	190	6.0	2,640
3.5	339	8.0	6,700	3.5	375	7.0	4,400
				4.0	620		

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	56	126	184	245	134	80	74	123	61	52	51	50
2	56	182	161	212	128	78	106	113	61	52	50	51
3	56	121	143	215	124	76	82	109	59	52	50	50
4	56	106	134	218	121	76	74	103	59	52	50	50
5	54	102	127	1,260	117	76	85	101	59	51	50	50
6	54	100	121	738	114	74	97	98	59	51	50	50
7	56	100	118	438	111	74	87	95	59	51	50	51
8	56	179	117	312	108	72	258	93	59	51	50	58
9	56	153	114	252	105	72	466	91	58	51	50	58
10	56	360	131	221	103	72	305	87	56	51	51	58
11	56	381	135	228	100	70	196	87	56	51	54	58
12	56	193	125	197	98	70	157	85	58	51	52	58
13	56	140	120	189	97	70	173	85	56	51	51	58
14	56	124	118	178	96	68	187	89	56	51	51	56
15	56	115	116	169	94	68	341	99	58	51	51	56
16	56	108	114	159	93	68	433	76	56	51	51	56
17	56	106	113	150	91	68	258	78	58	50	51	56
18	56	104	113	144	89	67	553	74	58	50	54	56
19	56	104	314	139	87	67	569	72	56	51	59	56
20	56	105	301	134	87	65	541	74	54	51	56	56
21	56	107	2,870	129	85	65	606	80	54	51	54	56
22	56	109	5,450	124	85	65	374	76	54	50	51	56
23	56	104	2,600	458	82	65	269	72	54	50	51	56
24	56	109	1,910	376	80	65	219	70	54	50	51	56
25	56	118	1,020	257	80	65	187	68	54	50	51	56
26	56	112	738	209	80	68	166	67	54	51	51	58
27	61	125	535	185	95	74	156	67	52	51	51	58
28	63	317	384	170	82	68	214	65	52	50	51	58
29	126	202	341	159	-----	67	159	65	52	50	50	58
30	86	179	316	149	-----	67	126	63	52	50	50	56
31	66	-----	285	142	-----	68	-----	61	-----	51	50	-----
TOTAL	1,854	4,491	19,368	8,156	2,766	2,168	7,518	2,586	1,688	1,576	1,593	1,660
MEAN	59.8	150	625	263	98.8	69.9	251	83.4	56.3	50.8	51.4	55.3
AC-FT	3,680	8,910	38,420	16,180	5,490	4,300	14,910	5,130	3,350	3,130	3,160	3,290
Meant	4.88	300	1,879	1,458	424	263	1,196	304	72.3	-21.8	-5.85	-15.6
Ac-ft†	300	17,870	115,510	89,660	23,550	16,180	71,160	18,670	4,300	-1,340	-360	-930
CALENDAR YEAR 1964	Max	5,450	Min	54	Mean	266	Ac-ft	193,200	Meant	311	Ac-ft†	225,700
WATER YEAR 1964-65	Max	5,450	Min	50	Mean	152	Ac-ft	110,000	Meant	490	Ac-ft†	354,600

† Adjusted for change in contents in Whiskeytown Lake, diversion from Trinity River through Judge Francis Carr powerplant, and diversion to Spring Creek powerplant. Records for evaporation to Whiskeytown Lake are not available.

Note.--When inflow to the lake is small and other quantities are large, discordant figures of net runoff may appear. This arises primarily from the difficulty of computing net runoff as the residual of several large quantities which are not susceptible to measurement with a precision necessary to produce a final answer within desirable limits of accuracy.

11-3720.5. Churn Creek near Redding, Calif.

Location.--Lat 40°38'35", long 122°22'05", in NE¼SW¼ sec.7, T.32 N., R.4 W., on right bank 0.3 mile upstream from Newtown Creek, 0.35 mile upstream from Oasis Road bridge, and 4 miles north of Redding.

Drainage area.--9.34 sq mi.

Records available.--October 1960 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 640 ft (from topographic map).

Average discharge.--5 years, 15.9 cfs (11,500 acre-ft per year).

Extremes.--Maximum discharge during year, 3,160 cfs Dec. 22 (gage height, 8.74 ft); no flow for several months.

1960-65: Maximum discharge, that of Dec. 22, 1964; no flow for several months each year.

Flood of Sept. 18, 1959, reached a stage of 9.8 ft, from floodmarks (discharge, 4,860 cfs by slope-area measurement).

Remarks.--Records good. Small diversion above station for domestic supply.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(shifting-control method used Nov. 10-12)

Oct. 1 to Dec. 22				Dec. 22 to Sept. 30			
1.3	0	2.9	86	1.3	0	3.0	121
1.4	.3	3.6	182	1.4	.7	3.5	206
1.5	.8	4.5	375	1.5	1.9	4.0	320
1.6	2.0	5.3	625	1.6	3.7	5.0	630
1.7	4.0	6.0	920	1.7	6.3	6.0	1,090
1.8	7.0	6.5	1,170	1.8	10	7.0	1,700
2.0	16	7.0	1,460	2.0	21	8.0	2,440
2.3	35	8.0	2,280	2.5	61		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	56	40	17	5.0	5.5	14	1.5			
2		11	36	40	15	4.7	10	13	1.5			
3		5.1	24	66	14	4.7	6.7	12	1.3			
4		2.8	13	73	13	4.7	5.5	9.6	1.3			
5		1.8	13	500	19	4.7	6.0	3.5	1.2			
6		1.3	11	250	14	5.0	10	7.4	1.1			
7		1.2	9.4	110	12	4.7	7.8	6.3	1.2			
8		36	3.6	65	10	4.5	40	6.0	1.3			
9		32	7.8	43	9.6	4.2	176	5.8	1.3			
10		86	13	41	9.3	4.2	99	5.3	1.1			
11		103	24	44	3.5	4.2	57	4.7	.9			
12		60	16	33	3.2	4.5	37	4.5	.7			
13		20	13	29	3.2	4.0	29	4.2	.7			
14		12	12	26	3.7	3.7	32	4.2	.9			
15		3.2	10	23	7.8	3.7	106	3.7	.8			
16		6.3	9.0	20	7.4	3.5	70	3.3	.7			
17		4.8	7.8	13	7.0	3.5	68	3.2	.8			
18		4.0	9.1	16	6.7	3.5	142	3.2	1.1			
19		3.6	191	15	6.3	3.3	196	3.2	.9			
20		3.2	204	14	6.3	3.2	171	3.2	.6			
21		3.2	913	14	6.0	3.2	164	3.5	.5			
22		4.5	1,870	13	5.8	3.2	95	3.5	.4			
23		3.4	433	137	5.5	3.0	60	3.0	.4			
24		4.2	257	119	5.3	3.0	45	2.6	.4			
25		14	143	62	5.0	3.0	34	2.3	.4			
26		10	186	42	5.3	3.7	29	2.3	.4			
27		15	127	23	9.9	5.8	22	2.4	.3			
28		109	74	29	5.8	4.0	17	1.9	.1			
29		55	67	25	-----	3.7	15	1.8	0			
30		46	61	22	-----	3.5	16	1.7	0			
31		-----	49	20	-----	3.7	-----	1.5	-----			
Total	0	671.6	4,877.7	1,982	255.1	123.3	1,771.5	151.8	23.8	0	0	0
Mean	0	22.4	157	63.9	9.11	3.98	59.0	4.90	0.79	0	0	0
Ac-ft	0	1,330	9,670	3,930	506	245	3,510	301	47	0	0	0

Calendar year 1964 Max 1,870 Min 0 Mean 19.1 Ac-ft 13,890  
Water year 1964-65 Max 1,870 Min 0 Mean 27.0 Ac-ft 19,540

Peak discharge (base, 300 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-22	0500	8.74	3,160	1-23	1700	4.39	427
12-26	1400	4.42	436	4-15	1900	4.35	418
1-5	1230	5.81	985				

11-3722. South Cow Creek near Millville, Calif.

Location.--Lat 40°32'55", long 122°05'30", in NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.16, T.31 N., R.2 W., on left bank 2.5 miles upstream from Old Cow Creek and 4.4 miles east of Millville.

Drainage area.--77.3 sq mi.

Records available.--October 1956 to September 1965.

Gage.--Water-stage recorder (digital). Altitude of gage is 610 ft (from topographic map). Prior to Aug. 9, 1957, at site 1.0 mile down stream at different datum.

Average discharge.--9 years, 97.7 cfs (70,730 acre-ft per year).

Extremes.--Maximum discharge during year, 4,880 cfs Jan. 5 (gage height, 8.57 ft); minimum daily, 8.2 cfs Oct. 5.  
1956-65: Maximum discharge, 5,720 cfs May 18, 1957 (gage height, 9.23 ft, site and datum then in use), from rating curve extended above 800 cfs by comparison with rating curve at present site; minimum, 0.3 cfs Aug. 30, 1960.

Remarks.--Records good. Diversions above station of up to 35 cfs for irrigation of about 1,050 acres.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Jan. 5				Jan. 6 to Sept. 30			
0.9	5.0	2.5	260	1.0	6.0	2.5	245
1.1	14	3.0	415	1.1	11	3.0	400
1.3	29	4.0	840	1.4	40	4.0	840
1.5	53	5.0	1,500	1.7	77	5.0	1,500
2.0	142	7.0	3,280	2.0	131		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	14	25	242	230	169	88	136	218	71	36	26	19
2	9.0	40	180	209	160	83	392	195	66	36	21	14
3	10	30	116	552	151	82	160	180	65	35	21	10
4	10	22	82	1,040	147	80	133	164	64	34	20	15
5	8.2	20	66	2,300	377	79	121	151	63	31	19	18
6	8.6	19	56	946	283	79	698	145	63	30	23	19
7	10	18	48	508	188	77	245	135	59	30	21	20
8	10	23	44	340	171	76	669	129	59	30	20	20
9	11	282	46	275	155	74	794	121	56	25	19	19
10	12	273	53	242	145	74	456	119	54	26	21	18
11	13	276	126	450	135	74	272	117	54	31	35	19
12	11	165	81	293	127	88	198	115	52	24	51	20
13	14	71	64	245	125	80	184	116	54	26	35	18
14	13	45	58	225	121	73	186	120	58	27	31	15
15	13	36	54	228	111	71	280	118	64	27	28	17
16	13	30	49	230	107	70	487	116	60	26	26	19
17	13	27	43	220	102	70	293	113	60	25	24	15
18	12	25	67	218	98	69	666	107	60	25	33	18
19	13	24	423	225	95	69	474	105	51	24	30	17
20	13	22	208	222	95	66	414	104	46	22	25	18
21	12	22	1,030	212	93	67	410	104	46	22	28	18
22	12	25	2,520	193	91	69	386	110	40	20	30	15
23	12	24	1,320	421	88	71	323	97	39	22	29	14
24	12	26	723	526	85	80	281	90	39	24	27	13
25	14	65	539	356	83	73	260	87	42	24	27	13
26	14	195	573	287	82	82	248	85	44	24	26	18
27	16	73	496	242	139	291	240	79	42	26	25	19
28	23	207	422	218	95	125	240	78	36	25	23	20
29	26	146	412	195	-----	100	240	74	34	21	22	18
30	24	116	419	184	-----	91	230	75	35	22	19	15
31	20	-----	325	177	-----	93	-----	73	-----	24	17	-----
Total	415.8	2,372	10,885	12,209	3,818	2,664	10,116	3,640	1,576	824	802	510
Mean	13.4	79.1	351	394	136	85.9	337	117	52.5	26.6	25.9	17.0
Ac-ft	825	4,700	21,590	24,220	7,570	5,280	20,060	7,220	3,130	1,630	1,590	1,010

Calendar year 1964 Max 2,520 Min 5.9 Mean 71.6 Ac-ft 51,980  
Water year 1964-65 Max 2,520 Min 8.2 Mean 137 Ac-ft 98,820

Peak discharge (hase, 1,800 cfs).--Dec. 22 (1030) 3,990 cfs (7.71 ft); Jan. 5 (1500) 4,880 cfs (8.57 ft).

11-3732. Oak Run Creek near Oak Run, Calif.

Location.--Lat 40°41'25", long 122°02'35", in SE 1/4 sec. 25, T. 33 N., R. 2 W., on left bank 800 ft downstream from road bridge, 1.1 miles northwest of town of Oak Run, 3.2 miles upstream from Tracy Creek, and 12.2 miles northeast of Millville.

Drainage area.--11.0 sq mi.

Records available.--May 1957 to September 1965.

Gage.--Water-stage recorder (digital). Altitude of gage is 1,400 ft (from topographic map).

Average discharge.--8 years, 16.2 cfs (11,730 acre-ft per year).

Extremes.--Maximum discharge during year, 976 cfs Jan. 5 (gage height, 6.02 ft) from rating curve extended above 240 cfs as explained below; minimum daily, 0.6 cfs Oct. 1.

1957-65: Maximum discharge, 2,160 cfs Apr. 6, 1963 (gage height, 7.05 ft), from rating curve extended above 240 cfs on basis of slope-area measurement at gage height 5.96 ft; no flow Aug. 17, 22, 1960.

Remarks.--Records good except those for period of no gage-height record, which are poor. Some diversion above station for irrigation.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method use Dec. 19)

Oct. 1 to Dec. 19

Dec. 19 to Sept. 30

0.9	0.4	1.8	10	1.1	1.3	3.0	69
1.0	.8	2.1	18	1.3	2.9	3.5	113
1.1	1.3	2.5	34	1.6	6.2	4.0	178
1.2	2.0	3.0	61	1.9	12	4.5	270
1.3	2.8	3.5	99	2.2	21	5.0	400
1.5	4.7	4.0	159	2.5	35	5.5	620

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.6	2.5	46	29	18	10	25	19	5.5	4.2	5.6	2.8
2	.9	12	34	28	17	10	57	18	5.6	4.2	3.2	2.3
3	1.2	7.0	18	43	17	9.8	20	17	5.8	4.0	3.0	3.4
4	1.5	5.0	12	143	17	9.6	15	15	6.2	3.9	3.1	3.3
5	1.2	3.3	10	430	40	9.6	15	12	6.0	3.7	2.5	4.2
6	1.3	2.3	8.7	187	23	9.6	106	12	5.6	2.4	2.8	4.3
7	1.3	6.0	7.8	97	18	9.6	36	12	5.8	4.2	3.1	3.5
8	1.6	37	7.8	63	17	9.2	97	12	6.1	2.9	2.9	4.7
9	1.6	44	7.5	50	15	9.0	201	12	6.2	2.4	2.9	4.1
10	1.6	95	42	46	15	9.0	120	9.2	5.4	3.6	3.9	3.9
11	1.6	120	26	84	14	8.9	72	9.2	4.9	3.5	7.6	3.6
12	1.6	50	14	48	14	11	53	9.1	4.3	4.2	5.9	3.8
13	1.6	26	12	39	14	9.2	53	8.6	4.1	4.5	4.9	3.5
14	1.6	9.5	11	34	14	8.5	55	7.9	4.9	3.7	4.2	3.2
15	1.6	7.4	11	32	13	8.1	68	7.2	5.5	4.4	4.5	3.3
16	1.6	5.4	9.1	30	13	8.1	168	7.1	5.5	5.5	4.5	3.7
17	1.6	4.2	7.8	28	12	8.1	69	8.0	6.4	4.5	4.6	3.8
18	1.6	3.7	20	28	12	7.8	141	8.5	5.8	4.4	9.1	2.7
19	1.6	3.1	90	28	12	7.6	115	9.0	4.5	4.6	6.1	2.5
20	1.6	3.0	29	27	11	7.5	90	9.4	4.4	4.8	5.5	2.3
21	1.6	3.5	121	27	11	7.5	82	11	4.3	5.9	5.0	1.9
22	1.6	4.1	285	25	11	7.5	59	11	4.8	6.2	4.8	2.1
23	1.6	3.2	88	81	11	7.3	46	8.6	4.5	6.3	4.8	3.5
24	1.6	4.2	65	46	10	7.2	39	8.5	4.9	5.5	4.9	3.8
25	1.8	14	98	32	10	7.5	33	8.0	4.7	4.8	5.2	4.3
26	1.8	14	113	28	11	18	29	7.4	4.3	5.1	5.1	4.1
27	2.1	15	75	26	16	32	27	7.5	4.3	4.1	4.8	3.9
28	2.4	116	63	23	11	12	25	7.5	4.1	4.2	4.3	3.9
29	2.2	27	66	22	-----	10	23	6.3	4.1	4.3	4.2	3.9
30	2.1	26	58	20	-----	9.8	21	4.0	4.1	5.7	3.3	3.3
31	2.1	-----	42	20	-----	9.8	-----	4.6	-----	7.8	3.0	-----
Total	49.7	673.4	1497.7	1844	417	303.8	1960	306.6	152.6	139.5	139.3	103.6
Mean	1.60	22.4	48.3	59.5	14.9	9.96	65.3	9.89	5.09	4.50	4.49	3.45
Ac-ft	99	1340	2970	3650	827	612	3890	608	303	277	276	205

Calendar year 1964 Max 122 Min 0.1 Mean 9.99 Ac-ft 7,260  
Water year 1964-65 Max 430 Min 0.6 Mean 20.8 Ac-ft 15,070

Peak discharge (base, 300 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-22	0700	5.62	692	4-9	0700	4.74	325
12-26	1430	5.14	456	4-16	0730	5.11	444
1-5	1430	6.02	976				

Note.--No gage-height record Oct. 12 to Nov. 24.

## SACRAMENTO RIVER BASIN

11-3733. Little Cow Creek near Ingot, Calif.

Location.--Lat 40°44'45", long 122°03'40", in SE 1/4 sec. 2, T.33 N., R.2 W., on right bank 1.8 miles northeast of Ingot and 7 miles southwest of Round Mountain.

Drainage area.--60.6 sq mi.

Records available.--March 1957 to September 1965(discontinued).

Gage.--Water-stage recorder. Altitude of gage is 1,140 ft (from topographic map).

Average discharge.--8 years, 140 cfs (101,400 acre-ft per year).

Extremes.--Maximum discharge during year, 9,270 cfs Dec. 22 (gage height, 17.10 ft), from rating curve extended above 3,300 cfs; minimum daily, 5.6 cfs Oct. 5, 6.  
1957-65: Maximum discharge, that of Dec. 22, 1964; minimum, 3.8 cfs Sept. 17, 1962.

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

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

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.6	46	401	440	179	91	165	203	51	20	13	11
2	6.3	94	413	402	168	84	310	180	48	20	13	11
3	6.8	36	191	424	157	84	152	163	45	19	13	11
4	6.7	25	121	899	152	88	121	154	42	19	13	11
5	5.6	24	92	3,620	230	79	114	144	41	18	13	11
6	5.6	23	76	1,580	196	76	458	136	39	18	12	11
7	6.3	23	66	666	161	72	224	128	37	17	12	11
8	7.0	34	61	420	149	69	453	120	38	17	12	11
9	6.8	636	59	335	139	69	1,020	111	35	16	12	11
10	6.9	639	354	341	132	69	595	108	32	16	13	11
11	7.1	524	311	566	124	68	371	104	32	16	16	11
12	7.6	250	133	393	117	76	275	100	31	15	20	11
13	7.7	89	99	311	114	71	269	103	31	15	17	11
14	8.1	60	84	280	110	66	263	100	33	15	16	11
15	8.0	47	74	280	104	65	385	98	36	14	15	11
16	8.2	42	70	265	98	64	894	92	31	14	14	10
17	8.0	37	61	245	96	64	460	88	36	14	15	10
18	7.9	34	63	239	93	62	898	83	35	14	16	10
19	8.0	33	615	235	89	60	913	84	31	13	15	10
20	8.3	31	381	224	86	58	738	83	30	13	15	10
21	8.1	30	1,580	216	85	59	773	80	30	13	16	10
22	8.1	33	4,840	199	85	61	554	81	28	13	16	9.8
23	7.3	30	1,670	665	82	60	418	72	26	13	16	9.6
24	7.9	34	1,320	544	80	60	347	67	25	13	16	9.5
25	8.1	76	1,530	362	78	61	307	63	24	13	15	9.6
26	8.4	131	1,410	294	79	91	284	61	23	13	15	10
27	9.7	94	925	255	165	167	264	59	22	13	14	10
28	14	961	757	231	103	97	252	58	21	13	14	10
29	23	262	702	211	-----	80	243	56	21	13	13	10
30	20	176	690	198	-----	73	224	55	20	13	12	9.7
31	14	-----	567	192	-----	73	-----	53	-----	13	11	-----
Total	272.1	4,554	19,721	15,532	3,451	2,317	12,749	3,087	974	466	443	313.2
Mean	8.78	152	636	501	123	74.7	425	99.6	32.5	15.0	14.3	10.4
Ac-ft	540	9,030	39,120	30,810	6,850	4,600	25,290	6,120	1,930	924	879	621

Calendar year 1964 Max 4,840 Min 4.9 Mean 103 Ac-ft 74,470  
Water year 1964-65 Max 4,840 Min 5.6 Mean 175 Ac-ft 126,700

Note.--No gage-height record June 22 to Sept. 30.

11-3740. Cow Creek near Millville, Calif.

Location.--Lat 40°30'20", long 122°13'55", in NE 1/4 sec. 32, T. 31 N., R. 3 W., on right bank 4.2 miles southwest of Millville and 4.3 miles downstream from Little Cow Creek.

Drainage area.--425 sq mi.

Records available.--October 1949 to September 1965.

Gage.--Water-stage recorder (Digital). Altitude of gage is 400 ft (from topographic map).

Average discharge.--16 years, 635 cfs (459,700 acre-ft per year).

Extremes.--Maximum discharge during year, 32,700 cfs Jan. 5 (gage height, 19.00 ft); minimum daily, 11 cfs Oct. 6. 1949-65: Maximum discharge, 45,200 cfs Dec. 27, 1951 (gage height, 21.55 ft); minimum, 1.0 cfs Aug. 22, 1960.

Remarks.--Records good except those for period of no gage-height record, which are fair. Numerous small diversions above station for irrigation. Records of chemical analyses for the water year 1965 are published in Part 2 of this report.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	17	99	2130	1660	752	403	470	881	225	78	49	38
2	18	317	1590	1480	722	384	2220	790	213	77	44	32
3	17	224	951	4420	668	380	920	714	207	72	37	22
4	17	137	574	7120	644	376	680	655	198	72	35	31
5	13	114	422	16800	1400	373	596	610	199	66	38	40
6	11	124	336	7780	1320	362	4500	574	195	57	37	42
7	16	99	290	3790	836	356	1710	544	186	51	40	43
8	22	135	267	2330	746	348	4150	515	189	49	42	42
9	24	1840	264	1770	680	345	7820	476	172	47	36	41
10	24	2160	352	1540	626	345	3680	448	161	45	37	40
11	26	2170	1400	3100	590	345	2330	426	161	52	51	39
12	24	1990	627	1900	560	428	1530	413	150	51	160	41
13	19	520	448	1490	540	384	1340	404	138	42	117	41
14	22	300	375	1300	525	356	1290	404	148	43	83	38
15	26	211	348	1220	505	345	1300	392	172	43	68	37
16	24	172	307	1180	475	342	4390	371	145	41	58	36
17	23	152	270	1090	456	338	2130	359	156	43	44	36
18	25	139	258	1050	448	331	4690	352	175	39	78	37
19	20	132	3760	1020	432	320	4140	348	148	41	60	44
20	21	126	1860	997	424	317	3000	356	128	39	47	41
21	24	122	5060	969	420	314	3720	356	116	38	53	36
22	29	134	18200	908	416	317	2520	371	112	37	58	42
23	28	132	7500	1820	396	320	1920	340	94	38	56	40
24	30	128	4580	2600	384	338	1620	304	93	35	53	37
25	31	403	4180	1600	380	328	1400	284	94	38	51	37
26	33	741	5780	1330	380	366	1270	270	98	41	50	45
27	42	383	3850	1140	560	938	1170	258	93	43	47	55
28	73	3340	3110	1040	470	550	1090	245	91	44	45	52
29	130	1770	2790	955	-----	420	1040	239	74	39	42	47
30	124	856	2790	908	-----	388	958	230	74	40	37	42
31	103	-----	2410	878	-----	384	-----	230	-----	45	33	-----
Total	1056	19170	77079	77185	16755	11846	70094	13159	4409	1486	1686	1194
Mean	34.1	639	2486	2490	598	382	2336	424	147	47.9	54.4	39.8
Ac-ft	2090	38020	152900	153100	33230	23500	139000	26100	8750	2950	3340	2370

Calendar year 1964 Max 18,200 Min 2.0 Mean 420 Ac-ft 304,700  
 Water year 1964-65 Max 18,200 Min 11 Mean 809 Ac-ft 585,400

Peak discharge (base, 10,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-22	1330	18.46	30,300	4-9	0830	11.64	11,900
1-5	1700	19.00	32,700				

Note.--No gage-height record Aug. 19 to Sept. 17.

11-3740.6 Shingle Creek near Shingletown, Calif.

Location.--Lat 40°30'00", long 121°58'20", in NW $\frac{1}{4}$  sec. 34, T.31 N., R.1 W. on right bank 10 ft upstream from culvert on State Highway 44 and 4.5 miles west of Shingletown.

Drainage area.--3.25 sq mi.

Records available.--Water years 1961-63 (annual maximum), October 1963 to September 1965.

Gage.--Water-stage recorder, crest-stage gage, and tipping-bucket rain gage. Altitude of gage is 2,410 ft (from topographic map). Prior to Oct. 1, 1963, crest-stage gages only, at site 10 ft downstream at same datum.

Extremes.--Maximum discharge during year, 197 cfs Jan. 5 (gage-height, 3.86 ft); no flow for several months.

1960-65: Maximum discharge, that of Jan. 5, 1965.

1963-64: No flow for several months each year.

Remarks.--Records good except those for period of no gage-height record, which are poor. No regulation or diversion above station.

Rating table (gage-height, in feet, and discharge, in cubic feet per second)

1.2	0	1.8	10
1.3	.2	2.0	21
1.4	.6	2.3	41
1.5	1.4	2.8	82
1.6	2.9	3.2	122
1.7	6.0		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	6.8	3.2	2.5	1.9	9.2	2.4	0.2			
2		0	4.8	7.4	2.4	1.9	15	2.9	.2			
3		0	4.4	10	2.4	1.9	6.4	2.9	.1			
4		0	4.1	45	2.4	2.0	4.8	2.9	.1			
5		0	4.1	119	13	2.0	5.6	2.9	.2			
6		0	3.8	50	7.6	2.0	20	2.7	.2			
7		0	3.6	25	4.4	2.0	10	2.9	.2			
8		.1	3.3	12	3.8	1.9	23	2.7	.2			
9		17	3.1	9.2	3.3	1.9	30	2.7	.2			
10		13	4.1	3.4	3.1	1.9	18	2.7	.2			
11		14	3.6	17	2.9	1.8	13	2.4	.2			
12		6.4	3.1	9.2	2.7	6.2	9.2	2.0	.2			
13		3.3	2.7	6.8	2.7	2.4	8.4	1.8	.2			
14		2.5	2.5	6.0	2.5	2.0	9.8	1.3	.3			
15		2.2	2.5	5.2	2.5	1.9	9.2	1.0	.2			
16		1.8	2.2	4.4	2.5	1.9	7.6	.9	.2			
17		1.4	2.0	4.1	2.4	1.9	6.8	.8	.3			
18		1.1	3.6	3.8	2.2	1.8	14	.7	.3			
19		.9	10	3.6	2.2	1.6	10	.6	.2			
20		.8	4.4	3.6	2.0	1.6	8.4	.5	.2			
21		.9	13	4.1	2.0	1.6	7.2	.5	.2			
22		1.8	71	3.3	1.9	1.6	7.2	.4	.1			
23		1.5	30	5.6	1.9	1.9	5.6	.4	.1			
24		2.0	20	4.4	1.8	3.8	4.8	.4	.1			
25		4.8	14	3.6	1.6	2.2	4.4	.4	.1			
26		3.0	22	3.1	1.8	3.8	3.8	.3	.1			
27		5.2	16	2.9	3.3	18	3.6	.3	.1			
28		15	13	2.9	2.0	5.2	3.3	.3	0			
29		6.4	13	2.7	-----	4.4	3.1	.3	0			
30		6.4	13	2.7	-----	3.8	2.7	.3	0			
31		-----	12	2.5	-----	4.1	-----	.2	-----			
Total	0	116.5	315.7	395.7	85.8	92.9	282.1	43.5	4.9	0	0	0
Mean	0	3.88	10.2	12.8	3.06	3.00	9.40	1.40	.16	0	0	0
Ac-ft	0	231	626	785	170	184	560	86	9.7	0	0	0
(†)	2.1	11.5	10.0	5.8	1.4	4.3	7.5	0	0	0	1.9	0

Calendar year 1964 Max 71 Min 0 Mean 1.81 Ac-ft 1,310  
 Water year 1964-65 Max 119 Min 0 Mean 3.66 Ac-ft 2,650

† Precipitation, in inches

Note.--No gage-height record May 17 to June 2



11-3741. Bear Creek near Millville, Calif.

Location.--Lat 40°31'50", long 122°06'30", in SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.20, T.31 N., R.2 W., on right bank 10 feet downstream from bridge on State Highway 44 and 3.8 miles southeast of Millville.

Drainage area.--75.6 sq mi.

Records available.--October 1959 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 720 ft (from topographic map).

Average discharge.--6 years, 79.4 cfs (57,480 acre-ft per year).

Extremes.--Maximum discharge during year, 3,110 cfs Jan. 5 (gage height, 10.34 ft), from rating curve extended above 1,100 cfs; minimum daily, 5.1 cfs Oct. 3, 6.

1959-65: Maximum discharge, 3,140 cfs Dec. 1, 1961 (gage height, 10.44 ft), from rating curve extended above 1,100 cfs; minimum, 2.6 cfs Sept. 9, 1961.

Revisions.--The maximum discharge for the water year 1960 has been revised to 1,630 cfs (gage height, 8.64 ft), superseding figure published in Water Supply Paper 1715.

Remarks.--No storage or diversion above station.

Cooperation.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

Revisions.--Revised figures of discharge for high-water periods in water year 1960 superseding figures published in Water Supply Paper 1715 are given herewith:

Date	Discharge in cfs	Date	Discharge in cfs
1960		1960	
Feb. 1	454	Feb. 10	411
7	912	Mar. 5	448
8	707	7	636
9	417	8	426

Month	Cfs-days	Maximum	Minimum	Mean	Acre-ft
Feb. 1960	5,654	912	53	195	11,210
Mar. 1960	4,960	636	49	160	9,840
Water year 1959-60	-	912	4.2	49.4	35,850
Calendar year 1960	-	1,350	4.2	62.7	45,500

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.4	24	181	260	176	100	121	100	34	17	12	10
2	5.4	36	145	245	167	92	303	103	34	16	12	10
3	5.1	25	95	339	157	89	185	95	31	15	10	9.9
4	5.4	22	71	709	148	86	138	91	32	14	10	12
5	5.9	20	60	2,010	313	83	120	87	32	15	10	12
6	5.1	19	53	1,160	337	84	368	83	31	12	9.7	12
7	6.1	19	50	691	209	83	274	80	31	12	11	13
8	7.5	22	47	462	187	78	437	76	32	12	11	11
9	7.2	371	47	380	164	76	680	67	29	14	11	12
10	7.7	296	50	353	151	75	425	68	28	14	11	11
11	7.6	228	80	531	257	73	333	64	24	13	18	10
12	8.1	203	56	394	134	104	257	60	26	13	27	11
13	7.7	82	47	329	129	95	237	56	26	11	19	10
14	8.5	52	46	300	129	80	237	55	29	10	16	12
15	8.7	41	47	298	119	75	258	52	26	9.1	16	13
16	9.0	37	47	283	114	71	405	48	25	8.6	15	12
17	9.2	34	44	261	108	68	272	45	24	9.0	14	12
18	8.9	31	49	253	104	67	412	45	28	8.4	20	12
19	9.2	29	293	254	99	64	359	42	24	9.2	18	11
20	8.6	27	222	244	97	62	283	43	23	9.9	15	11
21	8.9	26	668	242	95	60	270	45	23	12	13	11
22	9.1	32	1,870	223	94	59	270	49	23	11	13	11
23	8.8	27	954	379	88	57	216	45	20	9.5	11	11
24	9.0	27	585	510	84	87	187	41	19	9.7	13	10
25	9.0	48	410	328	83	66	166	37	18	9.3	15	9.7
26	11	129	464	274	81	84	153	34	19	9.6	15	11
27	12	66	523	243	182	260	141	33	20	11	13	12
28	16	264	382	222	119	179	130	32	19	10	9.6	13
29	22	175	365	205	-----	122	121	31	17	8.0	10	11
30	21	106	388	198	-----	107	112	31	17	11	9.8	11
31	18	-----	325	189	-----	97	-----	31	-----	12	9.7	-----
Total	291.1	2,518	8,664	12,769	4,125	2,783	7,870	1,769	764	355.3	416.8	337.6
Mean	9.39	83.9	280	412	147	89.8	262	57.1	25.5	11.5	13.4	11.3
Ac-ft	577	4,990	17,190	25,330	8,180	5,520	15,610	3,510	1,520	705	827	670
Calendar year 1964	Max	1,870	Min	2.7	Mean	56.8	Ac-ft	41,270				
Water year 1964-65	Max	2,010	Min	5.1	Mean	117	Ac-ft	84,630				

11-3744. Middle Fork Cottonwood Creek near Ono, Calif.

Location.--Lat 40°23'25", long 122°31'15", in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.3, T.29 N., R.6 W., on left bank 0.4 mile upstream from North Fork and 7.8 miles southeast of Ono.

Drainage area.--249 sq mi.

Records available.--October 1956 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 550 ft (from topographic map).

Average discharge.--9 years, 223 cfs (161,400 acre-ft per year).

Extremes.--Maximum discharge during year, 13,500 cfs Dec. 22 (gage height, 19.08 ft, from floodmark in gage well) from rating curve extended above 7,800 cfs on basis of slope-area measurement of maximum flow; minimum daily, 2.8 cfs Oct. 5.  
1956-65: Maximum discharge, that of Dec. 22, 1964; minimum daily, 1.2 cfs Aug. 28, 1964.

Remarks.--Records good except those for period of no gage-height record, which are fair. No regulation or diversion above station. Records of chemical analyses and suspended sediment loads at or near this gaging station for the water year 1965 are published in Part 2 of this report.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.8	48	626	910	712	250	147	374	117	51	20	14
2	3.5	97	520	871	642	232	179	354	115	48	20	14
3	3.2	61	383	964	578	220	163	339	114	46	18	14
4	3.0	37	264	936	528	210	143	322	112	45	18	13
5	2.8	27	204	3,070	542	210	145	304	112	42	16	12
6	3.2	22	166	2,500	495	220	165	286	110	41	16	12
7	3.5	19	142	1,880	450	218	147	274	108	38	15	12
8	3.5	33	124	1,270	418	204	1,060	254	104	37	14	13
9	3.5	100	122	1,090	390	198	962	251	103	34	14	13
10	3.5	295	126	1,030	368	196	703	243	98	32	14	13
11	3.5	470	245	1,110	350	194	456	232	92	31	16	12
12	3.2	334	184	1,130	336	202	392	222	88	32	26	12
13	3.8	189	149	1,090	318	202	418	215	85	31	28	11
14	3.8	110	132	1,030	310	185	505	211	84	30	22	11
15	3.8	78	124	1,050	294	179	694	194	86	29	19	11
16	4.0	65	110	1,090	284	174	1,150	184	81	27	16	9.8
17	4.0	55	99	1,070	272	170	841	182	79	26	16	8.8
18	3.5	49	92	1,080	264	163	1,760	173	81	24	21	8.8
19	3.5	44	156	1,110	258	156	2,160	168	75	23	23	9.3
20	3.8	41	211	1,090	258	150	2,310	168	72	23	21	10
21	4.0	40	3,930	1,000	260	147	1,850	176	68	23	20	10
22	4.0	61	11,000	907	256	150	1,060	166	66	23	18	10
23	4.2	53	7,500	1,240	246	149	790	151	64	23	18	10
24	4.2	52	3,640	2,020	236	145	650	145	62	21	20	10
25	4.2	107	2,800	1,280	226	141	572	139	60	20	20	9.8
26	5.0	128	2,610	1,070	226	143	525	134	61	20	20	9.8
27	6.8	100	2,530	922	326	163	485	129	59	20	19	10
28	14	277	1,840	805	278	147	452	126	55	20	18	11
29	46	383	1,340	754	-----	138	428	122	52	20	16	12
30	44	309	1,190	775	-----	141	399	120	52	19	14	11
31	30	-----	1,040	775	-----	141	-----	118	-----	19	14	-----
Total	236.8	3,684	43,599	36,919	10,121	5,538	21,711	6,476	2,515	918	570	337.3
Mean	7.64	123	1,406	1,191	361	179	724	209	83.8	29.6	18.4	11.2
Ac-ft	470	7,310	86,480	73,230	20,070	10,980	43,060	12,840	4,990	1,820	1,130	669

Calendar year 1964 Max 11,000 Min 1.2 Mean 188 Ac-ft 136,800  
Water year 1964-65 Max 11,000 Min 2.8 Mean 363 Ac-ft 263,000

Peak discharge (base, 1,800 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-22	about	19.08	13,500	4-8	1830	8.52	2,200
1-5	1330	11.56	5,280	4-18	2000	8.88	2,520
1-23	2300	8.74	2,400	4-20	2200	11.98	5,740

Note.--No gage-height record Dec. 22, 23.

11-3760. Cottonwood Creek near Cottonwood, Calif.

Location.--Lat 40°23'10", long 122°14'15", in NE $\frac{1}{4}$  sec.7, T.29 N., R.3 W., on right bank 2 miles east of Cottonwood and 2.4 miles upstream from mouth.

Drainage area.--922 sq mi.

Records available.--October 1940 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 364.0 ft above mean sea level (levels by Corps of Engineers). Prior to July 26, 1963, at site 250 ft upstream, at datum 3.59 ft higher.

Average discharge.--25 years, 810 cfs (586,400 acre-ft per year); median of yearly mean discharges, 620 cfs (449,000 acre-ft per year).

Extremes.--Maximum discharge during year, 60,000 cfs Dec. 22 (gage height, 19.64 ft); minimum daily, 50 cfs Oct. 5. 1940-65: Maximum discharge, that of Dec. 22, 1964; minimum, 15 cfs for several days in September 1945.

Remarks.--Records good except those above 20,000 cfs, which are fair. Small diversions for irrigation above station. At times during irrigation season, Cottonwood Creek receives water above station from Sacramento River by way of Anderson-Cottonwood Canal. Records of chemical analyses, water temperatures, and suspended sediment loads for the water year 1965 are published in Part 2 of this report.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	52	180	1540	3150	1970	718	452	1600	430	192	90	78
2	52	403	1380	2960	1850	664	550	1410	425	188	89	81
3	53	282	1190	4240	1770	632	550	1320	422	182	92	79
4	52	182	872	4060	1670	605	470	1120	406	178	85	81
5	50	147	685	13700	1700	585	452	1000	394	171	84	77
6	54	125	552	8590	1650	600	575	948	390	150	82	77
7	56	109	474	5320	1550	615	535	933	394	141	81	79
8	59	123	414	3730	1410	580	4120	884	394	141	79	84
9	66	349	386	3150	1280	555	7080	842	382	129	82	82
10	65	1680	392	2910	1210	550	3610	779	362	123	84	77
11	68	1690	667	3090	1150	545	2240	737	354	126	93	74
12	73	2180	625	3020	1090	550	1670	718	346	135	115	77
13	70	830	498	2840	1020	580	1520	700	334	129	120	75
14	71	522	438	2710	992	540	1740	688	326	129	110	72
15	70	372	403	2700	950	515	2100	676	326	126	92	72
16	66	289	372	2730	896	502	3740	654	314	126	85	75
17	73	232	337	2720	854	492	2890	642	302	115	84	70
18	82	200	308	2750	802	479	3830	637	302	118	118	69
19	70	175	680	2850	770	461	5460	615	286	108	141	68
20	66	161	718	2840	748	452	4630	605	298	95	135	68
21	70	150	6940	2660	748	434	7560	605	314	95	129	70
22	62	178	40200	2390	736	430	4260	620	302	100	102	71
23	64	195	26600	2460	715	430	3350	580	290	100	105	71
24	75	173	14300	4320	685	430	2750	545	269	102	100	77
25	85	247	10000	3110	640	421	2400	520	272	102	105	75
26	96	426	9070	2580	611	417	2200	502	276	102	112	79
27	105	340	7580	2280	814	466	2090	484	227	98	105	78
28	130	603	5520	2090	872	452	2010	452	216	100	84	77
29	187	1210	4500	2000	-----	417	1960	448	202	100	87	74
30	256	872	4070	2010	-----	417	1830	438	196	92	89	77
31	197	-----	3720	2030	-----	434	-----	438	-----	93	85	-----
Total	2595	14625	145431	107990	31153	15968	78624	23140	9751	3886	3044	2264
Mean	83.7	488	4691	3484	1113	515	2620	746	325	125	98.2	75.5
Ac-ft	5150	29010	288500	214200	61790	31670	155900	45900	19340	7710	6040	4490

Calendar year 1964 Max 40,200 Min 41 Mean 227,740 Ac-ft 451,760  
 Water year 1964-65 Max 40,200 Min 50 Mean 438,471 Ac-ft 869,700

Peak discharge (base, 7,100 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-11	2300	11.10	7,250	4-9	0500	12.96	10,300
12-22	1430	19.64	60,000	4-21	0200	13.45	12,200
1-5	1730	16.69	28,500				

11-3765.5. Battle Creek below Coleman Fish Hatchery, near Cottonwood, Calif.

Location.--Lat 40°23'55", long 122°08'45", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.1, T.29 N., R.3 W., on right bank 3.7 miles downstream from Spring Branch, 5.7 miles upstream from mouth, and 7.0 miles east of Cottonwood.

Drainage area.--358 sq mi.

Records available.--October 1961 to September 1965. October 1940 to September 1961 at site 0.6 mile upstream published as "near Cottonwood;" low flow records not equivalent owing to Coleman Fish Hatchery diversion.

Gage.--Water-stage recorder (digital). Altitude of gage is 415 ft (from topographic map).

Extremes.--1962-63: Maximum discharge during water year, 7,650 cfs Oct. 12 (gage height, 11.31 ft); minimum daily, 210 cfs Oct. 1. 1964-65: Maximum discharge during water year, 9,930 cfs Dec. 22 (gage height, 12.52 ft); minimum daily, 204 cfs Oct. 22, 24, 25. 1940-65: Maximum discharge, 12,800 cfs Feb. 6, 1942 (gage height, 11.85 ft, site and datum then in use). 1961-65: Minimum discharge, 52 cfs Aug. 8, 1962. Maximum stage known, 15.8 ft Dec. 11, 1937, from floodmarks at former site and datum (discharge, 35,000 cfs, by slope-area measurement).

Remarks.--Records good. Flow regulated by four small powerplants, several small reservoirs, and Coleman Fish Hatchery. Coleman Fish Hatchery diverts 50 to 90 cfs which is returned above the station. About 10 cfs diverted above station for irrigation. Maximum flows considered equivalent to former station Battle Creek near Cottonwood. Records of chemical analyses and suspended sediment loads for the water year 1965 are published in Part 2 of this report.

Revisions.--Revised figures of discharge for the water year 1963 superseding those published in Surface Water Records of California, Volume 2 are given herein.

Discharge, in cubic feet per second, water year October 1962 to September 1963

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	210	322	358	376	2,780	435	598	734	630	368	255	232
2	228	322	368	372	1,430	430	520	740	595	363	250	228
3	232	322	952	368	1,570	425	496	856	560	354	250	219
4	237	318	561	368	1,220	410	472	814	535	354	250	242
5	232	318	471	358	1,080	405	526	788	520	354	246	242
6	224	314	435	354	897	410	1,730	788	510	358	242	250
7	224	309	417	350	796	405	2,380	849	485	354	242	246
8	232	314	399	354	766	400	1,670	933	466	350	246	246
9	237	314	386	345	742	405	1,240	891	458	340	246	246
10	312	354	381	345	718	395	1,520	807	471	332	250	237
11	583	340	376	327	688	385	1,260	814	453	318	250	242
12	4,140	327	368	314	706	375	1,020	770	444	314	242	242
13	2,810	322	354	309	834	370	1,220	728	440	309	242	255
14	1,580	318	372	322	682	365	3,030	722	485	322	242	242
15	709	314	551	332	616	380	2,150	704	480	318	237	246
16	548	309	881	327	610	400	1,330	704	462	296	237	246
17	462	309	3,680	322	670	390	1,070	728	476	296	241	250
18	422	309	1,220	318	598	385	925	752	466	291	246	255
19	408	309	720	318	568	385	925	740	453	282	242	255
20	390	309	592	314	562	390	834	794	444	278	237	255
21	381	304	534	318	556	385	778	821	435	273	232	250
22	376	304	498	318	526	385	925	800	422	268	232	255
23	358	304	480	317	502	405	772	758	417	268	242	260
24	354	300	453	318	484	400	748	752	408	268	242	255
25	350	300	422	314	472	385	736	728	394	268	242	250
26	350	360	412	314	460	380	724	698	386	268	237	246
27	340	664	408	309	450	499	706	670	381	264	232	242
28	336	444	399	309	440	1,160	712	655	386	264	232	242
29	332	390	390	327	-----	706	700	655	386	260	242	237
30	327	363	381	1,800	-----	592	712	635	376	255	237	237
31	327	-----	381	3,080	-----	604	-----	665	-----	255	232	-----
Total	18,251	10,106	18,600	14,517	22,423	13,846	32,429	23,493	13,824	9,462	7,495	7,350
Mean	589	337	600	468	801	447	1,081	758	461	305	242	245
Ac-ft	36,200	20,040	36,890	28,790	44,480	27,460	64,320	46,600	27,420	18,770	14,870	14,580
Calendar year 1962	Max	4,140	Min	210	Mean	422	Ac-ft	305,300				
Water year 1962-63	Max	4,140	Min	210	Mean	525	Ac-ft	380,400				

Peak discharge (base, 2,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
10-12	1800	11.31	7,650	1-31	1400	8.72	4,540
12-17	1600	8.83	4,680	4-14	1030	9.17	5,080

## SACRAMENTO RIVER BASIN

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11-3765.5. Battle Creek below Coleman Fish Hatchery, near Cottonwood, Calif.--Continued

Discharge, in cubic feet per second, water year October 1964 to September 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	222	258	706	876	685	540	545	869	585	405	255	267
2	222	298	620	848	665	520	918	796	571	398	255	269
3	217	289	515	2,110	655	515	595	742	570	397	262	270
4	217	266	440	2,150	645	505	530	706	581	403	282	270
5	217	271	400	4,590	1,050	500	515	675	588	399	277	270
6	217	262	380	2,500	1,250	500	718	645	575	394	280	270
7	217	258	365	1,570	730	510	655	620	565	387	274	268
8	222	253	365	1,150	685	500	1,150	610	546	378	271	283
9	222	1,300	380	976	655	500	1,340	610	536	375	273	284
10	222	1,050	395	911	630	480	1,020	605	534	376	268	276
11	222	595	630	1,210	615	475	953	625	533	371	303	275
12	222	525	485	1,030	600	610	730	630	533	371	417	271
13	222	420	420	897	595	585	695	640	512	357	328	277
14	222	355	390	827	595	525	680	640	498	359	299	272
15	222	310	405	814	575	505	748	635	509	349	286	273
16	217	310	395	802	565	495	1,590	655	482	340	277	266
17	217	315	370	766	555	500	968	645	436	338	277	276
18	212	286	370	742	550	490	1,090	630	539	339	340	288
19	208	305	848	724	545	485	1,120	645	491	336	372	287
20	212	296	585	748	545	480	1,060	630	472	326	312	280
21	208	291	1,960	742	545	480	1,090	645	480	324	301	281
22	204	300	7,080	712	545	485	1,050	600	478	324	304	280
23	222	291	5,370	890	530	490	925	575	469	320	291	271
24	204	296	3,030	1,440	525	580	876	560	462	316	293	277
25	204	350	2,350	976	520	520	848	555	461	313	288	282
26	208	784	3,610	841	515	515	848	560	454	309	284	280
27	222	470	2,340	778	620	936	883	560	438	312	282	277
28	244	520	1,520	742	585	643	883	565	424	302	282	281
29	266	575	1,250	712	-----	545	918	575	409	295	277	276
30	262	480	1,150	700	-----	505	890	580	407	268	270	275
31	244	-----	1,130	694	-----	495	-----	585	-----	255	267	-----
TOTAL	6,859	12,584	40,254	35,468	17,775	16,414	26,831	19,613	15,188	10,736	9,047	8,272
MEAN	221	419	1,299	1,144	635	529	894	633	506	346	292	276
AC-FT	13,600	24,960	79,840	70,350	35,260	32,560	53,220	38,900	30,120	21,290	17,940	16,410

CALENDAR YEAR 1964	MAX	7,080	MIN	178	MEAN	397	AC-FT	286,400
WATER YEAR 1964-65	MAX	7,080	MIN	204	MEAN	600	AC-FT	434,400

Peak discharge (base, 2,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-9	1230	6.89	2,550	1-5	1630	11.72	8,730
12-22	1145	12.52	9,930	2-6	0100	6.93	2,590
12-26	1730	12.16	9,390				

## SACRAMENTO RIVER BASIN

11-3775. Paynes Creek near Red Bluff, Calif.

Location.--Lat 40°15'50", long 122°11'10", in SE $\frac{1}{4}$  sec.22, T.28 N., R.3 W., on right bank 0.4 mile upstream from mouth and 6.5 miles northeast of Red Bluff.

Drainage area.--92.7 sq mi.

Records available.--October 1949 to September 1965.

Gage.--Water-stage recorder (digital). Altitude of gage is 360 ft (from topographic map).

Average discharge.--16 years, 72.9 cfs (52,780 acre-ft per year).

Extremes.--Maximum discharge during year, 7,500 cfs Jan. 5 (gage height, 9.97 ft); no flow many days.  
1949-65: Maximum discharge, 10,600 cfs Dec. 1, 1961 (gage height, 11.33 ft); no flow at times in most years.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Diversions up to 10 cfs at times above station for irrigation. Records of chemical analyses for the water year 1965 are published in Part 2 of this report.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Dec. 24, 25, Dec. 28 to Jan. 2, Jan. 8-23)

Oct. 1 to Dec. 22				Dec. 23 to Sept. 30			
2.1	0	3.5	190	2.0	0	2.9	73
2.2	.7	4.0	355	2.1	.1	3.4	188
2.3	2.3	4.5	550	2.2	.7	4.0	372
2.4	5.7	5.0	810	2.3	2.3	5.0	815
2.5	11	6.0	1,510	2.4	7.2	6.0	1,510
2.6	18	7.0	2,490	2.5	15		
2.8	40	8.0	3,790	2.6	25		
3.0	70						

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	0	1.7	150	127	77	40	154	41	11	1.9	0.2	0.3
2	0	2.1	147	140	61	35	204	38	9.4	1.9	.1	.2
3	0	1.7	87	1,110	64	33	160	31	9.2	1.8	0	.2
4	0	1.5	60	1,300	60	32	140	28	8.9	1.8	0	.2
5	0	1.5	47	3,690	116	31	120	26	8.1	1.8	0	.3
6	0	1.3	39	1,220	313	31	115	25	7.5	1.5	0	.3
7	0	1.3	34	633	145	29	110	25	7.7	.7	0	.4
8	0	2.1	30	372	110	24	210	24	8.0	.7	0	.4
9	0	713	28	278	93	19	395	23	7.8	.4	0	.4
10	0	826	26	218	80	19	250	20	7.2	.5	0	.3
11	0	267	36	278	71	18	220	20	4.4	.5	0	.3
12	0	275	35	250	65	71	200	20	3.3	.5	.8	.2
13	0	182	29	176	59	79	190	20	3.6	.3	.6	.2
14	0	76	26	143	54	57	185	20	5.3	.1	.4	.1
15	0	48	26	125	49	44	300	19	5.6	.1	.3	0
16	0	36	25	112	47	39	900	17	4.9	0	.2	0
17	0	28	23	96	43	33	600	16	6.1	0	.2	0
18	0	24	23	81	40	32	450	15	6.3	0	1.8	.4
19	0	21	573	73	38	29	350	15	5.3	0	1.8	.4
20	0	20	298	68	36	26	271	15	2.8	0	.7	.5
21	0	19	589	62	35	25	300	16	2.7	0	.7	.6
22	0	18	2,720	57	35	24	258	16	2.7	0	1.1	.9
23	0	18	820	118	34	24	176	14	2.7	0	.8	.7
24	0	18	418	305	34	39	137	13	2.7	0	.7	.6
25	0	25	340	191	33	38	111	11	2.9	0	.7	.6
26	0	47	588	153	35	32	92	11	3.0	0	.6	.6
27	0	34	457	131	34	445	78	11	2.9	0	.6	.7
28	0	100	263	118	33	257	67	10	2.7	0	.6	.8
29	1.2	104	230	105	-----	158	57	10	2.3	0	.4	.7
30	.9	116	210	94	-----	123	47	10	2.0	0	.5	.9
31	.9	-----	180	86	-----	99	-----	11	-----	0	.5	-----
TOTAL	3.0	3,028.2	8,557	11,890	1,894	1,985	6,847	591	159.0	14.5	14.3	12.2
MEAN	0.10	101	276	384	67.6	64.0	228	19.1	5.30	0.47	0.46	0.41
AC-FT	6.0	6,010	16,970	23,580	3,760	3,940	13,580	1,170	315	29	28	24

CALENDAR YEAR 1964 MAX 2,720 MIN 0 MEAN 46.2 AC-FT 33,520  
WATER YEAR 1964-65 MAX 3,690 MIN 0 MEAN 95.9 AC-FT 69,410

## Peak discharge (base, 1,200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-10	1030	6.91	2,380	1- 5	1630	9.97	7,500
12-22	1145	8.67	4,900	4-16	Unknown	6.30	1,780
12-26	1915	6.28	1,760				

Note.--No gage-height record Feb. 20-25, Apr. 2-19.

11-3780. Sacramento River near Red Bluff, Calif.

Location.--Lat 40°13'55", long 122°10'50", in SE $\frac{1}{4}$  sec. 34, T.28 N., R.3 W., on left bank at lower end of Iron Canyon, 0.5 mile downstream from Sevenmile Creek and 4.6 miles northeast of Red Bluff.

Drainage area.--9,022 sq mi (revised), excluding Goose Lake basin.

Records available.--1879-88 annual observed maximums only. January 1892 to September 1965. 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, and as "at Jellys Ferry" 1895-1902.

Gage.--Water-stage recorder. Datum of gage is 253.57 ft (revised) above mean sea level, datum of 1929. Prior to January 1902, staff gage at site 16.2 miles upstream at different datum. January 1902 to December 1919, staff gage at several sites within 1 mile of present site at same datum.

Average discharge.--74 years, 11,420 cfs (8,268,000 acre-ft per year).

Extremes.--Maximum discharge during year, 170,000 cfs Dec. 22 (gage height, 28.15 ft); minimum daily, 4,140 cfs Dec. 18. 1879-88, 1892-65: Maximum discharge, 291,000 cfs Feb. 28, 1940 (gage height, 38.9 ft), from rating curve extended above 170,000 cfs on basis of velocity-area studies; minimum, 2,000 cfs Mar. 29, 1944 (gage height, -0.45 ft).

Remarks.--Records excellent. Flow regulated by Shasta Lake since Dec. 30, 1943 (see p. 754). Diversions, in addition to those on tributaries, for irrigation of about 22,000 acres between stations at Keswick and Red Bluff. Transbasin diversions from Trinity River to Whiskeytown Lake via Judge Francis Carr powerplant (see p. 758) started in April 1963. Records of chemical analyses, water temperatures, and suspended sediment loads at or near this gaging station for the water year 1965 are published in Part 2 of this report.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Dec. 23 to Jan. 12, Apr. 9, Sept. 23-30)

0.5	3,390	8.0	26,500
1.0	4,270	12.0	45,800
2.0	6,470	14.0	56,800
3.0	9,150	16.0	69,000
4.0	12,100	19.0	89,500
6.0	18,700	22.0	113,000

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8,100	5,770	10,000	28,200	25,000	6,440	5,590	9,040	9,350	10,600	11,600	10,300
2	7,380	5,930	8,700	25,700	24,400	6,220	9,260	8,700	9,320	10,700	11,500	9,660
3	6,640	6,030	7,460	37,700	21,600	6,170	7,400	8,370	9,320	10,600	11,500	9,630
4	5,980	5,660	6,000	41,600	20,900	6,120	6,320	8,080	9,320	10,600	11,500	9,600
5	5,660	5,500	5,260	74,000	22,200	6,100	6,270	7,830	9,370	10,600	11,500	9,630
6	5,610	5,300	4,890	96,600	23,600	6,080	11,200	8,050	9,350	10,500	11,500	9,600
7	5,590	5,100	4,660	70,400	21,200	6,100	9,150	11,900	9,320	10,600	11,500	9,600
8	5,610	5,210	4,500	62,900	20,600	6,300	15,600	12,000	9,350	10,600	11,500	9,580
9	5,660	9,490	4,350	59,000	19,500	6,270	32,800	11,700	9,350	11,000	11,600	9,600
10	5,680	12,600	4,350	40,900	19,100	5,960	17,800	11,700	9,320	11,200	11,600	9,600
11	5,700	9,290	5,890	33,900	16,800	5,930	13,400	11,600	9,260	11,500	11,700	9,550
12	5,680	14,700	5,410	29,900	14,800	6,340	9,890	11,400	9,210	11,600	12,000	9,520
13	5,570	7,510	4,790	26,500	14,200	6,170	8,840	11,800	9,210	11,500	11,900	9,490
14	5,500	6,220	4,540	25,800	14,100	5,640	8,870	11,800	9,150	11,500	11,800	9,490
15	5,520	5,750	4,440	25,600	14,100	5,520	9,600	11,800	9,150	11,500	11,700	9,490
16	5,540	5,450	4,360	25,400	13,000	5,450	17,300	11,800	9,090	11,500	11,700	9,460
17	5,480	5,370	4,230	25,500	11,800	5,410	12,600	12,300	9,370	11,500	11,700	9,460
18	5,480	5,150	4,140	25,400	11,700	5,340	15,100	12,600	9,780	11,500	11,900	9,490
19	5,430	5,080	10,900	25,400	11,600	5,300	21,200	12,600	10,200	11,500	12,100	9,490
20	5,390	5,000	9,640	23,400	10,300	5,300	15,300	12,600	10,200	11,500	11,900	9,520
21	5,410	4,980	19,200	22,800	9,750	5,300	21,700	12,700	10,400	11,500	12,000	9,490
22	5,390	5,000	106,000	21,400	9,720	5,230	18,000	11,800	10,400	11,500	12,000	9,490
23	5,390	5,020	100,000	20,300	9,690	5,210	12,100	11,600	10,400	11,500	11,900	9,400
24	5,410	4,980	66,800	30,300	8,620	5,430	10,500	11,500	10,300	11,500	11,900	9,350
25	5,450	5,450	58,800	28,000	8,400	5,410	9,630	10,700	10,300	11,500	11,900	8,900
26	5,570	6,750	69,200	27,600	7,510	5,430	9,070	10,300	10,300	11,500	11,600	9,870
27	5,640	6,030	71,000	26,700	7,320	7,480	8,730	9,690	10,200	11,500	10,900	8,510
28	5,860	9,010	63,600	26,100	6,900	6,720	8,430	9,400	10,300	11,500	10,800	8,760
29	6,100	11,300	50,400	25,700	-----	5,820	8,510	9,350	10,200	11,500	10,700	8,670
30	6,170	7,590	45,300	25,300	-----	5,610	9,150	9,370	9,780	11,500	10,700	8,650
31	6,030	-----	43,800	25,200	-----	5,540	-----	9,370	-----	11,500	10,700	-----
Total	179,620	202,220	813,110	1,083,200	418,410	181,440	369,910	333,450	290,570	348,600	358,300	281,750
Mean	5,794	6,741	26,230	34,900	14,940	5,853	12,330	10,760	9,686	11,250	11,570	9,392
Ac-ft	356,300	401,100	1,613,000	2,148,000	829,900	359,900	734,400	661,400	576,300	691,400	711,700	558,800
Calendar year 1964	Max	106,000	Min	4,140	Mean	10,520	Ac-ft	7,639,000				
Water year 1964-65	Max	106,000	Min	4,140	Mean	13,320	Ac-ft	9,642,000				

## SACRAMENTO RIVER BASIN

11-3790. Antelope Creek near Red Bluff, Calif.

Location.--Lat 40°12'10", long 122°07'05", in Rio De Los Berrendos Grant, on right bank 1.8 miles upstream from diversion dam of Los Molinos Mutual Water Co., 6.5 miles east of Red Bluff, Tehama County, and 9.7 miles upstream from mouth.

Drainage area.--123 sq mi.

Records available.--October 1940 to September 1965.

Gage.--Water-stage recorder (digital). Altitude of gage is 360 ft (from topographic map). Prior to Sept. 18, 1954, at site 0.6 mile downstream at different datum.

Average discharge.--25 years, 143 cfs (103,500 acre-ft per year); median of yearly mean discharges, 130 cfs (94,100 acre-ft per year).

Extremes.--Maximum discharge during year, 8,990 cfs Dec. 22 (gage height, 13.05 ft); minimum daily, 34 cfs several days in October. 1940-65: Maximum discharge, 11,500 cfs Feb. 22, 1956 (gage height, 12.43 ft); maximum gage height, 13.96 ft Oct. 12, 1962; minimum, 8.2 cfs Oct. 27, 1961.

Flood of December 1937 reached a stage of about 22 ft from floodmarks, at former site and datum.

Remarks.--Records good. Small diversion above station for Red Bluff water supply during October to June of each year. Records of chemical analyses for the water year 1965 are published in Part 2 of this report.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 21				Dec. 21 to Sept. 30			
2.3	24	5.0	523	1.9	38	6.0	1,040
2.7	57	6.0	900	2.4	86	8.0	2,190
3.0	92	7.0	1,430	3.0	167	10.0	3,960
3.5	165	8.0	2,150	4.0	349	12.0	6,860
4.0	258			5.0	630		

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	34	45	165	249	178	100	176	252	91	46	41	40
2	34	63	196	252	170	97	383	227	92	45	40	40
3	34	51	157	999	160	96	231	207	87	44	40	40
4	34	44	107	1,420	152	93	191	196	84	44	40	39
5	34	41	86	3,990	166	92	170	166	82	43	39	40
6	34	41	73	1,850	229	93	180	177	79	42	39	41
7	34	40	66	1,010	196	90	197	165	75	42	38	42
8	34	42	61	578	176	87	376	157	73	41	38	42
9	34	1,450	59	419	162	84	1,060	149	70	41	38	41
10	34	1,040	57	345	154	85	539	144	65	41	38	40
11	34	318	75	400	145	83	436	143	64	41	45	40
12	34	295	72	367	137	157	331	144	63	41	63	39
13	34	214	63	309	132	185	303	144	62	41	48	39
14	35	109	59	271	132	131	303	144	63	41	43	39
15	35	77	59	263	125	116	439	142	65	41	42	39
16	35	64	57	263	118	105	1,310	140	61	40	42	39
17	35	57	54	243	114	100	668	142	60	40	42	38
18	34	52	54	224	110	97	559	138	69	40	54	40
19	34	49	550	218	106	93	528	133	62	40	62	40
20	34	48	366	215	105	90	474	136	57	40	48	40
21	34	46	1,580	207	104	88	457	134	54	41	45	40
22	35	47	5,550	191	103	87	424	133	53	40	45	40
23	35	46	2,460	320	100	87	360	118	51	40	44	40
24	35	45	1,390	560	98	131	318	111	50	40	43	40
25	35	49	942	364	96	109	295	107	50	40	43	40
26	35	55	895	295	96	106	283	104	51	40	42	41
27	37	58	753	256	114	429	281	102	49	41	42	41
28	41	76	516	229	108	277	275	97	47	40	41	43
29	47	130	422	210	-----	200	281	97	46	39	40	41
30	45	95	371	194	-----	174	263	96	45	40	40	40
31	39	-----	314	186	-----	160	-----	94	-----	41	39	-----
TOTAL	1,102	4,787	17,629	16,897	3,806	3,922	12,091	4,459	1,920	1,276	1,344	1,204
MEAN	35.5	160	569	545	136	127	403	144	64.0	41.2	43.4	40.1
AC-FT	2,190	9,490	34,970	33,510	7,550	7,780	23,980	8,840	3,810	2,530	2,670	2,390

CALENDAR YEAR 1964	MAX	5,550	MIN	30	MEAN	113	AC-FT	82,080
WATER YEAR 1964-65	MAX	5,550	MIN	34	MEAN	193	AC-FT	139,700

## Peak discharge (base, 2,200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-10	0715	9.10	3,140	1-5	1715	12.29	7,400
12-22	1015	13.05	8,990				



11-3795. Elder Creek near Paskenta, Calif.

Location.--Lat 40°01'30", long 122°30'35", in SE 1/4 sec. 14, T.25 N., R.6 W., on left bank 2.5 miles downstream from South Fork, 8.2 miles northwest of Flournoy, and 10 miles north of Paskenta. Prior to Aug. 13, 1965, at site 300 ft downstream on right bank.

Drainage area.--92.9 sq mi.

Records available.--October 1948 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder. Altitude of gage is 720 ft (from topographic map). Prior to Aug. 13, 1965, at site 300 ft downstream at datum 5.13 ft higher.

Average discharge.--17 years, 94.0 cfs (68,050 acre-ft per year); median of yearly mean discharges, 68 cfs (49,200 acre-ft per year).

Extremes.--Maximum discharge during year, 10,300 cfs Dec. 22 (gage height, 13.23 ft), from rating curve extended above 3,500 cfs as explained below; minimum daily 0.4 cfs Oct. 6, 7.

1948-65: Maximum discharge, 11,700 cfs Feb. 24, 1958 (gage height, 13.90 ft), from rating curve extended above 3,500 cfs on basis of slope-area measurements at gage height, 10.97 and 13.90 ft; no flow at times in some years.

Remarks.--Records good except those for periods of no gage-height record, which are fair. No regulation or large diversion above station. Records of chemical analyses and suspended sediment loads for the water year 1965 are published in Part 2 of this report.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.8	185	93	190	232	70	70	219	50	19	9.2	5.1
2	.6	89	86	163	208	66	97	187	43	13	7.2	5.5
3	.5	45	72	340	184	76	80	162	46	13	6.8	5.5
4	.5	23	53	419	178	75	69	143	46	17	6.6	5.5
5	.5	19	50	3100	186	76	66	135	47	17	6.5	5.1
6	.4	14	43	1170	170	86	66	125	47	16	6.5	5.5
7	.4	12	40	626	146	75	66	117	42	16	6.4	5.5
8	.5	199	37	414	132	72	1560	110	37	16	6.3	5.5
9	.6	401	36	337	121	70	1080	103	33	15	6.3	5.1
10	.6	923	36	310	112	63	503	97	30	15	6.3	4.8
11	.6	435	43	340	105	65	363	93	23	14	7.0	4.8
12	.6	277	33	310	96	73	386	93	27	14	9.0	4.5
13	.7	117	33	280	93	74	362	96	26	13	11	4.5
14	.8	71	31	275	90	72	386	93	26	13	3.6	4.2
15	.8	53	30	313	84	70	970	84	26	13	7.7	4.2
16	.8	43	23	323	80	63	783	82	24	12	7.3	3.9
17	.8	36	26	322	75	64	526	80	24	12	6.9	3.6
18	.7	31	24	353	73	60	769	76	25	12	7.7	3.9
19	.7	23	62	386	72	54	920	73	23	12	3.6	4.2
20	.7	26	53	346	71	52	830	71	22	11	3.2	4.5
21	.7	24	3530	280	71	52	730	72	21	11	7.7	4.5
22	.8	29	7650	235	71	52	560	69	21	10	7.7	4.5
23	.8	23	2840	584	66	54	467	65	21	10	7.7	4.5
24	.8	22	1410	640	64	56	431	62	21	9.5	7.7	4.5
25	1.0	36	902	403	62	54	393	60	21	9.2	7.3	4.2
26	1.1	33	695	319	60	74	377	59	21	3.8	7.3	4.5
27	1.8	31	630	263	100	64	359	57	20	9.5	7.3	4.8
28	3.7	39	481	240	77	56	335	55	19	3.4	6.4	5.5
29	102	57	404	230	-----	54	302	53	19	3.0	6.0	5.1
30	71	50	340	255	-----	55	262	51	19	7.8	5.5	4.5
31	20	-----	272	253	-----	56	-----	50	-----	3.0	5.1	-----
Total	221.3	3,386	20,083	14,044	3,079	2,013	14,183	2,897	880	393.2	224.8	142.0
Mean	7.14	113	643	453	110	65.1	473	93.5	29.3	12.7	7.25	4.73
Ac-ft	439	6,720	39,830	27,860	6,110	4,000	28,140	5,750	1,750	780	446	282

Calendar year 1964 Max 7,650 Min 0 Mean 78.3 Ac-ft 56,830  
 Water year 1964-65 Max 7,650 Min 0.4 Mean 169 Ac-ft 122,100

Peak discharge (base, 1,200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-10	0400	9.90	4,340	1-23	1830	7.14	1,360
12-22	1100	13.23	10,300	4-8	1530	9.53	3,850
1-5	1230	12.84	9,480	4-15	1700	8.01	2,080

Note.--No gage height record Jan. 1, 2, Mar. 12-26, June 3-9, July 11 to Aug. 12.

11-3805. Elder Creek at Gerber, Calif.

Location.--Lat 40°03'05", long 122°09'53" in Saucos Grant, on right bank 1.0 mile west of Gerber, Tehama County, and 3.5 miles upstream from mouth.

Drainage area.--136 sq mi.

Records available.--October 1949 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 232.14 ft above mean sea level (from Bureau of Reclamation bench mark). Prior to Oct. 1, 1961, at site about 150 ft upstream, at datum 4.32 ft higher.

Average discharge.--16 years, 99.5 cfs (72,040 acre-ft per year); median of yearly mean discharges, 65 cfs (47,100 acre-ft per year).

Extremes.--Maximum discharge during year, 14,100 cfs Jan. 5 (gage height, 14.90 ft); no flow Oct. 1-29.  
1949-65: Maximum discharge, that of Jan. 5, 1965. No flow at times each year.

Remarks.--Records good except those for periods of no gage height record which are poor. Records of chemical analyses for the water year 1965 are published in Part 2 of this report.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	41	65	190	265	93	62	237	36	12	2.3	.7
2	0	83	83	165	227	84	130	215	36	12	1.8	1.5
3	0	40	80	290	203	70	95	188	30	9.8	2.3	1.5
4	0	21	70	500	191	69	74	170	30	9.3	1.6	1.5
5	0	14	63	3,860	206	68	69	150	31	8.4	1.4	1.0
6	0	8.9	55	1,380	194	80	70	140	31	9.3	1.4	1.5
7	0	5.1	51	813	167	84	72	123	30	8.4	1.2	1.5
8	0	4.4	46	500	148	75	1,740	114	28	10	1.6	1.5
9	0	412	40	376	135	70	2,110	108	28	7.9	1.4	1.4
10	0	947	40	324	123	69	775	100	29	7.9	1.4	1.3
11	0	424	41	336	114	66	344	96	28	7.4	2.3	1.3
12	0	427	42	320	106	72	320	95	25	4.8	1.2	1.3
13	0	137	38	282	102	75	348	93	23	4.1	.8	1.3
14	0	83	37	272	98	66	272	95	26	4.1	.7	1.2
15	0	60	36	286	93	65	769	86	25	2.9	.8	1.1
16	0	49	35	296	90	62	1,170	80	23	3.4	.9	.8
17	0	43	32	286	86	61	658	76	22	3.8	.9	.4
18	0	37	31	304	83	60	794	76	22	3.8	1.0	.4
19	0	35	45	352	83	57	1,270	69	22	3.4	1.4	.5
20	0	32	57	332	83	54	1,040	66	21	2.9	1.4	.5
21	0	30	1,660	262	81	53	1,000	66	19	2.5	1.6	.5
22	0	32	8,360	212	80	53	712	68	18	2.3	1.0	.5
23	0	31	3,700	363	78	54	525	60	18	2.3	.7	.5
24	0	28	1,650	904	75	57	450	53	16	2.3	.7	.5
25	0	29	960	515	74	54	402	51	16	2.7	.7	.4
26	0	40	694	389	75	53	363	49	16	4.1	.6	.4
27	0	37	628	312	102	66	352	46	15	2.7	.5	.4
28	0	35	480	268	104	57	336	44	14	2.0	.5	.4
29	0	48	402	240	-----	52	308	42	14	1.8	.6	.3
30	42	49	328	262	-----	52	272	39	14	1.8	.5	.3
31	4.4	-----	279	276	-----	56	-----	37	-----	2.5	.5	-----
Total	46.4	3,267.4	20,128	15,472	3,466	2,007	16,907	2,932	706	162.6	35.7	26.4
Mean	1.50	109	649	499	124	64.7	564	94.6	23.5	5.25	1.15	0.88
Ac-ft	92	6,480	39,920	30,690	6,870	3,980	33,530	5,820	1,400	323	71	52

Calendar year 1964 Max 8,360 Min 0 Mean 74.1 Ac-ft 53,820  
Water year 1964-65 Max 8,360 Min 0 Mean 178 Ac-ft 129,200

Peak discharge (base, 1,200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-10	0800	9.64	3,800	1-23	2200	7.54	1,510
12-22	1430	13.90	11,700	4-8	1800	10.75	5,420
1-5	1530	14.90	14,100	4-15	2200	8.25	2,170

Note.--No gage-height record Jan. 1-4, Aug. 30 to Sept. 30.

## 11-3815. Mill Creek near Los Molinos, Calif.

Location--Lat 40°03'17", long 122°01'23", in NE $\frac{1}{4}$  sec. 6, T.25 N., R.1 W., on right bank  $\frac{1}{2}$  miles northeast of Los Molinos and 5.5 miles upstream from mouth.

Drainage area--131 sq mi.

Records available--September 1909 to August 1913 (fragmentary), October 1928 to September 1965.

Gage--Water-stage recorder (digital). Altitude of gage is 380 ft (from topographic map). September 1909 to September 1913 staff gage at site 0.3 mile downstream at different datum.

Average discharge--7 years (1928-65), 291 cfs (210,700 acre-ft per year).

Extremes--Maximum discharge during year, 16,000 cfs Dec. 22 (gage height, 15.26 ft); minimum daily, 86 cfs Oct. 19-20. 1928-65: Maximum discharge, about 23,000 cfs Dec. 11, 1937 (gage height, 23.4 ft, from floodmarks), from rating curve extended above 7,000 cfs on basis of slope-area measurement of maximum flow; minimum, 49 cfs Dec. 13, 1932.

Remarks--Records good except those for period of no gage-height record and those above 6,000 cfs, which are fair. No storage or large diversion above station. Records of chemical analyses for the water year 1965 are published in Part 2 of this report.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 22				Dec. 23 to Sept. 30	
1.2	77	5.0	1,490	1.7	104
1.5	131	7.0	3,160	2.0	186
2.0	232	10.0	7,600	3.0	515
3.0	505	14.0	14,000	4.0	940
4.0	905			5.0	1,490

Note.--Same as preceding table 5.0 ft

Discharge, in cubic feet per second, water year October 1964 to September 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	91	129	375	494	330	255	320	619	445	269	161	125
2	91	199	618	487	320	250	660	539	445	271	158	125
3	89	137	361	1,160	310	250	400	476	484	270	157	125
4	89	112	241	1,760	310	250	340	448	508	270	155	122
5	89	107	195	4,870	420	250	330	438	512	265	154	122
6	89	103	167	2,420	600	245	350	410	494	259	152	123
7	89	101	155	1,250	500	240	410	375	459	253	149	126
8	89	108	143	823	420	240	800	368	419	245	148	125
9	89	1,980	193	651	380	235	1,300	368	405	240	146	123
10	89	1,200	207	587	370	235	1,000	372	438	233	145	122
11	91	375	526	695	355	240	700	392	448	224	178	120
12	89	300	307	639	340	360	500	416	442	216	242	117
13	87	222	228	575	320	440	442	445	403	209	165	117
14	87	159	197	515	310	310	456	457	364	207	156	115
15	87	129	191	480	290	260	720	466	346	201	152	114
16	89	118	173	470	280	250	1,960	470	310	198	147	114
17	89	110	155	448	270	240	980	543	318	194	173	112
18	87	103	151	420	260	235	836	494	345	193	226	113
19	86	99	603	414	255	225	965	501	333	190	185	114
20	86	98	622	456	250	220	945	504	341	186	159	114
21	87	96	4,970	420	240	220	940	480	356	185	153	115
22	87	98	12,800	400	235	220	868	431	365	181	161	115
23	87	98	6,830	760	235	225	728	396	367	176	151	114
24	87	96	3,200	1,020	230	260	663	386	343	173	147	114
25	89	135	2,050	700	230	250	639	389	339	171	144	114
26	89	173	1,940	560	250	240	635	403	310	170	142	114
27	94	147	1,520	480	280	700	663	428	293	169	138	114
28	101	179	1,060	430	270	500	667	445	283	166	136	116
29	125	219	836	400	-----	400	707	473	279	163	133	114
30	120	185	703	370	-----	310	647	484	277	161	133	112
31	101	-----	603	350	-----	300	-----	480	-----	160	130	-----
TOTAL	2,839	7,315	42,320	25,504	8,860	8,855	21,571	13,896	11,471	6,468	4,876	3,530
MEAN	91.6	244	1,365	823	316	286	719	448	382	209	157	118
AC-FT	5,630	14,510	83,940	50,590	17,570	17,560	42,790	27,560	22,750	12,830	9,670	7,000

CALENDAR YEAR 1964	MAX	12,800	MIN	86	MEAN	287	AC-FT	208,400
WATER YEAR 1964-65	MAX	12,800	MIN	86	MEAN	432	AC-FT	312,400

Peak discharge (base, 1.500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-9	0500	7.24	3,450	1-24	unknown	5.08	1,550
12-22	1145	15.26	16,000	4-9	unknown	5.04	1,520
1-5	1615	10.37	8,190	4-16	0115	6.98	3,140

Note.--No gage-height record Jan. 22 to Apr. 13

11-3820. Thomes Creek at Paskenta, Calif.

Location.--Lat 39°52'55", long 122°33'05", in NW¼ sec.4, T.23 N., R.6 W., on left bank 0.25 mile upstream from Digger Creek and 0.3 mile upstream from highway bridge at Paskenta.

Drainage area.--194 sq mi.

Records available.--October 1920 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A. Published as Thomes Creek at Paskenta prior to 1943.

Gage.--Water-stage recorder. Altitude of gage is 750 ft (from topographic map). Prior to Oct. 1, 1930, staff gage at site 0.3 mile downstream at different datum. Oct. 1, 1930, to Dec. 28, 1938, water-stage recorder at site 1,300 ft upstream and Dec. 29, 1938, to June 20, 1942, at site 1,000 ft upstream at different datum. June 21, 1942, to Sept. 30, 1959, at datum 1.75 ft higher.

Average discharge.--45 years, 270 cfs (195,500 acre-ft per year).

Extremes.--Maximum discharge during year, 37,800 cfs Dec. 22 (gage height, 15.32 ft in gage well, 16.4 ft, from floodmarks), from rating curve extended above 14,000 cfs on basis of slope-area measurement of maximum flow; no flow Oct. 4, 1920-65: Maximum discharge, that of Dec. 22, 1964; no flow at times in many years.

Remarks.--Records good. No storage or large diversions above station. Records of chemical analysis, water temperature, and suspended sediment loads for the water year 1965 are published in part 2 of this report.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.6	66	1,410	860	1,200	490	284	594	246	53	13	9.8
2	.3	62	780	880	1,070	434	320	506	223	43	13	9.8
3	.3	59	470	930	920	420	279	462	214	46	16	9.0
4	0	23	345	780	880	371	279	441	201	46	15	9.0
5	.6	19	205	2,080	1,040	371	290	434	196	42	14	9.0
6	.3	14	160	1,270	962	427	274	443	192	41	13	8.2
7	.3	13	130	951	810	373	284	462	184	33	12	9.0
8	.6	80	117	770	695	344	1,010	455	156	30	13	9.0
9	.8	318	241	780	626	326	702	462	141	28	12	8.2
10	.8	459	330	951	562	332	434	476	127	23	13	9.0
11	.8	254	1,010	1,150	522	333	357	514	123	28	23	9.8
12	.8	340	422	1,100	490	371	427	533	114	27	32	9.8
13	1.1	143	275	995	469	350	443	573	97	23	22	10
14	1.4	80	213	973	462	302	476	572	91	30	13	9.0
15	4.7	55	196	1,150	434	284	892	564	91	30	15	9.0
16	6.1	42	163	1,220	413	284	1,290	572	77	23	14	9.0
17	6.1	37	134	1,270	399	279	900	580	72	24	14	8.2
18	6.1	33	117	1,420	406	257	1,910	519	77	19	13	9.0
19	6.1	30	134	1,580	427	252	3,560	493	72	16	16	9.0
20	6.1	28	500	1,500	462	235	2,530	484	67	15	16	8.2
21	6.1	33	8,630	1,260	490	240	2,180	453	69	15	15	8.2
22	6.1	42	29,300	1,030	490	290	1,360	404	69	14	13	8.2
23	6.1	39	15,600	2,120	443	296	1,080	355	69	16	13	8.2
24	6.6	42	9,300	2,750	406	296	1,010	325	67	13	15	8.2
25	7.0	373	5,030	1,470	385	262	995	300	62	13	15	8.2
26	7.5	232	4,300	1,150	373	279	1,020	285	60	13	15	7.5
27	9.0	143	3,230	962	755	302	1,020	290	53	13	14	8.2
28	19	486	2,050	870	554	257	951	295	51	16	14	9.8
29	80	595	1,550	900	-----	240	830	295	51	15	13	9.0
30	48	315	1,340	1,170	-----	257	695	285	53	15	12	7.5
31	22	-----	1,070	1,290	-----	274	-----	270	-----	16	10	-----
Total	261.3	4,479	89,257	37,582	17,155	9,833	23,087	13,721	3,365	819	491	264.0
Mean	3.43	149	2,879	1,212	613	317	936	443	112	26.4	15.8	3.80
Ac-ft	519	8,880	177,000	74,540	34,030	19,510	55,710	27,220	6,670	1,620	974	524

Calendar year 1964 Max 29,800 Min 0 Mean 329 Ac-ft 238,800  
 Water year 1964-65 Max 29,800 Min 0 Mean 563 Ac-ft 407,200

Peak discharge (base, 1,600 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-10	0500	6.34	1,650	1-23	1930	7.61	5,700
12-1	0400	6.55	1,900	4-8	1530	6.18	1,910
12-11	0300	6.30	1,600	4-15	2300	6.08	1,770
12-22	0900	15.32	37,800	4-19	1000	7.50	4,200
1-5	1330	7.36	5,100				

11-3825.5. Deer Creek below Slate Creek, near Deer Meadows, Calif.

Location.--Lat 40°14'00", long 121°27'50", in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.1, T.27 N., R.4 E., on right bank 0.4 mile downstream from Slate Creek, 3.2 miles southwest of Deer Creek Meadows and 15 miles southwest of Chester.

Drainage area.--69.4 sq mi.

Records available.--August 1961 to September 1965.

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

Extremes.--Maximum discharge during year, 7,900 cfs Dec. 22 (gage height, 11.06 ft, in gage well, 11.95 ft, from floodmarks), from rating curve extended above 1,500 cfs on basis of slope-area measurement at gage height 9.06 ft; minimum daily, 42 cfs Oct. 18, 10. 1961-65: Maximum discharge, that of Dec. 22, 1964; minimum daily, 38 cfs Sept. 16-25, 1962.

Remarks.--Records good except those for period of no gage height record, which are fair. No storage or diversion above station.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Dec. 24 to Jan. 12, Jan. 23, 25, Apr. 16 to May 1)

2.3	34	5.0	950
2.5	54	5.5	1,280
2.7	80	6.0	1,650
3.0	132	7.0	2,540
3.5	252	8.0	3,600
4.0	430	9.0	4,890
4.5	670	10.0	6,290

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	43	78	216	336	232	176	208	358	156	99	72	61
2	43	70	191	326	221	170	196	326	154	93	69	60
3	44	66	119	267	214	167	191	292	148	96	67	60
4	43	50	88	249	211	163	196	273	144	94	67	60
5	43	52	80	395	252	161	198	255	142	91	66	60
6	44	54	72	590	249	161	191	238	140	90	64	61
7	44	56	69	450	216	161	181	224	136	91	64	61
8	44	68	76	378	208	163	184	211	138	91	62	61
9	44	130	98	326	196	161	184	201	134	91	62	61
10	44	84	159	302	186	165	176	191	130	91	62	61
11	44	76	302	343	179	167	172	189	128	91	129	60
12	43	86	136	319	170	181	176	188	126	90	101	59
13	43	69	101	276	170	170	174	191	124	88	76	59
14	43	64	94	252	165	167	172	191	132	90	70	59
15	44	64	99	244	159	165	218	186	134	88	67	60
16	43	55	83	227	159	167	590	186	124	88	67	60
17	43	55	72	216	156	170	366	191	138	88	76	60
18	42	53	72	206	159	163	422	188	130	86	93	60
19	42	52	77	203	165	161	525	188	121	85	74	60
20	43	51	172	208	170	161	550	186	113	83	59	61
21	43	51	2,190	201	172	167	585	189	111	79	69	60
22	43	52	6,040	193	172	176	515	184	110	77	69	60
23	43	52	4,570	345	159	184	454	172	110	79	66	60
24	44	59	2,310	490	154	203	434	167	108	77	65	60
25	44	88	1,690	347	156	181	422	161	106	77	64	59
26	44	110	1,550	285	159	193	422	156	108	77	65	61
27	47	79	1,060	253	241	230	418	154	106	77	64	61
28	55	86	722	241	193	206	422	152	103	76	64	61
29	66	90	550	232	-----	196	410	152	101	73	62	60
30	50	95	450	230	-----	191	382	152	98	72	62	60
31	52	-----	378	235	-----	193	-----	150	-----	73	61	-----
Total	1,397	2,095	23,886	9,175	5,243	5,440	9,734	6,240	3,753	2,646	2,189	1,806
Mean	45.1	69.8	771	296	187	175	324	201	125	85.4	70.6	60.2
Ac-ft	2,770	4,160	47,380	18,200	10,400	10,790	19,310	12,380	7,440	5,250	4,340	3,580

Calendar year 1964 Max 6,040 Min 40 Mean 134 Ac-ft 97,340  
Water year 1964-65 Max 6,040 Min 42 Mean 202 Ac-ft 146,000

Peak discharge (base, 300 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-11	0500	4.01	434	1-23	2030	4.46	715
2-22	1200	11.06	7,900	4-16	0500	4.60	788
1-5	2400	4.32	645				

Note.--No gage-height record Oct. 19 to Nov. 11.

11-3835, Deer Creek near Vina, Calif.

Location.--Lat 40°00'50", long 121°56'50", in NW 1/4 sec. 23, T. 25 N., R. 1 W., on left bank 0.5 mile upstream from concrete diversion dam and 7.9 miles northeast of Vina.

Drainage area.--208 sq mi.

Records available.--October 1911 to December 1915, March 1920 to December 1937, January 1939 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder (digital). Datum of gage is 479.5 ft above mean sea level (river-profile survey). Prior to Oct. 9, 1928, staff gage at site 0.8 mile downstream at different datum. Oct. 9, 1928, to Jan. 19, 1939, water-stage recorder at present site at datum 2.64 ft higher.

Average discharge.--47 years, 305 cfs (220,800 acre-ft per year).

Extremes.--Maximum discharge during year, 18,800 cfs Dec. 22 (gage height, 14.67 ft); minimum daily, 79 cfs Oct. 20-23. 1911-15, 1920-37, 1939-65: Maximum discharge, 23,800 cfs Dec. 10, 1937 (gage height, 19.2 ft, present datum, from floodmarks), from rating curve extended above 9,200 cfs on basis of velocity-area studies; minimum, 43 cfs Dec. 13, 1932.

Remarks.--Records good. No storage or large diversions above station.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Dec. 23-29)

Oct. 1 to Dec. 22

Dec. 22 to Sept. 30

2.4	79	6.0	1,970	2.1	98	5.0	1,350
3.0	214	8.0	4,200	2.5	155	7.0	3,280
3.5	365	10.0	7,400	3.0	261	9.0	5,920
4.0	585	12.0	11,800	3.5	420	11.0	9,640
5.0	1,180	14.0	16,800	4.0	640	13.0	14,300

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	83	114	347	809	568	345	436	664	271	162	123	112
2	83	158	572	816	545	327	440	605	269	160	126	112
3	81	127	393	1,280	514	318	408	558	259	155	124	112
4	81	101	268	1,630	492	315	396	527	251	152	123	110
5	81	95	219	7,270	576	309	400	496	247	143	122	110
6	81	93	196	4,530	630	307	396	463	242	146	121	111
7	83	93	182	2,480	545	307	376	440	237	146	119	112
8	83	110	172	1,550	509	301	492	420	237	144	118	112
9	83	1,430	192	1,170	480	304	1,100	404	235	144	113	112
10	81	1,060	204	991	448	307	736	384	223	143	113	110
11	81	397	529	1,080	423	309	658	373	222	142	146	110
12	83	365	340	1,040	408	436	605	370	215	142	241	109
13	83	257	246	900	392	392	590	370	211	140	145	109
14	83	192	217	802	380	352	586	366	217	138	132	103
15	83	167	214	760	366	342	1,120	359	226	136	127	103
16	83	149	204	742	352	336	2,350	352	213	136	124	108
17	83	142	182	683	342	336	1,670	356	219	138	130	106
18	83	133	175	646	336	327	1,300	352	233	135	145	107
19	81	129	579	640	333	318	1,290	343	206	134	152	103
20	79	124	966	640	327	312	1,250	345	197	133	130	108
21	79	122	6,220	625	327	318	1,310	342	191	133	125	103
22	79	124	14,300	581	327	327	1,170	348	185	129	126	108
23	79	122	8,360	949	315	336	1,000	321	183	128	124	107
24	81	122	4,490	1,600	307	366	907	307	181	128	121	107
25	81	142	2,890	1,090	301	356	858	298	179	128	119	106
26	83	139	2,880	879	301	345	330	290	181	129	118	107
27	85	184	2,350	754	396	519	809	284	175	129	117	108
28	91	184	1,640	670	392	492	781	279	169	128	115	109
29	107	224	1,290	615	-----	444	774	274	168	127	114	106
30	105	202	1,090	586	-----	420	718	271	166	126	113	106
31	93	-----	956	581	-----	412	-----	269	-----	127	112	-----
Total	2,605	7,051	52,863	39,394	11,637	10,934	26,256	11,840	6,413	4,286	3,993	3,266
Mean	84	235	1,710	1,270	416	353	875	382	214	138	129	109
Ac-ft	5,170	13,990	104,900	78,140	23,080	21,690	52,080	23,480	12,720	8,500	7,920	6,480
Calendar year 1964	Max	14,300	Min	79	Mean	306	Ac-ft	222,100				
Water year 1964-65	Max	14,300	Min	79	Mean	495	Ac-ft	358,200				

Peak discharge (base, 2,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-10	0530	6.84	2,790	1-5	1800	12.62	13,400
12-22	1300	14.67	18,800	4-15	2400	7.54	3,910

11-3840. Big Chico Creek near Chico, Calif

Location.--Lat 39°46'35", long 121°45'10", in Arroyo Chico Grant, on right bank 1.8 miles upstream from golf clubhouse in Bidwell Park, 2.6 miles upstream from Lindo Channel, and 7 miles northeast of Chico.

Drainage area.--72.2 sq mi (revised).

Records available.--May 1930 to September 1965. Prior to October 1952, published as Chico Creek near Chico.

Gage.--Water-stage recorder (digital). Altitude of gage is 300 ft (from topographic map). Prior to Oct. 1, 1955, at site 0.6 mile downstream at different datums.

Average discharge.--35 years, 140 cfs (101,400 acre-ft per year); median of yearly discharges, 116 cfs (84,000 acre-ft per year).

Extremes.--Maximum discharge during year, 9,580 cfs Jan. 5 (gage height, 15.36 ft); minimum daily, 20 cfs Oct. 2, 3.  
1930-65: Maximum discharge, that of Jan. 5, 1965; minimum, 10 cfs Dec. 11, 1932, Aug. 15, 1939, Sept. 18, 1947.

Revisions.--The maximum discharge for the water year 1964 has been revised to 4,330 cfs (gage height, 10.12 ft), superseding figure published in Surface Water Records of California, Vol. 2, 1964.

Remarks.--Records good except those for period of no gage-height record, which are fair. No storage or large diversion above station. Records of chemical analyses for the water year 1965 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	21	50	113	312	112	111	119	149	51	36	27	26
2	20	90	160	334	209	104	116	141	50	35	27	26
3	20	60	165	544	190	100	109	134	49	34	26	26
4	21	40	120	850	177	95	102	127	48	32	26	26
5	21	35	94	5,480	258	92	97	119	47	32	26	25
6	21	35	77	3,960	267	93	93	112	46	31	26	26
7	21	35	67	1,960	249	92	92	107	45	31	26	27
8	21	50	61	1,140	222	90	138	103	45	31	26	27
9	21	480	58	757	201	85	587	99	45	31	25	26
10	21	400	55	569	185	85	476	94	45	31	25	26
11	21	248	87	543	173	84	362	89	43	31	32	25
12	21	302	82	511	161	100	335	85	41	31	51	25
13	21	166	71	443	153	103	333	82	40	30	32	25
14	21	100	64	404	149	93	346	80	41	30	29	25
15	21	73	60	405	140	89	514	76	44	29	28	25
16	21	59	56	403	132	85	1,900	74	42	29	28	25
17	21	51	54	376	127	81	1,050	72	42	29	29	24
18	21	46	53	354	121	79	670	70	45	29	31	24
19	21	42	252	351	119	76	530	67	41	29	33	25
20	21	42	682	344	116	73	438	67	39	28	29	25
21	21	40	4,620	318	114	71	438	66	37	29	28	25
22	22	40	7,190	286	113	69	382	69	37	28	29	25
23	22	39	3,090	463	106	68	334	64	37	28	29	25
24	23	38	1,580	1,010	103	76	294	60	36	28	28	25
25	23	40	965	673	100	73	261	58	36	28	27	25
26	24	47	913	501	98	77	231	57	35	28	27	25
27	26	48	1,040	405	125	185	208	55	35	28	27	30
28	35	85	737	348	119	185	190	53	35	28	27	27
29	40	120	545	306	-----	150	173	52	34	28	27	26
30	35	96	448	276	-----	132	159	50	35	27	26	25
31	30	-----	384	252	-----	122	-----	50	-----	28	26	-----
TOTAL	719	2,997	23,943	24,878	4,339	3,018	11,077	2,581	1,246	927	883	767
MEAN	23.2	99.9	772	803	155	97.4	369	83.3	41.5	29.9	28.5	25.6
AC-FT	1,430	5,940	47,490	49,340	8,610	5,990	21,970	5,120	2,470	1,840	1,750	1,520

CALENDAR YEAR 1964 MAX 7,190 MIN 19 MEAN 123 AC-FT 89,090  
WATER YEAR 1964-65 MAX 7,190 MIN 20 MEAN 212 AC-FT 153,500

Peak discharge (base, 1,600 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-21	2315	14.61	8720	4-16	0515	7.54	2330
1-5	1915	15.36	9580				

Note.--No gage-height record Oct. 11 to Nov. 9.

11-3870. Stony Creek near Fruto, Calif.

Location.--Lat 39°40'15", long 122°31'05", in SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.15, T.21 N., R.6 W., on right bank 0.3 mile downstream from Grindstone Creek and 6.5 miles northwest of Fruto.

Drainage area.--599 sq mi.

Records available.--January 1901 to October 1912, October 1960 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 600 ft (from topographic map). Prior to Oct. 6, 1912, staff gage at site 1.0 mile downstream at different datum.

Average discharge.--16 years, 677 cfs (490,100 acre-ft per year), unadjusted.

Extremes.--Maximum discharge during year, 40,200 cfs Dec. 23 (gage height, 15.49 ft in gage well, 16.1 ft, from floodmarks); minimum daily, 2.0 cfs Oct. 21.  
1901-12, 1960-65: Maximum discharge, that of Dec. 23, 1964; no flow July 5-13, Oct. 25, 26, 1901.

Remarks.--Records good, except those for periods of no gage-height record and those for Dec. 20 to Jan. 10, which are poor. Many diversions above station for irrigation. Flow regulated by East Park Reservoir beginning in 1910 (usable capacity, 50,600 acre-ft) and by Stony Gorge Reservoir beginning in 1928 (usable capacity, 50,100 acre-ft). Records of chemical analyses for the water year 1965 are published in Part 2 of this report.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.0	6.0	595	1,500	690	317	550	1,270	290	340	410	356
2	40	23	500	1,350	790	305	684	1,140	324	340	405	352
3	130	23	326	2,150	810	308	1,130	1,050	364	332	415	352
4	142	15	207	3,290	966	344	1,240	942	368	328	415	348
5	142	10	158	13,800	1,270	425	1,400	828	364	324	410	348
6	148	7.8	123	12,700	1,140	575	1,530	726	360	324	410	348
7	155	5.0	105	6,800	935	540	1,390	654	352	320	405	344
8	148	18	121	4,290	1,020	510	1,540	606	348	320	400	340
9	118	462	132	2,560	832	470	1,300	575	348	317	400	336
10	94	895	189	2,230	702	460	894	530	336	317	400	332
11	94	256	623	3,030	662	425	642	525	332	314	405	328
12	96	410	267	2,800	558	425	846	540	324	314	405	324
13	92	155	186	2,290	658	455	834	535	320	314	400	320
14	65	83	158	1,970	678	440	966	520	320	314	396	320
15	9.0	55	148	1,830	694	400	2,030	505	245	314	396	317
16	7.0	41	128	2,080	682	384	5,790	490	116	314	396	317
17	5.0	34	109	2,100	650	380	2,970	475	175	314	392	320
18	5.0	29	96	2,140	638	380	3,310	450	368	317	388	317
19	4.0	26	120	2,190	642	372	4,560	435	368	317	388	317
20	3.0	25	383	2,120	622	360	3,970	415	372	320	388	314
21	2.0	25	5,160	1,910	598	340	4,020	415	356	320	384	320
22	6.0	31	21,200	1,690	566	372	2,280	384	352	317	380	332
23	8.6	26	26,200	2,530	502	430	1,650	348	352	360	380	328
24	7.8	26	13,700	4,300	338	384	1,210	324	348	410	376	324
25	7.8	134	6,230	2,320	334	368	1,150	340	352	415	372	320
26	8.6	112	5,470	1,760	350	372	1,390	368	360	410	368	317
27	8.6	78	7,550	1,710	502	460	1,520	340	360	410	368	314
28	11.0	353	4,490	1,810	466	485	1,550	311	356	405	364	314
29	6.0	398	2,720	1,590	-----	445	1,460	293	348	405	364	311
30	5.0	186	1,970	1,540	-----	435	1,360	275	340	410	360	311
31	3.0	-----	1,860	1,450	-----	470	-----	290	-----	410	360	-----
Total	1,574.4	3,947.8	101,224	95,830	19,295	12,836	55,166	16,899	9,918	10,686	12,100	9,841
Mean	50.8	132	3,265	3,091	689	414	1,839	545	331	345	390	328
Ac-ft	3,120	7,830	200,800	190,100	38,270	25,460	109,400	33,520	19,670	21,200	24,000	19,520

Calendar year 1964 Max 26,200 Min 2.0 Mean 412 Ac-ft 299,200

Water year 1964-65 Max 26,200 Min 2.0 Mean 957 Ac-ft 692,900

Note.--No gage-height record Oct. 1, 2, 15-22, Oct. 29 to Nov. 1, Nov. 7.



11-3878. North Fork Stony Creek near Newville, Calif.

Location.--Lat 39°47'05", long 122°28'30", in SW 1/4 sec. 6, T. 22 N., R. 5 W., on right bank, 150 ft downstream from Bedford Creek and 2.7 miles east of Newville.

Drainage area.--67.1 sq mi.

Records available.--May 1963 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 531.43 ft above mean sea level.

Extremes.--Maximum discharge during year, 12,500 cfs Jan. 5 (gage height, 11.48 ft), from rating curve extended above 2500 cfs on basis of slope-area measurements at gage height 7.3 ft, and 11.48 ft; no flow for many days.

1963-65: Maximum discharge, that of Jan. 5, 1965; no flow at times in each year.

Flood of Apr. 7, 1963, reached a stage of 7.3 ft, from floodmarks, (discharge, 4,600 cfs by slope-area measurement).

Remarks.--Records good. No regulation above station. Probably a few small diversions above the station for irrigation.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	22	99	34	13	12	26	5.3	2.6	0.2	
2		0	20	111	33	12	18	25	5.8	2.3	.2	
3		.1	20	497	30	12	15	24	5.3	2.1	.1	
4		.1	13	483	32	12	12	23	4.9	1.5	.1	
5		0	12	3,210	42	13	12	21	5.3	1.3	.1	
6		0	10	536	38	20	13	20	4.9	1.0	.1	
7		0	9.6	262	27	16	15	19	4.9	.8	0	
8		26	9.6	168	26	13	867	19	4.5	.8	0	
9		243	9.0	132	24	13	922	17	4.9	.7	0	
10		498	9.0	120	24	12	333	16	4.5	.8	.1	
11		233	9.0	120	24	12	171	16	4.1	.7	.4	
12		129	6.7	100	23	12	144	15	3.7	.5	.3	
13		42	5.3	86	22	12	120	15	4.1	.5	.3	
14		27	5.7	80	22	11	108	15	4.1	.5	.2	
15		17	6.2	75	21	11	409	13	4.5	.4	.1	
16		13	5.3	73	20	10	290	12	4.1	.3	.1	
17		9.6	4.9	66	19	10	159	11	4.5	.2	.1	
18		7.8	4.9	66	19	9.3	162	11	5.3	.2	.1	
19		6.7	3.3	66	18	8.0	153	10	4.5	.2	.1	
20		5.7	1.8	59	17	8.0	199	9.3	4.1	.2	.1	
21		5.7	667	54	16	7.4	123	12	3.7	.2	.1	
22		9.6	1,910	48	16	7.4	82	11	3.7	.2	.1	
23		5.3	666	245	15	7.4	68	7.4	3.7	.2	.1	
24		4.9	323	119	14	7.4	57	6.8	3.7	.2	0	
25		6.2	198	68	14	6.8	48	5.8	4.5	.2	0	
26		6.2	187	55	15	7.4	43	5.3	4.9	.2	0	
27		5.7	159	49	17	11	39	5.3	4.5	.2	0	
28		9.6	135	44	14	10	36	4.9	3.4	.2	0	
29		15	150	42	-----	8.0	34	4.8	2.8	.2	0	
30		13	126	39	-----	8.6	30	4.9	2.8	.2	0	
31		-----	115	38	-----	10	-----	4.9	-----	.2	0	-----
Total	0	1,339.2	4,869.2	7,209	636	330.7	4,694	410.4	131.0	19.8	3.0	0
Mean	0	44.6	157	233	22.7	10.7	156	13.2	4.37	0.64	0.10	0
Ac-ft	0	2,660	9,660	14,300	1,260	656	9,310	814	260	39	6.0	0

Calendar year 1964 Max 1,190 Min 0 Mean 19.3 Ac-ft 14,030  
 Water year 1964-65 Max 3,210 Min 0 Mean 53.8 Ac-ft 38,960

Peak discharge (base, 550 cfs)

Note.--No gage-height record Aug. 23-30.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-10	0400	5.66	2,210	4- 8	1700	5.52	2,790
12-22	1300	6.42	3,270	4-15	1900	4.72	1,400
1- 5	1330	11.48	12,500	4-20	1830	4.06	840
1-23	1700	4.73	1,410				

## SACRAMENTO RIVER BASIN

11-3879.9. South Diversion Canal near Orland, Calif.

Location.--Lat 39°48'35", long 122°19'45", in NE¼ sec.32, T.23 N., R.4 W., on right bank 0.4 mile downstream from Black Butte Dam and 8.2 miles northwest of Orland,.

Records available.--July 1955 to September 1965. Prior to October 1961, see records for Stony Creek at Black Butte damsite near Orland.

Gage.--Water-stage recorder and Parshall flume. Datum of gage is 372.64 above mean sea level. Prior to Oct. 23, 1956, at site 0.5 mile upstream at different datum. Oct. 1, 1960, to Sept. 30, 1961, at datum 1.00 lower.

Average discharge.--10 years, 105 cfs (76,020 acre-ft per year).

Extremes.--1955-65: Maximum daily discharge, 289 cfs, June 5, 6, 1960, July 13; no flow at times in 1957-65.

Remarks.--Records good. Canal diverts from Black Butte Reservoir at right end of Black Butte Dam; water is used for irrigation.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	94	1.8	0.1	1.0	0.5	1.8	16	117	270	250	254	243
2	82	2.5	2.1	1.4	.3	1.8	3.0	131	261	245	232	226
3	90	1.4	0	2.3	.3	1.8	3.0	146	267	244	236	233
4	81	1.4	0	1.3	.5	1.8	4.9	185	243	260	250	224
5	57	1.2	.6	2.6	.7	1.6	6.1	203	213	240	256	195
6	52	1.2	2.4	1.0	.5	1.4	13.0	209	182	234	261	170
7	54	1.2	1.2	.5	.3	1.4	23.0	203	149	232	241	163
8	75	1.4	1.0	.3	.3	.6	15.0	213	176	222	214	182
9	75	2.0	1.0	.7	.3	33	5.2	226	162	233	209	183
10	75	2.0	1.0	.5	.3	59	4.9	227	164	244	220	174
11	69	1.8	1.0	.4	.4	63	4.6	214	173	246	221	157
12	51	1.5	.8	.3	.5	63	3.6	222	212	249	132	154
13	59	.7	1.0	.3	.5	72	2.5	229	201	239	123	204
14	52	.4	1.4	1.0	.4	75	5.4	215	179	250	124	210
15	64	.3	.8	.7	3.1	74	5.4	211	191	256	121	222
16	65	.3	.3	3.5	3.0	72	5.4	195	222	262	127	203
17	73	3.5	1.4	1.0	2.2	99	5.4	193	243	246	130	163
18	59	.5	.2	1.2	2.2	127	5.4	212	271	241	151	196
19	47	.1	0	1.2	2.0	151	5.2	191	269	223	181	210
20	43	1.1	0	1.0	2.0	181	4.4	221	226	243	204	209
21	43	1.2	.4	1.0	1.6	190	4.4	246	201	252	193	214
22	52	1.2	1.4	.8	0	191	4.6	243	212	249	213	221
23	56	.3	.3	.8	0	178	4.4	245	223	257	212	182
24	66	.4	.1	.8	0	159	4.4	218	250	253	200	154
25	54	1.0	.1	.7	0	149	4.4	228	250	229	200	163
26	33	.7	1.0	.7	0.4	131	22	226	233	229	196	170
27	15	.8	3.3	.5	1.8	136	23	189	243	228	190	166
28	1.0	1.0	1.2	.4	2.0	100	64	185	238	228	201	156
29	2.2	.8	4.8	.4	-----	41	96	196	260	229	183	141
30	2.2	.4	3.0	.4	-----	23	106	213	257	249	181	151
31	2.0	-----	2.0	.5	-----	23	-----	254	-----	265	223	-----
Total	1,643.4	34.1	33.9	29.2	26.1	2402.2	484.6	6,436	6,656	7,532	6,094	5,644
Mean	53.2	1.1	1.1	.94	0.93	77.5	16.2	208	222	243	197	183
Ac-ft	3,270	63	67	53	52	4,760	961	12,770	13,200	14,940	12,090	11,190

Calendar year 1964 Max 252 Min 0 Mean 68.2 Ac-ft 49,540  
 Water year 1964-65 Max 271 Min 0 Mean 101 Ac-ft 73,430

11-3879.95 Black Butte Reservoir near Orland, Calif.

Location.--Lat 39°48'50", long 122°20'10", in SE $\frac{1}{4}$  sec.29, T.23 N., R.4 W., in control tower in right abutment of main dam on Stony Creek, 8 miles northwest of Orland.

Drainage area.--740 sq mi.

Records available.--October 1963 to September 1965.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers).

Extremes.--Maximum contents during year, 136,300 acre-ft May 3 (elevation, 468.01 ft); minimum, 9,420 acre-ft Oct. 27 (elevation, 413.83 ft).

1963-65: Maximum contents, that of May 3, 1965; minimum since initial season of operation, that of Oct. 27, 1964.

Remarks.--Reservoir is formed by seven earth-fill dams; storage began Oct. 28, 1963. Usable capacity, 150,000 acre-ft between elevations 414.6 (minimum operating level) and 473.5 ft (spillway crest) above mean sea level. Additional storage of 10,000 acre-ft is not available for release. South Diversion Canal (see preceding page) diverts at right end of dam. Water is released down Stony Creek for irrigation. Records represent total contents.

Cooperation.--Records furnished by Corps of Engineers.

Capacity table (elevation, in feet, and contents, in acre-ft)

413	8,810
420	15,000
430	28,800
440	48,100
450	73,700
460	105,900
470	144,600

Contents, in acre-feet, at 2400 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12,000	9,620	21,000	21,500	32,600	47,900	66,000	135,900	130,800	125,600	93,300	50,200
2	11,800	9,650	22,000	20,200	34,600	48,600	67,200	136,200	130,600	125,500	91,900	48,800
3	11,600	9,680	22,900	21,300	35,700	49,200	69,300	136,300	130,600	125,300	90,400	47,200
4	11,500	9,710	23,300	22,900	35,800	49,900	71,600	136,200	130,500	125,100	89,000	45,700
5	11,500	9,740	23,600	42,100	36,400	50,800	74,300	135,900	130,500	125,000	87,500	44,200
6	11,500	9,750	24,000	41,400	36,900	52,000	77,300	135,500	130,400	124,800	86,000	42,800
7	11,600	9,770	24,200	30,900	36,300	53,300	80,300	135,000	130,400	124,500	84,500	41,300
8	11,700	9,880	24,500	23,900	36,400	54,200	86,200	134,400	130,300	124,300	83,000	39,900
9	11,700	10,900	24,700	23,600	35,100	55,000	92,100	133,900	130,200	124,100	81,600	40,000
10	11,700	13,400	25,000	22,200	33,900	55,800	95,200	133,400	130,200	123,600	80,200	40,100
11	11,700	14,500	26,000	21,500	33,100	56,500	97,000	132,700	130,200	123,500	79,100	40,200
12	11,700	15,700	26,700	21,200	32,000	57,200	99,100	132,100	130,200	123,200	78,000	40,300
13	11,700	16,200	27,200	21,900	31,600	57,900	101,000	131,500	130,100	122,900	76,900	40,300
14	11,600	16,500	27,500	22,500	33,000	58,700	103,000	131,700	130,000	122,600	75,800	40,200
15	11,500	16,600	27,800	22,800	34,300	59,300	106,800	131,900	129,800	121,000	74,700	40,100
16	11,200	16,800	28,100	24,000	35,700	59,800	115,800	132,000	129,100	119,000	73,400	39,900
17	10,900	17,000	28,300	28,800	37,000	60,200	121,500	132,200	128,400	117,100	72,300	40,100
18	10,800	17,100	28,600	32,100	38,200	60,500	127,300	132,200	128,100	115,200	71,100	40,100
19	10,600	17,100	29,000	32,300	39,500	60,700	130,800	132,200	127,800	113,400	69,700	40,000
20	10,400	17,200	29,600	33,000	40,700	60,900	129,800	132,100	127,700	111,700	68,200	40,000
21	10,300	17,400	37,400	32,600	41,800	60,900	129,100	132,200	127,600	110,000	66,700	40,000
22	10,100	17,400	74,000	32,100	42,900	60,900	127,700	132,200	127,500	108,400	65,100	39,900
23	9,980	17,500	96,500	35,600	43,800	61,000	128,500	132,100	127,400	106,700	63,600	39,900
24	9,760	17,600	94,900	40,100	44,400	61,100	129,200	132,000	127,200	105,100	62,100	39,900
25	9,570	17,800	79,500	40,600	45,000	61,200	129,800	131,900	127,000	103,600	60,700	39,900
26	9,450	18,000	55,800	37,900	45,600	61,400	131,000	131,900	126,800	102,100	59,200	39,900
27	9,420	18,200	34,600	34,900	46,400	61,800	132,300	131,800	126,700	100,700	57,800	40,000
28	9,490	18,700	22,500	32,600	47,200	62,500	133,600	131,700	126,400	99,200	56,200	40,100
29	9,540	19,600	25,100	32,700	-----	63,200	134,700	131,600	126,200	97,700	54,800	40,300
30	9,580	20,100	23,700	32,800	-----	64,100	135,500	131,400	125,800	96,200	53,400	40,400
31	9,590	-----	22,900	32,800	-----	64,900	-----	131,200	-----	94,800	51,800	-----
(†)	414.07	424.21	426.27	432.31	439.60	446.90	467.80	466.72	465.37	456.75	441.64	436.35
(‡)	- 2.810	+ 10.510	+ 2.800	+ 9.900	+ 14.400	+ 17.700	+ 70.600	- 4.300	- 5.400	- 31.000	- 43.000	- 11.400
(††)	453	190	229	147	359	542	1,019	2,499	2,576	3,008	2,026	1,275

Calendar year 1964..... † +10,500

Water year 1964-65..... ‡ +28,000

† Elevation, in feet, at end of month.

‡ Change in contents in acre-feet.

†† Evaporation, in acre-feet.

11-3880. Stony Creek below Black Butte Dam, near Orland, Calif.

Location.--Lat 39°49'00", long 122°19'25", in SW<sup>1</sup>/<sub>4</sub> sec.28, T.23 N., R.4 W., on left bank 200 ft downstream from road bridge, 0.6 mile downstream from Black Butte Dam, and 8.1 miles northwest of Orland.

Drainage area.--741 sq mi (revised).

Records available.--July 1955 to September 1965. Prior to October 1962, published as Stony Creek at Black Butte damsite, near Orland.

Gage.--Water-stage recorder and grouted rock control. Datum of gage is 366.02 ft above mean sea level (levels by Corps of Engineers). Prior to Dec. 12, 1960, water-stage recorder at site 0.6 mile upstream at different datum. Dec. 12, 1960, to Nov. 30, 1963, wire-weight gage at bridge 200 ft upstream at datum 4.04 ft higher.

Average discharge.--10 years, 585 cfs (423,500 acre-ft per year), adjusted for diversion to South Diversion Canal since 1956 and for storage and evaporation from Black Butte Reservoir since 1964.

Extremes.--Maximum discharge during year, 19,400 cfs Dec. 25 (gage height, 10.41); no flow for many days.

1955-63 (prior to regulation by Black Butte Reservoir): Maximum discharge, 36,300 cfs Feb. 24, 1958 (gage height, 11.82 ft, site and datum then in use), from rating curve extended above 7,500 cfs on basis of slope-area measurement of maximum flow; no flow Dec. 8-10, 31, 1956, Jan. 1-10, 1957, Oct. 19 to Nov. 7, Nov. 13-15, 1962.

1964-65: Maximum discharge, that of Dec. 25, 1965; no flow at times each year.

Remarks.--Records good. Many diversions above station for irrigation. Flow regulated by Black Butte Reservoir (see preceding page), East Park Reservoir (usable capacity, 50,600 acre-ft) and Stony Gorge Reservoir (usable capacity, 50,100 acre-ft). Prior to October 1956, figures of daily discharge included water diverted to South Diversion Canal, which diverts 0.6 mile above station. Records of combined monthly discharge do not include a small diversion that bypasses the station at times for irrigation. Records of chemical analyses for the water year 1965 are published in part 2 of this report.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	90		0	2070	1480	0	13	546	134	147	819	784
2	66		0	2060	44	0	9.0	555	123	136	812	784
3	63		0	2060	293	0	6.9	546	116	121	805	777
4	65		0	2340	1020	0	4.5	550	115	96	812	764
5	60		0	6930	1030	0	3.2	565	129	103	819	753
6	57		0	15200	1030	0	3.8	570	151	124	833	770
7	44		0	11800	1030	0	4.8	575	160	147	840	770
8	34		0	7110	1190	3.5	5.1	555	155	153	833	764
9	29		0	2660	1450	49	1.2	536	137	156	819	189
10	27		0	2650	1280	50	.2	532	121	158	791	120
11	27		0	2610	1080	30	0	536	109	146	784	116
12	34		0	2410	1070	24	4.9	560	96	137	734	116
13	42		0	1900	869	4.7	13	523	89	147	734	132
14	50		0	1680	20	3.2	10	180	102	162	734	142
15	45		0	1650	3.9	31	10	151	102	612	746	124
16	57		0	1530	1.0	44	10	149	146	833	728	102
17	58		0	44	.3	55	10	155	166	840	728	89
18	46		0	582	0	80	10	170	163	847	770	106
19	49		0	2000	0	84	1670	184	160	854	784	112
20	40		0	1750	0	93	3950	174	140	840	819	104
21	35		0	1990	0	108	3950	151	140	791	826	107
22	20		3660	1960	0	122	3120	109	124	784	819	126
23	31		18400	662	0	154	1410	120	116	805	819	146
24	45		15200	1650	0	157	869	116	128	833	734	155
25	41		15000	2210	0	156	791	131	126	833	777	156
26	33		18300	2920	0	133	575	142	132	833	784	131
27	22		17800	3020	0	107	429	156	132	840	805	107
28	0		10900	2620	0	66	469	156	153	833	805	89
29	0		1550	1580	-----	31	510	146	162	826	798	50
30	0		2530	1550	-----	14	528	147	153	826	805	53
31	0	-----	2100	1550	-----	11	-----	139	-----	819	805	-----
Total	1215	0	105440	92743	12891.2	1620.4	18394.6	9825	3990	15782	24571	8742
Mean	39.2	0	3401	2992	460	52.3	613	317	133	509	793	291
Ac-ft	2410	0	209100	184000	25570	3210	36490	19490	7910	31300	48740	17340
Mean†	39.4	1.75	3443	3152	714	409	1798	414	221	199	257	267
Ac-ft†	2420	10390	211700	193800	39650	25130	107000	25460	13130	12230	15800	15860

Calendar year 1964	Max	18,400	Min	0	Mean	335	Ac-ft	243,400	Mean†	427	Ac-ft†	310,000
Water year 1964-65	Max	18,400	Min	0	Mean	809	Ac-ft	585,600	Mean†	929	Ac-ft†	672,600

† Adjusted for diversion to South Diversion Canal, change in storage and evaporation from Black Butte Reservoir.

11-3885. Stony Creek near Hamilton City, Calif.

Location.--Lat 39°43'25", Long 122°02'47", in Capay Grant, on right bank 2.3 miles southwest of Hamilton City, Glenn County, 6 miles upstream from mouth, and 8 miles east of Orland.

Drainage area.--777 sq mi.

Records available.--October 1940 to September 1965. Records for water year 1941 incomplete, yearly estimate published in WSP 1315-A.

Gage.--Water-stage recorder. Altitude of gage is 150 ft (from topographic map). Prior to February 1946, at site 3 miles upstream at different datum.

Average discharge.--25 years, 421 cfs (304,800 acre-ft per year).

Extremes.--Maximum discharge during year, 18,700 cfs Dec. 24 (gage height, 14.48 ft); no flow for several months.

1940-65: Maximum discharge, 39,900 cfs Feb. 25, 1958 (gage height, 18.31 ft); no flow at times in each year.

Remarks.--Records fair except those for periods of no gage-height record, and those below 300 cfs, which are poor. Flow regulated by East Park Reservoir beginning in 1910 (usable capacity, 50,600 acre-ft), Stony Gorge Reservoir beginning in 1928 (usable capacity, 50,100 acre-ft), and by Black Butte Reservoir beginning in October 1963 (see p. 785). Diversions for irrigation of about 17,200 acres above station in Orland Project, Bureau of Reclamation.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			0	3,070	1,760		0	406		0	777	714
2			0	3,130	519		0	401		0	777	721
3			0	3,350	8.1		0	396		0	756	763
4			0	3,220	702		0	396		0	756	756
5			0	5,630	936		0	401		0	756	749
6			0	14,500	923		0	401		0	742	735
7			0	13,200	896		0	401		0	728	714
8			0	9,800	960		0	428		0	763	693
9			0	3,980	1,390		0	428		0	784	397
10			0	3,630	1,370		0	440		0	742	108
11			0	3,450	992		0	434		0	784	80
12			0	3,270	960		0	440		0	770	72
13			0	2,590	944		0	423		0	763	64
14			0	2,120	128		0	240		0	749	64
15			0	2,100	.4		0	53		91	728	62
16			0	2,030	0		0	32		633	756	64
17			0	723	0		0	32		777	721	64
18			0	52	0		0	29		777	707	40
19			0	2,020	0		159	26		777	693	25
20			0	2,130	0		3,250	19		784	693	30
21			0	2,410	0		3,640	21		769	707	30
22			0	2,450	0		3,280	32		756	735	20
23			9,570	918	0		1,700	21		756	763	14
24			17,300	1,700	0		746	14		749	770	11
25			14,400	2,160	0		700	8.1		791	735	0
26			17,900	3,380	0		644	7.1		784	742	12
27			16,600	3,580	0		445	5.7		749	721	44
28			13,400	3,480	0		406	.8		756	728	46
29			2,150	1,940	-----		413	7.1		749	749	42
30			4,050	1,780	-----		406	1.5		749	742	22
31		-----	3,150	1,760	-----		-----	.1	-----	735	714	-----
Total	0	0	98,520	109,553	12,493.5	0	15,794	5,944.4	0	12,182	23,051	7,157
Mean	0	0	3,178	3,534	446	0	526	192	0	393	744	239
Ac-ft	0	0	195,400	217,300	24,780	0	31,330	11,790	0	24,160	45,720	14,200

Calendar year 1964 Max 17,900 Min 0 Mean 269 Ac-ft 195,400

Water year 1964-65 Max 17,900 Min 0 Mean 780 Ac-ft 564,700

Note.--No gage-height record June 17 to July 14, July 16-21.

## 11-3890. Sacramento River at Butte City, Calif.

Location.--Lat 39°27'35", long 121°59'35", in NE¼ sec.32, T.19 N., R.1 W., on left bank 100 ft above highway bridge and 0.5 mile south of Butte City.

Drainage area.--12,096 sq. mi.

Records available.--April 1921 to September 1938 (low-water periods only), October 1938 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder. Datum of gage is set to datum of Corps of Engineers which is 2.92 ft below mean sea level. Prior to December 1930, at site 0.5 mile upstream at same datum.

Average discharge.--27 years (1938-65), 12,320 cfs (8,919,000 acre-ft per year).

Extremes.--Maximum discharge during year, 126,000 cfs Dec. 24 (gage height, 94.89 ft); minimum daily, 4,560 cfs Oct. 21-23.

1940-65: Maximum discharge, 170,000 cfs Feb. 7, 1942 (gage height, 96.87 ft).

1921-65: Minimum discharge recorded, 1,050 cfs July 15, 25, 26, 1931 (gage height, 67.49 ft).

Remarks.--Records good. Natural flow of stream affected by storage reservoirs, power developments, unmeasured over-bank flow during extreme floods, diversions for irrigation, and return flow from irrigated areas. Records of chemical analyses and water temperatures for the water year 1965 are published in Part 2 of this report.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7,580	6,160	8,580	52,400	32,000	8,900	6,560	10,100	8,240	7,800	9,580	9,120
2	7,360	6,160	11,500	38,700	31,400	8,680	7,160	9,580	8,020	8,020	9,580	8,680
3	6,760	6,360	11,700	42,900	29,500	8,240	10,300	8,900	8,020	8,460	9,580	8,240
4	6,160	6,160	9,340	57,800	27,300	8,020	8,680	9,240	8,020	8,460	9,580	8,240
5	5,560	5,760	7,580	65,900	27,300	7,900	7,360	7,800	8,020	8,460	9,340	8,240
6	5,160	5,760	6,560	104,000	28,900	7,580	6,960	7,360	8,020	8,240	9,340	8,460
7	5,160	5,560	5,960	120,000	29,200	7,580	10,300	7,800	8,020	8,240	9,340	8,460
8	4,960	5,360	5,560	95,700	27,000	7,580	9,820	10,500	8,020	8,020	9,580	8,680
9	4,960	8,780	5,360	78,500	26,400	7,580	28,900	11,000	7,800	8,020	9,580	8,630
10	4,960	22,500	5,160	77,500	25,200	7,580	41,300	10,800	8,240	8,460	9,580	8,240
11	4,960	21,400	5,160	55,200	24,300	7,360	24,400	11,000	8,020	8,680	9,580	8,240
12	4,960	17,000	7,160	47,600	21,900	7,360	17,600	10,800	8,020	8,900	10,100	8,240
13	4,960	16,200	6,360	40,800	20,100	8,020	13,800	10,500	7,800	8,900	10,300	8,240
14	4,960	10,100	5,760	36,200	19,000	7,800	12,500	10,800	7,800	8,900	10,300	8,460
15	4,760	8,020	5,360	34,500	17,900	7,160	12,000	10,800	7,360	8,900	10,300	8,460
16	4,960	6,960	5,160	33,800	17,600	6,560	20,000	10,500	7,160	9,120	10,100	8,460
17	4,760	6,560	4,960	33,100	16,200	6,360	25,800	10,500	7,160	9,340	10,100	8,460
18	4,760	6,160	4,760	32,800	14,800	6,360	19,300	11,300	7,160	9,340	10,100	8,680
19	4,760	5,760	5,740	32,400	14,600	6,160	23,000	11,300	7,580	9,340	10,300	8,680
20	4,760	5,760	14,000	33,100	14,100	6,360	28,200	11,300	8,020	9,340	10,300	8,680
21	4,560	5,560	15,300	31,700	13,000	5,960	26,700	11,500	8,020	9,340	10,300	8,680
22	4,560	5,360	49,100	30,600	12,500	5,960	30,000	11,500	8,020	9,340	10,300	8,900
23	4,560	5,160	101,000	28,600	12,000	5,960	22,500	10,500	8,020	9,340	10,300	8,900
24	4,760	5,160	122,000	32,000	11,500	5,560	17,600	10,300	8,020	9,340	10,300	8,680
25	4,760	5,160	101,000	39,800	10,500	5,760	15,400	10,100	8,020	9,340	10,300	8,240
26	4,760	5,760	92,000	37,600	10,300	5,760	13,800	9,320	8,240	9,340	10,300	8,460
27	4,960	6,760	97,100	36,500	9,580	5,960	12,200	9,340	8,240	9,580	10,100	8,240
28	5,160	6,360	99,800	35,600	9,580	8,460	11,300	8,900	8,240	9,580	9,340	8,460
29	5,760	9,290	83,800	34,200	-----	8,020	10,300	8,460	8,240	9,580	9,120	8,460
30	6,160	11,000	65,600	32,800	-----	6,960	10,100	8,240	8,020	9,580	9,120	8,460
31	-----	-----	58,200	32,400	-----	6,560	-----	8,240	-----	9,580	9,120	-----
Total	163,380	248,050	1,026,720	1,484,900	553,760	219,960	504,340	307,780	237,580	276,880	305,160	255,120
Mean	5,270	8,268	33,120	47,900	19,780	7,095	16,310	9,923	7,919	8,932	9,844	8,504
Ac-ft	324,100	492,000	2,036,000	2,945,000	1,098,000	436,300	1,000,000	610,500	471,200	549,200	605,300	506,000

Calendar year 1964 Max 122,000 Min 4,560 Mean 10,380 Ac-ft 7,532,000

Water year 1964-65 Max 122,000 Min 4,560 Mean 15,300 Ac-ft 11,074,000

## 11-3895. Sacramento River at Colusa, Calif.

Location.--Lat 39°12'50", long 121°59'55", at north end of Jimeno Grant, on right bank just downstream from highway bridge at Colusa, Colusa County, at mile 89.4 upstream from Sacramento.

Drainage area.--12,110 sq mi.

Records available.--April 1921 to October 1939 (low-water periods only), June 1940 to September 1965.

Gage.--Water-stage recorder (digital). Gage is set to datum of Corps of Engineers which is 2.95 ft below mean sea level. Prior to December 1930, water-stage recorder in center fender pier 50 ft upstream from bridge at same datum.

Average discharge.--25 years (1940-65), 10,610 cfs (7,681,000 acre-ft per year).

Extremes.--Maximum discharge during year, 43,900 cfs Jan. 7 (gage height, 67.07 ft); minimum daily, 4,670 cfs Oct. 23.

1940-65: Maximum discharge, 49,000 cfs Feb. 8, 1942 (gage height, 69.20 ft).

1921-65: Minimum discharge recorded, 820 cfs July 25, 26, 1931 (gage height, 34.79 ft).

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. Records of chemical analyses for the water year 1965 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	7,650	5,960	9,370	34,700	31,200	9,540	6,900	9,810	7,720	7,620	9,190	8,780
2	7,490	5,940	10,200	32,600	30,400	8,970	6,950	9,550	7,690	7,560	9,230	8,710
3	7,010	5,950	11,500	31,900	30,300	8,580	9,120	9,080	7,650	7,620	9,220	8,210
4	6,490	6,140	10,500	34,700	28,400	8,340	9,330	8,450	7,610	7,730	9,190	8,120
5	5,920	5,790	8,530	36,000	27,100	8,170	8,020	7,930	7,590	7,760	9,140	8,140
6	5,440	5,550	7,230	39,800	27,700	8,090	7,300	7,410	7,580	7,820	9,130	8,180
7	5,260	5,440	6,540	43,500	29,200	8,010	8,630	7,210	7,590	7,850	9,120	8,280
8	5,150	5,240	6,090	42,100	28,000	7,980	10,400	9,070	7,560	7,840	9,130	8,430
9	5,100	5,800	5,770	40,000	26,400	7,980	15,200	10,100	7,510	7,840	9,110	8,520
10	5,100	15,600	5,560	38,200	25,400	7,970	30,800	10,000	7,470	7,840	9,110	8,310
11	5,100	20,800	5,550	36,700	24,200	7,780	28,400	9,930	7,440	7,940	9,280	8,180
12	5,100	16,500	6,680	34,400	22,800	7,600	21,000	9,810	7,390	8,350	9,510	8,200
13	5,040	17,100	7,070	33,200	20,800	7,990	15,800	9,640	7,330	8,470	9,900	8,210
14	5,010	12,100	6,260	32,000	19,100	8,200	13,100	9,800	7,280	8,410	9,880	8,300
15	4,900	8,830	5,820	31,400	17,600	7,670	12,100	9,830	7,200	8,420	9,830	8,450
16	4,900	7,450	5,560	31,100	17,000	7,250	14,000	9,790	7,080	8,530	9,780	8,470
17	4,900	6,740	5,400	31,000	16,100	6,950	22,700	9,840	6,980	8,800	9,720	8,480
18	4,890	6,330	5,250	30,500	15,200	6,830	21,200	10,000	6,910	8,870	9,650	8,630
19	4,840	6,070	5,200	30,500	14,400	6,740	18,800	10,500	7,170	8,950	9,760	8,710
20	4,790	5,830	10,100	30,900	13,900	6,610	25,200	10,600	7,630	8,880	9,960	8,660
21	4,700	5,680	12,900	30,600	13,100	6,580	26,000	10,600	7,700	8,880	9,870	8,710
22	4,700	5,610	23,700	30,300	12,300	6,600	27,700	10,800	7,730	8,900	9,900	8,800
23	4,670	5,600	36,400	29,400	11,900	6,600	24,900	10,600	7,750	8,930	9,930	8,890
24	4,690	5,580	41,900	28,800	11,500	6,600	19,700	10,000	7,740	8,910	9,860	8,810
25	4,700	5,510	41,200	32,800	10,800	6,600	16,100	9,820	7,730	8,960	9,880	8,480
26	4,770	5,760	39,700	32,900	10,200	6,600	14,100	9,470	7,700	9,020	9,910	8,430
27	4,830	6,600	39,400	32,500	9,920	6,600	12,500	8,900	7,690	9,060	9,750	8,410
28	5,010	6,800	39,900	32,300	9,700	7,430	11,500	8,460	7,690	9,090	9,100	8,410
29	5,470	7,330	38,900	32,000	-----	8,520	10,500	8,060	7,670	9,110	8,920	8,440
30	5,870	11,300	36,800	31,400	-----	7,460	9,990	7,870	7,650	9,130	8,840	8,430
31	6,000	-----	35,400	31,300	-----	6,960	-----	7,780	-----	9,140	8,820	-----
TOTAL	165,490	240,930	530,360	1,039,500	554,620	233,800	477,940	290,710	225,430	262,230	293,620	253,780
MEAN	5,338	8,031	17,110	33,530	19,810	7,542	15,930	9,378	7,514	8,459	9,472	8,459
AC-FT	328,200	477,900	1,052,000	2,062,000	1,100,000	463,700	948,000	576,600	447,100	520,100	582,400	503,400

CALENDAR YEAR 1964 MAX 41,900 MIN 4,500 MEAN 8,852 AC-FT 6,426,000  
 WATER YEAR 1964-65 MAX 43,500 MIN 4,670 MEAN 12,520 AC-FT 9,061,000

## SACRAMENTO RIVER BASIN

11-3897. Butte Creek at Butte Meadows, Calif.

Location.--Lat 40°04'05", long 121°34'25", in NW¼ sec.31, T.26 N., R.4 E., on right bank 1.0 mile downstream from small tributary, 1.5 miles southwest of Butte Meadows, and 15 miles northeast of Forest Ranch.

Drainage area.--44.4 sq mi.

Records available.--August 1960 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 4,260 ft (from topographic map).

Average discharge.--5 years, 124 cfs (89,770 acre-ft per year).

Extremes.--Maximum discharge during year, 4,290 cfs Dec. 22 (gage height, 7.64 ft), minimum daily, 51 cfs Oct. 18-19, 23. 1960-65: Maximum discharge, that of Dec. 22, 1964; minimum, 46 cfs Sept. 4, 1961.

Remarks.--Records good. No storage or diversion above station.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Dec. 21, 22)

Oct. 1 to Dec. 22				Dec. 22 to Sept. 30			
1.8	46	4.0	710	2.0	51	3.5	540
1.9	58	5.0	1,260	2.2	77	4.0	830
2.1	86	6.0	2,060	2.4	120	5.0	1,510
2.5	160	7.0	3,180	2.7	205	6.0	2,390
3.0	305			3.0	310	7.0	3,470

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	52	83	122	314	208	151	175	390	190	86	69	63
2	52	73	122	289	202	148	172	354	181	86	69	63
3	52	61	91	272	196	145	166	326	173	84	67	63
4	53	58	80	261	196	145	169	318	173	82	67	63
5	53	57	73	435	240	145	175	300	172	82	67	63
6	53	56	71	523	219	143	175	278	163	81	67	63
7	53	56	72	366	202	145	169	261	154	79	67	63
8	53	69	72	303	196	142	169	254	145	77	66	63
9	53	136	76	272	184	145	169	250	140	77	66	63
10	52	85	96	261	178	148	163	254	135	77	64	62
11	53	75	128	272	169	155	163	259	132	77	124	62
12	52	88	91	247	166	163	163	264	129	76	88	62
13	52	72	82	226	163	154	160	264	122	76	73	62
14	52	65	79	222	157	148	163	268	125	74	69	61
15	52	62	79	230	151	148	245	268	122	74	69	61
16	53	59	73	219	148	148	425	272	120	73	73	61
17	52	59	59	208	145	148	310	275	140	73	71	61
18	51	59	72	208	145	148	306	268	130	73	82	59
19	51	59	85	212	145	145	362	264	118	71	71	59
20	52	59	153	205	148	148	415	254	112	71	69	59
21	53	59	1090	202	148	154	470	250	108	70	73	61
22	52	61	3350	196	148	163	410	230	105	70	71	61
23	51	59	3250	329	142	166	378	216	105	70	69	61
24	52	65	1660	358	140	175	378	208	102	69	66	61
25	53	78	1080	292	140	166	386	199	100	69	64	61
26	53	79	1060	268	142	175	410	196	98	69	64	61
27	54	69	830	244	187	190	410	196	93	69	64	62
28	57	79	620	230	160	178	430	196	91	69	63	62
29	68	73	490	219	-----	169	440	199	90	69	63	61
30	57	75	410	219	-----	169	425	196	88	69	63	61
31	56	-----	354	212	-----	175	-----	193	-----	69	63	-----
Total	1,652	2,088	15,980	8,314	4,765	4,847	8,551	7,919	3,865	2,311	2,181	1,848
Mean	53.3	69.6	515	268	170	156	285	255	129	74.5	70.4	61.6
Ac-ft	3,280	4,140	31,700	16,490	9,450	9,610	16,960	15,710	7,670	4,580	4,330	3,670

Calendar year 1964 Max 3,350 Min 51 Mean 124 Ac-ft 89,880  
Water year 1964-65 Max 3,350 Min 51 Mean 176 Ac-ft 127,600

Peak discharge (base, 350 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-22	1200	7.64	4,290	4-16	0200	3.52	550
1-5	2000	3.73	668	4-28	2000	3.44	510
1-23	1830	3.60	590				



11-3900. Butte Creek near Chico, Calif.

Location.--Lat 39°43'34", long 121°42'28", in NW¼NW¼ sec.36, T.22 N., R.2 E., on right bank 0.7 mile downstream from Little Butte Creek and 7.5 miles east of Chico.

Drainage area.--147 sq mi.

Records available.--October 1930 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder (digital). Altitude of gage is 320 ft (from topographic map). Prior to Aug. 13, 1944, at site 0.4 mile upstream at different datum.

Average discharge.--35 years, 393 cfs (284,500 acre-ft per year), unadjusted.

Extremes.--Maximum discharge during year, 21,200 cfs Dec. 22 (gage height, 14.12 ft) from rating curve extended above 8,900 cfs on basis of slope-area measurement at gage-height 13.35 ft; minimum daily, 102 cfs Nov. 24. 1930-1965: Maximum discharge, that of Dec. 22, 1964; minimum, 10 cfs Nov. 29, 1952.

Remarks.--Records good. Flow slightly regulated by storage in Magalia Reservoir (capacity, 3,540 acre-ft) and Paradise Reservoir (usable capacity, 6,430 acre-ft). Diversions above station for irrigation and domestic use of about 4,200 acre-ft annually. Butte Creek receives water above station from West Branch Feather River by way of Toadtown Canal. Records of chemical analyses and water temperatures for the water year 1965 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	115	203	252	1,090	471	487	521	811	380	206	184	149
2	115	296	395	1,060	762	460	501	746	371	208	178	140
3	112	199	415	1,550	716	448	480	676	370	210	177	147
4	112	150	320	2,040	700	441	467	662	367	205	178	146
5	115	115	276	8,390	976	434	474	647	366	199	164	146
6	115	120	248	6,480	950	441	480	606	354	194	158	146
7	115	117	224	3,490	830	434	474	576	340	191	156	152
8	115	132	215	2,240	756	434	571	557	331	190	160	151
9	117	679	210	1,710	712	415	1,140	543	326	208	160	151
10	117	619	211	1,440	666	428	921	529	315	205	156	149
11	115	420	426	1,390	631	422	704	540	311	203	158	147
12	115	504	338	1,290	601	467	647	545	311	203	306	147
13	110	345	285	1,150	581	454	656	550	304	202	182	146
14	115	248	267	1,060	569	428	690	547	307	197	168	144
15	115	210	265	1,080	542	415	976	534	305	195	154	144
16	117	185	233	1,050	514	409	2,950	525	293	195	154	143
17	117	171	184	992	497	409	1,640	536	295	194	170	138
18	115	164	220	976	491	403	1,360	523	308	192	174	140
19	115	157	510	1,000	493	397	1,440	513	290	192	180	142
20	115	135	1,020	968	487	391	1,380	498	279	191	165	142
21	115	144	7,740	912	487	391	1,450	499	273	192	157	142
22	123	150	16,600	856	480	403	1,300	476	268	190	171	143
23	109	138	9,020	1,330	460	415	1,140	448	260	186	165	143
24	117	102	4,890	2,020	448	441	1,060	435	246	186	157	142
25	117	112	3,090	1,390	441	422	1,020	420	237	185	153	142
26	117	150	3,370	1,180	441	441	984	415	238	187	151	150
27	126	144	3,070	1,050	599	803	962	405	231	189	150	173
28	132	276	2,120	968	539	689	920	396	223	187	148	156
29	196	335	1,710	888	-----	571	910	390	217	183	146	148
30	188	252	1,460	848	-----	528	856	387	209	181	148	143
31	141	-----	1,280	840	-----	516	-----	384	-----	184	148	-----
TOTAL	3,778	6,972	60,864	52,728	16,840	14,237	29,074	16,319	8,925	6,030	5,176	4,392
MEAN	122	232	1,963	1,701	601	459	969	526	298	195	167	146
AC-FT	7,490	13,830	120,700	104,600	33,400	28,240	57,670	32,370	17,700	11,960	10,270	8,710
Meant†	52.1	52.8	90.6	116	121	118	123	121	105	91.9	76.3	64.2
Ac-ft†	3,210	3,140	5,580	7,160	6,700	7,270	7,310	7,460	6,260	5,650	4,700	3,820

Calendar year 1964: Max 16,600 Min 99 Mean 394 Ac-ft 285,800 Meant 79.2 Ac-ft† 57,560  
 Water year 1964-65: Max 16,600 Min 102 Mean 617 Ac-ft 446,900 Meant 94.3 Ac-ft† 68,260

## Peak discharge (base, 2,700 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-22	1400	14.12	21,200	1-23	2115	5.29	3,160
12-26	2215	6.43	4,410	4-16	0515	5.86	3,780
1-5	1930	13.04	17,600				

† Toadtown Canal diversion from West Branch Feather River.

Records furnished by Pacific Gas and Electric Company.

Note.--No gage height record Sept. 17-30.

## SACRAMENTO RIVER BASIN

11-3905. Sacramento River below Wilkins Slough, Calif.

Location.--Lat 39°00' 35", long 121°49'25", in Jimeno Grant, on right bank 1,500 ft downstream from Wilkins Slough, Colusa County, 6 miles southeast of Grimes, and at mile 62.9 upstream from Sacramento.

Drainage area.--12,940 sq mi.

Records available.--August 1931 to September 1938 (low-water periods only), October 1938 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder. Gage is set to datum of Corps of Engineers which is 3.00 ft below mean sea level.

Average discharge.--27 years (1938-65), 9,280 cfs (6,718,000 acre-ft per year).

Extremes.--Maximum discharge during year, 27,500 cfs Dec. 25 (gage height, 49.91 ft); minimum daily, 4,650 cfs Oct. 22-24.

1938-65: Maximum discharge, 28,900 cfs Feb. 27, 1958 (gage height, 51.41 ft); maximum gage height, 52.75 ft Mar. 1, 1940.

1931-65: Minimum discharge recorded, 100 cfs Aug. 1, 1931 (gage height, 14.20 ft).

Remarks.--Records good. Natural flow of stream affected by storage reservoirs, power developments, bypassing for flood control, diversions for irrigation, and return flow from irrigated areas.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7,710	6,360	10,800	25,800	24,400	10,300	7,500	8,750	6,910	6,480	8,390	8,300
2	7,710	6,360	10,000	25,600	24,400	9,330	7,500	8,570	6,910	6,480	8,480	8,300
3	7,350	6,360	11,800	25,500	24,300	9,380	8,390	8,210	6,820	6,910	8,390	8,030
4	6,910	6,450	11,900	25,800	24,000	9,110	10,600	7,590	6,910	7,080	8,390	7,760
5	6,270	6,270	10,000	25,900	23,800	9,020	9,200	7,160	6,820	7,080	8,300	7,350
6	5,640	6,000	8,400	26,200	23,800	9,020	8,120	6,480	6,910	7,000	8,210	7,940
7	5,190	5,820	7,350	26,300	24,400	8,750	8,120	6,320	6,740	6,910	8,210	8,030
8	5,100	5,640	6,810	27,100	24,200	8,750	11,300	7,250	6,660	6,910	8,210	8,210
9	5,010	5,640	6,360	26,500	23,800	8,840	12,600	9,290	6,660	6,820	8,210	8,300
10	4,920	11,400	6,090	26,100	23,700	8,840	24,600	9,650	6,480	6,820	8,210	8,390
11	5,010	20,100	6,000	25,800	23,500	8,750	26,000	9,470	6,480	7,080	8,300	8,210
12	5,010	19,400	6,360	25,300	23,100	8,480	23,500	9,380	6,320	7,340	8,570	8,300
13	5,010	18,400	7,530	25,200	21,300	8,660	18,200	9,020	6,230	7,500	9,020	8,390
14	4,920	15,800	7,080	25,100	19,500	9,200	14,800	9,020	6,230	7,500	9,290	8,390
15	4,830	11,300	6,540	24,900	18,400	8,600	13,200	9,200	6,230	7,500	9,290	8,660
16	4,830	9,180	6,180	25,000	17,600	8,300	13,300	8,930	6,140	7,500	9,200	8,840
17	4,920	8,100	6,000	25,000	17,100	7,940	20,600	9,020	5,980	7,760	9,110	8,840
18	4,920	7,530	5,820	25,000	16,000	7,760	22,400	9,110	5,890	7,940	9,110	9,110
19	4,920	7,080	5,820	24,700	15,200	7,590	19,200	9,560	6,140	7,940	9,110	9,290
20	4,920	6,720	7,890	25,000	14,800	7,500	23,900	9,740	6,740	7,940	9,290	9,290
21	4,740	6,360	13,300	24,900	14,400	7,500	23,800	9,740	6,910	7,850	9,290	9,110
22	4,650	6,180	17,700	24,700	13,600	7,250	24,000	10,010	6,910	7,940	9,380	9,380
23	4,650	6,090	25,300	24,700	12,900	7,160	23,400	10,010	6,820	7,940	9,380	9,290
24	4,650	6,090	26,500	24,500	12,600	7,000	20,700	9,650	6,820	7,940	9,290	9,290
25	4,740	6,000	27,400	25,000	12,100	6,820	16,700	9,290	6,740	8,030	9,290	9,110
26	4,830	6,090	27,300	25,000	11,500	7,000	14,200	9,110	6,660	8,120	9,380	8,930
27	4,920	6,630	26,900	25,000	11,100	7,000	12,400	8,480	6,660	8,120	9,290	8,840
28	5,100	7,350	26,700	24,900	10,500	7,250	11,100	8,030	6,660	8,120	8,930	8,750
29	5,550	7,170	26,500	25,000	-----	8,840	10,000	7,500	6,660	8,120	8,480	8,750
30	6,000	10,400	26,200	24,700	-----	8,480	9,110	7,160	6,660	8,210	8,390	8,750
31	6,270	-----	25,900	24,900	-----	7,760	-----	7,000	-----	8,300	8,300	-----
Total	167,100	258,270	424,430	785,600	526,000	256,680	467,440	267,700	197,700	233,180	272,690	258,530
Mean	5,390	8,609	13,690	25,340	18,780	8,288	15,580	8,635	6,590	7,522	8,796	8,621
Ac-ft	331,400	512,300	841,800	1,558,000	1,043,000	509,100	927,200	531,000	392,100	462,500	540,900	513,000

Calendar year 1964 Max 27,400 Min 3,870 Mean 8,288 Ac-ft 6,016,000  
 Water year 1964-65 Max 27,400 Min 4,650 Mean 11,280 Ac-ft 8,162,000

11-3906.55. South Fork Willow Creek near Fruto, Calif.

Location.--Lat 39°32'30", long 122°23'20", in S $\frac{1}{4}$  sec.35, T.20 N., R.5 W., on right bank 150 ft downstream from county road bridge and 4.5 miles southeast of Fruto.

Drainage area.--38.9 sq mi (revised).

Records available.--July 1963 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 375 ft (from topographic map).

Extremes.--Maximum discharge during year, 1,920 cfs, Jan. 5 (gage height, 9.9 $\frac{1}{4}$  ft), from rating curve extended above 50 cfs on basis of slope-area measurement of maximum flow; no flow for several months.

1963-65: Maximum discharge, that of Jan. 5, 1965; no flow for several months each year.

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

Rating table (gage height, in feet, and discharge, in cubic feet per second)

2.48	0	3.0	8.3	4.5	120
2.5	.1	3.2	16	5.0	194
2.6	.6	3.6	36	6.0	380
2.7	1.8	4.0	66	7.0	655
2.8	3.4				

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0	0	0.3		0					
2		0	0	.4	.2		0					
3		0	0	101	.2		0					
4		0	0	43	.3		0					
5		0	0	586	.6		0					
6		0	0	69	.3		0					
7		0	0	20	.2		0					
8		0	0	9.8	.2		12					
9		0	0	6.1	.1		57					
10		.6	0	4.4	.2		29					
11		.1	0	3.4	.1		6.4					
12		.2	0	2.2	.1		2.9					
13		0	0	1.4	.1		1.7					
14		0	0	1.3	.1		1.4					
15		0	0	1.0	.1		1.3					
16		0	0	.8	0		1.3					
17		0	0	.7	0		.7					
18		0	0	.6	0		.6					
19		0	0	.6	0		.8					
20		0	0	.6	0		.6					
21		0	0	.5	0		.4					
22		0	8.7	.3	0		.3					
23		0	19.4	.8	0		.2					
24		0	.8	.5	0		.2					
25		0	.1	.5	0		.1					
26		0	0	.4	0		.2					
27		0	0	.3	0		.2					
28		0	0	.4	0		.2					
29		0	0	.4	-----		.1					
30		0	0	.3	-----		.1					
31		-----	0	.3	-----		-----		-----			-----
Total	0	0.9	29.0	857.0	3.10	0	117.7	0	0	0	0	0
Mean	0	0.03	0.94	27.6	0.11	0	3.92	0	0	0	0	0
Ac-ft	0	1.8	58	1700	6.1	0	233	0	0	0	0	0

Calendar year 1964 Max 19.4 Min 0 Mean 0.08 Ac-ft 60  
 Water year 1964-65 Max 586 Min 0 Mean 2.76 Ac-ft 2,000

Peak discharge (base, 100 cfs).--Jan. 5 (1500) 1,920 cfs (9.9 $\frac{1}{4}$  ft); April 9 (0300) 130 cfs (4.57 ft).

## SACRAMENTO RIVER BASIN

11-3906.6. Walker Creek at Artois, Calif.

Location.--Lat 39°37'32", long 122°11'45", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.34, T.21 N., R.3 W., on left bank 500 ft upstream from county road bridge and 0.3 mile north of Artois.

Drainage area.--60.4 sq mi.

Records available.--July to September 1965.

Gage.--Water-stage recorder (digital). Datum of gage is 156.4 ft above mean sea level (levels by Corps of Engineers).

Extremes.--Maximum discharge during period July to September, 19 cfs Aug. 13 (gage height, 3.30 ft); minimum daily, 1.0 cfs Aug. 10.

Remarks.--Records good. No known storage above station. Several small diversions for irrigation above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1										-	7.7	1.2
2										-	6.8	1.8
3										-	3.3	6.2
4										-	2.6	5.6
5										-	4.5	3.2
6										-	7.1	3.6
7										-	6.4	2.7
8										-	5.9	11
9										-	3.6	15
10										-	1.0	12
11										-	1.2	12
12										-	1.5	8.1
13										-	15	5.9
14										-	11	3.3
15										-	11	4.8
16										4.8	5.9	7.6
17										3.1	5.0	12
18										2.4	4.0	12
19										3.4	5.5	5.9
20										2.6	6.6	2.7
21										3.8	4.5	1.5
22										8.6	4.4	1.3
23										5.2	3.6	7.9
24										5.6	2.9	7.6
25										4.7	2.7	4.1
26										3.9	3.0	5.1
27										5.0	4.6	4.7
28										5.8	7.8	6.0
29										7.1	4.7	5.3
30										4.8	5.6	7.6
31										4.0	3.3	-----
TOTAL										-	162.7	187.7
MEAN										-	5.25	6.26
AC-FT										-	323	372
Calendar year 1964:	Max	-	Min	-	Mean	-	Ac-ft	-				
Water year 1964-65:	Max	-	Min	-	Mean	-	Ac-ft	-				

11-3910. Sacramento River at Knights Landing, Calif.

Location.--Lat 38°48'10", long 121°42'55", in NE $\frac{1}{4}$  sec.14, T.11 N., R.2 E., on left bank just upstream from Southern Pacific Railroad bridge at Knights Landing, 13.1 miles upstream from Feather River and at mile 34.0 upstream from Sacramento.

Drainage area.--14,550 sq mi.

Records available.--April 1921 to October 1939 (low-water periods only), June 1940 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder. Gage is set to datum of Corps of Engineers which is 2.93 ft below mean sea level. Prior to Dec. 9, 1930, in fender pier of railroad bridge at same datum. Water-stage recorder for station at Verona was used as auxiliary gage for this station January 1941 to June 1945. Since Aug. 16, 1945, auxiliary water-stage recorder 6.0 miles downstream from base gage.

Average discharge.--25 years (1940-65), 10,000 cfs (7,240,000 acre-ft per year).

Extremes.--Maximum discharge during year, 27,300 cfs Dec. 26 (gage height, 40.60 ft); maximum gage height, 41.10 ft Dec. 25 (backwater from Feather River and Sutter bypass); minimum daily discharge, 4,350 cfs Oct. 22; minimum gage height, 15.86 ft Oct. 22. 1940-65: Maximum discharge, 30,000 cfs Dec. 3, 1960 (gage height, 30.31 ft); maximum gage height, 41.83 ft Feb. 8, 1942 (backwater from Feather River and Sutter bypass). 1921-1965: Minimum discharge recorded, 250 cfs July 23, 1931 (gage height, 7.80 ft).

Remarks.--Records good. Natural flow of stream affected by storage reservoirs, power developments, bypassing for flood control, diversions for irrigation, and considerable return flow from irrigated areas. Records of chemical analyses near this gaging station for water year 1965 are published in Part 2 of this report.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7,960	6,340	11,200	25,800	24,800	11,200	8,630	9,140	8,330	6,840	8,950	9,140
2	7,960	6,730	10,200	25,500	24,800	11,200	8,540	10,100	8,320	6,630	9,080	9,190
3	7,810	6,840	11,200	25,300	24,900	10,600	8,800	9,420	8,190	6,970	9,060	9,060
4	7,260	6,960	12,100	25,200	24,600	9,900	10,800	8,370	7,970	7,230	8,890	8,750
5	6,610	6,830	11,300	25,600	24,300	10,000	11,200	7,470	7,840	7,230	8,780	8,920
6	6,010	6,560	9,700	26,600	24,300	9,710	9,110	6,480	8,070	7,210	8,560	9,110
7	5,560	6,230	8,390	26,500	24,700	9,490	8,690	6,270	7,470	6,990	8,610	9,210
8	5,480	6,190	7,470	26,600	24,700	9,300	10,700	6,960	7,620	6,970	8,710	9,530
9	5,320	5,980	6,990	27,100	24,300	8,950	12,100	8,510	7,790	6,750	8,560	9,740
10	5,280	9,540	6,710	26,600	24,300	8,800	23,100	8,640	7,640	6,730	8,510	9,980
11	5,460	19,200	6,510	25,300	24,200	8,580	25,900	8,590	7,520	7,010	8,680	10,100
12	5,340	20,200	6,510	25,500	23,400	8,430	23,700	8,550	7,280	7,310	9,450	10,300
13	5,280	18,600	7,750	25,600	22,300	8,360	19,600	8,640	7,260	7,540	10,200	10,300
14	5,120	17,400	7,860	24,600	20,700	8,440	15,900	8,940	6,920	7,660	10,700	10,400
15	5,210	14,100	7,190	24,700	19,200	8,610	14,100	9,460	6,670	7,560	10,300	10,500
16	5,110	11,400	6,640	24,500	18,300	8,300	12,700	9,620	6,420	7,610	10,400	10,600
17	5,110	9,410	6,420	24,300	17,500	8,200	16,900	9,710	6,260	7,780	10,200	10,500
18	5,200	8,520	6,240	24,200	16,700	8,030	21,800	9,960	6,110	8,060	10,200	10,400
19	5,140	7,780	6,130	24,700	15,900	7,960	19,500	10,500	6,230	8,100	9,930	10,400
20	5,040	7,290	6,790	24,800	15,700	7,760	21,500	10,900	7,020	8,160	10,100	10,300
21	4,950	6,910	11,300	24,800	15,300	7,860	23,700	11,200	7,040	8,000	10,200	10,100
22	4,850	6,500	15,600	25,000	14,500	7,750	23,600	11,800	7,010	8,090	10,200	10,200
23	4,970	6,320	21,600	24,500	14,000	7,770	23,700	12,200	6,980	8,080	10,300	10,400
24	4,980	6,260	24,800	24,100	13,600	7,650	21,900	11,900	6,880	8,100	10,100	10,200
25	5,110	6,210	26,400	24,200	13,300	7,590	18,000	11,500	6,820	8,300	10,000	9,870
26	5,110	6,090	26,900	24,900	12,600	7,670	15,500	11,100	6,910	8,410	10,300	9,560
27	5,430	6,500	26,100	24,800	12,300	7,690	13,600	10,300	7,060	8,480	10,200	9,500
28	5,640	7,350	26,100	24,500	11,900	7,690	12,000	9,720	6,960	8,460	10,000	9,510
29	5,940	7,320	26,100	24,500	-----	9,430	11,300	9,280	7,030	8,440	9,550	9,550
30	6,350	9,120	25,300	24,500	-----	9,690	10,100	8,900	6,900	8,480	9,170	9,470
31	6,620	-----	25,000	24,700	-----	9,050	-----	8,750	-----	8,610	9,050	-----
Total	177,210	271,180	418,500	780,000	547,100	271,660	476,670	292,880	216,520	237,590	297,440	294,890
Mean	5,716	9,039	13,500	25,160	19,540	8,760	15,890	9,449	7,217	7,667	9,595	9,830
Ac-ft	351,500	537,900	830,100	1,547,000	1,085,000	538,800	945,500	580,900	429,500	471,500	590,000	584,900

Calendar year 1964 Max 26,900 Min 3,610 Mean 8,662 Ac-ft 6,288,000  
 Water year 1964-65 Max 27,100 Min 4,850 Mean 11,730 Ac-ft 8,493,000

11-3914. Little Last Chance Creek near Chilcote, Calif.

Location.--Lat 39°52'00", long 120°10'05", in ~~NE 1/4~~ sec.10, T.23 N., R.16 E., on left bank 300 ft (corrected) downstream from highway bridge, 0.9 mile downstream from unnamed tributary, 4.5 miles north of Vinton, and 5.0 miles north of Chilcote.

Drainage area.--84.2 sq mi.

Records available.--October 1958 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 5,140 ft (from topographic map).

Average discharge.--7 years, 17.5 cfs (12,670 acre-ft per year)

Extremes.--Maximum discharge during year, 384 cfs Apr. 30 (gage height, 5.04 ft); minimum daily, 1.4 cfs Oct. 3, 4.  
1958-65: Maximum discharge, 784 cfs Feb. 8, 1960 (gage height, 5.56 ft), from rating curve extended above 310 cfs; no flow Oct. 23, 1959, July 24-27, 29, Aug. 4, 1961.

Remarks.--Flow regulated by Frenchman Reservoir beginning Nov. 7, 1961 (usable capacity, 48,000 acre-ft).

Cooperation.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.2	5.8	2.9	3.0	6.5	6.3	8.8	364	73	13	55	81
2	1.6	4.7	2.9	4.5	6.3	5.5	9.6	350	64	13	55	80
3	1.4	2.2	2.8	5.0	6.0	5.1	9.4	324	86	18	45	79
4	1.4	2.2	2.8	5.2	5.9	5	8.5	288	79	13	25	79
5	1.5	2.2	2.8	5.0	6.1	4.5	8.8	263	74	13	30	79
6	1.9	2.2	2.8	5.0	6.0	4.4	9.4	246	73	17	35	79
7	1.8	2.2	2.9	4.7	5.7	4.4	8.0	222	68	17	34	53
8	1.9	2.2	2.9	7.0	5.4	4.2	7.8	201	64	17	34	35
9	2.1	3.2	2.9	5.4	4.5	4.5	7.3	180	80	17	43	35
10	2.0	2.9	2.9	4.2	4.0	4.8	6.8	165	114	17	52	31
11	2.1	2.9	2.9	4.2	3.5	5	6.9	153	130	17	52	13
12	2.4	3.1	2.8	4.3	4.0	5.7	6.7	146	129	21	52	17
13	3.4	2.8	2.8	4.3	4.0	5.5	7.2	145	134	28	52	16
14	4.6	2.7	2.9	4.2	4.0	5.4	7.2	141	152	21	52	15
15	4.6	2.6	2.9	4.2	1.6	5.5	1.8	136	135	16	52	14
16	4.6	2.7	2.8	4.3	5.3	5.8	8.3	134	121	16	52	14
17	4.6	2.7	2.8	4.1	5.3	6	114	135	88	16	56	14
18	4.6	2.7	2.8	4.0	7.1	5.9	7.3	152	44	16	36	13
19	4.6	2.8	2.8	4.1	110	5.7	106	128	33	16	23	13
20	4.6	2.8	3.6	4.0	111	5.8	166	126	28	19	22	12
21	4.6	2.8	7.7	4.0	110	6.6	242	123	29	26	22	11
22	4.6	2.8	27	4.0	110	7.2	292	130	29	26	21	10
23	4.6	2.8	20	7.7	110	7.9	317	126	23	21	21	9.2
24	4.6	2.9	12	9.9	107	9	326	116	18	48	25	8.1
25	4.7	3.0	3.7	7.4	107	7.6	331	105	18	55	29	7.6
26	4.9	2.7	12	6.4	107	7.2	340	98	17	55	29	7.2
27	4.9	2.6	13	6.0	105	7.4	345	92	18	77	38	7.1
28	5.2	2.6	9.2	5.5	105	7.1	351	108	18	99	44	6.9
29	5.3	2.4	7.5	5.2	-----	7	366	114	18	75	43	6.5
30	5.2	2.4	6.7	5.6	-----	7.6	374	106	18	55	65	5.9
31	5.2	-----	6.1	6.4	-----	8.0	-----	93	-----	55	83	-----
Total	111.7	84.6	187.5	159.9	1345.9	243.3	3953.4	5220	1975	353	1277	356.5
Mean	3.60	2.82	6.05	5.16	43.1	7.95	132	163	65.8	30.7	41.2	28.6
Ac-ft	222	168	372	317	2570	483	7840	10350	3920	1990	2530	1700

Calendar year 1964 Max 162 Min 1.4 Mean 18.5 Ac-ft 13,440  
Water year 1964-65 Max 374 Min 1.4 Mean 44.8 Ac-ft 32,460

Note.--Stage-discharge relation affected by ice No. 16, 19, 22, Dec. 4-18, Jan. 1, 2, Feb. 9-14, Mar 2,3.

11-3915. Big Grizzly Creek near Portola, Calif.

Location.--Lat 39°52'00", long 120°27'20", in NW 1/4 sec. 7, T.23 N., R.14 E., on left bank 500 ft upstream from small tributary, 4.3 miles upstream from mouth, and 4.5 miles north of Portola.

Drainage area.--45.5 sq mi.

Records available.--October 1925 to September 1932, October 1950 to September 1953, June 1954 to September 1965. Prior to October 1952, published as Grizzly Creek near Portola.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 5,320 ft (from topographic map). Oct. 26, 1925, to Sept. 30, 1932, at datum 2.04 ft higher.

Average discharge.--21 years, 39.0 cfs (28,230 acre-ft per year); median of yearly mean discharges, 32 cfs (23,200 acre-ft per year).

Extremes.--Maximum discharge during year, 2,530 cfs Dec. 22 (gage height, 7.11 ft) from rating table extended above 600 cfs as explained below; minimum daily, 0.5 cfs Oct. 1, 2, 17-19, 21.

1925-32, 1950-53, 1954-65: Maximum discharge, 4,080 cfs Feb. 1, 1963 (gage height, 8.03 ft), from rating curve extended above 600 cfs on basis of slope-area measurement of maximum flow; maximum gage height, 9.54 ft present datum Mar. 26, 1928; no flow Jan. 22 or 23, 1962.

Remarks.--Records good except those for periods of ice effect and backwater from beaver dams, which are fair. No storage above station. Records of water temperatures and suspended sediment loads for the water year 1965 are published in Part 2 of this report. Diversions for irrigation of about 400 acres above station.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.5	1.6	7.5	81	84	59	144	325	79	11	3.4	2.5
2	.5	1.9	13	88	84	53	131	274	73	10	3.2	5.1
3	.6	1.9	10	53	81	50	123	203	69	9.2	2.5	5.1
4	.6	1.6	7.5	57	78	43	156	194	66	3.0	2.5	3.4
5	.7	1.6	4.4	47	79	44	176	203	62	6.5	2.1	3
6	.7	1.6	3.2	40	82	43	166	169	58	5.1	2.1	3.2
7	.7	1.5	3	40	82	44	123	143	53	5.5	1.9	5.1
8	.7	1.8	3	58	81	43	100	123	52	4.7	1.8	4.7
9	.7	4.0	4.7	58	69	56	91	120	48	3.7	1.6	4.0
10	.7	4.7	10	50	64	53	81	116	43	3.4	1.6	3.4
11	.7	2.5	42	49	59	61	69	120	38	3.4	2.5	3.0
12	.7	2.7	21	52	55	63	86	121	36	3.7	2.6	2.7
13	.7	1.9	9.0	56	49	61	97	123	33	3.7	7.5	2.5
14	.7	1.5	5.5	57	45	56	103	126	33	3.4	5.1	2.5
15	.6	1.5	5.1	53	44	58	162	130	40	3.7	8.6	2.5
16	.6	1.5	4.0	52	42	60	289	133	39	7.0	9.0	2.3
17	.5	1.6	2.7	50	40	72	203	146	45	11	5.1	2.3
18	.5	1.6	2.1	49	38	69	252	144	58	13	6.0	2.3
19	.5	1.6	1.8	43	40	68	492	142	35	6.0	5.1	2.3
20	.6	1.6	2.2	43	43	72	335	142	27	4.0	4.0	2.3
21	.5	1.6	855	48	49	75	877	142	23	3.4	3.4	2.3
22	.6	1.6	1,380	43	53	124	584	139	20	3.2	3.4	2.3
23	.8	1.6	1,410	52	56	164	479	110	25	3.0	3.4	2.3
24	.8	1.9	773	69	52	154	500	97	20	2.7	3.0	2.1
25	.8	3.0	643	79	52	112	472	91	18	3.0	2.7	2.1
26	1.0	4.0	398	82	54	92	432	86	15	3.2	2.5	2.1
27	1.3	3.2	295	83	60	87	408	84	16	2.7	2.7	2.3
28	1.4	3.4	139	90	62	83	394	83	27	2.5	2.7	2.3
29	1.4	4.0	110	86	-----	99	397	82	16	2.3	2.5	2.3
30	1.8	4.4	81	82	-----	120	369	82	13	2.1	2.5	2.3
31	1.6	-----	71	83	-----	130	-----	80	-----	2.7	2.3	-----
Total	24.5	63.9	6,820.7	1,893	1,677	2,383	8,796	4,293	1,180	156.8	114.3	86.6
Mean	0.79	2.30	220	61.1	59.9	77.0	293	138	39.3	5.06	3.69	2.89
Ac-ft	49	137	13,530	3,750	3,330	4,740	17,450	8,520	2,340	311	227	172

Calendar year 1964 Max 1,880 Min 0.3 Mean 36.2 Ac-ft 26,300

Water year 1964-65 Max 1,880 Min 0.5 Mean 75.3 Ac-ft 54,560

Peak discharge (base, 410 cfs).--Dec. 22 (1700 hrs) 2,530 cfs (7.11 ft); Apr. 20 (2100 hrs) 1,150 cfs (5.88 ft).

Note.--Stage-discharge relation affected by ice Nov. 15, 18-21. Backwater from beaver dams Oct. 1 to Nov. 17.

11-3925. Middle Fork Feather River near Clito, Calif.

Location.--Lat 39°45'10", long 120°35'40", in SE $\frac{1}{4}$  sec.23, T.22 N., R.12 E., on left bank 0.6 mile upstream from Frazier Creek, 1.0 mile northwest of Clito, and 2.2 miles southeast of Blairsden.

Drainage area.--686 sq mi.

Records available.--October 1925 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 4,380 ft (from topographic map). Prior to July 29, 1953, at site 0.5 mile downstream at different datum.

Average discharge.--40 years, 276 cfs (200,000 acre-ft per year).

Extremes.--Maximum discharge during year, 11,100 cfs Dec. 24 (gage height, 14.82 ft); minimum daily, 12 cfs Oct. 1, 2. 1925-65: Maximum discharge, 14,500 cfs Feb. 1, 1963 (gage height, 16.19 ft); minimum, 4.3 cfs Sept. 5, 1934.

Remarks.--Records good. Diversions for irrigation of about 40,000 acres above station, of which 14,500 acres receive supplemental water of about 7,000 acre-ft annually from Little Truckee River. Records of water temperatures for the water year 1965 are published in Part 2 of this report.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Apr. 11-15, May 12-27)

2.4	11	6.0	575
2.6	22	7.0	970
2.8	37	8.0	1,470
3.0	54	10.0	2,980
3.5	110	12.0	5,380
4.0	175	14.0	9,300
5.0	324	15.0	11,600

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	49	128	764	1,070	1,220	804	1,270	297	119	39	42
2	12	39	133	760	1,120	844	840	1,200	299	110	39	42
3	14	32	116	728	1,080	700	800	1,130	301	101	39	42
4	14	32	118	645	1,050	642	784	1,100	301	98	39	42
5	13	33	123	823	1,220	589	800	1,090	297	93	39	41
6	13	35	110	1,460	1,580	552	792	988	283	83	38	50
7	14	35	95	1,370	1,400	536	740	898	269	83	36	53
8	14	37	91	1,360	1,200	521	720	824	278	78	35	54
9	16	108	91	1,740	952	501	712	784	294	72	35	59
10	16	77	97	1,440	736	490	688	916	286	72	35	77
11	16	92	157	1,340	606	487	656	688	270	70	53	72
12	16	155	136	1,360	592	536	628	645	256	66	78	59
13	16	93	105	1,450	568	645	642	603	230	67	44	53
14	16	82	109	1,460	555	712	600	558	217	61	60	51
15	17	74	120	1,200	533	744	652	533	227	59	55	50
16	17	64	109	1,010	509	700	1,150	527	217	88	49	48
17	17	61	93	860	524	638	974	549	242	108	59	47
18	17	57	74	792	572	565	1,020	542	272	95	63	47
19	17	50	113	796	648	527	1,300	536	252	70	86	47
20	17	48	171	800	744	509	1,630	552	245	60	50	47
21	18	48	1,830	832	816	521	1,880	530	244	55	45	47
22	18	54	6,100	907	884	565	1,790	509	226	53	46	47
23	18	57	9,550	1,380	816	628	1,520	498	206	50	47	46
24	18	64	9,600	2,060	708	708	1,600	471	189	48	48	45
25	18	75	5,930	2,840	692	700	1,550	458	174	48	49	45
26	18	102	4,210	2,650	684	696	1,450	471	161	47	50	45
27	19	87	3,560	1,950	1,010	776	1,430	440	153	47	49	46
28	20	89	2,480	1,510	1,200	784	1,390	394	153	43	46	49
29	22	97	1,480	1,120	-----	832	1,390	346	153	39	45	50
30	21	93	1,130	1,030	-----	780	1,340	277	132	39	43	50
31	21	-----	810	1,060	-----	728	-----	288	-----	39	42	-----
Total	515	2,019	48,969	40,097	24,069	20,376	32,272	20,615	7,129	2,161	1,481	1,493
Mean	16.6	67.3	1,580	1,293	860	657	1,076	665	238	69.7	47.8	49.8
Ac-ft	1,020	4,000	97,130	79,530	47,740	40,420	64,010	40,890	14,140	4,290	2,940	2,960

Calendar year 1964 Max 9,600 Min 9.5 Mean 263 Ac-ft 190,600  
Water year 1964-65 Max 9,600 Min 12 Mean 550 Ac-ft 399,100

Peak discharge (base, 850 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-24	0330	14.82	11,100	2-28	2300	7.85	1,380
1-8	1430	9.02	2,150	4-22	0200	8.97	2,110
1-25	1330	10.10	3,080				



11-3945. Middle Fork Feather River near Merrimac, Calif.

Location.--Lat 39°42'30", long 121°16'10", in NW 1/4 sec. 2, T.21 N., R.6 E., on left bank 400 ft downstream from bridge on Milsap Bar Road, 500 ft downstream from Little North Fork, 4.5 miles southeast of Merrimac, and 20 miles northeast of Oroville. Prior to Jan. 21, 1965 on right bank at same site.

Drainage area.--1,062 sq mi.

Records available.--October 1951 to September 1965.

Gage.--Water-stage recorder. Prior to Jan. 21, 1965, on right bank at same site and datum. Altitude of gage is 1,560 ft (from topographic map).

Average discharge.--14 years, 1,418 cfs (1,027,000 acre-ft per year); median of yearly mean discharges, 1,250 cfs (905,000 acre-ft per year).

Extremes.--Maximum discharge during year, 86,200 cfs Dec. 22 (gage height, 26.5 ft, from floodmarks, present site), from rating curve extended above 19,000 cfs on basis of slope-area measurement of maximum flow; minimum daily, 123 cfs Oct. 1-5. 1951-65: Maximum discharge, that of Dec. 22, 1964; minimum 92 cfs Jan. 2, 1960.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Diversions above station for irrigation of about 1,000 acres between stations near Clilo and near Merrimac. Records of chemical analysis and water temperatures for the water year 1965 are published in Part 2 of this report.

Revisions.--Revised figures of discharge, in cubic feet per second, for the water year 1960, superseding those published in WSP 1715, are given herewith.

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1960		1960-Con.		1960-Con.		1960-Con.	
Sept. 15	123	Sept. 19	126	Sept. 23	125	Sept. 27	126
16	126	20	125	24	131	28	125
17	126	21	125	25	126	29	125
18	126	22	124	26	126	30	126

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in ac-ft
September 1960.....	3,788	143	119	126	7,510
Water year 1959-60	336,485	23,800	119	919	667,300
Calendar year--60	351,075	23,800	119	959	696,200

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	123	324	1,000	4,500	3,230	2,740	2,310	5,270	2,140	745	285	240
2	123	436	1,540	4,000	3,100	2,500	2,300	4,690	2,080	719	280	240
3	123	264	980	4,500	3,000	2,100	2,230	4,150	2,080	680	280	235
4	123	208	730	5,000	3,150	1,880	2,160	3,900	2,140	650	280	235
5	123	192	625	9,000	4,000	1,840	2,230	3,850	2,100	632	280	230
6	125	190	550	8,000	3,400	1,780	2,240	3,470	2,000	596	271	248
7	125	188	504	7,000	3,120	1,730	2,110	3,150	1,890	566	266	280
8	125	195	464	6,000	2,820	1,700	2,130	2,940	1,760	536	258	276
9	127	721	468	5,500	2,600	1,700	2,180	2,840	1,660	510	248	266
10	129	775	638	5,000	2,530	1,690	2,060	2,830	1,630	485	248	266
11	129	532	2,140	4,500	2,300	1,690	1,970	2,880	1,620	475	365	271
12	129	926	1,210	4,000	2,200	1,840	1,970	2,960	1,610	465	560	280
13	127	685	855	3,800	2,100	1,860	1,970	3,050	1,490	450	390	258
14	127	452	725	3,600	2,000	1,930	1,920	3,080	1,340	435	315	244
15	129	371	665	3,500	1,900	1,970	4,500	3,070	1,300	423	315	240
16	129	326	620	3,300	1,820	1,940	4,200	3,160	1,220	410	330	240
17	129	306	555	3,100	1,780	1,890	4,000	3,360	1,280	445	315	222
18	129	288	524	3,000	1,770	1,820	4,500	3,310	1,390	440	370	222
19	127	273	752	2,800	1,750	1,750	5,200	3,230	1,290	430	345	226
20	127	261	1,990	2,750	1,740	1,730	6,000	3,290	1,220	395	340	230
21	129	258	17,300	2,710	1,740	1,760	7,640	3,280	1,210	375	300	226
22	129	264	37,500	3,000	1,820	1,880	6,620	2,750	1,180	360	285	222
23	131	261	51,000	3,500	1,620	2,060	5,630	2,540	1,180	350	280	222
24	131	264	37,500	6,000	1,510	2,170	5,470	2,430	1,090	340	276	222
25	133	332	25,000	5,500	1,600	2,130	5,480	2,300	1,020	330	271	212
26	135	492	19,500	5,250	1,800	2,170	5,450	2,310	944	325	266	212
27	139	484	13,500	4,530	2,000	2,430	5,480	2,370	885	320	266	212
28	148	516	10,000	4,000	2,400	2,290	5,570	2,370	857	310	262	217
29	220	512	7,200	3,800	-----	2,260	5,800	2,400	829	295	253	217
30	202	488	5,800	3,600	-----	2,220	5,800	2,340	787	285	248	217
31	178	-----	5,100	3,500	-----	2,190	-----	2,260	-----	290	244	-----
Total	4,203	11,784	246,935	138,240	64,800	61,640	117,120	95,830	43,222	14,060	9,292	7,128
Mean	136	393	7,966	4,459	2,314	1,988	3,904	3,091	1,441	454	300	238
Ac-ft	8,340	23,370	489,800	274,200	128,500	122,300	232,300	190,100	85,730	27,890	18,430	14,140

Calendar year 1964 Max 51,000 Min 121 Mean 1,294 Ac-ft 939,400  
Water year 1964-65 Max 51,000 Min 123 Mean 2,231 Ac-ft 1,615,000

Peak discharge (base, 7,000 cfs)--Dec. 22 (time unknown) 86,200 cfs (26.5 ft); Apr. 21 (0600) 8,780 cfs (12.03 ft).

Note:--No gage-height record Dec. 22 to Jan. 19, Jan. 22-25, 28-31, Feb. 2-8, 11-16, 18-28, Mar. 2, 3, Apr. 15-20.

## SACRAMENTO RIVER BASIN

11-3946.2 Fall River near Feather Falls, Calif.

Location.--Lat 39°40'00", long 121°08'00", in NW¼ sec.19, T.21 N., R.8 E., on right bank 0.5 mile downstream from Coyote Creek, and 8 miles northeast of Feather Falls.

Drainage area.--9.89 sq mi.

Records available.--July 1963 to September 1965.

Gage.--Water-stage recorder (digital). Altitude of gage is 4,000 ft (from topographic map).

Extremes.--Maximum discharge during year, 3,770 cfs Dec. 22 (gage height, 10.00 ft) from rating curve extended above 300 cfs on basis of slope-area measurement of maximum flow; minimum daily, 2.3 cfs Oct. 20-25.  
1963-65: Maximum discharge, that of Dec. 22, 1964; minimum daily, that of Oct. 20-25, 1964.

Remarks.--Records good except those for period June 6 to Aug. 6, which are poor. No regulation or diversion above station.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Dec. 21, 22)

Oct. 1 to Dec. 21

Dec. 22 to Sept. 30

2.7	1.3	4.0	94	1.4	2.5	2.0	25	4.0	420
2.8	2.7	4.5	180	1.5	4.3	2.2	40	5.0	810
2.9	5.2	5.0	300	1.6	6.6	2.5	72	6.0	1,310
3.0	8.4	6.0	600	1.7	9.9	3.0	145	8.0	2,460
3.2	16	7.0	980	1.8	14	3.5	265	10.0	3,770
3.5	36								

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	2.7	15	56	131	84	55	62	152	25	7.2	5.2	3.0
2	2.6	12	86	113	81	52	61	130	24	7.2	5.2	3.2
3	2.6	5.9	53	101	78	52	57	113	22	6.8	5.1	3.1
4	2.6	4.7	38	91	77	51	57	107	21	6.6	4.9	3.0
5	2.6	4.2	30	225	105	50	60	103	19	6.5	4.6	3.0
6	2.6	4.0	26	375	100	49	59	90	17	6.2	4.3	3.6
7	2.6	4.0	23	279	92	48	55	80	14	6.3	4.2	3.8
8	2.6	6.5	22	204	85	47	56	75	14	6.0	4.2	3.5
9	2.6	40	22	171	79	47	53	72	13	5.9	4.0	3.3
10	2.6	21	45	122	73	47	48	70	12	5.9	4.0	3.1
11	2.6	15	110	107	68	47	47	70	12	5.9	9.1	3.0
12	2.6	26	70	97	64	52	47	70	11	5.9	8.0	3.0
13	2.6	16	54	88	60	48	46	71	11	5.7	5.6	3.0
14	2.6	12	46	82	56	47	45	71	11	5.7	5.1	3.0
15	2.6	14	39	80	53	46	65	69	11	5.7	4.9	2.9
16	2.6	9.8	34	77	50	46	226	67	9.9	5.5	4.7	2.9
17	2.6	8.5	30	75	48	46	162	66	12	5.3	5.1	2.9
18	2.4	8.1	28	74	47	45	186	63	11	5.5	4.8	3.0
19	2.4	7.7	36	77	47	45	265	60	10	5.3	4.4	3.0
20	2.3	7.4	99	78	48	46	300	59	9.5	5.5	4.0	3.0
21	2.3	7.2	913	76	49	50	360	54	9.1	5.5	3.9	3.0
22	2.3	7.3	2,790	73	49	55	288	51	8.9	5.2	3.9	3.0
23	2.3	7.1	1,560	160	47	58	231	44	8.5	5.4	3.9	3.0
24	2.3	7.9	1,030	223	46	63	208	40	8.5	5.2	3.6	2.9
25	2.3	12	605	165	45	59	198	37	8.2	5.2	3.5	2.9
26	2.4	19	675	134	45	60	196	35	7.9	5.2	3.3	2.9
27	2.5	15	574	116	66	63	193	33	8.2	5.2	3.3	2.9
28	3.0	15	389	102	58	56	190	31	7.6	5.2	3.2	3.0
29	6.4	16	280	94	-----	56	184	30	7.6	5.2	3.0	2.9
30	3.8	17	208	90	-----	57	171	28	7.5	5.1	2.8	2.8
31	2.9	-----	162	87	-----	59	-----	27	-----	5.4	2.8	-----
TOTAL	83.9	365.3	10,133	3,967	1,800	1,602	4,176	2,068	371.4	178.4	138.6	91.6
MEAN	2.71	12.2	327	128	64.3	51.7	139	66.7	12.4	5.76	4.47	3.05
AC-FT	166	725	20,100	7,870	3,570	3,180	8,280	4,100	737	354	275	182

CALENDAR YEAR 1964 MAX 2,790 MIN 2.3 MEAN 47.5 AC-FT 34,450  
WATER YEAR 1964-65 MAX 2,790 MIN 2.3 MEAN 68.4 AC-FT 49,540

## Peak discharge (base, 150 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-22	1100	10.00	3,770	1-23	1845	3.86	373
12-26	1915	5.50	1,060	4-16	0700	3.57	286
1-5	2400	4.02	427	4-21	0200	3.90	385

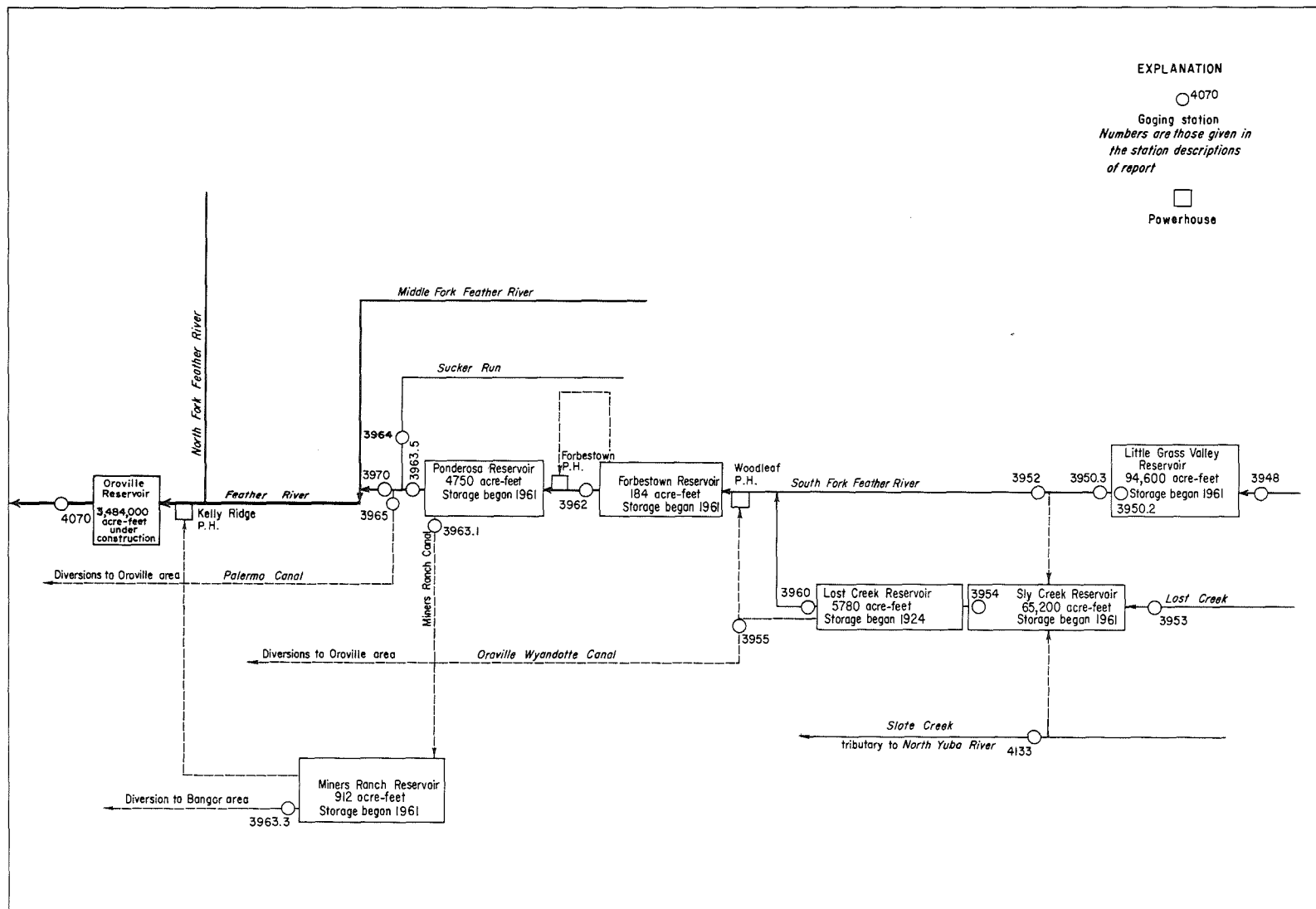


Figure 5.--Schematic diagram showing diversions and storage in South Fork Feather River basin

11-3948, South Fork Feather River above Little Grass Valley Reservoir, Calif.

Location.--Lat 39°45'07", long 120°57'26", in NW¼ sec. 22, T. 22 N., R. 9 E., on right bank 0.5 mile downstream from unnamed tributary, 4.5 miles upstream from Little Grass Valley Dam, and 5 miles north of LaPorte.

Drainage area.--8.09 sq mi.

Records available.--October 1960 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 5,080 ft (from topographic map).

Average discharge.--5 years, 29.3 cfs (21,210 acre-ft per year).

Extremes.--Maximum discharge during year, 3,050 cfs Dec. 22 (gage height, 6.48 ft), from rating curve extended above 110 cfs as explained below; minimum daily, 0.1 cfs Oct. 1-4.

1960-65: Maximum discharge, 4,160 cfs Jan. 31, 1963 (gage height, 7.12 ft), from rating curve extended above 110 cfs on basis of slope-area measurement at gage height 5.47 ft; minimum daily, 0.1 cfs some days each year.

Remarks.--Records good prior to Dec. 21 and fair thereafter. No storage or diversion above station. See schematic diagram, p. 801.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Dec. 31 to Feb. 21, Aug. 28 to Sept. 30)

Oct. 1 to Dec. 22				Dec. 22 to Sept. 30			
1.5	0.1	2.4	12	1.2	0.6	2.5	107
1.6	.2	2.7	71	1.3	2.9	3.0	197
1.7	.7	3.0	137	1.4	6.4	3.5	337
1.8	1.5	3.3	225	1.5	11	4.0	530
1.9	2.7	3.7	385	1.6	16	4.5	810
2.0	4.5	4.0	525	1.9	38	5.0	1,180
2.2	12	4.5	810	2.2	68	5.5	1,680

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	1.8	16	47	39	25	35	150	97	15	1.8	0.8
2	.1	2.2	18	42	36	24	33	129	97	13	1.3	.5
3	.1	1.4	10	48	35	24	31	114	103	12	1.3	.5
4	.1	1.0	7.9	60	34	24	31	104	106	11	1.6	.5
5	.2	.8	6.6	59	42	24	32	101	104	9.9	1.6	.5
6	.2	.7	5.7	50	42	22	31	89	94	8.6	1.3	.6
7	.2	.7	5.4	43	38	22	29	81	84	7.6	1.1	.6
8	.2	2.2	5.1	36	35	22	29	75	74	6.8	1.0	.6
9	.2	12	5.4	29	32	22	31	76	75	6.0	.8	.6
10	.2	4.5	13	24	31	22	26	81	76	5.6	1.0	.5
11	.2	3.4	29	32	28	22	24	89	76	4.9	7.8	.5
12	.2	4.5	17	30	26	24	24	99	66	4.5	5.2	.4
13	.2	2.9	13	26	25	24	24	107	56	4.5	2.1	.4
14	.2	2.2	11	24	24	23	22	114	51	3.9	1.3	.5
15	.2	1.9	9.8	24	22	24	30	117	45	3.2	1.3	.5
16	.2	1.6	8.8	23	21	25	76	129	42	2.9	1.6	.4
17	.2	1.5	7.5	22	20	25	56	134	53	2.6	2.1	.3
18	.2	1.4	7.2	22	20	25	62	134	46	2.3	2.3	.3
19	.2	1.4	8.8	23	21	26	115	134	44	2.3	1.8	.3
20	.2	1.4	24	24	22	27	146	137	42	2.3	1.1	.5
21	.2	1.4	539	23	23	30	211	118	40	2.1	1.0	.5
22	.2	1.4	1,620	22	24	36	165	103	41	2.3	1.0	.5
23	.2	1.3	341	50	23	41	141	97	36	1.8	.8	.5
24	.2	1.5	298	59	23	42	134	93	32	2.1	.6	.5
25	.2	3.6	242	48	23	40	135	92	28	1.8	.6	.5
26	.2	4.8	229	44	24	39	141	96	24	2.1	.6	.4
27	.2	3.6	148	43	28	36	148	100	21	1.8	.7	.4
28	.2	3.4	99	43	26	35	163	108	19	1.8	.8	.5
29	.5	4.0	75	42	-----	35	173	114	18	1.6	.8	.5
30	.6	4.0	66	41	-----	34	169	114	16	1.8	.8	.3
31	.6	-----	55	40	-----	35	-----	106	-----	1.8	.8	-----
Total	6.9	78.5	3,941.2	1,143	787	879	2,467	3,335	1,706	1,499	47.9	14.4
Mean	0.22	2.62	127	36.9	29.1	28.4	82.2	108	56.9	48.4	1.55	0.48
Ac-ft	14	156	7,820	2,270	1,560	1,740	4,890	6,610	3,380	297	95	29

Calendar year 1964 Max 1,620 Min 0.1 Mean 26.4 Ac-ft 19,180  
Water year 1964-65 Max 1,620 Min 0.1 Mean 39.9 Ac-ft 28,860

Peak discharge (base, 120 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-22	1100	6.48	3,050	4-29	1800	3.00	197
1-23	1900	2.60	121	5-17	1700	2.79	153
4-21	0400	3.10	221				

11-3950.2. Little Grass Valley Reservoir near LaPorte, Calif.

Location.--Lat 39°43'25", long 121°01'10", in  $\frac{1}{4}$  sec.31, T.22 N., R.9E., on right bank 300 ft upstream from dam on South Fork Feather River, 3.3 miles northwest of LaPorte.

Drainage area.--25.8 sq mi.

Records available.--October 1961 to September 1965.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Oroville-Wyandotte Irrigation District). Prior to Nov. 1, 1962, in valve chamber in dam at same datum.

Extremes.--Maximum contents during year, 96,100 acre-ft Apr. 29 (elevation, 5,047.9 ft); minimum, 49,600 acre-ft Oct. 25-28. 1961-65: Maximum contents, that of Apr. 29, 1965; minimum since initial season of operation, that of Oct. 25-28, 1964.

Remarks.--Records good. 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 usable. Water is released down South Fork Feather River for power development and irrigation downstream. Records represent total contents. See schematic diagram. p. 801.

Capacity table (elevation, in feet, and contents, in acre-ft)

5,014	49,000
5,020	55,900
5,030	68,900
5,040	83,500
5,048	96,300

Contents, in thousands of acre-feet, at 2400 hours, water year October 1964 to September 1965												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	53.0	49.9	52.6	76.5	75.7	75.5	79.1	92.4	92.5	92.5	86.6	77.1
2	52.7	50.0	52.9	76.3	75.7	75.5	79.4	92.2	92.7	92.4	86.3	76.6
3	52.3	50.0	53.0	76.5	75.6	75.5	79.5	91.9	92.8	92.4	86.0	76.2
4	51.9	50.0	53.0	76.5	75.6	75.5	79.7	92.0	92.7	92.2	85.8	75.7
5	51.6	50.0	53.1	76.8	75.7	75.5	80.0	92.4	92.7	92.2	85.5	75.3
6	51.1	50.0	53.1	76.6	75.7	75.5	80.1	92.5	92.7	92.0	85.2	75.0
7	50.6	50.0	53.2	76.3	75.7	75.5	80.4	92.4	92.5	92.0	84.9	74.6
8	50.3	50.2	53.2	76.2	75.7	75.5	80.9	92.4	92.5	91.9	84.6	74.1
9	50.0	50.6	53.4	75.9	75.7	75.5	81.3	92.2	92.5	91.7	84.3	73.6
10	50.0	50.8	53.8	75.9	75.6	75.5	81.4	92.0	92.7	91.5	84.1	73.0
11	49.9	51.1	54.2	75.9	75.6	75.5	81.7	92.0	92.7	91.4	84.0	72.4
12	49.9	51.3	54.4	75.7	75.6	75.6	81.7	92.2	92.8	91.4	83.8	72.0
13	49.9	51.3	54.5	75.7	75.6	75.6	81.9	92.2	92.8	91.1	83.3	71.4
14	49.9	51.4	54.6	75.7	75.6	75.5	82.2	92.4	92.8	90.9	83.0	70.8
15	49.9	51.4	54.7	75.6	75.5	75.5	82.6	92.4	92.8	90.7	82.8	70.2
16	49.8	51.4	54.8	75.6	75.5	75.6	83.5	92.5	92.8	90.4	82.5	69.6
17	49.8	51.4	55.0	75.6	75.5	75.6	84.0	92.5	92.8	90.3	82.2	69.0
18	49.8	51.5	55.1	75.6	75.5	75.9	84.7	92.5	93.0	90.0	81.9	68.5
19	49.8	51.5	55.4	75.5	75.5	76.0	85.8	92.5	93.0	89.8	81.6	68.0
20	49.8	51.5	56.1	75.6	75.3	76.2	87.1	92.5	93.0	89.5	81.3	67.5
21	49.8	51.5	61.5	75.5	75.3	76.3	88.9	92.4	93.0	89.3	81.0	66.9
22	49.7	51.5	76.8	75.5	75.3	76.5	90.1	92.2	92.8	89.0	80.7	66.4
23	49.7	51.5	81.4	76.0	75.3	76.8	91.1	92.0	92.8	88.9	80.3	65.9
24	49.7	51.6	81.1	76.2	75.3	77.1	92.0	91.9	92.7	88.7	80.0	65.4
25	49.6	51.8	79.8	76.2	75.3	77.2	92.8	91.9	92.7	88.4	79.7	64.9
26	49.6	51.8	79.8	76.2	75.5	77.6	93.8	91.9	92.7	88.1	79.4	64.3
27	49.6	51.9	73.8	76.0	75.6	78.1	94.8	91.9	92.7	87.9	79.1	63.8
28	49.6	52.0	73.1	75.9	75.6	78.2	95.8	92.0	92.5	87.6	78.7	63.3
29	49.7	52.1	77.5	75.9	-----	78.5	95.0	92.2	92.5	87.4	78.4	62.6
30	49.7	52.2	77.2	75.9	-----	78.7	92.8	92.4	92.5	87.1	77.9	62.1
31	49.7	-----	76.6	75.7	-----	79.8	-----	92.5	-----	86.8	77.5	-----
(+)	-	5,016.8	5,035.3	5,034.7	5,034.6	5,036.8	5,045.9	5,045.7	5,045.7	5,042.1	5,035.9	5,024.8
(+)	-3.8	+2.5	+24.4	-0.9	-0.1	+3.2	+14.0	-0.3	0	-5.7	-9.3	-15.4

Calendar year 1964..... + 17.1  
 Water year 1964-65..... + 8.6

† Elevation in feet, at end of month.

+ Change in contents, in acre-feet.

Note.--No elevation Oct. 29 to Nov. 2, Aug. 11.

## SACRAMENTO RIVER BASIN

11-3950.3. South Fork Feather River below Little Grass Valley Dam, Calif.

Location.--Lat 39°43'26", long 121°01'10", in SW¼NW¼ sec.31, T.22 N., R.9 E., on outlet works at base of Little Grass Valley Dam, 0.6 mile downstream from Ice Creek, and 3.5 miles northwest of LaPorte.

Drainage area.--25.9 sq mi.

Records available.--October 1927 to September 1933 (published as "near LaPorte"), October 1960 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 4,850.00 ft above mean sea level. Prior to Oct. 1, 1960, at site about 0.4 mile upstream at different datum. Oct. 1, 1960 to Oct. 30, 1962, at site 0.1 mile downstream at different datum.

Average discharge.--11 years (1927-33, 1960-65), 82.7 cfs (59,870 acre-ft per year), adjusted for storage.

Extremes.--Maximum discharge during year, 3,140 cfs Dec. 24; minimum daily, 2.0 cfs on many days.  
1927-33, 1960-65: Maximum discharge, 4,250 cfs Feb. 1, 1963; minimum, 0.2 cfs Oct. 28-31, Nov. 2, 1961.

Remarks.--Records fair. Flow regulated by Little Grass Valley Reservoir (see preceding page) beginning in October 1961. No diversion above station. See schematic diagram, p. 801.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	210	8.1	2.0	355	155	95	5.0	827	140	44	125	210
2	210	7.5	2.0	288	142	95	5.0	473	140	44	125	210
3	210	7.1	2.0	326	133	89	5.0	427	150	44	125	210
4	210	7.0	2.0	334	124	89	5.0	244	150	44	125	210
5	210	7.0	2.0	376	148	89	5.0	187	150	44	125	210
6	210	4.5	2.0	413	161	89	5.0	210	150	44	125	210
7	210	2.0	2.0	351	151	89	5.0	239	150	44	125	210
8	210	2.0	2.0	261	148	89	5.0	280	120	50	125	210
9	109	2.0	2.0	214	142	87	5.0	280	70	55	140	245
10	8.1	2.0	2.0	186	136	84	5.0	256	50	55	155	280
11	8.1	2.0	2.0	174	121	84	5.0	240	50	55	155	280
12	8.1	2.0	2.0	161	112	92	5.0	240	50	105	155	280
13	8.1	2.0	2.0	151	112	103	5.0	240	50	110	155	280
14	8.1	2.0	2.0	136	103	95	5.0	240	50	110	155	280
15	8.1	2.0	2.0	127	97	95	5.0	262	50	110	155	280
16	8.1	2.0	2.0	121	84	54	5.0	307	50	110	155	280
17	8.1	2.0	2.0	112	82	5.0	5.0	330	50	110	155	280
18	8.1	2.0	2.0	100	82	5.0	5.0	335	50	110	155	280
19	8.1	2.0	2.0	100	80	5.0	5.0	340	50	110	155	280
20	8.1	2.0	2.0	100	77	5.0	5.0	340	50	110	155	280
21	8.1	2.0	2.0	100	75	5.0	5.0	340	50	110	155	280
22	8.1	2.0	30	95	77	5.0	5.0	340	50	110	155	280
23	8.1	2.0	1,950	136	75	5.0	5.0	340	50	110	155	280
24	8.1	2.0	2,900	264	72	5.0	5.0	293	50	125	155	280
25	8.1	2.0	2,010	260	72	5.0	5.0	211	50	125	155	280
26	8.1	2.0	1,650	244	72	5.0	5.0	170	46	125	155	280
27	8.1	2.0	1,500	225	100	5.0	6.4	158	44	125	180	280
28	8.1	2.0	1,040	199	100	5.0	87	140	44	125	210	280
29	8.1	2.0	792	185	-----	5.0	1,120	140	44	125	210	280
30	8.1	2.0	612	174	-----	5.0	2,060	140	44	125	210	280
31	8.1	-----	472	158	-----	5.0	-----	140	-----	125	210	-----
Total	1,967.2	94.1	12,998.0	6,426	3,033	1,493.0	3,403.4	8,709	2,242	2,838	4,795	7,805
Mean	63.5	3.14	419	207	108	48.2	113	281	74.7	91.5	155	260
Ac-ft	3,900	187	25,780	12,750	6,020	2,960	6,750	17,270	4,450	5,630	9,510	15,480
Mean†	1.63	45.2	81.6	193	107	100	349	276	74.7	- 1.14	3.42	1.34
Ac-ft†	100	2,690	50,180	11,850	5,920	6,160	20,750	16,970	4,450	70	210	80
Calendar year 1964:	Max	2,900	Min	1.4	Mean	103	Ac-ft	74,660	Mean†	126	Ac-ft†	91,760
Water year 1964-65:	Max	2,900	Min	2.0	Mean	153	Ac-ft	110,700	Mean†	165	Ac-ft†	119,300

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

Note.--No gage-height record for the year; discharge determined from releases and spill from Little Grass Reservoir and discharge measurements.

11-3952. South Fork Feather River below diversion dam, near Strawberry Valley, Calif.

Location.--Lat 39°38'51", long 121°07'04", in NE 1/4 sec. 30, T. 21 N., R. 8 E., on right bank 0.1 mile downstream from diversion dam, 3.1 miles upstream from Rock Creek, and 5.8 miles north of Strawberry Valley.

Drainage area.--37.7 sq mi.

Records available.--October 1960 to September 1965.

Gage.--Water-stage recorder and since Nov. 7, 1962, concrete control. Datum of gage is 3,535.02 ft above mean sea level (levels by Oroville-Wyandotte Irrigation District).

Extremes.--Maximum discharge during year, 4,970 cfs Dec. 24 (gage height, 11.53 ft) from rating curve extended above 500 cfs as explained below; minimum daily, 4.4 cfs Jan. 20-22, Jan 28 to Feb. 7.

1960-65: Maximum discharge, 6,330 cfs Jan. 31, 1963 (gage height, 13.21 ft), from rating curve extended above 500 cfs on basis of computation of maximum flow over diversion dam; minimum daily, 0.3 cfs Dec. 25, 1962 to Jan. 2, 1963, Mar. 1-3, 1963.

Remarks.--Records good except those above 50 cfs, which are fair. Flow regulated by Little Grass Valley Reservoir (see p. 803). South Fork Diversion Tunnel (maximum capacity about 600 cfs) diverts 500 ft upstream to Sly Creek Reservoir (see p. 807); diversion began in November 1961. See schematic diagram p. 801.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	9.2	4.6	513	4.4	5.0	5.0	338	7.9	7.6	10	9.4
2	11	6.0	4.8	406	4.4	5.0	5.0	185	7.9	7.6	10	9.4
3	11	6.0	4.6	434	4.4	5.0	5.0	94	8.2	7.6	10	9.4
4	11	6.0	4.6	449	4.4	5.0	5.0	5.6	8.2	7.6	10	9.8
5	11	6.0	4.6	582	4.4	5.0	5.0	6.2	8.5	7.6	10	9.8
6	11	5.6	4.6	887	4.4	5.0	5.0	7.0	9.5	7.9	10	9.8
7	11	5.2	4.8	461	4.4	5.0	5.0	8.2	8.5	7.9	10	9.8
8	11	5.6	4.8	489	4.6	5.0	5.0	8.8	8.5	7.9	10	9.8
9	11	6.5	4.8	208	4.6	5.0	5.0	8.8	8.5	7.9	10	9.4
10	10	6.5	4.8	55	4.6	5.0	5.0	9.1	8.2	7.9	10	9.4
11	10	7.0	4.8	49	4.6	5.0	5.0	9.1	8.2	8.2	9.9	9.4
12	10	7.3	4.8	39	4.6	5.0	5.0	9.1	8.2	8.2	9.8	9.4
13	10	6.8	4.8	23	4.6	5.0	5.0	8.7	8.2	8.2	9.8	9.4
14	10	6.2	4.8	10	4.6	5.0	5.0	8.2	8.2	8.5	9.8	9.4
15	10	5.8	4.8	7.9	4.6	5.0	5.0	8.2	8.2	8.5	9.8	9.4
16	10	5.6	4.8	5.6	4.6	5.0	5.4	8.2	8.2	8.5	9.8	9.4
17	10	5.4	4.8	4.6	4.6	5.0	5.0	8.2	8.2	8.5	9.8	9.4
18	10	5.4	4.8	4.6	4.6	5.0	5.0	8.2	8.2	8.5	9.8	9.8
19	10	5.2	4.8	7.3	4.6	5.0	5.0	8.2	8.2	8.5	9.8	9.8
20	10	5.2	5.0	4.4	4.6	5.0	5.0	8.2	8.2	8.5	9.8	9.8
21	10	5.0	904	4.4	4.6	5.0	5.0	8.2	8.2	8.5	9.8	9.8
22	10	5.0	3450	4.4	4.6	5.0	5.0	8.2	8.2	8.8	9.8	9.8
23	10	4.6	3860	16	4.8	5.0	5.0	8.2	8.2	8.8	9.8	10
24	10	4.8	4310	18	5.0	5.0	5.0	8.2	8.2	8.8	9.8	10
25	10	4.8	2890	4.6	5.0	5.0	5.0	8.2	7.9	8.8	9.8	10
26	10	5.0	2650	4.6	5.0	5.0	5.0	8.2	7.9	8.8	9.4	9.8
27	10	4.8	2400	4.6	5.2	5.0	5.0	8.2	7.6	8.8	9.4	9.8
28	10	5.2	1660	4.4	5.2	5.0	5.0	7.9	7.6	8.8	9.4	9.4
29	11	5.2	1190	4.4	-----	5.0	596	7.9	7.6	9.1	9.4	9.1
30	11	5.0	931	4.4	-----	5.0	1250	7.9	7.6	10	9.4	9.1
31	11	-----	712	4.4	-----	5.0	-----	7.9	-----	10	9.4	-----
Total	322	171.9	25052.2	4813.6	130.0	155.0	1986.4	844.0	243.9	260.8	303.5	288.0
Mean	10.4	5.73	808	155	4.64	5.00	66.2	27.2	8.13	8.41	9.79	9.60
Ac-ft	639	341	49690	9550	258	307	3940	1670	484	517	602	571
Mean†	65.7	25.0	882	341	177	96.1	224	325	93.8	96.1	161	260
Ac-ft†	4040	1490	54220	20990	9830	5910	13340	20000	5580	5910	9910	15460
Calendar year 1964:	Max	4,310	Min	4.6	Mean	75.9	Ac-ft	55,080	Mean†	155	Ac-ft†	112,400
Water year 1964-65:	Max	4,310	Min	4.4	Mean	94.7	Ac-ft	68,570	Mean†	230	Ac-ft†	166,700

† Adjusted for South Fork Diversion Tunnel

11-3953. Lost Creek above Sly Creek Reservoir, Calif.

Location.--Lat 39°37'05", long 121°05'19", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 4, T.20 N., R.8 E., on left bank 0.4 mile upstream from French Creek, and 3.8 miles north of Strawberry Valley.

Drainage area.--14.1 sq mi.

Records available.--October 1960 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 3,570 ft (from topographic map).

Average discharge.--5 years, 55.4 cfs (40,110 acre-ft per year).

Extremes.--Maximum discharge during year, 5,640 cfs Dec. 22 (gage height, 8.48 ft from floodmark in gage well, 9.66 ft outside from floodmarks), from rating curve extended above 200 cfs on basis of slope-area measurements at gage heights 5.97 and 7.87 ft; minimum daily, 7.2 cfs Oct. 14.

1960-65: Maximum discharge, that of Dec. 22, 1964; minimum, 3.2 cfs Oct. 7-10, 1961.

Remarks.--Records good except those for periods of no gage-height record and those below 25 cfs, which are poor. No regulation or diversion above station. See schematic diagram, p. 801.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Oct. 15 to Nov. 30)

Oct. 1 to Dec. 22

Dec. 23 to Sept. 30

1.5	5.0	4.0	470	1.5	7.0	3.5	318
1.6	7.5	4.5	740	1.6	11	4.0	510
1.8	15	5.0	1,070	1.7	15	4.5	745
2.1	33	5.5	1,490	1.9	26	5.0	1,070
2.5	72	6.0	1,960	2.1	42	5.5	1,490
3.0	156	7.0	3,240	2.5	88	6.0	1,960
3.5	280	8.0	4,780	3.0	178	7.0	3,240

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.5	32	91	150	127	84	89	156	41	30	13	8.4
2	7.5	32	126	130	122	82	85	140	40	30	12	8.7
3	7.5	16	60	125	113	79	82	122	40	29	12	8.7
4	7.5	9.3	41	120	115	78	79	115	38	28	12	8.7
5	7.5	8.0	32	260	178	79	83	116	37	26	12	8.4
6	7.5	7.5	27	510	167	79	82	102	36	25	11	9.8
7	7.8	7.6	24	350	144	76	78	92	36	25	11	9.8
8	7.8	12	24	230	129	74	78	85	36	23	11	9.1
9	7.8	72	24	170	118	74	78	83	35	23	11	8.7
10	7.8	44	69	169	108	74	70	80	33	22	11	8.7
11	7.8	32	170	174	102	73	69	79	33	21	18	8.4
12	7.5	69	73	160	95	80	69	73	33	21	13	8.0
13	7.5	39	53	142	92	75	70	76	33	20	16	8.0
14	7.2	26	44	131	85	73	70	75	33	19	13	8.0
15	7.5	21	38	127	82	71	107	73	33	19	13	8.0
16	7.5	16	33	123	79	70	365	70	33	18	13	8.0
17	7.5	14	30	120	78	70	215	69	36	17	14	7.7
18	7.5	13	28	120	78	70	215	68	34	17	13	8.0
19	7.5	12	43	131	79	69	322	65	34	17	12	8.0
20	7.5	12	153	132	79	69	323	63	34	16	12	8.0
21	7.5	12	1,670	127	82	71	414	61	34	16	12	8.0
22	7.5	13	3,800	120	84	75	325	60	34	16	11	8.0
23	7.8	14	3,200	269	82	76	262	56	34	16	11	7.7
24	7.8	19	1,500	363	78	83	236	53	34	15	11	7.3
25	7.8	27	940	242	77	78	223	50	34	15	11	7.3
26	7.8	46	1,100	192	80	84	212	49	34	15	10	7.3
27	7.8	32	900	167	110	99	207	47	33	15	10	7.7
28	8.6	35	500	143	86	84	200	46	32	14	9.8	7.7
29	18	39	370	134	-----	83	192	44	32	14	9.5	7.3
30	20	36	240	131	-----	83	176	43	31	14	9.1	7.3
31	14	-----	190	129	-----	85	-----	42	-----	14	8.4	-----
Total	265.8	767.4	15,603	5,596	2,854	2,400	5,081	2,358	1,040	610	370.8	244.7
Mean	3.57	25.6	503	181	102	77.4	169	76.1	34.7	19.7	12.0	8.16
Ac-Ft	527	1,520	30,950	11,100	5,660	4,750	10,080	4,680	2,060	1,210	735	485

Calendar year 1964 Max 3,800 Min 6.0 Mean 67.3 Ac-ft 48,870  
Water year 1964-65 Max 3,800 Min 7.2 Mean 102 Ac-ft 73,770

Peak discharge (base, 250 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-22	about 1200	8.48	5,640	4-16	0600	3.91	474
1-23	2000	4.29	640	4-21	0200	3.83	442

Note.--No gage-height record Nov. 4-7, 15-24, Dec. 23 to Jan. 9, Feb. 23-28.



11-3954. Sly Creek Reservoir near Strawberry Valley, Calif.

Location.--Lat 39°35'00", long 121°06'45", in NW $\frac{1}{4}$  sec.20, T.20 N., R.8 E., in valve chamber inside dam on Lost Creek, 1.4 miles northwest of Strawberry Valley.

Drainage area.--24.0 sq mi.

Records available.--November 1961 to September 1965.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Oroville-Wyandotte Irrigation District).

Extremes.--Maximum contents during year, 65,000 acre-ft June 21-26 (elevation, 3,530.0 ft); minimum, 26,700 acre-ft Nov. 25, 27 (elevation, 3,451.0 ft).

1961-65: Maximum contents, 65,500 acre-ft June 2-5, 11, 12, 1962, Apr. 7, 1963 (elevation, 3,531.5 ft); minimum, 18,400 acre-ft Mar. 13-17, 1964 (elevation, 3,426.0 ft).

Remarks.--Reservoir is formed by earth-fill dam. Storage began in November 1961. Total capacity, 65,200 acre-ft between elevations 3,285 (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 (see p. 841). See schematic diagram, p. 801.

Capacity table (elevation, in feet, and contents, in acre-feet)

3,450	26,300	3,490	43,200
3,460	30,100	3,500	48,200
3,470	34,100	3,510	53,400
3,480	38,500	3,530	65,000

Contents, in thousands of acre-feet, at 2400 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	37.6	27.8	27.8	57.0	57.4	48.4	49.5	62.1	60.9	64.5	57.9	54.0
2	37.4	28.4	23.9	56.6	57.4	48.2	49.7	62.4	60.9	64.2	57.6	53.4
3	37.2	28.2	29.3	56.6	57.1	48.2	50.0	63.0	60.9	63.9	57.6	53.4
4	37.6	28.4	29.5	57.4	57.4	48.4	49.7	63.0	61.5	63.6	57.4	53.4
5	37.4	28.6	29.6	54.4	57.4	48.7	50.0	63.0	61.5	63.3	57.1	53.4
6	37.0	28.6	29.6	54.4	57.4	48.9	50.0	63.0	62.1	63.0	56.8	53.7
7	36.8	28.4	29.6	55.7	57.4	48.9	50.0	63.0	62.4	62.7	56.8	53.7
8	36.3	28.0	29.5	55.4	57.4	48.7	50.0	63.0	62.7	62.7	56.8	53.4
9	35.9	28.2	29.4	54.9	57.4	48.7	50.3	63.0	62.7	62.4	56.8	53.4
10	35.9	28.2	29.0	55.1	57.1	48.7	50.3	62.4	62.7	62.1	56.2	53.7
11	35.4	28.2	30.2	55.4	57.4	48.9	49.7	62.4	63.0	61.8	56.5	53.7
12	35.0	28.9	31.6	55.7	56.5	49.2	49.5	61.8	63.0	61.5	56.2	53.7
13	34.1	28.9	32.2	55.8	56.5	49.5	49.2	61.8	63.9	61.5	56.2	53.7
14	33.3	28.7	32.6	55.8	55.9	49.5	48.9	61.8	63.6	60.9	56.2	54.0
15	32.9	28.2	32.6	55.7	55.7	49.2	49.5	61.8	63.8	60.6	55.7	54.3
16	32.1	28.0	32.5	55.6	55.1	49.5	51.6	62.4	63.8	60.9	55.9	53.7
17	32.1	27.6	32.5	55.7	54.6	49.2	52.7	63.0	63.8	60.0	55.7	53.2
18	31.7	27.4	32.4	55.4	54.3	49.5	54.3	63.3	64.5	60.3	55.7	52.9
19	31.1	27.4	32.5	55.3	53.4	49.2	55.7	63.3	64.5	60.0	55.4	53.2
20	30.7	27.4	32.9	55.3	53.2	48.9	58.2	63.3	64.5	59.7	55.4	52.4
21	30.1	27.0	38.1	55.1	52.9	48.7	59.1	63.9	65.0	59.4	55.4	52.1
22	29.5	27.2	45.4	55.1	52.4	48.7	60.3	63.9	65.0	59.1	55.1	51.9
23	28.9	26.9	53.7	54.9	51.6	48.7	60.3	63.9	65.0	59.1	55.1	51.9
24	28.2	26.9	56.9	56.4	50.8	48.7	60.6	63.9	65.0	59.1	54.6	51.6
25	27.8	26.7	57.8	57.2	51.1	48.7	60.6	63.9	65.0	59.1	54.6	51.6
26	27.6	26.9	57.9	57.6	49.5	48.9	60.6	63.3	64.8	58.8	54.8	51.3
27	27.6	26.7	59.3	57.6	49.5	49.2	60.3	62.7	64.8	58.5	54.3	51.1
28	27.6	27.0	57.8	57.5	48.9	49.5	60.3	62.7	64.5	58.5	54.6	50.8
29	27.6	27.0	57.5	57.4	-----	49.7	60.9	62.1	64.5	58.2	54.3	50.5
30	27.8	27.0	57.5	57.4	-----	49.7	61.8	62.1	64.5	57.9	54.6	50.3
31	27.8	-----	57.1	57.4	-----	50.0	-----	60.9	-----	57.9	54.6	-----
(+)	3,454.0	3,452.0	3,516.6	3,517.0	3,501.5	3,503.5	3,524.5	3,523.0	3,529.0	3,518.0	3,512.0	3,504.0
(#)	-10.3	-0.8	+30.1	+0.3	-9.5	+1.1	+11.8	-0.9	+3.6	-6.6	-3.3	-4.3

Calendar year 1964..... ‡ + 22,300

Water year 1964-65..... ‡ + 12,200

† Elevation, in feet, at end of month.

# Change in contents, in thousands of acre-feet.

Note.--Contents computed from once-daily staff gage readings Dec. 4 to Jan. 31.

11-3955. Oroville-Wyandotte Canal near Clipper Mills, Calif.

Location (revised).--Lat 39°33'15", long 121°11'30", in NE $\frac{1}{4}$  sec.33, T.20 N., R.7 E., in concrete valve house at head of canal, 2.5 miles north of Clipper Mills.

Records available.--October 1927 to September 1941 (published as Forbestown Ditch), October 1954 to September 1965. 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 mean sea level (levels by Oroville-Wyandotte Irrigation District). Prior to Sept. 30, 1941, staff gages and Oct. 1, 1941 to Nov. 16, 1962, water-stage recorder at sites at different datums 4 miles upstream in abandoned portion of canal 0.3 mile downstream from Lost Creek Dam.

Average discharge.--26 years, 19.6 cfs (14,190 acre-ft per year).

Extremes.--1927-41, 1954-65: Maximum daily discharge, 43 cfs Aug. 9 to Sept. 9, 1937; no flow at times in many years.

Remarks.--Records good. 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. See schematic diagram, p. 801.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	11	2.9	1.9	2.3	2.0	7.5	5.0	9.3	9.5	9.3	9.0
2	12	11	3.1	1.7	2.2	2.1	3.3	3.1	9.1	9.3	3.3	9.5
3	13	11	2.9	1.7	2.1	1.0	7.6	4.6	9.1	9.1	8.6	10
4	13	11	2.8	1.7	5.3	0	7.5	5.4	9.1	9.1	9.8	10
5	12	11	2.8	1.7	2.1	0	7.6	6.1	9.3	9.0	10	10
6	12	11	2.8	1.7	2.0	0	7.0	4.8	9.3	9.5	9.3	9.8
7	12	11	2.8	1.6	1.9	0	7.0	4.4	9.3	9.5	9.6	3.1
8	12	10	2.8	1.6	2.1	0	6.0	6.3	9.1	9.1	9.8	3.1
9	13	10	2.6	1.3	2.2	1.6	3.7	6.4	9.1	9.1	9.3	10
10	14	5.8	3.0	1.2	2.5	2.9	3.5	6.7	9.3	9.6	9.3	10
11	14	3.2	3.2	1.2	2.4	6.1	3.9	5.8	9.3	9.5	9.3	9.5
12	13	3.2	3.2	1.1	3.6	7.6	5.1	7.0	9.3	9.1	9.8	9.8
13	13	3.2	3.2	2.0	2.1	6.7	6.3	6.0	9.1	7.0	9.8	9.3
14	13	3.1	3.1	2.4	1.9	7.3	6.4	6.7	9.1	6.1	9.8	9.3
15	13	3.2	3.0	2.5	3.2	7.4	5.8	3.3	9.1	7.2	10	9.3
16	13	3.1	3.0	2.4	2.3	6.3	5.0	3.1	9.0	3.0	9.6	7.0
17	13	3.1	2.8	2.8	2.6	5.8	6.6	9.3	9.0	7.8	9.5	7.8
18	13	2.9	2.6	2.5	2.2	4.2	7.3	9.1	9.0	9.3	9.8	3.1
19	13	2.9	2.8	2.4	1.9	5.3	6.9	9.1	9.0	3.8	9.8	9.5
20	13	2.8	2.6	2.5	1.9	6.5	7.2	9.1	8.8	7.3	9.5	9.8
21	13	2.8	2.6	2.4	2.0	7.3	6.6	9.1	9.3	3.1	9.6	9.5
22	13	2.6	2.5	2.5	1.9	3.0	5.8	9.1	9.5	9.5	9.8	9.1
23	13	2.6	2.3	2.5	1.6	6.4	5.8	9.1	9.3	9.0	9.5	9.5
24	13	2.8	2.3	2.5	1.9	7.5	5.1	9.1	9.3	3.6	9.5	10
25	13	2.8	2.3	2.3	2.0	7.6	4.4	9.1	9.3	9.3	9.3	9.6
26	14	2.8	2.3	2.8	1.8	5.4	5.1	9.1	9.6	9.3	9.5	3.3
27	13	2.8	2.3	2.8	2.0	5.2	5.8	9.1	9.5	9.1	3.8	10
28	13	2.8	2.2	2.8	1.8	5.7	6.1	9.1	9.0	9.3	3.0	9.8
29	13	2.9	2.1	2.6	-----	5.9	4.7	9.1	9.5	9.5	10	9.5
30	12	2.9	2.0	2.6	-----	7.1	7.5	9.1	9.5	9.0	10	9.5
31	11	-----	1.9	2.6	-----	7.3	-----	9.1	-----	3.8	9.5	-----
Total	397	161.3	82.8	66.3	63.8	146.2	183.1	231.4	276.5	272.4	293.7	278.7
Mean	12.8	5.38	2.67	2.14	2.28	4.72	6.10	7.46	9.22	8.79	9.47	9.29
Ac-ft	787	320	164	132	127	290	363	459	543	540	583	553

Calendar year 1964 Max 15 Min 0 Mean 7.94 Ac-ft 5,760  
 Water year 1964-65 Max 14 Min 0 Mean 6.72 Ac-ft 4,870

11-3960. Lost Creek near Clipper Mills, Calif.

Location.--Lat 39°34'25", long 121°08'25", in SW $\frac{1}{4}$  sec. 24, T.20 N., R.7 E., on left bank 0.3 mile downstream from Lost Creek Reservoir, 0.3 mile downstream from Pinkard Creek, and 2.8 miles north of Clipper Mills.

Drainage area.--30.0 sq mi.

Records available.--October 1927 to September 1941, October 1948 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 3,170 ft (from topographic map).

Average discharge.--31 years, 69.5 cfs (50,320 acre-ft per year), unadjusted.

Extremes.--Maximum discharge during year, 1,940 cfs Dec. 26 (gage height, 4.95 ft); no flow for many days.

1927-41, 1948-65: Maximum discharge, 5,000 cfs Dec. 22, 1955 (gage height, 6.90 ft); no flow at times.

Remarks.--Records fair. Flow regulated by Sly Creek Reservoir (see p. 807) and Lost Creek Reservoir, 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 from North Yuba River basin. Woodleaf Tunnel diverts from Lost Creek Reservoir to Woodleaf powerhouse. Oroville-Wyandotte Canal (see preceding page) diverts from Woodleaf penstock for irrigation and domestic use. Records below represent release or spill from Lost Creek Dam to Lost Creek. See schematic diagram p. 801.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Dec. 29 to Jan. 3, Jan. 8 to Feb. 24, Mar. 3-5, May 20 to June 7)

.35	0	1.2	17
.4	.1	1.4	35
.5	.2	1.6	60
.6	.4	1.9	110
.7	.7	2.4	240
.8	1.6	2.9	430
.9	3.5	3.4	680
1.0	6.5	4.0	1070
1.1	11	5.0	1990

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.3	0.2	0.8	0.5	0.2	0.4	0.3	460	0.1	0.1	0.1
2	0	.2	.2	0.8	.4	.2	.4	.3	460	.1	.1	.1
3	0	0	.2	71	.3	196	.3	.3	394	.1	.1	.1
4	0	0	.2	580	.3	272	.3	.3	306	.1	.1	.1
5	0	0	.1	760	.4	141	.3	.3	306	.1	.1	.1
6	0	0	.1	565	.4	.4	.3	.3	306	.1	.1	.1
7	0	0	.1	402	.3	.4	.3	.3	286	.1	.1	.1
8	0	0.1	.1	286	.3	.4	.5	.3	219	.1	.1	.1
9	0	.6	.1	191	.3	.4	.6	.3	195	.1	.1	.1
10	0	.4	.1	15	.2	.4	.5	.2	195	.1	.1	.1
11	0	.8	.4	1.0	.2	.4	.5	.2	131	.1	.2	.1
12	0	.6	.2	1.0	.2	.4	.6	.2	100	.1	.1	.1
13	0	.2	.2	.8	.2	.4	.7	.2	100	.1	.1	.1
14	0	.2	.2	.8	.2	.4	.7	.2	100	.1	.1	.1
15	0	.2	.1	.8	.2	.4	1.0	.2	100	.1	.1	.1
16	0	163	.1	.8	.2	.4	4.1	50	93	.1	.1	.8
17	0	.1	.1	.8	.2	.4	2.5	382	93	.1	.1	.1
18	0	.1	.1	.8	.2	.3	1.7	382	106	.1	.1	.1
19	0	.1	.7	.8	.2	.3	1.4	373	112	.1	.1	.1
20	0	.1	2.2	.8	.2	.3	1.2	390	103	.1	.1	.1
21	0	.1	74	.7	.2	.3	1.0	402	155	.1	.1	.1
22	0	.1	536	.7	.2	.3	.8	402	172	173	.1	.1
23	0	.1	165	1.2	247	.3	.7	414	186	.9	.1	.1
24	0	.1	303	1.2	213	.4	.6	430	223	.1	.1	.1
25	0	.1	720	2.5	.2	.3	.5	455	192	.1	.1	.1
26	0	.1	1090	173	.2	.4	.5	460	59	.1	.1	.1
27	0	.1	1370	173	.3	1.0	.4	460	.1	.1	.1	.1
28	0	.2	584	130	.3	.5	.4	460	.1	.1	.1	.1
29	0.2	.2	260	63	-----	.4	.4	460	.1	.1	.1	.1
30	0	.2	100	27	-----	.4	.3	460	.1	.1	.1	.1
31	0	-----	13	3.0	-----	.4	-----	460	-----	.1	.1	-----
Total	0.2	163.3	5,225.7	3,470.3	466.8	619.8	23.9	6,443.9	5,172.4	176.8	3.2	3.7
Mean	0.006	5.61	159	112	16.7	20.0	0.80	203	172	5.70	0.10	0.12
Ac-ft	0.4	334	10,360	6,880	926	1,230	47	12,790	10,260	351	6.3	7.3

Calendar year 1964 Max 1,370 Min 0 Mean 15.1 Ac-ft 10,970  
Water year 1964-65 Max 1,370 Min 0 Mean 59.7 Ac-ft 43,200

## SACRAMENTO RIVER BASIN

11-3962. South Fork Feather River below Forbestown Dam, Calif.

Location.--Lat 39°33'05", long 121°12'30", in NE¼ sec.32, T.20 N., R.7 E., on right bank 500 ft downstream from Forbestown Dam, 0.4 mile upstream from Oroleve Creek, and 4.0 miles northeast of Forbestown.

Drainage area.--87.5 sq mi.

Records available.--July 1962 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 1,690 ft (from topographic map).

Extremes.--Maximum discharge during year, 5,320 cfs Dec. 22 (gage height, 12.50 ft); minimum daily, 3.4 cfs Mar 4, 9-19.  
1962-65: Maximum discharge 7,510 cfs Jan. 31, 1963 (gage height, 13.85 ft in gage well, 15.3 ft, from floodmarks); minimum daily, 0.6 cfs Apr. 4, 1963.

Remarks.--Records fair. Flow regulated by Little Grass Valley Reservoir (see p. 803), Sly Creek Reservoir (see p. 807) and smaller reservoirs. Water from North Yuba River basin is imported through Slate Creek Tunnel (see p. 841) to Sly Creek Reservoir. Oroville-Wyandotte Canal (see p. 808) diverts above station. Tunnel 600 ft above station diverts most flow through Forbestown powerplant except fishwater releases and uncontrolled spill over Forbestown Dam. See schematic diagram, p. 801.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Oct. 1-31, Dec. 29 to Mar.  
15, May 4-8, May 20 to June 16)

2.5	2.5	4.3	97	7.0	700
2.7	5.2	4.6	137	7.5	880
2.9	9.0	4.9	183	8.0	1,090
3.1	15	5.3	255	9.0	1,660
3.4	27	5.7	335	10.0	2,420
3.7	43	6.1	435	11.0	3,400
4.0	65	6.5	540	12.0	4,620

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	14	37	5.4	435	181	103	3.8	412	30	30	8.8	8.0
2	14	30	5.4	420	177	102	3.8	233	30	30	8.8	8.0
3	14	15	5.2	450	169	35	3.8	185	30	30	8.6	8.0
4	14	12	5.2	944	165	3.4	3.8	86	30	30	8.4	8.0
5	14	28	5.2	1,420	188	35	3.8	90	30	30	9.0	8.0
6	14	10	5.2	1,480	181	98	3.8	91	30	31	9.6	7.8
7	13	10	5.0	1,070	172	97	3.8	91	30	31	9.3	7.8
8	13	10	5.0	752	165	35	3.8	85	30	31	9.6	7.8
9	13	8.6	5.0	559	161	3.4	127	77	30	31	9.6	7.6
10	13	7.4	5.0	362	154	3.4	122	78	29	31	9.0	7.6
11	13	7.6	5.2	303	153	3.4	108	67	28	31	8.6	7.8
12	14	7.6	5.2	277	148	3.4	108	62	29	31	8.4	7.8
13	14	7.4	5.0	241	147	3.4	117	72	29	31	8.4	8.0
14	14	7.4	5.0	210	144	3.4	116	73	29	32	8.4	8.0
15	14	7.4	5.0	208	144	3.4	123	63	29	32	8.2	7.8
16	14	7.3	5.0	196	140	3.4	317	37	30	32	8.2	8.0
17	14	5.0	4.7	194	137	3.4	219	21	29	32	8.4	8.2
18	14	5.0	4.7	188	134	3.4	196	4.7	29	32	8.6	8.2
19	13	4.9	4.7	197	134	3.4	199	15	29	32	9.4	8.2
20	13	5.0	4.9	196	133	3.5	181	29	29	32	8.4	8.2
21	13	5.2	1,480	185	136	3.5	192	29	29	32	8.4	9.2
22	13	5.2	3,450	180	134	3.5	169	29	29	48	8.4	8.2
23	13	5.2	2,440	262	304	3.6	154	29	28	32	8.2	8.6
24	13	5.2	2,410	350	304	3.6	141	30	28	32	8.2	8.8
25	13	5.2	2,030	261	97	3.6	129	30	30	31	8.2	9.8
26	12	5.4	1,980	390	101	3.6	123	30	30	32	8.2	8.8
27	12	5.4	2,080	410	117	3.8	117	30	30	32	8.0	8.8
28	12	5.4	1,420	333	107	3.8	117	30	30	22	9.2	8.8
29	13	5.4	997	271	-----	3.8	411	30	30	8.6	8.2	9.0
30	16	5.4	756	228	-----	3.8	1,240	30	30	8.8	9.2	9.0
31	13	-----	516	199	-----	3.8	-----	30	-----	8.8	8.0	-----
Total	421	351.3	19,660	13,171	4,427	589.7	4,790.6	2,198.7	883	909.2	264.9	245.8
Mean	13.6	11.7	634	425	158	19.0	160	70.9	29.4	29.3	8.54	8.19
Ac-ft	835	697	39,000	26,120	8,780	1,170	9,500	4,360	1,750	1,800	525	488

Calendar year 1964 Max 3,450 Min 3.5 Mean 63.2 Ac-ft 45,890  
Water year 1964-65 Max 3,450 Min 3.4 Mean 131 Ac-ft 95,020

11-3963.1. Miners Ranch Canal below Ponderosa Dam, near Forbestown, Calif.

Location.--Lat 39°33'00", long 121°18'20", in SE<sup>1</sup>/<sub>4</sub> NW<sup>1</sup>/<sub>4</sub> sec.33, T.20 N., R.6 E., 800 ft downstream from Ponderosa Dam, and 3 miles northwest of Forbestown.

Records available.--October 1962 to September 1965.

Gage.--Water-stage recorder and Parshall flume. Altitude of gage is 975 ft (from topographic map).

Extremes.--1962-65: Maximum daily discharge, 277 cfs July 22, 1965 (gage height, 3.99 ft); no flow at times in 1962-65.

Remarks.--Records good. Canal diverts from South Fork Feather River at Ponderosa Dam. Water is used for power development and irrigation. See schematic diagram, p. 801.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	259	24	175	213	220	232	225	223	266	260	256	265
2	259	54	226	214	219	231	223	223	263	264	253	262
3	253	53	223	173	220	231	223	223	267	266	270	266
4	257	55	227	157	220	226	223	226	264	263	270	265
5	257	51	213	83	220	223	223	223	266	263	263	261
6	253	49	212	26	220	231	223	223	266	267	263	262
7	253	30	202	26	222	229	223	223	266	267	266	264
8	253	103	201	24	241	230	223	229	241	265	264	247
9	253	162	221	23	253	231	225	229	223	262	270	241
10	253	209	233	23	253	230	223	229	242	264	263	250
11	257	229	233	23	250	230	224	234	203	265	265	267
12	257	213	223	23	245	229	225	240	164	266	263	270
13	257	211	203	23	236	229	225	240	143	265	266	270
14	253	212	195	23	230	229	225	243	134	263	267	270
15	223	203	219	36	225	229	225	250	133	270	264	261
16	235	214	232	0	225	229	224	243	133	266	267	267
17	245	219	223	0	224	229	222	252	134	264	265	270
18	245	157	227	0	224	229	216	246	135	247	251	265
19	246	102	246	33	224	229	216	250	133	255	266	266
20	246	133	244	80	225	225	214	253	141	254	267	269
21	246	163	197	105	225	222	214	254	159	271	263	252
22	253	165	137	116	225	222	216	253	210	277	267	266
23	257	163	17	134	223	222	216	256	222	263	266	267
24	257	161	0	133	231	224	216	253	229	263	267	266
25	256	161	0	153	231	224	216	259	241	265	263	266
26	184	163	0	214	232	220	223	260	216	259	262	263
27	72	161	0	232	233	223	229	261	211	262	265	246
28	30	200	13	229	232	223	229	261	253	253	266	269
29	40	203	32	227	-----	224	230	261	253	263	262	267
30	45	174	103	222	-----	226	230	262	231	266	264	253
31	25	-----	183	221	-----	226	-----	262	-----	265	263	-----
Total	6,713	4,422	5,090	3,176.6	6,433	7,042	6,704	7,584	6,261	8,183	8,222	7,392
Mean	217	147	164	102	230	227	223	245	209	264	265	263
Ac-ft	13,320	8,770	10,100	6,300	12,760	13,970	13,300	15,040	12,420	16,240	16,310	15,650
Calendar year 1964	Max	260	Min	0	Mean	201	Ac-ft	145,600				
Water year 1964-65	Max	277	Min	0	Mean	213	Ac-ft	154,200				

11-3963.3 Bangor Canal below Miners Ranch Reservoir, near Oroville, Calif.

Location.--Lat 39°30'15", long 121°27'20", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 18, T.19 N., R.5 E., on left bank 400 ft downstream from outlet at Miners Ranch Dam and 5 miles east of Oroville.

Records available.--January 1963 to September 1965.

Gage.--Water-stage recorder and Parshall flume. Altitude of gage is 815 ft (from topographic map).

Extremes.--1963-65: Maximum daily discharge, 65 cfs Aug. 17-20, 1963; no flow Jan. 7 to Feb. 2, 1965.

Remarks.--Records good. Flow regulated by Miners Ranch Reservoir (capacity, 912 acre-ft). Canal completed in November 1962. Water is used for irrigation. See schematic diagram, p. 801.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	31	5.5	6.1	5.2	0	1.4	3.0	3.0	26	29	27	28
2	31	5.5	6.1	5.2	0	1.4	3.0	2.7	26	29	26	28
3	31	5.5	6.1	6.1	2.3	1.4	3.0	3.0	25	29	27	28
4	31	5.5	6.1	7.5	1.4	2.7	3.0	3.7	25	30	27	28
5	31	5.8	6.1	6.5	1.4	3.9	3.0	4.2	25	30	28	28
6	31	5.8	6.1	0.3	1.4	3.9	3.0	4.2	25	30	28	28
7	31	5.5	5.8	0	1.2	3.9	3.0	4.2	27	30	29	28
8	31	5.2	5.8	0	1.2	3.9	3.0	4.2	29	29	29	28
9	31	5.8	5.5	0	1.2	3.9	3.0	4.2	29	28	29	28
10	31	5.8	5.5	0	1.2	3.9	3.0	4.2	29	28	30	29
11	31	5.8	5.5	0	1.2	3.9	3.0	5.2	29	28	30	29
12	31	6.1	5.5	0	1.2	3.7	3.0	6.1	28	29	29	28
13	32	5.8	5.5	0	1.2	3.4	3.0	6.1	28	29	27	28
14	32	5.8	5.5	0	1.2	3.2	3.0	15	28	29	26	28
15	31	5.8	5.2	0	1.2	3.2	3.0	21	28	29	26	28
16	31	5.5	5.2	0	1.2	3.2	3.2	21	28	29	26	28
17	31	5.5	5.2	0	1.4	3.2	3.2	21	27	29	26	28
18	31	5.5	5.2	0	1.4	3.2	3.2	21	27	29	25	28
19	31	5.5	5.5	0	1.4	3.2	3.0	21	27	28	27	28
20	31	5.5	5.5	0	1.4	3.2	3.0	21	27	27	27	28
21	31	5.5	3.2	0	1.4	3.2	3.0	21	27	27	27	28
22	31	5.5	5.2	0	1.4	3.2	3.0	21	27	27	28	27
23	31	5.8	4.7	0	1.4	3.2	3.0	21	27	27	28	27
24	31	5.8	4.4	0	1.4	3.2	3.0	23	27	27	28	27
25	32	5.8	4.4	0	1.4	3.0	3.0	23	27	27	28	27
26	32	6.1	5.7	0	1.4	3.2	3.0	23	27	27	28	27
27	31	6.1	4.7	0	1.4	3.0	3.0	23	26	27	28	27
28	30	6.1	4.4	0	1.4	3.0	3.0	23	27	26	28	27
29	29	6.1	4.2	0	-----	3.0	3.0	23	27	26	28	27
30	14	6.1	4.4	0	-----	3.0	3.0	25	29	26	28	27
31	5.5	-----	5.0	0	-----	3.0	-----	25	-----	26	28	-----
Total	919.5	171.6	169.3	30.8	35.3	97.7	90.6	447.0	814	871	856	833
Mean	29.7	5.72	5.43	0.99	1.26	3.15	3.02	14.4	27.1	28.1	27.6	27.8
Ac-ft	1820	340	334	61.1	70	194	180	887	1610	1730	1700	1650

Calendar year 1964 Max 32 Min 0.4 Mean 17.0 Ac-ft 12,340  
 Water year 1964-65 Max 32 Min 0 Mean 14.6 Ac-ft 10,580

11-3963.5. South Fork Feather River below Ponderosa Dam, Calif.

Location.--Lat 39°33'05", long 121°18'30", in NW¼ sec.33, T.20 N., R.6 E., on left bank 1,000 ft upstream from Sucker Run, 1,800 ft downstream from Ponderosa Dam, and 2.8 miles northwest of Forbestown.

Drainage area.--108 sq mi.

Records available.--July 1962 to September 1965.

Gage.--Water-stage recorder. Altitude of gage 830 ft (from topographic map).

Extremes.--Maximum discharge during year, 11,000 cfs Dec. 22 (gage height, 11.52 ft in gage well, 12.7 ft outside, from floodmarks); 1962-65: Maximum discharge that of Dec. 22, 1964; minimum daily, 0.2 cfs for several days in 1965.

Remarks.--Records good. Flow regulated by several reservoirs and diversions (see Remarks for South Fork Feather River below Forbestown Dam p. 810. Water is imported from North Yuba River basin through Slate Creek Tunnel (see p. 841). Miners Ranch Canal (see p. 811) diverts 1,800 ft upstream for power development and irrigation; diversion began in Oct. 28, 1962. See schematic diagram, p. 801. Records of chemical analyses and water temperatures for the water year 1965 are published in Part 2 of this report.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Dec. 27, 28, May 8 to July 26, Aug. 19 to Sept. 30).

1.8	0.2	2.6	18	4.0	260	7.0	2,999
2.0	1.3	2.8	30	4.5	490	8.0	4,380
2.2	3.6	3.2	70	5.0	810	9.0	6,180
2.4	9	3.6	140	6.0	1,690	10.0	8,000

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	36	14	16	1,130	550	390	296	883	264	0.5	0.5	0.7
2	40	11	16	1,000	532	390	296	628	260	.5	.5	.8
3	35	11	16	1,310	526	282	292	562	229	.5	.6	.8
4	32	12	16	2,460	520	105	292	425	81	.4	.6	.8
5	30	18	16	3,720	580	156	292	415	80	.4	.5	.8
6	32	22	16	3,780	556	390	292	405	74	.4	.2	.8
7	33	24	15	2,850	532	400	288	395	63	.4	.2	.8
8	34	18	15	2,110	496	345	365	390	32	.4	.2	.8
9	34	14	16	1,650	470	280	556	385	15	.4	.2	.6
10	35	13	16	1,120	460	284	526	380	1.3	.4	.2	.7
11	33	12	16	1,030	455	284	470	375	.5	.4	.3	.7
12	30	13	16	962	450	288	455	360	.4	.4	.3	.7
13	31	14	15	890	460	280	465	365	.3	.4	.2	.7
14	32	14	14	842	460	276	460	365	.2	.4	.2	.8
15	32	13	16	834	460	260	475	350	.2	.4	.2	.6
16	31	14	16	826	450	250	994	190	.2	.4	.2	.75
17	29	14	16	803	445	276	747	148	.2	.4	.2	138
18	26	15	16	803	445	276	677	174	.2	.3	.2	138
19	25	16	19	761	440	276	677	177	.2	.2	.4	138
20	26	16	19	699	440	280	623	195	.2	.3	.4	138
21	27	16	2,300	652	435	284	634	193	.2	.4	.4	138
22	26	16	7,000	628	435	284	592	204	.2	.4	.4	142
23	25	16	5,200	718	554	284	562	213	.2	.4	.4	142
24	23	15	5,200	878	751	284	526	216	.7	.5	.5	142
25	25	14	4,100	782	385	280	496	236	.2	.5	.7	140
26	25	16	4,600	789	385	300	475	276	.7	.5	.7	140
27	23	16	5,060	818	425	355	455	272	1.0	.5	.8	140
28	23	16	3,360	740	400	316	450	272	.6	.6	.8	140
29	24	16	2,480	664	-----	304	659	272	.7	.7	.8	140
30	19	15	1,880	616	-----	296	1,960	272	.5	.7	.8	140
31	16	-----	1,430	574	-----	296	-----	268	-----	.6	.8	-----
Total	891	454	42,930	37,438	13,497	9,051	16,352	10,266	11,059	13.7	13.4	2,042.1
Mean	28.7	15.1	1,385	1,208	482	292	545	331	369	0.44	0.43	69.1
Ac-ft	1,770	900	85,150	74,260	26,770	17,950	32,430	20,360	2,190	27	27	4,050
Meant	245	163	1,549	1,310	712	519	769	576	246	265	266	331
Ac-ft†	15,090	9,670	95,250	80,560	39,530	31,920	45,730	35,400	14,610	16,270	16,340	19,700
Calendar year 1964	Max	7,000	Min	11	Mean	174	Ac-ft	126,500	Meant	376	Ac-ft†	272,000
Water year 1964-65	Max	7,000	Min	0.2	Mean	367	Ac-ft	265,900	Meant	580	Ac-ft†	420,000

† Adjusted for diversion to Miners Ranch Canal.

11-3964. Sucker Run near Forbestown, Calif.

Location.--Lat 39°33'12", long 121°18'04", NW 1/4, sec.33, T.20 N., R.6 E., on left bank at upstream side of road bridge, 0.7 mile upstream from confluence with South Fork Feather River, and 2.8 miles northwest of Forbestown.

Drainage area.--18.7 sq mi.

Records available.--June to September 1965.

Gage-water-stage recorder (digital). Altitude of gage is 960 ft (from topographic map)

Extremes.--Maximum discharge during period June to September, 27 cfs Aug. 11 (gage height, 2.01 ft); minimum daily, 3.6 cfs Sept. 15. Flood of December 22, 1964 reached a stage of 7.4 ft from floodmarks (discharge, 1,260 cfs) from computation of critical depth flow over the rock control.

Records.--Records fair. No storage or diversions above station. See schematic diagram, p. 801.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1									-	11	6.2	4.1
2									-	11	5.9	4.6
3									-	11	5.7	4.6
4									-	9.5	5.7	4.2
5									-	8.9	5.8	4.1
6									-	9.0	5.7	7.6
7									-	8.6	5.6	6.1
8									-	8.4	5.3	5.2
9									-	7.8	5.3	4.7
10									-	7.8	5.4	4.3
11									-	7.6	13	3.8
12									-	7.5	15	3.9
13									-	7.2	9.2	3.9
14									-	7.5	8.3	3.7
15									-	7.3	8.2	3.6
16									-	7.1	7.7	4.0
17									-	6.6	7.1	5.5
18									-	6.3	7.0	4.5
19									-	6.3	6.4	4.9
20									-	6.3	6.3	5.2
21									-	6.6	6.4	5.4
22									-	6.6	6.7	5.4
23									12	6.2	6.8	5.5
24									13	6.2	6.1	5.3
25									13	6.2	5.8	5.6
26									12	6.5	5.9	6.2
27									12	6.6	6.2	6.2
28									12	6.4	5.3	6.3
29									11	6.2	4.7	5.9
30									11	6.2	4.6	5.5
31										6.4	4.6	
Total									-	232.8	207.9	149.8
Mean									-	7.51	6.71	4.99
Ac-ft									-	462	412	297
Calendar year 1964	Max	-	Min	-	Mean	-	Ac-ft	-				
Water year 1964-65	Max	-	Min	-	Mean	-	Ac-ft	-				



11-3965. Palermo Canal at Enterprise, Calif.

Location.--Lat 39°32'05", long 121°20'40", in NW¼ sec.6, T.19 N., R.6 E., on left bank 400 ft downstream from intake at diversion dam on South Fork Feather River, 1 mile east of highway bridge at Enterprise, and 11 miles east of Oroville.

Records available.--October 1911 to March 1965 (discontinued). Prior to October 1926, published as Palermo Land and Water Co. canal at Enterprise.

Gage.--Water-stage recorder and Parshall flume. Altitude of gage is 650 ft (from topographic map). Prior to Nov. 17, 1932, staff gages at several sites about 1 mile downstream at various datums. Nov. 17, 1932, to Oct. 21, 1934, staff gage at present site and datum.

Average discharge.--53 years, (1911-64) 18.4 cfs (13,320 acre-ft per year).

Extremes.--1911-1965: Maximum daily discharge, 41 cfs June 14, 17, 1918, July 10-30, 1922; no flow at times in most years.

Remarks.--Records good. Canal diverts from left bank of South Fork Feather River 1 mile above Enterprise. Water is used for irrigation near Oroville. See schematic diagram, p. 801.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	22	4.7	3.4	0	0.1	2.3						
2	22	2.6	9.2	0	.1	1.5						
3	22	4.6	9.0	0	.1	0.1						
4	22	3.7	9.0	0	.1	0						
5	22	9.2	9.0	0	.1	0						
6	22	9.2	9.0	0	0	0						
7	21	9.2	9.0	0	0	0						
8	21	3.8	3.8	0	0	0						
9	21	4.4	9.0	0	0	0						
10	22	2.8	3.8	0	0	0						
11	22	2.6	3.6	0	0	-						
12	22	2.6	3.6	0	0	-						
13	21	2.5	3.6	0	0	-						
14	21	2.0	3.6	0	.1	-						
15	21	1.9	3.6	0	.1	-						
16	19	6.8	3.6	0	.2	-						
17	16	3.8	3.6	0	.1	-						
18	16	9.0	7.1	0	0	-						
19	15	3.8	4.0	0	0	-						
20	15	9.0	4.0	0	0	-						
21	16	9.2	1.5	0	0	-						
22	16	9.0	.2	0	0	-						
23	16	3.4	0	0	0	-						
24	15	7.3	0	0	0	-						
25	16	5.6	0	0	0	-						
26	15	4.9	0	.2	0	-						
27	15	6.4	0	.2	1.1	-						
28	15	6.9	0	.1	2.3	-						
29	15	6.5	0	.1	-----	-						
30	11	6.4	0	.1	-----	-						
31	9.0	-----	0	.1	-----	-	-----		-----			-----
Total	563.0	183.9	166.2	0.8	4.4	-						
Mean	13.2	6.29	5.36	0.03	0.16	-						
Ac-ft	1,120	374	330	1.6	8.7	-						

Calendar year 1964 Max 23 Min 0 Mean 13.1 Ac-ft 9,480  
 Water year 1964-65 Max - Min - Mean - Ac-ft -

11-3970. South Fork Feather River at Enterprise, Calif.

Location.--Lat 39°32'15", long 121°20'45", in NW $\frac{1}{4}$  sec. 6, T.19 N., R.6 E., on left bank 0.5 mile upstream from McCabe Creek, 1 mile upstream from highway bridge at Enterprise, and 11 miles east of Oroville.

Drainage area.--132 sq mi.

Records available.--October 1911 to September 1965. Monthly discharges for October 1911 published in WSP 1315-A.

Gage.--Water-stage recorder. Altitude of gage is 640 ft (from topographic map). Prior to Oct. 18, 1930, staff gage at site half a mile downstream at different datum.

Average discharge.--54 years, 307 cfs (222,300 acre-ft per year), unadjusted.

Extremes.--Maximum discharge during year, 11,800 cfs Dec. 22 (gage height, 17.43 ft) from rating curve extended above 5,700 cfs as explained below; minimum daily, 5.9 cfs Sept. 5, 15.

1911-65: Maximum discharge, 19,200 cfs Dec. 22, 1955 (gage height, 21.60 ft), from rating curve extended above 5,700 cfs on basis of computed maximum flow over diversion dam a quarter of a mile upstream; no flow Aug. 9, 10, Sept. 24-30, 1950.

Remarks.--Records good. Flow regulated by powerplants, Little Grass Valley Reservoir (see p. 803), Sly Creek Reservoir (see p. 807), and smaller reservoirs. Water from North Yuba River basin is diverted into Sly Creek Reservoir through Slate Creek Tunnel (see p. 841). Palermo Canal (see preceding page) and Oroville-Wyandotte Canal (see p. 808) divert above station for irrigation of about 4,500 acres in Oroville-Wyandotte Irrigation District. See schematic diagram, p.801.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shift-control method used Dec. 27 to Jan. 5, June 22 to Aug. 31, Sept. 16-30)

1.8	5.0	4.0	230
1.9	8.0	5.0	465
2.1	16	6.0	760
2.4	31	7.0	1,170
2.7	55	9.0	2,260
3.0	86	11.0	3,800
3.5	150	13.0	5,700
		15.0	8,220

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16	23	26	1,260	594	432	342	900	276	11	9.2	6.5
2	23	26	25	1,140	576	432	335	654	272	12	9.4	6.2
3	13	14	24	1,630	564	336	330	606	254	12	8.0	6.2
4	14	34	20	2,390	564	154	323	490	113	12	7.7	6.2
5	12	14	19	5,060	627	202	322	612	116	11	7.7	5.9
6	16	20	17	4,680	594	422	325	455	113	10	7.4	7.1
7	17	20	16	3,120	576	425	322	452	102	10	6.8	3.4
8	13	13	16	2,170	533	385	390	445	64	10	7.1	7.1
9	19	45	16	1,710	513	315	569	433	41	10	7.1	6.8
10	13	43	17	1,200	503	313	609	430	20	10	7.1	6.5
11	16	33	53	1,120	502	313	540	422	17	9.6	12	6.2
12	14	47	27	1,040	493	335	523	402	17	10	19	5.2
13	16	29	20	970	503	322	535	410	17	9.6	12	6.2
14	16	23	13	922	503	313	513	403	17	10	10	7.2
15	17	20	17	906	505	302	549	390	17	10	9.6	5.9
16	13	16	17	836	500	290	1,200	252	16	9.6	9.2	6.3
17	17	13	17	862	492	315	823	164	13	3.4	3.0	146
18	15	14	20	846	492	315	753	200	19	7.7	3.4	144
19	14	15	86	826	483	315	736	202	16	7.4	7.7	146
20	15	14	123	770	482	313	687	212	16	7.7	7.7	146
21	16	14	2,770	722	473	322	700	213	14	3.0	7.7	147
22	16	16	8,150	690	473	322	645	226	14	3.0	3.0	150
23	15	15	6,040	814	561	322	603	223	14	7.7	7.7	150
24	12	16	5,950	1,080	727	340	570	223	14	3.0	7.4	147
25	15	13	4,490	846	442	322	546	252	13	3.4	7.1	147
26	16	22	5,010	834	432	352	522	284	14	9.8	7.1	147
27	14	20	5,410	842	470	442	500	282	13	8.8	9.2	149
28	14	29	3,410	760	442	375	500	282	13	9.2	3.8	149
29	23	29	2,510	704	-----	350	649	282	12	8.8	7.7	149
30	13	25	1,970	657	-----	340	1,920	280	12	9.2	7.1	150
31	13	-----	1,580	621	-----	340	-----	273	-----	9.6	7.1	-----
Total	501	674.4	47,384	42,673	14,664	10,396	17,996	11,384	1,679	292.5	265.0	2,233.6
Mean	16.2	22.5	1,545	1,380	524	335	600	367	56.0	9.44	3.55	74.4
Ac-ft	994	1,340	94,980	84,650	29,090	20,620	35,690	22,580	3,330	531	526	4,430

Calendar year 1964 Max 8,150 Min 0.1 Mean 188 Ac-ft 136,200  
Water year 1964-65 Max 8,150 Min 5.9 Mean 413 Ac-ft 298,800

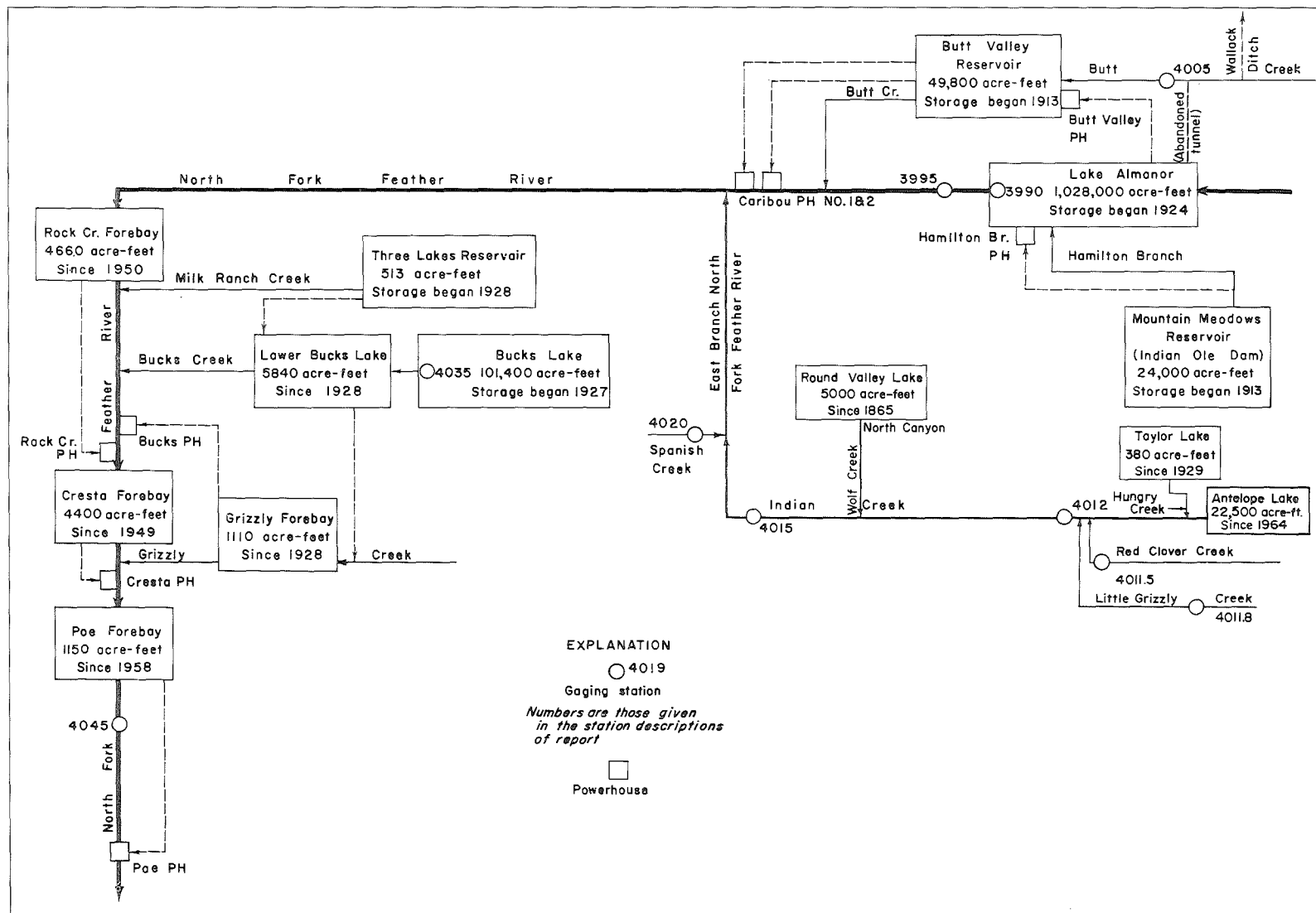


Figure 6.--Schematic diagram showing diversions and storage in North Fork Feather River basin

11-3990. Lake Almanor at Prattville, Calif.  
(Formerly published as Lake Almanor near Prattville)

Location (revised).--Lat 40°12'50", long 121°09'40", in SW¼NE¼ sec.11 T.27 N., R.7 E., at outlet tower to No. 2 tunnel on North Fork Feather River at Prattville, 4.7 miles northwest of Lake Almanor Dam and 5.6 miles northwest of Canyon Dam. Prior to June 1, 1965, at site 4.7 miles southeast.

Drainage area.--491 sq mi.

Records available.--July 1913 to September 1965. Monthly contents only for some periods, published in WSP 1315-A. Published as "near Prattville" 1937-64. Prior to October 1964, records published as usable contents.

Gage.--Telemark gage monitored once daily. Datum of gage is 10.23 ft below mean sea level (levels by Pacific Gas & Electric Co.). Prior to June 1, 1965, staff gage at site 4.7 miles southeast at same datum.

Extremes.--Maximum contents observed during year, 1,039,900 acre-ft June 10 (gage height, 4,490.14 ft); minimum observed, 506,900 acre-ft Dec. 18 (gage height, 4,467.08 ft).

1913-65: Maximum contents, that of June 10, 1965; minimum, 5,230 acre-ft Feb. 5, 1918 (gage height, 4,416.1 ft).

Remarks.--Lake is formed by earth-fill dam; storage began in July 1913; dam raised to gage height 4,455 ft in 1917 and to 4,515 ft in 1927. Capacity, 1,036,000 acre-ft between gage heights 4,490 (upper storage limit) and 4,422 ft (bottom of lowest outlet) of which 8,950 acre-ft is not available for release. Water is diverted by tunnel and penstock to Butt Valley Reservoir and powerhouse for use in Caribou powerplants; some water also released down North Fork Feather River (see following page). Figures given herein represent total contents at 2400 hours. Prior to June 1 readings were made at 1700 hours and interpolated. See schematic diagram, p. 817.

Cooperation.--Record of contents furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Capacity table (gage height, in feet, and contents, in thousands of acre-feet)

4,467	505.3	4,478	740.6
4,468	525.1	4,480	787.3
4,470	565.5	4,482	835.0
4,472	607.3	4,485	908.5
4,474	650.6	4,488	984.3
4,476	695.1	4,491	1,062.6

Contents, in thousands of acre-feet, at 2400 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	666.9	579.0	524.7	662.9	727.1	744.8	810.3	923.2	1,027.1	1,009.4	935.0	868.2
2	664.0	576.5	525.1	669.1	727.8	746.4	812.5	928.5	1,030.0	1,007.6	932.5	864.1
3	661.4	573.6	525.1	674.9	728.9	747.8	814.6	932.7	1,033.1	1,005.5	930.0	863.6
4	658.7	570.9	523.9	683.2	729.8	749.9	817.2	936.5	1,034.7	1,003.1	927.4	861.2
5	655.6	568.2	521.9	692.8	731.4	751.5	819.9	940.8	1,036.3	1,000.8	924.9	858.0
6	652.8	566.1	521.1	698.0	732.8	753.1	822.3	944.6	1,037.6	998.5	922.4	856.1
7	650.1	563.7	519.3	700.0	733.7	754.1	824.9	946.3	1,038.9	996.2	919.7	852.9
8	647.3	561.6	517.5	701.6	734.9	755.2	828.3	948.9	1,039.2	993.8	916.7	850.2
9	644.9	562.0	516.1	704.1	735.8	757.1	831.9	951.9	1,039.4	990.7	913.9	848.0
10	641.8	563.5	515.3	706.8	736.3	758.7	833.6	955.2	1,039.9	988.4	911.7	844.9
11	638.7	564.3	516.1	707.0	736.3	760.8	836.0	958.5	1,038.4	986.1	914.4	842.2
12	635.7	563.7	516.1	707.3	736.0	763.4	839.3	961.8	1,037.6	984.1	912.4	839.8
13	632.7	562.2	514.4	707.0	736.7	765.2	841.5	965.1	1,036.5	982.0	910.0	837.9
14	629.8	560.4	513.2	707.0	736.7	767.6	844.2	968.2	1,035.7	979.7	907.7	836.2
15	626.8	558.3	511.6	707.0	736.5	769.2	847.6	971.8	1,034.2	977.4	905.5	835.0
16	623.6	554.3	509.7	707.3	735.8	770.8	852.2	975.8	1,033.9	975.1	903.2	833.1
17	620.6	551.8	507.9	707.5	734.6	772.0	855.8	979.4	1,032.9	972.5	901.0	831.2
18	618.0	549.8	506.9	707.5	734.4	773.9	860.0	983.0	1,032.3	970.2	899.8	829.2
19	614.5	546.7	507.3	707.9	734.4	776.0	864.3	986.4	1,031.8	967.2	897.5	827.8
20	611.6	543.9	512.6	709.1	734.6	777.9	869.2	990.0	1,030.5	964.4	895.8	825.9
21	608.6	541.3	526.7	710.2	735.3	779.8	874.1	993.8	1,028.9	961.8	893.6	824.4
22	605.8	538.9	546.5	711.6	735.3	782.6	879.3	997.2	1,027.1	959.8	891.8	823.5
23	602.6	535.7	569.8	713.8	735.8	784.9	884.0	1,000.3	1,025.8	957.0	889.9	822.5
24	599.5	533.0	585.6	717.3	736.5	788.0	888.1	1,002.4	1,023.2	954.7	887.4	822.5
25	596.9	530.8	598.4	719.1	737.0	790.8	892.6	1,005.7	1,021.3	952.2	884.9	820.4
26	593.8	529.0	614.1	720.0	738.1	794.1	898.3	1,008.9	1,019.8	949.6	883.0	818.4
27	591.1	526.5	624.9	721.4	740.2	797.9	903.7	1,011.7	1,018.0	947.1	880.5	817.2
28	588.8	524.9	635.1	722.5	743.4	800.8	908.7	1,014.8	1,015.6	944.6	878.3	816.3
29	586.2	524.1	643.1	723.9	-----	802.4	913.9	1,018.0	1,013.3	942.0	876.3	813.7
30	583.5	522.5	649.9	725.7	-----	804.8	919.7	1,021.3	1,011.2	939.8	873.6	811.3
31	581.5	-----	656.1	727.5	-----	807.4	-----	1,024.5	-----	937.5	871.2	-----
(†)	4,470.77	4,467.87	4,474.25	4,477.43	4,478.12	4,480.85	4,485.45	4,489.55	4,489.04	4,486.16	4,483.49	4,481.01
(‡)	-88,900	-59,000	+133,600	+71,400	+15,900	+64,000	+112,300	+104,800	-13,300	-73,700	-66,300	-59,900

Calendar year 1964..... +30,400  
Water year 1964-65..... +140,900

† Gage height, in feet, at end of month.

‡ Change in contents, in acre-feet.

Note.--New capacity table put into use Oct. 1, 1964; contents on Sept. 30, 1964, from new table, 670,400 acre-ft. Change in contents for October 1964, calendar year 1964, and water year 1965 based on new table.

11-3995. North Fork Feather River near Prattville, Calif.

Location.--Lat 40°10'10", long 121°05'29", in NE¼SW¼ sec.28, T.27 N., R.8 E., on left bank 0.5 mile downstream from Almanor Dam, 4.5 miles southeast of Prattville, and 9 miles upstream from Butt Creek.

Drainage area.--493 sq mi.

Records available.--June 1905 to September 1965 (daily discharges for July 1921 to September 1936 include water diverted through Almanor-Butt Creek tunnel). Records for water year 1911 incomplete, yearly estimate published in WSP 1315-A. Published as "below Prattville" prior to 1911. Supplemental records for Almanor-Butt Creek tunnel diversion computed November 1924 to Dec. 30, 1958, as difference of flow between Butt Creek above Almanor-Butt Creek tunnel, (unpublished prior to 1936 and since 1964), and Butt Creek below Almanor-Butt Creek tunnel (unpublished prior to 1936 and 1960-64).

Gage.--Water-stage recorder and broad-crested weir. Altitude of gage is 4,380 ft (from topographic map). Prior to Oct. 1, 1936, staff gages or water-stage recorders at several sites within half a mile of present site at various datums.

Average discharge.--60 years, 893 cfs (646,500 acre-ft per year), adjusted for diversion and leakage.

Extremes.--Maximum daily discharge during year, 42 cfs Dec. 22; minimum daily, 34 cfs for many days. Extremes do not include diversions through Butt Valley powerhouse.

1905-65: Maximum discharge, 10,000 cfs Mar. 19, 1907, before construction of dam (gage height, 16.2 ft, at former site), from rating curve extended above 3,700 cfs; no flow Apr. 15, 16, 1914, at times January to April 1919, Apr. 21, 1923.

Remarks.--Records good. Flow regulated by Lake Almanor (see preceding page) and Mountain Meadows Reservoir since 1924 (capacity, 24,000 acre-ft). Water diverted for power from Lake Almanor through old Almanor-Butt Creek tunnel to Butt Creek until Dec. 30, 1958. Diversion through new tunnel and Butt Valley powerhouse began Dec. 31, 1958. See schematic diagram p. 817.

Cooperation.--Water-stage-recorder graph, 12 discharge measurements, and diversion through Butt Valley powerhouse furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

2.4	31	2.6	40
2.5	36	2.7	47

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	35	35	35	36	36	35	36	34	35	36	34	35
2	35	34	35	36	36	35	36	34	35	36	34	35
3	35	35	34	36	35	35	35	34	35	36	35	35
4	35	35	34	36	35	35	35	34	35	36	35	35
5	35	35	35	37	36	35	35	34	36	36	35	35
6	35	35	34	38	35	35	35	34	36	36	35	35
7	35	34	34	37	35	35	35	34	36	36	35	35
8	35	35	34	36	35	35	35	34	36	36	35	35
9	35	35	34	36	35	35	35	34	36	36	35	35
10	35	35	34	36	35	35	35	34	36	36	35	35
11	35	36	34	36	35	35	35	34	36	36	36	35
12	35	36	34	36	36	35	35	35	36	36	35	35
13	35	36	34	35	36	35	35	35	36	35	35	35
14	35	36	34	35	36	35	35	35	36	36	35	35
15	35	35	34	35	35	35	36	35	36	36	35	35
16	35	35	35	35	35	35	37	35	36	36	35	35
17	35	35	35	35	35	35	36	35	36	36	36	35
18	35	35	35	35	35	35	36	35	35	36	36	35
19	35	34	35	35	35	35	36	35	35	35	36	35
20	35	35	35	35	35	35	37	36	35	35	36	35
21	35	35	38	35	35	35	35	36	35	35	35	35
22	35	35	42	36	35	35	35	36	35	35	35	35
23	35	35	39	36	35	35	34	36	35	35	35	35
24	35	35	38	36	35	35	34	36	35	35	35	35
25	34	35	38	36	35	35	34	36	34	35	35	35
26	34	35	39	36	35	36	34	36	34	35	35	35
27	35	35	39	36	35	36	34	36	34	34	35	35
28	35	35	38	36	35	36	34	35	34	34	35	35
29	35	35	37	36	-----	36	34	35	34	34	35	35
30	35	35	37	36	-----	36	34	35	36	34	35	35
31	35	-----	36	36	-----	35	-----	35	-----	34	35	-----
Total	1,083	1,051	1,109	1,111	986	1,090	1,052	1,082	1,059	1,097	1,088	1,050
Mean	34.9	35.0	35.8	35.8	35.2	35.2	35.1	34.9	35.3	35.4	35.1	35.0
Ac-ft	2,150	2,080	2,200	2,200	1,960	2,160	2,090	2,150	2,100	2,180	2,160	2,080
Mean†	1.773	1.566	748	521	720	128	50.8	51.6	1,290	1,677	1,624	1,399
Ac-ft‡	109,000	93,180	45,970	32,060	39,990	7,880	3,020	3,170	76,740	103,200	99,860	83,230
Calendar year 1964	Max 42		Min 8.9		Mean 26.8	Ac-ft 19,450		Mean† 733	Ac-ft‡ 532,200			
Water year 1964-65	Max 42		Min 34		Mean 35.2	Ac-ft 25,510		Mean† 963	Ac-ft‡ 697,300			

† Adjusted for diversion through Butt Valley powerhouse and leakage from Almanor-Butt Creek tunnel No. 1.

11-4005. Butt Creek below Almanor-Butt Creek tunnel, near Prattville, Calif.

Location.--Lat 40°11'12", long 121°11'11", in NW¼ sec.22, T.27 N., R.7 E., on right bank 400 ft downstream from outlet of old tunnel from Lake Almanor to Butt Creek and 2.2 miles southwest of Prattville.

Drainage area.--68.8 sq mi (revised).

Records available.--October 1936 to September 1959, October 1964 to September 1965. Published as "below Tunnel No. 1" 1938-40. Records for water years 1937-38 published in WSP 1515.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 4,400 ft (from topographic map). Prior to Oct. 5, 1937, at site 200 ft downstream at datum about 4 ft lower.

Average discharge (natural flow of Butt-Creek).--29 years, 78.1 cfs (56,540 acre-ft per year), adjusted for leakage from Almanor-Butt Creek tunnel No. 1.

Extremes.--Maximum discharge during year, 3,830 cfs Dec. 23 (gage height, 5.87 ft), from rating curve extended above 1,400 cfs; minimum daily 42 cfs Oct. 4.

1936-59, 1964-65: Maximum discharge, that of Dec. 23, 1964; minimum daily, 30 cfs Dec. 1, 2, 1936.

Remarks.--Records good. No regulation above station. Wallack ditch, above station, diverts several cubic feet per second during each irrigation season into Yellow Creek basin. Leakage from Almanor-Butt Creek tunnel No. 1 was 14,220 acre-ft during 1965 water year. See schematic diagram, p. 817.

Cooperation.--Water-stage recorder graph, 13 discharge measurements and records for Almanor-Butt Creek tunnel No. 1 furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

0.5	32	2.5	680
.7	58	3.0	1,000
1.0	112	4.0	1,800
1.5	242	5.0	2,790
2.0	431		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	43	61	148	206	130	127	163	295	153	87	78	79
2	43	69	112	195	127	123	153	264	153	85	76	78
3	43	55	79	174	125	123	148	239	146	83	76	76
4	42	50	69	166	125	125	151	233	144	81	74	76
5	43	51	63	210	141	123	156	218	141	83	74	76
6	48	51	60	292	141	125	153	204	136	81	74	74
7	48	51	61	242	125	127	144	187	134	79	72	74
8	48	55	61	212	123	127	144	176	132	78	71	74
9	48	114	74	198	116	130	146	174	127	79	71	74
10	48	78	83	181	112	134	141	174	125	81	71	72
11	48	66	164	195	110	139	139	176	123	79	102	72
12	48	79	87	184	112	151	148	179	119	85	98	76
13	48	64	69	168	108	139	148	187	116	83	79	76
14	47	60	71	158	106	134	141	190	121	83	72	74
15	47	57	69	148	104	134	195	192	132	83	71	74
16	47	58	68	146	100	141	414	192	121	87	72	74
17	48	58	60	141	100	144	268	201	132	88	81	72
18	48	54	62	136	104	139	278	198	125	85	85	72
19	48	54	62	134	106	139	336	190	114	85	83	72
20	47	58	93	134	108	139	368	187	106	83	78	74
21	48	55	518	134	114	146	392	181	98	81	79	74
22	50	58	1,980	132	116	158	343	179	96	81	79	74
23	50	58	2,430	200	112	166	306	166	98	81	78	74
24	50	57	1,380	248	110	171	298	158	98	81	78	74
25	51	74	890	187	110	151	298	153	98	81	76	74
26	52	78	859	158	119	156	302	148	96	81	79	74
27	52	63	682	144	163	171	309	151	98	79	81	74
28	52	61	427	136	134	161	320	151	96	78	81	78
29	57	68	319	136	-----	156	320	156	92	78	81	78
30	52	74	270	130	-----	153	309	158	88	78	79	78
31	51	-----	230	132	-----	153	-----	153	-----	78	79	-----
Total	1,495	1,889	11,600	5,357	3,301	4,405	7,131	5,810	3,558	2,535	2,428	2,241
Mean	48.2	63.0	374	173	118	142	238	187	119	81.8	78.3	74.7
Ac-ft	2,970	3,750	23,000	10,630	6,550	8,740	14,140	11,520	7,060	5,030	4,820	4,440

Calendar year 1964 Max - Min - Mean - Ac-ft -  
 Water year 1964-65 Max 2,430 Min 42 Mean 142 Ac-ft 102,600

11-4011.5. Red Clover Creek near Genesee, Calif.

Location.--Lat 40°03'00", long 120°39'50", in NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.5, T.25 N., R.12 E., 0.3 mile downstream from Rock Creek, 4.5 miles east of Genesee, and 9.5 miles east of Taylorsville.

Drainage area.--122 sq mi.

Records available.--October 1958 to September 1965 (discontinued).

Gage.--Water-stage recorder. Altitude of gage is 3,830 ft (from topographic map).

Average discharge.--7 years, 79.0 cfs (57,190 acre-ft per year).

Extremes.--Maximum discharge during year, 5,720 cfs Dec. 22 (gage height, 7.99 ft); minimum daily, 9.0 cfs Nov. 16-23.

1958-65: Maximum discharge, 7,870 cfs Feb. 1, 1963 (gage height, 9.49 ft), from rating curve extended above 2,100 cfs; minimum, 5.3 cfs Jan. 19, 20, Aug. 1, 2, 1961.

Remarks.--No regulation or diversion above station. See schematic diagram, p. 817.

Cooperation.--Records furnished by the California Department of Water Resources and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	13	45	180	282	205	509	565	105	31	22	20
2	10	14	44	190	265	185	452	502	99	31	21	21
3	10	13	30	211	254	176	442	438	93	30	20	18
4	11	13	23	189	255	175	483	363	90	29	20	18
5	10	13	20	223	285	162	519	346	87	29	19	18
6	11	13	18	254	310	161	478	311	82	28	19	18
7	11	13	17	202	251	166	415	294	79	27	19	19
8	11	13	16	160	233	180	356	254	76	27	13	19
9	11	20	19	185	208	202	333	225	74	26	18	19
10	11	25	20	194	178	201	313	206	76	25	19	18
11	9.8	20	57	210	168	211	275	197	67	25	21	18
12	9.9	23	35	215	150	246	292	195	63	25	25	18
13	9.8	20	22	204	148	216	321	196	59	25	21	18
14	10	14	24	190	141	196	322	201	54	25	20	18
15	11	11	23	181	123	212	446	203	55	24	20	18
16	10	9.0	21	171	116	223	833	205	54	26	20	18
17	11	9.0	19	161	113	260	585	213	63	27	21	18
18	11	9.0	20	154	115	238	569	212	72	29	22	18
19	11	9.0	22	158	125	236	804	207	57	26	21	18
20	11	9.0	36	168	141	246	1050	201	56	25	20	18
21	11	9.0	1050	167	155	307	1180	189	49	24	20	18
22	11	9.0	3670	165	180	430	1010	188	45	24	20	19
23	11	9.0	3750	281	163	511	807	177	42	24	19	18
24	12	9.5	2180	461	159	494	779	149	41	23	19	18
25	12	15	1330	423	159	377	766	137	38	24	19	18
26	12	24	1300	418	169	342	718	126	34	22	18	18
27	11	19	1270	373	239	358	683	108	33	23	18	18
28	11	17	620	315	231	321	678	113	37	22	18	20
29	12	18	477	272	-----	358	669	112	34	20	18	22
30	13	19	361	261	-----	406	633	111	33	21	17	19
31	12	-----	261	263	-----	443	-----	109	-----	21	17	-----
Total	339.5	431.5	16799	7204	5316	8444	17719	7053	1847	790	609	556
Mean	11.0	14.4	542	232	190	272	591	228	61.6	25.5	19.5	18.5
Ac-ft	673	856	33320	14290	10540	16750	35150	13990	3660	1570	1310	1100

Calendar year 1964: Max: 3,750 Min: 9.0 Mean: 91.5 Ac-ft: 66,400

Water year 1964-65: Max: 3,750 Min: 9.0 Mean: 184 Ac-ft: 133,100

Note.--No gage height record Nov. 14-24, Dec. 12-14, 16-19, Jan. 1-3, 8, 9, Feb. 10-12.

## SACRAMENTO RIVER BASIN

11-4011.8 Little Grizzly Creek near Genesee, Calif.

Location.--Lat 40°00'55", long 120°45'10", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.21, T.25 N., R.11 E., on right bank 2.5 miles upstream from Indian Creek, and 2 miles south of Genesee.

Drainage area.--29.6 sq mi.

Records available.--August 1964 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 4,180 ft (from topographic map).

Extremes.--1964: Maximum discharge during period August to September, 5.8 cfs Sept. 2 (gage height, 1.23 ft), minimum daily, 4.5 cfs Aug. 22-26, Sept. 23-28.

1964-65: Maximum discharge during year, 1,600 cfs Dec. 23 (gage height, 5.90 ft), from rating curve extended above 200 cfs on basis of slope-area measurement of maximum flow; minimum daily, 4.5 cfs Oct. 1-7.

Remarks.--Records good prior to Dec. 20 and fair thereafter. Records of water temperature for the period August 1964 to September 1965 are published in Part 2 of this report. See schematic diagram, p. 817.

## Discharge, in cubic feet per second, 1964

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	-	5.5	7	-	4.9	13	-	4.7	19	4.7	4.7	25	4.5	4.5
2	-	5.7	8	-	4.7	14	-	4.7	20	4.7	4.9	26	4.5	4.5
3	-	5.3	9	-	4.7	15	-	4.7	21	4.6	4.5	27	4.6	4.5
4	-	5.0	10	-	4.9	16	-	4.6	22	4.5	4.7	28	4.6	4.5
5	-	4.9	11	-	4.7	17	-	4.6	23	4.5	4.5	29	4.6	4.6
6	-	4.9	12	-	4.7	18	-	4.7	24	4.5	4.5	30	4.6	4.6
												31	4.9	
Total.....														142.9
Mean.....														4.76
Runoff in acre-feet.....														283

## Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.5	6.9	30	118	67	60	67	389	220	48	17	11
2	4.5	6.7	27	106	66	57	64	316	209	46	17	11
3	4.5	5.8	16	95	63	52	62	253	218	44	16	11
4	4.5	5.7	12	92	63	50	63	232	228	41	16	10
5	4.5	5.5	10	165	69	48	69	205	232	39	15	9.7
6	4.5	5.5	9.2	228	70	46	68	176	215	37	15	10
7	4.5	5.3	8.7	96	67	44	63	156	190	36	14	11
8	4.6	6.2	9.2	104	60	44	61	144	170	33	14	11
9	4.7	1.9	11	88	55	44	60	142	155	32	14	11
10	4.6	1.0	17	80	50	44	56	146	149	31	14	10
11	4.6	8.9	47	81	48	45	51	158	147	31	24	9.7
12	4.6	1.3	23	83	45	49	52	176	142	29	22	9.4
13	4.6	9.2	15	77	44	47	52	205	129	27	17	9.2
14	4.6	8.2	14	67	42	46	52	232	116	27	16	9.2
15	4.6	6.9	12	62	41	47	58	250	113	26	15	9.2
16	4.7	7.1	11	58	40	49	129	283	97	25	15	8.9
17	4.7	7.1	8.9	56	39	51	104	319	115	24	16	8.9
18	4.7	6.7	9.7	54	40	51	89	328	99	23	17	9.2
19	4.7	6.9	11	52	42	51	115	331	88	22	15	9.2
20	4.7	6.7	27	53	45	51	180	328	81	21	14	9.2
21	4.7	6.6	599	53	49	54	272	298	76	21	14	8.9
22	4.7	6.6	1,020	52	53	62	358	265	78	20	14	8.5
23	4.7	6.6	1,300	110	53	71	225	228	74	20	13	9.5
24	4.9	7.1	1,070	177	51	72	248	208	68	19	13	8.2
25	5.0	1.0	870	110	50	68	272	195	64	20	12	8.2
26	4.9	1.1	782	82	52	63	295	198	60	20	12	8.2
27	5.0	9.4	618	68	66	62	331	215	60	19	12	8.2
28	5.2	9.4	358	60	64	59	378	232	61	18	11	8.7
29	6.9	1.1	248	55	-----	59	424	250	54	17	11	9.5
30	5.8	1.0	180	54	-----	60	434	258	50	16	11	8.2
31	5.3	-----	142	58	-----	62	-----	350	-----	17	11	-----
Total	149.0	244.0	7,515.7	2,694	1,494	1,668	4,651	7,371	3,757	849	457	281.9
Mean	4.81	8.13	242	86.9	53.4	53.8	155	239	125	27.4	14.7	9.40
Ac-ft	296	484	14,910	5,340	2,960	3,310	9,230	14,620	7,450	1,580	906	559

Calendar year 1964 Max - Min - Mean - Ac-ft -  
 Water year 1964-65 Max 1,300 Min 4.5 Mean 85.3 Ac-ft 61,740

## Peak discharge (base, 300 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0730	5.90	1600	4-30	1900	4.05	500
1-5	2400	3.54	322	5-18	1900	3.63	350
4-21	1800	3.54	322				



11-4012. Indian Creek near Taylorsville, Calif.

Location.--Lat 40°02'55", long 120°48'55", in SE 1/4 sec. 12, T. 25 N., R. 10 E., on right bank 0.3 mile upstream from Montgomery Creek and 2.3 miles southeast of Taylorsville.

Drainage area.--526 sq mi.

Records available.--May 1957 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 3,580 ft (from topographic map). Prior to Oct. 22, 1963, at site 1.0 mile downstream at different datum.

Average discharge.--8 years, 352 cfs (254,800 acre-ft per year).

Extremes.--Maximum discharge during year, 14,100 cfs Dec. 22 (gage height, 15.24 ft); minimum daily, 25 cfs Oct. 5.

1957-65: Maximum discharge, 30,200 cfs Feb. 1, 1963 (gage height, 10.65 ft, site and datum then in use), from rating extended above 3,000 cfs on basis of slope-area measurements at gage heights 10.3 ft and 10.65 ft; minimum daily, 13 cfs Aug. 2-4, 1961.

Flood of Dec. 23, 1955, reached a stage of 11.5 ft from floodmarks, site and datum then in use (discharge, unknown).

Remarks.--Flow regulated by Antelope Lake (usable capacity, 22,240 acre-ft) beginning Dec. 27, 1964 and storage in Taylor Lake since 1929 (capacity, 380 acre-ft). Some diversions for irrigation upstream. See schematic diagram, p. 817.

Cooperation.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	28	150	122	740	982	705	1,610	2,380	752	204	85	63
2	31	150	164	700	953	646	1,490	2,180	721	192	83	69
3	31	145	128	670	891	819	1,380	1,970	712	183	80	67
4	29	145	112	650	884	608	1,490	1,760	702	176	78	65
5	25	140	104	1,200	952	573	1,590	1,620	680	169	78	184
6	102	125	95	2,310	1,050	558	1,540	1,470	634	161	76	198
7	122	120	92	1,600	894	569	1,360	1,390	572	151	72	203
8	134	125	80	900	871	588	1,210	1,240	539	143	69	206
9	136	180	75	700	800	647	1,140	1,130	511	135	69	204
10	138	149	78	750	700	659	1,120	1,080	490	131	68	198
11	141	104	162	800	650	662	988	1,070	484	123	96	193
12	101	107	143	880	589	776	1,070	1,090	442	117	113	193
13	101	89	102	700	558	732	1,140	1,110	413	115	100	189
14	139	74	99	670	547	672	1,070	1,150	379	113	96	185
15	139	65	94	640	500	706	1,220	1,160	374	119	90	181
16	139	60	88	600	486	743	2,070	1,200	353	119	86	182
17	139	68	74	560	464	634	1,870	1,230	394	131	94	183
18	139	61	80	550	470	792	1,700	1,230	417	128	111	182
19	128	61	92	560	493	766	2,110	1,210	381	120	101	185
20	135	59	135	575	533	772	2,710	1,200	343	113	93	186
21	135	56	2,610	578	561	905	3,100	1,180	324	107	92	193
22	135	59	9,010	570	621	1,160	2,970	1,150	308	102	95	189
23	120	55	10,400	880	579	1,490	2,580	1,050	290	99	89	188
24	135	56	5,900	1,940	566	1,570	2,540	950	297	96	83	188
25	133	63	3,880	1,450	565	1,290	2,550	880	277	96	80	186
26	135	75	3,790	1,250	590	1,100	2,540	835	252	92	76	184
27	140	78	3,870	1,100	761	1,160	2,550	812	236	92	74	184
28	145	73	2,430	990	778	1,050	2,570	821	240	87	65	182
29	145	70	2,010	910	-----	1,140	2,650	819	224	84	65	172
30	140	72	1,380	905	-----	1,280	2,590	813	216	82	64	95
31	140	-----	1,000	921	-----	1,410	-----	789	-----	80	62	-----
Total	3,662	2,834	48,399	28,169	19,288	27,182	56,518	37,969	12,937	3,860	2,587	4,997
Mean	118	94.5	1,561	909	689	877	1,884	1,225	431	125	83.5	167
Ac-ft	7,260	5,620	96,000	55,870	38,260	53,920	112,100	75,310	25,660	7,660	5,130	9,910

Calendar year 1964 Max 10,400 Min 25 Mean 303 Ac-ft 220,000

Water year 1964-65 Max 10,400 Min 25 Mean 681 Ac-ft 492,700

## SACRAMENTO RIVER BASIN

11-4015, Indian Creek near Crescent Mills, Calif.

Location.--Lat 40°04'20", long 120°55'35", in SW $\frac{1}{4}$  sec. 25, T.26 N., R.9 E., on left bank 0.8 mile upstream from Dixie Creek and 1.5 miles south of Crescent Mills.

Drainage area.--739 sq mi.

Records available.--January 1906 to December 1909, September 1911 to March 1918, October 1930 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 3,500 ft (from topographic map). Prior to March 1918, staff gage at site 800 ft upstream at different datum.

Average discharge.--44 years (1906-9, 1911-17, 1930-65), 538 cfs (389,500 acre-ft per year).

Extremes.--Maximum discharge during year, 21,400 cfs Dec. 23 (gage height, 16.70 ft, from floodmark); minimum daily, 12 cfs Oct. 1. 1906-9, 1911-18, 1930-65: Maximum discharge observed, 25,000 cfs Mar. 19, 1907 (gage height, 20.2 ft, site and datum then in use); minimum, 1.7 cfs Aug. 25, 1931.

Revisions.--Figures of maximum discharge for the water years 1956 and 1958 have been revised to 23,000 cfs Dec. 24, 1955 (gage height, 17.80 ft) and 12,800 cfs Feb. 25, 1958 (gage height, 14.10 ft), superseding figures published in WSP 1395 and 1565, respectively.

Remarks.--Records good except those for period of no gage-height record, which are fair. 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 1964 (capacity, 22,500 acre-ft). Diversions above station for irrigation of about 11,800 acres, of which 9,700 acres is in Indian and Genesee Valleys. See schematic diagram, p. 817.

Revisions.--Revised figures of discharge, in cubic feet per second, for the water year 1956, superseding those published in WSP 1395 are given herewith:

1955  
Dec. 22..... 11,000  
23..... 19,700  
24..... 17,900

Month	cfs-days	Maximum	Minimum	Mean	Runoff in acre-ft
December 1955.....	92,642	19,700	70	2,988	183,800
Calendar year 1955.....	152, 377.6	19,700	2.0	417	302,300
Water year 1955-56.....	445, 897.3	19,700	9.3	1,218	884,500

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	163	140	1,460	1,610	1,220	2,040	3,540	940	226	44	66
2	15	177	213	1,340	1,580	1,090	1,360	3,100	890	206	44	63
3	15	163	196	1,260	1,500	1,020	1,800	2,730	875	203	45	63
4	14	165	165	1,200	1,470	993	1,880	2,350	855	184	47	61
5	14	164	154	2,540	1,610	940	1,960	2,090	825	170	44	63
6	29	140	142	5,740	1,770	905	1,980	1,880	783	156	43	143
7	112	134	140	4,760	1,560	910	1,780	1,750	720	143	40	170
8	122	134	130	2,730	1,450	935	1,640	1,610	672	135	40	186
9	130	260	123	1,720	1,330	992	1,640	1,490	623	126	39	183
10	134	258	126	1,440	1,140	1,010	1,610	1,420	600	115	39	180
11	134	200	214	1,570	1,060	1,030	1,440	1,400	580	104	55	180
12	134	202	213	1,610	956	1,270	1,520	1,410	549	96	203	184
13	135	165	153	1,430	935	1,250	1,580	1,470	500	87	126	186
14	135	123	150	1,270	920	1,130	1,500	1,490	449	81	95	172
15	132	102	142	1,160	825	1,130	1,610	1,500	425	79	84	162
16	134	90	132	1,090	783	1,160	3,040	1,540	392	83	79	153
17	130	97	114	1,030	760	1,270	3,440	1,610	460	91	84	160
18	134	86	116	963	760	1,240	2,880	1,590	552	91	130	176
19	135	82	162	963	792	1,190	2,890	1,570	463	89	122	175
20	124	84	210	1,020	855	1,160	3,500	1,550	415	81	103	176
21	134	82	2,520	1,030	910	1,330	4,290	1,500	380	76	101	182
22	136	85	10,400	1,020	993	1,570	4,770	1,470	341	76	114	182
23	136	82	19,500	1,570	950	1,890	4,390	1,350	326	66	112	175
24	123	83	11,800	4,190	915	2,040	4,020	1,210	323	65	107	172
25	135	90	7,550	3,480	905	1,800	3,840	1,110	320	63	95	170
26	134	112	6,320	2,570	930	1,590	3,750	1,050	292	63	85	172
27	133	115	6,780	1,960	1,290	1,730	3,700	1,020	270	63	83	173
28	142	112	5,000	1,670	1,380	1,600	3,700	1,020	263	56	72	180
29	160	107	3,510	1,490	-----	1,610	3,780	1,010	262	43	69	176
30	160	107	2,380	1,440	-----	1,690	3,740	993	246	41	66	117
31	156	-----	1,710	1,500	-----	1,800	-----	974	-----	39	62	-----
Total	3,473	3,975	80,621	58,226	31,949	40,500	81,670	49,902	15,610	3,202	2,482	4,628
Mean	112	132	2,601	1,873	1,141	1,306	2,722	1,607	520	103	80.1	154
Ac-ft	6,900	7,880	159,900	115,500	63,370	80,330	162,000	98,780	30,960	6,350	4,920	9,180

Calendar year 1964 Max 19,500 Min 6.4 Mean 453 Ac-ft 328,800  
Water year 1964-65 Max 19,500 Min 12 Mean 1,031 Ac-ft 746,100

Peak discharge (base, 1,100 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	about 0500	16.70	21,400	2-28	0300	5.77	1,460
1-6	2000	9.93	6,090	3-24	1000	6.71	2,210
1-24	1200	8.64	4,330	4-1	1000	6.64	2,140
2-6	1000	6.25	1,820	4-22	1300	9.05	4,850

Note.--No gage-height record Dec. 21-23.

11-4020. Spanish Creek above Blackhawk Creek, at Keddie, Calif.

Location.--Lat 40°00'05", long 120°57'20", in NE¼ sec.27, T.25 N., R.9 E., on right bank 200 ft upstream from Blackhawk Creek and 0.9 mile southeast of Keddie.

Drainage area.--184 sq mi.

Records available.--October 1933 to September 1965. Prior to October 1953, published as "at Keddie." Records for October 1911 to September 1933, at site 1.2 miles downstream not equivalent owing to inflow.

Gage.--Water-stage recorder (digital). Altitude of gage is 3,250 ft (from topographic map).

Average discharge.--32 years, 260 cfs (188,200 acre-ft per year).

Extremes.--Maximum discharge during year, 15,400 cfs Dec. 22 (gage height, 13.53 ft) from rating curve extended above 4,400 cfs on basis of slope-area measurement at gage height 12.47 ft; minimum daily, 21 cfs Oct. 16.  
1933-65: Maximum discharge, that of Dec. 22, 1964; minimum, 3.8 cfs Aug. 12, 1934.

Remarks.--Records good except those for period of no gage-height record, which are poor. Flow regulated by five small reservoirs having a combined capacity of 800 acre-ft. Approximately 4,600 acres irrigated above station (from information furnished by U. S. Forest Service). City of Quincy diverts about 450 acre-ft annually for municipal supply. See schematic diagram, p. 817.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Jan. 15

Jan. 15 to Sept. 30

1.0	20	4.0	790	1.2	28	3.5	500
1.4	36	5.0	1,550	1.6	48	4.0	775
1.9	70	6.0	2,590	2.0	83	4.5	1,060
2.3	116	8.0	5,180	2.4	147	5.0	1,550
2.6	173	10.0	8,460	3.0	305	6.0	2,590
3.0	285	12.0	12,200				
3.5	515						

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	28	58	173	548	550	443	508	875	314	102	52	40
2	27	84	266	489	528	398	470	745	297	89	49	30
3	26	53	184	540	497	372	460	622	301	99	44	31
4	26	46	131	709	491	359	460	564	302	89	41	35
5	24	43	110	3,440	670	347	470	544	298	86	40	35
6	26	41	98	4,640	716	343	473	485	284	77	40	38
7	29	40	91	2,200	583	338	466	442	262	69	39	47
8	28	41	86	1,150	510	339	450	412	247	57	31	51
9	30	174	87	829	459	348	442	405	232	63	36	50
10	28	173	89	699	413	350	435	405	216	65	37	47
11	28	118	252	767	380	375	440	421	205	54	54	44
12	27	205	171	741	350	430	460	432	196	53	144	45
13	27	150	123	625	340	425	473	451	188	56	75	46
14	26	104	108	553	328	410	450	458	182	61	61	45
15	26	85	101	497	308	400	504	462	192	67	57	43
16	21	77	93	459	295	410	2,500	472	178	58	54	42
17	23	71	86	425	289	420	1,380	494	238	57	60	42
18	26	65	82	400	294	415	1,050	485	222	54	69	40
19	27	61	137	411	311	408	1,280	476	186	54	64	41
20	29	58	550	429	333	422	1,380	466	169	52	53	43
21	31	56	4,510	423	356	450	1,580	451	152	46	52	43
22	32	59	11,700	410	380	470	1,270	424	132	40	55	44
23	32	58	8,270	1,160	360	503	1,050	377	132	34	53	42
24	32	58	4,430	2,430	338	522	1,010	356	124	31	52	43
25	31	67	2,370	1,120	327	470	999	341	124	30	48	42
26	30	96	2,630	778	330	415	988	338	122	32	47	38
27	32	94	2,900	626	569	435	988	341	121	53	49	44
28	35	92	1,510	550	519	415	1,020	348	121	48	46	48
29	41	92	1,050	493	-----	415	1,040	338	112	46	45	46
30	40	91	829	480	-----	450	985	345	106	45	43	43
31	38	-----	673	515	-----	485	-----	341	-----	49	42	-----
TOTAL	906	2,510	43,890	29,536	11,824	12,782	25,481	14,116	5,955	1,816	1,632	1,268
MEAN	29.2	83.7	1,416	953	422	412	849	455	199	58.6	52.6	42.3
AC-FT	1,800	4,980	87,050	58,580	23,450	25,350	50,540	28,000	11,810	3,600	3,240	2,520

CALENDAR YEAR 1964	MAX	11,700	MIN	15	MEAN	226	AC-FT	164,000
WATER YEAR 1964-65	MAX	11,700	MIN	21	MEAN	416	AC-FT	300,900

Peak discharge (base, 1,700 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-22	1745	13.53	15,400	4-16	0830	6.69	3,430
1-5	2400	9.48	7,560	4-21	0145	5.19	1,730
1-23	2230	7.18	4,060				

Note.--No gage-height record Oct. 18-27, Mar. 9 to Apr. 12.

## SACRAMENTO RIVER BASIN

11-4035. Bucks Lake near Bucks Lodge, Calif.

Location.--Lat 39°53'45", long 121°12'10", in NW¼ sec.33, T.24 N., R.7 E., in intake tower No. 2 upstream from dam on Bucks Creek, 2 miles northwest of Bucks Lodge, and 15 miles west of Quincy.

Drainage area.--28.6 sq mi.

Records available.--1927-28 (year-end contents only, published in WSP 1315-A), October 1928 to September 1965. Prior to October 1954 published as Bucks Creek Reservoir near Bucks Ranch.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Feather River Power Co.).

Extremes.--Maximum contents during year, 95,000 acre-ft June 7 (elevation, 5,151.2 ft); minimum 34,180 acre-ft Oct. 16 (elevation, 5,111.4 ft).

1928-65: Maximum contents, 105,800 acre-ft June 23, 1938 (elevation, 5,157.1 ft); minimum, 12,330 acre-ft Feb. 27, 1929. (elevation, 5,090.7 ft).

Remarks.--Reservoir is formed by concrete-faced, rock-fill dam completed in 1927; storage began in May 1927. Capacity, 101,700 acre-ft (revised) between elevations 5,064.75 (sill of outlet gate) and 5,154.85 ft (spillway crest) above mean sea level. Released water flows down Bucks Creek to Lower Bucks Lake, where it enters tunnel that discharges into Grizzly Creek, thence to Bucks Creek powerhouse. Figures given herein represent total contents, of which 274 acre-ft is not available for release. See schematic diagram, p. 817.

Cooperation.--Record of contents furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission Project.

Capacity table (elevation, in feet, and contents, in acre-feet)

5,110	32,500	5,130	60,000
5,115	38,800	5,135	67,800
5,120	45,500	5,145	84,300
5,125	52,500	5,152	96,500

Contents, in thousands of acre-feet, at 2400 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	37.6	34.9	38.1	77.2	80.5	75.3	68.7	78.9	93.0	89.2	75.4	61.9
2	37.5	35.0	38.4	78.0	80.5	75.2	68.4	80.0	93.4	88.8	75.0	61.4
3	37.1	35.0	38.6	78.7	80.5	75.1	68.2	80.2	93.7	88.4	74.5	60.9
4	36.7	35.0	38.6	79.5	80.6	75.1	67.9	80.9	94.2	88.0	74.0	60.5
5	36.4	35.1	38.7	80.4	80.8	75.1	67.7	81.6	94.6	87.6	73.6	60.0
6	36.1	35.1	38.8	81.2	80.9	75.0	67.4	82.1	94.9	87.2	73.1	59.7
7	35.9	35.1	38.9	81.8	80.9	74.9	67.1	82.4	95.0	86.7	72.6	59.2
8	35.6	35.4	38.9	81.9	80.7	74.7	67.0	82.7	94.9	86.3	72.1	58.8
9	35.5	35.8	39.1	81.7	80.4	74.4	67.0	82.9	94.9	85.8	71.6	58.4
10	35.5	36.1	39.4	81.9	80.1	74.1	67.0	83.1	94.8	85.3	71.1	57.9
11	35.1	36.3	39.7	82.1	79.8	73.8	67.0	83.2	94.7	84.9	70.8	57.5
12	34.9	36.6	39.8	82.2	79.5	73.6	66.7	84.3	94.6	84.5	70.5	57.0
13	34.7	36.7	40.0	82.2	79.2	73.3	66.1	83.7	94.4	84.0	70.2	56.5
14	34.5	36.8	40.0	82.2	78.9	73.0	65.8	84.0	94.2	83.6	69.7	56.1
15	34.3	36.8	40.1	82.2	78.6	72.7	65.8	84.3	94.0	83.1	69.2	55.6
16	34.2	36.8	40.2	82.2	78.3	72.4	66.4	84.8	93.8	82.7	68.8	55.3
17	34.2	36.8	40.2	82.0	78.0	72.1	67.0	85.3	93.7	82.2	68.4	54.7
18	34.2	36.8	40.5	81.9	77.6	71.9	67.6	86.0	93.5	81.7	68.0	54.3
19	34.2	36.9	40.8	81.7	77.3	71.5	68.4	86.5	93.3	81.3	67.6	53.9
20	34.2	36.9	41.4	81.6	77.0	71.2	69.3	87.1	93.0	80.8	67.2	53.4
21	34.2	36.9	46.2	81.2	76.7	71.0	70.5	87.6	92.7	80.3	66.7	53.0
22	34.2	37.0	57.4	80.9	76.4	70.8	71.4	88.0	92.4	80.0	66.2	52.5
23	34.2	37.0	63.6	80.9	76.1	70.6	72.1	88.4	92.1	79.6	65.8	52.0
24	34.2	37.1	67.2	81.6	75.8	70.4	72.8	88.7	91.8	79.2	65.3	51.6
25	34.2	37.2	69.2	81.4	75.6	70.3	73.5	89.1	91.4	78.7	64.9	51.2
26	34.2	37.4	70.7	81.5	75.4	70.2	74.3	89.5	91.1	78.2	64.4	50.7
27	34.3	37.5	71.8	81.2	75.4	70.0	75.2	89.9	90.7	77.7	63.9	50.3
28	34.3	37.6	72.9	80.5	75.3	69.7	76.2	90.5	90.3	77.3	63.5	49.8
29	34.5	37.7	74.1	80.5	-	69.3	77.1	91.2	90.0	76.8	63.0	49.4
30	34.5	37.8	75.2	80.5	-----	69.2	78.1	91.9	89.6	76.5	62.7	48.9
31	34.5	-----	76.4	80.5	-----	69.0	-----	92.6	-----	75.9	62.3	-----
(†)	5,111.6	5,114.3	5,140.3	5,142.8	5,139.7	5,135.8	5,141.3	5,149.8	5,148.1	5,140.0	5,131.5	5,122.5
(†)	-3,500	+3,300	+3,600	+4,100	-5,200	-6,300	+9,100	+14,500	-3,000	-13,700	-13,600	-13,400

Calendar year 1964..... ++39,300  
 Water year 1964-65..... ++10,900

† Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

11-4045. North Fork Feather River at Pulga, Calif.

Location.--Lat 39°47'40", long 121°27'00", in NE¼ sec.6, T.22 N., R.5 E., on left bank between railroad and highway bridges, 0.5 mile downstream from Flea Valley Creek and Pulga and 1.5 miles downstream from Poe Dam.

Drainage area.--1,953 sq mi.

Records available.--October 1910 to September 1965. Monthly discharge only for some periods and yearly estimates for water years 1911 and 1938, published in WSP 1315-A. Prior to October 1962, published as "at Big Bar."

Gage.--Water-stage recorder. Datum of gage is 1,304.88 ft above mean sea level (levels by Pacific Gas & Electric Co.). Prior to Oct. 1, 1937, at site 1.1 miles upstream at different datum. Oct. 1, 1937, to Sept. 30, 1958, at present site at datum 5.00 ft higher.

Average discharge.--55 years, 2,904 cfs (2,102,000 acre-ft per year), including diversion through Poe powerplant.

Extremes.--Maximum discharge during year, 73,000 cfs Dec. 22 (gage height, 35.80 ft), from rating curve extending above 34,000 cfs; minimum daily, 51 cfs Oct. 31, Nov. 5.

1910-58 (prior to diversion to Poe powerhouse): Maximum discharge, 72,400 cfs Dec. 23, 1955 (gage height, 35.60 ft, present datum), from rating curve extended above 34,000 cfs; minimum daily, 235 cfs Oct. 31, 1932.

1958-65: Maximum discharge, that of Dec. 22, 1964; minimum daily, 33 cfs June 25, 1961.

Remarks.--Records good. Flow regulated by Lake Almanor (see p. 818), Bucks Lake (see p. 826), Mountain Meadows Reservoir, Butt Valley Reservoir, and five forebays (combined capacity, 1,239,000 acre-ft, revised). Diversion through Poe powerplant began on May 29, 1958. See schematic diagram, p. 817. Records of chemical analyses and water temperatures for the water year 1965 are published in Part 2 of this report.

Cooperation.--Water-stage-recorder graph and 11 discharge measurements furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	58	94	83	1,340	1,790	78	71	3,240	64	59	61	59
2	57	76	83	936	1,870	76	70	2,520	64	59	61	59
3	61	56	74	1,370	1,230	75	68	1,880	63	58	62	58
4	58	53	69	1,670	900	74	66	1,320	61	57	62	58
5	60	51	65	3,990	1,350	73	66	1,040	58	58	62	59
6	57	52	64	16,400	1,880	72	67	691	57	57	61	59
7	59	53	62	10,900	1,350	71	65	369	56	58	59	60
8	62	61	60	6,000	2,260	70	78	170	60	59	58	60
9	62	104	59	3,780	2,660	66	117	90	62	60	61	60
10	61	102	65	2,920	2,460	69	100	86	61	61	63	60
11	60	92	76	2,620	2,210	70	92	128	61	60	74	60
12	60	94	61	2,510	2,070	73	88	220	60	59	66	60
13	60	74	60	2,020	2,020	69	91	177	61	58	62	57
14	59	65	57	1,780	2,010	68	94	225	63	58	63	60
15	58	61	57	1,400	1,860	68	130	228	62	59	63	60
16	60	60	55	1,100	1,800	65	5,710	294	60	59	61	59
17	58	58	52	908	1,240	67	4,510	510	64	61	61	58
18	59	59	57	740	90	67	3,490	440	65	60	63	55
19	59	58	105	516	84	72	4,510	386	64	60	60	56
20	55	57	159	452	84	66	5,090	455	64	60	61	59
21	53	57	19,600	446	82	68	6,230	230	65	61	61	60
22	54	57	55,400	354	80	67	5,610	76	61	73	62	59
23	55	54	49,700	2,710	75	65	4,870	69	61	61	60	60
24	56	57	30,600	9,070	73	65	4,170	69	61	57	60	59
25	57	59	16,300	5,660	80	60	3,970	68	60	58	60	55
26	56	68	15,700	3,480	85	68	4,340	68	59	59	60	55
27	56	65	14,500	2,440	90	99	4,090	66	58	61	62	59
28	56	94	8,810	1,770	80	80	4,190	65	58	60	59	60
29	79	78	5,270	1,330	-----	74	4,130	64	58	60	59	60
30	57	73	3,420	946	-----	71	3,790	63	58	60	61	57
31	51	-----	2,320	1,160	-----	71	-----	66	-----	61	60	-----
Total	1,813	2,042	222,043	97,718	31,863	2,197	69,963	15,373	1,829	1,851	1,908	1,760
Mean	58.5	68.1	7,163	3,152	1,138	70.9	2,332	496	61.0	59.7	61.5	58.7
Ac-ft	3,600	4,050	440,400	193,800	63,200	4,360	139,800	30,490	3,630	3,670	3,780	3,490
Mean†	2,474	2,219	10,220	7,522	4,699	3,685	6,670	4,678	3,344	2,532	2,274	2,125
Ac-ft†	152,100	132,000	628,300	462,500	260,900	226,600	396,800	287,600	198,900	155,700	139,800	126,400

Calendar year 1964 Max 55,400 Min 43 Mean 669 Ac-ft 485,400 Mean† 2,544 Ac-ft† 1,847,000  
 Water year 1964-65 Max 55,400 Min 51 Mean 1,234 Ac-ft 893,300 Mean† 4,375 Ac-ft† 3,168,000

† Adjusted for diversion through Poe powerplant.

Note.--No gage-height record Feb. 22-26, Mar. 1-8.

11-4053. West Branch Feather River near Paradise, Calif.

Location.--Lat 39°47'15", long 121°33'40", in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.6, T.22 N., R.4 E., on left bank 0.6 mile upstream from Griffin Gulch and 4.0 miles northeast of Paradise.

Drainage area.--113 sq mi.

Records available.--October 1957 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 1,370 ft (from topographic map).

Average discharge.--8 years, 294 cfs (212,800 acre-ft per year).

Extremes.--Maximum discharge during year, 26,300 cfs Dec. 22 (gage height, 26.2 ft from floodmark), from rating curve extended above 6,800 cfs; minimum daily, 0.8 cfs Oct. 18-26.

1957-65: Maximum discharge, that of Dec. 22, 1964; minimum, 0.3 cfs Aug. 31, Sept. 1, 2, 1960, Sept. 8, 1962.

Remarks.--Records good except those for period of no gage-height record, which are poor. Dewey, Miners, and Hendricks Canals divert from headwaters of West Branch Feather River into Butte Creek basin (see p. 791) for power development at DeSabra and Centerville plants of Pacific Gas & Electric Co. Upper Miocene Canal diverts about 50 cfs to Lime Saddle powerplant. Flow regulated by Round Valley Reservoir (usable capacity, 1,284 acre-ft) and Philbrook Reservoir (capacity 5,010 acre-ft). Records of water temperatures for the water year 1965 are published in Part 2 of this report.

Cooperation.--Water-stage recorder graph and 15 discharge measurements furnished by California Department of Water Resources in connection with a Federal Power Commission project.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.3	68	435	965	602	305	340	900	345	20	5.8	1.2
2	1.2	184	656	885	566	271	315	752	305	19	5.6	1.2
3	1.0	20	247	1,110	514	258	271	640	325	18	5.4	1.2
4	1.0	3.2	132	1,590	502	251	267	616	323	18	5.2	1.1
5	1.0	1.7	85	5,400	834	247	292	608	305	17	5.0	1.1
6	1.0	1.4	64	4,610	735	243	310	539	268	16	4.8	1.1
7	1.0	1.3	52	2,500	594	230	343	476	243	16	4.2	1.2
8	1.0	7.3	46	1,660	526	224	352	462	213	15	1.4	1.2
9	1.1	575	60	1,320	478	226	578	462	193	15	1.3	1.2
10	1.0	317	120	1,150	442	230	422	469	199	14	1.2	1.1
11	1.0	177	914	1,200	412	230	355	497	195	13	22	1.1
12	1.0	262	272	1,090	385	276	345	514	185	13	74	1.1
13	1.0	104	148	945	370	243	355	532	155	12	7.1	1.1
14	1.0	43	104	900	358	228	392	532	148	12	2.8	1.1
15	0.9	29	84	970	338	224	711	536	131	12	2.0	1.1
16	.9	21	64	935	318	228	2,740	536	110	11	1.8	1.0
17	.9	16	50	915	308	232	1,300	564	119	11	4.8	1.0
18	.8	12	55	840	302	222	1,250	466	110	10	3.8	1.0
19	.8	7.3	360	835	300	220	1,690	444	73	9.8	2.8	1.0
20	.8	5.4	1,070	800	302	214	1,580	430	60	9.4	2.2	1.0
21	.8	4.5	10,300	750	298	238	2,020	420	49	9.0	2.0	1.0
22	.8	5.1	21,800	682	302	262	1,440	384	43	8.7	1.8	1.0
23	.8	4.4	12,000	1,580	280	271	1,180	414	39	8.4	1.6	1.0
24	.8	45	7,380	2,030	262	295	1,120	375	36	8.1	1.6	1.0
25	.8	77	4,030	1,190	249	256	1,110	345	33	7.8	1.4	1.0
26	.8	155	5,480	970	238	294	1,140	357	32	7.5	1.3	0.9
27	1.0	100	3,480	830	413	566	1,140	366	30	7.2	1.3	0.9
28	1.7	120	2,110	735	358	392	1,160	363	26	6.9	1.3	1.0
29	1.8	133	1,620	678	-----	342	1,130	373	24	6.6	1.2	1.0
30	8.5	116	1,360	662	-----	320	1,060	381	22	6.4	1.2	1.0
31	2.4	-----	1,140	650	-----	325	-----	369	-----	6.1	1.2	-----
Total	56.1	2,620.6	75,713	41,477	11,586	8,363	26,713	15,127	4,344	363.9	179.1	31.9
Mean	1.81	87.4	2,443	1,338	414	270	890	488	145	11.7	5.8	1.06
Ac-ft	1.11	5,200	150,200	82,270	22,980	16,590	52,980	30,000	8,620	722	355	63

Calendar year 1964 Max 21,800 Min 0.8 Mean 297 Ac-ft 215,400  
 Water year 1964-65 Max 21,800 Min 0.8 Mean 511 Ac-ft 370,100

Peak discharge (base, 2,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-22	about 1000	26.2	26,300	4-16	about 0500	10.80	4,080
1-5	2000	15.88	9,910	4-21	0500	8.68	2,280
1-23	2000	10.94	4,210				

Note.--No gage-height record Dec. 21, 22, Apr. 16, July 2 to Aug. 5.

## 11-4070. Feather River at Oroville, Calif.

Location.--Lat 39°31'13", long 121°32'48", in SW 1/4, sec. 8, T.19 N., R.4 E., on right bank 300 ft upstream from fish barrier dam on Feather River and 0.6 mile northeast of Oroville business district.

Drainage area.--3,626 sq mi.

Records available.--October 1901 to September 1965. October 1934 to September 1961 published as "near Oroville." Monthly discharge only for some periods published in WSP 1315-A.

Gage.--Water-stage recorder. Altitude of gage is 150 ft (from topographic map). Jan. 1, 1902 to Dec. 15, 1912, staff gages at several locations 0.2 mile downstream at various datums. Dec. 16, 1912 to Sept. 30, 1934, water-stage recorder at site 0.2 mile downstream at datum 139.53 ft above mean sea level, datum of 1929. Oct. 1, 1934, to June 30, 1962, water-stage recorder at site 5.0 miles upstream at datum 182.02 ft above mean sea level, datum of 1929. July 1, 1962 to Sept. 30, 1964, water-stage recorder at site 0.2 mile downstream at mean sea level datum, datum of 1929.

Average discharge.--64 years, 5,833 cfs (4,223,000 acre-ft per year).

Extremes.--Maximum discharge during year, 158,000 Dec. 23 (gage height, 25.24 ft), from rating curve extended above 58,000 cfs on basis of computation of maximum flow over fish barrier dam (affected by temporary detention storage behind Oroville Dam now under construction); minimum daily, 1,060 cfs Nov. 8.

1901-65: Maximum discharge observed, 230,000 cfs Mar. 19, 1907 (elevation, 167.5 ft above mean sea level, datum of 1929); minimum, 300 cfs (estimated), Nov. 9, 1931.

Remarks.--Records good. Flow partly regulated by powerplants and reservoirs above station. Several diversions above station for power and irrigation. See Remarks for upstream stations and schematic diagrams, pp. 801, 817. Records of chemical analyses, water temperatures, and suspended sediment loads for the water year 1965 are published in Part 2 of this report.

Cooperation.--Water-stage recorder graph and twenty discharge measurements furnished by the California Department of Water Resources in connection with a Federal Power Commission project.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,790	2,170	4,090	13,800	10,500	7,720	7,930	16,900	6,650	3,940	3,060	2,950
2	2,790	3,470	5,480	12,500	9,730	7,420	7,960	14,300	7,090	4,090	3,060	2,950
3	2,790	2,730	4,710	16,600	10,200	6,910	7,300	13,300	6,790	4,060	3,080	2,950
4	2,790	2,350	4,060	22,100	10,400	6,250	7,720	12,200	6,790	3,830	3,030	2,950
5	2,790	1,900	3,760	41,400	12,000	6,140	7,720	11,900	7,090	3,670	3,010	2,950
6	2,790	1,980	3,630	61,000	13,200	6,410	7,810	10,900	6,970	3,720	3,100	2,950
7	2,790	1,210	3,470	40,100	12,500	6,170	7,660	9,860	6,730	3,690	3,280	3,010
8	2,830	1,060	3,390	25,900	11,000	6,090	7,870	9,320	6,450	3,630	3,210	3,030
9	2,830	3,000	3,390	20,400	10,600	6,340	10,500	9,000	6,060	3,610	3,190	2,950
10	2,830	4,710	3,390	17,000	9,540	6,090	9,570	8,930	6,140	3,580	3,190	2,930
11	2,830	4,040	6,310	16,200	8,870	6,390	8,680	8,930	6,170	3,500	3,190	2,970
12	2,830	4,570	4,960	15,600	8,420	6,320	8,330	9,060	4,990	3,470	3,650	2,990
13	2,830	4,060	4,160	14,100	8,200	6,940	8,360	9,290	4,520	3,450	3,610	2,830
14	2,850	3,500	3,850	13,600	8,140	6,620	8,450	9,250	4,930	3,630	3,260	2,550
15	2,850	3,320	3,690	12,800	7,900	6,480	8,490	9,290	5,320	3,470	3,060	2,550
16	2,850	3,210	3,610	12,100	7,600	6,790	23,900	9,190	4,960	3,390	3,060	2,550
17	2,850	3,170	3,540	11,200	7,370	6,510	20,000	9,540	5,140	3,340	3,080	2,730
18	2,850	3,080	3,410	10,700	7,510	6,820	16,900	9,570	5,400	3,300	3,030	3,060
19	2,830	2,970	4,610	10,400	7,060	6,510	19,900	9,290	4,350	3,300	3,060	3,080
20	2,830	2,950	7,400	10,100	7,390	6,390	21,100	9,380	3,990	3,430	3,060	2,930
21	2,830	2,970	55,600	10,200	7,690	6,510	25,800	9,190	4,450	3,320	3,030	2,670
22	2,830	2,970	138,000	9,930	7,780	6,530	23,100	8,490	4,780	3,320	3,010	2,650
23	2,830	2,970	156,000	11,800	7,840	7,120	19,900	8,170	5,090	3,320	2,990	2,670
24	2,830	2,990	142,000	29,000	7,750	7,690	18,300	7,310	4,930	3,300	2,990	2,710
25	2,830	3,060	84,300	21,900	6,730	7,570	17,900	7,660	4,830	3,030	2,970	2,850
26	2,830	3,250	60,000	13,000	6,320	7,630	17,300	7,600	4,040	3,080	2,990	2,610
27	2,750	3,410	59,600	15,400	8,230	9,130	17,900	7,720	3,740	3,080	3,010	2,610
28	2,690	3,650	36,100	13,500	3,710	8,490	17,700	7,720	3,800	3,080	2,970	2,670
29	2,830	3,780	25,500	12,200	-----	8,020	18,100	7,480	4,250	3,060	2,950	3,030
30	2,770	3,560	20,000	11,300	-----	7,870	18,900	6,700	4,210	3,010	2,930	3,410
31	2,170	-----	16,400	11,000	-----	7,750	-----	6,590	-----	3,030	2,950	-----
Total	86,610	91,960	873,410	561,830	250,180	216,120	422,150	295,030	160,650	106,730	96,060	85,740
Mean	2,794	3,065	28,340	18,120	8,935	6,972	14,070	9,517	5,355	3,443	3,099	2,858
Ac-ft	171,800	182,400	1,742,000	1,114,000	496,200	428,700	837,300	585,200	318,600	211,700	190,500	170,100

Calendar year 1964 Max 156,000 Min 1,060 Mean 5,301 Ac-ft 3,848,000  
 Water year 1964-65 Max 156,000 Min 1,060 Mean 8,908 Ac-ft 6,448,000

Peak discharge (base, 30,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0600 to 1300	25.24	158,000	1- 6	0100	17.52	76,400
12-26	2400	17.73	78,300	1-24	0800	10.79	33,600

11-4071.5 Feather River near Gridley, Calif.

Location.--Lat 39°22'01", long 121°38'43", on left bank in SW $\frac{1}{4}$  sec.33, T.18 N., R.3 E., at old highway bridge 2.7 miles east of Gridley.

Drainage area.--3,676 sq mi.

Records available.--October 1964 to September 1965. January 1944 to September 1964 are published in reports by California Department of Water Resources.

Gage.--Water-stage recorder. Gage is set to datum of Corps of Engineers, which is 2.91 ft below mean sea level.

Extremes.--Maximum discharge during year, 151,000 cfs Dec. 23 (gage height, 100.43 ft); minimum daily, 663 cfs Nov. 8. Flood of Dec. 23, 1955 reached a stage of 102.25 ft, discharge unknown.

Remarks.--Flow regulated by powerplants and reservoirs above station, see Remarks for Feather River at Oroville, p. 829.

Cooperation.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,080	1,930	3,800	15,000	11,100	8,060	7,720	15,900	4,390	1,910	1,050	1,370
2	2,070	3,110	5,200	13,700	11,300	7,690	7,750	14,200	4,930	1,820	1,030	1,380
3	2,080	3,000	4,800	15,000	10,500	7,270	7,640	12,900	4,630	2,060	1,070	1,370
4	2,070	2,390	4,050	20,000	10,100	6,720	7,450	10,500	4,550	1,800	1,080	1,360
5	2,050	1,730	3,300	35,000	11,100	6,510	7,390	9,480	4,920	1,620	1,070	1,390
6	2,030	1,580	3,650	54,100	13,500	6,780	7,340	8,340	4,860	1,580	1,100	1,420
7	2,030	1,060	3,600	44,200	13,200	6,510	7,130	7,440	4,740	1,620	1,260	1,480
8	2,030	663	3,550	30,300	10,900	6,170	7,120	6,780	4,490	1,580	1,230	1,590
9	2,080	1,900	3,500	23,100	10,200	6,530	9,860	6,410	4,100	1,450	1,250	1,570
10	2,100	4,660	3,550	18,700	8,940	6,240	9,500	6,280	4,020	1,460	1,270	1,540
11	2,100	3,370	5,500	16,300	8,410	6,400	8,140	6,210	4,100	1,370	1,320	1,570
12	2,070	4,480	5,300	16,100	8,030	6,850	7,670	6,310	3,180	1,320	1,630	1,620
13	2,080	4,210	4,250	14,600	7,300	6,850	7,620	6,610	2,450	1,290	1,800	1,590
14	2,090	3,630	3,900	13,700	7,710	6,590	7,710	6,640	2,550	1,360	1,650	1,380
15	2,200	3,450	3,800	13,300	7,550	6,340	7,750	6,680	3,240	1,350	1,450	1,490
16	2,090	3,300	3,700	12,700	7,290	6,470	19,500	6,670	2,930	1,180	1,410	1,480
17	2,120	3,250	3,600	11,700	7,290	6,220	20,800	6,910	3,010	1,190	1,390	1,640
18	2,100	3,100	3,500	10,700	7,330	6,510	16,800	7,080	3,260	1,150	1,410	2,070
19	2,110	2,850	4,400	10,300	7,100	6,090	19,100	6,320	2,610	1,140	1,450	2,140
20	2,100	2,800	7,000	10,300	6,850	5,970	20,500	6,850	2,000	1,290	1,430	2,160
21	2,190	2,800	52,000	9,760	7,370	6,200	24,300	6,310	2,110	1,250	1,420	1,940
22	2,180	2,800	133,000	9,290	7,300	6,110	23,600	6,280	2,580	1,240	1,400	1,960
23	2,190	2,800	149,000	10,100	7,640	6,780	20,600	5,900	2,920	1,280	1,390	2,010
24	2,200	2,800	139,000	26,600	8,000	7,300	18,600	5,490	2,800	1,260	1,380	2,030
25	2,190	2,900	99,300	23,200	7,140	7,380	17,900	5,370	2,660	1,090	1,360	2,200
26	2,200	3,050	55,600	19,300	7,220	7,420	17,500	5,350	2,050	965	1,360	2,060
27	2,130	3,200	58,700	16,600	7,840	8,620	17,500	5,430	1,650	1,040	1,370	1,990
28	2,200	3,550	40,800	14,600	8,710	8,410	16,900	5,440	1,570	1,000	1,340	2,170
29	2,340	3,700	28,700	13,300	-----	7,820	16,800	5,370	1,950	989	1,310	2,350
30	2,470	3,600	21,700	12,000	-----	7,680	17,200	4,580	1,960	989	1,290	2,800
31	2,110	-----	18,300	10,800	-----	7,550	-----	4,430	-----	1,020	1,340	-----
Total	66,080	88,263	880,550	564,350	247,420	214,040	405,390	225,360	97,210	41,662	41,310	53,120
Mean	2,132	2,942	28,400	18,220	8,836	6,905	13,510	7,270	3,240	1,344	1,333	1,771
Ac-ft	131,100	175,100	1,747,000	1,120,000	490,800	424,500	804,100	447,000	192,800	82,640	81,940	105,400

Calendar year 1964 Max - Min - Mean - Ac-ft -  
 Water year 1964-65 Max 149,000 Min 663 Mean 8,014 Ac-ft 5,802,000

Note.--Indefinite stage-discharge relation Nov. 16 to Dec. 22. No gage-height record Dec. 28 to Jan. 5.



11-4073. North Honcut Creek near Bangor, Calif.

Location.--Lat 39°20'32", long 121°29'25", in SW $\frac{1}{4}$  sec. 11, T.17 N., R.4 E., on left bank 0.25 mile upstream from unnamed tributary and 5.7 miles southwest of Bangor.

Drainage area.--47.1 sq mi.

Records available.--October 1960 to September 1962, July 1963 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 125 ft (from topographic map). Prior to September 1962 at site 50 ft upstream at same datum.

Extremes.--Maximum discharge during year, 10,700 cfs Dec. 26 (gage height, 11.57 ft) from rating curve extended above 4,600 cfs; minimum daily, 0.3 cfs Aug. 8.

1960-62, 1963-65: Maximum discharge, that of Dec. 26, 1964; no flow for several months in 1961, 1962.

Remarks.--Small diversions above station for irrigation.

Cooperation.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.4	10.0	15	111	25	10	8.0	14	5.2	3.1	1.6	1.9
2	3.4	16.0	19	98	24	11	8.8	12	6.1	3.1	1.2	1.9
3	3.3	11	30	883	22	9.5	7.1	11	6.4	3.1	0.9	2.1
4	2.7	7.3	20	1,660	21	9.2	6.4	10	5.2	2.9	0.9	2.3
5	2.8	5.8	15	1,990	56	9.5	5.8	8.5	4.2	2.7	0.8	2.5
6	3.0	4.5	13	1,450	53	9.4	5.2	8.4	4.1	2.5	0.8	2.7
7	3.4	4.3	11	495	40	10	5.0	8.2	4.2	2.5	0.5	4.6
8	2.8	4.3	10	174	33	9.5	9.2	7.2	4.6	2.6	0.3	4.8
9	3.2	20	9.3	123	30	8.4	321	6.2	4.9	2.1	0.4	4.1
10	3.5	37	8.7	83	26	7.9	242	5.2	4.5	1.8	0.6	3.8
11	3.6	32	8.2	87	22	7.6	191	4.5	4.5	1.7	2.5	3.0
12	3.2	47	8.1	78	21	8.8	77	4.4	3.9	1.7	1.2	2.4
13	3.4	22	7.6	57	20	12	84	4.1	4.3	1.7	1.1	2.0
14	4.9	14	7.5	48	19	9.3	93	4.2	4.3	1.8	8.6	2.3
15	4.3	11	7.9	44	17	8.6	68	4.4	4.2	2.0	7.8	1.9
16	3.8	8.9	7.5	39	16	7.5	526	5.4	3.6	2.0	7.5	2.4
17	3.8	8.3	8.7	35	14	7.1	146	6.0	3.6	1.7	7.7	1.6
18	3.8	8.7	11	32	14	7.1	101	5.7	4.3	1.5	7.6	1.4
19	3.5	7.8	55	30	13	6.9	112	6.3	4.2	0.9	7.8	1.4
20	3.6	6.7	144	30	13	6.2	64	7.4	3.6	0.7	5.5	1.5
21	4.3	6.2	1,430	28	13	6.2	71	7.2	2.9	0.6	3.5	2.2
22	4.4	6.6	2,130	27	12	7.1	54	8.0	2.8	0.6	2.5	2.3
23	4.8	6.2	654	31	11	5.4	40	8.2	3.1	0.9	2.3	2.2
24	4.6	6.2	534	95	10	5.2	33	6.6	3.1	0.9	1.5	2.4
25	4.8	6.4	143	49	9.8	5.2	28	5.8	3.3	0.8	1.8	3.1
26	5.0	6.8	1,600	42	9.9	5.2	24	5.6	3.6	0.9	1.8	3.7
27	5.7	6.6	647	37	12	10	21	5.3	3.5	0.9	1.7	3.7
28	7.0	7.2	194	35	12	13	20	5.3	3.2	1.3	1.9	3.6
29	15	12	158	32	-----	9.1	18	5.3	3.2	1.4	1.7	3.4
30	11	12	174	30	-----	7.9	16	4.9	3.7	1.2	1.6	3.1
31	8.3	-----	172	28	-----	7.1	-----	5.0	-----	1.6	1.4	-----
Total	144.3	362.8	8,252.5	7,981	588.7	256.9	2,405.5	210.3	122.3	53.2	107.7	80.3
Mean	4.65	12.1	266	258	21.0	8.29	80.2	6.78	4.08	1.72	3.47	2.68
Ac-ft	286	720	16,370	15,830	1,170	510	4,770	417	243	196	214	159

Calendar year 1964 Max 2,130 Min 0.3 Mean 39.0 Ac-ft 28,310  
 Water year 1964-65 Max 2,130 Min 0.3 Mean 56.3 Ac-ft 40,800

11-4075. South Honcut Creek near Bangor, Calif.

Location.--Lat 39°22'05", long 121°22'15", in SE $\frac{1}{4}$  sec.35, T.18 N., R.5 E., on right bank 2.3 miles southeast of Bangor and 3.3 miles upstream from Tennessee Creek.

Drainage area.--30.6 sq mi (revised).

Records available.--October 1950 to September 1965.

Gage.--Water-stage recorder (digital). Altitude of gage is 620 ft (from topographic map).

Average discharge.--15 years, 35.5 cfs (25,700 acre-ft per year); median of yearly mean discharges, 28 cfs (20,300 acre-ft per year).

Extremes.--Maximum discharge during year, 17,600 cfs Dec. 26 (gage height, 19.25 ft), from rating curve extended above 2,200 cfs on basis of slope-area measurements at gage heights 11.15 ft and 19.25 ft; minimum daily, 0.1 cfs July 16, 17.  
1950-65: Maximum discharge, that of Dec. 26, 1964, no flow at times in most years.

Remarks.--Records good except those for period of backwater from swimmer's dams, which are poor. Some small diversions upstream for irrigation.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	0.1	2.5	6.4	86	24	11	15	16	3.0	7.5	1.3	0.8
2	.1	5.3	8.9	75	22	11	12	16	3.2	6.8	1.5	.8
3	.2	2.4	10	519	21	11	11	16	3.4	6.2	1.3	.8
4	.2	1.5	5.6	980	20	10	10	15	3.2	6.0	1.2	.8
5	.2	1.1	4.6	1,080	37	9.5	9.5	15	3.2	4.6	1.0	.8
6	.2	.9	4.1	838	28	11	9.7	13	3.6	5.1	1.0	1.8
7	.2	.8	3.8	363	23	10	9.5	12	3.6	3.2	1.0	1.5
8	.2	.9	3.5	166	21	9.5	45	14	3.8	.8	1.0	1.6
9	.3	9.6	3.3	118	20	9.0	383	18	4.0	.3	1.1	1.8
10	.2	34	3.1	91	19	10	185	18	2.6	.2	1.2	1.8
11	.1	25	4.9	90	18	9.6	118	15	1.6	.2	2.0	1.8
12	.1	26	5.6	72	17	16	68	14	1.4	.2	2.7	1.8
13	.1	5.9	4.0	58	16	14	57	11	1.2	.2	2.9	1.5
14	.1	3.7	3.5	49	16	11	49	11	1.2	.2	1.5	1.5
15	.1	2.5	3.3	40	15	11	64	15	1.6	.2	1.0	1.6
16	.1	2.0	3.1	35	14	9.9	415	15	3.0	.1	1.1	1.6
17	.1	1.8	2.8	32	14	10	111	15	4.3	.1	1.8	1.5
18	.1	1.6	3.0	29	13	11	92	15	3.9	1.5	1.8	1.5
19	.1	1.4	91	29	13	8.0	89	14	7.8	3.8	1.8	1.4
20	.1	1.4	93	28	12	7.5	65	8.8	13	3.0	1.8	1.3
21	.1	1.5	1,220	25	12	7.3	76	7.5	13	2.6	1.8	1.2
22	.1	1.6	1,500	24	12	7.4	54	7.3	5.1	2.8	1.8	1.1
23	.1	1.6	422	67	11	7.5	44	6.5	2.8	2.8	1.6	.8
24	.1	1.6	332	84	11	8.1	37	5.1	5.7	2.8	1.5	.2
25	.1	2.0	99	47	10	8.2	31	4.8	4.2	2.2	1.4	.2
26	.2	2.1	1,160	39	10	9.3	28	4.5	4.2	2.2	1.4	.2
27	.2	2.1	407	34	15	47	25	4.2	4.5	2.6	1.3	.2
28	.2	4.8	157	31	12	19	23	3.8	7.3	2.6	1.2	.3
29	.7	12	137	29	-----	14	20	3.8	9.1	3.0	1.0	.2
30	.7	5.5	131	27	-----	12	17	4.6	8.1	2.2	.8	.2
31	.6	-----	144	26	-----	12	-----	4.5	-----	1.8	.8	-----
TOTAL	6.0	165.1	5,976.5	5,211	476	361.8	2,172.7	343.4	136.6	77.8	44.6	32.6
MEAN	0.19	5.50	193	168	17.0	11.7	72.4	11.1	4.55	2.51	1.44	1.09
AC-FT	12	327	11,850	10,340	944	718	4,310	681	271	154	88	65

CALENDAR YEAR 1964 MAX 1,500 MIN 0 MEAN 28.0 AC-FT 20,340  
WATER YEAR 1964-65 MAX 1,500 MIN 0.1 MEAN 41.1 AC-FT 29,760

Peak discharge (base, 1,400 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-22	1330	9.72	4,350	1-5	2030	8.46	2,770
12-26	2000	19.25	17,600				

Note.--Backwater from swimmer's dams June 2 to Sept. 30.

11-4078. Jackson Meadows Reservoir near Sierra City, Calif.

Location.--Lat 39°30'40", long 120°33'15", in NW¼SE¼, sec.18, T.19 N., R.13 E., on right bank at Jackson Meadows Dam on the Middle Yuba River, 0.7 mile downstream from Pass Creek and 5.7 miles southeast of Sierra City.

Drainage area.--37.4 sq mi.

Records available.--November 1964 to September, 1965

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Nevada Irrigation District).

Extremes.--Maximum contents during period November to September, 62,000 acre-ft Aug. 25-31, Sept. 9 (elevation, 6,029.0 ft).

Remarks.--Records good. Reservoir is formed by an earth-fill 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 spillway Tainter gates). Dead storage, 2,500 acre-ft. Records represent total contents.

Capacity table (elevation, in feet, and contents, in acre-feet)

5,923	1,140	5,990	27,600
5,930	2,000	6,000	35,300
5,940	3,920	6,010	43,900
5,950	6,760	6,020	53,200
5,960	10,600	6,020	63,000
5,970	15,400		
5,980	21,000		

Contents, in acre-feet, at 2400 hours, water year November 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		-	-	35,600	30,100	26,200	27,300	-	55,000	58,300	61,000	61,900
2		-	-	-	29,900	26,100	27,300	-	55,300	58,600	61,000	61,900
3		-	1,300	-	29,600	25,900	27,700	-	55,500	58,800	60,900	61,900
4		-	1,400	-	29,500	25,900	27,400	-	55,700	59,000	60,900	61,900
5		-	-	-	29,300	25,700	27,300	39,600	55,600	59,300	60,900	61,900
6		-	-	-	29,200	25,600	27,300	-	55,600	59,700	60,900	61,900
7		-	1,500	35,300	29,000	25,500	27,300	-	55,500	59,700	60,900	61,900
8		-	1,800	-	28,900	25,400	27,200	-	55,300	59,800	60,900	61,900
9		0	-	-	28,700	25,300	27,300	-	55,300	59,900	60,900	62,000
10		-	-	-	28,500	25,200	27,300	40,900	55,300	60,000	60,900	61,900
11		-	-	-	28,300	25,200	27,200	40,900	55,400	60,100	61,100	61,900
12		-	-	-	28,100	25,100	27,000	41,000	55,300	60,200	61,200	61,900
13		-	-	34,000	28,000	25,000	27,000	41,200	55,200	60,300	61,200	61,900
14		-	-	33,500	27,900	24,900	26,900	41,600	55,000	60,300	61,200	61,900
15		-	2,100	33,400	27,600	24,900	26,800	41,900	55,000	60,400	61,300	61,900
16		-	-	33,200	27,400	25,100	26,900	42,500	55,400	60,500	61,500	61,800
17		-	2,100	32,900	27,200	25,200	26,900	43,100	56,100	60,500	61,700	61,800
18		-	-	32,700	27,000	25,400	26,900	43,800	56,400	60,600	61,800	61,800
19		-	-	32,400	27,000	25,500	27,200	44,700	56,600	60,600	61,900	61,800
20		-	-	32,200	26,900	25,700	28,000	45,800	56,800	60,700	61,900	61,800
21		-	-	32,000	26,800	25,900	28,900	46,700	57,200	60,700	61,900	61,800
22		-	-	31,700	26,700	26,100	-	47,300	57,700	60,700	61,900	61,800
23		-	-	31,700	26,600	26,300	-	47,800	58,100	60,800	61,900	61,800
24		-	-	31,700	26,600	26,600	-	48,400	58,000	60,800	61,900	61,800
25		-	-	31,500	26,500	26,800	-	49,000	57,900	60,800	62,000	61,800
26		-	-	31,300	26,400	27,000	-	49,700	58,000	60,800	62,000	61,800
27		-	-	31,100	26,400	27,300	-	50,400	58,000	60,800	62,000	61,800
28		-	-	31,000	26,300	27,500	-	51,400	58,000	60,900	62,000	61,800
29		-	-	30,700	-----	-	-	52,400	58,100	60,900	62,000	61,700
30		1,200	-	30,500	-----	-	35,600	53,500	58,200	61,000	62,000	61,800
31		-----	35,600	30,300	-----	-	-----	54,400	-----	61,000	62,000	-----
(+)		5,923.6	6,000.3	5,993.6	5,983.2	5,990.3	6,000.3	6,021.3	6,025.2	6,028.0	6,029.0	6,028.8
(+)		+1,200	+34,400	-5,300	-4,000	+1,500	+7,800	-18,800	+3,800	+2,800	+1,000	-200

Calendar year 1964.....† -----

Water year 1964-65.....† -----

† Elevation in feet, at end of month.

† Change in contents, in acre-feet.

## SACRAMENTO RIVER BASIN

11-4079, Middle Yuba River below Jackson Meadows Dam, near Sierra City, Calif.

Location.--Lat 39°30'58", long 120°33'40", in SE<sup>1</sup>/<sub>4</sub> NW<sup>1</sup>/<sub>4</sub> sec.18, T.19 N., R.13 E., on right bank 0.6 mile downstream from Jackson Meadows Dam, and 5.2 miles southeast of Sierra City.

Drainage area.--38.2 sq mi.

Records available.--October 1964 to September 1965. If record for Milton-Bowman tunnel near Graniteville is added to record published as Middle Yuba River at Milton, a record equivalent to this site can be obtained for the period 1928-64.

Gage.--Water-stage recorder and concrete control. Datum of gage is 5,717.20 ft above mean sea level (levels by Nevada Irrigation District).

Extremes.--Maximum discharge during year, 2,300 cfs Sept. 1 (gage height, 6.60 ft), from rating curve extended above 560 cfs as explained below; minimum daily, 0.1 cfs Oct. 1, 2.

Maximum stage known since at least 1925, 10.57 ft Jan. 31, 1963, from floodmarks (discharge, 10,000 cfs, from rating curve extended above 560 cfs on basis of computation of peak flow over dam, adjusted for diversion and inflow).

Remarks.--Records good except those for periods of no gage-height record, which are fair. Flow completely regulated by Jackson Meadows Reservoir (see preceding page).

Rating tables (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Sept. 1

Sept. 1-30

1.1	0	2.2	28	1.25	0.2	2.3	34
1.2	.2	2.4	43	1.3	.4	2.6	63
1.3	.6	2.7	73	1.4	1.0		
1.4	1.4	3.0	113	1.5	1.9		
1.5	2.5	3.5	213	1.6	3.3		
1.6	4.2	4.0	378	1.7	5.3		
1.8	9.5	4.5	610	1.9	11		
2.0	17			2.1	21		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0.6	3.5	220	169	106	107	124	204	3.8	3.5	59
2	.1	.8	3.3	215	169	106	107	124	353	1.5	3.5	6.5
3	4.8	2.8	2.5	215	167	106	107	123	488	1.5	4.0	3.8
4	4.5	5.2	2.1	210	165	106	107	123	560	1.5	4.5	1.4
5	.4	.7	2.0	210	163	105	107	124	585	1.5	4.8	.9
6	.4	2.4	2.0	205	163	105	107	124	560	1.5	5.0	.6
7	.3	6.5	1.9	205	159	105	107	124	510	1.5	4.6	.4
8	.2	5.7	2.0	205	159	105	107	123	465	1.5	1.8	.3
9	.2	1.3	2.0	205	157	105	106	123	407	1.5	.9	.3
10	.2	.8	3.0	200	157	105	106	270	420	1.5	.7	3.9
11	.2	.9	3.5	200	157	105	106	353	442	1.5	1.2	10
12	.2	1.4	5.3	200	155	105	106	353	452	1.5	1.4	10
13	1.2	4.6	4.4	199	155	105	106	353	399	2.0	.7	7.4
14	5.3	1.4	4.0	196	151	105	105	353	323	2.0	1.1	4.0
15	5.0	1.3	3.8	196	151	66	105	353	216	2.5	.9	9.1
16	4.8	1.1	3.8	196	149	5.0	107	358	93	2.5	1.0	7.2
17	4.6	1.2	3.7	194	147	4.4	106	353	5.3	3.0	1.3	1.8
18	4.4	1.3	3.5	194	126	4.4	107	353	87	3.0	1.1	1.1
19	4.2	1.4	3.7	191	106	4.6	113	237	173	3.0	.8	1.1
20	4.0	1.4	5.3	189	106	4.8	113	121	185	3.0	.7	1.1
21	3.8	1.0	5.0	187	107	5.5	123	121	110	3.0	.6	1.4
22	3.7	.9	153	185	107	6.2	113	121	10	3.0	.5	1.2
23	3.5	.8	123	187	107	6.5	116	121	55	3.0	.4	1.1
24	3.3	.9	170	185	106	6.2	119	121	290	3.0	.6	1.1
25	3.3	1.6	253	180	106	5.7	121	123	211	3.0	.7	1.1
26	3.2	1.4	249	173	106	5.0	124	123	123	3.0	.9	1.1
27	2.1	1.4	240	173	106	4.8	123	123	123	3.0	.8	3.1
28	.7	1.4	235	174	106	4.4	123	123	121	3.0	.6	7.9
29	.5	1.4	230	169	-----	4.4	124	124	113	3.5	.4	9.2
30	.4	1.4	225	169	-----	4.6	124	124	96	3.5	.4	4.9
31	.4	-----	220	169	-----	4.0	-----	124	-----	3.5	.4	-----
Total	70.0	55.0	2,223.3	6,006	3,382	1,656.5	3,362	5,952	8,199.3	110.0	49.8	166.0
Mean	2.26	1.83	71.9	194	139	534	112	192	273	3.55	1.61	5.53
Ac-ft	139	109	4,420	11,910	7,700	3,290	6,670	11,810	16,260	213	99	329
Meant	2.26	22.0	631	103	65.6	77.9	243	493	337	49.1	17.9	2.17
Ac-ftt	139	1,310	38,420	6,610	3,700	4,790	14,470	30,610	20,060	3,020	1,100	129

Calendar year 1964	Max	---	Min	---	Mean	---	Ac-ft	---	Meant	---	Ac-ftt	---
Water year 1964-65	Max	585	Min	0.1	Mean	87.0	Ac-ft	62,950	Meant	172	Ac-ftt	124,800

Note.--No gage-height record Oct. 4-6, Dec. 27 to Jan. 12, July 3-29, July 31 to Aug. 4.  
(†)Adjusted for change in contents in Jackson Meadows reservoir.

11-4080. Milton-Bowman tunnel outlet near Graniteville, Calif.

Location.--39°27'35", long 120°36'40" in NW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.3, T.18 N., R.12 E., on right bank 100 ft downstream from tunnel outlet, near upper end of Bowman Lake, and 6.9 miles east of Graniteville.

Records available.--May 1928 to September 1930, February 1931 to September 1965. 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. Altitude of gage is 5,600 ft (from topographic map). Prior to Sept. 22, 1964 at present site at datum 0.56 ft higher.

Average discharge.--37 years (1928-65), 67.9 cfs (49,160 acre-ft per year).

Extremes.--1928-30, 1931-65: Maximum daily discharge, 492 cfs Feb. 11, 1941; minimum daily, 0.4 cfs Oct. 7, 1944.

Remarks.--Records good. Tunnel diverts from Middle Yuba River at Milton, in sec.12, T.19 N., R.12 E., and discharges into Bowman Lake. Practically the entire flow of Middle Yuba River is diverted during low and medium flows. Flow is regulated by Jackson Meadows Reservoir since November 1964 (see p. 833).

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.0	2.3	6.3	239	182	115	112	156	66	44	4.6	15
2	2.0	3.3	9.7	232	181	115	115	150	66	40	4.6	13
3	2.0	3.3	6.8	232	181	115	115	143	66	22	5.7	7.0
4	2.0	6.2	5.8	226	180	115	115	141	65	3.6	4.4	4.0
5	2.0	4.8	5.3	222	181	115	116	142	65	7.6	4.2	3.1
6	2.0	3.5	4.8	222	180	114	117	133	65	6.6	3.6	3.1
7	2.0	6.2	4.8	216	176	112	115	136	64	5.7	4.0	3.1
8	2.0	7.0	4.8	211	175	112	115	134	63	5.0	3.4	3.1
9	2.0	3.1	5.1	209	174	112	116	134	63	4.4	2.9	3.1
10	2.0	6.0	5.7	206	171	113	114	100	63	4.0	2.9	3.1
11	2.0	5.1	16	204	169	113	113	70	63	4.2	2.9	3.1
12	2.0	6.3	12	203	163	114	113	70	63	4.2	3.2	4.6
13	2.0	6.3	9.5	203	167	112	113	70	63	4.2	4.0	7.6
14	2.0	6.0	3.7	200	167	112	113	70	67	4.6	4.0	3.8
15	2.7	4.6	3.4	199	165	95	115	70	62	4.6	3.8	5.0
16	2.3	3.9	7.8	197	164	13	125	70	60	4.8	4.2	6.8
17	2.0	3.7	7.3	196	163	12	120	70	52	4.8	4.4	3.8
18	1.8	3.5	7.0	196	143	12	121	70	40	4.8	3.8	2.7
19	1.8	3.3	7.8	195	117	12	130	69	52	4.8	3.6	2.7
20	1.8	3.3	11	195	116	12	145	69	52	4.8	3.6	2.7
21	1.8	3.3	104	195	116	12	162	68	51	4.6	3.4	2.7
22	1.8	3.1	352	194	116	13	152	67	46	4.6	3.4	2.7
23	1.8	3.1	366	196	115	14	145	67	39	4.4	3.2	2.7
24	1.8	2.9	325	201	115	16	147	68	46	4.4	3.2	2.7
25	1.8	3.9	364	193	115	14	150	68	46	4.2	3.2	2.7
26	1.8	4.6	359	192	115	14	152	68	46	4.2	3.2	2.7
27	1.8	4.1	338	189	113	14	153	68	46	4.2	3.1	2.7
28	1.8	3.9	284	186	116	12	155	68	46	4.2	3.1	2.7
29	1.8	3.9	263	186	-----	12	159	65	46	4.6	3.1	2.7
30	2.0	3.9	258	186	-----	12	160	65	46	4.8	2.9	2.5
31	2.0	-----	249	185	-----	24	-----	65	-----	4.8	2.9	-----
Total	60.6	133.4	3,420.6	6,306	4,251	1,907	3,893	2,808	1,678	242.7	112.5	127.2
Mean	1.95	4.45	110	203	152	61.5	130	90.6	55.9	7.83	3.63	4.24
Ac-ft	120	265	6,780	12,510	8,430	3,780	7,730	5,570	3,320	481	223	252

Calendar year 1964 Max 367 Min 1.8 Mean 68.2 Ac-ft 49,480  
 Water year 1964-65 Max 366 Min 1.8 Mean 68.3 Ac-ft 49,460

11-4087. Middle Yuba River near Alleghany, Calif.

Location.--Lat 39°26'19", long 120°48'40", in NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.12, T.18 N., R.10 E., on left bank 0.5 mile downstream from Wolf Creek and 2.8 miles southeast of Alleghany.

Drainage area.--96.3 sq mi.

Records available.--October 1957 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 2,960 ft (from topographic map).

Average discharge.--8 years, 196 cfs (141,900 acre-ft per year).

Extremes.--Maximum discharge during year, 13,900 cfs Dec. 22 (gage height, 14.70 ft in gage well, 15.7 ft from floodmarks), from rating curve extended above 2,100 cfs as explained below; minimum daily, 20 cfs Oct. 15, 19-25.

1957-65: Maximum discharge, 23,700 cfs Jan. 31, 1963 (gage height, 18.95 ft), from rating curve extended above 2,100 cfs on basis of slope-area measurements at gage heights 10.58 ft and 18.95 ft; minimum, 12 cfs July 6, 1959.

Remarks.--Records excellent. Milton-Bowman tunnel (see p. 835) diverts above station to Bowman Lake (see p. 848). Flow regulated by Jackson Meadows Reservoir since November 1964 (see p. 833).

Rating table (gage height, in feet, and discharge, in cubic feet per second)							
Oct. 1 to Dec. 22				Dec. 23 to Sept. 30			
3.1	16	5.5	555	3.0	31	6.0	980
3.2	22	6.0	810	3.3	64	7.0	1,680
3.4	38	7.0	1,550	3.6	112	8.0	2,700
3.7	70	9.0	3,800	4.0	198	10.0	5,270
4.0	110	11.0	6,880	4.5	330	12.0	8,620
4.5	210	13.0	10,500	5.0	490		
5.0	355						

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	24	60	160	434	355	212	225	620	444	161	46	38
2	24	51	339	394	344	205	217	534	579	120	45	37
3	23	33	171	394	333	203	209	452	695	114	44	39
4	22	27	112	410	324	203	205	414	790	108	44	38
5	21	24	92	650	404	200	215	404	816	103	43	37
6	21	23	76	932	394	196	222	370	785	98	43	43
7	21	22	68	646	347	191	210	336	720	92	42	43
8	21	24	64	466	322	184	212	319	651	89	41	40
9	21	109	68	404	302	186	222	313	588	84	40	38
10	21	88	94	370	282	186	205	370	584	81	41	37
11	21	79	568	379	266	186	203	606	610	77	50	36
12	21	146	226	373	253	200	210	628	606	75	88	35
13	21	75	163	347	245	186	212	660	542	72	54	35
14	21	51	131	352	232	181	205	680	472	70	99	34
15	20	41	118	404	222	181	230	700	388	67	89	34
16	21	36	102	394	215	181	710	745	308	64	63	33
17	21	35	90	379	212	184	466	780	242	63	94	33
18	21	32	85	394	215	176	420	770	232	60	91	33
19	20	32	133	410	220	176	615	705	285	59	63	33
20	20	32	514	404	225	179	735	554	333	57	54	33
21	20	31	3,770	379	230	188	932	510	327	56	50	33
22	20	32	10,000	361	232	200	750	458	205	54	49	33
23	20	32	8,190	519	222	212	633	410	191	53	48	33
24	20	32	5,540	665	212	225	606	394	284	52	45	32
25	20	43	2,930	494	210	205	615	382	391	51	44	31
26	21	83	2,850	427	208	215	633	394	240	51	43	31
27	21	63	2,000	382	258	240	642	410	230	50	42	32
28	22	72	1,130	358	230	212	665	430	222	49	41	33
29	36	75	795	347	-----	212	700	455	215	48	40	32
30	29	71	633	358	-----	212	685	462	198	46	39	31
31	25	-----	514	364	-----	222	-----	452	-----	48	38	-----
Total	680	1,553	41,731	13,590	7,514	6,139	13,008	15,717	13,173	2,272	1,653	1,050
Mean	21.9	51.8	1,346	438	268	198	434	507	439	73.3	53.3	35.0
Ac-ft	1,350	3,080	82,770	26,960	14,900	12,180	25,800	31,170	26,130	4,510	3,280	2,080

Calendar year 1964 Max 10,000 Min 20 Mean 231 Ac-ft 167,500  
 Water year 1964-65 Max 10,000 Min 20 Mean 324 Ac-ft 234,200

11-4090. Middle Yuba above Oregon Creek, near North San Juan, Calif.  
(Formerly published as Middle Yuba above Oregon Creek)

Location.--Lat 39°23'35", long 121°04'50", in SE¼ sec. 28, T. 18 N., R. 8 E., on left bank 1,000 ft upstream from Oregon Creek and 2 miles northeast of North San Juan.

Drainage area.--162 sq mi.

Records available.--October 1940 to September 1965. Monthly and yearly discharges for water year 1941 published in WSP 1315-A. Prior to October 1949, published as Middle Fork Yuba River above Oregon Creek. If record for Oregon Creek near North San Juan is subtracted from record published as Middle Fork Yuba River near North San Juan, a record equivalent to that at this site can be obtained for the period 1910-41.

Gage.--Water-stage recorder. Altitude of gage is 1,440 ft (from topographic map).

Average discharge.--25 years, 359 cfs (259,900 acre-ft per year).

Extremes.--Maximum discharge during year, 22,900 cfs Dec. 22 (gage height, 16.26 ft, in gage well, 17.5 ft from floodmarks); minimum daily, 29 cfs Oct. 5, 7, 8, 12-15, 19-23.  
1910-65: Maximum discharge, 31,600 cfs Jan. 31, 1963 (gage height, 18.55 ft), from rating curve extended above 15,000 cfs on basis of slope-area measurement at gage height, 15.25 ft; minimum, 10 cfs Jan. 3, 1950.

Remarks.--Records excellent except those for periods of no gage-height record which are fair. Natural flow of stream is affected by Jackson Meadows Reservoir since November 1964 (see p. 833), Milton-Bowman tunnel (see p. 835) which diverts above station to Bowman Lake (see p. 848), and other small diversions above station. Records of water temperatures for the water year 1965 are published in Part 2 of this report.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used July 7-16)

2.0	27	3.5	263	7.0	2,590
2.1	34	4.0	425	9.0	5,310
2.4	61	5.0	900	11.0	8,960
2.7	95	6.0	1,600	14.0	16,100
3.0	143				

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	30	92	239	966	700	323	400	996	545	170	66	51
2	31	141	581	840	655	305	376	862	700	135	65	54
3	30	66	352	1,180	613	296	355	740	862	122	63	56
4	30	51	222	2,040	595	293	333	631	990	117	63	55
5	29	45	165	3,040	750	287	339	622	1,040	112	63	54
6	30	40	134	4,410	806	287	353	554	1,010	103	62	66
7	29	39	114	2,800	670	273	333	493	930	105	62	63
8	29	40	103	1,710	600	263	369	453	845	103	59	62
9	30	236	102	1,330	554	263	514	433	745	99	59	60
10	30	254	111	1,130	501	263	485	433	720	95	60	53
11	30	190	1,070	1,140	465	260	445	801	750	94	73	55
12	29	416	544	1,060	429	290	461	850	760	91	103	53
13	29	185	324	936	403	272	477	900	675	90	84	52
14	29	114	243	884	390	255	445	913	577	83	70	50
15	29	83	204	996	366	246	462	942	481	84	132	49
16	30	75	174	973	345	246	2,170	973	355	82	80	43
17	30	66	149	913	333	246	1,460	1,040	246	79	87	47
18	30	61	136	936	326	241	1,160	1,030	266	73	113	46
19	29	59	243	996	329	235	1,390	973	263	75	85	45
20	29	57	909	966	333	235	1,500	740	352	76	74	45
21	29	56	5,620	889	336	241	1,850	685	362	73	69	45
22	29	56	15,700	813	339	257	1,560	613	227	76	66	45
23	29	56	14,700	1,030	323	272	1,270	532	190	74	64	44
24	30	56	10,500	1,730	303	317	1,140	501	222	72	61	43
25	30	68	5,500	1,190	299	290	1,110	477	457	70	60	42
26	31	112	5,560	1,000	296	320	1,090	481	260	71	53	42
27	31	123	4,640	872	411	470	1,090	497	230	70	57	44
28	33	143	2,630	785	362	441	1,090	514	219	69	56	46
29	60	165	1,860	725	-----	390	1,120	559	217	66	54	45
30	54	136	1,460	725	-----	376	1,090	563	202	66	53	42
31	36	-----	1,200	720	-----	376	-----	563	-----	63	52	-----
Total	984	3,286	75,489	39,740	12,847	9,134	26,242	21,394	15,699	2,784	2,183	1,507
Mean	31.7	110	2,435	1,282	459	295	875	690	523	89.3	70.6	50.2
Ac-ft	1,950	6,520	149,700	78,820	25,480	18,120	52,050	42,430	31,140	5,520	4,340	2,990

Calendar year 1964 Max 15,700 Min 28 Mean 378 Ac-ft 274,400  
Water year 1964-65 Max 15,700 Min 29 Mean 579 Ac-ft 419,100

Peak discharge (base, 2,400 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-22	2200	16.26	22,900	1- 6	0100	9.16	5,570
12-26	2200	10.28	7,530	4-16	0900	7.25	2,880

Note.--No gage-height record Mar. 26, 27, Aug. 24 to Sept. 19.

## SACRAMENTO RIVER BASIN

11-4095. Oregon Creek near North San Juan, Calif.

Location.--Lat 39°24'10", long 121°04'35", in NW 1/4 sec. 27, T.18 N., R.8 E., on right bank 0.7 mile upstream from mouth and 2.7 miles northeast of North San Juan.

Drainage area.--34.4 sq mi.

Records available.--September 1911 to September 1965.

Gage.--Water-stage recorder (digital). Altitude of gage is 1,580 ft (from topographic map). Prior to October 1933, staff gages at site 0.6 mile downstream at different datums.

Average discharge.--54 years, 78.1 cfs (56,540 acre-ft per year).

Extremes.--Maximum discharge during year, 10,300 cfs Dec. 22 (gage height, 12.88 ft) from rating curve extended above 3,600 cfs on basis of slope-area measurement of maximum flow; minimum daily, 4.6 cfs Oct. 1.  
1911-65: Maximum discharge that of Dec. 22, 1964; minimum 0.7 cfs several days in July, August 1931, September 1934.

Remarks.--Records good except those for periods of no gage-height record or above 3,000 cfs, which are fair. Small diversions above station for irrigation and mining. Records of water temperatures for the water year 1965 are published in Part 2 of this report.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Dec. 23-25, Jan. 27 to Feb. 27)

1.6	3.7	4.5	276
1.8	8.7	5.0	411
2.1	19	6.0	815
2.5	39	7.0	1,370
3.0	74	8.0	2,120
3.5	118	9.0	3,120
4.0	180	11.0	6,200

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	4.6	26	88	330	163	91	144	180	35	17	9.9	0.0
2	4.8	36	201	270	172	87	136	160	35	17	9.4	0.0
3	4.8	16	156	400	161	83	127	135	33	17	9.0	7.7
4	4.8	12	92	700	153	79	117	121	32	16	9.0	7.6
5	4.8	10	72	1,100	190	77	113	116	32	15	9.0	7.6
6	4.8	9.3	59	1,450	197	77	117	108	30	15	8.6	11
7	4.8	9.0	51	760	174	74	113	103	28	15	8.5	11
8	4.8	9.3	45	651	156	71	130	95	28	14	7.9	9.0
9	5.1	80	43	453	141	69	176	89	28	14	7.7	9.4
10	5.3	72	46	353	129	68	164	84	28	14	8.2	0.0
11	5.5	106	361	382	119	68	160	81	26	13	18	0.4
12	5.3	260	191	354	110	82	197	78	24	13	20	0.1
13	5.1	81	129	314	104	73	224	76	23	13	12	7.4
14	5.3	46	103	293	99	70	194	72	23	12	11	7.4
15	5.3	34	68	304	92	67	240	69	23	12	10	7.5
16	5.1	27	76	295	87	65	470	66	23	12	9.5	7.4
17	5.5	23	66	279	82	64	350	63	27	12	9.6	7.4
18	5.5	21	61	279	79	63	280	61	27	12	11	7.5
19	5.3	19	94	299	77	61	310	58	23	12	11	7.6
20	5.3	18	302	292	76	59	360	58	22	11	9.7	7.6
21	5.5	17	2,350	270	75	58	400	55	21	11	9.6	7.6
22	5.3	18	6,020	250	75	58	310	59	20	11	9.5	7.5
23	5.3	17	3,940	417	72	60	280	52	20	11	9.1	7.5
24	5.5	17	2,600	503	69	76	270	46	19	11	8.6	7.3
25	5.5	21	1,570	359	67	69	260	43	19	11	8.5	7.2
26	5.8	35	1,300	295	65	114	255	42	19	11	8.3	7.3
27	5.8	38	1,000	252	118	329	255	40	19	11	8.6	7.2
28	6.5	72	320	224	100	196	260	38	18	11	8.4	7.9
29	17	80	640	204	-----	152	240	37	17	9.7	8.2	7.7
30	14	58	510	195	-----	141	210	36	17	9.8	8.1	7.4
31	9.6	-----	410	190	-----	138	-----	35	-----	10	8.0	-----
TOTAL	187.6	1,289.6	23,464	12,952	3,222	2,839	6,862	2,358	739	393.5	303.9	240.2
MEAN	6.05	43.0	757	418	115	91.6	229	76.1	24.6	12.7	9.80	8.01
AC-FT	372	2,560	46,540	25,690	6,390	5,630	13,610	4,680	1,470	780	603	476

CALENDAR YEAR 1964 MAX 6,020 MIN 4.1 MEAN 109 AC-FT 79,010  
WATER YEAR 1964-65 MAX 6,020 MIN 4.6 MEAN 150 AC-FT 108,800

Peak discharge (base, 1,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-22	1945	12.88	10,300	1-23	2045	6.54	1,100
1-6	Unknown	About 8.4	About 2,500				

Note.--No gage-height record Dec. 24, Dec. 26 to Jan. 7, Apr. 15 to May 4.



11-4104. Haypress Creek near Sierra City, Calif.

Location.--Lat 39°33'50", long 120°32'50", in NW<sup>1</sup>/<sub>4</sub> NW<sup>1</sup>/<sub>4</sub> sec. 32, T.20 N., R.13 E., on right bank 0.4 mile downstream from Dead Horse Canyon, and 4.5 miles east of Sierra City.

Drainage area.--18.2 sq mi.

Records available.--October 1960 to September 1965.

Gage.--Water-stage recorder and broad-crested weir. Altitude of gage is 5,840 ft (from topographic map)

Average discharge.--5 years, 42.8 cfs (30,990 acre-ft per year).

Extremes.--Maximum discharge during year, 3,100 cfs Dec. 23 (gage height, 3.75 ft), from rating curve extended above 350 cfs as explained below; minimum daily, 2.4 cfs Oct. 14-24.

1960-65: Maximum discharge, 3,100 cfs Jan. 31, 1963, Dec. 23, 1964 (gage heights, 3.75 ft), from rating curve extended above 350 cfs on basis of computation of maximum flow over weir for flood of Jan. 31, 1963; minimum daily, 0.4 cfs Oct. 1, 2, 1960.

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

Rating tables, except for periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 22				Dec. 23 to Sept. 30			
0.1	1.6	1.0	170	.2	7.4	1.5	420
.2	7.4	1.5	370	.3	19	2.0	710
.3	18	2.0	675	.4	37	2.5	1,100
.5	52	2.5	1,100	.7	110	3.0	1,700
.7	92			1.0	210		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.9	4.0	12	125	55	35	29	253	317	154	26	10
2	2.9	4.6	11	113	55	35	27	224	325	150	24	10
3	2.9	4.6	6.6	100	53	35	26	189	343	144	22	10
4	2.9	4.6	5.9	100	53	35	27	189	356	140	21	9.2
5	2.9	4.6	5.9	100	55	31	31	175	356	134	21	9.2
6	2.9	4.0	5.9	95	51	31	29	164	352	123	19	16
7	2.9	4.0	5.2	83	43	31	27	144	334	122	16	16
8	2.9	5.2	5.9	90	43	31	27	140	317	113	16	12
9	2.9	10	6.6	90	46	31	29	147	313	105	15	11
10	2.9	7.4	3.3	83	43	31	27	172	321	93	16	10
11	2.9	7.4	11	83	46	31	26	192	334	90	42	9.2
12	2.9	7.4	13	85	44	31	26	206	325	82	53	9.2
13	2.9	6.6	17	80	42	29	27	224	309	75	24	9.2
14	2.4	12	16	78	42	29	27	233	285	70	35	3.3
15	2.4	16	10	78	42	29	29	253	261	70	26	3.3
16	2.4	14	11	72	42	31	35	281	245	90	23	3.3
17	2.4	12	13	70	42	31	31	301	261	80	33	3.3
18	2.4	11	26	70	42	29	37	305	234	65	29	3.3
19	2.4	9.2	33	70	39	29	83	317	223	53	22	3.3
20	2.4	3.3	36	63	39	33	125	325	231	53	19	3.3
21	2.4	7.4	123	65	42	37	144	305	249	51	13	3.3
22	2.4	6.6	906	62	42	46	123	277	242	44	16	3.3
23	2.4	5.9	1,620	63	42	44	125	269	231	39	15	3.3
24	2.4	5.9	949	72	39	39	144	265	220	39	14	3.3
25	2.9	3.3	332	65	39	33	161	277	206	39	14	3.3
26	2.9	6.6	325	60	37	33	189	285	196	35	14	3.3
27	2.9	5.2	266	60	37	31	200	297	186	33	12	3.3
28	2.9	4.6	217	53	35	33	220	281	172	31	11	9.2
29	5.2	5.9	182	53	-----	33	253	343	164	27	11	3.3
30	4.6	5.2	164	53	-----	31	265	343	161	27	11	3.3
31	3.4	-----	140	53	-----	31	-----	334	-----	29	10	-----
Total	83.9	213.5	5,488.3	2,432	1,245	1,019	2,559	7,720	9,074	2,415	654	283.0
Mean	2.37	7.28	177	78.5	44.5	32.9	85.3	249	269	77.9	21.1	9.43
Ac-ft	176	433	10,390	4,820	2,470	2,020	5,080	15,310	16,010	4,790	1,300	561

Calendar year 1964 Max 1,620 Min 2.4 Mean 38.9 Ac-ft 28,270  
 Water year 1964-65 Max 1,620 Min 2.4 Mean 86.2 Ac-ft 63,860

Peak discharge (base, 200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0100	3.75	3,100	6-4	1800	1.56	450
4-29	1900	1.25	305	6-21	1500	1.24	301
5-20	1700	1.40	370				

Note.--Stage-discharge relation affected by ice Nov. 15-21, Dec. 3, 4, 6, 9-18, 21, Jan. 1.

11-4130. North Yuba River below Goodyears Bar, Calif.

Location.--Lat 39°31'30", long 120°56'13", in SW<sup>1</sup>/<sub>4</sub> sec.11, T.19 N., R.9 E., on right bank 200 ft downstream from St. Catherine Creek, 3.1 miles southwest of Goodyears Bar, and 6.4 miles southwest of Downieville.

Drainage area.--250 sq mi.

Records available.--October 1930 to September 1965. 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.

Gage.--Water-stage recorder. Datum of gage is 2,453 ft above mean sea level (river-profile survey).

Average discharge.--35 years, 734 cfs (531,400 acre-ft per year).

Extremes.--Maximum discharge during year, 37,600 cfs Dec. 22 (gage-height, 23.0 ft from floodmarks); minimum daily, 103 cfs Oct. 20-25. 1930-65: Maximum discharge, 40,000 cfs Feb. 1, 1963 (gage-height, 23.8 ft, from floodmarks), from rating curve extended above 8,500 cfs on basis of one float measurement at 17,900 cfs, slope-area measurements at gage-heights 19.15 ft and 23.8 ft; minimum, 69 cfs Aug. 26, 1931.

Remarks.--Records good, except those for periods of no gage-height record, which are fair. Several small diversions above station for irrigation and mining.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	113	216	572	1,750	1,420	815	915	3,110	2,100	780	289	203
2	117	204	1,040	2,000	1,360	780	880	2,540	2,070	750	274	206
3	115	149	590	2,400	1,320	760	840	2,110	2,160	735	264	206
4	114	134	412	3,100	1,280	750	825	1,840	2,240	706	260	200
5	114	131	332	5,000	1,510	735	865	1,810	2,240	682	255	193
6	113	126	283	7,000	1,490	740	875	1,630	2,160	654	243	209
7	112	124	255	3,600	1,350	720	820	1,490	2,040	623	244	240
8	111	126	242	2,800	1,250	702	845	1,410	1,890	594	237	215
9	112	484	271	2,400	1,190	706	915	1,410	1,800	565	232	203
10	111	342	382	2,100	1,110	702	860	1,500	1,340	529	236	202
11	110	305	1,780	1,350	1,040	702	830	1,520	1,900	504	316	197
12	109	580	320	1,700	984	780	835	1,770	1,860	486	513	193
13	109	312	543	1,550	955	720	855	1,960	1,650	469	310	191
14	103	213	444	1,440	920	693	825	2,120	1,480	452	375	190
15	103	177	412	1,540	880	694	805	2,200	1,370	433	453	187
16	107	163	366	1,560	850	702	2,690	2,430	1,250	430	320	185
17	107	157	320	1,520	830	710	1,920	2,620	1,550	452	364	180
18	106	149	314	1,530	815	694	1,710	2,570	1,420	417	366	185
19	104	144	463	1,600	820	694	2,480	2,550	1,310	383	304	186
20	103	144	1,210	1,590	835	702	3,220	2,720	1,300	373	272	185
21	103	144	9,010	1,510	840	740	4,350	2,370	1,310	362	253	184
22	103	145	23,000	1,440	855	910	3,420	1,930	1,300	355	253	182
23	103	144	21,000	1,970	825	870	2,750	1,730	1,210	344	247	181
24	103	149	18,000	2,860	905	900	2,690	1,700	1,160	346	240	179
25	103	201	7,200	2,030	785	825	2,760	1,680	1,090	330	234	173
26	105	306	9,000	1,760	780	870	2,880	1,770	990	326	231	178
27	105	234	7,760	1,580	973	1,040	2,940	1,840	920	314	230	181
28	103	260	4,700	1,480	865	925	3,160	2,020	885	306	222	186
29	143	289	3,200	1,410	-----	995	3,470	2,200	835	293	213	180
30	138	267	2,600	1,420	-----	885	3,450	2,260	815	289	213	176
31	119	-----	2,200	1,440	-----	905	-----	2,210	-----	296	209	-----
Total	3,446	6,513	118,726	66,930	28,942	24,171	56,780	63,120	46,145	14,588	8,692	5,776
Mean	111	217	3,830	2,159	1,034	780	1,893	2,036	1,533	471	280	193
Ac-ft	6,840	12,930	235,500	132,300	57,410	47,940	112,600	125,200	91,530	28,930	17,240	11,460

Calendar year 1964 Max 23,000 Min 103 Mean 758 Ac-ft 550,200  
 Water year 1964-65 Max 23,000 Min 103 Mean 1,216 Ac-ft 880,400

Peak discharge (base, 3,200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-22	unknown	23.00	37,600	1-23	2230	8.70	3,890
12-26	2200	13.50	12,000	4-21	0100	9.08	4,740
1-6	unknown	unknown	about 11,000				

Note.--No gage-height record Dec. 22-26, Dec. 29 to Jan. 13.

11-4133. Slate Creek below diversion dam, near Strawberry Valley, Calif.

Location.--Lat 39°36'52", long 121°03'04", in SE1/4 sec.2, T.20 N., R.8 E., on right bank 300 ft downstream from diversion dam, 0.2 mile upstream from Peney Ravine, and 4.5 miles northeast of town of Strawberry Valley.

Drainage area.--49.4 sq mi.

Records available.--October 1960 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 3,570 ft (from topographic map).

Average discharge.--5 years, 200 cfs (144,800 acre-ft per year), adjusted for diversion.

Extremes (creek only).--Maximum discharge during year, 13,100 cfs Dec. 22 (gage height, 16.42 ft) from rating curve extended above 5,500 cfs on basis of computed flow over dam at gage heights 12.75 ft and 15.90 ft; minimum daily, 7.7 cfs June 3, 4.

1960-65: Maximum discharge, that of Dec. 22, 1964; minimum, 0.3 cfs Mar. 4, 5, 1962.

(combined flow).--Maximum discharge during year, 13,900 cfs Dec. 22; minimum daily 8.1 cfs Oct. 24-27.

1960-65: Maximum discharge, that of Dec. 22, 1964; minimum daily 2.3 cfs Nov. 23, 1961.

Remarks.--Records good. Slate Creek Tunnel diverts up to about 900 cfs 300 ft upstream from Slate Creek Reservoir (capacity, 223 acre-ft) to Sly Creek Reservoir. Diversion began in February 1962.

Rating tables (gage height, in feet, and discharge in cubic feet per second)

Oct. 1 to Dec. 22					Dec. 22 to Sept. 30				
1.6	6.2	5.0	700		1.4	5.1	4.0	350	
1.7	10	7.0	1,680		1.5	8.8	5.0	640	
2.0	27	9.0	3,300		1.6	14	7.0	1,480	
2.3	51	11.0	5,310		1.8	25	9.0	2,860	
2.6	85	13.0	7,810		2.0	40	12.0	6,070	
3.0	150	15.0	10,800		2.5	91	15.0	10,600	
4.0	375				3.0	160			

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.2	17	11	400	364	282	9.7	760	5.3	10	15	15
2	9.2	49	11	364	350	138	9.7	620	3.1	9.7	15	15
3	9.2	27	11	334	336	9.7	9.7	506	7.7	9.7	15	15
4	9.2	20	11	340	334	9.7	9.7	470	7.7	9.7	15	15
5	9.2	17	11	889	507	9.7	9.7	485	8.1	9.7	15	15
6	9.2	15	11	1,530	503	9.7	9.7	402	8.1	9.7	15	15
7	8.9	14	11	922	416	9.7	9.7	366	3.1	9.7	15	15
8	8.9	24	11	576	374	9.7	9.7	344	8.1	9.7	15	15
9	8.9	242	11	446	342	9.7	9.7	342	3.1	9.7	15	15
10	8.9	105	11	386	316	9.7	9.7	349	8.1	9.7	15	15
11	8.9	66	89	402	290	9.7	9.7	368	8.4	9.7	35	15
12	8.9	100	11	388	270	9.7	9.7	382	8.4	10	58	15
13	8.9	11	11	360	259	9.7	9.7	340	8.4	10	26	15
14	8.9	10	11	340	242	9.7	9.7	320	8.4	10	22	15
15	8.9	10	11	358	226	9.7	9.7	320	8.8	10	20	15
16	8.9	10	11	354	220	9.7	723	336	9.3	10	22	14
17	8.9	10	11	340	216	9.7	164	344	9.7	10	28	14
18	8.5	10	11	336	220	9.7	136	379	9.7	10	23	13
19	8.5	10	12	354	228	9.7	688	404	9.3	13	20	14
20	8.5	10	33	362	236	9.7	724	410	9.3	16	17	14
21	8.5	10	4,330	352	246	9.7	1,010	374	9.3	16	17	13
22	8.5	10	10,600	336	250	9.7	909	340	9.3	16	17	13
23	8.5	10	7,530	776	236	9.7	916	314	9.7	16	16	13
24	8.1	10	5,300	1,110	226	9.7	868	298	9.7	16	16	13
25	8.1	10	2,570	656	222	9.7	856	286	9.3	16	16	13
26	8.1	11	3,380	497	226	9.7	856	286	9.3	16	16	12
27	8.1	11	2,600	428	334	9.7	860	290	9.3	16	16	12
28	8.5	11	1,260	386	309	9.7	796	296	9.3	16	16	12
29	8.9	11	860	362	-	9.7	800	302	9.7	16	16	12
30	9.2	11	640	362	-----	9.7	856	296	9.7	16	16	12
31	9.2	-----	494	370	-----	9.7	-----	282	-----	16	16	-----
Total	272.3	882	40,385	15,416	8,296	701.3	11,306.5	11,609	309.4	382.0	599	419
Mean	3.78	29.4	1,303	4.97	2.96	22.6	377	374	10.3	12.3	19.3	14.0
Ac-ft	540	1,750	80,100	30,580	16,450	1,390	22,430	23,030	614	758	1,180	931
Mean†	8.78	65.0	1,500	4.97	2.96	22.8	654	387	132	29.9	19.5	14.0
Ac-ft†	540	3,870	92,360	30,580	16,450	14,040	38,900	23,790	7,860	1,840	1,200	831

Calendar year 1964: Max 10,600 Min 8.1 Mean 122 Ac-ft 88,920 Mean† 229 Ac-ft† 166,200

Water year 1964-65: Max 10,600 Min 7.7 Mean 248 Ac-ft 179,700 Mean† 321 Ac-ft† 232,300

† Adjusted for Slate Creek Tunnel diversion.

11-4135. North Yuba River below Bullards Bar Dam, Calif.

Location.--Lat 39°24'15", long 121°08'30", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.24, T.18 N., R.7 E., on right bank 2,000 ft downstream from Bullards Bar Dam, 3 miles upstream from confluence with Middle Yuba River, and 3 miles northwest of North San Juan.

Drainage area.--487 sq mi.

Records available.--October 1940 to September 1965. Prior to October 1949, published as North Fork Yuba River at Colgate diversion dam and October 1949 to September 1950 as North Yuba River at Colgate diversion dam. Monthly discharge only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder. Altitude of gage is 1,390 ft (from river-profile map). Prior to Oct. 1, 1950, at site 1.5 miles downstream at different datum).

Average discharge.--25 years, 1,522 cfs (1,102,00 acre-ft per year).

Extremes.--Maximum discharge during year, 91,600 cfs Dec. 22 (gage height, 40.45 ft in gage wall, 43.9 ft outside from floodmarks) from rating curve extended above 32,000 cfs on basis of computations of flow over dams at 29.5 ft and 42.0 ft; minimum daily, 1.5 cfs Oct. 8, 9.  
1940-65: Maximum discharge, that of Dec. 22, 1964; no flow at times in 1947, 1956-57.

Remarks.--Records good except those for period of indefinite stage-discharge relation, which are poor. Flow usually completely regulated below 650 cfs by Bullards Bar powerhouse, otherwise slightly regulated by Bullards Bar Reservoir (useable capacity, 13,050 acre-ft). Water is diverted out of basin through Slate Creek Tunnel, (see preceding page).

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	159	177	513	4,400	3,010	1,800	1,660	5,100	2,780	981	362	292
2	148	213	529	6,010	2,880	1,670	1,620	4,270	2,480	948	520	290
3	148	315	556	9,100	2,770	1,460	1,560	3,630	2,570	920	564	285
4	147	319	560	12,900	2,680	1,420	1,480	3,310	2,680	904	556	223
5	55	318	560	19,000	3,210	1,380	1,500	3,320	2,680	871	556	231
6	2.4	315	560	16,800	3,580	1,370	1,540	2,990	2,590	839	448	237
7	13	309	560	10,800	3,090	1,360	1,480	2,700	2,420	805	312	320
8	1.5	298	564	6,370	2,800	1,320	1,490	2,500	2,230	770	312	329
9	1.5	312	564	4,980	2,600	1,300	1,790	2,430	2,030	735	495	430
10	2.0	432	564	4,250	2,390	1,300	1,760	2,500	2,090	705	551	490
11	4.0	496	1,870	4,010	2,140	1,290	1,630	2,670	2,130	670	537	483
12	5.2	516	1,840	3,910	2,170	1,390	1,650	2,870	2,150	650	551	463
13	5.2	544	1,140	3,580	1,990	1,380	1,730	3,040	1,940	635	424	435
14	3.1	544	900	3,370	1,940	1,290	1,680	3,080	1,730	615	300	447
15	10	540	780	3,460	1,830	1,270	1,690	3,180	1,630	596	306	407
16	134	536	693	3,500	1,770	1,250	6,610	3,300	1,510	587	497	410
17	51	524	616	3,330	1,710	1,180	4,940	3,630	1,560	587	546	321
18	66	452	591	3,500	1,680	1,240	3,600	3,610	1,780	587	546	229
19	14	524	790	3,240	1,680	1,220	5,110	3,630	1,540	582	546	229
20	230	517	2,030	3,500	1,700	1,200	5,870	3,760	1,510	578	556	350
21	460	520	20,600	3,330	1,720	1,230	7,940	3,540	1,510	578	556	382
22	419	513	63,700	3,140	1,750	1,300	6,680	3,050	1,500	578	546	365
23	411	506	55,500	3,780	1,700	1,380	5,580	2,690	1,450	578	551	327
24	263	492	35,000	8,110	1,650	1,460	5,110	2,610	1,370	578	534	312
25	318	441	18,800	5,100	1,610	1,420	5,050	2,490	1,310	578	531	300
26	297	420	21,000	4,190	1,590	1,470	5,040	2,590	1,220	578	542	300
27	303	420	21,500	3,710	1,960	2,170	5,170	2,700	1,150	574	542	300
28	283	438	10,400	3,350	2,000	1,910	5,220	2,750	1,100	574	542	315
29	255	474	8,040	3,100	-----	1,670	5,400	2,960	1,050	569	538	300
30	258	488	6,520	3,040	-----	1,630	5,520	3,050	1,010	463	503	303
31	255	-----	5,100	3,050	-----	1,620	-----	3,030	-----	354	369	-----
Total	4,731.9	12,917	282,945	173,910	61,600	44,350	107,100	96,980	54,700	20,566	15,239	10,105
Mean	153	431	9,127	5,610	2,200	1,431	3,570	3,128	1,823	663	492	337
Ac-ft	9,390	25,620	561,200	344,900	122,200	87,970	212,400	192,400	108,500	40,790	30,230	20,040

Calendar year 1964 Max 63,700 Min 1.5 Mean 1,463 Ac-ft 1,062,000  
Water year 1964-65 Max 63,700 Min 1.5 Mean 2,425 Ac-ft 1,756,000

Note.--Stage discharge indefinite Dec. 31 to Jan. 5.

11-4140. South Yuba River near Cisco, Calif.

Location.--Lat 39°19'12", long 120°33'38", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.19, T.17 N., R.13 E., on right bank 0.7 mile downstream from Rattlesnake Creek, 1.3 miles west of Cisco Grove, and 1.5 miles northwest of Cisco.

Drainage area.--51.8 sq mi.

Records available.--April 1942 to September 1965. Prior to October 1949, published as South Fork Yuba River near Cisco.

Gage.--Water-stage recorder. Altitude of gage is 5,520 ft (from river-profile map). Prior to October 1945, at site 200 ft upstream at same datum.

Average discharge.--23 years, 195 cfs (141,200 acre-ft per year).

Extremes.--Maximum discharge during year, 14,400 cfs Dec. 23 (gage height, 17.49 ft); minimum daily, 8.5 cfs Nov. 8.

1942-65 Maximum discharge, 18,400 cfs Jan. 31, 1963 (gage height, 19.6 ft from floodmark in gage house, 20.6 ft from outside floodmarks), from rating curve extended above 4,600 cfs on basis of slope area measurement at gage height 15.8 ft; minimum daily, 0.1 cfs Nov. 5-7, 1954.

Remarks.--Records good. Low flow regulated by Lake Van Norden (capacity, 4,320 acre-ft, 5,260 acre-ft with flashboards).

Rating table (gage height, in feet, and discharge, in cubic feet per second).

2.0	8.0	3.0	107
2.1	13	3.5	207
2.2	19	4.0	350
2.4	33	5.0	710
2.6	53	6.0	1,210
		8.0	2,500
		11.0	5,200
		14.0	8,950

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	19.0	83	214	187	133	174	1,030	730	154	29	23
2	13	22.0	116	190	173	131	146	723	803	147	23	29
3	17	18.0	61	175	173	132	142	536	951	145	27	27
4	17	17.0	33	173	180	141	154	554	985	131	26	27
5	16	16.0	35	164	227	134	183	573	916	123	25	27
6	15	14.0	31	164	207	131	170	460	834	114	25	32
7	15	9.5	30	160	167	121	154	373	742	101	27	37
8	14	3.5	32	149	156	127	143	382	607	89	27	32
9	14	19.0	72	145	152	143	131	498	562	79	27	29
10	15	13.0	97	147	141	152	113	646	661	71	27	23
11	15	17	364	152	131	154	113	776	751	64	34	27
12	16	25	130	150	129	175	121	884	656	59	114	27
13	16	17	76	141	131	141	129	973	510	56	46	26
14	16	14	63	133	132	133	123	974	400	54	39	26
15	16	12	57	150	129	147	140	1,000	335	52	104	25
16	16	12	43	152	129	169	244	1,170	315	73	131	25
17	16	11	42	149	134	190	174	1,180	474	58	226	24
18	15	16	40	154	145	171	219	1,070	433	72	146	25
19	15	13	44	164	167	187	673	977	413	52	63	25
20	15	10	125	154	180	204	1,010	1,010	451	45	50	25
21	15	9.5	1,870	150	190	212	1,090	773	450	41	42	25
22	14	10	8,840	145	187	275	713	521	383	39	39	24
23	12	15	8,110	203	152	283	586	473	341	39	37	24
24	12	18	5,540	334	136	233	726	564	299	37	35	24
25	12	27	1,810	212	143	180	831	649	252	34	33	24
26	12	36	1,460	171	152	163	890	800	219	33	32	24
27	12	23	817	156	171	153	969	855	207	32	31	24
28	13	27	452	149	149	144	1,220	971	197	31	31	24
29	13	34	336	149	-----	149	1,380	1,000	185	29	30	24
30	17	36	284	169	-----	164	1,310	982	180	29	29	23
31	14	-----	233	187	-----	185	-----	870	-----	30	29	-----
Total	466	543.5	31,346	5,220	4,455	5,172	14,186	24,262	15,247	2,113	1,594	790
Mean	15.0	18.3	1,011	163	159	167	473	783	503	63.2	51.4	26.3
Ac-ft	924.0	1,090	62,170	10,350	8,840	10,260	28,140	43,120	30,240	4,190	3,160	1,570

Calendar year 1964 Max 8,840 Min 8.5 Mean 219 Ac-ft 158,700  
 Water year 1964-65 Max 8,840 Min 8.5 Mean 289 Ac-ft 209,100

Peak discharge (base, 1,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0300	17.49	14,400	4-29	2015	7.17	1,890
12-26	2100	7.05	1,800	5-16	2030	6.93	1,740

## SACRAMENTO RIVER BASIN

11-4141.40 Lake Spaulding near Emigrant Gap, Calif.

Location.--Lat 39°19'35", Long 120°38'32", in SE 1/4 sec. 20, T.17 N., R.12 E., on left abutment of Spaulding Dam on South Yuba River 2.5 miles northeast of Emigrant Gap.

Drainage area.--118 sq mi.

Records available.--October 1964 to September 1965.

Gage.--Staff gage read daily. Datum of gage is 4,809.6 ft above mean sea level.

Extremes.--Maximum contents during year, 74,800 acre-ft June 18 (elevation, 5,014.6 ft); minimum, 30,800 acre-ft Apr. 15 (elevation, 4,937.4 ft).

Remarks.--Lake is formed by three concrete-arch dams with spillway on middle arch. Storage began in 1913. Capacity, 74,800 acre-ft from elevations 4,810.2 ft (bottom of outlet) and 5,014.6 ft (top of radial gates) above mean sea level. Released water flows through Spaulding powerhouses Nos. 1 and 2. Flow through powerhouse No. 1 is transported out of Yuba River Basin by Drum Canal to Bear River Basin.

Cooperation.--Record of contents furnished by Pacific Gas and Electric Co. in connection with a Federal Power Commission project.

Contents, in acre-feet at 2400 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	68,710	67,000	54,600	64,850	55,910	42,270	34,700	72,350	73,070	72,630	60,360	72,010
2	68,640	66,860	55,200	64,400	55,430	41,960	34,600	73,100	73,210	72,280	60,540	72,290
3	68,610	66,630	54,720	64,200	55,260	40,920	34,270	72,520	73,000	71,940	60,850	72,560
4	68,510	66,440	54,190	64,080	55,020	40,610	33,980	72,510	73,210	71,670	60,110	72,930
5	68,440	66,180	53,670	63,950	54,940	40,460	33,890	72,830	74,210	71,670	61,290	73,110
6	68,380	65,980	52,970	63,950	54,840	40,160	33,800	72,390	73,730	71,300	61,540	73,380
7	68,310	65,750	52,160	64,200	53,780	39,500	33,570	72,590	73,800	70,990	61,850	73,700
8	68,240	65,330	51,410	64,650	53,430	39,000	33,240	72,640	74,150	70,590	62,110	73,940
9	68,210	65,300	50,900	64,650	52,730	38,500	32,910	72,800	74,080	69,980	62,360	74,200
10	68,180	65,230	50,330	64,590	52,210	38,200	32,630	73,000	74,110	69,310	62,610	74,180
11	68,110	65,170	52,210	63,820	51,240	37,900	32,220	73,170	74,300	68,540	62,930	74,150
12	68,110	64,930	52,680	63,560	50,440	37,650	31,810	73,250	74,320	68,050	63,630	74,150
13	68,130	64,850	52,270	63,250	50,440	37,400	31,490	73,210	74,020	67,450	64,010	74,150
14	68,150	64,530	51,580	62,930	50,670	36,910	31,131	73,140	73,900	66,800	64,400	74,150
15	68,180	64,330	50,730	62,170	49,990	36,520	30,770	73,040	74,110	66,210	64,780	74,010
16	68,240	64,010	50,220	61,730	49,370	36,180	31,860	72,700	73,940	65,320	65,230	73,660
17	68,280	63,690	49,540	61,290	48,920	35,940	32,220	72,930	73,870	65,300	65,880	73,660
18	68,050	63,180	48,310	61,040	47,590	35,600	32,130	72,660	74,770	64,980	66,860	73,660
19	68,280	62,420	48,590	60,050	47,150	35,310	33,840	72,450	74,360	64,500	67,390	73,660
20	67,880	61,480	49,760	59,610	46,700	35,080	37,060	72,420	74,630	63,950	67,850	73,660
21	67,880	60,600	56,930	59,240	45,940	34,930	41,130	72,800	74,600	63,570	68,380	73,590
22	67,910	59,800	73,870	58,390	45,510	34,980	44,220	72,490	74,290	63,120	68,710	73,310
23	68,010	58,880	72,420	57,840	44,600	35,360	45,940	72,630	74,430	62,510	69,040	73,110
24	68,110	58,200	71,700	58,750	44,170	35,650	47,980	72,420	74,150	61,920	69,440	72,930
25	68,080	58,080	68,840	59,370	43,530	35,550	50,440	72,980	74,080	61,920	69,780	72,630
26	68,110	57,230	68,240	58,380	43,060	35,460	53,260	73,210	73,800	61,540	70,110	72,930
27	68,050	56,630	67,720	58,750	42,530	35,410	56,450	73,390	74,080	61,230	70,450	73,110
28	67,880	56,030	66,670	58,450	42,480	35,220	59,550	73,210	73,900	60,850	70,790	73,380
29	67,550	55,370	66,340	57,720	-----	34,980	63,440	73,180	73,310	60,480	71,130	73,520
30	67,450	54,960	66,010	57,290	-----	34,840	67,910	73,250	72,630	60,110	71,400	73,660
31	67,220	-----	65,950	57,110	-----	34,790	-----	73,180	-----	60,050	71,670	-----
(†)	5,003.4	4,983.9	5,001.4	4,987.4	4,961.4	4,946.0	5,004.5	5,012.3	5,011.5	4,992.1	5,010.1	5,013.1
(‡)	- 1,500	- 12,200	+ 10,900	- 8,900	- 14,600	- 7,700	+ 33,100	+ 5,300	- 600	- 12,600	+ 11,700	+ 2,000

Calendar year 1964..... -----

Water year 1964-65..... ‡ 5,000

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

11-4141.7. Drum Canal intake near Emigrant Gap, Calif.

Location.--Lat 39°19'28", long 120°38'37", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.20, T.17 N., R.12 E., on left bank 200 ft below Spaulding #1 powerhouse and 2.4 miles northeast of Emigrant Gap.

Records available.--October 1964 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 4,880 ft (from topographic map).

Extremes.--Maximum daily discharge, 559 cfs June 3, 5; no flow July 31 to Sept. 30.

Remarks.--Records good. Canal diverts from Spaulding #1 powerhouse on the South Yuba River. Water is used for irrigation and power in the Bear River basin.

Cooperation.--Water-stage recorder graph and seven discharge measurements furnished by Pacific Gas and Electric Company in connection with a Federal Power Commission project.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	273	123	447	444	536	511	473	558	557	223		
2	270	122	447	439	535	509	473	557	558	556		
3	257	122	454	489	535	506	471	557	559	556		
4	253	122	454	365	535	504	471	557	557	557		
5	250	122	455	315	536	503	470	558	559	557		
6	251	120	454	235	536	501	470	557	557	557		
7	251	120	455	231	536	500	469	557	556	557		
8	251	179	454	320	534	497	468	557	557	557		
9	249	122	455	350	534	496	466	557	557	557		
10	247	133	449	382	534	495	466	557	557	557		
11	247	140	388	446	534	493	465	557	555	557		
12	241	123	426	446	484	493	463	558	557	557		
13	225	168	472	492	69	492	461	558	557	557		
14	206	144	522	536	239	489	460	557	557	557		
15	197	142	487	536	535	487	459	557	557	557		
16	201	137	433	536	534	487	457	557	557	557		
17	199	155	452	536	534	486	463	557	558	557		
18	192	352	430	536	532	483	460	556	558	557		
19	183	455	239	536	529	476	455	556	557	557		
20	151	455	84	536	527	475	471	556	557	556		
21	127	455	71	536	525	475	496	557	557	556		
22	127	453	71	536	523	476	508	557	557	556		
23	128	454	68	482	521	477	515	557	557	557		
24	133	263	69	471	519	477	522	558	557	557		
25	128	289	66	536	516	478	532	558	557	557		
26	114	454	62	536	513	477	537	558	558	557		
27	114	453	62	535	512	477	548	558	244	557		
28	116	454	62	534	511	477	555	558	557	557		
29	125	454	62	535	-----	473	558	558	557	557		
30	125	455	62	534	-----	456	558	558	557	533		
31	125	-----	183	532	-----	462	-----	558	-----	0		-----
Total	5,961	7,745	9,295	14,523	14,008	15,088	14,640	17,276	16,402	16,352	0	0
Mean	192	258	300	468	500	487	488	557	547	527	0	0
Ac-ft	11,820	15,360	18,440	28,810	27,780	29,930	29,040	34,270	32,530	32,430	0	0
Calendar year 1964	Max	--	Min	--	Mean	--	Ac-ft	--				
Water year 1964-65	Max	559	Min	0	Mean	360	Ac-ft	260,400				

## SACRAMENTO RIVER BASIN

11-4141.9 Drum Canal above forebay, near Blue Canyon, Calif.

Location.--Lat 39°15'50", long 120°43'45", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ , sec.10, T.16 N., R.11 E., on right bank 1.2 miles west of Blue Canyon and 1.5 miles upstream from Drum Forebay.

Records available.--October 1964 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 4,800 ft (from topographic map).

Extremes.--Maximum daily discharge, 474 cfs Feb. 27; no flow for several months.

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

Cooperation.--Recorder charts and 12 discharge measurements furnished by Pacific Gas and Electric Company in connection with a Federal Power Commission project.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	301	152	463	201	452	463	466	456	342			
2	302	149	464	142	452	461	461	461	461			
3	285	140	464	273	395	463	453	458	48			
4	282	147	466	336	340	453	452	400	0			
5	280	149	463	341	336	458	456	423	0			
6	280	153	460	201	329	452	455	433	0			
7	281	152	458	211	326	448	453	466	0			
8	280	220	456	290	335	445	452	461	0			
9	275	151	460	282	347	450	453	461	0			
10	273	162	463	282	353	452	450	460	0			
11	274	151	402	327	374	450	439	460	0			
12	264	157	429	345	432	453	439	419	0			
13	246	186	461	345	144	450	439	426	0			
14	233	140	461	346	189	448	437	458	0			
15	228	141	461	346	466	447	434	319	0			
16	227	141	436	343	466	453	450	455	0			
17	206	145	458	342	466	466	463	452	0			
18	202	333	444	342	464	456	469	455	0			
19	207	460	262	306	466	453	466	455	0			
20	161	461	140	308	464	448	466	455	0			
21	157	458	237	345	461	91	450	458	0			
22	163	455	220	349	455	464	458	458	0			
23	180	453	80	319	453	466	458	456	0			
24	164	232	64	297	461	460	456	456	0			
25	158	328	63	354	460	445	456	456	0			
26	128	460	63	354	464	458	453	453	0			
27	127	461	63	354	474	469	458	458	0			
28	154	463	63	353	461	464	458	460	0			
29	162	461	63	380	-----	464	455	460	0			
30	174	468	63	455	-----	447	455	463	0			
31	146	-----	102	456	-----	448	-----	299	-----			
Total	6,800	8,129	9,652	9,925	11,285	13,745	13,610	13,715	851	0	0	0
Mean	219	271	311	320	403	443	454	442	28.4	0	0	0
Ac-ft	13,490	16,120	19,140	19,690	22,380	27,260	27,000	27,200	1,690	0	0	0

Calendar year 1964 Max - Min - Mean - Ac-ft -  
 Water year 1964-65 Max 474 Min 0 Mean 240 Ac-ft 174,000

Note.--No gage height record Oct. 1, 2, Nov. 9-12, Dec. 24 to Jan. 8, June 4 to Sept. 30.



11-4142. South Yuba Canal near Emigrant Gap, Calif.

Location.--Lat 39°18'45", long 120°39'45", in SE 1/4 sec. 30, T.17 N., R.12 E., on left bank of concrete flume, 400 ft downstream from Bowman Lake Road, and 2.5 miles northeast of Emigrant Gap.

Records available.--October 1964 to September 1965.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 4,640 ft (from topographic map).

Extremes.--Maximum daily discharge during year, 165 cfs Aug. 3; minimum daily, 16 cfs Dec. 25.

Remarks.--Records good. Canal diverts from South Yuba River below Lake Spaulding. Water is delivered to Deer Creek Powerhouse where it enters Deer Creek.

Cooperation.--Water-stage recorder graph and thirteen discharge measurements furnished by Pacific Gas and Electric Company, in connection with a Federal Power Commission project.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	107	59	48	93	59	110	160	135	160	160	160	158
2	107	52	43	90	60	110	160	135	162	159	164	158
3	107	46	42	129	60	114	159	132	163	159	165	159
4	107	47	44	131	60	124	158	138	163	159	162	159
5	107	48	47	132	60	126	158	147	163	160	161	159
6	105	54	43	87	60	126	87	147	162	159	160	159
7	103	53	40	25	59	125	68	148	162	160	160	159
8	101	51	37	25	60	125	79	148	162	160	156	159
9	102	58	41	26	67	125	87	148	163	160	153	159
10	102	64	44	26	74	125	93	148	163	160	153	153
11	102	65	44	26	101	125	93	148	163	160	154	149
12	102	66	43	26	89	125	94	154	163	160	155	149
13	102	64	43	26	68	125	93	160	162	161	154	149
14	102	63	86	26	68	125	93	160	162	160	153	149
15	103	58	81	26	82	125	37	160	162	160	153	149
16	101	54	45	26	101	125	19	160	164	160	153	150
17	96	51	44	26	101	125	29	132	164	160	153	149
18	96	61	61	26	102	139	29	106	164	160	154	149
19	95	48	69	26	102	158	29	109	164	160	154	149
20	79	52	70	27	101	161	29	109	164	160	153	149
21	69	53	45	49	101	162	30	109	164	160	141	149
22	58	53	21	60	101	161	30	109	163	159	153	149
23	59	52	18	62	107	161	44	109	164	159	154	149
24	60	52	17	61	108	161	54	109	164	160	153	149
25	60	53	16	61	110	161	88	109	164	161	153	149
26	68	60	17	60	109	162	116	109	163	161	155	149
27	71	62	38	60	111	161	128	109	162	160	143	149
28	68	70	48	60	110	161	132	127	160	159	158	149
29	62	68	48	60	-----	161	133	159	159	160	158	149
30	59	64	48	60	-----	161	134	157	159	160	158	149
31	58	-----	97	60	-----	161	-----	160	-----	159	158	-----
Total	2,718	1,701	1,428	1,678	2,391	4,316	2,643	4,190	4,877	4,955	4,814	4,563
Mean	87.7	56.7	46.1	54.1	85.4	139	88.1	135	163	160	155	152
Ac-ft	5,390	3,370	2,830	3,330	4,740	8,560	5,240	8,310	9,670	9,830	9,550	9,050

Calendar year 1964 Max - Min - Mean - Ac-ft -  
 Water year 1964-65 Max 165 Min 16 Mean 110 Ac-ft 79,870

## SACRAMENTO RIVER BASIN

11-4155. Bowman Lake near Graniteville, Calif.

Location.--Lat 39°26'55", long 120°39'05", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.5, T.18 N., R.12 E., on rockfill portion of Bowman Dam on Canyon Creek, 4.5 miles east of Graniteville, and 8 miles south of Sierra City.

Drainage area.--27.3 sq mi.

Records available.--December 1926 to September 1965.

Gage.--Water-stage recorder. Prior to Oct. 8, 1964, staff gage at same site and datum. Datum of gage is at mean sea level (levels by Nevada Irrigation District).

Extremes.--Maximum contents during year, 71,000 acre-ft May 30 (elevation, 5,566.5 ft); minimum observed 28,300 acre-ft Oct. 25, 26, 1926-65: Maximum contents that of May 30, 1964; no contents Nov. 25 to Dec. 9, 1949.

Remarks.--Records good. Lake is formed by one rockfill and one concrete-arch dam; completed and storage began in November 1926. Total capacity, 68,200 acre-ft between elevations 5,400 ft (bottom of outlet tunnel) and 5,563 ft (crest of concrete-arch dam) above mean sea level. 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 through Milton-Bowman tunnel (see p. 835), and releases it through Bowman-Spaulling Canal (see following page), which conveys it to reservoirs of Pacific Gas & Electric Co. Water is eventually used for irrigation by Nevada Irrigation District.

Capacity table (elevation, in feet, and contents, in acre-feet)

5,500	24,000	5,540	49,800
5,510	30,000	5,550	57,800
5,520	36,000	5,570	73,800
5,530	42,800		

Contents, in acre-feet, at 2400 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	36,200	28,700	30,600	66,000	65,200	64,700	64,500	69,000	70,800	70,400	57,900	43,500
2	35,900	28,700	30,900	66,000	65,200	64,700	64,700	68,800	70,800	70,200	57,500	43,500
3	35,500	28,800	31,000	65,900	65,200	64,600	64,700	68,400	70,800	70,000	57,000	42,500
4	35,300	28,800	31,000	66,000	65,200	64,600	64,800	68,300	70,800	69,700	56,500	42,100
5	35,000	28,900	31,000	66,000	65,300	64,600	64,800	68,100	70,800	69,500	56,000	41,600
6	34,700	28,900	31,100	66,000	65,200	64,600	64,800	67,900	70,800	69,200	55,500	41,100
7	34,400	28,900	31,100	65,800	65,200	64,600	64,800	67,600	70,700	68,300	55,000	40,700
8	34,100	28,900	31,200	65,600	65,200	64,600	64,900	67,400	70,500	68,400	54,400	40,400
9	33,700	29,200	31,300	65,500	65,200	64,600	64,900	67,300	70,500	68,000	54,000	40,100
10	33,400	29,300	31,500	65,500	65,200	64,600	64,300	67,400	70,700	67,600	53,400	39,700
11	33,100	29,500	32,400	65,400	65,100	64,600	64,800	67,500	70,800	67,300	53,100	39,400
12	32,800	29,600	32,500	65,400	65,100	64,500	64,300	67,700	70,700	66,900	52,600	39,000
13	32,500	29,600	32,300	65,200	65,100	64,500	64,800	68,000	70,600	66,500	52,200	38,700
14	32,200	29,700	32,900	65,200	65,100	64,500	64,800	68,300	70,500	66,100	51,300	38,100
15	31,900	29,800	33,000	65,200	65,100	64,500	64,800	68,600	70,500	65,700	51,300	37,500
16	31,400	29,800	33,100	65,200	65,100	64,400	65,100	69,000	70,500	65,300	50,800	36,900
17	31,100	29,800	33,100	65,200	65,100	64,400	65,000	69,200	70,700	64,800	50,400	36,700
18	30,800	29,800	33,200	65,200	65,100	64,400	65,200	69,200	70,600	64,400	50,000	36,200
19	30,400	29,900	33,400	65,200	65,000	64,300	65,700	69,300	70,600	64,000	49,400	35,700
20	30,100	29,900	33,500	65,200	65,000	64,300	66,500	69,500	70,700	63,600	49,000	35,500
21	29,800	29,900	35,600	65,200	65,000	64,300	67,200	69,300	70,700	63,100	48,500	35,500
22	29,400	29,900	50,600	65,200	64,900	64,400	66,900	69,100	70,500	62,500	48,100	35,500
23	29,000	29,900	65,800	65,400	64,800	64,400	66,800	69,000	70,500	62,100	47,600	35,600
24	28,600	30,000	68,400	65,600	64,300	64,500	67,100	68,700	70,500	61,700	47,200	35,600
25	28,300	30,100	68,900	65,500	64,800	64,400	67,700	68,800	70,500	61,200	46,700	35,300
26	28,300	30,100	69,000	65,400	64,800	64,500	68,500	69,600	70,400	60,800	46,200	35,000
27	28,400	30,200	68,900	65,300	64,800	64,600	69,200	70,400	70,400	60,300	45,300	34,600
28	28,400	30,300	68,400	65,200	64,700	64,500	69,600	70,800	70,400	59,800	45,300	34,100
29	28,500	30,400	67,500	65,200	64,400	64,400	69,700	70,900	70,400	59,300	44,900	33,600
30	28,600	30,400	66,800	65,200	64,400	64,400	69,400	71,000	70,500	59,200	44,400	33,200
31	28,600	-----	66,200	65,200	-----	64,400	-----	70,900	-----	58,400	44,000	-----
	5,507.6 - 8.100	5,510.7 + 1.800	5,560.5 - 35.800	5,559.3 - 1.000	5,558.6 - 500	5,558.2 - 300	5,564.5 + 5.000	5,566.4 + 1.500	5,565.9 - 400	5,550.7 - 12.100	5,531.7 - 14.400	5,515.3 - 10.800

Calendar year 1964.....+32,800

Water year 1964-65.....+ 3,500

† Elevation, in feet, at end of month.

+ Change in contents, in acre-ft.

Note.--Fragmentary record or staff gage readings Oct. 16-26, Nov. 14-18, Dec. 2-6, 12-31, Jan. 1-3, 7, 8, Aug. 30, 31, Sept. 29, 30.

11-4160. Bowman-Spaulding Canal intake near Sierra City, Calif.

Location.--Lat 39°26'25", long 120°39'30", in NW¼SW¼ sec.8, T.18 N., R.12 E., on left bank 0.6 mile downstream from Bowman Dam, and 8 miles south of Sierra City. Prior to July 1, 1965, at site 0.3 mile upstream.

Records available.--October 1927 to September 1965. Prior to October 1962, published as Bowman-Spaulding Canal at intake.

Gage.--Water-stage recorder. Datum of gage is 5,390.39 ft above mean sea level. Prior to July 1965 at site 0.3 mile upstream at different datum.

Average discharge.--38 years, 145 cfs (105,000 acre-ft per year).

Extremes.--1927-65: Maximum daily discharge, 264 cfs Sept. 30, 1965; no flow at times in most years.

Remarks.--Records good. Canal diverts from left bank of Canyon Creek below Bowman Lake. Water is delivered to Lake Spaulding and after passing through several powerhouses, is used for irrigation by Nevada Irrigation District.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	177	1.1	2.5	14	47	100	104	61	0.3	117	251	256
2	177	1.2	2.5	14	47	93	106	61	.3	243	250	256
3	176	3.9	2.4	14	47	93	107	61	.3	242	251	255
4	176	4.0	40	15	25	93	109	36	.3	242	252	255
5	176	3.2	26	13	1.0	97	110	3.5	.1	242	252	254
6	175	2.6	2.5	37	.9	96	112	3.5	0	241	252	254
7	175	2.5	2.5	47	3.2	96	112	3.5	0	240	252	254
8	175	1.5	4.1	44	.7	93	113	3.4	0	241	251	252
9	174	1.6	4.0	44	1.0	96	115	3.4	0	241	254	254
10	174	1.9	2.2	44	14	96	109	3.5	0	241	254	256
11	174	22	5.3	44	5.4	104	106	3.5	0	241	252	256
12	173	39	3.2	44	1.8	105	106	3.5	0	240	237	256
13	173	17	3.6	44	1.8	104	107	3.5	0	243	251	256
14	175	2.5	3.6	44	1.8	103	109	3.5	0	246	254	255
15	175	2.4	3.6	44	1.6	100	110	3.5	0	246	249	254
16	175	2.4	3.6	44	1.6	95	111	3.5	0	246	250	255
17	175	2.4	3.6	44	1.6	95	111	3.5	0	246	243	253
18	175	2.4	31	44	1.6	95	112	3.5	0	245	246	256
19	174	2.4	62	44	2.6	95	79	3.4	0	245	251	255
20	174	2.4	50	44	17	95	19	3.2	0	247	250	113
21	173	2.4	11	44	22	96	2.2	3.2	0	259	252	0
22	173	2.2	11	44	24	96	2.1	3.2	0	261	255	0
23	173	2.2	11	44	41	96	42	3.0	0	255	255	0
24	172	2.2	11	44	21	96	61	1.8	0	251	255	0
25	172	2.2	10	44	54	97	61	.3	0	251	255	166
26	47	2.4	11	44	95	93	61	.3	0	250	255	243
27	1.2	2.4	12	44	95	93	61	.3	0	250	254	250
28	1.2	2.2	14	44	100	99	61	.3	0	252	254	249
29	4.2	2.2	14	45	-----	100	61	.3	0	252	252	251
30	4.3	2.4	14	47	-----	101	61	.3	0	252	254	264
31	1.8	-----	14	47	-----	103	-----	.3	-----	252	256	-----
Total	4,420.7	141.2	391.2	1,217	675.6	3,044	2,540.3	287.7	1.3	7,520	7,799	6,383
Mean	143	4.71	12.6	39.3	24.1	93.2	84.7	9.28	0.04	243	252	213
Ac-ft	8,770	280	776	2,410	1,340	6,040	5,040	571	2.6	14,920	15,470	12,660

Calendar year 1964 Max 212 Min 0.5 Mean 101 Ac-ft 73,610  
 Water year 1964-65 Max 264 Min 0 Mean 94.3 Ac-ft 68,280

## SACRAMENTO RIVER BASIN

11-4161. Bowman-Spaulding Canal at Jordan Creek siphon venturi, near Emigrant Gap, Calif.

Location.--Lat 39°20'32", long 120°38'26", in SW<sup>1</sup>/<sub>4</sub> sec. 16, T.17 N., R.12 E., at outlet of Jordan Creek Siphon, 0.6 mile downstream from Fuller Lake, and 3.5 miles northeast of Emigrant Gap.

Records available.--October 1964 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 5,440 ft above mean sea level (from topographic map).

Extremes.--Maximum daily discharge, 330 cfs Dec. 22; no flow during many months.

Remarks.--Records good.

Cooperation.--Water-stage recorder graph and ten discharge measurements furnished by Pacific Gas and Electric Company in connection with a Federal Power Commission project.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	171		0	64	74	164	155	272		0	255	258
2	168		23	60	77	156	153	256		28	255	258
3	166		71	50	77	151	145	223		142	255	253
4	166		24	36	74	151	145	232		259	255	257
5	168		64	36	88	151	149	82		262	256	256
6	165		0	36	101	148	154	0		258	256	256
7	165		0	36	82	145	153	0		258	256	257
8	165		0	36	77	145	148	0		255	255	256
9	166		31	36	77	146	146	0		255	255	256
10	166		60	36	77	146	146	0		253	256	257
11	166		113	26	77	149	137	0		252	259	258
12	164		97	0	71	160	132	0		250	273	257
13	162		25	0	68	160	130	0		250	253	257
14	164		0	20	71	154	130	0		255	256	257
15	164		64	47	71	153	130	0		256	257	256
16	165		60	19	68	151	226	0		253	256	253
17	165		0	50	64	148	190	0		251	258	252
18	166		28	44	64	146	166	0		250	253	257
19	168		80	44	64	145	243	0		250	256	257
20	170		143	0	64	148	244	0		250	256	195
21	166		279	16	64	153	246	0		256	256	71
22	166		330	36	64	159	216	0		266	257	68
23	165		273	60	64	170	169	0		267	257	20
24	165		243	102	64	174	225	0		257	257	0
25	162		102	88	64	170	266	0		256	257	117
26	166		83	79	102	157	271	0		255	256	251
27	139		133	71	157	160	276	0		253	259	255
28	68		82	68	153	160	280	0		255	258	253
29	0		26	71	-----	154	288	0		256	256	251
30	0		0	60	-----	151	302	0		256	256	253
31	0		25	64	-----	151	-----	0		256	257	-----
Total	4,517	0	2,464	1,391	2,223	4,776	5,767	1,050	0	7,320	7,957	6,607
Mean	146	0	79.5	44.9	79.4	154	192	33.9	0	236	257	220
Ac-ft	8,960	0	4,390	2,760	4,410	9,470	11,440	2,080	0	14,520	15,780	13,100
Calendar year 1964	Max	-	Min	-	Mean	-	Ac-ft	-				
Water year 1964-65	Max	330	Min	0	Mean	121	Ac-ft	87,410				

11-4165. Canyon Creek below Bowman Lake, Calif.

Location.--Lat 39°26'20", long 120°39'40", in SE<sup>1</sup> sec.7, T.18 N., R.12 E., on left bank 1 mile downstream from Bowman Lake, 3 miles upstream from Texas Creek, and 9 miles south of Sierra City.

Drainage area.--28.6 sq mi.

Records available.--January 1927 to September 1965.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 5,100 ft (from topographic map).

Average discharge.--38 years, 41.6 cfs (30,120 acre-ft per year).

Extremes.--Maximum discharge during year, 2,600 cfs Dec. 25 (gage height, 6.25 ft); no flow Oct. 23.  
1927-65: Maximum discharge, that of Dec. 25, 1964; no flow at times.

Remarks.--Records good. Flow regulated by French Lake Reservoir (usable capacity, 13,840 acre-ft), by Bowman Lake (see p. 848), several smaller reservoirs, and diversion into Bowman-Speaulding Canal (see preceding page). Bowman Lake receives water from Middle Yuba River through Milton-Bowman tunnel (see p. 835).

Rating tables (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 24

Dec. 25 to Sept. 30

1.0	0	1.8	12	3.0	172	1.2	2.0	2.3	38	4.5	730
1.1	.8	2.0	22	3.5	325	1.4	4.3	2.6	71	5.0	1,100
1.2	2.0	2.2	38	4.0	520	1.6	7.2	3.0	133	5.5	1,590
1.4	4.3	2.4	60	4.5	775	1.8	12	3.5	245	6.0	2,250
1.6	7.2	2.7	105	5.0	1,100	2.0	19	4.0	450		
				5.5	1,590						

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	2.2	12	500	221	113	40	849	428	84	3.2	2.9
2	.1	2.2	11	428	218	91	66	610	446	18	3.2	2.9
3	.1	1.4	4.2	436	215	92	85	510	465	11	3.2	3.0
4	.1	1.2	2.8	455	218	81	92	480	423	8.7	3.2	3.0
5	.1	.9	1.6	470	256	81	105	465	378	7.7	3.2	2.9
6	.1	.8	1.6	485	273	82	121	465	348	6.5	3.2	3.1
7	.1	.8	2.0	441	262	84	124	437	378	9.2	3.1	3.0
8	.2	.9	2.0	369	245	86	130	423	356	4.2	3.1	3.0
9	.2	5.3	1.9	316	233	78	143	392	312	3.7	3.1	3.0
10	.2	2.3	3.2	284	227	84	147	369	352	3.7	3.2	3.0
11	.1	3.7	27	273	212	121	141	360	400	3.7	3.8	3.0
12	.1	6.7	3.6	262	212	119	130	374	405	3.6	3.9	2.9
13	.1	2.0	2.3	248	210	97	121	387	352	3.6	3.3	3.0
14	.1	1.8	2.0	242	205	90	114	410	396	3.5	3.8	3.0
15	.1	1.8	2.0	236	202	63	119	410	262	3.3	3.5	3.0
16	.1	1.7	1.6	236	200	42	192	418	236	3.3	3.7	2.9
17	.1	1.6	1.4	236	198	30	300	525	352	3.3	3.6	3.0
18	.1	1.6	1.2	236	195	21	197	598	428	3.3	3.0	2.6
19	.1	1.6	2.0	239	186	15	296	562	320	3.2	2.9	2.8
20	.1	1.7	1.6	239	170	11	530	574	300	3.2	3.0	2.9
21	.1	1.7	71	236	164	11	821	604	292	3.2	3.0	2.8
22	.1	1.8	134	230	162	16	870	515	276	3.2	3.0	2.8
23	0	2.0	87	259	170	25	596	373	256	3.2	3.0	2.9
24	.1	2.2	1170	364	160	40	340	499	233	3.2	2.9	2.9
25	.1	3.8		356	148	47	290	27	224	3.2	2.9	2.9
26	.1	4.9	2240									
27	.6	2.9	2110	316	123	49	227	20	212	3.2	2.9	2.6
28	1.5	3.2	1750	276	130	67	284	27	200	3.2	2.9	2.8
29	2.1	3.8	1230	248	133	56	515	314	186	3.2	2.9	2.9
30	1.2	3.2	926	233	-----	42	706	480	176	3.2	2.9	3.7
31	.8	-----	751	224	-----	31	977	505	101	3.2	2.9	4.6
			586	221	-----	26	-----	500	-----	3.2	2.8	-----
Total	9.0	71.7	11161.4	9594	5548	1891	8719	13492	9393	225.9	98.3	89.8
Mean	0.29	2.39	360	309	198	61.0	291	435	313	7.29	3.17	2.99
Ac-ft	18	142	22140	19030	11000	3750	17390	26760	18630	448	195	178

Calendar year 1964 Max 2,240 Min 0 Mean 62.3 Ac-ft 45,220  
 Water year 1964-65 Max 2,240 Min 0 Mean 165 Ac-ft 119,600

11-4170. South Yuba River near Washington, Calif.

Location.--Lat 39°21'38", long 120°46'14" on line between secs. 5 and 8, T.17 N., R.11 E., on left bank 800 ft upstream from unnamed tributary and 1.5 miles east of Washington.

Drainage area.--199 sq mi.

Records available.--March 1942 to September 1953, October 1956 to September 1965. Prior to October 1949, published as South Fork Yuba River near Washington.

Gage.--Water-stage recorder. Altitude of gage is 2,735 ft (from river-profile map). Oct. 1, 1948, to Sept. 30, 1953, water-stage recorder at site 0.8 mile upstream at different datum.

Average discharge.--20 years, 306 cfs (221,500 acre-ft per year).

Extremes.--Maximum discharge during year, 35,300 cfs Dec. 23 (gage height, 20.0 ft from floodmarks), from rating curve extended above 6,500 cfs on basis of slope-area measurement at gage height 16.60 ft, in gage well, 17.8 ft from floodmarks; minimum daily, 14 cfs Oct. 21.

1942-53, 1956-65: Maximum discharge, that of Dec. 23, 1964; minimum, 9.1 cfs Oct. 18, 1950

Flood of Dec. 23, 1955 reached a stage of 17.8 ft, from floodmarks (discharge, 26,300 cfs).

Remarks.--Records good except those for periods of no gage-height record, which are fair. Natural flow affected by Lake Spaulding beginning in 1912 (see p. 844), Bowman Lake (see p. 848), Fordyce Lake beginning in 1926 (capacity, 46,700 acre-ft), diversions into and out of basin for several powerhouses and for irrigation of about 20,000 acres by Nevada Irrigation District.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Mar. 2-15, 27, 28, Apr. 2-5)

Oct. 1 to Dec. 21

Dec. 21 to Sept. 30

0.2	14	2.0	137	0.6	33	4.0	840
.3	17	2.5	210	1.0	70	5.0	1,420
.5	22	3.0	331	1.5	128	7.0	3,200
.7	30	4.0	705	2.0	205	9.0	5,700
1.0	48	5.0	1,220	2.5	310	11.0	9,200
1.5	88			3.0	450	14.0	17,000

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	15	62	177	1,030	660	303	203	1,270	1,670	170	44	61
2	15	63	253	860	650	261	209	1,970	1,390	104	39	72
3	15	36	153	1,100	630	257	217	1,810	1,340	70	40	64
4	15	31	103	1,600	620	235	219	2,160	1,350	68	39	65
5	15	27	80	2,400	720	231	231	1,510	1,070	64	39	65
6	15	26	68	3,600	780	233	295	1,280	1,590	64	33	72
7	15	24	60	3,000	660	231	360	845	1,290	62	38	74
8	15	23	56	1,950	620	233	355	818	1,180	63	39	76
9	15	164	60	1,300	570	221	393	826	1,070	53	46	114
10	15	123	72	1,020	530	225	373	970	1,140	57	50	219
11	15	118	512	970	490	255	366	1,350	1,530	56	53	211
12	15	302	166	920	480	271	369	1,600	1,730	57	84	205
13	15	126	110	860	470	245	373	1,800	1,330	56	56	203
14	15	72	90	770	470	225	355	1,960	768	55	53	193
15	15	55	85	850	450	229	434	1,870	456	52	61	312
16	15	47	75	820	430	191	1,310	2,390	420	51	60	281
17	15	43	65	800	410	179	813	2,480	536	51	71	203
18	15	39	60	820	400	159	710	2,500	849	50	69	185
19	15	33	137	840	400	125	905	2,140	795	49	62	181
20	15	37	810	840	390	111	1,110	2,230	505	48	60	181
21	14	34	3,030	800	390	114	1,510	2,060	953	43	63	113
22	15	34	17,000	800	380	122	1,510	1,650	942	47	58	80
23	15	35	15,500	1,000	380	132	1,310	1,140	485	47	58	74
24	15	39	10,300	1,500	410	162	822	1,300	459	44	53	63
25	16	62	9,000	1,100	370	159	763	941	352	43	57	75
26	16	110	6,800	870	340	174	645	945	313	45	61	63
27	13	84	6,100	800	432	253	673	1,080	310	44	75	61
28	13	87	3,500	750	355	209	900	1,550	298	44	61	62
29	34	102	2,300	700	-----	193	1,110	1,910	271	42	62	75
30	32	84	1,650	690	-----	189	1,380	1,960	206	39	61	135
31	22	-----	1,300	670	-----	185	-----	1,940	-----	42	64	-----
Total	515	2,132	79,677	36,030	13,887	6,322	20,238	50,255	26,603	1,789	1,729	3,853
Mean	16.6	71.1	2,570	1,162	496	204	675	1,621	887	57.7	55.8	128
Ac-ft	1,020	4,230	158,000	71,460	27,540	12,540	40,140	99,680	52,780	3,550	3,430	7,640

Calendar year 1964 Max 17,000 Min 14 Mean 324 Ac-ft 235,000  
Water year 1964-65 Max 17,000 Min 14 Mean 666 Ac-ft 482,000

Note.--No gage-height record Dec. 22 to Feb. 26, Aug. 10.

11-4171. Poorman Creek near Washington, Calif.

Location.--Lat 39°21'36", long 120°48'24", in SW $\frac{1}{4}$  sec.1, T.17 N., R.10 E., on left bank just downstream from U. S. Forest Service road bridge, 0.4 mile west of Washington, and 1.4 miles downstream from Deadman Creek.

Drainage area.--23.2 sq mi.

Records available.--July 1961 to September 1965.

Gage.--Water-stage recorder (digital). Altitude of gage is 2,600 ft (from topographic map).

Extremes.--Maximum discharge during year, 6,090 cfs Dec. 22 (gage height, 12.52 ft in gage well, 13.5 ft, from floodmarks), from rating curve extended above 1,700 cfs on basis of slope-area measurement at 10.95 ft; minimum daily, 7.7 cfs Oct. 5-7. 1961-65: Maximum discharge, that of Dec. 22, 1964; minimum, 5.9 cfs Oct. 4, 1961.

Remarks.--Records good. No known diversion or storage above the station.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 22

Dec. 22 to Sept. 30

2.2	7.5	4.0	143	2.3	10	4.5	230
2.3	10	4.5	250	2.6	18	5.0	360
2.4	13	5.0	390	3.0	38	6.0	730
2.7	24	6.0	750	3.5	78	8.0	1,770
3.0	39	8.0	1,770	4.0	140	10.0	3,370
3.5	77	10.0	3,370				

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	8.0	24	56	182	145	79	94	190	83	29	16	13
2	8.0	22	83	165	138	76	86	171	78	29	15	13
3	7.9	15	49	181	132	74	80	153	74	28	15	13
4	7.8	12	34	214	129	74	78	148	72	27	15	12
5	7.7	12	27	435	170	73	81	144	69	26	15	12
6	7.7	11	24	688	161	72	82	130	65	25	15	16
7	7.7	11	22	383	138	70	77	121	62	24	14	16
8	7.9	12	20	246	128	70	80	116	59	24	14	14
9	8.0	52	23	204	122	70	92	117	57	23	14	13
10	7.8	37	31	188	115	70	86	121	53	22	14	13
11	8.0	33	273	197	109	70	86	124	51	22	19	12
12	8.0	82	79	189	104	75	95	131	49	22	32	12
13	7.9	32	52	173	101	69	100	134	46	22	17	12
14	7.9	20	44	173	97	67	95	135	45	21	27	12
15	7.9	17	41	193	93	67	105	135	44	20	23	12
16	8.1	15	37	188	89	67	373	139	46	20	20	12
17	8.1	14	34	184	86	67	212	137	58	20	28	11
18	8.1	13	32	193	85	66	188	131	50	19	26	12
19	7.9	12	59	200	85	66	227	128	44	18	18	12
20	7.9	12	279	194	85	67	230	124	41	18	17	12
21	8.0	12	979	178	85	70	278	119	39	18	16	12
22	8.1	12	3,210	166	85	75	229	112	38	18	16	11
23	8.1	12	2,520	255	81	76	203	102	36	17	15	11
24	8.3	13	1,680	310	78	81	200	95	35	17	15	11
25	8.4	18	769	215	76	72	200	92	34	17	15	11
26	8.6	29	864	189	76	78	203	91	34	17	15	11
27	8.7	21	726	174	98	103	201	90	33	17	14	12
28	9.2	28	437	161	86	90	204	89	32	16	14	12
29	20	32	323	154	-----	90	210	88	34	16	14	11
30	14	25	257	156	-----	88	203	86	31	16	13	11
31	11	-----	213	152	-----	90	-----	83	-----	17	13	-----
TOTAL	270.7	660	13,277	6,880	2,977	2,322	4,678	3,776	1,492	645	534	367
MEAN	8.73	22.0	428	222	106	74.9	156	122	49.7	20.8	17.2	12.2
AC-FT	537	1,310	26,330	13,650	5,900	4,610	9,280	7,490	2,960	1,280	1,060	728

CALENDAR YEAR 1964	MAX	3,210	MIN	7.7	MEAN	67.2	AC-FT	48,770
WATER YEAR 1964-65	MAX	3,210	MIN	7.7	MEAN	104	AC-FT	75,140

Peak discharge (base, 500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-22	2100	12.52	6,090	1-23	2000	5.44	509
1-5	2400	6.41	910				

## SACRAMENTO RIVER BASIN

11-4175. South Yuba River at Jones Bar, near Grass Valley, Calif.

Location.--Lat $39^{\circ}17'32''$ , long  $121^{\circ}06'13''$ , near center of sec.32, T.17 N., R.8 E., on left bank at Jones Bar, 100 ft upstream from Rush Creek, 0.9 mile downstream from bridge on State Highway 49, and 5 miles northwest of Grass Valley.

Drainage area.--310 sq mi.

Records available.--October 1940 to September 1948, April 1959 to September 1965. Published as South Fork Yuba River at Jones Bar 1940-48 and as South Yuba River "at Jones Bar" 1959-63.

Gage.--Water-stage recorder. Altitude of gage is 1,060 ft, (from river profile map). Oct. 1, 1940, to Sept. 30, 1948, water-stage recorder at site 150 ft upstream at datum 2.00 ft higher.

Average discharge.--14 years, 484 cfs (350,000 acre-ft per year).

Extremes.--Maximum discharge during year, 53,600 cfs Dec. 22, (gage height, 25.0 ft, from floodmarks), from rating curve extended above 23,000 cfs on basis of slope-area measurement of maximum flow; minimum daily, 15 cfs Oct. 3-24.

1940-48, 1959-65: Maximum discharge, that of Dec. 22, 1964; minimum, 1.0 cfs Sept. 10-13, 1944.

Flood of Dec. 23, 1955 reached a stage of 28.7 ft from floodmarks (at site 100 ft upstream and datum 2.00 ft lower).

Remarks.--Records good except those for periods of no gage-height record, which are poor. Flow regulated by Lake Spaulding (see p. 844), Fordyce Lake (capacity, 46,700 acre-ft), Bowman Lake (see p. 848), and many smaller reservoirs. Diversions into and out of basin for several powerhouses, and for irrigation of about 20,000 acres by the Nevada Irrigation District.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 22						Dec. 23 to Sept. 30			
2.3	15	4.0	120	9.0	2,360	3.1	53	5.0	288
2.5	24	5.0	270	11.0	4,820	3.5	78	6.0	575
2.7	33	6.0	530	13.0	8,440	4.0	120	7.0	1,000
3.0	48	7.0	940	16.0	16,100	4.5	192	8.0	1,600
3.5	78	8.0	1,540	19.0	26,900	Note.--same as preceding table above 9.0 ft.			

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18	93	230	2,100	1,150	547	445	1,800	1,780	189	66	70
2	16	192	433	1,650	1,090	487	427	2,200	1,470	186	64	70
3	15	85	368	2,300	1,060	481	430	2,120	1,410	124	61	70
4	15	62	230	3,100	1,020	451	433	2,420	1,480	114	61	69
5	15	55	178	4,250	1,240	442	439	2,200	1,030	107	60	69
6	15	50	147	5,900	1,300	445	466	1,550	1,610	102	60	77
7	15	48	129	4,680	1,110	439	568	920	1,400	96	59	86
8	15	49	118	3,020	1,020	433	622	780	1,190	94	58	79
9	15	333	115	2,100	955	419	1,050	840	1,150	90	60	76
10	15	456	119	1,700	905	421	892	980	1,120	87	64	159
11	15	235	769	1,720	838	436	784	1,300	1,470	86	78	210
12	15	550	433	1,600	788	490	774	1,700	1,660	87	126	205
13	15	308	260	1,500	792	466	783	1,950	1,420	86	89	203
14	15	170	204	1,320	784	419	726	2,180	980	84	77	205
15	15	123	182	1,420	754	424	759	2,080	540	82	94	212
16	15	102	166	1,500	706	382	3,240	2,600	487	73	80	272
17	15	91	144	1,400	678	365	1,950	2,780	550	76	83	233
18	15	83	132	1,500	674	345	1,470	2,360	805	74	102	186
19	15	73	313	1,500	670	303	1,640	2,680	985	73	84	181
20	15	79	1,580	1,480	662	282	1,900	2,480	554	71	76	181
21	15	77	6,250	1,430	646	273	2,500	2,270	909	71	73	160
22	15	72	22,800	1,410	642	286	3,100	1,940	941	70	82	101
23	15	71	20,000	1,790	626	297	2,300	1,330	674	70	72	84
24	15	73	19,400	2,720	650	330	1,600	1,400	550	69	82	81
25	16	87	9,000	1,840	568	332	1,240	1,130	418	67	82	79
26	17	143	9,200	1,560	578	350	1,130	1,030	378	69	72	83
27	18	176	7,500	1,440	662	713	1,080	1,130	362	63	74	76
28	21	164	5,780	1,330	592	536	1,180	1,540	352	67	85	80
29	50	204	4,260	1,230	-----	457	1,400	1,960	335	66	72	79
30	70	169	3,320	1,210	-----	427	1,850	2,010	303	64	70	107
31	52	-----	2,660	1,200	-----	415	-----	2,020	-----	66	69	-----
Total	608	4,477	116,430	62,900	23,160	12,896	37,183	56,180	28,313	2,733	2,335	3,948
Mean	19.6	149	3,756	2,029	827	416	1,239	1,812	944	88.2	75.3	132
Ac-ft	1,210	8,880	230,900	124,800	45,900	25,600	73,750	111,400	56,200	5,420	5,420	7,830

Calendar year 1964 Max 22,800 Min 14 Mean 504 Ac-ft 365,900

Water year 1964-65 Max 22,800 Min 15 Mean 962 Ac-ft 696,500

Note.--No gage-height record Dec. 23, 25-27, Jan. 1-6, 9-20, Apr. 20 to May 16.



## 11-4180. Yuba River at Englebright Dam, Calif.

Location.--Lat 39°14'22", long 121°16'00", in SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.14, T.16 N., R.6 E., on left bank upstream from spillway of Englebright Dam, 1 mile upstream from Deer Creek, and 2.5 miles northeast of Smartville.

Drainage area.--1,109 sq mi.

Records available.--October 1941 to September 1965. Prior to October 1953, published as "at Narrows Dam." If record for Deer Creek near Smartville since 1941 is added to record at this site, a record equivalent to that published from 1903 to 1941 as Yuba River at Smartville can be obtained.

Gage.--Water-stage recorder, flowmeter in penstock and watt meters in powerhouse just below dam. Datum of gage is at mean sea level (levels by Corps of Engineers). Prior to Sept. 19, 1958, at datum 526.99 ft higher.

Average discharge.--24 years, 2,562 cfs (1,855,000 acre-ft per year).

Extremes.--Maximum discharge during year, 171,000 cfs Dec. 22 (gage height, 546.14 ft), no flow through powerhouse; from rating curve extended above 25,000 cfs on basis of computation of peak flow over spillway of dam at gage heights 544.72 and 546.14 ft.  
1941-65: Maximum discharge, that of Dec. 22, 1964; no flow at times in 1942, 1949, 1956, 1958-61.

Remarks.--Records good. Diversions for power and irrigation above station. Up to 250 cfs can bypass station and up to 670 cfs can be diverted into Bear River basin. Flow regulated by Lake Spaulding beginning in 1912 (see p. 844 ), Englebright Reservoir beginning in 1941 (capacity, 70,000 acre-ft), Bowman Lake (see p. 848 ), Fordyce Lake beginning in 1926 (capacity, 46,700 acre-ft), and many smaller reservoirs. Records given herein show total flow over Englebright Dam spillway and through and past powerplant. Records of chemical analyses near this gaging station for the water year 1965 are published in Part 2 of this report.

Cooperation.--Records of flow through powerplant furnished by Pacific Gas and Electric Co.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	420	620	620	7,990	5,500	3,070	2,910	8,450	5,400	1,500	720	700
2	400	620	630	6,790	5,240	2,360	2,810	7,730	4,900	1,380	720	695
3	410	605	640	8,760	5,000	2,540	2,680	7,160	4,940	1,290	720	690
4	410	600	640	16,900	4,830	2,380	2,500	6,140	5,240	1,230	720	690
5	400	600	640	22,600	5,500	2,340	2,500	6,070	4,900	1,200	720	690
6	405	600	640	34,100	6,060	2,340	2,660	5,600	5,320	1,160	720	690
7	405	610	640	23,900	5,520	2,340	2,760	4,750	4,960	1,100	720	690
8	405	600	650	13,300	5,000	2,260	2,830	4,320	4,380	1,070	720	690
9	405	600	660	9,820	4,740	2,220	4,230	4,160	4,100	1,030	720	690
10	405	605	660	8,450	4,280	2,200	4,390	4,260	4,030	996	720	685
11	405	615	660	7,950	3,960	2,220	3,790	4,960	4,350	963	720	690
12	405	610	690	7,900	3,750	2,430	3,580	5,520	4,650	930	730	690
13	405	600	710	7,440	3,570	2,300	3,760	6,060	4,290	905	730	680
14	410	605	1,200	7,000	3,490	2,080	3,550	6,280	3,510	889	730	700
15	410	600	1,610	7,300	3,370	2,020	3,460	6,520	2,800	864	725	710
16	410	600	1,480	7,340	3,180	1,980	13,100	6,820	2,450	848	725	710
17	410	600	1,320	7,040	3,070	1,940	10,100	7,460	2,350	856	715	705
18	410	600	1,200	7,040	3,010	1,940	7,230	7,680	2,950	746	705	700
19	410	600	1,500	7,100	3,010	1,860	8,600	7,580	2,930	823	705	700
20	410	600	4,170	7,200	2,980	1,780	9,870	7,280	2,520	791	710	700
21	405	600	33,900	6,860	3,040	1,790	13,000	6,900	2,720	781	710	710
22	400	600	116,000	6,480	3,070	1,870	11,700	6,080	2,810	775	710	705
23	400	600	124,000	6,780	3,030	2,020	9,690	4,940	2,530	768	710	705
24	400	535	79,700	14,100	2,940	2,200	8,330	4,680	2,170	762	705	700
25	400	600	41,500	9,340	2,760	2,240	8,130	4,520	2,320	752	700	700
26	400	605	40,600	7,680	2,740	2,240	7,810	4,220	1,950	752	700	700
27	385	610	44,300	6,810	3,280	4,160	7,930	4,480	1,820	753	700	355
28	380	610	22,300	6,360	3,490	3,610	8,050	4,890	1,760	754	700	130
29	380	610	15,800	5,970	-----	3,020	8,380	5,640	1,680	742	700	120
30	500	610	12,000	5,890	-----	2,830	8,870	5,820	1,600	727	705	120
31	625	-----	9,990	5,960	-----	2,760	-----	5,890	-----	720	705	-----
Total	12,825	18,070	561,050	308,050	109,410	73,840	189,200	182,860	102,330	28,857	22,140	18,840
Mean	411	602	18,100	9,937	3,908	2,382	6,307	5,899	3,411	931	714	628
Ac-ft	25,440	35,840	1,113,000	611,000	217,000	146,500	375,300	362,700	203,000	57,240	43,920	37,370

Calendar year 1964	Max	124,000	Min	275	Mean	2,720	Ac-ft	1,975,000
Water year 1964-65	Max	124,000	Min	120	Mean	4,459	Ac-ft	3,228,000

Peak discharge (base, 13,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-22	2100-2300	-	171,000	1-24	0900	-	16,600
12-27	0100	-	64,400	4-16	1400	-	18,100
1-6	0200	-	42,700	4-21	1030	-	13,800

## SACRAMENTO RIVER BASIN

11-4185. Deer Creek near Smartville, Calif.

Location.--Lat 39°13'28", long 121°16'03", in SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.23, T.16 N., R.6 E., on left bank 400 ft upstream from county road bridge, 0.9 mile upstream from mouth, and 2 miles northeast of Smartville.

Drainage area.--84.6 sq mi.

Records available.--June 1935 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 630 ft (from river-profile map). June 21, 1935, to Nov. 30, 1938, staff gage at same site and datum.

Average discharge.--30 years, 134 cfs (97,010 acre-ft per year).

Extremes.--Maximum discharge during year, 8,260 cfs Dec. 22 (gage height, 11.85 ft); minimum daily, 6.3 cfs Oct. 21.

1935-65: Maximum discharge, 11,600 cfs Oct. 13, 1962 (gage height, 13.77 ft), from rating curve extended above 5,200 cfs; minimum, 0.1 cfs Aug. 4-6, 15, 1940.

Remarks.--Records good. Natural flow of stream is affected by Scotts Flat Reservoir beginning in 1949 (usable capacity, 49,000 acre-ft), Deer Creek Reservoir (capacity, 1,400 acre-ft), power developments, and diversion for irrigation. At times, water from South Yuba River is diverted into Deer Creek and water from Deer Creek is diverted to Bear River.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Oct. 12-27, Dec. 23-26, May 26 to Sept. 30)

Oct. 1 to Feb. 28

Mar. 1 to Sept. 30

1.2	4.4	2.6	112	6.0	1,450	1.4	7.6	3.0	160
1.3	6.5	3.0	170	7.0	2,300	1.5	11	3.5	262
1.5	13	3.5	260	8.0	3,300	1.6	15	4.0	408
1.7	22	4.0	385	9.0	4,410	1.8	26	5.0	810
2.0	43	4.5	550	10.0	5,670	2.0	41	6.0	1,385
2.3	74	5.0	780			2.5	90	7.0	2,130

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.9	90	31	235	204	150	153	182	27	19	10	14
2	9.5	107	32	205	243	131	150	165	28	18	9.0	13
3	9.5	30	44	1,640	246	115	146	155	25	16	9.3	13
4	9.2	22	29	3,260	236	107	147	141	25	16	9.3	13
5	11	20	27	2,290	290	112	136	133	25	17	7.9	13
6	12	16	23	2,410	298	124	110	139	24	16	9.3	16
7	9.2	15	22	1,280	276	120	90	125	24	16	9.3	19
8	3.4	16	22	513	250	117	153	113	24	17	9.0	16
9	9.8	213	21	382	243	124	840	96	26	17	9.3	15
10	13	219	21	302	230	104	616	94	24	14	9.6	13
11	9.5	118	33	274	223	131	383	81	23	14	1.9	13
12	3.9	177	32	236	213	164	210	74	22	13	2.9	12
13	3.7	57	24	197	204	157	204	64	21	13	1.9	12
14	9.5	34	22	173	197	133	173	65	23	12	1.6	13
15	11	25	24	159	186	131	172	62	22	11	1.7	14
16	11	23	23	146	176	144	1,640	51	20	11	1.6	12
17	3.7	22	20	136	167	139	674	46	20	10	1.4	11
18	7.3	21	20	127	159	118	510	46	25	10	1.4	12
19	7.3	20	154	129	153	120	450	43	22	9.3	1.3	11
20	7.6	19	459	132	150	133	386	41	20	9.0	1.3	11
21	6.3	19	3,250	116	147	127	414	42	13	9.3	1.3	11
22	6.8	20	4,810	112	144	124	352	39	18	9.0	1.3	12
23	3.1	13	1,630	323	140	104	299	46	13	9.0	1.3	13
24	8.4	13	917	380	133	87	243	40	17	9.0	1.2	13
25	3.1	22	317	184	133	83	203	39	13	9.0	1.2	12
26	3.1	22	1,060	150	134	83	210	31	19	9.3	1.1	13
27	12	21	950	134	189	390	216	23	18	11	1.2	14
28	16	24	597	126	172	200	214	27	19	11	1.2	16
29	35	32	455	116	-----	139	183	24	19	11	1.3	16
30	26	26	394	103	-----	114	176	26	13	11	1.3	15
31	13	-----	370	109	-----	113	-----	27	-----	12	1.3	-----
Total	342.8	1,491	15,833	16,094	5,556	4,153	9,868	2,285	652	383.9	394.0	400
Mean	11.1	4.97	511	519	193	134	329	73.7	21.7	12.5	12.7	13.3
Ac-ft	680	2,960	31,400	31,920	11,020	8,240	19,570	4,530	1,290	771	781	793

Calendar year 1964 Max 4,810 Min 5.0 Mean 89.5 Ac-ft 64,790  
Water year 1964-65 Max 4,810 Min 6.3 Mean 157 Ac-ft 114,000

Peak discharge (base, 3,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-22	1500	11.85	8,260	1- 5	2400	9.69	5,240
1- 3	2400	10.12	5,840	1-16	0600	8.42	3,630

11-4207, Dry Creek near Browns Valley, Calif.

Location.--Lat 39°15'25", long 121°20'35", in NE 1/4 sec. 7, T.16 N., R.6 E., on left bank 500 ft upstream from diversion dam and 3.6 miles east of Browns Valley.

Drainage area.--87.1 sq mi (revised).

Records available.--July 1964 to September 1965.

Gage.--Water-stage recorder (digital). Altitude of gage is 265 ft (from topographic map).

Extremes.--Maximum discharge during year, 4,810 cfs Jan. 5 (gage height, 9.65 ft); minimum daily, 1.2 cfs Dec. 12-15.

Remarks.--Records good. Flow regulated by Lake Mildred (capacity, 1,500 acre-ft), Virginia Ranch Reservoir (capacity, 57,000 acre-ft), and some diversions.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Mar. 31				Apr. 1 to Sept. 30	
2.0	2.8	4.0	225	2.0	4.5
2.1	4.3	5.0	520	2.2	8.5
2.2	6.4	6.0	990	2.4	14.9
2.4	12	7.0	1,670	2.7	31
2.7	27	8.0	2,630	3.0	58
3.0	51	9.0	3,830	3.5	120
3.5	120				

Note.--Same as preceding table above 3.5 ft

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.3	10	3.0	19	104	72	84	45	7.3	5.7	6.3	6.9
2	4.3	9.5	2.8	16	97	57	72	25	6.7	5.8	6.2	3.6
3	4.3	4.7	2.6	93	92	43	63	14	6.8	6.3	6.3	7.3
4	4.7	3.5	2.3	393	89	42	61	62	6.4	6.3	6.2	6.7
5	4.3	3.4	2.0	1,260	134	40	57	13	6.8	6.4	6.0	7.5
6	4.3	3.8	1.8	3,280	160	43	57	55	7.0	7.1	6.4	9.0
7	4.5	4.0	1.6	1,880	126	43	61	34	7.0	7.3	6.5	8.5
8	4.5	3.6	1.6	810	97	47	84	21	6.9	3.3	6.4	7.7
9	4.3	16	1.6	523	92	46	753	21	6.8	7.7	6.4	7.5
10	4.1	16	1.4	406	82	45	855	21	7.4	7.4	6.8	7.1
11	4.3	9.5	1.4	373	81	45	513	10	7.1	6.5	11	6.7
12	4.5	7.4	1.2	337	77	53	311	9.9	6.7	6.6	9.6	6.9
13	4.7	4.9	1.2	279	76	76	243	9.5	6.8	6.4	9.0	6.8
14	4.7	3.4	1.2	242	76	65	210	3.9	6.7	6.5	3.4	6.6
15	4.5	3.0	1.2	212	72	57	192	9.4	6.1	6.8	7.9	7.0
16	4.3	2.8	1.4	192	69	50	1,140	10	6.0	6.5	7.8	6.4
17	4.5	2.6	1.6	176	63	47	617	11	6.4	6.2	7.7	6.5
18	4.7	2.4	2.3	164	66	46	370	11	6.5	6.1	7.7	7.5
19	5.1	2.3	5.1	153	65	45	373	11	6.7	6.0	3.0	7.6
20	5.1	2.3	7.9	156	64	40	299	11	6.1	6.9	9.1	7.0
21	4.9	2.3	255	140	63	40	297	11	7.2	7.4	3.4	7.1
22	4.9	2.4	463	126	64	39	254	12	6.4	7.2	8.0	6.9
23	4.7	2.3	129	153	61	33	199	12	7.1	7.6	7.9	7.1
24	4.7	2.2	69	412	56	41	171	12	6.5	7.2	7.6	6.9
25	4.9	2.4	31	275	56	40	146	9.9	6.9	7.3	7.9	6.9
26	5.1	2.4	113	200	49	40	124	9.3	7.1	6.6	7.5	6.9
27	5.7	2.2	92	166	66	122	110	3.6	6.9	6.4	7.8	6.5
28	6.6	2.6	33	143	73	212	99	9.3	6.8	6.4	7.9	7.3
29	11	2.9	35	136	-----	150	90	3.5	6.4	6.1	7.5	7.4
30	5.9	2.8	30	126	-----	104	77	9.2	5.7	6.2	6.9	7.0
31	3.5	-----	23	114	-----	86	-----	8.0	-----	6.4	6.9	-----
Total	151.9	139.6	1,323.2	12,969	2,279	1,934	7,986	464.7	201.2	207.6	233.0	214.8
Mean	4.90	4.65	42.8	418	81.4	62.4	266	15.0	6.71	6.70	7.52	7.16
Ac-ft	301	277	2,630	25,720	4,520	3,840	15,840	922	399	412	462	426

Calendar year 1964 Max - Min - Mean - Ac-ft -  
 Water year 1964-65 Max 3,280 Min 1.2 Mean 77.0 Ac-ft 55,750

## SACRAMENTO RIVER BASIN

11-4210. Yuba River near Marysville, Calif.

Location.--Lat 39°10'35", Long 121°31'25", in New Helvetia Grant, on left bank 4.2 miles northeast of Marysville, and 5 miles downstream from Dry Creek.

Drainage area.--1,340 sq mi.

Records available.--October 1940 to September 1965 (1940-43, 1945, low-water periods only). Published as "at Marysville" October 1940 to September 1957. Records published for two sites August 1954 to September 1955. Yearly discharge for the 1945 water year published in WSP 1315-A.

Gage.--Water-stage recorder. Gage is set to datum of Corps of Engineers, which is 2.95 ft below mean sea level. Prior to August 1954 and Oct. 1, 1956, to Sept. 30, 1957, at Simpson Lane Bridge in Marysville 4.2 miles downstream at same datum. Since Sept. 3, 1963, auxiliary water-stage recorder at Simpson Lane Bridge in Marysville 4.2 miles downstream at same datum.

Average discharge.--22 years (1943-1965), 2,577 cfs (1,866,000 acre-ft per year).

Extremes.--Maximum discharge during year, 180,000 cfs Dec. 22 (gage height, 90.15 ft from floodmarks), from rating curve extended above 91,000 cfs on basis of Corps of Engineers flood routing study; minimum daily, 116 cfs Oct. 20-22, 26, 27.

1943-65: Maximum discharge, that of Dec. 22, 1964.

1940-65: Minimum discharge recorded, 10 cfs July 2, 1959.

Revisions.--The maximum discharge for the water year 1960 has been revised to 91,800 cfs Feb. 8, 1960 (gage height, 84.65 ft) superseding figure published in WSP 1715.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Flow regulated by several reservoirs above station. Many diversions above station for power. Diversions for irrigation of about 13,000 acres between stations at Englebright Dam and near Marysville. Records of chemical analyses, and water temperatures at or near this gaging station for the water year 1965 are published in Part 2 of this report.

Revisions.--Revised figures of discharge, in cubic feet per second, for the high-water period in water year 1960, superseding figures published in WSP 1715, are given herewith:

Feb. 8, 1960..... 65,200

Month	Cfs-days	Maximum	Minimum	Mean	Acre-feet
February 1960	178,124	65,200	654	6,142	353,300
Water year 1960	-	65,200	15	1,666	1,210,000
Calendar year 1960	-	65,200	17	1,721	1,249,000

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	216	450	522	9,170	5,890	3,350	2,990	8,060	5,050	1,260	289	317
2	203	593	534	7,070	5,740	3,070	2,890	7,380	4,490	1,150	282	303
3	200	504	534	9,240	5,480	2,780	2,770	7,020	4,400	960	275	310
4	203	504	534	19,500	5,270	2,570	2,610	5,980	4,550	900	269	324
5	196	486	534	25,200	5,870	2,470	2,510	5,630	4,420	880	257	345
6	188	474	528	43,900	6,920	2,450	2,640	5,350	4,650	830	263	353
7	180	462	523	33,100	6,290	2,380	2,750	4,570	4,500	740	263	361
8	174	456	522	18,100	5,700	2,270	2,860	3,980	4,000	699	263	377
9	162	598	528	12,700	5,170	2,220	4,790	3,970	3,680	657	269	401
10	162	724	528	10,200	4,930	2,190	5,910	3,900	3,570	615	263	345
11	159	612	534	8,630	4,470	2,190	4,710	4,140	3,700	555	289	417
12	159	661	546	8,420	4,350	2,340	4,080	4,930	4,050	525	339	409
13	144	564	552	7,880	4,050	2,560	3,900	5,130	3,990	497	324	409
14	129	534	633	7,400	3,890	2,310	3,720	5,540	3,370	452	317	409
15	132	516	1,120	7,620	3,690	2,200	3,560	5,920	2,670	417	310	425
16	126	510	1,060	7,590	3,510	2,170	13,100	6,220	2,270	393	303	425
17	126	510	949	7,380	3,290	2,100	12,300	6,750	2,080	369	296	417
18	120	504	876	7,350	3,300	2,090	8,290	7,190	2,560	361	303	425
19	113	498	1,010	7,500	3,200	1,980	9,250	7,070	2,740	345	317	434
20	116	498	3,450	7,500	3,200	1,900	10,100	6,830	2,430	324	317	425
21	116	492	29,100	7,230	3,200	1,750	12,900	6,530	2,400	324	317	425
22	116	498	107,000	6,710	3,300	1,780	12,700	5,740	2,580	310	317	512
23	118	493	130,000	6,530	3,300	1,900	10,300	4,870	2,370	310	317	699
24	118	480	90,000	14,100	3,200	2,010	8,890	4,210	1,940	303	317	710
25	118	498	50,000	10,600	3,000	2,130	8,420	4,230	1,960	296	310	710
26	116	510	42,000	8,580	3,000	2,300	3,030	3,930	1,860	282	310	699
27	116	510	45,000	7,550	3,260	4,010	8,010	4,070	1,610	282	317	584
28	129	516	24,000	6,780	3,760	4,210	8,030	4,350	1,500	275	317	210
29	180	528	18,000	6,270	-----	3,330	8,110	4,990	1,420	275	317	152
30	308	522	15,000	5,980	-----	2,990	8,270	5,250	1,350	263	324	120
31	430	-----	12,100	5,940	-----	2,860	-----	5,390	-----	282	331	-----
Total	5,088	15,715	578,221	351,720	120,130	76,960	199,290	168,320	92,160	16,131	9,301	12,452
Mean	164	524	18,650	11,350	4,290	2,479	6,643	5,446	3,072	520	300	415
Ac-ft	10,090	31,170	1,147,000	697,600	238,300	152,400	395,300	334,800	182,800	32,000	18,450	24,700

Calendar year 1964 Max 130,000 Min 44 Mean 2,581 Ac-ft 1,874,000

Water year 1964-65 Max 130,000 Min 116 Mean 4,509 Ac-ft 3,265,000

Note.--No gage-height record Dec. 23-30, Feb. 18-26, May 13, June 3-9, 11, July 2-7.

11-4217. Boardman Canal near Emigrant Gap, Calif.

Location.--Lat 39°17'44", long 120°42'18", in SW 1/4, sec.35, T.17 N., R.11 E., on right bank 0.5 downstream from Boardman diversion dam and 1.8 miles west of Emigrant Gap.

Records available.--October 1964 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 5,020 ft (from topographic map).

Extremes.--Maximum daily discharge during year, 43 cfs Dec. 21; no flow, Dec. 24 to Jan. 26.

Remarks.--Records good except those for periods Feb. 4-17, Mar. 17 to Apr. 21, which are fair. Water is diverted from Bear River to be used for power development and irrigation in the Bear River basin.

Cooperation.--Water-stage recorder graph and seven discharge measurements furnished by Pacific Gas and Electric Company, in connection with a Federal Power Commission project.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	34	18	28	0	17	16	8.5	24	32	32	41	40
2	34	18	31	0	18	16	8.5	24	32	33	40	40
3	34	18	29	0	17	14	8.5	24	33	33	40	40
4	33	18	24	0	18	15	8.5	24	34	33	41	40
5	33	18	22	0	18	15	8.5	24	34	33	40	40
6	33	18	21	0	18	15	8.5	22	34	33	40	40
7	30	18	20	0	18	15	8.8	25	34	34	40	40
8	29	18	20	0	18	15	9.0	24	34	33	36	40
9	28	20	21	0	18	15	9.0	24	34	33	34	40
10	28	20	26	0	24	18	9.0	24	34	32	34	39
11	27	20	33	0	18	18	9.0	28	34	33	34	35
12	27	20	29	0	11	18	9.0	32	34	33	34	28
13	27	20	27	0	11	18	9.0	32	34	33	34	34
14	27	20	31	0	11	18	9.0	32	34	34	34	40
15	27	20	28	0	11	18	9.0	32	34	35	34	40
16	27	20	23	0	11	18	9.0	32	33	35	34	40
17	27	20	22	0	13	21	9.0	32	32	35	34	39
18	27	19	22	0	14	27	9.0	32	32	36	34	39
19	27	19	29	0	14	27	9.0	32	31	36	35	40
20	24	22	39	0	14	27	9.0	32	30	37	35	40
21	22	36	43	0	14	27	18	32	30	36	35	40
22	21	37	31	0	14	27	22	32	31	35	36	40
23	5.7	37	13	0	14	27	25	31	31	35	36	39
24	7.1	37	0	0	15	20	25	31	31	35	36	39
25	10	29	0	0	15	14	25	31	31	35	35	39
26	15	28	0	0	15	14	25	32	32	35	37	39
27	19	27	0	8.1	16	14	25	32	19	35	41	39
28	18	27	0	14	16	14	24	32	32	36	41	39
29	18	27	0	14	-----	14	24	32	33	39	41	39
30	18	27	0	15	-----	-----	8.5	32	33	41	41	39
31	18	-----	0	16	-----	-----	8.8	32	-----	41	40	-----
Total	754.8	696	611	67.1	431	552.3	413.8	305	966	1,079	1,147	1,166
Mean	24.3	23.2	19.7	2.16	15.4	17.8	13.8	29.2	32.2	34.8	37.0	38.9
Ac-ft	1,500	1,380	1,210	133	855	1,100	821	1,800	1,920	2,140	2,280	2,310

Calendar year 1964 Max - Min - Mean - Ac-ft -  
 Water year 1964-65 Max 43 Min 0 Mean 24.1 Ac-ft 17,450

Note.--No gage-height record Mar. 17 to Apr. 21.

## SACRAMENTO RIVER BASIN

11-4218. Rollins Reservoir near Colfax, Calif.

Location.--Lat 39°08'05", long 120°56'54", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.22, T.15 N., R.9 E., on left bank just upstream from Rollins Dam on Bear River, 2.3 miles north of Colfax.

Drainage area.--104 sq mi.

Records available.--December 1964 to September 1965.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Nevada Irrigation District).

Extremes.--Maximum contents during period, 67,800 acre-ft Jan. 6 (elevation, 2,173.2 ft); minimum since initial filling of reservoir, 28,100 acre-ft Mar. 7 (elevation, 2,110.0 ft).

Remarks.--Records good. Reservoir is formed by earthfill dam. Storage began Dec. 15, 1964. Usable capacity, 65,720 acre-ft between elevations 1,970.0 ft (invert of outlet tunnel) and 2,171.0 ft (spillway crest) above mean sea level. Dead storage, 270 acre-ft. Several diversions into and out of basin upstream for power development and irrigation. Stored water is released into Bear River, part of which is diverted to Pacific Gas and Electric's Bear River Canal for power development. Water is later used for irrigation. Records represent total contents.

Cooperation.--Eighty-one staff gage readings furnished by Nevada Irrigation District.

Contents, in acre-feet, at 2400 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			-	59,800	58,800	33,200	60,100	66,600	66,700	65,700	65,700	52,200
2			-	58,800	58,000	32,400	60,700	66,600	66,700	65,900	65,300	51,800
3			-	60,100	57,100	31,600	61,200	66,600	66,700	66,100	64,800	51,400
4			-	63,600	56,300	30,700	61,800	66,600	66,700	66,200	64,300	51,000
5			-	66,900	55,800	29,900	62,300	66,600	66,700	66,300	63,900	50,600
6			-	67,600	55,200	29,000	63,100	66,600	66,700	66,400	63,500	50,200
7			-	66,200	54,600	28,100	63,600	66,600	66,800	66,400	63,000	50,000
8			-	64,900	53,800	28,500	64,400	66,700	66,700	66,500	62,500	49,600
9			-	63,900	52,900	30,000	65,900	66,700	66,400	66,500	62,100	49,200
10			-	63,100	52,100	31,400	66,700	66,700	66,300	66,500	61,600	48,800
11			-	62,800	51,100	32,900	66,700	66,600	66,300	66,500	61,200	48,400
12			-	62,600	50,400	34,300	66,700	66,600	66,200	66,500	60,800	48,000
13			-	62,200	48,700	35,700	66,700	66,600	66,200	66,500	60,500	47,600
14			-	62,100	46,800	37,100	66,700	66,700	66,200	66,500	60,100	47,200
15			4,080	62,000	45,900	38,400	66,700	66,700	66,300	66,500	59,300	46,800
16			4,860	61,900	45,000	39,800	67,400	66,600	66,300	66,600	59,400	46,300
17			5,600	61,600	44,100	41,000	67,000	66,600	66,300	66,600	58,900	45,900
18			6,260	61,400	43,100	42,400	67,000	66,500	66,400	66,600	58,400	45,400
19			6,550	61,200	42,200	43,700	67,000	66,500	66,400	66,500	58,000	45,000
20			8,730	61,100	41,300	44,700	66,900	66,700	66,500	66,500	57,500	44,600
21			15,500	60,700	40,300	45,800	66,900	66,500	66,500	66,600	56,900	44,100
22			38,300	60,100	39,400	46,600	66,800	66,500	66,500	66,600	56,500	43,600
23			54,400	60,600	38,500	47,400	66,700	66,400	66,500	66,600	56,000	43,300
24			62,900	61,700	37,600	48,700	66,700	66,400	66,500	66,600	55,600	42,800
25			64,400	61,900	36,700	50,000	66,700	66,500	66,400	66,600	55,200	42,400
26			67,200	61,800	35,600	51,500	66,700	66,500	66,400	66,500	54,800	42,000
27			66,200	61,500	35,000	53,900	66,700	66,500	65,900	66,500	54,400	41,500
28			64,500	61,100	34,100	55,500	66,700	66,500	66,000	66,500	53,900	41,100
29			63,000	60,600	-----	57,000	66,700	66,500	66,100	66,600	53,500	40,700
30			61,900	60,100	-----	58,400	66,600	66,600	66,200	66,600	53,100	40,300
31			60,700	59,400	-----	59,400	-----	66,600	-----	66,200	52,700	-----
(†)			2,164.4	2,162.8	2,122.8	2,162.8	2,171.7	2,171.7	2,171.2	2,171.3	2,153.6	2,134.2
(‡)			-	- 1,300	- 25,300	+25,300	+ 7,200	0	- 400	0	-13,500	-12,400

Calendar year 1964..... † -

Water year 1964-65..... ‡ -

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

Note.--Contents at 2400 hrs Dec. 15-25 computed from graph based on staff gage readings.

11-4220. Bear River Canal intake near Colfax, Calif.

Location.--Lat 39°07'58", long 120°57'12", in SW 1/4 Sec. 22, T.15 N., R.9 E., on right bank 600 ft downstream from canal inlet, 0.25 mile below Rollins Dam, and 2.2 miles north of Colfax.

Records available.--January 1912 to September 1953, October 1964 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 1,980 ft (from topographic map). Prior to Mar. 25, 1946, at site 1.5 miles downstream at different datum.

Average discharge.--42 years (1912-53, 1964-65), 257 cfs (186,100 acre-ft per year).

Extremes.--1912-53, 1964-65: Maximum daily discharge, 498 cfs May 11, 1945; no flow at times most years.

Remarks.--Records good. Canal diverts from left bank of Bear River. Water is first used to develop power at Halsey and Wise Powerhouse, part of it is then distributed for irrigation and part is eventually spilled into North Fork American River.

Cooperation.--Water-stage recorder graph and ten discharge measurements furnished by Pacific Gas and Electric Co. in connection with a Federal Power Commission project.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	292	249	468	365	451	452	453	455	462	480	273	236
2	285	254	459	366	451	452	457	455	462	480	273	236
3	278	208	459	368	452	451	457	454	462	481	267	236
4	271	194	459	368	453	451	457	456	462	481	249	236
5	263	180	453	352	452	451	457	456	452	481	249	235
6	265	164	457	305	452	452	457	457	462	470	249	234
7	265	164	457	331	452	452	457	457	147	481	250	234
8	267	219	456	370	452	227	457	457	145	481	249	235
9	267	402	455	368	452	0	457	457	394	481	255	235
10	283	427	457	208	452	0	457	457	482	480	261	234
11	301	362	459	425	451	0	457	457	485	480	260	235
12	296	433	459	453	452	0	457	457	486	479	245	236
13	262	380	173	452	452	0	457	457	486	479	230	223
14	244	264	0	452	452	0	457	457	486	480	222	213
15	220	229	0	452	452	0	457	457	486	480	222	213
16	211	200	112	468	452	0	457	457	486	481	242	224
17	211	200	89	475	452	0	457	457	486	481	256	223
18	207	264	88	475	452	0	457	457	486	481	256	227
19	191	462	455	445	452	0	456	462	486	481	256	227
20	170	476	383	441	451	74	456	330	486	481	255	228
21	195	474	289	453	451	118	455	462	486	481	253	228
22	174	474	213	452	450	243	455	462	486	481	253	227
23	156	472	191	434	450	292	457	463	486	481	244	218
24	142	378	157	432	450	79	456	463	486	480	240	210
25	123	266	109	452	452	82	456	463	486	480	246	208
26	128	470	264	452	452	86	456	463	487	479	246	208
27	156	476	365	452	453	119	457	462	487	479	245	208
28	172	477	365	452	452	117	457	462	487	479	244	218
29	204	478	365	451	-----	117	457	462	484	480	244	223
30	189	478	365	451	-----	119	457	462	480	479	244	222
31	180	-----	283	452	-----	293	-----	462	-----	332	237	-----
Total	6,868	10,174	9,769	12,872	12,647	5,127	13,697	14,095	13,654	14,730	7,715	6,775
Mean	222	339	315	415	452	165	457	455	455	475	249	226
Ac-ft	13,620	20,180	19,380	25,530	25,080	10,170	27,170	27,960	27,080	29,220	15,300	13,440

Calendar year 1964 Max - Min - Mean - Ac-ft --  
 Water year 1964-65 Max 487 Min 0 Mean 351 Ac-ft 254,100

11-4225. Bear River below Rollins Dam, near Colfax, Calif.

Location.--Lat 39°07'53", long 120°57'29", in SE 1/4, sec. 22, T.15 N., R.9 E., on right bank 65 ft downstream from highway bridge, 0.5 mile downstream from Rollins Dam, and 2.2 miles north of Colfax.

Drainage area.--105 sq mi.

Records available.--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 September 1965. Prior to 1964, published as Bear River near Colfax. Monthly discharge only for some periods, published in WSP 1315-A. 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 mean sea level, datum of 1929. Prior to August 8, 1915, staff gages at several sites above diversion dam 0.3 mile upstream, at different datums. August 8, 1915, to June 30, 1917, staff gage 0.7 mile downstream at different datum. Nov. 1, 1949 to September 30, 1953 at site 0.2 mile downstream at different datum.

Average discharge.--6 years (1912-13, 1915-16, 1950-53, 1964-65), 360 cfs (260,600 acre-ft per year), unadjusted.

Extremes.--1964: Maximum discharge during period August to September, 129 cfs Sept. 1 (gage height, 1.55 ft); minimum daily, 31 cfs Sept. 21.

1964-65: Maximum discharge during water year, 6,620 cfs Jan. 6 (gage height, 8.45 ft); minimum daily, 0.5 cfs Nov. 17.

1912-13, 1915-17, 1949-53 (prior to regulation): Maximum discharge, 9,620 cfs Nov. 20, 1950 (gage-height, 21.40 ft, site and datum then in use), from rating curve extended above 3,600 cfs on basis of slope-area measurement of maximum flow; no flow at times in 1912, 1952.

Remarks.--Records good. Flow completely regulated by Rollins Reservoir (see p. 860) beginning Dec. 15, 1964. Bear River Canal (see preceding page) diverts above station.

Discharge, in cubic feet per second, 1964

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	-	59	7	-	39	13	-	38	19	53	37	25	54	44
2	-	42	8	-	39	14	-	38	20	54	35	26	54	42
3	-	46	9	-	39	15	-	38	21	54	31	27	54	46
4	-	46	10	-	38	16	-	37	22	53	34	28	54	47
5	-	44	11	-	38	17	51	38	23	53	46	29	53	46
6	-	41	12	-	38	18	53	39	24	51	45	30	68	46
												31	100	
Total.....													-	1236
Mean.....													-	41.2
Runoff in acre-feet.....													-	2450

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	46	37	176	1,390	894	762	26	391	183	84	64	53
2	46	26	260	1,380	894	756	23	367	203	77	60	53
3	46	1.0	260	1,400	894	745	23	352	236	70	60	53
4	46	.9	165	1,620	882	740	24	341	213	67	60	53
5	45	.8	117	2,620	882	735	25	337	202	86	60	53
6	44	.9	82	5,340	882	730	26	333	193	99	53	53
7	45	.9	92	3,920	877	720	26	315	441	123	53	53
8	45	1.0	69	2,530	877	522	31	305	542	124	53	57
9	45	3.6	64	1,990	872	1.3	43	303	387	136	53	57
10	30	23	76	1,740	872	1.1	324	301	250	141	53	57
11	15	31	341	1,240	866	1.1	605	287	182	123	53	57
12	12	21.6	234	1,070	860	1.9	625	273	163	123	53	57
13	25	4.2	67	982	855	1.4	635	273	165	136	53	57
14	30	1.0	.7	934	850	1.5	605	284	157	136	53	56
15	37	.7	.7	916	844	1.9	561	301	160	134	53	56
16	42	.6	7.9	883	833	1.4	2,100	266	160	136	53	56
17	44	.5	17	866	833	1	1,660	250	165	136	53	56
18	42	4.0	19	855	823	.9	1,000	183	176	134	53	57
19	42	2.5	54	883	822	.8	940	163	165	123	53	57
20	26	27	703	883	816	9.9	872	208	160	124	53	57
21	17	23	1,020	872	811	4.8	866	227	162	124	53	57
22	17	27	1,330	872	800	63	784	176	162	136	53	57
23	19	22	1,490	883	794	9.5	685	160	165	136	53	57
24	20	12	1,720	888	789	10	615	144	160	123	61	57
25	20	.7	2,360	877	784	9.1	571	136	157	133	61	56
26	20	77	2,910	877	773	9.3	515	134	160	151	53	56
27	20	85	4,430	877	772	15	492	126	134	151	53	56
28	20	74	2,910	882	767	12	479	112	101	157	53	56
29	21	124	2,150	882	-----	12	466	134	84	154	53	56
30	20	87	1,600	899	-----	12	415	146	80	157	53	56
31	19	-----	1,490	899	-----	23	-----	185	-----	126	53	-----
Total	966	974.2	26,220.3	43,670	23,533	5,913.9	16,067	7,523	5,883	3,890	1,813	1,707
Mean	31.2	32.5	846	1,410	840	191	536	243	196	125	53.6	56.9
Ac-ft	1,920	1,930	52,010	86,620	46,680	11,730	31,870	14,930	11,680	7,720	3,610	3,390

Calendar year 1964 Max - Min - Mean - Ac-ft -  
 Water year 1964-65 Max 5,840 Min 0.5 Mean 379 Ac-ft 274,100



11-4230. Bear River near Auburn, Calif.

Location (revised).--Lat 39°01'00", long 121°06'21", in SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.32, T.14 N., R.8 E., on right bank 2,000 ft downstream from bridge on State Highway 49, 2.6 miles upstream from Wolf Creek, and 8.0 miles north of Auburn.

Drainage area.--138 sq mi (revised).

Records available.--December 1940 to September 1965 in reports of Geological Survey. In Reports of California Department of Water Resources 1922, 1925-28, 1929-33 (gage heights for high-water periods only).

Gage.--Water-stage recorder. Altitude of gage is 1,230 ft (from topographic map). Prior to June 28, 1961 at site 2,200 ft upstream at different datums. June 28, 1961, to Nov. 21, 1961, staff gage at site 1,900 ft upstream at different datum. Nov. 22, 1961, to Mar. 31, 1964, at site 2,200 ft upstream at different datum.

Average discharge.--24 years, 278 cfs (201,300 acre-ft per year).

Extremes.--Maximum discharge during year, 7,900 cfs Jan. 6 (gage height, 14.03 ft), minimum daily, 3.3 cfs Nov. 6. 1940-65: Maximum discharge, 19,700 cfs Dec. 22, 1955 (gage height, 16.56 ft, site and datum then in use), from rating curve extended above 7,400 cfs on basis of computation of maximum flow over dam; minimum, 0.1 cfs Nov. 9, 10, 1953.

Remarks.--Records good. Natural flow of stream affected by inflow from Yuba River and American River basins. Flow regulated by Lake Combie (usable capacity, 7,840 acre-ft), and Rollins Reservoir (see p. 860). Several diversions upstream for power development and irrigation. Records of suspended sediment loads for the water year 1965 are published in Part 2 of this report.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

1.1	2.3	3.5	202
1.2	3.5	4.0	342
1.3	5.3	5.0	728
1.5	9.8	6.0	1,240
1.7	15	8.0	2,640
2.0	27	11.0	5,170
2.5	61	14.0	7,870
3.0	112		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.3	11	20	1,440	910	765	14	37	94	28	51	12
2	5.5	8.9	23	1,410	895	760	13	81	96	23	28	12
3	5.7	7.1	142	1,830	890	760	14	339	128	28	19	12
4	5.7	4.7	221	2,280	890	760	14	326	131	26	16	12
5	5.7	3.6	162	3,140	930	751	15	304	119	24	15	12
6	5.7	3.3	104	7,250	895	756	15	299	101	22	14	12
7	5.7	6.2	91	4,760	890	751	15	277	201	21	14	12
8	5.7	7.3	88	2,670	880	805	22	263	514	21	14	12
9	5.5	24	72	2,060	870	114	319	263	401	19	13	12
10	5.5	21	66	1,810	860	30	965	249	216	18	13	12
11	5.3	20	255	1,350	851	20	985	229	128	21	14	11
12	4.7	26	376	1,160	846	20	836	212	94	26	14	11
13	4.5	17	203	1,040	841	14	812	189	81	32	13	11
14	4.5	16	53	965	836	15	746	195	73	44	12	10
15	4.7	15	23	930	822	14	671	219	69	51	12	9.8
16	5.3	15	22	910	817	11	2,260	195	74	52	12	10
17	5.3	15	21	370	817	9.8	1,890	164	76	53	12	9.6
18	4.9	15	19	860	812	9.3	1,250	126	86	55	16	10
19	5.3	15	47	915	808	9.3	1,100	86	92	53	13	10
20	4.5	15	1,080	930	798	9.3	1,010	79	85	49	13	10
21	4.3	15	2,240	880	788	9.3	1,080	164	78	47	14	10
22	4.3	15	4,210	870	784	9.1	980	110	74	48	14	11
23	4.3	16	3,240	955	784	14	788	88	75	51	15	11
24	4.3	16	2,370	1,130	784	14	706	65	74	55	15	11
25	4.3	16	2,530	995	793	13	644	56	70	53	12	10
26	3.9	16	3,130	955	793	6.4	590	54	68	66	12	10
27	3.6	16	4,820	925	817	24	711	44	73	70	12	10
28	3.9	17	2,990	920	769	16	715	37	51	69	12	10
29	7.9	17	2,280	910	-----	18	594	32	47	66	12	8.9
30	4.9	18	1,780	920	-----	16	352	39	34	66	12	8.6
31	3.5	-----	1,620	915	-----	16	-----	61	-----	69	12	-----
Total	154.2	428.1	34,298	48,955	23,475	65,395	20,126	4,881	3,503	1,330	470	322.9
Mean	4.97	14.3	1,106	1,579	838	211	671	157	117	42.9	15.2	10.8
Ac-ft	306	849	68,030	97,100	46,560	12,970	39,920	9,680	6,950	2,640	932	640
Calendar year 1964	Max	4,820	Min	3.0	Mean	171	Ac-ft	124,200				
Water year 1964-65	Max	7,250	Min	3.3	Mean	396	Ac-ft	286,600				

11-4240. Bear River near Wheatland, Calif.

Location.--Lat 39°00'00", long 121°24'20", in SE 1/4 sec. 3, T.13 N., R.5 E., on right bank 100 ft (corrected) downstream from bridge on U. S. Highway 99E, 1 mile southeast of Wheatland, and 6.5 miles downstream from Rock Creek.

Drainage area.--292 sq mi.

Records available.--October 1928 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 76.92 ft above mean sea level. Prior to July 17, 1929, staff gage at about same site and at datum 4.58 ft higher. July 17, 1929, to Oct. 22, 1943, water-stage recorder at several sites within 300 ft of present site at datum 4.58 ft higher. Oct. 23, 1943, to June 23, 1964, at site 100 ft upstream at datum 2.00 ft higher.

Average discharge.--36 years (1929-65), 417 cfs (301,900 acre-ft per year).

Extremes.--Maximum discharge during year, 12,700 cfs Jan. 6 (gage height, 10.53 ft); minimum daily, 3.0 cfs Dec. 13, 15-17. 1928-65: Maximum discharge, 33,000 cfs Dec. 22, 1955 (gage height, 19.30 ft, site and datum then in use); maximum gage height, 20.83 ft Nov. 21, 1950, site and datum then in use; no flow at times.

Remarks.--Records good except those for period of no gage-height record, which are poor. Flow regulated by New Camp Far West Reservoir (usable capacity, 103,000 acre-ft), completed Sept. 30, 1963. Many diversions for irrigation and power. See Remarks for station near Auburn. Records of chemical analyses for the water year 1965 are published in Part 2 of this report.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.4	21	5.1	1,940	1,060	826	290	248	21	20	16	17
2	9.4	22	4.6	1,620	1,040	792	280	75	22	16	16	18
3	9.7	21	4.6	2,240	1,020	778	304	114	25	17	16	18
4	10	20	4.7	5,980	1,010	775	312	128	24	16	16	18
5	10	22	4.6	6,310	1,040	770	300	90	22	16	14	22
6	10	21	4.6	11,700	1,080	770	292	74	22	15	14	23
7	11	21	4.6	9,660	1,020	770	247	64	23	14	14	22
8	11	21	4.5	5,550	988	770	105	125	25	14	14	21
9	11	25	4.3	3,870	967	500	115	74	26	17	14	21
10	14	45	3.5	3,060	946	150	610	53	23	18	15	21
11	14	39	3.1	2,530	939	35	1,680	62	22	20	16	18
12	15	24	3.1	2,050	925	22	1,420	52	25	17	16	18
13	15	18	3.0	1,740	918	19	1,190	46	29	16	26	16
14	15	17	3.1	1,510	925	17	1,110	64	32	15	23	14
15	14	16	3.0	1,360	897	15	974	82	23	14	22	14
16	14	8.2	3.0	1,270	890	14	2,670	76	27	14	22	14
17	14	5.8	3.0	1,210	883	12	3,430	30	28	14	20	15
18	14	6.1	3.2	1,170	876	11	2,250	17	25	14	20	14
19	14	6.0	4.4	1,170	869	10	1,760	24	25	14	20	16
20	15	5.7	4.7	1,260	869	10	1,490	26	24	16	15	14
21	15	5.4	15	1,200	855	10	1,420	57	25	15	15	12
22	15	5.4	55	1,170	841	10	1,350	43	25	14	17	14
23	15	5.1	174	1,190	827	10	1,160	32	25	15	15	25
24	14	7.0	2,420	1,980	827	44	1,010	30	24	22	14	14
25	13	7.5	3,510	1,690	813	250	883	33	23	13	14	14
26	13	5.4	3,780	1,410	806	250	792	30	23	14	15	14
27	14	4.6	7,470	1,260	855	250	715	29	28	13	17	13
28	18	4.6	5,420	1,180	869	250	785	28	29	14	17	14
29	19	5.1	3,850	1,140	-----	250	680	17	24	14	17	14
30	19	5.1	2,980	1,100	-----	250	548	28	22	18	15	15
31	19	-----	2,430	1,080	-----	250	-----	26	-----	16	17	-----
Total	423.5	440.0	32,182.7	81,600	25,855	8,890	30,172	1,877	746	485	542	503
Mean	13.7	14.7	1,038	2,632	923	287	1,006	60.5	24.9	15.6	17.5	16.8
Ac-ft	840	873	63,830	161,900	51,280	17,630	59,850	3,730	1,480	963	1,080	998

Calendar year 1964 Max 7,470 Min 3.0 Mean 163 Ac-ft 118,000  
 Water year 1964-65 Max 11,700 Min 3.0 Mean 503 Ac-ft 364,500

Note.--No gage-height record Mar. 3 to Apr. 2.

11-4250. Feather River at Nicolaus, Calif.

Location.--Lat 38°54'00", long 121°35'00", on left bank at Nicolaus, Sutter County, at highway bridge 2.9 miles downstream from Bear River.

Drainage area.--5,923 sq mi.

Records available.--June 1921 to December 1942 (low-water periods only), April 1943 to September 1965.

Gage.--Water-stage recorder (digital). Gage is set to datum of Corps of Engineers which is 3.30 ft below mean sea level. Prior to November 1931, on middle fender pier of bridge 0.3 mile upstream at same datum.

Average discharge.--22 years (1943-65), 7,968 cfs (5,769,000 acre-ft per year).

Extremes.--Maximum discharge during year, 281,000 cfs Dec. 23 (gage height, 51.55 ft); minimum daily, 1,260 cfs July 30, 31.

1943-65: Maximum discharge, 357,000 cfs Dec. 23, 1955; maximum gage height, 51.60 ft Dec. 23, 1955.

1921-65: Minimum discharge, no flow Aug. 2-18, 1924, July 11-22, 24, 26, Aug. 1, 1931.

Remarks.--Records good except those for periods of backwater, which are fair. Flow partly regulated by reservoirs, powerplants, and by temporary flood detention in the partly constructed Oroville Reservoir. Diversions for irrigation of about 87,000 acres between stations at Oroville and at Nicolaus. Records of chemical analyses and water temperatures for the water year 1965 are published in Part 2 of this report.

Cooperation.--Two discharge measurements furnished by California Department of Water Resources.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2560	2320	4440	32300	19000	13100	10900	25000	9680	3760	1310	1640
2	2570	2840	4700	26300	19000	11900	11200	22500	9320	3520	1350	1670
3	2580	3630	5910	25300	18500	11100	11100	20100	9290	3410	1280	1680
4	2610	3440	5490	41000	17900	10400	10900	17800	9130	3440	1310	1740
5	2620	3020	4830	54700	17400	9640	10800	15900	9390	3240	1280	1810
6	2600	2630	4570	87800	20000	9460	10600	14900	9430	2910	1290	1820
7	2600	2510	4310	106000	20700	9460	10800	13300	9670	2760	1270	1920
8	2600	2200	4250	79500	18800	9120	10600	11700	9030	2690	1470	2010
9	2600	2100	4190	56900	17200	9120	12000	10600	8500	2570	1500	2230
10	2600	3450	4130	42300	15900	8640	17700	10200	7940	2360	1430	2290
11	2610	4650	4260	34500	14300	8480	16800	10300	7940	2270	1520	2260
12	2600	3030	6480	31400	13100	8480	14100	10900	8180	2200	1900	2270
13	2600	3710	5770	29000	12900	9280	13400	11500	7470	2070	2380	2330
14	2570	3360	5090	26000	12700	9280	13900	12200	6600	1970	2520	2290
15	2580	3770	5090	24900	13300	8960	14700	12500	6190	2060	2290	2110
16	2630	4090	5090	23500	13700	8640	19400	12800	5980	1990	2000	2160
17	2610	3950	4830	21900	13500	8480	38500	13100	5460	1790	1900	2140
18	2610	3850	4640	20900	13500	8480	34700	14100	5720	1700	1860	2320
19	2600	3790	4670	20500	13100	3480	28800	14100	6250	1670	1860	2720
20	2570	3640	6320	20000	12500	8000	32600	13800	5460	1600	1910	2870
21	2550	3540	16400	19500	12700	8000	34600	13700	4800	1790	1880	2850
22	2610	3590	96600	19000	12700	8000	39300	13000	5190	1740	1850	2700
23	2570	3580	261000	18300	12500	8320	36400	11600	5370	1610	1790	2870
24	2580	3600	233000	28300	12500	8960	31100	10300	5290	1600	1760	2940
25	2600	3630	194000	40400	12100	9460	28000	9910	5050	1610	1730	2920
26	2600	3760	137000	33800	11300	9460	26900	9380	4950	1460	1710	3000
27	2610	3890	127000	27500	11300	10400	27400	9310	4210	1270	1710	2860
28	2600	4070	104000	24000	13100	11500	27000	9550	3770	1310	1710	2560
29	2720	4310	70000	21200	-----	12300	25900	10100	3600	1290	1680	2520
30	2890	4570	53700	20000	-----	11300	25400	10300	3830	1260	1660	2650
31	3070	-----	41900	19000	-----	10900	-----	9900	-----	1260	1660	-----
Total	81320	105020	1433660	1076200	415200	297100	646000	404350	202690	66180	52710	70150
Mean	2623	3501	46250	34720	14830	9584	21500	13040	6756	2135	1700	2338
Ac-ft	161300	208300	2844000	2135000	823500	589300	1281000	802000	402000	131300	104500	139100

Calendar year 1964 Max 261,000 Min 400 Mean 7,153 Ac-ft 5,193,000

Water year 1964-65 Max 261,000 Min 1,260 Mean 13,290 Ac-ft 9,621,000

Note.--Backwater from Sacramento River Nov. 11-15, Dec. 30 to Jan. 4, Jan. 9 to Feb. 16, Apr. 11-14, 19, 21-27.

## SACRAMENTO RIVER BASIN

11-4255. Sacramento River at Verona, Calif.

Location.--Lat 38°46'50", long 121°36'10", in SE $\frac{1}{4}$  sec.23, T.11 N., R.3 E., on left bank 0.8 mile southeast of Verona, 1 mile downstream from Feather River, 6.2 miles east of Knights Landing, and at mile 19.6 upstream from Sacramento.

Records available.--May 1926 to September 1929 (low-water periods only), October 1929 to September 1965.

Gage.--Water-stage recorder (digital). Datum of gage is 0.06 ft below datum of Corps of Engineers which is 2.94 ft below mean sea level. Auxiliary water-stage recorder 16 miles downstream from base gage since Oct. 1, 1944, at datum of Corps of Engineers. Prior to Oct. 1, 1944, auxiliary water-stage recorder at site 19.2 miles downstream at datum 0.12 ft above mean sea level.

Average discharge.--36 years (1929-65), 17,840 cfs (12,916,000 acre-ft per year).

Extremes.--Maximum discharge during year, 74,200 cfs Dec. 25 (gage height, 39.65 ft); minimum daily, 7,550 cfs Oct. 17, 21, 22. 1926-65: Maximum discharge, 79,200 cfs Mar. 1, 1940 (gage height, 41.20 ft); minimum daily, 304 cfs July 23, 24, 1931; maximum reverse flow, 16,800 cfs Dec. 4, 1950, backwater from American River. 1934-65: Maximum combined discharge of Sacramento River at Verona and Fremont weir, about 315,000 cfs Mar. 1, 1940.

Remarks.--Records excellent. Flow regulated by Shasta Lake beginning Dec. 30, 1943, and several other reservoirs and powerplants above station, and bypassing for flood control. Many diversions above station for irrigation. When discharge exceeds about 55,000 cfs, flow begins over Fremont weir (just upstream) into Yolo bypass (see p. 929). Elevation of crest of Fremont weir is 33.5 ft (datum of Corps of Engineers).

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10,500	10,300	16,400	62,300	54,200	24,800	19,300	36,500	19,300	10,200	10,200	11,300
2	10,500	10,300	15,000	60,900	53,600	23,700	19,100	34,700	18,800	9,830	10,500	11,300
3	10,300	10,900	16,600	60,000	53,000	22,400	19,100	32,600	18,700	9,850	10,500	11,400
4	9,960	11,300	17,500	61,400	51,900	21,300	20,600	29,600	18,400	10,200	10,300	11,300
5	9,420	10,700	16,400	63,700	50,800	20,200	21,000	25,900	18,300	10,100	10,200	11,500
6	8,880	10,100	14,400	67,000	50,600	19,700	19,700	23,200	18,400	9,820	10,100	11,700
7	8,180	9,420	12,600	69,600	50,800	19,500	19,100	21,000	18,400	9,420	10,100	11,900
8	8,020	9,240	11,800	69,000	50,600	19,100	19,300	19,500	17,800	9,130	10,300	12,500
9	7,860	8,880	11,100	67,300	49,800	18,600	22,100	19,800	17,100	8,930	10,300	13,200
10	7,860	11,300	10,700	65,100	48,200	18,400	31,700	19,600	16,300	8,660	10,200	13,300
11	8,020	22,200	10,500	63,400	46,000	18,000	38,200	19,700	15,900	8,770	10,400	13,300
12	8,020	25,700	12,000	62,000	44,200	17,700	39,300	20,200	16,000	8,990	11,500	13,800
13	7,860	25,000	13,400	60,600	41,600	18,200	37,800	20,900	15,400	9,150	13,000	13,700
14	7,700	23,900	12,800	59,500	39,000	18,600	34,700	21,900	14,000	9,290	13,800	13,700
15	7,700	20,300	12,000	58,100	36,300	18,400	31,700	22,700	13,000	9,350	13,900	13,800
16	7,700	16,800	11,600	57,200	34,900	17,500	31,000	23,400	12,400	9,330	13,300	14,000
17	7,550	14,400	11,100	56,700	33,000	17,100	41,300	23,600	11,800	9,250	12,900	13,900
18	7,700	12,600	10,700	55,800	31,700	16,600	48,200	24,700	11,500	9,410	12,700	13,700
19	7,700	11,600	10,900	55,300	30,300	16,200	48,400	25,200	12,200	9,520	12,500	14,100
20	7,700	10,900	12,000	55,000	29,100	15,800	49,000	25,600	12,500	9,440	12,500	14,100
21	7,550	10,300	21,900	54,700	28,400	15,600	51,700	25,900	12,000	9,260	12,500	14,100
22	7,550	10,100	45,400	53,900	27,500	15,600	54,200	26,100	11,900	9,230	12,600	14,200
23	7,700	9,960	69,500	53,000	26,800	15,400	55,000	25,800	12,200	9,200	12,500	14,200
24	7,700	9,960	73,000	54,200	26,400	16,000	54,200	24,500	11,900	9,320	12,300	14,200
25	7,860	9,960	73,800	57,500	25,900	16,400	51,900	23,300	11,600	9,510	12,200	13,800
26	7,860	10,100	71,300	57,800	24,600	16,600	49,200	22,300	11,500	9,640	12,300	13,500
27	8,020	10,300	70,700	57,200	23,700	17,100	46,000	21,400	11,100	9,560	12,200	13,200
28	8,520	11,300	69,700	56,700	24,100	19,900	42,900	20,600	10,500	9,610	12,200	12,900
29	9,060	11,800	66,800	55,800	-----	21,300	40,000	20,300	10,200	9,660	11,800	12,800
30	9,600	13,000	65,400	55,300	-----	21,000	38,000	20,400	10,300	9,740	11,600	12,800
31	10,300	-----	64,000	54,700	-----	19,900	-----	19,900	-----	9,370	11,300	-----
Total	260,950	392,620	951,000	1,840,700	1,087,500	576,600	1,094,800	740,800	429,400	293,340	362,700	393,200
Mean	8,415	13,090	30,680	59,380	38,840	18,600	36,490	23,900	14,310	9,463	11,700	13,110
Ac-ft	517,400	778,800	1,886,000	3,651,000	2,157,000	1,144,000	2,172,000	1,469,000	851,700	581,800	719,400	779,900

Calendar year 1964 Max 73,800 Min 6,950 Mean 13,700 Ac-ft 9,948,000  
 Water year 1964-65 Max 73,800 Min 7,550 Mean 23,080 Ac-ft 16,710,000

11-4260. Sacramento Weir spill to Yolo Bypass, near Sacramento, Calif.

Location.--Lat 38°36'25", long 121°33'15", on right bank 100 ft upstream and 100 ft downstream from weir, 3.2 miles upstream from American River, 4 miles northwest of Sacramento, and at mile 4.2 upstream from Sacramento.

Records available.--October 1939 to September 1965. Published as Sacramento weir near Sacramento 1939-61. Monthly discharge only for water years 1940-51, published in WSP 1735. 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 recorders and concrete weir crest. Gage is set to datum of Corps of Engineers. October 1939 to September 1942, October 1959 to September 1963, water-stage recorder or staff gage at downstream end of weir. October 1942 to September 1959, water-stage recorder on left bank of Sacramento River opposite center of weir at same datum. Since February 1963, water-stage recorders on right bank 100 ft upstream and 100 ft downstream from weir.

Average discharge.--26 years, 241 cfs (174,500 acre-ft per year).

Extremes.--Maximum discharge during year, 86,600 cfs Dec. 25 (gage height, 32.27 ft); no flow for several months.  
1926-65: Maximum discharge, 118,000 cfs Mar. 26, 1928; maximum gage height, 33.01 ft Dec. 23, 1955; no flow during all or most of each year.

Remarks.--Crest of weir is at elevation 25.0 ft and top of moveable gages at 31.0 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. Since February 1963, stage is obtained by averaging the stage obtained at sites above and below the weir.

Cooperation.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			0	701			0					
2			0	438			0					
3			0	360			0					
4			0	638			0					
5			0	912			0					
6			0	4,490			0					
7			0	6,920			0					
8			0	5,610			0					
9			0	4,800			0					
10			0	1,520			0					
11			0	1,060			0					
12			0	755			0					
13			0	480			0					
14			0	287			0					
15			0	156			0					
16			0	105			0					
17			0	35			0					
18			0	9.0			0					
19			0	0			0					
20			0	0			0					
21			0	0			0					
22			313	0			0					
23			52,600	0			23					
24			84,000	0			8.2					
25			84,200	0			0					
26			56,100	0			0					
27			39,400	0			0					
28			34,700	0			0					
29			17,800	0			0					
30			11,400	0			0					
31			6,200	0								
Total	0	0	386,713	29,276.0	0	0	31.2	0	0	0	0	0
Mean	0	0	12,480	944	0	0	1.04	0	0	0	0	0
Ac-ft	0	0	767,000	58,070	0	0	62	0	0	0	0	0

Calendar year 1964	Max	84,200	Min	0	Mean	1,057	Ac-ft	767,000
Water year 1964-65	Max	84,200	Min	0	Mean	1,140	Ac-ft	825,100

11-4261.5, Onion Creek near Soda Springs, Calif.

Location.--Lat 39°16'00", long 120°21'50", in SE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.11, T.16 N., R.14 E., on right bank 0.3 mile upstream from unnamed tributary, 1 mile upstream from mouth, and 4.0 miles south of Soda Springs.

Drainage area.--3.58 sq mi.

Records available.--August 1959 to September 1965.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 5,900 ft (from topographic map).

Average discharge.--6 years 8.65 cfs (6,260 acre-ft per year).

Extremes.--Maximum discharge during year, 1,750 cfs Dec. 23 (gage height, 4.98 ft, in gage well 6.82 ft from floodmarks), from rating table extended above 40 cfs on basis of slope-area measurement of maximum flow; minimum daily, 0.2 cfs for many days in October.  
1959-65: Maximum discharge, that of Dec. 23, 1964; minimum daily, 0.1 cfs for several days in 1959, 1961.

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

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.2	0.5	5.8	13	11	8.8	11	73	29	4.2	0.9	0.6
2	.2	.7	3.6	12	10	8.8	10	53	26	4.0	1.0	.6
3	.2	1.1	2.1	11	10	8.8	10	42	29	4.0	.9	.6
4	.2	1.1	1.7	10	11	8.8	10	40	29	3.4	.9	.6
5	.2	.9	1.6	10	12	8.5	10	36	29	3.3	.9	.5
6	.2	.7	1.6	9.8	11	8.2	10	30	23	3.2	.9	2.1
7	.2	.6	1.3	9.4	10	8.2	9.6	25	21	3.0	.8	1.4
8	.2	.7	2.1	9.0	10	8.5	9.2	25	19	2.8	.8	.8
9	.2	1.0	3.9	8.8	9.6	8.8	9.6	23	18	2.7	.8	.7
10	.2	.7	4.3	8.6	8.8	8.8	8.8	32	17	2.6	.9	.7
11	.2	.8	12	8.5	8.5	9.2	8.5	33	17	2.4	1.5	.6
12	.2	.8	4.3	8.5	8.2	9.6	8.5	37	15	2.2	4.5	.5
13	.2	.9	3.6	8.5	8.2	8.8	8.5	43	13	2.1	5.5	.6
14	.3	.8	2.8	8.5	7.9	8.8	8.5	45	12	2.0	6.9	.5
15	.2	.7	2.3	8.5	7.6	9.2	8.8	50	11	2.0	4.9	.4
16	.3	1.0	2.1	8.5	7.6	10	9.6	55	10	1.9	6.3	.4
17	.2	.7	1.9	8.6	7.6	10	8.8	57	12	1.8	2.3	.4
18	.2	.7	1.7	9.0	8.2	10	12	55	10	2.0	1.6	.4
19	.2	.8	1.9	9.5	8.8	10	35	55	9.6	1.8	1.1	.5
20	.2	.9	3.0	9.8	9.6	12	52	53	9.6	1.5	.9	.7
21	.2	.9	4.4	9.0	10	13	50	42	9.2	1.4	.8	.5
22	.2	.9	4.12	9.0	10	16	44	34	3.3	1.4	.8	.5
23	.2	1.0	4.91	12	9.6	16	40	31	8.2	1.3	.8	.4
24	.2	1.1	3.64	20	9.2	14	50	30	7.6	1.1	.7	.4
25	.2	2.3	1.40	15	10	12	58	29	7.2	1.1	.7	.4
26	.2	1.9	100	10	9.6	12	72	30	6.0	1.2	.7	.4
27	.2	1.3	50	9.2	9.6	12	85	30	5.7	1.1	.7	.5
28	.3	1.3	30	8.8	9.2	10	92	33	5.5	1.0	.7	.5
29	.7	2.8	20	8.6	-----	11	94	34	4.9	1.0	.7	.7
30	.6	2.1	18	9.0	-----	11	90	34	4.4	1.0	.6	.4
31	.4	-----	15	10	-----	11	-----	30	-----	1.0	.6	-----
Total	7.6	31.7	1747.6	310.1	262.8	321.8	933.4	1224	425.7	65.5	52.1	19.3
Mean	0.25	1.06	56.4	10.0	9.39	10.4	31.1	39.5	14.2	2.11	1.63	0.61
Ac-ft	15	63	3470	615	521	638	1850	2430	244	130	103	36

Calendar year 1964 Max 491 Min 0.2 Mean 10.3 Ac-ft 7,500  
Water year 1964-65 Max 491 Min 0.2 Mean 14.8 Ac-ft 10,720

Peak discharge (base, 50 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0330	4.98	1,750	8-14	1900	2.73	78
4-29	1600	3.09	132				
5-16	1800	2.83	78				

Note.--No gage-height record Dec. 25 to Feb. 4, Aug. 10-13, 17, 18.

## 4261.9. Lake Valley Canal near Emigrant Gap, Calif.

Location.--Lat 39°18'00", long 120°39'10", NE 1/4 sec. 32, T.17 N., R.12 E., on right bank 1/4 mile upstream from inlet to Carpenter Flat Siphon and one mile east of Emigrant Gap.

Records available.--October 1964 to September 1965.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 5,360 ft (from topographic map).

Extremes.--Maximum daily discharge during year, 31 cfs many days; no flow most of the year.

Remarks.--Records poor. Canal diverts from right bank of the North Fork of North Fork American River 2.7 miles downstream from Lake Valley Reservoir. Water is delivered to Drum Canal.

Cooperation.--Recorder chart and 2 discharge measurements furnished by Pacific Gas and Electric Co. in connection with a Federal Power Commission project.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	31	31							0	6.6		
2	30	31							0	6.2		
3	30	30							0	5.0		
4	30	30							0	3.8		
5	31	30							0	3.8		
6	31	29							0	3.8		
7	30	29							0	5.5		
8	30	29							0	4.7		
9	30	29							0	2.3		
10	31	21							0	2.1		
11	31	0							0	2.1		
12	31	0							0	2.1		
13	31	0							0	1.1		
14	31	0							0	0		
15	31	0							0	0		
16	31	0							0	4.0		
17	31	0							0	11		
18	31	0							0	11		
19	31	0							0	11		
20	31	0							0	10		
21	31	0							0	10		
22	31	0							0	10		
23	31	0							0	10		
24	31	0							0	1.0		
25	31	0							0	10		
26	31	0							0	10		
27	31	0							0	6.0		
28	31	0							0	0		
29	31	0							0	0		
30	31	0							2.6	0		
31	31	-----							-----	0		
Total	955	289	0	0	0	0	0	0	2.6	162.1	0	0
Mean	30.8	9.63	0	0	0	0	0	0	.09	5.23	0	0
Ac-ft	1,890	573	0	0	0	0	0	0	5.2	322	0	0

Calendar year 1964 Max - Min - Mean - Ac-ft -  
 Water year 1964-65 Max 31 Min 0 Mean 3.86 Ac-ft 2,790

11-4262. North Fork Forbes Creek near Dutch Flat, Calif.

Location.--Lat 39°08'37", long 120°45'30", in SE $\frac{1}{4}$  sec.17, T.15 N., R.11 E., on right bank 0.2 mile downstream from Big Reservoir and 6.0 miles southeast of Dutch Flat.

Drainage area.--1.68 sq mi.

Records available.--July 1956 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 3,980 ft (from topographic map).

Average discharge.--9 years, 4.36 cfs (3,160 acre-ft per year).

Extremes.--Maximum discharge during year, 162 cfs Jan. 8 (gage height, 3.99 ft); no flow for many days.

1956-65: Maximum discharge, 200 cfs Feb. 1, 1963 (gage height, 4.18 ft); no flow many days in 1964 and 1965.

Maximum stage known, 6.40 ft probably Dec. 23, 1955, from floodmarks (discharge unknown).

Remarks.--Flow regulated by Big Reservoir (capacity, 2,200 acre-ft).

Cooperation.--Records furnished by Bureau of Reclamation and reviewed by Geological Survey.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Mar. 16 to Apr. 9, May 8-17)

Oct. 1 to May 17

May 18 to Sept. 30

1.7	0	2.3	6.4	1.5	0
1.8	.2	2.4	9.2	1.6	.1
1.9	.6	2.5	13	1.7	.5
2.0	1.4	2.7	22	1.8	1.4
2.1	2.5	3.0	41	1.9	3.2
2.2	4.1	3.5	90		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	1.4	3.4	35	28	3.7	6.0	9.0	1.4	0.4	0.2	
2	.1	1.5	5.1	34	27	3.3	6.1	5.4	1.4	0.4	.1	
3	.1	.6	4.3	34	27	3.3	6.0	4.8	1.4	0.4	.1	
4	.1	.3	3.8	34	26	3.1	5.7	4.8	1.5	0.4	.1	
5	.1	.3	3.4	35	26	3.2	5.7	4.3	1.4	0.3	.1	
6	0	.3	3.0	37	25	3.3	6.1	4.1	1.1	0.3	.1	
7	0	.3	2.9	52	24	2.9	5.8	4.0	1.1	0.3	.1	
8	0	.3	2.9	84	23	2.8	6.1	3.9	1.1	0.3	.1	
9	0	6.8	2.9	63	23	2.7	6.2	3.5	1.1	0.3	.1	
10	0	3.1	3.4	41	22	2.9	5.8	3.4	1.1	0.2	.1	
11	0	3.8	11	36	21	2.8	5.6	3.3	1.0	.2	.1	
12	.1	13	7.8	35	21	3.3	6.4	3.1	0.9	.2	.1	
13	.1	5.2	6.0	35	19	3.4	7.5	2.9	0.8	.2	.5	
14	.1	2.8	5.4	35	18	3.0	9.4	2.8	0.8	.2	.1	
15	.1	2.1	5.0	35	18	2.8	9.4	2.8	0.7	.2	.5	
16	.1	1.8	4.7	34	16	2.7	15	2.6	0.8	.3	.3	
17	.1	1.5	4.1	34	14	2.6	18	2.6	1.0	.3	.3	
18	.1	1.4	3.9	33	12	2.7	20	2.7	1.1	.3	.3	
19	.1	1.4	10	34	5.5	2.6	20	2.4	1.5	.2	.3	
20	.1	1.3	19	35	3.2	2.4	18	2.1	1.0	.2	.2	
21	.1	1.3	24	34	3.1	2.4	19	2.2	0.8	.2	.2	
22	.1	1.3	31	33	2.9	2.3	18	2.5	0.8	.2	.2	
23	.1	1.3	31	33	2.8	2.4	18	2.3	0.7	.2	.1	
24	.1	1.3	30	33	2.9	2.8	18	2.0	0.7	.2	.1	
25	.1	1.7	44	32	2.8	2.6	18	2.1	0.6	.1	.1	
26	.1	2.8	63	32	2.7	3.7	17	2.0	0.6	.2	.1	
27	.1	2.5	76	31	5.0	7.0	16	1.9	0.6	.2	.1	
28	.2	2.7	67	30	3.9	5.8	15	1.8	0.5	.1	0	
29	.4	2.7	51	30	-----	5.4	14	1.6	0.5	.1	0	
30	.6	2.4	44	29	-----	5.0	12	1.6	0.4	.1	0	
31	.4	-----	38	28	-----	5.2	-----	1.5	-----	.2	-----	-----
Total	3.6	69.2	611.5	1140	424.8	104.1	352.8	96.0	28.4	7.4	6.7	0
Mean	0.12	2.31	19.7	36.8	15.2	3.36	11.8	3.10	0.95	0.24	0.22	0
Ac-ft	7.1	137	1210	2260	843	206	700	190	56	15	13	0

Calendar year 1964 Max 76 Min 0 Mean 4.45 Ac-ft 3,230  
Water year 1964-65 Max 84 Min 0 Mean 7.79 Ac-ft 5,640



## 11-4264. North Shittail Creek near Dutch Flat, Calif.

Location.--Lat 39°07'49", long 120°47'44", in SE $\frac{1}{4}$  sec.24, T.15 N., R.10 E., on right bank 200 ft downstream from Forbes Creek and 7.0 miles southeast of Dutch Flat.

Drainage area.--9.10 sq mi.

Records available.--July 1956 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 3,500 ft (from topographic map).

Average discharge.--9 years, 19.5 cfs (14,120 acre-ft per year).

Extremes.--Maximum discharge during year, 1,780 cfs Dec. 22 (gage height, 7.56 ft) from rating curve extended above 590 cfs on basis of slope-area measurement at gage height 6.36 ft; minimum daily, 0.4 cfs Oct. 12-17, 20-23.  
1956-65: Maximum discharge, that of Dec. 22, 1964; minimum daily, 0.2 cfs many days in 1959-60.  
Flood of Dec. 23, 1955, reached a stage of 7.30 ft from floodmarks (discharge, 1,650 cfs revised).

Remarks.--Flow slightly regulated by Big Reservoir (capacity, 2,200 acre-ft).

Cooperation.--Records furnished by Bureau of Reclamation and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.5	11	15	128	70	30	27	32	5.2	2.3	0.9	0.7
2	.5	7.8	26	124	66	28	27	27	5.2	2.2	.8	.6
3	.5	3.3	21	126	62	27	25	25	5.1	2.1	.8	.6
4	.5	2.2	19	130	58	25	24	24	4.8	2.0	.7	.8
5	.5	1.8	18	140	83	24	23	22	4.6	1.9	.7	1.0
6	.5	1.4	17	170	67	23	27	21	4.4	1.9	.7	.9
7	.5	1.3	15	239	65	22	26	21	4.2	1.8	.6	.9
8	.5	1.2	14	699	62	21	31	19	4.3	1.8	.6	.7
9	.5	36	13	299	60	20	35	18	4.4	1.7	.6	.7
10	.5	13	33	232	59	19	32	17	4.1	1.7	.7	.7
11	.5	22	59	194	56	18	32	17	3.7	1.7	1.4	.7
12	.4	35	34	180	53	21	38	16	3.9	1.6	2.5	.6
13	.4	25	26	170	51	18	46	15	3.8	1.7	1.5	.7
14	.4	17	23	159	49	16	50	15	3.8	1.5	1.4	.8
15	.4	14	21	152	47	15	58	14	3.7	1.5	1.0	.8
16	.4	12	19	143	45	14	169	13	3.7	1.4	1.0	.7
17	.4	11	17	140	43	13	131	13	4.6	1.3	.9	.6
18	.5	10	17	93	40	13	100	13	4.4	1.3	.9	.7
19	.5	9.3	63	95	39	13	91	12	3.9	1.2	.9	.8
20	.4	8.7	169	92	37	12	92	12	3.8	1.1	.8	.8
21	.4	8.1	383	91	36	12	76	12	3.3	1.1	.9	.8
22	.4	7.5	1,080	88	34	12	69	12	3.2	1.1	.8	.7
23	.4	7.2	723	139	33	11	63	12	3.0	1.1	.8	.7
24	.5	6.7	220	139	32	11	59	10	2.8	1.0	.8	.7
25	.5	8.1	200	112	31	11	55	11	2.8	1.0	.7	1.0
26	.5	11	239	100	30	15	50	9.4	2.7	1.0	.6	1.0
27	.5	10	209	95	33	42	47	7.5	2.6	1.0	.6	.9
28	.7	11	180	90	32	32	43	5.8	2.5	0.9	.7	.9
29	3.6	11	161	83	-----	27	40	5.5	2.3	0.8	.6	.8
30	2.3	13	140	79	-----	24	36	5.2	2.3	0.9	.7	.8
31	1.3	-----	121	75	-----	25	-----	5.3	-----	1.0	.7	-----
Total	20.4	336.6	4,295	4,796	1,373	614	1,612	461.7	113.1	44.6	27.4	230
Mean	0.66	11.2	139	155	49.0	19.8	53.7	14.9	3.77	1.44	0.88	0.77
Ac-ft	40	668	8,520	9,510	2,720	1,220	3,200	916	224	88	54	46

Calendar year 1964 Max 1,080 Min 0.4 Mean 23.5 Ac-ft 17,050  
Water year 1964-65 Max 1,080 Min 0.4 Mean 37.6 Ac-ft 27,210

Peak discharge (base, 180 cfs )

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-22	1700	7.56	1,780	1-23	1700	3.76	296
1- 8	----	6.30	1,230	4-16	1100	3.46	218

Note.--No gage height record Nov. 5 to Dec. 8, Dec. 23 to Jan. 18, Jan. 26 to Feb. 10, Feb. 11 to Mar. 29, Sept. 8-16, 25-30.

## SACRAMENTO RIVER BASIN

11-4270. North Fork American River at North Fork Dam, Calif.

Location.--Lat 38°56'15", long 121°01'25", in SW $\frac{1}{4}$  sec. 31, T.13 N., R.9 E., on left bank 50 ft upstream from spillway of North Fork Dam, 2 miles upstream from Middle Fork, and 4 miles northeast of Auburn.

Drainage area.--343 sq mi.

Records available.--October 1941 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 715.0 ft above mean sea level (levels by Corps of Engineers).

Average discharge.--24 years, 816 cfs (590,800 acre-ft per year); median of yearly mean discharges, 710 cfs (514,000 acre-ft per year).

Extremes.--Maximum discharge during year, 65,400 cfs Dec. 23 (gage height, 11.87 ft) from rating curve extended above 24,000 cfs on basis of computed flow over spillway of dam at gage height 10.22 ft; minimum daily, 40 cfs Oct. 12.

1941-65: Maximum discharge, that of Dec. 23, 1964; no flow Aug. 27-30, Sept. 2-11, 1944, Oct. 5, 6, 1963, caused by operation of valve in North Fork Dam.

Remarks.--Records good. Minor regulation by Lake Clementine (usable capacity, 12,800 acre-ft) formed by North Fork Dam. Storage in Big Reservoir and Lake Valley Reservoir (combined capacity, 10,300 acre-ft) above station. Lake Valley Canal diverts from North Fork of North Fork American River into Bear River basin for power development in Alta powerhouse of Pacific Gas and Electric Co. Combined storage and diversion have small effect on natural flow. Records of water temperatures for the water year 1965 are published in Part 2 of this report.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Dec. 23 to Jan. 3)

0.2	25	2.0	1,570
.3	55	2.5	2,220
.4	93	3.0	3,080
.6	194	4.0	6,000
.8	325	5.0	10,400
1.2	665	7.0	22,200
1.6	1,080	10.0	47,000

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	43	99	414	2,450	1,630	850	1,000	2,900	1,420	385	111	73
2	43	256	1,020	2,070	1,560	780	926	2,250	1,280	355	106	73
3	43	131	857	2,880	1,510	741	871	1,810	1,380	348	101	69
4	43	93	539	6,360	1,420	722	840	1,660	1,520	348	101	73
5	43	77	408	6,640	1,700	712	860	1,660	1,530	325	97	69
6	43	65	348	12,400	1,990	703	926	1,480	1,410	311	93	69
7	43	61	304	9,780	1,640	684	893	1,300	1,260	297	89	77
8	43	61	277	5,560	1,500	656	948	1,200	1,150	270	85	81
9	43	216	284	3,980	1,370	638	1,530	1,210	981	244	81	81
10	43	575	340	3,140	1,250	647	2,030	1,320	1,060	231	81	77
11	43	378	1,800	2,740	1,160	647	1,680	1,480	1,100	219	89	73
12	40	897	1,270	2,500	1,050	732	1,510	1,620	1,100	206	145	77
13	43	602	685	2,170	992	732	1,440	1,720	937	194	225	73
14	43	408	530	1,990	959	665	1,320	1,820	790	188	141	73
15	43	237	460	2,100	893	638	1,270	1,830	694	188	131	77
16	43	200	408	2,100	840	638	4,100	1,950	629	182	155	77
17	43	170	370	1,950	810	656	3,560	2,250	629	182	170	55
18	43	155	333	1,920	800	647	2,580	2,140	820	182	206	58
19	43	145	547	2,000	810	638	3,360	2,060	694	188	176	61
20	43	136	3,750	1,980	820	638	3,900	2,080	694	170	136	61
21	43	131	11,800	1,810	830	674	4,100	1,910	712	160	111	61
22	43	131	37,700	1,670	840	750	3,280	1,500	684	150	106	58
23	43	131	41,100	1,760	810	840	2,700	1,280	656	141	97	58
24	43	126	23,800	4,380	770	840	2,580	1,280	584	136	93	58
25	43	141	10,200	2,840	750	790	2,830	1,240	548	131	89	58
26	43	240	10,300	2,310	745	750	2,830	1,310	476	131	85	55
27	43	332	12,100	1,990	993	1,420	2,920	1,420	434	126	81	58
28	49	250	6,160	1,800	1,010	1,310	3,000	1,480	408	121	77	65
29	81	284	4,350	1,670	-----	1,090	3,290	1,620	417	116	77	65
30	101	304	3,630	1,670	-----	948	3,230	1,630	400	111	73	65
31	77	-----	3,130	1,670	-----	850	-----	1,610	-----	116	73	-----
Total	1,466	7,031	179,214	100,280	31,452	24,026	66,304	52,020	26,397	6,452	3,481	2,028
Mean	47.3	234	5,781	3,235	1,123	775	2,210	1,678	880	208	112	67.6
Ac-ft	2,910	13,950	355,500	198,900	62,380	47,650	131,500	103,200	52,360	12,800	6,900	4,020

Calendar year 1964 Max 41,100 Min 40 Mean 919 Ac-ft 667,000  
Water year 1964-65 Max 41,100 Min 40 Mean 1,370 Ac-ft 992,100

Peak discharge (base, 4,300 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0600	11.87	65,400	1-24	0600	3.77	5,180
12-27	0200	6.76	18,500	4-16	1500	3.99	5,960
1-6	2400	5.69	14,000	4-21	0530	3.59	4,590

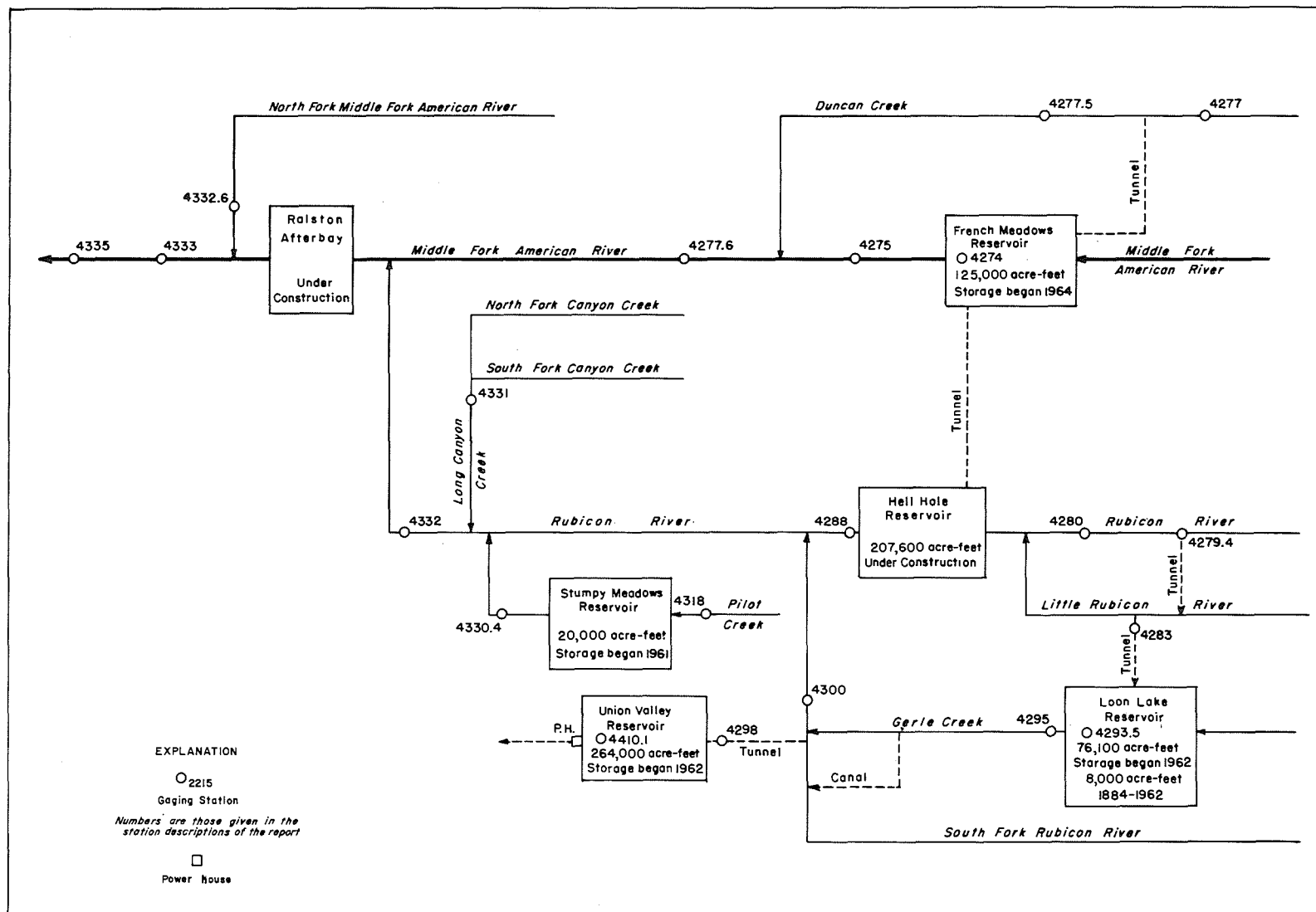


Figure 7.--Schematic diagram showing diversions and storage in Middle Fork American River and Rubicon River basins.

## SACRAMENTO RIVER BASIN

11-4274. French Meadows Reservoir near Foresthill, Calif.

Location.--Lat 39°06'32", long 120°25'49", in SW  $\frac{1}{4}$ NE  $\frac{1}{4}$  sec.32, T.15 N., R.14 E., on left bank 2.2 miles upstream from dam on Middle Fork American River, 6.9 miles upstream from Chipmunk Creek, and 21 miles northeast of Foresthill.

Drainage area.--47.0 sq mi.

Records available.--December 1964 to September 1965.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Placer County Water Agency).

Extremes.--Maximum contents during period, 133,200 acre-ft Aug. 16 to 25 (elevation 5262.4 ft).

Remarks.--Reservoir is formed by rockfill dam with earth core. Storage began Dec. 21, 1964. Usable capacity, 125,000 acre-ft between elevations 5,125 ft (minimum operating level) and 5,263 ft (top of radial gates). Dead storage, 8,750 acre-ft. Up to 400 cfs is diverted into reservoir through tunnel from Duncan Creek. Water will be diverted from reservoir through tunnel and powerhouse (under construction in 1965) to Hell Hole Reservoir on Rubicon River. Records represent total contents. See schematic diagram, p. 873.

Cooperation.--Mighty-seven staff gage readings and area-capacity table furnished by Placer County Water Agency.

Capacity table (elevation, in feet, and contents, in acre-feet)

5,050	0	5,170	34,600
5,075	77	5,200	59,900
5,100	1,620	5,230	91,500
5,120	6,850	5,260	129,800
5,140	15,800	5,280	159,400

Contents, in thousands of acre-feet, at 2400 hours, period December 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			-	62.1	75.6	85.5	96.2	109.9	116.7	132.6	132.9	132.9
2			-	62.7	76.0	85.9	96.5	109.0	117.8	132.6	132.9	132.9
3			-	63.3	76.5	86.2	96.7	109.1	119.0	132.6	132.8	132.9
4			-	63.7	76.9	86.4	97.1	109.4	120.0	132.6	132.8	132.8
5			-	64.0	77.6	86.8	97.5	109.3	121.1	132.5	132.8	132.8
6			-	64.4	78.2	87.0	97.8	109.9	122.1	132.5	132.8	132.8
7			-	65.0	78.6	87.2	98.2	110.4	122.9	132.5	132.6	132.8
8			-	65.7	78.9	87.6	98.5	110.7	123.6	132.5	132.6	132.8
9			-	66.1	79.4	87.8	98.9	111.1	124.4	132.5	132.6	132.6
10			-	66.4	79.7	89.1	99.1	111.3	125.1	132.5	132.6	132.3
11			-	66.8	80.0	89.4	99.5	111.7	126.0	132.5	132.8	132.2
12			-	67.1	80.3	88.7	99.7	112.0	126.7	132.5	132.9	131.9
13			-	67.4	80.7	89.9	100.0	112.4	127.3	132.5	132.9	131.6
14			-	67.6	80.9	89.3	100.2	112.6	127.7	132.6	132.9	131.2
15			-	67.9	81.2	89.5	100.6	112.8	128.1	132.6	133.1	130.9
16			-	68.2	81.4	89.7	101.2	113.0	128.5	132.8	133.2	130.5
17			-	68.5	81.6	90.1	101.7	113.3	129.2	132.8	133.2	130.1
18			-	68.8	82.0	90.4	102.3	113.3	129.7	132.9	133.2	129.7
19			-	69.2	82.2	90.6	103.8	113.1	130.2	132.9	133.2	129.2
20			-	69.6	82.5	91.0	105.8	113.0	130.8	132.9	133.2	129.0
21			120	70.0	82.9	91.5	107.8	112.5	131.4	132.9	133.2	128.5
22			94.5	70.4	83.2	92.0	109.3	112.1	131.8	132.9	133.2	128.3
23			36.1	71.2	83.5	92.5	109.9	111.7	132.3	132.9	133.2	127.9
24			47.3	72.1	83.9	93.0	110.0	111.6	132.6	132.9	133.2	127.4
25			51.7	72.7	84.1	93.3	110.3	111.5	132.6	132.9	133.2	127.0
26			55.6	73.1	84.4	93.9	110.4	111.5	132.6	132.9	133.1	126.7
27			59.1	73.5	85.0	94.4	110.2	111.6	132.6	132.9	133.1	126.3
28			59.4	73.9	85.3	94.6	110.3	112.4	132.6	132.9	133.1	125.8
29			60.3	74.3	-----	95.0	110.6	113.5	132.6	132.9	133.1	125.4
30			61.1	74.7	-----	95.3	110.4	114.6	132.6	132.9	133.1	124.9
31			61.7	75.2	-----	95.8	-----	115.8	-----	132.9	132.9	-----
(†)			5,201.8	5,215.3	5,224.6	5,233.7	5,245.6	5,249.7	5,262.0	5,262.2	5,262.2	5,256.5
(‡)			+61.7	+13.5	+10.1	+10.5	+14.6	+5.4	+16.8	+0.3	0	-9.0

Calendar year 1964..... †+61.7

Water year 1964-65..... †+124.9

† Elevation, in feet, at end of month.

‡ Change in contents, in thousands of acre-feet.

11-4275. Middle Fork American River at French Meadows, Calif.

Location.--Lat 39°06'35", long 120°28'49", in  $\frac{1}{4}$  sec. 36, T.15 N., R.13 E., on left bank 0.6 mile downstream from French Meadows Dam, 4.1 miles upstream from Chipmunk Creek, and 14 miles south of Cisco.

Drainage area.--47.9 sq mi (revised).

Records available.--October 1951 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 4,920 ft (from topographic map). Prior to Oct. 1, 1962, at site 0.8 mile upstream at different datum.

Average discharge.--13 years (1951-64), 149 cfs (107,900 acre-ft per year); median of yearly mean discharges, 124 cfs (89,800 acre-ft per year).

Extremes.--Maximum discharge during year, 1,310 cfs Apr. 30 (gage height, 7.68 ft); minimum daily, 0.8 cfs Oct. 22-25.

1951-65 (prior to regulation by French Meadows Reservoir): Maximum discharge, 21,500 cfs Jan. 31, 1963 (gage height, 14.20 ft), from rating curve extended above 1,100 cfs on basis of maximum flow at former site; minimum, 0.3 cfs Oct. 4, 5, 21-25, 1960, Oct. 5, 6, 1961.

Remarks.--Records good. Flow regulated by French Meadows Reservoir beginning in December 1964 (see preceding page). Diversion from Duncan Creek to French Meadows Reservoir began in December 1964. See schematic diagram, p. 873.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Apr. 23-26, July 6-12)

Oct. 1 to Apr. 26

Apr. 27 to Sept. 30

2.7	0.3	4.5	66	4.0	10	5.5	170
2.8	.9	5.0	126	4.2	16	6.0	330
3.0	2.4	6.0	325	4.5	31	7.0	830
3.2	4.7	7.0	710	5.0	80	8.0	1,590
3.5	10	8.0	1,330				
4.0	28						

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.6	11	65	7.2	11	10	12	1,190	19	185	12	16
2	1.6	16	100	6.6	10	10	11	1,110	20	182	12	16
3	1.6	13	64	6.6	10	10	11	1,000	19	182	12	16
4	1.9	12	43	6.1	10	10	11	477	19	182	12	16
5	1.6	12	36	7.3	14	10	11	20	19	182	13	16
6	1.4	9.1	29	14	12	10	12	60	19	122	13	16
7	1.3	7.7	23	9.5	11	9.5	11	122	19	70	14	20
8	1.5	7.9	29	7.7	11	9.5	11	162	19	63	14	34
9	1.4	30	55	7.2	10	10	10	192	19	63	14	67
10	1.3	24	76	6.8	10	10	10	232	13	63	15	104
11	1.4	23	346	7.0	9.5	10	11	309	13	63	16	123
12	1.4	53	205	7.0	9.5	10	10	402	13	41	16	123
13	1.2	23	80	9.5	9.5	10	10	484	17	15	16	150
14	1.2	19	66	14	9.3	10	11	601	17	14	16	170
15	1.2	16	60	12	9.1	10	12	574	19	14	16	183
16	1.2	14	49	11	9.5	10	21	740	13	14	16	185
17	1.3	13	42	11	10	10	14	792	13	14	15	185
18	1.7	12	36	11	10	10	16	827	13	14	16	183
19	1.2	12	53	12	10	10	13	911	13	14	16	183
20	1.1	12	284	11	10	10	13	390	13	14	16	185
21	.9	12	346	11	10	10	13	872	13	14	16	185
22	.8	12	146	10	10	10	15	764	13	13	16	185
23	.8	12	120	15	10	10	289	656	13	13	16	193
24	.8	13	72	15	10	10	730	590	125	13	16	207
25	.8	24	32	12	10	10	810	550	182	13	16	207
26	.9	52	47	12	10	10	1,020	535	182	13	16	207
27	.9	27	26	11	12	10	1,050	540	182	13	16	207
28	1.2	27	14	11	11	11	1,030	306	182	13	16	219
29	4.1	34	10	10	-----	11	1,060	19	182	13	16	232
30	5.5	32	3.9	11	-----	11	1,180	19	185	13	16	232
31	7.0	-----	7.9	10	-----	12	-----	19	-----	13	16	-----
Total	51.8	594.7	2,580.8	312.5	283.4	314.0	7,453	16,065	1,643	1,675	466	4,085
Mean	1.67	19.8	83.2	10.1	10.3	10.1	243	513	54.8	54.0	15.0	136
Ac-ft	103	1,180	5,120	620	572	623	14,730	31,360	3,260	3,320	924	3,100

Calendar year 1964 Max 740 Min 0.6 Mean 106 Ac-ft 76,840  
Water year 1964-65 Max 1190 Min 0.8 Mean 97.3 Ac-ft 70,460

## SACRAMENTO RIVER BASIN

11-4277. Duncan Creek near French Meadows, Calif.

Location.--Lat 39°08'09", long 120°28'39", in NE¼ sec. 24, T.15 N., R.13 E., on right bank 0.2 mile upstream from diversion dam, 0.5 mile downstream from Little Duncan Creek, 2 miles northwest of French Meadows, and 20 miles northeast of Foresthill. Prior to Sept. 3, 1965, at site 150 ft upstream.

Drainage area.--9.94 sq mi.

Records available.--August 1960 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 5,270 ft (from topographic map). Prior to Sept. 3, 1965, at site 150 ft upstream at datum 9.56 ft higher.

Average discharge.--5 years, 34.1 cfs (24,690 acre-ft per year).

Extremes.--Maximum discharge during year, 3,650 cfs Dec. 22 (gage height, 10.6 ft from floodmarks, present site and datum), from rating curve extended above 13 cfs on basis of computation of flow over diversion dam; minimum daily, 0.5 cfs Oct. 1-6, 18-23, 1960-65; Maximum discharge, that of Dec. 22, 1964; minimum daily, 0.2 cfs Sept. 23-25, 1964.

Revisions.--The maximum discharge for the water year 1963 has been revised to 2,720 cfs (gage height, 8.78 ft), superseding figure published in Surface Water Records of California Volume 2, 1963, 1964.

Remarks.--Records poor. No storage or diversion above station. See schematic diagram, p. 873.

Revisions.--Revised figures of discharge, in cubic feet per second, for high-water period in the water year 1963, superseding figures published in Surface Water Records of California Volume 2, 1963, are given herewith:

Date	Discharge
1963	
Jan. 31	1,360
Feb. 1	866

	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-ft
January 1963.....	1,789.4	1,360	5.7	57.7	3,550
February 1963.....	2,669	866	21	95.3	5,290
Water year 1962-63.....	15,740.7	1,360	0.4	43.1	31,220
Calendar year 1963.....	14,118.7	1,360	0.4	38.7	28,010

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.5	2.7	37	53	31	32	29	220	83	12	2.2	1.30
2	.5	3.7	26	43	31	31	29	170	90	11	2.1	1.30
3	.5	3.5	13	33	31	30	30	135	93	10	2.1	1.2
4	.5	3.4	9.9	33	31	29	35	112	90	9.2	2.0	1.1
5	.5	2.9	9.0	32	32	29	33	97	85	8.5	2.0	1.0
6	.5	2.3	6.6	32	34	28	37	90	80	8.0	1.9	3.2
7	.6	2.2	6.3	30	32	23	35	90	74	7.4	1.9	2.9
8	.6	2.9	6.8	29	31	27	35	92	70	7.0	1.8	2.0
9	.7	10	13	27	31	27	35	104	65	6.6	1.8	1.7
10	.6	4.8	36	23	30	27	35	113	60	6.2	1.8	1.6
11	.6	4.7	133	29	29	27	35	129	56	5.9	2.1	1.5
12	.6	9.2	40	23	23	27	33	141	52	5.6	7.0	1.4
13	.6	4.6	22	27	23	27	40	170	43	5.3	3.0	1.4
14	.6	4.1	16	23	23	27	53	200	45	5.0	2.5	1.3
15	.6	3.9	13	31	27	27	85	220	41	4.8	5.4	1.2
16	.6	3.9	10	30	27	27	180	240	37	4.6	10	1.1
17	.6	3.5	3.4	29	27	27	150	250	34	4.3	9.7	1.0
18	.5	3.7	7.1	30	27	27	160	245	32	4.1	8.9	1.2
19	.5	4.1	7.6	31	29	27	180	230	30	3.9	7.1	1.2
20	.5	4.6	45	32	30	27	200	200	23	3.7	5.6	1.2
21	.5	5.0	476	31	30	27	200	170	25	3.5	4.6	1.2
22	.5	4.4	2,300	31	29	27	164	145	23	3.3	3.8	1.2
23	.5	5.2	1,600	32	29	27	140	129	21	3.1	3.2	1.2
24	.6	4.6	1,100	34	23	27	155	113	20	3.0	2.8	1.1
25	.6	14	600	33	27	27	175	106	13	2.8	2.5	1.1
26	.7	12	550	32	30	27	205	102	17	2.7	2.2	1.1
27	.3	6.6	360	32	34	27	250	93	16	2.6	2.0	1.3
28	1.2	8.7	200	32	33	27	260	93	15	2.5	1.9	1.5
29	4.1	15	125	31	-----	27	270	96	14	2.4	1.7	1.4
30	2.2	10	86	31	-----	29	270	94	13	2.3	1.5	1.2
31	1.0	-----	65	31	-----	29	-----	91	-----	2.2	1.3	-----
Total	23.9	170.2	7,927.7	990	834	853	3,543	4,489	1,380	163.5	103.4	42.1
Mean	0.77	5.63	256	31.9	29.8	27.7	118	145	46.0	5.27	3.50	1.40
Ac-ft	47	333	15,720	1,960	1,650	1,700	7,040	8,900	2,740	324	215	84

Calendar year 1964 Max 2,300 Min 0.2 Mean 43.8 Ac-ft 31,830  
 Water year 1964-65 Max 2,300 Min 0.5 Mean 56.3 Ac-ft 40,720

Note.--No gage-height record Dec. 20 to Sept. 2. Once daily staff gage readings used Dec. 3-19.

11-4277.5 Duncan Creek below diversion dam, near French Meadows, Calif.

Location.--Lat 39°07'59", long 120°28'58", in NE 1/4 sec. 23, T. 15 N., R. 13 E., on right bank 800 ft downstream from unnamed right bank tributary, 1000 ft downstream from Duncan Creek diversion dam, and 20 miles northeast of Foresthill.

Drainage area.--10.5 sq mi.

Records available.--October 1964 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 5,210 ft (from topographic map).

Extremes.--Maximum discharge during year, 3,640 cfs Dec. 22 (gage height, 8.74 ft in gage well, 10.0 ft from floodmarks); from rating curve extended above 400 cfs on basis of computation of flows over diversion dam; no flow Sept. 10-30.

Remarks.--Records good. Practically all flow is diverted above station through Duncan Creek diversion tunnel to French Meadows Reservoir. Maximum design flow of tunnel is 400 cfs. See schematic diagram, p. 873.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

.68	0	1.3	4.8	3.5	270
.8	0.1	1.5	10	4.0	415
.9	.3	1.7	18	5.0	810
1.0	.8	2.0	35	6.0	1,350
1.1	1.6	2.5	83	7.0	2,020
1.2	2.9	3.0	155	8.0	2,900

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.6	3.0	37	64	5.0	3.2	3.2	39	3.2	0.7	0.5	0.5
2	.6	3.7	28	51	5.0	3.2	6.1	15	3.5	.6	.3	.5
3	.5	3.4	14	44	4.8	3.4	9.3	10	4.1	.5	.2	.4
4	.5	3.4	10	39	4.8	3.4	9.6	9.6	3.4	.4	.2	.3
5	.6	2.6	8.7	34	6.3	3.0	10	9.3	3.2	.3	.2	.2
6	.5	2.2	7.8	29	5.6	2.8	9.9	9.0	2.9	.2	.2	.3
7	.5	2.0	7.5	25	4.6	2.4	9.3	8.7	2.9	.2	.2	.2
8	.6	2.4	8.4	22	3.9	2.4	9.0	8.4	2.8	.2	.1	.2
9	.6	9.3	12	23	3.4	2.4	8.4	8.4	2.8	.4	.1	.1
10	.6	5.0	32	24	2.9	2.4	8.1	8.1	2.6	.4	.1	0
11	.6	5.6	126	27	2.6	2.6	7.8	8.1	2.6	.3	.1	0
12	.6	10	34	26	2.3	2.6	8.7	8.1	2.4	.2	4.0	0
13	.5	5.3	22	23	2.1	2.4	8.4	9.9	2.2	.2	.7	0
14	.5	3.9	18	24	1.8	2.3	8.1	12	2.0	.2	.6	0
15	.5	3.5	16	28	1.8	2.4	9.3	17	1.8	.2	1.6	0
16	.6	3.0	14	28	2.0	2.6	12	30	2.0	.3	2.6	0
17	.6	3.0	13	27	2.1	2.4	11	40	2.1	.3	5.3	0
18	.6	2.8	12	28	2.6	2.4	12	37	2.0	.4	5.3	0
19	.6	2.9	14	15	3.2	2.4	20	32	1.8	.6	4.8	0
20	.6	3.4	48	3.9	3.5	2.4	27	31	1.8	.7	3.7	0
21	.6	3.7	500	3.7	4.1	2.6	24	13	1.8	.7	3.4	0
22	.6	4.1	2,160	3.4	3.9	2.8	16	6.6	1.8	.7	2.9	0
23	.6	3.9	1,500	4.6	3.5	2.8	13	5.6	1.6	.7	2.4	0
24	.6	4.6	1,030	7.5	3.4	2.8	14	4.1	1.4	.6	2.1	0
25	.6	9.6	558	5.0	3.2	2.4	15	3.9	1.3	.5	1.8	0
26	.6	12	517	4.1	3.4	2.3	20	3.7	1.1	.4	1.6	0
27	.6	9.1	345	3.4	4.1	2.2	25	3.5	1.0	.4	1.4	0
28	.9	7.2	184	3.0	3.7	2.1	44	5.6	.9	.5	1.3	0
29	3.7	12	126	3.2	-----	2.3	62	6.0	.9	.7	1.1	0
30	3.4	11	99	4.3	-----	2.8	62	6.0	.7	.6	.9	0
31	1.4	-----	78	5.0	-----	3.2	-----	3.7	-----	.6	.7	-----
Total	24.9	156.6	7,579.4	632.1	99.6	81.4	502.2	412.3	64.6	13.7	50.4	2.7
Mean	0.80	5.22	244	20.4	3.56	2.63	16.7	13.3	2.15	0.44	1.63	0.09
Ac-ft	49	311	15,030	1,250	193	161	996	813	123	27	100	5.4

Calendar year 1964 Max -- Min -- Mean ---- Ac-ft ----  
 Water year 1964-65 Max 2,160 Min 0 Mean 26.4 Ac-ft 19,070

11-4277.6. Middle Fork American River above Middle Fork powerhouse, near Foresthill, Calif.

Location.--Lat 39°01'30", long 120°35'40", in NW¼NW¼ sec.36, T.14 N., R.12 E., on right bank 300 ft upstream from Middle Fork powerhouse, 3.7 miles upstream from Big Mosquito Creek, and 11 miles east of Foresthill.

Drainage area.--87.8 sq mi.

Records available.--August to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 2,540 ft (from topographic map).

Extremes.--Maximum daily discharge during period August to September, 235 cfs Sept. 29, 30 (gage height, 3.40 ft); minimum daily, 23 cfs Sept. 4, 5.

Remarks.--Records good. Flow regulated by French Meadows Reservoir (see p. 874 ). See schematic diagram, p. 873.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1											-	24
2											-	24
3											26	24
4											26	23
5											26	23
6											25	24
7											26	26
8											26	36
9											26	58
10											26	106
11											30	127
12											45	124
13											31	135
14											29	165
15											28	181
16											29	179
17											30	183
18											32	183
19											30	183
20											26	193
21											25	183
22											26	183
23											25	195
24											25	210
25											25	210
26											24	210
27											24	210
28											24	220
29											24	235
30											24	235
31											24	235
Total											-	4,102
Mean											-	137
Ac-ft											-	8,140

Calendar year 1964 Max - Min - Mean - Ac-ft -

Water year 1964-65 Max - Min - Mean - Ac-ft -



11-4279.4. Rubicon-Rockbound tunnel near Meeks Bay, Calif.

Location.--Lat 38°59'20", long 120°13'30", in SE $\frac{1}{4}$  sec.8, T.13 N., R.16 E., on right bank at tunnel intake 100 ft upstream from diversion dam on Rubicon River, 2.5 miles upstream from Rubicon Springs, and 6.5 miles southwest of Meeks Bay.

Records available.--December 1963 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 6,533.23 ft above mean sea level (levels by Sacramento Municipal Utility District).

Extremes.--1963-65: Maximum daily discharge, 1,120 cfs Dec. 23, 1964; no flow for several months each year.

Remarks.--Records good except those for periods of no gage-height record or indefinite stage-discharge relation, which are poor. Tunnel diverts water from Rubicon River to Rockbound Lake. Practically all flow below 1,200 cfs is diverted through the tunnel. See schematic diagram, p. 873.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	64	84	43	32	46	552	435	259	0.3	0.8
2		0	81	73	40	30	40	334	432	252	.1	.7
3		20	47	72	38	30	37	207	552	294	0	.6
4		22	32	71	38	30	36	168	603	305	0	.6
5		22	25	72	44	29	40	178	616	279	0	.5
6		27	22	67	43	28	40	145	595	289	0	4.3
7		26	21	64	38	27	37	114	535	266	0	172
8		21	23	66	34	27	34	104	466	224	0	193
9		59	60	60	33	28	34	145	362	197	.3	129
10		34	57	55	32	29	34	206	506	176	.8	92
11		20	139	53	30	29	32	276	598	118	46	66
12		17	81	51	28	32	30	348	632	130	393	48
13		15	40	48	28	30	31	410	465	125	282	37
14		15	30	45	28	28	34	424	337	138	277	28
15		14	24	45	28	30	39	439	253	173	312	20
16		14	20	44	27	34	47	540	212	254	203	15
17		13	18	43	27	39	44	666	218	242	193	8.0
18		12	17	42	28	36	77	641	260	291	126	3.0
19		11	17	47	32	39	295	596	291	91	92	.8
20		10	20	47	36	45	595	557	372	17	70	.7
21		10	251	44	38	58	773	455	438	115	64	.6
22		10	1,040	40	38	80	606	265	422	140	46	.6
23		11	1,120	42	34	97	363	200	367	113	41	.5
24		12	1,050	63	32	81	313	240	320	85	35	.5
25		45	784	56	33	59	370	261	335	79	28	.4
26		60	471	44	36	50	389	362	254	73	23	.3
27		36	248	39	39	48	413	432	227	67	18	.2
28		26	163	36	36	42	513	468	249	49	13	.1
29		34	138	36	-----	40	726	521	255	27	10	0
30		32	117	40	-----	43	707	556	272	.7	6.0	0
31		-----	100	44	-----	51	-----	536	-----	.7	3.0	-----
Total	0	648	6,320	1,633	961	1,281	6,775	11,346	11,879	4,869.4	2,272.5	823.2
Mean	0	21.6	204	52.7	34.3	41.3	226	366	396	157	73.3	27.4
Ac-ft	0	1,290	12,540	3,240	1,910	2,540	13,440	22,500	23,560	9,660	4,510	1,630

Calendar year 1964 Max 1,120 Min 0 Mean 83.4 Ac-ft 60,530

Water year 1964-65 Max 1,120 Min 0 Mean 134 Ac-ft 96,820

Note.--Stage-discharge relation indefinite Nov. 3-8, July 19 to Sept. 30. No gage-height record Jan. 1-4.

11-4280. Rubicon River at Rubicon Springs, near Meeks Bay, Calif.

Location.--Lat 39°01'10", long 120°14'46", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.31, T.14 N., R.16 E., on right bank 200 ft downstream from Rubicon Springs, 0.7 mile upstream from Miller Creek, and 7 miles west of Meeks Bay.

Drainage area.--31.4 sq mi.

Records available.--February 1910 to March 1914 (published as "at Rubicon Springs"), October 1956 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 6,052.97 ft above mean sea level, datum of 1929. Feb. 1, 1910, to Mar. 31, 1914, staff gage or water-stage recorder at site 0.4 mile downstream at different datum.

Average discharge.--12 years (1910-13, 1956-65), 115 cfs (83,260 acre-ft per year), adjusted for diversion into Rubicon Rockbound Tunnel.

Extremes.--Maximum discharge during year, 10,100 cfs Dec. 23 (gage height, 13.51 ft) from rating curve extended above 1,200 cfs as explained below; 0.1 cfs Oct. 1, 2, 8-10.

1910-14, 1956-65: Maximum discharge, 11,500 cfs Feb. 1, 1963 (gage height, 14.28 ft), from rating curve extended above 1,200 cfs on basis of slope-conveyance computation of maximum flow; no flow at times in some years.

Flood of December 1955 reached a stage of 13.0 ft, from floodmarks, present site and datum (discharge, 9,270 cfs).

Remarks.--Records good. Low summer flow, beginning in 1950, augmented by release from streamflow maintenance dams on Lakes Clyde, Lois, Middle Velma, and Schmidell (total controlled capacity, 555 acre-ft). Flow below 1,200 cfs controlled by Rubicon diversion dam. Diversion to Rubicon-Rockbound tunnel began Dec. 26, 1963. See schematic diagram p. 873.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Oct. 15-20, Sept. 18-30)

Oct. 1-20

Oct. 21 to Sept. 30

1.2	0	1.4	0.4	1.9	6.5	3.0	100	6.0	1,150
1.3	.1	1.5	.7	2.1	13	3.5	184	8.0	2,730
1.4	.3	1.6	1.4	2.3	24	4.0	298	10.0	4,920
1.5	.7	1.7	2.6	2.5	41	5.0	630	12.0	7,680

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	2.0	23	16	16	12	18	52	17	9.0	8.4	9.6
2	.1	3.5	15	16	15	11	16	36	17	8.7	7.8	9.6
3	.2	3.7	9.0	14	14	11	15	26	17	9.0	8.7	9.6
4	.2	3.3	6.7	12	14	12	15	30	16	9.0	9.6	9.6
5	.2	2.3	5.5	12	20	11	18	30	22	8.7	9.6	9.6
6	.2	2.3	5.1	12	20	11	17	23	20	8.7	9.6	12
7	.2	2.3	4.7	11	14	11	15	17	20	8.4	9.0	26
8	.1	2.6	6.5	11	12	12	13	20	17	8.4	9.0	12
9	.1	5.8	14	10	11	12	12	29	15	8.1	10	10
10	.1	7.8	13	10	10	13	12	35	15	7.8	11	9.6
11	.2	6.0	59	10	9.3	14	11	36	15	7.8	13	9.3
12	.2	8.4	13	9.6	9.0	16	12	43	14	7.5	360	9.6
13	.2	6.2	7.3	9.3	8.7	13	13	44	13	7.5	21	10
14	.3	5.1	5.8	9.0	8.7	12	15	42	12	7.5	187	10
15	.3	4.5	5.3	10	8.4	13	19	44	12	8.9	86	9.6
16	.4	4.1	4.7	11	8.4	15	26	50	12	8.7	14	9.3
17	.4	3.7	3.9	11	9.3	17	18	51	12	9.6	12	11
18	.4	3.7	3.7	11	11	15	46	41	13	9.0	11	11
19	.4	3.5	4.3	13	12	16	106	38	12	8.1	11	9.6
20	.6	3.5	9.4	13	14	18	164	37	12	8.1	11	9.0
21	.6	3.7	315	12	16	24	157	26	12	8.7	10	8.7
22	.6	4.1	3,790	11	15	30	85	19	12	8.7	10	8.4
23	.6	4.7	6,540	21	13	30	62	17	11	8.7	10	8.4
24	.6	4.7	3,120	43	12	25	74	19	11	8.7	10	8.1
25	.6	15	164	20	13	16	79	20	11	9.0	10	8.1
26	.6	10.0	108	14	14	15	81	23	10	8.7	10	9.1
27	.6	5.8	64	12	18	15	79	23	9.6	8.4	9.6	8.1
28	.7	5.3	39	12	15	14	85	25	10	8.4	9.6	7.8
29	1.7	7.0	25	12	-----	15	96	24	9.3	8.4	9.6	7.5
30	1.6	5.8	20	16	-----	13	86	23	9.0	8.7	9.6	7.8
31	1.2	-----	17	17	-----	20	-----	20	-----	8.7	9.6	-----
Total	14.3	150.4	14,420.9	420.9	360.8	487	1,465	963	407.9	263.6	926.7	297.0
Mean	0.46	5.01	465	13.6	12.9	15.7	48.8	31.1	13.6	8.50	29.9	9.58
Ac-ft	28	293	28,600	835	716	966	2,910	1,910	809	523	1,840	589
Meant	0.46	26.7	669	66.4	47.4	57.1	274.8	397.0	409.6	165.6	103.3	37.3
Ac-ft†	28	1,590	41,140	4,070	2,630	3,510	16,350	24,410	24,370	10,180	6,350	2,220

Calendar year 1964: Max 6,540 Min 0 Mean 49.1 Ac-ft 35,640 Meant 132 96,170

Water year 1964-65: Max 6,540 Min 0.1 Mean 55.3 Ac-ft 40,020 Meant 189 136,800

† Adjusted for diversion to Rubicon-Rockbound tunnel.

11-4283. Buck-Loon tunnel near Meeks Bay, Calif.

Location.--Lat 39°00'15", long 120°15'20", in NW $\frac{1}{4}$  sec.6, T.13 N., R.16 E., on right bank at tunnel intake near left abutment of diversion dam 7.6 miles southwest of Meeks Bay.

Records available.--November 1963 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 6,425.0 ft above mean sea level (levels by Sacramento Municipal Utility District).

Extremes.--1963-65: Maximum daily discharge, 1,240 cfs Dec. 23, 1964. No flow for many days each year.

Remarks.--Records good except those for periods of indefinite stage discharge relation, Nov. 2-5, Jan. 6-22 which are fair, and those from July 19 to Sept. 30, which are poor. Tunnel diverts from Buck Island and discharges into Loon Lake. Water is used for power development downstream. See schematic diagram, p. 873.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	60	116	55	42	62	837	589	316	93	.7
2		8	117	104	53	38	56	512	532	293	87	.6
3		21	91	108	50	36	51	305	671	324	73	.4
4		20	60	95	47	36	45	222	763	369	71	.4
5		20	44	93	54	36	48	228	791	359	61	.4
6		3.2	36	93	58	35	53	204	770	359	51	.4
7		1.5	32	87	51	34	49	158	694	335	41	.33
8		11	31	76	44	32	45	131	614	280	22	172
9		26	63	72	42	32	46	162	469	241	10	135
10		64	84	67	40	34	45	240	582	213	36	90
11		47	162	64	38	34	42	337	710	187	2.2	67
12		38	157	63	36	38	40	429	799	161	214	50
13		30	86	58	36	38	40	518	640	148	297	38
14		22	55	54	36	34	39	554	460	152	240	29
15		20	42	52	35	32	44	559	341	168	320	23
16		18	34	51	34	35	60	655	275	250	236	19
17		16	30	50	32	40	58	851	264	247	190	15
18		16	27	49	33	42	70	864	332	329	150	12
19		14	34	51	36	42	268	806	347	160	107	8.7
20		13	45	55	40	46	713	762	423	0	78	6.9
21		12	269	52	43	57	1,100	655	521	0	61	5.1
22		13	1,180	49	45	76	981	404	522	11	47	3.3
23		13	1,240	54	44	103	560	269	470	93	38	2.2
24		13	1,210	85	40	101	420	293	403	114	30	1.0
25		30	1,100	78	39	83	478	326	413	109	22	.4
26		77	767	64	40	69	510	428	337	107	16	.4
27		78	397	53	49	66	539	538	277	104	11	.4
28		46	236	48	47	56	619	589	285	91	7.5	.3
29		44	184	46	-----	48	899	652	307	80	5.4	.3
30		46	159	48	-----	49	1,010	701	320	83	2.8	.3
31		-----	140	52	-----	55	-----	707	-----	80	1.2	-----
Total	0	780.7	8,172	2,087	1,197	1,499	8,990	14,896	14,921	5,763	2,588.7	715.2
Mean	0	26.0	264	67.3	42.8	48.4	300	481	497	186	83.5	23.8
Ac-ft	0	1,550	16,210	4,140	2,370	2,970	17,830	29,550	29,600	11,430	5,130	1,420

Calendar year 1964 Max 1,240 Min 0 Mean 104 Ac-ft 75,460

Water year 1964-65 Max 1,240 Min 0 Mean 169 Ac-ft 122,200

Note.--Stage-discharge relation indefinite Nov. 2-5, Jan. 6-22, July 19 to Sept. 30.

## SACRAMENTO RIVER BASIN

11-4293.5. Loon Lake near Meeks Bay, Calif.

Location.--Lat 39°00'17", long 120°18'30", in SW $\frac{1}{4}$  sec. 4, T.13 N., R.15 E., on right bank at Loon Lake Dam on Gerle Creek, 2.3 miles upstream from Jerrett Creek, and 11 miles southwest of Meeks Bay.

Drainage area.--7.94 sq mi.

Records available.--December 1963 to September 1965.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Sacramento Municipal Utility District).

Extremes.--Maximum contents during year, 77,300 acre-ft June 24 (elevation, 6,410.8 ft); minimum, 8,720 acre-ft Dec. 21 (elevation, 6,343.3 ft).

1963-65: Maximum contents, that of June 24, 1965; minimum since initial season of normal operation, that of Dec. 21, 1964.

Remarks.--Records good except those for periods of no gage height record, which are fair. Reservoir is formed by an earth-fill dam completed Dec. 27, 1963. Storage began Dec. 5, 1963. Usable capacity, 74,100 acre-ft between elevations 6,325 ft (invert of fishwater release valve) and 6,410 ft (crest of spillway) above mean sea level. Dead storage, 2,360 acre-ft. Prior to September 1962, reservoir was formed by granite-block dam built in 1884, capacity, 8,000 acre-ft. See schematic diagram, p. 873.

Capacity table (elevation, in feet, and contents, in acre-ft)

6340	7,200
6350	12,500
6360	19,600
6370	28,500
6380	38,600
6390	50,000
6400	62,700
6410	76,200

Contents, in acre-feet, at 2400 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	20,000	19,300	17,500	33,300	39,600	28,200	16,900	42,600	63,900	76,300	73,700	74,500
2	19,900	19,400	16,900	33,600	39,700	26,600	17,100	43,800	69,300	76,300	73,300	74,500
3	19,900	19,400	16,200	34,100	39,800	26,000	17,300	44,600	70,500	76,300	72,800	74,500
4	19,900	19,400	15,600	34,400	39,900	25,300	17,500	45,100	71,600	76,300	72,400	74,500
5	19,900	19,400	15,100	34,800	40,100	24,800	17,600	45,900	72,600	76,300	72,000	74,500
6	19,900	19,400	14,500	35,300	40,200	24,100	17,800	46,300	73,500	76,300	71,700	74,500
7	19,900	19,400	14,200	35,500	40,300	23,500	18,000	46,800	74,200	76,100	71,700	74,700
8	19,900	19,400	13,800	35,700	40,400	23,000	18,100	47,100	74,700	75,800	71,700	74,900
9	19,800	19,500	13,400	36,000	40,200	22,300	18,300	47,600	75,100	75,400	71,700	75,200
10	19,800	19,800	13,100	36,200	39,500	21,700	18,500	48,300	75,600	74,800	71,700	75,200
11	19,800	19,900	13,000	36,300	38,800	21,100	18,600	49,200	76,300	74,200	71,700	75,400
12	19,700	20,100	12,900	36,400	38,200	20,600	18,800	50,300	77,000	74,200	72,100	75,400
13	19,700	20,200	12,400	36,700	37,500	19,900	18,900	51,500	77,200	74,500	72,700	75,400
14	19,700	20,200	12,000	36,800	36,800	19,400	19,000	52,900	76,900	74,700	73,000	75,400
15	19,600	20,200	11,400	36,900	36,200	18,800	19,100	54,300	76,500	74,900	73,500	75,400
16	19,600	20,300	10,900	37,000	35,400	18,100	19,400	55,900	76,200	75,400	74,000	75,100
17	19,600	20,300	10,300	37,100	34,800	17,600	19,600	57,700	76,100	75,900	74,200	75,100
18	19,500	20,300	9,620	37,200	34,000	16,900	19,900	59,600	76,200	76,500	74,400	74,800
19	19,500	20,400	9,180	37,400	33,300	16,300	21,000	61,300	76,200	76,900	74,700	74,100
20	19,500	20,400	8,810	37,500	32,700	15,700	23,100	63,000	76,300	76,600	74,700	73,500
21	19,400	20,400	10,200†	37,800	32,100	15,300	25,900	63,900	76,600	76,500	74,700	72,800
22	19,400	20,400	16,000	37,900	31,500	15,000	28,000	64,300	77,000	76,500	74,700	72,100
23	19,400	20,500	21,200†	38,200	30,900	15,000	29,500	64,300	77,300	76,600	74,700	71,400
24	19,400	20,500	24,900	38,300	30,300	15,300	30,600	64,300	77,200	76,500	74,700	70,900
25	19,300	20,300	27,700	38,600	29,700	15,400	32,000	64,400	77,000	76,300	74,700	70,500
26	19,300	19,900	29,700	38,800	29,100	15,700	33,300	64,900	76,800	76,100	74,700	70,300
27	19,300	19,400	30,900	38,900	28,500	16,000	34,900	65,300	76,600	75,600	74,700	70,200
28	19,200	18,900	31,600	39,000	27,800	16,200	36,500	66,100	76,500	75,400	74,700	69,900
29	19,300	18,500	32,100	39,100	-----	16,400	38,600	66,700	76,500	74,800	74,700	69,200
30	19,300	18,000	32,600	39,200	-----	16,600	40,900	67,500	76,500	74,400	74,700	68,900
31	19,300	-----	33,000	39,500	-----	16,700	-----	68,300	-----	74,000	74,500	-----
(+)	6,359.6		6,374.7	6,380.6	6,369.3	6,356.5	6,382.1	6,404.3	6,410.2	6,403.4	6,403.8	6,404.8
(#)	-700	-1,300	+15,000	+6,500	-11,700	-11,100	+24,200	+27,400	+3,200	-2,500	+500	-5,600

Calendar year 1964..... # 48,590

Water year 1964-65..... # 48,900

† Elevation in feet, at end of month.

# Change in contents, in acre-feet.

Note.--No gage-height record Nov. 27-31, Dec. 2-5, contents interpolated.

$\bar{X} = 17765$   $\bar{X} = 36887$

$\bar{X} = 17763$

11-4295. Gerle Creek below Loon Lake Dam, near Meeks Bay, Calif.

Location.--Lat 39°00'20", long 120°18'52", in NE<sup>1</sup>/<sub>4</sub> sec.5, T.13 N., R.15 E., on right bank 0.3 mile downstream from Loon Lake Dam and 11 miles southwest of Meeks Bay.

Drainage area.--8.01 sq mi.

Records available.--July 1910 to April 1914 (fragmentary), August 1962 to September 1965. Prior to August 1962, published as "near Rubicon Springs."

Gage.--Water-stage recorder. Altitude of gage is 6,250 ft (from topographic map). Prior to August 1962, staff gage at site about 1,400 ft upstream at different datum.

Extremes.--Maximum discharge during year, 863 cfs June 14 (gage height, 8.06); maximum gage height, 8.51 ft Feb. 9 (backwater from ice); minimum daily, 7.0 cfs Aug. 12.

1910-14, 1962-65: Maximum discharge, 3,240 cfs Feb. 1, 1963 (gage height, 12.65), from rating extended above 600 cfs on basis of slope-area measurement of maximum flow; no flow Oct. 15, 1913.

Remarks.--Records good. Flow regulated, beginning 1884, by Loon Lake (see preceding page). Original dam was dismantled during September and October 1962 to permit construction of a new earth-fill dam which was completed Dec. 27, 1963. Storage began Dec. 5, 1963. Loon Lake receives water from Rubicon River through Rubicon-Rockbound tunnel and Buck-Loon tunnel (see pp. 879, 881). See schematic diagram, p. 873.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.3	8.1	300	8.3	8.5	316	3.1	8.9	300	300	246	8.7
2	7.3	8.1	303	8.1	8.5	314	8.1	8.5	301	295	246	9.0
3	7.3	8.1	306	8.3	8.5	311	3.1	8.1	189	295	246	9.0
4	7.3	8.1	306	8.3	8.5	309	8.1	8.3	173	297	246	9.0
5	7.3	8.1	304	8.3	8.5	308	3.1	7.3	306	297	245	9.0
6	7.3	8.1	300	8.3	8.5	308	3.1	7.1	308	318	123	9.5
7	7.5	8.1	301	8.1	8.5	304	3.1	8.3	309	370	9.3	9.3
8	7.3	8.1	301	8.1	8.5	303	3.1	8.3	309	409	9.3	9.0
9	7.3	8.3	301	8.1	220	301	7.9	8.7	311	437	9.5	9.0
10	7.3	8.3	301	8.1	354	300	8.1	8.9	312	435	8.2	9.0
11	7.3	8.3	301	8.3	350	296	8.1	9.2	315	431	7.2	9.0
12	7.3	8.3	300	8.3	350	295	3.1	9.2	382	187	7.0	9.0
13	7.3	8.1	298	8.5	345	292	3.1	9.8	556	15	7.7	9.0
14	7.3	8.1	295	8.5	345	292	8.1	9.8	626	14	11	9.0
15	7.3	8.1	292	8.5	343	296	3.1	10	551	22	11	8.7
16	7.3	8.1	288	8.5	339	300	8.3	10	421	19	11	8.7
17	7.3	8.1	284	8.5	337	296	8.1	10	298	19	11	8.7
18	7.3	8.1	280	8.5	334	295	8.7	10	295	20	11	105
19	7.3	8.1	277	8.5	332	292	9.8	9.8	295	35	9.0	323
20	7.5	8.1	274	8.5	330	292	11	7.7	297	34	8.5	327
21	7.7	8.1	156	8.5	327	283	11	178	309	23	8.5	326
22	7.9	8.1	25	8.5	325	285	9.8	292	322	23	8.5	324
23	7.9	7.9	20	9.7	325	133	3.9	292	313	71	3.2	322
24	7.9	8.1	15	8.9	323	7.9	8.7	292	420	134	8.2	322
25	7.9	165	12	8.5	321	7.9	9.2	293	489	132	8.5	144
26	7.9	300	11	8.5	319	7.9	9.6	293	387	196	8.5	9.8
27	7.9	293	9.6	8.5	318	7.9	9.2	293	327	249	8.5	9.0
28	8.1	293	8.9	8.5	316	7.9	9.6	295	306	249	8.5	181
29	8.1	293	8.5	8.5	-----	7.9	9.8	296	303	246	8.5	326
30	7.9	292	8.5	8.5	-----	7.9	9.6	298	305	246	8.5	143
31	7.9	-----	8.9	8.5	-----	8.1	-----	300	-----	246	8.7	-----
Total	233.5	1836	6200.4	260.7	6621	6791.4	262.6	3299.9	10339	6069	1575.8	3019.4
Mean	7.53	61.2	200	8.41	236	219	8.75	106	345	196	50.8	101
Ac-ft	463	3540	12300	517	354	13470	521	6540	20510	12040	3130	5990
Ac-ft†	- 237	790	11090	2380	-940	- 600	6390	4390	-890	- 1390	-1500	-1030
Meant†	- 3.85	13.3	180	46.8	-16.9	- 9.76	116	71.4	-15.0	- 30.7	- 24.4	- 17.3

Calendar year 1964: Max 308 Min 2.1 Mean 99.1 Ac-ft 69,050 Meant 30.6 Ac-ft† 22,180

Water year 1964-65: Max 626 Min 7.1 Mean 127 Ac-ft 92,250 Meant 26.2 Ac-ft† 18,950

† Adjusted for change in contents of Loon Lake and for inflow through Buck-Loon tunnel.

Note.--When inflow to the reservoir is small and other quantities are large, discordant figures of net runoff may appear. This arises primarily from the difficulty of computing net runoff as the residual of several large quantities, which are not susceptible to measurement with a precision necessary to produce a final answer within desirable limits of accuracy. Records of evaporation from Loon Lake are not available.

11-4298. Robbs Peak tunnel near Riverton, Calif.

Location.--Lat 38°54'10", long 120°22'20", in NE¼, sec.11, T.12 N., R.14 E., on right bank 115 ft downstream from tunnel outlet and 10 miles northeast of Riverton.

Records available.--October 1962 to September 1965.

Gage.--Water-stage recorder and concrete control. Datum of gage is 5,116.0 ft above mean sea level (levels by Sacramento Municipal Utility District).

Extremes.--1962-65: Maximum daily discharge, 1,440 cfs Dec. 22-24, 1964; no flow for several days in 1965.

Remarks.--Records good except those for periods Oct. 1 to Nov. 16, Sept. 13-30, which are fair. Tunnel diverts at South Fork Rubicon River diversion dam in NE¼ sec.27, T.13 N., R.14 E., and discharge into Union Valley Reservoir (see p. 903). Water is imported from Rubicon River basin via Rubicon-Rockbound tunnel and Buck-Loon tunnel to Loon Lake, thence via Gerle Creek and Robbs Peak tunnel to South Fork American basin for power development. See schematic diagram, p. 873.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.6	0.6	392	210	219	504	195	564	522	386	269	52
2	.6	.6	450	189	199	486	171	418	529	372	267	63
3	.6	.6	399	182	182	479	155	308	537	374	266	63
4	.6	.6	375	181	178	486	163	300	324	374	264	72
5	.6	.6	367	185	256	477	181	313	517	371	266	24
6	.6	.6	363	237	288	474	171	261	519	372	250	.8
7	.6	.6	356	244	201	470	147	224	501	413	72	.8
8	.6	.6	364	206	164	465	132	213	479	438	21	.8
9	.6	.6	394	184	150	467	123	240	462	462	1.0	.7
10	.6	.6	402	178	391	470	115	309	481	462	0	18
11	.6	.6	744	180	522	477	114	351	483	459	0	47
12	.6	.6	502	178	526	497	120	379	483	392	.9	16
13	.6	.6	402	163	522	467	126	401	587	40	0	9.0
14	.6	.6	384	151	513	457	130	394	685	57	0	2.0
15	.6	.6	369	180	499	462	158	404	662	59	0	0
16	.6	.6	363	189	495	483	278	447	614	49	0	.1
17	.6	.6	353	178	490	495	248	460	467	45	0	0
18	.6	17	348	174	499	479	267	426	455	44	0	13
19	.6	46	364	203	515	490	614	391	433	46	.1	190
20	.6	44	600	213	528	492	859	377	431	55	4.4	278
21	.6	28	1,270	188	535	522	958	358	433	53	2.2	260
22	.6	11	1,440	165	542	555	697	526	438	46	4.5	258
23	.6	64	1,440	216	517	546	501	537	423	41	4.7	260
24	.6	64	1,440	486	499	256	537	535	426	116	5.6	254
25	.6	42	1,220	299	499	176	627	524	567	156	2.9	144
26	.6	321	1,340	222	506	159	665	551	495	164	0	15
27	.6	351	1,010	188	562	156	657	565	430	252	0	43
28	.6	347	464	172	537	145	691	567	396	268	0	86
29	.6	359	348	168	-----	156	737	571	389	268	0	205
30	.6	351	282	216	-----	173	691	574	384	270	0	145
31	.6	-----	231	233	-----	201	-----	556	-----	270	34	-----
Total	18.6	2,055.2	18,776	6,358	11,534	12,622	11,228	13,043	14,552	7,174	1,734.3	2,520.2
Mean	0.60	68.5	606	205	412	407	374	421	485	231	55.9	84.0
Ac-ft	37	4,080	37,240	12,610	22,980	25,040	22,270	25,870	28,860	14,230	3,440	5,000

Calendar year 1964 Max 1,440 Min -- Mean 186 Ac-ft 135,100  
 Water year 1964-65 Max 1,440 Min 0 Mean 278 Ac-ft 201,600

Note.--No gage-height record Oct. 1 to Nov. 16, Jan. 1-9.

11-4300. South Fork Rubicon River below Gerle Creek, near Georgetown, Calif.

Location.--Lat 38°57'15", long 120°24'00", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.22, T.13 N., R.14 E., on left bank 600 ft downstream from Gerle Creek and 18 miles east of Georgetown.

Drainage area.--47.6 sq mi.

Records available.--February 1910 to June 1914 (published as Little South Fork Rubicon River below Gerle Creek near Quintette), August 1961 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 4,970 ft (from topographic map). Feb. 1, 1910 to June 21, 1914, at site about 700 ft downstream at different datum.

Extremes.--Maximum discharge during year, 8,620 cfs Dec. 23 (gage height, 11.37 ft in gage well, 12.3 ft from floodmarks), from rating curve extended above 2,500 cfs as explained below; minimum daily, 5.3 cfs Oct. 6, Sept. 13, 14.

1910-14, 1961-65: Maximum discharge, 11,500 cfs Jan. 31, 1963 (gage height, 12.32 ft), from rating curve extended above 2,500 cfs on basis of slope-area measurement of maximum flow; minimum, 0.8 cfs Sept. 21, 1962.

Remarks.--Records good except those for period of no gage-height record, which are poor. Flow regulated, beginning 1884, by Loon Lake (former capacity, 8,000 acre-ft; present capacity, 74,100 acre-ft) except November 1962 to December 1963 during which period flow was regulated only by natural storage in the original lake. Prior to Dec. 3, 1961, water was diverted out of the basin in Georgetown Divide ditch. Robbs Peak Tunnel (see preceding page) began diversion of up to 1,320 cfs to Silver Creek basin October 1962. See schematic diagram, p. 873.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Jan. 1-5, 10-23, Jan. 26 to Feb. 4, Feb. 7-26, Mar. 2-11, Mar. 13 to Apr. 15)

1.3	4.0	3.5	156
1.5	7.6	4.0	256
1.7	12	5.0	585
2.0	21	6.0	1,080
2.3	34	7.0	1,800
2.6	53	8.0	2,780
3.0	88	10.0	5,660

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.5	13	3.0	8.4	7.0	8.8	7.4	13	11	11	9.5	6.2
2	5.5	15	11	7.4	6.8	8.4	7.2	12	11	11	9.5	6.0
3	5.5	14	9.3	7.4	6.6	8.2	7.0	12	11	11	9.5	6.0
4	5.5	13	8.2	6.8	6.6	8.4	6.8	12	11	11	9.5	6.0
5	5.5	12	7.4	9.1	9.7	7.8	7.0	11	11	11	9.5	6.8
6	5.3	12	6.8	22	9.7	8.2	7.0	11	12	11	9.5	5.5
7	5.6	11	6.6	13	7.8	7.8	6.4	11	12	11	8.0	5.6
8	5.6	11	6.6	12	7.0	7.8	6.2	11	12	10	10	5.6
9	5.6	18	6.8	9.7	6.6	7.8	6.2	11	12	10	14	5.8
10	5.8	21	7.6	8.4	7.2	8.2	6.0	11	12	10	7.6	5.8
11	5.8	18	13	7.8	8.4	8.2	6.0	11	12	10	8.6	5.6
12	5.8	26	9.3	7.2	8.4	8.8	6.2	11	11	10	31	5.5
13	5.8	19	7.6	6.8	8.4	7.8	6.4	11	12	14	19	5.3
14	5.8	15	7.0	6.6	8.2	7.8	6.6	11	13	9.5	14	5.3
15	5.8	14	6.8	6.8	7.8	7.8	7.0	11	13	9.5	24	6.2
16	5.8	15	6.4	6.6	7.8	7.8	16	11	13	9.3	16	8.2
17	5.8	14	6.2	6.6	7.4	7.8	11	11	12	9.3	14	8.6
18	5.8	11	6.2	6.4	7.4	7.8	11	11	12	9.3	11	8.9
19	5.8	7.8	9.2	6.8	7.8	7.4	14	11	12	9.1	9.7	9.9
20	5.8	7.6	22	7.0	8.2	7.4	16	10	13	9.1	9.3	11
21	5.8	7.4	584	5.6	8.2	7.8	17	11	12	9.1	11	10
22	5.8	7.4	4,700	6.4	8.4	8.2	13	12	12	9.1	9.5	9.9
23	5.8	7.2	4,500	12	7.8	8.2	12	12	12	9.1	8.9	9.9
24	5.8	7.2	1,990	16	7.4	7.0	11	12	12	9.7	8.4	9.9
25	6.8	7.0	27	9.9	7.4	6.4	11	12	13	11	8.0	21
26	8.2	7.8	127	8.4	7.6	6.8	11	12	13	11	7.8	22
27	8.9	6.4	117	7.8	12	7.2	10	12	12	12	7.6	12
28	9.3	6.4	16	7.2	9.9	6.8	11	12	12	11	7.2	7.6
29	14	6.4	13	6.8	-----	6.8	13	12	12	9.5	7.4	8.9
30	13	6.0	12	7.0	-----	6.8	13	12	11	9.5	3.4	9.5
31	11	-----	12	7.2	-----	7.2	-----	11	-----	9.5	6.4	-----
Total	207.8	356.6	12,270.0	270.1	223.5	239.2	289.4	354	359	316.6	343.8	254.5
Mean	6.70	11.9	396	8.71	7.98	7.72	9.65	11.4	12.0	10.2	11.1	8.48
Ac-ft	412	707	24,340	540	443	474	574	702	712	628	682	505

Calendar year 1964 Max 4,700 Min 5.3 Mean 40.7 Ac-ft 29,540  
Water year 1964-65 Max 4,700 Min 5.3 Mean 42.4 Ac-ft 30,720

Note.--No gage-height record July 6-15.

11-4310. Rubicon River near Georgetown, Calif.

Location.--Lat 38°57'30", long 120°29'05", in SE $\frac{1}{4}$  sec.23, T.13 N., R.13 E., on right bank 1.3 miles downstream from South Fork and 20 miles east of Georgetown.

Drainage area.--195 sq mi.

Records available.--November 1909 to June 1914 (published as "near Quintette"), May 1943 to December 1964 (discontinued).

Gage.--Water-stage recorder. Altitude of gage is 3,350 ft (from topographic map). Nov. 21, 1909, to June 8, 1914, at site 0.4 mile upstream at different datum. Prior to Mar. 11, 1963, at site across stream at same datum.

Average discharge.--24 years (1910-13, 1943-64), 568 cfs (411,200 acre-ft per year); adjusted for diversion to Robbs Peak tunnel and change in storage in Loon Lake.

Extremes.--Maximum discharge during period October to December, unknown Dec. 23 (gage height, 71 ft, from floodmarks), caused by the overtopping of the partly constructed Hell Hole Dam; minimum daily, 15 cfs Oct. 6, 7.  
1943-64: Maximum discharge, 58,000 cfs Feb. 1, 1963 (gage height, 25.8 ft, present site, from floodmarks), from rating curve extended above 11,000 cfs on basis of slope-area measurements at gage heights 22.8 ft and 25.8 ft; minimum, 3.4 cfs Nov. 10-13, 1955.

Remarks.--Records good. Flow regulated by Loon Lake (see p. 882) and diversion dams on Rubicon River and Little Rubicon River. Robbs Peak tunnel (see p. 884) diverts water to South Fork American River basin. Low summer flows augmented by release from streamflow maintenance dams built in 1950-56 on eight small headwater lakes (total controlled capacity, 1,295 acre-ft). Station destroyed by flood of Dec. 22, 1964 and will not be replaced. See schematic diagram, p. 873.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

2.6	9.4	4.0	232
2.7	16	4.5	376
3.0	45	5.0	552
3.5	122		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	21	41	225									
2	20	57	425									
3	20	52	227									
4	13	43	138									
5	16	45	109									
6	15	40	91									
7	15	34	83									
8	16	36	80									
9	16	62	-									
10	17	117	-									
11	13	91	-									
12	16	253	-									
13	16	124	-									
14	16	78	-									
15	13	63	-									
16	18	65	-									
17	17	55	-									
18	20	55	-									
19	20	49	-									
20	17	46	-									
21	18	49	-									
22	18	48	-									
23	18	49	-									
24	16	52	-									
25	18	91	-									
26	19	232	-									
27	22	126	-									
28	23	98	-									
29	36	140	-									
30	35	117	-									
31	33	-----	-									
Total	606	2,413	-									
Mean	19.5	80.6	-									
Ac-ft	1,200	4,300	-									
Calendar year 1964	Max	-	Min	-	Mean	-	Ac-ft	-				
Water year 1964-65	Max	-	Min	-	Mean	-	Ac-ft	-				



11-4318. Pilot Creek above Stumpy Meadows Reservoir, Calif.

Location.--Lat 38°53'41", long 120°34'02", in NE 1/4 sec.18, T.12 N., R.13 E., on right bank 2.1 miles upstream from Stumpy Meadows dam and 12.5 miles east of Georgetown.

Drainage area.--11.7 sq mi.

Records available.--October 1960 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 4,280 ft (from topographic map).

Average discharge.--5 years, 23.7 cfs (17,160 acre-ft per year).

Extremes.--Maximum discharge during year, 2,380 cfs Dec. 23 (gage height, 5.92 ft in gage well, 6.6 ft from floodmarks) from rating curve extended above 170 cfs on basis of slope-area measurement of maximum flow; minimum daily, 2.8 cfs Oct. 22-24.

1960-65: Maximum discharge, that of Dec. 23, 1964, maximum gage height, 8.05 ft Jan. 31, 1963; minimum discharge, 2.7 cfs Sept. 9, 10, 1962.

Remarks.--Records good. No regulation or diversion above station. See schematic diagram, p. 873.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used May 23, 24, July 23 to Sept. 30)

Oct. 1 to Dec. 23

Dec. 23 to Sept. 30

0.6	2.2	1.0	12	2.5	167	0.9	5.3	2.5	139
.7	3.8	1.2	21	3.0	298	1.0	7.7	3.0	245
.8	6.0	1.4	32	3.5	475	1.1	11	3.5	410
.9	8.8	1.7	56	4.0	720	1.3	19	4.0	640
		2.0	89	5.0	1,400	1.6	35	5.0	1,320
						2.0	69		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.8	12	14	76	54	50	50	69	22	13	8.0	7.0
2	3.8	11	26	67	53	48	49	63	22	13	7.5	6.7
3	4.0	7.9	19	63	51	48	47	56	21	13	7.5	6.7
4	4.0	6.5	14	59	50	48	43	54	20	13	7.5	6.3
5	4.0	5.8	12	70	72	48	48	51	19	13	7.5	6.3
6	4.2	5.5	10	171	79	48	48	48	18	13	7.2	6.7
7	4.2	5.5	9.4	153	70	47	46	46	18	12	7.2	7.5
8	4.2	5.5	9.1	117	66	45	45	43	19	12	7.2	7.2
9	4.4	16	9.4	97	62	45	45	41	18	12	7.2	6.7
10	4.6	15	9.7	84	53	44	44	39	17	12	7.2	6.5
11	4.6	13	30	74	55	45	41	37	17	12	10	6.5
12	4.4	32	21	67	52	46	41	36	17	11	13	6.3
13	4.4	14	15	60	49	44	41	36	17	11	12	6.3
14	4.2	10	13	54	47	44	41	35	17	11	11	6.0
15	4.2	9.5	12	53	45	43	45	34	17	11	10	6.0
16	4.2	7.3	11	49	43	42	118	32	18	9.7	9.4	6.0
17	4.2	6.8	10	48	41	42	106	31	19	9.7	9.0	5.8
18	4.2	6.8	9.4	47	41	41	100	30	18	9.4	9.0	6.0
19	3.8	7.3	20	50	41	41	117	30	18	9.4	8.4	6.3
20	3.4	6.8	108	52	41	40	125	28	19	9.0	8.0	6.3
21	2.9	6.0	310	49	41	41	134	29	18	9.0	7.7	6.5
22	2.8	6.0	1,250	48	41	43	117	28	17	9.0	8.0	6.3
23	2.8	6.0	1,190	72	40	43	104	28	16	8.4	8.0	6.3
24	2.8	6.5	551	110	38	43	99	26	15	7.7	7.7	6.0
25	2.9	7.9	234	86	38	42	97	26	15	7.7	7.7	5.8
26	2.9	14	230	76	38	45	92	24	15	7.7	7.5	6.0
27	2.9	11	272	69	62	53	89	24	15	7.5	7.2	6.3
28	3.8	9.7	170	64	54	47	85	23	15	7.5	7.0	7.2
29	9.5	10	129	59	-----	46	81	22	14	7.5	7.0	6.7
30	6.0	9.1	109	57	-----	46	77	22	14	7.7	6.7	6.0
31	5.0	-----	94	56	-----	48	-----	22	-----	8.7	6.7	-----
Total	127.1	289.4	4,921.0	2,257	1,422	1,396	2,220	1,113	525	317.6	260.0	192.2
Mean	4.10	9.65	159	72.8	50.8	45.0	74.0	35.9	17.5	10.2	8.39	6.41
Ac-ft	252	574	9,760	4,480	2,820	2,770	4,400	2,210	1,040	630	516	381

Calendar year 1964 Max 1,250 Min 2.8 Mean 25.0 Ac-ft 18,180  
Water year 1964-65 Max 1,250 Min 2.8 Mean 41.2 Ac-ft 29,830

Peak discharge (base, 100 cfs)

Note.--No gage height record Oct. 1-14.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0300	5.92	2,380	1-23	2300	2.61	159
1-6	2100	2.81	199	4-16	1200	2.57	152

## SACRAMENTO RIVER BASIN

11-4330.4. Pilot Creek below Mutton Canyon, near Georgetown, Calif.

Location.--Lat 38°55'25", long 120°38'27", in NE $\frac{1}{4}$  sec. 4, T.12 N., R.12 E., on left bank 450 ft downstream from Mutton Canyon, 500 ft downstream from Georgetown Divide diversion dam, 2.5 miles downstream from Stumpy Meadows Dam, and 10 miles east of Georgetown.

Drainage area.--21.1 sq mi.

Records available.--June 1961 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 3,760 ft (from topographic map).

Extremes.--Maximum discharge during year, 5,430 cfs Dec. 22, from rating curve extended above 150 cfs on basis of slope-area measurement at gage height 5.00 ft; maximum gage height 10.06 ft Dec. 23; minimum daily, 0.6 cfs Oct. 20.

1961-65: Maximum discharge, that of Dec. 22; minimum daily, 0.3 cfs July 31, 1961.

Revisions.--Maximum discharges for Feb. 13, 1962 and May 15, 1962 have been revised to 69 cfs (gage height, 2.83 ft), superseding figures published in Surface Water Records of California - Vol. 2, 1962.

Remarks.--Records good except those above 500 cfs and those for period of no gage-height record, which are fair. Flow regulated by Stumpy Meadows Reservoir (usable capacity, 20,000 acre-ft) completed in November 1961. Georgetown Irrigation District ditch (capacity, about 20 cfs) diverts water out of Pilot Creek, 500 ft above station. See schematic diagram, p. 873.

Revisions.--Revised figures of discharge, in cubic feet per second for the water year 1962, superseding those published in Surface Water Records of California-Vol. 2, 1962, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1962		1962-Con.		1962-Con.		1962-Con.		1962-Con.	
Feb. 10	9.0	Feb. 15	50	Feb. 19	16	Feb. 23	11	Feb. 26	9.1
12	5.8	16	29	20	14	24	10	27	8.5
13	36	17	22	21	12	25	9.7	28	8.8
14	33	18	18	22	12				

Month	cfs-days	Maximum	Minimum	Mean	Runoff in ac-ft
Feb. 1962.....	326.4	50	0.5	11.7	647
water year 1961-62	1,025.5	50	0.4	2.81	2,040

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.1	5.8	2.8	171	110	94	84	120	15	2.8	2.4	1.8
2	.9	2.7	3.8	145	106	91	83	103	14	2.8	2.4	1.8
3	1.0	1.2	2.6	153	100	89	82	99	13	2.8	2.4	1.8
4	1.0	1.0	1.9	146	92	83	82	93	12	2.8	2.4	1.8
5	1.0	1.0	1.6	187	135	86	81	89	11	2.8	2.4	1.8
6	1.0	.9	1.6	559	155	84	84	83	10	2.7	2.5	1.8
7	1.0	.9	1.4	531	130	82	90	79	9.5	2.7	2.6	1.8
8	1.0	.9	1.4	331	113	80	97	70	9.0	2.7	2.7	1.8
9	1.0	3.3	1.4	253	105	79	114	57	3.1	2.7	2.8	1.8
10	1.0	1.9	1.8	212	101	76	102	47	7.6	2.7	2.9	1.8
11	1.0	5.3	9.6	187	98	76	92	41	7.1	2.6	3.0	1.8
12	1.0	3.2	3.0	167	95	73	84	36	6.3	2.6	3.8	1.8
13	1.0	2.3	2.2	140	93	86	73	35	5.8	2.6	2.4	1.8
14	1.0	1.6	2.0	129	91	82	74	33	5.3	2.6	2.3	1.8
15	1.0	1.3	1.8	121	89	78	82	32	4.5	2.6	2.2	1.8
16	.9	1.2	1.6	114	86	77	270	31	4.0	2.5	2.2	1.7
17	.7	1.1	1.6	103	82	76	251	30	3.8	2.5	2.2	1.7
18	.7	1.1	1.4	104	79	74	226	29	3.6	2.5	2.1	1.7
19	.7	1.0	7.2	103	76	73	263	23	3.2	2.5	2.1	1.7
20	.6	1.0	23	106	75	72	302	27	3.2	2.5	2.1	1.7
21	.7	1.0	55	104	75	71	330	26	3.2	2.4	2.1	1.7
22	.7	1.0	1240	100	75	70	210	25	3.2	2.4	2.1	1.7
23	.7	1.0	3340	101	81	69	173	24	3.2	2.4	2.1	1.7
24	.7	1.0	1900	196	86	63	175	23	3.1	2.4	2.1	1.7
25	.7	1.4	831	173	72	67	172	22	3.0	2.4	2.1	1.7
26	.8	2.8	745	156	70	66	166	21	2.9	2.3	2.0	1.7
27	.8	1.8	889	142	120	121	153	20	2.9	2.3	2.0	1.8
28	.9	1.8	543	133	100	103	150	19	2.9	2.3	2.0	1.8
29	2.1	1.8	389	126	-----	92	141	13	2.9	2.3	2.0	3.4
30	1.1	1.6	294	116	-----	86	133	17	2.9	2.3	2.0	4.3
31	.9	-----	241	113	-----	85	-----	16	-----	2.4	1.8	-----
Total	29.7	53.9	10544.7	5437	2695	2524	4439	1396	186.2	73.9	72.2	57.0
Mean	0.96	1.96	340	175	96.2	81.4	143	45.0	6.21	2.55	2.33	1.90
Ac-ft	59	117	20920	10780	5350	5010	3800	2770	369	156	143	113

Calendar year 1964 Max 3,340 Min 0.6 Mean 37.9 Ac-ft 27,520  
 Water year 1964-65 Max 3,340 Min 0.6 Mean 75.4 Ac-ft 54,590

Note.--No gage-height record Jan. 25 to Aug. 10.

11-4331. Long Canyon Creek near French Meadows, Calif.

Location.--Lat 39°01'16", long 120°30'53", in SE $\frac{1}{4}$  NW $\frac{1}{4}$  sec. 34, T.14 N., R.13E., on right bank 75 ft downstream from North Fork Long Canyon, 6.5 miles south of French Meadows, and 18 miles east of Foresthill.

Drainage area.--18.0 sq mi.

Records available.--August 1960 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 4,100 ft (from topographic map).

Average discharge.--5 years, 38.5 cfs (27,870 acre-feet per year).

Extremes.--Maximum discharge during year, 4,690 cfs Dec. 23 (gage height, 11.20 ft), from rating curve extended above 180 cfs on basis of slope-area measurements at gage heights 6.62 and 10.27 ft; minimum daily, 1.4 cfs Oct. 25 1960-65; Maximum discharge, that of Dec. 23, 1964, minimum 0.2 cfs Sept. 4, 5, 7, 1961.

Remarks.--Records good except those for period of no gage-height record, which are poor. No regulation or diversion above station. See schematic diagram, p. 873.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 23				Dec. 23 to Sept. 30			
3.1	0.6	5.0	113	3.2	4.6	5.0	142
3.2	1.5	5.5	211	3.4	7.6	6.0	395
3.3	2.9	6.0	370	3.6	13	7.0	830
3.5	6.7	7.0	830	3.9	25	8.0	1,470
3.7	12	8.0	1,470	4.2	43	10.0	3,240
4.0	24	10.0	3,240	4.5	72		
4.5	58						

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.5	5.3	29	140	122	68	68	140	44	14	7.2	5.9
2	1.5	4.5	52	128	117	62	63	124	45	14	7.2	5.8
3	1.5	2.7	24	120	111	60	61	112	45	13	7.0	5.8
4	1.5	2.7	16	110	110	59	62	104	42	12	6.8	5.6
5	1.5	2.7	13	135	161	58	63	100	40	12	6.6	5.6
6	1.5	2.3	11	316	160	57	61	92	38	12	6.6	5.8
7	1.5	2.2	9.7	236	129	54	57	92	36	11	6.6	6.2
8	1.5	2.2	3.9	170	114	53	57	90	34	11	6.6	6.0
9	1.5	8.8	11	149	103	53	56	83	31	10	6.6	5.9
10	1.5	8.1	17	137	92	53	52	80	30	10	6.5	5.9
11	1.5	7.1	136	136	84	56	54	83	31	9.8	7.2	5.8
12	1.5	21	41	132	79	57	53	79	29	10	13	5.8
13	1.5	9.4	21	122	74	52	60	82	28	9.5	7.8	5.8
14	1.5	6.1	16	123	70	50	63	79	26	9.3	7.0	5.9
15	1.5	4.9	14	147	65	50	76	79	26	9.0	3.8	5.9
16	1.5	4.5	12	151	62	51	203	83	26	3.8	7.2	5.8
17	1.5	3.9	9.7	147	61	50	155	85	23	3.8	7.2	5.6
18	1.5	3.6	3.5	158	62	48	153	85	23	3.8	7.0	5.6
19	1.5	3.4	19	168	65	48	209	84	26	3.6	6.6	5.6
20	1.5	3.4	244	166	66	48	204	80	26	3.3	6.5	5.6
21	1.5	3.4	777	149	66	49	202	76	25	3.1	6.5	5.5
22	1.5	3.7	2450	134	66	53	172	72	22	7.8	6.5	5.5
23	1.5	4.3	2350	194	61	53	156	63	20	7.8	6.5	5.1
24	1.5	4.9	1540	273	58	52	153	61	19	7.6	6.3	5.5
25	1.4	9.4	776	184	57	48	158	57	18	7.8	6.3	5.3
26	1.7	19	780	158	56	50	155	55	17	7.4	6.2	5.2
27	1.6	12	560	140	89	52	156	53	17	7.2	6.0	5.2
28	1.9	10	331	122	76	51	155	50	16	7.2	6.0	5.3
29	3.7	13	254	109	-----	56	156	52	15	7.2	6.0	5.3
30	2.4	12	200	119	-----	61	156	51	15	7.2	6.0	5.1
31	2.0	-----	170	124	-----	64	-----	49	-----	7.4	5.9	-----
Total	50.7	200.5	10,900.8	4,795	24,36	1,676	3,459	2,480	843	292.6	214.2	1,63.9
Mean	1.64	6.68	352	155	87.0	54.1	115	80	23.1	9.44	6.91	5.63
Ac-ft	101	393	21,620	9,510	4,830	3,320	6,860	4,920	1,670	580	425	335

Calendar year 1964 Max 2,450 Min 1.4 Mean 50.7 Ac-ft 36,800  
 Water year 1964-65 Max 2,450 Min 1.4 Mean 75.4 Ac-ft 54,570

Peak discharge (base, 150 cfs)

Note.--No gage height record Oct. 1-21.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-11	1000	5.54	222	1-23	2100	6.08	423
12-23	0130	11.20	4,690	2-5	2100	5.29	200
1-6	2000	5.87	351	4-16	0900	5.48	245

## SACRAMENTO RIVER BASIN

11-4332. Rubicon River near Foresthill, Calif.

Location--Lat 38°59'33", long 120°43'14", in SE $\frac{1}{4}$  NW $\frac{1}{4}$  sec. 11, T.13 N., R.11 E., on right bank 0.6 mile upstream from Ralston powerhouse, 1.2 miles upstream from confluence of Rubicon River and Middle Fork American River, and 5.6 miles southeast of Foresthill. Prior to Mar. 30, 1965 at site 2.1 miles upstream.

Drainage area--315 sq mi.

Records available--October 1958 to September 1965.

Gage--Water-stage recorder. Altitude of gage is 1,200 ft (from topographic map). October 1958 to May 17, 1963, at site 2.0 miles upstream, 150 ft downstream from Ralston Bridge; and May 17, 1963, to Mar. 30, 1965, at site 2.1 miles upstream, 100 ft upstream from Ralston Bridge; at datums 1,362.20 ft above mean sea level.

Average discharge--7 years, 609 cfs (440,900 acre-ft per year).

Extremes--Maximum discharge during year, unknown Dec. 23 (gage height, 55.4 ft, from floodmarks) result of overtopping of the partly constructed Hell Hole Dam; minimum daily discharge, 21 cfs Oct. 6-8.  
1958-65: Maximum discharge, that of Dec. 23, 1964; minimum daily discharge, 10 cfs Sept. 20-27, 1962.

Remarks--Records good except those for periods of no gage-height record, which are fair below 5,000 cfs and poor above. Some regulation by Loon Lake (see p. 882), diversion dams on Rubicon River and Little Rubicon River, and by Stumpy Meadows Reservoir (usable capacity, 20,000 acre-ft) completed November 1961. Robbs Peak tunnel (see p. 884) diverts water out of the basin. See schematic diagram, p. 873.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	27	76	230	1,870	1,400	983	820	2,280	1,120	328	79	69
2	25	105	610	1,640	1,350	927	796	1,790	1,030	306	77	67
3	24	76	412	1,670	1,270	903	756	1,430	1,150	300	75	65
4	24	66	241	1,540	1,220	893	724	1,270	1,200	300	74	63
5	23	62	183	1,930	1,790	874	716	1,310	1,200	289	74	62
6	21	58	152	5,230	1,900	856	764	1,160	1,150	262	72	61
7	21	51	134	4,580	1,560	826	716	1,020	1,030	223	70	78
8	21	48	124	3,000	1,400	809	724	928	982	206	68	98
9	22	107	118	2,410	1,250	804	796	946	864	181	67	94
10	23	203	270	2,090	1,160	787	796	1,040	856	158	66	77
11	23	188	1,110	1,940	1,100	806	716	1,180	973	141	65	73
12	24	412	1,090	1,790	1,050	826	756	1,310	982	126	155	70
13	25	263	510	1,600	1,010	840	829	1,430	820	123	300	67
14	23	143	310	1,510	773	804	796	1,480	700	105	310	64
15	23	109	250	1,610	930	781	804	1,460	590	99	185	61
16	23	96	202	1,590	894	783	1,790	1,630	551	93	205	58
17	24	88	184	1,530	866	773	1,660	1,820	532	92	180	56
18	24	82	166	1,570	855	747	1,480	1,760	675	92	150	55
19	24	77	210	1,630	857	741	2,040	1,680	570	97	130	53
20	26	70	1,100	1,640	859	737	2,470	1,630	604	94	120	52
21	23	70	10,000	1,520	861	744	2,310	1,500	639	91	108	52
22	22	70	27,500	1,410	860	768	2,440	1,120	604	87	98	51
23	22	70	60,000	1,780	864	762	1,990	991	570	92	94	51
24	24	70	29,700	2,340	874	744	1,990	1,030	507	91	91	51
25	24	82	9,480	2,180	786	705	2,150	973	489	90	88	51
26	24	276	8,140	1,890	770	711	2,150	1,100	432	88	86	56
27	26	225	7,570	1,690	1,270	1,000	2,180	1,190	394	87	84	65
28	29	144	4,500	1,530	1,070	860	2,240	1,200	366	86	81	56
29	60	167	3,000	1,410	-----	800	2,400	1,300	372	84	78	51
30	59	175	2,280	1,410	-----	756	2,520	1,320	350	82	75	50
31	49	-----	2,080	1,430	-----	780	-----	1,270	-----	80	72	-----
Total	931	3,734	171,856	61,460	31,049	25,130	43,819	41,548	22,243	4,573	3,477	1,877
Mean	26.8	124	5,544	1,983	1,109	811	1,451	1,340	741	148	112	62.6
Ac-ft	1,650	7,410	340,900	121,900	61,580	49,840	86,910	82,410	44,120	9,070	6,900	3,720

Calendar year 1964 Max 60,000 Min 21 Mean 773 Ac-ft 561,400  
Water year 1964-65 Max 60,000 Min 21 Mean 1,128 Ac-ft 816,400

Note--No gage-height record Dec. 9 to Mar. 29, July 16 to Aug. 3, Aug. 8 to Sept. 8, Sept. 11-24, 30.

11-4332.6. North Fork of Middle Fork American River near Foresthill, Calif.

Location.--Lat 39°01'27", long 120°43'03", in NE $\frac{1}{4}$  sec. 35, T.14 N., R.11 E., on right bank 1.0 mile downstream from El Dorado Canyon and 4.8 miles east of Foresthill.

Drainage area.--88.9 sq mi.

Records available.--July to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 1,300 ft (from topographic map).

Extremes.--Maximum discharge during period July to September, 120 cfs Aug. 12 (gage height, 4.64 ft); minimum daily, 28 cfs Sept. 26, 27.

Remarks.--Records good except those for period of no gage-height record, which are poor. No storage or diversion above station. See schematic diagram p. 873.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1										--	35	32
2										--	36	32
3										--	37	32
4										--	38	32
5										--	39	32
6										--	40	33
7										--	39	33
8										--	37	33
9										--	36	33
10										--	36	33
11										--	46	33
12										--	110	31
13										--	60	31
14										--	49	31
15										--	46	30
16										--	44	30
17										35	42	30
18										35	41	30
19										35	40	30
20										34	39	30
21										33	39	30
22										33	39	30
23										33	39	29
24										33	39	29
25										33	37	29
26										33	36	28
27										33	36	28
28										33	35	31
29					-----					33	34	31
30					-----					33	33	29
31		-----			-----		-----		-----	34	32	-----
Total										--	1,289	925
Mean										--	41.6	30.8
Ac-ft										--	2,560	1,830

Calendar year 1964 Max -- Min -- Mean -- Ac-ft --

Water year 1964-65 Max -- Min -- Mean -- Ac-ft --

Note.--No gage-height record July 23 to Aug. 5, Sept. 4-10, 17-22.

11-4333. Middle Fork American River near Foresthill, Calif.

Location.--Lat 38°59'58", long 120°47'27", near center of sec.6, T.13 N., R.11 E., on right bank 800 ft downstream from Josephine Canyon and 2 miles southeast of Foresthill.

Drainage area.--534 sq mi.

Records available.--October 1958 to September 1915.

Gage.--Water-stage recorder. Altitude of gage is 940 ft (from topographic map).

Average discharge.--7 years, 1,048 cfs (758,700 acre-ft per year).

Extremes.--Maximum discharge during year, about 310,000 cfs Dec. 23 (gage height, 69.0 ft, from floodmarks) caused by overtopping the partly constructed Hell Hole Dam on the Rubicon River, from rating curve extended above 28,000 cfs on basis of slope-area measurement at gage height 38.0 ft and slope-conveyance study at gage height 69.0 ft; minimum daily, 59 cfs Oct. 22, 23, 1958-65: Maximum discharge that of Dec. 23, 1964; minimum, 35 cfs Oct. 19, 20, 1961.

Remarks.--Records good except those for period of no gage-height record, which are fair. Some regulation by Loon Lake (see p. 882), French Meadows Reservoir (see p. 874), and Stumpy Meadows Reservoir (usable capacity, 20,000 acre-ft) completed November 1961. Rubicon Rockbound Tunnel, Buck-Loon Tunnel, and Robbs Peak Tunnel (see pp. 879, 881, 884) divert water of the basin. See schematic diagram p. 873.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	69	160	636	2,500	2,060	1,330	1,380	4,600	1,410	680	195	123
2	67	298	1,340	2,040	2,020	1,300	1,320	3,820	1,310	668	190	119
3	64	161	917	2,810	1,940	1,260	1,260	3,260	1,400	644	185	113
4	63	129	557	5,600	1,810	1,230	1,220	2,810	1,420	638	170	113
5	62	122	412	5,180	2,250	1,200	1,190	1,990	1,470	632	165	108
6	61	121	309	13,200	2,800	1,220	1,240	1,770	1,400	602	155	109
7	61	109	261	11,000	2,260	1,170	1,210	1,680	1,380	530	155	113
8	60	106	238	6,300	1,990	1,130	1,240	1,680	1,310	482	150	123
9	61	361	242	4,700	1,870	1,130	1,720	1,710	1,110	464	138	150
10	63	614	356	3,820	1,780	1,14	2,100	1,790	1,140	446	138	195
11	62	472	2,550	3,250	1,680	1,140	1,750	1,930	1,150	434	138	230
12	62	1,020	1,840	2,960	1,610	1,190	1,580	2,110	1,170	392	260	245
13	63	649	919	2,640	1,500	1,230	1,630	2,250	1,050	368	575	240
14	62	336	672	2,440	1,440	1,150	1,540	2,410	945	330	636	250
15	59	238	561	2,620	1,380	1,090	1,520	2,500	833	305	315	270
16	60	191	482	2,630	1,370	1,060	4,400	2,640	784	285	500	280
17	61	178	390	2,520	1,310	1,080	4,150	2,950	764	280	368	275
18	62	165	321	2,470	1,250	1,060	3,040	2,950	924	285	310	275
19	60	159	588	2,560	1,260	1,050	3,700	2,920	812	300	260	280
20	62	148	3,540	2,560	1,280	1,070	4,200	2,850	784	270	225	280
21	60	142	12,300	2,370	1,300	1,090	4,600	2,830	826	245	195	280
22	59	144	37,500	2,130	1,340	1,160	4,150	2,280	854	230	185	280
23	59	150	65,000	2,160	1,320	1,240	3,260	1,960	854	240	175	285
24	60	150	30,000	4,970	1,210	1,270	3,780	1,870	770	235	170	305
25	62	180	13,000	3,270	1,200	1,180	3,920	1,810	864	230	165	310
26	62	531	12,000	2,780	1,170	1,130	4,000	1,850	798	220	155	310
27	62	534	13,500	2,530	1,430	1,710	4,380	1,970	770	220	150	320
28	67	345	8,600	2,300	1,520	1,410	4,400	2,000	764	215	144	320
29	132	412	5,600	2,180	-----	1,280	4,600	1,650	728	210	144	330
30	144	408	4,200	2,130	-----	1,250	4,750	1,660	698	205	138	315
31	108	-----	3,500	2,200	-----	1,270	-----	1,560	-----	205	128	-----
Total	2,119	8,733	222,331	112,820	45,350	37,220	83,230	72,060	30,292	11,490	6,977	6,944
Mean	68.4	291	7,172	3,639	1,620	1,201	2,774	2,325	1,010	371	225	231
Ac-ft	4,200	17,320	441,000	223,800	89,950	73,820	165,100	142,900	60,090	22,790	13,840	13,770

Calendar year 1964 Max 65,000 Min 59 Mean 1,225 Ac-ft 889,400  
 Water year 1964-65 Max 65,000 Min 59 Mean 1,752 Ac-ft 1,268,000

Note.--No gage height record Dec. 23 to Sept. 30.

11-4335. Middle Fork American River near Auburn, Calif.

Location.--Lat 38°55'05", long 121°00'45", in NE 1/4 sec. 6, T.12 N., R.9 E., on right bank at Mountain Quarry Co. plant, 1.5 miles upstream from mouth, and 3.3 miles northeast of Auburn.

Drainage area.--612 sq mi.

Record available.--October 1911 to September 1965. Prior to October 1934, published as "near East Auburn."

Gage.--Water-stage recorder. Altitude of gage is 560 ft (from river-profile map). Prior to December 1930, staff gages near present site at different datums. December 1930 to Mar. 1, 1963, water-stage recorder at site 0.4 mile upstream at different datum.

Average discharge.--5 1/4 years, 1,351 cfs (978,100 acre-ft per year).

Extremes.--Maximum discharge during year, 253,000 cfs Dec. 23 (gage height, 60.4 ft, from floodmarks), from rating curve extended above 69,000 cfs on basis of slope-area measurement of maximum flow (caused by overtopping of the partly constructed Hell Hole Dam); minimum discharge, 65 cfs Oct. 17-19.

1911-65: Maximum discharge, that of Dec. 23, 1964; minimum, 20 cfs Sept. 6, 1931, Sept. 19, 1934.

Remarks.--Records good. Natural flow of stream affected by French Meadows Reservoir (see p. 874), Loon Lake (see p. 882), Stumpy Meadows Reservoir (usable capacity, 20,000 acre-ft), and diversion dams on Rubicon River and Little Rubicon River. Rubicon-Rockbound Tunnel, Buck-Loon Tunnel, and Robbs Peak Tunnel (see pp. 879, 881, 884) divert water out of basin. See schematic diagram, p. 873. Records of chemical analyses and suspended sediment loads for the water year 1965 are published in Part 2 of this report.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Dec. 2-20, Apr. 26 to May 25)

Oct. 1 to Dec. 23

Dec. 23 to Sept. 30

5.1	63	11.0	5,650	6.3	110	13.0	7,070
5.3	108	14.0	10,500	6.6	260	17.0	14,600
5.5	165	18.0	17,900	7.0	480	22.0	27,000
6.0	380	24.0	32,300	8.0	1,130	28.0	43,900
6.5	680	30.0	49,900	10.0	3,080		
7.0	1,060	40.0	89,300				
9.0	3,100						

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	78	119	470	2,640	2,180	1,370	1,420	4,800	1,460	690	205	135
2	78	271	1,240	2,160	2,130	1,330	1,350	4,020	1,340	678	200	130
3	76	136	1,160	2,970	2,050	1,290	1,290	3,450	1,440	654	195	125
4	74	135	652	5,740	1,900	1,260	1,240	2,970	1,470	643	180	125
5	74	113	478	5,400	2,380	1,220	1,210	2,100	1,520	642	175	120
6	71	103	390	14,400	2,960	1,250	1,270	1,360	1,440	612	165	120
7	67	103	321	12,300	2,390	1,190	1,230	1,760	1,310	540	165	125
8	67	101	290	6,570	2,100	1,140	1,270	1,760	1,230	492	160	135
9	67	233	272	4,890	1,970	1,140	1,800	1,790	1,120	474	150	160
10	67	604	355	4,020	1,870	1,160	2,220	1,880	1,150	456	150	205
11	67	490	2,210	3,440	1,760	1,150	1,830	2,030	1,170	444	150	240
12	67	995	2,220	3,130	1,680	1,210	1,650	2,230	1,190	402	270	255
13	67	802	987	2,790	1,550	1,260	1,700	2,380	1,060	373	585	250
14	67	415	666	2,590	1,490	1,170	1,600	2,540	955	340	646	260
15	67	290	556	2,770	1,420	1,100	1,530	2,650	943	315	325	280
16	67	224	478	2,780	1,410	1,070	4,610	2,790	794	295	510	290
17	65	200	415	2,670	1,340	1,090	4,370	3,120	774	290	378	285
18	65	176	358	2,610	1,280	1,070	3,220	3,120	934	295	320	285
19	65	162	515	2,710	1,290	1,060	3,880	3,090	822	310	270	290
20	67	153	3,280	2,710	1,310	1,030	4,430	3,010	794	280	235	290
21	67	141	12,300	2,500	1,330	1,100	4,840	2,990	836	255	205	290
22	67	141	39,600	2,250	1,380	1,180	4,380	2,410	864	240	195	290
23	67	144	73,100	2,280	1,350	1,270	3,450	2,070	864	250	185	295
24	67	147	39,700	5,160	1,230	1,300	3,970	1,970	780	245	180	315
25	67	156	15,200	3,460	1,220	1,200	4,120	1,900	864	240	175	320
26	67	255	14,200	2,940	1,190	1,140	4,200	1,940	808	230	165	320
27	67	582	15,700	2,680	1,480	1,790	4,590	2,080	780	230	160	330
28	69	375	8,770	2,430	1,580	1,460	4,600	2,110	774	225	155	330
29	89	365	5,860	2,300	-----	1,310	4,810	1,720	738	220	155	340
30	130	410	4,410	2,250	-----	1,280	4,980	1,730	708	215	150	325
31	108	-----	3,630	2,320	-----	1,300	-----	1,520	-----	215	140	-----
Total	2,248	8,601	249,783	119,850	47,220	37,940	87,110	75,890	30,832	11,800	7,299	7,260
Mean	72.5	287	8,058	3,866	1,686	1,224	2,904	2,448	103	381	235	242
Ac-ft	4,460	17,060	495,400	237,700	93,660	75,250	172,300	150,500	61,150	23,400	14,480	14,400

Calendar year 1964 Max 73,100 Min 65 Mean 1,348 Ac-ft 978,500  
Water year 1964-65 Max 73,100 Min 65 Mean 1,879 Ac-ft 1,360,000

Peak discharge (base, 6,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	1345	60.4	253,000	1- 6	2400	18.92	19,200
12-27	0300	20.02	21,900	4-16	1600	12.67	6,580

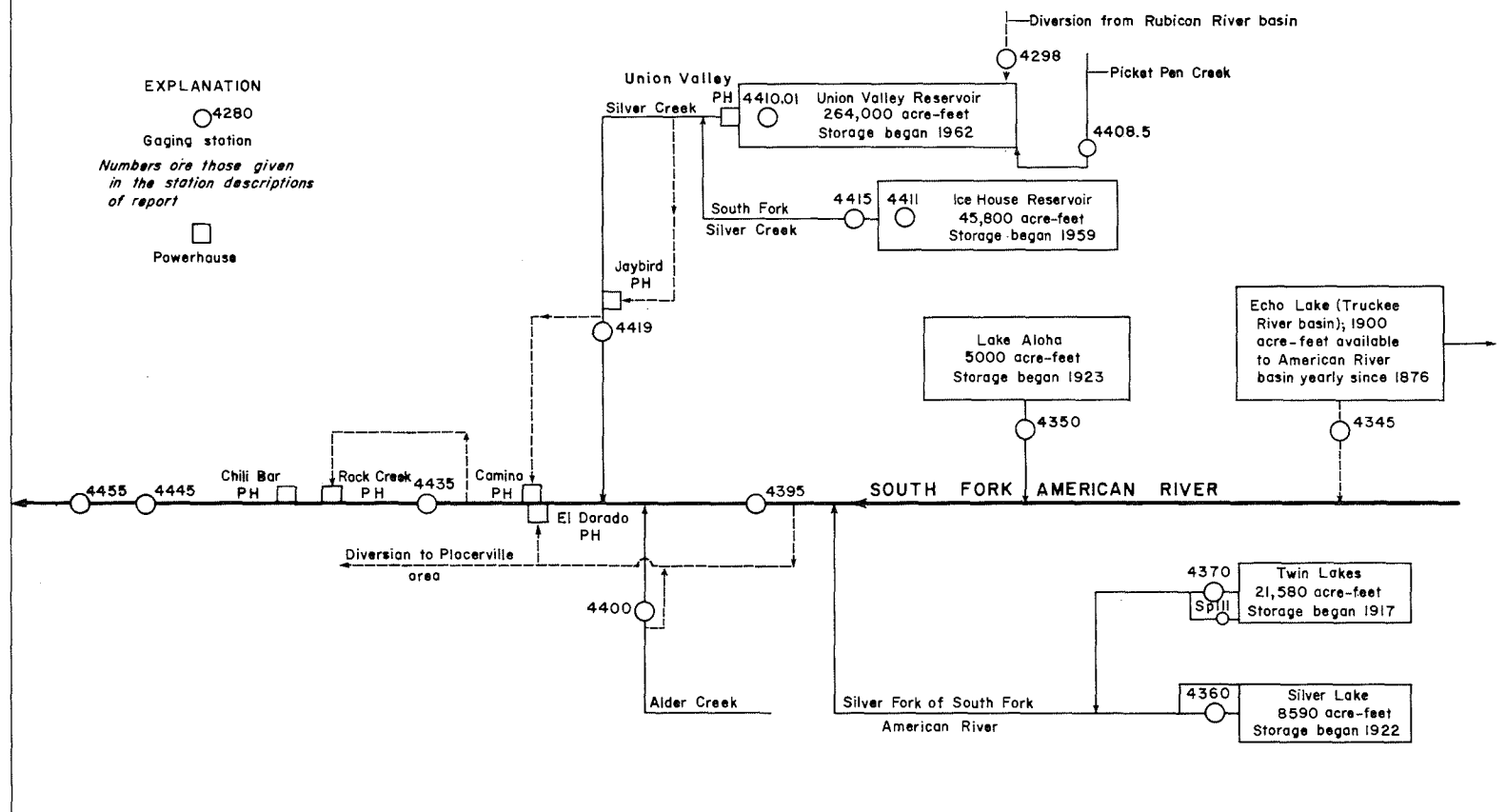


Figure 8.--Schematic diagram showing diversions and storage in South Fork American River basin



11-4345. Echo Lake conduit near Phillips, Calif.

Location.--Lat 38°49'52", long 120°02'12", in NW¼ sec.6, T.11 N., R.18 E., on right bank in Berkeley Municipal Camp, 0.5 mile downstream from intake and 2.4 miles northeast of Phillips.

Records available.--August 1923 to November 1965 (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. Altitude of gage is 7,420 ft (from topographic map). Prior to July 16, 1929, staff gage at site 0.4 mile upstream at different datum.

Extremes.--1923-65: Maximum daily discharge, 31 cfs Sept. 10, 1963; no flow for most of each year.

Remarks.--Records good. No flow except during diversion season for which discharge is published. Conduit diverts from Echo Lake (capacity, 1,900 acre-ft) in Truckee River basin into basin of South Fork American River for power and irrigation. See schematic diagram, preceding page.

Cooperation.--Water-stage-recorder graph and six discharge measurements furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Discharge, in cubic feet per second, September to November 1965

Day									Sept.	Oct.	Nov.	
1									0	18	3.2	
2									0	18	3.2	
3									0	17	3.0	
4									0	18	2.3	
5									0	19	1.9	
6									0	18	1.6	
7									0	17	1.5	
8									0	15	1.2	
9									0	15	.7	
10									0	14	.7	
11									0	15	.7	
12									0	14	.6	
13									16	13	.4	
14									29	11	.6	
15									28	8.8	.4	
16									28	7.5	0	
17									27	5.8	0	
18									27	6.1	0	
19									26	.4	0	
20									28	0	0	
21									28	0	0	
22									24	2.5	0	
23									22	5.3	0	
24									22	4.2	0	
25									21	3.2	0	
26									21	3.2	0	
27									20	3.2	0	
28									20	3.2	0	
29									19	3.2	0	
30									19	3.2	0	
31										3.2		
Total									425	285.0	22.0	
Mean									14.2	9.19	0.73	
Ac-ft									843	565	44	

Calendar year 1964 Max: Min: Mean: Ac-ft  
 Water year 1964-65 Max: Min: Mean: Ac-ft

Note.--No gage-height record Oct. 25 to Nov. 2.

## SACRAMENTO RIVER BASIN

11-4350. Pyramid Creek near Phillips, Calif.

Location.--Lat 38°50'55", long 120°07'40", in N½ sec.32, T.12 N., R.17 E., on left bank 0.9 mile southeast of Lake Aloha dam, 1.6 miles east of Pyramid Peak, 3.4 miles northwest of Phillips, and 4.6 miles west of Echo Lake Resort.

Drainage area.--3.73 sq mi.

Records available.--September 1922 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A. Prior to October 1952, published as Medley Lakes Outlet near Wade and October 1952 to September 1955 as Medley Lakes Outlet near Phillips.

Gage.--Water-stage recorder. Altitude of gage is 8,050 ft (from topographic map).

Average discharge.--43 years, 17.5 cfs (12,670 acre-ft per year).

Extremes.--Maximum discharge, 401 cfs Dec. 23 (gage height, 4.88 ft, from recorded range in stage), from rating curve extended above 130 cfs; minimum daily, 0.2 cfs Oct. 27, 28.

1922-65: Maximum discharge, that of Dec. 23, 1964; maximum gage height, 5.4 ft Jan. 31, 1963 (backwater from ice); no flow at times in some years.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Flow regulated by Lake Aloha (capacity, 5,000 acre-ft); no contents, Sept. 30, 1964, and 1,060 acre-ft Sept. 30, 1965. See schematic diagram, p. 894.

Cooperation.--Water-stage-recorder graph and two discharge measurements furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission Project.

Rating table, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.2	0	0.8	5.2
.3	.4	1.0	9.6
.4	.8	1.3	22
.5	1.4	1.8	51
.6	2.2	2.3	91
.7	3.5		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.6	0.6								61	34	57
2	.6	.8								61	33	60
3	.5	.6								69	30	60
4	.4	.7								85	24	59
5	.4									85	24	58
6	.4									86	23	61
7	.4									85	16	66
8	.4									70	16	59
9	.4									64	23	56
10	.4	.5									26	55
11	.4								11			55
12	.4											54
13	.4										26	54
14	.4									60		53
15	.4											53
16	.4											53
17	.4											52
18	.4											51
19	.4										25	51
20	.4									60		49
21	.3									53		50
22	.3	.5								46		50
23	.3								51	44	30	49
24	.3								56	43	36	49
25	.3								60	43	51	48
26	.3								55	42	49	48
27	.2								54	39	48	47
28	.2								53	33	48	46
29	.6								57	33	48	45
30	.5								60	33	48	45
31	.4									34	49	
Total	12.2	15.7	496	77.5	56.0	62.0	105	248	688	1,769	962	1,593
Mean	0.39	0.52	16.0	2.50	2.00	2.00	3.50	8.00	22.9	57.1	31.0	53.1
Ac-ft	24	31	984	154	111	123	208	492	1,360	3,510	1,910	3,160

Calendar year 1964 Max - Min 0.2 Mean 14.1 Ac-ft 10,210  
 Water year 1964-65 Max - Min 0.2 Mean 16.7 Ac-ft 12,070

Note.--Stage-discharge relation affected by ice Nov. 5-15. No gage-height record, Nov. 16 to June 22, July 9-19, Aug. 11-23, Sept. 23-30.

11-4360. Silver Lake Outlet near Kirkwood, Calif.

Location.--Lat 38°40'17", long 120°07'18", in SW¼ sec.32, T.10 N., R.17 E., on right bank 1,000 ft downstream from Silver Lake Dam and 3.5 miles southwest of Kirkwood.

Drainage area.--15.2 sq mi.

Records available.--September 1922 to September 1965. Records for water year 1923 incomplete, yearly estimate published in WSP 1315-A.

Gage.--Water-stage recorder. Datum of gage is 7,199.5 ft above mean sea level, unadjusted.

Average discharge.--43 years, 33.5 cfs (24,250 acre-ft per year).

Extremes.--Maximum discharge during year, 560 cfs Dec. 24 (gage height, 5.39 ft); minimum daily, 1.8 cfs Aug. 4.

1922-65: Maximum discharge, 676 cfs Nov. 21, 1950 (gage height, 6.03 ft), from rating curve extended above 290 cfs; no flow for many days in February, March 1948, Jan. 13, 14, 1954, Nov. 3, 1959, to Feb. 5, 1960.

Remarks.--Records good except those for period of no gage-height record, which are poor. Flow regulated by Silver Lake (capacity, 3,840 acre-ft at spillway level and 8,590 acre-ft with 11 ft of flashboards); contents in Silver Lake, 2,980 acre-ft Sept. 30, 1964, and 5,220 acre-ft Sept. 30, 1965. Some water, in addition to that released through dam and over spillway, escapes from Silver Lake through porous rock formation. See schematic diagram, p. 894.

Cooperation.--Water-stage recorder graph and nine discharge measurements furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 24					Dec. 25 to Sept. 30				
0.7	1.6	2.0	91		0.7	1.6	2.0	86	
.8	3.6	3.0	196		.8	3.6	3.0	196	
.9	7.2	4.0	332		.9	7.2	4.0	332	
1.0	12	6.0	670		1.0	12	5.0	490	
1.5	47				1.5	44			

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	44	32	9.6	69	31	25	19	266	245	103	3.4	4.3
2	43	31	9.6	57	31	25	19	223	226	124	3.2	4.0
3	41	31	9.6	57	31	25	19	168	245	124	2.4	3.6
4	20	30	9.6	52	31	25	19	135	268	120	1.8	3.0
5	2.8	29	9.1	48	31	25	19	124	151	114	3.2	2.4
6	4.3	28	8.6	50	31	24	18	109	68	107	4.3	2.2
7	4.3	28	8.2	53	31	24	18	93	11	102	3.0	2.4
8	2.6	26	7.7	45	30	24	18	82	36	69	2.8	2.4
9	2.2	26	7.7	40	30	24	18	81	66	33	2.6	3.9
10	3.0	26	8.6	38	30	24	18	91	114	14	2.0	3.9
11	3.0	26	9.1	38	29	23	17	117	161	6.9	3.0	3.8
12	3.0	26	9.6	37	29	23	17	154	188	6.5	8.6	3.8
13	3.2	25	9.6	36	29	23	17	189	189	6.5	1.7	3.8
14	3.2	24	8.6	36	29	23	17	207	164	6.5	2.2	3.7
15	3.4	23	8.2	35	28	23	17	224	123	8.2	2.0	3.6
16	3.4	24	8.2	34	28	22	17	255	107	1.7	1.4	3.6
17	3.4	22	7.7	34	28	22	17	269	70	4.7	1.1	3.6
18	3.4	21	7.2	34	28	22	17	283	31	7.6	1.1	3.6
19	3.4	19	8.6	34	28	22	17	284	22	2.7	6.5	3.6
20	3.2	18	9.1	34	28	22	17	283	25	1.0	3.2	3.5
21	3.2	16	1.1	34	27	21	18	263	16	6.5	3.4	3.5
22	3.2	15	2.1	34	27	21	18	208	26	4.7	3.0	3.8
23	25	14	294	34	27	21	19	160	49	4.0	2.8	4.6
24	38	13	508	34	26	21	20	142	65	3.4	2.8	5.4
25	38	12	395	34	26	21	48	147	82	3.2	2.2	6.3
26	36	12	295	34	26	20	109	178	79	3.6	2.6	6.3
27	36	12	222	33	26	20	170	214	53	4.3	2.6	6.2
28	35	11	160	33	26	20	206	240	53	4.0	3.0	6.1
29	34	11	118	32	-----	20	228	262	71	4.7	3.0	6.1
30	33	10	9.7	31	-----	20	273	269	85	4.3	2.4	6.8
31	32	-----	8.3	31	-----	20	-----	262	-----	4.0	2.8	-----
Total	513.2	641	2,378.2	1,225	802	695	1,464	5,982	3,027.8	1,168.3	175.6	1,040.9
Mean	16.6	21.4	76.7	39.5	28.6	22.4	48.8	193	101	37.7	5.66	34.7
Ac-ft	1,020	1,270	4,720	2,430	1,590	1,380	2,900	11,870	6,010	2,320	348	2,060

Calendar year 1964 Max 508 Min 1.4 Mean 25.8 Ac-ft 18,760  
 Water year 1964-65 Max 508 Min 1.8 Mean 52.4 Ac-ft 37,920

Note.--No gage-height record Mar. 1 to Apr. 24.

11-4370. Twin Lakes Outlet near Kirkwood, Calif.

Location.--Lat 38°42'29", long 120°03'00", in SW¼ sec.18, T.10 N., R.18 E., on right bank 500 ft downstream from main dam and outlet gate of Twin Lakes and 1.3 miles east of Kirkwood.

Drainage area.--13.5 sq mi.

Records available.--September 1922 to September 1965. Records for water year 1945 incomplete, yearly estimate published in WSP 1315-A.

Gage.--Water-stage recorder and concrete control for outlet, and water-stage recorder for spillway. Altitude of gage is 7,700 ft (from topographic map).

Average discharge.--43 years, 35.6 cfs (25,770 acre-ft per year), including flow over Twin Lakes spillway.

Extremes.--Maximum combined daily discharge during year for outlet and spillway, 295 cfs Aug. 16; minimum daily, 1.4 cfs Dec. 25. 1922-65: Maximum combined daily discharge for outlet and spillway, 405 cfs Dec. 8, 1950; minimum daily, 0.1 cfs Mar. 25-31, 1944, Nov. 27, 28, 1956.

Remarks.--Records good. Flow regulated by Twin Lakes (capacity, 19,750 acre-ft spillway level, 21,580 acre-ft with 3 ft of flash-boards), contents of which were 11,800 acre-ft on Sept. 30, 1964, and 20,700 acre-ft on Sept. 30, 1965. Flow over Twin Lakes spillway occurred June 17 to Sept. 9 and is included in table below. No diversion above station. See schematic diagram, p. 894.

Cooperation.--Water-stage-recorder graph and seven discharge measurements for outlet and water-stage-recorder graph and four discharge measurements for spillway furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	86	102	2.2	2.7	2.7	2.7	2.7	255	3.4	139	27	41
2	86	102	2.4	2.7	2.7	2.7	2.7	252	136	162	46	43
3	85	92	2.7	2.7	2.7	2.7	2.7	252	210	191	52	44
4	34	52	2.7	2.7	2.7	2.7	2.7	255	210	229	51	46
5	2.7	49	2.7	2.7	2.7	2.7	2.7	255	210	234	39	45
6	2.7	42	2.7	2.7	2.7	2.7	2.7	202	212	221	34	42
7	2.7	42	2.7	2.7	2.7	2.7	2.7	155	212	211	32	17
8	2.7	42	8.7	2.7	2.7	2.7	2.7	149	210	121	53	2.5
9	2.7	42	1.4	2.7	2.7	2.7	2.7	147	137	58	58	2.8
10	3.1	41	2.7	2.7	2.7	2.7	2.7	68	116	44	50	2.7
11	2.7	41	2.7	2.7	2.7	2.7	2.7	2.7	119	45	50	2.7
12	2.7	36	2.7	2.7	2.7	2.7	2.7	3.8	128	57	131	2.7
13	2.7	33	2.7	2.7	2.7	2.7	2.7	3.1	164	86	187	2.7
14	2.7	32	2.7	2.7	2.7	2.7	2.7	2.4	196	117	102	2.7
15	2.7	32	2.7	2.7	2.7	2.7	2.7	2.4	194	100	149	2.7
16	2.7	32	2.7	2.7	2.7	2.7	2.7	3.1	192	99	295	2.7
17	2.7	33	2.7	2.7	2.7	2.7	2.7	2.7	103	121	117	2.7
18	2.7	33	2.7	2.7	2.7	2.7	2.7	2.7	81	123	65	2.4
19	2.7	33	2.7	2.7	2.7	2.7	98	2.7	82	90	43	2.4
20	2.7	33	2.7	2.7	2.7	2.7	252	2.7	85	70	16	2.4
21	2.7	33	3.1	2.7	2.7	2.7	252	2.4	90	54	3.2	2.4
22	20	33	5.1	2.7	2.7	2.7	252	2.7	107	51	3.5	2.4
23	103	33	7.9	2.7	2.7	2.7	255	2.7	184	50	3.5	2.2
24	103	33	4.6	2.7	2.7	2.7	250	2.7	125	51	3.5	2.2
25	103	24	1.4	2.7	2.7	2.7	252	3.1	128	50	3.5	2.2
26	102	13	1.8	2.7	2.7	2.7	252	2.7	130	50	12	2.0
27	102	13	2.4	2.7	2.7	2.7	255	3.4	130	50	33	2.2
28	100	13	3.1	2.7	2.7	2.7	258	4.1	133	50	42	3.1
29	102	13	2.7	2.7	-----	2.7	258	4.4	131	33	42	3.1
30	102	6.1	2.7	2.7	-----	2.7	255	4.4	136	26	41	2.7
31	102	-----	2.7	2.7	-----	2.7	-----	3.4	-----	25	41	-----
Total	1,276.3	1,158.1	108.0	83.7	75.6	83.7	2,937.6	2,054.3	4,294.4	3,008	1,825.2	336.6
Mean	41.2	38.6	3.48	2.70	2.70	2.70	97.9	66.3	143	97.0	58.9	11.2
Ac-ft	2,530	2,300	214	166	150	166	5,830	4,070	8,520	5,970	3,620	668

Calendar year 1964 Max 143 Min 1.4 Mean 37.4 Ac-ft 27,150  
 Water year 1964-65 Max 295 Min 1.4 Mean 47.2 Ac-ft 34,200

11-4395. South Fork American River near Kyburz, Calif.

Location.--Lat 38°45'49", long 120°19'39", in SW¼SW¼ sec.29 T.11 N., R.15 E., on right bank beside U. S. Highway 50, 0.8 mile downstream from Silver Fork of South Fork and 1.9 miles southwest of Kyburz.

Drainage area.--193 sq mi.

Records available.--August to December 1907, October 1922 to September 1965. Prior to October 1956, records for river and El Dorado Canal published separately; combined only, October 1956 to September 1962.

Gage.--Water-stage recorder (digital) on river; water-stage recorder for canal diversion. Altitude of gage is 3,840 ft (from topographic map). Prior to Oct. 1, 1962, at datum 1.00 ft higher.

Average discharge (river only).--43 years (1922-65), 284 cfs (205,600 acre-ft per year).

(total flow).--43 years (1922-65), 396 cfs (286,700 acre-ft per year).

Extremes (river only).--Maximum discharge during year, 17,400 cfs Dec. 23 (gage height, 10.92 ft), from rating curve extended above 6,300 cfs on basis of contracted-opening measurement at gage height 10.40 ft, present datum; minimum daily, 4.4 cfs Oct. 1, Nov. 15, 16.

1907, 1923-65: Maximum discharge, that of Dec. 23, 1964; minimum daily, 0.3 cfs Nov. 9-11, 1928.

(combined).--Maximum discharge during year, 17,500 cfs Dec. 23; minimum daily, 11 cfs Oct. 10.

1907, 1923-65: Maximum discharge, that of Dec. 23, 1964; minimum daily, 10 cfs Oct. 17, 19, 1929.

Remarks.--Records good. Flow at low and medium stages greatly regulated by four reservoirs since beginning of record (total usable capacity, 37,100 acre-ft. See schematic diagram, p. 894. For records of combined discharge of river and canal, see following page.

Cooperation.--Water-stage-recorder graph and 16 discharge measurements for river and water-stage-recorder graph and seven discharge measurements for canal furnished by the Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

## DISCHARGE, IN CURIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNF	JULY	AUG.	SEPT.
1	4.4	14	4.5	780	388	270	305	2,270	1,450	693	26	14
2	4.8	11	4.5	711	371	249	284	1,780	1,540	727	22	13
3	4.7	4.9	4.5	675	360	252	264	1,410	1,860	782	29	14
4	4.9	4.7	4.5	631	359	249	255	1,310	1,980	800	20	10
5	24	4.9	4.5	626	437	232	264	1,280	1,970	780	13	10
6	22	4.7	4.9	826	443	230	270	1,130	1,690	738	9.1	15
7	21	4.7	4.5	717	363	217	252	936	1,600	686	6.6	130
8	20	4.7	4.9	605	333	212	240	896	1,430	567	6.7	81
9	16	5.8	16	534	306	212	237	950	1,340	394	10	46
10	11	5.6	6.7	516	274	207	232	1,050	1,510	298	7.9	27
11	19	5.6	212	502	261	227	214	1,100	1,660	251	29	15
12	18	8.3	73	458	246	209	209	1,270	1,590	220	696	9.3
13	18	4.5	11	399	246	197	212	1,420	1,390	224	331	8.4
14	18	4.5	8.1	372	235	200	212	1,470	1,250	259	461	21
15	18	4.4	6.6	381	222	204	232	1,600	1,110	303	510	18
16	18	4.4	6.6	381	217	219	321	1,900	1,070	362	671	15
17	15	4.5	6.5	368	217	219	354	2,090	951	472	362	12
18	16	4.5	6.5	368	230	227	354	2,140	824	471	163	12
19	16	4.5	7.3	408	243	240	662	2,130	846	315	115	10
20	15	4.7	47	410	261	267	1,390	2,080	908	206	36	8.7
21	15	5.1	622	384	274	325	1,780	1,720	969	166	17	8.6
22	13	4.9	4,980	354	280	404	1,760	1,290	914	121	15	8.5
23	6.9	4.7	12,300	435	255	422	1,410	1,110	937	101	12	8.9
24	5.6	4.7	11,000	659	243	376	1,490	1,110	894	91	10	14
25	4.9	5.6	3,930	475	249	309	1,670	1,150	858	87	9.2	20
26	5.1	15	2,610	410	267	302	1,800	1,340	748	82	8.0	19
27	4.9	4.5	1,920	375	350	317	1,980	1,460	683	71	8.9	17
28	5.2	4.5	1,420	348	309	277	2,250	1,580	707	52	14	17
29	16	4.5	1,180	341	-----	284	2,580	1,700	709	41	13	12
30	6.1	4.5	1,020	379	-----	288	2,600	1,750	718	23	9.4	10
31	4.9	-----	891	399	-----	309	-----	1,650	-----	29	8.8	-----
TOTAL	391.4	172.9	42,317.1	15,227	8,239	8,152	26,083	46,072	36,106	10,412	3,649.6	624.3
MEAN	12.6	5.76	1,365	491	294	263	869	1,486	1,204	336	118	20.8
AC-FT	776	343	83,930	30,200	16,340	16,170	51,730	91,380	71,620	20,650	7,240	1,240

CALENDAR YEAR 1964 MAX 12,300 MIN 3.9 MEAN 247 AC-FT 179,500  
 WATER YEAR 1964-65 MAX 12,300 MIN 4.4 MEAN 541 AC-FT 391,600

## Peak discharge (base, 2,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0615	10.92	17,400	5-17	2145	6.25	2,680
4-29	2100	6.64	3,340	6-4	2130	6.08	2,470

## SACRAMENTO RIVER BASIN

11-4395. South Fork American River near Kyburz, Calif.--Continued.

Combined discharge, in cubic feet per second, of South Fork American River and El Dorado Canal near Kyburz, Calif., water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	161	174	124	780	516	416	451	2,410	1,600	858	191	181
2	167	176	144	711	502	395	430	1,920	1,690	892	187	181
3	165	170	122	675	491	398	410	1,550	2,010	947	194	182
4	151	134	98	631	490	395	401	1,450	2,130	966	185	178
5	44	116	94	638	568	378	410	1,420	2,120	946	175	177
6	22	107	78	837	574	376	416	1,270	1,840	904	164	181
7	21	104	86	728	494	363	398	1,080	1,750	852	151	298
8	20	103	81	634	463	357	386	1,040	1,580	733	151	249
9	16	134	149	575	441	357	383	1,090	1,490	560	170	214
10	11	132	143	555	411	352	378	1,190	1,660	464	171	195
11	19	126	353	540	398	372	360	1,240	1,810	417	195	183
12	18	168	208	518	386	355	355	1,410	1,740	386	862	176
13	18	124	135	491	388	342	358	1,560	1,540	390	497	170
14	18	112	134	479	376	346	358	1,620	1,410	425	627	189
15	18	107	115	504	363	350	378	1,740	1,280	469	675	186
16	18	104	99	503	358	365	462	2,040	1,240	527	835	183
17	16	106	98	490	358	365	494	2,240	1,120	638	525	180
18	18	106	94	490	373	373	494	2,280	989	637	326	180
19	18	102	111	530	389	386	802	2,280	1,010	481	280	178
20	17	99	182	533	407	413	1,530	2,230	1,070	371	203	176
21	17	97	757	506	420	471	1,920	1,860	1,130	332	174	174
22	18	97	5,100	476	426	550	1,900	1,440	1,080	287	156	172
23	74	93	12,400	558	401	568	1,550	1,260	1,100	265	161	173
24	173	95	11,100	781	388	522	1,630	1,260	1,060	257	153	182
25	169	135	3,960	597	395	455	1,810	1,300	1,020	252	161	188
26	164	158	2,610	533	413	448	1,940	1,480	914	244	155	187
27	162	104	1,920	497	496	463	2,120	1,610	849	236	165	185
28	160	94	1,420	470	454	423	2,390	1,730	873	218	182	185
29	185	118	1,180	464	-----	430	2,720	1,850	875	207	181	180
30	173	106	1,020	502	-----	434	2,740	1,900	884	189	177	178
31	162	-----	891	522	-----	455	-----	1,800	-----	195	173	-----
Total	2,413	3,601	45,006	17,748	12,139	12,673	30,374	50,550	40,864	15,545	8,602	5,641
Mean	77.8	120	1,452	573	434	409	1,012	1,631	1,362	501	277	188
Ac-ft	4,790	7,140	89,270	35,200	24,080	25,140	60,250	100,300	81,050	30,830	17,060	11,190
Calendar year 1964	Max	12,400	Min	11	Mean	381	Ac-ft	276,800				
Water year 1964-65	Max	12,400	Min	11	Mean	672	Ac-ft	486,300				

11-4400. Alder Creek near White Hall, Calif.

Location.--Lat 38°45'19", long 120°22'17", in NE¼SE¼ sec.35, T.11 N., R.14 E., on right bank 0.9 mile upstream from mouth and 2.2 miles southeast of White Hall.

Drainage area.--22.1 sq mi.

Records available.--October 1922 to September 1965 (includes diversions by pipeline). Published as "near Whitehall" prior to October 1953.

Gage.--Water-stage recorder. Altitude of gage is 3,840 ft (from topographic map). Prior to July 23, 1924, staff gage at same site and datum.

Average discharge.--43 years, 36.9 cfs (26,710 acre-ft per year), including diversions by pipeline.

Extremes (creek only).--Maximum discharge during year, 2,980 cfs Dec. 23 (gage height, 6.94 ft), from rating curve extended above 280 cfs; minimum daily, 0.1 cfs for many days.

1922-65: Maximum discharge, 5,500 cfs Dec. 23, 1955 (gage height, 8.40 ft, from floodmarks), from rating curve extended above 500 cfs; no flow at times in several years.

Remarks.--Records good. Records include computed flow in feeder pipeline that is diverted 1,300 ft above station into El Dorado Canal Oct. 2 to June 14. See schematic diagram, p. 894.

Cooperation.--Water-stage-recorder graph, 13 discharge measurements on Alder Creek, and readings of head on Parshall flume at pipeline outlet furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.4	1.7	1.7	140	100	84	80	218	72	8.7	2.8	1.8
2	.6	1.8	2.7	118	99	80	78	192	66	8.2	2.4	1.8
3	.4	1.8	2.1	108	99	76	76	160	62	8.2	2.4	1.8
4	.4	1.6	1.6	98	100	74	75	138	59	7.2	2.0	1.8
5	.3	1.3	1.2	106	124	72	75	128	56	7.2	2.0	1.8
6	.3	1.3	1.0	234	122	70	75	118	52	6.8	1.9	1.8
7	.3	1.3	9.5	203	118	68	70	104	48	6.4	1.8	2.8
8	.3	2.3	8.0	150	108	64	69	98	45	6.0	1.8	3.1
9	.3	3.5	1.0	128	100	62	68	93	39	6.0	1.8	2.0
10	.3	4.5	1.0	116	93	60	63	94	36	6.0	1.8	2.0
11	.3	1.0	8.1	108	86	58	60	98	33	6.0	3.1	1.9
12	.3	2.1	4.7	99	80	62	60	102	30	5.6	7.6	1.9
13	.3	.8	2.7	93	76	60	60	108	26	5.6	5.6	1.9
14	.3	.4	2.3	88	74	58	62	114	23	5.2	5.2	1.8
15	.3	1.3	2.0	88	69	58	70	116	23	5.2	6.0	1.8
16	.3	2.1	1.5	87	68	58	110	126	31	5.2	6.4	1.8
17	.3	3.0	1.5	87	66	60	116	132	39	4.8	5.2	1.8
18	.3	2.0	1.3	88	66	58	126	132	31	4.8	4.6	1.8
19	.3	2.0	2.5	96	68	58	160	128	27	4.6	4.2	1.8
20	.3	2.3	9.6	102	68	60	209	128	28	4.2	3.1	1.9
21	.3	2.6	3.33	100	70	64	266	116	25	4.2	3.1	1.8
22	.3	2.9	8.86	96	72	69	260	102	20	4.2	2.8	1.8
23	.3	3.2	1,360	126	70	72	238	93	19	4.2	2.4	1.8
24	.3	3.6	7.65	195	68	72	232	87	17	3.7	2.4	1.7
25	.3	7.1	5.76	154	68	69	241	82	15	3.7	2.4	1.7
26	.3	8.7	5.38	132	68	70	241	81	13	3.1	2.0	1.7
27	.3	10	4.69	118	93	75	252	80	12	3.1	2.0	1.7
28	.3	10	3.24	106	92	70	264	80	11	2.8	1.9	1.8
29	1.9	12	2.48	99	-----	72	261	80	11	2.8	1.9	1.9
30	1.6	14	2.00	98	-----	74	255	80	9.8	2.8	1.9	1.4
31	1.5	-----	1.60	98	-----	78	-----	76	-----	2.8	1.8	-----
Total	14.0	140.1	6,361.5	3,659	2,385	2,085	4,272	3,484	978.8	159.3	96.3	56.4
Mean	0.45	4.67	205	118	85.2	67.3	142	112	32.6	5.14	3.11	1.88
Ac-ft	28	278	12,620	7,260	4,730	4,140	8,470	6,910	1,940	316	191	112

Calendar year 1964 Max 1,360 Min 0.3 Mean 33.8 Ac-ft 24,570  
 Water year 1964-65 Max 1,360 Min 0.3 Mean 64.9 Ac-ft 47,000

Peak discharge (base, 120 cfs, creek only)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-23	0330	6.94	2,980	2-5	1900	3.03	138
1-6	1600	3.52	273	4-21	2100	3.55	282
1-23	2200	3.47	257	5-17	2130	3.02	135

## SACRAMENTO RIVER BASIN

11-4408.5. Picket Pen Creek near Kyburz, Calif.

Location.--Lat 38°52'03", long 120°22'22", in SE<sup>1</sup><sub>4</sub>SE<sup>1</sup><sub>4</sub> sec. 23, T.12 N., R.14 E., on left bank 1 mile upstream from mouth, and 7.7 miles northwest of Kyburz.

Drainage area.--0.49 sq mi.

Records available.--January 1964 to September 1965.

Gage.--Water-stage recorder, crest-stage gage, and float-operated recording rain gage. Altitude of gage is 5,060 ft (from topographic map).

Extremes.--Maximum discharge during year, 111 cfs Dec. 23 (gage height, 13.47 ft) from rating curve extended above 37 cfs on basis of computations of flow through culvert at gage heights 10.52 ft, 11.89 ft, 13.09 ft, 13.47 ft; minimum, 0.02 cfs Oct. 1-15, Aug. 19. Flood of Jan. 31, 1963 reached a stage of 10.52 ft (from floodmarks); discharge, 53 cfs, from computation of flow through culvert.

Remarks.--Records good except those less than 0.10 cfs, which are fair. No storage or diversion above station. See schematic diagram, p. 894.

Rating table except period of indefinite stage-discharge relation  
(gage height, in feet, and discharge, in cubic feet per second)

7.6	0.10	8.8	16
7.7	.68	9.4	28
7.8	1.8	10.0	41
8.1	5.4	11.0	63
8.5	11		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	.02	.03	.04	4.6	2.8	2.0	2.3	2.3	0.50	0.18	0.04	0.04
2	.02	.03	.04	4.0	2.6	2.0	2.0	2.2	.50	.14	.03	.04
3	.02	.03	.04	3.7	2.6	2.0	2.0	1.9	.50	.14	.03	.04
4	.02	.03	.04	3.5	2.5	2.0	1.9	1.8	.50	.14	.03	.04
5	.02	.03	.04	4.1	2.5	2.0	2.2	1.7	.44	.10	.03	.04
6	.02	.04	.04	9.8	2.5	2.2	2.2	1.7	.38	.10	.03	.04
7	.02	.04	.04	8.0	2.5	2.3	1.8	1.4	.38	.10	.03	.04
8	.02	.04	.04	5.3	2.5	2.0	1.8	1.3	.38	.10	.03	.03
9	.02	.04	.04	4.6	2.5	1.8	1.7	1.3	.44	.06	.03	.03
10	.02	.04	.04	4.3	2.5	1.8	1.6	.98	.38	.06	.03	.03
11	.02	.04	.04	4.0	2.5	1.8	1.7	.98	.33	.04	.03	.03
12	.02	.04	.04	3.5	2.5	2.0	1.6	.98	.33	.04	.04	.03
13	.02	.04	.03	3.0	2.5	1.9	1.7	.98	.28	.04	.03	.03
14	.02	.04	.04	2.9	2.5	1.8	1.7	.98	.28	.04	.06	.03
15	.02	.04	.04	2.9	2.5	1.8	1.8	.98	.28	.04	.06	.03
16	.03	.04	.04	2.8	2.5	1.8	4.3	.98	.44	.04	.06	.03
17	.03	.04	.04	2.6	2.5	1.8	3.5	.78	.50	.04	.04	.03
18	.03	.04	.04	2.6	2.5	1.7	3.7	.58	.44	.04	.03	.03
19	.03	.04	.13	2.9	2.5	1.7	4.7	.50	.50	.04	.02	.03
20	.03	.04	2.2	3.0	2.5	1.7	5.5	.44	.44	.04	.04	.03
21	.03	.04	7.6	2.8	2.5	1.7	6.8	.44	.38	.04	.04	.03
22	.03	.04	36	2.6	2.5	1.8	5.9	.43	.28	.04	.06	.03
23	.03	.04	52	5.4	2.5	1.8	4.9	.42	.23	.04	.06	.03
24	.03	.04	36	7.3	2.5	1.7	4.4	.41	.23	.04	.06	.03
25	.03	.04	15	4.8	2.5	1.7	4.0	.40	.23	.04	.06	.03
26	.03	.04	21	4.1	2.5	1.9	3.6	.39	.23	.04	.06	.03
27	.03	.04	17	3.7	2.5	2.3	3.4	.38	.23	.04	.06	.03
28	.03	.04	9.7	3.5	2.5	2.2	3.1	.44	.23	.04	.06	.03
29	.03	.04	7.4	3.1	-----	1.9	2.6	.50	.23	.04	.04	.03
30	.03	.04	6.2	2.9	-----	1.9	2.5	.50	.18	.04	.04	.03
31	.03	-----	5.5	2.9	-----	2.3	-----	.50	-----	.04	.04	-----
Total	0.78	1.15	216.44	125.2	70.5	59.3	90.9	29.57	10.67	1.96	1.30	0.97
Mean	0.03	0.04	6.98	4.04	2.52	1.91	3.03	0.95	0.36	0.06	0.04	0.03
Ac-ft	1.5	2.3	429	248	140	118	180	59	21	3.9	2.6	1.9
(†)	1.33	7.06	22.23	-	-	2.60	5.43	0.20	1.25	0	2.96	0

Calendar year 1964: Max - Min - Mean - Ac-ft -  
 Water year 1964-65: Max 52 Min 0.02 Mean 1.67 Ac-ft 1,210

† Precipitation in inches.

Note.--No gage-height record Oct. 1-6, Feb. 14 to Mar. 4, May 22-26, Sept. 12-22. Stage-discharge relation indefinite Oct. 7 to Dec. 18.



11-4410.01 Union Valley Reservoir near Riverton, Calif.

Location.--Lat 38°52'00", long 120°26'25", in SW<sup>1</sup><sub>4</sub>SW<sup>1</sup><sub>4</sub> sec.20, T.12 N., R.14 E., 0.6 mile upstream from Little Silver Creek and 6.6 miles north of Riverton.

Drainage area.--83.6 sq mi.

Records available.--October 1962 to September 1965.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Sacramento Municipal Utility District).

Extremes.--Maximum contents during year, 239,900 acre-ft June 28, 29 (elevation, 4,858.43 ft); minimum, 133,000 acre-ft Dec. 5, 10 (elevation, 4,808.9 ft).

1962-65: Maximum contents, 270,400 acre-ft June 10, 1963 (elevation, 4,869.8 ft); minimum since initial season of operation, 108,400 acre-ft Jan. 31, 1964 (elevation, 4,794.3 ft).

Remarks.--Reservoir is formed by earth-fill dam completed in December 1962. Storage began in May 1962. Usable capacity, 264,000 acre-ft between elevations 4,645.0 (minimum operating level) and 4,870.0 ft (top of radial spillway gates) above mean sea level. Dead storage, 7,000 acre-ft. Records represent total contents. See schematic diagram, p. 894.

Capacity table (elevation, in feet, and contents, in thousands of acre-ft)

4,790 102.0  
4,830 174.0  
4,870 271.0

Contents, in thousands of acre-feet, at 2400 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	153.7	149.6	134.3	224.0	196.4	175.8	182.4	209.0	223.7	239.1	207.9	187.0
2	153.0	149.9	134.3	223.2	196.4	176.0	181.9	209.6	224.8	239.5	206.8	187.0
3	153.0	149.9	133.9	222.2	195.3	176.0	181.3	209.9	226.1	238.0	205.7	187.0
4	153.0	149.9	133.4	220.9	194.2	176.4	181.3	210.1	226.8	237.5	204.6	187.2
5	157.0	149.9	133.0	219.8	193.4	176.6	180.6	210.3	227.9	237.0	203.5	186.8
6	156.2	149.9	133.4	219.8	192.7	176.9	180.4	210.1	228.9	236.5	202.4	185.2
7	154.9	149.9	133.7	219.6	191.6	177.1	179.9	209.9	229.7	235.7	201.1	183.9
8	153.4	149.9	133.6	218.8	190.7	177.3	179.9	209.4	230.2	235.2	199.7	182.6
9	152.5	150.1	133.4	217.8	189.6	177.7	179.9	209.0	231.0	234.6	193.0	181.0
10	152.5	150.5	133.0	216.9	188.7	178.2	179.3	209.0	231.8	234.1	196.7	179.7
11	152.5	150.8	134.3	215.8	188.1	178.4	179.1	209.0	232.8	233.6	195.1	178.2
12	151.7	151.2	135.7	214.9	187.4	178.8	178.6	209.4	233.3	232.8	194.5	176.4
13	150.8	150.8	136.6	213.6	186.5	179.1	178.4	210.1	234.1	231.5	193.4	174.7
14	149.8	149.6	137.2	212.3	185.7	179.5	178.0	211.0	234.6	230.0	192.5	172.7
15	149.8	147.8	137.2	211.2	185.0	179.7	177.5	211.8	235.2	228.9	191.8	171.1
16	149.6	146.7	136.8	210.1	183.9	180.8	178.4	212.7	235.7	227.4	190.7	169.6
17	149.6	145.3	136.4	209.0	182.8	182.1	179.8	214.0	236.2	226.1	189.6	169.1
18	149.6	144.2	136.1	207.9	182.1	183.7	179.1	214.9	236.7	224.8	188.5	166.6
19	149.6	142.7	136.8	206.8	181.5	184.3	181.3	215.8	237.0	223.2	187.4	165.8
20	149.6	141.3	138.8	205.9	180.6	184.6	184.8	216.2	238.3	221.6	186.5	165.2
21	149.6	139.9	144.4	204.8	179.9	184.8	188.7	216.7	238.8	220.1	186.5	164.6
22	149.6	138.8	166.6	203.5	179.3	185.0	191.6	216.9	238.8	218.3	186.5	163.7
23	149.6	137.7	194.5	202.8	178.6	185.2	193.1	217.1	238.8	216.9	186.5	163.1
24	149.6	136.6	212.1	203.7	177.7	185.4	194.9	217.3	238.8	215.8	186.8	162.7
25	149.6	135.5	219.3	203.5	176.9	184.8	197.1	217.3	238.8	214.7	186.8	161.6
26	149.6	135.9	225.8	202.8	176.0	184.3	198.6	217.6	231.0	213.4	186.8	160.4
27	149.6	135.9	229.2	201.7	175.8	184.3	200.4	218.0	239.6	212.5	186.8	159.1
28	149.6	135.5	228.4	200.8	175.5	184.1	202.6	219.0	239.8	211.4	186.8	157.8
29	149.6	135.0	227.1	199.5	-----	183.5	205.2	220.1	239.6	211.0	186.8	157.0
30	149.6	134.6	225.8	198.2	-----	182.8	207.4	221.9	239.3	209.6	186.8	155.9
31	149.6	-----	225.0	196.9	-----	182.4	-----	223.2	-----	208.8	186.8	-----
(†)	4,818.1	4,809.8	4,852.7	4,840.4	4,830.7	4,833.8	4,845.2	4,852.0	4,853.2	4,845.8	4,835.8	4,821.4
(‡)	- 10.3	- 15.0	+ 90.4	- 28.1	- 21.4	+ 6.9	+ 25.0	+ 15.8	+ 16.1	- 30.5	- 22.0	- 30.9

Calendar year 1964..... † +75.1

Water year 1964-65..... ‡ - 4.0

† Elevation, in feet, at end of month.

‡ Change in contents, in thousands of acre-feet.

## SACRAMENTO RIVER BASIN

11-4411. Ice House Reservoir near Kyburz, Calif.

Location.--Lat 38°49'26", long 120°21'34", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.1, T.11 N., R.14 E., on left bank at Ice House Dam on South Fork Silver Creek, 0.5 mile upstream from Peavine Creek, and 4.75 miles northwest of Kyburz.

Drainage area.--27.2 sq mi.

Records available.--October 1959 to September 1965.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Sacramento Municipal Utility District).

Extremes.--Maximum contents during year, 46,200 acre-ft Aug. 15 (elevation, 5,450.3 ft); minimum, 9,740 acre-ft Oct. 26-28 (elevation, 5,380.4 ft).  
1959-65: Maximum contents, that of August 15, 1965. Minimum since appreciable storage was first obtained, 1,740 acre-ft Oct. 5-9, 1962 (elevation, 5,349.85).

Remarks.--Records good except those for periods of no gage-height record, which are poor. Reservoir is formed by earthfill dam. Storage began December 15, 1959. Usable capacity, 45,800 acre-ft between elevations 5,327.5 (centerline of fish water outlet) and 5,450.0 ft (top of spillway gates). Dead storage, 160 acre-ft. Records represent total contents. See schematic diagram, p. 894.

Capacity table (elevation, in feet, and contents, in acre-ft)

5,380	9,600
5,400	17,600
5,420	27,400
5,450	46,000

Contents, in acre-feet, at 2400 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9,980	9,810	10,500	34,600	35,900	32,500	32,700	38,900	38,300	43,600	45,100	30,200
2	9,980	9,840	10,500	34,300	35,700	32,500	32,700	39,000	38,500	43,800	45,100	29,100
3	9,950	9,880	10,700	35,100	35,600	32,400	32,600	39,000	38,900	44,100	45,100	28,000
4	9,950	9,880	10,700	35,500	35,500	32,200	32,500	38,300	39,200	44,300	45,100	27,000
5	9,950	9,880	10,700	35,500	35,400	32,000	32,500	38,500	39,600	44,500	45,000	26,000
6	9,920	9,880	10,700	35,300	35,400	31,900	32,400	38,200	40,000	44,700	45,000	25,400
7	9,920	9,880	10,800	36,100	35,200	31,800	32,400	37,300	40,200	44,900	45,000	25,400
8	9,920	9,880	10,800	36,400	35,100	31,600	32,300	37,400	40,300	45,100	45,000	25,600
9	9,920	9,880	10,900	36,600	35,000	31,500	32,200	37,000	40,400	45,100	45,000	25,700
10	9,920	9,880	11,000	36,800	34,900	31,400	32,200	36,800	40,600	45,100	45,000	25,300
11	9,880	10,000	11,200	37,000	34,800	31,200	32,200	36,500	40,900	45,000	44,900	25,900
12	9,880	10,100	11,300	37,100	34,600	31,100	32,100	36,500	41,100	44,300	45,400	25,900
13	9,840	10,100	11,300	37,100	34,500	30,900	32,100	36,500	41,100	44,900	45,700	25,900
14	9,840	10,100	11,400	37,300	34,300	30,800	31,900	36,500	41,100	44,300	46,000	25,800
15	9,810	10,100	11,400	37,200	34,200	30,700	31,900	36,500	41,000	44,700	46,200	25,700
16	9,840	10,100	11,500	37,200	34,100	30,700	31,900	36,800	41,000	44,800	45,700	25,600
17	9,840	10,100	11,500	37,000	34,000	30,800	32,100	37,200	41,300	44,900	45,400	25,400
18	9,840	10,200	11,500	37,000	33,900	30,900	32,200	37,500	41,500	45,100	45,000	25,400
19	9,840	10,200	11,500	37,000	33,700	31,000	32,700	37,700	41,300	45,200	44,400	25,400
20	9,810	10,200	11,800	37,000	33,600	31,100	33,200	37,800	42,000	45,200	45,600	25,400
21	9,780	10,200	12,200	36,900	33,500	31,200	33,700	37,800	42,200	45,400	42,600	25,400
22	9,810	10,200	16,400	36,800	33,300	31,400	34,300	37,600	42,600	45,400	41,600	25,400
23	9,780	10,200	23,400	36,800	33,200	31,500	34,800	37,400	42,800	45,400	40,600	25,400
24	9,780	10,200	27,200	36,600	33,100	31,600	35,400	37,100	42,900	45,400	39,500	25,400
25	9,780	10,200	29,100	36,600	33,000	31,700	36,100	37,100	43,000	45,300	38,300	25,400
26	9,740	10,300	31,000	36,500	32,900	31,900	36,600	36,900	43,100	45,100	37,100	25,400
27	9,740	10,300	32,700	36,400	32,800	32,100	37,200	36,900	43,200	45,100	35,900	25,300
28	9,740	10,400	33,300	36,400	32,700	32,200	37,300	37,100	43,300	45,100	34,600	25,400
29	9,780	10,400	33,700	36,300	-----	32,400	38,200	37,500	43,400	45,100	33,500	25,400
30	9,810	10,500	34,100	36,100	-----	32,500	38,700	37,900	43,500	45,000	32,300	25,400
31	9,810	-----	34,400	36,000	-----	32,500	-----	38,100	-----	45,100	31,200	-----
(+)	5,380.6	5,382.4	-----	5,435.0	5,429.6	5,429.4	5,439.1	5,438.2	5,446.6	5,448.3	5,427.1	5,415.9
(*)	- 170	+690	+23,900	+1,600.	-3,300	- 200	+6,200	600	+5,400	+1,600	-13,900	-5,900

Calendar year 1964..... + 2,000

Water year 1964-65..... + 15,420

+ Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

Note.--No gage height record Dec. 27 to Jan. 10, May 8, 9, 22, July 3-5, 10, 11, 17, 18.

11-4415, South Fork Silver Creek near Ice House, Calif.

Location.--Lat 38°49'08", long 120°21'51", in NW<sup>1</sup>/<sub>4</sub> sec.12, T.11 N., R.14 E., on right bank 300 ft upstream from Peavine Creek, 0.4 mile downstream from Ice House Dam, and 4.8 miles northwest of Kyburz.

Drainage area.--27.5 sq mi.

Records available.--October 1924 to September 1965.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 5,290 ft (from topographic map). Prior to Oct. 1, 1959, at site 0.3 mile upstream at different datum.

Average discharge.--41 years, 73.8 cfs (53,430 acre-ft per year), adjusted for storage.

Extremes.--Maximum discharge during year, 627 cfs Aug. 25, 26 (gage height, 4.66 ft); minimum daily, 4.7 cfs Nov. 18-22.

1924-65: Maximum discharge, 3,940 cfs Dec. 23, 1955 (gage height, 6.71 ft, site and datum then in use), from rating curve extended above 540 cfs on basis of slope-area measurement at gage height 6.69 ft; no flow Oct. 31 to Nov. 9, 1958.

Remarks.--Records good. Flow regulated by Ice House Reservoir beginning in December 1959 (see preceding page). See schematic diagram, p. 894.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

2.3	4.2	3.0	43
2.4	6.8	3.3	79
2.5	10	3.7	158
2.6	14	4.1	290
2.7	19	4.7	690

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.7	6.2	6.8	9.5	139	136	9.1	250	215	36	28	568
2	5.7	6.0	7.1	9.1	139	136	44	250	209	12	28	568
3	5.7	5.7	6.2	9.5	139	139	95	250	200	11	28	568
4	5.4	5.4	6.0	9.5	139	132	95	290	197	11	28	560
5	5.4	5.2	5.7	9.8	139	130	95	340	197	11	22	478
6	5.4	5.2	5.7	12	139	132	97	355	200	11	20	282
7	5.7	5.2	5.7	10	139	132	97	355	200	11	20	127
8	5.7	5.2	5.7	9.5	139	134	97	355	200	10	20	13
9	5.7	6.0	5.7	9.1	139	136	97	355	200	65	20	11
10	5.7	5.7	6.5	9.1	139	136	95	355	200	84	20	10
11	5.7	6.0	9.1	25	139	134	97	355	200	84	20	10
12	5.7	6.8	6.5	42	139	136	97	355	200	79	20	11
13	5.7	6.0	6.0	49	139	139	97	360	200	81	20	47
14	5.4	5.7	6.2	71	136	139	95	360	200	84	83	68
15	5.4	5.4	6.2	102	136	136	97	360	200	75	203	60
16	5.2	5.2	6.2	111	136	74	49	360	131	35	274	60
17	5.2	4.9	6.0	106	136	9.5	9.1	360	73	16	274	40
18	5.2	4.7	6.0	102	136	9.1	10	360	69	10	274	11
19	5.2	4.7	7.4	99	136	9.1	9.8	360	69	8.4	278	11
20	5.4	4.7	9.1	100	136	9.1	9.8	360	68	8.8	411	11
21	5.4	4.7	9.8	128	136	9.1	10	360	68	14	552	11
22	5.7	4.7	22	148	136	9.1	9.1	355	49	11	544	11
23	5.7	4.9	25	144	136	9.1	3.8	355	61	38	552	11
24	5.7	5.2	23	144	136	9.1	3.8	355	61	53	576	11
25	5.7	5.4	16	141	136	9.1	3.4	355	61	53	592	11
26	6.2	6.5	15	141	136	9.1	3.4	350	61	53	609	11
27	6.2	5.7	12	139	139	3.8	150	350	61	47	600	11
28	5.7	6.0	11	139	139	3.8	246	274	61	38	592	11
29	6.8	5.7	11	139	-----	3.8	250	215	61	32	584	11
30	6.2	6.0	10	139	-----	3.8	250	215	61	28	576	11
31	5.4	-----	9.8	139	-----	3.8	-----	215	-----	28	568	-----
Total	174.9	164.7	294.4	2,445.1	3,853	2,236.4	2,341.3	10,144	4,033	1,138.2	8,436	3,624
Mean	5.64	5.49	9.50	78.9	138	72.1	78.0	327	134	36.7	272	121
Ac-ft	347	327	584	4,850	7,640	4,440	4,640	20,120	8,000	2,260	16,700	7,190
Mean†	2.88	17.1	398	105	78.1	69.0	182	317	225	62.8	45.5	23.4
Ac-ft†	177	1,020	24,480	6,450	4,340	4,240	10,840	19,520	13,400	3,860	2,800	1,390
Calendar year 1964:	Max	602	Min	4.6	Mean	79.1	Ac-ft	57,400	Mean†	82.0	Ac-ft†	59,400
Water year 1964-65:	Max	609	Min	4.7	Mean	107	Ac-ft	77,100	Mean†	127	Ac-ft†	92,520

† Adjusted for change in contents in Ice House Reservoir

## SACRAMENTO RIVER BASIN

11-4419. Silver Creek below Camino diversion dam, Calif.

Location--Lat 38°49'26", long 120°32'18", on line between secs. 4 and 5, T.11 N., R.13 E., on right bank 300 feet downstream from Round Tent Canyon, 0.4 mile downstream from diversion dam, and 5 miles northeast of Pollock Pines.

Drainage area--171 sq mi.

Records available--October 1960 to September 1965.

Gage--Water-stage recorder (digital). Datum of gage is 2,754.06 ft above mean sea level (Bechtel Engineering Co. benchmark).

Average discharge--5 years, 200 cfs (144,800 acre-ft per year).

Extremes--Maximum discharge during year, 13,600 cfs Dec. 22 (gage height, 10.38 ft, in gage well, 11.0 ft from floodmarks), from rating curve extended above 1,400 cfs as explained below; minimum daily, 5.7 cfs Nov. 17.

1960-65: Maximum discharge, 19,300 cfs Jan. 31, 1963 (gage height, 11.28 ft, in gage well, 11.9 ft from floodmarks), from rating curve extended above 1,400 cfs on basis of slope-area measurement of maximum flow; minimum daily, 4.6 cfs July 1, 1964.

Revisions--The maximum discharge for the water year 1962 has been revised to 2,740 cfs Apr. 15, 1962 (gage height, 7.05 ft) superseding figure published in Surface Water Records of California Vol 2, 1962.

Remarks--Records good except those for periods of no gage-height record, which are poor. Flow regulated by storage, diversions, and powerplants. See schematic diagram, p. 894. Records not adjusted for diversions or changes in storage.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Feb. 1, Mar. 1-14, May 29 thru June 17)

1.8	4.3	3.1	63	5.0	705
2.0	6.9	3.4	108	6.0	1,430
2.2	11	3.7	175	7.0	2,660
2.5	20	4.0	265	8.0	4,560
2.8	36	4.5	460	9.0	7,500

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	17	34	14	652	57	61	31	413	26	30	24	26
2	18	27	14	615	351	38	31	360	35	29	25	25
3	18	20	14	615	541	37	30	382	26	29	25	24
4	18	20	14	616	518	36	29	398	26	27	24	25
5	19	20	14	623	605	35	28	389	30	31	24	25
6	18	20	14	1,330	635	36	29	532	26	27	25	26
7	19	20	13	1,050	625	35	26	526	26	26	25	26
8	17	20	12	783	595	34	26	523	28	26	25	26
9	19	26	12	712	575	34	29	523	26	26	25	26
10	20	59	12	668	505	35	29	511	31	26	25	26
11	20	84	36	613	570	34	29	1,100	26	26	26	26
12	19	71	25	579	532	36	29	504	30	26	27	26
13	20	23	19	561	505	35	30	504	29	25	26	26
14	19	11	17	572	550	34	32	501	28	25	26	26
15	19	10	15	602	546	363	37	507	30	25	27	27
16	17	7.7	14	612	605	96	30	458	33	25	26	28
17	15	5.7	13	610	555	236	70	499	39	25	26	28
18	16	8.2	12	500	546	209	66	501	31	25	27	29
19	16	11	16	1,140	550	48	67	494	26	25	26	25
20	19	36	53	1,430	550	23	64	470	28	25	26	29
21	22	9.9	116	1,120	546	25	61	493	29	25	26	29
22	26	10	5,010	586	550	23	53	495	32	25	27	29
23	30	9.9	6,960	639	550	23	43	495	31	23	28	29
24	30	9.8	4,070	727	546	22	38	494	38	24	27	28
25	30	9.3	1,320	675	541	24	36	495	31	24	28	26
26	30	15	1,370	640	546	25	269	489	38	24	26	27
27	30	13	1,790	620	550	31	408	473	33	24	27	27
28	30	13	1,930	541	550	29	430	417	40	24	27	27
29	32	13	1,610	594	-----	30	431	55	33	24	26	27
30	31	13	1,260	589	-----	30	415	50	30	24	25	27
31	31	-----	737	453	-----	31	-----	41	-----	24	26	-----
TOTAL	685	649.5	26,528	22,067	14,975	1,788	3,000	14,092	915	796	805	804
MEAN	22.1	21.7	856	712	535	57.7	100	455	30.5	25.7	26.0	26.0
AC-FT	1,360	1,290	52,620	43,770	29,700	3,550	5,950	27,950	1,810	1,580	1,600	1,590

CALENDAR YEAR	1964	MAX	6,960	MIN	4.6	MEAN	87.9	AC-FT	63,850
WATER YEAR	1964-65	MAX	6,960	MIN	5.7	MEAN	239	AC-FT	172,800

Note.--No gage-height record Nov. 28 to Dec. 4, June 15, 16, July 18-22

11-4435. South Fork American River near Camino, Calif.

Location--Lat 38°46'17", Long 120°42'15", in NW 1/4 sec. 25, T. 11 N., R. 11 E., on right bank 500 ft downstream from Iowa Canyon Creek, 1.3 miles downstream from intake of American River flume, and 2.9 miles northwest of Camino.

Drainage area--501 sq mi.

Records available--October 1922 to September 1965. Monthly discharge only for October 1922, published in WSP 1315-A. Prior to October 1956, records for river and American River flume published separately; combined only, October 1956 to September 1962.

Gage--Water-stage recorder (digital) on river; water-stage recorder for flume diversion (discontinued). Altitude of gage is 1,620 ft (from topographic map). Nov. 1, 1950, to Dec. 5, 1951, staff gage, Dec. 6, 1951 to May 27, 1964, at site 900 ft upstream at different datum.

Average discharge--37 years (1922-59, prior to regulation by Ice House Reservoir), 961 cfs (695,700 acre-ft per year), combined flow of South Fork American River near Camino and American River flume.

Extremes (river only)--Maximum discharge during year, 36,000 cfs Dec. 23 (gage height, 21.01 ft); minimum daily, 8.3 cfs Nov. 5. 1922-65: Maximum discharge, 49,800 cfs Dec. 23, 1955 (gage height, 32.6 ft, from floodmarks), from rating curve extended above 24,000 cfs on basis of computation of maximum flow over dam; minimum daily, 1.3 cfs Aug. 24, 1931. (combined).--Maximum discharge during period October to December, 36,000 cfs Dec. 23; minimum daily, 36 cfs Oct. 11. 1922-64: Maximum discharge, 49,800 cfs Dec. 23, 1955; minimum daily, 20 cfs Aug. 24, 1931.

Remarks--Records good except those for period of no gage-height record and May 1 to Sept. 30, which are poor. Flow regulated principally by six reservoirs (total usable capacity, 347,000 acre-ft). Echo Lake conduit (see p. 895) imports up to 1,900 acre-ft each year from Truckee River basin. Variable amount of El Dorado Canal water (up to 40 cfs, May to October, and about 7 cfs remainder of year) diverted for irrigation and domestic use between Pollock Pines and Placerville. Water from Jenkinson Lake (Sly Park Dam) in North Fork Consumnes basin diverted to Camino and substituted for flow from El Dorado Canal in some years. Water is imported from Upper Rubicon River basin by way of Robbs Peak tunnel see p. 884. See schematic diagram, p. 894. American River flume near Camino was destroyed by Dec. 22, 1964 flood and will not be replaced. For records of combined discharge of river and flume, see following page.

Cooperation--Water-stage recorder graph and 2 discharge measurements for the flume furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission Project.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	488	88	880	2,910	2,370	2,280	2,080	4,100	2,940	1,960	1,420	1,360
2	508	96	927	2,730	2,510	2,160	2,080	3,780	2,700	2,040	1,400	1,350
3	16	78	907	2,890	2,670	2,160	2,000	3,100	3,100	2,040	1,430	1,180
4	12	33	783	3,150	2,620	2,160	1,940	2,620	3,180	2,000	1,460	1,120
5	368	8.3	630	3,260	2,720	2,130	1,840	2,820	3,200	2,000	1,450	1,030
6	382	11	19	9,130	2,850	2,110	1,900	2,900	2,900	2,020	1,420	1,570
7	365	13	744	7,840	2,720	2,110	1,770	2,660	2,720	2,060	1,420	1,560
8	344	13	695	5,020	2,700	2,070	1,740	2,600	2,580	1,920	1,400	1,700
9	386	62	732	4,350	2,650	2,080	1,800	2,560	2,200	1,740	1,460	1,680
10	20	136	740	3,860	2,590	2,060	1,850	2,620	2,400	1,570	1,400	1,500
11	14	141	1,180	3,640	2,580	2,060	1,710	2,660	2,920	1,610	1,220	1,460
12	376	358	951	3,550	2,540	2,100	1,700	2,840	2,720	1,610	1,820	1,450
13	372	749	303	3,280	2,490	2,080	1,770	2,920	2,440	1,710	1,800	1,400
14	351	828	783	2,980	2,500	2,060	1,740	2,980	2,800	1,730	1,700	1,390
15	427	756	806	2,800	2,470	1,630	1,760	2,920	2,040	1,770	2,060	1,400
16	388	754	1,040	2,680	2,420	1,450	2,380	3,320	1,940	2,020	2,300	1,310
17	38	770	1,030	2,590	2,400	1,440	2,320	3,860	1,770	1,900	1,870	1,390
18	13	721	723	2,550	2,390	1,420	2,140	4,180	1,590	2,340	1,540	1,040
19	12	675	605	2,580	2,380	1,980	2,200	4,150	1,600	2,020	1,430	1,100
20	12	736	1,180	2,830	2,380	2,020	2,760	4,200	752	1,820	1,420	1,080
21	13	799	2,470	2,780	2,380	2,040	3,040	4,040	1,740	1,710	1,310	1,150
22	13	685	13,400	2,550	2,370	2,070	3,100	3,500	1,790	1,630	1,280	1,150
23	13	724	28,200	2,600	2,350	2,100	2,860	3,200	1,770	1,610	1,310	1,170
24	13	769	26,800	3,450	2,340	1,890	2,840	3,140	1,760	1,610	1,320	1,110
25	27	820	16,200	3,140	2,340	2,080	2,880	3,060	1,870	1,610	1,310	1,100
26	30	139	10,200	2,970	2,340	2,060	2,980	3,280	1,820	1,590	1,170	1,070
27	30	838	8,750	2,880	2,410	2,240	3,260	3,380	740	1,450	1,250	1,050
28	30	892	8,560	2,760	2,320	2,100	3,400	3,520	1,740	1,020	752	1,070
29	82	964	6,530	2,740	-----	2,090	3,800	3,240	1,900	1,290	1,250	1,030
30	65	997	4,950	2,740	-----	2,070	4,020	3,280	1,920	1,380	1,320	1,000
31	43	-----	3,320	2,710	-----	2,070	-----	3,240	-----	1,420	1,380	-----
TOTAL	5,251	14,653.3	145,038	105,940	69,800	62,370	71,660	100,670	65,022	54,200	45,072	37,970
MEAN	169	488	4,679	3,417	2,493	2,012	2,389	3,247	2,167	1,748	1,454	1,266
AC-FT	10,420	29,060	287,700	210,100	138,400	123,700	142,100	199,700	129,000	107,500	89,400	75,310

CALENDAR YEAR 1964	MAX	28,200	MIN	8.3	MEAN	1,006	AC-FT	730,200
WATER YEAR 1964-65	MAX	28,200	MIN	8.3	MEAN	2,131	AC-FT	1,542,000

Note.--No gage-height record Dec. 24-30.

## SACRAMENTO RIVER BASIN

11-4435. South Fork American River near Camino, Calif.

Combined discharge, in cubic feet per second, of South Fork American River and American River flume near Camino, Calif., period October to December 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	646	252	1040									
2	658	259	1090									
3	158	242	1070									
4	166	195	946									
5	525	156	793									
6	529	143	172									
7	501	131	900									
8	489	129	852									
9	520	214	893									
10	74	300	903									
11	36	303	1340									
12	492	519	1110									
13	508	910	467									
14	495	990	947									
15	563	918	971									
16	523	915	1300									
17	124	931	1200									
18	44	881	887									
19	38	835	769									
20	41	895	1340									
21	42	963	2630									
22	47	844	13500									
23	59	885	28200									
24	91	931	26800									
25	181	981	16200									
26	192	303	10200									
27	192	1000	8750									
28	192	1060	8560									
29	247	1130	6530		-----							
30	230	1160	4950		-----							
31	207	-----	3320		-----		-----		-----			-----
Total	8810	19375	148630									
Mean	284	646	4794									
Ac-ft	17470	38430	294800									

Calendar year 1964 Max: 28,200 Min: 36 Mean: 1,153 Ac-ft: 837,000  
Water year 1964-65 Max: - Min: - Mean: - Ac-ft: -

Note.--American River flume near Camino was destroyed by Dec. 22, 1964 flood and will not be replaced.

11-4445. South Fork American River near Placerville, Calif.

Location.--Lat 38°46'16", long 120°48'55", in SW $\frac{1}{4}$  sec.25, T.11 N., R.10 E., on right bank 700 ft downstream from Chili Bar Dam, 0.5 mile upstream from Big Canyon, and 2.5 miles north of Placerville.

Drainage area.--598 sq mi.

Records available.--August 1911 to July 1920, July 1964 to September 1965.

Gage.--Water-stage recorder (digital). Datum of gage is 931.05 ft above mean sea level (levels by Pacific Gas and Electric Co.). Aug. 11, 1911 to July 31, 1920, staff gage 0.6 mile downstream at different datum.

Average discharge.--10 years (1911-20, 1965), 1,242 cfs (899,200 acre-ft per year).

Extremes.--Maximum discharge during year, 47,300 cfs Dec. 23 (gage height, 17.4 ft from floodmarks), from rating curve extended above 17,000 cfs on basis of computations of flow over dam of maximum flow; minimum daily, 0.2 cfs Nov. 12.  
1911-20 (prior to regulation): Maximum discharge observed, 15,000 cfs Jan. 25, 1914 (gage height, 19.00 ft, site and datum then in use), from rating curve extended above 4,000 cfs; minimum daily observed, 50 cfs Aug. 27, 1918.  
1964-65: Maximum discharge, that of Dec. 23, 1964; minimum daily, that of Nov. 12, 1964.

Remarks.--Records good except those for period of no gage-height record, which are poor. Flow regulated by storage, diversions, and powerplants. See schematic diagram on p. 894.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	688	268	1,050	3,900	2,100	2,020	1,760	4,820	2,830	1,700	1,130	807
2	680	356	1,130	3,500	2,200	1,610	1,790	4,180	2,730	1,920	1,120	859
3	449	284	1,150	4,600	2,600	1,720	1,800	3,550	3,200	1,880	1,110	864
4	177	600	1,010	7,000	2,500	1,680	1,800	3,370	3,350	1,900	1,120	764
5	443	805	937	5,900	2,800	1,650	1,780	3,350	3,410	1,900	1,110	728
6	571	648	291	13,000	3,100	1,610	1,780	3,320	3,030	1,750	1,640	1,120
7	563	231	739	10,000	2,900	1,630	1,780	3,040	2,880	1,920	504	1,130
8	534	149	899	5,800	2,600	1,590	1,770	2,930	2,810	1,720	1,050	1,270
9	560	244	892	4,500	2,700	1,700	1,790	2,940	2,470	1,550	1,110	1,180
10	230	412	968	4,000	2,500	1,750	2,210	3,030	2,680	1,440	1,090	1,160
11	68	154	1,640	3,700	2,400	1,320	2,150	2,990	2,930	1,380	1,100	1,140
12	390	2	1,280	3,500	2,400	1,630	2,090	3,300	2,910	1,360	1,440	1,130
13	550	222	533	3,300	2,300	1,700	2,180	3,450	2,640	1,330	1,680	1,120
14	542	1,020	854	3,100	2,300	1,610	2,110	3,590	2,470	1,490	1,370	1,110
15	595	942	916	3,100	2,300	1,240	2,100	3,610	2,330	1,220	1,640	1,120
16	559	941	879	3,100	2,300	1,170	3,670	3,880	2,270	1,480	1,770	1,010
17	270	982	844	3,000	2,300	1,080	3,270	4,230	2,200	1,400	1,560	1,080
18	66	886	833	2,900	2,200	852	2,750	4,340	2,060	1,680	1,500	838
19	60	820	480	3,000	2,200	1,250	2,960	4,300	1,970	1,480	980	897
20	60	861	1,840	3,200	2,230	1,530	3,610	4,180	1,510	1,340	1,150	788
21	60	963	4,500	3,000	2,260	1,560	4,450	4,010	1,860	1,290	986	879
22	65	889	15,600	2,900	2,280	1,560	4,300	3,370	1,960	1,250	801	1,070
23	75	864	42,000	3,000	2,210	1,420	3,720	3,040	2,040	1,170	794	754
24	104	920	30,000	4,300	2,200	1,430	3,550	3,000	2,040	1,210	794	852
25	164	983	11,000	3,600	2,210	1,660	3,750	2,950	2,030	1,200	795	914
26	206	511	9,600	3,300	2,200	1,770	3,970	3,130	1,940	1,190	726	912
27	206	844	10,000	3,100	2,480	2,100	4,460	3,320	1,630	1,190	782	905
28	208	1,040	8,000	2,900	2,300	1,900	4,700	3,390	1,200	1,310	778	1,010
29	288	1,030	6,500	2,800	-----	1,810	4,990	3,140	1,850	1,000	794	785
30	269	1,080	5,900	2,800	-----	1,800	5,130	3,160	1,910	1,140	796	891
31	236	-----	4,700	2,800	-----	1,790	-----	3,130	-----	1,130	797	-----
TOTAL	9,936	19,949.2	166,965	128,600	67,070	49,142	88,170	108,040	71,160	44,920	34,017	29,087
MEAN	321	665	5,386	4,148	2,395	1,585	2,939	3,485	2,372	1,449	1,097	970
AC-FT	19,710	39,570	331,200	255,100	133,000	97,470	174,900	214,300	141,100	89,100	67,470	57,690

Calendar year 1964: Max - Min - Mean - Ac-ft -  
WATER YEAR 1964-65 MAX 42,000 MIN 0.2 MEAN 2,239 AC-FT 1,621,000

Note.--No gage-height record Dec. 23 to Feb. 19.

11-4455. South Fork American River near Lotus, Calif.

Location.--Lat 38°49'05", long 120°56'45", in SW $\frac{1}{4}$  sec. 11, T. 11 N., R. 9 E., on left bank 0.4 mile downstream from Greenwood Creek, 2.4 miles northwest of Lotus, and 3.3 miles northwest of Coloma.

Drainage area.--673 sq mi.

Records available.--May 1951 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 635 ft (from topographic map).

Average discharge.--14 years, 1,188 cfs (860,100 acre-ft per year).

Extremes.--Maximum discharge during year, 61,500 cfs Dec. 23 (gage height, 20.00 ft); minimum daily, 50 cfs Oct. 21-22.

1951-65: Maximum discharge, 71,800 cfs Dec. 23, 1955 (gage height, 21.37 ft); minimum daily that of Oct. 21, 22, 1964.

Maximum stage known since 1862 and prior to beginning of record, 20.4 ft from floodmarks Nov. 21, 1950 (discharge, 64,500 cfs).

Remarks.--Records good. Flow partly regulated by reservoirs and powerplants (see schematic diagram p. 894). Some diversions above station for irrigation and domestic use. Records of chemical analyses and water temperatures for the water year 1965 are published in Part 2 of this report.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 22

Dec. 23 to Sept. 30

3.8	43	7.0	2,000	5.5	640	10.0	8,650
4.0	71	8.0	3,440	6.0	1,000	12.0	16,000
4.5	185	9.0	5,480	7.0	2,020	15.0	30,000
5.0	360	11.0	11,300	8.0	3,660	18.0	47,000
5.5	620	13.0	19,250				
6.0	970						

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	586	274	1,010	3,930	2,190	2,130	1,880	4,540	2,830	1,700	1,130	870
2	638	380	1,080	3,590	2,270	1,780	1,850	4,060	2,710	1,900	1,130	864
3	454	316	1,140	4,600	2,660	1,690	1,880	3,500	3,120	1,880	1,120	872
4	169	476	783	7,090	2,580	1,770	1,860	3,320	3,260	1,860	1,120	770
5	274	855	929	5,970	2,850	1,720	1,850	3,320	3,350	1,880	1,120	752
6	506	694	459	13,700	3,160	1,700	1,850	3,260	3,080	1,730	1,510	1,100
7	509	328	512	10,600	2,940	1,700	1,850	3,050	2,900	1,900	735	1,110
8	488	166	884	5,820	2,630	1,650	1,880	2,900	2,830	1,740	973	1,240
9	493	319	842	4,540	2,730	1,770	2,230	2,920	2,520	1,560	1,100	1,170
10	372	518	914	4,040	2,530	1,800	3,340	2,990	2,680	1,460	1,100	1,150
11	82	380	1,480	3,790	2,480	1,360	2,940	2,940	2,900	1,390	1,120	1,120
12	147	176	1,370	3,550	2,410	1,730	2,540	3,230	2,900	1,370	1,300	1,120
13	488	65	728	3,300	2,330	1,800	2,490	3,370	2,680	1,340	1,790	1,110
14	502	963	716	3,190	2,360	1,680	2,340	3,500	2,490	1,400	1,390	1,100
15	507	928	899	3,190	2,360	1,520	2,270	3,530	2,370	1,260	1,630	1,110
16	479	897	860	3,140	2,310	973	4,270	3,700	2,290	1,460	1,700	1,030
17	442	956	828	3,050	2,300	1,280	3,790	4,020	2,240	1,390	1,620	1,060
18	88	858	810	2,940	2,290	918	3,080	4,110	2,090	1,630	1,670	860
19	55	780	700	3,020	2,290	1,150	3,170	4,090	1,970	1,480	870	907
20	51	821	1,850	3,230	2,270	1,590	3,570	3,980	1,550	1,360	1,190	813
21	50	915	4,850	3,080	2,330	1,590	4,260	3,910	1,900	1,290	1,030	908
22	50	845	17,500	2,900	2,330	1,660	4,260	3,350	1,960	1,260	882	980
23	53	842	42,600	3,030	2,270	1,370	3,730	3,070	2,020	1,180	864	851
24	78	859	30,300	4,340	2,230	1,550	3,520	2,980	2,050	1,220	864	900
25	124	918	11,600	3,610	2,250	1,640	3,640	2,940	2,020	1,200	875	900
26	191	668	9,660	3,320	2,240	1,840	3,750	3,070	1,940	1,210	832	919
27	194	642	10,300	3,140	2,520	2,440	4,160	3,260	1,800	1,200	792	914
28	197	1,000	8,050	2,920	2,410	2,120	4,320	3,350	1,210	1,270	854	1,000
29	254	980	6,550	2,890	-----	1,920	4,580	3,190	1,700	1,030	861	847
30	278	1,030	5,950	2,850	-----	1,900	4,800	3,120	1,900	1,150	855	901
31	246	-----	4,720	2,850	-----	1,890	-----	3,120	-----	1,130	865	-----
Total	9,045	19,849	170,874	131,210	68,520	51,631	91,950	105,690	71,260	44,830	34,892	29,248
Mean	292	662	5,512	4,233	2,447	1,666	3,065	3,409	2,375	1,446	1,126	975
Ac-ft	17,940	39,370	338,900	260,300	135,900	102,400	182,400	209,600	141,300	88,920	69,210	58,010

Calendar year 1964 Max 42,600 Min 50 Mean 1,213 Ac-ft 880,600  
 Water year 1964-65 Max 42,600 Min 50 Mean 2,271 Ac-ft 1,644,000



11-4462, Folsom Lake near Folsom, Calif.

Location.--Lat 38°42'29", long 121°09'22", in NW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.24, T.10 N., R.7 E., near center of dam on American River 0.7 mile downstream from South Fork American River and 2.3 miles northeast of Folsom.

Drainage area.--1,862 sq mi.

Records available.--February 1955 to September 1965. Prior to October 1959, published as Folsom Reservoir near Folsom.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Bureau of Reclamation).

Extremes.--Maximum contents during year, 1,014,200 acre-ft July 4, 5 (elevation, 466.34 ft); minimum, 468,600 acre-ft Nov. 8 (elevation, 410.23 ft).

1955-65: Maximum contents, 1,024,400 acre-ft June 15, 1963 (elevation, 467.23 ft); minimum, 156,600 acre-ft Nov. 10, 1955 (elevation, 352.70 ft).

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 (invert of lower tier of river outlets) and 466.0 ft (gross pool elevation) above mean sea level, 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 p. 894.

Cooperation.--Record of contents furnished by Bureau of Reclamation.

Capacity table (elevation, in feet, and contents, in acre-feet)

410	466,800	450	834,700
420	548,300	460	942,600
430	637,300	470	1,056,300
440	732,900		

Contents, in thousands of acre-feet, at 2400 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	533.0	470.1	508.6	623.9	573.1	551.8	537.5	848.7	882.0	1013.0	938.4	796.7
2	530.4	470.8	515.0	621.1	569.2	549.3	541.1	854.4	886.0	1013.0	933.8	792.2
3	528.2	470.4	521.2	625.7	568.4	546.9	544.7	856.8	892.1	1013.6	929.2	787.5
4	525.1	469.9	525.2	632.9	567.4	544.9	547.7	857.4	899.5	1014.2	924.5	782.4
5	522.5	470.4	528.3	612.3	569.1	542.6	550.4	856.5	907.2	1014.2	919.6	777.3
6	520.4	470.5	530.2	633.8	573.1	539.1	553.4	855.4	915.1	1014.0	915.4	773.0
7	518.5	469.8	531.4	637.5	574.2	536.1	556.6	853.0	922.1	1013.6	910.4	768.7
8	516.5	468.6	533.7	606.5	574	531.8	559.9	850.2	923.1	1012.5	904.8	764.6
9	514.6	470.0	535.7	577.4	573.1	528.0	569.1	847.2	932.9	1010.4	899.9	760.5
10	512.8	473.4	538.2	574.3	571.5	524.2	586.5	844.9	938.7	1008.0	894.9	756.3
11	510.3	475.6	547.9	574.3	570.4	520.3	598.1	843.0	945.1	1005.5	890.7	752.2
12	507.7	479.2	559.0	576.2	563.7	513.6	606.6	841.9	951.7	1003.1	886.5	748.2
13	506.2	481.4	562.5	577.8	566.5	518.3	614.7	841.7	957.2	1000.2	884.4	744.2
14	504.6	483.2	565.0	578.7	564.1	516.3	621.6	842.6	961.8	997.5	881.2	740.1
15	503.0	484.6	567.5	581.3	561.2	513.7	628.6	843.2	965.9	994.8	877.9	736.3
16	501.4	485.8	569.1	584.0	560.7	509.5	653.3	844.8	969.4	992.2	875.1	732.3
17	499.8	486.8	571.3	585.7	559.7	506.0	672.0	843.3	973.3	989.3	871.9	727.9
18	497.3	487.7	573.2	587.1	559.1	503.4	685.0	851.8	978.0	987.0	868.6	723.6
19	494.7	488.7	577.0	589.3	557.7	503.1	699.4	854.8	981.8	984.2	863.9	719.0
20	492.0	489.8	596.5	592.0	557.2	503.7	715.3	857.6	984.6	981.1	859.4	714.4
21	489.6	491.1	650.1	593.2	556.6	504.4	734.0	859.9	988.1	977.8	854.4	709.8
22	487.2	492.3	768.4	593.5	556.4	505.3	750.3	859.7	991.4	974.6	849.1	705.4
23	484.6	493.4	888.2	594.1	555.9	506.7	759.0	857.5	994.9	971.3	843.7	701.1
24	482.2	494.6	861.5	605.1	554.4	503.7	768.6	856.2	993.2	963.1	838.4	696.9
25	479.6	495.6	733.0	607.3	552.9	510.1	778.8	856.7	1001.3	964.6	832.8	692.7
26	477.3	496.8	688.4	605.7	552.3	512.1	789.6	857.2	1004.0	961.2	827.9	688.3
27	475.0	498.6	673.4	602.0	553.6	519.4	802.2	859.7	1006.9	957.6	822.1	684.1
28	473.7	500.9	642.9	597.3	553.7	524.1	814.9	863.9	1008.4	954.0	817.0	679.8
29	473.0	503.1	643.0	591.7	-----	527.2	827.8	869.0	1010.3	950.4	811.8	675.5
30	471.7	505.7	636.4	585.9	-----	520.2	839.2	873.9	1012.8	946.7	806.8	671.4
31	470.5	-----	629.4	580.2	-----	533.4	-----	878.5	-----	942.9	801.7	-----
(+)	410.47	414.90	429.14	423.68	420.64	418.24	450.43	454.13	466.22	460.02	446.82	433.64
(#)	-65,900	+35,200	+123,700	-49,200	-26,500	-20,300	+305,900	+39,300	+134,300	-69,900	-141,300	-130,300
(††)	2800	580	340	410	1290	1720	2390	5730	5990	7990	6400	4650

Calendar year 1964..... # 4215,200

Water year 1964-65..... # 4135,000

+ Elevation in feet at end of month.

# Change in contents, in acre-feet.

†† Evaporation, in acre-feet, furnished by Bureau of Reclamation.

11-4465. American River at Fair Oaks, Calif.

Location.--Lat 38°38'08", long 121°13'36", in SE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.17, T.9 N., R.7 E., on right bank 2,100 ft downstream from Nimbus Dam, 2.4 miles east of Fair Oaks, 8.1 miles downstream from South Fork, and at mile 19.3.

Drainage area.--1,888 sq mi.

Records available.--November 1904 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder. Datum of gage is 77.53 ft above mean sea level. Prior to Nov. 7, 1930, staff gages or water-stage recorders at several sites 2<sup>1</sup>/<sub>4</sub> miles downstream all at datum 11.74 ft lower. Nov. 7, 1930, to Dec. 31, 1957, at site 2.2 miles downstream at datum 12.74 ft lower.

Average discharge.--61 years, 3,737 cfs (2,705,000 acre-ft per year), adjusted for change in storage, diversions, and evaporation from Folsom Lake since 1955.

Extremes.--Maximum discharge during year, 115,000 cfs Dec. 23-25 (gage height, 21.65 ft); minimum daily, 910 cfs Dec. 1, 2.

1904-52 (Prior to regulation by Folsom Lake): Maximum discharge, 180,000 cfs Nov. 21, 1950 (gage height, 31.85 ft, site and datum then in use); minimum, 3.6 cfs Aug. 16, 1924.

1953-65: Maximum discharge, that of Dec. 23-25, 1964; minimum, 86 cfs Apr. 7, 1955.

Remarks.--Records good. Flow regulated by Folsom Lake beginning Feb. 25, 1955 (see preceding page). Some minor regulation of high flows by temporary pondage during period of construction January 1953 to February 1955. Diurnal fluctuations from Folsom power-plant re-regulated by Nimbus Reservoir (capacity, 2,800 acre-ft between normal operating elevations 118.5 and 125.0 ft) and power-plant. Many diversions above station for irrigation, municipal, and domestic water supply. Diversions of San Juan Suburban Water District, Natomas Water Co., and State of California are made at Folsom Dam. Some inflow from Bear and Yuba River basins. Records of chemical analyses and water temperatures at or near this station for the water year 1965 are published in Part 2 of this report.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,350	1,010	910	14,100	10,400	5,350	3,000	8,010	4,050	2,840	3,500	3,260
2	2,050	1,010	910	11,400	8,290	5,170	3,000	8,040	3,480	2,790	3,460	3,260
3	1,800	1,020	920	11,600	7,120	5,240	3,010	8,040	3,000	2,840	3,460	3,240
4	1,790	1,010	920	20,700	7,120	5,300	3,000	8,010	2,950	2,820	3,440	3,240
5	1,410	1,020	920	31,700	7,090	5,320	3,010	7,880	2,080	2,820	3,550	3,230
6	1,440	1,020	940	35,500	7,060	5,350	3,030	7,640	2,080	2,890	3,570	3,230
7	1,460	1,020	930	35,100	7,090	5,370	3,030	7,640	2,080	2,930	3,510	3,240
8	1,460	1,020	930	34,500	7,080	5,350	3,050	7,570	2,080	2,930	3,510	3,230
9	1,460	1,010	900	28,900	7,120	5,300	3,030	7,600	2,050	3,030	3,510	3,210
10	1,440	1,040	920	13,900	6,920	5,240	3,030	7,700	2,050	3,140	3,510	3,160
11	1,390	1,030	920	11,300	6,610	5,040	3,030	7,670	2,040	3,260	3,510	3,160
12	1,410	1,040	930	9,540	6,560	4,880	3,030	7,600	2,050	3,230	3,500	3,130
13	1,330	1,030	940	8,690	6,470	4,470	3,050	7,670	2,050	3,230	3,500	3,110
14	1,320	990	930	8,470	6,470	4,430	3,050	7,600	2,050	3,230	3,500	3,160
15	1,320	1,000	930	7,760	6,310	4,580	3,050	7,670	2,030	3,230	3,500	3,170
16	1,310	1,000	930	7,670	5,660	4,580	3,260	7,760	2,000	3,230	3,500	3,230
17	1,310	1,000	930	7,700	5,350	4,490	4,010	7,730	1,970	3,190	3,500	3,240
18	1,310	1,000	920	7,700	5,280	3,910	4,030	7,730	1,830	3,190	3,530	3,260
19	1,280	1,010	930	7,640	5,080	3,240	4,450	7,700	1,810	3,210	3,530	3,240
20	1,280	1,030	1,160	7,570	5,060	3,010	4,930	7,700	1,870	3,230	3,510	3,210
21	1,280	1,050	5,760	7,570	5,170	3,030	4,970	7,540	1,890	3,230	3,530	3,210
22	1,270	1,000	40,800	7,790	5,170	3,030	5,060	7,700	1,870	3,240	3,510	3,210
23	1,270	1,030	106,000	7,700	5,300	3,030	6,040	7,730	1,810	3,230	3,530	3,210
24	1,280	1,040	115,000	10,000	5,060	3,030	5,980	6,860	1,810	3,210	3,510	3,210
25	1,270	1,050	107,000	10,200	5,080	3,010	5,980	5,980	1,840	3,210	3,500	3,210
26	1,270	1,040	59,600	10,500	5,170	3,010	5,880	5,960	1,840	3,210	3,500	3,230
27	1,270	1,040	48,100	10,400	5,320	3,000	5,910	5,300	1,840	3,260	3,500	3,230
28	1,270	1,050	39,900	10,500	5,350	3,000	5,960	4,750	1,880	3,260	3,460	3,210
29	1,240	1,050	20,800	10,400	-----	3,000	6,640	4,110	1,880	3,280	3,460	3,210
30	1,240	1,040	20,400	10,400	-----	3,000	7,850	3,910	1,920	3,260	3,510	3,210
31	1,280	-----	18,000	10,500	-----	3,000	-----	3,970	-----	3,280	3,460	-----
Total	43,860	30,700	600,080	427,400	175,770	128,760	126,350	218,770	64,180	96,930	108,570	96,350
Mean	1,415	1,023	19,360	13,790	6,280	4,154	4,212	7,057	2,139	3,127	3,502	3,210
Ac-ft	87,000	60,890	1,190,000	847,700	348,600	255,400	250,600	433,900	127,300	192,300	215,300	191,100
(†)	5,010	2,680	2,700	2,330	2,110	2,470	2,420	5,390	6,680	7,800	7,270	6,610
Meant	470	167	21,420	13,030	5,861	3,892	9,431	7,876	4,610	2,248	1,427	1,211
Ac-ft†	28,910	99,450	1,317,000	801,200	325,500	239,300	561,200	484,300	274,300	138,200	87,770	72,060

Calendar year 1964: Max 115,000 Min 910 Ac-ft 2,535,000 Meant 3,920 Ac-ft† 2,846,000  
 Water year 1964-65: Max 115,000 Min 910 Ac-ft 4,200,000 Meant 6,118 Ac-ft† 4,429,000

† Diversion, in acre-feet, to Natomas Water Co., San Juan Suburban Water District and to State of California; furnished by Bureau of Reclamation.

‡ Adjusted for change in storage, diversions and evaporation from Folsom Lake.

11-4473. Dry Creek tributary near Roseville, Calif.

Location.--Lat 38°43'44", long 121°21'08", in NW $\frac{1}{4}$  NW $\frac{1}{4}$  sec.17, T.10 N., R.6 E., on left bank 5 feet upstream from road culvert and 3.7 miles southwest of Roseville.

Drainage area.--0.39 sq mi.

Records available.--Water years 1960-63 (annual maximum), October 1963 to September 1965.

Gage.--Water-stage recorder, crest-stage gage and tipping-bucket rain gage. Altitude of gage is 102 ft (from topographic map).

Extremes.--Maximum discharge during year, 48 cfs Dec. 22 (gage height, 14.38 ft); no flow for several months.

1959-65: Maximum discharge, 220 cfs Feb. 9, 1962 (gage height, 17.00 ft), from rating curve extended above 32 cfs on basis of computation of flow through culvert and over roadway at gage heights 15.28 ft and 17.00 ft.

1963-65: No flow for several months each year.

Remarks.--Records good. No storage or diversion above station.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

11.22	0	11.7	1.1
11.3	.1	11.8	1.7
11.4	.2	12.0	3.5
11.5	.4	12.5	9.7
11.6	.7	13.0	18

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0	0	0	0		0			0	0	0.1
2	0	0.1	0	0.7	0		0			0	0	0
3	0	0	0	3.2	0		0			0	0	0
4	0	0	0	3.1	0		0			0	0	0
5	0	0	0	3.2	0.1		0			0	0	0
6	0	0	0	4.4	0		0			0	0	0
7	0	0	0	.4	0		0			0	0	0
8	0	0	0	.1	0		0			0	0	0
9	0	.3	0	0	0		1.0			0	0	0
10	0	.5	0	0	0		0.5			0	0	0
11	0	.1	0	0	0		0			0	0.1	0
12	0	.1	0	0	0		0			0	0	0
13	0	0	0	0	0		0			0	0	0
14	0	0	0	0	0		0			0	0	0
15	0	0	0	0	0		0			0	0	0
16	0	0	0	0	0		2.4			0	0	0
17	0	0	0	0	0		.1			0	0	0
18	0	0	0	0	0		0			0	0	0
19	0	0	0.1	.1	0		0			0	.1	0
20	0	0	.2	.1	0		0			0	.1	0
21	0	0	2.4	0	0		0			0	0	0
22	0	0	19.0	0	0		0			0	0	0
23	0	0	2.1	1.3	0		0			0	0	0
24	0	0	.5	.2	0		0			0	0	0
25	0	0	.1	0	0		0			0	0	0
26	0	0	1.7	0	0		0			0	0	0
27	0	0	.4	0	0		0			0	0	0
28	0	0	.1	0	0		0			0	0	0
29	0.2	0	1.7	0	-----		0			0	0	0
30	.1	0	.4	0	-----		0			0.1	0	0
31	0	-----	.2	0	-----		-----			.1	0	-----
Total	0.3	1.1	29.0	21.8	0.1	0	4.0	0	0	0.2	3.3	0.1
Mean	0.010	0.037	0.94	0.70	0.004	0	0.13	0	0	0.006	0.010	0.003
Ac-ft	0.6	2.2	53	43	0.2	0	79	0	0	0.4	0.6	0.2
(†)	0	0.8	5.1	3.2	0.4	1.1	2.9	0.1	0	0	0.5	0
Calendar year 1964	Max	19	Min	0	Mean	0.15	Ac-ft	108				
Water year 1964-65	Max	19	Min	0	Mean	0.16	Ac-ft	113				

† Precipitation, in inches.

Note.--No gage-height record Mar. 8-16, June 18-20.

11-4473.6. Arcade Creek near Del Paso Heights, Calif.

Location.--Lat 38°38'28", long 121°22'38", on right bank in Del Paso Grant, 1,200 ft upstream from bridge on Interstate Highway 80 and 1.6 miles east of city limits of Del Paso Heights, Sacramento County.

Drainage area.--31.5 sq mi.

Records available.--July 1963 to September 1965.

Gage.--Water-stage recorder (digital) and concrete control. Datum of gage is 47.98 ft above mean sea level (levels by County of Sacramento).

Extremes.--Maximum discharge during year, 1,360 cfs Dec. 22 (gage height, 12.72 ft); no flow Dec. 17.

1963-65: Maximum discharge, 1,470 cfs Jan. 21, 1964 (gage height, 12.26 ft); no flow for several days each year.

Remarks.--Records fair except those for periods of no gage-height record, which are poor. Low summer flow sustained by residential and industrial waste water.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	1.6	22	2.9	11	1.3	0.9	10	0.6	1.2	2.0	2.0	3.6
2	2.1	48	2.2	14	1.1	.6	2.6	.5	1.2	2.8	2.0	3.6
3	2.0	17	3.0	215	1.1	2.5	1.1	.3	1.2	2.8	2.0	4.4
4	2.0	3.9	3.6	242	1.1	1.8	.6	.1	1.2	1.8	2.0	4.2
5	1.6	2.5	1.5	179	14	1.2	.3	.2	1.2	1.5	2.0	4.2
6	1.3	1.0	.6	709	6.0	.7	.2	.2	1.2	2.4	2.0	3.9
7	1.4	.6	.3	100	2.4	1.3	.4	.2	1.2	2.4	2.0	3.9
8	1.6	.3	.2	15	1.5	.7	27	.2	1.2	3.0	2.0	4.2
9	2.3	90	.2	9.0	1.2	.7	138	.2	1.2	2.5	2.0	4.4
10	2.0	99	.1	6.6	1.1	.8	146	.2	1.2	2.0	2.0	4.7
11	2.0	36	.7	9.8	1.0	.6	31	.3	2.0	1.6	5.0	4.4
12	1.9	32	1.3	7.0	.8	21	6.2	.3	2.0	2.2	4.0	4.7
13	1.8	9.8	.4	4.4	.7	10	20	.3	2.0	2.5	3.0	4.2
14	2.4	3.6	.2	3.2	.6	1.6	11	.3	2.0	3.0	2.5	4.4
15	2.2	1.6	.2	2.6	.6	.7	19	.3	2.0	2.7	2.0	3.6
16	1.7	.8	.3	2.1	.5	.5	253	.5	2.0	2.9	1.5	4.4
17	.9	.6	0	1.9	.3	.2	22	.5	2.0	3.0	1.2	4.0
18	.8	.4	.1	1.6	.4	.2	7.4	.5	2.0	3.0	1.0	4.7
19	.9	.3	55	18	.3	.3	4.3	.5	2.0	3.0	1.0	4.9
20	.9	.2	191	21	.3	.2	3.1	.5	2.0	3.0	1.0	5.5
21	.8	.2	331	6.0	.4	.2	4.7	1.2	2.0	3.0	1.0	2.8
22	.9	.3	897	3.4	.3	.2	2.1	1.2	2.0	3.0	1.1	1.8
23	.6	.4	552	48	.5	.4	1.3	1.2	2.0	3.0	1.1	1.3
24	.7	.4	128	78	.9	.3	.8	1.2	2.0	3.0	1.4	1.1
25	.6	1.7	18	9.6	.5	.1	.6	1.2	3.0	3.0	1.0	9.3
26	.6	2.2	136	4.4	.5	.6	.7	1.2	3.0	2.0	1.1	7.0
27	.6	1.2	112	2.7	7.0	96	.6	1.2	3.0	2.0	1.6	2.8
28	1.9	.5	23	2.0	3.1	7.8	7.0	1.2	3.0	2.0	1.8	1.0
29	67	.4	115	1.7	-----	2.2	57	1.2	3.0	2.0	2.2	.7
30	26	.6	129	1.7	-----	1.2	64	1.2	3.0	2.0	3.6	.6
31	50	-----	44	1.4	-----	1.0	-----	1.2	-----	2.0	4.2	-----
TOTAL	183.1	377.7	2,748.8	1,731.1	49.5	156.5	842.0	19.9	58.0	77.1	62.3	421.2
MEAN	5.91	12.6	88.7	55.8	1.77	5.05	28.1	0.64	1.93	2.49	2.01	14.0
AC-FT	363	749	5,450	3,430	98	310	1,670	39	115	153	124	835

CALENDAR YEAR 1964 MAX 897 MIN 0 MEAN 13.8 AC-FT 10,040  
 WATER YEAR 1964-65 MAX 897 MIN 0 MEAN 18.4 AC-FT 13,340

## Peak discharge (base, 250 cfs, revised).

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-10	1115	6.48	262	1-3	2345	7.46	364
12-22	2215	12.72	1,360	1-6	0130	11.49	1,040
12-26	2100	7.16	331	4-16	0900	8.50	418
12-29	2300	7.43	360				

Note.--No gage-height record May 4 to June 30, July 17 to Aug. 20.

11-4475. Sacramento River at Sacramento, Calif. .

Location.--Lat 38°35'20", long 121°30'15", on left bank 1,000 ft upstream from I Street Bridge, in city of Sacramento, and 0.5 mile downstream from American River.

Drainage area.--23,530 sq mi.

Records available.--January 1904 to July 1905 (gage heights only), June to November 1921, October 1948 to September 1965. Gage heights collected in this vicinity November 1879 to May 1888, December 1890 to September 1963 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is at mean sea level. Prior to Oct. 15, 1912, staff gage in vicinity of I Street Bridge. Oct. 15, 1912 to Nov. 16, 1956, water-stage recorder at various sites in vicinity of I Street Bridge. Prior to Nov. 16, 1956, datum of gages at low-water mark of Oct. 23, 1856, 0.12 ft above mean sea level, and 3.10 ft above datum of Corps of Engineers. Auxiliary water-stage recorder on right bank 10.8 miles downstream, near Freeport.

Average discharge.--17 years (1948-65), 22,860 cfs (16,550,000 acre-ft per year).

Extremes.--Maximum discharge during year, 99,700 cfs Dec. 25 (gage height, 29.36 ft); minimum daily, 8,640 cfs Oct. 14; minimum gage height, 2.32 ft Oct. 17.

1948-65: Maximum discharge, 104,000 cfs Nov. 21, 1950 (gage height, 30.14 ft, site and datum then in use); minimum daily, 5,590 cfs July 20, 1949.

Maximum discharge known prior to Nov. 21, 1950, 103,000 cfs Jan. 17, 1909 (gage height, 29.6 ft, present datum), from reports of California Department of Water Resources.

Remarks.--Records good. Natural flow of stream affected by storage reservoirs, power developments, diversions for irrigation, and return flow from irrigated areas. A portion of the flow bypasses station during flood periods through Yolo bypass (see p. 929). Records of chemical analyses, water temperatures, and suspended sediment loads at or near this gaging station for the water year 1965 are published in Part 2 of this report.

Cooperation.--Records collected and prepared in cooperation with the California Department of Water Resources.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12.800	11.400	15.800	75.800	65.200	30.200	22.900	45.700	22.100	12.200	13.100	13.800
2	12.400	11.300	15.400	72.500	64.000	29.500	22.800	43.800	21.200	12.300	13.400	13.600
3	12.100	11.600	16.500	71.600	61.800	27.100	22.800	41.000	20.800	12.200	13.500	13.900
4	11.600	12.000	18.000	75.400	60.700	26.200	23.900	37.900	20.700	12.400	13.400	13.600
5	11.100	11.600	17.500	85.100	59.700	25.200	24.600	33.900	20.000	12.600	13.100	14.000
6	10.400	11.100	15.600	91.600	58.900	24.600	23.500	30.000	19.900	12.200	13.000	14.100
7	9.870	10.500	14.200	92.400	59.100	24.500	22.600	27.500	19.900	12.000	13.000	14.300
8	9.690	10.300	13.100	91.800	59.200	24.200	23.300	25.800	19.500	11.700	13.200	14.700
9	9.290	9.950	12.400	90.400	58.500	24.000	26.100	25.600	18.700	11.600	13.200	15.200
10	8.940	11.100	12.000	80.800	56.900	23.900	34.100	25.800	18.100	11.500	13.200	15.600
11	8.940	20.000	11.900	75.600	54.600	23.200	42.000	25.800	17.800	11.500	13.200	15.600
12	8.860	24.300	12.900	72.800	52.200	23.200	44.400	26.200	17.600	11.700	14.400	15.900
13	9.340	23.700	14.800	70.300	49.900	23.000	43.400	27.700	17.200	11.800	15.800	15.900
14	8.640	23.800	14.400	68.800	47.200	23.300	39.900	28.200	15.900	11.900	16.500	16.000
15	8.860	21.200	13.500	67.300	44.500	23.200	36.100	28.900	14.800	12.100	16.700	16.200
16	8.640	18.500	13.000	66.200	41.600	22.500	34.600	29.700	14.300	12.100	16.200	16.000
17	8.940	16.200	12.300	65.300	38.900	22.200	43.100	30.100	13.600	12.000	15.600	16.100
18	8.810	14.200	11.900	64.600	37.000	21.300	52.800	30.800	13.100	12.100	15.500	16.100
19	8.940	13.100	12.200	64.000	35.100	20.500	55.300	31.700	13.300	12.200	15.300	16.300
20	8.810	12.400	12.800	63.600	33.800	19.600	56.200	32.100	13.800	12.400	15.100	16.700
21	8.720	11.900	23.300	63.100	32.900	19.200	58.700	32.300	13.600	12.200	15.000	16.600
22	8.680	11.300	55.800	62.600	32.700	19.400	61.600	32.400	13.500	12.000	15.100	16.600
23	8.680	11.300	94.800	61.900	31.700	19.100	63.900	32.000	13.500	12.200	15.000	16.700
24	8.940	11.200	98.800	63.600	31.100	19.500	63.600	30.900	13.400	12.000	14.800	16.600
25	9.030	11.400	98.600	67.000	30.800	20.200	61.700	28.300	12.900	12.400	14.800	16.300
26	9.080	11.300	88.500	68.400	29.900	20.000	58.700	27.300	12.900	12.500	14.700	16.000
27	9.250	11.600	82.700	67.900	29.700	21.000	55.200	26.300	12.600	12.300	14.700	15.900
28	10.000	12.400	80.600	67.300	29.500	23.000	51.700	25.000	12.100	12.400	14.700	15.500
29	10.300	12.800	76.700	66.700	24.500	48.600	48.600	23.800	11.700	12.600	14.400	15.400
30	10.700	13.300	76.400	66.100	24.400	47.000	47.000	24.000	12.000	12.600	14.200	15.400
31	11.000	-----	76.900	65.700	23.400	-----	23.400	22.500	-----	12.600	14.000	-----
Total	301,350	416,750	1,133,300	2,226,200	1,287,100	715,100	1,265,100	933,000	480,500	376,300	447,800	464,600
Mean	9,720	13,890	36,560	71,810	45,970	23,070	42,170	30,100	16,020	12,140	14,450	15,490
Ac-ft	597,700	826,600	2,248,000	4,416,000	2,553,000	1,418,000	2,509,000	1,851,000	953,100	746,400	888,200	921,500

Calendar year 1964 Max 98,800 Min 8,640 Mean 16,240 Ac-ft 11,790,000  
 Water year 1964-65 Max 98,800 Min 8,640 Mean 27,530 Ac-ft 19,930,000

## SACRAMENTO RIVER BASIN

11-4485. Adobe Creek near Kelseyville, Calif.

Location.--Lat 38°55'40", long 122°52'45", in SE¼ sec.5, T.12 N., R.9 W., on left bank 2.5 miles upstream from Highland Creek and 4.2 miles south of Kelseyville.

Drainage area.--6.39 sq mi.

Records available.--October 1954 to September 1965.

Gage.--Water-stage recorder and concrete control. Datum of gage is 1,478.1 ft above mean sea level (levels by Topographic Division).

Average discharge.--11 years, 11.6 cfs (8,400 acre-ft per year); median of yearly mean discharges, 8.4 cfs (6,100 acre-ft per year).

Extremes.--Maximum discharge during year, 1,500 cfs Dec. 22 (gage height 9.11 ft); no flow for several months.

1954-65: Maximum discharge, that of Dec. 22, 1964; maximum gage height, 9.22 ft Jan. 31, 1963; no flow at times each year.

Remarks.--Records good above 10 cfs and fair below. Some regulation and diversions above station for irrigation.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

3.86	0	4.3	11	5.5	194
3.9	.1	4.4	19	6.0	320
4.0	.6	4.5	29	7.0	635
4.1	2.4	4.7	52	8.0	1,020
4.2	5.4	5.0	96		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0.4	3.4	3.3	7.7	2.4	1.6	3.6	0.2			
2		.2	3.1	124	6.7	2.1	1.4	3.6	.2			
3		0	2.6	216	5.8	2.1	1.2	3.4	.1			
4		0	2.1	209	6.2	1.6	1.1	3.1	.1			
5		0	1.8	747	12	1.8	.9	2.8	.1			
6		0	1.4	248	9.5	2.4	.8	2.6	.1			
7		0	1.2	119	7.2	2.1	1.8	2.4	.1			
8		23	1.1	57	6.2	1.8	37	2.1	0			
9		55	.9	36	5.4	1.8	93	2.1	0			
10		108	.9	26	5.4	1.8	44	1.8	0			
11		17	1.1	23	5.0	1.6	23	1.8	0			
12		19	.7	18	4.6	1.6	16	1.6	0			
13		7.7	.6	16	4.2	1.4	12	1.6	0			
14		4.2	.9	13	4.2	1.4	12	1.6	0			
15		2.6	.9	11	3.9	1.2	134	1.4	0			
16		1.6	.8	10	3.4	1.2	85	1.2	0			
17		1.2	.7	8.9	3.4	1.2	38	1.2	0			
18		.9	1.3	8.3	3.1	1.2	38	1.2	0			
19		.7	39	7.7	2.8	1.1	28	1.1	0			
20		.6	124	7.7	2.6	.9	23	1.2	0			
21		.7	598	6.7	2.4	.9	24	1.2	0			
22		.9	918	6.2	2.4	.8	16	1.1	0			
23		.5	324	67	2.1	.8	14	.9	0			
24		.5	124	71	1.8	.8	11	.7	0			
25		.4	57	36	1.6	.7	8.9	.6	0			
26		.4	110	22	1.6	.8	7.2	.5	0			
27		.5	128	16	5.4	5.0	5.8	.4	0			
28		5.0	85	15	2.4	1.8	5.0	.2	0			
29		4.2	70	13	-----	1.4	4.2	.2	0			
30		3.1	61	11	-----	1.4	3.6	.2	0			
31		-----	50	9.5	-----	1.4	-----	.2	-----			
Total	0	258.3	2,713.5	2,212.0	1,290.0	48.5	691.5	47.6	0.9	0	0	0
Mean	0	8.61	87.5	71.4	4.61	1.56	23.0	1.54	0.03	0	0	0
Ac-ft	0	512	5,380	4,390	256	96	1,370	94	1.8	0	0	0

Calendar year 1964 Max 918 Min 0 Mean 10.8 Ac-ft 7,850

Water year 1964-65 Max 918 Min 0 Mean 16.7 Ac-ft 12,100

Peak discharge (base, 250 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-10	0200	6.65	515	1-23	1600	5.92	299
12-22	1200	9.11	1,500	4-15	1800	6.28	404
1-5	1400	8.38	1,170				

11-4489. Highland Creek above Highland Creek Dam, Calif.

Location.--Lat 38°55'45", long 122°55'10", in NW¼SE¼ sec.36, T.13 N., R.10 W., on left bank 100 ft downstream from Pipeline Creek, 1.7 miles upstream from Highland Creek Dam, and 5.7 miles southwest of Kelseyville.

Drainage area.--11.9 sq mi.

Records available.--October 1962 to September 1965.

Gage.--Water-stage recorder with rain-gage attachment. Altitude of gage is 1,500 ft (from topographic map).

Extremes.--Maximum discharge during year, 3,080 cfs Dec. 22 (gage height, 12.15 ft); no flow for many days.  
1962-65: Maximum discharge, that of Dec. 22, 1964; no flow at times in each year.

Remarks.--Records good. No regulation or diversion above station.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	3.3	10	67	16	5.9	3.7	6.2	2.2	0.4	0.1	0
2	0	2.6	9.0	155	14	5.5	3.4	5.9	2.0	.3	.1	0
3	0	1.4	7.0	251	13	5.2	3.0	5.9	2.0	.2	.1	0
4	0	.8	5.8	194	16	4.8	3.0	5.9	1.8	.2	.1	0
5	0	.7	5.3	1,250	27	5.2	2.8	5.5	1.8	.2	0	0
6	0	.6	4.4	386	18	5.2	2.6	5.5	1.8	.2	0	0
7	0	.5	4.2	141	15	4.8	4.1	5.2	2.0	.2	0	0
8	0	4.6	4.0	70	14	4.4	3.3	4.8	2.0	.2	0	.1
9	0	1.31	3.8	44	12	4.4	8.9	4.4	2.0	.1	0	.1
10	0	1.70	4.0	30	11	4.4	5.5	4.4	1.8	.1	0	.1
11	0	4.2	4.9	23	10	4.1	2.6	4.4	1.6	.1	0	0
12	0	4.1	3.8	15	9.8	4.1	1.5	4.1	1.6	.1	.1	0
13	0	1.9	3.5	11	9.3	3.7	1.1	3.7	1.6	.1	.1	0
14	0	9.0	4.0	8.2	9.3	3.7	1.0	3.4	2.0	.1	0	0
15	0	6.2	4.2	6.6	8.8	3.7	2.32	3.4	1.8	.1	0	0
16	0	4.7	3.7	5.5	8.2	4.1	7.8	2.8	1.8	.1	0	0
17	0	3.7	3.5	4.8	7.7	3.7	3.6	2.8	1.4	.1	0	0
18	0	3.2	3.8	4.1	7.1	3.7	3.2	2.8	1.4	.1	0	0
19	0	2.8	7.4	4.1	6.6	3.7	2.3	3.0	1.2	.1	0	0
20	0	2.5	1.72	3.7	6.2	3.7	2.0	3.4	.9	0	0	0
21	0	2.6	8.54	3.4	5.9	3.7	1.8	3.7	.8	.1	0	0
22	0	2.8	1,660	3.0	5.9	3.7	1.4	3.7	.8	.1	0	0
23	0	2.5	5.60	61	5.5	2.4	1.3	3.4	.9	.1	0	0
24	0	2.3	2.43	7.7	5.5	2.4	1.1	3.0	.8	.1	0	0
25	0	2.6	1.08	3.8	5.2	3.0	1.0	2.8	.8	.1	0	0
26	0	2.5	1.23	2.4	5.9	4.1	9.8	2.6	.7	.1	0	0
27	.1	3.0	1.68	2.5	9.8	8.2	9.3	2.4	.6	.1	.1	.1
28	1.8	1.9	1.47	2.6	6.2	4.4	8.2	2.4	.5	.1	0	.1
29	2.0	1.1	1.48	2.4	-----	3.7	7.1	2.4	.4	.1	0	.2
30	.8	7.6	1.21	2.0	-----	3.7	6.2	2.2	.4	.1	0	.2
31	.5	-----	.92	1.8	-----	4.1	-----	2.2	-----	.1	0	-----
Total	5.2	546.9	4,558.9	2,993.4	288.9	131.4	789.2	118.3	41.4	4.1	0.7	0.9
Mean	0.17	18.2	14.7	96.6	10.3	4.24	26.3	3.82	1.38	0.13	0.02	0.03
Ac-ft	1.0	1,080	9,040	5,940	573	261	1,570	235	82	8.1	1.4	1.8
(+)	2.4	9.3	18.4	12.3	1.2	1.3	7.3	0	0	0	0	0

Calendar year 1964 Max 1,660 Min 0 Mean 18.8 Ac-ft 13,620  
Water year 1964-65 Max 1,660 Min 0 Mean 26.0 Ac-ft 18,800

Peak discharge (base, 300 cfs)

† Precipitation, in inches.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-10	0200	6.94	714	1- 5	1100	11.15	2,530
12-22	1400	12.15	3,080	4-15	1700	7.58	801

11-4491. Scotts Creek near Lakeport, Calif.

Location (revised).--Lat 39°03'44", long 122°56'53", in SW¼ sec.14, T.14 N., R.10 W., 100 ft upstream from bridge on Hartley Cemetery Road and 2.1 miles northwest of Lakeport.

Drainage area.--52.3 sq mi.

Records available.--October 1960 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 1,420 ft (from topographic map).

Average discharge.--5 years, 68.3 cfs (49,450 acre-ft per year).

Extremes.--Maximum discharge during year, 8,680 cfs Dec. 22 (gage height, 17.88 ft); no flow for several months. 1960-65: Maximum discharge, that of Dec. 22, 1964; no flow for several months in each year.

Remarks.--Small diversions above station for irrigation.

Cooperation.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	104	350	99	25	16	47	2.1			
2		0	104	355	90	23	15	42	1.9			
3		0	80	1,060	81	22	14	39	1.4			
4		0	53	1,240	75	23	14	35	1.0			
5		0	41	4,370	108	24	13	39	1.0			
6		0	28	1,970	103	22	13	37	1.0			
7		0	21	1,160	88	20	15	35	1.1			
8		0	16	579	75	19	50	31	1.3			
9		127	14	393	64	18	200	30	1.8			
10		465	13	321	56	17	150	27	1.5			
11		203	61	276	50	16	120	26	1.0			
12		235	36	233	47	16	150	24	.7			
13		125	27	184	44	15	140	22	.6			
14		52	30	139	41	15	120	20	.8			
15		22	35	115	38	14	560	18	.6			
16		8.9	26	99	35	14	586	16	.4			
17		3.2	22	87	33	14	340	15	.1			
18		1.1	23	79	31	14	473	14	.2			
19		.2	232	73	30	14	361	13	.5			
20		0	692	69	29	14	276	14	.4			
21		0	3,150	67	28	13	240	13	.7			
22		1.8	6,400	75	27	13	185	13	.7			
23		.4	3,420	201	26	13	150	12	.7			
24		.1	1,810	544	25	13	124	9.9	.8			
25		4.8	850	315	24	13	102	9.3	.8			
26		5.1	885	241	26	15	89	7.7	.8			
27		4.4	1,170	193	40	25	75	6.3	.7			
28		213	902	161	30	20	68	5.5	.7			
29		177	721	139	-----	16	58	4.5	0			
30		86	619	122	-----	16	53	3.4	0			
31		-----	494	109	-----	17	-----	2.9	-----			
Total	0	1,735.0	22,079	15,319	1,443	533	4,770	631.5	25.3	0	0	0
Mean	0	57.8	712	494	51.5	17.2	159	20.4	0.84	0	0	0
Ac-ft	0	3,440	43,790	30,380	2,860	1,060	9,460	1,250	50	0	0	0

Calendar year 1964 Max 6,400 Min 0 Mean 86.1 Ac-ft 62,500

Water year 1964-65 Max 6,400 Min 0 Mean 127 Ac-ft 92,290

Note.--No gage-height record Jan. 17-22, Feb. 9 to Mar. 17, May 13, 14. Doubtful gage-height record Mar. 18 to Apr. 23.



11-4493.5. Burns Valley Creek near Clearlake Highlands, Calif.

Location--Lat 38°58'33", long 122°36'42", in SE¼ sec.15, T.13 N., R.7 W., on right bank 500 ft downstream from unnamed tributary and 2.7 miles northeast of Clearlake Highlands.

Drainage area--4.38 sq mi.

Records available--January 1963 to September 1965.

Gage--Water-stage recorder. Altitude of gage is 1,380 ft (from topographic map).

Extremes--Maximum discharge during year, 402 cfs Jan. 5 (gage height, 5.11 ft); no flow for several months.  
1963-65: Maximum discharge, that of Jan. 5, 1965; no flow for several months in each year.

Remarks--Records good. No regulation or diversion above station.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

1.15	0	1.8	15
1.2	.1	2.0	26
1.3	.7	2.5	58
1.4	2.4	3.0	102
1.5	4.6	4.0	222
1.6	7.6		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0.4	1.4	0.1		0	0.1			0	
2		0	.3	1.1	.1		0	0			0	
3		0	.1	4.7	.1		0	0			0	
4		0	.1	3.9	.1		0	0			0	
5		0	.1	186	1.2		0	0			0	
6		0	.1	36	.4		0	0			0	
7		0	0	15	.2		0	0			0	
8		0	0	7.6	.1		.1	0			0	
9		0	0	4.9	.1		.7	0			.1	
10		3.6	.1	3.2	.1		.6	0			0	
11		1.6	.1	2.2	.1		.1	0			0	
12		1.6	0	1.6	.1		.1	0			0	
13		.4	0	1.1	.1		.1	0			0	
14		.1	.1	.8	.1		.1	0			0	
15		0	0	.5	.1		7.5	0			0	
16		0	0	.4	.1		8.0	0			0	
17		0	0	.3	.1		1.6	0			0	
18		0	.1	.2	0		1.6	0			0	
19		0	.1	.2	0		1.0	0			0	
20		0	.4	.2	0		.5	0			0	
21		0	26	.1	0		.5	0			0	
22		0	100	.1	0		.4	0			0	
23		0	30	1.4	0		.2	0			0	
24		0	8.5	2.8	0		.1	0			0	
25		0	3.0	1.1	0		.1	0			0	
26		0	6.2	.7	0		.1	0			0	
27		0	20	.4	0		.1	0			0	
28		.4	14	.4	0		.1	0			0	
29		.2	12	.3	-----		.1	0			0	
30		.2	5.8	.2	-----		.1	0			0	
31		-----	3.2	.2	-----		-----	0	-----		0	-----
Total	0	8.1	230.7	366.3	3.2	0	23.8	0.1	0	0	0.1	0
Mean	0	0.27	7.44	11.8	0.11	0	0.79	0.003	0	0	0.003	0
Ac-ft	0	16	458	727	6.3	0	47	0.2	0	0	0.2	0

Calendar year 1964 Max 100 Min 0 Mean 0.79 Ac-ft 576  
Water year 1964-65 Max 186 Min 0 Mean 1.73 Ac-ft 1,250

Peak discharge (base, 80 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-22	1200	4.78	337	1-5	1000	5.11	402
1-3	0500	3.24	127				

## SACRAMENTO RIVER BASIN

11-4494.5 (revised). Copsey Creek near Lower Lake, Calif.

Location--Lat 38°53'21", long 122°35'47", in NE¼ sec.14, T.12 N., R.7 W., on left bank 1.7 miles southeast of Lower Lake and 2.5 miles upstream from mouth.

Drainage area--13.2 sq mi.

Records available--October 1960 to September 1965.

Gage--Water-stage recorder and concrete control. Altitude of gage is 1,400 ft (from topographic map).

Average discharge--5 years, 11.4 cfs (8,250 acre-ft per year).

Extremes--Maximum discharge during year, 2,210 cfs Jan. 5 (gage height, 12.38 ft); no flow for many days.  
1960-65: Maximum discharge, 2,340 cfs Jan. 30, 1963 (gage height, 14.15 ft); no flow for many days in each year.

Remarks--Minor diversions above station for irrigation.

Cooperation--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.7	0.3	24	10	4.2	2.8	3.3	1.1	0.6	0.1	0
2	0	.6	.7	137	8.9	4.1	2.4	3.3	1.0	.3	0	0
3	0	.4	.7	363	8.2	4.0	2.3	3.0	1.0	.2	0	0
4	0	.2	.9	375	13	3.7	2.1	3.0	1.0	.2	0	0
5	0	.2	.9	1,040	48	4.3	2.1	3.0	.9	.1	0	.1
6	0	.2	.9	281	18	5.1	2.1	2.8	.9	.1	0	.1
7	0	.3	.8	98	12	4.3	2.7	2.8	.9	.1	0	.1
8	0	1.0	.8	48	11	3.8	2.0	2.6	1.0	.1	0	.1
9	0	6.0	.8	35	9.5	3.6	4.7	2.9	.9	.1	0	.1
10	0	4.1	.8	29	8.7	3.4	2.0	2.5	.9	.1	0	.1
11	0	5.6	.7	25	8.5	3.3	1.1	2.4	.7	.1	.2	.1
12	0	4.2	.8	21	7.8	3.3	7.6	2.3	.7	.1	.3	.1
13	0	1.0	.6	19	7.5	2.9	5.6	2.3	.7	.1	.3	.1
14	0	.5	.6	17	7.4	3.0	5.8	2.4	.8	0	.2	.1
15	0	.2	.6	15	6.5	3.0	10.1	2.2	.8	.1	.2	.1
16	0	.2	.6	12	5.6	2.8	5.5	2.0	.9	0	.1	.1
17	0	.2	.4	11	5.7	2.7	2.2	1.9	.9	.1	.5	0
18	0	.1	.6	10	5.5	2.6	2.7	1.8	.9	.1	.3	.1
19	0	.1	7.4	11	5.5	2.5	2.0	1.8	.9	.1	.2	.1
20	0	.1	5.7	10	5.5	2.4	1.4	2.0	.9	.1	.2	.2
21	0	.2	488	9.1	5.4	2.5	1.2	1.9	1.0	.2	.1	.2
22	0	.2	869	8.7	4.7	2.6	9.6	1.9	1.0	.2	.1	.1
23	0	.1	298	21.9	4.7	2.5	8.0	1.6	1.0	.2	.1	.1
24	0	.2	67	9.9	4.5	2.5	6.7	1.5	.8	.2	.1	.1
25	0	.2	35	3.2	4.3	2.4	6.2	1.5	.9	.2	.1	.2
26	0	.2	132	2.2	3.9	2.6	5.4	1.5	1.0	.2	.1	.2
27	0	.2	81	1.8	6.2	3.6	5.0	1.2	.9	.3	.1	.3
28	.8	.3	55	1.6	4.5	2.9	4.2	1.2	.8	.2	.1	.3
29	1.2	.2	67	1.4	-----	2.4	3.9	1.1	.7	.2	.1	.2
30	.7	.2	50	1.3	-----	2.8	3.7	1.1	.7	.2	0	.1
31	.2	-----	3.9	1.1	-----	3.0	-----	1.1	-----	.1	0	-----
Total	2.9	64.8	2,257.9	3,042.8	251.0	98.8	437.2	65.9	26.6	4.9	3.5	3.4
Mean	0.09	2.16	72.8	98.2	8.96	3.19	14.6	2.13	0.89	0.16	0.11	0.11
Ac-ft	5.8	129	4,480	6,040	498	196	867	131	53	9.7	6.9	6.7

Calendar year 1964 Max 869 Min 0 Mean 8.51 Ac-ft 6,190  
Water year 1964-65 Max 1,040 Min 0 Mean 17.1 Ac-ft 12,420

11-4495. Kelsey Creek near Kelseyville, Calif.

Location.--Lat 38°55'45", long 122°50'35", in SE¼ sec.34, T.13 N., R.9 W., on left bank 1.6 miles downstream from Widow Creek and 3.5 miles south of Kelseyville.

Drainage area.--37.2 sq mi.

Records available.--October 1946 to September 1965.

Gage.--Water-stage recorder (digital). Datum of gage is 1,475.1 ft above mean sea level (levels by Topographic Division). Prior to July 16, 1955, at site 600 ft upstream at different datum.

Average discharge.--19 years, 70.6 cfs (51,110 acre-ft per year); median of yearly mean discharges, 57 cfs (41,300 acre-ft per year).

Extremes.--Maximum discharge during year, 8,750 cfs Jan. 5 (gage height, 13.48 ft); minimum 2.5 cfs Oct. 6.

1946-65: Maximum discharge, 8,800 cfs Dec. 21, 1955 (gage height, 12.80 ft); maximum gage height, 13.48 ft Jan. 5, 1965; minimum discharge, 0.5 cfs Sept. 1, 1950, but may have been less during August 1950.

Remarks.--Records good. No regulation or diversion above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	3.3	26	29	190	97	48	44	56	21	11	6.6	4.3
2	3.2	28	27	426	91	47	41	54	20	10	5.8	4.5
3	3.2	15	25	905	85	46	39	51	20	9.6	5.7	5.0
4	3.0	9.8	22	894	88	45	38	49	19	9.6	5.6	4.8
5	2.6	8.6	22	4,430	143	47	37	47	18	8.9	5.2	4.9
6	2.5	7.9	20	1,690	104	53	36	45	18	8.5	5.2	5.1
7	2.6	7.3	19	830	92	48	41	44	17	8.3	4.9	5.0
8	3.4	52	18	471	85	45	260	42	17	8.2	5.1	4.9
9	3.6	379	19	330	79	44	548	39	18	7.9	5.7	4.6
10	3.4	608	17	252	76	43	236	38	17	7.9	5.4	4.7
11	3.2	142	19	218	72	42	146	36	16	8.2	7.2	4.9
12	3.0	123	16	180	70	42	115	35	16	8.0	8.2	4.8
13	3.3	70	15	156	68	41	97	34	16	7.8	6.5	4.4
14	3.6	48	16	140	65	41	100	33	16	7.6	6.1	4.5
15	3.6	38	16	128	63	39	750	32	16	7.2	5.9	4.8
16	3.6	32	15	117	60	39	544	30	15	7.0	5.8	4.9
17	3.5	28	14	108	58	38	266	30	15	6.8	5.7	4.9
18	3.4	26	16	99	56	37	254	29	15	6.7	5.4	5.4
19	3.2	23	121	97	55	36	190	28	14	6.6	5.1	5.4
20	3.4	21	554	92	54	36	167	28	14	6.6	5.1	5.7
21	3.3	20	2,910	86	53	35	172	28	13	7.1	5.2	5.5
22	3.3	22	4,810	81	51	34	133	27	13	6.8	5.8	5.2
23	3.3	19	2,100	502	51	34	115	26	12	6.6	5.7	5.3
24	6.6	18	796	504	49	34	100	25	12	6.2	5.4	4.9
25	4.9	18	400	234	48	34	90	24	12	6.2	5.4	4.5
26	4.4	16	727	175	49	36	81	23	12	6.6	5.1	4.9
27	5.3	16	684	147	72	74	73	23	12	6.8	5.0	5.9
28	16	30	429	133	52	46	68	22	11	6.7	5.5	6.1
29	22	35	340	122	-----	41	64	22	11	6.5	5.2	5.9
30	12	29	295	112	-----	41	58	21	11	6.7	4.8	5.4
31	7.9	-----	246	104	-----	44	-----	21	-----	7.6	4.4	---
TOTAL	153.6	1,915.6	14,757	13,953	1,986	1,310	4,903	1,042	457	236.2	173.7	151.1
MEAN	4.96	63.9	476	450	70.9	42.3	163	33.6	15.2	7.62	5.60	5.04
AC-FT	305	3,800	29,270	27,680	3,940	2,600	9,720	2,070	906	468	345	300

CALENDAR YEAR 1964 MAX 4,810 MIN 1.6 MEAN 69.5 AC-FT 50,480  
 WATER YEAR 1964-65 MAX 4,810 MIN 2.5 MEAN 112 AC-FT 81,400

## Peak discharge (base, 1,600 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-10	0400	8.92	2,200	1- 5	1300	13.48	8,750
12-22	1400	12.85	7,640	4-15	1900	8.42	1,760

## SACRAMENTO RIVER BASIN

11-4500. Clear Lake at Lakeport, Calif.

Location.--Lat 39°02'40", long 122°54'45", in SE¼ sec.24, T.14 N., R.10 W., on private pier at foot of Fourth Street in Lakeport.

Drainage area.--528 sq mi, including water surface of lake (62.9 sq mi).

Records available.--1874-1900 (incomplete), January 1913 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 1,318.59 ft above mean sea level, datum of 1929. Prior to July 8, 1947, staff gage and July 8, 1947, to Mar. 17, 1949, water-stage recorder, at municipal wharf at foot of Third Street in Lakeport at same datum.

Extremes.--Maximum daily mean gage height during year, 9.10 ft Jan. 8; minimum, 0.36 ft Oct. 26.

1913-65: Maximum gage height observed, 11.12 ft Jan. 28, 1914; minimum observed, -3.50 ft Sept. 24-27, 1920.

Remarks.--This natural lake is regulated by a concrete overflow 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 from which it is diverted for irrigation (see Cache Creek near Lower Lake, p. 923). Records of chemical analyses for the water year 1965 are published in Part 2 of this report.

Cooperation.--Daily mean gage-height record furnished by Clear Lake Water Co.

Mean gage height, in feet, water year October 1964 to September 1965											
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Sept.
1	0.61	0.46	1.23	6.81	7.35	7.29	7.33	7.45	6.92	5.84	4.60
2	.60	.47	1.26	6.84	7.32	7.30	7.33	7.46	6.89	5.80	4.57
3	.60	.47	1.28	7.06	7.31	7.30	7.33	7.44	6.86	5.77	4.53
4	.59	.46	1.30	7.27	7.32	7.31	7.32	7.42	6.84	5.73	4.48
5	.58	.46	.31	8.30	7.26	7.31	7.34	7.40	6.80	5.70	4.44
6	.57	.45	1.32	8.86	7.24	7.29	7.32	7.42	6.77	5.66	4.40
7	.56	.45	1.32	9.05	7.20	7.29	7.35	7.41	6.73	5.63	4.36
8	.55	.60	1.33	9.10	7.12	7.29	7.48	7.41	6.70	5.57	4.32
9	.54	.70	1.34	9.05	7.13	7.31	7.55	7.41	6.67	5.51	4.30
10	.52	.83	1.35	8.99	7.14	7.30	7.65	7.40	6.64	5.45	4.26
11	.51	.87	1.37	8.90	7.16	7.30	7.67	7.39	6.60	5.42	4.27
12	.49	.92	1.38	8.78	7.17	7.32	7.68	7.38	6.54	5.38	4.24
13	.48	.95	1.39	8.68	7.17	7.32	7.68	7.36	6.50	5.35	4.21
14	.46	.97	1.40	8.57	7.17	7.32	7.70	7.34	6.44	5.32	4.18
15	.45	.99	1.40	8.46	7.19	7.34	7.75	7.32	6.42	5.28	4.15
16	.44	1.00	1.41	8.35	7.20	7.32	7.77	7.30	6.40	5.24	4.14
17	.42	1.00	1.43	8.24	7.21	7.32	7.77	7.29	6.37	5.19	4.12
18	.41	1.01	1.48	8.15	7.12	7.32	7.72	7.27	6.33	5.15	4.08
19	.41	1.01	1.50	8.05	7.13	7.32	7.67	7.24	6.30	5.10	4.03
20	.40	1.02	1.64	7.94	7.14	7.32	7.62	7.21	6.27	5.04	3.99
21	.39	1.02	2.36	7.83	7.14	7.32	7.52	7.18	6.25	5.01	3.96
22	.39	1.03	4.10	7.73	7.15	7.32	7.47	7.17	6.22	4.98	3.92
23	.38	1.04	5.39	7.70	7.17	7.31	7.51	7.13	6.17	4.94	3.89
24	.38	1.05	5.87	7.73	7.18	7.31	7.57	7.12	6.12	4.90	3.87
25	.37	1.05	6.08	7.69	7.19	7.31	7.60	7.11	6.04	4.85	3.84
26	.36	1.06	6.35	7.62	7.20	7.29	7.60	7.09	6.01	4.82	3.82
27	.40	1.09	6.56	7.54	7.23	7.29	7.58	7.07	5.98	4.78	3.79
28	.44	1.16	6.63	7.48	7.24	7.30	7.55	7.05	5.95	4.74	3.77
29	.44	1.18	6.74	7.44	-	7.30	7.51	7.02	5.91	4.71	3.74
30	.45	1.20	6.77	7.41	-----	7.30	7.46	6.99	5.87	4.68	3.72
31	.46	-----	6.78	7.38	-----	7.30	-----	6.95	-----	4.64	3.69

11-4510. Cache Creek near Lower Lake, Calif.

Location.--Lat 38°55'27", long 122°33'53", in sec.6, T.12 N., R.6 W., on left bank 500 ft downstream from Clear Lake Dam, 1.9 miles downstream from Copsey Creek, and 2.5 miles northeast of Lower Lake.

Drainage area.--528 sq mi.

Records available.--May 1944 to September 1965.

Gage.--Water-stage recorder (digital). Datum of gage is 1,280.3 ft above mean sea level (river-profile survey).

Average discharge.--21 years, 310 cfs (224,400 acre-ft per year), unadjusted.

Extremes.--Maximum discharge during year, 5,320 cfs Jan. 5 (gage height, 8.21 ft); minimum daily, 1.9 cfs Dec. 7-10.  
1944-65: Maximum discharge, 8,000 cfs Feb. 24, 1958 (gage height, 9.40 ft); minimum recorded, 0.2 cfs Mar. 15-23, 1950.

Remarks.--Records good except those for period of no gage-height record, which are fair. Flow completely regulated by Clear Lake (see p. 922). Records of chemical analyses for the water year 1965 are published in Part 2 of this report.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

0.4	1.3	1.5	44	4.0	600
.5	2.4	2.0	96	5.0	1,160
.6	3.8	2.5	170	6.00	2,000
.8	8.4	3.0	270	7.00	3,200
1.0	15	3.5	410	8.00	4,900
1.2	25				

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	3.8	3.0	2.2	2,390	1,290	6.9	5.8	202	386	414	372	259
2	3.7	2.8	2.2	2,560	1,290	6.9	5.8	48	388	429	372	273
3	3.6	2.6	2.2	2,990	1,280	6.9	5.8	7.9	376	407	364	266
4	3.7	2.6	2.1	3,010	1,280	6.4	5.8	7.9	387	376	353	252
5	3.4	2.6	2.1	4,360	1,320	5.6	5.6	7.9	383	368	349	238
6	3.0	2.6	2.0	3,680	1,310	5.6	5.4	34	363	422	347	217
7	2.8	2.5	1.9	3,710	1,310	5.6	5.4	60	357	472	358	189
8	3.0	3.1	1.9	3,630	1,310	5.6	5.5	80	370	448	381	183
9	3.1	3.4	1.9	3,650	764	5.6	5.5	116	367	424	380	189
10	3.1	3.0	1.9	3,560	192	5.6	189	165	348	434	365	183
11	3.2	2.8	2.0	3,460	203	5.6	537	232	368	448	335	182
12	3.6	3.0	2.0	3,420	203	5.6	537	273	415	460	277	169
13	3.8	2.8	2.0	3,330	202	5.6	775	273	457	460	224	160
14	4.0	2.6	2.0	3,250	202	5.6	992	272	456	447	212	164
15	4.0	2.5	2.0	3,180	145	5.6	1,360	272	416	468	234	165
16	4.0	2.2	2.0	3,130	8.7	5.6	2,020	286	399	455	243	163
17	3.8	2.2	2.0	3,050	7.6	5.6	2,490	297	388	423	250	139
18	3.8	2.2	2.0	2,950	7.1	5.6	2,670	316	386	438	296	123
19	3.7	2.2	2.0	2,880	6.9	5.6	2,610	341	392	464	299	122
20	3.7	2.2	2.1	2,820	6.9	23	2,650	347	400	467	290	122
21	3.7	2.2	3.2	2,740	6.9	51	2,640	343	433	452	270	120
22	3.7	2.2	4.8	2,690	6.9	51	1,920	341	472	413	250	119
23	3.6	2.2	4.6	2,940	6.9	50	12	341	484	386	250	118
24	3.6	2.2	996	2,880	7.1	78	11	333	483	385	240	116
25	3.6	2.4	2,100	2,690	7.1	112	11	346	476	385	240	101
26	3.6	2.4	2,240	2,640	7.1	112	349	373	433	390	260	87
27	3.6	2.2	2,340	2,600	7.1	112	795	381	396	399	282	75
28	3.6	2.2	2,390	1,930	7.1	90	790	389	396	428	267	65
29	3.4	2.4	2,420	1,650	-----	64	795	408	410	435	256	64
30	3.2	2.4	2,440	1,300	-----	64	556	414	403	409	251	63
31	3.0	-----	2,460	1,300	-----	35	-----	399	-----	384	243	-----
TOTAL	109.4	75.7	17,439.1	90,370	12,394.4	953.1	24,759.6	7,705.7	12,188	13,190	9,110	4,686
MEAN	3.53	2.52	563	2,915	443	30.7	825	249	406	425	294	156
AC-FT	217	150	34,590	179,200	24,580	1,890	49,110	15,280	24,170	26,160	18,070	9,290
CALENDAR YEAR 1964	MAX		2,460	MIN		1.9	MEAN		199	AC-FT		144,500
WATER YEAR 1964-65	MAX		4,360	MIN		1.9	MEAN		529	AC-FT		382,700

Note.--No gage-height record Aug. 20-25.

11-4515. North Fork Cache Creek near Lower Lake, Calif.

Location.--Lat 39°01'10", long 122°34'00", in NE¼ sec.31, T.14 N., R.6 W. (unsurveyed), on right bank 500 ft upstream from Sweet Hollow Creek, 5 miles upstream from mouth, and 7 miles northeast of Lower Lake.

Drainage area.--198 sq mi.

Records available.--July 1930 to September 1965.

Gage.--Water-stage recorder (digital). Datum of gage is 1,035.60 ft above mean sea level, preliminary adjustment of 1929. Prior to June 15, 1939, at datum 1.00 ft higher.

Average discharge.--35 years, 187 cfs (135,400 acre-ft per year); median of yearly mean discharges, 130 cfs (94,100 acre-ft per year).

Extremes.--Maximum discharge during year, 19,700 cfs Dec. 22 (gage height, 12.7 ft, from floodmarks), from rating curve extended above 9,700 cfs on basis of slope-area measurement of maximum flow; minimum daily, 0.9 cfs Oct. 8-11.

1930-65: Maximum discharge, 20,300 cfs Dec. 11, 1937 (gage height, 13.98 ft, present datum, from floodmarks), from rating curve extended above 7,600 cfs on basis of slope-area measurement at gage height 13.9 ft for peak of Feb. 28, 1940; no flow at times in 1930-36, 1949-50, 1956-57.

Remarks.--Records good except for periods of no gage-height record, which are fair. No regulation; several small diversions above station. Records of chemical analyses, water temperatures, and suspended sediment loads for the water year 1965 are published in Part 2 of this report.

Rating tables (gage-height, in feet, and discharge, in cubic feet per second)  
(Shifting control method used Oct. 1 to Dec. 12, Sept. 16-30)

Sept. 16-30						Dec. 22 to Sept. 30					
1.1	0.7	1.7	26	5.0	1,300	1.7	2.0	3.0	135	6.0	2,300
1.2	1.5	2.0	59	6.0	2,190	1.8	2.8	3.5	280	7.0	3,870
1.3	2.9	2.5	152	7.0	3,310	2.0	5.5	4.0	500	8.0	5,920
1.4	5.2	3.0	285	8.0	4,880	2.2	12	4.5	810	10.0	11,300
1.5	10	4.0	675	9.0	7,090	2.4	27	5.0	1,210	12.0	17,400
						2.7	75				

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	1.1	2.3	108	1,290	351	121	99	190	50	16	5.4	3.9
2	1.0	3.8	112	1,200	327	115	91	177	48	15	4.9	4.0
3	1.0	3.8	106	1,850	298	113	89	167	47	15	4.8	4.0
4	1.1	2.5	89	1,970	284	109	83	157	45	13	4.6	3.9
5	1.1	2.2	79	9,110	373	111	79	147	43	13	4.1	3.9
6	1.1	2.1	68	6,990	327	121	77	137	41	12	4.2	3.8
7	1.1	2.1	62	4,130	287	117	81	131	40	11	4.1	3.9
8	.9	4.7	56	2,180	265	109	163	127	39	11	4.0	3.5
9	.9	158	52	1,620	247	105	631	120	39	10	4.0	3.6
10	.9	584	50	1,280	235	103	493	114	37	9.8	4.0	3.5
11	.9	254	55	1,260	223	101	336	109	34	9.9	6.4	3.6
12	1.0	457	62	1,090	208	99	310	104	33	9.7	6.1	3.5
13	1.0	173	61	896	199	95	323	100	30	9.2	5.0	3.4
14	1.2	110	55	761	190	91	284	96	31	8.8	4.5	3.5
15	1.3	77	54	694	181	89	581	94	32	8.3	4.1	3.5
16	1.3	62	52	639	172	85	1,310	88	30	7.7	4.0	3.4
17	1.3	54	48	573	163	83	743	84	28	6.9	4.3	3.2
18	1.3	46	47	533	160	81	830	82	28	6.7	4.2	3.3
19	1.3	40	300	506	155	79	817	78	27	6.9	4.0	3.2
20	1.3	37	1,200	475	150	77	659	77	25	7.0	4.1	3.0
21	1.3	35	7,000	420	145	75	694	78	23	6.9	3.9	3.0
22	1.3	38	15,000	368	140	73	554	83	22	6.9	3.8	3.2
23	1.3	36	9,210	598	133	72	458	76	21	6.5	3.8	2.9
24	1.3	34	5,360	1,470	129	72	385	73	20	5.9	3.9	3.3
25	1.3	33	2,680	936	125	70	336	69	20	5.8	4.2	2.9
26	1.5	34	2,740	727	123	77	300	65	20	5.9	4.6	3.0
27	1.6	34	3,390	603	158	123	273	62	19	5.7	4.2	3.2
28	3.4	115	2,500	528	133	113	246	59	19	5.6	4.3	3.2
29	3.6	188	2,020	465	-----	97	224	55	18	5.3	4.2	2.9
30	2.5	120	1,730	420	-----	95	205	52	17	5.4	4.0	2.9
31	2.2	-----	1,560	382	-----	97	-----	51	-----	5.5	3.9	-----
TOTAL	43.4	2,742.5	55,906	45,964	5,881	2,968	11,754	3,102	926	272.3	135.6	102.1
MEAN	1.40	91.4	1,803	1,483	210	95.7	392	100	30.9	8.78	4.37	3.40
AC-FT	86	5,440	110,900	91,170	11,660	5,890	23,310	6,150	1,840	540	269	202

CALENDAR YEAR 1964 MAX 15,000 MIN 0.5 MEAN 196 AC-FT 142,500  
WATER YEAR 1964-65 MAX 15,000 MIN 0.9 MEAN 356 AC-FT 257,500

Peak discharge (base, 3,500 cfs).--Dec. 22 (time unknown) 19,700 cfs (12.7 ft); Jan. 5 (1700) 15,700 cfs (11.47 ft).

Note.--No gage-height record Oct. 17-22, Nov. 17-20, Dec. 13-22.

11-4517.2. Bear Creek near Rumsey, Calif.

Location.--Lat 39°56'35", long 122°20'40", in NE 1/4 sec. 30, T.13 N., R.4 W., on left bank 0.3 mile downstream from Brophy Canyon, 1.4 miles upstream from mouth, and 7.3 miles northwest of Rumsey.

Drainage area.--100 sq mi.

Records available.--October 1958 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 750 ft (from topographic map).

Average discharge.--7 years, 30.1 cfs (21,790 acre-ft per year).

Extremes.--Maximum discharge during year, 9,720 cfs Jan. 5 (gage height, 11.93 ft); minimum daily, 0.8 cfs Aug. 6-8.

1958-65: Maximum discharge, that of Jan. 5, 1965; no flow July 25, 26, Aug. 20, 1960.

Maximum stage since 1955, 12.33 ft Feb. 24, 1958.

Remarks.--No regulation or diversion above station.

Cooperation.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.9	2.4	6.5	92	50	24	18	17	8.8	2.2	1.3	1.3
2	.9	2.5	5.5	198	48	23	16	16	8.5	2.3	1.2	1.2
3	.9	2.6	5.1	1070	45	22	15	16	8.5	2.1	1.0	1.2
4	.9	2.2	4.2	757	43	22	14	16	7.7	2.0	.9	1.3
5	.9	1.9	4.3	4380	70	22	14	15	7.3	1.9	.9	1.2
6	1.1	1.8	3.9	1280	55	30	13	14	7.0	1.8	.8	1.2
7	1.3	1.4	3.6	595	48	37	13	15	6.7	1.5	.8	1.4
8	1.1	1.9	3.3	279	45	26	22	15	6.8	1.6	.8	1.3
9	1.1	2.2	3.3	219	43	23	113	15	6.6	1.5	.9	1.3
10	1.0	134	3.0	165	42	23	88	14	6.0	1.4	.9	1.2
11	1.1	35	2.9	175	40	23	42	14	5.6	1.4	1.8	1.1
12	1.1	51	2.7	150	39	23	30	14	4.9	1.5	3.2	1.1
13	1.1	20	2.2	120	39	23	26	13	4.5	1.6	2.2	1.2
14	1.1	11	2.1	100	39	21	24	13	4.6	1.6	1.4	1.1
15	1.2	6.4	2.3	90	37	20	35	13	5.0	1.5	1.3	1.2
16	1.4	4.8	2.2	80	35	20	76	12	4.7	1.4	1.4	1.2
17	1.3	4.1	2.0	74	33	19	38	12	4.6	1.3	1.3	1.0
18	1.2	3.9	1.9	68	32	19	35	12	4.3	1.3	1.4	1.0
19	1.2	3.7	2.8	64	32	17	37	12	4.0	1.3	1.4	1.1
20	1.2	3.6	11	60	32	17	31	12	3.6	1.3	1.4	1.2
21	1.2	3.5	832	54	31	17	30	12	3.7	1.4	1.3	1.3
22	1.2	4.9	3150	50	30	16	26	13	3.4	1.3	1.5	1.4
23	1.2	4.7	1410	100	29	16	25	13	2.8	1.4	1.9	1.3
24	1.2	4.1	298	273	27	15	24	11	2.5	1.3	1.4	1.3
25	1.3	3.8	135	130	26	15	22	11	2.3	1.3	1.4	1.4
26	1.2	4.2	233	100	26	15	21	10	2.5	1.3	1.4	1.5
27	1.6	4.0	397	80	34	23	20	9.8	2.4	1.3	1.5	1.6
28	2.4	5.0	252	70	27	21	19	9.7	2.3	1.3	1.4	1.8
29	5.2	8.0	245	62	-----	17	18	8.9	2.1	1.2	1.3	1.5
30	4.4	6.7	163	56	-----	17	17	8.7	2.0	1.2	1.3	1.4
31	2.4	-----	168	52	-----	18	-----	8.4	-----	1.3	1.3	-----
Total	45.3	365.1	7357.8	11043	1077	644	922	395.5	145.7	46.8	42.0	38.3
Mean	1.46	12.2	237	356	38.5	20.8	30.7	12.8	4.86	1.51	1.35	1.28
Ac-ft	90	724	14590	21900	2140	1280	1830	784	289	93	83	76

Calendar year 1964 Max 3,150 Min 0.5 Mean 28.6 Ac-ft 20,790  
 Water year 1964-65 Max 4,380 Min 0.8 Mean 60.6 Ac-ft 43,880

## SACRAMENTO RIVER BASIN

11-4517.6. Cache Creek above Rumsey, Calif.

Location.--Lat  $38^{\circ}54'47''$ , long  $122^{\circ}16'14''$ , in SE $\frac{1}{4}$  sec.2, T.12 N., R.4 W., on right bank 0.4 mile downstream from highway bridge and 2.5 miles northwest of Rumsey.

Drainage area.--955 sq mi (revised).

Records available.--October 1960 to September 1962. June to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 480 ft (from topographic map).

Extremes.--Maximum discharge during period June to September, 491 cfs June 24, 25 (gage height, 3.74); minimum daily, 83 cfs Sept. 30.  
1960-62: Maximum discharge, 13,200 cfs Dec. 1, 1960 (gage height, 12.90 ft); minimum, 3.1 cfs Oct. 29, 1961.  
Flood of Jan. 5, 1964 reached a stage of 21.42 ft from floodmarks (discharge, 59,000 cfs, by slope-area measurement).

Remarks.--Flow partly regulated by Clear Lake beginning in 1915 (see p. 922).

Cooperation.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1									-	406	375	260
2			†142						-	431	364	291
3									419	425	367	288
4						†157		†216	419	386	350	278
5		†8.6		†59,000					429	367	346	258
6	†4.0			†13,600					399	379	345	247
7									386	461	346	219
8			†70	†6,580	†1,680		†146		388	455	368	190
9									400	419	384	206
10									380	419	372	202
11									370	432	369	198
12									413	435	322	198
13									452	447	246	180
14									476	428	209	179
15									449	439	215	188
16									417	451	243	183
17									415	405	244	175
18									396	409	264	147
19									404	441	304	142
20									404	438	305	143
21	†3.0								422	436	300	142
22									468	409	261	141
23									484	371	233	140
24									486	369	231	140
25									484	368	232	138
26			†4,270						457	367	259	114
27									414	379	293	108
28									393	400	291	92
29									418	428	268	86
30			†4,500						415	411	266	83
31										381	256	
Total									-	12,792	9,228	5,356
Mean									-	413	298	179
Ac-ft									-	25,370	18,300	10,620

Calendar year 1964 Max - Min - Mean - Ac-ft -  
Water year 1964-65 Max - Min - Mean - Ac-ft -

† Result of discharge measurement.



11-4520. Cache Creek near Capay, Calif.

Location.--Lat 38°43'40", long 122°06'15", in Canada de Capay Grant, in Yolo County, on right bank 1.8 miles upstream from Clear Lake Water Co.'s diversion dam, 3.2 miles northwest of Capay, and 5.4 miles northwest of Esparto.

Drainage area.--1,042 sq mi.

Records available.--May 1942 to September 1965.

Gage.--Water-stage recorder (digital). Altitude of gage is 225 ft (from river-profile map).

Average discharge.--23 years, 595 cfs (430,800 acre-ft per year); median of yearly mean discharges, 380 cfs (275,100 acre-ft per year).

Extremes.--Maximum discharge during year, 44,500 cfs Jan. 5 (gage height, 19.76 ft), from rating curve extended above 20,000 cfs; minimum daily, 2.5 cfs Nov. 3.

1942-65: Maximum discharge, 51,600 cfs Feb. 24, 1958 (gage height, 20.90 ft), from rating curve extended above 20,000 cfs; minimum, 2.2 cfs Sept. 11, 12, 16, 1947.

Remarks.--Records good except those for period of no gage-height record, which are poor. Flow partially regulated by Clear Lake beginning in 1915 (see p. 922). About 3,700 acre-ft diverted annually between stations above Rumsey and near Capay for irrigation of approximately 900 acres, from data furnished by U.S. Soil Conservation Service. Records of chemical analyses for the water year 1965 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	6.4	4.0	139	3,770	1,950	217	155	665	459	410	386	238
2	6.2	3.1	123	3,670	1,890	202	134	448	452	428	368	265
3	6.0	2.5	121	6,890	1,840	196	127	325	445	431	368	275
4	6.0	2.6	118	6,020	1,810	188	123	258	434	400	354	270
5	6.0	2.6	103	20,100	1,990	184	119	235	448	375	347	258
6	6.0	2.7	97	17,600	1,950	187	116	219	428	364	344	240
7	6.0	3.0	73	11,100	1,820	197	118	228	406	442	344	221
8	6.0	3.4	64	7,840	1,790	188	129	240	406	466	361	198
9	6.0	4.4	57	6,480	1,730	179	635	252	428	431	382	192
10	6.0	676	49	5,860	780	175	916	278	406	424	378	192
11	6.0	575	45	5,570	655	171	862	316	386	445	389	188
12	6.0	526	42	5,380	620	169	904	392	417	448	361	186
13	6.0	373	53	5,090	597	168	916	414	459	459	289	176
14	6.0	202	49	4,820	584	163	1,300	410	504	452	238	170
15	6.0	144	46	4,630	564	158	1,350	403	480	445	221	174
16	6.0	109	46	4,440	482	155	3,720	392	445	470	232	174
17	6.0	84	44	4,220	354	148	3,250	406	434	428	240	170
18	6.0	65	41	4,040	325	140	3,590	406	420	417	252	159
19	6.0	53	47	3,930	307	134	3,650	428	424	448	286	141
20	6.0	44	287	3,860	295	132	3,560	448	420	452	304	134
21	6.0	38	2,270	3,770	286	132	3,540	456	431	452	301	134
22	6.0	37	16,800	3,650	270	150	3,480	452	470	434	270	131
23	6.0	36	18,800	3,650	258	150	1,490	448	500	390	240	130
24	6.0	35	7,000	4,770	250	149	640	438	504	379	228	130
25	6.0	31	5,880	4,090	238	157	524	414	500	381	223	130
26	6.0	28	4,820	3,850	223	173	448	442	480	377	238	122
27	6.0	27	6,440	3,680	228	183	1,020	456	434	383	270	111
28	8.0	27	5,590	3,450	250	204	1,160	456	403	400	278	103
29	10	83	4,870	2,520	-----	184	1,140	466	417	431	268	87
30	8.0	180	4,600	2,200	-----	163	1,110	484	420	428	252	86
31	6.0	-----	4,160	2,020	-----	163	-----	484	-----	402	245	-----
TOTAL	194.6	3,401.3	82,874	172,960	24,336	5,259	40,226	12,159	13,260	13,092	9,257	5,185
MEAN	6.28	113	2,673	5,579	869	170	1,341	392	442	422	299	173
AC-FT	386	6,750	164,400	343,100	48,270	10,430	79,790	24,120	26,300	25,970	18,360	10,230

CALENDAR YEAR 1964	MAX	18,800	MIN	2.5	MEAN	431	AC-FT	313,100
WATER YEAR 1964-65	MAX	20,100	MIN	2.5	MEAN	1,047	AC-FT	758,200

Note.--No gage-height record Oct. 5 to Nov. 3.

11-4525. Cache Creek at Yolo, Calif.

Location.--Lat 38°43'30", long 121°48'25", in Rio Jesus Maria Grant, on left bank 800 ft upstream from highway bridge and 0.5 mile south of Yolo, Yolo County.

Drainage area.--1,138 sq mi.

Records available.--January 1903 to September 1965. Records for water year 1903 incomplete, yearly estimate published in WSP 1315-A.

Gage.--Water-stage recorder. Datum of gage is 50.27 ft above mean sea level, adjustment of 1929. Prior to summer of 1930, staff gage at datum 7.97 ft higher. Summer 1930 to June 11, 1954, water-stage recorder at same site, at datum 6.00 ft higher. June 11, 1954 to July 16, 1965, water stage recorder at datum 2.00 ft higher.

Average discharge.--63 years, 507 cfs (367,100 acre-ft per year).

Extremes.--Maximum discharge during year, 37,800 cfs Jan. 6 (gage height, 33.56 ft, present datum); no flow for several months. 1903-65: Maximum discharge, 41,400 cfs Feb. 25, 1958 (gage height, 35.11 ft present datum); maximum stage observed, 36.2 ft Mar. 10, 1904; no flow at times each year.

Remarks.--Records good, except those for periods of no gage-height record, which are poor. Flow regulated by Clear Lake beginning in 1915 (see p. 922). Diversions for irrigating up to about 30,000 acres between stations near Capay and at Yolo, from data furnished by Clear Lake Water Co. Records of suspended sediment loads for the water year 1965 are published in Part 2 of this report.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0	3,800	1,880	142	0	536				
2		0	0	3,540	1,800	138	0	267				
3		0	0	6,290	1,760	135	0	140				
4		0	0	5,910	1,730	131	0	40				
5		0	0	12,700	1,840	127	0	20				
6		0	0	24,600	1,830	123	0	10				
7		0	0	11,900	1,770	119	0	0				
8		0	0	7,630	1,710	115	0	0				
9		0	0	6,200	1,680	111	44	0				
10		0	0	5,510	1,040	107	795	0				
11		270	0	5,140	616	109	634	0				
12		222	0	4,970	553	91	745	0				
13		361	0	4,640	504	84	745	0				
14		150	0	4,410	486	81	1,040	0				
15		47	0	4,220	466	77	1,170	0				
16		9.2	0	4,110	418	73	3,090	0				
17		.1	0	3,970	276	73	3,070	0				
18		0	0	3,810	234	30	3,540	0				
19		0	0	3,720	213	10	3,610	0				
20		0	0	3,640	198	5	3,490	0				
21		0	685	3,550	190	0	3,410	0				
22		0	10,900	3,410	180	0	3,350	0				
23		0	21,300	3,340	175	0	1,970	0				
24		0	7,880	4,700	170	0	630	0				
25		0	6,170	4,150	165	0	442	0				
26		0	4,650	3,710	155	0	335	0				
27		0	6,490	3,500	150	0	495	0				
28		0	5,840	3,380	145	0	900	0				
29		0	4,770	2,360	-----	0	870	0				
30		0	4,640	2,350	-----	0	830	0				
31		-----	4,290	1,950	-----	0	-----	0	-----			-----
Total	0	1,059.3	77,615	167,110	22,334	1,881	35,205	1,013	0	0	0	0
Mean	0	35.3	2,504	5,391	798	60.7	1,174	32.7	0	0	0	0
Ac-ft	0	2,100	153,900	331,500	44,300	3,730	69,830	2,010	0	0	0	0

Calendar year 1964 Max 21,300 Min 0 Mean 249 Ac-ft 180,400  
 Water year 1964-65 Max 24,600 Min 0 Mean 839 Ac-ft 607,400

Note.--No gage-height record Mar. 18-20, May 3-6

11-4530. Yolo bypass near Woodland, Calif.

Location.--38°40'40", long 121°38'35", on left bank just upstream from Sacramento and Woodland railroad bridge, 6 miles upstream from Sacramento bypass, 7 miles downstream from Fremont weir, and 7 miles east of Woodland.

Records available.--October 1939 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder. Gage is set to datum of Corps of Engineers which is 3.41 ft below mean sea level. Prior to Dec. 17, 1941, staff gage, and Dec. 18-31, 1941, water-stage recorder, at datum 0.73 ft higher. A supplementary water-stage recorder 7 miles downstream at different datum used for records of low flows.

Average discharge.--26 years, 3,924 cfs (2,841,000 acre-ft per year).

Extremes.--Maximum discharge during year, 265,000 cfs Dec. 25 (gage height, 32.48 ft); no flow for several days.  
1939-65: Maximum discharge, 272,000 cfs Feb. 8, 1942 (gage height, 32.00 ft); no flow at times in 1939-40, 1963-65.

Remarks.--Records fair except those for periods of no gage-height record, which are poor. Flow is from Cache Creek and Knights Landing Ridge Cut plus floodwater passing over Fremont weir; during the summer months, the flow consists largely of return water from irrigation. There is some diversion for irrigation between the main and supplementary gage which affects the low flow record.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.3	13	3.3	50,000	4,830	284	30	538	16	0	0	20
2	2.7	13	3.7	40,300	4,260	328	26	514	107	0	0	15
3	1.2	12	4.6	34,800	3,470	287	25	272	69	0	0	14
4	.1	10	3.7	39,000	2,720	213	23	126	57	0	0	12
5	0	7.8	3.7	51,200	2,350	169	24	64	51	0	0	9.0
6	0	6.6	3.7	89,700	2,330	142	23	45	45	0	0	7.8
7	0	6.6	4.1	121,000	2,310	134	24	42	45	0	.1	9.4
8	0	4.6	4.1	122,000	2,190	150	25	39	14	0	.2	10
9	.1	6.1	4.6	101,000	2,120	158	46	42	4.6	0	0	14
10	.2	6.6	3.7	79,000	1,800	148	134	14	5.6	0	0	22
11	.1	20	4.6	62,000	988	134	889	0	21	0	.1	31
12	.2	379	5.6	50,800	753	138	1,190	0	38	0	.2	56
13	.1	1,110	4.6	42,600	750	115	1,230	2.7	40	0	0	50
14	.2	1,230	4.1	35,000	748	90	1,220	22	48	0	.1	45
15	.2	731	4.1	28,300	745	82	1,280	26	64	0	0	35
16	.3	270	4.1	22,700	745	72	1,860	32	71	0	0	38
17	.3	107	4.1	18,400	670	68	3,330	39	52	0	0	27
18	.2	43	4.1	13,800	570	60	3,770	45	46	0	.2	24
19	.3	25	3.7	10,400	528	46	4,240	50	39	0	.6	26
20	.9	14	5.1	8,290	492	39	4,340	36	35	0	2.4	25
21	1.5	11	7.2	7,150	472	34	4,210	27	34	0	2.7	53
22	2.4	8.4	3,070	6,340	442	27	5,820	26	27	0	2.7	74
23	2.7	6.6	139,000	5,520	418	26	10,700	60	24	0	3.0	44
24	3.0	5.6	235,000	5,810	378	30	8,320	204	25	0	3.0	34
25	2.7	5.1	259,000	12,600	378	29	3,340	142	26	0	3.0	30
26	3	4.6	204,000	20,300	354	26	1,170	87	25	0	3.3	30
27	3	4.1	155,000	17,200	328	35	710	63	24	0	3.3	31
28	6	3.7	140,000	13,300	292	35	675	39	23	0	3.7	27
29	9	3.7	101,000	10,500	-----	29	705	7.8	15	0	6.6	25
30	6	3.7	80,100	7,630	-----	31	652	.2	3.4	.1	16	23
31	7	-----	62,400	5,860	-----	29	-----	.3	-----	.1	22	-----
Total	56.7	4,076.8	1,378,660.5	11,325,000	384,311	3,188	60,031	2,604.0	1,094.6	0.2	73.2	860.2
Mean	1.83	136	44,470	36,530	1,373	103	2,001	84.0	36.5	0.006	2.36	28.7
Ac-ft	112	8,090	2,734,000	2,246,000	76,230	6,320	119,100	5,160	2,170	0.4	145	1,710

Calendar year 1964 Max 259,000 Min 0 Mean 3,840 Ac-ft 2,787,000  
Water year 1964-65 Max 259,000 Min 0 Mean 7,182 Ac-ft 5,200,000

Note.--No gage-height record Oct. 26 to Nov. 2, Dec. 1, 2 Aug. 1-3.

11-4532. Dry Creek near Middletown, Calif.

Location.--Lat 38°44'05", long 122°38'50", in NW¼ sec.9, T.10 N., R.7 W., on right bank 0.3 mile downstream from Kroll Creek, 2.1 miles southwest of Middletown, and 2.7 miles upstream from mouth.

Drainage area.--8.41 sq mi.

Records available.--May 1959 to September 1965.

Gage.--Water-stage recorder (digital). Altitude of gage is 1,160 ft (from topographic map).

Average discharge.--6 years, 25.9 cfs (18,750 acre-ft per year).

Extremes.--Maximum discharge during year, 3,210 cfs Dec. 22 (gage height, 9.70 ft); no flow for many days.  
1959-65: Maximum discharge, 3,470 cfs Feb. 8, 1960 (gage height, 9.90 ft); no flow for many days in each year.

Remarks.--Records good. No regulation or diversion above station.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Dec. 23-25, Jan. 3-7)

1.5	0	2.7	26	5.5	345
1.6	.2	3.0	42	6.0	480
1.7	.5	3.5	78	6.5	640
1.8	1.0	4.0	124	7.0	860
2.0	3.0	4.5	182	8.0	1,500
2.2	7.0	5.0	250	9.0	2,400
2.4	13				

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1964 TO SEPTEMBER 1965

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	0	11	26	80	26	8.5	13	17	3.3	0.9	0.1	0
2	0	45	20	193	24	8.0	11	16	3.1	.8	.1	0
3	0	6.2	16	340	22	7.5	10	15	2.9	.6	.1	0
4	0	3.0	13	385	23	7.0	9.7	14	2.7	.6	.1	0
5	0	2.6	12	955	54	7.2	9.1	13	2.5	.5	.1	.1
6	0	1.4	10	441	34	7.8	8.5	12	2.5	.5	0	.1
7	0	1.2	8.8	228	28	7.2	10	12	2.5	.4	0	.1
8	0	34	8.0	123	25	6.8	49	11	2.6	.4	0	.1
9	0	97	7.5	88	22	6.5	182	11	2.4	.4	0	.1
10	0	145	8.2	69	21	6.2	75	9.4	2.2	.3	0	.1
11	0	105	14	65	19	6.0	46	8.7	2.0	.3	.3	.1
12	0	71	9.7	52	17	5.8	36	8.1	1.9	.3	.4	.1
13	0	29	8.2	44	17	5.5	30	7.9	1.7	.3	.2	.1
14	0	16	8.0	38	15	5.5	27	7.5	1.9	.3	.2	.1
15	0	11	7.8	34	14	5.3	181	7.0	1.8	.2	.1	.1
16	0	8.5	7.2	30	13	5.1	155	6.5	1.6	.2	.1	0
17	0	7.0	6.5	28	12	4.9	74	6.2	1.7	.2	.1	0
18	0	6.0	7.6	25	12	4.7	93	5.9	1.7	.2	.1	0
19	0	5.3	103	24	11	4.5	73	5.7	1.4	.2	.1	0
20	0	4.7	232	22	11	4.3	83	5.7	1.2	.2	.1	0
21	0	4.7	1,310	21	10	4.3	91	5.8	1.1	.2	.1	0
22	0	4.5	2,130	19	9.4	4.1	59	5.5	1.1	.2	.1	0
23	0	3.9	911	162	8.8	3.9	47	5.0	1.1	.2	.1	0
24	0	3.8	427	156	8.2	3.8	39	4.6	1.1	.2	.1	0
25	0	4.1	158	76	8.0	3.8	34	4.3	1.1	.2	.1	0
26	0	3.8	419	56	8.2	13	29	4.1	1.0	.2	.1	0
27	0	8.8	287	46	17	59	26	3.8	.9	.2	.1	0
28	.5	97	163	39	9.7	18	23	3.5	.9	.2	0	.1
29	2.4	38	144	35	-----	14	21	3.3	.8	.2	0	.1
30	1.4	22	133	32	-----	13	19	3.2	.8	.1	0	.1
31	.8	-----	110	29	-----	14	-----	3.3	-----	.2	0	-----
TOTAL	5.1	800.5	6,725.5	3,935	499.3	275.2	1,563.3	246.0	53.5	9.9	2.9	1.4
MEAN	0.17	26.7	217	127	17.8	8.88	52.1	7.94	1.78	0.32	0.09	0.05
AC-FT	10	1,590	13,340	7,800	990	546	3,100	488	106	20	5.8	2.8

CALENDAR YEAR 1964 MAX 2,130 MIN 0 MEAN 27.9 AC-FT 20,250  
WATER YEAR 1964-65 MAX 2,130 MIN 0 MEAN 38.7 AC-FT 28,000

Peak discharge (base, 600 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-20	0400	6.66	704	1-2	2100	6.69	744
12-22	1500	9.70	3,210	1-5	1500	8.33	1,770
12-26	1700	7.75	1,320				

11-4535. Putah Creek near Guenoc, Calif.

Location.--Lat 38°46'45", long 122°31'00", in Guenoc Grant, on right bank just upstream from Coyote Valley damsite, 2.8 miles upstream from Soda Creek, 3.2 miles downstream from highway bridge at Guenoc, Lake County.

Drainage area.--112 sq mi.

Records available.--February 1904 to September 1906, July 1930 to September 1965. Monthly discharge only for some periods, published in WSP 1315-A.

Gage.--Water-stage recorder. Datum of gage is 913.4 ft above mean sea level (river-profile survey). February 1904 to September 1906, staff gage a quarter of a mile upstream at different datum.

Average discharge.--37 years, 203 cfs (147,000 acre-ft per year); median of yearly mean discharges, 166 cfs (120,000 acre-ft per year).

Extremes.--Maximum discharge during year, 21,700 cfs Dec. 22 (gage height, 19.15 ft); minimum daily, 0.1 cfs Oct. 1-8, 23, 24. 1904-6, 1930-65: Maximum discharge, 32,000 cfs Dec. 11, 1937 (gage height, 22.7 ft), from rating curve extended above 13,000 cfs; no flow for many days in August and September 1964.

Remarks.--Records good. No regulation; diversions and ground-water withdrawals for irrigation of about 1,600 acres above station. Records of water temperatures and suspended sediment loads for the water year are published in Part 2 of this report.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Oct. 1 to Nov. 9, Nov. 27, Mar. 15-26, Apr. 4-8)

0.8	0.1	1.6	15	5.0	837
.9	.4	1.9	36	7.0	1,980
1.0	.9	2.2	68	9.0	3,700
1.1	1.7	2.5	112	12.0	7,290
1.2	3.0	3.0	200	17.0	16,500
1.4	7.2	4.0	457		

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0.8	74	709	249	101	89	126	30	9.8	4.1	1.7
2	.1	.9	76	1,210	227	98	82	118	29	9.2	2.4	1.3
3	.1	.9	61	3,310	210	93	76	112	27	7.5	2.6	.8
4	.1	.9	53	2,910	208	90	74	107	27	7.0	3.7	1.3
5	.1	.9	50	10,100	532	90	69	101	24	8.8	2.7	2.2
6	.1	.9	45	4,660	331	95	68	96	25	6.5	2.0	2.2
7	.1	1.0	42	2,490	260	92	69	93	24	5.3	4.1	1.2
8	.1	1.2	40	1,410	231	86	189	88	24	4.8	3.4	.8
9	.2	476	38	1,000	212	83	1,110	83	21	4.4	1.5	.4
10	.2	1,000	36	787	194	82	532	78	20	4.6	1.2	.4
11	.3	394	43	689	182	82	326	75	20	7.0	2.5	1.8
12	.4	492	42	568	173	81	244	71	19	5.0	3.7	2.1
13	.4	186	36	467	162	78	200	67	19	4.3	2.2	1.0
14	.2	115	34	400	157	76	184	64	19	5.0	2.0	.4
15	.2	83	35	354	148	75	865	62	18	4.8	2.7	.4
16	.3	67	33	308	141	72	1,500	57	17	5.3	1.5	.3
17	.3	55	31	282	134	71	646	56	17	5.3	1.3	1.3
18	.2	49	31	256	128	69	650	53	16	7.2	1.5	2.0
19	.3	43	229	242	125	67	543	52	16	4.8	.9	2.1
20	.2	39	983	229	120	64	416	51	16	4.6	.9	1.0
21	.2	36	7,230	208	115	62	511	52	14	5.0	1.8	.5
22	.2	37	14,800	194	114	61	365	53	14	4.4	2.4	.5
23	.1	34	6,930	1,340	109	60	303	49	13	4.1	.9	.3
24	.1	31	2,630	1,580	104	58	263	47	14	6.0	.9	.4
25	.2	30	1,270	745	102	57	224	45	13	6.0	1.3	1.3
26	.3	30	2,300	545	99	60	200	44	10	4.1	.5	1.8
27	.5	28	2,160	439	131	203	178	41	14	3.7	.6	1.0
28	.7	101	1,370	377	109	118	158	38	10	3.7	1.3	.4
29	.8	122	1,230	331	-----	92	142	36	9.2	3.2	2.4	.5
30	.7	76	1,140	296	-----	86	134	33	9.2	3.4	1.0	.7
31	.7	-----	991	272	-----	86	-----	32	-----	3.9	.5	-----
Total	8.5	3,531.5	44,063	38,708	5,007	2,588	10,410	2,080	548.4	168.7	60.5	32.1
Mean	0.27	118	1,421	1,249	179	83.5	347	67.1	18.3	5.44	1.95	1.07
Ac-ft	17	7,000	87,400	76,780	9,930	5,130	20,650	4,130	1,090	335	120	64

Calendar year 1964 Max 14,800 Min 0 Mean 178 Ac-ft 129,100  
Water year 1964-65 Max 14,800 Min 0.1 Mean 294 Ac-ft 212,600

Peak discharge (base, 5,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-22	1600	19.15	21,700	1-23	1800	10.23	5,020
1-5	1700	17.98	18,800				

## SACRAMENTO RIVER BASIN

11-4536. Pope Creek near Pope Valley, Calif.

Location.--Lat 38°37'48", long 122°19'52", in SW¼ sec.17, T.9 N., R.4 W., on left bank 0.2 mile upstream from Lake Berryessa, 0.7 mile downstream from Maxwell Creek, and 5.2 miles east of Pope Valley.

Drainage area.--78.3 sq mi.

Records available.--December 1960 to September 1965.

Gage.--Water-stage recorder. Altitude of gage is 450 ft (from topographic map).

Extremes.--Maximum discharge during year, 13,600 cfs Dec. 22 (gage height, 18.34 ft); no flow for many days.

1960-65: Maximum discharge, 18,000 cfs Jan. 31, 1963 (gage height, 19.79 ft), from rating curve extended above 7,700 cfs; no flow for many days in each year.

Remarks.--No regulation or diversion above station.

Cooperation.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	17	285	80	32	29	31	8.4	2.1	0.3	0.1
2		28	24	576	74	29	25	29	8.4	2.0	.2	.1
3		10	17	1,390	68	28	22	27	7.9	1.9	.2	.1
4		2.2	12	1,440	69	27	20	26	7.5	1.8	.1	.1
5		.7	11	4,810	157	29	19	24	7.2	1.6	.1	.1
6		.3	9.5	2,060	105	29	18	23	7.3	1.4	.1	.1
7		.1	8.4	969	80	27	18	21	7.5	1.3	.1	.1
8		.3	7.8	455	71	26	86	21	7.8	1.2	.1	.1
9		247	7.2	314	64	24	561	20	7.5	1.2	.1	.1
10		360	6.4	233	60	25	219	19	6.8	1.1	.1	.1
11		168	7.6	199	56	24	117	17	5.8	1.1	.5	.1
12		172	10	163	53	23	83	16	5.4	.9	.8	.1
13		48	7.9	137	52	23	70	16	4.9	.9	.4	.1
14		23	7.1	120	52	22	58	16	4.8	.9	.3	.1
15		15	7.2	107	48	21	163	15	4.9	.8	.2	0
16		10	6.9	95	46	20	465	14	4.5	.7	.1	0
17		7.9	6.8	84	44	20	162	13	4.2	.6	.1	0
18		6.5	6.9	79	42	20	161	13	4.2	.6	.1	0
19		5.8	6.9	77	40	19	144	12	4.1	.6	.1	0
20		4.7	14.2	71	40	18	109	13	3.7	.5	.1	.1
21		4.5	2,610	63	38	18	135	13	2.9	.6	.1	0
22		5.5	7,800	59	37	17	96	14	3.3	.6	.1	0
23		5.0	2,720	466	34	17	79	12	3.4	.5	.1	0
24		4.5	975	582	32	17	68	11	3.5	.5	.1	0
25		4.3	465	205	31	17	59	11	3.3	.5	.1	0
26		4.0	1,170	149	32	18	50	10	3.0	.5	.1	0
27		3.5	1,020	126	43	83	45	9.5	3.0	.5	.1	0
28		33	858	112	36	41	41	8.8	2.5	.4	.1	0
29		35	793	100	-----	28	38	8.1	2.4	.4	.1	0
30		18	596	91	-----	26	35	7.5	2.2	.3	.1	0
31		-----	507	85	-----	27	-----	8.0	-----	.4	.1	-----
Total	0	1,226.8	19,905.7	15,702	1,584	795	3,195	498.9	152.3	28.4	5.2	1.5
Mean	0	40.9	642	507	56.6	25.6	107	16.1	5.08	0.92	0.17	0.05
Ac-ft	0	2,430	39,480	31,140	3,140	1,580	6,340	990	302	56	10	3.0

Calendar year 1964 Max 7,800 Min 0 Mean 74.7 Ac-ft 54,240  
 Water year 1964-65 Max 7,800 Min 0 Mean 118 Ac-ft 85,470

## SACRAMENTO RIVER BASIN

933

11-4537. Capell Creek tributary near Wooden Valley, Calif.

Location.--Lat 38°26'05", long 122°12'15", in SW¼ sec.21, T.7 N., R.3 W., on State Highway 37, 4 miles north of town of Wooden Valley.Drainage area.--0.87 sq mi.Records available.--Water years 1959-61 (annual maximum), October 1961 to September 1965; discontinued as a continuous-record station; converted to a crest-stage partial-record station.Gage.--Water-stage recorder with rain gage attachment and crest-stage gage. Altitude of gage is 790 ft (topographic map). Oct. 17, 1958, to Sept. 27, 1961, crest-stage gage only.Extremes.--Maximum discharge during year, 162 cfs Jan. 5 (gage height, 5.24 ft in gage well, 5.11 ft from floodmarks); no flow for several months.

1958-65: Maximum discharge, 376 cfs Jan. 31, 1963 (gage height, 7.29 ft in gage well, 7.70 ft from floodmarks), by computation of maximum flow through culvert.

1961-65: No flow for several months in each year.

Remarks.--Records good. No regulation or diversion above station.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0	1.2	0.6	0.2	0.2	0.5				
2		0	0	4.8	.5	.2	.2	.4				
3		0	0	12	.4	.2	.2	.4				
4		0	0	21	.5	.1	.1	.4				
5		0	0	30	1.2	.2	.1	.4				
6		0	0	21	.8	.2	.1	.4				
7		0	0	11	.6	.1	.2	.3				
8		0	0	5.0	.5	.1	3.5	.3				
9		0	0	3.2	.4	.1	1.5	.2				
10		.1	0	2.4	.4	.1	5.7	.2				
11		.1	0	2.3	.4	.1	1.8	.2				
12		.1	0	1.7	.4	.1	.8	.2				
13		0	0	1.1	.4	.2	.8	.2				
14		0	0	1.0	.3	.2	.6	.2				
15		0	0	.8	.2	.1	4.3	.2				
16		0	0	.7	.2	.1	8.7	.2				
17		0	0	.6	.2	.1	3.2	.1				
18		0	.1	.5	.2	.1	3.2	.1				
19		0	.4	.5	.2	.1	2.3	.1				
20		0	1.6	.4	.2	.1	1.8	.1				
21		0	36	.4	.2	.1	1.5	.2				
22		0	71	.3	.2	.1	.8	.2				
23		0	30	6.8	.2	.1	.8	.1				
24		0	8.3	6.8	.2	.1	.7	.1				
25		0	3.2	2.3	.2	.1	.7	0				
26		0	24	1.5	.2	.2	.6	.1				
27		0	12	1.0	.4	.8	.7	0				
28		0	6.6	1.0	.2	.1	.8	0				
29		0	8.8	.8	-----	.1	.7	0				
30		0	5.7	.8	-----	.2	.5	0				
31		-----	3.0	.7	-----	.3	-----	0				
Total	0	0.3	210.7	143.6	10.4	4.9	60.6	5.8	0	0	0	0
Mean	0	0.01	6.79	4.63	0.37	0.16	2.02	0.19	0	0	0	0
Ac-ft	0	0.6	418	285	21	9.7	120	12	0	0	0	0
(†)	2.5	5.5	22.7	10.7	0.9	2.5	5.9	0	0	0	0.8	0

Calendar year 1964 Max 71 Min 0 Mean 0.74 Ac-ft 538  
 Water year 1964-65 Max 71 Min 0 Mean 1.20 Ac-ft 866

Peak discharge (base, 25 cfs)

† Precipitation, in inches.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-22	1345	4.94	138	1-23	1630	2.79	26
12-26	1930	3.99	80	4- 9	1130	2.88	30
1- 5	1800	5.24	162				

## SACRAMENTO RIVER BASIN

11-4539. Lake Berryessa near Winters, Calif.

Location.--Lat 38°30'50", long 122°06'15", in SE $\frac{1}{4}$  NW $\frac{1}{4}$  sec.29, T.8 N., R.2 W., near center of Monticello Dam on Putah Creek, 7.4 miles west of Winters.

Drainage area.--566 sq mi.

Records available.--January 1957 to September 1965.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Bureau of Reclamation).

Extremes.--Maximum contents during year, 1,686,100 acre-ft Jan. 6 (elevation, 444.30 ft); minimum, 1,345,300 acre-ft Oct. 27. (elevation, 426.20 ft).

1957-65: Maximum contents, that of Jan. 6, 1965; minimum since releases for irrigation began, 951,200 acre-ft Dec. 22, 1959 (elevation, 402.62 ft).

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 (controlled spillway elevation) above mean sea level. 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 year was 147,300 acre-feet. Releases for irrigation began in May 1959. Records show total contents.

Cooperation.--Records furnished by Bureau of Reclamation.

Capacity table (elevation, in feet, and contents, in acre-ft)

425	1,323,800
430	1,414,200
435	1,507,000
440	1,602,300
445	1,699,900

Contents, in thousands of acre-feet, at 2400 hours, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1358.4	1346.9	1356.0	1571.2	1609.4	1596.3	1600.5	1615.6	1587.8	1549.0	1505.3	1467.7
2	1357.7	1347.1	1355.5	1577.9	1606.9	1596.5	1600.5	1614.5	1586.7	1543.3	1504.0	1466.4
3	1356.8	1347.1	1355.5	1596.5	1603.6	1596.7	1600.5	1613.7	1585.5	1546.7	1502.5	1464.9
4	1356.2	1347.1	1355.5	1612.9	1601.5	1596.9	1600.4	1613.1	1584.4	1545.6	1501.8	1463.6
5	1355.5	1346.7	1355.5	1672.4	1600.5	1597.1	1600.4	1612.5	1582.7	1544.5	1500.6	1461.8
6	1355.2	1346.7	1355.5	1686.1	1598.4	1597.7	1600.2	1611.4	1581.7	1542.9	1499.5	1459.9
7	1354.4	1346.3	1355.5	1684.1	1595.9	1593.0	1600.4	1611.2	1580.2	1541.2	1498.0	1453.3
8	1353.7	1347.1	1355.3	1678.2	1593.6	1598.4	1601.9	1611.0	1573.4	1540.1	1496.9	1456.8
9	1353.4	1348.9	1355.3	1671.8	1590.7	1598.2	1608.1	1610.4	1577.9	1539.0	1495.8	1455.1
10	1352.8	1354.4	1355.3	1665.5	1588.8	1598.2	1610.0	1609.8	1576.9	1537.2	1494.6	1454.0
11	1352.3	1356.6	1355.3	1660.2	1589.4	1598.6	1610.6	1609.2	1575.6	1535.5	1494.8	1452.3
12	1351.9	1357.8	1354.9	1654.9	1589.6	1598.6	1610.8	1608.9	1574.2	1534.2	1493.5	1451.0
13	1350.8	1357.8	1354.4	1650.6	1590.3	1593.8	1611.0	1607.7	1572.9	1533.1	1492.4	1449.7
14	1350.5	1357.8	1354.4	1646.3	1590.5	1598.8	1611.2	1607.3	1571.2	1531.6	1491.4	1448.2
15	1349.8	1356.9	1354.6	1643.2	1590.9	1599.0	1613.9	1606.3	1570.2	1530.0	1490.1	1447.1
16	1349.4	1356.6	1354.4	1640.5	1591.7	1599.0	1619.3	1605.6	1563.7	1528.9	1489.2	1445.3
17	1348.7	1356.2	1354.4	1637.6	1592.1	1599.4	1619.9	1604.8	1567.3	1527.6	1488.2	1443.4
18	1348.1	1355.9	1354.4	1635.4	1592.8	1599.4	1621.0	1603.6	1566.4	1525.9	1486.9	1441.8
19	1347.8	1356.0	1355.0	1633.7	1593.0	1599.4	1621.6	1602.5	1565.0	1524.2	1485.8	1440.5
20	1347.2	1355.9	1358.4	1631.3	1593.4	1599.4	1621.6	1601.3	1563.7	1522.9	1484.1	1439.6
21	1347.1	1355.9	1393.2	1630.0	1593.6	1599.2	1621.6	1600.5	1562.4	1521.2	1483.0	1438.5
22	1346.7	1356.2	1478.9	1623.2	1594.2	1599.0	1621.0	1599.4	1561.2	1520.0	1481.5	1437.2
23	1346.3	1356.2	1511.2	1633.9	1594.2	1593.8	1620.7	1593.2	1559.7	1518.5	1480.4	1436.1
24	1346.0	1356.0	1519.8	1636.2	1594.4	1593.6	1620.1	1597.1	1583.7	1516.8	1478.7	1435.1
25	1345.8	1356.0	1523.4	1634.6	1594.6	1598.4	1619.7	1596.5	1557.2	1515.7	1477.2	1434.2
26	1345.4	1356.0	1534.4	1630.0	1595.7	1598.4	1618.9	1595.5	1555.3	1514.0	1475.9	1433.3
27	1345.3	1355.9	1544.3	1625.9	1595.7	1598.6	1618.9	1594.6	1554.2	1512.7	1474.6	1432.0
28	1346.2	1355.9	1551.3	1622.6	1596.5	1599.2	1617.8	1593.2	1553.2	1511.2	1473.3	1431.1
29	1347.2	1356.0	1553.2	1618.5	-----	1599.0	1617.2	1592.1	1551.3	1509.7	1472.2	1429.8
30	1347.2	1356.0	1563.9	1615.6	-----	1599.2	1617.0	1590.7	1550.0	1508.1	1470.7	1428.9
31	1347.2	-----	1567.7	1612.3	-----	1599.4	-----	1589.6	-----	1506.6	1469.2	-----
(†)	426.31	426.80	438.20	440.52	439.70	439.85	440.76	439.34	437.27	434.98	432.98	430.80
(‡)	-11900	+8800	+211700	+44600	-15800	+2900	+17600	-27400	-39600	-43400	-37400	-40300
(††)	6291	2204	1176	1480	3330	4306	5312	11581	12061	14751	12791	9638

Calendar year ..... ‡ +66,100  
 Water year 1964-65..... ‡ +69,800

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

†† Evaporation, in acre-feet.



11-4540. Putah Creek near Winters, Calif.

Location.--Lat 38°30'55", long 122°04'50", in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.28, T.8 N., R.2 W., on left bank 1.3 miles downstream from Monticello Dam, 6 miles west of Winters, and 8 miles downstream from Capell Creek.

Drainage area.--574 sq mi.

Records available.--July 1930 to September 1965.

Gage.--Water-stage recorder. Datum of gage is 160.75 ft above mean sea level (river-profile survey). June 28, 1930, to Feb. 29, 1940, at datum about 1 ft higher.

Average discharge.--35 years, 483 cfs (349,700 acre-ft per year). Adjusted for storage in and evaporation from Lake Berryessa.

Extremes.--Maximum discharge during year, 7,740 cfs Jan. 7 (gage height, 14.96 ft); minimum daily 12 cfs Dec. 20.

1930-57 (prior to regulation by Monticello Dam): Maximum discharge, 81,000 cfs Feb. 27, 1940 (gage height, 30.5 ft, present datum), from rating curve extended above 30,000 cfs; no flow Sept. 6-15, 1950, July 26 to Sept. 1, Sept. 6-9, 1955.

1958-65: Maximum discharge, that of Jan. 7, 1965; minimum daily, 6.2 cfs Dec. 10, 1958.

Maximum stage known since at least 1905, that of Feb. 27, 1940, on basis of records for station at Winters.

Remarks.--Records good. Flow regulated by Lake Berryessa beginning January 1957 (see preceding page). Records of chemical analyses for the water year 1965 are published in Part 2 of this report.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Nov. 28-30)

Oct. 1 to Dec. 31		Jan. 1 to Sept. 30	
3.9	9.5	8.0	745
4.0	13	9.0	1,170
4.4	33	10.0	1,680
4.8	61	11.0	2,280
5.3	113	12.0	2,990
6.0	223	13.0	4,210
7.0	439	15.0	7,830
8.0	745		

Note: Same as preceding table below 8.9 ft.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	277	15	53	20	2080	40	128	498	556	550	509	556
2	257	32	48	30	1990	59	119	455	556	565	469	512
3	247	47	45	89	1910	59	107	410	569	565	442	553
4	279	47	45	151	1850	59	133	386	515	523	427	589
5	249	52	48	2390	1840	55	165	354	556	506	425	631
6	227	60	51	6860	1830	39	165	334	568	529	422	675
7	227	59	45	7530	1810	38	163	297	550	550	422	706
8	207	60	39	6730	1760	50	145	279	541	565	420	696
9	196	52	50	5740	1820	71	133	279	509	568	470	616
10	196	45	63	4890	1380	90	214	277	501	595	509	598
11	196	45	92	4210	222	101	245	360	547	574	504	613
12	212	52	96	3610	53	103	243	374	547	544	443	580
13	223	62	63	3130	52	89	249	372	515	541	410	559
14	205	62	46	2810	52	67	251	381	512	547	384	517
15	169	69	26	2520	52	67	259	434	517	577	374	509
16	160	69	24	2310	52	69	571	459	559	586	405	512
17	160	66	20	2120	47	68	692	488	538	571	409	480
18	149	66	27	1930	40	68	733	535	559	544	422	461
19	116	64	15	1780	40	87	800	499	556	541	439	450
20	99	63	12	1620	40	102	800	469	571	538	450	450
21	87	63	113	1500	56	114	804	480	556	529	463	432
22	91	63	237	1380	71	133	792	506	550	544	434	429
23	105	52	116	1350	61	154	766	488	550	550	447	432
24	121	42	32	1880	39	160	734	372	541	586	523	447
25	105	45	21	2320	39	160	700	470	526	580	541	434
26	106	53	41	3310	38	154	658	488	559	574	544	415
27	100	66	49	2830	38	135	622	509	538	550	547	393
28	82	70	29	2640	38	127	601	569	520	541	550	389
29	47	56	32	2450	-----	127	562	532	592	592	547	405
30	14	53	33	2310	-----	130	529	583	565	577	523	415
31	14	-----	24	2190	-----	127	-----	556	-----	550	538	-----
Total	4,923	1,650	1,635	84,630	19,300	2,902	13,088	13,490	16,338	17,252	14,411	15,454
Mean	159	55.0	52.7	2,730	689	93.6	436	435	545	557	465	515
Ac-ft	9,760	3,270	3,240	167,900	38,280	5,760	25,960	26,760	32,410	34,220	28,580	30,650
Mean†	67.5	240	3510	3,480	465	211	821	178	818	906	646	-0.20
Ac-ft†	4,150	14,370	216,100	214,000	25,910	12,970	49,970	10,940	4,870	5,570	3,970	-12

Calendar year 1964	Max	658	Min	8.1	Mean	255	Ac-ft	185,200	Mean†	474	Ac-ft†	344,300
Water year 1964-65	Max	7,530	Min	12	Mean	562	Ac-ft	406,800	Mean†	776	Ac-ft†	561,500

† Adjusted for change in contents and evaporation from Lake Berryessa.

Note.--For months when inflow to the reservoir was small and other quantities were large, discordant figures of net runoff appear. This arises primarily from the difficulty of computing net runoff as a residual of several quantities, which are not susceptible to measurement with a precision necessary to produce a final answer within desirable limits of accuracy.

## SACRAMENTO RIVER BASIN

11-4541. Pleasants Creek near Winters, Calif.

Location (revised).--Lat 38°28'40", long 122°01'43", in SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.1, T.7 N., R.2 W., on left bank 0.2 mile upstream from unnamed tributary, 0.3 mile above bridge on Pleasants Valley road, 1.3 miles northeast of Pleasants Valley School, and 4.4 miles southwest of Winters.

Drainage area.--15.9 sq mi.

Records available.--October 1959 to September 1965.

Gage.--Water stage recorder. Datum of gage is 150.33 ft above mean sea level.

Average discharge.--6 years, 7.07 cfs (5,120 acre-ft per year).

Extremes.--Maximum discharge during year, 2,200 cfs Jan. 5 (gage height, 10.05 ft), from rating curve extended above 1,100 cfs as explained below; no flow for many days.

1959-65: Maximum discharge, 3,780 cfs Jan. 31, 1963 (gage height, 12.36 ft), from rating curve extended above 1,100 cfs on basis of slope-area measurement at gage height 10.05 ft; no flow for many days in each year.

Remarks.--Several small reservoirs above station. Minor diversions above station for irrigation.

Cooperation.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1964 to September 1965

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0	25	10	4.6	6.2	5.5	1.6	0.6		
2		0	0	58	9.5	4.2	3.8	5.2	1.5	.5		
3		0	0	133	9.4	4.3	3.2	5.0	1.3	.4		
4		0	0	141	11	4.1	2.9	4.8	1.3	.4		
5		0	0	648	20	4.2	2.6	4.6	1.2	.3		
6		0	0	327	10	4.6	2.6	4.5	1.1	.3		
7		0	0	141	9.1	4.3	2.6	4.3	1.1	.3		
8		0	0	67	8.6	4.0	4.9	4.1	1.3	.3		
9		.1	0	47	8.2	3.8	89	4.0	1.3	.2		
10		3.4	0	36	7.9	3.7	24	3.8	1.1	.2		
11		1.8	0	29	7.7	3.7	12	3.7	.9	.2		
12		.9	0	23	7.5	3.9	96	3.6	.8	.2		
13		.1	0	20	7.3	4.0	7.5	3.3	.7	.2		
14		0	0	18	7.1	3.6	6.8	3.5	.7	.2		
15		0	0	17	6.6	3.4	24	3.2	.9	.1		
16		0	0	16	6.3	3.0	73	2.9	.8	.1		
17		0	0	15	6.3	2.9	17	2.7	.8	.1		
18		0	0	14	6.2	2.9	15	2.7	1.0	.1		
19		0	1.7	14	6.0	2.9	14	2.6	.9	.1		
20		0	2.1	12	5.9	2.9	12	2.8	.8	.1		
21		0	282	11	6.0	2.6	11	3.0	.7	.1		
22		0	843	10	5.6	2.7	10	3.0	.7	.1		
23		0	193	48	5.3	2.7	9.5	2.6	.8	.1		
24		0	56	32	5.1	2.6	8.6	2.3	.7	.1		
25		0	24	15	5.1	2.6	8.0	2.3	.7	0		
26		0	96	13	5.0	2.8	7.5	2.2	.7	0		
27		0	69	12	5.7	5.0	7.0	2.1	.7	.1		
28		0	47	12	5.1	3.5	6.6	2.0	.6	.1		
29		0	74	12	-----	3.0	6.2	1.8	.6	0		
30		0	52	11	-----	2.8	5.8	1.7	.5	0		
31		-----	37	11	-----	4.8	-----	1.5	-----	0		
Total	0	6.3	1,766.8	1,988	213.5	110.1	411.9	101.3	27.8	5.5	0	0
Mean	0	0.21	57.0	64.1	7.62	3.55	13.7	3.27	0.93	0.18	0	0
Ac-ft	0	12	3,500	3,940	423	219	817	201	55	11	0	0

Calendar year 1964 Max 843 Min 0 Mean 7.26 Ac-ft 5,260  
 Water year 1964-65 Max 843 Min 0 Mean 12.7 Ac-ft 9,180

## Crest-stage partial-record stations

As explained on page 478 the California District publishes annual maxima on small streams at about 290 sites in a separate publication *Floods From Small Drainage Areas*. In addition discharge measurements are generally made in times of drought or flood to give better coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

The following table contains annual maximum discharges for crest-stage stations not included in above-mentioned report. A crest-stage gage is a device which will register the peak stage occurring between inspection of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained but is not published herein. The years given in the period of record represent water years for which the annual maximum has been obtained.

Annual maximum discharge at crest-stage partial-record stations

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Dis-charge (cfs)
Buena Vista Lake Basin							
11-1951.5	Bitterwater Creek near Maricopa	W½ sec.11, T.11 N., R.24 W., 1.0 mile southwest of Maricopa.	18.5	1961-65	4- 4-65	13.70	b10
11-1953	Santiago Creek near Maricopa	NW½ sec.36, T.11 N., R.23W., 8 miles southeast of Maricopa.	34.8	1961-65	4- 4-65	15.42	142
11-1973.7	Bitterwater Creek near Lost Hills	NW½SE½ sec.21, T.27 S., R.18 E., 0.2 mile downstream from Cedar Canyon, 21 miles west of Lost Hills.	76.4	1961-65	4- 9-65	--	b.2
Tulare Lake basin							
11-2125	South Fork Kings River near Cedar Grove	NW½ sec.8, T.13 S., R.30 E., 0.3 mile below Grizzly Creek and 4.5 miles west of Cedar Grove.	409	1950-57† 1959-62	12-24-64	11.28	5,200
11-2251	Los Gatos Creek below Jacalitos Creek, near Coalinga	At intersection of secs.22, 23, 26, 27, T.20 S., R.16 E., at bridge on El Dorado Ave., 8 miles west of Coalinga.	407	1959-65	4-19-65	13.13	7.68
11-2251.3	Zapato Chino Creek near Avenal	SE½SW½ sec.27 T.21 S., R.16 E., 7 miles northwest of Avenal.	44.5	1961-65	4- 9-65	9.31	296
San Joaquin River basin							
11-2533.1	Cantua Creek near Cantua Creek	SE½ sec.34, T.17 S., R.14 E., 150 ft below road ford and 9.2 miles southwest of Cantua Creek.	46.4	1959-65	1- 7-65	1.03	113
11-2556.05	Little Panoche Creek near Panoche	NW½ sec.22, T.13 S., R.11 E., 100 ft below road ford and 14 miles northeast of Panoche.	101	1959-65	11-12-64	2.48	102
11-2630.5	Garzas Creek near Gustine	SW½ sec.18, T.8 S., R.8 E., above diversion weir 7.7 miles west of Gustine.	51.2	1959-65	12-28-64	2.07	52
11-2746.3	Del Puerto Creek near Patterson	SW½SW½ sec.15, T.5 S., R.7 E., at Delta-Mendota canal crossing, 3.9 miles northwest of Patterson.	72.6	1959-65	12-27-64	10.80	104
11-3050	San Domingo Creek near San Andreas	NE½, sec.14, T.3 N., R.12 E., 600 ft downstream from bridge on State Highway 49.	27.1	1950-62† 1963	1- 6-65	4.60	580
11-3055	San Antonio Creek near San Andreas	NE½ sec.10, T.3 N., R.12 E., 800 ft below highway bridge, 1.9 miles above mouth, and 5 miles southeast of San Andreas.	48.1	1950-59† 1961-64	1- 6-65	4.58	1,570
11-3070	Esperanza Creek near Mokelumne Hill	NW½ sec.6 T.5 N., R.13 E., 600 ft above mouth, 6 miles east of Mokelumne Hill.	16.6	1951-59† 1961-64	12-23-64	5.46	1,810
11-3075	Jesus Maria Creek near Mokelumne Hill	SE½ sec.16, T.5 N., R.12 E., 0.6 mile above mouth, 3.2 miles southeast of Mokelumne Hill.	34.6	1950-59† 1961-64	12-23-64	6.57	3,440
11-3085	Murray Creek near San Andreas	SW½ sec.8, T.4 N., R.12 E., 600 ft above bridge on old State Highway 49, 1.5 miles above mouth, and 1.1 miles north of San Andreas.	23.4	1950-59†	12-23-64	5.02	1,000
Sacramento River Basin							
11-4245	Dry Creek near Wheatland	Lat 39°01'35", long 121°26'10", in Johnson Rancho land grant, 2,300 ft upstream from bridge on U.S. Highway 99E, 1.3 miles north-west of Wheatland, and 5 miles upstream from mouth.	99.5	1946-62†	12-22-64	11.59	5,090

a Revised.

b Estimated.

+ Operated as a continuous-record gaging station.

## Measurements at miscellaneous sites

Measurements of streamflow at points other than gaging stations or partial-record stations are given in the following table.

Discharge measurements made at miscellaneous sites during water year 1965

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
Pyramid and Winnemucca Lakes basin						
Gray Creek	Truckee River	SW¼ sec.6, T.17N., R.18 E., 0.5 mile upstream from mouth and 2 miles south of Floriston.	17	-	8-15-65	2,700
Tulare Lake basin						
East Fork Kaweah River	Kaweah River	NW¼ sec.15, T.17 S., R.31 E., 300 ft upstream from Mineral King Post office, 0.3 mile upstream from Monarch Creek.	--	--	7-29-65 8-26-65 9-30-65	25.2 15.3 6.91
North Fork Kaweah	Kaweah River	SE¼ sec.34, T.16 S., R.28 E., on left bank 1.2 miles upstream from Manniken Creek, 1.5 miles north of Kaweah.	128	1919-60½, 1963-64	7-28-65	25.0
South Fork Kings River	Kings River	NW¼ sec.8, T.13 S., R.30 E., 0.3 mile below Grizzly Creek and 4.5 miles west of Cedar Grove.	409	1950-57½, 1959-60, 1963-64	9- 7-65	233
Copper Creek	South Fork	S½ sec.11, T.13 S., R.31 E., 0.5 mile above South Fork Kings River and 5.9 miles northeast of Cedar Grove.	--	--	7-28-65 8-26-65	5.87 3.18
Sheep Creek	South Fork Kings River	SE¼ sec.14, T.13 S., R.30 E., E., 0.7 mile above South Fork Kings River and 0.7 mile southwest of Cedar Grove.	--	--	7-28-65 8-26-65	3.77 3.11
Lewis Creek	South Fork Kings River	SW¼ sec.11, T.13 S., R.30 E., 0.3 mile above South Fork Kings River and 1.5 miles northwest of Cedar Grove.	--	--	7-28-65	13.8
Dinkey Creek	North Fork Kings River	Sec.3, T.12 S., R.26 E., 0.5 mile above mouth and 0.5 mile northwest of Balch Camp.	136	1920-37½, 1959, 1961-64	8-31-65	24.6
San Joaquin River basin						
Crane Creek	Tuolumne River	NW¼SW¼ sec.34, T.2 S., R.20 E., 100 ft above diversion and 3 miles northeast of El Portal.	--	--	10- 8-64 10-27-64 8-17-65	.35 .34 3.46
Diversion ditch	--	NW¼SW¼ sec.34, T.2 S., R.20 E., 100 ft below diversion from Crane Creek and 3 miles northeast of El Portal.	--	--	10- 8-64 10-27-64 10-17-65	.33 .34 3.36
Diversion ditch	--	NW¼SW¼ sec.34, T.2 S., R.20 E., 300 ft below diversion from Crane Creek and 3 miles northeast of El Portal.	--	--	10- 8-64 10-27-64	.19 .23
Crane Creek	Tuolumne River	NW¼SW¼ sec.34, T.2 S., R.20 E., 50 ft below diversion and 3 miles northeast of El Portal.	--	--	10-27-64 8-17-65	0 .33
Crane Creek	Tuolumne River	NE¼SW¼ sec.3, T.3 S., R.20 E., at Coulterville road bridge and 2 miles northeast of El Portal.	--	--	10- 8-64	.14
Crane Creek	Tuolumne River	NE¼SW¼ sec.3, T.3 S., R.20 E., at Coulterville road bridge and 2 miles northeast of El Portal.	--	--	8-17-65	1.17
Crane Creek	Tuolumne River	NE¼SW¼ sec.3, T.3 S., R.20 E., 300 ft below Coulterville road bridge and 2 miles northeast of El Portal.	--	--	10- 8-64	.11
Crane Creek	Tuolumne River	NE¼SW¼ sec.3, T.3 S., R.20 E., 600 ft below Coulterville road bridge and 2 miles northeast of El Portal.	--	--	10-27-64 8-17-65	.15 3.18
Unnamed Tributary	Middle Tuolumne River	SE¼SW¼ sec.11, T.1 S., R.21 E., 0.2 mile above mouth and 1 mile southeast of White Wolf.	--	--	7-27-65 8-25-65 9-27-65	.70 .24 .02
Middle Fork Ditch	Licking Fork Mokelumne River	NW¼SE¼ sec.8, T.6 N., R.14 E., 1 mile above Forest Creek and 4 miles southeast of West Point.	--	--	11- 4-64 9-10-65	1.87 5.38
Sacramento River basin						
Stony Creek	Sacramento River	SE¼ sec.35, T.18 N., R.7 W., 0.5 mile below East Park feed canal diversion dam and 3 miles west of Stonyford.	97.0	1913-14½, 1918-34½, 1961-62, 1964	9- 2-65	17.6
Rock Creek	North Yuba River	SW¼ sec.5, T.19 N., R.10 E., 600 ft above mouth at Goodyears Bar.	8.98	1910-33½, 1956, 1960-64	8-16-65	1.75
Goodyear Creek	North Yuba River	NW¼ sec.5, T.19 N., R.10 E., 300 ft above mouth and 0.5 mile north of Goodyears Bar	12.9	1910-33½, 1960-64	8-16-65	8.30
Dry Creek	Yuba River	NW¼ sec.25, T.19 N., R.6 E., 0.2 mile downstream from New York Creek and 0.9 mile northeast of Brownsville.	20.4	1948-60½, 1961,1964	9- 2-65	4.51

## Measurements at miscellaneous sites--Continued

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
Sacramento River basin--Continued						
Rubicon River	Middle Fork American River	NW¼NE¼ sec.21, T.13 N., R.16 E., 0.7 mile below Phipps Creek, 1.9 miles above Rubicon Dam, and 6.6 miles southwest of Meeks Bay.	--	--	10-20-64 9- 1-65	.16 8.51
South Fork Rubicon River	Rubicon River	W½ sec.27, T.13 N., R.14 E., 300 ft above Robbs Peak Tunnel entrance, 5 miles southeast of Loon Lake, and 12.3 miles northeast of Riverton.	--	--	9-24-64	*0.33
North Fork of Middle Fork American River	Middle Fork American River	NE¼NW¼ sec.35, T.14 N., R.11 E., 1.0 mile below El Dorado Canyon and 4.8 miles east of Foresthill.	88.9	--	10-22-64	*22.3
Tells Creek	Silver Creek	SE¼NE¼ sec.11, T.12 N., R.14 E., at Loon Lake Road crossing of Tells Creek 10 miles northeast of Riverton.	--	1964	9- 7-65	5.93

a Approximate.

\* Base flow.

+ Operated as a continuous-record gaging station.

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