FLOODS of january and february 1980 in CALIFORNIA

U.S. GEOLOGICAL SURVEY
Open-File Report 80-1005

COVER PHOTOGRAPH.--Flooding in lower Mission Valley, San Diego County, February 1980. Photograph courtesy of County of San Diego, Department of Sanitation and Flood Control.

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By Kenneth L. Wahl, John R. Crippen, and James M. Knott

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Menlo Park, California
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UNITED STATES DEPARTMENT OF THE INTERIOR

CECIL D. ANDRUS, Secretary

GEOLOGICAL SURVEY

H. William Menard, Director

For additional information write to:

District Chief
Water Resources Division
U.S. Geological Survey
345 Middlefield Rd.
Menlo Park, Calif. 94025

CONTENTS

ILLUSTRATIONS

TABLES

CONVERSION FACTORS

The inch-pound system of units is used in this report. For readers who prefer metric units, conversion factors for the terms used in this report are listed below.

Multiply	By	To obtain
acre	0.4047	ha (hectare)
acre-ft (acre-foot)	0.001233	hm^3 (cubic hectometer)
ft (foot)	0.3048	m (meter)
ft^3/s (cubic foot per second)	0.02832	m^3/s (cubic meter per second)
$(ft^3/s)/mi^2$ (cubic foot per second per square mile)	0.01093	$(m^3/s)/km^2$ (cubic meter per second per square kilometer)
in (inch)	25.4	mm (millimeter)
mi (mile)	1.609	km (kilometer)
mi^2 (square mile)	2.589	km^2 (square kilometer)
ton/d (ton per day)	0.9072	Mg/d (megagram per day)

Other abbreviations:
mg/L (milligram per liter)

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ABSTRACT

During January and February 1980, storms caused substantial rises in streamflow throughout much of California. In mid-January flooding occurred in the foothills of the Sierra Nevada and in the central coast area. In late January and mid-February, high floodflows in streams in coastal southern California caused much damage and several deaths. The Tijuana River in northern Baja California (Mexico) and southern San Diego County flooded many square miles of lowlands as its flow during two separate flooding episodes exceeded all records. Most reservoirs in San Diego County spilled, several for the first time since their completion. Lake Elsinore, in eastern Riverside County, caused much damage to lakeside property as it filled to an elevation not reached since 1916.

The February flooding in southern California was caused by a series of storms separated by short intervals. Some peaks of record were observed, and streamflow throughout the area remained high for a relatively long period. In many streams, the volumes of sustained flow for periods of 7 and 15 consecutive days were the greatest that have occurred during the period of record.

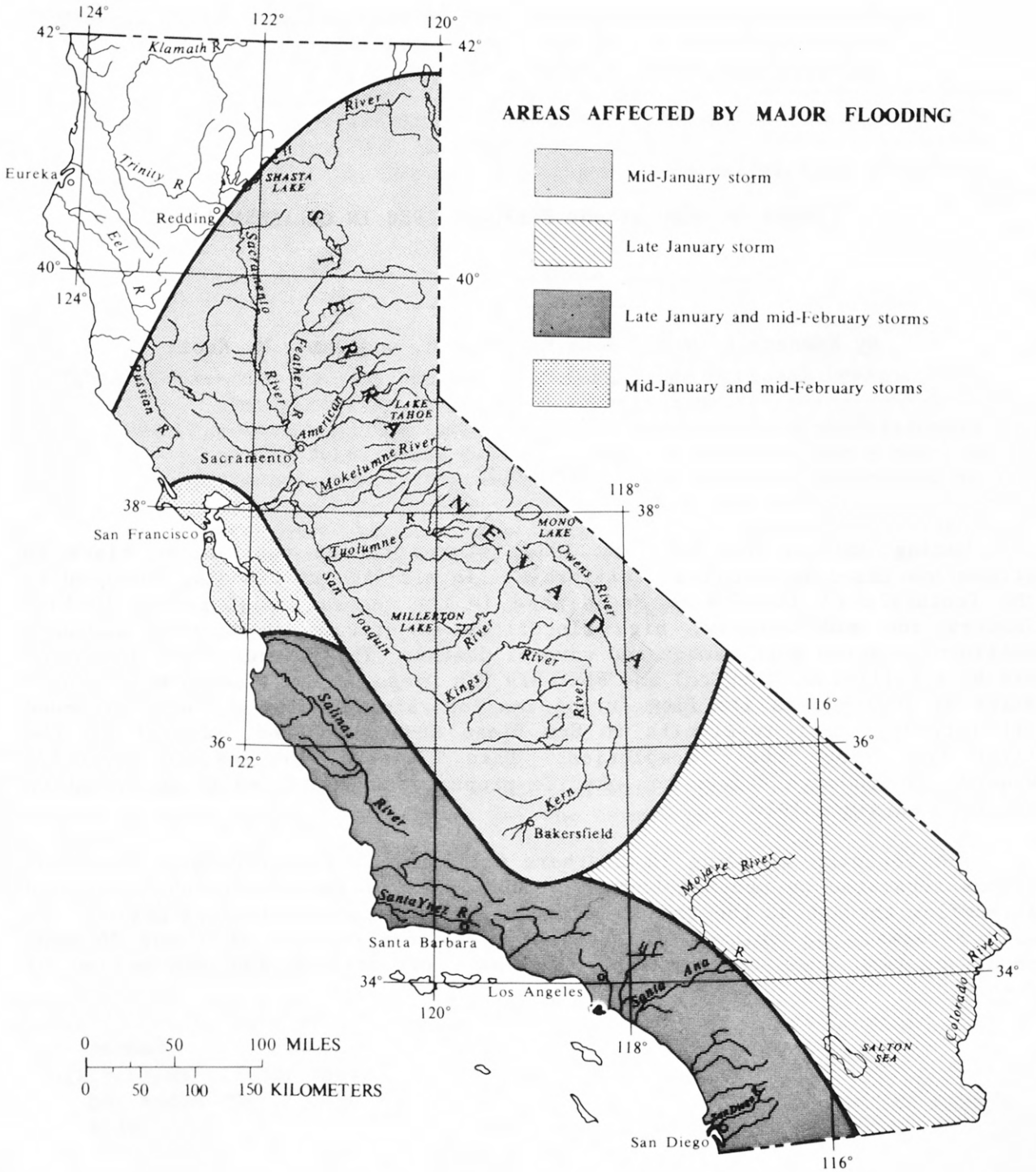

FIGURE 1.--Approximate boundaries of areas in California affected by flooding in January and February 1980.

INTRODUCTION

The storms of January-February 1980 caused significant flooding over most of California (fig. 1). The storm of mid-January covered the entire State, but most of the flooding was caused by runoff from the Sierra Nevada and the Sierra foothills; subsequent storms primarily affected southern California and coastal areas northward to San Francisco. Figure 2 shows the accumulation of precipitation during the period December 1, 1979, to April 1, 1980, at Los Angeles in the south, Yosemite Valley in the Sierra Nevada, and Shasta Dam in the north. As can be seen in figure 2, accumulated precipitation at Shasta Dam did not exceed 120 percent of seasonal normal. In contrast, total precipitation to April 1 was 162 percent of normal at Yosemite Valley and 201 percent of normal at Los Angeles. Most of the excess occurred in mid-January at both Yosemite Valley and Los Angeles and in mid-February at Los Angeles.

The purpose of this report is to make floodflow data available to concerned agencies in advance of the normal publication schedule. The data are provisional, and areal coverage is not complete. Final data for the 1980 water year[1] will be presented in the annual series, "Water Resources Data for California."

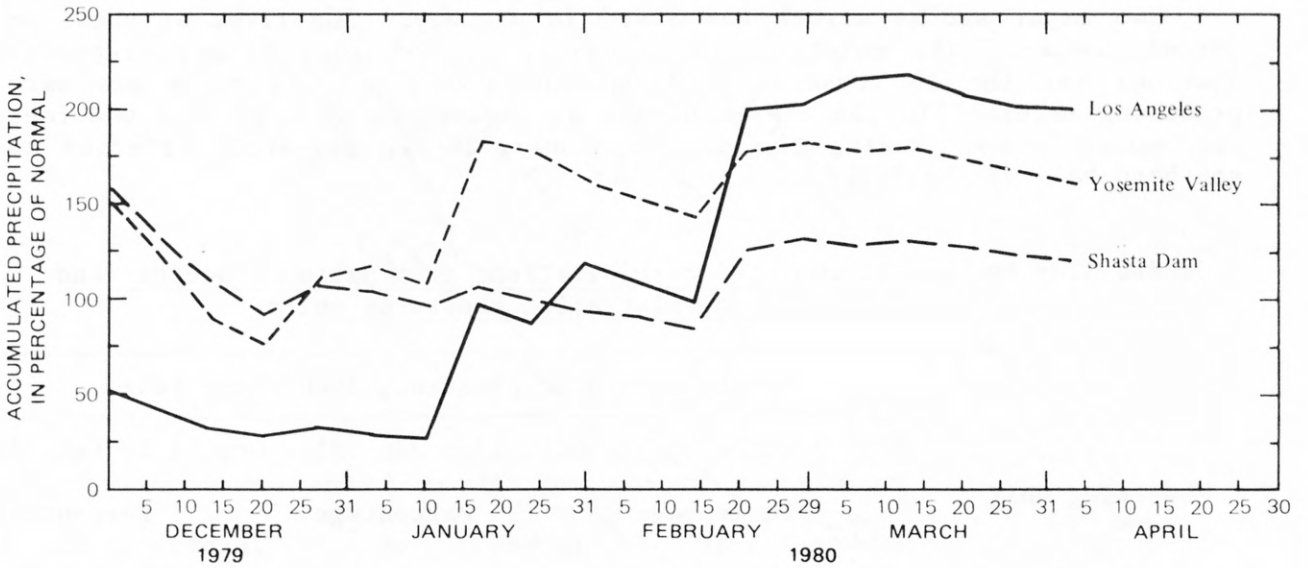

FIGURE 2.--Accumulated precipitation between October 1, 1979, and indicated date, for three locations in California.

[1]A water year is a 12-month period ending September 30 and is designated by the calendar year in which it ends.

The data in this report were collected as part of cooperative programs between the U.S. Geological Survey and various Federal, State, county, and municipal agencies. The cooperation of the National Oceanic and Atmospheric Administration, U.S. Army Corps of Engineers, and county flood-control districts in southern California in furnishing unpublished precipitation, streamflow, and reservoir data is gratefully acknowledged.

DESCRIPTION OF STORMS

Up to December 31, 1979, seasonal rainfall over California had not been excessive. The average precipitation from October 1 to December 31 at all reporting stations ranged from 127 percent of normal in the north coast drainage (see fig. 3 for definition of the reporting units) to only 22 percent of normal in the southeast desert basins (table 1). October was wetter than normal except in the southeast desert basins, but November precipitation was below normal except in the north coast area. Precipitation for the month of December was also below normal despite a series of storms that affected most of the State during the period December 18-31.

Two major storms struck the State in January. The first of these occurred January 7-19; rainfall, often heavy, was recorded at most reporting stations for the 10 consecutive days January 8-17. This storm was warm, producing rainfall in the Sierra Nevada at elevations as high as 9,000 feet. The second storm, during the period January 28-31, primarily affected the southern half of the State.

TABLE 1. - Average accumulated precipitation, from National Oceanic and Atmospheric Administration reporting units

Reporting unit	Accumulated precipitation, 1980 water year					
	Oct. 1 to Dec. 31		Oct. 1 to Jan. 31		Oct. 1 to Feb. 29	
	Inches	Percentage of normal	Inches	Percentage of normal	Inches	Percentage of normal
North coast drainage	20.92	127	28.30	114	37.60	123
Sacramento drainage	15.08	110	24.00	117	35.19	136
Northeast interior basins	7.99	106	16.60	146	23.61	167
Central coast drainage	8.76	120	14.30	123	21.43	144
San Joaquin drainage	5.86	89	14.12	139	20.62	157
South coast drainage	2.23	44	11.44	141	23.26	211
Southeast desert basins	.51	22	3.55	98	7.81	163

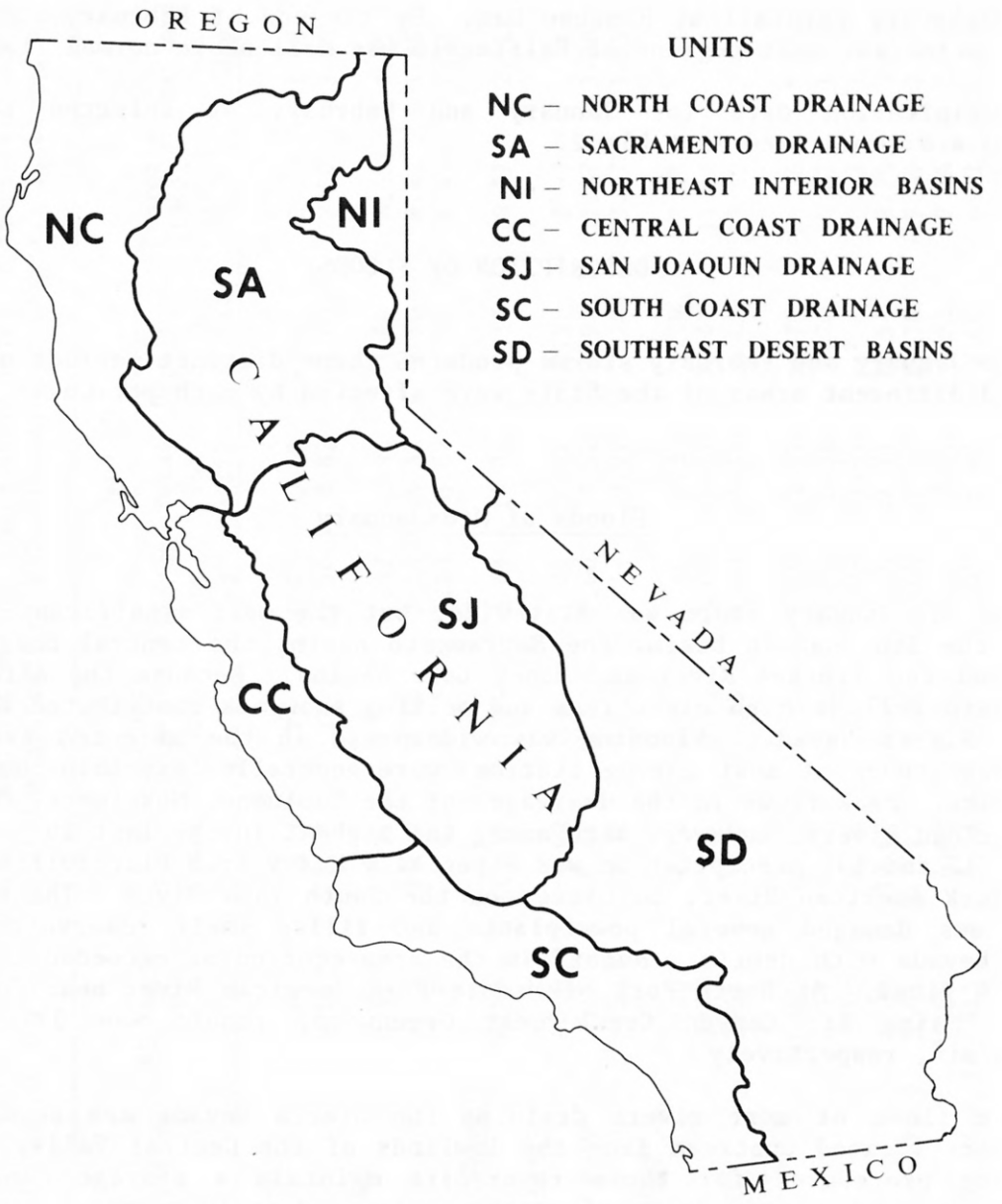

FIGURE 3.--Reporting units for precipitation data.

During mid-February a series of fast moving Pacific storms brought very heavy rainfall, particularly in southern California. These storms, separated by intervals of less than 24 hours, produced heavy rainfall during February 13-22. Precipitation for that period totaled 24.26 inches at Cuyamaca and 19.79 inches at Henshaw Dam, both in San Diego County; 24.26 inches at Lake Arrowhead, San Bernardino County; 12.75 inches at the Los Angeles Civic Center; and 14.25 inches at Ojai, Ventura County. These amounts range from 320 percent of normal February rainfall at Lake Arrowhead to 530 percent of normal February rainfall at Henshaw Dam. By the end of February, cumulative precipitation for most regions of California was well above normal (table 1).

Precipitation data for January and February at selected reporting stations are summarized in table 2.

DESCRIPTION OF FLOODS

The January and February storms produced three distinct periods of flooding, and different areas of the State were affected by each period.

Floods of Mid-January

The mid-January storm was statewide, but the most significant flooding was in the San Joaquin basin, the Sacramento basin, the central coast drainages, and the Truckee River and Honey Lake basins. Because the airmass was warm, rain fell at high elevations and melting snowpack contributed to runoff in the Sierra Nevada. Flooding was widespread in the affected areas, but flood magnitudes at most gaging stations were generally less than the historical peaks. Peak flows in the drainages of the Tuolumne, Mokelumne, Cosumnes, and American Rivers, however, were among the highest in the last 20 years. On January 12 and 13, precipitation was especially heavy from Placerville, on the South Fork American River, to Cisco, on the South Yuba River. The resulting peak flows damaged several powerplants and filled small reservoirs in the Sierra Nevada with debris. Runoff in the area equaled or exceeded the December 1964 flood. At North Fork of Middle Fork American River near Foresthill and at Maine Bar Canyon Creek near Greenwood, runoff was 339 and 346 $(ft^3/s)/mi^2$, respectively.

The flows of most rivers draining the Sierra Nevada are regulated by reservoirs located upstream from the lowlands of the Central Valley. Normal operating procedures for these reservoirs maintain a storage capacity to receive the high runoff expected in the spring and early summer. Runoff from the mid-January storms encroached on this flood-storage space in 15 of the 16 major reservoirs, causing some anxiety concerning difficulties that might arise if later storms and snowmelt should produce excessive rates of inflow.

TABLE 2. - Precipitation, in inches, at selected locations in California during January and February 1980

[Data from National Oceanic and Atmospheric Administration. Dates shown refer to those in Climatological Data reports of the National Oceanic and Atmospheric Administration, National Climatic Center. T, trace; *, not determined]

Precipitation station	Altitude (ft)	January 7-19 total	January 28-31 total	January			February 13-22 total	February		
				Maximum one day	Total for month	Departure from normal		Maximum one day	Total for month	Departure from normal
North coast drainage										
Eureka	60	2.92	T	0.75	3.19	-4.23	2.69	1.13	4.67	-0.48
Healdsburg	102	8.77	T	2.50	8.82	-1.04	12.50	3.20	14.61	7.89
Sacramento drainage										
Red Bluff	342	2.77	0	.92	2.84	-1.64	6.45	1.72	7.77	4.60
Placerville	1890	13.39	0.60	3.84	15.33	7.50	9.62	1.80	11.51	5.91
Sacramento FAA	18	5.62	0	1.23	5.64	1.91	6.41	1.38	7.12	4.44
Northeast interior basins										
Tahoe City	6230	13.46	0.19	3.49	14.89	8.11	10.47	2.12	11.07	6.48
Central coast drainage										
Mount Hamilton	4206	6.42	0	1.21	6.42	1.96	3.93	.92	4.28	.23
San Luis Obispo Poly	315	8.47	0.53	2.60	9.52	4.92	11.47	3.98	11.91	7.89
Santa Cruz	130	9.92	0	4.14	9.97	3.24	7.87	1.55	8.69	3.43
San Joaquin drainage										
Fresno	328	3.78	0.04	.96	3.83	1.99	3.18	1.57	3.30	1.58
Hetch Hetchy	3870	14.67	0.71	3.07	16.27	10.42	11.52	*	12.73	7.92
Yosemite Park HDQ	3966	15.59	0.29	4.03	16.54	10.03	13.53	3.07	14.24	8.71
South coast drainage										
Cuyamaca	4640	13.14	9.23	4.40	22.37	16.78	24.34	5.35	24.34	18.93
San Diego	13	2.96	2.53	1.92	5.58	3.70	4.47	1.41	4.47	2.99
Escondido	660	6.08	5.41	3.24	11.49	*	10.11	1.96	10.11	7.90
Henshaw Dam	2700	10.63	8.14	5.60	18.77	14.54	19.79	3.85	19.79	16.06
Palomar Mt. Observatory	5545	11.27	7.36	5.65	18.63	13.78	19.89	2.90	19.89	15.24
Laguna Beach	35	4.68	2.93	2.25	7.61	5.33	9.64	1.70	9.64	6.37
Riverside Fire Station 3	840	3.34	2.13	1.47	5.47	3.66	6.31	1.27	6.31	4.56
Los Angeles Civic Center	257	4.66	2.84	2.44	7.50	4.50	12.75	3.03	12.75	9.98
Ojai	750	6.70	2.11	2.15	8.81	4.18	14.25	5.60	14.25	10.08
Santa Barbara	5	5.71	1.00	1.94	6.71	2.77	8.98	3.48	8.98	6.53
Southeast desert basins										
Lake Arrowhead	5205	14.14	6.68	6.26	22.15	14.01	24.26	4.55	24.26	16.64
Palm Springs	425	1.52	2.62	2.02	4.14	3.01	5.41	1.14	5.41	4.63

The unusually high discharges of the Sacramento and San Joaquin Rivers coincided with abnormally high tides and winds. This combination of stresses caused levees to fail on both the Holland and Webb Tracts, and the 9-mile long lake that was formed in the Sacramento-San Joaquin Delta flooded about 10,000 acres of prime agricultural land. One person was drowned and about 900 head of cattle were lost when the levees failed.

Rainfall totals in southern California had been well below normal prior to the mid-January storm. Consequently, runoff from this storm was not extreme. The replenishment of soil moisture, however, set the stage for flooding from the storms that were to follow later in January and February.

Floods of Late January

The storm of January 28-31 brought large amounts of rainfall to the south coastal and southeast desert areas, but only light precipitation to other areas of the State. Cuyamaca and Henshaw Dam in San Diego County reported 3-day totals of 9.23 inches and 8.14 inches, respectively, and Lake Arrowhead reported a 1-day rainfall of 6.26 inches on January 28. Most peak flows in the area were well below the historical record peaks. For example, the January 29, 1980, peak at Santa Ana River at E Street, near San Bernardino (station 11059300) was 22,000 ft^3/s, below the 1969 peak discharge of 28,000 ft^3/s. However, the peak discharge of 3,550 ft^3/s at the gaging station on East Twin Creek near Arrowhead Springs (station 11058500) was the highest for the period of record, dating back to 1919. Farther south, in the Tijuana River basin, heavy runoff from the Rio Las Palmas into Rodriguez Reservoir in Mexico caused concern for the safety of the dam and necessitated large releases. These releases reached 28,000 ft^3/s on January 30 and combined with the floodwaters from the Tijuana River to produce an estimated peak discharge of 32,000 ft^3/s at the Tijuana River near Nestor (station 11013500). The previous record peak discharge at the Tijuana River gage was 17,700 ft^3/s in 1937. The January peak produced widespread flooding along the Tijuana River downstream from the levees that end at Dairy Mart Road, about 2 miles downstream from the International Boundary. Flooding was to occur again in mid-February.

Floods of Mid-February

Little rain fell in California in early February, as the southern part of the State began the task of cleaning up from the late January storms. Then during February 13-22, a series of storms swept through the south and central coastal areas, bringing record amounts of precipitation and runoff that caused damage to roads and property. By the time the storms had ended, eight counties had been declared Federal disaster areas and 18 lives had been lost as a result of the storms. This series of storms, like that at the end of January, struck hardest in southern California and Baja California; however, it also produced significant flooding to the north in the San Francisco Bay area and in the Salinas River basin.

Flooding was only one of the problems caused by storms. High winds and wave action caused heavy damage in several coastal areas; mudflows and slope failures due to saturated soils caused extensive property damage. Broken sewer lines caused contamination of beaches.

Coastal Basins South of the Santa Ana River

San Diego County again was hard hit with extensive flooding on the Tijuana River and in the Mission Valley area along the lower San Diego River. As in late January, heavy runoff from Baja California and concern for the safety of Rodriguez Dam necessitated large releases from the reservoir. These releases, although not as great as those of January 30, combined with floodflow from the Tijuana River to produce an estimated peak discharge on the Tijuana River near Nestor on February 21 of 34,200 ft^3/s, slightly larger than the previous record peak of January 30. Flooding was extensive downstream from San Ysidro, and the bridge on Hollister Road was destroyed. Figure 4 is the hydrograph of daily discharge on the Tijuana River near Nestor at the International Boundary.

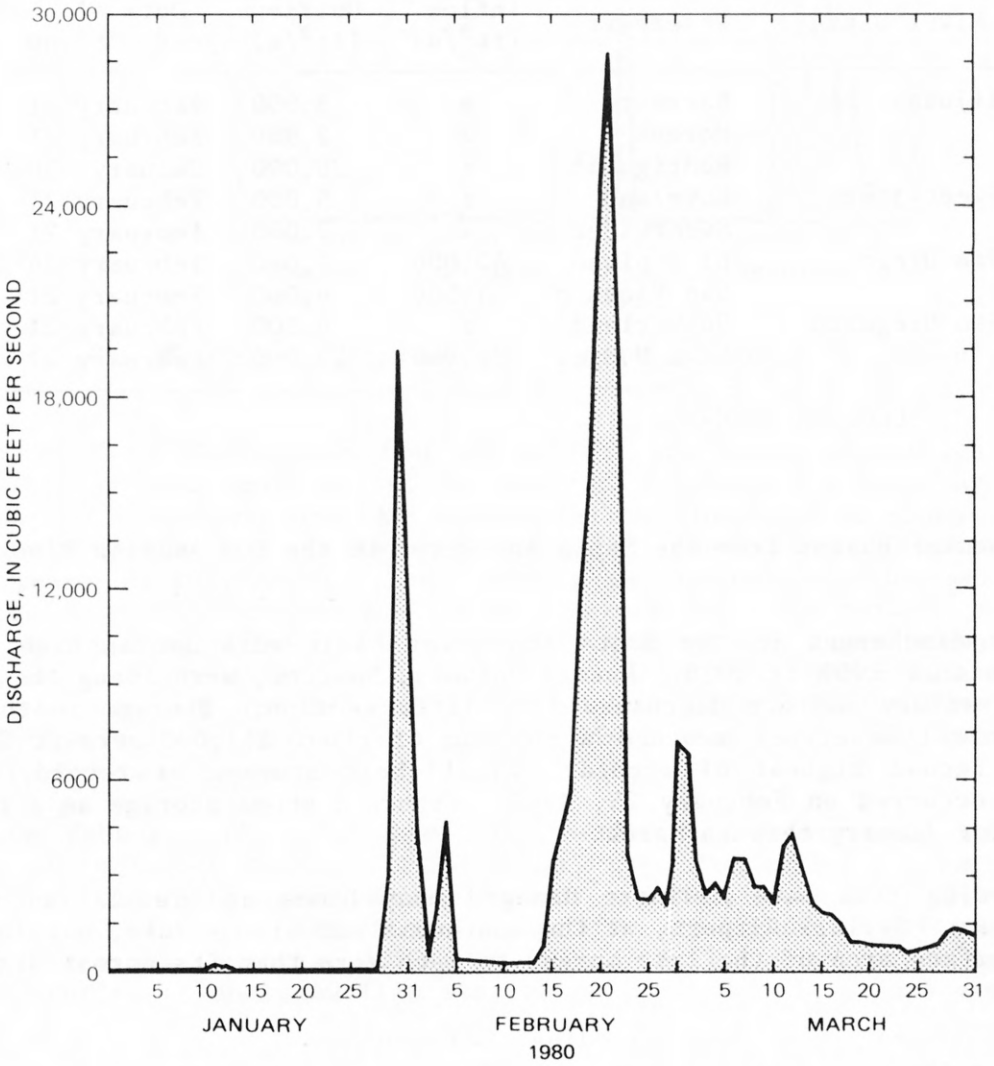

FIGURE 4.--Daily discharge for Tijuana River near Nestor.

Except for Lake Henshaw, all major reservoirs in San Diego County spilled as a result of the storm. Lower Otay Reservoir, however, spilled only 350 ft^3/s and that did not occur until March 11. Estimated inflow and outflow data for selected reservoirs in San Diego County are summarized in table 3.

Peak discharges at gaging stations in the San Luis Rey River and Santa Margarita River basins were generally the highest in the last 50 years, approaching the magnitudes of the 1927 floods. Vail Lake on the Temecula River spilled in February for the first time since the dam was completed in 1948. The daily discharge hydrograph for Murrieta Creek at Temecula (station 11043000) is shown in figure 5.

TABLE 3. - Estimated peak inflow and outflow from selected reservoirs in San Diego County

[Estimates provided by County of San Diego, Department of Sanitation and Flood Control. a, no estimate]

River basin	Reservoir	Inflow (ft^3/s)	Outflow (ft^3/s)	Date of peak outflow
Tijuana	Barrett	a	8,000	February 21
	Morena	a	2,900	February 21
	Rodriguez[1]	a	28,000	January 30
Sweetwater	Loveland	a	5,000	February 21
	Sweetwater	a	7,000	February 21
San Diego	El Capitan	40,000	1,080	February 24
	San Vicente	11,500	6,000	February 21
San Dieguito	Sutherland	a	6,100	February 21
	Lake Hodges	28,000	22,000	February 21

[1]Located in Mexico.

Coastal Basins from the Santa Ana River to the Los Angeles River

Peak discharges in the Santa Ana River basin were not as high as they were in either 1969 or 1938. Runoff volumes, however, were among the highest of this century and are discussed in a later section. Storage in the Prado Flood Control Reservoir reached a maximum of about 111,000 acre-ft February 22, the second highest of record. The highest storage of record, 130,000 acre-ft, occurred on February 25, 1969. Figure 6 shows storage as a function of time for January through March.

Flooding from Lake Elsinore damaged many homes and facilities in low-lying areas. Skylark Airport, at the southeast end of the lake, was inundated as the surface area of the lake spread to much more than its normal size.

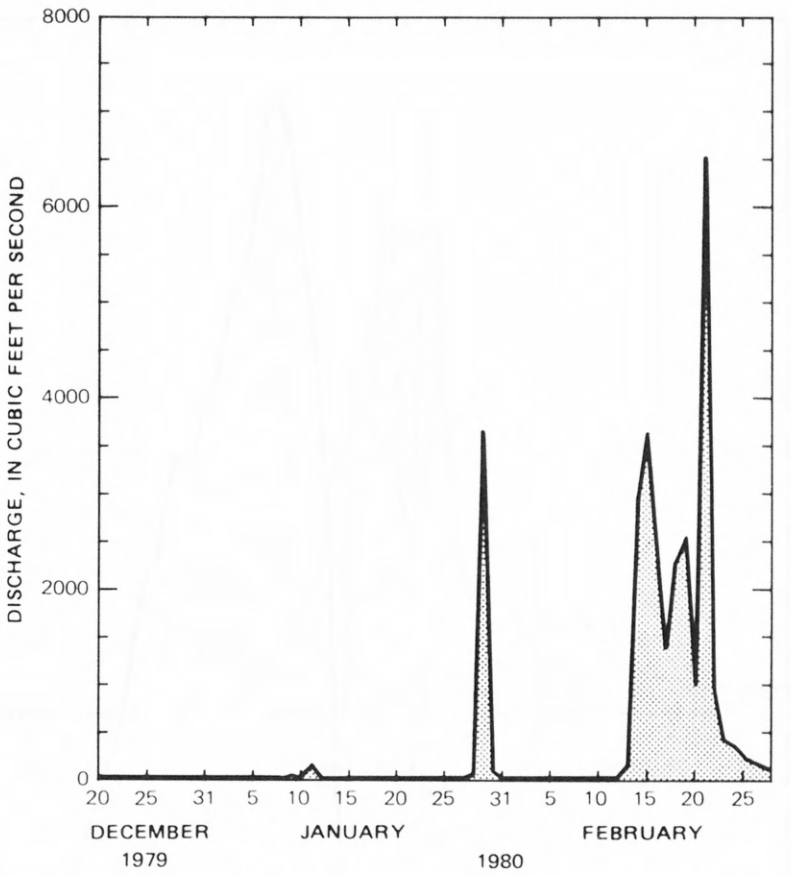

FIGURE 5.--Daily discharge for Murietta Creek at Temecula.

Inflow to Lake Elsinore is from the San Jacinto River, with slight additional contribution from small tributary basins. The daily discharge hydrograph for the San Jacinto River near Elsinore (station 11070500) is shown in figure 7. Historically the lake is intermittent, with the lake bed remaining dry for many years in succession. Then, during wet periods, it becomes covered to shallow depths for as much as several square miles. The natural outlet of the lake is Temescal Creek. There probably was outflow down Temescal Creek in 1862, and outflow is known to have occurred in 1872, 1883-84, and 1916. The lake bed was dry in the 1960's until 1965, when Colorado River water was brought in via the San Jacinto River. Since that time a lake of about 6 mi^2 in area has been maintained.

On February 13, 1980, the lake surface was recorded by the U.S. Army Corps of Engineers to be at 1,246.59 ft, gage datum, and contents was 61,200 acre-ft. Inflow reached a maximum of slightly more than 5,000 ft^3/s on February 22 and then decreased, except for a slight rise after rainfall in early March, to less than 100 ft^3/s in mid-April. After clearing and repair of the outlet channel, outflow started on March 8 and reached a maximum rate

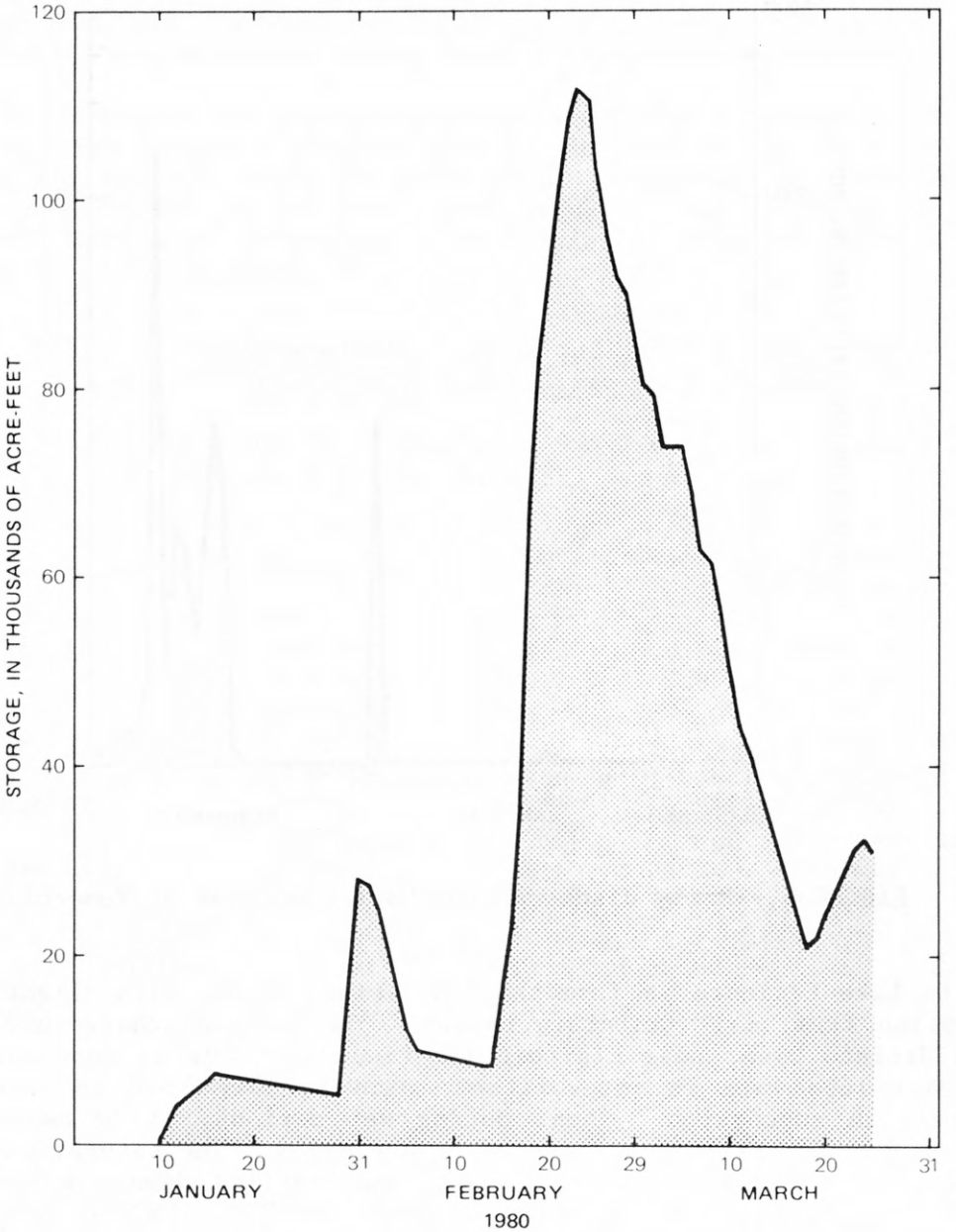

FIGURE 6.--Storage in Prado Flood Control Reservoir during January-March 1980.

of almost 240 ft^3/s later in the month. The stage of Lake Elsinore reached a maximum on March 20-21 of 1,265.72 ft; the corresponding volume of the lake was 163,400 acre-ft and surface area was about 10 mi^2. Data from the Corps indicate that inflow from February 13 to March 21 was 107,000 acre-ft, with an additional inflow of 5,800 acre-ft by April 11. Figure 8 shows the changes in stage and contents of the lake from February 1 to April 11.

Flooding in the headwater tributaries of the San Gabriel and Los Angeles Rivers was comparable to the extreme floods of 1969. On the main stem of the San Gabriel River, however, flood-control reservoirs reduced peak discharge to

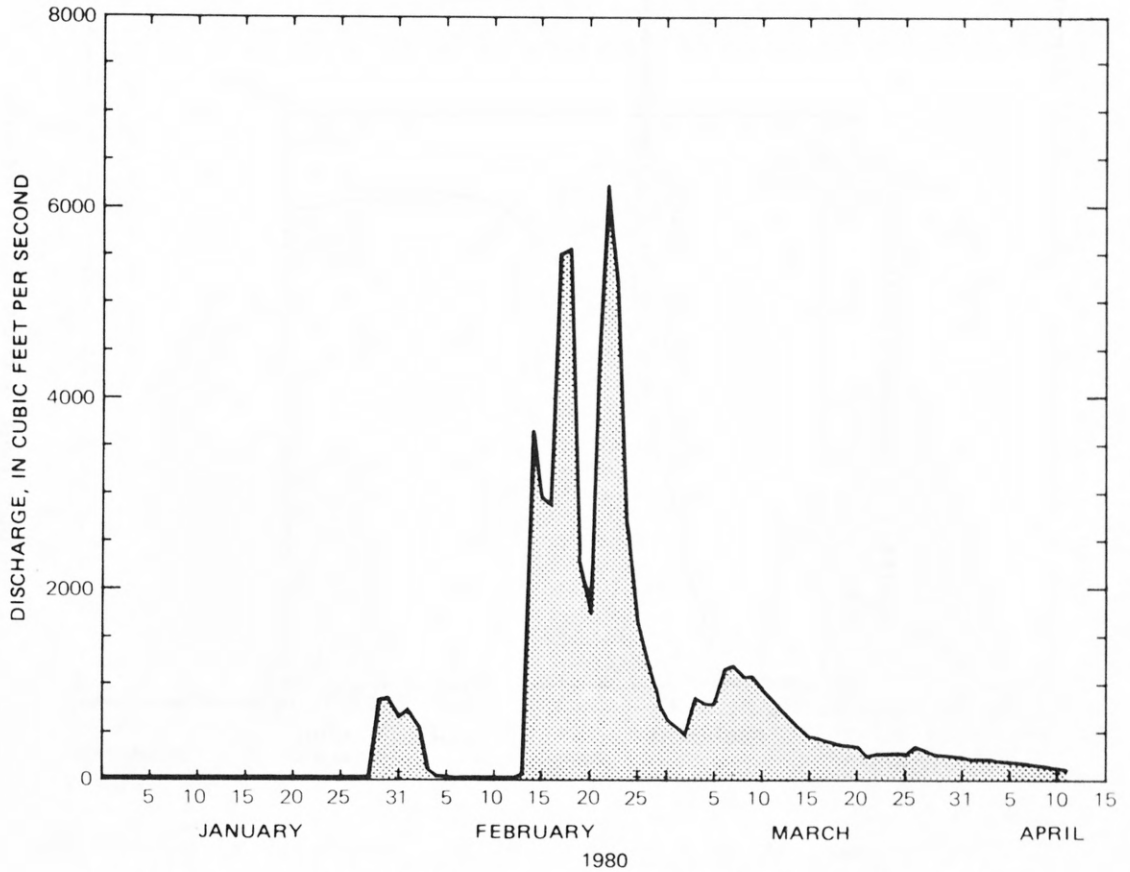

FIGURE 7.--Daily discharge for San Jacinto River near Elsinore.

below 1969 magnitudes. By contrast, the February 16 peak discharge for the Los Angeles River at Long Beach (station 11103000) was 125,000 ft^3/s, the highest at that site since records began in 1928. The hydrograph of daily discharge for Arroyo Seco near Pasadena (station 11098000), tributary to the Los Angeles River, is shown in figure 9.

Coastal Basins North and West of Los Angeles

Flood damage was extensive in the small basins between the Los Angeles River and the Santa Clara River. Homes were damaged by mudflows and floodwaters in the Topanga Creek and Malibu Creek basins. Raw sewage flowed down Malibu Creek after a sewer line was broken by flood waters; the resulting contamination caused health officials to close about 65 miles of beaches for several weeks to swimmers and surfers. Parts of the Point Mugu U.S. Naval Air Missile Test Center were flooded when a dike along Calleguas Creek failed.

Flooding in the Santa Clara River basin and in Santa Barbara County was generally less severe than the record floods in 1969 and 1978. Daily discharge hydrographs for Sespe Creek near Fillmore (station 111130000) and Santa Clara River at Montalvo (station 11114000) are shown in figures 10 and 11.

In the area extending north from San Luis Obispo County to the San Francisco Bay area, peak flows of many small streams were among the highest in 20 years. The 1980 peaks in the counties surrounding San Francisco Bay rivaled, but usually did not exceed, peaks in the 1955 and 1958 floods.

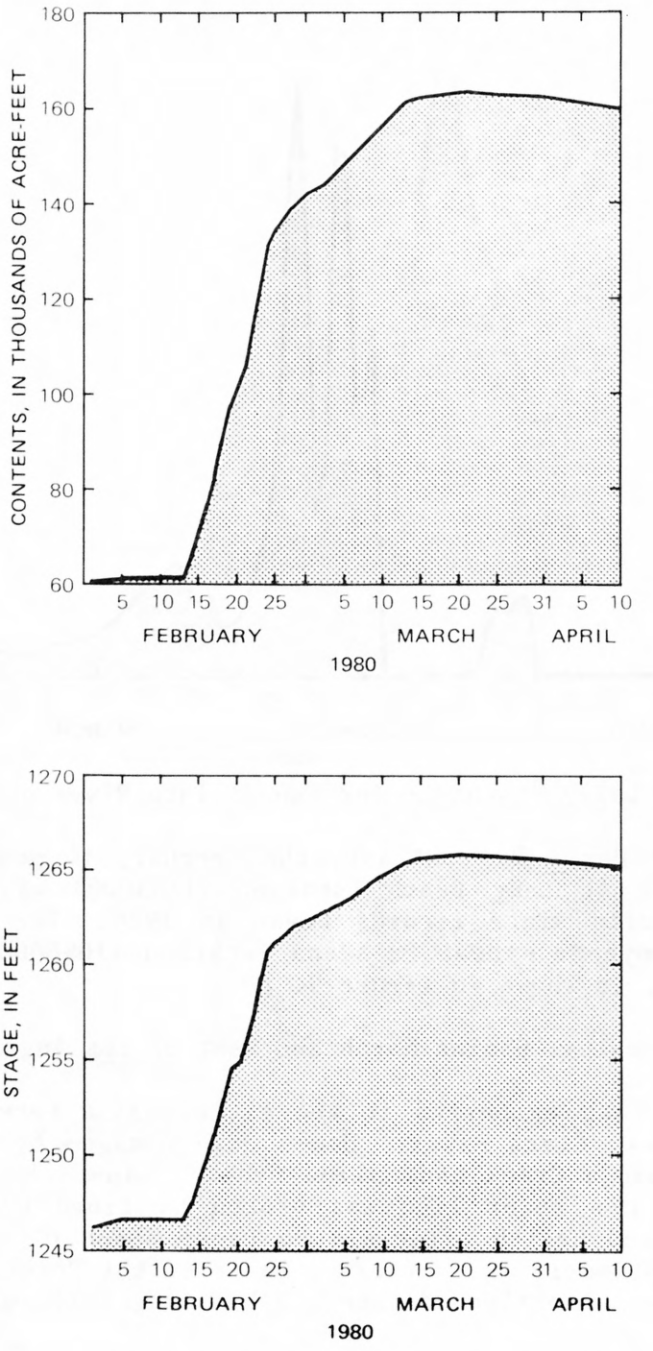

FIGURE 8.--Changes in stage and contents of Lake Elsinore.

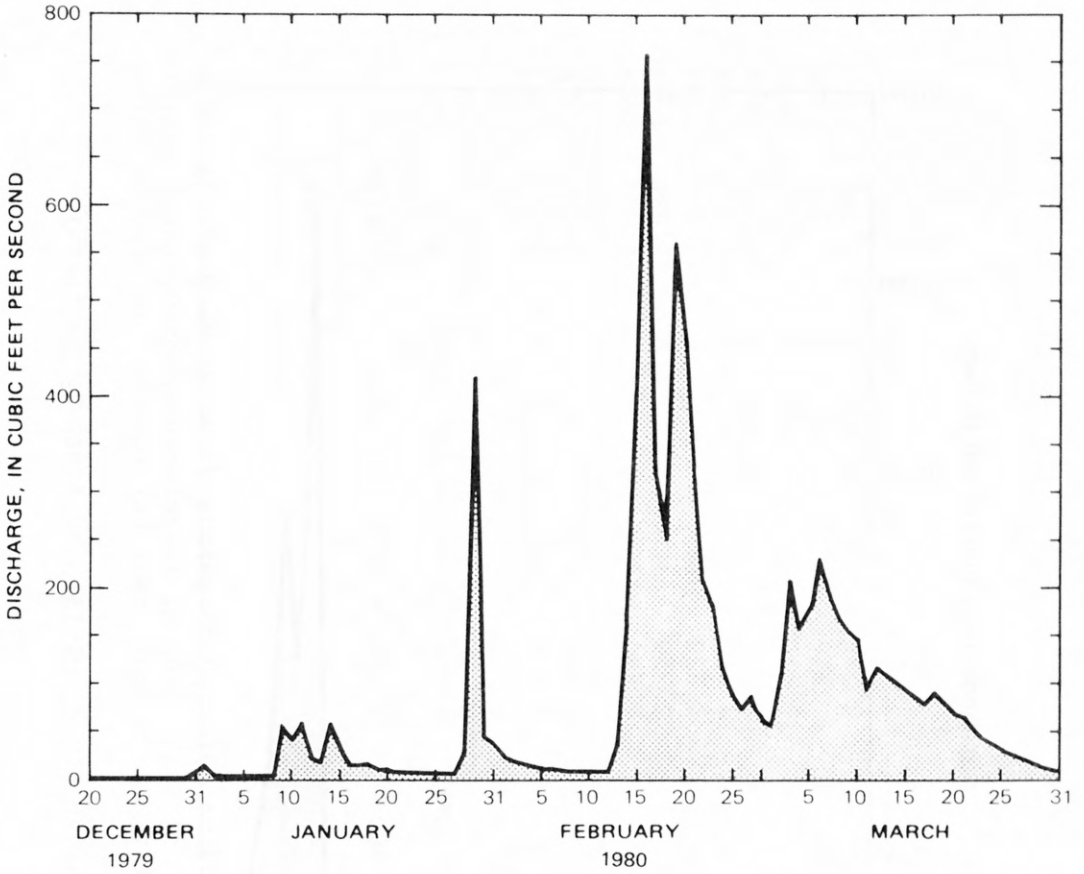

FIGURE 9.--Daily discharge for Arroyo Seco near Pasadena.

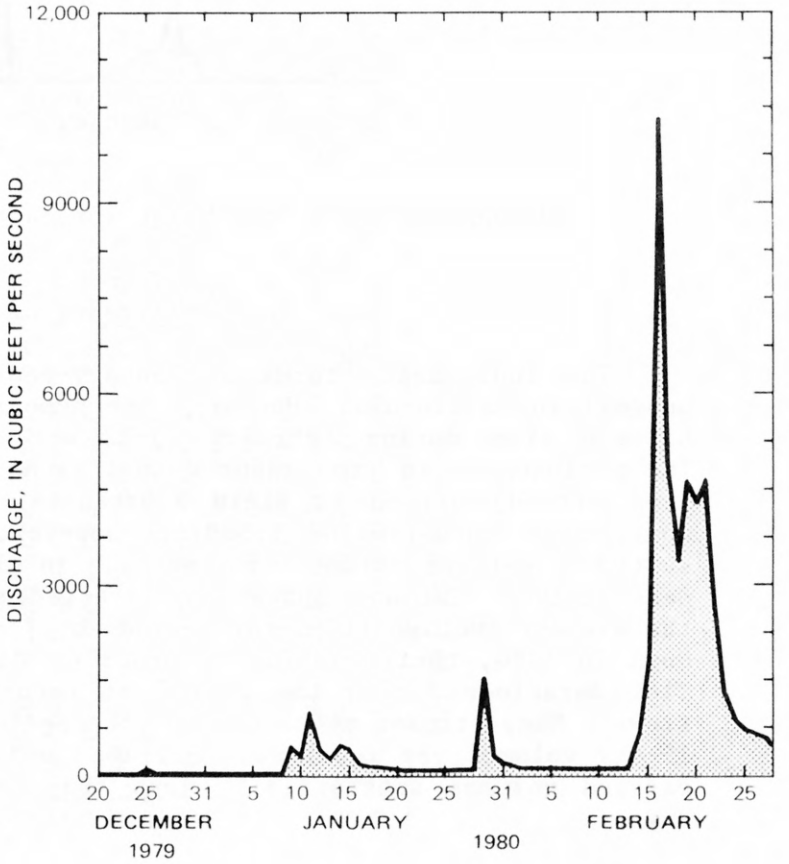

FIGURE 10.--Daily discharge for Sespe Creek near Fillmore.

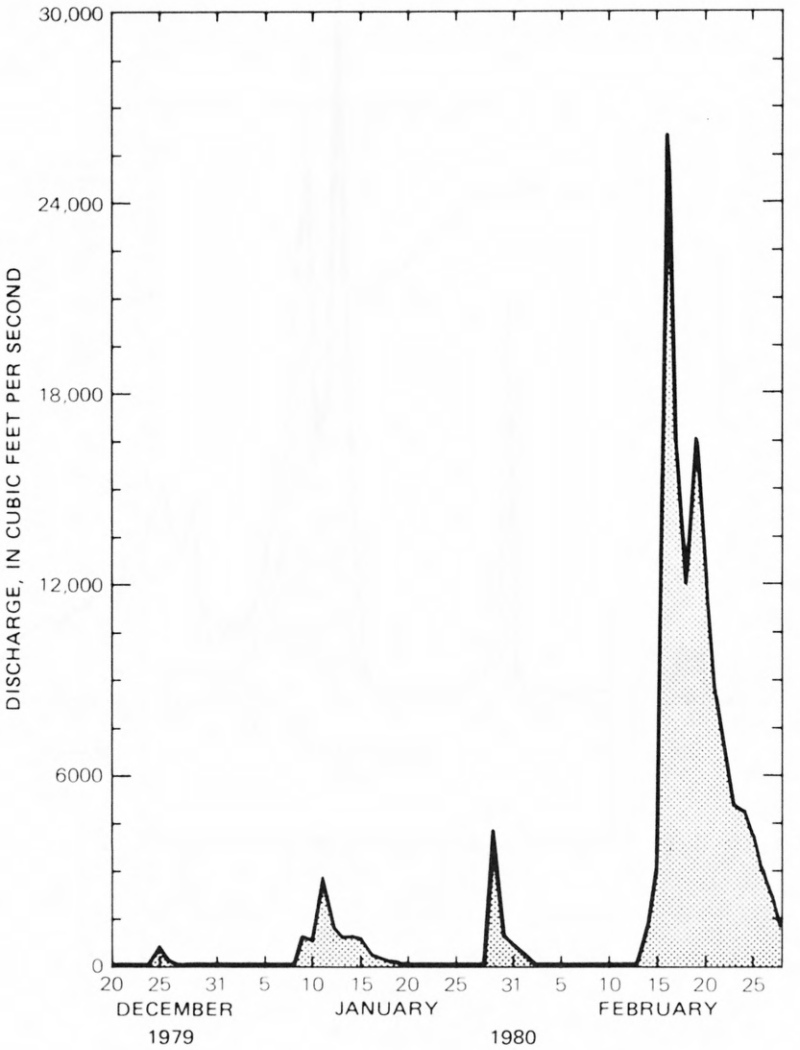

FIGURE 11.--Daily discharge for Santa Clara River at Montalvo.

Significance of Floods

The individual storms of January-February 1980 followed a pattern not unusual in California. However, the number of storms and the short intervals between them during February 13-22 were unusual for southern California. Their closeness in time insured that each succeeding rainfall would strike an area already primed to yield substantial runoff. Few of the storms alone would have caused major flooding; however, the rapid sequence of storms resulted in extreme volumes of flows and in flooding that was unusually high and destructive. Table 4 shows for selected sites, as indexes of flood volume, the highest average flows for periods of 7 consecutive days and 15 consecutive days in 1980; their ranking in order of magnitude when compared with similar flow durations during the period of record; and the previous highs of such flows. Many streams south of the Los Angeles basin carried the highest 7- and 15-day volumes yet recorded. Streams to the north, although unusually high, carried volumes substantially less than the previous maximums for 7 and 15 days.

TABLE 4. - Sustained floodflows at selected sites during floods of 1980 in southern California

[Average flows for highest 7 and 15 consecutive days. All flows in cubic feet per second. To compute acre-feet, multiply 7-day flow by 9.917 and 15-day flow by 29.752. Rank of 1 indicates highest event during period of record; 2 indicates second highest, and so forth. All the sustained flows shown for 1980 began during the period February 13-19]

Station No.	Name	Period of record	High 7 days				High 15 days			
			1980		Previous high		1980		Previous high	
			Flow	Rank	Flow	Year	Flow	Rank	Flow	Year
11012500	Campo Creek near Campo	1937-80	219	1	88	1941	149	1	67	1941
11013500	Tijuana River near Nestor	1937-80	15,700	1	5,670	1941	9,330	1	4,250	1941
11015000	Sweetwater River near Descanso	[1]1907-80	1,110	2	1,260	1916	602	2	1,040	1916
11043000	Murrietta Creek at Temecula	1931-80	2,800	1	2,170	1969	1,670	1	1,030	1969
11070500	San Jacinto River near Elsinore	1917-80	4,410	2	4,490	1927	3,180	1	2,360	1927
11074000	Santa Ana River below Prado Dam	1941-80	5,910	1	5,320	1969	4,750	1	3,580	1969
11098000	Arroyo Seco near Pasadena	1914-80	440	6	1,230	1914	272	8	639	1914
11113000	Sespe Creek near Fillmore	1928-80	4,950	7	11,500	1969	2,780	8	7,220	1969
11114000	Santa Clara River at Montalvo	1950-80	14,100	3	25,400	1969	8,280	3	13,700	1969
11118500	Ventura River near Ventura	1930-80	4,740	4	6,970	1969	2,640	5	3,960	1969
11132500	Salsipuedes Creek near Lompoc	1942-80	526	3	925	1978	272	4	523	1962
11140000	Sisquoc River near Garey	1942-80	1,800	6	6,250	1969	1,080	5	3,780	1969

[1]No record 1928-56.

In southern California sustained high flow constitutes an important source of recharge to the ground-water basins. Because of the seasonal concentration of precipitation during the winter months, followed by pumping during the summer, ground-water levels tend to show large seasonal fluctuation, rising in the winter and early spring and falling in summer and autumn. In addition to this seasonal cycle, recharge varies greatly from year to year as a result of the large variance in annual precipitation. Figure 12 shows changes in the water level at an index well in Baldwin Park, about 15 mi east of central Los Angeles, from January 1977 to late May 1980.

DAMAGE ESTIMATES

Eight counties, including all of southern California except Imperial County, were declared disaster areas. They are Los Angeles, Orange, Santa Barbara, San Bernardino, Riverside, San Diego, Ventura, and, farther north, Santa Cruz County (fig. 13). Eighteen lives were lost in these counties as a result of the January and February storms and floods.

Preliminary flood damage estimates for the eight-county area were coordinated by the Federal Emergency Management Agency (oral commun., 1980). Total damages were estimated to be almost $350 million. The breakdown of these estimates by types of property damaged is shown below:

	Damage, in millions of dollars
Public facilities	175
Private property	94.8
Business	30
Agriculture	48.6
Total	348.4

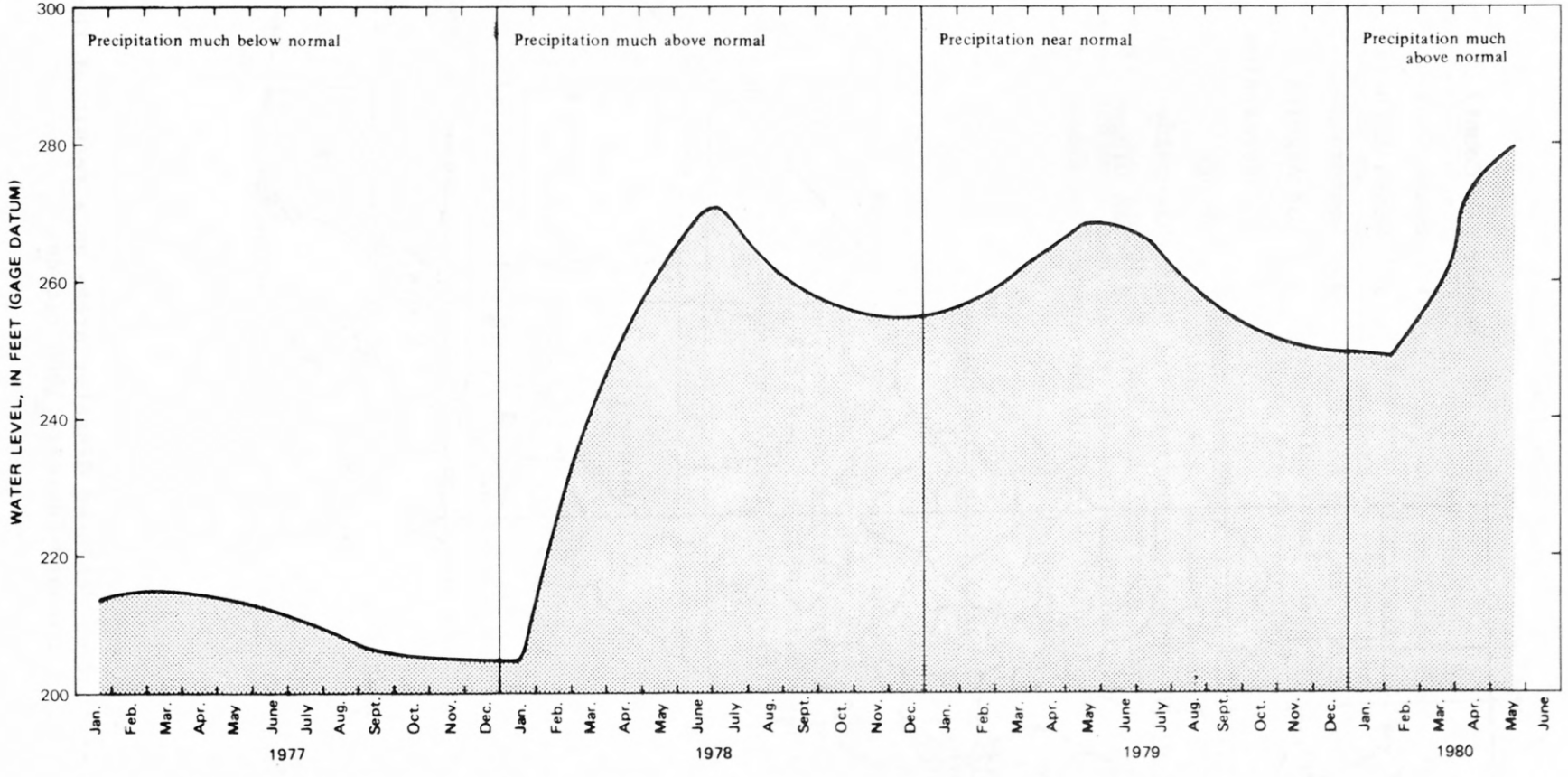

FIGURE 12.--Changes of ground-water level in Baldwin Park well (1S/10W-7R2).

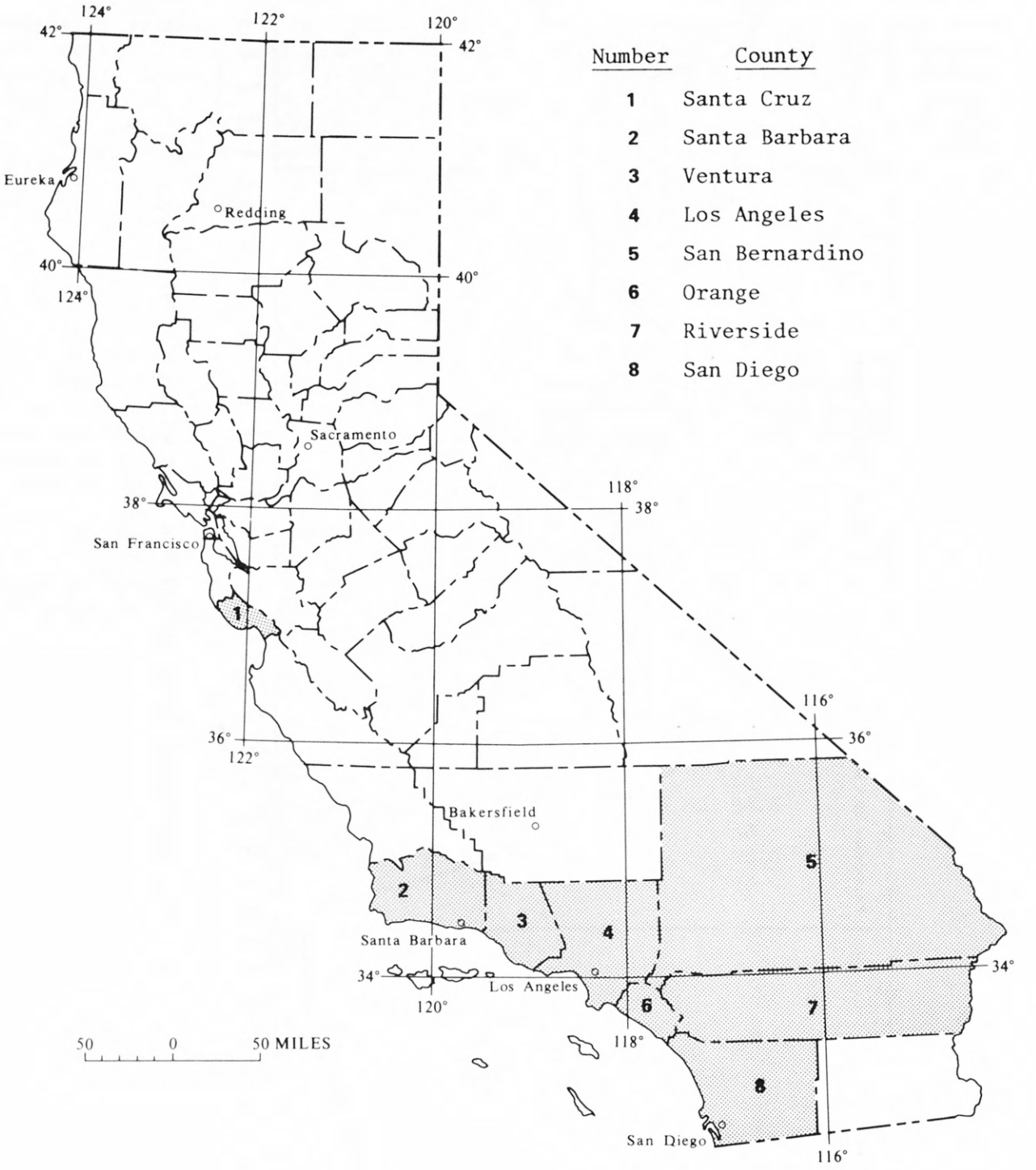

FIGURE 13.--Counties declared disaster areas as a result of the January-February 1980 floods.

SEDIMENT DATA

Selected sediment samples, obtained during the floods of January and February 1980 in southern California, were analyzed for sediment concentration and the data are presented in table 5. The limited time available for analysis of samples and of streamflow data precluded the detailed computation of sediment discharge for individual flood periods. Water and sediment discharge data presented here are provisional; final data will be published in the annual series "Water Resources Data for California."

Data on water and sediment discharge during the 1980 floods from three sites (Santa Ana River at Santa Ana, Santa Clara River at Montalvo, and Ventura River near Ventura) are plotted in figures 14-16. Similar data obtained during the floods of 1969 and 1978 are also plotted for comparison. Analysis of sediment samples is not yet complete enough to warrant estimates of the total sediment transported during the 1980 floods.

SUMMARY OF STREAMFLOW DATA

This section summarizes peak discharge information at selected stream-gaging stations in California. The discharge data presented in table 6 include peak flows of 1980 and previous maximum peak flows. Data for 1980 are provisional; final discharge data for the 1980 water year will be published in the annual series "Water Resources Data for California."

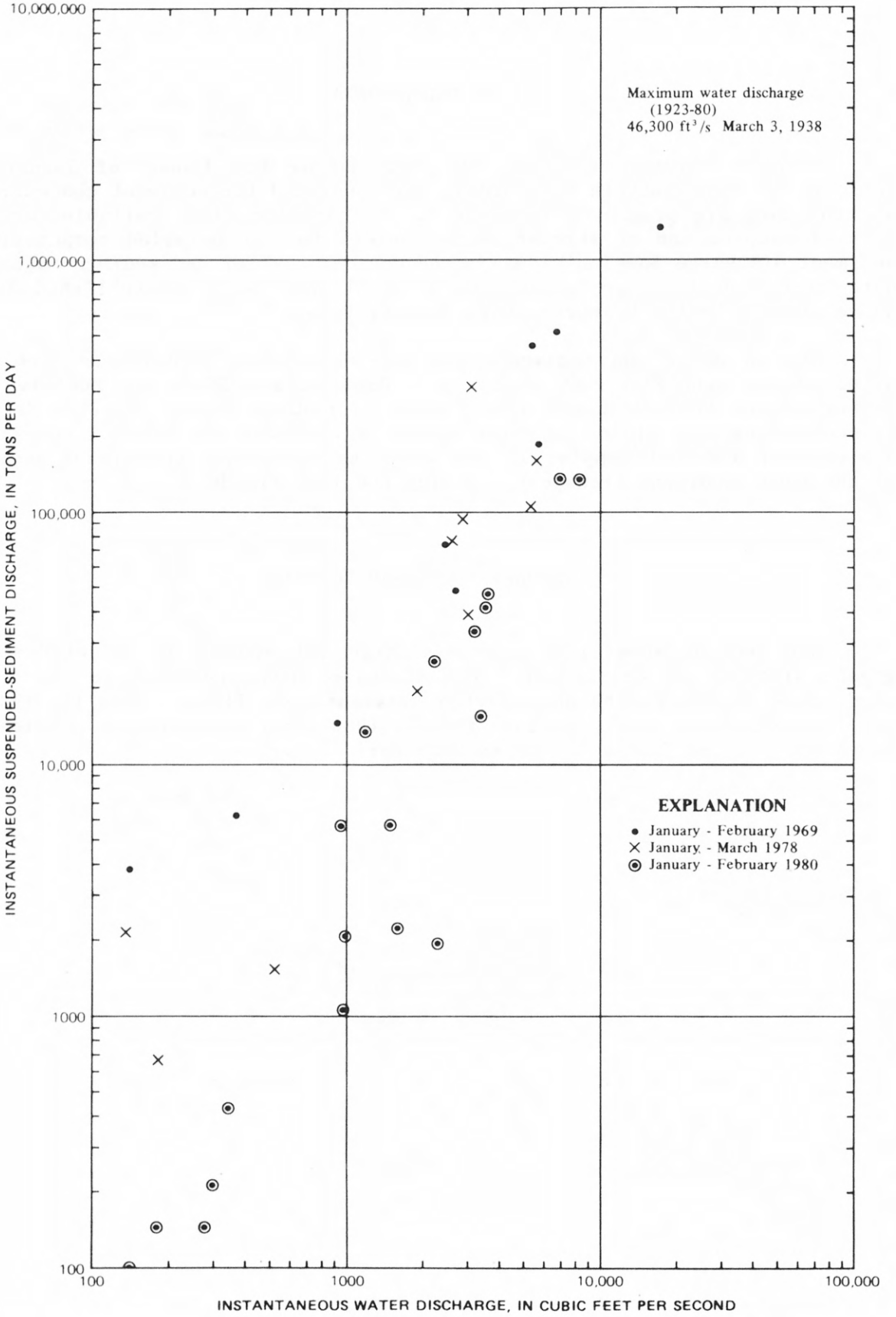

FIGURE 14.--Suspended-sediment discharge versus water discharge for selected years at Santa Ana River at Santa Ana.

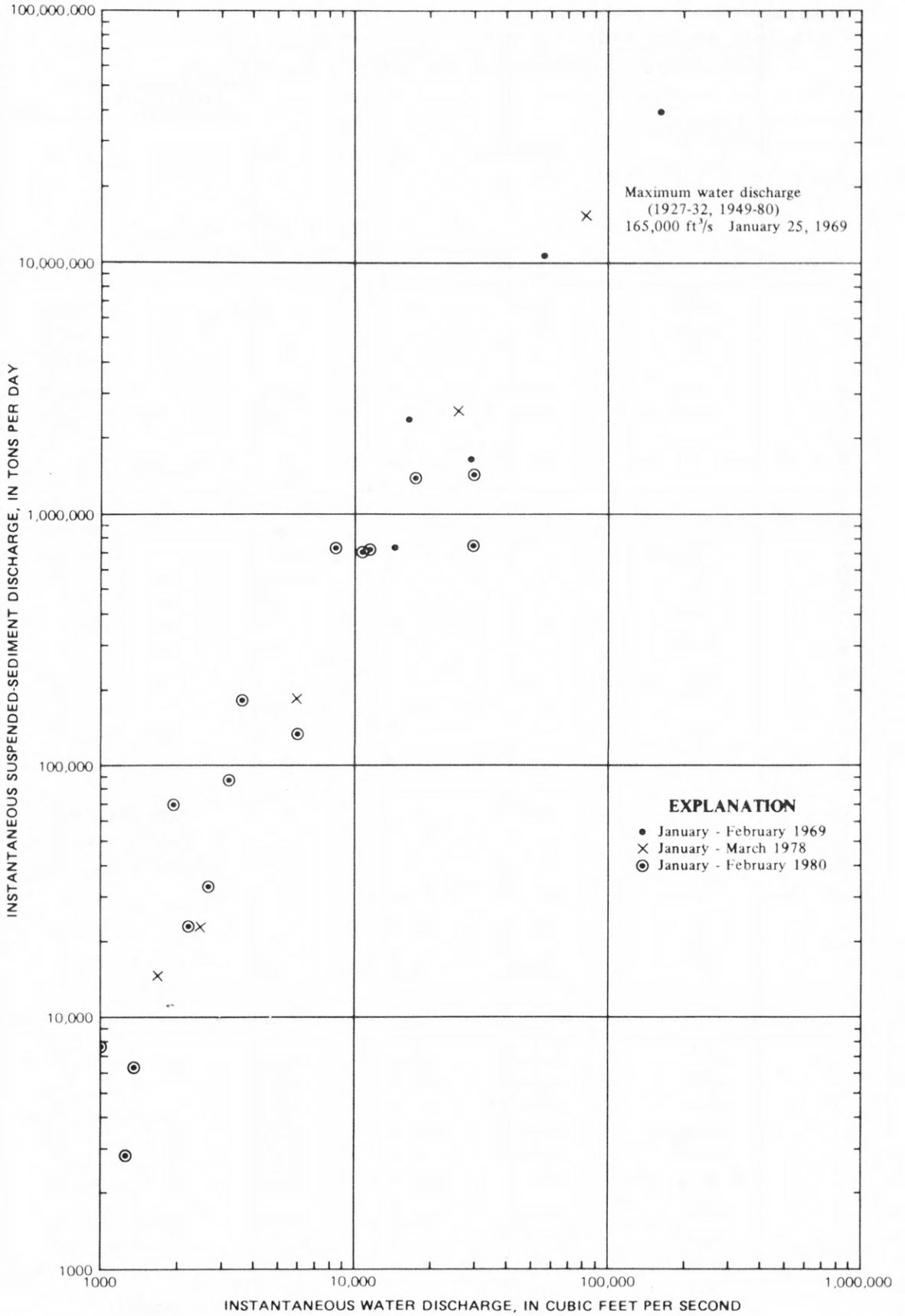

FIGURE 15.--Suspended-sediment discharge versus water discharge for selected years at Santa Clara River at Montalvo.

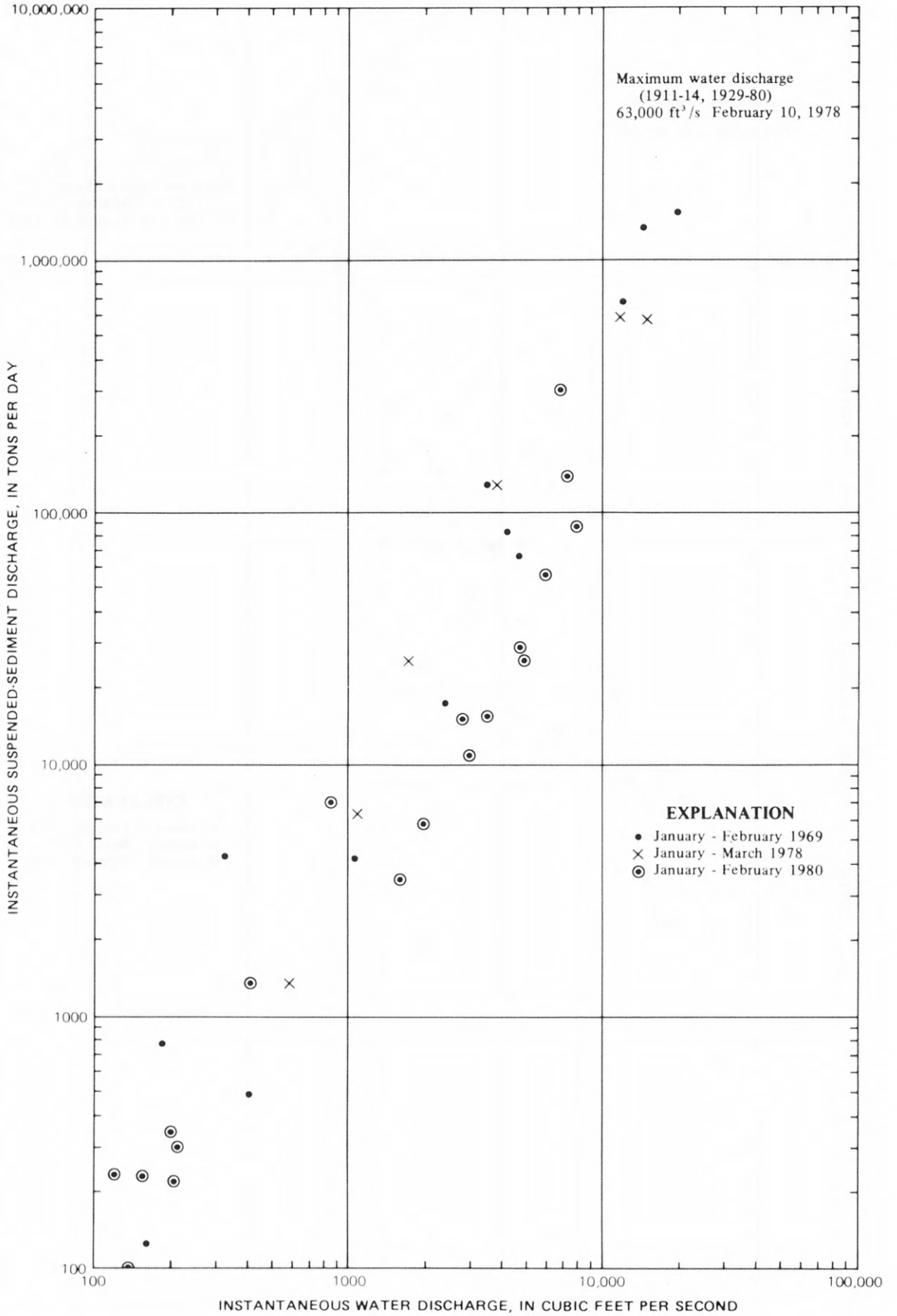

FIGURE 16.--Suspended-sediment discharge versus water discharge for selected years at Ventura River near Ventura.

TABLE 5. - Suspended-sediment data for selected gaging stations in southern California during January-February 1980

Date	Time (hours)	Gage height (ft)	Discharge (ft^3/s)	Suspended sediment	
				Concentration (mg/L)	Tons per day
11046550 San Juan Creek at San Juan Capistrano					
January 10	1200	11.73	17	159	7.3
January 14	1055	12.08	17	101	4.6
January 17	1335	12.01	12	281	9.1
January 18	1420	-	12	72	2.3
February 17	1240	-	3,000	7,390	59,900
February 18	1010	-	9,560	29,700	767,000
11048500 San Diego Creek at Sand Canyon Avenue, near Irvine					
January 10	1455	11.83	8.7	446	10
January 11	1100	15.40	1,700	10,200	46,800
January 11	1225	13.22	240	6,900	4,470
January 14	1540	-	10	566	15
January 15	1450	10.72	7.0	192	3.6
January 17	1115	10.71	5.3	105	1.5
January 18	1105	10.91	15	556	23
January 28	1345	11.85	220	10,200	6,060
January 29	1030	10.86	100	8,820	2,380
January 30	1430	-	17	924	42
January 31	1415	-	15	925	37
February 17	0945	9.95	99	4,450	1,190
February 18	1200	10.37	259	17,000	11,900
February 18	1240	10.18	313	11,600	9,800
11074000 Santa Ana River below Prado Dam					
January 2	1600	2.86	203	83	45
January 16	1040	3.94	705	180	343
January 23	1400	2.93	226	42	26
February 4	0920	5.03	1,950	128	674
February 4	1210	5.17	2,200	127	754
February 4	1500	5.17	2,200	134	796
February 5	0915	5.15	2,090	106	598
February 5	1440	4.85	1,620	126	551
February 6	0815	3.04	250	110	74
February 7	1030	3.03	246	91	60
February 8	1330	3.01	314	49	42
February 16	0930	5.38	2,600	157	1,100
February 16	1520	4.72	1,500	162	656
February 17	0830	5.44	2,800	1,890	14,300
February 17	1430	5.56	3,000	720	5,830
February 17	1630	5.55	2,990	488	3,940
February 18	0815	6.04	4,300	437	5,070

TABLE 5. - Suspended-sediment data for selected gaging stations in southern California during January-February 1980--Continued

Date	Time (hours)	Gage height (ft)	Discharge (ft^3/s)	Suspended sediment	
				Concentration (mg/L)	Tons per day
11075755 Santa Ana River at Ball Road, in Anaheim					
January 14	1400	1.77	114	538	166
January 15	1245	1.84	186	610	306
January 17	1330	1.96	324	483	423
January 17	1525	1.92	296	478	382
January 18	1345	1.96	324	451	395
January 29	1425	2.46	859	2,950	6,840
January 29	1700	2.35	708	4,510	8,620
January 30	0945	2.87	1,630	5,770	25,400
January 31	1315	2.85	1,580	2,200	9,390
February 5	1700	2.85	1,580	1,180	5,030
February 7	1045	1.78	211	158	90
February 8	1445	1.61	132	122	43
February 13	1700	2.79	1,450	6,190	24,200
February 14	1045	2.60	1,080	5,760	16,800
February 14	1645	2.57	1,030	2,920	8,120
February 16	1430	3.74	4,770	5,860	75,500
February 17	0900	3.60	4,100	4,310	47,700
February 19	1330	4.10	6,900	6,320	118,000
11078000 Santa Ana River at Santa Ana					
January 10	1030	5.30	17	171	7.8
January 11	1600	6.47	340	470	431
January 14	1330	5.78	140	245	93
January 15	1400	5.97	177	301	144
January 16	1445	6.22	276	196	146
January 17	1145	6.25	297	264	212
January 22	1550	5.61	96	113	29
January 29	1300	7.17	1,600	5,230	22,600
January 30	1140	7.57	2,300	3,110	19,300
January 31	1100	-	1,500	1,410	5,710
February 5	1625	-	1,000	765	2,070
February 6	1445	-	977	406	1,070
February 7	1300	-	168	139	63
February 8	1700	-	60	114	18
February 11	1445	-	35	41	3.9
February 13	1500	-	3,400	2,790	25,600
February 14	1315	-	1,100	4,430	13,200
February 14	1630	-	950	2,200	5,640
February 15	1555	-	2,210	4,200	25,100
February 16	1400	-	8,300	5,990	134,600
February 16	1715	-	3,600	4,860	47,200
February 17	1250	-	3,160	3,970	33,900
February 17	1500	-	3,500	4,420	41,800
February 19	1500	-	7,000	7,300	138,000

TABLE 5. - Suspended-sediment data for selected gaging stations in southern California during January-February 1980--Continued

Date	Time (hours)	Gage height (ft)	Discharge (ft^3/s)	Suspended sediment	
				Concentration (mg/L)	Tons per day
11114000 Santa Clara River at Montalvo					
January 9	0900	2.05	221	3,840	2,290
January 9	1600	4.00	2,640	4,650	33,100
January 10	1030	2.56	538	1,450	2,110
January 10	1530	2.60	570	2,420	3,720
January 11	0900	4.40	3,630	18,500	181,000
January 11	1415	4.23	3,180	10,300	88,400
January 12	1030	3.30	1,360	1,720	6,300
January 12	1600	3.23	1,260	832	2,830
January 13	0900	2.85	804	456	990
January 13	1600	2.73	685	1,720	3,180
January 14	0915	2.86	814	1,860	4,090
January 14	1320	3.03	1,010	2,830	7,720
January 17	1000	2.13	259	466	326
January 25	0915	1.47	47	34	4.3
January 28	1600	1.46	45	4,280	520
January 29	0930	5.61	8,400	32,000	726,000
January 30	1100	3.10	868	1,060	2,480
January 31	1000	2.87	640	376	650
February 11	1600	1.98	2.4	39	.25
February 13	1100	1.98	2.4	3,230	21
February 13	1600	1.99	2.6	3,930	28
February 14	1030	3.65	1,940	13,400	70,200
February 15	1030	3.80	2,220	3,830	23,000
February 16	1000	4.59	5,890	8,340	133,000
February 16	1400	7.60	29,500	9,360	746,000
February 17	1130	5.58	10,900	23,900	703,000
February 18	0945	5.70	11,600	22,700	711,000
February 19	1000	6.45	17,300	29,600	1,380,000
February 19	1500	7.67	29,500	17,800	1,420,000
February 20	0815	5.97	10,500	15,300	434,000
February 20	1120	5.79	9,390	12,000	304,000
February 20	1600	6.43	13,400	14,600	528,000
February 21	0830	5.47	7,690	13,200	274,000
February 22	0830	5.53	7,990	18,700	403,000
February 23	1030	4.97	5,510	8,240	123,000
February 24	0900	4.87	5,130	9,650	134,000
February 25	0900	-	4,100	2,080	23,000
11118500 Ventura River near Ventura					
January 9	0850	3.32	43	78	9.1
January 9	0930	3.35	48	101	13
January 9	1310	3.47	67	303	55
January 9	1635	3.31	42	59	6.7
January 10	1330	3.18	30	36	2.9

TABLE 5. - Suspended-sediment data for selected gaging stations in southern California during January-February 1980--Continued

Date	Time (hours)	Gage height (ft)	Discharge (ft^3/s)	Suspended sediment	
				Concentration (mg/L)	Tons per day
11118500 Ventura River near Ventura (continued)					
January 11	0700	4.98	841	3,090	7,020
January 11	0925	4.33	406	1,240	1,360
January 11	1155	3.85	200	637	344
January 11	1634	3.39	73	168	33
January 12	0705	3.71	152	558	229
January 12	1215	3.51	100	111	30
January 13	0800	3.10	32	27	2.3
January 14	0905	3.18	43	45	5.2
January 14	1235	3.80	177	152	73
January 14	1610	3.56	109	81	24
January 15	1630	3.02	23	17	1.1
January 17	0915	2.90	15	22	.89
January 20	1220	2.86	12	15	.49
January 29	0700	3.90	211	524	299
January 29	0915	3.66	135	274	100
January 29	1650	3.35	66	57	10
January 30	0700	3.19	42	36	4.1
January 30	1615	3.18	39	22	2.3
February 14	1630	2.97	19	11	0.56
February 15	0700	3.60	119	722	232
February 15	0935	3.89	207	392	219
February 15	1645	3.34	64	109	19
February 16	0705	3.36	67	118	21
February 16	1220	7.80	6,700	16,700	302,000
February 17	0735	5.97	2,800	1,980	15,000
February 17	1210	5.45	1,980	1,090	5,830
February 17	1600	5.15	1,600	806	3.480
February 18	0815	6.70	4,660	2,290	28,800
February 18	1220	6.15	3,470	1,670	15,600
February 18	1610	5.87	2,960	1,360	10,900
February 19	0710	6.60	4,890	1,930	25,500
February 19	1210	7.72	7,800	4,180	88,000
February 19	1315	7.50	7,170	7,160	139,000
February 19	1640	7.00	5,860	3,570	56,500
February 20	1620	5.97	3,510	1,590	15,100
February 21	0705	6.18	3,910	1,330	14,000
February 21	1725	5.69	3,000	1,030	8,340
February 22	1650	5.02	1,970	533	2,840
February 23	1630	4.65	1,450	224	877
February 24	1530	4.36	1130	171	522
February 25	0730	4.26	1020	113	311

TABLE 6. - Summary of flood stages and discharges

Station No.	Stream and place of determination	Drainage area (mi^2)	Period of record	Maximum floods			
				Date	Gage height (ft)	Discharge	
						ft^3/s	$(ft^3/s)/mi^2$
	Panamint Valley						
10250800	Darwin Creek near Darwin	173	1962-80	Jan. 25, 1969	8.40	4,400	25
				Feb. 16, 1980	3.84	0.30	<1
	Bristol Lake basin						
10252550	Caruthers Creek near Ivanpah	1.13	1963-80	Oct. 1, 1976	4.95	583	516
				Feb. 16, 1980	2.70	51	45
	Salton Sea basin						
10254050	Salt Creek near Mecca	269	1961-80	Sept.24, 1976	14.3	9,900	37
				Feb. 21, 1980	9.44	1,250	4.6
10255700	San Felipe Creek near Julian	89.2	1958-80	Aug. 22, 1967	4.08	1,050	12
				Feb. 21, 1980	7.9	6,150	69
10255800	Coyote Creek near Borrego Springs	144	1950-80	Aug. 17, 1977		3,840	27
				Feb. 21, 1980	7.5	3,890	27
10255810	Borrego Palm Creek near Borrego Springs	21.8	1950-80	Aug. 15, 1977	7.5	2,160	99
				Feb. 21, 1980	5.57	540	25
10255850	Vallecito Creek near Julian	39.7	1963-80	Sept.10, 1976	6.30	1,160	29
				Feb. 21, 1980	6.22	600	15
10255885	San Felipe Creek near Westmorland	1,693	1960-80	Sept.10, 1976	19.0	100,000	59
				Feb. 21, 1980	8.65	3,100	1.8
10256000	Whitewater River at White Water	57.5	1948-80	Nov. 22, 1965	13.60	24,000	417
				Feb. 21, 1980	(a)	3,200	56
10256500	Snow Creek near White Water	10.8	1921, 1922-27, 1927-31, 1959-80	Jan. 25, 1969	27.4	13,000	1,204
				Jan. 30, 1980	3.32	365	34
10257600	Mission Creek near Desert Hot Springs	35.7	1967-80	Jan. 25, 1969	6.40	1,660	46
				Feb. 19, 1980	3.27	780	22
10257710	Chino Canyon Creek near Palm Springs	3.88	1974-80	Aug. 15, 1977	5.93	247	64
				Jan. 29, 1980		150	39
10258000	Tahquitz Creek near Palm Springs	16.8	1947-80	Nov. 22, 1965 and Jan.25,1969	10.34	2,900	173
				Feb. 18, 1980		1,690	101

See footnotes at end of table.

TABLE 6. - Summary of flood stages and discharges--Continued

Station No.	Stream and place of determination	Drainage area (mi^2)	Period of record	Maximum floods			
				Date	Gage height (ft)	Discharge	
						ft^3/s	$(ft^3/s)/mi^2$
	Salton Sea basin--Continued						
10258500	Palm Canyon Creek near Palm Springs	93.3	1930-42, 1947-80	Sept. 10, 1976	6.81	4,050	43
				Feb. 18, 1980	5.80	1,300	14
10259000	Andreas Creek near Palm Springs	8.61	1948-80	Aug. 31, 1954	7.11	1,960	228
				Feb. 18, 1980	4.40	450	52
10259200	Deep Creek near Palm Desert	30.6	1962-80	Sept. 10, 1976	7.84	7,100	232.0
				Feb. 21, 1980	5.21	1,150	38
10259300	Whitewater River at Indio	1,073	1966-80	Jan. 25, 1969	14.41	11,400	11
				Jan. 29, 1980		6,100	6
10259440	Whitewater River near Mecca	1,495	1960-80	Jan. 25, 1969	(a)	b2,500	1.7
				Jan. 29, 1980	9.8	5,500	3.7
10259920	Wasteway No. 1 near Mecca	(a)	1966-80	Aug. 18, 1917	(a)	586	(a)
				Jan. 30, 1980	2.27	291	
	Mojave River basin						
10260500	Deep Creek near Hesperia	134	1904-22, 1929-80	Mar. 2, 1938	(c)	46,600	348
				Feb. 17, 1980	10.60	16,400	122
10261000	West Fork Mojave River near Hesperia	70.3	1904-22, 1929-71, 1974-80	Mar. 2, 1978	(c)	26,100	371
				Feb. 17, 1980	(c)	b6,600	94
10261500	Mojave River at lower narrows, near Victorville	513	1899-1906, 1930-80	Mar. 2, 1938	23.7	70,600	138
				Feb. 17, 1980	(a)	15,500	30
10262000	Mojave River near Hodge	1,091	1930-32, 1970-80	Feb. 10, 1978	8.80	12,700	12
				Feb. 17, 1980	8.06		
10262500	Mojave River at Barstow	1,291	1930-80	Mar. 3, 1938	8.60	64,300	50
					4.04		
10263000	Mojave River at Afton	2,121	1929-32, 1952-80	Jan. 26, 1969	10.40	18,000	8.5
				Feb. 17, 1980	3.87	3,280	1.6
	Antelope Creek basin						
10263500	Big Rock Creek near Valyermo	22.9	1923-80	Mar. 2, 1938	(a)	8,300	362
				Feb. 16, 1980	5.00	1,510	66
10264600	Oak Creek near Mojave	15.8	1957-80	May 14, 1973	10.53	1,740	110
				Feb. 16, 1980	2.23	26	1.6

See footnotes at end of table.

TABLE 6. - Summary of flood stages and discharges--Continued

Station No.	Stream and place of determination	Drainage area (mi^2)	Period of record	Maximum floods			
				Date	Gage height (ft)	Discharge	
						ft^3/s	$(ft^3/s)/mi^2$
	Truckee River basin						
10336600	Upper Truckee River near Meyers	33.1	1960-80	Feb. 1, 1963	12.41	2,550	77
				Jan. 13, 1980	10.38	1,600	48
10336625	Fallen Leaf Lake near Camp Richardson	16.7	1968-80	Jan. 22, 1970	5.51		
				Jan. 13, 1980	5.85		
10336626	Taylor Creek near Camp Richardson	16.7	1968-80	Nov. 12, 1973	5.72	1,180	(a)
				Jan. 14, 1980	6.33	1,530	(a)
10336660	Blackwood Creek near Tahoe City	11.2	1960-80	Dec.22or24,1964	9.90	2,100	188
				Jan. 13, 1980	8.65	(c)	
10336676	Ward Creek at Hwy 89, near Tahoe Pines	9.70	1972-80	Nov. 12, 1973	6.65	800	82
				Jan. 13, 1980	7.76	1,450	149
10336780	Trout Creek near Tahoe Valley	36.7	1960-80	Feb. 1, 1963	11.14	535	15
				Jan. 13, 1980	10.24	337	9.2
10337500	Truckee River at Tahoe City	507	1900-80	June 19, 1969	9.32	2,630	(a)
				Jan. 13, 1980	3.46	145	(a)
10338000	Truckee River near Truckee	553	1944-61, 1977-80	Dec. 23, 1955	7.92	7,760	(a)
				Jan. 13, 1980	6.79	4,900	(a)
10338500	Donner Creek at Donner Lake, near Truckee	14.6	d1930-80	Nov. 21, 1950		b700	(a)
				Jan. 14, 1980	4.35	451	(a)
10339400	Martis Creek near Truckee	40.2	1958-80	Feb. 1, 1963	6.16	1,880	47
				Jan. 15, 1980	5.61	570	(a)
10340500	Prosser Creek below Prosser Creek Dam, near Truckee	53.2	d1902-80	Dec. 23, 1955	10.13	4,560	86
				Jan. 17, 1980	6.68	1,580	(a)
10343500	Sagehen Creek near Truckee	10.8	1953-80	Feb. 1, 1963	4.64	765	71
				Jan. 13, 1980	3.82	285	26
10346000	Truckee River at Farad	932	1899-1980	Nov. 21, 1950	14.5	17,500	(a)
				Jan. 14, 1980	9.70	8,150	(a)
	Honey Lake basin						
10356500	Susan River at Susanville	184	1950-80	Jan. 24, 1970	8.89	5,850	(a)
				Jan. 13, 1980	7.02	3,770	(a)
10358500	Willow Creek near Susanville	90.4	1950-80	Feb. 1, 1963	5.59	816	9.0
				Jan. 13, 1980	5.22	648	7.2

See footnotes at end of table.

TABLE 6. - Summary of flood stages and discharges--Continued

Station No.	Stream and place of determination	Drainage area (mi^2)	Period of record	Maximum floods			
				Date	Gage height (ft)	Discharge	
						ft^3/s	$(ft^3/s)/mi^2$
	Tijuana River basin						
11012000	Cottonwood Creek above Tecate Creek, near Dulzura	310	1936-80	Feb. 7, 1937	9.65	4,340	14
				Feb. 21, 1980	11.18	11,500	(a)
11012500	Campo Creek near Campo	85.0	1936-80	Feb. 6, 1937	4.80	880	10
				Feb. 20, 1980	4.31	627	7.4
11013000	Tijuana River near Dulzura	481	1936-80	Feb. 7, 1937	8.50	4,700	10
				Feb. 21, 1980	11.22	12,000	1.3
11013500	Tijuana River near Nestor	1,695	1914-15, 1936-80	Feb. 7, 1937	8.20	17,700	10
				Feb. 21, 1980		34,200	(a)
	Sweetwater River basin						
11015000	Sweetwater River near Descanso	45.4	1905-27, 1956-80	Feb. 16, 1927	13.2	11,200	247
				Feb. 20, 1980	12.31	6,750	149
	San Diego River basin						
11022500	San Diego River near Santee	377	1912-15, 1916-80	Jan. 27, 1916	(a)	70,200	186
				Feb. 21, 1980	12.98	9,370	25
	Los Penasquitos Creek basin						
11023250	Poway Creek near Poway	7.92	1977-80	Mar. 5, 1978	6.15	375	47
				Feb. 21, 1980	7.26	730	92
11023310	Rattlesnake Creek at Poway	8.13	1977-80	Jan. 10, 1978	1.20	285	35
				Feb. 21, 1980	2.87	1,400	172
11012225	Beeler Creek at Pomerado Road, near Poway	5.46	1976-80	Mar. 4, 1978	8.79	1,080	198
				Jan. 29, 1980	9.2	1,400	256
11023330	Los Penasquitos Creek below Poway Creek, near Poway	31.2	1970-80	Mar. 1, 1978	9.85	3,530	113
				Feb. 21, 1980	11.11	4,990	160
11023340	Los Penasquitos Creek near Poway	42.1	1964-80	Dec. 6, 1966	6.90	2,100	50
				Feb. 21, 1980	10.26	4,500	107

See footnotes at end of table.

TABLE 6. - Summary of flood stages and discharges--Continued

Station No.	Stream and place of determination	Drainage area (mi^2)	Period of record	Maximum floods			
				Date	Gage height (ft)	Discharge	
						ft^3/s	$(ft^3/s)/mi^2$
	San Dieguito River basin						
11025500	Santa Ysabel Creek near Ramona	112	1912-23, 1943-80	Jan. 27, 1916	14.0	28,400	254
				Feb. 21, 1980	14.25	10,500	94
11027000	Guejito Creek near San Pasqual	22.5	1946-80	Dec. 6, 1966	6.78	2,920	130
				Feb. 20, 1980	7.23	2,840	126
11028500	Santa Maria Creek near Ramona	57.6	1912-20, 1946-80	Jan. 27, 1916	14.1	7,140	124
				Feb. 21, 1980	14.10	15,200	264
	San Luis Rey River basin						
11031500	Agua Caliente Creek near Warner Springs	19.0	1961-80	Dec. 6, 1966	5.18	1,200	63
				Feb. 21, 1980	4.91	1,440	76
11033000	West Fork San Luis Rey River near Warner Springs	25.5	1913-15, 1956-80	Dec. 6, 1966	11.87	4,200	165
				Feb. 18, 1980	15.60	6,200	243
11037700	Pauma Creek near Pauma Valley	11.0	1964-80	Dec. 6, 1966	8.60	2,100	191
				Feb. 20, 1980	8.51	3,170	288
11040000	San Luis Rey River at Monserate Narrows, near Pala	373	1935-38, 1938-41, 1946-80	Dec. 6, 1966	6.70	7,000	19
				Feb. 21, 1980	9.96	15,500	42
11040200	Keys Creek tributary at Valley Center	7.65	1970-80	Mar. 4, 1978	7.44	1,050	137
				Feb. 20, 1980	8.80	1,500	196
11042000	San Luis Rey River at Oceanside	558	1912-14, 1916, 1929-42, 1946-80	Jan. 27, 1916	(a)	95,600	171
				Feb. 21, 1980	(c)	19,000	34
	Santa Margarita River basin						
11042400	Temecula Creek near Aguanga	131	1957-80	Apr. 3, 1958	6.57	3,540	27
				Feb. 20, 1980	12.0	3,400	26
11043000	Murrieta Creek at Temecula	222	1924-80	Jan. 23, 1978	13.82	17,500	79
				Feb. 20, 1980	13.7	21,800	98
11044000	Santa Margarita River near Temecula	588	1923-80	Feb. 16, 1927	14.6	25,000	43
				Feb. 20, 1980	16.5	22,000	37
11044500	Santa Margarita River near Fallbrook	644	1924-80	Feb. 16, 1927	15.6	33,100	51
				Feb. 21, 1980	18.8	22,000	34
11046000	Santa Margarita River at Ysidora	740	1923-80	Feb. 16, 1927	18.00	33,600	45
				Feb. 21, 1980	18.75	18,500	25

See footnotes at end of table.

TABLE 6. - Summary of flood stages and discharges--Continued

Station No.	Stream and place of determination	Drainage area (mi^2)	Period of record	Maximum floods			
				Date	Gage height (ft)	Discharge	
						ft^3/s	$(ft^3/s)/mi^2$
	San Juan Creek basin						
11046550	San Juan Creek at San Juan Capistrano	117	1969-80	Mar. 4, 1978	7.0	14,700	126
				Feb. 18, 1980	7.85	11,300	97
	San Diego Creek basin						
11048500	San Diego Creek at Sand Canyon Avenue, near Irvine	40.5	1949-80	Feb. 24, 1969	11.46	6,700	165
				Jan. 29, 1980	19.55	5,230	129
	Santa Ana River basin						
11051500	Santa Ana River near Mentone	210	1896-1980	Mar. 2, 1938	14.3	52,300	249
				Feb. 21, 1980	7.90	6,250	30
11054000	Mill Creek near Yucaipa	42.4	1919-38, 1947-80	Jan. 25, 1969	16.8	35,400	835
				Jan. 29, 1980	11.08	5,540	131
11055500	Plunge Creek near East Highlands	16.9	1919-80	Mar. 2, 1938	(a)	5,340	316
				Jan. 29, 1980	6.29	1,800	107
11055800	City Creek near Highland	19.6	1919-80	Feb. 25, 1969	9.39	7,000	357
				Jan. 29, 1980	8.44	2,800	143
11056500	Little San Gorgonio Creek near Beaumont	1.74	1948-80	Feb. 25, 1969	8.50	11,000	6,322
				Jan. 29, 1980	4.69	550	316
11057050	San Timoteo Creek near Redlands	118	1926-68, 1973-80	Mar. 2, 1938	(a)	7,460	63
				Jan. 29, 1980	(a)	2,240	19
11058500	East Twin Creek near Arrowhead Springs	8.80	1919-80	Mar. 2, 1938	(a)	3,360	382
				Jan. 29, 1980	8.35	3,550	403
11058600	Waterman Canyon Creek near Arrowhead Springs	4.65	1911-14, 1919-80	Mar. 2, 1938	(a)	2,350	505
				Jan. 29, 1980	5.08	850	183
11059000	Warm Creek Floodway at San Bernardino	47.8	1961-80	Feb. 25, 1969	6.75	9,600	201
				Jan. 29, 1980	4.92	2,540	53
11059300	Santa Ana River at E Street, near San Bernardino	532	1939-54, 1966-80	Feb. 25, 1969	1.9	28,000	53
				Jan. 29, 1980	11.11	22,000	41
11060400	Warm Creek near San Bernardino	15.0	1964-72, 1974-80	Mar. 1, 1978	(a)	b12,000	800
				Feb. 16, 1980	2.88	1,700	113
11062000	Lytle Creek near Fontana	46.3	1918-80	Jan. 25, 1969	15.0	35,900	775
				Jan. 29, 1980	10.55	6,490	140
11063000	Cajon Creek near Keenbrook	40.6	1919-71, 1977-80	Mar. 2, 1938	26.0	14,500	357
				Feb. 16, 1980	(a)	4,240	104

See footnotes at end of table.

TABLE 6. - Summary of flood stages and discharges--Continued

Station No.	Stream and place of determination	Drainage area (mi^2)	Period of record	Maximum floods			
				Date	Gage height (ft)	Discharge	
						ft^3/s	$(ft^3/s)/mi^2$
	Santa Ana River basin--Continued						
11063500	Lone Pine Creek near Keenbrook	15.1	1919-38, 1949-80	Mar. 2, 1938	(a)	6,180	409
				Feb. 16, 1980	5.91	713	47
11063600	Devil Canyon Creek near San Bernardino	5.49	1911-12, 1913-14, 1919-80	Jan. 25, 1969	5.40	3,720	678
				Feb. 16, 1980	6.27	492	90
11065000	Lytle Creek at Colton	172	1957-80	Mar. 4, 1978	14.8	17,500	102
				Feb. 16, 1980	8.90	8,070	47
11069500	San Jacinto River near San Jacinto	141	1920-27, 1927-80	Feb. 16, 1927	(a)	45,000	319
				Feb. 21, 1980	12.7	17,300	123
11070050	Bautista Creek at Valle Vista	47.2	1969-80	Aug. 17, 1977	2.96	1,050	22
				Feb. 21, 1980	(a)	11,400	242
11070500	San Jacinto River near Elsinore	723	1916-80	Feb. 17, 1927	11.8	16,000	22
				Feb. 17, 1980	9.50	6,800	9.4
11073200	San Antonio Creek below San Antonio Dam	26.9	1962-80	Jan. 25, 1969	11.22	8,420	313
				Feb. 21, 1980		2,050	76
11073360	Chino Creek at Schaefer Avenue, near Chino	48.9	1969-80	Mar. 1, 1978	9.66	6,190	127
				Feb. 16, 1980	7.07	1,260	26
11074000	Santa Ana River below Prado Dam	1,490	1930-39, 1940-80	Jan. 26, 1969	5.75	5,800	3.9
				Feb. 21, 1980	6.80	7,200	4.8
11075720	Carbon Creek below Carbon Canyon Dam	19.5	1961-80	Jan. 25, 1969	4.64	446	23
				Feb. 17, 1980	4.44	410	21
11075755	Santa Ana River at Ball Road, in Anaheim	1,587	1976-80	Mar. 4, 1978	4.92	7,300	4.6
				Feb. 16, 1980	5.02	16,000	10
11075800	Santiago Creek at Modjeska	12.5	1961-80	Feb. 25, 1969	10.50	6,520	522
				Feb. 16, 1980	9.35	1,810	145
11077500	Santiago Creek at Santa Ana	98.6	1928-80	Feb. 25, 1969	9.10	6,600	67
				Feb. 21, 1980	5.80	1,100	11
11078000	Santa Ana River at Santa Ana	1,700	1923-80	Mar. 3, 1938	10.20	46,300	27
				Feb. 16, 1980	(a)	18,000	11
	San Gabriel River basin						
11085000	San Gabriel River below Santa Fe Dam, near Baldwin Park	236	1942-80	Jan. 26, 1969	22.20	30,900	131
				Feb. 17, 1980	19.51	18,260	77
11087020	San Gabriel River above Whittier Narrows Dam	353	1955-57, 1963-80	Jan. 25, 1969	10.9	46,600	132
				Jan. 29, 1980	8.93	23,600	67

See footnotes at end of table.

TABLE 6. - Summary of flood stages and discharges--Continued

Station No.	Stream and place of determination	Drainage area (mi^2)	Period of record	Maximum floods			
				Date	Gage height (ft)	Discharge	
						ft^3/s	$(ft^3/s)/mi^2$
	San Gabriel River basin--Continued						
11088500	Brea Creek below Brea Dam, near Fullerton	21.6	1942-80	Mar. 4, 1978	6.34	1,060	49
				Feb. 16, 1980	7.4	1,240	57
11089500	Fullerton Creek below Fullerton Dam, near Brea	4.94	1941-80	Jan. 26, 1969	7.32	313	63
				Feb. 18, 1980	7.69	299	61
	Los Angeles River basin						
11092450	Los Angeles River at Sepulveda Dam	158	1929-38, 1938-80	Mar. 4, 1978	12.04	14,700	93
				Feb. 16, 1980	(a)	15,100	96
11098000	Arroyo Seco near Pasadena	16.0	1910-80	Mar. 2, 1938	9.42	8,620	539
				Feb. 16, 1980	6.30	3,410	213
11101250	Rio Hondo above Whittier Narrows Dam	91.2	1956-80	Jan. 25, 1969	7.23	17,700	194
				Feb. 16, 1980	7.35	18,200	200
11102300	Rio Hondo below Whittier Narrows Dam	124	1966-80	Jan. 25, 1969	13.82	38,800	313
				Feb. 14, 1980	10.50	23,700	191
				Feb. 16, 1980	13.2	35,800	289
11103000	Los Angeles River at Long Beach	827	1928-80	Jan. 25, 1969	16.00	102,000	123
				Feb. 16, 1980	17.96	125,000	151
	Santa Clara River basin						
11108500	Santa Clara River at Los Angeles-Ventura County line	625	1952-80	Jan. 25, 1969	19.01	68,800	110
				Feb. 16, 1980	6.50	13,900	22
11109250	Lockwood Creek at Gorge, near Stauffer	58.7	1971-80	Mar. 4, 1978	7.32	1,070	18
				Feb. 16, 1980	(a)	2,490	42
11109600	Piru Creek above Lake Piru	372	1955-80	Feb. 25, 1969	18.6	31,200	84
				Feb. 16, 1980	7.92	6,820	18
11111500	Sespe Creek near Wheeler Springs	49.5	1947-80	Feb. 10, 1978	14.18	10,700	216
				Feb. 16, 1980	10.82	6,780	137
11113000	Sespe Creek near Fillmore	251	1911-80	Feb. 10, 1978	22.40	73,000	291
				Feb. 16, 1980	19.53	33,200	132
11113500	Santa Paula Creek near Santa Paula	40.0	1927-80	Feb. 25, 1969	18.18	21,000	525
				Feb. 16, 1980	10.55	10,300	145
11114000	Santa Clara River at Montalvo	1,612	1927-80	Jan. 25, 1969	17.41	165,000	102
				Feb. 16, 1980	10.38	81,400	50

See footnotes at end of table.

TABLE 6. - Summary of flood stages and discharges--Continued

Station No.	Stream and place of determination	Drainage area (mi^2)	Period of record	Maximum floods			
				Date	Gage height (ft)	Discharge	
						ft^3/s	$(ft^3/s)/mi^2$
	Ventura River basin						
11115500	Matilija Creek at Matilija Hot Springs	54.6	1927-80	Jan. 25, 1969	16.5	20,000	366
				Feb. 16, 1980	11.24	10,200	187
11117800	Santa Ana Creek near Oak View	9.11	1958-80	Mar. 4, 1978	10.01	5,330	585
				Feb. 16, 1980	9.41	3,900	428
11118500	Ventura River near Ventura	188	1911-80	Feb. 10, 1978	19.14	63,600	338
				Feb. 16, 1980	14.8	39,000	207
	Carpenteria Creek basin						
11119500	Carpenteria Creek near Carpenteria	13.1	1941-78, 1979-80	Feb. 27, 1971	14.1	8,880	678
				Feb. 16, 1980	8.50	2,000	153
	San Ysidro Creek basin						
11119660	San Ysidro Creek at Montecito	3.07	1969, 1972-80	Feb. 9, 1978	(a)	300	98
				Feb. 16, 1980	(a)	590	192
	Sycamore Creek basin						
11119700	Sycamore Creek at Santa Barbara	3.41	1970-80	Feb. 9, 1978	4.65	1,120	328
				Feb. 16, 1980	4.83	530	155
	Mission Creek basin						
11119750	Mission Creek near Mission Street, at Santa Barbara	8.38	1970-80	Jan. 18, 1973	4.97	2,580	308
				Feb. 16, 1980	5.48	3,200	382
	Arroyo Burro Creek basin						
11119780	Arroyo Burro Creek at Santa Barbara	6.65	1970-80	Mar. 4, 1978	5.67	1,850	278
				Feb. 16, 1980	5.95	2,050	308
	Atascadero Creek basin						
11119940	Maria Ygnacio Creek at University Drive, near Goleta	6.31	1970-80	Jan. 16, 1978	5.87	1,650	261
				Feb. 16, 1980	3.69	769	122
11120000	Atascadero Creek near Goleta	18.9	1941-80	Jan. 18, 1973	13.1	5,380	285
				Feb. 16, 1980	10.27	4,360	231

See footnotes at end of table.

TABLE 6. - Summary of flood stages and discharges--Continued

Station No.	Stream and place of determination	Drainage area (mi^2)	Period of record	Maximum floods			
				Date	Gage height (ft)	Discharge	
						ft^3/s	$(ft^3/s)/mi^2$
	San Jose Creek basin						
11120500	San Jose Creek near Goleta	5.51	1941-80	Jan. 25, 1969	10.10	2,000	363
				Feb. 16, 1980	7.20	1,300	236
11120510	San Jose Creek at Goleta	9.42	1970-80	Mar. 4, 1978	5.65	2,330	247
				Feb. 16, 1980	4.50	1,400	149
	Gaviota Creek basin						
11120550	Gaviota Creek near Gaviota	18.8	1966-80	Jan. 24, 1967	8.40	4,000	213
				Feb. 16, 1980	8.13	2,400	128
	Jalama Creek basin						
11120600	Jalama Creek near Lompoc	20.5	1965-80	Mar. 4, 1978	11.34	4,020	196
				Feb. 16, 1980	8.36	2,200	107
	Santa Ynez River basin						
11123000	Santa Ynez River below Gilbraltar Dam, near Santa Barbara	216	1920-80	Jan. 25, 1969	25.8	54,200	251
				Feb. 16, 1980	18.50	19,500	90
11123500	Santa Ynez River below Los Laureles Canyon, near Santa Ynez	277	1947-80	Jan. 25, 1969	18.88	67,500	244
				Feb. 16, 1980	11.55	16,500	60
11124500	Santa Cruz Creek near Santa Ynez	74.0	1941-80	Feb. 24, 1969	14.45	7,050	95
				Feb. 16, 1980	11.15	2,540	34
11128250	Alamo Pintado Creek near Solvang	29.4	1970-80	Feb. 9, 1978	6.80	724	25
				Feb. 16, 1980	5.34	360	12
11128500	Santa Ynez River at Solvang	579	1928-80	Jan. 25, 1969	17.1	82,000	142
				Feb. 19, 1980	7.24	22,500	39
11129800	Zaca Creek near Buellton	32.8	1963-80	Feb. 24, 1969	9.20	1,390	42
				Feb. 16, 1980	3.83	96	2.9
11132500	Salsipuedes Creek near Lompoc	47.1	1941-80	Mar. 15, 1952	20.8	11,400	242
				Feb. 16, 1980	9.16	5,100	108
11133000	Santa Ynez River at narrows, near Lompoc	789	1947-80	Jan. 25, 1969	24.20	80,000	101
				Feb. 21, 1980	14.46	17,000	22
11134800	Miguelito Creek at Lompoc	11.6	1970-80	Mar. 4, 1978	5.17	538	46
				Feb. 16, 1980	6.30	786	68
11135000	Santa Ynez River at Pine Canyon, near Lompoc	844	1941-80	Jan. 25, 1969	24.91	78,000	92
				Feb. 21, 1980	8.75	15,600	18

See footnotes at end of table.

TABLE 6. - Summary of flood stages and discharges--Continued

Station No.	Stream and place of determination	Drainage area (mi^2)	Period of record	Maximum floods			
				Date	Gage height (ft)	Discharge	
						ft^3/s	$(ft^3/s)/mi^2$
	San Antonio Creek basin						
11135800	San Antonio Creek at Los Alamos	34.9	1970-80	Feb. 10, 1978	9.58	1,270	36
				Feb. 19, 1980	3.49	240	6.9
11136100	San Antonio Creek near Casmalia	135	1955-80	Mar. 4, 1978	13.22	3,440	25
				Feb. 19, 1980	9.16	1,100	8.2
	Santa Maria River basin						
11136800	Cuyama River below Buckhorn Canyon, near Santa Maria	886	1959-80	Feb. 25, 1969	13.70	17,800	20
				Feb. 19, 1980	8.44	2,350	2.6
11137900	Huasna River near Arroyo Grande	103	1959-80	Jan. 25, 1969	15.90	21,000	204
				Feb. 18, 1980	7.66	2,560	25
11138500	Sisquoc River near Sisquoc	281	1943-80	Dec. 6, 1966	15.75	23,200	83
				Feb. 19, 1980		5,120	18
11139500	Tepusquet Creek near Sisquoc	28.7	1943-80	Dec. 6, 1966	5.48	788	27
				Feb. 19, 1980	6.05	1,100	38
11140000	Sisquoc River near Garey	471	1940-80	Jan. 25, 1969	13.00	24,500	52
				Feb. 19, 1980	8.79	13,000	28
11141000	Santa Maria River at Guadalupe	1,741	1940-80	Jan. 16, 1952	8.18	32,800	19
				Feb. 20, 1980	7.40	9,700	(a)
	Carmel River basin						
11143200	Carmel River at Robles del Rio	193	1958-80	Apr. 2, 1958	10.50	7,100	(a)
				Feb. 19, 1980	10.14	6,300	(a)
11143250	Carmel River near Carmel	246	1963-80	Jan. 26, 1969	17.30	8,620	(a)
				Feb. 19, 1980	14.26	6,980	(a)
	Salinas River basin						
11144200	Salsipuedes Creek near Pozo	5.91	1970-80	Jan. 16, 1978	5.88	1,160	196
				Feb. 21, 1980	6.12	1,480	250
11147500	Salinas River at Paso Robles	390	1940-65, 1970-80	Jan. 18, 1973	14.61	14,600	(a)
				Feb. 18, 1980	15.15	16,100	(a)

See footnotes at end of table.

TABLE 6. - Summary of flood stages and discharges--Continued

Station No.	Stream and place of determination	Drainage area (mi^2)	Period of record	Maximum floods			
				Date	Gage height (ft)	Discharge	
						ft^3/s	$(ft^3/s)/mi^2$
	Pajaro River basin						
11153470	Llagas Creek above Chesbro Reservoir, near Morgan Hill	9.63	1972-80	Jan. 16, 1978	7.50	969	101
				Feb. 19, 1980	6.03	757	79
11153700	Pajaro River near Gilroy	399	1960-80	Jan. 25, 1969	14.63	12,900	(a)
				Feb. 21, 1980	15.27	14,800	(a)
11158900	Pescadero Creek near Chittenden	10.2	1971-80	Nov. 14, 1972	7.08	326	32
				Feb. 20, 1980	7.11	340	33
	San Lorenzo River basin						
11160020	San Lorenzo River near Boulder Creek	6.17	1969-80	Jan. 16, 1973	9.10	672	109
				Feb. 19, 1980	8.07	554	90
11160300	Zayante Creek at Zayante	11.1	1958-80	Jan. 14, 1978	8.52	4,620	416
				Feb. 19, 1980	7.84	3,950	356
	San Gregorio Creek basin						
11162570	San Gregorio Creek at San Gregorio	50.9	1970-80	Jan. 16, 1973	17.5	3,730	73
				Jan. 13, 1980	14.52	2,660	52
	Pilarcitos Creek basin						
11162630	Pilarcitos Creek at Half Moon Bay	27.2	1967-80	Jan. 30, 1968	11.20	1,290	(a)
				Feb. 19, 1980	9.58	997	(a)
	Colma Creek basin						
11162720	Colma Creek at South San Francisco	10.8	1964-80	Jan. 16, 1973	11.80	2,880	267
				Feb. 19, 1980	11.0	2,230	206
	San Francisquito Creek basin						
11164500	San Francisquito Creek at Stanford University	37.4	1931-41, 1951-80	Dec. 22, 1955	13.60	5,560	(a)
				Jan. 13, 1980	9.00	4,380	(a)

See footnotes at end of table.

TABLE 6. - Summary of flood stages and discharges--Continued

Station No.	Stream and place of determination	Drainage area (mi^2)	Period of record	Maximum floods			
				Date	Gage height (ft)	Discharge	
						ft^3/s	$(ft^3/s)/mi^2$
	Guadalupe River basin						
11169000	Guadalupe River at San Jose	144	1930-80	Apr. 2, 1958	16.55	9,150	(a)
				Feb. 19, 1980	13.65	7,900	(a)
11169500	Saratoga Creek at Saratoga	9.22	1934-80	Dec. 22, 1955	6.40	2,730	296
				Feb. 19, 1980	6.89	1,600	174
	Coyote Creek basin						
11172100	Upper Penitencia Creek at San Jose	21.5	1962-80	Jan. 21, 1967	6.24	1,500	(a)
				Feb. 19, 1980	6.35	1,630	(a)
	Alameda Creek basin						
11173200	Arroyo Hondo near San Jose	77.1	1969-80	Jan. 26, 1969	10.94	4,620	60
				Feb. 19, 1980	12.36	6,200	80
11174600	Alamo Canal near Pleasanton	(a)	1980	Jan. 13, 1980	13.4	4,340	(a)
11176000	Arroyo Mocho near Livermore	38.2	1912-30, 1964-80	Mar. 5, 1978	7.66	1,680	44
				Feb. 19, 1980	9.14	1,210	32
11176100	Altamont Creek near Livermore	13.4	1979-80	Feb. 21, 1979	2.07	65	4.8
				Jan. 13, 1980	3.07	410	31
11176180	Arroyo Las Positas at El Charro Road, near Pleasanton	75.0	1978-80	Jan. 17, 1978	(a)	860	11
				Feb. 19, 1980	7.28	1,350	18
11176300	Tassajara Creek near Pleasanton	26.8	1979-80	Feb. 22, 1979	4.55	296	11
				Jan. 13, 1980	8.5	750	28
11176400	Arroyo Valle below Lang Canyon, near Livermore	130	1964-80	Jan. 25, 1969	8.90	5,340	41
				Feb. 19, 1980	5.40	5,120	39
11177000	Arroyo de la Laguna near Pleasanton	405	1912-30, 1970-80	Jan. 25, 1914	(a)	9,810	(a)
				Jan. 13, 1980	17.17	5,810	(a)
11180700	Patterson Creek at Union City	(a)	1959-80	Feb. 1, 1963	20.4	10,500	(a)
				Feb. 19, 1980	e14.71	10,900	(a)

See footnotes at end of table.

TABLE 6. - Summary of flood stages and discharges--Continued

Station No.	Stream and place of determination	Drainage area (mi^2)	Period of record	Maximum floods			
				Date	Gage height (ft)	Discharge	
						ft^3/s	$(ft^3/s)/mi^2$
	San Lorenzo Creek basin						
11181008	Castro Valley Creek at Hayward	5.51	1972-80	Feb. 27, 1973	7.15	665	121
				Oct. 25, 1979	7.11	661	120
	Castro Creek basin						
11181390	Wildcat Creek at Vale Road, at Richmond	7.79	1976-80	Feb. 22, 1979	7.61	1,030	132
				Feb. 19, 1980	9.53	1,640	211
	Arroyo Del Hambre basin						
11182400	Arroyo del Hambre at Martinez	15.1	1965-80	Jan. 18, 1973	10.93	1,960	130
				Feb. 19, 1980	10.75	1,920	127
	Pacheco Creek basin						
11183000	San Ramon Creek at Walnut Creek	47.9	1953-80	Jan. 31, 1963	14.40	7,980	167
				Jan. 13, 1980	8.32	8,390	175
11183600	Walnut Creek at Concord	85.1	1969-80	Feb. 27, 1973	14.0	8,000	94
				Jan. 13, 1980	11.57	6,130	72
11183700	Little Pine Creek near Alamo	1.22	1975-80	Jan. 16, 1978	2.18	86	70
				Jan. 13, 1980	1.95	51	42
	Tulare Lake basin						
11197800	Poso Creek near Oildale	230	1959-80	Feb. 25, 1969	12.85	6,700	29
				Jan. 14, 1980	11.45	2,160	9.4
11209900	Kaweah River at Three Rivers	418	1958-80	Dec. 5, 1966	16.69	73,000	175
				Jan. 12, 1980	12.39	23,600	56
11210100	South Fork Kaweah River at Three Rivers	86.7	1958-80	Dec. 6, 1966	9.30	11,600	134
				Jan. 13, 1980	6.41	5,060	58
11211300	Dry Creek near Lemoncove	75.6	1959-80	Dec. 6, 1966	7.30	14,500	192
				Feb. 20, 1980	6.89	2,800	37
11211790	Cottonwood Creek near Elderwood	60.4	1971-80	Apr. 1, 1974	5.56	1,660	27
				Feb. 20, 1980	7.65	1,570	26

See footnotes at end of table.

TABLE 6. - Summary of flood stages and discharges--Continued

Station No.	Stream and place of determination	Drainage area (mi^2)	Period of record	Maximum floods			
				Date	Gage height (ft)	Discharge	
						ft^3/s	$(ft^3/s)/mi^2$
	Tulare Lake basin--Continued						
11212000	Sand Creek near Orange Cove	31.6	1971-80	Feb. 10, 1978	5.78	1,050	33
				Feb. 21, 1980	4.85	461	15
11221700	Mill Creek near Piedra	127	1957-80	Dec. 6, 1966	9.53	11,000	87
				Jan. 13, 1980	7.02	6,050	48
	San Joaquin River basin						
11242400	North Fork Willow Creek near Sugar Pine	16.9	1965-80	Dec. 6, 1966	5.90	1,600	95
				Jan. 13, 1980	7.41	2,750	163
11257500	Fresno River near Knowles	133	1915-80	Dec. 23, 1955	11.52	13,300	100
				Jan. 14, 1980	8.99	6,680	50
11258980	Chowchilla River near Raymond	201	1971-80	Mar. 4, 1978	15.92	10,100	50
				Jan. 13, 1980	14.13	8,210	41
11272500	Merced River near Stevinson	1,273	1940-80	Dec. 5, 1950	73.79	13,600	(a)
				Mar. 7, 1980	70.04	5,660	(a)
11274000	San Joaquin River near Newman	9,520	1912-80	Feb. 26, 1969	65.90	28,000	(a)
				Feb. 25, 1980	65.26	24,000	(a)
11274500	Orestimba Creek near Newman	134	1932-80	Apr. 2, 1958	6.57	10,200	76
				Feb. 16, 1980	8.48	5,210	39
11274630	Del Puerto Creek near Patterson	72.6	1958-80	Feb. 16, 1959	14.68	1,800	25
				Feb. 19, 1980	7.58	1,490	21
11284400	Big Creek above Whites Gulch, near Groveland	16.4	1969-80	Feb. 9, 1978	5.84	1,260	77
				Jan. 13, 1980	6.51	1,450	88
11284700	North Fork Tuolumne River near Long Barn	23.1	1962-80	Jan. 21, 1969	7.61	1,670	72
				Jan. 13, 1980	8.85	2,600	113
11289650	Tuolumne River below LaGrange Dam, near La Grange	1,538	1970-80	Jan. 30, 1975	10.82	4,800	(a)
				Mar. 17, 1980	12.98	7,330	(a)
11290000	Tuolumne River at Modesto	1,884	1940-80	Dec. 9, 1950	69.19	57,000	(a)
				Jan. 18, 1980	54.40	8,730	(a)

See footnotes at end of table.

TABLE 6. - Summary of flood stages and discharges--Continued

Station No.	Stream and place of determination	Drainage area (mi^2)	Period of record	Maximum floods			
				Date	Gage height (ft)	Discharge	
						ft^3/s	$(ft^3/s)/mi^2$
	San Joaquin River basin--Continued						
11292500	Clark Fork Stanislaus River near Dardanelle	67.5	1950-80	Nov. 20, 1950	11.88	4,350	64
				Jan. 13, 1980	8.24	1,900	28
11292700	Middle Fork Stanislaus River at Hells Half Acre Bridge, near Pinecrest	287	1956-80	Dec. 24, 1964	13.64	10,200	(a)
				Jan. 13, 1980	12.87	8,680	(a)
11292900	Middle Fork Stanislaus River below Beardsley Dam	316	1956-80	May 24, 1969	11.07	6,630	(a)
				Feb. 18, 1980	8.82	3,200	(a)
11302000	Stanislaus River below Goodwin Dam, near Knights Ferry	986	1957-80	Dec. 24, 1964	28.85	40,200	(a)
				Jan. 16, 1980	13.90	5,080	(a)
11303000	Stanislaus River at Ripon	1,075	1940-80	Dec. 24, 1955	63.25	62,500	(a)
				Jan. 20, 1980	53.57	4,720	(a)
11303500	San Joaquin River near Vernalis	13,536	1922-80	Dec. 9, 1950	32.81	79,000	(a)
				Feb. 27, 1980	30.19	33,900	(a)
11308900	Calaveras River below New Hogan Dam, near Valley Springs	363	1961-80	Jan.25,26,1969	7.46	7,830	(a)
				Jan. 22, 1980	10.50	10,000	(a)
11316800	Forest Creek near Wilseyville	20.8	1960-80	Dec. 24, 1964	7.68	1,770	85
				Jan. 13, 1980	7.21	1,470	71
11317000	Middle Fork Mokelumne River at West Point	68.4	1911-80	Dec. 23, 1955	8.98	4,320	63
				Jan. 13, 1980	8.25	4,000	58
11318500	South Fork Mokelumne River near West Point	75.1	1933-80	Dec. 23, 1955	14.80	6,920	92
				Jan. 13, 1980	10.78	5,540	74
11319500	Mokelumne River near Mokelumne Hill	544	1927-80	Dec. 3, 1950	23.5	33,700	(a)
				Jan. 13, 1980	21.48	26,900	(a)
11325500	Mokelumne River at Woodbridge	661	1924-80	Nov. 22, 1950	29.58	27,000	(a)
				Jan. 20, 1980	21.44	3,870	(a)
11333000	Camp Creek near Somerset	62.6	1954-80	Dec. 23, 1964	12.50	6,040	(a)
				Jan. 13, 1980	11.76	5,200	(a)

See footnotes at end of table.

TABLE 6. - Summary of flood stages and discharges--Continued

Station No.	Stream and place of determination	Drainage area (mi^2)	Period of record	Maximum floods			
				Date	Gage height (ft)	Discharge	
						ft^3/s	$(ft^3/s)/mi^2$
	San Joaquin River basin--Continued						
11333500	North Fork Cosumnes River near El Dorado	205	1948-80	Dec. 23, 1955	14.80	15,800	77
				Jan. 14, 1980	13.81	13,900	68
11335000	Cosumnes River at Michigan Bar	536	1907-80	Dec. 23, 1955	14.59	42,000	78
				Jan. 13, 1980	13.12	33,900	63
11336000	Cosumnes River at McConnell	724	1941-80	Dec. 23, 1955	46.26	54,000	75
				Jan. 14, 1980	47.33	26,000	36
11336580	Morrison Creek near Sacramento	53.4	1959-80	Jan. 26, 1969	8.53	1,610	30
				Feb. 19, 1980	7.12	1,440	27
11337500	Marsh Creek near Byron	42.6	1953-80	Jan. 31, 1963	11.62	3,880	91
				Jan. 13, 1980	9.44	2,160	51
	Sacramento River basin						
11341400	Sacramento River near Mt. Shasta	135	1959-80	Dec. 22, 1964	15.60	12,200	90
				Feb. 18, 1980	6.59	2,310	(a)
11342000	Sacramento River at Delta	425	1944-80	Jan. 16, 1974	27.20	69,800	(a)
				Feb. 17, 1980	14.22	20,400	(a)
11345500	South Fork Pit River near Likely	247	1928-80	Jan. 2, 1971	6.05	1,620	(a)
				Jan. 14, 1980	3.40	234	(a)
11348500	Pit River near Canby	1,431	d1904-80	Mar. 8, 1904	15.0	13,000	9.1
				Jan. 14, 1980	10.53	5,880	(a)
11349000	Pit River near Lookout	1,585	d1929-80	Jan. 24, 1970	20.96	10,900	(a)
				Jan. 14, 1980	19.27	8,030	(a)
11355010	Pit River below Pit no. 1 powerhouse, near Fall River Mills	3,761	1975-80	Apr. 8, 1978	8.36	4,290	(a)
				Jan. 16, 1980	14.78	19,900	(a)
11355500	Hat Creek near Hat Creek	162	1930-80	Dec. 11, 1937	7.75	3,320	20
				Jan. 13, 1980	4.34	437	2.7

See footnotes at end of table.

TABLE 6. - Summary of flood stages and discharges--Continued

Station No.	Stream and place of determination	Drainage area (mi^2)	Period of record	Maximum floods			
				Date	Gage height (ft)	Discharge	
						ft^3/s	$(ft^3/s)/mi^2$
	Sacramento River basin--Continued						
11371000	Clear Creek at French Gulch	115	1950-80	Jan. 16, 1974	14.99	14,600	127
				Feb. 17, 1980	11.47	6,290	55
11372000	Clear Creek near Igo	228	1940-80	Dec. 21, 1955	13.75	24,500	107
				Feb. 17, 1980	7.16	3,760	(a)
11374000	Cow Creek near Millville	425	1949-80	Dec. 27, 1951	21.55	45,200	106
				Jan. 13, 1980	15.75	26,200	62
11375810	Cottonwood Creek near Olinda	395	1971-80	Jan. 16, 1974	21.44	36,900	93
				Feb. 17, 1980	16.73	18,400	47
11375870	South Fork Cottonwood Creek near Olinda	371	1976-80	Jan. 9, 1978	10.86	16,500	44
				Feb. 17, 1980	9.35	12,100	33
11376000	Cottonwood Creek near Cottonwood	927	1940-80	Jan. 16, 1974	20.15	70,000	76
				Feb. 17, 1980	17.27	36,300	39
11376550	Battle Creek below Coleman Fish Hatchery, near Cottonwood	357	1961-80	Jan. 24, 1970	14.75	24,300	68
				Jan. 13, 1980	9.59	9,700	27
11377100	Sacramento River above Bend Bridge, near Red Bluff	8,900	1892-1980	Feb. 28, 1940	38.90	291,000	33
				Feb. 19, 1980	27.64	104,000	(a)
11379000	Antelope Creek near Red Bluff	123	1940-80	Jan. 23, 1970	17.95	17,200	140
				Jan. 13, 1980	12.81	6,580	53
11379500	Elder Creek near Paskenta	92.4	1948-80	Feb. 24, 1958	13.90	11,700	127
				Feb. 17, 1980	9.93	6,730	73
11381500	Mill Creek near Los Molinos	131	1928-80	Dec. 11, 1937	23.40	36,400	278
				Jan. 13, 1980	12.05	10,200	78
11382000	Thomes Creek at Paskenta	203	1920-80	Dec. 22, 1964	11.40	37,800	186
				Jan. 13, 1980	10.10	16,400	81
11382090	Thomes Creek at Rawson Road Bridge, near Richfield	284	1977-80	Jan. 14, 1978	14.22	10,300	36
				Jan. 13, 1980	14.77	15,100	53
11383500	Deer Creek near Vina	208	1939-80	Dec. 10, 1937	19.20	23,800	114
				Jan. 13, 1980	11.07	9,690	47

See footnotes at end of table.

TABLE 6. - Summary of flood stages and discharges--Continued

Station No.	Stream and place of determination	Drainage area (mi^2)	Period of record	Maximum floods			
				Date	Gage height (ft)	Discharge	
						ft^3/s	$(ft^3/s)/mi^2$
	Sacramento River basin--Continued						
11384000	Big Chico Creek near Chico	72.4	1930-80	Jan. 5, 1965	15.36	9,580	132
				Jan. 12, 1980	11.10	5,410	75
11384600	Little Stony Creek above East Park Reservoir, near Lodoga	45.6	1966-80	Jan. 23, 1970	11.39	4,000	88
				Jan. 13, 1980	10.40	3,630	80
11388000	Stony Creek below Black Butte Dam, near Orland	738	1955-80	Feb. 24, 1958	11.82	36,300	(a)
				Feb. 20, 1980	10.00	15,200	(a)
11389950	Little Butte Creek at Magalia	11.4	1968-80	Jan. 24, 1970	6.47	1,180	(a)
				Feb. 19, 1980	5.62	687	
11390000	Butte Creek near Chico	147	1930-80	Dec. 22, 1964	14.12	21,200	144
				Feb. 19, 1980	9.75	8,870	60
11390660	Walker Creek at Artois	60.4	1965-80	Feb. 7, 1973	11.69	5,660	94
				Feb. 19, 1980	10.3	4,090	68
11391460	Berry Creek near Sattley	7.54	1973-80	Nov. 12, 1973	3.80	125	17
				Jan. 13, 1980	4.18	199	26
11394500	Middle Fork Feather River near Merrimac	1,062	1951-80	Dec. 22, 1964	26.50	86,200	81
				Jan. 13, 1980	19.52	50,700	48
11396400	Sucker Run near Forbestown	18.7	1965-80	Jan. 21, 1967	6.03	1,320	71
				Jan. 13, 1980	5.22	899	48
11401500	Indian Creek near Crescent Mills	739	d1906-80	Mar. 19, 1907	20.20	25,000	34
				Jan. 14, 1980	15.65	17,300	(a)
11402000	Spanish Creek above Blackhawk Court, at Keddie	184	1933-80	Dec. 22, 1964	13.53	15,400	84
				Jan. 13, 1980	12.29	12,700	69
11405300	West Branch Feather River near Paradise	110	1957-80	Dec. 22, 1964	26.20	26,300	239
				Jan. 13, 1980	18.01	12,600	115
11407900	Middle Yuba River below Jackson Meadow Dam, near Sierra City	38.3	1964-80	Sept. 1, 1965	6.60	2,300	(a)
				Jan. 13, 1980	4.31	171	(a)
11408850	Middle Yuba River near Camptonville	136	1967-80	Jan. 21, 1970	14.80	12,300	(a)
				Jan. 13, 1980	16.00	15,500	(a)

See footnotes at end of table.

TABLE 6. - Summary of flood stages and discharges--Continued

Station No.	Stream and place of determination	Drainage area (mi^2)	Period of record	Maximum floods			
				Date	Gage height (ft)	Discharge	
						ft^3/s	$(ft^3/s)/mi^2$
	Sacramento River basin--Continued						
11408880	Middle Yuba River below Our House Dam, near Camptonville	145	1968-80	Jan. 21, 1970 Jan. 13, 1980	20.70 23.01	12,500 14,800	(a) (a)
11409300	Oregon Creek at Camptonville	23.0	1967-80	Jan. 21, 1970 Jan. 13, 1980	10.07 10.83	3,130 3,830	136 167
11409400	Oregon Creek below Log Cabin Dam, near Comptonville	29.1	1968-80	Jan. 21, 1970 Jan. 13, 1980	7.02 9.77	4,180 4,860	(a) (a)
11413000	North Yuba River below Goodyears Bar	250	1930-80	Feb. 1, 1963 Jan. 13, 1980	25.80 20.0	40,000 b31,000	160 124
11413100	North Yuba River above Slate Creek, near Strawberry Valley	351	1968-80	Jan. 22, 1970 Jan. 13, 1980	19.91 22.12	35,800 43,600	102 124
11414000	South Yuba River near Cisco	51.8	1942-80	Jan. 31, 1963 Jan. 13, 1980	19.60 14.27	18,400 9,320	355 180
11416500	Canyon Creek below Bowman Lake	28.3	1927-80	Jan. 22, 1970 Jan. 18, 1980	9.42 4.91	3,740 202	(a) (a)
11417500	South Yuba River at Jones Bar, near Grass Valley	308	1959-80	Dec. 22, 1964 Jan. 14, 1980	25.0 16.16	53,600 17,100	(a) (a)
11418500	Deer Creek near Smartville	84.6	1935-80	Oct. 13, 1962 Feb. 19, 1980	13.77 11.37	11,600 7,550	(a) (a)
11420700	Dry Creek near Browns Valley	87.1	1964-80	Jan. 21, 1969 Feb. 19, 1980	10.38 9.54	5,950 4,620	(a) (a)
11421000	Yuba River near Marysville	1,339	1943-80	Dec. 22, 1964 Jan. 19, 1980	90.15 75.58	180,000 46,900	(a) (a)
11424000	Bear River near Wheatland	292	1928-80	Dec. 22, 1955 Feb. 19, 1980	19.30 16.07	33,000 16,400	113 (a)
11428000	Rubicon River at Rubicon Springs, near Meeks Bay	31.4	1956-80	Feb. 1, 1963 Jan. 13, 1980	14.28 10.28	11,500 5,270	(a) (a)
11430000	South Fork Rubicon River below Gerle Creek, near Georgetown	47.6	1961-80	Jan. 31, 1963 Jan. 13, 1980	12.32 11.34	11,500 8,580	242 (a)

See footnotes at end of table.

TABLE 6. - Summary of flood stages and discharges--Continued

Station No.	Stream and place of determination	Drainage area (mi^2)	Period of record	Maximum floods			
				Date	Gage height (ft)	Discharge	
						ft^3/s	$(ft^3/s)/mi^2$
	Sacramento River basin--Continued						
11431800	Pilot Creek above Stumpy Meadows Lake	11.7	1960-80	Dec. 23, 1964	5.92	2,380	203
				Jan. 13, 1980	6.31	2,490	213
11433040	Pilot Creek below Mutton Canyon, near Georgetown	21.1	1961-80	Dec. 22, 1964	9.6	5,430	(a)
				Jan. 13, 1980	9.35	4,010	(a)
11433100	Long Canyon Creek near French Meadows	18.0	1960-80	Dec. 23, 1964	11.20	4,690	261
				Jan. 13, 1980	10.05	4,700	(a)
11433200	Rubicon River near Foresthill	315	1958-80	Feb. 1, 1963	35.0	83,000	263
				Jan. 13, 1980	19.65	37,000	(a)
11433260	North Fork of Middle Fork American River near Foresthill	88.9	1965-80	Jan. 21, 1970	12.80	13,600	153
				Jan. 13, 1980	17.00	30,100	339
11433300	Middle Fork American River near Foresthill	524	1958-80	Dec. 23, 1964	f69.0	310,000	(a)
				Jan. 13, 1980	19.57	66,000	(a)
11433420	Maine Bar Canyon Creek near Greenwood	0.76	1972-80	Jan. 5, 1978	1.95	115	151
				Jan. 13, 1980	2.35	263	346
11439500	South Fork American River near Kyburz	193	1922-80	Dec. 23, 1964	10.92	17,400	90
				Jan. 13, 1980		12,300	64
11441500	South Fork Silver Creek near Ice House	27.5	1959-80	Jan. 22, 1970	5.66	1,800	(a)
				Jan. 15, 1980	4.57	557	(a)
11441900	Silver Creek below Camino diversion dam	171	1960-80	Jan. 31, 1963	11.28	19,300	(a)
				Jan. 13, 1980	10.43	14,000	(a)
11442500	South Fork American River below Silver Creek, near Pollock Pines	449	1969-80	Jan. 21, 1970	15.22	22,200	(a)
				Jan. 13, 1980	17.83	29,500	(a)
11443500	South Fork American River near Camino	493	1922-80	Dec. 23, 1955	32.6	49,800	(a)
				Jan. 13, 1980	21.53	30,900	(a)
11444500	South Fork American River near Placerville	598	1964-80	Dec. 23, 1964	17.4	47,300	(a)
				Jan. 13, 1980	16.5	42,400	(a)
11445500	South Fork American River near Lotus	673	1951-80	Dec. 23, 1955	21.37	71,800	(a)
				Jan. 14, 1980	18.86	53,300	(a)

See footnotes at end of table.

TABLE 6. - Summary of flood stages and discharges--Continued

Station No.	Stream and place of determination	Drainage area (mi^2)	Period of record	Maximum floods			
				Date	Gage height (ft)	Discharge	
						ft^3/s	$(ft^3/s)/mi^2$
	Sacramento River basin--Continued						
11446500	American River at Fair Oaks	1,888	1953-80	Dec.23-25,1964	27.65	115,000	(a)
				Jan. 15, 1980	23.27	84,800	(a)
11451100	North Fork Cache Creek at Hough Springs, near Clearlake Oaks	60.2	1972-80	Jan. 16, 1974	9.23	7,980	133
				Jan. 13, 1980	7.77	5,480	91
11452500	Cache Creek at Yolo	1,139	1903-80	Feb. 25, 1958	85.35	41,400	36
				Feb. 19, 1980	74.05	21,400	19
11453000	Yolo Bypass near Woodland	-	1939-80	Feb. 8, 1942	32.00	272,000	
				Feb. 22, 1980	29.96	186,000	
	Napa River basin						
11455900	Napa River at Calistoga	21.9	1976-80	Jan. 16, 1978	17.21	4,400	201
				Feb. 17, 1980	14.29	3,190	146
11458000	Napa River near Napa	218	1930-32,	Jan. 31, 1963	27.59	16,900	78
			1960-80	Feb. 18, 1980	20.32	13,600	62
11458100	Milliken Creek near Napa	17.3	1971-80	Jan. 16, 1978	8.47	2,770	160
				Feb. 19, 1980	9.36	3,160	183
11458350	Tulucay Creek at Napa	12.6	1972-80	Jan. 11, 1979	5.32	1,580	125
				Feb. 19, 1980	5.96	2,020	160
	Petaluma Creek basin						
11459300	San Antonio Creek near Petaluma	28.9	1976-80	Jan. 14, 1978	13.98	3,140	109
				Dec. 24, 1979	14.36	3,300	114
	Novato Creek basin						
11459500	Novato Creek at Novato	17.6	1947-80	Jan. 14, 1970	11.01	2,000	(a)
				Feb. 20, 1980	11.94	2,380	(a)
	Arroyo Corte Madera del Presidio basin						
11460100	Arroyo Corte Madera del Presidio at Mill Valley	4.69	1966-73,	Jan. 21, 1970	7.52	1,180	252
			1976-80	Jan. 11, 1980	6.55	776	165

See footnotes at end of table.

TABLE 6. - Summary of flood stages and discharges--Continued

Station No.	Stream and place of determination	Drainage area (mi^2)	Period of record	Maximum floods			
				Date	Gage height (ft)	Discharge	
						ft^3/s	$(ft^3/s)/mi^2$
	Lagunitas Creek basin						
11460600	Lagunitas Creek near Point Reyes Station	81.7	1975-80	Mar. 21, 1975	16.39	7,210	(a)
				Jan. 12, 1980	18.72	9,290	(a)
	Russian River basin						
11464400	Dry Creek near Yorkville	56.0	1974-80	Jan. 16, 1974	13.50	15,400	275
				Feb. 17, 1980	9.94	7,160	128
11464860	Warm Springs Creek near Asti	12.2	1974-80	Jan. 14, 1978	9.82	2,320	190
				Jan. 13, 1980	8.71	1,670	137
	Eel River basin						
11477000	Eel River at Scotia	3,113	1911-80	Dec. 23, 1964	72.0	752,000	242
				Jan. 14, 1980	40.57	226,000	73
-	Eel River at Fernbridge		1971-80	Dec. 23, 1964	29.5	(g)	
				Jan. 14, 1980	20.36	(g)	
	Klamath River basin						
11516530	Klamath River below Iron Gate Dam	4,630	1960-80	Dec. 22, 1964	13.63	29,400	(a)
				Jan. 13, 1980	8.12	8,580	(a)
11517500	Shasta River near Yreka	793	1944-80	Dec. 22, 1964	12.92	21,500	(a)
				Jan. 13, 1980	7.52	3,070	(a)
11519500	Scott River near Fort Jones	653	1941-80	Dec. 22, 1964	25.34	54,600	84
				Jan. 13, 1980	15.85	13,100	20
11520500	Klamath River near Seiad Valley	6,940	1951-80	Dec. 23, 1964	33.75	165,000	(a)
				Jan. 14, 1980	17.49	41,400	(a)
11521500	Indian Creek near Happy Camp	120	1956-80	Dec. 22, 1964	24.30	39,000	325
				Jan. 12, 1980	13.34	10,800	90
11523200	Trinity River above Coffee Creek, near Trinity Center	149	1957-80	Jan. 16, 1974	12.96	26,500	178
				Feb. 18, 1980	9.74	5,580	37
11525600	Grass Valley Creek at Fawn Lodge, near Lewiston	30.8	1975-80	Apr. 8, 1976	4.91	115	3.7
				Feb. 17, 1980	7.71	998	32

See footnotes at end of table.

TABLE 6. - Summary of flood stages and discharges--Continued

Station No.	Stream and place of determination	Drainage area (mi^2)	Period of record	Maximum floods			
				Date	Gage height (ft)	Discharge	
						ft^3/s	$(ft^3/s)/mi^2$
	Smith River basin						
11532500	Smith River near Crescent City	609	1932-80	Dec. 22, 1964	48.5	228,000	374
				Nov. 24, 1979	29.94	76,500	126
				Jan. 13, 1980	28.32	65,900	108
				Mar. 14, 1980	28.62	67,800	111
	Smith River near Fort Dick		1976-80	Dec. 14, 1977	31.5	(g)	
				Nov. 24, 1979	29.70	(g)	
				Mar. 15, 1980	29.04	(g)	

a. Not determined or not applicable.
b. Estimated.
c. Backwater.
d. Intermittent.
e. Channel enlarged between events.
f. Caused by overtopping the partly constructed Hell Hole Dam.
g. Stage only; flood warning gage.

GPO 689-143/18