

# Surface Water Supply of the United States 1955

## Part 11. Pacific Slope Basins in California

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GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1395

*Prepared in cooperation with the States  
of California and Oregon and with other  
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## Part 11. Pacific Slope Basins in California

*Prepared under the direction of J. V. B. WELLS, chief, Surface Water Branch*

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**UNITED STATES DEPARTMENT OF THE INTERIOR**

**FRED A. SEATON, *Secretary***

**GEOLOGICAL SURVEY**

**Thomas B. Nolan, *Director***





























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



**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**











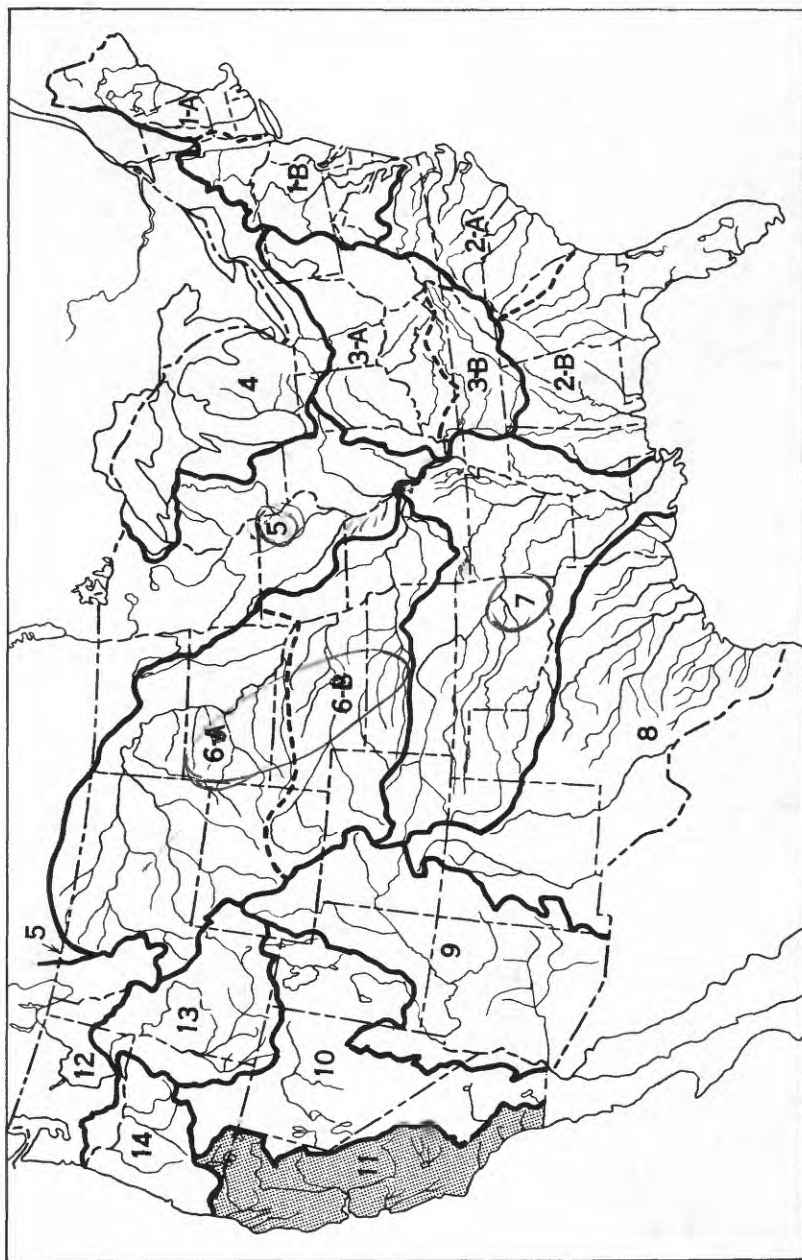


Figure 2.--Map of the United States showing areas covered by the 18 annual volumes on surface-water supply. The area covered by this report is shaded.

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, 1878-1955

Year	WSP	Year	WSP	Year	WSP	Year	WSP	Year	WSP
1878-1911	a298 b299 c300	1919-20	511 531 551	1930	706 721 736	1940	901 931 961	1950	1181 1215 1245
1912	351	1921	571	1931	751	1941	981	1951	1265
1913	361	1922	591	1932	766	1942	1011	1952	1345
1914	391	1923	611	1933	791	1943	1041	1953	1395
1915	411	1924	631	1934	811	1944	1061		
1916	441	1925	651	1935	831	1945	1091		
1917	461	1926	671	1936	861	1946	1121		
1918	481	1927	691	1937	881	1947	1151		

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 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.
447.....	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.

















































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































