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1961

# Surface Water Records of California

Volume 1: Colorado River Basin, Southern Great Basin  
and Pacific Slope Basins excluding Central Valley



**UNITED STATES DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY**

Prepared in cooperation with the State of California and other agencies



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

SURFACE WATER RECORDS  
OF CALIFORNIA

1961

Volume 1: Colorado River Basin, Southern Great Basin  
and Pacific Slope Basins excluding Central Valley

Prepared under the direction of Walter Hofmann, District Engineer,  
Surface Water Branch, in cooperation with the State of  
California and other agencies

Copies of this report may be obtained from  
District Engineer, Surface Water Branch  
U. S. Geological Survey  
345 Middlefield Road  
Menlo Park, California

# CALENDAR FOR WATER YEAR 1961

## OCTOBER 1960

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 1960

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 1960

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 1961

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 1961

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 1961

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 1961

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 1961

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			

## JUNE 1961

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	

## JULY 1961

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					

## AUGUST 1961

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 1961

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



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## SURFACE WATER RECORDS OF CALIFORNIA, 1961

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### INTRODUCTION

The surface-water records for the 1961 water year for gaging stations, partial-record stations, and miscellaneous sites within the State of California are given in this report. For convenience there are also included 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 engineer, Surface Water Branch.

This report marks the beginning of a new method of presenting, annually, basic data on surface-water records by States. 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 will be released by the Geological Survey in annual reports on a State-boundary basis. Distribution of these basic-data reports will be limited and primarily for local needs. The records later will be published in Geological Survey water-supply papers at 5-year intervals. These 5-year water-supply papers will show daily discharge and will be compiled on the same geographical areas previously used for the annual series; however, some of the 14 parts of conterminous United States will be further subdivided.

## COOPERATION

In California the work was done under cooperative agreements with the State Department of Water Resources, W. E. Warne, director; Alameda County Water District; Calaveras County Water District; East Bay Municipal Utility District; Georgetown Divide Public Utility District; Imperial Irrigation District; Marin Municipal Water District; Metropolitan Water District of Southern California; Montecito County Water District; Monterey County Flood Control and Water Conservation District; Palo Verde Irrigation District; Santa Clara County Flood Control and Water Conservation District; Orange County Flood Control District, San Bernardino Valley Water Conservation District; San Luis Obispo County Flood Control and Water Conservation District; Santa Barbara County Water Agency; Santa Cruz County Flood Control and Water Conservation District; San Benito County; Santa Maria Valley Water Conservation District; Ventura River Municipal Water District; and cities of Arcata, San Diego, and Santa Barbara. In Oregon the work was done under cooperative agreement with the State of Oregon, L. A. Stanley, State engineer. In Nevada the work was done in cooperation with the State Department of Conservation and Natural Resources, H. A. Shamberger, director; office of State engineer Edmund Muth. In Arizona the work was done in cooperation with the State Land Department, O. B. Lassen, commissioner.

Assistance in the form of funds or services was given by the Corps of Engineers, Department of the Army, in collecting records published herein for 67 gaging stations, by the United States Navy for 9 gaging stations, by the Bureau of Reclamation, United States Department of the Interior, for 49 gaging stations, and by the Soil Conservation Service, United States Department of Agriculture, for 2 gaging stations. The entire expense of the investigation of streamflow in the Tuolumne River basin made for the Hetch Hetchy project and of the flow of Alameda Creek near Niles was borne by the city and county of San Francisco.

The following organizations and individuals aided in collecting records: In California, The Pacific Power and Light Co.; California Water and Telephone Co.; East Bay Municipal Utility District; The Irvine Ranch; Kings River Water Association; Los Angeles County Flood Control District; Pauba Ranch; Pacific Gas & Electric Co.; Placer County Water Agency; Sacramento Municipal Utility District; San Bernardino County Flood Control District; Southern California Edison 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; In Oregon, The Pacific Power and Light Co.



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.

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 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 used as 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 indentation in the listing of gaging stations in the table of contents of this report represents one rank. This downstream order and system of indentation 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 stations and continuous-record gaging stations, so that the station number for a partial-record station indicates downstream order position in a list made up of both types of stations. Gaps are left in the 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 to include all records in the basin.

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. The records of stage are obtained either from a water-stage recorder that gives a continuous record of fluctuations 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 the 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. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is in effect the shifting-control method.

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 it becomes impossible to compute the discharge in the usual manner. 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 happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, float is frozen in the well, or for various other reasons. For such periods the daily discharges are estimated on the basis of recorded range in stage, adjoining good record, discharge measurements, weather records, and comparison with other 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 on October 1 and ends on September 30. A calendar for the 1961 water year is shown on page II to facilitate finding the day of the week for any date.

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 periods for which there are published records for the present station or for stations generally equivalent to the present one. 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 five complete years of record or for stations where changes in water development during the period of record 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 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 one-tenth foot. Skeleton rating tables generally are not published for canals, ditches, or springs.

For stations equipped with water-stage recorders, except those on streams subject to sudden or rapid fluctuation, the daily table gives the discharge corresponding to the daily mean gage height. For stations subject to such a fluctuation, the daily mean gage height may not indicate the true daily mean discharge, which must be obtained by averaging the discharge for parts of the day or by using the discharge integrator, which is an instrument for obtaining the daily mean discharge from a continuous gage-height graph and containing, as an essential element, a curve representing the stage-discharge relation at the station. For stations equipped with nonrecording gages, the table of daily discharge gives the discharge corresponding to once-daily readings of the gage, or to the mean of twice-daily readings, or to the mean gage height determined from gage-height graphs based on gage readings. For periods of rapidly changing stage, the daily mean discharge is determined from gage-height graphs based on gage readings, the frequency of which is stated in the station description.

In the monthly summary below the daily table, the line headed "Total" gives the sum of the daily figures; it is the total cfs-days for the month. The line headed "Mean" gives the average flow in cubic feet per second during the month. Maximum daily and minimum daily discharges for the month are listed in the next two lines. Discharge for the month for three stations is expressed in cubic feet per second per square mile (line headed "Cfsm"), in inches (line headed "In."), and in acre-feet (line headed "Ac-ft").

Discharge for the month for all other stations is expressed in acre-feet (line headed "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.

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. The footnotes are either reference footnotes, with corresponding symbols used in the table of daily discharge to indicate the days included, or general footnotes, introduced by the word "Note," in which the days included are stated. The following footnotes and their corresponding symbols have been standardized for use throughout this report. The methods used in computing data for such footnoted periods have been explained in preceding paragraphs.

\* Discharge measurement made on this day. Used to indicate days on which discharge measurements were made at a gaging station unless they were made at frequent regular intervals, two or more times monthly, in which instance the general frequency of discharge measurements is given under "Remarks" in the station description.

\*\* Field estimate made on this day. Used to indicate days on which an estimate of the flow was made at the gaging station.

a No gage-height record. Used to indicate periods when there was no gage-height record or the available record was such that it could not be used to compute the daily discharge. No mention is made of periods of no gage-height record if they are few and of short duration, no more than 4 days in succession and not more than 12 days distributed throughout the water year, and if the degree of accuracy of records for those days is not changed.

b Stage-discharge relation affected by ice. Used to indicate periods when the stage-discharge relation is affected by ice forming on stream, control, or streambed. No mention is made of occasional days of ice effect if the degree of accuracy of daily records is not changed.

c Backwater from aquatic growth (or debris or other conditions). Used only when records for the periods affected are rated down in accuracy.

e Shifting-control method used. Used only when records for the periods affected are rated down in accuracy.

g Computed from once-daily (twice-daily, etc.) staff (or chain, wire-weight, etc.) gage readings. Used only for recording stations for periods when the water-stage recorder graph was not used but readings of a nonrecording gage were used. The symbol is not used for periods of short duration if the degree of accuracy of records for the periods involved are not changed.

k Computed by using rate of change in stage as a factor. Used only when records for the periods involved are rated down in accuracy.

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 only monthly data are given.

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 believed to be less than 5 percent; "good," less than 10 percent; "fair," less than 15 percent; and "poor," probably 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 relatively large negative adjustments are made or when evaporation is large in comparison with the observed discharge.

#### SUPPLEMENTAL DATA

Data collected at those partial-record stations which are not included in the California District report, Floods from Small Drainage Areas, published separately, and measurements made at miscellaneous sites are given at the end of this report. Data for partial-record stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations, and the second is a table of annual maximum stage and discharge at crest-stage stations. Discharge measurements at miscellaneous sites are given in a third table. Occasionally, a series of 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 given in special tables after the list of measurements at miscellaneous sites.

Information of a more detailed nature than that published for most of the gaging stations is on file in the district office, 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. At many gaging stations water samples are collected from the streams for the purpose of making chemical analyses; computing dissolved solids, suspended sediment loads, and particle-size distribution; or measuring water temperatures. For most of these samples the results are published in an annual series of U.S. Geological Survey water-supply papers entitled "Quality of Surface Waters of the United States." Information on the availability of electronic computer analyses, unpublished data, or quality of water records may generally be obtained from the district office.



Drought conditions persisted throughout California for the third consecutive year except in the north coastal region, where runoff was at about median levels. In the San Francisco Bay region runoff was about 35 percent of median, and in the south and central coastal regions only about 25 percent of median. The Central Valley showed a similar trend wherein runoff decreased from north to south; in the Sacramento Valley runoff was about 75 percent of median and in the San Joaquin Valley about 40 percent of median. In the desert areas localized flooding occurred during August and September as a result of a series of severe thunderstorms.

Location.--Lat 35°11'30", long 114°34'15", in SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.1, T.32 S., R.66 E., Mount Diablo meridian, on right bank half a mile downstream from Davis Dam, 29 miles west of Kingman, Ariz., and 68 miles downstream from Hoover Dam.

Records available.--June 1905 to September 1907 (published as "at Hardyville"), March 1949 to September 1961.

Average discharge.--12 years (1949-61), 14,180 cfs. (10,270,000 acre-ft per year), unadjusted.

1905-7: Maximum daily discharge, 116,000 cfs June 20, 1906; minimum daily, 2,850 cfs Jan. 5, 1906.

1949-51: Maximum discharge, 31,200 cfs Apr. 22, 1952 (gage height, 13.91 ft); no flow at Davis Dam parts of several days July to September and Dec. 27, 1950, when gates in dam were closed; minimum daily discharge, 285 cfs Aug. 3, 1950.

Remarks.--Records excellent. Discharge measurements generally made three to four times a month. Flow regulated by Lake Mead since Feb. 1, 1935, and by Lake Mohave since Jan. 17, 1950. Many diversions upstream for irrigation, industrial, and municipal uses.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10.800	8.990	12.000	5.360	8.670	11.600	16.400	14.000	16.400	17.600	16.800	10.800
2	10.800	9.050	12.000	6.620	8.700	11.800	12.600	14.100	16.200	12.700	17.000	10.700
3	10.800	9.020	11.900	6.670	8.680	13.800	16.800	14.300	16.200	17.400	17.200	8.430
4	10.700	9.040	8.770	6.600	8.740	12.800	16.000	14.100	12.500	17.700	17.300	9.730
5	10.800	8.930	5.390	6.630	5.860	8.820	15.700	14.400	17.400	17.500	17.500	11.400
6	10.800	7.620	5.470	6.540	8.240	14.100	16.000	14.400	17.300	17.500	13.200	11.500
7	10.800	5.410	5.540	6.540	8.200	14.300	16.000	12.900	17.500	17.400	16.700	11.400
8	10.900	5.400	5.600	4.380	8.180	15.700	16.000	13.600	17.500	17.200	16.800	11.300
9	11.000	5.370	4.430	5.400	8.330	15.900	10.800	13.600	17.500	12.400	17.100	11.000
10	9.240	5.440	6.070	6.430	8.310	15.800	15.300	13.500	17.400	16.400	17.100	9.500
11	9.160	5.490	4.330	6.520	8.280	16.000	15.400	13.600	12.400	16.600	15.000	14.700
12	9.130	5.550	3.550	6.530	5.620	10.300	15.700	13.400	15.900	16.500	14.900	14.900
13	9.240	5.590	3.470	6.590	10.800	14.900	15.300	13.500	16.100	16.400	12.400	14.900
14	9.170	5.620	3.530	6.510	10.800	15.300	15.500	13.400	16.100	16.500	12.300	14.900
15	9.260	5.100	3.480	6.530	11.200	15.300	15.300	15.100	15.900	16.400	12.400	14.800
16	9.320	5.000	3.490	9.340	10.900	15.100	10.600	14.900	16.200	12.600	12.500	14.800
17	10.300	5.010	3.470	9.580	11.100	15.000	14.200	14.800	16.200	15.500	12.600	12.000
18	10.400	5.020	3.450	9.620	11.100	15.000	14.300	14.800	12.400	15.400	12.600	13.200
19	10.400	5.950	4.200	9.290	6.330	10.700	14.100	14.800	16.800	15.500	12.200	13.400
20	10.000	6.990	4.190	9.460	13.500	17.300	14.000	15.000	16.800	15.500	11.800	13.500
21	10.100	8.140	4.180	9.490	13.600	17.300	14.000	12.200	16.900	15.300	11.000	13.500
22	10.000	9.930	4.220	6.290	13.600	17.500	13.900	15.000	16.900	15.300	10.000	13.300
23	10.100	12.100	4.140	11.100	13.500	17.600	10.300	15.200	16.800	12.400	8.680	13.100
24	7.720	13.000	4.840	11.200	13.600	17.900	12.700	15.100	16.900	15.800	8.620	13.300
25	7.690	13.000	5.550	11.200	13.500	17.400	12.600	15.200	13.400	15.600	8.900	11.600
26	7.810	12.700	5.450	11.000	8.250	12.400	12.700	15.100	18.000	15.900	9.050	11.800
27	7.760	8.960	5.440	10.800	11.400	18.200	12.600	15.200	18.600	15.500	9.030	11.900
28	7.780	11.600	5.200	11.000	11.600	18.000	12.700	12.500	18.500	15.600	10.500	11.800
29	7.710	11.800	5.310	6.540	-	18.100	12.600					

9-4235. Colorado River at Needles, Calif.

Location.--Lat 34°51'05", long 114°36'35", in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.19, T.9 N., R.23 E., San Bernardino meridian, on right bank at Needles, 18 miles upstream from gaging station near Topock, Ariz., 31 miles downstream from Davis Dam, and 98 miles downstream from Hoover Dam.

Drainage area.--170,600 sq mi, approximately.

Records available.--April 1931 to September 1961 (elevations only).

Gage.--Water-stage recorder. Datum of gage is 400.00 ft above mean sea level, datum of 1929; gage readings have been reduced to elevations above mean sea level. Prior to May 15, 1942, at site 750 ft downstream and May 15, 1942, to Jan. 12, 1952, at present site, both at datum 66.23 ft higher.

Extremes.--Maximum elevation during year, 471.79 ft June 28; minimum, about 462.6 ft, probably Dec. 17 (from reconstructed graph based on records for station near Topock, Ariz.).

1931-61: Maximum elevation, 475.77 ft Nov. 30, 1944; minimum, about 462.6 ft, probably Dec. 17, 1960 (from reconstructed graph based on records for station near Topock, Ariz.).

Remarks.--Flow regulated by Lake Mead since Feb. 1, 1935, and by Lake Mohave since Jan. 17, 1950.

Mean elevation, in feet, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	f467.33	466.43	467.86	f464.10	465.90	467.64	469.55	468.56	469.40	470.25	470.00	467.26
2	f467.19	466.53	467.92	f464.41	466.00	467.66	468.96	468.80	469.52	469.01	470.09	467.06
3	467.80	466.57	467.98	f464.86	465.96	468.23	468.83	468.79	469.43	469.54	470.05	466.78
4	f467.32	466.72	467.36	f464.92	465.95	468.29	469.65	468.82	468.86	470.12	470.31	466.05
5	467.34	466.58	465.72	f464.99	465.40	467.54	469.38	468.92	468.94	470.26	470.30	467.01
6	467.46	466.24	464.37	f464.75	465.00	467.29	469.47	468.85	469.92	470.24	469.51	467.11
7	467.41	d465.2	464.38	f464.88	465.80	468.70	469.48	468.55	470.02	470.28	469.12	467.53
8	467.42	d464.4	d464.3	f464.50	465.73	468.96	469.53	468.41	470.04	470.22	469.88	467.40
9	467.34	d464.3	d464.2	d463.6	465.73	469.39	468.35	468.64	470.15	469.11	469.96	467.35
10	467.20	d464.3	d463.7	f464.32	465.78	469.34	468.30	468.50	470.02	469.14	470.11	467.06
11	466.62	464.32	d465.0	464.76	465.78	469.37	469.28	468.60	469.20	469.79	469.50	467.17
12	466.59	f464.39	d463.2	464.72	465.22	468.93	469.29	468.52	468.60	469.83	469.17	468.80
13	466.65	d464.3	d463.2	464.78	465.42	467.49	469.28	468.48	469.48	469.95	468.77	468.96
14	466.60	464.72	d463.3	464.74	467.00	469.03	469.20	468.40	469.56	469.88	468.02	468.92
15	466.59	f464.16	d463.2	464.74	467.12	469.21	469.24	468.74	469.54	469.78	467.96	468.81
16	466.61	f464.10	d463.2	465.20	467.20	469.22	468.34	469.10	469.52	469.12	468.05	468.81
17	466.95	f464.02	d463.2	466.42	467.25	469.08	468.18	469.06	469.65	468.85	468.08	468.43
18	467.25	f464.01	d463.3	466.44	467.34	469.14	468.72	469.12	468.62	469.39	468.20	467.86
19	467.39	464.03	d463.0	466.43	466.38	468.33	468.40	469.03	469.36	469.42	468.10	468.08
20	467.27	464.90	d463.6	466.36	466.32	468.72	468.69	468.95	469.82	469.44	467.75	468.18
21	466.89	465.59	d463.6	466.45	468.36	469.70	468.50	468.45	469.82	469.53	467.77	468.18
22	467.12	466.32	d463.7	465.78	468.50	469.92	468.81	468.51	469.72	469.32	466.98	468.33
23	467.10	467.26	d463.4	465.40	468.45	469.93	467.71	469.02	469.80	468.79	466.54	468.09
24	466.71	468.14	d463.3	467.12	468.46	469.95	467.68	469.10	469.80	468.91	466.20	468.40
25	f465.82	468.38	f464.91	467.36	468.42	469.99	468.12	469.06	469.16	469.68	466.04	467.62
26	f465.80	468.68	f463.57	467.26	467.53	469.19	468.12	469.17	469.58	469.58	466.37	467.56
27	466.16	467.14	f464.22	467.22	466.29	469.34	468.14	469.12	470.46	469.66	466.16	467.53
28	f465.70	467.04	f464.12	467.16	467.46	470.14	468.10	468.54	470.57	469.58	466.61	467.48
29	f465.57	467.80	f464.11	466.58	-	470.26	468.53	468.64	470.48	469.64	466.94	467.64
30	f465.83	467.80	f464.03	465.28	-----	470.29	467.98	469.30	470.25	469.00	467.24	467.53
31	f465.77	-----	f464.14	465.92	-----	469.78	-----	469.42	-----	469.03	467.20	-----

d Computed from reconstructed gage-height graph.

f Computed from partly estimated gage-height record.

## COLORADO RIVER MAIN STEM

9-4240. Colorado River near Topock, Ariz.

Location.--Lat  $34^{\circ}41'15''$ , long  $114^{\circ}27'45''$ , in SW  $\frac{1}{4}$  sec. 13, T.15 N., R.21 W., Gila and Salt River meridian, on left bank in Mohave Canyon, 2.7 miles downstream from Topock, 39.5 miles upstream from Parker Dam, and 49 miles downstream from Davis Dam.

Drainage area.--172,300 sq mi, approximately.

Records available.--January 1917 to September 1961. Daily mean elevations published since October 1938.

Gage.--Water-stage recorder. Datum of gage is 423.02 ft above mean sea level, datum of 1929; gage readings have been reduced to elevations above mean sea level. Prior to Dec. 3, 1922, at site about 1 mile upstream at different datum. Since May 1, 1939, supplementary water-stage recorder at former highway bridge at Topock, 2.7 miles upstream from base gage at datum 13.33 ft higher.

Average discharge.--17 years (1917-34), 20,260 cfs (14,670,000 acre-ft per year); 27 years (1934-61), 13,980 cfs (10,120,000 acre-ft per year), unadjusted.

Extremes.--Maximum discharge during year, 17,600 cfs Mar. 31; maximum elevation 456.97 ft Mar. 31; minimum discharge, 3,650 cfs Dec. 18; minimum elevation, 450.59 ft Dec. 16.

1917-34: Maximum discharge probably exceeded 200,000 cfs June 22, 1921; minimum, 1,480 cfs Aug. 17, 1934.

1934-61: Maximum discharge, 35,700 cfs Jan. 29, 1942; maximum elevation, 457.37 ft, July 9, 1959; minimum discharge, 375 cfs Feb. 14, 1935; minimum daily, 422 cfs Feb. 14, 1935.

Discharge of about 300,000 cfs (based on determination at Lees Ferry gaging station) occurred about July 10, 1884. Discharge in excess of 400,000 cfs (estimated) probably occurred within the period 1857-68 and most likely in 1862.

Remarks.--Records excellent. Discharge measurements generally made twice a month. Many diversions above station for irrigation, municipal, and industrial uses. Flow regulated by Lake Mead since Feb. 1, 1935, and by Lake Mohave since Jan. 17, 1950.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10.700	8.430	11.000	5.400	8.460	11.300	16.800	12.400	14.300	16.500	15.000	10.100
2	10.500	8.570	11.100	5.470	8.340	11.300	16.300	13.000	14.600	15.900	15.400	10.100
3	10.800	8.660	11.300	6.140	8.320	11.600	15.200	13.000	14.700	15.200	15.800	10.000
4	10.700	8.770	11.100	6.270	8.320	12.300	15.600	13.300	14.500	15.800	16.200	9.140
5	10.500	8.880	9.850	6.300	8.070	12.000	15.600	13.600	13.800	16.000	16.400	9.470
6	10.500	8.750	7.710	6.270	7.240	11.200	15.300	13.700	14.700	16.300	16.300	9.940
7	10.500	8.120	7.050	6.300	7.830	12.300	15.400	13.700	15.200	16.500	15.400	10.300
8	10.600	6.800	6.650	6.350	7.820	12.900	15.600	13.300	15.500	16.600	15.600	10.400
9	10.500	6.490	6.140	5.210	8.000	13.900	15.000	13.400	15.800	16.000	15.800	10.400
10	10.600	6.270	5.560	5.600	8.010	14.400	14.000	13.300	15.900	15.200	16.000	10.300
11	9.940	6.250	6.430	6.150	8.010	14.900	14.400	13.300	15.800	15.400	15.900	9.940
12	9.660	6.200	5.070	6.200	7.870	15.200	14.500	13.200	14.600	15.600	15.500	11.800
13	9.510	6.120	4.490	6.310	6.980	13.400	14.700	13.200	14.800	15.600	15.100	12.400
14	9.410	6.190	4.360	6.390	8.970	14.000	14.700	13.000	15.000	15.800	13.800	12.900
15	9.240	6.040	4.260	6.470	9.410	14.300	14.800	13.200	15.000	15.800	13.300	13.200
16	9.160	5.720	4.200	6.600	10.200	14.700	14.500	13.600	14.900	15.600	12.900	13.300
17	9.390	5.620	4.160	8.070	10.000	14.800	13.300	13.900	14.900	14.600	12.600	13.300
18	9.720	5.570	4.190	8.360	10.300	14.900	13.500	14.100	14.600	14.800	12.500	12.700
19	9.940	5.510	4.090	8.570	10.300	14.500	13.500	14.100	14.100	14.900	12.400	12.700
20	10.100	6.040	4.540	8.610	8.820	13.800	13.500	14.300	14.600	14.800	12.100	12.600
21	9.810	6.760	4.590	8.860	11.100	15.100	13.500	14.000	14.900	14.800	11.800	12.600
22	9.900	7.470	4.670	8.820	11.700	15.600	13.600	13.600	15.200	14.900	11.100	12.800
23	9.870	8.500	4.670	7.710	12.400	16.100	13.200	13.900	15.300	14.600	10.500	12.700
24	9.700	9.750	4.500	9.280	12.400	16.500	12.300	14.200	15.400	14.100	9.900	12.900
25	8.750	10.500	5.420	9.730	12.700	16.800	12.400	14.300	15.200	14.500	9.490	12.300
26	8.500	11.200	4.970	10.000	12.800	16.700	12.400	14.300	14.700	14.700	9.340	11.900
27	8.520	10.800	5.400	10.200	10.900	15.800	12.400	14.400	15.400	14.900	9.300	11.700
28	8.190	10.100	5.470	10.400	11.200	16.500	12.400	14.200	16.000	14.900	9.510	11.500
29	8.010	10.700	5.380	10.200	-	17.000	12.600	13.600	16.400	15.100	9.750	11.500
30	8.050	10.800	5.370	8.610	-----	17.200	12.200	14.200	16.500	14.900	10.100	11.400
31	7.920	-----	5.370	8.860	-----	17.000	-----	14.300	-----	14.300	10.100	-----
Total	299,190	235,580	189,080	233,710	266,470	448,000	423,200	423,600	452,300	474,600	404,890	346,290
Mean	9,651	7,853	6,099	7,539	9,517	14,450	14,110	13,660	15,080	15,310	13,060	11,540
Ac-ft	593,400	467,300	375,000	463,600	528,500	888,600	839,400	840,200	897,100	941,400	803,100	686,900
Calendar year 1960:	Max 17,500			Min 4,090		Mean 11,960		Ac-ft 8,683,000				
Water year 1960-61:	Max 17,200			Min 4,090		Mean 11,500		Ac-ft 8,324,000				

9-4240. Colorado River near Topock, Ariz.--Continued

Mean elevation, in feet, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	454.43	453.39	454.63	451.81	453.41	454.48	456.72	454.96	455.98	456.80	456.04	454.03
2	454.35	453.46	454.68	451.83	453.37	454.53	456.55	455.16	456.08	456.54	456.20	454.03
3	454.43	453.54	454.77	452.29	453.33	454.60	456.17	455.23	456.12	456.30	456.32	453.92
4	454.38	453.62	454.70	452.31	453.32	454.90	456.20	455.32	456.04	456.50	456.48	453.52
5	454.32	453.64	454.20	452.32	453.24	454.88	456.27	455.48	455.78	456.61	456.57	453.70
6	454.34	453.64	453.12	452.34	452.72	454.44	456.18	455.49	456.14	456.70	456.52	453.87
7	454.35	453.38	452.79	452.36	453.00	454.92	456.20	455.52	456.30	456.74	456.23	454.04
8	454.33	452.66	452.58	452.38	453.04	455.18	456.22	455.36	456.42	456.76	456.29	454.10
9	454.30	452.52	452.30	451.69	453.15	455.58	456.02	455.38	456.54	456.60	456.34	454.12
10	454.34	452.40	451.93	451.94	453.10	455.84	455.60	455.34	456.60	456.22	456.44	454.06
11	454.04	452.38	452.40	452.26	453.12	455.99	455.72	455.32	456.54	456.32	456.42	453.85
12	453.88	452.36	451.68	452.30	453.05	456.16	455.78	455.36	456.08	456.34	456.25	454.67
13	453.86	452.30	451.24	452.33	452.57	455.42	455.86	455.32	456.16	456.40	456.05	454.92
14	453.80	452.34	451.15	452.33	453.46	455.63	455.88	455.30	456.18	456.43	455.59	455.12
15	453.74	452.24	451.12	452.34	453.70	455.78	455.90	455.32	456.18	456.43	455.33	455.20
16	453.70	452.06	451.02	452.40	453.85	455.96	455.76	455.51	456.16	456.34	455.14	455.26
17	453.77	452.00	450.96	453.12	453.98	455.96	455.28	455.60	456.20	455.96	455.07	455.27
18	453.97	451.96	450.98	453.28	454.09	456.02	455.38	455.71	456.10	456.02	454.99	455.02
19	454.04	451.90	450.92	453.36	454.08	455.92	455.41	455.74	455.81	456.06	454.98	455.02
20	454.06	452.22	451.20	453.44	453.34	455.59	455.47	455.80	456.08	456.04	454.85	455.00
21	453.98	452.62	451.23	453.50	454.32	456.08	455.46	455.72	456.19	456.03	454.73	454.98
22	454.02	452.98	451.30	453.53	454.64	456.30	455.48	455.52	456.26	456.04	454.45	455.03
23	454.02	453.54	451.32	453.02	454.93	456.48	455.34	455.64	456.32	455.92	454.22	455.01
24	453.97	454.08	451.20	453.72	455.02	456.63	454.91	455.74	456.37	455.72	453.84	455.09
25	453.52	454.40	451.80	453.95	455.10	456.68	454.98	455.78	456.30	455.91	453.67	454.85
26	453.38	454.72	451.60	454.07	455.10	456.68	454.94	455.81	456.08	456.00	453.61	454.67
27	453.35	454.52	451.80	454.16	454.38	456.34	454.94	455.82	456.36	456.07	453.57	454.58
28	453.25	454.25	451.84	454.20	454.45	456.68	454.92	455.80	456.60	456.09	453.66	454.50
29	453.17	454.46	451.76	454.16	-	456.74	455.02	455.58	456.74	456.11	453.82	454.49
30	453.19	454.55	451.77	453.46	-----	456.82	454.88	455.78	456.78	456.06	453.92	454.45
31	453.11	-----	451.80	453.50	-----	456.81	-----	455.89	-----	455.80	454.00	-----

## DIVERSIONS FROM HAVASU LAKE

9-4270. Colorado River aqueduct near Parker Dam, Ariz.-Calif.

Location.--Lat 34°19'00", long 114°09'25", in NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.28, T.3 N., R.27 E., San Bernardino meridian, at intake pumping plant of Metropolitan Water District of Southern California on Havasu Lake, 1.8 miles upstream from Parker Dam and 154 miles downstream from Hoover Dam.

Records available.--January 1939 to September 1961 (monthly diversions only since October 1942). Published as a supplement to records for Colorado River below Parker Dam, 1942-50.

Gage.--Venturi meters in pressure lines at intake pumping plant.

Average discharge.--22 years, 410 cfs (296,800 acre-ft per year).

Extremes.--1939-61: Maximum daily diversion, 2,000 cfs Dec. 15, 1960; no diversion at times.

Remarks.--Pumping began Jan. 7, 1939. Figures of monthly diversion shown represent water pumped from Havasu Lake less return surface flow from Gene and Copper Basin Reservoirs. Water returned as surface flow from these reservoirs this year was 3,350 acre-ft. During this year 6,506 acre-ft (partly estimated) of cooling water, which is included in the record of diversions, was returned to Havasu Lake at the pumping plant. Percolation from Gene and Copper Basin Reservoirs was measured in 4 washes between pumping plant and Copper Basin Wash by means of weirs, each about 1 mile from Colorado River. Percolation amounted to 5,110 acre-ft during the water year and was not subtracted from the diversion record.

Cooperation.--Records furnished by Metropolitan Water District of Southern California.

Monthly diversions, in acre-feet, water year October 1960 to September 1961

Month	Maximum	Minimum	Mean	Total
October.....	3,830	1,120	3,121	96,764
November.....	3,947	0	2,546	76,383
December.....	3,966	0	1,613	49,996
Calendar year 1960.....	3,966	0	2,443	894,193
January.....	3,759	2,169	2,734	84,755
February.....	3,734	311	2,734	76,564
March.....	3,817	2,768	3,201	99,228
April.....	3,537	2,718	3,248	97,445
May.....	3,461	2,905	3,264	101,169
June.....	3,449	2,992	3,196	95,881
July.....	3,339	2,866	3,146	97,513
August.....	3,648	2,913	3,155	97,820
September.....	3,409	2,694	3,169	95,074
Water year 1960-61.....	3,966	0	2,928	1,068,592

COLORADO RIVER MAIN STEM

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9-4275. Havasu Lake near Parker Dam, Ariz.-Calif.

Location.--Lat 34°19'00", long 114°09'25", in NW¼SW¼ sec.28, T.3 N., R.27 E., San Bernardino meridian, at intake pumping plant for Colorado River aqueduct of Metropolitan Water District of Southern California, 1.8 miles upstream from Parker Dam on Colorado River, which is 156 miles downstream from Hoover Dam.

Drainage area.--178,800 sq mi, approximately, at Parker Dam.

Records available.--July 1938 to September 1961. Published as Parker Reservoir near Parker Dam 1938.

Gage.--Water-stage recorder. Datum of gage is 400.54 ft above mean sea level, datum of 1929. Gage readings have been reduced to elevations above mean sea level.

Extremes.--Maximum contents during year, 618,400 acre-ft June 15 (elevation, 450.49 ft); minimum, 523,400 acre-ft Sept. 12 (elevation, 445.47 ft).

1938-61: Maximum contents, 693,000 acre-ft (by temporary use of flashboards) Apr. 18, 1943, June 4, 1953; maximum elevation, 450.77 ft June 26, 1958; minimum contents, 71,400 acre-ft June 25, 1942 (elevation, 412.09 ft).

Remarks.--Lake is formed by concrete-arch dam; dam was completed and storage began July 1, 1938. Usable capacity, 619,400 acre-ft between elevation 400.54 (sill of regulating gates) and 450.54 ft (top of regulating gates) above mean sea level, based on re-survey of Havasu Lake made in April 1957 by Bureau of Reclamation between elevations 430.54 and 450.54 ft. Prior to Oct. 1, 1956, different capacity table used. Dead storage, 28,600 acre-ft below 400.54 ft (based on original survey). About 0.07 ft fall indicated between gage and Parker Dam under normal operating conditions. Drawdown below elevation 440.54 ft not legally permissible except by consent of the Metropolitan Water District of Southern California or in an emergency affecting the safety of the dam. Lake is used for flood control, power development, reregulation of river for irrigation demand, and as a basin from which water is pumped by Metropolitan Water District of Southern California to Colorado River aqueduct. Figures given herein represent usable contents. For record of diversion to Colorado River aqueduct and return flow, see record for Colorado River aqueduct near Parker Dam (sta. 9-4270).

Contents, in acre-feet, at 12 p.m., water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	555,600	555,400	549,200	548,800	550,400	535,500	578,100	582,700	597,400	597,200	570,500	573,200
2	555,400	556,200	552,100	545,800	554,300	534,600	581,900	582,100	596,800	599,400	569,000	570,100
3	554,800	560,900	556,000	545,400	556,200	536,000	580,800	581,900	597,400	600,200	570,500	567,300
4	554,600	564,800	558,600	545,900	558,400	539,500	580,200	581,900	597,000	601,400	573,400	563,100
5	554,600	568,400	564,000	546,500	558,100	539,300	581,300	585,900	595,800	601,400	576,200	556,900
6	554,600	571,400	566,700	547,700	554,600	537,300	581,100	587,000	596,200	603,400	579,000	553,000
7	553,900	575,100	569,200	547,700	552,800	536,000	581,500	587,600	598,000	605,200	577,900	548,600
8	552,800	577,300	573,200	547,200	550,800	536,400	581,900	588,600	601,000	607,200	576,600	543,800
9	553,000	578,300	571,600	542,700	550,800	539,300	580,800	589,100	603,800	608,600	577,200	539,300
10	553,500	578,700	569,400	539,100	548,100	542,200	578,700	590,400	607,000	607,000	580,000	534,600
11	552,800	578,100	568,400	536,900	543,200	544,500	576,200	594,600	608,800	605,400	584,000	527,000
12	549,500	578,100	569,000	535,100	540,400	545,800	574,500	594,400	609,200	605,200	586,300	524,000
13	548,600	577,000	570,500	536,000	535,900	544,500	574,700	594,400	610,400	605,800	588,900	524,700
14	549,400	577,000	569,700	537,500	535,100	542,700	576,400	594,200	612,600	606,000	590,400	527,800
15	547,400	576,800	566,300	536,400	536,400	543,100	578,100	594,400	614,800	607,000	589,900	531,200
16	549,000	574,300	561,600	536,200	536,800	543,200	579,200	594,800	613,600	605,600	590,600	534,200
17	547,600	573,200	559,000	539,500	534,100	544,500	577,500	596,600	613,200	603,800	591,000	538,200
18	548,600	568,000	556,700	544,000	535,900	543,600	577,000	600,200	610,800	602,600	592,000	539,800
19	551,200	566,700	554,300	548,800	532,600	542,300	577,300	603,400	607,400	601,400	594,200	542,000
20	555,200	564,000	552,400	554,400	527,000	539,100	580,000	604,400	605,400	599,400	597,200	544,000
21	556,900	565,200	552,800	561,100	526,000	538,600	581,900	605,800	604,000	598,000	597,000	546,300
22	558,200	563,700	555,000	566,100	531,500	539,100	585,100	604,600	603,400	595,400	598,400	549,400
23	560,000	561,100	555,000	566,100	533,900	540,900	586,300	604,400	602,600	595,000	600,400	552,800
24	562,000	557,300	553,000	564,800	535,500	543,200	584,800	604,400	600,800	589,500	598,600	555,400
25	562,200	553,000	552,400	561,300	536,900	548,100	584,000	604,200	600,200	586,500	593,000	558,800
26	562,000	551,300	552,800	554,400	539,100	549,900	583,400	603,000	595,400	585,100	588,900	559,600
27	563,700	553,300	553,700	550,400	537,700	550,800	584,200	602,800	593,200	584,000	585,700	559,200
28	561,500	552,600	553,300	546,500	536,200	552,400	585,500	602,400	591,800	580,200	582,300	564,800
29	558,600	549,900	553,900	544,000	-	556,400	584,600	599,400	592,600	579,800	580,000	567,600
30	556,900	548,100	551,900	541,600	-----	562,700	583,800	598,000	594,000	577,000	577,700	570,500
31	554,800	-----	549,900	546,300	-----	570,700	-----	595,800	-----	573,200	576,200	-----
(+)	-800	-6,700	+1,800	-3,600	-10,100	+34,500	+13,100	+12,000	-1,000	-21,600	+3,000	-5,700

Calendar year 1960..... + -5,300

Water year 1960-61..... + +14,900

+ Change in contents, in acre-feet.

Elevation, in feet, at 12 p.m., water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	447.25	447.24	446.90	446.88	446.97	446.14	448.44	448.68	449.44	449.43	448.04	448.18
2	447.24	447.28	447.06	446.71	447.18	446.09	448.64	448.65	449.41	449.54	447.96	448.02
3	447.21	447.53	447.27	446.69	447.28	446.17	448.58	448.64	449.44	449.58	448.04	447.87
4	447.20	447.74	447.41	446.72	447.40	446.36	448.55	448.80	449.42	449.64	448.19	447.65
5	447.20	447.93	447.70	446.75	447.38	446.35	448.61	448.85	449.36	449.64	448.34	447.32
6	447.20	448.09	447.84	446.82	447.20	446.24	448.60	448.91	449.38	449.74	448.49	447.11
7	447.16	448.28	447.97	446.82	447.10	446.17	448.62	448.94	449.47	449.83	448.43	446.87
8	447.10	448.40	448.18	446.79	446.99	446.19	448.64	448.99	449.62	449.93	448.36	446.60
9	447.11	448.45	448.10	446.54	446.99	446.35	448.58	449.02	449.76	450.00	448.39	446.35
10	447.14	448.47	447.98	446.34	446.84	446.51	448.47	449.09	449.92	449.92	448.54	446.09
11	447.10	448.44	447.93	446.22	446.57	446.64	448.34	449.30	450.01	449.84	448.75	445.67
12	446.92	448.44	447.96	446.12	446.41	446.71	448.25	449.29	450.03	449.83	448.87	445.50
13	446.87	448.38	448.04	446.17	446.16	446.64	448.26	449.29	450.09	449.86	449.01	445.54
14	446.91	448.38	448.00	446.25	446.12	446.54	448.35	449.28	450.20	449.87	449.09	445.71
15	446.80	448.37	447.82	446.19	446.19	446.56	448.44	449.29	450.31	449.92	449.06	445.90
16	446.89	448.24	447.57	446.18	446.21	446.57	448.50	449.31	450.25	449.85	449.10	446.07
17	446.81	448.18	447.43	446.36	446.06	446.64	448.41	449.40	450.23	449.76	449.12	446.29
18	446.87	447.91	447.31	446.61	446.16	446.59	448.38	449.58	450.11	449.70	449.17	446.38
19	447.01	447.84	447.18	446.88	445.98	446.52	448.40	449.74	449.94	449.64	449.28	446.50
20	447.23	447.70	447.08	447.19	445.67	446.34	448.54	449.79	449.84	449.54	449.43	446.61
21	447.32	447.76	447.10	447.54	445.61	446.31	448.64	449.86	449.77	449.47	449.42	446.74
22	447.39	447.68	447.22	447.81	445.92	446.34	448.81	449.80	449.74	449.34	449.49	446.91
23	447.48	447.54	447.22	447.81	446.05	446.44	448.87	449.79	449.70	449.32	449.59	447.10
24	447.59	447.34	447.11	447.74	446.14	446.57	448.79	449.77	449.61	449.04	449.50	447.24
25	447.60	447.11	447.08	447.55	446.22	446.84	448.75	449.78	449.58	448.88	449.22	446.88
26	447.59	447.02	447.10	447.19	446.34	446.94	448.72	449.72	449.34	448.81	449.01	447.46
27	447.68	447.13	447.15	446.97	446.26	446.99	448.76	449.71	449.23	448.75	448.84	447.44
28	447.56	447.09	447.13	446.75	446.18	447.08	448.83	449.69	449.16	448.55	448.66	447.74
29	447.41	446.94	447.16	446.61	-	447.29	448.78	449.54	449.20	448.53	448.54	447.89
30	447.32	446.84	447.05	446.48	-----	447.63	448.74	449.47	449.31	448.38	448.42	448.04
31	447.21	-----	446.94	446.74	-----	448.05	-----	449.36	-----	448.18	448.34	-----

Note.--Elevation for May 19 to June 1, Sept. 16-30, based on Bureau of Reclamation recorder graph at Parker Dam.



9-4280. Colorado River below Parker Dam, Ariz.-Calif.

Location.--Lat 34°15'30", long 114°09'00", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.16, T.27 N., R.27 E., San Bernardino meridian, on right bank 3.9 miles downstream from Parker Dam, 10.4 miles upstream from Headgate Rock Dam, and 11 miles northeast of Parker, Ariz.

Drainage area.--178,800 sq mi, approximately.

Records available.--February to September 1934 (gage heights and fragmentary discharge records), October 1934 to September 1961. Prior to October 1937 published as "near Parker, Ariz."

Gage.--Water-stage recorder. Datum of gage is 346.23 ft above mean sea level, datum of 1929.

Average discharge.--27 years (1934-61), 13,580 cfs (9,832,000 acre-ft per year) unadjusted.

Extremes.--Maximum discharge during year, 18,600 cfs July 24 (gage height, 21.79 ft); minimum daily, 2,880 cfs Dec. 22.

1934-61: Maximum discharge, 42,400 cfs Feb. 8, 1937; no flow at Parker Dam for parts of several days in 1942 when gates in dam were closed; minimum daily discharge 1,440 cfs Feb. 15, 1935.

An unregulated discharge of probably less than 1,350 cfs occurred Aug. 18, 1934 (lowest unregulated discharge since 1917 and probably since a much earlier date).

Remarks.--Records excellent. Discharge measurements generally made twice a month. Flow regulated by Lake Mead since Feb. 1, 1935, Lake Mohave since Jan. 17, 1950, and by Havasu Lake since July 1, 1936. Many diversions above station. For record of diversion to Colorado River aqueduct and return flows, see record for Colorado River aqueduct near Parker Dam (sta. 9-4270).

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.400	6.680	10.300	5.290	5.400	10.300	11.900	10.900	12.100	14.300	15.400	10.200
2	9.150	6.480	10.100	5.230	5.510	10.300	12.500	10.700	13.100	14.100	15.200	10.000
3	9.450	5.110	9.820	5.170	6.090	9.280	13.800	10.700	13.100	14.100	13.600	9.460
4	9.490	5.570	9.940	5.000	5.680	9.120	13.800	10.100	13.300	14.200	13.800	9.490
5	9.070	6.330	7.310	4.270	6.300	9.770	13.600	10.900	13.000	14.700	13.100	10.500
6	9.030	5.790	4.940	4.700	7.280	11.000	13.800	10.900	13.100	14.500	13.500	10.800
7	9.030	5.290	4.080	5.110	7.280	11.000	14.000	11.200	12.900	14.600	13.500	10.400
8	9.070	4.450	3.690	4.950	6.980	10.600	13.400	11.100	12.600	14.300	14.900	11.400
9	8.390	4.390	5.300	5.740	6.410	10.600	13.600	11.200	13.000	14.600	14.300	11.400
10	8.790	4.330	5.170	5.810	8.080	11.200	13.700	10.600	13.100	14.800	13.500	11.700
11	8.920	4.140	5.050	5.690	8.220	11.700	13.900	9.830	13.300	14.800	13.100	12.300
12	9.070	4.330	4.330	5.860	8.260	12.400	13.800	11.100	12.900	14.500	12.600	11.600
13	8.360	4.270	4.200	4.450	8.580	12.300	12.900	10.800	13.200	14.300	12.300	10.900
14	7.800	4.000	4.080	4.450	8.830	12.800	12.500	10.900	12.500	14.400	12.500	10.800
15	7.440	4.800	3.950	5.110	8.420	12.700	12.300	11.100	12.000	14.300	11.700	10.300
16	7.580	4.800	4.700	5.170	8.830	12.600	12.500	11.500	13.700	14.800	11.200	10.200
17	7.750	4.250	4.330	5.000	9.290	12.400	12.400	11.000	13.700	14.800	10.800	10.000
18	7.430	6.310	4.450	4.940	9.360	13.000	12.400	10.700	14.800	14.600	10.400	10.400
19	7.120	4.640	4.390	4.390	8.730	13.000	11.800	11.200	14.500	14.300	10.200	10.200
20	6.580	4.580	3.950	4.390	9.410	13.400	10.600	11.600	14.500	14.300	9.370	9.890
21	7.590	4.940	3.620	4.200	9.440	13.600	10.800	11.700	14.500	14.500	10.400	9.760
22	7.450	6.680	2.880	4.270	8.430	13.300	10.600	11.700	14.500	14.500	8.670	9.400
23	7.220	8.550	4.080	6.340	8.080	13.000	11.400	12.000	14.900	14.600	8.760	9.570
24	7.450	10.300	4.640	8.140	9.360	13.200	11.000	12.200	15.000	15.000	9.110	9.500
25	7.120	12.500	4.550	9.700	10.500	13.300	10.800	12.300	15.000	15.800	10.100	9.980
26	6.680	11.800	4.510	11.700	9.800	13.200	10.700	12.700	15.300	14.600	8.980	9.910
27	5.790	11.400	4.080	10.600	9.680	14.000	9.990	12.600	15.600	14.300	8.790	9.910
28	7.310	11.300	5.170	10.700	10.200	13.700	9.780	12.600	15.600	15.300	8.770	8.890
29	7.410	11.200	4.200	10.800	-	13.300	10.600	13.000	15.300	15.400	8.760	8.510
30	6.930	11.000	5.290	8.430	-----	12.200	10.400	13.200	14.600	15.300	9.350	8.170
31	7.020	-----	5.400	5.680	-----	11.600	-----	13.400	-----	15.100	9.350	-----
Total	246,890	200,210	162,500	191,280	228,430	373,870	365,270	355,430	414,700	453,700	357,810	305,540
Mean	7,974	6,674	5,242	6,170	8,158	12,060	12,180	11,470	13,820	14,640	11,540	10,180
Ac-ft	489,700	397,100	322,300	379,400	453,100	741,600	724,500	705,000	822,500	899,900	709,700	606,000
Calendar year 1960:	Max	16,700	Min	2,880	Mean	10,740	Ac-ft	7,794,000				
Water year 1960-61:	Max	15,800	Min	2,880	Mean	10,020	Ac-ft	7,251,000				

TRIBUTARIES AND DIVERSIONS BETWEEN PARKER DAM AND PALO VERDE DAM

9-4285.3. Arch Creek near Earp, Calif.

Location.--Lat 34°09'55", long 114°22'20", in NE $\frac{1}{4}$  sec.20, T.1 N., R.25 E., on right bank on Parker Dam road, 4 miles east of Earp.

Drainage area.--1.52 sq mi.

Records available.--January 1960 to September 1961.

Gage.--Water-stage recorder, crest-stage gage, and tipping-bucket rain gage. Altitude of gage is 600 ft (from topographic map).

Extremes.--Maximum discharge during year, 5.6 cfs Aug. 18 (gage height, 3.99 ft, from crest-stage gage); no flow all year except Aug. 18.

1959-61: Flood of Sept. 13, 1959, reached a stage of 13.24 ft from floodmarks (discharge, 674 cfs, by indirect measurement of peak flow through culvert); no flow most of each year.

Remarks.--Records good. No regulation or diversion. Monthly figures of precipitation, in inches, are as follows: November, 0.5; January, 0.2; March, 0.1; July, 0.7; August, 0.7; the year, 2.2.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Aug. 18.....0.1

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
August 1961.....	0.1	0.1	0	0.003	0.2
Calendar year 1960.....	-	1.9	0	.005	3.8
Water year 1960-61.....	-	.1	0	.0003	.2

Note.--Flow occurred only on day listed above.

9-4290. Palo Verde Canal near Blythe, Calif.

Location.--Lat 33°43'54", long 114°30'43", in SE 1/4 NW 1/4 sec. 19, T.5 S., R.24 E., San Bernardino meridian, at canal intake structure on west side of Palo Verde Diversion Dam, 10 miles northeast of Blythe and 43 miles downstream from Headgate Rock Dam.

Records available.--January 1922 to December 1923, January 1925 to September 1961 (prior to October 1950, monthly discharge only).

Gage.--Recording gages above and below intakes to record head. Datum of gage is: Forebay gage, at mean sea level, tailrace gage, 274.13 ft (corrected) above mean sea level, both to datum of 1929. Aug. 7, 1950, to Nov. 30, 1952, water stage recorder on tailrace and auxiliary recorder half a mile downstream and Dec. 1, 1952, to Oct. 28, 1957, recording gage above and below former intake structure a quarter of a mile upstream, at different datums.

Average discharge.--11 years (1950-61), 1,170 cfs (847,000 acre-ft per year).

Extremes.--1950-61: Maximum daily discharge, 2,100 July 16, 1959, July 21, 1961; no flow at times in several years.

Remarks.--Records good. Discharge measurements generally made twice a month. Daily diversions computed on basis of head on intake gates and gate openings. Records published herein represent flow diverted from Colorado River during 1961 for irrigation of 77,525 acres. Return flows to Colorado River are measured by 11 wasteways and drains extending throughout the project; 4 of these are equipped with water-stage recorders and Parshall flumes, and 2 are equipped with Sparling flowmeters. Return flows have not been subtracted; combined monthly return flows are given in table below. Check measurements of return flows are made about twice a month by the Geological Survey and the Palo Verde Irrigation District.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.4 10	9 76	8 84	6 08	9 97	1.4 60	1.1 70	1.3 40	1.7 00	1.9 00	1.7 30	1.5 80
2	1.2 90	1.0 70	8 36	7 50	1.0 30	1.4 10	1.0 90	1.4 40	1.6 70	1.8 60	1.8 10	1.4 80
3	1.3 70	1.1 60	8 56	6 57	1.2 20	1.4 90	1.2 60	1.5 20	1.6 80	1.7 60	1.7 80	1.4 50
4	1.3 40	1.0 50	8 54	7 20	1.2 30	1.3 40	1.4 00	1.4 10	1.6 00	1.7 30	1.8 30	1.5 80
5	1.3 20	8 94	7 58	8 61	1.1 50	1.2 40	1.5 20	1.4 00	1.6 40	1.7 30	1.7 70	1.5 90
6	1.3 20	7 68	8 33	9 12	8 58	1.1 30	1.4 80	1.3 50	1.6 70	1.6 80	1.6 40	1.6 20
7	1.3 20	7 48	8 21	8 53	9 04	1.2 90	1.5 40	1.3 60	1.7 40	1.8 60	1.6 70	1.6 90
8	1.1 70	7 61	8 03	8 11	9 90	1.2 90	1.3 60	1.3 80	1.6 70	1.8 00	1.7 30	1.7 00
9	1.1 00	8 31	7 96	7 85	1.2 30	1.4 30	1.2 60	1.4 90	1.7 10	1.7 90	1.7 70	1.5 80
10	1.1 00	8 95	7 56	8 11	1.3 50	1.3 80	1.3 00	1.5 40	1.7 30	1.7 70	1.8 40	1.4 90
11	1.0 70	8 35	7 05	8 69	1.2 10	1.3 80	1.3 70	1.5 70	1.7 10	1.9 00	1.8 70	1.5 60
12	1.1 20	7 58	7 28	9 64	1.2 00	1.2 10	1.4 40	1.6 00	1.6 70	2.0 00	1.6 90	1.6 50
13	1.2 70	8 12	6 86	1.0 20	1.3 30	1.2 80	1.4 40	1.4 40	1.7 40	2.0 30	1.5 00	1.6 90
14	9 26	7 68	8 28	9 96	1.3 90	1.4 00	1.4 10	1.3 00	1.8 50	1.8 60	1.5 70	1.5 40
15	7 29	7 70	8 59	1.0 20	1.4 40	1.5 10	1.4 20	1.3 80	1.8 60	1.8 00	1.6 50	1.5 90
16	1.1 90	8 50	8 06	1.0 20	1.5 00	1.4 30	1.2 80	1.5 50	1.7 90	1.7 60	1.5 50	1.4 60
17	1.1 50	8 77	6 74	1.1 20	1.4 50	1.4 10	1.3 40	1.6 40	1.7 90	1.7 70	1.6 10	1.3 90
18	1.2 00	8 71	5 93	1.1 10	1.3 70	1.2 90	1.4 60	1.6 30	1.7 90	1.9 00	1.5 90	1.3 90
19	1.1 00	8 24	6 52	1.0 50	1.2 40	1.1 10	1.5 50	1.6 50	1.8 10	1.9 90	1.6 00	1.4 10
20	1.0 40	7 54	7 47	1.0 50	1.2 70	1.3 00	1.5 30	1.6 00	1.9 30	2.0 60	1.3 10	1.4 10
21	1.1 20	8 11	7 39	8 96	1.3 20	1.4 60	1.5 20	1.5 20	1.9 80	2.1 00	1.4 90	1.3 80
22	1.0 70	8 61	7 08	7 90	1.4 30	1.5 40	1.4 80	1.5 70	1.9 30	1.9 50	1.6 40	1.3 70
23	9 98	8 38	7 25	8 77	1.3 80	1.4 30	1.4 20	1.7 90	1.9 30	1.7 40	1.6 80	1.3 00
24	1.1 10	7 11	5 05	9 21	1.4 50	1.4 60	1.3 40	1.7 10	1.8 90	1.8 30	1.4 40	1.1 30
25	1.0 90	8 15	4 82	8 96	1.3 20	1.3 50	1.4 20	1.7 40	1.8 80	1.8 30	1.3 50	1.2 40
26	1.1 20	8 13	6 42	9 58	1.2 50	1.3 50	1.3 80	1.7 30	1.8 10	1.9 30	1.2 00	1.3 50
27	1.1 10	7 52	6 31	9 21	1.3 20	1.3 30	1.4 20	1.6 40	1.8 20	1.9 90	1.0 70	1.3 30
28	1.1 30	8 03	8 00	9 05	1.4 10	1.4 30	1.4 60	1.5 00	1.8 90	2.0 30	1.2 70	1.2 20
29	1.0 50	8 87	7 69	8 45	-	1.3 30	1.3 80	1.6 00	1.9 20	1.8 80	1.5 00	1.3 20
30	8 84	8 96	7 70	8 26	-----	1.3 00	1.2 70	1.6 10	1.9 10	1.6 80	1.5 20	1.2 10
31	9 33	-----	6 96	9 30	-----	1.1 70	-----	1.6 10	-----	1.7 50	1.4 90	-----
Total	35,150	25,459	22,942	27,752	35,239	41,930	41,710	47,610	53,710	57,660	49,160	43,700
Mean	1,134	849	740	895	1,259	1,353	1,390	1,536	1,790	1,860	1,586	1,457
Ac-ft	69,720	50,500	45,500	55,050	69,900	83,170	82,730	94,430	106,500	114,400	97,510	86,680
(†)	49,620	43,230	42,700	41,930	37,370	48,000	48,600	48,200	44,900	46,210	52,290	47,270

Calendar year 1960: Max 2,030 Min 320 Mean 1,265 Ac-ft 918,600 † -  
 Water year 1960-61: Max 2,100 Min 482 Mean 1,321 Ac-ft 956,100 † 550,300

† Return flows, in acre-feet, to Colorado River.



COLORADO RIVER MAIN STEM

23

9-4295. Colorado River at Imperial Dam, Ariz.-Calif.

Location.--Lat 32°53'00", long 114°27'50", in W $\frac{1}{2}$  sec. 9, T.15 S., R.24 E., San Bernardino meridian, near All-American Canal headworks at west end of Imperial Dam, 5 miles upstream from Laguna Dam, 15 miles northeast of Yuma, 90 miles downstream from Palo Verde Dam, and 147 miles downstream from Parker Dam.

Drainage area.--184,600 sq mi, approximately.

Records available.--Flow of Colorado River passing Imperial Dam: October 1960 to September 1961. Flow of Colorado River reaching Imperial Dam: 1903-34 (yearly discharge only), July 1934 to September 1961 (monthly discharge only since October 1942). Prior to 1943 published as "near Picacho, Calif."

Gage.--Water-stage recorder for obtaining head on gates. Datum of gage is 162.00 ft above mean sea level (U.S. Bureau of Reclamation bench mark). Prior to Oct. 1, 1942, water-stage recorder at site  $14\frac{1}{2}$  miles upstream at datum 167.38 ft above mean sea level, datum of 1929. Oct. 1, 1942, to Sept. 30, 1960, no gage on river at this site (see Remarks).

Average discharge (flow reaching Imperial Dam).--27 years (1934-61), 12,740 cfs (9,223,000 acre-ft per year).

Extremes (flow reaching Imperial Dam).--1934-61: Maximum discharge, 40,800 cfs Sept. 5, 1939; minimum, 538 cfs Aug. 3, 1934; minimum daily since regulation of Hoover Dam began, 1,450 cfs Feb. 17, 1935.

Remarks.--Records excellent. Records of daily discharge show flow of Colorado River passing Imperial Dam, and include water released to river through California and Gila sluiceways, sludge from desilting basins returned to river, and leakage through dam. Records of flow reaching Imperial Dam (given in monthly and yearly summaries below) are based on combined daily discharge of Colorado River at this station, and at gaging stations on All-American Canal near Imperial Dam (sta. 9-5230), and Gila Gravity Main Canal at Imperial Dam (sta. 9-5225). Records for October 1942 to September 1960 were computed as combined flow of Colorado River at Yuma (sta. 9-5210) and the All-American and Gila Gravity Main Canals, less flow of Gila River near Dome (drainage and waste return flows and channel losses between the gaging stations and Imperial Dam were neglected).

Flow of Colorado River regulated by many reservoirs, principally Lake Mead, since 1935. Many diversions from Colorado River and tributaries above station.

Cooperation.--Records of gate openings furnished by Bureau of Reclamation. Records of sludge return flow from desilting basins furnished by Imperial Irrigation District.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	332	*574	*1720	352	*1660	*724	805	*372	1250	868	812	417
2	332	527	1720	713	1000	553	806	372	*1560	568	812	417
3	*356	453	1720	456	342	693	805	372	1520	*417	812	417
4	332	494	1720	*378	329	756	806	372	1460	417	1020	427
5	332	599	1360	352	322	659	806	372	1400	643	812	427
6	422	628	*2300	352	322	412	805	372	1600	869	811	427
7	472	1030	3120	352	322	481	804	434	1090	863	812	427
8	332	1580	805	352	322	858	804	462	969	869	812	427
9	332	*1340	486	714	*322	1180	804	675	969	869	812	427
10	*1360	532	695	1040	322	1160	805	560	1030	987	*812	427
11	332	513	1060	1040	322	1160	*805	484	1400	987	812	427
12	332	447	1100	*1170	322	1020	805	389	1190	*929	811	427
13	362	506	*382	926	322	*631	805	376	1330	869	811	427
14	*502	475	404	332	322	793	805	372	*1580	837	821	1090
15	332	756	381	332	322	792	803	416	1380	553	822	427
16	403	*1250	352	332	322	812	704	668	1060	417	749	427
17	406	622	352	332	*322	812	1020	*439	696	576	823	494
18	922	492	431	332	322	812	1290	372	826	728	823	460
19	*1240	517	*803	332	813	814	*1210	372	1100	*728	682	337
20	1050	447	582	332	727	816	1070	372	996	728	501	*452
21	1280	*447	352	332	1170	816	704	501	568	686	427	373
22	1240	447	352	332	367	*816	472	654	427	637	*427	337
23	896	447	352	332	897	805	472	697	427	723	427	337
24	*692	447	352	*422	*322	804	372	678	427	809	427	397
25	567	*1200	554	422	322	803	372	702	652	1030	427	360
26	407	2040	820	1400	322	802	372	617	715	845	427	337
27	497	1820	*352	1060	369	802	372	616	843	*813	427	337
28	467	1750	352	1600	532	803	372	854	864	812	417	337
29	407	1710	352	1660	-	*804	372	1120	866	811	417	337
30	407	1710	352	*1660	-	805	372	1040	866	812	417	337
31	453	-	352	1660	-	806	-	1140	-	812	417	-
Total	17,796	25,800	26,035	21,401	13,680	24,804	21,619	17,242	31,061	23,512	20,639	12,697
Mean	574	860	840	690	489	800	721	556	1,035	758	666	423
Ac-ft	35,300	51,170	51,640	42,450	27,130	49,200	42,880	34,200	61,610	46,640	40,940	25,180
(†)	7,821	6,058	5,766	5,559	7,202	10,530	11,190	10,060	11,610	12,270	10,920	9,091
(#)	480,900	360,500	354,500	341,800	400,000	647,600	665,700	618,400	690,800	754,500	671,400	540,900

Calendar year 1960: Max - Min - Mean - Ac-ft - †9,791 \*7,107,000  
 Water year 1960-61: Max 3,120 Min 322 Mean 702 Ac-ft 508,300 †9,016 \*6,527,000

\* Discharge measurement made on this day.

† Flow reaching Imperial Dam, in cubic feet per second (combined flow of Colorado River, All-American Canal near Imperial Dam, and Gila Gravity Main Canal at Imperial Dam).

# Flow reaching Imperial Dam, in acre-feet.

## COLORADO RIVER MAIN STEM

9-5210. Colorado River at Yuma, Ariz.

**Location.**--Lat 32°43'45", long 114°37'15", in NW¼NE¼ sec.35, T.16 S., R.22 E., San Bernardino meridian, on left bank 500 ft upstream from lower highway bridge, 1,800 ft downstream from upper highway bridge at Yuma, half a mile upstream from Yuma Main Canal wasteway, 5 miles downstream from Gila River, 7 miles upstream from boundary between California and Mexico, and 19 miles downstream from Imperial Dam.

**Drainage area.**--242,900 sq mi, approximately, including all closed basins entirely within the drainage boundary.

**Records available.**--January 1878 to December 1901 (gage heights only), January 1902 to September 1961.

**Gage.**--Water-stage recorder. Datum of gage is 102.32 ft above mean sea level, Yuma project datum, or 102.86 ft, datum of 1929, leveling of 1941 (datum was 0.07 ft lower prior to earthquake of May 18, 1940). Supplementary water-stage recorder 180 ft downstream since Oct. 30, 1953. Prior to May 1922 staff gages at several sites 600 to 1,000 ft upstream at approximately same datum. May 1922 to October 1933, water-stage recorder or automatic transmitter at site 800 ft upstream from present site at same datum. Nov. 11, 1933, to July 19, 1934, staff gage at present site and datum.

**Extremes.**--Maximum discharge during year, 8,900 cfs Dec. 7 (gage height, 13.80 ft); minimum daily discharge, 393 cfs Oct. 13; minimum gage height, 10.30 ft Jan. 17.

1902-34: Maximum discharge, 250,000 cfs Jan. 22, 1916 (gage height, 34.0 ft); minimum daily, 18 cfs Aug. 25-27, 1934, caused by diversion at Laguna Dam.

1934-61: Maximum discharge, 34,900 cfs Sept. 7, 1939 (gage height, 24.57 ft); minimum, 41 cfs Mar. 8, 1956; minimum gage height, 8.36 ft July 16, 1947.

**Remarks.**--Records excellent. Discharge measurements generally made once or twice a week. Many diversions from Colorado River and tributaries. Principal diversions below Parker Dam are Colorado River Indian Reservation Canal, Palo Verde Canal, All-American Canal and Gila Gravity Main Canal. Return flows entering downstream but above northerly international boundary are Yuma Main Canal wasteway, Reservation Canal Main Drain No. 4, Drain 8-B, and Pilot Knob powerplant and wasteway. See monthly table below for combined flow of river, Yuma Main Canal wasteway, and Reservation Canal Main Drain No. 4. Flow of Colorado River regulated by Hoover, Davis, Parker, Headgate Rock, and to a small extent by Imperial, Palo Verde, and Laguna Dams. No regulation on Gila River below Painted Rock Dam.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	451	680	1810	791	2010	877	1140	623	1440	969	917	1160
2	423	922	1840	673	1880	999	1210	627	1480	889	987	841
3	423	731	1890	776	869	866	1220	629	1540	857	1150	851
4	436	697	1950	783	638	1000	1150	628	1680	787	1350	869
5	401	554	1990	674	614	1140	1160	757	1740	774	1270	937
6	454	662	2400	641	599	827	1180	999	1800	1030	1210	888
7	528	1130	3030	615	536	763	1230	658	1700	1090	1200	847
8	474	1350	1040	623	518	965	1080	778	1340	1100	1190	818
9	401	1700	958	915	549	1320	1080	705	1330	1100	1170	839
10	1140	1070	877	1420	555	1390	1080	653	1380	1180	1230	818
11	597	647	1090	1310	911	1380	1080	676	1460	1200	1210	819
12	406	712	1500	1320	691	1460	1080	646	1560	1180	1220	813
13	393	683	751	1270	513	1040	1120	572	1570	1100	1220	840
14	555	658	669	750	448	1080	1080	599	1750	1110	1200	868
15	567	618	688	740	532	1130	1100	637	1730	1050	1160	953
16	546	1120	586	652	531	1110	1110	809	1490	913	1150	888
17	555	1150	589	584	560	1090	995	860	1180	980	1220	873
18	536	706	580	528	552	1090	1620	688	1120	967	1190	919
19	1260	704	840	581	567	1130	1650	638	1350	1010	1210	774
20	1060	619	908	563	797	1110	1470	854	1500	1030	1050	946
21	1080	583	708	593	1140	1090	1130	907	1040	1000	893	865
22	1490	571	597	565	986	1040	845	932	808	1000	850	828
23	1170	561	581	602	907	1050	754	996	772	991	867	771
24	1050	585	588	634	760	1070	716	986	1030	1220	844	759
25	833	692	655	768	592	1080	583	992	855	1260	856	754
26	653	1930	992	1490	602	1080	641	960	1050	1130	842	767
27	685	2080	792	1170	581	1030	643	898	1100	1150	843	990
28	612	2040	578	1980	665	1080	623	1020	1020	1160	894	852
29	643	1920	581	2050	-	1100	612	1250	1000	1110	881	782
30	670	1880	594	2050	-	1120	637	1370	1020	1070	888	814
31	677	-	622	2010	-	1110	-	1340	-	1010	873	-
Total	21,169	29,955	33,274	30,121	21,103	33,617	31,019	25,687	39,835	32,417	33,035	25,743
Mean	683	998	1,073	972	754	1,084	1,034	829	1,328	1,046	1,066	858
Ac-ft	41,990	59,410	66,000	59,740	41,860	66,680	61,530	50,950	79,010	64,300	65,520	51,060
†	1,253	1,531	1,633	1,688	1,571	2,458	2,277	1,693	2,526	2,037	1,338	1,352
†	77,060	91,120	100,400	103,800	87,240	151,100	135,500	104,100	150,300	125,300	82,290	80,440
alendar year 1960:	Max	3,530	Min	377	Mean	968	Ac-ft	702,400	†2,069	†1,502,000		
alendar year 1960-61:	Max	3,030	Min	393	Mean	978	Ac-ft	708,000	†1,780	†1,289,000		

† Combined flow, in cubic feet per second, of river, Yuma Main Canal Wasteway, and Reservation Canal Main Drain No. 4.

† Combined flow, in acre-feet.

COLORADO RIVER MAIN STEM

25

9-5220. Colorado River at northerly international boundary  
above Morelos Dam, near Andrade, Calif.

Location.--Lat 32°43'00", long 114°43'00", in NE 1/4 sec. 21, T.8 S., R.24 W., Gila and Salt River meridian, on left bank at northerly international boundary, half a mile east of Andrade, 1.1 miles upstream from Morelos Dam, 1.1 miles downstream from Rockwood Gate, and 7.2 miles downstream from gaging station on Colorado River at Yuma.

Drainage area.--243,000 sq mi, approximately, including all closed basins entirely within the drainage boundary.

Records available.--January 1950 to September 1961. Prior to October 1958, published as "at international boundary."

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929, leveling of 1941. Supplementary water-stage recorder 1,450 ft upstream at same datum.

Extremes.--Maximum discharge during year, 9,680 cfs Dec. 7; maximum elevation, 109.04 ft Dec. 7; minimum discharge, 709 cfs Nov. 23; minimum elevation, 102.56 ft Oct. 13.

1950-61: Maximum discharge, 25,390 cfs Jan. 1, 1953; maximum elevation, 114.24 ft Jan. 28, 1958; minimum discharge, 570 cfs Feb. 24, 1956 (elevation, 103.00 ft).

Remarks.--This record shows water passing northerly international boundary. Minor diversions to the United States below this station from river and by pumping from ground water for irrigation in the floodway between river and Yuma levee. Discharge measurements generally made six times a week.

Cooperation.--Records furnished by International Boundary and Water Commission, United States Section.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.5 10	1.1 70	6.5 90	1.4 00	6.1 30	2.0 60	4.8 70	1.6 40	2.4 70	3.2 50	4.4 60	1.7 60
2	1.2 40	1.2 70	6.4 10	1.6 00	4.7 30	2.2 60	4.9 50	1.4 60	2.7 30	4.0 80	4.3 90	1.5 70
3	1.3 00	1.1 20	6.2 20	1.7 80	2.2 80	2.1 40	4.8 20	1.5 40	2.8 60	4.5 30	4.3 40	1.6 90
4	1.5 00	1.0 70	6.5 20	1.8 80	1.1 70	2.5 00	4.0 70	1.4 90	3.0 60	4.0 60	5.3 70	1.8 00
5	1.4 20	1.0 40	7.0 00	1.6 90	1.1 50	2.8 20	4.1 40	1.6 00	2.9 80	4.1 70	5.4 40	2.0 40
6	1.0 00	1.2 80	6.0 90	1.6 20	1.1 60	2.4 80	3.9 00	1.6 30	2.9 50	3.8 00	5.1 80	1.9 90
7	1.2 70	1.5 50	5.4 70	1.6 00	1.0 70	2.0 20	3.9 60	1.4 30	2.9 50	3.8 90	4.4 70	2.0 70
8	1.6 70	2.0 40	4.7 90	1.6 00	1.0 30	2.3 70	4.0 30	1.3 90	2.4 70	3.8 30	4.5 80	2.1 90
9	1.0 20	2.2 60	2.6 50	1.5 20	1.1 10	2.5 90	4.0 60	1.2 80	2.5 00	4.1 20	4.5 60	2.2 00
10	1.4 80	1.7 50	1.4 60	1.7 30	1.0 50	2.7 30	3.9 40	1.3 40	2.7 00	4.0 10	4.4 20	2.1 30
11	1.1 90	1.1 60	1.5 40	1.5 20	1.2 90	2.8 00	4.0 90	1.3 00	2.8 60	4.1 40	4.2 90	2.6 30
12	9 00	1.2 90	2.7 70	1.4 60	1.2 40	2.9 60	4.0 60	1.4 20	2.6 30	3.9 20	3.7 30	2.6 50
13	6 40	1.1 20	2.6 20	1.7 30	1.2 20	3.4 80	4.0 20	1.3 30	2.6 00	3.6 00	3.7 30	2.4 00
14	1.1 30	1.0 20	1.6 70	1.7 30	1.0 90	3.5 30	3.9 40	1.5 20	2.8 50	3.6 50	3.6 70	2.4 30
15	1.4 70	9 24	1.2 90	1.7 20	1.2 20	3.7 70	4.1 40	1.6 50	2.8 60	3.6 40	3.2 80	2.4 20
16	1.5 80	1.2 80	1.0 30	9 60	1.1 60	4.0 20	3.9 00	1.8 20	2.5 70	3.4 90	3.4 60	1.8 00
17	1.9 00	1.6 30	1.1 10	9 44	1.3 70	4.0 60	3.5 40	1.8 60	2.2 70	3.4 70	3.4 40	1.8 90
18	1.7 40	1.1 40	1.1 90	7 75	1.3 70	3.9 70	3.1 30	1.7 80	2.2 60	3.2 20	3.0 50	1.9 20
19	1.5 50	1.0 20	1.3 30	7 50	1.4 30	4.1 40	3.0 50	1.7 60	2.7 10	3.4 60	2.9 90	1.5 30
20	1.4 10	9 80	1.6 40	8 35	1.9 50	4.1 60	2.6 20	1.9 60	3.0 10	3.3 80	3.0 10	1.4 40
21	1.4 40	8 10	1.4 60	1.0 40	2.5 80	4.2 90	2.3 60	1.9 00	3.5 20	3.2 90	3.0 40	1.4 60
22	1.6 40	7 81	9 00	9 44	2.5 80	4.2 00	2.0 80	1.9 40	3.0 60	3.3 70	2.6 40	1.3 80
23	1.6 40	7 40	8 53	9 56	2.0 00	4.0 20	2.0 10	2.1 80	3.1 00	3.5 40	3.1 50	1.3 10
24	1.4 60	8 21	9 60	1.0 00	2.0 50	4.1 00	1.9 20	2.0 10	3.4 40	3.5 40	3.0 60	1.3 10
25	1.2 70	8 50	9 30	1.5 10	1.6 70	4.0 40	1.7 50	2.0 10	3.5 00	3.3 50	2.1 30	1.2 90
26	1.0 40	3.1 10	1.5 90	2.7 60	1.6 40	4.0 30	1.7 90	1.9 80	3.4 10	3.5 20	2.3 30	1.2 40
27	9 62	6.9 00	1.5 80	2.6 70	1.6 90	4.0 40	1.6 50	2.2 30	3.5 30	3.6 80	2.4 60	1.4 10
28	1.2 20	6.7 30	9 54	4.9 90	1.8 70	4.0 20	1.5 20	2.4 80	3.1 40	4.0 20	2.7 90	1.1 90
29	1.3 90	5.8 20	9 00	6.6 50	-	4.2 40	1.5 30	2.3 50	3.2 50	3.7 70	2.7 70	1.1 70
30	1.2 70	6.4 40	9 42	7.3 20	-----	4.3 20	1.7 20	2.4 70	3.1 50	3.5 00	2.0 00	1.3 00
31	1.5 20	-----	8 75	7.0 00	-----	4.4 60	-----	2.4 30	-----	4.3 60	1.7 70	-----
Total	42,208	59,162	81,370	65,722	50,740	106,640	97,560	55,220	87,440	116,050	110,010	53,610
Mean	1,362	1,972	2,625	2,120	1,612	3,440	3,252	1,781	2,915	3,744	3,549	1,787
Ac-ft	83,720	117,350	161,400	130,360	100,640	211,520	193,510	109,530	173,430	230,180	218,200	106,330
Calendar year 1960:	Max	7,000	Min	740	Mean	3,220	Ac-ft	2,337,720				
Water year 1960-61:	Max	7,320	Min	740	Mean	2,536	Ac-ft	1,836,170				

## DIVERSIONS AND RETURN FLOWS AT AND BELOW IMPERIAL DAM

9-5225. Gila Gravity Main Canal at Imperial Dam, Ariz.-Calif.

Location.--Lat 32°52'35", long 114°27'15", in SE 1/4 SW 1/4 sec.30, T.6 S., R.21 W., Gila and Salt River meridian, on right bank 3,200 ft downstream from intake at east end of Imperial Dam.

Records available.--August 1943 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 160.00 ft above mean sea level, datum of 1929.

Extremes.--1943-61: Maximum daily discharge, 1,910 cfs June 20, 1959; no flow at canal intake at times in several years when intake gates were closed.

Remarks.--Records excellent. Discharge measurements generally made two to three times a month. Gila Gravity Main Canal diverts water from Colorado River at left end of Imperial Dam for irrigation of lands on Gila Project in Arizona. Diversion to this canal began Aug. 17, 1943. Diversion to North Gila Valley from this canal began Dec. 16, 1954. During the 1961 water year water was used for irrigation of 79,940 acres divided as follows: North and South Gila Valleys, 7,819 acres; Yuma Mesa Division, 16,049 acres; Wellton-Mohawk Division, 52,995 acres; Yuma Mesa Auxiliary Division, 3,077 acres.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.010	830	547	234	532	994	1.060	1.470	1.630	1.820	1.490	1.170
2	882	221	491	366	409	984	921	1.520	1.580	1.730	1.570	1.190
3	886	838	478	605	461	906	1.100	1.540	1.550	1.740	1.310	1.050
4	967	744	491	639	615	866	1.290	1.510	1.360	1.720	1.070	1.110
5	1.060	616	636	577	654	721	1.320	1.470	1.640	1.720	1.300	1.190
6	1.140	496	830	611	740	898	1.400	1.450	1.760	1.700	1.030	1.270
7	1.050	586	798	345	740	992	1.230	1.310	1.720	1.570	1.290	1.190
8	944	620	552	266	740	959	1.080	1.500	1.740	1.570	1.420	1.200
9	768	719	615	449	786	1.000	1.050	1.400	1.680	1.560	1.450	1.200
10	934	756	496	577	770	1.070	1.280	1.550	1.630	1.700	1.420	1.270
11	1.040	704	274	550	732	961	1.450	1.580	1.410	1.660	1.480	1.430
12	1.030	603	417	474	641	904	1.450	1.530	1.650	1.660	1.590	1.520
13	1.000	511	500	433	840	1.180	1.410	1.380	1.620	1.650	1.520	1.520
14	944	653	545	380	925	1.290	1.400	1.330	1.600	1.670	1.530	1.490
15	638	822	498	339	961	1.260	1.400	1.560	1.650	1.700	1.590	1.460
16	721	834	502	579	942	1.310	1.290	1.640	1.590	1.610	1.530	1.190
17	840	822	401	675	828	1.290	1.340	1.630	1.700	1.710	1.460	1.070
18	870	572	280	651	824	1.250	1.400	1.610	1.570	1.740	1.450	1.270
19	874	472	576	679	670	1.030	1.400	1.680	1.660	1.770	1.430	1.380
20	942	454	734	681	692	1.030	1.430	1.630	1.720	1.760	1.140	1.400
21	798	541	662	536	862	1.190	1.480	1.340	1.720	1.730	1.220	1.270
22	713	613	641	419	874	1.120	1.420	1.700	1.720	1.730	1.490	1.350
23	637	556	326	493	929	1.020	1.350	1.800	1.760	1.710	1.420	1.270
24	904	450	142	607	1.060	1.070	1.480	1.690	1.770	1.780	1.350	1.130
25	999	444	131	656	971	1.030	1.530	1.620	1.610	1.720	1.440	1.180
26	1.060	350	257	616	812	984	1.600	1.540	1.670	1.770	1.410	1.250
27	955	300	765	425	792	1.010	1.610	1.760	1.750	1.690	1.250	1.340
28	844	561	942	317	950	1.210	1.420	1.530	1.800	1.650	1.420	1.340
29	683	810	255	320	-	1.200	1.310	1.610	1.800	1.600	1.320	1.270
30	605	677	764	536	-----	1.170	1.240	1.700	1.860	1.490	1.350	1.160
31	738	-----	467	581	-----	1.120	-----	1.670	-----	1.480	1.280	-----
Total	27,676	18,875	16,713	15,616	21,752	33,019	40,141	48,250	49,920	52,110	43,020	38,130
Mean	893	629	539	504	777	1,065	1,338	1,556	1,664	1,681	1,388	1,271
Ac-ft	54,890	37,440	33,150	30,970	43,140	65,490	79,620	95,700	99,010	103,400	85,330	75,630
Calendar year 1960:	Max 1,840			Min 0		Mean 1,094		Ac-ft 794,400				
Water year 1960-61:	Max 1,860			Min 131		Mean 1,110		Ac-ft 803,800				



Location.--Lat 32°52'15", long 114°28'50", in SE¼NW¼ sec.17, T.15 S., R.24 E., San Bernardino meridian, on left bank 6,000 ft downstream from intake at west end of Imperial Dam and 13½ miles upstream from turnout to Yuma Main Canal.

Gage.--Water-stage recorder. Datum of gage is 150.00 ft above mean sea level, datum of 1929 (subject to undetermined changes caused by earthquake of May 18, 1940). Since Aug. 21, 1952, auxiliary water-stage recorder 1½ miles downstream from base gage.

Extremes.--1938-61: Maximum daily discharge, 13,500 cfs Apr. 16, 1958; no flow at times in several years.

Remarks.--Records excellent. Discharge measurements generally made weekly. All-American Canal diverts water from Colorado River at Imperial Dam. Water is used for power development and for irrigation in Yuma, Coachella, and Imperial Valleys. Water can be released back to the river through Pilot Knob powerplant and wasteway for power, regulatory purposes, or for downstream use in Mexico. First diversion to All-American Canal began October 1938, but prior to October 1940 was used only for priming canal.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.5 10	5.6 30	7.6 60	3.4 60	7.3 00	7.0 70	<u>10.4 00</u>	7.6 20	8.1 60	10.1 00	10.6 00	<u>6.0 10</u>
2	7.1 50	5.6 00	7.9 00	3.7 50	6.3 20	7.1 70	9.7 10	7.6 70	8.1 70	10.3 00	10.6 00	<u>6.3 00</u>
3	7.2 40	5.4 60	7.6 10	4.0 80	4.7 50	7.3 20	9.1 70	7.9 30	8.2 60	10.2 00	10.7 00	6.6 50
4	7.3 60	5.2 60	7.4 60	4.1 60	4.7 00	7.2 30	9.2 00	8.3 50	8.2 60	9.9 50	11.5 00	6.9 10
5	7.0 40	5.2 10	7.3 60	4.3 40	4.2 80	7.1 90	9.7 90	8.1 50	8.2 20	9.8 80	11.2 00	6.8 70
6	6.9 90	4.5 30	5.9 10	4.1 70	<u>4.2 50</u>	7.1 90	10.2 00	7.8 20	<u>8.1 50</u>	9.7 10	10.7 00	6.5 20
7	7.4 80	4.2 00	5.1 40	4.0 40	4.4 00	<u>6.8 70</u>	10.3 00	7.8 70	8.6 80	9.9 20	10.1 00	6.8 90
8	<u>7.5 40</u>	3.9 90	6.3 20	3.7 20	4.8 30	7.0 00	10.1 00	7.8 00	8.6 50	10.1 00	10.1 00	7.4 40
9	7.5 50	3.7 80	4.5 80	3.4 20	5.3 30	7.4 00	10.1 00	7.8 90	8.5 50	10.1 00	10.2 00	7.7 70
10	6.5 40	3.9 20	3.4 20	3.0 50	5.4 60	7.5 10	9.9 60	8.2 30	8.4 60	9.6 90	10.6 00	7.5 60
11	6.3 40	<u>3.4 20</u>	2.8 20	<u>3.0 00</u>	5.2 90	7.5 10	10.0 00	8.3 00	8.2 60	9.6 90	10.4 00	7.6 90
12	6.3 50	<u>3.6 40</u>	4.0 50	3.2 30	5.5 40	7.4 80	10.1 00	<u>8.3 80</u>	8.2 10	9.9 00	9.7 60	7.7 30
13	6.7 50	3.6 30	4.5 40	4.0 70	5.6 90	8.1 30	10.1 00	8.0 30	8.2 80	9.9 00	9.5 50	7.9 10
14	7.0 20	3.4 30	3.5 70	4.4 80	5.7 60	8.5 60	10.0 00	7.6 20	8.2 90	9.8 60	9.0 80	8.4 40
15	7.0 60	3.4 50	3.6 20	4.2 50	6.1 70	9.0 60	10.0 00	7.6 20	8.2 50	9.9 10	8.8 20	<u>8.4 70</u>
16	6.8 40	3.7 10	3.3 90	3.8 20	6.3 30	9.0 40	9.5 10	7.5 90	8.5 90	9.8 20	8.7 90	7.8 60
17	6.5 10	3.7 30	3.4 10	3.7 90	6.2 80	9.1 40	9.3 80	7.9 60	8.5 70	9.5 90	8.8 60	7.7 90
18	5.8 00	3.8 20	3.2 30	4.0 10	6.3 10	9.1 10	8.2 90	8.1 60	8.3 30	9.5 10	8.3 10	7.4 70
19	5.6 00	3.8 20	3.2 30	4.0 70	6.1 90	9.1 90	8.4 60	8.3 10	8.5 50	9.5 80	8.0 90	7.1 90
20	5.7 40	3.5 20	3.5 10	4.2 10	6.3 50	9.3 60	8.3 90	8.1 30	8.8 60	9.6 30	8.0 40	7.1 90
21	5.6 40	3.6 50	3.4 70	4.0 40	6.4 20	9.7 10	8.4 20	7.7 40	9.7 00	9.6 90	8.0 70	7.5 80
22	<u>5.2 60</u>	3.6 10	3.4 30	3.7 20	6.8 90	9.9 20	8.4 00	7.5 30	9.8 00	9.4 20	7.5 90	7.5 80
23	5.3 60	3.6 60	3.2 70	3.2 50	6.9 30	10.0 00	8.1 50	<u>7.4 90</u>	9.9 00	9.3 50	7.3 10	7.5 90
24	5.5 00	3.8 10	2.7 30	3.1 60	7.0 00	10.1 00	7.8 30	7.5 40	9.9 90	9.2 90	7.8 40	7.5 40
25	5.6 10	3.8 70	<u>2.5 90</u>	4.0 40	6.8 30	9.9 90	<u>7.6 90</u>	7.7 50	10.0 00	<u>9.1 90</u>	6.8 10	7.5 20
26	5.5 80	5.1 00	3.2 60	4.6 00	6.7 60	9.9 80	7.9 60	7.8 60	10.0 00	9.6 90	<u>6.3 00</u>	7.4 30
27	5.6 00	<u>7.8 30</u>	3.8 00	4.8 70	6.8 60	9.9 10	8.1 20	8.3 80	10.0 00	10.1 00	7.1 20	7.3 50
28	5.6 30	7.8 20	3.7 00	6.9 90	7.0 10	9.8 60	8.0 70	8.3 50	9.9 50	<u>10.5 00</u>	7.4 40	7.4 10
29	5.6 90	7.4 60	3.6 80	7.8 40	-	10.0 00	8.1 20	8.1 90	<u>10.1 00</u>	10.0 00	7.2 50	7.6 40
30	5.3 60	7.8 00	3.4 80	<u>6.0 20</u>	-----	10.3 00	7.8 60	8.1 20	<u>10.1 00</u>	9.8 40	6.6 00	7.4 90
31	5.5 50	-----	3.4 60	<u>7.6 30</u>	-----	<u>10.4 00</u>	-----	8.0 20	-----	10.3 00	6.4 30	-----
Total	197,010	138,360	136,040	135,320	166,250	268,700	273,800	246,400	267,320	304,710	274,800	221,810
Mean	6,355	4,612	4,388	4,365	5,938	8,668	9,127	7,948	8,911	9,829	8,865	7,394
Ac-ft	390,800	274,400	269,800	268,400	329,800	533,000	543,100	488,700	530,200	604,400	545,100	440,000
Calendar year 1960: Max 11,600 Min 2,590 Mean 7,785 Ac-ft 5,652,000												
Water year 1960-61: Max 11,500 Min 2,590 Mean 7,207 Ac-ft 5,218,000												

## DIVERSIONS AND RETURN FLOWS AT AND BELOW IMPERIAL DAM

9-5265. All-American Canal above Pilot Knob wasteway, Calif.

Location.--Lat 32°45'00", long 114°42'20", in NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.24, T.16 S., R.21 E., San Bernardino meridian, near right bank on downstream side of pier of bridge on U. S. Highway 80, 1.1 miles upstream from Pilot Knob wasteway, 5 miles downstream from turnout to Yuma Main Canal, 5 $\frac{1}{2}$  miles northwest of Yuma, and 19 $\frac{1}{2}$  miles downstream from intake at Imperial Dam.

Records available.--October 1938 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 148.52 ft above mean sea level, datum of 1929. Auxiliary water-stage recorder, in NE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.15, T.16 S., R.22 E., on wash overshoot structure 4.4 miles upstream.

Average discharge.--20 years (1941-61), 5,280 cfs (3,823,000 acre-ft per year).

Extremes.--1938-61: Maximum daily discharge, 11,400 cfs Apr. 28, 1958; no flow (since continuous operation of canal began Sept. 18, 1940) Dec. 17-20, 1940.

Remarks.--Records excellent. Discharge measurements generally made once a week. First flow in All-American Canal at this point began Feb. 5, 1939. Water is used for power development, irrigation in Coachella and Imperial Valleys, and can be released back to Colorado River through Pilot Knob powerplant and wasteway for power, for regulatory purposes, or downstream use in Mexico.

Cooperation.--Gage-height record furnished by Imperial Irrigation District.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.520	4.400	5.670	2.570	5.270	5.060	8.520	6.100	6.290	7.860	9.330	4.920
2	5.840	4.330	5.850	2.370	4.340	5.130	7.710	6.190	6.150	8.000	9.360	5.090
3	5.860	4.180	5.850	2.580	3.480	5.410	7.170	6.530	6.160	8.030	9.370	5.340
4	5.870	4.170	5.520	2.580	3.450	5.250	7.140	6.540	6.210	7.910	10.100	5.410
5	5.650	4.170	5.290	2.750	3.260	5.140	7.700	6.380	6.210	7.850	10.100	5.180
6	5.630	3.560	4.900	2.750	3.210	5.430	8.200	6.530	6.150	7.600	9.920	4.890
7	5.770	3.090	4.690	2.590	3.450	5.150	8.620	6.500	6.640	7.760	9.370	5.680
8	6.040	2.850	5.570	2.590	3.590	5.030	8.100	6.350	6.600	7.940	9.350	6.490
9	6.110	2.690	3.890	2.770	3.890	5.280	8.100	6.350	6.440	7.990	9.220	6.830
10	5.550	2.820	2.870	2.780	4.080	5.510	8.110	6.690	6.340	7.620	9.270	6.660
11	5.340	2.370	2.110	2.600	4.250	5.520	8.060	6.920	6.140	7.640	9.150	6.730
12	5.290	2.700	3.300	2.940	4.500	5.360	8.080	6.200	7.130	7.770	8.610	6.760
13	5.590	2.870	3.670	2.960	4.320	6.100	8.210	6.600	6.180	7.800	8.450	6.870
14	5.660	2.750	2.550	2.800	4.500	6.410	7.920	6.150	6.200	7.800	7.990	7.290
15	5.690	2.610	2.730	2.620	4.730	7.220	7.900	5.950	6.160	7.820	7.680	7.360
16	5.350	2.770	2.560	2.950	4.980	7.160	7.450	5.760	6.390	7.730	7.690	6.300
17	4.930	2.640	2.740	2.810	4.940	7.230	7.410	5.980	6.460	7.540	7.900	6.130
18	4.680	2.940	2.560	3.120	4.850	7.170	6.270	6.100	6.230	7.490	7.450	5.820
19	4.710	2.950	2.340	3.260	4.850	7.050	6.450	6.370	6.420	7.560	7.300	5.710
20	4.830	2.820	2.550	3.390	4.550	7.330	6.260	6.210	6.720	7.580	7.260	5.780
21	4.720	3.100	2.550	3.270	4.520	7.740	6.320	6.070	7.480	7.590	7.230	6.200
22	4.410	3.110	2.720	3.000	4.810	7.850	6.430	5.810	7.640	7.410	6.800	6.200
23	4.490	3.000	2.550	2.240	4.790	8.020	6.500	5.630	7.710	7.290	6.540	6.220
24	4.450	3.140	2.130	2.010	5.000	8.290	6.050	5.560	7.790	7.740	6.950	6.180
25	4.580	3.150	1.880	2.270	4.960	7.960	5.680	5.800	7.790	7.960	5.940	6.030
26	4.450	3.650	2.140	2.470	5.060	7.870	6.100	5.970	7.860	8.400	5.500	6.020
27	4.450	5.900	2.730	3.040	4.970	8.010	6.210	6.290	7.820	8.750	6.270	5.950
28	4.580	5.720	2.900	4.770	4.870	7.880	6.340	6.320	7.840	9.130	6.530	6.030
29	4.650	5.450	2.910	5.650	-	8.080	6.450	6.300	7.940	8.850	6.420	6.260
30	4.450	5.660	2.910	5.920	-----	8.310	6.180	6.160	7.950	8.670	5.650	6.140
31	4.340	-----	2.910	5.580	-----	8.390	-----	6.100	-----	9.100	5.100	-----
Total	159,800	105,560	105,540	96,000	123,470	207,340	215,840	193,340	204,110	246,180	243,800	182,470
Mean	5,155	3,519	3,405	3,097	4,410	6,688	7,195	6,237	6,804	7,941	7,865	6,082
Ac-ft	317,000	209,400	209,300	190,400	244,900	411,300	428,100	383,500	404,800	488,300	483,600	361,900
Calendar year 1960:	Max	10,200	Min	1,880	Mean	6,042	Ac-ft	4,386,000				
Water year 1960-61:	Max	10,100	Min	1,880	Mean	5,708	Ac-ft	4,132,000				

9-5270. Pilot Knob powerplant and wasteway near Pilot Knob, Calif.

Location.--Lat 32°44'15", long 114°42'55", in NW¼SW¼ sec.25, T.16 S., R.21 E., San Bernardino meridian, 2 miles east of summit of Pilot Knob, 6 miles west of Yuma, Ariz., and 20.8 miles downstream from intake of All-American Canal at Imperial Dam.

Records available.--February 1939 to September 1961. Prior to October 1943, monthly discharge only, published in WSP 1313. Prior to October 1956, published as Pilot Knob wasteway near Pilot Knob.

Gage.--Water-stage recorder on right bank of All-American Canal, 550 ft upstream from wasteway gates and 1,800 ft from entrance of powerplant. Tailrace gage is on left bank 680 ft below powerplant with automatic recording equipment in control house. All bypass gates are equipped with calibrated openings which are read on all gate changes. Datum of forebay and tailrace gage is at mean sea level, datum of 1929. Elevation of sill of wasteway gates is 147.88 ft, datum of 1929.

Extremes.--1939-61: Maximum daily discharge, 8,350 cfs Jan. 26, 1958; no flow for long periods.

Remarks.--Records excellent. Daily discharge computed from flowmeter equipment and head and openings on wasteway gates or from head and gate openings on wicket and wasteway gates. Discharge measurements generally made three times a month during flow. Records show water released through Pilot Knob powerplant and wasteway from All-American Canal and returned to Colorado River through Rockwood gates. Pilot Knob wasteway completed in summer of 1938 and first flow occurred Feb. 5, 1939. Pilot Knob powerplant was completed in January 1957 and first flow occurred Jan. 14, 1957. There was no return flow through Pilot Knob wasteway gates during year.

Cooperation.--Midnight readings of flowmeter, recorder graph of forebay, and record of tailrace elevation and gate openings furnished by Imperial Irrigation District.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	2.8 50	0	2.4 10	0	2.2 00		0	1.1 30	3.4 20	0
2		0	2.6 00	0	1.3 00	0	2.1 40		0	1.6 60	3.3 70	0
3		0	2.4 20	0	77	0	1.7 60		0	1.8 80	3.0 20	0
4		0	2.3 90	0	0	0	1.3 00		0	1.8 30	3.8 00	0
5		0	3.1 60	0	0	0	1.4 70		0	2.0 70	3.7 40	0
6		0	2.3 70	0	0	0	1.5 50		0	1.8 00	3.7 70	0
7		0	2.1 60	0	0	0	1.6 00		0	1.8 10	3.1 40	4 65
8		0	3.1 20	0	0	0	1.4 70		0	1.5 60	3.2 10	1.1 40
9		0	1.1 90	0	0	0	1.4 70		0	1.6 50	3.1 20	1.1 20
10		0	71	0	0	0	1.5 30		0	1.6 00	2.9 90	1.0 00
11		0	0	0	0	0	1.6 30		0	1.7 70	2.8 80	1.4 70
12		0	8 95	0	0	87	1.6 40		0	1.5 50	2.3 20	1.5 00
13		0	1.3 30	0	0	1.0 90	1.5 80		0	1.2 40	2.3 20	1.3 50
14		0	75	0	0	1.1 60	1.4 30		0	1.2 60	2.1 70	1.3 90
15		0	0	0	0	1.3 10	1.3 20		0	1.1 80	1.8 50	1.2 50
16		0	0	0	0	1.5 00	1.1 40		0	1.1 60	2.0 20	0
17		0	0	0	0	1.4 40	1.0 90		0	1.2 40	1.9 40	0
18		0	0	0	0	1.3 60	0		0	1.2 30	1.7 20	0
19		0	0	0	0	1.3 70	0		0	1.2 00	1.5 60	0
20		0	0	0	0	1.4 20	0		4 34	1.1 60	1.5 80	0
21		0	0	0	0	1.6 60	0		1.1 30	1.1 50	1.7 70	0
22		0	0	0	0	1.6 40	0		1.1 00	1.1 70	1.4 30	0
23		0	0	0	0	1.6 90	0		1.1 30	1.1 70	1.9 40	0
24		0	0	0	0	1.6 70	0		1.1 70	1.7 00	1.9 50	0
25		0	0	0	0	1.4 30	0		1.1 10	2.0 40	9 08	0
26		2 02	0	0	0	1.4 00	0		1.1 00	2.3 00	1.0 30	0
27		2.6 00	0	0	0	1.6 50	0		1.1 10	2.5 40	1.4 30	0
28		2.7 10	0	1.9 60	0	1.6 60	0		1.1 20	2.8 00	1.5 60	0
29		2.2 60	0	3.0 90	-	1.8 20	0		1.1 10	2.4 60	1.5 20	0
30		2.7 50	0	3.7 10	-----	1.8 30	0		1.1 10	2.5 60	7 32	0
31		-----	0	3.5 40	-----	2.0 40	-----		-----	3.0 30	0	-----
Total	0	10,542	24,654	12,300	3,787	29,227	26,320	0	11,624	52,940	68,210	10,685
Mean	0	351	795	397	135	943	877	0	387	1,708	2,200	356
Ac-ft	0	20,910	48,900	24,400	7,510	57,970	52,200	0	23,060	105,000	135,300	21,190
(t)	0	0	0	0	0	0	0	0	0	0	0	0

Calendar year 1960: Max 4,390 Min 0 Mean 1,054 Ac-ft 765,000 † 28

Water year 1960-61: Max 3,800 Min 0 Mean 686 Ac-ft 496,400 † 0

† Return flow, in acre-feet, by Pilot Knob wasteway (also included in daily discharge table).

## DIVERSIONS AND RETURN FLOWS AT AND BELOW IMPERIAL DAM

Return surface flows from Yuma project, Ariz.-Calif.

The Yuma project consists of the Reservation Division in California operated by the Bureau of Reclamation and the Valley Division in Arizona operated by the Yuma County Water Users' Association. Water for the Reservation Division is obtained from the Colorado River at Imperial Dam through the All-American Canal and the Yuma Main Canal below siphon-drop powerplant. Water for the Valley Division is obtained from the Yuma Main Canal below Colorado River siphon.

The Reservation Canal Main Drain No. 4 and Drain 8-B in the Reservation Division and the Cooper, Eleven Mile, and Twenty-one Mile wasteways in the Valley Division return surface flows to the Colorado River. Water collected by the Main drain and East Main Canal in the Valley Division is delivered across the international boundary for use in Mexico. None of this water is included in the record of the Colorado River at Yuma.

9-5300. Reservation Canal Main Drain No. 4.

Location.--Water-stage recorder 500 ft upstream from crossing of U. S. Highway 80. Drainage canal enters Yuma Main Canal wasteway 200 ft downstream from spillway structure. Prior to May 1955, it entered 500 ft upstream from outlet of Yuma Main Canal wasteway in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.26, T.16 S., R.22 E., San Bernardino meridian.

Records available.--Monthly discharge January 1913 to April 1920, October 1921 to March 1925, January 1934 to September 1961. Prior to October 1955, published as California drainage canal.

Remarks.--Record shows waste and drainage water from area east of Yuma Main Canal on Reservation Division. Since 1939, seepage from All-American Canal has caused large increase. Flow is not included in the record of Yuma Main Canal wasteway. Fifty discharge measurements made during year.

Cooperation.--Record furnished by Bureau of Reclamation.

9-5305. Drain 8-B.

Location.--Enters Colorado River in NE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.30, T.16 S., R.22 E., San Bernardino meridian, 4 miles downstream from outlet of Yuma Main Canal wasteway.

Records available.--Monthly discharge March 1948 to September 1961. Prior to October 1955, published as Araz drain.

Remarks.--Record shows waste and drainage water west of Yuma Main Canal on the Reservation Division. There is no gage, but due to fairly constant drainage, flow record is computed by Bureau of Reclamation by interpolation between discharge measurements, of which 51 were made during year by Imperial Irrigation District.

Cooperation.--Record furnished by Bureau of Reclamation.

9-5320. Cooper wasteway.

Location.--Water-stage recorder and weir, in NE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.33, T.8 S., R.24 W., half a mile downstream from Morelos Dam.

Records available.--Monthly discharge January 1934 to September 1961.

Remarks.--Record shows waste water from Valley Division returned to Colorado River.

Cooperation.--Record furnished by International Boundary and Water Commission (U. S. Section).

9-5325. Eleven Mile wasteway.

Location.--Water-stage recorder and regulating gate in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.8, T.9 S., R.24 W., 3 $\frac{1}{4}$  miles downstream from Morelos Dam.

Records available.--January 1924 to September 1961.

Remarks.--Record shows waste water from Valley Division returned to Colorado River.

Cooperation.--Record furnished by International Boundary and Water Commission (U. S. Section).

9-5330. Twenty-one Mile wasteway.

Location.--Recording gage and flume, in NW $\frac{1}{4}$  sec.35, T.10 S., R.25 W., 17 $\frac{1}{2}$  miles downstream from Morelos Dam.

Records available.--March 1939 to September 1961.

Remarks.--Record shows waste water from Valley Division returned to Colorado River.

Cooperation.--Record furnished by International Boundary and Water Commission (U. S. Section).

9-5340. Main drain.

Location.--Pumping plant in SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.11, T.11 S., R.25 W., half a mile west of San Luis, Ariz. Water-stage recorder at outlet, and at inlet since May 8, 1953.

Records available.--Monthly discharge January 1919 to September 1961.

Remarks.--Record computed from rated pumps checked by discharge measurements made once a month by International Boundary and Water Commission (U. S. Section). Flow consists mostly of drainage water from the Valley Division which is pumped across the Arizona-Sonora boundary for use in Mexico.

Cooperation.--Record furnished by Yuma County Water Users' Association, and International Boundary and Water Commission (U. S. Section).

Return surface flows from Yuma project, Ariz.-Calif.--Continued

9-5345. East Main Canal wasteway.

Location.--Water-stage recorder, in NW 1/4 sec. 12, T. 11 S., R. 25 W., a quarter of a mile east of Main drain pumping plant and a quarter of a mile west of San Luis, Ariz.

Records available.--Monthly discharge January 1924 to June 1928, January 1932 to December 1933, April 1935 to September 1961. Calendar year estimates 1934 and 1935, published in WSP 1313.

Remarks.--Record shows amount of unused water at the extreme end of the Valley Division which is discharged across the Arizona-Sonora boundary for use in Mexico.

Cooperation.--Record furnished by International Boundary and Water Commission (U. S. Section).

Monthly return flows, in acre-feet, water year October 1960 to September 1961

Month	Reservation Canal Main Drain No. 4	Drain 8-B	Cooper wasteway	Eleven Mile wasteway	Twenty- one Mile wasteway	Main drain	East Main Canal wasteway
October.....	3,770	426	190	2,130	590	12,070	750
November.....	3,660	413	120	1,520	620	11,220	630
December.....	3,580	405	210	1,770	800	11,230	770
Calendar year 1960.....	45,610	4,830	1,730	18,440	7,930	136,400	9,180
January.....	3,560	401	110	1,640	700	10,590	840
February.....	3,290	359	260	1,460	550	10,450	750
March.....	3,910	436	170	1,390	1,020	12,190	810
April.....	3,800	385	200	1,750	690	11,410	1,230
May.....	3,880	371	210	1,760	640	11,770	1,210
June.....	4,040	393	110	1,020	770	11,100	740
July.....	4,570	462	150	1,200	460	11,260	620
August.....	4,680	472	100	1,160	450	11,200	900
September.....	4,210	466	170	1,320	640	10,710	960
Water year 1960-61.....	46,950	4,990	2,000	18,120	7,930	135,200	10,210

## PANAMINT VALLEY

10-2506. Wildrose Creek near Wildrose Station, Calif.

Location.--Lat 36°15'55", long 117°10'40", in Death Valley National Monument, on left bank 0.8 mile east of road from Wildrose Station to Stovepipe Wells and 2 miles east of Wildrose Spring, Inyo County.

Drainage area.--23.7 sq mi.

Records available.--October 1960 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 4,300 ft (from topographic map).

Extremes.--1960-61: Maximum discharge during year, 330 cfs Aug. 5 (gage height, 5.10 ft), on basis of slope-area measurement of peak flow; no flow all year except Aug. 5.

Remarks.--Records poor. No regulation or diversion.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Aug. 5..... \* 7.2

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
August 1961.....	7.2	7.2	0	0.23	14
Calendar year 1960.....	-	-	-	-	-
Water year 1960-61.....	-	7.2	0	.02	14

\* Discharge measurement made on this day.

Note.--Flow occurred only on day listed above.

## DEATH VALLEY

10-2513.5. Horse Thief Creek near Tecopa, Calif.

Location.--Lat 35°46'50", long 115°53'35", T.19 N., R.11 E., on left bank 0.6 mile northwest of Horse Thief Springs and 19.2 miles southeast of Tecopa, San Bernardino County.

Drainage area.--3.06 sq mi.

Records available.--October 1960 to September 1961.

Gage.--Water-stage recorder and tipping-bucket rain gage. Altitude of gage is 4,600 ft (from topographic map).

Extremes.--1960-61: Maximum discharge during year, 411 cfs Aug. 23 (gage height, 3.13 ft), from rating curve extended above 10 cfs on basis of slope-area measurement of peak flow; no flow all year except Nov. 6 and Aug. 23.

Remarks.--Records poor. No regulation or diversion. Monthly figures of precipitation, in inches, water year 1960-61, are as follows: November, 3.1; January, 0.9; March, 0.6; April, 0.6; August, 3.6; the year, 8.8.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Nov. 6..... \* 0.4  
Aug. 23..... \* 8.7

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
November 1960.....	0.4	0.4	0	0.01	3.1
August 1961.....	8.7	8.7	0	.28	17
Calendar year 1960.....	-	-	-	-	-
Water year 1960-61.....	-	8.7	0	.02	18

\* Discharge measurement made on this day.

Note.--Flow occurred only on days listed above.

## IVANPAH VALLEY

33

10-2523. China Spring Creek near Mountain Pass, Calif.

Location.--Lat 35°28'05", long 115°30'30", in E $\frac{1}{2}$  sec.31, T.16 N., R.14 E., on upstream right bank of State highway culvert on U. S. Highway 466 and 91, and 2.0 miles east of Mountain Pass.

Drainage area.--0.94 sq mi.

Records available.--January 1959 to September 1961.

Gage.--Water-stage recorder, crest-stage gage and tipping-bucket rain gage. Datum of gage is 5.94 ft above mean sea level, datum of 1959.

Remarks.--No flow since station first established Jan. 14, 1959. No regulation or diversion. Monthly precipitation, in inches, water year 1960-61, is as follows: October, 0.8; November, 1.1; December, 0.4; January, 0.8; March, 0.3; April, 0.1; July, 1.2; August, 0.5; the year, 5.2.

## CHUCKWALLA VALLEY

10-2536. Eagle Creek at Eagle Mountain, Calif.

Location.--Lat 33°51'45", long 115°29'45", on right bank in Joshua Tree National Monument, 0.5 mile from Eagle Mountain and 11.6 miles northwest of Desert Center, Riverside County.

Drainage area.--7.63 sq mi.

Records available.--October 1960 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 1,475.58 ft above mean sea level (levels by Kaiser Industries).

Extremes.--Maximum discharge during year, about 380 cfs Aug. 23, on basis of field estimate of peak flow; no flow all year except Aug. 23.

Remarks.--Records poor. No regulation or diversion.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Aug. 23..... \*20

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
August 1961.....	20	20	0	0.65	40
Calendar year 1960.....	-	-	-	-	-
Water year 1960-61.....	-	20	0	.05	40

\* Field estimate made on this day.

Note.--Flow occurred only on day listed above.

## SALTON SEA BASIN

10-2540.05. Salton Sea near Westmoreland, Calif.

Location.--Lat 33°11'37", long 115°49'54", in NE 1/4 Sec. 21, T.11 S., R.11 E., at outer end of third mooring pier from western shore at Sandy Beach 15.5 miles northwest of Westmoreland. Prior to Oct. 23, 1951, at site on west shore 22 miles northwest of present gage.

Drainage area.--8,360 sq mi, approximately.

Records available.--November 1904 to September 1961. Records prior to 1932 are published in WSP 735.

Gage (revised).--Water-stage recorder. Datum of gage is 250.00 ft below mean sea level, datum of 1929, adjustment of 1934; gage readings have been converted to elevations below mean sea level. Prior to January 1925, staff gages at various sites along eastern shore, but all elevations have been converted to datum of 1901. January 1925 to Oct. 22, 1951, staff gages and reference marks at site on western shore 22 miles northwest originally set to 1901 datum and on Mar. 2, 1956 found at mean-sea-level datum 0.91 ft lower than 1929 datum, adjustment of 1934 (levels by U.S.C. & G.S.).

Extremes.--Maximum elevation during year, 233.8 ft below mean sea level Apr. 5-23, Apr. 26 to May 2, May 9; minimum, 235.0 ft below mean sea level Oct. 9-25.

1904-61: Maximum elevation 195.9 ft below mean sea level (present datum) in February and March 1907; minimum since 1906, 251.6 ft below mean sea level (present datum) in November 1924.

Remarks.--Bottom of sea is 273.5 ft below mean sea level (determined in 1904-5, datum of 1901). See WSP 300, 735, and 918 for condensed history of Salton Sea. Area and capacity table for Oct. 23, 1951, to Sept. 30, 1961, as computed from survey of 1956 above elevation 240 ft below mean sea level and based on former survey for portion below this elevation is given in WSP 1564.

Month-end elevations, in feet below mean sea level, water year  
October 1960 to September 1961

Date	Elevation (feet)
Sept. 30, 1960.....	234.9
Oct. 31.....	234.9
Nov. 30.....	234.8
Dec. 31.....	234.6
Jan. 31, 1961.....	234.4
Feb. 28.....	234.2
Mar. 31.....	233.9
Apr. 30.....	233.8
May 31.....	234.0
June 30.....	234.0
July 31.....	234.0
Aug. 31.....	234.3
Sept. 30.....	234.5

## Inflow to Salton Sea, Calif.

Salton Sea, located near the northwest corner of Imperial County, is a closed basin consisting of 8,360 sq mi. A systematic record of inflow was not attempted until the fall of 1960. The following table shows monthly and annual inflow in acre-feet. Inflow from Imperial Valley is the sum of flows in Alamo River (see p. 36), New River (see p. 37), and about 30 drains and wasteways. About 94 percent of the inflow was measured at gaging stations; the remainder was estimated on the basis of weekly discharge measurements made on 18 drains and wasteways. These figures are based in part on data not available at the time Imperial Irrigation District figures were released at monthly intervals. Inflow from Coachella Valley is the sum of flows in Whitewater River (see p. 47) and 18 drains. Flow in the river was measured by a gaging station, but that for the drains was estimated as 60 percent of flow in river on basis of monthly discharge measurements on drains furnished by Coachella Valley County Water District. (See pp. 39 to 48), for other flows into the sea.) Table also shows amount of flow in Alamo and New Rivers contributed by Mexico as furnished by Imperial Irrigation District.

Inflow from	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total
Imperial Valley	121,400	88,350	79,930	82,910	90,560	118,700	120,800	115,200	104,500	107,300	108,400	114,600	1,252,650
Coachella Valley	5,310	4,220	4,460	5,060	5,040	7,070	7,420	8,610	6,880	8,190	8,430	8,590	79,280
Total	126,710	92,570	84,390	87,970	95,600	125,770	128,220	123,810	111,380	115,490	116,830	123,190	1,331,930

## Flow from Mexico at International Boundary

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total
Alamo River	126	138	145	163	138	190	166	135	142	171	174	129	1,817
New River	9,461	8,961	9,951	10,175	9,267	11,958	11,457	10,332	9,098	7,555	10,183	7,646	116,044



## SALTON SEA BASIN

10-2540.5. Salt Creek near Mecca, Calif.

Location.--Lat 33°26'50", long 115°50'35", in NE¼SE¼SW¼ sec.28, T.8 S., R.11 E., on pier of Southern Pacific railroad bridge, 0.3 mile upstream from mouth and 16 miles southeast of Mecca.

Records available.--January to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 230 ft below mean sea level (from topographic map).

Extremes.--1961: Maximum discharge during period January to September, 22 cfs Jan. 27 (gage height, 2.10 ft); minimum daily, 1.2 cfs July 10-12.

Remarks.--Records good except those above 10 cfs, which are poor.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used July 7-14)

1.4	1.2	1.7	2.7
1.5	1.5	1.8	4.5
1.6	2.0	1.9	8.0

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				-	7.6	6.8	5.4	3.2	* 2.8	1.6	* 2.3	3.5
2				-	7.6	7.2	5.1	3.2	2.8	1.6	2.3	3.3
3				-	7.6	8.0	4.0	3.0	2.8	1.6	2.3	3.0
4				-	7.2	8.0	4.0	3.0	2.8	1.6	2.4	2.6
5				-	5.7	7.2	4.0	3.0	2.8	* 1.5	2.5	* 2.8
6				-	5.1	6.8	4.0	* 3.0	2.8	1.4	2.5	3.0
7				-	* 6.8	* 6.8	4.0	3.0	* 2.7	1.4	2.5	3.2
8			† 5.8	-	7.2	5.7	3.7	2.9	2.6	1.3	2.5	3.2
9				-	7.2	5.7	3.2	2.8	2.5	1.3	* 2.6	3.2
10				-	7.2	6.8	4.2	2.8	2.5	1.2	2.9	3.3
11				-	7.6	7.2	* 4.2	2.8	2.4	1.2	3.0	* 3.5
12				-	8.0	6.8	4.0	* 2.6	* 2.3	* 1.2	2.9	3.7
13				-	8.0	6.8	4.0	2.6	2.3	1.3	2.9	3.7
14				-	7.6	7.2	3.7	2.7	2.2	1.4	2.9	4.0
15				-	7.6	6.8	3.7	2.8	2.0	1.4	2.9	4.0
16				-	8.0	6.8	3.5	* 2.9	1.8	1.6	3.3	3.7
17				† 6.9	8.0	6.0	3.7	2.9	1.8	1.7	* 3.7	3.7
18				-	8.0	6.0	* 3.7	2.9	2.0	1.9	3.7	* 3.7
19				-	7.2	6.0	3.5	2.9	2.0	2.0	3.7	3.5
20				7.2	* 5.7	5.7	3.3	2.9	* 1.9	* 2.0	3.7	3.7
21				7.6	5.7	* 6.4	3.3	2.9	1.9	2.0	3.5	4.0
22				8.0	6.4	6.0	3.5	2.9	1.9	2.0	3.5	4.0
23				8.0	7.2	6.0	3.5	* 2.8	1.9	2.1	3.5	4.0
24				* 8.0	6.0	6.0	3.5	2.7	1.9	2.2	* 3.5	4.0
25				8.0	5.1	5.7	* 3.5	2.7	1.8	2.2	3.3	4.0
26				9.2	7.6	5.4	3.7	2.8	1.7	2.2	3.2	4.0
27				20	8.0	5.1	3.7	2.8	1.5	* 2.2	3.0	4.0
28				12	* 6.4	5.7	3.5	2.8	1.5	2.2	3.0	4.0
29				8.0	-	6.0	3.3	2.8	* 1.6	2.2	3.0	* 4.0
30				7.2	-	6.0	3.3	2.8	1.6	2.4	3.3	4.0
31				* 7.6	-	5.4	-	2.8	-	2.4	* 3.5	-
Total	-	-	-	-	197.3	198.0	113.7	88.7	65.1	54.3	93.8	108.3
Mean	-	-	-	-	7.05	6.39	3.79	2.86	2.17	1.75	3.03	3.61
Max.	-	-	-	-	8.0	8.0	5.4	3.2	2.8	2.4	3.7	4.0
Min.	-	-	-	-	5.1	5.1	3.2	2.6	1.5	1.2	2.3	2.6
Ac-ft	-	-	-	-	391	393	226	176	129	108	186	215

Calendar year 1960:

Max -

Min -

Mean -

Acre-feet -

The period:

Max 8.0

Min 1.2

Mean -

Acre-feet 1,820

\* Discharge measurement made on this day.

† Result of discharge measurement.

## SALTON SEA BASIN

10-2547.3. Alamo River near Niland, Calif.

Location.--Lat 33°12'03", long 115°36'07", in NE 1/4 sec. 22, T. 11 S., R. 13 E., on left bank 0.6 mile upstream from mouth and 5.8 miles southwest of Niland.

Records available.--January 1943 to September 1961. Monthly discharge only for January 1943 to September 1960, published in WSP 1734.

Gage.--Water-stage recorder. Altitude of gage is 235 ft below mean sea level (from topographic map).

Remarks.--Flow represents seepage and return flow from irrigated areas.

Cooperation.--Records furnished by Imperial Irrigation District and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.200	1.060	773	680	712	955	1.180	1.050	925	1.040	960	815
2	1.290	1.090	743	709	705	918	1.200	1.050	968	1.090	954	803
3	1.210	1.060	762	665	735	910	1.180	1.010	933	1.010	929	780
4	1.220	1.000	760	667	743	902	1.040	980	940	1.020	1.060	815
5	1.200	990	748	692	743	955	1.040	990	959	1.000	1.020	875
6	1.170	1.170	730	722	789	1.000	1.220	1.050	963	962	945	846
7	1.220	1.060	590	722	793	1.000	1.340	990	983	898	1.040	875
8	1.210	822	634	687	757	945	1.200	1.070	1.070	892	1.020	888
9	1.170	773	652	687	793	926	1.200	1.100	999	970	978	935
10	1.200	740	634	705	857	1.020	1.180	1.060	925	983	923	935
11	1.190	748	646	696	853	1.070	1.200	1.060	983	930	970	967
12	1.170	730	646	709	828	1.040	1.110	1.030	968	937	950	982
13	1.120	750	615	709	904	1.020	1.090	990	937	992	966	892
14	1.070	735	590	705	935	1.060	1.100	1.150	1.050	987	1.040	906
15	1.040	760	595	709	878	1.010	1.180	1.120	1.090	1.030	995	938
16	1.130	737	617	692	900	1.020	1.230	1.020	1.000	990	943	1.050
17	1.160	735	622	698	911	979	1.140	1.050	1.010	1.020	970	1.140
18	1.180	748	637	698	900	1.030	1.140	1.010	1.080	987	945	1.140
19	1.100	745	644	715	878	1.060	1.120	1.080	995	1.000	998	1.130
20	1.060	726	634	718	864	1.100	1.040	1.090	940	979	929	1.140
21	1.120	760	620	722	885	1.060	1.070	1.090	918	975	1.000	1.090
22	1.200	760	634	735	869	1.150	1.080	1.080	896	937	990	1.160
23	1.140	748	620	725	869	1.220	1.090	980	890	914	1.040	1.210
24	1.100	737	648	709	864	1.180	1.080	910	905	937	978	1.240
25	1.090	737	644	715	915	1.180	1.050	925	968	967	883	1.300
26	1.050	750	700	698	952	1.200	987	945	955	937	880	1.240
27	973	753	689	725	1.000	1.220	1.010	964	933	954	843	1.240
28	1.050	740	704	715	965	1.180	1.070	930	983	950	865	1.220
29	1.080	760	644	701	-	1.140	1.040	964	991	1.020	861	1.240
30	1.080	743	652	707	-	1.060	1.130	1.110	1.000	1.100	895	1.320
31	1.080	-	640	684	-	1.060	-	1.070	-	1.010	832	-
Total	35,273	24,667	20,467	21,821	23,797	32,570	33,737	31,918	29,157	30,418	29,602	31,112
Mean	1,138	822	660	704	850	1,051	1,125	1,030	972	981	955	1,037
Max.	1,290	1,170	773	735	1,000	1,220	1,340	1,150	1,090	1,100	1,060	1,320
Min.	973	726	590	665	705	902	987	910	890	892	832	780
Ac-ft	69,960	48,930	40,600	43,280	47,200	64,600	66,920	63,310	57,830	60,330	58,710	61,710
Calendar year 1960 :	Max -		Min -		Mean 940		Acre-feet 682,400					
Water year 1960-61 :	Max 1,340		Min 590		Mean 944		Acre-feet 683,400					

10-2555.5. New River near Westmoreland, Calif.

Location.--Lat 33°06'17", long 115°39'49", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.19, T.12 S., R.13 E., on right bank 3.5 miles upstream from mouth and 5.2 miles northwest of Westmoreland.

Records available.--January 1943 to September 1961. Monthly discharge only for January 1943 to September 1960, published in WSP 1734.

Gage.--Water-stage recorder. Altitude of gage is 220 ft below mean sea level (from topographic map).

Remarks.--Flow represents seepage and return flow from irrigated areas.

Cooperation.--Records furnished by Imperial Irrigation District and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	722	582	541	512	539	628	738	687	578	543	572	624
2	777	591	510	493	593	647	738	703	584	564	534	534
3	810	575	505	509	587	623	738	624	649	643	545	483
4	779	533	494	482	554	572	725	675	605	613	517	505
5	781	565	537	512	557	575	677	655	619	570	559	561
6	788	674	675	525	595	613	713	697	636	601	582	563
7	753	740	557	514	581	630	702	682	590	570	561	540
8	695	622	537	498	555	665	758	648	605	578	504	498
9	688	545	488	522	573	663	761	673	622	598	505	517
10	695	514	521	545	602	697	736	670	588	626	494	578
11	779	527	528	498	607	729	721	652	619	603	475	621
12	743	537	487	498	587	700	706	636	636	492	540	640
13	695	510	472	501	605	710	710	687	651	549	572	632
14	684	504	527	548	604	705	704	715	617	487	594	677
15	677	523	490	515	575	655	702	775	613	542	532	687
16	730	519	488	517	568	638	761	682	530	543	632	740
17	756	529	488	572	530	683	813	607	572	584	762	724
18	715	520	465	532	528	663	765	630	578	547	718	708
19	673	535	441	517	522	668	685	618	626	526	683	746
20	664	537	455	538	487	745	670	582	621	540	710	706
21	662	533	449	580	584	826	681	615	609	494	722	746
22	657	552	454	569	708	733	685	643	605	553	716	742
23	650	515	487	565	866	810	675	610	566	555	677	764
24	662	530	480	632	847	733	710	571	545	566	622	754
25	647	532	486	407	653	685	690	592	553	643	588	774
26	604	547	428	393	610	714	672	580	526	574	655	783
27	577	540	502	395	612	723	664	604	532	590	594	779
28	582	524	552	480	633	768	667	624	523	582	547	787
29	621	499	550	569	-----	765	723	677	536	582	566	804
30	635	541	502	555	-----	790	672	682	538	617	594	746
31	645	-----	474	559	-----	754	-----	648	-----	615	586	-----
Total	21,546	16,495	15,570	16,052	16,862	21,510	21,362	20,144	17,672	17,690	18,458	19,963
Mean	695	550	502	518	602	694	712	650	589	571	595	665
Max.	810	740	675	632	866	826	813	775	651	643	762	804
Min.	577	499	428	393	487	572	664	571	523	487	475	483
Ac-ft	42,740	32,720	30,880	31,840	33,450	42,660	42,370	39,960	35,050	35,090	36,610	39,600
Calendar year 1960:				Max 1,020	Min 365	Mean 613				Acre-feet 445,000		
Water year 1960-61:				Max 866	Min 393	Mean 612				Acre-feet 443,000		

## SALTON SEA BASIN

10-2557. San Felipe Creek near Julian, Calif.

Location (revised).--Lat 33°07'07", long 116°26'04", in Anza Borrego State Park, on left bank, at bridge on State Highway 78, in Sentenac Canyon 1.0 mile upstream from Grapevine Canyon and 10 miles northeast of Julian, San Diego County.

Drainage area.--89.3 sq mi.

Records available.--August 1958 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 1,872.69 ft above mean sea level (datum of 1929).

Extremes.--Maximum discharge during year, 16 cfs Sept. 13 (gage height, 1.85 ft); no flow for many days.  
1958-61: Maximum discharge, that of Sept. 13, 1961; no flow for many days each year.

Remarks.--Records good. No regulation or diversion. Discharge measurements or observations of no flow generally made twice a month.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Mar. 30 to Apr. 2)

1.1	0	1.4	1.3
1.2	.2	1.5	2.6
1.3	.6		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0.2	0.3	0.5	0.3	0.6	0.3	0.1		0	0
2		0	.3	.3	.5	.3	.5	.3	.1		0	0
3		0	.3	.3	.5	.3	.5	.3	.1		0	0
4		0	.3	.3	.5	.4	.5	.3	.1		0	0
5		0	.3	.3	.5	.4	.4	.3	.1		0	0
6		.1	.2	.4	.5	.4	.4	.3	0		0	0
7		.1	.3	.4	.5	.4	.4	.3	0		0	0
8		.1	.3	.4	.5	.4	.4	.3	0		0	0
9		.2	.3	.4	.4	.5	.4	.2	0		0	0
10		.2	.3	.4	.4	.5	.4	.2	0		0	0
11		.2	.3	.4	.4	.5	.4	.2	0		0	0
12		.2	.3	.4	.4	.5	.4	.2	0		0	0
13		.2	.3	.4	.4	.5	.4	.2	0		0	2.4
14		.2	.3	.4	.4	.5	.4	.2	0		0	0
15		.2	.3	.4	.4	.5	.4	.2	0		0	0
16		.2	.3	.4	.4	.5	.4	.2	0		0	0
17		.2	.3	.4	.4	.5	.4	.2	0		0	0
18		.2	.3	.4	.4	.5	.4	.2	0		0	0
19		.2	.3	.4	.4	.5	.4	.2	0		0	0
20		.2	.3	.4	.4	.5	.4	.2	0		0	0
21		.2	.3	.4	.4	.5	.4	.2	0		0	0
22		.2	.3	.4	.4	.5	.4	.1	0		0	0
23		.2	.3	.4	.4	.5	.4	.1	0		0	0
24		.2	.3	.4	.4	.5	.4	.1	0		0	0
25		.2	.3	.4	.4	.5	.4	.1	0		0	0
26		.3	.3	.8	.4	.5	.4	.1	0		0	0
27		.4	.3	.7	.3	.5	.3	.1	0		0	0
28		.2	.5	.5	.3	.9	.3	.1	0		0	0
29		.2	.3	.5		1.3	.3	.1	0		0	0
30		.2	.3	.5		.7	.3	.1	0		0	0
31			.3	.5		.6		.1			0	
Total	0	5.0	9.1	13.0	11.8	15.9	12.1	6.0	0.5	0	0.2	2.4
Mean	0	0.17	0.29	0.42	0.42	0.51	0.40	0.19	0.02	0	0.01	0.08
Max.	0	0.4	0.3	0.8	0.5	1.3	0.6	0.3	0.1	0	0.2	2.4
Min.	0	0	0.2	0.3	0.3	0.3	0.3	0.1	0	0	0	0
Ac-ft	0	9.9	18	26	23	32	24	12	1.0	0	0.4	4.8

Calendar year 1960 : Max 2.0 Min 0 Mean 0.30 Acre-feet 217  
Water year 1960-61 : Max 2.4 Min 0 Mean 0.21 Acre-feet 151

Peak discharge (base, 50 cfs).--No peak above base.

10-2558. Coyote Creek near Borrego Springs, Calif.

Location (revised).--Lat 33°22'25", long 116°25'39", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.23, T.9 S., R.5 E., on right bank 500 ft upstream from Box Canyon and 8.5 miles northwest of Borrego Springs.

Drainage area.--144 sq mi.

Records available.--October 1950 to September 1961. Monthly discharge only for some periods, published in WSP 1734.

Gage.--Water-stage recorder. Altitude of gage is 1,250 ft (from topographic map).

Average discharge.--11 years, 2.43 cfs (1,760 acre-ft per year).

Extremes.--Maximum discharge during year, 940 cfs Aug. 15 (gage height, 11.02 ft, from floodmark), on basis of slope-area measurement of peak flow; minimum daily, 1.2 cfs Aug. 4-8, 11-14, 30.

1950-61: Maximum discharge, 3,800 cfs July 28, 1951 (gage height, 14.14 ft, from floodmark), from rating curve extended above 4 cfs on basis of slope-area measurement of peak flow; minimum daily, 1.1 cfs Aug. 19, 20, 1959.

Remarks.--Records good except those above 5 cfs and those for periods of no gage-height record, which are poor. No regulation or diversion.

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.6	1.8	* 2.3	2.5	1.9	1.9	2.2	1.8	1.8	1.4	1.3	1.5
2	1.6	* 1.9	2.5	2.2	* 1.9	1.9	2.2	1.9	1.8	1.4	1.3	1.5
3	1.7	1.9	2.5	2.2	1.9	1.9	* 2.1	2.1	1.8	1.4	1.3	1.7
4	1.8	1.9	2.5	2.2	1.9	1.9	2.1	2.1	1.8	1.4	1.2	2.1
5	1.8	* a 5	2.5	2.2	1.9	1.9	2.1	* 1.9	1.8	1.4	1.2	1.4
6	* 1.8	a 3	2.5	2.3	1.9	1.9	2.1	1.9	1.8	1.4	1.2	(*)
7	1.8	a 2.5	2.5	2.3	1.9	1.9	2.2	1.9	1.8	1.4	* 1.2	
8	1.9		2.5	2.3	1.9	1.9	2.2	1.8	1.8	1.4	1.2	
9	2.1		2.5	2.3	1.9	1.9	2.2	1.7	1.8	1.3	1.3	e 1.4
10	2.1		2.3	2.3	1.9	1.9	2.1	1.7	1.8	1.4	1.3	
11	2.1		2.2	2.3	1.9	1.9	2.1	1.7	1.8	1.4	1.2	
12	2.1	a 2	2.2	2.3	2.1	1.9	2.1	1.7	1.8	* 1.3	1.2	* 1.4
13	2.1		2.2	2.2	2.1	* 1.9	2.1	1.7	1.8	1.3	1.2	1.6
14	2.1		2.2	2.2	* 2.2	1.9	2.1	1.7	1.8	1.4	1.2	* 1.6
15	2.1		2.2	2.2	2.3	1.9	2.1	1.6	1.8	1.4	* 66	1.6
16	2.1		* 2.2	* 2.2	2.3	1.9	2.1	1.6	* 1.8	1.4	a 3	1.6
17	2.1	* 2.1	2.6	2.2	2.3	1.9	* 1.9	1.6	1.8	1.5		1.6
18	2.1	1.9	2.3	2.2	2.3	2.1	1.9	* 1.6	1.8	1.5	a 2.5	2.1
19	1.9	1.9	2.3	2.2	2.3	2.2	1.9	1.6	1.7	1.4		2.2
20	* 1.7	1.9	2.3	2.2	2.3	2.2	1.9	1.6	1.7	1.4		2.2
21	1.3	1.9	2.3	2.1	2.3	2.2	1.8	1.6	1.6	1.4		2.2
22	1.4	1.9	2.3	2.1	2.3	2.2	1.8	1.6	1.6	1.5		2.2
23	1.5	1.9	2.3	2.1	2.3	2.2	1.8	1.6	1.6	1.5	a 2	2.2
24	1.5	1.9	2.3	2.2	2.3	2.2	1.8	1.6	1.5	1.6		2.2
25	1.5	1.9	2.5	2.2	2.3	2.2	1.8	1.7	1.5	1.6		2.1
26	1.5	2.1	2.3	2.2	2.3	2.2	1.8	1.7	1.4	* 1.4	a 1.5	2.1
27	1.5	2.1	2.2	2.1	* 2.2	2.2	1.8	1.7	1.4	1.3	a 1.5	1.9
28	1.5	2.1	2.2	2.1	2.1	2.2	1.8	1.8	* 1.4	1.3	1.5	1.8
29	1.5	2.2	* 2.2	2.1	-	2.2	1.8	* 1.8	1.4	1.5	* 1.5	1.8
30	1.6	2.2	2.2	1.9	-	2.2	1.8	1.8	1.4	1.5	1.2	1.8
31	1.7	-	2.3	1.9	-	2.2	-	1.8	-	1.4	1.3	-
Total	55.1	64.0	72.4	68.0	59.2	63.0	59.7	53.9	50.6	43.9	114.8	52.8
Mean	1.78	2.13	2.34	2.19	2.11	2.03	1.99	1.74	1.69	1.42	3.70	1.76
Max.	2.1	5	2.6	2.5	2.3	2.2	2.2	2.1	1.8	1.6	66	2.2
Min.	1.3	1.8	2.2	1.9	1.9	1.9	1.8	1.6	1.4	1.3	1.2	-
Ac-ft	109	127	144	135	117	125	118	107	100	87	228	105

Calendar year 1960:

Max 37

Min 1.2

Mean 2.05

Acre-feet 1,490

Water year 1960-61:

Max 66

Min 1.2

Mean 2.08

Acre-feet 1,500

Peak discharge (base, 50 cfs).--Aug. 15 (2 a.m.) 940 cfs (11.02 ft).

\* Discharge measurement made on this day.

a No gage-height record.

e Stage-discharge relation indefinite.

## SALTON SEA BASIN

10-2558.1. Borrego Palm Creek near Borrego Springs, Calif.  
(Formerly published as Palm Canyon Creek near Borrego Springs)

Location (revised).--Lat 33°16'44", long 116°25'45", in Anza-Borrego Desert State Park, on left bank 3.3 miles northwest of Borrego Springs, San Diego County.

Drainage area.--21.7 sq mi.

Records available.--October 1950 to September 1961. Prior to October 1960, published as Palm Canyon Creek near Borrego Springs.  
Monthly discharge only for some periods, published in WSP 1734.

Gage.--Water-stage recorder. Altitude of gage is 1,200 ft (from topographic map).

Average discharge.--11 years, 0.45 cfs (326 acre-ft per year); median of yearly mean discharges, 0.3 cfs (220 acre-ft per year).

Extremes.--Maximum discharge during year, 0.5 cfs Jan. 27 (gage height, 1.62 ft); no flow Oct. 1 to Dec. 25, Apr. 14 to Sept. 30.  
1950-61: Maximum discharge, about 2,000 cfs Aug. 23, 1955 (gage height, 9.9 ft, from floodmarks), on basis of velocity-area study; no flow for several months in each year.

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

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			0	0.1	0.3	0.1	0.1					
2			0	.1	* .3	.1	.1					
3			0	.1	.3	.1	* .1					
4			0	.1	.3	.2	.1					
5			0	.2	.3	.2	.1	(*)				
6	(*)		0	.2	.3	.2	.1					
7			0	.2	.3	.2	.1				(*)	(*)
8			0	.2	.3	.2	.1					
9			0	.2	.3	.2	.1					
10			0	.2	.2	.2	.1					
11			0	.2	.2	.2	.1					
12			0	.2	.2	.2	.1			(*)		
13			0	.2	.2	* .2	.1					
14			0	.2	* .2	.2	0					(*)
15			0	.2	.2	.2	0					
16			* 0	.2	.2	.2	0		(*)			
17		(*)	0	* .2	.2	.2	* 0					
18			0	.2	.2	.2	0	(*)				
19			0	.2	.2	.2	0					
20			0	.2	.2	.2	0				(*)	
21	(*)		0	.2	.2	.2	0					
22			0	.2	.2	.2	0					
23			0	.2	.2	.1	0					
24			0	.3	.2	.1	0					
25			0	.3	.1	.1	0					
26			.1	.3	.1	.1	0			(*)		
27			.1	.4	* .1	.1	0					
28			.1	.3	.1	.2	0		(*)			
29			* .1	.3	-	.2	0	(*)				
30		(*)	.1	.3	-	.1	0					
31			.1	.3	-	.1	-					
Total	0	0	0.6	6.7	6.1	5.2	1.3	0	0	0	0	0
Mean	0	0	0.02	0.22	0.21	0.17	0.04	0	0	0	0	0
Max.	0	0	0.1	0.4	0.3	0.2	0.1	0	0	0	0	0
Min.	0	0	0	0.1	0.1	0.1	0	0	0	0	0	0
Ac-ft	0	0	1.2	13	12	10	2.6	0	0	0	0	0

Calendar year 1960 : Max 3.5 Min 0 Mean 0.20 Acre-feet 148

Water year 1960-61 : Max 0.4 Min 0 Mean 0.05 Acre-feet 39

Peak discharge (base, 15 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

## SALTON SEA BASIN

41

10-2558.85, San Felipe Creek near Westmoreland, Calif.

Location.--Lat 33°07'25", long 115°51'05", in NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.17, T.12 S., R.11 E., on left bank 320 ft downstream from U. S. Highway 99 and 14.6 miles northwest of Westmoreland.

Records available.--December 1960 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 190 ft below mean sea level (from topographic map).

Extremes.--Maximum discharge during period December 1960 to September 1961, 2,910 cfs Aug. 29 (gage height, 8.22 ft, from floodmark), on basis of slope-area measurement of peak flow; no flow for some months.

Remarks.--Records poor except those for Mar. 9 to Apr. 19, which are good. No regulation. Diversion and pumping for domestic use and irrigation in Borrego Valley upstream from station.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							0.2				0	
2					(*)		.2				0	
3					0.4	0.3	.2	(*)			0	
4							.1				0	
5			(*)	(*)			.1				0	
6							.1				0	
7			0.2	0.3	.5	.2	0		(*)	(*)	0	(*)
8							0				0	
9					(*)	*.2	0				0	
10						.2	0				* 0	
11						.2	0	(*)			e10	
12						.2	0				0	
13						.2	0			(*)	0	
14					(*)	.2	* 0		(*)		0	
15						.2	0				*e200	
16						.2	0				0	
17						.2	0				* 0	
18				.4	.4	.2	0				0	
19				(*)		.2	0	(*)			e100	
20						.2	* 0				e 5	
21						.2	0				e 4	
22			.3		(*)	.2	0		(*)		e 3	
23			(*)			.2	0				e 2	
24						.2	0				e 1	
25						*.2	0	(*)			e .5	
26				(*)		.2	0			(*)	0	
27				.5	.3	.2	* 0				0	
28						.1	0				0	
29						.2	0		(*)		*e150	(*)
30						.2	0				*e.5	
31				.4		*.2	0	(*)			e.1	
Total	-	-	7.8	11.6	11.6	6.6	1.0	0	0	0	476.1	0
Mean	-	-	0.25	0.37	0.41	0.21	0.03	0	0	0	15.4	0
Max.	-	-	-	-	-	-	0.2	0	0	0	200	0
Min.	-	-	-	-	-	0.1	0	0	0	0	0	0
Ac-ft	-	-	15	23	23	13	2.0	0	0	0	944	0

Calendar year 1960: -

Max -

Min -

Mean -

Acre-feet -

The period 1960-61:

Max 200

Min 0

Mean -

Acre-feet 1,020

\* Discharge measurement or observation of no flow made on this day.

e Stage-discharge relation indefinite.

Note.--No gage-height record Dec. 1 to Mar. 8.

## SALTON SEA BASIN

10-2560. Whitewater River at White Water, Calif.

Location.--Lat 33°56'48", long 116°38'24", in NW 1/4 NW 1/4 sec. 2, T.3 S., R.3 E., on right bank 1.5 miles north of White Water and 3 1/2 miles upstream from San Geronio River.

Drainage area.--57.4 sq mi.

Records available.--October 1948 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 1,610.98 ft above mean sea level, adjustment of 1934. Prior to Apr. 13, 1960, supplementary water-stage recorder and sharp-crested weir on diversion channel 400 ft west and 500 ft downstream from base gage. Feb. 24, 1950, to Sept. 30, 1952, supplementary gage used as base gage. Since Apr. 13, 1960, supplementary gage 150 ft upstream at datum 5.0 ft higher.

Average discharge.--13 years, 10.5 cfs (7,600 acre-ft per year); average adjusted discharge of river and infiltration line, 12 years (1949-61), 12.3 cfs (8,900 acre-ft per year); median of adjusted yearly mean discharges, 11 cfs (8,000 acre-ft per year).

Extremes.--Maximum discharge during year, 62 cfs Jan. 26 (gage height, 5.34 ft); minimum daily, 1.7 cfs Sept. 22-30.

1948-61: Maximum discharge, about 1,500 cfs Apr. 3, 1958 (gage height, 8.35 ft), from rating curve extended above 680 cfs; no flow Jan. 9, 11, 1957.

Maximum discharge known, 42,000 cfs Mar. 2, 1938, from slope-area measurement of peak flow, at site 2.5 miles upstream (drainage area, 51.4 sq mi).

Remarks.--Records poor. Discharge measurements generally made twice a month. Monthly runoff is adjusted for flow from infiltration line, rising water, open sump and well that bypasses station. Water is diverted out of basin about 15 miles upstream to powerplants in San Geronio River basin and thence to an area north of Banning for irrigation. One small diversion for domestic use and one for irrigation are made 2 to 3 miles upstream.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.5	5.7	4.6	4.0	5.8	4.2	3.2	2.8	4.4	4.2	3.0	2.2
2	7.4	5.7	4.2	5.6	6.0	4.0	3.0	3.0	4.0	4.2	3.0	2.2
3	7.4	5.7	4.6	3.8	5.6	4.8	2.7	3.0	3.8	4.2	2.8	2.2
4	7.4	7.4	4.8	3.8	5.3	5.0	2.4	3.0	3.4	4.2	2.8	2.2
5	7.0	10	4.8	3.8	5.3	5.0	2.4	3.6	4.6	4.0	2.8	2.2
6	7.0	27	4.8	3.8	4.9	5.0	2.4	3.0	4.8	3.8	2.8	2.2
7	7.0	9.1	4.8	3.8	5.0	4.6	2.7	2.7	4.4	3.6	2.8	2.2
8	7.8	6.0	5.8	3.8	4.6	4.4	2.4	3.6	4.2	3.6	2.8	2.2
9	10	5.0	5.3	3.8	4.2	4.2	2.2	3.4	3.8	3.6	2.7	2.2
10	12	5.0	6.0	3.6	4.0	4.4	2.4	3.2	4.0	3.6	2.6	2.2
11	9.9	5.3	5.8	3.6	3.8	4.0	2.2	3.0	3.0	3.4	2.6	2.1
12	9.9	6.9	5.0	3.6	3.8	3.8	2.2	3.6	3.8	3.4	2.6	2.1
13	9.3	11	5.0	3.8	3.4	3.6	2.2	2.8	4.0	3.4	2.6	2.0
14	9.3	12	5.0	3.6	3.4	3.6	2.2	3.0	3.8	3.4	2.6	2.0
15	9.3	11	5.0	3.2	3.4	4.0	2.2	3.0	4.8	3.2	2.6	2.0
16	7.8	8.5	4.8	3.2	3.4	4.4	2.0	3.2	3.0	3.2	2.6	2.0
17	9.9	7.2	4.8	4.0	3.8	4.4	2.6	2.7	2.4	3.2	2.4	1.8
18	9.9	6.6	4.8	4.2	3.4	3.8	3.8	2.6	2.0	3.2	2.4	1.8
19	9.9	6.6	4.2	3.4	3.6	3.6	2.7	3.0	4.2	3.2	2.4	1.8
20	7.0	6.6	4.4	3.2	4.0	3.4	2.7	2.2	4.2	3.2	2.4	1.8
21	6.5	6.3	5.6	3.6	3.8	3.0	3.2	1.7	4.2	3.2	2.4	1.8
22	6.1	6.0	4.4	3.8	3.6	2.8	2.4	5.2	4.2	3.2	2.6	1.7
23	4.7	6.0	4.0	3.8	3.8	2.8	2.2	4.6	4.2	3.2	2.4	1.7
24	7.4	5.0	4.2	3.6	4.4	3.8	3.2	4.2	4.2	3.2	2.4	1.7
25	7.4	4.6	4.4	3.6	4.4	4.2	3.2	4.6	4.2	3.2	2.2	1.7
26	7.0	5.6	4.6	16	4.4	3.8	2.7	4.8	4.2	3.0	2.2	1.7
27	7.4	6.3	4.4	10	4.4	3.4	2.4	4.4	4.2	3.0	2.2	1.7
28	8.3	5.6	4.5	7.2	4.4	3.6	2.4	4.0	4.2	3.0	2.2	1.7
29	7.8	5.0	4.4	7.2	—	3.4	2.2	4.8	4.2	3.0	2.1	1.7
30	6.5	5.0	5.7	6.3	—	3.4	2.2	5.0	4.2	3.0	2.1	1.7
31	8.8	—	4.2	6.0	—	3.4	—	4.6	—	3.0	2.2	—
Total	249.6	223.7	148.9	146.7	119.9	121.8	77.5	107.5	118.6	105.8	78.3	58.5
Mean	8.05	7.46	4.80	4.73	4.28	3.93	2.58	3.47	3.95	3.41	2.53	1.95
Max	12	27	6.0	16	6.0	5.0	3.8	5.2	4.8	4.2	3.0	2.2
Min	4.7	4.6	4.0	3.2	3.4	2.8	2.0	1.7	2.0	3.0	2.1	1.7
Ac-ft	495	444	295	291	238	242	154	213	235	210	155	116
(†)	6.1	11	16	20	25	10	6	6	6	6	6	6
(†)	84	77	77	58	84	92	40	62	32	9	6	5
(††)	28	24	57	44	32	54	237	235	265	297	293	286
(††)	86	90	81	78	75	83	68	62	51	45	49	31
(†††)	613	556	445	413	379	398	437	516	538	522	460	413

Calendar year 1960: Max 40 Min 3.6 Mean 7.35 Ac-ft 5,330 Mean ††† 9.99 Ac-ft ††† 7,230  
 Water year 1960-61: Max 27 Min 1.7 Mean 4.27 Ac-ft 3,090 Mean ††† 7.86 Ac-ft ††† 5,690

Peak discharge (base, 100 cfs).--No peak above base.

† Runoff, in acre-feet, from rising water.

† Runoff, in acre-feet, from infiltration line; furnished by Whitewater Mutual Water Co.

†† Runoff, in acre-feet, pumped from wells in vicinity of gage; furnished by Whitewater Mutual Water Co.

†† Runoff, in acre-feet, diverted from basin 15 miles upstream; furnished by California Electric Power Co.

††† Adjusted for rising water, infiltration line, and pumped water.



10-2565. Snow Creek near White Water, Calif.

Location.--Lat 33°52'10", long 116°40'50", in NW¼ sec.33, T.3 S., R.3 E., on left bank 50 ft upstream from Southern Pacific Railroad diversion dam, 500 ft downstream from unnamed tributary, 2.8 miles upstream from mouth, and 4.5 miles southwest of White Water.

Drainage area.--11.0 sq mi.

Records available.--July to December 1921, May 1922 to February 1927, December 1927 to September 1931, October 1959 to September 1961. Yearly discharge only for 1930, published in WSP 1314.

Gage.--Water-stage recorder and crest-stage gage. Altitude of gage is 2,100 ft (from topographic map). Prior to Dec. 16, 1927, water-stage recorders at sites 50 ft and 150 ft downstream at different datum. Dec. 16, 1927, to Sept. 30, 1931, water-stage recorder at site 500 ft upstream at different datum.

Average discharge.--9 years (1922-26, 1928-31, 1959-61), 6.72 cfs (4,860 acre-ft per year).

Extremes.--Maximum discharge during year, 68 cfs Aug. 22 (gage height, 3.10 ft; minimum daily, 2.1 cfs June 23-27, Sept. 5-11. 1921-31, 1959-61: Maximum discharge not determined; minimum daily, that of June 23-27, Sept. 5-11, 1961.

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

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

1.8	1.8
2.0	4.1
2.2	7.4
2.4	12

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.7	*3.0	3.6	3.0	3.6	3.2	3.6	2.5	2.7	2.3	2.3	2.4
2	2.7	3.0	3.6	3.0	3.6	3.2	3.5	2.5	2.7	2.3	*2.3	2.2
3	2.8	3.0	3.8	3.0	3.6	3.1	3.5	2.6	2.6	2.4	2.4	2.2
4	2.8	3.1	3.8	3.0	3.6	3.1	3.5	*2.6	2.6	2.4	2.5	2.2
5	2.7	3.5	3.7	3.0	3.6	3.1	3.7	2.6	2.5	2.4	2.6	2.1
6	*2.8	10	3.5	3.0	*3.6	3.1	*3.6	2.6	*2.5	*2.4	2.8	2.1
7	2.6	*6.0	3.5	3.0	3.6	3.1	3.6	2.5	2.5	2.4	2.8	2.1
8	2.5	4.7	3.5	3.0	3.6	3.1	3.5	2.4	2.5	2.3	2.5	2.1
9	3.0	4.1	3.5	3.0	3.6	3.1	3.3	2.4	2.5	2.3	2.5	2.1
10	3.8	3.7	3.5	3.1	3.6	3.1	3.3	2.3	2.5	2.2	2.5	2.1
11	3.5	3.6	3.5	3.1	3.6	3.1	3.2	2.3	2.5	2.2	2.4	*2.1
12	3.2	3.5	3.5	*3.1	3.5	3.1	3.1	2.4	2.5	2.2	2.4	2.2
13	3.1	3.3	3.5	3.1	3.3	3.1	*3.2	2.4	2.4	2.3	2.3	2.3
14	3.1	3.2	*3.5	3.1	3.3	3.1	3.2	2.4	2.3	2.3	*2.4	2.5
15	3.0	3.2	3.5	3.1	3.3	3.3	3.1	*2.4	2.3	2.3	2.6	2.5
16	2.8	3.2	3.5	3.1	3.3	3.6	3.1	2.4	2.3	2.3	2.6	2.4
17	2.7	3.1	3.3	3.1	3.3	3.5	3.1	2.5	2.3	2.4	2.5	2.4
18	*2.7	3.1	3.3	3.1	3.3	3.5	3.1	2.6	2.3	2.5	2.4	2.4
19	2.8	3.1	3.3	3.1	3.3	3.5	3.1	2.6	2.2	2.4	2.8	2.4
20	2.8	3.0	3.2	3.2	3.3	3.5	3.1	2.6	2.2	*2.2	2.6	2.5
21	2.7	3.0	3.2	3.2	3.3	3.5	3.1	2.6	2.2	2.2	2.5	2.6
22	2.7	2.8	3.1	3.2	3.2	*3.5	3.1	*2.6	2.2	2.2	*8.2	2.6
23	2.7	2.8	3.1	3.2	3.2	3.5	3.0	2.6	*2.1	2.2	5.8	2.6
24	2.8	2.8	3.1	3.2	3.2	3.3	3.0	2.7	2.1	2.2	3.2	2.7
25	2.8	*2.7	3.1	3.2	3.2	4.1	3.0	2.7	2.1	2.3	2.5	2.8
26	2.8	3.2	3.1	*4.6	3.2	4.0	2.8	2.7	2.1	2.3	2.3	*2.7
27	2.8	4.0	3.1	5.2	*3.2	3.6	2.8	2.7	2.1	2.3	2.3	2.7
28	2.8	3.6	*3.1	4.1	3.2	3.7	2.6	2.8	2.2	2.3	*2.4	2.6
29	2.8	3.5	3.0	3.8	-	4.0	2.6	2.7	2.2	2.4	2.5	2.7
30	2.8	3.5	3.0	3.7	-----	3.7	2.5	2.7	2.3	2.4	2.5	2.7
31	3.0	-----	3.0	3.6	-----	3.7	-----	2.8	-----	2.3	2.5	-----
Total	88.8	108.3	104.0	102.2	95.2	105.1	94.9	79.2	70.5	71.6	86.9	72.0
Mean	2.86	3.61	3.35	3.30	3.40	3.39	3.16	2.55	2.35	2.31	2.80	2.40
Max.	3.8	10	3.8	5.2	3.6	4.1	3.7	2.8	2.7	2.5	8.2	2.8
Min.	2.5	2.7	3.0	3.0	3.2	3.1	2.5	2.3	2.1	2.2	2.3	2.1
Ac-ft	176	215	206	203	189	208	188	157	140	142	172	143

Calendar year 1960: Max 29 Min 2.2 Mean 4.04 Acre-feet 2,940  
 Water year 1960-61: Max 10 Min 2.1 Mean 2.96 Acre-feet 2,140

Peak Discharge (base, 50 cfs).--Aug. 22 (6 p.m.) 68 cfs (3.10 ft).

\* Discharge measurement made on this day.

## SALTON SEA BASIN

10-2580. Tahquitz Creek near Palm Springs, Calif.

Location.--Lat 33°48'18", long 116°33'30", in NE 1/4 SW 1/4 sec. 22, T.4 S., R.4 E., on left bank 2.2 miles southwest of Palm Springs and 7 miles upstream from mouth.

Drainage area.--16.7 sq mi.

Records available.--October 1947 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 764.5 ft above mean sea level (levels by Riverside County Flood Control and Water Conservation District).

Average discharge.--14 years, 2.62 cfs (1,900 acre-ft per year); median of yearly mean discharges, 1.4 cfs (1,000 acre-ft per year).

Extremes.--Maximum discharge during year, 615 cfs Aug. 22 (gage height, 6.50 ft, from floodmark), from rating curve extended above 70 cfs as explained below; no flow for most of year.

1947-61: Maximum discharge, 1,570 cfs Aug. 31, 1954 (gage height, 8.45 ft in gage well, 10.0 ft outside, from floodmarks), from rating curve extended above 70 cfs on basis of slope-area measurement of peak flow; no flow during parts of each year.

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

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

0.5	0	1.0	2.4
.6	.2	1.2	4.5
.7	.5	1.5	8.9
.8	1.0	1.9	17

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0	0.3	0.2	0.1				0	
2		(*)		0	.3	.2	.1				0	
3				0	.3	.2	.1				0	
4				0	.3	.2	.1	(*)			0	
5				* 0	.3	.2	.1				0	
6	(*)			0	* .3	.2	.1		(*)		0	
7				0	.2	* .2	* .1				0	
8		(*)		0	.2	.2	.1				0	
9				0	.2	.2	.1				0	
10				0	.2	.2	.1				0	
11				.1	.2	.2	.1				0	(*)
12				.1	.2	.2	.1				0	
13				.1	.2	.2	* .1				0	
14			(*)	.1	.2	.2	.1				* 0	
15				.1	.2	.2	.1				0	
16				.1	.2	.2	.1				0	
17				.1	.2	.2	.1				0	
18				.1	.2	.2	.1				0	
19				.1	.2	.2	.1				0	
20				.1	.2	.2	0			(*)	0	
21				.1	.2	.2	0				0	
22			(*)	.1	.2	* .1	0				16	
23				.1	* .2	.1	0		(*)		0	
24				.1	.2	.1	0				0	
25		(*)		.1	.2	.1	0				0	
26				.2	.2	.1	0				0	
27				.2	.2	.1	0				0	
28				.2	.2	.1	0				* 0	
29				.2	.2	.1	0				0	
30				.3	.2	.1	0				0	
31				.3	.2	.1	0				0	
Total	0	0	0	2.9	6.2	5.2	1.9	0	0	0	16	0
Mean	0	0	0	0.09	0.22	0.17	0.06	0	0	0	0.52	0
Max.	0	0	0	0.3	0.3	0.2	0.1	0	0	0	16	0
Min.	0	0	0	0	0.2	0.1	0	0	0	0	0	0
Ac-ft	0	0	0	5.8	12	10	3.8	0	0	0	32	0

Calendar year 1960:

Max 3.7

Min 0

Mean 0.64

Acre-feet 465

Water year 1960-61:

Max 16

Min 0

Mean 0.09

Acre-feet 64

Peak discharge (base, 20 cfs).--Aug. 22 (5:30 p.m.) 615 cfs (6.50 ft).

\* Discharge measurement or observation of no flow made on this day.

10-2585. Palm Canyon Creek near Palm Springs, Calif.

Location.--Lat 33°44'55", long 116°32'15", in S $\frac{1}{2}$  sec. 11, T.5 S., R.4 E., on right bank three-quarters of a mile upstream from Murray Canyon Creek and 6 miles south of Palm Springs.

Drainage area.--94.0 sq mi.

Records available.--January 1930 to January 1942, October 1947 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 700 ft (from topographic map). Prior to Jan. 14, 1942, at datum 0.2 ft higher.

Average discharge.--25 years (1930-41, 1947-61), 4.36 cfs (3,160 acre-ft per year); median of yearly mean discharges, 0.9 cfs (650 acre-ft per year).

Extremes.--Maximum discharge during year, 25 cfs Aug. 23 (gage height, 1.98 ft), on basis of field estimate of peak flow; no flow all year except Aug. 23.

1930-42, 1947-61: Maximum discharge, 3,850 cfs Feb. 6, 1937 (gage height, 5.60 ft, datum then in use), from rating curve extended above 120 cfs on basis of velocity-area study; no flow for several months in most years.

Remarks.--Records fair. No regulation or diversion above station. Observation of no flow generally made once a month.

Discharge, in cubic feet per second, water year October 1960 to September 1961.

Aug. 23..... \*2.9

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
August 1961.....	2.9	2.9	0	0.09	5.8
Calendar year 1960.....	-	5.3	0	.16	117
Water year 1960-61.....	-	2.9	0	.008	5.8

Peak discharge (base, 100 cfs).--No peak above base.

\* Discharge measurement made on this day.

Note.--Flow occurred only on day listed above.

## SALTON SEA BASIN

10-2590. Andreas Creek near Palm Springs, Calif.

Location.--Lat 33°45'36", long 116°32'57", in NW<sup>1</sup>SE<sup>1</sup>SE<sup>1</sup> sec.3, T.5 S., R.4 E., on left bank at Bureau of Indian Affairs diversion dam, 1.1 miles above mouth and 5.1 miles south of Palm Springs.

Drainage area.--8.78 sq mi.

Records available.--October 1948 to September 1961.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 800 ft (from topographic map). Prior to Mar. 25, 1949, reference point at same site at different datum.

Average discharge.--13 years, 1.92 cfs (1,390 acre-ft per year); median of yearly mean discharges, 1.4 cfs (1,000 acre-ft per year).

Extremes.--Maximum discharge during year, 28 cfs Aug. 23 (gage height, 2.12 ft); no flow June 27 to July 2, July 20-22.

1948-61: Maximum discharge, 1,960 cfs Aug. 31, 1954 (gage height, 7.11 ft), from rating curve extended above 80 cfs on basis of slope-area measurement of peak flow; no flow at times in June and July 1961.

Remarks.--Records good. One small diversion for domestic use about 1 mile above station.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Mar. 28-30, May 20 to June 6)

1.2	0
1.3	.4
1.4	1.4
1.5	2.9

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.4	* 0.7	0.9	1.1	1.2	1.0	0.8	0.6	0.5	0	0.1	0.4
2	.5	.7	.9	1.1	1.2	1.0	.7	.6	.5	0	* .1	.2
3	.6	.7	.9	1.1	1.1	1.1	.7	.6	.5	.1	.1	.1
4	.6	.7	.9	1.1	1.1	1.1	.6	* .6	.4	.1	.2	.2
5	.6	.9	.9	* 1.1	1.1	1.1	.8	.6	.4	.1	.2	.2
6	* .6	1.1	.9	1.1	* 1.1	1.1	.8	.6	* .4	* .1	.2	.2
7	.6	.9	.9	1.1	1.1	* 1.0	* .8	.6	.4	.1	.2	.2
8	.6	* .9	1.2	1.1	1.1	1.0	.8	.6	.4	.1	.1	.2
9	.6	.9	1.2	1.2	1.1	1.0	.7	.5	.4	.1	.1	.2
10	.6	.9	1.1	1.2	1.1	.9	.7	.5	.4	.1	.2	.2
11	.6	.9	1.1	1.2	1.1	1.0	.7	.5	.3	.1	.2	* .2
12	.6	.9	1.1	1.2	1.0	1.0	.7	.5	.3	.1	.1	.2
13	.6	.9	1.1	1.2	1.0	1.0	* .7	.5	.3	.1	.1	.2
14	.6	.9	* 1.1	1.2	1.0	1.0	.7	.5	.2	.1	* .1	.3
15	.6	.9	1.1	1.2	1.0	1.2	.6	* .4	.2	.1	.2	.3
16	.5	.9	1.1	1.2	1.0	1.1	.6	.4	.2	.1	.3	.3
17	.5	.9	1.1	1.2	1.0	1.1	.6	.4	.2	.1	.2	.3
18	* .6	.9	1.1	1.2	.9	1.0	.6	.4	.1	.1	.2	.3
19	.6	.9	1.1	1.2	.9	1.0	.6	.4	.1	.1	.4	.3
20	.6	.9	1.1	1.2	.9	1.0	.6	.4	.1	* 0	.3	.3
21	.6	.9	1.1	1.2	.9	.9	.7	.4	.1	0	.2	.4
22	.6	.9	1.1	1.2	.9	* .9	.7	.4	.1	0	.4	.4
23	.6	.9	1.1	1.2	* .9	.9	.7	.5	* .1	.1	2.6	.4
24	.6	.9	1.1	1.2	1.0	.9	.7	.5	.1	.1	.8	.4
25	.6	* .9	1.1	1.2	1.0	1.1	.7	.5	.1	.1	.5	.3
26	.6	.9	1.1	2.7	1.0	1.0	.7	.5	.1	.1	.4	* .3
27	.6	1.1	1.1	1.9	1.0	.9	.7	.5	0	.1	.4	.2
28	.6	1.0	1.1	1.5	1.0	1.0	.6	.6	0	.1	* .4	.2
29	.7	1.0	1.1	1.4	-	.8	.6	.6	0	.1	.4	.2
30	.7	1.0	1.1	1.4	-----	.9	.6	.6	0	.2	.4	.2
31	.7	-----	1.1	1.2	-----	.8	-----	.5	-----	.1	.4	-----
Total	18.4	26.9	32.9	39.3	28.7	30.8	20.5	15.8	6.9	2.7	10.5	7.8
Mean	0.59	0.90	1.06	1.27	1.02	0.99	0.68	0.51	0.23	0.09	0.34	0.26
Max.	0.7	1.1	1.2	2.7	1.2	1.2	0.8	0.6	0.5	0.2	2.6	0.4
Min.	0.4	0.7	0.9	1.1	0.9	0.8	0.6	0.4	0	0	0.1	0.1
Ac-ft	36	53	65	78	57	61	41	31	14	5.4	21	15

Calendar year 1960: Max 10 Min 0.3 Mean 1.22 Acre-feet 888  
Water year 1960-61: Max 2.7 Min 0 Mean 0.66 Acre-feet 477

Peak discharge (base, 30 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

## SALTON SEA BASIN

47

10-2595.4. Whitewater River near Mecca, Calif.

Location.--Lat 33°30'39", long 116°03'35", in SW 1/4 SW 1/4 sec. 33, T.7 S., R.9 E., on left bank 0.3 mile upstream from mouth and 4.3 miles south of Mecca.

Records available.--October 1960 to September 1961 in reports of Geological Survey. May 1957 to September 1960 in reports of Coachella Valley County Water District.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Coachella Valley County Water District).

Extremes.--Maximum discharge during year, 113 cfs Aug. 15 (elevation, 232.19 ft below mean sea level); minimum daily, 37 cfs Nov. 25-29.

Remarks.--Records poor. Discharge measurements generally made twice weekly.

Cooperation.--Fifty discharge measurements furnished by Coachella Valley County Water District.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	70	49	40	48	51	67	70	82	80	83	75	80
2	72	48	40	48	52	72	70	84	77	88	80	85
3	69	48	44	47	52	77	70	86	73	91	82	89
4	69	48	44	48	52	76	a 70	80	76	88	82	98
5	61	48	44	50	54	72	a 70	80	70	86	85	98
6	57	60	44	52	57	70	a 70	81	71	84	92	94
7	60	62	45	51	57	64	a 70	80	73	84	81	88
8	58	46	46	52	57	64	a 75	86	71	81	82	88
9	56	46	46	50	57	68	a 75	91	74	80	93	88
10	53	48	47	50	58	70	a 75	94	73	76	88	90
11	54	46	47	50	58	69	76	96	73	84	86	88
12	53	47	48	52	58	68	75	92	74	89	84	90
13	56	47	48	53	58	68	79	92	75	88	84	92
14	54	46	48	53	57	68	80	91	68	90	79	94
15	53	45	46	54	56	72	76	91	68	84	98	94
16	53	44	46	57	57	72	83	92	67	82	94	92
17	50	43	44	56	57	74	88	91	67	81	94	91
18	47	42	44	54	57	74	80	90	69	79	85	92
19	47	42	44	52	55	73	79	91	69	85	86	93
20	48	42	43	50	52	72	79	90	73	92	82	94
21	48	42	44	51	52	74	80	87	73	88	81	92
22	48	41	46	50	53	74	83	89	77	83	92	89
23	48	40	45	50	52	74	82	91	76	74	87	89
24	48	38	45	50	52	75	83	85	67	73	84	89
25	48	37	48	52	64	74	82	88	69	74	83	89
26	48	37	46	52	70	75	82	88	67	76	84	89
27	50	37	48	54	66	76	85	86	65	82	82	88
28	52	37	48	50	65	75	84	86	72	82	84	89
29	46	37	46	53	—	76	84	86	81	87	85	88
30	47	38	46	52	-----	74	82	80	80	82	90	88
31	49	-----	48	51	-----	70	-----	87	-----	83	93	-----
Total	1,672	1,331	1,408	1,592	1,586	2,227	2,337	2,713	2,168	2,579	2,657	2,708
Mean	53.9	44.4	45.4	51.4	56.6	71.8	77.9	87.5	72.3	83.2	85.7	90.3
Max.	72	62	48	57	70	77	88	96	81	92	98	98
Min.	46	37	40	47	51	64	70	80	65	73	75	80
Ac-ft	3,320	2,640	2,790	3,160	3,150	4,420	4,640	5,380	4,300	5,120	5,270	5,370

Calendar year 1960 :

Max

-

Min

-

Mean

-

Acre-feet

-

Water year 1960-61 :

Max

98

Min

37

Mean

68.4

Acre-feet

49,560

a No gage-height record.

## SALTON SEA BASIN

10-2596. Cottonwood Wash near Cottonwood Spring, Calif.

Location.--Lat 33°44'40", long 115°49'35", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.10, T.5 S., R.11 E., on left bank on Cottonwood Spring road, one mile north-west of Cottonwood Spring.

Drainage area.--0.71 sq mi.

Records available.--October 1959 to September 1961.

Gage.--Water-stage recorder, crest-stage gage and tipping-bucket rain gage. Altitude of gage is 3,100 ft (from topographic map).

Extremes.--No flow during year.

1959-61: Maximum discharge, about 1 cfs Sept. 5, 1960 (gage height, 1.33 ft, from crest-stage gage), estimated on basis of velocity-area study; no daily flow for entire period including maximum day, which was less than 0.05 cfs.

Remarks.--No daily flow since Oct. 1, 1959, date station established. Monthly precipitation in inches, water year 1960-61 is as follows: November, 1.2; January, 0.2; August, 0.2; the year, 1.6.

## EMERSON LAKE BASIN

10-2602. Pipes Creek near Yucca Valley, Calif.

Location.--Lat 34°10'20", long 116°32'45", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.15, T.1 N., R.4 E., on left bank 2.8 miles upstream from Antelope Wash and 6.8 miles northwest of Yucca Valley.

Records available.--September 1958 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 4,435.40 ft above mean sea level, datum of 1929.

Remarks.--No flow since station first established Sept. 3, 1958. No regulation or diversion.

## LUCERNE VALLEY

49

10-2604. Cushenbury Creek near Lucerne Valley, Calif.

Location.--Lat 34°21'50", long 116°50'35", in NE¼ sec.14, T.3 N., R.1 E., on right bank 0.3 mile upstream from San Bernardino National Forest boundary and 9 miles southeast of Lucerne Valley.

Drainage area.--6.36 sq mi.

Records available.--August 1957 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 4,750 ft (from topographic map).

Extremes.--Maximum and minimum discharges for the water years 1957-61 are contained in the following table:

Water year	Maximum			Minimum
	Date	Discharge (cfs)	Gage height (feet)	Discharge (cfs)
a1957	-	0	-	0
1958	Apr. 11, 1958	35	1.90	0
1959	-	0	-	0
1960	-	0	-	0
b1961	Aug. 23, 1961	1.2	c 1.20	0

a Period August to September.

b No flow all year including maximum day, which was less than 0.05 cfs.

c From floodmark.

1957-61: Maximum discharge, 35 cfs Apr. 11, 1958 (gage height, 1.90 ft), on basis of area-velocity study; no flow in most years.

Remarks.--Records poor. No regulation or diversion.

Discharge, in cubic feet per second, period August 1957 to September 1961

Mar. 21, 1958.....	0.5	Apr. 4.....	0.1	Apr. 13.....	0.1
22 .....	.4	11.....	2.2	14.....	.1
Apr. 2 .....	.2	12.....	2.6	15.....	.1

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
March 1958.....	0.9	0.5	0	0.03	1.8
April.....	5.4	2.6	0	.18	11
Water year 1957-58.....	-	2.6	0	.02	13
Calendar year 1958.....	-	2.6	0	.02	13
Water year 1958-59.....	-	0	0	0	0
Calendar year 1959.....	-	0	0	0	0
Water year 1959-60.....	-	0	0	0	0
Calendar year 1960.....	-	0	0	0	0
Water year 1960-61.....	-	0	0	0	0

Note.--Flow occurred only on days listed above.

## MOJAVE RIVER BASIN

10-2605. Deep Creek near Hesperia, Calif.

Location.--Lat 34°20'30", long 117°13'40", in SE $\frac{1}{4}$  sec. 18, T.3 N., R.3 W., on right bank 0.5 mile upstream from confluence with West Fork Mojave River and 7 miles southeast of Hesperia.

Drainage area.--137 sq mi.

Records available.--October 1904 to September 1922, October 1929 to September 1961. Monthly discharge only for October 1904 to September 1922, published in WSP 1314. Combined creek and canal, October 1950 to September 1961.

Gage.--Water-stage recorder and broad-crested weir. Altitude of gage is 3,050 ft (from topographic map). Prior to Sept. 30, 1922, staff gage and water-stage recorder at same site at different datum. December 1929 to Apr. 20, 1938, at same site at different datum. Apr. 21 to Dec. 10, 1938, at site 0.25 mile downstream at different datum.

Average discharge.--50 years (1904-22, 1929-61), 68.3 cfs (49,450 acre-ft per year); median of yearly mean discharges, 48 cfs (34,800 acre-ft per year). Average combined discharge of creek and canal, 11 years (1950-61), 38.5 cfs (27,870 acre-ft per year); median of yearly mean combined discharges, 22 cfs (15,900 acre-ft per year).

Extremes.--Maximum discharge during year, 1,580 cfs Aug. 4 (gage height, 3.97 ft); no flow July 17, 18.

1904-22, 1929-61: Maximum discharge, 46,600 cfs Mar. 2, 1938, by slope-area measurement of peak flow; no flow July 17, 18, 1961.

Remarks.--Records good. Discharge measurements generally made twice a month. Slight regulation by Lake Arrowhead (capacity, 48,000 acre-ft), used principally for recreation. Hesperia Water Co.'s canal diverts water about 2 $\frac{1}{2}$  miles above station for irrigation of about 1,500 acres and domestic use below station. No diversion during year.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Feb. 9-26, Mar. 21-25, Aug. 29 to Sept. 30)

0.57	0	0.9	2.0	1.6	16
.6	.1	1.0	3.4	1.8	30
.7	.4	1.2	7.3	2.1	76
.8	1.0	1.4	9.6	2.4	166

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.9	2.6	7.3	7.9	11	7.1	9.6	5.1	3.9	0.2	0.1	0.9
2	.9	2.7	7.7	7.9	10	7.1	9.4	5.1	3.5	.2	.1	.8
3	.9	2.8	19	7.9	9.9	7.3	9.1	5.1	3.7	.2	.2	.7
4	1.0	3.5	16	7.7	9.6	7.3	8.1	5.1	3.2	.2	133	.2
5	1.2	17	10	7.9	9.5	7.5	7.3	5.1	3.1	.2	16	.3
6	1.3	96	9.4	7.3	9.5	7.7	6.9	5.1	2.8	.2	6.4	.5
7	1.2	72	8.3	7.5	9.4	7.7	6.9	5.1	2.8	.2	1.9	.5
8	1.3	27	8.9	7.7	9.3	7.7	6.9	5.1	2.6	.2	1.0	.6
9	1.9	19	8.1	7.3	9.3	7.7	6.2	4.9	2.0	.2	.7	.5
10	4.2	13	8.9	7.3	8.7	7.7	6.4	4.8	2.0	.1	.6	.6
11	5.1	10	8.3	7.1	8.5	7.9	6.2	4.8	1.9	.1	.6	.8
12	4.1	9.7	8.5	7.1	8.5	7.9	6.0	4.6	1.7	.1	.6	.4
13	3.4	15	8.1	7.1	8.5	8.1	6.2	4.8	1.5	.1	.4	.7
14	3.0	13	8.3	6.6	8.1	8.1	6.2	4.9	1.4	.1	.4	.4
15	2.7	9.5	8.3	6.6	7.7	8.3	6.0	4.9	1.2	.1	.5	.7
16	2.6	8.7	8.3	6.6	7.3	10	6.0	4.6	1.0	.1	.6	.6
17	2.4	7.9	8.1	6.6	7.3	9.7	5.6	4.4	1.0	0	.5	.6
18	2.3	7.5	8.1	6.4	7.7	9.5	5.3	4.4	.8	0	.5	.6
19	2.3	7.1	7.7	6.4	7.5	9.1	5.6	4.4	.7	.1	1.5	.7
20	2.4	6.9	7.5	6.6	7.5	8.7	5.3	4.2	.6	.1	3.5	.2
21	2.4	6.6	7.5	6.6	7.7	8.5	5.6	4.2	.5	.1	1.5	.6
22	2.3	6.6	7.7	6.6	7.7	8.5	5.6	4.1	.5	.1	1.6	.7
23	2.4	6.6	7.7	6.4	7.3	8.3	5.8	3.9	.5	.1	1.2	.8
24	2.3	6.4	7.7	6.6	7.5	8.1	6.4	3.9	.5	.1	1.0	.7
25	2.3	6.2	7.9	6.6	7.5	9.3	6.2	3.7	.5	.1	1.0	.7
26	2.3	6.6	8.1	12	7.5	11	6.0	3.9	.5	.2	1.0	.8
27	2.3	9.4	7.7	34	7.6	9.9	5.8	3.9	.5	.2	.8	.8
28	2.3	9.1	7.7	21	7.3	11	5.8	3.9	.4	.2	1.0	1.0
29	2.3	7.7	7.5	17	-	11	5.3	3.5	.3	.2	1.0	1.1
30	2.4	7.3	7.7	14	-----	11	5.1	3.5	.2	.1	1.0	1.1
31	2.4	-----	7.9	12	-----	9.7	-----	3.7	-----	.1	1.0	-----
Total	70.8	423.4	269.9	286.3	234.9	268.4	192.8	138.7	45.8	4.2	181.2	19.6
Mean	2.28	14.1	8.71	9.24	8.39	8.66	6.43	4.47	1.53	0.14	5.85	0.65
Max.	5.1	96	19	34	11	11	9.6	5.1	3.9	0.2	133	1.1
Min.	0.9	2.6	7.3	6.4	7.3	7.1	5.1	3.5	0.2	0	0.1	0.2
Ac-ft	140	840	535	568	466	532	382	275	91	8.3	359	39

Calendar year 1960:

Max 96

Min 0.2

Mean 12.5

Acre-feet 9,270

Water year 1960-61:

Max 133

Min 0

Mean 5.85

Acre-feet 4,240

Peak discharge (base, 400 cfs).--Aug. 4 (6:30 p.m.) 1,580 cfs (3.97 ft).

Note.--No diversion by Hesperia Water Co.'s canal during water year; therefore, there is no need to publish a table of combined flows of creek and canal.



## MOJAVE RIVER BASIN

51

10-2610. West Fork Mojave River near Hesperia, Calif.

Location.--Lat 34°20'27", long 117°14'24", in SW<sup>1</sup><sub>4</sub>SW<sup>1</sup><sub>4</sub> sec.18, T.3 N., R.4 W., on left bank at highway bridge, 0.5 mile upstream from confluence with Deep Creek and 6.5 miles southeast of Hesperia.

Drainage area.--74.8 sq mi.

Records available.--October 1904 to September 1922, October 1929 to September 1961. Prior to February 1930, monthly discharge only, published in WSP 1314.

Gage.--Water-stage recorder. Altitude of gage is 3,050 ft (from topographic map). Prior to June 30, 1922, staff gage and water-stage recorder several hundred feet downstream at different datum.

Average discharge.--50 years, 40.5 cfs (29,320 acre-ft per year); median of yearly mean discharges, 23 cfs (16,700 acre-ft per year).

Extremes.--Maximum discharge during year, 296 cfs Nov. 6 (gage height, 2.88 ft); no flow for most of year.

1904-22, 1929-61: Maximum discharge, 26,100 cfs Mar. 2, 1938, on basis of slope-area measurement of peak flow; no flow for several months in each year.

Remarks.--Records fair. Water diverted from Lake Gregory above station for domestic use and fire protection. One small diversion for irrigation above station.

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0		0	(*)			(*)			0	
2	0	0		0							0	
3	0	0		0							0	
4	* 0	2		0			(*)				* 19	
5	0	20		0							.5	
6	0	44		0							0	
7	0	.5		0							0	
8	0	* .1		0							* 0	
9	* 9.8	* 0		0		(*)					0	
10	2	0		0							0	
11	0	0		* 0							0	
12	0	0		0							0	
13	0	0		.1							0	
14	0	0		0							0	
15	0	* 0	(*)	0							0	
16	0	0		0							0	
17	* 0	0		0			(*)				0	
18	0	0		0				(*)			0	
19	0	0		0							0	
20	0	0		0	(*)				(*)		0	
21	0	0		0							0	
22	0	0		0							0	
23	0	0		0		(*)					0	
24	0	0		0							0	
25	0	0		* 0							0	(*)
26	0	0		* 11							0	
27	0	0		* 13							0	
28	0	* 0		3.0							0	
29	0	0		1.4							0	
30	0	0		.2							* 0	
31	0			.1						(*)	0	
Total	11.8	64.8	0	28.8	0	0	0	0	0	0	19.5	0
Mean	0.38	2.16	0	0.93	0	0	0	0	0	0	0.63	0
Max.	9.8	44	0	13	0	0	0	0	0	0	19	0
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	23	129	0	57	0	0	0	0	0	0	39	0
Calendar year 1960:				Max 44	Min 0	Mean 0.31	Acre-feet 226					
Water year 1960-61:				Max 44	Min 0	Mean 0.34	Acre-feet 248					

Peak discharge (base, 500 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

## MOJAVE RIVER BASIN

10-2615. Mojave River at lower narrows, near Victorville, Calif.

Location.--Lat 34°34'22", long 117°19'08", in SW 1/4 sec. 29, T.6 N., R.4 W., on left bank 1,000 ft upstream from bridge on county road, formerly U. S. Highway 66, 2,500 ft downstream from Atchison, Topeka and Santa Fe Railway bridge, and 3 miles northwest of Victorville.

Drainage area.--530 sq mi.

Records available.--February 1899 to September 1906, October 1930 to September 1961. Monthly discharge only for some periods, published in WSP 1314. Prior to October 1936, published as "at Victorville" and as "near Victorville" in 1937.

Gage.--Water-stage recorder. Altitude of gage is 2,650 ft (from topographic map). Prior to Aug. 1, 1906, staff gage and Nov. 12, 1930, to Dec. 8, 1936, water-stage recorder, at site 3.8 miles upstream at different datum. Dec. 9, 1936, to Mar. 28, 1938, water-stage recorder at present site at datum 2.00 ft higher.

Average discharge.--38 years (1899-1906, 1930-61), 75.5 cfs (54,660 acre-ft per year); median of yearly mean discharges, 42 cfs (30,400 acre-ft per year).

Extremes.--Maximum discharge during year, 2,200 cfs Aug. 23 (gage height, 5.24 ft), from rating curve extended above 40 cfs on basis of slope-area measurement of peak flow; minimum daily, 8.7 cfs Sept. 13.  
1930-61: Maximum discharge, 70,600 cfs Mar. 2, 1938 (gage height, 18.7 ft, present datum), from rating curve extended above 10,000 cfs on basis of slope-area measurement of peak flow; minimum daily, 6 cfs Aug. 19, 21, 26, 1951.

Remarks.--Records good. Discharge measurements generally made twice a month. Periodic regulation by Lake Arrowhead (capacity, 48,000 acre-ft, used principally for recreation). Diversions and pumping for irrigation of about 5,000 acres above station.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	25	36	35	37	35	24	21	18	12	13	15
2	13	25	38	35	41	35	26	25	18	11	15	15
3	13	25	38	35	41	35	29	29	16	10	15	14
4	14	31	38	36	39	35	31	26	15	12	17	14
5	15	31	38	36	39	35	27	23	15	12	54	14
6	15	43	38	37	42	34	25	22	15	12	39	14
7	15	199	38	37	42	33	23	21	15	12	26	14
8	15	44	36	37	41	34	24	19	16	10	18	13
9	18	29	36	39	36	35	24	18	16	10	15	14
10	20	27	37	42	35	35	24	18	16	12	15	13
11	22	27	41	41	37	32	24	20	15	12	15	13
12	22	27	43	41	41	27	23	23	14	12	15	13
13	22	27	42	49	41	26	21	26	14	12	15	8.7
14	22	29	42	44	39	24	24	29	14	12	14	20
15	18	29	42	39	39	23	25	25	14	12	14	12
16	18	29	42	37	40	23	27	23	14	12	14	11
17	18	29	40	39	41	23	25	21	14	12	14	12
18	18	29	39	46	38	23	24	20	14	12	16	15
19	18	29	36	46	38	24	25	18	13	13	21	14
20	20	23	34	48	38	26	30	18	13	14	26	14
21	20	22	32	47	36	30	30	15	12	14	30	15
22	20	24	31	44	35	30	29	15	12	14	34	16
23	20	26	27	44	35	29	29	15	12	14	284	17
24	20	29	25	41	34	29	30	15	12	14	a 50	18
25	20	29	28	41	35	29	30	16	12	14	a 25	20
26	22	30	30	41	35	30	29	16	12	14	a 15	20
27	25	32	34	43	35	30	27	16	12	14	a 15	20
28	22	29	34	43	35	29	24	16	12	13	a 15	19
29	20	31	33	43	-	25	19	16	12	13	a 15	19
30	20	34	32	41	-	24	18	17	12	13	15	20
31	25	-	33	38	-	24	-	18	-	13	15	-
Total	543	1,043	1,113	1,265	1,065	906	770	620	419	386	904	456.7
Mean	18.8	34.8	35.9	40.8	38.0	29.2	25.7	20.0	14.0	12.5	29.2	15.2
Max.	25	199	43	49	42	35	31	29	18	14	284	20
Min.	13	22	25	35	34	23	18	15	12	10	13	8.7
Ac-ft	1,160	2,070	2,210	2,510	2,110	1,800	1,530	1,230	831	766	1,790	906

Calendar year 1960: Max 199 Min 8.8 Mean 25.8 Acre-feet 18,720  
Water year 1960-61: Max 284 Min 8.7 Mean 26.1 Acre-feet 18,910

Peak discharge (base, 200 cfs).--Nov. 7 (7 a.m.) 298 cfs (2.24 ft); Aug. 23 (2 p.m.) 2,200 cfs (5.24 ft).

a No gage-height record.

## 10-2618. Beacon Creek at Helendale, Calif.

Location.--Lat  $34^{\circ}45'00''$ , long  $117^{\circ}18'53''$ , in SE $\frac{1}{4}$  sec.29, T.8 N., R.4 W., on county road (formerly U.S. Highway 66 and 91), 0.6 mile northeast of Helendale.

Drainage area.--0.72 sq mi.

Records available.--Water years 1958-60 (annual maximum), October 1960 to September 1961.

Gage.--Water-stage recorder, crest-stage gage, and tipping-bucket rain gage. Altitude of gage is 2,470 ft (from topographic map). Jan. 13, 1959, to Sept. 30, 1960, crest-stage gage at same site and datum.

Extremes.--Maximum discharge during year, 0.1 cfs Nov. 6 (gage height, 10.53 ft, from crest-stage gage), on basis of field estimate of peak flow; no flow all year including maximum day, which was less than 0.05 cfs.

1958-61: Maximum discharge, 28 cfs Sept. 13, 1959 (gage height, 13.12 ft, from crest-stage gage), by indirect measurement of peak flow through culvert; no flow at times in each year.

Remarks.--No daily flow since Oct. 1, 1960, date of establishment. No regulation or diversion. Monthly precipitation, in inches, is as follows: November, 0.1; March, 0.1; August, 0.7; the year, 0.9.

## 10-2625. Mojave River at Barstow, Calif.

Location.--Lat  $34^{\circ}54'25''$ , long  $117^{\circ}01'20''$ , in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.31, T.10 N., R.1 W., on left bank 75 ft upstream from bridge on U. S. Highway 91 at Barstow.

Records available.--October 1930 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 2,090 ft (from topographic map).

Average discharge.--31 years, 25.6 cfs (18,530 acre-ft per year); median of yearly mean discharges, zero cfs.

Extremes.--No flow during year.

1930-61: Maximum discharge, 64,300 cfs Mar. 3, 1938 (gage height, 8.60 ft), by slope-area measurement of peak flow; no flow for several months in each year.

Remarks.--No flow since Oct. 24, 1958. Observations of no flow generally made once a month. Slight regulation by Lake Arrowhead (capacity, 48,000 acre-ft, used principally for recreation). Diversions and pumping for irrigation of about 15,000 acres above station.

## MOJAVE RIVER BASIN

10-2630. Mojave River at Afton, Calif.

Location.--Lat 35°02'15", long 116°23'00", in SE $\frac{1}{4}$  sec.18, T.11 N., R.6 E., on downstream end of right pier of Union Pacific Railroad bridge, 0.3 mile west of Afton.

Records available.--October 1929 to September 1932, October 1952 to September 1961. Records for the water year 1930 incomplete, yearly estimate published in WSP 1314.

Gage.--Water-stage recorder. Datum of gage is 1,400.15 ft above mean sea level, datum of 1929, supplementary adjustment of 1943. Dec. 21, 1929, to Sept. 30, 1932, water-stage recorder at site 1.7 miles downstream at different datum.

Average discharge.--12 years, 2.22 cfs (1,610 acre-ft per year); median of yearly mean discharges, 1.3 cfs (940 acre-ft per year).

Extremes.--Maximum discharge during year, 74 cfs Aug. 11 (gage height, 3.59 ft); no flow June 29-30, July 14-29.

1929-32, 1952-61: Maximum discharge, 3,550 cfs Feb. 10, 1932 (gage height, 4.70 ft, site and datum then in use); no flow June 29-30, July 14-29, 1961.

Remarks.--Records good. Natural flow affected by ground-water withdrawals, diversions, municipal use, and storage in two small reservoirs.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.6	0.8	1.2	1.3	* 1.3	1.5	1.3	0.6	0.4	0.1	0.1	0.4
2	.6	.8	1.2	1.3	1.3	1.5	1.3	.8	.5	.2	.2	.2
3	* .6	.8	1.2	1.5	1.3	1.5	1.2	.7	.6	.3	.3	.2
4	.6	.9	1.2	1.5	1.3	1.5	1.3	.8	.5	.4	.4	.3
5	2.8	1.1	1.2	1.5	1.3	1.5	* 1.1	.8	* .4	.4	.4	* .3
6	.8	1.5	1.2	1.6	1.3	1.2	1.1	.8	.3	.4	.3	.3
7	.6	1.2	* 1.2	1.6	1.3	1.3	1.1	.9	.3	.3	.3	.3
8	.6	1.1	1.5	1.6	1.2	1.3	1.2	.9	.3	.3	.2	.3
9	4.5	1.1	1.3	1.6	1.2	* 1.5	1.1	1.1	.3	.2	.2	.3
10	8.3	1.1	1.2	1.6	1.2	1.5	1.1	.8	.3	.1	.2	.3
11	1.1	1.1	1.2	1.6	1.2	1.5	1.1	.7	.3	.1	* 20	.3
12	.9	1.1	1.2	* 1.2	1.2	1.5	1.1	.6	.3	.1	.6	.3
13	.9	1.1	1.2	1.2	1.2	1.5	1.1	.9	.3	.1	.2	.3
14	.8	1.1	1.2	1.2	1.3	1.5	1.1	.9	.3	0	.2	.3
15	.8	1.1	1.2	1.2	1.3	1.2	.9	.8	.3	0	.2	.3
16	.8	* 1.1	1.3	1.1	1.3	1.2	1.1	.8	.3	0	* .3	.3
17	.8	1.1	1.3	1.2	1.3	1.1	.9	.8	.3	* 0	.3	.3
18	.8	1.1	1.3	1.2	1.3	1.3	.9	* .8	.2	0	.3	.3
19	.8	1.1	1.3	1.2	1.5	1.3	.9	.7	.2	0	.5	.4
20	.8	1.1	1.3	1.2	1.5	1.3	.9	.8	* .1	0	.6	* .4
21	.8	1.1	1.3	1.2	1.5	1.3	.9	.6	.1	0	.6	.4
22	.8	1.1	1.3	1.2	1.3	1.3	1.1	.6	.2	0	.6	.4
23	.8	1.1	1.3	1.2	* 1.3	1.2	1.1	.6	.2	0	.6	.4
24	.8	1.1	1.3	1.2	1.3	1.2	* 1.1	.6	.1	0	1.1	.5
25	* .8	1.1	1.3	1.2	1.3	1.1	1.1	.5	.1	0	.9	.5
26	.8	1.2	1.3	1.5	1.3	1.1	.9	.4	.1	0	.6	.5
27	.8	1.2	1.3	1.5	1.3	1.1	1.1	.4	.1	0	.6	.5
28	.9	1.2	1.3	1.5	1.5	1.5	.9	.5	0	0	.5	.5
29	.9	1.2	1.3	1.5	-	1.3	.8	.5	0	0	.6	.4
30	.9	1.2	1.3	1.3	-	1.3	.7	.5	.1	.1	.6	.5
31	.8	-	1.3	1.3	-	1.3	-	.4	-	.1	.5	-
Total	37.6	32.9	39.2	42.0	36.6	41.4	31.3	21.8	7.5	3.2	33.0	10.7
Mean	1.21	1.10	1.26	1.35	1.31	1.34	1.04	0.70	0.25	0.10	1.06	0.36
Max.	8.3	1.5	1.5	1.6	1.5	1.5	1.3	1.1	0.6	0.4	20	0.5
Min.	0.6	0.8	1.2	1.1	1.2	1.1	0.7	0.4	0	0	0.1	0.2
Ac-ft	75	65	78	83	73	82	62	43	15	6.3	65	21

Calendar year 1960 : Max 26 Min 0.1 Mean 0.99 Acre-feet 718  
 Water year 1960-61 : Max 20 Min 0 Mean 0.92 Acre-feet 668

Peak discharge (base, 100 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

10-2635. Big Rock Creek near Valyermo, Calif.

Location (revised).--Lat 34°25'15", long 117°50'19", in NW 1/4 SE 1/4 NE 1/4 sec. 20, T.4 N., R.9 W., on left bank 0.1 mile upstream from Punchbowl Canyon and 1.9 miles southeast of Valyermo.

Drainage area.--23.0 sq mi.

Records available.--January 1923 to September 1961. Monthly discharge only for some periods, published in WSP 1314. Prior to October 1954, published as Rock Creek near Valyermo.

Gage.--Water-stage recorder. Altitude of gage is 4,050 ft (from topographic map). Prior to May 4, 1938, at same site at different datums. May 4, 1938, to Jan. 26, 1939, at site 0.2 mile downstream (below Punchbowl Canyon) at different datum.

Average discharge.--38 years, 15.3 cfs (11,080 acre-ft per year); median of yearly mean discharges, 8.5 cfs (6,200 acre-ft per year).

Extremes.--Maximum discharge during year, 34 cfs Nov. 5 (gage height, 2.32 ft); minimum daily, 0.9 cfs Aug. 14-18, Sept. 5, 6.

1923-61: Maximum discharge, 8,300 cfs Mar. 2, 1938, on basis of slope-area measurement of peak flow; minimum daily, 0.7 cfs Nov. 5, 1951.

Remarks.--Records good. Discharge measurements made three or more times a month. There is evidence of appreciable infiltration into the stream bed in the immediate vicinity of station.

Cooperation.--Thirty discharge measurements furnished by Los Angeles County Flood Control District.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Jan. 16 to Feb. 3, Feb. 24 to May 31)

1.6	0.6	2.0	8.8
1.7	1.6	2.1	13
1.8	3.2	2.3	26
1.9	5.6		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.6	1.7	2.6	3.4	3.8	3.6	3.2	2.6	2.0	1.3	1.1	1.0
2	1.6	1.8	2.8	3.4	3.6	3.6	3.0	2.6	2.0	1.3	1.2	1.0
3	1.4	2.6	2.8	3.4	3.6	3.6	3.0	2.6	2.0	1.3	1.2	1.0
4	1.3	2.5	2.8	3.4	3.4	3.6	3.0	2.6	2.0	1.3	1.2	1.0
5	1.4	7.2	2.8	3.2	3.4	3.4	3.0	2.6	2.0	1.3	1.2	.9
6	1.4	2.0	2.8	3.2	3.4	3.4	3.0	2.6	2.0	1.3	1.1	.9
7	1.3	1.2	3.0	3.2	3.2	3.4	3.0	2.6	1.8	1.3	1.1	1.0
8	1.4	5.9	3.0	3.2	3.2	3.4	3.0	2.6	1.8	1.2	1.0	1.0
9	1.6	4.3	3.2	3.2	3.2	3.4	3.0	2.6	1.8	1.1	1.0	1.0
10	1.7	4.3	3.2	3.2	3.2	3.2	3.0	2.6	1.8	1.1	1.0	1.0
11	1.7	4.1	3.0	3.2	3.2	3.2	3.0	2.6	1.8	1.1	1.0	1.0
12	1.7	3.8	3.0	3.2	3.2	3.2	3.0	2.6	1.8	1.1	1.0	1.0
13	1.6	3.6	3.0	3.2	3.2	3.2	3.0	2.6	1.7	1.1	1.0	1.0
14	1.6	3.4	3.0	3.4	3.2	3.2	3.0	2.6	1.7	1.1	.9	1.0
15	1.6	3.4	3.0	3.4	3.2	3.4	3.0	2.6	1.7	1.1	.9	1.0
16	1.4	3.2	3.0	3.4	3.2	3.2	3.0	2.6	1.7	1.1	.9	1.0
17	1.6	3.0	3.0	3.4	3.2	3.2	2.8	2.6	1.6	1.1	.9	1.1
18	1.6	2.8	3.0	3.4	3.2	3.2	2.8	2.6	1.6	1.1	.9	1.1
19	1.6	2.6	3.0	3.4	3.4	3.2	2.8	2.6	1.4	1.1	1.0	1.1
20	1.4	2.5	3.0	3.4	3.4	3.2	3.0	2.6	1.4	1.1	1.0	1.1
21	1.4	2.3	3.0	3.2	3.4	3.2	3.0	2.6	1.4	1.1	2.6	1.0
22	1.4	2.2	3.0	3.2	3.4	3.2	3.0	2.5	1.3	1.1	1.2	1.0
23	1.4	2.2	3.2	3.2	3.4	3.2	3.0	2.5	1.2	1.1	1.2	1.0
24	1.4	2.2	3.2	3.2	3.6	3.2	3.2	2.5	1.2	1.1	1.1	1.0
25	1.6	2.2	3.2	3.2	3.6	3.2	3.2	2.3	1.2	1.1	1.0	1.0
26	1.6	2.5	3.4	4.1	3.6	3.2	3.0	2.3	1.2	1.1	1.0	1.0
27	1.6	2.5	3.4	3.8	3.6	3.2	2.8	2.3	1.2	1.1	1.0	1.0
28	1.6	2.3	3.4	3.6	3.6	3.4	2.8	2.2	1.3	1.1	1.0	1.0
29	1.6	2.2	3.6	3.8	-	3.2	2.6	2.2	1.3	1.1	1.0	1.0
30	1.7	2.3	3.6	3.8	-	3.2	2.6	2.2	1.3	1.1	1.0	1.0
31	1.7	-	3.4	3.8	-	3.2	-	2.2	-	1.1	-	-
Total	47.5	117.6	95.4	105.1	94.6	102.2	88.8	77.8	48.2	35.6	33.7	30.2
Mean	1.53	3.92	3.08	3.39	3.38	3.30	2.96	2.51	1.61	1.15	1.09	1.01
Max.	1.7	20	3.6	4.1	3.8	3.6	3.2	2.6	2.0	1.3	2.6	1.1
Min.	1.3	1.7	2.6	3.2	3.2	3.2	2.6	2.2	1.2	1.1	0.9	0.9
Ac-ft	94	233	189	208	188	203	176	154	96	71	67	60

Calendar year 1960: Max 20 Min 1.3 Mean 3.03 Acre-feet 2,200  
Water year 1960-61: Max 20 Min 0.9 Mean 2.40 Acre-feet 1,740

Peak discharge (base, 50 cfs).--No peak above base.

## ANTELOPE VALLEY

10-2639. Buckhorn Creek near Valyermo, Calif.

Location.--Lat 34°20'35", long 117°55'13", in SW $\frac{1}{4}$  sec.15, T.3 N., R.10 W., on right bank at culvert on State Highway 2, 8.1 miles southwest of Valyermo.

Drainage area.--0.48 sq mi.

Records available.--October 1960 to September 1961.

Gage.--Water-stage recorder, crest-stage gage and tipping-bucket rain gage. Altitude of gage is 6,720 ft (from topographic map).

Extremes.--1960-61: Maximum discharge during year, 9.0 cfs Nov. 6 (gage height, 1.91 ft, from crest-stage gage), by indirect measurement of peak flow through culvert; no flow all year except Nov. 6.

Remarks.--Records poor. Flow of spring above station diverted to Ranger Station for domestic use. Monthly precipitation, in inches, is as follows: November, 8.0; December, 0.7; January, 3.8; March, 0.8; April, 0.2; August, 0.6; the year, 14.1.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Nov. 6..... \*a1

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
November 1960.....	1	1	0	0.03	2.0
Calendar year 1960.....	-	-	-	-	-
Water year 1960-61.....	-	1	0	.003	2.0

\* Discharge measurement made on this day.

a No gage-height record.

Note.--Flow occurred only on day listed above.

Location.--Lat 34°27'50", long 118°01'05", in SW 1/4 sec. 3, T.4 N., R.11 W., on right bank 0.3 mile upstream from Santiago Creek, 1.65 miles upstream from Little Rock Palmdale Irrigation District's dam, and 5 miles south of Little Rock.

Records available.--October 1930 to February 1938, May to September 1938, April 1939 to September 1961.

Average discharge.--29 years (1930-37, 1939-61), 16.2 cfs (11,730 acre-ft per year); median of yearly mean discharges, 8.0 cfs (5,800 acre-ft per year).

Extremes.--Maximum discharge during year, 36 cfs Nov. 6 (gage height, 4.49 ft); no flow Oct. 1 to Nov. 5, June 20 to Sept. 30. 1930-61: Maximum discharge, 17,000 cfs (estimated) Mar. 2, 1938; no flow for periods in most years.

Cooperation.--Records furnished by Los Angeles County Flood Control District and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	3.2	2.5	4.9	2.6	2.8	1.1	0.4			
2		0	4.2	2.5	4.9	2.5	2.8	1.0	.4			
3		0	6.8	2.5	4.7	2.5	2.8	1.0	.4			
4		0	5.6	2.5	4.7	2.6	2.8	1.0	.4			
5		0	4.7	2.5	4.5	2.8	2.5	1.0	.4			
6		2.5	4.3	2.5	4.5	2.8	2.3	1.0	.2			
7		1.9	3.8	2.5	4.5	3.0	2.3	1.0	.2			
8		1.1	3.8	2.5	4.3	3.0	2.2	1.0	.2			
9		7.5	3.8	2.5	4.1	3.0	2.2	1.0	.2			
10		6.1	3.6	2.5	3.9	3.0	2.2	.9	.2			
11		4.9	3.4	2.5	3.8	2.8	2.0	.8	.2			
12		4.3	3.4	2.5	3.8	2.6	2.0	.8	.2			
13		7.4	3.4	2.5	3.6	2.5	1.9	.8	.2			
14		6.5	3.4	2.5	3.6	2.5	1.9	.8	.2			
15		5.6	3.2	2.5	3.4	2.8	1.6	.8	.1			
16		4.7	3.2	2.5	3.4	3.0	1.6	.8	.1			
17		4.5	3.2	2.5	3.4	2.8	1.6	.8	.1			
18		3.8	3.2	2.5	3.4	2.6	1.6	.8	.1			
19		3.8	3.1	2.5	3.2	2.5	1.4	.6	.1			
20		3.4	3.1	2.5	3.2	2.3	1.6	.6	0			
21		3.4	3.0	2.3	3.2	2.3	1.7	.6	0			
22		3.2	3.0	2.3	3.2	2.3	1.9	.6	0			
23		3.2	3.0	2.3	3.2	2.3	2.2	.6	0			
24		3.0	2.8	2.3	3.0	2.3	2.3	.6	0			
25		3.0	2.6	2.5	3.0	2.3	2.3	.5	0			
26		3.0	2.5	7.5	2.8	2.5	2.2	.5	0			
27		4.1	2.5	18	2.8	2.5	2.0	.5	0			
28		3.6	2.5	1.1	2.6	3.0	1.6	.5	0			
29		3.6	2.5	8.6	-	3.4	1.1	.5	0			
30		3.4	2.5	7.2	-	3.0	1.1	.5	0			
31		-	2.5	6.1	-	2.8	-	.5	-			
Total	0	151.0	105.8	120.1	103.6	82.9	60.5	23.5	4.3	0	0	0
Mean	0	5.03	3.41	3.87	3.70	2.67	2.02	0.76	0.14	0	0	0
Max.	0	25	6.8	18	4.9	3.4	2.8	1.1	0.4	0	0	0
Min.	0	0	2.5	2.3	2.6	2.3	1.1	0.5	0	0	0	0
Ac-ft	0	300	210	238	205	164	120	47	8.5	0	0	0
Calendar year 1960:			Max	25	Min	0	Mean	2.95	Acre-feet	2,140		
Water year 1960-61:			Max	25	Min	0	Mean	1.79	Acre-feet	1,290		

10-2646. Oak Creek near Mojave, Calif.

Location.--Lat 35°03'00", long 118°21'25", in NW<sup>1</sup>/<sub>4</sub> sec.15, T.11 N., R.14 W., on upstream right wing wall of culvert, 100 ft downstream from unnamed tributary, 0.1 mile west of junction of Oak Creek and Willow Springs Roads and 10.5 miles west of Mojave.

Drainage area.--15.8 sq mi.

Records available.--August 1957 to September 1961.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 4,100 ft (from topographic map).

Extremes.--Maximum discharge during year, 3.0 cfs Aug. 23 (gage height, 0.98 ft); no flow Oct. 1 to Jan. 2, June 13 to Aug. 22, Aug. 24 to Sept. 30.

1957-61: Maximum discharge, 22 cfs Apr. 18, 1958 (gage height, 1.51 ft); no flow for some months in each year.

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

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0	0.2	0.2	0.2	0.1	0.1		0	
2				0	.2	.2	.2	.1	.1		0	
3	(*)			.1	.2	.2	.2	.1	.1		0	
4				.1	.2	.2	.2	.1	.1	(*)	0	
5				.1	.2	.2	.2	.1	*.1		0	
6				.1	.2	.2	.2	.1	.1		0	
7				.1	.2	.2	.2	.1	.1		0	
8				.1	.2	.2	.2	.1	.1		* 0	
9				.1	.2	.2	.2	*.1	.1		0	
10				.1	.2	.2	*.2	.1	.1		0	
11				.1	.2	.2	.2	.1	.1		0	
12				.1	.2	*.2	.2	.1	.1		0	
13				.1	.2	.2	.2	.1	0		0	
14				.1	*.2	.2	.2	.1	0		0	
15				.1	.2	*.2	.2	.1	0		0	
16		(*)		.1	.2	.2	.1	.1	0		0	
17				*.1	.2	.2	.1	.1	0		0	
18				.1	.2	.2	.1	.1	0		0	
19				.1	.2	.2	.2	.1	0		0	
20				.1	.2	.2	.2	.1	0		0	
21				.1	.2	.2	.2	.1	0	(*)	0	
22				.1	.2	.2	.2	.1	0		0	(*)
23				.1	.2	.2	.2	.1	0		.1	
24				.1	.2	.2	.2	*.1	0		* 0	
25	(*)			.1	.2	.2	*.2	.1	0		0	
26				.3	*.2	.2	.1	.1	0		0	
27				.2	.2	.2	.1	.1	0		0	
28		(*)		.2	.2	.2	.1	.1	0		0	
29			(*)	*.2	-	*.2	.1	.1	0		0	
30				.2	-	.2	.1	.1	0		0	
31				.2	-	.2	-	.1	0		0	
Total	0	0	0	3.6	5.6	6.2	5.2	3.1	1.2	0	0.1	0
Mean	0	0	0	0.12	0.20	0.20	0.17	0.10	0.04	0	0.003	0
Max.	0	0	0	0.3	-	-	0.2	-	0.1	0	0.1	0
Min.	0	0	0	0	-	-	0.1	-	0	0	0	0
Ac-ft	0	0	0	7.1	11	12	10	6.1	2.4	0	0.2	0

Calendar year 1960 : Max 1.6 Min 0 Mean 0.16 Acre-feet 118

Water year 1960-61 : Max 0.3 Min 0 Mean 0.07 Acre-feet 49

Peak discharge (base, 10 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.



ANTELOPE VALLEY

59

10-2647.5. Pine Tree Creek near Mojave, Calif.

Location.--Lat 35°13'50", long 118°05'05", in SE<sup>1</sup>/<sub>4</sub> sec.14, T.31 S., R.36 E., on downstream side of city of Los Angeles aqueduct-siphon pier, near right bank 0.5 mile downstream from unnamed tributary, and 13 miles northeast of Mojave.

Drainage area.--33.5 sq mi.

Records available.--July 1958 to September 1961.

Gage.--Water-stage recorder and crest-stage gage. Altitude of gage is 2,700 ft (from topographic map).

Extremes.--Maximum and minimum discharges for the water years 1958-61 are contained in the following table:

Water year	Maximum			Minimum
	Date	Discharge (cfs)	Gage height (feet)	Discharge (cfs)
a1958	-	0	-	0
1959	July 30, 1959	7.6	1.97	0
1960	Dec. 24, 1959	6.9	1.95	0
1961	Aug. 23, 1961	b30,000	-	0

a Period July to September.

b About.

1958-61: Maximum discharge, about 30,000 cfs Aug. 23, 1961, on basis of field estimate of peak flow; no flow for most of each year.

Remarks.--Records poor. No regulation or diversion.

Discharge, in cubic feet per second, period July 1958 to September 1961							
Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1959		1960-Con.		1960-Con.		1960-Con.	
Jan. 6	** 0.3	Jan. 30	0.6	Feb. 8	0.6	Feb. 25	0.4
July 30	** .3	Jan. 31	.6	Feb. 9	.6	Feb. 26	.4
31	.6	Feb. 1	.8	10	.6	27	.3
Dec. 24	.3	2	.8	11	.3	Mar. 2	.2
		3	.8	13	.1		
1960		4	.4	19	.3	1961	
Jan. 27	.3	5	.6	21	.1	Aug. 10	a 25
28	.4	6	.3	22	.1	23	**a 750
29	.6	7	.4				

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
January 1959.....	0.3	0.3	0	0.01	0.6
July.....	.9	.6	0	.03	1.8
Water year 1958-59.....	-	.6	0	.003	2.4
Calendar year 1959.....	-	.6	0	.004	3.0
December 1959.....	.3	.3	0	.01	.6
January 1960.....	2.5	.6	0	.08	5.0
February.....	7.9	.8	0	.27	16
March.....	.2	.2	0	.006	.4
Water year 1959-60.....	-	.8	0	.03	22
Calendar year 1960.....	-	.8	0	.03	21
August 1961.....	775	750	0	25.0	1,540
Water year 1960-61.....	-	750	0	2.12	1,540

\*\* Field estimate made on this day.

a No gage-height record.

Note.--Flow occurred only on days listed above.

## OWENS LAKE BASIN

10-2652. Convict Creek near Mammoth Lakes, Calif.

Location.--Lat 37°36'30", long 118°50'55", in NE¼ sec. 14, T.4 S., R.28 E., on right bank 1.1 miles downstream from Convict Lake, 2.0 miles upstream from U. S. Highway 395, and 7.0 miles southeast of Mammoth Lakes (Ranger Station).

Drainage area.--18.7 sq mi.

Records available.--July 1925 to September 1961. Monthly discharge only prior to October 1959 published in WSP 1314 and 1734.

Gage.--Water-stage recorder and wooden retaining walls and control. Altitude of gage is 7,450 ft (from topographic map). Prior to Nov. 15, 1926, staff gage at same site and datum.

Average discharge.--36 years, 23.2 cfs (16,800 acre-ft per year).

Extremes.--Maximum discharge during year, 25 cfs Oct. 26; minimum daily, 2.4 cfs Oct. 8.

1925-61: Maximum discharge, 290 cfs June 29, 1932 (gage height, 4.43 ft); minimum daily, 1.3 cfs Jan. 10, 1951.

Remarks.--No diversion; some regulation by Convict Lake above station.

Cooperation.--Records furnished by city of Los Angeles, Department of Water and Power, and reviewed by Geological Survey; furnished figures rounded by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.7	10	8.0	5.5	5.8	3.9	4.2	6.6	26	27	18	11
2	6.7	9.3	10	5.5	5.8	4.3	4.2	6.6	25	27	18	10
3	6.2	8.4	9.3	5.5	5.4	3.9	4.2	7.0	24	25	17	9.7
4	5.8	8.9	8.9	5.5	5.4	4.3	4.7	7.4	23	25	17	10
5	5.8	9.3	8.4	5.5	5.4	4.3	4.7	7.8	23	24	16	10
6	6.2	9.8	8.4	5.5	5.4	4.7	4.7	8.2	21	24	16	10
7	2.8	9.3	8.4	5.5	5.4	4.7	5.0	8.6	22	23	16	10
8	2.4	8.4	8.4	5.5	5.4	4.7	5.0	8.6	26	22	15	11
9	2.8	8.4	8.4	5.5	5.4	5.0	5.3	8.9	30	22	15	10
10	3.1	8.9	8.4	5.3	5.4	3.1	5.6	8.1	34	21	15	9.7
11	3.5	8.4	8.0	5.3	5.4	4.3	5.6	7.5	36	21	15	9.2
12	3.1	9.3	8.0	5.3	5.4	4.7	6.4	7.5	37	20	16	9.2
13	3.9	10	8.0	5.3	5.4	4.3	5.9	8.1	37	20	17	9.7
14	4.7	9.8	8.0	5.3	5.4	4.7	5.9	9.4	38	20	19	12
15	4.7	8.4	7.6	5.3	5.0	5.0	6.2	10	39	19	19	11
16	4.7	8.4	7.1	5.3	4.7	5.0	6.2	10	40	19	19	9.7
17	5.0	8.4	7.1	4.9	5.0	5.4	6.4	11	40	18	19	9.7
18	5.8	8.9	7.1	4.9	5.0	5.4	6.7	11	40	18	18	9.2
19	5.8	8.4	6.7	4.9	5.0	5.4	6.2	12	42	18	18	8.4
20	5.8	8.4	6.7	4.9	5.0	5.8	5.3	14	42	18	18	8.4
21	5.8	8.4	6.7	4.9	5.0	5.0	5.9	15	41	17	18	8.4
22	6.2	8.4	6.7	4.9	5.0	5.0	6.4	17	41	17	15	8.1
23	6.2	8.4	6.7	4.9	4.7	5.4	6.7	17	40	17	11	8.1
24	5.0	8.4	6.7	4.9	4.7	5.4	7.0	19	39	16	9.7	8.1
25	4.7	8.4	6.7	4.9	5.0	5.4	7.0	21	38	16	8.6	8.1
26	15	8.0	6.7	5.5	3.9	5.8	7.4	22	36	16	8.3	8.1
27	20	7.6	6.2	5.5	3.5	5.8	7.8	22	34	16	12	8.1
28	17	7.1	6.2	5.5	3.9	4.3	7.8	23	29	17	14	8.1
29	14	7.1	6.2	5.5	-	4.3	7.4	23	28	19	14	8.1
30	13	7.1	6.2	5.5	-	4.3	6.6	23	27	19	14	7.7
31	12	-	6.2	5.3	-	4.7	-	24	-	18	13	-
Total	214.4	258.0	232.1	163.5	141.8	148.3	178.4	404.3	998	619	478.6	278.8
Mean	6.92	8.60	7.49	5.27	5.06	4.78	5.95	13.0	33.3	20.0	15.4	9.29
Max.	20	10	10	5.5	5.8	5.8	7.8	24	42	27	19	12
Min.	2.4	7.1	6.2	4.9	3.5	3.1	4.2	6.6	21	16	8.3	7.7
Ac-ft	425	512	460	324	281	294	354	802	1,980	1,230	949	553
Calendar year 1960:			Max 42	Min 2.4	Mean 12.0	Acre-feet 8,680						
Water year 1960-61:			Max 42	Min 2.4	Mean 11.3	Acre-feet 8,160						

10-2657. Rock Creek at Little Round Valley, near Bishop, Calif.

Location.--Lat 37°32'50", long 118°41'15", T.5 S., R.30 E., on right bank just upstream from diversion to Little Round Valley, 1.1 miles south of Toms Place and 20.5 miles northwest of Bishop, Mono County.

Drainage area.--35.8 sq mi.

Records available.--January to December 1918, January 1920 to September 1961. Monthly discharge only prior to October 1959 published in WSP 1314 and 1734.

Gage.--Water-stage recorder and 6-foot Parshall flume. Altitude of gage is 7,450 ft (from topographic map). Prior to May 24, 1926, staff gage at different datums. May 24 to Sept. 23, 1926, water-stage recorder at two different datums. Sept. 24, 1926, to Sept. 10, 1936, water-stage recorder at same site at datum 1.30 ft lower.

Average discharge.--41 years (1920-61), 30.1 cfs (21,790 acre-ft per year).

Extremes.--Maximum discharge during year, 58 cfs June 20; minimum daily, 7.7 cfs Nov. 27.

1918-61: Maximum discharge, 270 cfs July 26, 1952 (gage height, 2.93 ft); minimum daily, 3.2 cfs Mar. 11, 1926.

Remarks.--No regulation or diversion above station.

Cooperation.--Records furnished by city of Los Angeles, Department of Water and Power, and reviewed by Geological Survey; furnished figures rounded by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.5	7.9	9.5	8.2	9.0	8.7	11	14	31	29	16	16
2	8.5	7.9	9.2	8.7	9.0	8.7	12	14	30	27	15	14
3	8.5	8.5	9.0	8.7	9.0	8.7	14	15	28	26	15	13
4	8.2	9.5	11	8.5	9.0	8.5	15	15	26	25	15	12
5	8.2	9.8	12	8.5	8.7	8.5	14	15	26	24	17	11
6	8.2	10	8.7	8.5	8.7	8.2	14	15	26	24	21	11
7	8.2	10	12	8.2	8.7	11	14	16	29	23	23	11
8	8.2	10	12	7.9	8.5	10	13	16	34	21	35	10
9	8.5	9.8	10	7.9	8.7	8.5	13	16	42	21	33	9.8
10	8.7	9.5	10	7.9	9.0	8.5	13	15	43	20	29	9.8
11	9.0	9.2	9.5	7.9	9.2	8.5	13	15	43	19	28	9.5
12	9.0	9.0	9.2	8.2	9.0	8.5	13	15	42	20	28	9.2
13	9.0	11	9.0	7.9	9.0	8.7	13	15	42	21	29	9.0
14	9.0	10	9.0	8.2	8.5	9.2	12	15	44	20	28	8.7
15	9.0	10	8.7	8.2	8.7	9.0	13	15	46	20	25	8.5
16	9.0	9.8	8.7	8.2	8.5	8.5	14	15	49	20	22	8.5
17	9.0	9.5	9.0	8.2	8.2	9.0	15	15	51	20	20	8.5
18	9.0	9.8	9.0	8.5	9.8	8.7	15	16	54	19	18	8.5
19	9.0	9.2	8.7	8.5	11	8.5	14	17	56	19	18	8.5
20	9.0	9.8	8.5	8.5	8.7	8.7	14	18	57	19	19	8.5
21	9.0	9.8	8.5	8.7	9.0	9.0	13	18	56	19	18	8.5
22	8.7	9.5	8.7	8.7	8.7	9.8	13	19	55	19	18	8.2
23	8.7	9.5	8.7	9.0	8.7	10	13	19	54	19	20	8.2
24	8.5	9.5	8.7	9.0	8.7	9.2	14	21	50	18	22	8.2
25	8.5	9.5	8.5	8.2	8.7	9	14	22	48	19	22	8.2
26	8.5	9.5	8.5	8.5	8.7	8.7	13	24	45	19	22	7.9
27	8.5	7.7	8.5	8.5	9.0	8.7	12	27	40	19	21	7.9
28	8.2	11	8.2	8.7	8.7	8.7	13	31	37	18	21	8.5
29	8.2	12	9.8	8.7	-	9.8	13	37	35	17	20	8.2
30	8.2	12	8.7	9.0	-	9.9	13	35	33	16	19	7.9
31	7.9	-	8.5	9.0	-	10	-	33	-	16	17	-
Total	2 666.6	2 902.2	2 888.0	2 611.3	2 491.1	2 799.4	4 000	5 930	12 520	6 360	6 740	2 866.7
Mean	8.60	9.67	9.29	8.43	8.90	9.01	13.3	19.1	41.7	20.5	21.7	9.56
Max.	9.0	12	12	9.0	11	11	15	37	57	29	35	16
Min.	7.9	7.7	8.2	7.9	8.2	8.2	11	14	26	16	15	7.9
Ac-ft	529	576	571	518	494	554	793	1,180	2,480	1,260	1,340	569
Calendar year 1960 ;												
				Max	55	Min	7.7	Mean	15.5	Acre-feet	11,230	
Water year 1960-61 ;				Max	57	Min	7.7	Mean	15.0	Acre-feet	10,860	



10-2687. Silver Canyon Creek near Laws, Calif.

Location---Lat 37°24'15", long 118°18'30", in NW<sup>1</sup><sub>4</sub> sec.25, T.6 S., R.33 E., on right bank at mouth of canyon, 2.0 miles east of Laws.Drainage area---22.4 sq mi.Records available---March 1930 to September 1961. Monthly discharge only prior to October 1959 published in WSP 1314 and 1734.Gage---Water-stage recorder and 1-foot Parshall flume. Altitude of gage is 4,600 ft (from topographic map). Prior to Feb. 24, 1943, staff gage and 2-foot Cippoletti weir at site 1½ miles downstream at different datum.Average discharge---31 years, 1.52 cfs (1,100 acre-ft per year).Extremes---Maximum discharge during year, 2.2 cfs Nov. 5; minimum daily discharge, 1.5 cfs for many days.

1930-61: Maximum discharge, 8.4 cfs Oct. 19, 1958; no flow at times in some years.

Remarks---Occasional diversion above gage.Cooperation---Records furnished by city of Los Angeles, Department of Water and Power, and reviewed by Geological Survey; furnished figures rounded by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.6	1.5	1.6
2	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.6	1.5	1.6
3	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.6	1.5	1.6
4	1.7	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.6	1.5	1.6
5	1.7	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.6	1.6	1.6
6	1.7	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.6	1.5	1.6
7	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.6	1.5	1.6
8	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.6	1.5	1.6
9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.6	1.6
10	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.6	1.6
11	1.8	1.8	1.7	1.8	1.8	1.8	1.8	1.8	1.7	1.6	1.6	1.6
12	1.8	1.8	1.7	1.8	1.8	1.8	1.8	1.8	1.7	1.6	1.5	1.6
13	1.8	1.8	1.7	1.8	1.8	1.8	1.8	1.8	1.7	1.6	1.5	1.6
14	1.8	1.8	1.7	1.8	1.8	1.8	1.8	1.8	1.7	1.6	1.5	1.6
15	1.8	1.8	1.7	1.8	1.8	1.8	1.8	1.8	1.7	1.6	1.5	1.5
16	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.6	1.5	1.5
17	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.6	1.5	1.5
18	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.6	1.5	1.5
19	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.6	1.5	1.5
20	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.5	1.6	1.5
21	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.5	1.6	1.5
22	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.5	1.6	1.5
23	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.5	1.6	1.5
24	1.8	1.8	1.8	1.8	1.8	1.7	1.8	1.8	1.7	1.5	1.6	1.5
25	1.8	1.8	1.8	1.8	1.8	1.7	1.8	1.8	1.7	1.5	1.6	1.5
26	1.8	1.8	1.8	1.8	1.8	1.7	1.8	1.8	1.7	1.5	1.6	1.6
27	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.5	1.6	1.6
28	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.5	1.6	1.6
29	1.8	1.8	1.8	1.8	-	1.8	1.8	1.8	1.7	1.5	1.6	1.6
30	1.8	1.8	1.8	1.8	-	1.8	1.8	1.8	1.6	1.5	1.6	1.6
31	1.8	-	1.8	1.8	-	1.8	-	1.8	-	1.5	1.6	-
Total	55.0	54.3	55.3	55.8	50.4	55.3	54.0	55.8	51.7	48.4	47.9	46.9
Mean	1.77	1.81	1.78	1.80	1.80	1.78	1.80	1.80	1.72	1.56	1.55	1.56
Max.	1.8	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.6	1.6	1.6
Min.	1.7	1.8	1.7	1.8	1.8	1.6	1.8	1.8	1.6	1.5	1.5	1.5
Ac-ft	109	108	110	111	100	110	107	111	103	96	95	93
Calendar year 1960:												
				Max	2.0	Min	1.6	Mean	1.82	Acre-feet	1,320	
Water year 1960-61:				Max	1.9	Min	1.5	Mean	1.73	Acre-feet	1,250	

## OWENS LAKE BASIN

10-2760. Big Pine Creek near Big Pine, Calif.

Location.--Lat 37°08'40", long 118°18'55", in NW $\frac{1}{4}$  sec. 25, T.9 S., R.33 E., on left bank 0.3 mile downstream from Little Pine Creek, 0.5 mile downstream from powerhouse No. 3, and 2.2 miles southwest of Big Pine.

Drainage area.--39.0 sq mi.

Records available.--November 1907 to February 1911, January 1920 to September 1961. Monthly discharge only for some periods, published in WSP 1314 and 1734.

Gage.--Water-stage recorder and 6-foot Parshall flume. Altitude of gage is 4,550 ft (from topographic map). Prior to January 1923, staff gage at same site and datum.

Average combined discharge.--31 years (1930-61), 40.5 cfs (29,320 acre-ft per year), including diversion to upper and lower Giroux ditches.

Extremes.--Maximum discharge during year, 108 cfs Aug. 22; minimum daily, 9.2 cfs Jan. 29 to Feb. 10, Feb. 27, Mar. 11.

1907-11, 1920-61: Maximum discharge, 458 cfs July 3, 1932 (gage height, 6.55 ft); no flow (channel only) Dec. 3-12, 1935, caused by diversion of total flow into Giroux ditches.

Remarks.--Diversions for power and irrigation above station. Records prior to June 1930 do not include diversions to Giroux ditches. For records of combined discharge of Big Pine Creek and Giroux ditches, see following page.

Cooperation.--Records furnished by city of Los Angeles, Department of Water and Power, and reviewed by Geological Survey; furnished figures rounded by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16	15	16	12	9.2	9.8	11	15	23	49	55	36
2	15	15	16	11	9.2	9.8	11	15	21	50	53	36
3	15	19	16	13	9.2	9.8	13	16	21	56	52	34
4	15	19	15	12	9.2	9.8	15	16	23	56	53	33
5	17	21	14	12	9.2	9.8	15	16	34	52	54	32
6	19	20	15	12	9.2	9.8	14	15	46	47	65	32
7	19	19	13	11	9.2	9.8	14	15	50	47	58	30
8	16	19	14	11	9.2	9.8	13	15	59	48	54	27
9	15	18	15	11	9.2	9.8	13	16	59	52	54	25
10	15	17	14	11	9.2	9.5	12	16	56	58	52	21
11	15	17	14	11	9.5	9.2	13	16	59	63	81	17
12	15	18	14	11	9.5	9.5	13	15	61	60	68	17
13	14	18	13	10	9.5	9.8	13	15	63	55	59	21
14	14	17	14	10	9.5	9.8	13	16	66	61	54	21
15	15	17	13	9.8	9.5	9.8	13	16	66	62	49	22
16	16	17	13	9.5	9.8	10	14	18	68	62	44	23
17	16	17	13	9.5	9.5	9.8	14	21	71	63	44	21
18	15	17	13	9.5	9.5	9.8	15	23	73	62	43	19
19	15	17	13	9.5	9.5	9.8	14	25	71	60	51	17
20	15	17	12	9.5	9.8	9.8	15	22	70	61	60	16
21	15	16	13	9.5	9.8	9.8	15	28	71	59	63	17
22	15	16	13	9.8	9.8	10	15	32	74	58	92	17
23	15	16	12	9.5	9.8	10	14	35	86	61	89	17
24	15	16	12	9.5	9.5	10	14	38	89	63	80	17
25	15	16	12	9.8	9.5	10	14	40	84	56	68	17
26	14	16	12	10	9.5	10	14	40	71	58	55	17
27	15	15	12	9.8	9.2	9.8	13	37	78	61	46	18
28	15	16	12	9.5	9.5	9.8	13	41	71	65	44	18
29	15	15	13	9.2	-	9.8	13	35	58	66	44	17
30	15	15	12	9.2	-----	10	13	27	50	60	42	16
31	15	-----	12	9.2	-----	10	-----	25	-----	56	37	-----
Total	476	511	415	320.3	264.2	304.2	406	720	1792	1787	1763	671
Mean	15.4	17.0	13.4	10.3	9.44	9.81	13.5	23.2	59.7	57.6	56.9	22.4
Max.	19	21	16	13	9.8	10	15	41	89	66	92	36
Min.	14	15	12	9.2	9.2	9.2	11	15	21	47	37	16
Ac-ft	944	1,010	823	635	524	603	805	1,430	3,550	3,540	3,500	1,330
Calendar year 1960:				Max 72	Min 8.7	Mean 23.9			Acre-feet 17,330			
Water year 1960-61:				Max 92	Min 9.2	Mean 25.8			Acre-feet 18,690			

## 10-2760. Big Pine Creek near Big Pine, Calif.--Continued.

Combined discharge, in cubic feet per second, of Big Pine Creek and upper and lower Giroux ditches,  
near Big Pine, Calif., water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	22	19	18	14	11	12	13	17	28	57	63	40
2	22	19	18	13	11	12	13	17	26	58	61	40
3	22	21	18	15	11	12	15	18	26	64	60	38
4	22	20	17	14	11	12	17	18	28	64	61	36
5	24	23	16	14	11	12	17	18	39	60	62	35
6	27	22	17	14	11	12	16	17	51	55	73	36
7	26	21	15	13	11	12	16	17	55	55	66	34
8	23	21	16	13	11	12	15	17	63	56	62	31
9	22	20	17	13	11	12	15	18	64	60	62	29
10	22	19	16	13	11	11	14	18	61	66	60	27
11	22	19	16	13	11	11	15	18	64	70	89	26
12	22	20	16	13	11	11	15	17	66	68	76	26
13	21	20	15	12	11	12	15	17	68	62	67	26
14	21	19	16	12	11	12	15	18	71	68	62	24
15	21	19	15	12	11	12	15	18	70	70	57	25
16	21	19	15	11	12	12	16	20	72	70	52	26
17	21	19	15	11	11	12	16	23	75	70	52	24
18	20	19	15	11	11	12	17	25	78	70	51	22
19	20	19	15	11	11	12	16	27	75	68	59	20
20	20	19	14	11	12	12	17	24	77	68	68	19
21	20	18	15	11	12	12	17	30	79	66	71	20
22	20	18	15	12	12	12	17	34	82	66	100	20
23	20	18	14	11	12	12	16	37	94	68	97	20
24	20	18	14	11	11	12	16	40	97	70	88	20
25	20	18	14	12	11	12	16	44	92	64	76	20
26	19	18	14	12	11	12	16	44	79	66	63	20
27	19	17	14	12	11	12	15	42	86	69	54	21
28	19	18	14	11	11	12	15	46	79	73	49	21
29	19	17	15	11	-	12	15	40	66	74	48	20
30	19	17	14	11	-----	12	15	32	58	68	46	19
31	19	-----	14	11	-----	12	-----	30	-----	64	41	-----
Total	6 55	5 74	4 77	3 78	3 13	3 69	4 66	8 01	1 969	2 027	1 996	7 85
Mean	21.1	19.1	15.4	12.2	11.2	11.9	15.5	25.8	65.6	65.4	64.4	26.2
Max.	27	23	18	15	12	12	17	46	97	74	100	40
Min.	19	17	14	11	11	11	13	17	26	55	41	19
Ac-ft	1,300	1,140	946	750	621	732	924	1,590	3,910	4,020	3,960	1,560
Calendar year 1960:				Max 76	Min 10				Mean 28.0			
Water year 1960-61:				Max 100	Min 11				Mean 29.6			
										Acre-feet 20,350		
										Acre-feet 21,450		

## OWENS LAKE BASIN

10-2775. Owens River near Big Pine, Calif.

Location.--Lat 37°00'55", long 118°13'30", in SE $\frac{1}{4}$  sec. 2, T.11 S., R.34 E., on left bank 0.1 mile downstream from Little Seeley Spring, 0.15 mile downstream from Charlies Butte, and 10.8 miles southeast of Big Pine.

Drainage area.--1,930 sq mi, approximately.

Records available.--January 1906 to September 1961. Monthly discharge only for some periods published in WSP 1314. Published as "near Tinemaha" prior to 1912.

Gage.--Water-stage recorder with artificial rock control. Altitude of gage is 3,800 ft (from topographic map). Prior to Oct. 8, 1922, staff gage at same site and datum.

Average discharge.--55 years, 367 cfs (265,700 acre-ft per year).

Extremes.--Maximum discharge during year, 590 cfs Aug. 25; minimum daily, 26 cfs Mar. 19.

1906-61: Maximum discharge, about 3,220 cfs Jan. 26, 1914 (gage height, 11.2 ft), from rating curve extended above 1,100 cfs; no flow Jan. 9-13, 21-26, 1937.

Remarks.--Diversion above station from both main stream and tributaries. Flow regulated by Sabrina Reservoir and South Lake since 1911 (combined capacity, 20,900 acre-ft), Tinemaha Reservoir since 1929 (capacity, 16,600 acre-ft), Lake Crowley since 1941 (capacity, 183,500 acre-ft), and Pleasant Valley Reservoir since 1955 (capacity, 3,900 acre-ft). Water imported from Mono Lake basin since 1941 for diversion to Los Angeles aqueduct which diverts 4 miles downstream.

Cooperation.--Records furnished by city of Los Angeles, Department of Water and Power, and reviewed by Geological Survey; furnished figures rounded by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	370	235	401	400	393	327	507	369	399	397	452	535
2	372	321	401	398	391	330	544	368	412	394	446	539
3	371	369	402	394	375	332	550	372	407	391	449	536
4	365	405	400	391	366	327	582	373	395	402	446	539
5	370	429	399	396	361	174	579	370	398	404	446	541
6	364	459	398	393	361	170	576	375	408	390	453	439
7	265	459	397	374	364	168	576	378	419	387	457	309
8	234	437	398	373	364	167	578	376	425	382	466	523
9	230	425	399	371	373	165	446	376	445	382	459	525
10	233	430	400	371	375	162	323	374	450	383	470	526
11	221	432	400	377	378	162	313	373	446	389	497	525
12	238	433	400	378	378	197	312	378	453	394	539	525
13	238	444	395	380	376	270	314	381	453	386	556	521
14	221	443	395	380	373	272	313	376	445	419	550	519
15	221	441	395	380	351	272	313	375	445	452	547	517
16	223	443	395	374	341	267	317	376	450	464	538	516
17	211	441	395	374	357	148	313	372	452	465	532	375
18	224	442	395	386	357	28	313	366	453	472	527	144
19	227	440	393	387	354	26	306	387	465	472	517	208
20	224	441	374	386	352	28	299	391	461	443	527	257
21	227	446	380	393	347	28	307	395	443	425	547	256
22	227	445	414	390	347	126	312	395	420	439	557	302
23	230	444	422	385	338	222	317	399	432	446	574	486
24	230	421	420	386	332	225	323	403	438	446	587	490
25	227	412	414	393	338	225	326	407	484	446	584	490
26	227	406	414	403	344	225	358	411	484	445	484	493
27	228	411	425	415	329	226	381	408	453	452	498	494
28	228	410	422	408	326	267	384	406	446	481	502	498
29	230	410	417	386	-	376	382	407	450	485	502	499
30	231	412	414	385	-	375	376	412	407	482	512	498
31	230	-	412	381	-	396	-	407	-	467	538	-
Total	7,937	12,586	12,486	11,988	10,041	6,683	11,840	11,956	13,138	13,282	15,759	13,625
Mean	256	420	403	387	359	216	395	386	438	428	508	454
Max.	372	459	425	415	393	396	582	412	484	485	587	541
Min.	211	235	374	371	326	26	299	366	395	382	446	144
Ac-ft	15,740	24,960	24,770	23,780	19,920	13,260	23,480	23,710	26,060	26,340	31,260	27,020
Calendar year 1960 :			Max	537	Min	211	Mean	429	Acre-feet	311,600		
Water year 1960-61 :			Max	587	Min	26	Mean	387	Acre-feet	280,300		



10-2818. Independence Creek below Pinyon Creek, near Independence, Calif.

Location.--Lat  $36^{\circ}46'45''$ , long  $118^{\circ}15'45''$ , in NE $\frac{1}{4}$  sec.27, T.13 S., R.34 E., on right bank 0.2 mile downstream from Pinyon Creek and 4.0 miles southwest of Independence.

Drainage area.--18.2 sq mi.

Records available.--January 1923 to September 1961. Prior to October 1959, monthly discharge only published in WSP 1734.

Gage.--Water-stage recorder and Parshall flume. Altitude of gage is 5,300 ft (from topographic map). Prior to Sept. 12, 1934, water-stage recorder, Sept. 12, 1934, to Dec. 13, 1936, water-stage recorder and Cippoletti weir (removed during high water), at same site and datum.

Average discharge.--38 years, 12.5 cfs (9,050 acre-ft per year).

Extremes.--Maximum discharge during year, 17 cfs June 19, 20; minimum daily, 1.6 cfs Feb. 18.

1923-61: Maximum daily discharge, 106 cfs June 16, 1941; minimum daily, 0.7 cfs Jan. 25, 1926, Dec. 15, 1935.

Remarks.--No regulation or diversion.

Cooperation.--Records furnished by city of Los Angeles, Department of Water and Power, and reviewed by Geological Survey; furnished figures rounded by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.8	1.8	3.0	2.6	2.1	2.0	2.0	4.7	9.1	10	3.9	4.9
2	1.8	1.8	3.2	2.6	2.1	2.0	2.1	5.4	8.5	9.7	3.9	4.9
3	1.8	2.5	2.8	3.0	2.0	2.0	1.9	5.9	8.1	10	3.6	4.9
4	1.8	2.4	3.0	2.7	2.0	2.0	2.2	6.2	7.9	9.7	3.6	4.7
5	1.8	4.1	2.8	2.4	2.0	2.0	2.4	6.2	8.1	8.9	4.1	4.5
6	2.3	4.4	2.1	2.5	2.0	2.0	2.6	6.2	8.9	8.5	4.4	4.4
7	2.2	3.7	3.0	2.5	2.0	2.0	2.8	6.2	9.7	7.9	4.1	4.2
8	2.2	3.6	3.9	2.6	2.0	2.1	2.8	5.9	11	7.5	3.9	4.1
9	2.6	3.5	3.0	2.5	2.0	2.0	3.0	6.0	12	7.3	3.6	3.9
10	2.6	3.6	3.0	2.3	2.0	2.0	3.0	6.2	13	7.0	3.9	3.9
11	2.8	3.4	2.8	2.2	2.0	1.9	3.0	6.6	13	6.8	5.5	3.6
12	2.6	3.6	2.8	2.2	2.0	1.9	3.2	6.8	13	6.8	5.4	3.6
13	2.5	3.6	2.8	2.2	1.9	1.8	3.3	6.6	13	6.6	5.4	3.3
14	2.4	3.2	2.8	2.1	2.0	1.8	3.7	6.4	14	6.6	5.0	3.3
15	2.2	3.2	2.8	2.1	1.9	1.9	3.7	6.4	14	6.2	4.9	3.2
16	2.3	3.2	2.8	2.0	1.9	1.9	3.9	6.8	15	6.2	4.7	3.2
17	2.3	3.0	2.8	1.9	1.7	2.1	4.2	7.3	15	5.7	4.4	3.3
18	2.2	3.0	2.8	1.9	1.6	2.0	5.3	7.7	16	5.5	4.2	3.3
19	2.2	3.0	2.6	1.9	1.8	2.1	5.1	7.9	17	5.5	4.9	3.5
20	2.0	3.0	2.6	2.0	2.0	1.9	5.2	7.7	17	5.2	5.2	3.3
21	2.0	2.8	2.6	1.9	2.1	1.9	4.9	7.7	16	5.0	4.9	3.2
22	1.9	2.8	2.5	1.9	2.1	1.9	4.9	8.1	16	5.0	4.9	3.1
23	2.0	2.8	2.4	1.9	2.3	1.9	4.2	8.7	16	5.0	5.7	3.1
24	2.0	3.0	2.4	1.9	2.4	1.9	4.7	8.9	16	4.9	5.7	3.1
25	2.0	3.0	2.4	1.9	2.6	1.9	4.9	9.1	15	4.7	5.5	2.8
26	2.0	2.8	2.4	2.4	2.6	2.0	4.4	9.3	14	4.7	5.0	2.6
27	2.0	2.6	2.4	2.1	2.3	2.1	4.2	9.5	14	4.5	5.0	2.8
28	1.9	2.8	2.4	2.0	2.0	2.1	4.1	9.7	13	4.2	5.2	2.8
29	1.9	3.2	2.4	2.0	-	2.0	4.1	10	12	4.2	5.4	2.8
30	1.9	3.0	2.6	2.1	-----	2.0	4.2	9.7	11	4.1	5.4	2.8
31	1.8	-----	2.8	2.1	-----	2.0	-----	9.1	-----	3.6	5.0	-----
Total	65.8	92.4	84.7	68.4	57.4	61.1	110.0	228.9	386.3	197.7	146.3	107.1
Mean	2.12	3.08	2.73	2.21	2.05	1.97	3.67	7.38	12.9	6.38	4.72	3.57
Max.	2.8	4.4	3.9	3.0	2.6	2.1	5.3	10	17	10	5.7	4.9
Min.	1.8	1.8	2.4	1.9	1.6	1.8	1.9	4.7	7.9	3.8	3.6	2.6
Ac-ft	131	183	168	136	114	121	218	454	766	392	290	212

Calendar year 1960 :

Max 18

Min 1.7

Mean 4.69

Acre-feet 3,410

Water year 1960-61 :

Max 17

Min 1.0

Mean 4.40

Acre-feet 3,180

## OWENS LAKE BASIN

10-2824.8. Mazourka Creek near Independence, Calif.

Location.--Lat 36°50'50", long 118°05'05", in NE $\frac{1}{4}$  lot 19, N $\frac{1}{2}$  sec. 5, T.13 S., R.36 E., on right bank 7 miles northeast of Independence.

Drainage area.--15.6 sq mi.

Records available.--October 1960 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 4,800 ft (from topographic map).

Remarks.--No flow since Oct. 1, 1960, date station established. No regulation or diversion above station.

10-2857. Owens River at Keeler Bridge, near Lone Pine, Calif.

Location.--Lat 36°34'30", long 118°00'45", in NW¼ sec.1, T.16 S., R.36 E., on left bank under old timber bridge, 0.5 mile upstream from bridge on State Highway 190 and 3.4 miles southeast of Lone Pine.

Records available.--January 1927 to September 1961. Monthly discharge only prior to October 1959 published in WSP 1314 and 1734.

Gage.--Water-stage recorder and 10-foot Cipolletti weir. Altitude of gage is 3,600 ft (from topographic map). Prior to Oct. 19, 1930, staff gage, and Oct. 20, 1930, to Feb. 14, 1935, staff gage and 3-foot Cipolletti weir, all at present site at different datums.

Average discharge.--34 years, 21.3 cfs (15,420 acre-ft per year); median of yearly mean discharges, 6.5 cfs (4,700 acre-ft per year).

Extremes.--Maximum discharge during year, 14 cfs Mar. 18; no flow July 21 to Aug. 20.

1927-61: Maximum daily discharge, 1,200 cfs July 9, 1938 (gage height, 7.06 ft); no flow at times.

Remarks.--Natural flow affected by storage in several reservoirs, many natural lakes, diversions for irrigation, and return flow from irrigated areas. Major portion of runoff from drainage is diverted out of basin through Los Angeles aqueduct. Discharge at this point is wasted into Owens Lake.

Cooperation.--Records furnished by city of Los Angeles, Department of Water and Power, and reviewed by Geological Survey; furnished figures rounded by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.4	3.2	5.3	6.7	8.8	9.2	9.2	6.1	3.5	0.9	0	0.8
2	1.6	3.5	5.3	7.0	8.8	9.2	9.2	5.8	3.5	.8	0	.8
3	1.6	3.7	5.3	7.0	8.8	9.2	9.2	5.8	3.5	.8	0	.8
4	1.8	4.2	5.3	7.0	8.8	9.2	9.2	5.5	3.5	.8	0	.9
5	1.8	4.2	5.3	7.0	8.8	9.2	8.8	5.5	3.2	1.1	0	.9
6	1.9	4.5	5.3	7.0	8.8	9.2	8.5	5.5	3.2	.9	0	.9
7	1.9	4.5	5.3	7.0	8.8	9.2	8.2	5.3	3.0	.9	0	1.1
8	2.0	4.5	5.3	7.0	8.8	9.2	8.2	5.3	2.8	.9	0	1.1
9	2.2	4.5	5.3	7.0	9.2	9.2	8.2	5.0	2.6	.9	0	.9
10	2.4	4.5	5.3	7.0	9.2	9.2	7.9	5.0	2.6	.9	0	.9
11	2.6	4.5	5.3	6.7	9.2	9.2	7.6	4.7	2.6	.8	0	.8
12	2.6	4.5	5.3	6.7	9.2	9.2	7.6	4.5	2.4	.6	0	.8
13	2.6	4.5	5.3	6.7	9.2	9.2	7.6	4.5	2.4	.5	0	.8
14	2.8	4.5	5.0	6.7	9.2	9.5	7.3	4.5	2.2	.4	0	.6
15	2.8	4.5	4.7	6.7	9.2	9.5	7.3	4.5	2.0	.3	0	.5
16	2.8	4.5	4.5	6.7	9.2	9.5	7.3	4.5	2.0	.2	0	.5
17	2.8	4.5	4.5	6.4	9.2	9.5	7.3	4.5	1.8	.2	0	.6
18	3.0	4.5	4.5	6.4	9.2	13	7.0	4.5	1.8	.1	0	.6
19	3.0	4.5	4.5	6.4	9.2	13	7.0	4.2	1.6	.1	0	.8
20	3.0	4.5	4.5	6.4	9.2	12	6.7	4.2	1.6	.1	0	.8
21	3.0	4.5	4.5	6.7	9.2	11	6.7	4.2	1.4	0	.4	.9
22	3.0	4.5	4.5	7.0	9.2	10	6.7	4.2	1.4	0	.9	.9
23	3.0	4.7	4.5	7.3	9.2	9.5	6.7	4.2	1.2	0	1.0	.9
24	3.0	5.0	4.5	7.6	9.2	9.2	6.7	4.2	1.2	0	1.2	1.1
25	3.0	5.3	4.5	7.9	9.2	9.2	6.7	4.0	1.1	0	1.2	1.1
26	3.0	5.3	5.5	8.2	9.2	9.2	6.7	3.5	1.1	0	1.2	1.1
27	3.0	5.3	6.4	8.5	9.2	9.2	6.7	3.5	1.1	0	1.0	1.2
28	3.0	5.3	6.4	8.5	9.2	9.2	6.7	3.5	.9	0	1.0	1.2
29	3.0	5.3	6.4	8.8	-	9.2	6.4	3.5	.9	0	.9	1.2
30	3.0	5.3	6.4	8.8	-	9.2	6.1	3.5	.9	0	.9	1.2
31	3.2	-	6.4	8.8	-	9.2	-	3.5	-	0	.9	-
Total	79.8	136.8	161.1	223.6	254.4	299.7	225.4	141.2	63.0	12.2	10.6	26.5
Mean	2.57	4.56	5.20	7.21	9.09	9.67	7.51	4.55	2.10	0.39	0.34	0.88
Max.	3.2	5.3	6.4	8.8	9.2	13	9.2	6.1	3.5	1.1	1.2	1.2
Min.	1.4	3.2	4.5	6.4	8.8	9.2	6.1	3.5	0.9	0	0	0.5
Ac-ft	158	271	320	444	505	594	447	280	125	24	21	53
Calendar year 1960:				Max 17	Min 0	Mean 5.05		Acre-feet 3,660				
Water year 1960-61:				Max 13	Min 0	Mean 4.48		Acre-feet 3,240				

## OWENS LAKE BASIN

10-2860. Cottonwood Creek near Olancho, Calif.

Location.--Lat 36°26'20", long 118°04'40", T.17 S., R.36 E., just downstream from intake to Cottonwood powerhouse, 11.2 miles north of Olancho.

Drainage area.--39.9 sq mi.

Records available.--January 1906 to March 1911, January 1914 to September 1961. January 1914 to September 1959, monthly discharge only published in WSP 1314 and 1734.

Gage.--Water-stage recorder and Parshall flume on creek; water-stage recorder and Cipolletti weir for powerhouse diversion. Prior to Sept. 9, 1908, staff gage at site about 2 miles downstream at different datum. Sept. 9, 1908, to Mar. 31, 1911, and Jan. 1, 1914, to Mar. 6, 1921, staff gage and Mar. 7, 1921, to Oct. 31, 1938, water-stage recorder, at site just upstream from intake to Cottonwood powerhouse at different datum.

Average combined discharge.--51 years (1906-10, 1914-61), 22.1 cfs (16,000 acre-ft per year).

Extremes (creek only).--Maximum discharge during year, 2.8 cfs May 13; no flow on some days.

1906-11, 1914-61: Maximum discharge observed, 434 cfs June 13, 1906 (discharge measurement); no flow on some days in 1959, 1961.

Remarks.--No regulation. Cottonwood powerhouse (maximum capacity, 22 cfs) has diverted since Nov. 13, 1908. Records Oct. 31, 1938, to Sept. 30, 1961, computed as sum of powerhouse diversion and flow past station. For records of combined discharge of Cottonwood Creek and powerhouse, see following page.

Cooperation.--Records furnished by city of Los Angeles, Department of Water and Power and reviewed by Geological Survey; furnished figures rounded by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
2	.1	.1	.1	.1	.1	.1	.6	.1	.1	.1	.1	.2
3	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2
4	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2
5	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
6	.1	.1	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1
7	.1	.1	.2	.1	.1	.7	.1	.1	.1	.1	.1	.1
8	.1	.1	.2	.1	.1	.3	.1	.1	.1	.1	.1	.1
9	.1	.1	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1
10	.1	.1	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1
11	.1	.1	.2	.1	.2	.1	.1	.1	.1	.1	.1	.1
12	.1	.2	.2	.1	.2	.1	.1	.1	.1	.1	.1	.1
13	.1	.2	.2	.1	.2	.1	.2	.2	.1	.1	0	.1
14	.1	.1	.2	.1	.2	.1	.2	.1	.1	.1	0	.1
15	.1	.1	.2	.1	.2	.1	.2	.1	.1	.1	0	.1
16	.1	.1	.2	.1	.2	.1	.2	.1	.1	0	0	.2
17	.1	.1	.2	.1	.2	.1	.2	.1	.1	0	0	.2
18	.1	.1	.2	.1	.2	.1	.1	.1	.1	0	0	.2
19	.1	.1	.2	.1	.2	.1	.1	.1	.1	0	0	.2
20	.1	.1	.2	.1	.2	.1	.1	.1	.1	0	0	.2
21	.1	.1	.2	.1	.2	.1	.1	.1	.1	0	.1	.2
22	.1	.1	.2	.2	.2	.1	.1	.1	.1	0	.1	.2
23	.1	.1	.2	.1	.2	.1	.1	.1	.1	0	.1	.1
24	.1	.1	.2	.1	.2	.1	.1	.1	.1	0	.1	.1
25	.1	.1	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1
26	.1	.1	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1
27	.1	.1	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1
28	.1	.1	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1
29	.1	.1	.2	.1	-	.1	.1	.1	.1	.1	.1	.1
30	.1	.1	.1	.1	-	.1	.1	.1	.1	.1	.2	0
31	.1	-	.1	.1	-	.1	-	.1	-	.1	.2	-
Total	3.1	3.2	5.5	3.2	4.2	3.9	4.5	3.2	3.0	2.2	2.5	4.0
Mean	0.10	0.11	0.18	0.10	0.15	0.13	0.15	0.10	0.10	0.07	0.08	0.13
Max.	-	0.2	0.2	0.2	0.2	0.7	0.6	0.2	-	0.1	0.2	0.2
Min.	-	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	0	0	0
Ac-ft	6.1	6.3	11	6.3	8.3	7.7	8.9	6.3	6.0	4.4	5.0	7.9
Calendar year 1960:	Max 2.8			Min 0.1			Mean 0.17			Acre-feet 124		
Water year 1960-61:	Max 0.7			Min 0			Mean 0.12			Acre-feet 84		

## OWENS LAKE BASIN

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10-2860. Cottonwood Creek near Olancho, Calif.--Continued

Combined discharge, in cubic feet per second, of Cottonwood Creek and powerhouse near Olancho, Calif., water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.2	3.7	5.6	4.8	4.1	4.8	6.9	6.6	6.6	2.0	1.1	4.0
2	2.2	3.7	5.3	4.6	4.1	5.1	8.3	6.4	6.6	2.0	1.1	4.0
3	2.4	4.1	5.1	4.3	4.1	5.1	12	6.4	5.8	2.4	1.1	3.8
4	2.4	4.3	5.6	4.3	4.1	4.8	14	6.1	5.3	2.6	1.2	3.5
5	2.6	6.1	5.6	4.3	4.1	4.6	13	6.1	5.1	2.4	1.7	3.4
6	3.9	5.3	4.0	4.3	4.1	4.6	13	6.1	4.6	2.2	2.4	3.4
7	4.1	5.6	4.4	4.3	4.1	4.0	11	5.8	4.3	2.2	2.0	3.2
8	3.7	5.8	5.4	4.3	4.1	4.5	8.6	5.8	4.1	2.0	1.7	3.2
9	4.1	7.2	5.2	4.3	4.1	4.6	9.5	5.8	3.9	1.9	1.4	3.2
10	4.3	7.5	5.2	4.3	4.1	4.3	9.3	5.6	3.9	1.9	2.6	3.2
11	4.8	7.2	5.2	4.3	4.4	4.3	8.6	4.6	3.9	1.9	5.8	3.2
12	4.8	7.0	5.2	4.3	4.4	4.3	8.9	4.6	3.7	1.9	4.3	3.0
13	4.8	6.2	5.4	4.3	4.4	4.3	8.2	4.4	3.7	1.9	3.3	2.8
14	4.6	6.6	5.4	4.1	4.4	4.8	8.4	4.6	3.4	1.7	3.1	2.8
15	4.1	7.2	5.4	4.1	4.4	4.8	8.4	4.6	3.2	1.5	2.7	2.8
16	4.1	7.2	5.4	4.1	4.4	4.6	8.4	4.6	3.0	1.4	2.7	2.5
17	4.3	6.9	5.4	4.1	4.4	4.8	8.2	4.6	3.0	1.4	2.7	2.7
18	4.6	6.9	5.4	4.1	4.4	4.8	7.8	4.6	3.0	1.3	2.7	2.9
19	4.6	6.6	5.4	4.1	4.4	4.8	7.2	4.6	2.8	1.3	3.1	2.9
20	4.6	6.4	5.4	4.1	4.4	5.1	7.2	5.3	2.8	1.3	5.0	2.9
21	4.6	6.4	5.4	4.1	4.7	5.3	6.9	5.1	2.8	1.1	4.6	2.9
22	4.6	6.4	5.2	3.8	4.7	6.1	6.6	5.1	2.8	1.0	4.6	2.9
23	4.3	6.4	5.2	4.1	4.7	6.6	6.9	4.8	2.8	1.0	8.6	2.8
24	4.3	6.4	5.2	4.1	4.7	6.4	6.9	4.8	2.6	1.1	8.1	2.8
25	4.1	6.1	5.2	4.1	4.6	5.8	7.5	4.6	2.6	1.1	6.4	2.8
26	3.9	5.6	5.2	4.1	4.6	5.6	7.2	4.6	2.6	1.2	5.1	2.8
27	3.9	5.6	5.2	4.1	4.6	5.8	7.2	4.6	2.4	1.4	4.6	2.6
28	3.9	5.6	4.9	4.1	4.6	5.6	6.9	4.6	2.4	1.4	4.3	2.6
29	3.9	5.6	4.9	4.1	-	5.6	6.9	4.8	2.4	1.2	4.1	2.4
30	3.7	5.6	4.8	4.1	-	5.6	6.4	5.6	2.2	1.1	4.2	2.3
31	3.7	-	4.8	4.1	-	6.4	-	5.3	-	1.1	4.2	-
Total	122.1	181.2	161.0	130.2	122.2	157.8	256.3	161.1	108.3	49.9	110.5	90.3
Mean	3.94	6.04	5.19	4.20	4.36	5.09	8.54	5.20	3.61	1.61	3.56	3.01
Max.	4.8	7.5	5.6	4.8	4.7	6.6	14	6.6	6.6	2.6	8.6	4.0
Min.	2.2	3.7	4.0	3.8	4.1	4.0	6.4	4.4	2.2	1.0	1.1	2.3
Ac-ft	242	359	319	258	242	313	508	320	215	99	219	179

Calendar year 1960 : Max 20 Min 1.2 Mean 5.49 Acre-feet 3,980  
 Water year 1960-61 : Max 14 Min 1.0 Mean 4.52 Acre-feet 3,270

## MONO LAKE BASIN

10-2870. Mono Lake near Mono Lake, Calif.

Location.--Lat 38°00', long 119°08', in NE $\frac{1}{4}$  sec.31, T.2 N., R.26 E., on west bank 1 mile south of town of Mono Lake.

Records available.--June 1912 to September 1961. Records prior to September 1934 are published in WSP 765.

Gage.--Staff gage or reference point. Datum of gage is 6,410.73 ft above mean sea level, datum of 1929. Prior to Oct. 2, 1945, at datum 20.07 ft lower. Gage readings have been reduced to elevations above mean sea level.

Extremes.--1912-61: Maximum elevation observed, 6,428.1 ft (present datum) July 18, 1919; minimum observed, 6,395.60 ft Sept. 25, 1961.

Cooperation.--Records furnished by city of Los Angeles, Department of Water and Power.

Elevation, in feet, water year October 1960 to September 1961

Date	Elevation	Date	Elevation	Date	Elevation
Oct. 3	6,397.59	Feb. 6	6,397.29	June 12	6,396.83
10	6,397.59	13	6,397.30	19	6,396.79
17	6,397.43	20	6,397.25	26	6,396.77
24	6,397.35	27	6,397.26	July 3	6,396.64
31	6,397.31	Mar. 6	6,397.23	10	6,396.59
Nov. 7	6,397.41	13	6,397.22	17	6,396.52
14	6,397.39	20	6,397.17	25	6,396.33
21	6,397.37	27	6,397.19	31	6,396.28
28	6,397.27	Apr. 3	6,397.18	Aug. 7	6,396.17
Dec. 5	6,397.29	10	6,397.15	16	6,396.14
12	6,397.28	17	6,397.11	17	6,396.12
19	6,397.32	24	6,397.04	21	6,396.09
22	6,397.25	May 1	6,396.98	25	6,396.09
29	6,397.27	8	6,396.97	28	6,396.05
Jan. 5	6,397.27	15	6,396.92	Sept. 7	6,395.86
12	6,397.25	22	6,396.85	11	6,395.81
16	6,397.24	29	6,396.84	18	6,395.69
23	6,397.21	June 5	6,396.86	25	6,395.60
30	6,397.26				

## MONO LAKE BASIN

10-2874. Rush Creek above Grant Lake, near June Lake, Calif.

Location.--Lat 37°48'20", long 119°06'30", in NE $\frac{1}{4}$  sec.4, T.2 S., R.26 E., on left bank in narrows, 0.6 mile upstream from head of Grant Lake and 2.7 miles northwest of town of June Lake.

Drainage area.--51.2 sq mi.

Records available.--December 1936 to September 1961. Monthly discharge only prior to October 1960 published in WSP 1314 and 1734.

Gage.--Water-stage recorder and 15-ft Parshall flume. Altitude of gage is 7,200 ft (from topographic map).

Average discharge.--24 years (1937-61), 79.4 cfs (57,480 acre-ft per year).

Extremes.--Maximum discharge during year, 128 cfs June 12, 13; minimum daily, 8.0 cfs July 31.

1936-61: Maximum daily discharge, 711 cfs June 28, 1938; minimum daily, 5.5 cfs Sept. 6-8, 14, 1954.

Remarks.--Flow regulated by Gem Lake, Lake Agnew, and Waugh Lake (combined capacity, 23,400 acre-ft), and by many natural lakes. No diversion.

Cooperation.--Records furnished by city of Los Angeles, Department of Water and Power, and reviewed by Geological Survey; furnished figures rounded by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	60	52	71	64	13	15	16	32	86	79	8.4	22
2	60	48	74	62	12	14	16	27	88	72	8.9	30
3	60	56	69	58	12	16	18	26	70	70	9.8	21
4	59	63	68	40	12	16	26	26	65	68	8.4	21
5	56	64	68	29	12	15	26	26	73	63	8.9	29
6	62	64	68	28	12	16	26	27	85	62	9.8	49
7	62	62	68	24	14	14	25	27	96	53	10	54
8	60	61	68	25	16	14	24	26	101	29	10	58
9	62	60	68	31	15	17	23	36	102	22	10	59
10	64	63	68	30	15	16	23	43	123	17	10	43
11	60	64	68	29	18	15	23	44	126	16	10	36
12	61	68	67	36	18	16	23	43	128	16	11	54
13	62	67	67	36	17	16	22	42	128	15	12	58
14	53	65	67	33	20	16	21	32	126	14	11	59
15	42	67	67	31	20	17	21	28	125	14	11	60
16	47	67	67	29	19	14	22	28	125	13	11	61
17	51	67	67	28	17	15	28	29	124	13	11	63
18	52	67	66	27	15	14	30	31	123	12	12	59
19	60	67	65	20	18	14	26	32	123	11	14	60
20	60	67	65	18	20	13	24	34	121	10	12	56
21	60	66	65	16	16	14	22	59	120	10	13	56
22	60	67	64	13	15	14	22	59	119	10	14	58
23	61	67	63	13	14	15	21	53	118	10	14	57
24	59	66	63	24	14	16	20	47	115	10	14	57
25	61	65	63	46	15	16	21	54	113	10	14	58
26	60	66	63	43	17	16	21	73	112	10	13	58
27	59	65	63	26	16	16	21	75	111	10	13	59
28	61	64	63	33	16	17	22	63	109	9.8	13	60
29	59	65	63	26	-	16	23	63	104	9.3	13	59
30	60	65	63	20	-	16	26	55	102	8.4	13	40
31	60	-	63	14	-	16	-	69	-	8.0	13	-
Total	1,813	1,915	2,052	952	438	475	682	1,309	3,261	774.5	356.2	1,514
Mean	58.5	63.8	66.2	30.7	15.6	15.3	22.7	42.2	109	25.0	11.5	50.5
Max.	64	68	74	64	20	17	30	75	128	79	14	63
Min.	42	48	63	13	12	13	16	26	65	8.0	8.4	21
Ac-ft	3,600	3,800	4,070	1,890	869	942	1,350	2,600	6,470	1,540	707	3,000
Calendar year 1960:	Max 146			Min 11			Mean 50.4			Acre-feet 36,570		
Water year 1960-61:	Max 128			Min 8.0			Mean 42.6			Acre-feet 30,840		

10-2879. Lee Vining Creek near Lee Vining, Calif.

Location.--Lat 37°55'45", long 119°10'10", in SW $\frac{1}{4}$  sec.24, T.1 N., R.25 E., on right bank 0.8 mile upstream from Gibbs Canyon and 3.3 miles southwest of Lee Vining.

Drainage area.--35.2 sq mi.

Records available.--April 1934 to September 1961. Monthly discharge only prior to October 1959, published in WSP 1314 and 1734.

Gage.--Water-stage recorder on concrete revetment walls, rebuilt at different datum Oct. 17, 1955. Altitude of gage is 7,400 ft (from topographic map). Prior to Aug. 6, 1944, staff gage at same site at different datum.

Average discharge.--27 years, 66.7 cfs (48,290 acre-ft per year).

Extremes.--Maximum discharge during year, 157 cfs June 8, 11; minimum daily, 4.2 cfs Mar. 28, Apr. 1.

1934-61: Maximum discharge observed, 503 cfs June 9, 1938 (gage height, 3.07 ft); no flow Nov. 29, 1935.

Remarks.--Flow regulated by Ellery, Saddlebag, and Tioga Lakes (combined capacity, 13,269 acre-ft) and several small natural lakes. No diversion above station.

Cooperation.--Records furnished by city of Los Angeles, Department of Water and Power, and reviewed by Geological Survey; furnished figures rounded by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	13	34	18	14	17	4.2	46	57	44	29	74
2	14	13	20	17	12	21	5.0	37	85	47	21	55
3	16	15	28	19	17	28	6.6	62	49	67	19	23
4	16	15	49	19	17	8.2	13	54	85	88	25	32
5	14	21	25	17	14	8.2	39	49	118	81	56	20
6	15	23	21	18	49	18	46	48	121	20	28	13
7	13	35	53	21	16	28	60	24	153	90	56	13
8	13	40	24	23	17	24	47	46	156	81	26	13
9	13	31	25	26	12	19	45	49	155	82	41	13
10	15	33	35	21	17	19	42	49	155	45	23	13
11	15	41	23	16	15	22	35	52	156	28	29	13
12	15	37	42	22	15	21	47	48	155	28	35	12
13	15	32	31	14	16	16	52	21	153	30	69	10
14	17	47	23	21	16	5.0	18	20	155	37	27	10
15	18	45	28	22	16	9.5	18	60	155	32	36	12
16	14	31	34	21	14	9.5	27	54	151	27	24	12
17	13	37	29	24	15	13	47	84	151	62	26	13
18	14	54	16	15	15	8.2	44	87	151	40	67	20
19	13	45	27	14	13	11	35	81	150	36	65	28
20	13	32	28	27	14	19	41	74	150	53	45	30
21	12	38	16	15	15	30	33	102	129	37	24	27
22	13	42	31	21	13	40	28	98	128	26	23	27
23	13	26	28	16	15	19	28	100	130	26	20	33
24	12	18	22	28	14	7.4	34	94	119	33	41	55
25	12	16	23	18	14	5.0	37	100	85	46	31	54
26	12	48	34	20	14	5.8	23	137	103	42	32	20
27	12	34	19	12	14	5.8	34	135	90	46	28	13
28	12	55	31	21	12	4.2	36	107	103	45	32	13
29	13	16	21	13	-	5.0	53	42	44	26	32	12
30	12	37	23	18	-	5.0	47	36	39	24	27	12
31	12	-	28	28	-	5.0	-	53	-	48	24	-
Total	424	970	871	605	445	456.8	1024.8	2049	3631	1417	1061	695
Mean	13.7	32.3	28.1	19.5	15.9	14.7	34.2	66.1	121	45.7	34.2	23.2
Max.	18	55	53	28	49	40	60	137	156	90	69	74
Min.	12	13	16	12	12	4.2	4.2	20	39	20	19	10
Ac-ft	841	1,920	1,730	1,200	883	906	2,030	4,060	7,200	2,810	2,100	1,380
Calendar year 1960 :				Max 195	Min 9.8	Mean 39.8	Acre-feet 28,880					
Water year 1960-61 :				Max 156	Min 4.2	Mean 37.4	Acre-feet 27,060					

## TIA JUANA RIVER BASIN

11-100. Cottonwood Creek at Morena Dam, Calif.

Location.--Lat 32°41'01", long 116°32'45", in NE $\frac{1}{4}$  sec.23, T.17 S., R.4 E., on Morena Dam outlet tower.Drainage area.--120 sq mi, approximately.Records available.---January 1916, October 1936 to September 1961.Gage.--Staff gage read once daily. Datum of gage is 2,882.4 ft above mean sea level.Average discharge.---25 years (1936-61), 12.3 cfs (8,870 acre-ft per year); median of yearly mean discharges, 5.0 cfs (3,600 acre-ft per year).Remarks.---Records of runoff represent all water reaching Morena Reservoir, including precipitation on reservoir surface. Runoff computed on basis of records of storage, release (draft), spill, leakage, and evaporation. Monthly evaporation from reservoir surface computed on basis of evaporation from Colorado pan using a coefficient of 0.80. Capacity and area ratings for reservoir are based on a resurvey made in 1948. Capacity of reservoir at permanent spillway level (gage height, 157.00 ft), 50,210 acre-ft. Dead storage, 654 acre-ft below outlet No. 3 at gage height 70.5 ft. No diversion above reservoir. Water is released down Cottonwood Creek to Barrett Reservoir as required.Cooperation.---Records computed in cooperation with city of San Diego.

Monthly runoff, water year October 1960 to September 1961

Month	Gage height (feet)†	Contents (acre-feet)	Change in contents (acre-feet)	Draft (acre-feet)	Evapo- ration (acre-feet)	Spill plus leakage (acre-feet)	Runoff (acre-feet)
	Morena Reservoir						
Sept. 30.....	72.6	811	-	-	-	-	-
Oct. 31.....	72.1	772	-39	0	20	3	-16
Nov. 30.....	72.2	780	+8	0	9	6	23
Dec. 31.....	72.2	780	0	0	9	5	14
Calendar year 1960.....	-	-	-80	0	325	51	296
Jan. 31.....	72.3	788	+8	0	14	3	25
Feb. 28.....	72.3	788	0	0	15	3	18
Mar. 31.....	72.4	796	+8	0	15	2	25
Apr. 30.....	72.1	772	-24	0	33	2	11
May 31.....	71.5	727	-45	0	35	2	-8
June 30.....	70.8	676	-51	0	51	2	2
July 31.....	70.1	626	-50	0	47	1	-2
Aug. 31.....	69.5	585	-41	0	38	1	-2
Sept. 30.....	68.8	539	-46	0	28	1	-17
Water year 1960-61.....	-	-	-272	0	314	31	73

† Gage height at 8 a.m.

Note.---For months when inflow to the reservoir was small and other quantities were large, discordant figures of runoff may appear. This arises primarily from the difficulty of computing 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.



11-110. Cottonwood Creek at Barrett Dam, near Dulzura, Calif.

Location.--Lat 32°40'45", long 116°40'20", in NW $\frac{1}{4}$  sec.22, T.17 S., R.3 E., on Barrett Dam outlet tower, 17 miles northeast of Dulzura.

Drainage area.--250 sq mi.

Records available.---January 1906 to December 1915, October 1945 to September 1961. Published as "near Jamul" prior to October 1912 and as "near Dulzura" October 1912 to December 1915. October 1936 to September 1945, published as "near Dulzura"; records not equivalent, as they were computed to represent runoff from Cottonwood Creek basin below Morena Dam (drainage area, 130 sq mi).

Gage.--Staff gage read once daily. Datum of gage is 1,446.12 ft above mean sea level. January 1906 to December 1915, staff gage at same site at different datum (prior to completion of dam).

Remarks.--Records of inflow represent all water reaching Barrett Reservoir, including precipitation on the reservoir and water passing down Cottonwood Creek from Morena Reservoir. Inflow computed on basis of records of storage, release (draft), spill, leakage, and evaporation. Monthly evaporation from reservoir surface computed on basis of evaporation from Colorado pan using a coefficient of 0.80. Capacity and area ratings for reservoir are based on a resurvey made in 1948, 1951, and 1955. Capacity of reservoir at top of flash gates on spillway (gage height, 168.88 ft), 44,760 acre-ft. Dead storage, 719 acre-ft below lowest outlet at gage height 58.88 ft, included in these records. Flow partly regulated by Morena Reservoir (see p. 74). Water drawn from Barrett Reservoir is diverted out of drainage basin to Lower Otay Reservoir by Dulzura conduit for municipal use.

Cooperation.--Records computed in cooperation with city of San Diego.

Monthly inflow, water year October 1960 to September 1961

Month	Gage height (feet)†	Contents (acre-feet)	Change in contents (acre-feet)	Draft (acre-feet)	Evaporation (acre-feet)	Spill plus leakage (acre-feet)	Inflow (acre-feet)
	Barrett Reservoir						
Sept. 30.....	66.1	1,207	-	-	-	-	-
Oct. 31.....	65.9	1,191	-16	0	26	0	10
Nov. 30.....	66.0	1,199	+8	0	12	0	20
Dec. 31.....	66.0	1,199	0	0	12	0	12
Calendar year 1960.....	-	-	+76	0	361	0.1	437
Jan. 31.....	66.1	1,207	+8	0	15	0	23
Feb. 28.....	66.1	1,207	0	0	17	0	17
Mar. 31.....	66.2	1,215	+8	0	18	0	26
Apr. 30.....	65.9	1,191	-24	0	34	0	10
May 31.....	65.5	1,161	-30	0	37	0	7
June 30.....	64.9	1,116	-45	0	50	0	5
July 31.....	64.3	1,072	-44	0	49	0	5
Aug. 31.....	63.8	1,036	-36	0	42	0	6
Sept. 30.....	63.3	1,001	-35	0	35	0	0
Water year 1960-61.....	-	-	-206	0	347	0	141

† Gage height at 8 a.m.

Note.--For months when inflow to the reservoir was small and other quantities were large, discordant figures of inflow may appear.

This arises primarily from the difficulty of computing inflow 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.

11-120. Cottonwood Creek above Tecate Creek, near Dulzura, Calif.

Location.--Lat 32°34'30", long 116°45'10", in SW $\frac{1}{4}$  sec.26, T.18 S., R.2 E., on right bank 0.8 mile upstream from confluence with Tecate Creek and 5.1 miles south of Dulzura.

Drainage area.--316 sq mi.

Records available.---October 1936 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 569.40 ft above mean sea level (levels by International Boundary and Water Commission).

Average discharge.--25 years, 8.74 cfs (6,330 acre-ft per year); median of yearly mean discharges, 1.4 cfs (1,000 acre-ft per year).

Extremes.--No flow during year.

1936-61: Maximum discharge, 4,340 cfs Feb. 7, 1937 (gage height, 9.65 ft), from rating curve extended above 1,500 cfs; no flow for part of each year.

Remarks.--No flow since Apr. 2, 1960. Flow regulated by Morena Reservoir (see p. 74) and Barrett Reservoir (see above). Water released from Barrett Reservoir through Dulzura conduit is diverted to Lower Otay Reservoir. Figures for calendar year 1960 are as follows: maximum daily discharge, 1.6 cfs; minimum, zero; mean, 0.09 cfs; runoff, 67 acre-ft.

## TIA JUANA RIVER BASIN

## 11-125. Campo Creek near Campo, Calif.

Location.--Lat 32°35'25", long 116°31'30", in SE $\frac{1}{4}$  sec.24, T.18 S., R.4 E., on left bank just upstream from bridge on State Highway 94, about 3.5 miles southwest of Campo.

Drainage area.--84 sq mi, approximately, of which 4 sq mi are in Mexico.

Records available.--October 1936 to September 1961.

Gage.--Water-stage recorder and broad-crested weir. Datum of gage is 2,179.08 ft above mean sea level (State Highway Department bench mark). Prior to Dec. 1, 1954, at datum 1 ft higher.

Average discharge.--25 years, 2.51 cfs (1,820 acre-ft per year); median of yearly mean discharges, 0.4 cfs (290 acre-ft per year).

Extremes.--No flow during year.

1936-61: Maximum discharge, 880 cfs Feb. 6, 1937 (gage height, 4.80 ft, present datum), from rating curve extended above 110 cfs on basis of velocity mean-depth relation and cross-sectional area at control; no flow for part of most years.

Remarks.--No flow since May 9, 1960. A small conservation reservoir a quarter of a mile upstream, completed in August 1956, partly regulates flow. Figures for calendar year 1960 are as follows: maximum daily discharge, 0.1 cfs; minimum, zero; mean, 0.004 cfs; runoff, 2.6 acre-ft.

## 11-130. Tia Juana River near Dulzura, Calif.

Location.--Lat 32°33'50", long 116°46'25", in sec.33, T.18 S., R.2 E., on left bank 0.5 mile downstream from confluence of Cottonwood and Tecate Creeks and 5.5 miles south of Dulzura.

Drainage area.--478 sq mi, of which 62 sq mi are in Mexico.

Records available.--October 1936 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 542.42 ft above mean sea level (levels by International Boundary and Water Commission). Prior to Sept. 19, 1939, at datum 2.00 ft higher.

Average discharge.--25 years, 14.0 cfs (10,140 acre-ft per year); median of yearly mean discharges, 2.8 cfs (2,000 acre-ft per year).

Extremes.--Maximum discharge during year, 0.4 cfs Mar. 28 (gage height, 1.81 ft); no flow all year except Mar. 28-29.

1936-61: Maximum discharge, 4,700 cfs Feb. 7, 1937 (gage height, 8.50 ft, present datum), from rating curve extended above 300 cfs on basis of velocity mean-depth and area studies; no flow part of most years.

Remarks.--Records good. Flow regulated by Morena Reservoir (see p. 74) and Barrett Reservoir (see p. 75). Water diverted from Cottonwood Creek at Barrett Dam by Dulzura conduit to Jamul Creek.

Cooperation.--Three discharge measurements furnished by International Boundary and Water Commission.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Mar. 28.....0.1  
29......1

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
March 1961.....	0.2	0.1	0	0.006	0.4
Calendar year 1960.....	44.6	1.5	0	.012	88
Water year 1960-61.....	.2	.1	0	.0005	.4

Note.--Flow occurred only on days listed above.

11-132. Rodriguez Reservoir at Rodriguez Dam, Baja California, Mexico

Location.--Lat 32°26'40", long 116°54'25", at Rodriguez Dam on Rio de las Palmas, a quarter of a mile upstream from Arroyo Matanuco and 10 miles southeast of Tijuana, Baja California, Mexico.

Drainage area.--988 sq mi, of which 7 sq mi are in the United States.

Records available.--April 1937 to September 1961. Published with record for Tia Juana River near Nestor, Calif., October 1953 to September 1957. Month-end contents for April 1937 to September 1950 published in WSP 1315-B and for October 1950 to September 1960 in WSP 1735.

Gage.--Staff gage. Altitude of gage, 250 ft (from topographic map).

Extremes.--Maximum contents during year, 275 acre-ft Oct. 1; minimum, 49 acre-ft Aug. 10.  
1937-61: Reservoir spilled during March 1938, September 1940, February to May 1941, March 1942, and February, March 1944; minimum contents, that for Aug. 10, 1961.

Remarks.--Reservoir is formed by thin shell concrete arch dam completed in 1936; storage began in 1937. Area and capacity ratings are based on surveys made in 1927. Maximum storage at top of spillway gates (elevation, 410.10 ft), 111,070 acre-ft; at spillway lip (elevation, 380.08 ft), 74,580 acre-ft; dead storage below outlet (elevation, 267.39 ft), 1,650 acre-ft included in contents. Reservoir is used to store water for irrigation of about 3,000 acres on both banks one-half to 5½ miles downstream and for municipal supply of city of Tijuana.

Cooperation.--Records furnished by Ministry of Hydraulic Resources, Government of Mexico, through International Boundary and Water Commission, United States Section.

Month-end contents, water year October 1960 to September 1961

Month	Contents (acre- feet)	Change in contents (acre-feet)	Month	Contents (acre- feet)	Change in contents (acre-feet)
Sept. 30.....	280	-	Apr. 30.....	89	-35
Oct. 31.....	210	-70	May 31.....	71	-18
Nov. 30.....	210	0	June 30.....	60	-11
Dec. 31.....	196	-14	July 31.....	54	-6
			Aug. 31.....	54	0
Calendar year 1960.....	-	-1,654	Sept. 30.....	73	+19
Jan. 31.....	178	-18	Water year 1960-61.....	-	-207
Feb. 29.....	155	-23			
Mar. 31.....	124	-31			

## TIA JUANA RIVER BASIN

11-135. Tia Juana River near Nestor, Calif.

Location---Lat 32°33'05", long 117°05'00", on line between secs.3 and 4, T.19 S., R.2 W., on downstream side of county highway bridge, 1.7 miles south of Nestor and 2.9 miles upstream from mouth.

Drainage area---1,668 sq mi, of which 1,198 sq mi are in Mexico.

Records available---October 1914 to September 1915, October 1936 to September 1961.

Gage---Water-stage recorder. Datum of gage is 15.14 ft above mean sea level. Oct. 1, 1914, to Sept. 30, 1915, reference point at same site at mean sea level datum. Oct. 1, 1936, to Apr. 9, 1953, water-stage recorder at different datum. Apr. 10, 1953, to Aug. 5, 1958, at site 2 miles upstream at different datum.

Average discharge---26 years (1914-15, 1936-61), 42.8 cfs (30,990 acre-ft per year); median of yearly mean discharges, 5.8 cfs (4,200 acre-ft per year).

Extremes---No flow during year.

1936-61: Maximum discharge, 17,700 cfs Feb. 7, 1937 (gage height, 8.20 ft, at different datum), from rating curve extended above 2,000 cfs on basis of velocity-depth relation and cross section after peak; no flow in parts of each year.

Remarks---No flow since Feb. 11, 1960. Observations of no flow generally made twice a month. Flow regulated by Morena Reservoir (see p. 74 ) and Barrett Reservoir (see p. 75 ) in the United States, and Rodriguez Reservoir (see p. 77 ) in Mexico. Water diverted from Cottonwood Creek at Barrett Dam by Dulzura conduit to Jamul Creek. Figures for calendar year 1960 are as follows: maximum daily discharge, 18 cfs; minimum daily, zero; mean, 0.18 cfs; runoff, 134 acre-ft.

## OTAY RIVER BASIN

11-140. Jamul Creek near Jamul, Calif.

Location---Lat 32°38'15", long 116°53'00", in NE¼ sec.4, T.18 S., R.1 E., on right bank 300 ft upstream from county road crossing at upper end of Lower Otay Reservoir, 1.4 miles downstream from Dulzura Creek, and 5.5 miles south of Jamul.

Drainage area---70.0 sq mi.

Records available---April 1940 to September 1961.

Gage---Water-stage recorder and broad-crested weir with venturi flume for low-water notch. Datum of gage is 511.64 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1951, at same site at datum 1.00 ft higher.

Extremes---No flow during year.

1940-61: Maximum discharge, 4,000 cfs Dec. 1, 1947 (gage height, 6.42 ft, present datum), from rating curve extended above 1,200 cfs; no flow at times in some years.

Remarks---No flow since Feb. 10, 1960. Observations of no flow generally made twice a month. Figures for calendar year 1960 are as follows: maximum daily discharge, 5.3 cfs; minimum daily, zero; mean, 0.03 cfs; runoff, 20 acre-ft. Water diverted from Cottonwood Creek by Dulzura conduit discharges into Jamul Creek via Dulzura Creek and is included in discharge records for this station (see p. 75 ).

## SWEETWATER RIVER BASIN

11-150. Sweetwater River near Descanso, Calif.

Location---Lat 32°50'05", long 116°37'20", in NW¼SE¼ sec.25, T.15 S., R.3 E., on right bank at county road bridge, 0.7 mile downstream from unnamed tributary and 1.3 miles south of Descanso.

Drainage area---44.5 sq mi.

Records available---October 1905 to September 1927, October 1956 to September 1961. Monthly discharge only for some periods published in WSP 1315-B. Combined records of river and diversion, October 1956 to September 1961.

Gage---Water-stage recorder. Datum of gage is 3,269.24 ft above mean sea level, datum of 1929. Prior to June 25, 1927, staff gages at several sites within 0.1 mile upstream at various datums.

Average discharge---27 years, 13.2 cfs (9,560 acre-ft per year); median of yearly mean discharges, 7.6 cfs (5,500 acre-ft per year). Average combined discharge of river and diversion, 5 years (1956-61), 2.91 cfs (2,110 acre-ft per year).

Extremes---Maximum discharge during year, 1.3 cfs Jan. 26 (gage height, 2.18 ft); no flow for most of year.

1905-27, 1956-61: Maximum discharge, 11,200 cfs Feb. 16, 1927 (gage height, 13.2 ft, from floodmark, site and datum then in use), on basis of slope-area measurement of peak flow; no flow on many days in some years.

Remarks---Records good. Sweetwater River diversion ditch diverts about 0.3 mile above station for irrigation below. No diversion during year. Figures of combined discharge, Sweetwater River and diversion, for calendar year 1960 are as follows: maximum daily discharge, 11 cfs; minimum daily, zero; mean, 0.59 cfs; runoff, 431 acre-ft.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Mar. 4.....0.1	Mar. 27.....0.1	Mar. 31.....0.1
15......1	28......2	Apr. 1......1
24......1	29......2	2......1
25......2	30......1	7......1
26......1		

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
March 1961.....	1.3	0.2	0	0.04	2.5
April.....	.3	.1	0	.01	.6
Calendar year 1960.....	192.1	11	0	.52	383
Water year 1960-61.....	1.6	.2	0	.004	3.2

Peak discharge (base, 100 cfs)---No peak above base.

Note---No diversion by Sweetwater River diversion during water year; therefore, there is no need to publish a table of combined flows of creek and diversion.

## SWEETWATER RIVER BASIN

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11-155. Sweetwater River at Loveland Dam, near Alpine, Calif.

Location.--Lat 32°46'54", long 116°47'35", in SE 1/4 SW 1/4 sec.17, T.16 S., R.2 E., on upstream face near center of Loveland Dam, 4 miles southwest of Alpine.

Drainage area.--98.3 sq mi.

Records available.--October 1944 to September 1961.

Gage.--Staff gage read once daily. Datum of gage is 1,215 ft above mean sea level.

Average discharge.--17 years, 5.33 cfs (3,860 acre-ft per year); median of yearly mean discharges, 1.4 cfs (1,000 acre-ft per year).

Remarks.--Records of runoff represent all water reaching Lake Loveland, including precipitation on the lake. Runoff computed on the basis of records of storage, release (draft), spill, leakage, and evaporation. Monthly evaporation from lake surface computed on basis of evaporation from Colorado pan using coefficient of 0.80. Capacity and area ratings for the lake are dated April 1946. Capacity of lake at spillway level (gage height, 140.00 ft), 25,387 acre-ft. Dead storage, 125 acre-ft below lowest outlet at gage height -1.25 ft, included in these records. One small diversion above lake. Water is released down Sweetwater River to Sweetwater Reservoir as required.

Cooperation.--Records furnished by California Water & Telephone Co.

Monthly runoff, water year October 1960 to September 1961

Month	Elevation (feet)†	Contents (acre- feet)	Change in contents (acre- feet)	Draft (acre- feet)	Evapo- ration (acre- feet)	Spill plus leakage (acre- feet)	Runoff (acre- feet)
	Lake Loveland						
October.....	1,246.88	1,067	-12	0	21	0	9
November.....	1,246.66	1,055	+8	0	12	0	20
December.....	1,246.80	1,063	-2	0	13	0	11
Calendar year 1960.....	-	-	+274	0	268	0	542
January.....	1,246.76	1,061	+3	0	15	0	18
February.....	1,246.82	1,064	-3	0	14	0	11
March.....	1,246.76	1,061	+7	0	15	0	22
April.....	1,246.90	1,068	-17	0	23	0	6
May.....	1,246.58	1,051	-23	0	26	0	3
June.....	1,246.16	1,028	-24	0	31	0	7
July.....	1,245.72	1,004	-28	0	31	0	3
August.....	1,245.18	976	-11	0	29	0	18
September.....	1,244.96	965	-21	0	25	0	4
October.....	1,244.54	944	-	-	-	-	-
Water year 1960-61.....	-	-	-123	0	255	0	132

† On first day of month.

Note.--For months when inflow to the lake was small and other quantities were large, discordant figures of runoff may appear. This arises primarily from the difficulty of computing 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.

## SWEETWATER RIVER BASIN

11-165. Sweetwater River at Sweetwater Dam, Calif.

Location.--Lat 32°41'20", long 117°00'35", in La Nacion Grant, at Sweetwater Dam, 6 miles east of National City, San Diego County, and 8 miles upstream from mouth.

Drainage area.--180 sq mi.

Records available.--October 1887 to September 1961.

Gage.--Staff gage read once daily. Datum of gage is 149.12 ft above mean sea level, datum of 1929.

Remarks.--Records of total inflow represent all water reaching Sweetwater Reservoir, including precipitation on reservoir and supplemental Colorado River water delivered through aqueduct of San Diego County Water Authority. Total inflow computed on basis of records of storage, release (draft), spill, leakage, and evaporation. Records of net inflow exclude supplemental water from Colorado River. Monthly evaporation from reservoir surface computed on basis of evaporation from Colorado pan using coefficient of 0.80. Capacity and area ratings for reservoir are dated December 1947. Capacity of reservoir at spillway level (gage height, 89.70 ft), 27,690 acre-ft. Dead storage, 4 acre-ft below lowest outlet at gage height 19.7 ft, included in these records. Diversion above reservoir. Regulation at Loveland Reservoir (see p. 79). Water is released as required for irrigation and domestic use in Chula Vista, National City, and contiguous areas.

Cooperation.--Records furnished by California Water & Telephone Co.

Monthly net inflow, water year October 1960 to September 1961

Month	Gage height (feet)†	Contents (acre-feet)	Change in contents (acre-feet)	Draft (acre-feet)	Evapo- ration (acre-feet)	Spill plus leakage (acre-feet)	Total inflow (acre-feet)	Colorado River water imported (acre-feet)	Net inflow (acre-feet)
	Sweetwater Reservoir								
October.....	46.37	3,385	-163	1,104	114	0	1,055	1,052	3
November.....	45.75	3,222	+336	618	56	0	1,010	1,059	-49
December.....	47.02	3,558	+221	620	58	0	899	914	-15
Calendar year 1960.....	-	-	-960	11,036	1,452	0	11,528	11,520	8
January.....	47.83	3,779	+127	711	77	0	915	885	30
February.....	48.28	3,906	+73	747	82	0	902	878	24
March.....	48.54	3,979	+522	750	91	0	1,363	1,353	10
April.....	50.29	4,501	-388	1,115	134	0	861	787	74
May.....	49.00	4,113	-210	1,252	142	0	1,184	1,272	-88
June.....	48.27	3,903	+101	1,358	155	0	1,614	1,687	-73
July.....	48.63	4,004	-48	91	163	0	206	217	-11
August.....	48.46	3,956	-59	13	170	0	124	155	-31
September.....	48.25	3,897	-339	278	135	0	74	100	-26
October.....	47.02	3,558	-	-	-	-	-	-	-
Water year 1960-61.....	-	-	+173	8,657	1,377	0	10,207	10,359	-152

† On first day of month.

Note.--For months when inflow to the reservoir was small and other quantities were large, discordant figures of net inflow may appear. This arises primarily from the difficulty of computing net inflow 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.

11-170. Boulder Creek at Cuyamaca Reservoir, near Julian, Calif.

Location.--Lat 32°59'20", long 116°35'10", in NE $\frac{1}{4}$  sec.5, T.14 S., R.4 E., on outlet tower at Cuyamaca Dam, 7 miles south of Julian.

Drainage area.--12.0 sq mi.

Records available.--October 1935 to September 1961 (inflow to Cuyamaca Reservoir; precipitation on water surface deducted October 1939 to September 1944). June 1912 to September 1926, records not equivalent as they represent only outflow (draft) from Cuyamaca Reservoir.

Gage.--Staff gage read periodically. Datum of gage is 4,600.2 ft above mean sea level (Helix Irrigation District bench mark).

Average discharge.--21 years (1935-39, 1944-61), 4.64 cfs (3,360 acre-ft per year); median of yearly mean discharges, 2.2 cfs (1,600 acre-ft per year).

Remarks.--Records of runoff represent all water reaching Cuyamaca Reservoir, including precipitation on reservoir. Runoff computed on basis of records of storage, release (draft), spill, leakage, and evaporation. Monthly evaporation from lake surface computed on basis of evaporation from Colorado pan using a coefficient of 0.80. Capacity and area ratings for reservoir are based on a resurvey made in the fall of 1949. Capacity of reservoir at spillway level (gage height, 35.4 ft), 11,540 acre-ft. No dead storage. Small diversions for local use near dam. Water is released down Boulder Creek to El Capitan Reservoir.

Cooperation.--Records of reservoir operation furnished by Helix Irrigation District.

Monthly runoff, water year October 1960 to September 1961

Month	Gage height (feet)†	Contents (acre- feet)	Change in contents (acre- feet)	Draft (acre- feet)	Evapo- ration (acre- feet)	Spill plus leakage (acre- feet)	Runoff (acre- feet)
	Cuyamaca Reservoir						
Sept. 30.....	-	0	-	-	-	-	-
Oct. 31.....	-	0	0	0	0	0	0
Nov. 30.....	-	0	0	0	0	0	0
Dec. 31.....	-	0	0	0	0	0	0
Calendar year 1960.....	-	0	0	421	138	0	559
Jan. 31.....	-	0	0	0	0	0	0
Feb. 28.....	-	0	0	0	0	0	0
Mar. 31.....	11.1	3	+3	0	0	0	3
Apr. 30.....	10.8	2	-1	0	2	0	1
May 31.....	10.0	0	-2	0	1	0	-1
June 30.....	-	0	0	0	0	0	0
July 31.....	-	0	0	0	0	0	0
Aug. 31.....	-	0	0	0	0	0	0
Sept. 30.....	-	0	0	0	0	0	0
Water year 1960-61.....	-	0	0	0	3	0	3

† Gage height at 8 a.m.

Note.--For months when inflow to the reservoir was small and other quantities were large, discordant figures of runoff may appear. This arises primarily from the difficulty of computing 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.

## SAN DIEGO RIVER BASIN

11-205. San Diego River at El Capitan Dam, Calif.

Location.--Lat 32°53'00", long 116°48'25", in NE 1/4 Sec. 7, T.15 S., R.2 E., on outlet tower of El Capitan Dam, 7 miles east of Lakeside.

Drainage area.--190 sq mi.

Records available.--October 1945 to September 1961. October 1936 to September 1945, records not equivalent owing to exclusion of greater part of flow released from Cuyamaca Reservoir.

Gage.--Staff gage read daily. Datum of gage is 553.0 ft above mean sea level.

Remarks.--Records of total inflow represent all water reaching El Capitan Reservoir, including precipitation on reservoir, water passing down Boulder Creek from Cuyamaca Reservoir, and supplemental Colorado River water delivered through aqueduct of San Diego County Water Authority. Total inflow computed on basis of records of storage, release (draft), spill, leakage, and evaporation. Records of net inflow exclude the supplemental Colorado River water. Monthly evaporation from reservoir surface computed by mass-transfer method. Revised area and capacity ratings for reservoir, based on a resurvey completed in 1955, are dated Mar. 29, 1956, and May 25, 1956, respectively. Capacity of reservoir at spillway level (gage height, 197.00 ft), 112,810 acre-ft. Dead storage, 59.2 acre-ft below outlet at gage height 21.0 ft, included in these records. No significant diversion above reservoir. Flow partly regulated by Cuyamaca Reservoir (see p. 81). Water is released as required for municipal use and irrigation.

Cooperation.--Records computed in cooperation with city of San Diego.

Monthly net inflow, water year October 1960 to September 1961

Month	Gage height (feet) †	Contents (acre- feet)	Change in contents (acre- feet)	Draft (acre- feet)	Evapo- ration (acre- feet)	Spill plus leakage (acre- feet)	Total inflow (acre- feet)	Colorado River water included (acre- feet)	Net inflow (acre- feet)
	El Capitan Reservoir								
Sept. 30.....	94.75	14,498	-	-	-	-	-	-	-
Oct. 31.....	94.38	14,333	-165	0	245	0	80	0	80
Nov. 30.....	94.32	14,307	-26	0	167	0	141	0	141
Dec. 31.....	93.59	13,986	-321	291	160	0	130	0	130
Calendar year 1960.....	-	-	-3,753	4,322	2,471	0	3,040	0	3,040
Jan. 31.....	90.35	12,624	-1,362	1,226	96	0	-40	0	-40
Feb. 28.....	89.99	12,477	-147	140	104	0	97	0	97
Mar. 31.....	89.34	12,218	-259	226	112	0	79	0	79
Apr. 30.....	88.78	11,996	-222	61	198	0	37	0	37
May 31.....	87.73	11,588	-408	193	231	0	16	0	16
June 30.....	86.24	11,021	-567	445	282	0	160	0	160
July 31.....	84.59	10,410	-611	261	292	0	-58	0	-58
Aug. 31.....	84.19	10,264	-146	0	261	0	115	0	115
Sept. 30.....	83.64	10,066	-198	0	247	0	49	0	49
Water year 1960-61.....	-	-	-4,432	2,843	2,395	0	806	0	806

† Gage height at 8 a.m.

Note.--For months when inflow to the reservoir was small and other quantities were large, discordant figures of inflow may appear. This arises primarily from the difficulty of computing inflow 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.



## 11-220. San Vicente Creek at San Vicente Dam, at Foster, Calif.

Location.--Lat 32°54'45", long 116°55'25", in SE 1/4 SW 1/4 sec. 31, T. 14 S., R. 1 E., near center of upstream face of San Vicente Dam, 0.5 mile north of Foster.

Drainage area.--75 sq mi, approximately.

Records available.--January to April 1915, October 1936 to September 1941, October 1942 to September 1961 (discontinued). Published as "at Foster" prior to October 1942.

Gage.--Staff gage read once daily. Water-stage recorder on spillway. Hygro-Thermograph and anemometer. Datum of gage is 460.0 ft above mean sea level. January to April 1915, staff gage at about same site at different datum. October 1936 to Sept. 30, 1941, water-stage recorder at about same site at different datum.

Remarks.--Records of total inflow represent all water reaching San Vicente Reservoir from basin of San Vicente Creek, precipitation on reservoir, supplemental Colorado River water, Santa Ysabel Creek, and San Diego River water. Total inflow is computed on the basis of records of storage, release (draft), spill, leakage, and evaporation. Records of net inflow exclude supplemental Colorado River water and Santa Ysabel Creek water delivered to this reservoir from Sutherland Reservoir by city of San Diego Water Department. Evaporation computed by mass-transfer method. Capacity and area ratings for reservoir are dated 2-18-44. Capacity of reservoir at spillway level (gage height, 190.00 ft), 90,230 acre-ft. Dead storage, 350 acre-ft below lowest outlet at gage height 33.0 ft, included in these records. No diversion above reservoir. Water is released as required for municipal use.

Cooperation.--Records computed in cooperation with city of San Diego.

Monthly net inflow, water year October 1960 to September 1961

Month	Gage height (feet) †	Contents (acre- feet)	Change in contents (acre- feet)	Draft (acre- feet)	Evapo- ration (acre- feet)	Spill plus leakage (acre- feet)	Total inflow (acre- feet)	Inflow from Sutherland Reservoir (acre- feet)	Colorado River water included (acre- feet)	Net inflow (acre- feet)
	San Vicente Reservoir									
Sept. 30.....	149.0	51,028	-	-	-	-	-	-	-	-
Oct. 31.....	149.9	51,786	+758	2,112	441	0	3,311	0	3,656	-345
Nov. 30.....	157.0	57,927	+6,141	969	339	0	7,449	0	7,402	47
Dec. 31.....	159.9	60,520	+2,593	2,260	321	0	5,174	0	5,547	-373
Calendar year 1960.....	-	-	+11,981	29,286	4,712	0	45,979	3,432	45,322	-2,775
Jan. 31.....	159.0	59,710	-810	1,934	226	0	1,350	0	1,230	120
Feb. 28.....	156.2	57,220	-2,490	2,749	247	0	506	0	488	18
Mar. 31.....	158.8	59,531	+2,311	1,425	258	0	3,994	0	4,118	-124
Apr. 30.....	158.9	59,620	+89	2,993	394	0	3,476	0	3,327	149
May 31.....	156.5	57,485	-2,135	3,608	447	0	1,920	0	2,286	-366
June 30.....	155.2	56,342	-1,143	2,778	494	0	2,129	0	2,374	-245
July 31.....	153.7	55,036	-1,306	3,327	519	0	2,540	0	2,669	-129
Aug. 31.....	152.5	54,000	-1,036	3,692	533	0	3,189	0	3,577	-388
Sept. 30.....	152.7	54,172	+172	2,088	529	0	2,789	0	3,346	-557
Water year 1960-61.....	-	-	+3,144	29,935	4,748	0	37,827	0	40,020	-2,193

† Gage height at 8 a.m.

Note.--For months when inflow to the reservoir was small and other quantities were large, discordant figures of net inflow may appear. This arises primarily from the difficulty of computing net inflow 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.

## SAN DIEGO RIVER BASIN

11-225. San Diego River near Santee, Calif.

Location.--Lat 32°49'27", long 117°03'17", in Ex Mission San Diego Grant, on right bank in Mission Gorge, 0.2 mile upstream from left tributary and 6 miles west of Santee, San Diego County.

Drainage area.--380 sq mi.

Records available.--May 1912 to December 1915, March 1916 to September 1961. Monthly discharge only for some periods and yearly estimates only for 1924-25, published in WSP 1315-B.

Gage.--Water-stage recorder and unfinished rubble dam control. Altitude of gage is 180 ft (from topographic map). Prior to Nov. 10, 1920, staff gage at site  $1\frac{1}{2}$  miles upstream at different datum. Nov. 10, 1920, to Dec. 1, 1954, water-stage recorder at present site at datum 1.0 ft higher.

Average discharge.--48 years, 26.0 cfs (18,820 acre-ft per year); median of yearly mean discharges, 4.7 cfs (3,400 acre-ft per year).

Extremes.--Maximum discharge during year, 140 cfs Mar. 28 (gage height, 2.48 ft); minimum daily, 0.7 cfs June 27. 1912-61: Maximum discharge, 70,200 cfs Jan. 27, 1916 (gage height, 25.1 ft, site and datum then in use), on basis of velocity-area study; no flow at times in most years.

Remarks.--Records good. Flow regulated by Cuyamaca, El Capitan, and San Vicente Reservoirs, see p. 81,82,83). Diversions above station by city of San Diego for municipal supply and by Helix Irrigation District. "Average discharge" represents flow to ocean during period of record, regardless of upstream development.

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

1.33	0.7	1.8	9.3
1.4	1.2	1.9	18
1.5	2.1	2.0	30
1.6	3.5	2.1	48
1.7	5.7		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.8	1.9	3.6	4.5	4.0	3.1	5.4	2.6	1.6	1.1	1.0	2.2
2	2.2	* 2.1	4.5	4.0	3.6	2.9	5.4	2.2	1.9	1.7	1.3	2.4
3	2.0	2.4	4.0	3.5	4.0	3.2	4.7	2.0	2.1	1.6	1.3	2.4
4	* 1.5	3.1	4.3	4.7	3.4	4.3	4.9	2.1	2.5	1.6	1.8	2.4
5	1.5	3.2	3.6	4.0	4.0	6.5	* 4.9	2.4	1.8	* 1.5	2.2	1.8
6	1.4	6.9	4.0	3.4	3.2	4.5	4.9	2.5	* 1.5	1.3	2.2	2.1
7	1.5	7.2	3.8	4.3	3.7	4.0	4.3	2.9	1.8	1.2	* 1.8	2.5
8	2.2	3.6	4.0	4.3	6.2	3.6	4.3	2.1	1.8	2.0	1.9	3.1
9	2.5	3.4	5.1	3.4	4.0	3.8	4.0	* 2.5	1.4	2.1	2.1	3.2
10	2.0	3.4	5.1	3.4	3.8	3.8	3.2	2.4	2.1	1.5	2.1	2.9
11	1.9	5.4	4.9	3.1	4.5	3.8	3.6	2.2	2.4	.9	2.0	2.4
12	1.8	4.5	3.7	2.9	4.5	4.0	3.5	2.4	1.7	1.3	1.9	1.4
13	1.7	4.0	3.8	* 3.7	3.8	3.8	3.6	2.8	1.4	.9	2.0	2.6
14	2.1	3.1	3.9	4.0	* 4.3	3.5	3.8	2.6	1.5	1.4	2.0	* 3.4
15	2.6	3.1	4.3	4.5	4.3	* 3.6	3.6	1.9	1.3	2.0	2.0	3.6
16	3.2	4.3	* 4.1	3.6	4.3	3.5	3.5	2.1	1.2	2.1	2.2	3.6
17	2.8	* 3.6	5.1	3.5	4.0	3.2	2.9	2.0	1.8	2.1	2.2	3.5
18	* 2.7	4.0	4.9	3.2	4.5	4.3	3.4	1.9	2.1	1.8	2.4	3.2
19	2.6	4.3	3.8	3.8	4.0	4.3	3.4	2.2	* 1.7	1.9	2.4	4.9
20	2.2	4.0	4.0	3.9	3.6	3.5	* 3.5	2.1	1.4	* 2.0	2.5	3.5
21	2.1	3.4	4.2	4.5	4.3	3.9	3.4	2.5	1.2	1.9	2.0	3.4
22	2.6	3.8	3.8	4.5	3.8	3.2	3.2	1.8	1.0	2.0	1.9	3.2
23	3.1	4.0	4.9	4.0	3.5	2.9	3.4	* 1.9	1.1	2.0	2.1	3.4
24	2.4	4.0	5.1	4.6	3.2	3.6	2.9	1.8	1.4	1.7	* 2.4	3.6
25	2.1	3.6	5.4	* 3.9	3.8	5.7	3.1	2.0	2.1	1.2	2.1	3.5
26	2.9	4.3	5.7	1.7	4.0	6.0	2.8	2.0	1.5	1.3	2.1	3.5
27	2.4	1.7	4.5	* 2.3	3.2	4.0	3.4	2.4	.7	1.2	2.2	3.4
28	2.0	6.8	* 4.3	6.2	* 3.5	2.2	2.6	2.6	.9	1.1	1.9	3.2
29	2.9	5.4	4.0	5.1	-	4.0	3.2	1.9	1.0	1.7	2.0	3.1
30	2.9	* 4.3	3.6	3.8	-----	6.5	3.5	2.0	.8	2.2	1.9	3.1
31	2.4	-----	4.3	4.1	-----	5.7	-----	2.0	-----	1.8	1.9	-----
Total	70.0	134.1	134.3	156.4	111.0	180.7	112.3	68.8	46.7	50.1	61.8	90.5
Mean	2.26	4.47	4.33	5.05	3.96	5.83	3.74	2.22	1.56	1.62	1.99	3.02
Max.	3.2	17	5.7	23	6.2	40	5.4	2.9	2.5	2.2	2.5	4.9
Min.	1.4	1.9	3.6	2.9	3.2	2.9	2.6	1.8	0.7	0.9	1.0	1.4
Ac-ft	139	266	266	310	220	358	223	136	93	99	123	180

Calendar year 1960:

Max 81

Min 0.4

Mean 4.00

Acre-feet 2,900

Water year 1960-61:

Max 40

Min 0.7

Mean 3.33

Acre-feet 2,410

\* Discharge measurement made on this day.

11-240. Santa Ysabel Creek at Sutherland Dam, Calif.

Location.--Lat 33°07'05", long 116°47'10", in NW 1/4 SW 1/4 sec. 21, T. 12 S., R. 2 E., on face of Sutherland Dam, 1.6 miles upstream from Black Canyon Creek and 7 miles northeast of Ramona.

Drainage area.--54.0 sq mi.

Records available.--December 1912 to September 1928, October 1936 to September 1961. Prior to October 1953, published as "near Mesa Grande."

Gage.--Water-stage recorder. Datum of gage is 1,912.00 ft above mean sea level (levels by city of San Diego). Prior to Oct. 1, 1936, water-stage recorder at same site at various datums. Oct. 1, 1936, to Sept. 30, 1953, water-stage recorder at site 1 mile downstream at different datum. Mar. 7 to Nov. 29, 1954, staff gage at present site and datum.

Average discharge.--40 years (1913-28, 1936-61), 19.4 cfs (14,060 acre-ft per year); median of yearly mean discharges, 10 cfs (7,500 acre-ft per year).

Remarks.--Records of runoff represent all water reaching Sutherland Reservoir including precipitation on reservoir. Runoff computed on basis of records of storage, release (draft), spill, leakage, and evaporation. Monthly evaporation from lake surface computed on basis of evaporation from Colorado pan using coefficient of 0.80. Capacity and area ratings for the reservoir are based on an aerial survey made in 1949. Capacity of reservoir at spillway level (gage height, 145.00 ft), 29,680 acre-ft. Dead storage, 176 acre-ft below lowest outlet at gage height 28.00 ft, included in these records. Small diversion above reservoir. Water is re-leased as required for municipal use.

Cooperation.--Records computed in cooperation with city of San Diego.

Monthly runoff, water year October 1960 to September 1961

Month	Gage height (feet)†	Contents (acre- feet)	Change in contents (acre- feet)	Draft (acre- feet)	Evapo- ration (acre- feet)	Spill plus leakage (acre- feet)	Runoff (acre- feet)
	Sutherland Dam						
Sept. 30.....	68.08	3,091	-	-	-	-	-
Oct. 31.....	67.72	3,038	-53	0	57	0	4
Nov. 30.....	67.72	3,038	0	0	32	0	32
Dec. 31.....	67.53	3,010	-28	0	32	0	4
Calendar year 1960.....	-	-	-3,133	3,432	724	2.8	1,026
Jan. 31.....	67.49	3,004	-6	0	43	0	37
Feb. 28.....	67.33	2,980	-24	0	34	0	10
Mar. 31.....	67.64	3,026	+46	0	33	0	79
Apr. 30.....	67.44	2,997	-29	0	48	0	19
May 31.....	66.96	2,926	-71	0	56	0	-15
June 30.....	66.42	2,850	-76	0	80	0	4
July 31.....	65.75	2,756	-94	0	80	0	-14
Aug. 31.....	65.15	2,673	-83	0	70	0	-13
Sept. 30.....	64.62	2,601	-72	0	57	0	-15
Water year 1960-61.....	-	-	-490	0	622	0	132

† Gage height at 8 a.m.

Note.--For months when inflow to the reservoir was small and other elements were large, discordant figures of runoff may appear. This arises primarily from the difficulty of computing runoff as a 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.

## SAN DIEGUITO RIVER BASIN

11-255. Santa Ysabel Creek near Ramona, Calif.

Location.--Lat 33°06'25", long 116°51'55", in SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.27, T.12 S., R.1 E., on left bank 1.6 miles downstream from Temescal Creek and 4.5 miles north of Ramona.

Drainage area.--110 sq mi.

Records available.--February 1912 to February 1923, October 1943 to September 1961. Monthly discharge only for February 1912, published in WSP 1315-B.

Gage.--Water-stage recorder and concrete control. Datum of gage is 847.88 ft above mean sea level (levels by city of San Diego Water Department). Prior to Jan. 31, 1916, staff gage at site 0.5 mile upstream at different datum. Jan. 31, 1916, to Feb. 3, 1923, staff gage or water-stage recorder at present site at datum 0.3 ft higher.

Extremes.--No flow during year.

1912-23, 1943-61: Maximum discharge, 28,400 cfs Jan. 27, 1916 (gage height, 14.0 ft, datum then in use), from rating curve extended above 1,500 cfs by velocity-area study; no flow for parts of some years.

Remarks.--No flow since May 22, 1960. Flow regulated by Sutherland Reservoir beginning July 1954 (see p. 85 ). Small diversions above station. Figures for calendar year 1960 are as follows: maximum daily discharge, 11 cfs; minimum, zero; mean, 0.45 cfs; runoff, 329 acre-ft.

11-260. Santa Ysabel Creek near San Pasqual, Calif.

Location.--Lat 33°05'10", long 116°54'56", in NE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.31, T.12 S., R.1 E., on left bank 1.1 miles downstream from Clevenger Canyon and 2 miles east of San Pasqual.

Drainage area.--128 sq mi.

Records available.--December 1905 to September 1910 and May 1911 to September 1912 (published as "near Escondido"), April 1947 to November 1955 (irrigation seasons only), April 1956 to September 1961. Records for October to December 1910, published in WSP 447, have been found to be in error and should not be used.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 510 ft (from topographic map). Dec. 17, 1905, to Sept. 30, 1912, staff gage at site a quarter of a mile downstream at different datum.

Average discharge.--9 years (1906-10, 1912, 1957-61), 24.5 cfs (17,740 acre-ft per year).

Extremes.--Maximum discharge during year, 0.2 cfs Jan. 27 (gage height, 0.67 ft); no flow for most of year.

1905-12, 1947-61: Maximum discharge observed, 8,000 cfs Mar. 24, 1906 (gage height, 6.3 ft, site and datum then in use); no flow at times for most years.

Remarks.--Records fair. Small diversion above station. Flow regulated since July 1954 by Sutherland Reservoir (see p. 85 ).

Discharge, in cubic feet per second, water year October 1960 to September 1961

Jan. 26.....0.1  
Mar. 28......1  
29......1

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
January 1961.....	0.1	0.1	0	0.003	0.2
March 1961.....	.2	.1	0	.006	.4
Calendar year 1960.....	-	13	0	.46	334
Water year 1960-61.....	-	.1	0	.001	.6

Note.--Flow occurred only on days listed above. Mean flow on Jan. 27 less than .05 cfs and called zero.

SAN DIEGUITO RIVER BASIN

87

11-270. Guejito Creek near San Pasqual, Calif.

Location.--Lat 33°06'57", long 116°57'08", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.23, T.12 S., R.1 W., on left bank 0.3 mile upstream from Rockwood Canyon Creek and 1.8 miles north of San Pasqual.

Drainage area.--24 sq mi, approximately.

Records available.--December 1946 to September 1961.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 560 ft (from topographic map).

Average discharge.--14 years (1947-61), 1.14 cfs (825 acre-ft per year); median of yearly mean discharges, 0.5 cfs (360 acre-ft per year).

Extremes.--Maximum discharge during year, 1.6 cfs Mar. 28 (gage height, 0.79 ft); no flow Oct. 1 to Jan. 13, Jan. 15-26, May 5 to Sept. 30.

1946-61: Maximum discharge, 1,660 cfs Apr. 3, 1958 (gage height, 5.83 ft), from rating curve extended above 440 cfs on basis of slope-area measurement of peak flow; no flow at times in most years.

Remarks.--Records good. Discharge measurements or observations of no flow generally made twice a month. Diversion about a quarter of a mile upstream for irrigation.

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

0.1	.0
.2	.1
.4	.5
.6	1.0

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0	0.1	0.1	0.3	0.1				
2				0	.1	.1	.2	.1				
3				0	.1	.1	.1	.1				
4				0	.1	.2	.1	.1				
5				0	.1	.5	.1	0				
6				0	.1	.3	.2	0				
7				0	.1	.2	.2	0				
8				0	.1	.1	.2	0				
9				0	.1	.1	.2	0				
10				0	.1	.1	.1	0				
11				0	.1	.1	.1	0				
12				0	.1	.1	.1	0				
13				0	.1	.1	.1	0				
14				.1	.1	.1	.1	0				
15				0	.1	.1	.1	0				
16				0	.1	.3	.1	0				
17				0	.1	.2	.1	0				
18				0	.1	.2	.1	0				
19				0	.1	.2	.1	0				
20				0	.1	.1	.1	0				
21				0	.1	.1	.1	0				
22				0	.1	.1	.1	0				
23				0	.1	.1	.1	0				
24				0	.1	.1	.1	0				
25				0	.1	.6	.1	0				
26				0	.1	.6	.1	0				
27				.2	.1	.4	.1	0				
28				.1	.1	.9	.1	0				
29				.1		1.0	.1	0				
30				.1		.5	.1	0				
31				.1		.4		0				
Total	0	0	0	0.7	2.8	8.3	3.7	0.4	0	0	0	0
Mean	0	0	0	0.02	0.10	0.27	0.12	0.01	0	0	0	0
Max.	0	0	0	0.2	-	1.0	0.3	0.1	0	0	0	0
Min.	0	0	0	0	-	0.1	0.1	0	0	0	0	0
Ac-ft	0	0	0	1.4	5.6	16	7.3	0.8	0	0	0	0

Calendar year 1960: Max 23 Min 0 Mean 0.41 Acre-feet 298  
 Water year 1960-61: Max 1.0 Min 0 Mean 0.04 Acre-feet 31

Peak discharge (base, 30 cfs).--No peak above base.

## SAN DIEGUITO RIVER BASIN

11-285. Santa Maria Creek near Ramona, Calif.

Location---Lat 33°03'08", long 116°56'41", in SE<sup>1</sup><sub>4</sub>SE<sup>1</sup><sub>4</sub>SE<sup>1</sup><sub>4</sub> sec.11, T.13 S., R.1 W., on left bank 3.75 miles northwest of Ramona and 4.6 miles upstream from mouth.

Drainage area---58 sq mi, approximately.

Records available---November 1912 to September 1920, October 1946 to September 1961.

Gage---Water-stage recorder and concrete control. Altitude of gage is 1,300 ft (from topographic map). Prior to Oct. 1, 1946, at same site at datum 1.78 ft lower.

Average discharge---22 years (1913-20, 1946-61), 4.69 cfs (3,400 acre-ft per year); median of yearly mean discharges, 0.1 cfs (72 acre-ft per year).

Extremes---No flow during year.

1912-20, 1946-61: Maximum discharge, 7,140 cfs Jan. 27, 1916 (gage height, 14.1 ft, from floodmarks, present datum), from rating curve extended above 600 cfs on basis of slope-area measurement of peak flow; no flow for several months each year.

Remarks---No flow since Mar. 2, 1960. City of Ramona pumps water from stream above station for municipal supply. Figures for calendar year 1960 are as follows: maximum daily discharge, 5.3 cfs; minimum, zero; mean, 0.02 cfs; runoff, 16 acre-ft.

11-290. San Dieguito River near San Pasqual, Calif.

Location---Lat 33°04'00", long 117°02'05", in San Bernardo Grant, on right bank 1.5 miles downstream from Bach Creek, 4.5 miles south-east of Escondido, and 5 miles west of San Pasqual, San Diego County.

Drainage area---250 sq mi, approximately.

Records available---April 1947 to April 1956 (irrigation seasons only), May 1956 to September 1961.

Gage---Water-stage recorder. Altitude of gage is 325 ft (from topographic map).

Extremes---No flow during year.

1956-61: Maximum discharge, about 3,600 cfs Apr. 3, 1958 (gage height, 7.35 ft), from field estimate of peak flow; no flow in most months each year.

Remarks---No flow since May 14, 1958. Diversions for irrigation and pumping from wells along river in San Pasqual Valley above station. Flow regulated since July 1954 by Sutherland Reservoir (see p. 85 ).

11-300. San Dieguito River at Lake Hodges, Calif.

Location.--Lat 33°02'48", long 117°07'33", in NE<sup>1</sup>SE<sup>1</sup>NW<sup>1</sup> sec.18, T.13 S., R.2 W., on right bank 800 ft upstream from Lake Hodges Dam and 6.2 miles southwest of Escondido.

Drainage area.--303 sq mi.

Records available.--January 1916 to September 1961. Published as "near Bernardo" prior to October 1920 and as "near Escondido" October 1920 to September 1925.

Gage.--Staff gage read once daily. Datum of gage is 200.0 ft above mean sea level. Prior to January 1919, staff gage at same site at different datum (prior to completion of dam).

Remarks.--Records of total inflow represent all the water reaching Lake Hodges, including precipitation on the lake and supplemental water from Colorado River delivered through aqueduct of San Diego County Water Authority. Total inflow computed on basis of records of storage, release (draft), spill, leakage, and evaporation. Records of net inflow exclude supplemental water from Colorado River. Capacity and area ratings for lake are based on a resurvey in 1948. Monthly evaporation from lake surface computed by mass-transfer method. Capacity of lake at spillway level (gage height, 115.00 ft), 33,550 acre-ft. Dead storage, 1,160 acre-ft below lowest outlet at gage height 54.0 ft, included in these records. Water drawn from Lake Hodges passes through a conduit to San Dieguito re-regulating reservoir, from which it is released as required for municipal use. Diversions for irrigation above Lake Hodges. Flow regulated since July 1954 by Sutherland Reservoir (see p. 85 ).

Cooperation.--Records computed in cooperation with city of San Diego.

Monthly net inflow, water year October 1960 to September 1961

Month	Gage height (feet) †	Contents (acre-feet)	Change in contents (acre-feet)	Draft (acre-feet)	Evapo- ration (acre-feet)	Spill plus leakage (acre-feet)	Total inflow (acre-feet)	Colorado River water included (acre-feet)	Net inflow (acre-feet)
	Lake Hodges		(acre-feet)	(acre-feet)	(acre-feet)	(acre-feet)	(acre-feet)	(acre-feet)	(acre-feet)
Sept. 30.....	68.10	3,714							
Oct. 31.....	68.50	3,810	+96	1,150	94	0.3	1,340	1,415	-75
Nov. 30.....	66.80	3,414	-396	516	61	.4	181	54	127
Dec. 31.....	63.00	2,600	-814	625	47	.4	-142	0	-142
Calendar year 1960.....	-	-	+156	10,901	1,188	5.5	12,249	12,517	-268
Jan. 31.....	62.00	2,405	-195	802	27	.3	634	687	-53
Feb. 28.....	63.85	2,770	+365	712	46	.3	1,123	1,091	32
Mar. 31.....	66.30	3,299	+529	824	60	.6	1,414	1,418	-4
Apr. 30.....	67.00	3,460	+161	1,050	102	.7	1,314	1,370	-56
May 31.....	67.00	3,460	0	1,240	120	.4	1,360	1,385	-25
June 30.....	67.10	3,483	+23	1,190	126	.3	1,339	1,374	-35
July 31.....	66.50	3,345	-138	1,330	136	.3	1,328	1,414	-86
Aug. 31.....	65.00	3,010	-335	1,340	123	.3	1,128	1,239	-111
Sept. 30.....	64.80	2,968	-42	1,240	109	.3	1,307	1,411	-104
Water year 1960-61.....	-	-	-746	12,019	1,051	4.6	12,326	12,858	-532

† Gage height at 8 a.m.

Note.--For months when inflow to the lake was small and other quantities were large, discordant figures of net inflow may appear. This arises primarily from the difficulty of computing net inflow 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.

## SAN LUIS REY RIVER BASIN

11-315. Agua Caliente Creek near Warner Springs, Calif.

Location.--Lat 33°17'20", long 116°39'08", in San Jose del Valle Grant, on left bank 60 ft upstream from highway bridge, 1.2 miles upstream from Canada Verde Creek and 1.2 miles northwest of Warner Springs, San Diego County.

Drainage area.--19.0 sq mi.

Records available.--February to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 2,950 ft (from topographic map).

Remarks.--No flow since Feb. 1, 1961. No regulation or diversion.

11-330. West Fork San Luis Rey River near Warner Springs, Calif.

Location.--Lat 33°17'50", long 116°45'30", in San Jose del Valle Grant, on left bank 0.1 mile downstream from small unnamed tributary, 2.5 miles upstream from mouth, and 7.5 miles west of Warner Springs, San Diego County.

Drainage area.--26.0 sq mi.

Records available.--January 1913 to November 1915, October 1956 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 2,800 ft (from topographic map). Prior to Oct. 1, 1956, at different datum.

Average discharge.--6 years (1913-15, 1957-61), 10.0 cfs (7,240 acre-ft per year).

Extremes.--Maximum discharge during year, 0.2 cfs Jan. 26 (gage height, 4.60 ft); no flow May 15 to Sept. 30.

1913-15, 1956-61: Maximum discharge, 2,060 cfs Mar. 16, 1958 (gage height, 10.77 ft), from rating curve extended above 400 cfs on basis of slope-area measurement of peak flow; no flow at times in most years.

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

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0.1	0.1	0.1	* 0.1	* 0.1	0.1	* 0.1	(*)			
2	.1	.1	.1	.1	.1	.1	.1	.1				
3	.1	.1	.1	.1	.1	.1	.1	.1			(*)	
4	.1	.1	.1	.1	.1	.1	.1	.1				
5	* .1	.1	.1	.1	.1	.1	.1	.1				
6	.1	.1	.1	.1	.1	.1	.1	.1		(*)		
7	.1	.1	.1	.1	.1	.1	.1	.1				
8	.1	.1	.1	.1	.1	.1	.1	.1				
9	.1	.1	.1	.1	.1	.1	.1	.1				
10	.1	.1	.1	.1	.1	.1	.1	.1				
11	.1	.1	.1	.1	.1	.1	.1	.1				
12	.1	.1	.1	.1	.1	.1	.1	.1				
13	.1	.1	.1	.1	.1	.1	.1	.1				
14	.1	.1	.1	.1	.1	.1	* .1	.1	(*)			
15	.1	.1	* .1	.1	* .1	.1	.1	0				
16	.1	.1	.1	* .1	.1	* .1	.1	* 0				
17	.1	* .1	.1	.1	.1	.1	.1	0				
18	.1	.1	.1	.1	.1	.1	.1	0				(*)
19	.1	.1	.1	.1	.1	.1	.1	0				
20	* .1	.1	.1	.1	.1	.1	.1	0		(*)		
21	.1	.1	.1	.1	.1	.1	.1	0			(*)	
22	.1	.1	.1	.1	.1	.1	.1	0				
23	.1	.1	.1	.1	.1	.1	.1	0				
24	.1	.1	.1	.1	.1	.1	.1	0				
25	.1	.1	.1	.1	.1	.1	.1	0				
26	.1	.1	.1	.1	.1	.1	.1	0				
27	.1	.1	.1	.1	.1	.1	.1	0				
28	.1	* .1	.1	.1	.1	.1	.1	0				
29	.1	.1	.1	.1		* .1	.1	0				
30	.1	.1	* .1	.1		.1	.1	0				
31	* .1		.1	.1		.1		0				
Total	3.1	3.0	3.1	3.1	2.8	3.1	3.0	1.4	0	0	0	0
Mean	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.04	0	0	0	0
Max.	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0
Min.	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0
Ac-ft	6.1	6.0	6.1	6.1	5.6	6.1	6.0	2.8	0	0	0	0
Calendar year 1960 :				Max 38	Min 0	Mean 1.25		Acre-feet 906				
Water year 1960-61 :				Max 0.1	Min 0	Mean 0.06		Acre-feet 45				

Peak discharge (base, 100 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.



11-350. San Luis Rey River at Lake Henshaw, near Mesa Grande, Calif.

Location.--Lat 33°14'20", long 116°45'43", in Valle de San Jose Grant, at Henshaw Dam, 4 miles north of Mesa Grande, San Diego County.

Drainage area.--206 sq mi.

Records available.--October 1922 to September 1961. October 1911 to September 1922 at site 1 mile downstream published as "near Mesa Grande"; records not equivalent owing to change in natural water losses resulting from creation of Lake Henshaw. Monthly net runoff only October to December 1922, published in WSP 1315-B.

Gage.--Staff gage read once daily. Datum of gage is 2,620 ft above mean sea level. Prior to June 14, 1912, staff gage at same site at different datum. June 14, 1912, to Oct. 7, 1922, water-stage recorder at site 1 mile downstream at different datum.

Average discharge.--11 years (1911-22), 59.6 cfs (43,160 acre-ft per year), below damsite; 39 years (1922-61), 27.5 cfs (19,930 acre-ft per year), discharge at Lake Henshaw, exclusive of 90 percent of precipitation on lake surface; median of yearly mean discharges, 17 cfs (12,000 acre-ft per year).

Remarks.--Records of net runoff represent all water reaching Lake Henshaw, exclusive of 90 percent of rainfall on water surface of lake and supplemental water obtained by pumping ground water from lake bed. Net runoff computed on basis of records of storage, release (draft), spill, leakage, evaporation, precipitation, and ground-water pumpage. Monthly evaporation from lake surface computed on basis of evaporation from a floating pan using a coefficient of 0.87, except during periods when winds swamp the floating pan. Net evaporation for these periods is computed on basis of Colorado pan using coefficient of 0.80. Capacity and area ratings for lake are based on resurvey made in October 1951. Capacity of lake at spillway level (gage height, 107.00 ft), 194,300 acre-ft. No dead storage. Since storage of water began, runoff as computed has been exclusive of 90 percent of rainfall on water surface of lake. During the year the amount of precipitation excluded was 205 acre-ft. No flow over spillway since dam was completed. Water is released down San Luis Rey River for diversion downstream for irrigation, power, and domestic use. No diversion above Lake Henshaw.

Cooperation.--Records furnished by Vista Irrigation District.

Monthly net runoff, water year October 1960 to September 1961

Month	Gage height (feet)	Contents (acre- feet)	Change in contents (acre- feet)	Draft (acre- feet)	Net evapo- ration (acre- feet)	Spill plus leakage (acre- feet)	Pumped ground water (acre- feet)	Net runoff (acre- feet)
	Lake Henshaw							
Sept. 30.....	27.93	928	-	-	-	-	-	-
Oct. 31.....	30.43	1,425	+497	313	63	0	793	80
Nov. 30.....	32.94	2,169	+744	0	3	0	769	-22
Dec. 31.....	33.80	2,499	+330	400	76	0	872	-66
Calendar year 1960.....	-	-	-1,851	10,962	2,083	0	10,216	978
Jan. 31.....	34.30	2,711	+212	558	48	0	826	-8
Feb. 28.....	34.02	2,590	-121	702	134	0	731	-16
Mar. 31.....	34.90	2,988	+398	452	48	0	924	-26
Apr. 30.....	35.22	3,145	+157	599	323	0	1,071	8
May 31.....	34.27	2,698	-447	1,411	356	0	1,322	-2
June 30.....	34.40	2,756	+58	744	456	0	1,261	-3
July 31.....	34.13	2,637	-119	960	420	0	1,280	-19
Aug. 31.....	33.85	2,519	-118	952	320	0	1,199	-45
Sept. 30.....	33.36	2,325	-194	1,062	210	0	1,136	-58
Water year 1960-61.....	-	-	+1,397	8,153	2,457	0	12,184	-177

Note.--For months when inflow to the lake was small and other quantities were large, discordant figures of net runoff may 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.

## SAN LUIS REY RIVER BASIN

11-400. San Luis Rey River at Monserate Narrows, near Pala, Calif.

Location.--Lat 33°20'15", long 117°08'10", in NE $\frac{1}{4}$  sec.6, T.10 S., R.2 W., on left bank 4 miles southwest of Pala and 6 miles northeast of Bonsall.

Drainage area.--374 sq mi.

Records available.--December 1935 to March 1938 (fragmentary), April 1938 to November 1941, October 1946 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 270 ft (from topographic map). Prior to October 1946, at same site at different datum. Oct. 22, 1946, to Nov. 30, 1954, at datum 1.0 ft higher.

Average discharge.--18 years (1938-41, 1946-61), 9.42 cfs (6,820 acre-ft per year); median of yearly mean discharges, 2.5 cfs (1,800 acre-ft per year).

Extremes.--No flow during year.

1935-41, 1946-61: Maximum gage height, 8.7 ft Feb. 7, 1937, datum then in use (discharge not determined); no flow at times in 1948-61.

Remarks.--No flow since Apr. 30, 1959. Flow regulated by Lake Henshaw (see p. 91 ). Several diversions above station.

11-410. San Luis Rey River near Bonsall, Calif.

Location.--Lat 33°15'13", long 117°14'48", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.1, T.11 S., R.4 W., on left bank 0.7 mile downstream from bridge on State Highway 76 and 2.8 miles southwest of Bonsall.

Drainage area.--514 sq mi.

Records available.--July 1916 to September 1918 (gage heights and discharge measurements only), October 1929 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 108.10 ft above mean sea level, datum of 1929. July 1916 to September 1918, staff gages at site 0.8 mile upstream at different datums. October 1929 to Nov. 15, 1945, water-stage recorder at present site at datum 3.44 ft higher and Nov. 16, 1945, to Sept. 16, 1946, at datum 1.44 ft higher.

Average discharge.--32 years (1929-61), 21.9 cfs (15,850 acre-ft per year); median of yearly mean discharges, 6.9 cfs (5,000 acre-ft per year).

Extremes.--Maximum discharge during year, 0.1 cfs Jan. 26 (gage height, 3.62 ft); no flow all year including maximum day, which was less than 0.05 cfs.

1929-61: Maximum discharge, 18,100 cfs Mar. 3, 1938 (gage height, 12.60 ft, datum then in use), from rating curve extended above 2,400 cfs; no flow for part of each year.

Remarks.--No flow since Sept. 11, 1960. Flow regulated by Lake Henshaw (see p. 91 ). Several diversions above station. Figures for calendar year 1960 are as follows: maximum daily discharge, 0.2 cfs; minimum, zero; mean, 0.002 cfs; runoff, 1.4 acre-ft.

11-420. San Luis Rey River at Oceanside, Calif.

Location.--Lat 33°12'48", long 117°22'33", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.14, T.11 S., R.5 W., on right bank 0.7 mile upstream from bridge on U. S. Highway 101, 1.1 miles upstream from mouth, and 1.2 miles north of Oceanside.

Drainage area.--559 sq mi.

Records available.--April 1912 to September 1914 (published as "near Oceanside"), January 1916, October 1929 to January 1942, October 1946 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 20 ft (from topographic map). April 1912 to September 1914, staff gage at site three-quarters of a mile upstream at different datum. January 1916, staff gage a quarter of a mile downstream at different datum.

Average discharge.--29 years (1912-14, 1929-41, 1946-61), 18.4 cfs (13,320 acre-ft per year); median of yearly mean discharges, 0.5 cfs (360 acre-ft per year).

Extremes.--No flow during year.

1912-14, 1916, 1929-42, 1946-61: Maximum discharge, 95,600 cfs Jan. 27, 1916, from hydrograph based on discharge measurements; no flow for several months in each year.

Remarks.--No flow since Apr. 14, 1958. Flow regulated by Lake Henshaw (see p. 91 ). Several diversions above station.

## SANTA MARGARITA RIVER BASIN

93

11-424. Temecula Creek near Aguanga, Calif.

Location.--Lat 33°27'33", long 116°55'22", in NE¼SW¼SW¼ sec.19, T.8 S., R.1 E., on right bank 1.6 miles downstream from Long Canyon and 3.5 miles northwest of Aguanga.

Drainage area.--132 sq mi.

Records available.--August 1957 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 1,590 ft (from topographic map).

Extremes.--Maximum discharge during year, 92 cfs Aug. 19 (gage height, 2.32 ft); no flow for several months.

1957-61: Maximum discharge, 3,540 cfs Apr. 3, 1958 (gage height, 6.57 ft), from rating curve extended above 800 cfs; no flow for several months each year.

Remarks.--Records good. Discharge measurements or observations of no flow generally made twice monthly. Pumping for irrigation above station.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used May 26 to June 14)

0.7	0	1.0	.9
.8	.1	1.1	1.8
.9	.4	1.2	3.2

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0.1	0.1	1.5	0.6	0.6	0.2	0.1	0.1	0	
2		0	1	1	1.5	.6	.5	.2	1	1	0	
3		1	1	2	1.5	.6	.5	.2	1	1	0	
4		1	1	2	1.5	.7	.4	.2	1	1	0	
5		1	1	2	1.4	.7	.4	.2	1	1	0	
6		1	1	2	1.4	.6	.4	.2	1	1	0	
7		1	1	2	1.4	.6	.4	.2	1	1	0	
8		1	1	3	1.3	.6	.4	.2	2	0	0	
9		0	1	3	1.3	.5	.4	.2	2	0	0	
10		0	1	3	1.3	1.2	.4	.2	2	0	0	
11		0	1	3	1.3	1.3	.3	.2	2	0	0	
12		0	1	3	1.2	1.1	.3	.2	1	0	0	
13		0	1	4	1.2	.6	.3	.2	1	0	0	
14		0	1	4	1.2	.5	.3	.2	1	0	0	
15		0	1	4	1.2	.5	.3	.2	1	0	0	
16		0	1	4	1.2	.5	.3	.2	1	0	0	
17		0	1	4	1.2	.6	.3	.2	1	0	0	
18		0	1	4	1.2	.6	.3	.2	1	0	0	
19		0	1	4	1.2	.6	.3	.2	1	0	2.5	
20		0	1	4	1.2	.6	.3	.2	1	0	.7	
21		0	1	4	1.2	.5	.3	1	1	0	0	
22		0	1	4	1.2	.5	.3	1	1	0	2.5	
23		1	1	4	1.2	.5	.3	1	1	0	1.9	
24		1	1	4	1.1	.6	.3	1	1	0	0	
25		1	1	4	1.1	.6	.3	1	1	0	0	
26		1	1	5	1.1	.7	a .3	1	1	0	0	
27		1	1	1.3	.6	.8	a .3	1	1	0	0	
28		1	1	1.6	.6	.8	a .2	1	1	0	0	
29		1	1	1.6		1.0	a .2	1	1	0	0	
30		1	1	1.5		.9	a .2	1	1	0	0	
31			1	1.5		.7		1		0	0	
Total	0	1.4	3.1	15.9	34.3	21.2	10.1	5.1	3.4	0.7	7.6	0
Mean	0	0.05	0.10	0.51	1.22	0.68	0.34	0.16	0.11	0.02	0.25	0
Max.	0	0.1	-	1.6	1.5	1.3	0.6	0.2	0.2	0.1	2.5	0
Min.	0	0	-	0.1	0.6	0.5	0.2	0.1	0.1	0	0	0
Ac-ft	0	2.8	6.1	32	68	42	20	10	6.7	1.4	15	0

Calendar year 1960:

Max 21

Min 0

Mean 1.15

Acre-feet 833

Water year 1960-61:

Max 2.5

Min 0

Mean 0.28

Acre-feet 204

a No gage height record.

## SANTA MARGARITA RIVER BASIN

11-425. Temecula Creek at Vail Dam, Calif.

Location.--Lat 33°29'44", long 116°58'33", in Pauba Grant, at Vail Dam 0.2 mile downstream from Arroyo Seco and 10 miles east of Temecula, Riverside County.

Drainage area.--319 sq mi.

Records available.--October 1948 to September 1961. October 1948 to September 1951, published as "at Nigger Canyon, near Temecula"; records are for draft and spill only from Vail Lake. October 1951 to September 1955, published as "at Vail Dam, near Temecula."

Gage.--Water-stage recorder and wire-weight gage. Datum of gage is 1,350.0 ft above mean sea level (levels by Bureau of Reclamation). Water-stage recorder at site 500 ft downstream measures release and spill.

Average discharge.--25 years (1923-48) 14.5 cfs (10,500 acre-ft per year); 13 years (1948-61), 4.81 cfs (3,480 acre-ft per year); median of yearly mean discharges, (1923-48) 8.3 cfs (6,010 acre-ft per year); (1948-61) 2.3 cfs (1,700 acre-ft per year).

Remarks.--Records of runoff represent all water reaching Vail Lake, including precipitation on lake surface. Runoff computed on basis of records of storage, release (draft), spill, and evaporation. Monthly evaporation from lake surface, computed on basis of evaporation from Class A pan using coefficient of 0.77. Capacity and area ratings for lake are based on a survey made in 1947. Capacity of lake at spillway level (gage height, 120.00 ft), 49,370 acre-ft. Dead storage, 2.4 acre-ft below lowest outlet at gage height 2.5 ft, included in these records. Water is released down Temecula Creek for diversion about 1 mile below dam as required.

Monthly runoff, water year October 1960 to September 1961

Month	Elevation (feet) †	Contents (acre- feet)	Change in contents (acre- feet)	Draft (acre- feet)	Evapo- ration (acre- feet)	Runoff (acre- feet)
	Vail Lake					
September.....	1,379.98	1,091	-	-	-	-
October.....	1,379.44	1,038	-53	83	36	66
November.....	1,379.78	1,071	+33	0	30	63
December.....	1,380.07	1,100	+29	0	18	47
Calendar year 1960.....	-	-	-1,935	2,083	816	964
January.....	1,380.55	1,150	+50	0	34	84
February.....	1,380.90	1,186	+36	0	30	66
March.....	1,381.33	1,232	+46	0	43	89
April.....	1,381.36	1,235	+3	0	57	60
May.....	1,381.12	1,209	-26	0	65	39
June.....	1,380.83	1,178	-31	0	83	52
July.....	1,380.33	1,127	-51	0	75	24
August.....	1,379.93	1,086	-41	0	84	43
September.....	1,379.63	1,057	-29	0	56	27
Water year 1960-61.....	-	-	-34	83	611	660

† Elevation at 12 p.m. on last day of month.

## SANTA MARGARITA RIVER BASIN

95

11-430. Murrieta Creek at Temecula, Calif.

Location.--Lat 33°28'47", long 117°08'35", in Temecula Grant, on right bank 0.4 mile upstream from mouth and 1.0 mile south of Temecula, Riverside County.

Drainage area.--220 sq mi.

Records available.--October 1924 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Altitude of gage is 970 ft (from topographic map). Prior to Jan. 6, 1931, staff gage and sharp-crested weir at site 0.4 mile downstream at different datum. Jan. 6, 1931, to Dec. 16, 1938, supplemental water-stage recorder and sharp-crested weir at site 0.4 mile downstream at different datum used to record low flows.

Average discharge.--37 years, 9.42 cfs (6,820 acre-ft per year); median of yearly mean discharges, 2.2 cfs (1,600 acre-ft per year).

Extremes.--Maximum daily discharge during year, 1.3 cfs Mar. 28; minimum daily, 0.2 cfs for many days.

1930-61: Maximum discharge, 17,500 cfs Jan. 23, 1943 (gage height, 13.82 ft); minimum daily, 0.1 cfs several days in 1952-53, Aug. 17, 1957.

Remarks.--Records good. Discharge measurements generally made twice monthly through May and five times weekly thereafter. Some pumping above station for irrigation.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.3	0.3	0.2	0.2	0.3	0.3	0.8	0.5	0.6	0.6	0.6	0.6
2	3	5	2	2	3	3	5	4	9	8	5	6
3	4	5	2	2	2	5	3	4	7	1.0	7	6
4	2	5	2	2	2	6	4	4	5	8	8	4
5	2	5	2	2	3	8	4	4	7	7	6	1.0
6	2	9	2	2	4	6	5	3	5	8	5	1.0
7	2	6	2	2	8	6	5	3	4	6	6	6
8	2	6	2	2	8	3	6	2	4	8	6	5
9	2	8	2	2	5	2	3	2	5	5	6	4
10	3	8	2	2	3	2	3	2	6	4	6	4
11		1.0	2	2	3	3	3	2	5	4	6	3
12	4	1.1	2	2	4	5	3	2	5	3	4	3
13	5	9	2	2	5	3	4	5	6	4	4	4
14	3	5	2	2	4	4	5	5	7	6	4	1.1
15	3	7	2	2	3	8	3	8	8	6	5	7
16	3	1.0	2	2	4	4	3	7	8	8	5	5
17	4	7	2	2	5	3	3	5	5	6	5	4
18	3	5	2	2	4	3	3	6	8	6	5	5
19	5	4	2	2	4	3	3	3	8	6	4	7
20	6	4	2	2	3	3	3	2	7	5	3	9
21	5	3	2	2	6	3	3	2	5	4	3	8
22	5	2	2	3	9	3	3	2	6	4	2	7
23	3	2	2	3	9	3	3	2	5	5	2	6
24	2	2	2	3	9	3	3	2	5	5	2	5
25	2	2	2	3	8	3	3	3	4	5	3	4
26	4	2	2	5	8	3	3	4	4	7	4	4
27	4	3	2	6	8	5	4	6	4	6	7	5
28	5	2	2	4	5	1.3	6	5	5	7	8	7
29	4	2	2	3	-	1.0	5	5	5	7	4	6
30	4	2	2	3	-	1.2	4	5	5	7	4	6
31	4	-	2	2	-	9	-	5	-	8	6	-
Total	10.8	15.4	6.2	7.7	13.8	15.0	11.6	11.9	17.3	18.9	15.1	17.7
Mean	0.35	0.51	0.20	0.25	0.49	0.48	0.39	0.38	0.58	0.61	0.49	0.59
Max.	0.6	1.1	-	0.6	0.9	1.3	0.8	0.8	0.9	1.0	0.8	1.1
Min.	0.2	0.2	-	0.2	0.2	0.2	0.3	0.2	0.4	0.3	0.2	0.3
Ac-ft	21	31	12	15	27	30	23	24	34	37	30	35
Calendar year 1960:	Max 9.4			Min 0.2			Mean 0.54			Acre-feet 387		
Water year 1960-61:	Max 1.3			Min 0.2			Mean 0.44			Acre-feet 319		

## SANTA MARGARITA RIVER BASIN

11-440. Santa Margarita River near Temecula, Calif.

Location.--Lat 33°28'26", long 117°08'30", in Temecula Grant, on left bank at upper end of Temecula Canyon, 0.1 mile downstream from Murrieta Creek and 1.4 miles south of Temecula, Riverside County.

Drainage area.--592 sq mi.

Records available.--January 1923 to September 1961. Prior to October 1952, published as Temecula Creek at Railroad Canyon, near Temecula.

Gage.--Water-stage recorder. Altitude of gage is 950 ft (from topographic map).

Average discharge.--25 years (1923-48), 28.2 cfs (20,420 acre-ft per year), 13 years (1948-61), 10.3 cfs (7,460 acre-ft per year); median of yearly mean discharges (1923-48), 13 cfs (9,400 acre-ft per year); (1948-61), 5.7 cfs (4,100 acre-ft per year).

Extremes.--Maximum discharge during year, 16 cfs Jan. 26 (gage height, 1.83 ft); minimum daily, 2.3 cfs Sept. 18, 26.  
1923-61: Maximum discharge, 25,000 cfs Feb. 16, 1927 (gage height, 14.6 ft), from rating curve extended above 10,000 cfs; minimum, 0.4 cfs July 16, 1925.

Remarks.--Records good. Discharge measurements generally made twice monthly through April and five times weekly thereafter. Pumping diversions above gage affect flow during irrigation season. Flow partly regulated by Vail Lake beginning in November 1948 (see p.94 ).

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.6	2.8	4.1	3.8	4.2	3.9	3.7	3.0	3.7	2.8	3.3	3.4
2	2.6	3.0	3.9	3.8	4.4	4.4	3.0	2.8	4.4	3.2	3.0	3.2
3	3.0	3.3	3.9	3.9	4.6	4.6	2.8	2.6	3.4	3.4	3.1	3.5
4	2.8	3.5	3.9	4.4	4.6	4.6	3.0	2.6	2.4	3.3	3.1	2.8
5	2.6	3.8	3.7	4.2	4.6	4.9	3.0	3.0	2.8	3.0	3.3	3.5
6	2.6	4.4	3.4	4.1	4.9	3.9	3.0	2.8	3.0	2.8	2.8	3.5
7	2.4	3.3	3.3	3.9	6.2	4.1	3.2	3.4	3.0	2.6	3.2	3.0
8	2.4	2.8	3.4	3.9	5.7	3.4	3.5	3.5	3.0	2.7	3.0	2.9
9	2.6	3.3	3.3	3.9	5.4	3.2	3.2	3.5	3.0	2.4	3.0	3.4
10	2.6	3.0	3.2	3.9	5.2	3.0	2.8	3.2	3.0	2.4	2.6	2.8
11	2.8	3.3	3.2	3.9	5.4	3.2	2.8	3.3	2.8	2.8	2.8	2.5
12	2.6	3.7	3.3	3.9	5.8	3.4	2.8	3.3	2.6	2.6	2.4	2.6
13	2.8	3.3	3.4	3.9	5.4	3.2	3.0	3.8	2.8	2.6	2.8	2.4
14	3.2	2.8	3.5	4.1	4.9	3.2	3.2	3.4	2.8	2.8	2.5	3.6
15	3.2	3.0	3.7	3.9	4.7	3.8	3.0	3.4	2.8	2.9	2.8	3.4
16	3.8	3.4	3.7	3.9	4.6	3.4	3.0	3.3	2.8	3.0	3.0	3.8
17	4.1	3.5	3.7	3.9	4.9	3.3	3.4	3.0	2.4	3.1	2.8	2.9
18	4.7	3.4	3.8	3.8	4.7	3.4	3.5	3.0	3.2	2.8	3.1	2.3
19	4.4	3.2	3.8	3.8	4.7	3.4	3.7	3.0	3.0	2.7	2.7	2.7
20	3.3	3.0	3.8	3.8	4.7	3.2	3.8	2.8	2.6	3.0	2.6	3.0
21	3.4	2.8	3.8	3.8	5.4	3.2	3.8	3.6	2.4	3.2	2.5	2.9
22	3.0	2.6	3.9	3.7	5.4	3.4	4.3	3.0	2.6	3.0	2.8	2.8
23	2.8	2.6	4.1	3.7	5.7	3.4	4.1	3.2	2.8	3.0	2.8	3.3
24	4.6	3.0	4.1	3.7	5.7	3.5	3.7	2.8	2.8	2.8	2.6	2.8
25	4.2	3.3	4.2	3.7	5.2	3.4	3.7	3.2	2.4	2.8	2.9	2.5
26	4.6	4.7	4.2	8.3	5.4	3.2	3.7	3.0	2.8	2.6	2.9	2.3
27	3.2	4.6	4.2	5.0	4.9	3.4	3.4	3.3	2.5	2.7	3.1	3.3
28	3.0	3.5	4.2	4.9	4.1	5.2	3.5	4.2	2.6	3.1	2.8	2.8
29	3.0	3.7	4.1	4.6		4.6	3.5	3.3	2.8	3.0	2.6	2.8
30	3.3	4.2	3.9	4.4		4.2	3.0	3.5	2.6	3.3	3.0	2.9
31	3.2		3.8	4.2		4.1		3.5		3.2	3.2	
Total	99.4	100.8	116.5	28.7	141.4	115.1	100.1	99.3	85.8	89.6	89.1	89.6
Mean	3.21	3.36	3.76	4.15	5.05	3.71	3.34	3.20	2.86	2.89	2.87	2.99
Max.	4.7	4.7	4.2	8.3	6.2	5.2	4.3	4.2	4.4	3.4	3.3	3.8
Min.	2.4	2.6	3.2	3.7	4.1	3.0	2.8	2.6	2.4	2.4	2.4	2.3
Ac-ft	197	200	231	255	280	228	199	197	170	178	177	178
Calendar year 1960:				Max 36	Min 1.7	Mean 4.38			Acre-feet 3,180			
Water year 1960-61:				Max 8.3	Min 2.3	Mean 3.44			Acre-feet 2,490			

SANTA MARGARITA RIVER BASIN

97

11-445. Santa Margarita River near Fallbrook, Calif.

Location.--Lat 33°25'54", long 117°15'44", in NE¼SE¼NE¼ sec.14, T.9 S., R.4 W., on right bank 180 ft upstream from De Luz Road, 1.3 miles northwest of Fallbrook, and 1.9 miles downstream from Sandia Canyon.

Records available.--October 1924 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Altitude of gage is 280 ft (from topographic map). Prior to Oct. 1, 1955, at site 1.7 miles upstream at different datum. Records equivalent except those for extreme low flows.

Average discharge.--24 years (1924-48), 35.4 cfs (25,630 acre-ft per year), 13 years (1948-61), 10.9 cfs (7,890 acre-ft per year); median of yearly mean discharges (1924-48), 17 cfs (12,300 acre-ft per year), (1948-61), 4.5 cfs (3,300 acre-ft per year).

Extremes.--Maximum discharge during year, 8.6 cfs Jan. 26 (gage height, 2.34 ft); no flow Oct. 1-21.

1924-61: Maximum discharge, 33,100 cfs Feb. 16, 1927 (gage height, 15.6 ft, site and datum then in use), from rating curve extended above 8,800 cfs on basis of slope-area measurement of peak flow; no flow at times during recent years.

Remarks.--Records good. Discharge measurements generally made twice a month. Flow partly regulated by Vail Lake (see p. 94 ) beginning in November 1948. Several small diversions above station for irrigation. The Fallbrook Public Utility District pumped 306 acre-ft of water from a well in the stream bed 2.1 miles upstream from the station during the water year.

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

1.7	0	2.1	.6
1.9	.1	2.2	2.6
2.0	.2	2.3	8.6

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	1.1	3.8	1.6	4.2	*3.3	3.8	*1.8	*2.2	0.4	1.0	*1.0
2	0	1.1	*3.8	1.6	4.2	3.3	3.8	1.8	2.2	.6	1.1	1.0
3	0	1.3	3.8	1.6	4.2	3.3	*2.9	1.8	2.2	*.6	1.1	1.0
4	0	1.6	3.8	2.2	4.2	3.3	2.9	1.8	2.6	.8	1.1	1.0
5	*0	1.8	3.8	2.2	4.2	3.8	2.6	1.8	2.6	.8	1.1	1.0
6	0	2.9	3.8	1.8	4.2	3.8	2.9	1.8	2.2	1.0	1.0	1.0
7	0	3.3	2.6	1.8	4.2	3.8	2.9	1.8	1.8	.8	1.0	1.1
8	0	2.6	1.8	1.8	4.2	3.8	2.9	1.8	1.8	.6	1.0	1.1
9	0	2.2	1.8	1.8	4.2	3.8	2.2	1.8	1.8	.6	1.0	1.1
10	0	2.2	1.8	1.8	4.8	3.3	2.2	1.8	1.8	.6	1.0	1.1
11	0	2.2	1.8	1.8	4.8	3.3	2.2	1.8	1.6	.5	1.0	1.1
12	0	2.6	1.6	1.8	4.8	3.3	2.2	1.6	1.6	.5	.8	1.1
13	0	3.3	1.6	2.2	4.2	3.3	2.2	1.1	1.6	.4	.8	1.0
14	0	2.9	1.6	3.3	3.8	3.3	*1.8	1.6	1.6	.4	.8	1.0
15	0	*2.9	*1.6	3.8	*3.3	*3.3	1.8	1.6	*1.3	.4	.8	1.1
16	0	2.6	1.6	3.8	2.9	3.3	1.6	*1.6	1.3	.4	*.8	1.3
17	0	2.6	1.6	3.8	2.6	3.8	1.3	1.6	1.3	.4	.8	1.6
18	0	2.6	1.6	4.2	2.2	3.8	1.3	1.6	1.1	.4	1.0	1.6
19	0	2.6	1.6	4.2	2.9	3.8	1.3	1.6	1.1	.4	1.1	*1.6
20	0	2.6	1.6	3.8	2.9	3.3	1.6	1.3	1.1	.4	1.1	1.6
21	0	2.2	1.6	3.8	2.9	3.3	1.6	1.3	1.1	.4	1.0	1.6
22	.1	2.2	1.6	3.8	2.2	3.3	1.8	1.3	1.1	.6	1.0	1.8
23	.8	2.2	1.6	3.8	2.2	3.8	1.8	1.3	1.1	.6	1.0	1.8
24	.8	2.2	2.2	3.8	2.2	3.8	1.8	1.6	1.0	.8	.8	1.6
25	.8	2.2	2.6	3.8	2.2	3.8	1.8	1.6	.8	.8	.8	1.6
26	1.3	2.9	3.3	5.4	2.6	3.8	1.6	1.6	.8	.8	.8	1.6
27	1.6	3.3	3.3	5.4	2.9	3.8	1.6	1.6	.6	.8	.8	1.6
28	1.6	3.8	2.2	5.4	*2.9	4.8	1.6	1.8	.6	.8	.8	1.3
29	1.3	3.8	1.6	4.8	-	4.8	1.8	1.8	.5	.8	.8	1.3
30	1.1	3.8	1.6	4.2	-----	4.8	2.2	2.6	-----	.8	1.0	1.3
31	1.1	-----	1.6	4.2	-----	4.2	-----	2.2	-----	1.0	1.0	-----
Total	10.5	75.6	70.2	99.3	97.1	114.2	64.0	52.1	42.8	19.2	29.2	38.9
Mean	0.34	2.52	2.26	3.20	3.47	3.68	2.13	1.68	1.43	0.62	0.94	1.30
Max.	1.6	3.8	3.8	5.4	4.8	4.8	3.8	2.6	2.6	1.0	1.1	1.8
Min.	0	1.1	1.6	1.6	2.2	3.3	1.3	1.1	0.4	0.4	0.8	1.0
Ac-ft	21	150	139	197	193	227	127	103	85	38	58	77

Calendar year 1960: Max 25 Min 0 Mean 2.62 Acre-feet 1,900

Water year 1960-61: Max 5.4 Min 0 Mean 1.95 Acre-feet 1,420

\* Discharge measurement or observation of no flow made on this day.

## SANTA MARGARITA RIVER BASIN

11-449. De Luz Creek near Fallbrook, Calif.

Location.--Lat 33°22'10", long 117°19'15", in NW¼NE¼ sec.29, T.9 S., R.4 W., on left bank 0.65 mile upstream from mouth and 4.2 miles west of Fallbrook.

Drainage area.--47.9 sq mi.

Records available.--February 1951 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 150 ft (from topographic map). Prior to Dec. 23, 1958, at site 750 ft upstream at same datum.

Average discharge.--10 years, 5.66 cfs (4,100 acre-ft per year); median of yearly mean discharges, 1.2 cfs (870 acre-ft per year).

Extremes.--No flow during year.

1951-61: Maximum discharge, 2,800 cfs Apr. 1, 1958 (gage height, 9.95 ft, at present site, from floodmarks), from rating curve extended above 300 cfs on basis of slope-area measurement of peak flow; no flow during several months of each year.

Remarks.--No flow since Apr. 27, 1960. No regulation or diversion. Figures for calendar year 1960 are as follows: Total cfs-days, 3.9; maximum daily discharge, 2.3 cfs; minimum daily, zero; mean, 0.01 cfs; runoff, 7.8 acre-ft.

11-460. Santa Margarita River at Ysidora, Calif.

Location.--Lat 33°14'38", long 117°22'56", in NE¼SE¼SE¼ sec.3, T.11 S., R.5 W., on right bank 1 mile downstream from Ysidora and about 2.5 miles upstream from mouth.

Drainage area.--740 sq mi.

Records available.--February 1923 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 10 ft (from topographic map). Prior to Feb. 16, 1927, at site 1 mile upstream at different datum (destroyed by flood). Feb. 16, 1927, to Feb. 1, 1931, no gage in operation; records based on discharge measurements. Feb. 2, 1931, to Nov. 27, 1935, at same site at datum 1.00 ft higher.

Average discharge.--38 years, 30.9 cfs (22,370 acre-ft per year); median of yearly mean discharges, 9.6 cfs (7,000 acre-ft per year).

Extremes.--No flow during year.

1923-61: Maximum discharge, 33,600 cfs Feb. 16, 1927, on basis of slope-area measurement of peak flow; no flow during part of most years.

Remarks.--No flow since June 1, 1958. Diversions above station for irrigation on Santa Margarita Ranch and Pauba Ranch. Flow partly regulated by Vail Reservoir (see p. 94) beginning in November 1948. "Average discharge" represents flow to ocean during period of record, regardless of upstream development.



## LAS FLORES CREEK BASIN

99

11-461. Las Flores Creek near Oceanside, Calif.

Location.--Lat 33°17'32", long 117°27'21", in NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.24, T.10 S., R.6 W., on upstream side and at center of bridge on Atchison, Topeka and Santa Fe Railway, 0.5 mile upstream from mouth and 8.5 miles northwest of Oceanside.

Drainage area.--26.6 sq mi.

Records available.--May 1951 to September 1961.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 35 ft (from topographic map).

Average discharge.--10 years, 0.87 cfs (630 acre-ft per year); median of yearly mean discharges, 0.3 cfs (220 acre-ft per year).

Extremes.--Maximum discharge during year, 8.5 cfs Jan. 26 (gage height, 0.62 ft); no flow for most of year.

1951-61: Maximum discharge, 960 cfs Jan. 16, 1952 (gage height, 4.75 ft); no flow for most of each year.

Remarks.--Records fair. Rising water from area, which bypasses the station 1,000 ft to the northwest, amounted to 50 acre-ft this year.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Jan. 26.....	1.5	Mar. 20.....	0.1
Mar. 6.....	.1	21.....	.1
7.....	.2	22.....	.1
8.....	.2		

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
January 1961.....	1.5	1.5	0	0.05	3.0
March.....	.8	.2	0	.03	1.6
Calendar year 1960.....	-	40	0	.23	169
Water year 1960-61.....	-	1.5	0	.006	4.6

Peak discharge (base, 40 cfs).--No peak above base.

Note.--Flow occurred only on days listed above.

## SAN ONOFRE CREEK BASIN

11-462. San Onofre Creek near San Onofre, Calif.

Location.--Lat 33°23'23", long 117°30'50", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.16, T.9 S., R.6 W., on left bank 0.3 mile southwest of Tent Camp No. 2, 0.5 mile downstream from ford on Basilone Road, 4 miles east of San Onofre, and 5 miles upstream from mouth.

Drainage area.--34.6 sq mi.

Records available.--October 1950 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 170 ft (from topographic map). Prior to June 22, 1957, at datum 1.00 ft higher. June 22, 1957, to Oct. 7, 1960, at site 50 ft upstream at same datum.

Average discharge.--11 years, 2.58 cfs (1,870 acre-ft per year); median of yearly mean discharges, 0.5 cfs (360 acre-ft per year).

Extremes.--Maximum discharge during year, 24 cfs Nov. 27 (gage height, 1.47 ft); no flow for most of year.

1950-61: Maximum discharge, 2,680 cfs Apr. 1, 1958 (gage height, 5.90 ft), from rating curve extended above 200 cfs on basis of slope-area measurement of peak flow at gage height 5.6 ft; no flow for several months in each year.

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

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

1.0	0
1.1	.3
1.2	2.2
1.3	7.4

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0		0	0	0						
2		0		0	0	*.1						
3		0		0	0	0	(*)					
4		0		0	0	0						
5		0		0	0	0						
6		a .1		0	0	0						
7		*a 0		0	0	0						
8		0		0	0	0						
9		0		0	0	0						
10		0		0	a 0	0						
11		0		0	a 0	0						
12		0		0	a 0	0						
13		0		0	a .1	0						
14		* 0	(*)	0	a .1	0						
15		0		0	a .1	0			(*)			
16		0		0	* .1	0		(*)				
17	(*)	0		0	.1	0						
18		0		0	.1	0						
19		0		0	.1	0						
20		0		0	.1	0	(*)					(*)
21		0		0	.1	0						
22		0		0	.1	0						
23		0		0	.1	0						
24		0		0	.1	0						
25		0		0	.1	.1						
26		1.5		1.3	.1	0						
27		* 2.5	(*)	* 0	.1	0						
28		0		0	.1	* 0						
29		* 0		0	-	0						
30		0		0	-	0						
31		0		0	-	0				(*)		
Total	0	4.1	0	1.3	1.6	0.2	0	0	0	0	0	0
Mean	0	0.14	0	0.04	0.06	0.006	0	0	0	0	0	0
Max.	0	2.5	0	1.3	0.1	0.1	0	0	0	0	0	0
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0	8.1	0	2.6	3.2	0.4	0	0	0	0	0	0

Calendar year 1960:

Water year 1960-61:

Max 33

Max 2.5

Min 0

Min 0

Mean 0.45

Mean 0.02

Acre-feet 325

Acre-feet 14

Peak discharge (base, 50 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

a No gage-height record.

11-462.5. San Onofre Creek at San Onofre, Calif.

Location.--Lat 33°23'00", long 117°34'22", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.14, T.9 S., R.7 W., on left bank 0.2 mile north of San Onofre, 0.3 mile upstream from U. S. Highway 101, and 0.5 mile upstream from mouth.

Drainage area.--42.2 sq mi.

Records available.--October 1946 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 15 ft (from topographic map).

Average discharge.--15 years, 1.21 cfs (876 acre-ft per year); median of yearly mean discharges, zero.

Extremes.--No flow during year.

1946-61: Maximum discharge, 2,600 cfs Apr. 1, 1958 (gage height, 6.90 ft); no flow for most or all of each year.

Remarks.--No flow since Apr. 27, 1960. Pumping above station for irrigation and water supply. Figures for calendar year 1960 are as follows: maximum daily discharge, 37 cfs; minimum, zero; mean, 0.40 cfs; runoff, 288 acre-ft.

## SAN MATEO CREEK BASIN

11-463. San Mateo Creek near San Clemente, Calif.

Location.--Lat 33°28'15", long 117°28'20", in SE 1/4 sec. 23, T. 8 S., R. 6 W., on left bank 0.4 mile downstream from mouth of Devil Canyon and 8.6 miles northeast of San Clemente.

Drainage area.--81.1 sq mi.

Records available.--October 1952 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 405 ft (from topographic map).

Average discharge.--9 years, 6.94 cfs (5,020 acre-ft per year).

Extremes.--Maximum discharge during year, 2.7 cfs Jan. 26 (gage height, 3.70 ft); no flow for most of year.

1952-61: Maximum discharge, 4,800 cfs Apr. 1, 1958 (gage height, 9.10 ft), from rating curve extended above 2,000 cfs; no flow for several months in each year.

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

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

3.4	0
3.5	.3
3.6	1.2
3.7	2.7

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		(*)		0	0.1	0	0.1					
2				0	.1	* 0	.1					
3				0	.1	0	* 0					
4				0	.1	0	0					
5				0	.1	0	0					
6				0	.1	0	0					
7		(*)		0	.1	0	0					
8				0	.1	0	0					
9				0	.1	0	0					
10				0	.1	0	0					
11				0	.1	0	0					
12				0	.1	0	0					
13				0	.1	0	0					
14				0	.1	0	* 0					
15			(*)	0	.1	0	0					
16				0	* .1	0	0	(*)				
17	(*)			0	.1	0	0					
18				0	.1	0	0					
19				0	.2	0	0					(*)
20				0	.2	0	0					
21				0	.1	0	0					
22				0	.1	0	0					
23				0	.1	0	0					
24				0	0	0	0					
25				0	0	0	0					
26				1.3	0	0	0					
27			(*)	.9	0	0	0					
28				.4	0	.4	0					
29		(*)		.3	-	.4	0		(*)			
30				* .2	-	.2	0					
31				.1	-	.1	-			(*)		
Total	0	0	0	3.2	2.5	1.1	0.2	0	0	0	0	0
Mean	0	0	0	0.10	0.09	0.04	0.007	0	0	0	0	0
Max.	0	0	0	1.3	0.2	0.4	0.1	0	0	0	0	0
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0	0	0	6.3	5.0	2.2	0.4	0	0	0	0	0

Calendar year 1960 :	Max	53	Min	0	Mean	1.44	Acre-feet	1,040
Water year 1960-61 :	Max	1.3	Min	0	Mean	0.02	Acre-feet	14

Peak discharge (base, 100 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

## 11-463.5. Cristianitos Creek near San Clemente, Calif.

Location.--Lat 33°26'57", long 117°34'13", in SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.25, T.8 S., R.7 W., on right bank 900 ft downstream from Talenga Canyon, 2.3 miles upstream from mouth and 2.8 miles northeast of San Clemente.

Drainage area.--29.1 sq mi.

Records available.--October 1950 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 165 ft (from topographic map). Prior to Sept. 19, 1952, at datum 3.92 ft higher.

Average discharge.--11 years, 1.72 cfs (1,250 acre-ft per year); median of yearly mean discharges, 0.4 cfs (290 acre-ft per year).

Extremes.--No flow during year.

1950-61: Maximum discharge, 1,800 cfs Jan. 16, 1952 (gage height, 8.86 ft, present datum), from rating curve extended above 50 cfs on basis of slope-area measurement of peak flow; no flow for several months in each year.

Remarks.--No flow since May 1, 1960. No regulation or diversion. Figures for calendar year 1960 are as follows: maximum daily discharge, 45 cfs; minimum, zero; mean, 0.58 cfs; runoff, 419 acre-ft.

## 11-463.7. San Mateo Creek at San Onofre, Calif.

Location.--Lat 33°23'46", long 117°35'21", in NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.14, T.9 S., R.7 W., on right bank 0.3 mile upstream from U. S. Highway 101, 0.8 mile upstream from mouth, 1.3 miles northwest of San Onofre, and 2.25 miles downstream from Cristianitos Creek.

Drainage area.--133 sq mi.

Records available.--October 1946 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 20 ft (from topographic map).

Average discharge.--15 years, 5.11 cfs (3,700 acre-ft per year); median of yearly mean discharges, zero.

Extremes.--No flow during year.

1946-61: Maximum discharge, 4,650 cfs Apr. 1, 1958 (gage height, 5.62 ft); no flow for all or several months in each year.

Remarks.--No flow since Apr. 27, 1960. Minor flows regulated by percolation basins. Figures for calendar year 1960 are as follows: maximum daily discharge, 0.1 cfs; minimum, zero; mean, 0.0005 cfs; runoff, 0.4 acre-ft.

11-465. San Juan Creek near San Juan Capistrano, Calif.

Location.--Lat 33°31'08", long 117°37'27", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.32, T.7 S., R.7 W., on right pier of bridge on State Highway 74, 2.5 miles northeast of San Juan Capistrano.

Drainage area.--110 sq mi.

Records available.--October 1928 to September 1961. Combined records of creek and diversion October 1954 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 150 ft (from topographic map). Prior to Feb. 28, 1934, at site  $2\frac{1}{2}$  miles downstream at different datum. Feb. 28, 1934, to Dec. 10, 1938, at present site at different datum. Dec. 11, 1938, to Dec. 17, 1941, at present site at datum 2.00 ft higher.

Average discharge.--33 years, 12.4 cfs (8,980 acre-ft per year); median of yearly mean discharges, 2.6 cfs (1,900 acre-ft per year). Average combined discharge of creek and canal, 7 years (1954-61), 8.63 cfs (6,250 acre-ft per year).

Extremes.--Maximum discharge during year, 1.8 cfs Jan. 28 (gage height, 1.06 ft); no flow on many days.

1929-61: Maximum discharge, 13,000 cfs Mar. 2, 1938, by slope-area measurement, determined by Corps of Engineers; no flow at times in most years.

Remarks.--Records good. Discharge measurements or observations of no flow generally made weekly. See following page for records of combined discharge of creek and Capistrano Water Co.'s canal, which diverts 500 ft upstream from station.

Cooperation.--Thirty-six discharge measurements furnished by Orange County Flood Control District.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0.2	1.0	0.2	0.4	0.2	0.2	0.1	0.1	0.1	0.1	0
2	.1	.2	1.0	.2	.4	.2	.2	.1	.1	.1	.1	0
3	.1	.2	1.0	.2	.3	.2	.2	.1	.1	.1	.1	0
4	.1	.2	1.0	.2	.3	.3	.2	.1	.1	.1	0	0
5	.1	.2	1.0	.2	.2	.3	.2	.1	.1	.1	0	0
6	.1	.3	1.0	.2	.2	.3	.2	.1	.1	.1	0	0
7	.1	.2	1.0	.2	.2	.9	.2	.1	.1	.1	0	0
8	.1	.2	.9	.2	.2	.9	.2	.1	.1	.1	0	0
9	.1	.2	1.2	.2	.2	1.0	.2	.1	.1	.1	0	0
10	.1	.2	1.2	.2	.2	.2	.2	.1	.1	.1	0	0
11	.1	.3	1.2	.2	.2	.2	.2	.1	.1	.1	0	.1
12	.1	.4	.7	.2	.2	.2	.2	.1	.1	.1	0	.1
13	.1	.6	.3	.2	.2	.2	.2	.1	.1	.1	0	.1
14	.1	.6	.3	.3	.2	.2	.1	.1	.1	.1	0	.2
15	.1	.7	.3	.3	.2	.2	.1	.1	.1	.1	0	.2
16	.1	.7	.3	.3	.2	.2	.1	.1	.1	.1	0	.3
17	.1	.7	.3	.3	.3	.2	.1	.1	.1	.1	0	.3
18	.1	.8	.3	.3	.3	.2	.1	.2	.1	.1	0	.3
19	.1	.8	.3	.3	.3	.2	.1	.2	.1	.1	0	.3
20	.1	.8	.3	.3	.2	.2	.1	.2	.1	.1	0	.4
21	.1	.8	.2	.3	.2	.2	.1	.2	.1	.2	0	.4
22	.1	.9	.2	.3	.2	.3	.1	.2	.1	.2	0	.4
23	.1	.5	.2	.4	.2	.3	.1	.1	.1	.2	0	.3
24	.1	.2	.3	.4	.3	.3	.1	.1	.1	.1	0	.2
25	.1	.2	.7	.4	.3	.3	.1	.1	.1	.1	0	.2
26	.2	.6	.7	1.1	.3	.3	.1	.1	.1	.1	0	.2
27	.2	1.2	.7	1.4	.3	.3	.1	.1	.1	.1	0	.2
28	.2	1.0	.5	1.6	.3	.3	.1	.1	.1	.1	0	.2
29	.2	1.0	.2	.9	-	.3	.1	.1	.1	.1	0	.2
30	.2	1.0	.3	.5	-	.2	.1	.1	.1	.1	0	.1
31	.2	-	.4	.4	-	.2	-	.1	-	.1	0	-
Total	3.7	15.9	19.0	12.4	7.0	9.5	4.3	3.6	3.0	3.4	0.3	4.7
Mean	0.12	0.53	0.61	0.40	0.25	0.31	0.14	0.12	0.10	0.11	0.01	0.16
Max.	0.2	1.2	1.2	1.6	0.4	1.0	0.2	0.2	-	0.2	0.1	0.4
Min.	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	-	0.1	0	0
Ac-ft	7.3	32	38	25	14	19	8.5	7.1	6.0	6.7	0.6	9.3

Calendar year 1960:

Max

114

Min 0.1

Mean

2.05

Acre-feet

1,490

Water year 1960-61:

Max

1.6

Min 0

Mean

0.24

Acre-feet

174

Peak discharge (base, 20 cfs).--No peak above base.

Combined discharge, in cubic feet per second, of San Juan Creek and Capistrano Water Co.'s canal near San Juan Capistrano, Calif.  
water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.7	1.1	1.3	1.4	1.8	1.4	1.2	0.4	0.7	0.4	0.1	0
2	.7	1.1	1.3	1.4	1.9	1.4	1.1	.5	.7	.5	.1	0
3	.7	1.2	1.3	1.3	1.8	1.4	1.0	.5	.7	.5	.1	0
4	.7	1.2	1.3	1.3	1.8	1.6	1.0	.5	.7	.5	0	0
5	.7	1.2	1.3	1.3	1.6	1.6	1.0	.5	.7	.5	0	0
6	.6	1.5	1.3	1.4	1.6	1.4	1.0	.5	.7	.5	0	0
7	.6	1.3	1.3	1.4	1.6	1.3	.7	.5	.7	.4	0	0
8	.7	1.2	1.4	1.4	1.6	1.3	.6	.5	.7	.4	0	0
9	.7	1.2	1.5	1.4	1.6	1.4	.5	.5	.7	.4	0	0
10	.7	1.2	1.5	1.5	1.6	1.1	.5	.5	.7	.4	0	0
11	.7	1.3	1.5	1.5	1.6	1.4	.4	.5	.7	.4	0	.1
12	.8	1.0	1.5	1.5	1.6	1.3	.4	.5	.7	.4	0	.1
13	.8	.9	1.5	1.5	1.6	1.3	.4	.6	.6	.4	0	.1
14	.8	.9	1.5	1.6	1.6	1.3	.2	.6	.6	.5	0	.2
15	.7	1.0	1.6	1.6	1.6	1.4	.2	.7	.6	.5	0	.2
16	.7	1.0	1.6	1.6	1.7	1.3	.2	.7	.6	.5	0	.4
17	.7	1.0	1.6	1.7	1.6	1.4	.1	.7	.6	.5	0	.4
18	.8	1.1	1.6	1.7	1.6	1.4	.1	.8	.6	.3	0	.4
19	.8	1.1	1.6	1.7	1.6	1.3	.1	.8	.6	.2	0	.4
20	.8	1.0	1.6	1.7	1.5	1.3	.1	.8	.6	.2	0	.5
21	.7	1.0	1.5	1.7	1.5	1.2	.1	.8	.6	.2	0	.4
22	.7	1.1	1.5	1.7	1.5	1.3	.1	.8	.5	.2	0	.4
23	1.0	1.2	1.5	1.8	1.5	1.3	.2	.7	.5	.2	0	.3
24	1.4	1.2	1.3	1.8	1.4	1.3	.2	.7	.5	.1	0	.2
25	.9	1.2	1.3	1.8	1.5	1.3	.2	.7	.5	.3	0	.2
26	1.0	1.2	1.3	1.7	1.5	1.3	.3	.7	.5	.3	0	.2
27	1.0	1.5	1.2	1.6	1.4	1.4	.3	.7	.5	.1	0	.2
28	.9	1.3	1.3	1.8	1.4	1.5	.3	.7	.5	.1	0	.2
29	.8	1.3	1.3	1.7	-	1.4	.3	.7	.4	.1	0	.2
30	.9	1.3	1.1	1.9	-	1.2	.4	.7	.4	.1	0	.1
31	1.0	-	1.3	1.8	-	1.2	-	.7	-	.1	0	-
Total	24.7	34.8	43.7	49.2	44.6	41.7	13.2	19.5	18.1	10.2	0.3	5.2
Mean	0.80	1.16	1.41	1.59	1.59	1.35	0.44	0.63	0.60	0.33	0.01	0.17
Max.	1.0	1.5	1.6	1.9	1.9	1.6	1.2	0.8	0.7	0.5	0.1	0.5
Min.	0.6	0.9	1.1	1.3	1.4	1.1	0.1	0.4	0.4	0.1	0	0
Ac-ft	49	69	87	98	88	83	26	39	36	20	0.6	10
Calendar year 1960 :			Max	114	Min	0.4	Mean	2.80	Acre-feet	2,030		
Water year 1960-61 :			Max	1.9	Min	0	Mean	0.84	Acre-feet	606		

## SAN JUAN CREEK BASIN

11-470. Arroyo Trabuco near San Juan Capistrano, Calif.

Location.--Lat 33°31'36", long 117°40'08", in NE 1/4 sec. 36, T. 7 S., R. 8 W., on downstream side of right pier of county road bridge (formerly U. S. Highway 101), 1.8 miles north of San Juan Capistrano.

Drainage area.--36.5 sq mi.

Records available.--October 1930 to September 1961. Prior to October 1956, published as Trabuco Creek near San Juan Capistrano.

Gage.--Water-stage recorder. Altitude of gage is 180 ft (from topographic map).

Average discharge.--31 years, 4.88 cfs (3,530 acre-ft per year); median of yearly mean discharges, 0.5 cfs (360 acre-ft per year).

Extremes.--Maximum discharge during year, 1.6 cfs Nov. 6 (gage height, 1.87 ft); no flow most of year.

1930-61: Maximum discharge, 9,240 cfs Feb. 6, 1937; no flow at times in each year.

Remarks.--No regulation or diversion.

Cooperation.--Records furnished by Orange County Flood Control District.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0	0	0	0	0.2	0	0		0.1	0
2		.1	0	0	0	0	0	0	0		.1	0
3		0	0	0	0	.1	0	0	0		.1	0
4		0	0	.1	0	0	0	0	0		.1	0
5		0	0	.2	0	0	0	0	0		.1	0
6		.1	0	.1	0	0	0	0	0		.1	0
7		0	0	.1	0	0	0	0	.1		0	0
8		0	0	0	0	0	0	0	.1		0	.1
9		0	0	0	0	0	.1	.2	0		0	.1
10		0	0	0	0	0	.1	.2	0		0	.1
11		0	0	0	0	0	0	.1	0		0	0
12		0	0	0	0	0	0	.2	0		0	.1
13		0	0	.1	0	0	0	0	0		0	.2
14		0	0	0	0	0	0	0	0		0	.1
15		0	0	0	.3	0	0	0	0		0	0
16		0	0	0	.2	0	0	.1	0		0	0
17		0	0	0	.1	0	0	.1	.1		0	0
18		0	0	0	0	0	0	0	.3		0	0
19		0	0	0	0	0	0	0	.2		0	0
20		0	0	0	0	0	0	0	.1		0	0
21		0	0	0	.2	0	0	0	.3		0	0
22		0	0	0	.1	.1	0	0	.2		0	0
23		0	0	0	.2	.1	0	0	.1		0	0
24		0	0	0	0	.1	0	0	0		0	0
25		0	0	0	0	.3	.3	0	0		0	0
26		0	0	0	0	0	.3	0	0		0	0
27		0	0	0	.1	0	.1	0	0		0	0
28		0	.1	0	.2	0	.1	0	0		0	0
29		0	0	0	0	0	.1	0	0		0	0
30		0	0	0	0	.1	0	0	0		0	0
31		0	.1	0	0	.2	0	0	0		0	0
Total	0	0.2	0.2	0.6	1.4	1.0	1.3	0.9	1.5	0	0.6	0.7
Mean	0	0.007	0.006	0.02	0.05	0.03	0.04	0.03	0.05	0	0.02	0.02
Max.	0	0.1	0.1	0.2	0.3	0.3	0.3	0.2	0.3	0	0.1	0.2
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0	0.4	0.4	1.2	2.8	2.0	2.6	1.8	3.0	0	1.2	1.4
Calendar year 1960 :			Max 16	Min 0		Mean 0.13		Acre-feet 96				
Water year 1960-61 :			Max 0.3	Min 0		Mean 0.02		Acre-feet 17				



11-475. Aliso Creek at El Toro, Calif.

Location--Lat 33°37'34", long 117°41'03", in Canada de los Alisos Grant, on right abutment of Second Street Bridge at El Toro, Orange County.

Drainage area--8.5 sq mi, approximately.

Records available--October 1930 to September 1961.

Gage--Water-stage recorder. Altitude of gage is 440 ft (from topographic map).

Average discharge--31 years, 0.70 cfs (507 acre-ft per year); median of yearly mean discharges, 0.2 cfs (140 acre-ft per year).

Extremes--No flow during year.

1930-61: Maximum discharge, 1,950 cfs Feb. 6, 1937; no flow most of each year.

Remarks--No flow since Feb. 2, 1960. Figures for calendar year 1960 are as follows: maximum daily discharge, 2.4 cfs; minimum daily, zero; mean, 0.02 cfs; runoff, 13 acre-ft. Some pumping from wells along stream.

Cooperation--Records furnished by Orange County Flood Control District.

## PETERS CANYON WASH BASIN

11-485. San Diego Creek near Irvine, Calif.

Location.--Lat 33°40'20", long 117°47'10", in San Joaquin Grant, on left bank 200 ft downstream from Jeffrey Road Bridge and 1.5 miles west of Irvine, Orange County.

Drainage area.--40.3 sq mi.

Records available.--October 1949 to September 1961.

Gage.--Water-stage recorder and concrete control. Datum of gage is 102.86 ft above mean sea level (levels by Orange County Flood Control District).

Average discharge.--12 years, 1.70 cfs (1,230 acre-ft per year); median of yearly mean discharges, 0.6 cfs (430 acre-ft per year).

Extremes.--Maximum discharge during year, 1,140 cfs Nov. 6 (gage height, 4.10 ft), from rating curve extended above 250 cfs on basis of slope-area measurement of peak flow, at gage height 7.7 ft; no flow for most of year.

1949-61: Maximum discharge, 4,040 cfs Jan. 18, 1952 (gage height, 7.70 ft), from rating curve extended above 1,000 cfs on basis of slope-area measurement of peak flow; no flow for most of each year.

Remarks.--Records good. Discharge measurement or observation of no flow made two or more times a month. No regulation or diversion.

Cooperation.--Seven discharge measurements furnished by Orange County Flood Control District.

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0	0		0		0.1	0.2	0	0	0.1
2		0	1.0	0		0		0	.2	0	0	0
3		0	0	0		0		0	0	0	0	0
4		0	0	.5		0		0	0	0	0	0
5		0	0	1.7		0		0	0	0	0	0
6		92	0	.5		0		.2	.1	0	0	0
7		0	0	0		0		0	.1	0	0	0
8		0	0	.2		0		0	0	0	0	0
9		0	0	0		0		0	.1	0	.1	0
10		0	0	0		0		0	.1	0	.1	.1
11		0	0	0		0		.4	.2	0	0	.1
12		0	0	0		0		0	.1	0	0	0
13		0	0	0		0		.2	.1	0	0	0
14		0	0	0		0		.7	0	0	0	0
15		0	0	0		0		.2	0	0	0	0
16		0	0	0		0		.2	0	0	0	0
17		0	0	0		0		.3	.1	0	0	0
18		.3	.1	0		0		.7	0	0	0	0
19		.2	0	0		0		.8	0	0	0	0
20		.4	0	0		0		1.2	0	0	.2	0
21		.2	0	0		0		1.4	.2	0	.2	0
22		.4	0	0		0		2.4	.1	0	0	0
23		.1	0	0		.1		1.4	.1	0	0	0
24		0	0	0		0		.7	0	0	0	0
25		0	0	0		0		.7	0	0	0	0
26		24	0	15		0		.4	0	0	0	0
27		.3	0	0		.3		.6	0	0	0	0
28		.1	0	0		0		.9	0	0	0	0
29		.6	0	0		0		.5	0	.1	0	0
30		.1	0	0		0		.3	0	.2	0	0
31			0	0		0		.2		0	0	
Total	0	118.7	1.1	17.9	0	0.4	0	14.5	1.7	0.3	0.6	0.3
Mean	0	3.96	0.04	0.58	0	0.01	0	0.47	0.06	0.01	0.02	0.01
Max.	0	92	1.0	15	0	0.3	0	2.4	0.2	0.2	0.2	0.1
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0	235	2.2	36	0	0.8	0	29	3.4	0.6	1.2	0.6
Calendar year 1960 :			Max	92	Min	0	Mean	1.36	Acre-feet	985		
Water year 1960-61 :			Max	92	Min	0	Mean	0.43	Acre-feet	309		

Peak discharge (base, 100 cfs).--Nov. 6 (6 a.m.) 1,140 cfs (4.10 ft); Nov. 26 (6 p.m.) 244 cfs (2.45 ft); Jan. 26 (2:30 p.m.) 125 cfs (2.08 ft).

11-490. Big Bear Lake near Big Bear Lake, Calif.

Location.--Lat 34°14'20", long 116°58'50", in SW $\frac{1}{4}$  sec.22, T.2 N., R.1 W., at Big Bear Lake Dam on Bear Creek, 4 miles west of town of Big Bear Lake and  $\frac{7}{8}$  miles upstream from mouth.

Drainage area.--38 sq mi, approximately.

Records available.--October 1950 to September 1961 in reports of Geological Survey. February 1884 to September 1950 in files of Bear Valley Mutual Water Co.

Gage.--Staff gage read once daily. Datum of gage is 6,670.9 ft above mean sea level (levels by Bear Valley Mutual Water Co.). Prior to 1912, staff gage at old dam 200 ft upstream at same datum (spillway at gage height 52.4 ft).

Extremes.--Maximum contents observed during year, 6,848 acre-ft Oct. 1; minimum contents, 1,000 acre-ft Sept. 30.

1884-1961: Maximum contents unknown, lake spilled in 1916, 1917, 1922, 1923, 1938, 1939; no contents October, November 1898, August to November 1899, October, November 1904.

Remarks.--Lake is formed by multiple-arch concrete dam, completed in 1912, replacing existing lower dam built in 1884; storage began in spring of 1884. Capacity, 72,200 acre-ft at elevation 6,743.2 ft (top of dam). No dead storage. Water used for irrigation only.

Cooperation.--Record of contents furnished by Bear Valley Mutual Water Co.

Month-end contents, water year October 1960 to September 1961

Month	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	6,848	-
Oct. 31.....	6,402	-446
Nov. 30.....	6,338	-64
Dec. 31.....	6,084	-254
Calendar year 1960.....	-	-5,725
Jan. 31.....	6,084	0
Feb. 28.....	5,447	-637
Mar. 31.....	5,257	-190
Apr. 30.....	5,193	-64
May 31.....	4,683	-510
June 30.....	3,258	-1,425
July 31.....	2,333	-925
Aug. 31.....	1,617	-716
Sept. 30.....	1,000	-617
Water year 1960-61.....	-	-5,848

## SANTA ANA RIVER BASIN

11-515. Santa Ana River near Mentone, Calif.

Location.--Lat 34°06'40", long 117°05'54", in NW¼NE¼SW¼ sec.4, T.1 S., R.2 W., on left bank near mouth of canyon, 1.8 miles upstream from Mill Creek and 3.5 miles northeast of Mentone.

Drainage area.--202 sq mi, including area tributary to Baldwin Lake at head of Bear Valley.

Records available.--July 1896 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B. Prior to October 1914, observed records not equivalent owing to Greenspot pipeline diversion between sites and exclusion of discharge from Warm Springs Canyon.

Gage.--Water-stage recorder. Datum of gage is 1,984.28 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1914, staff gages at various sites within 1,000 ft of point 1½ miles upstream at various datums. Oct. 1, 1914, to Jan. 17, 1916, staff gage at site 10 ft upstream at different datum. Jan. 18, 1916, to Sept. 2, 1917, staff gage at same site and datum.

Average discharge.--47 years (1914-61), 30.0 cfs (21,720 acre-ft per year); median of yearly mean discharges, 8.4 cfs (6,100 acre-ft per year). Average combined discharge of Santa Ana River and canal, 65 years (1896-1961), 83.1 cfs (60,160 acre-ft per year); median of yearly mean combined discharges, 70 cfs (50,700 acre-ft per year).

Extremes.--Maximum discharge during year, 41 cfs Nov. 6 (gage height, 6.08 ft); no flow most of year. 1896-61: Maximum discharge, 52,300 cfs Mar. 2, 1938 (gage height, 14.3 ft), on basis of slope-area measurement of peak flow; no flow at times in some years.

Remarks.--Records good. Discharge measurements or observations of no flow generally made two or more times a month. Flow partly regulated by Big Bear Lake (see preceding page). For records of combined discharge of Santa Ana River and Southern California Edison Co.'s canal below powerplant No. 2, which diverts above station, see table below. Bear Valley Mutual Water Company pumped 389 acre-ft into canal below canal gage. Prior to Oct. 1, 1952, pumped water entered canal above gage.

Cooperation.--Twelve discharge measurements on Southern California Edison Co.'s canal below powerplant No. 2 furnished by that agency in connection with a Federal Power Commission project.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Nov. 6..... 4.5

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
November 1960.....	4.5	4.5	0	0.15	8.9
Calendar year 1960.....	-	31	0	.73	533
Water year 1960-61.....	-	4.5	0	.01	8.9

Peak discharge (base, 150 cfs).--No peak above base.

Note.--Flow occurred only on day listed above.

Combined discharge, in cubic feet per second, of Santa Ana River and Southern California Edison Co.'s canal near Mentone, Calif., water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.4	3.4	2.5	2.6	2.4	3.5	2.4	1.9	1.8	2.2	1.7	1.7
2	4.1	3.4	2.6	2.8	2.2	3.5	2.3	1.8	1.8	2.2	1.7	1.7
3	4.0	3.5	2.5	2.8	2.3	3.8	2.3	1.9	1.7	2.3	1.7	1.6
4	4.0	3.2	2.4	2.9	2.3	3.7	2.2	1.9	1.8	3.2	1.9	1.9
5	4.0	2.9	2.4	2.9	2.3	2.8	2.2	1.9	1.8	3.0	1.9	2.0
6	3.2	5.8	2.1	2.9	2.3	2.4	2.2	1.9	1.8	3.1	1.9	2.1
7	3.0	3.7	2.0	2.9	2.3	2.3	2.3	2.0	1.8	2.9	1.9	2.1
8	3.0	2.8	2.5	3.0	2.3	2.3	2.2	1.8	1.8	2.2	1.9	2.2
9	3.2	2.6	2.9	2.5	2.2	2.2	2.2	1.7	1.8	2.1	1.7	2.2
10	3.7	2.5	3.0	2.3	2.2	2.2	2.1	1.6	1.5	2.1	1.7	2.2
11	3.2	2.4	3.1	2.2	2.3	2.2	2.0	1.6	1.5	2.0	1.7	1.7
12	2.9	2.5	3.1	2.2	2.3	2.2	2.0	1.8	1.4	2.1	1.6	1.6
13	2.9	2.6	2.6	2.1	2.3	2.2	2.0	1.8	1.3	2.1	1.7	1.6
14	2.9	2.5	2.3	2.2	2.2	2.3	1.9	1.7	1.7	2.0	1.9	1.8
15	2.7	2.4	2.2	2.1	2.2	2.7	1.9	1.7	1.9	2.4	2.0	2.2
16	2.7	2.3	2.2	2.1	2.2	2.7	1.9	1.8	1.9	2.7	2.0	2.3
17	2.7	2.3	2.2	2.0	2.2	2.6	1.9	1.8	1.9	2.8	2.0	2.4
18	2.7	2.3	2.2	2.0	2.2	2.5	1.9	1.7	1.9	2.8	2.0	2.4
19	2.7	2.3	2.2	2.0	2.5	2.4	1.9	1.8	2.2	2.8	2.4	2.3
20	2.7	2.4	2.2	2.2	2.8	2.4	1.8	1.8	2.2	2.3	2.2	1.9
21	3.9	2.2	2.1	2.9	2.8	2.4	1.9	1.6	2.3	2.1	2.3	1.9
22	4.1	2.2	2.1	3.1	2.9	2.4	1.9	1.6	2.5	2.1	2.3	2.0
23	4.2	2.2	2.1	3.1	3.4	2.3	1.9	2.6	2.9	2.0	2.2	1.9
24	4.3	2.6	2.1	3.1	3.5	2.4	1.9	2.8	2.9	2.1	2.1	1.8
25	4.3	3.1	2.1	3.1	3.5	2.9	1.9	2.9	2.9	2.0	2.0	1.7
26	4.3	3.2	2.0	4.1	3.5	2.6	1.9	2.9	2.9	1.9	2.0	1.7
27	4.3	3.2	2.0	3.6	3.5	2.5	2.6	2.0	2.9	1.8	1.8	1.6
28	4.2	3.1	2.0	2.6	3.5	2.6	2.3	1.9	2.9	1.8	1.7	1.7
29	3.5	3.2	2.0	2.5	-	2.5	1.9	1.8	2.4	1.8	1.8	1.7
30	3.5	2.9	2.0	2.5	-----	2.5	1.9	1.8	2.2	1.8	1.7	1.8
31	3.4	-----	2.0	2.4	-----	2.5	-----	1.8	-----	1.8	1.7	-----
Total	1,087	857	717	817	726	805	617	596	623	705	591	577
Mean	35.1	28.6	23.1	26.4	25.9	26.0	20.6	19.2	20.8	22.7	19.1	19.2
Max.	4.4	5.8	3.1	4.1	3.5	3.8	2.6	2.9	2.9	3.2	2.4	2.4
Min.	2.7	2.2	2.0	2.0	2.2	2.2	1.8	1.6	1.3	1.8	1.6	1.6
Ac-ft	2,160	1,700	1,420	1,620	1,440	1,600	1,220	1,180	1,240	1,400	1,170	1,140
Calendar year 1960:												
					Max 80	Min 19	Mean 34.0		Acre-feet 24,700			
Water year 1960-61:					Max 58	Min 13	Mean 23.9		Acre-feet 17,290			

## SANTA ANA RIVER BASIN

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11-540. Mill Creek near Yucaipa, Calif.

Location.--Lat 34°05'27", long 117°02'12", in NW 1/4 NE 1/4 sec. 13, T.1 S., R.2 W., on left bank 50 ft downstream from bridge on State Highway 190-D, 3.9 miles north of Yucaipa, and 5.3 miles upstream from mouth.

Drainage area.--42.9 sq mi.

Records available.--January 1919 to September 1938, October 1947 to September 1961. Monthly figures only for some periods, published in WSP 1315-B. Prior to October 1954, published as "near Craftonville."

Gage.--Water-stage recorder. Datum of gage is 2,916.36 ft above mean sea level (Southern California Edison Co. bench mark). Prior to August 1926, at site 100 ft upstream at different datums. August 1926 to Mar. 2, 1938, at site 500 ft downstream at different datum (destroyed by flood).

Average discharge.--33 years, 10.9 cfs (7,890 acre-ft per year); median of yearly mean discharges, 1.7 cfs (1,200 acre-ft per year). Average combined discharge of creek and canals, 33 years, 31.7 cfs (22,950 acre-ft per year); median of yearly combined mean discharges, 23 cfs (16,700 acre-ft per year).

Extremes.--Maximum discharge during year, 1,060 cfs Aug. 23 (gage height, 9.0 ft, from floodmarks), on basis of slope-area measurement of peak flow; no flow Oct. 4 to Nov. 4, June 23-25, Aug. 15-19.

1919-38, 1947-61: Maximum discharge, 18,100 cfs Mar. 2, 1938, on basis of slope-area measurement of peak flow; no flow at times in some years.

Remarks.--Records good. Mill Creek power canals Nos. 1, 2, and 3 divert from points 100 ft, 3 miles, and 6 miles above station, respectively. Combined flow of Mill Creek and Mill Creek power canals Nos. 1, 2, and 3 is given on following page. Extremes show flow in creek only.

Cooperation.--Water-stage recorder chart and 12 discharge measurements for Mill Creek power canals Nos. 2 and 3 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 Oct. 1 to Mar. 29)

4.83	0	5.2	8.8
4.9	.2	5.3	16
5.0	1.2	5.5	36
5.1	4.0	5.8	80

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0	0.1	0.1	0.1	0.1	0.4	0.1	0.1	0.1	0.1	0.1
2	.1	0	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
3	.1	0	.1	* .1	.1	.1	.1	.1	.1	.1	* .1	.1
4	0	0	.1	.1	.1	.1	.2	.1	.1	.1	.1	.1
5	0	.2	.1	.1	.1	.1	* .1	.1	* .1	.1	.1	.1
6	0	* 7.1	* .1	.1	.1	.1	.1	.1	.2	.1	.1	.1
7	0	* .6	.1	.1	.1	.1	.1	.1	.2	.1	.1	.1
8	0	.1	.1	.1	.1	.1	.1	.1	.2	.1	.1	.1
9	0	.1	.1	.1	* .1	.1	.1	.1	.2	.1	.1	.1
10	* 0	.1	.1	.1	.1	.1	* .1	* .1	.2	.1	.1	.1
11	0	.1	.1	.1	.1	.1	.1	.1	.2	.1	.1	.1
12	0	.1	.1	.1	.1	.1	.1	.1	.1	* .1	.1	.1
13	0	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	* .1
14	0	* .1	.1	.1	.1	.1	.1	.1	.1	.1	* .1	.1
15	0	.1	.1	.1	.1	.1	.1	.1	.1	.1	0	.1
16	0	.1	.1	.1	.1	.1	.1	.1	.1	.1	0	.1
17	0	.1	.1	* .1	.1	* .1	.2	.1	.1	.1	0	.1
18	0	.1	.1	.1	.1	.1	* .2	.1	.1	.1	0	.1
19	0	.1	.1	.1	.1	.1	.2	.1	.1	.1	0	.1
20	0	.1	.1	.1	.1	.1	.1	.2	.1	.1	.1	.1
21	0	.1	* .1	.1	.1	.1	.1	.4	* .1	.1	.8	.1
22	0	* .1	.1	.1	.1	.1	.1	.4	.1	.1	.4	.1
23	0	.1	.1	.1	.1	.1	.1	.4	0	.1	* 6.6	.1
24	* 0	.1	.1	.1	.1	.1	* .1	.4	0	.1	.1	.1
25	0	.1	.1	.1	.1	.1	.1	.4	0	.1	* .1	.1
26	0	.2	.1	* .2	.1	.1	.3	.2	.1	.1	.1	.1
27	0	.1	.1	* .2	.1	.1	.2	.2	.1	.1	.1	* .1
28	0	.1	.1	.1	* .1	* .1	.2	.1	.1	.1	.2	.1
29	0	* .1	.1	.1	-	.1	.2	* .1	.1	.1	.1	.1
30	0	.1	.1	.1	-----	* .1	.1	.1	.1	.1	.1	.1
31	0	-----	.1	.1	-----	.1	-----	.1	-----	.1	.1	-----
Total	0.3	10.3	3.1	3.3	2.8	3.1	4.2	4.9	3.3	3.1	70.5	3.0
Mean	0.01	0.34	0.10	0.11	0.10	0.10	0.14	0.16	0.11	0.10	2.27	0.10
Max.	0.1	7.1	-	0.2	-	-	0.4	0.4	0.2	-	66	-
Min.	0	0	-	0.1	-	-	0.1	0.1	0	-	0	-
Ac-ft	0.6	20	6.1	6.5	5.6	6.1	8.3	9.7	6.5	6.1	140	6.0

Calendar year 1960:

Max 17

Min 0

Mean 0.38

Acre-feet 273

Water year 1960-61:

Max 66

Min 0

Mean 0.31

Acre-feet 222

Peak discharge (base, 50 cfs)--Aug. 23 (2 p.m.) 1,060 cfs (9.0 ft).

\* Discharge measurement made on this day.

Note.--No gage-height record Jan. 12-16, July 3-11, Aug. 24, 25, Sept. 30.

## 540. Mill Creek near Yucaipa, Calif.--Continued.

Combined discharge, in cubic feet per second, of Mill Creek and Mill Creek power canals  
Nos. 1, 2, and 3, near Yucaipa, Calif., water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	12	14	13	12	11	10	10	9.8	8.2	7.8	8.2
2	13	12	14	13	12	11	9.7	10	9.8	8.4	7.8	7.9
3	13	12	14	12	12	11	9.7	11	9.7	8.4	7.8	7.7
4	13	13	14	12	12	12	10	11	9.7	8.4	7.8	7.7
5	13	14	14	12	12	11	11	10	9.6	8.4	8.0	7.7
6	12	28	14	12	12	11	11	11	10	8.4	7.8	7.7
7	12	14	13	12	12	11	11	11	9.5	8.2	7.8	7.9
8	13	13	14	12	12	11	11	10	9.5	8.2	7.7	7.7
9	13	12	13	12	12	11	11	10	9.0	8.1	7.8	8.1
10	14	12	13	12	12	11	11	10	9.2	8.1	7.8	7.9
11	14	11	13	12	11	11	11	10	9.2	8.1	7.7	7.9
12	14	12	13	12	11	11	11	10	9.1	8.1	7.5	7.9
13	14	12	13	12	12	11	11	10	9.0	8.1	7.4	8.1
14	13	11	13	12	12	11	11	10	8.7	7.9	7.4	8.1
15	12	12	13	12	11	12	10	10	8.6	7.9	7.3	7.9
16	13	12	13	12	11	11	10	10	8.6	7.9	7.4	7.7
17	13	14	13	12	11	11	10	10	8.4	7.9	7.1	8.2
18	13	14	13	12	11	11	10	10	8.4	7.9	7.4	8.2
19	12	13	13	12	11	11	10	10	8.6	7.9	10	8.2
20	12	13	13	12	11	11	10	10	8.6	8.0	9.1	8.2
21	12	14	13	12	11	11	11	10	8.6	8.0	9.6	8.4
22	12	14	13	12	11	11	11	10	8.6	8.0	8.7	8.6
23	12	14	13	12	11	11	11	10	8.4	8.0	7.4	8.6
24	12	14	13	12	10	11	11	10	8.4	8.0	12	8.2
25	12	14	13	12	10	12	11	10	8.3	8.0	8.6	8.2
26	12	14	13	14	11	11	11	9.8	8.4	7.8	8.6	8.2
27	12	14	13	14	12	11	10	9.8	8.4	7.8	8.1	8.2
28	12	14	13	12	11	12	10	9.7	8.4	7.8	8.3	8.2
29	12	15	13	11	-	11	10	9.8	8.4	7.8	8.6	8.2
30	12	14	13	12	-	10	10	9.8	8.4	7.8	8.6	8.2
31	12	-	13	12	-	10	-	9.8	-	7.8	8.4	-
Total	391	407	410	377	319	343	315.4	312.7	267.3	249.3	319.9	241.9
Mean	12.6	13.6	13.2	12.2	11.4	11.1	10.5	10.1	8.91	8.04	10.3	8.06
Max.	14	28	14	14	12	12	11	11	10	8.4	7.4	8.6
Min.	12	11	13	11	10	10	9.7	9.7	8.3	7.8	7.1	7.7
Ac-ft	776	807	813	748	633	680	626	620	530	494	635	480
Calendar year 1960 :												
				Max	30	Min	9.9	Mean	15.1	Acre-feet		
Water year 1960-61 :				Max	74	Min	7.1	Mean	10.8	Acre-feet		

11-550. Mill Creek near Mentone, Calif.

Location.--Lat 34°05'14", long 117°06'46", in NE<sup>1</sup>SE<sup>1</sup>SW<sup>1</sup> sec.17, T.1 S., R.2 W., on downstream side of right pier of Bear Valley Mutual Water Co.'s pipeline crossing, 0.4 mile upstream from mouth, and 1.6 miles northeast of Mentone.

Drainage area.--51.7 sq mi.

Records available.--February 1939 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder and broad-crested weir. Altitude of gage is 1,780 ft (from topographic map).

Average discharge.--22 years, 3.06 cfs (2,220 acre-ft per year); median of yearly mean discharges, 0.5 cfs (360 acre-ft per year).

Extremes.--Maximum discharge during year, 450 cfs Aug. 23 (gage height, 6.18 ft, from floodmark), on basis of field estimate of peak flow; no flow for most of year.

1939-61: Maximum discharge, 1,500 cfs Dec. 23, 1945 (gage height, 6.5 ft), on basis of slope-area measurement of peak flow; no flow for parts of each year.

Remarks.--Records good except that for Aug. 23, which is poor. The Zanja and Mill Creek spreading grounds divert most of low-water flow above station. Pumpage from wells along stream above station for irrigation affects surface flow at station.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Aug. 23)

3.2	0	3.6	5.8
3.3	.5	3.7	9.3
3.4	1.5	4.0	27
3.5	3.2		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.2	0		0.1		0	0.1	0	0	0	0.1	0
2	.1	.1		0		0	0	0	0	0	.1	0
3	.1	.4		* 0		0	0	0	0	0	* .1	0
4	.1	.4		.1		0.1	0	0	0	0	.1	0
5	.1	.8		0		0.1	.1	0	* .1	0	0	.1
6	.1	* 9.5	(*)	0		0	0	0	0	0	0	0
7	0	* 3.1		0		0	0	0	0	0	0	.1
8	0	.2		0		0	0	0	0	0	0	0
9	0	2		0	(*)	0	0	0	0	0	0	0
10	* .1	0		0		0	* 0	0	0	0	0	.1
11	.1	0		0		0	0	0	0	0	0	0
12	.1	0		0		0	0	0	0	* .1	0	.1
13	.1	0		0		0	0	0	0	0	0	* 0
14	.1	* 0		0		* 0	0	0	0	0	* 0	0
15	.2	0		.1		0	0	0	0	0	0	0
16	.2	0		0		.1	0	0	0	0	0	0
17	.1	0		0		0	0	0	0	0	0	0
18	.1	0		* 0		.1	0	0	0	0	0	0
19	.1	0		0		0	0	0	0	0	0	0
20	.1	0		0		0	0	0	0	0	0	0
21	0	0	(*)	0		0	0	0	0	0	0	0
22	.1	0		0		0	0	0	0	0	0	0
23	.1	0		0		0	0	0	* 0	0	** 27	0
24	* .1	0		0		0	* 0	0	0	0	* 0	.5
25	0	0		0		0	.1	0	0	0	0	.1
26	0	0		.4		0	.1	0	0	0	.1	0
27	0	0		* 1.6		0	.1	.1	0	0	.1	* 0
28	0	0		0	(*)	* .2	0	0	0	0	.1	0
29	0	* 0		0		.2	0	.1	0	0	0	0
30	0	0		0		.1	0	0	0	0	0	0
31	0	0		0		0	0	0	0	.1	* 0	0
Total	2.3	14.7	0	2.3	0	0.8	0.5	0.2	0.1	0.2	28.2	0.6
Mean	0.07	0.49	0	0.07	0	0.03	0.02	0.006	0.003	0.006	0.91	0.02
Max.	0.2	9.5	0	1.6	0	0.2	0.1	0.1	0.1	0.1	27	0.1
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	4.6	29	0	4.6	0	1.6	1.0	0.4	0.2	0.4	56	1.2

Calendar year 1960: Max 16 Min 0 Mean 0.28 Acre-feet 208  
Water year 1960-61: Max 27 Min 0 Mean 0.14 Acre-feet 99

Peak discharge (base, 30 cfs).--Aug. 23 (3 p.m.) 450 cfs (6.18 ft).

\* Discharge measurement or observation of no flow made on this day.

\*\* Field estimate made on this day.

## SANTA ANA RIVER BASIN

11-555. Plunge Creek near East Highlands, Calif.

Location.--Lat 34°07'06", long 117°08'27", in SW 1/4 NE 1/4 sec.1, T.1 S., R.3 W., on left bank at mouth of canyon at crossing of North Fork ditch siphon, 1.8 miles northeast of East Highlands.

Drainage area.--16.6 sq mi.

Records available.--January 1919 to September 1961; combined records of creek and diversions, March 1951 to September 1961.

Gage.--Water-stage recorder and broad-crested weir. Altitude of gage is 1,590 ft (from topographic map).

Average discharge.--42 years, 5.65 cfs (4,090 acre-ft per year); median of yearly mean discharges, 3.8 cfs (2,800 acre-ft per year). Average combined discharge of creek and diversions, 10 years (1951-61), 5.79 cfs (4,190 acre-ft per year); median of combined yearly mean discharges, 3.7 cfs (2,700 acre-ft per year).

Extremes.--Maximum discharge during year, 26 cfs Nov. 6 (gage height, 0.82 ft); no flow for most of year.

1919-61: Maximum discharge, 5,340 cfs Mar. 2, 1938, on basis of slope-area measurement of peak flow; no flow for parts of each year.

1951-61: Minimum combined daily discharge of Plunge Creek and diversion, 0.1 cfs on Nov. 4, 1953, Nov. 3, 1959, and Nov. 14, 1960.

Remarks.--Records good. Diversions for irrigation are made at points 0.5, 1.0, and 2.5 miles above station. Combined flow of Plunge Creek and upper, middle, and lower diversions is given on following page. Maximum discharge shows flow past station only.

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

0.1	0	0.4	3.7
.2	.4	.5	6.3
.3	1.8	.6	10

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0	0		0					0	
2		0	.1	0		0					0	
3		0	.1	* 0		0					* 0	
4		0	.1	0		0					.6	
5		0	.1	0		0			(*)		0	
6		7.6	* 0	0		0					0	
7		* 2.2	0	0		0					0	
8		.9	0	0		0					0	
9		.6	0	0	(*)	0					0	
10		.2	0	0		0		(*)			0	
11	(*)	.1	0	0		0					0	
12		0	0	0		0					0	
13		.1	* 0	0		0					0	(*)
14		.1	0	0		* 0					* 0	
15		0	0	0		.1					0	
16		0	0	0		.3					0	
17		0	0	0		.1					0	
18		0	0	* 0		0				(*)	0	
19		0	0	0		0					0	
20		0	0	0		0					0	
21		0	* 0	0		0					0	
22		* 0	0	0		0					0	
23		0	0	0		0					0	
24		0	0	0		0	(*)				0	
25		0	0	0		2					0	
26		.1	0	* .1		.1					0	
27		.9	0	* 2.2	(*)	0					0	(*)
28		0	0	.9		* .1			(*)		0	
29		* 0	0	.4		0					* 0	
30		0	0	.1		0					0	
31	(*)	-----	0	0	-----	0	-----		-----		0	-----
Total	0	12.8	0.4	3.7	0	0.9	0	0	0	0	0.6	0
Mean	0	0.43	0.01	0.12	0	0.03	0	0	0	0	0.02	0
Max.	0	7.6	0.1	2.2	0	0.3	0	0	0	0	0.6	0
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0	25	0.8	7.3	0	1.8	0	0	0	0	1.2	0

Calendar year 1960:

Max

19

Min

0

Mean

0.94

Acre-feet 682

Water year 1960-61:

Max

7.6

Min

0

Mean

0.05

Acre-feet 36

Peak discharge (base, 130 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.



## 555. Plunge Creek near East Highlands, Calif.--Continued

Combined discharge, in cubic feet per second, of Plunge Creek and diversions near  
East Highlands, Calif., water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.6	0.7	1.2	1.4	1.7	1.3	1.5	1.1	0.9	0.5	0.3	0.4
2	.5	.7	1.7	1.4	1.6	1.3	1.5	1.1	.8	.5	.3	.4
3	.5	.8	2.0	1.4	1.6	1.4	1.3	1.2	.8	.5	.4	.4
4	.5	.6	1.6	1.3	1.5	1.4	1.3	1.3	.8	.5	1.2	.4
5	.5	.7	1.9	1.4	1.5	1.4	1.3	1.3	.8	.5	.6	.4
6	.5	7.6	1.5	1.4	1.5	1.4	1.6	1.3	.8	.5	.4	.4
7	.6	2.2	1.4	1.4	1.5	1.4	1.6	1.1	.8	.4	.4	.4
8	.6	.9	1.5	1.4	1.5	1.4	1.5	1.0	.8	.4	.4	.4
9	.6	.6	1.4	1.4	1.5	1.3	1.5	1.1	.8	.4	.4	.4
10	.6	.5	1.4	1.3	1.5	1.3	1.5	1.0	.9	.4	.4	.4
11	.6	.6	1.4	1.3	1.5	1.3	1.5	1.0	.7	.4	.4	.4
12	.6	.7	1.3	1.3	1.5	1.3	1.4	1.1	.7	.4	.4	.4
13	.6	.7	1.2	1.3	1.5	1.3	1.4	1.1	.6	.4	.4	.4
14	.6	.1	1.2	1.3	1.5	1.3	1.4	1.1	.6	.4	.4	.4
15	.6	.9	1.3	1.4	1.5	2.0	1.3	1.0	.5	.4	.4	.4
16	.6	.7	1.3	1.4	1.6	2.7	1.3	1.0	.5	.4	.4	.4
17	.6	.7	1.3	1.4	1.5	2.1	1.2	.9	.5	.4	.4	.4
18	.6	.7	1.3	1.4	1.6	1.7	1.1	.8	.5	.4	.4	.4
19	.6	.6	1.3	1.4	1.6	1.5	1.2	.9	.5	.4	.4	.4
20	.5	.7	1.3	1.4	1.5	1.4	1.2	.9	.5	.4	.4	.4
21	.5	.7	1.3	1.4	1.5	1.4	1.2	.8	.5	.4	.4	.4
22	.5	.9	1.2	1.4	1.5	1.4	1.4	.8	.5	.4	.4	.4
23	.6	.9	1.3	1.4	1.4	1.4	1.3	.8	.5	.4	.4	.4
24	.6	.9	1.3	1.4	1.4	1.5	1.3	.8	.5	.4	.4	.4
25	.6	.9	1.3	1.4	1.4	2.8	1.3	.8	.5	.4	.4	.4
26	.7	1.5	1.3	2.2	1.4	2.2	1.2	.9	.5	.3	.4	.4
27	.7	3.4	1.3	5.7	1.4	1.8	1.2	.8	.5	.3	.4	.5
28	.7	1.6	1.4	2.4	1.3	2.3	1.1	.8	.5	.3	.4	.5
29	.6	1.7	1.4	2.3	-	1.9	1.1	.8	.5	.3	.4	.5
30	.7	1.4	1.4	1.9	-	1.7	1.1	.8	.5	.3	.4	.4
31	.7	-	1.4	1.7	-	1.7	-	.8	-	.3	.4	-
Total	18.3	35.6	43.1	50.6	42.0	50.3	39.8	30.2	18.8	12.4	13.2	12.3
Mean	0.59	1.19	1.39	1.63	1.50	1.62	1.28	0.97	0.63	0.40	0.43	0.41
Max.	0.7	7.6	2.0	5.7	1.7	2.8	1.6	1.3	0.9	0.5	1.2	0.5
Min.	0.5	0.1	1.2	1.3	1.3	1.3	1.1	0.8	0.5	0.3	0.3	0.4
Ac-ft	36	71	85	100	83	100	79	60	37	25	26	24
Calendar year 1960 :				Max 19	Min 0.1	Mean 2.27	Acre-feet 1,640					
Water year 1960-61 :				Max 7.6	Min 0.1	Mean 1.00	Acre-feet 726					

## SANTA ANA RIVER BASIN

11-560. Santa Ana River near San Bernardino, Calif.

Location.--Lat 34°04'14", long 117°16'41", in San Bernardino Grant, on downstream side of bridge on Waterman Avenue, 0.1 mile upstream from San Timoteo Creek and 2.7 miles southeast of San Bernardino, San Bernardino County.

Drainage area.--302 sq mi.

Records available.--October 1928 to September 1937, October 1954 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 995 ft (from topographic map). Oct. 1, 1928, to Sept. 30, 1937, at site 1.6 miles upstream at different datum. Oct. 1, 1954, to Sept. 30, 1956, at present site at datum 6.00 ft higher.

Average discharge.--16 years, 7.73 cfs (5,600 acre-ft per year); median of yearly mean discharges, 1.4 cfs (1,000 acre-ft per year).

Extremes.--Maximum discharge during year, 470 cfs Nov. 5 (gage height, 2.65 ft); no flow for many days.

1928-37, 1954-61: Maximum discharge, 11,200 cfs Feb. 6, 1937 (gage height, 4.80 ft, site and datum then in use); no flow for most of each year.

Remarks.--Records poor. Flow regulated by Big Bear Lake (see p. 109). Many diversions above station for irrigation and domestic use.

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0	0.3	0	0	0	0	0	0.1			
2	.3	0	.4	0	0	.4	0	0	0			
3	.7	3.2	0	0	0	.1	0	.4	0			
4	.4	2.4	0	.1	0	.7	0	.8	0			
5	* 0	1.9	0	0	0	.6	0	.5	0			
6	.3	* 8.1	.2	0	0	0	0	0	0			(*)
7	.2	* .2	.6	0	* 0	0	0	0	0			
8	.6	0	0	0	0	* 0	0	0	0			
9	2.0	0	.4	.6	0	0	0	0	.2			
10	* 6.8	0	0	* .1	0	0	* 0	0	0			
11	.8	0	0	0	0	0	0	* 0	.2			
12	0	0	* 0	0	0	0	0	.2	* 0			
13	0	0	0	.2	0	0	0	0	0			
14	0	0	0	0	0	0	0	0	0			
15	0	0	0	0	0	* 5.0	0	0	* 0		(*)	
16	0	0	.2	0	0	1.2	0	0	0			
17	0	0	.1	0	0	0	0	.1	0			
18	0	0	0	* .4	0	0	0	* .1	0			
19	0	0	.1	.1	0	0	0	.1	0			
20	0	0	.1	.1	0	* 0	0	0	0			
21	0	* 0	.1	.6	0	0	0	0	0			
22	0	0	0	.1	0	0	0	0	0			
23	0	0	0	0	* 0	0	0	0	0			
24	0	0	0	* .4	1.6	.1	* 0	0	0			
25	0	0	0	.9	.4	5.6	0	0	0	(*)		
26	0	1.7	0	* 2.5	1.1	0	0	0	0			
27	0	* .9	0	* 0	0	* 0	.3	0	* 0			
28	0	0	0	0	.2	* 8.1	.1	.1	0			(*)
29	0	* 0	* 0	0	-	0	0	0	0		(*)	
30	0	.1	.2	0	-	0	0	0	0			
31	* 0	-	.1	0	-	* 0	-	0	-			
Total	12.2	35.6	2.8	28.6	3.3	21.8	0.4	2.3	0.5	0	0	0
Mean	0.39	1.19	0.09	0.92	0.12	0.70	0.01	0.07	0.02	0	0	0
Max.	6.8	19	0.6	2.5	1.6	8.1	0.3	0.8	0.2	0	0	0
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	24	71	5.6	57	6.5	43	0.8	4.6	1.0	0	0	0
Calendar year 1960: Max 54 Min 0 Mean 0.84 Acre-feet 609												
Water year 1960-61: Max 25 Min 0 Mean 0.29 Acre-feet 214												
Peak discharge (base, 350 cfs).--Nov. 5 (10:30 p.m.) 470 cfs (2.65 ft)												

\* Discharge measurement or observation of no flow made on this day.

11-565. Little San Geronio Creek near Beaumont, Calif.

Location---Lat 34°01'45", long 116°56'40", in NW<sup>1</sup><sub>4</sub>SW<sup>1</sup><sub>4</sub>NE<sup>1</sup><sub>4</sub> sec.1, T.2 S., R.1 W., on downstream side of left abutment of bridge on Oak Glen Road, 3.0 miles upstream from Wallace Creek and 7 miles north of Beaumont.

Drainage area---2.61 sq mi.

Records available---October 1948 to September 1961.

Gage---Water-stage recorder and concrete control. Altitude of gage is 4,320 ft (from topographic map).

Average discharge---13 years, 0.08 cfs (58 acre-ft per year); median of yearly mean discharges, 0.08 cfs (58 acre-ft per year).

Extremes---Maximum discharge during year, 5.0 cfs Aug. 21 (gage height, 1.39 ft); no flow all year except Aug. 21.

1948-61: Maximum discharge, 319 cfs Aug. 23, 1955 (gage height, 2.18 ft), from rating curve extended above 1 cfs on basis of slope-area measurement of peak flow; no flow for several months in each year.

Remarks---Records good. Several small diversions above station for irrigation.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Aug. 21.....0.2

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
August 1961.....	0.2	0.2	0	0.006	0.4
Calendar year 1960.....	-	.1	0	.0005	.4
Water year 1960-61.....	-	.2	0	.0005	.4

Peak discharge (base, 10 cfs)---No peak above base.

Note---Flow occurred only on day listed above.

11-570. San Timoteo Creek near Redlands, Calif.

Location---Lat 34°01'59", long 117°12'29", in NE<sup>1</sup><sub>4</sub>NE<sup>1</sup><sub>4</sub>NE<sup>1</sup><sub>4</sub> sec.5, T.2 S., R.3 W., on downstream side of right abutment of county highway bridge, 2.0 miles southwest of Redlands and 3.4 miles downstream from Yucaipa Creek.

Drainage area---123 sq mi.

Records available---October 1926 to September 1961.

Gage---Water-stage recorder and concrete control. Altitude of gage is 1,280 ft (from topographic map). Prior to Oct. 30, 1934, at site 2 miles upstream at different datum.

Average discharge---35 years, 1.39 cfs (1,010 acre-ft per year); median of yearly mean discharges, 0.5 cfs (360 acre-ft per year).

Extremes---Maximum discharge during year, 1,080 cfs Aug. 19 (gage height, 3.73 ft); no flow for most of year.

1926-61: Maximum discharge, 7,460 cfs Mar. 2, 1938, result of slope-area measurement of peak flow; no flow for several months each year.

Remarks---Records poor. Entire low flow normally diverted above station for irrigation. Slight amounts of unmeasured irrigation waste water occasionally flow past this station.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Nov. 6.....\*0.3

Aug. 19.....\*49

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
November 1960.....	0.3	0.3	0	0.01	0.6
August 1961.....	49	49	0	1.58	97
Calendar year 1960.....	-	11	0	.05	34
Water year 1960-61.....	-	49	0	.14	98

Peak discharge (base, 50 cfs)---Aug. 19 (4 p.m.) 1,080 cfs (3.73 ft).

\* Discharge measurement made on this day.

Note---Flow occurred only on days listed above.

11-575. San Timoteo Creek near Loma Linda, Calif.

Location (revised).--Lat 34°04'03", long 117°16'42", in San Bernardino Grant, on right bank 100 ft downstream from Waterman Avenue bridge, 0.2 mile upstream from mouth, and 1.5 miles northwest of Loma Linda, San Bernardino County. Prior to June 12, 1961, at site 100 ft upstream.

Records available.--October 1954 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 1,010 ft (from topographic map). Prior to Apr. 10, 1958, at site 100 ft upstream at datum 5.51 ft higher. Apr. 10, 1958, to June 12, 1961, at site 100 ft upstream at datum 4.51 ft higher.

Average discharge.--7 years, 1.34 cfs (970 acre-ft per year).

Extremes.--Maximum discharge during year, 491 cfs Aug. 19 (gage height, 4.37 ft), from rating curve extended above 2 cfs on basis of slope-area measurement of peak flow; minimum daily, 0.3 cfs June 10, 17.

1954-61: Maximum discharge, 1,050 cfs Apr. 1, 1958 (gage height, 8.74 ft, present datum), from rating curve extended above 400 cfs; minimum daily, 0.2 cfs at times in some years.

Remarks.--Records good below 10 cfs and fair above. Minor diversions above station by pumping. Loma Linda sewage disposal plant discharges into stream.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Oct. 1-10, June 7 to Aug. 19)

Oct. 1 to June 12				June 12 to Sept. 30			
0.8	0.3	1.1	2.2	1.5	0.3	1.9	5.7
.9	.6	1.2	3.8	1.6	.9	2.0	8.6
1.0	1.1	1.3	6.6	1.7	1.9	2.2	17
				1.8	3.5	2.4	29

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.7	1.0	0.8	0.7	1.3	0.8	0.8	0.7	0.5	0.5	0.7	0.6
2	.8	2.0	1.0	.8	1.3	.8	.7	.7	.5	.5	.7	a .6
3	1.1	3.3	.8	.9	1.8	.8	.9	.7	.4	.5	.7	a .6
4	.7	2.0	.8	.9	1.8	.9	.9	.7	.5	.5	.6	a .6
5	* .6	1.2	.8	.9	1.9	1.5	1.0	.7	.6	.7	.4	.6
6	.6	2.1	.8	.9	2.0	1.6	.9	.6	.6	* .8	.5	* .5
7	.6	.6	.8	.9	* 2.3	1.5	.9	.6	.6	.7	.6	.5
8	.5	.6	.8	.9	2.3	* 1.5	.6	.7	.6	.5	* .8	.5
9	.5	.5	.8	.9	1.9	1.4	.8	.7	.6	.5	.7	.4
10	* 1.4	.5	.7	* .9	1.9	1.6	* 1.0	.8	.3	.5	.8	.5
11	1.1	.6	.7	.9	1.5	1.1	.9	* 1.6	.6	* .5	.6	.6
12	1.1	.5	.8	1.0	1.8	1.3	.6	.7	* .4	.5	.4	.7
13	1.1	.6	* .7	1.0	1.8	1.2	e .8	.6	.4	.5	.5	.7
14	.9	* .6	.7	.9	1.9	1.4	e .8	.6	.4	.5	.5	* .9
15	.6	.6	.7	.9	1.8	* 1.6	e .8	.7	.5	.4	.5	.9
16	.7	.6	.7	1.0	1.8	.9	e .8	.5	.5	.5	.7	.9
17	.8	.6	.7	1.1	1.8	.9	e .8	.7	.3	.5	.7	.9
18	.9	.6	.6	* 1.1	1.4	.6	e .8	.7	.5	.5	.7	* 1.0
19	.9	.6	.6	1.1	.8	.6	e .7	.8	* .7	.5	* 2.4	1.0
20	.9	.7	.6	1.1	.8	* .6	e .7	.5	.8	.5	.7	1.2
21	.8	* .7	.6	.9	.9	.6	e .7	.5	1.4	.5	.6	1.4
22	.6	.8	.6	1.0	.9	.7	e .7	.6	.7	.4	* .6	1.6
23	.7	.8	.6	1.1	* .9	.8	e .7	.6	.7	.7	.7	1.4
24	* .7	.7	.6	1.1	.8	1.2	* .7	.6	.4	.7	.7	1.2
25	.8	.8	.6	1.2	.8	1.9	.7	.6	.7	* .7	.5	1.2
26	.9	1.2	.6	* 3.9	.8	.7	.7	.6	.7	.7	.5	1.2
27	.9	.8	.6	1.3	.8	.8	.7	.4	* .7	.7	.6	1.2
28	.7	.9	.7	1.1	.8	6.1	.7	.5	.6	.6	.6	* 1.2
29	.6	* .9	* .7	1.2	-	.6	.6	* .5	.6	.4	* .6	1.2
30	.6	.8	.8	1.3	-	.6	.6	.5	.5	.4	.6	.8
31	.7	-	.7	1.3	-	* .8	-	.5	-	.5	.6	-
Total	24.5	28.2	22.0	34.2	40.6	37.4	23.3	20.2	17.3	16.9	42.4	26.6
Mean	0.79	0.94	0.71	1.10	1.45	1.21	0.78	0.65	0.58	0.55	1.37	0.89
Max.	1.4	3.3	1.0	3.9	2.3	6.1	1.0	1.6	1.4	0.8	2.4	1.6
Min.	0.5	0.5	0.6	0.7	0.8	0.6	0.6	0.4	0.3	0.4	0.4	0.4
Ac-ft	49	56	44	68	81	74	46	40	34	34	84	53

Calendar year 1960: Max 10 Min 0.2 Mean 1.15 Acre-feet 834  
Water year 1960-61: Max 24 Min 0.3 Mean 0.91 Acre-feet 663

Peak discharge (base, 50 cfs).--Mar. 28 (8 a.m.) 89 cfs (2.03 ft); Aug. 19 (5 p.m.) 491 cfs (4.37 ft).

\* Discharge measurement made on this day.

a No gage-height record.

e Stage-discharge relation indefinite.

11-585. East Twin Creek near Arrowhead Springs, Calif.

Location.--Lat 34°10'45", long 117°15'53", in NW 1/4 NE 1/4 sec. 14, T.1 N., R.4 W., on right bank 100 ft upstream from Del Rosa Water Co.'s diversion dam, 0.5 mile south of Arrowhead Springs, and 1.0 mile downstream from Strawberry Creek.

Drainage area.--8.6 sq mi, approximately.

Records available.--December 1919 to September 1961. Prior to October 1952, published as Strawberry Creek near Arrowhead Springs.

Gage.--Water-stage recorder and broad-crested weir. Altitude of gage is 1,590 ft (from topographic map).

Average discharge.--41 years (1920-61), 4.50 cfs (3,260 acre-ft per year); median of yearly mean discharges, 3.2 cfs (2,300 acre-ft per year).

Extremes.--Maximum discharge during year, 29 cfs Nov. 6 (gage height, 2.55 ft); minimum daily, 0.2 cfs on many days.

1919-61: Maximum discharge; 3,360 cfs Mar. 2, 1938, based on rainfall-runoff studies; practically no flow at times in 1929, 1931-35.

Remarks.--Records good. Discharge measurements generally made twice a month. One small diversion above station for domestic supply.

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

1.4	0.2	1.7	2.2
1.5	.6	1.9	4.8
1.6	1.2	2.2	11

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.5	0.5	1.1	1.1	1.3	1.3	1.2	0.6	0.8	0.3	e 0.2	0.4
2	.5	.5	1.2	1.1	1.3	1.4	1.0	.6	.7	.3	.2	.4
3	.5	.7	1.2	1.0	1.3	1.5	.9	1.0	.6	.3	.2	.4
4	.5	1.1	1.2	1.1	1.2	1.5	.9	1.1	.6	.3	.3	.4
5	.5	1.1	1.2	1.1	1.2	1.4	1.1	1.1	.7	.3	.3	.4
6	.4	8.8	1.2	1.1	1.2	1.4	1.3	1.2	.7	.3	.3	.3
7	.6	2.2	1.2	1.1	1.2	1.3	1.4	1.0	.7	.3	.3	.3
8	.6	1.2	1.2	1.1	1.2	1.2	1.3	.8	.7	.3	.3	.3
9	.6	1.0	1.2	1.1	1.2	1.2	1.2	.6	.6	.3	.4	.3
10	1.0	.9	1.2	1.1	1.2	1.2	1.3	.7	.6	.3	.3	.3
11	.7	.8	1.2	1.1	1.2	1.1	1.2	.8	.6	.3	.2	.3
12	.6	1.7	1.1	1.1	1.2	1.1	1.1	1.0	.6	.3	.2	.3
13	.6	2.1	1.1	1.1	1.2	1.0	1.1	.9	.6	.3	.3	.3
14	.6	1.3	1.1	1.1	1.2	1.0	1.0	.8	.6	.3	.4	.4
15	.6	1.0	1.1	1.1	1.2	2.0	.8	.7	.6	.3	.4	.4
16	.6	1.0	1.1	1.1	1.3	1.2	.8	.9	.6	.4	.4	.4
17	.6	1.0	1.1	1.1	1.3	1.1	.8	.8	.6	.4	.4	.4
18	.5	1.0	1.0	1.1	1.3	1.0	.8	.8	.6	.4	.4	.4
19	.5	1.0	1.0	1.1	1.3	1.0	.9	.8	.6	.4	.3	.4
20	.4	1.0	1.0	1.2	1.3	1.0	.9	.8	.6	.4	.3	.4
21	.4	1.0	1.0	1.2	1.3	1.0	.9	.8	.6	.4	.4	.4
22	.4	1.0	1.0	1.2	1.3	1.0	1.3	.8	.4	.3	.4	.4
23	.4	1.0	1.1	1.2	1.3	1.0	1.2	.8	.4	.3	.4	.4
24	.5	1.0	1.1	1.2	1.4	1.0	1.0	.8	.4	e .3	.4	.4
25	.5	1.0	1.1	1.2	1.4	2.7	.9	.8	.4	e .3	.2	.4
26	.5	1.9	1.1	4.1	1.4	1.5	.8	.8	.3	e .3	.2	.2
27	.5	1.6	1.1	2.6	1.4	1.4	.7	.8	.3	e .3	.2	.3
28	.5	1.2	1.1	1.6	1.3	1.7	.6	.8	.4	e .3	.2	.3
29	.5	1.1	1.1	1.4	-	1.4	.6	.8	.4	e .2	.4	.4
30	.5	1.1	1.1	1.3	-	1.3	.6	.6	.4	e .2	.4	.4
31	.5	-	1.1	1.3	-	1.3	-	.8	-	e .2	.4	-
Total	16.6	41.8	34.6	40.3	35.6	40.2	29.6	25.6	16.7	9.6	9.7	10.8
Mean	0.54	1.39	1.12	1.30	1.27	1.30	0.99	0.83	0.56	0.31	0.31	0.36
Max.	1.0	8.8	1.2	4.1	1.4	2.7	1.4	1.2	0.8	0.4	0.4	0.4
Min.	0.4	0.5	1.0	1.0	1.2	1.0	0.6	0.6	0.3	0.2	0.2	0.2
Ac-ft	33	83	69	80	71	80	59	51	33	19	19	21

Calendar year 1960: Max 9.8 Min 0.2 Mean 1.42 Acre-feet 1,030

Water year 1960-61: Max 8.8 Min 0.2 Mean 0.85 Acre-feet 618

Peak discharge (base, 40 cfs).--No peak above base.

e Stage-discharge relation indefinite.

## SANTA ANA RIVER BASIN

11-590. Waterman Canyon Creek near Arrowhead Springs, Calif.

Location.--Lat 34°11'35", long 117°16'25", in NE 1/4 NW 1/4 sec. 11, T.1 N., R.4 W., on left bank 0.8 mile northwest of Arrowhead Springs and 1.3 miles north of San Bernardino National Forest boundary.

Drainage area.--4.55 sq mi.

Records available.--November 1911 to October 1914 (published as "near San Bernardino"), December 1919 to September 1961.

Gage.--Water-stage recorder and broad-crested weir. Altitude of gage is 2,050 ft (from topographic map). Prior to December 1919, staff gage at site 300 ft downstream at different datum.

Average discharge.--43 years (1912-14, 1920-61), 2.59 cfs (1,880 acre-ft per year); median of yearly mean discharges, 1.8 cfs (1,300 acre-ft per year).

Extremes.--Maximum discharge during year, 23 cfs Nov. 6 (gage height, 2.51 ft); no flow Oct. 1-8, June 14 to Sept. 30.  
1920-61: Maximum discharge, 2,350 cfs Mar. 2, 1938, based on rainfall-runoff studies; no flow at times in some summers.

Remarks.--Records good. One small diversion for domestic use above station.

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

1.5	0	1.8	1.3
1.6	.2	1.9	2.2
1.7	.6	2.0	3.5

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.1	0.6	0.4	0.5	0.4	0.3	0.2	0.3		(*)	
2	0	.1	.8	.4	.5	.4	.3	.2	.2			
3	0	1.0	.6	* .4	.5	.5	.2	.3	.2			
4	0	.9	.5	.4	.5	.4	.2	.4	.2			
5	0	.9	.6	.4	.4	.4	.3	.3	.2			
6	0	3.0	* .5	.4	.5	.4	.3	.3	.2			
7	0	* 1.1	.5	.4	.5	.4	.3	.3	.2			
8	0	.8	.5	.4	.5	.4	.3	.2	.2			
9	.2	.6	.5	.4	.5	.4	.3	.1	.1			
10	1.3	.6	.4	.4	.5	.4	* .2	* .2	.1			
11	* .3	.6	.4	.4	.5	.3	.3	.2	.1			
12	.3	3.2	.4	.4	.5	.3	.3	.3	.1	(*)		
13	.3	1.4	.4	.4	* .5	.3	.3	.2	.1			
14	.3	.9	.4	.4	.5	* .3	.3	.2	* 0		(*)	(*)
15	.2	.7	.4	.4	.5	.9	.2	.2	0			
16	.1	.6	.4	.5	.5	.7	.2	.3	0			
17	.1	.5	.4	.4	.5	.7	* .2	.3	0			
18	.1	.5	.4	.3	.5	.5	.3	.3	0			
19	.1	.5	.4	* .3	.5	.3	.3	.3	0			
20	.1	.4	.3	.3	.5	.3	.3	.3	0			
21	.1	.4	* .3	.4	.4	.3	.3	.3	0			
22	.1	* .4	.3	.4	.4	.3	.6	.3	0			
23	.1	.4	.3	.4	.4	.3	.5	.3	0			
24	* .1	.4	.3	.5	.4	.5	.4	.3	0			
25	.1	.4	.3	.5	.4	2.2	.3	.3	0			
26	.1	1.3	.3	* 2.7	.5	.6	.3	.3	0			
27	.1	.9	.4	1.1	.5	.5	.2	.3	0			(*)
28	.1	.7	.4	.8	* .4	.7	* .2	.3	0			
29	.1	.7	.4	.7	-	* .6	.2	* .3	* 0			
30	.1	* .6	.4	* .6	-	.4	.2	.3	0		(*)	
31	.1	-	.4	.5	-	.4	-	.3	-			
Total	4.5	24.6	13.2	16.4	13.3	15.5	8.7	8.4	2.2	0	0	0
Mean	0.15	0.82	0.43	0.53	0.48	0.50	0.29	0.27	0.07	0	0	0
Max.	1.3	3.2	0.8	2.7	0.5	2.2	0.6	0.4	0.3	0	0	0
Min.	0	0.1	0.3	0.3	0.4	0.3	0.2	0.1	0	0	0	0
Ac-ft	8.9	49	26	33	26	31	17	17	4.4	0	0	0

Calendar year 1960 : Max 3.6 Min 0 Mean 0.56 Acre-feet 408  
Water year 1960-61 : Max 3.2 Min 0 Mean 0.29 Acre-feet 212

Peak discharge (base, 35 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

11-600. City Creek near Highland, Calif.

Location.--Lat 34°08'38", long 117°11'16", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.27, T.1 N., R.3 W., on right bank 0.6 mile upstream from Highland Avenue and 1.5 miles northeast of Highland.

Drainage area.--19.8 sq mi.

Records available.--October 1919 to September 1961; combined records of creek and canal June 1924 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 1,580 ft (from topographic map). Prior to Mar. 1, 1939, at site a quarter of a mile downstream at different datum.

Average discharge.--42 years, 7.98 cfs (5,780 acre-ft per year); median of yearly mean discharges, 5.1 cfs (3,700 acre-ft per year).  
Average combined discharge of creek and City Creek Water Co.'s canal, 37 years (1924-61), 9.55 cfs (6,910 acre-ft per year); median of yearly mean combined discharges, 6.6 cfs (4,800 acre-ft per year).

Extremes.--Maximum discharge during year, 92 cfs Nov. 5 (gage height, 2.83 ft); no flow for many days.

1919-61: Maximum discharge, 6,900 cfs Mar. 2, 1938, on basis of slope-area measurement of peak flow; no flow for several months in many years.

Remarks.--Records good. City Creek Water Co.'s canal diverts above station for irrigation. For records of combined discharge of creek and canal, see following page. Extremes show flow past station only.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0	0	0.1	1.6	0.1	0.1	0.1	0.1		0	0
2	0	0	1.1	.2	1.1	.1	.1	.1	.1		* 0	0
3	0	.1	.4	.2	.6	.1	.1	.1	.1		0	0
4	.1	.2	.1	.1	.6	.1	.1	.1	.1		0	0
5	.1	8.8	.1	.1	.6	.1	.1	.1	.1		0	0
6	.1	4.0	* .1	.1	.5	.1	.1	.1	0		0	0
7	0	* 1.0	.1	.1	.5	.1	.1	.1	* 0		0	0
8	0	6.1	.2	.1	.5	.1	.1	.1	0		0	0
9	0	3.4	.1	.1	* .5	.1	.1	.1	0		0	0
10	.1	3.4	.1	.1	.5	.1	* .1	* .1	0		0	0
11	* 0	3.6	.1	.1	.5	.1	.1	.3	.1	(*)	0	0
12	0	3.8	.1	.1	.6	.1	.1	.5	.1		0	0
13	0	5.3	* .1	.1	.6	.1	.1	.2	0		0	0
14	0	* 3.8	.1	.1	.6	* .1	.1	.1	0		* 0	* 0
15	0	3.4	.1	.2	.6	1.1	.1	.1	0		0	0
16	0	3.2	.1	.4	.6	.8	.1	.1	0		0	0
17	0	2.2	.1	.3	.4	.5	.1	.1	0		0	0
18	0	.5	.1	* .2	.1	.5	.1	.1	0		0	0
19	0	.2	.1	.1	.1	.6	.1	.1	0		0	0
20	0	.1	.1	.1	.2	.3	.1	.1	0		.2	0
21	0	0	.1	.1	.2	.1	.1	.1	0		.9	0
22	0	.1	.1	.1	.2	.1	.1	.1	0		0	.1
23	0	.1	.1	.1	.1	.1	.1	.1	0		0	0
24	* 0	0	.1	.1	.1	.1	* .1	.1	0		0	0
25	0	0	.1	.1	.1	1.4	.1	.1	0		0	0
26	0	1.1	.2	* 9.3	.1	.4	.1	.1	0		0	0
27	0	.9	.3	* 8.5	* .1	.3	.1	.1	0		0	* 0
28	0	.2	.2	4.0	.1	* .3	.1	.1	* 0		0	0
29	0	.1	* .1	2.5	-	.1	.1	.1	0		0	0
30	0	0	.1	2.0	-----	.1	.1	.1	0		* 0	0
31	0	-----	.1	1.9	-----	.1	-----	.1	-----		0	-----
Total	0.4	100.6	4.8	31.6	12.3	8.3	3.0	3.8	0.7	0	1.1	0.1
Mean	0.01	3.35	0.15	1.02	0.44	0.27	0.10	0.12	0.02	0	0.04	0.003
Max.	0.1	.40	1.1	9.3	1.6	1.4	0.1	0.5	0.1	0	0.9	0.1
Min.	0	0	0	0.1	0.1	0.1	0.1	0.1	0	0	0	0
Ac-ft	0.8	200	9.5	63	24	16	6.0	7.5	1.4	0	2.2	0.2
Calendar year 1960 :				Max 22	Min 0	Mean 2.12	Acre-feet 1,540					
Water year 1960-61 :				Max 40	Min 0	Mean 0.46	Acre-feet 331					

Peak discharge (base, 150 cfs).--No peak above base.

\* Discharge measurement made on this day.

Note.--No gage-height record Aug. 22-29.

## SANTA ANA RIVER BASIN

## 600. City Creek near Highland, Calif.--Continued

Combined discharge, in cubic feet per second, of City Creek and City Creek Water Co.'s canal near Highland, Calif., water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.8	1.1	3.0	2.8	3.8	2.3	2.5	1.7	2.0	0.2	0.1	0.3
2	.8	1.2	5.6	2.8	3.5	2.3	2.1	1.7	2.0	.3	.1	.3
3	.7	2.0	4.6	2.7	3.4	2.6	2.0	2.4	1.7	.4	.2	.2
4	.7	4.1	3.9	2.7	3.3	2.8	2.0	2.9	1.6	.5	.4	.2
5	.7	1.2	3.6	2.6	3.2	2.8	2.1	2.5	1.6	.4	.6	.2
6	.7	4.2	3.3	2.6	3.1	2.7	2.5	2.4	1.4	.4	.4	.2
7	.7	1.0	3.3	2.6	3.2	2.6	2.8	2.6	1.4	.3	.3	.2
8	.9	6.1	3.4	2.6	3.1	2.4	2.6	2.0	1.4	.2	.2	.2
9	1.3	4.4	3.3	2.6	3.0	2.3	2.2	1.7	1.3	.2	.2	.3
10	2.5	3.9	3.3	2.5	2.8	2.4	2.4	1.7	1.2	.1	.2	.2
11	1.6	3.6	3.3	2.6	2.8	2.4	2.3	1.8	1.2	.1	.2	.2
12	1.5	3.8	3.0	2.6	2.9	2.4	2.1	2.1	1.2	.1	.1	.2
13	1.4	5.3	3.0	2.6	2.9	2.4	2.2	2.1	.9	.1	.1	.2
14	1.3	3.8	2.9	2.6	2.9	2.3	2.0	2.0	.7	.1	.1	.3
15	1.0	3.4	2.9	2.6	2.9	4.9	1.8	1.9	.5	.1	.1	.4
16	1.1	3.2	2.9	2.8	2.9	4.2	1.7	2.0	.4	.1	.1	.4
17	1.1	2.9	2.9	2.7	3.1	3.0	1.7	2.1	.4	.1	.1	.5
18	1.2	2.7	2.8	2.8	3.0	2.6	1.7	2.1	.4	.1	.1	.5
19	1.2	2.3	2.7	2.8	2.8	2.4	2.0	2.3	.4	.1	.2	.5
20	1.1	2.3	2.6	2.8	2.8	2.3	2.0	2.3	.4	.1	1.2	.6
21	1.1	2.2	2.6	2.8	2.6	2.2	2.0	2.0	.4	.2	1.5	.7
22	1.0	2.5	2.6	2.9	2.6	2.2	2.8	2.0	.4	.3	.7	.9
23	1.1	2.5	2.6	2.9	2.4	2.2	2.9	2.0	.3	.3	.6	.7
24	1.3	2.3	2.7	2.9	2.4	2.5	2.4	1.9	.3	.2	.4	.6
25	1.3	2.2	2.7	2.9	2.4	6.2	2.2	1.8	.3	.2	.4	.5
26	1.3	4.4	2.7	1.3	2.4	3.6	2.0	1.9	.3	.2	.3	.4
27	1.2	5.7	2.7	1.0	2.4	3.1	2.0	1.7	.3	.2	.3	.3
28	1.1	4.1	2.7	5.6	2.4	4.2	1.7	1.8	.3	.1	.3	.3
29	1.1	3.4	2.7	4.8	-	3.3	1.7	1.8	.2	.1	.3	.4
30	1.1	3.2	2.7	4.3	-	2.9	1.7	1.7	.2	.1	.3	.4
31	1.1	-	2.8	4.2	-	2.9	-	1.9	-	.1	.3	-
Total	35.0	152.6	95.8	109.7	81.0	89.6	64.1	62.8	25.1	6.0	10.4	11.3
Mean	1.13	5.09	3.09	3.54	2.89	2.89	2.14	2.03	0.84	0.19	0.34	0.38
Max.	2.5	42	5.6	13	3.8	6.2	2.9	2.9	2.0	0.5	1.5	0.9
Min.	0.7	1.1	2.6	2.5	2.4	2.2	1.7	1.7	0.2	0.1	0.1	0.2
Ac-ft	69	303	190	218	161	178	127	125	50	12	21	22
Calendar year 1960 : Max 42 Min 0.3 Mean 3.44 Acre-feet 2,500												
Water year 1960-61 : Max 42 Min 0.1 Mean 2.04 Acre-feet 1,480												



11-620. Lytle Creek near Fontana, Calif.

Location.--Lat  $34^{\circ}12'42''$ , long  $117^{\circ}27'24''$ , in NW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.36, T.2 N., R.6 W., on right bank at downstream side of highway bridge abutment, 0.7 mile upstream from right tributary and 8 miles north of Fontana.

Drainage area.--46.9 sq mi.

Records available.--October 1918 to September 1961. Combined discharge, Lytle Creek and diversions, October 1898 to December 1899, October 1904 to September 1961 (published as "at mouth of canyon near Rialto" 1898-99, as "near San Bernardino" 1904-18, and as Lytle Creek and Fontana pipe line near Fontana 1919-31). Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Altitude of gage is 2,380 ft (from topographic map). Prior to Mar. 22, 1938, at site 1 mile downstream at different datum.

Average discharge.--43 years, 10.5 cfs (7,600 acre-ft per year); median of yearly mean discharges, 1.8 cfs (1,300 acre-ft per year).

Average combined discharge of creek, conduit, and infiltration line, 58 years, 41.8 cfs (30,260 acre-ft per year); median of combined yearly mean discharges, 34 cfs (24,600 acre-ft per year).

Extremes.--Maximum discharge during year, 102 cfs Jan. 26 (gage height, 3.50 ft); no flow for most of year.

1918-61: Maximum discharge, 25,200 cfs Mar. 2, 1938, on basis of slope-area measurement of peak flow; no flow for parts of each year.

Remarks.--Records fair. For records of combined discharge of Lytle Creek, Southern California Edison Co.'s Lytle Creek conduit and Fontana Union Water Co.'s infiltration line, see table below.

Cooperation.--Records of flow through infiltration line furnished by Fontana Union Water Co.; water-stage recorder graph for the Lytle Creek conduit furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Nov. 3.....	2.7	Nov. 26.....	0.1	Jan. 30.....	*0.2
4.....	.5	27.....	*.2	31.....	.2
6.....	*17	Jan. 26.....	*16	Feb. 1.....	.1
7.....	*5.3	27.....	*.7	2.....	.2
12.....	1.3	28.....	.3	5.....	.1
13.....	.6	29.....	.3	Mar. 24.....	.1

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
November 1960.....	27.7	17	0	0.92	55
January 1961.....	17.7	16	0	.57	35
February.....	.4	.2	0	.01	.8
March.....	.1	.1	0	.003	.2
Calendar year 1960.....	-	17	0	.12	90
Water year 1960-61.....	-	17	0	.13	91

Peak discharge (base, 200 cfs).--No peak above base.

\* Discharge measurement made on this day.

Note.--Flow occurred only on days listed above.

Combined discharge, in cubic feet per second, of Lytle Creek, Southern California Edison Co.'s Lytle Creek conduit, and Fontana Union Water Co.'s infiltration line, near Fontana, Calif., water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.9	11	15	14	12	14	13	11	11	9.3	8.7	8.3
2	9.9	11	16	14	13	14	12	11	10	9.3	8.2	8.3
3	9.9	16	15	14	16	14	12	11	10	9.5	7.9	8.1
4	9.9	18	15	14	15	14	12	10	10	9.5	7.9	8.1
5	9.9	16	15	14	15	14	12	9.9	10	9.5	8.1	7.9
6	9.9	27	15	14	15	14	12	11	10	9.3	8.1	7.9
7	9.9	14	15	14	15	14	12	11	9.8	9.3	8.3	8.1
8	11	14	15	14	15	14	12	11	10	8.8	8.3	8.3
9	12	13	15	14	15	13	12	10	9.9	8.8	8.3	8.3
10	14	13	15	13	15	13	12	10	10	8.8	8.3	8.1
11	12	13	15	13	15	13	12	11	10	8.6	8.3	8.1
12	12	16	15	13	14	13	12	11	10	8.2	8.3	8.1
13	12	16	15	13	14	13	12	11	9.9	8.2	8.3	8.1
14	12	14	14	14	14	13	12	11	9.9	8.1	8.1	8.1
15	11	14	14	14	14	14	11	11	9.5	8.1	8.1	8.1
16	11	13	14	14	14	14	11	11	9.7	8.1	8.1	7.2
17	11	12	14	14	14	14	11	11	9.7	8.3	8.1	8.8
18	11	15	14	14	14	14	11	11	9.7	8.5	7.7	8.5
19	11	16	14	14	14	14	12	11	9.7	8.3	8.1	8.5
20	11	16	14	13	14	14	12	11	9.5	8.5	8.1	8.8
21	11	16	14	13	14	14	12	11	9.3	8.5	8.1	9.0
22	11	16	14	14	14	14	12	11	9.3	8.3	7.9	9.0
23	11	16	14	14	14	14	12	11	9.3	8.1	7.9	8.7
24	11	15	14	14	14	14	12	11	9.3	7.9	8.1	8.4
25	11	15	14	14	14	14	12	11	9.3	7.9	8.1	8.2
26	11	16	14	27	14	14	11	11	9.3	7.7	8.1	7.9
27	11	14	14	7.6	14	14	11	11	9.3	7.7	8.3	7.9
28	11	15	14	13	14	14	11	11	9.3	7.5	8.3	7.9
29	11	15	14	13	-	13	11	11	9.3	7.5	8.3	7.9
30	11	15	14	12	-	13	11	11	9.3	8.3	8.3	7.9
31	11	-	14	12	-	13	-	11	-	8.7	8.3	-
Total	341.3	451	448	428.6	399	425	352	336.9	291.3	263.1	253.0	246.5
Mean	11.0	15.0	14.5	13.8	14.2	13.7	11.7	10.9	9.71	8.49	8.16	8.22
Max.	14	27	16	27	16	14	13	11	11	9.5	8.7	9.0
Min.	9.9	11	14	7.6	12	13	11	9.9	9.3	7.5	7.7	7.2
Ac-ft	677	895	889	850	791	843	698	668	578	522	502	489

Calendar year 1960 : Max 27 Min 9.7 Mean 14.7 Acre-feet 10,650  
 Water year 1960-61 : Max 27 Min 7.2 Mean 11.6 Acre-feet 8,400

## SANTA ANA RIVER BASIN

11-630. Cajon Creek near Keenbrook, Calif.

Location.--Lat 34°16'03", long 117°27'30", in SE1/4SW1/4 sec.12, T.2 N., R.6 W., on right bank 1,600 ft upstream from Lone Pine Creek and 1.2 miles north of Keenbrook.

Drainage area.--40.9 sq mi.

Records available.--December 1919 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 2,630 ft (from topographic map). Prior to Oct. 24, 1935, water-stage recorder at site 1,300 ft downstream at different datum.

Average discharge.--41 years (1920-61), 8.63 cfs (6,250 acre-ft per year); median of yearly mean discharges, 5.6 cfs (4,100 acre-ft per year).

Extremes.--Maximum discharge during year, 93 cfs Nov. 6 (gage height, 4.14 ft); minimum daily, 1.4 cfs Aug. 6, 12-14.

1919-61: Maximum discharge, 14,500 cfs Mar. 2, 1938 (gage height, 19.3 ft), result of slope-area measurement of peak flow; minimum, 0.05 cfs June 25, 1920.

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

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.9	2.1	2.8	2.2	2.6	2.2	2.2	1.9	2.1	1.7	* 1.6	2.1
2	1.7	2.1	2.6	2.2	2.6	2.4	2.2	* 2.1	2.1	1.7	1.6	1.9
3	1.7	5.5	2.6	2.2	2.6	2.4	2.2	2.2	2.1	1.7	1.6	1.9
4	1.7	2.6	2.6	* 2.2	2.6	2.4	* 2.2	2.4	2.1	1.7	1.6	2.1
5	1.7	3.4	2.6	2.2	2.4	2.2	2.2	2.4	2.1	* 1.7	1.5	2.1
6	1.7	1.5	2.6	2.2	* 2.4	2.2	2.2	2.4	2.1	1.7	1.4	1.9
7	1.7	3.5	2.6	2.2	2.4	2.1	2.2	2.4	* 2.1	1.7	1.5	1.9
8	1.7	* 3.5	2.6	2.2	2.4	* 2.2	2.2	2.4	2.1	1.7	1.5	1.9
9	1.7	3.3	2.6	2.2	2.4	2.2	2.2	2.2	2.1	1.6	1.6	1.9
10	1.9	3.3	2.6	2.2	2.2	2.2	2.2	2.2	2.1	1.6	1.5	1.7
11	* 1.9	3.3	2.4	2.2	2.2	2.2	2.2	2.1	1.9	1.7	1.5	1.9
12	1.9	4.0	2.2	2.2	2.2	2.2	2.2	2.1	1.9	1.7	1.4	* 1.7
13	1.9	3.7	2.2	2.2	* 2.4	2.2	2.2	2.1	1.7	1.7	1.4	1.9
14	1.9	3.5	* 2.4	2.2	2.4	2.2	2.2	2.1	1.7	1.7	1.4	1.7
15	1.9	* 3.3	2.4	2.4	2.4	2.4	2.1	2.1	1.7	1.6	1.5	1.9
16	1.9	3.1	2.4	2.4	2.4	2.1	2.1	2.1	1.7	1.6	1.5	1.9
17	1.9	3.1	2.2	2.4	2.4	2.1	* 1.9	2.1	1.7	1.6	* 1.5	1.9
18	2.1	3.1	2.2	* 2.4	2.4	2.1	1.9	* 2.2	1.7	* 1.7	1.5	1.9
19	2.1	3.1	2.2	2.4	2.4	2.1	2.1	2.2	1.7	1.7	1.5	1.9
20	2.1	3.1	2.2	2.4	2.4	2.1	2.1	2.4	* 1.7	1.7	1.5	1.9
21	2.1	3.1	2.2	2.4	2.2	2.1	1.9	2.4	1.6	1.9	1.5	1.9
22	2.1	3.1	2.2	2.6	2.2	2.1	2.2	2.4	1.6	1.7	1.6	1.9
23	2.1	3.1	2.2	2.6	2.2	* 2.1	2.1	2.2	1.6	1.7	1.9	1.9
24	2.1	3.1	2.2	2.6	2.2	2.2	2.1	* 1.9	1.6	1.7	1.9	1.7
25	* 2.1	3.1	2.1	2.6	2.2	2.2	2.1	1.9	1.7	1.7	1.6	* 1.7
26	2.1	3.5	2.1	* 1.4	2.2	2.2	2.1	1.9	1.7	1.6	1.6	1.7
27	2.1	3.1	2.1	* 3.7	* 2.2	2.2	2.1	1.9	1.7	1.6	1.6	1.7
28	2.1	2.9	2.1	3.1	2.2	2.2	2.1	1.9	1.7	1.7	1.7	1.6
29	2.1	* 2.8	2.2	2.9	-	2.2	1.9	1.9	1.7	1.7	1.9	1.7
30	2.1	2.8	2.2	2.8	-	2.2	1.9	1.9	1.7	1.6	* 1.9	1.7
31	2.1	-	2.2	2.8	-	2.2	-	2.1	-	1.6	1.9	-
Total	60.1	108.2	73.0	87.5	65.8	68.1	63.5	66.5	55.0	52.0	49.2	55.5
Mean	1.94	3.61	2.35	2.82	2.35	2.20	2.12	2.15	1.83	1.68	1.59	1.85
Max.	2.1	15	2.8	14	2.6	2.4	2.2	2.4	2.1	1.9	1.9	2.1
Min.	1.7	2.1	2.1	2.2	2.2	2.1	1.9	1.9	1.6	1.6	1.4	1.6
Ac-ft	119	215	145	174	131	135	126	132	109	103	98	110

Calendar year 1960 :

Max 21

Min 1.5

Mean 2.77

Acre-feet 2,020

Water year 1960-61 :

Max 15

Min 1.4

Mean 2.20

Acre-feet 1,600

Peak discharge (base, 140 cfs).--No peak above base.

\* Discharge measurement made on this day.

11-635. Lone Pine Creek near Keenbrook, Calif.

Location.--Lat 34°15'59", long 117°27'47", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.12, T.2 N., R.6 W., on right bank 50 ft upstream from The Atchison, Topeka and Santa Fe Railway Co. bridge, 150 ft upstream from mouth, and 1.1 miles north of Keenbrook.

Drainage area.--15.0 sq mi.

Records available.--December 1919 to September 1938, June 1949 to September 1961.

Gage.--Water-stage recorder and concrete control. Datum of gage is 2,605.92 ft above mean sea level, datum of 1929, supplementary adjustment of 1946. Prior to Mar. 2, 1938, water-stage recorder (destroyed by flood) and Mar. 2 to Sept. 30, 1938, staff gage, at same site at datum 0.98 ft higher.

Average discharge.--30 years (1920-38, 1949-61), 1.23 cfs (890 acre-ft per year); median of yearly mean discharges, 0.5 cfs (360 acre-ft per year).

Extremes.--Maximum discharge during year; 14 cfs Nov. 6 (gage height, 1.90 ft); minimum daily, 0.1 cfs for much of year.

1919-38, 1949-61: Maximum discharge, 6,180 cfs Mar. 2, 1938, on basis of slope-area measurement of peak flow; minimum daily, 0.1 cfs at times in some years.

Remarks.--Records good. Discharge measurements generally made twice a month. No regulation or diversion above station.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used May 8-17)

1.1	0.1
1.2	.4
1.3	.8
1.4	1.6

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
2	.2	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1
3	.2	.3	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1
4	.2	.2	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1
5	.2	.2	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1
6	.2	.7	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1
7	.2	.2	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1
8	.2	.2	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1
9	.2	.2	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1
10	.2	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1
11	.2	.2	.2	.2	.2	.1	.1	.2	.1	.1	.1	.1
12	.2	.2	.2	.2	.2	.1	.1	.2	.1	.1	.1	.1
13	.2	.2	.2	.2	.2	.1	.1	.2	.1	.1	.1	.1
14	.2	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1
15	.2	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1
16	.2	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1
17	.2	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1
18	.2	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1
19	.2	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1
20	.2	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1
21	.2	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1
22	.2	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1
23	.2	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1
24	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1	.1
25	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1	.1
26	.2	.2	.2	1.5	.1	.1	.1	.1	.1	.1	.1	.1
27	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1	.1
28	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1	.1
29	.2	.2	.2	.2	-	.1	.1	.1	.1	.1	.1	.1
30	.2	.2	.2	.2	-	.1	.1	.1	.1	.1	.1	.1
31	.2	-	.2	.2	-	.1	-	.1	-	.1	.1	-
Total	6.2	6.6	6.2	7.5	5.1	3.8	3.0	3.4	3.0	3.1	3.1	3.0
Mean	0.20	0.22	0.20	0.24	0.18	0.12	0.10	0.11	0.10	0.10	0.10	0.10
Max.	0.2	0.7	0.2	1.5	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1
Min.	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Ac-ft	12	13	12	15	10	7.5	6.0	6.7	6.0	6.1	6.1	6.0

Calendar year 1960: Max 1.7 Min 0.1 Mean 0.32 Acre-feet 230  
Water year 1960-61: Max 1.5 Min 0.1 Mean 0.15 Acre-feet 106

Peak discharge (base, 80 cfs).--No peak above base.

## SANTA ANA RIVER BASIN

11-636.8 Devil Canyon Creek near San Bernardino, Calif.

Location.--Lat 34°12'12", long 117°20'02", in Muscupiabe Grant, on right bank 1.0 mile downstream from confluence of East Fork and West Fork and 7.0 miles northwest of San Bernardino, San Bernardino County.

Drainage area.--6.16 sq mi.

Records available.--November 1911 to September 1912, October 1913 to September 1914, December 1919 to September 1961. Monthly figures only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder and broad-crested weir. Altitude of gage is 1,900 ft (from topographic map). Prior to December 1919, staff gage at site 500 ft downstream at different datum.

Average discharge.--42 years (1913-14, 1920-61), 1.65 cfs (1,190 acre-ft per year), unadjusted; median of yearly unadjusted mean discharges, 0.7 cfs (510 acre-ft per year); 28 years (1913-14, 1935-61), 3.40 cfs (2,460 acre-ft per year), adjusted; median of yearly adjusted mean discharges, 2.2 cfs (1,600 acre-ft per year).

Extremes.--No flow during year.

1913-14, 1919-61: Maximum discharge, 3,320 cfs Mar. 2, 1938, by rainfall-runoff studies; no flow at times in most years.

Remarks.--No flow since June 1, 1960. City of San Bernardino diverts above station for municipal supply. Figures for calendar year 1960 are as follows: maximum daily discharge, 4.0 cfs; minimum, zero; mean, 0.12 cfs; adjusted mean, 1.18 cfs; runoff, 91 acre-ft; adjusted runoff, 857 acre-ft.

Cooperation.--Records of diversion furnished by city of San Bernardino.

Monthly diversion, in acre-feet, water year October 1960 to September 1961			
Month	Diversion	Month	Diversion
October.....	48	May.....	55
November.....	58	June.....	42
December.....	48	July.....	33
January.....	61	August.....	31
February.....	57	September.....	30
March.....	59		
April.....	58	Water year.....	580

SANTA ANA RIVER BASIN

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11-660. Warm Creek near Colton, Calif.

Location.--Lat 34°04'09", long 117°18'28", in San Bernardino Grant, on right bank 200 ft upstream from "P" Street Bridge, 0.5 mile upstream from mouth, and 0.9 mile east of Colton, San Bernardino County.

Drainage area.--259 sq mi.

Records available.--August 1920 to September 1961.

Gage.--Water-stage recorder. Since Jan. 18, 1961, crest-stage gage. Altitude of gage is 950 ft (from topographic map). Prior to Sept. 13, 1958, at site 200 ft downstream at different datum. Sept. 13, 1958, to Feb. 14, 1960, at site 350 ft downstream at same datum.

Average discharge.--41 years, 43.6 cfs (31,560 acre-ft per year); median of yearly mean discharges, 38 cfs (27,500 acre-ft per year). Average combined discharge of Warm Creek and Meeks and Daley Canal, 41 years, 55.0 cfs (39,820 acre-ft per year); median of yearly mean combined discharges, 50 cfs (36,200 acre-ft per year).

Extremes.--Maximum discharge during year, 610 cfs Nov. 6 (gage height, 5.48 ft); minimum daily, 4.2 cfs Jan. 15, 22, Feb. 23, 25, 26. 1920-61: Maximum discharge, 27,500 cfs Mar. 2, 1938 (gage height, 11.2 ft, datum then in use), on basis of slope-area measurement of peak flow; minimum, 1.4 cfs July 17, 1951 (gage height, 0.71 ft, datum then in use). Maximum discharge including west channel of Lytle Creek, 35,000 cfs Mar. 2, 1938.

Remarks.--Records fair. For records of combined discharge of Warm Creek and Meeks and Daley Canal, which diverts above station for irrigation, see following page. Adjusted runoff includes water pumped from the ground-water basin near Meeks and Daley canal gage. In seasons of high-water table, there is flow in a depression paralleling Warm Creek 500 ft east of station. This year there was no flow. Lytle Creek flood channel (capacity, 30,000 cfs), completed in fall of 1945, enters Warm Creek above station and includes any flow which formerly might have been recorded at station on Lytle Creek (west channel).

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.6	6.6	* 5.8	4.6	6.9	4.4	e 5			a 5	6.3	a 7.5
2	5.8	6.3	* 8.8	4.8	7.2	4.8	e 5			a 5	6.3	a 7.5
3	7.2	10	a 7	6.3	7.2	5.1	a 5			a 6	6.6	a 7.5
4	7.2	8.5	a 7	* 6.3	7.2	5.1	a 5			a 5	12	a 7.5
5	* 7.2	15	* a 8	* 6.1	7.2	5.1	a 5			a 6	8.7	a 7.5
6	7.2	* 7.7	* 7.5	6.1	7.8	5.1	a 5			* a 7	8.4	a 7.5
7	6.9	a 8	7.2	5.5	* 7.8	5.3	(*)			* 6.6	8.7	7.8
8	6.6	a 7	6.9	4.6	6.9	* 5.3				7.2	* 8.7	7.8
9	6.3	* a 7	6.1	5.8	6.6	5.1		(*)		5.8	7.8	8.1
10	* 2.7	* 6.9	5.1	5.8	6.3	5.3				7.2	6.6	7.8
11	6.3	5.8	4.6	5.8	6.3	5.3				* 6.1	6.3	8.1
12	6.3	4.6	6.6	5.8	6.3	5.3			(*)	5.8	5.8	7.8
13	6.3	4.6	6.9	5.5	6.9	5.3				5.8	5.5	7.8
14	6.1	* 5.8	* 7.2	5.1	6.9	* 5.1			e 6	6.1	7.5	* 7.8
15	5.3	6.1	7.5	4.2	6.6	* 1.7		(*)		5.1	* 6.9	7.5
16	5.1	6.3	6.6	5.5	6.1	6.9		e 5.5		4.6	6.9	7.2
17	5.8	6.1	6.1	5.5	6.1	6.1	e 5			6.1		6.9
18	5.8	5.5	5.3	* 5.5	5.5	5.8	(*)			6.3		6.9
19	6.3	5.1	6.6	5.5	4.6	5.3				6.3		6.9
20	6.1	5.3	6.6	5.5	4.8	5.8				6.3		6.9
21	6.6	* 6.1	6.6	4.8	4.6	* 5.8				6.3		6.9
22	6.1	6.6	6.9	4.2	4.4	6.1				5.8		6.9
23	5.3	6.6	6.1	5.8	* 4.2	6.9				5.1	a 7.5	6.9
24	* 6.9	5.8	5.3	6.1	4.4	6.6				7.5		6.9
25	6.6	6.9	4.6	* 6.1	4.2	4.4				* 7.2		6.9
26	6.6	21	5.1	* 6.3	4.2	5.8				6.9		7.2
27	* 6.9	11	6.3	* 8.1	4.6	6.6			(*)	6.9		* 7.2
28	6.9	7.5	5.8	5.8	4.8	* 1.6	(*)			6.3		7.2
29	6.9	* 7.2	* 5.8	5.3	-	e 5		(*)	a 6	6.1		6.6
30	6.1	6.3	6.3	5.8	-	e 6			a 6	6.1		6.1
31	6.6	-	5.5	6.1	-	e 6	-	-	-	6.3	(*)	-
Total	218.9	292.5	197.7	231.1	166.6	233.3	150	170.5	180	189.8	231.5	219.1
Mean	7.06	9.75	6.38	7.45	5.95	7.53	5.00	5.50	6.00	6.12	7.47	7.30
Max.	27	77	8.8	63	7.8	44	-	-	-	7.5	12	8.1
Min.	5.1	4.6	4.6	4.2	4.2	4.4	-	-	-	4.6	5.5	6.1
Ac-ft	434	580	392	458	330	463	298	338	357	376	459	435

Calendar year 1960: Max 110 Min 4.4 Mean 8.50 Acre-feet 6,170  
 Water year 1960-61: Max 77 Min 4.2 Mean 6.80 Acre-feet 4,920

Peak discharge (base, 500 cfs).--Nov. 6 (8:30 a.m.) 610 cfs (5.48 ft).

\* Discharge measurement made on this day.  
 a No gage-height record.  
 e Stage-discharge relation indefinite.

## SANTA ANA RIVER BASIN

11-660: Warm Creek near Colton, Calif.--Continued

Combined discharge, in cubic feet per second, of Warm Creek and Meeks &amp; Daley Canal near Colton, Calif., water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	25	24	8.5	20	9.6	8.2	8.0	22	22	21	19	20
2	24	22	12	20	9.9	13	12	22	22	21	19	20
3	25	26	9.7	21	9.9	14	20	22	22	22	20	20
4	25	24	9.7	21	9.9	20	21	22	22	21	25	20
5	25	28	11	21	9.9	24	21	22	22	22	22	20
6	25	82	9.0	21	10	24	22	22	22	23	21	20
7	25	11	7.6	20	10	23	22	22	22	23	22	21
8	25	10	9.6	20	17	23	23	20	22	23	22	21
9	23	10	8.8	21	24	23	23	20	22	22	21	21
10	44	9.9	7.8	21	22	23	23	20	22	23	20	21
11	20	8.8	7.3	21	22	22	23	20	22	22	19	21
12	13	7.6	13	21	22	22	23	20	22	22	18	21
13	9.0	10	23	20	23	22	23	20	21	22	18	21
14	8.8	17	23	20	23	22	22	20	19	22	20	22
15	8.0	17	24	19	23	34	22	20	22	21	19	22
16	13	20	23	20	22	24	22	20	22	21	19	21
17	22	22	22	20	22	23	22	22	22	22	20	21
18	21	22	21	20	18	23	22	22	22	22	20	21
19	21	20	23	20	8.3	22	22	22	22	22	20	21
20	21	20	23	20	4.9	23	22	22	22	22	20	21
21	23	21	23	20	4.7	23	21	22	22	22	20	20
22	23	22	23	19	4.4	23	21	22	21	22	20	20
23	22	22	18	21	4.2	24	22	22	21	21	20	20
24	24	21	8.3	21	4.6	23	22	22	21	24	20	20
25	24	22	7.6	21	4.2	60	22	22	21	23	20	20
26	24	32	13	70	4.2	22	22	22	21	21	20	23
27	24	14	22	11	5.1	23	21	22	21	21	20	25
28	24	10	21	8.5	4.8	32	21	22	22	20	20	24
29	24	9.9	21	8.0	-	20	21	22	22	20	20	24
30	23	9.0	21	8.5	-----	12	21	22	22	20	20	23
31	24	-----	20	8.8	-----	9.0	-----	22	-----	19	20	-----
Total	681.8	594.2	493.9	623.8	356.6	703.2	632.0	664	650	672	624	635
Mean	22.0	19.8	15.9	20.1	12.7	22.7	21.1	21.4	21.7	21.7	20.1	21.2
Max	44	82	24	70	24	60	23	22	22	24	25	25
Min	8.0	7.6	7.3	8.0	4.2	8.2	8.0	20	19	19	18	20
Ac-ft	1,350	1,180	980	1,240	707	1,390	1,250	1,320	1,290	1,330	1,240	1,260
(†)	682	671	660	585	549	620	591	652	645	708	700	689
Ac-ft†	668	509	320	655	158	770	659	668	645	622	540	571
Calendar year 1960:	Max 110	Min 5.2	Mean 19.4	Ac-ft 14,090	Mean† 8.88	Ac-ft† 6,450						
Water year 1960-61:	Max 82	Min 4.2	Mean 20.1	Ac-ft 14,540	Mean† 9.37	Ac-ft† 6,780						

† Release, in acre-ft, from city of San Bernardino sewage disposal plant.

‡ Adjusted for release.

## SANTA ANA RIVER BASIN

129

11-665. Santa Ana River at Riverside Narrows, near Arlington, Calif.

Location---Lat 33°57'53", long 117°27'55", in SW 1/4 sec. 25, T.2 S., R.6 W., on right bank at downstream side of bridge on Pedley Road, 1.8 miles downstream from Union Pacific Railroad bridge, 3.3 miles northwest of Arlington, and 12 miles upstream from Temescal Creek.

Drainage area.--858 sq mi.

Records available.--October 1927 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage---Water-stage recorder. Datum of gage is 666.87 ft above mean sea level (levels by Riverside County engineer). Prior to Nov. 15, 1943, at site 1 1/4 miles upstream at different datum. During this period temporary stations were maintained at different sites and datums within a quarter of a mile of the permanent gage. Nov. 15, 1943, to Aug. 31, 1954, at datum 3.00 ft higher. Sept. 1, 1954, to Jan. 17, 1955, at datum 2.00 ft higher.

Extremes---Maximum discharge during year, 127 cfs Nov. 26 (gage height, 3.10 ft); minimum daily, 15 cfs July 27, Aug. 1-2, Sept. 4-6, 8.

1927-61: Maximum discharge, 100,000 cfs Mar. 2, 1938, on basis of slope-area measurement of peak flow; minimum daily, 14 cfs Sept. 6, 9, 1960.

Remarks---Records fair. Discharge measurements are generally made two or more times a month. Flow partly regulated by Big Bear Lake (see p. 109). Natural flow of stream affected by ground-water withdrawals, diversions for irrigation, and return flow from irrigated areas.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	22	20	20	21	26	21	21	21	18	17	15	16
2	21	21	24	22	26	21	21	21	19	18	15	16
3	21	23	20	23	26	21	20	21	18	18	16	16
4	21	25	20	23	27	22	20	21	18	18	16	15
5	21	23	19	23	26	23	19	21	18	18	16	15
6	21	56	19	23	29	24	21	20	18	18	16	15
7	21	33	20	22	34	25	21	20	18	17	16	16
8	21	26	21	22	34	25	21	20	18	17	16	15
9	22	25	21	22	32	24	21	20	18	16	16	16
10	29	24	20	23	29	23	21	19	18	17	16	16
11	22	24	21	23	25	23	21	19	18	17	16	16
12	21	24	20	24	24	23	21	20	19	17	16	16
13	21	25	23	24	24	24	21	20	20	17	16	16
14	21	23	19	23	23	24	22	19	20	17	16	17
15	19	23	19	23	23	27	22	19	19	17	16	17
16	19	24	18	23	23	26	22	19	19	17	16	17
17	18	23	18	23	22	26	22	20	18	17	16	17
18	19	23	19	24	22	26	22	20	19	17	17	17
19	19	22	19	25	21	27	23	19	18	17	18	16
20	19	23	19	25	20	28	22	18	20	17	17	16
21	19	21	20	25	20	28	21	18	18	18	17	16
22	19	21	19	24	21	27	22	19	18	17	17	16
23	20	21	20	25	21	27	23	19	18	17	17	16
24	20	20	20	26	21	27	22	19	18	17	17	17
25	20	20	19	26	21	30	22	19	17	17	17	18
26	20	32	20	35	21	27	21	18	17	16	17	18
27	20	31	20	37	21	27	21	17	17	15	16	17
28	20	22	20	32	21	34	21	18	17	16	16	17
29	20	21	21	27	-	26	21	18	17	16	16	17
30	20	20	21	26	-----	23	22	18	17	17	16	17
31	20	-----	21	26	-----	23	-----	18	-----	16	-----	-----
Total	6 36	7 39	6 20	7 70	6 83	7 82	6 40	5 98	5 45	5 26	5 04	4 90
Mean	20.5	24.6	20.0	24.8	24.4	25.2	21.3	19.3	18.2	17.0	16.3	16.3
Max.	29	56	24	37	34	34	23	21	20	18	18	18
Min.	18	20	18	21	20	21	19	17	17	15	15	15
Ac-ft	1,260	1,470	1,230	1,530	1,350	1,550	1,270	1,190	1,080	1,040	1,000	972

Calendar year 1960: Max 124 Min 14 Mean 23.8 Acre-feet 17,260  
 Water year 1960-61: Max 56 Min 15 Mean 20.6 Acre-feet 14,940

Peak discharge (base, 500 cfs).--No peak above base.

Note---Stage-discharge relation indefinite Apr. 4-17.

## SANTA ANA RIVER BASIN

11-670. Day Creek near Etiwanda, Calif.

Location.--Lat 34°11'05", long 117°32'20", in NW¼NW¼SW¼ sec.8, T.1 N., R.6 W., on left bank 0.5 mile downstream from confluence of two main forks and ¼ miles north of Etiwanda.

Drainage area.--4.58 sq mi.

Records available.--October 1927 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B. Combined creek and diversion, October 1950 to September 1961.

Gage.--Water-stage recorder and broad-crested weir. Altitude of gage is 2,870 ft (from topographic map). Prior to Jan. 7, 1929, at site 125 ft downstream at different datum. Jan. 7, 1929, to Mar. 2, 1938, at site 200 ft upstream at different datum (destroyed by flood). May 2 to Sept. 2, 1938, at site 200 ft downstream at different datum.

Average discharge.--34 years, 3.49 cfs (2,530 acre-ft per year); median of yearly mean discharges, 1.9 cfs (1,400 acre-ft per year). Average combined discharge of Day Creek and Etiwanda Water Co.'s diversion, 11 years, 3.14 cfs (2,270 acre-ft per year); median of yearly mean combined discharges, 2.0 cfs (1,400 acre-ft per year).

Extremes.--Maximum discharge during year, 44 cfs Jan. 26 (gage height, 1.95 ft); minimum daily, 0.1 cfs for many days. 1927-61: Maximum discharge, 4,200 cfs Mar. 2, 1938, based on rainfall-runoff studies; no flow Oct. 5 to Nov. 1, 1950.

Remarks.--Records good. Discharge measurements generally made twice per month. Etiwanda Water Co. diverts water above station. For records of combined discharge of creek and Etiwanda Water Co.'s diversion, see following page. In addition, an infiltration gallery, unwatering the gravel in the bed of the stream at gaging station, produced 388 acre-ft during year.

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

0.32	0.1	0.7	1.9
.4	.2	.8	2.8
.5	.6	1.0	5.2
.6	1.2		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0.2	0.2	0.3	1.7	0.2	0.2	0.1	0.1	0.1	0.1	0.1
2	.1	.2	.3	.3	1.2	.2	.2	.1	.1	.1	.1	.1
3	.1	.6	.3	.3	.5	.2	.2	.2	.1	.1	.1	.1
4	.1	1.2	.3	.3	.4	.2	.2	.2	.1	.1	.1	.1
5	.1	1.3	.3	.3	.3	.2	.2	.2	.1	.1	.1	.1
6	.1	2.2	.4	.3	.2	.2	.2	.2	.1	.1	.1	.1
7	.1	1.2	.5	.3	.2	.2	.2	.2	.1	.1	.1	.1
8	.1	1.0	.4	.3	.2	.2	.2	.2	.1	.1	.1	.1
9	.1	.9	.3	.3	.2	.2	.2	.2	.1	.1	.1	.1
10	.1	.7	.2	.3	.2	.2	.2	.1	.1	.1	.1	.1
11	.1	.6	.2	.3	.2	.2	.2	.1	.1	.1	.1	.1
12	.1	1.7	.2	.3	.2	.2	.2	.1	.1	.1	.1	.1
13	.1	2.0	.2	.3	.2	.2	.2	.1	.1	.1	.1	.1
14	.1	1.4	.2	.3	.2	.2	.2	.1	.1	.1	.1	.1
15	.1	1.1	.2	.3	.2	.2	.2	.1	.1	.1	.1	.1
16	.2	.6	.2	.3	.2	.2	.2	.1	.1	.1	.1	.1
17	.2	.4	.2	.3	.2	.2	.2	.1	.1	.1	.1	.1
18	.2	.3	.3	.3	.2	.2	.2	.1	.1	.1	.1	.1
19	.2	.3	.3	.4	.2	.2	.2	.1	.1	.1	.1	.1
20	.2	.2	.3	.4	.2	.2	.2	.1	.1	.1	.1	.1
21	.2	.2	.3	.4	.2	.2	.2	.1	.1	.1	.1	.1
22	.2	.2	.3	.4	.2	.2	.2	.1	.1	.1	.1	.1
23	.2	.2	.3	.4	.2	.2	.2	.1	.1	.1	.1	.1
24	.2	.2	.3	.4	.2	.2	.2	.1	.1	.1	.1	.1
25	.2	.2	.3	.4	.2	.2	.2	.1	.1	.1	.1	.1
26	.2	.2	.3	5.1	.2	.2	.2	.1	.1	.1	.1	.1
27	.2	.2	.3	2.7	.2	.2	.2	.1	.1	.1	.1	.1
28	.2	.2	.3	2.0	.2	.2	.1	.1	.1	.1	.1	.1
29	.2	.2	.3	2.0	.2	.2	.1	.1	.1	.1	.1	.1
30	.2	.2	.3	1.9	.2	.2	.1	.1	.1	.1	.1	.1
31	.2	.2	.3	1.9	.2	.2	.1	.1	.1	.1	.1	.1
Total	4.7	20.1	8.8	23.8	8.7	6.2	5.7	3.8	3.0	3.1	3.1	3.0
Mean	0.15	0.67	0.28	0.77	0.31	0.20	0.19	0.12	0.10	0.10	0.10	0.10
Max.	0.2	2.2	0.5	5.1	1.7	0.2	0.2	0.2	0.1	0.1	0.1	0.1
Min.	0.1	0.2	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Ac-ft	9.3	40	17	47	17	12	11	7.5	6.0	6.1	6.1	6.0

Calendar year 1960 : Max 7.0 Min 0.1 Mean 0.33 Acre-feet 237  
 Water year 1960-61 : Max 5.1 Min 0.1 Mean 0.26 Acre-feet 185

Peak discharge (base, 25 cfs).--Jan. 26 (2 p.m.) 44 cfs (1.95 ft).



## 670. Day Creek near Etiwanda, Calif.--Continued

Combined discharge, in cubic feet per second, of Day Creek and Etiwanda Water Co.'s diversion  
near Etiwanda, Calif., water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.9	1.0	1.5	1.3	1.8	1.3	1.3	0.9	1.2	0.6	0.4	0.4
2	.8	1.0	1.8	1.3	2.0	1.3	1.2	.9	1.1	.6	.4	.4
3	.8	1.6	1.7	1.3	2.0	1.4	1.2	1.2	1.0	.6	.4	.4
4	.8	1.6	1.6	1.3	1.8	1.5	1.2	1.3	1.1	.6	.6	.4
5	.8	1.7	1.6	1.3	1.6	1.4	1.2	1.2	1.1	.6	.5	.3
6	.8	4.0	1.5	1.3	1.5	1.3	1.3	1.2	1.0	.6	.5	.3
7	.8	2.7	1.5	1.3	1.5	1.3	1.4	1.2	1.0	.6	.5	.4
8	1.0	2.3	1.5	1.3	1.5	1.3	1.3	1.1	1.0	.5	.5	.4
9	1.5	2.3	1.6	1.3	1.5	1.3	1.3	1.1	1.0	.5	.5	.4
10	1.8	2.1	1.4	1.2	1.4	1.3	1.3	1.0	.9	.5	.5	.4
11	1.3	1.9	1.4	1.2	1.4	1.3	1.3	1.1	.9	.5	.5	.4
12	1.2	3.6	1.3	1.2	1.4	1.2	1.3	1.1	.9	.5	.4	.4
13	1.2	4.6	1.3	1.2	1.4	1.2	1.3	1.1	.8	.5	.4	.4
14	1.2	3.9	1.3	1.1	1.4	1.2	1.2	1.0	.8	.5	.4	.4
15	1.1	3.4	1.3	1.1	1.4	1.6	1.2	1.0	.7	.5	.4	.4
16	1.1	2.6	1.3	1.1	1.4	1.4	1.1	1.1	.7	.5	.4	.4
17	1.0	2.2	1.3	1.1	1.5	1.4	1.1	1.1	.7	.5	.4	.5
18	.9	2.0	1.4	1.1	1.4	1.3	1.2	1.1	.7	.5	.4	.5
19	.9	1.8	1.4	1.2	1.4	1.2	1.3	1.1	.7	.5	.4	.5
20	1.0	1.7	1.4	1.2	1.4	1.2	1.3	1.1	.7	.5	.4	.6
21	1.0	1.6	1.4	1.2	1.3	1.2	1.3	1.0	.7	.5	.3	.7
22	1.0	1.6	1.4	1.2	1.3	1.2	1.5	1.1	.6	.5	.3	.8
23	1.0	1.5	1.4	1.3	1.4	1.3	1.3	1.1	.6	.5	.4	.7
24	1.1	1.5	1.3	1.3	1.4	1.6	1.3	1.1	.6	.5	.4	.6
25	1.0	1.5	1.3	1.3	1.4	1.8	1.2	1.1	.6	.4	.4	.5
26	1.0	1.8	1.3	6.2	1.4	1.5	1.2	1.1	.6	.4	.4	.5
27	1.0	1.8	1.3	2.9	1.4	1.5	1.1	1.1	.6	.4	.4	.4
28	1.0	1.6	1.3	2.2	1.4	1.6	1.0	1.1	.6	.4	.4	.4
29	1.0	1.6	1.3	2.2	-	1.4	.9	1.1	.6	.4	.4	.5
30	1.0	1.5	1.3	2.0	-----	1.4	.9	1.1	.6	.4	.5	.5
31	1.0	-----	1.3	2.0	-----	1.4	-----	1.1	-----	.4	.4	-----
Total	52.0	64.0	43.7	48.2	41.7	42.3	35.7	33.9	24.1	15.5	13.2	13.9
Mean	1.03	2.13	1.41	1.55	1.49	1.36	1.22	1.00	0.80	0.50	0.43	0.46
Max.	1.8	4.6	1.8	6.2	2.0	1.8	1.5	1.3	1.2	0.6	0.6	0.8
Min.	0.8	1.0	1.3	1.1	1.3	1.2	0.9	0.9	0.6	0.4	0.3	0.3
Ac-ft	63	127	87	96	83	84	73	67	48	31	26	28

Calendar year 1960: Max 7.2 Min 0.7 Mean 1.66 Acre-feet 1,210  
 Water year 1960-61: Max 6.2 Min 0.3 Mean 1.12 Acre-feet 813

## SANTA ANA RIVER BASIN

11-680. Santa Ana River at Auburndale Bridge, near Corona, Calif.

Location (revised).--Lat 33°55'25", long 117°35'50", in La Sierra (Yorba) Grant, on right bank just downstream from Auburndale Bridge on River Road, 1.7 miles upstream from Temescal Creek and 3.8 miles northwest of Corona, Riverside County.

Drainage area.--1,021 sq mi.

Records available.--May 1930 to November 1961 (irrigation seasons only).

Gage.--Water-stage recorder. Datum of gage is 501.36 ft above mean sea level, datum of 1929 (levels by Orange County Flood Control District). Prior to May 1946, at various sites within 1,000 ft of bridge and at different datums. May 1946 to Sept. 12, 1961, at site 100 ft upstream at same datum.

Remarks.--Records fair. Flow partly regulated by Big Bear Lake (see p. 109). The natural flow is affected by ground-water withdrawals, diversions for irrigation, and return flow from irrigated areas. Water diverted into Durkee ditch, a quarter of a mile above station, bypasses station; discharge measurements of flow in ditch are given below.

Cooperation.--Twenty discharge measurements furnished by Orange County Flood Control District.

Discharge measurements, in cubic feet per second, May to December 1961

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
May 2	2.74	July 11	1.11	Sept. 6	1.07	Oct. 31	1.84
15	2.14	25	1.14	19	1.47	Nov. 14	2.00
29	1.76	Aug. 7	.96	Oct. 3	1.13	28	2.18
June 13	1.83	22	.90	17	1.54	Dec. 6	2.56
27	1.55	29	.76				

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used June 29-30, Sept. 22-25, Nov. 30)

Jan. 1 to Sept. 12

Sept. 13 to Dec. 31

0.8 9.7  
.9 14  
1.1 24  
1.3 36

0.8 13  
1.0 23  
1.2 34  
1.5 51

Discharge, in cubic feet per second, May to December 1961

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1					a 27	26	19	13	a 19	13	25	† 38
2					* 27	26	19	13	a 19	13	25	
3		† 45	† 37		28	26	18	14	19	* 13	* 25	
4					a 30	26	17	* 14	19	14	26	
5					* a 32	25	17	14	19	16	26	
6	† 38				a 32	25	16	14	* 18	* 17	24	† 47
7				† 41	a 32	24	* 16	* 14	16	21	25	
8					a 32	23	15	14	* 15	20	29	
9					a 32	* 23	15	14	16	20	27	
10					a 31	25	14	15	17	20	23	
11					a 31	26	* 16	17	a 18	21	24	
12					a 31	27	15	15	a 19	22	24	
13					a 31	* 28	15	15	* 20	21	30	
14					a 31	* 26	14	15	20	22	* 31	
15					* 31	25	14	15	20	23	23	
16					a 29	24	13	15	20	24	24	
17					a 27	24	13	15	21	* 24	* 26	
18					a 26	24	13	* 15	22	23	27	
19					* 24	23	12	16	* 23	22	27	
20					a 24	23	12	20	21	* 21	29	
21					a 25	22	* 13	21	19	22	39	
22					a 25	20	14	* 21	* 17	25	35	
23					a 26	* 18	14	20	16	23	35	
24					a 26	19	15	20	15	21	35	
25					a 26	20	* 15	20	16	21	37	
26					a 27	21	14	20	15	21	50	
27					a 27	* 24	13	19	14	23	42	
28					a 27	22	12	19	14	23	* 51	
29					* 27	20	12	* 20	13	21	46	
30					27	20	13	a 20	13	21	41	
31					26		13	a 20		* 21		
Total					877	705	451	517	533	632	931	
Mean					28.3	23.5	14.5	16.7	17.8	20.4	31.0	
Max.					32	28	19	21	23	25	51	
Min.					24	18	12	13	13	13	23	
Ac-ft					1,740	1,400	895	1,030	1,060	1,250	1,850	

Calendar year : Max Min Mean Acre-feet  
Irrigation season: Max 51 Min 12 Mean - Acre-feet 9,220

\* Discharge measurement made on this day.

† Result of discharge measurement.

a No gage-height record.

11-685. Cucamonga Creek near Upland, Calif.

Location.--Lat  $34^{\circ}10'26''$ , long  $117^{\circ}37'51''$ , in  $SW\frac{1}{4}SE\frac{1}{4}NE\frac{1}{4}$  sec.17, T.1 N., R.7 W., on right bank 0.5 mile downstream from unnamed tributary on left and 5.3 miles north of Upland.

Drainage area.--10.1 sq mi.

Records available.--October 1927 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder and broad-crested weir. Altitude of gage is 2,360 ft (from topographic map). Prior to Jan. 17, 1935, and Apr. 15, 1935, to Nov. 11, 1936, at site 2,500 ft downstream at different datums. Jan. 18 to Apr. 14, 1935, at site 1,200 ft downstream at different datum. Nov. 12, 1936, to Dec. 13, 1938, at site 300 ft downstream at different datum.

Average discharge.--34 years, 7.11 cfs (5,150 acre-ft per year); median of yearly mean discharges, 4.8 cfs (3,500 acre-ft per year).

Extremes.--Maximum discharge during year, 9.9 cfs Nov. 12 (gage height, 2.12 ft); minimum daily, 0.5 cfs July 11-21, Sept. 3-7, 10-12.

1927-61: Maximum discharge, 10,300 cfs Mar. 2, 1938, based on rainfall-runoff study; minimum daily, that of July 11-21, Sept. 3-7, 10-12, 1961.

Remarks.--Records good. Discharge measurements generally made twice a month. No regulation or diversion.

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.0	1.3	2.2	1.9	2.9	1.8	1.8	1.4	1.4	0.6	0.7	0.6
2	1.0	1.3	2.2	1.9	2.7	1.7	1.7	1.4	1.4	.6	.7	.6
3	1.0	2.1	2.2	2.0	2.5	1.8	1.6	1.4	1.3	.6	.8	.5
4	1.0	2.3	2.2	2.0	2.4	2.0	1.6	1.5	1.3	.6	.9	.5
5	1.0	2.2	2.2	2.0	2.3	2.0	1.6	1.5	1.3	.6	1.0	.5
6	1.0	5.2	2.1	2.0	2.3	1.9	1.7	1.5	1.3	.6	.9	.5
7	1.0	3.8	2.1	2.0	2.3	1.9	1.7	1.5	1.3	.6	.9	.5
8	1.3	2.9	2.2	2.0	2.3	1.7	1.6	1.4	1.2	.6	.8	.6
9	1.6	2.5	2.2	2.0	2.3	1.7	1.6	1.3	1.2	.6	.8	.6
10	2.2	2.3	2.2	2.0	2.2	1.6	1.7	1.2	1.1	.6	.8	.5
11	1.6	2.3	2.2	2.0	2.1	1.7	1.6	1.2	1.1	.5	.8	.5
12	1.4	3.6	2.1	2.0	2.1	1.8	1.6	1.3	1.0	.5	.7	.5
13	1.4	4.7	2.0	2.0	2.1	1.7	1.6	1.2	.9	.5	.7	.6
14	1.4	3.5	2.0	1.9	2.1	1.7	1.6	1.2	.8	.5	.7	.6
15	1.2	2.8	2.0	1.9	2.1	2.1	1.5	1.2	.7	.5	.7	.6
16	1.2	2.6	2.0	1.9	2.1	2.0	1.4	1.2	.7	.5	.7	.7
17	1.2	2.3	2.0	1.8	2.0	1.9	1.4	1.2	.7	.5	.6	.7
18	1.2	2.2	2.0	1.8	2.0	1.9	1.4	1.3	.7	.5	.6	.7
19	1.2	1.9	1.9	1.8	2.0	1.8	1.5	1.3	.7	.5	.6	.7
20	1.2	1.9	1.8	1.8	2.0	1.8	1.5	1.4	.7	.5	.6	.8
21	1.2	1.9	1.8	1.9	2.0	1.8	1.5	1.4	.7	.5	.6	.8
22	1.2	1.9	1.8	1.8	2.0	1.8	1.7	1.4	.7	.6	.6	.8
23	1.2	1.9	1.8	1.9	2.0	1.9	1.6	1.4	.7	.6	.6	.8
24	1.3	1.9	1.8	1.9	2.0	2.1	1.6	1.4	.7	.7	.6	.8
25	1.3	1.8	1.8	2.0	2.0	2.5	1.5	1.4	.7	.7	.6	.8
26	1.3	2.3	1.8	4.3	2.0	2.0	1.5	1.4	.7	.7	.6	.7
27	1.3	2.5	1.8	4.1	1.9	2.0	1.4	1.4	.7	.7	.6	.7
28	1.3	2.3	1.8	3.5	1.9	2.1	1.4	1.4	.6	.7	.6	.7
29	1.3	2.3	1.8	3.1	-	1.9	1.4	1.4	.6	.7	.6	.6
30	1.3	2.2	1.9	3.1	-	1.9	1.4	1.4	.6	.7	.6	.6
31	1.3	-	1.9	3.0	-	1.9	-	1.4	-	.7	.6	-
Total	39.1	74.7	61.8	69.3	60.6	58.4	46.7	42.0	27.5	18.3	21.6	19.1
Mean	1.26	2.49	1.99	2.24	2.16	1.88	1.56	1.35	0.92	0.59	0.70	0.64
Max.	2.2	5.2	2.2	4.3	2.9	2.5	1.8	1.5	1.4	0.7	1.0	0.8
Min.	1.0	1.3	1.8	1.8	1.9	1.6	1.4	1.2	0.6	0.5	0.6	0.5
Ac-ft	78	148	123	137	120	116	93	83	55	36	43	38

Calendar year 1960 : Max 11 Min 0.8 Mean 2.14 Acre-feet 1,550  
 Water year 1960-61 : Max 5.2 Min 0.5 Mean 1.48 Acre-feet 1,070

Peak discharge (base, 80 cfs).--No peak above base.

## SANTA ANA RIVER BASIN

11-695. San Jacinto River near San Jacinto, Calif.

Location.--Lat 33°44'15", long 116°49'35", in SW 1/4 NE 1/4 sec. 13, T.5 S., R.1 E., on downstream side of right pier of bridge on State Highway 74, 1 mile downstream from North Fork, and 8.2 miles southeast of San Jacinto.

Drainage area.--140 sq mi.

Records available.--October 1920 to February 1927, March 1927 to September 1961. Combined river and diversions, October 1948 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Datum of gage is 1,982.75 ft above mean sea level (Corps of Engineers bench mark). Prior to Feb. 15, 1927, water-stage recorder at site about 150 ft upstream at different datum. Feb. 15, 1927, to December 1929, staff gage at same site at different datum. December 1929 to Feb. 6, 1937, water-stage recorder at same site at different datum. Feb. 7, 1937, to Jan. 23, 1948, staff gage at same site at various datums.

Average discharge.--40 years (1920-26, 1927-61), 17.9 cfs (12,960 acre-ft per year); median of yearly mean discharges, 6.6 cfs (4,800 acre-ft per year). Average combined discharge of river, canals, and pipeline, 13 years (1948-61), 15.8 cfs (11,440 acre-ft per year); median of combined yearly mean discharges, 9.6 cfs (7,000 acre-ft per year).

Extremes.--Maximum discharge during year, 215 cfs Aug. 19 (gage height, 4.70 ft); no flow for most of year.

1920-61: Maximum discharge, 45,000 cfs Feb. 16, 1927, on basis of slope-area measurement of peak flow; no flow for several months in each year.

Remarks.--Records good. Flow partly regulated by Hemet Reservoir (capacity, 13,400 acre-ft); contents, 597 acre-ft Sept. 30, 1961, representing net decrease of 2,217 acre-ft during year. Lake Hemet Municipal Water District's upper and lower canals divert water above station for irrigation. Fairview Land and Water Co.'s pipeline diverts water above station for domestic use. For records of combined daily discharge of San Jacinto River and diversions, see following page. Extremes show flow past station only.

Cooperation.--Daily discharge of Fairview Land and Water Co.'s pipeline and contents of Lake Hemet furnished by Lake Hemet Municipal Water District.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0		* 0					0	
2				0		0					0	
3				0		.1					0	
4				0		.1	(*)				0	
5	(*)			* 0		.1				(*)	0	
6				0		0					0	
7		(*)	(*)	0		0					0	
8				0		0					* 0	
9				0		0					0	
10				0		0					0	
11				0		0		(*)			0	(*)
12				0		0					0	
13				0	(*)	0					0	
14				0		0					0	
15				0		0					0	
16				0		0					0	
17				0		0	(*)				0	
18				0		0					0	
19				* 0		0					18	
20			(*)	0		* 0			(*)		0	
21		(*)		0		0					* .1	
22				0		0					7.1	
23				0		0					4.1	
24	(*)			0		0					.7	
25				0		0	(*)			(*)	* .3	
26				.2		0					.2	
27				* .3		0					0	
28				0		.7					0	
29				0		.1					0	
30				0		0					0	
31				0		0		(*)			0	
Total	0	0	0	0.5	0	1.1	0	0	0	0	30.5	0
Mean	0	0	0	0.02	0	0.04	0	0	0	0	0.98	0
Max.	0	0	0	0.3	0	0.7	0	0	0	0	18	0
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0	0	0	1.0	0	2.2	0	0	0	0	60	0

Calendar year 1960 : Max 47 Min 0 Mean 1.79 Acre-feet 1,300

Water year 1960-61 : Max 18 Min 0 Mean 0.09 Acre-feet 63

Peak discharge (base, 100 cfs).--Aug. 19 (2 p.m.) 215 cfs (4.70 ft).

\* Discharge measurement or observation of no flow made on this day.

Combined discharge, in cubic feet per second, of San Jacinto River, Lake Hemet Water Co.'s upper and lower canals, and Fairview Land and Water Co.'s pipeline, near San Jacinto, Calif., water year October 1960 to September 1961

Calendar year 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.7	1.9	3.0	2.6	1.3	1.0	7.1	5.5	6.5	5.7	5.2	4.9
2	7.7	2.1	3.1	2.6	1.3	2.1	6.9	5.5	6.5	5.9	5.2	4.9
3	7.7	2.2	3.2	2.4	1.1	4.7	6.6	6.0	6.3	6.2	5.4	4.7
4	7.7	2.3	3.4	2.4	1.1	5.6	6.3	6.0	6.2	6.1	5.4	4.6
5	7.6	2.6	3.2	2.7	1.1	6.1	6.5	6.3	6.2	5.9	5.4	4.7
6	7.6	3.8	3.1	2.7	1.1	6.0	6.6	7.0	6.0	5.9	5.4	4.7
7	7.7	3.2	3.0	2.7	1.1	5.9	6.8	7.0	5.7	5.7	5.6	4.6
8	8.3	2.7	3.1	2.6	1.1	6.0	6.9	7.0	5.6	5.9	5.6	4.7
9	8.5	2.6	3.1	2.6	1.1	6.0	6.5	6.8	5.6	5.9	5.6	4.9
10	7.8	2.6	3.1	2.6	1.1	6.2	6.3	6.8	5.6	5.9	5.6	4.9
11	2.1	2.6	3.1	2.8	1.2	6.1	6.3	7.0	5.6	5.9	5.4	5.0
12	2.3	2.7	3.1	2.8	1.3	6.1	6.1	7.3	5.4	5.9	5.4	5.0
13	2.4	3.0	3.0	2.6	1.2	6.1	6.1	7.2	5.2	5.9	5.2	5.2
14	2.3	3.0	3.0	2.6	1.0	6.1	6.0	6.9	4.9	5.7	5.2	5.2
15	2.2	2.8	3.0	2.6	1.0	6.3	6.0	6.9	4.9	5.6	5.4	5.2
16	2.2	2.7	2.3	2.6	1.1	6.3	6.0	6.9	5.4	5.4	5.4	5.2
17	2.1	2.6	1.1	2.9	1.1	6.4	6.0	6.9	5.6	5.4	5.2	5.3
18	2.1	2.4	1.3	2.8	1.1	6.4	5.7	6.8	5.7	5.4	5.6	5.3
19	1.8	2.4	1.5	2.8	1.1	6.3	5.9	6.8	5.7	5.4	25	5.5
20	1.3	2.3	1.5	1.3	1.1	6.3	6.0	6.8	5.9	5.2	6.2	5.5
21	1.3	1.8	1.5	1.4	1.1	6.3	6.0	6.3	5.9	5.2	6.1	5.7
22	1.6	2.5	2.1	1.4	1.1	6.1	6.2	6.2	5.9	5.2	13	5.8
23	1.8	2.3	2.5	1.0	1.4	6.1	6.2	6.2	5.9	5.2	10	5.7
24	2.1	2.5	2.5	.9	1.1	6.3	6.3	6.2	5.9	5.2	6.3	5.3
25	2.1	3.1	2.4	.9	1.1	7.6	6.3	6.0	5.9	5.2	5.4	5.0
26	1.9	3.5	2.5	1.5	1.1	7.7	6.2	6.0	5.9	5.2	5.2	4.9
27	1.9	3.1	2.7	2.3	1.0	7.1	5.9	6.2	5.7	5.1	5.0	4.7
28	1.9	2.6	2.7	1.8	1.0	9.6	5.9	6.2	5.7	5.1	4.8	4.6
29	1.9	2.9	2.7	1.6	-	9.0	5.6	6.2	5.7	5.4	5.0	4.9
30	1.9	2.9	2.6	1.3	-	7.7	5.5	6.2	5.7	5.4	4.9	4.9
31	1.9	-	2.6	1.2	-	7.4	-	6.3	-	5.2	4.9	-
Total	119.4	79.7	81.0	67.0	31.5	193.1	186.7	201.4	172.7	172.3	199.0	151.5
Mean	3.85	2.66	2.61	2.16	1.12	6.23	6.22	6.50	5.76	5.56	6.42	5.05
Max.	8.5	3.8	3.4	2.9	1.4	9.8	7.1	7.3	6.5	6.2	25	5.8
Min.	1.3	1.8	1.1	0.9	1.0	1.0	5.5	5.5	4.9	5.1	4.8	4.6
Ac-ft	237	158	161	133	62	383	370	399	343	342	395	300
Calendar year 1960:				Max 49	Min 1.1	Mean 7.76	Acre-feet 5,640					
Water year 1960-61:				Max 25	Min 0.9	Mean 4.54	Acre-feet 3,280					

## SANTA ANA RIVER BASIN

11-700. Bautista Creek near Hemet, Calif.

Location.--Lat 33°41'40", long 116°51'00", in NE 1/4 SW 1/4 sec. 35, T.5 S., R.1 E., on left bank a quarter of a mile upstream from unnamed tributary, 6 miles upstream from mouth, and 8 miles southeast of Hemet.

Drainage area.--39.4 sq mi.

Records available.--October 1947 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 2,250 ft (from topographic map).

Average discharge.--14 years, 0.62 cfs (449 acre-ft per year); median of yearly mean discharges, 0.01 cfs (7 acre-ft per year).

Extremes.--Maximum discharge during year, 42 cfs Nov. 6 (gage height, 2.95 ft, from floodmark); no flow all year except Nov. 6, 26, Aug. 22.  
1947-61: Maximum discharge, 1,440 cfs Apr. 3, 1958 (gage height, 4.65 ft); no flow for most of each year.

Remarks.--Records poor. One diversion above station for irrigation of about 15 acres.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Nov. 6.....\*\*0.9  
26......2  
Aug. 22.....\*\* .1

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
November 1960.....	1.1	0.9	0	0.04	2.2
August 1961.....	.1	.1	0	.003	.2
Calendar year 1960.....	-	.9	0	.004	2.8
Water year 1960-61.....	-	.9	0	.003	2.4

Peak discharge (base, 20 cfs).--Nov. 6 (time unknown) 42 cfs (2.95 ft).

\*\* Field estimate made on this day.

Note.--Flow occurred only on days listed above.

11-705. San Jacinto River near Elsinore, Calif.

Location.--Lat 33°39'51", long 117°17'35", in SE 1/4 SW 1/4 sec. 9, T.6 S., R.4 W., on right bank 2 miles east of Elsinore and 2.1 miles downstream from Railroad Canyon Dam.

Drainage area.--717 sq mi.

Records available.--January 1916 to September 1961. Monthly figures 1927-50, adjusted for diversion, published in WSP 1315-B.

Gage.--Water-stage recorder. Altitude of gage is 1,270 ft (from topographic map). Prior to Feb. 13, 1916, staff gage at site 0.75 mile downstream at different datum. Feb. 13, 1916, to Oct. 27, 1921, staff gage at present site at different datum.

Average discharge.--34 years (1927-61), 9.85 cfs (7,130 acre-ft per year); median of yearly mean discharges, 0.1 cfs (72 acre-ft per year), since construction of Railroad Canyon Reservoir.

Extremes.--No flow during year.

1916-61: Maximum discharge, 16,000 cfs Feb. 17, 1927 (gage height, 11.8 ft), from rating curve extended above 2,000 cfs on basis of slope-area measurement of peak flow; no flow for several months in most years.

Remarks.--No flow since Nov. 7, 1959. Flow partly regulated by Hemet Reservoir (capacity, 13,400 acre-ft) and regulated since 1928 by Railroad Canyon Reservoir (capacity, 12,000 acre-ft) 2.1 miles above station. Diversion for irrigation and domestic use above Railroad Canyon Reservoir. Temescal Water Co. diverts from Railroad Canyon Reservoir for irrigation below station in vicinity of Corona, adjusted figures for this diversion shown below.

Month	Adjusted Mean	Adjusted Runoff (acre-ft)
August 1961.....	-	17
Calendar year 1960.....	0.50	362
Water year 1960-61.....	.02	17

Note.--Diversion occurred only in month listed above.

## 11-710. Elsinore Lake at Elsinore, Calif.

Location.--Lat 33°40'35", long 117°22'05", in La Laguna Grant, on northwest shore at Elsinore, Riverside County.

Records available.--December 1915 to September 1961.

Gage.--Staff gage read occasionally. Datum of gage is 1,230.2 ft above mean sea level. Gage heights have been reduced to elevations above mean sea level. Prior to Feb. 13, 1951, staff gage at numerous sites on northeast shore at various datums.

Extremes.--Lake dry all year, on basis of rainfall records and hydrographer's notes.

1915-61: Maximum elevation observed, 1,265.6 ft Mar. 20-25, 1916, during period of overflow; maximum observed since cessation of overflow in June 1917, 1,259.8 ft May 6, 11-20, 1922; lake dry during parts of water years 1951, 1954-60, and all of 1961.

Remarks.--Elsinore Lake overflows into Temescal Creek, which is its outlet, only during and after years of unusually heavy rainfall. Elevation at which lake is dry, about 1,223.0 ft. There has been no outflow since June 30, 1917. History of lake prior to 1916 is published in WSP 441. Summary of high stages that have occurred from 1916 to 1942 is contained in WSP 961. Flow partly regulated by Hemet Reservoir (capacity, 13,400 acre-ft) and regulated since 1928 by Railroad Canyon Reservoir (capacity, 12,000 acre-ft).

## 11-720. Temescal Creek near Corona, Calif.

Location.--Lat 33°50'29", long 117°30'37", in El Sobrante de San Jacinto Grant, on left bank 0.2 mile downstream from unnamed tributary and 3.8 miles southeast of Corona, Riverside County.

Drainage area.--127 sq mi.

Records available.--October 1927 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Altitude of gage is 730 ft (from topographic map). Prior to Feb. 11, 1943, at datum 6.00 ft higher.

Average discharge.--34 years, 3.14 cfs (2,270 acre-ft per year); median of yearly mean discharges, 0.04 cfs (29 acre-ft per year).

Extremes.--Maximum discharge during year, 5.5 cfs Nov. 26 (gage height, 6.75 ft); no flow all year except Nov. 26 and Jan. 26.

1927-61: Maximum discharge, 14,900 cfs Mar. 2, 1938, on basis of slope-area measurement of peak flow; no flow at times in most years.

Remarks.--Records poor. Many diversions above station. Flow regulated by Elsinore Lake and several storage reservoirs above station. No water wasted from Lake Mathews during year.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Nov. 26..... 0.4  
Jan. 26..... .1

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
November 1960.....	0.4	0.4	0	0.01	0.8
January 1961.....	.1	.1	0	.003	.2
Calendar year 1960.....	-	1.0	0	.008	5.8
Water year 1960-61.....	-	.4	0	.001	1.0

Note.--Flow occurred only on days listed above.

## SANTA ANA RIVER BASIN

11-730. San Antonio Creek near Claremont, Calif.

Location.--Lat 34°12'58", long 117°40'04", in SE 1/4 SW 1/4 sec. 36, T.2 N., R.8 W., on right bank 0.5 mile upstream from Southern California Edison Co.'s Sierra powerplant and 8.8 miles northeast of Claremont.

Drainage area.--16.9 sq mi.

Records available.--January 1917 to September 1961. Combined discharge of creek and conduit, March 1901 to December 1916 (fragmentary, published as "near Upland").

Gage.--Water-stage recorder and, since Jan. 10, 1939, broad-crested weir. Altitude of gage is 3,400 ft (from topographic map).

Prior to Aug. 24, 1907, staff gage at site 0.5 mile upstream, just above intake to Sierra powerplant, at different datum.

Aug. 24, 1907, to Jan. 24, 1917, hook gage and rectangular weir in powerplant tailrace 0.5 mile downstream at different datum; flow in natural channel estimated. Jan. 25, 1917, to Jan. 9, 1939, water-stage recorder at site 50 ft downstream at different datum.

Average discharge.--44 years (1917-61), 8.96 cfs (6,490 acre-ft per year); median of yearly mean discharges, 2.2 cfs (1,600 acre-ft per year). Average combined discharge of creek and conduit, 56 years (1901-2, 1903-4, 1905-9, 1910-15, 1916-61), 21.9 cfs (15,850 acre-ft per year); median of combined yearly mean discharges, 16 cfs (11,600 acre-ft per year).

Extremes.--Maximum discharge during year, 4.4 cfs Jan. 26 (gage height, 1.44 ft); minimum daily, 0.1 cfs on many days.

1917-61: Maximum discharge, 21,400 cfs Mar. 2, 1938, by slope-area measurement and rainfall-runoff studies; no flow Aug. 24-27, 31, Sept. 1, Oct. 17-21, 1951.

Remarks.--Records good. For records of combined discharge of San Antonio Creek and Southern California Edison Co.'s Sierra conduit, which diverts above station, see following page.

Cooperation.--Twenty-five discharge measurements furnished by Los Angeles County Flood Control District. Gage-height record for conduit furnished by Southern California Edison Co.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.3	0.2	0.4	0.4	* 0.5	* 0.3	0.4	0.4	* 0.3	0.1	0.2	0.1
2	.3	* .2	.4	.4	.5	* .3	.4	.3	.3	.1	* .2	.1
3	* .2	.4	.4	.4	.5	.3	.4	.3	.3	.1	.2	.1
4	.2	.4	.4	* .4	.5	.3	.4	.3	.3	.1	.3	.1
5	.2	.5	* .4	.4	.5	.3	.4	.3	.3	.1	.2	.1
6	.2	1.0	.5	.4	.5	.3	.4	.3	.3	* .1	.2	.1
7	.2	* .8	.5	.4	.4	.3	.4	.3	* .3	.1	* .2	* .1
8	.3	.9	.5	.4	.4	.3	.4	.3	.3	.1	.2	.1
9	.4	* .8	.5	.4	.4	.3	.3	* .3	.3	.1	.1	.2
10	.5	.7	.5	.4	.4	.3	.3	.3	.2	* .1	.1	.2
11	.5	.6	.5	.4	.4	.3	.3	.3	.2	.1	.1	.1
12	.4	.9	.5	.4	.4	.3	* .3	.3	.2	.1	.1	.1
13	* .4	.8	.5	.4	.4	.3	* .3	.3	.2	.1	.1	.1
14	.4	.8	.5	.4	* .4	* .3	.3	.3	.2	.1	.1	* .1
15	.4	.8	.5	.4	* .4	* .3	.3	.4	* .2	.1	.1	.1
16	.4	.8	.5	.4	.4	.3	.3	.4	.2	.1	.1	.1
17	* .3	.7	.5	* .4	.4	.3	.3	.4	.2	.1	* .1	.1
18	.3	.6	.5	* .4	.4	.3	.3	* .4	.2	.1	.1	.1
19	.3	.6	.5	.4	.4	.3	.3	.4	.2	.1	.1	.1
20	.3	.6	* .5	.4	.4	.3	.3	.3	* .2	* .1	.1	* .2
21	.3	.6	* .5	.4	.4	.3	.3	.3	.2	.1	* .1	.2
22	.2	.6	.5	.4	.3	.3	.4	* .3	.2	.1	.1	.2
23	.2	* .6	.5	.4	.3	.3	.4	.3	.1	.1	.1	.2
24	.2	.6	.5	.4	.3	.3	.4	.3	.1	.1	.1	.2
25	.2	.6	.5	.4	.3	.3	.4	.3	.1	* .1	.1	.2
26	* .2	.6	.5	.9	.3	.3	* .4	.3	.1	.1	.1	.2
27	.2	.6	.5	* .7	.3	.3	.4	.3	.1	.1	.1	* .1
28	.2	.5	.5	.7	.3	* .3	.4	.3	* .1	.1	.1	.1
29	.2	.4	.4	.7		* .4	.4	.3	.1	.2	.1	.1
30	.2	* .4	.4	.6		.4	.4	.3	.1	.2	* .1	.1
31	.2		.4	.6		.4		.3		.2	.1	
Total	8.8	18.6	14.7	14.2	11.1	9.6	10.7	9.9	6.1	3.4	4.0	3.9
Mean	0.28	0.62	0.47	0.46	0.40	0.31	0.36	0.32	0.20	0.11	0.13	0.13
Max.	0.5	1.0	0.5	0.9	0.5	0.4	0.4	0.4	0.3	0.2	0.3	0.2
Min.	0.2	0.2	0.4	0.4	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1
Ac-ft	17	37	29	28	22	19	21	20	12	6.7	7.9	7.7

Calendar year 1960

Max 2.1

Min 0.2

Mean 0.54

Acre-feet 392

Water year 1960-61

Max 1.0

Min 0.1

Mean 0.32

Acre-feet 227

Peak discharge (base, 10 cfs).--No peak above base.

\* Discharge measurement made on this day.



## 730. San Antonio Creek near Claremont, Calif.--Continued

Combined discharge, in cubic feet per second, of San Antonio Creek and Southern California Edison Co's Sierra conduit near Claremont, Calif., water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.9	4.8	5.7	5.6	5.5	5.2	4.9	4.8	4.4	3.8	3.6	3.3
2	4.9	4.8	5.7	5.6	5.5	5.2	5.0	4.7	4.4	3.8	3.6	3.3
3	4.8	5.6	5.7	5.6	5.2	5.2	4.8	4.7	4.2	3.8	3.6	3.3
4	4.8	5.6	5.7	5.6	5.2	5.2	4.8	4.7	4.2	3.8	3.7	3.3
5	4.6	6.1	5.7	5.6	5.3	5.2	4.8	4.7	4.2	3.8	3.6	3.3
6	4.6	7.9	5.9	5.6	5.3	5.1	5.0	4.7	4.2	3.8	3.6	3.3
7	4.8	6.1	5.9	5.6	5.2	5.1	5.0	4.7	4.2	3.5	3.4	3.3
8	4.9	6.0	5.9	5.6	5.2	5.1	4.8	4.4	4.2	3.5	3.4	3.3
9	5.3	5.9	5.9	5.3	5.2	5.1	4.7	4.4	4.2	3.5	3.5	3.4
10	5.7	5.5	5.9	5.3	5.2	5.1	4.7	4.4	4.1	3.5	3.5	3.4
11	5.4	5.4	5.9	5.3	5.2	5.2	4.7	4.7	4.1	3.5	3.5	3.3
12	5.0	6.2	5.9	5.3	5.2	5.2	4.7	4.7	4.1	3.5	3.3	3.3
13	5.0	6.0	5.9	5.3	5.2	5.2	4.7	4.4	4.1	3.5	3.3	3.3
14	4.8	5.8	5.9	5.3	5.2	5.2	4.7	4.4	4.1	3.5	3.3	3.3
15	4.8	5.8	5.9	5.3	5.2	5.2	4.7	4.5	4.1	3.5	3.3	3.3
16	4.8	5.8	5.9	5.3	5.2	5.2	4.7	4.5	3.9	3.5	3.3	3.3
17	4.7	5.8	5.9	5.3	5.2	5.2	4.7	4.5	3.9	3.5	3.3	3.3
18	4.7	5.7	5.9	5.3	5.2	5.2	4.7	4.5	3.9	3.5	3.3	3.3
19	4.3	5.7	5.7	5.3	5.2	5.2	4.7	4.5	3.9	3.5	3.3	3.3
20	4.7	5.7	5.7	5.3	5.2	4.9	4.7	4.4	3.9	3.5	3.3	3.4
21	4.7	5.8	5.7	5.3	5.2	4.9	4.7	4.4	3.9	3.5	3.3	3.6
22	4.6	5.8	5.7	5.3	5.1	4.9	4.8	4.4	3.9	3.5	3.3	3.6
23	4.6	5.8	5.7	5.3	5.1	4.9	4.8	4.4	3.8	3.5	3.3	3.6
24	4.6	6.0	5.7	5.3	5.1	5.1	4.8	4.4	3.8	3.5	3.3	3.4
25	4.6	6.0	5.7	5.3	5.1	5.1	4.8	4.4	3.8	3.5	3.3	3.4
26	4.6	6.2	5.7	7.2	5.1	5.1	4.8	4.4	3.8	3.5	3.3	3.4
27	4.8	5.9	5.7	5.9	5.2	5.1	4.8	4.4	3.8	3.5	3.3	3.3
28	4.8	5.8	5.7	5.9	5.2	5.1	4.8	4.4	3.8	3.5	3.3	3.3
29	4.8	5.7	5.6	5.8	-	5.2	4.8	4.4	3.8	3.6	3.3	3.3
30	4.8	5.7	5.6	5.8	-	4.9	4.8	4.4	3.8	3.6	3.3	3.3
31	4.8	-	5.6	5.6	-	4.9	-	4.4	-	3.6	3.3	-
Total	149.2	174.9	179.0	171.1	145.9	158.4	143.4	139.7	120.5	110.6	105.0	100.5
Mean	4.81	5.83	5.77	5.52	5.21	5.11	4.78	4.51	4.02	3.57	3.39	3.35
Max.	5.7	7.9	5.9	7.2	5.5	5.2	5.0	4.8	4.4	3.8	3.7	3.6
Min.	4.3	4.8	5.6	5.3	5.1	4.9	4.7	4.4	3.8	3.5	3.3	3.3
Ac-ft	296	347	355	339	289	314	284	277	239	219	208	199
Calendar year 1960				Max 11	Min 4.3	Mean 6.69	Acre-feet 4,860					
Water year 1960-61				Max 7.9	Min 3.3	Mean 4.65	Acre-feet 3,370					

## SANTA ANA RIVER BASIN

11-740. Santa Ana River below Prado Dam, Calif.

Location.--Lat 33°53'00", long 117°38'40", in La Sierra Grant, on left bank of outlet channel, 2,500 ft downstream from axis of Prado Dam and 4.5 miles west of Corona, Riverside County.

Drainage area.--1,462 sq mi.

Records available.--May 1930 to November 1939 (irrigation seasons only), March 1940 to September 1961. Published as "at Santa Fe Railroad Bridge, near Prado" May 1930 to November 1931, as "at Atchison, Topeka, & Santa Fe Railroad Bridge, near Prado" May 1932 to November 1939, and as "below Prado Dam, near Prado" March 1940 to September 1950.

Gage.--Water-stage recorder and concrete control. Datum of gage is approximately 449 ft above mean sea level (Corps of Engineers survey). Prior to Mar. 18, 1940, water-stage recorder at about same site at various datums.

Extremes.--Maximum discharge during year, 109 cfs Jan. 26 (gage height, 2.48 ft); minimum daily, 14 cfs Oct. 5-7, Aug. 7, 13-18. 1940-61: Maximum discharge, 2,260 cfs Dec. 24, 1940 (gage height, 3.20 ft); minimum daily, 12 cfs for some days in 1960.

Remarks.--Records good. Discharge measurements generally made three or more times a month. Flow regulated by Prado Reservoir (capacity, 222,800 acre-ft) and Big Bear Lake (see p.109). Natural flow of stream affected by extensive ground-water withdrawals, diversion for irrigation, and return flow from irrigated areas. Santa Ana River Development Co. pumps water from wells in Prado Reservoir into conduit which passes through dam and is released to river immediately downstream from gage.

Cooperation.--Nineteen discharge measurements and records of bypass flow were furnished by Orange County Flood Control District.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18	29	53	46	57	57	51	36	32	21	17	26
2	16	28	55	46	57	59	50	40	32	21	17	25
3	15	32	57	51	57	51	46	40	32	21	17	24
4	17	38	53	51	57	53	48	41	32	21	17	21
5	14	40	51	51	57	53	48	41	32	21	17	18
6	14	43	48	48	55	51	46	38	32	21	15	18
7	14	43	48	48	55	51	46	36	32	21	14	17
8	16	36	44	48	46	51	46	36	32	20	15	17
9	17	35	43	48	46	50	46	36	32	20	16	17
10	22	34	43	48	51	48	44	36	32	20	17	17
11	29	35	43	48	50	48	46	36	32	20	18	18
12	32	38	44	48	43	48	46	36	34	20	15	18
13	29	38	51	48	44	46	48	36	34	20	14	19
14	26	41	51	48	44	46	48	36	34	20	14	21
15	24	40	51	48	46	50	46	36	32	20	14	22
16	24	42	51	48	46	59	46	38	32	20	14	22
17	22	38	51	48	46	55	44	38	31	20	14	21
18	24	41	51	48	50	62	44	36	31	20	14	21
19	22	41	51	48	46	55	43	35	29	20	15	21
20	22	38	51	50	41	55	41	32	29	20	15	21
21	25	40	51	50	41	57	38	32	28	20	15	24
22	28	44	51	50	53	53	38	32	25	19	15	24
23	28	48	51	50	50	53	38	32	25	19	15	24
24	29	48	51	53	48	53	38	32	25	20	17	24
25	32	48	51	51	48	61	40	32	24	20	18	24
26	34	51	50	70	53	61	38	32	21	20	19	21
27	32	70	50	87	53	59	38	32	21	20	21	18
28	32	59	50	66	53	64	36	32	21	20	24	17
29	32	57	47	62	-	72	36	32	21	19	25	15
30	35	55	46	59	-	51	36	32	21	17	25	16
31	32	-	46	59	-	51	-	32	-	17	26	-
Total	7 56	1 270	1 534	1 624	1 393	1 683	1 299	1 091	870	618	529	611
Mean	24.4	42.3	49.5	52.4	49.8	54.3	43.3	35.2	29.0	19.9	17.1	20.4
Max.	35	70	57	87	57	72	51	41	34	21	26	26
Min.	14	28	43	46	41	46	36	32	21	17	14	15
Ac-ft	1,500	2,520	3,040	3,220	2,760	3,340	2,580	2,160	1,730	1,230	1,050	1,210
(†)	508	105	0.3	0	0	0	0	0	0	0	0	0
Ac-ft†	2,010	2,620	3,040	3,220	2,760	3,340	2,580	2,160	1,730	1,230	1,050	1,210

Calendar year 1960: Max 252 Min 12 Mean 44.2 Ac-ft 32,120 Mean† 48.0 Ac-ft† 34,730  
 Water year 1960-61: Max 87 Min 14 Mean 36.4 Ac-ft 26,340 Mean† 37.2 Ac-ft† 26,950

† Water, in acre-feet, pumped from basin above Prado Dam, which is released to river below gage.

† Adjusted for pumped flow from basin above Prado Dam.

## SAN GABRIEL RIVER BASIN

141

11-757.4 Carbon Creek near Yorba Linda, Calif.

Location.--Lat 33°53'22", long 117°50'40", in NW 1/4 sec. 29, T.3 S., R.9 W., on downstream side of left abutment of Yorba Linda Boulevard Bridge, 1.8 miles west of Yorba Linda.

Drainage area.--20.4 sq mi.

Records available.--October 1949 to September 1961 (discontinued).

Gage.--Water-stage recorder. Datum of gage is 288.60 ft above mean sea level, unadjusted.

Average discharge.--12 years, 0.33 cfs (239 acre-ft per year); median of yearly mean discharges, 0.02 cfs (14 acre-ft per year).

Extremes.--Maximum discharge during year, 8.4 cfs Jan. 26 (gage height, 3.93 ft); no flow for most of year.

1949-61: Maximum discharge, 935 cfs Apr. 3, 1958 (gage height, 5.35 ft), from rating curve extended above 300 cfs; no flow for most of each year.

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

Discharge, in cubic feet per second, water year October 1960 to September 1961

Nov. 26..... 0.2  
Jan. 26..... .6

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
November 1960.....	0.2	0.2	0	0.007	0.4
January 1961.....	.6	.6	0	.02	1.2
Calendar year 1960.....	-	6.3	0	.09	66
Water year 1960-61.....	-	.6	0	.002	1.6

Peak discharge (base, 25 cfs).--No peak above base.

Note.--Flow occurred only on days listed above.

## SANTA ANA RIVER BASIN

11-770. Santiago Creek near Villa Park, Calif.

Location.--Lat 33°49'22", long 117°46'33", in NE 1/4 SW 1/4 sec.13, T.4 S., R.9 W., on right bank 1.4 miles downstream from Weir Canyon and 2.7 miles northeast of Villa Park.

Drainage area.--83.8 sq mi.

Records available.--June 1920 to September 1961.

Gage.--Water-stage recorder and oiled roadway control. Altitude of gage is 430 ft (from topographic map).

Extremes.--Maximum discharge during year, 388 cfs Nov. 6 (gage height, 5.25 ft, from floodmark); no flow most of year. 1920-61: Maximum discharge, 11,000 cfs Feb. 16, 1927 (gage height, 8.4 ft), from rating curve extended above 140 cfs on basis of slope-area measurement of peak flow; maximum gage height, 9.40 ft Jan. 16, 1952; no flow for several months in each year.

Remarks.--Records good except that for Nov. 6, which is poor. Flow regulated by Santiago Reservoir. Diversions above station by Irvine Co. and Serrano and Carpenter Irrigation Districts.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		* 0	0	0	0.1							
2		0	0	0	.1			(*)				
3		0	0	* 0	.1							
4	(*)	0	0	0	.1		(*)					
5		0	0	0	.1							
6		a 15	0	0	.1							
7		0	0	0	.1							
8		0	0	0	.1							
9		0	0	0	.1							
10		* 0	0	.1	.1							
11		0	0	0	.1							
12		0	0	0	.1							
13		0	0	0	.1							
14		0	0	0	.1							
15		0	0	.1	.1							
16		0	0	.1	.1							
17		* 0	0	.1	.1							
18		0	0	.1	.1							
19		0	0	.1	0							
20		0	0	0	0							
21		0	0	0	* 0	(*)						
22		0	0	0	0							
23		0	0	0	0							
24		0	0	* 0	0							
25		0	0	0	0							
26		0.1	0	.6	0				(*)			
27		0	0	1.9	0							(*)
28		0	0	.1	0							
29		0	0	.1	-					(*)		
30		* 0	0	* .1	-			(*)			(*)	
31		-	0	.1	-			-	-	-	-	-
Total	0	15.1	0.2	3.5	1.8	0	0	0	0	0	0	0
Mean	0	0.50	0.006	0.11	0.06	0	0	0	0	0	0	0
Max.	0	15	0.2	1.9	0.1	0	0	0	0	0	0	0
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0	30	0.4	6.9	3.6	0	0	0	0	0	0	0

Calendar year 1960: Max 15 Min 0 Mean 0.05 Acre-feet 40  
 Water year 1960-61: Max 15 Min 0 Mean 0.06 Acre-feet 41

\* Discharge measurement or observation of no flow made on this day.  
 a No gage-height record.

11-775. Santiago Creek at Santa Ana, Calif.

Location.--Lat 33°46'09", long 117°52'54", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.1, T.5 S., R.10 W., on left bank at end of Baker Street, Santa Ana, 2,400 ft upstream from mouth.

Drainage area.--96.6 sq mi.

Records available.--October 1928 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Altitude of gage is 110 ft (from topographic map). Prior to June 22, 1948, at datum 0.96 ft higher.

Average discharge.--33 years, 4.61 cfs (3,340 acre-ft per year); median of yearly mean discharges, 0.7 cfs (510 acre-ft per year).

Extremes.--Maximum discharge during year, 53 cfs Nov. 26 (gage height, 2.62 ft); no flow most of year.

1928-61: Maximum discharge, 4,400 cfs Mar. 2, 1938 (gage height, 8.36 ft, present datum), from rating curve extended above 1,200 cfs; maximum gage height, 9.85 ft Jan. 16, 1952; no flow for most of each year.

Remarks.--Records fair. Flow regulated by Santiago Reservoir. Diversions above station by Irvine Co. and Serrano and Carpenter Irrigation Districts. In each winter season, some water originally diverted from Santa Ana River by Santa Ana Valley Irrigation Co.'s canal is occasionally wasted into Santiago Creek 3 miles above station.

Cooperation.--One discharge measurement furnished by Orange County Flood Control District.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		* 0	2.0	0		0						
2		0	1.0	0		0		(*)				
3		0	0	* 0		0						
4	(*)	0	0	0		1	(*)					
5		0	0	0		0						
6		.8	0	0		0						
7		0	0	0	(*)	0						
8		0	0	0		0						
9		0	0	0		0						
10		* 0	0	* 0		0						
11		0	0	0		0						
12		0	0	0		0						
13		0	0	0		0						
14		0	0	0		0						
15		0	0	0		3						
16		* 0	0	0		0						
17		0	0	0		1						
18		0	0	0		0						
19		0	0	0		0						
20		0	0	0		0						
21		0	0	0	(*)	* 0						
22		0	0	0		0						
23		0	0	0		0						
24		0	0	* 0		0						
25		0	0	0		1						
26		5.1	0	* 3.6		0			(*)			
27		0	0	1.2		0						(*)
28		0	0	1.5		1				(*)		
29		0	0	0	—	0		(*)				
30		* 2.1	0	* 0	—	0					(*)	—
31		—	0	0	—	0	—	—	—	—	—	—
Total	0	8.0	3.0	6.3	0	7	0	0	0	0	0	0
Mean	0	0.27	0.10	0.20	0	0.23	0	0	0	0	0	0
Max.	0	5.1	2.0	3.6	0	3	0	0	0	0	0	0
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0	16	6.0	12	0	14	0	0	0	0	0	0
Calendar year 1960:				Max 16	Min 0	Mean 0.23	Acre-feet 168					
Water year 1960-61:				Max 5.1	Min 0	Mean 0.07	Acre-feet 48					

\* Discharge measurement or observation of no flow made on this day.

## SANTA ANA RIVER BASIN

11-780. Santa Ana River at Santa Ana, Calif.

Location.--Lat 33°44'56", long 117°54'30", in NW 1/4 SE 1/4 sec. 10, T.5 S., R.10 W., on center pier of Fifth Street Bridge in Santa Ana, and 1.8 miles downstream from Santiago Creek. Prior to Feb. 28, 1961, on right pier.

Drainage area.--1,625 sq mi.

Records available.--January 1923 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 73.20 ft above mean sea level (Orange County bench mark). Jan. 3, 1923, to Jan. 24, 1929, at same site at different datum. Jan. 25, 1929, to June 20, 1948, at site 450 ft upstream at different datum. June 21, 1948, to May 2, 1960, at same site at different datum.

Average discharge.--17 years (1923-40), 23.4 cfs (16,940 acre-ft per year); median of yearly mean discharges, 3.1 cfs (2,200 acre-ft per year); 21 years (1940-61), 14.5 cfs (10,500 acre-ft per year); median of yearly mean discharges, 1.2 cfs (870 acre-ft per year).

Extremes.--Maximum discharge during year, about 20 cfs Jan. 26; no flow most of year.

1923-61: Maximum discharge, 46,300 cfs Mar. 3, 1938 (gage height, 10.20 ft, former site and datum), on basis of slope-area measurement of peak flow; no flow during several months each year.

Remarks.--Records poor. Natural flow affected by ground-water withdrawals, diversions, importation from Metropolitan Water District, municipal use, return flow from irrigation, and several storage reservoirs, including Prado flood-control reservoir (capacity, 222,800 acre-ft), and Big Bear Lake (see p.109). At times there are small amounts of return irrigation water from Santa Ana Valley Irrigation Co.'s drain 1,500 ft upstream.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	2	0		0		(*)				
2		0	1	0		0						
3		0	0	0		0						
4		0	0	0		0	(*)					
5		0	0	0		0						
6		1	0	0		0						
7		0	0	0	(*)	0						
8		0	0	0		0						
9		0	0	0		0						
10		* 0	0	0		0						
11		0	0	0		0						
12		0	0	0		0						
13		0	0	0		0						
14		0	0	0		0						
15		0	0	0		* .6						
16		0	0	0		0						
17		0	0	0		0						
18		0	0	0		0						
19		0	0	0		0						
20		0	0	0		0						
21		0	0	0		* 0						
22		0	0	0		0						
23		0	0	0		0						
24		0	0	0		0						
25		0	0	0		.1						
26		5	0	* 4		0			(*)			
27		0	0	1		0						(*)
28		0	0	1	(*)	.1				(*)		
29		0	0	0		0						
30		* 2	0	* 0		0		(*)			(*)	
31	(*)		0	0		0						
Total	0	8	3	6	0	1.1	0	0	0	0	0	0
Mean	0	0.3	0.1	0.2	0	0.04	0	0	0	0	0	0
Max.	0	5	2	4	0	0.6	0	0	0	0	0	0
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0	16	6.0	12	0	2.2	0	0	0	0	0	0
Calendar year 1960			Max 68	Min 0	Mean 0.88	Acre-feet 638						
Water year 1960-61			Max 5	Min 0	Mean 0.05	Acre-feet 36						

\* Discharge measurement or observation of no flow made on this day.

Note.--No gage-height record Oct. 1 to Feb. 27.

11-805. East Fork San Gabriel River near Camp Bonita, Calif.

Location---Lat 34°14'08", long 117°48'16", in NE $\frac{1}{4}$  sec. 27, T.2 N., R.9 W., on right bank 1,600 ft upstream from mouth of Graveyard Canyon, 2.5 miles upstream from confluence with West Fork, and 2.5 miles west of Camp Bonita.

Drainage area---88.2 sq mi.

Records available---December 1932 to September 1961. Prior to 1940, published as San Gabriel River near Camp Bonita.

Gage---Water-stage recorder. Datum of gage is 1,567.04 ft above mean sea level (levels by Los Angeles County Flood Control District). Prior to Dec. 10, 1938, at site 0.6 mile downstream at different datum.

Average discharge---28 years (1933-61), 67.1 cfs (48,580 acre-ft per year); median of yearly mean discharges, 43 cfs (31,100 acre-ft per year).

Extremes---Maximum discharge during year, 112 cfs Nov. 12 (gage height, 8.77 ft); minimum daily, 1.7 cfs July 30, 31, Sept. 4-7. 1932-61: Maximum discharge, 46,000 cfs Mar. 2, 1938, from rating curve extended above 21,300 cfs (computed by Geological Survey); minimum, 1.5 cfs Oct. 1, 1934.

Remarks---No regulation or diversion above station.

Cooperation---Records furnished by Los Angeles County Flood Control District and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.9	7.6	15	14	17	12	12	8.9	8.0	3.2	1.9	2.7
2	5.4	7.6	16	14	17	12	11	9.3	8.0	3.2	1.9	2.4
3	5.4	11	16	14	16	12	10	9.9	7.6	3.7	1.9	1.9
4	5.0	19	16	14	15	13	11	11	7.2	3.7	2.0	1.7
5	5.0	19	16	14	15	12	11	10	7.2	3.7	2.9	1.7
6	5.4	57	15	14	15	12	12	10	7.2	3.4	2.9	1.7
7	5.4	35	15	13	15	11	13	11	6.7	3.4	2.7	1.7
8	5.9	28	15	13	14	11	12	10	6.3	2.9	2.4	2.0
9	8.5	22	15	13	14	10	11	8.9	6.7	2.4	2.4	2.3
10	13	20	15	13	14	11	12	8.4	6.3	2.7	2.4	2.1
11	8.9	17	15	14	14	12	12	8.4	5.9	2.9	2.3	2.3
12	8.9	34	15	14	14	12	12	8.9	5.9	2.7	2.1	2.1
13	8.4	43	15	14	15	12	12	8.9	5.9	2.7	2.0	2.0
14	8.0	28	15	13	15	12	12	8.4	5.0	2.7	2.0	2.1
15	6.7	25	15	13	15	14	11	8.4	4.5	2.7	2.0	2.3
16	6.3	22	15	12	15	14	9.9	8.4	4.5	2.4	2.0	2.4
17	6.3	20	15	12	15	14	10	8.4	4.5	2.4	2.0	2.7
18	7.2	20	15	12	15	13	10	8.4	4.2	2.4	1.9	2.9
19	7.2	18	15	12	14	13	10	8.4	4.0	2.3	2.1	2.9
20	7.2	17	15	13	13	12	11	8.9	4.0	2.3	2.1	3.2
21	6.7	15	14	13	13	12	11	8.9	4.0	2.4	2.1	3.4
22	6.7	17	14	13	12	12	13	8.9	3.7	2.7	2.1	3.7
23	7.2	17	14	13	12	12	12	8.4	3.4	2.4	2.4	3.7
24	7.6	17	14	13	12	14	12	8.0	3.4	2.4	2.7	3.4
25	7.6	15	14	13	12	18	11	7.6	3.4	2.3	2.4	3.2
26	7.2	19	14	35	12	14	11	7.6	3.2	2.1	2.7	2.9
27	7.2	18	13	30	12	14	10	8.0	3.4	2.0	2.4	2.9
28	7.2	16	14	22	12	13	9.9	8.0	3.2	1.9	2.7	2.7
29	7.2	17	14	19	—	13	9.3	8.0	3.2	1.9	2.4	2.7
30	7.6	17	13	18	—	12	9.3	8.0	3.2	1.7	2.4	2.9
31	7.6	—	14	17	—	12	—	8.0	—	1.7	2.4	—
Total	219.8	638.2	456	471	394	390	333.4	272.3	153.7	81.3	70.6	76.6
Mean	7.09	21.3	14.7	15.2	14.1	12.6	11.1	8.78	5.12	2.62	2.28	2.55
Max.	13	57	16	35	17	18	13	11	8.0	3.7	2.9	3.7
Min.	5.0	7.6	13	12	12	10	9.3	7.6	3.2	1.7	1.9	1.7
Ac-ft	436	1,270	904	934	781	774	661	540	305	161	140	152
Calendar year 1960			Max	62	Min	4.4	Mean	16.4	Acre-feet		11,920	
Water year 1960-61			Max	57	Min	1.7	Mean	9.74	Acre-feet		7,060	

## SAN GABRIEL RIVER BASIN

11-820. West Fork San Gabriel River at Camp Rincon, Calif.

Location.--Lat 34°14'30", long 117°51'50", in SE $\frac{1}{4}$  sec.19, T.2 N., R.9 W., on right bank 0.2 mile upstream from Camp Rincon, 0.5 mile downstream from North Fork, and 6 miles downstream from Cogswell Dam.

Drainage area.--102 sq mi.

Records available.--October 1927 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 1,474.94 ft above mean sea level (levels by Los Angeles County Flood Control District). Prior to Nov. 19, 1930, at site  $1\frac{1}{2}$  miles downstream at different datum. Aug. 27, 1938, to July 3, 1941, at datum 6.41 ft higher.

Average discharge.--33 years, 61.5 cfs (44,520 acre-ft per year); median of yearly mean discharges, 33 cfs (23,900 acre-ft per year).

Extremes.--Maximum discharge during year, 447 cfs Nov. 5 (gage height, 9.15 ft); minimum daily, 1.2 cfs July 31, Aug. 1, Sept. 4-7. 1927-61: Maximum discharge, 34,000 cfs (estimated) Mar. 2, 1938; no flow at times in 1928-29.

Remarks.--Flow regulated by Cogswell flood-control reservoir (capacity, 10,630 acre-ft).

Cooperation.--Records furnished by Los Angeles County Flood Control District and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.3	3.3	1.0	8.7	1.4	1.3	7.6	5.6	5.6	1.9	1.2	1.9
2	3.8	3.5	1.1	8.7	1.2	1.3	6.9	5.6	5.6	2.1	1.4	1.9
3	3.8	1.3	1.1	8.7	1.2	9.1	6.2	6.2	4.7	2.3	1.4	1.5
4	3.5	1.5	9.5	8.4	1.2	8.7	6.2	6.5	4.4	2.3	2.4	1.2
5	3.3	7.5	9.5	8.7	1.2	8.0	7.2	6.5	4.7	2.4	3.3	1.2
6	3.3	7.9	9.7	8.7	1.2	8.0	7.6	6.5	4.4	2.2	2.3	1.2
7	3.3	3.0	9.8	8.7	1.1	7.6	8.0	6.5	4.4	2.0	1.9	1.2
8	3.5	2.1	9.9	9.1	1.1	7.6	7.2	6.2	4.4	1.7	1.9	1.5
9	6.9	1.5	9.8	9.1	1.0	7.6	6.5	5.9	4.4	1.5	1.9	1.5
10	8.0	1.5	9.6	9.1	1.0	7.6	6.9	5.3	3.8	1.5	1.9	1.5
11	6.2	1.5	9.4	1.1	9.8	8.0	6.9	5.3	3.5	1.5	1.9	1.4
12	5.3	3.6	9.2	1.1	9.5	8.0	6.9	5.3	3.5	1.7	1.7	1.4
13	4.7	2.7	9.4	1.1	9.1	8.0	7.2	5.3	3.3	1.7	1.5	1.4
14	4.4	1.8	9.6	1.0	9.1	7.6	6.9	5.3	2.7	1.5	1.5	1.5
15	3.5	1.5	9.7	1.0	9.5	1.0	6.5	5.0	2.5	1.5	1.5	1.5
16	3.5	1.4	9.8	9.8	9.8	9.1	5.9	5.3	2.7	1.5	1.7	1.7
17	3.5	1.3	9.8	1.0	9.8	8.7	5.9	5.3	2.7	1.5	1.7	1.9
18	3.5	1.2	9.8	1.0	9.8	8.4	5.9	5.6	2.7	1.5	1.5	1.9
19	3.5	1.2	9.8	1.0	9.8	8.4	6.2	5.6	2.5	1.5	1.5	1.9
20	3.3	1.1	9.5	1.0	9.8	7.6	6.5	5.9	2.3	1.5	1.9	1.9
21	3.3	1.0	9.1	1.0	1.1	7.6	6.9	5.3	2.3	1.7	2.5	2.3
22	3.3	1.0	8.4	1.0	1.1	7.6	9.1	5.3	2.3	1.7	1.9	2.7
23	3.5	1.0	8.4	1.0	1.1	7.6	8.4	5.3	2.1	1.7	1.9	2.7
24	3.5	9.0	8.4	1.0	1.1	8.7	7.6	5.3	1.9	1.7	1.9	2.3
25	4.1	8.0	8.4	9.8	1.3	1.1	7.2	5.3	1.7	1.5	1.9	2.1
26	4.7	2.1	8.0	7.0	1.3	9.5	6.5	5.6	1.9	1.7	1.9	2.1
27	4.1	1.7	7.6	3.1	1.3	9.1	6.2	5.6	1.9	1.7	1.7	2.1
28	3.8	1.3	7.6	2.0	1.3	8.7	5.9	5.6	1.9	1.7	1.7	1.9
29	3.8	1.2	7.2	1.8	—	8.0	5.6	5.6	1.9	1.5	1.7	2.1
30	3.5	1.1	7.6	1.7	—	7.6	5.3	5.6	1.9	1.4	1.9	1.9
31	3.3	—	8.4	1.6	—	7.6	—	5.3	—	1.2	1.9	—
Total	125.0	563.8	284.9	412.5	308.0	267.0	203.8	174.5	94.6	52.8	56.9	53.3
Mean	4.03	18.8	9.19	13.3	11.0	8.61	6.79	5.63	3.15	1.70	1.84	1.78
Max.	8.0	7.9	1.1	7.0	1.4	1.3	9.1	6.5	5.6	2.4	3.3	2.7
Min.	3.3	3.3	7.2	8.4	9.1	7.6	5.3	5.0	1.7	1.2	1.2	1.2
Ac-ft	248	1,120	565	818	611	530	404	346	188	105	113	106
Calendar year 1960			Max 79	Min 2.7	Mean 12.0	Acre-feet 8,750						
Water year 1960-61			Max 79	Min 1.2	Mean 7.12	Acre-feet 5,150						



SAN GABRIEL RIVER BASIN

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11-835. San Gabriel River near Azusa, Calif.

Location.--Lat 34°10'11", long 117°53'16", in SW 1/4 sec. 13, T.1 N., R.10 W., on right bank 1.1 miles downstream from Morris Dam and 2.7 miles northeast of Azusa.

Drainage area.--211 sq. mi.

Records available.--May to November 1894, September 1895 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 867.59 ft above mean sea level (from Los Angeles County Flood Control District bench mark). Prior to August 1917, staff gages and August 1917 to Sept. 30, 1937, water-stage recorders at several sites from 1 1/2 to 2 miles downstream at different datum. Oct. 1, 1937, to Feb. 21, 1938, water-stage recorder at site half a mile downstream at different datum. Feb. 22, 1938, to Feb. 7, 1939, water-stage recorder at site a quarter of a mile upstream at different datum. Datum lowered 4.35 ft May 9, 1950.

Average discharge.--66 years (1895-1961), 148 cfs (107,100 acre-ft per year), adjusted for diversions, importations, regulation, and evaporation, in Cogswell, San Gabriel and Morris Reservoirs; median of yearly mean adjusted discharges, 110 cfs (79,600 acre-ft per year).

Extremes.--Maximum discharge during year, 9.1 cfs May 6 (gage height, 5.07 ft); no flow Oct. 1 to May 2.

1894, 1895-1961: Maximum discharge, 65,700 cfs Mar. 2, 1938, by computation of peak flow over Morris Dam; no flow for several months in most years.

Remarks.--Records fair. Flow regulated by Cogswell and San Gabriel flood-control reservoirs (combined capacity, 54,500 acre-ft) and by Morris Reservoir (capacity, 35,000 acre-ft). Azusa Canal diverts above high-water level of Morris Reservoir or from San Gabriel Reservoir about 5 miles above station. The Metropolitan Water District of Southern California reports a release of 5,645 acre-ft of Colorado River water into San Gabriel River below Morris Dam and above station during the water year. They also furnished records of adjusted runoff for San Gabriel River computed on basis of flow in river above Morris Reservoir plus Azusa canal, adjusted for storage and evaporation in Cogswell, San Gabriel, and Morris Reservoirs, as shown in table below. These figures of runoff are equivalent to combined records of San Gabriel River and Southern California Edison Co.'s canal as published from 1894 to 1933.

Month	Adjusted runoff (acre-feet)	Month	Adjusted runoff (acre-feet)
October.....	724	April.....	1,050
November.....	2,600	May.....	847
December.....	1,550	June.....	448
Calendar year 1960.....	20,950	July.....	232
January.....	1,890	August.....	240
February.....	1,460	September.....	206
March.....	1,380	Water year 1960-61.....	12,630

Cooperation.--Three discharge measurements furnished by Los Angeles County Flood Control District.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								0	3.1	4.2	* 3.5	3.5
2		(*)						0	3.1	3.9	3.5	3.1
3							(*)	2.3	3.1	3.7	3.5	3.1
4								* 4.9	3.3	3.9	4.2	3.1
5								6.1	3.3	4.4	4.9	3.5
6								7.2	3.5	4.6	4.9	3.9
7								7.2	3.5	4.9	4.9	4.4
8								7.2	3.5	4.9	4.9	4.6
9								7.2	3.5	4.9	* 4.9	4.6
10	(*)							* 7.5	3.5	4.6	4.9	4.6
11								7.2	3.5	4.2	4.9	4.6
12								6.8	* 3.5	4.4	4.9	4.2
13								6.8	3.5	* 4.2	4.6	3.7
14								6.8	3.5	4.4	4.4	* 3.5
15								4.8	3.5	4.4	* 5.2	3.5
16								2.6	3.7	4.4	5.2	3.5
17								2.6	3.7	4.4	4.6	3.5
18								2.6	3.9	4.4	4.6	3.7
19								2.6	3.9	* 4.4	4.6	3.7
20								2.6	3.9	4.4	4.6	3.7
21								2.6	3.7	4.2	4.6	3.7
22								2.6	3.7	4.2	4.4	3.7
23					(*)	(*)		2.6	3.7	4.4	* 4.4	3.7
24								2.6	3.7	4.4	4.6	3.9
25				(*)				* 3.0	3.9	4.4	4.9	4.2
26								3.1	3.9	4.2	5.2	4.4
27								3.1	* 3.9	4.2	5.5	* 4.4
28								3.1	3.9	4	5.5	4.4
29		(*)						3.1	3.9	4	5.5	4.4
30			(*)					3.3	4.2	3.5	* 5.2	4.4
31								* 3.3		3.5	4.9	
Total	0	0	0	0	0	0	0	127.4	108.5	132.6	146.4	117.2
Mean	0	0	0	0	0	0	0	4.11	3.62	4.28	4.72	3.91
Max.	0	0	0	0	0	0	0	7.5	4.2	4.9	5.5	4.6
Min.	0	0	0	0	0	0	0	0	3.1	3.5	3.5	3.1
Ac-ft	0	0	0	0	0	0	0	253	215	263	290	232

Calendar year 1960

Max 0

Min 0

Mean 0

Acre-feet 0

Water year 1960-61

Max 7.5

Min 0

Mean 1.73

Acre-feet 1,250

\* Discharge measurement or observation of no flow made on this day.

## SAN GABRIEL RIVER BASIN

11-840. Rogers Creek near Azusa, Calif.

Location.--Lat 34°09'55", long 117°54'20", in NW<sup>1</sup><sub>4</sub> NW<sup>1</sup><sub>4</sub> sec.23, T.1 N., R.10 W., on left bank 0.5 mile upstream from mouth and 2.2 miles north of Azusa.

Drainage area.--6.4 sq mi, approximately.

Records available.--October 1917 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 800 ft (from topographic map). Since June 26, 1959, supplementary water-stage recorder 300 ft downstream at different datum.

Average discharge.--44 years, 2.81 cfs (2,030 acre-ft per year); median of yearly mean discharges, 1.4 cfs (1,000 acre-ft per year).

Extremes.--Maximum discharge during year, about 60 cfs Jan. 26 (gage height, 3.3 ft), result of velocity-area study; no flow during most of year.

1917-61: Maximum discharge, about 2,400 cfs Jan. 6, 1959 (gage height, 11.7 ft, from floodmarks), on basis of field estimate of peak flow; no flow during parts of each year.

Remarks.--Records poor. Diversion above station for irrigation of about 20 acres below station.

Cooperation.--One observation of no flow furnished by Los Angeles County Flood Control District.

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0		0								
2		* 0	a 0.1	0	* 0.1			(*)			(*)	
3		0		0								
4		0	0	0								
5			0	0	0							
6	(*)	e .1	* 0	0	0							
7			0	0	* 0							
8		a 0	0	0	0							
9		* e 0	0	0	0							
10	(*)		0	0	0							
11		0	0	0	0							
12		e 1	0	0	0							
13		e .5	0	0	0							
14			0	0	0							
15			0	0	* 0							
16		e .1	0	0	0							
17			0	0	0							
18			0	0	0							
19		e 0	0	0	0							
20		0	0	0	0					(*)		
21		0	0	0	0	(*)						
22		0	0	0	0							
23		0	0	0	* 0			(*)				
24		0	0	0	0							
25		0	0	* 0	0							
26		e .5	0	* e 7.5	0							
27			0	e 1	0				(*)			(*)
28		e .1	0		0							
29		* e .1	0	e .1							(*)	
30		a .1	* 0			(*)						
31			0					(*)				
Total	0	3.2	0.3	8.9	0.4	0	0	0	0	0	0	0
Mean	0	0.11	0.01	0.29	0.01	0	0	0	0	0	0	0
Max.	0	0.5	-	7.5	-	0	0	0	0	0	0	0
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0	6.3	0.6	18	0.8	0	0	0	0	0	0	0
Calendar year 1960				Max 8.6	Min 0	Mean 0.20		Acre-feet 142				
Water year 1960-61				Max 7.5	Min 0	Mean 0.04		Acre-feet 26				

Peak discharge (base, 35 cfs).--Jan. 26 (4 p.m.) about 60 cfs (3.33 ft).

\* Discharge measurement or observation of no flow made on this day.

a No gage-height record.

e Stage-discharge relation indefinite.

## SAN GABRIEL RIVER BASIN

149

11-845. Fish Creek near Duarte, Calif.

Location.--Lat 34°10'00", long 117°55'25", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.15, T.1 N., R.10 W., on left bank 0.8 mile upstream from mouth of canyon and 3 miles northeast of Duarte.

Drainage area.--6.5 sq mi, approximately.

Records available.--July to September 1916, July 1917 to September 1961.

Gage.--Water-stage recorder and broad-crested weir since July 28, 1917. Altitude of gage is 1,000 ft (from topographic map). Prior to July 28, 1917, staff gage at same site at different datum. July 28, 1917, to Mar. 2, 1938, water-stage recorder at same site at different datum (destroyed by flood of Mar. 2, 1938). Mar. 3 to Dec. 7, 1938, staff gage at same site at different datum. Dec. 7, 1938, to Oct. 3, 1951, water-stage recorder at same site at datum 1 ft higher.

Average discharge.--44 years (1917-61), 3.79 cfs (2,740 acre-ft per year); median of yearly mean discharges, 2.2 cfs (1,600 acre-ft per year).

Extremes.--Maximum discharge during year, 230 cfs Nov. 12 (gage height, 7.65 ft), on basis of area-velocity study; no flow Oct. 1, 2, June 24 to Sept. 30.

1916-61: Maximum discharge, 2,100 cfs Mar. 2, 1938, and Jan. 23, 1943; maximum gage height, about 14.5 ft Feb. 11, 16, 1959 (from debris wave); no flow at times in some years.

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

Cooperation.--Eleven discharge measurements furnished by Los Angeles County Flood Control District.

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.1	0.9	0.6	1.0	0.5	e 0.4	e 0.2	0.3		(*)	
2	0	*.3	1.0	.6	.9	*.6	.4	e .2	.3			
3	.1	3.7	.9	.7	1.0	.6	*.3	.4	.3			
4	.1	.6	.7	.7	1.0	a .6	.4	*.6	.2			
5	.1	6.0	.8	*.7	.9	a .5	e .4	.5	.3			
6	*.1	6.3	*.8	*.6	.9	*.5	e .4	.4	.3			
7	.1	1.2	.7	.6	.8	a .5	e .4	.3	.2			
8	.1	.8	*.4	.6	.8	a .5	e .3	.3	.3			
9	.5	*.7	.4	.5	.7	a .5	e .3	.2	.3			
10	*.7	*.4	.5	.5	*.7	a .5	e .3	*.1	.3			
11	.2	.4	.6	*.4	.7	a .5	*.3	*.1	.2	(*)		
12	.2	*1.7	.6	.4	.7	a .5	.3	.1	*.2			
13	.2	1.4	*.6	.5	.7	a .5	e .3	.1	.2			
14	.2	2.6	.6	.5	.7	a .5	e .3	.2	.2			
15	.2	1.3	.6	.4	*.7	1.7	e .2	.2	.1		(*)	(*)
16	.2	1.0	.6	.4	*.7	* 1.0	e .2	*.2	.1			
17	.2	1.0	.6	.4	.7	*.7	*.2	.2	.1			
18	*.2	1.0	.5	*.4	.6	e .7	.3	.3	.1			
19	.2	1.0	.5	*.4	.5	e .7	e .3	.3	.1	(*)		
20	.1	1.2	*.6	.4	.5	e .7	e .3	.3	.1			
21	.1	1.2	.6	.4	.4	e .6	e .3	.3	.1			
22	.1	1.2	.6	.4	.4	e .6	e 1	.3	.1			
23	.1	1.2	.6	.4	*.4	*e .6	e .5	*.3	.1			
24	.1	1.0	.6	.4	.4	e .6	e .4	.3	0			
25	.1	1.0	.6	*.6	.4	e 1.5	e .3	.3	0			
26	.1	7.0	.6	* 2.3	.4	e 1	*.3	.3	0			
27	*.1	3.0	.6	10	.3	*.5	e .2	.3	0			(*)
28	.1	1.2	.5	7.5	*.3	e .5	e .2	.3	0			
29	.1	*.9	.5	e 3	—	e .4	e .2	.3	* 0			
30	.1	.7	*.4	e 2	—	e .4	e .2	.3	0			
31	.1	—	.5	*1.3	—	e .4	—	*.3	—		(*)	—
Total	4.8	79.0	19.0	59.3	18.2	19.9	9.9	8.5	4.5	0	0	0
Mean	0.15	2.55	0.61	1.91	0.65	0.64	0.33	0.27	0.15	0	0	0
Max.	0.7	17	1.0	23	1.0	1.7	1	0.6	0.3	0	0	0
Min.	0	0.1	0.4	0.4	0.3	0.4	0.2	0.1	0	0	0	0
Ac-ft	9.5	157	38	118	36	39	20	17	8.9	0	0	0

Calendar year 1960:

Max 17

Min 0

Mean 1.23

Acre-feet 894

Water year 1960-61:

Max 23

Min 0

Mean 0.61

Acre-feet 443

Peak discharge (base, 60 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-12	7p.m.	7.65	230	1-26	1p.m.	8.42	210

\* Discharge measurement or observation of no flow made on this day.

a No gage-height record.

e Stage-discharge relation indefinite.

## SAN GABRIEL RIVER BASIN

11-850. San Gabriel River below Santa Fe Dam, near Baldwin Park, Calif.

Location.--Lat 34°06'44", long 117°58'07", in SE<sup>1</sup><sub>4</sub>NE<sup>1</sup><sub>4</sub>SW<sup>1</sup><sub>4</sub> sec.6, T.1 S., R.10 W., on left bank at stilling basin of outlet of Santa Fe flood-control dam, 500 ft downstream from axis of dam, and 1.7 miles north of Baldwin Park.

Drainage area.--231 sq mi.

Records available.--October 1942 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 400.00 ft above mean sea level (levels by Corps of Engineers).

Extremes.--No flow during year.

1942-61: Maximum discharge, 8,000 cfs Jan. 23, 1943; no flow for several months of each year.

Remarks.--No flow since Feb. 22, 1960. Flow regulated by Cogswell and San Gabriel flood-control reservoirs (combined capacity, 54,500 acre-ft), Morris Reservoir (capacity, 35,000 acre-ft), Santa Fe flood-control reservoir (capacity, 36,800 acre-ft), and several small flood-control reservoirs (combined capacity, 19,100 acre-ft). Diversions above station for irrigation, power development, and ground-water replenishment. No water was diverted to headwaters of Rio Hondo during year. Figures for calendar year 1960 are as follows: Total cfs days, 7.8; maximum daily discharge, 3.3 cfs; minimum daily, zero; mean, 0.02 cfs; runoff, 15 acre-ft.

11-860. Dalton Creek near Glendora, Calif.

Location.--Lat 34°09'30", long 117°49'40", in center of sec.21, T.1 N., R.9 W., on right bank 0.6 mile upstream from mouth of canyon, 1.7 miles downstream from Big Dalton Dam, and 2.6 miles northeast of Glendora.

Drainage area.--7.5 sq mi, approximately.

Records available.--December 1919 to September 1961.

Gage.--Water-stage recorder and broad-crested weir. Altitude of gage is 1,170 ft (from topographic map). Prior to Aug. 26, 1953, at datum 1.00 ft higher.

Average discharge.--41 years (1920-61), 1.06 cfs (767 acre-ft per year); median of yearly mean discharges, 0.3 cfs (220 acre-ft per year).

Extremes.--Maximum discharge during year, 79 cfs Nov. 12 (gage height, 2.72 ft); no flow most of year.

1919-61: Maximum discharge, 1,000 cfs Mar. 2, 1920 (gage height, 5.03 ft, present datum), from rating curve extended above 150 cfs; no flow for several months each year.

Remarks.--Records good except those above 10 cfs, which are poor. Flow regulated by Big Dalton flood-control reservoir (capacity, 950 acre-ft) since August 1929. Glendora Irrigation Co. diverted 89 acre-ft during year at diversion dam 1.5 miles above station.

Cooperation.--Twenty-nine discharge measurements furnished by Los Angeles County Flood Control District.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Oct. 13 to Nov. 5; Feb. 6-9)

1.0	0	1.5	1.2
1.1	.1	1.7	3.4
1.2	.2	1.9	9.0
1.4	.7	2.1	19

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	* 0.4	* 0.1	0	0.1	0	0.1					
2	0	.4	.1	0	*.1	0	.1					
3	0	* 3.0	.1	0	*.1	0	*.1	(*)				
4	0	.5	.1	0	.1	0	.1	(*)				
5	0	3.2	.1	* 0	.1	0	.1					
6	* 0	*.4	.1	0	.1	0	.1					
7	0	.3	.1	0	*.1	* 0	*.1					
8	0	3.0	.1	0	.1	0	.1					
9	0	.2	.1	0	*.1	* 0	.1					
10	0	*.1	.1	* 0	.1	.1	.1					
11	0	.1	0	* 0	.1	.1	0					
12	0	5.3	* 0	0	.1	.1	0		(*)			
13	0	.2	0	0	.1	.1	* 0					
14	0	7.5	0	0	.1	.1	0					
15	0	2.9	* 0	0	*.1	.1	0				(*)	
16	0	.3	0	0	*.1	* 0	0					
17	0	.2	0	0	.1	0	0					
18	.1	.1	0	0	.1	0	0					
19	.3	.1	0	* 0	.1	0	0					
20	.2	.1	0	0	.1	0	* 0					
21	.1	.1	0	0	*.1	0	0					
22	.1	.1	* 0	.1	.1	* 0	0					
23	.1	.1	0	.1	.1	* 0	0	(*)				
24	* 7.8	.1	0	.1	.1	1.1	0					
25	* 1.6	.1	0	*.1	.1	e 1	0					
26	* 1.6	3.3	0	e 4.5	0	a.1	0					
27	* 1.1	.1	0	a.3	0	a.1	* 0		(*)			(*)
28	* 2.1	.1	0	a.2	* 0	a.1	0					
29	* 1.0	*.1	* 0	a.1		a.1	0					
30	.8	.1	0	a.1		*.1	0				(*)	
31	*.6		0	* a.1		.1		(*)		(*)		
Total	56.2	32.5	1.0	5.7	2.5	3.3	1.0	0	0	0	0	0
Mean	1.81	1.08	0.03	0.18	0.09	0.11	0.03	0	0	0	0	0
Max.	16	7.5	0.1	4.5	0.1	1.1	0.1	0	0	0	0	0
Min.	0	0.1	0	0	0	0	0	0	0	0	0	0
Ac-ft	111	64	2.0	11	5.0	6.5	2.0	0	0	0	0	0
Calendar year 1960				Max 16	Min 0		Mean 0.25		Acre-feet 178			
Water year 1960-61				Max 16	Min 0		Mean 0.28		Acre-feet 202			

\* Discharge measurement or observation of no flow made on this day.

a No gage-height record.

e Stage-discharge relation indefinite.

## SAN GABRIEL RIVER BASIN

11-863. San Dimas Creek below San Dimas Dam, Calif.

Location.--Lat 34°09'10", long 117°46'18", in SW 1/4 sec. 24, T.1 N., R.9 W., on left bank 1,000 ft downstream from San Dimas Dam and 3.7 miles northeast of San Dimas.

Drainage area.--16.2 sq mi.

Records available.--October 1951 to September 1961. Prior to October 1956 monthly discharge only, published in WSP 1735.

Gage.--Water-stage recorder and low-flow concrete control. Datum of gage is 1,325.0 ft above mean sea level (levels by Los Angeles County Flood Control District).

Extremes.--Maximum discharge during year, 20 cfs Aug. 1 (gage height, 0.88 ft); no flow on many days.  
1951-61: Maximum discharge, 270 cfs Apr. 3, 1958 (gage height, 2.32 ft); no flow during part of each year.

Remarks.--Flow regulated by San Dimas flood-control reservoir (capacity, 1,042 acre-ft) and at times by old water tunnel 150 ft upstream.

Cooperation.--Records furnished by Los Angeles County Flood Control District and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			0	0	0.1	0	0.1	0.1	0.1	0.1	7.5	0.1
2			0	0	.1	0	.1	.1	.1	.1	3.6	.1
3			0	0	.1	0	.1	.1	.1	2.2	.1	.1
4			0	0	.1	0	.1	.1	.1	4.3	.2	.1
5			0	0	.1	0	.1	.1	.1	4.1	.2	0
6			0	0	.1	0	.1	.1	.1	4.1	.2	0
7			0	0	.1	0	.1	.1	.1	3.9	.2	0
8			0	0	.1	0	.1	.1	.1	3.8	.2	0
9			0	0	.1	0	.1	.1	.1	3.8	.2	0
10			0	0	.1	.1	.1	.1	.1	3.8	.2	0
11			0	0	.1	0	.1	.1	.1	4.3	.2	0
12			0	0	.1	0	.1	.1	.1	5.8	.1	.1
13			0	0	.1	0	.1	.1	.1	5.8	.1	.1
14			0	0	.1	.1	.1	.1	.1	4.0	.2	.1
15			0	0	.1	.1	.1	.1	.1	.2	.2	.1
16			0	0	.1	0	.1	.1	.1	.2	.2	.1
17			0	0	.1	0	.1	.1	.1	4.6	.2	.1
18			0	0	.1	.1	.1	.1	.1	16	.1	.1
19			0	0	.1	0	.1	.1	.1	17	.1	.1
20			0	0	.1	0	.1	.1	.1	15	.1	.1
21			0	0	.1	.1	.1	.1	.1	12	.1	.1
22			0	0	.1	0	.1	.1	.1	.1	.1	.1
23			.1	0	.1	0	.1	.1	.1	.1	.1	.1
24			.1	0	.1	.1	.1	.1	.1	.1	.2	.1
25			0	0	.1	.1	.1	.1	.1	.1	.2	.1
26			0	.1	.1	.1	.1	.1	.1	.1	.2	.1
27			0	.1	.1	.1	.1	.1	.1	.1	.2	.1
28			0	.1	0	.1	.1	.1	.1	.1	.2	.1
29			0	.1	.1	.1	.1	.1	.1	.1	.2	.1
30			0	.1	.1	.1	.1	.1	.1	.1	.2	.1
31			0	.1	.1	.1	.1	.1	.1	.1	.2	.1
Total	0	0	0.2	0.6	2.7	1.3	3.0	3.1	3.0	116.1	16.0	2.3
Mean	0	0	0.006	0.02	0.10	0.04	0.10	0.10	0.10	3.75	0.52	0.08
Max.	0	0	0.1	0.1	0.1	0.1	-	-	-	17	7.5	0.1
Min.	0	0	0	0	0	0	-	-	-	0.1	0.1	0
Ac-ft	0	0	0.4	1.2	5.4	2.6	6.0	6.1	6.0	230	32	4.6
Calendar year 1960			Max	5.9	Min	0	Mean	0.64	Acre-feet	464		
Water year 1960-61			Max	17	Min	0	Mean	0.41	Acre-feet	294		

11-865. Little Dalton Creek near Glendora, Calif.

Location.--Lat 34°10'03", long 117°50'15", in NE 1/4 SE 1/4 sec. 17, T.1 N., R.9 W., on left bank 0.2 mile upstream from Angeles National Forest boundary, and 2.6 miles northeast of Glendora.

Drainage area.--2.7 sq mi, approximately.

Records available.--December 1938 to September 1961. January 1929 to November 1938 at site 0.8 mile downstream; records not equivalent because diversion was not included.

Gage.--Water-stage recorder. Datum of gage is 1,334.38 ft above mean sea level (levels by Los Angeles County Flood Control District).

Average discharge.--23 years, 0.63 cfs (456 acre-ft per year); median of yearly mean discharges, 0.3 cfs (220 acre-ft per year).

Extremes.--Maximum discharge during year, 314 cfs Jan. 26 (gage height, 2.16 ft); no flow most of year.

1938-61: Maximum discharge, that of Jan. 26, 1961; no flow at times each year.

Flood of Mar. 2, 1938, 960 cfs (estimated). Flood of February 1914, 1,020 cfs, result of slope-area measurement.

Remarks.--No regulation above station. Prior to Dec. 1, 1938, diversion by Glendora Irrigation Company above station then in use.

Cooperation.--Records furnished by Los Angeles County Flood Control District and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0		0	0.1	0	0					
2		0		0	.1	0	0					
3		0		0	.1	0	.1					
4		0		0	.1	.1	.1					
5		0		0	0	.1	0					
6		4.7		0	0	.1	.1					
7		0		0	.1	0	.1					
8		0		0	0	0	0					
9		0		0	0	.1	.2					
10		0		0	0	.1	.2					
11		0		0	0	.1	.1					
12		10		0	0	.1	0					
13		0		0	0	.1	0					
14		0		0	0	.1	.1					
15		0		0	0	.2	0					
16		0		0	0	.2	0					
17		0		0	0	.2	0					
18		0		0	0	.2	0					
19		0		0	0	.1	0					
20		0		0	0	.1	0					
21		0		0	0	.1	0					
22		0		0	.1	0	0					
23		0		0	0	0	0					
24		0		0	0	0	0					
25		0		0	0	.1	0					
26		2.1		23	0	.2	0					
27		0		.3	0	.2	0					
28		0		.1	0	.1	0					
29		0		.2	0	.1	0					
30		0		.3	0	.2	0					
31		0		.2	0	.3	0					
Total	0	16.8	0	24.1	0.6	3.2	1.0	0	0	0	0	0
Mean	0	0.56	0	0.78	0.02	0.10	0.03	0	0	0	0	0
Max.	0	10	0	23	0.1	0.3	0.2	0	0	0	0	0
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0	33	0	48	1.2	6.3	2.0	0	0	0	0	0
Calendar year 1960			Max 10	Min 0	Mean 0.06			Acre-feet 41				
Water year 1960-61			Max 23	Min 0	Mean 0.13			Acre-feet 90				

## SAN GABRIEL RIVER BASIN

11-870. San Jose Creek near Whittier, Calif.

Location.--Lat 34°01'25", long 118°02'05", in Paso de Bartolo Grant, on downstream side of Workman Mill Road Bridge, 3 miles north of Whittier, Los Angeles County.

Drainage area.--85.2 sq mi.

Records available.--January 1929 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 214.85 ft above mean sea level (levels by Los Angeles County Flood Control District). Prior to Sept. 27, 1937, at datum 2.0 ft higher. Since Sept. 13, 1955, supplementary water-stage recorder on San Jose flood channel  $1\frac{1}{2}$  miles upstream.

Average discharge.--32 years, 8.36 cfs (6,050 acre-ft per year); median of yearly mean discharges, 5.4 cfs (3,900 acre-ft per year).

Extremes.--Maximum discharge during year, 479 cfs Jan. 26; minimum daily, 0.2 cfs July 20, 21.  
1929-61: Maximum discharge, 13,100 cfs Jan. 1, 1934; no flow at times.

Remarks.--One small diversion above station for ground-water recharge. San Jose flood channel  $1\frac{1}{2}$  miles upstream diverts all flows in excess of 200 cfs from San Jose Creek to San Gabriel River above Whittier Narrows Reservoir. Records published herein represent combined flow of San Jose Creek and San Jose flood channel.

Cooperation.--Records furnished by Los Angeles County Flood Control District and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.8	3.0	4.1	5.2	5.9	3.6	3.3	0.6	0.6	0.6	0.8	0.8
2	.8	3.3	10	5.2	5.6	3.5	4.2	.6	.6	.6	1.0	.8
3	.7	8.4	5.9	5.6	5.6	3.3	3.0	.6	.6	.6	1.2	.7
4	.6	28	5.2	6.1	5.2	3.8	3.8	.6	.6	.5	1.1	.6
5	.5	21	5.0	5.6	5.0	4.6	5.0	.6	.5	.5	1.0	.5
6	.5	42	3.3	4.2	5.4	5.2	2.7	.6	.4	.6	.9	.5
7	.5	16	4.4	4.8	6.1	4.0	2.3	.7	.4	.6	.8	.6
8	.6	5.9	5.0	4.8	6.1	2.6	1.9	.6	.4	.6	.8	.7
9	.6	3.3	5.2	5.4	6.4	2.1	1.8	.6	.4	.6	.7	.7
10	18	4.4	5.0	5.6	7.0	2.1	1.2	.6	.4	.6	.7	.8
11	6.5	3.3	5.0	4.6	7.0	3.1	1.1	.6	.4	.6	.7	.8
12	3.8	9.4	4.6	3.2	3.8	2.4	.9	.6	.5	.6	.7	.8
13	3.5	18	4.8	3.5	4.4	4.2	.7	.6	.6	.5	.7	.7
14	3.8	5.0	4.8	5.4	5.2	4.2	.7	.6	.7	.5	.8	.7
15	4.0	5.0	5.0	4.8	5.4	21	.6	.5	.8	.5	1.0	.6
16	3.0	3.8	5.4	5.2	5.4	12	.6	.5	.8	.4	1.0	.7
17	3.1	3.8	4.8	4.0	5.0	3.2	.6	.4	.7	.4	1.0	.6
18	3.3	3.6	4.4	3.2	5.4	3.1	.6	.4	.7	.3	1.0	.7
19	3.5	3.3	4.4	2.8	4.8	1.9	.6	.4	.6	.3	1.0	.7
20	3.2	2.6	4.4	3.2	5.0	1.7	.6	.4	.6	.2	1.0	.7
21	2.3	2.4	5.0	3.6	5.0	1.5	.6	.5	.6	.2	1.0	.7
22	3.1	3.5	4.8	5.0	3.6	2.1	.6	.5	.6	.3	1.0	.7
23	4.2	3.2	4.6	5.9	3.3	2.6	1.2	.5	.5	.3	1.0	.6
24	3.3	5.6	4.6	5.7	2.8	2.1	.8	.6	.5	.4	.9	.6
25	3.2	5.0	4.4	6.7	3.0	2.8	.7	.6	.4	.4	.9	.6
26	3.6	47	3.3	129	3.6	3.0	.7	.6	.4	.4	.8	.5
27	3.0	21	3.6	18	4.8	2.6	.7	.6	.4	.4	.7	.4
28	2.7	4.0	5.2	5.0	4.8	8.6	.6	.6	.4	.5	.8	.4
29	3.0	3.6	4.6	4.8	5.2	5.2	.6	.6	.5	.6	.8	.4
30	2.7	4.0	5.4	4.0	-----	3.3	.6	.6	.6	.6	.8	.4
31	2.8	-----	5.2	4.4	-----	2.7	-----	.6	-----	.7	.8	-----
Total	97.3	292.4	151.4	284.7	140.6	128.1	43.3	17.4	16.2	14.9	27.4	19.0
Mean	3.14	9.75	4.88	9.18	5.02	4.13	1.44	0.56	0.54	0.48	0.88	0.63
Max.	18	47	10	129	7.0	21	5.0	0.7	0.8	0.7	1.2	0.8
Min.	0.5	2.4	3.3	2.8	2.8	1.5	0.6	0.4	0.4	0.2	0.7	0.4
Ac-ft	193	580	300	565	279	254	86	35	32	30	54	38
Calendar year 1960				Max 262	Min 0.4	Mean 6.88	Acre-feet 5,000					
Water year 1960-61				Max 129	Min 0.2	Mean 3.38	Acre-feet 2,450					



11-875. San Gabriel River at Pico, Calif.

Location---Lat 34°00'25", long 118°04'05", in Paso de Bartolo Grant, in downstream end of mid-span pier of Beverly Boulevard bridge, 0.7 mile downstream from San Jose Creek, and 0.8 mile northeast of Pico, Los Angeles County.

Drainage area---206 sq mi (excluding area above Santa Fe Dam).

Records available---October 1928 to September 1961. Since 1954, Colorado River water released to San Gabriel River above station. Records since 1954 not equivalent.

Gage---Water-stage recorder. Altitude of gage is 180 ft (from topographic map). Prior to Feb. 4, 1937, at site 0.8 mile downstream at different datum. Feb. 4, 1937, to Nov. 14, 1947, at site 1,200 ft downstream at different datum. Nov. 15, 1947, to Mar. 5, 1952, at site 1,000 ft downstream at different datum.

Extremes---Maximum discharge during year, 1,330 cfs Jan. 26 (gage height, 8.70 ft); no flow on many days.  
1928-61: Maximum discharge, 22,700 cfs Mar. 2, 1938; no flow for periods each year.

Remarks---Flow regulated by Cogswell and San Gabriel flood-control reservoirs (combined capacity, 54,500 acre-ft), Morris Reservoir (capacity, 35,000 acre-ft), Santa Fe flood-control reservoir (capacity, 36,800 acre-ft), Whittier Narrows flood-control reservoir (capacity, 36,160 acre-ft), and several small flood-control reservoirs (combined capacity, 19,100 acre-ft). Diversions above station for irrigation, power development, and ground-water replenishment. Colorado River water is released to San Gabriel River at sites 4.7 and 6.7 miles upstream for ground-water replenishment in the San Gabriel River. No water was diverted from San Gabriel River below Santa Fe Dam and above Whittier Narrows Dam to Rio Hondo during year.

Cooperation---Records furnished by Los Angeles County Flood Control District and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	1.0	1.44	1.95	1.44	2.34	1.08	1.68			0
2		0	2.0	1.44	1.56	93	20.0	0	83			0
3		0	3.4	92	1.35	5.1	1.90	0	42			0
4		0	1.68	4.5	1.39	4.0	1.84	0	1.88			0
5		3.9	1.73	4.0	1.28	4.5	1.54	0	2.03			0
6		18	1.78	2.3	1.44	22	1.73	7.2	2.28			0
7		22	1.78	0	1.39	1.59	1.10	1.30	1.43			0
8		3	1.78	0	1.30	1.63	91	1.35	0			0
9		0	1.63	0	1.35	1.54	95	78	0			0
10		0	1.63	0	1.21	1.09	98	0	2.1			50
11		0	1.59	0	1.25	1.3	1.10	0	1.62			84
12		69	1.54	0	1.30	1.0	1.21	0	2.06			95
13		13	1.54	0	1.45	1.0	1.54	0	1.11			1.17
14		16	1.49	0	1.68	2.0	1.73	0	0			1.44
15		84	90	69	1.78	4.0	1.54	0	0			1.49
16		148	2.5	1.10	1.73	6.6	1.30	0	0			1.59
17		195	1.0	1.35	1.68	4.8	88	0	0			2.00
18		200	.7	1.39	1.68	2.2	0	0	0			2.40
19		206	1.1	1.14	1.68	0	0	0	0			1.90
20		163	7.5	1.14	1.73	3.7	0	0	0			2.05
21		0	1.21	1.02	1.54	1.25	0	0	0			2.20
22		0	1.25	1.06	1.54	1.39	1.22	0	0			1.95
23		0	1.39	1.21	1.59	1.54	1.63	0	0			2.06
24		0	1.39	1.17	1.44	1.59	1.35	0	0			1.95
25		0	1.44	1.14	1.54	1.96	1.14	0	0			1.90
26		63	1.54	4.21	1.39	1.78	1.39	1.04	0			1.11
27		26	1.54	38	1.39	1.68	1.30	1.25	0			0
28		.4	1.54	1.25	1.44	1.68	1.35	1.44	0			36
29		.6	1.44	1.14		1.93	1.30	1.59	0			1.02
30		.8	1.44	1.55		2.52	1.49	1.54	0			1.01
31		-----	1.44	1.90	-----	2.46	-----	1.54	-----			-----
Total	0	1,229.0	3,586.3	2,674.8	4,205	2,862.2	3,676	1,298.2	1,536.1	0	0	2,989
Mean	0	41.0	116	86.3	150	92.3	123	41.9	51.2	0	0	99.6
Max.	0	206	178	421	195	252	234	159	228	0	0	240
Min.	0	0	0.7	0	1.21	0	0	0	0	0	0	0
Ac-ft	0	2,440	7,110	5,310	8,340	5,680	7,290	2,570	3,050	0	0	5,930
(t)	0	2,744	11,500	8,708	12,465	8,652	11,755	4,430	4,434	0	0	10,289

Calendar year 1960: Max 449 Min 0 Mean 36.3 Acre-feet 26,330

Water year 1960-61: Max 421 Min 0 Mean 65.9 Acre-feet 47,720

† Colorado River water released to San Gabriel River for ground-water recharge, 4.7 and 6.7 miles upstream.

## SAN GABRIEL RIVER BASIN

11-880. San Gabriel River at Spring Street, near Los Alamitos, Calif.

Location.--Lat 33°48'38", long 118°05'24", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.24, T.4 S., R.12 W., on downstream side of Spring Street bridge, 1.2 miles upstream from Coyote Creek, and 1.2 miles northwest of Los Alamitos.

Drainage area.--216 sq mi (excluding area above Santa Fe Dam).

Records available.--October 1927 to September 1951, October 1952 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Datum of gage is 12.25 ft above mean sea level, datum of 1929, supplementary adjustment of 1934. Prior to October 1952, at datum 4.44 ft higher.

Average discharge.--33 years, 23.1 cfs (16,720 acre-ft per year); median of yearly mean discharges, 2.1 cfs (1,500 acre-ft per year).

Extremes.--Maximum discharge during year, 1,780 cfs Jan. 26 (gage height, 6.58 ft, from floodmarks); no flow for most of year.

1936-51, 1952-61: Maximum discharge, 27,000 cfs (estimated) Mar. 2, 1938; no flow for several months in each year.

Remarks.--Flow regulated by San Gabriel and Cogswell flood-control reservoirs (combined capacity, 54,500 acre-ft), Morris Reservoir (capacity, 35,000 acre-ft), Santa Fe flood-control reservoir (capacity, 36,800 acre-ft), Whittier Narrows flood-control reservoir (capacity, 36,160 acre-ft), and several small flood-control reservoirs (combined capacity, 19,100 acre-ft). Many diversions above station for irrigation, power development, and ground-water replenishment. "Average discharge" represents flow to ocean during period of record, regardless of upstream development. No flow was diverted from San Gabriel River below Santa Fe Dam and above Whittier Narrows Dam to Rio Hondo during year.

Cooperation.--Records furnished by Los Angeles County Flood Control District and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Jan. 26..... 204

Jan. 27..... 22

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
January 1961.....	226	204	0	7.29	448
Calendar year 1960.....	-	355	0	2.57	1,860
Water year 1960-61.....	-	204	0	.62	448

Note.--Flow occurred only on days listed above.

SAN GABRIEL RIVER BASIN

157

11-885. Brea Creek below Brea Dam, near Fullerton, Calif.

Location.--Lat 33°53'16", long 117°55'32", in NE 1/4 sec. 28, T.3 S., R.10 W., on right bank 0.2 mile downstream from Brea Dam and 1 mile north of Fullerton.

Drainage area.--23.4 sq mi.

Records available.--January 1942 to September 1961.

Gage.--Water-stage recorder. V-notch sharp-crested weir since Oct. 25, 1946. Datum of gage is 197.70 ft above mean sea level (levels by Corps of Engineers).

Average discharge.--19 years, 0.65 cfs (471 acre-ft per year); median of yearly mean discharges, 0.2 cfs (140 acre-ft per year).

Extremes.--Maximum discharge during year, 18 cfs Nov. 26 (gage height, 1.19 ft); no flow most of year.  
1942-61: Maximum discharge, 655 cfs Feb. 29, 1944 (gage height, 5.10 ft); no flow parts of most years.

Remarks.--Records good. Flow regulated by Brea flood-control reservoir (capacity, 4,100 acre-ft).

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	* 0		0		0		(*)				
2	0	0		0		0						
3	0	0		* 0		0						
4	0	0		0		0	(*)					
5	* 0	0		0		0						
6	0	0		0		0						
7	0	0		0		* 0						
8	0	0		0		0						
9	0	0		0		0						
10	1	* 0		0		0						
11	0	0		0		0						
12	0	0		0		0						
13	0	0		0		0						
14	0	0		0		0						
15	0	0		0		0						
16	0	0		0		0						
17	0	0		0		0						
18	0	0		0		0						
19	0	0		0		0						
20	0	0		0		0						
21	0	0		0	(*)	* 0						
22	0	0		0		0						
23	0	0		0		0						
24	0	0		* 0		0						
25	0	0		0		0	.1					
26	0	1.0		3.9		0			(*)			
27	0	.1		0		0						(*)
28	0	0		0		0				(*)		
29	0	0		0		0		(*)			(*)	
30	0	* 0		0		0					(*)	
31	0			0		0						
Total	0.1	2.6	0	3.9	0	0.1	0	0	0	0	0	0
Mean	0.003	0.09	0	0.13	0	0.003	0	0	0	0	0	0
Max.	0.1	1.0	0	3.9	0	0.1	0	0	0	0	0	0
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0.2	5.2	0	7.7	0	0.2	0	0	0	0	0	0

Calendar year 1960 Max 16 Min 0 Mean 0.14 Acre-feet 99  
Water year 1960-61 Max 3.9 Min 0 Mean 0.02 Acre-feet 13

\* Discharge measurement or observation of no flow made on this day.

## SAN GABRIEL RIVER BASIN

11-890. Brea Creek at Fullerton, Calif.

Location.--Lat 33°52'25", long 117°55'30", in SE 1/4 NE 1/4 sec. 28, T.3 S., R.10 W., between Malden Avenue and Spadra Road at Fullerton.

Drainage area.--26.2 sq mi.

Records available.--October 1930 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 160 ft (from topographic map). From Oct. 1, 1930, to Sept. 30, 1935, at site a quarter of a mile upstream at different datum. Oct. 1, 1935, to Jan. 19, 1940, at site a quarter of a mile downstream at different datum.

Average discharge.--31 years, 1.12 cfs (811 acre-ft per year); median of yearly mean discharges, 0.4 cfs (290 acre-ft per year).

Extremes.--Maximum discharge during year, 20 cfs Nov. 26 (gage height, 0.24 ft); no flow most of year.  
1930-61: Maximum discharge, 3,700 cfs Mar. 14, 1941 (gage height, 5.45 ft); no flow most of each year.

Remarks.--Flow regulated by Brea flood-control reservoir (capacity, 4,100 acre-ft).

Cooperation.--Records furnished by Orange County Flood Control District.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0	0.2	0		0.1						
2	0	0	0	0		0						
3	0	.9	0	0		.1						
4	0	0	0	0		0						
5	0	.9	0	0		0						
6	0	1.4	0	0		0						
7	0	0	0	0		0						
8	0	0	0	0		0						
9	0	0	0	0		0						
10	1.3	0	0	0		0						
11	0	0	0	0		0						
12	0	.4	0	0		0						
13	0	0	0	0		0						
14	0	0	0	0		0						
15	0	0	0	0		.4						
16	0	0	0	0		0						
17	0	0	0	0		0						
18	0	0	0	0		0						
19	0	0	0	0		0						
20	0	0	0	0		0						
21	0	0	0	0		0						
22	0	0	0	0		0						
23	0	0	0	0		0						
24	0	0	0	0		.1						
25	0	0	0	.3		.2						
26	0	2.1	0	3.2		0						
27	0	.3	0	.4		0						
28	0	0	0	0		.2						
29	0	0	0	0		0						
30	0	0	0	0		0						
31	0		0	0		0						
Total	1.3	6.0	0.2	3.9	0	1.1	0	0	0	0	0	0
Mean	0.04	0.20	0.006	0.13	0	0.04	0	0	0	0	0	0
Max.	1.3	2.1	0.2	3.2	0	0.4	0	0	0	0	0	0
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	2.6	12	0.4	7.7	0	2.2	0	0	0	0	0	0
Calendar year 1960			Max 24	Min 0	Mean 0.24	Acre-feet 174						
Water year 1960-61			Max 3.2	Min 0	Mean 0.03	Acre-feet 25						

11-895. Fullerton Creek below Fullerton Dam, near Brea, Calif.

Location.--Lat 33°53'45", long 117°53'07", in NE¼NW¼SW¼ sec.24, T.3 S., R.10 W., on left bank of outlet channel of Fullerton Dam, 1.6 miles southeast of Brea.

Records available.--October 1941 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 250 ft (corrected; from topographic map). V-notch sharp-crested weir used Oct. 25, 1946, to Feb. 2, 1956.

Average discharge.--13 years (1941-54), 0.19 cfs (138 acre-ft per year); median of yearly mean discharges, 0.02 cfs (14 acre-ft per year); 7 years (1954-61), 0.56 cfs (405 acre-ft per year).

Extremes.--Maximum discharge during year, 6.7 cfs Oct. 3; no flow for several months.

1941-61: Maximum discharge, 298 cfs Mar. 16, 1943 (gage height, 3.80 ft); no flow at times each year.

Remarks.--Records good below 2 cfs and fair above. Flow regulated by Fullerton flood-control reservoir (capacity, 743 acre-ft). Since December 1954, small tributary formerly entering below station diverted into reservoir.

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

0.12	0
.2	.2
.3	2.2
.4	8.6

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	* 2.2	0.4	0.3	0.2	0.6	a.3					
2	.1	1.0	.5	.3	.3	.6	a.3					
3	.8	1.2	.4	* .3	.3	.5	a.3					
4	3.1	.8	.3	.4	.3	.5	* 3.1	(*)				
5	* 1.0	0	.3	.4	.3	.5	3.1					
6	.6	.1	.1	.4	.3	.5	3.1					
7	.3	0	.1	.4	* .3	* .5	1.6					
8	.1	0	.2	.4	.2	.5	0					
9	.1	0	.2	* .4	.3	.5	0					
10	.6	* .5	.3	.3	.3	.5	0					
11	2.2	2.2	.3	.3	.3	.5	0					
12	1.2	1.0	.3	.3	.4	.5	0					
13	1.0	.5	.4	.2	.4	.5	0					
14	.8	.4	.5	.2	.4	.5	0					
15	.3	.4	.5	.2	.4	.3	0					
16	.2	.4	.5	.2	.4	.2	0	(*)				
17	.2	.5	.4	.2	.5	.2	* 0					
18	* .2	.5	.4	.2	.5	.2	0					
19	.2	.5	.4	.2	.5	.3	0					
20	.6	.5	.4	.2	.5	.4	0					
21	1.5	.5	.4	.3	* .5	* .4	0					
22	.3	.5	.4	.4	.5	a.4	0					
23	.3	.5	.4	.4	.5	a.4	0					
24	.5	.5	.4	* .4	.5	a.4	0					
25	.8	.5	.4	.4	.5	a.4	0					
26	1.5	.7	.4	.8	.6	a.4	0		(*)			
27	3.7	.4	.4	.8	.6	a.4	0			(*)		(*)
28	1.5	.4	.4	.4	.6	a.4	0					
29	.3	.4	.4	.3	-	a.4	0	(*)				
30	.2	* .4	.3	.2	-----	a.2	0				(*)	
31	.8	-----	.3	.2	-----	a.2.5	-----	-----	-----	-----	-----	-----
Total	25.1	17.5	11.1	10.4	11.4	15.1	19.9	0	0	0	0	0
Mean	0.81	0.58	0.36	0.34	0.41	0.49	0.66	0	0	0	0	0
Max.	3.7	2.2	0.5	0.8	0.6	2.5	3.1	0	0	0	0	0
Min.	0.1	0	0.1	0.2	0.2	0.2	0	0	0	0	0	0
Ac-ft	50	35	22	21	23	30	39	0	0	0	0	0

Calendar year 1960:

Max 5.9

Min 0

Mean 0.60

Acre-feet 436

Water year 1960-61:

Max 3.7

Min 0

Mean 0.30

Acre-feet 220

\* Discharge measurement or observation of no flow made on this day.

a No gage-height record.

## SAN GABRIEL RIVER BASIN

11-900. Fullerton Creek at Fullerton, Calif.

Location.--Lat/33°52'22", long 117°54'22", in NE¼NE¼NE¼ sec. 34, T.3 S., R.10 W., on Raymond Avenue Bridge at Fullerton.

Drainage area.--6.2 sq mi, approximately.

Records available.--October 1935 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B and 1735.

Gage.--Water-stage recorder. Altitude of gage is 170 ft (from topographic map).

Average discharge.--26 years, 0.57 cfs (413 acre-ft per year); median of yearly mean discharges, 0.3 cfs (220 acre-ft per year).

Extremes.--Maximum discharge during year, 52 cfs Jan. 26 (gage height, 1.14 ft); no flow Nov. 9.

1935-61: Maximum discharge, 1,600 cfs Mar. 14, 1941 (gage height, 10.05 ft); no flow at times each year.

Remarks.--Local irrigation company occasionally wastes water to creek during summer months. Flow regulated by Fullerton flood-control reservoir (capacity, 743 acre-ft).

Cooperation.--Records furnished by Orange County Flood Control District.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.2	1.0	0.5	0.5	0.5	0.6	1.2	0.2	0.2	0.3	0.2	0.2
2	.1	.6	.6	.5	.5	.6	1.2	.2	.1	.1	.2	.2
3	.6	1.6	.5	.5	.5	.6	1.4	.2	.3	.1	.2	.2
4	1.2	.6	.5	.5	.5	.6	1.4	.1	.1	.1	.2	.2
5	.7	.9	.5	.5	.4	.6	1.4	.1	.1	.2	.1	.2
6	.6	2.8	.4	.5	.4	.5	1.4	.2	.1	.2	.1	.2
7	.5	.1	.4	.5	.5	.5	1.2	.1	.1	.2	.1	.2
8	.2	.1	.4	.5	.5	.5	.3	.2	.1	.2	.2	.3
9	.1	0	.4	.5	.5	.5	.1	.1	.2	.2	.2	.2
10	1.5	.3	.5	.4	.5	.5	.1	.1	.2	.2	.1	.2
11	.8	1.4	.5	.4	.5	.5	.1	.1	.1	.1	.2	.1
12	.6	.8	.4	.4	.5	.5	.1	.1	.1	.1	.2	.1
13	.5	.6	.4	.4	.5	.5	.1	.2	.1	.2	.2	.1
14	.5	.5	.5	.4	.5	.5	.1	.1	.1	.2	.2	.1
15	.3	.5	.5	.4	.5	.9	.2	.1	.1	.2	.2	.1
16	.1	.5	.5	.4	.5	.4	.2	.1	.2	.2	.2	.2
17	.2	.5	.5	.4	.5	.4	.1	.1	.1	.2	.1	.2
18	.4	.5	.5	.4	.5	.4	.1	.1	.1	.2	.2	.1
19	.4	.6	.5	.4	.5	.4	.1	.1	.2	.2	.2	.1
20	.4	.7	.4	.4	.5	.4	.1	.1	.2	.1	.2	.3
21	.7	.6	.4	.4	.5	.5	.1	.1	.2	.1	.2	.1
22	.2	.5	.4	.4	.5	.5	.2	.1	.2	.1	.2	.1
23	.1	.5	.5	.5	.5	.5	.1	.1	.2	.1	.2	.1
24	.3	.5	.5	.5	.5	.6	.1	.1	.2	.1	.2	.1
25	.4	.5	.5	.6	.5	.6	.1	.1	.1	.2	.2	.1
26	.6	2.9	.5	5.4	.5	.3	.1	.2	.1	.2	.2	.1
27	1.5	.5	.5	.6	.6	.3	.1	.2	.1	.2	.2	.1
28	.8	.5	.5	.5	.6	1.6	.1	.2	.2	.2	.1	.1
29	.3	.4	.5	.5	—	.2	.2	.1	.2	.2	.1	.1
30	.2	.4	.5	.4	-----	.3	.1	.1	.1	.2	.1	.1
31	.4	-----	.5	.4	-----	1.2	-----	.1	-----	.2	.1	-----
Total	15.4	21.9	14.7	19.1	14.0	17.0	12.1	4.0	4.4	5.3	5.3	4.5
Mean	0.50	0.73	0.47	0.62	0.50	0.55	0.40	0.13	0.15	0.17	0.17	0.15
Max.	1.5	2.9	0.6	5.4	0.6	1.6	1.4	0.2	0.3	0.3	0.2	0.3
Min.	0.1	0	0.4	0.4	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Ac-ft	31	43	29	38	28	34	24	7.9	8.7	11	11	8.9
Calendar year 1960				Max 18	Min 0	Mean 0.61				Acre-feet 440		
Water year 1960-61				Max 5.4	Min 0	Mean 0.38				Acre-feet 274		

11-905. Coyote Creek near Artesia, Calif.

Location.--Lat 33°50'20", long 118°03'34", in NE 1/4 SW 1/4 sec. 8, T.4 S., R.11 W., on downstream side of Centralia Road Bridge, 2 miles southeast of Artesia, and 3.7 miles upstream from mouth.

Drainage area.--110 sq mi.

Records available.--February 1930 to September 1961. Prior to October 1940, monthly figures only, published in WSP 1315-B.

Gage.--Water-stage recorder. Datum of gage is 20.2 ft. above mean sea level (levels by Los Angeles County Flood Control District). Prior to Feb. 9, 1956, at several sites about a half mile upstream at different datums.

Average discharge.--31 years, 8.27 cfs (5,990 acre-ft per year); median of yearly mean discharges, 4.5 cfs (3,300 acre-ft per year).

Extremes.--Maximum discharge during year, 1,380 cfs Jan. 26 (gage height, 8.78 ft); minimum daily, 0.4 cfs May 7, Sept. 4.

1930-61: Maximum discharge, 7,360 cfs Jan. 18, 1952 (gage height, 14.30 ft, site and datum then in use); no flow at times in most years.

Remarks.--No regulation or diversion above station.

Cooperation.--Records furnished by Los Angeles County Flood Control District and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.0	3.0	1.5	1.2	2.0	2.8	4.1	0.9	1.5	1.2	1.2	1.5
2	.8	3.0	5.1	1.2	1.9	3.1	4.2	.8	1.7	1.2	1.4	.8
3	.6	4.3	2.2	1.2	1.8	4.3	4.5	.8	1.4	.8	.9	.8
4	3.4	28	1.8	2.4	1.5	3.4	4.6	.6	.6	.9	3.1	.4
5	2.5	81	1.6	1.5	1.2	1.7	4.5	.8	.8	.9	3.2	.6
6	1.6	55	1.3	1.2	1.2	1.6	5.7	.5	1.0	1.0	1.2	1.1
7	2.4	12	1.2	1.5	.9	1.2	5.4	.4	.8	1.1	.9	.9
8	2.4	5.8	1.1	1.2	.7	1.1	4.6	.7	1.1	1.2	1.3	2.3
9	1.4	6.0	1.2	1.2	.6	1.2	4.6	1.7	1.0	3.7	1.1	1.0
10	32	6.4	1.6	1.2	.7	1.2	6.0	2.3	1.0	5.1	1.3	.7
11	7.1	6.0	1.7	1.5	.8	1.2	5.1	4.4	1.0	3.3	1.9	1.0
12	3.0	23	1.6	1.4	.8	1.2	6.3	3.0	.8	2.1	1.2	.8
13	1.8	37	1.8	1.2	1.0	1.2	5.5	2.7	1.4	3.1	1.0	.7
14	2.2	7.1	1.9	1.2	1.3	1.3	4.0	2.7	1.1	2.2	1.2	.6
15	1.4	5.9	2.1	1.5	1.5	2.4	2.8	3.2	1.0	1.5	1.2	.6
16	.8	3.8	1.8	1.2	1.5	5.2	3.2	1.0	1.0	1.0	1.8	1.9
17	.7	4.4	1.6	2.1	1.6	3.5	4.1	1.0	.8	.7	1.4	2.4
18	1.9	4.2	1.5	2.7	2.1	3.2	2.8	1.2	1.2	.8	1.4	1.2
19	2.3	5.1	1.4	1.3	2.2	3.0	2.8	1.7	1.5	1.0	1.8	1.8
20	2.4	4.0	1.4	2.3	2.1	2.5	2.8	1.9	1.6	1.0	.8	1.4
21	1.8	4.4	1.3	1.6	2.0	2.0	2.8	2.2	1.1	1.0	1.5	2.3
22	2.4	5.4	1.1	1.5	2.6	2.0	17	1.9	2.1	2.3	.7	2.9
23	2.9	6.0	1.0	2.1	3.0	3.0	1.6	3.2	1.3	2.8	1.5	2.7
24	3.0	3.3	1.3	3.2	2.9	4.1	.8	2.6	1.2	2.1	.6	2.3
25	3.0	3.0	1.1	1.2	2.6	1.4	.9	2.3	.8	1.2	.7	1.5
26	3.0	14.4	1.8	3.0	3.1	2.5	.6	1.9	1.0	1.6	.8	1.8
27	3.0	32	3.8	3.1	3.9	2.0	.6	1.6	.9	2.1	1.0	1.5
28	3.0	3.0	1.6	4.0	4.3	1.2	.7	1.6	1.0	2.6	.8	1.0
29	3.0	2.5	1.5	3.5	—	2.0	.8	1.4	1.1	1.5	1.0	.8
30	3.0	2.0	1.4	3.0	—	1.0	.8	.8	1.4	2.0	.8	.8
31	3.0	—	1.3	2.5	—	1.4	—	.6	—	2.1	3.2	—
Total	103.8	549.3	52.6	394.6	51.8	113.9	114.2	52.4	34.2	55.1	41.9	40.1
Mean	3.35	18.3	1.70	12.7	1.85	3.67	3.81	1.69	1.14	1.78	1.35	1.34
Max.	32	14.4	5.1	300	4.3	24	17	4.4	2.1	5.1	3.2	2.9
Min.	0.6	2.0	1.0	1.2	0.6	1.0	0.6	0.4	0.6	0.7	0.6	0.4
Ac-ft	206	1,090	104	783	103	226	227	104	68	109	83	80
Calendar year 1960			Max	420	Min	0.4	Mean	8.44	Acre-feet		6,120	
Water year 1960-61			Max	300	Min	0.4	Mean	4.39	Acre-feet		3,180	

## LOS ANGELES RIVER BASIN

11-924.5. Los Angeles River at Sepulveda Dam, Calif.

Location.--Lat 34°09'42", long 118°27'57", in Ex Mission de San Fernando Grant, on right bank of outlet channel of Sepulveda Dam, 200 ft upstream from Sepulveda Boulevard in city of Los Angeles, and 1.85 miles southwest of Van Nuys, Los Angeles County.

Drainage area.--155 sq mi.

Records available.--January 1929 to February 1938, May 1938 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B. Records for May 1943 to September 1950, published in WSP 981, 1011, 1041, 1061, 1091, 1121, 1151, and 1181, have been found to be unreliable and should not be used. Equivalent daily discharge, published as "below Sepulveda Dam," 1943-45, and as "below Sepulveda Boulevard" (in reports of Los Angeles County Flood Control District) 1946-50, supersede the discredited records.

Gage.--Water-stage recorder. Altitude of gage is 670 ft (from topographic map). Prior to Aug. 23, 1941, at site 1 mile downstream at different datum; Aug. 23, 1941, to Sept. 30, 1950, at site 900 ft downstream at different datum; Oct. 1, 1950, to Aug. 29, 1953, at site 800 ft upstream at datum 5.99 ft higher.

Average discharge.--31 years (1929-37, 1938-61), 20.3 cfs (14,700 acre-ft per year); median of yearly mean discharges, 15 cfs (10,900 acre-ft per year).

Extremes.--Maximum discharge during year, 5,770 cfs Nov. 5 (gage height, 5.86 ft); minimum daily, 1.4 cfs Apr. 23. 1929-37, 1938-61: Maximum discharge, 10,300 cfs Dec. 15, 1957 (gage height, 8.45 ft); no flow Sept. 19, 20, 1930. Flood of Mar. 2, 1938 amounted to 12,000 cfs (estimated).

Remarks.--Records good. Discharge measurements generally made weekly. Flow regulated by Sepulveda flood-control reservoir (capacity, 17,400 acre-ft). Some diversion above station. City of Los Angeles at times discharges imported Owens River water into Los Angeles River from upstream distributing reservoirs. This inflow amounted to 1,360 acre-ft during current year.

Cooperation.--Twenty-two discharge measurements furnished by Los Angeles County Flood Control District. Records of released water from reservoirs furnished by city of Los Angeles.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Aug. 22-31, Sept. 4-14)

0.1	0	0.4	19	1.0	176
.2	2.8	.6	50	1.5	440
.3	8.9	.8	104	2.0	800

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.8	4.2	5.4	3.7	3.2	8.9	7.4	6.7	9.7	8.9	9.7	2.8
2	2.8	4.8	19	3.2	3.7	9.8	7.4	7.4	9.7	8.9	9.7	2.8
3	2.8	5.7	3.2	3.7	3.7	8.1	7.4	6.7	9.7	8.9	8.9	2.8
4	2.4	10	3.7	4.2	4.8	8.1	9.7	6.7	8.9	8.9	8.1	2.8
5	3.2	605	3.2	3.7	4.8	7.4	12	6.7	8.9	8.1	14	17
6	3.7	330	3.7	2.8	5.4	7.4	14	6.7	8.9	8.9	16	6.7
7	6.7	9.7	3.7	2.8	6.0	7.4	2.0	6.7	8.1	9.7	16	7.4
8	6.0	4.8	4.2	2.8	7.4	6.7	3.2	6.7	8.1	8.9	20	15
9	6.0	4.8	3.7	3.7	9.7	6.7	7.4	7.4	7.4	8.9	22	2.8
10	6.7	4.8	3.2	3.2	10	6.7	6.7	7.4	6.7	8.9	22	2.8
11	6.7	5.4	2.8	2.8	8.9	6.0	7.4	6.7	6.7	12	79	2.8
12	7.4	101	3.7	3.2	8.1	6.0	8.1	6.7	7.4	12	2.0	19
13	7.4	12	4.8	3.2	7.4	6.0	7.4	6.7	7.4	12	2.4	7.4
14	6.0	4.2	5.4	2.0	7.4	4.8	6.7	6.7	7.4	12	4.4	6.0
15	6.0	4.8	4.2	2.0	7.4	79	6.7	6.7	8.1	8.9	9.7	7.4
16	6.7	4.2	3.2	2.0	4.8	5.4	7.4	6.7	8.1	8.1	15	6.7
17	8.1	4.2	3.2	2.4	3.7	8.9	8.9	6.7	7.4	8.1	21	7.4
18	8.1	5.4	3.2	2.8	6.7	7.4	7.4	6.7	7.4	8.1	22	8.9
19	8.1	4.8	3.7	2.8	6.7	7.4	6.7	6.0	6.7	8.1	17	8.1
20	8.1	4.2	3.7	2.8	15	8.1	6.7	6.0	7.4	8.1	20	8.1
21	8.1	5.6	4.2	2.8	8.1	8.1	6.7	5.4	7.4	8.9	22	7.4
22	6.7	6.0	3.7	2.8	8.1	8.1	37	6.0	6.7	8.9	25	7.3
23	6.7	6.0	3.7	2.8	8.1	8.1	1.4	6.0	8.1	8.1	25	2.4
24	6.7	4.2	3.7	2.8	8.9	9.7	1.5	7.4	8.1	8.1	16	2.5
25	6.7	3.7	3.7	40	8.9	6.6	4.8	8.1	8.1	8.1	6.2	2.6
26	6.7	261	3.7	643	8.9	4.0	5.4	8.1	8.9	8.9	26	2.8
27	6.0	14	3.7	8.7	8.9	8.1	6.0	8.1	8.9	8.9	26	2.4
28	2.8	4.2	3.7	3.2	8.9	7.6	6.7	8.1	9.7	9.7	28	2.5
29	2.8	5.4	3.7	3.2	—	4.9	6.7	8.9	8.9	8.9	28	2.5
30	3.2	5.4	4.8	3.2	—	8.1	6.7	8.9	8.9	9.7	28	2.5
31	3.7	—	3.7	3.2	—	7.4	—	10	—	9.7	28	—
Total	175.8	1500.8	133.2	775.5	203.6	296.9	234.1	219.7	243.8	284.3	597.1	537.8
Mean	5.67	50.0	4.30	25.0	7.27	9.58	7.80	7.09	8.13	9.17	19.3	17.9
Max.	8.1	605	19	65.0	15	79	37	10	9.7	12	79	28
Min.	2.4	3.7	2.8	2.0	3.2	4.0	1.4	5.4	6.7	8.1	2.0	6.0
Ac-ft	349	2,980	264	1,540	404	589	464	436	484	564	1,180	1,070
(†)	0	0	0	0	0	0	0	0	0	0	726	637

Calendar year 1960:

Max 785

Min 2.4

Mean 24.3

Acre-feet 17,620

Acre-feet† 3,580

Water year 1960-61:

Max 643

Min 1.4

Mean 14.3

Acre-feet 10,320

Acre-feet† 1,360

† Water, in acre-ft, released from city of Los Angeles distributing reservoirs to Los Angeles River. This flow is included in that shown on the previous line.



## LOS ANGELES RIVER BASIN

163

11-930. Pacoima Creek near San Fernando, Calif.

Location.--Lat 34°20'02", long 118°23'55", in SE 1/4 sec. 24, T.3 N., R.15 W., on right bank 500 ft downstream from Pacoima Dam, a third of a mile upstream from mouth of canyon, and 4 miles northeast of San Fernando.

Drainage area.--28.2 sq mi.

Records available.--March to July 1916 (fragmentary), December 1916 to September 1961.

Gage.--Water-stage recorder and Parshall-type flume. Altitude of gage is 1,650 ft (from topographic map). Prior to September 1929, at site 0.5 mile downstream at different datum. September 1929 to Mar. 23, 1933, records based on outflow from Pacoima Dam. Mar. 24, 1933, to Feb. 1, 1935, at site 450 ft downstream at different datum.

Average discharge.--44 years (1917-61), 8.69 cfs (6,290 acre-ft per year); median of yearly mean discharges, 4.1 cfs (3,000 acre-ft per year).

Extremes.--Maximum daily discharge during year, 0.1 cfs Oct. 1-31; no flow Nov. 1 to Sept. 30.  
1916-61: Maximum discharge, 2,440 cfs Mar. 3, 1938; no flow for several months in most years.

Remarks.--Flow regulated by Pacoima flood-control reservoir (capacity, 4,710 acre-ft). Flow passing over Pacoima Dam spillway enters creek below station.

Cooperation.--Records furnished by Los Angeles County Flood Control District and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1											
2	.1											
3	.1											
4	.1											
5	.1											
6	.1											
7	.1											
8	.1											
9	.1											
10	.1											
11	.1											
12	.1											
13	.1											
14	.1											
15	.1											
16	.1											
17	.1											
18	.1											
19	.1											
20	.1											
21	.1											
22	.1											
23	.1											
24	.1											
25	.1											
26	.1											
27	.1											
28	.1											
29	.1											
30	.1											
31	.1											
Total	3.1	0	0	0	0	0	0	0	0	0	0	0
Mean	0.10	0	0	0	0	0	0	0	0	0	0	0
Max.	-	0	0	0	0	0	0	0	0	0	0	0
Min.	-	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	6.1	0	0	0	0	0	0	0	0	0	0	0
Calendar year 1960				Max 3.7	Min 0	Mean 0.25			Acre-feet 178			
Water year 1960-61				Max 0.1	Min 0	Mean 0.008			Acre-feet 6.1			GPO 983390

## LOS ANGELES RIVER BASIN

11-940. Tujunga Creek below Mill Creek, near Colby Ranch, Calif.

Location.--Lat 34°18'33", long 118°08'40", on left bank 500 ft downstream from Mill Creek and 2 miles west of Colby Ranch, Los Angeles County.

Drainage area.--64.9 sq mi.

Records available.--January 1948 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 2,650 ft (from topographic map).

Average discharge.--13 years, 6.05 cfs (4,380 acre-ft per year); median of yearly mean discharges, 2.6 cfs (1,900 acre-ft per year).

Extremes.--Maximum discharge during year, 82 cfs Nov. 6 (gage height, 6.03 ft); no flow Oct. 1-30, June 15 to Sept. 30.

1948-61: Maximum discharge, 1,770 cfs Apr. 3, 1958 (gage height, 9.52 ft); no flow at times in most years.

Maximum discharge known since November 1930, 14,800 cfs Jan. 23, 1943.

Remarks.--No regulation or diversion above station.

Cooperation.--Records furnished by Los Angeles County Flood Control District and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.1	0.8	0.9	1.6	1.1	1.2	0.4	0.4			
2	0	.2	1.1	.9	1.6	1.1	1.0	.4	.4			
3	0	.8	.9	.9	1.6	1.1	.9	.6	.3			
4	0	.7	.9	.9	1.6	1.1	.8	.6	.2			
5	0	3.5	.8	.9	1.6	1.2	.9	.6	.2			
6	0	23	.8	.9	1.5	1.2	1.0	.6	.2			
7	0	2.0	.8	.9	1.5	1.2	1.0	.6	.2			
8	0	1.0	.8	.9	1.5	1.2	.9	.4	.2			
9	0	.7	.8	1.0	1.4	1.2	.9	.3	.2			
10	0	.6	.8	1.0	1.4	1.2	.8	.3	.2			
11	0	.6	.8	1.0	1.4	1.2	.8	.4	.2			
12	0	.8	.8	1.0	1.4	1.1	.7	.4	.2			
13	0	1.2	.8	1.0	1.4	1.1	.7	.4	.1			
14	0	.7	.8	1.0	1.4	1.1	.6	.4	.1			
15	0	.6	.9	1.0	1.4	1.6	.6	.3	0			
16	0	.6	.9	.9	1.4	1.6	.6	.4	0			
17	0	.4	.9	1.0	1.4	1.4	.4	.3	0			
18	0	.4	.9	1.0	1.3	1.4	.4	.3	0			
19	0	.4	.9	1.0	1.2	1.4	.6	.4	0			
20	0	.4	.9	.9	1.2	1.4	.6	.4	0			
21	0	.4	.9	.9	1.2	1.4	.6	.3	0			
22	0	.4	.9	.9	1.2	1.4	.9	.3	0			
23	0	.4	.9	.9	1.2	1.4	.9	.3	0			
24	0	.4	.9	1.0	1.2	1.5	.8	.3	0			
25	0	.6	.9	1.1	1.2	1.7	.8	.3	0			
26	0	.9	.9	7.2	1.2	1.5	.7	.3	0			
27	0	1.0	.9	5.3	1.1	1.4	.6	.3	0			
28	0	.8	.9	2.8	1.1	1.4	.6	.4	0			
29	0	.7	.9	2.1	—	1.4	.6	.4	0			
30	0	.7	.9	1.8	—	1.3	.4	.3	0			
31	.1	—	.9	1.6	—	1.3	—	.4	—			
Total	0.1	45.0	26.9	44.6	38.2	40.6	22.3	12.1	3.1	0	0	0
Mean	0.003	1.50	0.87	1.44	1.36	1.31	0.74	0.39	0.10	0	0	0
Max.	0.1	23	1.1	7.2	1.6	1.7	1.2	0.6	0.4	0	0	0
Min.	0	0.1	0.8	0.9	1.1	1.1	0.4	0.3	0	0	0	0
Ac-ft	0.2	89	53	88	76	81	44	24	6.1	0	0	0
Calendar year 1960				Max 23	Min 0	Mean 1.00				Acre-feet 722		
Water year 1960-61				Max 23	Min 0	Mean 0.64				Acre-feet 461		

11-955. Tujunga Creek near Sunland, Calif.

Location.--Lat 34°18'02", long 118°16'02", near center of SW $\frac{1}{4}$  sec.32, T.3 N., R.13 W., on left bank 1,000 ft upstream from Gold Canyon, 2 miles upstream from mouth of canyon, and 4 miles northeast of Sunland.

Drainage area.--106 sq mi.

Records available.--October 1916 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 1,571.80 ft above mean sea level (levels by Los Angeles County Flood Control District). Prior to Oct. 1, 1932, at site 1,000 ft upstream at different datum.

Average discharge.--44 years (1917-61), 26.4 cfs (19,110 acre-ft per year); median of yearly mean discharges, 13 cfs (9,400 acre-ft per year).

Extremes.--Maximum discharge during year, 86 cfs Nov. 5 (gage height, 10.33 ft); minimum daily, 0.2 cfs Oct. 6, 7, 15.

1916-61: Maximum discharge, 50,000 cfs (estimated) Mar. 2, 1938; minimum, 0.1 cfs at times during summers of 1919, 1924, 1928-31, 1960.

Remarks.--Flow regulated since 1931 by Big Tujunga flood-control reservoir (capacity, 4,240 acre-ft). Several small diversions above station for irrigation.

Cooperation.--Records since 1932 furnished by Los Angeles County Flood Control District and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.5	0.4	2.1	1.8	2.6	1.0	1.1	0.6	0.8	1.1	1.0	1.0
2	.6	.4	3.6	1.8	2.6	1.0	.7	.6	.8	1.1	1.0	1.0
3	.3	1.3	3.0	1.8	2.2	1.0	.7	.6	.8	1.1	1.0	1.0
4	.3	1.6	2.6	1.8	2.1	1.0	.8	.6	.8	1.1	1.0	1.0
5	.3	1.0	2.4	1.8	2.1	1.1	.8	.6	.8	1.1	1.0	1.0
6	.2	1.6	1.8	1.8	1.9	1.1	.8	.6	1.0	1.1	1.0	1.0
7	.2	5.9	1.8	1.8	1.9	1.1	.8	.6	1.0	1.1	1.0	1.0
8	.4	4.2	1.9	1.8	1.8	1.1	.7	.6	1.0	1.1	1.0	1.0
9	.5	3.2	1.9	1.8	1.8	1.1	.7	.5	1.1	1.1	1.0	1.0
10	.7	2.4	1.9	1.8	1.8	1.1	.6	.5	1.1	1.1	1.0	1.0
11	.5	2.1	1.9	1.8	1.8	1.1	.6	.5	1.1	1.1	1.0	1.0
12	.5	2.7	1.8	1.8	1.6	1.0	.6	.5	1.1	1.1	1.0	1.0
13	.4	4.3	1.8	1.8	1.6	1.0	.6	.5	1.1	1.1	1.0	1.0
14	.3	2.8	1.8	1.8	1.6	.8	.6	.5	1.1	1.1	1.0	.8
15	.2	2.2	1.8	1.8	1.6	1.0	.6	.5	1.1	1.1	1.0	.8
16	.3	1.9	1.8	1.8	1.6	1.0	.6	.5	1.1	1.1	1.0	1.0
17	.6	1.6	1.8	1.8	1.6	1.0	.6	.5	1.1	1.0	1.0	1.3
18	.6	1.4	1.8	1.8	1.4	.7	.6	.5	1.1	1.0	1.0	1.3
19	.5	1.1	1.8	1.8	1.3	.7	.5	.4	1.1	1.0	1.0	1.3
20	.4	1.1	1.8	1.8	1.3	.8	.5	.4	1.1	1.0	1.0	1.3
21	.3	1.1	1.8	1.8	1.1	.8	.6	.4	1.1	1.0	1.0	1.4
22	.3	1.1	1.8	1.9	1.1	.8	.6	.4	1.1	1.0	1.0	1.4
23	.4	1.1	1.8	1.9	1.1	1.0	.6	.4	1.1	1.0	1.0	1.3
24	.4	1.1	1.9	2.1	1.1	1.0	.6	.4	1.1	1.0	1.0	1.1
25	.5	1.1	1.9	2.1	1.1	1.1	.6	.5	1.1	1.0	1.0	1.1
26	.5	2.6	1.8	1.1	1.1	1.1	.6	.4	1.1	1.0	1.0	1.1
27	.5	3.8	1.8	3.2	1.1	1.0	.6	.4	1.1	1.0	1.0	1.1
28	.4	2.8	1.8	2.6	1.1	1.0	.6	.4	1.1	1.0	1.0	.8
29	.4	2.2	1.8	2.6		.8	.6	.4	1.1	1.0	1.0	.8
30	.4	2.1	1.8	2.8		1.0	.6	.5	1.1	1.0	1.0	.8
31	.4		1.8	2.8		1.0		.5		1.0	1.0	
Total	12.8	85.6	61.1	70.8	45.0	30.3	19.5	15.3	31.2	32.6	31.0	31.7
Mean	0.41	2.85	1.97	2.28	1.61	0.98	0.65	0.49	1.04	1.05	1.00	1.06
Max.	0.7	16	3.6	11	2.6	1.1	1.1	0.6	1.1	1.1	1.0	1.4
Min.	0.2	0.4	1.8	1.8	1.1	0.7	0.5	0.4	0.8	1.0	1.0	0.8
Ac-ft	25	170	121	140	89	60	39	30	62	65	61	63
Calendar year 1960				Max 16	Min 0.1	Mean 2.49	Acre-feet 1,810					
Water year 1960-61				Max 16	Min 0.2	Mean 1.28	Acre-feet 925					

## LOS ANGELES RIVER BASIN

11-960. Haines Creek near Tujunga, Calif.

Location.--Lat 34°15'50", long 118°16'15", in NW 1/4 sec. 17, T.2 N., R.13 W., on right bank 0.5 mile upstream from mouth of canyon and 1.5 miles northeast of Tujunga.

Drainage area.--1.2 sq mi, approximately.

Records available.--Creek: February 1917 to September 1934, October 1935 to September 1961 (discontinued). Diversion: January 1931 to September 1961 (discontinued).

Gage.--Water-stage recorder and broad-crested weir. Altitude of gage is 2,430 ft (from topographic map).

Average discharge.--43 years (1917-34, 1935-61), 0.13 cfs (94 acre-ft per year); median of yearly mean discharges, 0.04 cfs (29 acre-ft per year). Average combined discharge of creek and diversion, 29 years (1931-34, 1935-61), 0.34 cfs (246 acre-ft per year); median of combined yearly mean discharges, 0.2 cfs (140 acre-ft per year).

Extremes.--Maximum discharge during year, 4.3 cfs Nov. 5 (gage height, 1.70 ft); no flow most of year.

1917-34, 1935-61: Maximum discharge, 265 cfs Mar. 2, 1938 (gage height, 4.6 ft), from rating curve extended above 3.2 cfs on basis of velocity-area studies; maximum gage height, about 11 ft Jan. 1, 1934 (caused by debris wave, commonly called a mud flow); no flow at times during many years.

Remarks.--Records good. Observations of no flow generally made twice a month. City of Los Angeles diverts most of flow through two infiltration galleries upstream from station.

Cooperation.--Records of diversion furnished by city of Los Angeles.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0		0								
2		0		0								
3		0		0								
4		0		0								
5		.3		0								
6		.2		0								
7		0		0								
8		0		0								
9		0		0								
10		0		0								
11		0		0								
12		0		0								
13		0		0								
14		0		0								
15		0		0								
16		0		0								
17		0		0								
18		0		0								
19		0		0								
20		0		0								
21		0		0								
22		0		0								
23		0		0								
24		0		0								
25		0		0								
26		0		.2								
27		0		0								
28		0		0								
29		0		0								
30		0		0								
31		0		0								
Total	0	0.5	0	0.2	0	0	0	0	0	0	0	0
Mean	0	0.02	0	0.01	0	0	0	0	0	0	0	0
Max.	0	0.3	0	0.2	0	0	0	0	0	0	0	0
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0	1.0	0	0.4	0	0	0	0	0	0	0	0
(†)	0.4	0	0	0	0	0	0	0.2	2.1	1.5	2.0	2.9
Ac-ft†	0.4	1.0	0	0.4	0	0	0	0.2	2.1	1.5	2.0	2.9

Calendar year 1960: Max 0.3 Min 0 Mean 0.001 Ac-ft 1.0 Mean† 0.02 Ac-ft† 18  
 Water year 1960-61: Max 0.3 Min 0 Mean 0.002 Ac-ft 1.4 Mean† 0.01 Ac-ft† 10

† Diversion, in acre-feet, above station, for Los Angeles municipal supply, furnished by city of Los Angeles.

‡ Adjusted for diversion.

11-965. Little Tujunga Creek near San Fernando, Calif.

Location.--Lat 34°16'30", long 118°22'20", in Tujunga Grant, on downstream side of Foothill Boulevard Bridge, 4 miles east of San Fernando, Los Angeles County.

Drainage area.--21.0 sq mi.

Records available.--October 1928 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Concrete control since May 1940. Datum of gage is 1,067.89 ft above mean sea level (levels by Los Angeles County Flood Control District).

Average discharge.--33 years, 2.34 cfs (1,690 acre-ft per year); median of yearly mean discharges, 0.6 cfs (430 acre-ft per year).

Extremes.--Maximum discharge during year, 266 cfs Nov. 5 (gage height, 4.23 ft); no flow most of year.  
1928-61: Maximum discharge, 8,500 cfs (estimated) Mar. 2, 1938; no flow for several months each year.

Remarks.--No regulation or diversion above station.

Cooperation.--Records furnished by Los Angeles County Flood Control District and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Nov. 3.....	0.2	Nov. 13.....	0.1
5.....	9.1	26.....	1.1
6.....	11	Jan. 26.....	1.2
12.....	3.8		

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
November 1960.....	25.3	11	0	0.84	50
January 1961.....	1.2	1.2	0	.04	2.4
Calendar year 1960.....	-	11	0	.07	51
Water year 1960-61.....	-	11	0	.07	52

Note.--Flow occurred only on days listed above.

## LOS ANGELES RIVER BASIN

11-970. Tujunga Creek below Hansen Dam, Calif.

Location.--Lat 34°15'10", long 118°23'20", in Ex Mission San Fernando Grant, in city of Los Angeles, on left bank of outlet channel of Hansen Dam, 0.1 mile upstream from Glen Oaks Boulevard, and 3 miles southeast of San Fernando, Los Angeles County.

Drainage area.--148 sq mi.

Records available.--May 1932 to February 1938, August 1940 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Datum of gage is 943.32 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Prior to Aug. 25, 1944, at site 0.1 mile downstream at different datum. Aug. 25, 1944, to Sept. 30, 1951, at site 0.3 mile upstream at different datum. Oct. 1, 1951, to Sept. 30, 1953, at present site at datum 1.00 ft higher.

Extremes.--Maximum discharge during year, 4.2 cfs Nov. 5 (gage height, 1.02 ft); no flow during most of year.

1940-61: Maximum discharge, about 3,000 cfs Jan. 24, 25, 1952 (gage height, unknown) on basis of records of release at Hansen flood-control dam; no flow during parts of each year.

Maximum discharge known since May 1932, 54,000 cfs (estimated) Mar. 2, 1938.

Remarks.--Records good. Observations of no flow generally made monthly. Flow regulated since July 1931 by Big Tujunga flood-control reservoir (capacity, 4,240 acre-ft) and since September 1940 by Hansen flood-control reservoir (capacity, 32,000 acre-ft). Several small diversions above station for domestic use and irrigation. No water diverted from outlet channel upstream from gage to spreading grounds during year. The flow passing gaging station during this year was from precipitation on paved drainage area between station and the dam.

Cooperation.--Records of diversion furnished by Los Angeles County Flood Control District.

Discharge, in cubic feet per second, water year October 1960 to September 1961

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		.2		0		0						
6		0		0		0						
7		0		0		0						
8		0		0		0						
9		0		0		0						
10		0		0		0						
11		0		0		0						
12		.2		0		0						
13		0		0		0						
14		0		0		0						
15		0		0		.3						
16		0		0		0						
17		0		0		0						
18		0		0		0						
19		0		0		0						
20		0		0		0						
21		0		0		0						
22		0		0		0						
23		0		0		0						
24		0		0		0						
25		0		0		0						
26		.1		.2		0						
27		0		0		0						
28		0		0		0						
29		0		0		0						
30		0		0		0						
31				0		0						
Total	0	0.5	0	0.2	0	0.3	0	0	0	0	0	0
Mean	0	0.02	0	0.006	0	0.01	0	0	0	0	0	0
Max.	0	0.2	0	0.2	0	0.3	0	0	0	0	0	0
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0	1.0	0	0.4	0	0.6	0	0	0	0	0	0

Calendar year 1960:

Max 0.2

Min 0

Mean 0.002

Acre-feet 1.6

Water year 1960-61:

Max 0.3

Min 0

Mean 0.003

Acre-feet 2.0

Note.--No water diverted to spreading grounds by Los Angeles County Flood Control District during year.

11-975. Los Angeles River at Los Angeles, Calif.

Location.--Lat 34°04'55", long 118°13'35", on right bank near Figueroa Street, Los Angeles, 800 ft upstream from Arroyo Seco.

Drainage area.--510 sq mi.

Records available.--October 1929 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 292.58 ft above mean sea level (levels by Los Angeles County Flood Control District). Prior to May 26, 1938, at site 150 ft downstream at different datum. May 26, 1938, to Dec. 8, 1939, at site 350 ft downstream at different datum.

Average discharge.--32 years, 55.9 cfs (40,470 acre-ft per year); median of yearly mean discharges, 31 cfs (22,400 acre-ft per year).

Extremes.--Maximum discharge during year, 7,890 cfs Nov. 5 (gage height, 4.15 ft); no flow on many days.

1929-61: Maximum discharge, 67,000 cfs Mar. 2, 1938; no flow at times in some years.

Remarks.--Flow regulated by Hansen and Sepulveda flood-control reservoirs (combined capacities, 49,400 acre-ft) and several small flood-control reservoirs. City of Los Angeles at times discharges imported Owens River water into Los Angeles River from upstream distributing reservoirs. Excess treated sewage effluent from Los Angeles Bureau of Sanitation is released to channel about 8 miles upstream. Many diversions above station for domestic use and irrigation.

Cooperation.--Records furnished by Los Angeles County Flood Control District and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0	1.4	0.6	0.4	0.3	0.4	0.1	0.1	0	0.1	
2	0	0	55	.6	.4	.3	.2	.1	.2	0	.1	
3	0	149	2.0	.8	.4	.4	.2	.1	.2	0	.1	
4	0	24	.4	1.6	.4	.4	.2	.1	.1	0	.1	
5	0	1,250	.4	2.0	.4	.4	.3	.1	.1	0	.1	
6	0	998	.6	1.6	.4	.4	5.5	.1	.1	0	.1	
7	0	21	.6	1.4	.3	.2	3.1	.1	.1	0	.1	
8	0	3.2	.8	1.0	.3	.2	.8	.1	.1	0	.1	
9	.7	1.4	1.2	1.2	.3	.2	.3	.1	.1	0	.1	
10	0	.4	.8	2.0	.3	.2	.2	.1	.1	0	.1	
11	0	.4	.4	2.0	.3	.2	.2	.1	.1	0	150	
12	0	321	.4	1.8	.3	.2	.2	.1	.1	0	6.0	
13	0	109	1.4	2.0	.3	.2	.2	.1	.1	0	.4	
14	0	2.9	1.4	1.8	.4	.2	.2	.1	0	.1	.3	
15	0	.8	1.6	1.0	.4	238	.2	.1	0	.1	.3	
16	0	.8	1.6	.6	1.1	14	.2	.1	0	0	.3	
17	0	.4	1.0	1.0	2.0	3.2	.2	.1	0	0	.3	
18	0	0	.8	1.8	.6	1.2	.2	.1	0	0	.3	
19	0	.2	2.0	1.6	.4	.6	.2	.1	0	0	.3	
20	0	0	3.2	.6	.2	.4	.2	.1	0	0	.3	
21	0	0	3.2	.8	.2	.2	.2	.1	0	0	.3	
22	0	0	3.2	.4	.2	.2	101	.1	0	0	.3	
23	0	.8	2.0	.4	.2	.2	17	.1	0	.1	.3	
24	0	1.0	1.2	1.8	.2	.2	.4	.1	0	.1	.2	
25	0	0	.6	33	.2	3.4	.2	.1	0	0	.2	
26	0	600	.6	1,690	.2	.8	.1	.1	0	0	.1	
27	0	72	.8	31	.3	.2	.1	.1	0	0	.1	
28	0	2.6	1.0	2.0	.3	1.2	.1	.1	.1	0	.1	
29	0	2.3	.6	.6	-	1.6	.1	.1	.1	0	0	
30	0	1.8	.6	15	-	.4	.1	.1	0	0	0	
31	0	-	1.2	.6	-	.4	-	.1	-	0	0	
Total	0.7	3,563.0	92.0	1,802.6	11.4	270.0	132.5	3.1	1.7	0.4	161.1	0
Mean	0.02	119	2.97	58.1	0.41	8.71	4.42	0.10	0.06	0.01	5.20	0
Max.	0.7	1,250	55	1,690	2.0	238	101	-	0.2	0.1	150	0
Min.	0	0	0.4	0.4	0.2	0.2	0.1	-	0	0	0	0
Ac-ft	1.4	7,070	182	3,580	23	536	263	6.1	3.4	0.8	320	0
Calendar year 1960				Max 1,420	Min 0		Mean 30.5		Acre-feet 22,160			
Water year 1960-61				Max 1,690	Min 0		Mean 16.5		Acre-feet 11,990			

## LOS ANGELES RIVER BASIN

11-980. Arroyo Seco near Pasadena, Calif.

Location.--Lat 34°13'20", long 118°10'36", near north line of sec.31, T.2 N., R.12 W., on right bank 1.5 miles upstream from Millard Canyon and 5.5 miles northwest of Pasadena.

Drainage area.--16.4 sq mi.

Records available.--December 1910 to September 1961.

Gage.--Water-stage recorder and broad-crested weir. Datum of gage is 1,397.88 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1916, staff gage at different datum. Oct. 1, 1916, to Oct. 19, 1945, water-stage recorder at datum 4.00 ft lower.

Average discharge.--47 years (1913-15, 1916-61), 8.68 cfs (6,280 acre-ft per year); median of yearly mean discharges, 4.5 cfs (3,300 acre-ft per year).

Extremes.--Maximum discharge during year, 769 cfs Nov. 6 (gage height, 4.30 ft); no flow Oct. 4-7, Nov. 1.

1910-61: Maximum discharge, 8,620 cfs Mar. 2, 1938 (gage height, 9.42 ft, present datum), from slope-area measurements of peak flow; no flow at times in some years.

Remarks.--Records good except those above 5 cfs, which are poor. Discharge measurements generally made weekly. Minor regulations at debris dam 1.5 miles upstream.

Cooperation.--Twenty discharge measurements furnished by Los Angeles County Flood Control District.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0	1.1	1.0	1.9	1.0	1.0	0.4	0.5	0.2	0.1	0.1
2	.1	.1	1.1	1.0	1.9	1.0	.9	.4	.5	.2	.1	.1
3	.1	2.3	1.1	1.0	1.7	1.0	.8	.4	.5	.2	.1	.1
4	0	.8	1.6	1.0	1.7	1.0	.7	.6	.4	.2	.1	.1
5	0	2.9	1.0	1.0	1.7	1.0	.9	.6	.4	.2	.1	.1
6	0	6.6	1.2	1.0	1.7	1.0	1.3	.6	.4	.2	.1	.1
7	0	6.3	1.3	1.0	1.7	1.0	.9	.5	.4	.2	.1	.1
8	.1	2.8	1.2	1.0	1.6	1.0	.9	.5	.4	.2	.1	.1
9	.1	1.6	1.2	1.0	1.6	.9	.8	.5	.4	.2	.1	.1
10	.1	1.7	1.1	1.0	1.5	1.0	.8	.4	.4	.2	.1	.1
11	.1	2.4	1.1	1.0	1.3	1.1	.7	.4	.4	.2	.1	.1
12	.1	8.7	.9	1.0	1.3	1.2	.8	.5	.4	.2	.1	.1
13	.1	4.8	1.0	1.0	1.3	1.1	.9	.5	.4	.2	.1	.1
14	.1	2.4	1.1	1.1	1.2	1.0	.8	.5	.4	.2	.1	.1
15	.1	2.4	1.5	1.1	1.3	2.1	.7	.5	.3	.2	.1	.2
16	.1	2.2	1.6	1.1	1.3	1.5	.5	.5	.3	.2	.1	.2
17	.1	1.9	1.3	1.1	1.3	1.6	.5	.5	.3	.1	.1	.2
18	.1	1.9	1.1	1.1	1.3	1.7	.5	.6	.3	.1	.1	.2
19	.1	1.6	1.1	1.0	1.2	1.3	.7	.6	.3	.1	.1	.2
20	.1	1.5	1.0	1.0	1.3	1.1	.7	.6	.3	.1	.1	.2
21	.1	1.3	.9	1.1	1.2	1.1	.8	.5	.3	.1	.1	.2
22	.1	1.3	.8	1.1	1.2	1.1	1.1	.5	.3	.1	.1	.2
23	.1	1.3	.9	1.1	1.2	1.2	.5	.5	.3	.1	.1	.1
24	.1	1.3	1.0	1.1	1.2	1.3	.4	.5	.3	.1	.1	.1
25	.1	1.3	1.0	1.2	1.2	1.5	.5	.5	.3	.1	.1	.1
26	.1	7.6	1.0	2.6	1.2	1.2	.4	.5	.3	.1	.1	.1
27	.1	1.5	1.0	3.9	1.1	1.2	.3	.5	.3	.1	.1	.1
28	.1	1.5	1.0	3.0	1.1	1.3	.2	.5	.3	.1	.1	.1
29	.1	1.5	1.0	2.6	-	1.0	.3	.5	.2	.1	.1	.1
30	.1	1.1	1.0	2.0	-----	.7	.4	.5	.2	.1	.1	.1
31	.1	-----	1.0	2.0	-----	.9	-----	.5	-----	.1	.1	-----
Total	2.7	160.1	34.2	65.6	39.2	36.1	20.7	15.6	10.5	4.7	3.1	3.8
Mean	0.09	5.34	1.10	2.12	1.40	1.16	0.69	0.50	0.35	0.15	0.10	0.13
Max.	0.1	.66	1.6	.26	1.9	2.1	1.3	0.6	0.5	0.2	-	0.2
Min.	0	0	0.8	1.0	1.1	0.7	0.2	0.4	0.2	0.1	-	0.1
Ac-ft	5.4	318	68	130	78	72	41	31	21	9.3	6.1	7.5

Calendar year 1960 Max 66 Min 0 Mean 1.51 Acre-feet 1,100

Water year 1960-61 Max 66 Min 0 Mean 1.09 Acre-feet 787

Peak discharge (base, 150 cfs).--Nov. 6 (5 a.m.) 769 cfs (4.30 ft); Jan. 26 (12 m.) 162 cfs (2.75 ft).



## LOS ANGELES RIVER BASIN

171

11-985. Los Angeles River near Downey, Calif.

Location.--Lat 33°56'57", long 118°10'24", in San Antonio Grant, on right bank 400 ft downstream from Firestone Boulevard Bridge, 1 mile upstream from Rio Hondo and 2.5 miles west of Downey, Los Angeles County.

Drainage area.--614 sq mi.

Records available.--March 1928 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 96.12 ft above mean sea level (levels by Los Angeles County Flood Control District). Prior to Apr. 11, 1938, at site 1,600 ft downstream at different datum. Apr. 11, 1938, to Nov. 3, 1949, at site 400 ft upstream at datum 0.96 ft lower, and Nov. 4, 1949, to Dec. 11, 1956, at site 400 ft upstream at datum 2.25 ft higher.

Average discharge.--32 years, 93.0 cfs (67,330 acre-ft per year); median of yearly mean discharges, 56 cfs (40,500 acre-ft per year).

Extremes.--Maximum discharge during year, 7,810 cfs Nov. 5 (gage height, 3.93 ft); minimum daily, 4.5 cfs Nov. 21.

1928-61: Maximum discharge, 79,700 cfs Mar. 2, 1938, on basis of slope-area measurements; no flow during parts of some years.

Remarks.--Flow regulated by Hansen and Sepulveda flood-control reservoirs (combined capacities, 49,400 acre-ft), and several small flood-control reservoirs. City of Los Angeles stores imported Owens River water in San Fernando and Chatsworth Reservoirs and at times discharges imported water into Los Angeles River. Many diversions above station for domestic use and irrigation.

Cooperation.--Records furnished by Los Angeles County Flood Control District and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.1	12	12	8.0	12	9.5	15	8.0	14	9.5	12	13
2	5.5	12	6.3	8.5	11	11	13	8.5	12	10	12	8.5
3	9.0	243	14	10	10	9.0	13	9.0	11	10	12	9.5
4	10	103	7.0	12	9.5	7.5	14	8.0	11	8.5	12	6.4
5	12	1200	7.0	13	9.0	7.0	16	8.0	10	10	10	12
6	12	1610	8.0	13	9.0	9.0	18	7.0	13	10	9.0	12
7	12	105	9.0	12	9.5	10	18	6.1	13	10	10	12
8	8.5	10	8.5	11	9.5	9.0	14	6.1	12	8.0	11	12
9	18	10	8.5	12	8.5	9.5	10	8.0	11	6.7	11	9.0
10	27	10	7.0	14	8.5	10	10	8.0	9.0	9.5	8.8	7.5
11	8.5	11	6.7	14	8.5	9.5	10	8.0	8.0	9.0	227	12
12	9.0	440	8.0	14	7.5	9.0	9.5	8.0	9.0	9.0	36	10
13	10	213	9.0	14	8.5	11	9.5	6.4	10	9.0	16	9.5
14	9.5	15	9.0	13	8.5	12	9.5	6.1	10	9.5	14	9.0
15	5.8	10	9.0	11	8.5	355	7.5	9.0	9.5	8.0	14	8.0
16	5.8	7.5	10	13	30	55	6.7	10	10	8.5	12	5.5
17	9.0	8.0	7.5	14	16	28	9.0	10	9.5	13	9.5	5.8
18	9.5	7.5	7.0	14	14	22	9.5	11	10	12	14	6.0
19	9.5	11	10	14	12	18	9.5	10	10	12	6.4	8.8
20	10	5.2	12	13	12	14	24	8.5	12	13	6.4	10
21	10	4.5	12	12	10	11	9.5	6.7	12	12	9.5	10
22	6.7	8.0	13	11	9.0	10	89	9.0	12	12	10	8.8
23	5.8	12	12	12	9.0	10	24	10	12	10	13	7.5
24	9.5	18	10	14	9.0	11	8.5	10	10	12	10	5.0
25	9.5	25	8.5	86	9.0	26	9.0	14	9.0	12	10	7.0
26	8.5	808	7.5	2230	8.5	16	8.5	6.5	10	12	8.0	9.0
27	8.5	140	8.5	199	9.5	12	8.5	6.5	12	12	7.5	9.0
28	10	10	8.5	46	9.5	30	8.5	6.1	12	12	12	11
29	9.0	10	8.0	17	—	14	8.0	7.0	12	9.5	13	10
30	8.5	12	8.0	18	-----	14	7.0	6.1	12	9.0	12	6.0
31	14	-----	7.5	13	-----	15	-----	6.0	-----	12	12	-----
Total	306.7	5090.7	335.7	2905.5	295.5	794.0	426.2	251.6	327.0	319.7	580.1	269.8
Mean	9.89	170	10.8	93.7	10.6	25.6	14.2	8.12	10.9	10.3	18.7	8.99
Max.	27	1,610	63	2,230	30	355	89	14	14	13	227	13
Min.	5.5	4.5	6.7	8.0	7.5	7.0	6.7	6.0	8.0	6.7	6.4	5.0
Ac-ft	608	10,100	666	5,760	586	1,570	845	499	649	634	1,150	535
Calendar year 1960:				Max 2,090	Min 4.5	Mean 52.1	Acre-feet 37,820					
Water year 1960-61:				Max 2,230	Min 4.5	Mean 32.6	Acre-feet 23,600					

## LOS ANGELES RIVER BASIN

11-995. Sawpit Creek near Monrovia, Calif.

Location.--Lat 34°10'23", long 117°59'18", in SW 1/4 sec. 13, T.1 N., R.11 W., on left bank 0.1 mile downstream from Monrovia Creek, 0.3 mile downstream from Sawpit Dam, and 1.7 miles north of Monrovia.

Drainage area.--5.3 sq mi.

Records available.--October 1916 to September 1961 (discontinued). Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder and broad-crested weir. Altitude of gage is 1,100 ft (from topographic map). Nov. 8, 1916, to Nov. 19, 1925, Apr. 12 to Oct. 29, 1938, water-stage recorder at site 0.1 mile upstream at different datum. Nov. 20, 1925, to Mar. 2, 1938, water-stage recorder at site 0.1 mile downstream at different datum (destroyed by flood). Oct. 30, 1938, to Oct. 3, 1951, at present site at datum 1.00 ft higher.

Average discharge.--45 years, 1.10 cfs (796 acre-ft per year); median of yearly mean discharges, 0.5 cfs (360 acre-ft per year).

Average adjusted discharge, 45 years, 2.45 cfs (1,770 acre-ft per year); median of adjusted yearly mean discharges, 1.8 cfs (1,300 acre-ft per year).

Extremes.--Maximum discharge during year, 19 cfs Nov. 12 (gage height, 3.52 ft); no flow most of year.

1916-61: Maximum discharge, about 1,800 cfs Mar. 2, 1938, computed on basis of inflow to flood-control reservoir above gage but may have been exceeded Apr. 7, 1926; no flow for parts of most years.

Remarks.--Records poor. Discharge measurements or observations of no flow generally made two or more times a month. Flow regulated by Sawpit flood-control reservoir (capacity, 320 acre-ft) since June 1927. Figures of daily discharge do not include water diverted above station by city of Monrovia from Monrovia Creek.

Cooperation.--Six discharge measurements furnished by Los Angeles County Flood Control District.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0	a 0.3	0	a 0.3	0	0	0.1				0
2	0	0	a.3	0	a.3	0	0	.1				0
3	0	.3	a.2	0	a.3	0	0	0				0
4	0	0	a.2	0	a.3	.1	0	0				0
5	0	.8	a.2	0	a.2	.1	.1	0				0
6	0	a.1	a.1	0	a.2	0	.2	0				0
7	0	a.1	a.1	0	a.2	0	.1	0				0
8	0	a.1	a.1	0	a.2	0	0	0				0
9	0	.5	a.1	0	a.2	0	0	0				0
10	.2	.4	a.1	0	a.1	0	0	0				0
11	0	.3	a 0	0	a.1	0	0	0				0
12	0	2.8	a 0	0	a.1	0	0	0				0
13	.2	.4	0	0	a.1	0	0	0				0
14	.2	.4	a 0	0	a 0	0	0	0				0
15	0	.3	a 0	0	a 0	.3	0	.1				0
16	0	.3	0	0	a 0	0	0	0				0
17	0	.3	0	0	a 0	.1	0	0				0
18	0	.2	0	0	a 0	.1	0	0				0
19	0	.2	0	0	a 0	.1	0	0				.7
20	0	.2	0	0	a 0	.2	0	0				a 1
21	0	.1	0	0	0	.1	.1	0				a 1
22	0	0	0	0	0	0	.4	0				a 1
23	0	0	0	0	0	e 0	.5	0				a 1
24	0	0	0	0	0	e .1	.2	0				a 1.1
25	0	.3	0	0	0	e .1	.1	0				a 1.1
26	0	.4	0	2.6	0	e .1	.1	0				a 1.1
27	0	a.3	0	e.6	0	e .5	0	0				1.1
28	0	.7	0	e.5	0	e .2	0	0				1.1
29	0	a.5	0	e.4	-	e .1	0	0				1.0
30	0	a.4	0	e.4	-	0	0	0				1.0
31	0	-	0	e.3	-	0	-	0				-
Total	0.6	10.4	1.7	4.8	2.5	2.2	1.8	0.3	0	0	0	12.2
Mean	0.02	0.35	0.05	0.15	0.09	0.07	0.06	0.01	0	0	0	0.41
Max.	0.2	2.8	-	2.6	-	-	0.5	0.1	0	0	0	-
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	1.2	21	3.4	9.5	5.0	4.4	3.6	0.6	0	0	0	24
(†)	41	32	50	40	48	41	40	41	34	31	30	55
Ac-ft†	42	53	53	50	53	45	44	42	34	31	30	79

Calendar year 1960: Max 14 Min 0 Mean 0.21 Ac-ft 156 Mean† 1.03 Ac-ft† 745  
 Water year 1960-61: Max 2.8 Min 0 Mean 0.10 Ac-ft 73 Mean† 0.77 Ac-ft† 556

† Diversion, in acre-feet, above station, for Monrovia municipal supply, furnished by city of Monrovia.

\* Adjusted for diversion.

a No gage-height record.

e Stage-discharge relation indefinite.

11-1000. Santa Anita Creek near Sierra Madre, Calif.

Location.--Lat 34°11'30", long 118°00'59", in SW 1/4 NE 1/4 sec.10, T.1 N., R.11 W., on right bank at head of Hermits Falls, 0.9 mile upstream from Big Santa Anita Dam and 3 miles northeast of Sierra Madre.

Drainage area.--10.5 sq mi.

Records available.--July 1916 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 1,475.3 ft above mean sea level (levels by U. S. Forest Service). Prior to Mar. 2, 1938, at same site at datum 0.4 ft lower (destroyed by flood). Mar. 18 to Sept. 27, 1938, at same site at datum 0.7 ft higher.

Average discharge.--45 years, 5.60 cfs (4,050 acre-ft per year); median of yearly mean discharges, 3.5 cfs (2,500 acre-ft per year).

Extremes.--Maximum discharge during year, 60 cfs Nov. 5 (gage height, 2.18 ft); minimum daily, 0.1 cfs July 19, 20, Aug. 2 to Sept. 14.

1916-61: Maximum discharge, about 5,200 cfs Mar. 2, 1938, based on inflow to Big Santa Anita flood-control reservoir; practically no flow Aug. 18 to Sept. 14, 1929.

Remarks.--Records good. Discharge measurements generally made two or more times a month. Little or no regulation from debris dams upstream from station.

Cooperation.--Fourteen discharge measurements furnished by Los Angeles County Flood Control District.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.3	0.3	1.2	0.9	1.4	0.8	1.0	0.5	0.5	0.2	0.2	0.1
2	.3	.4	1.4	.9	1.4	.8	.8	.5	.5	.2	.1	.1
3	.3	1.1	1.2	.8	1.4	.8	.7	.6	.4	.3	.1	.1
4	.2	1.0	1.1	.8	1.4	.9	.6	.8	.4	.3	.1	.1
5	.2	8.8	1.0	.8	1.3	.9	.8	.8	a 4	.3	.1	.1
6	.2	3.8	1.0	.8	1.3	.9	1.1	.7	a 4	.3	.1	.1
7	.3	1.9	1.0	.7	1.3	.9	1.0	.7	a 4	.2	.1	.1
8	.3	1.2	1.0	.8	1.3	.8	.9	.6	a 4	.2	.1	.1
9	.4	1.0	1.0	.8	1.3	.8	.8	.5	a 5	.2	.1	.1
10	.5	1.0	1.1	.8	1.2	.8	1.0	.5	a 5	.2	.1	.1
11	.6	1.0	1.2	.8	1.2	.8	1.0	.5	a 5	.2	.1	.1
12	.5	5.2	1.3	.8	1.1	.8	1.0	.5	a 5	.2	.1	.1
13	.5	3.6	1.3	.7	1.1	.8	1.0	.5	.5	.2	.1	.1
14	.5	1.4	1.2	.7	1.0	.8	1.0	.5	.4	.2	.1	.1
15	.5	1.2	1.2	.7	1.0	1.4	.8	.5	.4	.2	.1	.2
16	.5	1.1	1.2	.7	1.0	1.2	.7	.6	.3	.2	.1	.2
17	.5	1.0	1.1	.7	1.0	1.0	.6	.6	.3	.2	.1	.2
18	.4	1.0	1.0	.7	1.0	1.0	.7	.6	.3	.2	.1	.2
19	.4	1.0	1.0	.6	1.0	.9	.8	.6	.3	.1	.1	.2
20	.3	1.0	1.0	.7	.9	.8	.8	.6	.3	.1	.1	.2
21	.3	.9	1.0	.7	.8	.8	.8	.6	.3	.2	.1	.2
22	.3	.9	1.0	.7	.7	.9	1.2	.6	.3	.2	.1	.3
23	.3	1.0	1.0	.7	.7	1.0	1.0	.6	.3	.2	.1	.3
24	.3	1.0	1.0	.7	.7	1.3	.7	.6	.2	.2	.1	.3
25	.3	.9	.9	.8	.7	1.9	.7	.6	.2	.2	.1	.2
26	.3	2.0	.9	9.3	.7	1.1	.7	.6	.2	.2	.1	.2
27	.3	1.7	.9	2.6	.7	1.1	.6	.5	.2	.2	.1	.2
28	.3	1.3	.9	1.7	.7	1.2	.5	.6	.2	.2	.1	.2
29	.3	1.3	.9	1.5	-	1.1	.5	.5	.2	.2	.1	.2
30	.3	1.2	.9	1.5	-	1.0	.5	.5	.2	.2	.1	.2
31	.3	-	.9	1.4	-	1.0	-	.5	-	.2	.1	-
Total	11.0	50.2	32.8	36.8	29.3	30.3	24.3	17.9	10.5	6.4	3.2	4.9
Mean	0.35	1.67	1.06	1.19	1.05	0.98	0.81	0.58	0.35	0.21	0.10	0.16
Max.	0.6	8.8	1.4	9.3	1.4	1.9	1.2	0.8	0.5	0.3	0.2	0.3
Min.	0.2	0.3	0.9	0.6	0.7	0.8	0.5	0.5	0.2	0.1	0.1	0.1
Ac-ft	22	100	65	73	58	60	48	36	21	13	6.3	9.7

Calendar year 1960:

Max 8.8

Min 0.2

Mean 1.36

Acre-feet 989

Water year 1960-61:

Max 9.3

Min 0.1

Mean 0.71

Acre-feet 512

Peak discharge (base, 40 cfs)

a No gage-height record.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-5	7:30p.m.	2.18	60	1-26	12:30p.m.	2.14	57

## LOS ANGELES RIVER BASIN

11-1005. Little Santa Anita Creek near Sierra Madre, Calif.

Location.--Lat 34°11'13", long 118°02'35", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.9, T.1 N., R.11 W., on right bank 1.3 miles upstream from Sierra Madre Dam and 2 miles north of Sierra Madre.

Drainage area.--1.9 sq mi, approximately.

Records available.--August 1916 to September 1961. Monthly discharge only for April 1926, published in WSP 1315-B.

Gage.--Water-stage recorder. Concrete control since Aug. 3, 1926. Altitude of gage is 2,200 ft (from topographic map). Prior to Apr. 7, 1926, water-stage recorder at different datum (destroyed by flood).

Average discharge.--45 years, 0.84 cfs (608 acre-ft per year); median of yearly mean discharges, 0.5 cfs (360 acre-ft per year).

Extremes.--Maximum discharge during year, 18 cfs Nov. 5 (gage height, 1.43 ft); no flow Oct. 1-8, June 21 to Sept. 20, Sept. 23-30. 1916-61: Maximum discharge, 536 cfs Mar. 2, 1938, computed on basis of inflow to Sierra Madre flood-control reservoir; no flow for periods in some years.

Remarks.--Records good. Discharge measurements generally made twice a month. No regulation or diversion.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1			0
2	0	.1	.4	.1	.2	.1	.1	.1	.1			0
3	0	.4	.2	.1	.2	.1	.1	.1	a .1			0
4	0	.2	a .2	.1	.2	.1	.1	.1	a .1			0
5	0	1.4	a .2	.1	.2	.1	.1	.1	a .1			0
6	0	.3	a .2	.1	.2	.1	.2	.1	a .1			0
7	0	.2	a .2	.1	.2	.1	.1	.1	a .1			0
8	0	.2	a .2	.1	.2	.1	.1	.1	a .1			0
9	.1	.2	a .2	.1	.2	.1	.1	.1	a .1			0
10	.1	.2	a .2	.1	.2	.1	.1	.1	a .1			0
11	.1	.1	a .2	.1	.2	.1	.1	.1	a .1			0
12	.1	1.2	a .2	.1	.2	.1	.1	.1	a .1			0
13	.1	.4	a .2	.1	.2	.1	.1	.1	a .1			0
14	.1	.1	.2	.1	.2	.1	.1	.1	a .1			0
15	.1	.1	.2	.1	.2	.2	.1	.1	a .1			0
16	.1	.1	.2	.1	.2	.1	.1	.1	.1			0
17	.1	.1	.1	.1	.2	.1	.1	.1	.1			0
18	.1	.1	.1	.1	.2	.1	.1	.1	.1			0
19	.1	.1	a .1	.1	.2	.1	.1	.1	.1			0
20	.1	.1	a .1	.1	.2	.1	.1	.1	.1			0
21	.1	.2	.1	.1	.2	.1	.1	.1	0			.1
22	.1	.2	.1	.1	.2	.1	.2	.1	0			.1
23	.1	.2	.1	.1	.2	.1	.1	.1	0			0
24	.1	.2	.1	.1	.2	.1	.1	.1	0			0
25	.1	.2	.1	.1	.2	.2	.1	.1	0			0
26	.1	.2	.1	3.6	.2	.2	.1	.1	0			0
27	.1	.3	.1	.9	.1	.2	.1	.1	0			0
28	.1	.2	.1	.5	.1	.2	.1	.1	0			0
29	.1	.2	.1	.3	-	.2	.1	.1	0			0
30	.1	.2	.1	.3	-	.2	.1	.1	0			0
31	.1	-	.1	.3	-	.2	-	.1	-			-
Total	2.3	7.8	4.9	8.4	5.4	4.0	3.2	3.1	2.0	0	0	0.2
Mean	0.07	0.26	0.16	0.27	0.19	0.13	0.11	0.10	0.07	0	0	0.007
Max.	0.1	1.4	0.4	3.6	0.2	0.2	0.2	0.1	0.1	0	0	0.1
Min.	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0
Ac-ft	4.6	15	9.7	17	11	7.9	6.3	6.1	4.0	0	0	0.4

Calendar year 1960: Max 1.4 Min 0 Mean 0.17 Acre-feet 127  
 Water year 1960-61: Max 3.6 Min 0 Mean 0.11 Acre-feet 82

Peak discharge (base, 7.0 cfs)

a No gage-height record.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-5	4:30P.m.	1.43	18	1-26	11a.m.	1.28	12

11-1010. Eaton Creek near Pasadena, Calif.

Location.--Lat 34°11'37", long 118°06'13", in SW 1/4 Sec. 2, T.1 N., R.12 W., on right bank at mouth of canyon just upstream from bridge on old Mount Wilson toll road, and 4.5 miles northeast of Pasadena.

Drainage area.--6.5 sq mi, approximately.

Records available.--Creek: March 1918 to September 1961. Diversion: July 1923 to September 1961.

Gage.--Water-stage recorder and broad-crested weir. Altitude of gage is 1,230 ft (from topographic map). Prior to Oct. 28, 1938, water-stage recorder at site 75 ft downstream at different datum. Oct. 28, 1938, to Nov. 4, 1959, at same site at datum 1.00 ft higher.

Average discharge.--43 years, 2.13 cfs (1,540 acre-ft per year); median of yearly mean discharges, 0.9 cfs (650 acre-ft per year). Average adjusted discharge, 38 years, 3.29 cfs (2,380 acre-ft per year); median of adjusted yearly mean discharges, 2.0 cfs (1,400 acre-ft per year).

Extremes.--Maximum discharge during year, 13 cfs Jan. 26 (gage height, 1.64 ft); no flow most of year.

1918-61: Maximum discharge, 2,400 cfs Mar. 2, 1938, from record of inflow to Eaton flood-control reservoir; no flow at times during each year.

Flood of January 1916, 1,500 cfs, from slope-area measurement, by local engineering student.

Remarks.--Records good. Figures of daily discharge do not include water diverted above station by city of Pasadena. In addition, 71 acre-ft was diverted by the city from two infiltration galleries, one 800 ft upstream and the other 500 ft downstream from station.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0		0					(*)			
2		0		0								
3		0		0								
4		* 0		0								
5		.5		0								
6		4.6		0								
7	(*)	1.4		0			(*)					
8		.5		0								
9		.1		0								
10		0		0								
11		0		0								
12		.9		0								
13		1.2		0								
14		0		0								
15		* 0		0								
16		0		0								
17		0		0								
18		0		0								
19		0		0								
20		0		0								
21		0		0								
22		0		0								
23		0		0								
24		0		0	(*)	(*)						
25		0		0								
26		.2		* 3.0								
27		.4		1.4					(*)			
28		0	(*)	0								
29		0		0								
30		* 0		0								(*)
31				0								
Total	0	9.8	0	4.4	0	0	0	0	0	0	0	0
Mean	0	0.33	0	0.14	0	0	0	0	0	0	0	0
Max.	0	4.6	0	3.0	0	0	0	0	0	0	0	0
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0	19	0	8.7	0	0	0	0	0	0	0	0
(†)	7.2	35	33	29	32	27	21	13	9.4	5.4	3.0	2.8
(‡)	7.2	54	33	38	32	27	21	13	9.4	5.4	3.0	2.8

Calendar year 1960: Max 4.6 Min 0 Mean 0.04 Ac-ft 31 Mean† 0.56 Ac-ft‡ 408  
 Water year 1960-61: Max 4.6 Min 0 Mean 0.04 Ac-ft 28 Mean† 0.34 Ac-ft‡ 246

Peak discharge (base, 55 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

† Diversions, in acre-feet, above station, for Pasadena municipal supply, furnished by city of Pasadena.

‡ Adjusted for diversions in acre-feet.

11-1012.5. Rio Hondo above Whittier Narrows Dam, Calif.

Location.--Lat 34°03'30", long 118°04'15", in Potrero Grande Grant, on right bank 0.3 mile downstream from Garvey Avenue, 0.4 mile downstream from Rubio Wash, and 2.2 miles west of El Monte, Los Angeles County.

Records available.--February 1956 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 220 ft (from topographic map).

Extremes.--Maximum discharge during year, 2,880 cfs Nov. 5 (gage height, 3.05 ft); no flow Dec. 7.  
1956-61: Maximum discharge, 8,150 cfs Jan. 6, 1959 (gage height, 4.90 ft, from floodmark); no flow on many days.

Remarks.--Records good except those above 100 cfs, which are poor. Discharge measurements generally made once a week. Flow regulated by Big Santa Anita, Sawpit, and Eaton flood-control reservoirs (combined capacity, 1,700 acre-ft), and Sierra Madre, Las Flores, and Rubio debris basins. Many diversions above station for domestic use and irrigation. At times flow is diverted from San Gabriel River below Santa Fe Dam to Rio Hondo above station.

Cooperation.--Fifty discharge measurements furnished by the Los Angeles County Flood Control District.

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

1.0	0	1.8	27
1.1	.4	1.9	57
1.2	1.6	2.0	107
1.3	3.4	2.1	220
1.5	8.2	2.2	420
1.7	15	2.3	750

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.2	1.4	0.2	0.2	0.3	0.6	0.7	0.6	0.3	2.3	1.4	2.1
2	.4	.6	1.4	.6	.2	.2	.2	.8	.6	.5	1.4	1.3
3	.9	157	.2	.6	.2	.2	.7	.3	.4	1.6	1.4	.5
4	1.9	2.0	.1	.4	.1	1.4	.9	.3	.1	.5	1.8	.3
5	1.9	282	.1	.4	.1	.3	.7	.2	.3	2.1	1.8	2.3
6	2.1	89	.2	2.6	.3	.2	5.9	.3	.6	1.0	1.8	2.1
7	1.9	1.3	0	.4	.2	.4	.5	.1	.7	2.4	1.4	2.3
8	1.3	.4	.1	a .4	a .2	.7	.2	.9	.8	1.9	1.6	1.9
9	5.8	.3	.1	a .3	a .3	.4	.2	1.9	.8	.7	1.8	2.1
10	4.1	.3	.1	.3	a .3	.7	.2	1.1	.5	3.2	1.8	2.1
11	.4	1.2	.1	.3	a .3	.3	.9	.6	.5	3.0	1.8	2.1
12	.2	333	.3	.3	a .4	.3	1.8	.2	.3	2.4	1.9	2.1
13	.4	2.7	.3	.2	a .4	.4	1.6	.1	.7	1.9	.5	2.1
14	.9	.5	.5	.3	.4	.5	1.3	.2	a 1.5	1.9	1.3	2.6
15	2.4	.4	.4	.3	.5	133	.5	.4	a 1.5	1.9	1.6	3.4
16	.6	.2	.7	.5	.3	.6	.2	.7	a 1.5	.8	1.9	2.6
17	1.2	.2	.3	.3	.3	.5	1.2	.3	a 1.5	1.3	2.1	2.1
18	2.4	.2	.3	.4	.2	.1	1.8	.3	a 1.5	2.1	2.1	3.2
19	2.1	.2	.6	.3	.2	.1	.7	.2	a 1.5	2.1	2.1	3.2
20	1.8	.1	.6	.2	.6	.6	.4	.2	1.3	2.1	.7	2.4
21	.9	.2	.6	.1	1.0	.2	.4	.2	1.4	2.3	2.6	1.6
22	.4	.2	.8	.1	.5	.2	13	.8	1.4	2.1	1.8	1.8
23	.3	.2	.4	.2	.3	.3	.1	1.2	1.8	.6	2.3	1.3
24	.6	.1	.3	.3	.3	.8	.2	.8	1.9	1.0	1.8	.4
25	1.2	.1	.2	9.6	.2	16	.3	.7	.8	1.8	1.6	.9
26	.5	240	.2	559	.2	.1	.4	1.0	2.4	1.9	1.8	2.1
27	.6	1.7	.3	2.7	.4	.6	.2	.7	3.4	1.6	.7	2.1
28	2.4	.5	.4	.7	.9	3.9	.5	.2	3.4	1.8	1.9	1.8
29	.8	.6	.3	.1	-	.2	.3	.4	2.6	1.9	2.4	1.2
30	.7	.4	.3	.1	-	1.4	.2	.4	3.2	.5	2.1	.4
31	1.2	-	.2	.3	-	.8	-	.1	-	.8	1.9	-
Total	43.5	1117.0	23.2	582.5	9.6	166.0	36.2	16.2	39.2	52.0	53.1	56.4
Mean	1.40	37.2	0.75	18.8	0.34	5.35	1.21	0.52	1.31	1.68	1.71	1.88
Max.	5.8	333	14	559	1.0	133	13	1.9	3.4	3.2	2.6	3.4
Min.	0.2	0.1	0	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.5	0.3
Ac-ft	86	2,220	46	1,160	19	329	72	32	78	103	105	112
Calendar year 1960:	Max 734			Min 0			Mean 10.8			Acre-feet 7,870		
Water year 1960-61:	Max 559			Min 0			Mean 6.01			Acre-feet 4,360		

a No gage-height record.

## LOS ANGELES RIVER BASIN

177

11-1015. Rio Hondo near Montebello, Calif.

Location.--Lat 34°01'55", long 118°04'15", in Potrero Grande Grant, on right bank 1,000 ft upstream from Mission Bridge and 2 miles northeast of Montebello, Los Angeles County.

Drainage area.--115 sq mi (excluding area above Santa Fe Dam).

Records available.--October 1928 to September 1961.

Gage.--Water-stage recorder: Datum of gage is 192.83 ft above mean sea level (levels by Los Angeles County Flood Control District). Prior to Oct. 23, 1956, at datum 1.80 ft higher.

Average discharge.--29 years (1928-57), 51.5 cfs (37,280 acre-ft per year); median of yearly mean discharges, 36 cfs (26,100 acre-ft per year).

Extremes.--Maximum discharge during year, 3,030 cfs Jan. 26 (gage height, 6.74 ft); minimum daily, 0.8 cfs July 30, 31.  
1928-61: Maximum discharge, 28,000 cfs Mar. 2, 1938 (gage height, 14.63 ft, present datum), from rating curve extended above 9,000 cfs on basis of slope-area measurement and runoff from contributing stream; minimum, 0.3 cfs Dec. 1, 1933 (gage height, 3.11 ft, present datum). 6.74  
2.06  
8.80

Remarks.--Flow regulated by Big Santa Anita, Sawpit and Eaton flood-control reservoirs (combined capacity, 1,700 acre-ft) and Sierra Madre, Las Flores, and Rubio debris basins. Many diversions above station for domestic use and irrigation. At times flow is diverted from San Gabriel River below Santa Fe Dam to Rio Hondo. Since 1957 at times imported Colorado River water has been released to Rio Hondo for ground-water recharge at site 1.6 miles upstream.

Cooperation.--Records furnished by Los Angeles County Flood Control District and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	252	250	235	142	77	33	4.4	20	4.1	6.2	1.4	226
2	252	245	196	137	71	127	4.0	3.7	146	2.0	1.4	219
3	250	425	245	171	60	224	3.6	3.9	103	4.4	1.8	214
4	250	118	245	247	70	222	3.4	4.0	5.0	2.7	1.6	210
5	247	487	245	242	148	224	3.2	4.0	2.7	3.4	1.6	94
6	247	113	245	242	205	181	20	10	3.4	4.8	1.6	4.1
7	245	119	242	242	202	148	80	5.0	40	6.9	1.4	4.1
8	239	214	237	239	212	150	120	5.5	4.8	5.5	2.0	2.7
9	247	224	237	236	209	144	105	60	4.1	5.5	6.4	11
10	247	226	237	234	207	191	90	5.3	18	5.2	3.4	2.0
11	242	226	232	232	207	232	65	5.3	2.7	4.8	5.6	1.8
12	242	538	219	234	158	229	20	5.0	2.0	4.5	4.8	2.0
13	245	264	22	222	21	232	5.1	4.7	4.1	4.1	4.1	2.7
14	239	266	15	112	5.3	232	4.9	4.5	3.4	4.8	2.7	3.4
15	237	255	11	33	5.0	386	4.7	4.3	4.1	4.8	7.4	4.8
16	234	250	39	33	4.3	226	4.5	4.0	4.8	2.0	186	4.8
17	239	242	218	33	27	232	40	3.5	4.1	58	188	2.0
18	242	245	237	51	53	239	412	2.8	2.7	4.8	186	23
19	242	250	232	80	43	242	4.0	3.0	2.0	4.1	200	53
20	242	247	200	51	36	76	3.8	1.4	4.1	3.4	209	43
21	242	245	152	33	37	5.1	15	1.2	4.8	4.1	130	48
22	245	237	154	33	36	4.6	25	58	6.9	3.6	3.8	64
23	245	224	152	33	36	4.4	60	4.1	4.5	1.6	3.6	84
24	245	219	150	33	36	4.2	60	1.8	5.0	1.4	3.4	73
25	247	216	148	97	36	98	30	8.8	4.5	3.4	3.4	33
26	250	501	146	638	34	139	4.0	4.1	4.1	2.0	3.4	19
27	250	229	142	67	34	144	3.0	4.8	6.2	2.0	2.0	44
28	250	237	152	147	33	164	3.2	4.1	6.9	56	84	152
29	250	239	154	141	-	48	3.4	3.4	4.8	1.2	195	94
30	247	242	152	117	-	5.9	3.6	4.1	6.2	8	200	84
31	250	-	148	82	-	4.8	-	3.4	-	8	211	-
Total	7,601	7,793	5,439	4,634	2,302.6	4,592.0	797.0	2,577.7	4,964.4	2,584.0	1,980.0	1,822.4
Mean	245	260	175	149	82.2	148	26.6	8.31	16.5	8.34	63.9	60.7
Max.	252	538	245	638	212	386	120	60	146	58	211	226
Min.	234	113	11	33	4.3	4.2	3.0	1.2	2.0	0.8	1.4	1.8
Ac-ft	15,080	15,460	10,790	9,190	4,570	9,110	1,580	511	985	513	3,930	3,610
(†)	14,877	13,161	10,494	8,061	4,293	8,831	1,500	301	733	332	3,896	3,691
Calendar year 1960:	Max 664			Min 5.9		Mean 108		Ac-ft 78,060			Ac-ft† 66,935	
Water year 1960-61:	Max 638			Min 0.8		Mean 104		Ac-ft 75,330			Ac-ft† 70,170	

† Colorado River water, in acre-feet, released to Rio Hondo via Alhambra Wash 1.6 miles upstream for ground-water recharge in Rio Hondo basin.

## LOS ANGELES RIVER BASIN

11-1020. Mission Creek near Montebello, Calif.

Location.--Lat 34°01'45", long 118°04'07", in La Merced Grant, on upstream side of right abutment of San Gabriel Boulevard Bridge, 2 miles northeast of Montebello, Los Angeles County.

Drainage area.--6 sq mi, approximately.

Records available.--October 1929 to September 1961. Yearly estimate for 1938, published in WSP 1315-B. Prior to October 1944, published as Rio Hondo Slough near Montebello.

Gage.--Water-stage recorder. Altitude of gage is 195 ft (from topographic map). Prior to Nov. 3, 1938, at datum 6.30 ft higher.

Average discharge.--32 years, 14.1 cfs (10,210 acre-ft per year); median of yearly mean discharges, 15 cfs (10,900 acre-ft per year).

Extremes.--Maximum discharge during year, 2.0 cfs Feb. 9 (gage height, 5.94 ft); no flow June 24 to Sept. 30. 1929-61: Maximum discharge not determined, occurred Mar. 2, 1938; no flow at times in 1957 and 1961.

Remarks.--Flow is almost entirely from ground-water seepage. Flow partially regulated by outflow from Legg Lake.

Cooperation.--Records furnished by Los Angeles County Flood Control District and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.7	0.8	1.6	1.5	1.6	1.1	1.7	0.9	0.3			
2	.8	.8	1.6	1.5	1.6	1.2	1.6	.9	.6			
3	.8	.9	1.6	1.6	1.6	1.4	1.4	.9	.6			
4	.8	.9	1.6	1.7	1.7	1.4	1.2	1.0	.6			
5	.8	1.0	1.6	1.6	1.7	1.4	1.1	1.0	.6			
6	.7	1.0	1.6	1.3	1.8	1.4	1.1	1.0	.9			
7	.7	1.0	1.6	1.3	1.8	1.5	1.1	1.0	.8			
8	.7	1.0	1.6	1.3	1.8	1.2	1.2	.9	.9			
9	.7	1.0	1.6	1.3	2.0	1.2	1.2	.9	.9			
10	.9	1.0	1.6	1.3	1.8	1.4	1.1	.9	.9			
11	.8	1.0	1.6	1.3	1.7	1.5	1.0	.9	.8			
12	.8	1.0	1.6	1.3	1.7	1.4	1.0	.9	.5			
13	.8	1.2	1.6	1.3	1.7	1.3	.9	.9	.7			
14	.8	1.2	1.4	1.3	1.5	1.3	1.0	1.0	.6			
15	.8	1.2	1.2	1.2	1.5	1.4	.9	.9	.4			
16	.8	1.2	1.2	1.0	1.5	1.6	.9	1.0	.3			
17	.7	1.2	1.4	.9	1.5	1.8	1.0	1.0	.4			
18	.8	1.2	1.4	.9	1.5	1.9	.8	.9	.4			
19	.7	1.2	1.5	1.0	1.5	1.8	.9	.9	.4			
20	.6	1.3	1.5	1.2	1.5	1.8	.9	.9	.3			
21	.6	1.3	1.5	1.2	1.6	1.5	1.0	.8	.2			
22	.7	1.3	1.6	1.0	1.6	1.4	1.2	.8	.3			
23	.8	1.3	1.6	1.2	1.6	1.2	1.2	.8	.1			
24	.7	1.3	1.6	1.3	1.6	1.1	1.1	.8	0			
25	.7	1.4	1.6	1.8	1.4	1.1	1.2	.7	0			
26	.6	1.4	1.6	1.8	1.2	1.1	1.0	.5	0			
27	.7	1.5	1.6	1.6	1.1	1.1	.9	.3	0			
28	.7	1.6	1.6	1.6	1.1	1.2	.9	.2	0			
29	.7	1.6	1.5	1.6	-	1.3	.9	.4	0			
30	.8	1.5	1.5	1.6	-	1.3	.9	.4	0			
31	.8	-	1.6	1.6	-	1.6	-	.3	-			
Total	23.0	35.3	47.7	42.1	44.1	42.9	32.3	24.7	12.5	0	0	0
Mean	0.74	1.18	1.54	1.36	1.58	1.38	1.08	0.80	0.42	0	0	0
Max.	0.9	1.6	1.6	1.8	2.0	1.9	1.7	1.0	0.9	0	0	0
Min.	0.6	0.8	1.2	0.9	1.1	1.1	0.8	0.2	0	0	0	0
Ac-ft	46	70	95	84	87	85	64	49	25	0	0	0

Calendar year 1960: Max 5.3 Min 0.3 Mean 2.27 Acre-feet 1,650  
 Water year 1960-61: Max 2.0 Min 0 Mean 0.83 Acre-feet 605



## LOS ANGELES RIVER BASIN

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11-1022.5. Mission Creek below Whittier Narrows Dam, Calif.

Location.--Lat 34°01'15", long 118°04'15", near north boundary of Paso de Bartolo Grant, on left bank 500 ft downstream from axis of Whittier Narrows Dam, and 1.4 miles north of Pico, Los Angeles County.

Records available.--December 1955 to September 1961.

Gage.--Water-stage recorder and Parshall flume. Datum of gage is 187.1 ft above mean sea level (Corps of Engineers Survey).

Extremes.--Maximum daily discharge during year, 2.3 cfs Dec. 24, 25; no flow for many days.  
1955-61: Maximum daily discharge, 18 cfs Jan. 6, 1959; no flow for many days, most years.

Remarks.--Records good. Discharge measurements generally made once a week. Flow is almost entirely from ground-water seepage. At times flow regulated by Whittier Narrows Dam.

Cooperation.--Thirty-four discharge measurements furnished by Los Angeles County Flood Control District.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.5	0.3	0.8	1.1	1.5	1.0	0.9	0.5	0			
2	.5	.3	.9	1.1	1.6	1.0	.9	.6	.1			
3	.4	.3	.9	1.2	1.6	1.1	.8	.6	.2			
4	.4	.2	.9	1.3	1.6	1.2	.7	.6	.2			
5	.4	.4	.9	1.2	1.6	1.2	.6	.6	.2			
6	.3	.4	1.0	1.2	1.7	1.1	.6	.6	.2			
7	.2	.4	1.2	1.2	1.8	1.1	.7	.5	.2			
8	.3	.4	1.2	1.2	1.8	1.1	.7	.4	.2			
9	.2	.4	1.2	1.2	2.0	1.1	.7	.4	.2			
10	.4	.4	1.2	1.2	2.0	1.2	.7	.5	.2			
11	.4	.6	1.1	1.0	1.6	1.3	.6	.5	.2			
12	.4	.6	1.0	.8	1.6	1.2	.6	.5	.1			
13	.3	.6	.9	.7	1.6	1.2	.6	.5	.2			
14	.3	.6	.8	.7	1.5	1.3	.6	.5	.2			
15	.3	.6	.7	.6	1.5	1.4	.5	.5	.1			
16	.3	.6	.6	.6	1.5	1.5	.5	.5	0			
17	.3	.6	.8	.6	1.5	1.6	.5	.5	0			
18	.3	.6	.8	.6	1.5	1.6	.5	.5	.1			
19	.3	.6	.9	.6	1.4	1.6	.5	.5	0			
20	.3	.6	.9	.7	1.2	1.6	.6	.5	0			
21	.3	.6	.9	.7	1.2	1.2	.6	.5	0			
22	.3	.6	.9	.6	1.2	1.0	.6	.5	0			
23	.3	.7	1.3	.6	1.2	.8	.7	.5	0			
24	.3	.7	2.3	.9	1.2	.8	.7	.5	0			
25	.3	.7	2.3	.9	1.2	.8	.7	.4	0			
26	.3	.7	1.9	1.5	1.2	.9	.6	.2	0			
27	.2	.7	1.1	1.4	1.0	1.0	.6	.1	0			
28	.2	.7	1.1	1.5	1.0	1.1	.6	0	0			
29	.2	.7	1.1	1.5	-	1.0	.5	.1	0			
30	.2	.7	1.1	1.5	-	.9	.5	.1	0			
31	.3	-	1.1	1.5	-	.9	-	0	-			
Total	9.7	16.3	33.8	31.4	41.3	35.8	18.9	13.2	2.6	0	0	0
Mean	0.31	0.54	1.09	1.01	1.48	1.15	0.63	0.43	0.09	0	0	0
Max.	0.5	0.7	2.3	1.5	2.0	1.6	0.9	0.6	0.2	0	0	0
Min.	0.2	0.2	0.6	0.6	1.0	0.8	0.5	0	0	0	0	0
Ac-ft	19	32	67	62	82	71	37	26	5.2	0	0	0
Calendar year 1960:			Max	5.5	Min	0.1	Mean	1.94	Acre-feet	1,410		
Water year 1960-61:			Max	2.3	Min	0	Mean	0.56	Acre-feet	401		

## LOS ANGELES RIVER BASIN

11-1025. Rio Hondo near Downey, Calif.

Location.--Lat 33°56'46", long 118°09'44", in San Antonio Grant, on left bank 700 ft upstream from Stewart and Gray Road Bridge, 0.6 mile upstream from mouth and 1.5 miles west of Downey, Los Angeles County.

Drainage area.--140 sq mi (excluding area above Santa Fe Dam).

Records available.--March 1928 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 91.4 ft above mean sea level (levels by Los Angeles County Flood Control District). Prior to Oct. 31, 1951, at site 700 ft downstream at different datum.

Average discharge.--33 years, 24.7 cfs (17,880 acre-ft per year); median of yearly mean discharges, 9.5 cfs (6,900 acre-ft per year).

Extremes.--Maximum discharge during year, 2,090 cfs Nov. 26 (gage height, 2.69 ft); no flow most of year.

1928-61: Maximum discharge, 24,400 cfs Mar. 3, 1938 (gage height, 13.5 ft, site and datum then in use), from rating curve extended above 10,000 cfs on basis of slope-area measurement; no flow for part of each year.

Remarks.--Flow regulated by Big Santa Anita, Sawpit, and Eaton flood-control reservoirs (combined capacities, 1,700 acre-ft), Whittier Narrows flood-control reservoir (capacity, 36,160 acre-ft), and Sierra Madre, Las Flores, and Rubio debris basins. Many diversions above station for domestic use and irrigation. At times flow is diverted from San Gabriel River below Santa Fe Dam and above Whittier Narrows Dam to Rio Hondo.

Cooperation.--Records furnished by Los Angeles County Flood Control District and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0	0	0		0	0			0	0	0
2	0	0	2.0	0		0	.1			0	0	0
3	0	8.9	0	0		0	.1			0	0	0
4	0	4.7	0	0		0	0			0	0	0
5	0	40	0	0		0	0			0	0	0
6	0	16	0	0		0	0			0	0	0
7	0	.4	0	0		0	0			0	0	0
8	0	0	0	0		0	.2			0	0	0
9	0	0	0	0		0	.1			0	0	0
10	6.6	0	0	0		0	.1			0	0	0
11	0	0	0	0		0	.1			0	0	0
12	0	47	0	0		0	0			0	0	0
13	0	3.7	0	0		0	0			0	0	0
14	0	0	0	0		0	.3			0	0	0
15	0	0	0	0		39	0			0	0	0
16	0	0	0	0		.5	0			0	0	0
17	0	0	0	0		0	0			0	0	.6
18	0	0	0	0		0	0			0	3.1	0
19	0	0	0	0		0	0			0	1.2	0
20	0	0	0	0		0	0			0	0	0
21	0	0	0	0		0	0			0	0	0
22	0	0	0	0		0	5.8			0	0	0
23	0	0	0	0		0	0			0	0	0
24	0	0	0	0		0	0			0	0	0
25	0	0	0	6.7		2.1	0			0	0	0
26	0	94	0	115		0	0			0	0	0
27	0	1.3	0	4.3		0	0			0	0	0
28	0	0	0	0		4.7	0			0	0	0
29	0	0	0	0		0	0			0	0	0
30	0	0	0	.2		0	0			0	0	0
31	0		0	0		0				0	0	
Total	6.6	216.0	2.0	126.2	0	46.9	6.2	0	0	0.3	4.3	0.6
Mean	0.21	7.20	0.06	4.07	0	1.51	0.21	0	0	0.01	0.14	0.02
Max.	6.6	94	2.0	115	0	39	5.8	0	0	0.3	3.1	0.6
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	13	428	4.0	250	0	93	12	0	0	0.6	8.5	1.2
Calendar year 1960:			Max 219	Min 0		Mean 3.50			Acre-feet 2,530			
Water year 1960-61:			Max 115	Min 0		Mean 1.12			Acre-feet 810			

11-1030. Los Angeles River at Long Beach, Calif.

Location.--Lat 33°49'05", long 118°12'15", in Los Cerritos Grant, on right bank 5,000 ft upstream from Willow Street, 3.4 miles north of Long Beach, Los Angeles County, and 3.7 miles upstream from mouth.

Records available.--December 1928 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 11.91 ft above mean sea level (levels by Los Angeles County Flood Control District). Prior to Oct. 31, 1931, at site 3 miles downstream at different datum. Oct. 31, 1931, to Jan. 19, 1956, at site 2 miles downstream at different datum.

Average discharge.--32 years (1929-61), 136 cfs (98,460 acre-ft per year); median of yearly mean discharges, 87 cfs (63,000 acre-ft per year).

Extremes.--Maximum discharge during year, 9,450 cfs Jan. 26 (gage height, 4.60 ft); minimum daily, 1.3 cfs Sept. 30.

1928-61: Maximum discharge, 99,000 cfs Mar. 2, 1938, on basis of records for stations upstream; no flow at times in 1929-30, 1934.

Remarks.--Flow regulated by Hansen and Sepulveda flood-control reservoirs (combined capacities, 49,400 acre-ft), and several small flood-control reservoirs. City of Los Angeles stores imported Owens River water in San Fernando and Chatsworth reservoirs and at times discharges imported water into Los Angeles River above station. Many diversions above station for domestic use and irrigation.

Cooperation.--Records furnished by Los Angeles County Flood Control District and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.0	18	17	8.5	17	15	12	13	19	16	17	19
2	7.5	15	130	7.6	14	16	10	14	17	14	18	11
3	12	225	19	8.0	14	18	11	14	13	15	19	12
4	15	249	7.2	13	10	15	15	13	13	13	19	12
5	17	1210	7.2	14	7.2	12	17	13	15	12	15	17
6	17	2110	10	14	10	10	19	12	18	16	12	15
7	18	180	10	14	15	13	25	7.6	18	16	12	15
8	9.4	15	15	9.5	15	15	15	8.5	17	14	19	17
9	20	15	14	9.5	16	16	11	13	16	12	23	13
10	50	15	10	14	15	17	12	15	11	14	16	9.0
11	14	15	9.0	15	12	14	19	16	9.5	14	188	17
12	14	553	11	15	9.0	9.5	19	15	11	14	64	19
13	14	388	14	17	9.5	12	19	11	15	14	21	19
14	15	30	14	15	15	19	19	10	17	19	19	19
15	8.0	15	14	10	18	557	15	12	21	15	19	18
16	8.0	12	16	12	31	86	13	16	19	12	16	12
17	11	13	17	16	21	25	19	17	17	18	15	14
18	14	12	9.0	17	17	19	18	19	14	20	16	11
19	15	13	14	17	11	12	17	15	13	17	38	14
20	17	7.2	21	16	12	12	29	14	15	19	11	15
21	10	9.5	20	12	17	19	18	8.5	17	19	12	15
22	9.5	13	19	9.5	15	18	194	9.5	18	19	15	14
23	6.8	17	18	11	15	19	79	12	19	14	18	9.5
24	9.0	20	13	17	15	18	14	12	15	13	17	6.4
25	12	48	9.0	98	15	40	14	19	12	16	19	9.0
26	13	1110	7.2	2860	11	13	14	12	14	18	10	6.0
27	15	359	10	238	10	10	14	7.6	18	17	10	2.6
28	15	28	12	48	13	90	14	6.8	19	17	17	2.8
29	13	21	12	55	—	20	10	9.0	18	12	19	2.2
30	11	21	12	37	—	16	9.0	9.0	18	11	18	1.3
31	14	—	11	28	—	16	—	11	—	13	18	—
Total	432.2	6756.7	521.6	3675.6	399.7	1191.5	714.0	384.5	476.5	47.3	750	366.8
Mean	13.9	225	16.8	119	14.3	38.4	23.8	12.4	15.9	15.3	24.2	12.2
Max.	50	2,110	130	2,860	31	557	194	19	21	20	188	19
Min.	6.8	7.2	7.2	7.6	7.2	9.5	9.0	6.8	9.5	11	10	1.3
Ac-ft	857	13,400	1,030	7,290	793	2,360	1,420	763	945	938	1,490	728
Calendar year 1960				Max 3,420	Min 4.4	Mean 78.7	Acre-feet 57,170					
Water year 1960-61				Max 2,860	Min 1.3	Mean 44.2	Acre-feet 32,010					

## BALLONA CREEK BASIN

11-1035. Ballona Creek near Culver City, Calif.

Location.--Lat 33°59'48", long 118°24'07", in La Ballona Grant, on downstream side of Sawtelle Boulevard Bridge, 1.7 miles south of Culver City, Los Angeles County, and 4 miles upstream from mouth.

Drainage area.--88.6 sq mi, excludes that of Sepulveda Creek. Prior to January 1951, 111 sq mi, change due to tributary channel realignment.

Records available.--February 1928 to September 1961 (after December 1950, flow of Sepulveda Creek excluded).

Gage.--Water-stage recorder. Datum of gage is 11.26 ft above mean sea level (levels by Los Angeles County Flood Control District). Prior to May 14, 1936, at site 1 mile downstream at different datum.

Average discharge.--22 years (1928-50), 35.2 cfs (25,480 acre-ft per year); 11 years (1950-61), 35.9 cfs (25,990 acre-ft per year); median of yearly mean discharges, 30 cfs (21,700 acre-ft per year).

Extremes.--Maximum discharge during year, 7,700 cfs Nov. 5 (gage height, 11.46 ft); minimum daily, 4.2 cfs Jan. 2.

1928-61: Maximum discharge, 19,000 cfs Mar. 2, 1938 (gage height, 15.2 ft); no flow for parts of some years.

Remarks.--Occasional discharge of imported Owens River water from several distribution reservoirs of the City of Los Angeles Department of Water and Power into the creek above station. Some small pumping diversions above station for irrigation.

Cooperation.--Records furnished by Los Angeles County Flood Control District and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.9	8.4	9.4	4.5	10	8.0	6.3	8.8	7.1	8.0	7.1	6.2
2	5.6	8.4	9.0	4.2	14	8.0	5.2	8.0	9.6	6.3	8.0	6.2
3	7.1	167	5.9	6.3	12	7.5	7.5	7.5	6.7	7.5	10	6.2
4	9.2	6.7	5.6	7.1	10	6.7	8.4	7.1	5.6	6.3	10	5.1
5	8.0	560	8.8	6.7	8.4	6.3	6.3	8.8	7.1	7.5	7.5	5.6
6	8.0	477	6.7	8.0	9.6	8.0	6.7	7.5	8.8	11	4.9	7.7
7	8.8	8.0	6.7	6.7	9.2	8.0	7.5	5.9	8.4	10	8.8	8.5
8	8.0	6.3	6.7	5.9	8.4	8.4	7.1	8.0	8.0	8.8	10	8.5
9	7.1	6.3	6.7	7.5	8.0	8.0	5.9	7.5	8.8	8.0	9.2	8.5
10	4.4	6.7	6.3	8.0	7.5	8.0	11	8.0	9.2	12	10	9.4
11	8.4	7.1	5.2	9.8	7.1	7.1	8.8	8.4	6.3	12	68	10
12	7.5	333	5.6	7.1	7.1	5.9	9.2	8.4	9.2	8.4	10	9.4
13	8.0	20	6.3	8.0	6.7	8.4	8.4	7.5	10	8.0	10	8.5
14	8.0	7.5	6.3	7.5	7.5	7.5	9.6	5.9	9.2	8.8	10	9.4
15	8.0	7.1	6.3	6.3	8.0	193	8.0	7.5	11	7.5	9.6	12
16	7.1	6.7	6.7	7.1	14	5.9	7.5	8.0	11	5.6	9.4	8.5
17	8.4	6.3	5.9	7.5	7.5	5.9	10	8.4	8.4	5.6	9.4	8.5
18	9.6	6.7	5.2	7.5	7.1	5.2	9.6	8.4	6.7	8.6	9.4	9.4
19	8.4	5.9	6.7	7.5	5.9	4.5	10	8.4	8.4	12	11	11
20	8.4	5.9	8.4	6.7	8.4	5.9	10	8.0	8.8	10	11	11
21	8.8	6.7	7.5	6.3	7.5	7.1	8.8	5.9	8.0	9.6	10	10
22	7.5	7.1	7.5	4.9	7.5	8.4	135	8.0	8.4	6.7	10	10
23	6.7	7.9	8.0	6.3	7.5	7.5	6.3	8.4	10	4.5	9.4	6.9
24	7.5	6.4	7.5	6.3	7.5	7.8	7.5	8.4	8.0	7.1	8.5	6.2
25	7.1	6.3	5.6	7.2	8.0	20	8.0	9.2	5.6	8.4	9.4	9.4
26	7.1	416	5.2	945	6.3	4.5	10	8.8	9.2	7.5	7.7	9.4
27	7.1	7.1	8.0	26	7.1	6.3	8.4	6.7	9.2	7.5	7.7	10
28	8.0	5.2	6.7	12	8.0	31	8.0	5.6	8.4	7.5	6.9	11
29	8.0	5.2	6.3	7.1	-	6.7	7.1	6.3	8.8	7.5	6.2	10
30	7.1	5.2	6.7	8.0	-----	8.4	5.9	5.9	11	4.9	6.2	10
31	8.0	-----	6.3	7.5	-----	8.4	-----	6.3	-----	7.5	6.2	-----
Total	276.4	2134.1	290.7	1241.3	235.8	442.3	368.0	235.5	254.9	250.6	331.5	262.5
Mean	8.92	71.1	9.38	40.0	8.42	14.3	12.3	7.60	8.50	8.08	10.7	8.75
Max.	44	560	90	945	14	193	135	9.2	11	12	68	12
Min.	5.6	5.2	5.2	4.2	5.9	4.5	5.2	5.6	5.6	4.5	4.9	5.1
Ac-ft	548	4,230	577	2,460	468	877	730	467	506	497	658	521
Calendar year 1960:	Max 1,290			Min 3.2			Mean 28.5			Acre-feet 20,690		
Water year 1960-61:	Max 945			Min 4.2			Mean 17.3			Acre-feet 12,540		

11-1040. Topanga Creek near Topanga Beach, Calif.

Location.--Lat 34°03'50", long 118°35'10", in Boca de Santa Monica Grant, on downstream side of right abutment of highway bridge, 1.7 miles north of Topanga Beach, Los Angeles County.

Drainage area.--17.9 sq mi.

Records available.--January 1930 to September 1938, October 1939 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 265.60 ft above mean sea level (levels by Los Angeles County Flood Control District). Prior to June 5, 1940, at different datum. June 5, 1940, to Dec. 9, 1941, at site 400 ft upstream at different datum.

Average discharge.--30 years, 4.97 cfs (3,600 acre-ft per year); median of yearly mean discharges, 1.7 cfs (1,200 acre-ft per year).

Extremes.--Maximum discharge during year, 28 cfs Jan. 26 (gage height, 3.30 ft); no flow on some days.  
1930-38, 1939-61: Maximum discharge, 7,960 cfs Mar. 2, 1938; no flow at times.

Cooperation.--Records furnished by Los Angeles County Flood Control District and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.01	0.02	0.1	0.04	0.07	0.05	0.04	0.01	0.01	0.01	0.01	0.01
2	.02	.02	.2	.04	.07	.05	.04	.02	.01	.02	.01	.01
3	.02	.01	.1	.04	.07	.05	.04	.02	.01	.02	.01	.01
4	.01	.01	.1	.04	.07	.05	.02	.02	.01	.02	.01	.01
5	.01	2.3	.1	.04	.07	.05	.02	.02	.01	.02	.01	0
6	.01	2.0	.1	.04	.07	.05	.04	.02	.01	.01	.01	.01
7	.01	.2	.07	.04	.07	.05	.04	.02	.01	.01	.01	.01
8	.01	.1	.07	.04	.07	.05	.04	.01	.01	.01	.01	.01
9	.01	.07	.07	.04	.07	.04	.04	.01	.01	.01	.01	.01
10	.01	.05	.07	.04	.1	.04	.02	.01	.01	.01	.01	0
11	.01	.04	.07	.04	.1	.05	.02	.01	.01	.01	.07	.01
12	.01	1.1	.07	.04	.1	.05	.02	.01	.02	.01	.02	0
13	.01	.5	.07	.04	.1	.05	.01	.01	.02	.01	.02	.01
14	.01	.2	.07	.04	.2	.05	.01	.01	.02	.01	.01	.01
15	0	.1	.07	.04	.2	.3	.01	.01	.02	.01	.01	.01
16	0	.07	.07	.04	.1	.1	.01	.01	.02	.01	.01	.02
17	0	.07	.1	.04	.1	.07	.01	.01	.02	.01	.01	.02
18	0	.07	.1	.04	.07	.05	.02	.02	.02	.01	.01	.02
19	.01	.07	.05	.04	.05	.05	.02	.01	.02	.01	.01	.02
20	.01	.05	.04	.04	.05	.05	.02	.01	.02	.01	.01	.02
21	0	.04	.04	.04	.05	.05	.02	.01	.02	.01	.01	.02
22	0	.04	.04	.04	.05	.05	.2	.01	.02	.01	.01	.02
23	.01	.04	.04	.04	.05	.05	.02	.01	.02	.01	.01	.02
24	.01	.04	.04	.05	.04	.07	.01	.01	.02	.01	.01	.02
25	.01	.05	.04	.3	.05	.07	.01	.01	.02	.01	.01	.02
26	.01	2.0	.04	8.1	.05	.05	.02	.01	.02	.01	.01	.02
27	.02	.5	.04	.4	.05	.05	.01	.01	.02	.01	.01	.02
28	.02	.2	.04	.1	.05	.05	.01	.01	.02	.01	.01	.02
29	.02	.1	.04	.07	—	.04	.01	.01	.01	.01	.01	.02
30	.02	.1	.04	.07	—	.04	.01	.01	.01	.01	.01	.02
31	.01	—	.04	.07	—	.04	—	.01	—	.01	.01	—
Total	0.31	10.16	2.13	10.08	2.19	1.86	0.81	0.38	0.47	0.35	0.39	0.42
Mean	0.010	0.339	0.069	0.325	0.078	0.060	0.027	0.012	0.016	0.011	0.013	0.014
Max.	0.02	2.3	0.2	8.1	0.2	0.3	0.2	0.02	0.02	0.02	0.07	0.02
Min.	0	0.01	0.04	0.04	0.04	0.04	0.01	0.01	0.01	0.01	0.01	0
Ac-ft	0.6	20	4.2	20	4.3	3.7	1.6	0.8	0.9	0.7	0.8	0.8
Calendar year 1960												
				Max	76	Min	0	Mean	0.605	Acre-feet	440	
Water year 1960-61				Max	8.1	Min	0	Mean	0.081	Acre-feet	58	

## MALIBU CREEK BASIN

11-1055. Malibu Creek at Crater Camp, near Calabasas, Calif.

Location.--Lat  $34^{\circ}04'38''$ , long  $118^{\circ}42'03''$ , in SW $\frac{1}{4}$  sec.18, T.1 S., R.17 W., on right bank 700 ft downstream from Cold Creek, 0.2 mile downstream from Crater Camp and 6 miles southwest of Calabasas.

Drainage area.--103 sq mi.

Records available.--January 1931 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 430.51 ft above mean sea level (levels by Los Angeles County Flood Control District).

Average discharge.--30 years, 17.7 cfs (12,810 acre-ft per year); median of yearly mean discharges, 6.1 cfs (4,400 acre-ft per year).

Extremes.--Maximum discharge during year, 8.0 cfs Jan. 26 (gage height, 2.04 ft); minimum daily, 0.01 cfs July 29, 30, Sept. 5, 6.  
1931-61: Maximum discharge, 13,600 cfs Mar. 15, 1952 (gage height, 19.1 ft); no flow for periods in some years.

Remarks.--Flow regulated by many small recreational reservoirs.

Cooperation.--Records furnished by Los Angeles County Flood Control District and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.06	0.03	0.06	0.2	0.3	0.3	0.2	0.2	0.06	0.06	0.02	0.02
2	0.06	0.03	0.06	0.2	0.3	0.3	0.2	0.2	0.06	0.06	0.02	0.02
3	0.06	0.03	0.06	0.3	0.3	0.3	0.2	0.2	0.06	0.06	0.03	0.02
4	0.06	0.06	0.06	0.3	0.3	0.3	0.3	0.2	0.06	0.06	0.03	0.02
5	0.06	0.06	0.06	0.2	0.3	0.3	0.3	0.2	0.06	0.06	0.03	0.01
6	0.06	0.06	0.06	0.2	0.3	0.3	0.3	0.2	0.06	0.06	0.03	0.01
7	0.06	0.06	0.06	0.2	0.3	0.3	0.3	0.2	0.06	0.06	0.06	0.02
8	0.06	0.06	0.06	0.2	0.3	0.3	0.3	0.2	0.06	0.06	0.03	0.02
9	0.03	0.06	0.06	0.2	0.3	0.3	0.3	0.2	0.06	0.06	0.03	0.02
10	0.03	0.06	0.06	0.2	0.3	0.3	0.2	0.2	0.06	0.06	0.03	0.02
11	0.03	0.2	0.06	0.2	0.3	0.3	0.2	0.2	0.06	0.06	0.03	0.02
12	0.03	0.4	0.06	0.2	0.3	0.2	0.2	0.2	0.06	0.06	0.03	0.03
13	0.03	0.3	0.06	0.2	0.3	0.2	0.2	0.2	0.06	0.03	0.03	0.03
14	0.03	0.06	0.06	0.2	0.3	0.2	0.2	0.2	0.06	0.03	0.03	0.03
15	0.03	0.06	0.06	0.2	0.3	0.4	0.2	0.2	0.06	0.03	0.03	0.03
16	0.03	0.2	0.06	0.2	0.3	0.3	0.2	0.2	0.06	0.03	0.03	0.03
17	0.03	0.06	0.06	0.2	0.3	0.3	0.2	0.2	0.06	0.03	0.03	0.03
18	0.03	0.06	0.06	0.2	0.3	0.3	0.2	0.2	0.06	0.03	0.03	0.03
19	0.03	0.2	0.06	0.2	0.3	0.3	0.2	0.2	0.06	0.03	0.03	0.03
20	0.03	0.06	0.06	0.3	0.3	0.3	0.2	0.2	0.06	0.03	0.03	0.06
21	0.03	0.06	0.06	0.3	0.3	0.3	0.2	0.2	0.06	0.06	0.03	0.06
22	0.03	0.06	0.06	0.3	0.3	0.3	0.3	0.2	0.06	0.03	0.03	0.06
23	0.03	0.06	0.06	0.3	0.3	0.3	0.3	0.2	0.06	0.03	0.02	0.06
24	0.03	0.06	0.06	0.3	0.3	0.3	0.3	0.2	0.06	0.02	0.02	0.06
25	0.03	0.06	0.06	0.3	0.3	0.2	0.3	0.2	0.06	0.02	0.02	0.06
26	0.03	0.2	0.06	2.0	0.3	0.2	0.2	0.2	0.06	0.02	0.02	0.06
27	0.03	0.3	0.06	0.3	0.3	0.2	0.2	0.2	0.06	0.02	0.02	0.03
28	0.03	0.2	0.06	0.3	0.3	0.2	0.2	0.2	0.06	0.02	0.02	0.03
29	0.03	0.06	0.06	0.3	0.2	0.2	0.2	0.2	0.06	0.01	0.02	0.03
30	0.03	0.06	0.06	0.3	0.2	0.2	0.2	0.2	0.06	0.01	0.02	0.03
31	0.03	0.06	0.06	0.3	0.2	0.2	0.2	0.2	0.06	0.02	0.02	0.03
Total	1.17	3.23	1.86	9.3	8.3	8.4	6.9	6.06	1.80	1.22	0.85	0.98
Mean	0.038	0.108	0.060	0.30	0.30	0.27	0.23	0.195	0.060	0.039	0.027	0.033
Max.	0.06	0.4	0.06	2.0	0.3	0.4	0.3	0.2	0.06	0.06	0.06	0.06
Min.	0.03	0.03	0.06	0.2	0.2	0.2	0.2	0.06	0.06	0.01	0.02	0.01
Ac-ft	2.3	6.4	3.7	18	16	17	14	12	3.6	2.4	1.7	1.9
Calendar year 1960				Max 17	Min 0	Mean 0.535				Acre-feet 388		
Water year 1960-61				Max 2.0	Min 0.01	Mean 0.137				Acre-feet 99		

11-1070. Honda Barranca near Somis, Calif.

Location.--Lat 34°16'08", long 119°02'56", in Las Posas Grant, on upstream side of left abutment of bridge on Price Road, 1,600 ft upstream from Arroyo Colorado, and 3.1 miles west of Somis, Ventura County.

Drainage area.--2.57 sq mi.

Records available.--June 1954 to September 1961.

Gage.--Water-stage recorder, crest-stage gage and tipping-bucket rain gage. Altitude of gage is 350 ft (from topographic map).

Average discharge.--7 years, 0.08 cfs (58 acre-ft per year).

Extremes.--Maximum discharge during year, 7.0 cfs Nov. 6 (gage height, 2.00 ft); no flow for most of year.

1954-61: Maximum discharge, 150 cfs Apr. 6, 1958 (gage height, 4.09 ft), from rating curve extended above 35 cfs; no flow for most of each year.

Remarks.--Records good. No storage or large diversion above station. Observations of no flow generally made two or more times a month.

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0		0	0		0				0	0
2		0		0	.1		0				0	0
3		0		0	0		0				0	0
4		0		0	0		0				0	0
5		0		0	0		0				0	0
6		.8		0	0		0				0	.1
7		0		0	0		.2				0	0
8		0		0	0		.1				0	0
9		0		0	0		0				0	0
10		0		0	0		.1				.1	0
11		0		0	0		0				0	0
12		0		0	0		0				0	0
13		0		0	0		0				0	0
14		0		0	0		0				0	0
15		0		0	0		0				0	0
16		0		0	0		0				0	0
17		0		0	0		0				0	0
18		0		0	0		0				0	0
19		0		0	0		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		.1		.1	0		0				0	0
27		0		0	0		0				0	0
28		0		0	0		0				0	0
29		0		0	-		0				0	0
30		0		0			0				.1	0
31				0							0	
Total	0	0.9	0	0.1	0.1	0	0.4	0	0	0	0.2	0.1
Mean	0	0.03	0	0.003	0.004	0	0.01	0	0	0	0.006	0.003
Max.	0	0.8	0	0.1	0.1	0	0.2	0	0	0	0.1	0.1
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0	1.8	0	0.2	0.2	0	0.8	0	0	0	0.4	0.2
(†)	0	4.1	0.4	0.9	0	0.5	0	0	0	0	0	0
Calendar year 1960:			Max 0.8	Min 0	Mean 0.006		Acre-feet 4.4					
Water year 1960-61:			Max 0.8	Min 0	Mean 0.005		Acre-feet 3.6					

Peak discharge (base, 15 cfs).--No peak above base.

† Precipitation, in inches.

## SANTA CLARA RIVER BASIN

11-1085. Santa Clara River at Los Angeles-Ventura County line, Calif.

Location.--Lat 34°23'59", long 118°42'14", in San Francisco Grant, on downstream end of old diversion weir on right bank, 0.8 mile west of Los Angeles-Ventura County line.

Drainage area.--640 sq mi.

Records available.--October 1952 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 794.93 ft above mean sea level, datum of 1929.

Average discharge.--9 years, 11.3 cfs (8,180 acre-ft per year).

Extremes.--Maximum discharge during year, 190 cfs Nov. 6 (gage height, 4.80 ft); no flow Oct. 1 to Nov. 2, June 26-30, July 2 to Sept. 30.

1952-61: Maximum discharge, 7,070 cfs Apr. 3, 1958 (gage height, 6.75 ft); no flow at times in some years.

Remarks.--Records fair. Flow at station affected by pumpage from wells along stream for irrigation above station.

Cooperation.--Gage-height record and 34 discharge measurements furnished by Ventura County Water Resources Division; 17 discharge measurements furnished by Los Angeles County Flood Control District.

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

3.1	0	3.5	6.0
3.2	.6	3.6	9.4
3.3	1.8	3.8	20
3.4	3.5	4.1	49

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0.9	0.9	2.6	* 1.3	1.3	* 0.6	0.5	0.1		
2		0	.9	.9	* 1.5	* 1.3	1.0	.6	.5	0		
3		.7	1.0	* .9	1.3	1.2	* .9	.5	.4	* 0		
4		.9	1.0	.9	1.2	1.2	.8	.5	.4	0		
5		1.9	* .9	.9	1.0	1.2	.9	.5	* .4	0		
6		4.4	.7	.9	* 1.0	* 1.3	* 1.0	.5	.5	0		
7		* 6.6	.8	.9	1.0	1.3	1.2	.6	.4	0		
8		1.4	.8	.9	1.2	1.3	1.0	* .5	* .4	0		
9		.5	.8	* .9	1.2	* 1.4	.9	.4	.4	0		
10		.3	.8	.9	1.3	1.4	* 1.0	.4	.3	* 0		
11		.2	.8	.9	1.3	1.4	1.0	* .4	.2	0		(*)
12		.5	* .8	* .9	1.3	1.4	1.0	.4	* .2	0		
13		1.2	.8	.9	* 1.3	* 1.4	1.0	.4	.1	0		
14		* 1.5	* .8	.9	1.3	* 1.4	1.0	.4	.1	0		
15		.9	* .9	.8	* 1.2	1.7	.9	* .4	.1	0		
16		* .8	.9	* .8	* 1.2	1.5	.7	.4	* .1	0	(*)	
17		* .6	.8	.9	1.2	1.5	* .7	.4	.1	0		
18		.6	.8	* .9	1.3	1.5	.7	.5	.1	0		
19		.6	* .8	.9	1.3	1.4	.7	.4	* .1	0		
20		.6	.8	.9	* 1.2	* 1.4	* .7	.4	.1	* 0		
21		* .7	.8	1.0	1.2	1.4	.7	.4	.1	0		
22		.6	.8	1.0	1.3	1.3	.9	* .4	* .1	0		
23		.5	.8	* 1.0	1.2	* 1.4	.9	.4	.1	0		
24		.5	.8	1.2	1.2	1.5	* .8	.4	.1	0		
25		* .5	.8	1.3	1.3	1.5	.9	* .4	.1	0		
26		2.0	.8	* 7.5	1.3	1.5	.8	.4	* 0	0		
27		9.3	* .8	3.1	1.3	* 1.5	* .8	.4	0	0		
28		* 1.8	.8	1.4	1.3	1.5	.8	.4	0	0		
29		1.2	* .8	1.3	-	1.4	.7	* .4	0	0		
30		1.0	.9	* 1.3	-	1.3	.6	.4	0	0		
31	(*)	-	.9	1.3	-	1.3	-	.4	-	0		
Total	0	92.7	25.8	39.2	36.0	43.1	26.3	13.6	5.9	0.1	0	0
Mean	0	3.09	0.83	1.26	1.29	1.39	0.88	0.44	0.20	0.003	0	0
Max.	0	4.4	1.0	7.5	2.6	1.7	1.3	0.6	0.5	0.1	0	0
Min.	0	0	0.7	0.8	1.0	1.2	0.6	0.4	0	0	0	0
Ac-ft	0	184	51	78	71	85	52	27	12	0.2	0	0

Calendar year 1960: Max 44 Min 0 Mean 1.07 Acre-feet 776

Water year 1960-61: Max 44 Min 0 Mean 0.77 Acre-feet 560

Peak discharge (base, 750 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.



11-1096. Piru Creek above Lake Piru, Calif.

Location.--Lat 34°31'40", long 118°45'21", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 10, T.5 N., R.18 W., on right bank at Blue Point, 1.0 mile downstream from Aqua Blanca Creek, 4.6 miles upstream from Santa Felicia Dam, and 8.0 miles northeast of Piru.

Drainage area.--371 sq mi.

Records available.--October 1955 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 1,063.62 ft above mean sea level (levels by Ventura County Water Resources Division).

Average discharge.--6 years, 31.8 cfs (23,020 acre-ft per year).

Extremes.--Maximum discharge during year, 528 cfs Nov. 6 (gage height, 3.78 ft); no flow Oct. 1 to Nov. 4, June 16, June 21 to Sept. 30.

1955-61: Maximum discharge, 8,600 cfs Apr. 3, 1958 (gage height, 10.35 ft), from rating curve extended above 4,100 cfs; no flow for several months in each year.

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

Cooperation.--Nineteen discharge measurements furnished by the Ventura County Water Resources Division.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		* 0	10	8.1	15	* 7.1	5.9	* 2.3	0.3			
2		0	12	7.7	14	7.1	5.6	2.0	.4			
3		0	17	7.7	13	7.1	5.3	2.2	.4			
4		0	15	7.7	12	7.4	5.0	2.3	.3			
5		21	* 12	7.7	12	7.4	4.8	2.3	* .2			
6		* 238	11	7.7	* 12	* 7.4	4.8	2.3	.2			
7		* 98	10	7.4	12	7.1	4.8	2.4	.3			
8		25	10	7.4	12	7.1	4.8	* 2.3	.2			
9		* 15	9.7	* 7.4	11	7.1	4.6	2.0	.2			
10		13	9.7	7.4	11	6.8	* 4.5	1.7	.2	(*)		
11		12	9.3	7.4	10	6.8	4.4	1.4	.1			(*)
12		25	* 9.3	7.4	10	6.8	4.2	1.2	.1			
13		31	8.9	7.4	10	6.8	4.0	1.2	.1			
14		* 23	* 8.5	7.4	10	* 6.8	3.6	1.2	.1			
15		16	8.5	7.4	* 9.7	8.1	3.4	* 1.2	.1			
16		* 13	8.5	7.4	9.7	8.1	3.2	1.2	* 0		(*)	
17		12	8.5	7.4	9.7	7.7	* 3.0	1.2	.1			
18		10	8.5	* 7.4	9.3	7.7	3.0	1.2	.1			
19	(*)	10	8.5	7.4	8.9	7.7	3.2	1.2	* .1			
20		10	8.5	7.4	* 8.9	* 7.4	3.4	1.3	.1			
21		* 9.7	8.5	7.4	8.9	7.4	3.6	1.3	0			
22		9.3	8.5	7.4	8.5	7.4	3.8	* 1.2	0			
23		9.3	8.9	* 7.4	7.7	7.4	4.0	1.2	0			
24		9.3	8.9	7.7	7.7	7.4	* 3.8	.9	0			
25		9.3	8.9	7.7	7.7	7.4	3.6	.7	0			
26		33	8.9	* 7.2	7.4	7.4	3.4	.5	0	(*)		
27		17	8.9	5.6	7.4	7.4	3.2	.4	0			
28		* 11	* 8.9	30	7.1	* 7.4	2.8	.3	* 0			(*)
29		10	8.5	20	-	7.1	2.6	* .3	0		(*)	
30		* 10	8.1	1.6	-----	6.8	2.4	.3	0			
31		-----	8.1	* 1.6	-----	6.5	-----	.3	-----			
Total	0	6 999.9	2 988.5	3 977.8	2 822.6	2 255.1	1 188.7	4 115	3.6	0	0	0
Mean	0	23.3	9.63	12.8	10.1	7.26	3.96	1.34	0.12	0	0	0
Max.	0	238	17	72	15	8.1	5.9	2.4	0.4	0	0	0
Min.	0	0	8.1	7.4	7.1	6.5	2.4	0.3	0	0	0	0
Ac-ft	0	1,390	592	789	561	446	235	82	7.1	0	0	0

Calendar year 1960: Max 238 Min 0 Mean 9.57 Acre-feet 6,930

Water year 1960-61: Max 238 Min 0 Mean 5.66 Acre-feet 4,100

Peak discharge (base, 800 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

## SANTA CLARA RIVER BASIN

11-1097. Lake Piru near Piru, Calif.

Location.--Lat 34°27'52", long 118°44'57", in Temescal Grant, at Santa Felicia Dam on Piru Creek, on left bank 1,000 ft upstream from left end of dam, 0.5 mile downstream from Santa Felicia Canyon, and 4.2 miles northeast of Piru, Ventura County.

Drainage area.--424 sq mi.

Records available.--May 1955 to September 1961.

Gage.--Staff gage read once daily. Datum of gage is mean sea level (levels by United Water Conservation District). Prior to Jan. 27, 1956 reference point at intake tower at same datum.

Extremes.--Maximum contents observed during year, 2,002 acre-ft Feb. 10-13, Mar. 20-25, 29-31 (elevation, 905.85 ft); minimum, 295 acre-ft Sept. 30 (elevation, 887.35 ft).  
1955-61: Maximum contents observed, 78,483 acre-ft May 19, 1958 (elevation, 1,035.30 ft); minimum, that of Sept. 30, 1961.

Remarks.--Lake is formed by earth-fill dam. Storage began May 20, 1955; May to October 1955, negligible storage. Area and capacity ratings are based on surveys made in 1949 and 1956. Dead storage below two 24-inch sluice gates (elevation, 880.0 ft), 74 acre-ft, included in contents. Capacity below spillway level (elevation, 1,055.0 ft), 101,225 acre-ft. Water is released from outlet to Piru Creek for ground-water recharge, domestic use and irrigation on the Oxnard plain.

Cooperation.--Elevations furnished by United Water Conservation District.

Month-end elevation and contents, water year October 1960 to September 1961

Date	Elevation (feet)†	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	904.70	1,835	-
Oct. 31.....	890.60	460	-1,375
Nov. 30.....	902.50	1,537	+1,077
Dec. 31.....	903.00	1,601	+64
Calendar year 1960.....	-	-	-4,341
Jan. 31.....	905.60	1,965	+364
Feb. 28.....	905.75	1,987	+22
Mar. 31.....	905.80	1,995	+8
Apr. 30.....	904.30	1,778	-217
May 31.....	902.00	1,473	-305
June 30.....	899.45	1,179	-294
July 31.....	896.10	855	-324
Aug. 31.....	892.30	566	-289
Sept. 30.....	887.35	295	-271
Water year 1960-61.....	-	-	-1,540

† Elevation at 8 a.m.

11-1098. Piru Creek below Santa Felicia Dam, Calif.

Location.--Lat 34°27'37", long 118°45'04", on right bank 750 ft downstream from Santa Felicia Dam, 1 mile upstream from Lime Canyon, 4 miles northeast of Piru, Ventura County.

Drainage area.--424 sq mi.

Records available.--October 1955 to September 1961.

Gage.--Water-stage recorder and concrete control. Datum of gage is 858.8 ft above mean sea level (levels by United Water Conservation District). Supplemental water-stage recorder at site  $1\frac{1}{2}$  miles downstream.

Extremes.--Maximum discharge during year, 165 cfs Oct. 3 (gage height, 2.82 ft); minimum daily, 1.7 cfs Oct. 19.  
1955-61: Maximum discharge, 544 cfs Aug. 18, 1958 (gage height, 3.66 ft); no flow at times in most years.

Remarks.--Records good. Flow regulated by Lake Piru since May 20, 1955 (see preceding page).

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

1.2	0.9	1.8	17
1.3	2.0	2.1	41
1.4	3.5	2.4	83
1.5	5.6	2.8	173
1.6	8.4		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1 32	* 6.1	11	10	12	* 8.7	7.8	* 7.8	8.1	7.2	7.5	7.5
2	1 34	6.1	11	10	12	8.7	7.8	7.8	4.9	7.2	7.5	7.5
3	1 36	6.1	a11	10	12	8.7	8.1	7.5	5.8	7.2	7.5	7.5
4	1 34	6.4	a11	10	12	8.7	8.4	7.5	7.2	7.2	7.5	7.5
5	1 34	6.4	a11	10	12	8.7	8.1	7.5	7.5	7.2	7.5	7.8
6	90	6.6	a11	10	12	8.7	7.8	7.5	7.5	7.2	7.5	7.8
7	9.0	6.9	a11	10	12	8.5	7.5	7.5	7.5	7.2	7.5	7.8
8	6.6	7.2	a11	10	12	8.1	7.5	7.5	7.5	7.2	7.5	7.5
9	6.9	7.8	a11	10	12	8.1	7.5	7.5	7.5	7.2	7.5	7.5
10	6.9	7.2	a11	9.6	12	8.1	7.5	7.5	7.5	* 7.2	7.2	7.5
11	6.9	7.2	a11	9.0	12	8.1	7.5	7.5	7.5	7.2	7.2	* 7.2
12	7.2	7.2	a11	8.4	12	8.1	7.5	7.5	7.5	7.2	7.2	6.7
13	7.2	7.2	a11	8.4	12	7.8	7.5	7.5	7.5	7.2	7.2	6.9
14	11	7.2	11	8.7	12	* 7.8	7.5	7.5	7.5	7.2	7.2	6.9
15	14	7.2	11	9.0	*12	7.8	7.5	* 7.5	7.5	7.2	7.2	6.9
16	17	* 7.2	11	9.0	11	7.8	7.5	7.5	* 7.2	7.2	* 7.2	6.9
17	7.5	7.2	11	9.0	11	7.8	* 7.5	7.5	7.2	7.2	7.2	6.9
18	2.5	7.8	11	* 9.0	11	7.8	7.8	7.5	7.2	7.2	7.5	6.9
19	* 1.7	7.2	11	9.0	11	7.8	7.8	7.5	7.2	7.2	7.5	6.4
20	4.5	7.2	11	9.0	10	7.8	7.5	7.8	7.2	7.2	7.5	6.1
21	4.5	7.2	11	9.0	10	7.8	7.5	7.8	7.2	7.2	7.5	6.1
22	2.9	7.2	11	9.0	10	7.8	7.5	7.8	7.2	7.2	7.5	6.1
23	3.4	7.2	9.7	9.0	10	7.8	7.5	7.8	7.2	7.2	7.2	6.1
24	4.5	7.2	9.3	9.0	9.6	7.4	4.8	7.2	7.2	7.2	7.2	6.1
25	4.9	7.2	10	9.0	8.7	5.8	4.7	6.6	7.2	7.2	7.2	6.1
26	5.1	7.5	10	9.0	8.7	6.1	7.1	7.2	7.2	* 7.2	7.5	6.1
27	5.4	7.5	10	9.0	8.7	6.9	7.9	7.5	7.2	7.2	7.5	6.1
28	5.4	8.7	*10	9.0	8.7	* 7.2	8.4	7.5	7.2	7.5	7.5	* 5.8
29	5.6	11	10	9.0	-	7.2	7.8	* 7.8	* 7.2	7.5	* 7.5	5.8
30	6.1	* 11	10	10	-----	7.2	7.8	7.8	7.2	7.5	7.5	5.8
31	6.1	-----	10	* 12	-----	7.5	-----	8.1	-----	7.5	7.5	-----
Total	9 22.8	2 21.1	3 31.0	2 91.1	3 08.4	2 42.3	2 24.6	2 34.0	2 16.5	2 24.4	2 29.2	2 03.8
Mean	29.8	7.37	10.7	9.39	11.0	7.87	7.49	7.55	7.22	7.24	7.39	6.79
Max.	136	11	-	12	12	8.7	8.4	8.1	8.1	7.5	7.5	7.8
Min.	1.7	6.1	9.3	8.4	8.7	5.8	4.7	6.6	4.9	7.2	7.2	5.8
Ac-ft	1,830	439	657	577	612	481	445	464	429	445	455	404
Calendar year 1960:				Max 417	Min 0	Mean 17.3		Acre-feet 12,550				
Water year 1960-61:				Max 136	Min 1.7	Mean 10.0		Acre-feet 7,240				

\* Discharge measurement made on this day.

a No gage-height record.

## SANTA CLARA RIVER BASIN

11-1105. Hopper Creek near Piru, Calif.

Location.--Lat 34°24'03", long 118°49'32", in NE 1/4 SW 1/4 sec. 25, T. 4 N., R. 19 W., on downstream end of center pier of bridge on State Highway 126, 1 mile upstream from mouth and 2.1 miles southwest of Piru.

Drainage area.--23.6 sq mi.

Records available.--October 1930 to September 1932, October 1933 to September 1936, October 1937 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 590 ft (from topographic map).

Average discharge.--29 years, 4.62 cfs (3,340 acre-ft per year); median of yearly mean discharges, 2.0 cfs (1,400 acre-ft per year).

Extremes.--Maximum discharge during year, 61 cfs Nov. 6 (gage height, 1.71 ft); no flow for several months.

1930-32, 1933-36, 1937-61: Maximum discharge, 8,000 cfs Mar. 2, 1938, on basis of slope-area measurement of peak flow; no flow for several months in most years.

Remarks.--Records good. No regulation; some pumping along stream for irrigation above station.

Cooperation.--Water-stage recorder graph, 27 discharge measurements, and 2 observations of no flow furnished by Ventura County Water Resources Division.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Jan. 26)

0.95	0	1.3	7.7
1.0	.1	1.4	15
1.1	.8	1.5	27
1.2	3.1		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0.6	0.4	0.2	* 0.2	0.2	(*)				
2		0	.8	.4	.6	.1	.1					
3		0	.8	* .4	.5	.1	* .1					
4		0	.6	.4	.5	.2	.1					
5		5.2	* .5	.4	.5	.2	.1		(*)			
6		* 2.5	.5	.3	* .5	* .2	.2					
7		* 2.8	.5	.3	.5	.2	.2					
8		1.2	.5	.3	.5	.1	.2	(*)				
9		.8	.6	* .3	.5	.1	.1			(*)		
10		.5	.6	.3	.5	.1	* .1					
11		.4	.6	.3	.5	.1	.1					(*)
12		6.2	* .6	.3	.5	.1	.3					
13		6.5	.6	.3	* .5	* .1	.1					
14		* 1.2	* .6	.3	.5	* .1	.1					
15		.6	.6	.3	* .4	.3	.1	(*)				
16		* .8	.6	* .3	.4	.3	0				(*)	
17		.6	.6	.3	.4	.3	* 0					
18		.5	.6	* .4	.4	.2	0					
19		.4	* .6	.3	.3	.2	0					
20		.3	.5	.3	* .3	* .2	0					
21		* .3	.4	.3	.3	.2	0					
22		.4	.4	.3	.3	.2	.1					
23		.5	.4	* .3	.3	.2	.1					
24		.5	.4	.3	.2	.3	* .1					
25		.4	.3	.4	.2	.3	0					
26		6.4	.3	* 1.7	.2	.2	0					
27		6.3	* .4	3.1	.2	* .2	0					
28		* 1.6	.3	1.6	.2	.2	0					
29		.8	.3	1.2	-	.2	0					
30		.6	.3	* 1.0	-	.2	0					
31		-	.4	.8	-	.2	-					
Total	0	71.0	15.8	32.9	11.5	5.8	2.2	0	0	0	0	0
Mean	0	2.37	0.51	1.06	0.41	0.19	0.07	0	0	0	0	0
Max.	0	25	0.8	17	0.8	0.3	0.2	0	0	0	0	0
Min.	0	0	0.3	0.3	0.2	0.1	0	0	0	0	0	0
Ac-ft	0	141	31	65	23	12	4.4	0	0	0	0	0

Calendar year 1960: Max 48 Min 0 Mean 0.88 Acre-feet 638  
Water year 1960-61: Max 25 Min 0 Mean 0.38 Acre-feet 276

Peak discharge (base, 90 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

## SANTA CLARA RIVER BASIN

191

11-1115. Sespe Creek near Wheeler Springs, Calif.

Location.--Lat 34°34'40", long 119°15'25", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.30, T.6 N., R.22 W., on right bank at Sespe Gorge, 1.6 miles upstream from Tule Creek, 5 miles upstream from Cold Springs damsite, and 5 miles northeast of Wheeler Springs.

Drainage area.--51.2 sq mi.

Records available.--January 1948 to September 1961. Monthly discharge only for January to July 1948 and yearly estimate for water year 1948 (incomplete), published in WSP 1315-B.

Gage.--Water-stage recorder. Datum of gage is 3,500.65 ft above mean sea level (levels by Ventura County Water Resources Division).

Average discharge.--14 years (1947-61), 6.69 cfs (4,840 acre-ft per year); median of yearly mean discharges, 2.1 cfs (1,500 acre-ft per year).

Extremes.--Maximum discharge during year, 674 cfs Nov. 5 (gage height, 6.13 ft); no flow for many days.

1948-61: Maximum discharge, 3,440 cfs Jan. 15, 1952 (gage height, 9.52 ft), from rating curve extended above 1,500 cfs; no flow for many days in most years.

Remarks.--Records good. No regulation or diversion. Discharge measurements generally made three times a month.

Cooperation.--Twelve discharge measurements furnished by Ventura County Water Resources Division.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used June 27 to Aug. 4)

2.7	0	3.1	1.8	3.6	21
2.8	.1	3.2	3.4	3.9	46
2.9	.3	3.3	6.4	4.2	84
3.0	.8	3.4	11		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.1	5.3	1.0	1.6	1.2	1.0	0.5	0.4	0.1	0	0.1
2	0	.1	4.4	1.0	1.5	1.2	1.0	.5	.4	.1	0	.1
3	0	.2	1.6	1.0	1.5	1.2	1.0	.5	.3	.1	0	0
4	0	.1	1.4	1.0	1.5	1.2	.9	.5	.3	.1	0	0
5	0	82	1.4	1.0	1.5	1.2	.9	.5	.3	.1	.1	0
6	0	66	1.4	1.0	1.4	1.1	.9	.5	.3	.1	.1	0
7	.1	4.2	1.4	1.0	1.4	1.1	.9	.5	.3	.1	.1	0
8	.1	2.0	1.4	1.0	1.4	1.1	.9	.5	.3	.1	.1	0
9	.1	1.4	1.4	1.0	1.4	1.1	.9	.5	.3	0	.1	0
10	.1	1.2	1.4	1.0	1.4	1.1	.9	.5	.3	0	.1	0
11	.1	1.1	1.3	1.0	1.4	1.1	.9	.5	.3	0	.1	0
12	.1	6.6	1.3	1.1	1.4	1.1	.9	.5	.3	0	.1	0
13	.1	2.8	1.3	1.1	1.4	1.0	.9	.5	.3	0	.1	0
14	.1	1.4	1.2	1.1	1.4	1.0	.9	.4	.2	0	0	0
15	.1	1.3	1.2	1.2	1.4	1.5	.8	.4	.2	0	.1	0
16	.1	1.2	1.2	1.2	1.4	1.4	.8	.4	.2	0	.1	0
17	.1	1.1	1.2	1.2	1.4	1.3	.7	.4	.2	0	.1	.1
18	.1	1.0	1.2	1.2	1.3	1.2	.7	.4	.2	0	0	0
19	.1	1.0	1.2	1.2	1.3	1.2	.8	.4	.2	0	.1	0
20	.1	1.0	1.2	1.2	1.2	1.1	.9	.4	.2	0	.1	0
21	.1	1.0	1.1	1.2	1.2	1.1	.9	.4	.1	0	0	.1
22	.1	1.0	1.1	1.2	1.2	1.1	1.1	.4	.1	0	0	.1
23	.1	1.0	1.0	1.2	1.2	1.1	1.0	.3	.1	0	0	0
24	.1	1.0	1.0	1.2	1.2	1.1	.9	.3	.1	0	.1	0
25	.1	1.0	1.0	1.3	1.2	1.1	.8	.3	.1	0	.1	0
26	.1	4.6	1.0	39	1.2	1.1	.8	.3	.1	0	.1	0
27	.1	1.9	1.0	4.7	1.2	1.1	.7	.3	.1	0	.1	0
28	.1	1.5	1.0	2.5	1.1	1.1	.7	.4	.1	0	.1	0
29	.1	1.3	1.0	2.0	-	1.1	.6	.4	.1	0	.1	0
30	.1	1.2	1.0	1.9	-	1.1	.6	.4	.1	0	.1	0
31	.1	-	1.0	1.6	-	1.0	-	.4	-	0	.1	-
Total	2.5	191.5	44.6	79.3	37.7	35.4	25.7	13.2	6.5	0.8	2.2	0.5
Mean	0.08	6.38	1.44	2.56	1.35	1.14	0.86	0.43	0.22	0.03	0.07	0.02
Max.	0.1	82	5.3	39	1.6	1.5	1.1	0.5	0.4	0.1	0.1	0.1
Min.	0	0.1	1.0	1.0	1.1	1.0	0.6	0.3	0.1	0	0	0
Ac-ft	5.0	380	88	157	75	70	51	26	13	1.6	4.4	1.0

Calendar year 1960 :

Max 82

Min 0

Mean 1.74

Acre-feet 1,260

Water year 1960-61 :

Max 82

Min 0

Mean 1.21

Acre-feet 872

Peak discharge (base, 50 cfs).--Nov. 5 (7 p.m.) 674 cfs (6.13 ft); Jan. 26 (10:30 a.m.) 154 cfs (4.58 ft).

## SANTA CLARA RIVER BASIN

11-1130. Sespe Creek near Fillmore, Calif.

Location.--Lat 34°27'03", long 118°55'30", in NE 1/4 sec. 12, T.4 N., R.20 W., on right bank 0.1 mile downstream from Little Sespe Creek and 3.5 miles north of Fillmore.

Drainage area.--253 sq mi.

Records available.--September 1911 to September 1913 (Sespe Creek only), October 1927 to September 1961 (creek and diversion).  
Published as "at Sespe," prior to 1935.

Gage.--Water-stage recorder. Altitude of gage is 580 ft (from topographic map). Prior to Sept. 30, 1913, staff gage and Oct. 1, 1927, to Nov. 4, 1934, water-stage recorder, at site 3 miles downstream at different datum. Nov. 5, 1934, to Mar. 2, 1938, water-stage recorder at same site at different datum (destroyed by flood; reestablished at present datum Feb. 2, 1939).

Average discharge.--36 years (1911-13, 1927-61), 90.2 cfs (65,300 acre-ft per year); median of yearly mean discharges, 47 cfs (34,000 acre-ft per year). Average combined discharge, creek and canal, 34 years (1927-61), 95.6 cfs (69,210 acre-ft per year); median of combined yearly mean discharges, 51 cfs (36,900 acre-ft per year).

Extremes.--Maximum discharge during year, 836 cfs Nov. 6 (gage height, 7.57 ft); minimum daily, 0.1 cfs June 14-24, June 30 to Sept. 30.

1927-61: Maximum discharge, 56,000 cfs Mar. 2, 1938, on basis of slope-area measurement of peak flow; no flow at times in some years.

Remarks.--Records good. Discharge measurements generally made twice a month. Fillmore Irrigation Co. diverts water 1 mile above station. For records of combined discharge of Sespe Creek and Fillmore Irrigation Co.'s canal, see following page.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.6	0.9	23	9.2	28	3.2	1.4	0.4	0.3	0.1	0.1	0.1
2	.6	.9	38	9.2	27	2.3	1.3	.3	.3	.1	.1	.1
3	.6	2.3	68	8.2	26	1.6	1.1	.3	.3	.1	.1	.1
4	.6	5.2	40	7.1	24	1.6	1.0	.3	.2	.1	.1	.1
5	.6	4.2	34	7.1	24	1.8	.9	.3	.2	.1	.1	.1
6	.6	4 29	28	5.8	24	1.8	1.0	.3	.2	.1	.1	.1
7	.6	140	27	3.9	23	1.6	1.0	.2	.2	.1	.1	.1
8	.6	40	26	3.7	22	1.6	.9	.2	.2	.1	.1	.1
9	.7	23	26	3.7	22	1.4	.8	.2	.2	.1	.1	.1
10	.8	17	24	3.2	22	1.4	.7	.2	.2	.1	.1	.1
11	.8	13	23	2.1	22	1.4	.7	.2	.2	.1	.1	.1
12	.8	82	22	2.0	21	1.4	.7	.2	.2	.1	.1	.1
13	.8	76	22	1.8	20	1.4	.6	.2	.2	.1	.1	.1
14	.8	44	21	1.8	19	1.4	.5	.2	.1	.1	.1	.1
15	.8	28	21	1.6	13	7.1	.4	.2	.1	.1	.1	.1
16	.8	22	21	1.6	8.5	9.6	.4	.3	.1	.1	.1	.1
17	.8	18	20	1.4	8.2	9.6	.4	.3	.1	.1	.1	.1
18	.8	17	20	1.4	7.8	9.2	.4	.3	.1	.1	.1	.1
19	.9	17	19	1.4	7.4	7.1	.4	.3	.1	.1	.1	.1
20	.8	15	19	1.4	7.4	3.3	.4	.3	.1	.1	.1	.1
21	.8	14	18	1.4	7.1	1.1	.4	.3	.1	.1	.1	.1
22	.8	13	19	1.4	7.1	1.1	.7	.3	.1	.1	.1	.1
23	.8	13	17	1.6	6.8	1.1	.7	.3	.1	.1	.1	.1
24	.9	13	17	1.6	5.0	1.1	.6	.2	.1	.1	.1	.1
25	.9	13	17	3.6	4.3	1.3	.6	.2	.2	.1	.1	.1
26	.9	58	17	189	4.5	1.8	.5	.2	.2	.1	.1	.1
27	.9	45	15	168	3.7	1.8	.4	.2	.2	.1	.1	.1
28	.8	30	13	58	3.4	1.8	.4	.2	.2	.1	.1	.1
29	.8	24	11	43	-	2.7	.4	.2	.2	.1	.1	.1
30	.8	22	9.6	35	-	2.5	.4	.2	.1	.1	.1	.1
31	.8	-	9.2	31	-	1.4	-	.3	-	.1	.1	-
Total	23.6	1277.3	704.8	611.2	418.2	87.5	20.1	7.8	5.1	3.1	3.1	3.0
Mean	0.76	42.6	22.7	19.7	14.9	2.82	0.67	0.25	0.17	0.10	0.10	0.10
Max.	0.9	429	68	189	28	9.6	1.4	0.4	0.3	0.1	0.1	0.1
Min.	0.6	0.9	9.2	1.4	3.4	1.1	0.4	0.2	0.1	0.1	0.1	0.1
Ac-ft	47	2,530	1,400	1,210	829	174	40	15	10	6.1	6.1	6.0

Calendar year 1960 : Max 429 Min 0.4 Mean 19.2 Acre-feet 13,980  
Water year 1960-61 : Max 429 Min 0.1 Mean 8.67 Acre-feet 6,270

Peak discharge (base, 1,300 cfs).--No peak above base.

## 1130. Sespe Creek near Fillmore, Calif.--Continued

Combined discharge, in cubic feet per second, of Sespe Creek and Fillmore Irrigation Co.'s canal near Fillmore, Calif., water year October 1960 to September 1961

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.8	3.3	2.3	1.6	2.8	1.3	1.0	5.7	3.7	1.4	1.5	1.7
2	2.8	3.3	3.8	1.6	2.7	1.3	9.4	5.4	3.7	1.4	1.5	1.7
3	2.8	4.2	6.8	1.5	2.6	1.4	8.6	5.3	3.6	1.5	1.5	1.5
4	2.8	5.7	4.0	1.4	2.4	1.4	8.4	5.2	3.4	1.6	1.4	1.4
5	2.7	4.2	3.4	1.4	2.4	1.3	8.2	5.1	3.4	1.6	1.3	1.4
6	2.8	4.30	3.0	1.4	2.4	1.3	8.4	5.1	3.4	1.5	1.3	1.4
7	2.8	1.41	2.8	1.2	2.3	1.3	8.5	4.9	3.3	1.5	1.3	1.5
8	2.8	4.1	2.8	1.2	2.3	1.3	8.2	4.5	3.3	1.5	1.5	1.5
9	3.0	2.3	2.8	1.2	2.4	1.2	8.1	4.3	3.3	1.4	1.5	1.7
10	3.2	1.8	2.6	1.2	2.4	1.2	7.9	4.1	3.2	1.4	1.5	1.6
11	3.2	1.4	2.5	1.1	2.3	1.1	7.9	4.1	3.1	1.4	1.6	1.6
12	3.2	8.3	2.5	1.1	2.3	1.1	7.9	4.0	3.0	1.4	1.5	1.6
13	3.2	7.7	2.5	1.1	2.3	1.1	7.6	3.9	2.9	1.5	1.5	1.7
14	3.2	4.4	2.4	1.1	2.2	1.1	7.3	3.9	2.5	1.5	1.5	1.7
15	3.1	2.8	2.4	1.1	2.1	1.1	7.0	3.9	2.3	1.5	1.5	1.8
16	3.0	2.2	2.4	1.1	1.8	1.1	6.8	4.0	2.1	1.5	1.5	2.0
17	3.0	1.8	2.3	1.1	1.8	1.1	6.6	4.0	2.1	1.5	1.3	2.3
18	3.0	1.7	2.3	1.1	1.7	1.1	6.7	4.0	2.1	1.5	1.3	2.3
19	3.1	1.7	2.2	1.1	1.6	1.1	6.7	4.1	2.1	1.4	1.3	2.1
20	3.0	1.6	2.1	1.1	1.6	1.1	6.6	4.1	1.9	1.4	1.3	2.2
21	3.0	1.5	1.9	1.1	1.6	1.1	6.6	4.0	1.9	1.4	1.3	2.3
22	3.0	1.5	2.0	1.1	1.6	1.1	8.0	3.9	1.9	1.5	1.3	2.6
23	3.1	1.5	1.8	1.1	1.5	1.1	8.0	3.8	1.9	1.5	1.3	2.6
24	3.3	1.5	1.8	1.1	1.5	1.1	7.9	3.6	1.7	1.5	1.3	2.5
25	3.3	1.4	1.8	1.1	1.4	1.1	8.0	3.6	1.8	1.6	1.3	2.3
26	3.3	5.9	1.9	1.90	1.4	1.1	7.4	3.6	1.8	1.6	1.3	2.1
27	3.3	4.6	1.8	1.69	1.4	1.1	6.7	3.5	1.8	1.5	1.3	2.0
28	3.2	3.1	1.8	5.9	1.3	1.1	6.4	3.5	1.8	1.5	1.3	1.9
29	3.2	2.4	1.8	4.4	-	1.0	6.2	3.5	1.7	1.5	1.5	1.9
30	3.2	2.2	1.6	3.6	-	1.1	6.0	3.5	1.5	1.5	1.6	1.9
31	3.2	-	1.6	3.2	-	1.0	-	3.5	-	1.5	1.6	-
Total	94.6	1.303.5	777	832	561	359	228.0	129.6	76.2	46.0	43.7	56.8
Mean	3.05	43.4	25.1	26.8	20.0	11.6	7.60	4.18	2.54	1.48	1.41	1.89
Max.	3.3	430	68	190	28	14	10	5.7	3.7	1.6	1.6	2.6
Min.	2.7	3.3	1.6	1.1	1.3	1.0	6.0	3.5	1.5	1.4	1.3	1.4
Ac-ft	188	2,590	1,540	1,650	1,110	712	452	257	151	91	87	113
Calendar year 1960:			Max 430	Min 2.1	Mean 22.5	Acre-feet 16,360						
Water year 1960-61:			Max 430	Min 1.3	Mean 12.3	Acre-feet 8,940						

## SANTA CLARA RIVER BASIN

11-1135. Santa Paula Creek near Santa Paula, Calif.

Location.--Lat 34°23'44", long 119°04'32", in NW 1/4 SW 1/4 sec. 27, T.4 N., R.21 W., on right bank 15 ft upstream from Santa Paula Water Works diversion dam, 150 ft upstream from Mud Creek, and 3 miles north of Santa Paula.

Drainage area.--40.0 sq mi.

Records available.--October 1927 to September 1961. March 1912 to September 1913 at site 2.5 miles upstream; records not equivalent.

Gage.--Water-stage recorder. Altitude of gage is 650 ft (from topographic map). Oct. 1, 1927, to Feb. 19, 1931, water-stage recorder at site 500 ft downstream at different datum.

Average discharge.--34 years, 18.0 cfs (13,030 acre-ft per year); median of yearly mean discharges, 8.7 cfs (6,300 acre-ft per year).

Extremes.--Maximum discharge during year, 178 cfs Nov. 12 (gage height, 2.95 ft); minimum daily, 0.1 cfs on many days.  
1927-61: Maximum discharge, 13,500 cfs Mar. 2, 1938 (gage height, 10.56 ft), from rating curve extended above 2,100 cfs on basis of slope-area measurement of peak flow; no flow at times in 1949, 1951-52.

Remarks.--Records good. Discharge measurements generally made twice a month. Santa Paula Water Works diverted 305 acre-ft above station for irrigation.

Cooperation.--Three discharge measurements furnished by Ventura County Water Resources Division.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.8	1.0	3.6	2.5	5.1	1.5	2.2	1.5	0.6	0.1	0.1	0.2
2	.6	1.0	5.4	2.6	4.9	1.6	2.1	1.5	.5	.1	.1	.2
3	.4	2.2	3.8	2.6	4.4	1.6	1.9	1.5	.4	.1	.1	.1
4	.3	1.9	3.6	2.5	4.1	1.8	1.1	1.5	.4	.1	.1	.1
5	.3	1.0	3.2	2.5	3.8	1.8	1.1	.9	.6	.1	.1	.2
6	.5	4.7	2.6	2.4	3.8	1.6	1.2	.6	.6	.1	.1	.2
7	.8	5.4	3.6	2.4	3.6	1.6	1.3	.6	.9	.1	.1	.2
8	.4	3.8	5.0	2.4	3.3	1.5	1.5	.4	1.2	.1	.1	.2
9	.4	3.1	3.8	2.4	3.3	1.3	2.1	.3	.4	.1	.1	.4
10	.4	3.1	4.1	2.4	3.1	1.5	1.3	.3	.3	.1	.1	.3
11	.4	3.3	4.4	2.2	3.1	1.3	1.0	.4	.3	.1	.3	.2
12	.4	2.9	3.6	2.4	2.8	1.3	1.0	.3	.3	.1	.1	.2
13	.3	1.6	3.6	2.4	2.8	1.3	1.0	.9	.3	.1	.1	.2
14	.3	6.9	3.6	2.4	2.6	1.2	1.0	1.0	.1	.1	.1	.2
15	.2	5.8	3.6	2.4	2.6	2.2	.9	1.1	.3	.1	.1	.2
16	.2	5.1	3.6	2.4	2.8	2.1	.7	1.1	.9	.1	.1	.2
17	.3	4.9	3.6	2.4	2.8	1.8	.6	1.1	.9	.1	.1	.3
18	.4	4.4	3.1	2.2	2.6	1.3	.5	1.1	.9	.1	.1	.3
19	.4	4.1	3.1	2.2	2.5	1.3	.6	1.2	.6	.1	.1	.2
20	.3	3.8	2.8	1.8	1.8	1.3	.7	1.2	.7	.1	.1	.4
21	.2	3.6	2.8	1.8	1.5	1.8	.7	1.1	.7	.1	.1	.3
22	.4	3.3	2.6	1.6	1.5	1.8	1.2	.7	.8	.1	.1	.4
23	.7	3.1	2.4	1.3	1.3	1.8	1.2	.4	.7	.1	.2	.4
24	1.0	3.1	2.6	1.2	1.3	1.9	1.0	.4	.8	.1	.2	.3
25	1.0	2.8	2.6	1.6	1.2	1.9	.9	.4	.7	.1	.2	.2
26	.8	6.6	2.6	1.6	1.2	1.9	1.1	.5	.7	.1	.2	.1
27	.5	4.6	3.3	5.8	1.2	1.9	.8	.4	.7	.1	.1	.1
28	.4	3.6	2.6	5.4	1.3	2.0	.6	.6	.6	.2	.1	.2
29	.4	3.3	2.6	5.4	-	2.2	.6	.7	.2	.1	.1	.2
30	.5	3.3	2.6	5.4	-	2.2	1.2	.4	.1	.1	.2	.2
31	.8	-	2.5	5.4	-	2.2	-	.4	-	.1	.2	-
Total	14.8	199.1	102.9	98.4	76.3	52.5	33.1	24.5	17.2	3.2	3.9	6.9
Mean	0.48	6.64	3.32	3.17	2.72	1.69	1.10	0.79	0.57	0.10	0.13	0.23
Max.	1.0	.47	5.4	1.6	5.1	2.2	2.2	1.5	1.2	0.2	0.3	0.4
Min.	0.2	1.0	2.4	1.2	1.2	1.2	0.5	0.3	0.1	0.1	0.1	0.1
Ac-ft	29	395	204	195	151	104	66	49	34	6.3	7.7	14

Calendar year 1960 : Max 66 Min 0.1 Mean 3.42 Acre-feet 2,480  
Water year 1960-61 : Max 47 Min 0.1 Mean 1.73 Acre-feet 1,250

Peak discharge (base, 200 cfs).--No peak above base.



VENTURA RIVER BASIN

195

11-1145. Matilija Creek above reservoir, near Matilija Hot Springs, Calif.

Location.--Lat 34°29'41", long 119°19'48", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.19, T.5 N., R.23 W., on left bank 1.6 miles upstream from Matilija Dam and 1.7 miles northwest of Matilija Hot Springs.

Drainage area.--50.7 sq mi.

Records available.--May 1948 to September 1961. Published as "near Matilija" prior to October 1953.

Gage.--Water-stage recorder. Datum of gage is 1,160.20' ft above mean sea level (levels by Ventura County Water Resources Division).

Average discharge.--13 years, 17.5 cfs (12,670 acre-ft per year); median of yearly mean discharges, 6.8 cfs (4,900 acre-ft per year).

Extremes.--Maximum discharge during year, 42 cfs Jan. 26 (gage height, 3.95 ft); minimum daily, 0.4 cfs Aug. 21-31.

1948-61: Maximum discharge, 8,800 cfs Jan. 15, 1952 (gage height, 12.1 ft), from rating curve extended above 600 cfs on basis of slope-area measurement of peak flow; minimum daily, 0.3 cfs Oct. 17-20, 25, 27, 1951.

Remarks.--Records good. Discharge measurements generally made once a week. No regulation or diversion.

Cooperation.--Fifty-five discharge measurements furnished by Ventura County Water Resources Division and three by Ventura River Municipal Water District.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.8	0.8	5.1	3.6	5.1	3.3	2.7	1.7	1.4	0.6	0.6	0.5
2	.8	.8	7.2	3.6	4.9	3.3	2.5	1.6	1.3	.6	.6	.5
3	.8	1.1	4.9	3.6	4.9	3.3	2.4	1.6	1.3	.6	.6	.5
4	.8	1.1	4.9	3.6	4.7	3.3	2.2	1.5	1.3	.6	.6	.5
5	.8	3.3	4.5	3.6	4.7	3.3	2.3	1.5	1.3	.6	.5	.5
6	.8	2.3	4.5	3.6	4.7	3.3	2.4	1.5	1.3	.6	.5	.5
7	.8	6.3	4.5	3.6	4.7	3.3	2.5	1.5	1.3	.6	.5	.5
8	.8	4.0	4.5	3.6	4.7	3.3	2.3	1.4	1.3	.6	.5	.5
9	.8	3.1	4.5	3.6	4.7	3.3	2.2	1.4	1.2	.5	.5	.5
10	.8	2.7	4.3	3.6	4.5	3.1	2.2	1.4	1.2	.5	.5	.5
11	.8	2.7	4.3	3.6	4.5	3.1	2.0	1.4	1.1	.5	.5	.5
12	.8	5.8	4.3	3.6	4.3	3.1	2.0	1.4	1.1	.6	.5	.5
13	.8	6.0	4.3	3.4	4.1	3.1	2.0	1.5	1.1	.6	.5	.5
14	.8	4.9	4.3	3.4	4.1	3.1	2.0	1.5	1.0	.6	.5	.5
15	.8	4.3	4.1	3.4	4.1	4.0	2.0	1.5	.9	.6	.5	.5
16	.8	3.4	4.1	3.4	4.1	3.4	2.2	1.5	.9	.6	.5	.5
17	.8	2.8	4.1	3.4	4.1	3.3	2.3	1.5	.9	.6	.5	.5
18	.8	2.8	4.1	3.4	4.1	3.0	2.4	1.4	.9	.6	.5	.5
19	.7	2.7	3.6	3.4	4.1	3.1	2.3	1.4	.9	.6	.5	.5
20	.7	2.7	3.8	3.4	4.0	3.0	2.2	1.4	.9	.6	.5	.5
21	.7	2.7	3.8	3.3	3.8	3.0	1.8	1.4	.9	.6	.4	.6
22	.7	2.7	3.8	3.4	3.6	3.0	2.2	1.4	1.0	.6	.4	.6
23	.8	2.7	3.8	3.8	3.6	3.0	1.9	1.4	.9	.6	.4	.6
24	.8	2.7	3.8	3.8	3.8	3.1	1.8	1.4	.8	.6	.4	.6
25	.8	2.8	3.8	4.0	3.8	3.1	1.8	1.4	.8	.6	.4	.6
26	.8	5.0	3.6	2.2	3.8	3.1	1.9	1.4	.9	.6	.4	.6
27	.8	4.9	3.6	9.2	3.6	3.1	1.8	1.4	.9	.6	.4	.5
28	.8	4.3	3.6	7.2	3.6	3.1	1.7	1.4	.8	.6	.4	.5
29	.8	4.3	3.8	6.2	-	3.0	1.7	1.4	.8	.6	.4	.5
30	.8	4.3	3.8	5.8	-----	3.0	1.7	1.4	.6	.6	.4	.5
31	.8	-----	3.6	5.6	-----	2.8	-----	1.4	-----	.6	.4	-----
Total	24.4	120.7	131.1	144.7	118.7	98.3	63.4	45.0	31.0	18.3	14.8	15.6
Mean	0.79	4.02	4.23	4.67	4.24	3.17	2.11	1.45	1.03	0.59	0.48	0.52
Max.	0.8	23	7.2	22	5.1	4.0	2.7	1.7	1.4	0.6	0.6	0.6
Min.	0.7	0.8	3.6	3.3	3.6	2.8	1.7	1.4	0.6	0.5	0.4	0.5
Ac-ft	48	239	260	287	235	195	126	89	61	36	29	31

Calendar year 1960: Max 42 Min 0.6 Mean 4.82 Acre-feet 3,500  
 Water year 1960-61: Max 23 Min 0.4 Mean 2.26 Acre-feet 1,640

Peak discharge (base, 100 cfs).--No peak above base.

## VENTURA RIVER BASIN

11-1150. Matilija Reservoir at Matilija Hot Springs, Calif.

Location.--Lat 34°29'02", long 119°18'28", in SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.29, T.5 N., R.23 W., on upstream face near right end of Matilija Dam on Matilija Creek, 0.2 mile west of Matilija Hot Springs.

Drainage area.--54.6 sq mi.

Records available.--March 1948 to September 1961. Prior to October 1953, published as "at Matilija."

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Ventura County Water Resources Division). Prior to Oct. 1, 1954, at datum 1,000 ft higher.

Extremes.--Maximum contents during year, 3,893 acre-ft Oct. 1 (elevation, 1,095.41 ft); minimum, 2,032 acre-ft Sept. 30 (elevation, 1,069.18 ft).

1948-61: Maximum contents, 7,399 acre-ft Apr. 3, 1958 (elevation, 1,128.10 ft); minimum, 54 acre-ft (sluice gate open) July 27, 1951, to Jan. 11, 1952.

Remarks.--Reservoir is formed by concrete dam. Storage began Mar. 14, 1948. Capacity and area ratings for reservoir are based on surveys made in 1948. Dead storage below sluice gate (elevation, 1,000.0 ft), 54 acre-ft included in contents. Capacity below outlet gate (elevation, 1,025.0 ft), 250 acre-ft; below spillway level (elevation, 1,125.0 ft), 7,020 acre-ft. Water released from reservoir passes down natural channel of Matilija Creek or is diverted through pipeline to Ventura River basin and Ojai Valley for irrigation.

Cooperation.--Gage-height record furnished by Ventura River Municipal Water District.

Month-end elevation and contents, water year October 1960 to September 1961

Date	Elevation (feet)†	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	1,095.41	3,893	-
Oct. 31.....	1,092.30	3,635	-258
Nov. 30.....	1,092.65	3,664	+29
Dec. 31.....	1,092.60	3,660	-4
Calendar year 1960.....	-	-	-1,642
Jan. 31.....	1,092.72	3,670	+10
Feb. 28.....	1,092.07	3,617	-53
Mar. 31.....	1,090.85	3,516	-101
Apr. 30.....	1,088.72	3,351	-165
May 31.....	1,086.51	3,184	-167
June 30.....	1,083.53	2,967	-217
July 31.....	1,078.52	2,623	-344
Aug. 31.....	1,074.22	2,343	-280
Sept. 30.....	1,069.18	2,032	-311
Water year 1960-61.....	-	-	-1,861

† Elevation at 12 p.m.

VENTURA RIVER BASIN

197

11-1155. Matilija Creek at Matilija Hot Springs, Calif.

Location.--Lat 34°28'58", long 119°18'03", in SW¼NW¼SW¼ sec.28, T.5 N., R.23 W., on right bank 0.2 mile east of Matilija Hot Springs, 0.2 mile upstream from North Fork, and 0.45 mile downstream from Matilija Dam.

Drainage area.--54.6 sq mi (revised).

Records available.--October 1927 to September 1961. Prior to October 1953, published as "at Matilija."

Gage.--Water-stage recorder. Altitude of gage is 900 ft (from topographic map). Prior to Feb. 11, 1939, at site 0.6 mile upstream at different datum.

Extremes.--Maximum discharge during year, 6.6 cfs Jan. 26 (gage height, 1.53 ft); minimum daily, 0.3 cfs June 9.

1927-61: Maximum discharge, 15,900 cfs Mar. 2, 1938, on basis of slope-area measurement of peak flow; minimum daily, 0.1 cfs for several days in some years of regulated flow.

Remarks.--Records good. Discharge measurements generally made twice a month. Flow regulated by Matilija Reservoir since Mar. 14, 1948 (see preceding page); water diverted at dam to Ventura River basin and Ojai Valley for irrigation since May 1951.

Cooperation.--Records of diversion from Matilija Reservoir furnished by Ventura River Municipal Water District.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.6	1.0	3.8	3.1	3.8	2.4	2.6	2.1	1.2	0.9	0.7	0.5
2	.6	.9	3.8	3.4	3.8	2.2	2.6	1.5	1.2	.9	.7	.5
3	.6	1.0	3.7	3.4	4.0	2.2	2.6	1.1	1.2	1.0	.7	.6
4	.6	1.0	3.7	3.4	4.0	2.2	2.6	1.6	1.2	.9	.7	.6
5	.6	1.4	3.7	3.4	4.0	2.2	2.6	1.5	1.2	.9	.7	.6
6	.6	1.3	4.0	3.4	4.0	2.3	2.5	1.5	1.2	.9	.7	.6
7	.6	2.0	3.8	3.4	4.0	2.0	2.5	1.5	1.1	.9	.6	.6
8	.6	4.1	3.4	3.4	4.0	1.7	2.5	1.5	.6	.8	.6	.6
9	.7	4.1	3.4	3.4	4.0	1.6	2.6	1.5	.3	.9	.6	.6
10	.7	4.1	3.3	3.4	3.8	1.6	2.5	1.6	1.0	.9	.6	.6
11	.8	4.1	3.5	3.4	3.7	1.6	2.2	1.6	1.0	.8	.6	.6
12	.8	4.9	3.4	3.3	3.7	1.6	2.2	1.6	.8	.6	.6	.5
13	.9	4.4	3.5	3.3	3.7	1.6	2.5	1.6	1.0	.6	.6	.4
14	.9	4.4	3.5	3.3	3.4	2.4	2.5	1.6	1.0	.6	.6	.5
15	1.0	4.6	3.5	3.3	3.4	3.5	2.5	1.6	1.2	.6	.6	.5
16	1.0	4.4	3.5	3.3	3.4	3.3	2.6	1.6	1.3	.6	.6	.5
17	1.0	4.3	3.5	3.1	3.4	3.1	2.6	.9	1.3	.6	.6	.5
18	1.0	4.1	3.5	3.0	3.4	3.1	2.6	.6	1.4	.6	.6	.5
19	1.0	4.1	3.7	2.9	3.4	3.0	2.6	1.5	1.4	.6	.6	.5
20	1.0	4.0	3.7	2.9	3.4	3.0	2.6	1.4	1.4	.6	.6	.5
21	1.0	4.0	3.7	2.9	3.4	3.1	2.6	1.4	1.4	.6	.6	.4
22	1.0	4.0	3.7	2.9	3.1	3.5	2.5	1.3	1.4	.6	.6	.4
23	1.0	4.0	3.7	2.9	2.9	3.3	2.5	1.2	1.3	.6	.6	.4
24	1.0	3.8	3.7	2.9	2.8	3.5	2.5	1.2	1.3	.6	.7	.4
25	1.0	3.8	3.8	3.0	2.8	3.4	2.5	1.2	1.3	.6	.7	.4
26	1.0	4.0	3.8	3.6	2.8	3.4	2.3	1.2	1.2	.6	.7	.5
27	1.0	3.8	3.4	2.8	2.8	3.7	2.3	1.2	1.2	.6	.7	.5
28	1.0	3.7	2.9	2.8	2.8	3.5	2.3	1.2	1.1	.6	.7	.6
29	1.0	3.7	2.8	2.8	-	3.5	2.3	1.2	1.0	.6	.7	.5
30	1.0	3.7	3.0	2.8	-	2.6	2.2	1.2	.9	.6	.6	.5
31	1.0	-	3.0	3.7	-	2.6	-	1.2	-	.7	.5	-
Total	26.6	102.7	109.4	98.6	97.7	82.9	74.5	42.9	34.1	21.9	19.7	15.4
Mean	0.86	3.42	3.53	3.18	3.49	2.67	2.48	1.38	1.14	0.71	0.64	0.51
Max.	1.0	4.9	4.0	3.7	4.0	3.7	2.6	2.1	1.4	1.0	0.7	0.6
Min.	0.6	0.9	2.8	2.8	2.8	1.6	2.2	0.6	0.3	0.6	0.5	0.4
Ac-ft	53	204	217	196	194	164	148	85	68	43	39	31
(†)	204	24	16	57	58	95	126	164	193	324	268	315
Mean†	4.18	3.83	3.79	4.12	4.54	4.21	4.60	4.05	4.39	5.97	4.99	5.81
Ac-ft†	257	228	233	253	252	259	274	249	261	367	307	346

Calendar year 1960: Max 4.1 Min 0.3 Mean 4.23 Ac-ft 3,070 Mean† 6.47 Ac-ft† 4,700  
Water year 1960-61: Max 4.9 Min 0.3 Mean 1.99 Ac-ft 1,440 Mean† 4.54 Ac-ft† 3,290

† Diversion, in acre-feet, to Ventura River basin and Ojai Valley.

† Adjusted for diversion.

## VENTURA RIVER BASIN

11-1160. North Fork Matilija Creek at Matilija Hot Springs, Calif.

Location.--Lat 34°29'33", long 119°18'20", in NE 1/4 NE 1/4 sec. 29, T.5 N., R.23 W., on right bank at bridge on U. S. Highway 399, 0.7 mile north of Matilija Hot Springs and 0.8 mile upstream from mouth.

Drainage area.--15.6 sq mi (revised).

Records available.--October 1928 to September 1932, October 1933 to September 1961. Prior to October 1953, published as "at Matilija."

Gage.--Water-stage recorder. Datum of gage is 1,142.02 ft above mean sea level (levels by Ventura County Water Resources Division). Prior to Nov. 12, 1948, at site 0.3 mile downstream at different datum.

Average discharge.--32 years, 8.59 cfs (6,220 acre-ft per year); median of yearly mean discharges, 4.0 cfs (2,900 acre-ft per year).

Extremes.--Maximum discharge during year, 74 cfs Jan. 26 (gage height, 2.26 ft); minimum daily, 0.1 cfs for many days.  
1928-32, 1933-61: Maximum discharge, 5,580 cfs Mar. 2, 1938; minimum, 0.1 cfs for several days in some years.

Remarks.--Records good. Discharge measurements generally made once a week. No regulation or diversion above station.

Cooperation.--Gage-height record and 62 discharge measurements furnished by Ventura County Water Resources Division.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Nov. 21-26, Dec. 15 to Jan. 2, Jan. 12-26)

1.0	0.1	1.4	5.9
1.2	1.6	1.5	9.4
1.3	3.4	1.7	20

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.4	0.5	1.9	1.4	2.2	1.1	0.9	0.6	0.6	0.2	0.2	0.2
2	.4	.5	2.5	1.4	2.0	1.2	.8	.6	.5	.2	.2	.2
3	.4	.4	2.0	1.4	2.0	1.2	.7	.6	.5	.2	.2	.1
4	.4	.3	1.9	1.4	2.0	1.2	.6	.5	.4	.2	.1	.1
5	.4	5.4	1.9	1.4	1.9	1.2	.7	.5	.5	.2	.1	.1
6	.3	8.7	1.9	1.4	1.9	1.1	.7	.5	.5	.1	.1	.1
7	.3	2.2	1.9	1.4	1.9	1.0	.7	.4	.5	.1	.1	.2
8	.3	1.6	1.9	1.4	1.9	1.0	.7	.4	.5	.1	.1	.2
9	.4	1.3	1.7	1.3	1.9	1.0	.7	.3	.5	.1	.2	.2
10	.4	1.2	1.7	1.3	1.7	.9	.7	.3	.4	.1	.2	.2
11	.5	1.2	1.7	1.3	1.7	1.0	.7	.4	.4	.1	.2	.2
12	.5	5.2	1.7	1.3	1.7	1.0	.6	.4	.4	.1	.1	.2
13	.6	2.5	1.7	1.3	1.7	1.1	.7	.4	.4	.1	.1	.2
14	.6	1.9	1.6	1.2	1.6	1.2	.6	.4	.3	.1	.1	.2
15	.6	1.9	1.6	1.2	1.6	1.6	.6	.4	.2	.1	.1	.2
16	.5	1.6	1.4	1.3	1.6	1.2	.5	.4	.2	.1	.1	.3
17	.5	1.3	1.4	1.3	1.6	1.0	.5	.4	.2	.1	.1	.4
18	.5	1.3	1.4	1.3	1.6	.9	.6	.4	.2	.1	.1	.3
19	.5	1.6	1.4	1.2	1.6	.9	.6	.4	.2	.1	.1	.3
20	.5	1.3	1.4	1.1	1.4	.9	.6	.4	.2	.1	.1	.3
21	.5	1.0	1.4	1.2	1.4	1.0	.6	.4	.2	.2	.1	.3
22	.5	1.0	1.4	1.2	1.3	1.0	1.0	.4	.2	.2	.1	.3
23	.5	1.0	1.4	1.2	1.3	1.1	.8	.4	.2	.2	.1	.3
24	.5	1.0	1.4	1.2	1.3	1.1	.7	.4	.1	.1	.1	.3
25	.5	1.1	1.4	1.6	1.3	1.1	.6	.5	.1	.1	.1	.2
26	.5	3.8	1.4	1.9	1.3	1.0	.6	.5	.1	.1	.1	.2
27	.5	2.5	1.4	5.6	1.2	1.0	.6	.5	.2	.1	.1	.2
28	.5	2.0	1.4	4.0	1.2	1.0	.5	.6	.2	.1	.2	.2
29	.5	1.7	1.4	3.6	-	.9	.5	.5	.2	.2	.2	.2
30	.5	1.4	1.4	3.1	-	1.0	.6	.4	.1	.2	.2	.2
31	.5	-	1.4	2.5	-	1.0	-	.4	-	.2	.2	-
Total	14.5	58.4	50.0	70.5	45.8	32.9	19.7	13.7	9.2	4.2	4.1	6.6
Mean	0.47	1.95	1.61	2.27	1.64	1.06	0.66	0.44	0.31	0.14	0.13	0.22
Max.	0.6	8.7	2.5	19	2.2	1.6	1.0	0.6	0.6	0.2	0.2	0.4
Min.	0.3	0.3	1.4	1.1	1.2	0.9	0.5	0.3	0.1	0.1	0.1	0.1
Ac-ft	29	116	99	140	91	65	39	27	18	8.3	8.1	13

Calendar year 1960: Max 15 Min 0.2 Mean 1.49 Acre-feet 1,080

Water year 1960-61: Max 19 Min 0.1 Mean 0.90 Acre-feet 653

Peak discharge (base, 40 cfs).--Jan. 26 (10 a.m.) 74 cfs (2.26 ft).

11-1163. Ventura River near Meiners Oaks, Calif.

Location.--Lat 34°27'45", long 119°17'20", in Santa Ana Grant, on right bank 500 ft downstream from Robles diversion dam, 1,500 ft downstream from Los Padres National Forest boundary, and 1.1 miles northeast of Meiners Oaks, Ventura County.

Drainage area.--76.4 sq mi.

Records available.--May 1959 to September 1961.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 780 ft (from topographic map).

Extremes.--Maximum discharge during year, 20 cfs Jan. 26 (gage height, 1.49 ft); no flow for most of year.

1959-61: Maximum discharge, 38 cfs Feb. 1, 1960 (gage height, 1.62 ft); no flow for several months in each year.

Remarks.--Records good. Discharge measurements or observations of no flow made two or more times a month. Flow regulated by Matilija Reservoir and Robles diversion dam.

Cooperation.--Four discharge measurements furnished by Ventura River Municipal Water District.

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

1.0	0
1.1	.3
1.2	2.0
1.3	6.8

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0.3	0	0.1							
2		0	.7	0	.1							
3		0	.3	0	0							
4		0	.3	0	0							
5		.1	.3	0	0							
6		1.3	.3	0	0							
7		0	.3	0	0							
8		0	.2	0	0							
9		0	.2	0	0							
10		0	0	0	0							
11		0	.1	0	0							
12		5.4	.1	0	0							
13		2.0	.1	0	0							
14		.6	0	0	0							
15		.6	.1	0	0							
16		.4	0	0	.5							
17		.3	0	0	.4							
18		.2	0	0	0							
19		.1	0	0	0							
20		.1	0	0	0							
21		0	0	0	0							
22		.1	0	0	0							
23		.2	0	0	0							
24		.2	0	0	0							
25		.2	0	0	0							
26		1.0	0	6.5	0							
27		.6	0	5.6	0							
28		.3	0	.7	0							
29		.3	0	.3	-							
30		.3	0	.1								
31			0	.1								
Total	0	14.3	3.3	13.3	1.1	0	0	0	0	0	0	0
Mean	0	0.48	0.11	0.43	0.04	0	0	0	0	0	0	0
Max.	0	5.4	0.7	6.5	0.5	0	0	0	0	0	0	0
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0	28	6.5	26	2.2	0	0	0	0	0	0	0

Calendar year 1960 :

Max 19

Min 0

Mean 0.81

Acre-feet 584

Water year 1960-61 :

Max 6.5

Min 0

Mean 0.09

Acre-feet 63

## VENTURA RIVER BASIN

11-1175. San Antonio Creek at Casitas Springs, Calif.

Location.--Lat 34°22'49", long 119°18'13", in Santa Ana Grant, on downstream side of bridge on U. S. Highway 399, 0.2 mile upstream from mouth, and 0.9 mile north of Casitas Springs, Ventura County.

Drainage area.--51.2 sq mi.

Records available.--October 1949 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 307.55 ft above mean sea level (levels by Ventura County Water Resources Division).

Average discharge.--12 years, 5.08 cfs (3,680 acre-ft per year); median of yearly mean discharges, 1.2 cfs (870 acre-ft per year).

Extremes.--Maximum discharge during year, 217 cfs Nov. 5 (gage height, 6.72 ft); no flow for most of year.

1949-61: Maximum discharge, 5,240 cfs Apr. 3, 1958 (gage height, 12.50 ft), from rating curve extended above 2,000 cfs on basis of slope-area measurement of peak flow; no flow for several months in each year.

Remarks.--Records poor. Pumping from wells along river for irrigation affects surface flow at this station.

Cooperation.--Gage-height record and 16 discharge measurements furnished by Ventura County Water Resources Division.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		* 0	(*)	0	* 0.4	* 0.2						
2		0		0	.4	.2						
3	(*)	0		* 0	* .5	* .2	(*)					
4		0		0	.5	.2						
5		1.4			.5	.2		(*)				
6		* 21		a .1	.5	.2						
7		* 0			.5	.2						
8		0			.5	.2						
9		0		(*)	.5	.2						
10		0			* .5	* .2						
11		0			.5	.1				(*)		(*)
12		5.3		a .2	.5	.1						
13		.1		(*)	.5	.1						
14		* 0			.5	.1						
15		0			.5	.1		(*)				
16		0			* .5	* .2						
17		0		(*)	* .5	* .2						
18		0			.5	.1					(*)	
19		0			.4	.1	(*)					
20		0		(*)	.4	.1						
21		0			.4	.1						
22		0		a .3	.3	.1						
23		0			.3	.1						
24		0			* .3	* .1						
25		0		a .5	.3	0						
26		.4		*a 1.0	.3	0						
27		0		*a 1	.3	0						
28		0		a .8	.3	0						
29		0		a .7		0						
30		0		a .5		0					(*)	
31				a .4		0						
Total	0	40.8	0	18.1	12.1	3.6	0	0	0	0	0	0
Mean	0	1.36	0	0.58	0.43	0.12	0	0	0	0	0	0
Max.	0	21	0	10	0.5	0.2	0	0	0	0	0	0
Min.	0	0	0	0	0.3	0	0	0	0	0	0	0
Ac-ft	0	81	0	36	24	7.1	0	0	0	0	0	0

Calendar year 1960: Max 30 Min 0 Mean 0.75 Acre-feet 546

Water year 1960-61: Max 21 Min 0 Mean 0.20 Acre-feet 148

Peak discharge (base, 200 cfs).--Nov. 5 (7 p.m.) 217 cfs (6.72 ft).

\* Discharge measurement or observation of no flow made on this day.

a No gage-height record.

Location.--Lat 34°25'00", long 119°22'00", in Santa Ana Grant, on right bank 1,000 ft downstream from Los Padres National Forest Boundary, 0.6 mile upstream from Poplin Creek, and 4.2 miles west of Oak View, Ventura County.

Records available.--October 1958 to September 1961.

Extremes.--Maximum discharge during year, 1.6 cfs Nov. 12 (gage height, 2.02 ft); no flow June 15 to Sept. 30.

1958-61: Maximum discharge, 222 cfs Feb. 16, 1959 (gage height, 4.55 ft), from rating curve extended above 85 cfs; no flow at times in each year.

Remarks.--Records good. Discharge measurements generally made three times a month. No regulation or diversion above station.

Cooperation.--Eighteen discharge measurements furnished by Ventura River Municipal Water District.

[illegible]

## VENTURA RIVER BASIN

11-1178. Santa Ana Creek near Oak View, Calif.

Location.--Lat 34°25'25", long 119°20'25", in Santa Ana Grant, on downstream end of right abutment of bridge, 400 ft upstream from unnamed tributary and 3.0 miles northwest of Oak View, Ventura County.

Drainage area.--9.11 sq mi.

Records available.--October 1958 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 610 ft (from topographic map).

Extremes.--Maximum discharge during year, 1.2 cfs Nov. 12 (gage height, 2.57 ft); no flow for most of year.

1958-61: Maximum discharge, 340 cfs Feb. 16, 1959 (gage height, 4.65 ft), from rating curve extended above 150 cfs; no flow for part of each year.

Remarks.--Records good. Discharge measurements or observations of no flow generally made twice a month. No regulation or diversion above station.

Cooperation.--Two discharge measurements furnished by Ventura River Municipal Water District.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Nov. 12.....0.1

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
November 1960.....	0.1	0.1	0	0.003	0.2
Calendar year 1960.....	103.3	12	0	.28	205
Water year 1960-61.....	.1	.1	0	.0003	.2

Peak discharge (base, 150 cfs).--No peak above base.

Note.--Flow occurred only on day listed above.



11-1185. Ventura River near Ventura, Calif.

Location.--Lat 34°21'05", long 119°18'23", in southeast corner of Santa Ana Grant, on right bank 500 ft downstream from county highway bridge at Foster Memorial Park, 0.2 mile downstream from Coyote Creek, and 5 miles north of Ventura, Ventura County.

Drainage area.--188 sq mi (revised).

Records available.--September 1911 to January 1914, October 1929 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 200 ft (from topographic map). Prior to Jan. 18, 1914, chain gage at site 370 ft upstream at different datum (destroyed by flood). October 1929 to Nov. 2, 1949, at site 370 ft upstream at present datum.

Average discharge.--34 years (1911-13, 1929-61), 58.0 cfs (41,990 acre-ft per year); median of yearly mean discharges, 22 cfs (15,900 acre-ft per year). Average combined discharge of river and diversion, 29 years (1932-61), 68.4 cfs (49,520 acre-ft per year); median of combined yearly mean discharges, 27 cfs (19,500 acre-ft per year).

Extremes.--Maximum discharge during year, 308 cfs Nov. 6 (gage height, 6.77 ft); no flow for most of year.

1911-14, 1929-61: Maximum discharge, 39,200 cfs Mar. 2, 1938 (gage height, 19.2 ft), from rating curve extended above 7,700 cfs on basis of slope-area and contracted-opening measurement of peak flow; no flow at times in many years.

Remarks.--Records poor. Discharge measurements or observations of no flow generally made twice a month. Flow partly regulated by Matilija Reservoir since Mar. 14, 1948 (see p.196) and by Casitas Reservoir since Oct. 1, 1959. Water diverted through pipeline at dam (Matilija Reservoir) to Ojai Valley for irrigation since May 1951. Water diverted to Casitas Reservoir since January 1959. City of Ventura diverts water above station for municipal supply. For records of combined discharge of river and diversion, see following page.

Cooperation.--Gage-height record for diversion weir furnished by city of Ventura.

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

4.6	0	5.1	5.9
4.7	.2	5.2	9.4
4.8	.8	5.4	20
4.9	1.8	5.7	45
5.0	3.4		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.2	0.7	0.3	0		0						
2	.3	.7	.3	0		0						
3	.4	.8	.2	0		0						
4	.4	.8	.2	0		0						
5	.5	9.3	.2	0		0						
6	.6	4.0	.2	0		.1						
7	.7	1.9	.2	0		.1						
8	.8	1.7	.2	0		.1						
9	1.0	1.6	.2	0		.1						
10	1.0	1.4	.1	0		0						
11	1.0	1.1	.1	0		0						
12	1.0	3.7	.1	0		0						
13	1.0	1.7	.1	0		0						
14	.9	1.4	.1	0		0						
15	.9	1.1	0	0		0						
16	.8	.9	0	0		0						
17	.8	.8	0	0		0						
18	.8	.7	0	0		0						
19	.8	.6	0	0		0						
20	.8	.5	0	0		0						
21	.7	.5	0	0		0						
22	.7	.4	0	0		0						
23	.8	.4	0	0		0						
24	.8	.4	0	0		0						
25	.9	.4	0	0		0						
26	1.0	.6	0	3.7		0						
27	1.0	.3	0	0		0						
28	.9	.3	0	0		0						
29	.8	.2	0	0		0						
30	.7	.2	0	0		0						
31	.7		0	0		0						
Total	23.7	75.1	2.5	3.7	0	0.4	0	0	0	0	0	0
Mean	0.76	2.50	0.08	0.12	0	0.01	0	0	0	0	0	0
Max.	1.0	4.0	0.3	3.7	0	0.1	0	0	0	0	0	0
Min.	0.2	0.2	0	0	0	0	0	0	0	0	0	0
Ac-ft	47	149	5.0	7.3	0	0.8	0	0	0	0	0	0

Calendar year 1960 : Max 148 Min 0 Mean 1.88 Acre-feet 1,360  
 Water year 1960-61 : Max 40 Min 0 Mean 0.29 Acre-feet 209

Peak discharge (base, 500 cfs).--No peak above base.

## VENTURA RIVER BASIN

## 1185. Ventura River near Ventura, Calif.--Continued

Combined discharge, in cubic feet per second, of Ventura River and diversion near Ventura, Calif.,  
water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.8	1.2	3.6	1.1	3.2	3.1	3.5	3.4	2.5	2.2	0.2	1.0
2	.9	1.3	2.7	2.2	3.1	3.4	3.4	3.8	2.5	1.7	.2	.3
3	.9	1.4	3.0	3.0	3.0	3.7	2.7	3.6	2.6	1.3	.7	.1
4	.9	1.4	3.4	3.1	2.8	2.9	2.8	3.5	1.1	1.3	1.5	.1
5	1.0	1.0	2.2	3.0	2.7	2.9	3.5	3.5	1.0	.7	.6	.4
6	1.0	.42	2.8	2.9	1.6	2.9	3.4	3.5	.7	1.4	.2	1.0
7	1.1	3.3	3.3	2.7	2.0	3.4	3.4	3.5	1.3	2.2	.2	1.0
8	1.3	3.1	3.1	2.6	2.7	3.6	2.5	3.4	2.7	2.2	.2	.7
9	1.5	5.1	1.7	2.2	1.9	3.5	2.8	3.4	2.1	2.1	.5	.5
10	1.5	6.0	2.1	2.1	1.6	3.4	3.1	3.3	1.2	2.0	1.5	.5
11	1.5	4.4	3.1	2.5	2.6	3.4	2.7	2.6	1.2	1.9	1.5	.3
12	1.5	5.4	1.4	2.4	.9	3.3	3.2	1.9	2.2	1.9	.7	.2
13	1.5	2.8	1.0	2.4	.6	3.3	2.5	2.0	2.8	1.9	.3	.1
14	1.3	4.2	1.6	2.3	1.1	3.2	2.7	3.0	2.8	2.0	.9	.2
15	1.4	5.3	1.5	1.2	1.9	3.2	4.1	3.5	2.3	1.9	1.5	.7
16	1.3	3.9	1.5	1.4	1.7	3.2	3.9	3.5	2.3	1.9	.7	1.3
17	1.2	3.7	.8	2.3	1.4	1.6	2.8	3.4	2.7	1.4	.2	.6
18	1.2	3.8	.3	1.4	1.9	1.4	2.9	3.3	1.7	.9	1.0	.2
19	1.2	2.7	1.0	.7	1.9	1.9	2.1	3.3	1.0	1.8	1.6	.2
20	1.2	3.5	1.1	.7	1.9	1.0	3.0	3.3	1.9	1.7	1.5	.2
21	1.2	4.1	.4	.8	1.8	3.0	4.2	2.9	2.4	1.8	1.3	.2
22	1.2	3.8	1.2	1.2	2.6	4.2	2.8	2.5	1.8	1.8	1.2	.2
23	1.3	3.6	3.7	.9	2.0	4.0	1.4	3.3	2.2	1.8	1.2	.2
24	1.4	3.6	4.5	.9	1.4	3.9	3.4	3.2	2.6	1.6	1.1	.2
25	2.1	2.0	5.5	.9	1.6	3.8	4.2	3.2	2.7	1.4	1.2	.2
26	1.5	1.4	4.5	5.1	1.6	3.5	4.0	3.1	2.6	1.1	1.1	.5
27	2.7	1.4	3.6	1.2	2.2	3.4	4.0	2.3	2.3	1.1	1.1	.2
28	2.5	3.1	2.7	.8	3.3	3.6	3.8	1.6	2.3	.4	1.0	.2
29	1.4	3.8	2.6	2.2	-	3.5	3.8	1.0	2.3	.2	1.0	.2
30	1.3	3.6	1.9	2.2	-	3.5	3.2	.4	2.2	.2	1.2	.2
31	1.3	-	1.0	2.2	-	3.5	-	1.4	-	.2	1.0	-
Total	42.1	144.9	72.8	60.6	57.0	98.2	95.8	89.6	62.0	46.0	28.1	11.9
Mean	1.36	4.83	2.35	1.95	2.04	3.17	3.19	2.89	2.07	1.48	0.91	0.40
Max.	2.7	.42	5.5	5.1	3.3	4.2	4.2	3.8	2.8	2.2	1.6	1.3
Min.	0.8	1.2	0.3	0.7	0.6	1.0	1.4	0.4	0.7	0.2	0.2	0.1
Ac-ft	84	287	144	120	113	195	190	178	123	91	56	24
Calendar year 1960 :				Max 152	Min 0.3	Mean 5.85	Acre-feet 4,240					
Water year 1960-61 :				Max 42	Min 0.1	Mean 2.22	Acre-feet 1,600					

11-1195. Carpinteria Creek near Carpinteria, Calif.

Location.--Lat 34°24'04", long 119°29'08", in El Rincon Grant, on left bank at upstream side of bridge on State Highway 150, 200 ft downstream from Gobernador Creek and 1.8 miles northeast of Carpinteria, Santa Barbara County.

Drainage area.--13.1 sq mi (revised).

Records available.--January 1941 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 130 ft (from topographic map). Prior to July 1, 1958, at datum 2.00 ft higher.

Average discharge.--20 years, 1.63 cfs (1,180 acre-ft per year); median of yearly mean discharges, 0.3 cfs (220 acre-ft per year).

Extremes.--Maximum discharge during year, 146 cfs Nov. 5 (gage height, 4.04 ft); no flow for most of year.

1941-61: Maximum discharge, 2,440 cfs Jan. 15, 1952 (gage height, 9.75 ft, present datum), from rating curve extended above 500 cfs on basis of slope-area measurement of peak flow; no flow at times in each year.

Remarks.--Records good. Discharge measurements or observations of no flow made twice a month. Gobernador Land and Water Co. diverts from Gobernador Creek 1.8 miles above station. Small lake three-quarters of a mile southeast of station and outside the drainage area stores storm runoff and surplus water diverted by Gobernador Land and Water Co. from Gobernador Creek. At times this lake is drained by pumping water into Gobernador Creek 1,000 ft above station. No pumping occurred this year.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Nov. 5..... 9.4                      Nov. 12..... 1.8  
6..... 3.4                      May 2..... .1

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
November 1960.....	14.6	9.4	0	0.49	29
May 1961.....	.1	.1	0	.003	.2
Calendar year 1960.....	-	9.4	0	.12	89
Water year 1960-61.....	-	9.4	0	.04	29

Peak discharge (base, 25 cfs).--Nov. 5 (5 p.m.) 146 cfs (4.04 ft).

Note.--Flow occurred only on days listed above.

## ATASCADERO CREEK BASIN

11-1200. Atascadero Creek near Goleta, Calif.

Location.--Lat 34°25'29", long 119°48'39", in La Goleta Grant, on downstream side of left-bank abutment of private road bridge 400 ft downstream from Maria Ygnacio Creek, 1.3 miles upstream from mouth, and 1.3 miles southeast of Goleta, Santa Barbara County.

Drainage area.--18.3 sq mi.

Records available.--October 1941 to September 1961. Prior to October 1947, published as Alascadero Creek near Goleta.

Gage.--Water-stage recorder. Altitude of gage is 20 ft (from topographic map).

Average discharge.--20 years, 2.28 cfs (1,650 acre-ft per year); median of yearly mean discharges, 0.7 cfs (510 acre-ft per year).

Extremes.--Maximum discharge during year, 331 cfs Nov. 5 (gage height, 8.03 ft); no flow for several months.

1941-61: Maximum discharge, about 4,500 cfs Jan. 15, 1952 (gage height, 10.85 ft), estimated on basis of records for nearby streams; no flow many days each year. Maximum gage height, 11.30 ft Apr. 3, 1958 (backwater from vegetation in channel).

Remarks.--Records good below 5 cfs and poor above. Discharge measurements or observations of no flow generally made twice a month. Small diversions above station for irrigation. Much of low flow results from return waste water from local irrigation.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0	0.9	0.1	0.1	0.1	0.1		0			
2	0	0	1.2	.1	.1	.1	.1		0			
3	0	.2	.1	.1	.1	.1	.2		0			
4	0	2.5	.1	.1	.1	.1	0		.1			
5	0	50	.1	.1	.1	.1	0		.1			
6	0	47	.1	.1	.1	0	0		0			
7	0	1.3	.1	.1	.1	0	0		.2			
8	0	.7	.1	.1	.1	0	0		0			
9	0	.6	.1	.1	.1	0	0		0			
10	0	.5	.1	.1	.1	0	0		.1			
11	0	.1	.1	.1	.1	0	0		0			
12	.1	49	.1	.1	.1	0	0		0			
13	.1	2.2	.1	.1	.1	0	0		0			
14	0	.6	.1	.1	.1	0	0		.1			
15	0	1.0	.1	.1	.1	4.6	0		.2			
16	0	.5	.1	.1	.1	.1	0		0			
17	0	.4	.1	.1	.1	.1	0		0			
18	0	.1	.1	.1	.1	.1	0		0			
19	0	.1	.1	.1	.1	.1	0		0			
20	0	.4	.1	.1	.1	.1	0		0			
21	0	.1	.1	.1	.1	.1	0		0			
22	0	.1	.1	.1	.1	.1	0		0			
23	0	.1	0	.1	.1	.1	0		0			
24	0	.1	0	.1	.1	.1	0		0			
25	0	.1	0	.4	.1	.1	0		0			
26	0	9.4	0	28	.1	.1	0		0			
27	0	.6	0	.5	.1	.1	0		0			
28	0	.1	0	.1	.1	.1	0		0			
29	0	.1	0	.1	-	.1	0		0			
30	0	.1	0	.1	-	.1	0		0			
31	0	-	.1	.1	-	.1	-		-			
Total	0.2	168.0	4.2	31.7	2.8	6.7	0.4	0	0.8	0	0	0
Mean	0.01	5.60	0.14	1.02	0.10	0.22	0.01	0	0.03	0	0	0
Max.	0.1	50	1.2	28	0.1	4.6	0.2	0	0.2	0	0	0
Min.	0	0	0	0	0.1	0	0	0	0	0	0	0
Ac-ft	0.4	333	8.3	63	5.6	13	0.8	0	1.6	0	0	0

Calendar year 1960 : Max 50 Min 0 Mean 0.80 Acre-feet 580  
 Water year 1960-61 : Max 50 Min 0 Mean 0.59 Acre-feet 426

Peak discharge (base, 60 cfs).--Nov. 5 (6 p.m.) 331 cfs (8.03 ft); Nov. 12 (5 p.m.) 210 cfs (7.38 ft); Jan. 26 (4:30 a.m.) 137 cfs (6.92 ft).

## SAN JOSE CREEK BASIN

207

11-1205. San Jose Creek near Goleta, Calif.

Location.--Lat 34°27'33", long 119°48'29", in La Goleta Grant, on left pier of Patterson Avenue Bridge, 1.1 miles downstream from unnamed tributary, and 1.7 miles northeast of Goleta, Santa Barbara County.

Drainage area.--5.51 sq mi (revised).

Records available.--January 1941 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 100 ft (from topographic map). Prior to Dec. 24, 1955, at datum 5.50 ft higher. Dec. 24, 1955, to Jan. 10, 1960, at datum 1.5 ft higher.

Average discharge.--20 years, 1.48 cfs (1,070 acre-ft per year); median of yearly mean discharges, 0.8 cfs (580 acre-ft per year).

Extremes.--Maximum discharge during year, 102 cfs Nov. 12 (gage height, 4.08 ft); no flow on many days.

1941-61: Maximum discharge, 1,960 cfs Apr. 4, 1941, from rating curve extended above 850 cfs; maximum gage height, 12.74 ft, present datum, Jan. 21, 1943; no flow at times in each year.

Remarks.--Records good. Discharge measurements generally made two or more times a month. Many small diversions above station for irrigation.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0.7	0.3	0.4	0.1	0.2	0.1	0.1	0	0.1	
2		0	2.7	.3	.4	.2	.2	.1	.1	0	.1	
3		.1	.8	.3	.4	.2	.2	.1	0	.1	.1	
4		.6	.5	.3	.4	.2	.1	.1	.1	.1	.1	
5		4.4	.5	.3	.3	.2	.2	.1	0	.1	.1	
6		7.7	.4	.3	.3	.2	.2	.1	.1	.1	.1	
7		.9	.4	.3	.3	.2	.2	.1	.1	0	.1	
8		.3	.4	.3	.3	.2	.2	.1	.1	0	.1	
9		.2	.3	.4	.3	.1	.1	.1	.1	.1	.1	
10		.2	.3	.4	.3	.1	0	.1	0	0	.1	
11		.2	.3	.4	.3	.1	0	0	.1	.1	.1	
12		12	.3	.4	.3	.1	0	0	0	0	.1	
13		3.0	.3	.4	.3	.1	0	0	.2	0	.1	
14		1.0	.3	.4	.2	.1	0	.1	.2	.1	.2	
15		.8	.3	.4	.2	1.3	0	.1	.1	.1	.1	
16		.5	.3	.4	.2	.4	0	0	.1	.1	.1	
17		.5	.3	.4	.2	.2	0	.2	.1	0	.1	
18		.4	.4	.4	.3	.2	0	.1	.1	0	.1	
19		.4	.4	.4	.2	.2	.1	0	.1	0	0	
20		.4	.3	.2	.2	.2	0	0	.2	0	0	
21		.5	.3	.3	.2	.2	.2	0	.2	.1	0	
22		.4	.3	.3	.1	.2	.6	0	.2	.1	0	
23		.4	.3	.3	.2	.2	.6	0	.2	.2	0	
24		.4	.3	.3	.1	.2	.3	0	.1	.2	0	
25		.4	.3	.5	.1	.2	.1	0	.1	.1	0	
26		2.3	.3	7.8	.2	.2	.1	0	.1	.1	0	
27		1.6	.3	2.0	.1	.2	0	0	0	.1	.1	
28		.5	.3	.8	.1	.2	0	0	0	.1	0	
29		.5	.3	.5	-	.1	.1	.1	0	.2	0	
30		.4	.3	.4	-	.2	.1	.1	0	.2	0	
31		-	.3	.4	-	.2	-	.1	-	.2	0	
Total	0	41.2	13.5	20.6	6.9	6.7	4.0	1.8	2.8	2.5	2.0	0
Mean	0	1.37	0.44	0.66	0.25	0.22	0.13	0.06	0.09	0.08	0.06	0
Max.	0	12	2.7	7.8	0.4	1.3	0.8	0.2	0.2	0.2	0.2	0
Min.	0	0	0.3	0.2	0.1	0.1	0	0	0	0	0	0
Ac-ft	0	82	27	41	14	13	7.9	3.6	5.6	5.0	4.0	0

Calendar year 1960 : Max 16 Min 0 Mean 0.48 Acre-feet 352

Water year 1960-61 : Max 12 Min 0 Mean 0.28 Acre-feet 203

Peak discharge (base, 100 cfs).--Nov. 12 (2:30 p.m.) 102 cfs (4.08 ft).

## CANADA HONDA CREEK BASIN

11-1207. Canada Honda Creek near Lompoc, Calif.

Location.--Lat 34°36'05", long 120°32'30", in Lompoc Grant, on right bank 5.5 miles southwest of Lompoc and 6.6 miles upstream from mouth, Santa Barbara County.

Drainage area.--3.09 sq mi.

Records available.--June 1959 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 580 ft (from topographic map). Prior to Nov. 24, 1959, staff gage at same site and datum.

Extremes.--Maximum discharge during year, 167 cfs Dec. 1 (gage height, 2.93 ft), on basis of maximum discharge for station near Point Arguello; no flow most of year.

1959-61: Maximum discharge, about 250 cfs Feb. 1, 1960 (gage height, 2.95 ft), on basis of maximum discharge for station near Point Arguello; no flow for most of each year.

Remarks.--Records good except those for period of no gage-height record and those above 10 cfs, which are poor. No regulation or diversion.

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	a 0	17	0		0						(*)
2	0	a 0	1.1	0		0						
3	0	a 0	.5	0		0						
4	* 0	a 1.5	.2	0		0						
5	0	a 1	* .1	* 0		0						
6	.2	a .2	.1	0		0						
7	0	* 0	.1	0		0						
8	0	0	.1	0		0						
9	0	0	.1	0		0						
10	0	0	.1	0		0						
11	0	0	.1	0		0						
12	0	4.3	0	0		0	(*)	(*)		(*)		
13	0	.2	0	0		0						
14	0	.2	0	0	(*)	* 0						
15	0	.1	a 0	0		.8			(*)			
16	0	0	a 0	0		.1						
17	0	0	a 0	0		0						
18	0	0	a 0	* 0		0						
19	0	0	a 0	0		0						
20	0	0	* 0	0		0						
21	0	0	0	0		0						
22	0	* 0	0	0		0						
23	0	0	0	0		0						
24	0	0	0	0		0						
25	0	0	0	0		0						
26	0	7.2	0	* 2.0		0						
27	* 0	.2	0	.1	(*)	0			(*)			
28	a 0	* .1	0	.1		0	(*)		(*)			
29	a 0	.1	0	.1		* 0						
30	a 0	.1	0	* 0		0						
31	a 0		0	0		0		(*)				
Total	0.2	15.2	19.5	2.3	0	0.9	0	0	0	0	0	0
Mean	0.006	0.51	0.63	0.07	0	0.03	0	0	0	0	0	0
Max.	0.2	7.2	17	2.0	0	0.8	0	0	0	0	0	0
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0.4	30	39	4.6	0	1.8	0	0	0	0	0	0

Calendar year 1960 : Max 32 Min 0 Mean 0.30 Acre-feet 218  
 Water year 1960-61 : Max 17 Min 0 Mean 0.10 Acre-feet 76

Peak discharge (base, 25 cfs).--Nov. 12 (9 a.m.) 32 cfs (1.90 ft); Nov. 26 (6 a.m.) 51 cfs (2.10 ft); Dec. 1 (3 p.m.) 167 cfs (2.93 ft).

\* Discharge measurement or observation of no flow made on this day.

a No gage-height record.

11-1208. Canada Honda Creek near Point Arguello, Calif.

Location.--Lat 34°35'48", long 120°34'41", in Lompoc Grant, on left bank 3.7 miles northeast of Arguello, Santa Barbara County, and 4.2 miles upstream from mouth.

Drainage area.--7.00 sq mi.

Records available.--March 1959 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 355 ft (from topographic map). Prior to Nov. 24, 1959, staff gage at same site and datum.

Extremes.--Maximum discharge during year, 163 cfs Dec. 1 (gage height, 3.15 ft), from rating curve extended above 20 cfs on basis of slope-area measurement of peak flow at gage height 3.95 ft; no flow for many days.

1959-61: Maximum discharge, 302 cfs Feb. 1, 1960 (gage height, 3.95 ft), from rating curve extended above 20 cfs on basis of slope-area measurement of peak flow; no flow for many days each year.

Remarks.--Records good except those above 10 cfs, which are poor. No regulation or diversion.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0	2.4	0.1	0.1	0.1	0.1					(*)
2	0	0	5.0	.1	.1	.1	.1					
3	0	0	1.2	.1	.1	.1	.1					
4	* 0	2.9	.5	.1	.1	.1	.1					
5	0	1.6	*.4	*.1	.1	.1	.1					
6	.5	.6	.4	.1	.1	.1	.1					
7	0	*.1	.4	.1	.1	.1	.1					
8	0	0	.4	.1	.1	.1	.1					
9	0	0	.4	.1	.1	.1	.1					
10	0	0	.4	.1	.1	.1	.1					
11	0	0	.3	.1	.1	.1	.1	(*)				
12	0	3.4	.3	.1	.1	.1	*.1					
13	0	.2	.2	.1	.1	.1	.1			(*)		
14	0	.2	.2	.1	*.1	*.1	.1					
15	0	.1	.2	.1	.1	1.1	.1		(*)			
16	0	.1	.2	.1	.1	.2	0					
17	0	.1	.2	.1	.1	.2	0					
18	0	.1	.2	*.1	.1	.2	0					
19	0	.1	.2	.1	.1	.1	0					
20	0	.1	*.2	.1	.1	.1	0					
21	0	.1	.1	.1	.1	.1	0					
22	0	*.1	.1	.1	.1	.1	0					
23	0	.1	.1	.1	.1	.1	0					
24	0	.1	.1	.1	.1	.1	0					
25	0	.1	.1	.1	.1	.2	0					
26	0	15	.1	* 5.5	.1	.2	0					
27	* 0	1.0	.1	.4	*.1	.1	* 0		(*)			
28	0	*.2	.1	.2	.1	.1	0					
29	0	.2	.1	.2	-	*.1	0					
30	0	.2	.1	*.2	-	.1	0					
31	0	-	.1	.2	-	.1	-	(*)	-	-	-	-
Total	0.5	26.7	36.4	9.2	2.8	4.6	1.5	0	0	0	0	0
Mean	0.02	0.89	1.17	0.30	0.10	0.15	0.05	0	0	0	0	0
Max.	0.5	15	24	5.5	-	1.1	0.1	0	0	0	0	0
Min.	0	0	0.1	0.1	-	0.1	0	0	0	0	0	0
Ac-ft	1.0	53	72	18	5.6	9.1	3.0	0	0	0	0	0

Calendar year 1960 : Max 48 Min 0 Mean 0.69 Acre-feet 504  
 Water year 1960-61 : Max 24 Min 0 Mean 0.22 Acre-feet 162

Peak discharge (base, 30 cfs).--Nov. 4 (4 p.m.) 34 cfs (2.01 ft); Nov. 26 (8 a.m.) 79 cfs (2.49 ft); Dec. 1 (5 p.m.) 163 cfs (3.15 ft).

\* Discharge measurement or observation of no flow made on this day.

Note.--No gage-height record Feb. 28 to Mar. 13.

## SANTA YNEZ RIVER BASIN

11-1210. Santa Ynez River at Jameson Lake, near Montecito, Calif.

Location.--Lat 34°29'32", long 119°30'25", on upstream side of Juncal Dam, 6.5 miles north of Carpinteria and 8 miles northeast of Montecito, Santa Barbara County.

Drainage area.--13.8 sq mi (not including Alder Creek).

Records available.--December 1930 to September 1961. Prior to October 1938, published as "at Juncal Reservoir, near Montecito."

Gage.--Water-stage recorder on lake and water-stage recorder and sharp-crested weir on outlet conduit. Datum of gage is 2,021.6 ft above mean sea level (Bureau of Reclamation bench mark), or 2,000 ft above arbitrary datum (called sea level) generally used for works in this vicinity.

Average discharge.--30 years (1931-61); 5.55 cfs (4,020 acre-ft per year); median of yearly mean discharges, 2.2 cfs (1,600 acre-ft per year).

Remarks.--Records of total inflow represent all water reaching Jameson Lake, including precipitation on the lake. Net runoff computed on basis of records of storage, diversion (draft) to the city of Montecito, spill and release to river, and evaporation. Records of net runoff exclude precipitation on lake surface. Monthly evaporation from lake surface computed on basis of evaporation from Class A pan using coefficient of 0.80. Capacity and area ratings for this lake are based on surveys made in 1948. Lake capacity at spillway level (gage height, 223.82 ft) 6,590 acre-ft. Dead storage, 268 acre-ft, below lowest outlet at gage height 139.0 ft, included in these records. There is no regulation or diversion above Jameson Lake. A very small amount of the flow from Alder Creek, which enters Santa Ynez River 2 miles downstream from Juncal Dam, is diverted at elevation 2,250 ft through a tunnel to Jameson Lake, and is included in these records.

Cooperation.--Reservoir-operation records and related data furnished by Montecito County Water District.

Monthly net runoff, water year October 1960 to September 1961

Month	Gage height (feet)†	Contents (acre- feet)	Change in contents (acre- feet)	Draft (acre- feet)	Spill and release (acre- feet)	Evapo- ration (acre- feet)	Total inflow (acre- feet)	Rain on reser- voir (acre- feet)	Net runoff (acre- feet)
	Jameson Lake								
Sept. 30.....	186.88	2,607	-	-	-	-	-	-	-
Oct. 31.....	183.79	2,371	-236	192	0	15	-29	0	-29
Nov. 30.....	183.92	2,380	+9	38	0	4	51	47	4
Dec. 31.....	183.29	2,334	-46	51	0	3	8	5	3
Calendar year 1960.....	-	-	-1,871	1,885	0	307	321	171	150
Jan. 31.....	182.10	2,246	-88	99	0	5	16	14	2
Feb. 28.....	181.26	2,186	-60	60	0	10	10	0	10
Mar. 31.....	179.78	2,081	-105	96	0	16	7	5	2
Apr. 30.....	177.39	1,918	-163	141	0	22	0	3	-3
May 31.....	173.61	1,674	-244	210	0	22	-12	0	-12
June 30.....	170.26	1,472	-202	163	0	34	-5	0	-5
July 31.....	165.79	1,222	-250	199	0	32	-19	0	-19
Aug. 31.....	161.30	997	-225	187	0	24	-14	0	-14
Sept. 30.....	157.95	847	-150	121	0	15	-14	0	-14
Water year 1960-61.....	-	-	-1,760	1,557	0	202	-1	74	-75

† Gage height at 12 p.m.

Note.--For months when inflow to the lake was small and other quantities were large, discordant figures of net runoff may 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.



## SANTA YNEZ RIVER BASIN

211

11-1220. Santa Ynez River above Gibraltar Dam, near Santa Barbara, Calif.

Location.--Lat  $34^{\circ}31'37''$ , long  $119^{\circ}41'10''$ , on upstream side of Gibraltar Dam, 7 miles north of Santa Barbara, Santa Barbara County.

Drainage area.--216 sq mi.

Records available.--April 1920 to September 1961. November 1903 to November 1918 (fragmentary) at river station at dam site; records not equivalent because records since April 1920 are based on operation of Gibraltar reservoir, and since December 1930, Jameson Lake. Prior to October 1945, published as "near Santa Barbara."

Gage.--Water-stage recorder on reservoir and water-stage recorder and sharp-crested weir on diversion canal below dam. Spill and release measured at river gaging station below dam (see following page). Datum of reservoir gage is mean sea level (datum of 1929). Prior to August 1916 staff gage 900 ft downstream at different datum. August 1916 to June 1918, water-stage recorder at Gibraltar dam site at different datum. June to November 1918, staff gage at several sites and datums near dam. Apr. 1, 1920, to Oct. 1, 1955, at datum 21.82 ft higher. Since Oct. 1, 1955, supplemental gage 15 ft to right of spillway, used for elevation above 1,386 ft.

Remarks.--Records of total inflow represent all water reaching Gibraltar Reservoir, including precipitation on reservoir. Total inflow computed on basis of records of storage, diversion (draft) to city of Santa Barbara, spill and release to river, and evaporation. Records of net inflow exclude precipitation on reservoir surface. Monthly evaporation from reservoir surface computed on basis of evaporation from Class A pan using coefficient of 0.80. Reservoir capacity and area tables are based on surveys made in 1956. Reservoir capacity at spillway level (elevation, 1,399.82 ft), 14,777 acre-ft. Dead storage, 716 acre-ft, below lowest outlet at elevation 1,333.86 ft, included in these records. Flow regulated by Jameson Lake since December 1930 (see preceding page).

Cooperation.--Reservoir-operation records and related data furnished by city of Santa Barbara.

Monthly net inflow, water year October 1960 to September 1961

Month	Elevation (feet)†	Contents (acre- feet)	Change in contents (acre- feet)	Draft (acre- feet)	Spill and release (acre- feet)	Evapo- ration (acre- feet)	Total inflow (acre- feet)	Rain on reser- voir (acre- feet)	Net inflow (acre- feet)
	Gibraltar Reservoir								
Sept. 30.....	1,361.72	4,364	-	-	-	-	-	-	-
Oct. 31.....	1,360.44	4,157	-207	176	0	45	14	1	13
Nov. 30.....	1,360.78	4,212	+55	109	0	16	180	98	82
Dec. 31.....	1,360.29	4,133	-79	111	0	13	45	8	37
Calendar year 1960....	-	-	-3,124	4,835	5	720	2,436	343	2,093
Jan. 31.....	1,360.14	4,109	-24	108	0	16	100	34	66
Feb. 28.....	1,359.90	4,071	-38	60	0	25	47	0	47
Mar. 31.....	1,359.46	4,002	-69	92	0	35	58	11	47
Apr. 30.....	1,358.79	3,897	-105	85	0	57	37	6	31
May 31.....	1,357.78	3,742	-155	111	0	64	20	0	20
June 30.....	1,356.81	3,594	-148	84	0	89	25	0	25
July 31.....	1,354.92	3,313	-281	197	0	97	13	0	13
Aug. 31.....	1,352.97	3,032	-281	217	0	85	21	0	21
Sept. 30.....	1,351.63	2,844	-188	133	0	61	6	0	6
Water year 1960-61....	-	-	-1,520	1,483	0	603	566	158	408

† Elevation at 6 p.m.

Note.--For months when inflow to the reservoir was small and other quantities were large, discordant figures of net inflow may appear. This arises primarily from the difficulty of computing net inflow 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.

## SANTA YNEZ RIVER BASIN

11-1230. Santa Ynez River below Gibraltar Dam, near Santa Barbara, Calif.

Location.--Lat 34°31'28", long 119°41'11", in southwest portion of Los Padres National Forest, on left bank 700 ft downstream from Gibraltar Dam and 7 miles north of Santa Barbara, Santa Barbara County.

Drainage area.--216 sq mi.

Records available.--April 1920 to September 1961 (monthly discharge only prior to October 1941).

Gage.--Water-stage recorder. Altitude of gage is 1,250 ft (from topographic map). Water-stage recorder on Gibraltar Reservoir used as supplementary gage. Prior to Apr. 17, 1952, water-stage recorder on Gibraltar Reservoir used as principal gage. Apr. 17 to Oct. 15, 1952, staff gage and Oct. 16, 1952, to May 20, 1958, water-stage recorder, at same site at datum 5.00 ft higher.

Average discharge.--41 years, 35.7 cfs (25,850 acre-ft per year), unadjusted; median of yearly mean discharges, 9.0 cfs (6,500 acre-ft per year).

Extremes.--No flow during year.

1920-61: Maximum discharge, 35,500 cfs Mar. 2, 1938, computed from spillway rating; no flow at times in most years.

Remarks.--No flow since Feb. 4, 1960. Figures for calendar year 1960 are as follows: maximum daily discharge, 0.2 cfs; minimum, zero; mean, 0.002 cfs; runoff, 4.8 acre-ft. Discharge represents flow in Santa Ynez River passing Gibraltar Dam. Flow regulated by Gibraltar Reservoir and Jameson Lake (see pp.210,211). City of Santa Barbara diverted 1,480 acre-ft during the water year from Gibraltar Reservoir; Montecito County Water District diverted 1,560 acre-ft during the water year from Jameson Lake.

# SANTA YNEZ RIVER BASIN

11-1235. Santa Ynez River below Los Laureles Canyon, near Santa Ynez, Calif.

Location (revised).--Lat 34°32'37", long 119°51'50", in San Marcos Grant, on left bank 0.3 mile downstream from Los Laureles Canyon Creek and 13.3 miles east of Santa Ynez, Santa Barbara County.

Drainage area.--277 sq mi.

Records available.--April 1947 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Datum of gage is 787.8 ft above mean sea level, datum of 1929.

Average discharge.--14 years, 32.6 cfs (23,600 acre-ft per year); median of yearly mean discharges, 1.9 cfs (1,400 acre-ft per year).

Extremes.--Maximum discharge during year, 2.2 cfs Jan. 26 (gage height, 3.06 ft); no flow Oct. 1 to Jan. 25, Mar. 2 to Sept. 30. 1947-61: Maximum discharge, 33,000 cfs Jan. 15, 1952 (gage height, 15.6 ft), from rating curve extended above 6,400 cfs on basis of slope-area measurement of peak flow at station below Gibraltar Dam; no flow for several months in each year.

Remarks.--Records good. Discharge measurements or observations of no flow generally made twice a month. Flow regulated by Jameson Lake and Gibraltar Reservoir (see pp.210,211). Water diverted out of basin from these reservoirs to cities of Montecito and Santa Barbara for municipal supply. Flow affected by intermittent local pumping for irrigation above station and from infiltration gallery in river bed at station.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0	0.1	0.1						
2				0	.1	0						
3				0	.1	0						
4				0	.1	0						
5				0	.1	0						
6				0	.1	0						
7				0	.1	0						
8				0	.1	0						
9				0	.1	0						
10				0	.1	0						
11				0	.1	0						
12				0	.1	0						
13				0	.1	0						
14				0	.1	0						
15				0	.1	0						
16				0	.1	0						
17				0	.1	0						
18				0	.2	0						
19				0	.2	0						
20				0	.2	0						
21				0	.1	0						
22				0	.1	0						
23				0	.1	0						
24				0	.1	0						
25				0	.1	0						
26				.6	.1	0						
27				.4	.1	0						
28				.2	.1	0						
29				.1	-	0						
30				.1	-	0						
31				.1	-	0						
Total	0	0	0	1.5	3.1	0.1	0	0	0	0	0	0
Mean	0	0	0	0.05	0.11	0.003	0	0	0	0	0	0
Max.	0	0	0	0.6	0.2	0.1	0	0	0	0	0	0
Min.	0	0	0	0	0.1	0	0	0	0	0	0	0
Ac-ft	0	0	0	3.0	6.1	0.2	0	0	0	0	0	0

Calendar year 1960 : Max 3.1 Min 0 Mean 0.08 Acre-feet .54  
Water year 1960-61 : Max 0.6 Min 0 Mean 0.01 Acre-feet 9.3

## SANTA YNEZ RIVER BASIN

11-1245. Santa Cruz Creek near Santa Ynez, Calif.

Location.--Lat 34°35'48", long 119°54'28", in San Marcos Grant, on right bank 0.6 mile downstream from Pine Canyon and 9.9 miles east of Santa Ynez, Santa Barbara County.

Drainage area.--73.8 sq mi.

Records available.--October 1941 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Datum of gage is 786.63 ft above mean sea level (levels by Bureau of Reclamation). Prior to Jan. 22, 1943, at site 1.9 miles downstream at different datum (destroyed by flood). Jan. 22, 1943, to Sept. 26, 1952, at site 1.7 miles downstream at different datum.

Average discharge.--20 years, 12.7 cfs (9,190 acre-ft per year); median of yearly mean discharges, 5.7 cfs (4,100 acre-ft per year).

Extremes.--Maximum discharge during year, 35 cfs Dec. 2 (gage height, 4.03 ft); no flow most months.

1941-61: Maximum discharge, 3,580 cfs Apr. 3, 1958 (gage height, 10.27 ft), from rating curve extended above 800 cfs; no flow at times in 1953-61.

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

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Mar. 16-22)

3.2	0	3.6	6.3
3.3	.4	3.7	10
3.4	1.5	3.9	23
3.5	3.3		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0	0.2	1.3	0.6	0.5					(*)
2		0	1.3	.2	1.1	*.6	.4					
3		0	4.4	.1	1.0	.6	.2					
4		0	1.6	.1	.9	.5	*.1					
5	(*)	.1	1.0	.1	.9	.5	.1		(*)			
6		*.4	.7	*.1	.9	.4	.1					
7		0	.5	0	.9	.4	.1			(*)		
8		0	.4	0	.9	.4	.1					
9		0	*.3	0	.9	.3	.1	(*)				
10		0	.3	0	.9	.2	.1					
11		0	.2	0	.9	.2	*.1					
12		0	0	0	1.0	.2	.1					
13		0	0	0	1.1	.2	.1					
14		0	0	0	1.0	.2	.1					
15		0	0	0	* 1.0	.5	.1					
16		0	0	0	1.0	.6	.1					
17		0	.1	0	1.0	.5	.1					
18		0	.1	0	1.0	.4	.1					
19		0	0	* 0	1.0	.3	.1					
20		0	* 0	0	1.0	*.3	.1					
21		0	0	0	.9	.3	.1					
22		* 0	0	0	.9	.3	.1					
23		0	0	0	.8	.3	.1	(*)				
24		0	0	0	.7	.5	.1					
25		0	0	0	.7	.7	*.1					
26		0	.1	3.0	.7	.8	.1					
27		0	.2	* 5.6	.7	.8	0					
28		0	.2	2.7	.7	.8	0					
29		0	.2	1.9	-	.7	0					
30		0	.2	1.5	-	.6	0					
31		-	.2	1.3	-	.5	-					
Total	0	0.5	23.7	16.8	25.8	14.2	3.4	0	0	0	0	0
Mean	0	0.02	0.76	0.54	0.92	0.46	0.11	0	0	0	0	0
Max.	0	0.4	13	5.6	1.3	0.8	0.5	0	0	0	0	0
Min.	0	0	0	0	0.7	0.2	0	0	0	0	0	0
Ac-ft	0	1.0	47	33	51	28	6.7	0	0	0	0	0

Calendar year 1960: Max 152 Min 0 Mean 2.33 Acre-feet 1,690  
Water year 1960-61: Max 13 Min 0 Mean 0.23 Acre-feet 167

Peak discharge (base, 100 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

11-1250. Cachuma Creek near Santa Ynez, Calif.

Location.--Lat 34°36'30", long 119°56'04", in Tequepis Grant, on right bank 3.2 miles downstream from Lazaro Canyon and 8.3 miles east of Santa Ynez, Santa Barbara County.

Drainage area.--23.6 sq mi (revised).

Records available.--October 1950 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 758.5 ft above mean sea level, datum of 1929. Prior to Aug. 13, 1953, at site 1.3 miles upstream at different datum.

Average discharge.--11 years, 3.36 cfs (2,430 acre-ft per year); median of yearly mean discharges, 1.0 cfs (720 acre-ft per year).

Extremes.--Maximum discharge during year, 27 cfs Nov. 6 (gage height, 4.25 ft); no flow for much of the year.

1950-61: Maximum discharge, 4,300 cfs Jan. 15, 1952 (gage height, 6.05 ft, site and datum then in use), from rating curve extended above 200 cfs; no flow for several months in each year.

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

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Apr. 20-29)

3.5	0	3.8	1.5
3.6	.2	3.9	3.5
3.7	.5	4.0	6.9

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0.1	0.2	0.8	0.4	0.2					(*)
2		0	5.0	.3	.7	*.4	.2					
3		0	.9	.3	.7	.4	.1					
4		0	.7	.3	.6	.4	*.1					
5	(*)	0	.5	.3	.6	.4	.1		(*)			
6		* 6.2	.4	*.3	.6	.4	.1			(*)		
7		.4	.4	.3	.6	.4	.1					
8		0	.4	.3	.6	.4	.1					
9		0	*.3	.3	.6	.4	.1	(*)				
10		0	.3	.3	.6	.3	.1					
11		0	.3	.3	.6	.3	*.1					
12		0	.2	.3	.6	.3	.1					
13		.2	.2	.2	.6	.3	.1					
14		0	.2	.2	.6	.3	.1					
15		0	.2	.2	*.5	.4	.1					
16		0	.2	.2	.5	.4	0					
17		0	.2	.2	.5	.4	0					
18		0	.2	.2	.5	.3	0					
19		0	.2	*.2	.5	.3	0					
20		0	*.2	.2	.5	*.3	0					
21		0	.2	.2	.4	.3	0					
22		* 0	.2	.2	.4	.3	0					
23		0	.2	.2	.4	.3	0	(*)				
24		0	.2	.2	.4	.3	0					
25		0	.2	.2	.4	.4	* 0					
26		.3	.2	3.5	.4	.3	0					
27		.6	.2	*2.2	.4	.3	0					
28		.1	.2	1.0	.4	.2	0					
29		0	.2	.9	-	.2	0					
30		0	.2	.8	-	.2	0					
31		0	.2	.8	-	.2	0					
Total	0	7.8	13.3	15.3	15.0	10.2	1.7	0	0	0	0	0
Mean	0	0.26	0.43	0.49	0.54	0.33	0.06	0	0	0	0	0
Max.	0	6.2	5.0	3.5	0.8	0.4	0.2	0	0	0	0	0
Min.	0	0	0.1	0.2	0.4	0.2	0	0	0	0	0	0
Ac-ft	0	15	26	30	30	20	3.4	0	0	0	0	0
Calendar year 1960 :				Max 26	Min 0	Mean 0.61	Acre-feet 439					
Water year 1960-61 :				Max 6.2	Min 0	Mean 0.17	Acre-feet 124					

Peak discharge (base, 100 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

## SANTA YNEZ RIVER BASIN

11-1255. Lake Cachuma near Santa Ynez, Calif.  
(Formerly published as Cachuma Reservoir near Santa Ynez)

Location.--Lat 34°34'57", long 119°58'47", at Cachuma Dam on Santa Ynez River, in Lomas de la Purification Grant, on upstream face near left end of dam, 6.1 miles east of Santa Ynez, Santa Barbara County.

Drainage area.--417 sq mi.

Records available.--November 1952 to September 1961. Prior to October 1960, published as Cachuma Reservoir near Santa Ynez.

Gage.--Staff gage. Datum of gage is at mean sea level, datum of 1929 (Bureau of Reclamation bench mark).

Extremes.--Maximum contents during year, 163,069 acre-ft Oct. 1 (elevation, 735.40 ft); minimum, 134,493 acre-ft Sept. 30 (elevation, 724.00 ft).

1952-61: Maximum contents, 206,863 acre-ft Apr. 17, 1958 (elevation, 750.64 ft); minimum, since initial filling in April 1958, that of Sept. 30, 1961.

Remarks.--Reservoir is formed by earth-fill dam. Storage began November 1952. Area and capacity ratings for reservoir are based on surveys made in January 1953. Dead storage below outlet gate to river (elevation, 600 ft), 3,114 acre-ft. Capacity below sill of inlet to Tecolote Tunnel (elevation, 660 ft), 32,514 acre-ft; below spillway level (elevation, 720 ft), 125,292 acre-ft; below top of 4 radial gates (elevation, 750 ft), 204,874 acre-ft. Water is released from outlet to Santa Ynez River to satisfy downstream water rights, and from the inlet to Tecolote Tunnel for use by city of Santa Barbara and nearby communities. Figures given herein represent total contents.

Cooperation.--Reservoir elevations and releases through Tecolote Tunnel furnished by Bureau of Reclamation.

Month-end elevation and contents, water year October 1960 to September 1961

Date	Elevation (feet)†	Contents (acre-feet)	Change in contents (acre-feet)	Diversion through Tecolote tunnel (acre-feet)‡
Sept. 30.....	735.43	163,149	-	-
Oct. 31.....	734.51	160,713	-2,436	1,231
Nov. 30.....	734.69	161,188	+475	350
Dec. 31.....	734.59	160,924	-264	0
Calendar year 1960.....	-	-	-21,115	10,820
Jan. 31.....	734.32	160,213	-711	744
Feb. 28.....	733.84	158,952	-1,261	478
Mar. 31.....	732.95	156,633	-2,319	1,615
Apr. 30.....	731.78	153,619	-3,014	1,667
May 31.....	730.27	149,781	-3,838	2,349
June 30.....	728.89	146,325	-3,456	1,810
July 31.....	727.08	141,871	-4,454	2,533
Aug. 31.....	725.37	137,746	-4,125	2,500
Sept. 30.....	724.00	134,493	-3,253	2,032
Water year 1960-61.....	-	-	-28,656	17,309

† Elevation at 8:45 a.m.

‡ Tecolote tunnel diverts water out of Santa Ynez River basin to Santa Barbara and nearby communities for domestic water supply and irrigation.

## SANTA YNEZ RIVER BASIN

217

11-1260. Santa Ynez River near Santa Ynez, Calif.

Location.--Lat 34°35'30", long 119°59'45", on boundary between Canada de los Pinos and Lomas de la Purification Grants on right bank, 1.1 miles downstream from Cachuma Dam and 5 miles southeast of Santa Ynez, Santa Barbara County.

Drainage area.--422 sq mi.

Records available.--December 1928 to September 1931, October 1932 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 552.9 ft, datum of 1929. Prior to Oct. 1, 1955, at site 2.1 miles downstream at different datum.

Extremes.--Maximum discharge during year, 48 cfs Apr. 11 (gage height, 2.35 ft); no flow for most of year.

1928-31, 1932-61: Maximum discharge, 43,700 cfs Mar. 2, 1938 (gage height, 17.90 ft, site and datum then in use), from rating curve extended above float measurement of 34,100 cfs; no flow at times in some years.

Remarks.--Records good. Discharge measurements generally made two or more times a month. Flow regulated by Jameson Lake, Gibraltar Reservoir and Lake Cachuma (see pp. 210,211,216). Water diverted out of basin from Jameson Lake and Gibraltar Reservoir and Lake Cachuma to cities of Montecito, Santa Barbara, and to the Santa Ynez valley for municipal supply. Some water pumped from wells along river banks for irrigation.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1					0	3.9	0	0.7	0	2.2		
2					0	1.7	0	.7	0	2.4		
3					6.2	2.6	0	.7	0	2.8		
4					7.9	2.6	0	.5	0	3.6		
5					8.6	2.8	0	.1	0	4.2		
6					9.8	2.4	0	0	0	3.9		
7					11	1.0	0	0	0	3.2		
8					11	.6	0	0	0	2.8		
9					11	.4	0	0	0	2.6		
10					11	.3	0	0	0	2.8		
11					11	.2	7.6	0	0	2.2		
12					11	.2	4.8	0	0	4.4		
13					13	.2	6.9	0	0	4.2		
14					16	.1	5.5	0	0	2.0		
15					12	.1	5.1	0	0	1.0		
16					4.5	.1	5.4	0	0	.6		
17					3.9	.1	5.1	0	0	.6		
18					2.6	.1	4.7	0	0	.5		
19					3.2	.1	3.6	0	0	.3		
20					3.0	.1	3.9	0	0	0		
21					1.6	0	4.5	0	0	0		
22					1.0	0	5.8	0	.9	0		
23					.8	0	4.5	0	1.4	0		
24					.7	0	3.8	0	1.9	0		
25					.5	0	1.0	0	2.0	0		
26					.4	0	.5	0	2.2	0		
27					.5	0	.4	0	2.2	0		
28					3.9	0	.4	0	2.2	0		
29					-	0	.5	0	2.4	0		
30					-	0	.7	0	2.4	0		
31					-	0	-	0	-	0		
Total	0	0	0	0	166.1	19.6	74.7	2.7	17.6	46.3	0	0
Mean	0	0	0	0	5.93	0.63	2.49	0.09	0.59	1.49	0	0
Max.	0	0	0	0	16	3.9	7.6	0.7	2.4	4.4	0	0
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0	0	0	0	329	39	148	5.4	35	92	0	0
Calendar year 1960 :				Max 46	Min 0	Mean 4.24						
Water year 1960-61 :				Max 16	Min 0	Mean 0.90						
							Acre-feet 3,070					
							Acre-feet 648					

## SANTA YNEZ RIVER BASIN

11-1265. Santa Agueda Creek near Santa Ynez, Calif.

Location.--Lat 34°35'40", long 120°01'30", in Canada de los Pinos Grant, on left downstream wingwall of highway bridge, 0.8 mile upstream from mouth and 3.5 miles southeast of Santa Ynez, Santa Barbara County.

Drainage area.--55.9 sq mi.

Records available.--October 1940 to September 1961. Monthly discharge only for January 1941 and yearly estimate for water year 1941 (incomplete) published in WSP 1315-B.

Gage.--Water-stage recorder. Altitude of gage is 520 ft (from topographic map). Prior to Oct. 1, 1955, at datum 1.0 ft higher.

Average discharge.--21 years, 3.59 cfs (2,600 acre-ft per year); median of yearly mean discharges, 0.7 cfs (510 acre-ft per year).

Extremes.--Maximum discharge during year, 148 cfs Nov. 6 (gage height, 2.55 ft); no flow for most of year.

1940-61: Maximum discharge, 5,760 cfs Feb. 19, 1958 (gage height, 6.14 ft), from rating curve extended above 2,000 cfs; no flow at times in most years.

Remarks.--Records good. Discharge measurements or observations of no flow generally made two or more times a month. Small diversions above station for irrigation.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	2.9	0	0.1		0	0.1				
2		0	7.8	0	.1		0	.1				
3		0	0	0	.1		0	.1				
4		0	0	0	.1		0	.1				
5		.2	0	0	.1		0	.1				
6		22	0	0	.1		0	.1				
7		0	0	0	.1		0	.1				
8		0	0	0	.2		0	.1				
9		0	0	0	.2		0	.1				
10		0	0	0	.2		0	0				
11		0	0	0	.2		0	0				
12		0	0	0	.2		0	0				
13		0	0	0	.1		0	0				
14		0	0	0	0		0	0				
15		0	0	0	0		0	0				
16		0	0	0	0		.1	0				
17		0	0	0	0		.1	0				
18		0	0	0	0		.1	0				
19		0	0	0	0		.1	0				
20		0	0	0	0		.1	0				
21		0	0	0	0		.1	0				
22		0	0	0	0		.1	0				
23		0	0	0	0		.1	0				
24		0	0	0	0		.1	0				
25		0	0	0	0		.1	0				
26		0	0	8.6	0		.1	0				
27		0	0	.2	0		.1	0				
28		0	0	.1	0		.1	0				
29		0	0	.1	-		.1	0				
30		.1	0	.1	-		.1	0				
31		-	0	.1	-		-	0				
Total	0	22.3	10.7	9.2	1.8	0	1.5	0.9	0	0	0	0
Mean	0	0.74	0.35	0.30	0.06	0	0.05	0.03	0	0	0	0
Max.	0	22	7.8	8.6	0.2	0	0.1	0.1	0	0	0	0
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0	44	21	18	3.6	0	3.0	1.8	0	0	0	0

Calendar year 1960 : Max 7.8 Min 0 Mean 0.13 Acre-feet 95  
 Water year 1960-61 : Max 8.6 Min 0 Mean 0.13 Acre-feet 91

Peak discharge (base, 50 cfs).--Nov. 6 (5 a.m.) 148 cfs (2.55 ft); Jan. 26 (12 m.) 51 cfs (2.19 ft).



11-1275. Zanja de Cota Creek near Santa Ynez, Calif.  
(Formerly published as Zanja Cota near Santa Ynez)

Location.--Lat 34°35'10", long 120°05'42", in Canada de los Pinos Grant (on boundary), on right bank 75 ft downstream from Mitchell Ranch road, 0.2 mile upstream from mouth, and 2.0 miles southwest of Santa Ynez, Santa Barbara County.

Drainage area.--13.4 sq mi.

Records available.--October 1954 to September 1961 (discontinued). Prior to October 1960, published as Zanja Cota near Santa Ynez.

Gage.--Water-stage recorder. Altitude of gage is 430 ft (from topographic map). Prior to Aug. 6, 1959, at site 575 ft upstream at different datum.

Average discharge.--7 years, 1.94 cfs (1,400 acre-ft per year).

Extremes.--Maximum discharge during year, 7.6 cfs May 15 (gage height, 2.87 ft); no flow on some days.

1954-61: Maximum discharge, 460 cfs Mar. 21, 1958 (gage height, 9.4 ft, from floodmark, site and datum then in use); no flow at times in most years.

Remarks.--Records good except those for period of no gage-height record, which are poor. Discharge measurements made twice a month. Flow regulated by small reservoir 0.2 mile upstream since August 1959. Several diversions above station for irrigation of about 300 acres.

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0.7	2.1	1.6	2.1	2.3	0.8	0.6	0.4	0.2	0.2	0.5
2	.1	.7	2.2	1.6	2.1	2.3	.8	.6	.4	.2	0	.5
3	.1	.9	2.0	2.0	2.1	1.7	.8	.6	.4	.1	0	.5
4	.1	1.0	1.9	1.9	2.1	1.1	.8	.6	.4	.1	0	.4
5	.1	1.5	1.9	1.8	2.1	1.2	.8	.6	.4	0	.2	.4
6	.1	1.5	2.0	1.9	2.1	1.6	.8	.6	.4	0	0	.4
7	.2	1.2	1.8	1.9	2.1	1.6	.8	.6	.4	0	0	.5
8	.2	1.2	1.8	1.9	2.1	1.6	.8	.6	.4	0	.6	1.1
9	.2	1.2	2.6	1.9	2.1	1.5	.8	.6	.6	0	.6	.4
10	.2	1.2	1.9	1.7	2.1	.8	.7	.6	.5	0	.6	0
11	.2	1.2	1.9	1.8	2.1	.7	.7	.6	.5	0	.6	0
12	.2	1.3	1.9	1.9	2.1	.7	.5	.6	.5	.1	.6	0
13	.2	1.2	1.9	1.9	2.3	.6	.5	2.4	.5	.2	.6	.4
14	.2	1.3	2.0	1.9	2.2	.6	.4	1.4	.5	.3	.6	.4
15	.3	1.3	2.1	1.9	1.9	.8	.4	2.4	.5	.3	.6	.3
16	.3	1.3	2.1	1.9	1.9	.7	.8	1.3	.4	.3	.6	.3
17	.3	1.3	2.1	1.9	1.6	.7	.6	.5	.4	.3	.6	.4
18	.4	1.5	1.9	1.8	.9	.6	.5	.8	.4	.3	.6	.4
19	.4	1.3	2.0	1.2	.8	.6	.4	.5	.4	.3	.7	.5
20	.5	1.4	2.0	1.8	.8	.6	.4	.5	.4	.3	.5	.5
21	.5	1.2	1.9	2.4	1.0	.6	.4	.4	.3	.3	.7	.5
22	.5	1.2	1.7	1.9	1.1	.6	.5	.4	.3	.3	.5	.8
23	.5	1.4	1.6	1.1	2.1	.6	.4	.4	.3	.3	.5	.4
24	.5	1.4	1.5	1.6	2.2	.6	.4	.4	.3	.3	.5	.5
25	.5	1.5	1.6	1.9	2.3	.6	.4	.4	.3	.3	.5	.5
26	.6	3.0	1.5	4.1	2.4	.6	.4	.4	.3	.3	.5	.5
27	.5	1.8	1.5	2.4	2.0	.6	.5	.4	.3	.3	.5	.5
28	.6	1.6	1.5	2.1	1.2	.8	.5	.4	.2	.3	.5	.5
29	.6	1.7	1.6	2.0	-	.8	.5	.4	.3	.3	.5	.5
30	.6	1.7	1.6	2.1	-	.8	.5	.4	.2	.3	.5	.5
31	.7	-	1.6	2.1	-	.8	-	.4	-	.2	.5	-
Total	10.5	40.7	57.7	59.9	51.9	29.7	17.6	21.4	11.6	6.2	13.9	13.1
Mean	0.34	1.36	1.86	1.93	1.85	0.96	0.59	0.69	0.39	0.20	0.45	0.44
Max.	0.7	3.0	2.6	4.1	2.4	2.3	0.8	2.4	0.6	0.3	0.7	1.1
Min.	0.1	0.7	1.5	1.1	0.8	0.6	0.4	0.4	0.2	0	0	0
Ac-ft	21	81	114	119	103	59	35	42	23	12	28	26
Calendar year 1960 :				Max	3.7	Min	0	Mean	1.17	Acre-feet 849		
Water year 1960-61 :				Max	4.1	Min	0	Mean	0.92	Acre-feet 663		

Peak discharge (base, 50 cfs).--No peak above base.

Note.--No gage-height record July 1-13.

11-1280. Santa Ynez River at Grand Avenue, near Santa Ynez, Calif.

Location.--Lat 34°35'06", long 120°06'00", in Canada de los Pinos Grant, on downstream side of first pier (revised) from right bank of highway bridge, 0.2 mile below Zanja de Cota Creek, and 2.2 miles southwest of Santa Ynez, Santa Barbara County.

Drainage area.--513 sq mi.

Records available.--October 1954 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 420 ft (from topographic map).

Extremes.--Maximum discharge during year, 53 cfs Nov. 6 (gage height, 2.94 ft); no flow Oct. 1-9, June 24 to Sept. 30.  
1954-61: Maximum discharge, about 6,000 cfs Mar. 21, 1958; no flow at times in most years.

Remarks.--Records good. Discharge measurements or observations of no flow generally made twice a month. Flow regulated by Jameson Lake, Gibraltar Reservoir, and Lake Cachuma (see pp. 210, 211, 216). Water diverted out of basin from Jameson Lake, Gibraltar Reservoir, and Lake Cachuma to cities of Montecito, Santa Barbara and Goleta for municipal supply. Some water for irrigation pumped from wells along banks of river in valley upstream.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.3	3.0	2.2	3.4	3.0	0.5	0.7	0.4			
2	0	.4	3.6	2.2	3.4	3.0	.6	.6	.4			
3	0	.5	3.0	2.3	3.4	2.8	.6	.8	.4			
4	0	.7	2.8	2.2	3.4	2.1	.4	.8	.4			
5	0	1.3	2.8	2.2	3.4	2.2	.4	.7	.4			
6	0	1.3	2.8	2.2	3.1	2.3	.5	.7	.4			
7	0	2.3	2.8	2.2	3.1	2.3	.6	.7	.3			
8	0	2.1	2.8	2.2	3.0	2.3	.6	.8	.3			
9	0	2.3	3.1	2.3	3.0	2.3	.7	.8	.3			
10	.1	2.2	2.8	2.3	3.6	1.9	.7	.9	.3			
11	.1	2.2	2.8	2.3	3.1	1.7	.8	.9	.3			
12	.1	2.3	2.8	2.2	3.1	1.7	.8	.9	.3			
13	.1	2.3	2.8	2.2	3.4	1.6	1.0	.9	.2			
14	.1	2.2	3.0	2.2	3.4	1.7	1.0	.9	.1			
15	.1	2.2	3.1	2.2	3.1	1.7	1.0	1.1	.1			
16	.1	2.1	3.1	2.2	3.1	1.5	.9	.8	.1			
17	.2	2.1	3.1	2.3	2.8	1.4	.9	.6	.1			
18	.2	2.1	3.1	2.3	1.9	1.2	.9	.6	.1			
19	.3	1.9	3.1	1.9	1.8	1.1	.9	.5	.1			
20	.3	2.1	3.1	2.5	1.9	1.1	.9	.4	.1			
21	.3	1.9	3.1	2.8	2.2	1.1	.9	.4	.3			
22	.3	1.9	3.0	2.8	2.2	1.1	.9	.4	.2			
23	.3	2.1	2.8	1.9	2.8	1.1	.9	.4	.1			
24	.3	1.9	2.8	2.2	3.0	1.1	.8	.4	0			
25	.3	2.2	2.8	2.8	3.0	1.1	.8	.4	0			
26	.3	3.6	2.8	6.9	2.8	1.1	.8	.4	0			
27	.3	3.1	2.8	5.4	2.5	1.0	.8	.3	0			
28	.3	2.8	2.8	4.2	2.2	.8	.7	.3	0			
29	.3	2.8	2.5	3.8	-	.8	.7	.4	0			
30	.3	2.5	2.3	3.8	-	.7	.7	.4	0			
31	.3	-	2.2	3.6	-	.6	-	.4	-			
Total	5.0	71.4	89.4	84.8	81.1	49.4	22.7	19.3	5.7	0	0	0
Mean	0.16	2.38	2.88	2.74	2.90	1.59	0.76	0.62	0.19	0	0	0
Max.	0.3	1.3	3.6	6.9	3.6	3.0	1.0	1.1	0.4	0	0	0
Min.	0	0.3	2.2	1.9	1.8	0.6	0.4	0.3	0	0	0	0
Ac-ft	9.9	142	177	168	161	98	45	38	11	0	0	0

Calendar year 1960 : Max 31 Min 0 Mean 4.03 Acre-feet 2,930  
Water year 1960-61 : Max 6.9 Min 0 Mean 1.17 Acre-feet 850

## SANTA YNEZ RIVER BASIN

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11-1284. Alisal Creek near Solvang, Calif.

Location.--Lat 34°34'55", long 120°08'40", in Nojoqui Grant, on right bank at foot-bridge, 0.3 mile upstream from mouth and 1.1 miles southwest of Solvang, Santa Barbara County.

Drainage area.--11.5 sq mi.

Records available.--October 1954 to September 1955, October 1955 to September 1956 (monthly discharge only), October 1956 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 380 ft (from topographic map). Prior to Dec. 25, 1955, at site 50 ft upstream at different datum (destroyed by flood). Oct. 1, 1956, to Jan. 23, 1961, at datum 1.0 ft higher.

Average discharge.--7 years, 5.10 cfs (3,700 acre-ft per year).

Extremes.--Maximum and minimum discharges for the water years 1955-61 are contained in the following table:

Water year	Date	Maximum Discharge (cfs)	Gage height (feet)	Minimum Discharge (cfs)
1955	Jan. 18, 1955	428	6.63	0
1956	Dec. 25, 1955	2,200	†9.65	0
1957	Feb. 23, 1957	215	†3.96	0
1958	Feb. 9, 1958	2,900	†8.10	0
1959	Feb. 16, 1959	1,060	†5.25	0
1960	Apr. 27, 1960	121	†2.94	0
1961	Jan. 26, 1961	250	†3.50	0

† Present datum.

1954-61: Maximum discharge, 2,900 cfs Feb. 9, 1958 (gage height, 8.10 ft, present datum), on basis of velocity-area study; no flow for several months in each year.

Remarks.--Records good except those above 200 cfs, which are poor. No regulation or diversion. At times waste irrigation water pumped from Santa Ynez River causes minor flow.

Cooperation.--Records prior to June 18, 1960 furnished by Bureau of Reclamation and reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October to September 1955												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				}	1.2	1.6	1.0	7.7	0.2			
2					1.0	1.1	1.0	7.7	.2			
3						.9	.6	1.3	4.3	.1		
4						.8	.5	1.1	3.3	.1		
5					0	.7	.5	1.0	2.7	.1		
6				}	.6	.5	.9	2.4	.1			
7					.5	.5	.8	2.3	.1			
8					.5	1.1	.8	2.1	.1			
9					5.0	.5	4.7	.8	1.5	.1		
10					.1	.5	1.5	.7	1.4	.1		
11				0	.4	1.5	.7	1.3	.1			
12				0	.4	9.0	.6	1.1	.1			
13				0	.4	4.3	.5	1.1	.1			
14				0	.4	2.1	.5	1.1	.1			
15				0	.3	4.0	.5	1.0	.1			
16				0	.3	6.7	.4	.9	.1			
17				0	.4	2.3	.4	.8	.1			
18				8.6	.4	2.0	.3	.8	.1			
19				1.5	.4	1.7	.7	.7	.1			
20				6	.5	1.4	1.0	.5	.1			
21				3.5	.4	1.3	7.4	.5	.1			
22				2.5	.2	1.3	3.2	.5	0			
23				1.6	.1	1.2	1.6	.5	0			
24				1.3	0	1.1	1.4	.4	0			
25				1.0	.2	1.1	1.3	.4	0			
26				.6	.4	1.1	1.3	.3	0			
27				.5	3.6	1.1	1.3	.3	0			
28				.5	3.5	.9	1.3	.3	0			
29				.5	-	.9	1.3	.3	0			
30				.6	-	.9	1.1	.3	0			
31				1.4	-	1.0	-	.2	-			
Total	0	0	0	126.1	19.5	86.5	46.1	48.7	2.3	0	0	0
Mean	0	0	0	4.07	0.70	2.79	1.54	1.57	0.08	0	0	0
Max.	0	0	0	86	3.6	15	11	7.7	0.2	0	0	0
Min.	0	0	0	0	0	0.5	0.3	0.2	0	0	0	0
Ac-ft	0	0	0	250	39	172	91	97	4.6	0	0	0
Calendar year 1954: Max - Min - Mean - Acre-feet -												
Water year 1954-55: Max 86 Min 0 Mean 0.90 Acre-feet 654												

Peak discharge (base, 100 cfs).--Jan. 18 (5:30 a.m.) 428 cfs (6.63 ft).

Note.--No gage-height record Oct. 1 to Jan. 11.

## SANTA YNEZ RIVER BASIN

11-1284. Alisal Creek near Solvang, Calif.--Continued.

Monthly mean, in cfs, and runoff, in acre-ft, water year October 1955 to September 1956

Month	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Mean	0	0	50	30	9	3.5	6	4.5	1.0	0.1	0	0
Ac-ft	0	0	3,070	1,840	500	215	357	277	60	6.1	0	0
Calendar year 1955:			Max -	Min 0	Mean 5.15	Acre-feet 3,720						
Water year 1955-56:			Max -	Min 0	Mean 8.7	Acre-feet 6,330						

Peak discharge (base, 100 cfs).--Dec. 25 (time unknown) about 2,200 cfs (8.25 ft); Jan. 26, time and discharge unknown.

Note.--No gage-height record for year; daily figures not available.

Discharge, in cubic feet per second, water year October 1956 to September 1957

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0	0	2.0	2.5	2.3	1.1			
2				0	0	1.3	2.1	2.3	.8			
3				0	0	9.6	1.6	2.3	.6			
4				0	0	7.8	1.4	2.1	.6			
5				0	0	6.4	1.2	1.9	.5			
6				0	0	5.6	1.3	1.8	.5			
7				0	0	5.1	1.3	1.9	.4			
8				0	0	4.6	1.3	1.8	.4			
9				0	0	4.8	1.4	1.9	.3			
10				0	0	4.8	1.4	1.8	.4			
11				0	0	4.1	1.5	2.1	.3			
12				18	0	3.6	1.4	1.9	.3			
13				21	0	3.4	1.5	1.7	.3			
14				0	0	3.2	1.5	1.7	.2			
15				0	0	3.0	1.6	1.6	.2			
16				0	0	3.0	1.7	1.6	.2			
17				0	0	2.8	1.0	1.5	.1			
18				0	.2	2.7	1.4	1.5	.1			
19				0	.2	2.5	5.6	2.5	0			
20				0	.3	2.5	4.8	2.1	0			
21				0	.6	2.4	4.3	2.5	0			
22				0	.6	2.1	3.6	2.1	0			
23				0	5.9	2.1	3.4	1.9	0			
24				0	19	2.3	3.4	1.7	0			
25				0	11	2.3	3.0	1.6	0			
26				0	7.3	2.3	2.9	1.5	0			
27				0	5.9	2.3	2.9	1.3	0			
28				0	22	2.5	2.7	1.3	0			
29				0	-	2.5	2.5	1.3	0			
30				0	-	2.5	2.3	1.3	0			
31				0	-	2.4	-	1.1	-			
Total	0	0	0	39	126.1	138.2	90.1	55.9	7.3	0	0	0
Mean	0	0	0	1.26	4.50	4.46	3.00	1.80	0.24	0	0	0
Max.	0	0	0	21	59	20	14	2.5	1.1	0	0	0
Min.	0	0	0	0	0	2.1	1.2	1.1	0	0	0	0
Ac-ft	0	0	0	77	250	274	179	111	14	0	0	0

Calendar year 1956: Max - Min 0 Mean 3.42 Acre-feet 3,420

Water year 1956-57: Max 59 Min 0 Mean 1.25 Acre-feet 905

Peak discharge (base, 100 cfs).--Jan. 12 (11 p.m.) 172 cfs (2.76 ft); Feb. 23 (4 a.m.) 215 cfs (2.96 ft).

## SANTA YNEZ RIVER BASIN

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11-1284. Alisal Creek near Solvang, Calif.--Continued.

Discharge, in cubic feet per second, water year October 1957 to September 1958												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			0	0	3.3	31	4 92	14	5.4	0.4	0.2	
2			0	0	139	25	221	13	5.0	.4	.1	
3			0	0	184	22	508	12	5.0	.4	.1	
4			0	0	163	18	138	12	5.0	.4	.1	
5			0	0	67	16	92	10	5.0	.4	0	
6			0	0	31	17	552	10	5.0	.4	0	
7			0	0	27	13	313	10	5.0	.3	0	
8			0	0	23	11	150	10	5.0	.3	0	
9			0	0	17	10	109	9.0	5.0	.3	0	
10			0	0	14	9.6	80	8.6	5.0	.3	0	
11			0	0	12	12	64	8.6	5.0	.2	0	
12			0	0	12	9.0	55	8.2	5.0	.2	0	
13			0	0	11	8.6	48	7.4	4.7	.2	0	
14			0	0	8.8	93	44	7.0	4.1	.2	0	
15			0	0	7.8	297	41	6.6	3.8	.2	0	
16			15	0	7.2	202	35	6.2	3.2	.2	0	
17			11	0	6.4	126	32	5.8	2.6	.2	0	
18			1.2	0	31	80	30	5.4	2.0	.2	0	
19			0	0	593	54	27	5.0	1.7	.2	0	
20			0	0	99	82	24	5.0	1.6	.2	0	
21			0	0	56	350	22	5.0	1.4	.2	0	
22			0	0	41	250	21	6.2	1.3	.2	0	
23			0	0	32	94	19	5.8	1.1	.2	0	
24			0	0	29	64	18	5.0	1.0	.2	0	
25			0	14	190	46	16	5.0	1.0	.2	0	
26			0	36	75	35	16	4.4	.7	.2	0	
27			0	15	49	126	15	4.4	.5	.2	0	
28			0	8.3	38	53	15	4.7	.4	.2	0	
29			0	5.5	-	48	15	5.0	.4	.2	0	
30			0	4.7	-	54	14	5.4	.4	.2	0	
31			0	3.9	-	47	-	5.4	-	.2	-	-
Total	0	0	27.2	87.4	1966.5	2303.2	3226	230.1	92.3	7.8	0.5	0
Mean	0	0	0.88	2.82	70.2	74.3	108	7.42	3.08	0.25	0.02	0
Max.	0	0	15	36	593	350	552	14	5.4	0.4	0.2	0
Min.	0	0	0	0	3.3	8.6	14	4.4	0.4	0.2	0	0
Ac-ft	0	0	54	173	3,900	4,570	6,400	456	183	15	1.0	0

Calendar year 1957: Max 59 Min 0 Mean 1.33 Acre-feet 959  
 Water year 1957-58: Max 593 Min 0 Mean 21.8 Acre-feet 15,750

Peak discharge (base, 100 cfs).--Dec. 16 (9 p.m.) 174 cfs (2.77 ft); Jan. 25 (10:30 p.m.) 100 cfs (2.39 ft); Feb. 3 (12:30 a.m.) 720 cfs (4.30 ft); Feb. 19 (7 a.m.) 2,900 cfs (7.10 ft); Feb. 25 (2 a.m.) 502 cfs (3.83 ft); Mar. 15 (8 p.m.) 450 cfs (3.70 ft); Mar. 21 (7 p.m.) 1,730 cfs (5.85 ft); Mar. 27 (7 a.m.) 456 cfs (3.09 ft); Apr. 3 (3 a.m.) 2,140 cfs (5.62 ft).

## SANTA YNEZ RIVER BASIN

11-1284. Alisal Creek near Solvang, Calif.--Continued.

Discharge, in cubic feet per second, water year October 1958 to September 1959												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0	0	8.4	1.2	0.5	0.2			
2				0	0	7.8	1.1	.3	.2			
3				0	0	6.8	1.0	.3	.1			
4				0	0	5.8	1.2	.3	.1			
5				7.0	0	5.2	1.2	.3	.1			
6				13	0	5.0	1.2	.3	.1			
7				0	0	5.0	1.1	.3	.1			
8				0	0	4.7	1.1	.3	.1			
9				0	0	4.4	1.1	.3	0			
10				0	6.0	4.1	1.0	.3	0			
11				0	3.9	3.8	1.0	.3	0			
12				0	7.0	3.6	.9	.2	0			
13				0	2.3	3.6	.8	.2	0			
14				0	1.3	3.3	.8	.2	0			
15				0	1.0	3.0	.8	.2	0			
16				0	230	2.6	.8	.2	0			
17				0	33	2.6	.8	.2	0			
18				0	29	2.6	.8	.2	0			
19				0	19	2.6	.8	.2	0			
20				0	14	2.5	.8	.2	0			
21				0	133	2.3	.7	.2	0			
22				0	42	2.1	.7	.2	0			
23				0	26	2.1	.6	.2	0			
24				0	20	1.9	.5	.1	0			
25				0	16	1.9	1.6	.1	0			
26				0	13	1.9	1.6	.1	0			
27				0	11	1.9	.9	.1	0			
28				0	9.9	1.7	.8	.2	0			
29				0	-	1.7	.6	.2	0			
30				0	-	1.6	.4	.2	0			
31				0	-	1.6	-	.2	-			
Total	0	0	0	20.0	706.5	108.1	27.9	7.1	1.0	0	0	0
Mean	0	0	0	0.65	25.2	3.49	0.93	0.23	0.03	0	0	0
Max.	0	0	0	13	230	8.4	1.6	0.5	0.2	0	0	0
Min.	0	0	0	0	0	1.6	0.4	0.1	0	0	0	0
Ac-ft	0	0	0	40	1,400	214	55	14	2.0	0	0	0

Calendar year 1958: Max 593 Min 0 Mean 21.7 Acre-feet 15,700  
 Water year 1958-59: Max 230 Min 0 Mean 2.39 Acre-feet 1,720

Peak discharge (base, 100 cfs).--Jan. 6 (12:30 a.m.) 117 cfs (1.92 ft); Feb. 10 (9 p.m.) 304 cfs (2.68 ft); Feb. 16 (9:15 a.m.) 1,060 cfs (4.25 ft); Feb. 21 (3 a.m.) 271 cfs (2.57 ft).

## SANTA YNEZ RIVER BASIN

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11-1284. Alisal Creek near Solvang, Calif.--Continued.

Discharge, in cubic feet per second, water year October 1959 to September 1960

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0	8.0	2.3	0.6	1.2				
2				0	1.4	2.1	.6	.8				
3				0	5.2	1.7	.5	.8				
4				0	3.6	1.9	.6	.5				
5				0	1.9	1.9	.6	.3				
6				0	1.4	1.7	.5	.2				
7				0	1.2	1.6	.4	.2				
8				0	2.1	1.4	.2	.2				
9				4.2	2.3	1.2	.2	.1				
10				9.2	3.0	1.2	.2	.1				
11				.2	2.1	1.2	.2	.1				
12				.2	1.9	1.1	.2	.1				
13				0	1.7	1.0	.2	.1				
14				0	1.4	.9	.2	.1				
15				0	1.6	.8	.2	0				
16				0	1.2	.7	.2	0				
17				0	1.6	.7	.2	0				
18				0	1.1	.7	.1	0				
19				0	1.1	.7	.1	0				
20				0	.8	.7	.1	0				
21				0	.8	.6	.1	0				
22				0	.8	.7	.1	0				
23				0	.8	.7	.1	0				
24				0	.7	.6	.1	0				
25				0	.6	.7	.1	0				
26				0	.7	.6	1.3	0				
27				0	.5	.6	1.1	0				
28				0	2.6	.6	6.0	0				
29				0	2.6	.6	3.3	0				
30				0		.6	2.1	0				
31				0		.6		0				
Total	0	0	0	13.8	67.5	32.4	30.3	4.8	0	0	0	0
Mean	0	0	0	0.45	2.33	1.05	1.01	0.15	0	0	0	0
Max.	0	0	0	9.2	14	2.3	11	1.2	0	0	0	0
Min.	0	0	0	0	0.5	0.6	0.1	0	0	0	0	0
Ac-ft	0	0	0	27	134	64	60	9.5	0	0	0	0

Calendar year 1959: Max 230 Min 0 Mean 2.39 Acre-feet 1,720  
 Water year 1959-60: Max 14 Min 0 Mean 0.41 Acre-feet 294

Peak discharge (base, 100 cfs).--Apr. 27 (6 p.m.) 121 cfs (1.94 ft).

## SANTA YNEZ RIVER BASIN

11-1284. Alisal Creek near Solvang, Calif.--Continued.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0	(*)							
2				0		(*)						
3				0								
4				0								
5	(*)		(*)	0								
6				0								(*)
7		(*)		0								
8				0								
9				0								
10				0								
11				0				(*)				
12				0								
13				0			(*)					
14				0						(*)		
15				0		(*)						
16				0	(*)							
17				0								
18				*0								
19				0								
20				0								
21			(*)	0								
22		(*)		0								
23				*0								
24				0								
25				0								
26		(*)		*42								
27				*.8		(*)	(*)					
28				0								
29				0				(*)				
30				0								
31				0								
Total	0	0	0	42.8	0	0	0	0	0	0	0	0
Mean	0	0	0	1.38	0	0	0	0	0	0	0	0
Max.	0	0	0	42	0	0	0	0	0	0	0	0
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0	0	0	85	0	0	0	0	0	0	0	0

Calendar year 1960 :

Max

14

Min

0

Mean

0.41

Acre-feet

294

Water year 1960-61 :

Max

42

Min

0

Mean

0.12

Acre-feet

85

Peak discharge (base, 100 cfs).--Jan. 26 (8 a.m.) 250 cfs (3.50 ft).

\* Discharge measurement or observation of no flow made on this day.



11-1285. Santa Ynez River at Solvang, Calif.

Location.--Lat 34°35'05", long 120°08'35", in San Carlos de Jonata Grant, on downstream side of right abutment of Mission Bridge, 25 ft downstream from Alisal Creek and 0.9 mile south of Solvang, Santa Barbara County.

Drainage area.--579 sq mi.

Records available.--October 1928 to November 1936, June 1937 to November 1940 (irrigation seasons only), October 1946 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 350 ft (from topographic map). Various datums used during period of record.

July 29 to Sept. 30, 1953, auxiliary water-stage recorder 750 ft upstream at different datum. Oct. 1, 1953, to Jan. 26, 1955, water-stage recorder on center bridge pier at same datum.

Extremes.--Maximum discharge during year, 273 cfs Jan. 26 (gage height, 3.47 ft); no flow for most months.

1928-36, 1946-61: Maximum discharge, 37,000 cfs Jan. 15, 1952 (gage height, 14.80 ft, datum then in use), from rating curve extended above 10,000 cfs; no flow for several months in many years.

Remarks.--Records good. Flow regulated by Jameson Lake, Gibraltar Reservoir, and Lake Cachuma (see pp. 210, 211, 216). Water diverted out of basin from Jameson Lake, Gibraltar Reservoir, and Lake Cachuma to cities of Montecito, Santa Barbara, and Goleta for municipal supply. Some water for irrigation pumped from wells along banks of river in valley upstream.

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

2.06	0	2.5	8.4
2.1	.1	2.6	15
2.2	.4	2.7	26
2.3	1.5	2.8	40
2.4	3.9	3.0	82

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0.2	2.4	*5.0	2.0						
2		0	0	2.0	5.0	*2.4						
3		0	0	2.2	4.6	3.0						
4		0	0	2.2	4.2	2.4						
5	(*)	0	*0	*2.0	4.2	2.2						
6		0	0	1.8	3.9	2.0						(*)
7		*0	0	2.2	3.9	1.5						
8		0	0	2.4	3.6	1.5						
9		0	.1	2.4	3.3	1.5						
10		0	.4	2.4	3.3	1.3						
11		0	.7	2.4	3.3	.7						
12		0	.9	2.4	3.3	1.0		(*)				
13		0	1.2	2.4	3.0	.9	(*)					
14		0	1.3	2.4	2.7	.3				(*)		
15		0	1.7	2.7	2.4	*.8						
16		0	1.7	2.7	*2.4	.8						
17		0	2.0	2.4	2.4	.3						
18		0	2.0	*2.2	2.2	.4						
19		0	2.7	2.2	2.2	.6						
20		0	2.7	2.0	1.8	.4						
21		0	*3.0	2.4	2.0	.3						
22		*0	3.0	3.3	2.0	.1						
23		0	3.0	2.7	2.0	0						
24		0	3.0	2.0	2.0	0						
25		0	3.0	3.6	2.4	0						
26		*.6	2.7	*6.1	3.0	0						
27		0	2.4	*1.2	3.0	*0	(*)					
28		0	2.4	7.3	2.0	0						
29		0	2.4	5.8	-	0		(*)				
30		0	2.4	5.0	-	0						
31		-	2.4	5.0	-	0						
Total	0	0.6	47.3	155.9	85.1	26.4	0	0	0	0	0	0
Mean	0	0.02	1.53	5.03	3.04	0.85	0	0	0	0	0	0
Max.	0	0.6	3.0	61	5.0	3.0	0	0	0	0	0	0
Min.	0	0	0	1.8	1.8	0	0	0	0	0	0	0
Ac-ft	0	1.2	94	309	169	52	0	0	0	0	0	0
Calendar year 1960 :				Max 40	Min 0	Mean 4.37			Acre-feet 3,180			
Water year 1960-61 :				Max 61	Min 0	Mean 0.86			Acre-feet 625			

\* Discharge measurement or observation of no flow made on this day.

## SANTA YNEZ RIVER BASIN

11-1300. Zaca Creek at Buellton, Calif.  
(Formerly published as La Zaca Creek at Buellton)

Location.--Lat 34°36'50", long 120°11'30", in San Carlos de Jonata Grant, on right bank upstream from culvert on State Highway 150 in Buellton, Santa Barbara County, 1 mile upstream from mouth.

Drainage area.--39.5 sq mi.

Records available.--January 1941 to September 1961. Prior to October 1960, published as La Zaca Creek at Buellton.

Gage.--Water-stage recorder. Altitude of gage is 340 ft (from topographic map). Prior to Nov. 10, 1959, at site 11 ft downstream at same datum.

Average discharge.--20 years, 0.36 cfs (261 acre-ft per year); median of yearly mean discharges, 0.03 cfs (22 acre-ft per year).

Extremes.--Maximum discharge during year, 5.0 cfs Jan. 26 (gage height, 2.58 ft); no flow for most of year.

1941-61: Maximum discharge, 874 cfs Mar. 3, 1941, from rating curve extended above 300 cfs on basis of velocity-area study; maximum gage height, 6.80 ft Mar. 4, 1941; no flow for most of each year.

Remarks.--Records fair. Waste water from large cafe nearby not included in these records when there is no natural flow.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Nov. 12..... 0.3  
26..... \*.1

Dec. 1..... 0.3  
Jan. 26..... \*.3

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
November 1960.....	0.4	0.3	0	0.01	0.8
December.....	.3	.3	0	.01	.6
January 1961.....	.3	.3	0	.01	.6
Calendar year 1960.....	-	1.9	0	.01	8.2
Water year 1960-61.....	-	.3	0	.003	2.0

Peak discharge (base, 10 cfs).--No peak above base.

\* Discharge measurement made on this day.

Note.--Flow occurred only on days listed above.

## SANTA YNEZ RIVER BASIN

229

11-1305. Santa Ynez River near Buellton, Calif.

Location.--Lat 34°36'50", long 120°14'30", in Santa Rosa Grant, on left bank 0.5 mile downstream from Canada de los Palos Blancos and 3 miles west of Buellton, Santa Barbara County.

Drainage area.--668 sq mi.

Records available.--June 1948 to September 1952 (irrigation seasons only); October 1952 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 250 ft (from topographic map). Prior to Apr. 25, 1950, at site 200 ft downstream at different datum. Apr. 25, 1950, to Sept. 22, 1957, at datum 2 ft higher.

Extremes.--Maximum discharge during year, 3.9 cfs Feb. 25 (gage height, 2.16 ft); no flow for much of year.

1952-61: Maximum discharge, 10,600 cfs Mar. 22, 1958 (gage height, 10.10 ft), from rating curve extended above 400 cfs on basis of peak flows for station at Buellton; no flow for many days in each year.

Remarks.--Records fair. Flow regulated by Jameson Lake, Gibraltar Reservoir, and Lake Cachuma (see pp. 210, 211, 216). Water diverted out of basin from Jameson Lake, Gibraltar Reservoir, and Lake Cachuma to cities of Montecito, Santa Barbara, and Goleta for municipal supply. Some water pumped from wells along banks of river for irrigation in valley upstream.

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0.6	1.1	1.1	* 1.2	0.2	0.3				(*)
2		0	.4	1.1	1.1	1.2	.2	.3				
3		0	.4	1.1	1.1	1.2	.2	.3				
4	(*)	0	.4	1.1	1.1	1.2	.2	.3				
5		0	.4	* 1.1	1.1	1.2	.2	.3				
6		0	* .2	1.1	1.2	1.2	.2	.2				
7		* 0	.2	.9	1.2	1.1	.2	.2				
8		0	.2	.9	1.2	1.0	.2	.2				
9		0	.2	1.1	1.2	1.0	.1	.2				
10		0	.2	1.1	1.2	1.0	.1	.1				
11		0	.2	.9	1.1	1.0	.1	.1				
12		0	.4	.9	1.1	.9	0	* 0				
13		0	.4	.9	1.1	.9	* 0	0		(*)		
14		0	.4	.9	1.1	* .9	0	0				
15		0	.4	.9	1.1	.9	0	0				
16		0	.4	.9	* 1.1	.9	.1	0				
17		0	.4	1.1	1.1	.9	.1	0				
18		0	.4	* 1.1	1.1	.8	.1	0				
19		0	.4	1.1	1.1	1.0	.1	0				
20		0	* .6	1.1	1.2	.6	.1	0				
21		0	.6	1.1	1.2	.6	.1	0				
22		* 0	.8	1.1	1.2	.6	.1	0				
23		0	.9	1.1	1.2	.6	.2	0				
24		0	1.1	1.1	1.2	.6	.2	0				
25		0	1.2	1.2	1.6	.5	.2	0				
26		.3	1.1	1.2	1.2	.5	.2	0				
27		0	.9	1.1	1.0	* .5	* .2	0				
28		0	.9	1.1	1.1	.5	.2	0				
29		0	.9	1.1	-	.4	.2	* 0				
30		.1	1.1	1.1	-	.4	.3	0				
31		-	1.1	* 1.1	-	.3	-	0				
Total	0	0.4	17.8	32.7	32.3	25.6	4.3	2.5	0	0	0	0
Mean	0	0.01	0.57	1.05	1.15	0.83	0.14	0.08	0	0	0	0
Max.	0	0.3	1.2	1.2	1.6	1.2	0.3	0.3	0	0	0	0
Min.	0	0	0.2	0.9	1.0	0.3	0	0	0	0	0	0
Ac-ft	0	0.8	35	65	64	51	8.5	5.0	0	0	0	0

Calendar year 1960: Max 26 Min 0 Mean 2.11 Acre-feet 1,530  
 Water year 1960-61: Max 1.6 Min 0 Mean 0.32 Acre-feet 230

\* Discharge measurement or observation of no flow made on this day.

## SANTA YNEZ RIVER BASIN

11-1310. Santa Ynez River at Santa Rosa damsite, near Buellton, Calif.

Location (revised).--Lat 34°36'35", long 120°18'20", in Santa Rosa Grant, on left bank 1.1 mile downstream from Santa Rosa Creek and 6½ miles west of Buellton, Santa Barbara County.

Drainage area.--701 sq mi.

Records available.--October 1954 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 200 ft (from topographic map). Prior to Oct. 1, 1957, at datum 2.00 ft higher.

Extremes.--Maximum discharge during year, 4.5 cfs Jan. 26 (gage height, 1.42 ft); no flow Oct. 1 to Dec. 20, Mar. 18 to Sept. 30.  
1954-61: Maximum discharge, about 7,500 cfs Mar. 22, 1958 (gage height, 9.09 ft), from rating curve extended above 400 cfs on basis of peak discharge for station at Buellton; no flow for several months in each year.

Remarks.--Records fair. Flow regulated by Jameson Lake, Gibraltar Reservoir, and Lake Cachuma (see pp. 210, 211, 216). Water diverted out of basin from Jameson Lake, Gibraltar Reservoir, and Lake Cachuma to cities of Montecito, Santa Barbara, and Goleta for municipal supply. Some water pumped from wells along banks of river for irrigation in valley upstream.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			0	0.5	1.1	* 0.4						(*)
2			0	.5	1.1	.4						
3			0	.5	1.1	.5						
4	(*)		0	.5	.9	.6						
5			0	* .5	.6	.4						
6			0	.5	.5	.4						
7		(*)	0	.5	.5	.4						
8			0	.5	.5	.4						
9			0	.5	.4	.4						
10			0	.5	.3	.4						
11			0	.5	.3	.4						
12			0	.5	.5	.4						
13			0	.5	.5	.4	(*)			(*)		
14			0	.5	.5	*.5						
15			0	.5	.5	1.7						
16			0	.5	*.5	.9						
17			0	.5	.5	.1						
18			0	*.5	.5	0						
19			0	.5	.5	0						
20			* 0	.5	.5	0						
21			*.2	.5	.5	0						
22			.4	.5	.5	0						
23			.4	.5	.5	0						
24			.4	.5	.4	0						
25			.4	.6	.4	0						
26			.4	3.8	.4	0						
27			.4	2.8	.4	* 0	(*)					
28			.4	1.7	.4	0						
29			.4	1.4	-	0		(*)				
30			.5	.9	-	0						
31			.5	*.6	-	0						
Total	0	0	4.4	23.8	15.3	8.7	0	0	0	0	0	0
Mean	0	0	0.14	0.77	0.55	0.28	0	0	0	0	0	0
Max.	0	0	0.5	3.8	1.1	1.7	0	0	0	0	0	0
Min.	0	0	0	0.5	0.3	0	0	0	0	0	0	0
Ac-ft	0	0	8.7	47	30	17	0	0	0	0	0	0

Calendar year 1960: Max 16 Min 0 Mean 1.77 Acre-feet 1,280  
Water year 1960-61: Max 3.8 Min 0 Mean 0.14 Acre-feet 103

\* Discharge measurement or observation of no flow made on this day.

11-1315. Santa Ynez River at Cooper's Reef, near Lompoc, Calif.

Location.--Lat 34°36'48", long 120°21'20", near boundary of Canada de Salsipuedes Grant, on right bank 0.6 mile upstream from Canada de la Vina and 6 miles east of Lompoc, Santa Barbara County.

Drainage area.--708 sq mi.

Records available.--October 1954 to September 1961.

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

Extremes.--Maximum discharge during year, 1.3 cfs Nov. 26 (gage height, 1.58 ft); no flow June 11 to Sept. 30.  
1954-61: Maximum discharge, 6,260 cfs Mar. 22, 1958 (gage height, 8.44 ft); no flow June 11 to Sept. 30, 1961.

Remarks.--Records good. Discharge measurements or observations of no flow generally made twice a month. Flow regulated by Jameson Lake, Gibraltar Reservoir, and Lake Cachuma (see pp. 210, 211, 216). Water diverted out of basin from Jameson Lake, Gibraltar Reservoir, and Lake Cachuma to cities of Montecito, Santa Barbara, and Goleta for municipal supply. Some water pumped from wells along banks of river for irrigation in valley upstream.

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

1.3	0
1.4	.1
1.5	.5
1.6	1.4

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.2	0.3	0.4	0.4	0.3	0.4	0.1	0.1	0.1			
2	.2	.3	.4	.4	.3	.4	.1	.1	.1			
3	.2	.4	.4	.4	.3	.4	.1	.1	.1			
4	.2	.4	.4	.4	.3	.4	.1	.1	.1			
5	.2	.5	.4	.4	.3	.3	.1	.1	.1			
6	.2	.4	.4	.4	.3	.3	.1	.1	.1			
7	.2	.4	.4	.4	.3	.3	.1	.1	.1			
8	.2	.4	.4	.4	.3	.3	.1	.1	.1			
9	.2	.4	.5	.4	.3	.3	.1	.1	.1			
10	.2	.4	.6	.4	.3	.3	.1	.1	.1			
11	.2	.4	.6	.4	.3	.3	.1	.1	0			
12	.2	.5	.6	.4	.3	.3	.1	.1	0			
13	.2	.4	.5	.4	.3	.3	.1	.1	0			
14	.2	.3	.5	.4	.3	.3	.1	.1	0			
15	.2	.3	.5	.4	.3	.4	.1	.1	0			
16	.2	.3	.5	.4	.3	.3	.1	.1	0			
17	.2	.3	.5	.4	.3	.3	.1	.1	0			
18	.2	.3	.4	.4	.3	.3	.1	.1	0			
19	.2	.3	.4	.4	.3	.3	.1	.1	0			
20	.2	.3	.4	.4	.4	.3	.1	.1	0			
21	.2	.2	.4	.4	.4	.3	.1	.1	0			
22	.2	.2	.4	.4	.4	.2	.1	.1	0			
23	.2	.2	.4	.4	.4	.2	.1	.1	0			
24	.2	.2	.4	.4	.4	.2	.1	.1	0			
25	.2	.3	.4	.4	.4	.2	.1	.1	0			
26	.2	.7	.4	.6	.4	.2	.1	.1	0			
27	.2	.4	.4	.4	.4	.2	.1	.1	0			
28	.2	.3	.4	.3	.4	.2	.1	.1	0			
29	.2	.3	.4	.3	-	.2	.1	.1	0			
30	.2	.3	.4	.3	-	.2	.1	.1	0			
31	.3	-	.4	.3	-	.1	-	.1	-			
Total	6.3	10.4	13.6	12.2	9.3	8.7	3.0	3.1	1.0	0	0	0
Mean	0.20	0.35	0.44	0.39	0.33	0.28	0.10	0.10	0.03	0	0	0
Max.	0.3	0.7	0.6	0.6	0.4	0.4	0.1	0.1	0.1	0	0	0
Min.	0.2	0.2	0.4	0.3	0.3	0.1	0.1	0.1	0	0	0	0
Ac-ft	12	21	27	24	18	17	6.0	6.1	2.0	0	0	0

Calendar year 1960: Max 12 Min 0.1 Mean 1.28 Acre-feet 930  
Water year 1960-61: Max 0.7 Min 0 Mean 0.19 Acre-feet 133

Note.--No gage-height record May 4-14, 16-28, May 30 to June 15.

## SANTA YNEZ RIVER BASIN

11-1320. Santa Ynez River below Santa Rita Creek, near Lompoc, Calif.

Location.--Lat 34°38'00", long 120°23'30", on boundary of Santa Rita Grant, on right bank at white shale outcrop, half a mile downstream from Santa Rita Creek, and 3 3/4 miles east of Lompoc, Santa Barbara County.

Drainage area.--734 sq mi.

Records available.--October 1954 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 150 ft (from topographic map).

Extremes.--Maximum discharge during year, 1.5 cfs Jan. 26 (gage height, 3.41 ft); no flow Oct. 1 to Jan. 25, Feb. 19 to Sept. 30. 1954-61: Maximum discharge, about 6,000 cfs Mar. 22, 1958, on basis of maximum discharge for station at Cooper's Reef; no flow at times in 1957, 1958, 1960, and 1961.

Remarks.--Records fair. Flow regulated by Jameson Lake, Gibraltar Reservoir, and Lake Cachuma (see pp. 210, 211, 216). Water diverted out of basin from Jameson Lake, Gibraltar Reservoir, and Lake Cachuma to cities of Montecito, Santa Barbara, and Goleta for municipal supply. Some water pumped from wells along banks of river for irrigation in valley upstream.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Jan. 26.....1.0	Feb. 1.....0.1	Feb. 7.....0.1	Feb. 13.....0.1
27......5	2......1	8......1	14.....*.1
28......2	3......1	9......1	15......1
29......1	4......1	10......1	16......1
30......1	5......1	11......1	17......1
31.....*.1	6......1	12......1	18......1

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
January 1961.....	2.0	1.0	0	0.06	4.0
February.....	1.8	.1	0	.06	3.6
Calendar year 1960.....	-	11	0	.92	671
Water year 1960-61.....	-	1.0	0	.01	7.6

\* Discharge measurement made on this day.

Note.--Flow occurred only on days listed above.

11-1325. Salsipuedes Creek near Lompoc, Calif.

Location.--Lat 34°35'20", long 120°24'27", in W $\frac{1}{2}$  sec. 24, T.6 N., R.34 W., on right bank at highway bridge on Jalama Road, 0.4 mile downstream from El Jaro Creek and 4.4 miles southeast of Lompoc.

Drainage area.--47.0 sq mi.

Records available.--January 1941 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 240 ft (from topographic map).

Average discharge.--20 years, 7.54 cfs (5,460 acre-ft per year); median of yearly mean discharges, 2.8 cfs (2,000 acre-ft per year).

Extremes.--Maximum discharge during year, 483 cfs Dec. 1 (gage height, 3.78 ft); no flow Apr. 29 to Aug. 24, Sept. 11-30.

1941-61: Maximum discharge, 11,400 cfs Mar. 15, 1952 (gage height, 20.8 ft), from rating curve extended above 2,200 cfs on basis of slope-area measurement of peak flow; no flow at times in 1955, 1960, 1961.

Remarks.--Records good. Small diversions for irrigation above station.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Mar. 25-29, June 10-16, July 21 to Aug. 8,  
Aug. 21 to Sept. 1, Sept. 12-18, 23-30)

1.0	0	1.4	10
1.1	.3	1.5	16
1.2	1.6	1.7	33
1.3	4.9	2.0	67

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0.2	6.4	0.9	1.8	* 1.0	0.5	(*)			0	* 0.1
2	.1	.2	1.4	.9	1.8	1.0	.5				0	.1
3	.1	.2	3.4	.9	1.8	1.0	.4				0	.1
4	* .1	.3	2.1	.9	1.8	1.0	.4				0	.1
5	.1	1.4	* 2.1	* .9	1.8	1.0	.4				0	.1
6	.1	1.8	1.8	.9	1.8	1.0	.3				0	.1
7	.1	* .5	1.8	1.0	1.8	.9	.3				0	.1
8	.1	.6	1.6	1.0	1.8	.9	.3				* 0	.1
9	.1	.5	1.6	1.0	1.6	.9	.3				0	.1
10	.1	.4	1.6	1.0	1.6	.9	.3				0	.1
11	.1	.3	1.6	.9	1.6	.9	.3				0	0
12	.1	2.9	1.6	1.0	1.6	.9	* .3				0	0
13	.1	1.6	1.6	.9	1.4	.9	.3			(*)	0	0
14	.1	.9	1.4	1.0	* 1.4	* .7	.3				0	0
15	.1	.5	1.4	1.0	1.4	.7	.2				0	0
16	.1	.4	1.4	1.0	1.4	.6	.2		(*)		0	0
17	.1	.3	1.2	1.0	1.4	.6	.2				0	0
18	.1	.3	1.0	.9	1.4	.6	.2				0	* 0
19	.1	.3	1.0	.9	1.4	.6	.2				0	0
20	.1	.3	* 1.0	* .9	1.4	.6	.2				0	0
21	.1	.3	1.0	1.0	1.2	.6	.1				0	0
22	.1	* .2	1.0	1.0	1.2	.6	.1				0	0
23	.1	.5	1.0	1.2	1.2	.6	.1				0	0
24	.1	.6	1.0	1.4	1.2	.6	.1				0	0
25	.1	.7	1.0	1.8	1.2	.6	.1				* .1	0
26	.1	5.6	1.0	3.6	1.2	.6	.1				.1	0
27	* .1	3.7	1.0	4.1	1.2	.6	* .1		(*)		.1	0
28	.1	1.2	1.0	1.8	1.2	.6	.1				.1	0
29	.1	1.0	1.0	1.6	-	* .6	0				.1	0
30	.1	.9	1.0	1.8	-	.5	0				.1	0
31	.1	-	.9	* 1.6	-	.5	-	(*)	-	-	.1	-
Total	3.1	79.0	118.1	72.2	41.6	23.1	6.9	0	0	0	0.7	1.0
Mean	0.10	2.63	3.81	2.33	1.49	0.75	0.23	0	0	0	0.02	0.03
Max.	0.1	.56	.64	.36	1.8	1.0	0.5	0	0	0	0.1	0.1
Min.	0.1	0.2	0.9	0.9	1.2	0.5	0	0	0	0	0	0
Ac-ft	6.1	157	234	143	83	46	14	0	0	0	1.4	2.0

Calendar year 1960: Max 144 Min 0 Mean 2.36 Acre-feet 1,710

Water year 1960-61: Max 64 Min 0 Mean 0.95 Acre-feet 686

Peak discharge (base, 100 cfs).--Nov. 26 (10 a.m.) 402 cfs (3.52 ft); Dec. 1 (7 p.m.) 483 cfs (3.78 ft); Jan. 26 (4:30 a.m.) 114 cfs (2.28 ft).

\* Discharge measurement or observation of no flow made on this day.

## SANTA YNEZ RIVER BASIN

11-1330. Santa Ynez River at narrows, near Lompoc, Calif.

Location.--Lat 34°38'15", long 120°25'30", in Canada de Salsipuedes Grant, on left bank 0.5 mile upstream from State Highway 150, 1.9 miles east of Lompoc, Santa Barbara County, and 2.0 miles downstream from Salsipuedes Creek.

Drainage area.--790 sq mi.

Records available.--April 1947 to September 1952 (irrigation seasons only); October 1952 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 90 ft (from topographic map). Prior to Mar. 23, 1953, at site 200 ft upstream at different datum.

Extremes.--Maximum discharge during year, 285 cfs Dec. 1 (gage height, 3.84 ft); no flow for most of year.  
1952-61: Maximum discharge, 6,580 cfs Mar. 22, 1958 (gage height, 8.10 ft); no flow at times in each year.

Remarks.--Records fair. Flow regulated by Jameson Lake, Gibraltar Reservoir, and Lake Cachuma (see pp. 210, 211, 216). Water diverted out of basin from Jameson Lake, Gibraltar Reservoir, and Lake Cachuma to cities of Montecito, Santa Barbara, and Goleta for municipal supply. Some water pumped from wells along banks of river for irrigation in valley upstream.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Nov. 26..... 27	Dec. 3..... 2.4	Jan. 29..... 0.6
27..... 6.7	Jan. 26..... 20	30..... .1
Dec. 1..... 47	27..... 9.6	31..... *.2
2..... 52	28..... 1.5	Mar. 26..... .1

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
November 1960.....	33.7	27	0	1.12	67
December.....	101.4	52	0	3.27	201
January 1961.....	32.0	20	0	1.03	63
March.....	.1	.1	0	.003	.2
Calendar year 1960.....	-	83	0	2.53	1,840
Water year 1960-61.....	-	52	0	.46	331

\* Discharge measurement made on this day.

Note.--Flow occurred only on days listed above.

11-1340. Santa Ynez River at H Street, near Lompoc, Calif.

Location.--Lat 34°40'06", long 120°27'25", in Lompoc Grant, near left bank on downstream side of H Street Bridge on State Highway 1, 2 miles north of Lompoc, Santa Barbara County.

Drainage area.--816 sq mi.

Records available.--October 1946 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Datum of gage is 56.74 ft above mean sea level, datum of 1929. Since Apr. 26, 1947, supplementary water-stage recorder at same datum on third pier from right bank. Nov. 19, 1952, to May 31, 1954, supplementary water-stage recorders at various sites and datums near bridge.

Extremes.--Maximum discharge during year, 192 cfs Dec. 2 (gage height, 7.02 ft); no flow for most of year.  
1946-61: Maximum discharge, 37,900 cfs Jan. 16, 1952 (gage height, 17.4 ft), from rating curve extended above 2,900 cfs; no flow for most of each year.

Remarks.--Records fair. Flow regulated by Jameson Lake, Gibraltar Reservoir, and Lake Cachuma (see pp. 210, 211, 216). Water diverted out of basin from Jameson Lake, Gibraltar Reservoir, and Lake Cachuma to cities of Montecito, Santa Barbara, and Goleta for municipal supply. Some water pumped from Wells along banks of river for irrigation in valley upstream.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Nov. 27..... 12	Dec. 2..... 66
28..... *.1	3..... 2.2
Dec. 1..... 1.6	Jan. 27..... 1.1

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
November 1960.....	12.1	12	0	0.40	24
December.....	69.8	66	0	2.25	138
January 1961.....	1.1	1.1	0	.04	2.2
Calendar year 1960.....	-	93	0	.56	403
Water year 1960-61.....	-	66	0	.23	164

\* Discharge measurement made on this day.

Note.--Flow occurred only on days listed above.



11-1345. Santa Ynez River at 13th Street, near Lompoc, Calif.

Location.--Lat 34°40'06", long 120°28'29", in Lompoc Grant, on right bank at 13th Street crossing, 2.3 miles northwest of Lompoc, Santa Barbara County.

Drainage area.--820 sq mi.

Records available.--October 1954 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 60 ft (from topographic map). Prior to Nov. 27, 1956, at various sites within 300 ft at same datum.

Extremes.--Maximum discharge during year, 101 cfs Dec. 2 (gage height, 2.33 ft); no flow except on Dec. 2 and 3.

1954-61: Maximum discharge, 6,600 cfs Apr. 3, 1958; maximum gage height, 7.06 ft Dec. 25, 1955; no flow for several months in each year.

Remarks.--Records poor. Observations of no flow generally made once a month. Flow regulated by Jameson Lake, Gibraltar Reservoir, and Lake Cachuma (see pp. 210, 211, 216). Water diverted out of basin from Jameson Lake, Gibraltar Reservoir, and Lake Cachuma to cities of Montecito, Santa Barbara, and Goleta for municipal supply. Some water pumped from wells along bank of river for irrigation in valley upstream.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Dec. 2..... 40  
3..... 3.6

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
December 1960.....	43.6	40	0	1.41	86
Calendar year 1960.....	-	67	0	.31	224
Water year 1960-61.....	-	40	0	.12	86

Note.--Flow occurred only on days listed above.

## SANTA YNEZ RIVER BASIN

11-1355. Santa Ynez River at barrier, near Surf, Calif.

Location.--Lat 34°41'20", long 120°35'05", in Lompoc Grant, on upstream side at center of salt-water barrier, 1.0 mile upstream from mouth and 1.2 miles east of Surf, Santa Barbara County.

Drainage area.--895 sq mi.

Records available.--October 1946, April 1947 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder and compound broad-crested weir. Datum of gage is 5.5 ft above mean sea level, datum of 1929.

Average discharge.--14 years (1947-61), 47.5 cfs (34,390 acre-ft per year); median of yearly mean discharges, 1.5 cfs (1,100 acre-ft per year).

Extremes.--Maximum discharge during year, about 5 cfs Dec. 3, during period of backwater; no flow for most of year.

1947-61: Maximum discharge, 36,000 cfs Jan. 16, 1952 (gage height, 6.50 ft), from rating curve extended above 200 cfs on basis of weir formula; no flow for several months in each year.

Remarks.--Records poor. Flow regulated by Jameson Lake, Gibraltar Reservoir, and Lake Cachuma (see pp. 210, 211, 216). Water diverted out of basin from Jameson Lake, Gibraltar Reservoir, and Lake Cachuma to cities of Montecito, Santa Barbara, and Goleta for municipal supply. Some water pumped from wells along banks of river for irrigation in valley upstream. Flow from Arguello drainage ditch bypasses station; this flow amounted to 76 acre-ft during current year.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			0	0		0.3	0.2					(*)
2			0	0			.2					
3			2	0			.1					
4	(*)		.5	0	0.5		.1					
5			* .1	* 0			.1					
6			0	0			.1					
7		(*)	0	0			.1					
8			0	0			0					
9			0	0	.5		0					
10			0	0	.5		0					
11			0	0	.5		0	(*)				
12			0	0	.6		* 0					
13			0	0	.5		0			(*)		
14			0	0	* 1.0	* .3	0					
15			0	0	.8		0					
16			0	0	.7		0		(*)			
17			0	0	.5		0					
18			0	* 0	.5		0					
19			0	0	.4		0					
20			* 0	0	.4		0					
21			0	0	.4		0					
22		(*)	0	0	.5		0					
23			0	0	.5		0					
24			0	0	.5		0					
25			0	0	.6		0					
26			0	0	.7		0					
27			0	1	* .5	.2	* 0		(*)			
28			0	1.5	.3		0					
29			0	1.5	-	*	0					
30			0	* 1.5	-		0					
31			0	1	-		-	(*)				
Total	0	0	2.6	6.5	14.9	8.3	0.9	0	0	0	0	0
Mean	0	0	0.08	0.21	0.53	0.27	0.03	0	0	0	0	0
Max.	0	0	2	1.5	1.0	-	0.2	0	0	0	0	0
Min.	0	0	0	0	0.3	-	0	0	0	0	0	0
Ac-ft	0	0	5.2	13	30	16	1.8	0	0	0	0	0
(†)	0	0	0	23	12	12	15	10	4.4	0	0	0

Calendar year 1960:

Max 25

Min 0

Mean 0.24

Acre-feet 177

Water year 1960-61:

Max 2

Min 0

Mean 0.09

Acre-feet 66

\* Discharge measurement or observation of no flow made on this day.

† Flow, in acre-feet, from Arguello drainage ditch; this is not included in flow that passes station.

11-1361. San Antonio Creek near Casmalia, Calif.

Location.--Lat 34°46'56", long 120°31'47", in Jesus Maria Grant, on Camp Cook Military Reservation on downstream side of left center pile bent of San Antonio road bridge, 0.7 mile east of junction of San Antonio road with Lompoc-Casmalia road, and 3.8 miles south of Casmalia, Santa Barbara County.

Drainage area.--134 sq mi.

Records available.--October 1955 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 160 ft (from topographic map). Prior to June 27, 1958, at datum 2.00 ft higher.

Average discharge.--6 years, 5.86 cfs (4,240 acre-ft per year).

Extremes.--Maximum discharge during year, 42 cfs Dec. 1 (gage height, 4.02 ft); minimum daily, 0.5 cfs Sept. 8.

1955-61: Maximum discharge, 1,200 cfs Apr. 1, 1958 (gage height, 9.25 ft); minimum daily, 0.1 cfs June 19, 20, 1957.

Remarks.--Records good. Flow affected by pumpage from wells along stream for irrigation.

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.3	1.7	1.2	3.6	5.3	3.4	3.1	1.9	1.8	0.9	0.9	0.9
2	1.2	1.7	1.7	3.5	4.6	3.5	2.9	1.7	2.0	.8	.9	.8
3	1.2	2.0	6.8	3.4	4.6	3.5	2.7	1.7	1.8	.9	.8	.8
4	1.2	3.1	4.2	* 3.1	4.5	3.5	2.7	1.6	1.9	1.0	.8	.6
5	1.0	4.5	3.8	3.1	4.5	3.6	2.7	1.6	1.8	* 1.0	.9	.6
6	1.4	1.4	3.2	3.4	4.4	* 3.6	2.7	1.6	1.8	.9	.8	*.6
7	2.9	4.6	3.1	4.6	4.5	3.4	2.5	1.6	1.9	.9	.6	.6
8	1.8	2.7	3.2	5.5	4.2	3.1	2.5	1.7	2.0	.8	.6	.5
9	1.5	2.2	3.2	5.7	4.0	3.1	2.4	1.6	1.9	.9	.7	.8
10	1.4	2.2	3.4	5.7	4.2	3.1	2.5	1.6	1.8	.8	.8	.6
11	* 1.2	2.2	4.0	5.5	4.4	3.1	2.5	* 1.6	1.8	.8	.8	.6
12	1.3	6.9	3.9	5.3	4.4	2.9	2.4	1.5	1.7	.8	.8	.8
13	1.4	6.5	3.8	5.5	4.2	2.8	2.4	1.5	1.6	.8	.8	.8
14	1.4	4.8	3.6	5.3	* 3.9	3.1	2.4	1.6	1.7	.8	.8	.8
15	1.2	3.5	3.8	3.9	3.9	* 9.3	1.9	1.6	1.4	.8	*.8	.8
16	1.1	2.6	3.8	3.6	3.9	6.1	1.8	1.6	1.3	.8	.8	.9
17	1.1	2.4	3.8	* 3.6	3.9	4.4	* 1.8	1.6	1.3	.8	.8	1.2
18	1.2	* 2.4	3.6	3.8	3.8	4.2	1.9	1.6	1.3	.7	.8	* 1.0
19	1.5	2.5	* 3.5	4.0	3.5	3.8	1.7	1.6	1.4	.7	.8	1.0
20	1.6	2.2	3.5	4.8	3.5	3.5	1.6	1.6	* 1.2	.7	.6	1.0
21	1.6	2.4	3.5	5.5	3.5	3.5	1.6	1.6	1.3	.6	.6	1.0
22	1.6	2.4	3.6	5.0	3.5	3.5	1.9	1.6	1.3	.8	.6	1.0
23	1.6	2.5	3.4	4.2	3.5	3.8	2.4	1.6	1.5	.8	.7	.8
24	1.6	2.6	3.4	4.2	3.2	3.5	2.1	1.4	1.4	.8	.6	.8
25	1.6	2.9	3.5	4.4	3.4	4.2	2.1	1.6	1.3	*.8	.6	.8
26	1.6	1.2	3.5	* 1.5	3.5	3.8	* 2.1	1.6	1.2	.8	.8	.9
27	1.5	8.8	3.5	8.0	3.4	3.5	2.1	1.5	1.2	.8	.8	.9
28	1.3	4.5	3.5	5.3	3.4	* 3.6	2.0	1.5	1.2	.8	.8	.8
29	1.4	4.4	3.2	5.0	-	3.4	1.9	1.5	1.1	.9	.8	.9
30	1.5	* 4.0	3.2	4.8	-----	2.9	1.9	1.5	1.0	.9	.8	1.2
31	* 1.6	-----	3.5	* 5.0	-----	3.2	-----	* 1.5	-----	.9	.9	-----
Total	57.4	121.2	135.0	153.3	111.6	115.9	67.2	49.3	45.9	25.5	23.6	24.8
Mean	1.85	4.04	4.35	4.95	3.99	3.74	2.24	1.59	1.53	0.82	0.76	0.83
Max.	14	14	17	15	5.3	9.3	3.1	1.9	2.0	1.0	0.9	1.2
Min.	1.0	1.7	3.1	3.1	3.2	2.8	1.6	1.4	1.0	0.6	0.6	0.5
Ac-ft	114	240	268	304	221	230	133	98	91	51	47	49

Calendar year 1960: Max 101 Min 0.6 Mean 3.51 Acre-feet 2,550

Water year 1960-61: Max 17 Min 0.5 Mean 2.55 Acre-feet 1,850

Peak discharge (base, 50 cfs).--No peak above base.

\* Discharge measurement made on this day.

## SANTA MARIA RIVER BASIN

11-1368. Cuyama River below Buckhorn Canyon, near Santa Maria, Calif.

Location.--Lat 35°01'20", long 120°13'10", in SW<sup>1</sup>/<sub>4</sub> sec.14, T.11 N., R.32 W., on downstream side of second pier from right abutment of bridge on State Highway 166, 0.7 mile downstream from Buckhorn Canyon and 13 miles northeast of Santa Maria.

Drainage area.--884 sq mi (revised).

Records available.--October 1903 to December 1905 (published as Santa Maria River near Santa Maria), October 1959 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 760 ft (from topographic map). Prior to October 1959 at different site and datum.

Extremes.--Maximum discharge during year, 249 cfs Nov. 7 (gage height, 5.24 ft); no flow for most of year.

1903-5, 1959-61: Maximum discharge observed, about 10,000 cfs Mar. 13, 1905 (gage height, 10.0 ft, site and datum then in use); no flow for most of 1960 and 1961.

Remarks.--Records good. Pumpage from wells along stream for irrigation in upper Cuyama Valley.

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

3.1	0	3.7	12
3.2	.4	3.9	24
3.3	1.3	4.1	39
3.4	2.8	4.4	72
3.5	5.2		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	1.4	0.1	0.1							
2		0	1.2	.1	0							
3		0	.6	.1	0							
4		0	.4	* .1	0							
5		0	.3	.1	0							
6		0	.3	.1	0					(*)		
7		* 6.5	.3	.1	0							
8		* 3.3	.3	.3	0							
9		* 9.7	.3	.1	0							
10		3.5	.3	.1	0							
11	(*)	1.6	.3	.1	0							
12		1.8	.2	0	0		(*)					
13		1.9	.2	0	0							
14		* 4.7	.2	0	0							
15		1.6	.2	0	* 0						(*)	
16		.6	.2	0	0							
17		* .2	.2	* 0	0							
18		.2	.2	0	0							
19		.1	* .2	0	0							(*)
20		.1	.2	0	0				(*)			
21		.1	.2	0	0							
22		.1	.2	0	0							
23		.1	.2	0	0							
24		.1	.2	0	0							
25		.1	.2	0	0							
26		.8	.1	* .4	0					(*)		
27		.3	.1	.1	0							
28		.2	.1	.1	0							
29		* .2	.1	0	-			(*)				
30		.2	.1	* 0								
31			.1	.1		(*)						
Total	0	1 26.2	9.1	1.8	0.1	0	0	0	0	0	0	0
Mean	0	4.21	0.29	0.06	0.004	0	0	0	0	0	0	0
Max.	0	65	1.4	0.4	0.1	0	0	0	0	0	0	0
Min.	0	0	0.1	0	0	0	0	0	0	0	0	0
Ac-ft	0	250	18	3.6	0.2	0	0	0	0	0	0	0

Calendar year 1960: Max 65 Min 0 Mean 0.90 Acre-feet 649

Water year 1960-61: Max 65 Min 0 Mean 0.38 Acre-feet 272

Peak discharge (base, 200 cfs).--Nov. 7 (3 p.m.) 249 cfs (5.24 ft).

\* Discharge measurement or observation of no flow made on this day.

## SANTA MARIA RIVER BASIN

239

11-1370. Cuyama River near Santa Maria, Calif.

Location.--Lat 35°00'42", long 120°16'43", in Suey Grant, on right bank 60 ft downstream from highway bridge, 2.6 miles upstream from Alamo Creek, and 8.9 miles northeast of Santa Maria, Santa Barbara County.

Drainage area.--904 sq mi (revised).

Records available.--October 1929 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Datum of gage is 608.93 ft above mean sea level, unadjusted. Prior to Oct. 3, 1936, at same site at different datum. Oct. 3, 1936, to Feb. 2, 1945, at site 200 ft upstream at datum 1.31 ft higher. Feb. 3 to June 21, 1945, at same site at datum 0.78 ft higher. June 21, 1945, to July 8, 1947, at same site at datum 1.00 ft higher.

Average discharge.--32 years, 19.2 cfs (13,900 acre-ft per year); median of yearly mean discharges, 8.2 cfs (5,900 acre-ft per year).

Extremes.--Maximum discharge during year, 259 cfs Nov. 7 (gage height, 4.57 ft); no flow for several months.

1929-61: Maximum discharge, 17,300 cfs Mar. 3, 1938 (gage height, 16.6 ft, from floodmarks, site and datum then in use), from rating curve extended above 5,000 cfs on basis of slope-area measurement of peak flow; no flow at times in some years.

Remarks.--Records good. Some pumpage from wells along stream for irrigation above station.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	5.2	0.1	0.2	0.1	0.1					
2		0	4.8	.1	.2	* .1	.1					
3		0	1.3	.1	.2	.1	.1					
4		0	.7	* .1	.2	.1	.1					
5		0	.4	.1	.2	.1	.1					
6		0	.3	.1	.2	.1	.1			(*)		
7		4.2	.2	.1	.2	.1	.1					
8		* 6.1	.2	.1	.2	.1	.1					
9		* 1.6	.2	.1	.2	.1	.1					
10		6.0	.3	.1	.2	.1	.1					
11	(*)	3.2	.3	.1	.2	.1	.1					
12		2.8	.2	.1	.2	.1	* .1	(*)				
13		2.4	.2	.1	.1	.1	0					
14		3.7	.2	.1	.1	.1	0				(*)	
15		2.4	.2	.1	* .1	1.6	0					
16		.4	.2	.1	.1	* .2	0					
17		* 0	.2	* .1	.1	.1	0					
18		0	.2	.1	.1	.1	0					
19		0	* .2	0	.1	.1	0					(*)
20		0	.1	0	.1	.1	0		(*)			
21		0	.1	0	.1	.1	0					
22		0	.1	0	.1	.1	0					
23		0	.1	0	.1	.1	0					
24		0	.1	0	.1	.1	0					
25		0	.1	.1	.1	.1	0					
26		2.6	.1	3.6	.1	.1	0					
27		.3	.1	.6	.1	.1	* 0					
28		.1	.1	.3	.1	.1	0					
29		* 0	.1	.2	-	* .1	0	(*)				
30		0	.1	* .2	-----	.1	0					
31		-----	.1	.3	-----	.1	-----					
Total	0	1 42.9	16.7	7.1	4.0	4.7	1.2	0	0	0	0	0
Mean	0	4.76	0.54	0.23	0.14	0.15	0.04	0	0	0	0	0
Max.	0	61	5.2	3.6	0.2	1.6	0.1	0	0	0	0	0
Min.	0	0	0.1	0	0.1	0.1	0	0	0	0	0	0
Ac-ft	0	283	33	14	8.0	9.3	2.4	0	0	0	0	0

Calendar year 1960 : Max 61 Min 0 Mean 0.98 Acre-feet 713

Water year 1960-61 : Max 61 Min 0 Mean 0.48 Acre-feet 350

Peak discharge (base, 200 cfs).--Nov. 7 (7 p.m.) 259 cfs (4.57 ft).

\* Discharge measurement or observation of no flow made on this day.

## SANTA MARIA RIVER BASIN

11-1374. Alamo Creek near Nipomo, Calif.

Location.--Lat  $35^{\circ}02'55''$ , long  $120^{\circ}18'05''$ , in Huasna Grant, on right bank 3.2 miles upstream from mouth and 10 miles east of Nipomo, San Luis Obispo County.

Drainage area.--83.3 sq mi.

Records available.--March 1959 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 650 ft (from topographic map).

Remarks.--No flow since Mar. 23, 1959, date of establishment. Observations of no flow generally made once or twice a month. No regulation or diversion.

11-1375. Alamo Creek near Santa Maria, Calif.

Location.--Lat 35°01'20", long 120°18'10", in Suey Grant, on downstream side of center pier of highway bridge, 1.2 miles upstream from mouth and 9 miles northeast of Santa Maria, Santa Barbara County.

Drainage area.--86.6 sq mi (revised).

Records available.--October 1943 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 579.14 ft above mean sea level, datum of 1929. Prior to May 12, 1958, at datum 2.00 ft higher.

Average discharge.--18 years, 5.71 cfs (4,130 acre-ft per year); median of yearly mean discharges, 1.8 cfs (1,300 acre-ft per year).

Extremes.--Maximum discharge during year, 3.3 cfs Jan. 26 (gage height, 5.23 ft); minimum daily, 0.4 cfs for many days.

1943-61: Maximum discharge, 3,120 cfs Apr. 3, 1958 (gage height, 9.65 ft, present datum); minimum daily, less than 0.1 cfs in 1949 and 1950.

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

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Oct. 8-14, Aug. 25 to Sept. 17, Sept. 28-30)

4.6	0.2	4.9	1.2
4.7	.5	5.0	1.9
4.8	.8		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.9	0.8	1.3	1.0	1.3	1.0	0.9	0.7	0.6	0.5	0.4	0.5
2	.9	.8	1.4	1.0	1.2	* 1.0	.9	.7	.6	.5	.4	.5
3	.9	.9	1.3	1.0	1.2	1.0	.9	.7	.6	.5	.4	.4
4	.9		1.2	* 1.0	1.2	1.0	.9	.7	.6	.5	.4	.4
5	.9	1.2	1.2	1.0	1.2	1.1	.9	.6	.6	.5	.4	.4
6	1.8	1.2	1.2	1.0	1.2	1.1	.9	.7	.6	.5	.4	* .4
7	1.4	1.1	1.1	1.0	1.2	1.2	.8	.7	.6	.4	.4	.4
8	1.4	1.0	1.1	1.0	1.2	1.2	.8	.6	.6	.4	.4	.4
9	1.4	1.0	1.0	1.0	1.2	1.2	.8	.6	.6	.4	.4	.4
10	1.4	1.0	1.0	1.0	1.2	1.2	.6	.6	.6	.4	.4	.4
11	* 1.4	1.0	1.0	1.0	1.2	1.2	.8	.6	.6	.4	.4	.4
12	1.2	1.2	.9	1.0	1.2	1.2	* .8	* .6	.6	.4	.4	.4
13	1.2	1.6	.9	1.0	1.2	1.2	.8	.6	.6	.4	.4	.4
14	1.2	1.5	1.0	.9	1.2	1.2	.8	.6	.6	.4	* .5	.4
15	1.1	1.4	1.0	.9	* 1.2	* 1.4	.6	.6	.6	.4	.4	.4
16	1.1	1.2	1.0	.9	1.2	1.2	.6	.6	.6	.4	.4	.5
17	1.1	* 1.2	1.0	* .8	1.2	1.2	.8	.6	.6	.4	.4	.5
18	1.1	1.2	1.1	.8	1.2	1.2	.8	.6	.6	.4	.4	.4
19	1.0	1.2	* 1.2	.8	1.1	1.1	.8	.6	.6	.4	.4	* .4
20	1.0	1.2	1.2	.9	1.1	1.1	.8	.6	* .6	.4	.4	.5
21	1.0	1.2	1.2	.9	1.1	1.0	.6	.6	.6	.4	.4	.5
22	1.0	1.2	1.2	.9	1.1	1.0	.8	.6	.6	.4	.4	.5
23	.9	1.2	1.1	.9	1.1	1.0	.8	.6	.6	.4	.4	.4
24	.9	1.2	1.1	.9	1.1	1.0	.8	.6	.6	.4	.5	.4
25	.9	1.2	1.1	.9	1.1	1.0	.8	.6	.6	.4	.5	.4
26	.8	1.4	1.1	1.6	1.0	1.0	.8	.6	.6	* .4	.5	.4
27	.8	1.4	1.0	1.5	1.0	1.0	* .8	.6	.6	.4	.5	.4
28	* .8	1.4	1.0	1.4	1.0	.9	.8	.6	.6	.4	.5	.4
29	.8	* 1.2	1.0	1.4	-	.9	.8	* .6	.6	.4	.5	.4
30	.8	1.2	1.0	* 1.3	-	.9	.8	.6	.5	.4	.5	.4
31	.8	-	1.0	1.4	-	* .9	-	.6	-	.4	.5	-
Total	32.8	35.2	33.9	32.1	32.4	33.6	24.6	19.2	17.9	13.0	13.3	12.7
Mean	1.06	1.17	1.09	1.04	1.16	1.08	0.82	0.62	0.60	0.42	0.43	0.42
Max.	1.8	1.6	1.4	1.6	1.3	1.4	0.9	0.7	0.6	0.5	0.5	0.5
Min.	0.8	0.8	0.9	0.8	1.0	0.9	0.8	0.6	0.5	0.4	0.4	0.4
Ac-ft	65	70	67	64	64	67	49	38	36	26	26	25

Calendar year 1960:

Max 3.8

Min 0.6

Mean 1.28

Acre-feet 928

Water year 1960-61:

Max 1.8

Min 0.4

Mean 0.82

Acre-feet 597

Peak discharge (base, 50 cfs).--No peak above base.

\* Discharge measurement made on this day.

## SANTA MARIA RIVER BASIN

11-1379. Huasna River near Arroyo Grande, Calif.

Location.--Lat 35°04'40", long 120°22'15", in Huasna Grant, on right bank 300 ft downstream from mouth of Huasna Creek and 12 miles southeast of Arroyo Grande, San Luis Obispo County.

Drainage area.--104 sq mi.

Records available.--June 1959 to September 1961.

Gage.--Water-stage recorder actuated by bubbler gage, and crest-stage gage. Altitude of gage is 640 ft (from topographic map).

Extremes.--Maximum discharge during year, 1.0 cfs Nov. 13 (gage height, 2.64 ft); no flow Apr. 14 to Sept. 30.

1959-61: Maximum discharge, about 200 cfs Feb. 1, 1960 (gage height, 4.1 ft, from floodmark), from rating curve extended above 30 cfs on basis of velocity-area study; no flow for many days in each year.

Remarks.--Records fair. No regulation. Some diversions above station by pumping for irrigation.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0.1	* 0.3	0.2	0.3	0.2	0.2					
2	.1	.1	.3	.2	.3	* .2	.2					
3	.1	.1	.3	.2	.3	.2	.2					
4	.1	.1	.2	* .2	.3	.2	.2					
5	.1	.2	.2	.2	.2	.2	.2					
6	.3	.2	.2	.2	.2	.2	.2			(*)		
7	.1	.2	.2	.2	.2	.2	.1					
8	.1	.2	.2	.2	.2	.2	.1					
9	.1	.2	.2	.2	.2	.2	.1					
10	.1	.2	.2	.2	.2	.2	.1					
11	* .1	.2	.2	.2	.2	.2	.1					
12	.1	.3	.2	.2	.2	.2	* .1	(*)				
13	.1	.4	.2	.2	.2	.2	.1					
14	.1	.4	.2	.2	.2	.2	0					
15	.1	.2	.2	.2	* .2	* .2	0				(*)	
16	.1	.2	.2	.2	.2	.2	0					
17	.1	* .2	.2	* .2	.2	.2	0					
18	.1	.2	.2	.2	.2	.2	0					
19	.1	.2	* .2	.2	.2	.2	0					(*)
20	.1	.1	.2	.2	.2	.2	0					
21	.1	.1	.2	.2	.2	.2	0					
22	.1	.1	.2	.2	.2	.2	0					
23	.1	.1	.2	.2	.2	.2	0					
24	.1	.1	.2	.2	.2	.2	0					
25	.1	.1	.2	.6	.2	.2	0					
26	.1	.2	.2	* .6	.2	.2	0			(*)		
27	.1	.2	.2	.5	.2	.2	* 0					
28	* .1	.2	.2	.4	.2	.2	0					
29	.1	.2	.2	.4	-	.2	0	(*)				
30	.1	.3	.2	.4	-	.2	0					
31	.1	-	.2	* .4	-	* .2	-					
Total	3.3	5.6	6.5	8.1	6.0	6.2	1.9	0	0	0	0	0
Mean	0.11	0.19	0.21	0.26	0.21	0.20	0.06	0	0	0	0	0
Max.	0.3	0.4	0.3	0.6	0.3	0.2	0.2	0	0	0	0	0
Min.	0.1	0.1	0.2	0.2	0.2	0.2	0	0	0	0	0	0
Ac-ft	6.5	11	13	16	12	12	3.8	0	0	0	0	0

Calendar year 1960 : Max 60 Min 0 Mean 0.63 Acre-feet 455

Water year 1960-61 : Max 0.6 Min 0 Mean 0.10 Acre-feet 74

Peak discharge (base, 40 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.



11-1380. Huasna River near Santa Maria, Calif.

Location.--Lat 35°01'16", long 120°19'18", in Suey Grant, at State Highway 166 bridge, on downstream side of first pier from right bank, 0.3 mile upstream from mouth and 8 miles northeast of Santa Maria, Santa Barbara County.

Drainage area.--119 sq mi.

Records available.--December 1929 to September 1961. Monthly discharge only for December 1929 and yearly estimate for water year 1930 (incomplete), published in WSP 1315-B.

Gage.--Water-stage recorder. Altitude of gage is 525 ft (from topographic map). Prior to Oct. 1, 1959, at sites within 0.1 mile upstream and 50 ft downstream at different datums.

Average discharge.--32 years (1929-61), 17.8 cfs (12,890 acre-ft per year); median of yearly mean discharges, 6.1 cfs (4,400 acre-ft per year).

Extremes.--Maximum discharge during year, 142 cfs Jan. 2 (gage height, 3.34 ft), from rating curve extended above 45 cfs on basis of area-velocity study; no flow Oct. 1 to Nov. 17, Apr. 20, 21, Apr. 28 to Sept. 30.

1929-61: Maximum discharge, 11,400 cfs Feb. 11, 1938 (gage height, 11.26 ft, site and datum then in use), from rating curve extended above 1,100 cfs on basis of slope-area measurement of peak flow; no flow for parts of several years.

Remarks.--Records good except those above 10 cfs and those for periods of no gage-height record, which are poor. Discharge measurements or observations of no flow generally made twice a month. No regulation. Some diversion by pumping along channel for irrigation above station.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	1.2	1.5	2.9	1.2	0.8					
2		0	5	9.5	2.3	1.2	.7					
3		0	4	6.9	1.9	1.2	.7					
4		0	3	2.3	1.7	1.3	.7					
5		0	2	1.9	1.5	1.3	.6					
6		0	2	1.5	1.5	1.3	.6					
7		0	2	1.3	1.5	1.2	.6					
8		0	2	1.3	1.3	1.2	.6					
9		0	2	1.3	1.3	1.2	.6					
10		0	2	1.2	1.5	1.0	.5					
11		0	2	1.2	1.7	1.0	.4					
12		0	1.5	1.2	1.5	1.0	.5					
13		0	1.5	1.2	1.3	.9	.4					
14		0	1.5	1.2	1.3	1.0	.4					
15		0	1.5	1.2	1.3	2.5	.3					
16		0	1.5	1.2	1.3	1.7	.2					
17		0	1.5	1.2	1.3	1.5	.2					
18		.3	1.3	1.2	1.3	1.3	.1					
19		.5	1.3	1.2	1.2	1.0	.1					
20		.7	1.3	1.2	1.2	1.0	0					
21		1.0	1.3	1.2	1.2	1.0	0					
22		1.3	1.3	1.2	1.2	1.0	.1					
23		1.3	1.3	1.2	1.2	1.0	.1					
24		1.3	1.3	1.3	1.2	1.3	.1					
25		1.3	1.2	1.5	1.3	1.5	.1					
26		1.3	1.2	1.2	1.2	1.2	.1					
27		1.3	1.2	7.4	1.2	1.2	.1					
28		1.3	1.0	4.6	1.2	1.0	0					
29		1.3	1.0	3.2	-	.9	0					
30		1.2	1.2	1.9	-	.8	0					
31		-	1.3	2.9	-	.8	-					
Total	0	14.1	64.2	79.1	40.5	36.7	10.0	0	0	0	0	0
Mean	0	0.47	2.07	2.55	1.45	1.18	0.33	0	0	0	0	0
Max.	0	1.3	12	12	2.9	2.5	0.8	0	0	0	0	0
Min.	0	0	1.0	1.2	1.2	0.8	0	0	0	0	0	0
Ac-ft	0	28	127	157	80	73	20	0	0	0	0	0

Calendar year 1960 : Max 90 Min 0 Mean 1.75 Acre-feet 1,270  
 Water year 1960-61 : Max 12 Min 0 Mean 0.67 Acre-feet 485

Peak discharge (base, 40 cfs).--Dec. 1 (6 p.m.) 58 cfs (3.16 ft); Jan. 2 (6:30 p.m.) 142 cfs (3.34 ft).

Note.--No gage-height record Dec. 2-15.

## SANTA MARIA RIVER BASIN

11-1381. Cuyama River below Twitchell Dam, Calif.

Location.--Lat 34°56'40", long 120°17'30", in Suey Grant, on left bank, 3.5 miles upstream from mouth, 4 miles northeast of Garey, Santa Barbara County, and 4.4 miles downstream from Twitchell Dam.

Drainage area.--1,132 sq mi (revised).

Records available.--October 1958 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 390 ft (from topographic map).

Extremes.--Maximum discharge during year, 0.9 cfs Feb. 3 (gage height, 2.59 ft); no flow for most of year.  
1958-61: Maximum discharge, 92 cfs Feb. 19, 1959 (gage height, 3.69 ft); no flow for part of each year.

Remarks.--Records good. Flow regulated by Twitchell Reservoir (capacity, 240,000 acre-ft) since February 1959. Some pumpage from wells along stream for irrigation above station.

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

2.3	0	2.6	0.7
2.4	.1	2.7	1.6
2.5	.2		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0	0.8	0						
2				0	.8	0						
3				0	.8	0						
4				0	.6	0						
5				0	.5	0				(*)		
6				0	.4	* 0						
7				0	.3	0						
8				0	.2	0						
9				0	.2	0						
10				0	.2	0						
11	(*)			0	.2	0		(*)				
12				0	.2	0						
13				0	.1	0						
14				.1	* .1	0					(*)	
15				0	.1	.1						
16				0	.1	* .1						
17				* 0	.1	.1	(*)					
18		(*)		0	.1	0						(*)
19			(*)	0	.1	0						
20				0	.1	.1						
21				0	.1	.1						
22				0	.1	.1						
23				0	.1	.1						
24				0	.1	.1						
25				0	.1	.2						
26				* .1	.1	.1	(*)					
27				.2	0	.1						
28				.5	0	* .1						
29				.8	-	0						
30		(*)		* .8	-	0						
31				.8	-	0		(*)				
Total	0	0	0	3.3	6.6	1.3	0	0	0	0	0	0
Mean	0	0	0	0.11	0.24	0.04	0	0	0	0	0	0
Max.	0	0	0	0.8	0.8	0.2	0	0	0	0	0	0
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0	0	0	6.5	13	2.6	0	0	0	0	0	0

Calendar year 1960: Max 61 Min 0 Mean 1.46 Acre-feet 1,060  
Water year 1960-61: Max 0.8 Min 0 Mean 0.03 Acre-feet 22

\* Discharge measurement or observation of no flow made on this day.

11-1385. Sisquoc River near Sisquoc, Calif.

Location.--Lat 34°50'25", long 120°10'00", in sec. 20, T.9 N., R.31 W., on left bank 2.2 miles upstream from La Brea Creek and 7 miles east of Sisquoc.

Drainage area.--281 sq mi (revised).

Records available.--October 1943 to September 1961. October 1929 to September 1933 at site 0.2 mile downstream; low-flow records not equivalent owing to diversion immediately upstream. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Datum of gage is 624.30 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Prior to Aug. 24, 1951, at site 0.2 mile downstream at datum 3.70 ft lower; during this period, a supplementary gage at site 200 ft downstream from present site at different datums was generally used for periods of low flow.

Average discharge.--18 years (1943-61), 27.0 cfs (19,550 acre-ft per year); median of yearly mean discharges, 12 cfs (8,700 acre-ft per year).

Extremes.--Maximum discharge during year, 5.1 cfs Nov. 26 (gage height, 3.33 ft); minimum daily, 0.4 cfs for several days.

1929-33, 1943-61: Maximum discharge, 7,640 cfs Apr. 3, 1958 (gage height, 10.62 ft), from rating curve extended above 1,400 cfs on basis of slope-area measurement at gage height 10.08 ft; minimum daily since 1943, 0.4 cfs on several days in 1947, 1951, 1957 and 1961.

Maximum discharge known, 11,000 cfs Mar. 2, 1938 (gage height, 8.1 ft, from high-water mark in gage well at site in use 1929-33), from rating curve extended above 2,800 cfs.

Remarks.--Records good except those for period of no gage-height record, which are poor. Discharge measurements generally made twice a month. No regulation or diversion.

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.4	1.2	2.3	0.8	1.8	1.8	1.6	1.2	1.2	0.4		0.5
2	1.4	1.4	2.3	.8	1.8	1.8	1.6	1.2	1.2	.6		.5
3	1.4	2.0	2.0	1.0	1.8	1.8	1.6	1.2	1.2	.6		.5
4	1.4	1.8	1.8	1.0	1.8	1.8	1.6	1.4	1.2	.7		.6
5	1.2	2.5	1.6	1.0	1.8	1.8	1.6	1.4	1.2	.7		.6
6	1.2	2.5	1.6	1.2	1.8	1.8	1.8	1.4	1.2	.6		.6
7	1.0	2.0	1.6	1.4	1.8	1.8	1.8	1.6	1.2	.6		.6
8	1.0	1.8	1.6	1.4	1.8	1.8	1.8	1.6	1.2			.6
9	1.0	1.4	1.6	1.4	1.8	1.8	1.8	1.4	1.0	.6	0.5	.6
10	1.0	1.0	1.6	1.4	1.8	1.6	1.8	1.4	1.0			.6
11	1.0	1.0	1.6	1.4	1.8	1.6	1.8	1.2	.8			.6
12	1.0	2.3	1.4	1.4	1.8	1.6	1.8	1.2	.8			.6
13	1.0	2.3	1.4	1.4	1.6	1.6	1.8	1.2	.8			.6
14	1.0	2.0	1.4	1.4	1.6	1.6	1.6	1.2	.8			.5
15	.8	1.6	1.4	1.4	1.4	2.0	1.4	1.0	.7	.5		.5
16	.6	1.2	1.4	1.4	1.4	1.8	1.4	1.0	.7			.5
17	.5	1.2	1.4	1.6	1.6	1.8	1.2	1.0	.7			.6
18	.6	1.2	1.4	1.6	1.6	1.8	1.2	1.0	.7			.6
19	.7	1.0	1.4	1.4	1.6	1.6	1.2	1.2	.7			.6
20	.7	.8	1.2	1.4	1.6	1.6	1.2	1.2	.7			.6
21	.7	.8	1.0	1.4	1.6	1.6	1.2	1.2	.7			.6
22	.7	.8	1.0	1.4	1.6	1.6	1.4	1.2	.7			.6
23	.8	.8	.8	1.4	1.6	1.6	1.4	1.2	.7		.5	.6
24	1.0	.8	.8	1.4	1.8	1.6	1.4	1.2	.6		.5	.6
25	1.2	1.0	.8	1.4	1.8	1.4	1.4	1.2	.5		.4	.6
26	1.2	3.1	.8	2.0	1.8	1.4	1.4	1.2	.4	.4	.4	.6
27	1.0	2.0	.8	1.8	1.8	1.4	1.2	1.2	.5		.5	.6
28	1.0	1.6	.8	1.8	1.8	1.4	1.0	1.2	.6		.5	.6
29	1.0	1.6	.8	1.8		1.4	1.0	1.2	.6		.5	.6
30	1.0	1.6	.8	1.8		1.6	1.2	1.2	.6		.5	.6
31	1.2		.8	1.8		1.6		1.0			.5	
Total	30.7	46.3	41.2	43.8	47.8	51.4	44.2	38.0	24.9	15.4	15.3	17.4
Mean	0.99	1.54	1.33	1.41	1.71	1.66	1.47	1.23	0.83	0.50	0.49	0.58
Max.	1.4	3.1	2.3	2.0	1.8	2.0	1.8	1.6	1.2	-	-	0.6
Min.	0.5	0.8	0.8	0.8	1.4	1.4	1.0	1.0	0.4	-	-	0.5
Ac-ft	61	92	82	87	95	102	88	75	49	31	30	35
Calendar year 1960 :				Max 228	Min 0.5	Mean 4.11	Acre-feet 2,980					
Water year 1960-61 :				Max 3.1	Min 0.4	Mean 1.14	Acre-feet 827					

Peak discharge (base, 100 cfs).--No peak above base.

Note.--No gage-height record July 8 to Aug. 21.

## SANTA MARIA RIVER BASIN

11-1390. La Brea Creek near Sisquoc, Calif.

Location.--Lat  $34^{\circ}51'10''$ , long  $120^{\circ}11'55''$ , in SE $\frac{1}{4}$  sec.13, T.9 N., R.32 W., on right bank 2,100 ft upstream from mouth and 5.5 miles east of Sisquoc.

Drainage area.--93.8 sq mi (revised).

Records available.--October 1943 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 550 ft (from topographic map).

Average discharge.--18 years, 4.28 cfs (3,100 acre-ft per year); median of yearly mean discharges, 0.2 cfs (140 acre-ft per year).

Extremes.--No flow during year.

1943-61: Maximum discharge, 3,320 cfs Jan. 15, 1952 (gage height, 5.94 ft); no flow for most of each year.

Remarks.--No flow since Mar. 11, 1959. Observations of no flow generally made once or twice a month. Perennial low flow from basin above sinks beneath stream bed before reaching station. No regulation or diversion.

11-1395. Tepusquet Creek near Sisquoc, Calif.

Location.--Lat 34°52'20", long 120°14'35", in NE<sup>1</sup> sec.9, T.9 N., R.32 W., on downstream wingwall of right bridge abutment, 1.1 miles upstream from mouth and 3 miles east of Sisquoc.

Drainage area.--28.6 sq mi (revised).

Records available.--October 1943 to September 1961.

Gage.--Water-stage recorder. Concrete control since July 1957. Altitude of gage is 500 ft (from topographic map). Prior to Dec. 9, 1948, at same site at datum 0.9 ft higher.

Average discharge.--18 years, 1.15 cfs (833 acre-ft per year); median of yearly mean discharges, 0.4 cfs (290 acre-ft per year).

Extremes.--Maximum discharge during year, 0.7 cfs Oct. 6 (gage height, 2.01 ft); no flow for many days.

1943-61: Maximum discharge, 318 cfs Jan. 15, 1952 (gage height, 5.93 ft), from rating curve extended above 15 cfs on basis of slope-area measurement of peak flow; no flow at times in some years.

Remarks.--Records good. Discharge measurements or observations of no flow generally made twice a month. No regulation. Some diversion by pumping from wells along stream to irrigate about 100 acres above gage.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0	0.2	0.1	0.1	0.1	0.1	0.1	0.1			
2	0	0	.2	.1	.1	.1	.1	.1	.1			
3	0	0	.2	.1	.1	.1	.1	.1	.1			
4	0	0	.2	.1	.1	.1	.1	.1	.1			
5	0	.1	.2	.1	.1	.1	.1	0	.1			
6	.2	.1	.2	.1	.1	.1	.1	.1	.1			
7	0	0	.2	.1	.1	.1	.1	.1	.1			
8	0	0	.2	.1	.1	.1	.1	0	0			
9	0	0	.2	.1	.2	.1	0	0	0			
10	0	0	.2	.1	.2	.1	.1	0	.1			
11	0	0	.2	.1	.2	.1	.1	.1	0			
12	0	.1	.2	.1	.2	.1	.1	.1	0			
13	0	0	.2	.1	.2	.1	.1	.1	0			
14	0	0	.1	.1	.2	.1	.1	.1	0			
15	0	0	0	.1	.2	.2	.1	0	0			
16	0	0	.1	.1	.2	.2	.1	0	0			
17	0	0	.1	.1	.2	.1	.1	.1	0			
18	0	0	.1	.1	.2	.1	.1	.1	0			
19	0	0	.1	.1	.2	.1	.1	.1	0			
20	0	0	.1	.1	.2	.1	.1	.1	0			
21	0	0	.1	.1	.2	.1	.1	.1	0			
22	0	0	.1	.1	.2	.1	.1	.1	0			
23	0	0	.1	.1	.2	.1	.1	.1	0			
24	0	0	.1	.1	.2	.1	.1	.1	0			
25	0	.1	.1	.1	.1	.1	.1	.1	0			
26	0	.2	.1	.2	.1	.1	.1	.1	0			
27	0	.1	.1	.1	.1	.1	.1	.1	0			
28	0	.1	.1	.1	.1	.1	.1	.1	0			
29	0	.1	.1	.1	-	.1	.1	0	0			
30	0	.1	.1	.1	-	.1	.1	.1	0			
31	0	-	.1	.1	-	.1	-	.1	-			
Total	0.2	1.0	4.3	3.2	4.4	3.3	2.9	2.4	0.8	0	0	0
Mean	0.006	0.03	0.14	0.10	0.16	0.11	0.10	0.08	0.03	0	0	0
Max.	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0	0	0
Min.	0	0	0	0.1	0.1	0.1	0	0	0	0	0	0
Ac-ft	0.4	2.0	8.5	6.3	8.7	6.5	5.8	4.8	1.6	0	0	0

Calendar year 1960 : Max 4.3 Min 0 Mean 0.22 Acre-feet 162  
 Water year 1960-61 : Max 0.2 Min 0 Mean 0.06 Acre-feet 45

Peak discharge (base, 10 cfs).-- No peak above base.

## SANTA MARIA RIVER BASIN

11-1400. Sisquoc River near Garey, Calif.

Location.--Lat  $34^{\circ}53'38''$ , long  $120^{\circ}18'20''$ , in SW $\frac{1}{4}$  (revised) sec.36, T.10 N., R.33 W., near right bank on downstream side of county road bridge, 0.6 mile northeast of Garey and 3.7 miles downstream from Tepusquet Creek.

Drainage area.--472 sq mi (revised).

Records available.--October 1940 to September 1961. Records for water year 1941 incomplete, yearly estimate and monthly discharge only for some months, published in WSP 1315-B.

Gage.--Water-stage recorder. Datum of gage is 360.8 ft above mean sea level (Santa Barbara County bench mark). Prior to Aug. 27, 1954, at site 3 miles upstream at different datum. Aug. 28, 1954, to Nov. 1, 1956, at site 0.7 mile upstream at different datum. Nov. 2, 1956, to Sept. 30, 1959, at same site at different datums. Since Oct. 1, 1959, supplementary gage near left bank at same datum.

Average discharge.--21 years, 32.6 cfs (23,600 acre-ft per year); median of yearly mean discharges, 7.1 cfs (5,100 acre-ft per year).

Extremes.--No flow during year.

1940-61: Maximum discharge, 13,000 cfs Jan. 23, 1943 (gage height, 8.46 ft, site and datum then in use), from rating curve extended above 2,000 cfs on basis of records for upstream stations; no flow for several months in each year.

Remarks.--No flow since Aug. 18, 1960. Observations of no flow generally made once a month. Some diversion above station for irrigation. Figures for calendar year 1960 are as follows: maximum daily discharge, 1.4 cfs; minimum daily, zero; mean, 0.04 cfs; runoff, 30 acre-ft.

11-1410. Santa Maria River at Guadalupe, Calif.

Location.--Lat  $34^{\circ}58'35''$ , long  $120^{\circ}34'15''$ , in Guadalupe Grant, on downstream side of fifth bridge pier from left bank on State Highway I, 0.5 mile north of Guadalupe, Santa Barbara County, and 4.5 miles upstream from mouth.

Drainage area.--1,742 sq mi (revised).

Records available.--October 1940 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Datum of gage is 64.92 ft above mean sea level, datum of 1929, supplementary adjustment of 1934 (Corps of Engineers bench mark). Supplementary water-stage recorder near right bank at same datum. Jan. 19, 1941, to Aug. 11, 1955, at site 100 ft upstream at same datum. Oct. 5, 1945, to Aug. 11, 1955, supplementary gage near right bank 100 ft upstream at same datum.

Average discharge.--21 years, 35.2 cfs (25,480 acre-ft per year); median of yearly mean discharges, 2.2 cfs (1,600 acre-ft per year).

Extremes.--No flow during year.

1940-61: Maximum discharge, 32,800 cfs Jan. 16, 1952 (gage height, 8.18 ft); no flow for several months of each year.

Remarks.--No flow since Sept. 12, 1958. Observations of no flow generally made once a month. Several small surface diversions and extensive pumpage from wells for irrigation along stream above station.

## ARROYO GRANDE BASIN

11-1413. Arroyo Grande near Arroyo Grande, Calif.

Location.--Lat  $35^{\circ}11'10''$ , long  $120^{\circ}29'55''$ , in NW $\frac{1}{4}$  sec.32, T.31 S., R.14 E., on downstream side of county road bridge, 0.9 mile downstream from Lopez Canyon Creek, and  $6\frac{1}{4}$  miles northeast of Arroyo Grande.

Records available.--July 1958 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 360 ft (from topographic map).

Extremes.--No flow during year.

1958-61: Maximum discharge, about 700 cfs Feb. 1, 1960 (gage height, 4.32 ft), from rating curve extended above 25 cfs on basis of velocity-area study of peak flow; no flow during most of each year.

Remarks.--No flow since Feb. 2, 1960. No regulation or diversion. Figures for calendar year 1960 are as follows: maximum daily discharge, 144 cfs; minimum daily, zero; mean, 0.53 cfs; runoff, 387 acre-ft.

11-1415. Arroyo Grande at Arroyo Grande, Calif.

Location.--Lat 35°07'30", long 120°34'05", in Pismo Grant, on left bank at Arroyo Grande, San Luis Obispo County, 0.7 mile upstream from U. S. Highway 101.

Drainage area.--102 sq mi (revised).

Records available.--October 1939 to September 1961. Records for water year 1940 incomplete, yearly estimate published in WSP 1315-B.

Gage.--Water-stage recorder and broad-crested weir. Datum of gage is 97.77 ft above mean sea level, datum of 1929, supplementary adjustment of 1934. Prior to July 10, 1947, at datum 0.50 ft higher.

Average discharge.--22 years, 20.7 cfs (14,490 acre-ft per year); median of yearly mean discharges, 8.9 cfs (6,400 acre-ft per year).

Extremes.--Maximum discharge during year, 122 cfs Dec. 1 (gage height, 2.75 ft); no flow July 30 to Sept. 30.

1939-61: Maximum discharge, 5,370 cfs Jan. 15, 1952 (gage height, 11.97 ft); no flow Sept. 4-8, 1960, July 30 to Sept. 30, 1961.

Remarks.--Records good except those for periods of no gage-height record, which are poor. Many small and intermittent diversions by pumping from stream for irrigation above station.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Oct. 23 to Nov. 14, Jan. 22 to Feb. 19,  
Apr. 4-22, May 3-15, July 6-14, Aug. 10 to Sept. 5)

0.5	0	1.1	2.8
.6	.1	1.3	6.3
.7	.2	1.5	12
.8	.5	1.8	24
.9	1.0		

Discharge, in cubic feet per second, water year October 1960 to September 1961											
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Sept.
1	0.2	3.1	*2.4	4.9	7.9	3.6	3.9	0.4	0.5	0.1	
2	.2	1.8	1.1	4.0	8.1	*4.0	2.3	.2	.5	.1	
3	.5	2.1	8.6	4.3	8.4	3.9	3.1	.1	.5	.1	
4	3.6	2.0	7.5	*4.4	8.1	4.5	1.8	.1	.5	.1	
5	1.0	4.6	7.0	4.1	8.4	4.7	1.5	.1	.5	.1	
6	1.6	6.8	5.7	3.4	7.9	4.7	2.3	.1	.4	*.1	(*)
7	3.0	6.3	5.7	3.4	7.9	4.6	1.9	.1	.4	.1	
8	3.3	6.3	5.5	3.6	7.9	4.8	2.2	.3	.4	.1	
9	3.4	6.5	5.5	2.1	7.7	4.1	2.3	.1	.4	.1	
10	3.7	6.5	5.1	2.5	7.7	3.6	2.0	.2	.4	.1	
11	*3.5	6.5	5.5	3.4	7.5	4.2	1.7	.1	.3	.1	
12	2.4	10	5.5	2.3	7.5	3.6	*1.7	*2	.3	.1	
13	4.2	8.4	5.5	1.6	7.0	3.5	1.7	.5	.3	.1	
14	2.5	12	5.7	1.5	7.0	2.8	1.3	.5	.3	.1	
15	1.7	6.1	5.9	1.9	*7.5	*5.9	.9	.9	.3	.1	(*)
16	1.9	5.1	6.1	1.6	6.8	6.3	.6	.6	.2	.1	
17	1.8	*4.9	6.1	*2.4	6.8	6.1	1.0	.5	.2	.1	
18	1.4	4.9	6.5	1.6	7.7	6.3	.6	.3	.2	.1	
19	1.2	4.7	*6.1	3.3	9.8	7.0	.9	.5	.2	.1	(*)
20	1.1	4.7	6.1	2.9	8.1	5.7	.6	.6	*.2	.1	
21	1.1	4.7	6.3	3.4	7.2	6.1	.6	.4	.2	.1	
22	1.6	4.7	6.1	4.9	6.5	6.5	2.4	1.2	.3	.1	
23	2.4	4.9	6.1	4.9	5.9	6.3	1.7	1.0	.2	.1	
24	1.8	4.9	5.9	5.1	3.7	5.6	1.5	1.0	.2	.1	
25	.9	5.1	5.9	6.1	4.7	6.8	.9	.5	.2	.1	
26	1.4	1.4	5.9	8.9	4.3	6.8	1.0	.9	.2	*.1	
27	1.0	7.0	5.7	7.2	5.1	6.5	*.6	1.3	.2	.1	
28	*1.5	6.3	5.3	7.5	3.3	5.6	.7	2.6	.2	.1	
29	2.6	5.9	4.9	7.5	-	3.3	.4	*3	.2	.1	
30	3.0	5.7	5.3	7.9	-	4.1	.2	2	.2	0	
31	3.6	-	5.1	*8.1	-	*4.8	-	1	-	0	
Total	63.1	176.5	207.1	130.7	196.4	156.3	44.3	21.3	9.1	2.9	0
Mean	2.04	5.88	6.68	4.22	7.01	5.04	1.48	0.69	0.30	0.09	0
Max.	4.2	14	24	8.9	9.8	7.0	3.9	3	0.5	0.1	0
Min.	0.2	1.8	4.9	1.5	3.3	2.8	0.2	0.1	0.2	0	0
Ac-ft	125	350	411	259	390	310	88	42	18	5.8	0

Calendar year 1960: Max 129 Min 0 Mean 6.60 Acre-feet 4,790  
Water year 1960-61: Max 24 Min 0 Mean 2.76 Acre-feet 2,000

Peak discharge (base, 40 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
10-4	4a.m.	2.17	51	11-26	11a.m.	2.27	61
11-14	2a.m.	2.25	59	12-1	7a.m.	2.75	122

\* Discharge measurement or observation of no flow made on this day.

Note.--No gage-height record May 29 to June 20, June 24 to July 5.

## SANTA ROSA CREEK BASIN

11-1422. Santa Rosa Creek near Cambria, Calif.

Location.--Lat 35°34'35", long 120°59'50", in NE¼ sec.21, T.27 S., R.9 E., on left bank 4.8 miles east of Cambria.Drainage area.--12.5 sq mi.Records available.--August 1957 to September 1961.Gage.--Water-stage recorder. Altitude of gage is 270 ft (from topographic map).Extremes.--Maximum discharge during year, 466 cfs Jan. 26 (gage height, 5.32 ft); no flow for several months.

1957-61: Maximum discharge, 2,520 cfs Feb. 1, 1960 (gage height, 10.36 ft), from rating curve extended above 390 cfs on basis of slope-area measurement of peak flow; no flow at times each year.

Flood of December 1955 reached a stage of 15.2 ft (from floodmarks).

Remarks.--Records fair. Small diversions above station for irrigation.Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Dec. 17 to Jan. 25, May 9 to June 13)

1.9	0	2.5	6.4
2.0	.1	2.7	14
2.1	.3	3.1	38
2.2	.8	3.5	76
2.3	2.0	4.0	147

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	125	1.0	*7.1	1.1	1.3	0.5	0.2		(*)	
2		*0	21	1.0	5.4	1.1	1.0	.5	.2			
3		0	7.1	.9	4.7	1.1	1.0	.5	.2			
4	(*)	0	4.2	.8	3.8	1.1	1.0	*.4	.2			
5		0	3.2	.8	3.6	1.3	*1.0	.4	.2			
6		0	2.4	.7	3.4	1.7	1.0	.4	.2	(*)		
7		0	2.0	.6	3.0	1.3	.9	.4	*.2			(*)
8		0	*2.0	.6	2.8	*1.1	.9	.4	.2			
9		0	1.7	.5	2.6	1.1	.9	.4	.2			
10		0	1.7	.5	2.6	1.0	.9	.4	.2			
11		0	2.4	*.4	3.4	1.0	.8	.4	.2			
12		0	1.5	.4	3.2	1.0	.8	.4	.2			
13		0	1.3	.4	2.8	1.0	.8	.4	.2			
14		0	1.0	.4	2.6	1.0	.8	.4	.2			
15		0	1.5	.4	2.4	9.1	.7	.4	1			
16		0	1.3	.4	2.2	3.2	.7	.4	1			
17		.1	1.1	.4	2.0	3.8	.7	.3	1			
18		.4	1.0	.4	1.8	2.8	.7	.3	0			
19		.4	1.0	.4	1.7	2.0	.6	.4	0			
20		.5	1.0	.4	1.7	1.7	.6	.6	0			
21		.6	1.0	.4	1.5	1.7	.6	.5	0			
22		.6	.9	.4	1.4	1.5	1.3	.4	0			
23		.7	.9	.4	1.4	1.4	1.0	.4	0			
24		.7	.8	.4	1.3	1.7	.8	.4	0			
25		.7	.8	.6	1.3	2.2	.7	.4	0			
26		13	.9	86	1.3	1.5	.7	.3	0			
27		5.2	.8	8.9	1.1	1.5	.6	.3	0			
28		2.4	1.0	4.7	1.1	1.4	.6	.3	0			
29		1.7	1.1	3.8	—	1.3	.6	.3	0			
30		1.4	1.0	3.2	—	1.3	.5	.2	0			
31		—	1.0	5.7	—	1.3	—	.2	—			
Total	0	28.4	193.6	125.9	73.2	55.3	24.5	12.0	3.1	0	0	0
Mean	0	0.95	6.25	4.06	2.61	1.78	0.82	0.39	0.10	0	0	0
Max.	0	13	125	86	7.1	9.1	1.3	0.6	0.2	0	0	0
Min.	0	0	0.8	0.4	1.1	1.0	0.5	0.2	0	0	0	0
Ac-ft	0	56	384	250	145	110	49	24	6.1	0	0	0

Calendar year 1960: Max 470 Min 0 Mean 5.52 Acre-feet 4,010

Water year 1960-61: Max 125 Min 0 Mean 1.41 Acre-feet 1,020

Peak discharge (base, 300 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-1	4p.m.	5.26	448	1-26	4a.m.	5.32	466

\* Discharge measurement or observation of no flow made on this day.

Note.--No gage-height record Apr. 6 to May 3.



## ARROYO DE LA CRUZ BASIN

251

11-1425. Arroyo de la Cruz near San Simeon, Calif.

Location.--Lat 35°43'25", long 121°17'00", in Piedra Blanca Grant, on right bank 1.7 miles upstream from mouth and 7 miles northwest of town of San Simeon, San Luis Obispo County.

Drainage area.--41.4 sq mi.

Records available.--October 1950 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 22 ft (from topographic map).

Average discharge.--11 years, 46.8 cfs (33,880 acre-ft per year); median of yearly mean discharges, 34 cfs (24,600 acre-ft per year).

Extremes.--Maximum discharge during year, 3,170 cfs Jan. 26 (gage height, 6.89 ft); no flow several months.

1950-61: Maximum discharge, 17,700 cfs Dec. 23, 1955 (gage height, 12.40 ft), from rating curve extended above 7,600 cfs on basis of slope-area measurement of peak flow; no flow several months each year.

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

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

Oct. 1 to Nov. 30

Dec. 1 to Sept. 30

1.5	0	1.1	0	1.9	35
1.6	1.2	1.2	.1	2.1	61
		1.3	.8	2.5	133
		1.4	2.9	3.0	270
		1.5	6.2	3.5	450
		1.6	11	4.0	690
		1.7	17	4.5	980

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1		0	977	2.7	*89	4.6	3.6	0.5			(*)	
2		*0	231	2.5	53	4.2	3.2	.4				
3		0	72	2.5	42	4.2	2.9	.3				
4	(*)	0	41	2.5	31	4.2	2.7	*2				
5		0	28	2.3	24	4.6	*2.5	.1				
6		0	20	2.3	21	5.2	2.5	.1		(*)		
7		0	*16	1.9	18	4.9	2.5	.1	(*)			(*)
8		0	14	1.9	16	*4.2	2.3	0				
9		0	12	1.9	15	3.9	2.1	0				
10		0	11	1.9	13	3.9	2.1	0				
11		0	14	*1.6	19	3.6	1.9	0				
12		0	12	1.4	23	3.6	1.9	0				
13		.7	10	1.4	15	3.2	1.6	0				
14		0	8.6	1.4	13	3.2	1.4	0				
15		0	16	1.4	12	81	1.4	0				
16		0	19	1.2	11	27	1.4	0				
17		0	14	1.2	11	32	1.2	0				
18		0	12	1.2	9.6	21	1.0	0				
19		0	10	1.0	8.6	13	1.0	0				
20		0	8.6	1.0	8.1	11	.8	0				
21		0	7.6	1.0	7.2	9.1	.8	0				
22		0	6.2	1.0	6.7	7.6	.8	0				
23		0	5.3	1.0	6.2	6.2	.8	0				
24		0	4.9	1.0	5.5	6.2	.8	0				
25		0	4.6	1.4	5.2	6.7	.8	0				
26		1.2	4.6	9.55	4.9	5.9	.7	0				
27		0	4.2	107	4.9	5.5	.7	0				
28		0	3.2	48	4.6	5.2	.7	0				
29		0	2.7	32	-----	4.2	.6	0				
30		0	2.9	24	-----	3.9	.6	0				
31		-----	2.7	151	-----	3.6	-----	0	-----			-----
TOTAL	0	1.9	1,595.3	1,357.6	497.5	306.6	47.3	1.7	0	0	0	0
MEAN	0	0.06	51.3	43.8	17.8	9.89	1.58	0.05	0	0	0	0
MAX	0	1.2	977	955	89	81	3.6	0.5	0	0	0	0
MIN	0	0	2.7	1.0	4.6	3.2	0.6	0	0	0	0	0
AC-FT	0	3.8	3,160	2,690	987	608	94	3.4	0	0	0	0

Calendar year 1960 :

Max 3,830

Min 0

Mean 33.1

Acre-feet 24,030

Water year 1960-61 :

Max 977

Min 0

Mean 10.4

Acre-feet 7,550

Peak discharge (base, 1,000 cfs)

\* Discharge measurement or observation of no flow made on this day.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-1	5p.m.	5.86	2,080	1-26	5a.m.	6.89	3,170

## RAT CREEK BASIN

11-1428. Rat Creek near Lucia, Calif.

Location.--Lat 36°05'32", long 121°37'03", in SW 1/4 sec. 22, T. 21 S., R. 3 E., on left bank at culvert on State Highway 1 and 6.2 miles northwest of Lucia.

Drainage area.--0.82 sq mi.

Records available.--October 1960 to September 1961.

Gage.--Water-stage recorder, crest-stage gage, and tipping-bucket rain gage. Altitude of gage is 190 ft (from topographic map).

Extremes.--Maximum gage height, 0.74 ft, from crest-stage gage, Jan. 26 (discharge not determined); no flow most of year.

Remarks.--Records poor. No regulation or diversion.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0		0	*0.1	0					(*)	
2		*0		0	1	0						
3		0		0	1	0						
4	(*)	0		0	1	0						
5		0		0	0	0	(*)	(*)				
6		0		0	0	0						
7		0	(*)	0	0	0			(*)	(*)		(*)
8		0		0	0	*0						
9		0		0	0	0						
10		0		0	0	0						
11		0		*0	0	0						
12		0		0	0	0						
13		1		0	0	0						
14		0		0	0	0						
15		0		1	0	0						
16		0		0	0	0						
17		0		0	0	1						
18		0		0	0	0						
19		0		0	0	0						
20		0		0	0	0						
21		0		0	0	0						
22		0		0	0	0						
23		0		0	0	0						
24		0		0	0	0						
25		0		0	0	0						
26		1		1	0	0						
27		0		0	0	0						
28		0		0	0	0						
29		0		0	0	0						
30		0		0	0	0						
31		0		0	0	0						
Total	0	0.2	0	0.2	0.4	0.1	0	0	0	0	0	0
Mean	0	0.007	0	0.006	0.01	0.003	0	0	0	0	0	0
Max.	0	0.1	0	0.1	0.1	0.1	0	0	0	0	0	0
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0	0.4	0	0.4	0.8	0.2	0	0	0	0	0	0
(†)	-	-	-	4.5	1.2	3.2	0.7	0.7	0	0	0	0
Calendar year 1960: Max - Min - Mean - Acre-feet -												
Water year 1960-61: Max 0.1 Min 0 Mean 0.002 Acre-feet 1.8												

\* Discharge measurement or observation of no flow made on this day.

† Precipitation, in inches.

Note.--No gage-height record Oct. 1-3, Oct. 7 to Nov. 1, Nov. 7-21, Nov. 23 to Dec. 6, Jan. 25-31.

11-1430. Big Sur River near Big Sur, Calif.

Location.--Lat 36°14'45", long 121°46'20", in SW¼SW¼ sec.29, T.19 S., R.2 E., on right bank at downstream side of bridge, 0.4 mile upstream from Post Creek and 2.6 miles southeast of Big Sur.

Drainage area.--46.5 sq mi.

Records available.--March 1950 to September 1961. Prior to October 1959, published as Sur River at Big Sur.

Gage.--Water-stage recorder. Altitude of gage is 400 ft (from topographic map). Prior to Oct. 1, 1951, wire-weight gage at site 0.9 mile downstream at different datum.

Average discharge.--11 years, 89.3 cfs (64,650 acre-ft per year); median of yearly mean discharges, 53 cfs (38,400 acre-ft per year).

Extremes.--Maximum discharge during year, 760 cfs Dec. 1 (gage height, 5.45 ft); minimum, 3.9 cfs Sept. 3.  
1950-61: Maximum discharge, 5,680 cfs Apr. 2, 1958 (gage height, 11.56 ft) from rating curve extended above 1,400 cfs on basis of slope-area measurement at gage height 11.05 ft; minimum that of Sept. 3, 1961.

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 Sept. 5, 6, 8-30)

2.3	2.0	3.1	57
2.4	5.8	3.5	107
2.5	11	4.0	200
2.8	30	4.5	343

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	9.8	8.3	275	18	*62	22	29	18	14	5.8	*5.4	5.0
2	9.8	*8.3	118	17	58	20	28	18	14	6.3	5.0	4.3
3	9.3	8.8	67	17	52	20	27	17	14	6.8	4.7	4.3
4	*8.8	9.8	44	17	46	22	26	*17	13	6.8	5.0	4.3
5	8.8	11	36	17	42	22	*24	16	13	6.8	5.4	4.3
6	10	15	31	17	39	24	24	17	12	*6.8	5.8	4.3
7	9.8	13	*29	17	37	21	24	19	*12	6.3	5.8	*4.3
8	9.3	12	27	17	35	*20	23	18	11	6.3	5.8	4.3
9	8.8	11	25	17	33	19	22	17	11	5.8	5.8	4.3
10	8.8	11	27	16	31	18	22	17	10	5.4	5.8	4.7
11	9.3	11	29	*15	53	17	21	17	9.8	5.4	6.3	4.7
12	9.8	18	25	15	45	17	21	17	9.8	5.4	6.3	4.3
13	10	36	24	15	40	17	22	15	9.8	5.8	6.3	4.3
14	9.8	27	24	15	37	19	20	15	9.3	5.8	6.3	4.3
15	8.8	17	40	15	36	64	19	14	8.8	5.4	5.8	4.3
16	8.8	14	35	14	35	37	20	14	8.8	5.4	5.4	4.3
17	8.8	13	32	14	33	52	18	14	8.3	5.4	5.4	4.7
18	8.8	13	30	14	32	42	18	14	8.3	5.4	5.0	4.7
19	8.8	13	28	14	31	37	18	16	8.3	5.0	5.0	4.3
20	9.3	12	27	14	29	36	18	16	7.8	5.0	5.0	4.3
21	9.3	12	25	14	28	34	18	15	7.3	5.0	5.0	4.7
22	8.3	12	24	14	27	32	33	14	7.8	5.4	4.7	4.7
23	8.3	12	23	14	25	31	25	14	7.3	5.8	4.3	4.7
24	9.3	12	22	16	24	31	22	14	6.8	5.8	4.3	5.0
25	9.3	16	22	43	24	32	22	14	6.8	5.8	4.3	4.7
26	9.3	122	20	133	24	32	20	14	6.8	5.8	4.7	4.7
27	9.3	35	20	67	22	35	19	14	6.8	5.8	5.0	4.7
28	8.8	24	18	47	22	34	18	13	6.3	5.8	5.0	4.7
29	8.8	20	18	41	-----	31	18	13	5.8	5.8	5.0	4.7
30	8.3	27	18	36	-----	31	18	13	5.8	5.8	5.0	4.7
31	8.3	-----	18	65	-----	30	-----	13	-----	5.8	5.0	-----
TOTAL	282.7	574.2	1,201	805	1,002	899	657	477	280.5	179.7	163.6	135.6
MEAN	9.12	19.1	38.7	26.0	35.8	29.0	21.9	15.4	9.35	5.80	5.28	4.52
MAX	10	122	275	133	62	64	33	19	14	6.8	6.3	5.0
MIN	8.3	8.3	18	14	22	17	18	13	5.8	5.0	4.3	4.3
AC-FT	561	1,140	2,380	1,600	1,990	1,780	1,300	946	556	356	324	269

Calendar year 1960: Max 694 Min 7.3 Mean 44.9 Acre-feet 32,600  
Water year 1960-61: Max 275 Min 4.3 Mean 18.2 Acre-feet 13,200

Peak discharge (base, 700 cfs) Dec. 1 (1 p.m.) 760 cfs (5.45 ft).

\* Discharge measurement made on this day.

## CARMEL RIVER BASIN

11-1432. Carmel River at Robles del Rio, Calif.

Location.--Lat 36°28'28", long 121°43'40", in Los Laureles Grant, on downstream side of county road bridge at Robles del Rio, Monterey County, 0.2 mile downstream from Hitchcock Canyon and 11 miles southeast of town of Carmel.

Drainage area.--193 sq mi.

Records available.--August 1957 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 270 ft (from topographic map).

Extremes.--Maximum discharge during year, 22 cfs Jan. 26 (gage height, 3.12 ft); no flow several months.

1957-61: Maximum discharge, 7,100 cfs Apr. 2, 1958 (gage height, 10.50 ft), from rating curve extended above 2,700 cfs; no flow at times each year.

Flood of Dec. 23, 1955, reached a stage of 11.7 ft, from floodmarks (discharge, 6,930 cfs on basis of slope-area measurement of peak flow).

Remarks.--Records poor. Flow regulated by Los Padres Reservoir (capacity, 3,000 acre-ft) and San Clemente Reservoir (capacity, 1,600 acre-ft).

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

2.2	0	2.8	4.1
2.4	.2	2.9	7.6
2.5	.4	3.0	13
2.6	.9	3.1	20
2.7	1.9		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		(*)	0	4.1	1.3	1.3	1.4	1.3				
2			0	4.1	*1.5	*1.3	1.4	*1.2	(*)			
3			0	4.1	1.6	1.1	1.1	1.0				
4			0	*3.9	1.4	1.1	2.8	1.0				
5			4.2	3.4	1.2	1.0	1.8	.9				
6			9.8	3.7	1.2	1.0	1.2	1.0				
7			11	3.4	8.7	1.0	.8	.9				
8			13	3.7	7.3	1.0	.8	.6				
9			12	3.4	6.6	.9	.8	1				
10			12	3.2	7.3	1.0	.8	0				
11			12	3.4	7.3	.9	.5	.4				
12			14	2.8	1.2	1.0	.2	.4				
13			13	2.8	8.7	1.0	.2	.5				
14			7.3	3.0	7.3	1.0	1	.4				
15			6.2	3.2	6.9	.9	0	.4				
16			7.3	3.0	6.9	.8	0	.4				
17			7.6	3.2	5.9	.8	0	.4				
18			7.3	3.0	5.5	.8	0	.4				
19			8.1	2.8	4.1	.6	0	.4				
20			6.9	2.8	4.1	.6	0	.4				
21			6.2	3.0	3.7	.6	0	.4				
22			6.9	3.0	3.4	.5	3.0	.4				
23			5.9	3.4	2.6	.5	9.8	.3				
24			4.8	3.9	2.1	.7	6.2	.3				
25			5.2	4.8	1.9	.5	5.5	.3				(*)
26			5.2	1.8	1.6	.2	3.0	.3				
27			5.2	1.5	1.3	.2	4.1	.3				
28			4.8	1.0	1.2	.3	3.0	.3				
29			4.1	9.8	-	.3	1.8	.1				
30			4.1	8.1	-	.7	1.6	0				
31			4.1	1.0	-	*8.4	0	0				
Total	0	0	208.2	156.0	198.4	32.0	87.0	14.8	0	0	0	0
Mean	0	0	6.72	5.03	7.09	1.03	2.90	0.48	0	0	0	0
Max.	0	0	14	18	16	8.4	14	1.3	0	0	0	0
Min.	0	0	0	2.8	1.2	0.2	0	0	0	0	0	0
Ac-ft	0	0	413	309	394	63	173	29	0	0	0	0

Calendar year 1960: Max 585 Min 0 Mean 20.8 Acre-feet 15,060  
 Water year 1960-61: Max 18 Min 0 Mean 1.91 Acre-feet 1.380

Peak discharge (base, 1,000 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

11-1435. Salinas River near Pozo, Calif.

Location.--Lat 35°18'20", long 120°24'20", in SW¼SE¼ sec.18; T.30 S., R.15 E., on right bank 0.4 mile downstream from highway bridge, 1.5 miles downstream from Pozo Creek, 1.7 miles west of Pozo, and 7 miles upstream from Salinas Dam.

Drainage area.--74.1 sq mi.

Records available.--July 1942 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 1,350 ft (from topographic map).

Average discharge.--19 years, 13.6 cfs (9,850 acre-ft per year); median of yearly mean discharge, 5.6 cfs (4,100 acre-ft per year).

Extremes.--Maximum discharge during year, 68 cfs Dec. 1 (gage height, 3.94 ft); no flow for several months.

1942-61: Maximum discharge, 7,210 cfs Jan. 21, 1943 (gage height, 13.35 ft), from rating curve extended above 4,800 cfs; no flow at times.

Remarks.--Records fair. No storage or diversion above station. Water is stored in Salinas Reservoir below station.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Oct. 1-18, June 19-23, July 5-19)

3.1	0	3.4	5.8
3.2	.3	3.5	12
3.3	1.9	3.6	22

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.3	17	1.4	1.7	1.4	1.3	0.8	0.8	0.1		
2	0	.3	5.0	1.4	*1.7	1.4	1.3	.8	.8	.1	(*)	
3	0	*.3	3.1	1.4	1.6	1.4	1.4	.8	.6	.1		
4	0	.3	2.3	1.4	1.6	1.4	1.3	.8	.6	.1		
5	*0	.8	1.9	1.4	1.6	1.4	1.3	*.6	.6	.1		
6	.1	.8	1.9	1.4	1.6	1.3	*1.3	.6	.6	.1		
7	.1	.6	1.7	1.4	1.6	1.3	1.4	.6	*.5	*.1		
8	.1	.8	1.7	1.4	1.4	1.3	1.4	.5	.5	.1		(*)
9	.1	.8	*1.6	1.4	1.4	*1.3	1.4	.5	.5	.1		
10	.2	.9	1.6	1.4	1.4	1.1	1.4	.5	.5	0		
11	.2	.9	1.6	1.4	1.4	1.1	1.4	.5	.5	0		
12	.2	4.6	1.6	*1.4	1.4	1.1	1.4	.5	.5	0		
13	.2	1.4	1.6	1.3	1.3	1.1	1.4	.5	.3	0		
14	.2	1.1	1.6	1.3	1.3	1.1	1.3	.5	.3	0		
15	.2	.9	1.6	1.3	1.3	1.9	1.3	.5	.2	0		
16	.2	.9	1.6	1.3	1.3	1.3	1.1	.5	.2	0		
17	.2	.9	1.6	1.3	1.3	1.1	.9	.5	.2	0		
18	.2	.9	1.4	1.3	1.3	1.1	.9	.5	.2	0		
19	.2	.9	1.6	1.3	1.3	.9	.9	.6	.2	0		
20	.2	.8	1.6	1.3	1.3	1.1	.9	.8	.2	0		
21	.2	.8	1.6	1.3	1.3	1.1	1.1	.8	.2	0		
22	.2	.8	1.6	1.3	1.3	1.1	1.1	.8	.2	0		
23	.2	.8	1.6	1.3	1.3	1.1	1.1	.8	.2	0		
24	.2	.8	1.6	1.4	1.3	1.1	1.1	.8	.2	0		
25	.2	.8	1.6	1.4	1.3	1.1	.9	.8	.2	0		
26	.2	2.7	1.6	4.2	1.3	1.1	.8	.8	.2	0		
27	.3	1.7	1.4	2.3	1.3	1.6	.8	.8	.2	0		
28	.3	1.4	1.4	1.7	1.4	1.1	.8	.8	.1	0		
29	.3	1.4	1.4	1.6	-----	1.1	.8	.8	.1	0		
30	.3	1.4	1.4	1.4	-----	1.3	.8	.8	.1	0		
31	.3	-----	1.4	1.7	-----	1.3	-----	.9	-----	0		-----
TOTAL	5.3	31.8	70.2	46.8	39.3	38.1	34.3	20.8	10.5	0.9	0	0
MEAN	0.17	1.06	2.26	1.51	1.40	1.23	1.14	0.67	0.35	0.03	0	0
MAX	0.3	4.6	17	4.2	1.7	1.9	1.4	0.9	0.8	0.1	0	0
MIN	0	0.3	1.4	1.3	1.3	0.9	0.8	0.5	0.1	0	0	0
AC-FT	11	63	139	93	78	76	68	41	21	1.8	0	0

Calendar year 1960: Max 303 Min 0 Mean 3.94 Acre-feet 2,860  
Water year 1960-61: Max 17 Min 0 Mean 0.82 Acre-feet 592

Peak discharge (base, 100 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

## SALINAS RIVER BASIN

11-1440. Toro Creek near Pozo, Calif.

Location.--Lat 35°19'20", long 120°25'20", in SW¼ sec.12, T.30 S., R.14 E., on right bank 50 ft upstream from bridge, immediately upstream from mouth, and 3 miles northwest of Pozo.

Drainage area.--9.61 sq mi (revised).

Records available.--June 1942 to September 1961 (low-water records only). Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder and 90° V-notch weir. Altitude of gage is 1,310 ft (from topographic map).

Extremes.--Minimum discharge recorded during year, 0.01 cfs Sept. 1.  
1942-61: Minimum discharge recorded, that of Sept. 1, 1961.

Remarks.--Records good except those for periods of no gage-height record or backwater from beaver dam, which are poor. Small diversions above station for irrigation and stock reservoir.

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

1.17	0.03	1.50	0.46
1.22	.06	1.60	.71
1.30	.13	1.80	1.45
1.40	.26		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	028	037	138					030	023	007	c 007	003
2	26	37	.70					30	23	.09	*.06	.03
3	20	*41	.58					30	22	.08	.04	.03
4	22	43	.55					30	22	.10	.04	.05
5	*20	.96	.52					*28	19	.13	.06	.05
6	41	.53	.50					30	19	.12	.08	.08
7	37	.55	.50					30	*22	*10	.07	.10
8	35	.52	.50					26	22	.07	.06	*11
9	33	.48	(*)					19	22	.08	.06	.12
10	35	.48						13	20	.08	.05	.12
11	30	.48						19	20	.07	.10	.11
12	33	125						19	18	.06	.11	.10
13	35	.56						18	15	.08	.07	.11
14	33	.55						22	14	.07	.06	.13
15	25	.50						23	13	.07	.08	.15
16	26	.50						23	.07	.06	.08	.16
17	20	.50						19	.07	.07	.05	.16
18	25	.50						13	10	.06	.04	.16
19	26	.50	a.5						.11	.07	.06	.15
20	23	.50							.07	.07	.10	.15
21	18	.50							.07	.05	.09	.16
22	23	.50							.07	.07	.09	.18
23	26	.50							.07	c .06	.10	.18
24	33	.50						a.2	.06	c .06	.09	.16
25	35	.50							.07	.06	.06	.15
26	33	1.01							.08	.07	.05	.13
27	33	.55							.07		.07	.11
28	33	.52					03		.05		.06	.11
29	35	.52					26	30	.05	c .07	.09	.13
30	35	.52					31	20	.06		.05	.13
31	33							23			.03	
Total	910	16.76	16.73	-	-	-	-	695	401	232	212	354
Mean	0.294	0.559	0.540	-	-	-	-	0.224	0.134	0.075	0.068	0.118
Max.	0.41	1.25	-	-	-	-	-	-	0.23	0.13	0.11	0.18
Min.	0.18	0.37	-	-	-	-	-	-	0.06	0.05	0.03	0.03
Ac-ft	18	33	33	-	-	-	-	14	8.0	4.6	4.2	7.0

Calendar year 1960

Max

Min

Mean

Acre-feet

Water year 1960-61

Max

Min

Mean

Acre-feet

\* Discharge measurement made on this day.

a No gage-height record.

c Backwater from beaver dam.

11-1445. Salinas Reservoir near Pozo, Calif.

Location.--Lat 35°20'15", long 120°30'05", in NW<sup>1</sup>/<sub>4</sub> NW<sup>1</sup>/<sub>4</sub> sec.8, T.30 S., R.14 E., at left end of dam on Salinas River, 2 miles upstream from Pilitas Creek and 7.5 miles northwest of Pozo.

Drainage area.--112 sq mi.

Records available.--December 1941 to September 1961.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers). Prior to Mar. 9, 1942, staff gage at same site and datum.

Extremes.--Maximum contents during year, 12,900 acre-ft Oct. 1, 2; maximum elevation, 1,280.04 ft Oct. 1; minimum contents, 8,260 acre-ft Sept. 30.

1941-61: Maximum contents, 30,900 acre-ft Apr. 3, 1958 (elevation, 1,306.92 ft); minimum, 1,730 acre-ft Nov. 6-10, 1943.

Remarks.--Reservoir is formed by concrete-arch dam, outlet closed Dec. 6, 1941. Usable capacity, 26,000 acre-ft between elevations 1,220.3 ft (bottom of outlet pipe) and 1,301.0 ft (spillway crest) above mean sea level. Water diverted at dam into pipeline to small reservoir 10 miles below, from which it is pumped to Camp San Luis Obispo and city of San Luis Obispo for water supply; water is also released down natural channel of river. Figures given herein represent usable contents.

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

1,268            7,950  
1,281            13,300

Contents, in acre-feet, at 12 p.m. water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12,900	12,400	12,600	12,500	12,500	12,400	12,200	11,800	11,200	10,500	9,690	8,880
2	12,900	12,400	12,600	12,500	12,500	12,400	12,200	11,800	11,200	10,500	9,660	8,860
3	12,800	12,400	12,600	12,500	12,500	12,400	12,200	11,800	11,200	10,500	9,640	8,830
4	12,800	12,400	12,600	12,500	12,500	12,400	12,200	11,800	11,200	10,400	9,610	8,810
5	12,800	12,400	12,600	12,500	12,500	12,400	12,200	11,700	11,100	10,400	9,590	8,790
6	12,800	12,400	12,600	12,500	12,500	12,400	12,200	11,700	11,100	10,400	9,570	8,760
7	12,800	12,400	12,600	12,500	12,500	12,400	12,200	11,700	11,100	10,300	9,540	8,730
8	12,800	12,400	12,600	12,500	12,500	12,300	12,100	11,700	11,100	10,300	9,520	8,710
9	12,800	12,400	12,600	12,400	12,500	12,300	12,100	11,700	11,100	10,300	9,490	8,680
10	12,800	12,400	12,500	12,400	12,500	12,300	12,100	11,600	11,000	10,300	9,460	8,660
11	12,700	12,400	12,500	12,400	12,500	12,300	12,100	11,600	11,000	10,200	9,430	8,640
12	12,700	12,500	12,500	12,400	12,500	12,300	12,100	11,600	11,000	10,200	9,400	8,620
13	12,700	12,500	12,500	12,400	12,500	12,300	12,100	11,600	11,000	10,200	9,380	8,590
14	12,700	12,500	12,500	12,400	12,500	12,300	12,100	11,600	11,000	10,200	9,370	8,550
15	12,700	12,500	12,500	12,400	12,500	12,300	12,000	11,500	10,900	10,200	9,330	8,530
16	12,700	12,500	12,500	12,400	12,500	12,300	12,000	11,500	10,900	10,100	9,310	8,530
17	12,600	12,400	12,500	12,400	12,500	12,300	12,000	11,500	10,900	10,100	9,290	8,510
18	12,600	12,400	12,500	12,400	12,500	12,300	12,000	11,500	10,900	10,100	9,260	8,490
19	12,600	12,400	12,500	12,400	12,400	12,300	12,000	11,500	10,800	10,000	9,230	8,470
20	12,600	12,400	12,500	12,400	12,400	12,300	12,000	11,500	10,800	10,000	9,210	8,460
21	12,600	12,400	12,500	12,400	12,400	12,300	11,900	11,400	10,800	9,980	9,170	8,440
22	12,600	12,400	12,500	12,400	12,400	12,300	11,900	11,400	10,800	9,950	9,150	8,430
23	12,500	12,400	12,500	12,400	12,400	12,300	11,900	11,400	10,700	9,930	9,130	8,410
24	12,500	12,400	12,500	12,300	12,400	12,300	11,900	11,400	10,700	9,910	9,100	8,370
25	12,500	12,400	12,500	12,400	12,400	12,300	11,900	11,400	10,700	9,870	9,070	8,370
26	12,500	12,400	12,500	12,500	12,400	12,300	11,900	11,300	10,700	9,850	9,050	8,350
27	12,500	12,400	12,500	12,500	12,400	12,300	11,900	11,300	10,600	9,830	9,010	8,330
28	12,500	12,400	12,500	12,500	12,400	12,300	11,900	11,300	10,600	9,800	8,980	8,300
29	12,400	12,400	12,500	12,500	—	12,300	11,900	11,300	10,600	9,770	8,960	8,280
30	12,400	12,400	12,500	12,500	—	12,200	11,800	11,300	10,500	9,750	8,930	8,260
31	12,400	—	12,500	12,500	—	12,200	—	11,200	—	9,720	8,900	—
(+)	1,279.02	1,278.98	1,279.20	1,279.24	1,278.97	1,278.65	1,277.77	1,276.41	1,274.74	1,272.68	1,270.63	1,268.89
(+)	-500	0	+100	0	-100	-200	-400	-600	-700	-780	-820	-640
(++)	325	184	156	224	189	236	333	414	455	515	495	420

Calendar year 1960..... † -2,300      †† 3,270

Water year 1960-61..... † -4,640      †† 3,950

† Elevation, in feet, at end of month.

† Change in contents in acre-feet.

†† Diversion, in acre-feet, for municipal supply; furnished by county of San Luis Obispo.

## SALINAS RIVER BASIN

11-1450. Salinas River above Pilitas Creek, near Santa Margarita, Calif.

Location --Lat 35°20'55", long 120°30'40", in NE¼ sec. 6, T. 30 S., R. 14 E., on downstream side of right bank bridge pier, 200 ft upstream from Pilitas Creek and 6 miles southeast of Santa Margarita.

Drainage area --114 sq mi.

Records available --July 1942 to September 1961.

Gage --Water-stage recorder and concrete control. Altitude of gage is 1,150 ft (from topographic map).

Average discharge --19 years, 13.4 cfs (9,700 acre-ft per year).

Extremes --Maximum discharge during year, 3.4 cfs Dec. 1 (gage height, 0.84 ft); no flow during several months.

1942-61: Maximum discharge, 4,720 cfs Apr. 3, 1958 (gage height, 8.68 ft); no flow at times during 1944, 1947-61.

Remarks --Records poor. Flow regulated by Salinas Reservoir beginning in 1941 (see preceding page). Small amount of water diverted to Camp San Luis Obispo and city of San Luis Obispo.

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

0.5	0
.6	.1
.7	.7
.8	2.0

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0.8	0	0.2	0						
2		0	1.0	0	*.2	0					(*)	
3		*0	.2	0	.1	0						
4		0	.1	0	.1	0						
5	(*)	.1	.1	0	.1	0		(*)				
6		.4	.1	0	.1	0	(*)					
7		.1	.1	0	.1	0			(*)	(*)		
8		0	*0	0	.1	0						(*)
9		0	0	0	.1	*0						
10		0	0	0	.1	0						
11		0	0	0	.1	0						
12		.3	0	*0	0	0						
13		.5	0	0	0	0						
14		.1	0	0	0	0						
15		.1	0	0	0	.5						
16		0	0	0	0	.1						
17		0	0	0	0	.1						
18		0	0	0	0	.1						
19		0	0	0	0	.1						
20		0	0	0	0	.1						
21		0	0	0	0	.1						
22		0	0	0	0	.1						
23		0	0	0	0	.1						
24		0	0	0	0	.1						
25		0	0	.1	0	.1						
26		.2	0	1.0	0	.1						
27		.2	0	.5	0	0						
28		.1	0	.3	0	0						
29		.1	0	.2	-	0						
30		.1	0	.1	-----	0	-----					
31		-----	0	.2	-----	0	-----					
Total	0	2.3	2.4	2.4	1.3	1.6	0	0	0	0	0	0
Mean	0	0.08	0.08	0.08	0.05	0.05	0	0	0	0	0	0
Max.	0	0.5	1.0	1.0	0.2	0.5	0	0	0	0	0	0
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0	4.6	4.8	4.8	2.6	3.2	0	0	0	0	0	0

Calendar year 1960: Max 288 Min 0 Mean 1.70 Acre-feet 1,240  
 Water year 1960-61: Max 1.0 Min 0 Mean 0.03 Acre-feet 20

\* Discharge measurement or observation of no flow made on this day.



11-1470. Jack Creek near Templeton, Calif.

Location.--Lat 35°34', long 120°48', in Paso de Robles Grant, on left bank 1.4 miles upstream from mouth, 1.8 miles northwest of Oakdale School, and 5.6 miles west of Templeton, San Luis Obispo County.

Drainage area.--25.3 sq mi (revised).

Records available.--October 1949 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 980 ft (from topographic map).

Average discharge.--12 years, 11.8 cfs (8,540 acre-ft per year); median of yearly mean discharges, 6.9 cfs (5,000 acre-ft per year).

Extremes.--Maximum discharge during year, 795 cfs Dec. 1 (gage height, 5.36 ft); no flow for several months.

1949-61: Maximum discharge, 5,040 cfs Jan. 25, 1956 (gage height, 9.56 ft), from rating curve extended above 1,500 cfs on basis of slope-area measurement of peak flow; no flow for several months each year.

Remarks.--Records good. No regulation. Small diversions above station for irrigation.

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

1.3	0	2.4	10
1.6	.3	2.5	14
1.8	.9	2.7	25
1.9	1.4	2.9	41
2.0	2.3	3.2	74
2.1	3.5	3.5	120
2.2	5.0	4.0	232
2.3	7.0	4.5	390

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			254	0.8	6.2	0.9	1.0	0.6	0.5		(*)	
2			36	.8	*5.2	.9	1.0	.5	.5			
3		(*)	8.2	.8	4.7	.9	1.0	.5	.4			
4			3.8	.8	3.8	.9	1.0	*.5	.4			
5	(*)		2.0	.8	3.4	.9	.9	.5	.4			
6			1.2	.8	3.0	.9	*1.0	.5	.4	(*)		
7			.9	.8	2.7	.9	1.0	.5	.4			(*)
8			*.9	.7	2.3	.9	.9	.5	*.4			
9			.8	.7	2.0	*.9	.9	.5	.3			
10			.8	.8	1.9	.9	.9	.4	.3			
11			.8	.8	1.9	.8	.9	.4	.3			
12			.9	*.8	2.3	.8	.9	.4	.3			
13			.8	.8	1.9	.8	.9	.5	.3			
14			.8	.8	1.6	.8	.8	.4	.2			
15			.9	.8	1.5	11	.8	.4	.2			
16			1.2	.8	1.4	4.7	.8	.4	.1			
17			1.0	.8	1.4	3.8	.8	.4	0			
18			1.0	.8	1.3	3.5	.7	.4	0			
19			.9	.8	1.3	2.5	.7	.5	0			
20			.8	.8	1.2	2.0	.7	.4	0			
21			.8	.8	1.2	1.9	.7	.4	0			
22			.8	.8	1.1	1.6	.8	.5	*0			
23			.8	.8	1.1	1.4	.7	.5	0			
24			.8	.8	1.0	1.4	.7	.5	0			
25			.8	.8	1.0	1.5	.7	.5	0			
26			.8	112	1.0	1.4	.7	.5	0			
27			.8	17	.9	1.3	.6	.4	0			
28			.8	7.9	.9	1.2	.6	.4	0			
29			.8	5.0	-	1.1	.6	.4	0			
30			.8	4.0	-	1.1	.6	.4	0			
31			.8	4.7	-	1.1	.5	.5	0			
Total	0	0	326.5	170.4	59.2	54.7	24.3	14.2	5.4	0	0	0
Mean	0	0	10.5	5.50	2.11	1.76	0.81	0.46	0.18	0	0	0
Max.	0	0	254	112	6.2	11	1.0	0.6	0.5	0	0	0
Min.	0	0	0.8	0.7	0.9	0.8	0.6	0.4	0	0	0	0
Ac-ft	0	0	648	338	117	108	48	28	11	0	0	0

Calendar year 1960 : Max 611 Min 0 Mean 5.50 Acre-feet 3,990  
 Water year 1960-61 : Max 254 Min 0 Mean 1.79 Acre-feet 1,300

Peak discharge (base, 500 cfs).--Dec. 1 (5 p.m.) 795 cfs (5.36 ft).

\* Discharge measurement or observation of no flow made on this day.

## SALINAS RIVER BASIN

11-1475. Salinas River at Paso Robles, Calif.

Location.--Lat 35°37'40", long 120°41'05", in Paso de Robles Grant, on downstream side of left pier of bridge on State Highway 41 at Paso Robles, San Luis Obispo County, 3.5 miles upstream from Huerhuero Creek.

Drainage area.--389 sq mi.

Records available.--October 1939 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 670.61 ft above mean sea level (levels by Corps of Engineers). Prior to June 14, 1951, wire-weight gage at same site and datum.

Average discharge.--22 years, 95.0 cfs (68,780 acre-ft per year); median of yearly mean discharges, 42 cfs (30,400 acre-ft per year).

Extremes.--No flow during year.

1939-61: Maximum discharge, 14,200 cfs Mar. 9, 1943 (gage height, 16.2 ft, from stage graph), from rating curve extended above 6,000 cfs on basis of velocity-area studies; maximum gage height, 17.24 ft Apr. 3, 1958; no flow during several months in each year.

Remarks.--No flow since May 10, 1960. Flow regulated by Salinas Reservoir beginning in 1941 (see p. 257). Small diversions above station. Figures for calendar year 1960 are as follows: Total cfs days, 4,282.8; maximum daily discharge, 713 cfs; minimum daily, zero; mean, 11.7 cfs; runoff, 8,490 acre-ft.

11-1476. Huerhuero Creek near Creston, Calif.

Location.--Lat 35°35'00", long 120°33'15", in NE¼ sec.15, T.27 S., R.13 E., on left bank 1 mile northwest of Geneseo School and 4.6 miles northwest of Creston.

Drainage area.--101 sq mi.

Records available.--October 1958 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 930 ft (from topographic map).

Extremes.--Maximum discharge during year, 4.8 cfs Jan. 26 (gage height, 2.58 ft); no flow for several months.

1958-61: Maximum discharge, about 150 cfs Feb. 16, 1959 (gage height, 3.20 ft); no flow for several months each year.

Remarks.--Records poor. Small diversions above station for irrigation.

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

2.37	0
2.4	.1
2.5	1.3
2.6	6.0

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0	0.2	0.3	0.1					
2				0	*.2	.3	.1					
3		(*)		0	.1	.3	.1					
4				0	.1	.3	.1					
5	(*)			0	.1	.3	.1					
6				0	.1	.3	.1					
7				0	.1	.3	.1					
8				0	.1	.3	.1					
9				0	.1	.2	.1					
10				0	.2	.2	.1					
11				.1	.3	.2	.1					
12				.1	.3	.2	.1					
13				.1	.3	.2	.1					
14				.1	.3	.2	.1					
15			(*)	.1	.3	.5	.1				(*)	
16				.1	*.3	.3	0					
17				.1	.3	.3	0					
18				.1	.3	.2	0					
19				.1	.3	.2	0					
20				*.1	.3	.2	*0					
21				.1	.3	.2	0		(*)			
22		(*)		.1	.3	.2	0					
23				.2	.3	.2	0					
24				.1	.3	.2	1	(*)				
25				.2	.3	.2	0					
26				1.6	.3	.2	0					
27				.3	.3	.2	0					
28				.2	.3	*.2	0					
29				.2	---	.2	0					
30				.1	---	.1	0					
31				.2	---	.1	---					
Total	0	0	0	4.3	6.7	7.3	1.6	0	0	0	0	0
Mean	0	0	0	0.14	0.24	0.24	0.05	0	0	0	0	0
Max.	0	0	0	1.6	0.3	0.5	0.1	0	0	0	0	0
Min.	0	0	0	0	0.1	0.1	0	0	0	0	0	0
Ac-ft	0	0	0	8.5	13	14	3.2	0	0	0	0	0

Calendar year 1960: Max 1.2 Min 0 Mean 0.09 Acre-feet 68

Water year 1960-61: Max 1.6 Min 0 Mean 0.05 Acre-feet 39

Peak discharge (base, 40 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

## SALINAS RIVER BASIN

11-1477. Cholame Creek tributary near Cholame, Calif.

Location.--Lat 35°45'10", long 120°15'50", in Cholame Grant, on right bank at culvert on State Highway 41, 2.8 miles northeast of Cholame, San Luis Obispo County.

Drainage area.--9.32 sq mi.

Records available.--October 1958 to September 1961.

Gage.--Water-stage recorder, crest-stage gage, and tipping-bucket rain gage. Datum of gage is 1,213 ft above mean sea level (by vertical angles).

Extremes.--Maximum discharge during year, 0.1 cfs several days; maximum gage height, 2.60 ft Nov. 5; no flow for most of year. 1958-61: Maximum discharge, 22 cfs Feb. 16, 1959 (gage height, 3.59 ft); no flow for most of each year.

Remarks.--Records poor. No regulation. Small diversions above station for irrigation.

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0.1	0				0				
2		0	0	0				0				
3		* 0	0	0				0				
4		0	0	0				0				
5	(*)	.1	0	0				0				
6		0	0	0				0				
7		0	0	0				0				
8		0	0	0				0				
9		0	0	0				0				
10		0	0	0				0				
11		0	0	0				0				
12		.1	0	0				0				
13		0	0	0				0				
14		0	0	0				0				
15		0	* 0	0				0			(*)	
16		0	0	0	(*)			0				
17		0	0	0				0				
18		0	0	0				0				
19		0	0	0				0				
20		0	0	* 0			(*)	.1				
21		0	0	0				0	(*)			
22		* 0	0	0				* 0				
23		0	0	0				0				
24		0	0	0				0				
25		0	0	0				0				
26		0	0	.1				0				
27		0	0	0				0				
28		0	0	0		(*)		0				
29		0	0	0				0				
30		0	0	0				0				
31		-----	0	0	-----		-----	0	-----			-----
Total	0	0.2	0.1	0.1	0	0	0	0.1	0	0	0	0
Mean	0	0.007	0.003	0.003	0	0	0	0.003	0	0	0	0
Max.	0	0.1	0.1	0.1	0	0	0	0.1	0	0	0	0
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0	0.4	0.2	0.2	0	0	0	0.2	0	0	0	0
(†)	0.1	-	-	0.8	-	-	0.2	0.9	0	0	0	

Calendar year 1960:

Max 0.1

Min 0

Mean 0.03

Acre-feet 21

Water year 1960-61:

Max 0.1

Min 0

Mean 0.001

Acre-feet 1.0

\* Observation of no flow made on this day.

† Precipitation, in inches.

11-1478. Cholame Creek near Shandon, Calif.

Location.--Lat 35°41'20", long 120°20'03", in SE¼ sec.3, T.26 S., R.15 E., on left bank 500 ft upstream from highway bridge, 2.6 miles downstream from White Canyon, and 3.5 miles northeast of Shandon.

Drainage area.--227 sq mi.

Records available.--October 1958 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 1,080 ft (from topographic map).

Extremes.--No flow during year.

1958-61: Maximum discharge not determined, Feb. 16, 1959 (gage height, 6.48 ft); no flow for many months each year.

Remarks.--No flow since Aug. 23, 1959. Small diversions above station. Observations of no flow generally made once a month.

## SALINAS RIVER BASIN

11-1485, Estrella Creek near Estrella, Calif.

Location.--Lat 35°42'35", long 120°38'20", in NW¼NW¼ sec.36, T.25 S., R.12 E., on right bank 0.2 mile downstream from mouth of Ranchito Canyon and 1.9 miles northwest of Estrella.

Drainage area.--922 sq mi, not including Carrizo Plains.

Records available.--October 1954 to September 1961.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 710 ft (from topographic map).

Average discharge.--7 years, 14.6 cfs (10,570 acre-ft per year).

Extremes.--Maximum discharge during year, 16 cfs Dec. 1 (gage height, 2.14 ft); no flow several months.

1954-61: Maximum discharge, 8,850 cfs Apr. 6, 1958 (gage height, 7.20 ft), from rating curve extended above 2,000 cfs on basis of slope-area measurement of peak flow; no flow several months each year.

Remarks.--Records fair. Pumpage from wells along creek for irrigation affects flow at this station.

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

1.8	0
1.9	1.1
2.0	4.6
2.1	12

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	2.5	0	4.2	2.3	1.7					
2		0	4	0	4.2	2.3	1.7					
3		*0	0	4	3.7	2.6	1.4					
4		0	0	6	3.7	2.6	1.4					
5	(*)	0	0	1.4	3.7	2.3	.6					
6		0	0	2.3	3.4	2.3	.6					
7		0	0	2.3	3.4	2.3	.5					
8		0	0	2.0	3.0	2.3	.4					
9		0	0	2.0	3.0	2.3	.2					
10		0	0	2.0	3.4	2.3	.1					
11		0	0	2.0	3.4	2.3	0					
12		.3	0	2.0	3.4	2.3	0					
13		2.6	0	2.0	3.4	2.3	0					
14		2.0	0	2.0	3.4	2.3	0				(*)	
15		.4	*0	2.3	3.4	3.0	0					
16		0	0	2.3	*3.4	3.0	0					
17		0	0	2.3	3.4	3.0	0					
18		0	0	2.3	3.4	3.0	0					
19		0	0	2.3	3.4	2.6	0					
20		0	0	*2.3	3.4	2.6	*0					
21		0	0	2.3	3.4	2.6	0			(*)		
22		*0	0	2.3	3.0	2.3	0					
23		0	0	2.3	3.0	2.3	0	(*)				
24		0	0	2.3	3.0	2.0	0					
25		0	0	2.3	3.0	2.0	0					
26		0	0	4.6	3.0	2.0	0					
27		.6	0	5.2	2.3	1.7	0					
28		.2	0	5.2	2.3	*1.7	0					
29		0	0	5.2	—	1.7	0					
30		0	0	4.6	—	1.7	0					
31		—	0	5.2	—	1.7	—					
Total	0	6.1	2.9	76.3	92.7	71.7	8.6	0	0	0	0	0
Mean	0	0.20	0.09	2.46	3.31	2.31	0.29	0	0	0	0	0
Max.	0	2.6	2.5	5.2	4.2	3.0	1.7	0	0	0	0	0
Min.	0	0	0	0	2.3	1.7	0	0	0	0	0	0
Ac-ft	0	12	5.8	151	184	142	17	0	0	0	0	0

Calendar year 1960:

Max 11

Min 0

Mean 1.20

Acre-feet 871

Water year 1960-61:

Max 5.2

Min 0

Mean 0.71

Acre-feet 512

Peak discharge (base, 200 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

11-1488, Nacimiento River near Bryson, Calif.

Location.--Lat 35°48'06", long 121°06'50", in NW¼ sec.33, T.24 S., R.8 E., on right bank 0.6 mile upstream from Turtle Creek, 1.6 miles west of Bryson, and 10 miles southwest of Lockwood.

Drainage area.--140 sq mi.

Records available.--October 1955 to September 1961. Records for February to April 1901, published in WSP 66 and 75, have been found to be unreliable and should not be used.

Gage.--Water-stage recorder. Altitude of gage is 860 ft (from topographic map).

Average discharge.--6 years, 145 cfs (105,000 acre-ft per year).

Extremes.--Maximum discharge during year, 8,070 cfs Dec. 1 (gage height, 12.98 ft); no flow several months.

1955-61: Maximum discharge, 30,300 cfs Dec. 23, 1955 (gage height, 24.63 ft), from rating curve extended above 13,000 cfs on basis of slope-area measurement of peak flow; no flow 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)

3.9	0	4.7	76
4.0	.3	5.3	265
4.1	1.0	6.0	560
4.2	6.0	7.0	1,110
4.3	13	8.0	1,840
4.4	22	9.0	2,960
4.5	34		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	2,810	16	286	18	27	8.1	4.5			
2		0	722	16	216	18	26	8.1	4.5			
3		0	237	15	182	17	26	7.4	4.0			
4		*0	138	15	141	17	24	7.4	3.5			
5		0	92	14	115	18	22	7.4	3.0			
6		0	67	13	98	18	21	6.7	2.5			
7		0	51	13	81	18	20	6.7	2.0			
8		0	42	12	69	17	19	6.0	2.0			
9		0	33	12	60	16	18	6.0	2.0			
10		0	32	12	53	15	18	6.0	1.5			
11		0	49	12	67	14	16	5.5	1.5			
12		0	38	12	84	13	15	5.5	1.0			
13		4.5	32	11	60	12	15	5.0	.9			
14		12	*29	11	53	13	15	5.0	.9			
15		5.5	49	10	*51	202	14	5.0	.7			
16		1.0	65	10	47	135	13	4.5	.4			
17		.7	51	9.5	44	136	12	4.5	.2			
18		.4	45	9.5	40	118	12	4.5	.2			
19		.2	38	*9.5	36	87	*11	6.0	1			
20		.2	34	9.5	33	71	11	6.0	1			
21		.2	32	9.5	30	62	11	5.5	0			
22		.1	29	9.5	28	53	18	*5.0	0			
23		.1	27	8.8	26	47	22	4.5	*0			
24		.1	24	8.8	23	44	17	4.5	0			
25		.1	22	12	22	45	14	4.0	0			
26		358	21	1,150	21	40	12	4.0	0			
27		95	20	369	20	*36	11	3.5	0			
28		28	19	199	19	34	9.5	4.5	0			
29		17	18	141	—	33	8.8	4.5	0			
30		12	18	106	-----	30	8.1	4.5	0			
31		-----	17	265	-----	29	-----	4.5	-----			
Total	0	5351	4901	2520.6	2005	1426	486.4	170.3	35.5	0	0	0
Mean	0	17.8	158	81.3	71.6	46.0	16.2	5.49	1.18	0	0	0
Max.	0	358	2,810	1,150	286	202	27	8.1	4.5	0	0	0
Min.	0	0	17	8.8	19	12	8.1	3.5	0	0	0	0
Ac-ft	0	1,060	9,720	5,000	3,980	2,830	965	338	70	0	0	0

Calendar year 1960: Max 3,640 Min 0 Mean 75.9 Acre-feet 55,130  
 Water year 1960-61: Max 2,810 Min 0 Mean 33.1 Acre-feet 23,960

Peak discharge (base, 4,000 cfs).--Dec. 1 (4 p.m.) 8,070 cfs (12.98 ft).

\* Discharge measurement or observation of no flow made on this day.

## SALINAS RIVER BASIN

11-1494. Nacimiento River below Nacimiento Dam, near Bradley, Calif.

Location.--Lat 35°45'41", long 120°51'16", in NE¼NE¼ sec.14, T.25 S., R.10 E., on left bank 2.2 miles below Nacimiento Dam and 7.6 miles southwest of Bradley.

Drainage area.--322 sq mi.

Records available.--October 1957 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 597 ft above mean sea level (Corps of Engineers bench mark).

Extremes.--Maximum discharge during year, 485 cfs June 3 (gage height, 5.74 ft); no flow for several months.  
1957-61: Maximum discharge, 5,220 cfs Apr. 7, 1958 (gage height, 10.28 ft); no flow many days each year.

Remarks.--Records good. Flow regulated by Nacimiento Dam (usable capacity, 340,000 acre-ft). No diversion.

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

Oct. 1 to May 31

June 1 to Sept. 30

2.7	0	2.7	0	3.6	36
2.8	.4	2.8	.2	4.0	80
2.9	3.3	2.9	1.0	4.5	155
3.0	7.0	3.0	3.0	5.0	250
3.3	20	3.1	6.0	5.5	390
		3.3	15	6.0	640

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	17			0	0.2				124	410		
2	16			0	.2				*361	406		
3	15			0	.1				480	402		
4	10	(*)		0	0				480	398		
5	5.2			0	0				480	398		
6	*13			0	0				480	394		
7	13			0	0				480	*390		
8	12			0	0				*480	390		
9	11		(*)	0	0				475	387		
10	9.8			0	0				475	384		
11	2.7			5.8	0				475	384		
12	1.8			14	0				475	384		
13	1.3			*14	0				475	*166		
14	.7			13	0				475	3.0	(*)	
15	.3			13	*0				470	.9		
16				10	0				465	.4		
17	.2			1.8	0				465	*.2		
18	0			1.0	0				460	.2		
19	0			.3	0		(*)		455	.1		
20	0			.2	0				455	0		
21	0			.2	0				450	0		
22	0			.1	0				440	0		
23	0			.1	0				435	0		
24	0			0	0				430	0		
25	0			.1	0				426	0		
26	0			1.3	0				422	0		
27	0			.4	0	(*)			418	0		
28	0			.3	0				414	0		
29	0			.2	—				414	0		
30	0			.1	—				410	0		
31	0			.3	—				410	0		
Total	129.0	0	0	76.2	0.5	0	0	0	13,244	4,897.8	0	0
Mean	4.16	0	0	2.46	0.02	0	0	0	441	158	0	0
Max.	17	0	0	14	0.2	0	0	0	480	410	0	0
Min.	0	0	0	0	0	0	0	0	124	0	0	0
Ac-ft	256	0	0	151	1.0	0	0	0	26,270	9,710	0	0

Calendar year 1960: Max 456 Min 0 Mean 161 . Acre-feet 116,700  
Water year 1960-61: Max 480 Min 0 Mean 50.3 Acre-feet 36,390

\* Discharge measurement or observation of no flow made on this day.



\* Discharge measurement made on this day.

## SALINAS RIVER BASIN

11-1497. San Antonio River at Sam Jones Bridge, near Lockwood, Calif.--Continued.

Discharge, in cubic feet per second, water year October 1958 to September 1959

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.7	2.5	3.2	3.2	16	133	45	19	8.1	2.5	1.0	0.7
2	1.7	2.5	3.2	3.2	16	111	45	19	7.4	2.5	1.0	.7
3	1.7	2.5	3.2	3.2	15	100	45	19	6.7	2.5	1.0	*.8
4	1.7	2.1	3.2	3.2	14	88	43	19	6.0	2.1	1.0	.8
5	1.7	2.1	3.2	6.0	13	81	43	19	6.0	1.7	1.0	.8
6	1.7	2.1	2.5	80	13	79	43	18	5.3	1.7	1.0	.7
7	1.3	2.1	2.5	79	12	77	43	17	5.3	1.3	1.0	.7
8	1.3	2.1	2.5	*30	12	72	43	16	4.6	1.3	.7	.7
9	1.3	2.1	2.5	456	12	70	42	16	3.9	1.0	.5	.7
10	1.3	2.1	2.5	619	75	67	42	15	3.2	1.0	.6	.7
11	1.3	2.1	3.2	342	563	65	42	15	2.5	1.0	.6	.7
12	1.0	2.1	3.2	207	355	63	38	14	2.5	1.0	.6	.7
13	1.3	2.1	3.2	155	246	60	37	*13	2.5	1.3	.7	.7
14	1.3	2.1	3.2	123	143	60	37	14	2.5	1.3	.8	.7
15	1.3	2.5	*3.2	95	107	58	33	14	2.5	1.3	.8	.7
16	1.3	2.5	3.2	81	844	58	32	13	2.1	1.3	1.0	.7
17	a 1.3	2.5	3.2	67	*607	56	30	12	2.1	1.3	1.0	.7
18	a 1.3	2.5	3.2	56	986	56	28	11	2.1	1.3	1.3	.7
19	a 1.3	2.5	3.2	48	615	53	28	9.5	2.1	1.3	1.3	.7
20	a 1.3	2.1	3.2	*42	513	53	27	9.5	2.1	1.3	1.3	.7
21	a 1.7	2.1	3.2	*38	830	52	27	9.5	2.1	*1.3	1.3	.7
22	a 1.7	2.5	3.2	35	604	50	23	9.5	*2.1	1.7	1.3	.7
23	a 1.7	2.5	3.2	32	504	48	20	9.5	2.1	1.3	1.3	.7
24	a 1.7	2.5	3.2	28	381	50	19	9.5	2.5	1.3	1.0	.7
25	a 1.7	2.5	3.2	27	307	50	20	9.5	2.5	1.3	.8	.7
26	a 1.7	2.5	3.2	27	259	48	23	9.5	3.2	1.3	.8	.7
27	a 2.1	3.2	3.2	25	210	48	37	11	2.5	1.3	1.0	.7
28	a 2.1	3.2	3.2	22	162	47	30	9.5	3.2	1.7	1.0	.7
29	a 2.1	3.2	3.2	20	—	45	23	9.5	3.2	1.7	1.0	.7
30	a 2.1	3.2	3.2	18	—	*45	*20	8.8	3.2	1.7	1.0	.7
31	*2.1	—	3.2	17	—	45	—	8.8	—	1.3	.8	—
Total	48.8	72.6	95.7	2787.8	8434	1988	1008	406.6	106.1	45.9	29.5	21.3
Mean	1.57	2.42	3.09	89.9	301	64.1	33.6	13.1	3.54	1.48	0.95	0.71
Max.	2.1	3.2	3.2	619	986	133	45	19	8.1	2.5	1.3	0.8
Min.	1.0	2.1	2.5	3.2	12	45	19	8.8	2.1	1.0	0.5	0.7
Ac-ft	97	144	190	5,530	16,730	3,940	2,000	806	210	91	59	42

Calendar year 1958:

Max -

Min -

Mean -

Acre-feet -

Water year 1958-59:

Max 986

Min 0.5

Mean 41.2

Acre-feet 29,840

## Peak discharge (base, 300 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1-9	12p.m.	4.75	997	2-16	2p.m.	5.45	1,460
2-11	6a.m.	4.27	752	2-21	3p.m.	4.60	949

\* Discharge measurement made on this day.

a No gage-height record.

Note.--Stage-discharge relation indefinite Sept. 8-30.

11-1497. San Antonio River at Sam Jones Bridge, near Lockwood, Calif.--Continued.

Discharge, in cubic feet per second, February to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						13	17	5.8	2.4	0.5		
2						13	16	5.4	2.1	.5	(*)	
3						14	15	5.4	2.0	.5		
4						13	14	5.0	1.9	.4		
5					a50	13	14	5.0	1.9	.4		
6						13	12	5.0	1.8	.4		
7						12	12	4.6	1.8	.3		
8						12	11	*4.4	1.8	.3		
9						12	9.9	4.4	*1.8	.2		
10					*28	*12	9.9	4.1	1.8	.2		
11					27	12	9.2	4.1	1.8	.1		
12					42	12	8.6	3.6	1.8	.1		
13					37	11	8.6	3.4	1.8	*.1		
14					30	11	8.2	3.4	1.7	.1		
15					28	39	8.2	3.1	1.6	0	(*)	
16					25	66	7.8	2.9	1.6	0		
17					24	47	7.4	2.9	1.3	0		
18					23	61	7.4	2.9	1.2	0		
19					21	40	*7.0	3.1	1.1	0		
20					20	34	6.6	2.6	.9	0		
21					20	30	6.2	2.6	.8	0		
22					19	25	6.6	*2.4	.8	0		
23					18	24	8.2	2.4	*.7	0		
24					17	22	11	2.1	.6	0		
25					16	21	9.2	2.1	.6	0		
26					15	20	8.2	2.1	.6	0		
27					14	*20	7.4	2.1	.6	0		
28					14	20	7.0	2.1	.6	0		
29					—	20	7.0	2.1	.6	0		
30					19	19	6.2	2.1	.6	0		
31					18	18	6.2	2.1	.6	0		
Total					888	699	286.8	105.3	40.6	4.1	0	0
Mean					31.7	22.5	9.56	3.40	1.35	0.13	0	0
Max.					—	66	17	5.8	2.4	0.5	0	0
Min.					14	11	6.2	2.1	0.6	0	0	0
Ac-ft					1,760	1,390	569	209	81	8.1	0	0

Calendar year 1960 :

Max

Min

Mean

Acre-feet

Water year 1960-61 :

Max

Min

Mean

Acre-feet

Peak discharge (base, 300 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

a No gage-height record.

## SALINAS RIVER BASIN

11-1500. San Antonio River at Pleyto, Calif.

Location.--Lat 35°51'55", long 120°59'30", in Pleyto Grant, on downstream side of left abutment of highway bridge at old townsite of Pleyto, Monterey County, 1.1 miles downstream from Cooperhead Creek, and 15 miles west of Bradley.

Drainage area.--284 sq mi. (revised).

Records available.--April to September 1922, October 1929 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Altitude of gage is 720 ft (from topographic map). Prior to May 10, 1939, at datum 1.00 ft higher. April to September 1922, staff gage at same site at different datum.

Average discharge.--32 years (1929-61), 80.7 cfs (58,420 acre-ft per year); median of yearly mean discharges, 45 cfs (32,600 acre-ft per year).

Extremes.--Maximum discharge during year, 84 cfs Jan. 27 (gage height, 1.23 ft); no flow several months.

1929-61: Maximum discharge, 19,100 cfs Apr. 3, 1958 (gage height, 6.44 ft), from rating curve extended above 4,500 cfs; no flow several months each year except possibly 1942-43.

Remarks.--Records poor. Diversion for irrigation of about 500 acres above station.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Feb. 13-18, Apr. 11 to May 30)

0.2	0	0.7	14
.3	1.0	.8	20
.4	3.4	1.0	41
.5	6.0	1.2	77
.6	9.0		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0	54	18	16	2.9				
2				0	61	17	16	2.7				
3				0	*51	17	15	2.2			(*)	
4				0	41	16	14	2.0				
5		(*)		0	36	15	14	1.7				
6				0	33	14	13	1.7				
7	(*)			0	29	14	12	1.5				
8				0	27	13	12	*1.2				
9				0	26	12	11	1.2		(*)		
10				0	26	*12	10	1.2				
11				0	27	12	9.0	1.0				
12				0	28	12	8.4	1.0				
13				*0	29	12	7.8	1.0				
14			(*)	0	29	12	7.5	.9				
15				0	*29	15	6.6	.8				
16				0	28	18	6.0	.7				
17				0	27	21	5.7	.6				
18				0	26	28	5.2	.6				
19				*0	25	34	*4.7	1.0				
20				0	25	33	4.7	.7				
21				0	24	27	4.7	.5				
22				0	23	25	5.2	*.4				
23				0	23	22	4.7	.3		(*)		
24				0	21	19	5.0	.2				
25				2.0	20	19	5.0	.2				
26				16	20	20	4.7	.2				
27				73	19	*19	4.4	.1				
28				43	19	18	3.9	.1				
29				33	—	18	3.4	.1				
30				27	—	17	3.2	.1				
31				28	—	16	—	0				
Total	0	0	0	222.0	826	565	242.8	28.8	0	0	0	0
Mean	0	0	0	7.16	29.5	18.2	8.09	0.93	0	0	0	0
Max.	0	0	0	73	61	34	16	2.9	0	0	0	0
Min.	0	0	0	0	19	12	3.2	0	0	0	0	0
Ac-ft	0	0	0	440	1,640	1,120	482	57	0	0	0	0

Calendar year 1960: Max 991 Min 0 Mean 24.5 Acre-feet 17,810  
Water year 1960-61: Max 73 Min 0 Mean 5.16 Acre-feet 3,740

Peak discharge (base, 470 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

## SALINAS RIVER BASIN

271

11-1505. Salinas River near Bradley, Calif.

Location.--Lat 35°55'40", long 120°52'00", in NE¼ sec.15, T.23 S., R.10 E., on left bank 6 miles northwest of Bradley and 7 miles downstream from San Antonio River.

Drainage area.--2,535 sq mi (revised).

Records available.--October 1948 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Altitude of gage is 450 ft (from topographic map).

Average discharge.--13 years, 363 cfs (262,800 acre-ft per year), unadjusted for storage.

Extremes.--Maximum daily discharge during year, 484 cfs June 21-23; minimum, not determined.

1948-61: Maximum discharge, 28,400 cfs Apr. 3, 1958 (gage height, 12.53 ft); no flow at times in 1951, 1954-55, 1957.

Remarks.--Records poor. Flow partly regulated by Salinas Reservoir (see p. 257), and Nacimiento Reservoir beginning in November 1956 (usable capacity, 340,000 acre-ft). Several small diversions above station.

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		(*)							4	444	(*)	
2										444		
3										444		
4										452		
5										452		
6	(*)				(*)			(*)	444	460		(*)
7									468	460		
8									468	460		
9									*476	444		
10									476	420		
11	17	12	12	20	30	25	15	4.5	476	412	4	2
12									476	404		
13									476	*380		
14									476	90		
15									476	60		
16					(*)				476	45		
17									476	*40		
18									476	35		
19									476	30		
20									476	26		
21									484	23		
22									484	21		
23									*484	19		
24									468	17		
25									468	15		
26						(*)			468	13		
27									460	12		
28									452	11		
29									452	10		
30									444	9		
31										8		
Total	527	360	372	620	840	775	450	139.5	12,546	6,160	124	60
Mean	17	12	12	20	30	25	15	4.5	418	199	4	2
Max.	-	-	-	-	-	-	-	-	484	460	-	-
Min.	-	-	-	-	-	-	-	-	-	8	-	-
Ac-ft	1,050	714	738	1,230	1,670	1,540	893	277	24,880	12,220	246	119
Calendar year 1960:				Max	564	Min	-	Mean	209	Acre-feet	151,410	
Water year 1960-61:				Max	484	Min	-	Mean	62.9	Acre-feet	45,580	

\* Discharge measurement made on this day.

Note.--Stage-discharge relation indefinite Oct. 1 to June 3, July 14 to Sept. 30.

## SALINAS RIVER BASIN

11-1508. Cow Creek near San Ardo, Calif.

Location.--Lat 36°10'40", long 120°47'45", in San Lorenzo Grant, on right bank at culvert on Peach Tree Valley Road and 12.5 miles northeast of San Ardo, Monterey County.

Drainage area.--4.80 sq mi.

Records available.--October 1960 to September 1961.

Gage.--Water-stage recorder, crest-stage gage, and tipping-bucket rain gage. Altitude of gage is 1,340 ft (from topographic map).

Extremes.--Maximum discharge during year, about 0.5 cfs Jan. 26; no flow most of year.

Remarks.--No daily flows in excess of 0.05 cfs during year. Observation of no flow generally made once a month. No regulation or diversion.

Month	Precipitation in inches
October.....	-
November.....	-
December.....	1.6
January.....	1.6
February.....	.1
March.....	1.3
April.....	.3
May.....	.2
June.....	0
July.....	0
August.....	.1
September.....	0

11-1513. San Lorenzo Creek below Bitterwater Creek, near King City, Calif.

Location.--Lat 36°16'05", long 121°03'50", in NW<sup>1</sup> sec.24, T.19 S., R.8 E., on left bank 1.2 miles downstream from Bitterwater Creek, 5 miles northeast of King City, and 10 miles upstream from mouth.

Drainage area.--233 sq mi.

Records available.--October 1958 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 480 ft (from topographic map).

Extremes.--Maximum discharge during year, 217 cfs Dec. 1 (gage height, 4.91 ft); no flow many days.

1958-61: Maximum discharge, 1,030 cfs Feb. 18, 1959 (gage height, 6.39 ft); no flow many days.

Remarks.--Records poor. Small diversions above station.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Aug. 6 to Sept. 30)

2.7	0	3.2	6.0
2.8	.1	3.4	16
2.9	.4	3.6	31
3.0	1.3	3.9	62
3.1	3.0	4.2	98

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	0.1	0.2	28	1.6	12	0.9	0.6	0.2	0.1	0	0.1	0.1
2	.1	.2	86	1.8	*8.0	.9	.5	*.2	.1	.1	*.1	.1
3	.1	.2	17	*1.8	7.0	*1.0	.4	.2	.1	*.1	.1	.1
4	.1	.3	6.0	1.8	4.8	1.5	.3	.2	.1	.1	.1	.1
5	.1	1.6	3.0	1.6	2.7	2.0	*.3	.2	.1	.1	.1	.1
6	.2	.9	2.3	1.6	2.3	2.2	.3	.3	*.1	.1	.1	.1
7	.2	.3	2.2	1.6	2.2	1.8	.3	.2	.1	.1	.1	.1
8	.1	.3	2.0	1.6	2.0	1.3	.3	.1	.1	.1	.1	*.1
9	.1	.3	1.8	1.6	1.8	1.1	.3	.1	.1	.1	.1	.1
10	.1	.3	1.8	1.6	1.8	.9	.3	.1	.1	.1	.1	.1
11	.1	.3	1.8	1.5	1.8	.9	.3	.1	.1	.1	.1	.1
12	.2	.3	*1.5	1.5	2.2	.9	.3	.1	0	.1	.1	.1
13	.2	.8	1.3	1.3	1.8	.9	.3	.1	0	.1	.1	.1
14	.2	.5	1.3	1.3	1.5	.8	.3	.1	0	.1	.1	.1
15	.2	2.0	1.2	1.2	1.5	3.7	.3	.1	0	.1	.1	0
16	.2	1.5	1.2	1.2	1.6	2.5	.2	.1	0	.1	.1	0
17	.2	1.0	1.3	1.1	1.6	2.3	.3	.1	0	.1	.1	0
18	.2	1.0	1.3	1.1	1.3	1.8	.3	.2	0	.1	.1	0
19	.2	1.0	1.2	1.0	1.3	1.1	.2	.4	0	.1	.1	0
20	.2	1.0	1.3	1.0	1.1	1.0	.2	.3	0	0	.1	0
21	.2	1.1	1.3	1.0	1.0	1.0	.3	.2	0	.1	.1	0
22	.2	1.2	1.3	1.0	.9	.9	1.1	.1	0	.1	.1	0
23	.2	1.3	1.3	1.0	.9	.9	.3	.1	0	.1	.1	0
24	.2	1.5	1.3	1.0	.9	.9	.3	.1	0	.1	.1	0
25	.2	1.6	1.3	2.8	.8	1.2	.3	.1	0	.1	.1	0
26	.2	4.8	1.5	46	.9	1.2	.3	.1	0	.1	.1	0
27	.2	6.0	1.6	31	.9	1.3	.3	.1	0	.1	.1	0
28	.2	5.1	1.5	8.0	.9	1.2	.2	.1	0	.1	.1	0
29	.2	3.9	1.5	3.9	-----	.9	.2	.1	.1	.1	.1	0
30	.2	3.0	1.6	2.7	-----	.8	.2	.1	0	.1	.1	0
31	*.2	-----	1.6	2.8	-----	.6	-----	.1	-----	.1	.1	-----
TOTAL	5.3	43.5	179.3	130.0	67.5	40.4	9.8	4.6	1.2	2.9	3.1	1.4
MEAN	0.17	1.45	5.78	4.19	2.41	1.30	0.33	0.15	0.04	0.09	0.10	0.05
MAX	0.2	6.0	86	46	17	3.7	1.1	0.4	0.1	0.1	0.1	0.1
MIN	0.1	0.2	1.2	1.0	0.8	0.6	0.2	0.1	0	0	0.1	0
AC-FT	11	86	356	258	134	80	19	9.1	2.4	5.8	6.1	2.8

CALENDAR YEAR 1960: MAX 86 MIN 0.1 MEAN 2.04 AC-FT 1,480  
WATER YEAR 1960-61 MAX 86 MIN 0 MEAN 1.34 AC-FT 970

Peak discharge (base, 200 cfs).--Dec. 1 (12 p.m.) 217 cfs (4.91 ft).

\* Discharge measurement made on this day.

11-1520. Arroyo Seco near Soledad, Calif.

Location.--Lat 36°16'50", long 121°19'20", in sec.16, T.19 S., R.6 E., on left bank just downstream from bridge, 1.5 miles downstream from Vaquero Creek, and 10 miles south of Soledad.

Drainage area.--244 sq mi.

Records available.--November 1901 to September 1961. Records for water year 1902 incomplete, yearly estimate published in WSP 1315-B.

Gage.--Water-stage recorder. Datum of gage is 342.20 ft above mean sea level (Corps of Engineers benchmark). Prior to June 16, 1929, staff gage, and June 16, 1929, to Dec. 2, 1941, water-stage recorder, at site 1 mile upstream at different datum. Dec. 3, 1941, to Sept. 30, 1959, at datum 2.00 ft higher.

Average discharge.--60 years, 161 cfs (116,600 acre-ft per year); median of yearly mean discharges (revised), 122 cfs (88,300 acre-ft per year).

Extremes.--Maximum discharge during year, 2,600 cfs Dec. 1 (gage height, 9.15 ft); no flow for several months.

1901-61: Maximum discharge, 28,300 cfs Apr. 3, 1958 (gage height, 14.40 ft, datum then in use), from rating curve extended above 4,600 cfs on basis of slope-area measurement at gage height 14.30 ft; no flow at times during several years.

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

Rating tables, except period of shifting control (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 30

Dec. 1 to Sept. 30

2.2	0	3.0	5.8	2.0	0	2.7	3.0	4.5	148
2.4	.4	3.2	10	2.2	.2	2.9	6.5	5.0	235
2.5	.8	3.4	20	2.3	.4	3.2	17	6.0	460
2.6	1.4	3.7	44	2.4	.7	3.6	44	7.0	850
2.8	3.2	4.1	87	2.5	1.2	4.0	84		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		* 0	697	20	142	28	38	15	9.2	0.1		
2		0	385	20	*107	*28	35	*15	*10	1		
3		0	131	19	101	27	33	14	9.2	1		
4		0	81	*19	82	27	30	14	9.2	1		
5		0	*65	19	73	28	28	13	7.1	1		
6		0	52	19	66	28	28	14	5.9	1		(*)
7		0	44	18	61	28	28	14	5.1	1		
8		0	39	18	56	27	26	14	5.1	1		
9		0	35	18	52	26	25	14	4.7	1		
10		0	33	17	49	26	23	13	4.4	1		
11		0	34	17	49	24	22	12	3.9	0		
12		.4	35	17	79	23	22	12	3.5	0		
13		4.5	31	17	64	23	22	11	3.0	0		
14		62	28	17	60	22	21	11	2.6	0		
15		33	33	17	56	97	20	10	*2.1	0		
16		21	52	17	52	101	19	9.5	1.6	0		
17		17	41	17	50	93	18	9.2	1.0	0		
18		14	35	17	49	93	18	8.6	.7	0		
19		13	33	17	45	72	17	10	.6	0		
20		13	31	17	43	64	*17	12	.5	0		
21		12	29	17	40	59	18	12	.4	0		
22		12	27	17	38	53	26	9.9	.4	0		
23		12	26	17	36	48	37	8.9	.3	0		
24		12	24	17	35	45	26	8.3	.3	0		
25		13	23	20	33	48	22	8.0	.3	0		(*)
26		79	23	429	31	46	21	7.7	.2	0		
27		47	22	186	30	48	20	7.1	.2	0		
28		16	21	105	29	48	17	6.8	.2	0		
29		9.3	21	79	-	43	16	6.5	.2	0		
30		7.5	21	68	42	16	16	6.5	*.2	0		
31			20	110		*39		6.8		0		
Total	0	397.7	2172	1422	1608	1404	709	333.8	92.1	1.0	0	0
Mean	0	13.3	70.1	45.9	57.4	45.3	23.6	10.8	3.07	0.03	0	0
Max.	0	79	697	429	142	101	38	15	10	0.1	0	0
Min.	0	0	20	17	29	22	16	6.5	0.2	0	0	0
Ac-ft	0	789	4,310	2,820	3,190	2,780	1,410	662	183	2.0	0	0

Calendar year 1960: Max 1,280 Min 0 Mean 56.4 Acre-feet 40,930

Water year 1960-61: Max 697 Min 0 Mean 22.3 Acre-feet 16,150

Peak discharge (base, 1,400 cfs)--Dec. 1 (5 p.m.) 2,600 cfs (9.15 ft).

\* Discharge measurement or observation of no flow made on this day.

Note.--Shifting-control method used Nov. 12-30. No gage-height record June 18 to July 10.



## SALINAS RIVER BASIN

275

11-1525. Salinas River near Spreckels, Calif.

Location.--Lat 36°37'50", long 121°40'40", in El Toro Grant, on right bank 80 ft upstream from bridge on Salinas-Monterey highway, 0.5 mile upstream from Toro Creek, 2 miles west of Spreckels, Monterey County, and 4 miles south of Salinas. Auxiliary gage on first pier near left end of bridge.

Drainage area.--4,156 sq mi (revised).

Records available.--January 1900 to August 1901, October 1929 to September 1961. Records for water year 1930 incomplete, yearly estimate published in WSP 1315-B. Published as "near Salinas" 1900-1901.

Gage.--Water-stage recorder. Datum of gage is 22.64 ft above mean sea level, adjustment of 1912. 1900-1901, May 10 to July 29, 1940, staff gages at same site at different datum. Mar. 17, 1941 to June 30, 1961, supplementary wire-weight or staff gages and since July 1, 1961, auxiliary water-stage recorder at highway bridge 80 ft downstream at same datum.

Average discharge.--32 years (1929-61), 428 cfs (309,900 acre-ft per year); median of yearly mean discharges, 160 cfs (116,000 acre-ft per year).

Extremes.--Maximum and minimum discharge during year, not determined.

1900-1901, 1929-61: Maximum discharge, 75,000 cfs Feb. 12, 1938 (gage height, 25.0 ft), from rating curve extended above 26,000 cfs on basis of velocity-area studies; maximum gage height, 26.85 ft Jan. 16, 1952, from floodmarks; no flow at times in 1929-40.

Remarks.--Records poor. Large withdrawals from ground water and small surface-water diversions for municipal use and irrigation of about 95,000 acres above station. Low flow represents waste water from Spreckels sugar refinery. Flow partly regulated by Nacimiento Reservoir beginning in November 1956 (usable capacity, 340,000 acre-ft).

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						(*)						
2												
3												
4	(*)											e 0.8
5									(*)			
6												* .6
7												.7
8												.8
9												.8
10		(*)										.9
11												.9
12												.8
13												.8
14												.8
15	e 1.1	e 3.0	e 3.0	e 1.3	e 1.1	e 1.0	e 0.8	e 1.3	e 1.2	e 1.0	e 0.8	.8
16												.9
17												.9
18												
19												
20												
21			(*)									
22												
23												
24					(*)							e .8
25												
26												
27										(*)		
28												
29												
30												
31						(*)						
Total	34.1	90.0	93.0	40.3	30.8	31.0	24.0	40.3	36.0	31.0	24.8	24.1
Mean	1.1	3.0	3.0	1.3	1.1	1.0	0.8	1.3	1.2	1.0	0.8	0.80
Max.	-	-	-	-	-	-	-	-	-	-	-	-
Min.	-	-	-	-	-	-	-	-	-	-	-	-
Ac-ft	68	179	184	80	61	61	48	80	71	61	49	48
Calendar year 1960:				Max 1,400	Min -	Mean 33.3	Acre-feet 24,160					
Water year 1960-61:				Max -	Min -	Mean 1.37	Acre-feet 990					

\* Discharge measurement made on this day.

e Stage-discharge relation indefinite.

## PAJARO RIVER BASIN

11-1530, Pacheco Creek near Dunneville, Calif.

Location--Lat 36°58'50", long 121°22'45", in Ausaymas y San Felipe Grant, on right bank 0.1 mile downstream from private road bridge and 3.3 miles northeast of Dunneville, Santa Clara County.

Drainage area--146 sq mi (revised).

Records available--October 1939 to September 1961. Monthly discharge only prior to January 1940, published in WSP 1315-B.

Gage--Water-stage recorder. Datum of gage is 230.70 ft above mean sea level, datum of 1947. Prior to Nov. 17, 1950, staff gage, at site 0.1 mile upstream at datum 6.00 ft higher. Nov. 17, 1950, to Aug. 18, 1960, staff gage, at site 0.1 mile upstream at datum 4.00 ft higher.

Average discharge--22 years, 34.6 cfs (25,050 acre-ft per year).

Extremes--No flow during year.

1940-61: Maximum discharge, 12,600 cfs Dec. 23, 1955 (gage height, 22.6 ft, present datum, from floodmarks), from rating curve extended above 820 cfs on basis of slope-area measurement of peak flow; no flow at times.

Remarks--No flow since Aug. 16, 1960. Flow regulated by Pacheco Lake (capacity 6,150 acre-ft). Small diversions above station for irrigation. Figures for calendar year 1960 are as follows: Total cfs-days, 4,274.5; maximum daily discharge, 1,300 cfs; minimum daily, zero; mean, 11.7 cfs; runoff, 8,480 acre ft.

11-1535. Llagas Creek near Morgan Hill, Calif.

Location.--Lat 37°06'50", long 121°41'25", in Las Uvas Grant, on right bank 500 ft upstream from Llagas Avenue Bridge, 0.3 mile downstream from Chesbro Dam, 0.3 mile upstream from small tributary, and 2.3 miles west of Morgan Hill, Santa Clara County.

Drainage area.--19.6 sq mi.

Records available.--October 1951 to September 1961.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 445 ft (from topographic map).

Average discharge.--10 years, 14.1 cfs (10,210 acre-ft per year); median of yearly mean discharges, 8.5 cfs (6,200 acre-ft per year).

Extremes.--Maximum discharge during year, 177 cfs Nov. 14 (gage height, 2.66 ft); no flow during several months.

1951-61: Maximum discharge, 3,190 cfs Apr. 2, 1958 (gage height, 8.45 ft), from rating curve extended above 1,600 cfs on basis of computation of peak flow over dam; no flow at times in most years.

Remarks.--Records fair except those for period of no gage-height record, which are poor. Flow regulated by Chesbro Reservoir (see p. 289).

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

0.75	0	1.2	7.5
.8	.1	1.3	11
.9	.7	1.5	23
1.0	1.9	1.7	40
1.1	4.2	2.2	100

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.9	1.0	1.6	0	0.4	0.3		0.4	1.3	1.0		
2	1.9	1.0	1.9	0	.5	*.3		2.1	1.2	1.0		
3	1.9	1.9	1.6	0	*.3	.3	(*) a 0.2	*2.7	1.2	1.0	(*)	
4	2.1	2.4	1.2	* 0	.3	.4		1.8	1.1	1.0		
5	2.1	2.4	.9	0	.3	.4		1.1	*.9	1.1		
6	2.1	2.4	.8	0	.3	.4	.2	1.1	.9	1.1		
7	2.1	2.4	.7	0	.3		.2	1.1	.9	1.1		
8	2.1	2.4	.8	0	.3		.2	1.5	.9	1.0	(*)	
9	2.1	2.4	.8	.1	.3		.2	1.6	.9	1.0		
10	1.9	2.4	.7	.1	.3		.2	1.8	1.0	1.0		
11	1.8	2.4	.7	.1	.3		.1	1.8	1.1	1.0		
12	1.6	2.4	.7	.1	.3		.2	1.6	1.2	1.1		
13	1.6	2.5	.5	.1	.3		.2	1.5	1.2	1.1		
14	1.6	.98	.5	.1	.3		.2	1.5	1.2	1.1		
15	1.5	2.3	.4	.2	.4		.3	1.3	1.2	1.1		
16	1.2	3.6	.3	.2	.3		.2	1.2	1.2	1.1		
17	1.1	2.2	.3	.2	.3		.2	1.2	1.2	1.1		
18	1.1	*.9	.3	.2	.3	a .3	.3	1.3	1.2	1.1		
19	*1.1	.1	.2	.1	.3		.3	1.5	1.2	1.1		
20	1.1	0	.3	.1	.3		.3	1.3	1.2	1.1		
21	1.1	1.8	.2	.1	.3		.4	1.5	1.2	1.1		
22	1.0	1.3	.2	0	.2		.5	1.5	1.3	.7		
23	1.0	.2	.2	.1	.2		.6	1.3	1.3	.3		
24	1.0	0	0	.1	.2		.6	1.2	1.2	.2		
25	1.0	.2	0	.2	.3		.7	1.2	1.1	.2		
26	1.0	2.0	.1	.4	.3		.7	1.2	1.1	.1		
27	1.0	1.8	.1	.4	.3		.6	1.3	1.1	.1		
28	1.0	1.2	.1	.4	.3		.6	1.5	1.1	.1		
29	1.0	1.1	.1	.4	-		.6	1.3	1.1	0		
30	.9	.8	.1	.4	-		.5	1.2	1.1	0		
31	.9	-	.1	.4	-		-	1.2	-	0		
Total	44.8	166.2	16.4	4.5	8.5	9.6	10.2	43.8	33.8	24.0	0	0
Mean	1.45	5.54	0.53	0.15	0.30	0.31	0.34	1.41	1.13	0.77	0	0
Max.	2.1	.98	1.9	0.4	0.5	-	0.7	2.7	1.3	1.1	0	0
Min.	0.9	0	0	0	0.2	-	0.1	0.4	0.9	0	0	0
Ac-ft	89	330	33	8.9	17	19	20	87	67	48	0	0
Calendar year 1960:				Max 98	Min 0	Mean 4.02	Acre-feet 2,920					
Water year 1960-61:				Max 98	Min 0	Mean 0.99	Acre-feet 719					

\* Discharge measurement or observation of no flow made on this day.

a No gage-height record.

11-1537. Pajaro River near Gilroy, Calif.

Location.--Lat 36°56'55", long 121°30'40", on boundary between Las Animas and Llano del Tequisquita Grants, on center pier on downstream side of highway bridge on Bolsa Road, 0.9 mile downstream from Llagas Creek, and 4.7 miles southeast of Gilroy, Santa Clara County.

Drainage area.--399 sq mi.

Records available.--March 1959 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 130 ft (from topographic map).

Extremes.--Maximum discharge during year, 13 cfs Mar. 15 (gage height 3.72 ft); minimum daily, 0.1 cfs Oct. 26-28, Nov. 2, 3, 1959-61; Maximum discharge, 695 cfs Feb. 8, 1960 (gage height 9.55 ft); minimum daily, that of Oct. 26-28, Nov. 2, 3, 1960.

Remarks.--Records poor. Flow regulated by Pacheco Lake (capacity, 6,150 acre-ft), Chesbro Reservoir (see p. 289), and San Felipe Lake. Many diversions above station for irrigation.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Dec. 28 to Jan. 26)

Oct. 1 to Mar. 14

Mar. 15 to Sept. 30

2.5	0.1	2.4	0.4
2.6	.2	2.5	.7
2.7	.7	2.7	1.7
2.8	1.3	3.0	3.8
2.9	2.1	3.3	6.8

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.9	0.2		0.8	1.7	1.5	2.5	2.7	2.2	2.1	1.5	2.8
2	1.2	.1		.9	1.9	1.6	2.9	3.2	2.7	2.0	1.4	2.4
3	1.5	.1		1.0	2.1	2.0	2.8	3.2	2.8	1.6	1.6	2.5
4	1.4	.2		.9	1.9	1.7	2.5	3.2	2.7	1.5	2.5	2.7
5	1.1	.3		1.0	1.8	1.5	2.7	2.7	2.3	1.5	2.6	1.8
6	1.1	.4		1.0	1.6	1.5	3.0	3.0	2.4	1.9	2.0	1.5
7	1.3	.2		1.1	1.6	1.5	3.4	3.4	2.7	1.7	2.5	1.4
8	1.5	.2		1.1	1.6	1.6	3.0	3.1	2.7	2.4	2.1	1.8
9	1.2	.2		1.1	1.6	1.5	2.7	2.4	1.6	2.1	1.8	1.7
10	.8	.2		1.2	1.6	1.5	2.7	2.0	1.9	1.6	1.9	1.6
11	*.4	.2		1.2	1.8	1.5	2.9	2.1	1.9	1.2	2.3	1.1
12	.4	.2		1.2	1.9	1.8	4.8	2.8	2.4	1.2	2.4	1.1
13	.4	.3		1.2	1.7	1.2	4.7	3.0	3.4	1.4	2.0	1.3
14	.3	4	a0.6	1.2	1.6	1.9	4.0	3.0	3.8	1.5	1.8	1.8
15	.2	4		1.2	1.6	6.8	4.0	2.4	3.5	2.1	1.9	1.9
16	.2	.4		1.2	1.7	4.6	3.1	*1.6	3.5	1.8	2.2	1.9
17	.2	*.4		1.2	1.6	3.9	3.1	2.7	2.5	*1.8	2.4	2.4
18	.2	.3		*1.3	1.6	3.1	4.1	4.2	2.1	2.4	1.7	*1.1
19	.2	.2		1.5	1.6	2.7	*5.2	3.4	*2.7	2.8	1.4	.9
20	.2	.2		1.8	1.6	*2.5	4.3	3.2	1.9	2.5	1.2	.7
21	.2	.2		1.9	*1.6	2.4	4.0	3.2	1.6	2.1	1.3	.9
22	.2			1.9	1.6	2.3	5.0	2.2	2.4	2.4	1.6	.9
23	.5			1.3	1.6	2.4	5.0	3.2	2.3	2.7	*2.0	.7
24	.3			1.3	1.6	2.4	4.3	3.8	2.2	2.1	1.9	.7
25	.2			1.3	1.6	2.5	3.4	4.3	1.8	1.7	2.2	.6
26	.1	a.6		1.9	1.6	2.4	2.8	3.6	1.5	1.7	2.1	.7
27	.1			1.9	1.6	2.4	2.6	2.4	2.1	1.9	1.7	.4
28	.1		*.9	1.8	1.5	2.5	2.7	2.9	2.6	1.9	1.7	.4
29	.2		.9	1.7	—	2.4	2.5	3.6	2.1	1.8	1.9	1.5
30	.8		.8	1.7	—	2.5	2.4	3.2	1.7	2.4	2.1	1.4
31	.4		.8	1.7	—	2.4	—	2.7	—	2.4	2.3	—
Total	17.8	10.7	19.6	41.5	46.8	72.5	103.1	92.4	72.0	60.2	60.0	42.6
Mean	0.57	0.36	0.63	1.34	1.67	2.34	3.44	2.98	2.40	1.94	1.94	1.42
Max.	1.5	—	—	1.9	2.1	6.8	5.2	4.3	3.8	2.8	2.6	2.8
Min.	0.1	0.1	—	0.8	1.5	1.2	2.4	1.6	1.5	1.2	1.2	0.4
Ac-ft	35	21	39	82	93	144	204	183	143	119	119	84

Calendar year 1960: Max 549 Min 0.1 Mean 13.8 Acre-feet 10,050  
Water year 1960-61: Max 6.8 Min 0.1 Mean 1.75 Acre-feet 1,270

Peak discharge (base, 300 cfs).--No peak above base.

\* Discharge measurement made on this day.

a No gage-height record.

## PAJARO RIVER BASIN

279

11-1541. Bodfish Creek near Gilroy

Location.--Lat 37°00'15", long 121°40'00", in Las Animas Grant, on left bank just upstream from Whitehurst Creek, 2.7 miles upstream from mouth and 5.1 miles west of west city limits of Gilroy, Santa Clara County.

Drainage area.--7.40 sq mi.

Records available.--December 1959 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 360 ft (from topographic map).

Extremes.--Maximum discharge during year, 37 cfs Mar. 20 (gage height, 3.32 ft); no flow many days.

1959-61: Maximum discharge, 585 cfs Feb. 1, 1959 (gage height, 6.35 ft); no flow for many days each year.

Remarks.--Records good. No regulation.

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

2.3	0
2.4	.3
2.5	1.0
2.6	2.7
2.7	5.5

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0.2	1.2	0.2	1.2	0.3	0.8	0.3	0.2	0		
2	1	2	1.3	2	.9	3	.7	.3	.2	0		
3	1	2	.8	2	.7	3	.7	.3	.3	1		
4	1	2	.5	2	.6	3	.6	.3	.2	1		
5	1	3	.5	2	.5	3	.5	.3	.2	1		
6	1	.4	.5	2	.5	.5	.5	.4	.2	1		
7	1	3	.4	2	.4	.4	.5	.6	.2	0		
8	0	3	.4	2	.4	3	.5	.4	.2	0		
9	1	3	.4	2	.3	.5	.5	.3	.2	0		
10	0	3	.4	2	.3	.4	.5	.3	.2	0		
11	* 1	3	.4	2	2.2	3	.4	.3	.2	0		
12	1	.7	3	2	1.1	3	.4	.3	.2	0		
13	1	1.1	3	2	.7	3	.5	.3	.2	0		
14	1	.5	3	2	.6	*.3	.5	.3	.1	* 0		
15	1	3	3	2	.7	1.5	.5	.3	.1	0		
16	1	*.2	3	2	.6	.8	.4	*.3	.1	0		
17	1	2	3	2	.5	1.7	.4	.2	.1	0		
18	1	2	3	*.2	.5	.9	.3	.2	.1	0		
19	1	2	3	2	.4	.9	*.3	.3	*.1	0		
20	1	2	3	2	.4	2.1	.3	.2	.1	0		
21	1	.2	3	2	*.4	1.1	.3	.2	.1	0		
22	1	.2	3	2	.4	1.0	.7	.2	.1	0		
23	1	.2	3	2	.4	1.0	1.3	.2	.1	0		
24	1	.2	3	2	.4	1.2	.7	.2	.1	0		
25	1	3	3	3	.4	1.2	.5	.2	.1	0		
26	1	1.8	2	3.6	.4	1.2	.5	.2	.1	0		
27	1	.5	*.2	.9	.4	1.2	.4	.2	.1	0		
28	1	.5	2	.5	.4	1.1	.4	.2	.1	0		
29	1	.4	2	.5	—	1.0	.3	.2	.1	0		
30	1	.4	2	.6	—	.9	.3	.2	0	0		
31	1	—	2	2.4	—	.9	—	.2	—	0		
Total	2.9	11.3	12.0	13.6	16.7	24.5	15.2	8.4	4.2	0.4	0	0
Mean	0.09	0.38	0.39	0.44	0.60	0.79	0.51	0.27	0.14	0.01	0	0
Max.	0.1	1.8	1.3	3.6	2.2	2.1	1.3	0.6	0.2	0.1	0	0
Min.	0	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0	0	0	0
Ac-ft	5.8	22	24	27	33	49	30	17	8.3	0.8	0	0

Calendar year 1960: Max 1.28 Min 0 Mean 2.27 Acre-feet 1,650  
 Water year 1960-61: Max 3.6 Min 0 Mean 0.30 Acre-feet 217

Peak discharge (base, 150 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

Note.--No gage-height record Dec. 29 to Jan. 17.

## PAJARO RIVER BASIN

11-1542. Uvas Creek near Gilroy, Calif.

Location.--Lat 36°59'35", long 121°34'20", in Las Animas Grant, on left bank 400 ft upstream from county road bridge, 0.4 mile southwest of Gilroy, Santa Clara County, and 3.9 miles downstream from Bodfish Creek.

Drainage area.--71.2 sq mi.

Records available.--January 1959 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 190 ft (from topographic map).

Extremes.--Maximum discharge during year, 2.8 cfs June 1 (gage height, 3.04 ft); no flow most of year.

1959-61: Maximum discharge, 2,700 cfs Feb. 8, 1960 (gage height, 9.11 ft), from rating curve extended above 400 cfs; no flow many days each year.

Remarks.--Records poor. Flow regulated by Uvas Reservoir (see p. 289). Diversion above station for irrigation and municipal supply of city of Gilroy.

Discharge, in cubic feet per second, water year October 1960 to September 1961

June 1.....0.1

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
June 1961.....	0.1	0.1	0	0.003	0.2
Calendar year 1960.....	-	870	0	11.8	8,570
Water year 1960-61.....	-	.1	0	.0003	.2

Note.--Flow occurred only on day listed above.

## PAJARO RIVER BASIN

281

11-1560. San Benito River below McCoy Creek, near Hernandez, Calif.

Location.--Lat 36°23'22", long 120°53'42", in SW<sup>1</sup> sec.4, T.18 S., R.10 E., on right bank 0.7 mile upstream from Lorenzo Vasquez Canyon, 3.1 miles downstream from McCoy Creek, 6 miles west of Hernandez, and 18 miles northeast of King City.

Drainage area.--108 sq mi.

Records available.--October 1949 to September 1953, June 1959 to September 1961. Monthly discharge only prior to January 1950, published in WSP 1315-B.

Gage.--Water-stage recorder. Altitude of gage is 2,000 ft (from topographic map).

Average discharge.--6 years, 10.4 cfs (7,530 acre-ft per year).

Extremes.--Maximum discharge during year, 981 cfs Dec. 1 (gage height, 5.13 ft); no flow for many days.

1949-53, 1959-61: Maximum discharge, 3,600 cfs Jan. 14, 1952 (gage height, 7.5 ft, from floodmarks), from rating curve extended above 630 cfs on basis of slope-area measurements at gage heights 7.03 and 8.93 ft; no flow at times in 1950-51, 1953, 1961.

Flood of Apr. 2, 1958, reached a stage of 8.93 ft, from floodmarks (discharge, 6,690 cfs on basis of slope-area measurement of peak flow).

Remarks.--Records good. Some diversion above station for irrigation.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Sept. 2-23)

Oct. 1 to Dec. 1

Dec. 2 to Sept. 30

2.0	0.3	2.6	41	1.8	0	2.3	9.6
2.1	1.2	3.0	117	1.9	.2	2.4	16
2.2	3.3	3.5	250	2.0	.8	2.5	27
2.3	7.5			2.1	2.3	2.7	57
2.4	15			2.2	5.1	3.1	140

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	1.0	1.4	213	1.3	6.9	1.0	1.3	1.0	1.0	0.1	(*)	0
2	1.0	1.5	63	1.3	*4.5	1.1	1.3	*1.0	.8	.1		0
3	1.0	1.7	10	*1.7	5.6	*1.3	1.3	1.1	.7	*.3		0
4	.9	1.7	5.1	1.4	3.4	1.6	1.3	1.1	.6	.2		.1
5	.9	2.5	4.0	1.1	2.6	1.4	*1.3	1.1	.6	.1		.1
6	1.4	3.9	3.1	1.3	2.3	1.6	1.3	1.3	*.6	.2		.1
7	1.0	1.8	2.9	1.4	2.2	1.3	1.3	1.4	.7	0		0
8	1.0	1.7	2.9	1.3	2.0	1.1	1.1	1.4	.6	0		*0
9	1.0	1.5	*2.2	1.4	1.9	1.1	1.1	1.7	.6	0		0
10	1.0	1.4	2.2	1.3	1.7	1.1	1.0	1.6	.7	0		.1
11	1.0	1.4	2.2	1.3	2.0	1.1	.2	1.0	.7	0		.1
12	1.0	2.0	2.0	1.3	1.9	1.1	0	1.1	.6	0		.1
13	1.0	3.3	1.9	1.3	1.7	1.1	0	1.4	.5	0		.1
14	1.0	2.7	1.9	1.3	1.7	1.3	0	.8	.4	0		.1
15	.9	2.0	1.9	1.3	1.9	3.1	0	.8	.4	0		.1
16	1.0	2.0	1.9	1.3	1.7	1.6	0	.7	.3	0		.1
17	1.1	1.7	1.9	1.3	1.7	1.6	0	.6	.3	0		.1
18	1.1	1.7	1.9	1.3	1.6	1.4	0	.6	.3	0		.2
19	1.1	1.5	1.7	1.3	1.6	1.4	0	1.9	.3	0		.1
20	1.1	1.5	1.6	1.3	1.4	1.4	0	2.3	.2	0		.1
21	1.1	1.4	1.6	1.3	1.4	1.3	0	1.1	.2	0		.1
22	1.1	1.4	1.6	1.4	1.4	1.1	1.1	1.3	.2	0		.2
23	1.2	1.4	1.6	1.6	1.3	1.3	.6	.7	.2	0		.2
24	1.2	1.4	1.6	1.6	1.3	1.4	.7	.7	.3	0		.2
25	1.2	1.4	1.6	2.6	1.3	1.7	1.4	.7	.2	0		.2
26	1.2	4.6	1.6	140	1.1	1.4	1.3	.7	.1	0		.1
27	1.2	2.0	1.6	18	1.1	1.4	1.1	.8	.1	0		.1
28	1.2	1.7	1.6	8.3	1.1	1.3	1.0	.8	0	0		.1
29	1.2	1.7	1.6	4.5	-----	1.1	1.0	.7	0	0		.1
30	1.2	1.5	1.4	3.7	-----	1.3	1.0	.6	0	0		.1
31	*1.4	-----	1.3	6.5	-----	1.3	-----	.5	-----	0	-----	-----
TOTAL	33.7	57.4	344.4	216.0	60.3	42.3	21.7	49.6	12.2	1.0	0	2.9
MEAN	1.09	1.91	11.1	6.97	2.15	1.36	0.72	1.60	0.41	0.03	0	0.10
MAX	1.4	4.6	213	140	6.9	3.1	1.4	1.9	1.0	0.3	0	0.2
MIN	0.9	1.4	1.3	1.1	1.1	1.0	0	0.6	0	0	0	0
AC-FT	67	114	683	428	120	84	43	98	24	2.0	0	5.8

CALENDAR YEAR 1960: MAX 230 MIN 0.8 MEAN 5.43 AC-FT 3,940'  
WATER YEAR 1960-61: MAX 213 MIN 0 MEAN 2.21 AC-FT 1,670

Peak discharge (base, 100 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-1	3 p.m.	5.13	981	5-19	7 p.m.	3.95	387
1-26	9 a.m.	3.83	356				

\* Discharge measurement or observation of no flow made on this day.

## PAJARO RIVER BASIN

11-1565. San Benito River near Willow Creek School, Calif.

Location.--Lat 36°36'50", long 121°12'50", in SW $\frac{1}{4}$  sec. 21, T.15 S., R.7 E., on right bank 1.7 miles downstream from Willow Creek, 1.8 miles northwest of Willow Creek School, and 10.4 miles northwest of San Benito.

Drainage area.--251 sq mi (revised).

Records available.--October 1939 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Datum of gage is 878.57 ft above mean sea level, datum of 1929, supplementary adjustment of 1943. Prior to Jan. 28, 1948, at same site at different datum. Jan. 28, 1948, to Nov. 10, 1955, at site 0.9 mile upstream at different datum.

Average discharge.--22 years, 24.1 cfs (17,450 acre-ft per year); median of yearly mean discharges, 11 cfs (8,000 acre-ft per year).

Extremes.--Maximum discharge during year, 545 cfs Dec. 2 (gage height, 3.49 ft); no flow for many days.

1939-61: Maximum discharge, 8,210 cfs Apr. 3, 1958 (gage height, 8.35 ft), from rating curve extended above 600 cfs on basis of slope-area measurement of peak flow; no flow at times in 1947, 1956, 1959, 1961.

Flood of February 1938 reached a stage of about 9.0 ft (former datum) from floodmarks.

Remarks.--Records poor. Small diversions above station for irrigation.

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

1.0	0	1.4	11
1.2	.2	1.7	54
1.3	1.8	2.3	165

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0.2	2.6	1.5	*5.6	1.0	0.8	*0.2	0.1	0	(*)	
2	.1	.2	156	1.5	5.6	*1.0	.8	.2	.1	0		
3	.1	.2	41	1.8	7.0	1.2	.3	.2	.2	*.1		
4	.1	.2	16	1.8	3.9	1.5	*.3	.2	.2	.1		
5	.1	.4	7.0	2.1	3.9	1.8	.3	.2	.2	.1		
6	.2	.5	3.2	2.1	3.2	2.1	.3	.2	.2	.1		
7	.2	.4	1.8	1.5	2.6	2.1	.3	.2	.2	.1		(*)
8	.2	.2	1.5	1.5	2.6	1.8	.3	.2	.2	0		
9	.2	.2	1.2	1.5	2.6	1.5	.4	.2	.2	0		
10	.1	.2	1.0	1.5	1.8	1.2	.4	.2	.2	0		
11	.1	.2	1.0	1.5	1.8	1.2	.4	.2	.2	0		
12	.1	.2	1.0	1.5	1.8	1.2	.4	.2	*.2	0		
13	.2	.6	.6	1.5	1.8	1.2	.5	.2	.2	0		
14	.2	.5	.6	1.5	1.8	1.2	.4	.2	.2	0		
15	.1	.2	.5	1.5	1.8	3.2	.4	.2	.1	0		
16	.2	.2	.4	1.5	1.5	3.9	.3	.2	.1	0		
17	.1	.2	.4	1.5	1.5	2.6	.3	.1	.1	0		
18	.1	.2	.4	1.5	1.5	2.6	.3	.1	.1	0		
19	*.1	.2	.5	1.5	1.5	2.1	.3	.1	.1	0		
20	*.2	.2	.5	1.5	1.5	2.1	.3	.1	.1	0		
21	.2	.2	.5	1.5	1.5	1.8	.3	.1	.1	0		
22	.2	.2	.4	1.2	1.2	1.8	.5	.1	.1	0		
23	.2	.2	.5	1.2	1.2	1.5	.6	.1	.1	0		
24	.2	.2	.6	1.2	1.2	1.5	.6	.1	.1	.1		
25	.2	.2	.6	1.5	1.2	1.8	.6	.1	.1	0		
26	.2	.6	.8	24	1.2	2.1	.4	.1	.1	0		
27	.2	.2	.8	76	1.2	2.1	.3	.1	.1	0		
28	.2	*.2	*1.2	24	1.0	2.1	.2	.1	.1	0		
29	.2	.2	1.5	14	-	1.8	.2	.1	.1	0		
30	.2	.2	1.5	9.7	-	1.2	.2	.1	.1	0		
31	.2	-	1.5	8.4	-	1.0	-	.1	-	0		
Total	5.0	7.8	247.1	194.5	65.0	55.2	11.7	4.7	4.2	0.6	0	0
Mean	0.16	0.26	7.97	6.27	2.32	1.78	0.39	0.15	0.14	0.02	0	0
Max.	0.2	0.6	156	76	7.0	3.9	0.8	0.2	0.2	0.1	0	0
Min.	0.1	0.2	0.4	1.2	1.0	1.0	0.2	0.1	0.1	0	0	0
Ac-ft	9.9	15	490	386	129	109	23	9.3	8.3	1.2	0	0

Calendar year 1960: Max 156 Min 0.1 Mean 3.15 Acre-feet 2,280  
 Water year 1960-61: Max 156 Min 0 Mean 1.63 Acre-feet 1,180

Peak discharge (base, 150 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12- 2	5a.m.	3.49	545	1-27	3a.m.	2.32	169

\* Discharge measurement or observation of no flow made on this day.



11-1567. Pescadero Creek near Paicines, Calif.

Location.--Lat 36°41'40", long 121°18'35", in SE $\frac{1}{4}$  sec.21, T.14 S., R.6 E., on left bank just downstream from Cienega Valley Road bridge, 1.5 miles upstream from mouth and 3 miles southwest of Paicines.

Drainage area.--38.3 sq mi.

Records available.--July 1959 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 720 ft (from topographic map).

Extremes.--Maximum discharge during year, 2.5 cfs Mar. 15 (gage height, 4.30 ft); no flow June 13 to Sept. 30.  
1959-61: Maximum discharge, 15 cfs Feb. 9, 1960 (gage height, 4.68 ft); no flow at times each year.

Remarks.--Records poor. Small diversions above station for irrigation.

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

4.0	0
4.1	.2
4.2	.9
4.3	2.0

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	0.6	0.6	1.0	0.8	*1.1	1.0	0.8	*0.8	0.2			
2	.6	.6	1.2	.8	1.5	*1.0	.8	.6	.2			
3	.5	.6	1.0	.8	1.2	.9	.7	.6	.1	(*)		
4	.4	.6	1.0	.8	1.1	.9	*.7	.6	.1			
5	.4	.6	1.0	.8	1.1	.9	.7	.5	.1			
6	.4	.7	1.0	.8	1.1	1.0	.6	.5	.1			
7	.5	.6	1.0	.8	1.1	.9	.8	.6	.1			(*)
8	.5	.6	1.0	.8	1.1	.9	.7	.4	.1			
9	.5	.6	1.1	.8	1.1	.8	1.3	.4	.1			
10	.5	.6	1.1	.8	1.1	.8	1.0	.3	.1			
11	.6	.6	1.0	.9	1.2	.8	.8	.3	.1			
12	.6	.6	1.0	.9	1.2	.8	.9	.3	*.1			
13	.6	.8	.9	.9	1.2	.8	.8	.3	0			
14	.6	.6	.8	.9	1.1	.8	*.8	.3	0			
15	.6	.6	.8	1.0	1.1	*1.8	.8	.4	0			
16	.6	.6	.8	1.0	1.3	1.0	.8	.4	0			
17	.6	.6	.8	1.0	1.2	1.2	.8	.2	0			
18	.6	.6	.8	1.0	1.2	1.0	.8	.2	0			
19	.6	.6	.8	1.1	1.2	.8	.8	.2	0			
20	*.6	.6	.8	1.0	1.2	.9	.8	.3	0			
21	.6	.6	.8	1.0	1.1	.8	.8	.2	0			
22	.6	.5	.8	.9	1.1	.8	1.0	.2	0			
23	.6	.5	.8	.9	1.1	.8	1.0	.1	0			
24	.6	.5	.8	1.0	1.0	.9	.8	.1	0			
25	.6	.5	.8	1.2	1.0	.8	.8	.1	0			
26	.6	.8	.8	1.8	1.0	.8	.8	.1	0			
27	.6	.8	.8	1.1	1.0	.9	.8	.1	0	(*)		
28	.6	*.8	*1.0	1.1	1.0	.9	.8	.1	0			
29	.6	.8	1.0	1.1	-----	.8	.8	.1	0			
30	.6	.8	.9	1.1	-----	.8	.8	.1	0			
31	.6	-----	.8	1.3	-----	.8	-----	.2	-----			
TOTAL	17.5	18.9	28.2	30.2	31.7	28.1	24.8	9.7	1.4	0	0	0
MEAN	0.56	0.63	0.91	0.97	1.13	0.91	0.83	0.31	0.05	0	0	0
MAX	0.6	0.8	1.2	1.8	1.5	1.8	1.3	0.8	0.2	0	0	0
MIN	0.4	0.5	0.8	0.8	1.0	0.8	0.7	0.1	0	0	0	0
AC-FT	35	37	56	60	63	56	49	19	2.8	0	0	0

Calendar Year 1960: Max 7.2 Min 0 Mean 0.82 AC-FT 594

WATER YEAR 1960-61 MAX 1.8 MIN 0 MEAN 0.52 AC-FT 378

Peak discharge (base, 50 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

## PAJARO RIVER BASIN

11-1575. Tres Pinos Creek near Tres Pinos, Calif.

Location.--Lat 36°45'13", long 121°17'03", in Santa Ana y Quien Sabe Grant, on right bank 3.5 miles southeast of Tres Pinos, San Benito County, and 6.2 miles upstream from mouth.

Drainage area.--206 sq mi.

Records available.--October 1939 to September 1961. Yearly estimate only for 1940 and monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Concrete control since June 3, 1954 (control ineffective since 1955 due to gravel fill). Altitude of gage is 570 ft (from topographic map).

Average discharge.--22 years, 14.5 cfs (10,500 acre-ft per year); median of yearly mean discharges, 4.6 cfs (3,300 acre-ft per year).

Extremes.--Maximum discharge during year, 4.1 cfs Jan. 26 (gage height, 2.75 ft); no flow June 19.

1939-61: Maximum discharge, 8,060 cfs Apr. 4, 1941 (gage height, 7.75 ft), from rating curve extended above 3,500 cfs; no flow at times in 1952, 1957-61.

Flood in February 1938 reached a stage of about 9.0 ft, from floodmarks.

Remarks.--Records poor. Diversions above station for irrigation can divert total flow in summer months.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.4	0.6	2.0	0.9	* 1.3	1.3	0.3	* 0.3	0.6	0.6	(*)	
2	.4	.6	1.5	.8	1.7	* 1.3	.3	.3	.6	.6		
3	.4	.8	1.3	.8	1.1	1.3	.3	.3	.8	*.6		
4	.4	.8	1.3	.6	1.1	1.7	*.3	.3	1.1	.8		
5	.4	1.1	1.3	.6	.9	1.7	.3	.3	.8	.8		
6	.4	1.3	1.3	.6	.9	1.8	.2	.3	.6			
7	.4	1.3	1.3	.6	.8	1.7	.3	.4	.4			(*)
8	.4	1.3	1.3	.6	.8	1.7	.3	.3	.6			
9	.4	1.3	1.5	.6	.8	1.7	.3	.4	.4			
10	.4	1.3	1.6	.6	.8	1.7	.3	.4	.1			
11	.4	1.3	1.3	.6	.8	1.7	.3	.4	.4			
12	.4	1.3	1.2	.8	.6	1.7	.3	.4	** .4			
13	.4	1.5	1.1	.8	.6	1.7	.3	.4	.4			
14	.4	1.3	1.0	.8	.9	1.7	.3	.4	.4			
15	.4	1.3	1.0	.9	.9	2.6	.3	.4	.6		e 0.6	e 0.6
16	.4	1.1	1.0	.9	.9	2.0	.3	.4	.6			
17	.4	1.1	1.0	.9	.9	2.0	.3	.4	.3			
18	.4	1.3	1.0	1.1	.8	2.0	.3	.4	.1	e .6		
19	*.4	1.1	1.0	1.1	.8	2.2	.3	.6	0 .6			
20	.4	1.1	1.0	1.3	.8	2.6	.3	.6	.3			
21	.4	1.1	1.0	1.3	.8	2.6	.3	.6	.6			
22	.4	1.1	1.0	1.5	.8	2.0	.4	.8	.6			
23	.6	1.3	1.0	1.5	.9	.3	.8	.8	.6			
24	.6	1.3	1.0	1.5	.9	.3	.4	.8	.6			
25	.6	1.3	1.0	1.7	.9	.3	.4	.9	.8			
26	.6	1.7	1.0	2.2	.6	.3	.4	.9	.8			
27	.6	1.5	1.0	1.7	.6	.2	.4	.9	.8			
28	.6	* 1.5	* 1.1	1.5	.8	.2	.4	1.1	.8			
29	.6	1.5	1.1	1.5	—	.2	.4	1.1	.8			
30	.6	1.5	1.1	1.3	—	.3	.3	1.1	.8			
31	.6	—	1.1	1.3	—	.3	—	.8	—			
Total	14.2	36.6	36.4	32.9	24.5	43.1	10.1	17.5	16.7	19.0	18.6	18.0
Mean	0.46	1.22	1.17	1.06	0.88	1.39	0.34	0.56	0.56	0.61	0.6	0.6
Max.	0.6	1.7	2.0	2.2	1.7	2.6	0.8	1.1	1.1	-	-	-
Min.	0.4	0.6	1.0	0.6	0.6	0.2	0.2	0.3	0	-	-	-
Ac-ft	28	73	72	65	49	85	20	35	35	38	37	36

Calendar year 1960:

Max 364

Min 0.1

Mean 2.70

Acre-feet 1,960

Water year 1960-61:

Max 2.6

Min 0

Mean 0.79

Acre-feet 571

Peak discharge (base, 450 cfs).--No peak above base.

\* Discharge measurement made on this day.

\*\* Field estimate made on this day.

e Stage-discharge relation indefinite.

Note.--No gage-height record Nov. 29 to Dec. 27.

## PAJARO RIVER BASIN

285

11-1585. San Benito River near Hollister, Calif.

Location.--Lat 36°47'17", long 121°22'11", in SW¼ sec.24, T.13 S., R.5 E., on left bank 1,500 ft downstream from Bird Creek, 0.9 mile downstream from Tres Pinos Creek, 2.7 miles west of Tres Pinos, and 4.8 miles southeast of Hollister.

Drainage area.--586 sq mi.

Records available.--October 1949 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 370 ft (from topographic map).

Average discharge.--12 years, 30.6 cfs (22,150 acre-ft per year); median of yearly mean discharges, 5.8 cfs (4,200 acre-ft per year).

Extremes.--Maximum discharge during year, 26 cfs Dec. 3 (gage height, 2.98 ft); no flow for many months.

1949-61: Maximum discharge, 11,600 cfs Apr. 3, 1958 (gage height, 16.30 ft), from rating curve extended above 1,200 cfs on basis of flood-routing study; no flow for parts of each year.

Remarks.--Records poor. Several small diversions above station for irrigation.

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			0	0	*1.7	0	0.1					
2			0	0	1.4	*0	1	(*)			(*)	
3			13	0	.9	0	0			(*)		
4			5.5	0	.4	0	*0					
5			2.4	0	.1	.1	0					
6			1.2	0	.1	.1	0					
7			.5	0	0	.1	0					(*)
8			.1	0	0	.1	0					
9			0	0	0	.1	0					
10			0	0	0	.1	0					
11			0	0	0	.1	0					
12			0	0	0	.1	0		(*)			
13			0	0	0	0	0					
14			0	0	0	.1	0					
15			0	0	0	.2	0					
16			0	0	0	.1	0					
17			0	0	0	.1	0					
18			0	0	0	.1	0					
19	(*)		0	0	0	.1	0					
20			0	0	0	.1	0					
21			0	0	0	.1	0					
22			0	0	0	.1	0					
23			0	0	0	.1	0					
24			0	0	0	.1	0					
25			0	0	0	.2	0					
26			0	.1	0	.1	0					
27			0	.1	0	.1	0					
28		(*)	0	7.0	0	.1	0					
29			*0	6.8	—	.1	0					
30			0	4.0	—	.1	0					
31		-----	0	2.8	-----	.1	-----		-----		-----	
Total	0	0	22.7	20.8	4.6	2.8	0.2	0	0	0	0	0
Mean	0	0	0.73	0.67	0.16	0.09	0.007	0	0	0	0	0
Max.	0	0	13	7.0	1.7	0.2	0.1	0	0	0	0	0
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0	0	45	41	9.1	5.6	0.4	0	0	0	0	0

Calendar year 1960: Max 98 Min 0 Mean 1.41 Acre-feet 1,020  
 Water year 1960-61: Max 13 Min 0 Mean 0.14 Acre-feet 101

Peak discharge (base, 600 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

## PAJARO RIVER BASIN

11-1590. Pajaro River at Chittenden, Calif.

Location.--Lat 36°54'01", long 121°35'48", in Salsipuedes Grant, on downstream side of right bank pier of State highway bridge, 0.6 mile downstream from Pescadero Creek, 0.6 mile southeast of Chittenden, Santa Cruz County, and 2.3 miles downstream from San Benito River.

Drainage area.--1,186 sq mi (revised).

Records available.--October 1939 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B. Prior to October 1954, published as "near Chittenden".

Gage.--Water-stage recorder. Datum of gage is 81.81 ft above mean sea level (levels by U. S. Weather Bureau). Prior to May 13, 1949, wire-weight gage on former bridge 100 ft downstream at same datum except that water-stage recorder, also 100 ft downstream and at same datum, was used Dec. 20, 1946, to June 11, 1947, June 21 to Sept. 23, 1947, and Dec. 19, 1947 to May 6, 1948.

Average discharge.--22 years, 155 cfs (112,200 acre-ft per year); median of yearly mean discharges, 76 cfs (55,000 acre-ft per year).

Extremes.--Maximum discharge during year, 23 cfs Mar. 17 (gage height, 5.56 ft); minimum daily, 0.1 cfs July 14-24, Aug. 26, Sept. 14, 15, 24-30.

1939-61: Maximum discharge, 24,000 cfs Dec. 24, 1955, from rating curve extended above 8,300 cfs on basis of slope-conveyance study; maximum gage height, 33.11 ft Apr. 3, 1958; no flow at times in July, August 1948.

Flood in February 1938 reached a stage of 31.3 ft, from floodmarks.

Remarks.--Records poor. Flow regulated by Pacheco Lake (capacity, 6,150 acre-ft), Chesbro and Uvas Reservoirs (see p. 289), and San Felipe Lake. Many diversions above station for irrigation.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting control method used Oct. 1 to Dec. 14)

Oct. 1 to Mar. 17

Mar. 18 to Sept. 30

4.6	1.2	5.2	7.0	4.6	0	5.0	3.2
4.7	1.5	5.4	14	4.7	.2	5.1	5.3
4.9	2.5	5.6	25	4.8	.6	5.3	11
5.1	4.8			4.9	1.7	5.5	19

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	1.3	1.8	3.9	6.6	7.6	7.3	6.4	5.6	4.3	0.9	1.2	0.3
2	1.3	1.8	4.4	6.8	7.9	7.3	7.5	5.3	3.6	.6	1.2	.3
3	1.4	1.8	3.9	6.8	8.2	7.3	8.3	5.1	3.2	.6	.8	.4
4	1.4	1.8	3.9	6.8	8.2	7.3	8.9	5.1	3.2	.5	.6	.5
5	1.5	1.8	4.0	7.0	7.9	7.3	8.9	4.9	3.2	.4	.6	.4
6	1.6	1.9	4.0	7.0	7.6	7.3	9.2	5.6	3.2	.3	.4	.4
7	1.6	1.9	4.0	7.0	7.6	7.0	9.2	6.4	3.1	.2	.4	.5
8	1.6	*1.9	4.0	7.0	7.6	6.8	9.5	5.8	2.9	.2	.4	.4
9	1.6	1.9	4.2	7.3	7.6	6.6	11	5.3	2.5	.2	.3	.3
10	1.6	1.9	4.3	7.3	7.6	6.6	11	5.1	2.5	.2	.2	.2
11	*1.6	1.9	4.4	7.3	9.1	6.3	10	4.7	2.3	.2	.2	.4
12	1.6	2.4	4.5	7.3	9.1	6.3	10	4.3	2.2	.2	.2	.2
13	1.6	2.2	4.7	7.0	8.8	6.3	10	3.8	1.7	.2	.2	.2
14	1.6	2.2	4.8	7.3	8.2	6.8	10	4.0	1.3	*.1	.4	.1
15	1.6	2.2	5.2	7.9	8.2	*9.1	10	3.6	1.1	.1	.4	.1
16	1.5	2.3	5.2	7.3	7.9	18	9.8	*3.2	1.2	.1	.6	.2
17	1.5	2.4	5.5	7.3	7.9	21	9.5	3.1	1.5	.1	.7	.2
18	1.5	2.4	5.9	*7.3	7.9	17	8.3	2.9	1.5	.1	.6	*.2
19	1.5	2.5	*6.1	7.3	7.6	13	*7.7	3.8	1.6	.1	.6	.2
20	1.6	2.5	6.1	7.3	7.6	12	8.3	4.5	*1.5	.1	.6	.4
21	1.6	2.6	6.3	7.6	*7.3	11	8.6	4.0	1.3	.1	.4	.3
22	1.6	2.7	6.3	7.6	7.3	11	9.2	3.8	1.1	.1	.3	.2
23	1.6	2.7	6.6	7.9	7.3	11	10	3.2	.7	.1	*.2	.2
24	1.6	2.8	6.3	7.9	7.0	11	10	2.9	.9	.1	.6	.1
25	1.7	3.0	6.3	7.9	7.3	11	9.8	2.6	1.1	.2	.2	.1
26	1.7	3.6	6.3	10	7.3	11	8.3	2.9	1.9	.8	.1	.1
27	1.7	3.4	6.6	9.4	7.3	11	6.9	3.2	2.0	1.1	.7	.1
28	1.7	3.4	6.6	8.2	7.0	11	6.1	3.2	1.7	.9	1.5	.1
29	1.7	3.5	*6.3	7.6	-----	10	5.8	3.2	1.5	.7	1.9	.1
30	1.7	3.6	6.3	7.0	-----	9.8	5.6	3.6	1.1	.9	1.1	.1
31	1.8	-----	6.6	7.9	-----	8.6	-----	4.0	-----	1.1	.4	-----
TOTAL	48.9	72.8	163.5	231.9	217.9	303.0	263.8	128.7	60.9	11.5	18.0	7.3
MEAN	1.58	2.43	5.27	7.48	7.78	9.77	8.79	4.15	2.03	0.37	0.58	0.24
MAX	1.8	3.6	6.6	10	9.1	21	11	6.4	4.3	1.1	1.9	0.5
MIN	1.3	1.8	3.9	6.6	7.0	6.3	5.6	2.6	0.7	0.1	0.1	0.1
AC-FT	97	144	324	460	432	601	523	255	121	23	36	14

Calendar Year 1960: Max 1,820

Min 1.2

Mean 38.6

AC-FT 28,000

WATER YEAR 1960-61 MAX 21

MIN 0.1

MEAN 4.19

AC-FT 3,030

Peak discharge (base, 400 cfs).--No peak above base.

\* Discharge measurement made on this day.

11-1591.5. Corralitos Creek near Corralitos, Calif.

Location.--Lat 37°00'20", long 121°48'25", in Los Corralitos Grant, on left bank 0.5 mile downstream from Mormon Gulch, 1.2 miles upstream from Corralitos, Santa Cruz County, and 7 miles northwest of Watsonville.

Drainage area.--10.6 sq mi.

Records available.--October 1957 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 310 ft (from topographic map).

Extremes.--Maximum discharge during year, 28 cfs Nov. 26 (gage height, 1.80 ft); no flow at times.

1957-61: Maximum discharge, 1,970 cfs Apr. 2, 1958 (gage height, 7.55 ft), from rating curve extended above 280 cfs on basis of estimate of peak flow over dam; no flow at times in 1961.

Remarks.--Records good except those for periods of no gage-height record, which are poor. Approximately 3.9 cfs diverted daily above station for municipal supply of city of Watsonville.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Apr. 29 to May 14)

0.7	0	1.1	2.2
.8	.2	1.2	4.2
.9	.5	1.3	6.8
1.0	1.1	1.5	14

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0.8	7.5	0.2	9.0	0.1	0.7	0.1	0.2			
2	.1	1.3	12	.2	7.8	.1	.4	.1	.1			
3	.1	.1	5.5	.2	4.0	.1	.3	.1	.1			a 0.1
4	.1	.1	2.1	.2	1.3	.1	.4	.1	.1			
5	.1	.3	a 1.0	.2	.7	1.4	.3	.1	.1			
6	.1	.6	a .5	.2	.4	2.2	1.1	1.3	.1			.1
7	.1	.1	a .4	.2	.2	.2	.3	2.2	.1	a 0.1		.1
8	.1	.1	a .4	.1	1.3	.2	.3	.8				.1
9	.2	.1	a .3	.2	.2	1.4	.3	.2				.1
10	.1	.1	a .3	.2	.1	.1	.3	.2				.1
11	*.1	1.4	a .2	.1	3.8	.1	.3	.2	a .1		a 0.1	.1
12	.1	3.6	a .2	.1	2.2	.1	.3	.1				.1
13	.1	5.2	a .2	.1	.4	*.1	.3	.1				.1
14	.1	2.1	a .2	.1	*.3	1.0	.3	.1		*.1		.1
15	.1	.4	a .2	.1	.7	1.3	.3	*.1				.1
16	.1	*.3	*.2	*.1	.4	6.5	.3	.1	.1			.1
17	.1	.3	.2	.2	.2	1.3	*.3	.1	.1			.1
18	.1	.6	.2	.2	.2	6.6	.2	.1	.1			*.1
19	.1	.6	.2	.2	.2	3.6	.3	.2	*.1			.1
20	.1	.1	.5	.2	.2	5.6	.3	.2				.1
21	.1	.1	.2	.2	.1	3.4	.7	.2				.1
22	.1	.1	.2	.2	.1	3.4	2.8	.2				.1
23	.1	.1	.3	.1	.1	5.2	3.1	.2		a .1	*.1	.1
24	.1	.2	.7	.1	.1	8.4	.9	.2			.1	.1
25	.1	1.6	.8	2.5	.1	9.0	.3	.1	a .1		0	.1
26	.1	14	.5	8.1	.1	7.8	.3	.1				.1
27	.2	3.2	.4	3.4	.1	6.4	.3	.1				.1
28	.1	.9	.4	1.0	.1	2.4	.3	.1			a 0	.1
29	.1	.2	.2	2.3		3.2	.5	.2				.2
30	.1	.3	.2	2.6		2.7	.2	.1				.2
31	.1		.2	1.1		.9		.1				
Total	3.3	38.9	36.4	34.8	34.4	108.3	16.7	8.1	3.1	3.1	2.4	3.2
Mean	0.11	1.30	1.17	1.12	1.23	3.49	0.56	0.26	0.10	0.10	0.08	0.11
Max.	0.2	14	12	11	9.0	13	3.1	2.2	-	-	-	-
Min.	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.1	-	-	0	-
Ac-ft	6.5	77	72	69	68	215	33	16	6.1	6.1	4.8	6.3

Calendar year 1960: Max 270 Min 0.1 Mean 4.78 Acre-feet 3,470  
Water year 1960-61: Max 14 Min 0 Mean 0.80 Acre-feet 580

Peak discharge (base, 200 cfs).--No peak above base.

\* Discharge measurement made on this day.

a No gage-height record.

## PAJARO RIVER BASIN

11-1592. Corralitos Creek at Freedom, Calif.

Location.--Lat 36°56'22", long 121°46'10", in Los Corralitos Grant, on right bank just upstream from Green Valley Road bridge, 0.25 mile north of Freedom, Santa Cruz County, and 2.3 miles north of Watsonville.

Drainage area.--27.8 sq mi.

Records available.--October 1956 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 80 ft (from topographic map).

Average discharge.--5 years, 10.9 cfs (7,890 acre-ft per year).

Extremes.--Maximum discharge during year, 46 cfs Nov. 26 (gage height, 2.74 ft); no flow for several months.

1956-61: Maximum discharge, 2,680 cfs Apr. 2, 1958 (gage height, 12.59 ft), from rating curve extended above 610 cfs on basis of contracted-opening measurement at gage height 15.6 ft; no flow at times in 1957-58, 1961.

Flood of Dec. 22, 1955, reached a stage of 15.6 ft, from floodmarks (discharge, 3,620 cfs on basis of contracted-opening measurement of peak flow).

Remarks.--Records poor. Approximately 3.9 cfs diverted daily above station for municipal supply of city of Watsonville.

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

1.8	0	2.2	8.0
1.9	.3	2.3	12
2.0	1.8	2.4	17
2.1	4.4		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.4	0.2	6.0	0.2	10	0.5	0.2	0.2	0			
2	.5	.3	16	.2	6.6	.5	.2	.3	0			
3	.2	.3	6.2	.2	3.4	.5	.2	.1	0			
4	.2	.2	1.6	.2	.6	.6	.2	0	0			
5	.2	.2	.7	.2	.4	1.0	.2	0	0			
6	.2	.6	.7	.3	.4	.6	.5	.2	0			
7	.3	.3	.6	.5	.4	.5	.5	.4	0			
8	.2	.2	.6	.3	.3	.4	.3	.2	0			
9	.2	.2	.5	.2	.3	.5	.2	.1	0			
10	.1	.2	.6	.7	.3	.3	.5	.1	0			
11	*.4	.3	.5	.3	1.4	.3	.1	0	0			
12	.2	.7	.5	.2	2.3	.3	.5	0	0			
13	.3	1.2	.4	.2	.5	*.2	.2	0	0			
14	.5	.4	.3	.2	*.4	.6	.1	0	0	(*)		
15	.3	.2	.3	.2	.5	16	.1	*.0	0			
16	.2	*.2	*.3	*.2	.5	8.4	.1	0	0			
17	.1	.2	.3	.3	.5	17	*.1	.1	0			
18	.2	.2	.4	.3	.5	9.6	.1	0	0			
19	.4	.2	.4	.3	.5	4.4	.1	.1	*.0			(*)
20	.5	.2	.4	.3	.5	4.8	.1	.1	0			
21	.3	.2	.4	.3	.5	1.2	.1	0	.2			
22	.3	.2	.4	.4	1.4	.6	.6	0	0			
23	.3	.2	.4	.4	.6	.6	.8	0	0			
24	.2	.2	.3	.4	.5	3.1	.2	0	0			(*)
25	.2	.4	.3	1.7	.5	5.8	.2	0	0			
26	.2	14	.3	9.9	.5	4.8	.2	0	0			
27	.2	3.4	.3	3.6	.5	4.4	.1	0	0			
28	.2	.8	.3	.6	.5	1.2	.2	0	0			
29	.2	.6	.3	.6	1	.5	.4	0	0			
30	.2	.7	.3	.7	1	.6	.2	0	0			
31	.2	---	.3	10	---	.4	---	0	---			
Total	8.1	27.2	40.9	34.1	35.3	90.4	7.5	1.9	0.2	0	0	0
Mean	0.26	0.91	1.32	1.10	1.26	2.92	0.25	0.06	0.007	0	0	0
Max.	0.5	14	16	10	10	17	0.5	0.4	0.2	0	0	0
Min.	0.1	0.2	0.3	0.2	0.3	0.2	0.1	0	0	0	0	0
Ac-ft	16	54	81	68	70	179	15	3.8	0.4	0	0	0

Calendar year 1960: Max 382 Min 0.1 Mean 6.59 Acre-feet 4,780  
 Water year 1960-61: Max 17 Min 0 Mean 0.67 Acre-feet 487

Peak discharge (base, 350 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

## Reservoirs in Pajaro River basin, Calif.

11-1534.8. Chesbro Reservoir.--Lat 37°07'00", long 121°41'34", near southwest boundary of Ojo de Agua de la Coche Grant, at left end of dam on Llagas Creek and 2.5 miles west of Morgan Hill, Santa Clara County. Drainage area, 19.4 sq mi. Records available, December 1955 to September 1961. Monthly contents prior to October 1959 published in WSP 1735. Staff gage read once daily. Datum of gage is at mean sea level (levels by South Santa Clara Water Conservation District). Maximum contents observed during year, 286 acre-ft Oct. 1 (elevation, 475.4 ft); no contents Nov. 16 to Feb. 6, July 31 to Sept. 30. Maximum contents observed during period 1955-61, 7,950 acre-ft Apr. 3, 1958 (elevation, 526.8 ft); no contents at times in 1957, 1960-61.

Reservoir is formed by earth-and rock-fill dam completed in 1955. Capacity, 7,500 acre-ft between elevations 465 (elevation of outlet gates) and 525 ft (crest of spillway). Reservoir is used for flood control and water released down Llagas Creek for irrigation. Record of contents furnished by South Santa Clara Water Conservation District.

11-1540.2. Uvas Reservoir.--Lat 37°04'02", long 121°41'25", in Las Uvas Grant, at center of dam on Uvas Creek and 4.8 miles southwest of Morgan Hill, Santa Clara County. Drainage area, 30.2 sq mi. Records available, December 1957 to September 1961. Monthly contents prior to October 1959 published in WSP 1735. Staff gage read once daily. Datum of gage is at mean sea level (levels by South Santa Clara Valley Water Conservation District). Maximum contents observed during year, 1,200 acre-ft Apr. 1 (elevation, 436.3 ft); no contents May 18 to Sept. 30. Maximum contents observed during period 1957-61, 10,500 acre-ft Apr. 1, 1958 (elevation, 488.9 ft); no contents May 18 to Sept. 30, 1961.

Reservoir is formed by earth-and rock-fill dam completed in 1957. Capacity, 10,000 acre-ft between elevations 410 (hydraulic gate valves) and 487.5 ft (crest of spillway). Water released down Uvas Creek for irrigation; at times, diverted into Llagas Creek 3.6 miles below Chesbro Reservoir for ground-water recharge by percolation. Record of contents furnished by South Santa Clara Valley Water Conservation District.

Month-end contents, in acre-feet, water year October 1960 to September 1961

Date	Chesbro Reservoir	Uvas Reservoir
Sept. 30.....	286	320
Oct. 31.....	215	252
Nov. 30.....	0	332
Dec. 31.....	0	520
Jan. 31.....	0	664
Feb. 28.....	70	860
Mar. 31.....	112	1,200
Apr. 30.....	118	1,030
May 31.....	78	0
June 30.....	50	0
July 31.....	0	0
Aug. 31.....	0	0
Sept. 30.....	0	0

Note.--Contents at 8 a.m. on first day of following month.

## STEVENS CREEK BASIN

11-1664.8. Stevens Creek Reservoir near Monte Vista, Calif.

Location.--Lat 37°17'55", long 122°04'34", in NW $\frac{1}{4}$  sec. 27, T.7 S., R.2 W., at center of dam on Stevens Creek, 2.0 miles southwest of Monte Vista.

Drainage area.--17.3 sq mi.

Records available.--December 1935 to September 1961. Monthly contents prior to October 1959 published in WSP 1735.

Gage.--Staff gage read once daily. Datum of gage is at mean sea level (levels by Santa Clara Valley Water Conservation District).

Extremes.--Maximum contents observed during year, 216 acre-ft Mar. 31 (elevation, 467.43 ft); no contents for most of year.

1935-61: Maximum contents observed, 4,100 acre-ft Dec. 26, 1955 (elevation, 538.61 ft); no contents for part of most years.

Remarks.--Reservoir is formed by earth-fill dam completed in 1936. Capacity, 3,970 acre-ft between elevations 444.9 (invert of outlet tunnel) and 537.14 ft (crest of spillway). Water released down Stevens Creek for irrigation and ground-water recharge by percolation.

Cooperation.--Record of contents furnished by Santa Clara Valley Water Conservation District.

Month-end contents, in acre-feet, water year October 1960 to September 1961

Date	Contents†
Sept. 30.....	0
Oct. 31.....	0
Nov. 30.....	63
Dec. 31.....	0
Jan. 31.....	89
Feb. 28.....	0
Mar. 31.....	215
Apr. 30.....	0
May 31.....	0
June 30.....	0
July 31.....	0
Aug. 31.....	0
Sept. 30.....	0

† Contents at 8 a.m. on first day of following month.

## APTOS CREEK BASIN

11-1597. Aptos Creek at Aptos, Calif.

Location.--Lat 36°58'35", long 121°54'05", in Aptos Grant, on left bank at Aptos, Santa Cruz County, 0.6 mile upstream from mouth.Drainage area.--12.2 sq mi.Records available.--October 1958 to September 1961.Gage.--Water-stage recorder. Altitude of gage is 10 ft (from topographic map).Extremes.--Maximum discharge during year, 24 cfs Nov. 26 (gage height, 3.41 ft); minimum, 0.4 cfs many days.  
1958-61: Maximum discharge, 302 cfs Feb. 8, 1960 (gage height 5.85 ft); minimum, 0.3 cfs July 25, 1959.Remarks.--Records poor. Small diversions above station for irrigation.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	0.8	0.8	2.8	1.4	6.2	0.9	2.0	1.4	2.0	0.7	0.6	0.4
2	.8	.8	4.9	1.4	3.8	.9	2.0	1.4	2.0	.7	.6	.4
3	.8	.7	1.7	1.4	2.8	.9	1.7	1.4	1.7	.7	.6	.4
4	.8	.7	1.2	1.4	1.7	1.0	1.7	1.2	1.7	.6	.6	.4
5	.8	.7	1.0	1.4	1.4	1.4	1.4	1.2	1.4	.6	.6	.4
6	.8	1.4	.9	1.4	1.2	2.8	1.4	2.0	1.4	.6	.6	*.5
7	.8	1.0	.9	1.4	1.2	1.7	1.4	3.8	1.2	.6	.5	.5
8	.7	.9	.9	1.4	1.2	1.4	1.4	2.0	1.0	.6	.5	.6
9	.7	.9	.9	1.4	1.4	1.7	1.2	1.7	1.0	.6	.5	.6
10	.7	.8	1.0	1.4	1.4	1.4	1.2	2.0	1.0	.6	.6	.6
11	*.9	.9	1.0	1.4	2.4	1.2	1.2	2.0	.9	.6	.6	.6
12	1.0	3.8	1.0	1.2	2.0	1.2	1.2	1.7	.9	.6	.5	.6
13	1.4	6.8	.9	1.2	1.7	*1.2	1.2	1.7	.9	.6	.5	.6
14	1.4	2.0	.9	1.2	*1.4	1.7	1.2	1.7	.9	.6	.5	.6
15	1.4	1.0	1.2	1.2	1.7	10	1.2	1.7	.9	.6	.5	.7
16	1.0	*.8	1.2	*1.2	1.7	5.5	1.2	1.7	.9	.6	.5	.8
17	1.0	.8	1.2	1.2	1.7	8.0	*1.2	*1.2	.9	.6	.5	1.0
18	1.2	.9	1.2	1.2	1.4	5.5	1.4	1.4	.9	.5	.5	.8
19	1.2	.9	*1.2	1.2	1.4	4.3	1.4	1.7	.9	.5	.5	.8
20	1.2	.9	1.2	1.2	1.4	4.3	1.4	2.0	.9	.5	.5	.8
21	1.4	.8	1.2	1.4	1.4	3.3	1.7	1.7	.9	.5	.5	.8
22	1.4	.8	1.2	1.4	1.4	2.8	3.3	1.7	.8	.5	.5	.8
23	1.2	.8	1.2	1.7	1.4	2.4	3.8	1.4	.8	.6	.5	.7
24	1.2	.8	1.2	1.7	1.4	2.8	2.4	1.2	.8	.6	.4	.7
25	1.2	1.4	1.4	3.8	1.4	3.3	2.4	1.2	.8	*.6	.4	.7
26	1.2	9.3	1.4	8.0	1.2	2.8	2.0	1.2	*.8	.7	.4	.6
27	.9	1.0	1.4	2.4	1.0	3.3	1.7	1.2	.7	.7	.5	.6
28	.9	.8	1.4	1.4	.9	2.8	1.7	1.2	.7	.7	.5	.6
29	.9	.7	1.4	1.4	-----	2.4	1.7	1.2	.7	.7	.5	.6
30	.8	1.0	1.4	2.4	-----	2.0	1.7	1.4	.7	.6	.5	.7
31	.8	-----	1.4	8.6	-----	2.0	-----	1.4	-----	.6	.5	-----
TOTAL	31.3	44.9	41.8	60.4	49.2	86.9	50.4	49.7	31.1	18.8	16.0	18.9
MEAN	1.01	1.50	1.35	1.95	1.76	2.80	1.68	1.60	1.04	0.61	0.52	0.63
MAX	1.4	9.3	4.9	8.6	6.2	10	3.8	3.8	2.0	0.7	0.6	1.0
MIN	0.7	0.7	0.9	1.2	0.9	0.9	1.2	1.2	0.7	0.5	0.4	0.4
AC-FT	62	89	83	120	98	172	100	99	62	37	32	37

CALENDAR YEAR 1960: MAX 106 MIN 0.7 MEAN 4.25 AC-FT 3,080

WATER YEAR 1960-61: MAX 10 MIN 0.4 MEAN 1.37 AC-FT 991

Peak discharge (base, 100 cfs).--No peak above base.

\* Discharge measurement made on this day.



## SOQUEL CREEK BASIN

291

11-1598. West Branch Soquel Creek near Soquel, Calif.

Location.--Lat 37°03'05", long 121°56'20", in NW<sup>1</sup> sec. 23, T.10 S., R.1 W., on left bank 0.5 mile upstream from Soquel Creek and 4.5 miles north of Soquel.

Drainage area.--12.2 sq mi.

Records available.--October 1958 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 220 ft (from topographic map).

Extremes.--Maximum discharge during the year, 91 cfs Nov. 26 (gage height, 3.78 ft); minimum, 0.4 cfs July 16.  
1958-61: Maximum discharge, 1,880 cfs Feb. 16, 1959 (gage height, 7.05 ft); minimum, that of July 16, 1961.

Remarks.--Records poor. Small diversions above station for irrigation.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Oct. 1 to Nov. 12, Dec. 12 to Jan. 3,  
June 23 to Sept. 30)

2.5	0.1	2.9	6.0
2.6	.6	3.0	10
2.7	1.4	3.1	15
2.8	3.1	3.3	31

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	1.0	1.0	2.0	1.7	7.6	2.1	3.7	2.3	1.6	1.2	0.9	0.8
2	1.0	1.0	8.0	1.7	6.4	2.1	3.4	2.3	1.9	1.0	.9	.8
3	.9	1.0	4.6	1.7	5.1	2.1	3.4	2.3	1.6	1.0	.9	.6
4	.9	1.0	3.4	1.7	4.3	2.1	3.4	2.1	1.3	.9	1.0	.6
5	.9	1.0	3.1	1.7	4.0	2.6	3.1	2.1	1.2	1.0	1.0	.6
6	.9	1.0	2.8	1.7	3.7	3.7	3.1	2.9	1.2	1.0	.9	*.6
7	.9	1.0	2.6	1.7	3.4	2.6	2.9	4.6	1.2	1.0	.9	.7
8	.8	.9	2.6	1.6	3.1	2.3	2.8	2.6	1.2	.8	.9	.7
9	.8	1.0	2.4	1.6	2.9	2.9	2.6	2.3	1.1	.8	.9	.8
10	.8	.9	2.6	1.6	2.9	2.4	2.6	2.4	1.2	.8	1.0	.7
11	*.9	1.1	2.8	1.6	5.4	2.3	2.4	2.4	1.2	.8	1.0	.7
12	1.0	8.0	2.4	1.6	5.4	2.1	2.4	2.3	1.1	.6	1.0	.7
13	1.0	16	2.4	1.7	4.0	*1.9	2.6	1.9	1.1	.6	1.0	.7
14	1.0	3.4	2.4	1.7	*3.4	3.0	2.4	1.9	1.1	.5	1.0	.7
15	1.0	*2.6	2.4	1.6	3.7	27	2.4	1.7	1.0	.6	.9	.7
16	.9	2.4	2.4	1.6	3.7	7.2	2.4	1.7	.9	.6	.8	.9
17	.9	2.4	2.3	*1.4	3.1	17	*2.4	*1.7	.9	.6	.8	1.2
18	1.0	2.3	1.9	1.4	3.1	7.2	2.4	1.6	.8	.6	.8	1.1
19	1.0	2.3	*1.7	1.4	2.9	5.7	2.4	1.7	.8	.6	.8	1.0
20	1.0	2.3	1.6	1.4	2.9	5.4	2.4	2.1	.8	.6	.8	1.0
21	1.0	2.3	1.6	1.4	2.6	4.3	2.9	1.9	.8	.6	.8	1.1
22	1.0	2.3	1.6	1.4	2.6	4.0	5.4	1.7	.8	.6	.8	1.1
23	1.0	2.3	1.6	1.4	2.4	3.7	5.4	1.6	.8	.7	.7	1.0
24	1.0	2.3	1.6	1.6	2.3	4.6	3.7	1.6	.8	.8	.7	.9
25	1.0	7.4	1.6	3.7	2.1	5.1	3.1	1.6	1.0	*.8	.7	.8
26	1.0	27	1.6	16	2.1	4.3	2.9	1.4	*1.1	.8	.7	.6
27	1.0	4.3	1.6	6.0	2.1	4.6	2.8	1.3	1.1	.8	.8	.6
28	1.0	3.1	1.6	4.3	2.1	4.6	2.6	1.3	1.2	.8	.9	.6
29	1.0	2.9	1.7	4.3	-----	4.0	2.3	1.4	1.2	.9	.9	.7
30	1.0	5.1	1.7	5.1	-----	3.7	2.3	1.4	1.2	.9	.9	.7
31	1.0	-----	1.7	13	-----	3.7	-----	1.4	-----	.9	.8	-----
TOTAL	29.6	111.6	92.3	90.3	99.3	150.3	88.6	61.5	33.2	24.2	26.9	23.7
MEAN	0.95	3.72	2.98	2.91	3.55	4.85	2.95	1.98	1.11	0.78	0.87	0.79
MAX	1.0	27	20	16	7.6	27	5.4	4.6	1.9	1.2	1.0	1.2
MIN	0.8	0.9	1.6	1.4	2.1	1.9	2.3	1.3	0.8	0.5	0.7	0.6
AC-FT	59	221	183	179	197	298	176	122	66	48	53	47

CALENDAR YEAR 1960: MAX 214 MIN 0.8 MEAN 5.19 AC-FT 3,770  
WATER YEAR 1960-61: MAX 27 MIN 0.5 MEAN 2.28 AC-FT 1,650

Peak discharge (base, 300 cfs).--No peak above base.

\* Discharge measurement made on this day.

## SOQUEL CREEK BASIN

11-1600. Soquel Creek at Soquel, Calif.

Location.--Lat 36°59'29", long 121°57'17", in NE<sup>1</sup> sec.10, T.11 S., R.1 W., on left bank 0.2 mile upstream from highway bridge in town of Soquel and 0.4 mile downstream from Bates Creek.

Drainage area.--40.2 sq mi.

Records available.--May 1951 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 40 ft (from topographic map).

Average discharge.--10 years, 43.2 cfs (31,280 acre-ft per year); median of yearly mean discharges, 27 cfs (19,500 acre-ft per year).

Extremes.--Maximum discharge during year, 106 cfs Nov. 26 (gage height, 4.68 ft); minimum, 0.7 cfs July 28.

1951-61: Maximum discharge, 15,800 cfs Dec. 23, 1955 (gage height, 22.33 ft), from rating curve extended above 2,100 cfs on basis of slope-area measurement of peak flow; minimum, 0.3 cfs Oct. 9, 1955.

Remarks.--Records poor. Small diversion above station for irrigation.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	2.0	2.0	1.9	4.8	17	6.0	5.1	4.8	4.0	1.4	1.3	1.1
2	2.0	2.0	21	4.8	12	5.9	5.1	4.6	4.5	1.5	1.5	1.0
3	2.0	2.0	9.2	4.8	10	5.9	5.1	4.3	4.2	1.5	1.4	.9
4	2.0	2.0	6.6	4.8	8.2	6.0	5.1	4.2	3.8	1.5	1.4	.9
5	2.0	1.9	5.7	4.8	7.5	6.6	5.2	4.0	3.9		1.6	.9
6	2.0	2.8	5.1	5.1	6.9	8.4	5.2	4.8	3.6		1.5	*1.0
7	2.4	3.3	4.8	4.8	6.6	7.3	5.2	6.9	3.5		1.5	1.0
8	2.1	3.1	4.6	4.6	6.4	6.4	5.1	4.9	3.3		1.4	1.0
9	2.0	3.0	4.6	4.6	6.0	7.1	5.1	4.5	2.7		1.5	1.0
10	*2.0	2.8	4.9	4.6	5.9	6.9	5.1	4.8	2.2		1.5	1.0
11	2.0	3.3	5.1	4.6	9.2	6.0	5.1	4.8	2.7		1.6	.9
12	1.8	5.7	4.8	4.3	13	5.9	5.1	4.5	2.6		1.5	1.0
13	1.9	21	4.6	4.3	11	*5.9	5.1	4.2	2.6	1.5	1.4	1.0
14	2.1	9.2	4.6	4.5	10	6.5	5.1	4.3	2.5		1.3	1.0
15	2.0	*6.4	4.9	4.5	*10	3.9	5.1	4.3	2.4		1.2	1.0
16	1.9	6.0	5.1	*4.5	10	12	5.1	4.2	2.4		1.2	1.1
17	1.9	5.4	4.6	4.5	9.2	24	5.1	*4.2	2.1		1.3	1.2
18	1.9	5.4	4.6	4.5	8.7	12	*5.1	4.2	2.0		1.2	1.2
19	1.9	5.4	4.6	4.5	7.7	8.7	4.9	4.2	2.1		1.2	1.2
20	1.9	5.1	4.6	4.5	8.0	8.2	4.9	4.6	2.0		1.2	1.2
21	1.9	4.9	4.6	4.5	8.0	6.6	5.6	4.3	2.0		1.3	1.2
22	1.9	5.1	4.6	4.5	7.5	6.0	8.0	4.2	1.8		1.2	1.6
23	1.9	5.1	4.6	4.6	7.3	5.9	8.7	4.0	1.8	1.2	1.1	1.5
24	1.9	5.1	4.6	4.8	7.1	6.4	6.9	3.8	1.7	1.2	1.1	1.4
25	1.9	7.3	4.6	8.0	6.6	7.7	5.9	3.8	1.7	*1.2	1.1	1.4
26	1.9	5.2	4.8	25	6.2	6.6	5.7	3.6	*1.8	1.2	1.0	1.3
27	2.0	10	*4.8	13	6.2	6.9	5.4	3.5	1.8	1.2	1.1	1.3
28	2.0	6.6	4.8	8.4	6.0	6.6	5.1	3.2	1.7	1.1	1.2	1.3
29	2.0	5.7	4.8	8.0	-----	5.9	4.9	3.1	1.6	1.2	1.2	1.4
30	2.0	6.6	4.8	9.7	-----	5.6	4.9	3.3	1.5	1.3	1.2	1.2
31	2.0	-----	4.8	26	-----	5.1	-----	3.9	-----	1.4	1.1	-----
TOTAL	61.2	206.2	184.8	208.9	238.2	264.0	163.0	132.0	76.5	43.9	40.3	34.2
MEAN	1.97	6.87	5.96	6.74	8.51	8.52	5.43	4.26	2.55	1.43	1.30	1.14
MAX	2.4	52	21	26	17	39	8.7	6.9	4.5	-	1.6	1.6
MIN	1.8	1.9	4.6	4.3	5.9	5.1	4.9	3.1	1.5	1.1	1.0	0.9
AC-FT	121	409	367	414	472	524	323	262	152	87	80	68

CALENDAR YEAR 1960: MAX 676 MIN 1.3 MEAN 17.0 AC-FT 12,370  
 WATER YEAR 1960-61: MAX 52 MIN 0.9 MEAN 4.53 AC-FT 3,280

Peak discharge (base, 750 cfs).--No peak above base.

\* Discharge measurement made on this day.

11-1603. Zayante Creek at Zayante, Calif.

Location.--Lat 37°05'10", long 122°02'45", in SE<sup>1</sup>/<sub>4</sub> sec.2, T.10 S., R.2 W., on left bank at Zayante Road bridge in town of Zayante, 0.4 mile upstream from Lompico Creek, 2.0 miles east of Ben Lomond, and 3.2 miles upstream from mouth.

Drainage area.--11.1 sq mi.

Records available.--October 1957 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 390 ft (from topographic map).

Extremes.--Maximum discharge during year, 45 cfs Mar. 15 (gage height, 2.09 ft); no flow July 17, 18, 20, Sept. 2-15, 17, caused by filling of pools upstream.

1957-61: Maximum discharge, 3,700 cfs Apr. 2, 1958 (gage height, 7.70 ft), from rating curve extended above 350 cfs on basis of slope-area measurement of peak flow; no flow at times, caused by filling of pools upstream.

Remarks.--Records poor. No known regulation; only small diversion for individual use.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	0.4	0.3	16	1.0	5.2	1.5	1.5	1.1	1.0	0.3	0.1	0.1
2	1.0	.3	7.2	1.0	4.0	1.5	1.5	1.1	.8	.1	.1	0
3	.6	.3	3.3	1.0	3.1	1.5	1.4	1.1	.7	.2	.1	0
4	.4	.3	2.4	1.0	2.5	1.9	1.4	1.1	.7	.3	.1	0
5	.3	.3	2.0	1.0	2.3	2.1	1.4	1.1	.8	.3	.1	0
6	.9	.4	1.7	1.0	2.3	2.4	1.3	1.8	.8	.3	.1	0
7	.7	.3	1.5	1.0	2.1	1.8	1.3	2.1	.7	.3	.1	*0
8	.7	.3	1.4	1.0	2.0	1.7	1.3	1.4	.6	.2	.1	0
9	.5	.3	1.2	1.0	1.8	1.7	1.5	1.3	.6	.1	.1	0
10	*.5	.3	1.4	1.0	1.8	1.5	1.7	1.4	.5	.1	.1	0
11	.5	.4	1.5	1.0	2.7	1.5	1.8	1.3	.5	.1	.1	0
12	.6	2.5	1.2	.9	2.3	1.5	1.7	1.1	.4	.1	.1	0
13	.6	6.7	1.2	.9	1.9	1.4	1.5	1.1	.4	.1	.1	0
14	.7	1.7	1.4	.9	1.8	*3.2	1.4	1.0	.4	.1	.1	0
15	.4	*.9	2.0	.9	2.0	20	1.2	.9	.3	.1	.1	0
16	.3	.7	1.8	.9	1.9	5.2	1.1	.9	.3	.1	.1	.1
17	.3	.6	1.5	*.9	1.9	9.0	1.1	.8	.3	0	.1	0
18	.4	.5	1.3	.9	1.8	3.5	*1.1	*.8	.3	0	.1	.3
19	.5	.5	1.3	.8	1.7	2.4	1.2	1.0	.5	.1	.1	.3
20	.5	.5	1.2	.8	*1.5	2.1	1.2	1.1	.3	0	.1	.3
21	.4	.5	1.2	.8	1.5	1.8	1.8	1.0	.1	.1	.1	.3
22	.4	.5	*1.2	.8	1.7	1.5	2.9	.9	.2	.1	.1	.3
23	.4	.5	1.1	.9	1.8	1.4	3.1	.8	.5	.3	.1	.3
24	.5	.4	1.1	.9	1.4	1.7	2.0	.7	.3	.4	.1	.3
25	.5	4.2	1.1	1.9	1.4	1.8	1.8	.7	.3	.2	.1	.3
26	.5	14	1.0	5.9	1.4	1.7	1.5	.7	.3	*.1	.1	.4
27	.4	2.5	1.0	2.5	1.4	1.7	1.4	.5	*.4	.2	.1	.1
28	.3	1.5	.9	2.0	1.5	1.7	1.3	.5	.3	.2	.1	.1
29	.3	1.2	.9	2.3	-----	1.5	1.2	.6	.3	.1	.1	.1
30	.3	3.6	1.0	2.9	-----	1.5	1.2	.5	.3	.1	.1	.1
31	.3	-----	1.0	8.1	-----	1.5	-----	.5	-----	.1	.1	-----
TOTAL	15.1	47.0	64.0	47.9	58.7	85.2	45.8	30.9	13.9	4.8	3.1	3.2
MEAN	0.49	1.57	2.06	1.55	2.10	2.75	1.53	1.00	0.46	0.15	0.10	0.11
MAX	1.0	14	16	8.1	5.2	20	3.1	2.1	1.0	0.4	0.1	0.3
MIN	0.3	0.3	0.9	0.8	1.4	1.4	1.1	0.5	0.1	0	0.1	0
AC-FT	30	93	127	95	116	169	91	61	28	9.5	6.1	6.3

CALENDAR YEAR 1960: MAX 270 MIN 0.2 MEAN 3.97 AC-FT 2,880  
 WATER YEAR 1960-61: MAX 20 MIN 0 MEAN 1.15 AC-FT 832

Peak discharge (base, 450 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

## SAN LORENZO RIVER BASIN

11-1605. San Lorenzo River at Big Trees, Calif.

Location.--Lat 37°01'40", long 122°03'30", in Canada del Rincon Grant, on right bank 0.5 mile south of Big Trees station on Southern Pacific Railroad, 1.6 miles downstream from Zayante Creek, and 4 miles north of Santa Cruz, Santa Cruz County.

Drainage area.--111 sq mi.

Records available.--October 1936 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Datum of gage is 217.0 ft above mean sea level (levels by Topographic Division).

Average discharge.--25 years, 137 cfs (99,180 acre-ft per year); median of yearly mean discharges, 94 cfs (68,100 acre-ft per year).

Extremes.--Maximum discharge during year, 639 cfs Nov. 26 (gage height, 3.81 ft); minimum, 5.1 cfs Aug. 21, 27.

1937-61: Maximum discharge, 30,400 cfs Dec. 23, 1955 (gage height, 22.55 ft), from rating curve extended above 11,000 cfs on basis of slope-area measurement of peak flow; minimum, 0.8 cfs June 25, 1939.

Remarks.--Records good except those for period of no gage-height record, which are fair. Many small diversions above station for domestic supply.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Nov. 13-26, May 15 to June 27)

Oct. 1 to Mar. 31

Apr. 1 to Sept. 30

0.4	10	1.5	61	0.3	7.4
.5	12	2.0	106	.5	15
.7	19	2.5	192	1.0	29
1.0	31	3.0	330	1.4	52

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	12	208	21	93	27	41	23	22	12	8.5	8.2
2	11	12	142	21	76	27	39	23	23	11	8.5	8.2
3	11	12	73	20	66	27	37	22	20	9.8	8.5	8.0
4	15	12	a 53	20	56	29	35	21	20	9.5	9.1	8.0
5	12	13	a 42	20	49	37	33	20	20	11	9.1	7.8
6	14	14	a 36	21	45	39	32	27	20	11	8.9	8.0
7	21	14	a 32	20	41	31	31	33	20	11	7.8	* 7.6
8	18	14	a 30	20	38	29	30	25	18	11	7.8	8.0
9	13	14	a 29	20	38	32	29	23	19	11	8.0	8.2
10	* 15	14	29	20	36	30	28	24	20	9.8	8.9	8.5
11	13	16	32	20	77	30	27	22	18	9.3	8.2	8.2
12	13	34	29	19	69	29	27	21	21	9.5	8.5	8.5
13	13	62	27	19	53	28	28	21	20	10	9.1	8.0
14	13	* 46	26	19	47	* 36	27	21	17	11	8.9	8.0
15	12	30	29	19	* 49	188	25	20	17	10	8.7	8.0
16	14	25	33	19	47	78	25	20	18	11	8.2	9.5
17	13	23	28	* 19	41	159	23	20	18	8.2	8.2	10
18	13	24	26	19	38	83	* 23	* 20	14	8.9	7.6	10
19	13	23	25	19	36	70	23	20	12	8.7	8.9	9.5
20	13	24	25	19	35	65	22	21	12	8.2	8.9	9.5
21	13	23	24	19	33	55	25	19	12	8.5	8.0	10
22	13	23	24	19	32	50	48	20	12	8.7	9.1	10
23	13	22	23	19	30	47	47	19	12	9.1	7.8	9.3
24	13	21	23	20	30	57	34	20	12	8.7	8.0	9.3
25	13	48	23	46	29	64	28	19	11	8.9	8.0	10
26	13	270	22	135	29	58	27	19	11	* 8.7	8.0	9.8
27	12	47	* 21	58	28	58	25	19	* 12	8.9	9.1	9.3
28	12	30	21	40	28	54	24	19	12	8.5	8.9	9.5
29	12	26	21	43	—	50	24	19	12	8.7	9.1	8.9
30	12	63	21	63	—	47	24	20	12	8.9	8.5	9.5
31	12	—	21	145	—	44	—	20	—	8.5	8.2	—
Total	409	1,011	1,198	1,001	1,269	1,658	891	660	487	298.0	263.0	265.3
Mean	13.2	33.7	38.6	32.3	45.3	53.5	29.7	21.3	16.2	9.61	8.48	8.84
Max.	21	270	208	145	93	188	48	33	23	12	9.1	10
Min.	11	12	21	19	28	27	22	19	11	8.2	7.6	7.6
Ac-ft	811	2,000	2,380	1,990	2,520	3,290	1,770	1,310	966	591	522	526

Calendar year 1960: Max 1,050 Min 9.7 Mean 49.6 Acre-feet 36,030  
Water year 1960-61: Max 270 Min 7.6 Mean 25.8 Acre-feet 18,680

Peak discharge (base, 1,400 cfs).--No peak above base.

\* Discharge measurement made on this day.

a No gage-height record.

## SAN LORENZO RIVER BASIN

295

11-1615. Branciforte Creek at Santa Cruz, Calif.

Location.--Lat 36°58'00", long 122°01'00", on right bank in Santa Cruz, Santa Cruz County, 15 ft downstream from Market Street bridge and 1.0 mile upstream from mouth.

Drainage area.--17.3 sq mi.

Records available.--January 1940 to September 1943, March 1952 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 11.22 ft above mean sea level (levels by Corps of Engineers). Jan. 3 to Nov. 14, 1940, staff gage at site 15 ft upstream at datum 3.90 ft higher. Nov. 15, 1940, to Nov. 25, 1941, staff gage at site 150 ft downstream and Nov. 26, 1941, to Sept. 30, 1943, water-stage recorder at site 75 ft downstream, both at datum 4.52 ft higher. Mar. 16 to July 27, 1952, staff gages at site 150 ft downstream at present datum.

Average discharge.--12 years, 21.3 cfs (15,420 acre-ft per year); median of yearly mean discharges, 16 cfs (11,600 acre-ft per year).

Extremes.--Maximum discharge during year, 503 cfs Nov. 26 (gage height, 7.56 ft); minimum, 0.5 cfs Sept. 4. 1940-43, 1952-61: Maximum discharge, 8,100 cfs Dec. 22, 1955 (gage height, 22.04 ft), from rating curve extended above 530 cfs on basis of slope-area measurement of peak flow; minimum, 0.1 cfs Aug. 18, 1954, Sept. 17, 1955.

Remarks.--Records poor. No storage or diversion above station.

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

5.5	0.5	5.9	36
5.6	1.4	6.0	60
5.7	5.2	6.5	185
5.8	17		

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	1.3	1.0	112	3.3	46	2.5	15	3.3	3.3	1.1	0.6	1.0
2	1.3	1.0	70	3.3	32	2.2	12	3.3	3.3	1.1	.6	1.0
3	1.2	1.1	15	3.3	15	2.5	9.9	3.7	3.3	1.1	.6	.8
4	1.2	1.2	4.8	3.3	7.6	2.9	8.7	2.9	2.5	1.2	.6	.7
5	1.2	1.8	4.1	3.3	4.8	14	7.6	2.9	2.9	1.0	.7	.6
6	1.8	2.5	3.3	3.3	4.4	12	6.4	7.0	3.7	1.0	.8	.8
7	1.8	2.2	3.3	3.3	3.7	4.4	6.4	6.4	2.5	1.0	.9	.9
8	1.4	1.8	3.3	3.3	3.3	4.4	4.8	3.7	2.2	1.0	.8	1.0
9	1.2	1.8	3.3	3.3	3.3	8.7	4.8	2.5	1.8	1.0	.8	1.0
10	*1.0	1.8	4.8	2.9	2.5	4.8	4.4	2.5	2.2	1.0	.8	1.0
11	1.2	3.7	5.2	2.5	7.6	4.4	4.8	2.5	2.2	.9	.9	1.0
12	1.2	7.6	3.7	2.5	6.4	4.1	4.4	2.5	1.8	1.0	.8	.9
13	1.2	62	3.7	2.5	3.3	4.4	4.4	2.5	1.8	1.0	.8	1.1
14	1.3	*3.7	3.7	2.9	2.5	*10	3.7	2.2	1.8	1.0	.8	1.1
15	1.2	2.5	4.1	2.9	*7.6	108	3.3	1.8	1.4	1.0	.9	1.1
16	1.1	2.2	3.7	3.3	4.1	30	2.9	1.8	1.3	1.0	1.0	1.4
17	1.2	2.5	3.3	*2.9	2.9	93	2.9	*2.2	1.3	.9	1.0	1.8
18	1.2	2.5	2.9	2.5	2.9	36	3.3	3.3	1.3	.9	1.0	1.8
19	1.3	2.2	2.5	2.5	2.5	32	*2.5	3.7	1.3	.9	1.0	1.4
20	1.3	2.2	2.9	2.2	2.5	36	2.2	3.7	1.2	.9	1.0	1.4
21	1.3	2.2	3.3	2.2	2.5	23	3.8	3.3	1.2	.9	1.0	1.8
22	1.3	2.2	3.3	2.2	2.2	19	12	3.3	1.2	1.0	.9	1.8
23	1.3	2.2	2.9	2.2	1.8	17	9.9	2.9	1.2	1.0	.8	1.8
24	1.2	2.5	2.9	2.2	2.2	42	4.8	2.9	1.2	1.0	.8	1.8
25	1.2	39	2.9	42	1.8	38	3.7	2.5	1.8	.9	.7	1.8
26	1.2	139	2.9	144	1.8	38	2.9	2.5	*1.4	*.8	.6	1.8
27	1.2	2.5	*2.2	41	2.2	43	2.9	2.5	1.3	.8	.8	1.8
28	1.2	1.0	2.5	15	2.5	34	2.5	2.5	1.2	.7	.9	2.2
29	1.2	.9	2.5	25	-----	25	2.9	2.2	1.2	.7	1.0	2.2
30	1.2	12	2.9	63	-----	17	3.3	2.2	1.1	.7	1.0	2.5
31	1.1	-----	3.3	185	-----	16	-----	2.2	-----	.7	1.0	-----
TOTAL	39.0	310.8	291.2	583.1	181.9	728.3	163.1	93.4	55.9	29.2	25.9	41.3
MEAN	1.26	10.4	9.39	18.8	6.50	23.5	5.44	3.01	1.86	0.94	0.84	1.38
MAX	1.8	139	112	185	46	108	15	7.0	3.7	1.2	1.0	2.5
MIN	1.0	0.9	2.2	2.2	1.8	2.2	2.2	1.8	1.1	0.7	0.6	0.6
AC-FT	77	616	578	1,160	361	1,440	324	185	111	58	51	82

CALENDAR YEAR 1960: MAX 603 MIN 0.9 MEAN 12.3 AC-FT 8,910  
 WATER YEAR 1960-61: MAX 185 MIN 0.6 MEAN 6.97 AC-FT 5,040

Peak discharge (base, 600 cfs).--No peak above base.

\* Discharge measurement made on this day.

## SCOTT CREEK BASIN

. 11-1619. Scott Creek above Little Creek near Davenport, Calif.

Location.--Lat 37°03'50", long 122°13'45", in Agua Puerco y las Trancas Grant, on right bank 600 ft upstream from Little Creek, 2.0 miles upstream from mouth, and 4.2 miles north of Davenport, Santa Cruz County.

Drainage area.--25.0 sq mi.

Records available.--October 1958 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 30 ft (from topographic map).

Extremes.--Maximum discharge during year, 122 cfs Nov. 26 (gage height, 3.83 ft); minimum, 0.3 cfs many days in August and September. 1958-61: Maximum discharge, 806 cfs Jan. 9, 1959 (gage height, 6.68 ft); minimum, that of August and September 1961.

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

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Oct. 1 to Nov. 19, Jan. 29 to Mar. 12)

1.7	0.1	2.2	4.8
1.8	.4	2.4	11
1.9	.9	2.7	24
2.0	1.6	3.0	42
2.1	2.6	3.5	86.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.1	1.0	2.9	2.8	2.6	4.8	1.8	6.8	5.4	1.6	0.5	0.3
2	1.2	1.1	2.9	2.8	1.9	4.6	1.7	6.5	5.4	1.6	.5	.3
3	1.3	1.1	1.6	2.8	1.7	4.4	1.6	5.9	4.8	1.5	.5	.3
4	1.3	1.1	1.1	2.6	1.4	4.6	1.5	5.9	4.8	1.5	.6	.3
5	1.2	1.1	9.0	2.6	1.1	6.3	1.3	6.5	4.6	1.5	.6	.3
6	1.8	1.3	6.8	2.5	9.3	9.0	1.3	10	4.6	1.5	.6	.3
7	2.0	1.4	6.2	2.5	7.9	7.0	1.2	14	4.4	1.5	.4	.3
8	1.5	1.4	5.4	2.5	7.0	6.8	1.1	9.3	3.7	1.5	.4	.3
9	1.2	1.4	4.8	2.4	6.8	7.9	1.1	8.3	3.7	1.5	.5	.4
10	*1.0	1.4	5.1	2.3	6.2	6.5	1.0	10	3.7	1.5	.5	.4
11	1.0	1.8	6.5	2.3	2.6	5.9	9.3	8.3	2.8	1.0	.4	.5
12	1.1	4.4	5.1	2.2	2.4	5.9	1.0	7.6	3.5	1.0	.4	.5
13	1.1	7.3	4.6	2.1	1.7	5.9	1.0	7.0	3.3	1.1	.4	.5
14	1.1	*3.5	4.1	2.0	1.4	*6.2	9.6	7.0	2.8	1.0	.4	.5
15	1.0	2.4	4.4	2.0	1.5	2.9	8.3	6.5	2.6	1.0	.4	.5
16	1.0	2.1	5.1	2.0	1.5	2.1	7.9	6.5	2.8	.9	.5	.6
17	1.0	1.9	4.8	*2.0	1.3	4.7	7.6	6.2	3.0	.8	.4	.8
18	1.0	2.1	4.4	2.0	1.1	2.8	*6.8	5.9	3.5	.6	.4	.8
19	1.0	2.1	4.1	1.9	8.6	2.3	6.5	*6.5	3.3	.6	.4	.8
20	1.0	2.1	4.1	1.9	*7.9	2.5	6.5	6.8	2.8	.5	.4	.8
21	1.0	2.1	3.9	1.9	7.3	2.0	7.0	6.5	2.6	.5	.4	.8
22	1.1	2.1	*3.7	1.9	6.8	1.7	1.2	5.9	2.4	.5	.3	.8
23	1.1	2.2	3.5	2.1	6.2	1.7	1.5	5.9	2.3	.5	.3	.8
24	1.1	2.2	3.3	2.2	5.6	2.2	1.1	5.6	2.3	.6	.3	.7
25	1.1	5.9	3.3	4.6	5.6	2.8	9.0	5.4	2.1	.6	.3	.7
26	1.2	5.3	3.3	2.7	5.4	2.7	7.9	5.1	2.1	*.6	.3	.6
27	1.1	1.3	2.8	1.3	4.8	2.9	7.3	4.8	*2.0	.6	.3	.5
28	1.0	7.0	2.8	8.3	5.1	2.8	6.8	4.8	1.8	.6	.3	.5
29	1.0	5.9	2.8	7.3	—	2.4	6.8	4.6	1.7	.6	.4	.4
30	1.0	1.2	2.8	1.0	—	2.2	7.0	4.8	1.6	.5	.4	.6
31	1.0	—	2.8	2.4	—	2.0	—	4.8	—	.5	.4	—
Total	55.6	147.4	204.5	148.5	322.5	512.8	308.3	209.7	96.4	29.8	12.9	15.9
Mean	1.15	4.91	6.60	4.79	11.5	16.5	10.3	6.76	3.21	0.96	0.42	0.53
Max.	2.0	5.3	2.9	2.7	2.6	4.7	.18	14	5.4	1.6	0.6	0.8
Min.	1.0	1.0	2.8	1.9	4.8	4.4	6.5	4.6	1.6	0.5	0.3	0.3
Ac-ft	71	292	406	295	640	1,020	612	416	191	59	26	32

Calendar year 1960: Max 192 Min 0.5 Mean 13.2 Acre-feet 9,610  
Water year 1960-61: Max 53 Min 0.3 Mean 5.60 Acre-feet 4,060

Peak discharge (base, 300 cfs).--No peak above base.

\* Discharge measurement made on this day.

Note.--No gage-height record Dec. 29 to Jan. 16.

11-1625. Pescadero Creek near Pescadero, Calif.

Location.--Lat 37°15'40", long 122°19'40", in SW $\frac{1}{4}$  sec.5, T.8 S., R.4 W., on left bank at downstream side of highway bridge, 3.0 miles east of Pescadero and 5.3 miles upstream from mouth.

Drainage area.--45.9 sq mi.

Records available.--April 1951 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 62.3 ft above mean sea level, datum of 1929.

Average discharge.--10 years, 42.6 cfs (30,840 acre-ft per year); median of yearly mean discharges, 26 cfs (18,800 acre-ft per year).

Extremes.--Maximum discharge during year, 150 cfs Mar. 15 (gage height, 4.16 ft); no flow for part of many days July to September. 1951-61: Maximum discharge, 9,420 cfs Dec. 23, 1955 (gage height, 21.27 ft), from rating curve extended above 2,700 cfs on basis of slope-area measurement of peak flow; no flow at times.

Remarks.--Records fair above 5 cfs, poor below. Small diversions above station by pumping. Small logging pond in headwaters can cause regulation during flushing operations.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Oct. 12 to Nov. 12)

1.7	0	2.5	19
1.8	.2	3.0	46
1.9	.5	3.5	83
2.0	1.8	4.0	132
2.1	4.5		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.8	1.2	* 3.9	3.4	22	4.9	13	5.6	3.7	0.6	0.9	0.5
2	.9	1.3	4.2	3.4	18	4.5	12	5.6	* 3.7	.9	.4	.5
3	1.2	1.3	22	3.2	19	* 4.5	11	5.2	3.7	.9	.8	.2
4	1.0	1.3	13	3.2	14	4.9	10	* 4.9	3.7	.8	* .9	.1
5	1.2	1.3	9.8	3.4	12	5.2	* 9.4	4.5	3.4	.8	1.1	1.9
6	2.3	1.4	8.0	3.2	10	7.7	8.7	6.3	2.9	.5	1.8	.4
7	2.3	1.8	6.6	3.2	* 8.7	8.0	8.4	11	1.8	.5	2.3	0
8	1.7	2.6	6.3	3.2	7.3	6.3	7.7	8.4	3.7	.6	1.4	0
9	1.2	2.9	5.6	3.2	6.6	7.0	7.0	6.6	3.4	.8	.4	* 0
10	.9	2.6	5.6	3.2	6.3	6.3	7.0	6.6	3.4	.6	.3	.1
11	.8	3.2	5.9	3.2	22	5.6	6.6	5.9	3.7	.5	.2	2.0
12	.5	6.2	5.6	3.2	32	5.6	7.0	5.6	3.7	* .8	.2	1.2
13	.4	18	5.2	2.9	21	5.6	7.3	5.2	3.4	.5	.3	.3
14	.4	13	5.2	2.9	16	6.0	6.6	4.9	3.2	.5	.4	.1
15	.5	4.9	5.9	2.9	15	* 8.4	5.9	4.5	2.9	.4	.4	.2
16	.9	2.9	7.0	2.9	16	4.1	5.6	4.5	2.1	.4	.5	.5
17	.9	1.8	7.7	2.9	13	5.0	5.6	4.5	1.8	.4	.4	1.3
18	* .8	2.9	5.2	2.9	12	3.5	5.2	4.2	1.7	.4	.9	1.4
19	.8	2.9	4.9	2.9	10	2.6	* 4.9	4.9	* 1.5	.3	.5	1.3
20	.8	2.3	4.5	2.9	9.4	2.4	4.5	5.2	1.4	.3	.5	1.2
21	.8	1.8	4.2	2.9	8.7	1.8	5.6	5.2	1.2	.3	.4	1.0
22	.9	* 1.7	4.2	2.6	8.0	1.6	13	4.9	1.2	.3	.2	.3
23	.6	2.1	4.0	3.4	7.0	1.4	16	4.2	1.0	.3	.1	.4
24	.8	2.1	4.0	* 3.7	7.0	1.4	12	3.2	1.0	.4	.3	.5
25	.8	4.8	3.7	4.5	5.9	2.3	8.7	2.1	1.0	.4	.3	.6
26	.8	5.0	3.7	2.5	5.6	2.2	7.3	3.7	.9	.2	.3	.5
27	1.0	12	3.7	1.5	5.2	2.1	6.6	3.7	.9	.3	.4	.5
28	1.0	5.9	4.0	9.8	5.2	2.0	5.9	3.7	.6	.4	.3	.5
29	.9	4.2	3.7	8.4	—	1.7	5.6	3.7	.5	.4	.5	.5
30	1.0	7.7	* 3.7	13	—	1.5	5.6	3.7	.5	.5	.5	.4
31	1.2	—	3.4	18	—	1.4	—	3.7	—	.9	.4	—
Total	30.1	168.1	257.3	168.5	342.9	536.1	239.7	155.9	67.6	15.9	18.3	18.4
Mean	0.97	5.60	8.30	5.44	12.2	17.3	7.99	5.03	2.25	0.51	0.59	0.61
Max.	2.3	50	42	25	32	84	16	11	3.7	0.9	2.3	2.0
Min.	0.4	1.2	3.4	2.6	5.2	4.5	4.5	2.1	0.5	0.2	0.1	0
Ac-ft	60	333	510	334	680	1,060	475	309	134	32	36	36

Calendar year 1960:

Max 323

Min 0.2

Mean 10.7

Acre-feet 7,770

Water year 1960-61:

Max 84

Min 0

Mean 5.53

Acre-feet 4,000

Peak discharge (base, 500 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

## PURISIMA CREEK BASIN

11-1626. Purisima Creek near Half Moon Bay, Calif.

Location.--Lat 37°26'06", long 122°22'23", in Canada de Verde y Arroyo de la Purisima Grant, on left bank 15 ft downstream from county road bridge, 3.6 miles southeast of Half Moon Bay, San Mateo County, and 4.0 miles upstream from mouth.

Drainage area.--4.83 sq mi.

Records available.--October 1958 to September 1961.

Gage.--Water stage recorder. Altitude of gage is 380 ft (from topographic map).

Extremes.--Maximum discharge during year, 14 cfs Mar. 14 (gage height, 3.92 ft); minimum, 0.2 cfs Sept. 3-5.

1958-61: Maximum discharge, 49 cfs Feb. 8, 1960 (gage height, 4.53 ft), from rating curve extended above 13 cfs; minimum, 0.2 cfs Dec. 29, 30, 1959, Sept. 3-5, 1961.

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

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

3.2	0.1	3.5	2.0
3.3	.4	3.6	3.8
3.4	.9	3.8	9.2

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	0.4	0.3	1.6	0.5	1.2	0.5	2.7	0.9	1.1	0.5	0.4	0.3
2	.4	.3	1.6	.5	1.9	.5	2.2	.9	*1.0	.5	.4	.3
3	.3	.3	1.2	.5	2.2	*.5	1.7	.8	1.0	.5	.4	.2
4	.3	.3	.8	.5	1.5	.5	1.5	*.8	1.0	.5	*.4	.2
5	.3	.3	.7	.5	1.2	.8	*1.3	.8	1.0	.5	.4	.2
6	.5	.4	.7	.5	.9	.8	1.2	2.0	1.0	.5	.4	.3
7	.4	.4	.7	.5	*.7	.7	1.1	1.7	1.0	.5	.4	.3
8	.3	.4	.7	.5	.7	.7	.9	1.5	1.0	.5	.4	*.3
9	.3	.4	.6	.5	.7	1.1	.8	1.4	.9	.5	.4	.3
10	.3	.4	.6	.5	.7	.8	.8	1.7	.9	.4	.3	.3
11	.3	.4	.6	.5	1.7	.7	.7	1.6	.9	.4	.3	.3
12	.3	.6	.6	.5	1.7	.7	1.1	1.5	.8	*.5	.3	.3
13	.3	.7	.5	.5	1.3	.6	.9	1.3	.8	.5	.3	.4
14	.3	.5	.5	.5	1.1	1.8	.8	1.3	.8	.5	.3	.4
15	.3	.4	.5	.5	2.0	9.0	.7	1.2	.8	.5	.3	.4
16	.3	.4	.5	.5	2.0	5.5	.7	1.2	.7	.4	.3	.5
17	.3	.4	.5	.5	1.5	6.8	.7	1.2	.7	.4	.3	.4
18	*.3	.5	.5	.5	1.2	4.8	.7	1.2	.7	.4	.3	.4
19	.3	.5	.5	.5	1.0	4.3	.7	*1.9	.7	.4	.3	.4
20	.3	.4	.5	.5	.8	3.6	.7	1.7	.7	.4	.3	.4
21	.3	.4	.5	.5	.8	3.2	.9	1.7	.7	.4	.3	.4
22	.3	*.4	.5	.5	.7	2.7	1.5	1.7	.7	.5	.3	.4
23	.3	.4	.5	.7	.7	2.5	1.1	1.6	.6	.5	.3	.4
24	.3	.4	.5	*.6	.6	3.4	1.0	1.5	.5	.4	.3	.4
25	.3	1.5	.5	.8	.6	5.5	.9	1.4	.5	.4	.3	.3
26	.3	3.6	.5	3.4	.5	5.2	.9	1.3	.5	.4	.3	.3
27	.4	.8	.5	1.1	.5	5.2	.9	1.2	.5	.4	.3	.3
28	.3	.7	.5	.8	.5	5.0	.8	1.2	.5	.4	.3	.3
29	.3	.6	.5	1.1	-----	4.3	.9	1.1	.5	.4	.3	.3
30	.3	.8	*.5	1.2	-----	3.4	.8	1.1	.5	.4	.3	.3
31	.3	-----	.5	*1.3	-----	3.0	-----	1.0	-----	.4	.3	-----
TOTAL	9.9	17.9	19.9	22.0	30.9	88.1	31.6	41.4	23.0	13.9	10.2	10.0
MFAN	0.32	0.60	0.64	0.71	1.10	2.84	1.05	1.34	0.77	0.45	0.33	0.33
MAX	0.5	3.6	1.6	3.4	2.2	9.0	2.7	2.0	1.1	0.5	0.4	0.5
MIN	0.3	0.3	0.5	0.5	0.5	0.5	0.7	0.8	0.5	0.4	0.3	0.2
AC-FT	20	36	39	44	61	175	63	82	46	28	20	20

CALENDAR YEAR 1960: MAX 26

MIN 0.3

MEAN 1.28

AC-FT 930

WATER YEAR 1960-61: MAX 9.0

MIN 0.2

MEAN 0.87

AC-FT 634

Peak discharge (base, 20 cfs).--No peak above base.

\* Discharge measurement made on this day.



## REDWOOD CREEK BASIN

299

11-1628. Redwood Creek at Redwood City, Calif.

Location.--Lat 37°26'58", long 122°13'57", in Pulgas Grant, at Menlo Country Club, on right bank, 200 ft upstream from Alameda de las Pulgas bridge and 2.5 miles south of Redwood City Post Office, San Mateo County.

Drainage area.--1.62 sq mi.

Records available.--September 1959 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 83.92 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 16 cfs Mar. 14 (gage height, 2.01 ft); no flow for several months.  
1959-61: Maximum discharge, 203 cfs Feb. 8, 1960 (gage height, 5.18 ft); no flow many days in each year.

Remarks.--Records good. Low flow at times affected by return flow from urban irrigation.

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

0.9	0	1.3	1.4
1.0	.1	1.4	2.4
1.1	.3	1.5	4.0
1.2	.7		

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	0	0	1.5	0.1	0.2	0.1	0.1	0				
2	0	0	.3	.1	.3	.1	.1	0				
3	0	.1	.1	.1	.1	.1	0	0				
4	0	.1	.1	.1	.1	.1	0	.1				
5	0	.1	.1	.1	.1	.2	0	*.1				
6	.1	.1	.1	.1	*.1	*.1	*0	.1				
7	.1	.1	.1	.1	.1	.1	0	0				(*)
8	.1	.1	.1	.1	.1	.1	0	0				
9	0	.1	.1	.1	.1	.1	0	0				
10	0	.1	.1	*.1	.1	.1	0	.1				
11	0	.1	.1	.1	.7	.1	0	.1				
12	.1	.2	.1	.1	.2	.1	0	.1				
13	.1	.6	.1	.1	.2	.1	.1	.1				
14	.1	.1	.1	.1	.1	2.2	0	0				
15	.1	.1	.1	.1	.1	*2.7	0	0			(*)	
16	0	.1	.1	.1	.1	.5	0	.1				
17	0	.1	.1	.1	.1	2.4	0	.1				
18	0	.1	.1	.1	.1	.2	0	.1				
19	0	.1	.1	.1	.1	.2	0	.2				
20	**0	.1	.1	.1	.1	.1	0	0				
21	0	*.1	.1	0	.1	.1	.3	0				
22	0	.1	.1	0	.1	.1	.2	0				
23	0	.1	.1	0	.1	.1	.1	.1				
24	0	.1	.1	0	.1	.2	0	.1				
25	0	1.5	.1	.9	.1	.3	0	0				
26	0	1.0	.1	1.3	.1	.2	0	0				
27	0	.1	.1	.1	.1	.1	0	0				
28	.1	.1	.1	.1	.1	.1	0	0				
29	0	.1	.1	1.0	-----	.1	0	0				
30	0	.1	.1	.2	-----	.1	0	0				
31	0	-----	.1	.9	-----	.1	-----	0	-----			-----
TOTAL	0.8	5.7	4.7	6.5	3.9	11.2	0.9	1.4	0	0	0	0
MEAN	0.03	0.19	0.15	0.21	0.14	0.36	0.03	0.05	0	0	0	0
MAX	0.1	1.5	1.5	1.3	0.7	2.7	0.3	0.2	0	0	0	0
MIN	0	0	0.1	0	0.1	0.1	0	0	0	0	0	0
AC-FT	1.6	11	9.3	13	7.7	22	1.8	2.8	0	0	0	0

CALENDAR YEAR 1960 MAX 41 MIN 0 MEAN 0.50 AC-FT 364  
WATER YEAR 1960-61 MAX 2.7 MIN 0 MEAN 0.10 AC-FT 69

Peak Discharge (base, 40 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

\*\* Field estimate made on this day.

## ATHERTON DRAINAGE CHANNEL BASIN

11-1629. Sharon Creek near Menlo Park, Calif.

Location.--Lat 37°25'45", long 122°13'02" in Pulgas Grant, at Atherton City boundary, 900 ft upstream from Atherton drainage channel and 2.6 miles southwest of Menlo Park, San Mateo County.

Drainage area.--0.38 sq mi.

Records available.--October 1958 to September 1961.

Gage.--Water-stage recorder and concrete control. Datum of gage is 146.18 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 0.13 cfs Mar. 17 (gage height, 1.16 ft); no flow for most of year.

1958-61: Maximum discharge, 27.2 cfs Feb. 8, 1960 (gage height, 2.41 ft); no flow for many months in each year.

Flood of Apr. 2, 1958, reached a stage of about 4.2 ft, from floodmarks.

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

Discharge, in cubic feet per second, water year October 1960 to September 1961

Mar. 17..... 0.03

Month	Cfs-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
March 1961.....	0.03	0.03	0	0.001	0.003	0	0
Calendar year 1960.....	-	4.12	0	.025	.066	.91	18
Water year 1960-61.....	-	.03	0	.0001	0	0	0

Peak discharge (base, 9 cfs).--No peak above base.

Note.--Flow occurred only on day listed above. Observations of no flow generally made twice a month.

## SAN FRANCISQUITO CREEK BASIN

11-1629.5. San Francisquito Creek tributary near Stanford University, Calif.

Location.--Lat 37°24'43", long 122°11'52", in Pulgas Grant, on left bank 130 feet upstream from mouth, 200 ft downstream from ranch road bridge, 0.4 mile west of gate at Alpine Road, and 1.8 miles southwest of Stanford University Post Office, Santa Clara County.

Drainage area.--0.26 sq mi.

Records available.--October 1958 to September 1961.

Gage.--Water-stage recorder and concrete control. Datum of gage is 174.73 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 0.28 cfs Nov. 25 (gage height, 1.22 ft); no flow for most of year.

1958-61: Maximum discharge, 8.70 cfs Feb. 8, 1960 (gage height, 2.10 ft); no flow for many months in each year.

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

Discharge, in cubic feet per second, water year October 1960 to September 1961

Nov. 25..... 0.02

26..... .02

Mar. 14..... .01

Month	Cfs-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
November 1960.....	0.04	0.02	0	0.001	0.005	0.01	0.1
March 1961.....	.01	.01	0	.0003	.001	0	0
Calendar year 1960.....	-	1.26	0	.009	.037	.51	6.9
Water year 1960-61.....	-	.02	0	.0001	.0005	.01	.1

Peak discharge (base, 5 cfs).--No peak above base.

Note.--Flow occurred only on days listed above. Observations of no flow generally made twice a month.

11-1632. Los Trancos Creek tributary near Stanford University, Calif.

Location.--Lat 37°24'18", long 122°11'09", in El Corte de Madera Grant, on right bank 350 ft east of wooden water tanks, 0.4 mile east of Ladera, 0.6 mile upstream from mouth, and 1.7 miles southwest of Stanford University Post Office, Santa Clara County.

Drainage area.--0.47 sq mi.

Records available.--October 1958 to September 1961.

Gage.--Water-stage recorder and concrete control. Datum of gage is 269.13 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 0.13 cfs Nov. 25 (gage height, 1.14 ft); no flow for most of year.  
1958-61: Maximum discharge, 28.9 cfs Feb. 16, 1959 (gage height, 2.32 ft); no flow for many months in each year.

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

Discharge, in cubic feet per second, water year October 1960 to September 1961

Nov. 25.....	0.01	Mar. 14.....	0.01
26.....	.01	15.....	.01
Dec. 1.....	.01	17.....	.01

Month	Cfs-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
November 1960.....	0.02	0.01	0	0.0007	0.001	0	0
December.....	.01	.01	0	.0003	.001	0	0
March 1961.....	.03	.01	0	.001	.002	0	.1
Calendar year 1960.....	-	1.72	0	.015	.032	.43	11
Water year 1960-61.....	-	.01	0	.0002	0	0	.1

Peak discharge (base, 6 cfs).--No peak above base.

Note.--Flow occurred only on days listed above. Observations of no flow generally made twice a month.

## SAN FRANCISQUITO CREEK BASIN

11-1645. San Francisquito Creek at Stanford University, Calif.

Location.--Lat 37°25'24", long 122°11'18", in San Francisquito Grant at golf course, on right bank 1.1 miles downstream from Los Trancos Creek and 1.1 miles west of Stanford University Post Office, Santa Clara County.

Drainage area.--37.5 sq mi (revised).

Records available.--October 1930 to September 1941, October 1950 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 120 ft (from topographic map).

Average discharge.--22 years, 17.9 cfs (12,960 acre-ft per year).

Extremes.--Maximum discharge during year, 12 cfs Nov. 26 (gage height, 0.83 ft); no flow for several months. 1930-41, 1950-61: Maximum discharge, 5,560 cfs Dec. 22, 1955 (gage height, 13.60 ft); no flow at times in each year.

Remarks.--Records good. Flow regulated by Searsville Lake (capacity, 952 acre-ft). About 900 acre-ft diverted annually to Los Trancos and Lagunita Canals for irrigation on Stanford University campus below station.

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

0.16	0	0.5	2.9
.3	.3	.6	5.0
.4	1.1		

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1		0	0.6	0.2	0.2	0.1						
2		0	.4	.1	.2	.1						
3		0	.2	.1	.2	.1						
4		0	.2	.2	.2	.1				(*)		
5		0	.1	.1	.1	.1		(*)				
6		0	.2	.1	.1	*.2	(*)					(*)
7		0	.1	.1	.1	.2						
8		0	.1	.1	.1	.2						
9		0	.1	.1	.1	.2						
10		0	.1	*.1	.1	.2						
11		0	.2	.1	.2	.1						
12		.1	.2	.1	.1	.1						
13		.1	.2	.1	.1	0						
14		.1	.2	.1	.1	.1						
15		.1	.2	.1	.1	*3.1					(*)	
16		.1	.2	.1	.1	.1						
17		.1	.2	.1	.1	.8						
18		.1	.1	.1	.1	.2						
19		.1	.1	.1	.1	.1						
20	(*)	.1	.1	.1	.1	0						
21		.1	.1	.1	.1	*0						
22		.1	.1	.1	.1	0						
23		.1	.2	.1	.1	0						
24		.1	.1	.1	.1	0						
25		.3	.1	.1	.1	0						
26		2.1	.1	.1	.1	0						
27		.2	.1	.1	.1	0						
28		.2	.2	.1	.1	0						
29		.2	.2	.1	-----	0						
30		.3	.2	.1	-----	0						
31		-----	.2	.1	-----	0	-----		-----			-----
TOTAL	0	4.6	5.4	3.3	3.3	6.1	0	0	0	0	0	0
MEAN	0	0.15	0.17	0.11	0.12	0.20	0	0	0	0	0	0
MAX	0	2.1	0.6	0.2	0.2	3.1	0	0	0	0	0	0
MIN	0	0	0.1	0.1	0.1	0	0	0	0	0	0	0
AC-FT	0	9.1	11	6.5	6.5	12	0	0	0	0	0	0

CALENDAR YEAR 1960: MAX 379 MIN 0 MEAN 3.06 AC-FT 2,220  
 WATER YEAR 1960-61: MAX 3.1 MIN 0 MEAN 0.06 AC-FT 45

Peak discharge (base, 700 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

## MATADERO CREEK BASIN

303

11-1660. Matadero Creek at Palo Alto, Calif.

Location.--Lat 37°25'10", long 122°08'10", in Rinconada de San Francisquito Grant, on right bank on Ash Street, 150 ft upstream from Lambert Avenue Bridge and 2.1 miles southeast of post office at Palo Alto, Santa Clara County.

Drainage area.--7.24 sq mi (revised).

Records available.--July 1952 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 25 ft (from topographic map). Prior to Sept. 25, 1958, at site 150 ft downstream at different datum.

Average discharge.--9 years, 1.29 cfs (934 acre-ft per year).

Extremes.--Maximum discharge during year, 45 cfs Nov. 25 (gage height, 1.10 ft); no flow for most of year.  
1952-61: Maximum discharge, 854 cfs Dec. 22, 1955, from rating curve extended above 390 cfs on basis of slope-area measurement of peak flow; maximum gage height, 9.88 ft Dec. 23, 1955 (backwater from culvert); no flow for many months in each year.

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

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

0.0	0	0.4	2.1
.2	.1	.5	4.5
.3	.6	.6	7.8

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	3.8	0	0	0	0	0				0
2		0	.7	0	.8	0	0	0				0
3	(*)	0	0	0	0	* 0	0	0				0
4		0	0	0	0	.2	0	0				0
5		0	0	0	0	.1	0	* 0				0
6		1.0	0	0	* 0	.1	* 0	.2	(*)			(*) 0
7		0	0	0	0	0	0	0				0
8		0	0	0	0	.1	0	0				0
9		0	0	0	0	0	0	0				0
10		0	.2	* 0	0	0	0	0				0
11		.2	0	0	.4	0	0	0				0
12		1.1	0	0	0	0	0	0				0
13		1.3	0	0	0	0	0	0				0
14		0	0	0	0	2.2	0	0		(*)		0
15		0	0	0	.4	* 1.8	0	0			(*)	0
16		0	* 0	0	0	0	0	0				.2
17		* 0	0	0	0	.4	0	0				0
18		.1	0	0	0	0	0	0				0
19		0	0	0	0	0	0	.4				0
20	(*)	0	0	0	0	0	0	0				0
21		0	0	0	0	0	0	0				0
22		0	0	0	0	0	1.8	0				0
23		0	0	.5	0	0	.4	0				0
24		0	0	0	0	.2	0	0				0
25		5.0	0	1.6	0	0	0	0				0
26		3.8	0	2.4	0	0	0	0				0
27		0	0	0	0	0	0	0				0
28		0	0	0	0	0	0	0				0
29		0	0	1.5	—	0	0	0				0
30		0	0	0	—	0	0	0				0
31		—	0	.2	—	0	—	0				—
Total	0	12.5	4.7	6.2	1.6	5.1	2.2	0.6	0	0	0	0.2
Mean	0	0.42	0.15	0.20	0.06	0.16	0.07	0.02	0	0	0	0.007
Max.	0	5.0	3.8	2.4	0.8	2.2	1.8	0.4	0	0	0	0.2
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0	25	9.3	12	3.2	10	4.4	1.2	0	0	0	0.4

Calendar year 1960 : Max 33 Min 0 Mean 0.38 Acre-feet 276  
Water year 1960-61 : Max 5.0 Min 0 Mean 0.09 Acre-feet 66

Peak discharge (base, 50 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

## STEVENS CREEK BASIN

11-1664.8. Stevens Creek Reservoir near Monte Vista, Calif.

Location.--Lat 37°17'55", long 122°04'34", in NW $\frac{1}{4}$  sec.27, T.7 S., R.2 W., at center of dam on Stevens Creek, 2.0 miles southwest of Monte Vista.

Drainage area.--17.3 sq mi.

Records available.--December 1935 to September 1961. Monthly contents prior to October 1959 published in WSP 1735.

Gage.--Staff gage read once daily. Datum of gage is at mean sea level (levels by Santa Clara Valley Water Conservation District).

Extremes.--Maximum contents observed during year, 216 acre-ft Mar. 31 (elevation, 467.43 ft); no contents for most of year.  
1935-61: Maximum contents observed, 4,100 acre-ft Dec. 26, 1955 (elevation, 538.61 ft); no contents for part of most years.

Remarks.--Reservoir is formed by earth-fill dam completed in 1936. Capacity, 3,970 acre-ft between elevations 444.9 (invert of outlet tunnel) and 537.14 ft (crest of spillway). Water released down Stevens Creek for irrigation and ground-water recharge by percolation.

Cooperation.--Record of contents furnished by Santa Clara Valley Water Conservation District.

Month-end contents, in acre-feet, water year October 1960 to September 1961

Date	Contents†
Sept.30.....	0
Oct. 31.....	0
Nov. 30.....	63
Dec. 31.....	0
Jan. 31.....	89
Feb. 28.....	0
Mar. 31.....	215
Apr. 30.....	0
May 31.....	0
June 30.....	0
July 31.....	0
Aug. 31.....	0
Sept.30.....	0

† Contents at 8 a.m. on first day of following month.

## GUADALUPE RIVER BASIN

305

11-1669. Alamitos Creek near New Almaden, Calif.

Location.--Lat 37°13'21", long 121°51'00", in Pueblo Lands of San Jose Grant, on left bank at Greystone bridge, 1.1 miles downstream from Arroyo Calero, 3.4 miles southwest of Edenvale, and 3.5 miles northwest (corrected) of New Almaden, Santa Clara County.

Drainage area.--31.9 sq mi.

Records available.--April 1958 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 247 ft (from topographic map). Prior to July 15, 1958, staff gage at same site and datum.

Extremes.--Maximum discharge during year, 17 cfs Dec. 8, (gage height, 2.54 ft); no flow for several months.

1958-61: Maximum discharge, 4,300 cfs Apr. 2, 1958 (gage height, 9.67 ft), from rating curve extended above 330 cfs on basis of computed outflow from Almaden and Calero Reservoirs; no flow for parts of each year.

Remarks.--Records fair. Flow regulated by Calero and Almaden Reservoirs (see p. 309); water released during summer. Small diversions above station.

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

1.8	0	2.1	4.4
1.9	.2	2.2	7.0
2.0	2.2	2.5	16

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			0.4	1.8	0	0.1	4.2					
2			0	1.8	1.2	*0	4.0					
3			.9	1.2	*2.6	0	3.1					
4			6.5	*.4	3.1	0	*2.6					
5			9.1	.2	2.6	0	1.4					
6			9.4	.2	1.4	0	.1					
7			9.5	.2	.6	0	.1					
8			15	.2	.2	0	.1					
9			6.5	.2	.1	0	.1					
10			4.7	.2	.1	0	.1					
11			4.0	.2	.2	0	a .1					
12			3.7	.1	2.2	0	a 0					
13			3.5	.1	1.8	0	a 0					
14			3.3	.1	1.2	0	a 0					
15			3.1	.1	1.0	.1	a 0					
16			3.1	.1	.2	.1	a 0					
17			3.1	.1	1.2	.1	a 0					
18			2.9	.1	1.4	.1	a 0					
19	(*)	(*)	2.9	0	.4	.1	*a 0					
20			2.9	0	.4	.1	a 0					
21			2.9	0	.2	.1	*0					
22			2.6	0	.2	.1	0					
23			2.6	0	.2	1.4	0					
24			2.4	*0	.2	2.6	0					
25			2.4	0	.2	3.1	0					
26			2.4	0	.1	3.3	0					
27			2.4	0	.2	3.7	0					
28			2.2	0	.1	4.0	0					
29			2.0	0	—	4.9	0					
30			2.0	0	—	4.7	0					
31			2.0	0	—	4.4	—					
Total	0	0	120.4	7.3	23.3	33.0	15.9	0	0	0	0	0
Mean	0	0	3.88	0.24	0.83	1.06	0.53	0	0	0	0	0
Max.	0	0	15	1.8	3.1	4.9	4.2	0	0	0	0	0
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0	0	239	14	46	65	32	0	0	0	0	0

Calendar year 1960: Max 33 Min 0 Mean 4.32 Acre-feet 3,140  
 Water year 1960-61: Max 15 Min 0 Mean 0.55 Acre-feet 396

\* Discharge measurement or observation of no flow made on this day.

a No gage-height record.

## GUADALUPE RIVER BASIN

11-1680. Los Gatos Creek at Los Gatos, Calif.

Location.--Lat 37°12'30", long 121°59'15", in NE<sup>1</sup>/<sub>4</sub> sec.29, T.8 S., R.1 W., on left bank 0.3 mile downstream from Trout Creek, 0.5 mile downstream from Lexington Reservoir, and 1.0 mile south of Los Gatos.

Drainage area.--38.6 sq mi (revised).

Records available.--October 1929 to September 1944, October 1953 to September 1961. Yearly estimate for water year 1930 (incomplete) and monthly discharge only for June to September 1944, published in WSP 1315-B.

Gage.--Water-stage recorder. Altitude of gage is 460 ft (from topographic map). Prior to Oct. 1, 1943, water-stage recorder, with concrete control after October 1934, at site 1 mile downstream and October 1943 to May 1944 at site 0.5 mile downstream at different datums.

Average discharge.--23 years, 45.2 cfs (32,720 acre-ft per year), adjusted for diversion.

Extremes.--Maximum discharge during year, 92 cfs Mar. 17 (gage height, 4.43 ft); no flow Sept. 22-30.

1929-44, 1953-61: Maximum discharge, 7,110 cfs Feb. 27, 1940 (gage height, 14.71 ft, site and datum then in use), from rating curve extended above 2,300 cfs; no flow for part of most years.

Remarks.--Records fair. Flow regulated by Lexington Reservoir and Lake Elsmar (see p.309). Several diversions for irrigation above station and diversion by San Jose Water Works.

Rating table (gage height, in feet, and discharge,  
in cubic feet per second)  
(Shifting-control method used Sept. 17-30)

2.7	0	3.3	4.3
2.8	.1	3.4	7.0
2.9	.2	3.6	16
3.0	.5	4.0	44
3.1	.9	4.4	88
3.2	2.2		

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	0.2	2.9	10	2.3	15	2.1	4.1	1.6	0.7	0.4	0.3	0.3
2	.4	1.3	5.1	2.3	14	*2.0	4.2	2.9	.8	.5	.3	.4
3	.3	1.3	3.1	2.3	8.6	1.8	2.1	*1.3	1.4	.4	.3	.2
4	.3	3.9	2.3	2.3	6.7	2.1	*1.8	1.2	.8	.3	.3	.1
5	.3	3.5	24	2.3	4.3	2.9	3.1	1.2	*.7	.4	.5	.1
6	.4	7.4	62	2.3	3.9	4.3	3.5	2.7	.7	.4	1.3	.1
7	6.8	20	61	2.3	4.6	3.3	1.7	4.3	.7	.4	*.9	.1
8	3.6	26	29	2.3	5.1	2.3	1.4	3.5	.7	.4	.4	.1
9	.5	25	15	*2.3	4.6	4.1	1.6	3.1	.6	.4	.3	.1
10	.4	24	21	2.3	4.3	3.1	1.4	1.8	.5	.3	.4	.1
11	.2	24	20	1.8	21	2.5	1.4	1.7	.5	.4	.5	*.1
12	.2	12	20	2.1	12	2.1	1.4	1.4	.5	.4	9.4	.1
13	.2	4.1	4.6	2.3	8.2	2.1	1.6	1.2	.4	.7	10	.1
14	4.7	5.2	3.9	2.3	6.5	3.3	1.0	1.0	.4	*.7	9.5	.1
15	4.1	15	4.6	2.3	4.7	15	.9	.9	.4	.3	1.2	.1
16	.6	25	4.3	2.3	11	39	.9	.9	.4	.4	.8	.1
17	*.3	*17	3.7	2.3	5.9	48	1.0	.9	.4	.4	.8	3.1
18	.4	17	3.5	2.3	5.1	76	1.0	.8	.3	.3	.8	.5
19	.6	16	3.5	2.3	4.6	24	1.2	.9	.3	.3	.5	.2
20	3.5	15	3.5	2.3	4.3	10	1.2	1.2	.3	.3	.9	.1
21	3.2	14	3.3	2.1	4.3	8.2	2.7	1.2	.3	.3	.6	.1
22	.5	12	3.1	2.0	4.1	7.8	8.2	.9	1.7	.4	.5	0
23	.5	6.2	3.1	2.1	3.9	7.4	7.4	.9	5.4	.4	.6	0
24	2.9	3.3	2.9	2.3	3.7	9.4	4.3	.9	5.4	.4	.6	0
25	4.1	6.5	2.9	3.4	3.7	11	3.9	1.2	3.8	.4	.6	0
26	3.7	12	2.9	4.0	3.5	7.8	3.3	.9	.5	.3	.6	0
27	2.9	10	2.9	18	3.3	7.8	3.3	.8	.4	.3	5.8	0
28	3.3	16	2.7	2.3	2.1	6.7	3.5	.7	.4	.3	.9	0
29	3.1	21	2.5	10	-----	6.2	2.9	.8	.4	.3	1.1	0
30	1.8	17	2.5	11	-----	5.4	2.7	.7	.4	.3	.5	0
31	2.0	-----	2.3	20	-----	10	-----	.7	-----	.3	.3	-----
TOTAL	56.0	383.6	335.2	122.5	183.0	337.7	78.7	44.2	30.2	11.8	51.5	6.2
MEAN	1.81	12.8	10.8	3.95	6.54	10.9	2.62	1.43	1.01	0.38	1.66	0.21
MAX	6.8	26	62	20	21	76	8.2	4.3	5.4	0.7	10	3.1
MIN	0.2	1.3	2.3	1.8	2.1	1.8	0.9	0.7	0.3	0.3	0.3	0
AC-FT	111	761	665	243	363	670	156	88	60	23	102	12
(t)	385	60	90	72	174	229	155	112	118	410	364	196
Calendar Year 1960:				Max 97	Min 0	Mean 8.38		Acre-feet 6,080		† 6,140		
Water Year 1960-61:				Max 76	Min 0	Mean 4.49		Acre-feet 3,250		† 2,360		

\* Discharge measurement made on this day.

† Diversion, in acre-feet, furnished by San Jose Water Works.



GUADALUPE RIVER BASIN

307

11-1690. Guadalupe River at San Jose, Calif.

Location.--Lat 37°20'00", long 121°54'00", at San Jose, Santa Clara County, on right bank 100 ft downstream from Los Gatos Creek.

Drainage area.--146 sq mi (revised).

Records available.--October 1929 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B. Prior to 1945, published as Guadalupe Creek at San Jose.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 80 ft (from topographic map).

Extremes.--Maximum discharge during year, 279 cfs Dec. 1 (gage height, 2.68 ft); no flow for most of year.  
1929-61: Maximum discharge, 9,150 cfs Apr. 2, 1958 (gage height, 16.55 ft); no flow for many days each year.

Remarks.--Records fair. Flow regulated by Calero, Almaden, Guadalupe and Lexington Reservoirs, and Lake Elman (see p.309) with water released during summer for percolation in spreading basins on tributaries. Diversions by San Jose Water Works for urban use (see Los Gatos Creek at Los Gatos, preceding page). Diversions from Coyote Creek (see Coyote Creek near Edenville, p. 312)

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

Oct. 1 to Mar. '31				Apr. 1 to Sept. 30			
0.45	0	1.0	8.4	0.45	0	0.8	4.7
.5	.1	1.3	17	.5	.1	1.0	8.6
.6	.7	1.6	32	.6	1.2	1.2	14
.7	2.0	1.8	51				
.8	3.8	2.0	84				

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	82	0	0	*0	0	0	0.7	1.0		0
2		0	17	0	10	0	0	*0	2.4	0		0
3		0	.5	0	.2	0	0	0	2.4	0		0
4		0	0	*0	0	0	*0	0	.2	0		0
5		1.2	0	0	0	0	0	0	1.2	0		0
6		1.4	0	0	*0	2.9	0	14	*3.8	1.8		0
7		0	0	0	0	.2	0	1.1	4.5	1.5		0
8		0	0	0	0	1.9	0	0	4.3	.5		*0
9		0	*0	0	0	2.3	0	0	4.7	0	(*)	0
10		0	0	0	0	0	0	0	3.5	.1		0
11		0	0	0	1.9	0	0	0	.1	.6		0
12		26	0	0	3.6	0	.1	0	1.2	.6		0
13		30	0	0	0	0	0	0	.6	.1		0
14		.5	0	0	0	20	1.6	0	.2	0		0
15		0	0	0	4.9	*32	1.3	0	.8	0		0
16		0	0	0	*3	.4	0	0	0	0		1.3
17		0	0	0	0	*7.7	1.1	0	0	0		0
18		*.3	0	0	0	.1	2.6	0	0	0		0
19		0	0	0	0	.2	*2.5	0	0	0		0
20	(*)	0	0	0	0	.1	2.5	0	0	0		0
21		0	0	0	0	0	*6.5	0	0	0		0
22		0	0	0	0	.2	13	0	0	0		0
23		0	0	0	0	.9	7.9	0	0	0		0
24		0	0	0	0	1.8	3.0	0	0	0		0
25		10	0	6.1	0	.3	3.1	0	.1	0		0
26		4.6	0	*14	0	0	2.6	0	0	0		0
27		0	0	.1	0	.1	.1	0	0	0		0
28		0	0	0	0	0	0	0	0	0		0
29		0	0	6.4	—	0	0	0	.4	0		0
30		.6	0	.3	—	0	0	0	1.0	0		0
31		—	0	.1	—	0	—	0	—	0		—
Total	0	116.0	99.5	27.0	20.9	71.1	47.9	15.1	32.1	6.2	0	1.3
Mean	0	3.87	3.21	0.87	0.75	2.29	1.60	0.49	1.07	0.20	0	0.04
Max.	0	46	82	14	10	32	13	14	4.7	1.8	0	1.3
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0	230	197	54	41	141	95	30	64	12	0	2.6
Calendar year 1960: Max 82 Min 0 Mean 1.44 Acre-feet 1,040												
Water year 1960-61: Max 82 Min 0 Mean 1.20 Acre-feet 867												

\* Discharge measurement or observation of no flow made on this day.

## GUADALUPE RIVER BASIN

11-1695. Saratoga Creek at Saratoga, Calif.

Location.--Lat 37°15'15", long 122°02'25", in Quito Grant, on right bank on downstream side of private road bridge, 0.5 mile southwest of Saratoga, Santa Clara County, and 0.7 mile downstream from diversion dam.

Drainage area.--9.22 sq mi (revised).

Records available.--October 1933 to September 1961. Prior to October 1951, published as Campbell Creek at Saratoga.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 500 ft (from topographic map).

Average discharge.--28 years, 9.46 cfs (6,850 acre-ft per year), combined flow of Saratoga Creek and diversion by San Jose Water Works.

Extremes.--Maximum discharge during year, 129 cfs Dec. 1 (gage height, 3.00 ft); no flow for several months.

1933-61: Maximum discharge, 2,730 cfs Dec. 22, 1955 (gage height, 6.40 ft), from rating curve extended above 510 cfs on basis of slope-area measurement of peak flow; no flow for part of each water year, except possibly 1941, 1943, 1945.

Remarks.--Records good above 5 cfs and fair below. Water is diverted for municipal use by San Jose Water Works at diversion dam above station.

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

1.32	0	1.8	7.8
1.4	.2	1.9	12
1.5	.5	2.0	17
1.6	1.8	2.2	30
1.7	4.4	2.5	58

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0	50	a 0	4.7	0.1	0.1	0	0.2		(*)	
2	0	0	20	a 1	7.8	2	0	0	1			
3	0	0	7.5	a 1	6.4	1	0	*0	1	(*)		
4	2	0	4.4	a 1	2.3	1	*0	1	1			
5	0	0	2.6	a 1	4	.7	1	1	*0			
6	2	3	1.4	a 1	* 4	1.8	1	.7	0			
7	0	0	0	a 1	4	2	2	1.2	0			
8	0	0	0	a 1	2	2	2	2	0			
9	0	0	0	a 1	2	3	2	1	0			
10	0	0	0	1	2	2	1	2	0			
11	0	0	0	1	6.5	2	1	1	0			
12	0	1.6	3	1	4.4	2	1	1	0			
13	0	7.7	.6	1	2.1	3	1	1	0			
14	0	4.4	.9	1	1.8	2.7	0	1	0	(*)		
15	0	1.4	1.7	1	3.6	*9.3	0	1	0			
16	0	.6	* 1.2	1	3.1	4.2	1	1	0			
17	0	* 1	0	1	1.2	* 10	1	1	2			
18	0	0	3	1	3	5.4	1	1	0			
19	0	0	.2	1	3	2.7	* 1	1	0			
20	*0	1	a 0	1	2	1.5	1	2	0			(*)
21	0	0	a 0	1	2	4	1.6	2	0			
22	0	0	a 0	1	2	1.2	5.1	2	0			
23	0	0	a 0	1	2	4	3.9	1	0			
24	0	0	a 0	1	2	1.9	1.5	1	0			
25	0	1.9	a 0	2.1	2	5.3	0	1	0			
26	0	11	a 0	6.2	2	2.0	0	1	0			
27	1	3.6	a 0	2.3	2	.8	2	2	0			
28	0	2.3	a 0	.8	2	.6	0	1	0			
29	0	1.7	a 0	1.2	-----	4	0	2	0			
30	0	4.9	a 0	2.6	-----	3	0	1	0			
31	0	-----	a 0	*4.1	-----	2	-----	1	-----			
Total	0.5	41.6	91.1	21.6	48.1	53.9	14.1	5.2	0.7	0	0	0
Mean	0.02	1.39	2.94	0.70	1.72	1.74	0.47	0.17	0.02	0	0	0
Max	0.2	11	50	6.2	7.8	10	5.1	1.2	0.2	0	0	0
Min	0	0	0	0	0.2	0.1	0	0	0	0	0	0
Ac-ft	1.0	83	181	43	95	107	28	10	1.4	0	0	0
(†)	74	35	59	53	82	113	115	67	37	1.5	2.3	3.6
Calendar year 1960 :			Max 71	Min 0	Mean 1.89	Acre-feet 1,370	† 685					
Water year 1960-61 :			Max 50	Min 0	Mean 0.76	Acre-feet 549	† 642					

Peak discharge (base, 110 cfs).--Dec. 1 (11 a.m.) 129 cfs (3.00 ft).

\* Discharge measurement or observation of no flow made on this day.

† Diversion, in acre-feet, furnished by San Jose Water Works.

a No gage-height record.

## Reservoirs in Guadalupe River basin, Calif.

- 11-1666.7. Almaden Reservoir.--Lat 37°09'54", long 121°49'39", in San Vicente Grant, at center of dam on Alamitos Creek, 0.7 mile southwest of New Almaden, Santa Clara County, and 7 miles south of Edenvale. Drainage area, 12.0 sq mi. Records available, January 1936 to September 1961. Monthly contents prior to October 1959, published in WSP 1735. Staff gage read once daily. Datum of gage is at mean sea level (levels by Santa Clara Valley Water Conservation District). Maximum contents observed during year, 141 acre-ft Mar. 23 (elevation, 553.10 ft); no contents for most of year. Maximum contents observed during period 1936-61, 2,080 acre-ft Apr. 1, 1941, Dec. 23, 1955 (elevation, 609.0 ft); no contents for part of each year except 1942, 1943.
- Reservoir is formed by earth-fill dam completed in 1936. Capacity, 1,960 acre-ft between elevations 533.1 (invert of outlet tunnel) and 607 ft (crest of spillway). Water released down Alamitos Creek for ground-water recharge by percolation and minor irrigation. Up to 100 cfs diverted to Calero Reservoir at times. Record of contents furnished by Santa Clara Valley Water Conservation District.
- 11-1667.4. Calero Reservoir.--Lat 37°11'00", long 121°47'28", in San Vicente Grant, at center of dam on Arroyo Calero, 1.7 miles northeast of New Almaden, Santa Clara County, and 6 miles southeast of Edenvale. Drainage area, 6.95 sq mi. Records available, January 1936 to September 1961. Monthly contents prior to October 1959, published in WSP 1735. Staff gage read once daily. Datum of gage is at mean sea level (levels by Santa Clara Valley Water Conservation District). No contents during year. Maximum contents observed during period 1936-61, 9,610 acre-ft Apr. 3, 1958 (elevation, 483.82 ft); no contents for part of each year except 1942-45.
- Reservoir is formed by earth-fill dam completed in 1936. Capacity, 9,210 acre-ft between elevations 393.7 (center of outlet tunnel) and 482.55 ft (crest of spillway). Water released down Arroyo Calero for ground-water recharge by percolation and minor irrigation. Up to 100 cfs diverted from Almaden Reservoir to Calero Reservoir at times. Record of contents furnished by Santa Clara Valley Water Conservation District.
- 11-1673.7. Guadalupe Reservoir.--Lat 37°11'57", long 121°52'42", in Los Capitancillos Grant, at center of dam on Guadalupe Creek, 3.6 miles northwest of New Almaden, Santa Clara County, and 5.0 miles southeast of Los Gatos. Drainage area, 5.94 sq mi. Records available, January 1936 to September 1961. Monthly contents prior to October 1959, published in WSP 1735. Staff gage read once daily. Datum of gage is at mean sea level (levels by Santa Clara Valley Water Conservation District). Maximum contents observed during year, 60 acre-ft Dec. 4 (elevation, 526.63 ft); no contents for most of year. Maximum contents observed during period 1936-61, 3,560 acre-ft Feb. 23, 1956 (elevation, 618.60 ft); no contents for part of each year except 1941-43.
- Reservoir is formed by earth-fill dam completed in 1936. Capacity, 3,460 acre-ft between elevations 506.8 (invert of outlet tunnel) and 617.00 ft (crest of spillway). Water released down Guadalupe Creek for irrigation and ground-water recharge by percolation. Record of contents furnished by Santa Clara Valley Water Conservation District.
- 11-1679.5. Lake Elsmán.--Lat 37°07'51", long 121°55'47", in SE $\frac{1}{4}$  sec.23, T.9 S., R.1 W., at center of Austrian Dam on Los Gatos Creek and 7.3 miles southeast of Los Gatos. Drainage area, 9.78 sq mi. Records available, February 1951 to September 1961. Monthly contents prior to October 1959, published in WSP 1735. Staff gage read once daily. Datum of gage is at mean sea level (levels by San Jose Water Works). Maximum contents observed during year, 1,460 acre-ft June 1 (elevation, 1,043.3 ft); minimum observed, 279 acre-ft Nov. 29 (elevation, 1,004.2 ft). Maximum contents observed during period 1951-61, 6,410 acre-ft Jan. 12, 1952 (elevation, 1,112.6 ft); minimum observed, 169 acre-ft Dec. 29, 1956 (elevation, 996.8 ft).
- Reservoir is formed by earth-fill dam completed in 1951. Usable capacity, 6,090 acre-ft between elevations 944 (elevation of outlet gates) and 1,110 ft (crest of spillway). Dead storage, 60 acre-ft. Water released down Los Gatos Creek for domestic and industrial use. Record of contents furnished by San Jose Water Works.
- 11-1679.8. Lexington Reservoir.--Lat 37°12'06", long 121°59'17", in SE $\frac{1}{4}$  sec.29, T.8 S., R.1 W., at center of dam on Los Gatos Creek and 1.7 miles south of Los Gatos. Drainage area, 37.0 sq mi. Records available, December 1952 to September 1961. Monthly contents prior to October 1959, published in WSP 1735. Staff gage read once daily. Datum of gage is at mean sea level (levels by Santa Clara Valley Water Conservation District). Maximum contents observed during year, 425 acre-ft Dec. 5 (elevation, 540.45 ft); no contents for most of year. Maximum contents observed during period 1952-61, 22,760 acre-ft Apr. 13, 1958 (elevation, 652.96 ft); no contents for part of each year.
- Reservoir is formed by earth-fill dam completed in 1952. Capacity, 21,440 acre-ft between elevations 519 (invert at outlet tunnel) and 650 ft (crest of spillway). Dead storage, 31 acre-ft. Water released down Los Gatos Creek for irrigation and ground-water recharge by percolation. Record of contents furnished by Santa Clara Valley Water Conservation District.

Month-end contents, in acre-feet, water year October 1960 to September 1961

Date	Almaden Reservoir	Calero Reservoir	Guadalupe Reservoir	Lake Elsmán	Lexington Reservoir
Sept. 30.....	0	0	0	957	0
Oct. 31.....	0	0	0	580	0
Nov. 30.....	29	0	21	310	87
Dec. 31.....	0	0	0	513	0
Jan. 31.....	49	0	18	654	0
Feb. 28.....	0	0	20	856	0
Mar. 31.....	74	0	48	1,130	0
Apr. 30.....	0	0	0	1,330	0
May 31.....	0	0	0	1,460	0
June 30.....	0	0	0	1,380	0
July 31.....	0	0	0	1,010	0
Aug. 31.....	0	0	0	390	0
Sept. 30.....	0	0	0	368	0

Note.--Contents at 8 a.m. on first day of following month.

## COYOTE CREEK BASIN

11-1698. Coyote Creek near Gilroy, Calif.

Location.--Lat 37°04'27", long 121°29'55", in SW $\frac{1}{4}$  sec.11, T.10 S., R.4 E., on right bank 1.1 miles downstream from Bear Creek, 4.6 miles upstream from Coyote Creek Dam and 6 miles northeast of Gilroy.

Drainage area.--110 sq mi.

Records available.--October 1960 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 870 ft (from topographic map).

Extremes.--Maximum discharge during year, 42 cfs Feb. 3 (gage height, 4.00 ft); no flow for several months.

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

Cooperation.--Seven discharge measurements furnished by Santa Clara Valley Water Conservation District.

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

3.1	0	3.6	7.4
3.2	.2	3.7	12
3.3	.7	3.8	20
3.4	1.8	4.0	42
3.5	4.0		

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1			0	0.8	19	*1.9	3.5	1.6	*1.3	0.4	0.1	
2			0	.8	*21	*2.1	3.0	*1.6	1.2	.4	.1	
3			0	.8	35	2.1	*2.5	1.6	1.2	.4	*.1	
4			0	.8	18	2.1	2.3	1.6	1.2	.4	.1	
5			0	*.8	10	2.1	2.1	1.6	1.0	.3	.1	
6			0	.9	*7.4	2.3	1.9	1.8	.9	.3	0	
7			*0	.9	6.2	*3.0	1.6	1.9	.9	.3	0	
8			0	.9	5.2	3.0	1.5	2.7	.9	.3	0	
9			0	.9	4.3	2.5	1.5	1.6	.9	.3	0	
10			0	.9	4.0	2.3	1.5	1.3	.8	.3	0	
11			0	.9	4.9	2.1	1.5	1.0	.7	.3	0	
12			0	1.0	7.0	1.9	1.5	1.0	.7	.3	0	
13			0	1.0	6.2	1.8	1.5	.9	.7	*.2	0	
14			0	1.0	5.2	1.9	1.5	.9	.6	.2	0	
15			0	1.0	4.9	*5.2	1.5	.9	.6	.2	0	
16			0	1.0	*4.6	8.8	1.5	.9	.6	.2	0	
17			.1	1.0	4.0	11	1.5	.9	.5	.2	0	
18			.8	1.0	3.5	11	1.5	1.0	.4	.2	0	
19			.8	1.0	3.2	7.9	1.5	1.2	.4	.2	0	
20			.8	1.0	3.0	6.6	1.5	1.2	*.4	.1	0	
21		(*)	.8	1.0	2.7	5.5	1.5	1.2	.4	.2	0	
22			.8	1.0	2.5	4.9	1.6	1.2	.4	.2	0	
23			.8	1.2	*2.5	4.0	3.7	1.3	.4	.2	0	
24			.8	1.2	2.3	*3.7	4.6	1.3	.3	.1	0	
25	(*)		.8	1.3	2.1	4.9	3.2	1.3	.3	.1	0	
26			.8	17	2.1	5.2	2.7	1.3	.3	.1	0	
27			.8	18	2.1	5.5	2.5	1.4	.3	.1	0	
28	(*)		.8	11	2.1	5.9	2.1	1.4	.4	.1	0	
29			.8	7.0	-----	5.2	1.9	1.4	.4	.1	0	
30			.8	13	-----	4.9	1.8	1.4	.4	.1	0	
31		---	.8	*18	-----	4.0	-----	1.4	-----	.1	0	-----
TOTAL	0	0	11.3	108.1	195.0	135.3	62.0	41.8	19.5	6.9	0.5	0
MEAN	0	0	0.36	3.49	6.96	4.36	2.07	1.35	0.65	0.22	0.02	0
MAX	0	0	0.8	18	35	11	4.6	2.7	1.3	0.4	0.1	0
MIN	0	0	0	0.8	2.1	1.8	1.5	0.9	0.3	0.1	0	0
AC-FT	0	0	22	214	387	268	123	83	39	14	1.0	0

Calendar year 1960:

Max -

Min -

Mean -

Acre-feet -

Water year 1960-61:

Max 35

Min 0

Mean 1.59

Acre-feet 1,150

Peak discharge (base, 50 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

11-1700. Coyote Creek near Madrone, Calif.

Location.--Lat 37°10'06", long 121°38'55", near southeast corner of La Laguna Seca Grant, on right bank 1.2 miles downstream from Anderson Dam and 1.8 miles northeast of Madrone, Santa Clara County.

Drainage area.--195 sq mi (revised).

Records available.--October 1902 to September 1912, December 1916 to September 1961. Records for water years 1917-19 incomplete, yearly estimates published in WSP 1315-B. Published as Coyote River near Madrone 1902-12, 1916-26.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 375 ft (from topographic map). Prior to Mar. 1, 1950, staff gages and water-stage recorders at various sites within 1.4 miles upstream at different datums.

Average discharge.--55 years, 68.9 cfs (49,880 acre-ft per year); median of yearly mean discharges, 58 cfs (42,000 acre-ft per year).

Extremes.--Maximum discharge during year, 180 cfs Apr. 13 (gage height, 2.81 ft); no flow June 7 to Sept. 30.

1902-12, 1916-61: Maximum discharge, 25,000 cfs probably Mar. 7, 1911 (record furnished by Duryea, Haehl & Gilman); no flow at times.

Remarks.--Records good. Flow regulated by Coyote and Anderson Reservoirs, (see p.313); water released during summer. Water is diverted to Main Avenue percolation ponds by Santa Clara Valley Water Conservation District.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Feb. 12 to Mar. 2)

1.0	0	2.0	9.2
1.2	.4	2.1	16
1.4	.8	2.2	28
1.5	1.0	2.3	45
1.7	1.8	2.5	95
1.8	2.8	2.7	154
1.9	4.6		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	130	74	11	7.4	6.3	2.2	5.9	112	*1.6			
2	130	74	2.4	7.4	*6.3	*3.1	5.5	*112	1.0			
3	130	74	2.8	7.4	6.3	5.2	*5.2	115	.5		(*)	
4	121	72	4.8	7.4	6.3	4.6	4.8	112	.2			
5	98	72	5.5	7.4	6.3	4.4	4.8	112	.4	(*)		
6	79	69	6.8	8.0	6.3	3.5	5.9	115	.1			
7	79	67	9.8	8.0	5.2	3.0	4.4	112	0			
8	79	67	18	8.0	4.6	2.8	5.9	112	0			(*)
9	79	69	19	*8.0	3.8	3.3	5.2	112	0			
10	79	69	16	8.0	2.0	3.2	11	110	0			
11	87	67	15	7.4	1.8	3.0	28	110	0			
12	85	15	12	9.2	1.8	3.7	57	110	0	(*)		
13	85	16	7.4	12	1.8	3.3	83	110	0			
14	85	12	7.4	12	1.8	2.4	72	110	0			
15	85	10	7.4	12	2.4	3.9	79	110	0			
16	*85	11	7.4	12	2.4	3.3	90	110	0			
17	87	13	7.4	12	2.2	3.3	98	107	0			
18	87	10	7.4	12	2.0	3.0	104	107	0			
19	87	9.8	8.6	14	2.0	1.8	97	104	0			
20	87	9.8	10	14	2.0	2.4	115	107	*0			
21	82	*10	10	10	2.0	1.8	121	107	0			
22	77	9.8	12	10	2.2	1.2	124	104	0			
23	74	9.2	11	14	2.0	3.5	124	98	0			
24	77	9.2	8.0	14	2.0	5.5	124	98	0			
25	79	9.8	7.4	21	2.2	3.9	121	101	0			
26	79	14	7.4	28	2.2	2.4	121	101	0			
27	79	11	7.4	28	2.2	3.0	92	54	0			
28	82	11	7.4	22	2.2	3.2	115	3.5	0			
29	82	11	7.4	12	-	2.8	115	2.1	0			
30	82	11	7.4	6.3	-----	4.4	115	.8	0			
31	77	-----	7.4	6.3	-----	5.2	-----	.6	-----			
Total	2,734	986.6	278.9	365.2	90.6	102.3	2,053.6	2,879.0	3.8	0	0	0
Mean	88.2	32.9	8.99	11.8	3.24	3.30	68.5	929	0.13	0	0	0
Max.	130	74	19	28	6.3	5.5	124	115	1.6	0	0	0
Min.	74	9.2	2.4	6.3	1.8	1.2	4.4	0.6	0	0	0	0
Ac-ft	5,420	1,960	553	724	180	203	4,070	5,710	7.5	0	0	0
(+)	129	0	0	194	323	362	329	28	0	0	0	0

Calendar Year 1960:

Max 151

Min 0.9

Mean 66.3

Acre-feet 48,140

† 1,790

Water Year 1960-61:

Max 130

Min 0

Mean 26.0

Acre-feet 18,830

† 1,360

\* Discharge measurement or observation of no flow made on this day.

† Diversion, in acre-feet, to Main Avenue Percolation Ponds, furnished by Santa Clara Valley Water Conservation District.

## COYOTE CREEK BASIN

11-1715. Coyote Creek near Edenvale, Calif.

Location.--Lat 37°16'15", long 121°47'47", at east boundary of Santa Teresa Grant, on left bank at "The Narrows", 1.5 miles northeast of Edenvale, Santa Clara County, and 7 miles south of San Jose.

Drainage area.--229 sq mi.

Records available.--October 1916 to September 1961. Published as Coyote River near Edenvale 1916-26.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 190 ft (from topographic map). Prior to Dec. 14, 1934, staff gage at site 250 ft upstream at same datum.

Extremes.--Maximum discharge during year, 16 cfs Oct. 4 (gage height, 2.68 ft); no flow for several months.

1916-61: Maximum discharge, 10,000 cfs Feb. 10, 1922 (gage height, 12.8 ft, from floodmarks), from rating curve extended above 4,900 cfs parallel to 1917 curve defined by current-meter measurements to 8,400 cfs; no flow at times during each year.

Remarks.--Records good. Water pumped from wells along creek above station for irrigation. Flow regulated by Coyote and Anderson Reservoirs (see p. 313) and by detention in percolating reservoir 6 miles above station; water released during summer. Water is diverted between stations near Madrone and near Edenvale to Alamitos Percolation Ponds in Guadalupe River basin and to Evergreen area by Santa Clara Valley Water Conservation District.

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

2.16	0	2.5	5.2
2.2	.1	2.6	10
2.3	.6	2.7	18
2.4	2.4		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	4.5	0			(*)	0	13	(*)	0		
2	14	4.5	0		(*)		0	* 12		0		
3	15	4.5	0				* 0	12		0		
4	15	4.5	0	(*)			0	13		0		
5	12	4.5	0				0	13		0		
6	11	4.5	0				0	14		0		
7	12	4.5	0				0	14		.1	(*)	
8	12	4.5	0				0	12		.2		(*)
9	12	4.0	2.0				0	9.2		.2		
10	11	3.4	8.6				0	6.5		.1		
11	9.2	3.0	8.6				0	6.5		.1		
12	6.5	3.4	4.8				0	7.0	(*)	.1		
13	5.6	3.7	.4				0	8.6		**1		
14	4.5	3.7	0				0	9.2		.2		
15	5.2	3.2	0				0	9.2		.1		
16	6.0	2.2	0				.2	8.0		0		
17	5.6	1.8	0				8.0	8.0		0		
18	6.0	* .8	0				13	9.2		0		
19	* 7.5	.5	0				15	9.2		0		
20	7.5	1	0				14	8.0		0		
21	8.0	0	0				12	7.0		0		
22	7.0	0	0				12	7.0		0		
23	6.5	0	0				12	12		0		
24	6.5	0	0				9.2	12		0		
25	5.6	0	0				10	9.2		0		
26	5.2	0	0				10	8.6		0		
27	5.6	0	0				12	9.2		0		
28	5.6	0	0				11	8.6		0		
29	5.6	0	0				12	.2		0		
30	5.6	0	0				13	0		0		
31	5.6	-----	0		-----		-----	0	-----	0		-----
Total	257.4	65.8	24.4	0	0	0	163.4	275.4	0	1.2	0	0
Mean	8.30	2.19	0.79	0	0	0	5.45	8.88	0	0.04	0	0
Max.	15	4.5	8.6	0	0	0	15	14	0	0.2	0	0
Min.	4.5	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	511	131	48	0	0	0	324	546	0	2.4	0	0
(†)	1,710	646	10	0	0	0	869	1,600	0	0	0	0
(‡)	779	0	0	0	0	0	480	903	0	0	0	0

Calendar year 1960: Max 44 Min 0 Mean 8.07 Acre-feet 5,860  
 Water year 1960-61: Max 15 Min 0 Mean 2.16 Acre-feet 1,560 † 4,840 ‡ 2,160

\* Discharge measurement or observation of no flow made on this day.

\*\* Field estimate made on this day.

† Diversion, in acre-feet, to Alamitos Percolation Ponds, furnished by Santa Clara Valley Water Conservation District.

‡ Diversion, in acre-feet, to Evergreen, furnished by Santa Clara Valley Water Conservation District.

## Reservoirs in Coyote Creek basin, Calif.

11-1698.5. Coyote Lake.--Lat 37°07'06", long 121°32'55", in SE $\frac{1}{4}$  sec.29, T.9 S., R.4 E., at center of dam on Coyote Creek, 3.8 miles northeast of San Martin. Drainage area, 120 sq mi. Records available, February 1936 to September 1961. Monthly contents prior to October 1959, published in WSP 1735. Staff gage read once daily. Datum of gage is at mean sea level (levels by Santa Clara Valley Water Conservation District). Maximum contents observed during year, 13,680 acre-ft Oct. 1 (elevation, 757.79 ft); no contents Apr. 25 to Sept. 30. Maximum contents observed during period 1936-61, 28,120 acre-ft Dec. 8, 1950 (elevation, 782.5 ft); no contents at times.

Reservoir is formed by rock- and earth-fill dam completed in 1936. Capacity, 24,560 acre-ft between elevations 675.4 (invert of outlet tunnel) and 777 ft (crest of spillway). Water released down Coyote Creek for storage in Anderson Lake. Record of contents furnished by Santa Clara Valley Water Conservation District.

11-1699.2. Anderson Lake.--Lat 37°09'56", long 121°37'42", in southeast corner of La Laguna Seca Grant, at center of dam on Coyote Creek, 2.5 miles northeast of Madrone, Santa Clara County. Drainage area, 194 sq mi. Records available, December 1950 to September 1961. Monthly contents prior to October 1959, published in WSP 1735. Staff gage read once daily. Datum of gage is at mean sea level (levels by Santa Clara Valley Water Conservation District). Maximum contents observed during year, 6,860 acre-ft Apr. 12 (elevation, 499.87 ft); no contents Nov. 12 to Dec. 2, May 27 to Sept. 30. Maximum contents observed during period 1950-61, 94,130 acre-ft Apr. 6, 1958 (elevation, 627.21 ft); no contents at times in 1960-61.

Reservoir is formed by earth- and rock-fill dam completed in 1950. Capacity, 91,310 acre-ft between elevations 439 (invert of outlet tunnel) and 625 ft (crest of spillway). Water released down Coyote Creek for irrigation and ground-water recharge by percolation. Record of contents furnished by Santa Clara Valley Water Conservation District.

Month-end contents, in acre-feet, water year October 1960 to September 1961

Date	Coyote Lake†	Anderson Lake†
Sept. 30.....	13,680	6,250
Oct. 31.....	12,890	1,210
Nov. 30.....	12,410	0
Dec. 31.....	10,390	1,340
Jan. 31.....	6,110	6,460
Feb. 28.....	4,080	6,550
Mar. 31.....	3,550	5,050
Apr. 30.....	0	0
May 31.....	0	0
June 30.....	0	0
July 31.....	0	0
Aug. 31.....	0	0
Sept. 30.....	0	0

† Contents at 8 a.m. on first day of following month.

## ALAMEDA CREEK BASIN

11-1740. San Antonio Creek near Sunol, Calif.

Location.--Lat 37°34'39", long 121°51'24", in Valle de San Jose Grant, on right bank 0.4 mile upstream from Calaveras Road Bridge, 0.85 mile above mouth, and 2 miles southeast of Sunol, Alameda County.

Drainage area.--37.0 sq mi.

Records available.--January 1912 to September 1930, February 1960 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder and concrete control. Datum of gage is 271.56 ft above mean sea level. Prior to Feb. 8, 1960, at site 0.6 mile upstream at different datum.

Average discharge.--19 years, 10.6 cfs (7,670 acre-ft per year).

Extremes.--Maximum discharge during year, 20 cfs Mar. 25 (gage height, 3.46 ft); no flow for several months.  
1912-30, 1960-61: Maximum daily discharge, 1,460 cfs Jan. 3, 1916; no flow for part of most years.  
Flood of Dec. 23, 1955, 5,810 cfs (by slope-area measurement of peak flow).

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

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used May 25 to June 7)

2.52	0	3.0	1.7
2.6	.1	3.1	3.0
2.7	.2	3.2	5.0
2.8	.5	3.3	8.8
2.9	1.0	3.4	15

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0	2.0	0.7	3.6	0.6	* 0.2			
2				0	2.7	.7	2.9	.5	.3			
3				0	6.9	.7	2.4	.5	.3			
4				0	4.0	.7	*2.1	.4	.3			
5				0	2.9	.8	1.6	.4	.2			
6				0	*2.4	.8	1.4	.6	.2			
7				0	1.8	.7	1.3	.6	.2	(*)		
8				0	1.5	.7	1.0	.6	.2			
9				* 0	1.3	.8	1.0	.6	.2			
10				0	1.2	.7	.9	.6	.2			
11				0	4.3	.6	.9	.6	.2			
12				0	11	.6	.9	.5	.2			(*)
13				.1	5.8	.6	.9	.4	.2			
14				.1	4.0	.8	.8	.4	.2			
15				.1	3.4	*3.0	.6	.4	.2			
16				.1	3.6	3.0	.6	.3	.1			
17				.1	2.9	6.9	.6	.3	.1			
18				.1	2.4	6.1	.6	.3	.1			
19	(*)			.1	1.8	4.2	.6	.4	.1			
20				.1	1.6	3.4	.6	.4	.1			
21				.1	1.4	3.2	.6	.4	.1			
22				.1	1.3	2.6	1.4	.3	.1			
23			(*)	.1	1.0	2.4	1.8	.3	*.1			
24				.1	1.0	2.6	* 1.8	.2	0			
25				.1	.9	1.4	2.0	.2	0			
26				1.6	.9	9.4	1.5	.2	0			
27				1.2	.8	6.9	1.0	.2	0			
28				.6	.7	7.7	.8	.2	0			
29				.8	—	6.9	.7	.2	0			
30				3.2	—	4.8	.6	.2	0			
31				* 2.6	—	4.0	—	.2	—			
Total	0	0	0	11.3	75.5	101.0	37.5	12.0	4.1	0	0	0
Mean	0	0	0	0.36	2.70	3.26	1.25	0.39	0.14	0	0	0
Max.	0	0	0	3.2	11	14	3.6	0.6	0.3	0	0	0
Min.	0	0	0	0	0.7	0.6	0.6	0.2	0	0	0	0
Ac-ft	0	0	0	22	150	200	74	24	8.1	0	0	0

Calendar year 1960:

Max -

Min -

Mean -

Acre-feet -

Water year 1960-61:

Max 14

Min 0

Mean 0.66

Acre-feet 478

Peak discharge (base, 20 cfs).--Mar. 25 (8 a.m.) 20 cfs (3.46 ft).

\* Discharge measurement or observation of no flow made on this day.



## ALAMEDA CREEK BASIN

315

11-1765. Arroyo Valle near Livermore, Calif.

Location.--Lat 37°37'24", long 121°45'28", in Valle de San Jose Grant, on right bank 900 ft downstream from highway bridge, 1.1 miles upstream from Dry Creek, 4.1 miles south of Livermore, Alameda County, and 6.9 miles southeast of Pleasanton.

Drainage area.--147 sq mi (revised).

Records available.--January 1912 to September 1930, October 1957 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B. Published as Arroyo del Valle near Livermore, 1912-29.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 500 ft (from topographic map). Prior to November 1914, at site 900 ft upstream at different datum. Nov. 1, 1914, to Sept. 30, 1930, at site 300 ft upstream at different datum.

Average discharge.--22 years, 30.9 cfs (22,370 acre-ft per year); median of yearly mean discharges, 19 cfs (13,800 acre-ft per year).

Extremes.--Maximum discharge during year, 14 cfs Mar. 18 (gage height, 2.54 ft); no flow several months.

1912-30, 1957-61: Maximum discharge, 12,200 cfs Apr. 2, 1958 (gage-height, 10.91 ft); no flow at times each year.

Flood of Dec. 23, 1955, reached a stage of 13.93 ft, from floodmarks (discharge, 18,200 cfs on basis of contracted-opening and slope-area measurement of peak flow).

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

Cooperation.--One discharge measurement furnished by California Department of Water Resources.

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

2.1	0	2.4	6.0
2.2	.6	2.5	11
2.3	2.4	2.6	18

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0.2	0	6.0	*2.2	4.6	2.4	0.3	0.2	0.1	
2		0	.2	0	7.5	2.2	4.0	1.6	.3	.2	.1	
3		0	.1	0	11	2.2	3.2	1.2	.2	.3	*.1	
4		0	.1	0	12	2.2	*3.6	1.2	.2	.2	0	
5		0	.1	0	9.0	1.9	3.0	1.0	.3	.2	0	
6		0	.1	0	*7.0	2.4	2.4	1.1	.2	*.2	0	
7		0	.1	0	5.5	2.2	2.4	1.1	.2	.2	0	
8		0	.1	0	4.6	2.2	2.2	*1.0	.2	.2	0	
9		0	.1	.1	4.3	2.2	1.9	1.4	.2	.2	0	
10		0	0	*.1	3.6	2.2	1.9	1.9	.2	.2	0	
11		a.0	0	.1	4.3	2.2	1.6	1.1	.2	.1	0	
12		a.1	0	.1	6.0	2.2	1.4	.7	.2	.1	0	
13		a.1	0	.1	6.5	2.2	*1.4	.8	.2	.1	0	
14		a.1	0	.1	6.0	2.2	1.2	.5	.2	.1	0	
15		a.2	0	.1	5.0	4.3	1.2	1.0	.2	.1	0	
16		a.2	0	.1	4.3	10	1.9	.5	.2	.1	0	
17		a.2	0	.1	4.3	11	2.2	.6	.3	.1	0	
18		a.2	0	.1	3.6	13	1.4	.5	.4	.1	0	
19	(*)	a.2	0	.1	3.2	10	1.0	.8	.3	.1	0	
20		a.1	0	.1	3.0	7.5	1.0	1.0	.2	.2	0	
21		a.1	0	.1	2.6	6.5	1.1	.5	.2	.2	0	
22		a.0	0	.1	2.6	5.0	2.2	.8	.3	.2	0	
23		0	0	.1	2.6	3.6	2.2	.3	.2	.2	0	
24		0	0	.1	2.6	3.6	1.6	.7	.2	.2	0	
25		0	0	.2	2.6	6.5	1.2	.3	.3	.2	0	
26		.3	0	.3	2.4	10	*1.1	.2	.2	.2	0	
27		.1	0	.2	2.4	8.5	1.2	.2	.2	.1	0	
28		0	0	.1	2.2	*9.0	1.2	.3	.2	.1	0	
29		0	0	.2	-	10	1.9	.4	.2	.1	0	
30		.1	0	.2	-	7.5	2.4	.2	.2	.1	0	
31		-	0	4.6	-	5.0	-	*.2	-	.1	0	
Total	0	2.0	1.1	7.4	136.7	161.7	59.6	25.5	6.9	4.9	0.4	0
Mean	0	0.07	0.04	0.24	4.88	5.22	1.99	0.82	0.23	0.16	0.01	0
Max.	0	0.3	0.2	4.6	12	13	4.6	2.4	0.4	0.3	0.1	0
Min.	0	0	0	0	2.2	1.9	1.0	0.2	0.2	0.1	0	0
Ac-ft	0	4.0	2.2	15	271	321	118	51	14	9.7	0.8	0
Calendar year 1960: Max 999 Min 0 Mean 10.3 Acre-feet 7,490												
Water year 1960-61: Max 13 Min 0 Mean 1.11 Acre-feet 807												

Peak discharge (base, 200 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

a No gage-height record.

## ALAMEDA CREEK BASIN

11-1766. Arroyo Valle at Pleasanton, Calif.

Location.--Lat 37°40'02", long 121°53'02", in Valle de San Jose Grant, on right bank 0.4 mile northwest of Pleasanton, Alameda County, and 5.8 miles west of Livermore.

Drainage area.--171 sq mi.

Records available.--October 1957 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 350 ft (from topographic map).

Extremes.--No flow during year.

1957-61: Maximum discharge, 11,300 cfs Apr. 3, 1958 (gage height, 25.36 ft); no flow several months each year.

Remarks.--No flow since Feb. 23, 1960. Observations of no flow generally made once a month. Pumping for irrigation above station during periods of low flow. Figures for the calendar year 1960 are as follows: maximum daily discharge, 909 cfs; minimum, zero; mean, 7.77 cfs; runoff, 5,640 acre-ft.

## ALAMEDA CREEK BASIN

317

11-1790. Alameda Creek near Niles, Calif.

Location.--Lat 37°35'14", long 121°57'35", in NW¼ sec.15, T.4 S., R.1 W., on right bank 0.3 mile downstream from railroad bridge and 1.2 miles northeast of Niles.

Drainage area.--633 sq mi.

Records available.--January 1891 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B. Published as "at Niles Dam" 1891-1900, and as "at Sunol Glen" 1901-21.

Gage.--Water-stage recorder and concrete control. Datum of gage is 85.65 ft above mean sea level, datum of 1929. Prior to 1901, staff gage at site 1 mile upstream at different datum. 1901 to Sept. 30, 1916, staff gage to 1914 and water-stage recorder thereafter at site 4.5 miles upstream at different datum. Oct. 1, 1916, to Dec. 17, 1923, at site 800 ft upstream at different datum.

Average discharge.--70 years, 124 cfs (89,770 acre-ft per year).

Extremes.--Maximum discharge during year, 22 cfs Dec. 31 (gage height, 2.88 ft); no flow during several months.  
1891-1961: Maximum discharge, 29,000 cfs Dec. 23, 1955 (gage height, 14.9 ft); no flow at times.

Remarks.--Records good. Flow regulated by Calaveras Reservoir (usable capacity, 96,800 acre-ft, most of which is diverted for San Francisco water supply) beginning in 1916 although dam not completed until 1925. Other diversions from ground water basin for irrigation of 9,000 acres above station.

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

1.87	0	2.3	2.3
2.0	.2	2.4	3.6
2.1	.6	2.5	5.6
2.2	1.4	2.7	12

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.6	6.0	0.9	5.4	4.8	0.7	1.7	1.1	*0.3			
2	2.2	2.2	1.9	1.9	4.2	*.7	1.7	1.0	.3			
3	3.0	.6	6.6	.9	3.1	.6	1.7	1.0	.3			
4	2.7	.3	3.1	1.0	3.2	.7	1.3	1.0	.3		(*)	
5	1.5	.3	1.9	.9	2.7	.8	1.2	.9	.2			
6	.7	.4	1.3	.7	*2.0	1.0	*1.1	1.2	.2			
7	.6	.4	1.1	.8	1.9	1.0	1.1	1.2	.1	(*)		
8	.1	.4	1.0	.8	1.7	1.2	1.2	*1.0	.1			
9	.1	.4	1.0	.8	1.7	1.4	1.0	1.0	.1			
10	0	.3	.9	.9	1.4	1.2	1.0	1.0	.2			
11	0	.4	.9	.9	1.5	1.0	.7	1.0	.1			
12	0	.7	.9	.9	1.8	1.1	.8	1.0	.1			(*)
13	0	1.0	.7	.8	1.8	1.3	1.0	.9	.1			
14	0	.9	.7	.8	2.1	1.3	1.0	.8	0			
15	.2	.7	.8	.7	2.1	3.1	1.5	.7	0			
16	.1	.5	.7	.7	1.8	8.7	2.2	.5	0			
17	0	.5	.9	.7	1.5	8.4	1.0	.6	0			
18	0	.7	.8	.7	1.3	8.0	1.0	.6	0			
19	*0	.6	.7	.8	1.3	5.4	1.0	.9	0			
20	0	.6	.6	.7	1.2	3.5	1.0	.8	0	(*)		
21	0	.5	.7	.7	1.2	2.7	1.1	.7	0			
22	0	.4	.9	.7	1.1	2.1	1.9	.7	0			
23	0	.4	.8	.8	1.1	1.9	2.1	.7	0			
24	0	.4	.8	.8	1.0	2.0	*1.8	.6	0			
25	0	.5	.8	.9	1.0	3.0	1.4	.5	0			
26	0	4.4	1.0	2.3	.9	2.4	1.3	.5	0			
27	.1	1.5	.9	8.5	.9	2.7	1.2	.5	0			
28	.1	1.0	.8	4.8	.9	2.7	1.2	.3	0			
29	.1	*.7	.8	3.5	—	2.1	1.1	.3	0			
30	.1	.7	.7	3.3	—	1.9	1.1	.3	0			
31	.1	—	2.6	6.3	—	1.9	—	.2	—		(*)	
Total	14.3	28.4	38.2	54.4	51.2	76.5	38.4	23.5	2.4	0	0	0
Mean	0.46	0.95	1.23	1.75	1.83	2.47	1.28	0.76	0.08	0	0	0
Max.	3.0	6.0	6.6	8.5	4.8	8.7	2.2	1.2	0.3	0	0	0
Min.	0	0.3	0.6	0.7	0.9	0.6	0.7	0.2	0	0	0	0
Ac-ft	28	56	76	108	102	152	76	47	4.8	0	0	0

Calendar year 1960: Max 1,800 Min 0 Mean 16.6 Acre-feet 12,040  
Water year 1960-61: Max 8.7 Min 0 Mean 0.90 Acre-feet 650

\* Discharge measurement or observation of no flow made on this day.

## ALAMEDA CREEK BASIN

11-1805. Dry Creek at Union City, Calif.

Location.--Lat 37°36'22", long 122°01'22", in Arroyo de la Alameda Grant, on right bank 900 ft downstream from bridge on State Highway 9 in Decoto District in Union City, Alameda County, and 1.7 miles upstream from mouth.

Drainage area.--9.41 sq mi (revised).

Records available.--October 1916 to September 1919 (published as "near Decoto"), April 1959 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 80 ft (from topographic map). Prior to Apr. 1, 1959, at site 1.4 miles downstream at different datum.

Average discharge.--5 years, 0.78 cfs (565 acre-ft per year).

Extremes.--Maximum discharge during year 3.9 cfs Nov. 26 (gage height, 1.73 ft); no flow most of year.

1916-19, 1959-61: Maximum discharge, 480 cfs Feb. 10, 1919 (gage height, 7.1 ft, site and datum then in use); no flow most of each year.

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

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

1.1	0
1.2	.1
1.3	.3
1.4	.8

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		*0	0.1	0	0	*0	0					
2		0	.1	0	1	0	0					
3		0	0	0	0	0	0					
4		0	0	0	0	0	*0					
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	.2	0	0					
12		0	0	0	0	0	0					(*)
13		0	0	0	0	0	0					
14		0	*0	0	0	.2	0					
15		*0	0	0	.1	.4	0					
16		0	0	0	0	1	0					
17		0	0	0	0	.5	0					
18		0	0	0	0	1	0					
19		0	0	0	0	0	0					
20	(*)	0	0	0	0	0	0					
21		0	0	0	0	0	.1					
22		0	0	0	0	0	0					
23		*0	0	0	0	0	0					
24		0	0	0	0	0	0					
25		.5	0	.6	0	1	0					
26		.2	0	.5	0	0	0					
27		0	0	0	0	0	0					
28		0	0	0	0	0	0					
29		0	0	.2	0	0	0					
30		0	0	0	0	0	0					
31	(*)	0	0	** 1	0	0	0	(*)				
Total	0	0.7	0.2	1.4	0.4	1.4	0.1	0	0	0	0	0
Mean	0	0.02	.006	0.05	0.01	0.05	0.003	0	0	0	0	0
Max.	0	0.5	0.1	0.6	0.2	0.5	0.1	0	0	0	0	0
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft	0	1.4	0.4	2.8	0.8	2.8	0.2	0	0	0	0	0

Calendar year 1960:

Max 51

Min 0

Mean 0.64

Acre-feet 464

Water year 1960-61:

Max 0.6

Min 0

Mean 0.01

Acre-feet 8.4

Peak discharge (base, 10 cfs).--No peak above base.

\* Observation of no flow made on this day.

\*\* Field estimate made on this day.

## 11-1807. Patterson Creek at Union City, Calif.

Location.--Lat 37°35'03", long 122°02'56", in Portero de Los Cerritos Grant, on right bank 75 ft upstream from bridge on State Highway 17 (Nimitz Freeway), 0.3 mile below effluence, and 1.9 miles southeast of Alvarado District in Union City, Alameda County.

Records available.--October 1958 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 4.90 ft above mean sea level, datum of 1929.

Extremes.--No flow during year.

1958-61: Maximum discharge, 3,700 cfs Feb. 16, 1959 (gage height, 13.55 ft), from rating curve extended above 1,500 cfs on basis of peak flow at Alameda Creek near Niles; no flow most of each year.

Remarks.--No flow since Feb. 23, 1960. Observations of no flow generally made once a month. This stream is a distributary of Alameda Creek (see Remarks for Alameda Creek near Niles). Figures for the calendar year 1960 are as follows: maximum daily discharge, 1,360 cfs; minimum, zero; mean, 10.0 cfs; runoff, 7,290 acre-ft.

## 11-1807.5. Alameda Creek at Union City, Calif.

Location.--Lat 37°35'46", long 122°03'15", in Arroyo de la Alameda Grant, on left bank 5 ft downstream from bridge on Baker Road, 1 mile downstream from Dry Creek, and 1.4 miles east of Alvarado District in Union City, Alameda County.

Drainage area.--654 sq mi.

Records available.--October 1958 to September 1961.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Alameda County Flood Control and Water Conservation District).

Extremes.--No flow during year.

1958-61: Maximum discharge, 260 cfs Feb. 9, 1960 (gage height, 11.42 ft); no flow most of each year.

Remarks.--No flow since Feb. 11, 1960. Observations of no flow generally made once a month. For total flow in Alameda Creek, add flow of Patterson Creek at Union City (see Remarks for Alameda Creek near Niles). Figures for calendar year 1960 are as follows: maximum daily discharge, 170 cfs; minimum, zero; mean, 0.85 cfs; runoff, 614 acre-ft.

## SAN LORENZO CREEK BASIN

11-1810. San Lorenzo Creek at Hayward, Calif.

Location.--Lat 37°41'11", long 122°03'44", in San Lorenzo Grant, on right bank at bridge on B Street, just outside city limits of Hayward, Alameda County, 0.5 mile downstream from Crow Creek.

Drainage area.--37.5 sq mi (revised).

Records available.--October 1939 to September 1940, October 1946 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder and concrete control (control ineffective since 1952 due to gravel fill). Datum of gage is 133.16 ft above mean sea level, datum of 1929. January to September 1940 wire-weight gage on bridge at present site and datum.

Average discharge.--16 years, 14.2 cfs (10,280 acre-ft per year); median of yearly mean discharges, 4.6 cfs (3,300 acre-ft per year).

Extremes.--Maximum discharge during year, 147 cfs Nov. 26 (gage height, 5.23 ft); no flow for several months.

1939-40, 1946-61: Maximum discharge, 5,100 cfs Apr. 2, 1958 (gage height, 17.45 ft), from rating curve extended above 1,400 cfs on the basis of records for nearby streams; maximum gage height, 20.82 ft, from floodmarks, Dec. 22, 1955; no flow at times each year.

Flood of Jan. 24, 1942, reached a stage of 15.7 ft, from floodmarks (discharge, about 4,200 cfs).

Remarks.--Records poor. A few very small diversions above station.

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.1	2.5	0.1	1.3	0.4	0.7	1.1	0.5			0
2	0	1	2.8	2	1.1	*.3	.7	1.1	*.4			0
3	0	1	4	2	1.3	.4	.7	.9	.3			0
4	0	1	2	2	1.3	.5	.7	.8	1			0
5	1	2	2	2	1.2	.9	.6	.8	2		(*)	0
6	1	2	2	2	1.2	2.4	.6	1.2	2			0
7	1	1	2	2	1.2	.9	*.6	1.1	2	(*)		(*) 0
8	1	1	2	2	*1.0	1.3	.6	.7	1			0
9	1	1	2	2	1.0	4.1	.6	*.6	1			0
10	0	1	2	2	.9	.6	.6	.7	1			0
11	1	3	2	*.2	6.8	.8	.6	.7	0			0
12	1	2	2	1	1.7	.7	.7	.6	0			0
13	1	1.8	2	1	1.0	*.9	.7	.4	1			(*) 0
14	0	2	2	2	1.1	1.3	.6	.4	0			0
15	0	2	2	2	3.0	4.7	.6	.3	0			0
16	0	2	2	2	1.2	5.3	.5	.3	0			.6
17	0	2	2	2	.9	2.1	.5	.3	0			1
18	0	3	2	2	.8	1.7	.5	.4	0			1
19	0	3	1	1.2	.7	3.6	.5	1.7	0			1
20	*0	2	1	3.8	.7	3.0	.5	1.0	1			1
21	0	2	1	4.1	.7	1.2	4.4	.6	0			1
22	0	2	1	4.4	.7	1.3	10	.6	0			1
23	0	2	2	5.4	.6	1.3	10	.4	*0			1
24	0	2	2	5.7	.6	6.8	2.0	.4	0			1
25	0	6.9	2	7.6	.6	3.2	*1.4	.3	0			1
26	1	3.5	2	4.0	.5	1.2	1.2	.4	0			1
27	1	.4	2	7.6	.4	1.2	1.1	.4	0			1
28	1	2	1	5.7	.4	.9	1.0	.4	0			1
29	1	*.2	1	1.8	—	.9	.9	.3	0			1
30	1	3	1	9.4	—	.7	1.0	.3	0			1
31	1	—	1	1.7	—	.7	—	.3	—			1
Total	1.4	48.9	8.5	117.9	33.9	128.2	45.1	19.5	2.5	0	0	2.0
Mean	0.05	1.63	0.27	3.80	1.21	4.14	1.50	0.63	0.08	0	0	0.07
Max.	0.1	35	2.5	40	6.8	47	10	1.7	0.5	0	0	0.6
Min.	0	0.1	0.1	0.1	0.4	0.3	0.5	0.3	0	0	0	0
Ac-ft	2.8	97	17	234	67	254	89	39	5.0	0	0	4.0
Calendar year 1960:	Max 285		Min 0		Mean 3.38		Acre-feet 2,460					
Water year 1960-61:	Max 47		Min 0		Mean 1.12		Acre-feet 809					

Peak discharge (base, 350 cfs).--No peak above base.

\* Discharge measurement made on this day.

## RHEEM CREEK BASIN

321

11-1820.3. Rheem Creek at San Pablo, Calif.

Location.--Lat 37°58'32", long 122°21'00", in San Pablo Grant, on left bank 0.6 mile downstream from San Pablo Avenue in San Pablo, Contra Costa County, and 0.9 mile upstream from mouth.

Drainage area.--1.35 sq mi.

Records available.--December 1960 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 21.37 ft above mean sea level (levels by Corps of Engineers).

Extremes.--Maximum discharge during period December to September, 233 cfs Dec. 1 (gage height, 3.14 ft); no flow at times.

Remarks.--Records poor. Continuous leakage and infrequent releases from off-stream North Reservoir affect flow.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Jan. 19-26, 29, 31)

0.0	0	0.4	10
.1	.3	.6	21
.2	1.8	.8	36
.3	5.3		

Discharge, in cubic feet per second, December 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			3.6	0.2	0.6	0	0	0.2	0.2	0.1	0.1	0
2			* 2	.2	.6	0	0	.2	* .2	.1	.1	0
3			.1	.2	.2	* 0	0	.2	.2	0	.1	0
4			0	.2	.1	.2	0	.2	.2	.1	.1	0
5			0	.2	.1	.2	0	.2	.2	.1	.1	0
6			0	.2	.3	.1	0	.2	.2	.1	.1	.1
7			0	.2	* .1	0	* 0	.2	.2	.1	.1	.1
8			0	.2	0	1.2	0	.2	.2	.1	.1	.1
9			0	.2	1.4	.1	0	.2	.2	.1	.1	.1
10			.1	.2	.4	.1	0	* .2	.2	.1	.1	.1
11			.1	* .2	1.1	.2	0	.2	.2	.1	.1	.1
12			.1	.2	.2	0	0	.2	.2	.1	.1	.1
13			.1	.2	.1	0	0	.2	.2	.1	.1	* .1
14			.1	.3	.1	8.2	0	.2	.2	.1	.1	.1
15			.1	.4	1.7	.8	0	7.6	.2	.1	.1	.1
16			* 1	3.0	.1	3.5	0	14	.1	.1	.1	1.0
17			.1	8.1	.1	.8	0	14	.1	.1	.1	.1
18			.1	8.6	.1	.2	0	14	.1	.1	.1	.1
19			.1	1.1	.1	.4	.1	6.6	.1	.1	.1	.1
20			.1	1.7	.1	.1	.1	.1	.1	.1	.1	.1
21			.1	1.7	.1	.1	2.6	0	.1	.1	.1	.1
22			.1	9.0	.1	.2	.5	0	.1	.1	.1	.1
23			.1	1.8	.1	.1	.6	0	.1	.1	.1	.1
24			.2	3.1	0	.2	.2	0	.1	.1	.1	.1
25			.2	1.5	0	.1	.2	0	.1	.1	.1	.1
26			.2	* 2.1	0	.2	.2	.1	.1	.1	.1	.1
27			.2	.2	0	5.8	.2	.1	.1	.1	.1	.1
28			.2	.1	0	0	.2	.1	.1	.1	.1	.1
29			.2	4.5	-	0	.2	.1	.1	.1	.1	0
30			.2	.4	-	0	.2	.1	.1	.1	.1	0
31			.2	* 4.1	-	0	-	.1	-	.1	.1	-
Total			41.1	127.2	17.7	22.8	5.3	59.7	4.5	3.0	3.1	3.2
Mean			1.33	4.10	0.63	0.74	0.18	1.93	0.15	0.10	0.10	0.11
Max.			36	21	11	8.2	2.6	14	0.2	0.1	0.1	1.0
Min.			0	0.1	0	0	0	0	0.1	0	0.1	0
Ac-ft			82	252	35	45	11	118	8.9	6.0	6.1	6.3

Calendar year 1960:

Max -

Min -

Mean -

Acre-feet -

Water year 1960-61:

Max -

Min -

Mean -

Acre-feet -

Peak discharge (base, 90 cfs).--Dec. 1 (10 a.m.) 233 cfs (3.14 ft); Feb. 11 (3:30 a.m.) 119 cfs (1.84 ft).

\* Discharge measurement or observation of no flow made on this day.

Note.--No gage-height record Dec. 10-15, May 22 to June 1, June 17-21, July 14-28, Aug. 25 to Sept. 12, Sept. 19-25.

## PINOLE CREEK BASIN

11-1821. Pinole Creek at Pinole, Calif.

Location.--Lat 37°58'21", long 122°14'43", in Pinole Grant, on left bank 0.2 mile downstream from county bridge on Pinole Valley Road, 0.8 mile upstream from Pinole city boundary, Contra Costa County.

Drainage area.--10.0 sq mi.

Records available.--December 1938 to September 1961. Monthly discharge only for water years 1939-59, published in WSP 1735.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 170 ft (from topographic map).

Average discharge.--22 years (1939-61), 3.49 cfs (2,530 acre-ft per year); median of yearly mean discharges, 1.3 cfs (940 acre-ft per year).

Extremes.--Maximum discharge during year, 18 cfs Jan. 26 (gage height 2.16 ft); no flow for several months.  
1938-61: Maximum discharge, 1,660 cfs Apr. 2, 1958 (gage height, 11.63 ft); no flow at times.

Remarks.--Records fair. No storage or diversion except for minor stock ponds.

Cooperation.--Records furnished by East Bay Municipal Utility District and reviewed by Geological Survey.

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

0.8	0	1.4	1.3
1.0	.2	1.6	2.6
1.2	.6	1.8	4.7

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0.7	0.1	0.3	0.1	0.1	0.1				
2		0	.6	.1	.2	.1	.1	0				
3		0	.2	.1	.2	.1	.1	0				
4		0	.1	.1	.2	.1	.1	0				
5		0	.1	.1	.1	.2	.1	0				
6		0	.1	.1	.2	.2	.1	0				
7		0	0	.1	.1	.1	.1	0				
8		0	0	.1	.1	.2	.1	0				
9		0	0	.1	.2	.4	.1	0				
10		0	.1	.1	.2	.1	.1	0				
11		0	.1	.1	1.3	.1	.1	0				
12		0	.1	.1	.4	.1	.1	0				
13		0	.1	.1	.2	.1	.1	0				
14		0	.1	.1	.2	.6	.1	0				
15		0	.1	.1	.3	2.5	.1	0				
16		0	.1	.1	.3	.7	0	0				
17		0	.1	.1	.2	3.0	0	0				
18		0	.1	.1	.2	.4	0	0				
19		0	.1	.1	.1	.3	0	0				
20		0	.1	.1	.1	.3	0	0				
21		0	.1	.1	.1	.2	.1	0				
22		0	.1	.1	.1	.2	.6	0				
23		0	.1	.2	.1	.2	.4	0				
24		0	.1	.2	.1	.2	.2	0				
25		0	.1	.5	.1	.2	.1	0				
26		1.2	.1	3.0	.1	.2	.1	0				
27		.1	.1	.4	.1	.3	.1	0				
28		0	.1	.2	.1	.2	.1	0				
29		0	.1	.4	-	.1	.1	0				
30		0	.1	.3	-	.1	.1	0				
31		0	.1	.4	-	.1	-	0				
Total	0	1.3	4.0	7.8	5.9	11.7	3.4	0.1	0	0	0	0
Mean	0	0.04	0.13	0.25	0.21	0.38	0.11	0.003	0	0	0	0
Max.	0	1.2	0.7	3.0	1.3	3.0	0.6	0.1	0	00	0	0
Min.	0	0	0	0.1	0.1	0.1	0	0	0	0	0	0
Ac-ft	0	2.6	7.9	15	12	23	6.7	0.2	0	0	0	0

Calendar year 1960: Max 58 Min 0 Mean 0.52 Acre-feet 380

Water year 1960-61: Max 3.0 Min 0 Mean 0.09 Acre-feet 67

Peak discharge (base, 50 cfs).--No peak above base.



PACHECO CREEK BASIN

323

11-1825. San Ramon Creek at San Ramon, Calif.

Location.--Lat 37°46'20", long 121°59'40", in sec.8, T.2 S., R.1 W., on right bank 0.2 mile downstream from Bollinger Creek and 1.0 mile southwest of San Ramon.

Drainage area.--5.89 sq mi.

Records available.--October 1952 to September 1961.

Gage.--Water-stage recorder, tipping-bucket rain gage, and concrete control. Altitude of gage is 530 ft (from topographic map).

Average discharge.--9 years, 2.52 cfs (1,820 acre-ft per year).

Extremes.--Maximum discharge during year, 25 cfs Mar. 14 (gage height, 2.50 ft); no flow for several months.  
1952-61: Maximum discharge, 1,490 cfs Apr. 2, 1958 (gage height, 15.30 ft), from rating curve extended above 140 cfs on basis of computation of peak flow through culvert at gage height 14.2 ft; no flow for several months in each year.

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

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Nov. 26, 27, Dec. 4-31)

1.1	0	1.7	0.8
1.4	.1	1.9	2.1
1.5	.2	2.0	3.4

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	1.2	0.1	0.3	a 0.2	0.3	0.1	* 0.1			
2		0	.7	a .1	.4	*a .2	.3	.1	.1			
3		0	.1	a .1	.2	.2	.3	.1	.1			
4		0	0	a .1	.2	.2	.2	.1	.1			
5		0	0	a .1	.1	.5	.2	.1	.1		(*)	
6		0	0	a .1	.1	.3	.2	.2	.1			
7		0	0	a .1	.1	.2	* .2	.2	.1	(*)		
8		0	0	a .1	* .1	.4	.2	.1	.1			
9		0	0	a .1	.1	.6	.2	* .1	.1			
10		0	0	* .1	.1	.2	.2	.2	.1			
11		0	0	.1	1.4	.2	.2	.2	.1			
12		0	0	.1	.4	.2	.3	.1	.1			
13		1	0	.1	.2	.2	.2	.1	.1			
14		* 0	* 0	.1	.2	2.3	.2	.1	.1			(*)
15		0	0	.1	.3	* 3.2	.1	.1	0			
16		0	0	.1	.2	.7	.1	.1	0			
17		0	0	.1	.2	1.6	.1	.1	0			
18		0	0	.1	.2	.7	.2	.1	0			
19	(*)	0	0	.1	.2	.6	.1	.3	0			
20		0	0	.1	.2	.8	.2	.2	0			
21		0	0	.1	.2	.7	.4	.1	0			
22		0	0	.1	.2	.4	.9	.1	0			
23		0	0	.1	.2	.4	.6	.1	0			
24		0	0	.1	.2	1.1	* .2	.1	0			
25		.1	0	.5	.2	.8	.1	.1	0			
26		1.6	0	* 3.2	.2	.6	.1	.1	0			
27		0	0	.3	a .2	.6	.1	.1	0			
28		0	0	.1	a .2	.4	.1	.1	0			
29		0	0	1.0	—	.3	.1	.1	0			
30		0	0	.6	—	.3	.1	.1	0			
31		—	0	* .5	—	.3	—	.1	—			
Total	0	1.8	2.0	8.6	6.8	19.4	6.7	3.8	1.4	0	0	0
Mean	0	0.06	0.06	0.28	0.24	0.63	0.22	0.12	0.05	0	0	0
Max.	0	1.6	1.2	3.2	1.4	3.2	0.9	0.3	0.1	0	0	0
Min.	0	0	0	0.1	0.1	0.2	0.1	0.1	0	0	0	0
Ac-ft	0	3.6	4.0	17	13	38	13	7.5	2.8	0	0	0
(†)	0.2	4.5	1.1	3.0	1.2	4.2	1.6	0.8	0.1	0	0	0

Calendar year 1960: Max 84 Min 0 Mean 0.82 Acre-feet 595  
Water year 1960-61: Max 3.2 Min 0 Mean 0.14 Acre-feet 99

Peak discharge (base, 100 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

† Precipitation in inches.

a No gage-height record.

## PACHECO CREEK BASIN

11-1830. San Ramon Creek at Walnut Creek, Calif.

Location.--Lat 37°53'04", long 122°03'00", on boundary between Arroyo de las Nueces y Bolbones and San Ramon Grants, on left bank 0.3 mile downstream from small tributary, 1.1 miles south of town of Walnut Creek, Contra Costa County, and 1.2 miles upstream from confluence with Las Trampas Creek.

Drainage area.--50.8 sq mi (revised).

Records available.--October 1952 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 170 ft (from topographic map).

Average discharge.--9 years, 12.3 cfs (8,900 acre-ft per year).

Extremes.--Maximum discharge during year, 59 cfs Nov. 26 (gage height, 2.35 ft); no flow for several months.

1952-61: Maximum discharge, 6,890 cfs Dec. 23, 1955 (gage height, 14.55 ft), from rating curve extended above 570 cfs on basis of slope-area measurement of peak flow; no flow at times in most years.

Remarks.--Records fair. Pumping for irrigation above station during periods of low flow.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Dec. 3-19)

0.8	0	1.2	5.4
.9	.3	1.3	8.8
1.0	1.2	1.4	13
1.1	2.9	1.6	22

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.1	3.7	0.6	2.6	1.3	0.9	0.7	0.6			
2	0	.1	2.7	.6	2.2	1.2	.9	.6	*.6			
3	0	.1	2.2	.6	1.2	*1.0	.9	.6	.7		(*)	
4	0	.2	2.0	.6	1.8	1.0	.9	.6	.7			
5	0	.3	1.3	.6	1.5	.9	.9	.6	.7			
6	0	.3	.7	.6	1.5	1.0	.9	.6	.8			
7	0	.3	.8	.6	1.1	.9	*.8	.4	.9			
8	0	.3	.8	.6	1.0	1.0	.8	.4	.9			
9	0	.3	.5	.6	1.0	1.2	.8	.4	.6			
10	0	.3	.7	.6	1.0	1.1	.7	*.4	.6			
11	0	.3	.7	.5	1.8	1.5	.6	.4	.5			
12	0	.5	.7	.6	2.0	1.7	.9	.3	.4			(*)
13	0	9.6	.5	.6	2.0	*1.5	2.0	.3	.5			
14	.1	2.7	.6	.6	2.0	3.6	2.0	.3	.4			
15	.2	1.5	.6	.7	1.8	*2.1	2.7	.3	.3			
16	.1	.8	.6	.7	1.7	9.2	2.7	.6	.3			
17	.1	.6	.5	.8	2.0	8.5	2.6	.4	.3			
18	0	.4	.5	.9	2.4	3.6	2.2	.3	.2			
19	0	.4	.5	.8	4.9	2.2	2.2	.7	.2			
20	*0	.4	.5	.8	2.7	2.0	1.3	.6	.1			
21	0	.3	.5	.9	2.7	1.8	1.5	.6	.1			
22	.1	.3	.6	.9	2.9	1.8	2.0	.6	.1			
23	.2	.3	.6	1.1	2.9	1.7	2.7	.6	*.1			
24	.2	.3	.6	.9	2.7	1.8	*1.3	.6	0			
25	.2	5.5	.6	2.1	2.4	1.3	1.2	.6	0			
26	.2	1.9	.6	*2.0	2.0	1.1	1.1	.6	0			(*)
27	.2	2.7	.6	5.7	1.5	1.2	1.0	.5	0			
28	.1	*1.4	.7	2.9	1.3	1.2	.8	.5	0			
29	.1	.8	.6	4.4	-	1.2	.8	.4	0			
30	.1	.6	.6	7.1	-	1.1	.7	.5	0			
31	.1	-	.6	*3.6	-	.9	-	.5	-			
Total	2.0	50.7	27.7	62.6	56.6	80.5	40.8	15.5	10.6	0	0	0
Mean	0.06	1.69	0.89	2.02	2.02	2.60	1.36	0.50	0.35	0	0	0
Max.	0.2	.19	3.7	20	4.9	21	2.7	0.7	0.9	0	0	0
Min.	0	0.1	0.5	0.5	1.0	0.9	0.6	0.3	0	0	0	0
Ac-ft	4.0	101	55	124	112	160	81	31	21	0	0	0
Calendar year 1960: Max 543 Min 0 Mean 4.04 Acre-feet 2,940												
Water year 1960-61: Max 21 Min 0 Mean 0.95 Acre-feet 689												

Peak discharge (base, 500 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

Note.--Stage-discharge relation indefinite Nov. 19-24.

11-1835. Walnut Creek at Walnut Creek, Calif.

Location.--Lat 37°54'21", long 122°03'22", in Arroyo de las Nueces y Bolbones Grant, on right bank at Southern Pacific Railroad bridge at town of Walnut Creek, Contra Costa County, 0.7 mile downstream from confluence of San Ramon and Las Trampas Creeks.

Drainage area.--79.2 sq mi (revised).

Records available.--October 1952 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 120 ft (from topographic map). Prior to June 20, 1957, at site 0.6 mile upstream at different datum.

Average discharge.--9 years, 25.2 cfs (18,240 acre-ft per year).

Extremes.--Maximum discharge during year, 360 cfs Mar. 14 (gage height, 3.96 ft); minimum, 0.2 cfs June 24.

1952-61: Maximum discharge, 12,200 cfs Apr. 2, 1958 (gage height, 20.2 ft); no flow July 29 to Nov. 7, 1954, part of July 10, 1957.

Remarks.--Records good. Flow slightly regulated by storage in Lafayette Reservoir. Some small diversions for irrigation above station.

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

Oct. 1 to June 30

July 1 to Sept. 30

1.7	0.2	2.2	7.8	1.7	0.5
1.8	.4	2.4	16	1.8	.8
1.9	1.4	2.7	38	1.9	1.6
2.0	3.0	3.0	77	2.0	3.0
2.1	5.1	3.2	113		

Note.--Same as preceding table above 2.0 ft.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	2.2	0.7	3.4	3.4	11	4.1	5.9	5.1	4.3	1.5	2.4	1.5
2	1.6	.6	16	2.4	8.2	4.3	6.2	4.5	*5.6	.9	1.4	1.5
3	1.8	1.4	4.9	2.4	5.9	*4.7	8.5	3.6	2.8	1.6	2.3	.6
4	1.0	1.3	4.1	3.2	5.1	6.7	4.3	5.1	4.5	.9	*1.4	.5
5	3.0	2.0	3.2	3.0	4.7	6.5	3.8	4.7	3.6	1.3	2.1	.7
6	3.2	6.3	2.7	3.0	4.3	6.2	*4.1	4.5	3.8	*1.1	1.6	1.6
7	2.1	1.2	3.2	3.0	*4.9	3.8	3.8	4.7	2.8	1.3	.9	*.7
8	1.2	.9	2.7	3.8	3.8	8.3	3.6	5.4	1.5	1.5	.7	.8
9	.6	1.3	2.7	3.2	4.7	12	4.5	4.9	2.2	1.5	1.9	1.3
10	1.9	.8	3.8	*2.4	3.8	4.7	4.1	*5.1	1.9	.6	1.1	.6
11	2.1	2.2	3.0	3.0	27	8.5	3.0	7.3	3.4	.8	1.0	.6
12	1.9	8.7	2.4	2.8	6.5	7.8	4.3	4.1	1.5	.6	2.3	.7
13	1.1	47	2.2	2.4	6.2	*6.7	5.1	4.3	2.8	.9	2.0	*.9
14	1.3	6.2	2.7	3.6	5.1	46	4.9	4.1	.9	2.1	1.3	1.2
15	.8	3.0	2.8	2.7	7.8	81	6.2	3.8	1.9	1.3	.8	.8
16	1.4	1.9	3.0	2.7	4.7	21	6.2	4.9	1.0	1.4	1.9	2.7
17	1.8	1.4	3.6	3.4	4.3	40	5.4	4.9	1.5	.8	1.6	9.3
18	1.0	1.6	6.5	2.7	4.3	12	6.5	4.5	.7	1.3	.6	11
19	2.1	1.6	2.8	2.8	6.2	12	5.4	21	1.9	1.6	1.6	.8
20	*1.5	1.3	2.8	3.2	5.6	9.7	5.4	6.7	1.0	1.2	1.4	1.2
21	1.1	1.8	2.5	2.4	5.6	8.2	19	5.1	1.1	1.4	.6	.7
22	1.9	1.4	2.7	2.4	5.9	8.5	26	5.9	.8	1.6	1.9	.7
23	1.5	1.4	2.4	6.5	6.2	8.2	18	4.7	*1.4	.9	.7	.8
24	2.2	1.5	2.4	3.4	6.2	16	7.3	3.6	.9	1.4	1.5	.5
25	1.1	35	2.4	36	6.2	11	*5.9	3.8	1.3	1.5	1.5	.7
26	1.9	80	2.5	96	4.3	7.0	5.1	4.7	1.6	1.3	.5	.9
27	.8	6.2	2.8	12	3.8	7.5	4.1	3.4	1.4	1.3	1.4	.5
28	.9	*3.4	3.0	6.5	4.9	7.5	4.3	4.3	.9	2.1	1.1	.5
29	.4	3.2	3.2	22	-----	7.0	5.1	5.1	.8	.7	1.1	1.3
30	.4	5.4	3.0	14	-----	6.7	4.3	3.4	.7	1.1	1.2	.7
31	.7	-----	3.0	21	-----	6.5	-----	5.6	-----	1.1	.9	-----
TOTAL	46.5	230.7	139.0	281.3	177.2	400.1	200.3	162.8	60.5	38.6	42.7	46.3
MEAN	1.50	7.69	4.48	9.07	6.33	12.9	6.68	5.25	2.02	1.25	1.38	1.54
MAX	3.2	80	34	96	27	81	26	21	5.6	2.1	2.4	11
MIN	0.4	0.6	2.2	2.4	3.8	3.8	3.0	3.4	0.7	0.6	0.5	0.5
AC-FT	92	458	276	558	351	794	397	323	120	77	85	92

CALENDAR YEAR 1960: MAX 1,100

MIN 0.4

MEAN 10.8

AC-FT 7,850

WATER YEAR 1960-61: MAX 96

MIN 0.4

MEAN 5.90

AC-FT 3,620

Peak discharge (base, 600 cfs).--No peak above base.

\* Discharge measurement made on this day.

## NAPA RIVER BASIN

11-4560. Napa River near St. Helena, Calif.

Location.--Lat 38°29'40", long 122°25'50", in SE¼ sec.32, T.8 N., R.5 W., on right bank 0.2 mile upstream from highway bridge, 1.3 miles northeast of Zinfandel, and 2.5 miles east of St. Helena.

Drainage area.--81.3 sq mi.

Records available.--October 1929 to September 1932, October 1939 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Altitude of gage is 200 ft (from topographic map). Prior to Nov. 22, 1958, at datum 1.00 ft higher.

Average discharge.--25 years, 87.4 cfs (63,270 acre-ft per year); median of yearly mean discharges, 64 cfs (46,300 acre-ft per year).

Extremes.--Maximum discharge during year, 2,160 cfs Jan. 31 (gage height, 6.38 ft); no flow Oct. 1-5, July 19, 20.

1929-32, 1939-61: Maximum discharge, 12,600 cfs Dec. 22, 1955 (gage height, 16.17 ft, present datum); no flow at times in 1947-49, 1952-57, 1959-61.

Remarks.--Records good. Small diversions above station for irrigation.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Oct. 1-20, May 23 to Sept. 30)

Oct. 1 to Jan. 31					Jan. 31 to Sept. 30				
0.3	0	1.2	22		0.1	0	1.2	28	
.4	.4	1.6	52		.2	.6	1.5	55	
.5	1.1	2.0	91		.3	1.4	2.0	120	
.6	2.2	2.5	178		.4	2.5	2.5	225	
.7	3.6	3.0	300		.6	5.5	3.0	360	
.8	5.5	3.5	460		.8	10	4.0	755	
.9	8.2	4.0	675		1.0	17			
1.0	12	5.0	1,200						

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.7	2.62	8.8	* 3.72	4.2	8.6	2.2	7.7	1.3	0.2	0.1
2	0	.7	1.22	8.5	* 3.21	3.9	7.8	2.1	7.3	1.3	.2	.2
3	0	.9	.53	8.5	2.32	3.7	7.2	2.0	6.8	1.4	.6	.6
4	0	1.0	2.6	8.5	1.60	3.4	6.7	1.8	6.6	1.2	.5	.2
5	0	.8	1.5	* 8.5	1.20	4.0	5.7	1.8	7.0	.9	.6	.2
6	.2	.8	1.1	8.5	1.02	3.9	5.2	1.8	7.0	.7	.6	.4
7	.8	1.5	.91	8.2	.86	3.2	4.8	1.7	7.5	.6	.4	.5
8	1.8	1.6	8.5	8.5	7.7	* 6.2	4.4	1.6	* 6.2	.8	.3	.5
9	1.6	1.6	7.9	8.2	2.61	9.8	4.3	1.5	5.2	.8	.2	.5
10	1.0	1.5	8.8	8.2	2.28	6.3	4.2	1.5	5.0	.9	.1	.5
11	.6	1.5	1.1	7.9	6.34	5.7	4.0	1.5	5.0	.7	.2	.4
12	.5	3.4	7.9	7.9	3.66	4.9	4.0	1.3	4.4	.8	.4	.4
13	.4	6.7	7.6	7.9	2.92	4.4	3.8	1.2	4.2	.6	.4	.3
14	.2	8.2	7.0	7.9	3.03	7.7	3.4	1.2	3.5	.7	.4	.2
15	.1	3.6	7.6	7.9	2.68	3.09	3.3	1.3	3.2	.5	.2	.2
16	.1	* 2.4	1.5	7.9	2.25	2.04	3.0	1.1	2.5	.5	.2	.4
17	.1	2.2	6.2	7.9	1.80	3.57	3.0	1.1	2.9	.2	.5	.5
18	.2	2.3	4.2	7.9	1.48	2.18	2.7	1.1	2.8	.1	.5	.5
19	* .1	2.3	4.3	7.9	1.22	1.66	2.6	1.1	3.2	0	.5	.5
20	.1	2.0	2.3	7.9	1.05	1.54	* 2.6	1.0	2.9	0	.5	.5
21	.2	1.8	1.7	7.6	.92	1.28	3.0	1.1	2.4	* .1	.4	.6
22	.1	1.7	1.6	7.3	.79	1.14	5.2	1.0	2.5	.2	.6	.5
23	.1	1.9	1.4	8.5	.72	1.10	6.5	9.5	1.8	.2	.7	.5
24	.1	2.2	1.3	8.2	.65	1.22	4.0	8.6	1.8	.2	.4	.5
25	.2	2.9	1.3	2.4	.60	1.17	3.0	8.2	1.5	.2	.2	.4
26	.2	1.4	1.1	1.74	.55	1.76	2.7	7.9	1.7	.2	.1	.2
27	.2	8.5	1.1	.84	.50	2.12	2.5	7.5	1.5	.2	.1	.2
28	.3	4.3	1.1	.56	.47	1.64	2.3	7.7	1.5	.5	.2	.3
29	.4	3.3	.94	.336	—	1.32	2.3	7.3	1.4	.3	.3	.4
30	.3	3.6	.91	.339	—	1.12	2.3	6.8	1.3	.4	* .3	.4
31	.4	—	8.8	1.020	—	1.01	—	7.0	—	.5	.2	—
Total	10.3	89.9	882.7	2,228.0	5,122	3,609	1,251	3,90.5	1,183	17.0	11.0	11.2
Mean	0.33	3.00	28.5	71.9	183	116	41.7	12.6	3.94	0.55	0.35	0.37
Max.	1.8	14	262	1,020	634	357	86	22	7.7	1.4	0.7	0.6
Min.	0	0.7	7.0	7.3	.47	32	23	6.8	1.3	0	0.1	0.1
Ac-ft	20	178	1,750	4,420	10,160	7,160	2,480	775	235	34	22	22

Calendar year 1960: Max 5,820 Min 0 Mean 61.6 Acre-feet 44,700  
Water year 1960-61: Max 1,020 Min 0 Mean 37.6 Acre-feet 27,260

Peak discharge (base, 2,300 cfs).--No peak above base.

\* Discharge measurement made on this day.

## NAPA RIVER BASIN

327

11-4570. Dry Creek near Napa, Calif.

Location.--Lat 38°21'23", long 122°21'50", in Napa Grant, on right bank 3.7 miles upstream from mouth and 5.5 miles northwest of Napa, Napa County.

Drainage area.--17.4 sq mi.

Records available.--January 1951 to September 1961.

Gage.--Water-stage recorder. Concrete control since June 14, 1955. Altitude of gage is 190 ft (from topographic map). Prior to June 14, 1955, at site 350 ft downstream at different datum.

Average discharge.--10 years, 20.7 cfs (14,990 acre-ft per year); median of yearly mean discharges, 13 cfs (9,400 acre-ft per year).

Extremes.--Maximum discharge during year, 320 cfs Jan. 31 (gage height, 4.36 ft); no flow for many days.  
1951-61: Maximum discharge, 3,460 cfs Feb. 24, 1958 (gage height, 8.11 ft); no flow for many days in each year.

Remarks.--Records good. Several small diversions for irrigation above station. Occasional diversion around station through 6-inch pipe for domestic use on farm below station.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Dec. 4 to Jan. 25)

2.1	0	2.7	12
2.2	.8	3.0	25
2.3	2.0	3.2	38
2.4	3.7	3.6	80
2.5	5.7	4.0	170

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	0	0	66	1.2	46	7.1	21	4.7	1.2	0		
2	0	0	29	1.2	*38	6.5	19	4.5	1.3	0		
3	0	0	13	1.1	29	5.7	17	3.9	1.2	0		
4	0	0	6.3	1.1	23	5.5	15	3.5	1.1	.2		
5	0	0	4.1	1.0	19	6.5	14	3.1	1.1	.7		
6	0	0	2.6	1.0	16	6.8	14	3.5	1.2	.2		
7	0	.1	2.2	1.0	14	5.3	13	3.5	1.1	0		
8	0	.1	1.7	1.1	13	*12	11	2.9	*1.0	0		
9	0	0	1.6	1.1	22	19	10	2.9	.9	0		
10	0	.1	1.7	1.0	21	12	9.8	2.9	.8	0		
11	0	.2	1.9	1.0	49	10	9.2	3.1	.7	0		
12	0	.6	1.4	1.0	38	9.2	9.2	2.8	.6	0		
13	0	2.0	1.3	1.0	31	8.5	8.8	2.5	.5	0		
14	0	.9	1.2	1.0	29	19	7.4	2.3	.5	0		
15	0	.5	1.4	1.0	29	50	6.0	2.2	.3	0		
16	0	*.4	3.1	1.2	27	34	5.3	2.2	.2	0		
17	0	.4	5.3	1.4	23	73	5.1	2.2	.2	0		
18	0	.7	3.9	1.4	20	51	4.9	2.0	.2	0		
19	*0	.9	3.1	1.4	17	44	4.7	2.0	.2	0		
20	0	.8	2.3	1.3	15	37	*4.3	2.0	.2	0		
21	0	.8	2.2	1.3	14	31	6.3	2.0	0	*0		
22	0	.8	2.0	1.2	13	28	13	2.0	0	0		
23	0	.9	1.7	1.7	11	25	13	1.9	0	0		
24	0	1.0	1.6	1.6	10	28	8.2	1.7	0	0		
25	.1	2.5	1.4	5.1	9.5	26	6.5	1.6	0	0		
26	0	4.9	1.4	49	8.8	32	5.5	1.6	0	0		
27	0	1.6	*1.4	24	8.2	35	5.1	1.3	0	0		
28	0	1.0	1.4	15	7.7	32	4.7	1.3	0	0		
29	0	.8	1.3	37	-----	27	4.7	1.3	0	0		
30	0	1.1	1.3	47	-----	24	4.7	1.2	0	0		
31	0	-----	1.2	136	-----	23	-----	1.2	-----	0	(*)	-----
TOTAL	0.1	23.1	170.0	341.4	601.2	733.1	280.4	75.8	14.5	1.1	0	0
MEAN	0	0.77	5.48	11.0	21.5	23.6	9.35	2.45	0.48	0.04	0	0
MAX	0.1	4.9	66	136	49	73	21	4.7	1.3	0.7	0	0
MIN	0	0	1.2	1.0	7.7	5.3	4.3	1.2	0	0	0	0
AC-FT	0.2	46	337	677	1,190	1,450	556	150	29	2.2	0	0

CALENDAR YEAR 1960: MAX 762 MIN 0 MEAN 10.1 AC-FT 7,320  
WATER YEAR 1960-61: MAX 136 MIN 0 MEAN 6.14 AC-FT 4,440

Peak discharge (base, 450 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

## NAPA RIVER BASIN

11-4580. Napa River near Napa, Calif.

**Location.**--Lat 38°22'06", long 122°18'08", in Yajome Grant, on left bank at downstream side of Oak Knoll Avenue bridge, 0.4 mile downstream from Dry Creek and 5 miles north of Napa, Napa County.

**Drainage area.**--218 sq mi (revised).

**Records available.**--October 1929 to September 1932, October 1959 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

**Gage.**--Water-stage recorder. Altitude of gage is 30 ft (from topographic map).

**Average discharge.**--5 years, 85.8 cfs (62,120 acre-ft per year).

**Extremes.**--Maximum discharge during year, 3,350 cfs Jan. 31 (gage height, 13.42 ft); no flow for several months.  
1929-32, 1959-61: Maximum discharge, 12,300 cfs Feb. 8, 1960 (gage height, 23.10 ft); no flow at times in each year.

**Remarks.**--Records good. Numerous diversions for irrigation above station. Flow slightly regulated by Lake Hennessey beginning in December 1945 (capacity, 31,000 acre-ft).

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Nov. 13 to Jan. 29, Feb. 4-11,  
Feb. 19 to Mar. 15)

3.9	0.	4.4	4.7	6.0	202
4.0	.2	4.5	9.0	7.0	412
4.1	.5	4.7	24	8.0	720
4.2	1.0	5.0	54	11.0	2,070
4.3	2.2	5.5	122		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	4 47	13	6 68	83	122	35	11			
2		0	2 52	12	4 80	70	115	34	9.7			
3		0	1 12	12	3 46	64	106	34	9.7			
4		0	5 4	11	2 13	58	100	33	10			
5		0	3 7	11	1 58	58	90	31	11			
6		0	3 1	11	*1 33	64	83	32	9.7			
7		0	2 7	10	1 18	52	78	31	9.7			
8		0	2 4	11	1 03	*5 4	71	30	*5.6			
9		0	2 0	11	2 73	1 46	69	30	4.2			
10		0	1 9	11	2 84	85	64	31	3.0			
11		0	2 4	10	8 39	75	59	30	3.5			
12		0	2 1	10	5 88	66	58	28	4.5			
13		8 2	1 8	9.0	3 66	62	56	27	3.0			
14		9.7	1 7	9.7	4 22	65	50	26	2.7			
15		9.7	1 5	9.7	3 44	4 39	47	25	1.2			
16		*5.1	1 8	9.7	3 02	2 80	43	25	.7			
17		4.0	6 0	9.0	2 34	5 25	42	23	.3			
18		3.5	5 3	9.0	1 97	3 33	41	22	.3			
19	(*)	3.0	5 6	9.0	1 68	2 33	37	22	.4			
20		3.0	3 3	9.0	1 52	2 16	*3 6	22	.7			
21		3.0	2 9	8.6	1 42	1 82	40	22	.3	(*)		
22		2.7	2 6	8.6	1 28	1 58	62	22	.1			
23		2.7	2 3	9.0	1 21	1 52	83	18	0			
24		2.7	2 0	10	1 15	1 57	59	18	0			
25		5.6	1 9	1 4	1 10	1 65	46	15	0			
26		1 7	1 8	3 31	1 06	2 04	42	13	0			
27		2 3	*1 6	1 64	1 00	2 50	39	11	0			
28		1 4	1 5	93	93	2 07	37	9.0	0			
29		6.9	1 5	4 03	—	1 66	37	11	0			
30		7.7	1 4	6 48	—	1 49	37	9.7	0			
31		—	1 3	1 600	—	1 36	—	10	—		(*)	—
Total	0	131.5	1,546	3,496.3	7,303	4,954	1,849	729.7	101.3	0	0	0
Mean	0	4.38	49.9	113	261	160	61.6	23.5	3.38	0	0	0
Max.	0	23	44.7	1,600	839	525	122	35	11	0	0	0
Min.	0	0	13	8.6	93	52	36	9.0	0	0	0	0
Ac-ft	0	261	3,070	6,930	14,490	9,830	3,670	1,450	201	0	0	0

Calendar year 1960: Max 8,300 Min 0 Mean 102 Acre-feet 74,410  
Water year 1960-61: Max 1,600 Min 0 Mean 55.1 Acre-feet 39,900

Peak discharge (base, 2,500 cfs).--Jan. 31 (12 m.) 3,350 cfs (13.42 ft).

\* Discharge measurement or observation of no flow made on this day.

11-4582. Redwood Creek near Napa, Calif.

Location.--Lat 38°19'05", long 122°20'35", in Napa Grant, on right bank 2.9 miles upstream from confluence with Browns Valley Creek and 3.4 miles northwest of Napa, Napa County.

Drainage area.--9.81 sq mi.

Records available.--July 1958 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 170 ft (from topographic map).

Extremes.--Maximum discharge during year, 412 cfs Jan. 31 (gage height, 5.24 ft); no flow for many days.

1958-61: Maximum discharge, 1,070 cfs Feb. 8, 1960 (gage height, 8.60 ft), from rating curve extended above 270 cfs on basis of slope-area measurement of peak flow; no flow for many days in each year.

Remarks.--Records good. Small storage and release affects summer flow.

Rating table (gage-height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Apr. 28 to June 22, Aug. 30 to Sept. 13)

1.6	0	2.3	4.6
1.7	.1	2.5	10
1.8	.3	2.7	19
1.9	.7	3.0	36
2.0	1.3	3.5	96
2.1	2.1	4.0	186

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	5.2	0.5	2.8	2.5	7.7	1.6	0.4	0	0	0
2		0	9.3	.5	2.3	2.4	6.7	1.5	.4	0	0	0
3		0	3.8	.5	1.5	2.3	5.9	1.5	.6	0	0	0
4		0	2.0	.5	9.3	2.3	5.2	1.4	.4	0	0	0
5		0	1.6	.5	6.7	3.6	4.6	1.3	.4	0	0	0
6		0	1.1	.5	5.7	3.8	4.2	1.3	.4	0	.4	0
7		0	.9	.5	5.2	2.7	3.9	1.3	.3	0	.1	.1
8		0	.8	.5	4.8	*1.1	3.5	1.0	*.3	0	0	.1
9		0	.7	.6	1.9	1.3	3.2	.9	.2	0	0	0
10		0	.8	.5	1.3	5.7	3.1	1.0	.2	0	0	0
11		0	.8	.5	2.9	4.8	2.9	1.0	.2	0	0	2.4
12		0	.7	.5	1.8	4.0	2.7	1.0	.1	0	0	.1
13		0	.6	.5	1.2	3.8	2.5	1.2	.1	0	0	.1
14		0	.6	.5	1.1	1.9	2.4	.9	.1	0	0	0
15		0	.6	.5	1.5	3.8	2.2	.8	.1	2	0	0
16		*0	.8	.5	1.2	1.6	2.1	1.1	.1	0	0	0
17		0	1.5	.5	8.7	3.7	2.0	.9	0	0	0	0
18		0	1.4	.5	7.0	1.9	2.0	1.4	0	0	0	0
19	(*)	.1	1.2	.5	5.9	1.8	1.9	2.4	0	0	0	0
20		.2	1.1	.5	5.4	1.6	1.9	.9	0	0	0	0
21		.2	.9	.5	4.6	1.2	*2.1	.8	0	*0	0	0
22		.2	.9	.5	4.3	9.7	3.6	.7	0	0	0	0
23		.2	.9	.5	3.9	8.0	3.1	.6	0	0	0	0
24		.3	.8	.6	3.6	1.0	2.3	1.0	0	0	0	0
25		.3	.7	.9	3.2	9.7	2.0	.6	0	0	0	0
26		5.0	.7	*2.1	3.0	3.7	1.9	.5	0	0	0	0
27		1.5	*.7	3.9	2.9	2.8	1.9	.4	0	0	0	0
28		.7	.6	2.3	2.7	2.0	1.7	.4	0	0	1.1	0
29		.5	.6	1.9	—	1.4	1.7	.3	0	0	.3	0
30		.6	.5	1.8	—	1.2	1.7	.3	0	0	*.1	0
31		—	.5	1.3	7	9.7	—	.3	—	0	.1	—
Total	0	9.8	90.1	214.3	281.9	395.0	92.6	30.3	4.3	0.2	2.1	2.8
Mean	0	0.33	2.91	6.91	10.1	12.7	3.09	0.98	0.14	0.01	0.07	0.09
Max.	0	5.0	52	137	29	38	7.7	2.4	0.6	0.2	1.1	2.4
Min.	0	0	0.5	0.5	2.7	2.3	1.7	0.3	0	0	0	0
Ac-ft	0	19	179	425	559	783	184	60	8.5	0.4	4.2	5.6

Calendar year 1960:

Max 409

Min 0

Mean 5.23

Acre-feet 3,800

Water year 1960-61:

Max 137

Min 0

Mean 3.08

Acre-feet 2,230

Peak discharge (base, 200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-1	9a.m.	4.49	274	1-31	6a.m.	5.24	412

\* Discharge measurement or observation of no flow made on this day.

## SONOMA CREEK BASIN

11-4585. Sonoma Creek at Boyes Hot Springs, Calif.

Location.--Lat 38°18'49", long 122°29'09", in Agua Caliente Grant, on left bank 10 ft downstream from county highway bridge at Boyes Hot Springs, Sonoma County, and 2.2 miles northwest of Sonoma.

Drainage area.--62.2 sq mi (revised).

Records available.--February 1955 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 75 ft (from topographic map).

Average discharge.--6 years, 71.0 cfs (51,400 acre-ft per year)

Extremes.--Maximum discharge during year, 2,300 cfs Jan. 31 (gage height, 8.42 ft); no flow for many days.

1955-61: Maximum discharge, 8,880 cfs Dec. 22, 1955 (gage height, 17.10 ft), from rating curve extended above 4,100 cfs on basis of slope-area measurement of peak flow; no flow at times in each year.

Remarks.--Records good. Some regulation during summer months at swimming pools above station.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.5	317	2.4	260	19	58	11	4.0	0.5		
2	0	.4	60	2.4	280	18	51	11	*4.0	.5		
3	0	.4	29	2.4	165	17	44	9.5	3.2	.5		
4	0	.3	13	2.4	114	16	40	8.6	4.2	.5		
5	.1	.3	6.8	2.4	96	26	32	8.2	3.6	.5		
6	.2	.7	5.0	2.4	78	26	30	8.2	3.2	.7		
7	.3	1.5	4.6	2.2	61	16	28	7.4	3.2	.7		
8	1.0	1.5	4.3	2.8	54	67	27	5.4	2.4	.6		
9	.9	1.5	4.3	2.5	273	*76	26	6.4	2.0	.5		
10	.8	1.5	5.0	2.4	151	33	24	6.7	1.9	.5		
11	.5	1.5	5.2	2.2	577	25	22	6.7	2.3	.3		
12	.5	3.0	4.1	2.1	238	21	22	6.0	2.0	.3		
13	.6	7.6	3.6	2.1	175	18	22	5.4	1.4	.2		
14	.5	3.9	3.6	2.1	149	113	21	6.0	1.6	.3		
15	.3	3.0	4.3	2.1	170	245	18	4.9	1.1	.3		
16	.2	2.4	8.4	2.1	129	128	17	4.0	.9	.2		
17	.4	2.1	13	2.1	104	386	17	4.2	1.1	.2		
18	.1	2.4	8.0	1.9	89	160	16	4.7	1.5	.1		
19	.1	2.1	6.8	1.9	67	129	*15	4.7	1.4	.1		
20	.1	1.9	6.1	1.9	54	110	15	4.9	1.5	.1		(*)
21	*.1	2.1	5.2	1.9	47	83	20	4.0	.9	*0		
22	.1	2.1	5.0	1.9	39	71	36	4.4	.9	0		(*)
23	.1	1.9	4.6	2.5	35	66	30	3.4	.9	0		
24	.1	1.9	4.3	2.5	31	92	20	3.4	.9	0		
25	.1	*3.4	4.1	4.9	30	79	16	3.0	.8	0		
26	.1	14	4.1	190	27	151	15	3.2	.7	0		
27	.2	5.0	3.9	31	25	180	13	3.6	.6	0		
28	.5	3.3	3.6	15	21	129	13	4.0	.6	0		
29	.3	3.0	*2.7	288	—	96	12	3.2	.6	0		
30	.4	3.6	2.4	199	—	78	11	3.2	.5	0		(*)
31	.5	—	2.4	*858	—	66	—	3.6	—	0		—
Total	9.1	78.8	554.4	1,639.5	3,539	2,740	731	172.9	53.9	7.6	0	0
Mean	0.29	2.63	17.9	52.9	126	88.4	24.4	5.58	1.80	0.25	0	0
Max.	1.0	14	317	858	577	386	58	11	4.2	0.7	0	0
Min.	0	0.3	2.4	1.9	21	16	11	3.0	0.5	0	0	0
Ac-ft	18	156	1,100	3,250	7,020	5,430	1,450	343	107	15	0	0
Calendar year 1960:			Max	3,150	Min	0	Mean	46.5	Acre-feet	33,740		
Water year 1960-61:			Max	858	Min	0	Mean	26.1	Acre-feet	18,890		

Peak discharge (base 1,400 cfs).--Jan. 31 (7 a.m.) 2,300 cfs (8.42 ft).

\* Discharge measurement or observation of no flow made on this day.



PETALUMA RIVER BASIN

331

11-4590. Petaluma River at Petaluma, Calif.

Location.--Lat 38°15'40", long 122°39'35", in Roblar de la Miseria Grant, on right bank 70 ft downstream from county highway bridge in Petaluma, Sonoma County, and 1.3 miles downstream from Lichau Creek.

Drainage area.--30.9 sq mi (revised).

Records available.--October 1948 to September 1961. Prior to October 1958, published as Petaluma Creek near Petaluma.

Gage.--Water-stage recorder. Altitude of gage is 20 ft (from topographic map).

Average discharge.--13 years, 17.2 cfs (12,450 acre-ft per year); median of yearly mean discharges, 11 cfs (8,000 acre-ft per year).

Extremes.--Maximum discharge during year, 886 cfs Jan. 31 (gage height, 9.97 ft); no flow for several months.

1948-61: Maximum discharge, 1,860 cfs Dec. 22, 26, 1955, Jan. 14, 1956; maximum gage height, 13.55 ft Dec. 22, 1955; no flow for several months in each year.

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

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Apr. 5-26)

1.8	0	2.3	1.5	3.3	33
1.9	.1	2.4	2.6	3.6	52
2.0	.2	2.6	5.8	4.0	83
2.1	.5	2.8	12	5.0	192
2.2	.9	3.0	19	7.0	452

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			25	0	64	1.4	1.5					
2			7.8	0	* 105	1.4	1.1					
3			3.0	0	46	1.4	1.0					
4			.9	0	20	1.3	.7					
5			.4	0	12	1.4	.6			(*)	(*)	
6			.2	0	9.7	2.5	.4					
7			.1	0	7.4	2.1	.3					(*)
8			0	0	5.6	*1.8	.3					
9			0	0	*150	14	.3				(*)	
10			0	0	50	4.7	.2					
11			0	0	235	2.9	.2					
12			0	0	53	2.2	.2					
13			0	0	28	1.7	.2					
14			0	0	23	7.4	.2					
15			0	0	50	68	.2					
16			.2	0	28	21	.1					
17			1.7	0	14	65	.1					
18			.7	0	9.4	32	*0					
19			.6	0	6.3	13	0					
20	(*)		.5	0	5.1	13	0					
21			.4	0	4.2	6.6	.1					
22			.3	0	3.6	4.5	.3					
23		(*)	.2	0	2.9	5.3	.8					
24			.2	0	2.3	5.8	.3					
25			.1	.2	2.2	11	.1					
26			.1	47	2.1	18	.1					
27			0	13	1.7	21	0					
28			*0	4.0	1.5	15	0					
29			0	26	—	5.8	0					
30			0	47	—	3.3	0					
31			0	382	—	2.2	—					
Total	0	0	42.4	519.2	942.0	356.7	9.3	0	0	0	0	0
Mean	0	0	1.37	16.7	33.6	11.5	0.31	0	0	0	0	0
Max.	0	0	25	382	235	68	1.5	0	0	0	0	0
Min.	0	0	0	0	1.5	1.3	0	0	0	0	0	0
Ac-ft	0	0	84	1,030	1,870	708	18	0	0	0	0	0

Calendar year 1960: Max 604 Min 0 Mean 4.95 Acre-feet 3,590  
Water year 1960-61: Max 382 Min 0 Mean 5.12 Acre-feet 3,710

Peak discharge (base, 400 cfs).--Jan. 31 (11 a.m.) 886 cfs (9.97 ft); Feb. 11 (7 a.m.) 404 cfs (6.63 ft).

\* Discharge measurement or observation of no flow made on this day.

## NOVATO CREEK BASIN

11-4595. Novato Creek near Novato, Calif.

Location.--Lat 38°06'45", long 122°35'05", in Novato Grant, on right bank 500 ft downstream from highway bridge and 1 mile west of U. S. Highway 101 in Novato, Marin County.

Drainage area.--17.5 sq mi (revised).

Records available.--October 1946 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 45 ft (from topographic map).

Average discharge.--15 years, 9.59 cfs (6,940 acre-ft per year), unadjusted.

Extremes.--Maximum discharge during year, 151 cfs Jan. 31 (gage height, 2.78 ft); no flow several months.

1946-61: Maximum discharge, 1,190 cfs Feb. 24, 1958 (gage height, 8.24 ft); no flow several months in each year.

Remarks.--Records fair. Flow regulated by Stafford Lake beginning Dec. 1, 1951 (capacity, 4,500 acre-ft since Oct. 18, 1954); contents, 1,500 acre-ft Sept. 30, 1960, and 700 acre-ft Sept. 30, 1961. Diversion from Stafford Lake for municipal water supply began Apr. 25, 1952, and amounted to 1,920 acre-ft for water year 1961.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Apr. 18 to May 1)

0.38	0	1.0	6.4
.5	.2	1.2	12
.6	.8	1.4	20
.7	1.7	1.6	31
.8	2.8	1.8	46

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	1.4	0.2	10	1.4	0.8	0.5				
2		0	1.9	.2	* 12	1.3	.7	0				
3		0	.7	.1	5.2	1.3	.7	0				
4		0	.4	.1	3.4	1.3	.6	0				
5		0	.3	.1	3.3	1.5	.5	0	(*)	(*)		
6		0	.2	.1	2.4	1.5	.4	0				
7		0	.2	.1	2.1	1.3	.4	0				(*)
8		0	.2	.1	2.0	* 1.5	.3	0				
9		0	.2	.1	2.6	1.4	.3	0			(*)	
10		0	.7	.1	2.0	1.2	.3	0				
11		0	.7	.1	1.9	1.1	.2	0				
12		0	.3	.1	4.1	.9	.2	0				
13		0	.3	.1	3.1	.8	.2	0				
14		0	.3	.1	2.8	6.7	.2	0				
15		0	.9	.1	3.8	6.9	.2	0				
16		0	.7	.1	2.7	4.1	.2	0				
17		0	.4	.1	2.4	7.8	.2	0				
18		0	.3	.1	2.5	2.6	.1	0				
19		0	.3	.1	2.1	1.5	.1	0				
20	(*)	0	.3	.1	2.0	1.4	*.1	0				
21		0	.3	.1	2.0	1.2	.2	0				
22		0	.2	.1	1.9	1.2	.2	0				
23		* 0	.2	.1	1.9	1.1	.1	0				
24		0	.2	.1	1.8	1.1	.1	0				
25		1	.2	7.9	1.7	1.2	.1	0				
26		1.0	.2	2.5	1.6	1.1	.1	0				
27		0	.2	2.0	1.5	1.5	.1	0				
28		0	*.2	1.0	1.5	1.7	.1	0				
29		0	.2	4.7	—	1.0	.1	0				
30		1.0	.2	5.0	—	.9	.1	0				
31		—	.2	4.4	—	.9	—	0				
Total	0	2.1	25.6	92.2	103.4	60.4	7.9	0.5	0	0	0	0
Mean	0	0.07	0.83	2.97	3.69	1.95	0.26	0.02	0	0	0	0
Max.	0	1.0	14	44	19	7.8	0.8	0.5	0	0	0	0
Min.	0	0	0.2	0.1	1.5	0.8	0.1	0	0	0	0	0
Ac-ft	0	4.2	51	183	205	120	16	1.0	0	0	0	0

Calendar year 1960: Max 180 Min 0 Mean 2.28 Acre-feet 1,650  
Water year 1960-61: Max 44 Min 0 Mean 0.80 Acre-feet 580

Peak discharge (base, 200 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.

11-4600. Corte Madera Creek at Ross, Calif.

Location.--Lat 37°57'45", long 122°33'20", in Punta de Quentin Grant, on left bank behind fire station at Ross, Marin County, 1.7 miles southwest of San Rafael and 4 miles upstream from mouth.

Drainage area.--18.3 sq mi.

Records available.--February 1951 to September 1961.

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

Average discharge.--10 years, 26.9 cfs (19,470 acre-ft per year); median of yearly mean discharges, 17 cfs (12,300 acre-ft per year).

Extremes.--Maximum discharge during year, 519 cfs Dec. 1 (gage height, 7.33 ft); no flow at times.

1951-61: Maximum discharge, 3,620 cfs Dec. 22, 1955 (gage height, 17.45 ft), from rating curve extended above 1,600 cfs; no flow at times in most years.

Remarks.--Records fair except those for period of no gage-height record, which are poor. Flow regulated by Phoenix Lake (capacity, 612 acre-ft). Diversion on tributary above station by Marin Municipal Water District.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Oct. 1 to Nov. 30)

Oct. 1 to Nov. 30				Dec. 1 to Sept. 30			
4.08	0	4.4	8.3	4.23	0	4.8	16
4.1	.2	4.5	16	4.3	.1	4.9	27
4.2	1.4	4.7	34	4.4	.7	5.2	75
4.3	3.9			4.5	2.3	6.0	228
				4.6	5.1	7.0	443
				4.7	9.7		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.4	0.3	128		72	4.4	9.7	2.5	1.4	0.5	0.3	0.1
2	.4	.3	11		* 45	4.4	8.3	2.5	1.2	.5	.2	.1
3	.4	.4	3.5		26	4.4	7.4	2.3	1.2	.6	.1	0
4	.5	.7	2.3		17	4.4	6.0	2.3	1.2	.5	.1	0
5	.9	.5	1.9		13	7.4	5.6	2.3	* 1.1	* .5	.1	0
6	1.3	1.2	1.9	a 1.5	10	4.8	4.8	2.5	1.0	.6	.1	0
7	1	.4	1.9		8.8	4.4	4.4	2.3	1.0	.6	.1	* 0
8	0	.4	1.9		9.2	2.8	4.4	2.3	1.0	.5	.1	0
9	0	.5	1.5		23	* 22	4.4	2.3	1.1	.4	* .1	.1
10	0	.5	1.5		18	10	4.4	2.5	1.1	.4	.1	.1
11	1	1.0	2.1		127	8.8	4.1	2.3	1.0	.4	.1	0
12	1	.78	2.1		55	6.5	4.1	2.1	1.1	.4	.1	0
13	1	22	2.1		35	6.0	4.1	2.1	1.1	.6	.1	.1
14	1	.2	4.2		23	61	4.1	2.1	.8	.6	.1	.1
15	0	0	23		32	7.4	4.1	2.1	1.0	.6	.1	.1
16	0	0	6.0		22	7.5	3.8	2.1	.8	.5	.1	.4
17	1	0	3.3		15	145	3.8	1.9	.7	.4	.1	.1
18	.2	.4	2.8	a 1	13	5.8	3.5	1.9	.8	.4	.1	.1
19	.2	.2	2.5		10	4.4	3.5	1.9	.8	.4	.1	.1
20	* 2	.2	2.3		8.8	32	* 3.0	2.1	.8	.6	.1	0
21	.2	.3	2.3		7.9	22	12	1.7	.8	.4	.1	.1
22	.5	.4	6.4		6.9	17	6.0	1.7	.6	.5	.1	0
23	1	* 4		a 2	6.0	14	5.6	1.5	.8	.7	.1	0
24	.2	1.0		a 1	5.6	22	2.8	1.5	.7	.6	.1	0
25	.2	28		84	5.1	20	2.8	1.4	.5	.4	.1	0
26	.2	16		163	5.1	67	2.8	1.4	.6	.4	.1	0
27	.2	.4	a 2.0	24	4.8	58	2.5	1.4	.6	.4	.1	.1
28	.2	.3		10	4.4	32	2.3	1.4	.7	.3	.1	0
29	.2	10	(*)	93	—	22	2.8	1.4	.6	.2	.1	0
30	.3	16		120	—	15	2.5	1.2	.6	.3	.1	0
31	.3	—		229	—	13	—	1.4	—	.2	.1	—
Total	7.7	109.8	246.0	754.0	628.6	906.5	139.6	60.4	26.7	14.4	3.4	1.6
Mean	0.25	3.66	7.94	24.3	22.5	29.2	4.66	1.95	0.89	0.46	0.11	0.05
Max.	1.3	28	128	229	127	145	12	2.5	1.4	0.7	0.3	0.4
Min.	0	0	1.5	—	4.4	4.4	2.3	1.2	0.5	0.2	0.1	0
Ac-ft	15	218	488	1,500	1,250	1,800	277	120	53	29	6.7	3.2

Calendar year 1960: Max 1,000 Min 0 Mean 15.5 Acre-feet 11,230

Water year 1960-61: Max 229 Min 0 Mean 7.94 Acre-feet 5,750

Peak discharge (base, 1,000 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.  
a No gage-height record.

## WALKER CREEK BASIN

11-4608. Walker Creek near Tomales, Calif.

Location.--Lat 38°12'35", long 122°51'35", in Nicasio Grant, on left bank 1,300 ft upstream from Chileno Creek, and 3.5 miles south-east of Tomales, Marin County.

Drainage area.--37.1 sq mi.

Records available.--June 1959 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 70 ft (from topographic map).

Extremes.--Maximum discharge during year, 3,430 cfs Jan. 31 (gage height, 18.18 ft); no flow for several months.  
1959-61: Maximum discharge, that of Jan. 31, 1961; no flow for several months in each year.

Remarks.--Records good except those for periods of fragmentary or no gage-height record, which are poor. No storage. Small diversions for irrigation and stock watering above station.

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

Oct. 1 to Jan. 31				Feb. 1 to Sept. 30			
4.4	0	5.5	62	4.26	0	4.8	20
4.5	.4	6.0	115	4.3	.2	5.0	38
4.6	1.3	7.0	265	4.4	1.6	5.5	106
4.7	3.6	9.0	650	4.5	4.4	6.0	183
4.8	9.1	11.0	1,180	4.6	8.4	7.0	355
5.0	23						

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			*35	1.8	*262	12	45	4.8	1.6			
2			21	1.6	222	11	38	4.4	1.6			
3			13	1.5	157	9.9	32	3.8	1.1			
4			6.7	1.5	117	9.9	27	3.2	1.1			
5			4.5	1.5	90	12	23	3.2	*.9	(*)		
6			2.9	1.5	76	16	21	3.2	.9			
7			2.3	1.3	59	11	19	3.2	.7			(*)
8			2.1	1.5	53	*14	16	2.9	.6			
9			2.1	1.5	93	36	15	2.9	.5			
10			3.2	1.5	83	22	14	2.9	.4		(*)	
11			5.6	1.5	*335	18	12	2.9	.4			
12			3.2	1.3	183	16	12	2.3	.3			
13			2.3	1.3	139	14	11	2.1	.3			
14			2.1	1.3	112	44	9.9	1.8	.3			
15			2.9	1.2	*126	208	8.4	1.6	.3			
16			7.9	1.2	96	115	8.0	1.6	.2			
17			9.1	1.2	74	229	7.6	1.6	.1			
18			6.7	1.2	59	132	6.8	2.1	.1			
19			6.7	1.1	48	109	6.0	2.1	.1			
20	(*)		5.6	1.1	*39	94	*6.0	2.6	.1			
21			5.0	1.1	34	71	6.8	2.1	.1			
22			3.6	1.0	29	60	14	1.8	.1			
23			3.2	1.8	26	60	11	1.8	.1			
24		(*)	<sup>a</sup> 2.8	1.9	22	71	8.0	1.8	0			
25			<sup>a</sup> 2.6	5.5	20	76	6.4	1.6	0			
26			<sup>a</sup> 2.4	7.0	17	112	6.0	1.3	0			
27			<sup>a</sup> 2.2	4.1	15	126	5.2	1.6	0			
28			*2.1	2.9	13	105	4.8	1.3	0			
29			2.1	4.7	—	81	4.8	1.1	0			
30			1.9	6.6	—	67	4.4	1.1	0			
31			1.9	1.100	—	54	—	1.1	—			
Total	0	0	174.7	1,391.9	2,599	2,015.8	409.1	71.8	11.9	0	0	0
Mean	0	0	5.64	44.9	92.8	65.0	13.6	2.32	0.40	0	0	0
Max.	0	0	35	1,100	335	229	45	4.8	1.6	0	0	0
Min.	0	0	1.9	1.0	13	9.9	4.4	1.1	0	0	0	0
Ac-ft	0	0	347	2,760	5,160	4,000	811	142	24	0	0	0

Calendar year 1960: Max 1,710 Min 0 Mean 18.2 Acre-feet 13,250  
Water year 1960-61: Max 1,100 Min 0 Mean 18.3 Acre-feet 13,240

Peak discharge (base, 1,000 cfs).--Jan. 31 (9 a.m.) 3,430 cfs (18.18 ft).

\* Discharge measurement or observation of no flow made on this day.

<sup>a</sup> No gage-height record.

Note.--Fragmentary gage-height record Dec. 1.

## RUSSIAN RIVER BASIN

335

11-4610. Russian River near Ukiah, Calif.

Location.--Lat 39°12'07", long 123°11'55" (revised), in Yokayo Rancho Grant, on left bank 200 ft downstream from York Creek, 0.7 mile upstream from East Fork, and 3.6 miles north of Ukiah, Mendocino County.

Drainage area.--99.6 sq mi.

Records available.--August 1911 to September 1913, October 1952 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Datum of gage is 613.02 ft above mean sea level (levels by Corps of Engineers). Prior to October 1952, staff gage at bridge 0.6 mile downstream at different datum. Oct. 1, 1952, to Feb. 16, 1959, at datum 1.00 ft higher.

Average discharge.--11 years, 177 cfs (128,100 acre-ft per year).

Extremes.--Maximum discharge during year, 5,610 cfs Feb. 11 (gage height, 9.61 ft); minimum, 0.1 cfs for many days.

1911-13, 1952-61: Maximum discharge, 18,900 cfs Dec. 21, 1955 (gage height, 18.0 ft, present datum), from rating curve extended above 13,000 cfs on basis of slope-area measurement of peak flow; no flow at times in 1911, 1952-53, 1960.

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

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0.4	* 2710	60	803	79	202	105	24	5.5	0.5	0.3
2	1	5	* 1180	58	1350	70	186	100	23	5.9	* 6	3
3	1	5	504	53	722	66	172	92	22	5.5	4	3
4	1	3	288	50	472	66	145	88	20	5.9	4	2
5	1	2	218	49	341	93	136	88	20	5.0	5	4
6	2	2	175	46	283	410	134	92	19	5.2	5	4
7	2	2	147	44	236	243	126	92	18	5.2	4	4
8	3	* 2	134	44	238	403	115	61	17	4.2	4	4
9	3	2	108	43	2200	371	105	52	17	4.0	3	2
10	2	2	79	39	976	377	103	* 54	16	3.7	2	1
11	2	4	67	35	3310	413	103	170	15	2.7	4	2
12	2	9	54	33	1330	293	100	110	14	2.4	4	* 2
13	4	24	39	30	1120	227	90	85	13	1.9	2	2
14	4	17	* 29	28	920	930	88	71	12	1.9	1	2
15	3	12	241	26	816	1810	87	63	10	1.7	2	2
16	2	8.3	1570	25	602	1160	82	56	10	1.9	1	1
17	2	7.2	2020	23	455	1340	77	53	9.5	1.7	2	1
18	2	18	1040	* 21	350	794	76	49	9.0	1.7	3	1
19	2	17	594	19	278	695	74	48	9.0	1.4	2	1
20	2	12	383	18	* 215	574	83	44	8.5	1.2	2	1
21	2	13	288	18	172	448	102	40	8.0	1.2	2	1
22	3	12	222	18	143	427	183	37	* 7.9	1.2	2	1
23	4	10	172	26	126	437	229	35	7.9	1.2	1	1
24	4	25	143	26	105	689	180	33	7.6	1.1	1	1
25	3	413	124	26	95	686	130	28	7.4	1.2	1	1
26	3	290	108	170	91	881	135	32	6.6	1.3	2	1
27	3	164	91	105	87	686	150	28	6.2	1.2	2	1
28	4	114	80	74	82	* 486	100	26	5.5	1.0	2	1
29	4	98	73	685	—	365	105	25	6.2	.7	2	1
30	4	391	70	507	—	293	100	24	6.2	.7	1	1
31	4	—	66	* 1830	—	238	—	24	—	.7	2	—
Total	8.0	16,497	13,017	4,229	17,918	16,052	3,698	1,905	375.5	80.1	83	55
Mean	0.26	55.0	420	136	640	518	123	61.5	12.5	2.58	0.27	0.18
Max.	0.4	413	2,710	1,830	3,310	1,810	229	170	24	5.9	0.6	0.4
Min.	0.1	0.2	29	18	82	66	74	24	5.5	0.7	0.1	0.1
Ac-ft	16	3,270	25,820	8,390	35,540	31,840	7,330	3,780	745	159	16	11
Calendar year 1960:				Max 7,930	Min 0	Mean 187	Acre-feet 136,000					
Water year 1960-61:				Max 3,310	Min 0.1	Mean 161	Acre-feet 116,900					

Peak discharge (base, 4,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-1	3a.m.	8.47	4,450	2-11	5a.m.	9.61	5,610

\* Discharge measurement made on this day.

\*\* Field estimate made on this day

Note.--No gage-height record Apr. 24 to May 9, June 1-21.

## RUSSIAN RIVER BASIN

11-4614. East Fork Russian River tributary near Potter Valley, Calif.

Location.--Lat 39°15'30", long 123°06'55", in NE $\frac{1}{4}$  sec.7, T.16 N., R.11 W., on left bank at culvert on Potter Valley road, 4.4 miles south of town of Potter Valley.

Drainage area.--0.15 sq mi (revised).

Records available.--October 1958 to September 1961, discontinued as a continuous-record station; converted to a crest-stage partial-record station.

Gage.--Water-stage recorder, crest-stage gage, and tipping-bucket rain gage. Altitude of gage is 900 ft (from topographic map).

Extremes.--Maximum discharge during year, 44 cfs Dec. 1 (gage-height, 8.90 ft), from rating curve extended above 8 cfs on basis of computation of flow through culvert at gage height 9.72 ft; no flow for several months.

1958-61: Maximum discharge, 65 cfs Mar. 12, 1960 (gage height, 9.89 ft, from crest-stage), by indirect measurement of peak flow through culvert; no flow for several months in each year.

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

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Nov. 13, 30, Dec. 2, 16, 17, Jan. 31, Feb. 2, 9-15, Mar. 8, 14-17, 24, 26)

6.38	0	6.7	1.7
6.4	.1	6.9	3.1
6.5	.5	7.1	4.7
6.6	1.0	7.3	6.9

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	* 5.4	0	0.4	0	0		(*)			
2		0	1.0	0	1.9		0				(*)	
3		0	.3	0	.4	* 0	0					
4		0	.1	0	.3	0	0					
5		0	.1	0	.2	0	0					
6		0	0	0	.2	.4	0		(*)			
7		0	0	0	.1	.1	0					
8		* 0	0	0	.3	.9	0					
9		0	0	0	3.2	.3	0					
10		0	0	0	1.0	.2	0	(*)				
11		0	0	0	3.4	.3	0					
12		0	0	0	.7	.1	0					(*)
13		.3	0	0	.8	.1	0					
14		0	* 0	0	.6	1.7	0					
15		0	.3	0	.6	2.0	0					
16		0	1.9	0	.5	1.4	0					
17		0	.8	* 0	.4	.8	0					
18		0	.4	0	.3	.4	0					
19		0	.3	0	.3	.4	0					
20		0	.2	0	.2	.3	0					
21		0	.1	0	**1	.1	0		(*)			
22		0	.1	0	.1	.2	.1					
23		0	.1	0	.1	.3	.1					
24		0	0	0	0	.8	0					
25		.4	0	0	.3	.3	0					(*)
26		.3	0	.2	0	.8	0					
27		0	0	0	0	.5	0					
28		0	0	0	0	*.2	0					
29		0	0	.6	—	.1	0					
30		.5	0	.5	—	.1	0					
31		—	0	1.1	—	0	—					
Total	0	1.5	11.1	2.4	16.1	12.8	0.2	0	0	0	0	0
Mean	0	0.05	0.36	0.08	0.58	0.41	0.007	0	0	0	0	0
Max.	0	0.5	5.4	1.1	3.4	2.0	0.1	0	0	0	0	0
Min.	0	0	0	0	0	0	0	0	0	0	0	0
Ac-ft.	0	3.0	22	4.8	32	25	0.4	0	0	0	0	0
(†)	—	8.3	6.6	3.5	6.5	11.6	2.7	1.8	0	0	0	0.2
Calendar year 1960:			Max 6.7	Min 0	Mean 0.17	Acre-feet 123						
Water year 1960-61:			Max 5.4	Min 0	Mean 0.12	Acre-feet 87						

Peak discharge (base, 10 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12- 1	2a.m.	8.90	44	3-14	5:30p.m.	7.58	11
2- 9	7:30a.m.	7.73	15	3-16	9:30p.m.	7.75	15
2-11	3a.m.	7.82	17				

\* Discharge measurement or observation of no flow made on this day.

\*\* Field estimate made on this day.

† Precipitation, in inches.

## RUSSIAN RIVER BASIN

337

11-4615. East Fork Russian River near Calpella, Calif.

Location.--Lat 39°14'35", long 123°08'10", in NW $\frac{1}{4}$  sec.13, T.16 N., R.12 W., on left bank 0.5 mile downstream from Cold Creek and 3.6 miles east of Calpella.

Drainage area.--93.0 sq mi.

Records available.--October 1941 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Altitude of gage is 800 ft (from topographic map). Prior to May 28, 1957, at site 0.9 mile downstream at different datum.

Average discharge.--20 years, 326 cfs (236,000 acre-ft per year).

Extremes.--Maximum discharge during year, 5,850 cfs Dec. 1 (gage height, 10.55 ft); minimum daily, 64 cfs July 15.

1941-61: Maximum discharge, 13,300 cfs Dec. 21, 1955 (gage height, 15.06 ft, site and datum then in use), from rating curve extended above 8,600 cfs; minimum daily, 3.8 cfs Oct. 30, 31, 1959.

Remarks.--Records good except those for period of no gage-height record, which are fair. Flow greatly affected by diversion from Eel River through Potter Valley powerhouse (see p. 359). Small diversion for irrigation above station.

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

Oct. 1 to Dec. 1				Dec. 2 to Sept. 30			
2.0	175	6.0	2,020	1.1	58	4.0	900
3.0	475	8.0	3,500	1.5	119	5.0	1,400
4.0	900			2.0	216	7.0	2,720
				3.0	495		

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	233	316	2,900	343	583	361	439	367	212	79	94	295
2	243	316	*978	343	1,210	358	430	364	210	81	*90	292
3	230	310	502	340	618	355	424	358	220	79	85	292
4	210	319	424	267	478	352	418	352	220	72	80	284
5	223	316	397	245	427	373	412	346	227	75	75	277
6	268	304	376	334	409	527	409	349	229	90	75	274
7	256	316	349	337	391	412	403	343	220	107	81	276
8	256	*316	367	337	394	679	403	340	231	117	87	276
9	253	316	364	340	2,040	570	400	337	229	121	84	292
10	240	316	364	337	715	570	397	*343	214	112	86	288
11	256	319	361	337	2,460	602	397	397	218	107	86	278
12	253	319	358	334	984	481	394	355	220	95	91	*280
13	245	391	358	334	830	445	397	343	208	81	99	282
14	253	331	358	334	702	1,010	397	340	198	72	102	277
15	245	322	478	334	722	1,470	397	337	204	64	89	282
16	250	319	1,620	334	590	999	394	334	186	75	99	294
17	235	319	1,450	*334	509	1,370	388	331	166	85	99	287
18	230	337	690	334	454	770	379	331	178	75	89	292
19	223	325	509	334	427	750	379	328	184	85	82	294
20	240	322	436	334	412	646	379	319	168	94	82	297
21	245	325	406	334	*406	546	391	328	*162	90	83	297
22	301	319	388	334	394	554	424	319	156	72	81	294
23	319	316	379	340	331	562	457	328	162	73	81	284
24	316	322	367	334	294	706	394	319	168	79	84	287
25	316	452	364	343	376	598	382	297	182	87	91	287
26	319	409	358	457	370	805	379	284	178	79	91	279
27	319	346	355	376	364	634	376	279	174	69	88	274
28	319	334	352	358	361	*542	373	270	81	70	89	258
29	316	331	349	728	-----	499	370	267	72	72	89	253
30	316	391	346	620	-----	471	367	265	82	87	87	282
31	316	-----	346	1,590	-----	448	-----	251	-----	94	150	-----
TOTAL	8,244	9,994	17,649	12,380	18,251	19,465	11,949	10,121	5,559	2,638	2,769	8,504
MFAN	266	333	569	399	652	628	398	326	185	85.1	89.3	283
MAX	319	452	2,900	1,590	2,460	1,470	457	397	231	121	150	297
MIN	210	304	346	245	294	352	367	251	72	64	75	253
AC-FT	16,350	19,820	35,010	24,560	36,200	38,610	23,700	20,070	11,030	5,230	5,490	16,870

Calendar year 1960: Max 4,650 Min 38 Mean 333 Acre-feet 241,600

Water year 1960-61: Max 2,900 Min 64 Mean 349 Acre-feet 252,900

Peak discharge (base, 3,300 cfs)

\* Discharge measurement made on this day.

Note.--No gage-height record Aug. 2 to Sept. 12.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-1	4a.m.	10.55	5,850	2-11	6a.m.	8.69	4,076
12-16	8p.m.	7.80	3,340	3-14	8p.m.	8.28	3,720

## RUSSIAN RIVER BASIN

11-4620. East Fork Russian River near Ukiah, Calif.

Location.--Lat 39°11'45", long 123°11'30", in Yokayo Rancho Grant, on right bank of outlet channel, 500 ft downstream from Coyote Dam, 1,300 ft upstream from mouth, and 3.2 miles northeast of Ukiah, Mendocino County.

Drainage area.--105 sq mi.

Records available.--August 1911 to September 1913, October 1951 to June 1956, October 1957 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 614.43 ft above mean sea level (levels by Corps of Engineers). Prior to October 1951, staff gage at site half a mile upstream at different datum. October 1951 to June 1956, water-stage recorder at site 1.0 mile upstream at different datum.

Average discharge.--10 years (1911-13, 1951-55, 1957-61), 332 cfs (240,400 acre-ft per year).

Extremes.--Maximum discharge during year, 1,940 cfs Feb. 10 (gage height, 6.53 ft); minimum daily, 15 cfs Feb. 25.

1911-13, 1951-56, 1957-61: Maximum discharge, 13,300 cfs Dec. 21, 1955 (gage height, 16.86 ft, site and datum then in use), from rating curve extended above 1,700 cfs on basis of peak flow at station upstream which was defined to 8,600 cfs; no flow Aug. 13-15, 1913.

Remarks.--Records good. Flow affected by diversion from Eel River through Potter Valley powerhouse (see p. 359) and since November 1955 by storage in Lake Mendocino (capacity, 122,500 acre-ft). Small diversions above station for irrigation.

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

Oct. 1 to Nov. 28

Nov. 29 to Sept. 30

1.9	85	1.0	13	2.5	230
2.0	102	1.1	17	3.0	365
2.5	220	1.3	30	4.0	700
3.0	365	1.5	52	5.0	1,140
3.5	520	2.0	125	6.5	1,920

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	223	299	58	255	1,590	329	407	353	150	332	377	420
2	223	256	23	255	1,440	365	407	374	158	332	375	440
3	223	299	32	323	1,250	386	407	383	158	332	*375	440
4	220	215	32	368	97	386	407	380	158	332	375	440
5	220	166	32	368	97	386	407	341	158	332	395	470
6	217	163	32	288	853	386	389	323	176	329	392	487
7	237	163	32	250	908	550	359	323	188	329	392	489
8	237	*234	50	250	566	646	350	323	188	329	392	485
9	234	299	61	285	468	646	350	323	188	329	389	416
10	234	299	62	303	1,290	646	350	*323	188	332	389	374
11	234	299	62	303	593	646	308	268	188	332	386	323
12	234	299	82	303	1,870	646	290	243	188	332	386	*300
13	240	299	119	303	1,860	643	290	178	200	332	383	285
14	245	317	*130	303	1,600	480	290	155	230	332	383	276
15	245	347	*132	305	1,140	453	290	155	253	332	389	275
16	245	347	70	347	772	1,200	290	174	280	329	392	275
17	245	347	31	*368	359	1,060	293	185	317	332	392	275
18	242	347	31	377	293	1,840	295	185	335	332	392	275
19	242	347	31	395	293	1,300	295	185	338	332	389	275
20	240	347	31	395	399	960	295	185	338	332	389	303
21	240	347	50	395	*972	960	*273	185	*338	332	386	353
22	240	347	62	395	1,230	675	353	174	335	335	386	386
23	237	347	62	395	448	510	353	156	338	335	386	392
24	279	347	64	395	16	510	386	156	338	335	383	392
25	305	277	64	392	15	510	464	225	338	335	380	392
26	305	85	64	392	16	510	541	275	338	338	377	392
27	305	85	64	341	18	548	419	273	335	356	374	392
28	302	379	88	253	122	*615	353	273	335	359	371	392
29	302	485	139	255	-----	555	353	273	335	359	377	392
30	302	123	220	615	-----	510	353	273	335	359	395	392
31	302	-----	255	731	-----	440	-----	210	-----	356	416	-----
TOTAL	7,793	8,511	2,265	10,903	20,575	20,297	10,617	7,832	7,761	10,424	12,023	11,213
MFAN	251	284	73.1	352	735	655	354	253	259	336	388	374
MAX	305	485	255	731	1,870	1,840	541	383	338	359	416	489
MIN	217	85	23	250	15	329	273	155	158	329	371	275
AC-FT	15,460	16,880	4,490	21,630	40,810	40,260	21,060	15,530	15,390	20,680	23,850	22,240

CALENDAR YEAR 1960: MAX 1,870 MIN 6.0 MEAN 270 AC-FT 195,900  
 WATER YEAR 1960-61: MAX 1,870 MIN 15 MEAN 357 AC-FT 258,300

\* Discharge measurement made on this day.



## RUSSIAN RIVER BASIN

339

11-4625. Russian River near Hopland, Calif.

Location.--Lat 39°01'35", long 123°07'45", in Rancho de Sanel Grant, on right bank at abandoned highway bridge, 0.2 mile downstream from McNab Creek, 4 miles north of Hopland, Mendocino County, and 17 miles upstream from Sulphur Creek.

Drainage area.--362 sq mi.

Records available.--October 1939 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Datum of gage is 497.43 ft above mean sea level, datum of 1929. Prior to Sept. 9, 1943, wire-weight gage at same site and datum.

Average discharge.--22 years, 705 cfs (510,400 acre-ft per year).

Extremes.--Maximum discharge during year, 9,320 cfs Feb. 11 (gage height, 13.89 ft); minimum daily, 177 cfs Dec. 12.  
1939-61: Maximum discharge, 45,000 cfs Dec. 22, 1955 (gage height, 27.00 ft); minimum daily, 26 cfs Dec. 18, 1943, June 26, 1949.  
Flood in December 1937 reached a stage of 30.0 ft, from floodmarks.

Remarks.--Records good except those for period of no gage-height record, which are fair. Small diversions for irrigation above station. Flow also affected by diversion into basin (see Remarks for East Fork Russian River stations) and since November 1958 by storage in Lake Mendocino (capacity, 122,500 acre-ft).

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	224	315	8,000	393	2,620	575	1,030	575	231	337	341	419
2	227	294	2,600	389	3,450	595	984	580	224	337	*365	441
3	227	315	1,600	405	2,680	623	936	570	217	341	365	446
4	227	297	900	459	972	623	906	550	217	341	365	446
5	231	245	600	459	716	650	870	525	213	341	365	459
6	234	234	400	423	966	984	837	510	224	333	369	495
7	231	234	300	373	1,220	1,010	799	510	238	333	369	495
8	238	245	220	373	882	1,380	755	468	234	333	369	495
9	245	*308	195	377	2,800	1,470	744	*446	231	333	365	459
10	245	318	186	401	2,490	1,430	738	459	231	333	365	385
11	245	325	183	401	6,470	1,480	683	580	227	325	365	357
12	248	333	177	397	4,740	1,340	595	495	224	325	365	318
13	245	401	183	397	3,950	1,230	585	410	220	318	365	*308
14	255	395	*200	397	3,560	2,220	565	333	248	318	365	290
15	255	390	428	393	2,780	4,320	540	315	259	318	369	290
16	255	390	2,080	401	2,340	3,600	525	308	283	322	369	290
17	255	390	3,440	437	1,570	3,960	515	315	322	318	369	290
18	259	410	1,540	*437	1,290	3,650	510	304	345	315	373	287
19	259	405	966	455	1,150	2,960	505	304	357	315	373	283
20	255	400	672	455	1,100	2,380	495	297	353	315	377	297
21	259	395	545	455	*1,390	2,160	491	294	353	315	373	337
22	255	390	477	455	1,700	1,880	755	283	*353	311	369	373
23	259	390	414	459	1,250	1,630	865	255	357	315	369	393
24	269	395	373	464	535	1,710	727	245	353	315	369	393
25	304	1,100	345	464	450	1,950	727	266	353	311	369	393
26	311	1,050	322	545	410	1,970	804	349	345	311	369	389
27	315	500	301	530	385	*1,800	716	353	341	322	369	389
28	315	350	294	410	377	1,610	565	349	341	333	365	389
29	315	700	315	768	—	1,430	570	349	341	333	373	389
30	315	1,000	353	1,160	-----	1,270	565	345	337	337	385	385
31	315	-----	393	*4,370	-----	1,150	-----	318	-----	337	405	-----
Total	8,092	12,914	29,002	18,302	54,243	55,040	20,902	12,260	8,572	10,091	11,443	11,380
Mean	261	430	936	590	1,937	1,775	697	395	286	326	369	379
Max.	315	1,100	8,000	4,370	6,470	4,320	1,030	580	357	341	405	495
Min.	224	234	177	373	377	575	491	245	213	311	341	283
Ac-ft	16,050	25,610	57,520	36,300	107,600	109,200	41,460	24,320	17,000	20,020	22,700	22,570
Calendar year 1960: Max 15,500 Min 153 Mean 602 Acre-feet 437,000												
Water year 1960-61: Max 8,000 Min 177 Mean 691 Acre-feet 500,350												

Peak discharge (base, 9,600 cfs).--No peak above base.

\* Discharge measurement made on this day.

Note.--No gage-height record Nov. 14 to Dec. 9.

## RUSSIAN RIVER BASIN

11-4627. Feliz Creek near Hopland, Calif.

Location.--Lat 38°58'20", long 123°08'30", in Rancho de Sanel Grant, on left bank just upstream from county road bridge, 0.1 mile upstream from Johnson Creek, and 1.4 miles west of Hopland, Mendocino County.

Drainage area.--31.2 sq mi.

Records available.--August 1958 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 500 ft (from topographic map).

Extremes.--Maximum discharge during year, 2,590 cfs Dec. 1 (gage height, 12.72 ft); no flow for several months.

1958-61: Maximum discharge, that of Dec. 1, 1960; maximum gage height, 13.18 ft Feb. 16, 1959; no flow for several months in each year.

Flood of Dec. 23, 1955, reached a stage of 13.60 ft, from floodmarks, present datum (discharge, 2,710 cfs on basis of slope-area measurement of peak flow).

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

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

Oct. 1 to Nov. 30

Dec. 1 to Sept. 30

4.2	0	5.0	42	4.05	0	4.7	25	7.0	480
4.3	.6	5.5	95	4.1	.2	5.0	52	8.0	820
4.4	4.5	6.0	174	4.2	1.2	5.5	116	9.0	1,170
4.5	10	6.5	275	4.3	3.5	6.0	205		
				4.5	13	6.5	330		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	*1170	12	219	28	44	17	6.0	0.5		
2		0	*321	11	211	27	40	16	5.6	1.1		
3		0	84	9.5	126	26	36	13	3.5	1.0		
4		0	38	9.5	88	25	32	12	5.1	.5		
5		0	25	9.5	69	28	29	12	3.5	.4		
6		0	20	9.0	60	50	27	12	4.3	.9		
7		0	18	9.0	50	36	24	11	3.9	1.0		
8		0	15	9.5	47	145	23	*10	3.2	1.0		
9		*0	13	9.0	194	86	21	11	3.5	.9		
10		0	14	7.5	166	64	20	14	2.9	.9		
11		0	12	7.0	821	a55	19	21	3.5	.5		
12		0	9.5	6.5	270	a47	19	15	2.9	.5		
13		10	8.0	6.0	225	a43	18	13	2.9	.5		
14		5.1	7.5	6.0	160	a200	17	12	2.0	.4		
15		2.1	*276	6.0	205	a380	16	12	1.6	.2		
16		1.3	619	5.6	135	a270	15	11	.7	.1		
17		1.3	372	5.6	105	*a430	15	11	1.0	0		
18		6.2	137	*5.6	83	a270	15	9.5	2.0	0		
19		5.6	75	5.6	68	a210	14	7.5	1.8	0		
20		3.5	51	5.1	58	a150	14	9.0	1.8	0		
21		3.0	39	5.1	50	a110	24	9.0	1.8	0		
22		2.1	32	4.7	45	a86	31	8.5	*1.6	0		
23		2.1	27	9.0	*41	a75	38	8.0	1.3	0		
24		3.0	23	7.0	39	97	23	7.5	1.8	0		
25		123	22	11	37	122	18	7.5	1.4	0		
26		4.1	19	6.0	34	110	17	7.5	.7	0		
27		20	18	29	31	*102	15	7.0	.5	0		
28		12	15	20	30	82	14	6.5	.5	0		
29		11	14	238	—	68	18	6.5	.6	0		
30		215	13	389	—	59	16	6.5	.6	0		
31		—	12	862	—	50	—	5.1	—	0		
Total	0	467.3	3,519.0	1,789.3	3,667	3,531	672	328.6	72.5	10.4	0	0
Mean	0	15.6	114	57.7	131	114	22.4	10.6	2.42	0.34	0	0
Max.	0	215	1,170	862	821	430	44	21	6.0	1.1	0	0
Min.	0	0	7.5	4.7	30	25	14	5.1	0.5	0	0	0
Ac-ft	0	927	6,980	3,550	7,270	7,000	1,330	652	144	21	0	0

Calendar year 1960:

Max 1,220

Min 0

Mean 38.3

Acre-feet 27,780

Water year 1960-61:

Max 1,170

Min 0

Mean 38.5

Acre-feet 27,870

Peak discharge (base, 2,000 cfs).--Dec. 1 (3 a.m.) 2,590 cfs (12.72 ft).

\* Discharge measurement or observation of no flow made on this day.

a No gage-height record.

## RUSSIAN RIVER BASIN

341

11-4630. Russian River near Cloverdale, Calif.

Location.--Lat 38°52'55", long 123°03'15", in SW<sup>1</sup>/<sub>4</sub> sec.14, T.12 N., R.11 W., on left bank at Lambert Ranch, 400 ft downstream from Cumisky Creek and 5 miles northwest of Cloverdale.

Drainage area.--502 sq mi.

Records available.--July 1951 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 373.44 ft above mean sea level (levels by Corps of Engineers).

Average discharge.--10 years, 1,007 cfs (729,000 acre-ft per year); median of yearly mean discharges, 890 cfs (644,000 acre-ft per year).

Extremes.--Maximum discharge during year, 15,400 cfs Dec. 1 (gage height, 17.65); minimum daily, 198 cfs Oct. 4, Nov. 8, Feb. 28. 1951-61: Maximum discharge, 53,000 cfs Dec. 22, 1955 (gage height, 30.9 ft, from floodmarks), from rating curve extended above 21,000 cfs on basis of determination of peak flow at upstream and downstream stations; minimum daily, 81 cfs Nov. 24, 1958.

Remarks.--Records good. Small diversions for irrigation above station. Flow also affected by diversion into basin (see Remarks for East Fork Russian River stations) and since November 1958 by storage in Lake Mendocino (capacity, 122,500 acre-ft).

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	203	280	11,100	420	4,220	386	1,110	582	238	330	320	430
2	203	280	4,180	414	4,630	486	1,030	594	228	330	345	458
3	200	264	1,970	420	3,970	540	972	582	222	330	*355	469
4	198	275	1,110	522	1,800	534	924	558	219	330	360	469
5	203	209	738	528	1,300	564	876	540	219	330	365	474
6	209	203	498	504	1,350	954	834	480	219	325	365	534
7	206	200	365	392	1,930	1,080	768	492	228	320	365	540
8	209	198	293	386	1,410	1,480	708	*464	228	320	350	540
9	212	*260	256	392	3,540	1,880	672	464	228	320	345	528
10	212	271	253	436	3,790	1,670	642	504	228	320	345	392
11	216	288	235	430	8,990	1,650	600	684	228	311	345	365
12	216	293	209	425	6,380	1,530	534	618	225	306	350	302
13	216	386	209	420	4,940	1,380	516	469	222	306	355	*293
14	222	335	232	408	4,500	2,850	486	340	235	302	355	271
15	222	340	*1,000	403	3,600	6,200	464	311	242	302	350	264
16	225	340	3,720	408	3,030	4,910	447	293	256	306	360	268
17	225	340	5,660	464	1,970	5,800	430	298	298	306	365	268
18	225	360	2,860	469	1,570	4,690	425	293	325	302	360	268
19	225	355	1,790	*504	1,320	3,860	420	288	345	302	365	264
20	225	350	1,250	498	1,180	2,940	408	284	350	302	370	268
21	228	345	978	498	1,380	2,440	464	280	345	302	370	306
22	225	340	804	482	1,820	2,090	828	271	345	302	365	355
23	225	335	648	516	*1,500	1,730	1,020	253	*350	302	360	381
24	232	345	522	516	528	1,760	804	242	350	298	355	392
25	268	985	436	540	355	2,270	762	238	350	293	355	392
26	271	936	381	984	268	2,240	846	311	345	293	355	392
27	271	376	335	846	225	2,160	798	330	335	298	365	386
28	275	264	302	558	198	1,930	588	330	335	316	365	386
29	284	678	306	1,550	—	*1,650	582	325	330	320	360	386
30	284	1,060	350	2,490	-----	1,420	582	325	330	320	376	386
31	280	-----	420	8,230	-----	1,270	-----	316	-----	325	403	-----
Total	7,115	11,491	43,410	26,053	71,694	66,344	20,540	12,359	8,398	9,669	11,119	11,427
Mean	230	383	1,400	840	2,560	2,140	685	399	280	312	359	381
Max.	284	1,060	11,100	8,230	8,990	6,200	1,110	684	350	330	403	540
Min.	198	198	209	386	198	386	408	238	219	293	320	264
Ac-ft	14,110	22,790	86,100	51,680	142,200	131,600	40,740	24,510	16,660	19,180	22,050	22,670

Calendar year 1960: Max 21,800 Min 162 Mean 792 Acre-feet 574,800  
 Water year 1960-61: Max 11,100 Min 198 Mean 821 Acre-feet 594,300

Peak discharge (base, 12,400 cfs).--Dec. 1 (9 a.m.) 15,400 cfs (17.65 ft).

\* Discharge measurement made on this day.

## RUSSIAN RIVER BASIN

11-4632. Big Sulphur Creek near Cloverdale, Calif.

Location.--Lat 38°49'25", long 122°59'05", in NW¼ sec.10, T.11 N., R.10 W., on right bank 500 ft downstream from unnamed tributary, 1.9 miles upstream from mouth, and 3.1 miles northeast of Cloverdale.

Drainage area.--82.0 sq mi.

Records available.--July 1957 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 380 ft (from topographic map).

Extremes.--Maximum discharge during year, 7,300 cfs Dec. 1 (gage height, 12.50 ft), from rating curve extended above 2,900 cfs as explained below; minimum, 3.2 cfs Sept. 5, 6.

1957-61: Maximum discharge, 9,960 cfs Feb. 24, 1958 (gage height, 14.46 ft), from rating curve extended above 2,900 cfs on basis of slope-area measurement at gage height 22.2 ft (flood of Dec. 22, 1955); minimum, 2.5 cfs Sept. 1, 2, 1959.

Flood of Dec. 22, 1955, reached a stage of 22.2 ft, from floodmarks, present datum (discharge, 20,000 cfs on basis of slope-area measurement of peak flow).

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

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Mar. 17 to Apr. 16, May 26 to Sept. 30)

2.5	2.5	3.1	26	5.0	450
2.6	3.5	3.4	55	6.0	1,070
2.7	5.3	3.7	94	8.0	2,720
2.8	8.0	4.0	150	10.0	4,550
2.9	12	4.5	270		

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	3.9	4.8	3,770	71	*980	125	200	88	40	12	5.8	4.4
2	4.0	4.8	1,210	68	607	121	186	84	39	11	5.3	4.2
3	4.2	4.8	392	63	324	118	174	79	39	11	*5.3	3.5
4	4.2	4.8	193	61	258	116	168	*75	38	11	5.3	3.3
5	5.3	5.1	127	55	225	125	157	74	37	11	5.1	3.4
6	19	5.8	100	54	208	135	152	74	37	11	4.9	3.4
7	16	7.2	90	52	188	118	146	72	36	11	5.1	3.5
8	8.9	6.7	81	57	179	193	137	67	33	10	4.8	3.7
9	6.9	*6.1	76	55	368	205	131	67	32	9.3	5.1	4.0
10	6.1	5.6	79	53	427	188	127	76	31	8.4	4.8	4.0
11	5.6	8.0	75	47	2,330	163	121	74	29	7.5	4.8	3.7
12	5.3	20	68	45	917	146	121	67	29	7.2	4.9	3.5
13	5.6	126	*63	43	515	137	116	63	27	7.5	4.9	*3.5
14	5.6	59	63	42	385	643	110	59	25	7.5	5.3	3.7
15	5.1	26	273	41	531	901	104	56	24	7.2	5.3	4.0
16	4.8	17	1,450	39	377	581	99	55	22	6.9	5.1	5.1
17	4.6	13	895	38	300	1,110	96	54	21	6.7	4.9	6.7
18	4.8	21	381	37	263	525	94	53	21	6.1	4.8	5.3
19	4.9	19	288	*35	235	414	91	52	21	5.8	4.8	4.8
20	4.9	14	238	34	215	355	87	51	20	5.6	4.9	4.4
21	4.9	12	200	33	195	306	108	51	19	5.6	4.9	4.4
22	4.9	11	177	32	184	282	157	48	18	5.6	4.8	4.9
23	4.9	10	154	41	172	265	174	46	*18	5.8	4.8	4.9
24	5.1	11	137	37	*161	268	131	45	17	6.1	4.6	4.8
25	5.3	406	125	41	152	258	114	44	16	6.1	4.4	4.4
26	5.3	296	112	272	144	285	100	42	14	6.1	4.4	4.0
27	4.9	107	104	174	135	276	93	42	14	5.8	5.3	3.9
28	4.9	63	93	118	131	250	88	41	14	5.8	6.4	3.9
29	4.9	50	87	549	-----	*233	93	40	13	5.3	5.6	3.7
30	4.9	277	81	988	-----	220	93	40	13	5.8	5.1	3.7
31	4.8	-----	76	3,070	-----	208	-----	40	-----	6.1	4.8	-----
TOTAL	184.5	1,621.7	11,258	6,345	11,106	9,270	3,768	1,819	757	237.8	156.3	124.7
MEAN	5.95	54.1	363	205	397	299	126	58.7	25.2	7.67	5.04	4.16
MAX	19	406	3,770	3,070	2,330	1,110	200	88	40	12	6.4	6.7
MIN	3.9	4.8	63	32	131	116	87	40	13	5.3	4.4	3.3
AC-FT	366	3,220	22,330	12,590	22,030	18,390	7,470	3,610	1,500	472	310	247

CALENDAR YEAR 1960: MAX 4,880 MIN 3.4 MEAN 148 AC-FT 107,500  
WATER YEAR 1960-61: MAX 3,770 MIN 3.3 MEAN 128 AC-FT 92,540

Peak discharge (base, 3,200 cfs)

\* Discharge measurement made on this day.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12- 1	6a.m.	12.50	7,300	2-11	3a.m.	9.21	3,810
1-31	7a.m.	10.79	5,370				

# RUSSIAN RIVER BASIN

343

11-4639. Maacama Creek near Kellogg, Calif.

Location.--Lat 38°38'25", long 122°45'45", in SW¼ sec.9, T.9 N., R.8 W., on right bank 0.5 mile downstream from Redwood Creek, 4.4 miles west of Kellogg.

Drainage area.--43.4 sq mi.

Records available.--Occasional low-flow measurements and annual maximum, water years 1958-60. December 1960 to September 1961.

Gage.--Water-stage recorder and crest-stage gage. Altitude of gage is 200 ft (from topographic map). Prior to Dec. 20, 1960, crest-stage gage only at site 700 ft upstream at different datum.

Extremes.--Maximum discharge during period December to September, 3,700 cfs Jan. 31 (gage height, 12.65 ft); minimum, 0.2 cfs Sept. 26. 1958-61: Maximum discharge not determined, occurred Feb. 24, 1958 (gage height, 20.6 ft, from floodmarks, site and datum then in use).

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

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

2.2	0.2	4.0	80
2.3	.7	4.5	134
2.4	2.0	5.0	206
2.5	3.8	6.0	410
2.7	9.0	7.0	700
3.0	21	9.0	1,510
3.5	45		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			-	22	336	42	76	28	11	2.7	1.0	0.5
2			-	21	314	40	67	26	11	2.4	.9	.6
3			-	19	208	38	61	25	10	2.4	.9	.7
4			-	19	157	37	55	23	10	2.4	.8	.5
5			-	18	124	47	50	22	10	2.4	.7	.4
6			-	18	107	45	49	22	10	2.4	.6	.5
7			-	18	88	37	46	22	9.7	2.2	.4	1.1
8			-	19	85	113	42	21	9.0	2.0	.5	1.2
9			-	20	318	* 95	41	21	8.4	1.8	.4	1.1
10			-	18	285	84	38	24	8.2	1.6	.4	1.0
11			-	17	741	63	36	24	8.2	1.6	.6	.9
12			-	16	322	54	36	21	*7.9	1.5	.4	.7
13			-	16	284	50	34	20	7.6	1.6	.7	.5
14			-	15	230	244	31	18	7.0	1.6	.7	.5
15			-	15	280	348	29	17	6.2	1.2	.7	.9
16			-	15	208	314	29	17	5.7	1.1	.4	1.6
17			-	14	168	392	28	16	5.7	.9	.4	1.6
18			-	14	137	220	27	16	5.7	.9	.7	.9
19			-	13	114	187	26	16	5.5	.7	.6	.9
20			*80	12	97	155	26	16	4.8	.7	.7	.9
21			66	12	84	126	* 34	16	4.3	.7	.4	.8
22			55	12	74	117	52	15	4.0	.7	.4	.9
23			47	17	65	107	63	15	4.3	.7	.6	.8
24			41	14	59	133	38	14	3.6	.7	.5	.7
25			37	28	55	112	32	14	3.4	*.8	.6	.3
26			34	* 266	52	188	29	14	3.4	.7	.4	.2
27			31	96	49	169	27	11	3.3	.7	.5	.3
28			28	59	45	* 134	26	12	3.1	.7	.7	.3
29			26	618	-	115	29	11	2.9	2.5	.4	.3
30			25	646	-	98	28	11	2.7	.9	.5	.3
31			24	1,190	-	86	-	11	-	1.0	*.6	-
Total			-	3,297	5,086	3,990	1,185	559	196.6	44.2	18.1	21.9
Mean			-	106	182	129	39.5	18.0	6.55	1.43	0.58	0.73
Max.			-	1,190	741	392	76	28	11	2.7	1.0	1.6
Min.			-	12	45	37	26	11	2.7	0.7	0.4	0.2
Ac-ft			-	6,540	10,090	7,910	2,350	1,110	390	88	36	43

Calendar year		Max	Min	Mean	Acres-feet
Water year		Max	Min	Mean	Acres-feet

Peak discharge (base, 1,300 cfs)

\* Discharge measurement made on this day.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1-31	5 a.m.	12.65	3,700	3-14	8 p.m.	8.87	1,450
2-11	5 a.m.	8.62	1,340				

## RUSSIAN RIVER BASIN

11-4640. Russian River near Healdsburg, Calif.

Location.--Lat 36°36'48", long 122°50'07", in Sotoyome Grant, on left bank 2 miles east of Healdsburg, Sonoma County, and 3.5 miles upstream from Dry Creek.

Drainage area.--791 sq mi.

Records available.--October 1939 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Datum of gage is 76.84 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--22 years, 1,406 cfs (1,018,000 acre-ft per year).

Extremes.--Maximum discharge during year, 23,500 cfs Dec. 1 (gage height, 14.59 ft); minimum daily, 193 cfs Oct. 4.  
1939-61: Maximum discharge, 67,000 cfs Feb. 28, 1940 (gage height, 30.0 ft); minimum daily, 38 cfs July 2, 1950.  
Flood in December 1937 reached a stage of 30.8 ft, from floodmarks.

Remarks.--Records good. Several small diversions for irrigation above station. Flow also affected by diversion into basin (see Remarks for East Fork Russian River stations) and since November 1958 by storage in Lake Mendocino (capacity, 122,500 acre-ft).

Rating tables, except period of indefinite stage-discharge relation (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Mar. 21 to Apr. 6, Sept. 15-30)

Oct. 1 to Dec. 1 Feb. 12 to May 19 Sept. 15-30				Dec. 2 to Feb. 11			
1.2	178	4.0	1,740	2.2	450	4.0	1,690
1.5	252	6.0	4,280	3.0	870	6.0	4,280
2.0	445	9.0	9,700				
3.0	980	12.0	16,400				

Note.--Same as preceding table above 6.0 ft.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	196	309	15800	610	*8260	842	1690	*764	*415	325	*305	315
2	196	309	9290	605	6390	*932	1550	782	400	325	300	330
3	196	295	3890	590	5680	944	1430	752	375	330	305	350
4	193	298	2110	605	3610	944	1340	734	355	330	310	360
5	198	295	1460	625	2280	956	1280	716	340	330	320	375
6	222	249	1080	625	1870	1050	1220	692	335	330	325	390
7	227	230	877	590	2300	1270	1150	675	330	325	325	405
8	224	217	745	566	1960	1360	1090	660	320	325	320	410
9	219	219	652	558	3580	2400	1040	645	310	320	320	425
10	224	*268	610	562	5240	2000	1000	665	300	315	315	420
11	227	302	605	566	11700	1830	974	698	290	310	320	385
12	227	344	*535	562	9760	1850	926	776	290	310	320	360
13	227	454	490	553	6690	1630	890	692	285	305	315	340
14	227	610	478	544	6170	2030	854	615	275	305	315	325
15	230	486	580	540	5360	8280	818	571	250	305	315	309
16	227	458	4750	535	4580	6090	788	548	230	300	310	306
17	232	450	7660	544	3270	8790	764	530	260	300	315	298
18	232	458	4740	558	2580	6490	746	490	290	295	320	295
19	232	468	2910	562	2170	5300	722	494	320	290	320	295
20	235	463	2010	571	1900	4320	704	470	340	280	320	291
21	238	454	1520	571	1830	3480	722	455	350	275	320	291
22	238	445	1250	566	2100	3060	926	435	360	270	320	306
23	241	440	1060	*585	2130	2670	1220	410	355	275	315	324
24	244	454	919	590	1420	2470	1100	390	360	280	310	344
25	246	855	812	600	1120	2840	974	380	360	275	310	352
26	278	1840	739	1770	1020	2820	950	390	*355	270	315	360
27	291	998	680	1490	920	3050	962	420	345	270	320	360
28	298	660	625	1010	860	2690	860	430	340	275	320	364
29	302	600	595	2720	—	2380	794	425	330	280	320	*364
30	306	946	585	5040	—	2140	800	420	325	290	320	364
31	309	—	600	14700	—	*1920	—	420	—	295	*310	—
Total	7,382	14,874	70,657	41,113	106,750	88,828	30,284	17,544	9,790	9,310	9,795	10,413
Mean	238	496	2,279	1,326	3,812	2,865	1,009	566	326	300	316	347
Max.	309	1,840	15,800	14,700	11,700	8,790	1,690	782	415	330	325	425
Min.	193	217	478	535	860	842	704	380	230	270	300	291
Ac-ft	14,640	29,500	140,100	81,550	211,700	176,200	60,070	34,800	19,420	18,470	19,430	20,650

Calendar year 1960:

Max 31,700

Min 140

Mean 1,164

Acre-feet 845,000

Water year 1960-61:

Max 15,800

Min 193

Mean 1,142

Acre-feet 826,500

Peak discharge (base, 19,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-1	5p.m.	14.59	23,500	1-31	3p.m.	13.04	19,100

\* Discharge measurement made on this day.  
Note.--Stage-discharge relation indefinite May 20 to Sept. 14.

## RUSSIAN RIVER BASIN

345

11-4645. Dry Creek near Cloverdale, Calif.

Location.--Lat 38°44'59", long 123°05'28", in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 5, T.10 N., R.11 W., on left bank 500 ft downstream from Smith Creek and 5 miles southwest of Cloverdale.

Drainage area.--87.8 sq mi.

Records available.--October 1941 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Altitude of gage is 320 ft (from topographic map).

Average discharge.--20 years, 155 cfs (112,200 acre-ft per year); median of yearly mean discharges, 133 cfs (96,300 acre-ft per year).

Extremes.--Maximum discharge during year, 5,800 cfs Dec. 1 (gage height, 9.92 ft); minimum, 0.2 cfs Oct. 1, 2, Sept. 13-16.

1941-61: Maximum discharge, 17,600 cfs Dec. 22, 1955 (gage height, 17.80 ft), from rating curve extended above 9,400 cfs on basis of slope-area measurement of peak flow; minimum, 0.1 cfs several days in 1944, 1949, 1951-53.

Flood in December 1937 reached a stage of about 18 ft, from floodmarks.

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

Discharge, in cubic feet per second, water year October 1960 to September 1961

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.2	1.4	2950	78	1370	58	148	49	20	5.0	0.9	0.5
2	.2	1.4	1320	74	957	52	135	44	20	4.6	.7	.5
3	.4	1.6	812	62	580	46	123	39	20	4.0	.6	.4
4	.4	1.6	649	58	405	42	115	36	18	4.3	*.6	.3
5	.9	1.5	575	54	296	64	105	36	17	4.3	.7	.4
6	1.6	1.8	537	54	244	93	98	37	18	4.0	.7	.4
7	1.3	2.4	506	54	181	56	91	37	17	4.3	.8	.3
8	1.0	2.1	488	62	157	247	82	*34	17	4.0	.8	.3
9	.7	*1.9	470	58	1010	216	78	36	16	3.5	.6	.3
10	.6	1.9	497	54	782	166	72	42	16	3.5	.6	.3
11	.6	3.1	474	47	1760	143	70	49	14	3.3	.6	.3
12	.7	12	457	44	1090	103	70	39	13	2.6	.6	.3
13	.8	66	449	40	836	89	64	34	13	2.7	.6	.2
14	.9	31	445	40	633	465	62	31	12	2.6	.7	*.2
15	.9	16	910	37	688	944	58	30	12	2.1	.6	.2
16	.8	7.7	*1960	37	537	683	54	28	9.0	2.0	.6	.2
17	.9	6.0	1440	34	445	*1080	51	27	7.7	2.0	.6	.3
18	.9	20	806	31	381	660	49	27	7.7	1.9	.6	.4
19	1.0	10	533	*31	324	575	47	27	7.7	1.8	.6	.4
20	1.1	6.6	401	31	261	474	46	27	7.7	1.5	.6	.4
21	1.1	5.0	324	31	216	389	62	27	7.7	1.2	.6	.4
22	1.1	5.0	279	31	184	361	100	25	6.0	1.5	.5	.4
23	1.2	4.6	223	44	*157	317	100	24	6.6	1.2	.5	.4
24	1.3	7.7	190	37	135	300	62	24	6.6	1.2	.4	.4
25	1.2	296	166	66	115	293	51	24	6.0	1.1	.4	.3
26	1.2	178	145	307	95	331	47	23	*5.5	1.1	.4	.4
27	1.3	58	133	172	82	303	46	18	5.5	1.1	.6	.4
28	1.3	44	113	128	70	261	40	20	5.0	1.1	.7	.4
29	1.3	44	103	892	—	226	47	20	5.0	.9	.6	.4
30	1.3	498	91	1080	—	*193	46	20	5.5	1.1	.6	.4
31	1.5	—	82	3220	—	169	—	20	—	1.0	.6	—
Total	29.7	1336.3	18528	6988	13991	9399	2219	954	342.2	76.5	19.0	10.5
Mean	0.96	44.5	598	225	500	303	74.0	30.8	11.4	2.47	0.61	0.35
Max.	1.5	498	2,950	3,220	1,760	1,080	148	49	20	5.0	0.9	0.5
Min.	0.2	1.4	82	31	70	42	40	18	5.0	0.9	0.4	0.2
Ac-ft	59	2,650	36,750	13,860	27,750	18,640	4,400	1,890	679	152	38	21
Calendar year 1960: Max 6,490 Min 0.2 Mean 180 Acre-feet 130,900												
Water year 1960-61: Max 3,220 Min 0.2 Mean 148 Acre-feet 106,900												

## RUSSIAN RIVER BASIN

11-4652. Dry Creek near Geyserville, Calif.

Location.--Lat 38°41'55", long 122°57'25", in Tzabaco Grant, on left bank pier of bridge, 0.3 mile downstream from Penna Creek and 3 miles west of Geyserville, Sonoma County.

Drainage area.--162 sq mi.

Records available.--October 1959 to September 1961.

Gage.--Water-stage recorder, and staff gage read twice daily. Altitude of gage is 160 ft (from topographic map).

Extremes.--Maximum discharge during year, 11,900 cfs Jan. 31 (gage height, 10.60 ft); no flow Oct. 1 to Nov. 12, Sept. 28-30.  
1959-61: Maximum discharge, 20,400 cfs Feb. 8, 1960 (gage height, 14.33 ft); no flow at times in each year.

Remarks.--Records good except those for periods of indefinite stage-discharge relation or no gage-height record, which are fair. No regulation. Small diversions for orchard irrigation in summer.

Rating table, except periods of indefinite stage-discharge relation (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Nov. 13-30, May 4-15, June 27 to Aug. 6, Sept. 18, 25-28)

0.65	0	1.2	26	3.0	570
.7	.2	1.4	58	4.0	1,140
.8	1.3	1.6	98	5.0	1,970
.9	3.3	2.0	194	6.0	3,200
1.0	7.0	2.5	355	8.0	6,600
1.1	14				

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	5,620	g 121	1,910	187	284	85	38	2.4	1.0	0.6
2		0	1,540	g 112	1,270	177	262	79	38	2.4	1.0	.6
3		0	753	g 110	956	167	240	71	37	2.2	1.0	.6
4		0	503	g 110	764	164	219	69	35	2.0	*.8	.6
5		0	371	g 105	640	179	202	68	33	1.8	.8	.6
6		0	298	g 105	566	214	189	69	34	1.8	.8	.6
7		0	255	g 105	485	177	174	71	34	1.6	.8	.6
8		*0	228	g 105	449	310	162	*68	32	1.4	.8	.6
9		0	202	g 90	1,390	371	149	68	31	1.4	.8	.6
10		0	222	g 85	1,170	301	139	83	30	1.4	.8	.6
11		0	216	g 81	3,100	278	132	94	28	1.3	.8	.6
12		0	187	g 79	1,640	243	130	83	25	1.3	.8	.6
13		23	174	75	1,210	222	*123	71	24	1.3	.8	.6
14		8.5	164	71	974	644	114	64	23	1.2	.8	.6
15		2.2	*706	68	968	1,400	105	62	22	1.2	.8	.6
16		.7	2,790	64	803	970	96	60	19	1.2	.8	.6
17		.3	2,050	62	690	1,650	92	57	16	1.2	.8	.6
18		1.2	1,010	58	595	974	90	54	15	1.0	.8	*.6
19		1.8	748	56	516	808	85	52	14	1.0	.8	.6
20		.7	590	*51	444	675	81	52	*13	1.0	.8	.6
21		.5	498	51	391	557	105	51	9.7	1.0	.8	.6
22		.3	415	50	348	512	176	50	8.5	1.0	.8	.6
23		.2	348	64	311	458	202	47	8.0	1.0	.7	.5
24		.2	301	66	*284	431	123	46	7.5	1.0	.7	.5
25		165	268	73	262	423	98	46	7.0	1.0	.7	**5
26		*234	g 231	411	237	471	88	45	6.2	1.0	.7	.3
27		68	g 202	278	216	449	83	36	5.0	1.0	.7	.2
28		22	g 182	216	202	407	77	37	4.3	1.0	.7	0
29		13	g 159	1,010	—	379	83	38	3.6	1.0	.7	0
30		591	g 144	1,660	—	*348	85	38	3.0	1.0	.7	0
31			g 133	6,350	—	311	—	38	—	1.0	.7	—
Total	0	1,132.6	21,508	11,942	22,791	14,857	4,188	1,852	603.8	41.1	24.5	15.1
Mean	0	37.8	694	385	814	479	140	59.7	20.1	1.33	0.79	0.50
Max.	0	591	5,620	6,350	3,100	1,650	284	94	38	2.4	1.0	0.6
Min.	0	0	133	50	202	164	77	36	3.0	1.0	0.7	0
Ac-ft	0	2,250	42,660	23,690	45,210	29,470	8,310	3,670	1,200	82	49	30

Calendar year 1960: Max 13,000 Min 0 Mean 262 Acre-feet 189,900  
Water year 1960-61: Max 6,350 Min 0 Mean 216 Acre-feet 156,600

Peak discharge (base, 4,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-1	6a.m.	10.32	11,300	1-31	6a.m.	10.60	11,900

\* Discharge measurement or observation of no flow made on this day.

\*\* Field estimate made on this day.

a No gage-height record.

g Computed from twice-daily staff-gage readings.

Note.--Stage-discharge relation indefinite May 16 to June 20, Aug. 7 to Sept. 17.



## RUSSIAN RIVER BASIN

347

11-4658. Santa Rosa Creek near Santa Rosa, Calif.

Location.--Lat 38°27'25", long 122°37'50", in Los Guillicos Grant, on left bank 500 ft downstream from highway bridge, 1,500 ft upstream from unnamed tributary, and 4.6 miles east of Santa Rosa, Sonoma County.

Drainage area.--12.5 sq mi.

Records available.--July 1959 to September 1961.

Gage.--Water-stage recorder and crest-stage gage. Altitude of gage is 335 ft (from topographic map).

Extremes.--Maximum discharge during year, 550 cfs Jan. 31 (gage height, 7.56 ft); no flow Aug. 7, 19, Sept. 2-13.  
1959-61: Maximum discharge, 3,200 cfs Feb. 8, 1960 (gage height, 13.35 ft, from floodmarks), from rating curve extended above 130 cfs on basis of slope-area measurements at gage heights 11.0 and 13.35 ft; no flow at times in each year.

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

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Oct. 19 to Nov. 30, July 7-17, July 25 to Sept. 30)

3.6	0	4.2	5.0
3.7	.1	4.4	11
3.8	.4	4.7	26
3.9	1.0	5.0	46
4.0	1.9	5.5	104
4.1	3.2	6.0	190

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0.3	9.1	1.9	* 5.7	9.5	1.9	4.8	2.5	0.6	0.1	0.1
2	1	3	36	1.9	50	8.8	17	4.4	* 2.5	.6	1	0
3	1	3	15	1.9	35	8.5	16	4.2	2.5	.6	1	0
4	1	4	7.5	1.9	27	8.1	14	4.0	3.5	.5	1	0
5	1	5	4.6	1.8	23	10	13	4.0	3.4	.6	1	0
6	5	7	3.5	1.8	20	9.8	12	4.0	3.4	.5	1	0
7	2	6	2.9	1.7	18	8.1	12	4.0	3.2	.4	0	0
8	2	6	2.6	1.8	17	20	11	3.8	2.9	.4	1	0
9	1	6	2.2	1.8	51	* 22	10	3.8	2.6	.3	1	0
10	1	6	2.9	1.7	35	17	9.8	3.8	2.5	.2	1	0
11	1	9	2.8	1.7	* 15.7	16	8.8	4.2	2.3	.2	1	0
12	1	1.7	2.2	1.6	60	14	9.2	3.5	2.2	.2	1	0
13	1	2.6	2.1	1.6	69	12	8.5	3.4	2.0	.3	1	0
14	1	1.5	2.0	1.5	54	22	7.8	3.2	1.6	.3	1	1
15	1	9	2.1	1.5	51	* 4.3	7.2	3.1	1.4	.2	1	1
16	1	6	9.3	1.5	39	36	7.0	2.9	1.2	.1	1	4
17	1	5	16	1.6	32	63	6.7	2.9	1.3	.1	1	1
18	1	1.1	9.2	1.5	27	36	6.1	3.1	1.4	a .1	1	1
19	2	7	7.2	1.5	23	31	* 6.1	2.9	1.3	a .1	0	1
20	2	6	5.6	1.5	20	27	5.8	3.1	1.1	a .1	1	1
21	* 3	5	4.8	1.4	18	23	6.7	3.1	1.1	a .1	1	1
22	3	5	4.0	1.4	16	22	9.8	2.9	1.1	a .1	1	1
23	3	4	3.5	2.0	14	21	10	2.8	1.1	a .1	1	1
24	3	5	3.2	1.7	13	28	7.0	2.6	.9	* a .1	1	1
25	4	* 2.6	3.1	3.1	12	27	6.1	2.6	.9	.1	1	1
26	5	12	2.8	* 4.7	11	4.3	5.8	2.6	.9	.1	1	1
27	4	2.0	2.5	2.3	11	4.1	5.3	2.5	.9	.1	1	1
28	4	1.1	2.3	1.1	9.8	3.2	4.8	2.5	.8	.1	1	1
29	4	7	2.2	1.0	—	2.7	5.0	2.3	.7	.1	1	1
30	2	9	* 2.0	5.5	—	2.4	5.0	2.3	.7	.1	* 1	1
31	3	—	1.9	1.7	—	2.1	—	2.3	—	.1	1	1
Total	6.6	37.2	259.0	466.3	969.8	730.8	272.5	101.6	53.9	7.5	2.9	2.1
Mean	0.21	1.24	8.35	15.0	34.6	23.6	9.08	3.28	1.80	0.24	0.09	0.07
Max.	0.5	1.2	9.1	1.7	15.7	63	1.9	4.8	3.5	0.6	0.1	0.4
Min.	0.1	0.3	1.9	1.4	9.8	8.1	4.8	2.3	0.7	0.1	0	0
Ac-ft	13	74	514	925	1,920	1,450	540	202	107	15	5.8	4.2

Calendar year 1960: Max 1,450 Min 0 Mean 16.5 Acre-feet 11,980  
Water year 1960-61: Max 177 Min 0 Mean 7.97 Acre-feet 5,770

Peak discharge (base, 500 cfs).--Jan. 31 (6 a.m.) 550 cfs (7.56 ft).

\* Discharge measurement made on this day.

a No gage-height record.

## RUSSIAN RIVER BASIN

11-4670. Russian River near Guerneville, Calif.

Location.--Lat 38°30'00", long 122°56'05", in NE $\frac{1}{4}$  sec.35, T.8 N., R.10 W., on left bank 0.6 mile downstream from Hobson Creek and 3.4 miles east of Guerneville.

Drainage area.--1,342 sq mi.

Records available.--October 1939 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B. Prior to October 1954, published as "at Guerneville".

Gage.--Water-stage recorder. Altitude of gage is 70 ft (from topographic map). Prior to Oct. 1, 1954, wire-weight gage at bridge 5.3 miles downstream at different datum. Supplementary water-stage recorder 2.1 miles downstream used during periods of low flow 1948-54.

Average discharge.--22 years, 2,217 cfs (1,605,000 acre-ft per year); median of yearly mean discharge (revised), 1,800 cfs (1,300,000 acre-ft per year).

Extremes.--Maximum discharge during year, 33,100 cfs Jan. 31 (gage height, 29.73 ft); minimum daily, 195 cfs Oct. 1, 4. 1939-61: Maximum discharge, 90,100 cfs Dec. 23, 1955 (gage height, 49.7 ft, from floodmarks); minimum daily, 61 cfs July 4, 1950.

Remarks.--Records good. Many diversions above station for irrigation. Flow also affected by diversion into basin (see Remarks for East Fork Russian River stations), since November 1958 by storage in Lake Mendocino (capacity, 122,500 acre-ft), and by diversion at Wohler pumping plant beginning in May 1959.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Dec. 6-16)

Oct. 1 to Jan. 31				Jan. 31 to Sept. 30			
4.0	185	13.0	5,470	4.5	210	13.0	6,400
5.0	480	19.0	13,200	5.0	385	19.0	14,400
7.0	1,270	26.0	25,500	7.0	1,330	26.0	26,000
10.0	3,020			10.0	3,420		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	195	284	19,300	780	20,600	1,070	2,350	855	441	289	* 275	314
2	198	284	18,000	760	12,300	1,120	2,060	850	409	289	268	331
3	198	287	6,850	736	10,800	1,120	1,860	820	381	296	278	349
4	195	275	3,650	728	7,470	1,120	1,710	790	361	300	286	361
5	200	284	2,310	752	4,930	1,110	1,570	770	357	300	296	377
6	230	269	1,700	748	3,710	1,230	1,450	760	349	300	303	393
7	235	245	1,340	732	3,570	1,490	1,350	730	338	289	306	405
8	232	228	1,160	696	3,300	1,590	1,250	710	331	286	306	417
9	230	222	1,020	688	7,120	3,430	1,180	695	324	282	306	433
10	228	* 238	940	676	10,200	2,760	1,120	705	306	278	300	433
11	228	278	940	676	18,100	2,490	1,080	725	306	275	303	389
12	228	314	* 844	664	19,000	2,430	1,040	780	300	272	306	377
13	228	377	760	648	12,100	2,140	995	740	292	272	310	357
14	228	508	708	636	10,700	2,350	950	666	282	272	310	331
15	230	470	776	624	9,280	* 12,300	910	599	261	268	310	* 331
16	228	420	6,750	616	8,260	9,510	870	563	222	268	306	306
17	228	404	11,700	613	6,400	* 14,500	845	554	247	268	306	296
18	230	404	7,540	628	4,930	10,900	820	537	275	264	310	289
19	230	407	4,690	624	3,950	8,710	800	* 505	292	258	314	292
20	230	410	3,200	636	3,270	7,540	775	433	310	250	320	272
21	230	401	2,340	636	2,850	5,940	795	497	* 317	247	324	275
22	232	392	1,870	632	2,980	4,950	995	485	317	247	320	289
23	235	392	1,560	660	3,010	* 4,310	1,360	469	314	250	317	310
24	238	401	1,320	692	2,300	3,820	1,280	457	317	250	314	338
25	235	480	1,150	712	1,670	4,190	1,340	441	317	250	314	345
26	252	1,850	1,040	2,800	1,400	4,430	1,030	421	314	247	314	342
27	263	1,340	964	3,010	1,240	5,140	1,020	433	310	247	328	338
28	272	780	896	1,940	1,140	4,430	960	457	303	250	331	342
29	275	592	828	4,360	---	3,740	890	449	300	254	334	342
30	278	978	788	1,130	---	3,160	890	449	292	268	331	361
31	281	---	776	25,300	---	2,700	---	441	---	272	306	---
Total	7,220	14,214	107,710	65,703	196,580	135,720	35,545	18,786	9,485	8,358	9,552	10,335
Mean	233	474	3,474	2,119	7,021	4,378	1,185	606	316	270	308	344
Max.	281	1,850	19,300	25,300	20,600	14,500	2,350	855	441	300	334	433
Min.	195	222	708	613	1,140	1,070	775	421	222	247	268	272
Ac-ft	14,320	28,190	213,600	130,300	389,900	269,200	70,500	37,260	18,810	16,580	18,950	20,500

Calendar year 1960: Max 54,300 Min 132 Mean 1,800 Acre-feet 1,306,000  
Water year 1960-61: Max 25,300 Min 195 Mean 1,696 Acre-feet 1,228,000

Peak discharge (base, 23,000 cfs)

\* Discharge measurement made on this day.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12- 1	8p.m.	28.73	31,000	2-11	12p.m.	24.79	23,800
1-31	6p.m.	29.73	33,100				

RUSSIAN RIVER BASIN

349

11-4672. Austin Creek near Cazadero, Calif.

Location.--Lat 38°30'05", long 123°04'05", on left bank 0.6 mile downstream from confluence of Big Austin and East Austin Creeks, 2.3 miles southeast of Cazadero, Sonoma County, and 3.4 miles upstream from mouth.

Drainage area.--63.0 sq mi.

Records available.--May 1959 to September 1961.

Gage.--Water-stage recorder and crest-stage gage. Altitude of gage is 40 ft (from topographic map).

Extremes.--Maximum discharge during year, 9,470 cfs Jan. 31 (gage height, 15.17 ft); minimum daily, 0.8 cfs Oct. 1-3. 1959-61: Maximum discharge 13,000 cfs Feb. 8, 1960 (gage height, 18.75 ft, crest-stage gage); no flow Aug. 19 to Sept. 17, 1959.

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

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.8	2.6	a3,500	82	1,550	92	175	52	20	1.8	1.7	1.2
2	.8	2.6	*a 600	76	952	85	*161	48	19	1.8	1.6	1.1
3	*.8	2.6	196	73	558	82	137	47	19	1.8	1.6	1.0
4	1.1	2.8	94	63	398	76	129	43	19	1.8	1.6	1.0
5	1.4	3.5	58	62	314	110	120	42	19	1.8	1.6	.9
6												
7	5.0	3.5	39	60	266	108	112	43	18	1.8	1.6	.9
8	13	4.1	28	62	222	85	103	42	18	1.7	1.6	.9
9	6.0	4.4	20	72	258	312	99	38	17	1.7	*1.6	.9
10	5.0	4.4	15	66	1,920	234	92	42	16	1.7	1.5	.9
	4.0	3.0	26	65	1,750	196	88	46	14	1.6	1.5	.9
11	3.5	3.8	20	58	3,740	172	85	*42	14	1.6	1.5	.9
12	3.2	8.0	14	55	1,470	144	82	36	13	1.6	1.4	.9
13	3.0	63	12	52	1,060	129	76	33	12	1.6	1.4	*.9
14	2.9	26	9.0	48	810	858	73	30	a 11	1.6	1.3	.9
15	2.9	*15	557	47	810	*1,030	69	29	a 10	1.6	1.3	.9
16	3.0	12	2,500	44	547	783	66	29	a 9.5	1.6	1.2	.9
17	3.2	10	1,530	42	384	1,850	65	29	a 9.0	1.5	1.2	.9
18	3.5	13	616	42	334	791	63	29	a 8.5	1.5	1.2	.9
19	4.0	12	362	39	282	610	62	28	a 7.5	1.5	1.2	.9
20	4.5	9.5	*282	36	250	420	59	28	a 6.5	1.5	1.2	.9
21												
22	7.0	8.5	246	35	218	326	66	26	a 5.0	1.5	1.2	.9
23	15	8.5	206	34	203	302	94	26	a 4.0	1.5	1.2	.9
24	3.8	8.0	186	*46	175	270	88	25	a 3.2	1.5	1.2	.9
25	5.0	16	164	39	158	262	69	25	a 2.7	1.6	1.2	.9
	5.0	302	147	117	140	242	63	24	a 2.4	1.6	1.2	.9
26	3.5	203	134	*318	126	440	59	23	*a 2.1	1.6	1.2	.9
27	3.0	78	123	200	*112	318	54	22	2.0	1.6	1.3	.9
28	3.0	47	108	164	105	270	52	21	1.9	1.7	1.3	.9
29	4.1	65	97	2,920	—	238	55	21	1.8	1.7	1.3	.9
30	3.8	a 200	88	2,720	—	203	53	20	1.8	1.7	1.3	.9
31	3.0	—	87	4,930	—	196	—	20	1.7	1.7	1.3	.9
Total	127.8	1,141.8	12,064.0	12,667	19,112	11,234	2,569	1,009	306.9	50.8	42.5	27.7
Mean	4.12	38.1	389	409	683	362	85.6	32.5	10.2	1.64	1.37	0.92
Max.	15	302	3,500	4,930	3,740	1,850	175	52	20	1.8	1.7	1.2
Min.	0.8	2.6	9.0	34	105	76	52	20	1.8	1.5	1.2	0.9
Ac-ft	253	2,260	23,930	25,120	37,910	22,280	5,100	2,000	609	101	84	55
Calendar year 1960: Max 7,390 Min 0.8 Mean 189 Acre-feet 136,900												
Water year 1960-61: Max 4,930 Min 0.8 Mean 165 Acre-feet 119,700												
Peak discharge (base, 4,000 cfs)												
Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge	* Discharge measurement made on this day. a No gage-height record. Note.--Stage-discharge relation indefinite Oct. 1-21, June 27 to Sept. 30.				
12- 1	unknown	12.41	6,740	2-11	2a.m.	11.73	6,090					
1-31	4a.m.	15.17	9,470	3-14	8p.m.	10.43	4,860					

## GUALALA RIVER BASIN

11-4675. South Fork Gualala River near Annapolis, Calif.

Location.--Lat 38°42'10", long 123°25'00", in NE $\frac{1}{4}$  sec. 21, T.10 N., R.14 W., on right bank 1,000 ft downstream from Wheatfield Fork Gualala River and 4.8 miles west of Annapolis.

Drainage area.--161 sq mi.

Records available.--October 1950 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 60 ft (from topographic map).

Average discharge.--11 years, 446 cfs (322,900 acre-ft per year).

Extremes.--Maximum discharge during year, 15,900 cfs Jan. 31 (gage height, 13.68 ft); minimum, 3.3 cfs Oct. 1.

1950-61: Maximum discharge, 55,000 cfs Dec. 22, 1955 (gage height, 24.57 ft), from rating curve extended above 13,000 cfs on basis of slope-area measurement of peak flow; minimum, 0.4 cfs Sept. 13, 1951.

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

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.3	6.2	a 7.000	14.8	3.230	207	384	107	45	15	6.0	5.1
2	3.8	6.2	a 3.000	140	2.320	198	324	107	45	15	6.0	4.7
3	*5.6	6.2	a 1.300	129	1.770	191	*299	87	45	13	6.0	4.4
4	5.0	5.6	a 5.80	122	1.350	183	277	78	45	12	6.5	4.0
5	5.6	5.6	a 3.70	116	1.030	222	257	71	44	12	6.0	3.7
6												
7	21	7.5	a 2.80	111	8.36	336	233	e 72	45	12	4.4	3.7
8	30	8.9	a 2.20	113	6.54	272	220	e 73	46	11	4.7	3.7
9	18	9.7	*1.67	122	5.88	474	198	e 68	42	12	*5.4	3.7
10	12	8.9	142	120	4.230	657	180	e 70	39	12	6.0	3.7
11	8.9	8.2	153	113	3.120	485	170	e 80	36	11	5.4	3.7
12												
13	7.5	11	170	105	7.490	470	159	e 78	35	10	5.4	3.7
14	6.9	32	131	98	3.190	392	157	e 76	33	9.3	5.4	3.7
15	6.2	132	116	94	2.670	336	151	e 74	32	8.8	5.1	3.7
16	6.2	113	102	89	2.300	890	134	e 72	31	8.2	5.1	4.0
17	6.2	*45	1.130	85	2.270	3.580	126	e 71	29	8.2	5.1	4.0
18												
19	5.6	29	5.360	83	1.690	2.310	116	70	25	8.2	5.1	4.4
20	5.6	20	3.340	78	1.230	4.610	110	67	24	8.2	5.1	4.7
21	5.6	36	1.660	76	8.99	2.710	107	66	24	7.6	5.1	5.4
22	5.6	50	1.150	74	6.46	2.070	101	*66	23	7.1	5.1	*5.4
23	5.6	25	*7.60	69	5.06	1.620	96	66	24	6.0	5.1	5.4
24												
25	5.6	19	5.68	69	4.25	1.180	112	66	23	5.4	4.7	5.1
26	5.6	17	4.65	67	3.72	944	197	65	22	5.4	4.7	4.7
27	6.2	13	3.81	*109	3.24	845	266	61	20	5.4	4.7	4.7
28	7.5	20	3.25	98	2.90	7.28	157	55	21	5.4	4.7	4.4
29	7.5	604	2.88	119	2.67	809	124	53	20	5.1	4.7	4.7
30												
31	8.2	563	2.52	563	2.49	1.460	110	54	*18	6.5	5.1	4.4
32	7.5	232	2.32	357	2.33	1.420	100	53	17	6.5	5.4	4.0
33	7.5	127	2.07	263	2.20	8.27	94	48	17	7.1	5.4	4.0
34	6.9	a 1.10	1.85	2.240	—	6.54	101	47	17	6.5	5.4	3.7
35	6.9	a 3.30	1.67	3.320	—	5.36	107	47	16	6.5	6.0	3.7
36	6.2	—	1.56	8.870	—	4.50	—	46	—	6.0	6.0	—
Total	249.8	2,601.0	30.357	18.160	44.399	32.066	5.167	2.114	903	272.4	164.8	128.2
Mean	8.06	86.7	979	586	1,586	1,034	172	68.2	30.1	8.79	5.32	4.27
Max.	30	604	7,000	8,870	7,490	4,610	384	107	46	15	6.5	5.4
Min.	3.3	5.6	102	67	220	183	94	46	16	5.1	4.4	3.7
Ac-ft	495	5,160	60,210	36,020	88,060	63,600	10,250	4,190	1,790	540	327	254

Calendar year 1960:

Max 18,900

Min 3.3

Mean 397

Acre-feet 288,100

Water year 1960-61:

Max 8,870

Min 3.3

Mean 374

Acre-feet 270,900

Peak discharge (base, 10,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-1	unknown	13.63	15,800	2-11	6a.m.	11.58	11,000
1-31	8a.m.	13.68	15,900				

\* Discharge measurement made on this day.

a No gage-height record.

e Stage-discharge relation indefinite.

NAVARRO RIVER BASIN

351

11-4678. Rancheria Creek near Boonville, Calif.

Location.--Lat 38°59'35", long 123°26'00", in SE $\frac{1}{4}$  sec.7, T.13 N., R.14 W., on left bank at county road bridge, 100 ft downstream from Minnie Creek and 3.7 miles west of Boonville.

Drainage area.--65.8 sq mi.

Records available.--August 1959 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 427 ft above mean sea level, unadjusted (by Topographic Division).

Extremes.--Maximum discharge during year, 4,430 cfs Dec. 1 (gage height, 10.13 ft); minimum, 0.9 cfs Nov. 3. 1959-61: Maximum discharge, 9,990 cfs Feb. 8, 1960 (gage height, 15.30 ft), from rating curve extended above 2,600 cfs; minimum, 0.9 cfs Aug. 31 to Sept. 7, 1959, Nov. 3, 1960.

Remarks.--Records good except those for period of no gage-height record, which are poor. No regulation or diversion.

Rating tables (gage-height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Dec. 1 to Jan. 29, Feb. 2-10, Feb. 13 to Mar. 14)

Oct. 1 to Mar. 14

Mar. 15 to Sept. 30

2.9	0.4	4.0	180	2.34	1.5	3.3	132
3.0	2.7	4.5	365	2.4	3.1	3.6	215
3.1	9.7	5.0	600	2.5	8.2	4.0	340
3.3	30	6.0	1,180	2.6	16	5.0	740
3.6	75	9.0	3,400	2.8	38	6.0	1,230
				3.0	71		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.1	1.1	*2,560	46	916	87	145	58	23	8.2	3.5	1.7
2	1.1	1.1	*831	43	650	83	132	53	22	8.2	2.1	1.7
3	1.1	.9	273	42	446	77	119	47	22	8.2	2.7	1.9
4	1.1	1.1	113	39	341	73	*114	44	21	8.2	3.1	1.9
5	1.9	1.1	65	38	289	85	106	43	21	8.2	3.1	1.9
6	6.3	1.1	42	36	250	123	98	44	21	8.2	3.1	1.9
7	3.6	1.3	26	36	215	95	92	41	21	7.6	3.1	2.1
8	1.9	1.1	19	35	198	263	84	37	19	7.6	3.1	2.1
9	1.6	1.1	13	38	695	240	77	40	18	7.0	*2.7	2.1
10	1.6	1.1	15	38	615	208	73	49	18	7.0	2.7	1.9
11	1.3	3.6	12	39	*1,920	198	67	62	18	6.4	2.7	2.1
12	1.3	9.7	7.9	38	934	168	69	49	17	5.9	2.7	2.1
13	1.3	4.9	6.3	36	705	156	66	43	16	5.9	2.7	2.1
14	1.3	26	4.2	35	550	594	60	40	16	5.9	2.7	2.1
15	1.1	14	384	32	550	1,000	57	37	15	5.3	2.7	2.1
16	1.1	*a 10	1,580	31	428	701	53	36	13	5.3	2.4	2.4
17	1.3	a 7.5	1,300	31	349	977	52	34	13	5.3	2.4	2.4
18	1.3	a 12	628	30	297	601	50	33	12	5.3	2.4	2.4
19	1.3	a 11	371	30	261	521	49	*32	10	4.8	2.4	2.4
20	1.3	a 8.0	250	27	226	407	47	32	11	4.8	2.1	*2.4
21	1.3	a 6.7	*191	27	198	330	81	31	10	5.3	5.2	2.1
22	1.3	a 6.1	156	25	177	290	112	30	12	5.3	2.4	2.1
23	1.1	a 5.7	123	31	159	263	125	28	11	5.3	2.1	1.9
24	1.1	a 6.2	103	*34	141	272	82	27	10	4.8	2.1	1.9
25	1.1	a 230	85	32	123	305	67	26	9.5	4.4	1.9	1.7
26	1.1	a 170	75	75	113	287	60	26	8.8	4.4	2.1	1.7
27	1.1	a 60	67	95	100	269	55	25	*7.0	4.4	2.4	1.7
28	1.1	a 36	61	72	*93	236	52	24	8.2	3.9	2.4	1.7
29	1.1	a 29	55	700	—	209	62	24	8.8	3.9	2.1	1.5
30	1.1	a 160	52	972	—	185	58	24	8.8	3.5	2.1	1.5
31	1.1	—	49	2,550	—	163	—	23	—	3.5	1.9	—
Total	46.4	871.5	9,517.4	5,333	11,939	9,466	2,364	1,142	441.1	182.0	81.1	59.5
Mean	1.50	29.0	307	172	426	305	78.8	36.8	14.7	5.87	2.62	1.98
Max.	6.3	230	2,560	2,550	1,920	1,000	145	62	23	8.2	5.2	2.4
Min.	1.1	0.9	4.2	25	93	73	47	23	7.0	3.5	1.9	1.5
Ac-ft	92	1,730	18,880	10,580	23,680	18,780	4,690	2,270	875	361	161	118

Calendar year 1960 :

Max 7,000

Min 0.9

Mean 153

Acre-feet 111,400

Water year 1960-61 :

Max 2,560

Min 0.9

Mean 114

Acre-feet 82,220

Peak discharge (base, 2,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-1	6 a.m.	10.13	4,430	2-11	5 a.m.	8.25	2,740
12-16	6 p.m.	8.65	3,080	3-14	9 p.m.	7.67	2,320
1-31	4 a.m.	9.60	3,940				

\* Discharge measurement made on this day.

a No gage-height record.

## NAVARRO RIVER BASIN

11-4680. Navarro River near Navarro, Calif.

Location.--Lat 39°10'15", long 123°39'55", in SE $\frac{1}{4}$  sec. 7, T.15 N., R.16 W., on left bank 2.7 miles downstream from North Fork, 5.4 miles upstream from mouth, and 6.6 miles west of Navarro.

Drainage area.--304 sq mi.

Records available.--October 1950 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 20 ft (from topographic map).

Average discharge.--11 years, 538 cfs (389,500 acre-ft per year).

Extremes.--Maximum discharge during year, 9,510 cfs Feb. 11 (gage height, 18.28 ft); minimum, 6.0 cfs Sept. 8.

1950-61: Maximum discharge, 64,500 cfs Dec. 22, 1955 (gage height, 40.60 ft), from rating curve extended above 19,000 cfs on basis of slope-area measurement of peak flow; minimum, 4.7 cfs Aug. 26, 27, 1959.

Flood in December 1937 reached a stage of 38.2 ft, from floodmarks.

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

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	6.5	15	5,580	151	2,500	246	567	176	84	26	11	11
2	7.1	15	3,040	144	1,910	231	494	179	80	27	11	10
3	7.8	14	1,360	134	1,560	222	427	158	78	26	11	8.5
4	7.8	14	706	124	1,090	213	*387	146	80	26	11	7.1
5	*8.5	14	452	120	842	225	357	139	80	27	12	7.1
6	13	14	330	115	702	348	327	144	78	26	12	7.1
7	20	15	261	110	553	357	303	141	76	24	13	6.5
8	26	17	219	115	452	389	276	132	74	23	14	6.0
9	23	18	187	112	1,480	875	255	127	70	23	*12	11
10	21	17	171	106	1,660	750	240	141	68	23	11	11
11	18	24	171	101	6,650	762	222	222	61	20	12	7.8
12	15	38	144	97	3,590	726	213	252	61	17	12	7.8
13	15	203	132	92	2,320	646	207	213	61	15	14	7.1
14	15	187	124	88	2,040	960	192	192	57	14	14	7.8
15	15	103	303	88	1,800	4,600	181	176	61	13	14	8.5
16	15	*68	2,540	84	1,530	2,620	171	163	54	13	14	9.3
17	15	55	4,580	82	1,240	3,510	166	151	47	12	14	10
18	14	74	2,200	82	1,030	2,520	158	*141	40	12	14	12
19	14	88	1,370	80	834	1,930	153	136	42	12	17	11
20	14	68	956	76	698	1,570	146	134	42	11	17	*10
21	14	57	*746	72	574	1,190	163	127	40	11	17	10
22	14	50	564	72	487	1,040	348	120	40	10	18	10
23	14	43	431	86	417	978	384	115	40	10	20	10
24	15	55	345	*99	369	947	312	110	40	10	17	10
25	15	263	294	90	333	1,430	252	103	36	11	15	9.3
26	18	649	255	133	309	1,410	216	99	35	10	17	8.5
27	17	448	225	181	282	1,370	197	97	*32	10	17	7.8
28	17	176	207	146	*264	1,180	181	92	30	10	18	8.5
29	21	129	192	482	-----	983	176	88	29	10	18	8.5
30	21	377	174	1,370	-----	830	184	86	27	10	15	7.8
31	15	-----	161	5,110	-----	682	-----	88	-----	11	14	-----
TOTAL	471.7	3,308	28,420	9,942	37,516	35,740	7,855	4,388	1,643	503	446	267.0
MEAN	15.2	110	917	321	1,340	1,153	262	142	54.8	16.2	14.4	8.90
MAX	26	649	5,580	5,110	6,650	4,600	567	252	84	27	20	12
MIN	6.5	14	124	72	264	213	146	86	27	10	11	6.0
AC-FT	936	6,560	56,370	19,720	74,410	70,890	15,580	8,700	3,260	998	885	530

CALENDAR YEAR 1960: MAX 18,000

MIN 6.0

MEAN 414

AC-FT 300,600

WATER YEAR 1960-61: MAX 6,650

MIN 6.0

MEAN 358

AC-FT 258,800

## Peak discharge (base, 7,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-1	11a.m.	17.33	8,530	2-11	10a.m.	18.28	9,510

\* Discharge measurement made on this day.

11-4680:7. South Fork Big River near Comptche, Calif.

Location.--Lat 39°13'45", long 123°27'55", in sec.19, T.16 N., R.14 W., on left bank 250 ft downstream from Daugherty Creek and 7.2 miles east of Comptche.

Drainage area.--36.3 sq mi.

Records available.--August 1960 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 500 ft (from topographic map).

Extremes.--1960: Maximum discharge during period August to September, 2.4 cfs Aug. 4 (gage height, 2.52 ft); minimum, 0.6 cfs, many days in September.

1960-61: Maximum discharge during water year, 1,320 cfs Feb. 11 (gage height, 7.60 ft); minimum, 0.7 cfs Oct. 1-4.

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

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

2.3	0.6	3.0	14	5.0	240
2.4	1.2	3.3	27	5.5	360
2.5	2.1	3.6	46	6.0	520
2.6	3.6	4.0	83	7.0	960
2.7	5.6	4.5	150		

Discharge, in cubic feet per second, 1960

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	1.3	0.8	7	1.0	0.8	13	1.0	0.6	19	0.9	0.6	25	0.9	0.6
2	1.3	.8	8	1.0	.7	14	1.0	.6	20	.9	.6	26	.8	.6
3	1.2	.8	9	*1.1	.7	15	1.0	.6	21	.9	.6	27	.8	.6
4	1.2	.8	10	1.1	.7	16	1.0	.7	22	.8	.6	28	.8	.6
5	1.1	.8	11	1.1	.7	17	1.0	.7	23	.9	.6	29	.8	.6
6	1.1	.8	12	1.1	.7	18	.9	.6	24	.9	.6	30	*.8	.6
												31	.8	.7
Total.....												30.5		20.2
Mean.....												0.98		0.67
Maximum.....												1.3		0.8
Minimum.....												0.8		0.6
Runoff in acre-feet.....												60		40

\* Discharge measurement made on this day.

## BIG RIVER BASIN

11-4680.7. South Fork Big River near Comptche, Calif.--Continued.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.7	1.2	*402	14	100	24	70	24	12	3.3	1.6	1.2
2	.7	1.2	244	13	193	23	60	20	12	3.4	1.7	1.2
3	.7	1.2	98	12	136	22	54	19	12	3.3	1.6	1.2
4	.7	1.2	56	12	92	21	*48	18	12	3.3	1.6	1.1
5	*.8	1.2	38	11	70	30	43	18	11	3.3	1.6	.9
6	1.5	1.3	29	.	59	50	38	22	11	3.1	1.5	.8
7	1.3	1.5	23	11	50	60	34	22	11	3.1	1.4	.9
8	1.2	1.6	19	11	45	80	30	20	11	3.0	1.3	.9
9	1.0	1.6	17	10	247	110	28	21	9.8	2.8	*1.3	.9
10	1.0	1.6	16	9.5	181	140	26	24	9.5	2.5	1.2	.9
11	1.0	3.6	14	9.2	*859	130	24	68	8.9	2.5	1.4	.9
12	1.0	7.7	12	8.9	345	110	24	52	8.6	2.4	1.4	.9
13	.9	30	11	8.3	246	100	21	41	8.3	2.4	1.3	.9
14	.9	13	10	8.0	221	140	20	36	8.0	2.2	1.3	.9
15	.9	8.3	31	8.0	216	400	19	34	7.2	2.2	1.3	.9
16	.9	*5.2	187	7.7	183	350	18	31	6.9	2.1	1.3	1.3
17	.9	4.7	354	7.2	147	340	17	28	6.7	2.0	1.3	1.2
18	.9	16	207	6.4	114	280	17	*26	6.4	1.9	1.2	1.0
19	.7	8.3	118	6.4	95	210	16	24	6.4	1.8	1.2	1.0
20	.7	5.9	81	6.2	81	180	16	22	6.2	1.9	1.2	*1.0
21	.9	5.9	*61	5.9	67	145	32	21	5.9	1.9	1.2	1.0
22	.9	4.3	50	5.7	58	130	41	20	5.4	1.9	1.2	1.0
23	.9	4.3	40	9.5	48	115	48	18	5.4	1.9	1.2	1.0
24	.9	5.7	34	*7.2	39	130	35	17	5.2	1.8	1.2	.9
25	.9	4.6	29	7.4	33	210	30	16	5.2	1.8	1.2	.9
26	1.1	40	23	9.2	30	200	27	17	4.1	1.7	1.2	.9
27	1.2	23	23	8.9	27	180	24	15	*3.6	1.7	1.5	.9
28	1.2	15	20	8.0	*25	150	22	14	3.6	1.7	1.5	.9
29	1.2	12	18	24	-	120	22	14	3.4	1.6	1.3	.9
30	1.2	28	17	32	-----	100	21	13	3.4	1.6	1.3	.8
31	1.2	-----	15	251	-----	80	-----	13	-----	1.7	1.2	-----
Total	30.0	300.5	2,299	559.6	4,007	4,360	925	748	230.1	71.8	41.7	29.2
Mean	0.97	10.0	74.2	18.1	143	141	30.8	24.1	7.67	2.32	1.35	0.97
Max.	1.5	46	402	251	859	400	70	68	12	3.4	1.7	1.3
Min.	0.7	1.2	10	5.7	25	21	16	13	3.4	1.6	1.2	0.8
Ac-ft	60	596	4,560	1,110	7,950	8,650	1,830	1,480	456	142	83	58

Calendar year 1960:

Max -

Min -

Mean -

Acre-feet -

Water year 1960-61:

Max 859

Min 0.7

Mean 37.3

Acre-feet 26,980

Peak discharge (base, 700 cfs).--Feb. 11 (5 a.m.) 1,320 cfs (7.60 ft).

\* Discharge measurement made on this day.

Note.--No gage-height record Mar. 1 to Apr. 4.



11-4685. Noyo River near Fort Bragg, Calif.

Location.--Lat 39°26', long 123°44', in SW $\frac{1}{4}$  sec.10, T.18 N., R.17 W., on right bank 0.7 mile downstream from South Fork and 3.5 miles east of Fort Bragg.

Drainage area.--105 sq mi.

Records available.--August 1951 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 12.1 ft above mean sea level (planetable survey).

Average discharge.--10 years, 232 cfs (168,000 acre-ft per year); median of yearly mean discharges, 205 cfs (148,000 acre-ft per year).

Extremes.--Maximum discharge during year, about 4,000 cfs Feb. 11; minimum, 3.8 cfs Sept. 7-10.

1951-61: Maximum discharge, 22,000 cfs Dec. 22, 1955 (gage height, 25.64 ft), from rating curve extended above 3,600 cfs on basis of slope-conveyance study; minimum, 2.4 cfs several days in August and September 1959.

Remarks.--Records good except those for periods of no gage-height record, which are fair. No regulation or diversion.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Dec. 20 to Mar. 15, Apr. 1-6, May 11-15, May 30 to July 19)

1.3	2.0	3.0	145
1.4	4.5	4.0	320
1.6	11	6.0	850
2.0	37	9.0	1,900
2.5	81	12.0	3,150

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	8.5	7.5	939	69	a1,200	*124	274	95	62	22	10	6.5
2	8.5	7.5	1 020	64	a940	119	237	95	60	20	9.2	7.1
3	8.5	7.5	553	60	a730	113	211	88	60	20	9.6	5.2
4	8.5	7.5	304	57	a530	108	190	84	58	20	9.2	4.8
5	8.2	7.1	198	55	420	120	*178	83	58	20	9.2	4.3
6	*8.9	6.8	141	52	328	228	165	96	62	20	9.2	4.0
7	9.2	7.1	104	51	264	256	153	103	58	20	9.2	3.8
8	9.2	7.1	84	51	222	296	141	95	54	19	8.2	3.8
9	9.2	7.1	71	48	a660	450	132	98	51	18	7.8	3.8
10	9.2	7.1	66	45	a830	553	124	132	49	17	7.1	3.8
11	8.9	7.5	63	43	a3,000	530	116	218	47	15	*7.1	4.3
12	8.5	17	93	42	a1,800	445	113	255	46	15	6.8	4.3
13	8.2	54	49	40	a1,150	370	108	218	43	14	6.8	4.3
14	7.8	47	47	38	a1,000	469	101	182	43	14	7.5	4.3
15	7.5	31	60	36	a850	1,660	96	159	39	14	7.8	4.5
16	7.1	22	379	36	a720	1,390	91	144	36	14	7.8	7.1
17	7.5	*18	1,840	35	a610	1,400	89	*132	35	13	7.5	6.5
18	7.1	45	1,370	34	510	1,090	88	119	34	13	6.5	6.5
19	7.1	40	778	33	393	829	85	111	34	11	5.8	6.5
20	7.1	27	500	31	322	724	83	106	33	10	5.5	5.8
21	6.8	23	346	31	276	578	96	99	32	11	5.2	*5.5
22	6.8	21	*266	30	240	505	147	95	31	11	5.8	5.5
23	6.8	21	211	41	217	455	156	88	31	11	5.8	5.5
24	6.8	165	173	38	195	510	138	84	30	11	5.8	5.5
25	6.8	489	145	*36	179	817	122	80	27	11	5.8	5.5
26	7.1	324	123	40	165	826	111	83	25	10	6.5	5.2
27	7.5	166	108	43	153	742	102	76	22	10	7.5	4.8
28	7.5	99	98	40	138	605	95	72	*22	10	8.2	4.3
29	7.8	71	87	185	-----	490	93	73	22	9.6	8.9	4.0
30	7.8	80	79	360	-----	395	91	68	22	9.6	7.8	4.0
31	7.5	-----	74	a2,200	-----	324	-----	66	-----	10	6.8	-----
TOTAL	243.9	1,839.8	10,331	3,964	18,042	17,521	3,926	3,497	1,226	443.2	231.9	151.0
MEAN	7.87	61.3	333	128	644	565	131	113	40.9	14.3	7.48	5.03
MAX	9.2	489	1,840	2,200	3,000	1,660	274	255	62	22	10	7.1
MIN	6.8	6.8	47	30	138	108	83	66	22	9.6	5.2	3.8
AC-FT	484	3,650	20,490	7,860	35,190	34,750	7,790	6,940	2,430	879	460	300

Calendar year 1960:

Max 7,720

Min 4.0

Mean 184

Acre-feet 133,500

Water year 1960-61:

Max 3,000

Min 3.8

Mean 168

Acre-feet 121,800

Peak discharge (base, 2,400 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1-31	unknown	-	unknown	2-11	unknown	-	†4,000

† About.

\* Discharge measurement made on this day.

a No gage-height record.

## MATTOLE RIVER BASIN

11-4690. Mattole River near Petrolia, Calif.

Location.--Lat 40°18'40", long 124°16'10", in NW<sup>1</sup> sec.11, T.2 S., R.2 W., on right bank 0.2 mile downstream from Clear Creek, 1.2 miles southeast of Petrolia, and 1.3 miles upstream from North Fork.

Drainage area.--242 sq mi.

Records available.--October 1911 to December 1913, October 1950 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Altitude of gage is 40 ft (from topographic map). November 1911 to December 1913, staff or chain gages at several sites upstream within 0.7 mile of present site at various datums. Dec. 11, 1950, to July 14, 1955, water-stage recorder at site 0.7 mile upstream at datum 7.48 ft higher.

Average discharge.--13 years, 1,386 cfs (1,003,000 acre-ft per year).

Extremes.--Maximum discharge during year, 46,000 cfs Feb. 11 (gage height, 22.40 ft); minimum, 34 cfs Sept. 30. 1911-13, 1950-61: Maximum discharge, 90,400 cfs Dec. 22, 1955 (gage height, 29.60 ft), from rating curve extended above 24,000 cfs on basis of slope-area measurement of peak flow; minimum observed, 20 cfs Sept. 1, 2, 15-30, Oct. 27-31, 1913.

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

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

Oct. 1 to Dec. 17				Dec. 18 to Sept. 30			
3.6	30	5.5	860	3.8	31	6.0	1,330
3.8	56	8.0	3,700	4.0	81	8.0	4,100
4.0	90	11.0	8,200	4.5	260	14.0	15,300
4.2	140	16.0	20,400	5.0	530	19.0	30,500
4.5	230	18.0	26,900	5.5	870		
4.8	360						

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	40	52	5.190	a 650	7.490	699	1.520	1.200	4.16	142	69	54
2	40	50	6.310	a 620	5.180	671	1.330	1.140	3.95	138	66	51
3	38	50	4.060	a 590	3.890	620	1.180	9.95	3.80	135	66	49
4	38	49	2.940	a 560	2.960	590	1.080	*8.78	3.70	135	64	49
5	43	49	2.270	a 530	2.390	814	9.68	8.62	3.55	135	61	46
6	191	49	1.840	a 512	2.010	1.450	886	1.090	3.55	131	61	44
7	325	50	1.540	a 578	1.630	1.720	806	1.010	3.45	128	61	44
8	238	50	1.340	a 530	1.720	1.330	748	9.02	*3.25	121	59	41
9	128	49	1.170	*500	9.370	2.340	692	1.520	3.10	117	56	44
10	92	50	1.470	554	*22.300	3.330	650	2.430	3.00	114	56	44
11	77	66	1.350	482	27.300	4.000	620	3.260	2.95	107	54	44
12	69	128	1.120	476	8.620	3.310	632	2.650	2.80	104	56	41
13	64	572	1.000	440	9.550	3.440	596	2.060	2.70	98	54	41
14	61	4.68	9.20	4.22	8.530	5.200	536	1.670	2.56	98	54	39
15	58	350	1.490	405	9.110	10.300	500	1.400	2.48	96	54	41
16	55	278	7.210	385	6.350	7.370	476	1.220	2.36	96	54	61
17	53	4.55	24.000	370	4.440	7.510	446	1.090	2.28	93	51	74
18	*53	*2.080	14.100	360	3.230	5.410	458	9.77	2.20	90	49	66
19	52	748	8.270	345	2.410	5.270	434	8.86	2.16	84	49	56
20	52	438	5.140	340	1.920	4.690	428	8.14	2.08	81	46	51
21	52	556	3.620	325	1.630	*3.580	1.070	7.55	2.04	79	46	46
22	50	414	2.780	325	1.390	3.350	1.990	6.99	1.96	76	49	46
23	52	2.160	2.120	755	1.200	3.520	2.110	6.71	1.84	79	49	44
24	58	11.100	1.710	602	1.060	3.680	1.440	6.20	1.80	76	49	44
25	66	*14.900	1.430	506	9.95	3.790	1.120	5.84	1.77	76	51	41
26	69	5.180	1.220	500	878	3.760	959	5.96	1.77	76	54	39
27	66	3.080	a 1.180	506	7.98	3.460	838	5.42	*1.59	74	61	39
28	64	2.150	a 950	470	741	2.930	762	5.00	1.59	69	*64	36
29	59	1.700	a 790	2.930	—	2.480	934	4.76	1.56	66	61	36
30	56	2.910	a 741	7.660	—	2.090	926	4.70	1.52	69	56	34
31	55	—	a 699	22.500	—	1.750	—	4.40	—	69	54	—
Total	2,414	50,231	109,970	46,728	149,092	104,454	27,135	34,407	7,752	3,052	1,734	1,385
Mean	77.9	1,674	3,547	1,507	5,325	3,369	905	1,110	258	98.5	55.9	46.2
Max.	325	14,900	24,000	22,500	27,300	10,300	2,110	3,260	416	142	69	74
Min.	38	49	699	325	741	590	428	440	152	66	46	34
Ac-ft	4,790	99,630	218,100	92,680	295,700	207,200	53,820	68,250	15,380	6,050	3,440	2,750

Calendar year 1960: Max 34,600 Min 38 Mean 1,568 Acre-feet 1,138,000  
 Water year 1960-61: Max 27,300 Min 34 Mean 1,475 Acre-feet 1,068,000

Peak discharge (base, 10,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-25	7a.m.	15.56	19,200	2-11	2a.m.	22.40	46,000
12-17	10a.m.	18.30	28,000	2-13	4p.m.	12.16	11,400
1-31	7a.m.	19.75	33,500	3-15	1p.m.	12.33	11,800

\* Discharge measurement made on this day.  
 a No gage-height record.

11-4700. Lake Pillsbury near Potter Valley, Calif.

Location.--Lat 39°24'30", long 122°57'30", on line between secs.14 and 23, T.18 N., R.10 W., at Scott Dam near right bank of Eel River, 0.3 mile downstream from Rice Fork, and 10.2 miles northeast of town of Potter Valley.

Drainage area.--289 sq mi (revised).

Records available.--October 1922 to September 1928 (daily gage heights only), October 1928 to September 1961. Month-end contents only for some periods, published in WSP 1315-B. Prior to October 1953, published as "at Hullyville."

Gage.--Water-stage recorder. Datum of gage is 81.7 ft below mean sea level (river-profile survey). Prior to Jan. 26, 1950, staff gage at same site and datum.

Extremes.--Maximum contents during year, 86,800 acre-ft Apr. 23-28, May 5, 6, 10 (gage height, 1,910.00 ft); minimum, 21,600 acre-ft Nov. 23, 24 (gage height, 1,867.99 ft)  
1922-61: Maximum contents, 95,600 acre-ft May 13, 16, 1925 (gage height, 1,910.8 ft); minimum, 10 acre-ft Dec. 9, 10, 1931 (gage height, 1,822.5 ft).

Remarks.--Reservoir is formed by concrete overflow type dam; storage began in December 1921. Usable capacity, 86,400 acre-ft between gage heights 1,822.4 (sill of outlet gage) and 1,910.0 ft (top of spillway gates); dead storage, 397 acre-ft. Spillway elevation, 1818 ft, top of spillway gates, 1,828 ft above mean sea level. Water is released down Eel River to Van Arsdale Reservoir, from which it is diverted through tunnel to Potter Valley powerhouse; part is then used for irrigation and remainder flows into East Fork Russian River. Records given herein represent total contents.

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 acre-feet)

1,868	21,600	1,883	38,400	1,895	56,700
1,869	22,600	1,886	42,500	1,897	60,200
1,872	25,500	1,889	46,900	1,900	65,800
1,875	28,700	1,891	50,000	1,905	75,800
1,878	32,100	1,893	53,300	1,910	86,800
1,881	35,800				

Contents, in acre-feet, at 12p.m., water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	47,300	31,800	39,700	65,300	68,900	67,800	86,100	86,700	86,600	81,000	74,000	66,500
2	46,900	31,000	43,700	65,100	69,300	68,300	86,100	86,700	86,600	80,800	73,800	65,900
3	46,500	30,500	45,400	64,800	68,300	68,200	86,200	86,700	86,600	80,500	73,500	65,000
4	46,100	29,900	46,000	64,600	67,700	68,400	86,200	86,700	86,600	80,300	73,400	64,400
5	45,700	29,300	46,100	64,600	69,300	68,800	86,100	86,800	86,600	80,100	73,100	63,700
6	45,200	28,700	46,200	64,500	69,100	69,400	86,200	86,800	86,500	79,900	72,900	63,100
7	44,800	28,100	46,100	64,300	68,900	69,800	86,200	86,700	86,500	79,700	72,700	62,400
8	44,300	27,600	46,000	64,000	66,900	71,400	86,000	86,700	86,400	79,700	72,400	61,700
9	43,800	26,900	45,900	63,600	70,100	73,100	85,800	86,700	86,300	79,500	72,200	61,100
10	43,400	26,400	45,700	63,200	68,700	74,600	85,900	86,800	86,200	79,200	72,000	60,400
11	42,900	25,800	45,500	62,800	70,100	76,500	85,900	86,700	86,100	78,800	71,700	59,800
12	42,500	25,800	45,400	62,400	68,900	77,900	86,400	86,600	85,900	78,600	71,400	59,100
13	42,100	25,700	45,200	62,100	68,700	79,000	86,600	86,500	85,800	78,400	71,200	58,500
14	41,600	25,200	45,100	61,700	68,500	81,500	86,600	86,400	85,600	79,200	71,000	58,000
15	41,100	24,800	45,200	61,300	68,700	86,000	86,600	86,400	85,300	77,900	70,700	57,300
16	40,600	24,400	46,900	60,900	66,200	86,100	86,600	86,500	85,000	77,700	70,400	56,700
17	40,100	24,100	46,700	60,600	67,900	85,700	86,400	86,500	84,700	77,500	70,200	56,100
18	39,600	23,800	46,400	60,200	67,500	85,700	86,400	86,700	84,400	77,300	70,000	55,500
19	39,100	23,500	46,100	59,800	67,300	85,700	86,300	86,700	84,100	77,100	69,700	54,900
20	38,700	23,200	45,900	59,400	67,100	85,600	86,300	86,700	83,800	76,900	69,500	54,200
21	38,100	22,800	45,600	59,100	66,900	85,400	86,400	86,600	83,500	76,700	69,300	53,500
22	37,600	22,100	45,700	58,700	66,900	85,400	86,600	86,600	83,200	76,500	69,000	52,900
23	37,000	21,600	45,600	58,400	66,700	85,400	86,800	86,500	82,900	76,100	68,700	52,200
24	36,400	21,600	45,600	58,200	66,700	85,100	86,800	86,600	82,500	75,800	68,400	51,600
25	35,800	21,900	45,600	58,200	67,100	84,700	86,800	86,600	82,200	75,600	68,200	50,900
26	35,200	24,100	46,300	58,200	67,100	84,800	86,800	86,600	81,900	75,400	68,000	50,300
27	34,800	24,800	46,200	60,200	67,100	84,700	86,800	86,600	81,600	75,200	67,700	49,800
28	34,200	25,200	46,100	60,200	67,400	84,800	86,800	86,600	81,400	75,000	67,500	49,300
29	33,500	25,400	46,000	63,400	---	85,700	86,700	86,600	81,200	74,800	67,200	48,800
30	32,900	25,100	45,600	67,700	---	86,300	86,700	86,600	81,000	74,400	67,000	48,400
31	32,300	---	45,500	70,900	---	86,300	---	86,600	---	74,200	66,800	---
(†)	1,878.11	1,871.60	1,899.85	1,902.60	1,900.85	1,909.77	1,909.97	1,909.90	1,907.40	1,904.20	1,900.53	1,889.97
(‡)	-15,800	-7,200	+40,400	+5,400	-3,500	+18,900	+400	-100	-5,600	-6,800	-7,400	-18,400

Calendar year 1960..... † +48,400  
Water year 1960-61..... ‡ +300

† Elevation, in feet, at end of month.  
‡ Change in contents, in acre-feet.

## EEL RIVER BASIN

11-4705. Eel River below Scott Dam, near Potter Valley, Calif.

Location.--Lat 39°24'30", long 122°58'15", in SE $\frac{1}{4}$  sec.15, T.18 N., R.10 W., on left bank 0.4 mile upstream from Soda Creek, 0.7 mile downstream from Scott Dam, and 9.7 miles northeast of town of Potter Valley.

Drainage area.--290 sq mi.

Records available.--October 1922 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B. Prior to October 1929, published as South Eel River at Hullville, and October 1929 to September 1953 as "at Hullville."

Gage.--Water-stage recorder. Altitude of gage is 1,740 ft (from topographic map). Prior to Dec. 15, 1930, at datum 3.00 ft higher.

Average discharge.--39 years, 513 cfs (371,400 acre-ft per year).

Extremes.--Maximum discharge during year, 7,220 cfs Jan. 31 (gage height, 11.33 ft); minimum daily, 33 cfs Dec. 18.

1922-61: Maximum discharge, 41,100 cfs Dec. 11, 1937 (gage height, 22.9 ft, from floodmarks), from rating curve extended above 2,900 cfs on basis of computed flow over Scott Dam; minimum daily, 0.1 cfs Sept. 8, 1924.

Remarks.--Records good. Flow regulated by Lake Pillsbury (see preceding page). No diversion above station.

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)

2.3	28	3.5	170	7.0	1,710
2.4	34	4.0	262	9.0	3,860
2.6	50	5.0	515	11.0	6,670
2.9	79	6.0	940		

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	264	329	188	310	3,970	268	970	572	220	130	126	325
2	262	334	73	310	3,310	*260	970	536	222	130	126	329
3	262	339	179	278	2,810	254	976	473	222	130	*126	334
4	262	344	211	215	1,840	254	976	351	222	128	125	339
5	266	346	246	258	1,300	248	735	340	229	125	125	341
6	268	344	272	315	1,010	224	683	384	233	120	125	341
7	268	341	290	315	830	210	691	415	228	118	125	339
8	266	339	290	315	744	206	652	381	228	138	125	339
9	266	*339	290	315	3,120	197	652	336	233	155	125	339
10	266	337	299	315	3,270	197	477	430	237	155	125	339
11	*266	332	305	315	4,110	201	*288	777	240	155	125	339
12	266	329	305	315	3,480	201	349	645	242	155	125	337
13	264	327	*305	315	2,530	147	383	576	242	155	125	337
14	262	315	305	313	2,380	85	383	543	262	143	125	337
15	262	308	308	313	2,400	763	410	419	270	125	125	339
16	262	308	201	313	2,180	2,270	400	358	260	123	125	339
17	262	313	39	315	1,710	3,300	360	334	260	123	125	339
18	262	315	33	315	1,360	2,040	339	341	258	123	125	339
19	268	308	129	*315	1,100	2,100	314	370	256	126	126	337
20	270	308	582	315	958	1,880	278	375	254	128	126	337
21	299	317	753	317	855	1,540	331	375	244	128	126	337
22	325	329	675	317	776	1,550	696	331	240	128	126	334
23	334	332	571	317	703	1,560	625	284	238	128	126	334
24	337	332	479	317	526	1,730	468	*268	237	128	126	332
25	337	313	410	317	440	1,610	585	262	237	128	126	329
26	334	293	361	270	476	1,370	518	256	235	126	126	*329
27	332	293	325	270	403	1,370	479	258	174	126	126	329
28	332	290	288	308	280	1,080	561	258	130	126	126	329
29	334	305	303	260	-----	548	606	260	131	126	126	329
30	334	308	325	371	-----	604	606	260	131	126	126	332
31	332	-----	313	5,440	-----	940	-----	235	-----	126	229	-----
TOTAL	8,924	9,667	9,653	14,594	48,871	29,207	16,761	12,003	6,815	4,081	3,994	10,059
MEAN	288	322	311	471	1,745	942	559	387	227	132	129	335
MAX	337	346	753	5,440	4,110	3,300	976	777	270	155	229	341
MIN	262	290	33	215	280	85	278	235	130	118	125	325
AC-FT	17,700	19,170	19,150	28,950	96,930	57,930	33,240	23,810	13,520	8,090	7,920	19,950

CALENDAR YEAR 1960: MAX 20,200 MIN 29 MEAN 492 AC-FT 357,100  
 WATER YEAR 1960-61: MAX 5,440 MIN 33 MEAN 478 AC-FT 346,400

\* Discharge measurement made on this day.

11-4710. Potter Valley powerhouse tailrace near Potter Valley, Calif.

Location.--Lat 39°21'35", long 123°07'35", in NW¼ sec. 6, T.17 N., R.11 W., on right bank 100 ft downstream from powerhouse of Pacific Gas & Electric Co. and 3 miles northwest of town of Potter Valley.

Records available.--December 1909 to September 1961. Prior to October 1922, monthly discharge only, published in WSP 1315-B. Prior to October 1931, published as Snow Mountain Water and Power Co.'s tailrace near Potter Valley.

Gage.--Water-stage recorder and concrete Parshall flume. Altitude of gage is 1,000 ft (from topographic map). No gage prior to Dec. 1, 1922. Dec. 1, 1922, to Sept. 30, 1923, float gage and Oct. 1, 1923, to Apr. 12, 1950, water-stage recorder, at site 50 ft upstream at different datum.

Average discharge.--51 years (1910-61), 192 cfs (139,000 acre-ft per year).

Extremes.--1922-61: Maximum daily discharge, 348 cfs Apr. 24, 1953; no flow at times in several years.

Remarks.--Records excellent. Water is diverted from Eel River above Van Arsdale Dam. After passing through powerhouse, part of it is used for irrigation in Potter Valley and remainder flows into East Fork Russian River. Water for irrigation diverted from tailrace is included in figures of discharge.

Cooperation.--Water-stage-recorder graph and nine 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 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	247	310	305	307	288	302	303	309	215	118	126	327
2	247	308	303	307	300	303	303	309	215	119	125	325
3	247	311	305	303	299	303	305	309	214	118	124	323
4	245	310	305	211	300	305	305	309	216	118	*121	320
5	245	307	305	221	302	305	305	310	216	118	122	318
6	246	289	279	305	302	303	305	310	213	139	123	316
7	246	305	303	305	302	303	305	310	215	*148	124	317
8	246	305	306	303	303	303	305	310	214	150	125	314
9	246	304	306	305	302	303	305	309	214	146	124	325
10	246	*307	306	305	299	303	305	310	213	149	124	313
11	*246	307	303	303	299	303	305	310	216	146	124	313
12	246	307	303	302	298	303	*305	309	216	140	126	315
13	244	305	303	303	298	302	305	310	217	129	124	315
14	244	306	*303	305	298	302	305	312	219	119	123	308
15	238	306	307	305	298	302	306	312	238	121	124	312
16	245	306	305	306	299	302	307	312	225	121	136	315
17	245	305	305	306	300	300	309	312	217	122	136	315
18	245	305	303	305	300	300	309	312	217	123	124	314
19	239	309	302	303	302	300	309	312	217	121	125	313
20	246	309	302	*305	302	300	307	310	215	122	125	312
21	265	310	303	306	302	300	307	311	214	123	126	313
22	310	303	305	306	302	300	307	306	206	118	127	312
23	304	301	306	306	226	300	307	313	217	121	125	308
24	314	303	306	305	236	302	306	297	204	120	120	312
25	312	304	306	303	302	302	306	*277	216	120	126	313
26	312	303	306	300	302	302	306	272	216	122	127	314
27	312	303	306	300	302	302	307	271	192	122	126	*312
28	312	303	306	302	302	302	309	268	119	122	127	290
29	311	302	306	302	—	302	309	268	122	122	127	280
30	310	305	305	299	-----	303	309	271	122	122	125	313
31	310	-----	306	262	-----	302	-----	238	-----	124	193	-----
Total	8,271	9,158	9,420	9,206	8,265	9,364	9,186	9,298	6,168	3,923	3,954	9,397
Mean	267	305	304	297	295	302	306	300	206	127	128	313
Max.	314	311	307	307	303	305	309	313	238	150	193	327
Min.	238	289	279	211	226	300	303	238	119	118	120	280
Ac-ft	16,410	18,160	18,680	18,260	16,390	18,570	18,220	18,440	12,230	7,780	7,840	18,640

Calendar year 1960: Max 314 Min 24 Mean 237 Acre-feet 172,400  
 Water year 1960-61: Max 327 Min 118 Mean 262 Acre-feet 189,600

\* Discharge measurement made on this day.

## EEL RIVER BASIN

11-4715. Eel River at Van Arsdale Dam, near Potter Valley, Calif.

Location.--Lat 39°23'25", long 123°06'55", in NE $\frac{1}{4}$  sec.30, T.18 N., R.11 W., on left bank 500 ft downstream from Van Arsdale Dam and 5 miles north of town of Potter Valley.

Drainage area.--349 sq mi (revised).

Records available.--November 1909 to September 1922 (combined monthly discharge only, of Eel River at this station and Snow Mountain Water & Power Co.'s tailrace near Potter Valley), October 1922 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B. Prior to October 1929, published as South Eel River at Van Arsdale Dam, near Potter Valley.

Gage.--Water-stage recorder. Altitude of gage is 1,400 ft (from topographic map). Nov. 18, 1909, to Mar. 3, 1927, recorder in reservoir 800 ft upstream from Van Arsdale Dam at different datum. Oct. 1, 1927, to Feb. 28, 1937, staff gage at present site and datum.

Average discharge.--52 years (1909-61), 612 cfs (443,100 acre-ft per year), combined flow of Eel River at Van Arsdale Dam and Potter Valley powerhouse tailrace.

Extremes.--Maximum discharge during year, 9,000 cfs Jan. 31 (gage height, 13.78 ft); minimum daily, 1.5 cfs Oct. 19, 27, 28. 1909-61: Maximum discharge, 48,600 cfs Dec. 22, 1955 (gage height, 31.4 ft, from floodmarks), from rating curve extended above 11,000 cfs on basis of computed flow over Van Arsdale Dam; no flow Nov. 1, 1945, Sept. 13, 14, 1953.

Remarks.--Records good. Flow regulated by Lake Pillsbury (see p. 357). Water is diverted from Van Arsdale Reservoir through tunnel to Potter Valley powerhouse (see preceding page), after which part is used for irrigation and remainder flows into East Fork Russian River. Records given herein show only flow passing dam down Eel River.

Cooperation.--Water-stage-recorder graph and 11 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)

5.2	1.2	5.6	12	6.1	80	8.0	1,130
5.3	2.2	5.7	20	6.3	132	9.0	2,100
5.4	3.9	5.8	28	6.6	230	11.0	4,550
5.5	7.4	5.9	41	7.0	415	13.0	7,600

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	2.5	2.9	1,420	20	4,710	30	816	371	3.6	3.6	3.9	2.4
2	2.4	2.6	261	16	3,710	*24	792	315	3.6	3.9	4.1	1.8
3	2.4	3.4	50	12	3,110	11	776	267	3.4	4.1	3.9	1.8
4	2.2	3.9	25	7.6	1,850	6.2	768	149	3.1	4.4	*4.7	2.2
5	2.4	14	3.4	19	1,200	30	578	86	2.9	4.4	4.4	2.4
6	4.7	34	9.6	16	880	63	459	144	3.2	4.1	4.1	2.5
7	5.4	14	25	17	671	12	488	195	4.1	*3.4	3.9	2.6
8	4.4	14	7.4	17	572	138	432	159	3.9	2.9	3.6	2.8
9	3.6	*13	4.7	17	3,470	206	426	107	3.6	2.6	3.4	2.8
10	3.2	*10	3.6	13	3,770	223	282	180	3.6	2.6	3.2	2.8
11	*3.1	20	3.9	11	5,310	282	*76	728	3.4	2.6	3.2	2.6
12	3.1	18	6.2	11	4,270	220	59	542	3.6	2.8	3.2	2.6
13	3.1	104	*6.2	8.3	2,920	129	183	432	3.4	3.1	3.4	2.5
14	3.1	26	5.0	5.4	2,720	119	132	377	3.2	3.4	3.4	2.5
15	7.3	6.2	36	4.7	2,710	931	169	279	9.6	3.6	3.4	2.6
16	2.2	3.2	491	3.9	2,360	2,400	156	172	3.4	3.4	3.4	2.8
17	2.1	2.8	800	3.9	1,770	4,100	119	143	4.4	3.6	3.2	2.9
18	1.7	60	351	3.9	1,330	2,630	82	112	3.6	3.6	3.2	3.1
19	1.5	6.2	108	*4.1	1,020	2,230	59	147	3.9	3.6	3.2	3.1
20	2.0	3.1	388	4.1	832	2,320	16	144	4.1	3.6	3.2	3.1
21	4.4	2.6	596	3.9	699	2,420	70	138	4.7	3.9	3.1	2.9
22	2.0	2.6	500	4.1	608	2,660	423	101	5.4	3.9	3.1	2.8
23	1.8	7.8	366	17	602	2,710	560	21	5.8	4.1	3.1	2.8
24	2.1	92	270	13	453	2,430	265	*3.1	4.7	4.1	3.1	2.6
25	2.0	230	192	20	242	1,660	404	3.6	4.4	4.1	3.2	2.4
26	1.7	118	126	101	270	1,430	330	3.9	4.4	4.4	3.2	2.0
27	1.5	24	72	4.1	230	1,370	282	3.6	4.4	4.4	3.2	*1.8
28	1.5	6.6	25	34	63	1,090	326	3.6	3.6	4.4	3.1	2.1
29	1.7	2.9	12	342	-----	593	388	3.4	3.6	4.4	3.1	2.5
30	2.0	39	50	359	-----	452	377	3.1	3.6	4.4	3.1	2.6
31	2.4	-----	28	6,320	-----	792	-----	3.2	-----	4.1	2.9	-----
TOTAL	85.5	886.8	6,242.0	7,433.0	52,352	33,711.2	10,293	5,336.5	122.2	115.5	106.2	76.4
MEAN	2.76	29.6	201	240	1,870	1,087	343	172	4.07	3.73	3.43	2.55
MAX	7.3	230	1,420	6,320	5,310	4,100	816	728	9.6	4.4	4.7	3.1
MIN	1.5	2.6	3.4	3.9	63	6.2	16	3.1	2.9	2.6	2.9	1.8
AC-FT	170	1,760	12,380	14,740	103,800	66,870	20,420	10,580	242	229	211	152

CALENDAR YEAR 1960: MAX 23,400 MIN 1.5 MEAN 366 AC-FT 265,700  
 WATER YEAR 1960-61: MAX 6,320 MIN 1.5 MEAN 320 AC-FT 231,600

\* Discharge measurement made on this day.

## EEL RIVER BASIN

361

11-4722. Outlet Creek near Longvale, Calif.

Location.--Lat 39°37'05", long 123°21'20", in NE $\frac{1}{4}$  sec.1, T.20 N., R.14 W., on right bank 0.2 mile downstream from Bloody Run Creek, 0.9 mile upstream from mouth, and 8.2 miles downstream from Longvale.

Drainage area.--161 sq mi (revised).

Records available.--October 1956 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 1,020 ft (from topographic map).

Average discharge.--5 years, 427 cfs (309,100 acre-ft per year).

Extremes.--Maximum discharge during year, 9,260 cfs Jan. 31 (gage height, 11.64 ft); minimum, 1.1 cfs Aug. 11, 15-18, Sept. 6.  
1956-61: Maximum discharge, 26,500 cfs Feb. 8, 1960 (gage height, 20.27 ft), from rating curve extended above 9,900 cfs; no flow Aug. 15-17, 1959.

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

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.2	*2.7	5,460	103	2,500	174	359	*258	69	11	1.7	1.5
2	1.2	2.7	2,920	96	3,110	168	308	224	64	11	1.7	1.9
3	1.2	2.4	1,410	90	1,790	160	272	172	61	9.8	1.7	2.1
4	1.2	2.4	*528	83	936	154	245	144	55	9.4	1.6	1.7
5	1.5	2.4	295	81	608	249	226	131	53	9.4	1.6	1.5
6	3.3	2.7	215	81	488	1,140	207	176	53	9.4	1.6	*1.1
7	5.2	2.9	162	85	398	796	194	213	53	9.0	1.3	1.3
8	4.3	2.9	139	107	461	1,160	180	160	50	9.0	1.3	1.3
9	3.5	2.9	116	*101	3,810	1,560	170	173	46	8.2	1.3	1.2
10	2.7	2.9	118	98	2,870	1,560	162	521	42	7.0	1.2	1.2
11	2.4	6.1	127	87	6,760	1,660	154	1,060	39	6.4	1.1	1.2
12	2.4	14	98	80	*3,490	1,010	156	590	*38	5.5	1.2	1.2
13	2.1	120	83	80	2,850	695	156	402	36	4.9	1.2	1.3
14	2.1	112	74	80	2,410	1,710	141	298	33	4.6	1.2	1.3
15	1.9	64	474	80	2,360	4,110	131	242	29	4.6	1.1	1.6
16	1.7	30	2,810	80	1,560	2,990	125	207	26	4.0	1.1	1.9
17	1.7	19	6,380	78	1,030	3,500	118	182	23	3.6	1.1	1.9
18	1.7	197	3,190	78	741	2,110	118	162	21	3.6	1.1	1.9
19	1.7	80	1,730	78	536	1,690	116	146	18	2.6	6.6	1.9
20	1.9	34	813	78	436	*1,460	112	141	18	3.6	7.0	1.7
21	2.1	46	520	78	359	912	192	133	18	6.4	2.9	1.7
22	2.1	34	395	78	317	1,020	527	122	17	6.7	1.7	1.9
23	1.9	238	308	103	272	1,110	840	112	16	7.0	1.6	1.9
24	2.1	1,320	251	103	249	1,320	402	103	16	5.2	4.6	1.9
25	2.4	2,620	218	92	229	1,480	266	94	14	*7.0	1.5	1.9
26	2.9	1,070	188	277	209	1,680	205	94	13	6.7	2.9	1.7
27	2.9	406	168	282	196	1,420	172	94	11	4.6	2.9	1.7
28	2.7	203	148	188	186	984	148	83	11	2.6	3.6	1.7
29	2.7	150	133	2,010	—	690	168	76	11	2.1	2.2	1.7
30	2.9	743	120	1,840	—	536	73	73	12	1.9	1.9	1.6
31	2.7	—	110	5,820	—	428	—	78	—	1.7	1.5	—
Total	72.3	7,533.0	29,701	12,595	41,161	39,636	6,750	6,664	966	188.5	65.0	48.4
Mean	2.33	251	958	406	1,470	1,279	225	215	32.2	6.08	2.10	1.61
Max.	5.2	2,620	6,380	5,820	6,760	4,110	840	1,060	69	11	7.0	2.1
Min.	1.2	2.4	74	78	186	154	112	73	11	1.7	1.1	1.1
Ac-ft	143	14,940	58,910	24,980	81,640	78,620	13,390	13,220	1,920	374	129	96

Calendar year 1960: Max 18,100 Min 1.0 Mean 472 Acre-feet 342,900

Water year 1960-61: Max 6,760 Min 1.1 Mean 398 Acre-feet 288,400

Peak discharge (base, 5,000 cfs)

\* Discharge measurement made on this day.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-1	10:30a.m.	9.88	6,680	2-11	4a.m.	11.09	8,440
12-17	7a.m.	11.08	8,420	3-14	8p.m.	8.67	5,150
1-31	8a.m.	11.64	9,260				

## KEL RIVER BASIN

11-4725. Kel River above Dos Rios, Calif.

Location.--Lat 39°41'20", long 123°21'30", in SW $\frac{1}{4}$  sec.7, T.21 N., R.13 W., on left bank 1.8 miles upstream from Middle Fork and 2.1 miles south of Dos Rios.

Drainage area.--705 sq mi (revised).

Records available.--December 1950 to September 1961.

Gage.--Water-stage recorder with thermograph attachment. Altitude of gage is 950 ft (from topographic map).

Average discharge.--10 years (1951-61), 1,505 cfs (1,090,000 acre-ft per year); median of yearly mean discharges, 1,350 cfs (977,000 acre-ft per year).

Extremes.--Maximum discharge recorded during year, 21,500 cfs Feb. 11 (gage height, 21.00 ft); minimum daily, 4.4 cfs Oct. 1. 1950-61: Maximum discharge, 123,000 cfs Dec. 22, 1955 (gage height, 45.4 ft, from floodmarks), from rating curve extended above 27,000 cfs on basis of slope-area measurement of peak flow; minimum daily, 0.8 cfs Sept. 11, 1955.

Remarks.--Records good except those for periods of doubtful or no gage-height record, which are fair. Flow regulated by Lake Pillsbury (see p. 357) and by diversion through Potter Valley powerhouse (see p. 359).

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.4	8.7	16.500	258	10.000	254	1.660	*8.24	180	31	12	7.0
2	4.7	8.5	7.500	241	9.040	229	1.540	7.57	166	29	12	6.6
3	5.1	8.1	2.700	229	6.840	211	1.450	6.16	158	28	12	6.6
4	5.0	*7.1	1.170	221	3.980	192	1.370	4.80	151	26	12	6.4
5	5.3	7.1	7.64	209	2.490	280	1.290	3.53	142	26	11	6.2
6	8.1	7.9	5.53	211	1.810	1.360	9.30	3.98	141	27	11	* 6.1
7	1.3	8.3	4.52	215	1.410	1.170	9.95	5.25	141	26	11	5.7
8	1.5	2.9	3.92	235	1.290	1.470	8.56	4.49	134	25	11	5.7
9	1.3	2.0	3.45	*2.29	9.730	2.530	8.02	3.95	127	24	11	5.7
10	1.3	1.8	3.40	219	7.030	2.710	7.66	8.37	119	22	10	5.7
11	1.1	2.3	3.50	203	*18.700	2.610	4.98	2.240	113	20	9.7	5.9
12	1.1	5.2	3.08	195	*11.000	1.790	3.86	1.660	*1.10	19	9.5	6.1
13	1.0	3.65	2.90	190	7.860	1.320	4.41	1.210	1.03	18	9.5	5.9
14	9.9	3.60	2.80	184	6.890	2.720	3.98	9.90	9.6	18	9.3	5.9
15	9.9	2.05	6.25	179	6.600	8.810	3.95	8.60	8.5	17	9.3	6.1
16	9.9	1.13	5.390	177	5.260	7.180	3.89	6.16	8.1	17	9.1	6.4
17	9.7	7.9	13.700	175	3.760	10.300	3.65	5.32	7.2	16	8.9	6.6
18	9.1	3.95	6.960	171	2.680	6.830	3.25	4.43	6.4	16	8.7	6.8
19	1.1	2.56	3.440	168	1.950	4.940	3.00	4.10	5.9	16	8.5	6.8
20	9.5	1.32	1.820	166	1.550	* 5.270	2.73	4.07	5.5	15	1.1	6.8
21	8.7	1.18	1.620	166	1.270	3.620	3.37	3.86	5.3	16	9.9	6.8
22	8.3	1.02	1.320	163	1.100	3.290	1.030	3.60	5.0	16	8.7	6.8
23	8.1	1.41	1.040	203	9.70	3.280	2.080	3.15	4.8	16	8.1	6.8
24	8.1	6.40	8.15	225	9.15	3.740	1.050	2.52	4.4	15	8.5	6.6
25	8.5	4.850	6.52	213	5.43	4.240	9.25	2.21	4.2	16	8.7	6.4
26	9.5	2.010	5.25	5.29	4.94	4.220	8.24	2.19	3.8	15	7.9	6.4
27	9.3	8.15	4.31	6.22	4.62	3.850	6.52	2.11	3.5	15	8.7	6.2
28	8.9	5.25	3.58	3.53	3.43	3.080	5.84	1.97	3.3	* 14	8.3	6.1
29	8.7	3.95	3.08	3.010	—	2.240	7.16	1.86	3.2	13	8.3	5.9
30	8.9	6.40	2.78	* 3.520	—	1.490	7.66	1.86	3.2	13	8.1	5.9
31	8.9	—	2.82	*15.500	—	1.690	—	1.95	—	12	7.5	—
Total	283.5	12,338.7	71,528	28,579	12,596.7	97,116	24,393	17,730	2,704	597	299.2	188.9
Mean	9.15	4.11	2,307	922	4,499	3,133	813	572	90.1	19.3	9.65	6.30
Max.	15	4,850	16,500	15,500	18,700	10,300	2,080	2,240	180	31	12	7.0
Min.	4.4	7.1	278	163	343	192	273	186	32	12	7.5	5.7
Ac-ft	562	24,470	141,900	56,690	249,900	192,600	48,380	35,170	5,360	1,180	593	375

Calendar year 1960:

Max 64,600

Min 4.4

Mean 1,524

Acre-feet 1,106,000

Water year 1960-61:

Max 18,700

Min 4.4

Mean 1,046

Acre-feet 757,200

Peak discharge (base, 14,000 cfs)

\* Discharge measurement made on this day.

a No gage-height record.

Note.--Doubtful gage-height record Nov. 5, 13, 18, 24-31, Feb. 9-11.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12- 1	unknown	—	unknown	1-31	10a.m.	20.46	20,100
12-17	8a.m.	18.73	15,900	2-11	4a.m.	21.00	21,500



## KEL RIVER BASIN

363

11-4725. Kel River above Dos Rios, Calif.--Continued.

Day	Oct.		Nov.		Dec.		Jan.		Feb.		Mar.		Apr.		May		June		July		Aug.		Sept.	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1			-	-	48	47									-	-	67	63	73	67	78	68	76	69
2			-	-	47	47									59	57	69	66	74	67	78	69	73	65
3			-	-	47	46									58	56	71	67	74	68	79	70	74	64
4			-	-	-	-									57	55	71	69	72	67	81	75	76	64
5			53	52	-	-									56	56	71	69	72	67	80	75	76	63
6			54	53	-	-									56	56	69	66	73	66	82	76	74	64
7			53	53	-	-									56	53	68	65	74	67	82	75	70	62
8			53	53	-	-									59	56	69	66	77	68	83	74	72	60
9			53	53	-	-									59	57	69	66	79	71	83	74	72	60
10			53	52	-	-									57	56	69	65	80	73	83	71	73	61
11			53	52	-	-									56	53	71	68	82	74	78	74	73	61
12			53	51	-	-									56	53	73	67	82	74	82	70	73	61
13			-	-	-	-									58	56	74	70	82	75	81	71	72	62
14			53	51	-	-									60	57	77	70	80	71	79	67	70	60
15			51	51	-	-									62	59	81	75	80	71	79	67	70	62
16			51	51	-	-									64	62	82	76	79	71	79	67	67	62
17			52	51	-	-									65	62	80	75	79	72	79	67	67	59
18			-	-	-	-									67	64	78	73	79	72	79	67	67	60
19			50	49	-	-									67	65	78	72	80	73	77	68	67	60
20			49	48	-	-									65	61	78	72	79	70	79	70	67	61
21			49	48	-	-									64	62	78	70	79	70	79	72	67	59
22			49	48	-	-									64	62	81	74	78	70	79	68	67	59
23			-	-	-	-									64	61	80	73	78	69	78	67	68	59
24			-	-	-	-									65	61	82	73	79	72	77	67	68	59
25			-	-	-	-									65	61	83	76	79	72	76	67	68	59
26			50	48	-	-									65	63	81	74	81	71	71	67	68	59
27			48	47	-	-									64	61	78	71	80	71	76	68	68	60
28			47	46	-	-									65	62	74	69	79	70	75	68	67	60
29			46	44	-	-									65	64	72	67	79	69	76	69	66	57
30			47	44	-	-									64	63	72	66	78	69	77	69	67	57
31			---	---	-	-									63	61	---	---	78	68	77	68	---	---
Avg			-	-	-	-									-	-	75	70	78	70	79	70	70	61

## EEL RIVER BASIN

11-4729. Black Butte River near Covelo, Calif.

**Location.**--Lat 39°49'10", long 123°04'40", in SE $\frac{1}{4}$  sec.28, T.23 N., R.11 W., on right bank 600 ft upstream from highway bridge, 0.6 mile upstream from mouth, and 9.5 miles east of Covelo.

**Drainage area.**--162 sq mi.

**Records available.**--Occasional low-flow measurements, water years 1951-56 and annual maximum, water years 1954-57, October 1958 to September 1961.

**Gage.**--Water-stage recorder and crest-stage gage. Altitude of gage is 1,490 ft (from topographic map). Sept. 10, 1953, to Sept. 30, 1957, crest-stage gage only at site 0.1 mile downstream at different datum.

**Extremes.**--Maximum discharge during year, 3,950 cfs Jan. 31 (gage height, 10.41 ft); minimum, 2.3 cfs Oct. 1-4, Sept. 14. 1953-57, 1958-61: Maximum discharge, 25,000 cfs Dec. 21, 1955 (gage height, 35.8 ft, from floodmarks, site and datum then in use), on basis of slope-area measurement of peak flow. 1958-61: Minimum discharge, 1.2 cfs Sept. 11, 1959. Flood of Dec. 11, 1937, reached a stage of 36.2 ft, from floodmarks at crest-stage gage site (discharge, 26,000 cfs).

**Remarks.**--Records good except those for periods of no gage-height record, which are fair. No regulation or diversion.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Dec. 2-15, Feb. 11-27, Mar. 6; Mar. 8 to Apr. 18, Apr. 22 to May 18)

2.0	1.6	2.7	31	5.0	520
2.1	3.0	3.0	55	6.0	940
2.2	5.5	3.5	116	7.0	1,460
2.3	9.0	4.0	216	9.0	2,760
2.4	14				

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.3	4.0	*2,040	75	1,040	248	632	412	129	27	6.2	4.0
2	2.3	4.0	*813	69	1,890	250	814	*364	129	26	5.9	3.8
3	2.3	*4.0	348	68	980	238	882	327	143	24	5.5	3.3
4	2.3	4.5	233	62	592	226	832	294	146	24	5.3	3.0
5	2.6	4.8	170	63	462	248	712	277	137	23	5.3	3.0
6	5.0	5.2	136	64	405	274	600	303	115	23	5.5	2.9
7	8.0	5.8	118	61	333	240	524	306	109	23	18	*2.7
8	8.0	6.2	108	61	309	345	455	288	101	21	19	2.7
9	5.9	6.6	99	61	1,340	435	435	283	94	20	11	2.7
10	4.8	6.2	96	61	850	425	396	327	89	19	9.0	2.6
11	4.5	9.9	94	*57	1,750	572	367	428	84	18	7.6	2.6
12	4.5	22	84	54	*1,070	438	383	418	80	17	7.6	2.4
13	4.5	a 35	84	52	891	402	336	389	75	16	7.3	2.4
14	4.5	39	84	51	1,100	679	312	336	*68	15	6.9	2.3
15	4.3	26	90	49	1,200	1,120	294	313	63	14	6.2	2.4
16	4.0	23	663	47	945	823	297	291	59	13	5.3	2.7
17	4.3	30	2,090	45	740	909	297	280	55	13	5.3	3.0
18	4.0	a 130	1,000	44	592	720	280	272	51	12	5.0	3.3
19	4.0	a 58	517	43	503	855	245	250	48	11	4.8	3.5
20	4.0	34	364	42	469	900	233	245	45	11	4.8	3.5
21	4.0	a 37	280	41	455	720	253	223	44	11	4.8	3.5
22	4.0	39	230	41	438	*841	283	206	41	9.9	4.5	3.3
23	3.8	34	190	58	389	873	297	190	39	9.5	4.3	3.3
24	4.0	a 130	162	67	354	805	291	179	37	8.7	4.0	3.3
25	4.0	a 900	141	57	333	716	315	168	35	8.3	3.8	3.3
26	4.5	a 250	127	269	303	716	351	170	32	*8.0	3.8	3.0
27	4.5	a 140	115	216	280	688	370	154	30	7.6	4.0	2.9
28	4.3	a 80	103	132	258	592	396	152	29	7.3	4.0	2.9
29	4.5	50	94	469	—	552	438	154	29	6.6	4.5	2.7
30	4.3	a 400	89	544	—	560	399	150	28	6.2	4.3	2.7
31	4.0	—	83	*2,470	—	584	—	145	—	6.2	4.0	—
Total	132.0	2518.2	10845	5493	20271	17994	12719	8296	2164	4593	1945	897
Mean	4.26	83.9	350	177	724	580	424	268	72.1	14.8	6.27	2.99
Max.	8.0	900	2,090	2,470	1,890	1,120	882	428	146	27	19	4.0
Min.	2.3	4.0	83	41	258	226	233	145	28	6.2	3.8	2.3
Ac-ft	262	4,990	21,510	10,900	40,210	35,690	25,230	16,450	4,290	911	386	178

Calendar year 1960:

Max 10,400

Min 2.2

Mean 246

Acre-feet 178,500

Water year 1960-61:

Max 2,470

Min 2.3

Mean 222

Acre-feet 161,000

Peak discharge (base, 5,500 cfs)--No peak above base.

\* Discharge measurement made on this day.

a No gage-height record.

11-4730. Middle Fork Eel River below Black Butte River, near Covelo, Calif.

Location.--Lat 39°49'35", long 123°05'30", in NW 1/4 sec.28, T.23 N., R.11 W., on right bank 0.2 mile downstream from Black Butte River and 8.6 miles east of Covelo.

Drainage area.--367 sq mi.

Records available.--August 1951 to September 1961.

Gage.--Water-stage recorder with thermograph attachment. Altitude of gage is 1,430 ft (from river-profile map).

Average discharge.--10 years, 1,084 cfs (784,800 acre-ft per year).

Extremes.--Maximum discharge during year, 13,900 cfs Jan. 31 (gage height, 12.14 ft); minimum, 7.8 cfs Oct. 4.

1951-61: Maximum discharge, 89,100 cfs Dec. 21, 1955 (gage height, 25.0 ft, from floodmarks), from rating curve extended above 19,000 cfs on basis of slope-area measurement of peak flow; minimum, 4.4 cfs Sept. 22-26, 1951.

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

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.1	12	a8800	299	3930	732	2180	1680	589	97	26	13
2	8.1	*12	*2410	270	6160	744	3170	*1520	750	92	25	13
3	8.1	11	1290	261	3910	708	3670	1300	738	87	25	13
4	7.8	11	957	246	2410	660	3440	1140	996	83	24	12
5	9.3	12	702	240	1720	702	2790	1030	744	80	24	13
6	23	13	507	240	1450	750	2210	1090	636	80	25	12
7	31	14	412	234	1230	648	1840	1100	573	78	33	*12
8	31	15	372	243	1100	873	1560	1040	501	74	43	12
9	29	15	336	261	5360	1040	1480	1070	450	69	29	12
10	25	15	328	267	3770	1020	1340	1340	408	64	23	12
11	22	32	306	*240	5740	1280	1270	1640	388	59	20	11
12	20	72	282	228	*3410	1070	1330	1600	364	55	20	11
13	19	79	296	223	2730	1050	1120	1590	324	53	19	11
14	18	50	303	218	3380	1670	1020	1420	*303	51	20	11
15	17	35	328	213	4040	2940	957	1310	282	48	20	11
16	15	38	2280	208	2980	2030	1040	1220	258	46	18	12
17	15	65	9120	203	2300	2140	1070	1160	234	44	16	13
18	14	a370	5680	200	1820	1700	983	1120	215	41	15	13
19	14	a100	3010	195	1510	2410	834	1110	198	39	15	13
20	13	a50	1740	190	1370	2790	744	1080	180	37	15	13
21	13	a52	1330	190	1320	2130	774	977	167	36	15	13
22	12	a50	1100	190	1290	*2810	810	873	155	35	15	12
23	12	a90	886	258	1150	3160	804	774	147	34	14	12
24	14	a600	744	279	1050	2630	792	702	138	32	14	11
25	13	a1800	642	231	983	2150	860	660	127	31	13	10
26	15	a600	556	608	899	2060	1070	660	121	29	13	9.7
27	14	a300	490	589	828	1910	1260	584	115	*29	14	9.7
28	13	a190	436	412	756	1640	1370	551	109	28	14	9.3
29	14	a125	396	2130	—	1570	1790	642	106	28	16	8.5
30	14	a1500	364	2540	-----	1710	1770	600	101	27	15	8.1
31	12	-----	328	*9160	-----	1910	-----	589	-----	27	14	-----
Total	4934	6328	46731	21266	68596	50637	45348	33172	10417	1613	612	3463
Mean	15.9	211	1,507	686	2,450	1,633	1,512	1,070	347	52.0	19.7	11.5
Max.	31	1,800	9,120	9,160	6,160	3,160	3,670	1,680	996	97	43	13
Min.	7.8	11	282	190	756	648	744	551	101	27	13	8.1
Ac-ft	979	12,550	92,690	42,180	136,100	100,400	89,950	65,800	20,660	3,200	1,210	687

Calendar year 1960: Max 42,200 Min 7.8 Mean 872 Acre-feet 633,300  
 Water year 1960-61: Max 9,160 Min 7.8 Mean 782 Acre-feet 566,400

Peak discharge (base, 10,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-17	3p.m.	11.05	10,200	1-31	10a.m.	12.14	13,900

\* Discharge measurement made on this day.  
 a No gage-height record.

## KEL RIVER BASIN

11-4730. Middle Fork Kel River below Black Butte River, near Covelo, Calif.--Continued.

Temperature (°F) of water, water year October 1960 to September 1961

Day	Oct.		Nov.		Dec.		Jan.		Feb.		Mar.		Apr.		May		June		July		Aug.		Sept.	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1																			-	-	77	73	71	70
2																			-	-	77	73	70	67
3																			-	-	79	75	70	66
4																			-	-	80	77	69	65
5																			-	-	80	78	69	65
6																			-	-	79	78	68	65
7																			-	-	80	77	68	66
8																			-	-	78	75	66	64
9																			-	-	80	75	65	62
10																			-	-	79	74	65	62
11																			-	-	78	76	65	62
12																			-	-	76	73	65	63
13																			-	-	76	73	64	62
14																			-	-	75	71	64	62
15																			-	-	76	72	63	62
16																			-	-	76	72	63	63
17																			-	-	76	71	63	62
18																			-	-	75	69	63	61
19																			-	-	74	70	64	61
20																			-	-	76	69	63	61
21																			-	-	76	72	63	62
22																			-	-	75	71	63	60
23																			-	-	74	70	63	60
24																			-	-	74	70	63	60
25																			-	-	73	70	62	60
26																			-	-	71	69	63	60
27																			-	-	70	67	63	60
28																			79	75	70	68	63	62
29																			78	75	72	67	62	60
30																			78	75	73	69	61	59
31																			78	74	72	69	---	---
Avg																			-	-	76	72	65	62

## EEL RIVER BASIN

367

11-4736. Short Creek near Covelo, Calif.

Location.--Lat 39°49'50", long 123°10'50", in NE¼ sec. 27, T.23 N., R.12 W., on left bank 0.4 mile downstream from unnamed tributary, 0.7 mile upstream from wooden bridge, and 4.5 miles northeast of Covelo.

Drainage area.--15.2 sq mi.

Records available.--October 1958 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 1,480 ft (from topographic map).

Extremes.--Maximum discharge during year, 822 cfs Feb. 11 (gage height, 5.75 ft, from floodmarks); no flow for several months.

1958-61: Maximum discharge, 1,630 cfs Feb. 8, 1960 (gage height, 7.55 ft); no flow several months in each year.

Flood of Dec. 21, 1955, reached a stage of 10.56 ft, from floodmarks (discharge, 3,780 cfs on basis of slope-area measurement of peak flow).

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

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	*355	68	72	16	28	14	4.9	0.5	0.1	
2		*0	*81	6.0	244	16	25	15	4.9	4	1	
3		0	38	4.9	78	15	23	*10	4.5	4	1	
4		0	24	4.2	49	15	21	91	3.8	4	2	
5		0	16	3.8	37	18	18	91	3.6	4	2	
6		0	10	3.8	30	37	16	12	3.4	3	2	
7		0	7.5	3.8	25	30	15	11	3.4	3	3	
8		0	5.7	3.8	27	68	13	91	3.2	3	4	
9		0	3.8	3.8	a 280	141	12	9.5	3.0	3	4	
10		0	3.8	3.6	a 115	74	11	15	2.8	3	4	
11		0	3.6	*3.0	*a 510	92	9.9	39	2.8	2	4	
12		0	2.6	2.8	190	59	10	26	2.4	2	4	
13		1	2.0	2.6	136	47	9.9	20	2.4	2	4	
14		0	1.7	2.4	120	138	8.7	16	*2.0	2	4	
15		0	5.3	2.4	118	258	8.3	14	1.8	2	3	
16		0	155	2.2	79	160	7.5	12	1.6	2	2	
17		0	348	2.0	64	251	7.5	11	1.4	2	2	
18		1	109	1.8	51	114	7.5	10	1.3	2	2	
19		0	63	1.7	42	103	7.1	9.1	1.2	1	2	
20		0	37	1.7	35	81	6.8	9.1	1.0	1	2	
21		0	28	1.6	31	62	14	8.3	1.0	1	1	
22		0	23	1.6	29	*65	33	7.5	.9	1	1	
23		3.3	18	5.3	27	56	58	7.5	.8	1	1	
24		19	15	3.8	25	85	40	6.8	.7	1	1	
25		41	13	3.4	23	79	28	6.0	.7	1	1	
26												
27	(*)	18	12	25	21	96	23	6.8	.6	*1	1	
28		9.9	11	18	19	78	18	6.4	.6	1	1	
29		5.5	9.5	17	18	61	15	5.7	.6	1	1	
30		3.7	8.7	134	—	49	15	5.3	.6	1	1	
31		9.0	7.9	75	—	40	13	6.4	.5	1	1	
Total	0	109.6	1425.2	708.8	2495	2436	522.2	352.7	624	6.5	6.4	0
Mean	0	3.65	46.0	22.9	89.1	78.6	17.4	11.4	2.08	0.21	0.21	0
Max.	0	41	355	357	510	258	58	39	4.9	0.5	0.4	0
Min.	0	0	1.7	1.6	18	15	6.8	5.3	0.5	0.1	0.1	0
Ac-ft	0	217	2,830	1,410	4,950	4,830	1,040	700	124	13	13	0

Calendar year 1960: Max 775 Min 0 Mean 19.6 Acre-feet 14,230  
 Water year 1960-61: Max 510 Min 0 Mean 22.3 Acre-feet 16,130

Peak discharge (base, 1,200 cfs).--No peak above base.

\* Discharge measurement or observation of no flow made on this day.  
 a No gage-height record.

11-4737, Mill Creek near Covelo, Calif.

Location.--Lat 39°44'45", long 123°10'15", in SW<sup>1</sup>/<sub>4</sub> sec.23, T.22 N., R.12 W., on right bank 50 ft upstream from unnamed tributary, 0.65 mile downstream from county road bridge, and 5.2 miles southeast of Covelo.

Drainage area.--96.9 sq mi (revised).

Records available.--September 1956 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 1,280 ft (from topographic map).

Average discharge.--5 years, 144 cfs (104,300 acre-ft per year).

Extremes.--Maximum discharge during year, 4,190 cfs Feb. 11 (gage height, 12.11 ft); no flow at times for several months.

1956-61: Maximum discharge, 6,970 cfs Feb. 8, 1960 (gage height, 15.15 ft), from rating curve extended above 2,300 cfs; no flow at times for several months in each year.

Remarks.--Record good. No regulation or diversion.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Nov. 13-25, Dec. 23 to Jan. 29, June 3 to July 26)

Oct. 1 to Nov. 30				Dec. 1 to Sept. 30			
1.6	0	2.3	23	0.8	0	2.5	80
1.7	.1	2.5	38	.9	.8	3.0	134
1.8	.3	2.9	80	1.1	3.6	4.0	318
1.9	1.8	3.4	147	1.3	7.8	6.0	880
2.0	5.0	4.0	255	1.5	15	8.0	1,700
2.1	10	5.0	525	2.0	43	10.0	2,760

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1		*0	1,970	20	476	98	155	84	22	2.6		
2		0	*439	18	1,290	97	137	76	20	2.6		
3		0	152	16	453	93	123	*67	19	2.3		
4		0	86	16	266	91	114	61	17	2.3		
5		0	62	15	191	115	103	59	15	2.0		
6		0	49	15	161	271	93	70	14	2.0		
7	(*)	0	41	15	129	198	85	66	14	1.8		
8		0	36	17	133	396	79	58	13	1.7		(*)
9		0	33	17	1,520	452	75	57	12	1.7		
10		0	33	*16	601	545	72	82	11	1.4		
11		0	36	14	2,700	568	66	237	10	1.2		
12		0	30	14	947	314	70	174	9.7	1.1		
13		.3	29	13	*887	250	66	115	*8.1	.9		
14		.1	27	12	748	728	60	93	7.3	.8		
15		0	44	12	804	1,470	56	82	6.7	.7		
16		0	698	12	528	780	54	74	5.7	.6		
17		0	1,820	12	393	1,480	51	70	5.3	.5		
18		.1	641	12	300	658	51	65	4.9	.4		
19		0	322	12	242	632	50	58	4.7	.4		
20		0	175	12	203	497	47	54	4.1	.3		
21		0	120	12	178	*369	87	49	4.1	.2		
22		0	86	11	159	404	242	45	3.9	.2		
23		0	66	16	142	371	362	45	3.6	.2		
24		56	54	16	133	505	212	42	3.5	.1		
25		418	44	15	126	445	165	39	3.0	.1		
26		116	37	93	116	550	126	38	3.0	0		
27		44	34	64	109	453	98	36	3.0	*0		
28		22	30	37	103	333	84	34	2.9	0		
29		13	25	669	-----	264	83	37	2.9	0		
30		51	24	380	-----	214	78	25	2.6	0		
31		-----	21	1,840	-----	178	-----	26	-----	0		-----
TOTAL	0	720.5	7,264	3,443	14,038	13,819	3,144	2,118	256.0	28.1	0	0
MEAN	0	24.0	234	111	501	446	105	68.3	8.53	0.91	0	0
MAX	0	418	1,970	1,840	2,700	1,480	362	237	22	2.6	0	0
MIN	0	0	21	11	103	91	47	25	2.6	0	0	0
AC-FT	0	1,430	14,410	6,830	27,840	27,410	6,240	4,200	508	56	0	0

CALENDAR YEAR 1960: MAX 4,900 MIN 0 MEAN 121 AC-FT 87,630  
WATER YEAR 1960-61: MAX 2,700 MIN 0 MEAN 123 AC-FT 88,920

Peak discharge (base, 3,000 cfs)

\* Discharge measurement or observation of no flow made on this day.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12- 1	8a.m.	10.77	3,240	2-11	5a.m.	12.11	4,190
1-31	9a.m.	11.33	3,630	3-14	9p.m.	10.60	3,120

11-4740. Kel River below Dos Rios, Calif.

**Location.**--Lat 39°44'15", long 123°22'15", in NE<sup>1</sup> sec.25, T.22 N., R.14 W., on left bank 1.1 miles downstream from Burger Creek, 1.7 miles northwest of Dos Rios, and 2.2 miles downstream from Middle Fork.

**Drainage area.**--1,484 sq mi (revised).

**Records available.**--October 1911 to December 1913, October 1951 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B. Published as "near Laytonville" 1911 and as "at Two Rivers" 1912-13.

**Gage.**--Water-stage recorder. Altitude of gage is 800 ft (from topographic map). Prior to Dec. 30, 1913, staff gage at bridge 500 ft downstream from Middle Fork at different datum.

**Average discharge.**--12 years, 3,216 cfs (2,328,000 acre-ft per year); median of yearly mean discharges, 2,750 cfs (1,990,000 acre-ft per year).

**Extremes.**--Maximum discharge during year, 52,200 cfs Dec. 1 (gage height, 22.36 ft); minimum, 14 cfs Oct. 1, 2.

1911-13, 1951-61: Maximum discharge, 283,000 cfs Dec. 22, 1955 (gage height, 49.86 ft), from rating curve extended above 120,000 cfs on basis of a slope-conveyance study; minimum, 5.2 cfs Sept. 13, 1955.

**Remarks.**--Records good. Flow partly regulated by Lake Pillsbury (see p. 357) and by diversion through Potter Valley powerhouse (see p. 359).

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	14	28	32,600	800	16,900	1,880	5,160	3,350	944	229	44	29
2	14	28	13,100	725	19,200	1,810	5,700	3,270	1,080	219	44	28
3	15	*27	*5,430	672	13,200	1,750	6,320	2,730	1,080	206	43	26
4	15	26	3,030	630	7,910	1,620	6,100	*2,350	1,330	195	42	25
5	15	25	2,080	595	5,640	1,760	5,440	2,000	1,110	190	42	24
6	20	26	1,570	595	4,470	3,630	4,280	2,100	936	190	39	*24
7	29	28	1,240	590	3,650	3,240	3,920	2,370	880	185	41	23
8	46	53	1,070	630	3,290	4,120	3,330	2,100	784	180	47	22
9	39	50	912	625	17,600	6,120	3,130	1,970	704	167	88	22
10	37	44	856	678	15,000	6,890	2,920	3,020	654	155	61	22
11	33	58	880	600	35,800	7,130	2,480	6,080	615	145	52	22
12	30	118	725	*560	20,600	5,380	2,460	5,020	590	132	44	22
13	28	689	672	540	14,100	4,330	2,280	4,170	560	120	43	22
14	28	636	654	524	*13,900	7,430	2,050	3,510	528	115	43	21
15	28	378	1,140	508	14,300	18,800	1,900	3,160	*500	107	42	21
16	27	268	8,680	488	11,500	13,600	1,930	2,730	464	104	42	23
17	25	255	29,900	472	8,930	18,900	1,970	2,490	439	98	35	24
18	25	1,490	16,600	457	7,150	12,700	1,810	2,350	408	92	33	25
19	25	739	8,640	446	5,860	10,400	1,620	2,140	387	88	32	25
20	25	378	5,200	436	4,980	11,500	1,440	2,100	369	80	35	25
21	24	339	4,100	432	4,470	8,650	1,560	1,940	351	78	35	25
22	25	384	3,330	425	4,070	8,340	2,930	1,750	339	78	32	25
23	24	376	2,700	504	3,620	*9,220	4,650	1,540	322	75	28	25
24	25	4,440	2,240	660	3,330	9,060	3,020	1,340	306	71	28	24
25	25	10,100	1,900	568	2,770	9,270	2,760	1,200	292	66	29	24
26	28	5,160	1,620	1,290	2,520	9,120	2,800	1,190	276	61	27	23
27	28	2,160	1,400	1,840	2,340	8,570	2,750	1,110	260	59	31	22
28	28	1,170	1,220	1,130	2,100	7,090	2,750	992	250	*53	33	22
29	28	800	1,050	5,400	—	5,820	3,160	1,060	242	50	31	21
30	28	1,530	944	7,980	—	4,800	3,570	1,010	240	49	31	21
31	28	—	896	30,900	—	5,080	—	1,060	—	46	31	—
Total	809	31,803	156,379	62,700	269,200	228,010	96,190	73,202	17,240	3,683	1,228	707
Mean	26.1	1,060	5,044	2,023	9,614	7,355	3,206	2,361	575	119	39.6	23.6
Max.	46	10,100	32,600	30,900	35,800	18,900	6,320	6,080	1,330	229	88	29
Min.	14	25	654	425	2,100	1,620	1,440	992	240	46	27	21
Ac-Ft	1,600	63,080	310,200	124,400	534,000	452,300	190,800	145,200	34,200	7,310	2,440	1,400
Calendar year 1960:				Max 141,000	Min 14	Mean 3,021	Acre-feet 2,193,000					
Water year 1960-61:				Max 35,800	Min 14	Mean 2,578	Acre-feet 1,867,000					

Peak discharge (base, 22,000 cfs)

\* Discharge measurement made on this day.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-1	11a.m.	22.36	52,200	2-2	1p.m.	17.48	26,700
12-17	11a.m.	19.08	33,900	2-11	7a.m.	21.29	45,700
1-31	12m.	21.22	45,300				

## EEL RIVER BASIN

11-4745. North Fork Eel River near Mina, Calif.

Location.--Lat 39°56'15", long 123°20'45", in SW $\frac{1}{4}$  sec.8, T.24 N., R.13 W., on right bank 1.2 miles upstream from Asbill Creek, 2 miles south of Mina, and 8.8 miles northeast of Nashmead.

Drainage area.--250 sq mi (revised).

Records available.--August 1953 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 1,030 ft (from topographic map). Aug. 27, 1953, to Jan. 15, 1954, water-stage recorder and Jan. 16 to June 22, 1954, wire-weight gage, at bridge 0.2 mile downstream at different datum.

Average discharge.--8 years, 623 cfs (451,000 acre-ft per year).

Extremes.--Maximum discharge during year, 15,100 cfs Jan. 31 (gage height, 16.38 ft); minimum, 1.9 cfs Oct. 1, 2.

1953-61: Maximum discharge, 58,400 cfs Dec. 22, 1955 (gage height, 24.00 ft), from rating curve extended above 8,000 cfs on basis of slope-area measurement of peak flow; minimum, 0.1 cfs Aug. 30, 31, 1959.

Flood in December 1937 reached a stage of about 30.7 ft (former site and datum), from information by local resident.

Remarks.--Records good.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Jan. 5-7, 12-23, July 16 to Aug. 8, Aug. 11 to Sept. 30)

2.9	1.9	4.0	63	7.0	930
3.1	5.5	4.5	123	8.0	1,500
3.2	8.5	5.0	210	9.0	2,220
3.4	18	5.5	335	11.0	4,470
3.7	37	6.0	500	14.0	8,810

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	2.0	4.0	8,190	116	2,370	258	777	568	139	26	4.8	3.3
2	2.0	4.0	2,670	104	3,850	253	745	508	126	24	4.8	3.2
3	2.0	4.2	*1,070	96	1,960	230	705	*427	12	22	4.8	3.0
4	2.0	3.7	849	88	1,250	214	644	371	160	22	4.6	2.9
5	2.5	3.5	406	83	920	273	556	335	119	21	4.6	2.9
6	3.3	3.7	288	81	768	700	476	476	10	21	4.6	2.7
7	7.9	4.2	216	78	628	664	413	532	107	21	8.2	2.7
8	7.3	4.6	177	100	552	1,240	356	409	99	20	25	*2.6
9	5.3	4.8	150	88	3,270	1,590	320	399	91	18	18	2.6
10	4.0	4.6	152	*107	2,160	1,700	290	777	87	17	11	2.5
11	3.2	6.1	196	89	7,600	2,050	260	1,650	84	16	7.9	2.5
12	3.2	12	141	77	3,560	1,420	270	1,270	81	14	7.0	2.5
13	3.2	93	123	72	*2,570	1,210	250	930	*78	13	8.5	2.3
14	3.3	129	111	66	3,140	1,940	212	736	72	12	9.3	2.2
15	3.3	99	176	62	3,190	4,010	188	616	65	11	7.0	2.3
16	3.3	81	2,420	59	2,200	2,900	177	520	59	11	5.5	2.9
17	3.5	80	7,950	56	1,550	4,860	169	444	55	10	4.8	3.3
18	3.5	578	3,790	52	1,180	2,770	165	383	50	9.7	4.6	3.2
19	3.5	147	1,930	49	930	2,670	164	338	48	9.3	4.4	2.9
20	3.5	75	1,130	47	768	2,360	147	300	45	8.5	4.4	2.7
21	3.5	81	804	44	660	*1,630	250	268	43	8.2	4.2	2.6
22	3.3	77	604	43	580	1,610	620	233	41	8.2	4.0	2.6
23	3.3	131	448	111	493	1,580	813	214	38	7.9	3.7	2.6
24	3.5	1,060	359	123	434	1,630	930	196	36	7.9	3.5	2.5
25	3.5	2,800	298	87	402	1,670	890	179	34	7.3	3.5	2.5
26	4.0	854	253	301	347	1,770	822	183	30	*6.7	3.3	2.5
27	4.0	437	218	362	311	1,760	688	165	29	6.1	3.5	2.3
28	4.0	263	185	206	285	1,430	584	150	28	5.3	3.7	2.3
29	4.0	190	164	1,920	-----	1,170	616	157	27	5.1	3.7	2.3
30	4.0	644	145	1,710	-----	990	580	162	27	4.8	4.0	2.3
31	4.0	-----	129	8,130	-----	862	-----	169	-----	4.8	3.5	-----
TOTAL	112.9	7,878.4	35,742	14,607	47,928	49,414	14,077	14,065	2,133	398.8	194.4	79.7
MEAN	3.64	263	1,153	471	1,712	1,594	469	454	71.1	12.9	6.27	2.66
MAX	7.9	2,800	8,190	8,130	7,600	4,860	930	1,650	160	26	25	3.3
MIN	2.0	3.5	111	43	285	214	147	150	27	4.8	3.3	2.2
AC-FT	224	15,630	70,890	28,970	95,060	98,010	27,920	27,900	4,230	791	386	158

CALENDAR YEAR 1960: MAX 20,700

MIN 1.9

MEAN 533

AC-FT 387,300

WATER YEAR 1960-61: MAX 8,190

MIN 2.0

MEAN 511

AC-FT 370,200

Peak discharge (base, 8,000 cfs)

\* Discharge measurement made on this day.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-1	8a.m.	15.24	11,700	1-31	9a.m.	16.38	15,100
12-17	11:30a.m.	14.47	9,810	2-11	6a.m.	15.08	11,300



11-4750. Eel River at Alderpoint, Calif.

**Location.**--Lat 40°10'35", long 123°36'20", in NW 1/4 sec. 27, T.3 S., R.5 E., on left bank at Alderpoint, 600 ft downstream from Carter Creek and 11.4 miles northeast of Garberville.

**Drainage area.**--2,079 sq mi.

**Records available.**--September 1955 to September 1961.

**Gage.**--Water-stage recorder with thermograph attachment. Altitude of gage is 270 ft (from topographic map).

**Average discharge.**--6 years, 4,958 cfs (3,589,000 acre-ft per year).

**Extremes.**--Maximum discharge during year, 67,100 cfs Dec. 1 (gage height, 27.60 ft); minimum not determined, occurred during period of indefinite stage-discharge relation.  
1955-61: Maximum discharge, 376,000 cfs Dec. 22, 1955 (gage height, 72.5 ft, from floodmarks), from rating curve extended above 110,000 cfs on basis of slope-area measurement of peak flow; minimum, 12 cfs Aug. 17, 1959.

**Remarks.**--Records good except those for periods of no gage-height record or indefinite stage-discharge relation, which are fair. Flow slightly regulated by Lake Pillsbury (see p. 357) and by diversion through Potter Valley powerhouse (see p. 359).

Rating tables, except periods of indefinite stage-discharge relation (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Nov. 25, Sept. 16-30)

Oct. 1 to Nov. 24

Nov. 25 to Sept. 30

2.2	20	3.2	450	2.2	25	4.0	1,320
2.3	40	4.0	1,100	2.4	81	6.0	4,260
2.5	95	5.5	3,000	2.7	205	9.0	10,400
2.8	220	7.0	5,600	3.0	398	16.0	29,000
				3.5	805	23.0	51,000

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	20	120	38900	1220	25900	2530	5930	4010	1330	205	42	41
2	20	116	24600	1100	25400	2430	6040	4010	1270	205	41	41
3	20	123	9940	1020	*20100	2350	6620	3590	1380	195	40	41
4	* 20	123	5300	960	12600	2220	6540	* 2950	1430	186	39	41
5	26	127	3620	*891	8410	2290	5950	2590	1550	167	39	38
6	36	130	2830	853	6420	4140	4990	2580	1310	162	40	35
7	48	130	2280	862	5340	5110	4310	2980	1190	162	42	33
8	71	130	1970	891	4570	5060	3900	2710	1100	187	46	32
9	116	130	1700	990	19700	9160	3530	2490	1000	187	48	31
10	185	162	1570	970	23200	10500	3300	3400	940	162	54	31
11	195	210	1670	960	48900	10500	3030	7220	881	183	81	30
12	175	215	1440	834	31800	8690	2770	7180	824	145	66	30
13	162	449	1230	787	21800	6700	2760	5420	* 787	128	60	29
14	146	1410	1180	715	21300	7700	2500	4540	724	120	54	29
15	130	1000	1170	673	20700	27300	2400	3920	681	113	48	28
16	123	708	7180	647	17700	20400	2300	3460	614	106	48	28
17	116	576	44600	614	13300	28000	2300	3060	574	95	43	28
18	116	1390	29400	574	10200	20200	2200	2880	535	88	43	28
19	113	2000	15800	558	7900	15000	2100	2590	488	81	41	30
20	109	920	8720	535	6460	17200	1900	2490	458	78	38	35
21	106	660	5970	512	5610	12200	1800	2350	421	75	35	38
22	109	660	4610	488	5010	10700	2500	2150	398	69	35	41
23	109	812	3730	558	4560	*12800	5400	1970	369	60	38	41
24	109	4670	3110	872	4140	11400	4100	1790	332	60	41	41
25	106	13200	2620	900	3750	13100	3300	1650	312	57	38	43
26	113	9780	2240	1090	3290	12000	3400	1560	287	54	38	43
27	113	4060	2010	2670	3090	12200	3300	1530	261	52	38	43
28	109	2280	1790	1880	2860	9870	3300	1430	244	49	41	43
29	120	* 1500	1570	5400	—	7840	3700	1340	227	46	* 41	41
30	127	1760	1410	13600	—	6520	4300	1420	211	45	46	38
31	123	—	1320	43000	—	6010	—	1410	—	43	46	—
Total	3,191	49,551	235,480	87,624	384,010	322,120	110,470	92,670	22,128	3,475	1,390	1,071
Mean	103	1,652	7,596	2,827	13,710	10,390	3,682	2,989	738	112	44.8	35.7
Max.	195	13,200	44,600	43,000	48,900	28,000	6,620	7,220	1,550	205	81	43
Min.	20	116	1,170	488	2,860	2,220	1,800	1,340	211	43	35	28
Ac-ft	6,330	98,280	467,100	173,800	761,700	638,900	219,100	183,800	43,890	6,890	2,760	2,120

Calendar year 1960: Max 182,000 Min 20 Mean 4,170 Acre-feet 3,028,000  
Water year 1960-61: Max 48,900 Min 20 Mean 3,598 Acre-feet 2,605,000

Peak discharge (base, 41,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12- 1	4p.m.	27.60	67,100	1-31	3p.m.	25.25	58,900
12-17	2p.m.	23.75	53,600	2-11	1p.m.	26.46	63,100

\* Discharge measurement made on this day.

Note.--No gage-height record Apr. 14 to May 3. Stage-discharge relation indefinite Oct. 1 to Nov. 5, July 27 to Sept. 15.

## EEL RIVER BASIN

11-4750. Eel River at Alderpoint, Calif.--Continued.

Day	Temperature (°F) of water, water year October 1960 to September 1961																							
	Oct.		Nov.		Dec.		Jan.		Feb.		Mar.		Apr.		May		June		July		Aug.		Sept.	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1			-	-	45	44	41	41	46	46	49	47	50	50	-	-	65	63	73	68	76	69	74	72
2			-	-	45	45	41	41	47	46	49	49	51	50	-	-	66	65	74	69	76	69	72	68
3			-	-	45	45	41	39	47	47	49	49	53	51	-	-	68	66	74	69	76	70	73	67
4			-	-	45	45	39	38	47	47	49	49	53	53	-	-	68	67	71	70	76	71	75	68
5			-	-	45	45	38	37	47	47	49	49	53	53	56	56	68	68	70	67	74	71	73	69
6			-	-	45	43	37	37	47	47	49	49	53	53	56	55	68	66	72	67	79	70	72	69
7			-	-	43	42	37	37	47	47	49	49	53	53	55	55	66	65	73	67	80	73	69	67
8			-	-	42	42	39	37	47	47	49	49	53	53	57	55	65	65	76	69	81	75	69	65
9			-	-	42	41	40	39	47	47	49	49	53	53	57	57	65	66	78	71	81	73	70	65
10			57	57	41	41	41	40	47	47	49	49	53	53	57	56	67	66	81	72	81	73	70	66
11			57	56	41	41	41	41	47	47	49	49	53	53	56	54	68	67	82	74	81	74	70	66
12			56	55	41	41	42	41	47	46	49	49	53	53	54	54	70	67	82	74	79	70	69	66
13			55	54	41	41	43	42	47	46	49	49	53	53	54	54	72	69	82	76	77	71	69	67
14			54	53	41	41	44	43	47	47	49	49	53	53	56	54	76	70	81	74	75	71	69	67
15			53	51	41	41	44	44	47	47	50	49	-	-	58	56	80	73	81	73	75	70	70	69
16			51	51	45	41	44	44	47	47	50	50	-	-	58	58	81	76	79	74	75	70	69	68
17			51	51	46	45	44	44	47	47	50	50	-	-	61	58	80	76	80	72	75	69	68	67
18			51	51	46	45	44	44	47	46	50	50	-	-	63	61	78	75	80	72	76	69	68	66
19			51	51	46	46	44	43	46	46	50	50	-	-	63	63	77	74	80	72	76	68	70	66
20			51	50	46	46	43	43	46	46	50	50	-	-	63	63	76	73	77	71	78	69	70	66
21			50	50	46	46	43	42	46	46	50	50	-	-	63	63	77	72	77	71	78	71	68	65
22			50	50	46	46	42	42	46	46	50	50	-	-	63	63	78	73	75	71	77	70	67	64
23			50	50	46	46	44	42	46	46	50	50	-	-	63	63	78	73	77	70	74	69	67	64
24			50	50	46	46	45	44	46	46	50	50	-	-	64	63	79	73	77	70	72	68	68	64
25			50	49	46	45	45	45	46	46	50	49	-	-	64	63	80	74	80	71	72	68	68	65
26			49	49	45	45	45	45	46	46	49	49	-	-	64	63	78	73	78	71	72	68	68	65
27			49	48	45	44	45	45	46	46	49	49	-	-	64	63	75	72	78	70	72	68	69	66
28			48	47	44	43	45	45	47	46	49	49	-	-	64	63	73	70	77	69	74	70	67	65
29			47	45	43	42	45	45	-	-	49	49	-	-	64	64	72	69	77	69	75	70	65	63
30			45	44	42	41	45	45	-	-	49	49	-	-	64	63	73	67	76	70	75	71	65	62
31			---	---	41	41	46	45	---	---	50	49	---	---	64	63	---	---	76	70	75	70	---	---
Avg			-	-	44	43	42	42	47	46	49	49	-	-	-	-	73	70	77	71	76	70	69	66

11-4755. South Fork Eel River near Branscomb, Calif.

Location.--Lat 39°43'09", long 123°39'06", in NW¼ sec.32, T.22 N., R.16 W., on right bank 0.4 mile upstream from Jack of Hearts Creek and 4.7 miles north of Branscomb.

Drainage area.--43.9 sq mi.

Records available.--October 1946 to September 1961.

Gage.--Water-stage recorder with thermograph attachment. Altitude of gage is 1,380 ft (from topographic map).

Average discharge.--15 years, 174 cfs (126,000 acre-ft per year).

Extremes.--Maximum discharge during year, 3,690 cfs Jan. 31 (gage height, 7.67 ft); minimum, 1.7 cfs Oct. 1.  
1946-61: Maximum discharge, 20,100 cfs Dec. 22, 1955 (gage height, 16.20 ft), from rating curve extended above 4,600 cfs on basis of slope-area measurement of peak flow; minimum, 1.3 cfs Sept. 10, 1959.

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

Rating table (gage-height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Aug. 27 to Sept. 30)

0.8	1.3	1.4	42	4.0	880
0.9	3.2	1.7	94	5.0	1,430
1.0	6.4	2.0	164	6.0	2,170
1.1	12	3.0	470	7.0	3,000
1.2	19				

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	2.1	4.0	1,080	78	869	*94	212	138	52	17	7.8	5.3
2	2.5	3.7	749	72	915	90	181	133	50	17	7.3	5.0
3	2.3	3.5	441	67	634	85	156	121	47	16	7.3	4.6
4	2.3	3.5	301	62	477	80	136	110	45	17	6.8	4.0
5	3.0	3.7	220	58	364	128	*121	106	44	17	6.8	*4.0
6	5.7	3.7	170	55	304	262	110	133	44	17	6.8	3.7
7	*7.8	4.0	136	55	250	200	100	143	44	16	6.4	3.7
8	7.8	4.3	112	53	232	265	90	126	41	15	6.0	3.7
9	5.7	4.3	96	53	916	393	83	151	39	14	5.7	3.5
10	4.6	4.3	96	50	791	488	80	277	37	14	*5.3	3.5
11	4.0	8.3	85	47	2,130	586	72	425	37	14	5.3	3.2
12	3.7	15	*74	44	1,130	467	76	364	36	13	5.7	3.2
13	3.7	44	67	42	1,140	390	69	301	34	12	5.3	3.2
14	3.7	33	62	41	1,160	507	62	247	32	12	6.0	3.2
15	3.7	23	95	38	1,110	1,060	56	206	30	12	6.4	3.7
16	3.5	15	468	37	805	855	53	172	29	12	6.0	6.0
17	3.2	*14	2,710	36	586	900	52	*151	28	11	5.3	6.8
18	3.2	84	1,450	34	448	654	52	131	28	11	5.0	6.0
19	3.2	32	785	34	352	618	47	116	27	9.4	4.3	5.3
20	3.2	21	526	33	283	547	48	108	26	9.4	5.0	4.6
21	3.2	26	396	32	238	451	95	98	23	9.4	5.0	4.3
22	3.2	20	304	30	203	474	178	92	23	9.4	5.0	4.3
23	3.5	100	241	45	175	512	277	85	23	9.4	5.3	4.3
24	5.0	498	198	39	151	582	189	80	22	9.4	5.3	4.0
25	5.0	960	170	*38	136	618	151	74	21	8.8	5.3	4.0
26	5.7	393	143	52	121	614	126	76	20	8.8	5.7	3.5
27	5.7	214	126	56	110	540	110	69	19	8.3	7.8	3.2
28	5.0	141	112	50	102	451	100	63	*19	7.8	7.8	3.2
29	4.6	106	100	323	-----	374	106	60	19	7.8	6.8	3.2
30	4.3	613	92	423	-----	304	98	60	18	7.8	5.7	3.0
31	4.0	-----	85	2,120	-----	253	-----	56	-----	8.3	5.3	-----
TOTAL	128.1	3,399.3	11,690	4,197	16,132	13,842	3,286	4,472	957	371.0	185.5	123.2
MEAN	4.13	113	377	135	576	447	110	144	31.9	12.0	5.98	4.11
MAX	7.8	960	2,710	2,120	2,130	1,060	277	425	52	17	7.8	6.8
MIN	2.1	3.5	62	30	102	80	47	56	18	7.8	4.3	3.0
AC-FT	254	6,740	23,190	8,320	32,000	27,460	6,520	8,870	1,900	736	368	244

CALENDAR YEAR 1960: MAX 8,760 MIN 1.7 MEAN 192 AC-FT 139,400  
WATER YEAR 1960-61: MAX 2,710 MIN 2.1 MEAN 161 AC-FT 116,600

Peak discharge (base, 2,000 cfs)

\* Discharge measurement made on this day.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-17	3p.m.	7.48	3,480	2-11	6a.m.	6.58	2,630
1-31	8a.m.	7.67	3,690				

## EEL RIVER BASIN

11-4755. South Fork Eel River near Branscomb, Calif.--Continued.

Temperature (°F) of water, water year October 1960 to September 1961																								
Day	Oct.		Nov.		Dec.		Jan.		Feb.		Mar.		Apr.		May		June		July		Aug.		Sept.	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1	-	-	51	51	-	-	-	-	51	51	49	47	53	52	53	52	61	57	73	65	75	63	69	64
2	-	-	51	50	-	-	-	-	51	51	47	46	57	54	52	50	62	60	74	65	76	64	69	60
3	-	-	50	50	49	49	-	-	51	51	46	43	58	56	52	49	63	60	71	64	77	66	70	59
4	-	-	50	48	49	48	-	-	51	51	45	43	59	57	51	48	63	62	66	63	76	72	70	59
5	-	-	49	46	48	46	-	-	51	51	45	44	59	55	51	49	63	59	66	60	78	73	68	58
6	-	-	48	47	46	45	-	-	51	51	45	45	54	49	49	48	59	58	68	60	79	71	67	57
7	-	-	49	48	45	44	-	-	51	50	45	44	51	48	51	47	62	58	70	61	82	72	64	56
8	-	-	49	49	44	44	-	-	50	50	45	45	51	47	52	49	62	60	72	63	81	71	65	55
9	-	-	49	48	44	43	-	-	50	50	45	45	51	48	52	51	63	60	73	64	81	68	64	55
10	-	-	49	48	44	43	-	-	50	50	46	45	51	47	51	50	63	60	76	65	78	67	65	55
11	-	-	50	49	44	44	-	-	50	50	47	46	52	49	50	50	65	62	78	68	74	70	65	55
12	-	-	50	50	44	44	-	-	50	50	47	46	52	50	51	48	66	62	78	69	77	66	63	54
13	-	-	50	50	44	44	-	-	50	50	48	46	50	45	51	49	67	62	79	70	73	66	59	54
14	-	-	50	50	44	44	-	-	50	50	48	48	51	46	54	50	71	65	77	66	73	65	62	55
15	-	-	49	49	44	44	-	-	50	50	48	48	53	49	55	51	73	67	76	65	74	64	62	59
16	-	-	49	49	-	-	-	-	50	50	48	48	54	51	55	53	73	68	76	64	73	62	61	59
17	-	-	50	49	-	-	-	-	50	50	48	48	54	52	57	52	72	67	77	66	72	62	62	57
18	-	-	50	50	-	-	-	-	50	49	48	48	52	48	57	54	72	67	78	67	71	60	63	58
19	-	-	50	49	-	-	-	-	50	49	48	48	48	44	58	56	72	66	78	66	70	61	64	56
20	-	-	49	47	-	-	-	-	49	49	48	48	48	46	55	54	73	67	77	64	73	63	62	55
21	-	-	48	47	-	-	-	-	49	49	49	48	46	45	54	53	74	68	78	66	71	66	62	55
22	-	-	48	48	-	-	-	-	49	49	49	48	45	44	54	53	72	68	78	67	70	64	60	54
23	-	-	48	48	-	-	-	-	49	47	48	48	46	43	54	53	74	67	79	66	70	63	61	54
24	-	-	49	48	-	-	-	-	48	48	49	49	49	45	56	53	75	68	80	69	70	61	61	52
25	57	56	-	-	-	-	48	48	49	48	49	49	51	48	56	53	76	69	79	68	68	62	61	52
26	56	55	49	49	-	-	48	48	48	46	50	49	50	48	57	56	76	70	79	67	66	61	62	53
27	55	51	49	49	-	-	48	48	48	47	50	49	51	48	57	53	74	67	80	66	69	63	62	55
28	51	50	49	48	-	-	49	48	48	47	51	49	52	50	59	56	71	65	79	66	71	63	60	54
29	52	51	48	48	-	-	49	49	-	-	51	49	52	51	59	58	70	63	79	66	72	65	59	51
30	52	50	48	48	-	-	50	49	-----	-----	52	50	53	51	58	57	71	63	76	66	72	64	59	50
31	51	50	-----	-----	-	-	51	49	-----	-----	53	51	-----	-----	57	56	-----	-----	75	64	70	63	-----	-----
Avg	-	-	-	-	-	-	-	-	50	49	48	47	52	49	54	52	69	64	76	65	74	65	63	56

11-4757. Tenmile Creek near Laytonville, Calif.

**Location.**--Lat 39°45'45", long 123°32'30", in NW¼ sec.16, T.22 N., R.15 W., on right bank 0.1 mile downstream from Step Gulch Creek and 6.0 miles northwest of Laytonville.

**Drainage area.**--50.3 sq mi (revised).

**Records available.**--October 1957 to September 1961.

**Gage.**--Water-stage recorder. Altitude of gage is 1,450 ft (from topographic map).

**Extremes.**--Maximum discharge during year, 5,780 cfs Jan. 31 (gage height, 12.88 ft); no flow for part of each day Sept. 8, 9.  
 1957-61: Maximum discharge, 12,200 cfs Feb. 8, 1960 (gage height, 19.14 ft, from floodmarks), from rating curve extended above 4,300 cfs on basis of slope-area measurement at gage height 22.9 ft; no flow at times in each year except 1960.  
 Flood of Dec. 22, 1955, reached a stage of 22.9 ft, from floodmarks (discharge 16,300 cfs by slope-area measurement of peak flow).

**Remarks.**--Records good. No regulation or diversion.

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

2.1	0.1	2.7	9.5	5.0	318
2.2	.4	2.9	18	6.0	625
2.3	1.0	3.1	32	7.0	1,000
2.4	2.2	3.5	70	8.0	1,510
2.5	3.9	4.0	126	9.0	2,140
2.6	6.4	4.5	198	10.0	2,950

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.5	2.9	1520	53	607	72	159	127	27	6.7	1.4	0.7
2	.4	2.9	529	50	1080	*68	139	94	26	6.4	1.3	.6
3	.5	2.9	214	47	500	63	122	77	24	5.8	1.3	.6
4	.6	2.9	132	45	346	59	109	67	23	6.4	1.2	.5
5	.9	2.7	93	44	247	158	97	63	23	7.9	1.1	*.5
6	3.1	3.1	70	43	214	343	*88	79	22	6.7	1.1	.4
7	*4.6	3.5	58	47	165	155	79	69	21	6.4	.9	.3
8	4.1	3.7	51	52	291	538	72	58	20	5.6	.9	.1
9	3.3	3.7	44	53	1780	548	66	77	19	5.3	.9	.2
10	2.6	3.7	61	47	1010	479	61	202	18	4.8	*.7	.4
11	2.4	5.6	54	42	2150	688	56	413	17	4.3	.7	.3
12	2.6	10	43	40	820	398	61	198	17	4.1	.7	.3
13	2.6	37	38	38	972	312	54	147	16	3.9	.7	.6
14	2.6	25	35	36	720	742	49	121	15	3.7	.8	.6
15	2.4	15	199	35	772	1220	46	102	14	3.7	.8	.5
16	2.3	10	1140	34	516	867	44	*89	14	3.7	.9	.9
17	2.2	9.5	2350	33	404	1020	40	78	13	3.5	.9	1.7
18	2.2	*49	809	31	307	555	41	67	13	3.1	.6	1.7
19	2.2	16	488	30	231	682	39	60	12	2.9	.6	1.6
20	2.3	11	312	30	185	497	39	57	12	2.7	.5	2.2
21	2.3	14	212	29	159	380	119	53	10	2.7	.5	1.2
22	2.4	11	*161	29	139	498	272	48	11	2.6	.5	.9
23	2.4	135	131	64	124	479	326	46	10	2.3	.5	1.4
24	2.7	520	109	46	112	564	141	42	9.5	1.9	.5	1.2
25	3.1	858	93	*49	102	479	110	39	9.2	1.6	.5	1.1
26	3.3	247	82	121	91	671	88	43	7.6	2.0	.7	1.2
27	3.3	101	74	82	83	510	75	38	7.0	1.5	1.4	1.0
28	3.3	61	68	63	77	383	67	35	7.0	1.4	2.0	.7
29	3.1	50	62	1040	—	298	88	32	*7.3	1.7	1.4	.7
30	2.9	284	59	765	—	227	75	31	7.0	1.7	1.1	.9
31	2.9	—	56	2560	—	184	—	30	—	1.6	.9	—
Total	76.1	2501.1	934.7	3678	14204	14137	2822	2682	451.6	117.7	28.0	25.0
Mean	2.45	83.4	302	183	507	456	94.1	86.5	15.1	3.80	0.90	0.83
Max.	4.6	858	2,350	2,560	2,150	1,220	326	413	27	7.0	2.0	2.2
Min.	0.4	2.7	35	29	77	59	39	30	7.0	1.4	0.5	0.1
Ac-ft	151	4,960	18,540	11,260	28,170	28,040	5,600	5,320	896	233	56	50

Calendar year 1960:

Max 5,000

Min 0.4

Mean 121

Acres-feet 87,530

Water year 1960-61:

Max 2,560

Min 0.1

Mean 143

Acres-feet 103,300

Peak discharge (base, 5,000 cfs)--Jan. 31 (7 a.m.) 5,780 cfs (12.88 ft).

\* Discharge measurement made on this day.

## EEL RIVER BASIN

11-4765. South Fork Eel River near Miranda, Calif.

Location.--Lat 40°10'55", long 123°46'30", in NW¼ sec.30, T.3 S., R. 4 E., on right bank at Sylvandale Campgrounds on U. S. Highway 101, 0.5 mile upstream from Rocky Glen Creek, 4.3 miles southeast of Miranda, and 20 miles upstream from mouth.

Drainage area.--537 sq mi.

Records available.--October 1939 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder with thermograph attachment. Datum of gage is 217.29 ft above mean sea level (levels by California Division of Highways). Prior to Nov. 2, 1940, staff gage at site 200 ft upstream at datum 0.8 ft higher. Nov. 2, 1940, to Oct. 31, 1944, staff gage at present site and datum.

Average discharge.--22 years, 1,854 cfs (1,342,000 acre-ft per year).

Extremes.--Maximum discharge during year, 34,100 cfs Dec. 17 (gage height, 17.92 ft); minimum, 43 cfs Oct. 1.

1940-61: Maximum discharge, 173,000 cfs Dec. 22, 1955 (gage height, 42.7 ft, from floodmarks), from rating curve extended above 52,000 cfs on basis of slope-area measurement of peak flow; minimum observed, 9 cfs Oct. 17, 1944.

Remarks.--Records good. No diversion. Occasional storage and release for recreation use during summer months at Benbow Dam.

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

Oct. 1 to Dec. 16

Dec. 17 to Sept. 30

1.9	35	4.0	1,300	2.8	45	4.0	900
2.0	50	6.0	4,000	2.9	70	5.0	2,060
2.3	125	8.0	7,200	3.1	140	8.0	6,900
2.8	290	11.0	13,600	3.3	260	12.0	16,300
3.3	590			3.6	500	17.0	31,000

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	43	58	*10,000	860	11,600	1,060	2,370	1,220	590	194	94	68
2	44	55	10,400	790	*9,890	1,020	2,070	1,390	560	188	94	68
3	46	55	5,250	*730	7,270	950	1,850	1,170	530	182	91	65
4	*47	55	3,230	*690	4,970	890	1,670	1,060	510	182	88	63
5	55	55	2,460	640	3,710	990	1,540	*1,000	484	176	91	63
6	75	55	1,880	600	2,970	1,820	1,400	1,140	484	176	91	60
7	93	58	1,500	580	2,440	1,910	1,300	1,210	476	176	88	60
8	90	58	1,290	630	2,240	2,270	1,190	1,100	452	170	82	58
9	88	75	1,160	600	11,000	3,740	1,110	1,200	428	170	79	58
10	80	63	1,180	580	12,700	4,650	1,060	2,060	404	164	76	58
11	75	68	1,150	530	28,200	5,280	1,000	4,040	396	158	73	58
12	70	83	940	500	14,900	4,320	990	3,530	*380	158	73	58
13	68	200	860	460	12,500	3,500	950	2,750	372	152	73	58
14	68	325	840	428	12,100	4,280	870	2,240	356	146	70	58
15	65	290	1,020	404	11,600	12,100	820	1,910	340	146	73	58
16	63	222	3,840	388	8,820	9,940	780	1,680	324	146	76	65
17	60	188	27,500	364	6,400	12,200	740	1,500	308	146	70	82
18	60	665	18,300	332	4,830	8,770	720	1,340	292	140	70	248
19	60	513	9,550	308	3,800	7,640	690	1,200	292	136	68	88
20	60	286	6,000	292	3,030	7,100	660	1,120	284	132	65	65
21	60	250	4,140	276	2,540	5,330	1,210	1,060	268	76	65	60
22	60	236	3,180	254	2,160	*5,170	2,540	990	260	91	65	60
23	60	612	2,550	372	1,870	5,480	3,170	930	248	116	65	60
24	60	5,660	2,130	412	1,660	5,300	2,330	870	242	82	65	58
25	63	12,500	1,800	364	1,510	5,860	1,840	820	236	79	65	55
26	65	5,320	1,620	396	1,360	5,860	1,560	820	230	73	68	55
27	65	2,500	1,440	550	1,240	5,640	1,360	780	218	82	76	55
28	68	1,550	1,240	484	1,140	4,640	1,180	720	212	100	79	53
29	65	*1,150	1,110	3,190	—	3,880	1,190	680	*206	97	*76	53
30	63	1,480	1,020	7,100	—	3,230	1,190	670	206	94	73	50
31	58	—	930	25,200	—	2,730	—	630	—	94	70	—
Total	1,997	34,685	129,510	49,304	188,450	147,550	41,350	42,830	10,588	4,222	2,352	2,018
Mean	64.4	1,156	4,178	1,590	6,730	4,760	1,378	1,382	353	136	75.9	67.3
Max.	93	12,500	27,500	25,200	28,200	12,200	3,170	4,040	590	194	94	248
Min.	43	55	840	254	1,140	890	660	630	206	73	65	50
Ac-ft	3,960	68,800	256,900	97,790	373,800	292,700	82,020	84,950	21,000	8,370	4,670	4,000

Calendar year 1960:

Max 85,200

Min 38

Mean 2,007

Acre-feet 1,457,000

Water year 1960-61:

Max 28,200

Min 43

Mean 1,794

Acre-feet 1,299,000

Peak discharge (base, 28,000 cfs)

\* Discharge measurement made on this day.

Note.--No gage-height record Oct. 5, 6, Dec. 4-27.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-17	3p.m.	17.92	34,100	2-11	9a.m.	17.91	34,100
1-31	2p.m.	17.59	33,000				

11-4765. South Fork Kel River near Miranda, Calif.--Continued.

Temperature (°F) of water, water year October 1960 to September 1961

Day	Oct.		Nov.		Dec.		Jan.		Feb.		Mar.		Apr.		May		June		July		Aug.		Sept.	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1			-	-	52	52	46	40	52	50	51	48	58	50	61	49	69	62	77	62	79	63	73	67
2			-	-	54	52	44	39	55	52	52	48	60	52	60	55	69	63	78	64	79	63	72	59
3			-	-	53	50	42	38	55	51	48	44	62	56	59	54	72	62	78	64	81	64	76	57
4			55	45	51	46	41	37	56	51	52	44	64	56	60	52	70	64	70	66	77	65	77	59
5			52	42	50	46	40	37	53	50	51	48	62	52	57	55	66	63	73	60	76	66	74	60
6			47	44	49	44	44	38	53	50	49	47	60	52	56	54	62	61	75	61	84	63	70	59
7			-	-	48	41	41	39	50	47	50	46	62	51	61	52	64	56	78	60	86	70	65	58
8			-	-	47	42	44	41	50	48	48	47	62	51	62	53	67	59	84	62	88	72	68	54
9			54	49	48	42	46	43	52	50	47	46	60	54	59	56	68	60	88	65	85	67	72	54
10			54	48	46	47	49	46	52	52	49	46	60	52	56	52	68	60	92	68	85	66	70	56
11			54	48	50	46	48	45	52	49	50	47	64	53	53	51	68	61	91	70	78	72	69	56
12			48	47	48	46	49	47	49	48	50	48	60	53	56	52	72	62	87	70	84	66	66	57
13			47	46	47	46	49	47	50	48	53	49	57	51	59	53	73	60	84	72	79	68	66	59
14			49	46	48	47	-	-	52	50	52	50	62	52	60	53	83	62	84	75	77	67	67	57
15			48	46	48	48	-	-	51	49	49	47	64	53	63	56	89	68	83	69	77	65	67	61
16			51	47	51	48	-	-	50	46	48	47	63	56	62	56	89	70	82	69	79	63	67	61
17			52	51	52	51	-	-	48	46	49	46	59	56	69	57	81	70	86	65	80	63	64	60
18			57	48	52	52	-	-	50	44	53	47	56	51	70	58	79	68	89	69	80	62	66	57
19			49	46	55	52	-	-	51	44	50	48	58	48	63	56	80	66	84	67	78	60	72	59
20			48	46	52	51	-	-	54	47	52	47	53	52	60	55	75	66	78	66	84	65	67	59
21			52	46	53	50	-	-	53	50	53	47	52	46	62	56	81	64	78	66	78	68	64	56
22			46	44	50	48	-	-	52	48	51	49	46	44	60	56	84	67	76	66	77	65	67	55
23			48	46	50	48	-	-	51	45	53	50	50	44	64	55	84	69	77	63	75	64	67	54
24			52	48	49	48	-	-	49	48	52	48	53	44	66	54	87	68	82	62	75	60	69	54
25			53	50	49	48	50	50	51	46	50	47	56	48	63	56	87	69	83	64	74	62	71	55
26			50	49	52	49	50	49	51	44	49	48	58	51	63	58	81	69	81	63	65	62	70	56
27			52	47	50	46	51	49	49	46	52	48	61	50	64	55	78	68	79	64	74	64	73	57
28			49	46	49	42	53	50	53	46	52	48	62	53	65	58	75	67	77	61	78	64	66	57
29			50	48	48	42	51	51	-	-	57	46	59	56	61	60	75	64	77	61	74	61	63	53
30			52	49	47	41	51	50	----	----	56	48	61	56	63	58	77	61	77	63	74	62	65	51
31			----	----	46	42	55	50	----	----	56	50	----	----	70	59	----	----	79	63	76	61	----	----
Avg			-	-	50	47	-	-	52	48	51	47	59	51	62	55	76	64	81	65	79	65	69	57

## EEL RIVER BASIN

11-4766. Bull Creek near Weott, Calif.

Location.--Lat 40°21'05", long 124°00'10", in NW<sup>1</sup>/<sub>4</sub> sec.30, T.1 S., R.1 E., on right bank 0.2 mile downstream from Albee Creek, 4.5 miles northwest of Weott, and 4.6 miles upstream from mouth.

Drainage area.--28.1 sq mi.

Records available.--October 1960 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 270 ft (from topographic map).

Extremes.--Maximum discharge during year, 3,400 cfs Feb. 10 (gage height, 16.88 ft); minimum not determined.

Remarks.--Records fair. Some regulation at low flow by log pond above station. Minor diversions above station for domestic use.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		a 3.5	346	80	684	97	162	108	43	14	6.1	4.0
2		a 3.5	313	71	492	91	144	98	41	14	5.8	4.4
3		a 3.5	256	66	380	84	132	94	39	13	5.8	4.0
4		3.5	243	* 62	221	79	116	* 88	37	13	5.8	3.7
5	a 4.5	3.4	178	59	120	112	98	92	36	13	6.5	3.4
6		3.5	149	58	87	135	95	100	36	12	5.8	3.1
7		3.5	131	60	72	114	87	88	34	12	5.8	3.1
8		* 3.5	113	58	96	164	79	81	* 31	11	5.1	4.0
9		3.5	97	* 59	866	248	73	114	30	11	5.1	3.1
10		3.5	120	55	2,050	272	67	211	29	9.5	4.7	3.1
11		4.8	96	56	* 2,140	367	63	249	29	8.5	5.1	2.8
12		8.8	85	55	754	273	66	221	28	7.5	5.4	2.8
13		46	* 80	55	802	235	57	201	26	8.0	5.1	2.8
14		22	76	a 54	700	412	53	181	26	9.0	4.7	3.1
15		17	157	a 52	718	665	51	162	24	9.0	4.4	3.4
16		13	537	a 50	650	635	48	146	23	9.0	4.7	7.2
17		39	1,410	a 48	590	675	47	132	22	8.5	4.7	5.1
18		66	944	a 46	546	560	48	118	22	8.0	4.4	4.0
19		34	642	a 44	478	530	44	105	21	7.5	4.0	4.0
20	a 4.0	30	504	a 42	374	430	45	97	20	8.0	4.0	3.4
21		31	380	a 40	273	* 360	125	88	19	8.0	3.7	3.4
22		25	340	a 40	208	339	139	80	18	8.0	3.7	3.1
23		125	248	a 45	175	312	142	74	17	8.0	3.7	3.4
24		404	186	a 60	154	303	116	69	17	7.5	3.7	3.4
25		669	156	a 55	137	300	103	64	17	7.2	3.7	3.4
26		259	136	a 65	123	297	95	64	16	7.2	4.7	3.1
27		167	121	a 60	113	282	88	57	16	6.5	5.8	2.8
28		* 125	110	a 75	103	258	80	53	15	6.8	* 4.7	2.8
29		108	100	181	—	235	108	52	15	6.8	4.7	3.1
30		228	92	465	—	208	95	48	* 15	6.8	4.0	3.1
31		—	85	* 1,390	—	184	—	45	—	6.5	4.0	—
Total	129.0	2,456.5	8,431	3,606	14,106	9,256	2,666	3,380	762	284.8	149.4	106.1
Mean	4.16	81.9	272	116	504	299	88.9	109	25.4	9.19	4.82	3.54
Max.	—	669	1,410	1,390	2,140	675	162	249	43	14	6.5	7.2
Min.	—	3.4	76	40	72	79	44	45	15	6.5	3.7	2.8
Ac-ft	256	4,870	16,720	7,150	27,980	18,360	5,290	6,700	1,510	565	296	210

Calendar year 1960:

Max -

Min -

Mean

Acre-feet -

Water year 1960-61:

Max 2,140

Min -

Mean 124

Acre-feet 89,910

Peak discharge (base, 1,000 cfs)

\* Discharge measurement made on this day.  
a No gage-height record.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-25	7a.m.	15.42	1,000	1-31	4a.m.	16.23	2,250
12-16	10p.m.	15.86	1,630	2-10	6p.m.	16.88	3,400



## EEL RIVER BASIN

379

11-4767. Larabee Creek near Holmes, Calif.

Location.--Lat 40°24'30", long 123°54'00", in SW $\frac{1}{4}$  sec.1, T.1 S., R.2 E., on left bank 50 ft downstream from Balcom Creek, 2.8 miles upstream from mouth and 2.8 miles east of Holmes.

Drainage area.--84.1 sq mi.

Records available.--July 1959 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 160 ft (from topographic map).

Extremes.--Maximum discharge during year, 7,980 cfs Feb. 10 (gage-height, 11.38 ft); minimum, 7.6 cfs on Sept. 29, 30.  
1959-61: Maximum discharge, 10,000 cfs Feb. 8, 1960 (gage height, 12.40 ft), from rating curve extended above 5,000 cfs; minimum, 5.7 cfs Sept. 11-13, 1959.

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

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	9.2	10	1,710	105	1,040	81	340	282	89	32	16	10
2	9.2	9.9	1,210	98	*1,110	83	294	249	85	31	16	9.8
3	*9.2	9.9	605	93	635	72	267	213	80	31	15	9.8
4	9.2	9.5	420	*86	428	67	243	201	77	30	15	9.2
5	10	9.2	296	85	304	185	216	*175	74	29	16	8.6
6	22	9.5	228	81	264	480	195	424	82	28	16	8.6
7	18	9.9	188	85	204	348	178	388	80	28	15	8.6
8	17	9.9	158	88	204	594	165	285	74	27	14	8.0
9	13	10	139	88	1,580	697	153	365	68	26	13	8.0
10	11	10	183	91	3,080	660	143	821	65	25	13	8.0
11	11	16	183	83	*4,860	778	133	1,220	64	24	13	8.0
12	10	21	139	88	1,810	515	148	705	*59	23	13	8.0
13	10	65	125	80	1,650	484	130	495	55	22	13	8.0
14	10	*61	113	77	*1,500	1,250	117	404	52	22	13	8.0
15	10	54	155	74	1,440	2,060	109	328	49	20	13	9.2
16	10	57	1,160	72	892	1,370	105	281	46	20	12	18
17	9.9	52	3,720	69	610	1,760	100	245	44	20	12	13
18	9.9	335	1,920	67	440	1,010	104	209	42	19	12	11
19	9.9	93	1,250	64	332	1,020	98	188	41	19	12	10
20	9.9	57	718	62	270	736	93	168	41	19	11	9.8
21	9.9	68	492	61	222	530	412	156	41	19	11	9.2
22	9.9	49	352	60	186	*844	626	144	39	19	10	9.2
23	9.9	180	291	102	155	844	670	136	37	19	10	9.2
24	9.9	1,060	243	85	133	1,050	525	124	36	18	10	8.6
25	9.9	2,560	204	77	128	1,430	464	116	35	18	10	8.0
26	12	699	180	85	105	1,270	384	116	33	17	12	8.0
27	12	364	163	93	95	1,010	304	107	34	17	15	8.0
28	11	*230	145	81	85	772	255	103	33	16	13	8.0
29	11	183	130	675	-----	605	288	100	*33	16	10	8.0
30	11	317	122	1,330	-----	480	252	101	32	16	*10	8.0
31	10	-----	113	3,840	-----	400	-----	95	-----	16	10	-----
TOTAL	344.9	6,618.8	17,055	8,125	23,762	23,485	7,511	8,944	1,620	686	394	275.8
MEAN	11.1	221	550	262	849	758	250	289	54.0	22.1	12.7	9.19
MAX	22	2,560	3,720	3,840	4,860	2,060	670	1,220	89	32	16	18
MIN	9.2	9.2	113	60	85	67	93	95	32	16	10	8.0
AC-FT	684	13,130	33,830	16,120	47,130	46,580	14,900	17,740	3,210	1,360	781	547

CALENDAR YEAR 1960: MAX 5,820 MIN 9.2 MEAN 281 AC-FT 204,200  
WATER YEAR 1960-61: MAX 4,860 MIN 8.0 MEAN 271 AC-FT 196,000

Peak discharge (base, 3,000 cfs)

\* Discharge measurement made on this day.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-25	7a.m.	9.31	4,630	2-10	11p.m.	11.38	7,980
12-17	5a.m.	9.85	5,360	3-14	7p.m.	8.42	3,340
1-31	6a.m.	11.06	7,410				

## EEL RIVER BASIN

11-4770. Eel River at Scotia, Calif.

Location.--Lat 40°29'30", long 124°05'55", in SW¼ sec.5, T.1 N., R.1 E., near center of span in left pier of bridge on U. S. Highway 101, 0.5 mile north of Scotia and 6 miles upstream from Van Duzen River.

Drainage area.--3,113 sq mi.

Records available.--October 1910 to September 1961. Monthly discharge only for some periods and yearly estimates for 1915-16, published in WSP 1315-B.

Gage.--Water-stage recorder with thermograph attachment. Datum of gage is 36.15 ft above mean sea level, datum of 1929. Prior to September 1934, staff gage at same site and datum. September 1934 to Dec. 12, 1940, wire-weight gage at same site and datum.

Average discharge.--51 years, 6,997 cfs (5,066,000 acre-ft per year).

Extremes.--Maximum discharge during year, 113,000 cfs Feb. 11 (gage height, 31.45 ft); minimum, 90 cfs Oct. 3.

1910-61: Maximum discharge, 541,000 cfs Dec. 22, 1955 (gage height, 61.90 ft), from rating curve extended above 200,000 cfs; minimum observed, 10 cfs Aug. 12-14, 1924.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Flow slightly regulated by Lake Pillsbury (see p. 357) and by diversion through Potter Valley powerhouse (see p. 359).

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

Oct. 1 to Nov. 14		Nov. 15 to May 12		May 13 to Sept. 30	
8.5	90	9.5	1,000	8.3	80
8.6	140	10.0	1,750	8.6	245
8.7	210	12.0	5,900	9.0	610
9.0	450	14.0	11,800	10.0	2,090
9.5	950	16.0	19,500	12.0	5,630
		20.0	41,200	14.0	11,400
		25.0	69,900		
		29.0	95,000		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	100	147	a37,700	3,190	*62,700	*5,370	11,100	*6,820	*2,760	769	252	163
2	100	147	a58,500	2,890	39,100	5,000	9,550	6,900	2,620	743	245	152
3	*95	140	a23,600	*2,490	41,000	4,710	*10,300	6,350	2,590	718	239	158
4	95	140	13,100	2,330	24,400	4,260	10,400	5,570	2,570	706	233	152
5	100	140	8,550	2,210	16,800	4,540	9,740	5,110	2,710	670	233	146
6	147	135	6,400	2,090	13,100	6,900	8,750	5,220	2,600	634	227	141
7	196	135	5,170	1,990	10,900	10,000	7,510	5,750	2,460	610	227	130
8	203	135	4,320	2,050	9,280	8,770	6,710	5,500	2,380	599	221	130
9	196	135	3,790	2,070	25,400	15,400	6,000	5,280	2,220	588	227	130
10	182	140	3,550	2,110	54,500	19,300	5,550	6,900	2,090	577	227	130
11	175	154	3,770	2,050	94,800	19,300	5,150	13,300	1,980	555	221	130
12	168	196	3,410	1,970	73,000	19,000	4,880	15,700	1,910	511	221	125
13	175	354	2,850	1,790	46,800	14,700	4,750	11,400	1,800	480	239	125
14	175	640	2,450	1,640	46,200	14,200	a4,600	9,340	1,750	450	227	120
15	168	1,700	2,510	1,550	42,200	44,200	a4,500	7,880	1,660	420	209	120
16	161	1,320	7,450	1,470	38,600	45,300	a4,300	6,920	1,580	400	203	130
17	154	1,010	a67,800	1,410	27,700	50,300	a4,100	6,110	1,450	392	197	152
18	147	*1,620	a71,200	1,360	20,800	43,800	a4,000	5,520	1,350	383	191	158
19	140	3,310	a45,000	1,300	16,300	31,300	a3,950	5,120	1,290	366	191	252
20	140	2,350	a25,800	1,250	13,500	33,000	a3,900	4,780	1,230	349	185	252
21	140	1,440	a15,700	1,200	11,400	24,300	a4,600	4,540	1,170	340	180	174
22	140	1,130	11,700	1,160	9,900	20,500	7,570	4,250	1,130	324	168	142
23	140	1,290	9,260	1,290	8,780	23,700	11,400	4,010	1,070	287	158	130
24	140	9,930	7,650	1,490	7,850	21,400	11,800	3,720	1,000	294	152	130
25	140	31,300	6,550	1,710	7,210	25,400	8,280	3,500	972	294	146	130
26	147	26,500	5,720	1,680	6,260	23,300	7,360	3,330	916	266	152	126
27	154	a11,500	5,130	2,850	5,750	23,800	6,650	3,230	860	259	174	126
28	161	a6,850	4,600	3,910	5,320	19,600	6,050	3,080	834	245	180	126
29	154	4,600	4,150	5,330	—	15,400	5,950	2,850	782	259	180	120
30	154	4,450	3,750	23,800	—	13,400	6,570	2,790	*756	266	*174	120
31	147	—	3,390	68,700	—	11,800	—	2,780	—	*259	168	—
Total	4,634	113,038	474,520	152,330	779,550	621,950	205,970	183,550	50,490	14,013	6,247	4,320
Mean	149	3,768	15,310	4,914	27,840	20,060	6,866	5,921	1,683	452	202	144
Max.	203	31,300	71,200	68,700	94,800	50,300	11,800	15,700	2,760	769	252	252
Min.	95	135	2,450	1,160	5,320	4,260	3,900	2,780	756	245	146	120
Ac-ft	9,190	224,200	941,200	302,100	1,546,000	1,234,000	408,500	364,100	100,100	27,790	12,390	8,570

Calendar year 1960: Max 261,000 Min 95 Mean 7,799 Acre-feet 5,662,000  
 Water year 1960-61: Max 94,800 Min 95 Mean 7,152 Acre-feet 5,178,000

Peak discharge (base, 72,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12- 1	†11p.m.	-	90,000	1-31	10p.m.	29.42	97,900
12-17	†9p.m.	-	94,400	2-11	7p.m.	31.45	113,000

\* Discharge measurement made on this day.  
 a No gage-height record.

† About.

11-4770. Eel River at Scotia, Calif.--Continued.

Day	Temperature (°F) of water, water year October 1960 to September 1961																							
	Oct.		Nov.		Dec.		Jan.		Feb.		Mar.		Apr.		May		June		July		Aug.		Sept.	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1			-	-	47	47	44	44	52	51	50	50	53	52	58	58	62	60	67	66	69	67	71	69
2			-	-	47	47	44	43	52	52	50	50	54	53	58	58	62	62	67	66	69	67	68	66
3			-	-	47	47	43	42	52	52	50	50	55	54	58	56	62	62	67	67	69	67	69	65
4			-	-	47	47	44	44	52	52	50	50	56	55	56	55	62	62	67	66	68	67	70	66
5			-	-	47	47	44	44	52	52	50	50	56	56	55	55	65	62	66	66	68	67	69	66
6			-	-	47	46	44	44	52	52	50	50	56	56	55	55	65	65	69	66	70	66	67	66
7			-	-	46	44	44	44	52	51	50	50	56	56	55	54	65	62	70	66	72	68	67	66
8			-	-	44	44	44	44	51	51	50	50	56	56	55	54	62	61	71	68	71	68	66	63
9			-	-	44	44	47	44	51	51	50	50	56	56	55	55	61	61	72	69	70	68	67	63
10			52	52	44	44	48	44	51	51	50	50	56	56	55	55	61	61	73	70	70	68	67	65
11			54	52	44	43	47	47	51	50	50	50	56	56	55	53	64	61	74	71	69	66	66	65
12			54	53	43	43	47	46	50	50	50	50	56	56	53	52	67	64	74	72	68	65	66	65
13			53	52	43	43	48	48	50	50	50	50	56	56	52	51	68	66	74	72	66	69	65	65
14			52	52	43	43	49	48	50	50	50	50	56	56	53	52	72	68	72	71	69	68	65	63
15			52	52	43	43	50	49	50	50	50	50	56	56	55	53	73	71	72	70	69	67	63	63
16			52	52	43	44	50	50	50	50	50	50	56	56	55	55	75	73	72	70	69	67	66	63
17			52	52	44	45	50	50	50	50	50	50	56	56	57	55	75	74	72	69	70	66	66	65
18			52	52	45	47	50	50	50	49	50	50	56	56	60	57	75	73	72	70	70	66	67	65
19			52	51	47	47	50	50	49	49	50	50	56	56	60	60	73	70	72	70	70	66	67	65
20			52	51	47	47	50	49	49	49	50	50	56	56	60	60	70	68	71	69	71	67	67	66
21			51	51	47	47	49	48	50	49	50	50	56	52	60	59	69	67	69	67	70	68	65	64
22			51	50	47	47	49	48	50	50	50	50	52	50	59	59	70	69	68	67	70	68	65	63
23			50	50	47	47	50	49	50	50	50	50	49	49	58	58	69	69	68	65	69	65	64	62
24			50	50	47	46	51	50	50	50	50	49	49	59	58	71	69	70	67	68	65	66	62	
25			50	50	46	46	51	51	50	50	50	50	49	60	59	71	70	70	67	69	66	65	63	
26			50	50	46	46	51	51	50	50	50	50	53	50	60	60	70	69	70	68	68	66	67	64
27			50	49	46	46	51	51	50	50	50	49	56	53	60	59	69	69	70	68	68	65	66	64
28			49	48	46	46	51	51	50	50	49	49	57	56	59	59	69	66	70	68	69	66	65	64
29			48	48	46	44	51	51	-	-	50	49	58	57	59	58	68	66	71	68	68	66	64	62
30			48	47	44	44	51	51	---	---	50	50	58	58	58	58	67	66	70	69	70	68	62	57
31			---	---	44	44	52	51	---	---	52	50	---	---	60	58	---	---	70	68	71	68	---	---
Avg			-	-	45	45	48	48	51	50	50	50	55	54	57	56	68	66	70	68	69	67	66	64

## EEL RIVER BASIN

11-4777. South Fork Van Duzen River near Bridgeville, Calif.

Location.--Lat 40°26'40", long 123°39'15", in SE $\frac{1}{4}$  sec.19, T.1 N., R.5 E., on right bank 0.2 mile upstream from Butte Creek, 3 miles upstream from mouth, and 7.8 miles east of Bridgeville.

Drainage area.--36.2 sq mi.

Records available.--Occasional low-flow measurements, water years 1951-58 and annual maximum, water years 1954-57. September 1958 to September 1961.

Gage.--Water-stage recorder with thermograph attachment and crest-stage gage. Altitude of gage is 2,350 ft (from topographic map). Sept. 25, 1953, to Aug. 31, 1957, crest-stage gage only, at site 0.1 mile upstream at different datum.

Extremes.--Maximum discharge during year, 3,500 cfs Feb. 10 (gage height, 10.55 ft); minimum, 2.9 cfs Oct. 1-3.

1953-57, 1958-61: Maximum discharge, 8,990 cfs Dec. 22, 1955 (gage height, 11.91 ft, from floodmarks, site and datum then in use), on basis of slope-area measurement of peak flow.

1958-61: Minimum discharge, 2.8 cfs Sept. 30, 1960.

Remarks.--Records good. No storage or large diversion above station.

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

Oct. 1 to Nov. 24				Nov. 25 to Sept. 30			
2.1	1.5	3.8	88	2.2	3.0	4.5	179
2.2	3.0	4.4	156	2.4	7.0	5.0	275
2.4	7.0	5.0	265	2.7	16	6.0	560
2.8	20	6.0	550	3.0	30	7.0	960
3.2	42	7.0	960	3.5	64	9.0	2,200
				4.0	111	10.0	3,000

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	2.9	5.2	1,130	61	562	111	255	308	64	19	7.8	5.0
2	2.9	5.2	588	57	604	117	271	245	61	18	7.5	5.0
3	2.9	5.2	333	54	425	104	288	205	58	17	7.3	4.8
4	3.2	5.0	229	51	308	97	263	176	56	17	7.3	4.6
5	4.2	5.0	166	49	241	192	223	173	54	17	7.0	4.2
6	10	5.2	129	*46	*215	207	189	313	56	17	6.8	4.0
7	*11	5.6	107	54	179	182	166	267	53	16	6.8	4.6
8	11	5.6	93	55	168	330	146	*215	49	15	6.8	4.6
9	7.6	5.6	82	63	697	333	138	341	46	15	6.6	4.4
10	6.2	5.8	101	62	1,030	305	124	602	44	14	6.6	4.2
11	5.8	11	94	55	1,810	489	118	635	43	13	6.6	4.2
12	5.6	12	80	53	764	386	127	449	41	13	6.6	4.0
13	5.4	29	76	48	744	416	107	350	*38	12	6.6	4.0
14	5.2	31	72	45	832	685	96	293	35	12	6.4	4.0
15	4.8	*32	86	43	960	768	91	249	34	12	6.2	4.4
16	4.6	33	760	41	608	548	91	215	32	11	6.2	7.0
17	4.4	75	2,260	39	*446	576	86	187	30	11	5.8	6.8
18	4.4	176	1,280	37	335	431	86	166	26	10	5.6	6.4
19	4.4	54	716	35	273	642	78	153	26	10	5.4	6.0
20	4.4	36	434	34	235	515	78	138	26	9.8	5.4	5.6
21	4.4	48	310	32	209	395	170	123	26	9.8	5.2	5.4
22	4.6	33	233	32	192	530	152	111	24	9.8	5.2	5.2
23	4.6	224	182	72	168	494	153	104	24	9.8	5.2	5.0
24	5.6	681	149	54	156	512	202	94	23	9.3	5.2	4.8
25	5.6	1,500	127	48	143	*452	241	87	22	9.0	5.2	4.6
26	6.4	374	110	66	128	461	237	88	22	8.8	5.8	4.8
27	6.4	215	96	66	123	413	221	79	*21	8.5	6.4	5.0
28	6.2	156	85	56	113	348	229	74	20	8.3	*6.2	4.6
29	5.8	127	78	319	-----	310	343	71	19	8.3	5.8	4.6
30	5.6	349	72	492	-----	285	283	74	19	8.0	5.4	4.4
31	5.4	-----	66	1,730	-----	261	-----	69	-----	7.8	5.2	-----
TOTAL	171.5	4,249.4	10,324	3,949	12,668	11,895	5,252	6,654	1,092	376.2	192.1	146.2
MEAN	5.53	142	333	127	452	384	175	215	36.4	12.1	6.20	4.87
MAX	11	1,500	2,260	1,730	1,810	768	343	635	64	19	7.8	7.0
MIN	2.9	5.0	66	32	113	97	78	69	19	7.8	5.2	4.0
AC-FT	340	8,430	20,480	7,830	25,130	23,590	10,420	13,200	2,170	746	381	290

CALENDAR YEAR 1960: MAX 4,190 MIN 2.9 MEAN 172 AC-FT 125,200  
 WATER YEAR 1960-61: MAX 2,260 MIN 2.9 MEAN 156 AC-FT 113,000

Peak discharge (base, 2,800 cfs)

\* Discharge measurement made on this day.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-25	4a.m.	10.02	3,020	1-31	6a.m.	10.23	3,210
12-17	4a.m.	10.02	3,020	2-10	12p.m.	10.55	3,500

11-4777. South Fork Van Duzen River near Bridgeville, Calif.--Continued.

Temperature (°F) of water, water year October 1960 to September 1961

Day	Oct.		Nov.		Dec.		Jan.		Feb.		Mar.		Apr.		May		June		July		Aug.		Sept.	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1			-	-	45	45	41	40	45	45	45	43	49	46	51	49	63	56	73	62	75	64	70	66
2			-	-	45	45	40	39	46	45	45	46	51	47	50	47	65	58	73	63	77	65	66	60
3			-	-	45	45	39	39	46	45	43	42	51	47	52	48	63	59	73	64	78	66	68	60
4			-	-	45	45	39	39	45	45	44	42	51	47	53	47	66	58	68	64	78	71	69	61
5			-	-	45	44	39	39	46	45	43	42	50	46	49	49	63	59	64	62	77	70	68	61
6			-	-	44	42	40	39	46	45	42	40	51	46	49	49	62	59	69	59	79	68	66	61
7			-	-	42	42	40	40	44	44	43	40	50	45	52	48	62	56	72	60	78	70	65	59
8			-	-	42	42	41	40	45	44	42	42	51	45	54	49	61	58	74	63	79	70	64	58
9			-	-	42	42	43	41	46	45	42	42	51	47	51	48	65	58	76	65	79	69	64	57
10			-	-	43	42	43	42	46	46	44	42	51	45	48	47	66	59	78	66	78	68	65	58
11			-	-	43	43	42	42	46	44	44	45	53	47	47	46	64	61	80	68	76	70	65	59
12			-	-	43	42	42	42	44	44	44	44	51	48	48	46	67	59	80	69	77	67	63	57
13			-	-	44	43	42	42	44	44	45	44	51	45	49	47	68	61	81	71	76	67	62	57
14			-	-	44	44	42	42	44	44	45	44	52	45	53	49	70	59	78	67	74	66	63	57
15			47	47	44	44	42	42	44	44	45	44	54	47	54	49	72	62	77	66	74	65	64	59
16			48	47	45	44	42	42	44	44	44	44	55	49	55	51	72	63	77	65	73	65	62	60
17			49	48	45	47	42	41	44	43	45	43	52	50	57	50	72	62	77	65	74	64	61	57
18			48	47	47	47	41	40	43	43	46	44	51	47	58	51	72	62	78	66	74	64	62	57
19			47	45	47	47	40	40	43	42	45	44	51	44	57	53	72	62	77	66	72	64	63	58
20			46	44	47	46	41	40	43	42	46	44	48	45	55	53	72	63	75	64	74	65	62	57
21			46	44	46	45	41	40	44	43	47	45	48	42	58	51	74	62	76	65	76	67	61	56
22			45	44	45	45	43	41	45	43	46	46	43	41	56	53	74	65	77	67	73	65	58	53
23			46	45	45	45	45	43	45	44	46	46	48	41	58	52	73	64	77	65	71	63	58	53
24			48	46	45	45	43	43	45	42	46	44	50	44	58	51	76	65	78	67	70	64	58	54
25			48	46	45	45	44	43	45	45	44	41	52	45	59	52	76	67	79	68	70	62	59	54
26			46	46	45	45	44	44	45	43	43	43	52	45	56	53	75	67	78	67	68	62	60	55
27			46	45	45	43	44	44	43	42	44	43	52	45	57	51	72	64	77	66	72	64	60	55
28			45	45	43	42	44	44	43	43	46	42	53	48	60	53	67	63	76	65	72	66	60	55
29			45	45	42	42	44	44	-	-	47	43	51	49	58	54	70	60	76	65	73	66	57	52
30			45	45	42	42	45	44	---	---	48	44	52	48	54	53	71	60	75	64	73	66	56	51
31			---	---	42	41	45	45	---	---	49	45	---	---	60	54	---	---	75	64	72	65	---	---
Avg			-	-	44	44	42	41	45	44	45	43	51	46	54	50	69	61	76	65	75	66	63	57

## EEL RIVER BASIN

11-4785. Van Duzen River near Bridgeville, Calif.

Location.--Lat 40°27'50", long 123°51'25", in E<sup>1</sup>/<sub>2</sub> sec.17, T.1 N., R.3 E., on downstream side of right pier of bridge on State Highway 36, 0.3 mile downstream from Pip Creek, 0.5 mile upstream from Rogers Creek, and 4 miles west of Bridgeville.

Drainage area.--216 sq mi (revised).

Records available.--October 1950 to September 1961.

Gage.--Water-stage recorder with thermograph attachment. Altitude of gage is 400 ft (from topographic map).

Average discharge.--11 years, 919 cfs (665,300 acre-ft per year).

Extremes.--Maximum discharge during year, 19,100 cfs Feb. 11 (gage height, 14.23 ft); minimum, 7.5 cfs Oct. 2, 3.

1950-61: Maximum discharge, 43,500 cfs Dec. 22, 1955 (gage height 21.3 ft, from floodmarks), from rating curve extended above 15,000 cfs on basis of slope-area measurement of peak flow; minimum, 5.0 cfs Sept. 13, 1959.

Remarks.--Records good. No storage or large diversion.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Nov. 25)

Oct. 1 to Nov. 24				Nov. 25 to Sept. 30			
2.2	5.0	3.5	235	2.2	7.6	4.0	515
2.3	10	4.0	440	2.3	13	4.5	840
2.4	17	5.0	1,140	2.5	28	5.0	1,260
2.7	50	6.0	2,100	2.8	71	6.0	2,300
3.0	105	7.0	3,400	3.1	136	9.0	7,000
				3.5	265	12.0	13,300

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.0	16	6,400	286	3,530	498	1,090	1,170	273	65	21	14
2	8.0	16	4,090	261	3,810	545	1,100	1,050	254	63	20	14
3	8.0	16	1,850	238	* 2,360	492	1,130	856	238	60	20	13
4	8.0	15	1,190	224	1,630	452	1,070	757	227	58	19	13
5	9.5	14	848	210	1,250	645	920	699	217	57	20	12
6	23	14	647	200	1,080	1,480	791	1,480	213	57	20	12
7	35	15	545	196	904	1,150	705	1,340	213	54	19	12
8	35	15	498	257	812	1,600	627	* 984	196	52	18	12
9	28	15	419	250	3,950	2,010	575	1,120	181	49	17	12
10	19	15	469	* 316	7,530	1,950	533	2,440	169	47	19	12
11	16	27	527	254	11,900	2,620	486	3,360	163	44	21	11
12	15	41	425	* 254	4,770	2,050	521	2,160	158	41	20	11
13	14	101	378	227	4,070	2,260	486	1,610	147	38	18	11
14	14	* 168	344	210	4,370	3,480	425	1,300	141	37	18	11
15	13	170	373	196	5,330	5,470	388	1,080	* 131	36	18	12
16	13	175	2,490	187	3,210	3,520	378	928	122	35	17	18
17	* 13	189	11,800	175	* 2,300	4,080	373	791	112	33	16	22
18	12	973	6,780	163	1,730	2,750	368	712	105	31	15	19
19	13	344	4,020	158	1,350	3,270	348	647	101	30	14	17
20	14	199	2,140	150	1,120	3,000	325	595	97	29	13	15
21	14	* 196	1,440	144	976	2,060	796	545	94	28	13	14
22	14	170	1,090	141	888	2,460	1,150	492	90	28	13	13
23	14	475	856	235	784	2,500	1,090	463	86	28	13	13
24	14	3,040	712	282	705	2,850	1,210	419	82	27	13	13
25	15	8,240	601	220	686	* 3,010	1,270	383	79	26	13	13
26	18	2,160	533	238	601	2,770	1,190	373	75	24	14	12
27	20	1,110	521	344	563	2,410	1,060	344	73	23	17	12
28	19	731	463	278	539	1,920	992	316	71	22	* 18	12
29	17	557	403	1,270	—	1,560	1,260	299	* 69	22	17	11
30	16	1,050	353	2,980	—	1,360	1,220	321	68	22	15	11
31	16	—	316	11,000	—	1,190	—	294	—	21	15	—
Total	495.5	20,267	53,521	21,544	72,748	67,412	23,877	29,328	4,245	1,187	524	397
Mean	16.0	676	1,726	695	2,598	2,175	796	946	142	38.3	16.9	13.2
Max.	35	8,240	11,800	11,000	11,900	5,470	1,270	3,360	273	65	21	22
Min.	8.0	14	316	141	539	452	325	294	68	21	13	11
Ac-ft	983	40,200	106,200	42,730	144,300	133,700	47,360	58,170	8,420	2,350	1,040	787

Calendar year 1960: Max 20,500 Min 8.0 Mean 837 Acre-feet 607,800  
Water year 1960-61: Max 11,900 Min 8.0 Mean 810 Acre-feet 586,200

Peak discharge (base, 9,100 cfs)

\* Discharge measurement made on this day.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-25	8a.m.	12.32	14,100	1-31	7a.m.	13.58	17,300
12-17	8a.m.	12.68	15,000	2-11	3a.m.	14.23	19,100

11-4785. Van Duzen River near Bridgeville, Calif.--Continued

Temperature (°F) of water, water year October 1960 to September 1961

Day	Oct.		Nov.		Dec.		Jan.		Feb.		Mar.		Apr.		May		June		July		Aug.		Sept.	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1			-	-	-	-	47	47	45	45	46	46	46	46	49	48	63	59	67	64	74	66	71	69
2			-	-	-	-	47	46	46	45	46	46	47	46	49	48	63	63	68	64	74	67	71	64
3			-	-	50	50	46	46	46	46	46	46	48	47	49	48	64	63	69	65	75	67	71	62
4			-	-	50	50	46	45	46	46	46	46	48	48	49	48	64	64	67	65	71	67	73	64
5			-	-	50	50	45	45	46	46	46	46	48	48	50	49	64	64	66	62	69	67	71	65
6			-	-	50	50	45	45	46	46	46	46	48	48	51	50	65	64	69	62	78	66	70	65
7			-	-	50	50	45	45	46	46	45	45	48	48	52	51	65	63	67	64	78	69	69	64
8			-	-	50	49	45	45	46	46	45	45	48	48	52	52	64	63	73	64	78	70	68	62
9			-	-	49	49	45	45	46	46	45	45	48	48	52	52	64	63	75	66	76	68	68	61
10			-	-	49	49	45	45	46	46	45	45	48	48	52	51	64	64	78	68	76	68	69	63
11			-	-	49	49	45	45	46	46	45	45	48	48	51	50	65	64	80	71	76	68	67	63
12			-	-	49	49	45	45	46	46	45	45	48	48	50	50	66	65	80	72	72	68	65	63
13			-	-	49	49	45	45	46	46	45	45	48	48	51	50	67	66	77	71	75	66	64	63
14			-	-	49	49	45	45	46	46	45	45	49	48	52	51	71	67	78	70	74	68	67	62
15			-	-	49	49	45	45	46	46	45	45	49	49	52	52	76	71	76	73	72	68	66	64
16			-	-	49	49	45	45	46	46	45	44	49	49	52	52	76	72	76	73	74	68	68	64
17			-	-	49	48	45	45	46	46	44	44	49	49	53	52	75	70	77	72	73	68	65	62
18			-	-	48	48	45	45	46	46	44	44	49	49	54	53	71	68	77	68	78	66	65	62
19			-	-	48	48	45	45	46	46	44	44	49	48	54	54	70	66	75	68	75	66	68	62
20			-	-	48	48	45	45	46	46	44	44	49	48	54	54	67	64	70	68	76	68	66	62
21			49	49	48	48	45	45	46	46	44	44	48	47	55	54	70	63	68	65	77	69	66	62
22			49	49	48	48	45	45	46	46	44	44	47	46	55	55	70	64	67	65	75	69	66	61
23			-	-	48	48	45	45	46	46	44	44	46	46	55	55	70	65	70	64	75	69	64	59
24			-	-	48	48	45	45	46	46	46	44	46	46	56	55	71	64	73	64	75	67	65	58
25			-	-	48	48	45	45	46	46	46	46	46	46	57	56	70	65	74	64	75	69	65	59
26			-	-	48	48	45	45	46	46	46	46	47	46	57	57	68	65	74	65	70	67	65	59
27			-	-	48	47	45	45	46	46	46	46	48	47	57	56	66	63	73	66	70	69	66	59
28			-	-	47	47	45	45	46	46	46	46	49	48	57	57	65	62	73	65	74	68	65	60
29			-	-	47	47	45	45	-	-	46	46	49	49	58	57	69	61	73	65	72	66	63	59
30			-	-	47	47	45	45	---	---	46	46	49	48	59	58	70	63	74	66	73	66	66	60
31			---	---	47	47	45	45	---	---	46	46	---	---	60	58	---	---	74	66	74	67	---	---
Avg			-	-	-	-	45	45	46	46	45	45	48	48	53	53	68	65	73	67	74	68	67	62

## ELK RIVER BASIN

11-4797. Elk River near Falk, Calif.

Location.--Lat 40°42'10", long 124°09'20", in NW¼ sec.26, T.4 N., R.1 W., on left bank 500 ft downstream from Clapp Gulch, 1,300 ft downstream from confluence of North and South Forks, 2 miles northwest of Falk, and 5 miles south of Eureka.

Drainage area.--44.2 sq mi.

Records available.--October 1957 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 50 ft (from topographic map).

Extremes.--Maximum discharge during year, 2,160 cfs Feb. 11 (gage height, 22.58 ft); minimum, 0.8 cfs Oct. 20, 22, 23. 1957-61: Maximum discharge, 3,220 cfs Feb. 14, 1959 (gage height, 27.62 ft); minimum, 0.5 cfs Aug. 21, 1959.

Remarks.--Records good except those above 400 cfs, which are fair. No storage or large diversion above station.

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

Oct. 1 to Jan. 30

Jan. 31 to Sept. 30

3.3	0.5	4.2	28	3.3	0.6	4.5	47
3.4	1.5	4.5	45	3.4	1.7	5.0	85
3.5	3.1	5.0	78	3.5	3.5	12.0	790
3.6	4.9	6.0	167	3.7	9.0	19.0	1,620
3.7	7.0	9.0	510	4.0	20		
3.9	14	13.0	890				

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	1.1	1.5	329	17	248	46	63	70	25	6.0	2.2	2.1
2	1.1	1.4	616	16	190	83	54	75	23	6.0	2.2	1.9
3	1.3	1.3	194	16	140	73	46	61	22	5.8	2.4	1.7
4	1.3	1.2	96	15	98	63	42	51	21	5.5	2.2	1.7
5	2.0	1.2	65	14	75	67	38	*49	21	5.5	2.8	1.7
6	3.5	1.3	51	*13	71	362	34	211	26	5.3	2.8	1.7
7	3.5	1.4	40	12	69	329	31	249	33	5.0	2.6	1.6
8	3.6	1.4	33	12	30	200	27	119	30	4.8	2.2	1.6
9	2.6	1.4	27	16	245	196	25	153	*26	4.3	2.2	1.6
10	2.1	1.5	27	20	*593	358	24	386	24	4.0	1.9	1.6
11	1.8	5.7	27	19	1,530	341	22	466	22	4.0	2.1	1.6
12	1.5	4.2	22	33	619	253	27	298	20	3.8	2.1	1.7
13	1.3	15	19	28	840	227	26	167	18	3.5	2.1	1.9
14	1.2	25	17	23	692	296	22	107	17	3.8	2.2	1.9
15	1.0	23	18	20	637	824	20	79	16	3.8	2.1	2.1
16	.9	13	39	17	475	525	19	65	14	3.8	2.1	4.3
17	.9	*18	836	16	266	612	19	56	13	3.5	2.1	3.5
18	*.9	84	468	15	173	356	19	48	11	3.3	1.9	3.0
19	.9	33	221	14	120	265	22	42	10	3.1	1.7	2.8
20	.9	18	124	13	92	244	20	39	10	3.0	1.7	2.1
21	.9	17	84	12	75	172	215	35	10	3.3	1.6	1.7
22	.8	16	66	11	66	155	409	33	9.7	3.5	1.7	1.6
23	.9	103	54	14	57	216	303	30	9.0	3.5	1.7	1.6
24	.9	332	45	15	52	387	141	27	8.4	3.3	1.6	1.5
25	1.1	858	37	14	70	680	91	24	7.8	3.1	*1.7	1.4
26	2.1	221	33	14	58	374	71	24	7.5	2.8	1.9	1.4
27	2.3	80	29	14	51	292	55	23	*7.2	2.8	2.2	1.3
28	2.0	53	26	13	46	203	45	21	6.9	2.8	2.2	1.2
29	1.8	40	23	24	-----	*138	53	20	6.6	2.6	2.1	1.0
30	1.7	48	20	103	-----	99	47	30	6.3	2.4	1.9	.9
31	1.5	-----	18	*848	-----	77	-----	28	-----	2.4	1.9	-----
TOTAL	49.4	2,020.5	3,704	1,431	7,678	8,513	2,030	3,086	481.4	120.3	64.1	55.7
MEAN	1.59	67.4	119	46.2	274	275	67.7	99.5	16.0	3.88	2.07	1.86
MAX	3.6	858	836	848	1,530	824	409	466	33	6.0	2.8	4.3
MIN	0.8	1.2	17	11	30	46	19	20	6.3	2.4	1.6	0.9
AC-FT	98	4,010	7,350	2,840	15,230	16,890	4,030	6,120	955	239	127	110

CALENDAR YEAR 1960: MAX 1,830  
WATER YEAR 1960-61: MAX 1,530

MIN 0.8  
MIN 0.8

MEAN 70.4  
MEAN 80.1

AC-FT 51,130  
AC-FT 58,000

Peak discharge (base, 1,100 cfs)

\* Discharge measurement made on this day.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-25	11 a.m.	16.95	1,340	2-11	7 a.m.	22.58	2,160
12-17	9 a.m.	15.75	1,190	2-13	4 p.m.	15.54	1,160
1-31	8 a.m.	16.72	1,310				



## JACOBY CREEK BASIN

387

11-4800. Jacoby Creek near Freshwater, Calif.

Location.--Lat 40°47'30", long 124°00'10", in NW $\frac{1}{4}$  sec.30, T.5 N., R.2 E., on left bank 300 ft downstream from unnamed tributary, 3.7 miles northeast of Freshwater, and 6.5 miles southeast of Arcata.

Drainage area.--6.07 sq mi.

Records available.--December 1954 to September 1961.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 800 ft (from topographic map).

Average discharge.--6 years (1955-61), 15.3 cfs (11,080 acre-ft per year).

Extremes.--Maximum discharge during year, 276 cfs Feb. 11 (gage height, 2.98 ft); minimum, 0.8 cfs Oct. 5, 16-25.  
1954-61: Maximum discharge, 1,670 cfs Dec. 30, 1954 (gage height, 7.20 ft), from rating curve extended above 140 cfs on basis of critical-depth measurement at gage height 6.75 ft; minimum, 0.6 cfs Sept. 24, 1957.

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

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Oct. 19-21)

Oct. 1 to Nov. 25				Nov. 26 to Sept. 30			
0.5	0.7	1.1	4.2	0.8	0.8	1.4	18
.6	.9	1.2	8.0	.9	1.4	1.7	43
.7	1.1	1.4	20	1.0	2.4	2.0	88
.8	1.5	1.7	42	1.1	3.9	3.0	280
.9	2.0	2.0	79	1.2	7.0		
1.0	2.6	2.5	165				

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	0.9	0.9	45	3.6	24	15	17	19	8.7	3.5	1.5	1.2
2	.9	.9	80	3.6	29	25	15	18	8.1	3.3	1.5	1.1
3	.9	.9	27	3.5	23	19	14	15	7.6	3.3	1.4	1.0
4	.9	.9	16	3.3	16	15	13	13	7.0	3.3	1.4	.9
5	1.0	.9	11	3.2	13	16	11	*16	7.0	3.3	1.6	.9
6	1.3	.9	8.1	*3.0	13	48	10	106	14	3.2	1.5	.9
7	1.9	.9	6.4	3.0	13	39	9.8	73	13	3.0	1.3	.9
8	1.5	1.0	5.5	2.9	10	32	8.7	36	11	2.9	1.2	.9
9	1.1	.9	5.1	3.5	16	33	8.1	35	*9.8	2.6	1.2	.9
10	1.0	1.0	5.5	3.6	*57	43	7.6	44	9.2	2.4	1.2	.9
11	1.0	2.6	4.8	5.7	206	48	7.0	67	8.7	2.3	1.2	.9
12	1.0	1.6	4.5	7.6	102	37	11	50	7.0	2.2	1.2	.9
13	.9	3.9	4.2	5.5	93	31	8.7	34	6.4	2.2	1.2	1.0
14	.9	3.7	3.9	4.8	108	42	7.6	25	6.1	2.2	1.2	1.0
15	.9	3.9	3.9	4.2	88	97	6.7	21	5.8	2.1	1.3	1.2
16	.8	3.1	10	3.9	55	68	6.4	17	5.5	2.0	1.2	2.4
17	.8	*7.7	115	3.8	36	93	6.4	16	5.1	2.0	1.2	1.2
18	.8	15	47	3.6	26	51	7.6	14	4.8	1.8	1.1	1.1
19	.8	5.0	24	3.5	20	41	7.6	13	4.8	1.7	1.1	1.1
20	*.8	3.7	16	3.3	16	37	6.7	11	4.8	1.8	1.1	1.0
21	.8	4.2	13	3.2	14	30	38	11	4.5	1.8	1.1	.9
22	.8	3.2	9.8	2.9	13	32	41	9.8	4.2	1.9	1.1	.9
23	.8	23	7.6	3.5	11	49	38	9.2	4.2	1.9	1.1	.9
24	.8	33	6.1	3.3	12	110	26	8.7	3.9	1.8	1.1	.9
25	.8	132	5.8	3.2	19	178	19	7.6	3.9	1.7	*1.1	.9
26	1.3	29	5.5	3.3	14	92	15	11	3.8	1.6	1.2	.9
27	1.0	14	5.1	3.2	13	70	14	9.8	3.6	1.5	1.3	.9
28	.9	8.1	4.5	2.9	11	49	11	8.7	3.6	1.5	1.2	.9
29	.9	6.1	4.2	3.6	-----	*33	13	8.1	3.6	1.5	1.1	.9
30	.9	8.7	3.9	7.0	-----	25	11	11	*3.5	1.6	1.1	.9
31	.9	-----	3.8	*63	-----	20	-----	9.8	-----	1.5	1.0	-----
TOTAL	30.0	320.7	512.2	178.2	1,071	1,518	415.9	747.7	193.2	69.4	38.0	30.4
MEAN	0.97	10.7	16.5	5.75	38.3	49.0	13.9	24.1	6.44	2.24	1.23	1.01
MAX	1.9	132	115	63	206	178	41	106	14	3.5	1.6	2.4
MIN	0.8	0.9	3.8	2.9	10	15	6.4	7.6	3.5	1.5	1.0	0.9
AC-FT	60	636	1,020	353	2,120	3,010	825	1,480	383	138	75	60

CALENDAR YEAR 1960: MAX 330 MIN 0.8 MEAN 12.8 AC-FT 9,330  
WATER YEAR 1960-61: MAX 206 MIN 0.8 MEAN 14.0 AC-FT 10,160

Peak discharge (base, 300 cfs).--No peak above base.

\* Discharge measurement made on this day.

## MAD RIVER BASIN

11-4805. Mad River near Forest Glen, Calif.

Location.--Lat 40°27'30", long 123°30'35", in SW $\frac{1}{4}$  sec.16, T.1 N., R.6 E., on right bank 0.7 mile downstream from Lamb Creek and 7.0 miles northwest of Forest Glen.

Drainage area.--144 sq mi.

Records available.--June 1953 to September 1961.

Gage.--Water-stage recorder with thermograph attachment. Altitude of gage is 2,410 ft (from topographic map). Prior to Dec. 22, 1955, water-stage recorder at site 0.7 mile upstream at different datum. Jan. 13 to June 18, 1956, wire-weight gage at former site at datum 4.17 ft lower than former datum.

Average discharge.--8 years, 369 cfs (267,100 acre-ft per year).

Extremes.--Maximum discharge during year, 4,700 cfs Feb. 11 (gage height, 8.14 ft); minimum, 0.4 cfs Sept. 15.

1953-61: Maximum discharge, 39,200 cfs Dec. 22, 1955 (gage height, 24.5 ft, from floodmarks, present datum), from rating curve extended above 8,100 cfs on basis of slope-area measurement of peak flow; minimum, that of Sept. 15, 1961.

Remarks.--Records good except those for period of shifting control, which are fair. Flow regulated by Ruth Reservoir beginning in July 1961 (capacity, 42,000 acre-ft). No diversion.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.9	3.0	2 650	91	1 630	240	602	425	123	22	5.8	3.5
2	1.9	3.0	*1 560	84	1 850	328	560	390	115	21	5.8	4.0
3	3.7	1.9	732	77	1 420	210	536	345	110	21	5.8	4.6
4	3.0	2.6	454	75	926	196	500	305	104	20	5.8	4.6
5	*2.3	3.7	300	71	674	248	455	280	100	19	5.8	4.0
6	5.3	4.4	210	*67	*530	395	405	305	98	19	5.8	4.0
7	4.8	5.3	168	66	425	400	365	315	94	18	5.8	5.8
8	4.4	4.8	140	74	400	596	325	*280	90	16	6.4	4.0
9	2.6	4.8	113	74	*2 050	954	292	330	84	16	10	3.0
10	2.6	4.8	118	79	2 310	926	268	536	80	15	8.4	3.0
11	2.6	6.2	118	75	3 950	1 320	244	898	77	14	6.4	4.0
12	2.6	7.1	99	71	2 320	1 110	244	856	75	13	7.7	3.5
13	2.6	12	89	67	1 820	1 010	228	698	*69	12	8.4	1.5
14	3.0	12	79	64	2 010	1 170	206	572	63	5.2	6.4	.8
15	3.0	12	97	61	2 190	1 810	185	470	61	10	5.2	.6
16	3.4	*11	744	60	*1 720	1 590	173	415	54	12	2.5	1.5
17	3.7	11	3 560	58	1 290	1 760	161	360	50	11	2.2	4.6
18	4.1	37	2 270	57	968	1 540	158	310	46	10	1.9	6.4
19	3.7	22	1 190	55	770	1 580	150	280	45	9.1	2.5	7.0
20	3.7	16	744	53	644	1 760	145	252	43	8.4	3.5	8.4
21	3.4	12	520	51	560	1 300	210	224	39	7.7	3.5	7.7
22	3.4	12	390	51	500	1 240	320	202	36	7.7	3.0	5.2
23	3.4	4.7	296	67	445	1 240	350	188	34	7.0	2.5	4.0
24	3.7	6.24	233	75	395	1 210	485	173	32	7.7	2.5	3.5
25	3.4	1 250	203	71	365	1 180	512	161	30	7.0	1.1	4.6
26	3.4	560	165	88	325	1 180	530	155	28	7.0	1.9	3.5
27	3.0	304	142	109	292	*1 220	495	148	*28	7.0	3.5	2.5
28	3.4	188	127	103	264	1 030	445	135	27	6.4	*3.5	2.5
29	3.4	138	115	655	—	863	475	128	25	5.2	3.0	2.5
30	3.4	196	105	1 130	—	746	460	128	24	5.8	4.0	3.0
31	3.0	—	97	3 690	—	662	—	130	—	5.8	3.5	—
Total	101.8	3 515.6	17 828	7 469	33 043	31 014	10 484	10 394	1 884	3 66.0	144.1	117.8
Mean	3.28	117	575	241	1,180	1,000	349	335	62.8	11.8	4.65	3.93
Max.	5.3	1,250	3,560	3,690	3,950	1,810	602	898	123	22	10	8.4
Min.	1.9	1.9	79	51	264	196	145	128	24	5.2	1.1	0.6
Ac-ft	202	6,970	35,360	14,810	65,540	61,520	20,790	20,620	3,740	726	286	234

Calendar year 1960:

Max 10,900

Min 1.3

Mean 304

Acre-feet 220,400

Water year 1960-61:

Max 3,950

Min 0.6

Mean 318

Acre-feet 230,800

Peak discharge (base, 3,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12- 1	2p.m.	7.61	3,990	1-31	9a.m.	8.12	4,670
12-17	11a.m.	7.68	4,080	2-11	7a.m.	8.14	4,700

\* Discharge measurement made on this day.

Note.--Shifting-control method used Aug. 5 to Sept. 30.

## MAD RIVER BASIN

389

11-4805. Mad River near Forest Glen, Calif.--Continued.

Temperature (°F) of water, water year October 1960 to September 1961																								
Day	Oct.		Nov.		Dec.		Jan.		Feb.		Mar.		Apr.		May		June		July		Aug.		Sept.	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1			-	-	46	46	41	40	46	46	47	47	50	47	52	51	65	59	71	65	72	70	70	68
2			-	-	46	46	40	39	47	46	47	47	52	48	53	48	65	61	72	66	72	70	68	66
3			-	-	46	46	39	39	47	47	47	44	53	49	53	48	65	63	71	66	72	70	68	66
4			-	-	46	46	39	39	48	47	46	44	53	50	51	47	67	63	70	66	75	72	68	67
5			-	-	46	43	39	38	48	48	46	44	51	45	51	49	66	63	68	64	75	74	68	67
6			-	-	43	40	40	39	48	48	44	41	51	46	49	49	66	63	68	63	74	73	68	67
7			-	-	40	40	40	40	48	46	46	43	51	47	52	48	65	60	69	63	74	73	68	66
8			-	-	40	40	42	40	47	47	46	44	51	47	55	48	66	63	71	66	74	72	67	64
9			-	-	40	40	44	42	48	47	44	44	52	48	55	50	67	63	72	66	76	73	65	64
10			-	-	41	40	44	44	48	48	46	43	52	47	50	48	67	62	73	68	75	72	68	65
11			-	-	43	41	44	43	48	46	46	44	52	49	48	46	68	66	75	70	74	73	69	68
12			-	-	45	43	43	43	46	46	46	45	52	49	52	46	70	64	73	69	73	70	70	69
13			-	-	45	44	44	43	46	46	47	46	51	47	53	49	73	67	76	71	72	70	71	70
14			-	-	44	44	44	45	46	46	47	45	52	48	55	50	73	68	74	70	72	69	71	70
15			-	-	45	43	45	44	46	46	45	44	54	49	57	50	75	70	73	68	71	69	70	70
16			46	46	46	44	44	42	46	45	45	44	55	51	58	54	76	70	75	70	70	69	71	70
17			47	46	47	45	42	40	46	45	45	43	55	52	59	54	75	70	76	70	70	69	71	70
18			49	47	47	46	41	40	45	44	46	44	52	48	60	54	74	71	76	71	70	69	70	69
19			48	47	47	47	40	39	45	44	46	44	50	46	60	56	74	69	76	70	70	68	70	69
20			47	46	46	46	40	39	46	45	46	44	50	48	61	58	76	70	76	70	70	68	71	70
21			46	45	46	46	40	39	47	46	47	45	48	44	61	57	77	71	74	69	71	70	70	69
22			45	45	45	45	43	40	47	47	47	46	44	42	61	57	77	72	76	70	71	70	70	67
23			46	46	45	45	46	43	47	44	48	46	47	40	59	56	76	71	74	70	71	69	69	67
24			49	47	44	44	45	45	46	46	48	46	50	44	60	55	77	71	75	71	70	69	69	68
25			49	47	44	43	45	45	46	45	46	44	50	45	61	57	79	72	75	71	70	68	69	68
26			47	47	44	44	46	45	46	43	46	45	51	46	59	57	78	73	75	71	69	68	69	68
27			47	47	45	42	46	46	46	45	46	43	52	46	59	54	76	69	74	70	69	67	70	68
28			47	47	42	40	46	46	47	45	46	42	53	49	61	57	70	66	73	70	70	69	71	69
29			46	46	41	40	46	46	-	-	47	42	53	50	61	55	70	64	73	70	71	70	69	68
30			46	46	41	41	46	46	---	---	48	44	53	49	59	57	71	64	72	70	71	70	68	66
31			---	---	41	41	46	46	---	---	49	46	---	---	61	57	---	---	72	70	70	69	---	---
AVG			-	-	44	43	43	42	47	46	46	44	51	47	56	52	71	67	73	69	72	70	69	68

## MAD RIVER BASIN

11-4808. North Fork Mad River near Korbelt, Calif.

Location.--Lat 40°53'10", long 123°50'30", in SW $\frac{1}{4}$  sec.22, T.6 N., R.2 E., on left bank 0.5 mile downstream from Bald Mountain Creek, 1.0 miles northeast of Korbelt, and 2.5 miles east of town of Blue Lake.

Drainage area.--40.5 sq mi.

Records available.--October 1957 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 250 ft (from topographic map).

Extremes.--Maximum discharge during the year, 2,990 cfs Nov. 25 (gage height, 9.43 ft); minimum, not determined.  
1957-61: Maximum discharge, 7,170 cfs Feb. 8, 1960 (gage height, 16.17 ft); minimum, 1.0 cfs Sept. 12, 1959.

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

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

Oct. 1 to Nov. 23

Nov. 24 to Sept. 30

2.9	1.7	5.0	92	2.1	0.8	3.2	36
3.1	4.0	5.5	140	2.2	2.2	3.7	79
3.4	9.0	6.0	230	2.3	3.7	4.2	160
3.7	16	6.5	330	2.4	5.3	5.0	380
4.0	26	7.5	640	2.5	7.2	6.5	960
4.5	52			2.7	12	8.0	1,830
				2.9	19		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a 1.7	2.7	4.26	4.3	340	141	162	166	53	14	5.9	3.6
2	a 1.7	2.6	7.39	4.1	484	194	135	144	49	14	5.9	3.6
3	a 1.7	2.5	3.11	3.7	359	150	114	116	48	13	5.7	3.1
4	a 1.7	2.3	1.92	3.6	232	127	103	98	45	14	5.5	2.8
5	a 1.9	2.1	1.26	3.4	162	187	89	* 138	44	13	6.1	2.7
6	a 3.4	2.0	9.9	* 3.2	192	591	79	786	71	13	6.1	2.5
7	a 4.8	2.4	8.8	3.2	171	449	71	521	* 6.7	12	5.5	2.4
8	a 3.4	2.5	7.1	3.1	148	338	65	296	5.7	11	5.0	2.4
9	a 2.3	2.5	6.4	3.9	* 4.15	326	61	445	5.1	11	4.8	2.2
10	a 2.3	2.8	6.3	3.7	6.79	386	5.7	552	4.7	10	4.5	2.1
11	a 2.1	3.1	6.4	4.0	1.830	648	5.3	812	4.4	9.9	4.3	1.9
12	a 2.1	1.4	5.4	5.3	902	522	82	484	4.1	9.2	4.5	1.9
13	a 2.1	7.0	5.0	5.3	1.470	554	6.5	320	3.7	9.2	4.2	2.1
14	a 2.1	8.7	4.8	4.8	* 1.350	529	5.5	238	3.5	9.2	4.2	2.4
15	a 2.0	8.4	4.5	4.4	1.070	815	5.0	192	3.2	9.0	4.5	3.1
16	a 2.0	5.2	9.2	4.0	6.84	610	4.7	156	2.9	9.0	4.3	8.3
17	a 2.0	* 1.31	1.400	3.7	4.84	993	4.5	131	2.6	8.5	4.2	6.3
18	a 2.0	3.10	8.10	3.4	3.50	599	5.4	111	2.5	8.3	4.0	5.0
19	a 1.9	7.5	3.86	3.1	2.84	522	4.9	9.9	2.4	7.6	3.7	4.7
20	* a 1.9	4.2	2.38	2.9	2.14	4.80	5.7	8.9	2.3	7.6	3.4	4.3
21	1.9	4.3	1.69	2.8	1.69	3.59	3.22	8.2	2.3	7.9	3.3	4.0
22	2.0	3.0	1.33	2.6	1.56	5.59	3.89	7.6	2.1	7.6	3.3	3.9
23	2.0	6.32	1.06	3.6	1.31	5.71	3.74	7.2	2.0	7.9	3.3	3.7
24	2.3	1.020	9.1	3.2	1.36	7.92	2.43	6.5	1.8	7.4	3.3	3.4
25	2.6	* 1.830	7.7	2.9	2.04	1.310	1.62	6.1	1.8	7.0	* 3.1	3.1
26	6.0	4.82	7.1	2.9	1.46	8.05	1.26	7.6	1.7	6.4	3.4	3.1
27	5.2	2.19	6.4	2.8	1.33	6.60	9.9	6.6	1.7	6.4	5.7	3.0
28	3.9	1.35	5.9	2.6	1.17	* 4.59	8.4	5.8	1.7	6.3	4.8	2.8
29	3.4	9.8	5.4	9.3	—	3.32	1.16	5.6	1.6	6.3	4.0	2.5
30	3.0	9.3	4.9	10.0	—	2.52	9.5	6.4	* 1.5	6.1	3.9	2.2
31	2.8	—	4.6	9.77	—	1.96	—	5.7	—	6.1	3.7	—
Total	80.2	5,502.4	6,285	2,175	13,012	15,456	3,503	6,627	1,030	2,879	1,381	991
Mean	2.59	183	203	70.2	465	499	117	214	34.3	9.29	4.45	3.30
Max.	6.0	1,830	1,400	977	1,830	1,310	380	812	71	14	6.1	8.3
Min.	1.7	2.0	4.5	2.6	1.17	1.27	4.5	5.6	1.5	6.1	3.1	1.9
Ac-ft	159	10,910	12,470	4,310	25,810	30,660	6,950	13,140	2,040	571	274	197

Calendar year 1960:

Max 3,040

Min 1.6

Mean 137

Acre-feet 99,650

Water year 1960-61:

Max 1,830

Min 1.7

Mean 148

Acre-feet 107,500

Peak discharge (base, 1,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-25	7 a.m.	9.43	2,990	2-11	4 a.m.	8.90	2,520
12-17	6 a.m.	7.93	1,780	2-13	6 p.m.	8.50	2,200
1-31	7 a.m.	8.57	2,260	3-25	5 a.m.	7.88	1,750

\* Discharge measurement made on this day.  
a No gage-height record.

11-4810. Mad River near Arcata, Calif.

Location.--Lat 40°54'35", long 124°03'35", in NW $\frac{1}{4}$  sec.15, T.6 N., R.1 E., on right bank 100 ft upstream from bridge on U. S. Highway 299, 1.0 mile downstream from Warren Creek, and 2.8 miles northeast of Arcata. Auxiliary gage 0.5 mile downstream.

Drainage area.--485 sq mi.

Records available.--October 1910 to September 1913, August 1950 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder with thermograph attachment. Datum of gage is 17.79 ft above mean sea level, datum of 1929, supplementary adjustment of 1956. December 1910 to September 1913 staff gage at site 0.1 mile upstream at different datum. Aug. 15, 1950, to July 23, 1956, water-stage recorder at site 0.6 mile upstream at datum 6.00 ft higher. Since Aug. 29, 1961, auxiliary water-stage recorder at site 0.5 mile downstream at different datum.

Average discharge.--14 years, 1,555 cfs (1,126,000 acre-ft per year).

Extremes.--Maximum discharge during year, 24,200 cfs Feb. 11 (gage height, 13.80 ft); minimum, 23 cfs Oct. 1. 1910-13, 1950-61: Maximum discharge, 77,800 cfs Dec. 22, 1955 (gage height, 27.30 ft, site and datum then in use), from rating curve extended above 34,000 cfs on basis of slope-area measurement of peak flow; minimum, 16 cfs Sept. 8, 9, 1951, Sept. 11, 1959.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Flow regulated by Ruth Reservoir beginning in July 1961 (usable capacity, 42,000 acre-ft). Since 1938, approximately 5.4 cfs diverted daily above station for municipal supply of city of Eureka.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	23	29	5,730	414	6,290	1,160	2,340	1,620	570	126	49	33
2	24	29	*8,670	378	5,530	1,680	2,190	1,590	490	124	48	32
3	25	38	4,050	353	5,040	1,360	2,160	1,310	502	122	48	32
4	31	28	2,400	328	3,230	1,160	2,020	1,160	482	118	48	30
5	27	26	1,600	* 311	2,280	1,260	1,720	1,110	458	114	48	29
6	26	26	1,160	293	1,870	3,090	1,470	3,370	498	108	48	28
7	29	26	904	290	1,640	2,850	1,260	3,480	* 545	105	48	28
8	37	26	754	300	1,350	2,540	1,120	*2,280	478	103	45	28
9	50	26	650	311	* 3,810	3,370	1,010	2,230	442	99	44	* 27
10	44	28	580	363	7,300	3,850	931	3,210	410	96	42	28
11	39	48	670	346	18,900	4,600	856	5,010	386	89	41	28
12	35	51	580	422	10,400	4,000	931	4,200	367	86	40	26
13	33	115	510	390	8,490	3,500	892	3,120	346	84	38	27
14	31	231	470	360	*9,270	3,600	778	2,480	325	82	37	26
15	29	285	438	335	9,550	5,000	720	2,020	300	81	36	28
16	27	*285	670	311	7,040	4,100	685	1,660	276	76	35	32
17	26	327	11,600	286	4,950	6,000	660	1,470	253	70	35	38
18	26	1,310	9,820	269	3,700	5,000	660	1,280	235	68	34	40
19	26	712	6,100	253	2,860	4,200	645	1,160	226	68	33	35
20	* 26	433	3,580	238	2,350	3,900	610	1,040	211	66	32	* 31
21	26	370	2,430	226	2,010	3,500	1,290	938	211	65	31	33
22	25	321	1,780	214	1,820	3,200	2,310	856	197	63	31	30
23	26	737	1,360	250	1,570	5,000	2,220	808	186	63	30	30
24	26	3,660	1,110	300	1,430	5,200	1,940	742	173	61	* 30	31
25	26	*10,900	917	286	1,640	8,000	1,900	680	161	58	30	31
26	29	5,070	802	279	1,330	6,000	1,880	685	153	57	31	30
27	28	2,490	695	304	1,190	5,000	1,690	675	148	56	36	28
28	31	1,530	620	328	1,200	4,000	1,550	610	* 146	55	41	28
29	32	1,120	540	406	—	* 3,610	1,580	575	142	52	35	27
30	32	1,000	490	2,090	—	3,050	1,580	640	132	51	33	26
31	30	—	450	10,900	—	2,660	—	635	—	51	31	—
Total	925	31,277	72,130	22,134	128,040	115,440	41,598	52,644	9,449	2,517	1,188	900
Mean	29.8	1,043	2,327	714	4,573	3,724	1,387	1,698	315	81.2	38.3	30.0
Max.	50	10,900	11,600	10,900	18,900	8,000	2,340	5,010	570	126	48	40
Min.	23	26	438	214	1,190	1,160	610	575	132	51	30	26
Ac-ft	1,830	62,040	143,100	43,900	254,000	229,000	82,510	104,400	18,740	4,990	2,360	1,700

Calendar year 1960: Max 36,500 Min 21 Mean 1,350 Acre-feet 934,100  
 Water year 1960-61: Max 18,900 Min 23 Mean 1,310 Acre-feet 948,700

Peak discharge (base, 14,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-25	11a.m.	12.16	16,600	1-31	12m.	11.28	15,300
12-17	11a.m.	11.08	14,700	2-11	7a.m.	13.80	24,200

\* Discharge measurement made on this day.

Note.--No gage-height record Mar. 11-28, Aug. 4-28.

## MAD RIVER BASIN

11-4810. Mad River near Arcata, Calif.--Continued.

Temperature (°F) of water, water year October 1960 to September 1961

Day	Oct.		Nov.		Dec.		Jan.		Feb.		Mar.		Apr.		May		June		July		Aug.		Sept.	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1			-	-	48	48	43	42	48	48	46	46	49	47	55	54	61	60	65	63	64	64		
2			-	-	48	48	42	41	49	48	47	46	52	49	54	52	60	60	65	64	64	63		
3			-	-	48	48	41	40	49	49	47	46	52	52	53	50	60	60	65	64	63	63		
4			-	-	48	47	40	41	48	48	47	46	55	52	52	50	60	60	64	63	63	63		
5			-	-	47	46	42	41	48	48	46	46	56	54	52	51	60	60	63	62	63	63		
6			-	-	46	44	43	42	49	48	46	46	55	53	51	49	61	60	64	60	64	63		
7			60	60	44	43	43	42	48	47	46	44	55	53	50	49	60	60	65	62	65	64		
8			61	60	43	43	44	43	47	47	45	44	55	53	53	49	60	57	66	63	65	64		
9			60	60	44	43	46	44	49	47	44	44	56	55	53	52	63	57	67	64	65	64		
10			60	58	45	44	46	46	49	49	44	44	56	54	52	50	62	60	67	65	64	64		
11			59	58	45	44	46	45	49	47	-	-	55	52	50	49	62	58	68	65	64	62		
12			59	58	46	45	46	45	47	46	-	-	55	54	50	49	65	59	68	66	64	60		
13			58	56	45	45	45	45	47	46	-	-	54	53	51	50	67	62	67	66	63	63		
14			56	55	47	46	47	46	47	47	-	-	55	52	54	51	69	63	66	64	63	62		
15			55	54	46	46	47	46	47	46	-	-	56	54	55	53	72	64	65	64	66	62		
16			54	54	47	46	47	46	46	46	-	-	55	54	55	54	72	65	67	64	64	63		
17			54	54	48	47	46	46	46	46	-	-	55	54	58	55	70	66	67	65	64	63		
18			54	52	49	48	46	44	46	45	-	-	54	54	58	58	68	66	67	65	64	63		
19			52	51	48	48	45	44	45	44	-	-	54	51	58	57	67	65	66	65	64	63		
20			51	50	48	47	44	43	46	44	-	-	52	52	57	56	65	64	66	65	-	-		
21			50	50	47	46	43	42	47	46	-	-	53	49	56	55	67	64	65	64	-	-		
22			50	49	47	46	45	43	48	46	-	-	49	46	56	56	68	63	64	64	-	-		
23			50	49	46	46	47	45	47	45	-	-	49	46	58	56	68	64	64	64	-	-		
24			50	50	47	46	47	46	47	46	-	-	49	47	59	55	69	64	65	64	-	-		
25			50	50	47	47	48	47	46	46	-	-	49	48	59	58	68	65	65	64	-	-		
26			50	49	47	46	48	47	47	46	-	-	53	49	58	58	67	65	64	64	-	-		
27			49	48	47	45	48	47	47	46	-	-	53	50	59	55	65	64	64	64	-	-		
28			48	47	46	43	48	47	47	46	-	-	54	52	58	57	64	62	64	64	-	-		
29			47	47	43	43	49	48	-	-	42	40	54	54	57	56	64	60	64	64	-	-		
30			48	47	44	43	48	48	----	----	44	42	55	54	58	56	65	61	64	64	-	-		
31			----	----	43	43	48	48	----	----	47	44	----	----	61	56	----	----	64	63	-	-		
Avg			-	-	46	45	45	45	47	47	-	-	53	52	55	53	65	62	65	64				

## LITTLE RIVER BASIN

393

11-4812. Little River at Crannell, Calif.

Location--Lat 41°00'40", long 124°04'50", in NE $\frac{1}{4}$  sec.8, T.7 N., R.1 E., on right bank at Crannell, 0.5 mile upstream from Coon Creek and 9.1 miles north of Arcata.

Drainage area--44.3 sq mi.

Records available--October 1955 to September 1961.

Gage--Water-stage recorder. Datum of gage is 17.62 ft above mean sea level, datum of 1929.

Average discharge--6 years, 147 cfs (106,400 acre-ft per year).

Extremes--Maximum discharge during year, 4,080 cfs Nov. 25 (gage height, 6.90 ft), from rating curve extended above 1,600 cfs; minimum not determined.  
1955-61: Maximum discharge, 9,300 cfs Mar. 11, 1957 (gage height, 9.96 ft), from rating curve extended above 2,700 cfs; minimum, 2.8 cfs Sept. 9, 1959.

Flood of Jan. 17, 18, 1953, reached a stage of 15.7 ft, observed by an employee of Hammond Lumber Co.

Remarks--Records good except those for period of indefinite stage-discharge relation, which are fair. No storage or diversion above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	E3.9	6.1	235	49	385	128	170	135	54	18	10	8.3
2	E3.9	6.1	500	48	374	170	148	125	52	18	10	7.8
3	E3.9	5.7	229	45	298	143	130	105	51	18	9.6	7.0
4	E3.9	5.4	150	43	200	121	117	89	49	18	9.6	6.5
5	E4.2	5.4	116	*41	153	135	105	120	*48	18	9.6	6.1
6	E4.6	5.4	94	40	163	367	97	656	68	17	10	6.1
7	E13	6.1	78	41	144	290	89	421	70	16	9.6	6.1
8	E12	6.5	68	39	126	250	80	*244	57	15	8.7	5.6
9	7.2	6.5	61	44	*405	253	77	391	51	15	8.3	5.6
10	6.1	8.4	63	43	1,070	300	71	439	46	14	8.3	5.6
11	5.7	39	66	43	1,800	709	66	628	43	13	8.3	5.6
12	5.4	21	53	61	798	491	78	403	42	13	8.3	5.6
13	5.0	80	50	52	1,260	570	68	272	37	13	8.3	6.1
14	5.0	66	48	50	1,150	482	62	208	35	13	8.3	6.5
15	4.6	60	45	46	992	794	58	170	32	13	8.3	7.4
16	4.6	*49	83	44	685	575	54	148	30	13	8.3	13
17	4.6	116	1,370	40	473	750	52	128	29	12	8.3	10
18	4.6	348	879	39	347	525	58	111	29	12	8.3	8.3
19	*5.0	69	455	36	265	491	55	105	27	12	7.8	7.8
20	5.4	39	260	34	214	496	55	99	27	12	7.4	7.4
21	5.7	37	185	32	178	375	288	89	26	12	7.4	7.0
22	5.7	29	148	31	160	455	318	83	25	12	7.4	6.5
23	5.7	490	120	61	140	496	300	80	24	12	7.8	6.5
24	6.1	967	104	54	138	*630	178	71	23	12	*7.4	6.5
25	6.5	*2,220	90	45	205	1,120	133	66	22	11	7.4	6.5
26	15	424	85	43	150	660	107	73	21	11	7.8	6.5
27	11	188	74	40	130	640	91	68	21	10	11	6.1
28	7.2	124	68	37	119	451	80	62	*21	10	9.6	6.1
29	6.5	92	61	123	-----	332	97	60	21	10	8.7	5.6
30	6.1	81	55	208	-----	256	89	63	19	10	8.3	6.1
31	6.1	-----	53	1,590	-----	208	-----	58	-----	10	7.8	-----
TOTAL	194.2	5,600.6	5,946	3,142	12,522	13,663	3,371	5,770	1,100	413	265.9	205.8
MEAN	6.26	187	192	101	447	441	112	186	36.7	13.3	8.58	6.86
MAX	15	2,220	1,370	1,590	1,800	1,120	318	656	70	18	11	13
MIN	3.9	5.4	45	31	119	121	52	58	19	10	7.4	5.6
AC-FT	385	11,110	11,790	6,230	24,840	27,100	6,690	11,440	2,180	819	527	406

CALENDAR YEAR 1960: MAX 3,110 MIN 3.9 MEAN 142 AC-FT 103,400  
WATER YEAR 1960-61: MAX 2,220 MIN 3.9 MEAN 143 AC-FT 103,500

## Peak discharge (base, 1,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-25	4a.m.	6.90	4,080	2-10	10p.m.	6.27	3,320
12-17	8p.m.	5.00	2,000	2-13	4p.m.	4.65	1,720
1-31	6a.m.	6.84	4,010	3-25	6a.m.	4.39	1,510

\* Discharge measurement made on this day.

E Stage-discharge relation indefinite.

## REDWOOD CREEK BASIN

11-4825. Redwood Creek at Orick, Calif.

Location.--Lat 41°17'20", long 124°03'30", in NE $\frac{1}{4}$  sec.4, T.10 N., R.1 E., on downstream side of left pier of bridge on U. S. Highway 101 at Orick, 0.9 mile downstream from Prairie Creek.

Drainage area.--278 sq mi.

Records available.--September 1911 to September 1913, October 1953 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Altitude of gage is 10 ft (from topographic map). Sept. 10, 1911, to Aug. 28, 1912, chain gage and Aug. 29, 1912, to Aug. 9, 1913, staff gage, at same site at different datum.

Average discharge.--10 years, 1,071 cfs (775,400 acre-ft per year).

Extremes.--Maximum discharge during year, 14,700 cfs Nov. 25 (gage height, 15.55 ft); minimum, 18 cfs Oct. 1-5.

1911-13, 1953-61: Maximum discharge, 50,000 cfs Dec. 22, 1955 (gage height, 23.95 ft); minimum, 10 cfs Sept. 22-24, 1911. Flood of Jan. 18, 1953, reached a stage of 23.95 ft, from floodmarks (discharge, 50,000 cfs).

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

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18	33	2660	570	2700	1300	2080	1080	528	170	74	46
2	18	31	3740	525	2590	1480	1850	1080	496	165	70	48
3	18	30	2380	485	2190	1330	1720	946	468	160	70	43
4	18	28	1800	445	1750	1220	1600	880	448	158	68	42
5	21	27	1450	*410	1440	1370	1460	885	*420	158	68	39
6	60	26	1210	390	1430	2460	1330	2050	460	150	70	36
7	75	27	1020	378	1270	2430	1190	2290	448	145	68	35
8	84	29	905	370	*1200	2230	1100	1740	392	140	65	34
9	68	28	814	382	2760	2470	1030	1970	373	136	61	33
10	50	30	807	402	4080	2730	970	*2640	356	132	58	31
11	39	150	828	386	10800	4020	905	3760	342	128	56	30
12	34	140	698	430	6730	3630	1000	3040	328	122	55	30
13	31	272	630	394	6930	4540	930	2440	310	118	55	30
14	29	312	570	390	*7680	4180	825	2040	298	116	55	30
15	28	415	545	362	7160	5660	770	1760	286	112	56	33
16	26	*368	742	342	5480	4800	725	1570	268	110	55	48
17	25	430	5820	314	4020	6040	695	1420	253	108	53	49
18	24	1920	a4400	290	3150	4760	715	1290	241	106	50	46
19	*26	765	a2540	275	2490	4540	685	1190	235	102	46	42
20	26	420	a2060	260	2070	4530	630	1110	229	98	45	37
21	27	415	a1760	248	1810	3420	1100	1040	226	98	43	35
22	27	344	a1530	245	1700	3680	1440	982	220	96	42	33
23	26	1860	1300	392	1530	3870	1450	964	211	95	40	31
24	31	6520	1090	350	1520	4510	1290	875	202	93	*40	30
25	35	*10200	1010	294	1690	7610	1160	805	193	91	40	29
26	60	*4140	928	281	1450	a5120	1080	815	185	86	44	28
27	56	2240	856	275	1350	a4980	1010	770	183	84	58	27
28	49	1510	784	260	1290	*4400	935	685	180	82	61	26
29	40	1150	715	667	—	3490	1000	630	*178	79	55	25
30	37	1050	690	1030	—	2860	958	635	173	77	49	24
31	35	—	615	5080	—	2420	—	595	—	74	44	—
Total	1,141	34,910	46,987	16,922	90,260	112,080	33,633	43,977	9,130	3,589	1,714	1,050
Mean	36.8	1,164	1,513	546	3,224	3,615	1,121	1,419	304	116	55.3	35.0
Max.	84	10,200	5,820	5,080	10,800	7,610	2,080	3,760	528	170	74	49
Min.	18	26	545	245	1,200	1,220	630	595	173	74	40	24
Ac-ft	2,260	69,240	93,020	33,560	179,000	222,300	66,710	87,230	18,110	7,120	3,400	2,080
Calendar year 1960:				Max 18,400	Min 18	Mean 1,042		Acre-feet 756,400				
Water year 1960-61:				Max 10,800	Min 18	Mean 1,083		Acre-feet 784,000				

Peak discharge (base, 7,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-25	11a.m.	15.55	14,700	2-11	7a.m.	15.05	13,300
12-17	9p.m.	12.45	7,500	2-13	12p.m.	13.03	8,580
1-31	10a.m.	12.64	7,710	3-25	11a.m.	13.00	8,500

\* Discharge measurement made on this day.  
a No gage-height record.



11-4895. Antelope Creek near Tennant, Calif.

Location.--Lat 41°32'45", long 121°55'05", in NW¼ sec.25, T.43 N., R.1 W., on right bank 2.5 miles south of Tennant, 4 miles downstream from Frog Lake, and 17 miles southeast of town of Mount Hebron.

Drainage area.--18.8 sq mi.

Records available.--May 1952 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 5,080 ft (from topographic map).

Average discharge.--9 years, 36.7 cfs (26,570 acre-ft per year).

Extremes.--Maximum discharge during year, 198 cfs June 2 (gage height, 2.74 ft); minimum daily, 9.9 cfs Oct. 1-4. 1952-61: Maximum discharge, 422 cfs Dec. 22, 1955 (gage height, 3.93 ft), from rating curve extended above 200 cfs; minimum daily, 3.6 cfs Jan. 5, 1960.

Remarks.--Records good except those for periods of ice effect or no gage-height record, 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 Aug. 23 to Sept. 30)

0.5	8.5
0.7	16
1.0	31
1.5	65
2.0	109
2.5	165
3.0	237

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.9	*12	48	18	24	29	25	58	127	45	17	14
2	*9.9	12	36	18	34	28	28	56	179	43	17	14
3	9.9	12	30	18	28	27	32	56	154	42	17	14
4	9.9	12	28	18	22	27	35	56	152	41	17	14
5	11	12	26	17	20	26	33	54	149	39	17	13
6	33	12	22	17	20	27	33	53	142	35	17	13
7	25	13	*18	17	20	25	34	51	129	32	17	14
8	18	13	17	17	20	24	35	57	123	31	17	14
9	15	12	17	17	22	25	36	73	116	30	17	13
10	14	12	17	17	40	24	37	85	107	29	17	13
11	14	14	17	18	74	24	38	72	108	29	*16	13
12	13	14	18	*18	62	24	41	67	107	27	16	13
13	13	15	18	18	50	23	41	64	*102	27	16	13
14	13	16	18	18	46	24	40	67	109	27	16	13
15	13	16	18	17	47	24	41	74	117	26	16	13
16	12	14	19	17	42	24	44	76	119	24	16	17
17	12	16	24	17	39	23	53	81	117	23	16	17
18	12	20	30	17	38	22	52	89	113	22	16	16
19	12	16	28	18	36	22	*48	99	100	22	16	14
20	12	15	23	17	*35	22	45	111	96	21	16	14
21	12	15	22	16	35	22	44	116	94	21	16	14
22	11	14	21	16	33	22	42	118	87	20	16	13
23	11	14	20	16	32	22	41	122	82	20	15	13
24	11	22	20	16	32	22	39	116	77	20	15	13
25	12	66	19	16	31	22	38	114	73	20	14	13
26	12	35	19	17	30	22	38	116	70	19	14	13
27	13	24	19	17	29	21	39	109	66	19	14	13
28	12	21	19	17	29	20	40	104	59	18	17	13
29	12	20	19	18	-	20	42	100	54	18	*18	12
30	12	20	18	18	-	22	56	112	49	18	15	12
31	12	-	18	20	-	23	-	108	-	18	14	-
Total	411.6	529	686	536	970	732	1,190	2,634	3,177	826	498	408
Mean	13.3	17.6	22.1	17.3	34.6	23.6	39.7	85.0	106	26.6	16.1	13.6
Max.	33	66	48	20	74	29	56	122	179	45	18	17
Min.	9.9	12	17	16	20	20	25	51	49	18	14	12
Ac-ft	816	1,050	1,360	1,060	1,920	1,450	2,360	5,220	6,300	1,640	988	809

Calendar year 1960: Max 93 Min 3.6 Mean 25.7 Acre-feet 18,680  
Water year 1960-61: Max 179 Min 9.9 Mean 34.5 Acre-feet 24,970

Peak discharge (base, 100 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-25	9a.m.	1.92	101	6-2	3a.m.	2.74	198
5-10	1a.m.	2.03	112				

\* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 28, Dec. 3-12, Dec. 26 to Jan. 9. No gage-height record Dec. 22-25, Dec. 29 to Jan. 5, Jan. 11, Jan. 28 to Feb. 14, Feb. 18, 19.

## KLAMATH RIVER BASIN

11-5107. Klamath River below Big Bend powerplant, near Keno, Oreg.

Location.--Lat 42°05'05", long 122°04'20", in SE 1/4 sec. 14, T. 40 S., R. 6 E., on right bank 0.7 mile downstream from Big Bend powerplant, 8 miles downstream from Spencer Creek, and 8.5 miles southwest of Keno.

Drainage area.--4,080 sq mi, approximately (not including Lost River or Lower Klamath Lake basins).

Records available.--January 1959 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 3,274.82 ft above mean sea level, datum of 1929, supplementary adjustment of 1956 (levels by Pacific Power & Light Co.).

Extremes.--Maximum discharge during year, 3,320 cfs Apr. 25 (gage height, 5.95 ft); minimum, 388 cfs Aug. 24.  
1959-61: Maximum discharge, that of Apr. 25, 1961; minimum, that of Aug. 24, 1961.

Remarks.--Records excellent. Flow regulated by Upper Klamath Lake (capacity, 584,000 acre-ft). Large diurnal fluctuation caused by Big Bend powerplant and 2 powerplants below Upper Klamath Lake. Large diversions for irrigation above station.

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

3.3	540	5.0	1,970
3.5	655	6.0	3,400
4.0	1,020		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,090	1,420	2,140	1,520	1,710	1,720	1,590	1,340	1,610	891	954	1,220
2	762	1,550	2,390	1,660	1,410	1,600	1,190	1,470	1,430	798	952	972
3	1,510	1,460	2,230	2,030	1,470	1,910	1,730	*1,520	1,240	818	950	812
4	1,460	1,710	1,990	1,930	1,390	1,510	1,790	1,580	940	798	935	790
5	1,490	1,250	2,480	1,700	1,100	557	1,910	1,450	1,400	957	798	1,280
6	1,400	1,140	2,390	1,370	1,470	1,310	1,730	1,180	1,370	940	798	1,480
7	1,360	1,570	2,280	1,470	1,580	*1,900	1,780	984	1,380	836	965	1,260
8	1,180	1,560	2,310	1,010	1,540	1,950	1,710	1,460	1,360	798	950	*1,270
9	880	1,620	*2,370	1,570	1,500	1,780	1,200	1,440	1,410	790	938	944
10	1,470	1,510	2,260	1,580	1,450	1,650	1,810	1,470	1,000	908	938	850
11	1,540	1,510	2,090	1,760	882	1,660	1,800	1,490	934	936	928	1,370
12	1,400	1,270	2,360	1,610	1,090	1,110	1,980	1,600	1,420	924	798	1,360
13	*1,470	1,220	2,480	1,710	1,500	1,990	1,650	1,210	1,320	932	790	1,330
14	1,530	1,500	2,440	1,590	1,540	1,920	1,570	900	1,170	1,020	1,020	1,320
15	1,200	1,510	2,500	1,570	1,440	1,860	1,540	1,500	*1,270	783	966	1,280
16	961	1,560	2,460	1,840	1,480	1,720	1,210	1,440	1,450	783	945	970
17	1,470	1,570	2,290	1,820	1,710	1,740	1,700	1,460	998	918	1,110	790
18	1,500	1,510	2,090	1,980	1,500	1,460	1,700	1,450	904	946	1,010	1,420
19	1,180	1,430	2,540	1,860	1,260	1,610	1,470	1,730	1,180	*948	798	1,450
20	1,840	1,180	2,550	2,000	1,420	1,670	1,470	1,470	1,210	986	805	1,550
21	1,610	1,620	2,530	1,730	1,670	1,680	1,540	742	1,200	980	976	1,470
22	1,200	1,610	2,340	1,860	1,770	1,820	1,270	1,390	1,200	805	970	1,450
23	954	1,610	2,160	*2,010	1,560	1,740	1,080	1,410	1,470	798	974	1,360
24	1,540	1,320	2,210	2,050	1,520	1,700	1,720	1,360	842	934	966	1,040
25	1,540	1,600	2,060	2,020	1,560	1,630	1,770	1,340	885	945	1,050	1,510
26	1,520	1,330	1,930	1,680	1,220	1,210	1,490	1,460	1,260	976	908	1,560
27	1,440	1,210	2,230	1,980	1,680	1,890	1,330	1,170	1,240	951	864	1,650
28	1,430	1,720	2,130	1,820	1,630	1,810	1,360	1,000	1,220	984	1,150	1,620
29	1,130	2,440	1,810	1,630	-	1,690	1,210	1,380	1,410	798	1,170	1,500
30	1,190	2,270	1,850	2,140	-----	1,690	1,120	1,170	1,410	798	1,230	1,220
31	1,620	-----	1,750	1,790	-----	1,480	-----	1,340	-----	956	1,290	-----
Total	41,867	45,780	69,640	54,290	41,052	50,967	46,420	41,906	37,133	27,635	29,896	38,098
Mean	1,351	1,526	2,246	1,751	1,466	1,644	1,547	1,352	1,238	891	964	1,270
Max.	1,840	2,440	2,550	2,140	1,770	1,990	1,980	1,730	1,610	1,020	1,290	1,650
Min.	762	1,140	1,750	1,010	882	557	1,120	742	842	783	790	790
Ac-ft	83,040	90,800	138,100	107,700	81,430	101,100	92,070	83,120	73,650	54,810	59,300	75,570
Calendar year 1960:			Max 2,550	Min 458		Mean 1,363		Acre-feet 989,300				
Water year 1960-61:			Max 2,550	Min 557		Mean 1,437		Acre-feet 1,041,000				

\* Discharge measurement made on this day.

KLAMATH RIVER BASIN

397

11-5125. Klamath River below Fall Creek, near Copco, Calif.

Location.--Lat 41°58'20", long 122°22'05, in SW 1/4 sec. 36, T.48 N., R.5 W., on right bank 500 ft downstream from Fall Creek, half a mile downstream from Copco No. 2 plant of Pacific Power & Light Co. (formerly The California Oregon Power Co.), and 1 mile south of Copco.

Drainage area.--4,370 sq mi, approximately.

Records available.--October 1923 to September 1961 (discontinued). Prior to October 1928, published as "near Copco."

Gage.--Water-stage recorder. Altitude of gage is 2,310 ft (from river-profile map). Prior to Oct. 1, 1928, at site half a mile upstream (above Fall Creek) at different datum.

Average discharge.--38 years, 1,808 cfs (1,309,000 acre-ft per year).

Extremes.--Maximum discharge during year, 3,550 cfs Dec. 1 (gage height, 4.53 ft); minimum recorded, 500 cfs Jan. 1, 2, Feb. 18 (gage height, 2.10 ft); minimum daily, 540 cfs Nov. 20.  
1923-61: Maximum discharge, 12,000 cfs Dec. 21, 1955 (gage height, 8.15 ft), from rating curve extended above 6,600 cfs; minimum, about 10 cfs above Fall Creek several times in 1925-26; minimum daily, 83 cfs at present site Aug. 2, 1931.

Remarks.--Records good except those for period of no gage-height record, which are fair. Complete regulation by Upper Klamath Lake and powerplant above station; diversions above station.

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

Oct. 1 to Apr. 30

May 1 to Sept. 30

2.0	430	2.0	490
2.5	840	2.5	890
3.0	1,360	3.0	1,380
4.0	2,700	3.5	1,990
5.0	4,400		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*596	1,410	2,780	820	*2,060	*2,300	1,160	1,810	*1,350	779	1,080	1,420
2	714	*a 2,050	3,170	957	2,110	2,330	1,660	1,410	1,800	648	1,060	640
3	1,360	a 1,850	1,720	2,040	1,380	2,010	*1,740	1,420	1,180	736	1,060	640
4	2,030	a 2,200	1,430	2,040	801	620	1,660	1,420	1,490	648	1,060	672
5	1,760	a 960	2,550	1,850	580	831	1,660	1,450	1,470	*1,190	648	1,540
6	1,710	a 590	2,470	1,310	1,880	1,560	1,690	1,360	1,480	962	648	*1,560
7	1,570	a 1,820	*2,340	1,060	2,490	1,870	1,690	1,130	1,490	953	1,110	1,690
8	813	1,550	2,480	700	3,170	1,820	1,580	1,400	1,490	845	*1,150	1,420
9	687	1,870	2,640	1,660	882	1,790	1,440	1,440	1,530	640	1,120	640
10	1,880	1,830	1,580	1,660	556	1,640	1,920	1,440	1,190	688	1,100	640
11	1,830	1,690	1,730	*1,740	777	940	1,760	1,440	842	1,200	1,160	1,660
12	1,900	970	2,510	2,110	1,400	1,030	1,730	1,410	1,230	1,250	712	1,480
13	1,700	588	2,480	1,820	1,740	1,590	1,730	1,400	1,480	890	648	1,430
14	1,270	1,540	2,550	1,120	2,160	2,420	1,720	1,400	1,440	1,070	1,160	1,430
15	580	1,710	2,550	1,160	2,340	2,120	1,160	1,400	1,440	760	1,170	1,460
16	678	1,520	2,600	1,830	1,630	2,650	* 678	1,440	1,410	640	1,140	632
17	1,410	1,850	1,870	1,810	1,790	2,630	1,730	1,380	918	1,060	1,140	704
18	1,890	1,810	1,810	2,060	692	* 1,020	1,830	1,400	696	1,070	1,150	1,470
19	1,980	1,180	2,830	2,080	914	* 628	1,580	1,460	1,280	1,080	640	1,700
20	1,760	540	3,140	1,970	1,810	2,660	1,770	1,500	1,210	1,080	648	1,820
21	1,890	1,700	2,740	1,520	1,250	1,640	1,590	1,480	1,250	1,080	1,140	1,690
22	644	1,940	2,320	1,030	1,820	1,640	1,300	1,400	1,200	640	1,130	1,720
23	628	1,160	2,150	2,070	2,020	1,640	636	1,220	1,220	656	1,140	809
24	1,670	580	1,630	2,240	1,710	1,640	1,260	1,240	1,220	1,080	1,160	616
25	1,830	2,700	2,060	2,130	924	1,770	1,920	1,240	632	1,070	1,160	1,820
26	1,860	1,360	1,270	1,870	678	1,690	1,760	1,230	*1,440	1,080	640	1,810
27	1,610	849	2,570	1,860	1,790	1,690	1,860	1,310	1,500	1,110	632	1,800
28	1,920	1,830	2,390	1,260	1,580	1,780	1,500	1,100	1,540	1,150	1,450	1,850
29	604	2,550	2,380	1,560	-	1,920	777	1,190	1,550	640	1,390	1,880
30	596	2,030	2,120	2,120	-	2,050	636	1,490	1,390	648	1,360	752
31	1,710	-	1,920	1,980	-	2,190	-	1,670	-	1,090	1,480	-
Total	43,080	46,227	70,780	51,437	42,934	54,109	45,127	43,080	39,358	28,433	32,286	39,395
Mean	1,390	1,541	2,283	1,659	1,533	1,745	1,504	1,390	1,312	917	1,041	1,313
Max.	2,030	2,700	3,170	2,240	3,170	2,660	1,920	1,670	1,800	1,250	1,480	1,880
Min.	580	540	1,270	700	556	620	636	1,100	632	640	632	616
Ac-ft	85,450	91,690	140,400	102,000	85,160	107,300	89,510	85,450	78,070	56,400	64,040	78,140

Calendar year 1960 :

Max 3,170

Min 516

Mean 1,404

Acre-feet 1,020,000

Water year 1960-61 :

Max 3,170

Min 540

Mean 1,469

Acre-feet 1,064,000

\* Discharge measurement made on this day.

a No gage-height record.

## KLAMATH RIVER BASIN

11-5165.30. Klamath River below Iron Gate Dam, Calif.

Location.--Lat 41°55'40", long 122°26'35", in E 1/4 sec. 17, T. 47 N., R. 5 W., 0.1 mile downstream from Bogus Creek, 0.6 mile downstream from Iron Gate Dam, and 5.9 miles northeast of Hornbrook.

Records available.--October 1960 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 2,162.44 ft above mean sea level (levels by Pacific Power and Light Co.).

Extremes.--Maximum discharge during year, 6,030 cfs Dec. 1 (gage height, 6.14 ft); minimum, 335 cfs Feb. 9 (gage height, 2.22 ft); minimum daily, 647 cfs Nov. 6, Sept. 24.

Remarks.--Records good except those for period of no gage-height record, which are fair. Complete regulation by Upper Klamath Lake (capacity, 584,000 acre-ft) and powerplants above station; diversions above station.

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

2.7	605	4.0	1,860
3.0	820	5.0	3,430
3.5	1,270	6.0	5,670

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	661	1,470	4,230	985	*2,410	*2,320	1,490	*1,840	*1,450	820	1,190	1,540
2	768	*2,090	3,850	1,080	2,470	2,570	2,090	1,680	1,940	668	1,180	689
3	1,330	1,930	2,090	2,140	1,770	2,380	*2,060	1,610	1,280	731	1,160	661
4	2,070	2,260	1,690	2,180	1,090	828	2,000	1,630	1,590	654	1,210	703
5	1,800	1,020	2,800	1,970	820	1,040	1,980	1,710	1,600	*1,190	738	1,610
6	1,730	647	2,760	1,460	2,100	1,880	1,980	1,610	1,600	1,090	731	*1,680
7	1,690	1,880	2,610	1,200	2,550	2,070	1,960	1,360	1,610	1,010	1,190	1,750
8	850	1,620	*2,630	829	3,430	2,030	1,860	1,590	1,600	860	1,200	1,530
9	760	2,060	2,850	1,790	1,380	2,020	1,690	1,650	1,620	654	1,150	675
10	2,000	1,960	1,740	1,810	1,110	1,900	2,070	1,680	1,230	1,040	1,140	682
11	1,900	1,900	1,950	*1,960	2,130	1,300	1,980	1,730	917	1,210	1,180	1,540
12	2,000	1,100	2,640	2,110	2,060	1,280	2,030	1,650	1,150	1,270	760	1,550
13	1,800	710	2,610	1,850	2,210	1,840	1,990	1,630	1,560	994	689	1,550
14	1,400	1,580	2,700	1,290	2,710	2,560	2,090	1,620	1,540	1,030	1,160	1,500
15	650	1,860	2,710	1,270	2,770	2,630	1,420	1,610	1,510	876	1,180	1,480
16	750	1,580	2,760	1,910	2,240	2,610	*783	1,660	1,510	654	1,170	703
17	1,500	2,030	2,320	1,930	2,090	2,720	1,890	1,590	1,020	934	1,190	783
18	2,000	1,930	2,190	2,190	1,050	*1,530	2,020	1,570	675	1,150	1,180	1,560
19	2,100	1,460	3,180	2,170	1,270	*900	1,890	1,630	1,410	1,190	710	1,770
20	1,900	654	3,430	2,070	1,980	2,420	1,940	1,710	1,180	1,180	668	1,900
21	2,000	1,790	2,930	1,670	1,600	2,000	1,850	1,680	1,330	1,190	1,150	1,800
22	700	2,100	2,410	1,180	2,140	1,930	1,590	1,560	1,250	710	1,160	1,740
23	700	2,070	2,320	2,140	2,250	1,930	926	1,360	1,260	731	1,180	1,030
24	1,700	900	1,760	2,330	1,900	1,980	1,450	1,350	1,300	1,200	1,200	647
25	1,900	3,130	2,270	2,210	1,120	2,100	2,100	1,350	*689	1,190	1,200	1,800
26	1,950	1,690	1,420	1,980	1,040	2,160	1,980	1,340	1,440	1,170	703	1,890
27	1,710	1,160	2,220	1,990	1,800	2,100	2,020	1,470	1,620	1,190	661	1,890
28	1,990	1,940	2,540	1,400	1,890	2,100	1,830	1,230	1,600	1,260	1,400	1,930
29	682	2,750	2,360	1,380	-	2,210	960	1,210	1,650	717	1,480	1,980
30	647	2,200	2,230	2,120	-----	2,330	753	1,660	1,490	724	1,400	897
31	1,660	-----	2,050	2,380	-----	2,480	-----	1,850	-----	1,180	1,590	-----
Total	45,298	51,471	78,250	54,974	53,380	62,148	52,672	48,820	41,621	30,467	33,900	41,460
Mean	1,461	1,716	2,524	1,773	1,906	2,005	1,756	1,575	1,387	983	1,094	1,382
Max.	2,100	3,130	4,230	2,380	3,430	2,720	2,100	1,850	1,940	1,270	1,590	1,980
Min.	647	647	1,420	829	820	828	753	1,210	675	654	661	647
Ac-ft.	89,850	102,090	155,200	109,000	105,900	123,300	104,500	96,830	82,550	60,430	67,240	82,230

Calendar year 1960 :

Water year 1960-61 :

Max - Min - Mean - Acre-feet -  
 Max 4,230 Min 647 Mean 1,629 Acre-feet 1,179,000

\* Discharge measurement made on this day.

Note.--No gage-height record Oct. 8-26.

11-5169. Little Shasta River near Montague, Calif.

Location.--Lat 41°45'11", long 122°17'58", in NW¼ sec.15, T.45 N., R.4 W., on right bank three-quarters of a mile downstream from Dry Creek and 12 miles east of Montague.

Drainage area.--48.2 sq mi.

Records available.--October 1957 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 3,280 ft (from topographic map).

Extremes.--Maximum discharge during year, 130 cfs Dec. 1 (gage height, 2.92 ft); minimum daily, 1.8 cfs Oct. 4.  
1957-61: Maximum discharge, 741 cfs Nov. 13, 1957 (gage height, 4.76 ft), from rating curve extended above 120 cfs; minimum daily, 1.6 cfs Aug. 18, 1959.

Remarks.--No known diversion or regulation.

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

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.9	2.3	6.1	6.2	7.6	8.6	38	23	32	6.4	3.0	3.6
2	1.9	2.3	25	4.1	7.4	10	47	21	*56	6.4	2.9	3.9
3	2.0	2.4	11	5.2	7.4	7.5	51	22	40	6.7	2.6	3.6
4	1.8	2.6	7.0	*5.7	7.4	7.4	48	19	35	6.4	2.5	2.9
5	1.9	3.1	4.2	4.1	7.6	6.6	36	18	33	6.1	2.8	*3.0
6	2.9	3.0	5.1	4.9	7.8	5.8	30	20	31	6.2	2.7	3.4
7	2.6	2.8	5.6	4.6	8.0	7.7	27	19	29	5.8	2.3	3.1
8	2.5	2.7	4.2	4.4	*8.5	6.7	24	20	27	5.4	2.4	2.9
9	2.1	*2.6	3.8	4.4	26	6.2	26	29	28	4.8	2.7	2.8
10	2.1	2.2	3.9	4.3	32	*7.4	26	47	23	4.8	2.6	2.9
11	2.1	2.9	3.6	4.4	53	9.4	27	27	22	4.7	2.8	2.4
12	2.1	2.9	*3.6	4.4	27	10	28	23	22	4.2	2.7	2.2
13	2.1	3.1	4.2	4.8	20	21	22	22	20	4.5	2.9	*2.6
14	2.1	2.8	4.7	4.6	18	23	*20	21	18	3.7	2.4	2.9
15	2.2	2.8	5.1	4.9	25	20	24	23	15	3.7	2.7	2.8
16	2.1	2.9	13	4.8	19	16	29	*23	*14	3.3	*2.6	3.7
17	2.1	3.4	63	5.7	14	14	31	22	13	3.5	2.5	5.2
18	2.1	5.3	38	5.3	10	13	24	22	13	3.8	2.9	4.4
19	2.1	3.4	23	5.7	10	14	20	23	12	*3.5	2.4	3.9
20	2.1	3.1	14	5.6	9.8	12	18	23	11	3.3	3.1	3.6
21	2.0	3.3	12	5.2	10	12	17	23	10	2.9	3.0	3.6
22	2.0	2.7	10	5.1	12	29	18	23	9.2	2.8	2.9	3.1
23	2.2	3.6	10	5.2	9.4	32	18	24	9.3	2.8	3.0	3.0
24	2.2	6.5	9.2	5.2	8.8	30	18	22	8.7	2.8	2.5	3.0
25	2.2	7.3	7.9	5.6	7.6	23	18	21	8.2	3.3	2.9	3.0
26	2.9	5.5	7.3	5.7	7.8	22	19	24	8.1	3.0	3.1	3.0
27	2.5	4.1	6.2	5.6	7.6	21	20	22	8.4	2.8	3.9	*3.0
28	2.7	4.0	5.0	5.5	8.4	25	21	24	7.8	2.7	4.1	3.0
29	2.6	3.9	7.8	6.2	-	33	22	27	7.3	2.6	4.0	3.0
30	2.4	3.9	6.7	5.9	-----	35	23	37	7.0	2.8	3.8	3.0
31	2.4	-----	6.6	7.5	-----	34	-----	30	-----	3.0	3.5	-----
Total	68.9	103.4	391.7	160.8	397.1	522.3	790	744	578.0	128.7	90.2	96.5
Mean	2.22	3.45	12.6	5.19	14.2	16.8	26.3	24.0	19.3	4.15	2.91	3.22
Max.	2.9	7.3	63	7.5	53	35	51	47	56	6.7	4.1	5.2
Min.	1.8	2.2	3.6	4.1	7.4	5.8	17	18	7.0	2.6	2.3	2.2
Ac-ft	137	205	777	319	788	1,040	1,570	1,480	1,150	255	179	191

Calendar year 1960: Max 130 Min 1.8 Mean 10.5 Acro-feet 7,510  
Water year 1960-61: Max 63 Min 1.8 Mean 11.2 Acro-feet 8,090

\* Discharge measurement made on this day.

11-5175. Shasta River near Yreka, Calif.

Location.--Lat 41°49'30", long 122°35'40", in E½ sec.24, T.46 N., R.7 W., on right bank 0.5 mile upstream from mouth and 7 miles north of Yreka.

Drainage area.--796 sq mi.

Records available.--October 1933 to December 1941, December 1944 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 2,000 ft (from topographic map). Prior to Nov. 2, 1933, staff gage at same site and datum.

Average discharge.--24 years (1933-41, 1945-61), 175 cfs (126,700 acre-ft per year); median of yearly mean discharges, 150 cfs (109,000 acre-ft per year).

Extremes.--Maximum discharge during year, 1,370 cfs Dec. 1 (gage height, 5.58 ft); minimum, 6.7 cfs July 28, 31. 1933-41, 1944-61: Maximum discharge, 6,090 cfs Dec. 22, 1955 (gage height, 9.43 ft); minimum, 3.4 cfs Aug. 13, 1939, when about 2 cfs was being diverted around gage.

Remarks.--Records good. Flow partly regulated by Lake Dwinell beginning in 1928. Many diversions above station for irrigation.

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

Oct. 1 to Sept. 18

Sept. 18-30

2.4	7.0	3.5	225	3.2	133
2.5	12	4.0	435	3.5	232
2.7	28	5.0	970		
2.9	55	6.0	1,720		
3.2	120				

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*57	*147	773	171	225	217	193	68	*157	18	27	42
2	64	141	1,020	171	289	201	201	80	174	18	23	35
3	60	141	640	168	363	193	*205	82	213	16	38	30
4	60	144	354	168	260	193	189	80	205	15	38	30
5	68	147	261	168	241	209	164	77	182	*13	50	39
6	73	147	221	164	221	233	144	82	107	18	38	*46
7	71	150	201	171	217	221	126	102	185	18	27	52
8	93	150	193	171	225	209	105	115	141	21	25	54
9	115	150	180	174	233	201	91	91	118	20	36	46
10	115	150	185	174	317	193	77	86	118	10	33	43
11	126	147	182	174	778	221	60	120	112	17	35	30
12	123	154	182	174	655	221	55	150	126	25	38	28
13	123	164	182	171	444	217	52	168	132	20	44	32
14	138	174	178	174	354	221	46	164	120	30	43	30
15	138	178	182	174	350	253	34	123	100	21	39	42
16	138	171	182	174	341	309	34	102	93	18	35	102
17	138	174	241	174	313	273	38	100	95	16	36	174
18	120	178	281	171	285	265	38	105	82	18	26	213
19	138	168	*253	168	260	253	*40	112	60	22	21	203
20	141	164	205	171	257	241	44	115	54	20	19	180
21	141	164	201	174	240	233	46	132	38	21	21	180
22	141	160	197	171	240	241	246	120	25	14	24	176
23	141	174	197	168	245	253	300	112	18	13	24	173
24	138	201	197	168	237	257	203	100	23	12	16	176
25	138	337	193	164	220	257	237	88	*27	15	35	173
26	135	390	180	164	221	253	144	86	10	13	26	166
27	135	301	185	164	225	240	102	91	18	95	30	170
28	138	220	182	164	225	233	93	99	18	70	40	170
29	141	201	178	164	-	225	93	102	17	13	62	160
30	147	193	178	160	-----	220	86	126	17	10	60	151
31	147	-----	174	*201	-----	200	-----	141	-----	13	55	-----
Total	3,668	5,480	8,176	5,287	8,526	7,183	3,666	3,336	2,903	5,325	1,073	3,155
Mean	118	183	264	171	304	232	122	108	96.4	17.2	34.6	105
Max.	147	390	1,020	201	778	309	390	168	213	30	69	213
Min.	57	141	174	160	217	193	34	68	17	7.0	16	28
Ac-ft	7,280	10,890	16,220	10,490	16,910	14,250	7,270	6,620	5,740	1,060	2,130	6,260

Calendar year 1960: Max 1,550 Min 5.5 Mean 132 Acre-feet 96,000  
 Water year 1960-61: Max 1,020 Min 7.0 Mean 145 Acre-feet 105,100

Peak discharge (base, 400 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-25	3:30 p.m.	4.02	444	2-11	4 p.m.	4.87	892
12-1	7 p.m.	5.58	1,370				

\* Discharge measurement made on this day.

11-5178. Beaver Creek near Klamath River, Calif.

Location.--Lat 41°53'40", long 122°49'20", in NE 1/4 sec. 30, T.47 N., R.8 W., on left bank 0.1 mile downstream from Buckhorn Gulch, 1.9 miles upstream from mouth, and 14.8 miles northwest of Yreka.

Drainage area.--103 sq mi.

Records available.--Occasional low-flow measurements, water years 1953-58, and annual maximum, water year 1956. March 1959 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 1,920 ft (from topographic map). Prior to Mar. 17, 1959, crest-stage gage only and Mar. 17 to June 12, 1959, at site 0.6 mile downstream at different datum.

Extremes.--Maximum discharge during year, 1,500 cfs Feb. 10 (gage height, 6.74 ft); minimum, 18 cfs Oct. 5.  
1955-56, 1959-61: Maximum discharge, 8,000 cfs Aug. 20, 1956 (gage height, 10.6 ft, present datum, from floodmarks), from rating curve extended above 600 cfs.  
1959-61: Minimum discharge, 10 cfs Jan. 1, 1960.

Remarks.--Records good. Some small diversions above station for irrigation.

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

Oct. 1 to Feb. 10		Feb. 11 to Sept. 30	
3.0	17	3.1	20
3.4	52	3.4	47
3.8	108	3.8	98
4.3	209	4.3	197
5.0	425	5.0	400
5.5	635	6.0	920

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	20	23	105	44	*122	*121	193	220	276	90	40	26
2	19	23	77	44	159	119	232	211	*305	89	38	27
3	19	23	63	44	136	112	290	208	304	86	38	26
4	19	*23	58	44	115	110	*308	199	298	84	37	26
5	19	23	51	45	106	121	281	199	292	84	43	25
6	25	23	47	46	110	119	262	199	276	*79	43	25
7	28	23	47	46	98	108	249	190	257	78	47	26
8	31	23	45	45	97	108	239	202	249	75	41	25
9	26	23	44	48	258	110	234	230	234	71	*37	25
10	24	24	43	45	619	106	230	227	227	69	36	24
11	24	31	42	44	828	121	239	218	222	66	37	24
12	24	28	41	43	393	123	249	211	211	74	38	*24
13	24	30	42	43	317	156	225	206	206	90	37	25
14	24	33	42	44	281	197	220	211	204	74	34	25
15	24	32	42	43	281	227	227	227	199	68	34	26
16	24	36	49	42	242	204	249	234	190	63	34	51
17	24	50	80	41	225	195	254	252	184	59	33	52
18	23	75	122	40	204	179	*241	278	173	57	32	40
19	23	38	*115	40	184	186	222	295	164	55	31	35
20	23	38	86	40	162	175	213	304	162	54	32	32
21	23	41	74	41	160	171	211	298	150	53	31	32
22	22	34	68	41	158	199	204	292	142	51	28	32
23	22	104	63	45	146	202	190	278	134	50	27	31
24	23	228	60	44	142	199	182	276	126	48	26	30
25	24	209	58	43	136	190	175	281	115	46	27	29
26	25	84	58	43	128	188	177	281	108	44	28	28
27	24	60	54	45	126	175	179	267	105	44	30	27
28	24	53	51	44	121	167	186	262	101	43	29	27
29	24	49	50	52	-	167	206	257	100	43	28	28
30	23	50	49	58	-----	169	204	257	94	41	27	28
31	23	-----	48	193	-----	177	-----	262	-----	41	26	-----
Total	724	1,534	1,874	1,520	6,054	4,901	6,771	7,532	5,808	1,969	1,049	881
Mean	23.4	51.1	60.5	49.0	216	158	226	243	194	63.5	33.8	29.4
Max.	31	228	122	193	828	227	308	304	305	90	47	52
Min.	19	23	41	40	97	106	175	190	94	41	26	24
Ac-ft	1,440	3,040	3,720	3,010	12,010	9,720	13,430	14,940	11,520	3,910	2,080	1,750

Calendar year 1960: Max 653 Min 14 Mean 99.5 Acre-feet 72,220  
Water year 1960-61: Max 828 Min 19 Mean 111 Acre-feet 80,570

Peak discharge (base, 400 cfs)--Feb. 10 (11:30 p.m.) 1,500 cfs (6.74 ft).

\* Discharge measurement made on this day.

Note.--No gage-height record Oct. 14 to Nov. 3.

## KLAMATH RIVER BASIN

11-5180.5. East Fork Scott River at Callahan, Calif.

Location.--Lat 41°18'15", long 122°46'35", in SE 1/4 NW 1/4 sec. 22, T. 40 N., R. 8 W., on right bank 1.0 mile downstream from Big Mill Creek and 1.4 miles east of town of Callahan. Prior to July 26, 1961, at site 1.6 miles downstream.

Drainage area.--110 sq mi; 114 at former site.

Records available.--October 1959 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 3,200 ft (from topographic map). Prior to July 26, 1961, at site 1.6 miles downstream at different datum.

Extremes.--Maximum discharge during year, 2,430 cfs Feb. 10 (gage height, 8.35 ft); minimum, 1.1 cfs Aug. 25.  
1959-61: Maximum discharge, that of Feb. 10, 1961; minimum, that of Aug. 25, 1961.

Remarks.--Records good: Small diversions above station for irrigation.

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

Oct. 1 to July 25

July 26 to Sept. 30

4.08	2.7	4.9	76	4.67	1.2
4.1	3.2	5.3	155	4.7	1.5
4.2	6.3	5.7	285	4.8	3.1
4.3	11	6.2	510	4.9	5.7
4.4	17	7.1	1,130	5.0	9.0
4.6	37				

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.7	4.9	6.96	2.9	2.97	7.2	12.6	2.53	3.49	4.9	5.1	1.7
2	2.7	4.9	2.24	3.0	2.65	7.0	17.5	2.34	5.00	4.4	5.1	1.7
3	2.7	5.6	1.20	3.7	2.17	6.8	2.42	2.04	4.06	3.9	4.8	1.7
4	2.7	*5.6	8.4	3.6	1.60	6.8	2.57	1.80	3.83	3.4	4.8	1.7
5	3.4	5.2	6.5	3.4	1.30	6.9	*2.20	1.62	3.74	3.3	5.4	1.6
6												
7	4.0	4.9	5.4	3.0	1.26	6.8	1.92	1.52	3.09	2.8	5.7	1.6
8	3.7	4.9	4.7	2.9	1.18	6.3	1.72	1.38	2.61	*2.8	5.7	1.5
9	4.3	4.9	*4.2	2.8	1.06	6.8	1.55	1.50	2.42	2.7	5.7	1.4
10	4.3	4.6	3.9	2.9	2.03	6.6	1.55	2.10	2.10	2.5	5.4	1.4
	4.3	4.9	3.6	2.8	9.56	6.5	1.52	2.17	1.92	2.4	*5.1	1.6
11												
12	4.3	6.7	3.4	*2.8	1.080	6.8	1.52	1.86	1.98	2.4	5.1	1.7
13	4.9	8.4	3.3	2.8	3.83	6.5	1.75	1.65	1.86	2.4	6.0	1.7
14	4.6	8.8	3.3	2.7	2.61	6.9	1.50	1.52	1.86	3.2	6.3	*1.7
15	4.6	7.9	3.3	2.7	1.98	1.85	1.38	1.58	1.98	2.7	5.7	1.7
	4.6	7.1	3.7	2.6	2.17	3.72	1.32	1.86	1.98	2.4	5.4	1.9
16												
17	4.6	7.1	6.2	2.5	1.75	1.98	1.65	2.14	1.89	2.1	5.4	1.3
18	4.3	9.2	1.26	2.5	1.55	1.78	2.01	2.45	1.72	1.9	5.1	3
19	4.3	1.7	2.01	2.4	1.30	1.52	1.86	2.97	1.55	1.7	4.8	5.7
20	4.3	1.2	1.62	2.4	1.18	1.52	1.50	3.49	1.38	1.5	4.3	5.4
	4.3	1.0	1.03	2.3	*1.08	1.38	*1.28	3.57	1.24	1.4	3.3	6.0
21												
22	4.3	1.0	8.2	2.3	1.03	1.28	1.38	3.33	1.18	1.4	2.9	6.3
23	4.3	9.2	7.0	2.3	9.7	1.89	1.48	3.41	1.14	1.3	2.7	6.0
24	4.3	2.2	6.3	3.2	9.0	1.86	1.26	2.93	1.06	1.3	2.7	5.7
25	4.6	4.8	5.8	3.2	8.7	1.60	1.14	2.57	9.9	1.2	2.7	5.4
	4.6	2.29	5.4	3.0	8.4	1.40	1.06	2.69	9.0	*1.2	1.9	5.1
26												
27	4.6	6.9	5.2	3.6	7.9	1.24	1.06	2.85	8.4	7.9	1.2	4.8
28	4.9	4.3	4.8	4.3	7.6	1.16	1.18	2.24	7.5	7.6	1.4	4.8
29	5.2	3.4	4.4	4.2	7.2	1.06	1.28	2.17	6.8	6.9	1.7	4.8
30	5.2	2.8	4.2	4.3	-	1.05	1.83	2.31	5.9	6.6	2.0	4.5
31	5.2	7.1	5.2	10.2	-----	1.06	2.07	2.38	5.3	5.7	1.6	4.5
	4.9	-----	3.7	8.27	-----	1.12	-----	*2.20	-----	5.4	1.6	-----
Total	131.7	707.8	2.833	1.800	6.091	3.726	4.797	7.117	5.836	652.1	126.6	104.2
Mean	4.25	23.6	91.4	58.1	218	120	160	230	195	21.0	4.08	3.47
Max.	5.2	229	696	827	1,080	372	257	357	500	49	6.3	6.3
Min.	2.7	4.6	33	23	72	63	106	138	53	5.4	1.2	1.4
Ac-ft	261	1,400	5,620	3,570	12,080	7,390	9,510	14,120	11,580	1,290	251	207

Calendar year 1960:

Water year 1960-61:

Peak discharge (base, 550 cfs)

\* Discharge measurement made on this day.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-1	4 a.m.	6.90	970	2-10	8 p.m.	8.35	2,430
1-31	6 a.m.	7.79	1,750	6-1	11 p.m.	6.57	729



11-5182. South Fork Scott River near Callahan, Calif.

Station was discontinued September 1960.

## KLAMATH RIVER BASIN

11-5195. Scott River near Fort Jones, Calif.

Location.--Lat 41°38'28", long 123°00'54", in NE  $\frac{1}{4}$  (revised) sec.29, T.44 N., R.10 W., on right bank 1.7 miles upstream from Snow Creek and 10.8 miles downstream from Fort Jones.

Drainage area.--662 sq mi.

Records available.--December 1941 to September 1961. Monthly discharge only October to December 1941, published in WSP 1315-B.

Gage.--Water-stage recorder. Datum of gage is 2,625.80 ft above mean sea level (levels by Corps of Engineers).

Average discharge.--20 years, 642 cfs (464,800 acre-ft per year).

Extremes.--Maximum discharge during year, 7,560 cfs Feb. 11 (gage height, 10.42 ft); minimum, 35 cfs Oct. 6.

1941-61: Maximum discharge, 38,500 cfs Dec. 22, 1955 (gage height, 21.40 ft), from rating curve extended above 5,500 cfs on basis of slope-area measurement of peak flow; minimum, 20 cfs Sept. 14, 15, 1955.

Remarks.--Records good. Diversions for irrigation of about 30,000 acres above station.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Oct. 1-10, Dec. 19-22)

1.5	33	5.0	870
2.0	74	6.0	1,550
2.5	136	7.0	2,650
3.0	217	8.0	3,850
3.5	315	10.0	6,800
4.0	450		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	50	61	747	303	1,490	594	880	770	1,120	279	68	49
2	49	61	1,060	285	1,430	610	1,030	855	1,820	240	67	48
3	48	63	658	275	*1,530	574	1,310	765	1,810	226	63	47
4	48	63	489	265	1,100	554	1,590	710	1,710	213	62	46
5	44	64	399	267	905	570	*1,450	658	1,680	197	63	45
6	36	64	342	269	860	626	1,290	618	1,600	194	68	45
7	37	65	305	273	820	598	1,170	582	1,350	*187	67	45
8	39	65	289	275	770	562	1,060	566	1,200	171	67	46
9	41	65	273	283	1,330	566	1,030	654	1,070	160	68	46
10	73	64	261	291	3,390	566	992	875	962	153	*66	47
11	77	65	251	285	6,680	626	932	815	944	145	65	53
12	69	66	242	275	4,050	630	998	745	900	136	64	56
13	66	68	234	267	2,670	700	956	690	870	132	60	*60
14	64	70	228	265	2,060	880	850	662	815	122	60	58
15	64	70	225	265	1,850	1,390	815	710	730	117	60	55
16	66	70	236	261	1,570	1,330	860	800	735	109	60	67
17	68	73	451	253	1,330	1,220	1,030	905	795	107	58	76
18	67	82	938	247	1,160	1,100	998	1,060	855	107	53	83
19	67	97	1,390	242	1,030	1,050	865	1,310	750	105	54	83
20	*68	97	962	240	944	1,060	*770	1,540	666	99	61	82
21	66	97	*755	236	885	980	695	1,530	610	97	61	78
22	65	96	618	234	845	1,090	685	1,370	570	90	51	77
23	64	137	542	236	780	1,440	638	1,300	518	83	49	75
24	63	1,020	489	246	740	1,300	586	1,090	477	81	47	74
25	63	1,540	450	246	725	1,160	538	1,030	441	76	45	77
26	63	966	432	246	675	1,060	504	1,140	399	72	44	76
27	61	501	405	247	642	998	489	1,040	362	68	46	74
28	61	372	380	251	*598	932	501	944	322	71	46	72
29	61	309	355	265	-	870	566	992	309	71	47	68
30	61	281	342	299	-	845	675	1,050	297	68	49	68
31	61	-	322	1,250	-	845	-	*1,040	-	70	49	-
Total	1,830	6,712	15,070	9,142	42,859	27,326	26,753	28,816	26,687	4,046	1,788	1,876
Mean	59.0	224	486	295	1,531	881	892	930	890	131	57.7	62.5
Max.	77	1,540	1,390	1,250	6,680	1,440	1,590	1,540	1,820	279	68	83
Min.	36	61	225	234	598	554	489	566	297	68	44	45
Ac-ft	3,630	13,310	29,890	18,130	85,010	54,200	53,060	57,160	52,930	8,030	3,550	3,720

Calendar year 1960: Max 6,160 Min 36 Mean 440 Acre-feet 319,100  
Water year 1960-61: Max 6,680 Min 36 Mean 529 Acre-feet 382,600

Peak discharge (base, 2,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1-31	9 p.m.	6.74	2,340	6-2	12 m.	6.57	2,130
2-11	1 p.m.	10.42	7,560				

\* Discharge measurement made on this day.

KLAMATH RIVER BASIN

405

11-5205. Klamath River near Seiad Valley, Calif.

Location.--Lat 41°51'20", long 123°13'50", in SW 1/4 sec. 3 (revised), T.46 N., R.12 W., on right bank 0.4 mile upstream from Bittenbender Creek, 1.4 miles downstream from Grider Creek, and 2.2 miles west of Seiad Valley.

Drainage area.--6,980 sq mi, approximately.

Records available.--October 1912 to September 1925, July 1951 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Altitude of gage is 1,320 ft (from river-profile map). November 1912 to June 1925, staff gage at site 3 1/2 miles upstream at different datum.

Average discharge.--23 years, 4,110 cfs (2,976,000 acre-ft per year).

Extremes.--Maximum discharge during year, 17,000 cfs Feb. 11 (gage height, 11.03 ft); minimum daily, 799 cfs Sept. 11. 1912-25, 1951-61: Maximum discharge, 122,000 cfs Dec. 22, 1955 (gage height, 29.2 ft, from floodmarks), from rating curve extended above 25,000 cfs on basis of slope-area measurements at gage-heights 20.1 and 29.2 ft; minimum daily, 320 cfs Nov. 25, 1917.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Flow considerably regulated by reservoirs and powerplants above station. Large diversions above station for irrigation.

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

Oct. 1 to Mar. 31		Apr. 1 to Sept. 30	
2.5	910	2.4	735
3.0	1,230	3.0	1,220
4.0	2,180	4.0	2,190
6.0	5,050	6.0	5,050
9.0	11,200	7.0	6,800
11.0	16,900		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	1,220	2,090	A5,990	1,820	5,340	3,590	4,840	2,850	3,970	2,080	1,340	1,640
2	922	1,780	A8,000	1,570	*5,250	*4,310	4,700	4,210	*4,760	1,470	1,330	1,820
3	1,030	*2,110	A5,000	2,030	5,580	4,270	5,220	3,560	4,890	1,290	1,330	855
4	1,780	2,090	3,500	3,040	4,090	3,560	*5,800	3,470	4,730	1,340	1,400	807
5	2,110	2,040	3,140	2,680	3,230	2,550	5,390	3,360	4,790	1,250	1,380	823
6	1,930	1,260	3,680	2,370	3,210	3,250	5,070	3,500	4,630	*1,760	951	1,720
7	1,870	1,060	3,500	2,090	4,160	3,760	4,830	3,190	4,410	1,560	927	1,730
8	1,590	2,150	3,410	1,890	5,290	3,790	4,590	3,040	4,100	1,490	1,380	1,840
9	1,140	2,020	3,550	1,680	5,420	3,890	4,240	3,440	3,920	1,350	1,430	1,610
10	1,030	2,220	3,300	2,510	7,640	3,950	4,210	3,800	3,530	1,120	1,360	831
11	2,300	2,170	2,600	2,540	15,100	3,850	4,300	3,920	3,230	1,520	1,350	*799
12	2,090	1,960	2,590	2,620	10,600	3,360	4,380	3,820	2,880	1,600	1,400	1,620
13	2,070	1,440	3,290	2,900	7,640	3,920	4,310	3,650	3,440	1,680	975	1,600
14	1,940	1,210	3,390	2,370	6,820	4,990	4,240	3,560	3,520	1,380	903	1,600
15	1,450	2,130	3,320	1,650	6,960	6,350	3,850	3,560	3,640	1,540	1,390	1,610
16	1,020	2,060	3,400	2,140	6,510	6,080	3,300	3,670	3,590	1,150	1,370	1,690
17	1,100	2,180	3,790	2,550	5,560	6,190	3,330	3,800	3,260	1,010	1,360	1,150
18	1,850	2,460	A11,000	2,820	4,840	5,530	4,310	4,000	2,770	1,420	1,360	1,240
19	2,180	2,310	A8,900	2,890	3,800	4,490	4,100	4,440	2,510	1,420	1,360	1,950
20	2,100	1,610	*5,900	2,690	4,070	4,360	3,920	4,750	2,710	1,410	855	2,090
21	2,180	1,270	4,790	2,640	4,300	5,650	3,700	4,790	2,680	1,420	847	2,180
22	2,070	2,360	4,240	2,020	3,980	5,020	3,980	4,470	2,580	1,420	1,330	2,070
23	1,040	2,940	3,770	2,170	4,310	5,560	3,390	4,130	2,440	967	1,320	2,020
24	1,070	A13,000	3,360	2,860	4,180	5,420	2,890	3,830	2,330	951	1,330	*1,270
25	2,060	A11,000	3,390	3,080	3,770	5,320	3,470	3,710	2,300	1,360	1,360	*1,010
26	2,090	A5,990	2,800	2,750	3,050	5,310	3,770	3,830	1,680	1,350	1,390	2,150
27	2,200	3,360	2,720	2,630	2,970	5,190	3,550	3,850	2,350	1,330	839	2,170
28	1,890	2,050	3,700	2,380	3,770	4,860	3,590	3,430	2,310	1,360	815	2,170
29	1,980	3,290	3,320	2,160	-----	4,790	3,220	3,370	2,270	1,400	1,630	2,190
30	1,030	3,430	3,300	2,510	-----	4,860	2,770	3,890	2,240	895	1,590	2,170
31	1,070	-----	2,750	5,100	-----	4,940	-----	4,090	-----	887	1,620	-----
TOTAL	51,402	87,040	129,390	77,170	151,440	142,960	123,260	116,980	98,480	42,180	39,222	48,220
MEAN	1,658	2,901	4,174	2,479	5,409	4,612	4,109	3,774	3,283	1,361	1,265	1,608
MAX	2,300	13,000	11,000	5,100	15,100	6,350	5,800	4,790	4,890	2,080	1,630	2,190
MIN	922	1,060	2,500	1,570	2,970	2,550	2,770	2,850	1,680	887	815	799
AC-FT	102,000	172,600	256,600	153,000	300,400	283,600	244,500	232,000	195,300	83,660	77,800	95,650

Calendar year 1960: Max 16,100 Min 870 Mean 2,791 Ac-ft 2,026,000  
 Water year 1960-61: Max 15,100 Min 799 Mean 3,035 Ac-ft 2,197,000

\* Discharge measurement made on this day.  
 A No gage-height record.

## KLAMATH RIVER BASIN

11-5215. Indian Creek near Happy Camp, Calif.

Location.--Lat 41°50'50", long 123°23'10", in SE $\frac{1}{4}$  sec.22, T.17 N., R.7 E., on left bank 1.5 miles upstream from Slater Creek, 3.8 miles north of Happy Camp, and 4.5 miles upstream from mouth.

Drainage area.--118 sq mi.

Records available.--September 1911 to September 1921 (fragmentary), December 1956 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Altitude of gage is 1,300 ft (from topographic map). Prior to December 1956, staff gages at sites 0.25 mile upstream at different datums.

Average discharge.--7 years (1911-14, 1957-61), 430 cfs (311,300 acre-ft per year).

Extremes.--Maximum discharge during year, 6,540 cfs Feb. 10 (gage height, 15.80 ft); minimum, 42 cfs Oct. 4, 5.

1911-21, 1956-61: Maximum discharge, 14,400 cfs Jan. 12, 1959 (gage height, 23.54 ft), from rating curve extended above 4,200 cfs on basis of slope-area measurement at gage height 29.0 ft; minimum observed, 20 cfs Aug. 19 to Sept. 6, 1914.

Flood of Dec. 21, 1955, reached a stage of 29.0 ft, from floodmarks (discharge, 23,000 cfs on basis of slope-area measurement of peak flow).

Remarks.--Records good. Small diversions above station for irrigation.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Sept. 20-30)

Oct. 1 to Feb. 10

Feb. 11 to Sept. 30

1.2	37	3.5	440	0.3	41	3.0	385
1.3	43	6.0	1,190	.5	47	4.0	650
1.7	77	10.0	2,650	.8	61	6.0	1,250
2.0	116	13.0	4,400	1.3	101	9.0	2,320
2.5	200			2.0	191	13.0	4,400

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	44	47	779	124	1,160	550	947	830	510	136	71	55
2	43	46	554	116	*1,060	*605	1,140	743	578	135	73	55
3	43	*46	365	112	818	545	1,360	656	*584	131	72	55
4	42	45	275	105	620	505	*1,300	584	512	128	71	53
5	44	45	216	101	506	545	1,110	560	465	129	76	53
6	64	46	175	101	524	578	1,000	605	452	127	76	53
7	67	46	152	106	434	540	920	555	390	*122	73	53
8	65	48	136	105	416	575	854	555	354	119	70	53
9	54	48	122	130	2550	614	836	665	336	115	*68	53
10	52	49	110	124	4,200	626	788	1,000	320	112	66	53
11	50	78	106	116	4,160	725	791	995	322	108	67	53
12	52	65	102	113	2,000	776	848	866	300	106	68	*53
13	51	70	97	118	1,480	1,240	761	791	294	106	68	52
14	40	82	92	178	1,330	1,960	704	746	300	102	66	52
15	47	77	97	182	1,590	1,710	692	752	294	99	65	51
16	46	94	290	161	1,300	1,260	776	776	278	98	63	58
17	46	228	909	145	1,080	1,150	812	812	255	97	62	66
18	46	457	1,480	130	914	1,020	752	960	233	94	61	57
19	46	173	1,110	119	900	1,210	656	890	217	90	60	54
20	46	141	*674	110	725	1,280	596	860	207	88	60	54
21	46	216	488	103	725	1,080	605	749	193	86	58	51
22	45	145	380	98	755	1,370	548	689	190	84	57	40
23	46	1,230	320	120	680	1,330	518	632	180	84	56	40
24	46	2,900	272	118	647	1,190	495	555	170	81	57	47
25	48	1,680	232	108	590	1,080	485	545	166	79	57	*46
26	54	640	220	105	548	1,040	495	550	161	76	59	46
27	56	360	208	105	530	953	505	498	156	75	61	46
28	52	250	187	103	498	896	538	472	149	75	50	45
29	52	191	179	300	-	848	752	480	143	74	57	45
30	50	231	149	761	-----	854	785	475	139	73	56	44
31	48	-----	134	2,990	-----	890	-----	468	-----	70	55	-----
Total	1,542	9,783	10,610	7,407	32,640	29,575	23,369	21,432	8,848	3,090	1,988	1,554
Mean	49.7	326	343	239	1,166	954	779	691	295	100	64.1	51.8
Max.	67	2,900	1,480	2,990	4,200	1,960	1,360	1,000	584	136	76	66
Min.	42	45	92	98	416	505	485	468	139	70	55	44
Ac-ft	3,060	19,400	21,060	14,690	64,740	58,660	46,350	42,510	17,550	6,150	3,940	3,080

Calendar year 1960 :

Max 4,830

Min 42

Mean 364

Acre-feet 264,100

Water year 1960-61 :

Max 4,200

Min 42

Mean 416

Acre-feet 301,200

Peak discharge (base, 1,000 cfs)

\* Discharge measurement made on this day.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-17	12p.m.	5.60	1,070	3-14	7p.m.	8.94	2,300
11-24	10p.m.	12.16	3,850	3-19	8p.m.	6.93	1,530
12-18	6p.m.	8.16	1,900	3-22	6p.m.	6.90	1,520
1-31	7a.m.	13.95	5,060	4-3	9p.m.	6.74	1,470
2-10	10p.m.	15.80	6,540	5-10	10p.m.	5.57	1,120

11-5222. Elk Creek near Happy Camp, Calif.

Location.--Lat 41°44'40", long 123°20'50", in NE $\frac{1}{4}$  sec. 36, T.16 N., R.7 E., on left bank 0.15 mile downstream from East Fork, 4 miles upstream from mouth, and 4 miles south of Happy Camp.

Drainage area.--91.1 sq mi.

Records available.--October 1956 to September 1961. Monthly discharge only for October 1956, published in WSP 1735.

Gage.--Water-stage recorder. Altitude of gage is 1,300 ft (from topographic map).

Average discharge.--5 years, 226 cfs (163,600 acre-ft per year).

Extremes.--Maximum discharge during year, 2,830 cfs Feb. 10 (gage height, 6.62 ft); minimum, 27 cfs Oct. 2-5.

1956-61: Maximum discharge, 4,150 cfs Jan. 29, 1958 (gage height, 7.72 ft), from rating curve extended above 1,600 cfs on basis of slope-area measurement at gage height 15.3 ft; minimum, 26 cfs Jan. 1, 2, 1960.

Flood of Dec. 21, 1955, reached a stage of 15.3 ft, from floodmarks (discharge, 14,400 cfs on basis of slope-area measurement of peak flow).

Remarks.--Records good. Small diversions above station for irrigation.

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

2.4	24	4.0	450
2.6	43	4.5	740
3.0	110	5.0	1,130
3.5	239	6.0	2,100

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	28	30	299	110	515	223	351	414	387	110	51	32
2	27	29	239	106	*568	*229	405	374	436	106	50	32
3	27	*29	185	102	460	213	490	342	*441	101	50	32
4	27	29	154	99	374	201	*515	311	441	99	49	31
5	27	28	133	97	324	229	465	299	418	97	51	31
6	36	29	118	97	360	268	432	295	405	*97	50	31
7	38	29	108	100	311	261	400	275	351	93	53	31
8	39	29	102	97	299	271	374	283	324	89	51	32
9	31	29	97	110	897	287	364	414	295	86	*49	32
10	30	30	95	104	1,790	295	346	495	275	80	46	34
11	30	40	89	99	2,020	364	351	510	275	78	47	34
12	30	35	87	97	1,150	374	374	446	246	75	47	*33
13	30	41	86	95	858	480	333	418	253	75	46	33
14	30	46	86	99	712	646	311	396	283	71	46	33
15	30	40	87	97	698	691	311	405	299	68	44	34
16	30	42	131	91	574	574	351	418	303	68	44	49
17	29	74	387	89	500	562	387	455	279	68	42	51
18	29	136	690	86	423	510	356	520	257	65	42	42
19	29	62	525	84	374	562	315	580	233	63	41	38
20	29	51	*360	82	333	616	287	610	217	62	40	36
21	29	87	279	80	311	535	295	530	204	63	39	35
22	29	59	233	78	303	616	271	500	199	62	38	34
23	29	365	204	87	279	628	257	475	182	59	36	34
24	30	1,210	185	87	268	550	243	409	169	59	35	33
25	30	861	169	84	253	500	236	405	159	57	36	33
26	34	295	162	82	233	475	239	414	152	54	38	33
27	32	190	149	82	226	436	246	360	138	54	39	31
28	31	149	140	80	210	396	261	346	131	53	38	31
29	30	131	131	123	-	369	351	346	125	53	35	30
30	30	127	125	210	-----	356	351	364	116	53	34	30
31	30	-----	118	1,040	-----	346	-----	356	-----	51	33	-----
Total	940	4,332	5,953	3,974	15,623	13,063	10,268	12,765	7,993	2,273	1,340	1,025
Mean	30.3	144	192	128	558	421	342	412	266	73.3	43.2	34.2
Max.	39	1,210	690	1,040	2,020	691	515	610	441	110	53	51
Min.	27	28	86	78	210	201	236	275	116	51	33	30
Ac-ft	1,860	8,590	11,810	7,880	30,990	25,910	20,370	25,320	15,850	4,510	2,660	2,030

Calendar year 1960 : Max 2,030

Min 27

Mean 181

Acre-feet 131,600

Water year 1960-61 : Max 2,020

Min 27

Mean 218

Acre-feet 157,800

Peak discharge (base, 800 cfs)

\* Discharge measurement made on this day.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-25	1a.m.	5.56	1,640	1-31	8a.m.	5.59	1,670
12-18	7p.m.	4.77	946	2-10	10p.m.	6.62	2,830

## KLAMATH RIVER BASIN

11-5222.6. Ti Creek near Somesbar, Calif.

Location.--Lat 41°31'30", long 123°31'35", (unsurveyed), on left bank at Ti Bar School, 0.1 mile upstream from mouth, and 10.5 miles north of Somesbar, Siskiyou County.

Drainage area.--9.46 sq mi.

Records available.--September 1960 to September 1961.

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

Extremes.--1960-61: Maximum discharge during period September 1960 to September 1961, 230 cfs Feb. 11 (gage height, 2.92 ft); minimum, 5.1 cfs Sept. 13-19, 27, 1960.

Remarks.--Records good except those for periods of no gage-height record, which are fair. No regulation or diversion.

Rating table (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Sept. 9 to Nov. 21, 1960, Feb. 13-27, 1961)

1.1	3.6	1.7	31
1.2	5.8	2.0	58
1.3	8.8	2.3	98
1.5	18	2.7	176

Discharge, in cubic feet per second, 1960

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
Sept. 1....	-	Sept. 9....	5.6	Sept. 17....	5.4	Sept. 25....	5.6
2....	-	10....	5.6	18....	5.4	26....	5.8
3....	-	11....	5.6	19....	5.4	27....	5.6
4....	-	12....	5.6	20....	5.6	28....	5.8
5....	-	13....	5.4	21....	5.6	29....	5.8
6....	-	14....	5.4	22....	5.6	30....	5.8
7....	-	15....	5.4	23....	5.6		
8....	-	16....	5.4	24....	5.6		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.8	6.1	a 24	a 12	50	33	51	34	22	12	10	8.2
2	5.8	6.1	a 35	a 12	49	33	51	30	24	12	9.6	7.9
3	5.8	6.4	a 24	a 11	40	30	50	28	23	12	9.2	7.9
4	5.8	6.4	a 21	a 10	33	29	48	28	22	12	9.6	7.6
5	6.1	6.4	a 18	a 9.6	29	37	45	28	21	13	9.6	7.9
6	* 8.2	6.4	a 16	a 8.8	29	44	43	32	22	12	9.6	7.6
7	7.9	6.4	*a 14	a 9.2	25	44	41	28	a 21	13	9.6	7.6
8	6.7	6.4	13	a 9.2	28	46	39	28	a 20	12	8.8	7.9
9	6.1	6.4	12	a 13	58	48	37	40	a 19	12	8.8	7.9
10	6.1	7.0	13	a 11	101	49	35	48	a 18	12	8.8	7.9
11	6.1	9.2	13	9.2	* 168	57	34	49	a 17	12	9.2	7.6
12	6.1	7.6	12	9.2	91	68	35	47	a 17	11	9.2	7.6
13	5.8	10	12	9.2	94	99	33	43	a 18	11	9.2	7.6
14	5.8	10	11	11	* 102	111	31	39	*a 18	10	9.2	7.9
15	5.8	9.2	* 11	10	* 105	108	30	37	18	10	8.8	8.2
16	5.6	10	22	9.2	80	75	30	35	18	10	8.8	12
17	5.6	15	58	8.8	69	82	30	34	17	10	8.8	9.2
18	5.8	18	52	8.2	62	68	30	32	17	10	8.5	8.5
19	5.8	8.2	43	8.2	57	85	28	32	17	10	8.5	8.2
20	* 5.8	8.8	31	8.5	52	83	28	30	17	10	8.5	8.2
21	5.8	9.6	26	8.5	49	66	33	30	17	10	* 8.5	8.2
22	5.8	a 8.2	23	8.2	47	79	31	29	16	10	a 7.9	7.9
23	5.8	a 24	19	11	43	68	30	28	16	11	a 7.9	7.6
24	6.1	a 80	17	8.8	41	65	30	28	16	11	a 8.2	7.6
25	5.8	a 60	16	8.5	38	64	30	28	16	10	a 8.5	7.6
26	7.0	a 44	16	8.8	35	73	* 30	28	15	10	a 8.2	7.6
27	6.4	a 31	14	8.8	34	64	30	27	15	10	a 8.2	7.6
28	6.4	a 22	14	8.8	* 31	a 58	30	26	* 15	10	a 8.2	7.6
29	6.4	a 18	* 13	16	-	a 54	36	26	14	10	a 8.2	7.6
30	6.4	a 16	13	* 25	-	a 53	31	27	13	10	a 8.2	7.6
31	6.1	-	12	104	-	* 52	-	* 25	-	10	8.2	-
Total	190.5	482.8	638	413.7	1640	1925	1060	1004	539	338	272.5	240.3
Mean	6.15	16.1	20.6	13.3	58.6	62.1	35.3	32.4	18.0	10.9	8.79	8.01
Max.	8.2	80	58	104	168	111	51	49	24	13	10	12
Min.	5.6	6.1	11	8.2	25	29	28	25	13	10	7.9	7.6
Ac-ft	378	958	1,270	821	3,250	3,820	2,100	1,990	1,070	670	540	477

Calendar year 1960:

Max -

Min -

Mean -

Acre-feet -

Water year 1960-61:

Max 168

Min 5.6

Mean 24.0

Acre-feet 17,340

Peak discharge (base, 120 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-24	unknown	2.33	122	2-11	5 a.m.	2.92	230
1-31	6 a.m.	2.77	188	3-14	10 p.m.	2.47	144

\* Discharge measurement made on this day.

a No gage-height record.

11-5223. South Fork Salmon River near Forks of Salmon, Calif.

Location.--Lat 41°13'20", long 123°15'00", in SE¼ sec.30, T.39 N., R.12 W., on left bank 100 ft downstream from Methodist Creek and 4.5 miles southeast of town of Forks of Salmon.

Drainage area.--252 sq mi.

Records available.--Occasional low-flow measurements, water years 1953-57 and annual maximum, water years 1954-57. August 1957 to September 1961.

Gage.--Water-stage recorder and crest-stage gage. Altitude of gage is 1,450 ft (from topographic map). Sept. 13, 1953, to Aug. 23, 1957, crest-stage gage only.

Extremes.--Maximum discharge during year, 5,630 cfs Feb. 11 (gage height, 9.62 ft); minimum, 28 cfs Oct. 4, 5.  
1953-61: Maximum discharge, 24,200 cfs Dec. 22, 1955 (gage height, 18.86 ft, from floodmarks, present datum), on basis of slope-area measurement of peak flow.  
1957-61: Minimum discharge, 28 cfs Oct. 4, 5, 1960.

Remarks.--Records good except those for period of ice effect, which are fair. No regulation or diversion.

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

Oct. 1 to Feb. 10

Feb. 11 to Sept. 30

3.6	26	5.0	490	3.6	26	5.0	520
3.8	55	6.0	1,160	3.9	74	6.0	1,220
4.1	118	7.0	2,100	4.2	150	7.0	2,150
4.5	250			4.5	265	9.0	4,700

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	29	41	1,020	8175	807	375	766	759	941	267	76	38
2	29	41	842	8166	1,050	400	976	710	1,280	279	72	38
3	29	39	508	8160	1,010	385	1,250	661	1,170	267	70	38
4	28	38	365	*154	706	370	1,330	610	1,370	231	68	36
5	*29	38	282	151	562	405	1,120	568	1,280	221	76	35
6	47	39	*238	148	544	455	976	562	1,120	205	78	34
7	50	41	210	148	496	450	899	526	976	189	74	34
8	83	41	196	148	460	478	815	520	899	193	76	34
9	64	41	175	154	1,420	538	794	696	780	197	76	33
10	53	41	166	157	1,950	598	759	871	731	193	68	33
11	49	69	157	145	4,110	731	759	780	773	193	68	33
12	45	64	145	140	2,050	780	836	710	696	201	78	33
13	45	64	145	137	1,410	962	738	675	731	217	89	30
14	44	73	145	137	1,200	1,320	668	661	*892	201	68	29
15	42	69	145	134	*1,270	1,610	647	724	*948	161	61	29
16	41	66	200	132	1,080	1,290	773	780	906	144	59	45
17	39	87	1,160	126	913	1,140	906	899	836	130	55	66
18	39	340	1,300	123	759	990	801	1,030	731	124	52	50
19	39	148	1,070	121	647	955	682	1,220	640	127	50	47
20	39	113	682	118	580	962	610	1,190	610	116	49	44
21	39	129	508	118	538	857	586	1,080	592	114	49	41
22	38	111	420	118	520	1,060	550	1,060	598	116	*45	39
23	38	481	365	132	484	1,270	496	955	538	111	44	38
24	37	1,340	320	137	460	1,120	460	836	526	104	44	38
25	38	1,820	286	132	445	969	*445	864	502	99	42	35
26	42	640	266	134	410	899	445	934	440	96	42	35
27	45	375	246	145	395	836	466	745	370	89	45	34
28	44	270	226	142	370	752	502	745	315	85	45	34
29	42	222	8214	169	-----	696	647	794	*298	81	42	33
30	41	210	8200	214	-----	*682	675	822	267	78	42	33
31	41	-----	8189	*1,400	-----	710	-----	752	-----	78	39	-----
TOTAL	1,308	7,091	12,391	5,715	26,646	25,045	22,377	24,739	22,756	4,907	1,842	1,119
MEAN	42.2	236	400	184	952	808	746	798	759	158	59.4	37.3
MAX	83	1,820	1,300	1,400	4,110	1,610	1,330	1,220	1,370	279	89	66
MIN	28	38	145	118	370	370	445	520	267	78	39	29
AC-FT	2,590	14,060	24,580	11,340	52,850	49,680	44,380	49,070	45,140	9,730	3,650	2,220

CALENDAR YEAR 1960: MAX 5,500 MIN 28 MEAN 376 AC-FT 272,800  
WATER YEAR 1960-61: MAX 4,110 MIN 28 MEAN 427 AC-FT 309,300

Peak discharge (base, 3,000 cfs).--Nov. 25 (7 a.m.) 3,030 cfs (7.80 ft); Feb. 11 (3 a.m.) 5,630 cfs (9.62 ft).

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

## KLAMATH RIVER BASIN

11-5224. North Fork Salmon River near Forks of Salmon, Calif.

Location.--Lat 41°16'02", long 123°18'12", in NE¼ sec.18, T.10 N., R.8 E., on right bank 0.4 mile downstream from Pollocks Gulch, 1.2 miles upstream from Forks of Salmon, and 1.3 miles upstream from mouth.

Drainage area.--205 sq mi.

Records available.--August 1958 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 1,240 ft (from topographic map).

Extremes.--Maximum discharge during year, 5,190 cfs Feb. 11 (gage height, 11.02 ft), from rating curve extended above 2,100 cfs as explained below; minimum, 28 cfs Oct. 5.

1958-61: Maximum discharge, 7880 cfs Feb. 8, 1960 (gage height, 12.80 ft), from rating curve extended above 2,100 cfs on basis of slope-area measurement of peak flow; minimum, 28 cfs Oct. 5, 1960.

Remarks.--Records good. Small diversion above station for domestic use.

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

3.8	28	6.0	630
4.0	47	7.0	1,190
4.2	72	9.0	2,860
4.5	127	11.0	5,160
5.0	255		

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	29	36	677	227	846	484	986	928	1,020	207	58	37
2	29	35	736	217	1,180	536	1,360	857	1,190	202	57	36
3	29	35	508	210	1,060	496	1,790	796	1,150	195	55	35
4	29	33	389	*200	791	476	1,870	730	1,240	180	53	35
5	*29	33	315	195	650	500	1,520	690	1,130	175	54	35
6	35	34	*270	192	675	524	1,300	685	1,040	167	62	35
7	46	35	238	195	599	492	1,170	640	884	157	59	34
8	55	35	222	195	554	500	1,060	645	829	147	60	34
9	44	35	210	207	2,260	520	1,040	813	752	140	59	33
10	37	36	200	215	3,160	540	974	998	720	135	55	33
11	35	71	190	195	4,140	603	980	928	736	125	52	32
12	35	77	180	187	2,340	640	1,080	851	630	119	54	32
13	35	62	177	182	1,640	956	934	824	670	114	53	32
14	35	67	182	185	1,450	1,450	857	796	*824	114	51	32
15	35	68	185	182	*1,560	1,620	835	857	857	106	48	32
16	34	68	212	172	1,330	1,310	986	928	796	101	47	48
17	34	85	705	167	1,110	1,140	1,150	1,060	705	97	46	68
18	33	414	1,420	162	912	980	1,020	1,290	621	92	44	57
19	34	162	1,300	157	791	980	857	1,450	549	88	43	49
20	34	104	807	155	710	1,030	774	1,430	516	86	42	44
21	35	162	599	152	680	939	736	1,240	480	83	40	43
22	35	123	504	150	685	1,200	665	1,150	456	80	*39	40
23	35	390	448	170	635	1,520	599	1,050	410	78	38	40
24	35	2,110	399	180	599	1,310	567	912	378	75	37	39
25	35	1,570	368	167	572	1,150	*549	934	357	72	37	38
26	37	680	343	165	528	1,050	549	1,010	315	68	37	37
27	42	417	319	165	508	974	567	824	279	67	40	37
28	40	309	309	162	480	873	608	813	252	64	42	37
29	39	273	276	192	-----	818	763	857	*233	63	40	37
30	39	247	273	241	-----	*829	796	895	220	62	39	37
31	37	-----	244	*1,250	-----	879	-----	857	-----	59	37	-----
TOTAL	1,115	7,806	13,205	6,791	32,445	27,319	28,942	28,738	20,239	3,518	1,478	1,158
MEAN	36.0	260	426	219	1,159	881	965	927	675	113	47.7	38.6
MAX	55	2,110	1,420	1,250	4,140	1,620	1,870	1,450	1,240	207	62	68
MIN	29	33	177	150	480	476	549	640	220	59	37	32
AC-FT	2,210	15,480	26,190	13,470	64,350	54,190	57,410	57,000	40,140	6,980	2,930	2,300

CALENDAR YEAR 1960: MAX 5,300 MIN 29 MEAN 427 AC-FT 310,100

WATER YEAR 1960-61: MAX 4,140 MIN 29 MEAN 473 AC-FT 342,600

Peak discharge (base, 2,500 cfs).--Nov. 24 (8 a.m.) 2,940 cfs (9.08 ft); Feb. 11 (3 a.m.) 5,190 cfs (11.02 ft).

\* Discharge measurement made on this day.



KLAMATH RIVER BASIN

411

11-5225. Salmon River at Somesbar, Calif.

Location.--41°22'50", long 123°28'10", in NW¼ sec.2, T.11 N., R.6 E., on right bank 0.5 mile east of Somesbar Post Office and 1.5 miles upstream from mouth.

Drainage area.--746 sq mi.

Records available.--September 1911 to September 1915, October 1927 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Altitude of gage is 500 ft (from topographic map). Prior to October 1927, staff gage at different datum.

Average discharge.--38 years, 1,727 cfs (1,250,000 acre-ft per year).

Extremes.--Maximum discharge during year, 16,700 cfs Feb. 11 (gage height, 10.48 ft); minimum, 144 cfs Oct. 1-4.

1911-15, 1927-61: Maximum discharge, 84,000 cfs Dec. 22, 1955 (gage height, 28.80 ft), from rating curve extended above 15,000 cfs; minimum, 70 cfs Aug. 25, Sept. 4, 5, 1931.

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

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

Oct. 1 to Jan. 30				Jan. 31 to Sept. 30			
3.1	144	5.0	2,180	3.1	144	5.0	2,240
3.4	300	6.0	4,160	3.4	300	6.0	4,340
3.7	520	8.0	9,160	3.7	520	8.0	9,500
4.0	790			4.0	790	10.0	15,300

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	144	*166	*2,460	801	*3,120	*1,760	3,330	3,040	3,200	750	276	175
2	144	166	2,780	770	3,770	1,960	4,050	2,860	3,840	750	270	175
3	144	162	1,890	730	3,600	1,800	5,130	2,620	3,680	730	264	175
4	144	162	1,430	a 680	2,740	1,720	5,470	2,440	4,030	672	258	170
5	148	162	1,170	a 670	2,280	1,850	4,720	2,310	3,770	663	258	166
6	*175	166	984	a 660	2,350	2,190	4,150	2,380	3,530	636	270	166
7	224	166	878	a 670	2,130	2,080	3,790	2,260	3,060	609	276	162
8	258	170	801	a 665	1,980	2,110	3,460	2,220	2,900	576	270	162
9	224	170	750	a 710	5,160	2,260	3,330	2,760	2,600	576	282	157
10	193	170	710	a 710	8,660	2,380	3,160	3,380	2,440	552	258	157
11	184	276	672	663	14,000	2,940	3,140	3,240	2,510	544	252	157
12	179	282	636	636	8,620	3,160	3,440	3,000	2,220	536	252	157
13	179	270	627	627	6,200	4,240	3,000	2,880	2,290	536	270	157
14	179	294	627	663	5,600	5,390	2,800	2,760	2,700	536	246	153
15	175	288	636	645	5,810	6,040	2,700	2,900	2,840	480	230	157
16	175	294	740	618	*5,080	5,110	3,060	3,060	2,700	440	219	193
17	170	370	3,200	592	4,240	4,770	3,550	3,350	2,420	419	214	230
18	170	1,500	4,880	568	3,490	4,220	3,180	3,880	2,190	398	209	214
19	166	618	4,420	560	3,000	4,100	2,780	4,440	1,920	391	198	198
20	162	433	2,940	544	2,700	4,170	2,530	4,170	1,820	377	193	184
21	162	618	2,220	536	2,550	3,770	2,490	3,960	1,690	363	*193	175
22	162	480	1,860	528	2,490	4,240	2,350	3,710	1,680	356	188	170
23	162	1,480	1,620	560	2,330	5,210	2,110	3,490	1,470	349	184	170
24	166	6,510	1,450	600	2,200	4,750	2,000	3,020	1,360	335	179	166
25	166	5,720	1,310	568	2,110	4,340	*1,880	3,020	1,320	321	179	162
26	184	2,650	1,220	560	1,950	4,050	1,870	3,290	1,200	314	184	157
27	184	1,600	1,140	568	1,850	3,910	1,950	2,740	1,030	300	198	157
28	179	1,170	1,040	568	1,740	3,550	2,060	2,640	*900	288	198	157
29	175	960	*a 996	690	—	3,310	2,550	2,780	845	282	188	153
30	170	878	912	900	—	3,160	2,640	2,980	790	282	184	153
31	170	—	845	*4,490	—	*3,180	—	*2,820	—	276	*179	—
Total	5,417	28,351	47,844	23,750	111,750	107,720	92,670	94,400	68,945	14,637	7,019	5,085
Mean	175	945	1,543	766	3,991	3,475	3,089	3,045	2,298	472	230	170
Max.	258	6,510	4,880	4,490	14,000	6,040	5,470	4,440	4,030	750	282	230
Min.	144	162	627	528	1,740	1,720	1,870	2,220	790	276	179	153
Ac-ft	10,740	56,230	94,900	47,110	221,700	213,600	183,800	187,200	136,800	29,030	13,920	10,090

Calendar year 1960: Max 18,000 Min 144 Mean 1,480 Acre-feet 1,074,000

Water year 1960-61: Max 14,000 Min 144 Mean 1,665 Acre-feet 1,205,000

Peak discharge (base, 7,000 cfs)

\* Discharge measurement made on this day.  
a No gage-height record.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-24	8a.m.	7.64	8,160	2-11	6a.m.	10.48	16,700

## KLAMATH RIVER BASIN

11-5230. Klamath River at Somesbar, Calif.

Location.--Lat 41°22'40", long 123°29'30", in NE¼ sec.4, T.11 N., R.6 E., on left bank 300 ft downstream from Salmon River and 1 mile west of Somesbar Post Office.

Drainage area.--8,480 sq mi, approximately.

Records available.--October 1927 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Altitude of gage is 450 ft (from topographic map).

Average discharge.--34 years, 7,636 cfs (5,528,000 acre-ft per year).

Extremes.--Maximum discharge during year, 57,600 cfs Feb. 11 (gage height, 26.20 ft); minimum daily, 1,360 cfs Sept. 11.

1927-61: Maximum discharge, 202,000 cfs Dec. 22, 1955 (gage height, 59.4 ft, from floodmarks), from rating curve extended above 50,000 cfs by slope-conveyance study; minimum daily, 320 cfs Aug. 25, Sept. 1, 1931.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Flow considerably regulated by reservoirs and powerplants above station. Large diversions above station for irrigation.

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

Oct. 1 to May 20

May 21 to Sept. 30

3.8	1,360	7.0	5,150	4.1	1,300	6.0	3,360
4.0	1,500	9.0	9,600	4.5	1,600	8.0	7,210
4.5	1,910	12.0	17,600	5.0	2,090	11.0	14,900
5.5	2,990	25.0	54,000				

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,960	1,900	11,200	5,200	*18,100	8,850	*14,700	10,700	10,400	3,770	1,700	2,090
2	1,500	2,650	15,200	4,560	17,100	10,200	15,500	11,500	11,300	3,520	2,000	2,080
3	*1,390	2,450	11,900	4,120	16,700	9,760	18,600	10,500	12,600	2,950	1,980	1,750
4	1,700	2,750	8,270	4,850	13,600	9,210	19,500	9,630	11,900	2,830	2,000	1,400
5	2,380	2,700	6,490	4,860	11,000	8,100	17,400	9,210	11,600	2,790	2,050	1,360
6	2,550	2,000	6,710	4,710	10,200	9,420	15,800	9,860	11,100	2,860	1,960	1,680
7	2,540	1,770	6,270	4,400	10,800	10,100	14,700	9,280	11,400	*3,140	1,650	2,180
8	2,540	2,000	*5,850	4,110	11,100	10,400	13,800	8,700	9,550	2,860	1,750	2,130
9	1,920	2,700	5,630	4,100	21,800	10,700	13,200	11,000	8,920	2,760	2,040	2,120
10	1,800	2,750	5,710	4,680	34,100	11,300	12,300	13,800	8,390	2,540	2,000	1,690
11	2,150	2,910	4,780	4,680	53,300	12,800	12,600	14,500	7,960	2,510	1,950	1,360
12	2,900	2,850	4,760	4,710	37,900	13,000	13,000	13,200	7,320	2,740	2,000	1,590
13	2,750	2,410	5,130	4,830	27,100	17,500	12,200	12,200	7,190	2,820	1,900	2,040
14	2,650	2,200	5,230	5,040	23,400	22,700	11,400	11,400	8,050	2,740	1,670	2,050
15	2,500	2,490	5,260	4,660	24,400	25,400	11,000	11,300	8,390	2,460	1,650	2,040
16	2,000	2,980	6,140	4,380	*22,100	22,100	11,100	11,500	8,200	2,520	1,960	2,210
17	1,650	3,120	14,600	4,770	18,100	20,900	11,500	12,100	7,790	2,130	1,900	2,020
18	2,050	5,600	20,600	4,740	15,800	19,000	12,000	13,100	6,930	2,160	1,910	1,750
19	2,400	3,980	19,300	4,830	13,000	17,600	11,100	14,100	5,920	2,380	1,860	2,170
20	2,800	3,120	14,600	4,740	11,900	18,400	10,100	14,500	6,010	2,370	1,760	2,440
21	2,700	3,250	12,300	4,650	12,100	17,900	10,300	13,700	5,710	2,310	1,430	2,640
22	2,800	3,120	10,400	4,340	11,600	18,400	9,760	12,700	5,610	2,310	*1,540	2,520
23	2,600	5,760	8,890	4,010	11,400	20,800	9,180	12,100	5,260	2,180	1,800	2,430
24	1,650	28,500	7,910	4,720	10,900	19,200	8,250	10,700	4,950	1,830	1,790	2,090
25	1,800	25,700	6,710	4,910	10,300	18,100	8,290	10,200	4,830	*1,870	1,790	1,620
26	2,600	14,600	6,950	4,760	8,800	17,800	*8,870	10,600	4,030	2,170	1,840	1,920
27	2,100	8,990	5,760	4,600	8,390	17,200	8,700	9,810	3,820	2,100	1,760	2,550
28	3,300	6,310	*6,450	4,530	*8,680	15,700	8,940	9,400	*4,170	2,110	1,440	2,510
29	2,700	5,800	6,270	4,960	—	14,700	10,300	9,300	4,030	2,170	1,610	2,540
30	1,960	6,400	5,850	6,630	—	14,400	10,400	9,400	4,060	1,980	2,180	2,570
31	*1,560	—	5,690	24,400	—	14,400	—	*9,760	—	1,630	2,080	—
Total	69,900	163,760	266,810	165,480	493,670	476,040	364,490	349,750	227,390	77,310	56,950	61,540
Mean	2,255	5,459	8,607	5,338	17,630	15,360	12,150	11,280	7,580	2,494	1,837	2,051
Max.	3,300	28,500	20,600	24,400	53,300	25,400	19,500	14,500	12,600	3,770	2,180	2,640
Min.	1,390	1,770	4,760	4,010	8,390	8,100	8,250	8,700	3,820	1,630	1,430	1,360
Ac-ft	138,600	324,800	529,200	328,200	979,200	944,200	723,000	693,700	451,000	153,300	113,000	122,100

Calendar year 1960: Max 56,200 Min 1,390 Mean 6,692 Acre-feet 4,858,000

Water year 1960-61: Max 53,300 Min 1,360 Mean 7,598 Acre-feet 5,500,000

Peak discharge (base, 25,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-24	9a.m.	17.70	33,000	2-11	7a.m.	26.20	57,600
1-31	12m.	17.70	33,000	3-15	9a.m.	15.18	26,200

\* Discharge measurement made on this day.

Note.--No gage-height record Oct. 10-18, 20-30, Nov. 1-10, 18, 23, 24.

## KLAMATH RIVER BASIN

413

11-5230.3. Red Cap Creek near Orleans, Calif.

Location.--Lat 41°14'25", long 123°32'35", in SW¼ sec.19, T.10 N., R.6 E., on left bank 0.5 mile downstream from Leary Creek, 4.4 miles south of Orleans, and 4.9 miles upstream from mouth.

Drainage area.--56.1 sq mi.

Records available.--August 1958 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 630 ft (from topographic map).

Extremes.--Maximum discharge during year, 1,980 cfs Feb. 11 (gage height, 7.95 ft); from rating curve extended above 760 cfs as explained below; minimum, 15 cfs Oct. 3, 4.

1958-61: Maximum discharge, 3,240 cfs Feb. 8, 1960 (gage height, 9.12 ft), from rating curve extended above 760 cfs on basis of slope-area measurement of peak flow; minimum, 15 cfs Sept. 10, 1959, Sept. 27-30, Oct. 3-4, 1960.

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

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

3.5	16	5.0	240
3.7	29	6.0	600
4.0	58	7.0	1,190
4.5	128	8.0	2,030

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	16	18	A228	90	360	193	368	238	190	59	29	23
2	16	18	A215	86	372	213	392	223	190	56	28	23
3	16	17	A198	82	319	198	456	205	185	55	29	23
4	*16	17	A180	78	268	185	456	190	175	54	28	22
5	16	17	*165	74	225	213	392	185	168	54	29	21
6	23	17	142	73	225	260	343	205	165	*54	28	21
7	27	18	126	73	200	263	310	205	154	53	29	21
8	29	18	114	71	195	263	286	203	146	50	35	21
9	21	18	103	82	471	277	274	250	139	49	31	20
10	20	20	99	77	757	289	258	316	133	46	30	20
11	19	40	90	73	1,670	384	255	384	130	45	29	20
12	19	30	83	71	952	420	260	353	122	43	29	19
13	19	37	80	70	715	532	235	322	120	43	29	19
14	18	49	79	71	*665	630	223	298	120	42	28	18
15	18	38	77	69	675	720	215	286	118	42	28	20
16	18	41	96	66	615	635	235	277	*112	41	27	26
17	17	114	516	64	528	650	240	277	105	40	26	23
18	17	167	596	62	436	584	225	280	100	39	26	22
19	17	73	520	59	368	568	203	289	94	38	25	21
20	17	65	353	57	319	588	190	277	89	37	25	21
21	17	90	274	56	289	524	203	250	86	36	*24	20
22	17	64	228	55	280	548	190	235	82	35	24	20
23	17	495	190	57	258	580	178	228	78	34	24	20
24	20	711	161	56	248	548	170	203	74	33	24	19
25	18	708	146	54	230	548	168	195	73	32	*23	18
26	23	332	137	53	213	552	168	198	68	31	26	18
27	21	203	125	54	*200	544	*170	175	66	31	27	18
28	20	150	*115	53	183	492	178	170	65	31	26	18
29	20	126	108	84	-----	448	215	170	64	31	25	18
30	19	A117	102	*100	-----	412	210	198	62	30	23	18
31	18	-----	96	570	-----	*388	-----	190	-----	29	22	-----
TOTAL	589	3,828	5,742	2,640	12,236	13,649	7,666	7,475	3,473	1,93	836	611
MEAN	19.0	128	185	85.2	437	440	256	241	116	67	27.0	20.4
MAX	29	711	596	570	1,670	720	456	384	190	59	35	26
MIN	16	17	77	53	183	185	168	170	62	29	22	18
AC-FT	1,170	7,590	11,390	5,240	24,270	27,070	15,210	14,830	6,890	560	1,660	1,210

CALENDAR YEAR 1960: MAX 2,440 MIN 16 MEAN 157 AC-FT 113, 800  
 WATER YEAR 1960-61: MAX 1,670 MIN 16 MEAN 164 AC-FT 119,100

Peak discharge (base, 1,000 cfs).--Nov. 23 (10 p.m.) 1,140 cfs (6.93 ft); Feb. 11 (4 a.m.) 1,980 cfs (7.95 ft).

\* Discharge measurement made on this day.

A No gage-height record.

## KLAMATH RIVER BASIN

11-5230.5. Bluff Creek near Weitchpec, Calif.

Location.--Lat 41°14'25", long 123°39'25", in SW¼ sec.19, T.10 N., R.4 E., on left bank 0.8 mile upstream from Aikens Creek, 1.2 miles upstream from mouth, and 4.4 miles northeast of Weitchpec.

Drainage area.--74.6 sq mi.

Records available.--Occasional low-flow measurements, water years 1951-57 and annual maximum, water years 1955-56. August 1958 to September 1961.

Gage.--Water-stage recorder and crest-stage gage. Altitude of gage is 400 ft (from topographic map). Sept. 21, 1953, to Sept. 30, 1956, crest-stage gage only, at site 0.2 mile downstream at different datum.

Extremes.--Maximum discharge during year, 3,910 cfs Feb. 11 (gage height, 8.46 ft); minimum, 45 cfs Nov. 5-8.

1954-61: Maximum discharge, 20,200 cfs Dec. 22, 1955 (gage height, 13.7 ft, from floodmarks, present datum), on basis of slope-area measurement of peak flow.

1958-61: Minimum discharge, 34 cfs Oct. 15, 1958.

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

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

Oct. 1 to Nov. 22				Nov. 23 to Sept. 30			
3.7	40	5.0	310	3.8	43	5.5	535
4.0	76	6.0	800	4.0	64	6.0	800
4.5	160			4.4	145	7.0	1,700
				5.0	335	9.0	4,900

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	51	48	660	286	905	605	*950	560	*307	135	77	57
2	51	48	645	272	838	675	958	535	297	133	75	57
3	51	47	535	258	718	615	1,036	495	286	130	74	56
4	50	46	459	248	610	570	1,010	463	279	128	72	54
5	*50	45	*398	237	540	675	913	477	269	125	75	53
6	54	45	363	230	526	782	838	729	276	123	74	52
7	79	45	328	227	490	718	764	665	262	120	72	52
8	70	46	307	221	517	740	713	595	244	118	70	51
9	65	46	286	244	1,320	770	665	696	237	116	67	51
10	54	47	283	227	1,980	788	625	973	227	112	66	50
11	52	82	272	218	*3,220	1,130	595	1,240	224	110	66	50
12	51	62	251	224	2,210	1,250	620	1,050	218	108	66	49
13	51	93	237	237	1,950	2,270	560	935	*209	106	64	49
14	50	107	230	279	2,120	2,090	517	800	203	104	64	49
15	50	125	224	269	2,370	2,010	490	724	197	100	63	50
16	50	128	314	248	1,850	1,670	481	665	191	100	62	57
17	49	187	1,390	230	1,520	1,640	477	615	182	98	62	54
18	49	429	1,610	215	1,270	1,430	472	575	179	96	60	53
19	49	160	1,310	209	1,070	1,500	429	545	173	94	59	52
20	48	121	928	200	928	1,540	425	508	170	92	59	50
21	48	170	729	194	853	1,290	540	477	165	92	*59	49
22	48	130	625	185	815	1,400	495	450	163	90	58	49
23	49	1,260	545	206	740	1,490	463	425	158	88	58	48
24	57	2,390	481	191	702	1,540	*441	402	153	86	58	48
25	52	2,400	437	182	660	1,500	433	384	150	86	*58	48
26	66	1,010	409	*179	610	1,580	445	377	145	84	60	48
27	60	590	*381	176	595	1,500	441	363	*143	82	62	48
28	54	433	360	170	560	1,300	445	346	140	80	60	47
29	52	370	332	265	-----	1,150	531	335	140	80	58	47
30	50	343	314	381	-----	1,070	545	328	138	78	57	47
31	49	-----	300	1,760	-----	1,000	-----	314	-----	77	56	-----
TOTAL	1,659	11,053	15,943	8,668	32,487	38,288	18,311	18,046	6,125	3,171	1,991	1,525
MEAN	53.5	368	514	280	1,160	1,235	610	582	204	102	64.2	50.8
MAX	79	2,400	1,610	1,760	3,220	2,270	1,030	1,240	307	133	77	57
MIN	48	45	224	170	490	570	425	314	138	77	56	47
AC-FT	3,290	21,920	31,620	17,190	64,440	75,940	36,320	35,790	12,150	6,290	3,950	3,020

CALENDAR YEAR 1960: MAX 5,460 MIN 45 MEAN 405 AC-FT 294,200  
 WATER YEAR 1960-61: MAX 3,220 MIN 45 MEAN 431 AC-FT 311,900

Peak discharge (base, 2,700 cfs)

\* Discharge measurement made on this day.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-23	6 p.m.	8.17	3,410	2-11	3 a.m.	8.46	3,910
1-31	7 a.m.	7.71	2,720				

11-5232. Trinity River above Coffee Creek, near Trinity Center, Calif.

Location.--Lat 41°06'26", long 122°42'23", on line between secs.31 and 32, T.38 N., R.7 W., on right bank 250 ft downstream from Chinquapin Gulch, 1.8 miles upstream from Coffee Creek, and 7.2 miles north of Trinity Center.

Drainage area.--149 sq mi.

Records available.--September 1957 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 2,533.36 ft above mean sea level, datum of 1929, supplementary adjustment of 1956.

Extremes.--Maximum discharge during year, 6,270 cfs Feb. 11 (gage height, 8.25 ft), from rating curve extended above 2,700 cfs as explained below; minimum, 28 cfs Oct. 2, 3.

1957-61: Maximum discharge, 12,800 cfs Feb. 24, 1958 (gage height, 10.50 ft), from rating curve extended above 2,700 cfs on basis of slope-area measurement at gage height 9.91 ft; minimum, 28 cfs Sept. 26-29, Oct. 2, 3, 1960.

Flood of Dec. 22, 1955, reached a stage of 10.5 ft, from floodmarks.

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

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

Oct. 1 to Nov. 25

Nov. 25 to Sept. 30

1.2	24	1.3	23	3.0	455
1.5	54	1.5	45	4.0	1,000
2.0	131	1.7	75	5.0	1,700
2.5	265	2.0	134	6.0	2,680
3.0	450	2.5	269	7.0	4,020
4.0	980				
5.0	1,700				

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	20	35	1.140	1.46	1.180	272	770	1.070	1.330	1.48	51	32
2	20	35	585	130	1.170	272	1.170	982	1.560	1.39	51	31
3	20	35	345	132	970	263	1.520	922	1.280	1.32	51	30
4	30	35	247	126	710	254	1.490	832	1.240	1.24	51	30
5	34	35	196	121	580	263	1.170	*743	1.170	1.21	56	29
6	66	36	160	119	555	254	1.000	688	1.000	1.17	65	29
7	53	37	146	117	500	235	904	638	886	1.13	62	30
8	48	38	132	115	451	244	832	760	820	1.07	64	29
9	42	38	124	126	644	244	850	1.010	738	1.01	59	30
10	40	37	117	128	2540	244	820	1.080	710	97	55	30
11	39	46	109	124	3540	269	868	934	726	93	52	31
12	39	57	107	121	1.440	266	946	814	655	91	55	31
13	39	63	109	*119	994	286	804	776	672	97	52	31
14	39	58	113	117	809	*595	760	850	704	97	49	31
15	39	52	132	115	982	1.020	787	988	694	89	48	33
16	38	51	250	113	792	710	1.020	1.100	633	84	46	70
17	37	60	460	111	655	585	1.160	1.240	570	82	45	73
18	37	110	818	109	540	491	988	1.470	486	77	44	51
19	36	68	748	109	473	491	770	1.630	427	73	43	44
20	36	59	468	109	431	451	655	1.480	395	72	44	40
21	36	58	360	111	415	435	628	1.280	364	69	43	40
22	36	52	320	113	403	486	540	1.360	333	65	40	39
23	35	63	295	162	371	505	482	1.210	299	62	*39	38
24	36	213	272	172	352	510	*451	1.100	272	62	37	37
25	36	1.180	250	162	326	473	443	1.140	250	59	35	37
26	*38	320	232	187	309	455	482	1.140	224	58	34	37
27	38	182	209	229	295	423	545	958	204	56	34	35
28	38	136	190	226	279	395	650	928	*185	53	34	35
29	37	117	180	238	-	399	844	892	172	55	38	35
30	37	177	167	706	-----	460	904	880	160	53	35	35
31	36	-----	157	2780	-----	570	-----	892	-----	52	33	-----
Total	1.182	3.483	9.132	7.502	22.706	12820	25,253	31,787	19,159	2698	1,445	1,103
Mean	38.1	116	295	242	811	414	842	1,025	639	87.0	46.6	36.8
Max.	66	1,180	1,140	2,780	3,540	1,020	1,520	1,630	1,560	148	65	73
Min.	29	35	107	109	279	235	443	638	160	52	33	29
Ac-ft	2,340	6,910	18,120	14,880	45,040	25,430	50,090	63,050	38,000	5,350	2,890	2,190

Calendar year 1960 :

Max 2,600 Min 29

Mean 304

Acre-feet 220,900

Water year 1960-61 :

Max 3,540 Min 29

Mean 379

Acre-feet 274,300

Peak discharge (base, 1,500 cfs)

\* Discharge measurement made on this day.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-25	7a.m.	5.57	2,230	4-3	10p.m.	5.15	1,840
12-1	7a.m.	5.03	1,730	5-19	8p.m.	5.25	1,920
1-31	7a.m.	7.12	4,210	6-1	11p.m.	5.55	2,210
2-11	1a.m.	8.25	6,270				

## KLAMATH RIVER BASIN

11-5237. Coffee Creek near Trinity Center, Calif.

Location.--Lat 41°05'35", long 122°45'10", in NW 1/4 sec. 2, T.37 N., R.8 W., on left bank 0.75 mile upstream from Little Boulder Creek, 3.2 miles upstream from mouth, and 7 miles northwest of Trinity Center.

Drainage area.--107 sq mi.

Records available.--September 1957 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 2,750 ft (from topographic map).

Extremes.--Maximum discharge during year, 2,050 cfs June 1 (gage height, 4.62 ft); minimum, 23 cfs Oct. 2.  
1957-61: Maximum discharge, 3,240 cfs Feb. 24, 1958 (gage height, 5.63 ft); minimum, 23 cfs Jan. 13, Oct. 2, 1960.

Remarks.--Records good. Slight regulation at low flow.

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

0.9	26	2.9	620
1.1	51	3.7	1,160
1.4	93	4.5	1,920
1.8	169		
2.3	330		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	28	34	210	80	402	174	350	662	1,240	182	65	42
2	26	33	137	81	550	177	540	620	1,530	174	64	42
3	28	33	104	80	480	169	746	596	1,300	169	63	42
4	27	33	92	78	330	167	800	545	1,250	160	63	41
5	39	33	82	77	272	169	692	500	1,250	156	67	41
6	67	36	75	75	276	167	620	475	1,090	149	74	39
7	52	37	75	75	249	156	566	442	989	141	71	39
8	54	37	72	74	225	160	535	530	912	135	71	39
9	43	36	71	78	302	158	550	662	794	129	68	39
10	43	36	71	77	820	151	530	602	800	125	61	37
11	42	56	68	74	1,190	154	572	500	794	118	61	37
12	39	55	68	72	632	149	620	470	728	114	67	36
13	39	52	70	* 72	470	156	520	470	770	125	68	34
14	38	50	70	71	379	* 240	510	550	849	116	61	36
15	38	47	81	71	366	362	550	662	807	107	58	42
16	37	54	99	70	318	269	716	746	752	101	56	75
17	37	67	135	70	283	240	800	877	680	96	56	64
18	36	106	225	68	252	216	692	1,070	578	93	55	54
19	36	67	201	68	234	219	540	1,220	530	90	54	48
20	36	60	147	68	225	207	490	1,150	485	88	54	46
21	34	63	129	70	219	201	465	1,100	446	86	52	43
22	33	55	122	71	216	225	406	1,160	402	84	51	42
23	34	60	116	84	204	231	366	1,020	358	81	* 50	42
24	36	110	111	82	198	225	* 346	933	330	78	47	41
25	34	230	106	81	190	213	330	1,020	302	77	46	39
26	* 38	125	104	122	185	207	338	1,010	266	74	47	38
27	39	90	99	139	179	195	362	842	240	72	48	38
28	38	80	95	125	172	187	410	835	* 225	71	47	37
29	36	77	90	129	-	198	520	821	207	71	47	37
30	34	108	88	203	-----	228	555	776	190	70	47	36
31	34	-----	86	768	-----	272	-----	807	-----	67	43	-----
Total	1,175	1,960	3,308	3,353	9,818	6,242	15,037	23,673	21,094	3,399	1,782	1,266
Mean	37.9	65.3	107	108	351	201	535	764	703	110	57.5	42.2
Max.	67	230	225	768	1,190	362	800	1,220	1,530	182	74	75
Min.	26	33	68	68	172	149	330	442	190	67	43	34
Ac-ft	2,330	3,890	6,560	6,650	19,470	12,380	31,810	46,950	41,840	6,740	3,530	2,510

Calendar year 1960 : Max 1,430 Min 26 Mean 200 Acre-feet 145,500  
Water year 1960-61 : Max 1,530 Min 26 Mean 255 Acre-feet 184,700

Peak discharge (base, 800 cfs)

\* Discharge measurement made on this day.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1-31	7 a.m.	3.59	1,070	4-16	10 p.m.	3.47	989
2-10	12 p.m.	4.35	1,760	6-1	12 p.m.	4.62	2,050

11-5255. Trinity River at Lewiston, Calif.

Location.--Lat 40°42'40", long 122°48'20", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 17, T.33 N., R.8 W., on left bank 0.3 mile upstream from old highway bridge in Lewiston and 0.5 mile downstream from Deadwood Creek.

Drainage area.--726 sq mi.

Records available.--August 1911 to September 1961.

Gage.--Water-stage recorder with thermograph attachment. Datum of gage is 1,797.70 ft above mean sea level, datum of 1929. Prior to Oct. 16, 1930, staff gage and Oct. 16, 1930, to Sept. 30, 1958, water-stage recorder, at site 0.3 mile downstream at datum 3.60 ft lower.

Average discharge.--50 years, 1,662 cfs (1,203,000 acre-ft per year) adjusted for storage in Trinity Lake.

Extremes.--Maximum discharge during year, 1,200 cfs Dec. 27 (gage height, 6.26 ft); minimum daily, 109 cfs Oct. 4.

1911-61: Maximum discharge, 71,600 cfs Dec. 22, 1955 (gage height, 27.3 ft, from floodmarks, site and datum then in use); minimum, 23 cfs July 30, 1924.

Remarks.--Records good. Flow regulated by Trinity Lake beginning in November 1960 (usable capacity, 2,160,000 acre-ft). Small diversions above head of Trinity Lake for irrigation, power, and placer mining.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Oct. 1 to Feb. 18, Mar. 15-30)

Oct. 1 to Jan. 31		Feb. 1 to Sept. 30	
3.5	100	4.2	145
4.0	208	4.5	245
4.5	355	5.0	470
5.0	570		
6.0	1,200		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	* 180	* 151	686	1,170	321	172	186	* 175	* 210	182	178	182
2	113	151	876	1,150	370	172	172	172	203	182	* 178	182
3	120	149	896	* 1,150	361	175	166	172	192	* 182	178	182
4	109	142	896	1,140	309	166	166	178	192	182	178	182
5	111	142	* 902	1,140	293	175	166	178	189	186	178	182
6	151	142	896	1,120	273	175	166	178	203	186	178	* 182
7	367	149	896	1,110	238	169	166	178	196	186	182	182
8	383	156	896	1,110	206	175	166	175	192	182	186	178
9	317	156	889	1,100	* 338	175	166	186	189	182	182	178
10	239	156	882	1,090	366	178	166	192	186	182	182	182
11	206	184	876	1,080	400	192	166	192	182	182	182	182
12	189	263	863	954	348	196	166	189	182	196	186	182
13	179	327	856	920	309	* 200	166	182	178	269	186	182
14	174	260	850	371	293	210	166	182	175	273	182	186
15	156	296	844	363	293	396	166	178	* 182	269	182	186
16	160	320	896	317	273	380	166	186	175	273	182	203
17	158	330	1,080	242	253	425	166	186	175	269	182	192
18	156	338	1,110	239	231	395	166	* 192	175	261	182	186
19	156	231	1,150	224	220	343	172	189	178	* 261	182	186
20	153	213	1,190	224	206	297	178	186	178	261	182	186
21	151	403	1,190	224	200	269	* 178	182	178	238	182	* 186
22	151	395	1,190	224	192	253	192	182	178	175	* 178	186
23	151	311	1,190	226	189	231	192	182	182	175	182	186
24	149	383	1,190	226	182	234	182	186	182	175	182	186
25	149	396	1,190	229	182	231	182	175	182	172	182	186
26	151	166	1,190	231	182	249	178	189	182	175	182	186
27	156	320	1,190	234	182	242	178	189	182	175	182	182
28	162	395	1,190	234	* 178	220	178	186	182	175	182	178
29	160	423	1,180	252	-	214	182	182	182	178	182	178
30	160	475	1,180	263	-	* 196	175	189	182	178	182	178
31	156	-	1,170	* 394	-	186	-	206	-	178	178	-
Total	5,473	7,923	31,480	18,951	7,388	7,291	5,181	5,694	5,544	6,340	5,622	5,515
Mean	177	264	1,015	611	264	235	173	184	185	205	181	184
Max.	383	475	1,190	1,170	400	425	186	206	210	273	186	203
Min.	109	142	686	224	178	166	166	172	175	172	178	178
Ac-ft	10,860	15,720	62,440	37,590	14,650	14,460	10,280	11,290	11,000	12,580	11,150	10,940
Calendar year 1960 :			Max	15,800	Min	97	Mean	1,490	Acre-feet	1,081,000		
Water year 1960-61 :			Max	1,190	Min	109	Mean	308	Acre-feet	223,000		

\* Discharge measurement made on this day.

## KLAMATH RIVER BASIN

11-5255. Trinity River at Lewiston, Calif.--Continued.

Temperature (°F) of water, water year October 1960 to September 1961

Day	Oct.		Nov.		Dec.		Jan.		Feb.		Mar.		Apr.		May		June		July		Aug.		Sept.	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1	67	64	57	54	44	44	40	40	44	44	46	44	51	48	55	51	60	55	64	57	63	57	61	56
2	67	63	56	54	44	44	40	39	44	44	46	45	53	50	55	50	58	56	64	57	63	57	59	54
3	66	63	55	53	44	43	39	39	44	44	46	44	54	50	55	50	60	54	62	57	62	57	59	53
4	65	62	53	50	43	43	39	39	44	44	45	43	54	51	55	50	62	56	62	55	62	58	59	54
5	65	62	52	50	43	43	39	39	45	44	45	45	52	49	52	50	61	57	62	55	62	58	59	54
6	64	62	52	52	43	42	39	39	45	45	45	44	52	49	51	50	60	57	60	54	60	57	58	53
7	64	62	52	52	42	42	39	39	45	45	45	44	52	49	53	49	61	55	62	55	60	56	58	53
8	62	59	53	52	42	42	39	39	45	44	45	44	52	48	56	50	61	57	63	56	61	57	57	53
9	61	58	53	51	42	42	39	39	44	44	44	43	53	49	55	51	62	55	63	56	62	56	58	53
10	59	56	53	51	42	42	39	39	44	44	44	44	53	49	51	49	63	57	64	56	63	57	59	54
11	59	56	55	52	42	42	39	39	44	44	46	44	54	50	52	48	63	57	65	58	60	58	59	54
12	59	56	52	50	42	42	40	39	44	44	46	45	54	51	55	50	63	57	64	59	60	55	59	54
13	58	55	50	50	42	42	40	40	44	44	46	45	53	49	54	51	67	58	61	59	62	56	58	54
14	58	55	50	49	42	41	41	40	44	43	46	46	54	50	56	51	66	60	61	58	62	56	59	55
15	58	55	49	48	41	41	41	41	45	43	46	45	55	50	58	53	67	60	60	57	62	56	58	55
16	59	55	48	48	41	41	41	41	45	44	45	45	55	51	59	54	67	61	59	56	61	56	55	53
17	59	56	48	48	41	41	41	41	45	44	46	44	54	52	60	52	67	61	59	56	61	54	54	52
18	59	56	48	48	41	41	41	40	44	43	47	45	52	50	60	55	66	57	59	56	60	54	56	53
19	60	57	48	48	41	41	40	40	44	43	47	45	52	48	60	56	66	59	59	56	59	55	59	55
20	60	57	48	47	41	41	40	40	44	43	46	44	51	49	59	55	66	59	59	56	60	53	57	55
21	60	57	48	47	41	41	40	39	44	44	48	45	49	47	58	52	66	60	60	56	62	56	58	54
22	60	57	48	47	41	41	40	40	45	43	47	46	47	45	60	55	66	60	64	57	62	57	58	54
23	60	57	47	47	41	41	41	40	44	43	46	45	48	45	59	54	66	60	64	58	61	56	56	53
24	59	57	47	47	41	41	42	41	43	43	46	45	52	50	60	54	65	60	64	58	60	55	56	53
25	60	56	47	47	41	41	43	42	44	43	46	44	54	49	60	55	66	60	64	58	60	52	56	53
26	59	57	47	46	41	40	43	43	44	43	45	45	55	50	60	56	66	60	64	58	58	53	56	52
27	58	55	46	45	40	40	43	43	45	43	46	44	55	50	59	54	65	59	64	57	58	52	55	52
28	57	54	45	44	40	40	43	43	45	44	47	44	55	51	59	55	64	58	64	57	60	55	55	52
29	58	55	44	44	40	40	43	43	-----	-----	48	45	55	52	57	54	63	56	64	57	60	55	53	51
30	57	54	44	44	40	40	43	43	-----	-----	49	46	55	50	57	50	63	56	63	57	60	55	53	50
31	57	54	-----	-----	40	40	44	43	-----	-----	51	48	-----	-----	58	54	-----	63	57	61	55	-----	-----	-----
Avg	60	57	50	49	42	42	41	40	44	44	46	45	53	49	57	52	64	58	62	57	61	56	57	53



11-5258. Weaver Creek near Douglas City, Calif.

Location.--Lat 40°40'15", Long 122°56'30", in NW 1/4 SE 1/4 sec. 36, T. 33 N., R. 10 W., on left bank 0.2 mile downstream from highway bridge and 1.3 miles north of Douglas City.

Drainage area.--48.4 sq mi.

Records available.--October 1958 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 1,680 ft (from topographic map).

Extremes.--Maximum discharge during year, 5,390 cfs Jan. 31 (gage height, 9.68 ft), from rating curve extended above 600 cfs; minimum, 0.8 cfs Sept. 13.  
1958-61: Maximum discharge, that of Jan. 31, 1961; minimum daily, 0.3 cfs several days in August, September 1959.

Remarks.--No diversion or regulation 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 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.9	5.1	244	18	289	46	105	56	51	11	2.1	1.4
2	1.9	5.4	70	17	* 516	* 44	114	52	59	10	2.8	1.7
3	1.9	5.1	33	16	* 252	43	126	51	57	10	2.2	1.8
4	2.1	4.7	21	15	141	41	120	* 48	52	9.9	1.8	1.7
5	2.7	4.7	16	* 15	94	50	108	47	49	9.5	2.1	1.4
6	3.9	5.0	13	15	78	65	100	48	45	* 9.1	2.7	1.3
7	4.3	4.9	12	16	67	55	* 94	45	* 42	8.6	* 2.5	1.5
8	4.8	4.9	11	16	69	78	88	44	40	8.1	5.1	1.6
9	4.3	5.5	10	17	535	88	87	47	37	7.3	5.4	1.7
10	3.9	5.8	10	17	361	87	85	49	36	6.2	3.1	1.6
11	4.1	7.8	9.2	15	953	99	84	48	35	5.7	3.1	1.4
12	4.1	8.7	8.8	14	366	93	83	44	34	5.2	3.2	1.3
13	4.1	13	8.5	14	256	* 100	76	43	32	4.4	2.6	1.1
14	* 4.2	* 10	8.5	14	232	163	76	44	32	4.1	2.4	1.0
15	4.4	9.1	8.7	13	216	302	74	45	30	4.0	2.0	1.4
16	4.1	8.1	71	14	160	238	75	47	29	3.8	2.3	6.8
17	4.0	9.1	467	14	133	389	77	49	28	3.4	2.1	7.4
18	4.2	20	150	13	107	256	73	53	25	3.1	1.7	4.7
19	4.3	12	99	13	93	238	68	58	22	2.9	1.8	3.8
20	4.7	9.6	67	14	85	219	67	60	21	2.9	2.0	3.2
21	4.7	10	50	13	81	160	70	56	19	2.8	1.7	2.8
22	4.1	8.6	43	13	74	183	71	56	18	2.6	1.3	2.6
23	4.0	15	38	15	68	173	64	53	17	2.4	1.2	2.6
24	3.9	39	34	14	66	172	58	49	15	2.1	1.3	2.5
25	4.3	122	32	14	63	151	55	48	14	2.3	1.3	2.4
26	4.6	36	29	16	56	173	53	51	12	2.2	1.6	2.4
27	5.0	19	26	17	53	146	53	45	12	2.0	2.2	2.3
28	4.7	15	24	17	47	125	53	44	12	2.6	2.1	2.1
29	5.3	13	22	17	69	110	57	44	12	1.7	2.0	2.1
30	5.2	14	20	132	-----	106	52	45	11	1.8	* 2.0	2.3
31	4.7	-----	20	1,850	-----	102	-----	45	-----	2.0	2.1	-----
Total	124.4	450.1	1,675.7	2,470	5,511	4,295	2,366	1,514	898	1,537	71.8	71.9
Mean	4.01	15.0	54.1	79.7	197	139	78.9	48.8	29.9	4.96	2.32	2.40
Max.	5.3	122	467	1,850	953	389	126	60	59	11	5.4	7.4
Min.	1.9	4.7	8.5	13	47	41	52	43	11	1.7	1.2	1.0
Ac-ft	247	893	3,320	4,900	10,930	8,520	4,690	3,000	1,780	305	142	143

Calendar year 1960: Max 1,520 Min 1.2 Mean 51.8 Acre-feet 37,579  
Water year 1960-61: Max 1,850 Min 1.0 Mean 53.7 Acre-feet 38,870

\* Discharge measurement made on this day.

## KIAMATH RIVER BASIN

11-5259. Browns Creek near Douglas City, Calif.

Location.--Lat 40°38'35", long 122°58'45", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.10, T.32 N., R.10 W., on right bank 2 miles upstream from mouth and 2.1 miles west of Douglas City.

Drainage area.--71.6 sq mi.

Records available.--January 1957 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 1,640 ft (from topographic map).

Extremes.--Maximum discharge during year, 932 cfs Jan. 31 (gage height, 12.28 ft); minimum, 1.0 cfs Sept. 5, 6.  
1957-61: Maximum discharge, 3,950 cfs Feb. 18, 1958 (gage height, 16.60 ft), from rating curve extended above 1,400 cfs; minimum, 1.0 cfs Sept. 5, 6, 1961.

Remarks.--Small diversion for irrigation 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 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.6	6.9	219	22	342	61	120	57	26	12	3.5	1.9
2	3.8	6.9	127	21	*374	*58	124	55	34	11	3.4	2.2
3	3.6	6.0	76	22	330	56	125	52	30	10	2.9	2.6
4	3.5	5.7	52	*22	227	54	117	*48	27	9.6	2.5	1.8
5	4.5	6.8	38	23	161	58	105	46	26	9.2	2.5	1.8
6												
7	8.5	7.5	30	23	126	62	97	47	24	*9.6	4.1	1.2
8	10	8.1	26	20	108	54	*89	45	*24	9.5	*3.0	1.8
9	8.8	8.2	*23	20	101	62	82	43	24	9.2	4.7	2.4
10	7.6	7.9	21	20	232	69	78	44	23	8.6	4.7	1.9
	7.3	7.5	20	19	267	73	75	45	21	7.6	3.3	1.5
11												
12	7.0	9.1	20	19	402	82	71	45	20	5.9	2.7	1.6
13	7.2	10	19	18	343	82	70	44	19	5.5	3.3	2.1
14	7.6	15	19	18	273	*83	66	40	18	6.3	3.4	1.9
15	*7.5	*14	18	18	214	113	62	39	17	6.6	3.5	1.9
	7.3	12	19	18	197	243	59	39	17	5.2	3.3	1.7
16												
17	7.0	11	39	18	173	236	59	36	17	5.3	2.8	6.5
18	7.3	12	240	17	154	336	58	34	16	4.6	2.9	9.2
19	7.1	19	183	17	133	287	57	33	15	4.4	2.3	6.9
20	6.9	16	128	16	119	268	56	33	14	4.1	2.1	5.9
	7.0	13	98	17	106	250	55	33	14	4.1	2.6	5.2
21												
22	7.3	13	77	16	99	220	67	32	13	4.6	2.2	*4.7
23	6.6	12	62	16	92	223	76	31	13	4.1	1.9	4.7
24	6.6	15	52	17	85	222	69	30	13	2.9	1.6	4.5
25	6.6	18	45	17	80	216	66	29	13	2.9	1.5	4.2
	6.9	40	40	17	76	193	64	28	13	2.9	1.4	4.3
26												
27	6.9	32	36	23	72	178	65	29	12	2.8	1.6	*4.9
28	7.2	20	33	42	68	160	64	28	11	3.4	2.9	4.8
29	7.1	17	30	36	65	143	61	26	11	3.8	3.7	4.5
30	6.9	16	28	113	—	129	62	26	12	3.5	4.3	4.3
31	6.9	21	26	220	-----	125	59	28	11	3.7	3.7	4.4
	7.0	-----	25	639	-----	121	-----	30	-----	3.4	3.0	-----
Total	209.1	406.6	1869	1544	5019	4517	2278	1175	548	1863	913	1073
Mean	6.75	13.6	60.3	49.8	179	146	75.9	37.9	18.3	6.01	2.95	3.58
Max.	10	4	24	639	42	336	125	57	34	12	4.7	9.2
Min.	3.5	5.7	18	16	65	54	55	26	11	2.8	1.4	1.2
Ac-ft	415	86	3,710	3,050	9,960	8,960	4,520	2,330	1,090	370	181	213

Calendar year 1960: Max 1,360 Min 2.6 Mean 55.9 Acre-feet 40,600  
 Water year 1960-61: Max 639 Min 1.2 Mean 49.2 Acre-feet 35,620

\* Discharge measurement made on this day.

11-5265. North Fork Trinity River at Helena, Calif.

Location--Lat 40°46'55", long 123°07'40", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.21, T.34 N., R.11 W., on right bank 500 ft downstream from East Fork of North Fork, 0.6 mile north of Helena, 1.0 mile upstream from mouth, and 6 miles northwest of Junction City.

Drainage area--151 sq mi.

Records available--August 1911 to September 1913, January 1957 to September 1961.

Gage--Water-stage recorder. Altitude of gage is 1,380 ft (from topographic map). August 1911 to September 1913 at site three-quarters of a mile downstream at different datum.

Average discharge--6 years, 447 cfs (323,600 acre-ft per year).

Extremes--Maximum discharge during year, 6,740 cfs Feb. 11 (gage height, 14.01 ft), from rating curve extended above 2,100 cfs; minimum daily, 15 cfs Oct. 2, 3.

1911-13, 1957-61: Maximum discharge, 13,500 cfs Jan. 12, 1959 (gage height, 19.66 ft); minimum daily, 13 cfs Sept. 24, 25, 1957.

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 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16	36	1090	193	1630	360	966	539	466	179	53	44
2	15	37	998	185	*1880	*372	1300	497	654	183	51	41
3	15	38	602	177	*1690	353	1540	467	725	178	50	38
4	17	38	423	168	1090	334	1500	426	831	164	48	35
5	17	38	328	*159	797	362	1220	405	690	155	53	32
6	39	39	272	156	669	384	1010	411	619	*137	61	30
7	47	37	234	156	566	360	896	399	548	130	*60	29
8	88	36	*212	153	525	408	775	390	494	132	57	28
9	50	36	197	159	2080	474	740	472	432	136	58	27
10	41	37	183	161	2770	491	677	572	417	141	51	26
11	36	50	163	153	4970	625	664	568	434	143	49	26
12	32	47	154	143	2410	652	706	535	390	155	53	26
13	30	48	150	136	1600	844	598	511	408	167	51	24
14	*30	*50	149	135	1390	1570	568	497	493	156	50	23
15	32	47	150	132	1650	2190	518	518	553	127	45	24
16	34	45	281	128	1430	1600	605	547	543	110	41	32
17	35	130	1770	123	1120	1370	664	590	503	97	40	35
18	36	341	1840	119	869	1180	560	637	458	92	38	36
19	37	117	1390	117	704	1070	480	706	412	91	36	33
20	38	79	862	115	624	1040	*441	667	393	85	36	31
21	38	101	616	114	578	899	*432	601	386	80	36	*27
22	38	78	496	113	561	1120	408	*595	*399	79	34	26
23	39	330	431	138	514	1380	381	514	362	79	34	25
24	38	1200	377	138	478	1260	361	447	365	75	*34	24
25	37	1830	337	129	449	1100	367	454	373	71	32	24
26	34	639	309	135	412	992	384	482	337	71	32	*23
27	32	380	281	149	387	899	399	404	281	67	35	22
28	33	273	256	150	359	788	432	379	231	61	34	22
29	33	221	238	249	-	731	497	388	201	58	53	22
30	34	216	224	505	-----	754	494	421	182	55	37	22
31	35	-----	207	4010	-----	847	-----	391	-----	54	38	-----
Total	1076	6594	15220	8798	34202	26809	20583	15430	13580	3508	1380	857
Mean	34.7	220	491	284	1,222	865	686	498	453	113	44.5	28.6
Max.	88	1,830	1,840	4,010	4,970	2,190	1,540	706	831	183	61	44
Min.	15	36	149	113	359	334	361	379	182	54	32	22
Ac-ft	2,130	13,180	30,190	17,450	67,840	53,170	40,830	30,600	26,940	6,960	2,740	1,700
Calendar year 1960:	Max		7,760		Min		15		Mean		374	
Water year 1960-61:	Max		4,970		Min		15		Mean		406	
									Acre-feet		271,800	
									Acre-feet		293,600	

\* Discharge measurement made on this day.

## KLAMATH RIVER BASIN

11-5270. Trinity River near Burnt Ranch, Calif.

Location.--Lat 40°47'20", long 123°26'20", in S½ sec.19, T.5 N., R.7 E., on left bank 500 ft upstream from Cedar Flat Creek, 700 ft upstream from highway bridge at Cedar Flat, and 2.3 miles southeast of town of Burnt Ranch.

Drainage area.--1,438 sq mi.

Records available.--October 1931 to September 1940, October 1956 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Altitude of gage is 950 ft (from topographic map). Oct. 1, 1931, to Jan. 19, 1940, water-stage recorder (destroyed by flood of Feb. 28, 1940) at site 2 miles upstream at different datum.

Average discharge.--14 years, 2,778 cfs (2,011,000 acre-ft per year) adjusted for storage in Trinity Lake.

Extremes.--Maximum discharge during year, 11,000 cfs Feb. 11 (gage height, 11.04 ft); minimum daily, 201 cfs Oct. 4.

1931-40, 1956-61: Maximum discharge, 81,500 cfs Feb. 25, 1958 (gage height, 30.50 ft) from rating curve extended above 40,000 cfs on basis of slope-area measurement at gage height 43.2 ft; minimum, 82 cfs Aug. 31, 1939.

Flood of Dec. 22, 1955, reached a stage of 43.2 ft, from floodmarks (discharge, 172,000 cfs, on basis of slope-area measurement of peak flow).

Remarks.--Records good. Flow regulated by Trinity Lake beginning in November 1960 (usable capacity, 2,160,000 acre-ft). Small diversions above station for mining and irrigation.

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

1.9	183	5.0	1,600
2.4	306	7.0	3,600
3.0	520	9.0	6,700
4.0	980	11.0	10,900

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	205	268	2,880	1,660	4,960	1,260	2,570	1,520	1,290	677	341	273
2	233	260	3,340	1,620	4,660	1,270	2,940	1,520	1,740	686	341	273
3	210	260	2,360	1,590	4,720	1,230	3,410	1,420	1,850	681	335	275
4	201	255	1,930	1,570	3,320	1,200	3,440	1,350	2,130	654	332	273
5	205	247	1,700	1,540	2,590	1,230	3,010	1,290	1,820	*627	335	268
6	230	252	*1,580	*1,530	2,180	1,380	2,680	1,310	1,680	592	364	265
7	*273	257	1,500	1,530	1,930	1,320	2,430	1,280	1,560	568	360	265
8	364	260	1,460	1,530	1,750	1,340	2,200	1,230	1,430	564	357	265
9	395	265	1,410	1,510	3,770	1,570	2,110	1,320	1,320	576	360	262
10	370	268	1,390	1,520	5,740	1,660	2,010	1,570	1,240	580	351	257
11	332	286	1,360	1,490	9,650	1,840	1,940	1,580	1,300	588	328	260
12	306	341	1,330	1,460	6,720	1,970	2,010	1,480	*1,220	609	328	260
13	295	395	1,320	1,340	4,650	2,160	1,840	1,430	1,200	623	325	260
14	286	496	1,310	1,130	3,940	2,900	1,700	1,400	1,340	699	319	257
15	281	440	1,310	776	3,980	4,860	1,620	1,420	1,500	636	309	260
16	275	416	1,490	735	3,700	4,280	1,700	1,470	1,500	584	303	278
17	270	472	4,520	690	*3,130	4,450	1,870	1,550	1,440	556	300	338
18	262	1,030	4,890	580	2,680	4,100	1,740	1,670	1,340	536	295	332
19	260	790	4,120	564	2,330	3,710	1,560	1,820	1,200	524	292	306
20	260	568	3,170	540	2,090	3,700	1,450	1,820	1,170	520	292	298
21	257	532	2,690	536	1,950	3,250	1,430	1,690	1,130	508	295	289
22	257	645	2,430	532	1,840	3,240	1,510	1,600	1,170	492	286	286
23	257	722	2,260	556	1,720	3,730	1,400	1,540	1,100	437	*278	284
24	255	2,420	2,130	580	1,620	3,490	1,320	1,380	1,070	423	*278	281
25	255	3,940	2,030	*560	1,540	3,300	1,280	1,330	1,100	405	278	278
26	257	2,140	1,940	568	1,450	3,040	1,290	1,430	1,020	395	281	275
27	260	1,240	1,880	690	1,370	2,920	1,310	1,310	905	384	292	273
28	265	1,080	1,820	713	1,310	*2,680	*1,340	1,210	795	370	295	268
29	268	1,020	1,770	793	-----	2,480	1,440	1,230	73	360	298	268
30	270	1,040	1,730	1,490	-----	2,430	1,510	1,280	686	351	289	265
31	270	-----	1,700	7,340	-----	2,480	-----	1,260	-----	344	278	-----
TOTAL	8,384	22,605	66,750	39,263	91,290	80,470	58,060	44,710	38,977	16,549	9,715	8,292
MEAN	270	754	2,153	1,267	3,260	2,596	1,935	1,442	1,299	534	313	276
MAX	395	3,940	4,890	7,340	9,650	4,860	3,440	1,820	2,130	699	364	338
MIN	201	247	1,310	532	1,310	1,200	1,280	1,210	686	344	278	257
AC-FT	16,630	44,840	132,400	77,880	181,100	159,600	115,200	88,680	77,310	32,820	19,270	16,450

CALENDAR YEAR	MAX	27,500	MIN	190	MEAN	2,408	AC-FT	1,748,000
WATER YEAR 1960-61	MAX	9,650	MIN	201	MEAN	1,329	AC-FT	962,200

\* Discharge measurement made on this day.

11-5274. New River at Denny, Calif.

Location.--Lat 40°56'45", long 123°22'55", in NE¼ sec.33, T.7 N., R.7 E., on left bank at downstream side of private road bridge, 0.3 mile northeast of Denny, and 0.5 mile downstream from Quinby Creek.

Drainage area.--173 sq mi.

Records available.--October 1927 to December 1928 (published as "near Denny"), June 1959 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 1,350 ft (from topographic map). Oct. 1, 1927, to Dec. 23, 1928, at site 2.6 miles downstream at different datum.

Extremes.--Maximum discharge during year, 5,940 cfs Feb. 11 (gage height, 9.52 ft), from rating curve extended above 2,700 cfs as explained below; minimum, 20 cfs Oct. 4, 5.  
1927-28, 1959-61: Maximum discharge, 9,460 cfs Feb. 8, 1960 (gage height, 11.65 ft), from rating curve extended above 2,700 cfs on basis of slope-area measurement of peak flow; minimum, 20 cfs Sept. 9, 11, 1928, Oct. 4, 5, 1960.

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

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Oct. 1 to Nov. 17)

Oct. 1 to Feb. 8

Feb. 9 to Sept. 30

2.7	19	3.6	200	2.7	19	4.5	550
2.8	25	4.0	330	2.9	43	5.0	830
2.9	35	5.0	775	3.2	100	6.0	1,600
3.0	50	6.0	1,490	3.5	170	9.0	5,160
3.3	115	7.0	2,450	4.0	330		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	21	30	913	215	840	680	1,210	620	402	130	52	35
2	21	30	941	206	1,180	750	1,490	595	450	128	52	35
3	20	30	640	194	1,130	650	1,820	560	555	120	50	34
4	20	32	474	185	805	625	1,820	520	515	118	48	33
5	21	32	370	* 176	645	690	1,550	505	450	* 116	46	31
6	37	33	* 302	170	585	720	1,310	525	418	114	46	30
7	* 43	34	264	167	508	790	1,140	510	382	112	55	30
8	50	37	239	164	490	830	1,020	500	354	106	68	30
9	33	37	218	176	1,700	860	946	560	327	104	62	29
10	28	37	206	170	2,430	890	878	662	313	100	50	29
11	28	90	188	158	4,600	1,140	848	680	306	96	46	29
12	28	68	173	152	* 2,560	1,380	878	662	285	92	50	28
13	28	72	170	146	1,890	1,650	798	635	* 281	90	46	28
14	28	95	170	149	1,790	1,900	704	610	288	86	45	27
15	28	93	167	143	1,970	2,100	668	600	285	84	42	28
16	27	95	224	135	1,700	1,800	718	600	271	82	40	48
17	27	142	1,520	133	1,470	1,510	766	610	251	80	40	43
18	26	398	1,740	130	1,220	1,340	692	630	239	76	39	39
19	26	143	1,310	125	1,070	1,380	620	656	221	74	38	37
20	26	95	859	123	960	1,380	575	640	212	72	37	34
21	26	143	655	120	890	1,220	585	580	203	72	35	31
22	26	110	540	118	860	1,420	545	540	194	68	34	31
23	26	591	462	133	790	1,600	505	495	179	66	* 33	30
24	30	1,460	406	125	750	1,510	480	450	173	64	33	30
25	31	1,550	362	123	680	1,420	475	434	165	60	33	28
26	35	680	330	123	650	1,350	485	442	155	58	* 35	28
27	37	422	302	* 125	625	1,300	495	394	150	57	42	27
28	33	312	278	120	600	* 1,200	* 515	382	145	55	43	27
29	33	260	260	167	-	1,100	580	374	138	53	39	26
30	32	251	242	227	-	1,090	585	410	135	53	37	26
31	31	-	227	1,470	-	1,130	-	390	-	53	34	-
Total	906	7,402	15,152	6,068	35,388	37,405	25,701	16,771	8,442	2,639	1,350	941
Mean	29.2	247	489	196	1,264	1,207	857	541	281	85.1	43.5	31.4
Max.	50	1,550	1,740	1,470	4,600	2,100	1,820	680	555	130	68	48
Min.	20	30	167	118	490	625	475	374	135	53	33	26
Ac-ft	1,800	14,680	30,050	12,040	70,190	74,190	50,980	33,260	16,740	5,230	2,680	1,870

Calendar year 1960: Max 5,850 Min 20 Mean 360 Acre-feet 261,100  
Water year 1960-61: Max 4,600 Min 20 Mean 433 Acre-feet 313,700

Peak discharge (base, 2,500 cfs).--Feb. 11 (4 a.m.) 5,940 cfs (9.52 ft).

\* Discharge measurement made on this day.

Note.--No gage-height record Feb. 17 to Mar. 27, Sept. 26-30.

## KLAMATH RIVER BASIN

11-5281. South Fork Trinity River at Forest Glen, Calif.

Location.--Lat 40°22'30", long 123°19'35", in SE¼ sec.13, T.1 S., R.7 E., on right bank 15 ft downstream from bridge on State Highway 36, at Forest Glen, and 100 ft downstream from Glen Creek.

Drainage area.--208 sq mi.

Records available.--Occasional low-flow measurements, water years 1953-57 and annual maximum, water years 1955-57. October 1959 to September 1961.

Gage.--Water-stage recorder and crest-stage gage. Altitude of gage is 2,170 ft (from topographic map). Prior to Oct. 1, 1959, crest-stage gage only, at datum 1.26 ft lower.

Extremes.--Maximum discharge during year, 3,760 cfs Jan. 31 (gage height, 10.90 ft); minimum, not determined.  
1954-57, 1959-61: Maximum discharge, 42,400 cfs Dec. 22, 1955 (gage height, 25.26 ft, from floodmarks, present datum), on basis of slope-area measurement of peak flow.  
1959-61: Minimum daily discharge, 16 cfs Sept. 25-30, 1960.

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

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

3.6	16	6.0	360
4.0	33	7.0	760
4.4	63	8.0	1,310
5.0	140	9.0	2,060
5.5	235	11.0	3,860

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	A17	21	2,360	B152	1,430	381	765	472	229	79	32	25
2	A17	20	*1,000	B143	2,010	369	825	436	237	76	32	24
3	A17	20	464	B142	1,470	351	860	399	253	72	31	24
4	A17	20	300	B136	1,010	336	810	372	295	71	30	23
5	*17	20	227	*136	770	375	710	354	247	71	29	22
6	32	22	181	136	636	399	632	360	235	70	30	22
7	31	24	152	142	548	366	576	351	227	68	40	22
8	27	24	136	142	516	460	524	330	211	66	43	22
9	25	23	122	143	*1,770	604	496	375	201	62	40	21
10	24	23	121	136	1,780	616	460	*417	191	59	34	21
11	23	28	115	125	2,980	825	440	524	183	57	31	21
12	22	37	106	*119	1,940	765	444	524	177	55	33	21
13	22	52	104	115	1,530	760	411	484	167	53	40	20
14	22	55	105	110	1,570	967	384	436	157	52	36	20
15	22	45	121	106	1,840	1,370	360	408	*151	48	32	21
16	21	38	642	104	*1,540	1,200	360	387	145	48	30	25
17	21	*46	2,990	101	1,250	1,310	342	366	137	47	29	26
18	21	159	1,760	B94	1,030	1,210	330	351	131	45	27	25
19	21	71	995	B93	870	1,410	318	342	125	44	27	24
20	20	48	685	B92	760	1,580	308	330	119	42	27	23
21	20	51	520	B91	700	1,240	348	318	115	41	26	22
22	20	44	420	B91	656	1,290	369	305	109	40	26	21
23	20	99	348	B130	608	1,350	363	293	104	38	25	21
24	20	353	300	112	564	1,240	375	275	100	38	24	21
25	21	614	270	105	520	1,090	399	265	96	37	24	21
26	22	275	245	136	476	1,030	436	265	91	36	24	20
27	22	163	227	159	440	*995	444	249	87	34	26	20
28	22	118	219	142	402	900	448	239	*85	34	26	20
29	22	94	195	740	-----	825	516	243	84	33	*32	19
30	22	138	179	1,020	-----	795	488	247	82	33	28	20
31	21	-----	167	2,920	-----	770	-----	247	-----	32	26	-----
TOTAL	671	2,745	15,776	8,113	31,616	27,179	14,541	10,964	4,771	1,581	940	657
MEAN	21.6	91.5	509	262	1,129	877	485	354	159	51.0	30.3	21.9
MAX	32	614	2,990	2,920	2,980	1,580	860	524	295	79	43	26
MIN	17	20	104	91	402	336	308	239	82	32	24	19
AC-FT	1,330	5,440	31,290	16,090	62,710	53,910	28,840	21,750	9,460	3,140	1,860	1,300

CALENDAR YEAR 1960: MAX 11,600 MIN 16 MEAN 350 AC-FT 253,800  
WATER YEAR 1960-61: MAX 2,990 MIN 17 MEAN 328 AC-FT 237,100

## Peak discharge (base, 3,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-1	9 a.m.	10.37	3,230	1-31	8 a.m.	10.90	3,760
12-17	9 a.m.	10.52	3,380	2-11	5 a.m.	10.72	3,580

\* Discharge measurement made on this day.  
A No gage-height record.  
B Stage-discharge relation affected by ice.

11-5282. South Fork Trinity River near Hyampom, Calif.

Location (revised).--Lat 40°36'00", long 123°26'50", in NE¼ sec.36, T.3 N., R.6 E., on left bank 0.4 mile upstream from Deep Gulch, 1.0 mile upstream from Hayfork Creek, and 1.2 miles south of Hyampom.

Drainage area.--342 sq mi.

Records available.--September 1956 to September 1961.

Gage.--Water-stage recorder with thermograph attachment. Altitude of gage is 1,300 ft (from topographic map).

Average discharge.--5 years, 718 cfs (519,800 acre-ft per year).

Extremes.--Maximum discharge during year, 6,240 cfs Feb. 11 (gage height, 10.22 ft); minimum, not determined.  
1956-61: Maximum discharge, 26,600 cfs Feb. 8, 1960 (gage height, 16.92 ft), from rating curve extended above 7,200 cfs; minimum, 26 cfs Dec. 7, 1959.

Flood of Dec. 22, 1955, reached a stage of 22.2 ft, from floodmarks (discharge, 39,400 cfs on basis of slope-area measurement of peak flow).

Remarks.--Records good except those for periods of no gage-height record, which are fair. No regulation or diversion.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Dec. 1)

Oct. 1 to Nov. 30				Dec. 1 to Sept. 30			
3.3	29	4.5	245	3.3	31	5.5	710
3.6	57	5.0	420	3.6	60	6.0	1,080
4.0	115	6.0	1,040	4.0	122	8.0	3,250
				4.5	245	10.0	5,900
				5.0	440		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	31	36	*3,020	259	2,940	803	1,380	875	460	154	60	48
2	30	35	1,960	239	3,070	789	1,420	838	460	149	59	47
3	30	35	762	233	2,650	756	1,450	789	450	144	58	47
4	29	34	495	227	1,810	723	1,410	749	540	140	57	46
5	31	34	374	221	1,390	756	1,280	723	475	138	56	45
6												
7	*44	35	315	221	1,130	820	1,170	756	435	136	56	44
8	52	36	273	221	*976	800	1,090	736	420	134	63	43
9	52	38	245	242	*898	780	1,020	692	390	128	78	42
10	44	38	218	230	2,260	1,000	976	*698	366	122	84	42
11	41	37	210	233	2,960	1,200	928	810	354	115	68	41
12												
13	39	45	208	*213	5,420	1,500	890	928	340	109	59	41
14	38	50	190	203	3,870	1,400	905	944	329	106	64	41
15	37	77	183	195	2,960	1,600	852	890	315	102	70	40
16	37	102	180	188	2,830	1,800	810	838	*294	99	74	39
17	37	86	190	183	*3,150	2,400	775	796	273	96	70	39
18												
19	36	70	597	178	2,820	2,200	762	762	259	93	62	45
20	35	73	4,830	170	2,330	2,400	749	730	249	90	57	50
21	35	*200	3,330	168	1,960	2,300	730	710	236	88	54	49
22	35	168	1,840	160	1,670	2,600	704	686	224	84	53	47
23	35	96	1,160	156	1,470	2,800	680	668	215	82	52	46
24												
25	35	83	883	154	1,330	2,300	742	645	210	79	52	45
26	35	77	743	154	1,240	2,400	796	617	205	79	51	44
27	34	91	634	195	1,170	2,500	775	595	198	78	50	43
28	34	363	551	198	1,090	2,300	775	573	190	75	49	42
29	34	907	475	178	1,030	2,100	796	546	183	72	47	41
30												
31	35	490	400	205	952	1,900	860	535	173	69	48	40
32	37	287	370	256	883	1,800	875	515	165	67	52	39
33	38	212	336	239	831	*1,620	875	490	*160	64	54	38
34	38	173	315	657	-	1,500	920	490	160	63	*52	38
35	38	203	294	1,670	-	1,440	912	495	158	61	51	38
36	38	-	280	4,780	-	1,410	-	500	-	60	50	-
Total	1,144	4,211	25,861	12,826	57,090	50,697	28,307	21,619	8,886	3,076	1,810	1,290
Mean	36.9	140	834	414	2,039	1,635	944	697	296	99.2	58.4	43.0
Max.	52	907	4,830	4,780	5,420	2,800	1,450	944	540	154	84	50
Min.	29	34	180	154	831	723	680	490	158	60	47	38
Ac-ft	2,270	8,350	51,290	25,440	113,200	100,600	56,150	42,880	17,630	6,100	3,590	2,560

Calendar year 1960: Max 17,700 Min 29 Mean 552 Acre-feet 400,400  
Water year 1960-61: Max 5,420 Min 29 Mean 594 Acre-feet 430,100

Peak discharge (base, 4,900 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-17	12 m.	9.76	5,560	2-11	8 a.m.	10.22	6,240
1-31	12 m.	10.19	6,190				

\* Discharge measurement made on this day.

Note.--No gage-height record Mar. 6-27, Aug. 12 to Sept. 30.

## KLAMATH RIVER BASIN

11-5282. South Fork Trinity River near Hyampom, Calif.--Continued.

Temperature (°F) of water, water year October 1960 to September 1961																								
Day	Oct.		Nov.		Dec.		Jan.		Feb.		Mar.		Apr.		May		June		July		Aug.		Sept.	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1			-	-	45	44	39	38	46	46	44	44	48	47	52	51	60	57	69	63	72	68		
2			-	-	45	45	38	37	46	46	44	44	49	48	52	50	61	58	69	64	72	68		
3			-	-	45	45	37	37	46	46	44	43	49	48	51	48	64	60	69	64	73	69		
4			-	-	45	45	37	37	46	46	43	43	49	48	50	48	64	61	69	65	74	72		
5			-	-	45	44	37	37	46	46	43	43	48	47	49	48	63	60	68	63	74	73		
6			-	-	44	41	38	37	46	46	-	-	48	47	49	48	62	60	66	61	73	72		
7			-	-	41	40	38	38	46	44	-	-	48	47	50	48	62	58	68	62	73	71		
8			-	-	40	40	40	38	46	44	-	-	49	48	52	49	62	59	70	64	72	70		
9			-	-	40	40	41	40	45	44	-	-	49	48	52	51	63	59	72	65	73	70		
10			-	-	40	40	42	41	45	45	-	-	49	48	51	49	64	60	73	67	74	70		
11			-	-	40	40	42	41	45	45	-	-	49	48	49	48	64	61	74	68	74	71		
12			-	-	41	40	42	41	45	44	-	-	49	49	50	48	65	61	74	69	-	-		
13			-	-	41	41	43	42	44	44	-	-	49	48	50	49	67	62	75	71	-	-		
14			-	-	41	41	43	43	44	44	-	-	49	48	52	49	67	64	74	70	-	-		
15			-	-	41	41	43	43	44	44	-	-	51	48	53	51	-	-	74	68	-	-		
16			-	-	44	41	43	43	44	44	-	-	52	50	55	53	-	-	72	67	-	-		
17			-	-	46	44	43	41	44	44	-	-	52	51	57	53	-	-	72	67	-	-		
18			48	48	46	46	41	40	44	43	-	-	51	48	58	54	-	-	72	67	-	-		
19			48	48	46	46	40	39	43	42	-	-	48	46	58	56	-	-	72	67	-	-		
20			48	47	46	45	39	39	44	42	-	-	47	46	57	56	-	-	72	66	-	-		
21			47	47	45	45	39	39	44	44	-	-	47	46	58	55	-	-	72	67	-	-		
22			47	46	45	44	40	39	44	44	-	-	46	44	57	55	-	-	72	68	-	-		
23			46	46	44	44	42	40	44	43	-	-	45	43	57	54	-	-	72	68	-	-		
24			47	46	44	44	43	42	43	43	-	-	47	44	57	53	-	-	74	69	-	-		
25			47	46	44	44	43	43	44	43	-	-	48	46	57	54	-	-	74	70	-	-		
26			46	46	44	44	43	43	44	43	-	-	48	46	57	55	-	-	74	69	-	-		
27			46	44	44	43	44	43	43	43	-	-	49	47	56	54	-	-	73	68	-	-		
28			44	44	43	41	44	44	44	43	45	43	50	48	58	55	-	-	72	68	-	-		
29			44	44	41	40	44	44	-	-	45	44	51	50	58	56	-	-	72	68	-	-		
30			44	44	40	40	44	44	---	---	47	45	51	50	57	56	66	62	71	67	-	-		
31			---	---	40	39	46	44	---	---	47	46	---	---	58	56	68	62	71	68	-	-		
Avg			-	-	43	42	41	41	45	44	-	-	49	47	54	52	-	-	72	67	-	-		



11-5284. Hayfork Creek near Hayfork, Calif.

Location.--Lat 40°31'10", long 123°05'05", in SW¼ sec.23, T.31 N., R.11 W., on left bank 1,300 ft downstream from Carrier Gulch and 5.8 miles southeast of town of Hayfork.

Drainage area.--87.2 sq mi.

Records available.--October 1956 to September 1961.

Gage.--Water-stage recorder and crest-stage gage. Datum of gage is 2,555.27 ft above mean sea level, datum of 1929.

Average discharge.--5 years, 118 cfs (85,430 acre-ft per year).

Extremes.--Maximum discharge during year, 1,870 cfs Jan. 31 (gage height, 8.18 ft); minimum, 2.2 cfs Sept. 5.

1956-61: Maximum discharge, 4,210 cfs Feb. 8, 1960 (gage height, 11.67 ft); minimum, 1.2 cfs Sept. 1, 1957.

Flood of Dec. 22, 1955, reached a stage of 11.0 ft, from floodmarks (discharge, 3,880 cfs on basis of slope-area measurement of peak flow).

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

Rating tables, except periods of ice effect (gage height, in feet, and discharge in cubic feet per second)  
(Shifting-control method used Sept. 26-30)

Oct. 1 to Dec. 16				Dec. 17 to Sept. 30			
2.3	3.0	3.2	59	2.2	1.3	3.0	46
2.4	4.0	3.5	99	2.3	2.6	3.5	112
2.5	6.5	4.0	191	2.4	4.9	4.0	200
2.6	11	5.0	460	2.5	8.0	5.0	460
2.9	32	6.0	805	2.6	12	7.0	1,220
				2.8	26		

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a 3.4	5.8	* 670	b39	498	80	236	101	54	13	4.2	2.6
2	a 3.4	5.8	308	b36	733	76	285	92	74	12	4.0	2.8
3	a 3.4	5.8	155	b34	501	73	305	85	54	12	4.0	2.8
4	a 3.4	5.8	101	b33	313	70	278	80	53	12	4.0	2.6
5	a 3.8	5.8	75	b31	222	77	222	74	47	12	4.0	2.5
6	* 11	6.0	58	b30	172	84	184	74	44	12	4.2	2.5
7	11	6.5	50	b31	144	77	158	70	42	11	4.4	2.5
8	8.8	6.5	45	32	* 134	90	141	64	39	11	4.9	2.8
9	7.4	6.3	40	32	479	102	131	* 64	37	11	6.8	2.6
10	7.0	6.3	38	* 32	478	109	120	68	35	10	4.9	2.8
11	6.5	8.3	36	* 29	729	138	111	81	29	10	4.7	3.1
12	6.3	10	34	27	490	141	109	83	30	9.6	4.9	3.3
13	6.3	14	34	27	352	152	102	77	29	9.6	5.2	3.1
14	6.0	17	33	25	303	260	95	70	* 28	11	5.2	3.1
15	5.8	15	33	24	* 318	439	88	65	25	7.4	4.9	3.3
16	5.5	13	177	23	300	355	84	63	24	6.5	4.7	4.7
17	5.3	16	1,030	22	248	391	81	59	22	7.4	4.4	5.8
18	4.8	53	507	b22	204	352	76	56	20	7.4	4.4	5.2
19	4.0	34	300	b21	172	421	73	51	20	6.1	4.2	4.7
20	3.9	23	202	b21	149	445	70	46	17	6.5	4.2	4.4
21	3.9	20	154	b20	141	364	76	44	16	6.8	4.2	4.4
22	4.0	16	126	19	133	403	81	42	16	5.8	4.0	4.4
23	4.0	17	108	26	122	445	78	41	16	6.1	3.8	4.4
24	4.3	69	94	24	114	382	78	40	16	6.1	3.3	4.4
25	4.5	130	81	23	106	313	84	37	15	5.8	2.8	4.4
26	5.3	96	73	49	98	275	95	37	13	5.5	2.6	3.8
27	5.5	59	66	84	92	* 243	102	37	14	7.1	2.6	4.2
28	5.5	45	60	69	85	216	105	36	* 14	5.2	2.8	4.4
29	5.3	38	54	272	—	202	112	36	13	4.0	* 3.1	4.4
30	5.8	41	50	397	—	206	105	37	14	4.0	2.6	4.4
31	5.5		b 45	1,180	—	220	—	38	—	4.2	2.6	—
Total	170.6	794.9	4,837	2,734	7,830	7,201	3,865	1,848	870	2,581	126.6	110.4
Mean	5.50	26.5	156	88.2	280	232	129	59.6	29.0	8.33	4.08	3.68
Max.	11	130	1,030	1,180	733	445	305	101	74	13	6.8	5.8
Min.	3.4	5.8	33	19	85	70	70	36	13	4.0	2.6	2.5
Ac-ft	338	1,580	9,590	5,420	15,530	14,280	7,670	3,670	1,730	512	251	219

Calendar year 1960: Max 2,810 Min 3.3 Mean 95.8 Acre-feet 69,580  
Water year 1960-61: Max 1,180 Min 2.5 Mean 84.0 Acre-feet 60,790

Peak discharge (base, 1,100 cfs).--Dec. 17 (7 a.m.) 1,450 cfs (7.46 ft); Jan. 31 (6 a.m.) 1,870 cfs (8.18 ft).

\* Discharge measurement made on this day.

a No gage-height record.

b Stage-discharge relation affected by ice.

## KLAMATH RIVER BASIN

11-5284.4. Big Creek near Hayfork, Calif.

Location.--Lat 40°33'11", long 123°08'33", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.7, T.31 N., R.11 W., on right bank 30 ft upstream from bridge on Hayfork-Douglas City road and 2 miles east of Hayfork.

Drainage area.--27.1 sq mi.

Records available.--October 1960 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 2,385 ft (from topographic map).

Extremes.--Maximum discharge during year, 405 cfs Jan. 31 (gage height, 7.73 ft), from rating curve extended above 160 cfs; no flow for part of Sept. 13.

Remarks.--Small diversion above station for city of Hayfork.

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

Discharge, in cubic feet per second, water year October 1960 to September 1961												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.3	1.3	142	12	131	41	86	27	13	5.4	0.2	0.6
2	.4	1.7	69	12	153	* 39	94	24	13	2.0	.4	.4
3	.5	1.5	32	12	117	37	81	23	16	1.9	.6	.7
4	.5	1.6	22	*11	85	37	81	* 23	20	2.2	.3	.2
5	1.1	1.9	16	11	65	38	79	22	22	1.5	.2	.6
6	.9	4.3	15	11	56	42	79	22	19	*1.7	.5	.3
7	1.3	5.3	13	11	48	36	* 65	21	19	1.9	*.8	.7
8	.7	3.8	12	11	45	42	60	21	17	1.8	.9	.5
9	.8	3.6	11	10	121	44	55	22	16	1.5	.7	.7
10	1.0	3.8	11	11	132	46	52	22	15	1.1	.4	.2
11	.9	4.6	9.6	10	244	55	48	24	14	1.1	.6	.6
12	.8	5.3	9.3	9.2	*174	55	49	21	13	1.0	.8	.5
13	.8	7.1	9.5	8.7	132	67	45	19	9.8	1.1	.7	.1
14	*.7	*7.9	9.4	9.4	112	111	40	20	8.9	1.2	.6	.6
15	.3	6.5	11	8.6	123	186	35	19	8.8	1.3	.7	.6
16	.9	5.6	40	8.6	113	146	32	17	8.6	.8	.3	1.0
17	1.0	6.2	216	8.5	102	143	31	17	8.3	1.1	.5	1.3
18	1.2	17	111	8.3	86	109	31	17	7.9	.6	.2	.9
19	1.3	9.3	68	8.9	75	124	29	16	7.6	.8	.5	1.0
20	1.4	7.0	47	8.8	68	133	29	15	7.4	.6	.4	.7
21	.9	6.8	36	8.5	64	118	29	16	7.7	.5	.7	1.0
22	.4	6.1	30	8.3	60	132	29	15	* 7.2	.7	.5	.4
23	.6	10	25	10	55	140	29	15	6.9	.5	.1	1.4
24	1.4	31	22	9.6	53	129	27	14	8.1	1.0	.1	.7
25	1.5	43	20	9.4	50	113	30	14	8.1	.5	.1	.6
26	1.7	21	17	12	46	105	29	14	7.0	.3	.8	*.7
27	1.6	14	16	14	44	99	30	13	6.8	.6	1.2	.8
28	1.3	11	15	13	43	90	29	14	7.1	.6	.8	.1
29	1.1	8.9	14	39	-	85	31	15	7.3	.2	1.1	.5
30	1.6	11	14	69	-----	83	27	15	7.3	.4	.7	.8
31	1.3	-----	13	295	-----	85	-----	13	-----	.6	-----	-----
Total	30.2	268.1	1095.8	688.8	2597	2710	1391	570	337.8	36.5	17.0	19.2
Mean	0.97	8.94	35.3	22.2	92.8	87.4	46.4	18.4	11.3	1.18	0.55	0.64
Max.	1.7	43	216	295	244	186	94	27	22	5.4	1.2	1.4
Min.	0.3	1.3	9.3	8.3	43	36	27	13	6.8	0.2	0.1	0.1
Acre-ft	60	532	2,170	1,370	5,150	5,380	2,760	1,130	670	72	34	38
Calendar year 1960:	Max		-	Min	-	Mean	-	Acre-feet		-		
Water year 1961-62:	Max		295	Min	0.1	Mean	26.7	Acre-feet		19,370		

\* Discharge measurement made on this day.

KLAMATH RIVER BASIN

429

11-5285. Hayfork Creek near Hyampom, Calif.

Location.--Lat 40°37'35", long 123°26'00", in NW¼ sec.19, T.3 N., R.7 E., on right bank 1.2 miles upstream from mouth and 1.3 miles northeast of Hyampom.

Drainage area.--379 sq mi.

Records available.--August 1953 to September 1961.

Gage.--Water-stage recorder with thermograph attachment. Altitude of gage is 1,280 ft (from topographic map).

Average discharge.--8 years, 532 cfs (385,200 acre-ft per year).

Extremes.--Maximum discharge during year, 5,330 cfs Jan. 31 (gage height, 9.87 ft); minimum, 17 cfs Oct. 2, Sept. 15.

1953-61: Maximum discharge, 25,300 cfs Dec. 22, 1955 (gage height, 18.00 ft), from rating curve extended above 6,700 cfs on basis of slope-area measurement of peak flow; minimum, 16 cfs Sept. 28, 1960.

Remarks.--Records good except those for periods of ice effect, which are fair. Diversions for irrigation of about 700 acres above station.

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

Oct. 1 to Dec. 17

Dec. 18 to Sept. 30

2.8	10	5.0	642	2.6	14	4.0	310
2.9	20	6.0	1,180	2.8	32	5.0	730
3.1	49	8.0	2,860	3.0	59	7.0	1,980
3.5	126	9.0	4,000	3.5	160	9.0	4,000
4.0	254						

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	18	32	*1,530	B160	1,870	338	865	317	155	66	26	22
2	18	32	1,130	B140	2,260	324	898	301	223	61	25	22
3	18	30	520	B140	1,790	310	928	280	199	55	25	21
4	18	30	338	B133	1,230	298	892	268	205	52	24	20
5	19	30	248	B135	916	310	780	256	196	50	23	20
6	*30	30	204	B145	735	396	685	265	178	52	25	20
7	36	35	178	135	*604	384	613	256	169	52	29	20
8	44	36	161	138	541	428	545	235	155	50	28	20
9	39	36	147	133	1,480	545	500	*235	148	49	31	20
10	36	38	143	131	1,790	626	468	250	140	47	29	20
11	33	43	141	*131	3,130	775	432	274	133	46	29	19
12	33	47	130	125	2,240	805	424	277	125	44	29	19
13	35	63	124	121	1,650	815	400	265	123	43	30	19
14	33	71	124	117	1,390	1,070	366	250	*115	42	31	19
15	33	80	126	115	1,410	1,880	338	238	109	42	29	19
16	33	69	248	113	1,310	1,540	321	226	103	40	28	20
17	30	69	2,930	111	1,140	1,900	307	214	97	38	26	25
18	29	116	1,700	109	970	1,670	298	208	93	38	26	26
19	29	130	1,030	B105	825	1,670	292	199	90	38	24	27
20	29	96	695	B103	720	1,830	280	196	88	36	25	26
21	29	84	523	B103	640	1,550	295	184	82	34	24	24
22	29	77	424	B103	581	1,530	345	178	81	34	22	25
23	29	82	370	119	532	1,620	349	169	81	33	22	24
24	29	161	304	119	488	1,490	335	163	77	32	22	23
25	29	303	274	115	460	1,320	331	158	75	30	21	22
26	30	303	250	138	416	1,200	338	153	72	30	21	22
27	30	180	226	217	384	1,110	352	153	68	29	26	21
28	32	137	208	208	356	*1,010	342	148	*63	28	25	22
29	32	118	196	664	-----	928	342	155	64	29	*28	22
30	32	*124	184	1,440	-----	892	338	155	66	28	25	22
31	32	-----	172	3,610	-----	870	-----	158	-----	27	23	-----
TOTAL	926	2,682	14,978	9,376	31,858	31,434	13,999	6,784	3,573	1,275	801	651
MEAN	29.9	89.4	483	302	1,138	1,014	467	219	119	41.1	25.8	21.7
MAX	44	303	2,930	3,610	3,130	1,900	928	317	223	66	31	27
MIN	18	30	124	103	356	298	280	148	63	27	21	19
AC-FT	1,840	5,320	29,710	18,600	63,190	62,350	27,770	13,460	7,090	2,530	1,590	1,290

CALENDAR YEAR 1960: MAX 9,340 MIN 17 MEAN 337 AC-FT 244,600  
WATER YEAR 1960-61: MAX 3,610 MIN 18 MEAN 324 AC-FT 234,700

Peak discharge (base, 4,000 cfs).--Jan. 31 (10 a.m.) 5,330 cfs (9.87 ft).

\* Discharge measurement made on this day.

B Stage-discharge relation affected by ice.

## KLAMATH RIVER BASIN

11-5285. Hayfork Creek near Hyampom, Calif.--Continued.

Temperature (°F) of water, water year October 1960 to September 1961																								
Day	Oct.		Nov.		Dec.		Jan.		Feb.		Mar.		Apr.		May		June		July		Aug.		Sept.	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1			-	-	44	43	37	36	47	46	45	45	51	49	55	55	66	63	77	72	77	73	70	68
2			-	-	44	44	36	35	48	47	46	45	53	51	55	55	66	65	78	73	78	74	68	65
3			-	-	44	44	35	35	48	47	46	45	53	52	55	53	68	66	76	73	78	74	68	64
4			-	-	44	44	35	35	48	47	45	45	53	52	54	52	69	67	76	73	80	77	69	65
5			-	-	44	42	35	35	48	47	45	45	52	50	53	52	69	68	75	72	81	78	70	65
6			-	-	42	40	36	35	48	48	45	44	51	50	52	52	68	66	72	69	80	78	70	66
7			-	-	40	40	38	36	48	45	44	44	51	50	53	52	66	63	73	69	78	76	67	65
8			-	-	40	39	39	38	45	45	44	44	51	50	57	53	67	65	76	71	77	75	66	64
9			-	-	39	39	41	39	47	45	44	44	51	50	57	56	67	65	78	73	79	76	66	63
10			-	-	40	39	41	41	48	47	44	44	51	50	56	53	68	66	79	73	79	75	66	63
11			-	-	40	40	41	41	48	47	45	44	52	51	53	52	68	66	81	77	78	76	66	63
12			-	-	40	40	41	41	47	46	45	45	52	51	54	52	69	65	81	78	77	74	66	63
13			-	-	41	40	42	41	46	46	48	45	51	50	55	54	70	67	83	79	77	73	66	63
14			-	-	41	41	42	42	47	46	48	48	52	51	58	55	73	70	82	78	76	73	65	63
15			-	-	41	41	42	42	47	47	48	47	53	52	59	57	74	71	81	77	76	73	65	63
16			-	-	43	41	42	42	47	45	47	45	56	53	61	58	74	71	79	76	75	73	65	63
17			-	-	45	43	41	42	46	45	46	44	56	54	62	59	74	71	79	75	75	72	64	62
18			-	-	46	45	41	39	45	44	48	46	54	51	64	60	75	70	79	75	75	72	63	61
19			-	-	46	46	39	38	44	43	48	46	51	49	64	62	75	72	78	75	75	72	63	61
20			-	-	46	44	38	37	45	44	46	45	50	50	64	62	76	72	79	75	75	71	63	61
21			-	-	44	44	37	37	46	45	49	45	50	49	63	60	77	73	79	75	77	73	62	60
22			-	-	44	42	39	37	47	46	49	48	49	46	64	62	79	76	79	75	76	73	61	59
23			-	-	42	41	41	39	46	45	48	47	46	45	64	62	79	75	79	75	75	72	61	59
24			-	-	41	41	43	41	45	45	48	48	50	46	64	60	79	75	80	76	73	70	60	58
25			-	-	41	41	43	42	45	45	48	46	52	50	64	61	81	77	80	77	73	70	60	58
26			-	-	42	41	44	42	45	45	48	47	53	52	63	62	81	77	79	76	73	70	60	58
27			-	-	42	41	45	44	45	45	47	47	53	52	62	60	80	76	78	75	72	69	60	58
28			-	-	41	40	45	45	45	45	47	45	54	53	62	60	78	74	78	74	72	69	60	58
29			-	-	40	39	45	45	-	-	48	46	54	54	62	60	78	72	77	74	72	69	60	57
30			43	43	39	38	45	45	----	----	49	47	55	54	60	60	77	71	77	73	70	68	58	55
31			----	----	38	37	47	45	----	----	50	49	----	----	63	60	----	----	77	73	71	68	----	----
Avg			-	-	42	41	41	40	46	46	47	46	52	51	59	57	73	70	78	74	76	73	64	62

KLAMATH RIVER BASIN

431

11-5290. South Fork Trinity River near Salyer, Calif.

Location.--Lat 40°50'30", long 123°34'00", in SE¼ sec.1, T.5 N., R.5 E., on right bank 4 miles south of Salyer and 8 miles upstream from mouth..

Drainage area.--899 sq mi.

Records available.--October 1911 to September 1913, October 1950 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B. Published as "near China Flat" 1911-13.

Gage.--Water-stage recorder. Altitude of gage is 550 ft (from topographic map). Oct. 12, 1911, to Aug. 10, 1913, staff gage at site 7.7 miles downstream at different datum.

Average discharge.--13 years, 1,788 cfs (1,294,000 acre-ft per year).

Extremes.--Maximum discharge during year, 15,000 cfs Feb. 11 (gage height, 18.68 ft); minimum, 71 cfs Oct. 1. 1911-13, 1950-61: Maximum discharge, 65,100 cfs Dec. 22, 1955 (gage height, 39.4 ft, from floodmarks), from rating curve extended above 21,000 cfs by slope-conveyance study; minimum, 54 cfs Sept. 10, 1955.

Remarks.--Records good except those for periods of no gage-height record, which are fair. No regulation or diversion.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Oct. 1, Nov. 21-23, 27-29)

Oct. 1 to Feb. 10

Feb. 11 to Sept. 30

3.7	68	3.2	78	8.0	1,420
4.5	212	4.0	164	10.0	2,800
6.0	630	5.0	345	18.0	14,000
		6.0	630		

Note.--Same as following table above 6.0 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961.

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	73	97	4,820	755	6,880	1,710	3,010	1,690	892	339	156	104
2	76	97	4,810	702	6,710	1,690	3,080	1,620	880	330	152	103
3	77	96	2,240	667	6,130	1,590	3,210	1,500	932	323	149	102
4	74	94	1,590	639	4,270	1,510	3,130	1,420	948	316	146	100
5	74	93	1,220	*609	3,180	1,580	2,790	1,360	920	310	144	96
6	89	94	A1,100	600	2,640	1,920	2,500	1,530	852	304	141	95
7	*116	97	A1,020	594	2,290	1,850	2,300	1,490	828	296	139	93
8	143	102	A888	624	2,120	1,840	2,150	1,380	769	290	138	92
9	130	104	A765	612	4,960	2,250	2,030	1,370	723	284	130	91
10	125	106	A654	636	7,450	2,450	1,930	1,620	692	280	130	90
11	109	118	654	591	13,300	2,890	1,850	1,860	671	272	137	89
12	106	139	609	567	9,540	3,150	1,860	1,840	*651	264	132	87
13	104	180	588	534	7,180	3,480	1,780	1,740	624	256	141	86
14	104	251	579	519	6,590	4,050	1,660	1,620	600	247	145	*85
15	102	261	576	501	6,930	6,510	1,580	1,520	564	240	143	86
16	101	241	901	480	6,270	5,580	1,530	1,450	534	234	132	93
17	99	241	8,870	465	*5,230	6,350	1,510	1,370	510	228	126	102
18	96	587	7,880	453	4,360	5,750	1,470	1,320	483	222	120	105
19	96	519	4,740	438	3,690	5,670	1,410	1,280	462	215	118	104
20	94	347	3,050	423	3,180	6,380	1,360	1,260	444	209	116	103
21	94	308	2,320	417	2,820	5,300	1,430	1,200	423	204	114	99
22	94	273	1,970	405	2,630	5,250	1,640	1,160	408	199	111	97
23	94	440	1,690	459	2,420	5,640	1,630	1,120	390	193	107	96
24	93	A1,240	A1,470	519	2,260	5,270	1,570	1,070	375	190	*104	94
25	94	A1,940	A1,300	*474	2,150	4,850	1,570	1,030	360	186	102	93
26	96	A1,500	A1,160	495	2,000	4,520	1,630	1,020	358	181	102	92
27	101	1,040	A1,080	624	1,900	4,270	*1,660	988	*355	175	114	91
28	99	758	A1,000	688	1,800	3,850	1,660	936	390	172	113	89
29	99	*615	A920	952	-----	*3,490	1,720	920	345	168	112	88
30	99	A642	860	3,750	-----	3,250	1,770	948	340	164	112	88
31	99	-----	804	10,200	-----	3,120	-----	940	-----	159	110	-----
TOTAL	3,050	12,620	61,928	30,392	130,880	117,010	58,420	41,572	17,683	7,430	3,978	2,898
MEAN	98.4	421	1,998	980	4,674	3,775	1,947	1,341	589	240	128	94.4
MAX	143	1,940	8,870	10,200	13,300	6,510	3,210	1,860	948	335	156	105
MIN	73	93	576	405	1,800	1,510	1,360	920	340	159	102	85
AC-FT	6,050	25,030	122,800	60,280	259,600	232,100	115,900	82,460	35,070	14,780	7,890	5,620

CALENDAR YEAR 1960: MAX 26,500  
WATER YEAR 1960-61: MAX 13,300

MIN 71  
MIN 73

MEAN 1,332  
MEAN 1,336

AC-FT 967,000  
AC-FT 967,600

Peak discharge (base, 8,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12- 1	6 p.m.	14.12	8,370	2- 2	5 p.m.	14.02	8,230
12-17	5 p.m.	16.77	12,200	2-11	10 a.m.	18.68	15,000
1-31	2 p.m.	17.74	13,600				

\* Discharge measurement made on this day.  
a No gage-height record.

## KLAMATH RIVER BASIN

11-5298. Willow Creek at Willow Creek, Calif.

Location.--Lat 40°55'39", long 123°38'11", in SE¼ sec.29, T.7 N., R.5 E., on left bank 0.4 mile upstream from mouth and 0.5 mile northwest of Willow Creek.

Drainage area.--43.3 sq mi.

Records available.--August 1959 to September 1961.

Gage.--Water-stage recorder. Altitude of gage 480 ft (from topographic map).

Extremes.--Maximum discharge during year, 1,760 cfs Feb. 11 (gage height, 7.17 ft); minimum, 7.8 cfs Oct. 17.  
1959-61: Maximum discharge, 4,940 cfs Feb. 9, 1960 (gage height, 9.68 ft) from rating extended above 1,400 cfs on basis of slope-area measurement of peak flow; minimum, that of Oct. 17, 1960.

Remarks.--Records good except those for period of no gage-height record, which are fair. Small diversion for irrigation of about 40 acres above station.

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

Oct. 1 to Feb. 11				Feb. 12 to Sept. 30			
3.5	9.0	5.2	310	4.8	170	6.0	680
3.7	18	5.6	500	5.3	340	7.0	1,540
4.0	46	6.0	750				
4.4	95	7.0	1,590				
4.8	170						

Note.--Same as preceding table below 4.8 ft.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	11	12	530	74	219	185	404	*170	75	32	16	a14
2	11	12	530	72	346	224	408	164	73	32	16	a14
3	10	12	322	68	282	197	430	144	69	31	16	a13
4	*10	12	212	67	194	173	392	130	66	31	16	a13
5	11	12	158	63	156	236	340	136	64	32	17	a13
6	14	12	132	*62	146	340	288	260	67	*31	16	a13
7	18	12	*112	64	132	320	257	272	63	31	17	a12
8	17	12	100	61	140	340	236	218	61	30	16	a12
9	13	12	91	70	516	368	212	224	60	26	15	a12
10	12	12	89	66	636	360	194	251	58	25	15	a12
11	11	32	79	64	1,450	520	185	308	56	25	14	a12
12	11	21	74	66	*860	490	209	288	*56	24	14	a12
13	11	35	72	66	828	680	170	248	55	23	14	a11
14	11	53	69	64	994	740	156	215	53	21	15	a11
15	11	58	73	62	994	782	150	188	50	21	14	a13
16	11	58	112	61	729	*692	156	170	48	21	14	15
17	10	104	759	58	585	817	150	154	46	20	14	13
18	11	214	583	56	455	722	148	142	44	19	14	13
19	11	74	420	54	380	704	132	134	43	18	13	12
20	11	56	282	52	332	680	132	124	42	18	13	12
21	11	66	212	51	288	570	160	114	42	18	*12	12
22	11	52	176	50	272	668	154	106	41	18	12	12
23	11	372	150	56	236	722	146	101	39	18	13	12
24	12	493	134	51	227	747	148	95	38	18	13	12
25	11	773	120	50	209	740	150	92	36	20	a13	11
26	15	323	109	50	185	796	154	95	35	18	a14	12
27	14	168	101	*50	182	*782	150	88	34	18	a15	11
28	13	*126	94	48	170	632	146	85	33	17	a14	11
29	13	106	88	75	-----	545	154	80	33	17	a14	12
30	12	162	83	86	-----	485	144	85	33	17	a13	12
31	12	-----	79	343	-----	440	-----	79	-----	17	a13	-----
TOTAL	371	3,466	6,145	2,180	12,143	16,697	6,255	4,960	1,513	707	445	369
MEAN	12.0	116	198	70.3	434	539	209	160	50.4	22.8	14.4	12.3
MAX	18	773	759	343	1,450	817	430	308	75	32	17	15
MIN	10	12	69	48	132	173	132	79	33	17	12	11
AC-FT	736	6,870	12,190	4,320	24,090	33,120	12,410	9,840	3,000	1,400	883	732

Calendar year 1960: Max 3,530 Min 10 Mean 152 Acre-feet 110,000  
Water year 1960-61: Max 1,450 Min 10 Mean 151 Acre-feet 109,600

Peak discharge (base, 1,200 cfs).--Nov. 25 (7 a.m.) 1,260 cfs (6.66 ft); Feb. 11 (4 a.m.) 1,760 cfs (7.17 ft).

\* Discharge measurement made on this day.

a No gage-height record.

KLAMATH RIVER BASIN

433

11-5300. Trinity River near Hoopa, Calif.

Location.--Lat 41°01'50", long 123°39'05", in SE $\frac{1}{4}$  sec.31, T.8 N., R.5 E., in Hoopa Indian Reservation, on left bank 0.7 mile downstream from Campbell Creek and 1-3/4 miles southeast of Hoopa.

Drainage area.--2,848 sq mi.

Records available.--October 1911 to January 1914, October 1916 to September 1918, October 1931 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B. Published as "at Hoopa" 1911-14, 1916-18.

Gage.--Water-stage recorder. Altitude of gage is 315 ft (from river-profile map). Prior to October 1931, staff gage at site 2.1 miles downstream at different datum.

Average discharge.--34 years (1911-13, 1916-18, 1931-61), 5,606 cfs (4,059,000 acre-ft per year) adjusted for storage in Trinity Lake.

Extremes.--Maximum discharge during year, 36,300 cfs Feb. 11 (gage height, 17.16 ft); minimum, 352 cfs Oct. 1, 2. 1911-14, 1916-18, 1931-61: Maximum discharge, 190,000 cfs Dec. 22, 1955 (gage height, 36.90 ft), from rating curve extended above 56,000 cfs; minimum, 162 cfs Oct. 4, 1931.

Remarks.--Records good. Flow regulated by Trinity Lake beginning in November 1960 (usable capacity, 2,160,000 acre-ft). Small diversions above station for mining and irrigation.

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

Oct. 1 to Feb. 10				Feb. 11 to Sept. 30			
3.3	340	5.0	1,120	3.5	445	7.0	3,000
4.0	600	6.0	1,900	4.0	630	9.0	6,700
				5.0	1,150	13.0	18,700
				6.0	1,900	17.0	35,500

Note.--Same as following table above 6.0 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	352	472	7,980	3,030	15,300	4,350	9,050	4,780	3,110	1,330	646	512
2	352	468	12,000	2,890	13,400	4,460	9,650	4,740	3,480	1,310	638	501
3	361	464	6,880	2,800	14,200	4,240	10,700	4,350	3,930	1,310	630	505
4	*361	460	5,000	2,720	10,200	4,030	10,900	4,100	4,000	1,260	618	498
5	358	456	4,060	2,640	7,630	4,200	9,800	3,960	3,790	1,230	618	491
6	374	448	3,500	2,620	6,550	5,240	8,540	4,330	3,530	*1,210	622	477
7	500	444	*3,130	2,600	5,740	5,160	7,650	4,350	3,310	1,170	662	473
8	580	452	2,870	2,610	5,280	5,060	6,950	4,060	3,080	1,130	685	470
9	659	456	2,680	2,580	10,500	5,880	6,500	4,110	2,840	1,120	685	470
10	614	472	2,570	2,670	17,800	6,330	6,140	4,800	2,670	1,110	680	459
11	564	580	2,520	2,540	31,800	7,500	5,880	5,280	2,640	1,090	630	459
12	528	618	2,360	2,500	24,700	8,300	6,040	5,160	2,570	1,080	614	456
13	508	725	2,280	2,300	18,300	9,500	5,680	4,900	*2,460	1,070	618	452
14	496	952	2,250	2,260	16,600	11,300	5,240	4,640	2,510	1,110	626	452
15	488	1,000	2,240	1,720	16,300	17,300	4,920	4,470	2,690	1,100	606	456
16	480	915	2,730	1,610	15,000	15,500	4,980	4,400	2,660	1,030	586	508
17	472	1,010	15,900	1,570	12,600	16,100	5,200	4,380	2,550	994	570	543
18	464	2,280	17,300	1,440	10,600	15,200	5,040	4,440	2,360	950	554	594
19	460	1,880	12,500	1,370	8,960	13,900	4,620	4,560	2,200	920	547	554
20	456	1,330	8,900	1,320	7,730	15,200	4,370	4,550	2,090	905	540	533
21	452	1,200	6,880	1,300	7,080	13,300	4,460	4,280	2,010	895	536	515
22	448	1,170	5,820	1,270	6,630	12,900	4,740	4,030	2,010	880	529	505
23	444	1,810	5,140	1,340	6,160	14,500	4,560	3,930	1,950	835	512	501
24	444	6,320	4,660	1,440	5,740	13,700	*4,350	3,610	1,850	795	505	494
25	448	10,000	4,310	1,380	5,480	13,100	4,240	3,440	1,850	770	*501	491
26	468	6,750	4,030	*1,370	5,060	12,500	4,290	3,520	1,770	740	512	484
27	472	3,610	*3,790	1,570	*4,740	12,100	4,370	3,360	1,640	720	550	480
28	472	2,670	3,600	1,720	4,510	11,000	4,400	3,110	1,500	695	562	473
29	472	2,250	3,390	1,950	-----	*9,980	4,600	3,070	1,420	680	543	466
30	476	2,250	3,250	5,510	-----	9,380	4,840	3,240	1,380	666	543	466
31	472	-----	3,140	18,200	-----	9,200	-----	3,220	-----	654	526	-----
TOTAL	14,495	53,912	167,660	82,840	314,590	310,410	182,700	129,170	75,850	30,759	18,194	14,738
MEAN	468	1,797	5,408	2,672	11,240	10,010	6,090	4,167	2,528	992	587	491
MAX	659	10,000	17,300	18,200	31,800	17,300	10,900	5,280	4,000	1,330	685	594
MIN	352	444	2,240	1,270	4,510	4,030	4,240	3,070	1,380	654	501	452
AC-FT	28,750	106,900	332,500	164,300	624,000	615,700	362,400	256,200	150,400	61,010	36,090	29,230

CALENDAR YEAR 1960: MAX 68,400 MIN 352 MEAN 4,809 AC-FT 3,491,000  
WATER YEAR 1960-61: MAX 31,800 MIN 352 MEAN 3,823 AC-FT 2,767,000

Peak discharge (base, 22,000 cfs)

\* Discharge measurement made on this day.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-17	7 p.m.	14.12	22,700	2-11	12 m.	17.16	36,300
1-31	4 p.m.	15.42	27,900				

## KLAMATH RIVER BASIN

11-5305. Klamath River near Klamath, Calif.

**Location.**--Lat 41°30'45", long 123°58'30", in SW¼ sec.17, T.13 N., R.2 E., on right bank 2.8 miles upstream from Turwar Creek and 3.3 miles east of Klamath.

**Drainage area.**--12,100 sq mi, approximately.

**Records available.**--October 1910 to December 1926 (published as "near Requa"), October 1950 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

**Gage.**--Water-stage recorder. Datum of gage is 5.60 ft above mean sea level (levels by Corps of Engineers). Prior to June 1926 staff gage at same site at different datum.

**Average discharge.**--27 years, 17,220 cfs (12,470,000 acre-ft per year).

**Extremes.**--Maximum discharge during year, 123,000 cfs Feb. 11 (gage height, 23.16 ft); minimum daily, 2,150 cfs Oct. 4.

1910-26, 1950-61: Maximum discharge, 425,000 cfs Dec. 22, 1955 (gage height, 49.7 ft, from floodmarks), from rating curve extended above 140,000 cfs on basis of flood-routing study; minimum observed, 1,340 cfs July 31, Aug. 1, 1924.

**Remarks.**--Records good. Flow considerably regulated by reservoirs and powerplants above station. Large diversions for irrigation above station.

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

Oct. 1 to Feb. 11				Feb. 12 to Sept. 30			
3.8	2,100	11.0	26,000	3.8	2,600	11.0	26,000
4.5	3,150	16.0	57,000	4.0	2,900	16.0	57,000
6.0	6,400	22.0	111,000	5.0	4,600	22.0	111,000
8.0	13,500			7.0	10,400		

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	2,730	2,390	19,000	9,780	48,400	18,000	29,900	19,200	15,700	6,240	3,050	3,350
2	2,630	3,030	34,000	9,500	34,400	19,500	30,100	20,100	16,600	5,930	3,230	3,400
3	2,160	3,020	26,000	7,900	31,800	19,100	33,400	19,300	18,100	5,250	3,350	3,380
4	2,150	3,360	18,900	8,020	29,600	18,200	36,000	17,600	18,200	4,960	3,320	2,890
5	2,570	3,260	14,900	8,730	23,800	17,600	33,500	16,800	17,800	4,880	3,310	2,720
6	3,260	3,290	12,900	8,310	20,400	20,800	29,900	19,600	17,200	4,740	3,350	2,650
7	3,460	2,660	12,100	8,020	19,600	22,300	27,100	20,000	16,300	5,000	3,130	3,190
8	3,580	2,460	11,100	7,810	*19,100	21,700	25,100	18,200	15,000	4,860	3,040	3,380
9	3,420	*3,110	10,200	7,540	28,500	22,900	23,800	19,200	14,000	4,660	3,280	3,410
10	2,870	3,140	10,100	7,720	62,000	24,300	22,700	*23,800	13,100	4,500	3,320	3,320
11	2,640	3,840	9,670	8,170	107,000	28,000	21,900	28,500	12,600	4,240	3,250	2,810
12	3,260	4,100	8,450	*8,200	93,200	29,900	22,600	26,500	12,100	4,420	3,230	2,630
13	3,360	4,280	8,170	8,170	67,600	40,400	21,900	24,100	11,300	4,500	3,260	3,080
14	3,400	4,060	8,660	8,620	62,100	46,100	20,200	22,300	12,000	4,580	*3,070	3,260
15	3,260	4,220	8,520	8,200	*59,900	55,800	19,200	21,200	12,600	4,340	2,920	3,260
16	3,030	4,840	9,320	7,180	55,300	52,700	18,900	20,700	12,600	4,220	3,080	3,370
17	2,450	5,280	30,200	6,940	45,000	51,000	19,600	20,800	12,200	3,980	3,170	3,520
18	2,360	13,200	50,500	7,240	37,700	48,000	19,700	21,100	11,200	3,680	3,220	3,100
19	2,780	9,180	44,800	7,000	31,300	43,000	19,300	22,000	10,100	3,840	3,310	*3,190
20	3,270	6,350	32,100	6,970	27,400	47,100	17,700	22,800	9,280	3,900	3,290	3,560
21	3,420	5,930	25,600	6,700	25,400	42,100	18,100	21,700	9,280	3,840	3,040	3,730
22	3,180	5,150	21,100	6,640	24,600	40,800	19,000	20,300	8,940	3,800	2,840	3,760
23	3,320	11,400	18,600	6,250	23,300	46,700	18,300	19,500	*8,610	3,790	3,040	3,650
24	2,610	49,800	16,500	6,280	22,300	*45,800	16,900	17,800	8,130	3,500	3,190	3,640
25	2,450	56,900	14,900	7,000	21,700	48,000	16,000	16,700	7,830	3,350	3,170	3,170
26	*3,140	35,800	14,100	6,970	19,600	45,800	16,400	16,900	7,590	3,470	3,170	2,780
27	3,520	19,500	12,600	6,730	18,300	44,300	16,600	16,500	6,600	3,530	3,260	3,470
28	3,440	14,100	11,900	6,730	17,600	39,500	16,600	15,500	6,900	3,470	3,040	3,620
29	3,260	10,500	12,100	7,810	-----	35,100	17,800	15,000	6,690	3,440	2,870	3,640
30	3,380	10,700	11,100	13,100	-----	32,200	19,400	15,200	6,420	3,440	3,230	3,650
31	2,600	-----	10,700	42,000	-----	30,600	-----	15,600	-----	3,200	3,400	-----
TOTAL	92,870	308,850	548,790	276,230	*1,076.9	*1,097.3	667,600	614,500	354,970	131,550	98,430	98,580
MEAN	2,996	10,300	17,700	8,911	38,460	35,400	22,250	19,820	11,830	4,244	3,175	3,286
MAX	3,580	56,900	50,500	42,000	107,000	55,800	36,000	28,500	18,200	6,240	3,400	3,760
MIN	2,150	2,390	8,170	6,250	17,600	17,600	16,000	15,000	6,420	3,200	2,840	2,630
AC-FT	184,200	612,600	*1,089	547,900	*2,136	*2,176	*1,324	*1,219	704,100	260,900	195,200	195,500

CALENDAR YEAR 1960: MAX 179,000 MIN 2,150 MEAN 15,010 AC-FT 10,900,000  
 WATER YEAR 1960-61: MAX 107,000 MIN 2,150 MEAN 14,700 AC-FT 10,640,000

Peak discharge (base, 50,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-25	1 p.m.	16.73	62,800	2-11	6 p.m.	23.16	123,000
12-18	3 a.m.	15.54	53,800	3-15	6 p.m.	16.26	59,100
1-31	11 p.m.	17.16	66,400				

\* Discharge measurement made on this day.

† Expressed in thousands.



## SMITH RIVER BASIN

435

11-5310. Middle Fork Smith River at Gasquet, Calif.

Location.--Lat 41°50'40", long 123°57'35", in NW¼ sec.28, T.16 N., R.2 E., on left bank 0.4 mile east of Gasquet and 0.6 mile upstream from confluence with North Fork Smith River.

Drainage area.--130 sq mi.

Records available.--October 1911 to February 1918 (published as "near Crescent City"). Occasional low-flow measurements, water years 1952-57 and annual maximum, water years 1954-56. October 1958 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder and crest-stage gage. Altitude of gage is 350 ft (from topographic map). October 1911 to February 1918, staff or chain gages at various sites within 0.4 mile downstream at different datums. Sept. 23, 1953, to Sept. 30, 1956, crest-stage gage only, at site 0.2 mile upstream at different datum.

Average discharge.--9 years (1911-17, 1958-61), 657 cfs (475,600 acre-ft per year).

Extremes.--Maximum discharge during year, 13,200 cfs Nov. 24 (gage height, 9.05 ft); minimum, 40 cfs Oct. 17.

1911-18, 1953-56, 1958-61: Maximum discharge, 26,000 cfs Dec. 22, 1955 (gage height, 11.5 ft, from floodmarks, site and datum then in use), on basis of slope-area measurement of peak flow.

1911-18, 1958-61: Minimum discharge observed, 38 cfs Oct. 21, 1915.

Remarks.--Records good except those for periods of no gage-height record, which are fair.

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

Oct. 1 to May 9

May 10 to Sept. 30

1.1	45	4.0	1,550	1.1	50	3.0	750
1.5	105	5.0	2,800	1.5	115	4.0	1,560
2.0	225	6.0	4,500	2.0	245	5.0	2,800
2.5	420	7.0	6,800	2.5	460		
3.0	730	8.0	9,600				

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	51	53	1,450	303	1,690	856	1,200	956	375	143	82	62
2	51	51	1,410	285	a 1,450	1,040	1,170	1,060	380	138	82	67
3	51	50	1,040	* 260	a 1,150	905	1,230	821	375	135	79	61
4	51	47	828	239	a 905	800	1,110	681	348	133	77	58
5	53	45	681	225	765	972	926	618	332	135	82	56
6	85	45	572	222	* 793	1,570	821	1,080	* 336	133	80	56
7	98	45	506	229	772	1,520	730	1,040	312	129	76	55
8	95	47	460	232	779	1,370	667	849	284	125	74	53
9	62	48	420	267	3,760	1,540	625	* 1,100	270	119	70	53
10	53	51	416	281	7,620	1,710	572	2,350	256	117	70	53
11	50	113	389	274	* 8,970	2,490	548	2,710	252	115	70	53
12	50	86	359	323	4,140	2,450	611	1,730	245	111	73	52
13	50	129	347	351	4,300	4,320	512	1,320	233	107	71	52
14	48	* 165	335	660	4,320	4,050	470	1,070	230	107	74	55
15	48	195	335	578	4,500	3,440	445	946	221	105	73	59
16	47	246	470	455	* 3,260	2,580	460	862	212	103	70	74
17	* 45	a 470	1,690	393	2,160	2,880	476	799	200	101	65	82
18	* 47	a 1,200	2,880	347	1,630	2,950	465	778	194	99	64	70
19	48	a 520	2,520	311	1,340	2,770	411	757	185	95	64	64
20	48	a 310	1,520	288	1,160	3,180	398	694	183	95	62	59
21	48	445	1,060	271	1,060	2,250	653	608	173	95	62	58
22	48	315	856	253	1,080	* 2,310	660	566	168	92	59	56
23	47	3,340	730	299	940	2,440	604	550	168	91	* 64	56
24	57	8,680	597	278	912	2,340	572	500	163	89	62	55
25	56	7,500	518	264	948	3,250	554	460	160	88	62	53
26	87	* 2,180	465	250	856	3,060	536	465	155	86	64	52
27	80	1,230	425	243	814	2,650	512	435	153	85	70	50
28	66	884	398	225	779	2,040	500	405	150	85	67	50
29	62	695	375	380	—	1,650	639	390	* 148	83	61	50
30	60	695	351	717	—	1,470	695	405	143	83	58	50
31	56	—	323	4,000	—	1,320	—	380	—	83	58	—
Total	1,798	29,880	24,726	13,703	62,853	67,673	19,772	27,385	7,004	3,305	2,145	1,724
Mean	58.0	996	798	442	2,245	2,183	659	883	233	107	69.2	57.5
Max.	98	8,680	2,880	4,000	8,970	4,320	1,230	2,710	380	143	82	82
Min.	45	45	323	222	765	800	398	380	143	83	58	50
Ac-ft	3,570	59,270	49,040	27,180	124,700	134,200	39,220	54,320	13,890	6,560	4,250	3,420

Calendar year 1960: Max 11,700 Min 45 Mean 688 Acre-feet 499,600

Water year 1960-61: Max 8,970 Min 45 Mean 718 Acre-feet 519,600

Peak discharge (base, 7,500 cfs).--Nov. 24 (10 p.m.) 13,200 cfs (9.05 ft); Feb. 10 (12 p.m.) 13,100 cfs (9.02 ft).

\* Discharge measurement made on this day.

a No gage-height record.

## SMITH RIVER BASIN

11-5320. South Fork Smith River near Crescent City, Calif.

Location.--Lat 41°47'30", long 124°01'30", in SE¼ sec.11, T.16 N., R.1 E., 300 ft downstream from Craigs Creek, 2.0 miles upstream from mouth, and 9.5 miles east of Crescent City.

Drainage area.--295 sq mi.

Records available.--September 1911 to September 1913, August 1954 to September 1961 (discontinued).

Gage.--Water-stage recorder. Altitude of gage is 150 ft (from topographic map). Sept. 9, 1911, to Sept. 30, 1913, staff gage at site 1.8 miles downstream at different datum.

Average discharge.--9 years, 1,913 cfs (1,385,000 acre-ft per year).

Extremes.--Maximum discharge during year, 33,900 cfs Nov. 24 (gage height, 23.56 ft); minimum, 102 cfs Sept. 29.

1911-13, 1954-61: Maximum discharge, 108,000 cfs Dec. 22, 1955 (gage height, 36.95 ft), from rating curve extended above 42,000 cfs on basis of slope-area measurement of peak flow; minimum, 91 cfs Sept. 11, 1959.

Remarks.--Records excellent. No storage or diversion.

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

4.9	100	10.0	3,300
5.5	245	13.0	7,500
6.0	390	16.0	13,500
7.0	860	18.0	18,200
8.0	1,480	21.0	26,200

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	110	138	3,700	805	4,870	2,070	3,070	3,220	1,090	336	188	143
2	110	135	3,500	765	4,250	2,760	3,130	3,240	1,080	321	185	150
3	110	128	2,610	725	3,580	2,260	3,500	2,490	1,070	318	183	138
4	110	123	2,070	*685	2,720	1,980	3,300	2,020	988	312	180	130
5	116	120	1,680	660	2,180	2,380	2,800	1,830	934	315	185	128
6	208	120	1,450	640	2,240	3,790	2,450	3,500	*1,070	312	185	123
7	279	120	1,260	645	*2,150	3,530	2,180	3,280	952	300	175	118
8	273	123	1,150	660	2,140	3,300	1,980	2,630	850	291	170	116
9	165	123	1,040	745	10,200	3,910	1,870	*3,600	795	282	165	116
10	145	130	1,020	755	18,700	4,200	1,720	6,200	755	273	163	116
11	135	339	1,000	730	20,600	5,840	1,670	6,750	725	263	160	116
12	138	253	900	850	10,500	5,510	1,880	4,770	690	258	165	114
13	133	422	860	988	11,700	10,400	1,660	3,620	650	253	160	114
14	130	540	835	1,470	11,800	10,700	1,490	2,950	630	250	163	116
15	125	*682	815	1,420	12,200	9,620	1,400	2,610	590	245	165	125
16	123	600	1,270	1,170	*8,360	6,880	1,500	2,380	550	243	160	158
17	120	1,430	6,220	1,010	5,790	7,080	1,610	2,260	520	238	155	150
18	*120	3,830	9,780	890	4,400	5,830	1,550	2,180	494	233	150	140
19	120	1,310	7,210	810	3,550	6,540	1,340	2,170	478	228	145	128
20	123	875	4,040	750	2,970	7,340	1,260	2,010	454	225	140	123
21	123	1,490	2,870	705	2,670	5,450	2,130	1,750	438	223	138	118
22	120	970	2,250	665	2,690	5,870	2,040	1,600	426	220	138	116
23	123	9,500	1,840	850	2,360	*7,080	1,870	1,580	406	215	*140	114
24	160	25,800	1,590	800	2,230	7,290	1,700	1,350	387	210	140	112
25	153	20,400	1,410	740	2,400	9,560	1,630	1,270	378	205	140	110
26	238	6,590	1,300	705	2,100	8,450	1,590	1,330	366	203	143	106
27	220	3,520	1,170	680	1,980	7,020	1,550	1,260	360	200	163	106
28	173	2,450	1,070	640	1,890	5,340	1,540	1,170	354	198	153	104
29	160	1,900	982	1,500	-----	4,250	2,030	1,140	351	193	143	104
30	150	1,740	910	2,660	-----	3,710	2,450	1,140	342	190	138	104
31	140	-----	850	12,400	-----	3,340	-----	1,100	-----	188	133	-----
TOTAL	4,653	85,901	68,652	39,518	163,220	173,280	59,890	78,400	19,173	7,741	4,911	3,656
MEAN	150	2,863	2,215	1,275	5,829	5,590	1,996	2,529	639	250	158	122
MAX	279	25,800	9,780	12,400	20,600	10,700	3,500	6,750	1,090	336	188	158
MIN	110	120	815	640	1,890	1,980	1,260	1,100	342	188	133	104
AC-FT	9,230	170,400	136,200	78,380	323,700	343,700	118,800	155,500	38,030	15,350	9,740	7,250

CALENDAR YEAR 1960: MAX 28,700 MIN 110 MEAN 1,974 AC-FT 1,433,000  
 WATER YEAR 1960-61: MAX 25,800 MIN 104 MEAN 1,942 AC-FT 1,406,000

Peak discharge (base, 30,000 cfs).--Nov. 24 (11 p.m.) 33,900 cfs (23.56 ft).

\* Discharge measurement made on this day.

## SMITH RIVER BASIN

437

11-5325. Smith River near Crescent City, Calif.

Location.--Lat 41°47'20", long 124°03'20", in SW¼ sec.10, T.16 N., R.1 E., on left bank 0.5 mile downstream from South Fork and 8 miles east of Crescent City.

Drainage area.--613 sq mi.

Records available.--October 1931 to September 1961. Monthly discharge only for some periods, published in WSP 1315-B.

Gage.--Water-stage recorder. Altitude of gage is 90 ft (from topographic map).

Average discharge.--30 years, 3,771 cfs (2,730,000 acre-ft per year).

Extremes.--Maximum discharge during year, 69,200 cfs Nov. 24 (gage height, 27.28 ft); minimum, 228 cfs Oct. 1-4.

1931-61: Maximum discharge, 165,000 cfs Dec. 22, 1955 (gage height, 41.20 ft), from rating curve extended above 69,000 cfs on basis of slope-area measurement at gage height 39.51 ft; minimum, 168 cfs Oct. 21, 1931.

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

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

3.8	220	10.0	5,100
4.0	270	14.0	13,000
4.5	410	18.0	24,500
5.0	600	22.0	40,200
6.0	1,130	25.0	55,500
8.0	2,750		

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1961

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	228	285	8,020	1,660	10,400	4,610	6,100	6,580	1,980	730	395	313
2	228	278	7,740	1,570	9,500	6,130	5,940	6,980	1,960	710	392	344
3	228	270	5,520	1,480	7,970	4,890	6,300	5,030	1,930	700	389	308
4	228	255	4,330	*1,420	5,820	4,160	5,840	4,020	1,820	690	383	295
5	238	248	3,600	1,360	4,650	4,990	4,880	3,700	1,750	690	380	290
6	389	245	3,090	1,330	4,710	8,840	4,280	7,690	*1,880	685	383	285
7	504	245	2,710	1,330	*4,510	8,130	3,860	7,230	1,820	675	374	280
8	548	248	2,440	1,380	4,610	7,120	3,530	5,390	1,640	655	362	275
9	341	248	2,220	1,700	21,700	8,310	3,320	*6,800	1,560	620	356	273
10	290	270	2,170	1,990	40,700	9,420	3,100	14,300	1,460	596	347	270
11	275	933	2,120	1,810	43,500	14,500	2,980	15,400	1,410	576	344	270
12	273	615	2,150	2,150	22,700	13,700	3,320	10,300	1,370	560	344	268
13	270	1,040	1,850	2,390	26,400	26,000	2,950	7,630	1,300	548	344	268
14	258	1,560	1,770	5,010	26,500	24,000	2,680	5,970	1,240	540	344	270
15	253	*2,200	1,720	4,040	26,500	20,600	2,530	5,100	1,200	532	347	283
16	250	2,670	2,680	3,060	*17,500	14,700	2,590	4,510	1,140	520	344	341
17	245	4,600	12,000	2,530	11,800	16,000	2,720	4,140	1,090	516	341	350
18	*245	10,400	20,800	2,200	9,080	13,100	2,690	3,930	1,050	500	332	329
19	245	3,570	16,100	1,960	7,290	14,400	2,410	3,800	1,020	488	318	303
20	245	2,300	8,260	1,800	6,040	16,500	2,350	3,550	974	480	310	290
21	245	3,660	5,790	1,660	5,400	11,900	4,620	3,170	945	477	305	280
22	245	2,340	4,510	1,550	5,470	12,500	4,640	2,900	920	466	303	275
23	250	20,300	3,730	1,940	4,780	*14,500	4,020	2,880	890	452	*305	270
24	303	53,800	3,200	1,880	4,500	15,200	3,670	2,520	865	445	308	265
25	303	43,000	2,840	1,740	5,420	21,100	3,480	2,360	840	435	305	263
26	473	*14,100	2,620	1,640	4,600	17,700	3,340	2,380	815	428	308	260
27	466	7,650	2,370	1,540	4,240	15,300	3,180	2,370	805	421	313	255
28	359	5,160	2,160	1,450	4,080	11,500	3,020	2,200	790	414	313	255
29	329	4,020	2,000	3,060	-----	8,980	3,590	2,130	*770	407	310	255
30	310	3,660	1,880	5,810	-----	7,750	4,470	2,100	750	401	303	255
31	293	-----	1,760	24,400	-----	6,870	-----	2,040	-----	398	295	-----
TOTAL	9,357	190,170	143,940	88,840	350,370	383,400	112,400	159,100	37,984	16,755	10,497	8,538
MEAN	302	6,339	4,643	2,866	12,510	12,370	3,747	5,132	1,266	540	339	285
MAX	548	53,800	20,800	24,400	43,500	26,000	6,300	15,400	1,980	730	395	350
MIN	228	245	1,720	1,330	4,080	4,160	2,350	2,040	750	398	295	255
AC-FT	18,560	377,200	285,500	176,200	694,900	760,500	222,900	315,600	75,340	33,230	20,820	16,930

CALENDAR YEAR 1960: MAX 56,600 MIN 228 MEAN 4,110 AC-FT 2,984,000  
 WATER YEAR 1960-61: MAX 53,800 MIN 228 MEAN 4,141 AC-FT 2,998,000

Peak discharge (base, 36,000 cfs)

\* Discharge measurement made on this day.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-24	11 p.m.	27.28	69,200	2-10	12 p.m.	26.17	62,500
1-31	9 a.m.	21.10	36,400				

## SMITH RIVER BASIN

11-5327. Rowdy Creek at Smith River, Calif.

Location.--Lat 41°55'18", long 124°08'45", in NE¼SW¼ sec.26, T.18 N., R.1 W., on left bank 0.4 mile downstream from Dominie Creek, 0.6 mile south of town of Smith River, and 12.2 miles north of Crescent City.

Drainage area.--33.6 sq mi.

Records available.--June 1957 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 25.39 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 3,570 cfs Nov. 24 (gage height, 7.70 ft); no flow Oct. 1-5, 21-23, Sept. 29, 30.

1957-61: Maximum discharge, 5,430 cfs Feb. 15, 1958 (gage height, 9.19 ft); no flow at times in each year.

Flood of Dec. 22, 1955, reached a stage of 10.8 ft, from floodmarks (discharge, 4,760 cfs on basis of slope-area measurement of peak flow).

Remarks.--Records good except those for periods of no gage-height record, which are fair, and indefinite stage-discharge relation, which are poor. No regulation. Town of Smith River diverts water from Dominie Creek for municipal supply.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	5.4	413	87	443	389	253	345	72	21	7.2	20
2	0	4.8	374	78	622	407	217	301	69	19	7.2	12
3	0	3.6	318	*73	505	359	187	235	65	22	6.8	6.4
4	0	2.5	283	70	380	333	160	193	61	21	7.6	4.0
5	0	1.8	248	66	308	359	143	208	58	21	7.2	3.4
6	31	1.5	224	61	* 330	452	128	445	*93	20	6.8	3.0
7	85	1.2	208	61	280	428	117	365	80	19	6.0	2.4
8	34	1.2	194	61	283	419	107	*295	72	17	5.6	2.0
9	a 11	1.2	180	95	765	481	99	*386	67	16	5.2	1.9
10	a 4.5	23	182	80	1800	568	89	605	62	15	6.0	1.7
11	a 2.2	120	172	90	1780	811	84	610	61	13	6.4	1.8
12	a 1.0	59	160	115	1180	743	107	463	56	13	6.4	1.8
13	a .6	121	151	133	1460	1130	86	372	51	13	6.0	1.9
14	a .4	* 158	143	292	1580	1160	77	310	48	14	6.8	2.2
15	a .3	205	299	210	* 1440	1100	70	265	45	13	6.4	3.0
16	a .3	198	529	164	945	890	65	226	41	13	5.2	8.6
17	* .3	463	756	139	687	1000	62	196	40	12	5.2	6.8
18	.3	664	971	120	547	780	80	169	39	10	4.8	e 4.5
19	.4	261	666	105	464	811	75	150	38	11	3.8	e 3.0
20	.2	177	410	96	404	807	89	135	37	12	3.6	e 2.0
21	0	163	305	87	386	663	292	122	35	12	3.4	e 1.3
22	a 0	129	253	82	374	*723	286	117	33	10	*3.6	e .9
23	a 0	795	224	134	343	707	226	113	31	9.8	3.8	e .7
24	2.2	1980	186	109	377	865	187	97	30	8.6	3.0	e .5
25	8.7	2190	164	96	428	1410	150	89	28	7.6	2.8	e .4
26	64	*900	155	89	365	1050	128	113	27	7.6	4.4	e .3
27	32	547	136	80	348	796	115	99	26	8.0	7.2	e .2
28	20	416	122	77	325	580	103	89	* 24	7.6	4.8	e .1
29	13	338	111	163	-	449	124	86	25	7.2	3.2	e 0
30	8.5	320	102	276	-	361	160	84	23	7.2	3.0	e 0
31	6.0	-	95	867	-	301	-	75	-	7.6	2.8	-
Total	325.9	10,250.2	8734	4,256	19,149	21,332	4,066	7,358	1,437	4,082	162.2	96.8
Mean	10.5	342	282	137	684	688	136	237	47.9	13.2	5.23	3.23
Max.	85	2,190	971	867	1,800	1,410	292	610	93	22	7.6	20
Min.	0	1.2	95	61	280	301	62	75	23	7.2	2.8	0
Ac-ft	646	20,330	17,320	8,440	37,980	42,310	8,060	14,590	2,850	810	322	192

Calendar year 1960: Max 2,190 Min 0 Mean 189 Acre-feet 137,300

Water year 1960-61: Max 2,190 Min 0 Mean 213 Acre-feet 153,800

Peak discharge (base, 1,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-24	9 p.m.	7.70	3,570	2-14	2 a.m.	5.62	1,710
2-10	7 p.m.	7.00	2,850	3-25	12 m.	5.41	1,590

\* Discharge measurement made on this day.

a No gage-height record.

e Stage-discharge relation indefinite.

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or flood-flow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collected at partial-record stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations, and the second is a table of annual maximum stage and discharge at crest-stage stations. Discharge measurements made at miscellaneous sites for both low flow and high flow are given in a third table.

## Low-flow partial-record stations

Measurements of streamflow in the area covered by this report made at low-flow, partial-record stations are given in the following table. Most of these measurements were made during periods of base flow when streamflow is primarily from ground-water storage. These measurements, when correlated with the simultaneous discharge of a nearby stream where continuous records are available, will give a picture of the low-flow potentiality of stream. The column headed "Period of record" shows the water years in which measurements were made at the same, or practically the same, site.

Discharge measurements made at low-flow partial-record stations during water year 1961

Discharge measurements made at low-flow partial-record stations during water year 1961						
Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
Butano Creek basin						
*1625.4	Butano Creek near Pescadero, Calif.	Lat 37°14'02", long 122°21'58", in Butano Grant, 1.5 miles southeast of Pescadero.	18.3	1959-61	11-22-60 12-30-60 1-31-61 4- 5-61 5- 4-61 5-19-61 6- 2-61 6-19-61 7-12-61 9-11-61 9-11-61	1.05 1.62 7.89 6.12 3.58 3.88 2.95 1.66 .22 .54 .54
Napa River basin						
*4559.5	Sulphur Creek near St. Helena, Calif.	NE $\frac{1}{4}$ sec.2, T.7 N., R.6 W., 1,000 ft above Heath Canyon and 1.3 miles southwest of St. Helena.	4.49	1958-61	11-10-60 12-21-60 2- 1-61 3- 8-61 4-19-61 5- 9-61 5-23-61 6-13-61 6-28-61 7-13-61 8-17-61 9-20-61	0 1.86 17.8 1.85 1.28 .88 .52 .07 0 0 0 0
Sonoma Creek basin						
*4584	Sonoma Creek near Kenwood, Calif.	NE $\frac{1}{4}$ sec.20, T.7 N., R.6 W., on upstream side of bridge at entrance to Golden Bear Lodge, 0.4 mile below Bear Creek and 2.0 miles north of Kenwood.	6.06	1958-61	11-10-60 12-21-60 1-26-61 4-19-61 5-10-61 5-22-61 6-13-61 6-28-61 7-13-61 8-17-61 9-14-61	0.41 2.59 14.6 3.44 2.67 1.90 1.10 .52 .29 .15 .05

\* Also a crest-stage partial-record station.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at low-flow partial-record stations during water year 1961--Continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
Russian River basin						
*4621	Robinson (formerly published as Robertson) Creek near Ukiah, Calif.	NE $\frac{1}{4}$ sec. 7, T. 14 N., R. 12 W., 100 ft above county road bridge, 2.3 miles above mouth, and 3.5 miles south of Ukiah.	19.9	1959-61	11- 8-60 12-13-60 1-18-61 2-20-61 3-27-61 5- 9-61 5-23-61 6-14-61 6-29-61 7-14-61 8-15-61 9-12-61	0.31 5.61 4.60 50.2 83.8 9.19 7.33 3.14 1.60 1.27 .80 .54
*4637	Sausal Creek near Healdsburg, Calif.	Lat 38°40'40", long 122°48'15", in Sotoyome Grant, at bridge on Pine Flat Road, 0.4 mile above Deer Creek and 5.6 miles northeast of Healdsburg.	11.2	1959-61	11- 8-60 12-19-60 1-26-61 3- 9-61 5- 9-61 5-22-61 6-12-61 6-30-61 7-14-61 8-16-61 9-14-61	0 32.1 71.4 21.4 2.68 1.72 .38 0 0 0 0
*4638	Franz Creek near Kellogg, Calif.	Lat 38°36'30", long 122°41'35", in Mallacames Grant, 50 ft below bridge on Franz Valley Road and 2 miles southwest of Kellogg.	14.4	1956-61	11- 9-60 12-21-60 1-26-61 2- 1-61 3-10-61 4-21-61 5- 9-61 5-23-61 6-13-61 6-30-61 7-13-61 8-16-61 9-14-61	.35 7.00 91.5 81.3 13.9 4.52 2.70 2.29 1.67 .22 .13 .05 .04
*4648.8	Warm Spring Creek at Skaggs Springs, Calif.	SE $\frac{1}{4}$ sec. 24, T. 10 N., R. 11 W., 1,000 ft below Little Warm Spring Creek and 0.2 mile northeast of Skaggs Springs.	32.7	1959-61	11- 8-60 12-19-60 1-20-61 2-24-61 3-31-61 5- 8-61 5-22-61 6-20-61 6-29-61 7-12-61 8-17-61 9-11-61	1.48 162 12.9 68.1 76.8 17.6 13.5 4.48 2.65 1.25 .41 .15
*4651.25	Mill Creek near Healdsburg, Calif.	Lat 38°35'40", long 122°54'55", in Sotoyome Grant, at bridge 0.4 mile above Wallace Creek and 2.8 miles southwest of Healdsburg.	11.8	1958-61	11- 8-60 12-19-60 1-20-61 1-26-61 2-24-61 3-29-61 5-10-61 5-22-61 6-12-61 6-30-61 7-12-61 8-16-61 9-11-61	.69 36.7 4.18 26.4 25.2 27.6 6.46 5.37 3.20 1.78 1.21 .66 .49

\* Also a crest-stage partial-record station.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

441

Discharge measurements made at low-flow partial-record stations during water year 1961--Continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
Russian River basin--Continued						
*4654.5	Mark West Creek at Mark West Springs, Calif.	SW $\frac{1}{4}$ sec.11, T.8 N., R.8 W., on upstream side of county road bridge at Mark West Springs.	30.5	1958-61	11- 9-60 12-21-60 1-23-61 3- 2-61 4- 3-61 5- 9-61 5-23-61 6-13-61 6-28-61 7-13-61 8-17-61 9-14-61	0.73 12.9 5.34 10.9 18.9 4.03 3.27 1.15 .26 .04 .01 0
*4670.5	Big Austin Creek at Cazadero, Calif.	SW $\frac{1}{4}$ sec.16, T.8 N., R.11 W., at private road bridge 0.25 mile below Ward Creek and 0.3 mile north of Cazadero	26.5	1959-61	11-15-60 1-23-61 2-27-61 4- 3-61 5-11-61 5-22-61 6-14-61 6-26-61 7-12-61 8-16-61 9-13-61	7.77 25.3 59.7 67.0 23.6 14.7 8.55 5.02 3.22 1.66 1.36
4629	Cummisky Creek near Cloverdale, Calif.	0.2 mile downstream from right bank tributary, 2.2 miles above mouth and 5 miles south of Hopland.	-	1957, 1961	5- 8-61 5-23-61 6-14-61 6-29-61 7-14-61 8-16-61 9-11-61	3.91 3.09 1.41 .51 .17 .07 .04
Gualala River basin						
4675.50	North Fork Gualala River near Gualala, Calif.	Lat 38°47'55", long 123°29'25", 1.25 miles above Little North Fork Gualala River and 2.3 miles north-east of Gualala.	39.2	1951-56 1961	10- 4-60	5.83
Garcia River basin						
4676	Garcia River near Point Arena, Calif.	Lat 38°55'40", long 123°37'50", at ford 0.6 mile below North Fork Garcia River and 3.5 miles north-east of Point Arena.	98.2	1951-56 1961	10- 4-60	14.0
Alder Creek basin						
4676.50	Alder Creek near Manchester, Calif.	Lat 38°59'45", long 123°40'50", at ford 1.3 miles above mouth and 1.9 miles north of Manchester.	26.6	1951-56 1961	10- 4-60	2.39
Elk Creek basin						
4677	Elk Creek near Elk, Calif.	Lat 39°06'15", long 123°41'45", 1.0 mile above mouth and 2.2 miles southeast of Elk.	24.8	1951-56 1961	10- 4-60	2.84
Greenwood Creek basin						
4677.50	Greenwood Creek at Elk, Calif.	Lat 39°08'05", long 123°42'05", 0.8 mile east of Elk and 1.3 miles above mouth.	24.2	1951-56 1961	10- 6-60	3.07

\* Also a crest-stage partial-record station.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at low-flow partial-record stations during water year 1961--Continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
Ten Mile River basin						
4686	Middle Fork Ten Mile River near Fort Bragg, Calif.	NW $\frac{1}{4}$ sec.25, T.24 N., R.17 W., 200 ft above confluence with North Fork Ten Mile River and 10.5 miles northeast of Fort Bragg.	33.3	1951-56 1961	10- 6-60	5.32
4686.50	North Fork Ten Mile River near Fort Bragg, Calif.	NW $\frac{1}{4}$ sec.25, T.24 N., R.17 W., 0.2 mile above confluence with Middle Fork Ten Mile River and 10.5 miles northeast of Fort Bragg.	39.1	1951-57 1961	10- 6-60	.94
4687	South Fork Ten Mile River near Fort Bragg, Calif.	SE $\frac{1}{4}$ sec.14, T.19 N., R.17 W., 0.5 mile above Campbell Creek and 6.7 miles northeast of Fort Bragg.	26.5	1951-56 1961	10- 6-60	.43
Smith River basin						
5315	North Fork Smith River at Gasquet, Calif.	NE $\frac{1}{4}$ sec.20, T.17 N., R.2 E., 0.7 mile above mouth and 0.7 mile north of Gasquet.	158	1952-57 1961	10-17-60	60.4
5319	South Fork Smith River near Big Flat, Calif.	SE $\frac{1}{4}$ sec.15, T.15 N., R.2 E., at road bridge 1.0 mile northwest of Big Flat guard station.	216	1957-61	10-18-60	99.9



## Crest-stage partial-record stations

The following table contains annual maximum discharges for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections 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 determined.

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)	Discharge (cfs)
Butano Creek basin							
*1625.4	Butano Creek near Pescadero, Calif.	See previous table.	18.3	1959-61		a	†
Napa River basin							
*4559.5	Sulphur Creek near St. Helena, Calif.	See previous table.	4.49	1956, 1958-61	1-31-61	11.04	400
Sonoma Creek basin							
*4584	Sonoma Creek near Kenwood, Calif.	See previous table.	6.06	1958-61	12- 1-60	11.83	†
Russian River basin							
*4621	Robinson (formerly published as Robertson) Creek near Ukiah, Calif.	See previous table.	19.9	1956, 1958-61	12- 1-60	12.85	1,030
*4637	Sausal Creek near Healdsburg, Calif.	See previous table.	11.2	1959-61	12- 1-60	14.68	3,040
*4638	Franz Creek near Kellogg, Calif.	See previous table.	14.4	1956, 1958-61	1-31-61	7.81	1,380
*4648.8	Warm Spring Creek at Skagg Springs, Calif.	See previous table.	32.7	1959-61	1-31-61	9.53	2,280
*4651.25	Mill Creek near Healdsburg, Calif.	See previous table.	11.8	1958-61	1-31-61	12.00	765
*4654.5	Mark West Creek at Mark West Springs, Calif.	See previous table.	30.5	1958-61	1-31-61	11.97	2,200
*4670.5	Big Austin Creek at Cazadero, Calif.	See previous table.	26.5	1959-61	1-31-61	20.57	8,200

\* Also a low-flow partial-record station.

† Discharge not determined.

a Peak stage did not reach bottom of gage.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

## 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 1961

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
Alameda Creek basin						
Alameda Creek	San Francisco Bay	SE 1/4 sec. 17, T. 4 S., R. 1 E., 200 ft above Arroyo de Laguna and 0.5 mile southwest of Sunol Glen School in Sunol, Calif.	-	1959-60	10-20-60 11-29-60 1- 9-61 2- 8-61 3- 2-61 4-10-61 5- 9-61 6- 1-61	0 0 0 0 0 0 0 0
Arroyo de Laguna	Alameda Creek	Lat 37°36'45", long 121°52'40", in Valle de San Jose Grant, at head of Sunol Valley, 300 ft above unnamed tributary, 1 mile below Verona Bridge, and 1.3 miles north of Sunol Glen School in Sunol, Calif.	-	1959-60	10-20-60 11-29-60 1- 9-61 2- 8-61 3- 2-61 4-10-61 5- 9-61 6- 1-61	0 .18 .15 .37 .22 .07 .04 .14
Vallecitos Creek	Arroyo de la Laguna	Lat 37°35'35", long 121°52'50", in Valle de San Jose Grant, 75 ft above bridge on State Highway 21 and 0.2 mile east of Sunol Glen School in Sunol, Calif.	-	1959-60	10-20-60 11-29-60 1- 9-61 2- 8-61 3- 2-61 4-10-61 5- 9-61 6- 1-61	0 .02 .12 .10 .13 .05 .01 .02
Sinbad Creek	Arroyo de la Laguna	SE 1/4 sec. 8, T. 4 S., R. 1 E., at Bond Street bridge in Sunol, Calif.	-	1959-60	10-20-60 11-29-60 1- 9-61 2- 8-61 3- 2-61 4-10-61 5- 9-61 6- 1-61	0 0 0 0 0 0 0 0
Arroyo de la Laguna	Alameda Creek	NE 1/4 sec. 17, T. 4 S., R. 1 E., 1,000 ft below bridge on State Highway 21, 1,200 ft above mouth and 0.3 mile south of Sunol Glen School in Sunol, Calif.	-	1959-60	10-20-60 11-29-60 1- 9-61 2- 8-61 3- 2-61 4-10-61 5- 9-61 6- 1-61	.16 .26 .24 .87 .32 .23 .30 .25
Alameda Creek	San Francisco Bay	NW 1/4 sec. 17, T. 4 S., R. 1 E., 600 ft below Arroyo de Laguna and 0.6 mile southwest of Sunol Glen School in Sunol, Calif.	-	1959-60	10-20-60 11-29-60 1- 9-61 2- 8-61 3- 2-61 4-10-61 5- 9-61 6- 1-61	.09 .46 .04 .83 .13 .95 .13 .17

## SANTA ANA RIVER ABSORPTION STUDIES

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These measurements were made by the Orange County Flood Control District to determine the rate of absorption along the streambed of the Santa Ana River, covering that portion of the river from Yorba Bridge to the Geological Survey gaging station, Santa Ana River at Santa Ana. The measurements are listed in downstream order. Flow includes release to river from Metropolitan Water District of Southern California from Oct. 1 to Dec. 1, Dec. 19 to Apr. 7, Apr. 10-21, May 9 to July 29, Sept. 7-30.

Santa Ana River, lat 33°51'30", long 117°47'12", in Canon de Santa Ana Grant, about 1,000 ft above Yorba Bridge and 2.7 miles southeast of Atwood, water year 1961  
(Measured previously 1938-60)

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
Oct. 3	259	Dec. 5	22.0	Feb. 6	226	Apr. 17	154	June 26	254
7	278	9	31.7	10	214	21	106	30	241
10	226	12	24.4	17	189	24	1.5	July 3	239
14	219	16	3.9	20	200	25	1.3	7	256
17	212	19	2.2	27	190	26	0	10	251
21	227	23	37.5	Mar. 3	180	May 12	216	14	251
24	219	27	38.1	6	184	15	221	17	256
28	218	30	34.7	10	213	19	214	21	220
31	220	Jan. 3	39.6	13	216	22	226	24	219
Nov. 4	244	6	81.3	17	167	26	227	28	220
7	214	9	99.1	20	175	29	213	31	0
10	219	13	201	24	169	June 2	130	Sept. 8	18.7
14	223	16	184	27	171	5	212	11	99.8
18	210	20	192	31	172	9	282	15	109
21	197	23	197	Apr. 3	181	12	290	18	61.1
25	219	27	234	7	72.3	16	291	22	79.4
28	250	30	224	10	10.4	19	294	25	94.4
Dec. 2	28.1	Feb. 3	239	14	143	23	256	29	90.4

Santa Ana River, lat 33°50'55", long 117°50'05", in SW $\frac{1}{4}$  sec.4, T.4 S., R.9 W., at Jefferson Street Bridge, 1 mile north of Olive, water year 1961  
(Measured previously 1938-60)

Oct. 3	195	Nov. 21	162	Feb. 17	131	Apr. 10	0	June 16	234
7	237	25	143	20	120	14	88.8	19	135
10	162	Jan. 2	8.43	27	113	17	88.3	23	160
14	131	5	0	Mar. 3	121	21	76.7	26	185
17	158	6	5.75	6	164	24	0	30	149
21	130	13	117	10	144	May 12	111	July 3	153
24	136	16	111	13	168	15	130	7	187
28	126	20	106	17	126	19	130	10	173
31	162	23	121	20	114	22	161	14	170
Nov. 4	179	27	159	24	122	26	153	17	170
7	176	30	159	27	104	29	154	21	152
10	168	Feb. 3	170	31	123	June 2	45.3	24	162
14	172	6	159	Apr. 3	159	5	131	28	123
18	149	10	161	7	62.8	9	210	31	0
						12	207	Sept. 30	0

Santa Ana River, lat 33°50'08", long 117°51'49", in San Juan Cajon de Santa Ana Grant, at Anaheim-Olive Bridge, 1.1 miles west of Olive, water year 1961  
(Measured previously 1938-60)

Oct. 3	7.37	Nov. 21	16.7	Feb. 27	12.6	Apr. 17	0.96	June 19	27.2
7	15.3	25	27.5	Mar. 3	4.77	21	1.04	23	7.86
10	1.19	Dec. 2	0	6	24.6	24	0	26	15.5
14	2.02	Jan. 13	10.2	10	9.86	May 12	5.27	30	22.4
17	.27	16	13.0	13	12.7	15	11.6	July 3	20.4
21	1.20	20	30.0	17	10.4	19	3.89	7	22.5
24	1.33	23	36.7	20	2.75	22	20.1	10	40.0
28	1.46	27	66.7	24	3.04	26	22.5	14	15.8
31	1.73	30	47.6	27	4.44	29	24.0	17	22.0
Nov. 4	12.0	Feb. 3	46.9	31	10.0	June 5	34.5	24	35.5
7	41.4	6	43.0	Apr. 3	16.5	9	94.7	28	15.5
10	16.4	10	22.7	7	1.02	12	67.8	31	0
14	16.2	17	6.16	10	0	16	45.5	Sept. 30	0
18	39.0	20	.20	14	2.90				

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