Surface Water Supply of the United States 1954

Part 11. Pacific Slope Basins in California

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1345

Prepared in cooperation with the States of California and Oregon and with other agencies

represents one rank. This downstream order and system of indention show 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.

The order of listing used before the publication of the 1951 report listed first all stations on the main stem from headwaters toward mouth, then all stations on the uppermost tributary to the main stem from the tributary's source to mouth, and then all stations from source to mouth of the uppermost tributary to the tributary.

EXPLANATION OF DATA

The base data collected at gaging stations consist of records of stage and measurements of discharge. In addition, observations of factors affecting the stage-discharge relation, weather records, and other information are used to supplement base data in determining the daily flow. The records of stage are obtained either from direct readings on a nonrecording gage or from a water-stage recorder that gives a continuous record of fluctuations. 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. Typical structures in use at gaging stations are shown in figure 1.

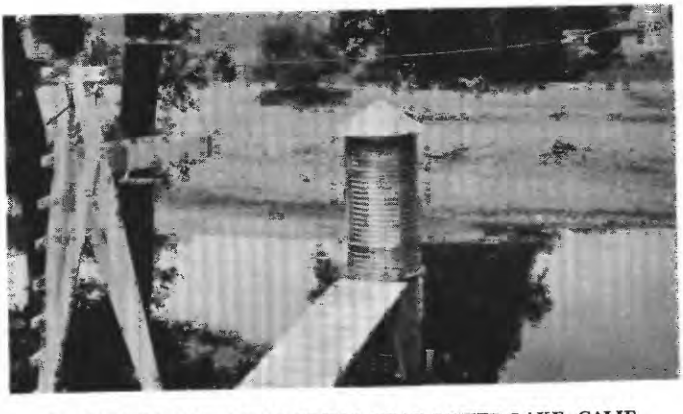
Rating tables giving the discharge for any stage are prepared from stage-discharge relation curves defined by discharge measurements. If extensions to the rating curves are necessary to define the extremes of discharge, they are made on the basis of indirect determinations of peak discharge (such as slope-area or contracted-opening determinations, computation of flow over dams or weirs, and by other methods), 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 essentially 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 requisite 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. If so, the rate of change in stage is used as a factor in the determination of discharge.

At most gaging stations in the northern part of the United States and at some in the mountainous regions of other parts 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

A. FISH CREEK NEAR DUARTE, CALIF.

B. SACRAMENTO RIVER AT DELTA, CALIF.



C. NORTH FORK CACHE CREEK NEAR LOWER LAKE, CALIF.

FIGURE I.—GAGING-STATION STRUCTURES

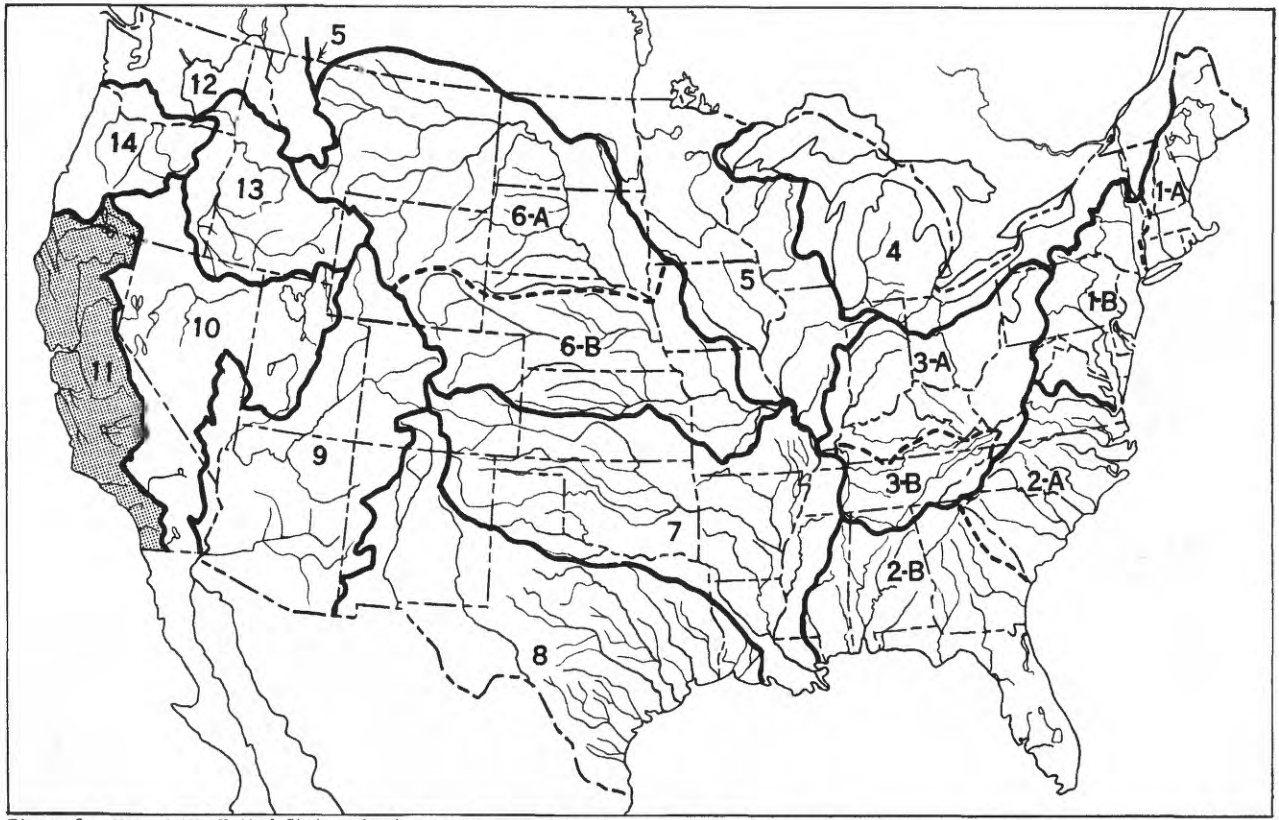


Figure 2.--Map of the United States showing areas covered by the 18 annual volumes on surface-water supply. The area covered by this report is shaded.

Reports on surface-water supply containing records from 1878 to date for drainage basins in this report are listed below. The data for any particular gaging station will, in general, be found in the reports covering the years during which the station was maintained.

Numbers of water-supply papers containing results of stream measurements in Pacific slope basins in California, 1878-1954

Year	WSP	Year	WSP	Year	WSP	Year	WSP	Year	WSP
1878-1911	a298	1918	481	1928	671	1937	831	1946	1061
	b299	1919-20	511	1929	691	1938	861	1947	1091
	c300	1921	531	1930	706	1939	881	1948	1121
1912	331	1922	551	1931	721	1940	901	1949	1151
1913	361	1923	571	1932	736	1941	931	1950	1181
1914	391	1924	591	1933	751	1942	961	1951	1215
1915	411	1925	611	1934	766	1943	981	1952	1245
1916	441	1926	631	1935	791	1944	1011	1953	1285
1917	461	1927	651	1936	811	1945	1041	1954	1345

a Sacramento River basin.
b San Joaquin River basin.
c The Great Basin and Pacific coast basins.
Note.--WSP 298, 299, 300 contain records of flow at all gaging stations in Part 11 from the beginning of records through June 30, 1912. They supersede records published in the 10th to 22nd Annual Reports, Bulletins 131 and 140, and earlier water-supply papers.

The records at most of the stations discussed in these reports extend over many years. Discharge measurements at many points other than regular gaging stations have been made each year and are published under "Miscellaneous discharge measurements" at the end of each report. The streams and points of measurement are listed in the same order as the streams and gaging stations in the body of the report. An index of the records obtained before 1904 has been published in Water-Supply Paper 119.

Each of the reports on the surface-water supply for the year 1939 (Water-Supply Paper 881 for the Pacific slope basins in California) contains, for the area included in that report, a summary of yearly discharge at gaging stations at which 10 or more complete years of record had been collected. These summaries were reprinted separately.

Reports also have been published that are compilations of records for various areas, usually a single State or drainage basin. These reports contain records previously published (some of which may have been revised), as well as some records not contained in the annual series of water-supply papers. The following table lists reports of this type for the Pacific slope basins in California.

Reports containing compilations of records of discharge by States

WSP	Period	Report
298.....	1887-1912	Water resources of California, part 1, Stream measurements in Sacramento River basin.
299.....	1878-1912	Water resources of California, part 2, Stream measurements in San Joaquin River basin.
300.....	1891-1912	Water resources of California, part 3, Stream measurements in the Great Basin and Pacific Coast river basins.
370.....	1878-1910	Surface water supply of Oregon.
477.....	1890-1918	Surface water supply of Pacific slope of California.
597-E.....	1895-1927	Surface water supply of Sacramento River basin.
636-D.....	1895-1927	Surface water supply of San Joaquin River basin.
636-E.....	1894-1927	Surface water supply of Pacific slope basins in southern California.
637-A.....	1895-1927	Surface water supply of minor San Francisco Bay, northern Pacific, and Great basins in California.

Records of discharge have been published also in State reports. Some of these are not contained in the publications of the Geological Survey or are revisions of records previously published in its water-supply papers. The following table contains a list of these reports for the area covered by this report.

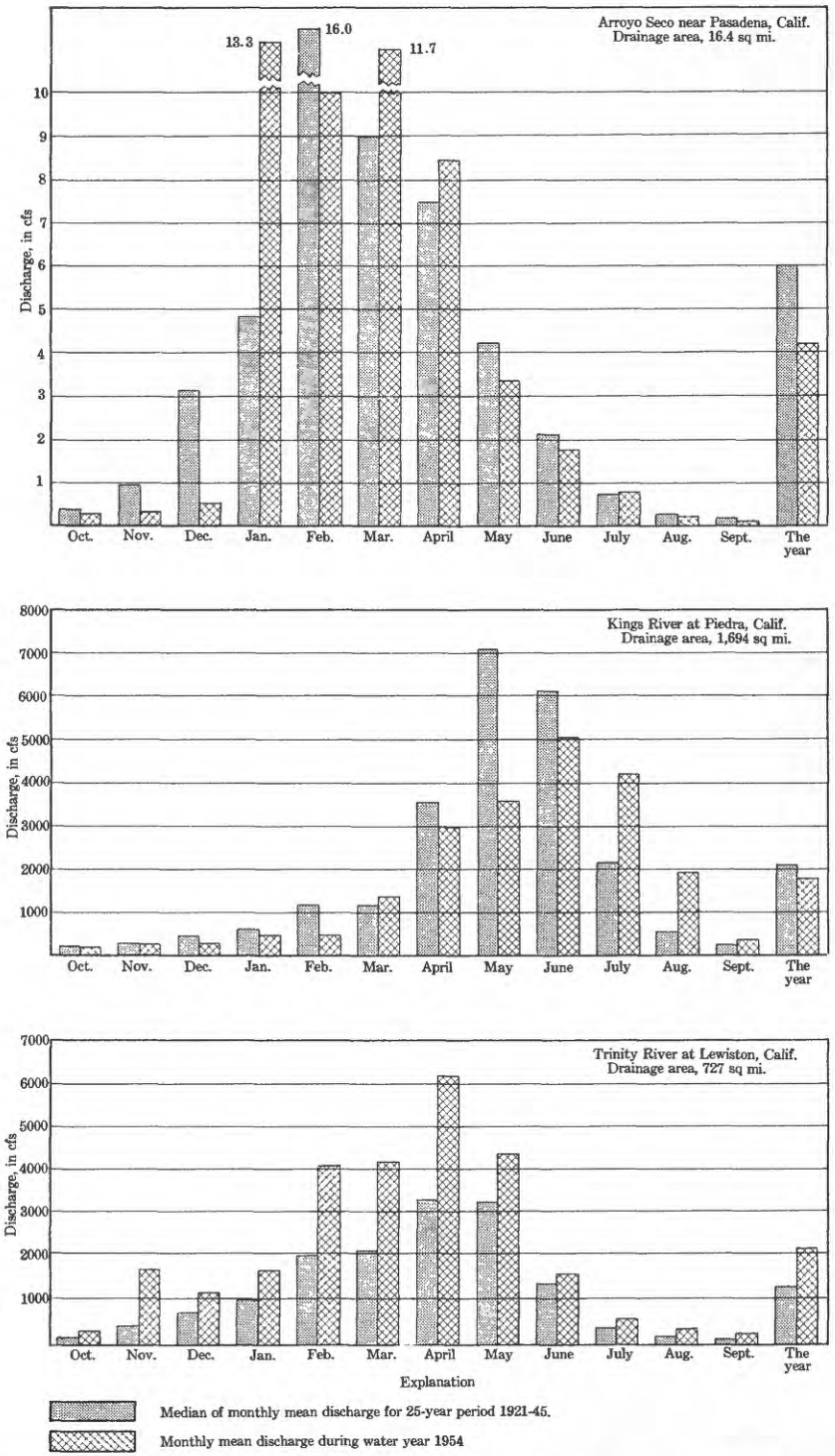


Figure 3. Comparison of discharge at three key gaging stations during 1954 water year with median discharge for 25-year period.

TIA JUANA RIVER BASIN

Cottonwood Creek at Morena Dam, Calif.

Location.--Lat 32°41'00", long. 116°32'55", in SW¼ sec. 14, T. 17 S., R. 4 E., on Morena Dam outlet tower.

Drainage area.--120 sq mi.

Records available.--January 1916, October 1936 to September 1954.

Gage.--Staff gage read once daily. Datum of gage is 2,882.4 ft above mean sea level.

Average discharge.--18 years (1936-54), 12,090 acre-ft per year (16.7 cfs); median of yearly mean discharges, 8,100 acre-ft per year (11.2 cfs).

Remarks.--Records of runoff represent all water reaching Morena Reservoir, including rainfall on reservoir surface, computed on basis of records of storage, release (draft), spill, leakage, and evaporation. Revised 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. No dead storage. 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.

Revisions (water years).--WSP 1091: 1946. WSP 1285: 1948.

Monthly runoff, water year October 1953 to September 1954

Month	Morena Reservoir		Change in contents (acre-feet)	Draft (acre-feet)	Evaporation (acre-feet)	Spill plus leakage (acre-feet)	Runoff (acre-feet)
	Gage height (feet)†	Contents (acre-feet)					
October	99.81	4,979	-164	0	94	11	-59
November	99.21	4,815	-22	0	47	11	36
December	99.13	4,793	-59	0	53	11	5
Calendar year 1953	-	-	-424	0	1,332	142	1,050
January	98.91	4,734	+175	0	47	10	232
February	99.56	4,909	-3,191	2,938	58	9	-186
March	81.82	1,718	+712	677	26	11	1,426
April	87.41	2,430	+166	0	46	9	221
May	88.58	2,596	-8	0	60	11	63
June	88.52	2,588	-55	0	66	8	19
July	88.14	2,533	-56	0	70	5	19
August	87.75	2,477	-76	0	82	5	11
September	87.20	2,401	-65	0	78	5	18
October	86.73	2,336	-	0	-	-	-
Water year 1953-54	-	-	-2,643	3,615	727	106	1,805

† First day of month.

Note.--For months when inflow to the reservoir was small and other elements were large, negative or 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 of measurement with a precision necessary to produce a final answer within desirable limits of accuracy.

Los Angeles River at Long Beach, Calif.

Location.--Lat 33°47'25", long. 118°12'20", on downstream side of State Street Bridge at Long Beach, Los Angeles County, 1.7 miles upstream from mouth.

Records available.--December 1928 to September 1954.

Gage.--Water-stage recorder. Datum of gage is 0.90 ft above sea level (levels by Los Angeles County Flood Control District). Prior to Oct. 31, 1931, at site 1 mile upstream at different datum.

Average discharge.--25 years (1929-54), 145 cfs (105,000 acre-ft per year); median of yearly mean discharges, 94 cfs (68,000 acre-ft per year).

Extremes.--Maximum discharge during year, 34,800 cfs Feb. 13 (gage height, 9.42 ft); minimum daily, 2.4 cfs Aug. 26.
1928-54: Maximum discharge, 99,000 cfs Mar. 2, 1938; no flow at times in 1929, 1930, 1934.

Remarks.--Flow regulated by Hansen and Sepulveda flood-control reservoirs (combined capacity, 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, through H. E. Hedger, chief engineer.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.5	3.0	7.5	5.3	34	7.6	66	23	4.8	6.4	6.0	9.8
2	4.8	3.2	7.6	5.8	30	8.3	36	16	4.3	6.5	5.8	11
3	5.1	3.4	7.6	6.3	26	8.3	23	9.6	3.8	6.7	5.6	9.6
4	5.4	3.6	75	6.8	23	7.6	14	18	3.9	6.8	5.3	8.1
5	5.7	3.8	145	7.4	23	8.9	13	23	4.0	6.9	5.1	6.7
6	5.9	3.8	6.4	8.0	24	9.6	11	184	4.1	7.0	5.0	5.3
7	6.1	3.7	6.0	8.7	24	6.4	9.1	150	4.1	7.2	4.9	3.9
8	6.3	3.7	5.6	8.0	25	7.0	7.3	18	4.2	7.3	4.8	2.5
9	6.5	3.6	5.1	7.2	25	7.0	7.3	11	4.3	7.0	4.7	2.7
10	6.7	3.6	4.6	6.2	26	8.3	7.3	10	4.4	6.6	4.6	2.9
11	6.9	3.5	4.2	5.2	26	7.6	7.3	11	4.7	6.3	4.5	3.1
12	7.1	3.5	5.0	340	24	7.6	9.4	10	5.1	6.0	4.4	3.3
13	7.2	3.5	5.8	410	8,120	7.0	14	10	5.4	5.7	4.3	3.4
14	7.3	863	6.6	24	1,720	4.0	14	10	5.8	5.3	4.2	3.6
15	7.4	650	7.4	12	381	4.7	16	10	6.1	5.0	4.1	3.8
16	6.9	101	8.2	11	38	326	14	10	6.5	5.1	4.0	4.0
17	6.4	33	8.9	12	23	1,190	14	11	6.8	5.1	3.9	4.1
18	5.9	22	8.3	372	38	286	12	11	6.8	5.2	3.8	4.2
19	5.4	10	7.7	4,680	20	26	16	11	6.7	5.2	3.7	4.3
20	4.9	9.8	7.1	1,780	12	2,160	18	11	6.7	5.3	3.5	4.3
21	4.4	9.2	6.5	110	10	595	20	10	6.6	5.3	3.3	4.4
22	3.9	8.6	6.0	24	11	560	20	9.9	6.6	5.4	3.1	4.5
23	3.7	8.0	5.6	11	10	335	18	9.4	6.5	5.6	3.0	4.6
24	3.5	7.5	5.5	1,310	12	141	20	8.8	6.5	5.8	2.8	4.7
25	3.3	7.0	5.4	2,610	12	526	18	8.3	6.5	6.0	2.6	4.7
26	3.1	7.0	5.3	265	12	80	16	7.7	6.5	6.1	2.4	4.8
27	2.9	7.1	5.2	82	14	36	22	7.2	6.5	6.3	3.6	4.8
28	2.8	7.2	5.1	50	8.9	33	29	6.7	6.4	6.5	4.9	4.9
29	2.7	7.3	5.0	46	-	48	33	6.2	6.4	6.7	6.1	4.9
30	2.8	7.4	4.9	42	------	1,830	26	5.7	6.4	6.5	7.3	5.0
31	2.9	------	4.8	38	------	141	------	5.3	------	6.2	8.6	------
Total	158.4	1,811.0	398.9	12,303.9	10,751.9	8,422.9	550.7	652.8	167.4	189.0	139.9	147.9
Mean	5.11	60.4	12.9	397	384	272	18.4	21.1	5.58	6.10	4.51	4.93
Ac-ft	314	3,590	791	24,400	21,330	16,710	1,090	1,290	332	375	277	293

Calendar year 1953: Max 863 Min 2.7 Mean 27.7 Ac-ft 20,060
Water year 1953-54: Max 8,120 Min 2.4 Mean 97.8 Ac-ft 70,790

Ballona Creek near Culver City, Calif.

Location.--Lat 33°59'50", long. 118°24'10", in La Ballona Grant, on downstream side of Sawtelle Boulevard Bridge, 1.5 miles south of Culver City, Los Angeles County.

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 1954 (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.

Extremes.--Maximum discharge during year, 18,900 cfs Feb. 13 (gage height, 15.16 ft); minimum, 3.5 cfs Nov. 8.
1928-54: Maximum discharge, 19,000 cfs Mar. 2, 1938 (gage height, 15.2 ft); no flow during parts of some years.

Remarks.--Occasional discharge of imported Owens River water from several storage reservoirs of the 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, through H. E. Hedger, chief engineer.

Revisions (water years).--WSP 881: 1938.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	8.9	9.3	6.4	10	8.1	10	8.5	11	12	12	10
2	11	13	7.7	8.4	10	8.9	10	9.3	11	13	11	11
3	9.7	12	8.5	9.7	8.9	8.1	11	8.9	12	10	11	12
4	9.3	11	31	7.7	10	8.5	8.5	9.3	11	9.3	11	9.3
5	10	27	7.3	7.3	8.1	9.3	9.3	11	10	12	11	7.7
6	10	7.3	5.4	8.5	7.3	8.5	8.1	13	9.3	13	9.7	8.1
7	9.7	7.3	7.7	8.9	6.9	6.9	7.3	11	11	11	8.9	11
8	11	5.4	8.1	8.5	8.1	5.9	8.7	9.3	8.5	11	8.1	8.9
9	10	7.3	7.3	7.7	8.5	7.3	7.7	7.7	11	12	8.9	9.7
10	10	8.1	8.5	7.3	7.7	6.9	7.3	8.0	11	11	8.9	11
11	8.5	7.7	7.7	26	7.3	8.1	7.3	8.3	13	11	10	8.9
12	10	7.7	6.4	479	7.3	7.7	9.5	8.6	13	13	9.3	7.3
13	11	10	6.4	10	3,570	7.7	10	8.9	15	14	11	8.9
14	8.9	714	9.1	9.7	139	7.7	9.3	9.3	6.9	15	10	8.5
15	8.5	15	7.3	8.5	17	8.5	10	10	9.3	13	8.9	8.5
16	11	8.9	6.9	6.9	18	381	9.7	8.1	11	14	9.3	8.9
17	10	7.7	8.1	8.6	18	98	10	9.3	12	13	11	9.3
18	8.1	7.3	7.3	313	33	13	7.3	9.7	15	11	11	8.1
19	11	7.7	6.9	1,550	12	11	9.3	9.7	11	13	11	7.3
20	10	9.7	5.9	235	10	680	8.1	10	12	13	13	8.9
21	10	7.3	7.7	9.7	8.5	83	9.3	8.9	13	14	10	9.3
22	12	6.4	7.7	9.4	8.9	196	8.1	8.5	11	13	9.7	8.9
23	11	9.0	7.3	9.5	8.9	23	9.3	7.3	11	11	9.7	8.1
24	9.7	7.7	7.7	954	8.1	128	9.7	9.2	13	10	9.7	9.3
25	9.3	8.1	6.4	462	9.7	44	7.7	9.3	10	10	10	9.3
26	9.7	8.9	8.5	14	8.5	15	8.1	11	11	12	8.9	7.3
27	11	9.7	5.9	10	9.3	15	10	10	11	11	10	8.5
28	9.3	8.1	8.5	9.7	7.7	14	36	10	13	12	8.9	9.3
29	9.3	7.3	8.5	9.3	-	481	9.3	8.5	13	14	8.5	8.9
30	11	8.1	8.5	8.1	------	390	8.9	8.5	11	14	11	7.7
31	10	------	7.7	8.1	------	14	------	9.3	------	13	11	------
Total	311.0	983.6	257.2	4,230.9	3,986.7	2,704.1	294.8	288.4	341.0	378.3	312.4	269.9
Mean	10.0	32.8	8.30	136	142	87.2	9.83	9.30	11.4	12.2	10.1	9.00
Ac-ft	617	1,950	510	8,390	7,910	5,360	585	572	676	750	620	535

Calendar year 1953: Max 714 Min 5.4 Mean 17.4 Ac-ft 12,620
Water year 1953-54: Max 3,570 Min 5.4 Mean 39.3 Ac-ft 28,480

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, 2 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 1954.

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.--23 years (1930-38, 1939-54), 5.81 cfs (4,210 acre-ft per year); median of yearly mean discharges, 2.2 cfs (1,590 acre-ft per year).

Extremes.--Maximum discharge during year, 2,090 cfs Feb. 13 (gage height, 7.07 ft); no flow Sept. 21.
1930-38, 1939-54: Maximum discharge, 7,960 cfs Mar. 2, 1938; no flow at times.

Cooperation.--Records furnished by Los Angeles County Flood Control District, through H. E. Hedger, chief engineer.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0.04	0.06	0.06	0.2	0.7	5.5	0.7	0.2	0.1	0.03	0.03
2	.1	.03	.06	.06	.2	.7	3.6	.6	.2	.1	.03	.03
3	.07	.03	.05	.06	.2	.6	2.5	.6	.2	.1	.03	.03
4	.05	.03	.06	.06	.2	.6	2.3	.6	.2	.1	.03	.03
5	.05	.03	.06	.06	.2	.5	2.2	.6	.2	.1	.03	.03
6	.06	.03	.06	.06	.1	.5	2.1	.5	.2	.08	.03	.03
7	.07	.03	.08	.07	.1	.5	2.1	.5	.2	.08	.03	.03
8	.07	.03	.08	.07	.1	.5	1.8	.5	.2	.08	.03	.03
9	.08	.03	.08	.06	.1	.4	1.6	.5	.2	.08	.03	.03
10	.08	.02	.08	.05	.1	.4	1.5	.5	.2	.07	.03	.03
11	.1	.03	.08	.06	.1	.4	1.4	.4	.2	.07	.03	.03
12	.1	.04	.07	.1	.1	.4	1.4	.4	.2	.07	.03	.03
13	.1	.04	.07	.08	396	.3	1.3	.4	.2	.06	.03	.03
14	.1	.3	.07	.07	89	.3	1.2	.4	.2	.06	.03	.03
15	.2	.1	.07	.07	16	.3	1.1	.3	.2	.06	.03	.03
16	.1	.07	.07	.07	5.8	8.2	1.0	.3	.1	.06	.03	.04
17	.1	.07	.07	.08	3.2	3.3	1.0	.3	.1	.05	.03	.04
18	.2	.06	.07	.3	2.2	1.1	.9	.2	.1	.05	.03	.04
19	.2	.06	.08	50	1.7	.9	.8	.2	.1	.05	.03	.03
20	.1	.06	.08	14	1.4	33	.8	.2	.1	.04	.03	.01
21	.2	.06	.07	.5	1.2	4.9	.8	.2	.1	.04	.03	0
22	.2	.07	.07	.3	1.0	3.9	.7	.2	.1	.04	.03	.01
23	.1	.07	.06	.3	1.0	2.8	.7	.2	.1	.04	.03	.03
24	.1	.07	.05	12	.9	3.2	.7	.2	.1	.04	.03	.03
25	.1	.07	.06	48	.9	5.5	.7	.2	.1	.04	.03	.03
26	.08	.07	.05	1.4	.8	2.3	.7	.2	.1	.04	.03	.03
27	.07	.07	.05	.9	.8	2.1	.7	.2	.1	.04	.03	.03
28	.07	.07	.04	.5	.7	1.8	.9	.2	.1	.04	.03	.03
29	.03	.07	.04	.4	-	19	.8	.2	.1	.03	.03	.03
30	.03	.07	.05	.3	------	86	.7	.2	.1	.03	.03	.03
31	.04	------	.05	.2	------	8.1	-----	.2	------	.03	.03	------
Total	3.05	1.82	1.99	130.24	524.3	193.2	43.5	10.9	4.5	1.87	0.93	0.86
Mean	0.098	0.061	0.064	4.20	18.7	6.23	1.45	0.35	0.15	0.060	0.030	0.029
Ac-ft	6.0	3.6	3.9	258	1,040	383	86	22	8.9	3.7	1.8	1.7

Calendar year 1953: Max 4.8 Min 0.02 Mean 0.320 Ac-ft 232
Water year 1953-54: Max 396 Min 0 Mean 2.51 Ac-ft 1,820

Malibu Creek at Crater Camp, near Calabasas, Calif.

Location.--Lat 34°04'30", long. 118°42'05", in SW¼ sec. 18, T. 1 S., R. 17 W., on right bank 0.2 mile downstream from Crater Camp and 6 miles southwest of Calabasas.

Drainage area.--103 sq mi.

Records available.--January 1931 to September 1954.

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.--23 years, 20.7 cfs (14,990 acre-ft per year); median of yearly mean discharges, 7.1 cfs (5,140 acre-ft per year).

Extremes.--Maximum discharge during year, 2,250 cfs Feb. 13 (gage height, 9.23 ft); minimum daily, 0.1 cfs Oct. 1-26, Dec. 21 to Jan. 3, Aug. 2 to Sept. 30.
1931-54: 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, through H. E. Hedger, chief engineer.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0.2	0.2	0.1	0.6	6.1	54	8.0	1.7	1.0	0.2	0.1
2	.1	.2	.2	.1	.6	7.1	42	6.1	1.7	.9	.1	.1
3	.1	.2	.2	.1	.6	6.6	32	4.7	1.7	.8	.1	.1
4	.1	.2	.2	.2	.6	4.2	28	4.2	1.7	.7	.1	.1
5	.1	.2	.2	.2	.6	4.1	24	3.8	1.4	.6	.1	.1
6	.1	.2	.2	.2	.6	4.0	21	3.3	1.7	.6	.1	.1
7	.1	.2	.2	.2	.6	3.9	18	3.5	1.6	.5	.1	.1
8	.1	.2	.2	.2	.6	3.8	16	3.7	1.5	.5	.1	.1
9	.1	.2	.2	.2	.6	3.7	15	4.7	1.4	.5	.1	.1
10	.1	.2	.2	.2	.6	3.6	15	4.4	1.4	.5	.1	.1
11	.1	.2	.2	.2	.6	3.5	14	4.2	1.4	.4	.1	.1
12	.1	.2	.2	.2	.6	3.3	14	5.7	1.4	.4	.1	.1
13	.1	.2	.2	.2	655	2.7	14	6.6	1.4	.3	.1	.1
14	.1	.3	.2	.2	231	2.2	13	4.7	1.4	.3	.1	.1
15	.1	.3	.2	.2	56	1.7	10	4.2	1.4	.3	.1	.1
16	.1	.3	.2	.2	25	9.9	5.6	3.6	1.4	.3	.1	.1
17	.1	.3	.2	.2	21	20	4.2	3.0	1.4	.3	.1	.1
18	.1	.2	.2	.2	15	10	6.1	3.0	1.3	.3	.1	.1
19	.1	.2	.2	36	12	8.0	6.6	2.6	1.3	.3	.1	.1
20	.1	.2	.2	3.0	11	89	8.0	2.3	1.2	.3	.1	.1
21	.1	.2	.1	.4	10	64	8.5	2.3	1.2	.3	.1	.1
22	.1	.2	.1	.2	9.4	49	8.5	2.0	1.1	.3	.1	.1
23	.1	.2	.1	.2	8.7	36	8.4	2.0	1.1	.3	.1	.1
24	.1	.2	.1	11	7.9	26	8.4	2.0	1.1	.3	.1	.1
25	.1	.2	.1	27	7.1	20	8.3	2.3	1.1	.3	.1	.1
26	.1	.2	.1	2.0	7.1	19	8.2	2.0	1.1	.2	.1	.1
27	.2	.2	.1	1.4	6.1	17	8.1	2.0	1.1	.2	.1	.1
28	.2	.2	.1	1.1	5.6	15	8.1	2.0	1.0	.2	.1	.1
29	.2	.2	.1	.9	-	25	8.0	1.7	1.0	.2	.1	.1
30	.2	.2	.1	.8	------	160	8.0	1.7	1.0	.2	.1	.1
31	.2	------	.1	.8	------	79	------	2.0	------	.2	.1	------
Total	3.6	6.4	5.1	88.1	1,095.1	707.4	443.0	108.3	40.2	12.5	3.2	3.0
Mean	0.12	0.21	0.16	2.84	39.1	22.8	14.8	3.49	1.34	0.40	0.10	0.10
Ac-ft	7.1	13	10	175	2,170	1,400	879	215	80	25	6.3	6.0

Calendar year 1953: Max 36 Min 0.1 Mean 2.34 Ac-ft 1,690
Water year 1953-54: Max 655 Min 0.1 Mean 6.89 Ac-ft 4,990

Kern River below Kern Canyon powerhouse, Calif.
(Formerly published as Kern River near Bakersfield)

Location.--Lat 35°26'10", long. 118°48'50", in SW¼NE¼ sec. 1, T. 29 S., R. 29 E., on left bank 1 mile downstream from Kern Canyon powerhouse, 1.3 miles upstream from Cottonwood Creek, and 11 miles northeast of Bakersfield. Prior to Oct. 1, 1953, at site 11 miles downstream.

Drainage area.--2,327 sq mi.

Records available.--October 1893 to September 1954. Prior to October 1953, published as "near Bakersfield."

Gage.--Water-stage recorder. Altitude of gage is 650 ft (from topographic map). Prior to Oct. 1, 1953, at site 11 miles downstream at different datum.

Average discharge.--59 years (1893-1906, 1908-54), 959 cfs (694,300 acre-ft per year).

Extremes.--Maximum discharge during year, 2,120 cfs Jan. 25 (gage height, 9.32 ft); minimum daily, 184 cfs Nov. 21.
1893-1954: Maximum discharge, 36,000 cfs Nov. 19, 1950 (gage height, 14.2 ft, site and datum then in use); minimum daily, 74 cfs Sept. 19, 1948.

Remarks.--Records good except those for period of no gage-height record, which are fair.

Cooperation.--Water-stage-recorder graph furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Revisions (water years).--WSP 861: Drainage area. WSP 1151: 1916.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used July 21 to Aug. 8)

6.0	180
6.4	280
7.0	545
8.0	1,100
9.1	1,920

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	225	222	308	243	410	645	981	1,350	1,270	1,540	933	428
2	200	218	*261	243	396	645	969	1,250	1,210	1,530	909	424
3	196	220	254	240	392	625	993	1,250	1,170	1,450	921	a430
4	192	222	280	243	378	615	1,040	*1,250	1,170	724	933	a430
5	190	220	374	245	365	590	1,090	1,250	1,180	1,130	957	a420
6	188	218	274	251	360	570	*1,170	1,250	1,180	1,340	987	a410
7	188	222	280	254	360	570	1,220	1,260	1,150	1,130	945	a400
8	186	220	296	254	360	575	1,220	1,380	1,060	981	563	a390
9	188	220	300	248	360	*595	1,290	1,380	1,060	963	1,010	a390
10	188	220	284	248	365	1,060	1,360	1,370	1,060	933	811	a390
11	188	220	284	230	356	1,170	1,380	1,370	1,200	993	740	a430
12	194	227	280	238	352	987	1,380	1,370	1,340	1,050	730	a430
13	196	230	277	243	392	855	1,380	1,370	1,340	1,040	756	a400
14	196	232	280	243	1,050	745	1,460	1,390	1,340	969	745	a380
15	196	312	280	230	*1,070	730	1,650	1,430	1,360	963	675	*a360
16	198	300	284	243	730	675	1,530	1,420	1,390	987	665	396
17	198	270	284	240	675	710	1,320	1,420	1,530	1,010	640	406
18	200	274	284	258	695	710	1,450	1,410	1,570	1,020	635	401
19	227	254	277	274	767	705	*1,570	1,340	1,590	999	605	396
20	*254	245	274	300	655	725	1,570	1,320	1,590	921	545	365
21	240	184	274	280	605	762	1,560	1,330	1,600	933	522	329
22	235	209	264	251	590	772	1,560	1,440	1,650	855	527	308
23	227	410	243	248	595	735	1,550	1,440	*1,740	833	464	338
24	222	304	225	277	605	740	1,550	*1,440	1,820	855	392	383
25	235	280	235	1,140	625	767	1,540	1,380	1,850	822	424	383
26	235	270	227	1,170	640	762	1,550	1,360	1,810	*806	464	383
27	232	270	243	620	650	789	1,550	1,360	1,810	750	496	356
28	230	264	254	509	655	844	1,530	1,360	1,750	800	504	338
29	225	196	254	468	-	921	1,350	1,300	1,600	822	455	338
30	225	270	251	428	-------	963	1,350	1,300	1,600	822	460	342
31	222	-------	245	414	-------	1,040	-------	1,270	-------	800	437	-------
Total	6,516	7,423	8,430	10,773	15,453	23,597	41,113	41,810	42,990	30,771	20,850	11,574
Mean	210	247	272	348	552	761	1,370	1,349	1,433	993	673	386
Ac-ft	12,920	14,720	16,720	21,370	30,650	46,800	81,550	82,930	85,270	61,030	41,360	22,960

Calendar year 1953: Max - Min - Mean - Ac-ft -
Water year 1953-54: Max 1,850 Min 184 Mean 716 Ac-ft 518,300

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of 1 discharge measurement and records for nearby streams.

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Tulare Lake in Kings County, Calif.

Location.--Lat 36°02'35", long. 119°38'35", near west quarter corner sec. 6, T. 22 S., R. 22 E., at south end of El Rico Ranch Bridge across Tule River and 6 miles southwest of Corcoran.
Records available.--March 1906 to September 1920 (incomplete), February 1937 to September 1954.
Gage.--Staff gage read at various times. Datum of gage is at mean sea level. March 1906 to September 1920, staff gages at various sites and at different datums. February 1937 to September 1950, water-stage recorder or staff gage at various sites.
Extremes.--1906-54: Maximum elevation, 196.8 ft June 27, 28, 1941; lake dry or practically so during parts of 1906, 1914-16, 1919, 1937, 1946, 1950-53; lake dry during entire years 1920-22, 1924-36, 1947-49, 1954.
Lake elevation of June 27, 28, 1941, was highest known since about 1890.
Remarks.--Lake was dry entire water year of 1954. Tulare Lake receives water from Kings, Kaweah, and Tule Rivers during high-water periods and occasionally from Kern River, Deer Creek, and several small intermittent streams. Its natural boundary has been greatly altered by construction of levees and other reclamation work. Elevation at lowest point of lake bed is about 179 ft above mean sea level.
Cooperation.--Records furnished by Tulare Lake Basin Water Storage District.

Pacific Gas & Electric Co. conduit near Springville, Calif.

Location.--Lat 36°12', long. 118°39', in NW¼ sec. 18, T. 20 S., R. 31 E., on right bank 0.5 mile downstream from intake and 10 miles northeast of Springville.
Records available.--October 1939 to September 1954.
Gage.--Water-stage recorder and rectangular concrete channel. Altitude of gage is 4,000 ft (from topographic map).
Average discharge.--15 years, 32.1 cfs (23,240 acre-ft per year).
Extremes.--1939-54: Maximum daily discharge, 82 cfs Jan. 9, 1953; no flow Jan. 10, 1945, Dec. 1, 1949, Apr. 2-26, 1951.
Remarks.--Records good. Conduit diverts from left bank of North Fork of Middle Fork Tule River in sec. 18, T. 20 S., R. 31 E. Water is used for power development at Tule River powerhouse of Pacific Gas & Electric Co., 3.5 miles downstream, and is then returned to river.
Cooperation.--Water-stage-recorder graph furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.
Revisions (water years).--WSP 1285: 1952.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	15	15	12	11	23	46	50	67	63	29	18	16
2	15	12	12	11	*24	44	57	67	*61	28	*18	16
3	15	12	12	11	22	42	64	67	59	26	17	16
4	15	11	22	11	22	38	70	67	56	27	18	16
5	14	11	16	11	22	*37	71	67	54	26	17	15
6	14	12	16	11	22	36	71	67	50	26	17	15
7	14	12	15	8	22	37	71	28	48	26	17	15
8	14	11	14	11	21	39	71	66	46	25	17	15
9	14	11	14	10	21	67	70	66	51	25	17	15
10	14	11	15	10	20	72	70	66	49	25	17	14
11	14	11	14	10	19	64	70	66	48	24	17	15
12	15	*11	14	10	20	53	70	66	44	23	17	15
13	15	12	15	10	54	51	*70	65	42	23	17	15
14	*14	20	16	10	51	49	70	65	41	23	17	14
15	15	15	*16	10	35	46	70	65	41	23	17	15
16	15	14	16	10	31	43	70	65	44	22	17	15
17	15	12	15	13	35	43	70	65	42	22	17	14
18	16	13	14	13	44	42	70	65	40	22	16	14
19	18	13	13	11	32	40	69	65	39	21	16	14
20	17	15	13	12	32	39	69	65	37	21	17	14
21	16	13	13	11	33	36	69	65	37	21	17	12
22	16	14	12	11	37	34	69	65	35	21	16	9.7
23	16	15	12	11	39	33	68	65	34	20	16	10
24	17	13	12	40	46	32	68	65	33	20	16	9.7
25	16	14	12	57	45	33	68	64	33	21	16	9.7
26	16	14	11	29	48	33	68	64	32	20	16	9.7
27	16	13	12	24	47	36	68	64	32	19	16	*9.5
28	16	13	12	24	46	43	*68	64	31	18	16	9.8
29	15	12	12	23	-	48	68	64	*30	19	16	8.9
30	16	12	11	22	------	49	67	64	30	18	16	9.8
31	15	------	11	22	------	46	------	64	------	18	*16	------
Total	475	387	424	488	913	1,351	2,044	1,988	1,282	704	518	396.8
Mean	15.3	12.9	13.7	15.7	32.6	43.6	68.1	64.1	42.7	22.7	16.7	13.2
Ac-ft	942	768	841	968	1,810	2,680	4,050	3,940	2,540	1,400	1,030	787

Calendar year 1953: Max 82 Min 11 Mean 35.9 Ac-ft 26,000
Water year 1953-54: Max 72 Min 8 Mean 30.1 Ac-ft 21,760

* Discharge measurement made on this day.
Note.--No gage-height record Nov. 5-12, Nov. 17 to Dec. 15, Dec. 23 to Feb. 2, Feb. 18 to Mar. 3, Apr. 5-8; discharge estimated on basis of 3 discharge measurements, recorded range in stage, and unpublished output records for Pacific Gas & Electric Co.'s Tule River powerhouse.

North Fork of Middle Fork Tule River near Springville, Calif.

Location.--Lat 36°11', long. 118°42', in sec. 23, T. 20 S., R. 30 E., on right bank 1 mile upstream from mouth, 2 miles downstream from Hossack Creek, and 7.8 miles northeast of Springville.

Drainage area.--39.5 sq mi.

Records available.--November 1939 to September 1954. January 1909 to December 1912 at site 2 miles upstream, records not equivalent.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 2,850 ft (from topographic map).

Average discharge.--14 years (1940-54), 27.5 cfs (19,910 acre-ft per year).

Extremes.--Maximum discharge during year, 138 cfs Jan. 24 (gage height, 4.75 ft); minimum daily, 0.4 cfs Sept. 6-18, 20.
1939-54: Maximum discharge, 14,000 cfs Nov. 19, 1950 (gage height, 13.06 ft, from floodmarks), from rating curve extended above 300 cfs on basis of estimate of peak flow over dam; minimum daily, 0.1 cfs Sept. 2, 3, 1949.

Remarks.--Records good. Pacific Gas & Electric Co. conduit near Springville diverts 2.5 miles upstream from station (see preceding page).

Cooperation.--Water-stage-recorder graph furnished by Pacific Gas & Electric Co. in connection with a Federal Power Commission project.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to June 8				June 9 to Sept. 30	
2.6	0.5	3.3	14	2.6	0.1
2.7	1.3	3.7	36	2.7	.9
2.8	2.3	4.1	66	2.8	2.0
3.0	5.0	4.6	117	3.0	5.0
3.1	7.0			3.2	10

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.3	1.2	4.7	5.0	6.0	6.2	16	45	8.5	1.1	0.6	0.6
2	1.7	2.8	4.7	5.0	*6.0	6.0	16	41	*7.0	1.2	*.6	.6
3	.9	4.1	4.8	5.0	5.8	*6.0	16	46	6.6	1.1	1.7	.6
4	1.1	4.1	18	5.0	5.8	5.8	18	52	6.6	1.1	1.0	.5
5	.9	4.4	6.8	5.0	5.6	5.8	24	63	6.6	1.1	1.3	.5
6	.8	4.4	6.4	5.0	5.6	5.8	25	73	6.6	1.0	1.3	.4
7	1.1	4.4	6.2	7.2	5.4	5.6	28	106	6.6	1.0	1.1	.4
8	1.1	4.2	6.0	5.8	5.4	5.8	37	91	6.4	1.0	1.1	.4
9	1.1	4.2	6.0	5.8	5.4	71	44	89	7.9	1.0	1.0	.4
10	.7	4.2	5.8	5.8	5.2	37	43	73	7.0	1.0	1.0	.4
11	1.3	4.2	5.8	5.8	5.2	11	43	70	6.6	1.0	.9	.4
12	1.6	*4.4	5.8	5.8	5.4	7.6	46	72	6.6	1.0	.9	.4
13	.8	4.4	5.8	5.8	36	4.1	*62	73	6.6	1.0	1.0	.4
14	*1.6	6.2	5.6	5.8	23	3.3	72	71	6.4	1.1	1.1	.4
15	1.5	5.2	*5.6	5.8	13	3.0	80	68	5.4	1.1	1.0	.4
16	1.1	4.7	5.4	5.8	10	3.5	88	64	2.2	1.1	1.1	.4
17	1.2	5.0	5.4	6.2	14	5.0	96	69	2.0	1.2	.9	.4
18	2.0	4.8	5.4	6.0	20	4.2	97	74	1.9	1.2	.9	.4
19	2.2	4.7	5.4	6.0	13	4.4	93	75	1.9	1.2	.8	.6
20	1.8	5.8	5.4	6.2	11	9.7	91	75	1.8	1.2	.8	.4
21	1.0	5.0	5.4	6.0	9.1	15	90	68	1.7	1.2	.8	1.0
22	1.6	5.0	5.4	5.8	8.5	12	91	54	1.6	1.1	.8	4.4
23	1.7	5.0	5.4	5.8	7.6	13	92	45	1.4	1.0	.8	4.7
24	.9	5.0	5.4	60	7.3	14	91	37	1.6	1.0	.8	4.5
25	.7	5.0	5.2	44	7.0	14	81	34	1.4	.9	.7	4.5
26	1.1	4.8	5.2	11	6.8	14	72	28	1.4	.9	.8	4.5
27	1.2	4.7	5.2	8.5	6.6	14	78	24	1.4	1.3	.8	*4.5
28	.8	4.7	5.0	7.6	6.4	16	*85	22	1.4	2.2	.8	4.5
29	.9	4.7	5.0	6.8	-	18	69	16	*1.3	.7	.7	5.0
30	1.0	4.7	5.0	6.4	------	22	60	14	1.2	.6	.6	4.7
31	1.1	------	5.0	6.2	------	18	------	10	------	.7	*.6	------
Total	37.8	136.0	182.2	281.9	266.1	380.8	1,844	1,742	125.6	33.3	28.3	51.3
Mean	1.22	4.53	5.88	9.09	9.50	12.3	61.5	56.2	4.19	1.07	0.91	1.71
Ac-ft	75	270	361	559	528	755	3,660	3,460	249	66	56	102

Calendar year 1953: Max 212 Min 0.6 Mean 10.6 Ac-ft 7,690
Water year 1953-54: Max 106 Min 0.4 Mean 14.0 Ac-ft 10,140

* Discharge measurement made on this day.

Tule River near Porterville, Calif.

Location.--Lat 36°05', long. 118°55', in NW¼ sec. 25, T. 21 S., R. 28 E., near right bank on downstream side of highway bridge, 1 mile upstream from South Fork and 6 miles east of Porterville.

Drainage area.--266 sq mi.

Records available.--May 1901 to September 1954.

Gage.--Water-stage recorder. Altitude of gage is 580 ft (from topographic map). Prior to Oct. 1, 1930, staff gage at site 75 ft downstream at different datum.

Average discharge.--53 years, 143 cfs (103,500 acre-ft year).

Extremes.--Maximum discharge during year, 2,050 cfs Jan. 25 (gage height, 6.82 ft), from rating curve extended above 1,100 cfs; minimum, 0.5 cfs Sept. 10.
1901-54: Maximum discharge, 25,500 cfs Nov. 19, 1950 (gage height, 13.75 ft), from rating curve extended above 750 cfs on basis of slope-area determination of peak flow; no flow during parts of 1934-35, 1947, 1950.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Diversions for irrigation of about 7,000 acres above station (from 1950 census of irrigation map). Power is developed on Middle Fork and tributaries.

Revisions (water years).--WSP 843: 1902-4(M), 1906(M), 1909(P), 1936(M). WSP 881: 1902-9 (yearly summaries only).

Rating tables, water year 1953-54 (gage height, in feet and discharge, in cubic feet per second)
(Shifting-control method used Aug. 28 to Sept. 30)

Oct. 1 to Feb. 14				Feb. 14 to Sept. 30			
1.2	5.4	2.6	138	0.7	0.4	1.7	26
1.4	11	3.0	225	.8	.8	2.0	53
1.6	20	3.5	367	.9	1.3	2.4	102
1.8	33	4.0	555	1.0	2.4	2.9	198
2.0	51	5.0	995	1.1	4.0	3.4	326
2.3	85			1.3	8.3	4.0	550
				1.5	15		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.6	14	36	36	81	*140	*293	275	*107	23	2.0	1.1
2	5.9	15	36	36	84	134	295	246	102	23	1.7	1.0
3	6.6	15	36	36	*78	125	304	241	92	22	1.4	1.0
4	6.6	*16	135	35	76	118	318	239	88	17	*1.2	.9
5	*6.1	18	99	35	75	113	336	251	87	19	1.2	.9
6	5.9	29	54	33	72	107	339	259	87	18	1.2	1.0
7	6.1	29	54	34	70	104	326	275	83	17	1.3	.9
8	5.6	27	53	36	68	104	342	288	79	17	1.3	.8
9	5.9	24	53	36	66	328	362	293	104	17	1.7	*.6
10	6.4	24	53	35	64	295	352	282	104	17	1.3	.6
11	7.3	24	52	*35	61	232	329	254	104	16	.9	1.6
12	7.8	23	51	34	60	178	323	251	87	15	.8	2.4
13	7.8	22	50	33	280	152	345	241	83	14	.8	1.4
14	8.1	43	49	33	606	136	376	234	79	14	1.4	.6
15	8.7	60	48	34	272	127	387	232	73	13	3.8	.6
16	9.6	39	47	32	194	150	394	220	67	10	3.2	.8
17	9.9	34	46	33	160	215	405	222	62	7.6	2.1	.8
18	12	34	45	42	316	178	394	229	57	7.6	1.2	.9
19	20	32	44	42	203	168	362	234	54	6.9	1.3	1.1
20	24	41	43	51	168	222	339	229	51	3.4	1.1	1.6
21	20	42	42	46	154	306	326	212	45	3.2	1.1	2.0
22	18	39	41	42	148	227	326	191	41	2.9	1.3	2.3
23	18	39	40	43	150	311	326	176	39	3.0	1.3	2.4
24	18	39	39	308	160	*484	326	162	35	2.9	1.2	2.1
25	18	*39	38	929	162	394	306	154	32	2.9	1.1	2.0
26	17	38	38	225	160	269	275	146	30	4.0	1.1	1.8
27	16	39	38	142	152	244	301	136	29	3.2	.9	1.8
28	15	39	38	112	144	259	498	125	27	3.4	1.0	1.6
29	14	37	38	98	-	288	385	118	25	3.4	1.3	1.6
30	14	36	37	88	------	445	*323	113	*24	2.1	1.3	1.4
31	14	------	36	82	------	315	------	110	------	1.8	1.3	------
Total	358.9	950	1,509	2,836	4,284	6,868	10,293	6,638	1,977	330.3	43.8	39.6
Mean	11.6	31.7	48.7	91.5	153	222	343	214	65.9	10.7	1.41	1.32
Ac-ft	712	1,880	2,990	5,630	8,500	13,620	20,420	13,170	3,920	655	87	79

Calendar year 1953: Max 993 Min 2.8 Mean 97.1 Ac-ft 70,270
Water year 1953-54: Max 929 Min 0.6 Mean 99.0 Ac-ft 71,660

Peak discharge (base, 600 cfs).--Jan. 25 (12:30 a.m.) 2,050 cfs (6.82 ft); Feb. 14 (3 p.m.) 896 cfs (4.78 ft); Mar. 24 (8 p.m.) 1,020 cfs (5.06 ft).
* Discharge measurement made on this day.
Note.--No gage-height record Nov. 19-25, Dec. 2-24; discharge estimated on basis of recorded range in stage and records for station at Worth Bridge.

South Fork Tule River near Success, Calif.

Location.--Lat 36°02', long. 118°51', in SW¼ sec. 4, T. 22 S., R. 29 E., on left bank 4 miles southeast of Success and 5 miles upstream from mouth.
Drainage area.--105 sq mi.
Records available.--June 1930 to November 1954 (discontinued).
Gage.--Water-stage recorder. Altitude of gage is 770 ft (from topographic map). Prior to June 26, 1951, at site 0.4 mile downstream at different datum.
Average discharge.--24 years, 42.8 cfs (30,990 acre-ft per year); median of yearly mean discharges, 31.5 cfs (22,800 acre-ft per year).
Extremes.--1953-54: Maximum discharge during water year, 766 cfs Jan. 24 (gage height, 6.23 ft); no flow Sept. 10-12.
1954: Maximum discharge during period October to November, 68 cfs Nov. 16 (gage height, 4.26 ft); minimum, 0.6 cfs Oct. 16 (gage height, 3.13 ft).
1930-54: Maximum discharge, 7,100 cfs Nov. 19, 1950 (gage height, 8.35 ft, site and datum then in use), from rating curve extended above 1,600 cfs on basis of slope-area determination of peak flow; no flow at times during each year except 1938, 1943, 1945.
Remarks.--Records good except those for period of no gage-height record, which are fair. Diversions for irrigation of about 1,600 acres, approximately 1,500 acres of which are downstream from station.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a1.5	2.6	9.7	7.4	23	34	105	79	26	7.0	0.6	0.4
2	a1.0	2.6	9.7	7.1	21	33	107	71	24	7.0	.4	.3
3	a.8	2.6	9.7	7.4	20	31	109	67	22	6.3	.2	.3
4	a.7	*2.8	46	7.7	19	30	110	63	22	6.0	.3	.4
5	*a.6	3.0	22	7.7	18	29	*121	60	23	6.0	*.4	.3
6	.4	4.7	16	7.7	18	27	121	59	24	6.0	.4	.2
7	.2	4.7	14	8.0	17	26	112	58	23	5.6	.4	.4
8	.1	4.2	13	8.3	16	25	114	59	22	4.8	.3	1.6
9	.1	3.3	12	8.6	16	68	116	60	34	5.0	.3	*.2
10	.1	3.0	12	8.3	15	71	112	67	31	4.8	.3	0
11	.3	3.1	12	*8.3	15	58	107	*58	30	4.5	.2	0
12	.4	3.1	12	8.6	15	45	107	54	24	3.2	.1	0
13	.4	3.1	12	8.3	94	39	112	51	23	2.4	.3	.3
14	.5	15	12	8.0	133	37	116	48	*22	2.0	.2	.5
15	.9	21	12	8.0	61	*35	110	47	20	1.4	.5	.6
16	.9	11	12	8.3	48	43	110	46	18	1.3	.6	.8
17	.8	8.0	12	8.3	44	54	105	44	18	1.3	.6	.9
18	1.5	8.0	12	13	118	46	98	42	16	1.4	.5	.9
19	16	7.4	10	12	61	46	88	41	15	1.3	.5	.8
20	8.9	12	8.3	15	51	60	84	40	15	4.0	.6	.7
21	6.5	12	8.3	13	46	86	80	39	13	1.4	.7	.7
22	5.2	11	8.3	11	43	67	76	37	11	.8	.7	.7
23	4.9	11	8.0	11	42	92	72	34	9.5	.6	.7	.7
24	4.7	*11	8.0	143	42	116	71	32	8.2	.7	.6	.7
25	4.0	11	7.7	332	41	117	69	31	7.7	.8	.6	.6
26	3.7	12	8.0	60	39	93	63	30	7.4	.7	.8	.6
27	3.5	12	8.3	*37	46	92	67	30	7.7	.7	1.0	.6
28	3.3	11	8.3	32	36	98	167	29	9.0	.7	1.0	.6
29	3.3	10	8.0	30	-	105	105	27	8.6	.7	.8	.9
30	3.5	9.7	8.0	26	------	156	88	27	7.4	.5	.7	1.2
31	2.8	------	7.7	24	------	112	------	26	------	.5	.7	------
Total	81.5	235.9	367.0	895.0	1,158	1,974	3,022	1,456	541.5	89.4	16.0	16.9
Mean	2.63	7.86	11.8	28.9	41.4	63.7	101	47.0	18.0	2.88	0.52	0.56
Ac-ft	162	468	728	1,780	2,300	3,920	5,990	2,890	1,070	177	32	34

Calendar year 1953: Max 414 Min 0 Mean 29.9 Ac-ft 21,680
Water year 1953-54: Max 332 Min 0 Mean 27.0 Ac-ft 19,550

Peak discharge (base, 200 cfs).--Jan. 24 (11:30 p.m.) 766 cfs (6.23 ft); Feb. 13 (11 p.m.) 225 cfs (5.08 ft); Feb. 18 (3:30 a.m.) 204 cfs (5.00 ft); Mar. 24 (11 p.m.) 202 cfs (4.99 ft); Mar. 30 (7 a.m.) 217 cfs (5.05 ft); Apr. 28 (4 a.m.) 202 cfs (4.99 ft).
* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of 1 discharge measurement, recorded range in stage, and records for Tule River near Porterville.

Discharge, in cubic feet per second, 1954

Day	Oct.	Nov.	Day	Oct.	Nov.	Day	Oct.	Nov.	Day	Oct.	Nov.
1	1.2	1.2	9	1.3	3.8	17	.8	17	25	1.2	6.6
2	1.3	1.4	10	1.6	4.0	18	.9	*11	26	1.2	6.6
3	.8	1.6	11	1.8	4.2	19	.9	7.7	27	1.0	6.6
4	1.0	1.6	12	1.0	17	20	1.0	7.0	28	1.0	6.3
5	*1.0	1.8	13	.9	13	21	1.0	6.6	29	1.0	6.6
6	1.2	3.8	14	.8	7.7	22	1.2	6.3	30	1.2	7.0
7	1.3	3.5	15	.8	6.6	23	1.0	6.3	31	1.2	-
8	1.3	3.8	16	.7	41	24	1.0	6.0			
Total										33.6	223.6
Mean										1.08	7.45
Runoff in acre-feet										67	444

* Discharge measurement made on this day.

Tule River at Worth Bridge, near Porterville, Calif.

Location.--Lat 36°02'55", long. 118°56'15", in NE¼NW¼ sec. 3, T. 22 S., R. 28 E., on left bank just downstream from highway bridge, 2 miles downstream from South Fork, and 5 miles east of Porterville.

Drainage area.--395 sq mi.

Records available.--October 1953 to September 1954 in report of Geological Survey. October 1944 to September 1954 in reports of California Division of Water Resources.

Gage.--Water-stage recorder. Altitude of gage is 520 ft (from topographic map). Prior to June 17, 1954, on bridge pier at same datum.

Extremes.--Maximum discharge during year, 3,110 cfs Jan. 25 (gage height, 16.35 ft), from rating curve extended above 1,400 cfs by logarithmic plotting; no flow during August and September.

Remarks.--Records good. Diversions for irrigation of about 200 acres between stations near Porterville and at Worth Bridge. Water diverted by Pioneer ditch above station for irrigation of about 1,700 acres downstream.

Cooperation.--Two discharge measurements furnished by California Division of Water Resources.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Mar. 24				Mar. 25 to Sept. 30			
12.6	2.4	13.2	105	12.1	0	12.8	24
12.7	5.0	13.5	240	12.2	.1	12.9	36
12.8	11	14.0	550	12.3	.4	13.0	56
12.9	24	15.0	1,400	12.4	1.5	13.2	124
13.0	45	16.0	2,620	12.5	4.0	13.5	250
				12.6	8.5	14.0	550
				12.7	14	14.5	930

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.5	6.3	50	40	109	158	385	355	120	12	0.8	
2	3.0	6.8	50	38	105	154	385	311	114	10	.7	
3	2.8	6.3	48	36	101	141	391	311	103	9.1	.2	
4	3.0	5.8	142	36	93	133	409	290	96	8.0	.2	
5	2.4	6.8	101	34	90	125	448	300	92	8.0	*.1	
6	2.4	*18	75	34	87	113	441	311	96	*7.6	.1	
7	2.8	21	63	36	84	109	428	316	*89	8.0	.1	
8	2.4	21	60	38	81	109	441	328	86	6.7	0	
9	2.4	17	58	38	78	254	448	333	117	6.7	0	(*)
10	2.6	*16	58	38	72	367	434	350	128	8.5	0	
11	3.0	16	58	36	69	284	403	306	117	8.0	0	
12	3.2	17	55	34	66	205	*397	290	96	7.6	0	
13	3.5	16	55	34	264	172	428	*280	92	6.2	0	
14	5.4	49	58	31	719	154	454	270	89	5.8	0	
15	*6.3	90	58	31	343	*145	467	265	72	5.8	0	
16	7.4	52	58	31	235	158	460	250	63	3.4	0	
17	7.4	40	58	34	*190	262	474	250	54	1.9	0	
18	8.7	43	58	*45	376	205	454	255	50	1.3	0	
19	26	40	58	50	256	190	422	250	46	1.7	0	
20	38	52	50	66	205	256	397	250	42	1.5	0	(*)
21	26	55	50	60	181	361	385	236	38	1.3	0	(*)
22	20	48	48	50	172	284	379	214	31	1.5	0	
23	15	48	48	50	172	343	367	196	27	1.3	0	
24	13	*48	45	325	176	*530	367	184	24	.9	0	
25	13	50	45	*1,540	176	550	355	179	22	.7	0	
26	12	55	45	295	176	*379	350	162	22	.9	0	
27	*9.5	58	45	*176	168	344	*328	158	19	.7	0	
28	8.0	55	45	145	163	367	592	143	19	.9	0	
29	6.8	50	45	133	-	391	467	139	16	.9	0	
30	6.3	50	45	117	------	571	415	128	14	.8	0	
31	6.3	------	45	109	------	422	------	124	------	.5	0	------
Total	272.1	1,057.0	1,777	3,760	5,007	8,236	12,571	7,734	1,994	138.2	2.2	0
Mean	8.78	35.2	57.3	121	179	266	419	249	66.5	4.46	0.07	0
Ac-ft	540	2,100	3,520	7,460	9,930	16,340	24,930	15,340	3,960	274	4.4	0

Calendar year 1953: Max - Min - Mean - Ac-ft -
Water year 1953-54: Max 1,540 Min 0 Mean 117 Ac-ft 84,400

Peak discharge (base, 800 cfs).--Jan. 25 (1 a.m.) 3,110 cfs (16.35 ft); Feb. 14 (5 p.m.) 984 cfs (14.56 ft); Mar. 24 (10 p.m.) 1,130 cfs (14.72 ft).

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

Middle Fork Kaweah River No. 3 conduit near Potwisha Camp, Calif.

Location.--Lat 36°30'35", long 118°47'50", in NE¼ sec. 26, T. 16 S., R. 29 E., on right bank 0.6 mile downstream from intake and 0.7 mile southeast of Potwisha Camp.

Records available.--March 1948 to September 1954.

Gage.--Water-stage recorder and concrete-lined channel. Altitude of gage is 2,200 ft (from topographic map).

Average discharge.--6 years, 42.7 cfs (30,910 acre-ft per year).

Extremes.--1948-54: Maximum daily discharge, 66 cfs July 14-18, 1951; no flow at times.

Remarks.--Records good. Conduit diverts from left bank of Middle Fork Kaweah River. Flow from this conduit joins with that of Marble Fork No. 3 conduit about 1,000 ft below gage. The combined flow passes through Kaweah River No. 3 powerhouse of Southern California Edison Co., and is returned to Kaweah River about 2.5 miles below gaging station.

Cooperation.--Water-stage-recorder graph and 11 discharge measurements furnished by Southern California Edison Co.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	14	14	21	18	53	57	58	56	54	53	42	15
2	15	14	20	18	54	57	59	56	54	53	41	16
3	15	14	20	18	54	57	59	57	54	53	39	16
4	14	14	46	18	54	57	59	57	54	53	36	16
5	13	14	*30	18	54	57	59	57	54	53	34	16
6	12	14	32	18	55	57	59	56	54	53	33	15
7	12	*13	31	18	56	57	58	56	53	54	31	15
8	12	13	30	18	57	*57	58	56	53	55	28	15
9	12	13	31	*17	57	56	58	56	53	55	27	14
10	12	13	34	17	56	57	59	55	52	54	26	14
11	12	13	32	17	55	57	*58	55	52	54	25	14
12	14	13	33	17	56	57	58	*55	52	54	25	14
13	13	13	36	*16	61	57	58	55	52	54	24	*13
14	14	32	37	16	60	57	59	54	52	57	24	13
15	14	27	37	17	60	57	59	54	52	60	24	13
16	14	24	36	17	60	57	59	54	52	*59	23	14
17	14	*26	33	22	*61	57	59	54	52	60	22	14
18	16	25	31	22	62	57	59	*55	52	59	22	14
19	27	23	28	20	60	57	59	55	*53	59	*20	*12
20	21	28	27	22	60	58	59	55	53	58	20	12
21	18	25	25	20	60	58	58	55	53	58	20	12
22	17	27	24	21	60	58	58	54	53	57	20	11
23	17	28	22	22	61	58	58	54	53	56	19	12
24	17	26	22	51	61	58	57	54	53	55	18	11
25	17	27	20	59	60	58	57	54	53	57	18	11
26	16	26	22	55	58	59	57	54	53	55	19	11
27	16	25	21	54	58	61	57	54	53	54	19	11
28	15	25	20	57	58	59	57	54	53	55	19	11
29	15	22	20	57	-	58	57	54	52	52	18	11
30	15	21	20	55	------	*58	57	54	53	49	16	11
31	14	------	19	54	------	58	------	54	------	45	16	------
Total	469	612	860	869	1,621	1,785	1,746	1,703	1,586	1,703	768	397
Mean	15.1	20.4	27.7	28.0	57.9	57.6	58.2	54.9	52.9	54.9	24.8	13.2
Ac-ft	930	1,210	1,710	1,720	3,220	3,540	3,460	3,380	3,150	3,380	1,520	787

Calendar year 1953: Max 64 Min 12 Mean 44.8 Ac-ft 32,440
Water year 1953-54: Max 62 Min 11 Mean 38.7 Ac-ft 28,010

* Discharge measurement made on this day.

Middle Fork Kaweah River near Potwisha Camp, Calif.

Location.--Lat 36°30'45", long. 118°47'25", in NW¼ sec. 25, T. 16 S., R. 29 E., on right bank 0.7 mile southeast of Potwisha Camp and 0.9 mile upstream from confluence with Marble Fork.

Drainage area.--100 sq mi.

Records available.--July 1949 to September 1954.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 2,100 ft (from topographic map).

Average discharge.--5 years, 136 cfs (98,460 acre-ft per year).

Extremes.--Maximum discharge during year, 870 cfs May 19 (gage height, 8.20 ft); minimum daily, 0.5 cfs Nov. 1, Dec. 25.
1949-54: Maximum discharge, 17,500 cfs Nov. 19, 1950 (gage height, 15.70 ft), from rating curve extended above 1,100 cfs on basis of slope-area determination of peak flow; minimum daily, 0.1 cfs Nov. 12-15, 1949.

Remarks.--Records good. Middle Fork Kaweah River No. 3 conduit diverts 0.5 mile upstream from station (see preceding page).

Cooperation.--Water-stage-recorder graph and three discharge measurements furnished by Southern California Edison Co.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

3.7	0.5	5.4	37
4.0	1.4	6.2	165
4.5	3.6	7.0	355
4.9	5.8	8.0	740
5.1	14		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.1	0.5	0.8	0.7	1.7	67	111	227	308	105	1.0	1.2
2	1.1	.7	.8	.7	1.8	72	120	233	322	92	1.0	1.2
3	1.1	1.0	1.0	.7	1.9	72	137	*298	326	87	1.0	1.2
4	1.0	1.1	11	.7	1.9	58	153	370	298	86	1.9	1.1
5	1.0	1.1	.8	.7	2.2	53	157	442	236	75	1.8	1.1
6	1.0	1.1	.9	.9	3.1	47	161	488	183	65	1.2	1.1
7	1.0	*1.1	.9	1.0	3.8	48	161	541	172	60	1.1	1.0
8	1.0	1.0	.9	.9	4.2	65	176	600	165	60	1.0	1.1
9	1.0	1.0	1.0	.7	4.5	368	194	545	165	52	1.0	1.1
10	1.0	1.0	1.0	.7	3.1	222	194	398	167	41	.9	1.0
11	1.0	1.0	1.0	.8	2.4	135	185	420	153	34	1.0	1.0
12	1.1	1.0	1.1	1.0	5.4	93	*189	460	147	31	1.0	1.0
13	1.0	1.0	1.2	*.9	165	78	227	477	121	31	1.0	*1.0
14	1.0	3.5	1.1	1.0	107	71	275	491	139	32	1.1	1.1
15	1.0	1.4	1.1	1.0	58	65	320	480	200	41	1.2	1.2
16	1.0	*1.3	1.0	1.0	45	61	388	456	233	30	1.2	1.3
17	1.0	1.3	1.0	1.2	*50	64	442	537	242	22	1.1	1.3
18	1.2	1.3	.9	1.2	61	57	449	*612	242	18	1.1	1.3
19	1.6	1.3	.8	1.0	35	56	426	662	240	14	*1.1	*1.3
20	.9	1.5	.8	1.1	33	72	420	639	252	11	1.1	1.3
21	.9	1.2	.7	.9	34	80	435	541	270	7.7	1.1	1.2
22	1.1	1.3	.7	.8	41	71	456	429	288	4.5	1.1	1.2
23	.9	1.3	.6	.8	51	64	452	405	280	2.6	1.0	1.3
24	.7	1.2	.6	262	57	58	429	392	258	1.9	1.0	1.2
25	.7	1.1	.5	122	64	53	378	365	220	4.7	1.0	1.2
26	.7	1.0	.6	10	67	49	368	352	185	2.2	1.0	1.2
27	.6	.9	.9	2.5	65	61	403	340	147	1.3	1.0	1.2
28	.6	.9	1.0	8.2	65	90	392	355	*125	2.3	1.0	1.2
29	.6	.8	.9	5.2	-	107	318	335	125	1.2	.9	1.2
30	.6	.8	.8	2.4	------	*133	275	298	118	1.1	1.0	1.2
31	.6	------	.7	1.6	------	104	------	292	------	1.0	1.1	------
Total	29.1	34.7	37.1	434.3	1,034.1	2,694	8,793	13,500	6,329	1,017.5	34.0	35.0
Mean	0.94	1.16	1.20	14.0	36.9	86.9	293	435	211	32.8	1.10	1.17
Ac-ft	58	69	74	861	2,050	5,340	17,440	26,780	12,550	2,020	67	69

Calendar year 1953: Max 767 Min 0.5 Mean 80.6 Ac-ft 58,330
Water year 1953-54: Max 662 Min 0.5 Mean 93.1 Ac-ft 67,380

Peak discharge (base, 600 cfs).--Jan. 24 (7:30 p.m.) 758 cfs (8.03 ft); Mar. 9 (1 p.m.) 600 cfs (7.72 ft); May 8 (9 p.m.) 788 cfs (8.08 ft); May 19 (8 p.m.) 870 cfs (8.20 ft).
* Discharge measurement made on this day.

Sand Creek near Orange Cove, Calif.

Location.--Lat 36°37'35", long. 119°14'45", in NW¼ sec. 15, T. 15 S., R. 25 E., on right bank 3.8 miles east of Orange Cove.

Drainage area.--32 sq mi, approximately.

Records available.--October 1944 to September 1954 (discontinued).

Gage.--Water-stage recorder. Altitude of gage is 490 ft (from topographic map).

Average discharge.--10 years, 1.77 cfs (1,280 acre-ft per year).

Extremes.--Maximum discharge during year, 48 cfs Feb. 18 (gage height, 2.02 ft); no flow for several months.
1944-54: Maximum discharge, 446 cfs Jan. 24, 1952 (gage height, 4.12 ft), from rating curve extended above 130 cfs on basis of slope-area determination at gage height 4.00 ft; no flow for several months each year.
Flood of Mar. 9, 1943, estimated at 1,000 to 1,200 cfs by Alta Irrigation District.

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

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 15 to May 31)

Oct. 1 to Feb. 14				Feb. 14 to Sept. 30			
0.58	0	1.0	5.3	0.45	0	0.9	2.1
.6	.1	1.2	9.1	.5	.1	1.0	3.4
.8	2.5	1.4	15	.6	.2	1.1	5.0
				.7	.6	1.3	10
				.8	1.2	1.5	18

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0	1.1	0.9	3.8	0.4				
2				0	1.1	.9	*3.0	.3				
3				0	1.1	.9	2.8	.2				
4				0	*1.1	*.8	2.4	.2				
5		(*)		0	1.0	.8	2.1	.1				
6				0	1.0	.9	1.9	.1				
7				0	1.0	.9	1.7	.1				
8				0	1.0	.9	1.6	.1				(*)
9				0	1.0	1.2	1.4	.1				
10				0	.9	1.3	1.3	.1				
11				0	.9	1.3	1.3	.2				
12	(*)			0	1.0	1.1	1.1	.1				
13				0	4.1	1.0	1.0	.1	(*)			
14				*0	15	1.1	.8	.1				
15				0	3.6	1.1	.8	0				
16				0	1.8	1.3	.6	0				
17				0	1.6	*3.0	.5	0				
18				0	12	2.3	.4	0				
19				0	2.6	1.7	.3	0				
20				0	1.8	2.2	.2	0				(*)
21				0	1.6	5.4	.2	0				
22				0	1.3	3.2	.2	0				
23				0	1.2	2.5	.1	0				
24				2.6	1.2	7.6	.1	0				
25				13	1.1	7.7	.2	0				
26				3.3	1.0	3.2	.2	0				
27				2.2	1.0	2.4	.4	0				
28				1.8	.9	2.3	1.9	0				
29				1.5	-	2.3	*1.0	0				
30		(*)		1.3	------	15	.7	0	------			
31		------		1.1	------	6.2	------	0				------
Total	0	0	0	26.8	64.0	83.4	34.0	2.2	0	0	0	0
Mean	0	0	0	0.86	2.29	2.69	1.13	0.07	0	0	0	0
Ac-ft	0	0	0	53	127	165	67	4.4	0	0	0	0

Calendar year 1953: Max 37 Min 0 Mean 1.59 Ac-ft 1,150
Water year 1953-54: Max 15 Min 0 Mean 0.58 Ac-ft 416

Peak discharge (base, 10 cfs).--Jan. 25 (3 a.m.) 28 cfs (1.70 ft); Feb. 14 (3 p.m.) 34 cfs (1.81 ft); Feb. 18 (3 a.m.) 48 cfs (2.02 ft); Mar. 24 (7 p.m.) 34 cfs (1.82 ft); Mar. 30 (10 a.m.) 29 cfs (1.73 ft).
* Discharge measurement or observation of no flow made on this day.

South Fork Kings River near Cedar Grove, Calif.

Location.--Lat 36°48'25", long. 118°44'55", in NW¼ sec. 8, T. 13 S., R. 30 E., on right bank 0.3 mile downstream from Grizzly Creek and 4.5 miles west of Cedar Grove.

Drainage area.--409 sq mi.

Records available.--November 1950 to September 1954.

Gage.--Water-stage recorder. Datum of gage is 4,157.7 ft (from river-profile survey).

Extremes.--Maximum discharge during year, 4,560 cfs May 19 (gage height, 11.68 ft); minimum, 39 cfs Jan. 14.
1950-54: Maximum discharge, 10,000 cfs Nov. 19, 1950 (gage height, 13.80 ft), from rating curve extended above 4,100 cfs on basis of slope-area determination of peak flow; minimum, that of Jan. 14, 1954.

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

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

6.3	50	8.3	680
6.5	72	9.0	1,170
6.8	118	10.0	2,180
7.2	208	11.0	3,450
7.7	382	12.0	5,200

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	70	71	76	66	115	257	290	954	1,840	698	257	89
2	70	70	71	62	115	260	304	989	2,000	618	244	95
3	68	70	73	70	113	260	331	1,370	2,170	812	232	95
4	66	70	88	67	113	244	354	1,870	2,040	618	217	94
5	65	70	76	68	115	238	374	2,260	1,650	734	200	90
6	64	68	88	70	116	235	416	2,470	1,220	680	185	86
7	64	66	96	68	115	235	438	2,560	1,080	680	175	83
8	62	66	90	65	115	273	461	2,880	996	686	165	82
9	62	66	90	59	115	658	485	2,910	*912	658	156	78
10	62	66	90	58	115	550	495	2,240	*831	598	152	75
11	64	68	89	66	113	424	485	2,320	805	545	148	73
12	65	67	92	62	122	370	495	2,530	857	525	*143	72
13	64	67	92	*56	180	323	581	2,620	772	525	139	71
14	65	85	94	*55	163	297	722	2,740	933	636	135	70
15	65	78	92	61	165	284	*912	2,720	1,300	734	129	68
16	62	79	90	61	198	273	1,170	2,460	1,600	620	124	67
17	62	83	88	64	196	264	1,470	2,950	1,650	545	116	66
18	65	72	86	64	187	257	1,650	3,350	1,570	510	113	65
19	75	73	85	64	182	251	1,660	3,780	1,610	475	108	64
20	79	*85	83	67	182	254	1,660	3,630	1,660	429	106	61
21	78	76	75	64	190	257	1,750	3,370	1,830	395	104	60
22	72	90	67	68	198	244	1,930	2,650	1,980	362	101	59
23	75	86	59	73	211	244	2,060	2,420	1,980	334	98	59
24	76	85	64	133	223	235	2,080	2,460	1,850	342	*98	58
25	76	83	58	111	235	229	1,930	2,340	1,710	366	100	58
26	78	83	70	90	241	226	1,890	2,110	1,530	386	96	58
27	73	85	79	106	236	236	1,840	2,030	1,260	354	95	58
28	72	83	79	128	248	248	1,510	2,190	1,040	334	94	60
29	72	80	72	126	-	273	1,270	2,180	1,010	331	92	61
30	72	79	70	120	-------	284	1,110	1,800	975	301	90	59
31	71	------	67	115	-------	280	------	1,750	------	277	89	------
Total	2,134	2,272	2,489	2,407	4,621	8,965	32,123	74,903	42,661	16,708	4,303	2,136
Mean	68.8	75.7	80.3	77.6	165	289	1,071	2,416	1,422	539	139	71.2
Ac-ft	4,230	4,510	4,940	4,770	9,170	17,780	63,720	148,600	84,620	33,140	8,530	4,240

Calendar year 1953: Max 2,730 Min 58 Mean 490 Ac-ft 354,800
Water year 1953-54: Max 3,780 Min 55 Mean 536 Ac-ft 388,200

Peak discharge (base, 3,000 cfs).--May 8 (11 p.m.) 3,680 cfs (11.15 ft); May 19 (11 p.m.) 4,560 cfs (11.68 ft).
* Discharge measurement made on this day.

Kings River near Hume, Calif.

Location.--Lat 36°50'50", long. 118°53'50", near west line of sec. 35, T. 12 S., R. 28 E., on right bank 0.9 mile downstream from Ten Mile Creek, 1.2 miles (revised) downstream from confluence of South and Middle Forks, and 3.8 miles north of Hume.

Drainage area.--838 sq mi.

Records available.--August 1921 to December 1936, October 1951 to September 1954.

Gage.--Water-stage recorder. Datum of gage is 2,142.7 ft (from river-profile survey). Prior to Dec. 31, 1936, water-stage recorder at same site at datum about 4.5 ft higher.

Average discharge.--15 years (1921-22, 1923-24, 1926-36, 1951-54), 1,125 cfs (814,500 acre-ft per year).

Extremes.--Maximum discharge during year, 8,570 cfs May 19 (gage height, 9.82 ft); minimum, 93 cfs Jan. 14.
1921-36, 1951-54: Maximum discharge, 12,100 cfs June 5, 1952 (gage height, 11.12 ft), from rating curve extended above 6,500 cfs by logarithmic plotting; minimum, 63 cfs Sept. 29 to Oct. 4, 1924.

Remarks.--Records good. No regulation or diversion above station. Hume Lake which formerly was emptied at low-water season now is kept full.

Revisions.--WSP 766: Drainage area.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

3.0	89	5.0	940
3.2	134	6.0	1,900
3.5	212	7.0	3,180
4.0	382	8.0	4,800
4.5	620	9.5	7,800

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	139	136	156	129	271	620	807	2,180	3,710	1,910	520	174
2	139	136	146	125	271	626	828	2,190	4,000	1,660	490	184
3	136	139	148	129	268	620	877	2,820	4,350	1,610	465	184
4	132	136	216	129	268	590	916	3,760	4,080	1,670	442	184
5	129	136	166	129	268	575	956	4,660	3,340	1,480	411	179
6	127	136	187	132	271	570	1,030	5,230	2,500	1,360	378	174
7	125	134	192	132	268	570	1,080	5,460	2,200	1,360	348	168
8	125	132	181	127	268	686	1,120	6,010	2,010	1,380	322	163
9	122	132	181	120	268	2,310	1,150	6,020	1,940	1,320	308	158
10	122	132	181	111	268	1,390	1,180	4,600	*1,750	1,200	301	156
11	125	136	176	122	264	1,030	1,150	4,840	1,680	1,080	291	156
12	127	134	181	122	294	870	1,180	5,250	1,720	1,030	*288	156
13	127	134	184	111	740	776	1,380	5,380	1,540	1,030	277	153
14	127	174	184	*107	656	728	1,750	5,630	1,770	1,230	271	151
15	127	184	184	118	535	692	2,210	5,550	2,550	1,500	261	148
16	127	181	181	122	565	680	*2,780	5,040	3,150	1,240	246	146
17	125	184	179	129	570	674	3,380	6,140	3,390	1,070	239	144
18	136	163	174	129	575	650	3,620	6,860	3,240	980	227	141
19	158	*156	168	129	540	644	3,570	7,730	3,280	898	218	136
20	158	176	166	136	525	662	3,560	7,400	3,400	821	215	134
21	156	161	153	129	530	692	3,730	6,920	3,790	758	215	129
22	151	176	144	132	545	668	4,000	5,510	4,080	710	209	127
23	148	176	125	146	565	650	4,200	4,910	4,090	650	201	127
24	151	171	132	642	590	632	4,310	5,000	3,870	632	198	125
25	153	171	122	442	600	626	3,980	4,750	3,540	656	195	122
26	153	168	129	261	605	615	3,900	4,350	3,170	674	192	122
27	146	171	144	264	605	650	3,890	4,130	2,680	650	190	120
28	144	168	144	294	610	716	3,360	4,400	2,220	610	184	125
29	141	163	139	298	-	764	2,850	4,350	2,130	668	187	127
30	141	161	134	281	------	828	2,540	3,660	2,060	605	179	125
31	139	------	132	274	------	814	------	3,560	------	560	176	------
Total	4,256	4,657	5,031	5,651	12,603	23,618	71,284	154,310	87,230	33,002	8,646	4,438
Mean	137	155	162	182	450	762	2,376	4,978	2,908	1,065	279	148
Ac-ft	8,440	9,240	9,980	11,210	25,000	46,850	141,400	306,100	173,000	65,460	17,150	8,800

Calendar year 1953: Max 5,400 Min 122 Mean 1,001 Ac-ft 724,700
Water year 1953-54: Max 7,730 Min 107 Mean 1,136 Ac-ft 822,600

Peak discharge (base, 3,500 cfs).--Apr. 23 (12 p.m.) 4,670 cfs (7.93 ft); May 8 (12 p.m.) 7,180 cfs (9.22 ft); May 19 (12:30 a.m.) 8,570 cfs (9.82 ft); June 23 (1 to 4 a.m.) 4,800 cfs (8.00 ft).
* Discharge measurement made on this day.

Kings River above North Fork, Calif.

Location (revised).--Lat 36°51'45", long. 119°07'25", in NE¼ sec. 27, T. 12 S., R. 26 E., on left bank at Rogers Crossing, 0.9 mile upstream from North Fork and 2.9 miles south of Balch Camp.

Drainage area.--956 sq mi.

Records available.--March 1927 to December 1928, October 1931 to September 1954.

Gage.--Water-stage recorder. Datum of gage is 1,003.5 ft above mean sea level (from river-profile survey). March 1927 to December 1928, at site 0.5 mile downstream at different datum.

Average discharge.--24 years (1927-28, 1931-54), 1,415 cfs (1,024,000 acre-ft per year).

Extremes.--Maximum discharge during year, 8,370 cfs May 19 (gage height, 6.33 ft); minimum, 114 cfs Sept. 27.
1927-28, 1931-54: Maximum discharge, 44,000 cfs Nov. 19, 1950 (gage height, 12.23 ft, from floodmark in gage well), from rating curve extended above 11,000 cfs on basis of velocity-area studies; minimum, 79 cfs Oct. 13, 1934.

Remarks.--Records excellent except those for periods of no gage-height record, which are fair. Slight regulation by small reservoirs above station on Ten Mile and Mill Flat Creeks, noted in previous years, found insignificant and has no effect on flow at this station under present conditions.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

0.7	106	3.0	1,180
1.0	154	4.0	2,300
1.5	296	5.0	4,180
2.0	516	6.4	8,640

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	141	141	167	141	315	730	1,100	2,330	3,760	2,000	570	169
2	*141	141	158	140	307	740	1,100	2,300	3,990	1,780	527	*174
3	140	141	156	140	*300	740	1,150	2,870	4,320	1,720	501	179
4	136	140	276	143	300	700	1,190	*3,720	4,200	1,750	466	179
5	133	140	197	141	300	700	1,220	4,630	3,500	1,600	438	174
6	131	141	197	143	300	700	1,290	5,210	2,620	1,470	402	167
7	130	138	208	*143	296	700	1,320	5,330	2,320	1,440	363	161
8	128	138	199	143	300	850	1,360	5,870	2,120	1,470	342	158
9	128	*136	197	138	300	2,800	1,390	6,000	2,090	1,430	323	152
10	126	136	199	130	300	2,000	1,400	4,680	1,880	1,300	311	149
11	128	140	194	130	300	1,700	1,370	4,760	1,840	1,180	300	145
12	130	140	194	136	330	1,100	1,380	5,210	1,840	1,120	293	141
13	130	141	197	130	800	1,000	1,560	5,270	1,690	1,130	282	141
14	130	205	199	122	750	950	*1,910	5,480	1,790	1,250	272	138
15	130	222	199	128	600	900	2,400	5,510	2,510	1,620	262	136
16	130	189	197	131	620	890	2,890	4,990	3,060	1,350	249	*134
17	130	189	194	138	630	880	3,520	5,900	3,400	1,180	236	133
18	131	181	189	149	640	850	3,790	6,550	3,300	1,080	227	131
19	156	163	181	143	620	850	3,740	*7,230	3,280	1,000	216	128
20	154	184	181	145	600	860	3,720	7,160	3,400	924	210	126
21	156	176	172	147	600	900	3,870	6,820	3,720	856	208	123
22	154	176	161	143	600	920	4,110	5,570	4,060	*797	202	120
23	149	186	145	150	630	840	4,320	4,960	4,110	733	197	120
24	154	181	141	942	680	830	4,400	5,020	3,900	709	192	119
25	154	181	141	917	680	830	4,110	4,790	3,610	727	192	117
26	154	181	138	389	700	820	3,990	4,420	3,220	745	189	117
27	150	179	152	330	700	860	4,040	4,180	2,760	727	186	116
28	147	181	156	359	700	950	3,650	4,420	2,320	679	181	117
29	145	174	152	363	-	1,040	3,060	4,470	2,190	727	181	119
30	145	169	149	342	------	1,150	2,740	3,790	2,120	685	176	119
31	143	------	145	323	------	*1,080	------	3,610	------	614	169	------
Total	4,334	4,930	5,531	7,159	14,198	30,860	77,090	153,050	88,920	35,793	8,863	4,202
Mean	140	164	178	231	507	995	2,570	4,937	2,964	1,155	286	140
Ac-ft	8,600	9,780	10,970	14,200	28,160	61,210	152,900	303,600	176,400	70,990	17,580	8,330

Calendar year 1953: Max 5,220 Min 126 Mean 1,046 Ac-ft 757,600
Water year 1953-54: Max 7,230 Min 116 Mean 1,192 Ac-ft 862,700

Peak discharge (base, 6,300 cfs).--May 9 (2 a.m.) 6,990 cfs (5.95 ft); May 19 (2 a.m.) 8,370 cfs (6.33 ft).
* Discharge measurement made on this day.
Note.--No gage-height record Feb. 8 to Mar. 30; discharge estimated on basis of records for stations near Hume and below North Fork.