

Floods of January-February 1963 in California and Nevada

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1830-A

*Prepared in cooperation with the
States of California and Nevada
and other agencies*



Floods of January-February 1963 in California and Nevada

By L. E. YOUNG and E. E. HARRIS

FLOODS OF 1963 IN THE UNITED STATES

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1830-A

*Prepared in cooperation with the
States of California and Nevada
and other agencies*



UNITED STATES DEPARTMENT OF THE INTERIOR

STEWART L. UDALL, *Secretary*

GEOLOGICAL SURVEY

William T. Pecora, *Director*

CONTENTS

	Page
Abstract.....	Al
Introduction.....	1
Acknowledgments.....	3
Precipitation.....	4
The Great Basin.....	9
Central-coastal California.....	10
San Joaquin Valley.....	11
Sacramento Valley.....	13
North-coastal California.....	15
General description of floods.....	15
The Great Basin.....	16
Central-coastal California.....	19
San Joaquin Valley.....	23
Sacramento Valley.....	27
North-coastal California.....	32
Flood damage.....	33
Storage regulation.....	36
Flood frequencies.....	38
Determination of flood discharge.....	45
Streamflow data.....	46
Explanation of data.....	46
Station data.....	72
References cited.....	466
Index.....	467

ILLUSTRATIONS

	Page
PLATE 1. Map showing location of January-February 1963 flood-data sites.....	In pocket
FIGURE 1. Map showing area described in this report.....	A2
2. Isohyetal map for storm of January 29-February 1, 1963..	6
3-8. Graphs showing cumulative precipitation at representative points:	
3. In the Great Basin.....	9
4. In central-coastal California.....	10
5. In San Joaquin Valley.....	11
6. In Sacramento Valley.....	12
7. In north-coastal California.....	13
8. At Blue Canyon Weather Bureau Airport.....	14
9. Discharge hydrographs at selected gaging stations in the Great Basin, January 29-February 5, 1963.....	17

		Page
FIGURE	10. Photograph showing Truckee River flooding in downtown Reno, Nev.....	A18
	11. Photograph showing gaging station on Truckee River at Vista, Nev., near time of flood crest.....	19
	12. Discharge hydrographs at selected gaging stations in central-coastal California, January 29–February 5, 1963.....	21
	13. Photograph showing Campbell police placing sandbags along San Tomas Aquina Creek.....	22
	14. Photograph showing flooding in Menlo Park, Calif.....	23
	15. Discharge hydrographs at selected gaging stations in the San Joaquin Valley, January 29–February 5, 1963.....	25
	16. Discharge hydrographs at selected gaging stations in the Sacramento Valley, January 29–February 5, 1963.....	28
	17. Photograph showing Marysville, Calif., during flood of January–February 1963.....	29
	18. Photograph showing South Yuba River overflow damaging summer homes at Cisco, Calif.....	30
	19. Discharge hydrographs at selected gaging stations in north-coastal California, January 29–February 5, 1963.....	33
	20. Photograph showing Napa River overflow near Edmonston Street Bridge in Napa, Calif.....	34
21–23.	Graphs showing flood magnitude–frequency curves for selected gaging stations in—	
	21. The Great Basin and central-coastal California.....	39
	22. San Joaquin Valley.....	40
	23. Sacramento Valley and north-coastal California.....	41

TABLES

		Page
TABLE	1. Precipitation at selected stations during January–February 1963.....	A5
	2. Precipitation at selected stations during the storms of 1937, 1950, 1955, and 1963.....	8
	3. Flooded areas and flood damage in California and Nevada, January–February 1963.....	35
	4. Reduction of January–February 1963 flood discharge by storage regulation.....	37
	5. Annual peak stages and discharges.....	42
	6. Summary of flood stages and discharges.....	50

FLOODS OF 1963 IN THE UNITED STATES

FLOODS OF JANUARY-FEBRUARY 1963 IN CALIFORNIA AND NEVADA

By L. E. YOUNG and E. E. HARRIS

ABSTRACT

Flood-producing rains were associated with two warm frontal systems that crossed California and Nevada from the west on January 30 and 31. Most of the precipitation fell during a 72-hour period between January 29 and February 1. Three-day precipitation totals in excess of 20 inches were recorded at several places in Sierra Nevada and along the coast of California around Monterey Bay. The largest storm total was the 27.15 inches reported at Westfall Ranger Station in the Sierra National Forest, Calif. Ironically, the flood-producing storm ended a record-breaking 42-day winter drought in the area.

The floods of January-February 1963 in California and Nevada produced the greatest peak discharges in the history of recorded streamflow in some areas of the Sierra Nevada. Peak discharges in the American River basin were the most notable in this respect. For example, a peak of 121,000 cfs (cubic feet per second) occurred on Middle Fork American River near Auburn, Calif., for which records have been kept since 1911. This discharge not only exceeded the previously recorded high of 79,000 cfs, which occurred during the devastating 1955 floods, but also exceeded any previous flood peaks since the great deluge of December 1861-January 1862. Maximum peaks of record were also established in several other central Sierra Nevada River basins, including those of the Carson, Truckee, Stanislaus, Feather, and Yuba Rivers. The loss of 10 lives was attributed to the storm and floods, and total damage amounted to \$18.5 million.

This report presents a general description of the January-February 1963 floods, a discussion of the damage incurred, and a summary of peak stages and discharges at 623 sites. The storm precipitation and the regulation of floodflow by storage reservoirs are also discussed. A tabulation of annual peak stages and discharges for the period of record and flood-frequency curves based on these data are presented for selected gaging stations.

INTRODUCTION

The floods of January-February 1963 damaged large areas in central California and western Nevada (fig. 1). The most severely flooded areas were the basins of California and Nevada streams that

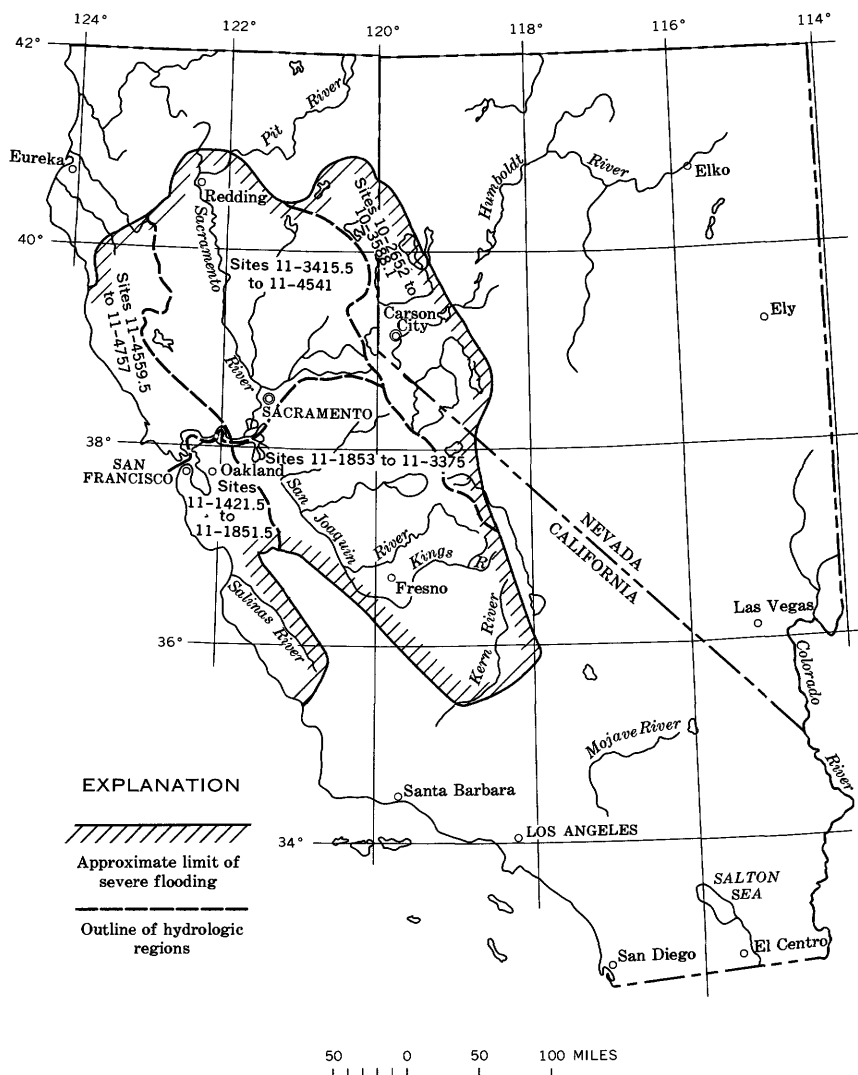


FIGURE 1.—Report area, hydrologic-region boundaries, and inclusive station numbers in each region.

have their source in the Sierra Nevada. Floods of lesser magnitude occurred along the central coast of California.

This report was prepared to provide detailed hydrologic data for use in flood-control planning, in design of structures to be built within the reach of floodwaters, and in any other studies involving flood hydrology.

Flood-discharge information collected by the U.S. Geological Survey at the many stream-gaging stations (pl. 1) throughout the flooded area is presented. This information includes data on stage and discharge throughout the period of flooding, a summary table of flood stages and discharges, and flood magnitude and frequency data for selected sites. Information on storm precipitation, flood damage, and storage regulation—a large part of which was provided by other agencies—is also included.

Pacific standard time, on a 24-hour time basis, is used throughout this report. For example, 6:00 a.m. and 10:00 p.m. (Pacific standard time) are given as 0600 and 2200 hours, respectively.

To facilitate presentation of the data, the flooded area was divided into five regions, as outlined by the dashed lines in figure 1. These regions are the Great Basin, central-coastal California, San Joaquin Valley, Sacramento Valley, and north-coastal California. Nearly all items in this report are discussed individually for each of the regions, thus enabling the reader interested in only one region to readily obtain that individual information.

All sites where streamflow data are collected on a continuing basis are part of the nationwide stream-gaging network and, as such, have a network number. The numbers follow the downstream order used in Geological Survey publications on surface-water supply in the United States. These numbers appear wherever data for a network station are given in this report. For purposes of this report, numbers have also been assigned to miscellaneous sites, beginning with number one and following numerically in downstream order. Each site is shown on plate 1.

A preliminary open-file report on this flood of 1963 was released by the Geological Survey in March 1963. The report, by S. E. Rantz and E. E. Harris, entitled "Floods of January-February 1963 in California and Nevada," contains the limited amount of flood data that was available on March 8, 1963. It consists mainly of data of peak discharges, a few typical flood hydrographs, information on storm precipitation, and preliminary storm-damage figures.

Special reports have been prepared for other notable floods that covered all or part of the area flooded during January-February 1963. The publications that contain this information are U.S. Geological Survey Water-Supply Papers 843; 1137-F, -H; 1260-D; 1650-A, -B; 1660-B; and 1790-B.

ACKNOWLEDGMENTS

The data in this report were collected as part of the cooperative programs between the U.S. Geological Survey and other Federal,

State, county, and municipal agencies. The data were collected and compiled under the supervision of Walter Hofmann, district engineer of the Surface Water Branch in California, and G. F. Worts, Jr., district chief of the Water Resources Division in Nevada. The field surveys and office computations were coordinated by Harry Hulsing, area hydraulic specialist.

The cooperation of the U.S. Weather Bureau and the U.S. Army Corps of Engineers in providing precipitation data and estimates of flood damage is gratefully acknowledged.

PRECIPITATION

As late as January 27, 1963, California and western Nevada were having one of their worst winter droughts in a hundred years. The water year had started auspiciously with record-breaking rains in northern California in early October of 1962. Very little precipitation was recorded, however, during the following months; and as December passed and January wore on without the usual winter storms, concern mounted for the water supply for the ensuing summer. The first rain of 1963 fell on January 28, terminating a record-breaking 42-day winter drought.

Intense precipitation on the evening of January 29 marked the arrival of a series of widespread storms. Two warm frontal systems were involved. The first frontal system crossed California and Nevada on January 30 and centered over the Yuba, American, and Truckee River basins; the second, which centered about 150 miles south over the Kaweah, Tule, and Kern River basins, swept across on January 31. Almost all the precipitation fell during a 72-hour period between January 29 and February 1. The largest total was the 27.15 inches reported at Westfall Ranger Station in the Sierra National Forest, Calif. Table 1 lists storm totals at selected precipitation stations in the major hydrologic regions of the area.

The freezing level, or snowline, was above the 8,000-foot level during most of the storm and at times was as high as 11,000 feet. As a result, most storm precipitation occurred as rain; snow fell only in the extreme high Sierra Nevada. Very little snow had accumulated in the Sierra Nevada prior to this storm; accordingly, snowmelt was not a significant factor in this flood.

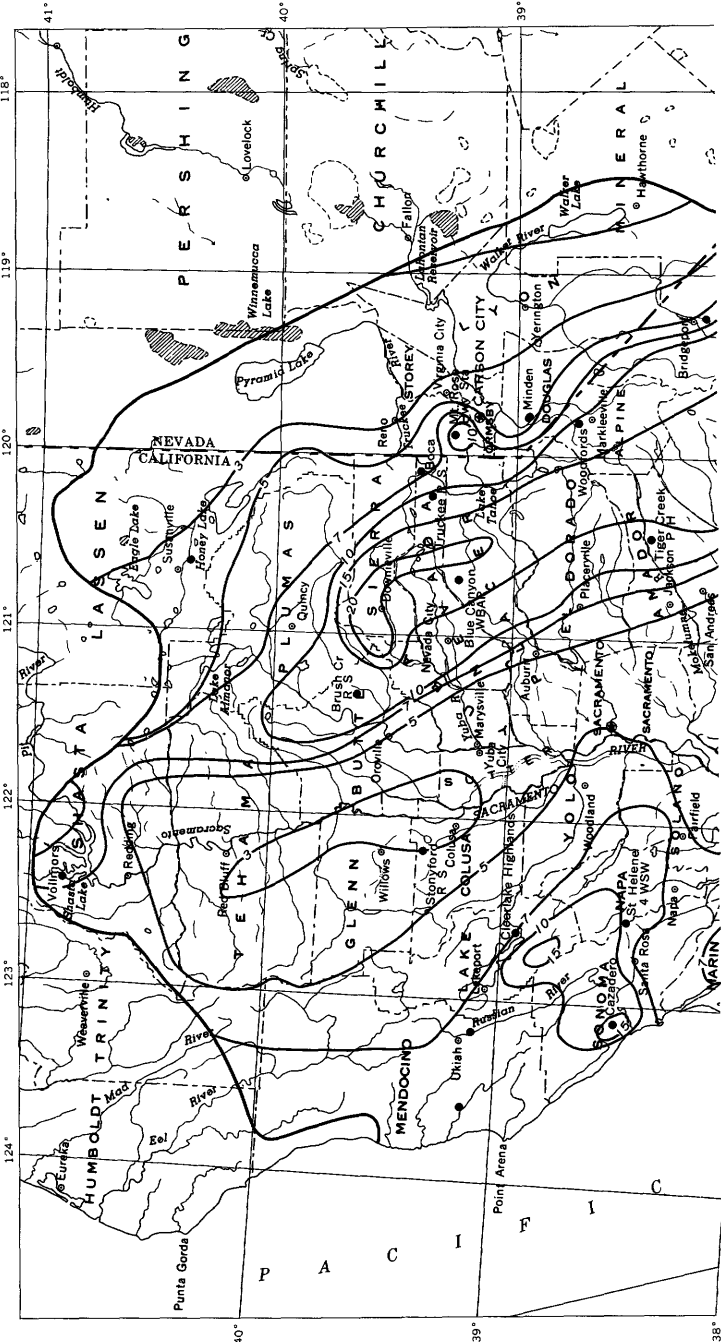
The isohyetal map (fig. 2) shows the generalized precipitation distribution for the storm period January 29–February 1. The map is based mainly on U.S. Weather Bureau precipitation records, supplemented wherever possible by additional data. This map shows that storm totals exceeded 20 inches in several areas in the Sierra Nevada and in the mountains along the central coast.

TABLE 1.—*Precipitation at selected stations during January-February 1963*

Precipitation station and subbasin	Ante- cedent precipitation Jan. 1-28 (inches)	Storm precipitation (inches)					Total monthly precipitation (inches)	
		January			February		Jan- uary	Feb- ruary
		29	30	31	1	2		
The Great Basin:								
Bridgeport (Walker River)-----	0	0	1.68	2.59	1.55	0	4.27	1.68
Woodfords (Carson River)-----	.19	.03	3.08	3.92	2.34	Trace	7.22	2.88
Mt. Rose (Truckee River)-----	.64	.02	2.48	7.13	3.95	0	10.27	4.69
Susanville (Honey Lake)-----	0	0	.55	1.27	.57	.27	1.82	1.31
Central-coastal California:								
Big Sur State Park (Big Sur River)---	Trace	0	4.66	9.23	6.29	0	13.89	11.67
Uvas Creek above Uvas Reservoir (Uvas Creek)-----	0	1.0	7.2	7.0	.2	0	15.2	3.0
Boulder Creek Locatelli Ranch (San Lorenzo River)-----	0	2.37	8.77	7.31	.66	0	18.45	8.76
San Joaquin Valley:								
Packsaddle Canyon (Kern River)-----	0	.6	3.2	5.9	1.9	0	9.7	3.2
Giant Forest (Kaweah River)-----	0	0	4.76	6.57	9.71	.40	11.33	12.73
Huntington Lake (Upper San Joaquin River)-----	0	0	5.35	5.48	3.09	.02	10.83	5.63
Yosemite National Park (Merced River)-----	Trace	.03	4.26	5.77	4.60	.30	10.06	6.50
Tiger Creek Powerhouse (Mokelumne River)-----	0	.08	3.67	3.93	5.69	.02	7.68	7.82
Sacramento Valley:								
Vollmers (Upper Sacramento River)---	Trace	.05	1.76	2.79	2.33	.53	4.60	9.40
Stonyford Ranger Station (Stony Creek)---	Trace	.03	.63	1.79	1.41	0	2.45	4.70
Brush Creek Ranger Station (Feather River)-----	0	.11	2.77	4.99	4.79	.40	7.87	8.05
Blue Canyon (American and Bear Rivers)-----	.35	1.37	5.26	8.70	2.05	.14	15.68	5.27
Clearlake Highlands (Cache Creek)-----	0	1.24	2.13	2.33	.06	.03	5.74	2.24
North-coastal California:								
St. Helena 4 WSW (Napa River)-----	0	.98	3.42	4.41	.63	0	8.81	3.51
Kentfield (Corte Madera Creek)-----	.07	.01	3.94	4.93	4.65	.06	8.95	8.31
Ukiah (Upper Russian River)-----	.07	.63	3.85	3.20	.80	.09	7.75	3.22
Cazadero (Lower Russian River)-----	0	1.13	6.58	5.77	.91	0	13.48	7.70
Navarro 1 NW (Navarro River)-----	0	.95	1.81	2.42	.06	.08	5.18	2.23

Figures 3-7 show cumulative precipitation for the 1963 storm at selected recording stations throughout the area. The graphs show that, except in the Boulder Creek area, the storm was most intense from about 0600 to 2400 hours January 31, and that most of the precipitation fell during the 72-hour period from 1200 hours January 29 to 1200 hours February 1. In the Boulder Creek area the longest period of intense rain occurred between 0100 hours and 1100 hours January 30; a shorter period of high-intensity rain occurred between 1600 hours and 2100 hours January 31.

A comparison of 3-day storm precipitation totals for some of the notable storms in the area is given in table 2. The selected stations listed in the table are representative of the five hydrologic regions: Boca (Great Basin), Big Sur State Park (central-coastal California), Giant Forest (San Joaquin Valley), Blue Canyon Weather Bureau Airport (Sacramento Valley), Ukiah (north-coastal California). Because of extreme orographic influence, the actual magnitude of the precipitation for a given storm at these stations is not necessarily



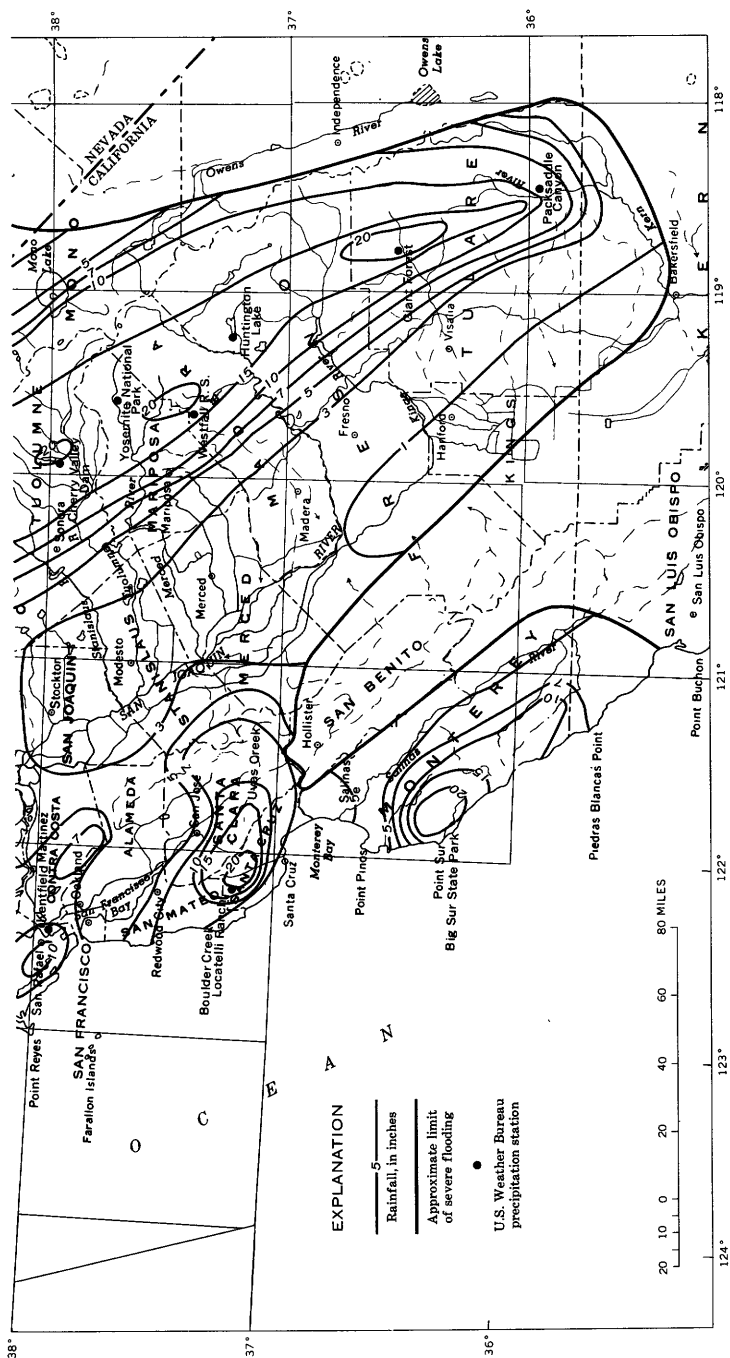


FIGURE 2.—Isohyetal map for storm of January 29-February 1, 1963.

TABLE 2.—*Precipitation at selected stations during the storms of 1937, 1950, 1955, and 1963*

1937		1950		1955		1963	
Period	Precipitation (inches)	Period	Precipitation (inches)	Period	Precipitation (inches)	Period	Precipitation (inches)
Boca (Great Basin)							
Dec. 1-9-----	0	Nov. 1-16-----	0.68	Dec. 1-21-----	6.17	Jan. 1-28-----	0.49
10-----	1.91	17-----	.71	22-----	1.57	30-----	1.19
11-----	1.45	18-----	1.54	23-----	2.25	31-----	2.35
12-----	2.40	19-----	2.21	24-----	2.80	Feb. 1-----	2.88
10-12-----	3.76	17-19-----	4.46	22-24-----	6.62	Jan. 30-Feb. 1--	6.42
Big Sur State Park (central-coastal California)							
Dec. 1-9-----	0	Nov. 1-17-----	3.00	Dec. 1-21-----	8.05	Jan. 1-29-----	0
10-----	2.00	18-----	2.10	22-----	3.88	30-----	4.66
11-----	4.45	19-----	4.17	23-----	7.50	31-----	9.23
12-----	4.62	20-----	2.25	24-----	1.38	Feb. 1-----	6.29
10-12-----	11.07	18-20-----	8.52	22-24-----	12.76	Jan. 30-Feb. 1--	20.18
Giant Forest (San Joaquin Valley)							
Dec. 1-9-----	0.37	Nov. 1-17-----	1.76	Dec. 1-21-----	6.59	Jan. 1-29-----	0
10-----	8.26	18-----	11.0	22-----	1.77	30-----	4.76
11-----	5.45	19-----	3.52	23-----	11.04	31-----	6.57
12-----	2.20	20-----	.14	24-----	4.40	Feb. 1-----	9.71
10-12-----	15.91	18-20-----	11.66	22-24-----	17.21	Jan. 30-Feb. 1--	21.04
Blue Canyon Weather Bureau Airport (Sacramento Valley)							
Dec. 1-9-----	0.58	Nov. 1-17-----	8.28	Dec. 1-20-----	21.13	Jan. 1-29-----	1.72
10-----	5.27	18-----	6.80	21-----	5.19	30-----	5.26
11-----	3.28	19-----	1.43	22-----	7.44	31-----	8.70
12-----	.65	20-----	8.56	23-----	5.92	Feb. 1-----	2.05
10-12-----	9.20	18-20-----	16.79	21-23-----	18.55	Jan. 30-Feb. 1--	16.01
Ukiah (north-coastal California)							
Dec. 1-9-----	0.36	Nov. 1-15-----	0.85	Dec. 1-20-----	11.28	Jan. 1-29-----	0.70
10-----	4.26	16-----	1.84	21-----	1.71	30-----	3.85
11-----	3.93	17-----	.23	22-----	3.98	31-----	3.20
12-----	.54	18-----	1.07	23-----	1.57	Feb. 1-----	.80
10-12-----	8.73	16-18-----	3.14	21-23-----	7.26	Jan. 30-Feb. 1--	7.85

indicative of the amount of precipitation over the entire region. However, at a given site the same general orographic influence should be effective for each storm; the storm differences at a site are representative of general differences in amounts of precipitation over large areas. Additional precipitation data for these and other major storms in the area are given in U.S. Weather Bureau reports and in the Geological Survey flood reports listed in the introduction of this report. The relations between the accumulated precipitation for the 1963 storm and for the severe storms of 1950, 1955, and 1962 at the Blue Canyon precipitation station are shown in figure 8.

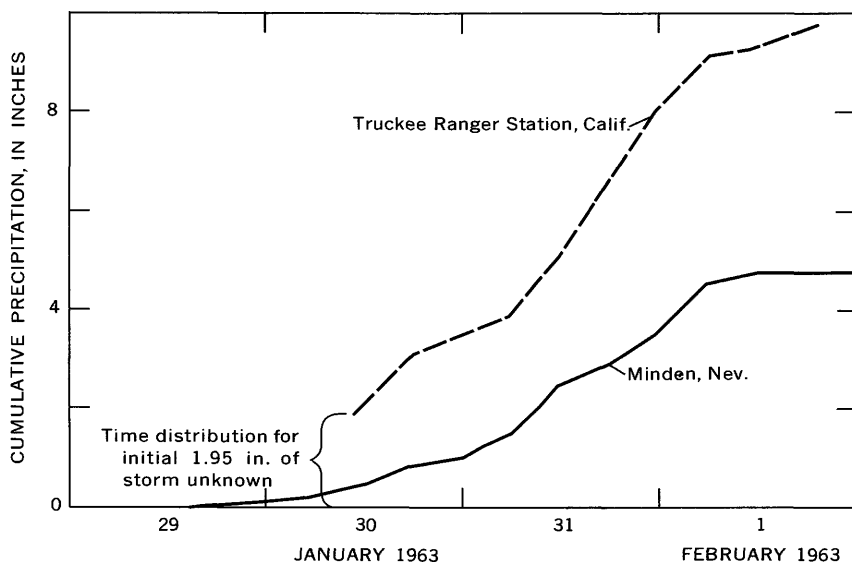


FIGURE 3.—Cumulative precipitation at representative points in the Great Basin.

All precipitation stations mentioned in the preceding paragraphs are shown on the isohyetal map (fig. 2).

THE GREAT BASIN

The storm centered over the Sierra Nevada and produced high-intensity rainfall in the upper Truckee and the Carson River basins; in places, rain totaled as much as 20 inches. The storm decreased rapidly toward the east, and the Fallon area received only 0.62 inch of rain during the storm period.

The 4-day storm of January 29–February 1 established new maximum amounts of precipitation for 24, 48, 72, and 96 hours in Nevada. It moved across the Sierra Nevada from the Pacific Ocean and left a recordbreaking 7.13 inches of precipitation at Mount Rose Highway Station, Nev., in a 24-hour period that ended at 1630 hours on January 31. An additional 3.95 inches was recorded during the following 24 hours for a 48-hour total of 11.08 inches. On January 30, 2.48 inches had been received. In the 72-hour period that began January 30, a record 13.56 inches of rain fell. Including the 0.02 inch received on January 29, a 4-day total of 13.58 inches was recorded. These amounts far exceed those previously recorded for similar periods in Nevada, according to the U.S. Weather Bureau.

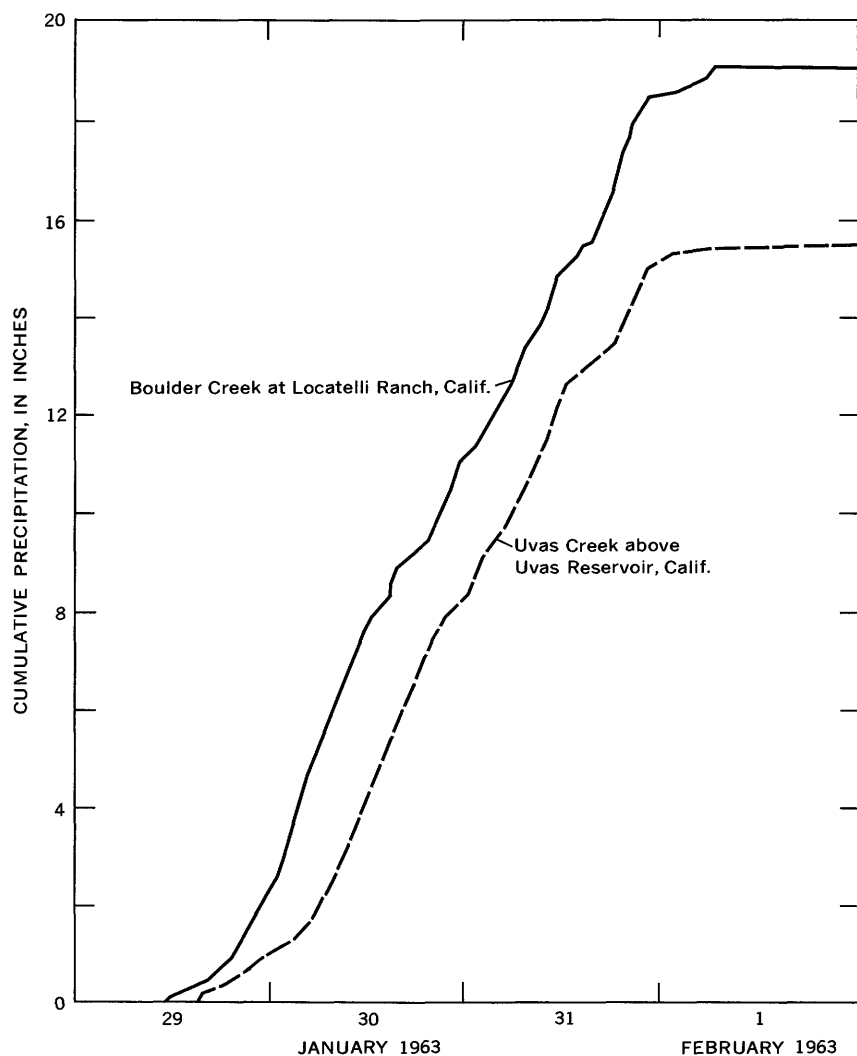


FIGURE 4.—Cumulative precipitation at representative points in central-coastal California.

CENTRAL-COASTAL CALIFORNIA

Total storm precipitation in central-coastal California was heaviest in the Santa Lucia Range near Big Sur and in the Santa Cruz Mountains north of Santa Cruz; in places it exceeded 20 inches. Precipitation decreased rapidly to the east to less than 5 inches in the Salinas Valley and southeast of San Francisco Bay. The rate of rainfall

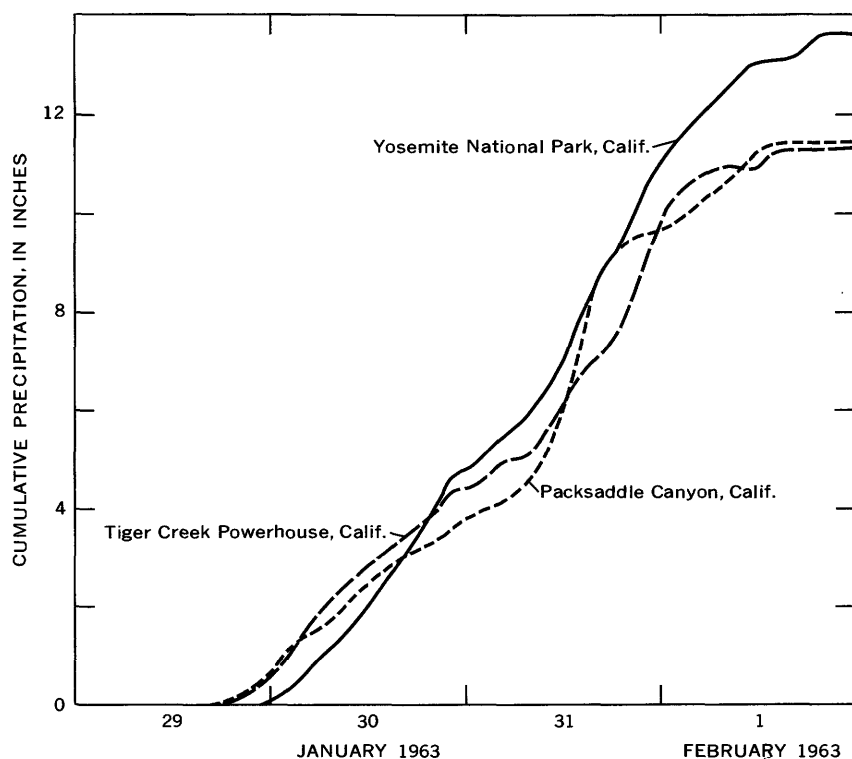


FIGURE 5.—Cumulative precipitation at representative points in San Joaquin Valley.

was fairly uniform throughout the storm period, and hourly totals as high as 0.6 inch were recorded at Boulder Creek, about 12 miles north of Santa Cruz. The records of accumulated precipitation at Boulder Creek and at Uvas Creek Reservoir, about 4 miles southwest of Morgan Hill, are shown in figure 4.

A 24-hour precipitation of 9.23 inches was observed at Big Sur State Park in the Big Sur River basin; this total exceeded the previously observed maximum 24-hour measurement (8.05 in. Jan. 21, 1943) during the 50-year period of record. Neither figure necessarily represents the maximum 24-hour precipitation; each represents the precipitation catch in the 24 hours preceding the daily inspection of the rain gage.

SAN JOAQUIN VALLEY

As in most of California and western Nevada, the San Joaquin Valley and southern Sierra Nevada region had been affected by a winter drought for about 42 days prior to January 29. Rain began

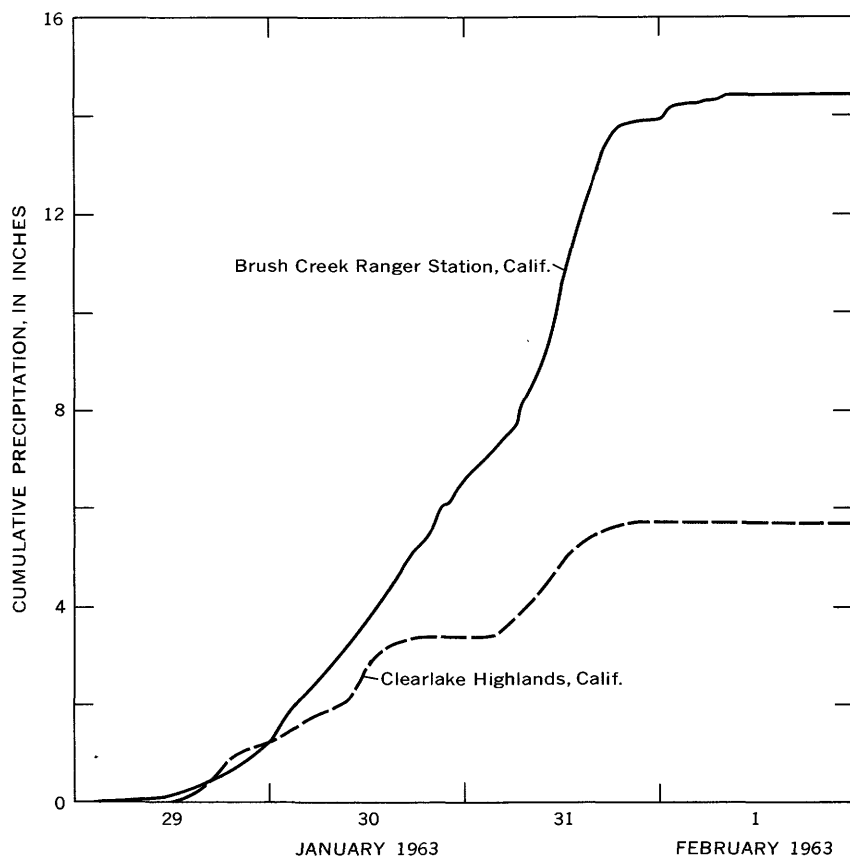


FIGURE 6.—Cumulative precipitation at representative points in the Sacramento Valley.

to fall late in the evening of January 29 and continued steadily through the early afternoon of February 1; the maximum intensity occurred between 1200 and 2400 hours January 31. Maximum hourly totals of 0.6 inch were registered at the Packsaddle Canyon rain gage in the Kern River basin. More than 12 inches of rainfall in one 24-hour period was recorded at Giant Forest in the Kaweah River basin. This amount exceeded the 11.04 inches recorded in December 1955 and indicates that hourly totals in excess of 0.6 inch must have occurred at this location.

Accumulated storm precipitation for selected stations in the area is shown in figure 5. Total storm precipitation ranged from less than 2 inches on the San Joaquin Valley floor to more than 20 inches in the Sierra Nevada. Rainfall in excess of 20 inches was reported at Cherry

Valley Dam in the Tuolumne River basin, at the south entrance to Yosemite National Park in the Merced River basin, at Westfall Ranger Station in the Fresno River basin, and at Giant Forest in the Kaweah River basin.

SACRAMENTO VALLEY

The drought in the Sacramento Valley and adjacent mountains was ended by orographically influenced rains that began late in the evening of January 28 and that began to intensify in the early evening of January 29. The most intense precipitation occurred during the period from about 0600 to 2400 hours January 31. Only small amounts fell after that time. Graphs of accumulated storm precipitation for Brush Creek Ranger Station in the Feather River basin and for Clearlake Highlands in the Cache Creek basin are shown in figure 6. A maximum hourly precipitation of 0.75 inch was registered at Brush Creek Ranger Station.

Total storm precipitation ranged from about 3 inches on the valley floor to more than 10 inches in the northern Coast Range to the west. Precipitation in the Sierra Nevada basins tributary to the Sacra-

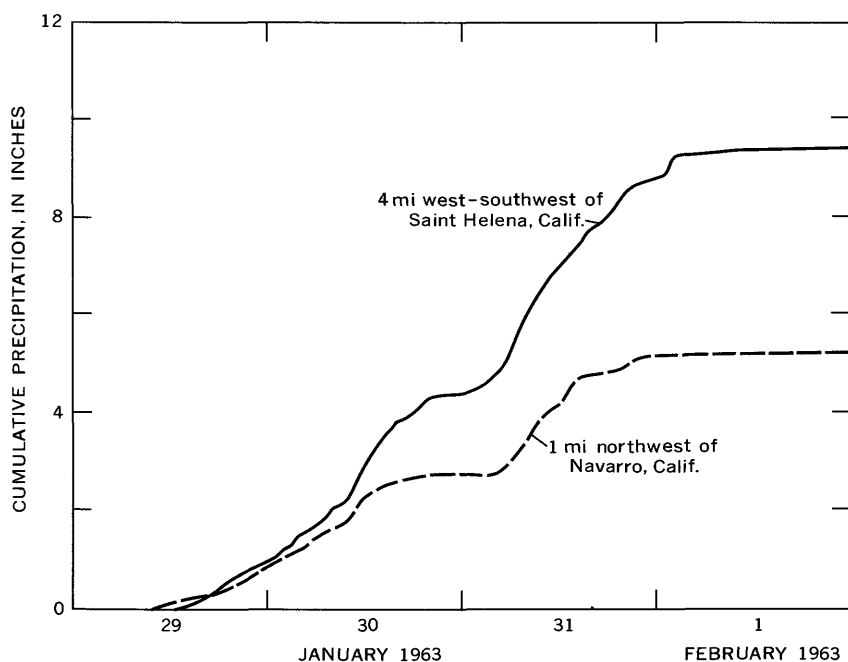


FIGURE 7.—Cumulative precipitation at representative points in north-coastal California.

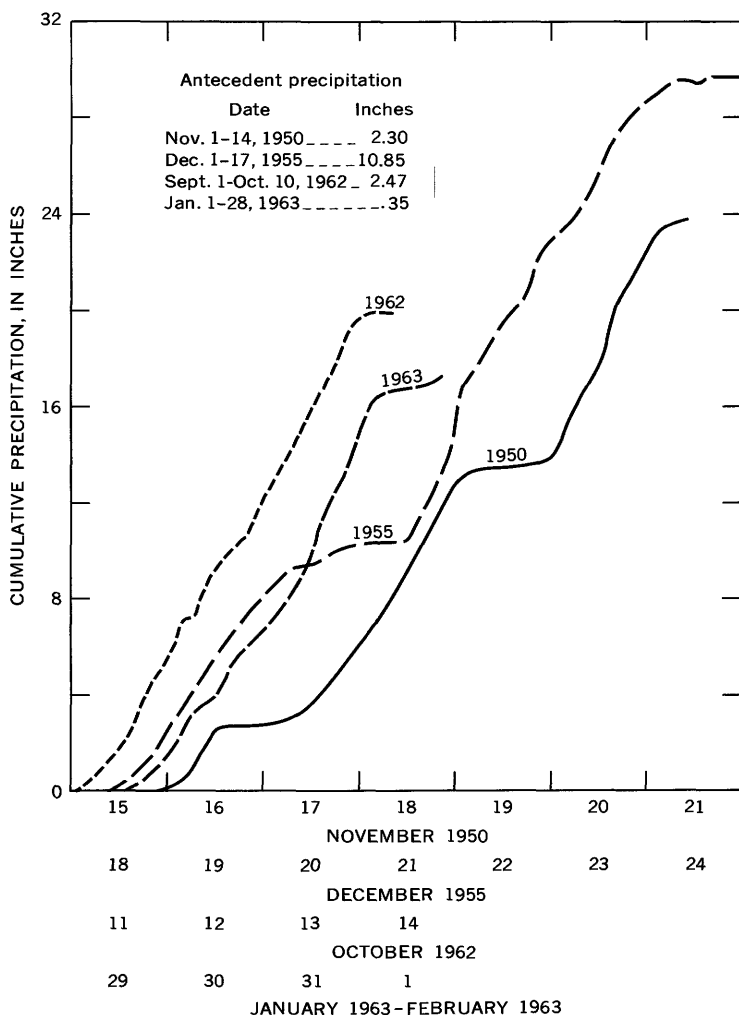


FIGURE 8.—Cumulative precipitation at Blue Canyon Weather Bureau Airport, Calif., for selected storms. (Altitude: 5,280 ft above sea level.)

mento Valley ranged from about 5 inches in the western foothills to more than 20 inches in the American and the Feather River basins.

Cumulative-precipitation graphs for the storms of November 1950, December 1955, October 1962, and January-February 1963 at the Blue Canyon Weather Bureau Airport, on the north boundary of the American River basin, are given in figure 8. Total storm precipitation for the storms prior to 1963 was several inches greater than that for January-February 1963. However, the 1963 storm's intensity of 0.4-

0.6 inch per hour for about 16 consecutive hours, preceded by about $8\frac{1}{2}$ inches of steady rain in 36 hours, was greater than that during any previous storms. The maximum 24-hour precipitation in 1963 of 9.10 inches is exceeded only by that recorded during the 1955 storm of 9.31 inches.

NORTH-COASTAL CALIFORNIA

Storm precipitation in most of the north-coastal region was not unusually heavy, ranging from about 6 inches in the lowlands north of San Francisco Bay to more than 10 inches in the hills north of Golden Gate and in the vicinity of Cazadero, near the mouth of the Russian River.

Graphs of accumulated precipitation at St. Helena in the Napa River basin and at Navarro in the Navarro River basin are shown in figure 7. A maximum total hourly precipitation of 0.5 inch was recorded at St. Helena. Cazadero, generally a wet spot in this orographically influenced region, reported 6.58 inches of precipitation in 24 hours, as compared with 10.75 inches reported for a similar period in 1955.

GENERAL DESCRIPTION OF FLOODS

At the highest altitudes, where the heaviest rainfall occurred, antecedent conditions were favorable for heavy runoff. Temperatures preceding the storm had been well below normal, and the ground was largely bare of snow and was frozen at altitudes greater than 4,000 feet above sea level on the west slope of the Sierra Nevada and 6,000 feet on the east slope. The runoff from the intense rainfall was therefore extremely heavy. Streams rose rapidly, and in large areas drought conditions quickly gave way to flooding. The rain-swollen rivers surged through hundreds of evacuated homes in northern California, pushed against hurriedly built sandbag dikes, in Reno, Nev., and blocked traffic on main east-west highway and rail routes across the Sierra Nevada. Hardest hit areas were in the basins of the American, Yuba, and Truckee Rivers. Flood peaks in many areas either reached record-breaking heights or rivaled the discharge peaks of the memorable floods of November 1950 and December 1955.

Some generalizations can be made concerning the runoff patterns of the floods in the various hydrologic regions. The major flood peaks occurred on either January 31 or February 1. In the coastal basins north of San Francisco Bay, there was generally one minor stream rise, followed by the major peak. In the coastal basins south of San Francisco Bay, there were two major peaks, preceded by one or more minor rises. In the Sacramento and San Joaquin River basins, there was only a single major peak; in the Kern River and Tulare Lake basins,

there were two major peaks. In the Great Basin there was generally a single major peak on all streams, but the smaller streams had one or more minor peaks that preceded that major rise.

The principal difference between this flood and those of 1950 and 1955 was the volume of storm runoff produced. Because the 1963 storm was of relatively short duration, the volume of runoff was not particularly noteworthy. Reservoir storage attained a high level, nevertheless, and provided the one bright aspect of what was otherwise a bleak outlook for the Sierra Nevada basins that depend on the mountain snowpack for their summer water supply.

The following sections present a brief description of the floods in each hydrologic region. Hydrologic-region boundaries are shown in figure 1 and on plate 1. The basins of each region are discussed in the downstream order used by the Geological Survey for its annual reports of surface-water records.

THE GREAT BASIN

The Great Basin streams discussed in this section of the report are those that drain the east slope of the Sierra Nevada, from Owens Lake basin on the south to Honey Lake basin on the north. The major basins in this region are those of the Walker, Carson, and Truckee Rivers. The location of the flood-data sites is shown on plate 1.

Streams tributary to Owens Lake had only minor flooding during the January–February 1963 storm. Little damage of the area was reported.

In general, floods in the Walker River basin were of lesser magnitude than previous notable floods of record, such as those of December 1937 and November 1950. Locally, however, several streams had peak discharges larger than any previously recorded. Record discharge occurred on Buckeye Creek, on Little Walker River near Bridgeport and on East Walker River above Strosnider ditch near Mason, Nev. The flood hydrograph for Little Walker River near Bridgeport, Calif., is shown in figure 9.

The runoff pattern during this flood was unusual in that the peak on the East Walker River reached Mason Valley before the peak on the West Walker River; normally the pattern is reversed. Most flood damage in the Walker River basin was to irrigation drains, ditches, and diversion structures. Valuable farmland adjacent to the streams was eroded.

Serious flooding also occurred in the Carson River basin. The heavy rains on frozen ground produced exceptionally high peak discharges in the upper basin at altitudes above 5,000 feet. The rapidly

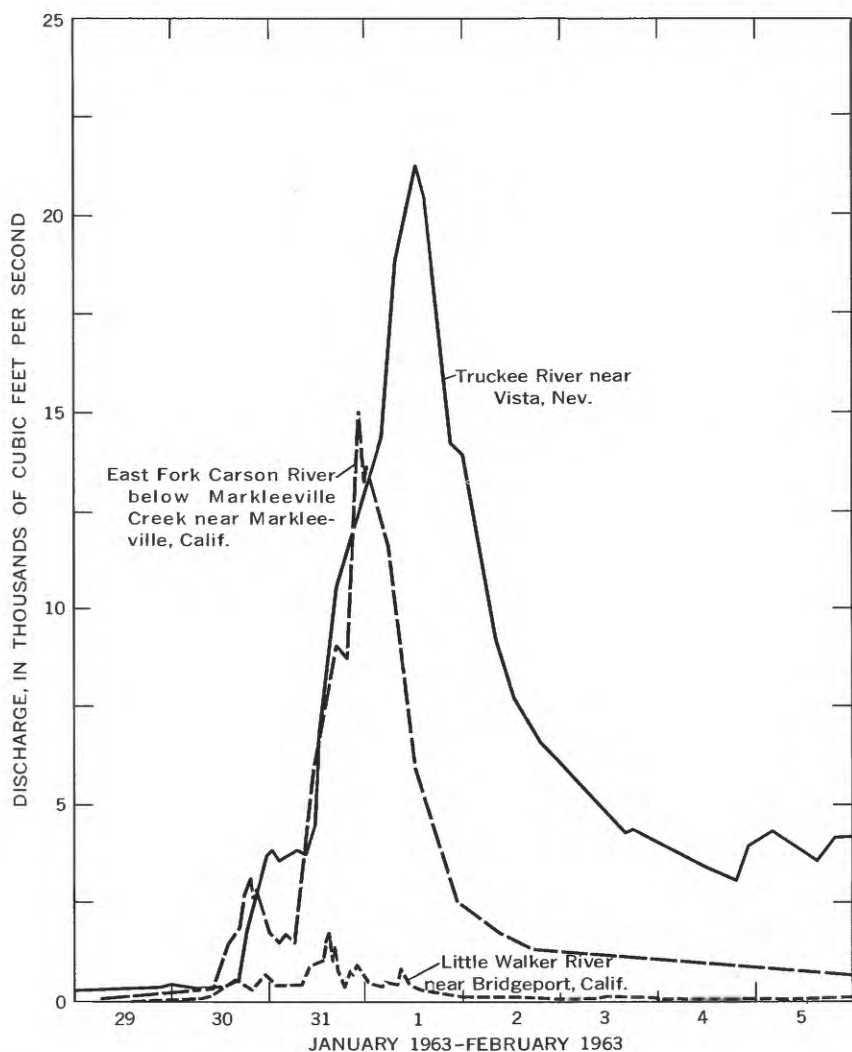


FIGURE 9.—Discharge hydrographs compiled from data collected at selected gaging stations in the Great Basin, January 29–February 5, 1963.

rising streams, carrying heavy debris loads, caused extensive damage to roads, bridges, and irrigation works near Minden and Gardenville, Nev. These communities were isolated for several days when U.S. Highway 395 and State Route 88 were inundated.

Peak discharges exceeded the maximum previously recorded at some places in the Carson River basin. The peak discharge on West Fork Carson River at Woodfords—the highest in at least 64 years—was

possibly the highest ever known. The peak flow for Carson River near Carson City was 74 percent of that of the December 1955 flood. The flood hydrograph for East Fork Carson River below Markleeville Creek near Markleeville, Calif., is shown in figure 9.

The Truckee River basin sustained major flooding throughout. Peak flows exceeded previously recorded maximum flows at several gaging stations on both the main stem and the tributaries. Storage in the Lake Tahoe, Donner Lake, and Boca and Prosser Creek Reservoirs retarded much of the runoff, thereby lessening flood damage in the downstream urban areas.

The city of Reno had extensive flooding, and about 20 square blocks in the downtown area was inundated to depths of as much as 4 feet (fig. 10). Ten of Reno's 12 bridges had to be closed for an extended period of time. There was also extensive damage to roads, bridges, and irrigation structures in Washoe Valley and Truckee Meadows. Channel-rectification work done on the Truckee River main stem and on lower Steamboat Creek, after the flood of December 1955, expedited the rapid draining of Truckee Meadows. This rapid drainage is indicated by the sharpness of the peak recorded at Truckee River at



FIGURE 10.—Truckee River flooding in downtown Reno, Nev. Photograph by Nevada State Journal.



FIGURE 11.—Gaging station on Truckee River at Vista, Nev., at approximate time of flood crest.

Vista, Nev. (fig. 9). Figure 11 shows the Vista gaging station at the approximate time of peak discharge.

Some flooding occurred in the Honey Lake basin near Susanville, Calif. Peak discharges at Susan River at Susanville and Willow Creek near Susanville exceeded the maximum for the period of record, during which both the November 1950 and December 1955 floods occurred.

CENTRAL-COASTAL CALIFORNIA

The central-coastal California region consists of the Pacific slope drainage basins between the upper Salinas River on the south and the southern shores of San Francisco Bay on the north (pl. 1). The numbers shown on plate 1 are station numbers that correspond to those shown in the "Streamflow Data" section of this report.

The floods of January-February 1963 were of lesser magnitude than those of December 1955 and April 1958, as recorded at gaging stations throughout the central-coastal California subarea. Several stream peaks nearly equaled, but none exceeded, the record highs of 1955 and 1958.

In the Big Sur River basin, the heavy rainfall caused the Big Sur River to slightly exceed bankfull stage from the State park to the

mouth. The peak discharge, 5,400 cfs (cubic feet per second), closely approximated the highest recorded flow—that of April 1958. A brief flood threat existed at park headquarters when overflow from the Big Sur River reached the threshold of the administration building, but the river receded, and there was no appreciable damage. California Highway 1 was closed to traffic just south of the Big Sur River because of a mud slide.

In the Carmel River basin the storm-fed river poured over the spillways of Los Padres and San Clemente Dams; and at the bridge on State Highway 1, the river rose to within 2 feet of the peak of the disastrous flood of April 1958. Hundreds of emergency workers placed sandbags on levees, cleared debris from bridge openings, and patrolled low-lying areas until the flood danger passed. Cooper bridge was washed out; it sustained the only serious damage in the basin.

In the Salinas River basin, heavy runoff occurred only in the downstream tributaries that enter the river from the west. The Nacimiento River was completely controlled by Nacimiento Reservoir, but the San Antonio River and the Arroyo Seco poured large quantities of water into the Salinas River. The discharge hydrograph for Arroyo Seco, whose peak discharge of 24,300 cfs at the Soledad gaging station nearly equaled the peaks of the December 1955 and April 1958 floods, is shown in figure 12. The lower reaches of the Salinas River sustained minor flooding. The mouth of the river was choked by a sandbar, and at 0900 hours on February 1 the restricted flow went over the riverbanks; as a result some farmlands were inundated to a depth of 3 feet. An hour later the river broke through its sandbar constriction, and the water subsided.

In the Pajaro River basin the higher runoff rates all occurred in the tributaries entering the river from the north. Heavy damage to public facilities, roads, bridges, and residential, commercial, and agricultural properties resulted from flood inundation in this area. Chesbro and Uvas Reservoirs on Llagas and Uvas Creeks, respectively, reduced downstream peaks; but major flooding occurred in Gilroy, and minor flooding, in Morgan Hill. Water went over the banks of Miller Slough in Gilroy, closing Highway 101 and inundating the Walnut Lane subdivision and adjacent Gilroy High School. Families were evacuated; water was as much as 2 feet deep in some homes. In the lower reaches of the Pajaro River, the river was contained within its leveed banks.

In the San Lorenzo River basin, the river reached flood stage in the Felton-Ben Lomond area, and 70 homes were evacuated. At least one house was carried away by the river. In the city of Santa Cruz, the scene of major flooding in 1955, the San Lorenzo River, with a peak

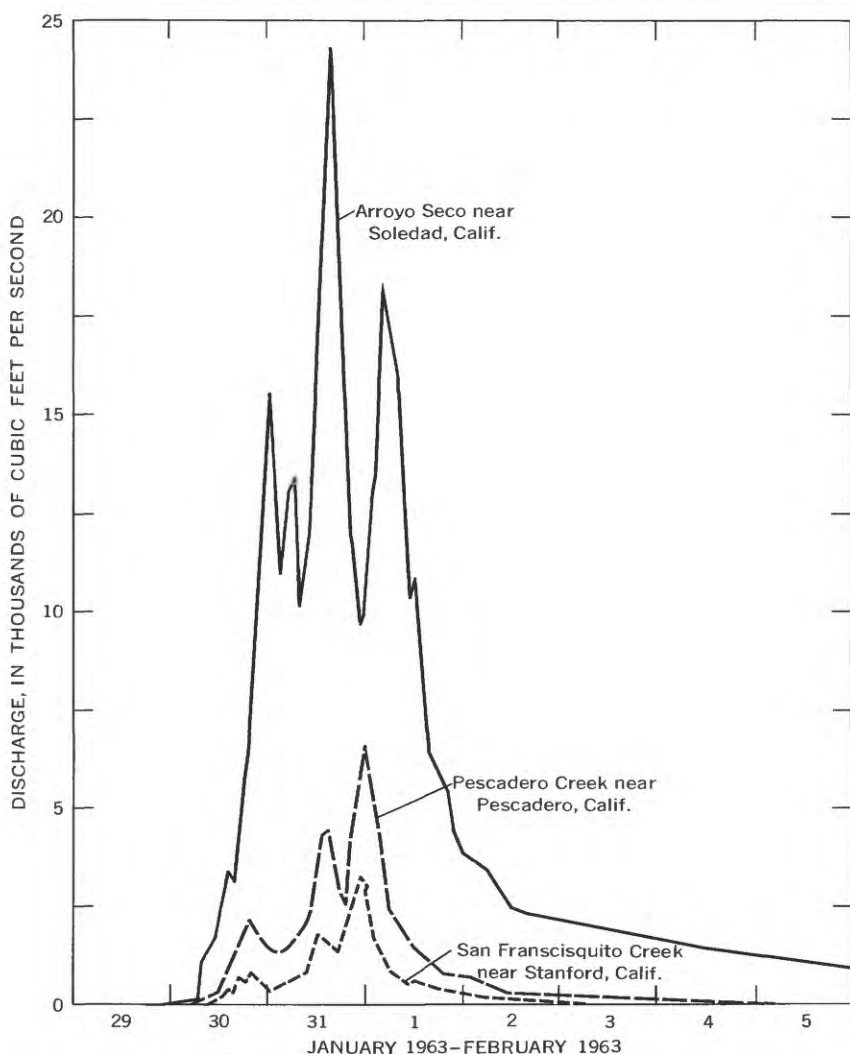


FIGURE 12.—Discharge hydrographs compiled from data collected at selected gaging stations in central-coastal California, January 29–February 5, 1963.

discharge of 13,000 cfs, was easily contained in the rectified channel between high levees. In nearby Soquel, Soquel Creek overflowed its banks and 15 homes and a trailer court had to be evacuated.

In the Santa Clara Valley, flood conditions were alleviated considerably in the Guadalupe River and Coyote Creek basins by the modifying effect of storage reservoirs, operated by the Santa Clara River Valley Water Conservation District. The Guadalupe River nearly

overflowed its banks at several places in San Jose; downstream, merchants sandbagged their store fronts as a precautionary measure. The river subsided, however, and it did no damage to the city. Virtually the entire flow of Coyote Creek was stored in Coyote and Anderson Reservoirs. The effect of this storage in reducing potential flood damage in northwestern Santa Clara County is evident when one realizes that the only divide between Coyote Creek and the Guadalupe River, in their roughly parallel courses through the city of San Jose to San Francisco Bay, is formed by the natural leveelike silt banks of the streams. In the town of Alviso, at the mouth of the Guadalupe River, a high tide combined with the heavy runoff to fill the streets with water as much as 4 feet deep. About 150 residents were evacuated. All minor streams in the Santa Clara Valley were close to overtopping their banks. At least 100 families living along these streams left their homes and volunteer workers sandbagged banks of these streams and cleared drift from the bridge openings (fig. 13). Streambank revetments were destroyed, and streambank erosion was extensive.

North of the Santa Clara Valley and southeast of San Francisco Bay, there was extensive flooding but relatively minor damage. In



FIGURE 13.—Campbell police placing sandbags along San Tomas Aquina Creek, Campbell, Calif. Photograph by San Jose Mercury-News.



FIGURE 14.—Flooding in Menlo Park, Calif., caused by overtaxed storm sewers.
Photograph by Palo Alto Times.

various areas streets and roads were closed by high water or slides, streambanks were eroded, agricultural land was inundated, and some houses were damaged by mud and water. Overtaxed storm sewers caused local flooding in many urban areas (fig. 14). Flood hydrographs for Pescadero Creek, on the coast south of San Francisco, and for San Francisquito Creek at Stanford, Calif., are shown in figure 12.

SAN JOAQUIN VALLEY

The San Joaquin Valley region, as delineated in this report, consists of the southern half of the Central Valley and its tributary area. The major stream systems in the region are those of Buena Vista Lake, Tulare Lake, and the San Joaquin River basins. The gaging sites are shown on plate 1, and the station numbers shown there are also listed in the tables presented in the "Streamflow Data" section of this report.

The magnitude of flood discharges varied widely throughout the San Joaquin Valley region. Flood peaks were among the highest of record in the upper Kern River basin and in the upper reaches of most

Sierra Nevada streams; peak flows of the 1950 and 1955 floods were exceeded at several gaging stations.

The high peak flow from the upper basins was a result of the frozen ground and of the rise in freezing level to above 8,000 feet during the storm—a fact substantiated by the peak discharge of 89 cfs at Budd Creek near Tuolumne Meadows (11–2747.3) in the Tuolumne River basin. This 2.94-square-mile drainage basin ranges in altitude from 8,560 feet above sea level at the gaged point to about 11,000 feet at the basin divide. Records of several other small streams in the region, gaged at the 6,000–8,000-foot level, also provide evidence of the heavy rainfall at the extremely high altitudes.

Peak discharges on the smaller streams whose headwaters are in the lower altitudes of the Sierra Nevada were not exceptionally high because of the lesser storm rainfall to the west of the high Sierra Nevada.

In the Kern River basin the instantaneous peak inflow to Isabella Reservoir of 26,000 cfs (determined by the Corps of Engineers) slightly exceeded the peak inflow of the memorable flood of December 1955. The peak outflow from the reservoir, however, was regulated to about 400 cfs, thereby preventing what would have been certain inundation in the city of Bakersfield. Heavy damage occurred in the sparsely settled basin upstream from Isabella Reservoir, where the flow was slightly less than was that of the 1955 flood. The Kern River Fish Hatchery was severely damaged, and the 20-mile length of road between Kernville and Johnsondale was deeply gouged in a number of places by the surging floodwaters. The discharge hydrograph for Kern River at Kernville is shown in figure 15.

In the Tule River basin, when the rapidly rising river endangered the town of Springville, many families prepared to evacuate their homes. However, the river receded and no damage was caused. Downstream from Springville the instantaneous peak inflow of the Tule River into Success Reservoir was 15,000 cfs (computed by the Corps of Engineers); the controlled outflow was 3,000 cfs. Although total damage in the basin was relatively light, widespread inundation would have occurred in and around Porterville if the recently built Success Reservoir had not been operative.

In the Kaweah River basin, flooding of the town of Three Rivers, on the main river, was narrowly averted. Emergency dikes, built by bulldozers, successfully confined the stream. Several families were evacuated, however, as a precautionary measure. The rampaging river and its tributaries, heavily laden with floating timbers and other debris, spilled over the banks in many places and did severe damage to roads and bridges. Newly built Terminus Reservoir, downstream

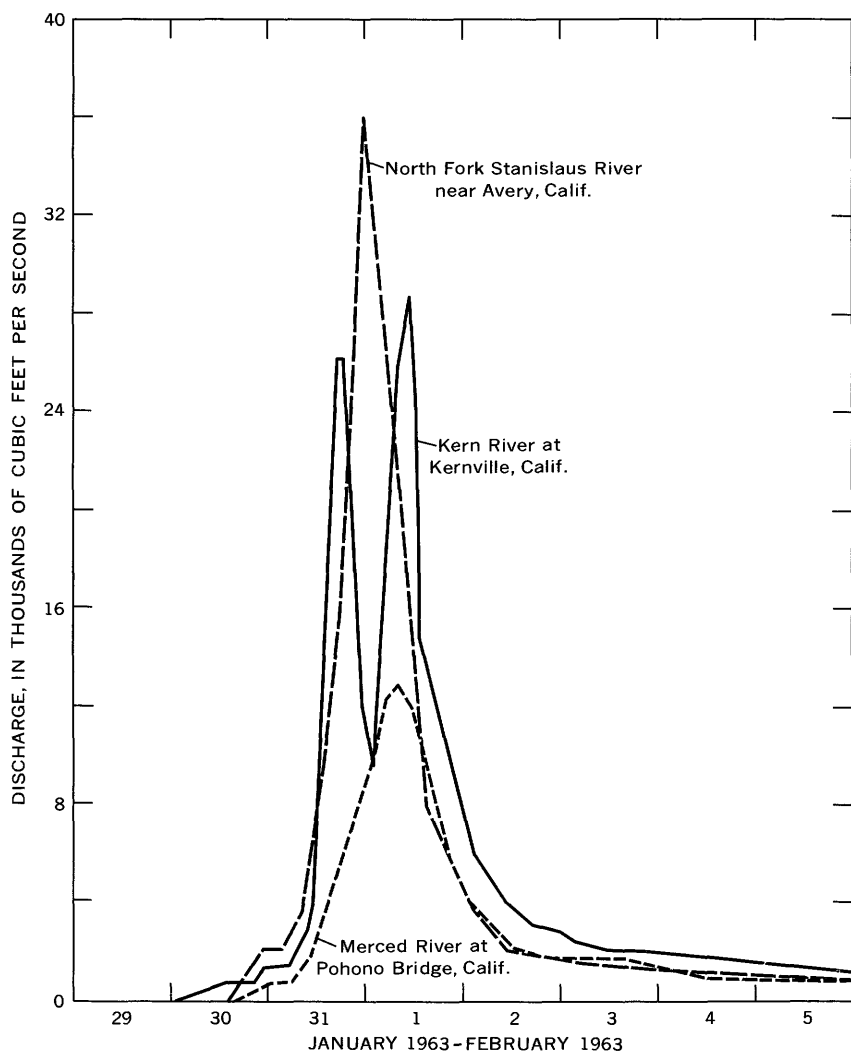


FIGURE 15.—Discharge hydrographs compiled from data collected at selected gaging stations in San Joaquin Valley, January 29–February 5, 1963.

on the Kaweah River, had an instantaneous peak inflow of 35,000 cfs (computed by the Corps of Engineers). The controlled outflow from the reservoir was only 5,000 cfs, and the downstream city of Visalia was therefore not inundated.

In the Kings River basin, roads and highways in the upper basin received the heaviest damage. At Pine Flat Reservoir, on the Kings River, a peak inflow of 58,000 cfs (computed by the Corps of Engi-

neers) was reduced to an outflow of 20 cfs, and downstream areas were not flooded.

In the upper San Joaquin River basin, public-utility reservoirs, operated to generate hydroelectric power, contained much of the flow of the main river and its tributaries. This resulted in a peak inflow of only 31,000 cfs into Millerton Lake on the San Joaquin River. The outflow from Millerton Lake was reduced to 25 cfs, thereby increasing the ability of the lower river to carry the flow of its downstream tributaries.

In the lower San Joaquin River basin, roads and highways again received the most damage. Predicted flood stages on the Chowchilla and Fresno Rivers did not materialize; however, both streams inundated roads in some areas. None of the west-bank tributaries of the San Joaquin River were particularly hard hit by the storms, but water from Jacalitos and Los Gatos Creeks inundated part of State Highway 198 near Coalinga. The principal tributaries of the lower San Joaquin River are the Merced, Tuolumne, Stanislaus, Calaveras, Mokelumne, and Cosumnes Rivers. All, but the Cosumnes River, have large impounding reservoirs that were very effective in storing the floodwaters. Consequently, little inundation occurred downstream from these reservoirs, and damage was primarily to the highways and drainage structures in the upper reaches of the rivers. The flood hydrograph for Merced River at Pohono Bridge is shown in figure 15.

Peak discharge of North Fork Stanislaus River near Avery was 36,000 cfs (fig. 15); it was 32,000 cfs during the December 1955 flood. This peak discharge is the maximum for the periods of record, 1914-22 and 1928-63. Highland Creek, a tributary of the North Fork Stanislaus River, peaked at 9,860 cfs; during the floods of 1950 and 1955 it peaked at 8,800 cfs. Cole Creek, in the upper Mokelumne River basin, peaked at a slightly higher discharge than its peak of November 1950, which was the maximum discharge since the gage was established in 1927. Several reservoirs—the largest is Melones—were instrumental in reducing floodflows on the lower Stanislaus River. As a result the peak discharge of the Stanislaus River at the gaging station below Goodwin Dam near Knights Ferry was only 11,800 cfs, as compared with the 1955 flood peak of 62,900 cfs.

The Cosumnes River has no large impounding basins; hence, it caused the most flood damage to the San Joaquin Valley floor. At Michigan Bar gaging station, the peak discharge was 39,400 cfs—only 2,600 cfs less than the flood peak of December 1955. Tributary streams below Michigan Bar contributed little discharge, and at McConnell gage downstream, the peak was only 26,200 cfs. The attenuation of the peak resulted from overbank storage in the reach between

the gages; this overflow caused heavy damage to crops, agricultural lands, roads, and bridges.

In the delta of the San Joaquin Valley, the upper Marsh Creek basin was hardest hit by the flood. Two resorts received major damage, and bridges were wrecked. In the Brentwood area, downstream, there was little damage because of the effect of the newly built Marsh Creek flood-control dam.

SACRAMENTO VALLEY

The Sacramento Valley region includes the northern half of the Central Valley of California, which is drained by the Sacramento River and its tributaries. However, because the 1963 flood runoff was not extreme in any streams tributary to Shasta Lake, no discharge data for these streams are included in this report, other than data for gaging stations immediately upstream from Shasta Lake. Sites for which stage and discharge data are being published are shown on plate 1.

Several places in the Sierra Nevada in which streams are tributary to the Sacramento Valley received record breaking runoff. However, as in the San Joaquin Valley, the operation of flood-control facilities tremendously reduced the damage that would have otherwise resulted from the floods of January 31–February 1.

In the upper Sacramento River basin above Shasta Reservoir, runoff was relatively light. The peak inflow to Shasta Reservoir was only 72,000 cfs, as compared with a peak inflow of 193,000 cfs in December 1955. The 1963 peak outflow from the reservoir was 13,500 cfs. In the 40-mile reach of river between Shasta Reservoir and Sacramento River gaging station near Red Bluff, tributary inflow was moderately heavy, and the peak discharge recorded at the Red Bluff gage was 76,700 cfs. Without the streamflow regulation afforded by Shasta Reservoir, the peak discharge at the Red Bluff gage would have exceeded 100,000 cfs. Only moderately heavy inflow to the Sacramento River occurred above Chico; therefore no flood-control problem occurred upstream from the confluence of the combined inflow of the Feather River, Sutter Bypass, and the Sacramento River.

Runoff in the Feather River basin was extremely high. As in most Sierra Nevada floods, the runoff originated chiefly at altitudes above 4,000 feet, but the runoff from the lower foothill areas during this flood seemed to be disproportionately small. In the high-altitude headwaters of the basin, the rampaging tributary streams overflowed roads and carried away several houses. Many families were trapped by the rapidly rising waters and, when helicopter rescue efforts failed, were rescued by boat.

Record-high peaks occurred on the Middle Fork Feather River and on Spanish Creek. The discharge hydrograph for Middle Fork Feather River near Clio is shown in figure 16. Indian Creek near Crescent Mills had about the same record discharge that occurred there in 1907. The 1907 flood was larger than any other that occurred during the period of continuous-discharge record collection, which began in 1930.

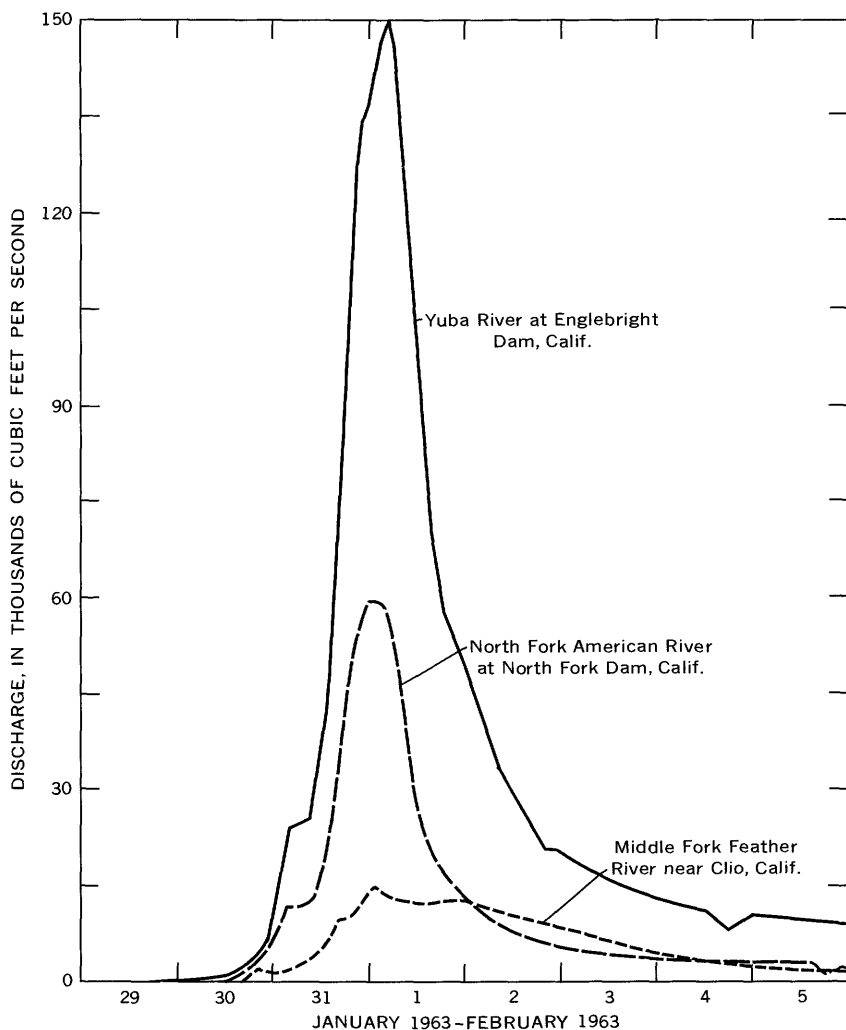


FIGURE 16.—Discharge hydrographs compiled from data collected at selected gaging stations in Sacramento Valley, January 29–February 5, 1963.

Storm-caused landslides in the Feather River Canyon blocked Western Pacific Railroad tracks and U.S. Highway 40A. At Oroville, where the huge Oroville Dam was being constructed, the Feather River peaked at a stage only 1 foot lower than that of the disastrous flood of December 1955. Floodwaters toppled a \$100,000 temporary bridge at the damsite and damaged access roads and construction equipment.

Downstream from Oroville, in and around Yuba City and Marysville, at the junction of the Yuba and Feather Rivers, residents were very apprehensive. The apprehension was for good reason. Thirty-eight people in the area had drowned when a levee failed during the 1955 flood. Also, the Yuba River, over whose basin the storm centered, was reaching a recordbreaking peak discharge, which exceeded that of the 1955 flood. No levee failures occurred, however (fig. 17). The Feather River received only moderate inflow from drainage areas at lower altitudes. It crested at Marysville 4.4 feet lower than in 1955, and the danger passed. The discharge hydrograph for Yuba River at Englebright Dam is shown in figure 16. In the upper Yuba River basin, damage to roads and drainage structures was particularly heavy. In a 25-mile length of State Highway 49 the road was reduced



FIGURE 17.—Marysville, Calif., during flood of January–February, 1963. Photograph by U.S. Army Corps of Engineers.



FIGURE 18.—South Yuba River overflow damaging summer homes at Cisco, Calif.
Photograph by Sacramento Bee.

to less than one lane wide in many places, and the bridge 12 miles west of Downieville was destroyed. U.S. Highway 40, which parallels the South Yuba River, was closed between the town of Cisco and Donner Lake because of flooding. At the resort settlement of Cisco Grove (fig. 18), widespread destruction of vacation homes was sustained as a result of severe flooding of the South Yuba River. Previous record-peak discharges of the memorable floods of 1950 and 1955 were exceeded at many places in the North and South Yuba River basins.

On February 1 the Feather River peaked at 260,000 cfs at the downstream gaging station at Nicolaus. Although the magnitude of this peak approached that of the disastrous 357,000 cfs peak of December 1955, there were no levee failures or major flood problems on the lower Feather River. At the common junction of the Feather River, Sacramento River, and Sutter Bypass (carrying the Sacramento River overflow), the major part of the flow spilled, as usual, over the ungated Fremont Weir into Yolo Bypass. At the gaging station on Yolo Bypass near Woodland, the peak discharge was 163,000 cfs on February 2 and consisted mainly of Fremont Weir spill but also included all Cache Creek flow and westside lowland drainage through Knights Landing Ridge cut. Downstream from Fremont Weir, the maximum discharge of the Sacramento River at Verona was 69,400 cfs.

Downstream from Verona the Sacramento River flow plus the large release down the American River from Folsom Reservoir necessitated the opening of the gates on the Sacramento Weir. On February 2 a peak discharge of 82,600 cfs passed over the Sacramento Weir into Yolo Bypass. Downstream from the Sacramento Weir and the American River, the Sacramento River peaked at Sacramento on February 1 at 98,100 cfs. It then receded slightly on February 2 because American River water that had been released flowed upstream to the Sacramento Weir.

In the American River basin the largest peak flows since the deluge of 1862 were recorded; recordbreaking peak discharges were common. In the upper basin the roaring tributary streams ruined roads. In other places roads, such as U.S. Highway 50 between Pacific House and Myers, were closed because of storm-caused landslides. The newly built Union Valley and Ice House Reservoirs in the Silver Creek basin substantially reduced flood peaks on the South Fork American River downstream from the mouth of Silver Creek.

Peak discharge of the North Fork American River far exceeded any previous flood of record and exceeded the great 1955 flood by 10,000 cfs at the gage at North Fork Dam. The flood hydrograph for North Fork American River at North Fork Dam is shown in figure 16.

Probably the most striking flood peak recorded anywhere during the 1963 storm was at the gage on the Middle Fork American River near Auburn. The peak discharge at this site was 121,000 cfs from a 612-square-mile basin—a unit discharge of 198 cfs per sq mi. The previous high recorded here since record collection began in 1911 was 79,000 cfs during the devastating 1955 flood.

At Folsom Reservoir in the foothills, American River inflow reached a recordbreaking figure of 245,000 cfs (determined by the Corps of Engineers). Controlled reservoir releases were increased from about 10,000 cfs at the time of peak inflow to a maximum of 110,000 cfs shortly after the peak inflow.

Tributary inflow to the Sacramento River from the west was moderately heavy. On Stony Creek the gaging station near Fruto recorded a peak discharge of 16,000 cfs. Little was added to this flow from the drainage area above Stony Gorge Reservoir; the reservoir did not fill until long after the peak flow had passed. In the upper Cache Creek basin, the small streams tributary to Clear Lake had peak discharges among the highest of record, although no new record highs were established. In the upper Putah Creek basin, Lake Berryessa retained virtually all the flow that reached it; the peak inflow was 86,000 cfs, and the controlled outflow, 10 cfs.

NORTH-COASTAL CALIFORNIA

For purposes of this report the north-coastal California region consists of Pacific slope drainage basins that lie north of San Francisco Bay (pl. 1). The numbers representing gaging sites on plate 1 are also given in the "Streamflow Data" section of this report.

With the exception of the Napa River and Dry Creek (Russian River basin), the floods of January–February 1963 in the north-coastal region were of a much smaller magnitude than were the notable floods of December 1955. Larger floods have occurred, at least once or twice in the last three decades, on most of the streams in the area. The gaging station on the Napa River near St. Helena recorded a peak discharge only slightly less than the record 1955 peak, and a peak discharge slightly higher than the 1955 peak occurred at Dry Creek station near Cloverdale (Russian River basin). Flood hydrographs for these two stations are shown in figure 19.

The Napa River overflowed its banks and flooded downtown Napa. Floodwaters forced the evacuation of more than 200 persons. Muddy water, more than a foot deep, swirled through the downtown streets and created a serious health hazard when the sewage system became flooded. In other parts of the city, water was 3 feet deep in the streets (fig. 20). Roads were closed and bridges were in danger of being damaged or washed out when the river, in the environs of Napa, fanned out to half a mile wide. The swollen waters of Conn Creek, a tributary to the Napa River, poured over the spillway of Conn Dam and eroded part of State Highway 128 by the reservoir.

The small streams in Sonoma and Marin Counties also overflowed their banks, but damage was notable only in Sonoma Creek basin. High tides were generally a contributing factor to the flooding in the two counties.

In the Russian River basin, rainfall and the resulting runoff were heaviest in the lower part of the basin. At Guerneville the Russian River had the third highest peak in its recorded history and crested at 43.7 feet. This peak stage was exceeded only by those of the devastating floods of 1940 and 1955. Damage in the basin was confined mainly to the low-lying resort area near Guerneville, where 30 permanent residents were evacuated from flooded homes. The discharge hydrograph for Russian River near Guerneville is shown in figure 19. Damage in the upper Russian River basin was mitigated by the controlled release of water from Lake Mendocino, in which most of the runoff of the East Fork Russian River was stored.

The smaller coastal basins north of the Russian River and the upper Eel River basin had heavy runoff, but damage was minor. The maxi-

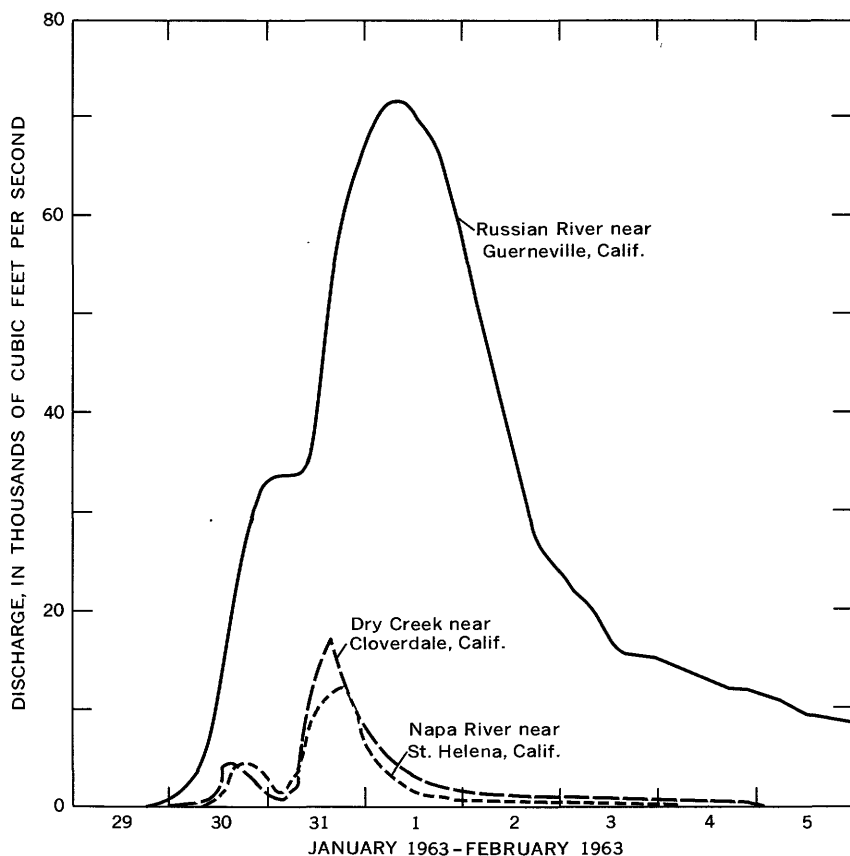


FIGURE 19.—Discharge hydrographs compiled from data collected at selected gaging stations in north-coastal California, January 29–February 5, 1963.

imum flood discharge at the gaging station on Garcia River near Point Arena was nearly as large as that of the memorable 1955 flood, but most other streams in this area had peak discharges that were much smaller than those in 1955. The area is sparsely settled and contains no large flood plains; hence, damage was minor.

FLOOD DAMAGE

The deaths of 10 persons were attributed to the storm and floods of January–February 1963 in California and Nevada. Total damage in the report area amounted to about \$18.5 million, of which about \$2.1 million was incurred in headwater areas, as reported by the U.S. Forest Service.



FIGURE 20.—Napa River overflow near Edmonston Street Bridge in Napa, Calif.
Photograph by Oakland Tribune.

Surveys of flood damage were carried out by the U.S. Army Corps of Engineers, U.S. Soil Conservation Service, U.S. Forest Service, and other Federal, State, county, service, and private organizations. The Corps of Engineers assembled flood-damage data, most of which are presented in table 3.

Monetary losses resulting from the floods of January 31–February 1 were less than those incurred in such previous floods as those of November 1950 and December 1955, when peak discharges of similar magnitude were produced. Smaller losses were incurred from the 1963 flooding for two reasons. First, the floods of January 31–February 1 were of shorter duration than previous major floods, and most inflows to reservoirs in 1963 could consequently be controlled without spill. Second, more reservoirs had been constructed each successive year; therefore, by 1963 there was a larger amount of regulatory storage available for excess water.

Most of the \$3.3 million flood damage in the Great Basin occurred in Nevada. At the request of Governor Grant Sawyer of Nevada, the Federal government declared seven western Nevada counties a disaster

TABLE 3.—Flooded areas and flood damage in California and Nevada, January–February 1963

[Compiled by Corps of Engineers]

Stream basin	Acres flooded	Flood damage, in thousands of dollars					
		Agricul- tural	Resi- dential	Com- mercial	Indus- trial and utilities	Public facilities	Total
<i>The Great Basin</i>							
Walker River.....	2,950	68	3	9	2	128	210
Carson River.....	22,450	736	0	5	7	536	1,284
Truckee River.....	6,700	450	12	293	206	793	1,754
Susan River.....	18,500	64	0	3	0	22	89
Total.....	50,600	1,318	15	310	215	1,479	3,337
<i>Central-coastal California</i>							
Pajaro River.....							900
Small Santa Cruz County streams ¹							105
Santa Clara Valley streams ²							480
Walnut Creek.....	1,100	0	30	5	43	237	315
Total.....	1,100	0	30	5	43	237	1,800
<i>San Joaquin Valley</i>							
Kern River.....	0	0	10	15	0	95	120
Tule River.....	0	0	0	0	35	4	39
Kaweah River.....	100	20	2	5	0	6	33
Kings River.....	0	0	0	0	15	64	79
Tulare Lake tributaries ³	7,500	75	0	0	0	100	175
San Joaquin River tributaries ⁴	0	0	0	0	0	104	104
Westside tributaries ⁵	2,400	103	19	71	5	20	218
Fresno River.....	8,300	40	0	0	0	0	40
Chowchilla River.....	7,000	200	0	0	0	50	250
Stanislaus River.....	600	4	0	6	67	10	87
Mokelumne River.....	15,100	254	0	0	6	22	282
Dry Creek.....	4,000	60	0	0	0	0	60
Cosumnes River.....	15,200	610	0	0	1	31	642
Total.....	60,200	1,366	31	97	129	506	2,129
<i>Sacramento Valley</i>							
Sacramento River (main stem) and bypasses.....	59,700	317	1	59	4	55	436
Butte Basin.....	45,000	208	0	9	0	0	217
Upper Sacramento Valley Creeks ⁶	2,700	19	0	0	0	35	54
Feather River.....	24,300	543	64	30	174	786	1,597
Yuba River.....	4,400	176	149	191	93	1,844	2,453
Bear River.....	0	0	0	0	6	4	10
American River.....	1,400	0	41	25	130	362	558
Cache Creek.....	5,000	143	0	2	0	55	200
Putah Creek.....	400	11	1	0	0	64	76
Cache Slough tributaries.....	26,000	35	0	0	19	82	136
Lower Sacramento—San Joaquin Delta ⁷	5,600	142	0	0	0	96	238
Total.....	174,500	1,594	256	316	426	3,383	5,975
<i>North-coastal California</i>							
Napa River.....		200	135	240	15	80	670
Sonoma and Corte Madera Creeks.....							190
Russian River.....							2,300
Total.....		200	135	240	15	80	3,160

¹ Includes Aptos and Soquel Creeks.² Includes Atherton, San Francisquito, and Coyote Creeks and the Guadalupe River.³ Includes Los Gatos, Warthan, Jacalitos, Zapato-Chino, and Canoa Creeks.⁴ Includes the Merced and Tuolumne Rivers and Littlejohn Creek.⁵ Includes Marsh, Kellogg, Garzas, and Orestimba Creeks.⁶ Includes Butte, Churn, Stony, and McClure Creeks and others.⁷ Includes Tidal Tracts, Little Holland Tract, and Liberty Island.

area. This area included Churchill, Douglas, Lyon, Mineral, Ormsby, Storey, and Washoe Counties. Damage was greatest in the Truckee River basin because of urbanization in and around Reno and Truckee Meadows. Flooding in the Carson and the Walker River basins and in the Honey Lake basin caused heavy damage to highways but primarily affected irrigation systems and ranch lands. Damage in the Walker, Carson, Truckee, and Susan River basins is summarized in table 3.

Flood damage in the central-coastal California region was not excessive; it was confined mostly to lowland agricultural areas. However, damage to commercial, residential, industrial, and public-utilities properties was sustained in some areas, particularly in the upper Pajaro and lower Guadalupe River basins and the Walnut Creek basin.

In the San Joaquin Valley region, agricultural areas received the most flood damage. Parts most severely flooded consisted of foothill and mountain properties above the flood-control projects on the Kings, Kaweah, Tule, Kern, Chowchilla, Fresno, and Stanislaus Rivers, and on Orestimba Creek along the west side of the San Joaquin Valley.

A major part of the damage in the Sacramento Valley region was to public facilities, for which monetary losses were more than twice those for agricultural damage. Much of the public-facility damage was in the Yuba and Feather River basins. The damage required costly repairs to roads, railroad bridges, electric power systems, State park facilities, and fish-planting facilities, and to one dam in the Yuba River basin.

Major damage in the north-coastal California region was confined to the Napa and the Lower Russian River basins. Monetary losses were comparatively evenly divided among agricultural, residential, and commercial damages.

STORAGE REGULATION

Reservoir storage was effective in substantially reducing the magnitude of peak floodflow on many streams as was discussed in the foregoing general description of the floods and of the flood damage. This was true not only of those reservoirs constructed for purposes of flood control, but also of those whose primary function is water conservation or hydroelectric-power production. The major reservoirs in the flood-affected areas are listed in table 4, which gives data on peak inflow, peak outflow, storage space available, and storage space used (as compiled by the Corps of Engineers).

The most notable effect of upstream storage in the Great Basin region was in the Truckee River basin, where flood damage in the highly urbanized areas of Reno and Sparks, Nev., was less than it

TABLE 4.—*Reduction of January–February 1963 flood discharge by storage regulation*

[Compiled by Corps of Engineers]

Subarea and reservoir	Stream basin	Available storage space at beginning of flood (ac-ft)	Storage space used (ac-ft)	Peak inflow (cfs)	Peak outflow (cfs)
<i>The Great Basin</i>					
Bridgeport.....	East Walker River.....	15,500	13,500	-----	665
Topaz.....	West Walker River.....	31,000	14,300	-----	25
Lahontan.....	Carson River.....	101,000	59,000	-----	-----
Prosser Creek.....	Truckee River.....	30,000	16,000	7,500	10
Boca.....	do.....	31,000	21,000	14,000	2,000
Donner Lake.....	do.....	9,100	6,400	-----	370
Lake Tahoe.....	do.....	685,000	160,000	-----	50
<i>San Joaquin Valley</i>					
Isabella.....	Kern River.....	488,000	60,000	26,000	400
Success.....	Tule River.....	76,000	17,000	15,000	3,000
Terminus.....	Kaweah River.....	147,000	50,000	35,000	5,000
Courtright.....	Kings River.....	68,000	3,300	800	15
Wishon.....	do.....	117,400	15,400	5,700	8
Pine Flat.....	do.....	716,000	163,000	58,000	20
Crane Valley.....	San Joaquin River.....	24,000	12,000	3,500	-----
S. C. E. Reservoirs.....	do.....	380,000	102,000	-----	-----
Friant.....	do.....	274,000	64,000	33,000	1,200
Mariposa.....	Mariposa Creek.....	15,000	5,200	4,300	940
Owens.....	Owens Creek.....	3,600	110	350	80
Bear.....	Bear Creek.....	7,700	1,200	3,900	1,320
Burns.....	Burns Creek.....	6,800	100	1,050	730
Exchequer.....	Merced River.....	235,000	150,000	60,000	40
Lake Eleanor.....	Tuolumne River.....	18,800	18,800	-----	-----
Cherry Valley.....	do.....	192,000	60,000	23,000	700
Hetch Hetchy.....	do.....	246,000	52,000	25,000	800
Don Pedro.....	do.....	190,000	124,000	64,000	7,000
Beardsley.....	Stanislaus River.....	37,000	17,000	-----	-----
Donnells.....	do.....	38,000	29,000	-----	-----
Tulloch.....	do.....	15,000	15,000	21,000	11,000
Melones.....	do.....	81,000	72,000	53,000	14,000
Farmington.....	Little John Creek.....	52,000	3,300	5,500	970
Hogan.....	Calaveras River.....	74,000	17,000	30,000	7,000
Lower Bear.....	Bear River.....	41,800	23,000	15,000	225
Salt Springs.....	Mokelumne River.....	120,000	66,000	-----	-----
Pardee.....	do.....	38,000	38,000	26,000	5,200
<i>Sacramento Valley</i>					
Shasta.....	Sacramento River.....	1,377,000	374,000	72,000	13,500
Stony Gorge.....	Stony Creek.....	19,000	14,400	18,000	6,200
East Park.....	do.....	25,800	19,200	-----	-----
Clear Lake.....	Cache Creek.....	158,000	100,000	-----	-----
Butt Valley.....	Feather River.....	10,400	5,700	2,300	-----
Mountain Meadows.....	do.....	10,000	10,000	-----	-----
Bucks Creek.....	do.....	29,000	17,400	7,000	-----
Frenchman.....	do.....	40,000	9,000	3,600	5
Englebright.....	Yuba River.....	None	-----	150,000	150,000
Lake Spaulding.....	South Yuba River.....	31,300	24,000	19,000	-----
Bowman Lake.....	do.....	26,000	19,000	-----	-----
Union Valley.....	American River.....	222,000	57,000	16,000	-----
Ice House.....	do.....	41,000	12,000	6,000	20
Folsom.....	do.....	560,000	385,000	245,000	110,000
Lake Berryessa.....	Putah Creek.....	400,000	178,000	86,000	10
<i>North-coastal California</i>					
Lake Mendocino.....	Russian River.....	69,700	16,550	8,780	4,150

might have been without storage. During the period January 28–February 4, Tahoe and Donner Lakes, and Boca and Prosser Creek Reservoirs stored a combined total of about 203,000 acre-feet of flood-water. The volume of runoff recorded for the Truckee River at Reno for this same period was 64,800 acre-feet, and the peak discharge of

18,400 cfs was only slightly less than that of the disastrous flood of December 1955. The newly constructed Prosser Creek Reservoir began storing water on January 31, 1963, and accumulated a total of 16,000 acre-feet during the flood period. Had Prosser Creek Reservoir not been in operation, the flood peak of February 1 on the Truckee River in Reno would have exceeded that of 1955.

In central-coastal California the Nacimiento Reservoir, which contained all the heavy runoff from the Nacimiento River basin, was instrumental in preventing flood damage downstream along the Salinas River. Runoff from streams entering the Salinas Valley from the east was light, and floodflow damage from the additional discharge of the unregulated west-side tributaries was prevented by the large amount of natural storage afforded by the Salinas River channel (including the alluvial streambed).

In the upper Pajaro River basin, reservoirs on Uvas, Llagas, and Pacheco Creeks were effective, to a degree, in reducing floodflows. The several conservation reservoirs on streams tributary to San Francisco Bay, especially those on Santa Clara Valley streams, were instrumental in materially reducing flood peaks.

In the San Joaquin Valley region, all major reservoirs are on east-side streams that drain the Sierra Nevada. Floodflows were almost completely controlled by each reservoir, owing to the comparatively short duration of the high flows.

The large (1 million acre-ft capacity) Folsom Reservoir on the American River in the Sacramento Valley region effected the most notable regulation of floodflows. The 245,000 cfs peak inflow was reduced to a little more than 100,000 cfs peak outflow by storage of 385,000 acre-feet of floodwater. Several smaller reservoirs in the American, Yuba, and Feather River basins also helped to reduce floodflows emanating from the Sierra Nevada. On the west side of the Sacramento Valley, Lake Berryessa (Putah Creek) and Clear Lake (Cache Creek) stored much water and prevented otherwise unavoidable inundation downstream.

Only a few reservoirs are available for storing floodwaters in the basins of the north-coastal California region. The relatively new Lake Mendocino (122,500 acre-ft capacity), near the mouth of the East Fork Russian River, stored sufficient runoff to appreciably reduce downstream flooding. Other reservoirs in this region are relatively small, and their flood-peak reduction was not noteworthy.

FLOOD FREQUENCIES

To illustrate the flood potential in the various hydrologic regions in California and Nevada, flood magnitude-frequency curves (figs.

21-23) were prepared from annual flood peaks recorded at selected gaging stations. The annual flood peaks for each water year are listed in table 5. A water year is a consecutive 12-month period that ends September 30 of the stated year.

As applied to flood events, recurrence interval is the number of years, on the average, within which a given peak discharge will be equaled or exceeded once by the annual maximum discharge. This recurrence interval is inversely related to the chance of a specific flood discharge being equaled or exceeded in any one year. Thus, a flood with a 25-year recurrence interval would have 1 chance in 25 of being equaled or exceeded in any one year, or a 50-year flood would have 1 chance in 50 of being equaled or exceeded in any one year. Recurrence intervals, however, are average figures based on historical data; because of the erratic nature of flood events, the 50-year flood may not necessarily occur in any given 50-year period, or it may occur several times during that period. This relationship is accordingly true for a flood of any given recurrence interval.

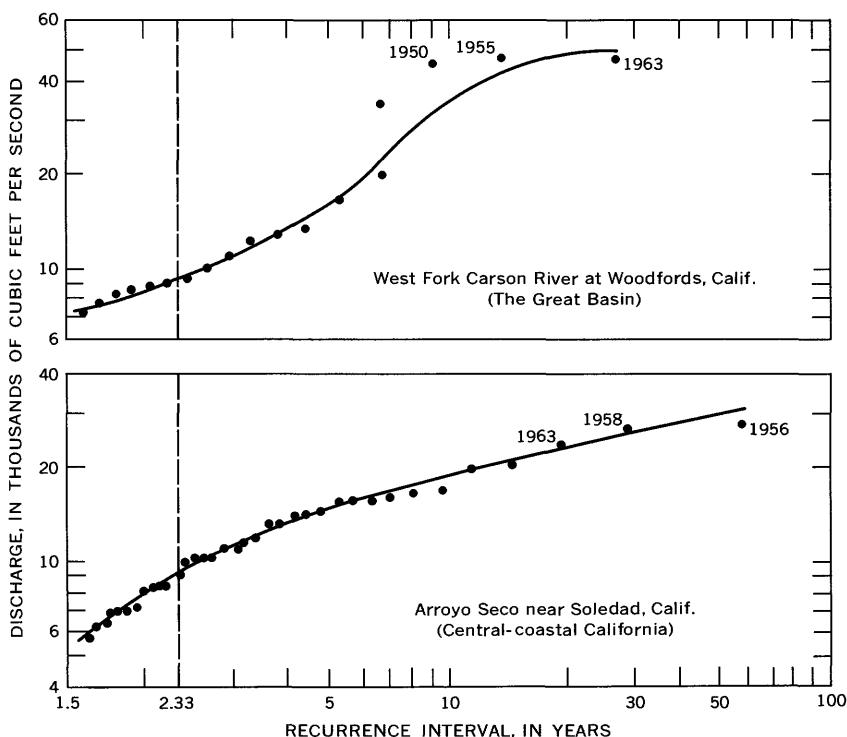


FIGURE 21.—Flood magnitude-frequency curves for selected gaging stations in the Great Basin and central-coastal California.

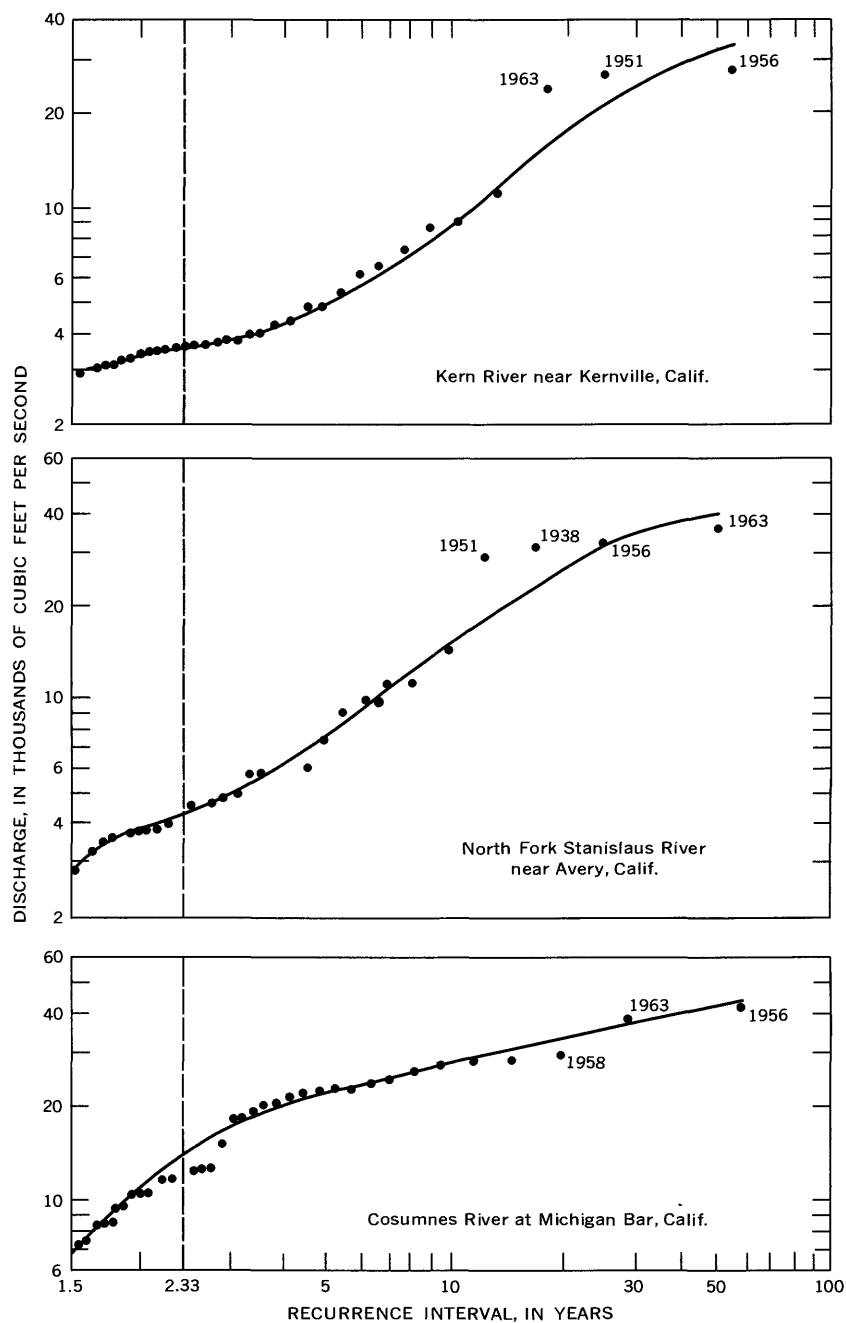


FIGURE 22.—Flood magnitude-frequency curves for selected gaging stations in San Joaquin Valley.

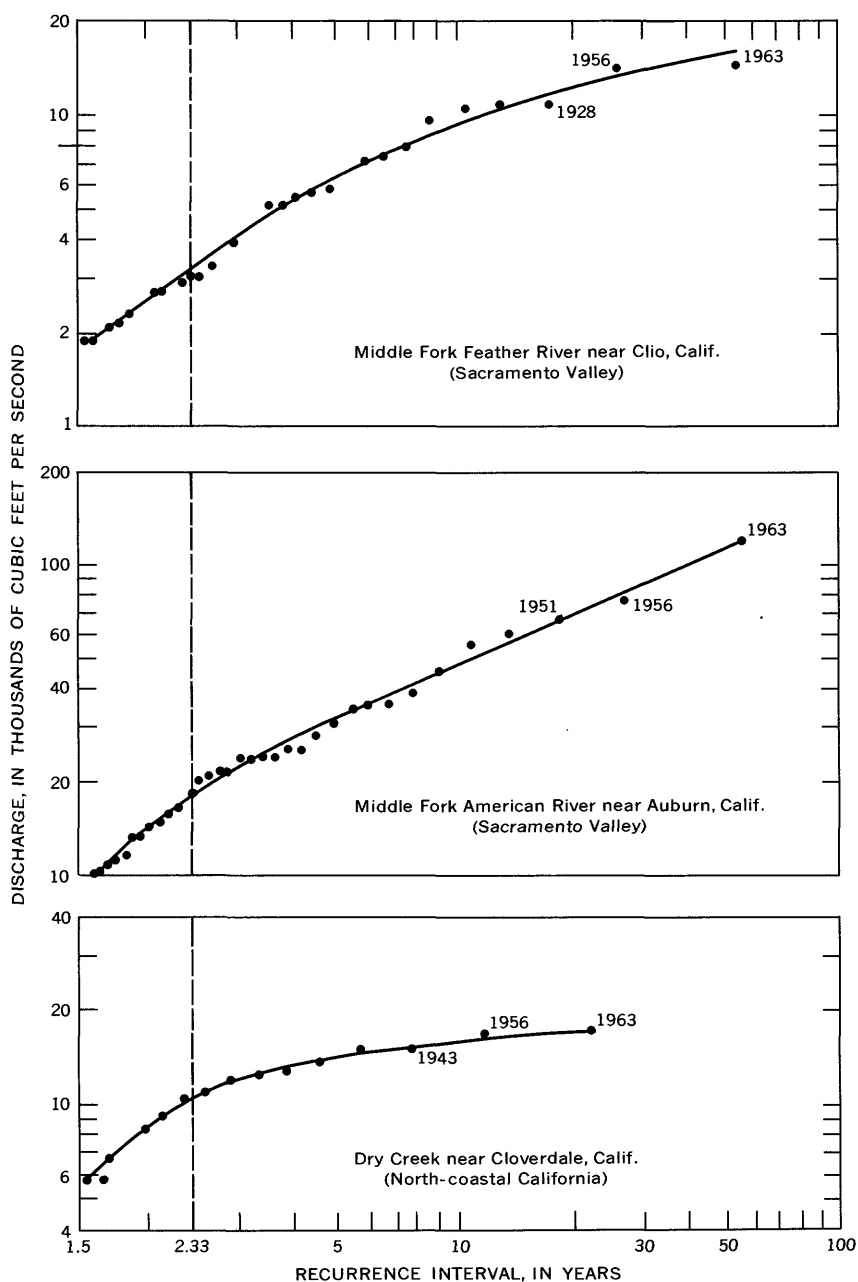


FIGURE 23.—Flood magnitude-frequency curves for selected gaging stations in Sacramento Valley and north-coastal California.

TABLE 5.—Annual peak stages and discharges

Water year	Date	Gage height (feet)	Dis-charge (cfs)	Water year	Date	Gage height (feet)	Dis-charge (cfs)
Sta. 10-3100, West Fork Carson River at Woodfords, Calif.							
1938...	Dec. 11, 1937	8.0	3,500	1951...	Nov. 20, 1950	7.33	4,730
1939...	Apr. 7, 1939	2.70	354	1952...	May 20, 1952	4.27	1,100
1940...	May 2, 1940	4.19	895	1953...	Apr. 25, 1953	3.07	813
1941...	May 5, 1941	4.98	1,330	1954...	Apr. 22, 1954	2.86	701
1942...	May 22, 1942	4.78	1,210	1955...	May 12, 1955	2.82	596
1943...	Apr. 28, 1943	4.91	1,290	1956...	Dec. 23, 1955	7.94	4,810
1944...	May 7, 1944	3.09	497	1957...	May 18, 1957	4.13	880
1945...	May 10, 1945	4.35	975	1958...	May 18, 1958	5.12	1,650
1946...	Apr. 25, 1946	4.09	860	1959...	Apr. 5, 1959	0.54	320
1947...	May 2, 1947	3.52	635	1960...	Apr. 9, 1960	0.64	350
1948...	May 16, 1948	3.72	708	1961...	Apr. 17, 1961	0.33	237
1949...	Apr. 24, 1949	4.01	824	1962...	May 4, 1962	1.87	677
1950...	May 16, 1950	3.82	747	1963...	Feb. 1, 1963	5.94	4,890
Sta. 11-1520, Arroyo Seco near Soledad, Calif.							
1906...	Jan. 13, 1906	16.4	10,800	1935...	Apr. 8, 1935	12.12	8,340
1907...	Mar. 23, 1907	16.3	10,700	1936...	Feb. 13, 1936	13.70	11,100
1908...	Feb. 2, 1908	9.3	2,520	1937...	Feb. 13, 1937	14.42	12,200
1909...	Jan. 26, 1909	14.0	7,400	1938...	Feb. 11, 1938	16.5	16,000
1910...	Mar. 21, 1910	10.8	3,710	1939...	Mar. 9, 1939	5.96	1,380
1911...	Mar. 6, 1911	20.0	17,300	1940...	Feb. 27, 1940	15.0	13,600
1912...	Mar. 12, 1912	7.6	1,350	1941...	Apr. 4, 1941	13.0	10,600
1913...	Jan. 15, 1913	8.4	1,900	1942...	Jan. 24, 1942	11.10	14,100
1914...	Jan. 25, 1914	20.5	17,500	1943...	Jan. 21, 1943	11.55	16,100
1915...	Feb. 9, 1915	12.2	7,200	1944...	Mar. 4, 1944	9.20	7,100
1916...	Jan. 17, 1916	15.3	13,700	1945...	Feb. 2, 1945	12.55	21,100
1917...	Feb. 21, 1917	16.5	16,000	1946...	Dec. 21, 1945	10.47	11,600
1918...	Mar. 12, 1918	9.4	5,030	1947...	Nov. 20, 1946	7.55	3,480
1919...	Feb. 10, 1919	10.0	5,800	1948...	Apr. 9, 1948	5.22	972
1920...	Apr. 15, 1920	9.0	4,550	1949...	Mar. 3, 1949	7.60	3,480
1921...	Jan. 30, 1921	12.0	8,500	1950...	Feb. 4, 1950	9.63	8,460
1922...	Feb. 9, 1922	15.8	14,600	1951...	Nov. 19, 1950	12.46	20,600
1923...	Dec. 10, 1922	6.75	2,040	1952...	Jan. 14, 1952	11.32	15,000
1924...	Jan. 27, 1924	6.70	1,900	1953...	Dec. 7, 1952	9.80	9,050
1925...	Feb. 23, 1925	5.9	1,300	1954...	Feb. 13, 1954	7.33	3,120
1926...	Feb. 13, 1926	12.0	8,500	1955...	Apr. 21, 1955	6.50	2,080
1927...	Nov. 27, 1926	16.5	16,000	1956...	Dec. 23, 1955	14.30	27,700
1928...	Mar. 24, 1928	10.0	5,800	1957...	Feb. 25, 1957	8.36	4,950
1929...	Feb. 3, 1929	9.5	5,150	1958...	Apr. 3, 1958	14.40	28,300
1930...	Mar. 4, 1930	9.03	4,590	1959...	Feb. 16, 1959	9.27	6,120
1931...	Jan. 1, 1931	5.35	810	1960...	Feb. 1, 1960	11.56	6,580
1932...	Dec. 27, 1931	13.70	11,100	1961...	Dec. 1, 1960	9.15	2,600
1933...	Jan. 29, 1933	7.31	2,340	1962...	Feb. 9, 1962	12.77	10,300
1934...	Jan. 1, 1934	11.01	7,110	1963...	Jan. 31, 1963	15.55	24,300
Sta. 11-1860, Kern River near Kernville, Calif.							
1912...	June 4, 1912	4.3	3,330	1938...	Mar. 2, 1938	11.38	7,000
1913...	May 24, 25, 1913	3.1	1,920	1939...	May 14, 1939	7.60	1,440
1914...	June 4, 1914	4.6	3,680	1940...	May 25, 1940	9.62	3,480
1915...	June 9, 1915	4.94	4,090	1941...	June 14, 1941	11.14	5,510
1916...	Jan. 17, 1916	8.8	11,500	1942...	June 6, 1942	12.57	3,400
1917...	May 17, 1917	4.70	3,800	1943...	Jan. 22, 1943	12.57	3,310
1918...	May 5, 1918	2.79	1,850	1944...	June 8, 1944	8.54	2,500
1919...	May 29, 1919	5.1	4,290	1945...	Feb. 2, 1945	10.98	5,700
1920...	May 21, 1920	4.49	3,560	1946...	May 9, 1946	8.78	2,440
1921...	June 8, 1921	3.98	3,000	1947...	Nov. 23, 1946	9.08	2,770
1922...	June 5, 1922	9.83	3,920	1948...	May 17, 1948	7.98	1,660
1923...	May 17, 1923	8.48	2,300	1949...	May 28, 1949	7.93	1,420
1924...	May 11, 1924	6.50	780	1950...	June 1, 1950	8.78	2,420
1925...	June 13, 1925	8.10	1,920	1951...	Nov. 19, 1950	17.50	27,000
1926...	May 20, 1926	8.17	1,960	1952...	May 30, 1952	10.87	6,140
1927...	Nov. 26, 1926	10.35	4,420	1953...	Apr. 27, 1953	9.03	3,120
1928...	May 30, 1928	7.67	1,460	1954...	May 21, 1954	8.60	2,600
1929...	May 25, 1929	7.37	1,240	1955...	June 8, 1955	8.60	2,500
1930...	June 13, 1930	8.01	1,730	1956...	Dec. 23, 1955	17.55	27,200
1931...	May 7, 1931	6.16	610	1957...	June 6, 1957	9.02	3,030
1932...	June 22, 1932	9.38	3,080	1958...	May 23, 1958	9.79	4,300
1933...	June 15, 1933	9.59	3,250	1959...	May 13, 1959	6.76	509
1934...	Apr. 20, 1934	7.20	1,080	1960...	May 12, 1960	5.35	925
1935...	June 8, 1935	9.63	2,920	1961...	Aug. 24, 1961	4.56	308
1936...	May 19, 1936	9.27	2,980	1962...	June 22, 1962	8.77	2,700
1937...	Feb. 6, 1937	12.46	8,600	1963...	Feb. 1, 1963	16.85	24,000

TABLE 5.—Annual peak stages and discharges—Continued

Water year	Date	Gage height (feet)	Dis-charge (cfs)	Water year	Date	Gage height (feet)	Dis-charge (cfs)
Sta. 11-2945, North Fork Stanislaus River near Avery, Calif.							
1915	May 11, 1915	8.7	6,210	1943	Jan. 21, 1943	10.65	11,200
1916	May 6, 1916	6.6	2,760	1944	May 15, 1944	6.53	2,690
1917	Apr. 30, 1917	6.3	2,450	1945	Feb. 2, 1945	10.7	11,300
1918	Apr. 30, May 1, 1918	5.8	1,960	1946	Apr. 25, 1946	7.30	3,730
1919	May 7, 1919	6.00	2,150	1947	May 3, 1947	6.20	2,320
1920	May 23, 1920	5.7	1,880	1948	May 16, 1948	7.82	4,550
1921	May 13, 1921	5.9	2,060	1949	May 14, 1949	7.12	3,470
1922	June 1, 1922	7.5	3,780	1950	May 15, 1950	7.35	3,800
1929	June 16, 1929	6.90	3,000	1951	Nov. 18, 1950	13.8	29,000
1930	Apr. 24, 1930	6.18	2,230	1952	May 27, 1952	8.60	6,010
1931	Apr. 26, 1931	4.68	1,010	1953	Apr. 27, 1953	10.08	9,980
1932	May 11, 1932	7.90	4,690	1954	Mar. 9, 1954	9.20	7,400
1933	May 29, 1933	7.31	3,580	1955	May 22, 1955	6.33	2,480
1934	Mar. 29, 1934	5.88	2,000	1956	Dec. 23, 1955	14.23	32,000
1935	May 23, 1935	7.58	3,970	1957	May 18, 1957	11.18	14,300
1936	June 7, 1936	8.50	5,810	1958	May 18, 1958	8.63	6,070
1937	May 13, 1937	8.35	5,010	1959	Feb. 16, 1959	6.17	2,230
1938	Dec. 11, 1937	14.1	31,100	1960	Feb. 8, 1960	7.35	3,220
1939	Apr. 8, 1939	5.65	1,790	1961	Apr. 4, 1961	5.73	1,320
1940	Mar. 26, 1940	9.82	9,160	1962	May 5, 1962	7.65	3,760
1941	May 11, 1941	8.60	5,760	1963	Jan. 31, 1963	15.00	36,000
1942	May 21, 1942	8.00	4,870				
Sta. 11-3350, Cosumnes River at Michigan Bar, Calif.							
1907	March 1907	16.3		1936	Feb. 22, 1936	9.95	18,200
1908	Jan. 21, 24, 1908		2,200	1937	Mar. 21, 1937	9.50	15,300
1909	Jan. 13, 1909	12.0	28,400	1938	Feb. 11, 1938	10.06	19,300
1910	Mar. 21, 1910		9,640	1939	Mar. 9, 1939	5.05	1,930
1911	Jan. 31, 1911	12.0	28,400	1940	Mar. 31, 1940	11.66	26,200
1912	Mar. 6, 1912		1,700	1941	Apr. 4, 1941	7.67	9,280
1913	Jan. 18, 1913	5.0	1,700	1942	Jan. 27, 1942	11.28	24,500
1914	Jan. 22, 1914	10.0	18,200	1943	Mar. 10, 1943	10.90	22,900
1915	Feb. 2, 1915	7.5	8,200	1944	Mar. 4, 1944	7.45	8,490
1916	Mar. 20, 1916	8.1	10,400	1945	Feb. 2, 1945	10.51	21,100
1917	Feb. 21, 1917	11.0	22,900	1946	Dec. 23, 1945	8.50	12,600
1918	Mar. 12, 1918	8.5	11,900	1947	Mar. 10, 1947	6.06	3,930
1919	Feb. 10, 1919	10.8	22,000	1948	Mar. 24, 1948	6.86	6,240
1920	Mar. 1, 21, 1920	6.0	3,700	1949	Mar. 3, 1949	8.72	13,500
1921	Jan. 18, 1921	10.5	20,600	1950	Feb. 4, 1950	7.44	8,360
1922	Feb. 9, 1922	8.2	10,600	1951	Nov. 18, 1950	11.84	27,600
1923	Dec. 13, 1922	8.5	11,600	1952	Jan. 12, 1952	8.48	12,500
1924	Feb. 8, 1924	4.5	1,120	1953	Apr. 27, 1953	6.12	4,080
1925	Feb. 6, 1925	11.2	23,800	1954	Mar. 30, 1954	6.03	3,860
1926	Feb. 12, 1926	6.0	3,850	1955	Jan. 1, 1955	6.11	4,060
1927	Apr. 3, 1927	8.4	11,400	1956	Dec. 23, 1955	14.69	42,000
1928	Mar. 25, 1928	11.0	22,900	1957	Mar. 5, 1957	7.41	6,930
1929	Mar. 10, 1929	5.7	3,160	1958	Apr. 3, 1958	12.18	29,300
1930	Mar. 5, 1930	6.80	6,090	1959	Feb. 16, 1959	6.37	4,340
1931	Feb. 18, 1931	4.87	1,620	1960	Feb. 8, 1960	8.22	11,200
1932	Feb. 6, 1932	8.24	10,600	1961	Mar. 25, 1961	3.85	486
1933	May 30, 1933	4.28	890	1962	Feb. 10, 1962	7.29	7,440
1934	Jan. 1, 1934	7.15	7,170	1963	Feb. 1, 1963	14.11	39,400
1935	Apr. 8, 1935	10.43	20,100				
Sta. 11-3925, Middle Fork Feather River near Clio, Calif.							
1926	Feb. 4, 1926	5.20	1,430	1945	Feb. 3, 1945	8.45	2,880
1927	Feb. 21, 1927	11.80	10,600	1946	Dec. 29, 1945	8.58	3,030
1928	Mar. 26, 1928	12.0	11,000	1947	Feb. 12, 1947	8.26	2,680
1929	Mar. 12, 1929	3.68	590	1948	Apr. 17, 1948	7.24	1,840
1930	Dec. 13, 1929	6.82	2,260	1949	Mar. 21, 1949	6.60	1,430
1931	Mar. 18, 1931	4.47	925	1950	Feb. 6, 1950	8.26	2,680
1932	Mar. 20, 1932	7.83	3,290	1951	Nov. 20, 1950	12.58	7,170
1933	Mar. 12, 1933	4.78	970	1952	Apr. 6, 1952	13.79	10,900
1934	Jan. 4, 1934	4.56	845	1953	Jan. 9, 1953	9.15	3,060
1935	Apr. 9, 1935	9.93	5,650	1954	Mar. 10, 1954	8.74	2,040
1936	Feb. 23, 1936	9.55	5,200	1955	Mar. 14, 1955	7.32	1,100
1937	Mar. 13, 1937	7.0	2,110	1956	Dec. 23, 1955	15.77	14,400
1938	Apr. 20, 1938	11.6	7,300	1957	Feb. 25, 1957	11.61	5,130
1939	Mar. 31, 1939	5.09	582	1958	Feb. 24, 1958	11.81	5,500
1940	Feb. 28, 1940	12.03	8,070	1959	Jan. 12, 1959	7.37	1,220
1941	Feb. 10, 1941	7.95	2,280	1960	Feb. 8, 1960	10.90	3,920
1942	Jan. 27, 1942	10.65	5,800	1961	Jan. 31, 1961	5.93	552
1943	Jan. 23, 1943	13.03	9,870	1962	Feb. 13, 1962	8.62	1,860
1944	Mar. 25, 1944	6.42	1,350	1963	Feb. 1, 1963	16.19	14,500

TABLE 5.—Annual peak stages and discharges—Continued

Water year	Date	Gage height (feet)	Dis-charge (cfs)	Water year	Date	Gage height (feet)	Dis-charge (cfs)
Sta. 11-4335, Middle Fork American River near Auburn, Calif.							
1912	May 30, 1912	7.4	5,350	1938	Dec. 11, 1937	27.3	47,900
1913	Apr. 26, 1913	8.1	6,460	1939	Apr. 4, 8, 1939	9.05	3,830
1914	Jan. 1, 1914	18.0	26,400	1940	Mar. 30, 1940	23.2	35,600
1915	May 11, 1915	16.0	22,000	1941	Dec. 27, 1940	16.9	18,400
1916	Mar. 20, 1916	13.7	17,100	1942	Jan. 27, 1942	21.60	32,300
1917	Feb. 25, 1917	13.0	15,600	1943	Jan. 21, 1943	28.0	58,000
1918	Apr. 10, 1918	8.0	6,100	1944	May 8, 1944	11.1	6,440
1919	Feb. 11, 1919	17.5	25,000	1945	Feb. 2, 1945	23.90	40,400
1920	Apr. 16, 1920	10.5	9,000	1946	Dec. 29, 1945	16.62	16,300
1921	Jan. 18, 1921	11.5	9,840	1947	Feb. 12, 1947	14.15	11,600
1922	May 20, 1922	12.7	11,400	1948	Apr. 17, 1948	13.38	10,100
1923	Dec. 13, 1922	17.7	21,100	1949	May 14, 1949	12.70	8,700
1924	Feb. 8, 1924	8.3	5,100	1950	Jan. 23, 1950	15.60	14,900
1925	Feb. 6, 1925	25.0	36,300	1951	Nov. 20, 1950	34.7	68,500
1926	Apr. 6, 1926	11.5	9,920	1952	Feb. 2, 1952	15.15	13,900
1927	Feb. 21, 1927	21.5	29,200	1953	Apr. 27, 1953	18.55	22,300
1928	Mar. 25, 1928	35.6	62,000	1954	Mar. 9, 1954	18.65	22,600
1929	June 16, 1929	11.3	12,000	1955	May 13, 1955	10.87	5,820
1930	Dec. 10, 1929	9.8	8,180	1956	Dec. 23, 1955	33.9	79,000
1931	Mar. 18, 1931	10.88	6,110	1957	May 18, 1957	19.55	26,400
1932	May 12, 1932	12.40	8,740	1958	Feb. 25, 1958	18.92	24,500
1933	May 30, 1933	11.6	6,770	1959	Feb. 16, 1959	12.41	7,690
1934	Mar. 29, 1934	12.30	7,830	1960	Feb. 8, 1960	22.74	36,700
1935	Apr. 8, 1935	19.5	25,000	1961	Feb. 10, 1961	9.73	4,220
1936	Feb. 22, 1936	19.4	24,700	1962	Feb. 10, 1962	15.27	14,000
1937	Feb. 14, 1937	13.5	10,600	1963	Feb. 1, 1963	43.1	121,000
Sta. 11-4645, Dry Creek near Cloverdale, Calif.							
1942	Feb. 5, 1942	10.02	6,780	1953	Dec. 6, 1952	13.63	11,300
1943	Jan. 21, 1943	16.65	15,600	1954	Jan. 17, 1954	14.68	12,800
1944	Mar. 4, 1944	8.20	4,660	1955	Dec. 2, 1954	6.41	2,410
1945	Feb. 5, 1945	7.83	4,160	1956	Dec. 22, 1955	17.80	17,600
1946	Dec. 27, 1945	12.15	9,400	1957	Feb. 24, 1957	9.92	5,800
1947	Feb. 11, 1947	7.68	3,980	1958	Feb. 24, 1958	16.56	15,500
1948	Jan. 7, 1948	6.71	2,880	1959	Feb. 16, 1959	13.49	10,600
1949	Mar. 11, 1949	7.63	4,170	1960	Feb. 8, 1960	14.50	12,200
1950	Feb. 3, 1950	7.81	4,370	1961	Dec. 1, 1960	9.92	5,800
1951	Dec. 3, 1950	15.0	13,200	1962	Jan. 13, 1962	15.66	14,100
1952	Dec. 1, 1951	11.41	8,450	1963	Jan. 31, 1963	17.91	17,700

To fit a time scale to the annual flood peaks, plotting positions must be determined. The following formula for computing plotting positions was used:

$$T = \frac{n+1}{m}$$

in which T is the plotting position or recurrence interval in years; n is the number of years of record being considered; and m is the order number of the flood, the highest flood of record being order number 1, the second highest number 2, and so on. The graphs of figures 21-23 were drawn using the computed recurrence-intervals as abscissas and the discharges from table 5 as ordinates.

Use of a logarithmic discharge scale permits direct comparison of the characteristics of the curves for the various regions; the steeper the slope of the curve, the greater the variability, or comparative range in

discharge, of annual flood peaks. The graphs show that the annual peaks for Arroyo Seco near Soledad, Calif., and Dry Creek near Cloverdale, Calif., have the least variability; those for Kern River near Kernville, Calif., and North Fork Stanislaus River near Avery, Calif., have the greatest variability.

For the flood magnitude-frequency data to be meaningful, a reasonably long period of continuous record of annual peak discharges must be available. Ideally, the period would be at least 50 and preferably 100 or more years. However, to present at least one set of data for each of the hydrologic regions defined in this report and to indicate the relative magnitude of the 1963 flood peaks, it was necessary to use some stations with less than 50 years of record. Frequency data based on these shorter periods may be biased because of the unusual flood activity in recent years in the area covered by this report.

The frequency curves included in this report are based solely on data for the period of continuous record at each gaging station. Lengths of record ranged from 22 years at Dry Creek near Cloverdale, Calif., to 58 years at Arroyo Seco near Soledad, Calif. When comprehensive flood-frequency studies are made in an area, historical data are sometimes used to adjust the upper end of the frequency curves. The data presented herein however would probably not be greatly altered by the available historical data for the rivers involved; therefore, the authors made no adjustments to the frequency curves.

DETERMINATION OF FLOOD DISCHARGE

The standard method used by the Geological Survey to determine discharge at a gaging station is to develop a stage-discharge relation from the current-meter discharge measurements made at various stages and then to apply this relation to records of stage. The record of stage is generally obtained from a water-stage-recorder installation that provides a continuous graphic or punch-tape record of stage. The reliability of the stage-discharge relation depends upon how adequately the discharge measurements define the entire range in stage. Short extensions of the high-water end of the stage-discharge-relation curve may be made on the basis of slope-conveyance studies, velocity-area studies, or by use of other hydrologic principles.

It was impossible to obtain current-meter measurements at or near the time of peak discharge at many of the gaging stations because the area of the 1963 flood was so extensive. Measuring facilities, such as cableways, were destroyed; also access roads and bridges were flooded or washed out. On some smaller streams the duration of the flood peaks was too short to permit measurement. The main difficulty was

that the number of sites requiring flood measurements was far too great for the trained personnel available to measure the discharge by current meter during the short period that the streams were in flood.

For many gaging stations at which no high-water current-meter measurements were made, the peak discharge was obtained by slope-area, contracted-opening, culvert, or other types of indirect discharge measurements. These indirect measurements are based on field surveys of high-water profiles, channel geometry, and hydraulic-structure geometry, and are computed in accordance with established hydraulic principles. They are indirect only in the sense that the data are collected subsequent to the passage of the peak discharge. Indirect measurements were made at over 200 sites throughout the report area. A general description of the indirect-measurement methods used by the Geological Survey is given in Water-Supply Papers 773-E, 798, 816, and 843; more detailed information on the latest techniques is available in recent publications and reports of the Geological Survey, such as Circular 284, "Computation of Peak Discharge at Contractions," and open-file report, "Indirect Measurement of Peak Discharge Through Culverts."

STREAMFLOW DATA

EXPLANATION OF DATA

Maximum stages and discharges at the 623 continuous-record gaging stations, crest-stage stations, miscellaneous sites, and reservoir stations are summarized in table 6. The derivation of the maximum data is explained in the station descriptions for each site in the "station data" section of this report. The peak-discharge values given in table 6 are for flow as it passed the gaging station or measuring site, and no adjustments have been made for storage, regulation, or diversion. For reservoir stations the maximum stage and contents are given.

At stations where the maximum discharge did not occur simultaneously with the maximum stage, the maximums are given on separate lines (sta. 10-2895, table 6). Under the heading "Maximum flood previously known," maximums during the period of gaging-station operation are listed first, and data on floods outside this period are given on the next line below, where such information is available (sta. 10-2905, table 6).

Peak discharges, in cubic feet per second per square mile, have been tabulated for all sites except those significantly affected by regulation or diversion and those for which the drainage-area figures were not available.

Following table 6, "Summary of flood stages and discharges," additional data are presented for each station where streamflow informa-

tion was collected by the Geological Survey during the 1963 floods. In general, the information presented for each continuous-record gaging station is as follows: A description of the station, a tabulation of daily mean discharges for January and February 1963, and a tabulation of stages and discharges at selected intervals during the 3 or 4 days when most floodflow occurred. For the miscellaneous sites and crest-stage stations, only the station description is presented, because no information other than maximum stages and discharges is available.

The station description gives information relative to: Location of the gage; size of drainage area above the gage; nature of the gage-height record obtained during the period discussed in this report; datum of the gage; definition of the stage-discharge relation; maximum stage and discharge during the January-February 1963 flood; previous maximum during the period of record; available maximum data for floods outside the period of record; the effect of regulation and diversion; and maximum reservoir inflow and outflow, where available. Other pertinent general information is also given.

Daily mean discharges during the months of January and February 1963 are listed after the description of each gaging station. This 2-month period shows antecedent conditions, floodflows, and most of the flood recession—enough information to allow adequate study of the flood hydrology.

The table of daily mean flow gives the discharge corresponding to the daily mean gage height unless (1) there were large or rapid changes in discharge during a day or (2) the gage-height record is from a digital-punch recorder. For the days that had large or rapid changes, discharge for the day is computed by subdividing the day and averaging the discharges from all the subdivided parts. For digital-punch recorders the daily mean discharge is always the average of the several (96, for a recorder set to punch at 15-minute intervals) discharges determined from each of the gage heights punched during the day.

Also shown in these tables are the monthly mean discharge, in cubic feet per second, and the volume of monthly runoff, in acre-feet and in inches. The monthly runoff in inches is not given for stations where regulation and (or) diversion significantly affected the runoff or where the drainage area was not determined.

The tables of stage and discharge at selected times—where such detailed definition is warranted—may be found after the daily-mean discharge tables. Enough detail is presented so that hydrographs for the flood period can be accurately constructed.

Daily mean discharge, if computed from these flood detail sheets, may differ slightly from the daily mean discharge shown in the table of daily means. At a station where a digital-punch recorder is set to punch at 15-minute intervals, data for many of the 96 punches during the day were omitted from the table of stages and discharges. Only those data necessary to define the flood hydrograph with reasonable accuracy are included. Also, different methods of averaging data may result in slightly different daily mean values. Any resulting differences are of a minor nature but are pointed out for the information of the user.

Table 6.--Summary of flood stages and discharges

Station number	Stream and place of determination	Drainage area (sq mi.)	Period of record	Maximum flood previously known				Maximum during January-February 1962			
				Year	Gage height (feet)	Discharge		Date	Gage height (feet)	Discharge	
						Cfs	Cfs per square mile			Cfs	Cfs per square mile
The Great Basin											
10-2652	Owens Lake basin: Convict Creek near Mammoth Lakes, Calif.	18.7	1925-62	1932	4.43	290	15.5	Feb. 1	1.66	37	1.98
2657	Rock Creek at Little Round Valley, near Bishop, Calif.	35.8	1926-62	1952	a2.93	270	7.54	Feb. 1	1.43	42	1.17
2662	Paradise Creek near Paradise Camp, Calif.	4.75	-	-	-	-	-	Jan. 31 or Feb. 1	32.00	185	3.89
2670	Pine Creek at division box, near Bishop, Calif.	37.9	1921-62	1957	(b)	356	9.39	Feb. 1	2.34	93	2.45
2760	Big Pine Creek near Big Pine, Calif.....	39.0	1908-11, 1920-62	1932	6.55	458	11.7	Feb. 1	1.71	c d 56	-
2818	Independence Creek below Pinyon Creek, near Independence, Calif.	18.2	1923-62	1941	-	e 106	5.82	Feb. 1	(b)	60	3.30
2872.1	Mono Lake basin: Bridgeport Creek near Bodie, Calif.....	13.1	-	-	-	-	-	Jan. 31	-	47	3.59
2874	Rush Creek above Grant Lake, near June Lake, Calif.	51.2	1937-62	1938	-	e 711	13.9	Feb. 1	2.76	293	5.72
2879	Lee Vining Creek near Lee Vining, Calif.	35.2	1934-62	1938	a 3.07	503	14.3	Jan. 31	2.82	218	6.19
2885	Walker Lake basin: Hawthorne, Nev.....	-	1928-62	1928	4,051.8	-	-	Feb. 21	3,976.3	-	-
2890	Virginia Creek near Bridgeport, Calif....	64	1923-62	1908	4,078.0	-	-	Feb. 1	6.13	652	10.2
2895	Green Creek near Bridgeport, Calif.....	19.4	1953-62	1955	8.40	1,300	20.3	Feb. 1	3.03	199	10.3
2903	Upper Twin Lake near Bridgeport, Calif..	30	1961-62	1962	f 4.09	g 2,730	-	Feb. 1	7,208.68	g 2,610	-
2904	Lower Twin Lake near Bridgeport, Calif..	34.6	1961-62	1962	7,202.41	g 5,040	-	Feb. 1	7,202.07	g 4,940	-
2905	Robinson Creek at Twin Lakes Outlet, near Bridgeport, Calif.	34.7	1953-62	1956	4.35	c 445	-	Feb. 1	3.60	c 240	-
2915	Buckeye Creek near Bridgeport, Calif....	45	1953-62	1955	a 5.2	660	15.6	Feb. 1	4.41	947	21.0
2920	Swager Creek near Bridgeport, Calif.....	53	1911-15, 1953-62	1955	a 4.8	700	11.0	Feb. 1	5.57	443	8.36
2923	Bridgeport Reservoir tributary near Bridgeport, Calif.	.79	-	1955	6.24	585	-	Jan. 31	7.1	56	70.9
2925	Bridgeport Reservoir near Bridgeport, Calif.	362	1926-62	1938	6,460.7	g 44,580	-	Feb. 3, 4	6,459.35	g 40,560	-
2930	East Walker River near Bridgeport, Calif.	362	1921-62	1943	4.95	c 1,240	-	Feb. 5, 6	2.92	c 643	-
2935	East Walker River above Strosnider ditch, near Mason, Nev.....	1,100	1947-62	1955	a 6.87	c 1,640	-	Feb. 1	7.60	c 2,380	-
2952	West Walker River at Leavitt Meadows, near Colville, Calif.	73	1945-62	1950	(b)	2,810	38.5	Feb. 1	5.55	1,370	18.8
2953	Silver Falls Creek near Sonora Junction, Calif.	.91	-	-	-	-	-	Jan. 31	8.2	92	101
2955	Little Walker River near Bridgeport, Calif.	63	1910, 1944-62	1955	f 3.63	994	15.8	Jan. 31	3.22	1,510	24.0
2960	West Walker River below Little Walker River, near Colville, Calif.	182	1937-62	1950	8.10	6,220	34.2	Feb. 1	5.85	2,870	15.8
2965	West Walker River near Colville, Calif.	245	1915-38, 1957-62	1937	(b)	6,500	26.5	Feb. 1	4.44	2,510	10.2

[illegible]

See footnotes at end of table.

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

Station number	Stream and place of determination	Drainage area (sq mi.)	Period of record	Maximum flood previously known			Maximum during January-February 1963			
				Year	Gage height (feet)	Discharge Cfs	Cfs per square mile	Date	Gage height (feet)	Discharge Cfs
The Great Basin--Continued										
10-3435	Pyramid and Winnemucca Lakes basin--Con.	10.8	1953-62	1955	4.28	495	45.8	Feb. 1	4.64	765
3444	Sagehen Creek near Truckee, Calif.....	146	1903-10, 1939-62	1955	-	9,500	65.1	Feb. 1	9.00	13,300
3444.9	Little Truckee River above Boca Reservoir, near Boca, Calif.	172	1939-62	1955	5,605.55	841,440	-	Feb. 25, 26	5,594.80	831,510
3445	Boca Reservoir at Boca, Calif.....	172	1890, 1911-15, 1939-62	1955	(b)	c 8,900	-	Feb. 2	6.16	c 2,590
3460	Little Truckee River at Boca, Calif.....	932	1899-1962	1950	14.5	c 17,500	-	Feb. 1	11.61	c 11,900
3476	Truckee River at Farad, Calif.....	11.5	1961-62	1962	1.74	23	2.00	Jan. 31	6.93	986
3480	Hunter Creek near Reno, Nev.....	1,067	1906-21, 1925-26, 1930-35, 1943, 1950	1955	-	c 20,800	-	Feb. 1	13.28	c 18,400
3489	Truckee River at Reno, Nev.....	1,067	1906-21, 1925-26, 1930-35, 1943, 1950	1955	13.83	-	-	Feb. 1	13.28	c 18,400
3493	Galena Creek near Steamboat, Nev.....	8.5	1961-62	1962	1.64	80	9.41	Jan. 31	2.26	472
3497	Steamboat Creek at Steamboat, Nev.....	123	1956	1956	(b)	4,730	556	Jan. 31	5.44	1,000
3500	Whites Creek near Steamboat, Nev.....	9	1961-62	1962	3.69	280	2.28	Jan. 31	2.54	135
3516	Truckee River at Vista, Nev.....	1,429	1961-62	1962	(b)	e 23	2.6	Jan. 31	16.78	c 21,300
3517	Truckee River below Derby Dam, near Wadsworth, Nev.	1,670	1899-1908, 1932-54, 1959-62	1907	(b)	ce 10,000	-	Feb. 1	16.78	c 21,300
3565	Truckee River near Nixon, Nev.....	1,669	1903-10, 1916-62	1937	(b)	ce 8,970	-	Feb. 1	14.26	c 18,400
3578.5	Honey Lake basin:	192	1955-62	1955	14.1	c 14,000	-	Feb. 2	14.39	c 14,400
3584.7	Susan River at Susanville, Calif.....	3.91	1900-1905, 1913, 1917-21, 1950-62	1955	6.62	3,540	18.4	Jan. 31	6.78	3,900
3585	Eagle Lake tributary near Susanville, Calif.	3.08	-	-	-	-	-	Feb. 1	5.14	21
3586.1	Willow Creek tributary near Susanville, Calif.	h 92.5	-	-	-	-	-	Feb. 1	4.90	97
3588	Willow Creek near Susanville, Calif.....	h 92.5	1950-62	1955	5.36	712	7.07	Feb. 1	5.59	816
3588.1	Meadline Plains basin:	4.56	-	-	-	-	-	Feb. 1	5.59	816
3588.1	Whiskey Creek near Termo, Calif.....	4.56	-	-	-	-	-	Feb. 1	4.15	132
Central-coastal California										
11-1421.5	Cottontail Creek basin:	1.33	1959-62	1960	14.39	167	126	Jan. 31	12.59	72
1422	Cottontail Creek tributary near Cayucos, Calif.	12.5	1957-62	1960	10.36	2,520	202	Jan. 31	6.73	1,330
1425	Santa Rosa Creek basin:	41.4	1955	1955	15.2	(b)	-	Jan. 31	11.41	13,700
1426	Santa Rosa Creek near Cambria, Calif....	41.4	1950-62	1955	12.40	17,700	430	Jan. 31	11.41	13,700
1428	Arroyo de la Cruz basin:	1.31	1950-62	1962	52.96	(b)	-	Jan. 31	55.70	372
1428	Arroyo de la Cruz near San Simeon, Calif.	1.31	1960-62	1962	1.40	10	12.2	Jan. 31	f 2.16	18
1430	Redwood Gulch basin:	.82	1960-62	1962	1.40	10	12.2	Jan. 31	f 2.16	18
1430	Redwood Gulch near Jolon, Calif.....	.82	1960-62	1962	1.40	10	12.2	Jan. 31	f 2.16	18
1430	Rat Creek basin:	46.5	1950-62	1958	11.56	5,680	122	Feb. 1	11.23	5,400
1430	Big Sur River basin:	46.5	1950-62	1958	11.56	5,680	122	Feb. 1	11.23	5,400
1430	Big Sur River near Big Sur, Calif.....	46.5	1950-62	1958	11.56	5,680	122	Feb. 1	11.23	5,400

	Date	Description	Creek basin	Acreage	Year completed	No. of years to completion	Cost, dollars	Total cost, dollars	% complete	Remarks
Doud Creek basin:										
Carmel River basin:										
Carmel River at Robles del Rio, Calif.....	1960-62	2.75	1982	50.59	(b)	-	Jan. 31	51.24	42	15.3
Carmel River near Carmel, Calif.....	1955-62	193	1958	-	7,100	36.8	Jan. 31	9.60	4,950	25.6
Carmel River near Carmel, Calif.....	1955-62	246	1955	11.7	-	-	Jan. 31	14.72	7,360	29.9
Salinas River basin:										
Jack Creek near Templeton, Calif.....	1949-62	25.3	1956	9.56	5,040	199	Jan. 31	6.90	1,820	71.9
Santa Rita Creek near Templeton, Calif..	1961-62	18.2	1962	9.15	2,320	127	Jan. 31	7.66	1,210	66.5
San Marcos Creek tributary near Paso Robles, Calif.	1953-62	.59	1962	51.54	21	35.6	Jan. 31	51.06	(b)	-
Indian Valley Creek tributary near Vallejo, Calif.	1960-62	.13	1962	51.27	(b)	-	Jan. 31	51.84	13	100
Nacimiento River near Bryson, Calif.....	1955-62	140	1955	24.63	30,300	216	Jan. 31	21.08	22,800	163
Sapague Creek tributary at Bryson,	1960-62	.76	1962	52.22	(b)	-	Feb. 9	53.40	59	51.3
Nacimiento River below Nacimiento Dam, near Bradley, Calif.	1957-62	322	1958	10.28	6,520	-	-	3.28	6	-
Sulphur Springs Canyon near Jolon, Calif.	1960-62	5.16	1962	54.22	117	22.7	Jan. 31	56.04	209	40.5
San Antonio River at San Jones Bridge, near Lockwood, Calif.	1958-59, 1961-62	211	1962	7.01	7,040	33.4	Jan. 31	8.70	14,400	68.2
San Antonio River at Playoto, Calif.....	1929-62	284	1958	6.44	19,100	67.3	Jan. 31	6.35	14,800	52.1
San Antonio River tributary near Playoto, Calif.	1960-62	.50	1962	-	0	-	Jan. 31	52.43	30	60.0
Salinas River near Bradley, Calif.....	1948-62	2,535	1958	12.53	28,400	11.2	Feb. 1	9.87	12,200	4.81
Cow Creek near San Ardo, Calif.....	1960-62	4.80	1962	6.96	213	44.4	Feb. 9	5.90	173	56.0
San Lorenzo Creek tributary near Bitter Lake, Calif., above King City, Calif.	1960-62	3.24	1962	51.57	(b)	-	Jan. 31	51.80	18	5.56
San Joaquin River below Bitterwater Creek, near King City, Calif.	1958-62	233	1962	8.02	2,050	8.80	Feb. 10	8.13	2,130	9.14
Arroyo Seco near Greenfield, Calif.....	1961-62	113	1962	10.23	7,910	70.0	Jan. 31	11.35	10,400	92.0
Sand Creek near Palmdale Springs, Calif..	1960-62	14.8	1962	51.94	(b)	-	Jan. 31	(b)	673	45.5
Arroyo Seco near Soledad, Calif.....	1901-62	244	1958	a14.40	28,300	116	Jan. 31	15.55	24,300	99.6
Salinas River near Spreckels, Calif.....	1900-1901, 1929-62	4,156	1958	14.40	75,000	18.0	Feb. 1	15.22	7,570	1.82
Moro Cojo Slough basin: Moro Cojo Slough tributary near Castro- ville, Calif.	1960-62	.11	1962	26.85	-	-	Jan. 31	51.47	12	109
Pajaro River basin:										
Cedar Creek near Bell Station, Calif....	1961-62	12.8	1962	4.30	760	59.4	Jan. 31	6.95	3,490	273
Facheco Creek near Dunnville, Calif.....	1940-62	146	1955	21.0	c12,600	-	Feb. 1	17.7	6,900	-
Castro Creek near Morgan Hill, Calif.	1955-62	19.4	1958	526.8	g7,950	-	Feb. 1	526.54	g7,840	-
Llagas Creek near Morgan Hill, Calif.....	1951-62	19.6	1958	8.45	c3,190	-	Feb. 1	4.51	c906	-
Pajaro River near Gilroy, Calif.....	1959-62	399	1962	9.00	c1,120	-	Feb. 1	13.81	c5,320	-
Alec Canyon near Morgan Hall, Calif.....	1960-62	.91	1962	55.07	107	118	Jan. 31	-	367	403
Uvas Creek above Uvas Reservoir, near Morgan Hill, Calif.	1961-62	21.0	1962	13.18	6,580	313	Jan. 31	13.10	6,400	305
Uvas Reservoir near Morgan Hall, Calif... Bodfish Creek near Gilroy, Calif.....	1957-62	30.2	1958	488.9	g10,500	79.1	Feb. 1	489.6	g10,760	-
Bodfish Creek near Gilroy, Calif.....	1957-62	7.40	1959	6.35	585	-	Jan. 31	8.25	1,240	168

See footnotes at end of table.

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

Station number	Stream and place of determination	Drainage area (sq mi.)	Period of record	Maximum flood previously known				Maximum during January-February 1963			
				Year	Gage height (feet)	Discharge Cfs	Cfs per square mile	Date	Gage height (feet)	Discharge Cfs	Cfs per square mile
Central-coastal California--Continued											
11-1542	Pajaro River basin--Continued										
1585	Uvas Creek near Gilroy, Calif.....	71.2	1959-62	1960	9.11	2,700	37.9	Feb. 1	17.66	7,180	101
1590	San Benito River near Hollister, Calif.....	586	1949-62	1958	16.30	11,600	19.8	Feb. 10	4.02	7,339	58
	Pajaro River at Chittenden, Calif.....	1,186	1939-62	1955	-	24,000	20.2	Feb. 1	20.76	11,800	9.78
1591.5	Corralitos Creek near Corralitos, Calif.	10.6	1957-62	1958	33.11	1,970	186	Jan. 31	7.62	1,920	181
1592	Corralitos Creek at Freedom, Calif.....	27.8	1955-62	1955	7.55	3,620	130	Jan. 31	11.80	2,580	92.8
1594	Green Valley Creek near Corralitos, Calif.	7.05	1960-62	1962	52.17	245	34.8	Jan. 31	56.62	1,050	149
1597	Aptos Creek basin:										
	Aptos Creek at Aptos, Calif.....	12.2	1958-62	1962	6.02	560	45.9	Jan. 31	10.82	2,110	173
1597.7	Sequel Creek basin:										
1598	Laurel Creek near Laurel, Calif.....	.93	1960-62	1962	31.85	287	309	Jan. 31	32.31	328	353
	West Branch Sequel Creek near Sequel, Calif.	12.2	1958-62	1962	7.96	2,110	173	Jan. 31	10.88	4,120	338
1600	Sequel Creek at Sequel, Calif.....	40.2	1951-62	1955	22.33	15,800	393	Jan. 31	16.27	7,950	198
1600.3	San Lorenzo River basin:										
	San Lorenzo River tributary near, Boulder Creek, Calif.	.25	1960-62	1962	51.83	(b)	-	Jan. 31	52.80	58	232
1603	Zayante Creek at Zayante, Calif.....	11.1	1957-62	1958	7.70	3,700	333	Jan. 31	6.86	2,830	255
1605	San Lorenzo River at Big Trees, Calif....	111	1936-62	1955	22.55	30,400	274	Jan. 31	15.80	13,000	117
1615	Branch of Sequel Creek at Santa Cruz, Calif.	17.3	1940-43, 1952-62	1955	22.04	8,100	468	Jan. 31	13.34	2,820	163
1619	Scott Creek basin:										
	Scott Creek above Little Creek, near Davenport, Calif.	25.0	1958-62	1962	9.36	1,970	78.8	Jan. 31	8.71	1,560	62.4
1624.7	Pescadero Creek basin:										
	Pescadero Creek tributary near La Honda, Calif.	.22	1960-62	1962	48.86	5	22.7	Jan. 31	49.67	12	54.5
1625	Pescadero Creek near Pescadero, Calif....	45.9	1951-62	1955	21.27	9,420	205	Jan. 31	18.80	6,700	146
1625.4	Buena Vista Creek near Pescadero, Calif.....	18.3	1959-62	1962	-	1,600	87.4	Jan. 31	f 16.21	1,340	73.2
1626	Purissima Creek basin:										
	Purissima Creek near Half Moon Bay, Calif.	4.83	1958-62	1962	5.28	290	60.0	Jan. 31	5.31	301	62.3
1628	Redwood Creek basin:										
	Redwood Creek at Redwood City, Calif.....	1.82	1959-62	1962	6.68	360	198	Jan. 31	9.36	644	354
1629	Atherton drainage channel basin:										
	Sharon Creek near Menlo Park, Calif.....	.38	1959-62	1962	3.10	56	147	Jan. 31	3.07	68	179
			1958	1958	4.2	(b)	-				
1629.4	San Francisco Creek basin:										
	San Francisco Creek below Ladera damsite, near Stanford University, Calif.	28.5	1961-62	1962	9.87	1,400	52.6	Jan. 31	16.04	2,880	101
1629.5	San Francisco Creek tributary near Stanford University, Calif.	.26	1959-62	1962	2.98	39	150	Jan. 31	2.96	38	146
			1958	1958	3.2	(b)	-				

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

Station number	Stream and place of determination	Drainage area (sq mi.)	Period of record	Maximum flood previously known			Maximum during January-February 1963				
				Year	Gage height (feet)	Discharge Cfs	Date	Gage height (feet)	Discharge Cfs		
Central-coastal California--Continued											
11-1820.3	Rheem Creek basin: Rheem Creek at San Pablo, Calif.....	1.35	1960-62	1960	3.14	294	218	Jan. 31	3.30	315	233
1821	Pinole Creek basin: Pinole Creek at Pinole, Calif.....	10.0	1938-62	1958	11.63	1,660	166	Jan. 30	6.30	639	63.9
1823	Arroyo del Hambro near Martinez, Calif..	.82	1958-62	1962	24.54	236	288	Jan. 31	21.77	96	117
1825	Pacheco Creek basin: San Ramon Creek at San Ramon, Calif.....	5.89	1952-62	1962	16.98	1,600	272	Jan. 31	12.09	1,250	212
1826	San Ramon Creek at Walnut Creek, Calif..	50.8	1952-62	1955	14.55	6,890	136	Jan. 31	14.40	7,980	157
1835	Walnut Creek at Walnut Creek, Calif.....	79.2	1952-62	1958	20.2	12,200	154	Jan. 31	12.55	9,180	116
1851.5	Mount Diablo Creek basin: Horse Creek near Clayton, Calif.....	.20	1958-62	1962	47.92	36	180	Jan. 31	43.78	3	15.0
San Joaquin Valley											
1853	Buena Vista Lake basin: Golden Trout Creek near Cartago, Calif..	23.6	1956-62	1959	5.24	182	7.71	Feb. 1	f4.45	60	2.54
1853.5	Kern River near Quaking Aspen Camp, Calif.	530	1960-62	1962	7.08	3,070	5.79	Feb. 1	7.39	3,410	6.43
1854	Little Kern River near Quaking Aspen Camp, Calif.	132	1957-62	1958	5.24	1,100	8.33	Feb. 1	10.05	7,370	55.8
1856	Packsaddle Canyon Creek near Fairview, Calif.	4.05	1959-62	1955	12.4	(b)	38	Jan. 31	10.6	223	55.1
1860	Kern River near Kernville, Calif.....	848	1912-62	1955	17.55	ed 27,200	32.1	Feb. 1	16.85	ed 24,000	28.3
1863.4	Salmon Creek tributary B near Fairview, Calif.	.46	-	-	-	-	-	Feb. 1	f. 93	3	6.52
1863.6	Salmon Creek tributary C near Fairview, Calif.	.30	-	-	-	-	-	Feb. 1	1.03	3	10.0
1863.8	Salmon Creek tributary E near Fairview, Calif.	.23	-	-	-	-	-	Jan. 31	.53	1	4.35
1870	Kern River at Kernville, Calif.....	1,009	1905-12, 1953-62	1955	16.8	29,400	29.1	Feb. 1	17.33	28,800	28.5
1872	Shirley Creek tributary near Alta Sierra, Calif.	.27	1905-62	1950	18.4	(b)	14	Feb. 1	11.57	14	51.9
1882	South Fork Kern River near Olancha, Calif.	146	1959-62	1962	11.51	14	51.9	Feb. 1	5.37	1,240	8.49
1895	South Fork Kern River near Onyx, Calif..	530	1956-62	1958	f 5.85	-	8.77	Feb. 1	-	-	-
1897	Kelso Creek near Weldon, Calif.....	101	1911-14, 1919-42, 1947-62	1914	a 7.2	1,280	6.51	Feb. 1	6.79	3,460	6.53
1905	Isabella Reservoir near Isabella, Calif.	2,074	1958-62	1961	6.00	3,450	6.51	Jan. 10	2.48	9	.09
1910	Kern River below Isabella Dam, Calif....	2,074	1958-62	1950	2,594.83	4,456,200	11.7	Feb. 28	2,560.26	g 174,300	-
1918	Kern River tributary near Miracle Hot Springs, Calif.	1.24	1945-52	1958	28.16	39,000	18.8	Feb. 12	3.53	c 42	-
1925	Kern River near Democrat Springs, Calif.	2,258	1954-62	1962	15.14	4,260	4.03	-	-	0	-
1930	Kern River below Kern Canyon powerhouse, near Bakersfield, Calif.	2,307	1950-53	1950	30.7	40,000	17.7	Feb. 1	4.87	ed 112	-
1940.5	Tumbleweed Creek near Oildale, Calif....	2.40	1954-62	1958	13.68	3,960	15.6	Feb. 1, 2	6.94	c 481	-
			1958-62	1960	11.47	4,360	7.5	Feb. 13	4.65	104	43.3

[illegible]

See footnotes at end of table.

2470	San Joaquin River below Karchhoff power-house, near Pacheco, Calif.	1,481	1910-14, 1936-37, 1942-52	1955	51.0	92,200	-	Feb. 1	32.20	30,300	-
2472	Big Sandy Creek tributary near Toll-house, Calif.	.46	1959-62	1962	4.14	13	28.3	Feb. 1	4.77	23	50.0
2501	Millerton Lake at Friant, Calif.	1,333	1941-62	1959	578.99	525,400	-	Feb. 28	556.79	422,400	-
2510	San Joaquin River below Friant, Calif.	1,675	1907-41	1937	a 23.8	c 77,200	-	Feb. 10	2.20	c 85	-
2571	Miami Creek near Oakhurst, Calif.	10.6	1940-62	1962	6.03	11,200	23.7	Feb. 1	9.08	1,140	108
2575	Fresno River near Knowles, Calif.	133	1911-13, 1915-62	1955	11.52	13,300	100	Feb. 1	7.36	5,180	38.9
2577	Picayune Creek near Coarsegold, Calif.	7.96	1959-62	1962	5.12	15,216	27.1	Feb. 1	3.88	120	15.1
2580	Fresno River near Daulton, Calif.	259	1941-62	1955	12.64	17,500	67.8	Feb. 1	8.3	6,290	24.3
2588	East Fork Chowchilla River near Ahwahnee, Calif.	57.8	1957-62	1959	9.88	3,290	56.9	Jan. 31	10.34	3,710	64.2
2599	West Fork Chowchilla River near Mariposa, Calif.	33.6	1957-62	1959	8.67	3,590	107	Jan. 31	8.63	3,520	105
2599.2	Middle Fork Chowchilla River near Nippon-nawassaw, Calif.	12.3	1959-62	1962	8.15	925	75.2	Feb. 1	10.10	1,280	104
2590	Chowchilla River at Buchanan damsite, near Raymond, Calif.	235	1921-23, 1930-62	1955	16.50	30,000	128	Feb. 1	12.0	9,740	41.4
2602	Bear Creek tributary near Cathays Valley, Calif.	24.6	1959-62	1959	9.36	2,570	104	Feb. 1	10.07	3,850	157
2602.1	Bear Creek tributary near Cathays Valley, Calif.	1.16	1959-62	1962	22.64	63	54.3	Feb. 1	22.17	44	37.9
2604.8	Mariposa Creek near Cathays Valley, Calif.	66.0	1959-62	1959	11.62	7,180	109	Feb. 1	10.69	5,290	80.2
2610	Salt Slough near Los Banos, Calif.	-	1940-62	1941	-	e 2,420	-	Feb. 14	4.55	244	-
2615	San Joaquin at Fremont Ford Bridge, Calif.	8,090	1937-62	1956	67.37	e 5,910	-	Feb. 16	62.04	c 2,160	-
2628	Los Banos Creek near Los Banos, Calif.	159	1955-62	1955	14.05	11,400	71.7	Feb. 1	4.80	2,640	16.5
2629.5	Wolf Creek near Volta, Calif.	2.82	1958-62	1962	4.06	56	19.9	Feb. 1	5.70	207	73.4
2630	San Luis Creek near Los Banos, Calif.	84.6	1949-53, 1959-62	1959	7.99	3,420	40.4	Feb. 1	7.41	2,930	34.5
2630.5	Garzas Creek near Gustine, Calif.	51.2	1959-62	1959	5.84	1,100	21.5	Feb. 1	6.22	1,770	34.5
2645	Merced River at Happy Isles Bridge, near Yosemite, Calif.	181	1915-62	1955	12.73	9,860	54.5	Feb. 1	8.29	5,200	28.7
2665	Merced River at Pohono Bridge, near Yosemite, Calif.	321	1916-62	1955	21.52	23,400	72.9	Feb. 1	14.25	13,200	41.1
2673	South Fork Merced River at Wawona, Calif.	100	1955-62	1955	12	15,000	150	Feb. 1	9.56	8,590	85.9
2677	Strawberry Creek near Wawona, Calif.	1.05	-	-	-	-	-	Feb. 1	22.57	34	32.4
2680	South Fork Merced River near El Portal, Calif.	241	1950-62	1955	16.70	46,500	193	Feb. 1	15.22	21,600	89.6
2685	Merced River at Bagby, Calif.	911	1928-62	1955	26.80	92,500	102	Feb. 1	19.17	51,600	56.6
2693	Maxwell Creek at Coulterville, Calif.	17.0	1959-62	1960	5.73	1,720	56.2	Jan. 31	5.17	1,300	76.5
2693.5	North Fork Blacks Creek near Coulterville, Calif.	2.20	-	-	-	-	-	Jan. 31	6.85	472	215
2695	Lake McClure at Exchequer, Calif.	1,020	1926-62	1950	710.5	5,200,800	-	Feb. 15	674.8	5,203,800	-
2700	Merced River at Exchequer, Calif.	1,038	1901-13, 1915-62	1911	a 23.3	47,700	46.0	Feb. 6	3.84	c 1,560	-
2713	Hayward Creek near La Grange, Calif.	3.96	1959-62	1962	14.95	502	127	Feb. 1	15.00	520	131
2725	Merced River near Stevenson, Calif.	1,274	1940-62	1950	73.79	c 13,600	-	Feb. 14	64.84	c 2,950	-
2730	Merced River near Newman, Calif.	-	1941-62	1956	(b)	e 7,770	-	-	-	0	0
2740	San Joaquin River near Newman, Calif.	9,524	1912-62	1939	65.81	c 33,000	-	Feb. 14	57.17	c 4,870	-

See footnotes at end of table.

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

Station number	Stream and place of determination	Drainage area (sq mi)	Period of record	Maximum flood previously known			Maximum during January-February 1963				
				Year	Gage height (feet)	Discharge Cfs	Cfs per square mile	Date	Gage height (feet)	Discharge Cfs	Cfs per square mile
San Joaquin Valley--Continued											
11-2745	San Joaquin River basin--Continued										
2746	Orestimba Creek near Newman, Calif.....	134	1932-62	1958	a 6.57	10,200	76.1	Feb. 1	9.72	8,300	61.9
2746.1	Del Puerto Creek tributary No. 1 near Patterson, Calif.	.71	1958-62	1959	93.57	17	23.9	Feb. 1	93.73	20	28.2
2746.2	Del Puerto Creek tributary No. 2 near Patterson, Calif.	.024	1958-62	1959	5.73	5	20.8	-	-	0	0
2746.3	Windmill Canyon Creek near Patterson, Calif.	.99	1958-62	1960	3.70	8	8.1	-	-	0	0
2747.3	Del Puerto Creek near Patterson, Calif....	73.1	1959-62	1959	14.68	1,800	24.6	Feb. 1	12.40	490	6.70
2750	Badis Creek near Tuolumne Meadows, Calif....	2.94	1915-62	1950	9.0	6,660	145	Feb. 1	5.46	89	30.3
2755	Falls Creek near Hetch Hetchy, Calif.....	45.2	1923-62	1955	3,810.4	-	-	Feb. 8-10	8.68	5,560	123
2765	Hetch Hetchy Reservoir at Hetch Hetchy, Calif.	460	1923-62	1950	3,810.4	g 369,100	-	Feb. 8-10	3,693.9	g 166,000	-
2772	Tuolumne River near Hetch Hetchy, Calif.	462	1910-62	1943	13.30	c 12,900	-	Feb. 1	6.59	c 926	-
2773	Cherry Lake near Hetch Hetchy, Calif....	117	1956-62	1957	4,709.6	g 269,300	-	Feb. 27, 28	4,627.8	g 151,700	-
2775	Cherry Creek below Cherry Valley Dam, near Hetch Hetchy, Calif.	118	1956-62	1958	9.95	c 3,830	-	Jan. 31	4.09	c 109	-
2780	Lake Eleanor near Hetch Hetchy, Calif....	78.1	1918-62	1937	4,663.4	g 31,000	-	Feb. 1	4,663.3	g 29,400	-
2783	Eleanor Creek near Hetch Hetchy, Calif....	80	1909-62	1950	14.95	c 11,700	-	Feb. 1	12.24	c 10,400	-
2793	Cherry Creek near Early Intake, Calif....	226	1956-62	1958	10.46	c 4,940	-	Feb. 1	14.50	c 16,500	-
2810	Smoky Jack Creek near Yosemite Village, Calif.	.70	-	-	-	-	-	Feb. 1	9.03	101	144
2820	South Fork Tuolumne River near Oakland Recreation Camp, Calif.	87.6	1923-62	1955	10.9	11,900	137	Feb. 1	9.60	8,000	91.3
2835	Middle Tuolumne River at Oakland Recreation Camp, Calif.	71.0	1916-62	1955	11.75	4,920	66.9	Feb. 1	8.56	2,290	32.2
2845	Clavey River near Buck Meadows, Calif....	144	1959-62	1962	13.32	4,340	30.1	Feb. 1	23.0	19,200	133
2847	Big Creek near Groveland, Calif.....	24.7	1931-53, 1959-62	1932	6.70	3,000	121	Feb. 1	8.6	4,350	183
2848	North Fork Tuolumne River near Long Barn, Calif.	23.1	1955-62	1955	7.6	4,300	17.4	Feb. 1	8.2	1,570	68.0
2848	Sugarpine Creek near Long Barn, Calif....	1.13	-	-	-	-	-	Feb. 1	6.43	95	84.1
2850	North Fork Tuolumne River above Dyer Creek, near Tuolumne, Calif.	69.2	1955-62	1955	10.7	(b)	-	Jan. 31	5.79	4,130	59.7
2863	Curtis Creek tributary near Standard, Calif.	.26	-	-	-	-	-	Feb. 1	17.51	36	138
2865	Woods Creek near Jacksonville, Calif.....	97.2	1925-62	1955	14.66	14,400	148	Jan. 31	13.50	11,300	116
2875	Don Pedro Reservoir near La Grange, Calif.	1,539	1924-62	1937	606.1	g 292,100	-	Feb. 2	582.9	g 221,700	-
2880	Tuolumne River above La Grange Dam, near La Grange, Calif.	1,534	1895-1962	1950	45.8	c 61,000	-	Feb. 2	13.02	c 7,130	-
2900	Tuolumne River at Modesto, Calif.....	1,883	1895-96, 1940-62	1950	69.19	57,000	-	Feb. 14	51.21	c 7,340	-

2920	Middle Fork Stanislaus River at Kennedy Meadows, near Dardanelle, Calif.	47.5	1938-62	1950	6.66	c 1,700	-	Feb. 1	5.56	c 980	-
2925	Clark Fork Stanislaus River near Dardanelle, Calif.	85.7	1950-62	1950	11.88	4,350	66.2	Feb. 1	9.00	2,300	35.0
2926	Domelle Lake near Dardanelle, Calif.....	230	1957-62	1959, 1962	4,917.1	864,800	-	Feb. 4	4,891.8	854,800	-
2926.8	Cascade Creek near Pinecrest, Calif.....	4.97	-	1955	-	-	-	Feb. 1	10.5	532	107
2927	Middle Fork Stanislaus River at Hells Half Ark Bridge, Calif.....	287	1905-62	1955	23.0	26,600	92.7	Jan. 31	12.20	c 7,600	-
2928	Beardsley Lake near Strawberry, Calif....	309	1957-62	1957	3,398.2	898,700	-	Feb. 4	3,368.8	878,400	-
2929	Middle Fork Stanislaus River below Beardsley Dam, Calif.	316	1956-62	1958	10.48	c 5,860	-	Feb. 4	6.15	c 1,020	-
2930	Middle Fork Stanislaus River at Sand Bar Flat, near Avery, Calif.	325	1905-57	1955	20.2	26,000	80.0	Feb. 5	6.48	c 1,130	-
2933	North Fork Stanislaus River tributary near Lake Alpine, Calif.	.28	1958-62	1959	11.60	6,030	-	Feb. 1	13.04	23	82.1
2935	North Fork Stanislaus River below Silver Creek, Calif.	27.8	1950-62	1955	11.17	2,790	100	Jan. 31	8.75	970	34.9
2940	Highland Creek below Spicer Meadows Reservoir, Calif.	42.4	1950-62	1950, 1955	11.50	8,800	208	Jan. 31	11.88	9,860	233
2943	North Fork Stanislaus River below Gams damite, Calif.	111	1960-62	1955	9.14	2,930	26.4	Jan. 31	16.4	21,000	189
2945	North Fork Stanislaus River near Avery, Calif.	163	1914-22, 1928-62	1955	14.23	32,000	196	Jan. 31	15.0	36,000	221
2965	South Fork Stanislaus River at Straw-berry, Calif.	44.8	1911-17, 1938-62	1950	9.25	3,900	87.1	Feb. 1	6.52	1,810	40.4
2980	South Fork Stanislaus River near Long Barn, Calif.	66.9	1937-62	1950	9.3	c 4,900	-	Feb. 1	6.23	c 1,570	-
2990	Melones Reservoir at Melones Dam, Calif.	904	1927-62	1959	736.7	8115,800	-	Feb. 28	731.2	8105,600	-
2995	Stanislaus River below Melones power-house, near Sonora, Calif.	905	1931-62	1955	29.0	c 62,800	-	Feb. 1	15.70	c 17,700	-
2999.95	Tulloch Reservoir near Knights Ferry, Calif.	980	1957-62	1962	511.1	8 68,300	-	Feb. 7, 8	510.8	868,000	-
3020	Stanislaus River below Goodwin Dam, near Knights Ferry, Calif.	987	1955-62	1955	(b)	c 62,900	-	Feb. 2	17.18	c 11,800	-
3030	Stanislaus River at Ripon, Calif.....	-	1940-62	1955	63.25	c 62,500	-	Feb. 3	55.33	c 7,340	-
3035	San Joaquin River near Vernalis, Calif..	13,540	1938	1938	64.4	(b)	-	Feb. 4	23.27	c 12,400	-
3040	Corral Hollow Creek near Tracy, Calif...	61.6	1922-62	1950	32.81	c 79,000	-	Feb. 1	2.04	56	.91
3050	San Joaquin Creek near San Andreas, San Joaquin, Calif.	26.2	1958-62	1952	2.54	145	2.35	Jan. 31	6.5	1,380	52.7
3055	San Antonio Creek near San Andreas, Calif.	48.1	1950-62	1955	8.24	2,850	108	Jan. 31	4.77	1,730	36.0
3060	South Fork Calaveras River near San Andreas, Calif.	118	1950-62	1955	10.29	2,500	52.0	Jan. 31	9.20	12,600	107
3065	Calaveritas Creek near San Andreas, Calif.	53.0	1950-62	1958	6.65	4,410	83.2	Feb. 1	6.35	3,870	73.0
3070	Esperanza Creek near Mokelumne Hill, Calif.	16.6	1951-62	1955	7.7	3,060	184	Jan. 31	7.3	2,550	154
3075	Jesus Maria Creek near Mokelumne Hill, Calif.	34.6	1950-59, 1961-62	1955	7.63	5,490	159	Jan. 31	6.88	3,080	89.0

See footnotes at end of table.

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

Station number	Stream and place of determination	Drainage area (sq mi.)	Period of record	Maximum flood previously known			Discharge		Maximum during January-February 1965		
				Year	Gage height (feet)	Cfs per square mile	Date	Gage height (feet)	Cfs	Cfs per square mile	
San Joaquin Valley--Continued											
3111-3080	San Joaquin River basin--Continued										
	North Fork Calaveras River near San Andreas, Calif.	85.6	1950-62	1955	12.52	6,200	72.4	Feb. 1	11.72	5,620	65.7
3083	Eldorado Creek at Mountain Ranch, Calif.	1.31	-	-	-	-	-	Feb. 1	-	130	68.1
3084	Murray Creek near San Andreas, Calif.	363.4	1950-62	1955	5.62	1,700	72.6	Jan. 31	6.70	1,730	73.9
3085	Calaveras River below Logan Dam, Calif.	363	1961-62	1962	4.45	oe 5,300		Feb. 1	6.76	67,020	1,048
3090	Cottonwood Creek near Valley Springs, Calif.	21.1	1929-62	1955	6.96	5,240	154	Feb. 1	5.74	987	46.8
3095	Calaveras River at Jenny Lind, Calif.	393	1907-62	1911	21.0	50,000	127	Feb. 1	11.11	66,910	-
3114	Bear Creek tributary near Valley Springs, Calif.	.15	1959-62	1960	21.22	12	80.0	Feb. 1	22.20	6,34	227
3120	Bear Creek near Lockeford, Calif.	47.6	1930-62	1958	15.13	2,930	61.6	Feb. 1	12.55	1,480	31.1
3129.25	Mountain House Creek tributary near Altamont, Calif.	.27	1958-62	1960	6.10	2	7.4	Feb. 1	6.25	.5	1.85
3129.5	Mountain House Creek near Midway, Calif.	11.7	1958-62	1960	4.12	60	5.1	Feb. 1	2.65	19	1.62
3131	Kellogg Creek tributary near Byron, Calif.	1.09	1958-62	1962	41.65	9	8.26	Jan. 31	42.38	15	13.8
3135	Salt Springs Reservoir near West Point, Calif.	169	1931-62	(m)	3,958.0	g 140,000	-	Feb. 28	3,908.9	g 96,100	-
3145	North Fork Mokelumne River below Salt Springs Dam, Calif.	170	1926-62	1950	17.20	c 16,000	-	Feb. 1	9.87	c 590	-
3150	Coie Creek near Salt Springs Dam, Calif.	20.4	1927-62	1950	9.69	5,500	270	Feb. 1	4.28	5,730	261
3160	Bear River near Salt Springs Dam, Calif.	48.0	1951-62	1957	5.35	c 5,060	-	Feb. 1	4.00	c 1,400	-
3166.5	Antelope Creek near West Point, Calif.	1.48	1950	1950	11.2	(b)	-	-	-	-	-
3168	Poses Creek near Wileysville, Calif.	20.8	1960-62	1962	4.60	360	12.5	Feb. 1	5.10	78	52.7
3170	Mud Lake, Mokelumne River at West Point, Calif.	68.4	1911-62	1955	8.98	4,320	63.2	Jan. 31	8.22	1,580	76.0
3185	South Fork Mokelumne River near West Point, Calif.	75.1	1933-62	1955	a 14.8	6,920	92.1	Jan. 31	10.78	5,690	75.8
3195	Mokelumne River near Mokelumne Hill, Calif.	538	1901, 1903-4, 1927-62	1950	18.5	c 33,700	-	Feb. 1	16.15	a 25,900	-
3200	Pardee Reservoir near Valley Springs, Calif.	578	1929-62	1955	571.72	g 219,300	-	Feb. 1	567.5	g 209,600	-
3210	Mokelumne River at Lancha Plana, Calif.	587	1926-62	1950	20.1	c 26,700	-	Feb. 1	8.28	c 4,930	-
3235	Mokelumne River below Camanche Dam, Calif.	627	1904-62	1950	a 24.40	c 28,900	-	Feb. 2	10.87	c 5,920	-
3255	Mokelumne River at Woodbridge, Calif.	660	1924-62	1950	29.58	c 27,000	-	Feb. 4	22.56	c 5,340	-
3263	Dry Creek above Sutter Creek, near Ione, Calif.	70.8	1960-62	1962	7.40	1,450	20.5	Feb. 1	7.10	4,560	64.4
3270	Sutter Creek near Sutter Creek, Calif.	48.1	1935-41, 1960-62	1936	8.0	3,900	81.1	Jan. 31	6.27	5,770	120
3278	Clay Creek near Ione, Calif.	3.54	1959-62	1962	22.55	69	19.5	Feb. 1	22.68	75	21.2
3285	Dry Creek near Gold, Calif.	329	1926-35, 1944-62	1958	15.28	24,000	13.96	Feb. 1	13.96	9,320	28.5
3330	Camp Creek near Somersett, Calif.	62.6	1954-62	1955	12.48	6,020	96.2	Feb. 1	14.55	5,740	91.7

	1911-41, 1948-62	1955	14.8	15,800	77.1	Feb. 1	13.45	12,800	62.4
3335 North Fork Cosumnes River near El Dorado, Calif.		1955-62	18.1	13,500	126	Feb. 1	17.4	11,800	110
3342 Middle Fork Cosumnes River near Somerset, Calif.		1957-62	9.90	4,740	73.7	Feb. 1	10.90	5,540	86.2
3343 South Fork Cosumnes River near River Pines, Calif.	64.3	1908-62	14.59	42,000	78.2	Feb. 1	14.11	39,400	73.4
3350 Cosumnes River at Michigan Bar, Calif.	537	1907	16.3	(b)	-	Feb. 1	9.20	857	129
3356.5 Deer Creek near Shinghouse, Calif.	6.62	1959-62	12.86	6,560	143	Jan. 31	11.01	3,550	77.2
3357 Deer Creek near Shinghouse, Calif.	46.0	1943-62	54,000	74.6	Feb. 1	45.52	26,500	36.2	
3360 Cosumnes River at McConnell, Calif.	724.0	1959-62	46.26	1,320	27.2	Feb. 1	6.06	1,010	20.8
3365.8 Morrison Creek near Sacramento, Calif.	48.6	1953-62	12.98	3,800	89.2	Jan. 31	11.62	3,980	91.1
3375 Marsh Creek near Byron, Calif.	42.6	1955							
Sacramento Valley									
11-3415.5 Sacramento River basin:									
3416 Boulder Creek near La Moine, Calif.	6.57	1960-62	39.78	2,080	317	Jan. 31	32.59	866	101
3418 Sacramento River at Delta, Calif.	428.61	1961-62	19.26	37,700	87.1	Jan. 31	12.55	14,500	34.8
3419 Pit River at Round Mountain, Calif.	5,170.0	1964-62	14.12	37,100	239	Jan. 31	15.80	ce 15,004	300
3450 Snake Creek above Shasta Lake, Calif.	h 5,165.3	1944-62	21.90	17,800	273	Jan. 31	15.62	5,990	90.2
3455 McCloud River above Shasta Lake, Calif.	606.5	1945-62	29.20	45,200	74.6	Jan. 31	18.00	9,700	18.0
3460 Shasta Lake near Redding, Calif.	h 6,668	1948-43	1,066.22	84,528,900	-	Feb. 15	1,029.08	83,509,800	-
3705 Sacramento River at Keswick, Calif.	h 6,468	1944-62	47.2	186,000	28.8	Feb. 11	15.63	613,500	-
3710 Clear Creek at French Gulch, Calif.	115	1950-62	31.55	78,000	-	Jan. 31	8.64	2,400	20.9
3720 Clear Creek near Igo, Calif.	228	1940-62	13.49	7,050	61.3	Jan. 31	7.72	6,030	26.4
3720.5 Churn Creek near Redding, Calif.	9.34	1959-62	13.75	24,500	107	Jan. 31	6.61	1,230	132
3722 South Cow Creek near Millville, Calif.	77.3	1956-62	9.8	4,860	520	Feb. 1	7.35	3,630	47.0
3732 Oak Run Creek near Oak Run, Calif.	11.0	1957-62	9.23	5,720	74.0	Feb. 1	5.00	380	34.5
3733 Little Cow Creek near Ingot, Calif.	60.6	1957-62	6.53	1,440	131	Jan. 31	14.57	4,790	79.0
3740 Cow Creek near Millville, Calif.	425	1949-62	21.55	8,200	135	Feb. 1	13.91	17,000	40.0
3740.6 Shingale Creek near Shingletown, Calif.	3.25	1960-62	3.62	45,200	106	Jan. 31	3.06	108	33.2
3741 Bear Creek near Millville, Calif.	75.6	1959-62	10.44	187	51.4	Jan. 31	8.96	1,870	24.7
3744 Middle Fork Cottonwood Creek near Ono, Calif.	249	1956-62	14.74	9,090	36.5	Jan. 31	11.71	5,230	21.0
3756 Haling Creek tributary at Ono, Calif.	.067	1960-62	4.14	11	164	Jan. 31	3.44	4	59.7
3757 Middle Fork Cottonwood Creek near Igo, Calif.	88.7	1955-62	(b)	12,100	136	Jan. 31	35.92	7,810	88.0
3759.2 South Fork Cottonwood Creek near Cottonwood, Calif.	218	1961-62	-	-	-	Jan. 31	7.84	6,230	28.6
3759.3 Budden Canyon near Beegum, Calif.	1.09	1960-62	8.72	63	57.8	Feb. 1	8.73	66	60.6
3759.5 Cottonwood Creek tributary near Cottonwood, Calif.	.44	1960-62	5.16	27	61.4	Jan. 31	3.34	9	20.5
3760 Cottonwood Creek near Cottonwood, Calif.	922	1940-62	15.4	52,300	56.7	Jan. 31	12.28	23,100	25.1
3762 Summit Creek near Mineral, Calif.	1.80	1960-62	7.92	88	50.0	Feb. 1	8.25	100	55.6
3765.5 Battle Creek below Coleman Fish Hatchery near Cottonwood, Calif.	368	1937-62	15.8	35,000	97.8	Jan. 31	8.72	4,540	12.7
3775 Paynes Creek near Red Bluff, Calif.	92.7	1949-62	11.33	10,600	114	Jan. 30	7.65	3,300	35.6
3780 Sacramento River near Red Bluff, Calif.	h 9,022	1878-89, 1892-1962	38.9	291,000	32.3	Feb. 1	17.16	c 76,700	-
3787 Vale Gulch tributary near Red Bank, Calif.	.19	1960-62	5.97	53	279	Feb. 1	4.41	27	142

See footnotes at end of table.

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

Station number	Stream and place of determination	Drainage area (sq mi)	Period of record	Maximum flood previously known				Maximum during January-February 1963			
				Year	Gage height (feet)	Discharge		Date	Gage height (feet)	Discharge	
						Cfs	Cfs per square mile			Cfs	Cfs per square mile

Sacramento Valley--Continued											
Sacramento River basin--Continued											
11-3788	Red Bank Creek near Red Bluff, Calif....	93.5	1959-62	1962	8.30	2,980	31.9	Jan. 31	8.67	5,770	61.7
	Antelope Creek near Red Bluff, Calif....	123	1940-62	1956	12.43	11,500	93.5	Jan. 31	9.67	3,740	30.4
3795	Elder Creek near Paskenta, Calif.....	95.8	1937-62	1937	a 12.90	11,700	122	Jan. 31	10.29	4,890	51.0
3805	Elder Creek at Denver, Calif.....	126	1949-62	1958	a 13.40	11,000	80.9	Jan. 31	11.60	8,200	43.6
3815	Mill Creek near Los Molinos, Calif.....	131	1949-62	1937	23.6	23,000	176	Jan. 31	11.19	8,600	68.6
3819.9	Mill Creek tributary at Paskenta, Calif.....	131.64	1960-62	1962	5.80	53	82.8	Jan. 31	5.57	51	73.7
3820	Thomas Creek at Paskenta, Calif.....	194	1921-62	1955	13.89	23,500	121	Jan. 31	13.1	19,200	99.0
3825.5	Deer Creek below Slate Creek, near Deer Creek Meadows, Calif.	69.4	1961-62	1962	8.11	3,660	52.7	Jan. 31	9.85	4,970	71.6
3835	Deer Creek near Vina, Calif.....	208	1911-15, 1920-37, 1939-62	1937	19.2	23,800	114	Jan. 31	11.03	9,470	45.5
3840	Big Chico Creek near Chico, Calif.....	72.5	1930-62	1937	a16.5	8,260	114	Jan. 31	12.21	5,140	70.9
3847	Gilmore Creek near Lodgepole, Calif.....	.49	1959-62	1962	22.74	43	87.8	Jan. 31	23.12	53	108
3864	Grindstone Creek tributary near Elk Creek, Calif.	.80	1959-62	1961	21.75	85	106	Feb. 1	16.92	14	17.5
3870	Stony Creek near Fruto, Calif.....	599	1901-12, 1960-62	1969	a16.3	36,000	-	Jan. 31	11.64	c16,000	-
3879	Masterson Hollow Creek near Newville, Calif.	.93	1959-62	1961	12.84	30	32.3	Feb. 9	12.35	22	23.7
3880	Stony Creek below Black Butte Dam, near Orland, Calif.	740	1955-62	1958	a 11.82	c36,300	-	Feb. 1	13.37	c10,700	-
3885	Stony Creek near Hamilton City, Calif....	777	1940-62	1958	a 18.31	c39,900	-	Feb. 1	12.32	c9,300	-
3895	Sacramento River at Butte City, Calif....	h12,096	1940-62	1942	26.87	c170,000	-	Feb. 2	91.3	c100,000	-
3895	Sacramento River at Colusa, Calif.....	h12,110	1940-62	1942	29.20	c49,000	-	Feb. 2	64.68	c39,100	-
3900	Butte Creek at Butte Meadows, Calif.....	144.4	1960-62	1962	6.56	2,770	62.4	Jan. 31	7.03	3,220	72.5
3900	Butte Creek near Chico, Calif.....	147	1930-62	1955	13.35	18,700	127	Jan. 31	12.0	14,200	96.6
3900.45	Little Chico Creek tributary near Forest Ranch, Calif.	.65	1962	1962	4.32	34	52.3	Feb. 1	4.04	14	21.5
3902	Gold Run tributary near Nelson, Calif....	1.31	1959-62	1962	5.56	194	148	Feb. 13	5.79	205	156
3905	Sacramento River below Walkins Slough, Calif.	h12,940	1933-62	1958	51.41	c28,900	-	Feb. 3	48.79	c25,500	-
3906.72	Stone Corral Creek near Sites, Calif....	36.5	1959-62	1958	14.93	2,500	64.9	Feb. 12	10.36	880	22.9
3906.8	Salt Creek near Williams, Calif.....	12.9	1959-62	1962	23.98	427	33.1	Jan. 31	22.75	308	23.9
3910	Sacramento River at Knights Landing, Calif.	h12,550	1940-62	1960	41.83	c30,000	-	Feb. 2	39.90	c27,800	-
3914	Little East Chance Creek near Chilcott, Calif.	84.2	1958-62	1960	f 41.83	784	9.31	Feb. 1	-	c40	-
3915	Big Grizzly Creek near Portola, Calif....	45.5	1925-32, 1950-53, 1954-62	1962	7.49	3,090	67.9	Feb. 1	8.03	4,080	89.7
3923	Willow Creek tributary near Blairsden, Calif.	1.08	1962	-	-	-	-	Feb. 1	7.18	77	71.3
3925	Middle Fork Feather River near Chico, Calif.	686	1925-62	1955	15.77	14,400	21.0	Feb. 1	16.19	14,500	21.1

		1,068	1951-62	1955	21.2	62,000	58.1	Feb. 1	22.0	65,400	61.2
3945	Middle Fork Feather River near Merrimac, Calif.	8.09	1960-62	1962	5.47	1,640	203	Jan. 31	7.35	4,160	514
3948	South Fork Feather River above Little Grass Valley Reservoir, Calif.	25.5	1961-62	1962	5,035.4	876,800	-	Feb. 1	5,040.05	883,600	-
3950.2	Little Grass Valley Reservoir near La Porte, Calif.	25.9	1927-33, 1960-62	1928	a 7.00	2,600	100	Feb. 1	-	c 4,240	-
3950.3	South Fork Feather River below Little Grass Valley Dam, Calif.	37.7	1960-62	1961	4.10	cd 1,380	-	Jan. 31	13.21	cd 6,330	-
3952	South Fork Feather River below diversion dam, near Strawberry Valley, Calif.	14.1	1960-62	1962	5.37	1,900	135	Jan. 31	7.87	4,570	324
3953	Lost Creek above Sly Creek Reservoir, Calif.	24.1	1961-62	1962	3,531.5	885,500	-	Feb. 15	3,515.5	856,500	-
3954	Sly Creek Reservoir near Strawberry Valley, Calif.	30.0	1927-41, 1948-62	1955	6.90	5,000	167	Jan. 31	3.22	c 555	-
3960	Lost Creek near Clipper Mills, Calif....	87.5	-	1955	-	-	-	Jan. 31	15.5	c 7,510	-
3962	South Fork Feather River below Forbes Dam, Calif.	108	-	-	-	-	-	Jan. 31	11.24	cd 8,570	-
3963.5	South Fork Feather River below Ponderosa Dam, Calif.	132	1911-62	1955	21.60	19,200	145	Jan. 31	16.60	c 10,500	-
3970	South Fork Feather River at Enterprise, Calif.	1,347	1911-62	1955	25.5	104,000	77.2	Jan. 31	24.30	93,600	69.5
3975	Feather River at Bidwell Bar, Calif.....	1.66	-	1962	31.2	(b)	-	Feb. 1	6.66	52	31.3
3979.7	Lake Almanor tributary near Almanor, Calif.	491	1913-62	1928	4,480.5	8798,900	-	Feb. 28	4,462.15	8422,900	-
3990	Lake Almanor near Prattville, Calif.....	493	1905-62	1907	a 16.2	10,000	20.3	Jan. 31	2.07	c 19	-
3995	North Fork Feather River near Prattville, Calif.	68.6	1936-62	1937	a 6.48	2,320	33.8	Jan. 31	3.47	1,320	19.2
4000	Butt Creek above Almanor-Butt Creek tunnel, near Prattville, Calif.	122	1958-62	1962	8.50	4,720	38.7	Feb. 1	9.49	7,870	64.5
4011.5	Red Glover Creek near Genessee, Calif....	535	1957-62	1958	10.3	17,300	32.5	Feb. 1	10.7	30,200	56.7
4012	Indian Creek near Taylorsville, Calif....	739	1956-62	1956	11.5	(b)	-	-	-	-	-
4015	Indian Creek near Crescent Mills, Calif.	69.1	1906-21, 1918, 1920-21	1907	a 20.2	25,000	33.8	Feb. 1	18.35	24,900	33.7
4019	Spanish Creek near Quincy, Calif.....	6.72	1958-62	1962	9.82	7,450	108	Jan. 31	10.90	11,200	162
4019.4	Mill Creek near Quincy, Calif.....	184	1958-62	1962	12.50	13,200	71.7	Jan. 31	5.53	14,447	66.5
4020	Spanish Creek above Blackhawk Creek, at Keddie, Calif.	1.36	1933-62	1962	-	-	-	Feb. 1	14.5	15,000	81.5
4027	Kingsbury Creek near Twain, Calif.....	.79	-	-	-	-	-	Feb. 1	4.64	107	78.7
4033.4	Granite Creek near Tobin, Calif.....	28.6	1928-62	1958	5,157.1	8105,800	-	Jan. 31	8.74	62	78.5
4035	Bucks Lake near Bucks Lodge, Calif.....	1,953	1910-57	1955	35.60	72,400	37.1	Feb. 15	5,150.5	893,900	-
4045	North Fork Feather River at Pulga, Calif.	113	1960-62	1960	25.10	34,300	-	Jan. 31	3,172	c 54,900	-
4053	West Branch Feather River near Paradise, Calif.	149	1957-62	1960	18.55	14,000	124	Jan. 31	23.35	21,200	188
4065	West Branch Feather River near Yankee Hill, Calif.	3,632	1930-62	1937	30.3	21,400	144	Jan. 31	30.45	21,300	143
4070	Feather River at Oroville, Calif.....	1.72	1901-62	1907	167.5	230,000	55.9	Jan. 31	165.37	191,000	52.6
4074	Wyman Ravine tributary near Palermo, Calif.	30.5	1959-62	1962	13.70	260	151	Feb. 1	11.17	43	25.0
4075	South Honcut Creek near Bangor, Calif....		1950-62	1962	12.40	8,280	271	Jan. 30	7.85	2,100	68.9

See footnotes at end of table.

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

Station number	Stream and place of determination	Drainage area (sq mi.)	Period of record	Maximum flood previously known				Maximum during January-February 1963			
				Year	Gage height (feet)	Discharge		Date	Gage height (feet)	Discharge	
						Cfs	Cfs per square mile			Cfs	Cfs per square mile
Sacramento Valley--Continued											
Sacramento River basin--Continued											
4085	Middle Yuba River at Milton, Calif.....	39.8	1925-62	1937	4.18	6,800	171	Jan. 31	5.25	10,200	
4087	Middle Yuba River near Alleghany, Calif.	96.3	1957-62	1962	12.68	9,870	102	Jan. 31	19.3	23,700	
4090	Middle Yuba River above Oregon Creek, Calif.	162	1910-62	1955	17.25	26,400	163	Jan. 31	18.55	31,600	
4095	Oregon Creek near North San Juan, Calif.	34.4	1911-62	1955	11.90	5,390	157	Jan. 31	11.9	3,990	
4104	Haypress Creek near Sierra City, Calif...	18.2	1960-62	1962	1.85	573	31.5	Jan. 31	5.2	3,100	
-	Woodruff Creek at Goodyears Bar, Calif...	4.12	1943-62	1955	-	786	191	Jan. 31	-	1,000	
4120	Rock Creek at Goodyears Bar, Calif.....	8.99	1910-35, 1943-62	1955	-	2,390	266	Jan. 31	-	2,400	
4125	Goodyears Creek at Goodyears Bar, Calif.	12.9	1910-35	1928	f 9.5	1,800	140	Jan. 31	-	5,240	
4127	North Yuba River tributary near Good- yars Bar, Calif.	1.24	-	-	-	-	-	Feb. 1	9.07	75	
4130	North Yuba River below Goodyears Bar, Calif.	250	1930-62	1955	19.30	26,800	107	Feb. 1	23.8	40,000	
4133	Slate Creek below diversion dam, near Strawberry Valley, Calif.	49.4	1960-62	1962	12.75	7,460	151	Jan. 31	15.90	c d 12,200	
4135	North Yuba River below Bullards Bar Dam, Calif.	48.7	1940-62	1955	39.0	70,000	144	Feb. 1	42.0	83,000	
4136	Sweetland Creek near North San Juan, Calif.	2.68	-	-	-	-	-	Feb. 1	4.46	368	
4139	Upper Castle Creek at Soda Springs, Calif.	3.96	1958-62	1962	4.10	452	114	Jan. 31	(b)	1,300	
4139.5	South Yuba River tributary near Soda Springs, Calif.	.90	-	-	-	-	-	Feb. 1	21.84	489	
4140	South Yuba River near Cisco, Calif.....	51.8	1942-62	1950	15.82	11,700	226	Jan. 31	20.6	18,400	
4155	Bowman Lake near Graniteville, Calif....	27.3	1926-62	-	5,565.9	gp 70,500	-	Feb. 20	5,560.5	66,200	
4165	Canyon Creek below Bowman Lake, Calif...	28.6	1927-62	1950	6.28	c 2,520	-	Jan. 31	3.05	c 157	
4170	South Yuba River near Washington, Calif.	199	1942-62	1955	17.8	c 26,300	-	Feb. 1	18.5	c 28,500	
4171	Rooman Creek near Washington, Calif.....	25.2	1961-62	1962	9.85	c 2,580	103	Jan. 31	12.1	4,320	
4175	South Yuba River at Jones Bar, Calif....	310	1940-45, 1958-62	1962	17.70	c 207,000	-	Jan. 31	21.5	c 40,000	
4180	Yuba River at Eaglebright Dam, Calif.....	1,104	1941-62	1955	23.7	148,000	134	Feb. 1	-	150,000	
4185	Deer Creek near Smartville, Calif.....	84.6	1935-62	1962	13.77	c 11,600	-	Jan. 31	10.10	c 5,310	
4203	Willow Glen Creek near Rackerby, Calif...	1,395	1943-62	1955	89.85	c 160,000	-	Feb. 1	89.9	c 146,000	
4210	Yuba River near Marysville, Calif.....	139	1940-62	1955	16.56	19,700	142	Jan. 31	16.15	19,100	
4230	Bear River near Auburn, Calif.....	5.65	1940-62	1955	-	-	-	Feb. 1	6.82	148	
4230.5	Magnolia Creek near Auburn, Calif.....	292	1928-62	1955	-	33,000	113	Feb. 1	13.95	22,000	
4240	Bear River near Wheatland, Calif.....	.59	1953-62	1950	20.83	-	-	Jan. 31	12.56	57	
4246	Wellman Creek near Smartville, Calif.....	5,928	1943-62	1962	14.56	211	358	Jan. 31	12.56	57	
4250	Feather River at Nicolaus, Calif.....	-	1943-62	1955	51.60	357,000	60.2	Feb. 1	50.05	260,000	
4255	Sacramento River at Verona, Calif.....	-	1926-62	1940	41.20	c 79,200	-	Feb. 1	38.14	c 39,400	
4260	Sacramento weir spill to Yolo bypass, near Sacramento, Calif.	-	1926-62	1928	33.01	118,000	-	Feb. 2	31.83	82,600	

4261.1	Onion Creek tributary No. 3 near Soda Springs, Calif.	.65	1958-62	1962	2.29	34.5	53.1	Feb. 1	5.00	242	372
4261.2	Onion Creek tributary No. 5A near Soda Springs, Calif.	.39	1958-62	1962	2.55	45.3	116	Jan. 31	3.96	135	346
4261.3	Onion Creek tributary No. 2 near Soda Springs, Calif.	.48	1957-62	1962	2.54	44.8	93.3	Jan. 31	3.72	116	242
4261.4	Onion Creek tributary No. 1 near Soda Springs, Calif.	.19	1957-62	1962	1.69	16.3	85.8	Jan. 31	2.75	54.6	287
4261.5	Onion Creek near Soda Springs, Calif....	3.58	1958-62	1962	2.82	2.82	61.2	Jan. 31	4.5	960	268
4261.6	Onion Creek tributary No. 7 near Soda Springs, Calif.	.80	1958-62	1962	2.76	c 55.1	68.9	Feb. 1	f 5.3	181	226
4262	North Fork Forbes Creek near Dutch Flat, Calif.	1.68	1956-62	1962	3.64	c 91	-	Feb. 1	4.18	c 200	-
4264	North Shurtail Creek near Dutch Flat, Calif.	9.10	1955-62	1955	6.40	(b)	-	Jan. 31	6.5	1,250	137
4270	North Fork American River at North Fork Meadows, Calif.	343	1941-62	1955	10.22	49.100	143	Jan. 31	11.36	59,700	174
4275	Middle Fork American River at French Meadows, Calif.	47.9	1951-62	1955	14.95	16,300	340	Jan. 31	17.6	21,500	449
4277	Duncan Creek near French Meadows, Calif.	9.94	1960-62	1962	6.85	841	84.6	Jan. 31	9.95	4,610	464
4280	Rubicon River at Rubicon Springs, near Meeks Bay, Calif.	31.4	1910-14, 1955-62	1955	13.0	9,270	295	Feb. 1	14.28	11,500	366
4295	Gerle Creek below Loon Lake Dam, near Meeks Bay, Calif.	8.01	1910-14, 1962	1962	6.44	c 472	-	Feb. 1	12.65	3,240	404
4300	South Fork Rubicon River below Gerle Creek, near Georgetown, Calif.	47.6	1910-14, 1961-62	1962	7.88	c 2,650	-	Jan. 31	13.8	11,500	242
4310	Rubicon River near Georgetown, Calif....	195	1909-14, 1943-62	1955	21.5	51,000	282	Feb. 1	25.8	58,000	297
4318	Pilot Creek above Stumpy Meadows Reservoir, Calif.	11.7	1950-62	1962	4.76	455	38.9	Jan. 31	8.95	2,070	177
4330.4	Pilot Creek below Mutton Canyon, near Georgetown, Calif.	21.1	1961-62	1962	3.46	c 160	-	Jan. 31	5.11	c 464	-
4331	Logan Canyon Creek near French Meadows, Calif.	18.0	1960-62	1962	6.82	674	37.4	Feb. 1	11.3	3,540	197
4332	Rubicon River near Foresthill, Calif....	311	1958-62	1962	16.49	13,000	41.8	Feb. 1	35.0	83,000	267
4333	Middle Fork American River near Foresthill, Calif.	534	1958-62	1962	22.6	29,800	55.8	Feb. 1	38.00	113,000	212
4335	Middle Fork American River near Auburn, Calif.	612	1911-62	1955	33.9	79,000	129	Feb. 1	43.1	121,000	198
4360	Silver Lake Outlet near Kirkwood, Calif.	15.2	1922-62	1950	6.03	c 676	-	Feb. 1	4.60	c 424	-
4375.6	Kirkwood Creek near Silver Lake, Calif..	3.62	1922-62	1950	10.40	c 14,500	-	Feb. 1	9.71	385	106
4395	South Fork American River near Kyburz, Calif.	193	1907, 1923-62	1950	10.40	c 14,500	-	Feb. 1	10.53	cd 15,500	-
4400	Alder Creek near White Hall, Calif.....	22.1	1922-62	1955	8.40	5,500	24.9	Jan. 31	7.37	4,430	200
4410.01	Union Valley Reservoir near Riverton, Calif.	83.6	-	-	-	-	-	Feb. 28	4,802.7	g 121,900	-
4411	Ice House Reservoir near Kyburz, Calif..	27.2	1959-62	1961	5,450.24	g 46,100	-	Feb. 28	5,405.36	g 20,100	-
4415	South Fork Silver Creek near Ice House, Calif.	27.5	1924-62	1955	a 6.71	3,940	143	Feb. 1	3.15	c 54	-
4419	Silver Creek below Camino diversion dam, Calif.	171	1960-62	1962	7.05	c 2,740	-	Jan. 31	11.9	c 19,300	-
4435	South Fork American River near Camino, Calif.	493	1922-62	1955	32.6	c 49,600	-	Feb. 1	29.2	c 37,200	-
4455	South Fork American River near Lotus, Calif.	673	1962-1962	1955	21.37	71,800	107	Feb. 1	19.85	60,400	89.7

See footnotes at end of table.

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

Station number	Stream and place of determination	Drainage of area (sq mi.)	Period of record	Maximum flood previously known				Maximum during January-February 1963			
				Year	Gage height (feet)	Discharge		Date	Gage height (feet)	Discharge	
						Cfs	Ofs per square mile			Cfs	Ofs per square mile
Sacramento Valley--Continued											
11-4462	Sacramento River basin--Continued										
4462	Folsom Lake near Folsom, Calif.....	1,863	1955-62	1960	466.89	81,020,500	-	Feb. 1	450.10	835,700	-
4465	American River at Fair Oaks, Calif.....	1,889	1904-62	1950	a 31.85	180,000	95.3	Feb. 2	21.44	c 101,000	-
4473	Dry Creek tributary near Roseville, Calif.	.39	1953-62 ^c	1955	a 20.35	71,500	-				
			1959-62	1962	17.00	220	564	Feb. 1	14.23	42	108
4475	Sacramento River at Sacramento, Calif....	-	1909-62	1950	a 30.14	c 104,000	-	Feb. 1	28.52	c 98,100	-
4485	Adobe Creek near Kelseyville, Calif.....	6.39	1954-62	1962	9.18	1,430	224	Jan. 31	9.22	1,450	227
4489	Highland Creek above Highland Creek Dam, Calif.	11.9	-	-	-	-	-	Jan. 31	9.60	1,720	145
4490.6	Lyons Creek tributary near Lakeport, Calif.	.16	-	-	-	-	-	Jan. 31	12.08	(b)	-
4491	Scotts Creek near Lakeport, Calif.....	52.3	1960-62	1962	10.98	3,910	74.8	Jan. 31	14.02	6,500	124
4493.5	Burns Valley Creek near Clearlake Highlands, Calif.	4.38	-	-	-	-	-	Jan. 31	4.38	277	63.2
4495	Kelsey Creek near Kelseyville, Calif.....	37.2	1946-62	1955	12.80	8,800	237	Feb. 31	12.80	6,300	169
4500	Clear Lake at Lakeport, Calif.....	528	1913-62	1914	11.12	1,530	116	Jan. 30	7.42	2,340	177
4506	Copsey Creek near Lower Lake, Calif.....	13.2	1960-62	1962	11.13	c 8,000	-	Feb. 4	8.38	c 5,680	-
4510	Cache Creek near Lower Lake, Calif.....	528	1944-62	1958	9.40	20,300	104	Jan. 31	11.44	13,400	67.7
4515	North Fork Cache Creek near Lower Lake, Calif.	198	1930-62	1937	13.98	-	-	Jan. 31	12.95	99	32.6
4515.3	Phipps Creek near Lower Lake, Calif.....	3.05	-	-	-	-	-	Jan. 31	12.95	99	32.6
4517	Bear Creek tributary near Wilbur Springs, Calif.	4.50	1961-62	1962	27.92	355	78.9	Jan. 30	27.79	357	79.3
4517.2	Bear Creek near Rumsey, Calif.....	96.8	1955-62	1958	12.33	(b)	-	Jan. 31	9.95	5,600	57.9
4520	Cache Creek near Capay, Calif.....	1,052	1958-62	1962	9.59	5,040	52.1	Feb. 1	16.35	c 26,300	-
4525	Cache Creek at Yolo, Calif.....	1,137	1942-62	1958	20.90	c 61,600	-	Feb. 1	26.92	c 24,000	-
4530	Yolo bypass near Woodland, Calif.....	-	1939-62	1942	34.2	272,000	-	Feb. 2	30.62	163,000	-
4531.5	Futas Creek tributary near Whispering Pines, Calif.	.25	1958-62	1962	12.41	160	160	Feb. 1	13.60	58	232
4532	Dry Creek near Middletown, Calif.....	8.41	1959-62	1960	9.90	3,470	413	Jan. 31	9.54	3,010	358
4535	Futas Creek near Guenoc, Calif.....	112	1904-61	1930-62	22.7	32,000	286	Jan. 31	20.91	26,500	237
4536	Pope Creek near Pope Valley, Calif.....	78.3	1960-62	1962	13.58	7,540	96.3	Jan. 31	19.79	18,000	230
4537	Capell Creek tributary near Wooden Valley, Calif.	.87	1958-62	1960	4.91	158	182	Jan. 31	7.70	376	432
4539	Lake Berryessa near Winters, Calif.....	577	1957-62	1962	420.43	81,243,400	-	Feb. 28	431.50	81,441,800	-
4540	Futas Creek near Winters, Calif.....	577	1930-62	1940	30.5	81,000	140	Jan. 31	8.77	c 1,080	-
4540.2	Futas Creek tributary No. 2 near Winters, Calif.	.060	1959-62	1962	21.60	7	140	Feb. 1	21.49	6	120
4541	Pleasants Creek near Winters, Calif.....	15.9	1959-62	1962	8.55	1,580	99.4	Jan. 31	12.36	3,780	238

North-coastal California

Well No.	Location	Depth, ft.	Year	Flow, gpm.	Pressure, psi.	Water, gal.	Oil, gal.	Gas, cu ft.	Notes
4559.5	Napa River basin:								
4560	Sulphur Creek near St. Helena, Calif.....	4.49	1957-82	13.53	1958	924	205	Jan. 31	11.71
4561	Napa River near St. Helena, Calif.....	81.1	1929-32, 1959-62	13.5	1958	(b)		Jan. 31	500
4562	Leavesley tributary near Rutherford, Calif.....	1.04	1958-62	16.17	1958	12,600	155	Jan. 31	12,300
4563	Leavesley tributary near Rutherford, Calif.....	1.04	1958-62	16.17	1958	64	61.5	Jan. 31	149
4564	Dry Creek near Napa, Calif.....	17.4	1951-62	8.11	1958	3,460	199	Jan. 31	2,300
4565	Napa River near Napa, Calif.....	21.8	1929-32, 1959-62	23.10	1960	12,300	56.4	Jan. 31	27.5
4566	Redwood Creek near Napa, Calif.....	9.81	1958-62	8.63	1962	1,120	114	Jan. 31	1,330
4567	Sonoma Creek basin:								
4568	Sonoma Creek near Kenwood, Calif.....	6.06	1957-62	13.25	1958	1,510	249	Jan. 31	13.10
4569	Sonoma Creek at Boyes Hot Springs, Calif.....	62.2	1955-62	17.10	1955	8,880	143	Jan. 31	12.17
4570	Petaluma River basin:								
4571	Petaluma River at Petaluma, Calif.....	30.9	1948-62	13.55	1955	1,980	60.2	Jan. 31	10.76
4572	Novato Creek basin:								
4573	Novato Creek near Novato, Calif.....	17.5	1946-62	8.24	1958	1,960	60.2	Jan. 31	10.76
4574	Corte Madera Creek basin:								
4575	Corte Madera Creek at Ross, Calif.....	19.1	1951-62	17.45	1955	3,620	200	Jan. 30	5.77
4576	Redwood Creek basin:								
4577	Redwood Creek near Tamalpais Valley, Calif.....	6.88	1961-62	6.67	1962	880	138	Jan. 31	6.28
4578	Lagunitas Creek basin:								
4579	Nicasio Creek near Nicasio, Calif.....	1.74	1961-62	12.96	1962	380	218	Jan. 31	11.38
4580	Walker Creek basin:								
4581	Walker Creek near Tomales, Calif.....	37.1	1958-62	19.8	1958	(b)		Jan. 31	17.89
4582	Walker Creek near Tomales, Calif.....	37.1	1959-62	18.18	1961	3,430	92.5	Jan. 31	3,210
4583	Roscoe Creek basin:								
4584	Roscoe Creek near Bodega Bay, Calif.....	.25	1961-62	8.16	1962	37	148	Jan. 31	8.59
4585	Salmon Creek basin:								
4586	Salmon Creek at Bodega, Calif.....	15.7	-	-	-	-	-	Jan. 31	15.56
4587	Russian River basin:								
4588	Russian River near Ukiah, Calif.....	99.6	1911-13, 1952-62	21.0	1955	18,900	190	Jan. 31	15.43
4589	East Fork Russian River tributary near Ukiah, Calif.....	.15	1958-62	11.72	1962	94	627	Jan. 31	8.04
4590	East Fork Russian River near Calpella, Calif.....	93.0	1941-62	15.06	1955	13,300	-	Jan. 31	12.49
4591	East Fork Russian River near Ukiah, Calif.....	105	1911-13, 1951-56	16.86	1955	13,300	127	Feb. 2	8.92
4592	Slide Creek near Ukiah, Calif.....	.57	1957-62	13.64	1959	65	114	Jan. 31	13.61
4593	Russian River near Hopland, Calif.....	362	1939-62	27.00	1955	45,000	124	Jan. 31	19.24
4594	Pellic Creek near Hopland, Calif.....	31.1	1958-62	30.0	1937	(b)	-	Jan. 31	64
4595	Russian River near Cloverdale, Calif.....	502	1955-62	13.35	1962	2,880	92.6	Jan. 31	13.43
4596	Big Sulphur Creek near Cloverdale, Calif.....	82.3	1951-62	13.60	1955	2,710	87.1	Jan. 31	21.75
4597	Meacama Creek near Kellogg, Calif.....	43.4	1955-62	30.9	1955	53,000	106	Jan. 31	13.65
4598	Meacama Creek near Kellogg, Calif.....	43.4	1955-62	22.2	1955	20,000	243	Jan. 31	17.15
4599	Meacama Creek near Kellogg, Calif.....	43.4	1955-62	20.6	1958	8,100	187	Jan. 31	7,700

See footnotes at end of table.

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

Station number	Stream and place of determination	Drainage area (sq mi.)	Period of record	Maximum flood previously known				Maximum during January-February 1963			
				Year	Gage height (feet)	Discharge		Date	Gage height (feet)	Discharge	
						Cfs	Cfs per square mile			Cfs	Cfs per square mile
North-coastal California											
	Russian River basin--Continued	793	1939-62	1940	30.0	67,000	84.5	Feb. 1	20.10	41,800	52.7
4640.5	Russian River near Healdsburg, Calif.....		1937	1937	30.8	(b)					
4645	Dry Creek tributary near Hopland, Calif.	1.27	1958-62	1962	9.25	185	146	Jan. 31	9.38	193	152
	Dry Creek near Cloverdale, Calif.....	87.6	1941-62	1955	17.80	17,600	200	Jan. 31	17.91	17,700	202
4650.5	Dutcher Creek near Asti, Calif.....	2.24	1937	1937	18.0	191	170	Jan. 31	8.14	250	112
4652	Dry Creek near Geyserville, Calif.....	162	1958-62	1962	15.16	22,500	139	Jan. 31	16.50	25,800	159
4658	Santa Rosa Creek near Santa Rosa, Calif.	12.5	1959-62	1960	13.35	3,200	258	Jan. 31	9.53	1,250	100
4670	Russian River near Guerneville, Calif.....	1,340	1939-62	1955	49.7	90,100	67.2	Feb. 1	43.70	71,800	53.6
4670.4	Ward Creek tributary near Cazadero, Calif.	.11	1961-62	1962	10.78	35	31.6	Jan. 31	10.39	24	218
4672	Austin Creek near Cazadero, Calif.....	63.1	1959-62	1962	20.6	15,100	239	Jan. 31	17.35	11,500	182
4673	Gualala River basin:										
4675	Wheatfield Fork Gualala River tributary near Annapolis, Calif.	.19	1961-62	1962	9.90	54	284	Jan. 31	9.23	32	168
4675	South Fork Gualala River near Annapolis, Calif.	161	1950-62	1955	24.57	55,000	342	Jan. 31	16.86	23,000	143
4675.6	China Gulch Creek at Gualala, Calif.....	.54	1961-62	1962	13.96	112	207	Jan. 31	11.66	40	74.1
4676	Garcia River basin:		1951-56, 1962	1955	20.78	26,300	266	Jan. 31	15.11	23,900	242
4678	Navarro River basin:	98.8	1959-62	1960	15.30	9,980	123	Jan. 31	18.30	13,900	212
4680	Rancheria Creek near Boonville, Calif.....	65.6	1950-62	1955	40.60	64,500	215	Jan. 31	34.34	33,100	109
4680.1	Albion River basin:		1961-62	1962	8.30	960	66.2	Jan. 31	7.53	729	50.3
4680.2	Albion River tributary near Comptche, Calif.	14.5	1961-62	1962	8.97	50	125	Jan. 31	8.76	43	108
4680.7	Big River basin:		1960-62	1962	9.47	2,160	59.5	Jan. 31	10.77	2,930	80.7
4680.85	South Fork Big River near Comptche, Calif.	36.3	1961-62	1962	13.35	18	41.9	Jan. 31	12.60	11	25.6
4681.5	Warner Creek basin:		1961-62	1962	8.98	48	78.7	Jan. 31	8.30	37	60.7
4685	Noyo River basin:	106	1951-62	1955	25.64	22,000	208	Jan. 31	15.83	5,050	47.6
4707	Eel River basin:	1.39	-	-	-	-	-	Jan. 31	54.52	149	107
4721.7	Alder Creek near Potter Valley, Calif.....	.71	-	-	-	-	-	Jan. 31	54.84	72	101
4722	Outlet Creek near Longvale, Calif.....	162	1956-62	1960	20.27	26,500	164	Jan. 31	17.03	19,100	118
4725	Eel River above Dos Rios, Calif.....	705	1950-62	1955	45.4	123,000	174	Jan. 31	32.40	59,600	84.5
4729	Black Butte River near Covelo, Calif.....	162	1953-57, 1958-62, 1957	1937	36.2	26,000	150	Jan. 31	17.77	14,900	92.0

4730	Middle Fork Eel River below Black Butte River near Covelo, Calif.	367	1951-62	1955	25.0	89,100	243	Jan. 31	20.24	80,500	165
4735.7	Mill Creek tributary near Covelo, Calif.	3.28	-	-	-	-	-	Jan. 31	11.80	26	100
4738.8	Goforth Creek near Dos Rios, Calif.....	3.83	1911-13, 1951-62	1955	49.86	283,000	191	Jan. 31	13.86	483	126
4740	Eel River below Dos Rios, Calif.....	1,484	1953-62	1955	20.00	58,400	234	Jan. 31	38.90	159,000	106
4745	North Fork Eel River near Mina, Calif....	250	1937	1937	a 30.7	(b)	-	Jan. 31	19.25	29,000	106
4745.7	Wilson Creek near Mina, Calif.....	2.84	1946-62	1955	16.20	20,100	458	Jan. 31	13.17	235	82.7
4755	South Fork Eel River near Branscomb, Calif.....	43.9	-	-	-	-	-	Jan. 31	8.03	4,090	93.2
4758.9	Steel Creek near Laytonville, Calif.....	2.9	-	-	-	-	-	Jan. 31	22.67	1,090	376
4757	Tennille Creek near Laytonville, Calif.....	50.3	1955-62	1955	22.9	16,300	324	Jan. 31	16.63	9,530	189

a Site and (or) datum then in use.

b Unknown.

c Affected by storage and (or) diversion; see station description.

d River only.

e Maximum daily mean discharge, in cubic feet per second.

f Affected by backwater; see station description.

g Contents, in acre-feet.

h Net contributing area; see station description.

i Alameda Creek distributary.

j May have exceeded floods of Mar. 2, 1936, and Feb. 1, 1963; see station description.

k Includes flow in Merced River Slough.

m Contents observed several days in June or July each year 1949-54, 1956-58, 1960, 1962.

n Occurred at different time than maximum discharge; see station description.

p Occurred on one or more days in 1937, 1943, 1950-51, 1953-54.

q Daily mean gage height.

STATION DATA

THE GREAT BASIN

OWENS LAKE BASIN

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

Location.--Lat 37°36'30", long 118°50'55", in NE $\frac{1}{4}$ sec.14, T.4 S., R.28 E., on right bank 1.1 miles downstream from Convict Lake, 2.0 miles upstream from U.S. Highway 395, and 7.0 miles southeast of Mammoth Lakes (ranger station).

Drainage area.--18.7 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 7,450 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 37 cfs 1600 hours Feb. 1 (gage height, 1.66 ft).
1925 to December 1962: Discharge, 290 cfs June 29, 1932 (gage height, 4.43 ft).

Remarks.--Some regulation by Convict Lake above station. Records furnished by city of Los Angeles, Department of Water and Power.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	8.5	33	11.....	8.1	18	21.....	7.3	11
2.....	8.5	26	12.....	8.1	17	22.....	7.3	11
3.....	8.5	23	13.....	8.1	15	23.....	7.3	11
4.....	8.5	22	14.....	8.1	15	24.....	7.3	11
5.....	8.5	21	15.....	8.1	14	25.....	7.3	10
6.....	8.5	20	16.....	8.1	14	26.....	7.3	9.8
7.....	8.5	20	17.....	8.1	13	27.....	6.9	9.8
8.....	8.5	20	18.....	7.7	13	28.....	6.9	9.5
9.....	8.5	19	19.....	7.7	12	29.....	6.9	
10.....	8.9	19	20.....	7.3	12	30.....	12	-----
						31.....	26	-----
Monthly mean discharge, in cubic feet per second.....							8.62	16.0
Runoff, in inches.....							0.53	0.89
Runoff, in acre-feet.....							530	891

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.14	6.9	Jan. 31	0700	1.40	18	Feb. 1	1000	1.65	36
					1200	1.57	29		1600	1.66	37
30	0800	1.20	9.2		1600	1.59	31		1800	1.47	22
	1200	1.24	11		2000	1.63	34		2000	1.62	34
	1600	1.30	14		2400	1.63	34		2200	1.56	28
	2200	1.35	16						2400	1.56	28
	2400	1.37	17								

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

Location.--Lat 37°33'10", long 118°41'00", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.32, T.4 S., R.30 E., on right bank just upstream from diversion to Little Round Valley, 0.6 mile south of Toms Place, and 20 miles northwest of Bishop, Mono County.

Drainage area.--35.8 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 7,450 ft (from topographic map).

Discharge record.--Discharge by computation of flow through 6-foot Parshall flume.

Maxima.--January-February 1963: Discharge, 42 cfs 1200 hours Feb. 1 (gage height, 1.43 ft).
1926 to December 1962: Discharge, 270 cfs July 26, 1952 (gage height, 2.93 ft, datum then in use).

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

Mean discharge, in cubic feet per second, 1963, of Rock Creek at Little Round Valley, near Bishop, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	11	37	11.....	7.7	14	21.....	7.0	11
2.....	9.0	23	12.....	7.2	14	22.....	6.5	11
3.....	8.2	18	13.....	7.2	13	23.....	6.2	11
4.....	8.2	17	14.....	7.2	13	24.....	6.2	11
5.....	8.7	15	15.....	7.2	13	25.....	6.5	11
6.....	8.7	15	16.....	7.2	12	26.....	7.0	11
7.....	7.9	14	17.....	7.7	12	27.....	7.2	11
8.....	7.9	14	18.....	7.4	12	28.....	7.0	10
9.....	7.9	14	19.....	11	12	29.....	6.5	-----
10.....	8.2	14	20.....	7.4	11	30.....	8.0	-----
						31.....	19	-----
Monthly mean discharge, in cubic feet per second.....							8.06	14.1
Runoff, in inches.....							0.26	0.41
Runoff, in acre-feet.....							496	781

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	0.46	7.0	Jan. 30	2200	0.55	9.2	Jan. 31	2400	1.18	31
	30	0400	.49		2400	.53	8.7				
		0600	.44		31	0400	.55	Feb. 1	0800	1.37	40
		1400	.43			0800	.70		1200	1.43	42
		1600	.54			1200	.88		1600	1.35	39
		1800	.65			1600	1.00		2000	1.23	33
		2000	.60			2200	1.16		2400	1.12	29

10-2662. Paradise Creek near Paradise Camp, Calif.

(Crest-stage station)

Location.--Lat 37°27'45", long 118°34'35", in NE¼ sec.4, T.6 S., R.31 E., at culvert on U.S. Highway 395, 2.0 miles southeast of Paradise Camp.

Drainage area.--4.75 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 4,800 ft (from topographic map).

Discharge record.--Peak discharge by computation of flow through culvert.

Maximum.--January-February 1963: Discharge, 185 cfs Jan. 31 or Feb. 1, 1963 (gage height, 32.00 ft, from floodmarks).

10-2670. Pine Creek at division box, near Bishop, Calif.

Location.--Lat 37°25'00", long 118°37'15", in NW¼ sec.19, T.6 S., R.31 E., on right bank 0.25 mile upstream from division box (at Rovana), 1.9 miles west of Round Valley schoolhouse, and 13 miles northwest of Bishop.

Drainage area.--37.9 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 5,280 ft (from topographic map).

Discharge record.--Discharge by computation of flow through 6-foot Parshall flume.

Maxima.--January-February 1963: Discharge, 93 cfs 1000 hours Feb. 1 (gage height, 2.34 ft).
1921 to December 1962: Discharge, 356 cfs June 4, 1957.

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

FLOODS OF 1963 IN THE UNITED STATES

Mean discharge, in cubic feet per second, 1963, of Pine Creek at division box, near Bishop, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	23	73	11.....	22	25	21.....	21	24
2.....	23	38	12.....	20	25	22.....	21	24
3.....	22	31	13.....	21	25	23.....	21	24
4.....	22	29	14.....	22	24	24.....	21	24
5.....	23	28	15.....	21	24	25.....	21	24
6.....	23	26	16.....	21	25	26.....	21	24
7.....	23	26	17.....	20	25	27.....	22	24
8.....	22	26	18.....	20	24	28.....	21	24
9.....	22	26	19.....	21	24	29.....	21	---
10.....	22	26	20.....	21	24	30.....	29	---
						31.....	57	---
Monthly mean discharge, in cubic feet per second.....							22.9	27.4
Runoff, in inches.....							0.70	0.75
Runoff, in acre-feet.....							1,410	1,520

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	0.97	23	Jan. 31	1800	2.12	80	Feb. 2	2000	1.25	34
					2000	2.15	81		2400	1.23	33
30	0400	.99	24		2200	1.96	70	3	1000	1.17	31
	0800	1.02	25		2400	2.07	77		1400	1.15	30
	1000	1.09	28	Feb. 1	0200	2.05	75		1800	1.17	31
	1200	1.09	28		0400	2.22	86		2400	1.15	30
	1600	1.94	22		0400	2.09	78				
	1800	1.12	29		0600	2.12	80	4	1000	1.13	29
	2000	1.50	46		1000	2.34	93		1400	1.09	28
	2200	1.42	42		1400	2.09	78		2000	1.10	28
	2400	1.48	45		1600	1.91	67		2400	1.09	28
31	0400	1.24	34		1800	1.78	60				
	0600	1.37	40		2200	1.60	51	5	1000	1.08	27
	0800	1.36	39		2400	1.52	47		1200	1.10	28
	1200	1.67	54						2000	1.09	28
	1600	2.10	78	2	0600	1.40	41		2400	1.07	27
	1700	1.95	70		1200	1.32	37				

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

Location.--Lat 37°08'40", long 118°18'55", in NW¹ sec.25, T.9 S., R.33 E., on left bank 0.3 mile downstream from Little Pine Creek, 0.5 mile downstream from powerhouse No. 3, and 2.2 miles southwest of Big Pine.

Drainage area.--39.0 sq mi.

Gage-height record.--Water-stage recorder graphs. Altitude of gage is 4,550 ft (from topographic map).

Discharge record.--Discharge by computation of flow through 6-foot Parshall flume (creek). Discharge by computation of flow through 2-foot Parshall flumes for upper and lower Giroux ditches.

Maxima (creek only).--January-February 1963: Discharge, 56 cfs 0800 hours Feb. 1 (gage height, 1.71 ft).
1907-11, 1920 to December 1962: Discharge, 458 cfs July 3, 1932 (gage height, 6.55 ft).

Maxima (creek plus diversion).--January-February 1963: Discharge, 57 cfs 0800 hours Feb. 1.
1930 to December 1962: Discharge, 458 cfs July 3, 1932.

Remarks.--Diversions for power and irrigation above station. Mean discharge figures and tabulation of discharge at indicated times are the combined flow including the diversions. Records furnished by city of Los Angeles, Department of Water and Power.

MONO LAKE BASIN

10-2872.1. Bridgeport Creek near Bodie, Calif.

(Miscellaneous site)

Location.--Lat 38°04'45", long 119°02'40", in NW¼ sec.31, T.3 N., R.27 E., at culvert on Pole Line Road, 9.3 miles south of Bodie.

Drainage area.--13.1 sq mi.

Discharge record.--Peak discharge by slope-area measurement.

Maximum.--January-February 1963: Discharge, 46.9 cfs Jan. 31.

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

Location.--Lat 37°48'20", long 119°06'30", in NE¼ sec.4, T.2 S., R.26 E., on left bank in narrows, 0.6 mile upstream from Grant Lake, and 2.7 miles northwest of town of June Lake.

Drainage area.--51.2 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 7,200 ft (from topographic map).

Discharge record.--Discharge by computation of flow through 15-foot Parshall flume.

Maxima.--January-February 1963: Discharge, 293 cfs 0100 hours Feb. 1 (gage height, 2.76 ft).

1936 to December 1962: Daily mean discharge, 711 cfs June 28, 1938.

Remarks.--Flow regulated by Gem Lake, Lake Agnew, and Waugh Lake (combined capacity, 23,400 acre-ft), and by many natural lakes. Records furnished by city of Los Angeles, Department of Water and Power.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	55	249	11.....	42	78	21.....	42	69
2.....	48	134	12.....	47	76	22.....	55	63
3.....	39	109	13.....	51	76	23.....	59	40
4.....	43	100	14.....	55	74	24.....	60	30
5.....	50	95	15.....	60	74	25.....	60	34
6.....	51	89	16.....	60	72	26.....	60	38
7.....	54	84	17.....	49	70	27.....	60	33
8.....	53	81	18.....	45	70	28.....	60	40
9.....	45	79	19.....	45	71	29.....	60	-----
10.....	42	79	20.....	40	70	30.....	86	-----
						31.....	204	-----
Monthly mean discharge, in cubic feet per second.....							57.4	77.8
Runoff, in inches.....							1.29	1.58
Runoff, in acre-feet.....							3,530	4,320

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	
Jan. 29	2400	1.19	76	Jan. 31	0500	1.69	134	Feb. 1	0800	2.71	285	
30					0700	1.65	129		0900	2.65	275	
	0700	1.06	63		0900	1.96	170		1200	2.54	257	
	0900	1.06	63		1200	2.25	212		1500	2.43	239	
	1300	1.26	84		1300	2.26	213		1800	2.27	215	
	1500	1.33	91		1400	2.45	242		2100	2.12	192	
	1700	1.40	99		1500	2.59	265		2400	1.97	171	
	1900	1.48	108		1700	2.56	260					
	2000	1.50	111		1900	2.64	273	2	0600	1.76	143	
	2100	1.55	117		2000	2.64	273			1200	1.63	126
	2200	1.61	124		2400	2.75	292			1700	1.57	119
2400	1.61	124							2000	1.60	123	
									2400	1.64	128	
31	0300	1.56	118	Feb. 1	0100	2.76	293					
					0400	2.74	290					

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

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

Drainage area.--35.2 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 7,400 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 218 cfs 1300 hours Jan. 31 (gage height, 2.82 ft).
1934 to December 1962: Discharge (observed), 503 cfs June 9, 1938 (gage height, 3.07 ft, datum then in use).

Remarks.--Flow regulated by Ellery, Saddlebag, and Tioga Lakes (combined capacity, 13,269 acre-ft) and several small natural lakes. Records furnished by city of Los Angeles, Department of Water and Power.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	32	122	11.....	20	59	21.....	18	26
2.....	24	50	12.....	23	50	22.....	18	26
3.....	24	56	13.....	22	33	23.....	19	26
4.....	25	58	14.....	23	30	24.....	20	31
5.....	22	47	15.....	21	28	25.....	22	26
6.....	22	38	16.....	26	28	26.....	22	28
7.....	22	36	17.....	21	27	27.....	22	30
8.....	22	41	18.....	21	26	28.....	23	30
9.....	22	72	19.....	15	26	29.....	46	-----
10.....	21	34	20.....	17	26	30.....	35	-----
						31.....	146	-----
Monthly mean discharge, in cubic feet per second.....							27.0	39.6
Runoff, in inches.....							0.88	1.17
Runoff, in acre-feet.....							1,660	2,200

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.53	27	Jan. 31	0600	1.83	55	Feb. 1	0400	2.70	194
					0800	2.30	116		0800	2.73	200
30	0500	1.55	28		1000	2.45	146		1200	1.90	62
	0800	1.60	33		1200	2.75	205		1600	2.08	78
	1000	1.69	42		1300	2.82	218		2400	1.87	59
	1100	1.52	26		1600	2.77	208				
	1400	1.60	33		1800	2.69	192				
	1800	1.75	48		2200	2.74	202				
	2400	1.65	38		2400	2.74	202				

WALKER LAKE BASIN

10-2885. Walker Lake near Hawthorne, Nev.

Location.--Lat 38°35'05", long 118°42'15", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.2, T.8 N., R.29 E., 5 $\frac{1}{2}$ miles northwest of Hawthorne.

Gage-height record.--Elevations observed monthly. Datum of gage is at mean sea level. Observations are referenced to bench mark, at U.S. Naval Depot, 5,053.41 ft above mean sea level, adjustment of 1912.

Maxima.--January-February 1963: Elevation observed, 3,976.3 ft Feb. 21.
1928 to November 1962: Elevation observed, 4,051.8 ft Mar. 13, 1928 (Indian Service).
An elevation of 4,078.0 ft, adjustment of 1912, was observed Sept. 27, 1908, by Geological Survey.

Elevation, in feet, November 1962 to March 1963

Nov. 13.....	3,978.6	Feb. 21.....	3,976.3
Jan. 23.....	3,975.7	Mar. 19.....	3,976.2

10-2890. Virginia Creek near Bridgeport, Calif.

Location.--Lat $38^{\circ}11'30''$, long $119^{\circ}12'30''$, near center of $W\frac{1}{2}$ sec.22, T.4 N., R.25 E., on right bank $1\frac{1}{4}$ miles downstream from Clearwater Creek, 3 miles upstream from mouth, and $4\frac{1}{2}$ miles southeast of Bridgeport.

Drainage area.--64 sq mi, approximately.

Gage-height record.--Water-stage recorder graph, except Jan. 12-25. Altitude of gage is 6,700 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 86 cfs and by slope-area measurement at 652 cfs; affected by ice Jan. 6-11. Discharge for period of ice effect or no gage-height record estimated on basis of weather records and records for stations on nearby streams.

Maxima.--January-February 1963: Discharge, 652 cfs 0600 hours Feb. 1 (gage height, 6.13 ft).

1953 to December 1962: Discharge, 1,300 cfs Dec. 23, 1955 (gage height, 8.40 ft), from rating curve extended above 170 cfs on basis of slope-area measurement of maximum flow.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	8.2	408	11.....	7.2	17	21.....	6.2	14
2.....	7.9	100	12.....	5.3	14	22.....	6.8	13
3.....	7.9	68	13.....	5.9	16	23.....	7.6	13
4.....	8.2	49	14.....	6.5	15	24.....	7.9	14
5.....	8.2	34	15.....	6.5	13	25.....	7.6	14
6.....	7.6	26	16.....	6.8	14	26.....	7.9	17
7.....	7.2	26	17.....	6.5	13	27.....	7.6	16
8.....	6.5	22	18.....	6.8	13	28.....	7.6	14
9.....	7.2	18	19.....	5.4	14	29.....	8.6	-----
10.....	7.6	18	20.....	5.9	15	30.....	13	-----
						31.....	234	-----
Monthly mean discharge, in cubic feet per second.....							14.6	36.7
Runoff, in inches.....							0.26	0.60
Runoff, in acre-feet.....							901	2,040

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.52	10	Jan. 31	2200	5.48	465	Feb. 2	0800	3.83	87
					2300	6.00	600		1600	4.00	108
30	0900	2.52	10		2400	5.85	548		1800	4.02	110
	1500	2.59	13						2400	3.66	69
	2400	2.77	23	Feb. 1	0600	6.13	652				
31	0700	2.80	24		0900	5.88	550	3	1200	3.44	48
	1200	3.28	67		1300	5.08	315		1800	3.97	102
	1300	3.99	168		1600	5.05	308		2400	3.54	57
	1500	4.95	349		1800	4.90	269				
	1700	5.88	565		1900	4.70	229				
					2400	4.15	130				

10-2895. Green Creek near Bridgeport, Calif.

Location.--Lat $38^{\circ}10'25''$, long $119^{\circ}14'00''$, in $NE\frac{1}{4}SE\frac{1}{4}$ sec.29, T.4 N., R.25 E., on right bank 130 ft downstream from county road bridge and $5\frac{1}{2}$ miles south of Bridgeport.

Drainage area.--19.4 sq mi.

Gage-height record.--Water-stage recorder graph, except Jan. 1-8, Jan. 12 to Feb. 1. Altitude of gage is 6,850 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements; affected by ice Jan. 11. Discharge for Jan. 1-8 and Jan. 11 to Feb. 1 estimated on basis of weather records and records for nearby stations.

Maxima.--January-February 1963: Discharge, 199 cfs Feb. 1 (gage height, 3.03 ft).

1953 to December 1962: Discharge, 307 cfs Dec. 23, 1955, from rating curve extended above 220 cfs on basis of slope-area measurement of maximum flow; gage height, 4.09 ft Feb. 25, 1962 (backwater from ice).

Mean discharge, in cubic feet per second, 1963, of Green Creek near Bridgeport, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	5	110	11.....	3.5	16	21.....	5	11
2.....	5	71	12.....	3	13	22.....	5	11
3.....	6	44	13.....	4	13	23.....	5	9.6
4.....	6	38	14.....	4	12	24.....	5	9.6
5.....	5	29	15.....	4	12	25.....	5	11
6.....	5	30	16.....	4	12	26.....	5	12
7.....	4	28	17.....	4	10	27.....	5	12
8.....	4	25	18.....	4	11	28.....	6	11
9.....	4.1	20	19.....	4	9.6	29.....	8	- - - - -
10.....	3.8	19	20.....	4	11	30.....	10	- - - - -
						31.....	40	- - - - -
Monthly mean discharge, in cubic feet per second.....							5.98	22.2
Runoff, in inches.....							0.36	1.19
Runoff, in acre-feet.....							368	1,230

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

Location.--Lat 38°09'10", long 119°21'30", in NE¼NE¼ sec.6, T.3 N., R.24 E., on left bank, half a mile above outlet and 10½ miles southwest of Bridgeport.

Drainage area.--30 sq mi, approximately.

Gage-height record.--Water-stage recorder graph. Datum of gage is at mean sea level, datum of U.S. Indian Irrigation Service.

Contents record.--Contents computed from capacity table dated June 30, 1931.

Maxima.--January-February 1963: Contents, 2,610 acre-ft Feb. 1 (elevation, 7,208.68 ft).
1961 to December 1962: Contents, 2,730 acre-ft June 24, 1962 (elevation, 7,209.08 ft).

Remarks.--Contents regulated by dam at outlet. Figures given herein represent usable contents at 2400 hours.

Elevation, in feet, and contents, in acre-feet, at 2400 hours, 1963

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	7,206.89	2,030	7,208.68	2,610	16	7,206.82	2,010	7,207.32	2,170
2	7,206.88	2,030	7,208.16	2,440	17	7,206.82	2,010	7,207.30	2,170
3	7,206.88	2,030	7,207.87	2,350	18	7,206.82	2,010	7,207.30	2,170
4	7,206.88	2,030	7,207.74	2,310	19	7,206.82	2,010	7,207.29	2,160
5	7,206.88	2,030	7,207.66	2,280	20	7,206.82	2,010	7,207.26	2,150
6	7,206.88	2,030	7,207.59	2,260	21	7,206.81	2,010	7,207.27	2,160
7	7,206.88	2,030	7,207.54	2,240	22	7,206.81	2,010	7,207.26	2,150
8	7,206.88	2,030	7,207.50	2,230	23	7,206.81	2,010	7,207.26	2,150
9	7,206.87	2,030	7,207.46	2,220	24	7,206.81	2,010	7,207.27	2,160
10	7,206.85	2,020	7,207.43	2,210	25	7,206.81	2,010	7,207.26	2,150
11	7,206.83	2,020	7,207.39	2,190	26	7,206.81	2,010	7,207.25	2,150
12	7,206.82	2,010	7,207.36	2,190	27	7,206.81	2,010	7,207.26	2,150
13	7,206.82	2,010	7,207.34	2,180	28	7,206.80	2,010	7,207.26	2,150
14	7,206.82	2,010	7,207.34	2,180	29	7,206.91	2,040	-	-
15	7,206.82	2,010	7,207.33	2,180	30	7,207.48	2,220	-	-
					31	7,208.54	2,560	-	-
Change in contents, in acre-feet.....						-	+530	-	-410

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Robinson Creek at Twin Lakes Outlet, near Bridgeport, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.38	9.0	Jan. 31	2300	2.90	124	Feb. 2	1400	3.56	231
					2400	3.04	142		2400	3.48	216
30	0600	1.46	12					3	2400	3.19	165
	1700	1.77	26	Feb. 1	0800	3.30	183				
	2200	1.97	37		1700	3.52	223				
	2400	1.99	39		2200	3.58	236	4	1100	3.07	147
31	0900	2.26	59		2400	3.60	240		1400	3.07	147
	1500	2.65	95	2	0400	3.60	240		2400	2.92	140

10-2915. Buckeye Creek near Bridgeport, Calif.

Location.--Lat 38°14'20", long 119°19'30", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.4, T.4 N., R.24 E., on right bank at Buckeye Hot Springs, 0.6 mile downstream from Eagle Creek and $\frac{5}{2}$ miles southwest of Bridgeport.

Drainage area.--45 sq mi, approximately.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 6,900 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 360 cfs and by slope-area measurement at 700 cfs; affected by ice Jan. 1-29. Discharge for period of ice effect estimated on basis of weather records and records for Green Creek near Bridgeport, Calif.

Maxima.--January-February 1963: Discharge, 947 cfs 0200 hours Feb. 1 (gage height, 4.41 ft).

1953 to December 1962: Discharge, 700 cfs Dec. 23, 1955 (gage height, 4.00 ft).

Flood of June 21, 1911, reached an observed stage of 4.8 ft (discharge not determined), at site half a mile downstream and at datum then in use.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	8	452	11.....	5	30	21.....	6.5	26
2.....	8	100	12.....	4.5	27	22.....	7	25
3.....	8	74	13.....	5	27	23.....	7	24
4.....	10	65	14.....	6	26	24.....	7	25
5.....	11	55	15.....	6	26	25.....	6.5	27
6.....	8	45	16.....	6	25	26.....	6	31
7.....	7.5	41	17.....	6	24	27.....	6	29
8.....	7.5	39	18.....	6	24	28.....	6.5	29
9.....	7.5	34	19.....	5.5	25	29.....	14	-----
10.....	7.5	32	20.....	6	26	30.....	37	-----
						31.....	509	-----

Monthly mean discharge, in cubic feet per second.....	24.2	50.5
Runoff, in inches.....	0.62	1.17
Runoff, in acre-feet.....	1,490	2,800

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.51	16	Jan. 31	0700	3.26	344	Feb. 1	1600	3.02	262
					1400	4.00	700		1900	2.72	178
30	0400	1.44	13		1800	4.08	744		2400	2.45	126
	0900	1.52	17		2000	4.21	821				
	1300	1.54	18		2100	4.17	797	2	0300	2.36	112
	2100	2.41	85		2400	4.21	821		1000	2.24	94
	2400	2.40	91						1400	2.28	101
31	0200	2.32	94	Feb. 1	0200	4.41	947		1700	2.28	101
	0600	2.53	130		0400	3.89	640		2400	2.12	77
					1000	3.73	560				

10-2920. Swager Creek near Bridgeport, Calif.

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

Drainage area.--53 sq mi, approximately.

Gage-height record.--Water-stage recorder graph, except Jan. 1-10. Altitude of gage is 6,620 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements; affected by ice Jan. 11-28. Discharge for period of ice effect or no gage-height record estimated on basis of weather records and records for stations on nearby streams.

Maxima.--January-February 1963: Discharge, 443 cfs 1000 hours Feb. 1 (gage height, 5.57 ft).

1911-15, 1953 to December 1962: Discharge, 585 cfs Dec. 23, 1955 (gage height, 6.24 ft), from rating curve extended above 175 cfs on basis of slope-area measurement of maximum flow.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	2.9	245	11.....	3.8	14	21.....	2.2	10
2.....	3.2	48	12.....	2.5	13	22.....	2.5	9.4
3.....	3.4	38	13.....	1.8	13	23.....	2.7	9.4
4.....	4.1	34	14.....	2.0	11	24.....	2.9	9.8
5.....	4.3	28	15.....	2.5	10	25.....	2.7	11
6.....	4.1	20	16.....	2.7	10	26.....	2.2	12
7.....	3.4	17	17.....	2.7	9.8	27.....	2.5	11
8.....	3.4	15	18.....	2.9	9.8	28.....	3.6	10
9.....	3.4	14	19.....	2.5	10	29.....	4.9	-----
10.....	3.6	16	20.....	2.0	11	30.....	6.6	-----
						31.....	67	-----

Monthly mean discharge, in cubic feet per second.....	5.19	23.9
Runoff, in inches.....	0.11	0.47
Runoff, in acre-feet.....	319	1,330

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.07	5.2	Jan. 31	1900	3.75	150	Feb. 1	2200	3.31	76
					2400	4.32	227		2400	3.22	65
30	1300	2.07	5.2	Feb. 1	0200	4.44	245		0200	3.00	48
	1800	2.19	9.2		0900	5.53	435		0900	2.84	37
	2400	2.18	8.8		1000	5.57	443		1630	3.23	65
31	0200	2.15	7.8		1200	4.57	265		2100	2.91	42
	0700	2.25	12		1500	4.32	227		2400	2.82	35
	1300	2.50	26		1700	4.09	179				
	1700	3.27	93		2000	3.48	98				

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

(Crest-stage station)

Location.--Lat 38°17'15", long 119°12'50", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.16, T.5 N., R.25 E., at culvert on State Highway 22, 2.4 miles north of Bridgeport.

Drainage area.--0.79 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 6,480 ft (from topographic map).

Discharge record.--Peak discharge by computation of flow through culvert.

Maximum.--January-February 1963: Discharge, 55.5 cfs Jan. 31 (gage height, 7.1 ft).

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

Gage-height record.--Float gage read once daily at about 0800 hours. Datum of gage is at mean sea level.

Maxima.--January-February 1963: Contents, 40,560 acre-ft Feb. 3, 4 (elevation, 6,459.35 ft Feb. 3).

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

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	6,453.24	25,210	6,457.59	35,700	16	6,453.71	26,200	6,458.09	37,040
2	6,453.28	25,320	6,458.34	37,730	17	6,453.74	26,330	6,458.06	36,900
3	6,453.31	25,320	6,459.35	40,560	18	6,453.76	26,310	6,458.03	36,900
4	6,453.34	25,430	6,459.34	40,560	19	6,453.78	26,420	6,458.01	36,760
5	6,453.38	25,540	6,459.24	40,270	20	6,453.81	26,420	6,458.09	37,040
6	6,453.42	25,540	6,458.98	39,540	21	6,453.85	26,530	6,458.20	37,320
7	6,453.47	25,650	6,458.71	38,710	22	6,453.88	26,640	6,458.25	37,460
8	6,453.51	25,760	6,458.38	37,870	23	6,453.91	26,640	6,458.34	37,730
9	6,453.55	25,870	6,458.18	37,320	24	6,453.94	26,750	6,458.41	37,870
10	6,453.59	25,980	6,458.08	37,040	25	6,453.97	26,750	6,458.49	38,150
11	6,453.61	25,980	6,458.11	37,040	26	6,454.00	26,860	6,458.57	38,290
12	6,453.62	25,980	6,458.13	37,180	27	6,454.03	26,980	6,458.65	38,570
13	6,453.64	26,090	6,458.10	37,040	28	6,454.06	26,980	6,458.72	38,570
14	6,453.66	26,090	6,458.14	37,180	29	6,454.08	27,090	-	-
15	6,453.69	26,200	6,458.12	37,040	30	6,454.13	27,090	-	-
					31	6,454.96	29,440	-	-
Change in contents, in acre-feet.....						-	+3,940	-	+9,670

Location.--Lat 38°19'40", long 119°12'50", in SW¹NE¹ sec.34, T.6 N., R.25 E., on right bank 1,500 ft downstream from Bridgeport Reservoir, 5 miles north of Bridgeport, and 10 miles upstream from Sweetwater Creek.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 6,400 ft
(from topographic map).

Maxima.--January-February 1963: Discharge, 643 cfs 1600 hours Feb. 5 to 0800 hours Feb. 6 (gage height, 2.92 ft).

Remarks.--Flow regulated by Bridgeport Reservoir (see station 10-2925).

[illegible]

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

Location.--Lat 38°48'50", long 119°02'50", in NW¼SE¼ sec.14, T.11 N., R.26 E., on right bank 0.8 mile upstream from head of Strosnider ditch, 12 miles southeast of Mason, and 13½ miles southeast of Yerington.

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

Gage-height record.--Water-stage recorder graph, except Jan. 2-16. Datum of gage is 4,574.10 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,200 cfs and by slope-area measurement at 2,380 cfs; affected by ice Jan. 1, 17-30. Discharge for periods of ice effect or no gage-height record estimated on the basis of weather records and records for East Walker River near Bridgeport, Calif.

Maxima.--January-February 1963: Discharge, 2,380 cfs 2130 hours Feb. 1 (gage height, 7.60 ft).

1947 to December 1962: Discharge, 1,640 cfs Dec. 24, 1955 (gage height, 6.87 ft at site 400 ft upstream at datum 0.56 ft higher).

Remarks.--Flow partly affected by regulation of Bridgeport Reservoir.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	18	1,010	11.....	18	262	21.....	21	92
2.....	18	806	12.....	15	224	22.....	25	79
3.....	18	311	13.....	16	215	23.....	30	70
4.....	35	571	14.....	18	204	24.....	30	66
5.....	30	627	15.....	20	195	25.....	30	60
6.....	23	671	16.....	20	185	26.....	25	55
7.....	23	716	17.....	24	183	27.....	30	53
8.....	23	716	18.....	26	179	28.....	30	49
9.....	24	644	19.....	20	178	29.....	35	-
10.....	25	399	20.....	20	145	30.....	90	-
						31.....	157	-
Monthly mean discharge, in cubic feet per second.....							30.1	320
Runoff, in inches.....							0.032	0.30
Runoff, in acre-feet.....							1,850	17,780

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	1.86	122	Feb. 1	0600	3.17	377	Feb. 2	1700	3.04	346
					1430	4.58	764		2000	2.80	291
					2030	7.53	2,310		2400	2.60	250
31	0500	1.84	119		2130	7.60	2,380				
	1800	1.99	142		2230	7.46	2,240	3	0700	2.42	215
	2100	2.75	280		2400	7.17	2,000		1400	2.37	206
	2330	2.73	276						1700	3.34	419
	2400	2.79	289						2000	3.67	503
				2	0230	6.73	1,670		2400	3.73	519
Feb. 1	0230	2.59	248		0400	6.63	1,610				
	0330	2.71	272		1000	4.33	689				
	0430	4.82	842		1300	3.53	467				

10-2952. West Walker River at Leavitt Meadows, near Coleville, Calif.

Location.--Lat 38°19'50", long 119°33'05", in NW¼NW¼ sec.34, T.6 N., R.22 E., on left bank at Leavitt Meadows Lodge, 500 ft upstream from Brownie Creek, 0.9 mile downstream from Leavitt Creek, and 16½ miles south of Coleville.

Drainage area.--73 sq mi, approximately.

Gage-height record.--Water-stage recorder graph, except Jan. 16 to Feb. 28. Datum of gage is 7,111.32 ft above mean sea level (levels by Bureau of Reclamation).

Discharge record.--Stage-discharge relation defined by current-meter measurements; affected by ice Jan. 1-15. Discharge for period of ice effect or no gage-height record estimated on basis of weather records and records for nearby stations.

Maxima.--January-February 1963: Discharge, 1,370 cfs about 0700 hours Feb. 1 (gage height, 5.55 ft).

1945 to December 1962: Discharge, 2,810 cfs Nov. 21, 1950 (estimated on basis of records for West Walker River below Little Walker River, near Coleville, Calif.).

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Little Walker River near Bridgeport, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	0.54	11	Jan. 31	1500	3.22	1,510	Feb. 1	0830	2.33	666
					1530	2.74	975		1100	1.98	438
30	0800	.64	15		1600	3.12	1,400		2100	1.28	182
	1500	2.16	433		1700	2.50	776		2400	1.13	126
	1700	2.26	503		1830	1.83	350				
	2100	1.96	335		2000	2.35	666	2	0900	.93	86
	2300	2.35	574		2100	2.30	631		1600	1.08	115
	2400	2.10	422		2200	2.53	816		2400	.83	72
					2400	2.05	474				
31	0300	1.80	272					3	1000	.73	59
	0900	2.00	372	Feb. 1	0300	1.88	370		1700	1.00	100
	1000	2.39	624		0400	2.05	480		2400	.77	64
	1430	2.85	1,030		0800	2.08	498				

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

Location.--Lat 38°22'45", long 119°27'00", in NW¹SE¹ sec.9, T.6 N., R.23 E., on left bank 100 ft downstream from Little Walker River, 200 ft upstream from bridge on U.S. Highway 395, and 13 miles southeast of Coleville.

Drainage area.--182 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 6,650 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements; affected by ice Jan. 1-28, 30. Discharge for period of ice effect estimated on basis of weather records and records for nearby stations.

Maxima.--January-February 1963: Discharge, 2,870 cfs 0800 hours Feb. 1 (gage height, 5.85 ft).

1937 to December 1962: Discharge, 6,220 cfs November 1950 (gage height, 8.10 ft), from rating curve extended above 1,900 cfs on basis of slope-area measurement of maximum flow.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	25	2,040	11.....	27	151	21.....	26	97
2.....	26	659	12.....	25	136	22.....	28	95
3.....	28	462	13.....	25	136	23.....	28	90
4.....	30	388	14.....	25	120	24.....	28	90
5.....	32	313	15.....	25	108	25.....	28	95
6.....	31	272	16.....	25	110	26.....	27	108
7.....	26	235	17.....	25	105	27.....	27	110
8.....	28	213	18.....	26	101	28.....	27	106
9.....	30	186	19.....	26	101	29.....	31	-----
10.....	26	172	20.....	27	97	30.....	381	-----
						31.....	1,630	-----
Monthly mean discharge, in cubic feet per second.....							90.3	246
Runoff, in inches.....							0.57	1.41
Runoff, in acre-feet.....							5,550	13,680

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	0.96	30	Jan. 31	0300	3.09	614	Feb. 1	0230	5.65	2,630
					0600	3.65	904		0800	5.85	2,870
30	0800	1.09	28		0630	3.15	643		0900	5.85	2,870
	1000	1.28	38		0900	3.57	860		1400	4.73	1,720
	1200	1.87	88		1100	4.26	1,340		1900	4.15	1,250
	1730	3.78	984		1200	5.36	2,300		2400	3.65	904
	1800	3.68	922		1230	4.68	1,680				
	1830	3.84	1,030		1530	5.71	2,700	2	0300	3.40	770
	2100	3.34	739		1830	5.23	2,170		0700	3.20	668
	2300	3.73	952		2400	5.70	2,690		0900	3.14	638
	2400	3.58	866						1900	3.10	619
									2400	2.87	516

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

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

Drainage area.--245 sq mi.

Gage-height record.--Water-stage recorder graph, except Jan. 12 to Feb. 4. Altitude of gage is 5,520 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements; affected by ice Jan. 1-11. Discharge for period of no gage-height record or period of ice effect estimated on basis of weather records and records for nearby stations.

Maxima.--January-February 1963: Discharge, 2,510 cfs 0600 hours Feb. 1 (gage height, 4.44 ft).
1915-38, 1957 to December 1962: Discharge, 6,500 cfs Dec. 11, 1937, from slope-area measurement of maximum flow.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	35	2,220	11.....	34	155	21.....	32	91
2.....	32	970	12.....	23	135	22.....	32	89
3.....	36	780	13.....	26	138	23.....	35	87
4.....	40	500	14.....	29	121	24.....	36	85
5.....	39	338	15.....	30	106	25.....	32	89
6.....	36	300	16.....	30	108	26.....	30	102
7.....	30	250	17.....	31	100	27.....	34	104
8.....	29	225	18.....	30	95	28.....	32	102
9.....	32	195	19.....	28	91	29.....	39	- - - - -
10.....	36	182	20.....	30	93	30.....	350	- - - - -
						31.....	1,740	- - - - -
Monthly mean discharge, in cubic feet per second.....							97.7	280
Runoff, in inches.....							0.46	1.19
Runoff, in acre-feet.....							6,010	15,570

10-2968. Slinkard Creek tributary near Topaz, Calif.

(Crest-stage station)

Location.--Lat 38°35'50", long 119°33'40", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.9, T.9 N., R.22 E., at culvert on State Highway 89, 3.4 miles northwest of Topaz.

Drainage area.--0.14 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 5,760 ft (from topographic map).

Discharge record.--Peak discharge by computation of flow through culvert.

Maximum.--January-February 1963: Discharge, 22.0 cfs Jan. 31 (gage height, 8.0 ft).

FLOODS OF 1963 IN THE UNITED STATES

10-2970. Topaz Reservoir near Topaz, Calif.

Location.--Lat 38°41'35", long 119°31'10", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.33, T.10 N., R.22 E., at outlet works of Topaz Reservoir, 5 $\frac{1}{2}$ miles north of Topaz.

Gage-height record.--Float and staff gages read once daily at 0700 or 0800 hours. Datum of gage is at mean sea level (levels by Walker River Irrigation District).

Contents record.--Contents computed from capacity table dated Sept. 27, 1940.

Maxima.--January-February 1963: Contents observed, 52,010 acre-ft Feb. 28 (elevation, 5,001.69 ft).
1921 to December 1962: Contents observed, 60,240 acre-ft June 30, 1941 (elevation, 5,005.35 ft).

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

Elevation, in feet, and contents, in acre-feet, 1963

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	4,988.34	26,090	4,994.04	36,250	16	4,989.05	27,320	5,000.12	48,600
2	4,988.38	26,160	4,995.05	38,190	17	4,989.11	27,420	5,000.29	48,970
3	4,988.43	26,240	4,996.02	40,100	18	4,989.16	27,510	5,000.42	49,250
4	4,944.48	26,330	4,996.08	40,220	19	4,989.20	27,580	5,000.57	49,570
5	4,988.54	26,430	4,997.03	42,140	20	4,989.25	27,660	5,000.71	49,870
6	4,988.60	26,540	4,997.07	42,220	21	4,989.31	27,770	5,000.84	50,150
7	4,988.65	26,620	4,998.01	44,160	22	4,989.36	27,850	5,000.96	50,410
8	4,988.70	26,710	4,998.04	44,220	23	4,989.42	27,960	5,001.01	50,520
9	4,988.76	26,810	4,998.07	44,280	24	4,989.48	28,060	5,001.10	50,720
10	4,988.82	26,920	4,998.94	46,100	25	4,989.53	28,150	5,001.25	51,040
11	4,988.87	27,000	4,999.18	46,600	26	4,989.59	28,250	5,001.44	51,460
12	4,988.92	27,090	4,999.31	46,880	27	4,989.64	28,340	5,001.56	51,720
13	4,988.95	27,140	4,999.57	47,430	28	4,989.69	28,430	5,001.69	52,010
14	4,988.99	27,210	4,999.80	47,920	29	4,989.72	28,480	-	-
15	4,989.02	27,260	4,999.97	48,280	30	4,989.79	28,600	-	-
					31	4,990.02	29,010	-	-
Change in contents, in acre-feet.....						-	+3,040	-	+23,000

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

Location.--Lat 38°43'40", long 119°25'40", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.17, T.10 N., R.23 E., on left bank 20 ft upstream from Hoyer Bridge, 2 miles upstream from head of Saroni Canal, and 4 miles southwest of Wellington.

Drainage area.--504 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 4,980 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements; affected by ice Jan. 1-3, 7-9, 11-28. Discharge for periods of ice effect estimated on basis of weather records and records for nearby stations.

Maxima.--January-February 1963: Discharge, 2,060 cfs 1600 hours Feb. 1 (gage height, 8.44 ft).
1910, 1920-23, 1924-32, 1957 to December 1962: Discharge, 2,180 cfs June 6, 1922.

Remarks.--Flow affected by regulation of Topaz Reservoir (see station 10-2970).

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of
West Walker River near Hudson, Nev.

Date	Hour	Gage height	Dis- charge	Date	Hour	Gage height	Dis- charge	Date	Hour	Gage height	Dis- charge
Jan. 29	2400	0.99	28	Feb. 1	0700	3.06	710	Feb. 2	1700	5.28	1,690
					2100	4.56	1,330		2100	3.02	698
30	1700	1.03	33		2400	4.76	1,430		2400	2.67	558
	2400	1.13	47								
31	1700	1.40	100	2	0800	5.64	1,870	3	0700	2.28	404
	2200	1.86	237		1000	5.74	1,920		1500	2.04	311
	2400	1.94	266		1100	5.74	1,920		2400	1.88	252
					1430	5.61	1,860				

10-3015. Walker River near Wabuska, Nev.

Location.--Lat 39°09'10", long 119°05'50", in SE¹/₄ NW¹/₄ sec.20, T.15 N., R.26 E., on left bank 600 ft upstream from timber bridge at Julian Ranch, 1¹/₂ miles downstream from Southern Pacific Railroad bridge, 4.6 miles east of Wabuska, and 16 miles upstream from Weber Dam.

Drainage area.--2,600 sq mi, approximately.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 4,280 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements; affected by ice Jan. 1-30. Discharge for period of ice effect estimated on basis of weather records and records for nearby stations.

Maxima.--January-February 1963: Discharge, 1,690 cfs 1500 hours Feb. 3 (gage height, 8.76 ft).

1902-8, 1920-35, 1939 to December 1962: Discharge observed, 3,280 cfs July 10, 11, 1906 (gage height, 5.90 ft) site and datum then in use.

Remarks.--Flow regulated by Bridgeport Reservoir and Topaz Reservoir (see stations 10-2925 and 10-2970).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	38	279	11.....	35	448	21.....	35	213
2.....	38	900	12.....	25	352	22.....	40	168
3.....	38	1,470	13.....	28	312	23.....	40	149
4.....	50	719	14.....	30	302	24.....	40	136
5.....	48	643	15.....	32	286	25.....	40	131
6.....	45	618	16.....	33	273	26.....	38	120
7.....	45	618	17.....	34	265	27.....	36	115
8.....	45	632	18.....	40	258	28.....	50	111
9.....	47	630	19.....	32	255	29.....	70	---
10.....	47	600	20.....	33	255	30.....	100	---
						31.....	123	---
Monthly mean discharge, in cubic feet per second.....							44.4	402
Runoff, in inches.....							0.02	0.16
Runoff, in acre-feet.....							2,730	22,330

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis- charge	Date	Hour	Gage height	Dis- charge	Date	Hour	Gage height	Dis- charge
Jan. 31	2400	3.41	143	Feb. 2	1900	7.37	1,120	Feb. 3	2400	7.08	1,010
					2200	7.48	1,160				
Feb. 1	1000	3.78	199		2400	7.62	1,220	4	0200	6.60	850
	1200	3.76	196						0400	6.27	751
	1500	4.54	296	3	1000	8.47	1,560		0800	6.00	670
	1800	4.37	302		1500	8.76	1,690		1300	6.08	694
	2400	5.69	588		1700	8.72	1,670		2400	6.03	679
					1900	8.56	1,590				
2	0900	6.42	796		2100	8.07	1,400				

CARSON RIVER BASIN

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

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

Drainage area.--20 sq mi, approximately.

Gage-height record.--Water-stage recorder graph, except Feb. 9-28. Altitude of gage is 6,500 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 400 cfs and by slope-area measurement at 2,220 cfs; affected by ice Jan. 11-12, 19. Discharge for periods of no gage-height record or period of ice effect estimated on basis of weather records and records for East Fork Carson River near Markleeville, Calif.

Maxima.--January-February 1963: Discharge, 2,220 cfs 0030 hours Feb. 1 (gage height, 5.28 ft).

1946 to December 1962: Discharge, 1,520 cfs Dec. 23, 1955 (gage height, 6.09 ft, at site 30 ft upstream at datum 1.00 ft higher).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	5.3	739	11.....	4.2	40	21.....	3.3	30
2.....	5.3	151	12.....	3.4	40	22.....	3.7	25
3.....	5.5	154	13.....	2.8	35	23.....	3.8	25
4.....	5.7	115	14.....	3.3	35	24.....	4.0	25
5.....	5.5	106	15.....	4.0	35	25.....	4.0	25
6.....	5.1	88	16.....	4.0	35	26.....	3.8	25
7.....	4.9	75	17.....	3.8	30	27.....	3.7	25
8.....	4.9	55	18.....	3.7	30	28.....	3.7	25
9.....	4.9	50	19.....	3.4	30	29.....	3.8	-----
10.....	4.9	45	20.....	3.1	30	30.....	32	-----
						31.....	553	-----
Monthly mean discharge, in cubic feet per second.....							22.8	75.8
Runoff, in inches.....							1.31	3.95
Runoff, in acre-feet.....							1,400	4,210

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.12	4.6	Jan. 31	1800	4.00	695	Feb. 1	0700	3.95	1,050
					2000	4.00	695		0730	4.17	1,250
30	1100	1.50	14		2100	5.15	2,000		1000	3.65	892
	1800	2.30	69		2400	4.85	1,550		1300	2.90	536
	2400	2.20	59						1800	2.23	321
31	0300	2.20	59	Feb. 1	0030	5.28	2,220		2400	1.73	213
	0800	2.76	146		0100	4.60	1,480				
	1300	3.75	542		0200	4.25	1,200	2	0700	1.35	150
	1600	3.70	515		0300	3.85	946		1000	1.28	140
					0530	4.15	1,170		2400	1.25	135

10-3081. Millberry Creek at Markleeville, Calif.

(Crest-stage station)

Location.--Lat 38°42'00", long 119°47'00", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.21, T.10 N., R.20 E., at culvert on State Highway 4, 89, 0.4 mile northwest of Markleeville.

Drainage area.--5.10 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 5,600 ft (from topographic map).

Discharge record.--Peak discharge by computation of flow through culvert.

Maximum.--January-February 1963: Discharge, 480 cfs Jan. 31 (gage height, 17.1 ft).

FLOODS OF 1963 IN THE UNITED STATES

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

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

Drainage area.--299 sq mi.

Gage-height record.--Water-stage recorder graph, except Feb. 8-20, 26-28. Altitude of gage is 5,400 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,500 cfs and by slope-area measurement at 15,100 cfs; affected by ice Jan. 1-28. Discharge for periods of no gage-height record or period of ice effect estimated on basis of weather records and records for nearby stations.

Maxima.--January-February 1963: Discharge, 15,100 cfs 2200 hours Jan. 31 (gage height, 8.21 ft).
1960 to December 1962: Discharge, 2,250 cfs May 5, 1962 (gage height, 3.35 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	70	7,360	11.....	35	390	21.....	55	230
2.....	70	1,680	12.....	25	370	22.....	60	270
3.....	70	1,180	13.....	30	360	23.....	60	260
4.....	70	910	14.....	40	340	24.....	60	255
5.....	70	748	15.....	50	320	25.....	60	250
6.....	65	673	16.....	55	310	26.....	55	230
7.....	60	618	17.....	60	300	27.....	55	220
8.....	60	560	18.....	65	300	28.....	55	215
9.....	55	480	19.....	55	290	29.....	58	---
10.....	50	420	20.....	55	280	30.....	1,150	---
						31.....	6,310	---
Monthly mean discharge, in cubic feet per second.....							293	710
Runoff, in inches.....							1.13	2.47
Runoff, in acre-feet.....							18,030	39,410

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	0.85	64	Jan. 31	0300	2.61	1,150	Feb. 1	0300	7.50	12,600
					0500	3.00	1,650		0500	7.35	12,000
30	0700	1.42	236		0700	2.88	1,480		0900	6.20	8,600
	1100	1.60	322		1200	5.45	6,580		1200	5.30	6,250
	1400	2.85	1,440		1400	5.82	7,500		1700	4.40	4,300
	1700	3.15	1,880		1500	6.28	8,840		2200	3.50	2,760
	1900	3.86	3,020		1700	6.37	9,110		2400	3.30	2,460
	2000	3.86	3,020		1900	6.22	8,660				
	2100	3.60	2,570		2200	8.21	15,100	2	0800	2.76	1,730
	2200	3.65	2,650		2300	7.65	13,100		1500	2.50	1,420
	2400	3.08	1,770		2400	7.80	13,600		2400	2.44	1,350

10-3088. Bryant Creek near Gardnerville, Nev.

Location.--Lat 38°47'38", long 119°40'18", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.30, T.11 N., R.21 E., on right bank 500 ft upstream from Doud Springs Creek, 1.7 miles upstream from mouth, and 11 miles southeast of Gardnerville.

Drainage area.--31.5 sq mi.

Gage-height record.--Water-stage recorder graph, except Jan. 30 to Feb. 28. Datum of gage is 5,449.74 ft above mean sea level, datum of 1929, releveled 1940 (levels by Bureau of Reclamation).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 63 cfs and by slope-area measurement at 975 cfs. Discharge for period of no gage-height record estimated on basis of weather records and records for nearby stations.

Maxima.--January-February 1963: Discharge, 975 cfs Jan. 31 (gage height, 6.40 ft, from floodmarks).
1961 to December 1962: Discharge, 58 cfs Apr. 9, 1962 (gage height, 2.04 ft).

Mean discharge, in cubic feet per second, 1963, of Bryant Creek near Gardnerville, Nev.

Day	January	February	Day	January	February	Day	January	February
1.....	2.4	-	11.....	1.8	-	21.....	2.1	-
2.....	2.4	-	12.....	1.5	-	22.....	2.4	-
3.....	2.4	-	13.....	1.4	-	23.....	2.6	-
4.....	2.6	-	14.....	1.5	-	24.....	2.4	-
5.....	2.6	-	15.....	1.9	-	25.....	2.4	-
6.....	2.4	-	16.....	2.4	-	26.....	2.3	-
7.....	2.5	-	17.....	2.4	-	27.....	2.4	-
8.....	2.5	-	18.....	2.4	-	28.....	2.3	-
9.....	2.6	-	19.....	2.0	-	29.....	2.4	-
10.....	2.4	-	20.....	1.8	-	30.....	10	-
						31.....	300	-
Monthly mean discharge, in cubic feet per second.....							12.1	13.0
Runoff, in inches.....							0.44	0.43
Runoff, in acre-feet.....							743	722

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

Location.--Lat 38°50'50", long 119°42'10", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.2, T.11 N., R.20 E., on left bank 2 miles east of Mud Lake Reservoir, 4 $\frac{1}{2}$ miles downstream from Bryant Creek, and 7 miles southeast of Gardnerville.

Drainage area.--344 sq mi.

Gage-height record.--Water-stage recorder graph, except Jan. 1-14, Feb. 24-28. Datum of gage is 4,985.11 ft above mean sea level (levels by Bureau of Reclamation).

Discharge record.--Stage-discharge relation defined by current-meter measurements; affected by ice Jan. 15-29. Discharge for periods of no gage-height record or ice effect estimated on basis of weather records and records for nearby stations.

Maxima.--January-February 1963: Discharge, 13,400 cfs 0800 hours Feb. 1 (gage height, 10.45 ft).

1890-93, 1900-1906, 1908-10, 1917, 1924-28, 1929, 1935-37. 1939 to December 1962: Discharge, 17,600 cfs Dec. 23, 1955 (gage height, 11.88 ft), from rating curve extended above 6,000 cfs on basis of slope-area measurements at gage heights 9.66 and 11.88 ft.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	58	8,520	11.....	52	421	21.....	58	319
2.....	58	1,820	12.....	52	393	22.....	62	315
3.....	60	1,180	13.....	57	402	23.....	70	298
4.....	65	1,030	14.....	60	384	24.....	82	280
5.....	70	937	15.....	63	358	25.....	83	270
6.....	72	764	16.....	70	358	26.....	80	250
7.....	74	692	17.....	74	336	27.....	75	230
8.....	72	630	18.....	70	327	28.....	78	240
9.....	60	540	19.....	60	319	29.....	80	-
10.....	54	480	20.....	53	319	30.....	942	-
						31.....	5,040	-
Monthly mean discharge, in cubic feet per second.....							255	800
Runoff, in inches.....							0.85	2.42
Runoff, in acre-feet.....							15,680	44,450

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.03	92	Jan. 31	0700	3.91	1,850	Feb. 1	0700	10.00	12,300
30					0800	3.86	1,800		0800	10.45	13,400
	0500	1.06	98		0900	4.01	1,950		1300	7.40	6,780
	0900	1.21	135		1400	7.06	6,150		2400	4.83	2,880
	1430	1.96	421		1600	7.94	7,850	2			
	1500	2.82	958		1800	8.12	8,210		0400	4.30	2,270
	1700	3.75	1,700		2030	7.85	7,670		1000	3.80	1,760
	2100	4.80	2,840		2400	9.84	11,900		1400	3.58	1,570
	2200	4.74	2,770	Feb. 1					2330	3.33	1,370
2400	4.51	2,490					2400		3.19	1,250	
31	0400	3.49	1,460		0100	9.95	12,100				
					0300	10.12	12,500				
					0500	10.44	13,300				

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

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

Drainage area.--66 sq mi, approximately.

Gage-height record.--Water-stage recorder graph, except Jan. 16 to Feb. 28. Altitude of gage is 5,760 ft (from river-profile map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 370 cfs and by slope-area measurement at 4,890 cfs; affected by ice Jan. 10-15. Discharge for period of no gage-height record or ice effect estimated on basis of weather records and records for nearby stations.

Maxima.--January-February 1963: Discharge, 4,890 cfs Feb. 1 (gage height, 9.0 ft). 1900-1907, 1910-11, 1937 to December 1962: Discharge, 4,810 cfs Dec. 23, 1955; gage height 8.0 ft, from floodmarks, Dec. 11, 1937.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	24	3,000	11.....	17	130	21.....	20	82
2.....	24	700	12.....	16	110	22.....	21	81
3.....	25	400	13.....	17	102	23.....	22	78
4.....	26	330	14.....	20	102	24.....	23	74
5.....	26	300	15.....	20	98	25.....	25	70
6.....	26	250	16.....	21	93	26.....	26	66
7.....	24	220	17.....	23	90	27.....	24	60
8.....	24	190	18.....	23	86	28.....	23	60
9.....	25	160	19.....	21	84	29.....	23	-----
10.....	23	140	20.....	20	82	30.....	300	-----
						31.....	1,500	-----
Monthly mean discharge, in cubic feet per second.....							79.1	258
Runoff, in inches.....							1.38	4.08
Runoff, in acre-feet.....							4,860	14,360

10-3105. Clear Creek near Carson City, Nev.
(Crest-stage station; gaging station, discontinued 1962)

Location.--Lat 39°06'50", long 119°47'50", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.1, T.14 N., R.19 E., on left bank 3 miles upstream from mouth and 3 $\frac{1}{2}$ miles southwest of Carson City.

Drainage area.--15 sq mi, approximately.

Gage-height record.--Crest stages only. Altitude of gage is 5,000 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 100 cfs.

Maxima.--January-February 1963: Discharge, 170 cfs Jan. 31 (gage height, 2.29 ft). 1948 to December 1962: Discharge, 117 cfs Dec. 23, 1955 (gage height, 2.03 ft).

10-3110. Carson River near Carson City, Nev.

Location.--Lat 39°06'30", long 119°42'40", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.2, T.14 N., R.20 E., on left bank 2 miles downstream from Clear Creek, 3 miles upstream from bridge on road to Mexican Dam, and 5 miles southeast of Carson City.

Drainage area.--876 sq mi.

Gage-height record.--Water-stage recorder graph, except Jan. 3-4, 14, 16, 20. Datum of gage is 4,621.48 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 6,000 cfs; affected by ice Jan. 1-2, 5-6, 10-13, 15, 19, 22-24. Discharge for periods of no gage-height record or ice effect estimated on basis of weather records and records for station near Fort Churchill, Nev.

Maxima.--January-February 1963: Discharge, 21,900 cfs 2100 hours Feb. 1 (gage height, 13.11 ft). 1939 to December 1962: Discharge, 30,000 cfs Dec. 24, 1955 (gage height, 15.0 ft, from floodmarks), from rating curve extended above 6,000 cfs on basis of slope-area measurements at 8,500 and 30,000 cfs, computation of flow over dam at 15,500 cfs, and float measurement at 9,790 ft.

[illegible]

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge		
Jan. 29	2400	1.20	120	Jan. 31	2400	5.44	3,510	Feb. 2	2000	8.16	7,510		
30	1200	1.32	149	Feb. 1	0300	5.66	3,800	3	2400	7.58	6,550		
	1700	1.50	196			0800	6.45		4,850				
	2000	1.63	238			1030	6.14		4,420				
	2400	2.02	401			2400	4.67		2,640				
31	0400	3.48	1,390	2	2100	13.11	21,900	4	0300	4.45	2,400		
	0600	3.91	1,810			2400	12.83		20,800		2400	4.05	1,960
	0900	4.26	2,180			1000	10.25		12,200				
	1900	5.08	3,090			1600	8.91		8,920				

Location.--Lat 39°17'35", long 119°18'45", in NW¼SE¼ sec.32, T.17 N., R.24 E., on left bank 200 ft downstream from diversion, 2 miles west of Fort Churchill, and 4½ miles upstream from Weeks bridge on U.S. Highway 95 alternate.

Discharge record.--Stage-discharge relation defined by current-meter measurements; affected by ice Jan. 2-3, 11, 17-18. Discharge for periods of ice effect or no gage-height record estimated from weather records and trend of flow.

Remarks.--Flow is regulated by diversion gate about 200 ft above station. Flow in excess of 240 cfs is considered as part of Carson River near Fort Churchill.

[illegible]

10-3120. Carson River near Fort Churchill, Nev.

Location.--Lat 39°17'30", long 119°18'40", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.32, T.17 N., R.24 E., on right bank 400 ft downstream from Buckland ditch, 2 miles west of Fort Churchill, and 4 $\frac{1}{2}$ miles upstream from Weeks bridge on U.S. Highway 95 alternate.

Drainage area.--1,450 sq mi, approximately.

Gage-height record.--Water-stage recorder graph. Datum of gage is 4,214.70 ft above mean sea level, datum of 1929, supplementary adjustment of 1956.

Discharge record.--Stage-discharge relation defined by current-meter measurements; affected by ice Jan. 1-28. Discharge for period of ice effect estimated on basis of weather records and gage heights that were reconstructed for part of each day.

Maxima.--January-February 1963: Discharge, 15,300 cfs 1300 hours Feb. 2 (gage height, 10.83 ft).
1911 to December 1962: Daily discharge, 9,680 cfs Dec. 26, 1955; gage height, about 11 ft in December 1955, from floodmarks.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	72	3,390	11.....	68	876	21.....	68	474
2.....	72	11,500	12.....	60	766	22.....	70	462
3.....	72	8,430	13.....	64	710	23.....	70	444
4.....	68	3,340	14.....	66	696	24.....	70	421
5.....	68	2,040	15.....	66	682	25.....	72	409
6.....	68	1,700	16.....	68	612	26.....	72	409
7.....	68	1,400	17.....	68	577	27.....	70	415
8.....	68	1,210	18.....	68	538	28.....	72	421
9.....	68	1,080	19.....	68	505	29.....	116	-----
10.....	70	958	20.....	68	487	30.....	131	-----
						31.....	711	-----

Monthly mean discharge, in cubic feet per second.....	92.9	1,605
Runoff, in inches.....	0.07	1.15
Runoff, in acre-feet.....	5,710	89,160

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	2.66	146	Feb. 1	1900	6.46	4,130	Feb. 3	0500	9.35	10,800
					2400	6.41	4,050		0600	9.13	10,100
31	0400	2.71	162						1500	8.05	7,270
	1100	3.16	364	2	0200	6.53	4,250		2400	7.02	5,120
	1500	3.25	415		0400	6.93	4,950				
	1900	4.50	1,410		0600	8.42	8,180	4	1200	5.77	3,060
	2400	5.28	2,350		0800	9.92	12,500		1700	5.42	2,550
Feb. 1					1100	10.69	14,900		2400	5.25	2,320
	0300	5.70	2,950		1300	10.83	15,300				
	0900	5.68	2,920		1400	10.82	15,300				
	1000	5.66	2,890		2400	9.91	12,400				
	1200	5.96	3,340								

10-3121. Lahontan Reservoir near Fallon, Nev.

Location.--Lat 39°27'45", long 119°04'00", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.33, T.19 N., R.26 E., in outlet control house on upstream side of dam, 18 miles west of Fallon.

Gage-height record.--Float tape with surface-contact detector read at 0800 hours daily. Datum of gage is at mean sea level (Bureau of Reclamation datum).

Contents record.--Contents computed from capacity table furnished by U.S. Bureau of Reclamation.

Maxima.--January-February 1963: Contents observed, 248,000 acre-ft Feb. 11 (elevation, 4,159.31 ft).
1917 to December 1962: Contents observed (20-inch flashboard on weir), 299,200 acre-ft June 16, 1942 (elevation, 4,164.43 ft).

Remarks.--Reservoir is formed by earth and gravel-fill dam. Capacity, 273,600 acre-ft between elevations, 4,060.0 (invert of outlet conduit) and 4,162.0 ft (spillway crest). Surface area at spillway elevation, 10,000 acres. Figures given herein represent total contents and are computed from 0800 hour readings. Reservoir stores water from Carson River and from Truckee River at Derby Dam via Truckee Canal. Inflow is regulated by Lake Tahoe, Donner Lake, Boca Reservoir, and Derby Dam. Extensive irrigation above reservoir in Carson and Truckee River basins. Records of daily elevation and contents furnished by Truckee-Carson Irrigation District.

Contents, in acre-feet, at 0800 hours, 1963, of Lahontan Reservoir near Fallon, Nev.

Day	January	February	Day	January	February	Day	January	February
1.....	171,000	192,700	11.....	180,100	248,000	21.....	183,900	241,600
2.....	172,400	199,800	12.....	180,400	247,600	22.....	184,500	240,900
3.....	173,200	221,900	13.....	180,600	247,000	23.....	184,700	240,700
4.....	173,900	238,300	14.....	280,500	246,300	24.....	185,300	240,000
5.....	175,700	243,600	15.....	181,100	245,700	25.....	185,900	239,600
6.....	176,100	245,500	16.....	181,500	244,700	26.....	186,400	238,900
7.....	177,100	246,800	17.....	182,000	243,900	27.....	186,700	238,200
8.....	178,000	247,500	18.....	182,600	242,900	28.....	187,300	238,200
9.....	178,800	247,700	19.....	183,100	242,600	29.....	187,900	- - - - -
10.....	179,400	247,700	20.....	183,500	242,200	30.....	188,700	- - - - -
						31.....	189,500	- - - - -
Change in contents, acre-feet.....							+19,600	+48,700

PYRAMID AND WINNEMUCCA LAKES BASIN

10-3365. Pyramid Lake near Nixon, Nev.

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

Gage-height record.--Elevations observed monthly. Datum of gage is at mean sea level. Observations are referenced to bench mark N-21 of U.S. Coast and Geodetic Survey at elevation of 3,940.29 ft above mean sea level, datum of 1929, supplementary adjustment of 1956.

Maxima.--January-February 1963: Elevation observed, 3,790.6 ft, Feb. 8.
1926 to December 1962: Elevation observed, 3,848.75 ft June 1926.

Elevation, in feet, December 1962 to April 1963

Dec. 5.....	3,790.1	Feb. 8.....	3,790.6
Jan. 7.....	3,789.6	Apr. 9.....	3,790.9
Feb. 5.....	3,790.4		

10-3366.35. Lake Tahoe tributary near Meeks Bay, Calif.

(Crest-stage station)

Location.--Lat 39°01'03", long 120°07'32", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.32, T.14 N., R.17 E., at culvert on State Highway 89, 1.5 miles south of Meeks Bay.

Drainage area.--0.64 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 6,360 ft (from topographic map).

Discharge record.--Peak discharge by computation of flow through culvert.

Maximum.--January-February 1963: Discharge, 42.6 cfs Feb. 1 (gage height, 13.54 ft).

10-3366.8. Lake Tahoe tributary at Tahoe City, Calif.

(Crest-stage station)

Location.--Lat 39°10'25", long 120°07'45", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.6, T.15 N., R.17 E., at culvert on State Highway 28, at east edge of Tahoe City.

Drainage area.--1.08 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 6,260 ft (from topographic map).

Discharge record.--Discharge estimated on basis of flow through culvert.

Maximum.--January-February 1963: Discharge, 35 cfs Jan. 31.

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

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

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

Gage-height record.--Water-stage recorder graph. Datum of gage is 6,220.00 ft above mean sea level, datum of Bureau of Reclamation (6,219.01 ft, datum of 1929).

Maxima.--January-February 1963: Elevation, 6,224.95 ft Feb. 20.
1900 to December 1962: Elevation, 6,231.26 ft July 14, 15, 17, 18, 1907.

Remarks.--Lake levels regulated by a 17-gate concrete dam at outlet of lake; storage began about 1874. Figures given herein represent usable contents. Usable capacity, 744,600 acre-ft between elevations 6,223 ft (natural rim of lake) and 6,229.1 ft (maximum permissible elevation by Federal Court decree). Increase in capacity within the range indicated, about 120,000 acre-ft per foot of rise. All elevations are based on Bureau of Reclamation datum. One intermittent transmountain diversion from Echo Lake to South Fork American River for power and irrigation.

Elevation, in feet, at 2400 hours on indicated day, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	6,223.68	6,224.61	11.....	6,223.65	6,224.87	21.....	6,223.52	6,224.94
2.....	6,223.68	6,224.68	12.....	6,223.56	6,224.90	22.....	6,223.52	6,224.94
3.....	6,223.71	6,224.70	13.....	6,223.57	6,224.92	23.....	6,223.52	6,224.94
4.....	6,223.70	6,224.74	14.....	6,223.55	6,224.92	24.....	6,223.51	6,224.94
5.....	6,223.68	6,224.79	15.....	6,223.56	6,224.93	25.....	6,223.50	6,224.94
6.....	6,223.67	6,224.81	16.....	6,223.55	6,224.93	26.....	6,223.50	6,224.94
7.....	6,223.65	6,224.82	17.....	6,223.55	6,224.94	27.....	6,223.49	6,224.94
8.....	6,223.65	6,224.84	18.....	6,223.62	6,224.94	28.....	6,223.49	6,224.92
9.....	6,223.63	6,224.85	19.....	6,223.52	6,224.94	29.....	6,223.52	- - - - -
10.....	6,223.62	6,224.87	20.....	6,223.52	6,224.95	30.....	6,223.80	- - - - -
						31.....	6,224.22	- - - - -

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

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

Drainage area.--507 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 6,216.75 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements; affected by ice Jan. 4-6, 12, 13.

Maxima.--January-February 1963: Discharge, 196 cfs 0300 hours Feb. 1 (gage height, 3.52 ft).

1895-96, 1900 to December 1962: Discharge, 1,870 cfs Apr. 5, 6, 1958 (gage height, 7.30 ft, site and datum then in use); gage height, 7.34 ft Apr. 5, 1958, site and datum then in use (backwater from snow in channel).

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

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	1.4	90	11.....	59	2.4	21.....	39	2.0
2.....	1.4	19	12.....	60	2.4	22.....	39	1.8
3.....	1.4	7.5	13.....	59	2.4	23.....	39	1.8
4.....	34	4.8	14.....	47	2.4	24.....	39	1.8
5.....	66	3.2	15.....	47	2.4	25.....	36	2.0
6.....	66	2.8	16.....	47	2.4	26.....	35	2.4
7.....	66	2.4	17.....	47	2.4	27.....	35	2.4
8.....	65	2.4	18.....	48	2.4	28.....	34	2.4
9.....	63	2.4	19.....	47	2.4	29.....	34	- - - - -
10.....	59	2.4	20.....	39	2.4	30.....	52	- - - - -
						31.....	64	- - - - -

Monthly mean discharge, in cubic feet per second.....	44.9	6.32
Runoff, in acre-feet.....	2,760	351

(Crest-stage station)

Maximum.--January-February 1963: Discharge, 220 cfs Jan. 31 (gage height, 20.8 ft).

(Gaging station, discontinued 1961)

Remarks.--Flow regulated by Lake Tahoe (see station 10-3366.8).

Mean discharge, in cubic feet per second, 1963

[illegible]

10-3394. Martis Creek near Truckee, Calif.

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

Drainage area.--40.8 sq mi.

Gage-height record.--Water-stage recorder graph, except Feb. 22-28. Altitude of gage is 5,700 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 500 cfs and by slope-area measurement of maximum flow; affected by ice Jan. 1-28. Discharge for periods of ice effect or no gage-height record was estimated on basis of weather records and comparison with nearby streams.

Maxima.--January-February 1963: Discharge, 1,880 cfs 0500 hours Feb. 1 (gage height, 6.16 ft).
1958 to December 1962: Discharge, 436 cfs Feb. 8, 1960 (gage height, 3.73 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	5	874	11.....	3.5	49	21.....	5	27
2.....	5	219	12.....	3.5	41	22.....	5	25
3.....	5	137	13.....	3.5	61	23.....	5	25
4.....	5	114	14.....	3.5	44	24.....	5	25
5.....	5	94	15.....	4	38	25.....	6	27
6.....	4.5	74	16.....	4	33	26.....	6	27
7.....	4.5	61	17.....	4	34	27.....	6	26
8.....	4.5	54	18.....	4	32	28.....	7	25
9.....	4	49	19.....	4.5	31	29.....	7.0	-----
10.....	4	60	20.....	4.5	30	30.....	351	-----
						31.....	903	-----
Monthly mean discharge, in cubic feet per second.....							44.9	83.4
Runoff, in inches.....							1.27	2.13
Runoff, in acre-feet.....							2,760	4,630

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.21	8.2	Jan. 31	0700	3.53	368	Feb. 2	0100	3.22	281
					1100	4.80	910		0900	2.95	213
30	0200	1.33	12		1700	5.65	1,420		1100	3.06	239
	0500	2.62	145		2000	5.49	1,310		1200	2.99	222
	1100	2.75	168		2400	5.60	1,380		2400	2.70	163
	1700	4.48	740								
	1900	4.31	660	Feb. 1	0200	5.82	1,530	3	1200	2.54	134
	2200	4.32	664		0500	6.16	1,880		1800	2.53	132
	2400	3.82	467		0800	5.29	1,190		2400	2.42	114
					1200	4.00	530				
31	0300	3.28	292		1600	3.87	484				
	0500	3.70	425		2400	3.31	301				

10-3397. Prosser Creek at Hobart Mills, Calif.

Location.--Lat 39°24'00", long 120°12'00", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.21, T.18 N., R.16 E., on left bank 0.8 mile west of Hobart Mills, 3 miles upstream from Alder Creek, and 5 miles north of Truckee.

Drainage area.--27.4 sq mi.

Gage-height record.--None, gage was washed out in flood.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 250 cfs and by slope-area measurements at 1,880 and 4,920 cfs.

Maxima.--January-February 1963: Discharge, 4,920 cfs Feb. 1 (gage height, 7.9 ft, from floodmarks).
1958 to December 1962: Discharge, 1,880 cfs Oct. 14, 1962 (gage height, 4.67 ft).

10-3399. Alder Creek near Truckee, Calif.

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

Drainage area.--7.36 sq mi.

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

Discharge record.--Stage-discharge relation defined by current-meter measurements below 250 cfs and by measurement of maximum flow through culvert; affected by ice Jan. 1-19, 21, 22. Discharge for periods of ice effect estimated on the basis of weather records and reconstructed gage heights.

Maxima.--January-February 1963: Discharge, 730 cfs 2100 hours Jan. 31 (gage height, 5.86 ft).

1958 to December 1962: Discharge, 221 cfs Oct. 13, 1962 (gage height, 3.58 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	3.7	348	11.....	2.0	24	21.....	2.4	15
2.....	3.7	118	12.....	1.4	22	22.....	2.5	14
3.....	3.7	92	13.....	1.5	27	23.....	2.4	13
4.....	4.0	75	14.....	1.8	22	24.....	2.2	13
5.....	4.6	59	15.....	2.0	20	25.....	2.2	14
6.....	3.5	46	16.....	2.0	19	26.....	2.2	14
7.....	3.0	37	17.....	2.0	19	27.....	2.1	12
8.....	3.0	33	18.....	2.0	18	28.....	2.2	12
9.....	3.0	28	19.....	2.0	17	29.....	2.2	---
10.....	2.7	28	20.....	2.2	16	30.....	30	---
						31.....	371	---

Monthly mean discharge, in cubic feet per second.....	15.3	42.0
Runoff, in inches.....	2.40	5.94
Runoff, in acre-feet.....	943	2,330

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.26	1.9	Jan. 31	0900	3.48	195	Feb. 1	0300	5.46	665
					1300	4.16	359		0400	5.32	643
30	0700	2.33	3.3		1500	4.45	448		0800	3.69	342
	1200	2.46	8.5		1700	4.97	564		1100	3.17	236
	1400	2.70	30		1900	5.25	600		1100	3.26	263
	2200	2.98	75		2000	5.47	660		1500	3.13	233
	2300	3.16	114		2100	5.86	730		1600	3.06	203
	2400	3.18	118		2300	5.48	661		1700	3.24	257
31	0300	3.32	153		2400	5.42	651		2400	2.93	164
	0600	3.34	158	Feb. 1	0300	5.43	645				

10-3405. Prosser Creek near Boca, Calif.

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

Drainage area.--53.5 sq mi.

Gage-height record.--Water-stage recorder graph, except Jan. 5-8, 21-23. Datum of gage is 5,572.66 ft above mean sea level (levels by Bureau of Reclamation).

Discharge record.--Stage-discharge relation defined by current-meter measurements; affected by ice Jan. 1-4, 9-31. Discharge for period of ice effect or no gage-height record estimated on basis of weather records and trend of adjacent flow.

Maxima.--January-February 1963: Discharge, 1,520 cfs 1000 hours Feb. 6 (gage height, 6.14 ft); gage height, 6.59 ft Jan. 31 (backwater from ice).
1942 to December 1962: Discharge, 4,560 cfs Dec. 23, 1955 (gage height, 10.13 ft), from rating curve extended above 910 cfs on basis of slope-area measurement of maximum flow; gage height, 11.0 ft Nov. 20, 1950, from floodmarks.

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

Mean discharge, in cubic feet per second, 1963, of Prosser Creek near Boca, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	26	112	11.....	21	200	21.....	29	12
2.....	27	23	12.....	18	11	22.....	30	125
3.....	29	28	13.....	18	13	23.....	30	219
4.....	31	350	14.....	23	12	24.....	30	217
5.....	31	1,210	15.....	25	182	25.....	30	164
6.....	31	1,470	16.....	27	312	26.....	29	124
7.....	31	873	17.....	28	312	27.....	25	108
8.....	31	342	18.....	28	145	28.....	27	97
9.....	31	266	19.....	28	12	29.....	62	-----
10.....	29	269	20.....	27	12	30.....	225	-----
						31.....	325	-----
Monthly mean discharge, in cubic feet per second.....							44.6	258
Runoff, in acre-feet.....							2,740	14,320

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

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

Drainage area.--36.6 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 6,290 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,100 cfs and by slope-area measurements at 7,010 cfs and 5,690 cfs (adjusted to present datum); affected by ice Jan. 1, 2, 5-28. Discharge for periods of ice effect estimated on basis of field notes, weather records, reconstructed gage-height record, and comparison with records for nearby stations.

Maxima.--January-February 1963: Discharge, 7,910 cfs 0300 hours Feb. 1 (gage height, 7.76 ft).

1946 to December 1962: Discharge, 7,010 cfs Nov. 20, 1950 (gage height, 7.53 ft, at datum 0.15 ft higher).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	35	4,180	11.....	25	180	21.....	22	106
2.....	35	770	12.....	17	180	22.....	23	101
3.....	45	564	13.....	18	170	23.....	25	93
4.....	41	503	14.....	23	150	24.....	25	92
5.....	38	486	15.....	24	132	25.....	25	92
6.....	38	342	16.....	24	129	26.....	23	94
7.....	36	281	17.....	24	118	27.....	21	92
8.....	34	241	18.....	24	114	28.....	21	83
9.....	33	210	19.....	22	108	29.....	25	-----
10.....	31	201	20.....	21	108	30.....	94	-----
						31.....	2,400	-----
Monthly mean discharge, in cubic feet per second.....							106	353
Runoff, in inches.....							3.35	10.0
Runoff, in acre-feet.....							6,530	19,610

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge		
Jan. 29	2400	1.80	25	Jan. 31	1900	6.53	4,180	Feb. 2	1400	3.82	630		
30					2000	7.01	5,430		2400	3.63	560		
	1200	1.91	33		2400	7.43	6,730						
	2000	2.80	189	Feb. 1	0300	7.76	7,910	3	0800	3.60	548		
	2300	3.34	334			2000	3.71		592				
	2400	3.34	334			2400	3.59		544				
Jan. 31	0600	3.62	455		1200	6.14	3,340	4	0900	3.27	426		
	0800	4.15	765		1800	5.28	1,780			1500	3.20	402	
	1000	4.90	1,430		2400	4.77	1,240			2100	3.85	670	
	1100	4.93	1,460	2	0600	4.35	910			2300	3.85	670	
	1500	5.69	2,490			0900	4.07		745		2400	3.81	650

[illegible]

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Little Truckee River above Boca Reservoir, near Boca, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.17	105	Jan. 31	0600	3.55	2,240	Feb. 1	1500	5.31	7,020
					0800	4.20	3,710		1800	4.77	5,540
30	1100	1.25	126		0900	2.89	1,270		2400	3.92	3,030
	1300	1.31	142		1300	4.00	3,210				
	1500	1.52	218		2400	8.20	12,500	2	0600	3.37	1,910
	1800	1.60	253						1200	3.09	1,520
	2000	1.73	315	Feb. 1	0430	9.00	13,300		1800	3.02	1,430
	2400	2.30	670		0700	8.35	12,700		2400	2.90	1,280
					0800	7.62	11,700				
31	0300	3.40	1,960		1200	6.00	8,640				

10-3444.9. Boca Reservoir at Boca, Calif.

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

Drainage area.--172 sq mi.

Gage-height record.--Pressure gage with mercury column read once daily at 0800 hours. Datum of gage is at mean sea level (levels by Bureau of Reclamation).

Contents record.--Contents computed from capacity table furnished by U.S. Bureau of Reclamation.

Maxima.--January-February 1963: Contents, 31,510 acre-ft Feb. 26 (elevation, 5,594.80 ft).

1939 to December 1962: Contents, 41,440 acre-ft Dec. 23, 1955 (elevation, 5,605.55 ft).

Remarks.--Reservoir is formed by earthfill, rock-faced dam. Storage began Dec. 8, 1938. Usable capacity, 40,900 acre-ft between elevations 5,521 (outlet sill) and 5,605 ft. Dead storage, 240 acre-ft. Figures given herein represent usable contents. Daily elevations furnished by Washoe County Conservation District.

Elevation, in feet, and contents, in acre-feet, 1963

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	5,565.95	11,600	5,588.80	26,550	16	5,562.45	9,900	5,590.65	28,040
2	5,565.23	11,260	5,594.60	31,340	17	5,562.50	9,930	5,590.10	27,590
3	5,564.50	10,880	5,593.10	30,070	18	5,562.70	10,020	5,589.70	27,270
4	5,563.88	10,590	5,591.95	29,110	19	5,562.70	10,020	5,590.32	26,950
5	5,563.25	10,280	5,591.45	28,700	20	5,562.73	10,040	5,591.20	28,490
6	5,562.70	10,020	5,590.70	28,080	21	5,562.85	10,090	5,591.98	29,150
7	5,562.35	9,860	5,589.90	27,430	22	5,562.90	10,110	5,592.75	29,780
8	5,562.30	9,830	5,589.20	26,870	23	5,563.00	10,160	5,593.45	30,360
9	5,562.20	9,790	5,588.50	26,310	24	5,563.10	10,210	5,594.14	30,960
10	5,562.30	9,830	5,587.80	25,760	25	5,563.15	10,240	5,594.78	31,510
11	5,562.28	9,830	5,587.15	25,260	26	5,563.10	10,210	5,594.80	31,510
12	5,562.20	9,790	5,587.65	25,650	27	5,563.05	10,180	5,594.70	31,430
13	5,562.15	9,760	5,588.95	26,670	28	5,563.00	10,160	5,594.20	31,000
14	5,562.18	9,790	5,590.30	27,750	29	5,562.97	10,140	-	-
15	5,562.29	9,830	5,591.39	28,650	30	5,563.05	10,180	-	-
					31	5,565.45	10,360	-	-
Change in contents, acre-feet.....						-	-1,600	-	+20,640

FLOODS OF 1963 IN THE UNITED STATES

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Truckee River at Parad, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.89	212	Jan. 31	1000	5.37	2,390	Feb. 1	1000	9.43	7,940
	30	0900	2.03		1300	6.73	4,000		1200	8.33	6,240
		1600	2.72		1500	7.73	5,370		1400	7.68	5,300
		1700	3.50		1700	9.13	7,460		2000	8.19	6,040
		1800	4.02		1900	9.91	8,750		2400	7.85	5,540
		1900	4.44		2200	10.70	10,160				
		2400	4.94		2400	11.09	10,870	Feb. 2	1200	7.05	4,420
									2400	6.60	3,840
31	0500	4.49	1,580	Feb. 1	0600	11.61	11,900				
					0800	10.62	10,020				

10-3476. Hunter Creek near Reno, Nev.

Location.--Lat 39°29'25", long 119°53'55", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.19, T.19 N., R.19 E., on right bank $\frac{1}{4}$ miles upstream from Hunter Creek Reservoir and 5 miles southwest of Reno.

Drainage area.--11.5 sq mi, approximately.

Gage-height record.--Water-stage recorder graph, except Feb. 2-13, for which graph is doubtful. Altitude of gage is 5,070 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 50 cfs and by slope-area measurement of peak flow; affected by ice Jan. 11-15. Discharge for periods of ice effect or doubtful gage height estimated on basis of weather records and comparison with records for nearby streams.

Maxima.--January-February 1963: Discharge, 986 cfs about 1430 hours Jan. 31 (gage height, 6.93 ft).
1961 to December 1962: Discharge, 23 cfs May 8, Oct. 13, 1962; gage height, 1.74 May 8, 1962.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	4.2	110	11.....	3.6	11	21.....	4.2	6.6
2.....	4.2	30	12.....	3.2	10	22.....	4.2	6.6
3.....	4.4	17	13.....	3.6	10	23.....	4	6.3
4.....	4.4	17	14.....	4.1	9.2	24.....	4	6.6
5.....	4.2	18	15.....	4.3	8.9	25.....	4	6.6
6.....	4.2	16	16.....	4.4	8.5	26.....	3.8	6.6
7.....	4.4	14	17.....	4.2	8.1	27.....	4	6.6
8.....	4.2	12	18.....	4.2	7.8	28.....	3.8	6.6
9.....	4.2	10	19.....	4.2	7.8	29.....	3.8	---
10.....	4.2	11	20.....	4	7	30.....	46	---
						31.....	230	---
Monthly mean discharge, in cubic feet per second.....							12.7	14.1
Runoff, in inches.....							1.27	1.28
Runoff, in acre-feet.....							782	785

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.59	4.0	Jan. 31	0900	2.35	91	Jan. 31	1530	5.25	658
					0930	2.68	143		1830	2.70	219
	30	1100	1.65		1130	2.70	146		2200	3.10	282
		1400	1.93		1130	2.96	193		2400	3.03	271
		1600	2.65		1300	3.05	210				
		2000	2.56		1330	3.80	360	Feb. 1	0700	2.06	123
		2400	2.08		1400	4.50	500		1200	1.76	80
					1430	6.93	986		2400	1.52	47
31	0300	2.05	54		1500	6.20	840				

10-3480. Truckee River at Reno, Nev.

Location.--Lat 39°31'55", long 119°47'05", in NW¼ sec. 7, T.19 N., R.20 E., on left bank 400 ft downstream from Kietzke Lane bridge, half a mile east of Reno, and 5 miles upstream from Steamboat Creek.

Drainage area.--1,067 sq mi.

Gage-height record.--Water-stage recorder graph, except Jan. 1-9. Datum of gage is 4,431.97 ft above mean sea level (levels by Corps of Engineers).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 14,000 cfs. Affected by ice Jan. 10-29. Discharge for Jan. 31, Feb. 1-4 computed by using rate of change of stage as a factor. Discharge for periods of ice effect or no gage-height record estimated on basis of weather records and comparison with records for station at Vista.

Maxima.--January-February 1963: Discharge, 18,400 cfs 0430 hours Feb. 1 (gage height, 13.28 ft); gage height, 13.33 ft 0500 hours Feb. 1.
1906-21, 1925-26, 1930-35, 1943, 1946 to December 1962: Discharge, 20,800 cfs Dec. 23, 1955; gage height, 13.83 ft Nov. 21, 1950.

Remarks.--Flow regulated by Lake Tahoe, Prosser Creek and Boca Reservoirs, Donner and Independence Lakes, and by several powerplants.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	220	11,480	11.....	150	2,150	21.....	160	307
2.....	220	5,350	12.....	145	610	22.....	160	295
3.....	225	3,850	13.....	150	520	23.....	160	447
4.....	245	3,400	14.....	160	495	24.....	150	452
5.....	235	3,960	15.....	170	750	25.....	155	510
6.....	235	3,960	16.....	160	1,710	26.....	155	647
7.....	230	3,330	17.....	160	1,570	27.....	155	692
8.....	220	2,520	18.....	155	1,290	28.....	180	800
9.....	215	2,300	19.....	150	456	29.....	190	-----
10.....	205	2,270	20.....	155	370	30.....	987	-----
						31.....	7,210	-----
Monthly mean discharge, in cubic feet per second.....							434	2,018
Runoff, in inches.....							0.47	1.97
Runoff, in acre-feet.....							26,710	112,000

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.11	176	Jan. 31	1100	7.75	6,240	Feb. 2	0700	8.21	5,770
					1200	8.53	7,280		1100	7.88	5,240
					1500	9.32	8,540		1800	7.47	4,640
30	0500	2.16	191		1700	10.25	11,000		2400	7.23	4,310
	1000	2.31	242		2100	10.91	12,100				
	1200	2.52	324		2400	12.06	15,900	3	0800	6.91	3,900
	1330	2.53	328						1200	6.83	3,810
	1500	2.86	475						1430	6.68	3,640
	1600	3.95	1,130	Feb. 1	0230	12.74	17,000		1600	6.77	3,740
	1700	4.85	1,870		0430	13.28	18,400		2400	6.64	3,590
	1800	5.07	2,070		0500	13.33	17,500				
	1900	5.07	2,070		0530	13.23	16,700	4	1100	6.31	3,240
	2030	5.23	2,220		0930	12.13	13,400		1200	6.13	3,060
	2100	5.90	2,840		1200	10.95	10,300		1230	6.28	3,210
	2230	6.31	3,240		1600	9.14	7,080		1800	6.13	3,060
	2400	6.03	2,960		1730	8.80	6,800		1900	6.15	3,080
					1800	8.82	6,840		2000	6.80	3,770
31	0200	5.71	2,640		1900	8.82	6,840		2400	6.97	3,970
	0430	6.05	2,980		2030	9.10	7,370				
	0700	5.75	2,680		2130	9.10	7,370				
	0900	6.15	3,080		2400	8.97	7,120				

10-3489. Galena Creek near Steamboat, Nev.

Location.--Lat 39°21'45", long 119°49'30", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.2, T.17 N., R.19 E., on right bank, 1 mile upstream from Jones Creek, $3\frac{1}{2}$ miles upstream from mouth, and 12 miles south of Reno.

Drainage area.--8.5 sq mi, approximately.

Gage-height record.--Water-stage recorder graph, except Feb. 2, 3, 7-14. Altitude of gage is 5,580 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 50 cfs and by slope-area measurement of maximum flow; affected by ice Jan. 11-16, Feb. 23, 24, 27, 28. Discharge for periods of ice effect or no gage-height record estimated on basis of weather records and comparison with records for nearby streams.

Maxima.--January-February 1963: Discharge, 472 cfs 2000 hours Jan. 31 (gage height, 2.26 ft).
1961 to December 1962: Discharge, 80 cfs June 10, 1962 (gage height, 1.64 ft).
Flood of July 20, 1956, reached a discharge of 4,730 cfs.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	1.2	100	11.....	1.0	3.4	21.....	1.2	2.4
2.....	1.3	37	12.....	.8	2.8	22.....	1.2	2.1
3.....	1.3	30	13.....	.9	2.5	23.....	1.2	1.9
4.....	1.3	21	14.....	1.0	2.2	24.....	1.2	2.1
5.....	1.2	14	15.....	1.1	2.2	25.....	1.2	2.8
6.....	1.2	12	16.....	1.3	2.2	26.....	1.2	3.0
7.....	1.2	10	17.....	1.2	2.2	27.....	1.2	2.6
8.....	1.2	7.0	18.....	1.2	2.1	28.....	1.2	2.4
9.....	1.2	5.4	19.....	1.2	2.4	29.....	1.3	-----
10.....	1.2	4.0	20.....	1.2	2.3	30.....	3.5	-----
						31.....	130	-----

Monthly mean discharge, in cubic feet per second.....	5.41	10.1
Runoff, in inches.....	0.73	1.24
Runoff, in acre-feet.....	332	563

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	1.22	5.3	Jan. 31	2100	2.04	317	Feb. 1	0800	0.58	34
					2200	1.85	205		0900	.56	11
31	0200	1.13	3.1		2300	1.63	136		1000	.69	53
	0400	1.22	5.3		2400	1.25	63		1200	.62	40
	0500	1.20	4.6						1300	.57	32
	0800	1.38	12.6	Feb. 1	0100	1.55	165		1400	.79	76
	1000	1.42	15.5		0200	1.81	393		1500	.48	26
	1400	1.77	77		0400	1.64	338		1600	.50	36
	1500	2.02	209		0500	1.25	215		2400	.46	37
	1900	2.25	458		0600	1.12	165				
	2000	2.26	472		0700	.90	90				

10-3493. Steamboat Creek at Steamboat, Nev.

Location.--Lat 39°22'40", long 119°44'33", in S $\frac{1}{2}$ sec.33, T.18 N., R.20 E., on left bank 250 ft upstream from Steamboat ditch, a quarter of a mile southwest of Steamboat, and 11 miles southwest of Reno.

Drainage area.--123 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 4,600 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 400 cfs.

Maxima.--January-February 1963: Discharge, 1,000 cfs 2000 hours Jan. 31 (gage height, 5.44 ft).
1961 to December 1962: Discharge, 280 cfs Feb. 9, 1962 (gage height, 3.69 ft).

Remarks.--Flow partly regulated by Washoe Lake.

Mean discharge, in cubic feet per second, 1963, of Steamboat Creek at Steamboat, Nev.

Day	January	February	Day	January	February	Day	January	February
1.....	3.4	419	11.....	2.4	19	21.....	3.6	7.8
2.....	3.3	76	12.....	1.9	15	22.....	3.8	7.5
3.....	3.8	57	13.....	2.7	12	23.....	3.8	7.2
4.....	4.4	48	14.....	3.8	11	24.....	3.6	7.0
5.....	4.0	47	15.....	4.6	10	25.....	3.4	7.5
6.....	3.6	37	16.....	4.6	9.6	26.....	3.3	7.5
7.....	3.6	33	17.....	4.0	9.2	27.....	3.3	7.2
8.....	3.8	27	18.....	3.6	8.9	28.....	3.3	7.0
9.....	4.0	22	19.....	3.6	8.6	29.....	3.8	-----
10.....	3.6	22	20.....	3.6	8.2	30.....	105	-----
						31.....	475	-----
Monthly mean discharge, in cubic feet per second.....							22.0	34.2
Runoff, in inches.....							0.21	0.29
Runoff, in acre-feet.....							1,350	1,900

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.20	7.5	Jan. 31	0200	2.11	74	Jan. 31	2400	5.38	971
	30	0600	1.67		0330	2.05	68				
		1000	1.67		0500	2.27	92	Feb. 1	0200	5.09	840
		1400	2.01		1000	2.75	156		0400	5.10	845
		1400	2.31		1300	4.41	574		0700	4.62	648
		1900	3.21		1400	4.82	728		1100	3.39	278
		2000	3.60		1700	5.01	804		2400	2.41	103
		2200	3.21		1800	4.89	756				
		2400	2.65		2000	5.44	1,000	2	0800	2.16	77
					2130	5.15	868		2400	1.99	62

10-3497. Whites Creek near Steamboat, Nev.

Location.--Lat 39°23'05", long 119°50'20", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.34, T.18 N., R.19 E., on left bank 4 miles above Steamboat ditch and 10 miles south of Reno.

Drainage area.--9 sq mi, approximately.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 5,955 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 30 cfs and by slope-area measurement of maximum flow.

Maxima.--January-February 1963: Discharge, 135 cfs 1700 hours Jan. 31 (gage height, 2.54 ft).

1961 to December 1962: Daily discharge, 23 cfs June 10, 1962.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	3.1	34	11.....	3.0	6.4	21.....	2.7	5.3
2.....	3.1	15	12.....	2.7	6.0	22.....	2.7	5.3
3.....	3.1	13	13.....	2.9	6.0	23.....	2.7	5.3
4.....	3.8	10	14.....	2.9	5.7	24.....	2.7	5.0
5.....	3.6	10	15.....	2.9	5.3	25.....	2.7	5.0
6.....	3.6	9.8	16.....	2.9	5.3	26.....	2.7	5.3
7.....	3.6	8.8	17.....	2.9	5.3	27.....	2.7	5.0
8.....	3.6	8.4	18.....	2.9	5.3	28.....	2.7	5.3
9.....	3.6	7.9	19.....	2.9	5.3	29.....	2.7	-----
10.....	3.6	7.4	20.....	2.9	5.3	30.....	6.0	-----
						31.....	57	-----
Monthly mean discharge, in cubic feet per second.....							4.87	7.92
Runoff, in inches.....							0.62	0.92
Runoff, in acre-feet.....							299	440

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.47	2.7	Jan. 31	0900	1.75	15	Jan. 31	1900	2.43	110
					1100	1.95	32		2000	2.47	97
	30	0800	1.50		1200	2.15	58		2400	2.38	71
		1300	1.50		1300	2.35	93				
		2200	1.72		1400	2.40	103	Feb. 1	1200	2.08	25
		2400	1.77		1500	2.34	91		2400	1.93	13
					1700	2.54	135				
31	0400	1.67	9.8		1800	2.45	114				

10-3500. Truckee River at Vista, Nev.

Location.--Lat 39°31'05", long 119°40'58", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.13, T.19 N., R.20 E., on left bank 800 ft downstream from Southern Pacific railroad bridge, 0.9 mile southeast of Vista, $1\frac{1}{2}$ miles downstream from Steamboat Creek, and 4 miles south-east of Sparks.

Drainage area.--1,429 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 4,368.33 ft above mean sea level, datum of 1929, supplementary adjustment of 1956.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 5,000 cfs and by slope-area measurement of maximum flow; affected by ice Jan. 12-15.

Maxima.--January-February 1963: Discharge, 21,300 cfs 1200 hours Feb. 1 (gage height, 16.78 ft).
1899-1908, 1932-54, 1958 to December 1962: Daily discharge, about 10,000 cfs Mar. 18, 1907 (estimated on basis of discharge at Farad and at Reno).
Flood of Dec. 23, 1955, probably equaled or exceeded that of Mar. 18, 1907

Remarks.--Flow regulated by Lake Tahoe, Boca Reservoir, and other lakes (combined capacity, 800,000 acre-ft). Several powerplants and many diversions above station.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	493	17,400	11.....	308	1,910	21.....	269	408
2.....	490	8,640	12.....	255	762	22.....	275	388
3.....	484	4,880	13.....	270	619	23.....	273	499
4.....	499	3,600	14.....	280	604	24.....	273	511
5.....	490	4,050	15.....	280	676	25.....	269	526
6.....	466	4,030	16.....	284	1,450	26.....	282	656
7.....	440	3,270	17.....	280	1,300	27.....	282	670
8.....	398	2,260	18.....	276	1,060	28.....	291	776
9.....	375	2,010	19.....	265	544	29.....	299	-----
10.....	355	2,040	20.....	265	457	30.....	884	-----
						31.....	7,150	-----
Monthly mean discharge, in cubic feet per second.....							574	2,357
Runoff, in inches.....							0.46	1.72
Runoff, in acre-feet.....							35,310	130,900

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.46	311	Jan. 31	1200	9.53	5,830	Feb. 2	0700	11.84	9,480
					1300	10.48	7,190		1200	10.92	7,850
30	0200	1.47	313		1600	11.94	9,660		1900	10.07	6,580
	0400	1.41	299		1700	12.40	10,600		2100	10.00	6,470
	0600	1.42	302		1900	12.88	11,560		2400	9.71	6,070
	0900	1.48	315		2100	13.04	11,890				
	1100	1.57	338		2400	13.60	13,120	3	1100	8.66	4,780
	1300	1.71	372						1400	8.51	4,620
	1600	2.07	466	Feb. 1	0300	14.17	14,420		1400	8.43	4,540
	1700	2.21	508		0400	14.53	15,320		1600	8.28	4,390
	1900	5.21	1,850		0500	15.06	16,600		1800	8.29	4,400
	2000	5.65	2,140		0700	16.01	18,970		2400	8.02	4,130
	2200	6.25	2,560		1100	16.76	21,220				
	2300	7.04	3,220		1200	16.78	21,300	4	0300	7.86	3,960
	2400	7.48	3,610		1400	16.52	20,500		0700	7.59	3,700
					1800	15.43	17,520		1200	7.22	3,360
31	0100	7.63	3,750		1900	14.89	16,200		1700	7.00	3,160
	0300	7.43	3,570		2100	14.11	14,250		1900	6.94	3,110
	0700	7.71	3,830		2400	13.48	13,860		2200	7.87	3,970
	0900	7.63	3,750						2400	8.05	4,150
	1000	7.82	3,940	2	0500	12.44	10,640				
	1100	8.44	4,560		0600	12.18	10,120				

10-3516. Truckee River below Derby Dam, near Wadsworth, Nev.

Location.--Lat 39°35'05", long 119°26'25", in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.19, T.20 N., R.23 E., on right bank 1,500 ft downstream from Derby Dam, 3 $\frac{1}{4}$ miles downstream from Clark, and 9 miles southwest of Wadsworth.

Drainage area.--1,670 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 4,200 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,500 cfs and by slope-area measurement of maximum flow.

Maxima.--January-February 1963: Discharge, 18,400 cfs 1600 hours Feb. 1 (gage height, 14.26 ft).
1909-10, 1916 to December 1962: Daily discharge recorded, 8,970 cfs Dec. 13, 1937.

Remarks.--Flow regulated by Lake Tahoe, Boca Reservoir, other lakes, powerplants, many diversions for irrigation, and by Derby Dam. Truckee Canal diverts water at Derby Dam out of basin to Lahontan Reservoir.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	2.0	14,700	11.....	0.6	1,710	21.....	0.8	422
2.....	1.5	7,760	12.....	.6	1,050	22.....	.8	327
3.....	1.0	3,240	13.....	.7	612	23.....	.8	394
4.....	.9	2,420	14.....	.8	630	24.....	.8	462
5.....	.8	2,530	15.....	.8	540	25.....	.8	492
6.....	.7	2,560	16.....	.8	1,320	26.....	.8	585
7.....	.6	2,370	17.....	.8	1,280	27.....	.8	528
8.....	.6	1,810	18.....	.8	1,190	28.....	1.0	630
9.....	.6	1,750	19.....	.8	655	29.....	1.5	-----
10.....	.6	1,710	20.....	.8	528	30.....	14	-----
						31.....	4,400	-----
Monthly mean discharge, in cubic feet per second.....							143	1,936
Runoff, in inches.....							0.10	1.21
Runoff, in acre-feet.....							8,800	107,500

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.10	1.5	Jan. 31	2000	10.08	7,620	Feb. 1	2400	12.49	13,400
30	2300	1.10	1.5		2100	10.59	6,700	2	0600	11.29	10,400
	2400	3.82	595		2300	11.97	11,900		0800	10.95	9,600
					2400	12.02	12,000		1000	10.42	8,540
31	0100	5.06	1,270	Feb. 1	0100	12.25	12,600	3	1200	9.54	6,780
	0200	6.37	2,320		0200	12.17	12,400		1400	8.28	4,820
	0300	6.31	2,260		0400	12.24	12,600		1500	9.09	6,040
	0500	6.89	2,860		0600	12.59	13,600		1600	8.80	5,600
	0500	7.17	3,140		0800	12.69	13,800		1800	8.50	5,150
	0800	7.05	3,020		1000	13.04	14,700		2300	7.93	4,300
	0900	7.13	3,100		1100	13.22	15,200		2400	7.86	4,200
	1000	7.04	3,010		1200	13.37	15,600				
	1300	7.18	3,150		1400	13.85	17,100		0500	7.47	3,730
	1400	7.11	3,080		1500	13.79	16,900		0900	7.27	3,490
	1500	7.22	3,190		1600	14.26	18,400		1100	6.94	3,100
	1700	7.89	4,020		1700	13.69	16,700		1300	6.80	2,930
	1800	8.36	4,670		1800	13.46	16,000		1500	6.80	2,930
	1900	9.34	6,180		2200	12.91	14,400		2200	6.56	2,690
										2400	6.51

10-3517. Truckee River near Nixon, Nev.

Location.--Lat 39°46'40", long 119°20'10", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.18, T.22 N., R.24 E., on right bank 1 mile upstream from Pyramid Indian Reservation diversion dam, 4 miles south of Nixon, and 13 miles upstream from mouth.

Drainage area.--1,869 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 3,940 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 10,300 cfs and by computation of flow (14,000 cfs) over dam; affected by ice Jan. 1-27. Discharge for period of ice effect estimated on basis of engineers' notes, reconstructed gage-height graph, weather records, and comparison with records for upstream stations.

Maxima.--January-February 1963: Discharge, 14,400 cfs 0130 hours Feb. 2 (gage height, 14.39 ft).
1955 to December 1962: Discharge, 14,000 cfs Dec. 24, 1955 (gage height, 14.1 ft, from floodmarks), by flow-over-dam measurement of peak flow.

Remarks.--Flow regulated by Lake Tahoe, Boca Reservoir, other lakes, powerplants, and many diversions for irrigation. Truckee Canal often diverts practically all flow at Derby Dam about 25 miles upstream out of basin to Lahontan Reservoir. Several diversions for irrigation between station and Truckee Canal. One irrigation canal diverts between station and mouth of river.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	30	9,460	11.....	24	2,160	21.....	24	538
2.....	29	11,600	12.....	21	1,540	22.....	24	444
3.....	29	5,460	13.....	22	792	23.....	24	475
4.....	28	3,550	14.....	23	780	24.....	25	565
5.....	28	3,730	15.....	24	676	25.....	25	590
6.....	28	3,980	16.....	24	1,120	26.....	26	670
7.....	28	3,840	17.....	24	1,410	27.....	27	709
8.....	27	2,660	18.....	24	1,350	28.....	28	770
9.....	26	2,240	19.....	24	974	29.....	28	-----
10.....	25	2,130	20.....	24	635	30.....	29	-----
						31.....	1,370	-----
Monthly mean discharge, in cubic feet per second.....							69.1	2,316
Runoff, in inches.....							0.04	1.29
Runoff, in acre-feet.....							4,250	128,600

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	2.48	31	Feb. 1	1600	11.90	11,400	Feb. 3	0200	9.63	6,920
					1800	12.32	11,900		0500	9.33	6,320
					2100	13.65	13,600		1800	8.37	4,570
					2400	14.26	14,300		2400	8.07	4,100
				2	0130	14.39	14,400	4	0400	7.87	3,800
					0500	13.93	13,900		1300	7.65	3,480
					0700	13.53	13,500		1900	7.46	3,210
					1200	12.23	11,800		2000	7.46	3,210
Feb. 1	0200	7.76	3,640		1800	10.89	9,590		2200	7.56	3,350
	1100	11.26	10,300		2400	9.92	7,530		2400	7.57	3,370
	1200	11.32	10,400								
	1500	11.86	11,300								

HONEY LAKE BASIN

10-3565. Susan River at Susanville, Calif.

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

Drainage area.--192 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 4,225.72 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 840 cfs and by slope-area measurement at 3,540 cfs; affected by ice Jan. 1-19, 21-30.

Maxima.--January-February 1963: Discharge, 3,900 cfs 2300 hours Jan. 31 (gage height, 6.78 ft).
1900-1905, 1913, 1917-21, 1950 to December 1962: Discharge, 3,540 cfs Dec. 23, 1955 (gage height, 6.62 ft).

Remarks.--Floodflow regulated by McCoy Flat Reservoir, Hog Flat Reservoir, and Lake Levitt (combined usable capacity, 39,300 acre-ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	45	1,840	11.....	30	290	21.....	25	121
2.....	45	678	12.....	25	270	22.....	25	109
3.....	45	585	13.....	25	233	23.....	25	101
4.....	40	530	14.....	30	183	24.....	25	96
5.....	40	494	15.....	30	161	25.....	25	93
6.....	40	446	16.....	30	151	26.....	25	84
7.....	35	406	17.....	30	145	27.....	25	81
8.....	35	342	18.....	25	134	28.....	25	77
9.....	30	318	19.....	25	129	29.....	25	-----
10.....	30	318	20.....	25	126	30.....	30	-----
						31.....	1,560	-----
Monthly mean discharge, in cubic feet per second.....							798	305
Runoff, in acre-feet.....							4,910	16,940

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	1.61	32	Jan. 31	1700	6.47	3,240	Feb. 1	0500	6.08	2,510
					1800	6.63	3,570		0800	5.50	1,680
	31	0900	1.75		2100	6.42	3,140		1300	5.17	1,310
		0930	4.59		2300	6.78	3,900		1700	5.32	1,460
		1000	4.15		2400	6.75	3,830		2100	4.92	1,080
		1100	4.71						2400	4.61	847
		1200	5.10	Feb. 1	0100	6.70	3,720				
		1500	5.77		0200	6.72	3,760				

10-3578.5. Eagle Lake tributary near Susanville, Calif.

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

Drainage area.--0.91 sq mi.

Gage-height record.--Water-stage recorder graph and crest-stage gage. Altitude of gage is 5,170 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by computation of flow through culvert.

Maxima.--January-February 1963: Discharge, 21 cfs 1630 hours Feb. 1 (gage height, 5.14 ft).
October to December 1962: Discharge, 14 cfs Oct. 13, 1962 (gage height, 6.01 ft, culvert partly plugged).

Mean discharge, in cubic feet per second, 1963, of Eagle Lake tributary near Susanville, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	0	4.3	11.....	0	0.1	21.....	0	0
2.....	0	.6	12.....	0	.1	22.....	0	0
3.....	0	.4	13.....	0	.2	23.....	0	0
4.....	0	.4	14.....	0	.1	24.....	0	0
5.....	0	.3	15.....	0	0	25.....	0	0
6.....	0	.2	16.....	0	0	26.....	0	0
7.....	0	.2	17.....	0	0	27.....	0	0
8.....	0	.2	18.....	0	0	28.....	0	0
9.....	0	.2	19.....	0	0	29.....	0	-----
10.....	0	.2	20.....	0	0	30.....	.1	-----
						31.....	6.4	-----
Monthly mean discharg , in cubic feet per second.....							0.21	0.27
Runoff, in inches.....							0.27	0.31
Runoff, in acre-feet.....							13	15

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	2.91	0.5	Jan. 31	2000	3.80	6.0	Feb. 1	1415	3.11	1.2
					2400	3.69	5.0		1430	3.58	4.1
31	0430	3.00	.7						1445	4.50	14
	0530	3.22	1.8	Feb. 1	0030	3.82	6.2		1505	4.91	18
	0630	3.82	6.2		0100	4.83	17		1530	4.58	14
	0700	4.22	11		0115	4.99	19		1550	4.35	12
	1030	4.58	14		0130	4.60	15		1600	4.41	13
	1100	4.55	14		0200	4.01	8.2		1630	5.14	21
	1300	3.91	7.1		0230	3.73	5.4		1700	4.68	16
	1400	3.71	5.2		0500	3.22	1.8		1730	4.09	9.1
	1600	3.86	6.6		0800	3.03	.9		1800	3.75	5.6
	1700	4.08	9.0		1100	2.99	.7		2000	3.28	2.1
	1800	3.76	5.6		1400	3.01	.8		2400	2.90	.4

10-3584.7. Willow Creek tributary near Susanville, Calif.

(Crest-stage station)

Location.--Lat 40°29'48", long 120°33'30", in SW $\frac{1}{4}$ sec.31 T.31 N., R.13 E., at culvert on State Highway 139, 7.5 miles northeast of Susanville.

Drainage area.--3.08 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 4,890 ft (from topographic map).

Discharge record.--Maximum discharge by computation of flow through culvert.

Maxima.--January-February 1963: Discharge, 97 cfs Feb. 1 (gage height, 4.90 ft).
July to December 1962: Discharge, 50 cfs Oct. 13, 1962 (gage height, 3.81 ft).

10-3585. Willow Creek near Susanville, Calif.

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

Drainage area.--92.5 sq mi, excludes that of Eagle Lake basin.

Gage-height record.--Water-stage recorder graph. Datum of gage is 4,836.27 ft above mean sea level, unadjusted.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 816 cfs 1600 hours Feb. 1 (gage height, 5.59 ft).
1950 to December 1962: Discharge, 712 cfs Dec. 23, 1955 (gage height, 5.36 ft).

Mean discharge, in cubic feet per second, 1963, of Willow Creek near Susanville, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	28	751	11.....	26	95	21.....	25	46
2.....	28	596	12.....	26	85	22.....	25	45
3.....	29	380	13.....	28	81	23.....	25	41
4.....	30	260	14.....	26	76	24.....	25	39
5.....	30	199	15.....	26	68	25.....	26	38
6.....	30	158	16.....	25	63	26.....	24	37
7.....	30	133	17.....	26	58	27.....	18	36
8.....	30	119	18.....	26	54	28.....	15	35
9.....	30	106	19.....	24	50	29.....	15	- - - - -
10.....	31	104	20.....	25	48	30.....	16	- - - - -
						31.....	343	- - - - -
Monthly mean discharge, in cubic feet per second.....							35.8	136
Runoff, in inches.....							0.45	1.53
Runoff, in acre-feet.....							2,200	7,540

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	2.50	26	Jan. 31	2300	5.28	676	Feb. 1	2000	5.41	735
					2400	5.34	703		2400	5.34	703
31	0200	2.69	40								
	0600	2.98	68	Feb. 1	0200	5.49	771	2	0600	5.23	654
	0700	3.11	82		0400	5.42	739		1200	5.11	600
	1000	4.08	260		0600	5.40	730		1800	4.98	541
	1300	4.66	436		1400	5.49	771		2400	4.84	478
	1800	5.03	572		1600	5.59	816				

MADELINE PLAINS BASIN

10-3588.1. Whiskey Creek near Termo, Calif.

(Crest-stage station)

Location--Lat 40°49'15", long 120°35'00", in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.11, T.34 N., R.12 E., 7.4 miles west of Termo.Drainage area--4.56 sq mi.Gage-height record--Crest stages only. Altitude of gage is 5,300 ft (from topographic map).Discharge record--Maximum discharge by slope-area measurement.Maxima--January-February 1963: Discharge, 132 cfs Feb. 1 (gage height, 4.15 ft).
July to December 1962: Discharge, 96 cfs Oct. 13, 1962 (gage height, 4.15 ft).

CENTRAL-COASTAL CALIFORNIA

COTTONTAIL CREEK BASIN

11-1421.5. Cottontail Creek tributary near Cayucos, Calif.

(Crest-stage station)

Location--Lat 35°28'55", long 120°52'25", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.22, T.28 S., R.10 E., at culvert on county road 2.8 miles northeast of Cayucos.Drainage area--1.33 sq mi.Gage-height record--Crest stages only. Altitude of gage is 250 ft (from topographic map).Discharge record--Stage-discharge relation defined by current-meter measurements below 9 cfs and by computation of flow through culvert at 167 cfs.Maxima--January-February 1963: Discharge, 72 cfs Jan. 31 (gage height, 12.59 ft).
1959 to December 1962: Discharge, 167 cfs Feb. 1, 1960 (gage height, 14.39 ft).

SANTA ROSA CREEK BASIN

11-1422. Santa Rosa Creek near Cambria, Calif.

Location.--Lat 35°34'35", long 120°59'50", in NE $\frac{1}{4}$ sec.21, T.27 S., R.9 E., on left bank 4.8 miles east of Cambria.

Drainage area.--12.5 sq mi.

Gage-height record.--Water-stage recorder graph, except Feb. 8-18. Datum of gage is 264.03 ft above mean sea level, datum of 1929, supplementary adjustment of 1960.

Discharge record.--Stage-discharge relation defined by current-meter measurements. Discharge for Feb. 8-18 estimated on basis of records for nearby stations.

Maxima.--January-February 1963: Discharge, 1,330 cfs 0900 hours Jan. 31 (gage height, 6.73 ft).

1957 to December 1962: Discharge, 2,520 cfs Feb. 1, 1960 (gage height, 10.36 ft), from rating curve extended above 390 cfs on basis of slope-area measurement of peak flow.

Flood of December 1955 reached a stage of 15.2 ft (from floodmarks).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0.7	518	11.....	0.6	150	21.....	0.5	24
2.....	.7	64	12.....	.6	80	22.....	.5	22
3.....	.7	36	13.....	.6	260	23.....	.5	20
4.....	.7	25	14.....	.6	100	24.....	.5	19
5.....	.7	19	15.....	.6	70	25.....	.5	17
6.....	.6	17	16.....	.6	55	26.....	.5	15
7.....	.6	14	17.....	.6	44	27.....	.5	14
8.....	.6	13	18.....	.6	35	28.....	.5	13
9.....	.6	180	19.....	.6	30	29.....	.6	-----
10.....	.6	300	20.....	.5	27	30.....	132	-----
						31.....	498	-----
Monthly mean discharge, in cubic feet per second.....							20.9	77.9
Runoff, in inches.....							1.92	6.49
Runoff, in acre-feet.....							1,280	4,330

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.45	3.1	Jan. 31	0100	4.49	342	Jan. 31	2400	4.84	464
	30				0200	4.66	401				
	0500	2.65	9.9		0500	4.10	255	Feb. 1	0100	5.07	548
	0700	3.20	49		0700	5.00	520		0200	6.48	1,190
	0700	3.61	105		0800	6.42	1,160		0300	6.39	1,150
	0900	3.43	77		0900	5.80	850		0300	6.50	1,200
	1100	3.52	90		0900	6.73	1,350		0400	6.44	1,170
	1200	3.65	113		1000	6.24	1,070		0500	5.90	900
	1400	3.44	79		1100	6.50	1,200		0600	5.45	700
	1600	3.42	76		1200	5.36	664		0700	5.82	860
	1700	3.84	153		1300	4.79	447		0800	6.61	1,260
	2100	4.20	255		1500	4.23	264		1000	5.23	612
	2200	4.50	345		1700	4.13	234		1200	4.50	345
	2300	5.18	592		2000	4.18	249		1800	3.82	148
	2400	5.09	556		2200	5.13	572		2400	3.53	92

ARROYO DE LA CRUZ BASIN

11-1425. Arroyo de la Cruz near San Simeon, Calif.

Location.--Lat 35°43'25", long 121°17'00", in Piedra Blanca Grant, on right bank 1.7 miles upstream from mouth and 7 miles northwest of town of San Simeon, San Luis Obispo County.

Drainage area.--41.4 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 22 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 13,700 cfs 1000 hours Jan. 31 (gage height, 11.41 ft).

1950 to December 1962: Discharge, 17,700 cfs Dec. 23, 1955 (gage height, 12.40 ft), from rating curve extended above 7,600 cfs on basis of slope-area measurement of peak flow.

Mean discharge, in cubic feet per second, 1963, of Arroyo de la Cruz near San Simeon, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	5.6	4,220	11.....	2.8	457	21.....	1.6	94
2.....	5.3	710	12.....	2.2	283	22.....	1.6	85
3.....	4.7	343	13.....	2.1	912	23.....	1.5	77
4.....	4.4	214	14.....	1.9	458	24.....	1.5	70
5.....	3.9	153	15.....	1.9	290	25.....	1.5	64
6.....	3.3	118	16.....	1.9	221	26.....	1.4	59
7.....	3.1	96	17.....	1.9	180	27.....	1.4	55
8.....	3.1	84	18.....	1.9	146	28.....	1.4	50
9.....	3.1	770	19.....	1.7	124	29.....	2.2	---
10.....	2.9	1,070	20.....	1.6	112	30.....	2,670	---
						31.....	6,870	---
Monthly mean discharge, in cubic feet per second.....							310	411
Runoff, in inches.....							8.63	10.34
Runoff, in acre-feet.....							19,070	22,840

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.28	9.7	Jan. 31	0100	9.73	8,330	Feb. 1	0100	9.34	7,350
	30				0400	8.13	4,890		0300	10.55	10,700
		2.28	9.7		0600	7.52	3,950		0600	8.88	6,360
	0200	5.10	1,100		0800	9.00	6,600		0900	8.03	4,710
	0300	5.37	1,300		0900	10.55	10,700		1200	7.00	3,080
	0600	5.07	1,080		1000	11.41	13,700		1500	6.20	2,100
	0800	6.33	2,240		1300	10.17	9,560		1900	5.69	1,590
	1000	7.88	4,440		1400	10.37	10,200		2400	5.10	1,100
	1200	7.08	3,190		1600	8.37	5,340				
	1400	6.33	2,240		1800	7.56	3,920	2	1800	4.16	540
	1600	6.08	1,980		2000	6.91	2,950		2400	3.97	447
	1900	7.32	3,530		2200	7.90	4,480				
	2100	7.88	4,440		2300	9.20	7,000				
	2200	7.77	4,250		2400	9.50	7,750				
	2400	9.53	7,830								

REDWOOD GULCH BASIN

11-1426. Redwood Gulch near Jolon, Calif.

(Crest-stage station)

Location.--Lat 35°50'12", long 121°23'25", in NE $\frac{1}{4}$ sec.23, T.24 S., R.5 E., at culvert on State Highway 1, 15 miles west of Jolon.

Drainage area.--1.31 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 510 ft (from topographic map).

Discharge record.--Maximum discharge by computation of flow through culvert.

Maxima.--January-February 1963: Discharge, 372 cfs Jan. 31 (gage height, 55.70 ft). 1960 to December 1962: Discharge, not determined, occurred Feb. 9, 1962 (gage height, 52.96 ft).

RAT CREEK BASIN

11-1428. Rat Creek near Lucia, Calif.

Location.--Lat 36°05'32", long 121°37'03", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.22, T.21 S., R.3 E., on left bank at culvert on State Highway 1 and 6.2 miles northwest of Lucia.

Drainage area.--0.82 sq mi.

Gage-height record.--Water-stage recorder graph, except Feb. 13-17. Altitude of gage is 190 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 2 cfs and by computation of flow through culvert at 23 cfs. Discharge for Feb. 13-17 estimated on basis of records for nearby stations. Stage-discharge indefinite Feb. 3-12; discharge estimated on basis of records for nearby stations.

Maxima.--January-February 1963: Discharge, 18 cfs 1145 hours Jan. 31 (gage height, 1.89 ft); gage height, 2.16 ft 0810 hours Jan. 31 (log jam). 1960 to December 1962: Discharge, 10 cfs Feb. 10, 1962 (gage height, 1.40 ft).

[illegible]

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge		
Jan. 29	2400	0.47	0.1	Jan. 30	2400	1.35	9.5	Jan. 31	1900	1.47	11		
30	0500	.57	.2	31	0600	1.50	12		2200	1.43	11		
	0600	.56	.2			0700	1.63	14		2400	1.50	12	
	0900	.88	3.2			0800	1.72	15	Feb. 1	0300	1.64	14	
	1100	.83	2.6			0800	1.70	15			0400	1.61	14
	1400	1.12	6.2			0900	1.64	14			0500	1.64	14
	1500	1.12	6.2			1100	1.83	17			1000	1.52	12
	1900	1.41	10			1145	1.89	18			1800	1.30	8.7
	2200	1.37	9.8			1400	1.67	15			2400	1.20	7.3
2300	1.32	9.0		1500	1.67	15							

11-1430. Big Sur River near Big Sur, Calif.

Location.--Lat 36°14'45", long 121°46'20", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.29, T.19 S., R.2 E., on right bank at downstream side of bridge, 0.4 mile upstream from Post Creek and 2.6 miles southeast of Big Sur.

Drainage area.--46.5 sq mi.

Gage-height record,--Water-stage recorder graph. Altitude of gage is 400 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,400 cfs and by slope-area measurement at gage height 11.05 ft.

Maxima.--January-February 1963: Discharge, 5,400 cfs 0100 hours Feb. 1 (gage height, 11.23 ft).
1950 to December 1962: Discharge, 5,680 cfs Apr. 2, 1958 (gage height, 11.56 ft).

[illegible]

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	3.15	80	Jan. 30	2300	8.62	3,000	Jan. 31	2200	9.75	4,020
					2400	8.64	3,020		2400	10.90	5,070
30	0300	3.65	154								
	0600	4.30	310	31	0300	9.13	3,460	Feb. 1	0100	11.23	5,400
	1000	5.48	820		0500	8.87	3,220		0300	11.00	5,170
	1200	5.56	860		0700	9.09	3,420		0600	9.70	3,970
	1600	6.66	1,500		1000	9.98	4,220		0900	8.90	3,320
	1800	7.01	1,750		1300	10.52	4,710		1200	8.50	3,000
	1900	7.75	2,300		1600	9.62	3,900		1800	7.57	2,260
	2100	8.90	3,250		2000	9.07	3,400		2400	7.01	1,840

[illegible]

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Carmel River at Robles del Rio, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.83	3.8	Jan. 30	2200	8.45	3,130	Jan. 31	2200	8.56	3,290
					2400	8.75	3,580		2400	8.77	3,610
30	0400	2.83	3.8		0200	8.48	3,170	Feb. 1	0200	9.28	4,370
	0700	2.98	8.0		0400	8.48	3,170		0300	9.29	4,390
	1000	3.15	16		0700	8.33	2,950		0600	8.93	3,850
	1100	3.20	18		1000	8.54	3,260		1200	8.17	2,710
	1200	4.50	245		1300	9.26	4,340		1800	7.53	2,030
	1300	5.25	500		1600	9.60	4,950		2400	7.06	1,590
	1500	6.16	936		2100	8.63	3,400				
	1900	7.45	1,950								

11-1432.5 Carmel River near Carmel, Calif.

Location.--Lat 36°32'20", long 121°52'25", in Canada de la Segunda Grant, on right bank 0.3 mile downstream from Potrero Canyon and 3 miles east of Carmel.

Drainage area.--246 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 45 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 7,360 cfs 1800 hours Jan. 31 (gage height, 14.72 ft).
August to December 1962: Discharge, 2.0 cfs Dec. 2, 1962 (gage height, 2.89 ft).

Remarks.--Flow slightly regulated by Los Padres Reservoir (capacity, 3,000 acre-ft) and San Clemente Reservoir (capacity, 1,600 acre-ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0.6	4,270	11.....	0.8	710	21.....	3.2	276
2.....	.6	1,370	12.....	1.0	562	22.....	3.5	255
3.....	.6	787	13.....	1.2	594	23.....	3.9	230
4.....	.6	562	14.....	1.5	558	24.....	3.9	213
5.....	.6	435	15.....	1.7	487	25.....	3.9	204
6.....	.6	359	16.....	2.0	431	26.....	3.0	186
7.....	.6	305	17.....	2.4	398	27.....	2.2	173
8.....	.6	271	18.....	2.5	359	28.....	2.8	171
9.....	.6	318	19.....	2.8	319	29.....	3.0	---
10.....	.6	817	20.....	3.0	291	30.....	293	---
						31.....	5,000	---
Monthly mean discharge, in cubic feet per second.....							172	568
Runoff, in inches.....							0.81	2.41
Runoff, in acre-feet.....							10,610	31,560

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	4.06	6.7	Jan. 31	0900	12.20	4,520	Feb. 1	0800	13.76	6,240
					1000	11.88	4,200		1000	12.75	5,120
30	0100	3.98	4.1		1100	11.83	4,160		1300	11.45	3,820
	0300	3.97	3.9		1300	12.30	4,630		1400	10.95	3,360
	0700	3.97	3.9		1600	13.50	5,950		1600	10.42	2,940
	1200	4.04	6.0		1800	14.72	7,360		1800	10.00	2,600
	1800	4.11	8.5		2000	14.34	6,910		2200	9.41	2,190
	1900	6.35	530		2200	13.25	5,680		2400	9.15	2,000
	2100	7.90	1,240		2300	12.90	5,290				
	2400	9.18	2,030		2400	12.90	5,290				
31	0300	11.90	4,220	Feb. 1	0100	12.80	5,180	2	0500	8.62	1,670
	0400	12.00	4,320		0200	13.10	5,510		1200	8.10	1,360
	0600	11.92	4,240		0400	13.80	6,280		1400	7.84	1,210
	0700	12.27	4,600		0600	14.30	6,860		1700	7.62	1,100
									2400	7.30	940

SALINAS RIVER BASIN

11-1470. Jack Creek near Templeton, Calif.

Location.--Lat 35°34', long 120°48', in Paso de Robles Grant, on left bank 1.4 miles upstream from mouth, 1.8 miles northwest of Oakdale School, and 5.6 miles west of Templeton, San Luis Obispo County.

Drainage area.--25.3 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 980 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 1,820 cfs 1200 hours Jan. 31 (gage height, 6.90 ft).
1949 to December 1962: Discharge, 5,040 cfs Jan. 25, 1956 (gage height, 9.56 ft), from rating curve extended above 1,500 cfs on basis of slope-area measurement of peak flow.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0.2	709	11.....	0.2	142	21.....	0.2	20
2.....	.2	109	12.....	.2	78	22.....	.2	18
3.....	.2	50	13.....	.2	128	23.....	.2	16
4.....	.2	30	14.....	.2	94	24.....	.2	15
5.....	.2	22	15.....	.2	60	25.....	.2	13
6.....	.2	17	16.....	.2	47	26.....	.3	12
7.....	.2	14	17.....	.2	37	27.....	.3	11
8.....	.2	12	18.....	.2	30	28.....	.3	11
9.....	.2	245	19.....	.2	27	29.....	.4	---
10.....	.2	461	20.....	.2	23	30.....	128	---
						31.....	905	---

Monthly mean discharge, in cubic feet per second.....	33.5	87.5
Runoff, in inches.....	1.53	3.60
Runoff, in acre-feet.....	2,060	4,860

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.81	1.0	Jan. 31	0100	5.33	780	Jan. 31	2300	5.78	1,020
					0400	5.20	715		2400	5.94	1,110
30	0100	1.84	1.2		0600	4.97	600				
	0600	1.95	2.1		0800	5.30	765	Feb. 1	0200	5.78	1,020
	0700	2.08	3.8		0900	6.10	1,210		0400	6.60	1,580
	0900	2.28	8.4		1100	6.75	1,700		0600	5.90	1,090
	1000	3.31	102		1200	6.90	1,820		0800	5.46	848
	1300	3.86	215		1500	5.42	826		0900	5.66	958
	1600	3.48	132		1700	5.00	615		1200	5.15	690
	1700	3.46	128		1800	4.94	585		1400	4.72	479
	2000	3.92	230		2000	4.99	610		1700	4.33	349
	2300	4.34	352		2100	5.04	635		2400	3.77	193
	2400	4.90	565		2200	5.25	740				

11-1470.7. Santa Rita Creek near Templeton, Calif.

Location.--Lat 35°31'26", long 120°45'54", in Asuncion Grant, on left bank 1.6 miles upstream from Paso Robles Creek and 4 miles west of Templeton, San Luis Obispo County.

Drainage area.--18.2 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 860 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 1,210 cfs 1030 hours Jan. 31 (gage height, 7.66 ft).
1961 to December 1962: Maximum discharge, 2,320 cfs Feb. 9, 1962 (gage height, 9.15 ft).

Mean discharge, in cubic feet per second, 1963, of Santa Rita Creek near Templeton, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	0.2	607	11.....	0.2	145	21.....	0.3	16
2.....	.2	107	12.....	.2	75	22.....	.3	14
3.....	.2	42	13.....	.2	179	23.....	.3	12
4.....	.2	25	14.....	.2	117	24.....	.3	11
5.....	.2	17	15.....	.2	70	25.....	.3	9.6
6.....	.2	12	16.....	.3	51	26.....	.3	8.6
7.....	.2	10	17.....	.3	36	27.....	.3	8.1
8.....	.2	8.6	18.....	.3	29	28.....	.3	7.2
9.....	.2	223	19.....	.3	22	29.....	.5	-----
10.....	.2	411	20.....	.3	18	30.....	81	-----
						31.....	523	-----
Monthly mean discharge, in cubic feet per second.....							19.7	81.8
Runoff, in inches.....							1.25	4.68
Runoff, in acre-feet.....							1,210	4,540

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	3.63	1.5	Jan. 31	0100	4.95	157	Jan. 31	1900	5.68	339
					0300	5.94	419		2000	5.68	339
30	1000	3.77	5.9		0400	5.63	324		2300	5.82	381
	1100	5.26	205		0600	5.53	294		2400	6.20	510
	1200	5.68	319		0700	5.40	260				
	1300	5.35	228		0800	5.48	280	Feb. 1	0100	6.55	650
	1500	5.05	157		0900	6.25	530		0200	6.57	658
	1700	4.66	89		1030	7.66	1,210		0500	7.47	1,090
	1900	4.48	65		1100	7.52	1,120		0800	6.87	785
	2100	4.68	92		1300	7.60	1,170		1000	7.15	925
	2300	4.76	104		1500	6.62	678		1400	6.24	526
	2400	4.95	137		1700	5.94	419		1700	5.77	366
									2400	5.12	193

11-1476.3. San Marcos Creek tributary near Paso Robles, Calif.

(Crest-stage station)

Location.--Lat 35°41'20", long 120°47'50", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.9, T.26 S., R.11 E., at culvert on county road, 7.3 miles northwest of Paso Robles.

Drainage area.--0.59 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 950 ft (from topographic map).

Discharge record.--Stage-discharge relation not defined.

Maxima.--January-February 1963: Discharge, not determined, occurred Jan. 31 (gage height, 51.06 ft).

1959 to December 1962: Discharge, 21 cfs Feb. 14, 1962 (gage height, 51.54 ft), by computation of flow through culvert.

11-1485.5. Indian Valley Creek tributary near Valleton, Calif.

(Crest-stage station)

Location.--Lat 36°01'25", long 120°39'10", in SW $\frac{1}{4}$ sec.11, T.22 S., R.12 E., at culvert on Indian Valley Road, 9.2 miles northeast of Valleton.

Drainage area.--0.13 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 1,660 ft (from topographic map).

Discharge record.--Maximum discharge by computation of flow through culvert.

Maxima.--January-February 1963: Discharge, 13 cfs Jan. 31 (gage height, 51.84 ft). 1960 to December 1962: Discharge, not determined, occurred Feb. 9, 1962 (gage height, 51.27 ft).

11-1488. Nacimiento River near Bryson, Calif.

Location.--Lat 35°48'06", long 121°06'50", in NW $\frac{1}{4}$ sec.33, T.24 S., R.8 E., on right bank 0.6 mile upstream from Turtle Creek, 1.6 miles west of Bryson, and 10 miles southwest of Lockwood.

Drainage area.--140 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 860 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 22,800 cfs 1400 hours Jan. 31 (gage height, 21.08 ft).
1955 to December 1962: Discharge, 30,300 cfs Dec. 23, 1955 (gage height, 24.63 ft), from rating curve extended above 13,000 cfs on basis of slope-area measurement of maximum flow.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	18	8,370	11.....	13	1,730	21.....	10	91
2.....	18	1,940	12.....	12	758	22.....	9.8	67
3.....	17	902	13.....	12	1,710	23.....	9.8	52
4.....	17	509	14.....	11	1,100	24.....	9.8	38
5.....	16	328	15.....	11	630	25.....	9.8	31
6.....	15	239	16.....	11	407	26.....	9.8	24
7.....	14	194	17.....	11	286	27.....	9.8	21
8.....	14	156	18.....	11	212	28.....	9.8	17
9.....	14	1,610	19.....	11	156	29.....	13	---
10.....	14	3,730	20.....	11	121	30.....	4,700	---
						31.....	13,600	---
Monthly mean discharge, in cubic feet per second.....							602	908
Runoff, in inches.....							4.96	6.76
Runoff, in acre-feet.....							37,020	50,440

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	4.37	25	Jan. 30	2300	15.60	12,200	Feb. 1	0500	16.72	14,200
					2400	15.53	12,100		0800	15.94	12,800
30	0300	4.61	55						1100	14.00	9,800
	0400	6.42	700	31	0200	14.98	11,200		1500	11.70	6,050
	0500	6.98	1,030		0400	15.07	11,300		1700	11.00	5,020
	0700	7.77	1,580		0600	14.83	10,900		2000	10.20	4,000
	0900	9.40	3,120		0800	15.83	12,600		2400	9.42	3,140
	1000	10.50	4,370		1100	19.50	19,600				
	1100	10.90	4,890		1200	19.66	19,900	2	0600	8.64	2,320
	1200	10.85	4,830		1400	21.08	22,800		1200	8.07	1,820
	1300	10.90	4,890		1700	17.00	14,700		1800	7.63	1,460
	1500	10.52	4,400		2000	13.55	8,880		2400	7.26	1,200
	1700	11.55	5,830		2200	12.65	7,480				
	2100	14.40	10,200		2400	13.30	8,480				

11-1488.2. Sapaque Creek tributary at Bryson, Calif.

(Crest-stage station)

Location.--Lat 35°48'50", long 121°05'25", in NW $\frac{1}{4}$ sec.27, T.24 S., R.8 E., at culvert on county road, 0.4 mile north of Bryson.

Drainage area.--0.76 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 990 ft (from topographic map).

Discharge record.--Maximum discharge by computation of flow through culvert.

Maxima.--January-February 1963: Discharge, 39 cfs Jan. 31 (gage height, 53.40 ft).
1960 to December 1962: Discharge, not determined, occurred Feb. 9, 1962 (gage height, 52.22 ft).

11-1494. Nacimiento River below Nacimiento Dam, near Bradley, Calif.

Location.--Lat 35°45'41", long 120°51'16", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.14, T.25 S., R.10 E., on left bank 2.2 miles below Nacimiento Dam and 7.6 miles southwest of Bradley.

Drainage area.--322 sq mi.

Gage-height record.--Water-stage recorder graph, except Jan. 1-7. Datum of gage is 597 ft above mean sea level (Corps of Engineers bench mark).

Discharge record.--Stage-discharge relation defined by current-meter measurements. Discharge for Jan. 1-7 estimated on basis of recorded range in stage.

Maxima.--January-February 1963: Discharge, 8.7 cfs 1500 hours Feb. 9 (gage height, 3.28 ft).
1957 to December 1962: Discharge, 5,220 cfs Apr. 7, 1958 (gage height, 10.28 ft).

Remarks.--Flow regulated by Nacimiento Dam (usable capacity, 340,000 acre-ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0	1.4	11.....	0	0.4	21.....	0	0.1
2.....	0	.5	12.....	0	.3	22.....	0	.1
3.....	0	.2	13.....	0	.5	23.....	0	.1
4.....	0	.2	14.....	0	.3	24.....	0	.1
5.....	0	.2	15.....	0	.2	25.....	0	.1
6.....	0	.2	16.....	0	.2	26.....	0	.1
7.....	0	.2	17.....	0	.2	27.....	0	.1
8.....	0	.2	18.....	0	.1	28.....	0	.1
9.....	0	2.7	19.....	0	.1	29.....	0	-----
10.....	0	1.4	20.....	0	.1	30.....	.1	-----
						31.....	1.1	-----
Monthly mean discharge, in cubic feet per second.....							0.04	0.37
Runoff, in acre-feet.....							2.4	21

11-1496.5. Sulphur Springs Canyon near Jolon, Calif.

(Crest-stage station)

Location.--Lat 36°01'10", long 121°14'15", in Hunter Liggett Military Reservation, at culvert on Sulphur Springs Road, 4.8 miles northwest of Jolon.

Drainage area.--5.16 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 1,070 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by computation of flow through culvert at 29 and 209 cfs.

Maxima.--January-February 1963: Discharge, 209 cfs Jan. 31 (gage height, 56.04 ft).
1960 to December 1962: Discharge, 117 cfs Feb. 9, 1962 (gage height, 54.22 ft).

11-1497. San Antonio River at Sam Jones Bridge, near Lockwood, Calif.

Location.--Lat 35°54'45", long 121°07'50", in Los Ojitos Grant, on downstream side of Sam Jones Bridge, 300 ft downstream from China Gulch and 3.5 miles southwest of Lockwood, Monterey County.

Drainage area.--211 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 860 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 14,400 cfs 1700 hours Jan. 31 (gage height, 8.70 ft).
1958-59, 1961 to December 1962: Discharge, 7,040 cfs Feb. 9, 1962 (gage height, 7.01 ft).

Mean discharge, in cubic feet per second, 1963, of San Antonio River at Sam Jones Bridge, near Lockwood, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	12	5,710	11.....	9.8	720	21.....	8.0	241
2.....	12	1,130	12.....	9.2	461	22.....	8.0	217
3.....	12	640	13.....	9.2	942	23.....	8.0	195
4.....	12	491	14.....	9.2	750	24.....	8.0	180
5.....	12	363	15.....	8.6	523	25.....	8.6	169
6.....	12	290	16.....	8.6	426	26.....	8.6	159
7.....	11	235	17.....	8.0	375	27.....	8.6	148
8.....	10	208	18.....	8.0	334	28.....	8.6	141
9.....	10	412	19.....	8.0	296	29.....	9.8	-----
10.....	10	1,140	20.....	8.0	279	30.....	1,530	-----
						31.....	7,480	-----
Monthly mean discharge, in cubic feet per second.....							300	613
Runoff, in inches.....							1.64	3.03
Runoff, in acre-feet.....							18,420	34,070

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.73	16	Jan. 31	0100	6.41	4,930	Jan. 31	2400	6.48	5,140
	30	0400	2.75		0300	6.40	4,900				
		0700	2.82		0500	6.21	4,330	Feb. 1	0100	6.48	5,140
		0700	3.40		0800	6.72	5,860		0300	7.01	6,780
		0800	4.12		0800	6.60	5,500		0600	8.28	12,300
		1000	4.50		1100	7.10	7,100		0700	8.18	11,800
		1400	5.26		1300	7.90	10,400		1100	6.64	5,620
		1800	5.32		1400	7.33	7,920		1500	6.07	3,910
		2000	5.73		1600	8.52	13,500		1800	5.73	3,030
		2100	5.80		1600	8.32	12,500		2400	5.22	1,990
		2400	6.33		1700	8.70	14,400				
					2000	7.36	8,040				

11-1500. San Antonio River at Pleyto, Calif.

Location.--Lat 35°51'55", long 120°59'30", in Pleyto Grant, on downstream side of left abutment of highway bridge at old townsite of Pleyto, Monterey County, 1.1 miles downstream from Cooperhead Creek and 15 miles west of Bradley.

Drainage area.--284 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 720 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 14,800 cfs 1900 hours Jan. 31 (gage height, 6.35 ft).

1929 to December 1962: Discharge, 19,100 cfs Apr. 3, 1958 (gage height, 6.44 ft), from rating curve extended above 4,500 cfs.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	9.0	5,780	11.....	10	919	21.....	9.0	262
2.....	9.0	1,400	12.....	10	570	22.....	9.0	235
3.....	10	708	13.....	9.0	871	23.....	8.1	225
4.....	9.0	465	14.....	10	841	24.....	7.2	216
5.....	10	353	15.....	10	582	25.....	6.3	203
6.....	10	286	16.....	10	475	26.....	4.5	177
7.....	10	248	17.....	10	406	27.....	5.4	164
8.....	9.0	222	18.....	11	361	28.....	4.5	164
9.....	9.0	277	19.....	11	318	29.....	3.6	-----
10.....	10	1,100	20.....	10	301	30.....	517	-----
						31.....	6,110	-----
Monthly mean discharge, in cubic feet per second.....							222	647
Runoff, in inches.....							0.90	2.37
Runoff, in acre-feet.....							13,650	35,960

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Salinas River near Bradley, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	3.70	27	Feb. 1	0200	9.85	12,100	Feb. 1	2400	8.09	5,650
31	0500	3.71	29		0300	9.87	12,200				
	0600	4.70	490		0500	9.22	9,480	2	0600	7.54	4,270
	0800	5.50	1,120		0700	8.50	6,850		1200	6.84	2,880
	1200	6.50	2,340		0900	8.14	5,770		1800	6.40	2,190
	1600	7.50	4,170		1100	8.08	5,620		2400	6.06	1,730
	2100	8.10	5,670		1400	8.50	6,850				
	2400	9.25	9,600		1700	9.10	9,000				
					2100	8.32	6,260				

11-1508. Cow Creek near San Ardo, Calif.

Location.--Lat 36°10'40", long 120°47'45", in San Lorenzo Grant, on right bank at culvert on Peach Tree Valley Road, 12.5 miles northeast of San Ardo, Monterey County.

Drainage area.--4.80 sq mi.

Gage-height record.--Water-stage recorder graph, except Feb. 2-9. Altitude of gage is 1,340 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 21 cfs and by computation of peak flow through culvert at 173 and 213 cfs. Discharge for Feb. 2-9 estimated on basis of weather records.

Maxima.--January-February 1963: Discharge, 173 cfs, time unknown, Feb. 9 (gage height, 5.90 ft, from floodmarks).
1960 to December 1962: Discharge, 213 cfs Feb. 15, 1962 (gage height, 6.96 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0	0.2	11.....	0	0	21.....	0	0
2.....	0	0	12.....	0	2.7	22.....	0	0
3.....	0	0	13.....	0	8.5	23.....	0	0
4.....	0	0	14.....	0	0	24.....	0	0
5.....	0	0	15.....	0	0	25.....	0	0
6.....	0	0	16.....	0	0	26.....	0	0
7.....	0	0	17.....	0	0	27.....	0	0
8.....	0	0	18.....	0	0	28.....	0	0
9.....	0	34	19.....	0	0	29.....	0	-----
10.....	0	1.5	20.....	0	0	30.....	0	-----
						31.....	9.2	-----

Monthly mean discharge, in cubic feet per second.....	0.30	1.68
Runoff, in inches.....	0.07	0.36
Runoff, in acre-feet.....	18	93

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	0	0	Jan. 31	1100	1.28	23	Jan. 31	1900	0.62	3.6
31	0900	0	0		1200	1.38	26		2400	.45	.4
	1000	1.39	27		1300	1.82	40				
					1700	.85	10				

11-1509.5. San Lorenzo Creek tributary near Bitterwater, Calif.
(Crest-stage station)

Location.--Lat 36°17'30", long 120°58'10", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.11, T.19 S., R.9 E., at culvert on Lonoak Road, 6.4 miles south of Bitterwater.

Drainage area.--3.24 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 820 ft (from topographic map).

Discharge record.--Maximum discharge by computation of flow through culvert.

Maxima.--January-February 1963: Discharge, 18 cfs Jan. 31 (gage height, 51.80 ft).
1960 to December 1962: Discharge not determined, occurred Feb. 15, 1962 (gage height, 51.37 ft).

11-1513. San Lorenzo Creek below Bitterwater Creek, near King City, Calif.

Location.--Lat 36°16'05", long 121°03'50", in NW $\frac{1}{4}$ sec.24, T.19 S., R.8 E., on left bank 1.2 miles downstream from Bitterwater Creek, 5 miles northeast of King City, and 10 miles upstream from mouth.

Drainage area.--233 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 480 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 800 cfs.

Maxima.--January-February 1963: Discharge, 2,130 cfs 0200 hours Feb. 10 (gage height, 8.13 ft).

1958 to December 1962: Discharge, 2,050 cfs Feb. 9, 1962 (gage height, 8.02 ft, from floodmarks).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0.2	193	11.....	0.2	58	21.....	0.2	5.2
2.....	.2	33	12.....	.2	24	22.....	.2	4.4
3.....	.2	15	13.....	.2	338	23.....	.2	3.3
4.....	.2	10	14.....	.2	138	24.....	.2	2.8
5.....	.2	7.8	15.....	.2	27	25.....	.2	2.2
6.....	.2	7.0	16.....	.2	19	26.....	.2	2.0
7.....	.2	5.6	17.....	.2	15	27.....	.2	1.8
8.....	.2	4.9	18.....	.2	12	28.....	.2	1.6
9.....	.2	234	19.....	.2	8.7	29.....	.3	-----
10.....	.2	518	20.....	.2	7.0	30.....	4.4	-----
						31.....	325	-----
Monthly mean discharge, in cubic feet per second.....							10.8	60.6
Runoff, in inches.....							0.05	0.27
Runoff, in acre-feet.....							665	3,370

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	3.89	16	Feb. 1	0800	4.54	148	Feb. 9	2200	6.78	1,230
					1100	4.45	125		2300	7.58	1,750
					1700	4.73	198		2400	7.23	1,500
31	0700	3.93	19		2400	4.37	105				
	1000	4.02	26					10	0100	8.01	2,050
	1100	4.58	123						0200	7.97	2,020
	1500	4.76	188	8	2400	3.54	4.9		0200	8.13	2,130
	1500	5.93	685						0300	7.03	1,380
	1600	5.81	650	9	0400	3.54	4.9		0400	6.30	940
	1700	6.11	826		0600	3.58	6.5		0500	6.03	785
	1900	6.30	940		1100	3.59	7.0		0800	5.35	460
	2100	6.10	820		1400	3.78	17		1100	4.85	255
	2400	5.47	507		1500	3.76	16		1600	4.44	148
Feb. 1	0200	5.12	342		1800	3.93	27		2200	4.16	93
	0500	4.75	206		1900	5.45	494		2400	4.12	87
					2000	5.21	384				

11-1518.7. Arroyo Seco near Greenfield, Calif.

Location.--Lat 36°14'15", long 121°28'50", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.36, T.19 S., R.4 E., on right bank 0.6 mile downstream from Rocky Creek and 14.5 miles southwest of Greenfield.

Drainage area.--113 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 780 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 10,400 cfs 1300 hours Jan. 31 (gage height, 11.35 ft).

1961 to December 1962: Discharge, 7,910 cfs Feb. 9, 1962 (gage height, 10.23 ft), from rating curve extended above 960 cfs.

Mean discharge, in cubic feet per second, 1963, of Arroyo Seco near Greenfield, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	22	4,980	11.....	19	965	21.....	17	293
2.....	21	1,520	12.....	19	690	22.....	17	270
3.....	21	915	13.....	18	883	23.....	17	248
4.....	21	665	14.....	18	725	24.....	17	229
5.....	20	524	15.....	18	608	25.....	17	211
6.....	20	432	16.....	18	524	26.....	17	196
7.....	20	373	17.....	18	453	27.....	17	186
8.....	20	325	18.....	18	404	28.....	17	172
9.....	20	677	19.....	18	359	29.....	20	- - - - -
10.....	19	1,490	20.....	17	325	30.....	3,760	- - - - -
						31.....	7,360	- - - - -
Monthly mean discharge, in cubic feet per second.....							376	702
Runoff, in inches.....							3.84	6.46
Runoff, in acre-feet.....							23,130	38,960

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.27	37	Jan. 31	0200	10.10	7,620	Feb. 1	0200	10.75	9,050
					0500	9.32	8,060		0500	10.00	7,400
	30	0100	2.35		1000	10.80	9,160		0700	9.35	6,110
		0200	4.30		1100	10.70	8,940		1000	8.75	5,100
		0600	5.70		1300	11.35	10,400		1400	7.92	3,840
		1000	7.35		1600	10.00	7,400		1800	7.30	3,070
		1100	7.57		1800	9.30	6,020		2400	6.50	2,250
		1300	7.23		2000	8.90	5,340				
		1500	8.96		2100	8.90	5,340	2	0400	6.12	1,880
		1700	8.84		2400	10.00	7,400		0800	5.82	1,640
		2100	10.54						1200	5.58	1,440
		2400	9.40	Feb. 1	0100	10.60	8,720		1800	5.29	1,240
									2400	5.06	1,110

11-1519.5. Sand Creek near Paraiso Springs, Calif.

(Crest-stage station)

Location.--Lat 36°15'48", long 121°25'48", in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.21, T.19 S., R.5 E., at culvert on Jamesburg road, 5.8 miles southwest of Paraiso Springs.

Drainage area.--14.8 sq mi.

Gage-height record.--No record, station destroyed. Altitude of gage is 720 ft (from topographic map).

Discharge record.--Maximum discharge by slope-area measurement.

Maxima.--January-February 1963: Discharge, 673 cfs Jan. 31.

1960 to December 1962: Discharge not determined, occurred Feb. 13, 1962 (gage height, 51.94 ft).

11-1520. Arroyo Seco near Soledad, Calif.

Location.--Lat 36°16'50", long 121°19'20", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.16, T.19 S., R.6 E., on left bank just downstream from bridge, 1.5 miles downstream from Vaquero Creek and 10 miles south of Soledad.

Drainage area.--244 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 342.20 ft above mean sea level (Corps of Engineers bench mark).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 12,000 cfs and by slope-area measurement at 27,700 cfs.

Maxima.--January-February 1963: Discharge, 24,300 cfs 1530 hours Jan. 31 (gage height, 15.55 ft)

1901 to December 1962: Discharge, 28,300 cfs Apr. 3, 1958 (gage height, 14.40 ft, at datum 2.00 ft higher), from rating curve extended above 12,000 cfs on basis of slope-area measurement at 27,700 cfs.

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Salinas River near Spreckels, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	6.10	6.4	Feb. 1	0400	14.76	6,820	Feb. 2	0500	12.72	5,210
					0600	15.16	7,470		0700	12.70	5,180
31	0100	6.10	6.4		0700	15.22	7,570		0800	12.80	5,320
	0900	6.09	6.1		0800	15.17	7,490		1000	13.33	6,130
	1300	6.14	7.8		1000	14.73	6,770		1300	13.96	7,140
	1700	6.14	7.8		1300	14.00	5,600		1500	14.00	7,200
	1700	7.95	355		1400	13.94	5,520		1700	13.92	7,070
	1800	11.00	2,900		1500	14.11	5,780		2100	13.38	6,210
	1900	12.00	4,200		1900	14.86	6,980		2400	13.23	5,970
	2100	12.65	5,110		2100	14.91	7,060				
	2400	13.03	5,650		2400	14.62	6,590				
Feb. 2	0200	14.35	6,160	2	0300	13.11	5,780				

MORO COJO SLOUGH BASIN

11-1527. Moro Cojo Slough tributary near Castroville, Calif.

(Crest-stage station)

Location.--Lat 36°46'30", long 121°43'05", in Bolsa de las Escorpinas Grant, at culvert on State Highway 156, 1.8 miles northeast of Castroville.

Drainage area.--0.11 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 35 ft (from topographic map).

Discharge record.--Maximum discharge by computation of flow through culvert.

Maxima.--January-February 1963: Discharge, 12 cfs Jan. 31 (gage height, 51.47 ft). 1960 to December 1962: Discharge not determined, occurred Feb. 13, 1962 (gage height, 50.62 ft).

PAJARO RIVER BASIN

11-1529. Cedar Creek near Bell Station, Calif.

Location.--Lat 37°03'00", long 121°19'35", in San Luis Gonzaga Grant, on left bank 0.5 mile upstream from Hagerman Canyon and 1.3 miles northwest of Bell Station, Santa Clara County.

Drainage area.--12.8 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 390 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 260 cfs.

Maxima.--January-February 1963: Discharge, 3,490 cfs 1300 hours Jan. 31 (gage height, 6.85 ft). 1961 to December 1962: Discharge, 760 cfs Feb. 15, 1962 (gage height, 4.30 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0	447	11.....	0	12	21.....	0	3.3
2.....	0	40	12.....	0	31	22.....	0	2.9
3.....	0	13	13.....	0	176	23.....	0	2.4
4.....	0	5.8	14.....	0	53	24.....	0	2.2
5.....	0	3.3	15.....	0	22	25.....	0	2.1
6.....	0	2.4	16.....	0	13	26.....	0	1.9
7.....	0	1.8	17.....	0	8.3	27.....	0	1.8
8.....	0	1.4	18.....	0	5.8	28.....	0	1.7
9.....	0	20	19.....	0	4.4	29.....	0	---
10.....	0	34	20.....	0	3.7	30.....	45	---
						31.....	832	---

Monthly mean discharge, in cubic feet per second.....	28.3	32.7
Runoff, in inches.....	2.55	2.66
Runoff, in acre-feet.....	1,740	1,820

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Cedar Creek near Bell Station, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.26	0.3	Jan. 31	0700	2.89	130	Jan. 31	2200	6.65	3,210
					1000	3.86	480		2300	6.23	2,660
30	1200	1.40	1.1		1100	3.67	390		2400	5.50	1,820
	1700	1.39	1.0		1200	4.77	1,070				
	1800	2.11	25		1300	6.85	3,490	Feb. 1	0200	4.86	1,220
	2000	3.14	182		1400	4.77	1,150		0400	4.21	747
	2100	3.12	186		1500	4.34	838		0700	3.86	550
	2200	3.37	264		1600	4.30	810		1200	3.16	262
	2400	2.98	151		1800	3.55	410		1800	2.64	121
					1900	3.40	350		2400	2.39	76
31	0200	2.81	113		2000	3.42	358				
	0300	3.33	253		2100	5.00	1,340				

11-1530. Pacheco Creek near Dunneville, Calif.

Location.--Lat 36°58'50", long 121°22'45", in Ausaymas y San Felipe Grant, on right bank 350 ft downstream from private road bridge and 3.3 miles northeast of Dunneville, Santa Clara County.

Drainage area.--146 sq mi.

Gage-height record.--Water-stage recorder graph, except 0200 to 1000 hours Feb. 1, for which graph was reconstructed on basis of outside high-water mark. Datum of gage is 230.70 ft above mean sea level, datum of 1947.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,400 cfs and by slope-area measurement at 12,600 cfs.

Maxima.--January-February 1963: Discharge, 8,900 cfs 0500 hours Feb. 1 (gage height, 17.7 ft).
1940 to December 1962: Discharge, 12,600 cfs Dec. 23, 1955 (gage height, 21.0 ft, from floodmarks), from rating curve extended above 820 cfs on basis of slope-area measurement of maximum flow.

Remarks.--Flow regulated by Pacheco Lake (capacity, 6,150 acre-ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0	3,630	11.....	0	134	21.....	0	32
2.....	0	513	12.....	0	162	22.....	0	26
3.....	0	199	13.....	0	1,180	23.....	0	22
4.....	0	98	14.....	0	491	24.....	0	18
5.....	0	60	15.....	0	211	25.....	0	15
6.....	0	39	16.....	0	129	26.....	0	13
7.....	0	27	17.....	0	92	27.....	0	11
8.....	0	19	18.....	0	67	28.....	0	10
9.....	0	56	19.....	0	52	29.....	0	-----
10.....	0	395	20.....	0	41	30.....	0	-----
						31.....	549	-----
Monthly mean discharge, in cubic feet per second.....							17.7	276
Runoff, in inches.....							0.14	1.97
Runoff, in acre-feet.....							1,090	15,360

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	-	0	Jan. 31	2300	7.12	623	Feb. 1	1000	13.00	4,440
					2400	8.80	1,460		1200	11.70	5,400
31	1100	-	0						1400	10.67	2,680
	1200	5.30	93	Feb. 1	0100	9.75	2,040		1600	9.40	1,820
	1300	8.12	1,090		0200	13.10	4,520		1900	8.50	1,280
	1400	8.65	1,370		0300	14.95	6,160		2400	7.90	980
	1500	10.42	2,500		0400	16.50	7,700				
	1600	9.70	2,000		0500	17.70	8,900	2	0600	7.17	643
	1700	8.55	1,310		0600	16.60	7,800		1200	6.66	444
	1900	7.40	745		0800	14.85	6,070		1800	6.35	342
	2200	6.73	469		0900	14.05	5,350		2400	6.10	267

11-1534.8. Chesbro Reservoir near Morgan Hill, Calif.

Location.--Lat 37°07'00", long 121°41'34", near southwest boundary of Ojo de Agua de la Coche Grant, at left end of dam on Llagas Creek, 2.5 miles west of Morgan Hill, Santa Clara County.

Drainage area.--19.4 sq mi.

Gage-height record.--Staff gage read once daily, except Jan. 4, 6, 7, 13-17, 19, 21, 23-27, Feb. 5, 16. Datum of gage is at mean sea level (levels by South Santa Clara Valley Water Conservation District).

Contents record.--Contents computed from capacity table dated Oct. 20, 1955. Contents for periods of no gage-height record were estimated.

Maxima.--January-February 1963: Contents, 7,840 acre-ft 1200 hours Feb. 1 (elevation, 526.34 ft).
1955 to December 1962: Contents observed, 7,950 acre-ft Apr. 3, 1958 (elevation, 526.8 ft).

Remarks.--Reservoir is formed by earth and rockfill dam completed in 1955. Capacity, 7,500 acre-ft between elevations 465 (elevation of outlet gates) and 525 ft (crest of spillway). Records furnished by South Santa Clara Valley Water Conservation District.

Elevation, in feet, and contents, in acre-feet, at 0800 hours, 1963

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	479.1	446	526.3	7,820	16	-	496	-	7,560
2	479.2	452	526.1	7,780	17	-	498	525.1	7,520
3	479.3	458	526.0	7,750	18	480.0	500	524.9	7,480
4	-	461	525.6	7,650	19	-	503	524.6	7,410
5	479.4	464	-	7,640	20	480.1	506	524.4	7,360
6	-	468	525.5	7,620	21	-	506	524.0	7,280
7	-	472	525.5	7,620	22	480.1	506	523.5	7,170
8	479.6	476	525.5	7,620	23	-	508	523.3	7,130
9	479.6	476	525.4	7,600	24	-	510	522.4	6,930
10	479.7	482	525.4	7,610	25	-	512	522.4	6,930
11	479.8	488	525.4	7,600	26	-	514	522.6	6,970
12	479.8	488	525.3	7,580	27	-	516	521.6	6,750
13	-	490	525.5	7,620	28	480.3	518	520.7	6,550
14	-	492	525.5	7,620	29	480.3	518	-	-
15	-	494	525.4	7,600	30	481.4	584	-	-
					31	510.0	4,300	-	-
Change in contents, in acre-feet.....						-	+3,860	-	+2,250

11-1535. Llagas Creek near Morgan Hill, Calif.

Location.--Lat 37°06'50", long 121°41'25", in Las Uvas Grant, on right bank 500 ft upstream from Llagas Avenue Bridge, 0.3 mile downstream from Chesbro Dam, 0.3 mile upstream from small tributary, and 2.3 miles west of Morgan Hill, Santa Clara County.

Drainage area.--19.6 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 445 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 906 cfs 1100 hours Feb. 1 (gage height, 4.51 ft).
1951 to December 1962: Discharge, 3,190 cfs Apr. 2, 1958 (gage height, 8.45 ft), from rating curve extended above 1,600 cfs on basis of computation of maximum flow over dam.

Remarks.--Flow regulated by Chesbro Reservoir (see station 11-1534.8).

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Uvas Creek above Uvas Reservoir, near Morgan Hill, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	2.98	4.8	Jan. 30	2000	11.38	3,420	Jan. 31	2000	11.75	3,930
					2100	11.43	3,480		2200	12.25	4,700
29	1400	2.98	4.8		2300	10.81	2,770		2400	11.18	3,180
	1800	3.08	6.8		2400	10.05	2,100	Feb. 1	0200	10.43	2,420
	2100	3.14	8.1						0400	9.68	1,840
	2400	3.44	17	31	0100	11.40	3,440		0800	8.76	1,280
30	0300	3.87	40		0300	11.15	3,140		1000	8.17	1,040
	0500	4.90	145		0400	10.00	2,040		1400	7.42	762
	0700	5.98	350		0500	10.24	2,250		1700	7.00	630
	0800	6.59	507		0800	11.26	3,270		2100	6.47	472
	1000	8.00	970		0900	10.85	2,810		2400	6.27	422
	1100	8.93	1,370		1000	11.27	3,280	2	0600	5.93	338
	1200	10.10	2,140		1130	13.10	6,400		1200	5.73	291
	1300	11.00	2,960		1200	12.85	5,810		1800	5.53	251
	1500	11.15	3,140		1300	11.80	4,090		2400	5.38	221
	1600	10.78	2,740		1500	10.75	2,710				
	1900	10.83	2,790		1700	10.20	2,220				
					1900	11.10	3,080				

11-1540.2. Uvas Reservoir near Morgan Hill, Calif.

Location.--Lat 37°04'02", long 121°41'25", in Las Uvas Grant, at center of dam on Uvas Creek, 4.8 miles southwest of Morgan Hill, Santa Clara County.

Drainage area.--30.2 sq mi.

Gage-height record.--Staff gage read once daily, except Jan. 4, 6, 7, 13, 17, 19, 21, 23, 26, 27. Datum of gage is at mean sea level (levels by South Santa Clara Valley Water Conservation District).

Contents record.--Contents computed from capacity table dated Dec. 8, 1955. Contents for periods of no gage-height record were interpolated.

Maxima.--January-February 1963: Contents, 10,760 acre-ft 0800 hours Feb. 1 (elevation, 489.6 ft).
1957 to December 1962: Contents observed, 10,500 acre-ft Apr. 1, 1958 (elevation, 488.9 ft).

Remarks.--Reservoir is formed by earth and rockfill dam completed in 1957. Capacity, 10,000 acre-ft between elevations 410 (hydraulic gate valves) and 487.5 ft (crest of spillway). Records furnished by South Santa Clara Valley Water Conservation District.

Elevation, in feet, and contents, in acre-feet, at 0800 hours, 1963

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	436.1	1,190	489.6	10,760	16	438.2	1,360	487.4	9,960
2	436.3	1,200	488.2	10,250	17	-	1,360	487.4	9,960
3	436.4	1,210	488.0	10,180	18	438.2	1,360	487.5	10,000
4	-	1,220	487.4	9,960	19	-	1,380	487.5	10,000
5	436.7	1,240	487.4	9,960	20	438.4	1,370	487.5	10,000
6	-	1,250	487.4	9,960	21	-	1,380	487.5	10,000
7	-	1,260	487.4	9,960	22	438.5	-	487.5	10,000
8	437.1	1,270	487.4	9,960	23	-	1,390	487.5	10,000
9	437.3	1,280	487.4	9,960	24	438.7	1,400	487.5	10,000
10	437.4	1,290	487.7	10,070	25	438.8	1,400	487.5	10,000
11	437.5	1,300	487.8	10,110	26	-	1,410	487.5	10,000
12	437.7	1,320	487.6	10,040	27	-	1,410	487.5	10,000
13	-	1,320	488.2	10,250	28	439.0	1,420	487.4	9,960
14	437.7	1,320	487.9	10,140	29	439.1	1,430	-	-
15	438.0	1,340	487.8	10,110	30	441.1	1,610	-	-
					31	477.5	7,250	-	-
Change in contents, in acre-feet.....						-	+6,070	-	+2,710

11-1541. Bodfish Creek near Gilroy, Calif.

Location.--Lat 37°00'15", long 121°40'00", in Las Animas Grant, on left bank just upstream from Whitehurst Creek, 2.7 miles upstream from mouth and 5.1 miles west of city limits of Gilroy, Santa Clara County.

Drainage area.--7.40 sq mi.

Gage-height record.--Water-stage recorder graph, except Feb. 2-6. Altitude of gage is 360 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 580 cfs. Discharge for Feb. 2-6 estimated on basis of one discharge measurement and records for nearby stations.

Maxima.--January-February 1963: Discharge 1,240 cfs 1200 hours Jan. 31 (gage height, 8.25 ft).
1959 to December 1962: Discharge, 585 cfs Feb. 1, 1959 (gage height, 6.35 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0.6	228	11.....	0.4	14	21.....	0.3	5.5
2.....	.6	34	12.....	.4	23	22.....	.3	5.2
3.....	.6	15	13.....	.4	83	23.....	.3	4.9
4.....	.5	9.8	14.....	.4	27	24.....	.3	4.4
5.....	.5	7.3	15.....	.4	18	25.....	.3	4.1
6.....	.5	6.6	16.....	.4	14	26.....	.3	3.8
7.....	.5	5.9	17.....	.3	11	27.....	.3	3.5
8.....	.5	5.5	18.....	.3	8.3	28.....	.3	3.3
9.....	.4	9.1	19.....	.3	7.3	29.....	.4	---
10.....	.4	17	20.....	.3	6.6	30.....	165	---
						31.....	505	---
Monthly mean discharge, in cubic feet per second.....							22.0	20.9
Runoff, in inches.....							3.43	2.94
Runoff, in acre-feet.....							1,350	1,160

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.60	2.7	Jan. 30	2400	5.17	294	Jan. 31	1800	5.25	310
	30	0400	2.74		31	0200	5.58		1900	5.25	310
		0600	2.92			0500	4.86		2200	5.84	440
		1000	3.44			0700	5.50		2400	5.94	465
		1200	4.04			0900	6.50	Feb. 1	0100	5.86	445
		1400	4.61			1000	6.35		0500	5.25	310
		1600	4.37			1100	7.90		0900	5.14	288
		1700	4.83			1200	8.25		1100	4.84	230
		1800	5.90			1300	7.98		1700	4.29	142
		2000	5.64			1400	6.72		2100	3.84	84
		2100	6.04			1600	5.87		2400	3.65	65

11-1542. Uvas Creek near Gilroy, Calif.

Location.--Lat 36°59'35", long 121°34'20", in Las Animas Grant, on left bank 400 ft upstream from county road bridge, 0.4 mile southwest of Gilroy, Santa Clara County, and 3.9 miles downstream from Bodfish Creek.

Drainage area.--71.2 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 190 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 2,500 cfs.

Maxima.--January-February 1963: Discharge, 7,180 cfs 0230 hours Feb. 1 (gage height, 17.66 ft).
1959 to December 1962: Discharge, 2,700 cfs Feb. 8, 1960 (gage height, 9.11 ft), from rating curve extended above 400 cfs.

Remarks.--Flow regulated by Uvas Reservoir (see station 11-1540.2).

[illegible]

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	-	0	Jan. 31	0700	7.34	1,290	Feb. 1	0230	17.66	7,180
					0900	7.87	1,560		0500	16.00	6,150
30	1600	-	0		1100	9.07	2,190		0600	15.00	5,550
	1600	4.00	41		1200	8.02	1,630		0800	13.47	4,630
	1700	6.01	644		1400	11.96	3,780		1000	12.18	3,900
	1800	5.57	458		1500	12.33	3,980		1200	11.12	3,320
	2000	6.78	1,010		1600	10.75	3,110		1500	9.82	2,660
	2100	7.27	1,260		1800	8.75	2,110		1800	8.97	2,240
	2200	7.32	1,280		2100	10.45	2,950		2400	7.87	1,690
	2300	7.61	1,420		2200	12.25	3,940				
	2400	7.68	1,460		2300	15.00	5,550	2	0400	7.58	1,560
					2400	16.45	6,420		1200	6.85	1,230
31	0200	7.34	1,290						1800	6.41	1,030
	0500	7.61	1,420	Feb. 1	0200	17.60	7,140		2400	6.09	896

Location.--Lat 36°47'17", long 121°22'11", in SW¹/₄ sec.24, T.13 S., R.5 E., on left bank 1,500 ft downstream from Bird Creek, 0.9 mile downstream from Tres Pinos Creek, 2.7 miles west of Tres Pinos, and 4.8 miles southeast of Hollister.

Gage-height record--Water-stage recorder graph. Altitude of gage is 370 ft (from topographic map).

Maxima.--January-February 1963: Discharge, 339 cfs 2000 hours Feb. 10 (gage height, 4.02 ft).
1949 to December 1962: Discharge, 11,600 cfs Apr. 3, 1958 (gage height, 16.30 ft), from rating curve extended above 1,200 cfs on basis of flood-routing study.

Remarks.--Flow regulated by Hernandez Dam since December 1961 (capacity, 18,700 acre-ft).

[illegible]

11-1590. Pajaro River at Chittenden, Calif.

Location.--Lat 36°54'01", long 121°35'48", in Salsipuedes Grant, on downstream side of right bank pier of State highway bridge, 0.6 mile downstream from Pescadero Creek, 0.6 mile southeast of Chittenden, Santa Cruz County, and 2.3 miles downstream from San Benito River.

Drainage area.--1,186 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 81.77 ft above mean sea level, datum of 1929, supplementary adjustment of 1955.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 11,600 cfs 0900 hours Feb. 1 (gage height, 20.76 ft).

1939 to December 1962: Discharge, 24,000 cfs Dec. 24, 1955, from rating curve extended above 8,300 cfs on basis of slope-conveyance study; maximum gage height, 33.11 ft Apr. 3, 1958.

Flood in February 1938 reached a stage of 31.3 ft, from floodmarks.

Remarks.--Flow slightly regulated by Pacheco Lake (capacity, 6,150 acre-ft), Chesbro and Uvas Reservoirs (see stations 11-1534.8 and 11-1540.2), and San Felipe Lake.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	1.5	9,580	11.....	1.5	396	21.....	2.4	270
2.....	1.4	3,750	12.....	1.5	358	22.....	2.2	222
3.....	1.2	1,550	13.....	1.5	1,940	23.....	2.1	194
4.....	1.2	960	14.....	1.6	1,630	24.....	2.1	172
5.....	1.2	664	15.....	1.7	1,130	25.....	2.1	152
6.....	1.2	488	16.....	1.8	876	26.....	2.2	137
7.....	1.2	362	17.....	2.0	693	27.....	2.2	129
8.....	1.2	268	18.....	2.1	544	28.....	2.4	118
9.....	1.4	199	19.....	2.2	436	29.....	3.1	-----
10.....	1.4	336	20.....	2.4	355	30.....	60	-----
						31.....	4,550	-----
Monthly mean discharge, in cubic feet per second.....							150	997
Runoff, in inches.....							0.15	0.88
Runoff, in acre-feet.....							9,250	55,360

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1905								Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1905					
Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge		
Jan. 29	2400	3.61	4.1	Jan. 30	2400	8.40	760	Feb. 1	0600	20.40	11,100		
30	0400	3.65	5.0	31	0200	10.25	1,530		0800	20.75	11,600		
	0800	3.75	7.6			0500	11.95	2,470		0900	20.76	11,600	
	1100	3.86	11			0800	12.70	2,990		1000	20.65	11,400	
	1600	3.91	13			1100	13.65	3,720		1800	18.53	8,640	
	1700	4.26	30			1300	15.10	4,990		2100	17.51	7,410	
	1800	4.41	39			1500	15.45	5,310		2400	16.55	6,350	
	1900	4.41	39			2000	17.58	7,500	2	0600	14.60	4,540	
	2000	5.60	149			2400	18.30	8,360			1200	13.32	3,460
	2200	5.32	117								1800	12.33	2,730
2300	7.20	425						2400		11.48	2,190		
				Feb. 1	0400	20.00	10,500						

11-1591.5. Corralitos Creek near Corralitos, Calif.

Location.--Lat 37°00'20", long 121°48'25", in Los Corralitos Grant, on left bank 0.5 mile downstream from Mormon Gulch, 1.2 miles upstream from Corralitos, Santa Cruz County, and 7 miles northwest of Watsonville.

Drainage area.--10.6 sq mi.

Gage-height record.--Water-stage recorder graph, except Feb. 2-4. Altitude of gage is 310 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 430 cfs. Discharge for Feb. 2-4 estimated on basis of normal recession.

Maxima.--January-February 1963: Discharge, 1,920 cfs 1130 hours Jan. 31 (gage height, 7.62 ft).

1957 to December 1962: Discharge, 1,970 cfs Apr. 2, 1958 (gage height, 7.55 ft), from rating curve extended above 430 cfs on basis of estimate of flow over dam.

Day		January	February	Day		January	February	Day		January	February
1.....	1.8	467	11.....	0.8	49	21.....	1.2	22	22		
2.....	1.4	131	12.....	.8	50	22.....	.6	20			
3.....	1.4	79	13.....	.6	124	23.....	.4	18			
4.....	1.4	58	14.....	.6	67	24.....	.4	16			
5.....	1.4	44	15.....	1.2	51	25.....	.3	15			
6.....	1.4	35	16.....	1.2	42	26.....	.3	14			
7.....	1.4	30	17.....	1.2	37	27.....	.2	15			
8.....	1.2	27	18.....	1.2	30	28.....	.3	15			
9.....	1.4	38	19.....	1.2	27	29.....	4.5	-----			
10.....	1.0	67	20.....	1.2	24	30.....	426	-----			
						31.....	497	-----			
Monthly mean discharge, in cubic feet per second.....								46.9		57.6	
Runoff, in inches.....								5.10		5.66	
Runoff, in acre-feet.....								2,890		3,200	

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.42	24	Jan. 30	2200	5.90	945	Jan. 31	1500	5.70	860
30					2400	5.31	709		1800	5.01	604
	0300	1.86	51	31					1900	5.13	646
	0600	2.58	157			2100	6.33	1,156			
	0900	2.96	157			2200	7.17	1,600			
	1000	4.00	325			2400	6.40	1,180			
	1200	5.00	600								
	1400	4.40	420								
	1600	4.74	522								
1800	5.31	709									
1900	5.31	709					Feb. 1	0400	5.29	702	
2000	6.02	995						0800	4.83	549	
2100	5.95	968						1200	4.19	368	
								1800	3.54	244	
								2400	3.16	183	

[illegible]

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Corralitos Creek at Freedom, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.45	0.1	Jan. 31	0300	7.77	1,370	Feb. 1	0200	9.70	1,950
					0400	7.65	1,340		0500	7.85	1,400
30	0200	1.47	.2		0600	6.36	948		0700	7.30	1,230
	0300	2.32	31		0800	6.90	1,110		1100	6.70	1,050
	0600	2.84	82		1000	8.30	1,530		1500	5.88	804
	0900	3.62	207		1100	8.62	1,630		1900	5.48	684
	1200	5.50	690		1200	9.85	2,000		2400	5.00	540
	1400	6.20	900		1400	11.80	2,580				
	1600	5.65	735		1500	10.00	2,040	2	0600	4.69	424
	2000	7.02	1,150		1600	8.10	1,470		1200	4.42	335
	2200	7.98	1,430		1700	7.52	1,300		1800	4.22	269
	2300	8.05	1,460		1900	6.87	1,100		2400	4.05	215
	2400	7.75	1,370		2000	7.00	1,140				
					2200	8.70	1,650				
31	0200	6.92	1,120		2400	11.08	2,360				

11-1594. Green Valley Creek near Corralitos, Calif.

(Crest-stage station)

Location.--Lat 36°58'37", long 121°46'31", in Los Corralitos Grant, at culvert on Green Valley road, 1.9 miles southeast of Corralitos.

Drainage area.--7.05 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 165 ft (from topographic map).

Discharge record.--Maximum discharge by computation of flow through culvert.

Maxima.--January-February 1963: Discharge, 1,050 cfs Jan. 31 (gage height, 56.62 ft).

1960 to December 1962: Discharge, 245 cfs Feb. 9, 1962 (gage height, 52.17 ft), by slope-area measurement of peak flow.

APTOS CREEK BASIN

11-1597. Aptos Creek at Aptos, Calif.

Location.--Lat 36°58'35", long 121°54'05", in Aptos Grant, on left bank at Aptos, Santa Cruz County, 0.6 mile upstream from mouth.

Drainage area.--12.2 sq mi.

Gage-height record.--Water-stage recorder graph, except Feb. 14, 21-26. Altitude of gage is 10 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 980 cfs. Discharge for Feb. 14, 21-26 estimated on basis of reconstructed gage-height graph.

Maxima.--January-February 1963: Discharge, 2,110 cfs 1200 hours Jan. 31 (gage height, 10.82 ft).

1958 to December 1962: Discharge, 560 cfs Feb. 14, 1962 (gage height, 6.02 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	3.7	425	11.....	3.1	52	21.....	4.0	45
2.....	3.4	121	12.....	3.4	39	22.....	4.0	40
3.....	3.1	78	13.....	3.6	155	23.....	3.6	37
4.....	3.1	52	14.....	4.0	77	24.....	3.6	29
5.....	3.1	39	15.....	4.0	54	25.....	3.6	24
6.....	3.1	22	16.....	4.0	53	26.....	3.6	20
7.....	3.1	16	17.....	4.0	53	27.....	4.0	17
8.....	3.1	12	18.....	4.0	54	28.....	4.0	13
9.....	2.9	29	19.....	4.0	56	29.....	6.5	---
10.....	2.9	73	20.....	4.0	51	30.....	446	---
						31.....	861	---
Monthly mean discharge, in cubic feet per second.....							45.6	62.0
Runoff, in inches.....							4.31	5.29
Runoff, in acre-feet.....							2,800	3,440

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of West Branch Soquel Creek near Soquel, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	2.62	4.3	Jan. 30	1500	5.22	580	Jan. 31	1400	8.15	2,240
					1600	6.00	970		1500	7.29	1,690
29	1500	2.62	4.3		1900	5.42	680		1700	6.60	1,300
	1800	2.69	6.0		2100	6.85	1,440		1900	8.02	2,150
	2100	2.89	11		2300	6.78	1,400		2200	8.84	2,690
	2300	3.02	23		2400	6.48	1,230		2400	7.30	1,700
	2400	3.15	34								
30	0200	3.45	69	31	0100	6.30	1,140	Feb. 1	0300	6.18	1,070
	0300	3.75	114		0300	7.24	1,660		0500	5.74	840
	0500	4.32	248		0400	6.00	970		0800	5.54	740
	0800	4.68	358		0500	6.48	1,230		1200	5.06	507
	0900	5.19	568		0700	6.00	970		1800	4.72	372
	1000	6.26	1,110		0800	6.93	1,480		2400	4.47	291
	1100	7.01	1,530		1000	8.00	2,140				
	1200	6.97	1,500		1100	9.00	2,800	2	0600	4.30	200
	1300	6.00	970		1200	10.88	4,120		1200	4.07	139
					1300	9.50	3,150		2400	3.92	104

11-1600. Soquel Creek at Soquel, Calif.

Location.--Lat 36°59'29", long 121°57'17", in NE $\frac{1}{4}$ sec.10, T.11 S., R.1 W., on left bank 0.2 mile upstream from highway bridge in town of Soquel and 0.4 mile downstream from Bates Creek.

Drainage area.--40.2 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 40 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 2,900 cfs and by slope-area measurements at 5,120 and 15,800 cfs.

Maxima.--January-February 1963: Discharge, 7,950 cfs 1300 hours Jan. 31 (gage height, 16.27 ft).

1951 to December 1962: Discharge, 15,800 cfs Dec. 23, 1955 (gage height, 22.33 ft), from rating curve extended above 2,900 cfs on basis of slope-area measurement of maximum flow.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	16	2,110	11.....	13	238	21.....	10	126
2.....	15	558	12.....	13	235	22.....	9.7	110
3.....	15	318	13.....	12	743	23.....	9.3	98
4.....	15	206	14.....	12	304	24.....	9.3	91
5.....	14	156	15.....	12	229	25.....	9.3	86
6.....	14	126	16.....	12	195	26.....	9.3	79
7.....	14	106	17.....	11	178	27.....	9.3	73
8.....	13	93	18.....	11	149	28.....	9.3	69
9.....	13	262	19.....	12	140	29.....	9.3	-----
10.....	13	424	20.....	11	126	30.....	1,880	-----
						31.....	4,150	-----
Monthly mean discharge, in cubic feet per second.....							206	272
Runoff, in inches.....							5.90	7.06
Runoff, in acre-feet.....							12,650	15,130

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	3.12	9.3	Jan. 30	2400	10.92	3,340	Jan. 31	2400	13.42	5,230
30	0200	4.08	105	31	0100	10.75	3,220	Feb. 1	0100	13.30	5,130
	0400	5.10	328		0200	10.23	2,890		0200	12.00	4,100
	0600	6.25	743		0400	10.67	3,170		0300	11.05	3,440
	0700	7.00	1,080		0500	10.60	3,120		0800	9.10	2,210
	0800	7.14	1,150		0600	9.42	2,400		0900	8.90	2,090
	1100	9.89	2,680		0700	9.35	2,360		1200	8.30	1,730
	1200	11.03	3,420		1000	12.56	4,540		1800	7.30	1,230
	1300	11.00	3,400		1300	16.27	7,950		2400	6.50	855
	1400	11.35	3,640		1600	11.82	3,970				
	1600	8.40	1,790		1700	11.47	3,730	2	0300	6.20	720
	1800	9.54	2,470		1900	10.27	2,910		1000	5.83	572
	2100	9.17	2,250		2100	12.00	4,100		1800	5.45	438
	2300	11.02	3,410		2300	13.43	5,230		2400	5.30	398

SAN LORENZO RIVER BASIN

11-1600.3. San Lorenzo River tributary near Boulder Creek, Calif.

(Crest-stage station)

Location.--Lat 37°10'10", long 122°08'05", in NE¹/₄NE¹/₄ sec.12, T.9 S., R.3 W., at culvert on State Highway 9, 3.2 miles north of Boulder Creek.

Drainage area.--0.25 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 560 ft (from topographic map).

Discharge record.--Maximum discharge by computation of flow through culvert.

Maxima.--January-February 1963: Discharge, 58 cfs Jan. 31 (gage height, 52.80 ft). 1960 to December 1962: Discharge not determined, occurred Feb. 9, 1962 (gage height, 51.83 ft).

11-1603. Zayante Creek at Zayante, Calif.

Location.--Lat 37°05'10", long 122°02'45", in SE¹/₄ sec.2, T.10 S., R.2 W., on left bank at Zayante Road bridge in town of Zayante, 0.4 mile upstream from Lompico Creek, 2.0 miles east of Ben Lomond, and 3.2 miles upstream from mouth.

Drainage area.--11.1 sq mi.

Gage-height record.--Water-stage recorder graph, except Jan. 6, 25-27, 29, 30, Feb. 1-5. Altitude of gage is 390 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,200 cfs and by slope-area measurement at 3,700 cfs. Discharge for periods of no gage-height record estimated on basis of two discharge measurements, weather records, and records for West Branch Soquel Creek near Soquel.

Maxima.--January-February 1963: Discharge, 2,830 cfs 1200 hours Jan. 31 (gage height, 6.86 ft). 1957 to December 1962: Discharge, 3,700 cfs Apr. 2, 1958 (gage height, 7.70 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	2.7	500	11.....	2.1	65	21.....	1.9	24
2.....	2.7	100	12.....	2.0	71	22.....	1.9	22
3.....	2.7	45	13.....	2.0	139	23.....	1.9	20
4.....	2.6	35	14.....	2.0	74	24.....	1.9	19
5.....	2.6	30	15.....	2.0	56	25.....	1.9	18
6.....	2.6	27	16.....	2.0	46	26.....	1.8	16
7.....	2.4	23	17.....	2.0	38	27.....	1.8	16
8.....	2.2	21	18.....	2.0	33	28.....	1.9	14
9.....	2.2	60	19.....	2.0	30	29.....	10	-----
10.....	2.2	109	20.....	1.9	27	30.....	150	-----
						31.....	1,400	-----
Monthly mean discharge, in cubic feet per second.....							52.3	59.9
Runoff, in inches.....							5.43	5.62
Runoff, in acre-feet.....							3,210	3,330

11-1605. San Lorenzo River at Big Trees, Calif.

Location.--Lat 37°01'40", long 122°03'30", in Canada del Rincon Grant, on right bank 0.5 mile south of Big Trees station on Southern Pacific Railroad, 1.6 miles downstream from Zayante Creek, and 4 miles north of Santa Cruz, Santa Cruz County.

Drainage area.--111 sq mi.

Gage-height record.--Water-stage recorder graph, except 0200 hours Jan. 30 to 1600 hours Feb. 1. Datum of gage is 217.0 ft above mean sea level (levels by Topographic Division).

Discharge record.--Stage-discharge relation defined by current-meter measurements. Discharge for Jan. 30 to Feb. 1 estimated on basis of records for nearby stations.

Maxima.--January-February 1963: Discharge, 13,000 cfs about 1300 hours Jan. 31 (gage height, 15.80 ft, from floodmarks). 1936 to December 1962: Discharge, 30,400 cfs Dec. 23, 1955 (gage height, 22.55 ft), from rating curve extended above 11,000 cfs on basis of slope-area measurement of maximum flow.

Mean discharge, in cubic feet per second, 1963, of San Lorenzo River at Big Trees, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	40	3,900	11.....	33	742	21.....	29	260
2.....	40	1,130	12.....	32	648	22.....	29	250
3.....	39	675	13.....	31	1,250	23.....	29	240
4.....	38	475	14.....	31	731	24.....	29	220
5.....	37	365	15.....	32	539	25.....	29	200
6.....	36	303	16.....	38	447	26.....	29	180
7.....	35	279	17.....	32	383	27.....	29	170
8.....	35	259	18.....	31	324	28.....	28	160
9.....	34	779	19.....	31	294	29.....	67	-----
10.....	34	1,290	20.....	29	280	30.....	3,600	-----
						31.....	7,400	-----
Monthly mean discharge, in cubic feet per second.....							387	599
Runoff, in inches.....							4.02	5.62
Runoff, in acre-feet.....							23,770	33,270

11-1615. Branciforte Creek at Santa Cruz, Calif.

Location.--Lat 36°58'00", long 122°01'00", on right bank in Santa Cruz, Santa Cruz County, 15 ft downstream from Market Street bridge and 1.0 mile upstream from mouth.

Drainage area.--17.3 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 11.22 ft above mean sea level (levels by Corps of Engineers).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 2,820 cfs 1200 hours Jan. 31 (gage height, 13.34 ft).

1940-43, 1952 to December 1962: Discharge, 8,100 cfs Dec. 22, 1955 (gage height, 22.04 ft), from rating curve extended above 530 cfs on basis of slope-area measurement of maximum flow.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	4.0	502	11.....	3.0	92	21.....	2.8	14
2.....	3.8	127	12.....	2.8	164	22.....	3.3	10
3.....	3.5	62	13.....	2.8	445	23.....	3.5	9.4
4.....	3.5	42	14.....	2.8	113	24.....	3.5	8.7
5.....	3.5	31	15.....	2.8	68	25.....	3.5	7.7
6.....	3.3	24	16.....	3.0	50	26.....	3.3	7.4
7.....	3.3	21	17.....	3.0	37	27.....	3.3	7.7
8.....	3.3	20	18.....	3.0	28	28.....	3.0	7.1
9.....	3.3	154	19.....	3.0	22	29.....	11	-----
10.....	3.0	247	20.....	2.8	18	30.....	1,040	-----
						31.....	1,220	-----
Monthly mean discharge, in cubic feet per second.....							76.2	83.5
Runoff, in inches.....							5.07	5.03
Runoff, in acre-feet.....							4,680	4,640

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	4.92	3.0	Jan. 30	2000	7.93	524	Jan. 31	2100	9.80	1,200
					2300	8.56	731		2200	10.19	1,360
29	1500	4.92	3.0		2400	8.54	724		2330	11.50	1,950
	1800	5.01	5.3						2400	10.80	1,640
	1900	5.32	17	31	0200	8.49	707				
	2200	5.59	32		0300	8.67	770	Feb. 1	0100	9.88	1,230
	2400	6.11	79		0400	8.58	738		0400	8.60	745
					0600	8.18	599		0700	8.05	560
30	0100	6.19	89		0700	8.33	651		0900	8.05	560
	0200	6.64	167		0800	8.73	791		1100	7.52	401
	0300	7.80	485		0900	9.88	1,230		1300	7.37	356
	0400	8.49	707		1000	10.53	1,510		2000	6.88	223
	0500	9.42	1,040		1100	12.03	2,190		2400	6.75	192
	0600	9.97	1,260		1200	13.34	2,820				
	0900	10.92	1,690		1300	13.08	2,690	2	0600	6.52	142
	1100	13.00	2,650		1400	11.48	1,940		1200	6.40	120
	1200	12.49	2,400		1500	10.02	1,280		1800	6.32	107
	1300	11.15	1,790		1700	9.35	1,020		2400	6.13	82
	1400	9.72	1,180		1800	8.46	696				
	1500	8.71	784		1900	8.36	661				

SCOTT CREEK BASIN

11-1619. Scott Creek above Little Creek, near Davenport, Calif.

Location.--Lat 37°03'50", long 122°13'45". In Agua Puerco y las Trancas Grant, on right bank 600 ft upstream from Little Creek, 2.0 miles upstream from mouth, and 4.2 miles north of Davenport, Santa Cruz County.

Drainage area.--25.0 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 30 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 650 cfs and by slope-area measurement at 1,060 cfs.

Maxima.--January-February 1963: Discharge, 1,560 cfs 1300 hours Jan. 31 (gage height, 8.71 ft).

1958 to December 1962: Discharge, 1,970 cfs Feb. 13, 1962 (gage height, 9.36 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	12	644	11.....	14	267	21.....	12	95
2.....	12	303	12.....	13	297	22.....	14	90
3.....	13	184	13.....	13	376	23.....	12	83
4.....	14	151	14.....	13	246	24.....	11	77
5.....	14	125	15.....	14	197	25.....	11	74
6.....	14	105	16.....	14	172	26.....	11	70
7.....	14	93	17.....	13	148	27.....	10	65
8.....	13	95	18.....	13	128	28.....	10	62
9.....	12	388	19.....	12	116	29.....	13	-----
10.....	14	444	20.....	11	105	30.....	400	-----
						31.....	1,030	-----
Monthly mean discharge, in cubic feet per second.....							57.9	186
Runoff, in inches.....							2.67	7.74
Runoff, in acre-feet.....							3,560	10,310

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	2.59	9.7	Jan. 30	2100	5.48	515	Jan. 31	2200	8.22	1,370
					2200	5.57	538		2300	8.16	1,350
29	1300	2.59	9.7		2400	6.26	718		2400	8.47	1,470
	1500	2.63	11					Feb. 1	0200	7.21	1,010
	1700	2.69	13	31	0200	6.85	895		0400	6.40	760
	2000	2.84	20		0400	6.44	772		0900	6.10	670
	2400	3.00	29		0600	6.44	772		1200	5.70	570
30	0300	2.75	40		0700	6.30	730		1800	5.28	466
	0600	3.59	137		0800	6.50	790		2400	5.07	419
	0600	3.57	134		0900	7.06	961				
	0800	4.21	244		1100	7.45	1,100				
	1000	5.05	415		1300	8.71	1,560	2	0600	4.82	364
	1200	5.79	593		1400	8.53	1,490		1200	4.45	290
	1400	6.00	645		1500	8.00	1,290		1800	4.19	240
	1600	5.57	538		1700	6.90	910		2400	4.04	213
	1800	6.11	673		1900	6.52	796				
					2000	7.00	940				

PESCADERO CREEK BASIN

11-1624.7. Pescadero Creek tributary near La Honda, Calif.

(Crest-stage station)

Location.--Lat 37°16'40", long 122°17'35", in NW 1/4 sec.34, T.7 S., R.4 W., at culvert on Pescadero road, 3.0 miles southwest of La Honda.

Drainage area.--0.22 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 240 ft (from topographic map).

Discharge record.--Maximum discharge by computation of flow through culvert.

Maxima.--January-February 1963: Discharge, 12 cfs Jan. 31 (gage height, 49.67 ft).
1960 to December 1962: Discharge, 5.0 cfs Feb. 14, 1962 (gage height, 48.86 ft).

11-1625. Pescadero Creek near Pescadero, Calif.

Location.--Lat 37°15'40", long 122°19'40", in SW¹ sec.5, T.8 S., R.4 W., on left bank at downstream side of highway bridge, 3.0 miles east of Pescadero and 5.3 miles upstream from mouth.

Drainage area.--45.9 sq mi.

Gage-height record.--Water-stage recorder graph, except Feb. 3-6, 10-24, 27, 28. Datum of gage is 62.3 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,400 cfs and by slope-area measurement at 9,420 cfs. Discharge for periods of no gage-height record estimated on basis of one discharge measurement and records for Scott Creek above Little Creek, near Davenport and Purisima Creek near Half Moon Bay.

Maxima.--January-February 1963: Discharge, 6,700 cfs 2400 hours Jan. 31 (gage height, 18.80 ft).
1951 to December 1962: Discharge, 9,420 cfs Dec. 23, 1955 (gage height, 21.27 ft), from rating curve extended above 2,700 cfs on basis of slope-area measurement of maximum flow.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	11	2,180	11.....	8.0	350	21.....	6.2	110
2.....	9.8	475	12.....	7.6	300	22.....	6.2	100
3.....	10	250	13.....	8.0	400	23.....	6.2	90
4.....	9.8	180	14.....	8.0	280	24.....	6.2	80
5.....	9.4	160	15.....	8.0	200	25.....	5.9	73
6.....	8.7	130	16.....	7.6	175	26.....	5.5	69
7.....	8.3	107	17.....	7.6	160	27.....	5.5	65
8.....	8.3	101	18.....	7.3	145	28.....	5.3	62
9.....	8.3	319	19.....	6.9	130	29.....	6.1	-----
10.....	8.0	450	20.....	6.6	120	30.....	7.90	-----
						31.....	2,930	-----
Monthly mean discharge, in cubic feet per second.....							127	259
Runoff, in inches.....							3.17	5.84
Runoff, in acre-feet.....							7,820	14,400

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	2.37	5.3	Jan. 30	2400	9.73	1,370	Feb. 1	0100	18.27	6,190
	29	1600	2.39		0200	9.44	1,280		0300	16.50	4,700
		2000	2.41		0300	9.82	1,400		0500	13.90	3,100
		2400	2.48		0500	10.00	1,450		0700	12.28	2,310
					0800	11.37	1,950		1000	10.85	1,740
	30	0300	2.31		1000	12.00	2,200		1500	9.23	1,220
		0600	2.64		1300	14.85	3,660		1800	8.48	994
		0900	3.20		1400	16.15	4,460		2100	7.83	808
		1100	5.00		1500	16.26	4,530		2400	7.40	710
		1300	6.45		1600	15.30	3,930				
		1500	8.50		1800	13.40	2,850	2	0400	6.79	588
		1800	11.75		1900	12.88	2,590		0800	6.41	516
		1900	12.28		2100	15.70	4,170		1100	6.16	471
		2000	11.95		2300	17.90	5,860		1700	5.66	384
		2200	10.70		2400	18.80	6,700		2400	5.44	348

11-1625.4. Butano Creek near Pescadero, Calif.

Location.--Lat 37°14'01", long 122°21'56", in Butano Grant, on right bank 0.15 mile below unnamed tributary and 1.7 miles southeast of Pescadero, San Mateo County.

Drainage area.--18.3 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 70 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 1,340 cfs 2400 hours Jan. 31; gage height, 16.21 ft 1350 hours Jan. 31 (backwater from mudflow).
1959 to December 1962: Discharge, 1,600 cfs Feb. 13, 1962.

Cooperation.--Records furnished by California Department of Water Resources.

Mean discharge, in cubic feet per second, 1963, of Butano Creek near Pescadero, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	8.1	552	11.....	5.4	118	21.....	5.0	43
2.....	7.9	167	12.....	5.4	105	22.....	4.9	39
3.....	7.6	107	13.....	5.4	223	23.....	4.5	36
4.....	7.2	96	14.....	5.4	136	24.....	4.3	33
5.....	6.8	73	15.....	5.4	103	25.....	4.3	31
6.....	6.6	47	16.....	5.4	87	26.....	4.3	29
7.....	6.4	42	17.....	5.4	75	27.....	4.3	27
8.....	6.0	37	18.....	5.4	64	28.....	4.2	26
9.....	5.8	124	19.....	5.2	54	29.....	4.8	---
10.....	5.6	209	20.....	5.0	48	30.....	333	---
						31.....	884	---
Monthly mean discharge, in cubic feet per second.....							44.5	97.5
Runoff, in inches.....							2.80	5.55
Runoff, in acre-feet.....							2,740	5,420

PURISIMA CREEK BASIN

11-1626. Purisima Creek near Half Moon Bay, Calif.

Location.--Lat 37°26'06", long 122°22'23", in Canada de Verde y Arroyo de la Purisima Grant, on left bank 15 ft downstream from county road bridge, 3.6 miles southeast of Half Moon Bay, San Mateo County, and 4.0 miles upstream from mouth.

Drainage area.--4.83 sq mi.

Gage-height record.--Water-stage recorder graph, except Feb. 2-28. Altitude of gage is 380 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 65 cfs and by slope-area measurement at 290 cfs. Discharge for Feb. 2-28 estimated on basis of one discharge measurement and records for Scott Creek above Little Creek, near Davenport.

Maxima.--January-February 1963: Discharge, 301 cfs 2200 hours Jan. 31 (gage height, 5.31 ft).

1958 to December 1962: Discharge, 290 cfs Oct. 13, 1962 (gage height, 5.28 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	2.0	87	11.....	1.4	30	21.....	1.1	8.5
2.....	2.0	40	12.....	1.3	22	22.....	1.1	8.0
3.....	1.8	20	13.....	1.3	32	23.....	1.1	7.5
4.....	1.8	15	14.....	1.3	25	24.....	1.1	7.0
5.....	1.8	10	15.....	1.3	18	25.....	1.1	6.5
6.....	1.6	9.0	16.....	1.3	15	26.....	1.1	6.0
7.....	1.6	8.5	17.....	1.3	12	27.....	1.1	5.5
8.....	1.4	8.0	18.....	1.3	11	28.....	1.1	5.2
9.....	1.4	20	19.....	1.3	10	29.....	1.2	---
10.....	1.4	35	20.....	1.1	9.0	30.....	19	---
						31.....	122	---
Monthly mean discharge, in cubic feet per second.....							5.83	17.5
Runoff, in inches.....							1.39	3.78
Runoff, in acre-feet.....							358	973

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	3.48	1.1	Jan. 30	1500	3.94	23	Jan. 31	2000	5.21	266
					1700	4.10	37		2100	5.14	243
29	1500	3.48	1.1		1900	4.06	33		2200	5.31	301
	1800	3.50	1.4		2400	4.17	44		2400	4.94	184
	2400	3.50	1.4								
30	0300	3.47	2.0	31	0900	4.41	75	Feb. 1	0300	4.66	119
	0500	3.54	3.9		1200	4.73	134		1300	4.40	73
	1000	3.69	8.9		1600	4.59	105		2400	4.21	48
					1900	4.78	145				

REDWOOD CREEK BASIN

11-1628. Redwood Creek at Redwood City, Calif.

Location.--Lat 37°26'58", long 122°13'57", in Pulgas Grant, at Menlo Country Club, on right bank, 200 ft upstream from Alameda de las Pulgas Bridge and 2.5 miles south of Redwood City Post Office, San Mateo County.

Drainage area.--1.82 sq mi.

Gage-height record.--Water-stage recorder graph, except Jan. 30 to Feb. 1, for which graph was reconstructed on basis of fragmentary gage-height record and records for nearby stations. Datum of gage is 83.92 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 170 cfs and by average of two indirect measurements of maximum flow.

Maxima.--January-February 1963: Discharge, 644 cfs 1830 hours Jan. 31 (gage height, 9.36 ft).
1959 to December 1962: Discharge, 360 cfs Mar. 5, 1962 (gage height, 6.68 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0.2	24	11.....	0.1	1.9	21.....	0.1	0.8
2.....	.2	4.1	12.....	.1	7.1	22.....	.1	.7
3.....	.2	2.2	13.....	.1	7.3	23.....	.1	.6
4.....	.2	1.6	14.....	.1	2.2	24.....	.1	.6
5.....	.1	1.3	15.....	.1	1.7	25.....	.1	.6
6.....	.1	1.0	16.....	.1	1.9	26.....	.1	.5
7.....	.1	.9	17.....	.1	1.5	27.....	.1	.4
8.....	.1	.8	18.....	.1	1.1	28.....	.1	.4
9.....	.1	14	19.....	.1	.9	29.....	.4	-----
10.....	.1	5.7	20.....	.1	.8	30.....	37	-----
						31.....	181	-----
Monthly mean discharge, in cubic feet per second.....							7.15	3.09
Runoff, in inches.....							4.53	1.77
Runoff, in acre-feet.....							440	172

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	1.02	0.1	Jan. 30	1100	3.93	99	Jan. 31	1800	8.00	505
					1300	2.95	48		1830	9.36	644
29	1500	1.00	.1		1500	3.85	94		1900	9.00	608
	1800	1.32	1.9		1800	3.10	54		2200	5.30	215
	2000	1.14	.5		2200	2.28	24		2400	3.70	85
	2300	1.06	.2		2400	2.75	40				
	2400	1.17	.7					Feb. 1	0300	2.25	24
30	0200	1.15	.6	31	0400	2.30	25		0600	2.80	42
	0400	1.47	3.6		1000	5.25	210		1200	2.06	18
	0500	1.41	2.8		1400	3.22	59		1800	1.74	9.5
	0600	1.67	7.8		1400	3.40	68		2400	1.59	6.0
	0900	1.89	13		1500	3.05	52				
					1600	4.80	167				

ATHERTON DRAINAGE CHANNEL BASIN

11-1629. Sharon Creek near Menlo Park, Calif.

Location.--Lat 37°25'45", long 122°13'02", in Pulgas Grant, at Atherton city boundary, 900 ft upstream from Atherton drainage channel and 2.6 miles southwest of Menlo Park, San Mateo County.

Drainage area.--0.38 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 146.18 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 21 cfs and by slope-area measurement at 68 cfs.

Maxima.--January-February 1963: Discharge, 68 cfs 1900 hours Jan. 31 (gage height, 3.07 ft).
1958 to December 1962: Discharge, 56 cfs Mar. 5, 1962 (gage height, 3.10 ft, from floodmarks), from rating curve extended above 18 cfs on basis of slope-area measurement of peak flow.
Flood of Apr. 2, 1958, reached a stage of about 4.2 ft, from floodmarks.

Mean discharge, in cubic feet per second, 1963, of Sharon Creek near Menlo Park, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	0.03	3.70	11.....	0.35	0.10	21.....	0	0.39
2.....	.03	1.07	12.....	0	1.86	22.....	0	.02
3.....	.03	.62	13.....	0	.54	23.....	0	.01
4.....	.03	.06	14.....	0	.07	24.....	0	.01
5.....	.02	.12	15.....	0	.04	25.....	.01	.01
6.....	.02	.09	16.....	0	.05	26.....	.01	.01
7.....	.02	.09	17.....	.01	.02	27.....	.01	.02
8.....	.02	.05	18.....	.01	.02	28.....	.01	.01
9.....	.02	5.02	19.....	.03	.09	29.....	.08	-----
10.....	.03	.58	20.....	0	.02	30.....	6.25	-----
						31.....	19.2	-----
Monthly mean discharge, in cubic feet per second.....							0.846	0.525
Runoff, in inches.....							2.57	1.44
Runoff, in acre-feet.....							52	29

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.22	0.28	Jan. 30	2100	1.50	1.77	Jan. 31	1800	2.66	44.0
					2200	1.42	1.07		1900	3.07	68.0
30	0100	1.17	.16		2300	1.38	.88		2000	2.51	36.3
	0200	1.14	.11		2400	1.51	1.89		2100	2.69	45.6
	0300	1.21	.24						2200	2.34	28.2
	0400	1.61	3.28	31	0100	1.44	1.20		2300	2.03	15.1
	0500	1.55	2.42		0200	1.37	.82		2400	1.79	6.92
	0600	1.66	4.08		0300	1.39	.91				
	0700	1.69	4.62		0400	1.40	.96	Feb. 1	0100	1.71	5.00
	0800	1.64	3.84		0500	1.84	8.38		0200	1.66	4.08
	0900	1.84	8.23		0600	2.04	15.5		0300	1.62	3.44
	1000	2.03	15.1		0700	2.03	15.1		0400	1.57	2.70
	1100	2.12	18.8		0800	1.81	7.48		0500	1.90	10.3
	1200	2.03	15.1		0900	2.08	17.0		0600	1.95	12.1
	1300	1.73	5.42		1000	2.56	38.8		0700	1.87	9.32
	1400	2.00	13.9		1100	2.41	31.5		0800	1.71	5.00
	1500	2.09	17.4		1200	2.13	19.1		0900	1.66	4.08
	1600	2.00	13.9		1300	1.79	6.92		1000	1.65	3.92
	1700	1.85	8.68		1400	1.63	3.60		1100	1.61	3.28
	1800	1.59	2.98		1500	1.80	7.20		1300	1.54	2.28
	1900	1.62	3.44		1600	2.22	22.9		1500	1.52	2.02
	2000	1.62	3.44		1700	2.31	26.9		1800	1.48	1.54
									2400	1.45	1.27

SAN FRANCISQUITO CREEK BASIN

11-1629.4. San Francisquito Creek below Ladera damsite, near Stanford University, Calif.

Location.--Lat 37°24'24", long 122°12'11", on north boundary of El Corte de Madera Grant, 1.2 miles upstream from Los Trancos Creek, 0.5 mile northwest of Ladera School, and 2.3 miles southwest of Stanford University Post Office, Santa Clara County.

Drainage area.--28.5 sq mi.

Gage-height record.--Digital-recorder tape punched at 15-minute intervals. Altitude of gage is 180 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 620 cfs.

Maxima.--January-February 1963: Discharge, 2,880 cfs 2230 hours Jan. 31 (gage height, 16.04 ft).
1961 to December 1962: Discharge, 1,400 cfs Oct. 13, 1962 (gage height, 9.87 ft).

Remarks.--Flow slightly regulated by Searsville Lake (capacity, 952 acre-ft).

Mean discharge, in cubic feet per second, 1963, of San Francisquito Creek below Ladera damsite, near Stanford University, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	0.9	866	11.....	0.3	69	21.....	0.3	14
2.....	7.4	227	12.....	.3	74	22.....	.3	15
3.....	.6	99	13.....	.3	187	23.....	.4	11
4.....	.4	47	14.....	.3	59	24.....	.4	10
5.....	.4	35	15.....	.3	43	25.....	.3	9.7
6.....	.4	27	16.....	.3	37	26.....	.4	10
7.....	.4	23	17.....	.5	33	27.....	.3	12
8.....	.4	20	18.....	.4	26	28.....	.4	11
9.....	.5	185	19.....	.3	23	29.....	.4	-----
10.....	.4	221	20.....	.3	19	30.....	335	-----
						31.....	1,560	-----

Monthly mean discharge, in cubic feet per second.....	61.7	86.1
Runoff, in inches.....	2.50	3.15
Runoff, in acre-feet.....	3,790	4,780

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.51	0.4	Jan. 31	0200	6.56	632	Feb. 1	0400	9.80	1,380
					0400	6.24	568		0800	8.49	1,070
30	0200	2.51	.4		0600	6.66	655		1000	6.29	578
	0400	2.78	5.6		0800	7.89	926		1200	6.56	633
	0600	2.74	2.9		1000	8.50	1,070		1800	5.81	482
	1000	3.38	3.		1200	11.94	1,900		2200	5.30	380
	1200	4.67	259		1400	12.06	1,920		2400	5.12	344
	1400	5.29	378		1600	10.32	1,510				
	1600	6.34	588		1800	11.62	1,820	2	0600	4.76	277
	1800	7.32	800		2000	13.97	2,380		1200	4.50	224
	1830	8.13	981		2230	16.04	2,880		1800	4.29	175
	2000	7.34	805		2400	13.85	2,350		2400	4.14	140
	2200	7.00	730								
	2400	6.44	608	Feb. 1	0200	11.34	1,750				

11-1629.5. San Francisquito Creek tributary near Stanford University, Calif.

Location.--Lat 37°24'43", long 122°11'52", in Pulgas Grant, on left bank 130 ft upstream from mouth, 200 ft downstream from ranch road bridge, 0.4 mile west of gate at Alpine Road, and 1.8 miles southwest of Stanford University Post Office, Santa Clara County.

Drainage area.--0.26 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 174.73 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 16 cfs and by slope-area measurement at 39 cfs.

Maxima.--January-February 1963: Discharge, 38 cfs 2145 hours Jan. 31 (gage height, 2.96 ft).

1958 to December 1962: Discharge, 39 cfs Mar. 5, 1962 (gage height, 2.98 ft). Flood of Apr. 2, 1958, reached a stage of 3.2 ft, from floodmarks.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0	2.56	11.....	0	0.18	21.....	0	0.01
2.....	0	.41	12.....	0	1.45	22.....	0	.01
3.....	0	.24	13.....	0	.71	23.....	0	.01
4.....	0	.14	14.....	0	.18	24.....	0	.01
5.....	0	.03	15.....	0	.07	25.....	0	.01
6.....	0	.02	16.....	0	.11	26.....	0	.01
7.....	0	.01	17.....	0	.05	27.....	0	.01
8.....	0	.01	18.....	0	.01	28.....	0	0
9.....	0	3.46	19.....	0	.01	29.....	0	-----
10.....	0	.59	20.....	0	.01	30.....	1.30	-----
						31.....	11.9	-----

Monthly mean discharge, in cubic feet per second.....	0.426	0.369
Runoff, in inches.....	1.89	1.48
Runoff, in acre-feet.....	26	20

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of San Francisco Creek tributary near Stanford University, Calif.

San Francisco Creek tributary near Stanford University, Calif.												
Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	
Jan. 29	2400	0.68	0	Jan. 30	2400	1.27	0.41	Jan. 31	1700	2.36	18.1	
30	0600	1.18	.19	31	0100	1.42	.99	Feb. 1	1800	2.26	15.3	
	0700	1.24	.34		0300	1.30	.50		1900	2.94	37.7	
	0800	1.28	.44		0400	1.29	.47		2000	2.51	22.7	
	0900	1.23	.31		0500	1.42	.99		2145	2.96	38.5	
	1000	1.41	.94		0600	1.90	6.45		2300	2.45	20.8	
	1100	1.62	2.45		0800	1.78	6.43		2400	2.02	9.03	
	1200	1.72	3.62		0900	1.65	2.76			0200	1.68	3.10
	1400	1.46	1.02		1000	2.35	17.8			0430	1.58	2.08
	1500	1.93	7.08		1030	2.45	20.8			0600	2.06	10.0
	1600	1.83	5.22		1100	2.20	13.6			0800	1.80	4.70
	1700	1.69	3.22		1200	2.26	15.3			1200	1.49	1.41
	1800	1.58	2.08		1300	1.90	6.45			1800	1.38	.79
1900	1.43	1.04	1400	1.68	3.10	2400	1.33	.60				
2000	1.47	1.28	1500	1.66	2.87							
2200	1.32	.56	1600	1.90	6.45							

11-1632. Los Trancos Creek tributary near Stanford University, Calif.

Location.--Lat 37°24'18", long 122°11'09", in El Corte de Madera Grant, on right bank 350 ft east of wooden water tanks, 0.4 mile east of Ladera, 0.6 mile upstream from mouth, and 1.7 miles southwest of Stanford University Post Office, Santa Clara County.

Drainage area.--0.47 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 269.13 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 8 cfs and by slope-area measurement at 64 cfs.

Maxima.--January-February 1963: Discharge, 66 cfs 1830 hours Jan. 31 (gage height, 2.63 ft).
1958 to December 1962: Discharge, 57 cfs Mar. 5, 1962 (gage height, 2.53 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0	2.86	11.....	0	0.30	21.....	0	0.01
2.....	0	.20	12.....	0	.76	22.....	0	0
3.....	0	.07	13.....	0	.91	23.....	0	0
4.....	0	.02	14.....	0	.09	24.....	0	0
5.....	0	.01	15.....	0	.03	25.....	0	0
6.....	0	.01	16.....	0	.02	26.....	0	0
7.....	0	.01	17.....	0	.02	27.....	0	0
8.....	0	0	18.....	0	.01	28.....	0	0
9.....	0	4.51	19.....	0	.01	29.....	0	-----
10.....	0	.57	20.....	0	.01	30.....	.29	-----
						31.....	16.9	-----
Monthly mean discharge, in cubic feet per second.....							0.555	0.372
Runoff, in inches.....							1.36	0.83
Runoff, in acre-feet.....							34	21

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.00	0	Jan. 31	0500	1.26	0.72	Jan. 31	2300	1.88	14.7
	30	1000	1.00		0600	1.53	4.13		2400	1.71	8.63
		1100	1.12		0700	1.58	5.18				
		1200	1.09		0800	1.50	3.50	Feb. 1	0100	1.59	5.39
		1300	1.07		0900	1.73	9.29		0200	1.52	3.92
		1400	1.14		1000	2.17	29.4		0300	1.48	3.20
		1500	1.17		1100	2.08	24.2		0400	1.45	2.75
		1600	1.37		1200	2.00	20.0		0500	1.57	4.97
		1700	1.35		1300	1.69	8.03		0600	1.74	9.62
		1800	1.30		1400	1.52	3.92		0700	1.70	8.30
		1900	1.26		1500	1.51	3.71		0800	1.59	5.39
		2000	1.22		1600	1.83	12.8		1000	1.44	2.60
		2100	1.19		1700	2.13	27.0		1200	1.37	1.66
		2200	1.16		1800	2.54	57.7		1400	1.33	1.26
		2300	1.14		1830	2.63	66.2		1600	1.29	.94
		2400	1.14		1900	2.52	55.8		1800	1.26	.72
					2000	2.21	31.9		2100	1.23	.52
31	0100	1.15	.21		2100	2.35	41.8		2400	1.20	.38
	0400	1.15	.21		2130	2.49	53.2				
					2200	2.25	34.6				

11-1645. San Francisquito Creek at Stanford University, Calif.

Location.--Lat 37°25'24", long 122°11'18", in San Francisquito Grant at golf course, on right bank 1.1 miles downstream from Los Trancos Creek and 1.1 miles west of Stanford University Post Office, Santa Clara County.

Drainage area.--37.5 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 120 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 3,270 cfs 2300 hours Jan. 31 (gage height, 9.28 ft in gage well; 10.07 ft, from outside gage).
1930-41, 1950 to December 1962: Discharge, 5,560 cfs Dec. 22, 1955 (gage height, 13.60 ft).

Remarks.--Flow slightly regulated by Searsville Lake (capacity, 952 acre-ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0.3	855	11.....	0.2	69	21.....	0.1	15
2.....	4.0	201	12.....	.2	76	22.....	.1	15
3.....	.2	88	13.....	.1	167	23.....	.1	13
4.....	.2	45	14.....	.2	70	24.....	.1	12
5.....	.2	31	15.....	.1	49	25.....	.1	11
6.....	.2	19	16.....	.1	47	26.....	.1	11
7.....	.2	11	17.....	.2	42	27.....	.1	12
8.....	.2	13	18.....	.1	26	28.....	.1	13
9.....	.2	159	19.....	.1	19	29.....	.1	-----
10.....	.2	190	20.....	.1	21	30.....	285	-----
						31.....	1,420	-----
Monthly mean discharge, in cubic feet per second.....							55.3	82.1
Runoff, in inches.....							1.70	2.28
Runoff, in acre-feet.....							3,400	4,560

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	0.26	0.2	Jan. 31	0100	3.83	551	Feb. 1	0200	6.92	1,890
	30				0200	3.88	568		0600	5.05	1,000
	0800	.34	0.6		0500	3.76	528		0900	4.77	888
	1000	.41	1.2		0600	3.82	547		1000	3.71	513
	1200	.40	1.1		0700	4.00	610		1300	3.78	534
	1300	2.52	214		1000	4.72	868		1400	3.77	531
	1400	3.34	405		1300	6.82	1,830		1800	3.39	418
	1500	3.25	383		1500	6.69	1,760		2400	2.99	318
	1700	4.26	701		1700	6.00	1,410				
	1800	4.15	663		1800	6.25	1,540	2	1300	2.27	176
	2000	4.62	828		2200	9.00	3,100		2000	2.06	138
	2300	4.02	617		2300	9.28	3,270		2400	1.96	121
	2400	3.90	575		2400	9.00	3,100				

MATADERO CREEK BASIN

11-1660. Matadero Creek at Palo Alto, Calif.

Location.--Lat 37°25'10", long 122°08'10", in Rinconada de San Francisquito Grant, on right bank on Ash Street, 150 ft upstream from Lambert Avenue Bridge and 2.1 miles southeast of post office at Palo Alto, Santa Clara County.

Drainage area.--7.24 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 25 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 60 cfs and by critical-depth determination at 340 cfs.

Maxima.--January-February 1963: Discharge, 641 cfs 2000 hours Jan. 31 (gage height, 3.97 ft).
1952 to December 1962: Discharge, 854 cfs Dec. 22, 1955, from rating curve extended above 390 cfs on basis of slope-area measurement of maximum flow; maximum gage height, 9.88 ft Dec. 23, 1955; site and datum then in use (backwater from culvert).

Mean discharge, in cubic feet per second, 1963, of Matadero Creek at Palo Alto, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	0	57	11.....	0	2.1	21.....	0	0
2.....	0	4.5	12.....	0	7.0	22.....	0	0
3.....	0	1.7	13.....	0	13	23.....	0	0
4.....	0	.8	14.....	0	1.9	24.....	0	0
5.....	0	.4	15.....	0	1.0	25.....	0	0
6.....	0	0	16.....	0	1.2	26.....	0	0
7.....	0	0	17.....	0	.4	27.....	0	0
8.....	0	0	18.....	0	.1	28.....	0	0
9.....	0	51	19.....	0	.3	29.....	.1	-----
10.....	0	13	20.....	0	0	30.....	41	-----
						31.....	200	-----

Monthly mean discharge, in cubic feet per second.....	7.78	5.55
Runoff, in inches.....	1.24	0.80
Runoff, in acre-feet.....	478	308

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	0.26	0.2	Jan. 31	0500	0.85	19	Jan. 31	2300	3.28	450
					0700	1.28	54		2400	2.76	320
30	0200	.21	.1		0800	1.53	84				
	0300	.26	.2		0900	1.51	82	Feb. 1	0100	2.15	185
	0500	.42	2.1		1000	1.65	102		0300	1.56	89
	0600	.57	6.0		1100	2.41	237		0500	1.34	61
	0800	.57	6.0		1200	2.85	342		0600	1.33	60
	1000	1.17	43		1300	2.91	358		0900	1.45	74
	1100	1.21	47		1400	2.46	247		1000	1.45	74
	1300	1.30	56		1500	1.92	143		1100	1.33	60
	1600	1.84	131		1600	1.70	110		1200	1.15	42
	2100	1.03	31		1800	1.84	131		1400	1.01	30
	2300	.87	20		1900	2.83	358		1800	.82	17
	2400	.87	20		2000	3.97	641		1900	.78	15
31	0200	.91	23		2100	3.82	596		2100	.73	12
					2200	3.25	442		2400	.66	9.4

STEVENS CREEK BASIN

11-1664.8. Stevens Creek Reservoir near Monte Vista, Calif.

Location.--Lat 37°17'55", long 122°04'34", in NW $\frac{1}{4}$ sec.27, T.7 S., R.2 W., at center of dam on Stevens Creek, 2.0 miles southwest of Monte Vista.

Drainage area.--17.3 sq mi.

Gage-height record.--Staff gage read once daily, except Feb. 5, 6. Datum of gage is at mean sea level (levels by Santa Clara Valley Water Conservation District).

Contents record.--Contents computed from capacity table dated Oct. 1, 1961. Contents for Feb. 5, 6 interpolated.

Maxima.--January-February 1963: Contents, 4,070 acre-ft time unknown Jan. 31 (elevation, 539.48 ft, from floodmarks).

1935 to December 1962: Contents observed, 4,100 acre-ft Dec. 26, 1955 (elevation, 538.61 ft).

Remarks.--Reservoir is formed by earthfill dam completed in 1936. Capacity, 3,860 acre-ft between elevations 444.9 ft (invert of outlet tunnel) and 537.14 ft (crest of spillway). Records furnished by Santa Clara Valley Water Conservation District.

Elevation, in feet, and contents, in acre-feet, at 2400 hours, 1963, of Stevens Creek Reservoir near Monte Vista, Calif.

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	526.33	2,950	538.05	3,940	16	526.30	2,940	537.25	3,870
2	526.34	2,950	537.70	3,910	17	526.29	2,940	536.92	3,840
3	526.36	2,950	537.53	3,900	18	526.28	2,940	536.08	3,770
4	526.36	2,950	536.76	3,830	19	526.27	2,940	535.07	3,680
5	-	2,950	536.48	3,800	20	526.25	2,940	535.20	3,690
6	-	2,950	536.91	3,840	21	526.23	2,940	535.86	3,750
7	526.37	2,950	537.30	3,880	22	526.22	2,940	536.48	3,800
8	526.36	2,950	537.32	3,880	23	526.22	2,940	537.03	3,850
9	526.36	2,950	537.44	3,890	24	526.21	2,940	537.29	3,880
10	526.36	2,950	537.46	3,890	25	526.20	2,940	537.31	3,880
11	526.36	2,950	537.40	3,890	26	526.19	2,940	537.32	3,880
12	526.35	2,950	537.53	3,900	27	526.18	2,940	537.31	3,880
13	526.33	2,950	537.51	3,890	28	526.17	2,930	537.28	3,870
14	526.31	2,950	537.42	3,890	29	526.31	2,950	-	-
15	526.30	2,940	537.34	3,880	30	535.00	3,670	-	-
					31	538.65	4,030	-	-
Change in contents, in acre-feet.....						-	+1,080	-	-160

GUADALUPE RIVER BASIN

11-1666.7. Almaden Reservoir near New Almaden, Calif.

Location.--Lat 37°09'54", long 121°49'39", in San Vicente Grant, at center of dam on Alamos Creek, 0.7 mile southwest of New Almaden, Santa Clara County, and 7 miles south of Edenvale.

Drainage area.--12.0 sq mi.

Gage-height record.--Staff gage read once daily. Datum of gage is at mean sea level (levels by Santa Clara Valley Water Conservation District).

Contents record.--Contents computed from capacity table dated Nov. 1, 1960.

Maxima.--January-February 1963: Contents, 2,150 acre-ft, time unknown, Jan. 31 (elevation, 610.24 ft, from floodmarks).
1936 to December 1962: Contents observed, 2,080 acre-ft Apr. 1, 1941, Dec. 23, 1955 (elevation, 609.0 ft).

Remarks.--Reservoir is formed by earthfill dam completed in 1936. Capacity, 1,960 acre-ft between elevations 533.1 ft (invert of outlet tunnel) and 607 ft (crest of spillway). Up to 100 cfs diverted to Calero Reservoir at times. Records furnished by Santa Clara Valley Water Conservation District.

Elevation, in feet, and contents, in acre-feet, at 2400 hours, 1963, Almaden Reservoir near New Almaden, Calif.

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	568.32	390	607.85	2,010	16	571.41	458	591.12	1,110
2	568.64	397	607.19	1,970	17	571.55	461	588.67	1,110
3	568.93	403	607.01	1,960	18	571.69	465	588.33	992
4	569.73	419	606.58	1,930	19	571.73	446	590.05	1,060
5	570.45	435	605.90	1,900	20	571.85	468	592.21	1,170
6	570.03	425	603.99	1,770	21	571.97	471	594.10	1,260
7	569.86	421	601.85	1,660	22	572.06	473	595.79	1,340
8	570.07	426	599.45	1,530	23	569.99	424	597.28	1,420
9	570.30	431	598.11	1,460	24	567.25	369	598.62	1,490
10	570.47	435	597.14	1,410	25	566.55	355	600.18	1,570
11	570.64	439	595.44	1,320	26	566.71	358	600.97	1,610
12	570.80	443	594.40	1,270	27	566.89	362	601.99	1,670
13	570.94	447	594.57	1,280	28	567.03	365	602.20	1,680
14	571.07	450	594.28	1,260	29	567.70	378	-	-
15	571.25	454	592.95	1,200	30	596.25	1,360	-	-
					31	609.60	2,120	-	-
Change in contents, in acre-feet.....						-	+1,736	-	-440

11-1667. Arroyo Calero tributary near New Almaden, Calif.

(Crest-stage station)

Location--Lat 37°10'40", long 121°45'30", in Pueblo Lands of San Jose Grant, at culvert on McKean Road, 3.7 miles east of New Almaden.

Drainage area--0.18 sq mi.

Gage-height record--Crest stages only. Altitude of gage is 510 ft (from topographic map).

Discharge record--Maximum discharge by computation of flow through culvert.

Maxima--January-February 1963: Discharge, 28 cfs Jan. 31 (gage height, 59.83 ft). 1960 to December 1962: Discharge, 25 cfs Oct. 13, 1962 (gage height, 58.26 ft).

11-1667.4. Calero Reservoir near New Almaden, Calif.

Location--Lat 37°11'00", long 121°47'28", in San Vicente Grant, at center of dam on Arroyo Calero, 1.7 miles northeast of New Almaden, Santa Clara County, and 6 miles southeast of Edenvale.

Drainage area--6.95 sq mi.

Gage-height record--Staff gage read once daily, except Jan. 4-6. Datum of gage is at mean sea level (levels by Santa Clara Valley Water Conservation District).

Contents record--Contents for Jan. 4-6 interpolated.

Maxima--January-February 1963: Contents, 9,090 acre-ft 2400 hours Feb. 28 (elevation, 482.15 ft). 1936 to December 1962: Contents observed, 9,610 acre-ft Apr. 3, 1958 (elevation, 483.82 ft).

Remarks--Reservoir is formed by earthfill dam completed to crest elevation 482.55 ft in 1936 and raised to 483.90 ft in 1962. Capacity, 9,630 acre-ft between elevations 393.7 ft (center of outlet tunnel) and 483.90 ft (crest of spillway). Up to 100 cfs diverted from Almaden Reservoir to Calero Reservoir at times. Records furnished by Santa Clara Valley Water Conservation District.

Elevation, in feet, and contents, in acre-feet, at 2400 hours, 1963

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	448.27	2,220	467.66	5,170	16	447.60	2,150	480.58	8,600
2	448.09	2,200	468.74	5,400	17	447.59	2,140	481.34	8,840
3	447.83	2,170	469.74	5,610	18	447.62	2,150	481.79	8,970
4	-	2,170	470.71	5,850	19	447.64	2,150	481.93	9,020
5	-	2,160	471.65	6,100	20	447.64	2,150	481.96	9,030
6	-	2,160	472.51	6,330	21	447.64	2,150	481.98	9,030
7	447.69	2,160	473.35	6,560	22	447.65	2,150	482.00	9,040
8	447.69	2,160	474.17	6,780	23	448.06	2,200	482.00	9,040
9	447.68	2,150	475.04	7,010	24	448.61	2,260	482.01	9,040
10	447.67	2,150	475.88	7,250	25	448.78	2,280	482.02	9,050
11	447.66	2,150	476.70	7,480	26	448.78	2,280	482.05	9,050
12	447.65	2,150	477.52	7,720	27	448.78	2,280	482.04	9,050
13	447.64	2,150	478.32	7,940	28	448.78	2,280	482.15	9,090
14	447.63	2,150	479.08	8,160	29	448.83	2,280	-	-
15	447.62	2,150	479.82	8,370	30	453.75	2,860	-	-
					31	465.75	4,770	-	-
Change in contents, in acre-feet.....						-	+2,540	-	+4,320

11-1669. Alamitos Creek near New Almaden, Calif.

Location.--Lat 37°13'21", long 121°51'00", in Pueblo Lands of San Jose Grant, on left bank at Greystone Bridge, 1.1 miles downstream from Arroyo Calero, 3.4 miles southwest of Edenvale, and 3.5 miles northwest of New Almaden, Santa Clara County.

Drainage area.--31.9 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 247 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 440 cfs and by slope-area measurement at 2,280 cfs.

Maxima.--January-February 1963: Discharge, 2,670 cfs 1200 hours Jan. 31 (gage height, 8.17 ft).
1958 to December 1962: Discharge, 4,300 cfs Apr. 2, 1958 (gage height, 9.67 ft), from rating curve extended above 330 cfs on basis of computed outflow from Almaden and Calero Reservoirs.

Remarks.--Flow regulated by Almaden and Calero Reservoirs (see stations 11-1666.7 and 1667.4).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	18	1,150	11.....	4.4	17	21.....	5.4	9.1
2.....	18	274	12.....	4.4	16	22.....	5.7	8.4
3.....	18	106	13.....	4.2	39	23.....	5.7	8.1
4.....	14	39	14.....	4.4	21	24.....	5.4	7.7
5.....	6.0	23	15.....	4.4	17	25.....	5.2	7.4
6.....	5.2	18	16.....	4.4	14	26.....	5.4	7.0
7.....	4.9	15	17.....	4.7	14	27.....	5.7	6.7
8.....	4.7	13	18.....	5.2	12	28.....	5.7	6.3
9.....	4.7	28	19.....	5.4	11	29.....	5.4	-----
10.....	4.4	26	20.....	5.4	9.8	30.....	432	-----
						31.....	1,670	-----
Monthly mean discharge, in cubic feet per second.....							74.1	68.0
Runoff, in inches.....							2.68	2.22
Runoff, in acre-feet.....							4,550	3,780

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.32	7.0	Jan. 31	0400	4.50	670	Feb. 1	0900	5.80	1,240
	30	0600	2.36		0600	5.18	946		1500	5.05	890
		0800	2.41		0700	5.00	870		2400	4.30	595
		1000	2.61		0700	6.00	1,350				
		1100	3.25		0900	6.87	1,840	2	1000	3.68	249
		1200	4.40		1000	6.94	1,880		1700	3.58	219
		1400	5.96		1200	8.17	2,670		1700	3.62	231
		1500	6.22		1400	7.45	2,200		2400	3.42	173
		1700	5.67		1700	6.84	1,820				
		1900	5.00		2200	7.50	2,240	3	0300	3.35	154
		2400	4.58		2400	7.00	1,920		0300	3.28	135
									1900	3.06	81
31	0100	4.75	770	Feb. 1	0300	6.60	1,680		2000	2.98	66
					0500	6.08	1,390		2400	2.97	64

11-1673.7. Guadalupe Reservoir near New Almaden, Calif.

Location.--Lat 37°11'57", long 121°52'42", in Los Capitancillos Grant, at center of dam on Guadalupe Creek, 3.6 miles northwest of New Almaden, Santa Clara County, and 5.0 miles southeast of Los Gatos.

Drainage area.--5.94 sq mi.

Gage-height record.--Staff gage read once daily. Datum of gage is at mean sea level (levels by Santa Clara Valley Water Conservation District).

Contents record.--Contents computed from capacity table dated Oct. 1, 1960.

Maxima.--January-February 1963: Contents, 3,610 acre-ft, time unknown, Feb. 1 (elevation, 619.26 ft, from floodmarks).
1936 to December 1962: Contents observed, 3,560 acre-ft Feb. 23, 1956 (elevation, 618.60 ft).

Remarks.--Reservoir is formed by earthfill dam completed in 1936. Capacity, 3,460 acre-ft between elevations 506.8 ft (invert of outlet tunnel) and 617.0 ft (crest of spillway). Records furnished by Santa Clara Valley Water Conservation District.

Elevation, in feet, and contents, in acre-feet, at 2400 hours, 1963, of Guadalupe Reservoir near New Almaden, Calif.

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	595.87	2,210	617.00	3,460	16	585.35	1,680	617.59	3,500
2	595.76	2,200	617.76	3,510	17	584.75	1,650	617.57	3,500
3	595.88	2,210	617.14	3,470	18	583.86	1,610	617.55	3,500
4	595.52	2,190	617.82	3,500	19	582.99	1,570	617.54	3,500
5	594.90	2,160	617.76	3,510	20	582.06	1,520	617.52	3,490
6	594.25	2,130	617.62	3,500	21	581.59	1,500	617.50	3,490
7	593.43	2,080	617.70	3,510	22	581.00	1,480	617.49	3,490
8	592.56	2,040	617.67	3,500	23	579.94	1,430	617.50	3,490
9	591.84	1,990	617.76	3,510	24	578.75	1,380	617.51	3,490
10	590.63	1,940	617.65	3,500	25	577.56	1,330	617.49	3,490
11	589.63	1,890	617.60	3,500	26	576.43	1,280	617.49	3,490
12	588.58	1,840	617.76	3,510	27	575.28	1,230	617.50	3,490
13	587.66	1,790	617.79	3,510	28	574.16	1,190	617.50	3,490
14	586.76	1,750	617.69	3,500	29	573.79	1,170	-	-
15	585.82	1,700	617.64	3,500	30	580.00	1,430	-	-
					31	615.50	3,370	-	-
Change in contents, in acre-feet.....						-	+1,160	-	+120

11-1676.6. Ross Creek at San Jose, Calif.

Location.--Lat 37°14'55", long 121°54'49", in SE¹ sec.12, T.8 S., R.1 E., on left bank, 100 ft downstream from Lone Hill Creek, 500 ft upstream from Harwood Avenue, and at south city limits of San Jose.

Drainage area.--5.70 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 210 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 515 cfs 1200 hours Jan. 31 (gage height, 6.25 ft).

1961 to December 1962: Discharge, 530 cfs Oct. 13, 1962 (gage height, 6.30 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	1.4	71	11.....	0	2.2	21.....	0.6	0.9
2.....	1.4	18	12.....	0	12	22.....	.3	.7
3.....	1.2	6.6	13.....	0	24	23.....	0	.5
4.....	.5	4.9	14.....	0	5.8	24.....	.1	.5
5.....	1.0	3.7	15.....	0	4.7	25.....	0	.5
6.....	.9	2.6	16.....	0	3.4	26.....	0	.4
7.....	.3	2.0	17.....	0	2.3	27.....	0	.4
8.....	0	1.9	18.....	.3	1.4	28.....	1.3	.4
9.....	.2	19	19.....	0	2.2	29.....	1.7	-
10.....	0	7.3	20.....	0	.9	30.....	164	-
						31.....	295	-
Monthly mean discharge, in cubic feet per second.....							15.1	7.15
Runoff, in inches.....							3.06	1.31
Runoff, in acre-feet.....							931	397

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	2.27	0.1	Jan. 30	1400	5.45	300	Jan. 31	1000	5.35	277
					1500	6.11	475		1100	6.00	444
29	0600	2.10	0		1600	5.90	416		1200	6.25	515
	1700	1.88	0		1700	5.50	312		1300	6.00	444
	1700	2.78	3.8		1800	5.00	209		1400	5.35	277
	1800	2.72	2.9		1900	4.90	192		1700	5.05	218
	1900	2.92	6.6		2000	4.80	175		1800	5.62	343
	2000	2.79	4.0		2100	5.50	312		1900	5.89	413
	2100	2.80	4.1		2200	4.80	175		2100	5.34	275
	2200	2.93	7.0		2300	4.75	167		2200	5.58	333
	2300	2.93	7.0		2400	5.16	238		2400	4.70	159
	2400	2.98	8.6								
				31	0030	5.00	209	Feb. 1	0300	4.22	96
30	0100	3.03	10		0100	5.60	338		0500	4.03	77
	0300	2.98	8.6		0200	5.00	209		0800	4.53	134
	0700	3.42	29		0300	5.00	209		0900	4.13	87
	0900	3.55	38		0400	4.72	162		1200	3.79	55
	1100	4.52	133		0600	5.27	260		1700	3.65	45
	1200	5.45	300		0800	5.62	343		2400	3.45	31
	1300	5.75	377		0900	5.20	246				

11-1679.5. Lake Elsman near Los Gatos, Calif.

Location.--Lat 37°07'51", long 121°55'47", in SE $\frac{1}{4}$ sec.23, T.9 S., R.1 W., at center of Austrian Dam on Los Gatos Creek and 7.3 miles southeast of Los Gatos.

Drainage area.--9.78 sq mi.

Gage-height record.--Staff gage read once daily. Datum of gage is at mean sea level (levels by San Jose Waterworks).

Contents record.--Contents computed from capacity table No. 1.

Maxima.--January-February 1963: Contents observed, 6,640 acre-ft 0800 hours Jan.31 (elevation, 1,115.1 ft).

1951 to December 1962: Contents observed, 6,410 acre-ft Jan. 12, 1952 (elevation, 1,112.6 ft).

Remarks.--Reservoir is formed by earthfill dam completed in 1951. Usable capacity, 6,090 acre-ft between elevations 944 ft (elevation of outlet gates) and 1,110 ft (crest of spillway). Dead storage, 60 acre-ft. Records furnished by San Jose Waterworks.

Elevation, in feet, and contents, in acre-feet, at 2400 hours, 1963

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	1,110.5	6,200	1,112.9	6,430	16	1,110.4	6,190	1,110.5	6,200
2	1,110.4	6,190	1,111.4	6,290	17	1,110.4	6,190	1,110.4	6,190
3	1,110.3	6,180	1,111.2	6,270	18	1,110.4	6,190	1,110.4	6,190
4	1,110.3	6,180	1,111.1	6,260	19	1,110.4	6,190	1,110.3	6,180
5	1,110.3	6,180	1,111.1	6,260	20	1,110.5	6,200	1,110.3	6,180
6	1,110.3	6,180	1,111.2	6,270	21	1,110.5	6,200	1,110.2	6,170
7	1,110.3	6,180	1,110.7	6,220	22	1,110.5	6,200	1,110.2	6,170
8	1,110.3	6,180	1,110.3	6,180	23	1,110.5	6,200	1,110.1	6,160
9	1,110.3	6,180	1,110.6	6,210	24	1,110.4	6,190	1,110.0	6,150
10	1,110.4	6,190	1,110.7	6,220	25	1,110.4	6,190	1,110.1	6,160
11	1,110.4	6,190	1,110.6	6,210	26	1,110.4	6,190	1,110.3	6,180
12	1,110.3	6,180	1,110.9	6,240	27	1,110.4	6,190	1,110.5	6,200
13	1,110.4	6,190	1,111.0	6,250	28	1,110.4	6,190	1,110.7	6,220
14	1,110.4	6,190	1,110.8	6,230	29	1,110.1	6,160	-	-
15	1,110.4	6,190	1,110.6	6,210	30	1,114.0	6,540	-	-
					31	1,114.9	6,630	-	-
Change in contents, in acre-feet.....						-	+420	-	-410

11-1679.8. Lexington Reservoir near Los Gatos, Calif.

Location.--Lat 37°12'06", long 121°59'17", in SE $\frac{1}{4}$ sec.29, T.8 S., R.1 W., at center of dam on Los Gatos Creek and 1.7 miles south of Los Gatos.

Drainage area.--37.0 sq mi.

Gage-height record.--Staff gage read once daily, except Feb. 4. Datum of gage is at mean sea level (levels by Santa Clara Valley Water Conservation District).

Contents record.--Contents computed from capacity table dated Oct. 1, 1960. Contents for Feb. 3, 4 estimated on basis of valve change made on Feb. 5.

Maxima.--January-February 1963: Contents, 22,240 acre-ft, time unknown, Feb. 2 (elevation, 651.84 ft, from floodmarks).

1952 to December 1962: Contents observed, 22,760 acre-ft Apr. 13, 1958 (elevation, 652.96 ft).

Remarks.--Reservoir is formed by earthfill dam completed in 1952. Capacity, 21,430 acre-ft between elevations 519 ft (invert at outlet tunnel) and 650 ft (crest of spillway). Dead storage, 31 acre-ft. Records furnished by Santa Clara Valley Water Conservation District.

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	612.08	8,830	650.14	21,490	16	603.85	6,980	650.63	21,710
2	612.14	8,850	651.00	21,870	17	603.84	6,880	650.55	21,700
3	612.13	8,840	-	21,600	18	602.84	6,770	650.52	21,860
4	611.65	8,730	-	21,320	19	602.16	6,630	650.49	21,650
5	610.92	8,550	650.19	21,520	20	601.41	6,480	650.46	21,630
6	610.15	8,360	650.56	21,680	21	600.60	6,320	650.44	21,630
7	609.37	8,180	650.58	21,690	22	599.79	6,160	650.41	21,610
8	608.57	8,000	650.54	21,670	23	599.14	6,040	650.45	21,630
9	607.77	7,830	650.74	21,760	24	598.44	5,920	650.46	21,630
10	607.22	7,700	650.79	21,780	25	597.75	5,790	650.42	21,620
11	606.68	7,580	650.68	21,730	26	596.97	5,650	650.40	21,610
12	606.11	7,460	650.30	21,830	27	596.30	5,530	650.44	21,630
13	604.95	7,330	650.51	21,850	28	595.65	5,450	650.47	21,640
14	604.93	7,190	650.78	21,780	29	596.08	5,490	-	-
15	604.35	7,080	650.70	21,740	30	611.50	8,600	-	-
					31	642.50	18,380	-	-
Change in contents, in acre-feet.....						-	+9,560	-	+3,260

Location.--Lat 37°12'30", long 121°59'15", in NE $\frac{1}{4}$ sec.29, T.8 S., R.1 W., on left bank 0.3 mile downstream from Trout Creek, 0.5 mile downstream from Lexington Reservoir, and 1.0 mile south of Los Gatos.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 460 ft (from topographic map).

Maxima.--January-February 1963: Discharge, 1,660 cfs 0300 hours Feb. 2 (gage height, 7.77 ft).

1929-44, 1953 to December 1962: Discharge, 7,110 cfs Feb. 27, 1940 (gage height, 14.71 ft, site and datum then in use), from rating curve extended above 2,300 cfs.

Remarks.--Flow regulated by Lake Elsman and Lexington Reservoir (see stations 11-1679.5 and 11-1679.8).

Day	January	February	Day	January	February	Day	January	February
1.....	4.3	530	11.....	71	374	21.....	91	160
2.....	4.5	1,130	12.....	82	328	22.....	87	141
3.....	21	687	13.....	82	560	23.....	82	122
4.....	89	560	14.....	80	486	24.....	81	114
5.....	112	239	15.....	80	378	25.....	81	112
6.....	109	202	16.....	71	314	26.....	81	81
7.....	109	281	17.....	68	270	27.....	75	75
8.....	108	278	18.....	73	229	28.....	75	72
9.....	108	306	19.....	82	202	29.....	47	- - - - -
10.....	80	473	20.....	86	185	30.....	66	- - - - -
						31.....	241	- - - - -
Monthly mean discharge, in cubic feet per second.....							81.5	317
Runoff, in acre-feet.....							5,010	17,630

11-1695. Saratoga Creek at Saratoga, Calif.

Location.--Lat 37°15'15", long 122°02'25", in Quito Grant, on right bank on downstream side of private road bridge, 0.5 mile southwest of Saratoga, Santa Clara County, and 0.7 mile downstream from diversion dam.

Drainage area.--9.22 sq mi.

Gage-height record.--Water-stage recorder graph, except Feb. 6-8, 16-25. Altitude of gage is 500 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements. Discharge for periods of no gage-height record estimated on basis of weather records and records for San Francisquito Creek below Ladera damsite, near Stanford University.

Maxima.--January-February 1963: Discharge, 1,160 cfs 1200 hours Jan. 31 (gage height, 5.68 ft).

1933 to December 1962: Discharge, 2,730 cfs Dec. 22, 1955 (gage height, 6.40 ft), from rating curve extended above 510 cfs on basis of slope-area measurement of maximum flow.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0.6	365	11.....	0.2	47	21.....	0.2	22
2.....	.2	149	12.....	.4	45	22.....	.2	20
3.....	.2	99	13.....	.2	72	23.....	.2	17
4.....	.2	72	14.....	.2	49	24.....	.2	16
5.....	.2	60	15.....	.2	39	25.....	.2	14
6.....	.2	51	16.....	.2	35	26.....	.2	13
7.....	.2	30	17.....	.1	32	27.....	.2	11
8.....	.2	23	18.....	.2	30	28.....	.2	9.3
9.....	.2	44	19.....	.1	27	29.....	1.3	-----
10.....	.2	58	20.....	.2	25	30.....	276	-----
						31.....	651	-----
Monthly mean discharge, in cubic feet per second.....							30.1	52.7
Runoff, in inches.....							3.77	5.95
Runoff, in acre-feet.....							1,850	2,930

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.81	7.5	Jan. 31	0100	4.27	485	Jan. 31	2400	5.00	795
	30	0300	1.92		0400	4.24	474				
		0800	2.28		0800	4.48	567	Feb. 1	0100	5.10	840
		0900	2.40		0900	4.42	543		0100	4.82	714
		1100	3.38		1100	5.15	865		0300	4.41	539
		1300	4.05		1200	5.68	1,160		0500	4.15	443
		1600	4.65		1300	5.40	990		0800	4.05	408
		1800	4.31		1400	5.00	795		1100	3.81	328
		1900	4.48		1500	5.00	795		1500	3.66	284
		2000	4.26		1600	4.48	567		2000	3.42	221
		2300	4.10		1800	5.10	840		2400	3.31	194
		2400	4.13		2000	4.48	567				
					2200	4.37	523				

COYOTE CREEK BASIN

11-1698. Coyote Creek near Gilroy, Calif.

Location.--Lat 37°04'27", long 121°29'55", in SW $\frac{1}{4}$ sec.11, T.10 S., R.4 E., on right bank 1.1 miles downstream from Bear Creek, 4.6 miles upstream from Coyote Creek Dam, and 6 miles northeast of Gilroy.

Drainage area.--110 sq mi.

Gage-height record.--Water-stage recorder graph, except Feb. 2-12, 14-21. Altitude of gage is 870 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 3,200 cfs and by slope-area measurement at 10,100 cfs. Discharge for periods of no gage-height record estimated on basis of two discharge measurements and records for San Lorenzo Creek at Hayward.

Maxima.--January-February 1963: Discharge, 10,100 cfs 2300 hours Jan. 31 (gage height, 12.60 ft).

1960 to December 1962: Discharge, 4,450 cfs Feb. 15, 1962 (gage height, 8.99 ft).

Mean discharge, in cubic feet per second, 1963, of Coyote Creek near Gilroy, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	2.1	3,180	11.....	1.8	300	21.....	1.5	48
2.....	2.1	500	12.....	1.2	600	22.....	1.2	42
3.....	2.1	300	13.....	1.0	1,030	23.....	1.2	36
4.....	2.1	200	14.....	1.0	500	24.....	1.5	30
5.....	2.4	150	15.....	1.0	300	25.....	1.5	28
6.....	2.1	110	16.....	1.2	180	26.....	1.5	27
7.....	2.1	95	17.....	1.2	130	27.....	1.8	24
8.....	1.8	90	18.....	1.2	95	28.....	1.8	21
9.....	1.8	510	19.....	1.2	70	29.....	2.1	-----
10.....	1.8	450	20.....	1.2	55	30.....	546	-----
						31.....	5,490	-----
Monthly mean discharge, in cubic feet per second.....							196	325
Runoff, in inches.....							2.06	3.08
Runoff, in acre-feet.....							12,060	18,050

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	4.16	2.7	Jan. 30	2400	7.69	2,230	Jan. 31	2200	12.59	10,100
	30	0400	4.19		31	0100	7.34		2300	12.60	10,100
		0600	4.22			0200	7.71		2400	11.98	9,230
		1100	4.44			0300	7.61				
		1400	4.72			0400	7.69	Feb. 1	0200	10.98	7,620
		1600	6.00			0500	7.57		0400	9.83	5,640
		1800	6.65			1000	8.65		0600	9.11	4,270
		1900	7.19			1100	9.29		1200	8.20	2,460
		2000	7.40			1300	12.25		1400	7.86	1,900
		2100	7.39			1400	11.30		2100	6.98	821
		2200	7.76			1800	9.95		2400	6.78	639
		2300	7.59			2000	10.60				

11-1698.5. Coyote Lake near San Martin, Calif.

Location.--Lat 37°07'06", long 121°32'55", in SE¹ sec.29, T.9 S., R.4 E., at center of dam on Coyote Creek, 3.8 miles northeast of San Martin.

Drainage area.--120 sq mi.

Gage-height record.--Staff gage read once daily, except Jan. 15-20, 23, 25-27, 29, Feb. 17. Datum of gage is at mean sea level (levels by Santa Clara Valley Water Conservation District).

Contents record.--Contents computed from capacity table dated Oct. 1, 1961. Contents for periods of no elevation record interpolated.

Maxima.--January-February 1963: Contents observed, 19,100 acre-ft 0800 hours Feb. 15 (elevation, 768.05 ft).

1936 to December 1962: Contents observed, 28,120 acre-ft Dec. 8, 1950 (elevation, 782.5 ft).

Remarks.--Reservoir is formed by rockfill and earthfill dam completed in 1936.

Capacity, 24,510 acre-ft between elevations 693.3 ft (invert of outlet tunnel) and 777 ft (crest of spillway). Records furnished by Santa Clara Valley Water Conservation District.

Elevation, in feet, and contents, in acre-feet, at 0800 hours, 1963

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	709.72	473	761.02	15,240	16	-	531	767.95	19,040
2	709.80	477	765.55	17,660	17	-	535	-	18,900
3	709.87	480	766.68	17,750	18	-	538	767.43	18,750
4	709.93	483	765.22	17,480	19	-	542	767.05	18,530
5	709.99	486	764.47	17,080	20	-	545	766.60	18,270
6	710.05	490	763.79	16,710	21	710.75	549	766.15	18,010
7	710.10	494	763.31	16,460	22	710.78	552	765.88	17,750
8	710.16	499	763.08	16,340	23	-	426	765.21	17,480
9	710.22	505	762.75	16,160	24	705.98	300	764.64	17,170
10	710.27	509	763.05	16,320	25	-	313	764.10	16,880
11	710.32	513	763.18	16,390	26	-	326	763.58	16,600
12	710.36	516	763.39	16,500	27	-	339	763.21	16,410
13	710.41	521	764.74	17,220	28	707.10	352	762.88	16,230
14	710.45	524	767.65	18,870	29	-	362	-	-
15	-	528	768.05	19,100	30	707.54	372	-	-
					31	724.65	2,390	-	-
Change in contents, in acre-feet.....						-	+1,928	-	+13,840

11-1699.2. Anderson Lake near Madrone, Calif.

Location.--Lat 37°09'56", long 121°37'42", in southeast corner of La Laguna Seca Grant, at center of dam on Coyote Creek, 2.5 miles northeast of Madrone, Santa Clara County.

Drainage area.--194 sq mi.

Gage-height record.--Staff gage read once daily, except Jan. 5, 6. Datum of gage is at mean sea level (levels by Santa Clara Valley Water Conservation District).

Contents record.--Contents computed from capacity table dated Oct. 1, 1961. Contents for Jan. 5, 6 interpolated.

Maxima.--January-February 1963: Contents observed, 15,230 acre-ft 0800 hours Feb. 28 (elevation, 525.84 ft).

1950 to December 1962: Contents, 95,990 acre-ft Apr. 3, 1958 (elevation, 628.67 ft, from floodmarks).

Remarks.--Reservoir is formed by earthfill and rockfill dam completed in 1950. Capacity, 91,310 acre-ft between elevations 439 ft (invert of outlet tunnel) and 625 ft (crest of spillway). Records furnished by Santa Clara Valley Water Conservation District.

Elevation, in feet, and contents, in acre-feet, at 0800 hours, 1963

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	446.47	205	486.51	4,200	16	445.56	168	515.44	11,400
2	446.43	203	492.80	5,340	17	445.50	166	516.61	11,810
3	446.38	201	496.52	6,110	18	445.44	164	517.71	12,190
4	446.35	199	499.98	6,890	19	445.34	160	518.77	12,570
5	-	197	502.08	7,450	20	445.26	156	519.71	12,900
6	-	194	504.34	8,010	21	445.21	154	520.55	13,210
7	446.15	192	505.50	8,320	22	445.15	151	521.46	13,550
8	446.09	190	506.25	8,530	23	449.47	325	522.29	13,860
9	446.03	187	506.88	8,720	24	449.80	338	523.18	14,200
10	445.98	185	507.89	9,020	25	449.76	336	523.98	14,500
11	445.89	182	508.87	9,300	26	449.74	336	524.82	14,820
12	445.82	179	509.64	9,530	27	449.69	334	525.34	15,020
13	445.75	176	510.59	9,820	28	449.64	332	525.84	15,230
14	445.67	173	512.58	10,460	29	449.58	329	-	-
15	445.62	171	514.13	10,960	30	449.65	332	-	-
					31	464.05	1,360	-	-
Change in contents, in acre-feet.....						-	+1,154	-	+13,870

11-1700. Coyote Creek near Madrone, Calif.

Location.--Lat 37°10'06", long 121°38'55", near southeast corner of La Laguna Seca Grant, on right bank 1.2 miles downstream from Anderson Dam and 1.8 miles northeast of Madrone, Santa Clara County.

Drainage area.--196 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 375 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 47 cfs 1300-1500 hours Feb. 6 (gage height, 2.28 ft).

1902-12, 1916 to December 1962: Discharge, 25,000 cfs probably Mar. 7, 1911 (record furnished by Duryea, Haehl & Gilman).

Remarks.--Flow regulated by Coyote and Anderson Lakes (see stations 11-1698.5 and 11-1699.2).

Mean discharge, in cubic feet per second, 1963, of Coyote Creek near Madrone, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	1.0	2.1	11.....	0.8	2.2	21.....	0.9	26
2.....	1.0	.6	12.....	.8	31	22.....	.9	26
3.....	1.0	.6	13.....	.8	9.6	23.....	1.0	26
4.....	1.0	.6	14.....	.9	19	24.....	1.0	26
5.....	1.0	.5	15.....	.9	45	25.....	1.0	26
6.....	1.0	24	16.....	.9	34	26.....	.7	26
7.....	1.0	42	17.....	.9	30	27.....	.6	26
8.....	1.0	43	18.....	.9	30	28.....	.6	26
9.....	1.0	27	19.....	.9	26	29.....	.8	---
10.....	.9	3.0	20.....	.9	26	30.....	5.6	---
						31.....	12	---
Monthly mean discharge, in cubic feet per second.....							1.41	21.6
Runoff, in acre-feet.....							87	1,200

11-1721. Upper Penitencia Creek at San Jose, Calif.

Location.--Lat 37°23'43", long 121°49'38", on north boundary of San Jose Pala Grant, on left bank at downstream side of county road bridge, 0.1 mile upstream from Dutard Creek, near northeast limits of San Jose, Santa Clara County.

Drainage area.--21.5 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 270 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 107 cfs 0300 hours Feb. 13 (gage height, 3.26 ft).

1961 to December 1962: Discharge, 198 cfs Feb. 16, 1962 (gage height, 3.53 ft, at site 0.4 mile downstream at different datum.

Remarks.--Flow partly regulated by Cherry Flat Reservoir (capacity, 500 acre-ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0.3	27	11.....	0.2	3.4	21.....	0.3	1.4
2.....	.3	8.1	12.....	.3	6.2	22.....	.3	1.2
3.....	.3	3.8	13.....	.3	48	23.....	.3	.9
4.....	.3	2.6	14.....	.3	15	24.....	.3	.8
5.....	.3	1.8	15.....	.3	6.2	25.....	.3	.8
6.....	.3	1.4	16.....	.3	4.2	26.....	.3	.8
7.....	.3	1.1	17.....	.3	3.6	27.....	.3	.8
8.....	.3	.9	18.....	.3	2.6	28.....	.3	1.2
9.....	.3	2.4	19.....	.3	2.3	29.....	.4	---
10.....	.3	4.9	20.....	.3	1.7	30.....	2.6	---
						31.....	16	---
Monthly mean discharge, in cubic feet per second.....							0.88	5.54
Runoff, in inches.....							0.05	0.27
Runoff, in acre-feet.....							54	308

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.50	0.4	Jan. 31	1400	3.01	13	Feb. 1	0900	2.80	9.8
					1500	3.17	24		1000	2.89	14
					1600	3.15	22		1000	3.27	51
	0700	2.50	0.4		1600	3.31	37		1100	3.23	46
	1100	2.70	2.3		1700	3.31	37		1300	3.17	38
	1500	2.86	6.2		1900	3.15	22		1900	5.01	23
	1800	2.78	3.8		2200	3.12	20		2400	2.88	14
	2400	2.76	3.4		2230	3.45	56				
					2400	3.22	28				
								2	0600	2.49	9.3
	0100	2.82	4.9						1500	2.42	6.5
	0300	2.73	2.8						2400	2.39	5.5
	0700	2.82	4.9	Feb. 1	0100	3.10	31				
	1000	2.83	5.2		0300	3.22	44				
	1100	3.02	13		0600	2.91	16				

ALAMEDA CREEK BASIN

11-1735.6. Alameda Creek tributary No. 1 near Warm Springs, Calif.

(Crest-stage station)

Location.--Lat 37°31'14", long 121°50'48", in NW 1/4 sec.10, T.5 S., R.1 E., at culvert on Calaveras road, 5 miles northeast of Warm Springs.Drainage area.--0.35 sq mi.Gage-height record.--Crest stages only. Altitude of gage is 530 ft (from topographic map).Discharge record.--Stage-discharge relation not defined.Maxima.--January-February 1963: Discharge, not determined, occurred Jan. 31 (gage height, 46.24 ft).

1958 to December 1962: Discharge, 14 cfs Feb. 14, 1962 (gage height, 47.04 ft), by computation of flow through culvert.

11-1740. San Antonio Creek near Sunol, Calif.

Location.--Lat 37°34'39", long 121°51'24", in Valle de San Jose Grant, on right bank 0.4 mile upstream from Calaveras Road Bridge, 0.85 mile above mouth, and 2 miles southeast of Sunol, Alameda County.Drainage area.--37.0 sq mi.Gage-height record.--Water-stage recorder graph. Datum of gage is 271.56 ft above mean sea level, levels by city of San Francisco.Discharge record.--Stage-discharge relation defined by current-meter measurements below 170 cfs and by slope-area measurement at 1,970 cfs.Maxima.--January-February 1963: Discharge, 1,970 cfs 2330 hours Jan. 31 (gage height, 7.16 ft).

1912-30, 1960 to December 1962: Daily discharge, 1,460 cfs Jan. 3, 1916.

Flood of Dec. 23, 1955, 5,810 cfs (by slope-area measurement of maximum flow).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0.4	362	11.....	0.4	7.2	21.....	0.4	7.6
2.....	.4	64	12.....	.4	18	22.....	.4	6.8
3.....	.4	31	13.....	.4	163	23.....	.4	6.0
4.....	.4	18	14.....	.4	57	24.....	.4	5.5
5.....	.4	12	15.....	.4	29	25.....	.4	5.0
6.....	.4	9.2	16.....	.4	21	26.....	.4	4.4
7.....	.4	7.2	17.....	.4	17	27.....	.4	4.4
8.....	.4	5.7	18.....	.4	13	28.....	.4	3.9
9.....	.4	5.8	19.....	.4	11	29.....	.4	-----
10.....	.4	13	20.....	.4	9.6	30.....	1.5	-----
						31.....	390	-----
Monthly mean discharge, in cubic feet per second.....							13.0	32.8
Runoff, in inches.....							0.41	0.93
Runoff, in acre-feet.....							800	1,820

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	3.14	4.4	Jan. 31	1900	4.70	308	Feb. 1	0800	5.00	435
					2000	5.80	900		1200	4.61	274
	31	0200	3.14		2100	6.93	1,770		1800	4.26	159
		0400	3.36		2200	6.58	1,460		2400	4.06	106
		1000	3.42		2300	7.16	1,970				
		1200	3.70		2400	6.84	1,690	2	0600	3.93	78
		1300	4.07						1200	3.82	59
		1400	5.15	Feb. 1	0100	6.00	1,030		1800	3.73	47
		1700	4.58		0300	5.30	600		2400	3.68	41
		1800	4.56		0600	4.77	336				

11-1744.5. Big Canyon Creek near Dublin, Calif.

(Crest-stage station)

Location.--Lat 37°43'15", long 121°56'25", in San Ramon Grant, at culvert on State Highway 21, 1.4 miles north of Dublin.

Drainage area.--1.13 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 420 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 7 cfs and by slope-area measurements at 124 and 140 cfs.

Maxima.--January-February 1963: Discharge, 160 cfs Jan. 31 (gage height, 49.36 ft). 1958 to December 1962: Discharge, 104 cfs Oct. 13, 1962 (gage height, 48.97 ft).

11-1762. Arroyo Mocho near Pleasanton, Calif.

Location.--Lat 37°41'19", long 121°52'41", in Santa Rita Grant, on left bank 320 ft downstream from Santa Rita Road, 0.7 mile upstream from Tassajara Creek, and 1.8 miles north of Pleasanton, Alameda County.

Drainage area.--143 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 328.55 ft above mean sea level (levels by Alameda County Flood Control and Water Conservation District).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 41 cfs and by slope-area measurement at 1,760 cfs.

Maxima.--January-February 1963: Discharge, 1,760 cfs 0130 hours Feb. 1 (gage height, 8.60 ft). September-December 1962: Discharge, 296 cfs Oct. 13, 1962 (gage height, 3.50 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	3.3	926	11.....	0	0.4	21.....	30	0
2.....	2.1	62	12.....	8.8	20	22.....	1.3	0
3.....	0	4.3	13.....	40	241	23.....	.4	0
4.....	0	1.4	14.....	29	33	24.....	0	0
5.....	0	2.1	15.....	.4	3.3	25.....	0	0
6.....	0	1.9	16.....	.4	.1	26.....	0	0
7.....	0	1.9	17.....	2.4	0	27.....	0	0
8.....	0	1.2	18.....	15	0	28.....	0	0
9.....	0	0	19.....	26	0	29.....	0	-----
10.....	0	1.2	20.....	41	0	30.....	9.9	-----
						31.....	374	-----
Monthly mean discharge, in cubic feet per second.....							18.8	46.4
Runoff, in inches.....							0.15	0.34
Runoff, in acre-feet.....							1,160	2,580

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.05	0	Jan. 31	1200	2.02	40	Feb. 1	0500	7.80	1,520
					1300	3.24	237		0900	6.10	1,190
	30	1600	1.05		1500	3.41	274		1600	4.40	515
		1600	1.52		1600	3.26	241		2100	3.25	239
		1900	2.03		1900	5.78	914		2400	2.87	161
		2400	1.85		2100	6.30	1,070				
					2400	8.34	1,680	2	0600	2.40	84
	31	0500	1.70						1200	2.10	48
		0900	1.70	Feb. 1	0130	8.60	1,760		2400	1.66	12
		1100	1.85								

11-1765. Arroyo Valle near Livermore, Calif.

Location.--Lat 37°37'24", long 121°45'28", in Valle de San Jose Grant, on right bank 900 ft downstream from highway bridge, 1.1 miles upstream from Dry Creek, 4.1 miles south of Livermore, Alameda County, and 6.9 miles southeast of Pleasanton.

Drainage area.--147 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 500 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 8,810 cfs 0130 hours Feb. 1 (gage height, 9.34 ft).

1912-30, 1955 to December 1962: Discharge, 18,200 cfs Dec. 23, 1955 (gage height, 13.93 ft, from floodmarks), on basis of contracted-opening and slope-area measurement of peak flow.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0.4	3,560	11.....	1.6	55	21.....	1.2	29
2.....	.8	472	12.....	1.4	44	22.....	1.4	26
3.....	.9	167	13.....	1.4	537	23.....	1.2	21
4.....	1.1	93	14.....	1.4	314	24.....	1.2	20
5.....	1.2	59	15.....	1.2	159	25.....	.9	18
6.....	1.2	41	16.....	1.2	105	26.....	.9	16
7.....	1.4	31	17.....	1.2	75	27.....	1.4	15
8.....	1.4	26	18.....	1.2	55	28.....	1.4	15
9.....	1.4	23	19.....	1.2	42	29.....	1.3	-----
10.....	1.4	45	20.....	1.2	34	30.....	1.8	-----
						31.....	1,420	-----
Monthly mean discharge, in cubic feet per second.....							47.0	218
Runoff, in inches.....							0.37	1.54
Runoff, in acre-feet.....							2,890	12,090

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	2.22	1.6	Jan. 30	2200	7.95	6,000	Feb. 2	2100	3.68	262
					2400	8.60	7,290		2400	3.62	238
31	0300	2.25	2.2	Feb. 1	0100	9.25	8,610	3	0800	3.44	177
	0300	3.06	82		0130	9.34	8,810		1800	3.30	137
	0900	3.21	114		0700	6.85	3,920		2400	3.23	120
	0900	3.46	183		1400	5.85	2,300				
	1000	3.35	151		2000	5.09	1,320	4	1200	3.10	90
	1400	3.68	262		2400	4.71	919		2400	3.00	71
	1500	4.00	420								
	1600	4.78	982	2	0800	4.16	511				
	1700	5.32	1,590		1400	3.91	370				
	1900	6.00	2,510								

11-1765.5. Arroyo Valle tributary near Livermore, Calif.

(Crest-stage station)

Location.--Lat 37°38'45", long 121°47'55", in Valle de San Jose Grant, at culvert on Vineyard Avenue, 2.5 miles southwest of Livermore.

Drainage area.--3.57 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 430 ft (from topographic map).

Discharge record.--Maximum discharge by computation of flow through culvert.

Maxima.--January-February 1963: Discharge, 97 cfs Jan. 31 (gage height, 14.03 ft).

1958 to December 1962: Discharge, 36 cfs Feb. 8, 1960 (gage height, 12.46 ft).

11-1766. Arroyo Valle at Pleasanton, Calif.

Location.--Lat 37°40'02", long 121°53'02", in Valle de San Jose Grant, on right bank 0.4 mile northwest of Pleasanton, Alameda County, and 5.8 miles west of Livermore.

Drainage area.--171 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 350 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,900 cfs.

Maxima.--January-February 1963: Discharge, 8,860 cfs 0400 hours Feb. 1 (gage height, 23.70 ft).
1957 to December 1962: Discharge, 11,300 cfs Apr. 3, 1958 (gage height, 25.36 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0	4,360	11.....	0	36	21.....	0	21
2.....	0	680	12.....	0	38	22.....	0	15
3.....	0	229	13.....	0	385	23.....	0	8.2
4.....	0	109	14.....	0	498	24.....	0	3.8
5.....	0	64	15.....	0	206	25.....	0	1.5
6.....	0	44	16.....	0	105	26.....	0	.7
7.....	0	30	17.....	0	72	27.....	0	.1
8.....	0	14	18.....	0	53	28.....	0	0
9.....	0	9.8	19.....	0	40	29.....	0	-----
10.....	0	9.8	20.....	0	28	30.....	0	-----
						31.....	454	-----
Monthly mean discharge, in cubic feet per second.....							14.6	252
Runoff, in inches.....							0.10	1.54
Runoff, in acre-feet.....							900	14,010

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	-	0	Feb. 1	0400	23.70	8,860	Feb. 2	2100	8.52	403
					0500	23.35	8,580		2400	8.32	355
31	1700	-	0		0600	22.57	7,960				
	1700	6.90	91		0800	20.23	6,080	3	0600	8.00	273
	1800	7.13	133		1000	18.00	4,500		1200	7.76	217
	2000	8.55	463		1200	16.60	3,660		1800	7.58	174
	2100	11.50	1,320		1600	14.25	2,460		2400	7.45	148
	2200	15.25	2,920		1900	13.18	1,980				
	2300	16.60	3,660		2400	11.50	1,290	4	0600	7.35	125
	2400	17.35	4,110						1200	7.26	105
Feb. 1	0100	19.85	5,800	2	0300	10.68	999		1800	7.18	91
	0200	21.60	7,180		0600	10.18	852		2400	7.12	81
	0300	23.10	8,380		1100	9.45	658				
					1500	9.02	533				

11-1790. Alameda Creek near Niles, Calif.

Location.--Lat 37°35'14", long 121°57'35", in NW $\frac{1}{4}$ sec.15, T.4 S., R.1 W., on right bank 0.3 mile downstream from railroad bridge and 1.2 miles northeast of Niles.

Drainage area.--633 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 85.65 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 11,500 cfs 0800 hours Feb. 1 (gage height, 10.48 ft).
1891 to December 1962: Discharge, 29,000 cfs Dec. 23, 1955 (gage height, 14.9 ft).

Remarks.--Flow regulated by Calaveras Reservoir since 1925 (capacity, 96,800 acre-ft).

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Dry Creek at Union City, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	1.67	3.0	Jan. 31	1800	2.63	84	Feb. 1	0700	2.85	121
	31	0800	1.70		1900	3.10	168		1200	2.44	57
		1100	2.00		2000	3.20	190		1800	2.29	39
		1100	2.30		2200	3.00	148		2400	2.20	30
		1200	2.25		2400	2.80	112				
		1300	2.35	Feb. 1	0400	2.47	61	2	1200	2.08	21
		1600	2.28		0500	2.47	61		2400	1.94	12
		1700	2.85		0600	2.75	104				

11-1807. Patterson Creek at Union City, Calif.

Location.--Lat 37°35'03", long 122°02'56", in Portero de Los Cerritos Grant, on right bank 75 ft upstream from bridge on State Highway 17 (Nimitz Freeway), 0.3 mile below effluence, and 1.9 miles southeast of Alvarado District in Union City, Alameda County.

Gage-height record.--Water-stage recorder graph, except 0700-1500 hours Feb. 1 for which graph was reconstructed on basis of two staff-gage readings and floodmarks. Datum of gage is 4.90 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 10,500 cfs about 1000 hours Feb. 1 (gage height, 20.4 ft, from floodmarks).
1958 to December 1962: Discharge, 3,700 cfs Feb. 16, 1959 (gage height, 13.55 ft).

Remarks.--This stream is a distributary of Alameda Creek (see Remarks for Alameda Creek near Niles, 11-1790).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0	7,340	11.....	0	13	21.....	0	6.4
2.....	0	1,660	12.....	0	17	22.....	0	2.5
3.....	0	494	13.....	0	808	23.....	0	1.0
4.....	0	162	14.....	0	631	24.....	0	.8
5.....	0	71	15.....	0	272	25.....	0	.5
6.....	0	14	16.....	0	138	26.....	0	.2
7.....	0	4.1	17.....	0	80	27.....	0	.2
8.....	0	2.0	18.....	0	45	28.....	0	.1
9.....	0	8.2	19.....	0	27	29.....	0	-----
10.....	0	64	20.....	0	22	30.....	0	-----
						31.....	575	-----
Monthly mean discharge, in cubic feet per second.....							18.5	424
Runoff, in acre-feet.....							1,140	23,570

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	-	0	Feb. 1	0300	19.58	9,300	Feb. 2	1000	11.52	1,700
	31	1200	-		0500	19.57	9,290		1200	11.12	1,500
		1300	4.80		0600	19.45	9,090		1800	10.38	1,170
		1400	5.48		1000	20.40	10,500		2400	9.58	863
		1500	5.89		1300	19.10	8,630				
		1700	6.13		1500	18.05	7,260	3	0600	8.88	629
		1800	6.45		1700	16.60	5,600		1200	8.24	450
		1900	7.50		1900	15.30	4,370		1800	7.73	340
		2000	10.50		2200	13.85	3,200		2400	7.36	252
		2200	13.15		2400	13.29	2,800				
		2400	16.90					4	0600	7.03	193
Feb. 1	0100	18.70	8,100	2	0200	13.10	2,670		1200	6.79	155
					0500	12.47	2,260		2400	6.33	96
					0800	11.70	1,800				

11-1807.5. Alameda Creek at Union City, Calif.

Location.--Lat 37°35'46", long 122°03'15", in Arroyo de la Alameda Grant, on left bank 5 ft downstream from bridge on Baker Road, 1 mile downstream from Dry Creek, and 1.4 miles east of Alvarado District in Union City, Alameda County.

Drainage area.--653 sq mi.

Gage-height record.--Water-stage recorder graph, except 0100 hours Feb. 1 to 0300 hours Feb. 2, for which graph was reconstructed on basis of several staff-gage readings and floodmarks. Datum of gage is at mean sea level (levels by Alameda County Flood Control and Water Conservation District).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 1,770 cfs about 1000 hours Feb. 1 (gage height, 19.25 ft, from floodmarks).
1958 to December 1962: Discharge, 394 cfs Feb. 15, 1962 (gage height, 13.08 ft).

Remarks.--For total flow in Alameda Creek, add flow of Patterson Creek at Union City (see Remarks for Alameda Creek near Niles, 11-1790).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0	1,280	11.....	0	0	21.....	0	0
2.....	0	298	12.....	0	0	22.....	0	0
3.....	0	7.7	13.....	0	47	23.....	0	0
4.....	0	0	14.....	0	20	24.....	0	0
5.....	0	0	15.....	0	0	25.....	0	0
6.....	0	0	16.....	0	0	26.....	0	0
7.....	0	0	17.....	0	0	27.....	0	0
8.....	0	0	18.....	0	0	28.....	0	0
9.....	0	0	19.....	0	0	29.....	0	-----
10.....	0	0	20.....	0	0	30.....	0	-----
						31.....	98	-----
Monthly mean discharge, in cubic feet per second.....							3.2	59.0
Runoff, in acre-feet.....							194	3,280

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	-	0	Feb. 1	0900	19.10	1,730	Feb. 2	2000	10.35	96
					1000	19.25	1,770		2400	9.89	48
31	2000	-	0		1100	18.96	1,700				
	2030	11.40	225		1200	18.55	1,600	3	0400	9.50	18
	2100	12.50	384		1515	17.26	1,290		0800	9.15	3.6
	2200	13.80	596		2400	-	720		1000	9.03	1.4
	2300	14.90	796						1300	8.92	.4
	2400	16.50	1,120	2	0300	13.63	567		1700	8.80	0
Feb. 1	0030	17.12	1,260		0800	12.32	357		2400	-	0
	0300	-	1,380		1000	12.04	315				
	0600	-	1,200		1200	11.58	250				

SAN LORENZO CREEK BASIN

11-1810. San Lorenzo Creek at Hayward, Calif.

Location.--Lat 37°41'11", long 122°03'44", in San Lorenzo Grant, on right bank at bridge on B Street, just outside city limits of Hayward, Alameda County, 0.5 mile downstream from Crow Creek.

Drainage area.--37.5 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 133.16 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 3,630 cfs 2100 hours Jan. 31 (gage height, 14.38 ft).
1939-40, 1946 to December 1962: Discharge, 7,460 cfs Oct. 13, 1962 (gage height, 19.73 ft, from floodmarks), from rating curve extended above 2,700 cfs on basis of slope-area measurement of maximum flow; maximum gage height, 20.82 ft, from floodmarks, Dec. 22, 1955.

Mean discharge, in cubic feet per second, 1963, of San Lorenzo Creek at Hayward, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	5.3	639	11.....	3.0	35	21.....	9.0	25
2.....	5.3	175	12.....	3.0	91	22.....	8.4	22
3.....	5.1	86	13.....	3.0	152	23.....	2.5	21
4.....	4.8	65	14.....	3.1	67	24.....	2.5	20
5.....	4.2	45	15.....	3.1	50	25.....	2.5	19
6.....	4.6	38	16.....	3.2	47	26.....	2.5	18
7.....	4.6	32	17.....	3.4	39	27.....	2.7	18
8.....	4.6	31	18.....	3.2	32	28.....	3.0	17
9.....	4.4	74	19.....	3.0	31	29.....	5.0	---
10.....	3.8	66	20.....	2.7	27	30.....	67	---
						31.....	806	---
Monthly mean discharge, in cubic feet per second.....							31.9	70.8
Runoff, in inches.....							0.98	1.97
Runoff, in acre-feet.....							1,960	3,930

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	4.99	3.0	Jan. 30	2200	5.79	91	Jan. 31	2300	12.08	2,290
					2400	5.75	86		2400	10.98	1,770
29	1400	4.99	3.0					Feb. 1	0100	9.73	1,240
	1700	5.18	6.5						0200	8.98	953
	1800	5.33	11	31	0200	5.58	66		0500	8.02	631
	1900	5.26	8.6		0400	5.75	86		0600	8.30	715
	2100	5.30	10		0600	5.61	69		0700	9.99	1,350
	2400	5.25	8.2		0700	5.68	78		0900	8.78	883
30	0200	5.20	8.2		0900	6.25	170		1200	7.67	526
	1000	5.65	32		1100	7.40	448		1500	7.27	412
	1200	6.01	67		1200	7.71	538		1900	6.92	319
	1400	6.02	68		1400	8.42	757		2400	6.66	257
	1500	6.26	98		1600	7.39	445				
	1600	6.26	98		1800	9.23	1,040	2	1100	6.33	186
	1800	6.53	176		1900	9.68	1,220		1200	6.19	158
	2000	6.42	145		2000	12.33	2,420		2400	5.92	109
					2100	14.38	3,630				
					2200	12.50	2,500				

RHEEM CREEK BASIN

11-1820.3. Rheem Creek at San Pablo, Calif.

Location.--Lat 37°58'32", long 122°21'00", in San Pablo Grant, on left bank 0.6 mile downstream from San Pablo Avenue in San Pablo, Contra Costa County, and 0.9 mile upstream from mouth.

Drainage area.--1.35 sq mi.

Gage-height record.--Water-stage recorder graph, except Jan. 25-30, Feb. 1-4.

Datum of gage is 21.37 ft above mean sea level (levels by Corps of Engineers).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 140 cfs and by slope-area measurement at 315 cfs. Discharge for periods of no gage-height record estimated on basis of fragmentary gage-height record, recorded range in stage, normal recession, and weather records.

Maxima.--January-February, 1963: Discharge, 315 cfs 0715 hours Jan. 31 (gage height, 5.30 ft).

1960 to December 1962: Discharge, 294 cfs Dec. 1, 1960 (gage height, 3.14 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0.1	20	11.....	0.1	0.9	21.....	0.2	0.3
2.....	.1	5.0	12.....	.1	26	22.....	.1	.3
3.....	.1	1.0	13.....	.1	6.5	23.....	.1	.3
4.....	.1	.8	14.....	.1	.9	24.....	.1	.3
5.....	.1	.6	15.....	.1	.6	25.....	.1	.3
6.....	.1	.4	16.....	.1	.7	26.....	.1	.2
7.....	.3	.4	17.....	.1	.4	27.....	.1	.2
8.....	.7	1.4	18.....	.1	.4	28.....	.1	.1
9.....	.2	23	19.....	.1	.4	29.....	5.0	---
10.....	.1	3.0	20.....	.1	.3	30.....	40	---
						31.....	85	---
Monthly mean discharge, in cubic feet per second.....							4.32	3.45
Runoff, in inches.....							3.69	2.66
Runoff, in acre-feet.....							265	192

FLOODS OF 1963 IN THE UNITED STATES

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Rheem Creek at San Pablo, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	1100	2.09	152	Jan. 31	0300	1.29	66	Jan. 31	1730	0.87	38
	1115	2.00	142		0400	1.05	46		1900	1.50	97
	1130	2.12	156		0500	1.68	107		2000	.96	46
	1330	1.23	61		0600	1.36	74		2030	.89	40
	1530	.74	23		0700	2.45	195		2100	.94	44
	1700	1.55	93		0715	3.30	315		2300	.65	23
	1730	1.85	126		0800	1.98	150		2400	.58	18
	1800	2.45	195		0830	1.55	103	Feb. 1	0230	.45	12
	1830	1.47	84		0930	2.37	196		0300	1.20	66
	1900	1.63	101		1000	1.83	133		0400	1.01	50
	2000	1.00	41		1130	1.44	91		0430	1.57	105
	2130	.87	31		1200	1.61	109		0600	.87	38
	2330	.57	15		1400	.90	40		0800	.52	15
	2400	.83	29		1430	1.22	68		0900	.47	13
					1500	2.72	240		2400	-	8.0
31	0100	1.44	82		1600	1.40	86				
	0200	.91	34		1700	.92	42				

PINOLE CREEK BASIN

11-1821. Pinole Creek at Pinole, Calif.

Location.--Lat 37°58'21", long 122°14'43", in Pinole Grant, on left bank 0.2 mile downstream from county bridge on Pinole Valley Road, 0.8 mile upstream from Pinole city boundary, Contra Costa County.

Drainage area.--10.0 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 170 ft, from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 639 cfs 1800 hours Jan. 30 (gage height, 6.30 ft).

1938 to December 1962: Discharge, 1,660 cfs Apr. 2, 1958 (gage height, 11.63 ft).

Remarks.--Records furnished by East Bay Municipal Utility District.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	1.0	191	11.....	0.8	9.0	21.....	0.7	5.2
2.....	1.0	38	12.....	.8	50	22.....	.7	5.1
3.....	1.0	20	13.....	.8	49	23.....	.7	4.8
4.....	.8	13	14.....	.8	14	24.....	.8	4.7
5.....	.8	9.4	15.....	.8	10	25.....	.8	4.5
6.....	.8	7.1	16.....	.8	9.4	26.....	.8	4.2
7.....	.8	6.3	17.....	.8	7.7	27.....	.8	4.1
8.....	.8	5.8	18.....	.8	6.6	28.....	.8	4.1
9.....	.8	63	19.....	.8	6.0	29.....	2.1	-----
10.....	.8	22	20.....	.7	5.6	30.....	190	-----
						31.....	352	-----
Monthly mean discharge, in cubic feet per second.....							18.3	20.7
Runoff, in inches.....							2.11	2.16
Runoff, in acre-feet.....							1,120	1,150

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.92	7.1	Jan. 31	0100	3.52	174	Jan. 31	2100	4.90	404
					0300	3.37	150		2200	4.65	367
					0400	3.43	159		2400	3.88	238
					0600	4.33	316	Feb. 1	0200	3.54	177
					0700	4.52	347		0530	5.70	534
					0900	4.59	358		0700	4.25	302
					1000	5.14	439		1200	3.34	146
					1100	5.07	428		1800	2.97	92
					1200	5.28	463		2400	2.72	59
					1400	4.42	331	2	0600	2.57	47
					1500	6.02	589		1200	2.45	37
					1600	5.20	449		1800	2.31	27
					1700	4.85	397		2400	2.29	26
					2000	5.57	512				
30	0100	1.88	6.0								
	0200	1.91	6.8								
	0600	2.38	32								
	0900	2.40	34								
	1000	2.50	41								
	1200	3.50	170								
	1500	4.50	344								
	1600	4.47	339								
	1800	6.30	639								
	2100	4.15	285								
	2300	3.55	179								
	2400	3.48	167								

11-1823. Arroyo del Hambre near Martinez, Calif.

(Crest-stage station)

Location.--Lat 37°58'10", long 122°10'05", in SW¹/₄ sec.35, T.2 N., R.3 W., at culvert on Alhambra Valley road, 2.8 miles southwest of Martinez.

Drainage area.--0.82 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 570 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 7 cfs and by computation of flow through culvert at 102, 122, and 236 cfs.

Maxima.--January-February 1963: Discharge, 96 cfs Jan. 31 (gage height, 21.77 ft).
1958 to December 1962: Discharge, 236 cfs Feb. 14, 1962 (gage height, 24.54 ft).

PACHECO CREEK BASIN

11-1825. San Ramon Creek at San Ramon, Calif.

Location.--Lat 37°46'20", long 121°59'40", in sec.8, T.2 S., R.1 W., on right bank 0.2 mile downstream from Bollinger Creek and 1.0 mile southwest of San Ramon.

Drainage area.--5.89 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 530 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 90 cfs and by computation of flow through culvert at 1,240 and 1,600 cfs.

Maxima.--January-February 1963: Discharge, 1,250 cfs 1930 hours Jan. 31 (gage height, 12.09 ft).
1952 to December 1962: Discharge, 1,600 cfs Oct. 13, 1962 (gage height, 16.98 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	1.4	151	11.....	1.0	10	21.....	1.0	7.7
2.....	1.2	34	12.....	1.0	26	22.....	1.0	7.3
3.....	1.2	20	13.....	1.0	21	23.....	1.0	7.0
4.....	1.1	16	14.....	1.0	12	24.....	1.1	6.6
5.....	1.1	14	15.....	1.0	11	25.....	1.1	7.0
6.....	1.1	12	16.....	1.0	11	26.....	1.1	6.6
7.....	1.1	12	17.....	1.0	9.6	27.....	1.1	6.2
8.....	1.1	12	18.....	1.0	8.9	28.....	1.1	5.7
9.....	1.1	17	19.....	1.0	8.5	29.....	1.5	--
10.....	1.1	13	20.....	1.0	8.1	30.....	33	--
						31.....	327	--
Monthly mean discharge, in cubic feet per second.....							12.6	17.2
Runoff, in inches.....							2.47	3.04
Runoff, in acre-feet.....							777	954

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.88	2.4	Jan. 31	0500	2.41	29	Feb. 1	0100	3.65	190
30	0600	1.89	2.6		0700	2.57	44		0200	3.55	175
	0600	1.99	5.7		0800	3.00	96		0400	3.43	157
	1000	2.13	12		0900	3.11	110		0500	5.00	400
	1300	2.45	33		1000	3.36	146		0600	6.62	621
	1300	2.42	30		1200	4.36	303		0700	4.11	263
	1400	2.45	33		1200	3.99	243		0800	3.70	197
	1500	2.63	50		1300	4.19	275		1000	3.07	105
	1500	2.77	66		1400	3.53	172		1400	2.90	83
	1600	3.04	101		1500	3.52	170		1800	2.85	77
	1700	2.87	79		1600	5.85	519		2400	2.75	64
31	1800	2.93	87		1700	7.51	736				
	2000	2.57	44		1700	5.63	488	2	0600	2.53	40
	2200	2.72	60		1800	8.00	800		1200	2.38	27
	2400	2.52	39		1930	12.09	1,250		1800	2.35	25
					2000	7.90	787		2400	2.32	22
					2100	8.87	904				
					2300	5.15	421				
					2400	4.07	256				

11-1830. San Ramon Creek at Walnut Creek, Calif.

Location.--Lat 37°53'04", long 122°03'00", on boundary between Arroyo de las Nueces y Bolbones and San Ramon Grants, on left bank 0.3 mile downstream from small tributary, 1.1 miles south of town of Walnut Creek, Contra Costa County, and 1.2 miles upstream from confluence with Las Trampas Creek.

Drainage area.--50.8 sq mi.

Gage-height record.--Water-stage recorder graph, except 0100 to 1000 hours Feb. 1. Altitude of gage is 170 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 2,800 cfs and by computed discharge at 6,530 cfs. Discharge for period of no gage-height record estimated on basis of normal recession and records for San Ramon Creek at San Ramon.

Maxima.--January-February 1963: Discharge, 7,980 cfs 2100 hours Jan. 31 (gage height, 14.40 ft).
1952 to December 1962: Discharge, 6,890 cfs Dec. 23, 1955 (gage height, 14.55 ft), from rating curve extended above 570 cfs on basis of slope-area measurement of maximum flow.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	3.1	1,140	11.....	9.9	30	21.....	1.9	18
2.....	3.4	132	12.....	3.1	192	22.....	1.8	17
3.....	3.1	62	13.....	2.6	192	23.....	1.7	16
4.....	2.9	45	14.....	2.8	41	24.....	3.4	15
5.....	2.8	36	15.....	2.8	31	25.....	2.2	15
6.....	2.8	31	16.....	2.3	29	26.....	1.9	14
7.....	2.9	26	17.....	1.3	28	27.....	1.8	14
8.....	2.9	25	18.....	1.9	23	28.....	1.9	13
9.....	2.8	69	19.....	1.8	20	29.....	2.5	-
10.....	5.5	77	20.....	1.5	19	30.....	354	-
						31.....	2,950	-
Monthly mean discharge, in cubic feet per second.....							109	84.6
Runoff, in inches.....							2.48	1.73
Runoff, in acre-feet.....							6,710	4,700

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	1.24	1.7	Jan. 30	1700	5.82	1,090	Jan. 31	2200	13.77	7,290
					1800	5.55	973		2300	12.40	5,900
29	1000	1.23	1.6		2000	5.00	740		2400	10.65	4,250
	1200	1.29	2.3		2200	4.68	613	Feb. 1	0600	-	800
	1400	1.25	1.8		2400	4.23	456		0700	-	1,400
	1800	1.30	2.5						0900	-	1,300
	1900	1.31	2.6	31	0100	4.31	484		1100	5.57	982
	2100	1.46	5.6		0500	3.95	360		1300	5.00	740
	2300	1.37	3.6		0700	4.37	505		1400	4.74	636
	2400	1.64	11		0900	5.28	852		1600	4.34	494
					1100	7.18	1,750		2000	3.75	303
30	0400	1.64	11		1300	8.62	2,650		2400	3.44	226
	0800	1.85	19		1400	9.03	2,940				
	1000	1.97	25		1500	8.47	2,550	2	0600	3.10	155
	1100	2.20	40		1600	8.98	2,910		1200	2.92	124
	1200	2.80	106		1800	13.00	6,500		1800	2.73	96
	1300	3.38	212		1900	14.00	7,540		2400	2.60	79
	1500	5.00	740		2000	14.05	7,600				
	1600	5.70	1,040		2100	14.40	7,980				

11-1835. Walnut Creek at Walnut Creek, Calif.

Location.--Lat 37°54'21", long 122°03'22", in Arroyo de las Nueces y Bolbones Grant, on right bank at Southern Pacific Railroad bridge at town of Walnut Creek, Contra Costa County, 0.7 mile downstream from confluence of San Ramon and Las Trampas Creeks.

Drainage area.--79.2 sq mi.

Gage-height record.--Water-stage recorder graph, except Feb. 5. Altitude of gage is 120 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 3,200 cfs. Discharge for Feb. 5 estimated on basis of normal recession.

Maxima.--January-February 1963: Discharge, 9,180 cfs 2000 hours Jan. 31 (gage height, 12.55 ft).
1952 to December 1962: Discharge, 12,200 cfs Apr. 2, 1958 (gage height, 20.2 ft).

Remarks.--Flow slightly regulated by storage in Lafayette Reservoir.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	5.9	1,590	11.....	16	54	21.....	5.0	35
2.....	6.6	213	12.....	5.0	286	22.....	5.0	33
3.....	5.9	110	13.....	4.4	318	23.....	4.1	32
4.....	5.9	77	14.....	4.4	87	24.....	6.5	31
5.....	5.6	64	15.....	3.9	64	25.....	5.3	30
6.....	5.3	53	16.....	4.4	59	26.....	4.4	29
7.....	5.3	48	17.....	3.9	54	27.....	4.1	27
8.....	5.9	46	18.....	5.0	44	28.....	4.1	27
9.....	5.0	140	19.....	3.9	41	29.....	3.4	27
10.....	7.1	133	20.....	3.7	38	30.....	998	---
						31.....	3,540	---

Monthly mean discharge, in cubic feet per second.....	152	134
Runoff, in inches.....	2.22	1.77
Runoff, in acre-feet.....	9,370	7,460

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	1.56	3.9	Jan. 30	1500	6.00	2,010	Jan. 31	2400	9.00	4,750
29	1200	1.54	3.4	1800	7.14	2,910	Feb. 1	0200	6.44	2,360	
	1300	1.61	5.3	1700	7.08	2,850		0300	6.00	2,010	
	1800	1.94	22	1700	7.14	2,910		0400	5.88	1,810	
	2000	2.07	32	1900	6.09	2,010		2000	6.00	2,010	
	2100	2.73	126	2000	5.35	1,470		0400	6.00	2,010	
	2200	2.71	122	2200	5.04	1,200		0500	7.90	3,600	
	2300	2.68	159	2400	4.69	959		0700	7.58	3,300	
	2400	2.56	94						0900	6.00	2,010
30	0100	2.49	83	31	0100	4.65	933	1000	5.70	1,760	
	0200	2.83	148	0200	4.75	998	1100	5.15	1,290		
	0300	2.77	135	0400	4.49	834	1400	4.44	804		
	0500	3.15	232	0500	4.54	864	1800	3.96	545		
	0600	3.28	270	0700	5.00	1,170	2200	3.63	397		
	0700	3.25	261	1000	6.00	2,010	2400	3.53	357		
	0800	3.35	293	1200	7.93	3,630	2	0300	3.24	258	
	0900	3.37	300	1300	8.16	3,860		1200	3.08	212	
	1100	3.75	448	1500	7.35	3,100		1500	3.01	193	
	1200	4.38	768	1700	8.50	4,200		1800	2.92	169	
	1400	5.35	1,460	1900	11.00	7,050		2400	2.80	141	
				2000	12.55	9,180					
			2100	12.20	8,680						
			2300	11.00	7,050						

MOUNT DIABLO CREEK BASIN

11-1851.5. Horse Creek near Clayton, Calif.

(Crest-stage station)

Location.--Lat 37°54'55", long 121°53'25", in SW $\frac{1}{4}$ sec.20, T.1 N., R.1 E., at culvert on county road, 3.0 miles southeast of Clayton.

Drainage area.--0.20 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 800 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 5 cfs and by computation of flow through culvert at 36 cfs.

Maxima.--January-February 1963: Discharge, 2.7 cfs Jan. 31 (gage height, 43.78 ft).
1958 to December 1962: Discharge, 36 cfs Oct. 13, 1962 (gage height, 47.92 ft).

SAN JOAQUIN VALLEY

BUENA VISTA LAKE BASIN

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

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

Drainage area.--23.6 sq mi.

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

Discharge record.--Stage-discharge relation defined by current-meter measurements; affected by ice most of period Jan. 5 to Feb. 3.

Maxima.--January-February 1963: Discharge, about 60 cfs 1800 hours Feb. 1 (gage height, 4.45 ft, backwater from ice).
October 1956 to December 1962: Discharge, 182 cfs May 31, 1958 (gage height, 4.05 ft); gage height, 5.24 ft Feb. 12, 1959.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	8.7	40	11.....	8.7	9.2	21.....	8.2	8.7
2.....	8.7	25	12.....	8.0	9.0	22.....	8.2	8.7
3.....	8.7	15	13.....	7.0	9.0	23.....	8.2	8.7
4.....	9.0	10	14.....	8.0	9.0	24.....	8.2	8.7
5.....	8.7	9.7	15.....	8.7	9.2	25.....	8.2	8.7
6.....	8.7	9.5	16.....	8.7	8.7	26.....	8.2	9.0
7.....	8.7	9.5	17.....	8.7	8.7	27.....	8.2	9.0
8.....	8.7	9.2	18.....	8.4	8.7	28.....	8.2	9.0
9.....	8.7	9.2	19.....	8.4	8.7	29.....	8.2	-----
10.....	8.7	9.2	20.....	8.4	8.7	30.....	12	-----
						31.....	25	-----
Monthly mean discharge, in cubic feet per second.....							9.07	10.9
Runoff, in inches.....							0.44	0.48
Runoff, in acre-feet.....							558	606

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

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

Drainage area.--530 sq mi.

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

Discharge record.--Stage-discharge relation defined by current-meter measurements below 2,300 cfs and by slope-area measurement at 2,930 cfs; affected by ice Jan. 1 and Jan. 11-23.

Maxima.--January-February 1963: Discharge, 3,410 cfs 0800 hours Feb. 1 (gage height, 7.39 ft).
1960 to December 1962: Discharge, 3,070 cfs June 22, 1962 (gage height, 7.08 ft).

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Little Kern River near Quaking Aspen Camp, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.10	20	Jan. 31	1600	8.45	4,420	Feb. 1	1600	7.28	4,050
					1800	8.87	5,110		2000	6.61	3,160
30	1300	2.50	71		2000	7.89	3,650		2400	5.90	2,350
	1400	3.65	375		2400	6.78	2,360				
	1500	4.00	500	Feb. 1	0300	7.55	3,230	2	0800	5.39	1,830
	2400	3.99	496		0400	9.08	5,480		1600	4.53	1,100
31	0300	4.20	580		0600	8.64	5,500		2400	4.21	886
	0800	4.30	620		0800	8.40	5,810	3	1200	3.81	655
	1000	4.62	770		0900	9.19	7,370		2400	3.62	560
	1200	5.85	1,510		1000	9.07	7,130				
	1400	7.00	2,600		1200	8.47	5,990				

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

Location.--Lat 35°56'40", long 118°28'30", in sec.12, T.23 S., R.32 E., on right bank 1.8 miles northeast of Fairview.

Drainage area.--4.05 sq mi.

Gage-height record.--Water-stage recorder graph, except Feb. 11-13. Altitude of gage is 3,600 ft above mean sea level (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 19 cfs and by computation of flow through culvert and over highway. Discharge on Feb. 11-13 estimated on basis of partial gage-height record.

Maxima.--January-February 1963: Discharge, 223 cfs 1615 hours Jan. 31 (gage height, 9.91 ft in gage well; 10.6 ft, from floodmarks).
1959 to December 1962: Discharge, 38 cfs (revised) Feb. 8, 1962 (gage height, 5.57 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0	53	11.....	0	3.0	21.....	0	0.2
2.....	0	9.4	12.....	0	2.5	22.....	0	.2
3.....	0	3.8	13.....	0	2.0	23.....	0	.1
4.....	0	2.6	14.....	0	1.6	24.....	0	.1
5.....	0	1.2	15.....	0	1.3	25.....	0	.1
6.....	0	.6	16.....	0	.9	26.....	0	0
7.....	0	.4	17.....	0	.8	27.....	0	0
8.....	0	.2	18.....	0	.6	28.....	0	0
9.....	0	1.3	19.....	0	.4	29.....	0	-----
10.....	0	3.5	20.....	0	.3	30.....	.2	-----
						31.....	59	-----
Monthly mean discharge, in cubic feet per second.....							1.91	3.22
Runoff, in inches.....							0.54	0.83
Runoff, in acre-feet.....							117	179

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	-	0	Jan. 31	1615	9.91	223	Feb. 1	1200	7.19	81
					1800	9.43	146		1400	6.55	64
30	2000	-	0		1900	9.27	139		1700	5.71	41
	2100	3.73	1.4		2000	7.93	101		1900	5.40	34
	2400	3.80	2.0		2200	6.00	49		2400	4.86	22
					2400	5.43	35				
31	0700	3.89	3.0	Feb. 1	0200	5.22	30	2	0200	4.60	16
	0900	4.04	5.0		0300	5.29	32		0400	4.52	14
	1000	4.29	9.0		0400	5.60	39		0700	4.42	12
	1100	4.78	20		0500	6.53	63		1130	4.30	9.2
	1200	5.77	43		0600	6.48	62		1430	4.15	6.7
	1300	7.00	76		0800	7.33	85		2400	4.02	4.7
	1400	7.94	101		0900	7.88	100				
	1500	9.69	178		1100	7.60	91				
	1600	9.52	152								

11-1860. Kern River near Kernville, Calif.

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

Drainage area.--848 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 3,542.3 ft above mean sea level (river-profile survey).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 6,000 cfs and extended above on basis of computed flow over dam.

Maxima (river only).--January-February 1963: Discharge, 24,000 cfs 1030 hours Feb. 1 (gage height, 16.85 ft).
1912 to December 1962: Discharge, 27,200 cfs Dec. 23, 1955 (gage height, 17.55 ft).

Maxima (river and canal).--January-February 1963: Discharge, 24,600 cfs 1030 hours Feb. 1.
1912 to December 1962: Discharge, 27,400 cfs Nov. 19, 1950, Dec. 23, 1955.

Remarks.--Kern River No. 3 Canal diverts up to 620 cfs 1 mile above station. Mean discharge figures and tabulation of discharge at indicated times are the combined flow of Kern River and Kern River No. 3 Canal.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	155	12,600	11.....	151	859	21.....	143	544
2.....	153	3,510	12.....	136	773	22.....	148	534
3.....	156	1,900	13.....	114	745	23.....	146	519
4.....	156	1,420	14.....	124	733	24.....	143	514
5.....	155	1,140	15.....	147	668	25.....	142	515
6.....	155	986	16.....	147	648	26.....	140	526
7.....	152	895	17.....	145	607	27.....	141	541
8.....	151	846	18.....	140	564	28.....	141	535
9.....	152	828	19.....	141	553	29.....	149	-----
10.....	153	977	20.....	136	546	30.....	709	-----
						31.....	7,140	-----
Monthly mean discharge, in cubic feet per second.....							389	1,286
Runoff, in inches.....							0.53	1.58
Runoff, in acre-feet.....							23,920	71,420

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	
Jan. 29	2400	-	185	Jan. 31	0400	-	1,440	Feb. 1	0300	11.29	7,660	
30					0600	-	1,320		0400	11.95	8,980	
	0800	-	550		0700	-	1,320		0500	13.35	12,300	
	0900	-	557		1000	-	1,660		0700	15.35	18,500	
	1000	-	614		1100	-	2,160		0900	16.02	21,200	
	1100	-	632		1200	-	3,760		1030	16.85	24,600	
	1200	-	647		1300	11.00	6,770		1200	15.45	18,900	
	1400	-	675		1400	11.94	8,650		1500	13.70	13,300	
	1500	-	720		1500	13.28	11,900		1800	11.98	9,060	
	1700	-	742		1700	14.96	17,100		2100	10.80	6,700	
	1800	-	905		1800	15.42	18,800		2400	10.18	5,580	
	1900	-	1,170		1900	15.43	18,800					
	2000	-	1,270		2100	13.66	13,100		2	0500	-	4,350
2400	-	1,270		2400	11.57	8,220			1000	-	3,450	
31										1600	-	2,850
										2400	-	2,390
	0200	-	1,310	Feb. 1	0200	11.05	7,180					

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

Location.--Lat 35°54'05", long 118°23'00", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.26, T.23 S., R.33 E., on left bank 0.15 mile upstream from junction with Salmon Creek, 6.4 miles east of Fairview, and 10.3 miles north of Kernville.

Drainage area.--0.46 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage, 7,360 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by computation of flow over 120° V-notch weir.

Maximum.--January-February 1963: Discharge, 3.1 cfs 1000 hours Feb. 1 (gage height, 0.87 ft); gage height, 0.93 ft, backwater from debris.

Remarks.--Gage-height record furnished by U.S. Forest Service.

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

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

Drainage area.--0.30 sq mi.

Gage-height record.--Water-stage recorder graph, except 0600 hours Jan. 12 to Jan. 15. Altitude of gage is 7,200 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by computation of flow over 120° V-notch weir; affected by ice Jan. 11. Discharge for Jan. 12-15 estimated on basis of records for Salmon Creek tributaries B and E, recorded range in stage, and weather records.

Maximum.--January-February 1963: Discharge, 2.7 cfs 0400 and 0830 hours Feb. 1 (gage height, 1.03 ft).

Remarks.--Gage-height record furnished by U.S. Forest Service.

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

Location.--Lat 35°54'15", long 118°23'45", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.26, T.23 S., R.33 E., on left bank 0.2 mile upstream from junction with Salmon Creek, 5.7 miles east of Fairview, and 10.5 miles north of Kernville.

Drainage area.--0.23 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 7,200 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by computation of flow over 120° V-notch weir.

Maximum.--January-February 1963: Discharge, 0.9 cfs 1230 hours Jan. 31 (gage height, 0.53 ft).

Remarks.--Gage-height record furnished by U.S. Forest Service.

11-1870. Kern River at Kernville, Calif.

Location.--Lat 35°45'15", long 118°25'25", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.15, T.25 S., R.33 E., on right bank 300 ft downstream from highway bridge at new town of Kernville, 1.1 miles upstream from Caldwell Creek, 8.9 miles upstream from Isabella Dam, and 41 miles northeast of Bakersfield.

Drainage area.--1,009 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 2,621.57 ft above mean sea level (levels by Corps of Engineers).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 7,200 cfs and by slope-area measurement at 28,800 cfs.

Maxima.--January-February 1963: Discharge, 28,800 cfs 1100hours Feb. 1 (gage height, 16.76 ft in gage well; 17.33 ft outside, from floodmarks).
1905-12, 1953 to December 1962: Discharge, 29,400 cfs Dec. 23, 1955 (gage height, 16.20 ft in gage well; 16.8 ft outside, from floodmarks).
Maximum stage known since at least 1905, 18.4 ft Nov. 19, 1950 (discharge not determined).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	164	17,100	11.....	142	1,020	21.....	138	650
2.....	161	4,470	12.....	128	918	22.....	142	635
3.....	161	2,360	13.....	104	870	23.....	142	615
4.....	155	1,800	14.....	111	870	24.....	138	600
5.....	149	1,370	15.....	134	804	25.....	140	600
6.....	144	1,150	16.....	140	755	26.....	140	605
7.....	142	1,020	17.....	140	728	27.....	138	625
8.....	140	930	18.....	136	690	28.....	138	620
9.....	138	894	19.....	134	665	29.....	146	-----
10.....	142	1,160	20.....	130	650	30.....	656	-----
						31.....	10,000	-----
Monthly mean discharge, in cubic feet per second.....							475	1,613
Runoff, in inches.....							0.54	1.66
Runoff, in acre-feet.....							29,180	89,600

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	3.92	146	Jan. 31	0700	7.10	1,810	Feb. 1	1100	16.76	28,800
					1000	8.15	2,840		1200	16.45	27,200
29	1000	3.86	134		1200	9.85	5,250		1500	14.90	20,200
	1400	3.92	146		1300	11.35	8,280		1800	13.30	14,500
	2100	3.96	155		1400	13.00	12,850		2100	12.00	10,600
	2400	4.07	179		1600	14.68	19,000		2400	11.00	8,180
					1800	16.26	26,200				
30	0200	4.15	202		1900	16.25	26,200	2	0400	9.94	6,010
	0600	4.73	384		2100	15.00	20,400		1000	8.95	4,320
	0900	5.32	624		2300	13.35	14,000		1800	8.14	3,190
	1400	5.73	826		2400	12.75	12,100		2400	7.76	2,740
	1600	5.66	790								
	2200	5.88	913	Feb. 1	0200	11.90	9,650	3	0400	7.53	2,480
	2400	6.62	1,420		0400	12.35	10,900		0800	7.40	2,350
					0500	13.00	12,800		1000	7.37	2,320
31	0100	6.67	1,460		0600	14.75	19,300		1200	7.41	2,360
	0400	6.74	1,510		0700	15.60	23,000		2400	7.21	2,160
	0600	6.89	1,630		0900	16.15	25,700				

11-1872. Shirley Creek tributary near Alta Sierra, Calif.

(Crest-stage station)

Location.--Lat 35°43'15", long 118°29'55", in SW $\frac{1}{4}$ sec.25, T.25 S., R.32 E., 3 miles east of Alta Sierra.

Drainage area.--0.27 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 4,120 ft (from topographic map).

Discharge record.--Maximum discharge by computation of flow through culvert.

Maxima.--January-February 1963: Discharge, 14 cfs Feb. 1 (gage height, 11.57 ft).
1959 to December 1962: Discharge, 14 cfs Feb. 8, 1962 (gage height, 11.51 ft).

FLOODS OF 1963 IN THE UNITED STATES

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

Location--Lat 36°11'00", long 118°07'40", in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.18, T.20 S., R.36 E., on left bank 50 ft upstream from small unnamed left bank tributary, 2.0 miles downstream from Snake Creek, and 9.7 miles southwest of Olancho.

Drainage area--146 sq mi.

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

Discharge record--Stage-discharge relation defined by current-meter measurements; affected by ice Jan. 1-29, Feb. 26-28.

Maxima--January-February 1963: Discharge, 1,240 cfs 1300 hours Feb. 1 (gage height, 5.37 ft).

October 1956 to December 1962: Discharge, 1,280 cfs May 10, 1958 (gage height, 5.50 ft); gage height, 5.85 ft Apr. 18, 1958 (backwater from ice).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	6	880	11.....	6	76	21.....	5	65
2.....	6	422	12.....	6	75	22.....	5	55
3.....	6	222	13.....	5	70	23.....	6	51
4.....	6	155	14.....	6	73	24.....	6	54
5.....	6	136	15.....	6	63	25.....	6	56
6.....	6	120	16.....	6	62	26.....	6	56
7.....	6	105	17.....	6	60	27.....	6	54
8.....	6	93	18.....	6	56	28.....	6	54
9.....	6	89	19.....	6	58	29.....	6	---
10.....	6	70	20.....	6	62	30.....	13	---
						31.....	178	---
Monthly mean discharge, in cubic feet per second.....							11.7	121
Runoff, in inches.....							0.09	0.86
Runoff, in acre-feet.....							718	6,730

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	1.86	43	Feb. 1	0200	3.65	382	Feb. 2	1200	3.43	314
					0300	4.60	790		1800	3.90	470
					0500	4.11	554		2400	3.55	350
31	0600	2.25	82		1000	4.83	918				
	1200	2.82	170		1300	5.37	1,240	3	0800	2.92	190
	1800	3.21	258		1800	5.20	1,140		1600	3.01	210
	2100	3.31	282		2400	4.38	680		2400	2.89	184
	2400	3.77	424								
Feb. 1	0100	3.87	460	2	0600	3.67	390				

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

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

Drainage area--530 sq mi.

Gage-height record--Water-stage recorder graph. Altitude of gage is 2,900 ft (from topographic map).

Discharge record--Stage-discharge relation defined by current-meter measurements.

Maxima--January-February 1963: Discharge, 3,460 cfs at 1500 hours Feb. 1 (gage height, 6.79 ft).

1911-14, 1919-42, 1947 to December 1962: Discharge, 3,450 cfs Mar. 2, 1938 (gage height, 6.69 ft), but may have been exceeded by flood of Jan. 25, 1914 (observed maximum gage height, 7.2 ft and rising, at site 140 ft upstream at same datum).

Mean discharge, in cubic feet per second, 1963, of South Fork Kern River near Onyx, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	21	2,420	11.....	24	238	21.....	17	142
2.....	23	1,370	12.....	18	208	22.....	18	137
3.....	23	642	13.....	12	192	23.....	18	129
4.....	22	411	14.....	16	190	24.....	19	123
5.....	21	324	15.....	19	178	25.....	18	123
6.....	23	272	16.....	19	165	26.....	18	125
7.....	23	235	17.....	19	155	27.....	18	131
8.....	23	220	18.....	18	146	28.....	18	129
9.....	21	226	19.....	19	142	29.....	21	-----
10.....	23	339	20.....	15	142	30.....	108	-----
						31.....	1,150	-----
Monthly mean discharge, in cubic feet per second.....							58.9	330
Runoff, in inches.....							0.13	0.65
Runoff, in acre-feet.....							3,620	18,360

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.78	23	Jan. 31	0400	2.97	226	Feb. 1	1300	6.02	2,390
	30	0100	1.91		0900	3.22	307		1500	6.79	3,460
		0600	1.98		1200	3.86	593		1900	6.69	3,320
		0700	2.03		1400	4.63	1,090		2000	6.59	3,160
		0800	2.46		1600	5.74	2,070		2100	6.32	2,780
		1000	2.52		2100	6.15	2,560		2400	6.07	2,450
		1300	2.57		2300	6.16	2,570				
		1400	2.53		2400	6.04	2,410	2	0200	5.85	2,200
		1700	2.69						0500	5.72	2,050
		1900	2.73	Feb. 1	0400	5.22	1,580		1000	5.00	1,390
		2300	2.78		0500	5.16	1,520		1600	4.40	920
		2400	2.93		0700	5.37	1,710		2100	4.12	742
					1200	5.80	2,140		2400	4.13	748

11-1897. Kelso Creek near Weldon, Calif.

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

Drainage area.--101 sq mi.

Gage-height record.--Water-stage recorder graph, except Jan. 20-23, Feb. 1-3. Altitude of gage is 3,180 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 2 cfs, weir computations at 2.2 and 6.2 cfs, and slope-area measurement at 1,180 cfs. Discharge Jan. 20-23, Feb. 1-3, estimated on basis of recorded range in stage and weather records.

Maxima.--January-February 1963: Discharge, 9.1 cfs 1330 hours Jan. 10 (gage height, 2.48 ft).
1958 to December 1962: Discharge, 1,180 cfs Aug. 23, 1961 (gage height, 6.00 ft).

11-1905. Isabella Reservoir near Isabella, Calif.

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

Drainage area.--2,074 sq mi.

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

Contents record.--Contents computed from capacity table dated Aug. 25, 1954.

Maxima.--January-February 1963: Computed bihourly inflow, 24,400 cfs 1000 to 1200 hours Feb. 1; outflow, 570 cfs 1400 hours Jan. 30; contents, 174,300 acre-ft 2400 hours Feb. 28 (elevation, 2,560.26 ft).
1953 to December 1962: Contents, 455,200 acre-ft June 28, 1958 (elevation, 2,594.83 ft).

Remarks.--Reservoir is formed by earthfill dam with sidehill spillway and auxiliary earthfill dam, completed in 1954; regulation of discharge from reservoir began Apr. 15, 1954. Usable capacity, 569,700 acre-ft between elevations 2,470.0 ft (invert of main outlet) and 2,605.5 ft (spillway crest) above mean sea level. Dead storage, 326 acre-ft. Surcharge flood control storage, 271,800 acre-ft between ungated spillway crest and elevation 2,627.0 ft (maximum design spillway flood pool). Figures given herein represent total contents. Records furnished by Corps of Engineers.

Elevation, in feet, and contents, in acre-feet, at 2400 hours, 1963

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	2,541.53	82,850	2,551.90	127,800	16	2,541.41	82,410	2,559.12	167,400
2	2,541.53	82,850	2,554.17	139,500	17	2,541.41	82,410	2,559.26	168,300
3	2,541.52	82,810	2,555.16	144,800	18	2,541.40	82,370	2,559.39	169,000
4	2,541.52	82,810	2,555.80	149,400	19	2,541.39	82,340	2,559.49	169,600
5	2,541.51	82,770	2,556.27	151,000	20	2,541.38	82,340	2,559.61	170,300
6	2,541.50	82,740	2,556.64	153,000	21	2,541.38	82,300	2,559.71	171,000
7	2,541.50	82,740	2,556.94	154,800	22	2,541.38	82,300	2,559.79	171,400
8	2,541.49	82,700	2,557.21	156,300	23	2,541.38	82,300	2,559.87	171,900
9	2,541.48	82,660	2,557.47	157,800	24	2,541.38	82,300	2,559.95	172,400
10	2,541.46	82,590	2,557.84	159,900	25	2,541.37	82,260	2,560.02	172,800
11	2,541.46	82,590	2,558.13	161,600	26	2,541.37	82,260	2,560.10	173,300
12	2,541.45	82,550	2,558.35	162,900	27	2,541.36	82,230	2,560.19	173,900
13	2,541.44	82,520	2,558.59	164,300	28	2,541.35	82,190	2,560.26	174,300
14	2,541.43	82,480	2,558.79	165,500	29	2,541.37	82,260	-	-
15	2,541.42	82,440	2,558.97	166,500	30	2,541.54	82,890	-	-
					31	2,545.28	97,580	-	-
Change in contents, in acre-feet.....						-	+14,730	-	+76,720

Average inflow, in cubic feet per second, for bihourly periods ending at indicated time, 1963

Date	Hour	Inflow	Date	Hour	Inflow	Date	Hour	Inflow
Jan. 31	0200	1,330	Feb. 1	0200	11,300	Feb. 2	0200	9,480
	0400	1,320		0400	8,580		0400	9,180
	0600	1,770		0600	10,100		0600	7,230
	0800	2,460		0800	15,600		0800	7,550
	1000	2,470		1000	24,100		1000	6,610
	1200	3,850		1200	24,400		1200	5,990
	1400	4,280		1400	20,200		1400	8,550
	1600	9,100		1600	20,200		1600	4,220
	1800	14,500		1800	16,400		1800	4,220
	2000	22,700		2000	13,400		2000	4,220
	2200	17,800		2200	11,100		2200	3,900
	2400	13,400		2400	11,000		2400	3,900

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

Location.--Lat 35°38'30", long 118°28'55", in S $\frac{1}{2}$ NW $\frac{1}{4}$ sec.30, T.26 S., R.33 E., on right bank 200 ft downstream from highway bridge, 0.6 mile downstream from Isabella Dam, and 1.6 miles southwest of Isabella.

Drainage area.--2,074 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 2,435.07 ft above mean sea level (levels by Corps of Engineers).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 42 cfs 0930 hours Feb. 12 (gage height, 3.63 ft).

1945-53 (prior to regulation by Isabella Reservoir): Discharge, 39,000 cfs Nov. 19, 1950 (gage height, 28.6 ft, from floodmark), from rating curve extended above 1,100 cfs on basis of slope-area measurement of maximum flow.

1954 to December 1962: Discharge, 4,260 cfs June 28, 1958 (gage height, 15.14 ft).

Remarks.--Flow regulated by Isabella Reservoir beginning Apr. 15, 1954.

11-1918. Kern River tributary near Miracle Hot Springs, Calif.

(Crest-stage station)

Location.--Lat 35°33'15", long 118°34'45", in NW $\frac{1}{4}$ sec.30, T.27 S., R.32 E., on State Highway 178, 3.5 miles southwest of Miracle Hot Springs.

Drainage area.--1.21 sq mi.

Gage-height record.--Crest stages only. Datum of gage is 2,453.4 ft.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 0.7 cfs and by computation of flow through culvert at 1.0 and 5.0 cfs.

Maxima.--January-February 1963: No flow.

1959 to December 1962: Discharge, 5.0 cfs Feb. 8, 1962 (gage height, 6.80 ft).

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

Location.--Lat 35°31'20", long 118°40'40", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.6, T.28 S., R.31 E., on left bank 1.0 mile southwest of Democrat Springs and 2.1 miles upstream from Cow Creek.

Drainage area.--2,258 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 1,850 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima (river only).--January-February 1963: Discharge, 112 cfs 1430 hours Feb. 1 (gage height, 4.87 ft).

1950-53 (prior to regulation by Isabella Reservoir): Discharge, 40,000 cfs Nov. 19, 1950 (gage height, 30.7 ft), from rating curve extended above 8,700 cfs on basis of computation of peak flow over dam (basic data for computation furnished by Southern California Edison Co.).

1954 to December 1962: Discharge, 3,960 cfs June 12, 1958 (gage height, 13.68 ft).

Maxima (river and conduit).--January-February 1963: Discharge, 486 cfs 2200 hours Jan. 30.

1950 to December 1962: Discharge, 40,000 cfs Nov. 19, 1950.

Remarks.--Flow regulated by Isabella Reservoir (see station 11-1905). Kern River No. 1 conduit diverts up to 412 cfs above station. Mean discharge figures are the combined flow of Kern River and Kern River No. 1 conduit.

Mean discharge, in cubic feet per second, 1963, of Kern River near Democrat Springs, Calif. (combined flow of river and Kern River No. 1 conduit)

Day	January	February	Day	January	February	Day	January	February
1.....	179	444	11.....	177	431	21.....	159	417
2.....	182	373	12.....	176	423	22.....	165	418
3.....	183	354	13.....	148	430	23.....	168	415
4.....	191	351	14.....	138	429	24.....	166	417
5.....	186	350	15.....	161	424	25.....	167	419
6.....	181	351	16.....	171	422	26.....	167	415
7.....	180	350	17.....	170	420	27.....	166	417
8.....	178	353	18.....	161	419	28.....	164	416
9.....	176	367	19.....	161	418	29.....	166	-----
10.....	178	434	20.....	157	418	30.....	250	-----
						31.....	439	-----
Monthly mean discharge, in cubic feet per second.....							181	403
Runoff, in acre-feet.....							11,130	22,400

11-1930. Kern River below Kern Canyon powerhouse, near Bakersfield, Calif.

Location.--Lat 35°26'10", long 118°48'50", in NW¹SE¹ sec.1, T.29 S., R.29 E., on left bank 1 mile downstream from Kern Canyon powerhouse, 1.3 miles upstream from Cottonwood Creek, and 11 miles northeast of Bakersfield.

Drainage area.--2,307 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 650 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 481 cfs 2200 hours Feb. 1 to 0300 hours Feb. 2 (gage height, 6.94 ft).

1893-1953 (prior to regulation by Isabella Reservoir): Discharge, 36,000 cfs Nov. 19, 1950 (gage height, 14.2 ft, at site 11 miles downstream at datum then in use).

1954 to December 1962: Discharge, 4,360 cfs June 12, 1958 (gage height, 11.47 ft).

Remarks.--Flow regulated by Isabella Reservoir since 1954 (see station 11-1905).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	174	465	11.....	184	453	21.....	168	422
2.....	187	453	12.....	180	445	22.....	168	422
3.....	182	376	13.....	158	449	23.....	170	422
4.....	189	366	14.....	146	449	24.....	170	422
5.....	191	362	15.....	162	441	25.....	168	422
6.....	187	362	16.....	176	437	26.....	170	422
7.....	184	366	17.....	176	433	27.....	166	422
8.....	180	366	18.....	172	429	28.....	170	422
9.....	180	369	19.....	166	425	29.....	178	-----
10.....	182	415	20.....	166	422	30.....	237	-----
						31.....	415	-----
Monthly mean discharge, in cubic feet per second.....							184	416
Runoff, in acre-feet.....							11,310	23,090

11-1940.5. Tumbleweed Creek near Oildale, Calif.

(Crest-stage station)

Location.--Lat 35°27'55", long 119°01'30", in NW¹ sec.25, T.28 S., R.27 E., 3.2 miles north of Oildale.

Drainage area.--2.40 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 765 ft (from topographic map).

Discharge record.--Maximum discharge by computation of flow through culvert.

Maxima.--January-February 1963: Discharge, 104 cfs Feb. 13 (gage height, 4.65 ft, from high-water profile).

1958 to December 1962: Discharge, 18 cfs Nov. 5, 1960 (gage height, 2.86 ft).

TULARE LAKE BASIN

11-1978. Poso Creek near Oildale, Calif.

Location.--Lat 35°30'50", long 118°54'15", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.6, T.28 S., R.29 E., opposite mouth of Hillvale Canyon, on highway bridge 10 miles northeast of Oildale and 12 miles northeast of Bakersfield.

Drainage area.--230 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 700 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 50 cfs and by computation of peak flow at 2,750 cfs by Kern County Land Co.

Maxima.--January-February 1963: Discharge, 5.8 cfs 0200 hours Feb. 14 (gage height, 1.76 ft).
1958 to December 1962: The flood of Apr. 4, 1958, reached a stage of 8.6 ft, from floodmarks (discharge 2,750 cfs, furnished by Kern County Land Co.).

11-1980.5. Mon Canyon Creek near Oildale, Calif.

(Crest-stage station)

Location.--Lat 35°31'45", long 118°58'25", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.4, T.28 S., R.28 E., on county road, 8 miles northeast of Oildale.

Drainage area.--2.38 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 640 ft (from topographic map).

Discharge record.--Maximum discharge estimated.

Maxima.--January-February 1963: No significant flow.
1958 to December 1962: Discharge, 0.2 cfs Feb. 16, 1959, and Dec. 2, 1961 (gage heights not determined).

11-1993. Coho Creek near White River, Calif.

(Crest-stage station)

Location.--Lat 35°49'50", long 118°51'35", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.20, T.24 S., R.29 E., on county road, 1.6 miles northeast of White River.

Drainage area.--12.9 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 1,090 ft (from topographic map).

Discharge record.--Maximum discharge estimated.

Maxima.--January-February 1963: Discharge, 0.7 cfs Feb. 1 (gage height, 2.75 ft).
1959 to December 1962: Discharge, 1 cfs Nov. 11, 1960 (gage height not determined).

11-2020. North Fork of Middle Fork Tule River near Springville, Calif.

Location--Lat 36°10'29", long 118°41'41", in sec.23, T.20 S., R.30 E. (unsurveyed), on right bank 1.2 miles upstream from mouth, 2.2 miles downstream from Hossack Creek, and 7.4 miles northeast of Springville.

Drainage area--39.3 sq mi.

Gage-height record--Water-stage recorder graph. Altitude of gage is 2,920 ft (from topographic map).

Discharge record--Stage-discharge relation defined by current-meter measurements below 340 cfs and by critical-depth determination at 5,460 cfs.

Maxima--January-February 1963: Discharge, 5,460 cfs 0500 hours Feb. 1 (gage height, 9.67 ft).

1939 to December 1962: Discharge, 12,400 cfs Dec. 23, 1955 (gage height, 12.47 ft, from floodmarks), from rating curve extended above 100 cfs on basis of critical-depth determination; gage height, 13.06 ft Nov. 19, 1950, from floodmarks.

Remarks--Pacific Gas & Electric Co. conduit diverts 2.5 miles upstream from station. All figures are the combined flow of North Fork of Middle Fork Tule River and Pacific Gas & Electric Co. conduit, although diversion is insignificant during floodflow.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	13	2,390	11.....	13	86	21.....	13	54
2.....	13	424	12.....	13	76	22.....	13	52
3.....	13	206	13.....	12	74	23.....	13	50
4.....	13	143	14.....	13	74	24.....	13	49
5.....	13	115	15.....	13	69	25.....	13	48
6.....	13	98	16.....	13	64	26.....	13	49
7.....	13	92	17.....	13	60	27.....	13	48
8.....	13	83	18.....	13	57	28.....	13	47
9.....	13	80	19.....	13	56	29.....	15	-----
10.....	13	99	20.....	13	56	30.....	161	-----
						31.....	1,590	-----
Monthly mean discharge, in cubic feet per second.....							68.7	171
Runoff, in inches.....							2.01	4.54
Runoff, in acre-feet.....							4,220	9,520

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	-	46	Jan. 31	0200	-	254	Feb. 1	0300	7.55	2,150
					0300	-	261		0400	9.25	4,720
	30	0300	66		0500	-	427		0500	9.67	5,460
		0400	80		0600	-	310		0600	8.75	4,140
		0800	157		0700	-	322		0700	8.80	4,220
		1200	271		1100	6.15	876		0800	9.00	4,560
		1300	267		1400	8.16	2,990		1000	8.31	3,440
		1500	185		1600	9.32	4,840		1400	7.06	1,930
		1800	161		1700	9.54	5,220		1700	6.35	1,370
		2000	167		1800	8.40	3,550		2400	5.35	691
		2300	159		2200	6.48	1,110				
		2400	190		2300	5.95	751	2	1200	4.66	367
					2400	6.15	876		2400	4.29	272

11-2024.5. Winding Creek near Camp Nelson, Calif.

(Crest-stage station)

Location--Lat 36°09'35", long 118°40'30", in sec.25, T.20 S., R.30 E., on State Highway 190, 4 miles northwest of Camp Nelson.

Drainage area--0.30 sq mi.

Gage-height record--Crest stages only. Altitude of gage is 3,500 ft (from topographic map).

Discharge record--Stage-discharge relation defined by current-meter measurements below 0.9 and by computation of flow through culvert at 19 cfs.

Maxima--January-February 1963: Discharge, 19 cfs Feb. 1 (gage height, 11.66 ft, from high-water profile).

1959 to December 1962: Discharge, 3 cfs (estimated) Feb. 1, 1960 (gage height, 10.66 ft).

11-2031. North Fork Tule River at Springville, Calif.

Location.--Lat 36°08'22", long 118°48'15", in SE $\frac{1}{4}$ sec.35, T.20 S., R.29 E., on left bank 0.1 mile upstream from Middle Fork Tule River, three-quarters of a mile northeast of Springville, and 12.9 miles northeast of Porterville.

Drainage area.--97.6 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 1,040 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 2,500 cfs.

Maxima.--January-February 1963: Discharge, 4,600 cfs 1600 hours Jan. 31 (gage height, 10.29 ft).
1957 to December 1962: Discharge, 2,070 cfs May 19, 1957 (gage height, 9.27 ft).

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

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	1.4	2,000	11.....	0.5	104	21.....	1.0	41
2.....	1.3	396	12.....	.5	83	22.....	1.0	38
3.....	1.1	153	13.....	.5	73	23.....	1.1	35
4.....	.7	92	14.....	.5	75	24.....	.9	34
5.....	.6	72	15.....	.5	72	25.....	.7	32
6.....	.5	60	16.....	.5	60	26.....	.6	30
7.....	.5	50	17.....	.5	54	27.....	.6	29
8.....	.5	43	18.....	.5	48	28.....	.6	27
9.....	.5	42	19.....	.5	45	29.....	.7	-----
10.....	.5	183	20.....	.8	42	30.....	127	-----
						31.....	1,770	-----
Monthly mean discharge, in cubic feet per second.....							61.8	143
Runoff, in inches.....							0.73	1.53
Runoff, in acre-feet.....							3,800	7,960

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	4.13	5.5	Jan. 31	1000	6.88	612	Feb. 1	0800	9.39	3,040
					1200	7.73	1,160		0900	9.52	3,240
30	0900	4.42	15		1400	9.60	3,370		1200	8.82	2,260
	1000	5.15	64		1600	10.29	4,600		1700	8.00	1,390
	1400	5.45	96		1800	9.98	4,020		2400	7.29	849
	1500	6.40	309		2100	9.00	2,490				
	1600	6.47	333		2400	8.28	1,660				
	1900	6.18	242					2	0600	6.91	509
	2400	6.21	251	Feb. 1	0100	8.12	1,500		1200	6.60	380
					0400	8.62	2,020		1800	6.35	293
31	0300	6.12	296		0500	9.20	2,760		2400	6.18	242
	0500	6.52	444		0600	9.90	3,870				

11-2032. Tule River near Springville, Calif.

Location.--Lat 36°05'41", long 118°50'09", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.15, T.21 S., R.29 E., on left bank 15 ft upstream from highway bridge, 2 miles southwest of Springville, and 4 miles downstream from North Fork.

Drainage area.--225 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 800 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 7,400 cfs.

Maxima.--January-February 1963: Discharge, 10,100 cfs 1800 hours Jan. 31 (gage height, 10.80 ft).
1955 to December 1962: Discharge, about 21,000 cfs December 1955 (gage height, 13.7 ft, from floodmarks), from drainage-area-runoff comparison.

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of
South Fork Tule River near Success, Calif.

Date	Hour	Gage height	Dis- charge	Date	Hour	Gage height	Dis- charge	Date	Hour	Gage height	Dis- charge
Jan. 29	2400	3.30	5.8	Jan. 31	0800	4.46	114	Feb. 1	0600	6.03	589
	30	0600	3.35		1000	4.47	115		0700	7.00	1,150
		0800	3.45		1100	4.58	134		0800	7.38	1,440
		1000	4.66		1200	5.05	230		0900	7.38	1,440
		1200	4.82		1300	5.60	405		1100	7.75	1,780
		1300	4.86		1500	6.56	866		1500	7.12	1,240
		1400	4.83		1600	6.65	920		1800	6.36	750
		1800	4.47		1800	7.16	1,270		2400	5.53	377
		2400	4.21		2000	6.96	1,120				
					2400	6.18	660	2	0600	5.12	247
31	0300	4.25	91	Feb. 1	0300	5.70	445		1200	4.85	186
	0500	4.20	74		0400	5.70	445		1800	4.65	147
									2400	4.52	124

11-2047. Lake Success near Success, Calif.
(Formerly published as Success Reservoir near Success, Calif.)

Location.--Lat 36°03'40", long 118°55'18", in SE 1/4 sec. 35, T.21 S., R.28 E., in control tower near right abutment of Success Dam on Tule River, 5 miles east of Porterville.

Drainage area.--391 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is at mean sea level, datum of 1929 (levels by Corps of Engineers).

Contents record.--Contents computed from capacity table dated Oct. 16, 1962.

Maxima.--January-February 1963: Computed bihourly inflow, 12,100 cfs 0800 to 1000 hours Feb. 1. Contents, 25,300 acre-ft 2000 hours Feb. 2 to 1800 hours Feb. 3 (elevation, 613.60 ft).
1961 to December 1962: Contents, 29,000 acre-ft June 4-21, 1962; elevation, 617.52 ft June 7, 8.

Remarks.--Lake is formed by earthfill dam and dike. Storage began November 1961. Usable capacity, 83,900 acre-ft, between elevations 559.0 ft (invert of outlet structure) and 652.5 ft (spillway crest). Spillway design flood pool elevation, 686.8 ft (capacity, 205,500 acre-ft). No dead storage. Records furnished by Corps of Engineers.

Elevation, in feet, and contents, in acre-feet, at 2400 hours, 1963

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	588.90	7,730	612.07	23,900	16	588.88	7,720	601.30	15,300
2	588.91	7,740	613.57	25,300	17	588.88	7,720	599.86	14,300
3	588.91	7,740	613.43	25,200	18	588.89	7,730	599.60	14,100
4	588.90	7,730	612.90	24,700	19	588.88	7,720	599.87	14,300
5	588.88	7,720	612.17	24,000	20	588.88	7,720	600.05	14,500
6	588.87	7,720	611.19	23,200	21	588.88	7,720	600.35	14,700
7	588.86	7,710	610.05	22,200	22	588.88	7,720	600.75	14,900
8	588.87	7,720	608.84	21,200	23	588.88	7,720	601.16	15,200
9	588.88	7,720	607.69	20,200	24	588.88	7,720	601.55	15,500
10	588.88	7,720	607.38	20,000	25	588.88	7,720	601.97	15,800
11	588.89	7,730	606.79	19,500	26	588.88	7,720	602.32	16,100
12	588.88	7,720	605.88	18,800	27	588.88	7,720	602.69	16,300
13	588.87	7,720	604.87	18,000	28	588.88	7,720	603.05	16,600
14	588.87	7,720	603.85	17,200	29	588.91	7,740	-	-
15	588.87	7,720	602.65	16,300	30	589.76	8,180	-	-
					31	598.46	13,400	-	-
Change in contents, in acre-feet.....						-	+5,670	-	+3,200

Average inflow, in cubic feet per second, for bihourly periods ending at indicated time, 1963, of Lake Success near Success, Calif.

Date	Hour	Inflow	Date	Hour	Inflow	Date	Hour	Inflow
Jan. 30	0200	44	Jan. 31	1000	1,160	Feb. 1	1800	5,090
	0400	44		1200	1,550		2000	3,870
	0600	14		1400	2,630		2200	3,170
	0800	44		1600	4,770		2400	2,810
	1000	44		1800	8,110			
	1200	165		2000	12,000	2	0200	2,240
	1400	415		2200	8,130		0400	2,240
	1600	637		2400	6,450		0600	1,490
	1800	681	Feb. 1	0200	4,400		0800	1,540
	2000	689		0400	4,120		1000	1,450
31	2200	729		0600	5,260		1200	1,320
	2400	723		0800	8,690		1400	1,150
				1000	12,100		1600	1,140
	0200	638		1200	8,090		1800	984
	0400	632		1400	8,550		2000	1,030
	0600	753		1600	6,910		2200	984
	0800	856					2400	814

11-2049. Tule River below Success Dam, Calif.

Location.--Lat 36°03'23", long 118°55'22", in SW $\frac{1}{4}$ sec.35, T.21 S., R.28 E., on right bank 1,000 ft downstream from Success Dam and 5 miles east of Porterville.

Drainage area.--393 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 536.00 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,200 cfs.

Maxima.--January-February 1963: Discharge, 2,980 cfs 1600 hours Jan. 31 (gage height, 9.25 ft).

1953 to December 1962: Discharge, 27,000 cfs Dec. 23, 1955 (gage height, 21.65 ft, at site 0.5 mile downstream and datum then in use).

Remarks.--Flow regulated by Lake Success beginning Nov. 23, 1961.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	13	768	11.....	12	680	21.....	12	64
2.....	13	675	12.....	12	710	22.....	12	25
3.....	14	740	13.....	12	725	23.....	12	14
4.....	17	680	14.....	11	710	24.....	12	9.9
5.....	17	680	15.....	10	745	25.....	13	6.9
6.....	16	720	16.....	10	760	26.....	14	4.3
7.....	15	740	17.....	10	750	27.....	14	3.5
8.....	13	735	18.....	11	317	28.....	14	3.6
9.....	12	720	19.....	12	90	29.....	14	- - - - -
10.....	12	680	20.....	12	101	30.....	14	- - - - -
						31.....	1,360	- - - - -
Monthly mean discharge, in cubic feet per second.....							60.5	459
Runoff, in acre-feet.....							3,720	25,500

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.21	14	Jan. 31	0900	6.26	607	Jan. 31	2000	7.45	1,260
					0900	7.85	1,560		2100	7.47	1,280
					1200	7.91	1,610		2100	6.97	962
					1400	7.91	1,610		2400	6.90	920
	1600	2.19	13		1500	8.81	2,450	Feb. 2	1200	7.02	992
	1700	4.52	149		1600	8.81	2,450		1300	6.18	572
	1800	4.70	176		1600	9.25	2,980		1400	6.14	556
30	1900	4.71	178		1800	9.14	2,850		2400	6.17	568
	2000	6.25	602		1900	9.16	2,870				
	2400	6.25	602								

11-2049.5. Tule River tributary near Success, Calif.
(Crest-stage station)

Location.--Lat 36°03'27", long 118°54'48", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.35, T.21 S., R.28 E., on State Highway 190, 1.8 miles south of Success.

Drainage area.--1.13 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 630 ft (from topographic map).

Discharge record.--Maximum discharge by computation of flow through culvert.

Maxima.--January-February 1963: Discharge, 0.1 cfs Feb. 1 (gage height not determined).
1959 to December 1962: Discharge, 8 cfs Mar. 6, 1962 (gage height, 11.76 ft).

11-2065. Middle Fork Kaweah River near Potwisha Camp, Calif.

Location.--Lat 36°30'45", long 118°47'25", in NW $\frac{1}{4}$ sec.25, T.16 S., R.29 E., on right bank 0.7 mile southeast of Potwisha Camp and 0.9 mile upstream from confluence with Marble Fork Kaweah River.

Drainage area.--102 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 2,100 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 920 cfs and by slope-area measurements at 17,500 and 46,800 cfs.

Maxima.--January-February 1963: Discharge, 11,800 cfs 0330 hours Feb. 1 (gage height, 13.52 ft).
1949 to December 1962: Discharge, 46,800 cfs Dec. 23, 1955 (gage height, 29.0 ft, from floodmarks, at datum 0.70 ft higher), by slope-area measurement of maximum flow.

Remarks.--Middle Fork Kaweah River No. 3 conduit diverts 0.5 mile above station. All discharge figures are the combined flow of Middle Fork Kaweah River and Middle Fork Kaweah River No. 3 conduit, although diversion is insignificant during floodflow.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	13	5,680	11.....	13	203	21.....	12	132
2.....	13	1,090	12.....	9.3	177	22.....	12	127
3.....	13	596	13.....	10	175	23.....	12	121
4.....	13	388	14.....	22	169	24.....	13	122
5.....	13	303	15.....	15	151	25.....	12	122
6.....	13	260	16.....	13	141	26.....	12	134
7.....	13	231	17.....	12	132	27.....	12	150
8.....	13	214	18.....	13	139	28.....	12	141
9.....	13	202	19.....	12	141	29.....	15	-----
10.....	13	253	20.....	12	135	30.....	648	-----
						31.....	3,600	-----
Monthly mean discharge, in cubic feet per second.....							149	422
Runoff, in inches.....							1.68	4.31
Runoff, in acre-feet.....							9,170	23,460

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	
Jan. 29	2400	-	29	Jan. 31	0300	-	1,060	Feb. 1	0500	12.73	9,390	
30	0100	-	72		0400	-	1,280		0600	11.58	6,560	
	0200	-	115		0800	-	1,050		0700	11.95	7,380	
	0300	-	177		1000	-	1,700		0800	11.39	6,180	
	0400	-	297		1300	9.32	2,760		1000	12.15	7,880	
	0500	-	404		1400	10.12	3,840		1300	11.60	6,600	
	0700	-	546		1500	10.88	5,160		1400	11.00	5,400	
	1100	-	937		1600	12.11	7,780		1700	10.00	3,640	
	1300	-	854		1700	13.13	10,600		2000	8.96	2,330	
	1400	-	937		1800	12.08	7,700		2400	8.26	1,680	
	1800	-	754		1900	12.41	8,530					
	2000	-	701		2100	11.00	5,400		2	0200	7.97	1,440
	2100	-	777		2300	10.12	3,830			1000	7.40	1,070
2200	-	765		2400	10.22	3,990			1300	7.22	978	
2400	-	946							2200	6.98	858	
31	0200	-	1.120	Feb. 1	0100	10.80	5,000			2400	6.85	799
					0200	12.25	8,130					
					0330	13.52	11,800					

11-2080. Marble Fork Kaweah River at Potwisha Camp, Calif.

Location.--Lat 36°31'10", long 118°48'10", in SE $\frac{1}{4}$ sec. 23, T.16 S., R.29 E., on left bank 0.1 mile north of Potwisha Camp and 0.3 mile upstream from confluence with Middle Fork Kaweah River.

Drainage area.--51.4 sq mi.

Gage-height record.--Water-stage recorder graph, except Jan. 1-7. Altitude of gage is 2,150 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 250 cfs and by slope-area measurement at 12,500 cfs. Discharge for Jan. 1-7 estimated on basis of recorded range in stage.

Maxima.--January-February 1963: Discharge, 3,830 cfs 0500 hours Feb. 1 (gage height, 9.94 ft).
1950 to December 1962: Discharge, 12,500 cfs Dec. 23, 1955 (gage height, 13.4 ft), from rating curve extended above 1,100 cfs on basis of slope-area measurement of maximum flow.

Remarks.--Marble Fork Kaweah River No. 3 conduit diverts 0.3 mile above station. All discharge figures are the combined flow of Marble Fork Kaweah River and Marble Fork Kaweah River No. 3 conduit, although diversion is insignificant during floodflow.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	4.4	2,250	11.....	4.1	140	21.....	3.9	95
2.....	4.4	684	12.....	3.2	129	22.....	3.9	90
3.....	4.4	329	13.....	2.9	129	23.....	3.9	85
4.....	4.4	232	14.....	3.6	125	24.....	3.9	86
5.....	4.4	190	15.....	3.9	115	25.....	4.0	90
6.....	4.2	172	16.....	3.9	109	26.....	3.7	97
7.....	4.2	158	17.....	3.6	101	27.....	3.5	99
8.....	4.2	151	18.....	3.6	94	28.....	4.0	96
9.....	3.9	144	19.....	3.6	91	29.....	4.0	-----
10.....	3.9	162	20.....	3.9	96	30.....	251	-----
						31.....	1,750	-----
Monthly mean discharge, in cubic feet per second.....							68.2	226
Runoff, in inches.....							1.53	4.59
Runoff, in acre-feet.....							4,190	12,570

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	-	8.7	Jan. 31	0100	-	647	Feb. 1	0200	9.23	3,000
					0400	-	676		0400	9.29	3,070
					0700	-	1,080		0500	9.34	3,850
					0800	-	942		0600	9.56	3,370
					1100	-	1,540		0700	9.00	2,750
					1400	-	2,640		1100	8.84	2,590
					1500	-	3,280		1400	8.14	1,960
					1600	9.15	2,840		2400	6.67	1,090
					1700	9.44	3,180				
					1800	9.10	2,770				
					1900	9.06	2,720				
					2100	8.64	2,260	2	0700	5.98	793
					2300	8.16	1,830		0800	5.95	781
					2400	8.46	2,080		1000	5.80	721
									1400	5.39	568
									2400	4.90	421

(Crest-stage station)

Maxima.--January-February 1963: Discharge, 152 cfs Feb. 1 (gage height, 18.41 ft, from high-water profile).
1959 to December 1962: Discharge, 25 cfs Mar. 1962 (gage height, 12.08 ft).

Remarks.--East Fork Kaweah River No. 1 conduit diverts from left bank of river near diversion dam. Mean discharge figures are the combined flow of East Fork Kaweah River and East Fork Kaweah River No. 1 conduit, although diversion is insignificant during floodflow. Records furnished by Southern California Edison Co. and reviewed by Geological Survey.

[illegible]

11-2090. Dorst Creek near Kaweah Camp, Calif.

(Crest-stage station)

Location.--Lat 36°38'45", long 118°48'15", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.2, T.15 S., R.29 E., 6 miles northwest of Kaweah Camp.

Drainage area.--6.11 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 6,700 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 55 cfs and by computation of flow through culvert at 108,156, and 1,540 cfs.

Maxima.--January-February 1963: Discharge, 1,540 cfs Feb. 1 (gage height, 28.85 ft). 1959 to December 1962: Discharge, 156 cfs May 12, 1960 (gage height, 21.70 ft).

11-2099. Kaweah River at Three Rivers, Calif.

Location.--Lat 36°26'38", long 118°54'09", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.13, T.17 S., R.28 E., on right bank opposite schoolhouse in Three Rivers, 0.25 mile downstream from North Fork Kaweah River.

Drainage area.--418 sq mi.

Gage-height record.--Water-stage recorder graph, except Feb. 2-18, 24-28. Datum of gage is 809.62 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 6,000 cfs and by slope-area measurement at 30,900 cfs. Discharge Feb. 2-18, 24-28, estimated on basis of 2 discharge measurements, 11 outside gage-height observations, and comparison with South Fork Kaweah at Three Rivers.

Maxima.--January-February 1963: Discharge, 30,900 cfs 0400 hours Feb. 1 (gage height, 13.68 ft, from recorder graph; 14.80 ft, from high-water profile). 1958 to December 1962: Discharge, 6,180 cfs Feb. 9, 1962 (gage height, 8.12 ft).

Flood of December 23, 1955, reached a stage of 17.9 ft, from floodmarks.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	37	17,700	11.....	36	900	21.....	35	451
2.....	37	4,000	12.....	32	800	22.....	36	424
3.....	38	1,900	13.....	21	740	23.....	35	406
4.....	38	1,500	14.....	22	700	24.....	35	400
5.....	38	930	15.....	35	600	25.....	35	400
6.....	37	850	16.....	34	550	26.....	34	410
7.....	36	880	17.....	35	510	27.....	34	430
8.....	36	820	18.....	33	490	28.....	33	430
9.....	36	740	19.....	28	478	29.....	36	-----
10.....	36	1,500	20.....	29	464	30.....	1,740	-----
						31.....	12,400	-----
Monthly mean discharge, in cubic feet per second.....							488	1,449
Runoff, in inches.....							1.35	3.61
Runoff, in acre-feet.....							30,000	80,460

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.38	55	Jan. 31	0300	7.88	4,500	Feb. 1	0100	10.66	15,000
					0500	7.83	4,380		0200	12.45	24,000
30	0300	2.74	86		0600	8.05	4,920		0300	12.90	26,500
	0500	3.15	131		0800	8.30	5,600		0400	13.58	30,900
	0600	3.25	142		0900	8.26	5,480		0600	12.75	25,800
	0700	5.30	660		1000	8.38	5,840		0700	12.19	23,000
	0800	5.78	984		1100	9.00	7,900		1000	11.68	20,700
	1000	6.04	1,230		1200	9.27	8,980		1200	11.60	20,300
	1100	6.40	1,680		1400	9.17	8,580		1300	11.28	18,900
	1600	7.30	3,200		1500	12.50	24,300		1500	10.42	15,300
	1700	7.37	3,340		1600	13.20	28,200		1900	9.20	10,600
	2100	7.11	2,820		1700	13.05	27,300		2200	8.52	8,170
	2200	7.07	2,750		1700	13.38	29,100		2400	8.14	6,920
	2300	7.09	2,780		2000	12.20	22,600				
	2400	7.21	3,020		2100	11.58	19,500				
					2300	10.75	15,400				
31	0200	7.77	4,220		2400	10.42	13,900				

11-2101. South Fork Kaweah River at Three Rivers, Calif.

Location.--Lat 36°25'00", long 118°54'48", in SE $\frac{1}{4}$ sec.26, T.17 S., R.28 E., on right bank 200 ft upstream from unnamed tributary, 0.5 mile upstream from mouth, and 1.8 miles southwest of Three Rivers.

Drainage area.--86.7 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 807.22 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 2,440 cfs 1000 hours Feb. 1 (gage height, 4.95 ft).

1958 to December 1962: Discharge, 618 cfs Feb. 10, 1962 (gage height, 3.71 ft).

Flood in December 1955 reached a stage of 9.5 ft, from floodmarks.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	3.1	1,400	11.....	2.8	101	21.....	3.1	49
2.....	3.1	433	12.....	2.8	85	22.....	3.1	47
3.....	3.1	398	13.....	2.6	78	23.....	3.1	46
4.....	3.1	155	14.....	2.4	74	24.....	3.1	43
5.....	3.1	116	15.....	2.4	65	25.....	3.1	43
6.....	3.1	97	16.....	2.4	60	26.....	3.1	44
7.....	2.8	85	17.....	2.4	55	27.....	3.1	46
8.....	2.8	80	18.....	2.6	51	28.....	3.1	46
9.....	2.8	81	19.....	2.8	49	29.....	3.4	-----
10.....	2.8	162	20.....	2.8	49	30.....	101	-----
						31.....	957	-----
Monthly mean discharge, in cubic feet per second.....							36.8	144
Runoff, in inches.....							0.49	1.73
Runoff, in acre-feet.....							2,270	8,010

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.42	5.3	Jan. 31	1600	4.78	2,060	Feb. 1	1100	4.74	1,980
					1700	4.74	1,980		1200	4.65	1,810
					1800	4.93	2,410		1300	4.63	1,770
30	0600	1.52	10		1900	4.79	2,080		1400	4.70	1,900
	0800	1.59	14		2100	4.67	1,850		1500	4.69	1,880
	0900	2.05	56		2400	4.05	910		1900	4.08	940
	1200	2.32	99						2300	3.75	650
	1900	2.76	203	Feb. 1	0100	3.99	851		2400	3.76	658
	2200	2.79	212		0200	4.01	870				
	2400	2.73	194		0400	4.09	950	2	0300	3.65	575
31	0400	2.87	236		0500	4.21	1,090		0500	3.52	492
	1000	2.82	221		0600	4.76	2,020		0600	3.51	486
	1100	2.93	254		0700	4.86	2,230		1000	3.40	430
	1300	4.07	930		0800	4.68	1,860		1600	3.26	369
	1400	4.43	1,430		0900	4.82	2,140		1800	3.24	361
	1500	4.68	1,860		1000	4.95	2,440		2400	3.11	314

11-2109. Lake Kaweah near Lemoncove, Calif.
(Formerly published as Terminus Reservoir near Lemoncove, Calif.)

Location.--Lat 36°24'53", 119°00'07", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.25, T.17 S., R.27 E., in control tower near left abutment of Terminus Dam on Kaweah River, 2.1 miles northeast of Lemoncove.

Drainage area.--560 sq mi.

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

Contents record.--Contents computed from capacity table dated October 1955.

Maxima.--January-February 1963: Computed bihourly inflow, 33,500 cfs 0400 to 0600 hours Feb. 1; outflow, 5,090 cfs 1800 hours Jan. 31; contents, 53,300 acre-ft 1200 hours Feb. 2 (elevation, 633.02 ft).

October 1961 to December 1962: Contents, 4,890 acre-ft May 20, 1962 (elevation, 559.2 ft).

Remarks.--Reservoir is formed by earthfill dam and earthfill auxiliary dam. Usable capacity, 149,400 acre-ft between elevations 520.0 ft (invert of outlet structure) and 694.0 ft (spillway crest). Dead storage, 166 acre-ft. Spillway design flood pool elevation, 745.1 ft (capacity, 266,000 acre-ft). Records furnished by Corps of Engineers.

Elevation, in feet, and contents, in acre-feet, at 2400 hours, 1963

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	551.65	3,240	630.90	50,900	16	551.63	3,240	570.26	8,200
2	551.64	3,240	632.55	52,800	17	551.67	3,240	569.74	8,020
3	551.64	3,240	629.70	49,500	18	551.68	3,240	569.64	7,980
4	551.64	3,240	625.35	44,800	19	551.67	3,240	569.78	8,030
5	551.63	3,240	619.24	38,600	20	551.64	3,240	569.83	8,050
6	551.63	3,240	612.20	32,100	21	551.64	3,240	569.80	8,040
7	551.62	3,230	604.50	25,900	22	551.69	3,250	569.65	7,990
8	551.62	3,230	594.70	19,500	23	551.71	3,250	569.53	7,950
9	551.62	3,230	582.13	13,000	24	551.74	3,260	569.53	7,950
10	551.63	3,240	571.35	8,580	25	551.74	3,260	569.59	7,970
11	551.64	3,240	568.35	7,550	26	551.70	3,250	569.67	7,990
12	551.65	3,240	570.00	8,110	27	551.65	3,240	569.73	8,010
13	551.59	3,230	571.02	8,460	28	551.62	3,230	569.63	7,980
14	551.53	3,220	571.37	8,590	29	551.64	3,240	-	-
15	551.56	3,220	570.98	8,450	30	557.42	4,460	-	-
					31	598.29	21,700	-	-
Change in contents, in acre-feet.....						-	+18,460	-	-13,720

Average inflow, in cubic feet per second, for bihourly periods ending at indicated time, 1963

Date	Hour	Inflow	Date	Hour	Inflow	Date	Hour	Inflow
Jan. 30	0200	32	Jan. 31	1000	4,720	Feb. 1	1800	12,800
	0400	49		1200	5,240		2000	9,540
	0600	85		1400	9,990		2200	8,760
	0800	91		1600	19,000		2400	6,540
	1000	332		1800	28,300	2	0200	6,990
	1200	794	Feb. 1	2000	27,600		0400	6,220
	1400	1,500		2200	18,700		0600	5,180
	1600	1,630		2400	18,400		0800	4,430
	1800	2,920		0200	14,400		1000	4,080
	2000	3,020		0400	24,700		1200	3,570
	2200	2,910		0600	33,500		1400	3,540
	2400	2,810		0800	30,700		1600	3,290
31	0200	2,700		1000	24,900		1800	3,150
	0400	3,520		1200	19,700		2000	3,080
	0600	4,030		1400	19,900		2200	2,940
	0800	4,220		1600	14,400		2400	2,880

11-2109.5. Kaweah River below Terminus Dam, Calif.

Location.--Lat 36°24'51", long 119°00'42", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.26, T.17 S., R.27 E., 0.6 mile downstream from Terminus Dam and 2.2 miles northeast of Lemoncove.

Drainage area.--561 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 495.90 ft above mean sea level (levels by Corps of Engineers).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 3,600 cfs.

Maxima.--January-February 1963: Discharge, 5,080 cfs 1800 hours Jan. 31 (gage height, 8.28 ft).
1961 to December 1962: Discharge, 3,500 cfs Feb. 10, 1962 (gage height, 7.26 ft).

Remarks.--Flow regulated by Lake Kaweah (see station No. 11-2109).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	9.8	3,670	11.....	27	1,440	21.....	27	495
2.....	9.8	3,010	12.....	26	495	22.....	26	495
3.....	9.3	3,720	13.....	26	568	23.....	25	476
4.....	9.3	3,820	14.....	22	676	24.....	26	448
5.....	18	4,420	15.....	17	720	25.....	29	436
6.....	29	4,330	16.....	18	720	26.....	32	448
7.....	29	3,910	17.....	23	644	27.....	33	479
8.....	28	4,010	18.....	27	537	28.....	31	495
9.....	27	4,040	19.....	28	498	29.....	29	-----
10.....	27	3,450	20.....	27	498	30.....	726	-----
						31.....	3,570	-----
Monthly mean discharge, in cubic feet per second.....							161	1,748
Runoff, in acre-feet.....							9,900	97,090

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	0.66	29	Jan. 31	0200	5.94	1,880	Jan. 31	2200	7.63	3,930
					0300	6.39	2,310		2400	7.67	3,990
30	0900	.67	29		0700	6.48	2,400				
	1000	.92	45		0800	6.89	2,890	Feb. 1	0600	7.90	4,400
	1100	.95	48		0900	7.23	3,320		0800	7.38	3,530
	1200	1.90	145		1000	7.66	3,980		0900	7.70	4,040
	1300	3.92	608		1200	7.70	4,040		1600	7.85	4,310
	1400	3.82	572		1300	7.46	3,660		1800	6.58	2,520
	1500	3.80	565		1400	7.50	3,720		2200	6.60	2,540
	1600	5.71	1,670		1500	7.93	4,450		2400	6.46	2,380
	1800	5.83	1,780		1800	8.28	5,080				
	2400	5.91	1,850		2100	8.10	4,760				

11-2113. Dry Creek near Lemoncove, Calif.

Location.--Lat 36°25'30", long 119°01'20", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.26, T.17 S., R.27 E., on left bank 400 ft downstream from Pogue Canyon, 1.3 miles upstream from mouth, and 2.8 miles north of Lemoncove.

Drainage area.--80.4 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 515 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 1,600 cfs 0700 hours Feb. 1 (gage height, 5.68 ft).
1959 to December 1962: Discharge, 732 cfs Feb. 11, 1962 (gage height, 4.37 ft).

FLOODS OF 1963 IN THE UNITED STATES

Mean discharge, in cubic feet per second, 1963, of Dry Creek near Lemoncove, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	0	647	11.....	0	50	21.....	0	7.4
2.....	0	78	12.....	0	31	22.....	0	6.4
3.....	0	31	13.....	0	28	23.....	0	6.4
4.....	0	18	14.....	0	27	24.....	0	6.4
5.....	0	9.6	15.....	0	21	25.....	0	5.5
6.....	0	6.4	16.....	0	17	26.....	0	5.5
7.....	0	4.0	17.....	0	14	27.....	0	4.7
8.....	0	2.8	18.....	0	11	28.....	0	4.7
9.....	0	4.0	19.....	0	8.5	29.....	0	-----
10.....	0	130	20.....	0	7.4	30.....	1.0	-----
						31.....	466	-----
Monthly mean discharge, in cubic feet per second.....							15.1	42.6
Runoff, in inches.....							0.22	0.55
Runoff, in acre-feet.....							926	2,370

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	-	0	Jan. 31	1400	3.25	192	Feb. 1	0400	3.73	448
					1500	3.64	353		0500	4.25	810
30	2300	-	0		1600	4.50	810		0600	4.90	1,410
	2400	2.77	60		1700	4.86	1,340		0700	5.08	1,600
					1800	4.91	1,420		0800	4.95	1,460
31	0400	2.92	93		2000	4.76	1,270		1100	4.33	874
	0500	2.94	98		2400	3.98	606		1400	3.89	544
	0900	2.95	101						1900	3.44	290
	1200	3.04	125	Feb. 1	0200	3.75	460		2200	3.23	202
	1300	3.09	139		0300	3.68	418		2400	3.13	162

11-2124.5. Grizzly Creek near Cedar Grove, Calif.

(Crest-stage station)

Location.--Lat 36°48'10", long 118°44'35", in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.8, T.13 S., R.30 E., on State Highway 180, 4.1 miles east of Cedar Grove.

Drainage area.--9.73 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 4,210 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 22 cfs and by computation of flow through culvert at 49, 126, and 293 cfs.

Maxima.--January-February 1963: Discharge, 293 cfs Feb. 1 (gage height, 14.80 ft). 1959 to December 1962: Discharge, 126 cfs May 1962 (gage height, 12.98 ft, from high-water profile).

11-2135. Kings River above North Fork, Calif.

Location.--Lat 36°51'45", long 119°07'25", in NE $\frac{1}{4}$ sec.27, T.12 S., R.26 E., on left bank at Rogers Crossing, 0.9 mile upstream from North Fork and 2.9 miles south of Balch Camp.

Drainage area.--952 sq mi.

Gage-height record.--Water-stage recorder graph, except 1200 hours Jan. 12 to 1000 hours Jan. 29, and 0500 hours Feb. 2 to 1400 hours Feb. 3, for which graph was reconstructed on basis of adjacent record. Datum of gage is 1,003.5 ft above mean sea level (river-profile survey).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 8,000 cfs and by slope-area measurement at 59,100 cfs. Discharge for Jan. 12-29 estimated on basis of record for station below North Fork and recorded range in stage.

Maxima.--January-February 1963: Discharge, 29,000 cfs 0500 hours Feb. 1 (gage height, 10.85 ft, from recorder graph; 11.2 ft, from floodmarks). 1926-28, 1931 to December 1962: Discharge, 59,100 cfs Dec. 23, 1955 (gage height, 16.26 ft).

Mean discharge, in cubic feet per second, 1963, of Kings River above North Fork, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	113	18,900	11.....	104	1,180	21.....	90	729
2.....	111	4,510	12.....	100	1,060	22.....	90	707
3.....	114	2,670	13.....	80	1,070	23.....	90	707
4.....	116	2,110	14.....	70	1,000	24.....	95	690
5.....	111	1,770	15.....	80	904	25.....	95	696
6.....	108	1,510	16.....	80	865	26.....	95	729
7.....	106	1,340	17.....	90	800	27.....	100	764
8.....	104	1,260	18.....	90	770	28.....	100	758
9.....	102	1,170	19.....	85	776	29.....	101	-----
10.....	104	1,530	20.....	85	734	30.....	1,440	-----
						31.....	11,700	-----
Monthly mean discharge, in cubic feet per second.....							514	1,847
Runoff, in inches.....							0.62	2.02
Runoff, in acre-feet.....							31,630	102,600

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	0.80	140	Jan. 31	1200	6.68	9,740	Feb. 1	0700	10.57	27,600
					1400	7.88	14,800		1000	10.07	25,200
	30	0400	1.04		1600	9.60	22,900		1200	9.30	21,400
		0800	2.11		1700	9.80	23,800		1600	7.92	15,200
		1200	3.03		1800	9.75	23,600		1800	7.51	13,500
		1800	4.27		2000	9.02	20,100		2100	6.59	9,860
		2200	4.37		2300	7.72	14,100		2400	5.93	7,450
		2400	4.58		2400	7.78	14,400				
	31	0300	5.12	Feb. 1	0300	9.45	22,200	2	0600	5.20	5,210
		0500	5.14		0400	10.61	27,800		1200	4.75	4,080
		0900	5.44		0500	10.85	29,000		2400	4.20	2,990

11-2145.5. Courtright Reservoir near Nelson Mountain, Calif.

Location.--Lat 37°04'40", long 118°58'05", in NW¹ sec.7, T.10 S., R.28 E., at left end of dam on Helms Creek, 2.5 miles upstream from mouth, 4.6 miles east of Nelson Mountain, and 9.7 miles west of Blackcap Mountain.

Drainage area.--39.7 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is at mean sea level (levels by Pacific Gas & Electric Co.).

Contents record.--Contents computed from capacity table dated Apr. 13, 1957.

Maxima.--January-February 1963: Contents, 59,700 acre-ft 2400 hours Feb. 28 (elevation, 8,134.9 ft).
1958 to December 1962: Contents, 64,600 acre-ft July 14-24, 1962; maximum elevation, 8,139.80 ft July 18, 1962.

Remarks.--Reservoir is formed by rockfill dam completed in 1958. Usable capacity, 129,900 acre-ft between elevations 7,902 ft (invert of tunnel) and 8,188 ft (crest of dam).

Elevation, in feet, and contents, in acre-feet, at 2400 hours, 1963

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	8,134.8	59,600	8,132.8	57,600	16	8,132.3	57,100	8,134.6	59,300
2	8,134.8	59,600	8,133.3	58,100	17	8,132.2	57,100	8,134.6	59,400
3	8,134.8	59,500	8,133.5	58,300	18	8,132.2	57,100	8,134.6	59,400
4	8,134.8	59,500	8,133.7	58,500	19	8,132.2	57,000	8,134.6	59,400
5	8,134.7	59,500	8,133.8	58,600	20	8,132.2	57,000	8,134.7	59,400
6	8,134.7	59,500	8,133.9	58,700	21	8,131.7	56,500	8,134.7	59,400
7	8,134.7	59,400	8,134.0	58,800	22	8,130.5	55,500	8,134.7	59,500
8	8,134.7	59,400	8,134.1	58,800	23	8,130.0	55,000	8,134.7	59,500
9	8,134.6	59,400	8,134.2	58,900	24	8,130.0	55,000	8,134.7	59,500
10	8,134.6	59,300	8,134.3	59,000	25	8,130.0	54,900	8,134.8	59,500
11	8,134.6	59,300	8,134.3	59,100	26	8,130.0	54,900	8,134.8	59,600
12	8,134.6	59,300	8,134.4	59,200	27	8,129.9	54,900	8,134.8	59,600
13	8,134.5	59,300	8,134.5	59,200	28	8,129.9	54,900	8,134.9	59,700
14	8,134.0	58,700	8,134.5	59,300	29	8,130.0	55,000	-	-
15	8,132.9	57,700	8,134.6	59,300	30	8,130.8	55,700	-	-
					31	8,131.4	56,300	-	-
Change in contents, in acre-feet.....						-	-3,300	-	+3,400

11-2146. Helms Creek below Courtright Dam, Calif.

Location.--Lat 37°04'40", long 118°58'05", in NW $\frac{1}{4}$ sec.7, T.10 S., R.28 E., on left bank 500 ft downstream from Courtright Dam, 2.5 miles upstream from North Fork Kings River, and 17 miles southeast of town of Huntington Lake.

Drainage area.--39.7 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 7,840 ft (from Pacific Gas & Electric Co. survey).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 390 cfs 1300 hours Jan. 14 (gage height, 5.25 ft).
1958 to December 1962: Discharge, 767 cfs June 2, 1961 (gage height, 6.52 ft).

Remarks.--Flow regulated by Courtright Reservoir (see station 11-2145.5).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	14	19	11.....	14	14	21.....	169	14
2.....	14	14	12.....	14	14	22.....	388	14
3.....	14	14	13.....	14	14	23.....	185	14
4.....	14	14	14.....	198	14	24.....	13	14
5.....	14	14	15.....	384	14	25.....	13	14
6.....	14	14	16.....	214	14	26.....	13	14
7.....	14	14	17.....	14	14	27.....	13	14
8.....	14	14	18.....	14	14	28.....	13	14
9.....	14	14	19.....	14	14	29.....	13	14
10.....	14	14	20.....	13	14	30.....	14	- - - - -
						31.....	17	- - - - -
Monthly mean discharge, in cubic feet per second.....							60.8	14.2
Runoff, in acre-feet.....							3,740	787

11-2148. Wishon Reservoir near Cliff Camp, Calif.

Location.--Lat 37°00'20", long 118°58'00", in NW $\frac{1}{4}$ sec.6, T.11 S., R.28 E., on right end of dam on North Fork Kings River, 1.2 miles north of Cliff Camp, 1.3 miles upstream from Cliff Camp gaging station, and 20 miles southeast of town of Big Creek.

Drainage area.--177 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is at mean sea level (levels by Pacific Gas & Electric Co.).

Contents record.--Contents computed from capacity table dated Apr. 13, 1957.

Maxima.--January-February 1963: Contents, 34,100 acre-ft 2400 hours Feb. 28 (elevation, 6,430.7 ft).
1957 to December 1962: Contents, 129,700 acre-ft July 29, 1958 (elevation, 6,551.1 ft).

Remarks.--Reservoir is formed by rockfill dam completed in 1957. Capacity, 128,600 acre-ft between elevations 6,317 ft (bottom of slide gates) and 6,550 ft (operating crest of spillway gates). Water is diverted to Haas powerhouse for power.

Elevation, in feet, and contents in acre-feet, at 2400 hours, 1963

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	6,381.1	9,990	6,411.0	23,700	16	6,384.2	11,300	6,424.7	30,800
2	6,381.1	9,990	6,413.6	25,100	17	6,383.4	10,900	6,425.0	31,100
3	6,381.2	10,000	6,415.1	25,800	18	6,382.9	10,700	6,425.5	31,300
4	6,381.2	10,000	6,416.2	26,400	19	6,382.8	10,700	6,425.9	31,500
5	6,381.2	10,000	6,417.2	26,900	20	6,382.8	10,700	6,426.4	31,800
6	6,381.2	10,000	6,418.0	27,300	21	6,383.3	10,900	6,426.9	32,000
7	6,381.2	10,000	6,418.8	27,700	22	6,385.3	11,700	6,427.3	32,300
8	6,381.2	10,000	6,419.8	28,200	23	6,386.0	12,000	6,427.8	32,500
9	6,381.2	10,000	6,420.5	28,600	24	6,385.9	12,000	6,428.3	32,800
10	6,381.3	10,000	6,421.3	29,000	25	6,385.7	11,900	6,428.8	33,100
11	6,380.7	9,830	6,421.9	29,400	26	6,385.7	11,900	6,429.4	33,400
12	6,380.8	9,830	6,422.5	29,700	27	6,385.8	11,900	6,430.0	33,800
13	6,380.8	9,830	6,423.2	30,100	28	6,385.2	11,700	6,430.7	34,100
14	6,381.8	10,300	6,423.8	30,400	29	6,385.0	11,600	-	-
15	6,383.6	11,000	6,424.2	30,600	30	6,386.6	12,300	-	-
					31	6,397.4	17,200	-	-
Change in contents, in acre-feet.....						-	+7,210	-	+16,900

11-2150. North Fork Kings River near Cliff Camp, Calif.

Location.--Lat 36°59'38", long 118°58'50", in NE¼NW¼ sec.12, T.11 S., R.27 E., on right bank at Cliff Camp Bridge, 1 mile northwest of Cliff Camp, 1.2 miles downstream from Wishon Dam, and 2 miles downstream from Woodchuck Creek.

Drainage area.--181 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 6,143.95 ft above mean sea level, adjustment of 1912 (levels by San Joaquin Light and Power Corp.).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 1,170 cfs 2400 hours Jan. 31 (gage height, 7.38 ft).

1921-57 (prior to regulation by Wishon Reservoir): Discharge, 14,000 cfs Dec. 11, 1937 (gage height, 18.0 ft, from floodmarks), from rating curve extended above 4,200 cfs on basis of velocity-area studies.

1957 to December 1962: Discharge, 4,880 cfs May 28, 1958 (gage height, 11.75 ft).

Remarks.--Flow regulated by Wishon Reservoir since Dec. 5, 1957 (see station 11-2148) and Courtright Reservoir since Oct. 17, 1958 (see station 11-2145.5).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	7.6	301	11.....	7.6	13	21.....	7.6	7.8
2.....	7.5	41	12.....	7.6	9.4	22.....	7.6	7.5
3.....	7.5	26	13.....	7.6	14	23.....	7.6	7.1
4.....	7.5	21	14.....	7.6	13	24.....	7.6	6.9
5.....	7.5	18	15.....	7.6	9.0	25.....	7.6	6.9
6.....	7.5	16	16.....	7.6	7.8	26.....	7.6	7.3
7.....	7.5	15	17.....	7.6	6.9	27.....	7.6	7.3
8.....	7.5	12	18.....	7.6	6.7	28.....	7.8	7.1
9.....	7.5	9.2	19.....	7.6	8.2	29.....	8.2	-----
10.....	7.5	19	20.....	7.6	8.0	30.....	101	-----
						31.....	527	-----

Monthly mean discharge, in cubic feet per second.....	27.4	22.6
Runoff, in acre-feet.....	1,680	1,250

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.76	9.2	Jan. 31	0200	4.48	212	Jan. 31	2400	7.38	1,170
					0400	5.55	480				
30	0800	2.75	9.0		0600	4.97	323	Feb. 1	0400	5.40	435
	0800	2.85	11		0800	5.40	435		0600	4.98	325
	1300	3.50	57		1000	5.34	417		0800	5.37	426
	1400	3.90	108		1200	5.57	486		1000	4.70	260
	1600	4.42	200		1400	6.20	700		1200	4.47	210
	1900	4.22	161		1600	6.72	908		1400	4.14	147
	2100	4.76	273		1900	5.60	495		1800	3.84	100
	2200	4.82	287		2000	5.97	615		2400	3.57	65
	2400	4.59	236		2200	5.55	480				

11-2158. Teakettle Creek at site No. 3, near Patterson Mountain, Calif.

Location.--Lat 36°57'40", long 119°01'35", in NE¼ sec.21, T.11 S., R.27 E., 1.6 miles east of Patterson Mountain, 1.8 miles upstream from mouth, and 2.9 miles north of Black Rock Reservoir.

Drainage area.--0.86 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 6,705.4 ft above mean sea level.

Discharge record.--Stage-discharge relation defined by computation of flow over 90° sharp-crested V-notch weir and sharp-crested Cippoletti weir.

Maxima.--January-February 1963: Discharge, 99.0 cfs 0132 hours Feb. 1 (gage height, 3.81 ft).

1957 to December 1962: Discharge, 18.4 cfs Feb. 16, 1958 (gage height, 6.24 ft, at datum 4.00 ft lower).

Remarks.--Records furnished by U.S. Forest Service.

Mean discharge, in cubic feet per second, 1963, of Teakettle Creek at site No. 3 near Patterson Mountain, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	0.28	46.7	11.....	0.26	2.30	21.....	0.24	1.75
2.....	.28	6.05	12.....	.22	2.21	22.....	.24	1.68
3.....	.29	4.28	13.....	.20	2.23	23.....	.24	1.66
4.....	.28	3.66	14.....	.26	2.11	24.....	.26	1.65
5.....	.28	3.21	15.....	.25	2.02	25.....	.28	1.64
6.....	.27	2.85	16.....	.25	1.93	26.....	.28	1.65
7.....	.27	2.67	17.....	.25	1.84	27.....	.28	1.62
8.....	.27	2.46	18.....	.25	1.81	28.....	.27	1.56
9.....	.27	2.51	19.....	.24	1.80	29.....	.27	---
10.....	.27	2.59	20.....	.24	1.82	30.....	22.2	---
						31.....	36.4	---
Monthly mean discharge, in cubic feet per second.....							2.13	3.94
Runoff, in inches.....							2.86	4.77
Runoff, in acre-feet.....							131	219

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	0.35	0.18	Jan. 30	2147	3.00	45.3	Jan. 31	2400	3.00	45.3
	30	0449	.39		2301	2.64	28.8				
		0647	.40		2330	2.63	28.4	Feb. 1	0031	3.48	74.5
		0746	.53		2400	2.58	26.6		0132	3.81	99.0
		0845	.62						0233	3.41	70.1
		0944	.72		0031	2.60	27.6		0304	3.75	94.3
		1113	.83		0132	2.60	27.6		0334	3.55	79.4
		1212	1.00		0203	2.90	40.2		0638	3.24	58.8
		1215	2.00		0233	3.00	45.3		0740	3.08	49.5
		1218	2.78		0304	3.25	59.7		0841	3.10	50.6
		1221	2.65		0319	3.06	48.6		0942	3.00	45.1
		1224	2.00		0334	3.30	63.1		1013	3.05	47.8
		1227	3.00		0405	2.70	31.2		1246	2.75	33.1
		1230	3.26		0420	2.96	43.3		1620	2.56	26.1
		1232	2.43		0436	2.80	35.5		1752	2.10	15.8
		1311	3.00		0445	2.75	33.3		1854	1.86	11.6
		1326	3.18		0451	2.52	24.6		1924	2.03	14.4
		1340	2.50		0537	2.70	31.2		1940	1.91	12.4
		1410	2.89		0638	2.74	32.8		2001	2.00	13.8
		1416	2.74		0810	2.60	27.4		2133	1.75	9.98
		1419	3.00		0841	2.64	28.8		2219	2.10	15.8
		1439	3.24		0911	2.59	27.0		2234	2.04	14.6
		1503	3.16		1043	2.64	28.8		2243	2.10	15.8
		1509	3.00		1145	2.80	35.7		2329	1.87	11.8
		1637	2.80		1215	2.78	34.6		2400	1.94	12.9
		1707	2.55		1317	2.95	42.7				
		1736	2.80		1418	2.90	40.2	2	0039	1.86	11.7
		1806	3.00		1519	3.08	49.7		0057	1.61	8.11
		1835	3.09		1752	2.78	34.6		0508	1.50	6.77
		1841	3.13		2228	2.50	24.3		1145	1.38	5.56
					2259	2.62	28.1		2022	1.32	4.91
									2400	1.29	4.69

11-2158.1. Teakettle Creek tributary No. 7 near Patterson Mountain, Calif.

Location.--Lat 36°57'45", long 119°01'20", in NW¼NW¼ sec.22, T.11 S., R.27 E., 0.3 mile upstream from junction with Teakettle Creek, 1.9 miles east of Patterson Mountain, and 3.0 miles north of Black Rock Reservoir.

Drainage area.--0.11 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 6,800 ft (from topographic map)

Discharge record.--Stage-discharge relation defined by computation of flow over 90° sharp-crested V-notch weir.

Maxima.--January-February 1963: Discharge, 10.3 cfs 0430 hours Jan. 31 (gage height, 1.77 ft).
1957 to December 1962: Discharge, 5.01 cfs Dec. 16, 1957 (gage height, 5.33 ft, at datum 4.00 ft lower).

Remarks.--Records furnished by U.S. Forest Service.

[illegible][illegible]

Remarks.--Records furnished by U.S. Forest Service.

[illegible]

Peakette Creek tributary No. 2 near Patterson Mountain, Calif.											
Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	0.30	0.13	Jan. 30	2354	1.95	13.1	Jan. 31	2036	2.25	18.6
					2400	2.01	14.0		2256	3.00	38.1
30	0327	.34	.17						2400	3.26	49.3
	0526	.37	.21	31	0229	2.41	22.0	Feb. 1	0153	3.31	51.8
	0802	.47	.38		0259	2.67	28.4		0526	3.00	38.1
	1207	.72	1.11		0501	2.36	21.0		0817	2.74	30.4
	1231	1.01	2.53		0507	3.35	53.7		1013	2.53	25.0
	1240	1.73	9.65		0605	3.26	48.9		1304	2.21	17.7
	1300	2.42	22.2		0638	3.01	38.2		1616	2.01	14.0
	1334	1.86	11.5		0647	2.33	20.2		2103	1.76	10.1
	1410	1.83	11.1		1111	2.47	23.4		2400	1.64	8.42
	1507	2.01	14.0		1301	2.72	29.8				
	1525	2.24	18.3		1322	2.70	29.4				
	1555	2.05	14.44		1446	2.93	35.7				
	1646	2.27	19.0		1508	2.85	33.4	2	0621	1.46	6.36
	1916	1.75	9.93		1554	2.93	35.8		1151	1.35	5.24
	2124	2.18	17.2		1743	2.61	26.8		1745	1.29	4.71
	2224	2.31	19.8		1921	2.34	20.4		2400	1.23	4.19

Location.--Lat 36°57'25", long 119°01'50", in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.21, T.11 S., R.27 E., 0.1 mile upstream from junction with Teakettle Creek tributary No. 2, 1.3 miles east of Patterson Mountain, and 2.6 miles north of Black Rock Reservoir.

Gage-height record.--Water-stage recorder graph. Datum of gage is 6,924 ft above mean sea level (levels by U.S. Forest Service).

Maxima.--January-February 1963: Discharge, 34.7 cfs 0145 hours Feb. 1 (gage height, 2.89 ft).
1957 to December 1962: Discharge, 5.54 cfs May 22, 1958 (gage height, 5.38 ft, at datum 4.00 ft lower).

Mean discharge, in cubic feet per second, 1963

[illegible]

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Teakettle Creek tributary No. 1 near Patterson Mountain, Calif.

Date	Hour	Gage height	Dis- charge	Date	Hour	Gage height	Dis- charge	Date	Hour	Gage height	Dis- charge	
Jan. 29	2400	0.28	0.10	Jan. 30	2400	2.04	14.6	Jan. 31	2345	3.39	57.5	
30	0312	.28	.11	31	0045	2.05	14.8		2357	3.49	83.2	
	0413	.31	.14			2400	3.43	59.6				
	0458	.37	.21						Feb. 1	0203	4.21	117
	0559	.41	.27							0304	3.90	91.1
	0853	.64	.83							0506	3.32	53.1
	0954	.75	1.22							0810	2.98	37.5
	1055	1.01	2.55							1013	2.74	30.4
	1155	1.61	8.10							1317	2.32	20.0
	1235	1.65	8.61							1620	2.10	15.6
	1422	1.62	8.22							1924	1.96	13.1
	1629	1.76	10.1							2400	1.79	10.6
	1730	1.74	9.99									
1902	1.84	11.3						2	0230	1.70	9.35	
2003	1.70	9.34							0430	1.62	8.18	
2103	1.76	10.1							0630	1.56	7.56	
2106	2.01	14.0							1130	1.49	6.69	
2122	2.05	14.8							1700	1.44	6.15	
2158	1.90	12.3							2400	1.37	5.44	

11-2165. North Fork Kings River above Dinkey Creek, at Balch Camp, Calif.

Location.--Lat 36°54'10", long 119°07'15", in NW $\frac{1}{4}$ sec.10, T.12 S., R.26 E., on left bank 100 ft downstream from bridge at Balch Camp, 200 ft upstream from Dinkey Creek, and 9.3 miles east of Trimmer.

Drainage area.--250 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 1,240 ft (from river-profile map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 890 cfs. Backwater from Dinkey Creek Jan. 31 to Feb. 2.

Maxima.--January-February 1963: Discharge, 14,000 cfs 0200 hours Feb. 1 (gage height, 13.24 ft, backwater from Dinkey Creek).
1919-30 (prior to regulation by Wishon and Courtright Reservoirs): Discharge, 6,080 cfs June 4, 1922 (gage height, 13.18 ft).
1960 to December 1962: Discharge, 2,460 cfs June 27, 1962 (gage height, 6.58 ft).

Remarks.--Flow regulated by Courtright and Wishon Reservoirs (see stations 11-2145.5 and 11-2148), Black Rock Reservoir (capacity, 1,000 acre-ft), Balch afterbay (capacity, 125 acre-ft), and Haas and Balch powerplants. Diversion from Balch afterbay to Kings River powerhouse began Mar. 1, 1962.

Mean discharge, in cubic feet per second, 1963

[illegible]

11-2168. Rock Creek at Dinkey Creek, Calif.

Location.--Lat 37°05'25", long 119°09'40", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.5, T.10 S., R.26 E., on right bank 0.4 mile northwest of town of Dinkey Creek and 0.5 mile upstream from mouth.

Drainage area.--7.6 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 6,150 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 140 cfs and by slope-area measurement at 2,850 cfs.

Maxima.--January-February 1963: Discharge, 2,850 cfs 0100 hours Feb. 1 (gage height, 8.68 ft, from recorder graph; 9.9 ft, from floodmarks).
1960 to December 1962: Discharge, 776 cfs Feb. 9, 1962 (gage height, 6.69 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0.2	746	11.....	0.3	26	21.....	0.2	19
2.....	.2	96	12.....	.2	23	22.....	.2	17
3.....	.3	54	13.....	.1	25	23.....	.2	15
4.....	.3	43	14.....	.1	25	24.....	.2	16
5.....	.3	36	15.....	.2	21	25.....	.2	17
6.....	.3	32	16.....	.2	19	26.....	.2	19
7.....	.3	30	17.....	.2	17	27.....	.2	19
8.....	.3	26	18.....	.2	16	28.....	.2	17
9.....	.3	25	19.....	.2	18	29.....	.2	-----
10.....	.3	28	20.....	.2	20	30.....	155	-----
						31.....	1,010	-----
Monthly mean discharge, in cubic feet per second.....							37.8	52.3
Runoff, in inches.....							5.73	7.17
Runoff, in acre-feet.....							2,320	2,910

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.92	0.2	Jan. 30	2300	6.53	778	Feb. 1	0400	7.07	1,130
					2400	5.75	432		0600	6.54	784
30	0200	1.93	.3						1200	6.00	530
	0900	2.35	1.8	31	0500	6.48	750		1800	5.17	258
	1200	2.92	11		1200	6.61	826		2400	4.63	153
	1400	2.94	12		1700	7.77	1,730				
	1500	3.63	44		2000	6.90	1,010		0600	4.31	107
	1800	4.44	119		2200	6.90	1,010		1200	4.11	84
	2000	5.61	384		2400	8.14	2,130		1800	4.11	84
	2100	6.33	675	Feb. 1	0100	8.68	2,850		2400	3.91	65
	2200	6.93	1,030								

11-2184. North Fork Kings River below Dinkey Creek, near Balch Camp, Calif.

Location.--Lat 36°52'50", long 119°07'40", in NW $\frac{1}{4}$ sec.22, T.12 S., R.26 E., on right bank 1.1 miles upstream from mouth, 1.7 miles south of Balch Camp, 2.1 miles downstream from Dinkey Creek, and 9 miles east of Trimmer.

Drainage area.--387 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 1,035 ft (from river-profile map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,900 cfs.

Maxima.--January-February 1963: Discharge, 18,200 cfs 0200 hours Feb. 1 (gage height, 19.20 ft).
1960 to December 1962: Discharge, 4,880 cfs Feb. 9, 1962 (gage height, 9.80 ft).

Remarks.--Flow regulated by Courtright and Wishon Reservoirs (see stations 11-2145.5 and 11-2148), Black Rock Reservoir (capacity, 1,000 acre-ft), Balch afterbay (capacity, 125 acre-ft), and Haas and Balch powerplants. Diversion from Balch afterbay to Kings River powerhouse began Mar. 1, 1962.

Mean discharge, in cubic feet per second, 1963, of North Fork Kings River below Dinkey Creek, near Balch Camp, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	19	7,920	11.....	19	414	21.....	17	240
2.....	19	1,560	12.....	19	326	22.....	18	225
3.....	20	752	13.....	16	360	23.....	18	212
4.....	20	542	14.....	15	375	24.....	18	212
5.....	20	450	15.....	17	301	25.....	18	226
6.....	19	393	16.....	17	277	26.....	19	240
7.....	19	367	17.....	17	246	27.....	19	250
8.....	19	352	18.....	17	228	28.....	19	242
9.....	23	354	19.....	17	230	29.....	21	-----
10.....	22	560	20.....	17	234	30.....	855	-----
						31.....	6,980	-----

Monthly mean discharge, in cubic feet per second.....	270	646
Runoff, in acre-feet.....	16,610	35,880

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.00	35	Jan. 31	0300	8.95	3,760	Feb. 1	0200	19.20	18,200
					0400	8.90	3,710		0600	15.00	11,000
	30	0400	1.44		0600	10.60	5,460		0900	12.68	7,920
		0700	2.37		0700	10.37	5,210		1000	12.70	7,940
		1000	3.10		1000	11.65	6,680		1700	10.00	4,800
		1200	3.60		1200	11.90	6,980		2000	9.00	3,800
		1400	4.72		1500	14.85	10,800		2400	7.85	2,780
		1500	5.00		1700	15.62	11,900				
		1900	6.45		1800	15.00	11,000	2	0400	7.00	2,100
		2000	6.50		2100	11.55	6,560		0700	6.48	1,740
		2100	6.62		2300	11.70	6,740		1000	6.10	1,510
		2400	8.10		2400	13.80	9,340		1300	5.80	1,340
									1800	5.52	1,200
31	0200	8.05	2,950	Feb. 1	0100	15.00	11,000		2400	5.07	975

11-2185. Kings River below North Fork, Calif.

Location.--Lat 36°52'30", long 119°08'30", in NE $\frac{1}{4}$ sec.21, T.12 S., R.26 E., on right bank downstream from North Fork, 2.4 miles southwest of Balch Camp and 8.5 miles southeast of Trimmer.

Drainage area.--1,342 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 942.42 ft above mean sea level (levels by Corps of Engineers).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 18,000 cfs and by slope-area measurement at 85,200 cfs.

Maxima.--January-February 1963: Discharge, 41,800 cfs 0300 hours Feb. 1.
1951 to December 1962: Discharge, 85,200 cfs Dec. 23, 1955 (gage height, 23.08 ft).

Remarks.--Flow affected by Courtright Reservoir (see station 11-2145.5) and Wishon Reservoir (see station 11-2148). Records include flow diverted to Kings River powerplant. Records of diversion to Kings River powerplant furnished by Pacific Gas and Electric Co.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	127	26,300	11.....	193	1,660	21.....	190	1,280
2.....	127	7,170	12.....	115	1,500	22.....	159	1,090
3.....	132	4,280	13.....	97	1,570	23.....	288	1,080
4.....	132	2,740	14.....	193	1,580	24.....	161	1,040
5.....	129	2,430	15.....	235	1,430	25.....	176	961
6.....	127	2,160	16.....	302	1,290	26.....	113	974
7.....	122	1,870	17.....	303	1,090	27.....	113	1,020
8.....	181	1,900	18.....	191	1,110	28.....	279	1,030
9.....	127	1,970	19.....	185	1,150	29.....	206	-----
10.....	122	2,480	20.....	102	1,150	30.....	3,210	-----
						31.....	20,000	-----

Monthly mean discharge, in cubic feet per second.....	908	2,689
Runoff, in acre-feet.....	55,810	149,400

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Kings River below North Fork, Calif. (river plus diversion)

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	-	187	Jan. 31	0800	-	13,300	Feb. 1	1000	-	30,900
					1200	-	19,700		1300	-	24,000
30	0400	-	712		1500	-	30,800		1800	-	16,900
	0600	-	1,350		1700	-	34,900		2400	-	11,100
	0900	-	1,970		1800	-	32,100				
	1200	-	2,690		2000	-	25,700	2	0600	-	8,380
	1600	-	4,370		2200	-	21,500		1200	-	6,480
	1900	-	5,740		2400	-	27,400		1800	-	5,740
	2200	-	6,340						2400	-	5,210
	2400	-	8,000	Feb. 1	0200	-	37,700				
					0300	-	41,800				
31	0300	-	9,630		0500	-	41,500	3	1200	-	4,080
	0500	-	11,500		0800	-	32,100		2400	-	3,390

11-2200. Big Creek above Pine Flat Reservoir, Calif.

Location--Lat 36°55'05", long 119°14'45", in NE $\frac{1}{4}$ sec. 4, T.12 S., R.25 E., on right bank 2.4 miles upstream from mouth and 2.7 miles northeast of Trimmer.

Drainage area--69.9 sq mi.

Gage-height record--Water-stage recorder graph. Datum of gage is 962.04 ft above mean sea level (levels by Corps of Engineers).

Discharge record--Stage-discharge relation defined by current-meter measurements below 1,300 cfs and by slope-area measurement at 10,400 cfs.

Maxima--January-February 1963: Discharge, 9,600 cfs 0230 hours Feb. 1 (gage height, 9.00 ft).
1953 to December 1962: Discharge, 10,400 cfs Dec. 23, 1955 (gage height, 9.21 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	3.2	2,370	11.....	3.8	130	21.....	3.4	45
2.....	3.2	267	12.....	3.8	86	22.....	3.6	42
3.....	3.2	114	13.....	3.0	100	23.....	3.8	39
4.....	3.2	79	14.....	2.6	113	24.....	3.8	37
5.....	3.2	60	15.....	3.4	80	25.....	3.8	36
6.....	3.2	51	16.....	3.6	67	26.....	3.6	34
7.....	3.2	44	17.....	3.4	58	27.....	3.6	34
8.....	3.2	39	18.....	3.4	53	28.....	3.6	32
9.....	3.2	41	19.....	3.6	50	29.....	5.2	---
10.....	3.6	406	20.....	3.4	47	30.....	519	---
						31.....	3,200	---
Monthly mean discharge, in cubic feet per second.....							123	163
Runoff, in inches.....							2.05	2.45
Runoff, in acre-feet.....							7,580	9,030

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.43	12	Jan. 30	2400	5.48	1,580	Feb. 1	0100	7.00	3,900
									0230	9.00	9,600
30	0300	1.58	18		0100	5.60	1,700		0500	7.37	4,680
	0400	1.65	22	31	0300	5.51	1,610		0700	6.29	2,620
	0600	2.09	52		0800	6.30	2,640		0900	5.63	1,740
	0900	3.19	223		1200	6.88	3,660		1100	5.29	1,390
	1200	4.12	580		1400	8.02	6,360		1500	4.82	1,000
	1300	4.24	640		1500	8.46	7,680		1900	4.36	706
	1500	4.37	712		1600	8.22	6,960		2400	3.93	492
	1700	4.39	724		1800	6.83	3,560				
	1800	4.53	808		2000	6.25	2,560	2	0600	3.52	333
	1900	4.57	832		2100	5.78	1,920		1200	3.23	236
	2000	4.65	885		2300	5.54	1,640		1800	3.03	181
	2200	5.08	1,200		2400	5.87	2,020		2400	2.86	147

11-2205. Sycamore Creek above Pine Flat Reservoir, Calif.

Location.--Lat 36°55'15", long 119°18'30", in NW¼ sec.1, T.12 S., R.24 E., on right bank 0.1 mile downstream from Little Dry Creek, 1.7 miles northwest of Trimmer, and 4.8 miles upstream from mouth.

Drainage area.--56.1 sq mi.

Gage-height record.--Water-stage recorder graph, except Jan. 18-29. Datum of gage is 1,141.96 ft above mean sea level (levels by Corps of Engineers).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,400 cfs and by slope-area measurement at 6,760 cfs. Discharge for Jan. 18-29 estimated on basis of records for nearby streams.

Maxima.--January-February 1963: Discharge, 3,310 cfs 1330 hours Jan. 31 (gage height, 7.56 ft).
1953 to December 1962: Discharge, 6,760 cfs Dec. 24, 1955 (gage height, 9.78 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0.4	744	11.....	0.5	57	21.....	0.4	11
2.....	.4	79	12.....	.5	39	22.....	.4	11
3.....	.4	33	13.....	.5	60	23.....	.4	10
4.....	.4	20	14.....	.6	67	24.....	.4	9.5
5.....	.4	13	15.....	.6	31	25.....	.4	8.7
6.....	.4	9.5	16.....	.5	22	26.....	.4	8.7
7.....	.4	7.3	17.....	.4	18	27.....	.4	8.7
8.....	.4	5.6	18.....	.4	15	28.....	.4	8.0
9.....	.4	30	19.....	.4	15	29.....	.4	-----
10.....	.4	458	20.....	.4	13	30.....	248	-----
						31.....	1,280	-----
Monthly mean discharge, in cubic feet per second.....							49.7	64.7
Runoff, in inches.....							1.01	1.19
Runoff, in acre-feet.....							3,060	3,590

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	0.74	0.4	Jan. 31	0400	4.00	582	Feb. 1	0400	6.70	2,480
					0800	4.41	795		0500	6.13	2,000
30	0830	.74	.4		0900	5.10	1,250		0700	4.79	1,020
	0900	2.69	261		1100	5.38	1,450		1000	3.85	522
	1100	3.45	402		1300	7.39	3,140		1400	3.15	330
	1200	3.43	398		1330	7.56	3,310		1800	2.48	225
	1300	3.33	372		1400	7.47	3,220		2000	2.30	193
	1500	2.66	257		1500	7.54	3,290		2400	2.14	163
	1630	2.41	213		1700	6.00	1,900				
	1800	2.69	261		1800	4.90	1,110	2	0300	1.92	121
	2000	3.57	435		2200	3.59	441		0600	1.77	95
	2200	4.04	602		2300	3.46	405		0900	1.67	80
	2300	4.24	700		2400	3.44	400		1200	1.59	69
	2400	4.30	735						1800	1.48	54
31	0200	4.02	594	Feb. 1	0100	3.97	570		2400	1.41	44
					0300	6.93	2,690				

11-2210. Pine Flat Reservoir near Piedra, Calif.

Location.--Lat 36°49'55", long 119°19'25", in NE $\frac{1}{4}$ sec.2, T.13 S., R.24 E., near center of Pine Flat Dam on Kings River, 1.9 miles upstream from Mill Creek, 3.5 miles northeast of Piedra, and 16 miles northeast of Sanger.

Drainage area.--1,545 sq mi.

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

Contents record.--Contents computed from capacity table dated Jan. 1, 1956.

Maxima.--January-February 1963: Computed bihourly inflow, 56,800 cfs 0200 to 0400 hours Feb. 1. Contents, 513,200 acre-ft 2400 hours Feb. 28 (elevation, 853.87 ft).

1951 to December 1962: Contents, 1,000,300 acre-ft June 28, 1958 (elevation, 951.31 ft).

Remarks.--Reservoir formed by gravity-type concrete dam; regulation began Dec. 4, 1951. Capacity, 1,013,400 acre-ft between elevations 565.5 ft (bottom of lower tier of river outlets) and 953.5 ft (top of spillway gates) above mean sea level. No dead storage. Reservoir is used for flood control and conservation storage. Records furnished by Corps of Engineers.

Elevation, in feet, and contents, in acre-feet, at 2400 hours, 1963

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	790.91	287,700	827.97	412,300	16	790.12	285,300	847.87	488,800
2	790.85	287,600	832.13	427,700	17	790.13	285,400	848.37	490,800
3	790.81	287,400	834.46	436,500	18	790.10	285,500	848.91	493,000
4	790.75	287,500	835.96	442,200	19	790.04	285,100	849.45	495,200
5	790.69	287,100	837.21	447,000	20	789.92	284,700	850.00	497,400
6	790.61	286,800	838.34	451,500	21	789.96	284,600	850.62	499,900
7	790.55	286,600	839.30	455,000	22	789.78	284,300	851.12	501,900
8	790.49	286,500	840.25	458,700	23	789.79	284,300	851.60	503,900
9	790.43	286,300	841.34	463,000	24	789.73	284,200	852.08	505,900
10	790.34	286,000	843.22	470,300	25	789.70	284,100	852.53	507,700
11	790.32	285,900	844.18	474,100	26	789.64	283,900	852.97	509,500
12	790.27	285,800	844.88	476,900	27	789.58	283,700	853.42	511,400
13	790.17	285,500	845.75	480,300	28	789.63	283,900	853.87	513,200
14	790.13	285,400	846.60	483,700	29	789.78	284,300	-	-
15	790.11	285,300	847.27	486,400	30	792.24	291,800	-	-
					31	809.20	346,300	-	-
Change in contents, in acre-feet.....						-	+58,400	-	+166,900

Average inflow, in cubic feet per second, for bihourly periods ending at indicated time, 1963

Date	Hour	Inflow	Date	Hour	Inflow	Date	Hour	Inflow
Jan. 30	0200	400	Jan. 31	1000	19,000	Feb. 1	1800	21,600
	0400	707		1200	28,400		2000	17,700
	0600	1,450		1400	41,800		2200	16,400
	0800	2,000		1600	38,400		2400	12,900
	1000	1,450		1800	48,200	2	0200	12,300
	1200	4,660		2000	42,200		0400	10,700
	1400	3,260		2200	32,800		0600	9,430
	1600	5,700		2400	27,300		0800	7,860
	1800	4,820	Feb. 1	0200	42,900		1000	9,680
	2000	6,730		0400	56,800		1200	6,620
	2200	8,400		0600	56,400		1400	7,360
	2400	8,400		0800	43,700		1600	6,550
31	0200	11,800		1000	43,900		1800	6,120
	0400	10,500		1200	34,600		2000	5,900
	0600	13,900		1400	24,900		2200	5,900
	0800	15,700		1600	27,900		2400	5,240

11-2215. Kings River below Pine Flat Dam, Calif.

Location--Lat 36°49'50", long 119°20'05", in NW $\frac{1}{4}$ sec.2, T.13S., R.24 E., on right bank 3,200 ft downstream from Pine Flat Dam and 2.9 miles northeast of Piedra.

Drainage area--1,545 sq mi.

Gage-height record--Water-stage recorder graph. Datum of gage is 556.97 ft above mean sea level (levels by Corps of Engineers).

Discharge record--Stage-discharge relation defined by current-meter measurements.

Maxima--January-February 1963: Discharge, 292 cfs 1900 hours Feb. 12 (gage height, 2.17 ft).
1953 to December 1962: Discharge, 12,700 cfs May 3, 1958 (gage height, 9.35 ft).

Remarks--Flow completely regulated by Pine Flat, Wishon, and Courtright Reservoirs.

11-2217. Mill Creek near Piedra, Calif.

Location--Lat 36°49'05", long 119°20'25", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.10, T.13 S., R.24 E., on left bank 150 ft upstream from road bridge, 0.7 mile upstream from mouth, and 2.3 miles east of Piedra.

Drainage area--120 sq mi.

Gage-height record--Water-stage recorder graph. Altitude of gage is 550 ft (from topographic map).

Discharge record--Stage-discharge relation defined by current-meter measurements below 1,200 cfs.

Maxima--January-February 1963: Discharge, 3,120 cfs 1700 hours Jan. 31 (gage height, 6.68 ft, from recorder graph; 7.0 ft, from floodmarks).
1957 to December 1962: Discharge, 5,000 cfs Mar. 22, 1958 (gage height, 7.29 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0	784	11.....	0	120	21.....	0	26
2.....	0	153	12.....	0	77	22.....	0	24
3.....	0	65	13.....	0	74	23.....	0	21
4.....	0	41	14.....	0	70	24.....	0	21
5.....	0	30	15.....	0	54	25.....	0	21
6.....	0	24	16.....	0	45	26.....	0	19
7.....	0	21	17.....	0	40	27.....	0	18
8.....	0	18	18.....	0	34	28.....	0	18
9.....	0	25	19.....	0	31	29.....	0	-----
10.....	0	537	20.....	0	28	30.....	51	-----
						31.....	1,040	-----
Monthly mean discharge, in cubic feet per second.....							35.2	87.1
Runoff, in inches.....							0.34	0.76
Runoff, in acre-feet.....							2,160	4,840

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	-	0	Jan. 31	1300	4.92	926	Feb. 1	0800	5.47	1,450
					1400	5.53	1,510		1200	4.94	942
					1500	6.10	2,220		1700	4.38	538
					1600	6.63	3,050		1800	4.26	468
					1700	6.68	3,120		2400	3.89	291
					1900	6.10	2,220				
					2100	5.45	1,430				
					2400	4.47	806				
								2	0600	3.62	187
									1200	3.43	132
									1800	3.31	105
									2400	3.20	87
				Feb. 1	0300	4.50	610				
					0400	4.61	687				
					0600	5.35	1,320				

11-2226. Bear Mountain Creek near Squaw Valley, Calif.

(Crest-stage station)

Location.--Lat 36°43'52", long 119°16'53", in NW¼ sec.8, T.14 S., R.25 E., on State Highway 180, 1.0 mile west of Squaw Valley, Calif.

Drainage area.--0.14 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 1,600 ft (from topographic map).

Discharge record.--Maximum discharge by computation of flow through culvert.

Maxima.--January-February 1963: Discharge, 0.3 cfs (estimated) Feb. 1 (gage height, 6.03 ft, from high-water profile).
1959 to December 1962: Discharge, 3.0 cfs Feb. 10, 1962 (gage height, 6.45 ft).

SAN JOAQUIN RIVER BASIN

11-2265. San Joaquin River at Miller Crossing, Calif.

Location.--Lat 37°30'35", long 119°11'50", in NE¼ sec.11, T.5 S., R.25 E., on right bank 2.4 miles downstream from North Fork San Joaquin River, 4.6 miles east of Clover Meadow ranger station, and 23 miles northeast of town of Bass Lake.

Drainage area.--249 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 4,570 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 8,120 cfs 0100 hours Feb. 1 (gage height, 18.32 ft).
1921-28, 1951 to December 1962: Discharge, 16,600 cfs Dec. 23, 1955 (gage height, 21.28 ft), from rating curve extended above 5,100 cfs on basis of contracted-opening measurement of maximum flow.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....		5,350	11.....		382	21.....		300
2.....		1,570	12.....		352	22.....		286
3.....		970	13.....		409	23.....		268
4.....		780	14.....		388	24.....		278
5.....	33	626	15.....	33	320	25.....	33	305
6.....		555	16.....		305	26.....		358
7.....		514	17.....		278	27.....		373
8.....		496	18.....		270	28.....		332
9.....		436	19.....		270	29.....	44	-----
10.....		439	20.....		284	30.....	248	-----
						31.....	2,710	-----

Monthly mean discharge, in cubic feet per second.....	127	625
Runoff, in inches.....	0.57	2.56
Runoff, in acre-feet.....	7,790	34,700

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	9.21	49	Jan. 31	0500	12.98	1,080	Feb. 1	0700	17.90	7,240
					0600	12.79	964		1000	17.34	6,170
30	0200	9.21	49		0700	13.53	1,440		1400	16.36	4,590
	0400	9.24	50		0800	13.29	1,270		2400	14.69	2,470
	0600	9.20	48		1100	14.00	1,810				
	0800	9.24	50		1200	14.46	2,240	2	0500	14.00	1,810
	1000	9.35	57		1600	15.74	3,730		1200	13.51	1,430
	1200	9.46	64		2000	15.94	4,000		1400	13.42	1,360
	1600	10.35	170		2200	17.61	6,660		1600	13.42	1,360
	1900	11.22	346		2300	17.23	5,970		1800	13.38	1,340
	2000	11.88	548		2400	17.50	6,460		2400	13.12	1,160
	2200	12.15	650								
	2400	12.68	900	Feb. 1	0100	18.32	8,120				
					0300	18.00	7,440				
31	0300	12.25	690		0600	17.72	6,680				

11-2296. Florence Lake near Big Creek, Calif.

Location.--Lat 37°16'25", long 118°58'20", in NW¹ sec.1, T.8 S., R.27 E., in gate-house of Ward tunnel intake, near dam on South Fork San Joaquin River, 16 miles northeast of town of Big Creek.

Drainage area.--171 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is at mean sea level (levels by Southern California Edison Co.).

Contents record.--Contents computed from capacity table dated Aug. 26, 1926.

Maxima.--January-February 1963: Contents, 5,470 acre-ft 1000 hours Feb. 5 (elevation, 7,247.11 ft).

1925 to December 1962: Contents, 66,000 acre-ft July 3, 1932 (elevation, 7,329.14 ft).

Remarks.--Lake is formed by multiple-arch concrete dam; storage began in April 1925. Usable capacity, 64,400 acre-ft between elevations 7,220.9 ft (throat of venturil tube in Ward tunnel intake) and 7,327.5 ft (top of spillway drum gates) above mean sea level. Additional storage of 168 acre-ft is not available for diversion. Water is diverted through Ward tunnel to Huntington Lake and used for power development in Big Creek plants. Figures given herein represent usable contents. Records furnished by Southern California Edison Co.

Elevation, in feet, and contents, in acre-feet, at 2400 hours, 1963

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	7,224.08	207	7,241.66	3,510	16	7,223.95	197	7,225.74	354
2	7,224.08	207	7,243.98	4,300	17	7,223.94	196	7,225.44	324
3	7,224.10	208	7,245.30	4,780	18	7,223.92	195	7,225.34	314
4	7,224.12	210	7,246.60	5,270	19	7,223.91	194	7,225.33	313
5	7,224.13	211	7,246.26	5,140	20	7,223.91	194	7,225.38	318
6	7,224.15	212	7,245.84	4,980	21	7,223.90	194	7,225.43	323
7	7,224.15	212	7,244.75	4,570	22	7,223.93	196	7,225.39	319
8	7,224.14	211	7,245.50	4,130	23	7,223.95	197	7,225.31	311
9	7,224.13	211	7,242.06	3,640	24	7,223.98	199	7,225.34	314
10	7,224.12	210	7,240.45	3,120	25	7,224.00	201	7,225.43	323
11	7,224.09	208	7,238.53	2,580	26	7,224.02	202	7,225.53	333
12	7,224.05	204	7,236.31	2,060	27	7,224.04	204	7,225.52	332
13	7,224.01	201	7,233.85	1,550	28	7,224.05	204	7,225.43	323
14	7,224.00	201	7,231.15	1,070	29	7,224.12	210	-	-
15	7,223.97	199	7,227.50	556	30	7,225.90	370	-	-
					31	7,232.98	1,390	-	-
Change in contents, in acre-feet.....						-	+1,180	-	-1,070

11-2300. South Fork San Joaquin River near Florence Lake, Calif.

Location.--Lat 37°16'20", long 118°57'50", in SE¹ sec.36, T.7 S., R.27 E., on left bank just downstream from spillway of Florence Lake Dam and 6 miles upstream from Bear Creek.

Drainage area.--171 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 7,200 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 9.9 cfs 1430 hours Jan. 31 (gage height, 9.10 ft).

1921 to December 1962: Discharge, 4,320 cfs June 6, 1940 (gage height, 15.38 ft).

Remarks.--Flow regulated by Florence Lake since 1925 (see station 11-2296).

Mean discharge, in cubic feet per second, 1963, of South Fork San Joaquin River near Florence Lake, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	3.1	5.6	11.....	3.1	3.7	21.....	3.1	3.1
2.....	3.1	3.9	12.....	3.1	3.6	22.....	3.1	3.1
3.....	3.1	3.9	13.....	3.1	3.7	23.....	3.1	3.1
4.....	3.1	3.9	14.....	3.1	3.4	24.....	3.1	3.1
5.....	3.1	3.9	15.....	3.1	3.3	25.....	3.1	3.1
6.....	3.1	3.8	16.....	3.1	3.1	26.....	3.1	3.1
7.....	3.1	3.8	17.....	3.1	3.1	27.....	3.1	3.1
8.....	3.1	3.8	18.....	3.1	3.1	28.....	3.1	3.1
9.....	3.1	3.8	19.....	3.1	3.1	29.....	3.1	- - - - -
10.....	3.1	3.8	20.....	3.1	3.1	30.....	5.3	- - - - -
						31.....	7.4	- - - - -
Monthly mean discharge, in cubic feet per second.....							3.31	3.51
Runoff, in acre-feet.....							204	195

11-2310. Lake Thomas A. Edison near Big Creek, Calif.

Location.--Lat 37°22'10", long 118°59'15", in sec.26, T.6 S., R.27 E. (unsurveyed), in outlet works of dam on Mono Creek at lower end of Vermilion Valley, 18.1 miles northeast of town of Big Creek.

Drainage area.--88.9 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is at mean sea level (levels by Southern California Edison Co.).

Contents record.--Contents computed from capacity table dated July 22, 1955.

Maxima.--January-February 1963: Contents, 72,000 acre-ft 0000 hours Jan. 1 (elevation, 7,612.13 ft).
1954 to December 1962: Contents, 125,900 acre-ft Aug. 18, 1958 (elevation, 7,642.95 ft).

Remarks.--Lake is formed by earthfill dam; dam completed and storage began on Oct. 12, 1954. Usable capacity, 125,000 acre-ft between elevations 7,508.9 ft (invert of outlet works) and 7,642.5 ft (top of gates in service spillway) above mean sea level. Water is released for diversion to Ward tunnel via Mono Creek diversion works. Figures given herein represent usable contents. Records furnished by Southern California Edison Co.

Elevation, in feet, and contents, in acre-feet, at 2400 hours, 1963

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	7,611.84	71,500	7,604.22	59,800	16	7,607.36	64,500	7,601.12	55,400
2	7,611.53	71,000	7,604.30	59,900	17	7,607.05	64,100	7,600.57	54,600
3	7,611.24	70,600	7,604.32	60,000	18	7,606.73	63,600	7,600.03	53,800
4	7,610.95	70,100	7,604.14	59,700	19	7,606.44	63,100	7,599.48	53,000
5	7,610.66	69,700	7,603.92	59,400	20	7,606.15	62,700	7,599.95	52,300
6	7,610.35	69,200	7,603.70	59,100	21	7,605.86	62,300	7,598.41	51,600
7	7,610.08	68,700	7,603.48	58,700	22	7,605.56	61,800	7,597.87	50,800
8	7,609.78	68,300	7,603.25	58,400	23	7,605.27	61,400	7,597.31	50,100
9	7,609.48	67,800	7,603.03	58,100	24	7,604.95	60,900	7,596.78	49,300
10	7,609.18	67,300	7,602.80	57,800	25	7,604.65	60,500	7,596.36	48,800
11	7,608.87	66,900	7,602.54	57,400	26	7,604.34	60,000	7,596.16	48,500
12	7,608.56	66,400	7,602.29	57,000	27	7,604.04	59,600	7,595.94	48,200
13	7,608.25	65,900	7,602.07	56,700	28	7,603.76	59,200	7,595.72	47,900
14	7,607.96	65,400	7,601.80	56,300	29	7,603.55	58,900	-	-
15	7,607.66	65,000	7,601.54	56,000	30	7,603.76	59,200	-	-
					31	7,603.95	59,400	-	-
Change in contents, in acre-feet.....						-	-12,600	-	-11,500

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Jackass Creek near Bass Lake, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	4.91	0	Jan. 31	1600	6.95	80	Feb. 1	1200	9.54	428
					2100	8.48	257		1900	8.58	272
30	1300	4.91	0		2200	8.80	305		2400	7.98	190
	1800	5.00	.1		2300	9.00	335				
	2100	5.10	.9		2400	9.19	364	2	1000	7.22	103
	2400	5.31	4.1	Feb. 1	0300	9.95	510		1600	7.29	110
31	0800	6.07	27		0600	10.10	540		2400	6.96	81

11-2345. Chiquito Creek near Bass Lake, Calif.

Location.--Lat 37°24'45", long 119°22'50", in NE $\frac{1}{4}$ sec.18, T.6 S., R.24 E., on right bank 0.5 mile downstream from Beasore Creek, 0.6 mile southwest of Arnold Meadow, and 12 miles northeast of town of Bass Lake.

Drainage area.--59.6 sq mi.

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

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,100 cfs and by slope-area measurement at 8,630 cfs; affected by ice Jan. 31.

Maxima.--January-February 1963: Discharge, 5,660 cfs 0200 hours Feb. 1 (gage height, 13.93 ft).
1921-28, 1951 to December 1962: Discharge, 8,630 cfs Dec. 23, 1955 (gage height, 16.38 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	7.6	2,960	11.....	7.6	139	21.....	6.4	106
2.....	7.6	528	12.....	6.4	127	22.....	7.2	98
3.....	8.0	287	13.....	6.0	139	23.....	8.4	95
4.....	8.4	227	14.....	6.0	139	24.....	8.9	98
5.....	8.0	194	15.....	6.4	119	25.....	8.9	106
6.....	8.0	173	16.....	6.4	115	26.....	8.9	115
7.....	8.9	160	17.....	6.4	104	27.....	8.4	115
8.....	8.9	154	18.....	6.4	100	28.....	11	108
9.....	8.9	152	19.....	6.4	100	29.....	8.4	-----
10.....	8.0	169	20.....	6.4	104	30.....	91	-----
						31.....	1,780	-----

Monthly mean discharge, in cubic feet per second.....	67.6	251
Runoff, in inches.....	1.31	4.39
Runoff, in acre-feet.....	4,150	13,950

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	4.60	11	Jan. 31	0500	7.28	627	Feb. 1	0500	12.78	4,460
					0700	7.64	773		0900	11.96	3,640
30	0300	4.83	13		0900	7.82	854		1500	9.85	1,980
	0900	5.03	30		1100	8.35	1,120		2400	7.96	920
	1300	5.35	74		1700	11.37	3,100	2	0300	7.58	747
	1500	5.55	110		1800	11.56	3,260		0500	7.39	671
	1900	5.65	129		2000	11.00	2,800		1000	7.00	515
	2200	6.05	219		2100	11.31	3,050		1100	6.90	480
	2300	6.44	332		2200	11.89	3,570		1700	6.70	410
	2400	6.58	374		2300	11.74	3,430		2400	6.47	341
31	0100	6.60	380	Feb. 1	0200	13.93	5,660				
	0300	6.64	392								

11-2347. Mammoth Pool Reservoir near Big Creek, Calif.

Location.--Lat 37°19'45", long 119°19'15", in SW $\frac{1}{4}$ sec.11, T.7 S., R.24 E., in gate-house of power tunnel intake near dam on San Joaquin River, 10 miles northwest of town of Big Creek.

Drainage area.--1,002 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is at mean sea level (levels by Southern California Edison Co.).

Contents record.--Contents computed from capacity table dated Nov. 6, 1959.

Maxima.--January-February 1963: Contents, 98,900 acre-ft 0300 hours Feb. 5 (elevation, 3,309.58 ft).
1959 to December 1962: Contents, 123,100 acre-ft May 6, 1962 (elevation, 3,332.82 ft).

Remarks.--Reservoir is formed by an earthfill dam; storage began Oct. 8, 1959. Usable capacity, 119,900 acre-ft between elevations 3,100.00 ft (invert of power tunnel) and 3,330.00 ft (crest of spillway) above mean sea level. Additional storage of 2,780 acre-ft is not available for release. Water is diverted through tunnel for power development; water is returned to river 8.5 miles downstream from dam. Figures given herein represent usable contents. Records furnished by Southern California Edison Co.

Elevation, in feet, and contents, in acre-feet, at 2400 hours, 1963

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	3,203.82	23,100	3,300.30	90,100	16	3,194.04	19,000	3,291.73	82,200
2	3,201.98	22,300	3,307.35	96,700	17	3,192.59	18,400	3,289.14	79,900
3	3,201.49	22,000	3,309.12	98,400	18	3,192.72	18,500	3,286.44	77,600
4	3,200.83	21,800	3,309.56	98,900	19	3,192.93	18,500	3,283.64	75,200
5	3,200.12	21,500	3,309.11	98,400	20	3,193.27	18,700	3,280.77	72,800
6	3,200.49	21,600	3,308.17	97,500	21	3,193.24	18,700	3,277.94	70,400
7	3,200.23	21,500	3,306.96	96,300	22	3,193.31	18,700	3,275.00	68,000
8	3,199.97	21,400	3,305.56	95,000	23	3,193.62	18,800	3,271.81	65,400
9	3,199.54	21,200	3,304.07	93,600	24	3,193.94	18,900	3,268.62	62,900
10	3,199.07	21,000	3,302.93	92,500	25	3,193.97	18,900	3,265.43	60,500
11	3,198.37	20,700	3,301.23	90,900	26	3,194.35	19,100	3,262.55	58,300
12	3,197.64	20,400	3,299.28	89,100	27	3,193.86	18,900	3,259.69	56,200
13	3,196.46	19,900	3,297.68	87,600	28	3,194.14	19,000	3,256.55	53,900
14	3,195.62	19,600	3,296.22	86,300	29	3,194.60	19,200	-	-
15	3,194.95	19,300	3,294.10	84,400	30	3,202.00	22,300	-	-
					31	3,250.00	49,300	-	-
Change in contents, in acre-feet.....						-	+26,100	-	+4,600

11-2347.6. San Joaquin River above Shakeflat Creek, near Big Creek, Calif.

Location.--Lat 37°19'05", long 119°19'40", in SW $\frac{1}{4}$ sec.14, T.7 S., R.24 E., on right bank 1,500 ft upstream from Shakeflat Creek, 4,900 ft downstream from Mammoth Pool dam, and 10 miles northwest of town of Big Creek.

Drainage area.--1,003 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 2,865.50 ft above mean sea level (levels by Southern California Edison Co.).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 261 cfs 2130 hours Jan. 31 (gage height, 4.50 ft).
1959 to December 1962: Discharge, 5,780 cfs May 6, 1962 (gage height, 11.90 ft).

Remarks.--Flow regulated by Mammoth Pool Reservoir (see station 11-2347); slightly regulated by Florence Lake and Lake Thomas A. Edison (see stations 11-2296 and 11-2310).

Mean discharge, in cubic feet per second, 1963, of San Joaquin River above Shakeflat Creek, near Big Creek, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	11	75	11.....	11	9.0	21.....	11	12
2.....	11	39	12.....	11	4.9	22.....	11	12
3.....	11	62	13.....	10	16	23.....	11	12
4.....	11	61	14.....	10	15	24.....	11	12
5.....	11	60	15.....	11	13	25.....	11	12
6.....	11	37	16.....	11	13	26.....	11	11
7.....	11	14	17.....	11	13	27.....	11	11
8.....	11	14	18.....	11	13	28.....	11	11
9.....	11	15	19.....	11	13	29.....	12	- - - - -
10.....	11	18	20.....	11	12	30.....	59	- - - - -
						31.....	105	- - - - -
Monthly mean discharge, in cubic feet per second.....							15.5	21.8
Runoff, in acre-feet.....							956	1,210

11-2360. Huntington Lake near Big Creek, Calif.

Location.--Lat 37°14'05", long 119°12'40", in SW $\frac{1}{4}$ sec.14, T.8 S., R.25 E., in gate tower of dam 1 on Big Creek, 2 miles northeast of town of Big Creek.

Drainage area.--79.0 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is at mean sea level (levels by Southern California Edison Co.).

Contents record.--Contents computed from capacity table dated Sept. 24, 1946.

Maxima.--January-February 1963: Contents, 62,800 acre-ft 0100 hours Feb. 26 (elevation, 6,930.16 ft).
1913 to December 1962: Contents, 90,500 acre-ft May 31, 1926 (elevation, 6,950.92 ft).

Remarks.--Lake is formed by four dams; storage began Apr. 11, 1913. Dams were raised in 1914 and again in 1917. Usable capacity, 89,200 acre-ft between elevations 6,819.9 ft (invert of outlet tunnel No.1) and 6,950 ft (spillway crest at dam 1) above mean sea level. Additional storage of 600 acre-ft is not available for release. Water is used for power development in Big Creek plants. Figures given herein represent usable contents. Records furnished by Southern California Edison Co.

Elevation, in feet, and contents, in acre-feet, at 2400 hours, 1963									
Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	6,923.65	55,000	6,926.67	58,500	16	6,922.06	53,100	6,929.26	61,600
2	6,923.43	54,700	6,926.63	58,500	17	6,921.83	52,900	6,929.35	61,800
3	6,923.37	54,600	6,926.24	58,000	18	6,921.61	52,600	6,929.44	61,900
4	6,923.24	54,500	6,926.22	58,000	19	6,921.61	52,600	6,929.49	61,900
5	6,923.39	54,700	6,926.21	58,000	20	6,921.78	52,800	6,929.57	62,000
6	6,923.67	55,000	6,926.55	58,400	21	6,921.61	52,600	6,929.69	62,200
7	6,923.76	55,100	6,926.86	58,800	22	6,921.38	52,400	6,929.77	62,300
8	6,923.74	55,100	6,927.18	59,100	23	6,921.13	52,100	6,929.87	62,400
9	6,923.58	54,900	6,927.55	59,600	24	6,920.85	51,800	6,930.02	62,600
10	6,923.42	54,700	6,927.85	59,900	25	6,920.59	51,500	6,930.15	62,700
11	6,923.16	54,400	6,928.10	60,200	26	6,920.91	51,800	6,929.94	62,500
12	6,922.93	54,100	6,928.37	60,600	27	6,921.12	52,100	6,929.73	62,200
13	6,922.74	53,900	6,928.71	61,000	28	6,920.91	51,800	6,929.45	61,900
14	6,922.46	53,600	6,928.93	61,200	29	6,920.78	51,700	-	-
15	6,922.23	53,300	6,929.14	61,500	30	6,921.35	51,300	-	-
					31	6,923.68	55,000	-	-
Change in contents, in acre-feet.....						-	+300	-	+6,900

11-2370. Big Creek below Huntington Lake, Calif.

Location.--Lat 37°13'10", long 119°12'50", in NW $\frac{1}{4}$ sec.23, T.8 S., R.25 E., on right bank 1,200 ft upstream from Grouse Creek and 1 mile downstream from Huntington Lake.

Drainage area.--80 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 6,600 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 28 cfs 0200 hours Feb. 1 (gage height, 3.01 ft).

1925 to December 1962: Discharge, 2,040 cfs June 23, 1925 (gage height, 11.3 ft, present datum), siphon spillways operating at Huntington Lake.

Remarks.--Flow regulated by Huntington Lake since 1913 (see station 11-2360).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	1.6	14	11.....	1.5	2.6	21.....	1.5	2.3
2.....	1.6	4.9	12.....	1.5	2.5	22.....	1.5	2.3
3.....	1.6	3.6	13.....	1.5	2.8	23.....	1.5	2.2
4.....	1.6	3.1	14.....	1.5	2.7	24.....	1.5	2.2
5.....	1.6	2.8	15.....	1.5	2.6	25.....	1.5	2.2
6.....	1.6	2.6	16.....	1.5	2.4	26.....	1.5	2.2
7.....	1.5	2.5	17.....	1.5	2.4	27.....	1.5	2.1
8.....	1.5	2.4	18.....	1.5	2.4	28.....	1.5	2.1
9.....	1.5	2.6	19.....	1.5	2.4	29.....	1.6	-----
10.....	1.5	3.0	20.....	1.5	2.4	30.....	4.8	-----
						31.....	13	-----
Monthly mean discharge, in cubic feet per second.....							2.00	3.01
Runoff, in acre-feet.....							123	167

11-2372. South Fork Tamarack Creek tributary near Big Creek, Calif.

(Crest-stage station)

Location.--Lat 37°10'40", long 119°12'10", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.1, T.9 S., R.25 E., on State Highway 168, 2.8 miles southeast of Big Creek.

Drainage area.--1.24 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 7,200 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 8.7 cfs and by computation of flow through culvert at 26 and 66 cfs.

Maxima.--January-February 1963: Discharge, 66 cfs Jan. 31 (gage height, 28.98 ft, from high-water profile).

1959 to December 1962: Discharge, 26 cfs May 6, 1962 (gage height, 22.69 ft).

11-2375. Pitman Creek below Tamarack Creek, Calif.

Location.--Lat 37°11'55", long 119°12'45", in NW $\frac{1}{4}$ sec.35, T.8 S., R.25 E., on right bank 0.8 mile downstream from confluence of Tamarack Creek and South Fork Tamarack Creek, 1.4 miles upstream from mouth, and 1.9 miles east of town of Big Creek.

Drainage area.--22.7 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 7,005 ft (from Southern California Edison Co. contour map).

Discharge record.--Stage-discharge relation defined by current-meter measurements: affected by ice Jan. 1-30, Feb. 15-28.

Maxima.--January-February 1963: Discharge, 1,340 cfs 0400-0500 hours Feb. 1 (gage height, 8.37 ft).

1927 to December 1962: Discharge, 3,670 cfs Dec. 23, 1955 (gage height, 11.20 ft), from rating curve extended above 1,100 cfs on basis of slope-area measurement at 3,220 cfs.

Mean discharge, in cubic feet per second, 1963, of Pitman Creek below Tamarack Creek, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	0.3	925	11.....	0.3	48	21.....	0.3	33
2.....		220	12.....		42	22.....		30
3.....		113	13.....		39	23.....		25
4.....		88	14.....		40	24.....		29
5.....		75	15.....		37	25.....		36
6.....		67	16.....		32	26.....		42
7.....		64	17.....		28	27.....		44
8.....		61	18.....		26	28.....		39
9.....		56	19.....		31	29.....		-
10.....		51	20.....		31	30.....		3.0
						31.....	450	-

Monthly mean discharge, in cubic feet per second.....	14.9	84.0
Runoff, in inches.....	0.76	3.85
Runoff, in acre-feet.....	916	4,670

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	4.23	88	Jan. 31	2200	7.06	724	Feb. 1	1900	6.56	548
	31	0200	4.27		2300	7.37	848		2100	6.29	467
		0400	4.63		2400	7.54	916		2200	6.24	452
		0700	4.88	Feb. 1	0100	7.93	1,100		2300	6.31	473
		1000	5.53		0200	8.24	1,260		2400	6.25	455
		1100	6.00		0400	8.37	1,340	2	0300	5.67	311
		1200	6.21		0500	8.37	1,340		1000	5.12	203
		1300	6.37		0700	8.27	1,280		1300	5.03	190
		1600	7.29		0900	8.13	1,200		1600	4.90	170
		1800	7.22		1100	7.96	1,120		2000	4.74	148
		1900	7.09		1400	7.21	784		2400	4.62	133
		2000	6.89		1500	7.02	708				
		2100	6.88		1700	7.00	700				

11-2395. Shaver Lake near Big Creek, Calif.

Location.--Lat 37°08'40", long 119°18'10", in SE $\frac{1}{4}$ sec.13, T.9 S., R.24 E., near center of dam on Stevenson Creek, 6 miles southwest of town of Big Creek.

Drainage area.--29.1 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is at mean sea level (levels by Southern California Edison Co.).

Contents record.--Contents computed from capacity table dated Mar. 28, 1928.

Maxima.--January-February 1963: Contents, 59,500 acre-ft 1900 hours Feb. 4 (elevation, 5,329.02 ft).
1909 to December 1962: Contents, 135,900 acre-ft July 5, 1946 (elevation, 5,370.25 ft).

Remarks.--Lake is formed by concrete-arch dam; dam completed Nov. 18, 1927. Usable capacity, 135,300 acre-ft between elevations 5,255 ft (trashrack foundation) and 5,370 ft (crest of spillway) above mean sea level. Water is received from Pitman Creek (since Feb. 22, 1928) and Huntington Lake (since Apr. 21, 1928) through Huntington-Shaver conduit and released for power development in Big Creek plants. Figures given herein represent usable contents. Records furnished by Southern California Edison Co.

Elevation, in feet, and contents, in acre-feet, at 2400 hours, 1963

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	5,323.38	51,400	5,328.05	58,000	16	5,322.31	49,900	5,325.47	54,300
2	5,323.11	51,000	5,328.57	58,800	17	5,322.02	49,500	5,325.06	53,700
3	5,323.00	50,900	5,328.85	59,200	18	5,321.83	49,300	5,324.73	53,300
4	5,322.90	50,700	5,328.92	59,300	19	5,321.70	49,100	5,324.36	52,700
5	5,322.90	50,700	5,328.64	58,900	20	5,321.70	49,100	5,324.06	52,300
6	5,322.90	50,700	5,328.31	58,400	21	5,321.67	49,100	5,323.83	52,000
7	5,322.90	50,700	5,327.97	57,900	22	5,321.63	49,000	5,323.67	51,800
8	5,322.90	50,700	5,327.59	57,400	23	5,321.61	49,000	5,323.38	51,400
9	5,322.90	50,700	5,327.35	57,000	24	5,321.58	48,900	5,322.87	50,700
10	5,322.90	50,700	5,327.07	56,600	25	5,321.54	48,900	5,322.46	50,100
11	5,322.82	50,600	5,326.75	56,100	26	5,321.54	48,900	5,322.02	49,500
12	5,322.71	50,500	5,326.48	55,800	27	5,321.52	48,800	5,321.43	48,700
13	5,322.59	50,300	5,326.37	55,600	28	5,321.51	48,800	5,321.01	48,200
14	5,322.38	50,000	5,326.04	55,100	29	5,321.59	48,900	-	-
15	5,322.37	50,000	5,325.76	54,700	30	5,322.99	50,800	-	-
					31	5,325.87	54,900	-	-
Change in contents, in acre-feet.....						-	+3,500	-	-6,700

11-2420. San Joaquin River above Willow Creek, near Auberry, Calif.

Location.--Lat 37°08'40", long 119°27'00", in SW $\frac{1}{4}$ sec.15, T.9 S., R.23 E., on right bank 1,000 ft downstream from diversion dam, 0.4 mile upstream from Willow Creek, and 4.2 miles northeast of Auberry.

Drainage area.--1,299 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 1,175.54 ft above mean sea level (levels by Southern California Edison Co.).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 14,500 cfs 0200 hours Feb. 1 (gage height, 23.15 ft).
1951 to December 1962: Discharge, 73,200 cfs Dec. 23, 1955 (gage height, 54.2 ft, from floodmarks), from rating curve extended above 7,000 cfs on basis of computed flow over dam.

Remarks.--Flow regulated by nine powerplants and six reservoirs (combined capacity, about 559,900 acre-ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	20	3,670	11.....	20	7.2	21.....	21	3.8
2.....	20	16	12.....	20	7.3	22.....	21	3.8
3.....	20	6.0	13.....	20	5.1	23.....	21	3.8
4.....	20	4.9	14.....	21	4.0	24.....	20	3.8
5.....	20	18	15.....	21	4.0	25.....	20	3.7
6.....	20	3.7	16.....	21	3.9	26.....	20	3.7
7.....	20	3.7	17.....	21	3.9	27.....	20	3.7
8.....	20	3.7	18.....	21	3.9	28.....	20	3.7
9.....	20	3.8	19.....	21	3.8	29.....	20	-----
10.....	20	5.3	20.....	21	3.8	30.....	12	-----
						31.....	2,410	-----
Monthly mean discharge, in cubic feet per second.....							97.2	136
Runoff, in acre-feet.....							5,970	7,580

11-2434. Bass Lake near Bass Lake, Calif.

Location.--Lat 37°17'36", long 119°31'40", in NE $\frac{1}{4}$ sec.26, T.7 S., R.22 E., at outlet tower at dam on North Fork Willow Creek, 2.2 miles southeast of town of Bass Lake and 5 miles north of town of North Fork.

Drainage area.--50.5 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is at mean sea level (levels by Pacific Gas & Electric Co.).

Contents record.--Contents computed from capacity table dated July 8, 1937.

Maxima.--January-February 1963: Contents, 34,000 acre-ft 1600 hours Feb. 14 (elevation, 3,366.0 ft).
1911 to December 1962: Contents, 45,960 acre-ft June 17, 1923 (elevation, 3,376.8 ft).

Remarks.--Reservoir formed by earthfill and rockfill dam; completed in 1901 and raised in 1910. Since 1910, usable contents 45,100 acre-ft between elevations, 3,280.22 ft (invert of outlet conduit No. 3) and 3,376.40 ft (top of spillway gates) above mean sea level. Additional storage of 300 acre-ft not available for release. Records show contents at 2400 hours. Records furnished by Pacific Gas & Electric Co.

11-2465. Willow Creek at mouth, near Auberry, Calif.

Location.--Lat 37°09'10", long 119°27'30", in NE $\frac{1}{4}$ sec.16, T.9 S., R.23 E., on left bank 40 ft upstream from bridge, 0.4 mile upstream from mouth, 1.3 miles downstream from Whiskey Creek, and 4.3 miles northeast of Auberry.

Drainage area.--130 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 1,174.69 ft above mean sea level (levels by Southern California Edison Co.).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 7,450 cfs 0200-0300 hours Feb. 1 (gage height, 19.06 ft).

1952 to December 1962: Discharge, 15,700 cfs Dec. 23, 1955 (gage height, 28.5 ft, from floodmarks), from rating curve extended above 4,700 cfs.

Remarks.--Flow regulated by Bass Lake (see station 11-2434) and diversion into Pacific Gas & Electric Co. conduit No. 1.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	1.7	3,640	11.....	1.9	108	21.....	1.9	30
2.....	1.8	514	12.....	1.9	83	22.....	1.9	28
3.....	1.9	218	13.....	1.5	98	23.....	2.0	25
4.....	2.0	149	14.....	1.5	133	24.....	2.0	23
5.....	2.0	65	15.....	1.9	84	25.....	2.0	22
6.....	2.0	34	16.....	1.9	52	26.....	2.0	22
7.....	1.9	28	17.....	1.9	44	27.....	2.0	21
8.....	1.8	24	18.....	1.9	42	28.....	1.7	20
9.....	1.8	26	19.....	1.9	35	29.....	1.8	---
10.....	1.8	280	20.....	1.9	32	30.....	434	---
						31.....	3,200	---
Monthly mean discharge, in cubic feet per second.....							119	209
Runoff, in acre-feet.....							7,320	11,620

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	4.25	4.1	Jan. 31	0800	11.82	2,240	Feb. 1	0900	13.38	3,220
30	0200	4.41	6.2		0900	12.72	2,780		1100	14.33	3,880
	0400	4.64	10		1000	13.27	3,140		1200	13.85	3,550
	0500	4.80	14		1300	15.79	4,900		1300	13.85	3,550
	0800	5.38	39		1400	15.91	4,990		1400	13.00	2,950
	1000	5.76	65		1500	16.55	5,440		1600	11.68	2,160
	1300	6.38	129		1600	16.50	5,400		2000	10.46	1,440
	1500	6.89	205		1700	16.16	5,160		2200	10.02	1,220
	1600	7.20	265		2000	13.00	2,950		2400	9.72	1,080
	1700	8.65	650		2200	12.15	2,440				
	1800	9.35	913		2300	13.00	2,950	2	0500	8.84	711
2100	10.45	1,440		2400	16.45	5,370			0800	8.45	587
2400	10.75	1,600							1200	8.00	453
									1800	7.39	301
31	0100	10.95	1,720	Feb. 1	0100	18.55	7,040		1900	7.33	289
	0500	10.74	1,590		0200	19.06	7,450		2000	7.36	295
	0700	11.34	1,950		0300	19.06	7,450		2100	7.21	265
					0500	17.35	6,080		2400	6.98	220
					0800	13.96	3,620				

11-2470. San Joaquin River below Kerckhoff powerhouse, near Prather, Calif.

Location.--Lat 37°04'45", long 119°33'35", in NW $\frac{1}{4}$ sec.10, T.10 S., R.22 E., on left bank 1.1 miles downstream from Kerckhoff powerhouse, 1.4 miles upstream from Big Sandy Creek, and 3.8 miles southeast of Prather.

Drainage area.--1,481 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 563.4 ft above mean sea level (levels by Bureau of Reclamation).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 30,300 cfs 0500 hours Feb. 1 (gage height, 32.20 ft).
1910-14, 1936-37, 1942 to December 1962: Discharge, 92,200 cfs Dec. 23, 1955 (gage height, 51.0 ft, from floodmarks), from rating curve extended above 20,000 cfs on basis of records for San Joaquin River above Willow Creek, near Auberry, and Willow Creek at mouth, near Auberry.

Remarks.--Flow regulated by 12 powerplants and 8 reservoirs with total usable capacity of about 609,300 acre-ft.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	521	11,600	11.....	651	3,710	21.....	440	3,470
2.....	899	4,030	12.....	731	3,600	22.....	465	3,500
3.....	647	3,720	13.....	637	3,650	23.....	310	3,460
4.....	644	3,660	14.....	1,130	3,640	24.....	622	3,450
5.....	535	3,600	15.....	499	3,600	25.....	508	3,440
6.....	301	3,580	16.....	624	3,590	26.....	235	3,410
7.....	357	3,530	17.....	1,000	3,560	27.....	206	3,400
8.....	413	3,350	18.....	755	3,540	28.....	440	3,360
9.....	484	3,470	19.....	358	3,500	29.....	657	-----
10.....	566	4,020	20.....	72	3,500	30.....	1,780	-----
						31.....	9,200	-----
Monthly mean discharge, in cubic feet per second.....							861	3,855
Runoff, in acre-feet.....							52,930	214,100

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	17.06	5,140	Jan. 31	1700	26.10	16,800	Feb. 1	0900	22.50	11,100
	31	0100	16.65		1900	26.30	17,200		1000	22.20	10,700
		0200	16.75		2100	25.00	14,800		1100	19.70	7,660
		0300	17.32		2200	23.68	12,800		1200	25.00	14,800
		0500	17.32		2400	16.20	4,430		1200	26.38	17,400
		0700	17.14	Feb. 1	0100	14.56	3,170		1300	25.00	14,800
		1000	17.22		0200	21.08	9,230		1400	23.60	12,700
		1100	17.72		0300	23.95	13,200		1600	23.10	12,000
		1200	17.68		0400	27.00	18,600		1800	18.86	6,800
		1300	18.22		0500	32.20	30,300		2000	16.60	6,540
		1400	23.00		0600	28.90	22,600		2100	16.92	5,010
		1500	26.32		0700	28.50	21,700		2200	16.28	4,500
		1600	24.50		0800	25.00	14,800		2400	16.52	4,690

11-2472. Big Sandy Creek tributary near Tollhouse, Calif.

(Crest-stage station)

Location.--Lat 37°01'55", long 119°26'50", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.27, T.10 S., R.23 E., 2.8 miles west of Tollhouse.

Drainage area.--0.46 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 1,900 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 15 cfs.

Maxima.--January-February 1963: Discharge, 23 cfs Feb. 1 (gage height, 4.77 ft).
1959 to December 1962: Discharge, 13 cfs Feb. 15, 1962 (gage height, 4.14 ft).

11-2501. Millerton Lake at Friant, Calif.

Location.--Lat 37°00'00", long 119°42'10", in SW $\frac{1}{4}$ sec.5, T.11 S., R.21 E., near center of Friant Dam on San Joaquin River, immediately upstream from Cottonwood Creek, and 0.9 mile northeast of Friant.

Drainage area.--1,633 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is at mean sea level (levels by Bureau of Reclamation).

Maxima.--January-February 1963: Contents, 422,400 acre-ft 2400 hours Feb. 28 (elevation, 556.79 ft).
1941 to December 1962: Contents, 525,400 acre-ft June 23, 1958 (elevation, 578.99 ft).

Remarks.--Reservoir is formed by gravity-type concrete dam with spillway near center, completed in December 1942. Usable capacity, 503,200 acre-ft between elevations 375.4 ft (invert of river outlet) and 578.0 ft (top of drum-type spillway gates) above mean sea level. Not available for release, 17,400 acre-ft. Records show total contents. Records of contents furnished by Bureau of Reclamation.

Elevation, in feet, and contents, in thousands of acre-feet, at 2400 hours, 1963									
Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	501.35	219.6	524.63	295.5	16	506.53	235.4	546.95	380.8
2	501.88	221.2	526.29	301.4	17	507.13	237.2	548.14	385.7
3	502.25	222.3	527.67	306.4	18	507.57	238.6	549.15	389.9
4	502.58	223.3	528.98	311.2	19	507.78	239.3	550.02	393.5
5	502.95	224.4	530.72	317.6	20	507.79	239.3	550.83	396.9
6	503.11	224.9	532.30	323.5	21	508.00	240.0	551.64	400.3
7	503.27	225.4	533.84	329.2	22	508.27	240.8	552.38	403.4
8	503.50	226.1	535.31	334.8	23	508.40	241.2	553.07	406.4
9	503.74	226.8	536.95	341.1	24	508.81	242.5	553.76	409.3
10	504.08	227.8	538.89	348.6	25	509.02	243.2	554.36	411.9
11	504.42	228.9	540.42	354.6	26	509.18	243.7	554.97	414.5
12	504.84	230.2	541.72	359.7	27	509.26	243.9	555.78	418.0
13	505.21	231.3	543.09	365.2	28	509.45	244.5	556.79	422.4
14	505.93	233.5	544.44	370.6	29	509.78	245.6	-	-
15	506.21	234.4	545.72	375.8	30	510.98	249.4	-	-
					31	517.48	270.8	-	-
Change in contents, in thousands of acre-feet.....						-	+52.1	-	+151.6

11-2510. San Joaquin River below Friant, Calif.

Location.--Lat 36°59'04", long 119°43'24", in SW $\frac{1}{4}$ sec.7, T.11 S., R.21 E., on left bank 0.5 mile west of Friant, 1.5 miles downstream from Cottonwood Creek, 2 miles downstream from Friant Dam, and at mile 268.1.

Drainage area.--1,675 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 294.00 ft above mean sea level (levels by Bureau of Reclamation).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 85 cfs 0100 hours Feb. 10 (gage height, 2.20 ft).

1907-41 (prior to regulation by Millerton Lake): Discharge, 77,200 cfs

Dec. 11, 1937 (gage height, 23.8 ft, site and datum then in use).

1942 to December 1962 (regulated by Millerton Lake): Discharge, 11,200 cfs Jan. 23, 1943.

Remarks.--Flow regulated by Millerton Lake (see station 11-2501) beginning in 1944 and by other reservoirs described in Remarks for San Joaquin River below Kerckhoff powerhouse. Uncontrolled pondage in Millerton Lake began in September 1961.

11-2571. Miami Creek near Oakhurst, Calif.

Location.--Lat 37°23'37", long 119°39'12", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.22, T.6 S., R.21 E., on left bank 200 ft downstream from county road and 4.6 miles north of Oakhurst.

Drainage area.--10.6 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 3,500 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 210 cfs; affected by ice Jan. 6, 7, 12, 13, 25-28.

Maxima.--January-February 1963: Discharge, 1,140 cfs 0100 hours Feb. 1 (gage height, 9.08 ft).
1960 to December 1962: Discharge, 251 cfs Feb. 10, 1962 (gage height, 6.03 ft).

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

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	1.4	391	11.....	1.3	17	21.....	1.1	7.6
2.....	1.2	45	12.....	1.2	12	22.....	1.2	7.2
3.....	1.3	20	13.....	1.0	22	23.....	1.2	6.7
4.....	1.3	13	14.....	1.4	18	24.....	1.2	6.4
5.....	1.3	10	15.....	1.3	12	25.....	1.2	6.1
6.....	1.3	9.1	16.....	1.3	10	26.....	1.1	5.9
7.....	1.3	8.1	17.....	1.3	9.5	27.....	1.2	5.9
8.....	1.3	7.2	18.....	1.2	8.6	28.....	1.3	5.7
9.....	1.3	8.6	19.....	1.1	7.9	29.....	1.6	-----
10.....	1.3	30	20.....	1.1	7.5	30.....	95	-----
						31.....	443	-----
Monthly mean discharge, in cubic feet per second.....							18.5	25.6
Runoff, in inches.....							2.01	2.52
Runoff, in acre-feet.....							1,140	1,420

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.89	4.8	Jan. 31	0500	5.87	270	Feb. 1	0100	9.08	1,140
30					0600	5.85	267		0200	8.70	999
	0200	3.03	7.7		0700	5.64	233		0400	8.16	820
	0400	3.34	17		0900	6.55	399		0500	7.48	622
	0900	3.75	36		1100	7.01	503		0700	6.84	463
	1300	4.26	70		1200	7.20	549		0800	6.86	468
	1400	4.34	77		1500	8.38	891		1000	6.54	397
	1500	4.33	76		1700	7.17	542		1200	5.94	282
	1800	4.90	133		1800	6.90	477		1800	4.88	130
	2000	5.16	169		1900	6.38	364		2400	4.36	79
	2100	5.45	204		2000	6.26	341				
31	2300	6.06	303		2100	6.27	343	2	0400	4.10	58
	2400	6.04	300		2200	6.16	322		1000	3.87	43
					2300	6.87	470		1600	3.71	33
	0100	5.95	284		2400	8.10	802		2400	3.57	27
	0300	5.42	200								

11-2575. Fresno River near Knowles, Calif.

Location.--Lat 37°14'15", long 119°46'25", in NW $\frac{1}{4}$ sec.15, T.8 S., R.20 E., on left bank at Fresno Crossing, 0.1 mile downstream from Bean Gulch and 6 miles north-east of Knowles.

Drainage area.--133 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 1,086.4 ft above mean sea level (river-profile survey).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 2,500 cfs and by slope-area measurement at 13,300 cfs; affected by ice Jan. 13-19.

Maxima.--January-February 1963: Discharge, 5,180 cfs 0600 hours Feb. 1 (gage height, 7.36 ft).
1911-13, 1915 to December 1962: Discharge, 13,300 cfs Dec. 23, 1955 (gage height, 11.52 ft).

Mean discharge, in cubic feet per second, 1963, of Fresno River near Knowles, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	11	2,590	11.....	11	200	21.....	9.0	84
2.....	11	437	12.....	11	150	22.....	10	81
3.....	11	171	13.....	9.0	223	23.....	11	76
4.....	11	115	14.....	7.0	211	24.....	12	74
5.....	11	87	15.....	9.0	143	25.....	11	71
6.....	11	95	16.....	9.0	128	26.....	11	68
7.....	11	89	17.....	9.0	112	27.....	10	68
8.....	11	81	18.....	9.0	103	28.....	10	66
9.....	11	94	19.....	9.0	95	29.....	11	-----
10.....	11	422	20.....	9.0	89	30.....	256	-----
						31.....	2,140	-----

Monthly mean discharge, in cubic feet per second.....	86.9	222
Runoff, in inches.....	0.75	1.74
Runoff, in acre-feet.....	5,340	12,340

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.26	16	Jan. 31	1300	4.77	2,000	Feb. 1	1500	5.00	2,210
					1500	5.62	2,830		1900	3.93	1,310
30	1000	1.50	56		1900	6.71	4,190		2400	3.29	874
	1200	1.87	170		2400	4.74	1,980				
	1900	2.48	428					2	0600	2.72	531
	2400	3.42	958	Feb. 1	0100	5.00	2,210		1200	2.38	367
31	0500	3.88	1,280		0600	7.36	5,180		2400	2.05	230
	0800	3.69	1,140		1100	5.26	2,470				
					1300	5.39	2,600				

11-2577. Picayune Creek near Coarsegold, Calif.

(Crest-stage station)

Location.--Lat 37°13'15", long 119°42'25", in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.20, T.8 S., R.21 E., on State Highway 41, 3.0 miles south of Coarsegold.

Drainage area.--7.96 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 1,860 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 67 cfs and by computation of flow through culvert at 216 cfs.

Maxima.--January-February 1963: Discharge, 120 cfs Feb. 1 (gage height, 3.88 ft). 1959 to December 1962: Discharge, 216 cfs Feb. 10, 1962 (gage height, 5.12 ft, from high-water profile).

11-2580. Fresno River near Daulton, Calif.

Location.--Lat 37°05'50", long 119°53'20", in NW $\frac{1}{4}$ sec.3, T.10 S., R.19 E., on left bank 0.5 mile downstream from Willow Creek and 5.3 miles southeast of Daulton.

Drainage area.--259 sq mi.

Gage-height record.--Water-stage recorder graph, except Jan. 1-8. Altitude of gage is 385 ft (from topographic map). Gage datum used is that of Mar. 20, 1963.

Discharge record.--Stage-discharge relation defined by current-meter measurements. Discharge for Jan. 1-8 estimated on basis of one discharge measurement and hydrographic comparison with Fresno River near Knowles.

Maxima.--January-February 1963: Discharge, 6,290 cfs 0900 hours Feb. 1 (gage height, 8.23 ft, from recorder graph, 8.3 ft, from floodmarks). 1941 to December 1962: Discharge, 17,500 cfs Dec. 23, 1955 (gage height, 12.64 ft).

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of East Fork Chowchilla River near Ahwahnee, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	3.64	5.1	Jan. 31	0300	6.56	813	Feb. 1	0400	9.95	3,260
					0800	7.56	1,250		0800	8.35	1,910
30	0500	3.75	10		0800	6.75	908		0800	7.55	1,360
	0700	3.90	22		1000	7.50	1,330		0900	7.80	1,520
	0900	4.55	128		1200	8.40	1,940		1200	6.75	908
	1300	5.15	271		1400	9.95	3,260		1700	5.80	486
	1500	5.13	266		1500	10.34	3,710		2400	5.23	294
	1700	4.96	220		1700	9.30	2,670				
	1900	6.45	761		1900	7.60	1,390	2	0400	4.94	215
	2100	7.16	1,130		2200	6.56	813		0800	4.79	179
	2200	7.09	1,090		2400	7.00	1,040		1400	4.63	144
	2400	7.23	1,170						1800	4.57	132
31	0200	7.00	1,040	Feb. 1	0100	10.20	3,540		2400	4.49	116
					0300	9.85	3,170				

11-2589. West Fork Chowchilla River near Mariposa, Calif.

Location.--Lat 37°25'15", long 119°52'25", in SW¹/₄SE¹/₄ sec.10, T.6 S., R.19 E., on left bank 15 ft downstream from bridge on Indian Peak Road, 0.5 mile downstream from Humbug Creek, and 6.7 miles southeast of Mariposa.

Drainage area.--33.6 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 1,680 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,900 cfs.

Maxima.--January-February 1963: Discharge, 3,520 cfs 1500 hours Jan. 31 (gage height, 8.63 ft).

1957 to December 1962: Discharge, 3,590 cfs Apr. 3, 1958 (gage height, 8.67 ft).

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

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0.4	916	11.....	0.3	35	21.....	0.3	12
2.....	.5	74	12.....	.3	27	22.....	.4	11
3.....	.4	34	13.....	.3	92	23.....	.4	10
4.....	.4	20	14.....	.3	69	24.....	.4	9.6
5.....	.3	13	15.....	.3	36	25.....	.4	8.9
6.....	.3	10	16.....	.3	27	26.....	.4	8.4
7.....	.3	9.0	17.....	.3	21	27.....	.4	7.9
8.....	.3	7.9	18.....	.4	17	28.....	.4	7.5
9.....	.3	17	19.....	.4	15	29.....	.5	-----
10.....	.3	162	20.....	.3	13	30.....	233.0	-----
						31.....	1,400	-----
Monthly mean discharge, in cubic feet per second.....							53.0	60.4
Runoff, in inches.....							1.82	1.87
Runoff, in acre-feet.....							3,260	3,350

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.63	1.7	Jan. 31	0700	6.16	782	Feb. 1	0400	7.73	2,220
					0800	6.16	782		0600	6.63	1,110
30	0400	2.88	4.9		0900	6.28	858		0700	6.25	839
	0800	3.28	17		1100	6.80	1,250		0900	6.30	871
	1000	3.90	61		1400	8.04	2,640		1100	5.79	577
	1300	4.37	125		1500	8.63	3,520		1300	5.36	390
	1400	4.47	143		1600	8.36	3,120		1500	5.09	297
	1500	4.40	130		1700	7.40	1,830		1800	4.80	215
	1700	4.59	167		1800	6.89	1,320		2100	4.64	178
	1900	5.69	529		1900	6.68	1,150		2400	4.43	136
	2100	6.34	898		2000	6.16	782				
	2200	6.59	1,080		2200	5.85	608	2	0400	4.25	105
	2400	6.33	891		2300	6.64	1,120		1000	4.07	80
					2400	8.05	2,650		1400	3.95	66
31	0200	5.89	628	Feb. 1	0100	8.53	3,400		1800	3.87	58
	0300	5.95	661		0300	7.93	2,480		2400	3.76	47
	0600	6.35	905								

11-2589.2. Middle Fork Chowchilla River near Nipinnawassee, Calif.

Location.--Lat 37°23'00", long 119°50'12", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.25, T.6 S., R.19 E., on right bank 3.4 miles upstream from West Fork and 6 miles west of Nipinnawassee.

Drainage area.--12.3 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 1,520 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 1,280 cfs 0200 hours Feb. 1 (gage height, 10.10 ft).
1958 to December 1962: Discharge, 925 cfs Feb. 9, 1962 (gage height, 8.15 ft).

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

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0.3	475	11.....	0.4	17	21.....	0.4	6.4
2.....	.4	39	12.....	.3	14	22.....	.4	5.8
3.....	.4	17	13.....	.3	44	23.....	.3	5.3
4.....	.3	12	14.....	.3	36	24.....	.3	4.8
5.....	.3	8.9	15.....	.3	18	25.....	.3	4.5
6.....	.3	7.3	16.....	.3	14	26.....	.4	4.5
7.....	.3	6.1	17.....	.3	11	27.....	.4	4.5
8.....	.3	5.2	18.....	.3	9.7	28.....	.4	4.2
9.....	.4	8.2	19.....	.4	8.8	29.....	.6	
10.....	.4	71	20.....	.4	7.8	30.....	134	-----
						31.....	572	-----
Monthly mean discharge, in cubic feet per second.....							23.1	31.0
Runoff, in inches.....							2.17	2.62
Runoff, in acre-feet.....							1,420	1,720

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.69	1.4	Jan. 31	1300	7.75	872	Feb. 1	0600	6.35	637
					1400	8.44	990		0800	5.48	494
	30	0600	3.05		1600	7.70	864		0900	6.19	611
		1400	3.60		1800	6.55	637		1200	4.85	392
		1600	3.63		1900	5.40	481		1600	4.32	207
		1900	4.60		2200	4.72	373		2000	4.02	123
		2200	5.27		2300	5.00	417		2400	3.85	84
		2300	5.25		2400	7.50	830				
		2400	5.53					2	0600	3.63	54
	31	0600	4.15	Feb. 1	0100	9.85	1,230		1200	3.51	40
		1000	5.20		0200	10.10	1,280		1800	3.43	32
		1100	5.95		0300	9.80	1,220		2400	3.36	26
		1200	6.90		0400	8.90	1,070				
					0500	7.50	830				

11-2590. Chowchilla River at Buchanan damsite, near Raymond, Calif.

Location.--Lat 37°13'00", long 119°59'00", in SE $\frac{1}{4}$ sec.22, T.8 S., R.18 E., on right bank 1.9 miles upstream from Raynor Creek and 4.3 miles west of Raymond.

Drainage area.--235 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 407.30 ft above mean sea level, adjustment of 1912 (levels by Merced Irrigation District).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 6,000 cfs and by slope-area measurement at 22,500 cfs.

Maxima.--January-February 1963: Discharge, 9,740 cfs 0700 hours Feb. 1 (gage height, 11.68 ft, from recorder graph; 12.0 ft, from floodmarks).
1921-23, 1930 to December 1962: Discharge, 30,000 cfs Dec. 23, 1955 (gage height, 16.50 ft).

[illegible]

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.77	6.2	Jan. 31	1100	8.00	2,790	Feb. 1	1400	9.03	4,170
					1300	7.75	2,530		1700	8.15	2,960
30	1800	2.07	18		1700	10.00	5,840		2000	7.08	1,960
	2000	2.16	24		2000	11.23	8,580		2400	6.24	1,340
	2200	3.66	221		2400	8.90	3,960				
	2400	4.20	364					2	0600	5.28	801
				Feb. 1	0400	7.63	2,420		1200	4.67	534
31	0100	5.00	672		0500	10.00	5,840		1800	4.31	400
	0200	6.70	1,660		0700	11.68	9,740		2400	4.05	318
	0500	8.49	3,390		1000	10.22	6,280				
	0900	7.81	2,590		1300	8.89	3,950				

Location.--Lat 37°28'40", long 120°06'45", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.21, T.5 S., R.17 E., on downstream side of bridge, 0.9 mile upstream from Raster Gulch, and 3.7 miles north of Catheys Valley School.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,200 cfs.

Maxima.--January-February 1963: Discharge, 3,850 cfs 0200 hours Feb. 1 (gage height, 10.07 ft).
1958 to December 1962: Discharge, 2,570 cfs Apr. 3, 1958 (gage height, 9.36 ft).

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

[illegible]

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Bear Creek near Catheys Valley, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.90	0.2	Jan. 31	0600	6.43	657	Feb. 1	0200	10.07	3,850
					0800	5.82	395		0300	9.57	3,220
30	0300	2.93	.4		0900	5.71	356		0400	8.23	1,880
	0600	3.02	1.0		1000	5.67	343		0500	7.31	1,200
	1000	3.13	2.2		1100	5.74	366		0700	6.41	705
	1400	3.11	1.9		1200	6.50	695		1000	6.23	625
	1600	3.15	2.4		1300	7.07	1,030		1100	6.50	747
	1800	4.13	41		1400	8.17	1,940		1300	5.92	501
	1900	4.10	38		1500	8.54	2,340		1600	5.42	336
	2000	5.20	209		1700	7.38	1,250		2000	4.97	220
	2200	6.22	557		1800	7.31	1,200		2200	4.79	182
	2300	6.77	842		2000	6.52	703		2400	4.66	157
	2400	6.57	730		2200	5.97	451				
31	0200	6.22	557		2300	5.91	428	2	0300	4.47	125
	0300	6.22	557		2400	7.97	1,750		0900	4.22	89
	0400	6.12	513	Feb. 1	0100	9.45	3,080		1600	4.02	66
									2400	3.82	47

11-2602.1. Bear Creek tributary near Catheys Valley, Calif.

(Crest-stage station)

Location.--Lat 37°26'45", long 120°06'05", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.3, T.6 S., R.17 E., 1 mile north of Catheys Valley.

Drainage area.--1.16 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 1,320 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 38 cfs and by computation of flow through culvert at 61 cfs.

Maxima.--January-February 1963: Discharge, 44 cfs Feb. 1 (gage height, 22.17 ft). 1959 to December 1962: Discharge, 63 cfs Feb. 5, 1962 (gage height, 22.64 ft).

11-2604.8. Mariposa Creek near Catheys Valley, Calif.

Location.--Lat 37°23'55", long 120°00'10", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.21, T.6 S., R.18 E., on downstream side of bridge on White Rock Road, 0.3 mile downstream from China Gulch and 5.6 miles east of Catheys Valley School.

Drainage area.--66.0 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 1,230 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 5,290 cfs 0200 hours Feb. 1 (gage height, 10.69 ft). 1958 to December 1962: Discharge, 7,180 cfs Apr. 3, 1958 (gage height, 11.62 ft).

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

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	1.5	1,700	11.....	1.3	120	21.....	1.2	20
2.....	1.6	153	12.....	1.2	79	22.....	1.2	18
3.....	1.6	82	13.....	1.1	529	23.....	1.2	16
4.....	1.5	35	14.....	1.1	332	24.....	1.2	14
5.....	1.4	21	15.....	1.2	125	25.....	1.2	13
6.....	1.4	15	16.....	1.2	79	26.....	1.3	12
7.....	1.4	11	17.....	1.2	55	27.....	1.2	11
8.....	1.4	9.2	18.....	1.3	41	28.....	1.2	11
9.....	1.4	66	19.....	1.2	33	29.....	1.3	-----
10.....	1.3	647	20.....	1.2	26	30.....	453	-----
						31.....	2,490	-----
Monthly mean discharge, in cubic feet per second.....							96	152
Runoff, in inches.....							1.68	2.40
Runoff, in acre-feet.....							5,910	8,440

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Mariposa Creek near Catheys Valley, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	
Jan. 29	2400	2.69	2.4	Jan. 30	2400	8.53	1,730	Feb. 1	0200	10.69	5,290	
30	0300	2.75	2.2	31	0400	8.01	1,600	2	0400	10.12	4,160	
	0600	2.86	3.8		0600	8.42	2,170		0600	8.67	2,180	
	0700	2.94	5.4		0800	7.56	1,450		0800	7.85	1,400	
	0900	3.28	15		0900	7.88	1,700		1000	7.97	1,500	
	1000	4.11	69		1000	8.27	2,030		1200	7.45	1,100	
	1100	4.69	137		1200	9.16	2,940		1400	6.79	779	
	1200	5.74	331		1500	10.63	4,980		1700	6.16	549	
	1300	6.51	547		1700	9.44	3,280		2000	5.64	391	
	1700	5.79	343		1900	8.51	2,250		2400	5.17	271	
	1800	6.22	454		2100	7.52	1,420		2	0400	4.85	203
	1900	7.68	1,120		2300	6.99	1,080			1000	4.54	147
	2000	7.76	1,170		2400	8.54	2,280			1500	4.33	114
2200	8.41	1,630	Feb. 1	0100	10.44	4,710	2000	4.16		90		
2300	8.38	1,610					2400	4.07	79			

11-2610. Salt Slough near Los Banos, Calif.

Location.--Lat 37°09'35", long 120°48'45", in Sanjon de Santa Rita Grant on left bank at San Luis Ranch, 600 yards downstream from confluence with Mud Slough and 7.0 miles north of Los Banos, Merced County.

Gage-height record.--Water-stage recorder graph. Datum of gage is 70.60 ft above mean sea level (levels by Bureau of Reclamation).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 244 cfs 1800 to 2100 hours Feb. 14 (gage height, 4.55 ft).

1940 to December 1962: Daily mean discharge, 2,420 cfs Mar. 9, 1941.

11-2615. San Joaquin River at Fremont Ford Bridge, Calif.

Location.--Lat 37°18'35", long 120°55'45", in Orestimba Grant, on left bank 30 ft downstream from Fremont Ford Bridge, Merced County, 2.1 miles downstream from Salt Slough, 4.5 miles west of Stevinson, and 6.7 miles upstream from Merced River.

Drainage area.--8,090 sq mi, approximately.

Gage-height record.--Water-stage recorder graph, except Jan. 1-30. Datum of gage is mean sea level.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Discharge Jan. 1-30 estimated on basis of recorded range in stage and records for San Joaquin River near Newman and Merced River near Stevinson.

Maxima.--January-February 1963: Discharge, 2,160 cfs 0900 hours Feb. 16 (gage height, 62.04 ft).

1937 to December 1962: Discharge, 5,910 cfs Apr. 6, 1958 (gage height, 67.37 ft).

Remarks.--Floodflow affected by storage reservoirs and flow bypassing this station through Mud Slough.

Day	January	February	Day	January	February	Day	January	February
1.....	100	429	11.....	270	1,060	21.....	190	883
2.....	110	681	12.....	260	1,320	22.....	185	797
3.....	115	1,330	13.....	250	1,540	23.....	175	684
4.....	115	2,040	14.....	240	1,720	24.....	170	592
5.....	120	1,970	15.....	235	2,020	25.....	165	549
6.....	130	1,440	16.....	225	2,140	26.....	160	503
7.....	150	1,030	17.....	215	1,910	27.....	155	464
8.....	190	766	18.....	210	1,540	28.....	150	429
9.....	230	610	19.....	205	1,230	29.....	145	-----
10.....	270	778	20.....	200	1,020	30.....	140	-----
						31.....	201	-----

Monthly mean discharge, in cubic feet per second.....	183	1,124
Runoff, in acre-feet.....	11,260	62,430

11-2628. Los Banos Creek near Los Banos, Calif.

Location.--Lat 37°01'00", long 120°54'05", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.32, T.10 S., R.10 E., at Delta-Mendota Canal siphon crossing, 4.3 miles southwest of Los Banos.

Drainage area.--159 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 175 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,300 cfs and by slope-area measurement at 11,400 cfs.

Maxima.--January-February 1963: Discharge, 2,640 cfs 0500 hours Feb. 1 (gage height, 4.80 ft).
1955 to December 1962: Discharge, 11,400 cfs Dec. 23, 1955 (gage height, 12.07 ft, from floodmark in well, 14.05 ft outside, profile of floodmarks).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0	883	11.....	0	23	21.....	0	8.2
2.....	0	103	12.....	0	14	22.....	0	6.6
3.....	0	33	13.....	0	270	23.....	0	5.0
4.....	0	15	14.....	0	129	24.....	0	3.8
5.....	0	7.4	15.....	0	50	25.....	0	2.9
6.....	0	2.9	16.....	0	31	26.....	0	1.8
7.....	0	.5	17.....	0	22	27.....	0	1.0
8.....	0	0	18.....	0	16	28.....	0	.1
9.....	0	0	19.....	0	12	29.....	0	-----
10.....	0	7.3	20.....	0	9.7	30.....	0	-----
						31.....	61	-----
Monthly mean discharge, in cubic feet per second.....							1.97	59.2
Runoff, in inches.....							0.01	0.39
Runoff, in acre-feet.....							121	3,290

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	-	0	Feb. 1	0400	4.00	1,760	Feb. 1	2400	2.05	212
					0500	4.80	2,640				
31	2000	-	0		0700	4.12	1,890	2	0600	1.75	128
	2100	2.66	496		1200	2.97	716		1200	1.56	88
	2400	2.31	314		1400	3.17	883		1800	1.42	64
					1800	2.60	460		2400	1.32	50
Feb. 1	0300	2.02	202		2100	2.27	298				

11-2629.5. Wolf Creek near Volta, Calif.

(Crest-stage station)

Location.--Lat 37°04'05", long 121°09'40", in San Luis Gonzaga Grant, on State Highway 152, 13 miles west of Volta.

Drainage area.--2.82 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 420 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 12 cfs and by slope-area measurement at 207 cfs.

Maxima.--January-February 1963: Discharge, 207 cfs Feb. 1 (gage height, 5.70 ft).
1958 to December 1962: Discharge, 56 cfs Feb. 18, 1962 (gage height, 4.06 ft).

FLOODS OF 1963 IN THE UNITED STATES

11-2630. San Luis Creek near Los Banos, Calif.

Location.--Lat 37°03'55", long 121°04'15", in San Luis Gonzaga Grant, on left bank 300 ft downstream from Cottonwood Creek and 11.5 miles west of Los Banos, Merced County.

Drainage area.--84.6 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 231 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 230 cfs and by slope-area measurements at 2,640 and 3,420 cfs.

Maxima.--January-February 1963: Discharge, 2,930 cfs 0300 hours Feb. 1 (gage height, 7.41 ft).
1949-53, 1958 to December 1962: Discharge, 3,420 cfs Apr. 2, 1958 (gage height, 7.99 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0	848	11.....	0	10	21.....	0	1.2
2.....	0	71	12.....	0	3.1	22.....	0	1.1
3.....	0	17	13.....	0	132	23.....	0	1.1
4.....	0	4.4	14.....	0	65	24.....	0	1.1
5.....	0	2.2	15.....	0	24	25.....	.1	1.1
6.....	0	1.7	16.....	0	9.8	26.....	.1	1.0
7.....	0	1.6	17.....	0	4.4	27.....	.1	1.0
8.....	0	1.2	18.....	0	1.9	28.....	.1	1.0
9.....	0	1.1	19.....	0	1.5	29.....	.1	-----
10.....	0	22	20.....	0	1.3	30.....	.2	-----
						31.....	141	-----
Monthly mean discharge, in cubic feet per second.....							4.57	44.0
Runoff, in inches.....							0.06	0.54
Runoff, in acre-feet.....							281	2,450

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	1.82	0.4	Feb. 1	0100	5.60	1,130	Feb. 1	1800	3.58	255
					0200	6.34	1,700		2100	3.26	182
31	1200	1.85	.6		0300	7.41	2,930		2400	3.02	138
	1300	1.98	2.6		0500	6.49	1,870				
	1800	2.20	12		0800	5.13	878	2	0600	2.68	91
	1900	5.11	826		1000	4.87	735		1200	2.47	64
	2100	4.70	620		1200	4.82	710		1800	2.25	44
	2400	4.07	371		1600	3.95	360		2400	2.16	31

11-2630.5. Garzas Creek near Gustine, Calif.

(Crest-stage station)

Location.--Lat 37°14'00", long 121°08'00", in SW $\frac{1}{4}$ sec.18, T.8 S., R.8 E., above diversion weir, 7.7 miles west of Gustine.

Drainage area.--51.2 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 285 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 20 cfs, by computation of flow over weir at 161 cfs, 370 cfs, and 1,100 cfs and by slope-area measurement at 1,770 cfs.

Maxima.--January-February 1963: Discharge, 1,770 cfs Feb. 1 (gage height, 6.22 ft, from high-water profile).
1959 to December 1962: Discharge, 1,100 cfs Feb. 21, 1959 (gage height, 5.84 ft).

11-2645. Merced River at Happy Isles Bridge, near Yosemite, Calif.

Location.--Lat 37°43'54", long 119°33'28", on right bank 10 ft downstream from Happy Isles Bridge, 0.4 mile downstream from Illilouette Creek, and 2.0 miles southeast of Yosemite National Park Headquarters, Mariposa County.

Drainage area.--181 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 4,016.58 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 4,000 cfs and by contracted-opening measurements at 8,400 and 9,260 cfs.

Maxima.--January-February 1963: Discharge, 5,200 cfs 0800 hours Feb. 1, 1963 (gage height, 8.29 ft).
1915 to December 1962: Discharge, 9,860 cfs Dec. 23, 1955 (gage height, 12.73 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	10	3,690	11.....	7.5	232	21.....	4.8	156
2.....	9.6	1,060	12.....	5.6	202	22.....	4.6	148
3.....	9.6	564	13.....	5.9	222	23.....	4.6	141
4.....	9.3	461	14.....	5.9	208	24.....	4.6	143
5.....	9.3	405	15.....	5.6	178	25.....	4.3	154
6.....	8.9	352	16.....	5.6	172	26.....	4.3	178
7.....	8.9	317	17.....	5.4	157	27.....	4.3	186
8.....	8.9	302	18.....	5.6	152	28.....	4.1	176
9.....	8.6	270	19.....	5.6	148	29.....	5.1	-----
10.....	8.2	260	20.....	5.1	152	30.....	61	-----
						31.....	1,350	-----
Monthly mean discharge, in cubic feet per second.....							51.6	385
Runoff, in inches.....							0.33	2.22
Runoff, in acre-feet.....							3,180	21,390

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.13	11	Jan. 31	1300	4.85	1,070	Feb. 1	1300	7.37	3,530
					1700	6.27	2,150		1800	6.66	2,550
	30	0800	1.28		2100	7.00	2,980		2400	5.79	1,730
		1600	1.70		2400	7.54	3,810				
		1900	2.27	Feb. 1	0300	8.25	5,120	2	0800	4.87	1,070
		2400	3.20		0500	8.16	4,940		0900	4.96	1,130
					0800	8.29	5,200		1800	4.45	816
31	1000	3.82	523						2400	4.17	680

11-2665. Merced River at Pohono Bridge, near Yosemite, Calif.

Location.--Lat 37°43'01", long 119°39'55", on left bank 150 ft upstream from Pohono Bridge, 0.4 mile upstream from Artist Creek, and 4.8 miles southwest of Yosemite National Park Headquarters, Mariposa County.

Drainage area.--321 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 3,861.66 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 8,700 cfs and by computation of flow over diversion dam for Yosemite power-house, 1 mile downstream, at 22,000 and 23,500 cfs.

Maxima.--January-February 1963: Discharge, 13,200 cfs 0900 hours Feb. 1 (gage height, 14.25 ft).
1916 to December 1962: Discharge, 23,400 cfs Dec. 23, 1955 (gage height, 21.52 ft, from floodmark in well).

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of South Fork Merced River near El Portal, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	4.85	28	Jan. 31	1200	10.20	5,600	Feb. 1	1400	12.10	9,300
					1500	11.55	8,750		1900	10.68	5,560
30	0900	5.46	107		1800	12.49	11,400		2400	9.84	3,810
	1000	5.78	184		2100	11.64	8,990				
	1200	6.17	326		2300	12.53	11,500	2	0600	9.06	2,500
	1400	6.74	672		2400	14.17	16,700		1200	8.59	1,870
	1600	7.02	908						1800	8.30	1,520
	1800	7.81	1,780	Feb. 1	0200	15.05	20,700		2400	8.10	1,320
	2000	8.67	2,860		0300	14.95	20,200				
	2400	9.12	3,530		0400	15.22	21,600				
					0800	13.65	14,300				
31	0400	8.84	3,110		1000	13.58	14,000				

11-2685. Merced River at Bagby, Calif.

Location.--Lat 37°36'40", long 120°07'50", in SE¹ sec.6, T.4 S., R.17 E., on left bank 800 ft upstream from highway bridge at Bagby and 0.3 mile upstream from Flyaway Gulch.

Drainage area.--911 sq mi.

Gage-height record.--Water-stage recorder graph, except Jan. 1 to Jan. 23. Datum of gage is 779.52 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 25,000 cfs and by computed peak inflow to Lake McClure at 83,000 cfs and 92,500 cfs for floods of November 1950 and December 1955. Discharge for period of no gage-height record estimated on basis of recorded range in stage, weather records, and records for Merced River at Pohono Bridge and South Fork Merced River near El Portal.

Maxima.--January-February 1963: Discharge, 51,600 cfs 0400 hours Feb. 1 (gage height, 19.17 ft).
1922 to December 1962: Discharge, 92,500 cfs Dec. 23, 1955 (gage height, 26.80 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	78	32,500	11.....	66	1,520	21.....	51	856
2.....	77	8,430	12.....	63	1,260	22.....	51	824
3.....	75	3,900	13.....	61	1,930	23.....	51	776
4.....	74	2,750	14.....	59	2,190	24.....	52	760
5.....	74	2,140	15.....	58	1,510	25.....	52	760
6.....	72	1,770	16.....	58	1,280	26.....	52	816
7.....	72	1,520	17.....	57	1,100	27.....	50	896
8.....	70	1,430	18.....	56	978	28.....	52	872
9.....	69	1,350	19.....	54	912	29.....	52	-----
10.....	67	2,280	20.....	52	872	30.....	1,540	-----
						31.....	16,100	-----

Monthly mean discharge, in cubic feet per second.....	628	2,792
Runoff, in inches.....	0.79	3.19
Runoff, in acre-feet.....	38,510	155,100

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	0.83	53	Jan. 31	0600	7.00	8,380	Feb. 1	2400	9.63	15,500
30					0700	6.92	8,190				
	0800	1.04	102		1400	10.00	16,600		2	0600	7.83
	0900	1.20	148		1600	11.90	22,700			1200	6.53
	1000	2.00	510		1900	12.92	28,300			1800	5.83
	1100	2.70	1,050		2200	12.42	24,500			2400	5.41
	1600	3.23	1,560		2400	13.70	29,100				5,000
	2000	4.23	2,850						3	0600	5.07
	2200	5.26	4,610	Feb. 1	0400	19.17	51,600			1200	4.84
	2400	6.74	7,760		1000	15.81	37,400			1800	4.60
					1800	11.79	22,300			2400	4.44

11-2693. Maxwell Creek at Coulterville, Calif.

Location.--Lat 37°42'58", long 120°11'20", in SE $\frac{1}{4}$ sec.34, T.2 S., R.16 E., on Dogtown road bridge, 0.40 mile downstream from Cuneo Creek and 0.5 mile northeast of town of Coulterville.

Drainage area.--17.0 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 1,740 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 700 cfs.

Maxima.--January-February 1963: Discharge, 1,300 cfs 2330 hours Jan. 31 (gage height, 5.47 ft).
1959 to December 1962: Discharge, 1,720 cfs (revised) Feb. 8, 1960 (gage height, 5.73 ft).

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

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0.2	323	11.....	0.2	7.9	21.....	0.2	2.2
2.....	.2	15	12.....	.2	5.5	22.....	.2	1.9
3.....	.2	5.0	13.....	.2	97	23.....	.2	1.9
4.....	.2	3.0	14.....	.2	38	24.....	.3	1.8
5.....	.2	2.3	15.....	.2	11	25.....	.2	1.6
6.....	.2	1.8	16.....	.2	6.2	26.....	.3	1.6
7.....	.3	1.5	17.....	.2	4.6	27.....	.3	1.6
8.....	.3	1.4	18.....	.2	3.4	28.....	.3	1.5
9.....	.3	5.0	19.....	.2	2.9	29.....	.3	-----
10.....	.2	49	20.....	.2	2.6	30.....	56	-----
						31.....	368	-----
Monthly mean discharge, in cubic feet per second.....							13.9	21.4
Runoff, in inches.....							0.94	1.31
Runoff, in acre-feet.....							854	1,190

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.66	0.5	Jan. 31	0700	3.84	87	Feb. 1	0300	5.40	1,200
	30	0600	2.87		0800	3.77	75		0500	4.72	405
		0800	3.17		0900	3.83	85		0700	4.56	300
		1000	3.65		1100	4.43	231		0800	4.67	370
		1100	3.72		1300	5.15	830		1000	4.44	234
		1600	3.40		1400	5.03	680		1300	4.05	128
		1800	3.57		1500	4.87	520		1600	3.80	80
		2000	3.82		1600	4.70	390		2000	3.57	48
		2200	4.42		1700	4.87	520		2400	3.40	30
		2300	4.42		1900	4.50	254				
		2400	4.21		2000	4.64	350	2	0600	3.25	19
					2100	4.58	320		1200	3.15	13
					2300	5.47	1,300		1800	3.08	9.8
					2400	5.40	1,200		2400	3.03	7.8
31	0100	4.21	167								
	0300	3.96	109								
	0400	4.22	169	Feb. 1	0200	5.25	960				

11-2693.5. North Fork Blacks Creek near Coulterville, Calif.

(Crest-stage station)

Location.--Lat 37°44'10", long 120°13'30", in NE $\frac{1}{4}$ sec.29, T.2 S., R.16 E., on State Highway 49, 2.4 miles northwest of Coulterville.

Drainage area.--2.20 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 1,740 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 19 cfs and by computation of flow through culvert and over embankment at 472 cfs.

Maxima.--January-February 1963: Discharge, 472 cfs Jan. 31 (gage height, 6.85 ft, from high-water profile).
July to December 1962: No significant floodflow.

11-2695. Lake McClure at Exchequer, Calif.

Location.--Lat 37°35'10", long 120°16'05", near center of sec.13, T.4 S., R.15 E., at center of upstream face of Exchequer Dam on Merced River, 1 mile east of Exchequer, and 5.5 miles northeast of Merced Falls.

Drainage area.--1,020 sq mi, approximately.

Gage-height record.--Indicator in powerhouse at foot of dam actuated by float in reservoir and selsyn motor circuit; indicator read every half hour when powerhouse is operating, once daily, at midnight, when not. Datum of gage is at mean sea level (levels by Merced Irrigation District).

Contents record.--Contents computed from capacity table dated Jan. 11, 1939.

Maxima.--January-February 1963: Contents, 203,800 acre-ft Feb. 15 (elevation, 674.8 ft).
1926 to December 1962: Contents, 290,800 acre-ft Dec. 4, 1950 (elevation, 710.5 ft).

Remarks.--Reservoir is formed by concrete gravity-type dam completed in 1926; storage began in April 1926. Usable capacity, 280,900 acre-ft between elevations 442.6 ft (bottom of sluice valve) and 707.0 ft (top of spillway gates). Dead storage, 400 acre-ft or less. Figures given herein represent total contents. Gage-height record furnished by Merced Irrigation District.

Elevation, in feet, and contents, in acre-feet, at 2400 hours, 1963

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	566.7	44,300	652.4	159,300	16	567.4	45,000	674.6	203,400
2	566.8	44,400	661.5	176,500	17	567.4	45,000	675.3	202,700
3	566.9	44,500	665.4	184,300	18	567.4	45,000	673.7	201,500
4	566.9	44,500	668.1	189,700	19	567.4	45,000	673.2	200,400
5	567.0	44,600	670.1	193,900	20	567.4	45,000	672.6	199,200
6	567.0	44,600	670.6	195,000	21	567.5	45,000	672.0	197,900
7	567.1	44,700	671.6	197,100	22	567.5	45,000	671.3	196,400
8	567.2	44,800	671.4	196,600	23	567.5	45,000	670.6	195,000
9	567.2	44,800	671.3	196,400	24	567.5	45,000	669.9	193,500
10	567.2	44,800	673.0	200,000	25	567.5	45,000	669.2	192,000
11	567.2	44,800	672.8	199,600	26	567.5	45,000	668.5	190,600
12	567.3	44,900	672.6	199,200	27	567.4	45,000	667.8	189,100
13	567.4	45,000	673.8	201,700	28	567.4	45,000	667.3	188,100
14	567.3	44,900	674.7	203,600	29	567.6	45,100	-	-
15	567.4	45,000	674.8	203,800	30	570.3	47,600	-	-
					31	602.7	83,300	-	-
Change in contents, in acre-feet.....						-	+39,000	-	+104,800

11-2700. Merced River at Exchequer, Calif.

Location.--Lat 37°34'55", long 120°16'45", in SE¹SE¹ sec.14, T.4 S., R.15 E., on right bank at Exchequer, 0.65 mile downstream from Lake McClure, and 5 miles northeast of Merced Falls.

Drainage area.--1,038 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 400 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 10,000 cfs and by computation of flow over dam at 46,200 cfs.

Maxima.--January-February 1963: Discharge, 1,560 cfs 0500 hours Feb. 6 (gage height, 3.84 ft).
1901-13, 1915 to December 1962: Discharge observed, 47,700 cfs Jan. 31, 1911 (gage height, 23.3 ft, site and datum then in use).

Remarks.--Flow regulated by Exchequer powerplant and Lake McClure (see station 11-2695).

11-2730. Merced River Slough near Newman, Calif.

Location.--Lat 37°21'35", long 120°57'40", in NE¹NE¹ sec.3, T.7 S., R.9 E., on left bank 0.1 mile downstream from bridge, 0.2 mile downstream from head of slough between Merced and San Joaquin Rivers, and 4.5 miles northeast of Newman.

Gage-height record.--Water-stage recorder graph. Datum of gage is at mean sea level.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: No flow.

1941 to December 1962: Daily discharge, 7,770 cfs Apr. 6, 1958.

Remarks.--Slough flows from Merced River to San Joaquin River, bypassing gaging station on San Joaquin River near Newman.

11-2740. San Joaquin River near Newman, Calif.

Location.--Lat 37°21'02", long 120°58'34", in SW¹ sec.3, T.7 S., R.9 E., on left bank 300 ft downstream from new bridge on Hills Ferry road, 500 ft downstream from Merced River, and 3.5 miles northeast of Newman.

Drainage area.--9,524 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is at mean sea level.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 4,870 cfs 2100 hours Feb. 14 (elevation, 57.17 ft).

1912 to December 1962: Discharge, 33,000 cfs Mar. 7, 1938 (elevation, 65.81 ft), including flow in Merced River Slough.

Remarks.--Flow affected by upstream reservoirs and by part of flow bypassing through Merced River Slough.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	355	756	11.....	571	3,460	21.....	382	2,970
2.....	355	1,220	12.....	547	3,480	22.....	380	2,810
3.....	360	1,820	13.....	511	3,790	23.....	368	2,640
4.....	355	2,420	14.....	505	4,540	24.....	360	2,500
5.....	350	2,620	15.....	496	4,680	25.....	352	2,420
6.....	350	2,260	16.....	472	4,580	26.....	350	2,340
7.....	400	1,790	17.....	445	4,420	27.....	342	2,270
8.....	493	1,840	18.....	418	3,980	28.....	352	2,210
9.....	565	1,800	19.....	398	3,540	29.....	360	-----
10.....	577	2,500	20.....	388	3,200	30.....	382	-----
						31.....	475	-----
Monthly mean discharge, in cubic feet per second.....							420	2,816
Runoff, in acre-feet.....							25,810	156,400

11-2745. Orestimba Creek near Newman, Calif.

Location.--Lat 37°19'09", long 121°07'12", on line between secs. 17 and 20, T.7 S., R.8 E., at left bank pier of county road bridge, 3 miles downstream from Oso Creek, and 5 miles west of Newman.

Drainage area.--134 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 188.86 ft above mean sea level, adjustment of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 5,000 cfs.

Maxima.--January-February 1963: Discharge, 8,300 cfs 0100 hours Feb. 1 (gage height, 9.72 ft).

1932 to December 1962: Discharge, 10,200 cfs Apr. 2, 1958 (gage height, 6.57 ft, at site 120 ft downstream at datum 3.00 ft higher).

Mean discharge, in cubic feet per second, 1963, of Orestimba Creek near Newman, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	0	2,090	11.....	0	52	21.....	0	20
2.....	0	255	12.....	0	42	22.....	0	16
3.....	0	95	13.....	0	563	23.....	0	12
4.....	0	50	14.....	0	296	24.....	0	11
5.....	0	28	15.....	0	132	25.....	0	9.5
6.....	0	16	16.....	0	83	26.....	0	9.0
7.....	0	8.0	17.....	0	52	27.....	0	8.7
8.....	0	3.2	18.....	0	40	28.....	0	8.7
9.....	0	19	19.....	0	30	29.....	0	---
10.....	0	129	20.....	0	24	30.....	0	---
						31.....	1,330	---
Monthly mean discharge, in cubic feet per second.....							42.9	147
Runoff, in inches.....							0.37	1.14
Runoff, in acre-feet.....							2,640	8,140

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	-	0	Jan. 31	1700	7.94	3,180	Feb. 1	1500	6.41	910
					2000	7.17	1,790		2000	6.06	598
	31	0400	-		2200	8.10	3,520		2400	5.86	452
		0500	5.00		2400	9.00	5,820				
		0600	5.58					2	0900	5.54	265
		0900	6.06	Feb. 1	0100	9.72	8,300		1800	5.33	172
		1200	6.06		0300	8.70	4,960		2400	5.24	139
		1400	6.58		0600	7.52	2,400				
		1500	7.02		0900	6.89	1,460				

11-2746. Del Puerto Creek tributary No. 1 near Patterson, Calif.

(Crest-stage station)

Location--Lat 37°24'15", long 121°26'10", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.21, T.6 S., R.5 E., 17.5 miles southwest of Patterson.

Drainage area--0.71 sq mi.

Gage-height record--Crest stages only. Altitude of gage is 1,760 ft (from topographic map).

Discharge record--Stage-discharge relation defined by current-meter measurements below 6 cfs and by computation of flow through culvert at 17 cfs.

Maxima--January-February 1963: Discharge, 20 cfs Feb. 1 (gage height, 93.73 ft). 1958 to December 1962: Discharge, 17 cfs Feb. 16, 1959, and Mar. 7, 1962 (gage height, 93.57 ft).

11-2746.1. Del Puerto Creek tributary No. 2 near Patterson, Calif.

Location--Lat 37°25'25", long 121°20'30", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.8, T.6 S., R.6 E., on left bank 0.5 mile downstream from Fall Canyon and 12 miles southwest of Patterson.

Drainage area--0.024 sq mi.

Gage-height record--Water-stage recorder graph and crest-stage gage. Altitude of gage is 1,020 ft (from topographic map).

Discharge record--Stage-discharge relation defined by point of zero flow and computation of flow through culvert at 0.5 cfs.

Maxima--January-February 1963: No flow.

1958 to December 1962: Discharge, 0.5 cfs Feb. 16, 1959 (gage height, 5.73 ft, from crest-stage gage).

11-2746.2. Windmill Canyon Creek near Patterson, Calif.

(Crest-stage station)

Location.--Lat 37°27'15", long 121°16'10", in SE $\frac{1}{4}$ sec.35, T.5 S., R.6 E., 7.5 miles west of Patterson.

Drainage area.--0.99 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 585 ft (from topographic map).

Discharge record.--Maximum discharge by computation of flow through culvert.

Maxima.--January-February 1963: No flow.

1958 to December 1962: Discharge, 8 cfs (estimated) Nov. 13, 1960 (gage height, 3.70 ft).

11-2746.3. Del Puerto Creek near Patterson, Calif.

(Crest-stage station)

Location.--Lat 37°29'38", long 121°11'37", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.15, T.5 S., R.7 E., at Delta-Mendota Canal Crossing, 3.9 miles northwest of Patterson.

Drainage area.--73.1 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 180 ft (from topographic map).

Discharge record.--Stage-discharge record defined by current-meter measurements below 700 cfs.

Maxima.--January-February 1963: Discharge, 490 cfs Feb. 1 (gage height, 12.40 ft).
1959 to December 1962: Discharge, 1,800 cfs Feb. 16, 1959 (gage height, 14.68 ft).

11-2747.3. Budd Creek near Tuolumne Meadows, Calif.

(Crest-stage station)

Location.--Lat 37°52'25", long 119°22'55", in NW $\frac{1}{4}$ sec.7, T.1 S., R.24 E., on State Highway 120, 3.0 miles west of Tuolumne Meadows High Sierra Camp.

Drainage area.--2.94 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 8,560 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 19 cfs and by computation of flow through culvert at 91 and 134 cfs.

Maxima.--January-February 1963: Discharge, 89 cfs Feb. 1 (gage height, 5.46 ft).
July to December 1962: No significant floodflow.

11-2750. Falls Creek near Hetch Hetchy, Calif.

Location.--Lat 37°58'15", long 119°45'45", in SE $\frac{1}{4}$ sec.3, T.1 N., R.20 E., on right bank in Yosemite National Park, 0.2 mile upstream from Wampana Falls, 0.6 mile upstream from mouth, and 2 miles northeast of Hetch Hetchy.

Drainage area.--45.2 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 5,350 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 2,500 cfs and extended above on basis of velocity-area studies.

Maxima.--January-February 1963: Discharge, 5,560 cfs 0500 hours Feb. 1 (gage height, 8.68 ft).

1915 to December 1962: Discharge, 6,660 cfs Nov. 19, 1950, Dec. 23, 1955 (gage height, 9.0 ft, from floodmarks).

Mean discharge, in cubic feet per second, 1963, of Falls Creek near Hetch Hetchy, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	6.0	3,870	11.....	3.9	93	21.....	2.4	62
2.....	5.6	1,000	12.....	3.5	80	22.....	2.3	59
3.....	5.2	502	13.....	3.2	139	23.....	2.2	50
4.....	5.0	328	14.....	2.9	112	24.....	2.2	54
5.....	4.8	243	15.....	2.6	84	25.....	2.3	56
6.....	4.6	190	16.....	2.5	75	26.....	2.3	69
7.....	4.4	159	17.....	2.5	66	27.....	2.4	80
8.....	4.4	148	18.....	2.5	59	28.....	2.4	75
9.....	4.2	122	19.....	2.4	59	29.....	2.6	- - - - -
10.....	4.0	112	20.....	2.4	60	30.....	2.03	- - - - -
						31.....	1,740	- - - - -
Monthly mean discharge, in cubic feet per second.....							65.8	286
Runoff, in inches.....							1.68	6.59
Runoff, in acre-feet.....							4,050	15,880

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.26	7.5	Jan. 31	0500	5.02	588	Feb. 1	1600	7.55	3,060
					0700	4.93	552		2400	6.51	1,660
	30	0600	2.92		0900	5.60	890				
		1200	3.40		1300	6.51	1,660	2	0800	5.85	1,060
		1400	3.72		1500	6.77	1,970		0900	5.64	914
		1800	4.10		2000	7.55	3,060		1100	5.73	971
		2100	4.60		2400	8.37	4,610		1500	5.50	830
		2200	5.08						2400	5.19	665
		2300	5.15	Feb. 1	0300	8.67	5,520				
		2400	5.10		0500	8.68	5,560	3	1200	4.75	480
					0700	8.60	5,300		1800	4.59	427
31	0200	4.69	457		0900	8.37	4,610		2400	4.47	391

11-2755. Hetch Hetchy Reservoir at Hetch Hetchy, Calif.

Location.--Lat 37°56'55", long 119°47'10", in NW $\frac{1}{4}$ sec.16, T.1 N., R.20 E., near center of O'Shaughnessy Dam on Tuolumne River at Hetch Hetchy in Yosemite National Park, 1.5 miles downstream from Falls Creek.

Drainage area.--460 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is at mean sea level (levels by city and county of San Francisco).

Contents record.--Contents computed from capacity table dated December 1934.

Maxima.--January-February 1963: Contents, 166,000 acre-ft 0730 hours Feb. 8 to 0700 hours Feb. 10 (elevation, 3,693.9 ft).
1923 to December 1962: Contents, 369,100 acre-ft Dec. 3, 1950 (elevation, 3,810.4 ft).

Remarks.--Reservoir is formed by concrete gravity-type dam, completed to crest elevation 3,726.5 ft in 1923 and raised to 3,812.0 ft in 1937; storage began Apr. 6, 1923. Ten-foot drum gates were installed on spillway in 1949. Usable capacity, 360,400 acre-ft between elevations, 3,512.0 (somewhat above bottom outlet) and 3,806.0 ft (top of drum-type spillway gates) above mean sea level. Water-stage recorder graph furnished by city and county of San Francisco.

Elevation, in feet, and contents, in acre-feet, at 2400 hours, 1963

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	3,684.6	152,600	3,687.0	156,000	16	3,669.3	131,800	3,692.5	163,900
2	3,683.7	151,400	3,690.4	160,800	17	3,668.3	130,500	3,692.1	163,300
3	3,682.7	150,000	3,691.9	163,000	18	3,667.2	129,100	3,691.7	164,200
4	3,681.7	148,600	3,692.9	164,500	19	3,665.9	127,500	3,691.2	162,700
5	3,680.8	147,300	3,693.4	165,200	20	3,665.0	126,300	3,690.8	161,400
6	3,679.7	145,800	3,693.7	165,700	21	3,663.9	124,900	3,690.4	160,800
7	3,678.7	144,400	3,693.8	165,800	22	3,663.0	123,700	3,689.9	160,100
8	3,677.7	143,100	3,693.9	166,000	23	3,661.8	122,200	3,689.5	159,500
9	3,676.7	141,700	3,693.9	166,000	24	3,660.8	120,900	3,689.0	158,800
10	3,675.6	140,300	3,693.8	165,800	25	3,659.6	119,400	3,688.6	158,200
11	3,674.4	139,600	3,693.6	165,500	26	3,658.6	118,300	3,688.3	157,800
12	3,673.4	137,300	3,693.3	165,100	27	3,657.4	116,900	3,688.2	157,700
13	3,672.4	135,900	3,693.3	165,100	28	3,656.5	115,800	3,687.7	157,000
14	3,671.3	134,500	3,693.2	164,900	29	3,655.2	114,300	-	-
15	3,670.3	133,100	3,692.8	164,300	30	3,655.7	114,900	-	-
					31	3,666.9	128,700	-	-
Change in contents, in acre-feet.....						-	-25,500	-	+28,300

11-2765. Tuolumne River near Hetch Hetchy, Calif.

Location.--Lat 37°56'15", long 119°47'50", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.17, T.1 N., R.20 E., in Yosemite National Park, on left bank 1 mile downstream from O'Shaughnessy Dam at Hetch Hetchy and 2.5 miles downstream from Falls Creek.

Drainage area.--462 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 3,430 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 926 cfs 0830 hours Feb. 1 (gage height, 6.59 ft).

1910 to December 1962: Discharge, 12,900 cfs June 1, 1943 (gage height, 13.90 ft).

Remarks.--Flow regulated by Hetch Hetchy Reservoir since 1923 (see station 11-2755). Water-stage recorder graph and discharge measurements furnished by city and county of San Francisco.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	745	860	11.....	745	745	21.....	742	709
2.....	739	825	12.....	742	742	22.....	739	706
3.....	739	784	13.....	739	745	23.....	736	703
4.....	739	748	14.....	739	745	24.....	733	715
5.....	733	742	15.....	736	742	25.....	730	721
6.....	739	742	16.....	733	724	26.....	727	718
7.....	736	742	17.....	730	718	27.....	724	615
8.....	736	745	18.....	730	715	28.....	739	739
9.....	745	745	19.....	742	712	29.....	742	-----
10.....	748	745	20.....	745	709	30.....	754	-----
						31.....	814	-----
Monthly mean discharge, in cubic feet per second.....							741	736
Runoff, in acre-feet.....							45,540	40,860

11-2772. Cherry Lake near Hetch Hetchy, Calif.

Location.--Lat 37°58'30", long 119°53'45", in NW $\frac{1}{4}$ sec.5, T.1 N., R.19 E., on upstream face of Cherry Valley Dam on Cherry Creek, 4.2 miles upstream from Eleanor Creek, 7 miles north of Early Intake, and 7.3 miles northwest of Hetch Hetchy.

Drainage area.--117 sq mi.

Gage-height record.--Staff gage read once daily. Datum of gage is at mean sea level (levels by city and county of San Francisco).

Contents record.--Contents computed from capacity table dated March 1956.

Maxima.--January-February 1963: Contents, 151,700 acre-ft Feb. 27, 28 (elevation, 4,627.8 ft).

1956 to December 1962: Contents, 269,300 acre-ft July 1-3, 1957 (elevation, 4,700.6 ft).

Remarks.--Reservoir is formed by a rockfill dam completed in 1956; storage began in December 1955. Usable capacity, 268,180 acre-ft between elevations 4,430 ft (bottom of sluice gates) and 4,700 ft (top of spillway gates) above mean sea level. Record of gage heights furnished by city and county of San Francisco.

Elevation, in feet, and contents, in acre-feet, at 0800 hours, 1963, of Cherry Lake near Hetch Hetchy, Calif.

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	-	-	4,597.7	109,200	16	4,584.6	91,900	-	-
2	4,595.7	106,500	4,606.8	121,700	17	4,583.7	90,800	4,624.2	146,400
3	4,594.8	105,300	4,609.4	125,300	18	4,582.8	89,600	4,625.1	147,700
4	4,594.0	104,300	4,611.7	128,500	19	4,581.8	88,300	4,625.5	148,500
5	4,593.1	103,100	4,613.2	130,600	20	4,581.1	87,400	4,625.9	148,900
6	4,592.5	102,200	4,614.4	132,300	21	4,580.7	86,300	4,626.3	149,500
7	4,592.0	101,600	4,615.5	133,900	22	4,579.7	85,600	4,626.5	149,800
8	4,591.2	100,500	4,616.4	135,200	23	4,578.8	84,500	4,627.0	150,500
9	4,590.3	99,500	4,617.3	136,500	24	4,577.7	83,100	4,627.1	150,700
10	4,589.4	98,100	4,618.3	137,900	25	4,576.6	81,800	4,627.4	151,100
11	4,588.5	97,000	4,619.4	139,400	26	4,575.4	80,300	4,627.5	151,200
12	4,587.6	95,800	-	-	27	4,574.6	79,300	4,627.8	151,700
13	4,586.9	94,900	4,621.0	141,800	28	4,573.7	78,200	4,627.8	151,700
14	4,586.5	94,400	4,622.1	143,400	29	4,572.6	76,800	-	-
15	4,585.6	93,200	4,622.8	144,400	30	4,571.7	75,700	-	-
					31	4,575.3	80,200	-	-
Change in contents, in acre-feet.....						-	-28,200	-	+71,500

11-2773. Cherry Creek below Cherry Valley Dam, near Hetch Hetchy, Calif.

Location.--Lat 37°58'04", long 119°54'59", in SW $\frac{1}{4}$ sec.5, T.1 N., R.19 E., on right bank 0.7 mile downstream from Cherry Valley Dam, 3.5 miles upstream from Eleanor Creek, 6.7 miles north of Early Intake, and 7.2 miles west of Hetch Hetchy.

Drainage area.--118 sq mi.

Gage-height record.--Water-stage-recorder graph. Datum of gage is 4,337.08 ft above mean sea level (levels by city and county of San Francisco).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 109 cfs 2300 hours Jan. 31 (gage height, 4.09 ft).
1956 to December 1962: Discharge, 3,830 cfs Apr. 25, 1958 (gage height, 9.95 ft).

Remarks.--Flow regulated by Cherry Lake (see station 11-2772). Water-stage recorder graph and discharge measurements furnished by city and county of San Francisco.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	6.2	40	11.....	6.0	8.6	21.....	6.0	8.3
2.....	6.2	13	12.....	6.0	8.9	22.....	6.0	8.3
3.....	6.0	11	13.....	6.2	10	23.....	6.0	8.0
4.....	6.0	10	14.....	6.2	9.5	24.....	6.0	8.0
5.....	6.0	9.5	15.....	6.2	9.2	25.....	6.0	8.0
6.....	6.0	9.2	16.....	6.2	8.9	26.....	6.0	8.0
7.....	6.0	9.2	17.....	6.0	8.9	27.....	6.0	8.0
8.....	6.0	8.9	18.....	6.0	8.6	28.....	6.0	8.0
9.....	6.0	8.9	19.....	6.0	8.3	29.....	6.2	- - - - -
10.....	6.0	8.9	20.....	6.0	8.3	30.....	18	- - - - -
						31.....	49	- - - - -
Monthly mean discharge, in cubic feet per second.....							7.82	10.1
Runoff, in acre-feet.....							481	560

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.88	7.5	Jan. 30	2400	3.22	21	Jan. 31	1900	3.80	71
	30	0200	2.91		31	0200	3.17		2300	4.09	109
		0500	3.06			0300	3.23		2400	4.01	97
		0600	3.08			0500	3.17	Feb. 1	0200	3.96	91
		0800	3.07			1000	3.46		0400	3.73	63
		1000	3.07			1100	3.52		0500	3.75	66
		1200	3.22			1200	3.76		1200	3.34	29
		1400	3.14			1400	3.71		1600	3.22	21
		1700	3.22			1500	3.53		2400	3.10	15
		1800	3.19			1600	3.64				
		2100	3.38			1700	3.55				

11-2775. Lake Eleanor near Hetch Hetchy, Calif.

Location.--Lat 37°58'30", long 119°52'45", in NW $\frac{1}{4}$ sec.3, T.1 N., R.19 E., on downstream side of dam on Eleanor Creek, 720 ft from left bank, 1.7 miles upstream from Miguel Creek, and 5.5 miles northwest of Hetch Hetchy.

Drainage area.--78.1 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is at mean sea level (levels by city and county of San Francisco).

Contents record.--Contents computed from capacity table dated May 1941.

Maxima.--January-February 1963: Contents, 29,400 acre-ft 0800 hours Feb. 1 (gage height, 4,663.3 ft).

1918 to December 1962: Contents, 31,000 acre-ft Dec. 11, 1937, from capacity table then in use (elevation, 4,663.4 ft).

Remarks.--Reservoir is formed by multiple-arch dam completed in 1918; storage began June 23, 1918. Usable capacity, 26,100 acre-ft between elevation 4,620.9 ft (natural outlet of old lake) and 4,660.0 ft (top of 5-foot flashboards) above mean sea level. Figures given herein represent usable contents. Water-stage recorder graph furnished by city and county of San Francisco.

Elevation, in feet, and contents, in acre-feet, at 2400 hours, 1963									
Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	4,638.7	7,810	4,661.9	28,000	16	4,638.0	7,330	4,645.9	13,500
2	4,638.6	7,740	4,661.0	27,100	17	4,638.0	7,330	4,644.9	12,600
3	4,638.5	7,680	4,660.3	26,400	18	4,638.0	7,330	4,643.9	11,800
4	4,638.5	7,680	4,659.1	25,300	19	4,637.9	7,260	4,642.9	11,000
5	4,638.4	7,610	4,658.0	24,300	20	4,637.9	7,260	4,642.2	10,500
6	4,638.4	7,610	4,656.7	23,100	21	4,637.9	7,260	4,641.7	10,100
7	4,638.3	7,540	4,655.6	22,100	22	4,637.9	7,260	4,641.3	9,740
8	4,638.3	7,540	4,654.3	20,900	23	4,637.9	7,260	4,641.0	9,500
9	4,638.2	7,470	4,653.1	19,800	24	4,637.8	7,190	3,640.8	9,340
10	4,638.2	7,470	4,651.9	18,700	25	4,637.8	7,190	3,640.6	9,160
11	4,638.2	7,470	4,650.7	17,600	26	4,637.8	7,190	3,640.5	9,100
12	4,638.1	7,400	4,649.5	16,600	27	4,637.8	7,190	3,640.5	9,100
13	4,638.1	7,400	4,648.8	16,000	28	4,637.8	7,190	3,640.4	9,020
14	4,638.1	7,400	4,647.9	15,200	29	4,637.9	7,260	-	-
15	4,638.0	7,330	4,646.9	14,300	30	4,640.7	9,260	-	-
					31	4,656.7	23,100	-	-
Change in contents, in acre-feet.....						-	+15,290	-	-14,080

11-2780. Eleanor Creek near Hetch Hetchy, Calif.

Location.--Lat 37°58'10", long 119°52'50", in SW $\frac{1}{4}$ sec.3, T.1 N., R.19 E., in Yosemite National Park, on right bank 0.5 mile downstream from Lake Eleanor Dam, 1.1 miles upstream from Miguel Creek, and 5.5 miles northwest of Hetch Hetchy.

Drainage area.--80 sq mi, approximately.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 4,500 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,600 cfs and by slope-area measurement at 10,400 cfs.

Maxima.--January-February 1963: Discharge, 10,400 cfs 0900 hours Feb. 1 (gage height, 12.24 ft).

1909 to December 1962: Discharge, 11,700 cfs Nov. 19, 1950 (gage height, 14.95 ft), from rating curve extended above 2,000 cfs on basis of velocity-area studies.

Remarks.--Flow regulated by Lake Eleanor since 1918 (see station 11-2775).

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of South Fork Tuolumne River near Oakland Recreation Camp, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.53	20	Jan. 31	0200	5.31	1,210	Feb. 1	0800	7.95	4,430
	0300				0300	5.10	1,050		1000	8.58	5,620
30	0500	1.70	26		0400	5.13	1,070		1200	7.82	4,210
	0700	2.40	76		0600	5.52	1,390		1500	6.60	2,510
	1000	2.90	142		0900	5.57	1,430		1600	6.24	2,090
	1100	2.91	144		1300	6.41	2,280		1900	5.80	1,650
	1200	3.17	194		1500	7.19	3,270		2400	5.21	1,130
	1300	3.47	268		1900	7.28	3,380				
	1600	3.94	431		2200	8.10	4,700	2	0300	4.95	950
	1800	4.55	718		2400	9.22	7,050		0500	4.73	818
	1900	4.94	944						1100	4.38	630
	2300	5.67	1,520	Feb. 1	0100	9.53	7,830		1600	4.13	509
	2400	5.55	1,420		0300	9.60	8,000		2400	3.86	399
					0600	8.34	5,140				

11-2820. Middle Tuolumne River at Oakland Recreation Camp, Calif.

Location.--Lat 37°49'40", long 120°00'40", in NW¼ sec.28, T.1 S., R.18 E., on left bank 1,000 ft downstream from Oakland Recreation Camp, 0.5 mile upstream from South Fork Tuolumne River, and 4 miles east of Buck Meadows Post Office.

Drainage area.--71.0 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 2,800 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 2,290 cfs 1100 hours Feb. 1 (gage height, 8.56 ft).

1916 to December 1962: Discharge, 4,920 cfs Dec. 23, 1955 (gage height, 11.75 ft, from flood profile; 11.05 ft, from floodmarks inside gage well), from rating curve extended above 1,400 cfs on basis of slope-area measurement of peak flow.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	2.9	1,590	11.....	2.6	70	21.....	2.3	50
2.....	2.9	319	12.....	2.5	67	22.....	2.1	47
3.....	3.1	159	13.....	1.9	102	23.....	2.2	46
4.....	3.2	123	14.....	2.3	95	24.....	2.3	45
5.....	3.0	102	15.....	2.1	71	25.....	2.2	45
6.....	3.0	90	16.....	2.2	66	26.....	2.3	47
7.....	2.9	80	17.....	2.2	61	27.....	2.3	50
8.....	2.9	76	18.....	2.2	55	28.....	2.5	48
9.....	3.0	76	19.....	2.1	53	29.....	3.1	---
10.....	2.7	89	20.....	2.3	52	30.....	276	---
						31.....	983	---
Monthly mean discharge, in cubic feet per second.....							43.0	135
Runoff, in inches.....							0.70	1.98
Runoff, in acre-feet.....							2,640	7,490

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.10	7.0	Jan. 31	0500	4.39	413	Feb. 1	0600	7.59	1,700
					0700	5.00	590		0800	8.15	2,040
30	0300	1.31	11		0800	5.26	668		0900	8.51	2,260
	0500	1.66	21		0900	5.08	614		1000	8.43	2,210
	0800	6.09	966		1000	5.12	625		1100	8.56	2,290
	1000	2.25	55		1300	6.30	1,070		1300	8.10	2,010
	1200	2.66	96		1400	6.42	1,120		1500	7.02	1,410
	1300	2.50	78		1500	6.24	1,050		1700	6.40	1,110
	1500	2.91	125		1600	6.52	1,160		2400	5.10	620
	1700	4.01	302		1800	6.34	1,090				
	1800	3.95	309		2000	7.40	1,600	2	0400	4.45	428
	2000	4.58	464		2200	8.02	1,960		0800	4.05	331
	2200	4.93	569		2300	8.43	2,210		1300	3.76	269
	2400	4.50	440		2400	6.40	2,190		1800	3.57	230
31	0200	4.19	363	Feb. 1	0100	8.19	2,060		2400	3.42	203
	0400	4.63	479		0400	7.81	1,840				

11-2835. Clavey River near Buck Meadows, Calif.

Location.--Lat 37°54'00", long 120°04'15", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.35, T.1 N., R.17 E., on right bank 300 ft upstream from Forest Service road bridge, 1.7 miles downstream from Quilty Creek, and 6 miles north of Buck Meadows Post Office.

Drainage area.--144 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 2,374.08 ft above mean sea level.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,200 cfs and by slope-area measurement at 19,200 cfs.

Maxima.--January-February 1963: Discharge, 19,200 cfs 0100 hours Feb. 1 (gage height, 21.40 ft, from recorder graph, 23.0 ft, from high-water profile). 1959 to December 1962: Discharge, 4,340 cfs Feb. 9, 1962 (gage height, 13.32 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	20	9,980	11.....	16	304	21.....	16	225
2.....	20	1,880	12.....	13	267	22.....	17	208
3.....	20	852	13.....	13	427	23.....	17	190
4.....	20	647	14.....	17	471	24.....	17	183
5.....	18	495	15.....	17	356	25.....	16	179
6.....	19	402	16.....	17	317	26.....	16	186
7.....	18	350	17.....	16	282	27.....	16	188
8.....	18	322	18.....	16	255	28.....	16	168
9.....	19	288	19.....	15	245	29.....	18	-----
10.....	18	372	20.....	16	235	30.....	676	-----
						31.....	6,410	-----
Monthly mean discharge, in cubic feet per second.....							245	724
Runoff, in inches.....							1.96	5.24
Runoff, in acre-feet.....							15,040	40,210

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.44	24	Jan. 30	2400	10.69	2,100	Feb. 1	0100	21.40	19,200
30	0300	2.97	40	31	0300	10.42	1,930	2	0400	20.61	17,100
	0500	3.89	85		0700	11.20	2,460		0700	19.25	13,800
	0800	4.99	177		1100	13.35	4,570		1300	16.00	7,660
	1200	5.96	315		1500	16.29	8,120		1900	13.52	4,540
	1600	7.27	630		1800	16.32	8,170		2400	12.18	3,250
	1800	9.11	1,230		2100	18.75	12,700		2400	9.67	1,500
	2100	10.42	1,930		2400	20.63	17,100			8.80	1,110
	2300	10.74	2,140								

11-2845. Big Creek near Groveland, Calif.

Location.--Lat 37°51'28", long 120°12'02", in NE $\frac{1}{4}$ sec.15, T.1 S., R.16 E., on right bank 0.5 mile downstream from unnamed tributary and 2.0 miles northeast of Groveland.

Drainage area.--24.7 sq mi.

Gage-height record.--Water-stage recorder graph, except 0100 hours Feb. 1 to 1100 hours Feb. 10. Altitude of gage is 2,450 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,300 cfs and by slope-area measurement at 4,530 cfs. Discharge for period of no gage-height record estimated on basis of one discharge measurement, recorded range in stage, and records for North Fork Tuolumne River above Dyer Creek, near Tuolumne.

Maxima.--January-February 1963: Discharge, 4,530 cfs about 0200 hours Feb. 1 (gage height, 7.71 ft, from floodmark in gage well; 8.6 ft outside, from floodmarks). 1931-33, 1959 to December 1962: Discharge, 3,000 cfs Feb. 6, 1932 (gage height, 6.70 ft). Flood of December 1955 reached a stage of 7.6 ft, from floodmarks (discharge, about 4,300 cfs).

Mean discharge, in cubic feet per second, 1963, of Big Creek near Groveland, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	0.1	1,200	11.....	0.1	12	21.....	0.1	5.7
2.....	.1	60	12.....	.1	12	22.....	.1	5.3
3.....	.1	30	13.....	.1	72	23.....	.1	4.5
4.....	.1	20	14.....	.1	57	24.....	.1	4.1
5.....	.1	10	15.....	.1	23	25.....	.1	3.7
6.....	.1	9.0	16.....	.1	15	26.....	.1	3.3
7.....	.1	8.0	17.....	.1	12	27.....	.1	3.0
8.....	.1	7.0	18.....	.1	9.3	28.....	.1	3.0
9.....	.1	6.0	19.....	.1	7.7	29.....	.2	-----
10.....	.1	34	20.....	.1	6.9	30.....	127	-----
						31.....	1,000	-----
Monthly mean discharge, in cubic feet per second.....							36.5	58.7
Runoff, in inches.....							1.70	2.47
Runoff, in acre-feet.....							2,240	3,260

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.76	0.7	Jan. 30	1800	2.88	111	Jan. 31	0800	3.70	405
	30	0200	1.81		2000	3.25	216		1000	3.85	482
		0400	1.87		2100	3.59	350		1300	4.75	1,040
		0500	1.93		2200	3.95	538		1500	5.52	1,660
		0600	2.16		2300	4.42	812		1800	4.51	867
		0900	2.35		2400	4.15	650		2200	5.70	1,830
		1200	2.54						2400	7.00	3,390
		1600	2.63	31	0300	3.71	410				
					0500	3.88	499				

11-2847. North Fork Tuolumne River near Long Barn, Calif.

Location.--Lat 120°06'00", long 38°05'55", in NW 1/4 sec. 22, T.3 N., R.17 E.,
0.6 mile upstream from small tributary, 3.8 miles upstream from Wrights Creek,
and 1.5 miles east of town of Long Barn.

Drainage area.--23.1 sq mi.

Gage-height record.--Water-stage recorder graph, except 0600 hours Jan. 30 to
1530 hours Jan. 31, for which graph was reconstructed on basis of recorded trace
for North Fork Tuolumne River above Dyer Creek near Tuolumne. Altitude of gage
is 4,650 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements
below 530 cfs and by slope-area measurement at 2,560 cfs; affected by ice
Jan. 1 to 13.

Maxima.--January-February 1963: Discharge, 1,570 cfs 0300 hours Feb. 1 (gage
height, 7.23 ft, from recorder graph; 8.2 ft, from floodmarks).
1955 to December 1962: Discharge, 2,560 cfs Dec. 23, 1955 (gage height,
9.8 ft, from floodmarks).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....		819	11.....	1.8	27	21.....	0.9	22
2.....		156	12.....	2.0	26	22.....	.9	22
3.....		81	13.....	2.5	49	23.....	.8	20
4.....	2.5	57	14.....	3.7	49	24.....	.7	19
5.....		44	15.....	3.1	40	25.....	.7	17
6.....		36	16.....	2.5	35	26.....	.5	16
7.....		30	17.....	2.0	31	27.....	.4	15
8.....		26	18.....	1.8	28	28.....	.4	14
9.....	2.0	27	19.....	1.4	26	29.....	.5	-----
10.....	2.0	34	20.....	1.0	24	30.....	142	-----
						31.....	618	-----
Monthly mean discharge, in cubic feet per second.....							26.2	63.9
Runoff, in inches.....							1.51	2.88
Runoff, in acre-feet.....							1,610	3,550

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.61	0.8	Jan. 31	1600	5.80	740	Feb. 1	0700	6.95	1,400
					1700	5.68	681		1000	6.06	873
	30	0600	2.77		1900	6.16	928		1200	5.55	622
		1200	3.70		2100	6.80	1,310		1500	5.05	418
		1800	4.78		2300	7.13	1,510		1700	4.88	358
		2400	4.75		2400	7.10	1,490		1900	4.87	354
									2400	4.50	240
	31	0600	4.27	Feb. 1	0100	7.01	1,440				
		1200	4.90		0300	7.23	1,570	2	0600	4.25	178
		1500	5.75		0600	6.97	1,350		1200	4.10	146
									2400	3.88	107

11-2848. Sugarpine Creek near Long Barn, Calif.

(Crest-stage station)

Location.--Lat 38°06'10", long 120°07'18", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.20, T.3 N., R.17 E., 1.1 miles northeast of Long Barn.Drainage area.--1.13 sq mi.Gage-height record.--Crest stages only. Altitude of gage is 5,010 ft (from topographic map).Discharge record.--Stage-discharge relation defined by current-meter measurements below 33 cfs and by computation of flow through culvert at 95 cfs.Maxima.--January-February 1963: Discharge, 95 cfs Feb. 1 (gage height, 6.43 ft).
September to December 1962: Discharge, 10 cfs Oct. 13, 1962 (gage height, 2.98 ft).

11-2850. North Fork Tuolumne River above Dyer Creek, near Tuolumne, Calif.

Location.--Lat 37°58'53", long 120°12'20", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.34, T.2 N., R.16 E., on left bank at Riverside Guard Station, 0.2 mile upstream from Dyer Creek and 2.2 miles northeast of Tuolumne.Drainage area.--69.2 sq mi.Gage-height record.--Water-stage recorder graph. Altitude of gage is 2,200 ft (from topographic map).Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,400 cfs.Maxima.--January-February 1963: Discharge, 4,130 cfs 2400 hours Jan. 31 (gage height, 5.79 ft).
1955 to December 1962: Flood of December 1955 reached a stage of 10.7 ft, from floodmarks.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	7.7	2,020	11.....	6.5	84	21.....	6.5	72
2.....	7.7	537	12.....	5.0	76	22.....	7.1	65
3.....	8.4	283	13.....	5.0	194	23.....	6.5	62
4.....	8.4	179	14.....	7.1	194	24.....	7.1	58
5.....	7.7	134	15.....	7.7	147	25.....	6.5	54
6.....	7.7	105	16.....	7.1	125	26.....	6.5	50
7.....	7.7	86	17.....	7.1	110	27.....	6.5	47
8.....	7.1	74	18.....	7.1	98	28.....	6.5	45
9.....	7.1	72	19.....	5.9	89	29.....	8.4	-----
10.....	7.1	120	20.....	6.5	78	30.....	412	-----
						31.....	1,660	-----
Monthly mean discharge, in cubic feet per second.....							73.4	188
Runoff, in inches.....							1.22	2.83
Runoff, in acre-feet.....							4,510	10,430

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.38	12	Jan. 31	0800	3.24	732	Feb. 1	0600	5.20	3,050
30					1000	3.69	1,110		0900	5.00	2,730
	0400	1.54	28		1400	4.57	2,110		1200	4.20	1,650
	0700	1.98	107		1700	4.07	1,510		1500	3.72	1,140
	1200	2.45	270		2000	5.00	2,730		2400	3.38	844
	1500	2.85	470		2400	5.79	4,130				
	2000	3.59	1,020					2	0600	3.09	623
	2400	3.45	900	Feb. 1	0100	5.32	3,250		1200	2.90	500
31					0200	5.66	3,870		1800	2.76	420
	0400	3.16	672		0500	5.00	2,730		2400	2.65	365

11-2875. Don Pedro Reservoir near La Grange, Calif.

Location.--Lat 37°42'48", long 120°24'14", in SW $\frac{1}{4}$ sec.35, T.2 S., R.14 E., 300 ft from left bank on upstream face of Don Pedro Dam on Tuolumne River, 1 mile downstream from Rogers Creek, and 5.5 miles upstream from La Grange.

Drainage area.--1,539 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is at mean sea level (levels by Turlock Irrigation District).

Contents record.--Contents computed from capacity table dated Oct. 1, 1931.

Maxima.--January-February 1963: Contents, 221,700 acre-ft 1400-1800 hours Feb. 2 (elevation, 582.9 ft).
1924 to December 1962: Contents, 292,100 acre-ft June 13, 1937 (elevation, 606.1 ft).

Remarks.--Reservoir is formed by concrete gravity-type dam, completed about Jan. 1, 1923; storage began Nov. 14, 1922. Total capacity, 290,400 acre-ft at elevation 605.55 ft (top of drum type spillway gates), of which 30,000 acre-ft below elevation, 476 ft (mutually agreed-upon minimum) is not available for release. Figures given herein represent total contents. Water-stage-recorder graph furnished by Turlock and Modesto Irrigation Districts.

Elevation, in feet, and contents, in acre-feet, at 2400 hours, 1963

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	516.4	72,900	581.3	217,100	16	524.0	84,200	572.8	193,200
2	516.0	72,400	582.7	221,100	17	524.8	85,400	572.8	193,200
3	516.1	72,500	580.8	215,600	18	525.5	86,500	571.8	190,500
4	516.7	73,400	578.4	208,800	19	526.3	87,800	571.5	189,700
5	517.6	74,600	575.6	201,000	20	527.2	89,300	571.5	189,700
6	518.5	76,000	573.6	195,400	21	527.7	90,200	571.2	188,900
7	518.5	76,000	573.5	195,200	22	528.6	91,700	571.0	188,300
8	518.9	76,500	572.6	192,700	23	529.5	93,300	571.1	188,600
9	519.6	77,600	571.8	190,500	24	530.4	94,800	571.4	189,400
10	520.0	78,100	571.7	190,200	25	530.9	95,700	571.4	189,400
11	520.4	78,700	571.9	190,800	26	531.8	97,400	571.2	188,900
12	521.1	79,800	572.2	191,600	27	532.7	98,900	571.2	188,900
13	522.0	81,100	572.4	192,100	28	533.1	99,800	571.5	189,700
14	522.4	81,700	572.2	191,600	29	533.8	101,100	-	-
15	523.2	82,900	572.5	192,400	30	536.4	106,100	-	-
					31	554.3	146,000	-	-
Change in contents, in acre-feet.....						-	+74,500	-	+43,700

11-2880. Tuolumne River above La Grange Dam, near La Grange, Calif.

Location.--Lat 37°42'35", long 120°24'45", in NE $\frac{1}{4}$ sec.3, T.3 S., R.14 E., on left bank 0.5 mile downstream from Don Pedro Dam, 3.5 miles upstream from La Grange Dam, and 5 miles upstream from La Grange.

Drainage area.--1,534 sq mi.

Gage-height record.--Digital recorder tape punched at 15-minute intervals. Altitude of gage is 330 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 7,130 cfs 1615 hours Feb. 2 (gage height, 13.02 ft).
1895 to December 1962: Discharge, 61,000 cfs Dec. 8, 1950 (gage height, 43.8 ft).

Remarks.--Flow regulated by Don Pedro powerplant, Don Pedro Reservoir (see station 11-2875), Hetch Hetchy Reservoir (see station 11-2755), Cherry Lake (see station 11-2772) and Lake Eleanor (see station 11-2775). Water-stage recorder graph furnished by city and county of San Francisco.

Day	January	February	Day	January	February	Day	January	February
1.....	719	3,260	11.....	1,120	2,210	21.....	727	2,060
2.....	1,530	7,000	12.....	739	1,780	22.....	576	1,860
3.....	1,300	6,970	13.....	454	4,310	23.....	624	1,380
4.....	928	6,920	14.....	863	4,190	24.....	701	1,060
5.....	720	6,920	15.....	765	2,170	25.....	833	1,350
6.....	540	5,570	16.....	684	1,940	26.....	541	1,670
7.....	1,150	2,550	17.....	749	1,900	27.....	354	1,460
8.....	1,040	3,420	18.....	577	3,370	28.....	943	1,020
9.....	852	3,670	19.....	594	2,120	29.....	778	---
10.....	1,080	3,420	20.....	448	1,910	30.....	574	---
						31.....	668	---
Monthly mean discharge, in cubic feet per second.....							788	3,124
Runoff, in acre-feet.....							48,440	173,500

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	5.52	181	Feb. 1	0600	6.96		Feb. 3	2400	12.76	6,760
					1000	8.43	1,936				
30	0600	5.52	181		1400	10.17	3,590	4	0400	12.65	6,610
	0800	6.68	708		1800	11.72	5,370		1200	12.95	7,030
	1000	6.68	708		2230	13.00	7,100		2400	12.92	6,990
	1400	6.19	445		2400	12.88	6,930				
	1800	8.41	1,920					5	0400	12.75	6,750
	2000	7.36	1,130	2	0200	12.71	6,690		0600	12.93	7,000
	2400	5.53	184		1200	12.98	7,070		2400	12.87	6,920
					1615	13.02	7,130				
31	0600	5.53	184		2400	12.90	6,960	6	0200	12.72	6,710
	1200	6.97	882						0830	12.88	6,950
	1600	6.18	440	3	0200	12.75	6,750		1800	11.65	5,280
	1800	8.06	1,640		0800	13.00	7,100		2400	7.99	1,580
	2400	7.15	990		2200	12.96	7,040				

Day	January	February	Day	January	February	Day	January	February
1.....	1,040	1,080	11.....	1,110	4,200	21.....	660	2,190
2.....	859	4,930	12.....	1,370	2,640	22.....	680	2,290
3.....	1,480	6,860	13.....	695	2,450	23.....	752	2,050
4.....	1,440	6,890	14.....	731	6,120	24.....	680	1,510
5.....	1,090	6,890	15.....	690	4,440	25.....	762	1,260
6.....	903	6,900	16.....	710	2,590	26.....	762	1,620
7.....	794	5,080	17.....	762	2,250	27.....	742	1,750
8.....	1,080	3,160	18.....	762	2,140	28.....	544	1,590
9.....	1,140	3,490	19.....	773	3,300	29.....	640	- - - - -
10.....	982	3,910	20.....	752	2,450	30.....	784	- - - - -
						31.....	773	- - - - -
Monthly mean discharge, in cubic feet per second.....							869	3,429
Runoff, in acre-feet.....							53,450	190,400

11-2920. Middle Fork Stanislaus River at Kennedy Meadows, near Dardanelle, Calif.

Location.--Lat 38°17'50", long 119°44'25", in NE $\frac{1}{4}$ sec.11, T.5 N., R.20 E., on right bank at upper end of Kennedy Meadows, 1.3 miles upstream from Deadman Creek, 1.6 miles downstream from Relief Reservoir, and 6.0 miles west of Sonora Pass.

Drainage area.--47.5 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 6,320.1 ft above mean sea level (river-profile survey).

Discharge record.--Stage-discharge relation defined by current-meter measurements; affected by ice Jan. 1, 2, 4-14, 19, 20.

Maxima.--January-February 1963: Discharge, 980 cfs 0300 hours Feb. 1 (gage height, 5.56 ft).
1938 to December 1962: Discharge, 1,700 cfs Nov. 20, 1950 (gage height, 6.66 ft).

Remarks.--Flow regulated by Relief Reservoir (usable capacity, 15,600 acre-ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	12	663	11.....	10	49	21.....	10	38
2.....	12	171	12.....	10	46	22.....	10	37
3.....	12	110	13.....	10	46	23.....	10	35
4.....	12	95	14.....	10	44	24.....	10	37
5.....	11	87	15.....	12	41	25.....	10	40
6.....	11	76	16.....	12	40	26.....	10	43
7.....	12	71	17.....	11	38	27.....	10	42
8.....	12	66	18.....	11	37	28.....	10	42
9.....	12	58	19.....	10	37	29.....	11	-----
10.....	12	53	20.....	10	38	30.....	31	-----
						31.....	329	-----
Monthly mean discharge, in cubic feet per second.....							21.8	77.9
Runoff, in acre-feet.....							1,340	4,320

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.14	12	Jan. 31	0600	2.50	81	Feb. 1	0800	5.50	950
					0700	2.50	81		1100	5.00	700
					1400	3.86	305		1700	4.28	423
30	0300	1.11	11		1700	4.65	560		2400	3.66	256
	0900	1.20	14		1800	4.50	505				
	1500	1.56	27		2100	4.90	660	2	0500	3.42	205
	1900	2.00	48		2400	5.52	960		1100	3.20	163
	2300	2.56	86						1800	3.06	141
	2400	2.55	85	Feb. 1	0300	5.56	980		2400	2.91	121
31	0300	2.32	68		0500	5.50	950				

11-2925. Clark Fork Stanislaus River near Dardanelle, Calif.

Location.--Lat 38°21'50", long 119°52'30", in SE $\frac{1}{4}$ sec.15, T.6 N., R.19 E., on right bank 0.3 mile upstream from mouth and 3 miles northwest of Dardanelle.

Drainage area.--65.7 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 5,507.3 ft above mean sea level (river-profile survey).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,100 cfs and by slope-area measurement at 4,350 cfs; affected by ice Jan. 1-29.

Maxima.--January-February 1963: Discharge, 2,300 cfs 0400 hours Feb. 1 (gage height, 9.00 ft).
1950 to December 1962: Discharge, 4,350 cfs Nov. 20, 1950 (gage height, 11.88 ft).

Mean discharge, in cubic feet per second, 1963, of Clark Fork Stanislaus River near Dardanelle, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....		1,400	11.....	18	133	21.....		99
2.....		381	12.....		124	22.....		99
3.....		275	13.....		126	23.....	18	96
4.....		246	14.....		116	24.....		97
5.....	25	224	15.....	20	110	25.....		99
6.....		198	16.....		107	26.....		110
7.....		190	17.....		102	27.....	20	110
8.....		180	18.....		99	28.....		109
9.....		160	19.....		99	29.....	25	- - - - -
10.....		151	20.....	18	99	30.....	82	- - - - -
						31.....	650	- - - - -
Monthly mean discharge, in cubic feet per second.....							43.6	191
Runoff, in inches.....							0.76	3.02
Runoff, in acre-feet.....							2,680	10,590

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.51	38	Jan. 31	0600	3.81	230	Feb. 1	0400	9.00	2,300
30					0800	4.24	319		0800	8.44	1,960
	0400	2.39	27		0900	4.07	282		1200	7.06	1,260
	0800	2.37	25		1000	4.30	332		1800	5.85	798
	1200	2.52	39		1200	4.85	465		2400	5.04	542
	1500	2.82	73		1600	5.67	720				
	1700	3.20	125		1800	6.15	888	2	0600	4.60	425
	1900	3.44	164		2100	7.40	1,400		1200	4.34	360
	2100	3.61	194		2400	8.30	1,880		1800	4.18	322
	2400	3.67	205						2400	4.06	295

11-2926. Donnell Lake near Dardanelle, Calif.
(Formerly published as Donnell's Reservoir near Dardanelle)

Location.--Lat 38°19'45", long 119°57'40", in SE $\frac{1}{4}$ sec.35, T.6 N., R.18 E., on left bank in hoist house of Donnell Dam on Middle Fork Stanislaus River, 1.2 miles downstream from Niagara Creek, and 7.2 miles west of Dardanelle.

Drainage area.--230 sq mi.

Gage-height record.--Water-stage recorder graph, except Feb. 4-17. Datum of gage is 4.84 ft above mean sea level (levels by Oakdale and South San Joaquin Irrigation Districts).

Contents record.--Contents computed from capacity table dated Oct. 1, 1956, furnished by Pacific Gas and Electric Co., except for period Feb. 4-17 when contents were interpolated.

Maxima.--January-February 1963: Computed bihourly inflow, 14,500 cfs 2400 hours Jan. 31 to 0200 hours Feb. 1; contents, 54,600 acre-ft Feb. 4 (gage height, 4,891.8 ft, estimated).
1957 to December 1962: Contents, 64,800 acre-ft June 1, 1959, July 2, 1962 (gage height, 4,917.1 ft).

Remarks.--Lake is formed by concrete arch-type dam completed in 1957. Capacity, 62,590 acre-ft between gage heights 4,720 (minimum operating head) and 4,917.0 ft (top of spillway gates). Records represent total contents, of which 2,150 acre-ft is below minimum operating head. Inflow data furnished by Corps of Engineers.

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963,
of Cascade Creek near Pinecrest, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	3.64	8.6	Jan. 31	2230	8.54	369	Feb. 1	1600	5.82	151
31	0400	3.76	11		2330	8.57	371		1700	5.87	155
	0600	3.73	10		2345	8.72	385		1900	5.41	118
	0900	4.58	37		2400	8.50	365		2000	5.40	117
	1200	5.97	163	Feb. 1	0030	8.41	358		2200	5.06	90
	1400	6.75	225		0130	9.45	450		2400	4.90	77
	1500	6.55	209		0230	10.35	532	2	0600	4.57	51
	1600	6.51	206		0300	9.95	496		1000	4.43	40
	1700	7.12	255		0500	9.02	412		1200	4.42	39
	1800	7.22	263		0715	8.30	349		1800	4.35	35
	2000	7.90	317		0800	8.60	374		2200	4.25	30
	2100	8.47	363		1000	7.23	263		2400	4.23	28
	2200	8.27	347		1300	6.06	170				

11-2927. Middle Fork Stanislaus River at Hells Half Acre Bridge, Calif.

Location.--Lat 38°14'49", long 120°02'02", in NE¹ sec.31, T.5 N., R.18 E., on left bank 200 ft upstream from Donnell's powerhouse, 800 ft downstream from Hells Half Acre Bridge, 1.1 miles upstream from Cow Creek, and 3.7 miles northwest of Strawberry.

Drainage area.--287 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 3,410.94 ft above mean sea level.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 2,100 cfs and by computation of peak inflow to Beardsley Lake at 8,240 cfs.

Maxima.--January-February 1963: Discharge, 7,600 cfs 2400 hours Jan. 31 (gage height, 12.20 ft).
1905 to December 1962: Discharge, 26,600 cfs Dec. 23, 1955 (gage height, 17.72 ft site and datum then in use, about 23 ft present datum, from floodmarks).

Remarks.--Floodflow affected by Relief Reservoir since 1909 (capacity, 15,600 acre-ft) and Donnell Lake (see station 11-2926) since 1957.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	14	3,660	11.....	14	160	21.....	14	127
2.....	14	711	12.....	14	148	22.....	14	116
3.....	15	435	13.....	14	222	23.....	15	106
4.....	15	345	14.....	14	236	24.....	15	102
5.....	15	290	15.....	14	184	25.....	15	98
6.....	15	240	16.....	14	166	26.....	15	98
7.....	15	213	17.....	14	152	27.....	15	95
8.....	15	191	18.....	14	141	28.....	15	85
9.....	15	176	19.....	14	135	29.....	16	-----
10.....	15	176	20.....	14	132	30.....	161	-----
						31.....	3,200	-----

Monthly mean discharge, in cubic feet per second.....	122	319
Runoff, in acre-feet.....	7,500	17,730

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.69	21	Jan. 31	1200	8.55	2,560	Feb. 1	1000	9.75	3,880
30	0600	3.01	40		1600	9.78	3,920		1200	8.65	2,660
	1300	3.34	65		1900	11.00	5,610		1500	7.85	1,920
	1600	4.08	159		2000	11.85	6,980		2000	7.50	1,640
	1900	4.70	285		2400	12.20	7,600		2400	6.72	1,100
	2400	5.80	635	Feb. 1	0500	11.00	5,610	2	0600	6.18	810
31	0800	6.65	1,060		0800	10.78	5,280		1200	5.84	653
					0900	11.35	6,160		2400	5.46	506

11-2928. Beardsley Lake near Strawberry, Calif.

Location.--Lat 38°12'17", long 120°04'31", in NW $\frac{1}{4}$ sec.14, T.4 N., R.17 E., in hoist house of Beardsley Dam on Middle Fork Stanislaus River, 2.4 miles upstream from Spring Gap powerhouse, 3.9 miles west of Strawberry, and 4.7 miles west of Pinecrest.

Drainage area.--309 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 7.84 ft above mean sea level (levels by Oakdale and South San Joaquin Irrigation District).

Contents record.--Contents computed from capacity table dated Oct. 3, 1956.

Maxima.--January-February 1963: Computed bihourly inflow, 8,240 cfs 2200 to 2400 hours Jan. 31. Contents, 78,400 acre-ft 0800 to 1600 hours Feb. 4 (gage height, 3,368.8 ft).
1957 to December 1962: Contents, 98,700 acre-ft June 27, 1957 (gage height, 3,398.2 ft).

Remarks.--Reservoir is formed by rockfill, earth-core dam completed in 1957. Capacity, 98,300 acre-ft between gage heights 3,145.0 ft (tunnel invert) and 3,398.0 ft (top of spillway gates). No dead storage. Records represent total contents.

Elevation, in feet, and contents, in acre-feet, at 2400 hours, 1963

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	3,347.4	64,800	3,365.4	76,100	16	3,343.6	62,500	3,368.5	78,200
2	3,347.1	64,600	3,367.6	77,600	17	3,343.3	62,300	3,368.5	78,200
3	3,346.9	64,500	3,368.7	78,300	18	3,343.0	62,100	3,368.4	78,100
4	3,346.5	64,200	3,368.7	78,300	19	3,342.7	61,900	3,368.4	78,100
5	3,346.3	64,100	3,368.7	78,300	20	3,342.5	61,800	3,368.2	78,000
6	3,346.1	64,000	3,368.6	78,200	21	3,342.2	61,600	3,368.0	77,800
7	3,345.8	63,800	3,368.6	78,200	22	3,342.1	61,600	3,367.7	77,600
8	3,345.6	63,700	3,368.5	78,200	23	3,341.8	61,400	3,367.5	77,500
9	3,345.6	63,700	3,368.5	78,200	24	3,341.6	61,300	3,367.2	77,300
10	3,345.5	63,600	3,368.5	78,200	25	3,341.3	61,100	3,366.8	77,100
11	3,344.9	63,200	3,368.4	78,100	26	3,341.0	60,900	3,366.5	76,900
12	3,344.6	63,100	3,368.4	78,100	27	3,340.8	60,800	3,366.1	76,600
13	3,344.4	62,900	3,368.6	78,200	28	3,341.1	61,000	3,366.8	76,400
14	3,344.0	62,700	3,368.6	78,200	29	3,341.1	61,000	-	-
15	3,343.8	62,600	3,368.5	78,200	30	3,341.7	61,300	-	-
					31	3,352.5	67,900	-	-
Change in contents, in acre-feet.....					-		+3,100	-	+8,500

11-2929. Middle Fork Stanislaus River below Beardsley Dam, Calif.

Location.--Lat 38°11'36", long 120°05'53", in NW $\frac{1}{4}$ sec.22, T.4 N., R.17 E., on right bank 0.5 mile downstream from Beardsley powerhouse afterbay dam, 1.5 miles downstream from Beardsley Dam, and 5.7 miles west of town of Pinecrest.

Drainage area.--316 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 3,044.7 ft above mean sea level (river-profile survey).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 4,000 cfs.

Maxima.--January-February 1963: Discharge, 1,020 cfs 1000 to 2300 hours Feb. 4 (gage height, 6.15 ft).
1956 to December 1962: Discharge, 5,860 cfs May 23, 1958 (gage height, 10.48 ft).

Remarks.--Flow regulated by Relief Reservoir (capacity, 15,600 acre-ft), Donnell Lake (see station 11-2926) since April 1957, and by Beardsley Lake (see station 11-2928) since January 1957.

Mean discharge, in cubic feet per second, 1963, of Middle Fork Stanislaus River below Beardsley Dam, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	103	474	11.....	101	842	21.....	100	670
2.....	106	615	12.....	109	832	22.....	100	646
3.....	103	695	13.....	113	888	23.....	101	638
4.....	114	1,010	14.....	115	942	24.....	99	638
5.....	108	996	15.....	103	868	25.....	100	638
6.....	112	842	16.....	103	854	26.....	98	633
7.....	108	900	17.....	101	837	27.....	97	458
8.....	112	876	18.....	106	832	28.....	97	369
9.....	101	859	19.....	103	820	29.....	97	-----
10.....	103	859	20.....	100	771	30.....	99	-----
						31.....	117	-----
Monthly mean discharge, in cubic feet per second.....							104	765
Runoff, in acre-feet.....							6,400	42,490

11-2930. Middle Fork Stanislaus River at Sand Bar Flat, near Avery, Calif.

Location.--Lat 38°11'12", long 120°08'28", in SE $\frac{1}{4}$ sec.19, T.4 N., R.17 E., on left bank 1 mile upstream from diversion dam of Pacific Gas & Electric Co. at Sand Bar Flat, 6.5 miles north of Long Barn, and 13 miles southeast of Avery.

Drainage area.--325 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 2,755 ft above mean sea level (river-profile survey).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 1,130 cfs 1000 hours Feb. 5 (gage height, 6.48 ft).
1905-57 (prior to regulation by Beardsley Lake and Donnell's Reservoir): Discharge, 26,000 cfs Dec. 23, 1955 (gage height, 20.2 ft, from floodmarks), from rating curve extended above 6,000 cfs on basis of computation of peak flow over dam.
1957 to December 1962: Discharge, 6,030 cfs May 23, 1958 (gage height, 11.60 ft).

Remarks.--Flow regulated by Relief Reservoir since 1909 (capacity, 15,600 acre-ft), Donnell's Reservoir since April 1957 (see station 11-2926), and Beardsley Lake since January 1957 (see station 11-2928).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	108	654	11.....	110	918	21.....	112	762
2.....	112	734	12.....	119	908	22.....	117	746
3.....	114	794	13.....	128	965	23.....	111	738
4.....	118	1,080	14.....	130	1,020	24.....	108	734
5.....	106	1,080	15.....	118	970	25.....	104	730
6.....	112	1,020	16.....	118	940	26.....	102	730
7.....	108	975	17.....	117	922	27.....	102	568
8.....	114	950	18.....	121	913	28.....	102	444
9.....	107	931	19.....	118	904	29.....	102	-----
10.....	107	931	20.....	114	859	30.....	131	-----
						31.....	233	-----
Monthly mean discharge, in cubic feet per second.....							117	854
Runoff, in acre-feet.....							7,190	47,440

11-2933. North Fork Stanislaus River tributary near Lake Alpine, Calif.

(Crest-stage station)

Location.--Lat 38°30'20", long 119°56'50", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.36, T.8 N., R.18 E., on State Highway 4, 3.2 miles northeast of Lake Alpine.

Drainage area.--0.28 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 7,930 ft (from topographic map).

Discharge record.--Maximum discharge by computation of flow through culvert.

Maxima.--January-February 1963: Discharge, 23 cfs Feb. 1 (gage height, 13.04 ft, from high-water profile).

July to December 1962: No significant floodflow.

11-2935. North Fork Stanislaus River below Silver Creek, Calif.

Location.--Lat 38°26'22", long 120°00'53", in SE $\frac{1}{4}$ sec.20, T.7 N., R.18 E., on right bank 100 ft downstream from Silver Creek and 5.6 miles northeast of Big Meadow.

Drainage area.--27.8 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 6,677.3 ft above mean sea level (river-profile survey).

Discharge record.--Stage-discharge relation defined by current-meter measurements; affected by ice Jan. 1, 11-13, Feb. 4-11, 13, 14.

Maxima.--January-February 1963: Discharge, 970 cfs 2100 hours Jan. 31 (gage height, 8.75 ft).

1952 to December 1962: Discharge, 1,370 cfs Dec. 23, 1955 (gage height, 9.17 ft), from rating curve extended above 500 cfs.

Flood of Nov. 20, 1950, reached a stage of 11.17 ft, from Pacific Gas & Electric Co. recorder chart (discharge, 2,790 cfs).

Remarks.--Flow slightly affected by storage in Lake Alpine, Union, and Utica Reservoirs (combined capacity, 9,600 acre-ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	5.6	636	11.....	4.9	80	21.....	20	60
2.....	5.6	326	12.....	4.8	72	22.....	17	57
3.....	5.3	224	13.....	4.7	65	23.....	5.8	53
4.....	5.3	190	14.....	4.7	80	24.....	5.0	51
5.....	5.2	170	15.....	4.5	75	25.....	5.0	49
6.....	5.2	150	16.....	4.5	70	26.....	4.9	54
7.....	5.0	130	17.....	4.5	64	27.....	4.7	71
8.....	4.9	120	18.....	4.3	60	28.....	4.7	67
9.....	4.9	100	19.....	5.4	58	29.....	4.9	-----
10.....	4.9	90	20.....	9.6	58	30.....	11	-----
						31.....	441	-----
Monthly mean discharge, in cubic feet per second.....							20.3	112
Runoff, in inches.....							0.84	4.41
Runoff, in acre-feet.....							1,250	6,540

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.02	5.6	Jan. 31	0900	5.93	240	Feb. 1	1300	6.64	350
					1100	6.75	371		1400	6.64	350
30	0500	2.04	5.9		1200	6.85	390		1600	7.76	618
	0600	2.12	7.1		1600	7.84	642		1800	8.05	708
	1500	2.11	7.0		1900	8.10	725		2100	7.74	612
	1700	2.27	9.8		2100	8.75	970		2400	7.32	495
	1900	2.51	14		2400	8.60	910				
	2100	2.88	22	Feb. 1	0100	8.58	902	2	0200	7.10	440
	2400	3.50	40		0300	8.64	926		0700	6.67	355
31	0300	4.00	61		0800	7.83	639		1100	6.43	311
	0700	5.20	150		1100	6.96	412		1700	6.22	274
									2400	6.03	243

11-2940. Highland Creek below Spicer Meadows Reservoir, Calif.

Location.--Lat 38°23'50", long 119°59'30", in SW $\frac{1}{4}$ sec.3, T.6 N., R.18 E., on right bank just downstream from Spicer Meadows Reservoir dam, 5.5 miles upstream from mouth and 7 miles east of Big Meadow.

Drainage area.--42.4 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 6,374.8 ft above mean sea level (river-profile survey).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,200 cfs; affected by ice Jan. 1, 3, 4, 13-28, Feb. 22, 27.

Maxima.--January-February 1963: Discharge, 9,860 cfs 2400 hours Jan. 31 (gage height, 11.88 ft).

1952 to December 1962: Discharge, 8,800 cfs Dec. 23, 1955 (gage height, 11.50 ft).

Flood of Nov. 20, 1950, reached a stage of 11.50 ft, from Pacific Gas & Electric Co. recorder chart (discharge, 8,800 cfs).

Remarks.--Flow slightly regulated by Spicer Meadows Reservoir (capacity, 4,060 acre-ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	10	4,130	11.....	7.0	135	21.....	4.5	95
2.....	10	554	12.....	5.2	115	22.....	4.5	88
3.....	10	355	13.....	5.0	136	23.....	4.5	81
4.....	10	326	14.....	5.0	128	24.....	4.1	82
5.....	10	285	15.....	5.0	112	25.....	4.0	84
6.....	9.7	232	16.....	5.0	108	26.....	4.0	97
7.....	9.3	211	17.....	5.0	98	27.....	3.9	103
8.....	9.2	199	18.....	5.0	93	28.....	4.5	93
9.....	9.4	166	19.....	5.0	93	29.....	6.0	-----
10.....	9.0	143	20.....	4.7	94	30.....	20	-----
						31.....	1,800	-----
Monthly mean discharge, in cubic feet per second.....							64.8	301
Runoff, in inches.....							1.76	7.40
Runoff, in acre-feet.....							3,980	16,730

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	
Jan. 29	2400	1.15	5.5	Jan. 31	1700	6.30	1,070	Feb. 1	1500	7.45	1,920	
30					1800	8.80	3,400		1700	7.05	1,590	
	1200	1.10	5.0		1900	9.25	4,020		2100	6.50	1,190	
	1600	1.25	6.6		2000	10.00	5,260		2400	6.17	992	
	1700	1.57	11		2200	11.15	7,890					
	1800	2.10	26		2400	11.88	9,860	2	0600	5.50	645	
	1900	2.55	45	Feb. 1					1000	5.20	520	
	2000	2.86	64			0100	11.62	9,140		1400	5.00	450
	2100	2.95	70			0200	11.59	9,050		1600	4.87	411
	2400	2.94	69			0700	10.40	6,080		1800	4.90	420
						1000	9.45	4,320		2400	4.80	390
31	0800	2.95	70		1200	8.45	2,960					
	1600	3.16	86		1400	7.90	2,350					

11-2943. North Fork Stanislaus River below Ganns damsite, Calif.

Location.--Lat 38°24'05", long 120°06'40", in SW $\frac{1}{4}$ sec.4, T.6 N., R.17 E., on left bank 0.25 mile upstream from Big Meadow Creek and 0.9 mile south of Big Meadow.

Drainage area.--111 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 5,405 ft above mean sea level (from river-profile survey).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,800 cfs and by slope-area measurement at 21,000 cfs; affected by ice Jan. 3, 4, 10-14.

Maxima.--January-February 1963: Discharge, 21,000 cfs 2400 hours Jan. 31 (gage height, 16.12 ft, from recorder graph; 16.4 ft, from high-water profile).
1960 to December 1962: Discharge, 2,930 cfs May 5, 1962 (gage height, 9.14 ft).

Flood of December 1955 reached a stage of 17.0 ft, from floodmarks on right bank; flood of Jan. 31, 1963, reached a stage of 18.8 ft at same location.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	24	9,430	11.....	15	320	21.....	47	243
2.....	24	1,620	12.....	17	280	22.....	73	221
3.....	23	1,030	13.....	18	377	23.....	23	199
4.....	23	950	14.....	19	364	24.....	18	196
5.....	23	794	15.....	18	298	25.....	18	197
6.....	23	610	16.....	18	283	26.....	19	228
7.....	22	548	17.....	17	254	27.....	19	248
8.....	22	513	18.....	18	237	28.....	18	217
9.....	22	429	19.....	17	239	29.....	18	-----
10.....	21	382	20.....	17	245	30.....	567	-----
						31.....	7,910	-----
Monthly mean discharge, in cubic feet per second.....							295	755
Runoff, in inches.....							3.06	7.08
Runoff, in acre-feet.....							18,110	41,910

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.70	19	Jan. 30	2100	8.37	2,370	Feb. 1	0700	14.12	13,500
					2200	8.81	2,810		1100	11.98	7,840
	30	0900	1.71		2400	8.68	2,680		1500	10.55	5,080
		1200	2.12						2400	9.12	3,140
		1300	2.60		0500	9.59	3,690				
		1400	3.27	31	0600	8.54	2,540	2	0600	8.12	2,150
		1500	3.86		1000	10.22	4,550		1200	7.48	1,610
		1600	5.00		1600	12.05	7,990		1800	7.11	1,350
		1900	6.34		1900	14.17	13,600		2400	6.85	1,180
		2000	6.80		2400	16.12	21,000				

11-2945. North Fork Stanislaus River near Avery, Calif.

Location.--Lat 38°14'45", long 120°17'20", in NE $\frac{1}{4}$ sec.35, T.5 N., R.15 E., on right bank 700 ft upstream from intake of Utica Canal, 3.3 miles upstream from Beaver Creek and 5.1 miles northeast of Avery.

Drainage area.--163 sq mi.

Gage-height record.--Water-stage recorder graph, except 2100 hours Jan. 31 to 0600 hours Feb. 1 for which graph was reconstructed on basis of high-water mark in gage house and outside high-water marks. Datum of gage is 3,388.3 ft above sea level (river-profile survey).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 13,300 cfs and by slope-area measurement at 29,000 cfs.

Maxima.--January-February 1963: Discharge, 36,000 cfs 2400 hours Jan. 31 (gage height, 15.00 ft in gage house and from floodmarks).
1914-22, 1928 to December 1962: Discharge, 32,000 cfs Dec. 23, 1955 (gage height, 14.23 ft, from floodmarks).

Remarks.--Flow slightly affected by Lake Alpine, Spicer Meadows, Union and Utica Reservoirs (combined capacity, 13,600 acre-ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	46	16,500	11.....	30	510	21.....	26	395
2.....	42	2,550	12.....	18	455	22.....	36	365
3.....	43	1,390	13.....	25	666	23.....	42	329
4.....	42	1,220	14.....	30	654	24.....	29	319
5.....	42	1,060	15.....	31	513	25.....	26	319
6.....	39	887	16.....	30	485	26.....	26	335
7.....	38	780	17.....	29	440	27.....	25	368
8.....	36	725	18.....	26	407	28.....	24	340
9.....	35	630	19.....	24	401	29.....	29	- - - - -
10.....	35	590	20.....	25	395	30.....	507	- - - - -
						31.....	11,000	- - - - -
Monthly mean discharge, in cubic feet per second.....							401	1,215
Runoff, in inches.....							2.84	7.78
Runoff, in acre-feet.....							24,670	67,450

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	1.57	24	Jan. 30	2400	6.60	2,120	Feb. 1	1000	12.35	18,300
									1500	9.60	8,100
29	0700	1.43	18	31	0300	6.60	2,120		1700	9.15	6,980
	1000	1.71	30		0900	7.80	3,720		1900	9.08	6,800
	1800	1.73	31		1100	9.15	6,180		2400	8.10	4,800
	2100	1.82	36		1900	12.25	17,800				
	2400	2.13	56		2400	15.00	36,000	2	0300	7.35	3,630
30	0400	2.56	91	Feb. 1	0600	13.50	25,500		1200	6.22	2,170
	1500	3.18	184		0800	12.90	21,400		1500	6.00	1,950
									2400	5.67	1,640

11-2965. South Fork Stanislaus River at Strawberry, Calif.

Location.--Lat 38°11'51", long 120°00'27", in SW $\frac{1}{4}$ sec.16, T.4 N., R.18 E., on right bank 0.3 mile downstream from bridge on State Highway 108 at Strawberry, 0.6 mile downstream from Herring Creek, and 1.2 miles downstream from Pinecrest Lake.

Drainage area.--44.8 sq mi.

Gage-height record.--Water-stage recorder graph, except Jan. 7-11. Datum of gage is 5,235.1 ft above mean sea level (river-profile survey).

Discharge record.--Stage-discharge relation defined by current-meter measurements. Discharge for Jan. 7-11 estimated on basis of one discharge measurement, recorded range in stage, and unpublished record for station near Strawberry.

Maxima.--January-February 1963: Discharge, 1,810 cfs 0500 hours Feb. 1 (gage height, 6.52 ft).

1911-17, 1938 to December 1962: Discharge, 3,900 cfs Nov. 21, 1950 (gage height, 9.25 ft), from rating curve extended above 1,100 cfs on basis of contracted-opening measurement of peak flow at bridge 0.3 mile below station.

Remarks.--Flow regulated by Pinecrest Lake since 1916 (capacity, 18,300 acre-ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	25	1,090	11.....	25	57	21.....	25	59
2.....	25	219	12.....	25	58	22.....	25	58
3.....	25	156	13.....	25	64	23.....	25	57
4.....	25	114	14.....	25	60	24.....	25	57
5.....	25	93	15.....	25	63	25.....	25	59
6.....	25	82	16.....	24	64	26.....	25	63
7.....	25	75	17.....	24	61	27.....	25	64
8.....	27	70	18.....	24	59	28.....	25	63
9.....	26	63	19.....	25	58	29.....	25	-----
10.....	25	58	20.....	25	58	30.....	35	-----
						31.....	397	-----
Monthly mean discharge, in cubic feet per second.....							37.3	110
Runoff, in acre-feet.....							2,290	6,110

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Jan. 30	2400	1.94	48	Feb. 1	0200	6.30	1,680	Feb. 1	2400	3.50	346
					0500	8.52	1,810				
31	0600	2.00	55		0700	8.40	1,740	2	0600	3.09	248
	1000	2.35	102		1000	5.75	1,350		1000	2.92	210
	1600	3.55	360		1200	5.06	980		1300	2.85	196
	1800	4.65	778		2000	3.90	470		2400	2.65	157
	2400	5.75	1,350								

11-2980. South Fork Stanislaus River near Long Barn, Calif.

Location.--Lat 38°05'33", long 120°10'02", in SW $\frac{1}{4}$ sec.24, T.3 N., R.16 E., on left bank 600 ft downstream from Lyons Dam, 2 miles west of Long Barn, and 15 miles northeast of Sonora.

Drainage area.--66.9 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 4,073.4 ft above mean sea level (river-profile survey).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 1,570 cfs 1200 hours Feb. 1 (gage height, 6.23 ft).

1937 to December 1962: Discharge, 4,900 cfs Nov. 21, 1950 (gage height, 9.3 ft), from rating curve extended above 1,100 cfs on basis of computation of peak flow over Lyons Dam.

Remarks.--Flow regulated by Lyons Reservoir (capacity, 5,400 acre-ft) and Pinecrest Lake (capacity, 18,300 acre-ft). Diversion by Tuolumne Canal at Lyons Dam; Philadelphia Canal diverts 12 miles above station into basin of Middle Fork Stanislaus River.

Mean discharge, in cubic feet per second, 1963, of South Fork Stanislaus River near Long Barn, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	1.6	758	11.....	2.1	5.1	21.....	2.1	2.1
2.....	2.1	419	12.....	2.1	2.6	22.....	2.1	2.1
3.....	2.3	161	13.....	2.1	24	23.....	2.1	1.8
4.....	2.3	102	14.....	2.1	38	24.....	2.1	1.8
5.....	2.3	62	15.....	2.1	19	25.....	2.1	1.8
6.....	2.3	41	16.....	2.1	11	26.....	2.1	1.8
7.....	2.3	28	17.....	2.1	7.6	27.....	1.8	1.8
8.....	2.3	18	18.....	2.1	3.6	28.....	1.8	1.8
9.....	2.1	7.2	19.....	2.1	1.8	29.....	1.8	-
10.....	2.1	13	20.....	2.1	2.1	30.....	3.1	-
						31.....	4.5	-
Monthly mean discharge, in cubic feet per second.....							2.20	62.1
Runoff, in acre-feet.....							135	3,450

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 31	2400	0.95	5.4	Feb. 1	1100	6.03	1,440	Feb. 2	0600	4.12	517
					1200	6.23	1,570		1200	3.60	375
Feb. 1	0800	.93	4.8		2400	4.82	790		1800	3.18	277
	0900	4.58	692						2400	2.92	224

11-2990. Melones Reservoir at Melones Dam, Calif.

Location.--Lat 37°57'15", long 120°30'45", near center of sec.11, T.1 N., R.13 E., at gate tower near left bank at Melones Dam on Stanislaus River, 0.1 mile downstream from Bear Creek and 7.5 miles southwest of Sonora.

Drainage area.--904 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is at mean sea level (levels by Pacific Gas & Electric Co.).

Contents record.--Contents computed from capacity table dated June 1927 furnished by Pacific Gas & Electric Co.

Maxima.--January-February 1963: Computed average bihourly inflow, 52,800 cfs 0200 hours Feb. 1; contents, 105,600 acre-ft 2400 hours Feb. 28 (elevation, 731.2 ft).

1927 to December 1962: Contents observed, 115,800 acre-ft May 27, 1959 (elevation, 736.7 ft).

Remarks.--Reservoir is formed by concrete overflow dam; storage began Aug. 21, 1926; dam completed in December 1926. Capacity for power development 1 mile below dam is 106,100 acre-ft between elevations 628.0 (minimum operating level) and 735.0 ft (top of drum-type spillway gates) above mean sea level; usable capacity for irrigation, 110,000 acre-ft between elevations 610.0 (floor of outlet tunnel) and 735.0 ft above mean sea level. Figures given herein represent total contents, of which 2,630 acre-ft is not available for release. Record of elevations furnished by Oakdale Irrigation District. Record of inflow furnished by Corps of Engineers.

Elevation, in feet, and contents, in acre-feet, at 2400 hours, 1963

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	664.0	24,300	729.2	102,100	16	668.1	27,400	724.7	94,500
2	664.6	24,700	726.4	97,300	17	667.3	26,800	724.3	93,800
3	665.1	25,100	725.2	95,300	18	666.5	26,100	724.2	93,600
4	665.6	25,500	725.0	95,000	19	666.3	26,000	724.1	93,500
5	666.1	25,800	725.4	95,700	20	666.7	26,300	724.5	94,100
6	666.6	26,200	725.5	95,800	21	667.2	26,700	725.2	95,300
7	667.0	26,500	725.3	95,500	22	667.6	27,000	725.7	96,200
8	667.4	26,800	724.9	95,000	23	668.0	27,300	726.1	96,800
9	667.8	27,100	724.8	94,600	24	668.5	27,700	726.6	97,700
10	668.3	27,500	724.9	94,800	25	668.8	27,900	727.5	99,200
11	668.7	27,900	724.7	94,500	26	669.2	28,300	728.8	101,400
12	669.1	28,200	724.4	94,000	27	669.3	28,300	730.2	103,800
13	669.5	28,500	725.6	96,000	28	669.3	28,300	731.2	105,600
14	669.3	28,500	725.7	96,200	29	669.8	28,700	-	-
15	669.8	27,900	725.2	95,300	30	672.0	30,600	-	-
					31	703.0	62,800	-	-
Change in contents, in acre-feet.....						-	+39,100	-	+42,800

Average inflow in cubic feet per second, for bihourly periods ending at indicated time, 1963, of Melones Reservoir at Melones Dam, Calif.

Date	Hour	Elevation	Inflow	Date	Hour	Elevation	Inflow	Date	Hour	Elevation	Inflow
Jan. 30	2400	672.0	1,020	Jan. 31	2200	695.8	36,900	Feb. 1	2000	729.5	11,200
31	0200	672.8	4,090		2400	702.5	51,500		2200	729.3	10,700
	0400	675.8	5,100	Feb. 1	0200	709.0	52,800		2400	729.1	10,100
	0600	674.9	6,150		0400	714.7	47,800	2	0200	728.8	7,420
	0800	675.9	5,240		0600	719.3	38,100		0400	728.5	6,620
	1000	677.1	6,460		0800	725.0	34,800		0600	728.3	7,990
	1200	678.8	9,880		1000	725.9	31,400		0800	728.1	7,500
	1400	681.0	13,600		1200	728.2	29,100		1000	727.8	4,800
	1600	683.9	18,800		1400	729.3	22,200		1200	727.6	6,240
	1800	687.1	19,900		1600	729.8	17,900		1400	727.3	3,670
	2000	690.7	24,900		1800	729.7	11,800		1600	727.1	5,100

11-2995. Stanislaus River below Melones powerhouse, near Sonora, Calif.

Location.--Lat 37°56'50", long 120°31'45", near line between secs.10 and 15, T.1 N., R.13 E., on right bank 300 ft downstream from powerhouse, 0.5 mile upstream from Bean Gulch, 1 mile downstream from Melones Dam, and 8.4 miles southwest of Sonora.

Drainage area.--905 sq mi.

Gage-height record --Water-stage recorder graph. Altitude of gage is 500 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements; affected by backwater from Tulloch Reservoir Jan. 31 to Feb. 28.

Maxima.--January-February 1963: Discharge, about 17,700 cfs 1700-1800 hours Feb. 1
(gage height, 15.70 ft).

1931 to December 1962: Discharge, 62,800 cfs Dec. 23, 1955 (gage height, 29.0 ft, from floodmarks), from rating curve extended above 14,000 cfs on basis of computed flow over Melones Dam.

Remarks.--Flow regulated by Melones powerhouse, Melones Reservoir (see station 11-2990), Pinecrest Lake, Beardsley Lake, Lyons, Relief, and Donnell's Reservoirs (combined capacity, 312,300 acre-ft).

Mean discharge, in cubic feet per second, 1963

[illegible]

Elevation, in feet, and contents, in acre-feet, at 2400 hours, 1963									
Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	495.9	51,000	508.0	64,500	16	495.5	50,600	506.6	62,800
2	495.8	50,900	508.8	66,700	17	496.3	51,400	506.1	62,200
3	495.6	50,700	510.7	67,800	18	497.1	52,300	505.9	62,000
4	495.4	50,500	510.5	67,600	19	497.5	52,700	506.0	62,100
5	495.2	50,300	509.9	66,800	20	497.5	52,700	506.0	62,100
6	495.0	50,100	510.5	67,600	21	497.4	52,600	506.0	62,100
7	494.8	49,900	510.8	68,000	22	497.3	52,500	506.0	62,100
8	494.6	49,700	510.5	68,000	23	497.3	52,500	505.9	62,000
9	494.4	49,500	510.5	67,600	24	497.2	52,400	505.9	62,000
10	494.4	49,500	508.3	64,900	25	497.2	52,400	505.9	62,000
11	494.0	49,100	505.8	61,800	26	497.2	52,400	506.0	62,100
12	493.8	48,900	504.3	60,100	27	497.2	52,400	506.0	62,100
13	493.7	48,800	505.5	61,500	28	497.5	52,700	506.1	62,200
14	494.1	49,200	506.5	62,700	29	497.5	52,700	-	-
15	494.6	49,700	506.9	63,200	30	497.6	52,800	-	-
					31	501.4	56,800	-	-
Change in contents, in acre-feet.....						-	+5,500	-	+5,400

[illegible]

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Stanislaus River below Goodwin Dam, near Knights Ferry, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 31	2400	6.81	17	Feb. 2	0700	17.18	11,800	Feb. 2	2400	13.67	5,520
					0800	16.80	11,000				
Feb. 1	1000	6.76	13		0900	15.93	9,270	3	0800	13.65	5,490
	1000	12.00	3,270		1300	15.82	9,080		0900	12.70	4,160
	1100	13.25	4,900		1500	14.57	6,890		1000	12.30	3,640
	1200	15.31	5,850		1600	14.54	6,840		1200	12.30	3,640
	1300	15.30	8,140		1700	13.95	5,950		1400	11.75	2,970
	1400	16.80	11,000		2100	13.95	5,910		2400	11.80	3,050
	2400	17.10	11,600		2200	13.70	5,560				

11-3030. Stanislaus River at Ripon, Calif.

Location.--Lat 37°43'50", long 121°06'35", in SE $\frac{1}{4}$ sec.29, T.2 S., R.8 E., on left bank 15 ft downstream from railroad bridge, 1 mile southeast of Ripon, and 15 miles upstream from mouth.

Gage-height record.--Water-stage recorder graph. Datum of gage is 0.72 ft above mean sea level, datum of 1929, adjustment of 1959.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 7,340 cfs 1000 hours Feb. 3 (gage height, 55.33 ft).
1940 to December 1962: Discharge, 62,500 cfs Dec. 24, 1955 (gage height, 63.25 ft).
Flood of Feb. 12, 1938, reached a stage of 64.4 ft, from floodmarks.

Remarks.--Flow affected by five major reservoirs (combined capacity, about 350,000 acre-ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	546	203	11.....	202	3,630	21.....	153	1,600
2.....	312	3,330	12.....	200	3,450	22.....	145	1,270
3.....	237	6,880	13.....	197	3,100	23.....	141	1,220
4.....	213	4,910	14.....	190	3,230	24.....	136	1,190
5.....	201	3,420	15.....	186	2,920	25.....	131	1,170
6.....	200	2,770	16.....	177	2,790	26.....	128	913
7.....	198	2,050	17.....	165	2,740	27.....	125	513
8.....	197	2,070	18.....	160	2,650	28.....	123	399
9.....	195	2,090	19.....	156	2,260	29.....	122	- - - - -
10.....	200	2,610	20.....	155	1,950	30.....	125	- - - - -
						31.....	131	- - - - -
Monthly mean discharge, in cubic feet per second.....							185	2,405
Runoff, in acre-feet.....							11,400	133,500

11-3035. San Joaquin River near Vernalis, Calif.

Location.--Lat 37°40'34", long 121°15'51", on left bank 30 ft upstream from Durham Ferry highway bridge, 3 miles downstream from Stanislaus River, and 3.4 miles northeast of Vernalis, San Joaquin County.

Drainage area.--13,540 sq mi.

Gage-height record.--Water-stage recorder graph, except 0200 hours Jan. 7 to 2300 hours Jan. 8, 2000 hours Jan. 15 to 1400 hours Feb. 1, and 1900 hours Feb. 8 to 1100 hours Feb. 15. Datum of gage is at mean sea level.

Discharge record.--Stage-discharge relation defined by current-meter measurements. Discharge for periods of no gage-height record estimated on basis of recorded range in stage and once-daily wire-weight-gage readings for San Joaquin River at Maze Road.

Maxima.--January-February 1963: Discharge, 12,400 cfs 2000 hours Feb. 4 (elevation, 23.27 ft).
1922 to December 1962: Discharge, about 79,000 cfs Dec. 9, 1950 (elevation, 32.81 ft), including flow through breaks in levee.

Remarks.--Flow affected by upstream reservoirs.

Mean discharge, in cubic feet per second, 1963, of San Joaquin River near Vernalis, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	2,190	1,920	11.....	2,000	9,100	21.....	1,530	7,550
2.....	2,180	3,830	12.....	2,090	9,700	22.....	1,470	6,690
3.....	1,940	9,220	13.....	2,130	8,700	23.....	1,470	6,350
4.....	2,270	12,100	14.....	1,910	9,700	24.....	1,500	5,950
5.....	2,270	12,000	15.....	1,690	11,900	25.....	1,470	5,420
6.....	2,000	11,700	16.....	1,630	11,200	26.....	1,500	5,100
7.....	1,720	11,000	17.....	1,630	9,970	27.....	1,500	4,950
8.....	1,670	8,700	18.....	1,840	9,280	28.....	1,410	4,670
9.....	1,960	7,500	19.....	1,590	8,660	29.....	1,300	- - - - -
10.....	2,090	7,700	20.....	1,590	8,650	30.....	1,440	- - - - -
						31.....	1,590	- - - - -
Monthly mean discharge, in cubic feet per second.....							1,754	8,185
Runoff, in acre-feet.....							107,800	454,600

11-3040. Corral Hollow Creek near Tracy, Calif.

Location.--Lat 37°39'24", long 121°28'40", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.24, T.3 S., R.4 E., on left bank just upstream from highway bridge, 0.8 mile downstream from Elk Ravine, and 6.3 miles southwest of Tracy.

Drainage area.--61.6 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 330 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 56 cfs 0700 hours Feb. 1 (gage height, 2.04 ft).
1958 to December 1962: Discharge, 145 cfs Mar. 6, 1962 (gage height, 2.54 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0.2	19	11.....	0.2	0.5	21.....	0.2	0.3
2.....	.2	2.7	12.....	.2	.7	22.....	.2	.3
3.....	.2	.5	13.....	.2	2.4	23.....	.2	.3
4.....	.2	.4	14.....	.2	4.6	24.....	.2	.3
5.....	.2	.4	15.....	.2	.6	25.....	.2	.3
6.....	.2	.4	16.....	.2	.3	26.....	.2	.2
7.....	.2	.4	17.....	.2	.3	27.....	.2	.3
8.....	.2	.4	18.....	.2	.3	28.....	.2	.3
9.....	.2	.5	19.....	.2	.3	29.....	.2	- - - - -
10.....	.2	.6	20.....	.2	.3	30.....	.4	- - - - -
						31.....	.4	- - - - -
Monthly mean discharge, in cubic feet per second.....							0.21	1.36
Runoff, in inches.....							0.004	0.02
Runoff, in acre-feet.....							13	76

11-3050. San Domingo Creek near San Andreas, Calif.

(Crest-stage station)

Location.--Lat 38°06'55", long 120°37'00", in NE $\frac{1}{4}$ sec.14, T.3 N., R.12 E., on right bank 2.5 miles upstream from mouth, 3.2 miles downstream from French Gulch, and 6.5 miles southeast of San Andreas.

Drainage area.--26.2 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 1,060 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 125 cfs and by slope-area measurement at 2,830 cfs.

Maxima.--January-February 1963: Discharge, 1,380 cfs Jan. 31 (gage height, 6.5 ft, from floodmarks).
1950 to December 1962: Discharge, 2,830 cfs Dec. 23, 1955 (gage height, 8.24 ft).

11-3055. San Antonio Creek near San Andreas, Calif.

(Crest-stage station)

Location.--Lat 38°07'50", long 120°38'10", in NE $\frac{1}{4}$ sec.10, T.3 N., R.12 E., 800 ft below highway bridge, 1.9 miles upstream from mouth, 5 miles southeast of San Andreas.

Drainage area.--48.1 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 940 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 250 cfs and by slope-area measurement at 2,500 cfs.

Maxima.--January-February 1963: Discharge, 1,730 cfs Jan. 31 (gage height, 4.77 ft). 1950 to December 1962: Discharge, 2,500 cfs Dec. 23, 1955 (gage height, 5.66 ft).

11-3060. South Fork Calaveras River near San Andreas, Calif.

Location.--Lat 38°08'40", long 120°39'50", in NW $\frac{1}{4}$ sec.4, T.3 N., R.12 E., on right bank 0.1 mile downstream from San Antonio Creek, 1.6 miles south of the Calaveras Cement Plant, and 3.7 miles south of San Andreas.

Drainage area.--118 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 860 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 3,200 cfs and by slope-area measurement at 17,600 cfs.

Maxima.--January-February 1963: Discharge, 12,600 cfs 2100 hours Jan. 31 (gage height, 9.20 ft). 1950 to December 1962: Discharge, 17,600 cfs Dec. 23, 1955 (gage height, 10.29 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	5.2	3,110	11.....	5.7	118	21.....	4.9	52
2.....	5.2	519	12.....	5.4	92	22.....	5.2	49
3.....	5.2	217	13.....	4.4	651	23.....	4.9	44
4.....	5.2	138	14.....	4.0	386	24.....	4.9	41
5.....	5.2	96	15.....	4.9	175	25.....	4.4	39
6.....	5.2	77	16.....	5.2	125	26.....	4.4	36
7.....	5.4	63	17.....	5.2	98	27.....	4.4	34
8.....	5.7	65	18.....	5.2	77	28.....	4.4	33
9.....	5.7	62	19.....	5.2	66	29.....	4.7	-----
10.....	5.7	283	20.....	5.2	59	30.....	212	-----
						31.....	3,280	-----
Monthly mean discharge, in cubic feet per second.....							117	243
Runoff, in inches.....							1.15	2.14
Runoff, in acre-feet.....							7,220	13,500

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	0.85	5.7	Jan. 31	0500	4.14	1,250	Feb. 1	0600	5.90	3,540
					0900	3.90	1,060		0800	6.03	3,770
	30	0200	.86		1100	4.45	1,550		1000	5.59	3,040
		0500	.96		1200	4.60	1,720		1100	5.48	2,870
		1000	1.32		1500	5.32	2,650		1600	4.41	1,510
		1500	1.77		1700	4.78	1,940		1900	4.07	1,200
		1800	2.51		1800	4.74	1,890		2000	4.15	1,260
		2000	2.84		1900	5.13	2,380		2400	3.74	948
		2100	3.26		2000	7.00	5,750				
		2300	4.12		2100	9.20	12,600	2	0600	3.26	636
		2400	4.01		2400	8.84	11,200		1200	2.95	455
									1800	2.75	360
	31	0100	3.87	Feb. 1	0100	7.94	8,210		2400	2.60	300
		0300	4.08		0300	6.87	5,450				

11-3065. Calaveritas Creek near San Andreas, Calif.

Location.--Lat 38°09'50", long 120°39'30", in SW $\frac{1}{4}$ sec.28, T.4 N., R.12 E., on right bank 0.8 mile east of Calaveras Cement Plant, 1.0 mile upstream from mouth, and 2.6 miles southeast of San Andreas.

Drainage area.--53.0 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 865 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 3,870 cfs 0100 hours Feb. 1 (gage height, 6.35 ft).
1950 to December 1962: Discharge, 4,410 cfs Apr. 2, 1958 (gage height, 6.65 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	3.8	1,510	11.....	3.2	43	21.....	3.0	19
2.....	3.6	254	12.....	3.0	33	22.....	3.2	16
3.....	3.6	101	13.....	3.0	93	23.....	3.2	14
4.....	3.6	56	14.....	3.0	153	24.....	3.0	12
5.....	3.6	34	15.....	3.0	96	25.....	3.0	11
6.....	3.2	25	16.....	3.0	59	26.....	3.0	10
7.....	3.0	19	17.....	2.8	39	27.....	3.0	9.2
8.....	3.0	16	18.....	3.0	31	28.....	3.0	8.4
9.....	3.0	17	19.....	3.2	25	29.....	3.2	-----
10.....	3.0	43	20.....	3.0	22	30.....	3.8	-----
						31.....	721	-----
Monthly mean discharge, in cubic feet per second.....							27.4	98.2
Runoff, in inches.....							0.59	1.92
Runoff, in acre-feet.....							1,690	5,450

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	0.84	3.4	Jan. 31	0500	2.26	129	Feb. 1	0500	5.56	2,450
					0800	2.55	196		0700	5.00	1,700
30	0200	.85	3.6		1100	2.89	297		0900	4.67	1,310
	0600	1.00	7.0		1200	3.39	505		1200	4.75	1,400
	1000	1.25	16		1600	3.34	480		1500	4.14	888
	1300	1.67	43		1800	3.88	788		1800	3.65	585
	1600	1.59	37		2000	5.00	1,800		2400	3.26	404
	1900	1.85	63		2100	5.23	2,080				
	2100	2.24	125		2200	5.13	1,960	2	0700	2.89	272
	2400	1.87	65		2400	6.14	3,490		1200	2.68	210
31	0100	1.84	62	Feb. 1	0100	6.35	3,870		1800	2.51	168
									2400	2.37	159

11-3070. Esperanza Creek near Mokelumne Hill, Calif.

(Crest-stage station)

Location.--Lat 38°19'00", long 120°35'40", in NW $\frac{1}{4}$ sec.6, T.5 N., R.13 E., on right bank 600 ft upstream from mouth and 6 miles east of Mokelumne Hill.

Drainage area.--16.6 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 1,470 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,100 cfs and by slope-area measurement at 3,060 cfs.

Maxima.--January-February 1963: Discharge, 2,550 cfs Jan. 31 (gage height, 6.27 ft, in gage well; 7.3 ft outside, from floodmarks).
1951 to December 1962: Discharge, 3,060 cfs Dec. 23, 1955 (gage height, 6.78 ft, in gage well; 7.7 ft outside, from floodmarks).

11-3075. Jesus Maria Creek near Mokelumne Hill, Calif.

(Crest-stage station)

Location.--Lat 38°17'00", long 120°39'00", in SE $\frac{1}{4}$ sec.16, T.5 N., R.12 E., on right bank 0.6 mile upstream from mouth, 1.0 mile downstream from Wet Gulch, and 3.2 miles southeast of Mokelumne Hill.

Drainage area.--34.6 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 980 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,300 cfs and by slope-area measurement at 5,490 cfs.

Maxima.--January-February 1963: Discharge, 3,080 cfs Jan. 31 (gage height, 6.88 ft). 1950 to December 1962: Discharge, 5,490 cfs Dec. 23, 1955 (gage height, 7.63 ft).

11-3080. North Fork Calaveras River near San Andreas, Calif.

Location.--Lat 38°13'05", long 120°41'55", in NW $\frac{1}{4}$ sec.7, T.4 N., R.12 E., on right bank 0.5 mile upstream from Chile Gulch and 1.8 miles northwest of San Andreas.

Drainage area.--85.6 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 750 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 3,900 cfs.

Maxima.--January-February 1963: Discharge, 5,620 cfs 0100 hours Feb. 1 (gage height, 11.72 ft). 1950 to December 1962: Discharge, 6,200 cfs Dec. 23, 1955 (gage height, 12.52 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	7.9	2,630	11.....	6.8	57	21.....	5.4	27
2.....	7.4	449	12.....	7.1	38	22.....	5.4	25
3.....	7.1	158	13.....	5.8	177	23.....	5.6	23
4.....	6.8	75	14.....	5.6	184	24.....	5.6	20
5.....	6.8	52	15.....	5.6	91	25.....	5.8	19
6.....	7.1	39	16.....	5.8	58	26.....	5.8	19
7.....	7.4	34	17.....	5.8	43	27.....	6.0	18
8.....	6.8	30	18.....	5.6	36	28.....	6.0	17
9.....	6.8	31	19.....	5.6	33	29.....	6.3	-----
10.....	7.1	88	20.....	5.4	32	30.....	181.0	-----
						31.....	1,590	-----
Monthly mean discharge, in cubic feet per second.....							63.0	160
Runoff, in inches.....							0.85	1.95
Runoff, in acre-feet.....							3,880	8,900

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.11	7.1	Jan. 31	0900	5.47	878	Feb. 1	0800	7.94	2,440
					1200	5.11	727		0900	8.11	2,560
	30	0300	1.13		1400	6.41	1,340		1000	8.50	2,830
		0700	1.19		1600	8.39	2,600		1100	8.72	3,000
		1300	1.37		1700	8.53	2,700		1300	7.66	2,240
		1500	1.64		1800	8.39	2,600		1600	6.55	1,520
		1600	1.92		1900	7.76	2,160		1700	6.35	1,400
		1700	3.18		2000	7.44	1,930		1900	5.97	1,180
		1900	4.33		2100	7.33	1,850		2000	5.95	1,180
		2000	4.46		2200	8.04	2,360		2100	6.01	1,200
		2200	5.03		2300	10.50	4,340		2400	5.55	965
		2400	5.57		2400	11.43	5,330				
	31	0200	5.93	Feb. 1	0100	11.72	5,620	2	0400	4.92	672
		0400	5.55		0200	11.66	5,560		1000	4.27	435
		0600	5.00		0300	11.29	5,190		1300	4.02	358
		0800	5.23		0600	8.84	3,090		1800	3.67	269
									2400	3.38	209

(Crest-stage station)

July to December 1962: No significant floodflow.

(Crest-stage station)

11-3089. Calaveras River below Hogan Dam, Calif.

1961 to December 1962: Daily discharge, 5,300 cfs Feb. 16, 1962.

Remarks.--Flow regulated by Hogan Reservoir at Stockton flood-control dam (usable capacity, 75,000 acre-ft) and by Bingham Reservoir (capacity, 775 acre-ft) on North Fork Calaveras River.

Mean discharge, in cubic feet per second, 1963

[illegible]

FLOODS OF 1963 IN THE UNITED STATES

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Calaveras River below Hogan Dam, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	1.35	110	Feb. 1	0600	6.41	6,340	Feb. 3	2400	4.37	2,920
31	0200	1.75	242		0900	6.84	6,780	4	0600	4.12	2,570
	0400	2.50	690		1330	6.76	7,020		1200	3.76	2,070
	0700	3.02	1,150		1600	6.75	7,000		1900	3.08	1,220
	1600	3.70	1,990		1900	6.67	6,840		2400	2.66	818
	1800	4.06	2,480		2400	6.59	6,680				
	2100	4.38	2,930	2	1200	5.93	5,470	5	1200	2.07	398
	2400	4.92	3,750		2400	5.15	4,120		2400	1.82	272
	Feb. 1	0300	5.93	5,470	3	1200	4.75	3,480			

11-3090. Cosgrove Creek near Valley Springs, Calif.

Location.--Lat 38°08'10", long 120°50'05", in SE $\frac{1}{4}$ sec.35, T.4 N., R.10 E., on right bank 0.4 mile upstream from mouth and 2.7 miles south of Valley Springs.

Drainage area.--21.1 sq mi.

Gage-height record.--Water-stage recorder graph, except Jan. 1-21. Datum of gage is 547.8 ft above mean sea level.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 900 cfs and by slope-area measurement at 3,240 cfs. Discharge for Jan. 1-21 estimated on basis of weather records and hydrographic comparison with records for Bear Creek near Lockeford.

Maxima.--January-February 1963: Discharge, 987 cfs 0100 hours Feb. 1 (gage height, 5.74 ft).
1929 to December 1962: Discharge, 3,240 cfs Dec. 23, 1955 (gage height, 8.96 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....		360	11.....		12	21.....	0.2	4.8
2.....		49	12.....		15	22.....	.2	3.8
3.....		22	13.....		161	23.....	.2	3.2
4.....		14	14.....		42	24.....	.2	2.8
5.....		9.5	15.....		20	25.....	.2	2.8
6.....	2	6.5	16.....	2	14	26.....	.2	2.4
7.....		5.2	17.....		10	27.....	.2	2.2
8.....		4.0	18.....		7.5	28.....	.2	1.8
9.....		5.0	19.....		6	29.....	.3	-----
10.....		32	20.....		5.2	30.....	1.3	-----
						31.....	145	-----

Monthly mean discharge, in cubic feet per second.....	4.91	29.4
Runoff, in inches.....	0.27	1.45
Runoff, in acre-feet.....	302	1,630

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.10	0.3	Jan. 31	2100	5.05	625	Feb. 1	1100	4.20	285
30	1500	2.20	1.0	Feb. 1	2300	5.25	725	2	1300	3.83	182
	2400	2.38	4.0		2400	5.50	855		1700	3.51	110
	31	0830	2.42		5.0	0100	5.74		987	1800	3.79
1200		2.62	13	0200	5.50	855	1900	3.81	178		
1200		2.66	15	0400	4.50	390	2200	3.53	114		
1430		3.00	58	0500	4.14	267	2400	3.40	90		
1600		3.49	106	0600	4.27	310	0600	3.17	56		
1800		3.47	103	0700	5.05	625		1200	3.05	43	
1930		4.00	225	0800	5.50	855		2400	2.88	29	

11-3095. Calaveras River at Jenny Lind, Calif.

Location.--Lat 38°05'20", long 120°51'53", in NW $\frac{1}{4}$ sec.27, T.3 N., R.10 E., on right bank 70 ft downstream from bridge on Milton road, 0.2 mile south of Jenny Lind, and 6.5 miles downstream from Cosgrove Creek.

Drainage area.--393 sq mi.

Gage-height record.--Water-stage recorder graph, except 1200 hours Feb. 3 to 1100 hours Feb. 4, 0300 hours to 1400 hours Feb. 5, for which graph was reconstructed on basis of partial record for each day and record for station below Hogan Dam. Datum of gage is 207.1 ft above mean sea level.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 6,910 cfs 0900 hours Feb. 1 (gage height, 11.11 ft).
1907 to December 1962: Discharge, 50,000 cfs Jan. 31, 1911 (gage height, 21.0 ft).

Remarks.--Flow regulated by Hogan Reservoir at Stockton flood control dam (usable capacity, 75,000 acre-ft), and by Bingham Reservoir (capacity, 775 acre-ft) on North Fork Calaveras River.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	1.5	6,250	11.....	0.8	485	21.....	0.5	11
2.....	1.2	5,240	12.....	1.1	277	22.....	.5	11
3.....	.8	3,390	13.....	.7	925	23.....	.5	10
4.....	.8	2,110	14.....	.5	1,370	24.....	1.0	10
5.....	.5	576	15.....	.5	610	25.....	1.2	9.9
6.....	.5	252	16.....	.4	23	26.....	.8	9.4
7.....	.4	179	17.....	.3	17	27.....	47	9.4
8.....	.4	148	18.....	.3	14	28.....	60	8.9
9.....	.3	123	19.....	.5	12	29.....	98	-----
10.....	.2	437	20.....	.5	11	30.....	88	-----
						31.....	1,620	-----
Monthly mean discharge, in cubic feet per second.....							62.2	805
Runoff, in acre-feet.....							3,830	44,680

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	1.99	78	Feb. 1	0300	10.00	5,690	Feb. 3	0500	8.00	3,590
					0800	10.44	6,170		1200	7.76	3,360
31	0300	1.99	78		0900	11.11	6,910		2400	7.31	2,960
	0400	2.04	86		1100	10.85	6,630	4	0600	6.93	2,640
	0500	2.52	192		2100	10.62	6,370		1200	6.34	2,190
	0600	3.90	755		2400	10.49	6,250		1800	5.49	1,610
	0900	4.95	1,290						2400	4.46	1,030
	1200	5.01	1,330	2	0300	10.35	6,080				
	1500	5.85	1,850		0900	9.91	5,590	5	0600	3.82	719
	1800	6.52	2,320		1500	9.35	4,980		1200	3.40	530
	2100	7.62	3,240		2400	8.47	4,060		1800	3.05	380
	2400	8.83	4,420						2400	2.89	316

11-3114. Bear Creek tributary near Valley Springs, Calif.

(Crest-stage station)

Location.--Lat 38°11'10", long 120°50'45", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.23, T.4 N., R.10 E., on State Highway 12, 1.3 miles southwest of Valley Springs.

Drainage area.--0.15 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 590 ft (from topographic map).

Discharge record.--Maximum discharge by computation of flow through culvert.

Maxima.--January-February 1963: Discharge, 34 cfs Feb. 1 (gage height, 22.20 ft).
1959 to December 1962: Discharge, 12 cfs Mar. 17, 1960 (gage height, 21.22 ft).

11-3120. Bear Creek near Lockeford, Calif.

Location.--Lat 38°09'15", long 121°08'15", in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.31, T.4 N., R.8 E., on right bank 15 ft downstream from county road bridge and 0.8 mile southeast of Lockeford.

Drainage area.--47.6 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 80.3 ft above mean sea level (levels by Corps of Engineers).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 1,480 cfs 0300 hours Feb. 1 (gage height, 12.55 ft).

1930 to December 1962: Discharge, 2,930 cfs Apr. 3, 1958 (gage height, 15.13 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0	817	11.....	0	14	21.....	0	4.3
2.....	0	68	12.....	0	21	22.....	0	3.4
3.....	0	19	13.....	0	329	23.....	0	2.9
4.....	0	10	14.....	0	138	24.....	0	2.4
5.....	0	6.5	15.....	0	31	25.....	0	2.0
6.....	0	4.8	16.....	0	16	26.....	0	1.6
7.....	0	3.4	17.....	0	10	27.....	0	1.2
8.....	0	2.5	18.....	0	7.4	28.....	0	1.0
9.....	0	2.7	19.....	0	5.5	29.....	0	-----
10.....	0	42	20.....	0	5.0	30.....	0	-----
						31.....	108	-----
Monthly mean discharge, in cubic feet per second.....							3.48	56.1
Runoff, in inches.....							0.08	1.23
Runoff, in acre-feet.....							214	3,120

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	3.39	0.3	Jan. 31	2300	10.15	810	Feb. 1	1800	7.80	398
					2400	11.12	1,040		2100	6.38	226
31	0900	3.42	.7						2400	5.65	153
	1400	3.79	8.5	Feb. 1	0100	11.77	1,220				
	1700	3.81	9.2		0300	12.55	1,480	2	0400	5.05	98
	1900	4.27	36		0600	12.10	1,320		1200	4.54	55
	2000	6.03	191		1000	11.18	1,050		2400	1.21	31
	2100	7.70	384		1400	9.25	630				
	2200	8.94	573		1600	8.30	468				

11-3129.25. Mountain House Creek tributary near Altamont, Calif.

(Crest-stage station)

Location.--Lat 37°44'42", long 121°37'50", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.22, T.2 S., R.3 E., on old U.S. Highway 50, 1.8 miles east of Altamont.

Drainage area.--0.27 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 510 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 0.34 cfs.

Maxima.--January-February 1963: Discharge, 0.5 cfs Feb. 1 (gage height, 6.25 ft).
1958 to December 1962: Discharge, 2 cfs Feb. 1, 1960 (gage height, 6.10 ft).

11-3129.5. Mountain House Creek near Midway, Calif.

(Crest-stage station)

Location.--Lat 37°44'45", long 121°35'00", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.19, T.2 S., R.4 E., on county road, 2.5 miles northwest of Midway.

Drainage area.--11.7 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 265 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 6 cfs and by computation of flow through culvert above.

Maxima.--January-February 1963: Discharge, 19 cfs Feb. 1 (gage height, 2.65 ft).
1958 to December 1962: Discharge, 60 cfs Feb. 8, 1960 (gage height, 4.12 ft).

11-3131. Kellogg Creek tributary near Byron, Calif.

(Crest-stage station)

Location.--Lat 37°50'45", long 121°43'05", in SE $\frac{1}{4}$ sec.14, T.1 S., R.2 E., at culvert on county road, 4.5 miles southwest of Byron.

Drainage area.--1.09 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 250 ft (from topographic map).

Discharge record.--Maximum discharge by computation of flow through culvert.

Maxima.--January-February 1963: Discharge, 15 cfs Jan. 31 (gage height, 42.38 ft).
1958 to December 1962: Discharge, 9.4 cfs Feb. 15, 1962 (gage height, 41.65 ft).

11-3135. Salt Springs Reservoir near West Point, Calif.

Location.--Lat 38°30'00", long 120°12'55", in SE $\frac{1}{4}$ sec.33, T.8 N., R.16 E., at right end of Salt Springs Dam on North Fork Mokelumne River, 2 miles upstream from Cole Creek and 18 miles northeast of West Point.

Drainage area.--169 sq mi.

Gage-height record.--Staff gage read once daily. Datum of gage is at mean sea level (levels by Pacific Gas & Electric Co.).

Contents record.--Contents computed from capacity table dated March 1931.

Maxima.--January-February 1963: Contents observed, 96,100 acre-ft 1700 hours Feb. 28 (elevation, 3,908.9 ft).
1931 to December 1962: Contents observed, 140,000 acre-ft for several days in June or July each year 1948-54, 1956-58, 1960, 1962.

Remarks.--Reservoir is formed by concrete-faced, rockfill dam, completed in 1931; storage began in March 1931. Usable capacity, 139,000 acre-ft between elevations 3,707.25 (powerhouse intake) and 3,957.0 ft (upper operating limit, 1 ft below top of radial gates) above mean sea level. Additional storage of 1,860 acre-ft is available for release to river through outlet drain at elevation 3,667.75 ft. Figures given herein represent contents available for use through powerhouse. Records furnished by Pacific Gas & Electric Co.

11-3150. Cole Creek near Salt Springs Dam, Calif.

Location.--Lat 38°31'26", long 120°12'28", in SE $\frac{1}{4}$ sec.21, T.8 N., R.16 E., on right bank 1.8 miles north of Salt Springs Dam, 3.4 miles upstream from mouth, and 6.3 miles southwest of Mokelumne Peak.

Drainage area.--20.4 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 5,970 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 900 cfs and by slope-area measurement at 5,500 cfs; affected by ice Jan. 8-10, 14-30.

Maxima.--January-February 1963: Discharge, 5,730 cfs 0200 hours Feb. 1 (gage height, 9.88 ft).
1927 to December 1962: Discharge, 5,500 cfs Nov. 18, 1950 (gage height, 9.69 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	10	2,690	11.....	7.6	72	21.....	2.0	54
2.....	9.7	352	12.....	6.2	69	22.....	2.0	45
3.....	9.7	200	13.....	5.1	91	23.....	2.0	39
4.....	9.7	165	14.....	4.0	71	24.....	1.9	41
5.....	9.4	150	15.....	3.0	59	25.....	1.8	46
6.....	8.7	130	16.....	2.3	58	26.....	1.8	59
7.....	8.4	115	17.....	2.2	50	27.....	1.8	57
8.....	8.2	100	18.....	2.2	49	28.....	1.6	46
9.....	8.0	90	19.....	2.1	52	29.....	1.6	-----
10.....	7.8	80	20.....	2.1	55	30.....	75	-----
						31.....	1,910	-----

Monthly mean discharge, in cubic feet per second.....	68.6	182
Runoff, in inches.....	5.88	9.27
Runoff, in acre-feet.....	4,220	10,090

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2100	2.88	203	Jan. 31	1500	6.92	2,370	Feb. 1	2100	4.80	875
	2200	3.26	290		1900	7.97	3,470		2400	4.30	635
	2400	3.58	379		2400	9.47	5,230				
31	0100	3.69	412	Feb. 1	0200	9.88	5,730	2	0700	3.63	394
	0400	3.68	409		0300	9.80	5,630		1200	3.36	313
	0600	3.84	464		0800	8.20	3,720		1800	3.12	250
	0900	4.35	658		1200	6.26	1,790		2400	2.95	210
	1100	5.00	975		1500	5.61	1,330				

11-3160. Bear River near Salt Springs Dam, Calif.

Location--Lat 38°29'37", long 120°17'18", in NW $\frac{1}{4}$ sec.2, T.7 N., R.15 E., on right bank 200 ft upstream from diversion to Tiger Creek powerhouse conduit and highway bridge, 1.5 miles upstream from mouth, and 4 miles west of Salt Springs Dam.

Drainage area--48.0 sq mi.

Gage-height record--Water-stage recorder graph. Altitude of gage is 3,710 ft (from topographic map).

Discharge record--Stage-discharge relation defined by current-meter measurements below 560 cfs; affected by ice Jan. 11-25.

Maxima--January-February 1963: Discharge, 1,400 cfs 0400 hours Feb. 1 (gage height, 4.00 ft).

1951 to December 1962: Discharge, 3,060 cfs May 18, 1957 (gage height, 5.35 ft).

Flood in November 1950 reached a stage of 11.2 ft, from floodmarks (discharge unknown).

Remarks--Flow regulated by Bear River and Lower Bear River Reservoirs (combined capacity, 55,860 acre-ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	4.6	575	11.....	3.5	21	21.....	3.1	17
2.....	4.6	143	12.....	2.7	22	22.....	3.6	17
3.....	4.4	85	13.....	3.1	54	23.....	3.7	15
4.....	4.4	56	14.....	3.1	36	24.....	3.8	15
5.....	4.4	40	15.....	3.1	28	25.....	4.1	14
6.....	4.4	36	16.....	3.0	24	26.....	4.1	13
7.....	4.2	28	17.....	2.9	23	27.....	4.2	13
8.....	4.1	24	18.....	2.9	21	28.....	4.6	12
9.....	4.2	23	19.....	2.8	20	29.....	8.1	-----
10.....	4.2	23	20.....	2.9	18	30.....	87	-----
						31.....	714	-----

Monthly mean discharge, in cubic feet per second.....	29.5	50.6
Runoff, in acre-feet.....	1,810	2,810

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.33	33	Jan. 31	0600	2.05	222	Jan. 31	2400	3.80	1,220
	30	0400	1.28		0800	2.65	453				
		1000	1.35		1200	3.15	738	Feb. 1	0200	3.25	805
		1200	1.57		1400	3.05	675		0400	4.00	1,400
		1400	1.56		1600	3.50	980		0800	2.82	536
		1600	1.85		2000	3.99	1,390		1400	2.57	417
		2000	1.88		2200	3.80	1,220		2000	2.10	239
		2400	1.80			3.95	1,360		2400	1.98	199

11-3166.5. Antelope Creek near West Point, Calif.

(Crest-stage station)

Location--Lat 38°29'29", long 120°30'09", in NE $\frac{1}{4}$ sec.2, T.7 N., R.13 E., 5.7 miles northeast of West Point.

Drainage area--1.48 sq mi.

Gage-height record--Crest stages only. Altitude of gage is 3,640 ft (from topographic map).

Discharge record--Stage-discharge relation defined by current-meter measurements below 9.2 cfs and by computation of flow through culvert and at 17 and 78 cfs.

Maxima--January-February 1963: Discharge, 78 cfs Feb. 1 (gage height, 5.10 ft).

July to December 1962: Discharge, 11 cfs Oct. 13, 1962 (gage height, 3.04 ft).

11-3168. Forest Creek near Wilseyville, Calif.

Location.--Lat 38°24'10", long 120°26'45", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.4, T.6 N., R.14 E., on left bank 1.0 mile downstream from Lion Creek, 1.8 miles upstream from mouth, and 4 miles northeast of Wilseyville.

Drainage area.--20.8 sq mi.

Gage-height record.--Water-stage recorder graph, except Jan. 1 to 1445 hours Jan. 22. Altitude of gage is 2,950 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 200 cfs and by slope-area measurement at 1,580 cfs; affected by ice Jan. 22-28. Discharge for Jan. 1-22 was estimated on basis of records for South Fork Mokelumne River near West Point and weather records.

Maxima.--January-February 1963: Discharge, 1,580 cfs 0100 hours Feb. 1 (gage height, 7.41 ft, from recorder graph; 7.5 ft, from high-water profile).
1960 to December 1962: Discharge, 260 cfs Feb. 15, 1962 (gage height, 4.60 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	5.2	764	11.....	4.6	31	21.....	4.5	27
2.....	5.2	167	12.....	4.6	28	22.....	4.5	25
3.....	5.2	100	13.....	4.6	52	23.....	4.5	24
4.....	5.2	70	14.....	4.6	50	24.....	4.3	23
5.....	5.0	56	15.....	4.6	41	25.....	4.2	22
6.....	5.0	45	16.....	4.6	37	26.....	4.2	22
7.....	5.0	38	17.....	4.6	34	27.....	4.2	22
8.....	4.6	33	18.....	4.6	31	28.....	4.2	21
9.....	4.6	31	19.....	4.6	30	29.....	5.0	-----
10.....	4.6	34	20.....	4.6	28	30.....	87	-----
						31.....	452	-----

Monthly mean discharge, in cubic feet per second.....	21.7	67.4
Runoff, in inches.....	1.21	3.37
Runoff, in acre-feet.....	1,340	3,740

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.83	6.7	Jan. 31	1100	4.47	220	Feb. 1	0900	6.61	1,070
					1400	4.96	365		1000	6.43	975
30	0300	2.97	12		1500	5.56	579		1100	6.11	815
	0600	3.22	27		1800	5.29	477		1300	5.42	523
	1000	3.54	57		1900	5.55	575		1500	5.13	421
	1500	3.75	85		2000	6.29	905		1800	4.94	359
	1800	4.12	145		2200	6.83	1,200		2400	4.55	242
	2000	4.48	225		2400	7.26	1,470				
	2400	4.22	164					2	0300	4.39	200
31	0100	4.14	143	Feb. 1	0100	7.41	1,580		1000	4.27	171
	0400	4.12	138		0300	6.97	1,280		2400	4.03	120
	0700	4.05	124		0500	6.62	1,070				
					0600	6.74	1,140				

11-3170. Middle Fork Mokelumne River at West Point, Calif.

Location.--Lat 38°23'23", long 120°31'32", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.10, T.6 N., R.13 E., on right bank 200 ft downstream from highway bridge, 0.6 mile south of West Point, and 4.5 miles upstream from South Fork.

Drainage area.--68.4 sq mi.

Gage-height record.--Water-stage recorder graph, except Jan. 1-21. Altitude of gage is 2,450 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements. Discharge for period Jan. 1-21 estimated by hydrographic comparison with South Fork Mokelumne River near West Point.

Maxima.--January-February 1963: Discharge, 3,400 cfs 2400 hours Jan. 31 (gage height, 8.22 ft).
1911 to December 1962: Discharge, 4,320 cfs Dec. 23, 1955 (gage height, 8.98 ft).

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of South Fork Mokelumne River near West Point, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.28	20	Jan. 31	1000	5.83	918	Feb. 1	1000	8.15	2,560
					1200	6.86	1,580		1300	7.20	1,800
30	0600	3.04	82		1400	7.51	2,040		1600	6.67	1,450
	1000	3.69	176		1700	7.34	1,920		1900	6.57	1,380
	1700	4.74	441		1800	7.70	2,180		2400	5.91	966
	2000	5.39	696		2000	9.09	3,500	2	0600	5.41	705
	2200	5.55	775		2200	10.53	5,340		1200	5.10	570
	2400	5.40	700		2400	10.78	5,690		1800	4.84	474
31	0300	5.24	628	Feb. 1	0100	10.63	5,480		2400	4.64	410
	0600	5.21	615		0500	9.00	3,400				

11-3195. Mokelumne River near Mokelumne Hill, Calif.

Location.--Lat 38°18'46", long 120°43'09", in SW¹/₄SW¹/₄ sec.1, T.5 N., R.11 E., on downstream side of bridge, 1.2 miles northwest of Mokelumne Hill and 8 miles downstream from confluence of North and South Forks.

Drainage area.--538 sq mi.

Gage-height record.--Water-stage recorder graph, except Feb. 8-21. Datum of gage is 589.88 ft above mean sea level (levels by California Division of Highways).

Discharge record.--Stage-discharge relation defined by current-meter measurements. Discharge for Feb. 8-21 estimated on the basis of computed inflow to Pardee Reservoir.

Maxima.--January-February 1963: Discharge, 25,900 cfs 0300 hours Feb. 1 (gage height, 16.15 ft).

1901, 1903-4, 1927 to December 1962: Discharge, 33,700 cfs Dec. 3, 1950 (gage height, 18.5 ft).

Remarks.--Flow regulated by Salt Springs Reservoir beginning in 1931 (see station 11-3135), several smaller reservoirs, and four powerplants.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	576	17,000	11.....	628	844	21.....	338	541
2.....	470	3,940	12.....	598	769	22.....	454	369
3.....	682	1,710	13.....	572	981	23.....	610	323
4.....	470	1,450	14.....	500	1,420	24.....	589	292
5.....	630	1,090	15.....	738	1,130	25.....	632	361
6.....	490	1,030	16.....	448	899	26.....	523	508
7.....	522	1,050	17.....	435	717	27.....	692	468
8.....	496	981	18.....	876	474	28.....	614	410
9.....	403	868	19.....	516	496	29.....	478	---
10.....	449	848	20.....	102	531	30.....	814	---
						31.....	6,670	---
Monthly mean discharge, in cubic feet per second.....							742	1,482
Runoff, in acre-feet.....							45,650	82,310

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	5.35	2,180	Jan. 31	2300	15.40	23,500	Feb. 2	0300	7.62	5,360
					2400	15.70	24,400		0600	7.05	4,540
31	0200	5.45	2,280						1000	6.60	3,910
	0600	5.20	2,020	Feb. 1	0300	16.15	25,900		1200	6.51	3,800
	1000	5.20	2,020		0400	15.68	24,400		1300	6.02	3,160
	1200	5.53	2,370		0930	14.57	21,000		1400	6.30	3,520
	1500	7.20	4,500		1030	14.61	21,100		1700	6.29	3,510
	1700	9.43	9,070		1200	13.88	19,000		1900	5.43	2,480
	1800	11.75	13,000		1400	11.96	13,700		2100	5.69	2,780
	1900	11.40	12,200		1600	10.92	11,300		2300	5.70	2,780
	2000	10.40	10,000		1630	9.98	9,400		2400	5.56	2,390
	2030	12.35	14,500		1700	10.70	10,900				
	2200	14.20	19,800		2400	8.64	6,940				

11-3200. Pardee Reservoir near Valley Springs, Calif.

Location--Lat 38°15'30", long 120°51'00", in N½SW¼ sec.26, T.5 N., R.10 E., at Pardee Dam on the Mokelumne River, 4.5 miles north of Valley Springs.

Drainage area--578 sq mi.

Gage-height record--Water-stage recorder graph. Datum of gage is at mean sea level (levels by East Bay Municipal Utility District).

Contents record--Contents computed from capacity table dated June 1930.

Maxima--January-February 1963: Computed bihourly inflow, 26,000 cfs 0400 to 0600 hours Feb. 1. Contents, 209,600 acre-ft 2400 hours Feb. 1 (elevation, 567.5 ft). 1929 to December 1962: Contents, 219,300 acre-ft Dec. 23, 1955 (elevation, 571.72 ft).

Remarks--Reservoir is formed by a curved concrete gravity dam, completed in 1929; storage began Mar. 9, 1929. Usable capacity, 194,100 acre-ft between elevations 393.50 (diversion tunnel invert) and 567.65 ft (spillway crest) above mean sea level. Dead storage, 15,800 acre-ft. Figures given herein represent total contents. Records furnished by East Bay Municipal Utility District.

Contents, in acre-feet, at 2400 hours, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	182,900	209,600	11.....	178,600	191,000	21.....	173,200	188,100
2.....	182,700	207,500	12.....	178,200	190,900	22.....	172,600	186,900
3.....	182,600	200,700	13.....	177,800	191,800	23.....	172,200	185,700
4.....	182,000	194,500	14.....	177,200	192,300	24.....	171,900	184,500
5.....	181,700	191,300	15.....	177,100	192,500	25.....	171,600	183,200
6.....	181,200	191,400	16.....	176,400	192,100	26.....	171,100	182,200
7.....	180,700	191,600	17.....	175,800	191,400	27.....	171,000	181,100
8.....	180,100	191,500	18.....	175,900	190,500	28.....	171,100	179,900
9.....	179,500	191,500	19.....	175,400	189,700	29.....	171,200	- - - - -
10.....	178,800	191,400	20.....	174,100	189,000	30.....	172,100	- - - - -
						31.....	184,600	- - - - -
Change in contents, in acre-feet.....							+1,900	-4,700

Average inflow, in cubic feet per second, for bihourly periods ending at indicated time, 1963

Date	Hour	Inflow	Date	Hour	Inflow	Date	Hour	Inflow
Jan. 30	0200	441	Jan. 31	1000	2,220	Feb. 1	1800	9,480
	0400	441		1200	2,220		2000	8,830
	0600	320		1400	3,290		2200	7,760
	0800	441		1600	5,220		2400	1,940
	1000	562		1800	9,200	2	0200	5,750
	1200	1,030		2000	11,300		0400	5,780
	1400	913		2200	15,900		0600	4,950
	1600	792		2400	23,600		0800	4,530
	1800	1,510	Feb. 1	0200	24,800		1000	4,540
	2000	1,150		0400	24,200		1200	3,990
	2200	1,390		0600	26,000		1400	3,850
	2400	2,090		0800	21,800		1600	3,720
31	0200	2,440		1000	20,700		1800	3,720
	0400	2,560		1200	20,600		2000	2,910
	0600	2,100		1400	15,800		2200	2,910
	0800	2,220		1600	11,400		2400	2,920

11-3210. Mokelumne River at Lancha Plana, Calif.

Location.--Lat 38°13'25", long 120°53'20", in SW $\frac{1}{4}$ sec.4, T.4 N., R.10 E., on left bank 1 mile east of Lancha Plana, 3 miles downstream from Pardee Dam, and 5 miles upstream from Camanche Creek.

Drainage area.--587 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 158.95 ft above mean sea level (levels by East Bay Municipal Utility District).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 4,930 cfs 1600 hours Feb. 1 (gage height, 8.28 ft).
1926 to December 1962: Discharge, 26,700 cfs Nov. 21, 1950 (gage height, 20.1 ft).

Remarks.--Flow regulated by Pardee Reservoir (see station 11-3200), Salt Springs Reservoir (see station 11-3135), several smaller reservoirs, and four powerplants. Diversions above station were 8,330 acre-ft in January and 7,700 acre-ft in February.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	290	3,520	11.....	568	728	21.....	615	760
2.....	387	4,840	12.....	620	733	22.....	625	760
3.....	560	4,820	13.....	620	810	23.....	630	760
4.....	620	4,200	14.....	615	755	24.....	630	760
5.....	620	2,510	15.....	610	733	25.....	625	777
6.....	620	728	16.....	610	728	26.....	625	782
7.....	625	733	17.....	610	722	27.....	625	799
8.....	625	728	18.....	610	722	28.....	420	794
9.....	625	733	19.....	610	733	29.....	297	-----
10.....	560	733	20.....	615	744	30.....	296	-----
						31.....	430	-----
Monthly mean discharge, in cubic feet per second.....							563	1,327
Runoff, in acre-feet.....							34,590	73,680

11-3235. Mokelumne River below Camanche Dam, Calif.

Location.--Lat 38°13'15", long 121°02'20", in NW $\frac{1}{4}$ sec.7, T.4 N., R.9 E., on left bank 0.7 mile downstream from Murphy Creek and 3.4 miles northeast of Clements.

Drainage area.--627 sq mi.

Gage-height record.--Water-stage recorder graph, except 1100 hours Jan. 21 to 1300 hours Jan. 30, and 1000 to 1400 hours on Feb. 1. Datum of gage is 82.91 ft above mean sea level (levels by East Bay Municipal Utility District).

Discharge record.--Stage-discharge relation defined by current-meter measurements. Discharge for periods of no gage-height record estimated on basis of range in stage and records for Mokelumne River at Lancha Plana.

Maxima.--January-February 1963: Discharge, 5,920 cfs 1830 hours Feb. 2, 1963 (gage height, 10.87 ft).
1904 to December 1962: Discharge, 28,800 cfs Nov. 21, 1950 (gage height, 24.40 ft, site and datum then in use).

Remarks.--Flow affected by Pardee Reservoir (see station 11-3200) since 1929, by Salt Springs Reservoir (see station 11-3135) since 1931, and by several smaller reservoirs.

Mean discharge, in cubic feet per second, 1963, of Mokelumne River below Camanche Dam, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	375	3,230	11.....	575	834	21.....	630	864
2.....	354	5,200	12.....	632	852	22.....	630	864
3.....	560	5,090	13.....	632	1,120	23.....	630	864
4.....	626	4,580	14.....	638	914	24.....	630	864
5.....	626	3,060	15.....	626	852	25.....	625	870
6.....	626	846	16.....	632	840	26.....	625	882
7.....	632	840	17.....	626	834	27.....	625	900
8.....	638	840	18.....	632	828	28.....	450	894
9.....	632	840	19.....	632	828	29.....	300	-----
10.....	570	846	20.....	638	840	30.....	300	-----
						31.....	425	-----
Monthly mean discharge, in cubic feet per second.....							573	1,468
Runoff, in acre-feet.....							35,250	81,550

11-3255. Mokelumne River at Woodbridge, Calif.

Location.--Lat 38°09'30", long 121°18'10", in NE $\frac{1}{4}$ sec.34, T.4 N., R.6 E., on left bank at Woodbridge, 0.3 mile downstream from county highway bridge and 0.4 mile downstream from dam and canal intake of Woodbridge Irrigation District.

Drainage area.--660 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 14.9 ft above mean sea level (levels by East Bay Municipal Utility District).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 6,200 cfs and by contracted-opening measurement at 27,000 cfs.

Maxima.--January-February 1963: Discharge, 5,340 cfs 2100 hours Feb. 4 (gage height, 22.56 ft).
1924 to December 1962: Discharge, 27,000 cfs Nov. 22, 1950 (gage height, 29.58 ft).

Remarks.--Flow regulated by Pardee Reservoir (see station 11-3200), Salt Springs Reservoir (see station 11-3135), several smaller reservoirs, and four powerplants.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	511	1,360	11.....	524	858	21.....	578	814
2.....	303	3,260	12.....	528	846	22.....	578	826
3.....	348	4,770	13.....	572	946	23.....	581	818
4.....	468	5,230	14.....	574	1,070	24.....	583	816
5.....	567	4,940	15.....	583	880	25.....	584	814
6.....	569	2,820	16.....	571	850	26.....	581	822
7.....	569	1,030	17.....	576	824	27.....	579	834
8.....	574	933	18.....	576	808	28.....	578	844
9.....	579	896	19.....	576	800	29.....	406	-----
10.....	576	890	20.....	576	794	30.....	332	-----
						31.....	351	-----
Monthly mean discharge, in cubic feet per second.....							531	1,479
Runoff, in acre-feet.....							32,630	82,110

11-3263. Dry Creek above Sutter Creek, near Ione, Calif.

Location.--Lat 38°24'54", long 120°54'18", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.32, T.7 N., R.10 E., on right bank 1,000 ft downstream from bridge on State Highway 104 and 4.6 miles northeast of Ione.

Drainage area.--70.8 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 500 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,300 cfs.

Maxima.--January-February 1963: Discharge, 4,560 cfs 0730 hours Feb. 1 (gage height, 10.22).
1960 to December 1962: Discharge, 1,450 cfs Feb. 15, 1962 (gage height, 7.40 ft).

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

[illegible]

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	3.34	7.6	Jan. 31	1600	5.80	556	Feb. 1	0800	10.05	4,310
30	0600	3.39	9.6		1800	5.97	632		1000	8.67	2,610
	1200	3.53	17		2000	7.05	1,260		1300	7.50	1,540
	1800	3.65	42		2200	9.50	3,630		1600	6.85	1,090
	2000	4.13	76		2400	9.65	3,830		2000	6.35	802
	2400	4.15	79						2400	5.86	569
31	0100	4.18	88	Feb. 1	0100	9.52	3,600	2			
	0200	4.30	108		0200	9.95	4,170		0600	5.43	406
	0400	4.60	166		0300	9.15	3,140		1200	5.13	309
	0700	4.62	171		0500	8.32	2,260		1800	4.88	240
	1200	4.84	224		0600	8.90	2,860		2400	4.68	192
					0700	10.00	4,240				
					0730	10.22	4,560				

[illegible]

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	0.77	5.0	Jan. 31	1030	2.37	325	Feb. 1	0700	4.59	2,460
					1200	2.54	393		1000	4.91	2,950
30	0600	.83	7.3		1330	2.83	526		1200	4.15	1,860
	1000	.93	13		1500	3.27	777		1400	3.63	1,290
	1200	1.30	61		1700	3.47	912		1600	3.30	991
	1400	1.65	120		1900	3.49	926		2100	2.80	629
	1700	1.93	185		2000	3.80	1,300		2400	2.55	486
	2000	1.94	188		2100	4.51	2,190				
	2200	2.08	227		2200	5.55	4,010	2	0400	2.32	374
	2400	2.51	380		2400	6.27	5,770		0600	2.14	298
									1600	1.91	217
31	0100	2.62	427	Feb. 1	0200	6.15	5,470		2400	1.76	173
	0500	2.35	318		0400	5.52	4,070				
	0730	2.44	352		0600	4.71	2,640				

(Crest-stage station)

Maxima.--January-February 1963: Discharge, 75 cfs Feb. 1 (gage height, 22.68 ft).
1959 to December 1962: Discharge, 69 cfs Feb. 15, 1962 (gage height, 22.55 ft).

11-3295. Dry Creek near Galt, Calif.

Maxima.--January-February 1963: Discharge, 9,320 cfs 1600 hours Feb. 1 (gage height, 13.96 ft).
1926-33, 1944 to December 1962: Discharge, 24,000 cfs Apr. 3, 1958 (gage height, 15.28 ft).

Mean discharge, in cubic feet per second, 1963

[illegible]

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Dry Creek near Galt, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	0.65	0	Feb. 1	0200	12.43	2,630	Feb. 2	0600	12.81	3,740
					0400	13.03	4,620		0900	12.68	3,340
31	0800	.65	0		0800	13.33	5,850		1200	12.28	2,320
	0900	4.80	253		0800	13.46	6,800		1400	11.65	1,870
	1100	5.55	385		1300	13.90	8,900		1900	10.08	1,470
	1700	6.38	551		1800	13.98	9,320		2400	8.80	1,150
	1900	6.94	685		1900	13.93	9,110				
	2100	7.95	938		2200	13.75	5,000	3	0400	8.04	960
	2400	10.28	1,520		2400	13.34	5,900		0900	7.44	810
Feb. 1	0100	11.50	1,830	2	0200	13.06	4,740		1500	6.87	668
									2400	6.39	553

11-3330. Camp Creek near Somerset, Calif.

Location.--Lat 38°39'26", long 120°39'46", in Sw¹/₄ sec.4, T.9 N., R.12 E., on right bank 0.2 mile upstream from mouth, 1.3 miles northeast of Somerset, and 5.6 miles south of Camino.

Drainage area.--62.6 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 1,820 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 5,100 cfs.

Maxima.--January-February 1963: Discharge, 5,740 cfs 0200 hours Feb. 1 (gage height, 12.25 ft, from recorder graph; 14.55 ft, from floodmark).
1954 to December 1962: Discharge, 6,020 cfs Dec. 23, 1955 (gage height, 12.48 ft).

Remarks.--Flow partly regulated since 1955 by Jenkinson Lake (usable capacity, 40,570 acre-ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	5.8	3,050	11.....	5.1	11	21.....	5.6	11
2.....	5.3	570	12.....	3.5	11	22.....	5.6	10
3.....	5.3	86	13.....	5.3	29	23.....	5.6	10
4.....	5.6	33	14.....	5.6	24	24.....	5.6	9.8
5.....	5.8	22	15.....	5.6	19	25.....	5.6	9.5
6.....	5.6	17	16.....	5.6	16	26.....	5.3	9.5
7.....	5.6	15	17.....	5.6	14	27.....	5.3	9.2
8.....	5.6	13	18.....	5.6	13	28.....	5.6	8.6
9.....	5.3	12	19.....	4.8	12	29.....	6.3	-----
10.....	5.3	12	20.....	5.6	11	30.....	35	-----
						31.....	1,130	-----
Monthly mean discharge, in cubic feet per second.....							42.6	145
Runoff, in acre-feet.....							2,620	8,070

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.75	7.1	Jan. 31	1700	7.74	1,630	Feb. 2	0300	6.26	904
					1800	7.83	1,690		0600	5.94	776
30	0200	1.78	7.8		2100	9.45	2,860		0900	5.71	694
	0500	1.91	12		2300	11.20	4,520		1400	5.43	609
	0900	2.28	23		2400	11.42	4,760		1900	3.52	153
	1300	2.50	44						2100	3.63	170
	1900	2.57	50	Feb. 1	0200	12.25	5,740		2200	3.63	170
	2400	2.54	47		0700	11.16	4,480		2300	3.45	143
31	0200	2.54	47		0800	11.15	4,470		2400	3.43	140
	0300	3.81	202		1200	8.76	2,320				
	0600	3.61	167		1400	8.08	1,850	3	0600	3.21	105
	0900	3.55	158		1700	7.70	1,610		1200	3.00	83
	1100	3.78	196		1800	7.81	1,680		1800	2.77	62
	1200	4.03	246		2100	7.17	1,510		2400	2.63	50
	1500	6.70	1,090		2400	6.73	1,100				

11-3335. North Fork Cosumnes River near El Dorado, Calif.

Location.--Lat 38°35'20", long 120°50'38", in SW $\frac{1}{4}$ sec.35, T.9 N., R.10 E., on downstream side of left abutment of county road bridge, 0.8 mile north of Nashville, 2.6 miles upstream from mouth, and 6 miles south of El Dorado.

Drainage area.--205 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 840 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 3,600 cfs and by slope-area measurement at 15,800 cfs.

Maxima.--January-February 1963: Discharge, 12,800 cfs 0500 hours Feb. 1 (gage height, 13.45 ft).

1911-41, 1948 to December 1962: Discharge, 15,800 cfs Dec. 23, 1955 (gage height, 14.8 ft).

Remarks.--Flow partly regulated since January 1955 by Jenkinson Lake (usable capacity, 40,570 acre-ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	38	8,520	11.....	29	209	21.....	25	155
2.....	34	2,170	12.....	25	182	22.....	26	144
3.....	34	983	13.....	17	388	23.....	25	131
4.....	34	638	14.....	23	385	24.....	25	123
5.....	34	483	15.....	27	280	25.....	25	115
6.....	32	364	16.....	29	248	26.....	25	110
7.....	32	304	17.....	27	226	27.....	24	105
8.....	31	260	18.....	27	202	28.....	25	99
9.....	30	236	19.....	26	180	29.....	25	-----
10.....	30	224	20.....	26	168	30.....	168	-----
						31.....	2,770	-----
Monthly mean discharge, in cubic feet per second.....							121	630
Runoff, in acre-feet.....							7,430	34,970

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.92	30	Jan. 31	1500	6.26	1,440	Feb. 1	1800	9.10	4,700
					1700	7.65	2,720		2400	8.29	3,530
	0900	2.04	40		1900	9.20	4,860				
	1200	2.20	54		2000	10.42	6,880	2	0200	7.96	3,090
	1500	2.94	144		2200	11.25	8,370		0700	7.43	2,470
	1700	3.74	290		2400	12.79	11,400		1800	6.64	1,730
	1800	3.75	344						2000	6.29	1,450
	2100	4.22	427	Feb. 1	0100	13.35	12,600		2300	5.98	1,270
	2400	4.38	483		0300	13.03	11,900		2400	5.94	1,240
					0500	13.45	12,800				
31	0300	5.06	760		0700	13.26	12,400	3	0600	5.68	1,090
	0700	5.40	930		1000	12.32	10,400		1200	5.46	960
	0800	5.55	1,010		1100	12.34	10,500		2400	5.10	780
	1100	5.49	975		1200	11.90	9,600				
	1300	5.69	1,090		1500	9.77	5,770				

11-3342. Middle Fork Cosumnes River near Somerset, Calif.

Location.--Lat 38°37'29", long 120°42'02", in NW¼NW¼ sec.19, T.9 N., R.12 E., on left bank 1,000 ft downstream from county road bridge, 0.2 mile downstream from Perry Creek, and 1.8 miles southwest of Somerset.

Drainage area.--107 sq mi.

Gage-height record.--Water-stage recorder graph, except Jan. 12-15. Datum of gage is 1,647.95 ft above mean sea level (datum of 1929).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 2,500 cfs and by computation of flow over dam at 11,800 cfs; affected by ice Jan. 6-11, 16-22. Discharge for Jan. 12-15 estimated on basis of hydrographic comparison with Cosumnes River at Michigan Bar and North Fork Cosumnes River near El Dorado.

Maxima.--January-February 1963: Discharge, 11,800 cfs 0230 hours Feb. 1 (gage height, 16.20 ft, from recorder graph; 17.4 ft, from floodmarks).
1955 to December 1962: Discharge, about 13,500 cfs Dec. 23, 1955 (gage height, 18.1 ft, from floodmarks).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	34	7,580	11.....	23	269	21.....	23	192
2.....	31	2,290	12.....	19	242	22.....	23	179
3.....	32	1,180	13.....	15	368	23.....	23	163
4.....	32	776	14.....	18	352	24.....	23	153
5.....	29	554	15.....	23	298	25.....	22	146
6.....	29	463	16.....	25	278	26.....	22	144
7.....	29	380	17.....	24	254	27.....	22	146
8.....	28	330	18.....	24	236	28.....	22	135
9.....	27	298	19.....	23	216	29.....	25	-----
10.....	26	300	20.....	22	204	30.....	285	-----
						31.....	3,320	-----
Monthly mean discharge, in cubic feet per second.....							139	647
Runoff, in inches.....							1.50	6.30
Runoff, in acre-feet.....							8,570	35,950

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	3.52	28	Jan. 31	1200	9.11	1,870	Feb. 1	1800	11.70	4,360
					1600	11.28	3,860		1900	11.90	4,600
30	0400	3.70	36		2000	12.50	5,400		2400	10.90	3,460
	0600	3.90	47		2300	15.00	9,500				
	1100	4.82	141		2400	15.42	10,500	2	0100	10.63	3,190
	1700	5.58	276						1000	9.63	2,280
	1900	5.98	370	Feb. 1	0230	16.20	11,800		2400	8.68	1,570
	2100	7.28	812		0500	16.05	11,500				
	2400	8.16	1,240		0700	15.48	10,400	3	0800	8.14	1,220
31	0100	8.43	1,400		0900	15.19	9,840		1600	7.80	1,050
	0200	8.54	1,470		1000	15.20	9,860		2400	7.59	945
	0700	8.25	1,290		1300	12.85	5,890				
					1600	11.88	4,580				

11-3343. South Fork Cosumnes River near River Pines, Calif.

Location.--Lat 38°33'25", long 120°47'32", in SE¼SW¼ sec.8, T.8 N., R.11 E., on left bank 2.4 miles upstream from mouth and 2.7 miles west of River Pines.

Drainage area.--64.3 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 1,220 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,900 cfs and by slope-area measurement at 4,740 cfs.

Maxima.--January-February 1963: Discharge, 5,540 cfs 0700 hours Feb. 1 (gage height, 10.90 ft).
1957 to December 1962: Discharge, 4,740 cfs Apr. 3, 1958 (gage height, 9.90 ft).

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Cosumnes River at Michigan Bar, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.63	65	Jan. 31	1600	6.74	5,460	Feb. 1	2400	8.60	12,800
					1800	7.40	7,860				
30	0700	2.68	73		2000	8.62	12,900	2	0600	7.68	8,690
	1200	2.78	90		2100	9.29	15,700		1200	7.13	6,830
	1500	2.87	109		2300	10.83	22,600		1800	6.74	5,460
	1800	3.09	164		2400	11.61	26,400		2100	6.58	4,940
	2100	3.53	322						2400	6.34	4,200
	2200	4.00	580	Feb. 1	0200	12.70	31,900				
	2300	4.58	890		0400	12.96	33,200	3	0200	6.22	3,860
	2400	4.53	1,040		0700	13.88	38,100		0800	6.01	3,320
					0800	13.85	38,000		1600	5.77	2,820
31	0200	4.74	1,280		0900	14.11	39,400		2400	5.59	2,480
	0600	5.73	2,740		1100	12.99	33,400				
	0800	5.89	3,060		1300	12.14	29,100	4	0600	5.46	2,280
	1100	6.00	3,300		1600	10.32	20,300		1200	5.36	2,130
	1200	6.10	3,540		1800	9.58	17,000		1800	5.27	2,000
	1400	6.22	3,860		2100	8.99	14,400		2400	5.17	1,860

11-3356.5. Deer Creek near Shingle Springs, Calif.

(Crest-stage station)

Location.--Lat 38°39'30", long 120°59'25", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.4, T.9 N., R.9 E., 3.5 miles west of Shingle Springs.

Drainage area.--6.62 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 1,070 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by computation of flow through culvert at 857 and 1,320 cfs.

Maxima.--January-February 1963: Discharge, 857 cfs Feb. 1 (gage height, 9.20 ft). August to December 1962: Discharge, 1,320 cfs Oct. 13, 1962 (gage height, 11.59 ft from crest-stage gage; 11.67 ft, from high-water profile).

11-3357. Deer Creek near Sloughhouse, Calif.

Location.--Lat 38°33'06", long 121°06'30", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.16, T.8 N., R.8 E., on right bank 0.2 mile upstream from bridge on Scott Road, 0.4 mile upstream from Little Deer Creek, and 5.9 miles northeast of Sloughhouse.

Drainage area.--46.0 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 160 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 2,200 cfs.

Maxima.--January-February 1963: Discharge, 3,550 cfs 2130 hours Jan. 31 (gage height, 11.01 ft). 1959 to December 1962: Discharge, 6,560 cfs Oct. 13, 1962 (gage height, 12.86 ft, from floodmarks).

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

Mean discharge, in cubic feet per second, 1963, of Deer Creek near Sloughhouse, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	5.0	1,150	11.....	4.5	22	21.....	6.5	17
2.....	5.0	170	12.....	3.9	21	22.....	7.8	15
3.....	4.8	72	13.....	3.8	227	23.....	8.1	13
4.....	5.0	47	14.....	4.0	88	24.....	7.1	12
5.....	4.8	35	15.....	4.3	47	25.....	6.1	11
6.....	4.4	26	16.....	4.4	35	26.....	5.6	10
7.....	4.4	23	17.....	4.6	28	27.....	5.6	9.7
8.....	4.7	19	18.....	4.3	25	28.....	6.3	10
9.....	3.9	18	19.....	4.0	21	29.....	6.4	-----
10.....	4.1	33	20.....	4.3	18	30.....	64	-----
						31.....	1,200	-----
Monthly mean discharge, in cubic feet per second.....							45.5	79.3
Runoff, in inches.....							1.14	1.80
Runoff, in acre-feet.....							2,800	4,400

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	6.08	7.2	Jan. 31	0700	7.39	337	Feb. 1	1200	8.43	900
					1330	8.27	795		1500	7.95	605
30	1200	6.15	11		1430	8.24	776		1800	7.66	456
	1500	6.19	14		1600	8.54	976		2100	7.45	362
	1800	6.33	27		1900	10.25	2,580		2400	7.28	294
	2100	7.22	271		2130	11.01	3,550				
	2300	7.34	317		2230	10.95	3,460	2	0600	7.06	216
	2400	7.46	366		2400	10.63	3,040		1200	6.91	161
31	0230	7.36	325	Feb. 1	0500	9.11	1,420		1800	6.80	124
	0500	7.46	366		0730	9.68	1,960		2400	6.70	96

11-3360. Cosumnes River at McConnell, Calif.

Location.--Lat 38°21'29", long 121°20'34", in sec.20, T.6 N., R.6 E., on downstream side of bridge on U.S. Highway 99, 0.2 mile south of McConnell, 1 mile downstream from Deer Creek, and 7 miles north of Galt.

Drainage area.--724 sq mi.

Gage-height record.--Water-stage recorder graph. Gage is set to datum of Corps of Engineers.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 26,200 cfs 2200 hours Feb. 1 (gage height, 45.52 ft).
1943 to December 1962: Discharge, 54,000 cfs Dec. 23, 1955 (gage height, 46.26 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	70	14,600	11.....	53	783	21.....	41	549
2.....	69	17,300	12.....	52	691	22.....	43	507
3.....	64	5,030	13.....	49	1,470	23.....	43	473
4.....	61	2,420	14.....	45	2,260	24.....	44	437
5.....	59	1,740	15.....	37	1,290	25.....	44	407
6.....	61	1,330	16.....	41	970	26.....	44	380
7.....	59	1,080	17.....	52	835	27.....	44	353
8.....	58	912	18.....	49	743	28.....	43	335
9.....	58	795	19.....	46	644	29.....	43	-----
10.....	53	795	20.....	44	598	30.....	51	-----
						31.....	1,900	-----
Monthly mean discharge, in cubic feet per second.....							110	2,133
Runoff, in inches.....							0.18	3.07
Runoff, in acre-feet.....							6,760	118,500

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	30.31	56	Feb. 1	0300	40.32	7,150	Feb. 2	0600	44.75	21,400
					0400	40.30	7,120		1200	43.99	17,600
31	0400	30.45	79		1000	41.27	8,740		1800	42.74	12,500
	0600	30.62	107		1200	42.50	11,400		2400	41.30	8,650
	0700	30.86	157		1400	43.70	15,400				
	1000	33.26	924		1700	44.58	19,600	3	0900	38.81	5,110
	1300	35.19	1,880		1830	45.47	25,900		1500	37.70	4,000
	1700	36.70	3,000		2200	45.52	26,200		2100	36.85	3,280
	2100	38.00	4,220		2400	45.45	25,600		2400	36.56	3,070
	2400	39.28	5,760								

11-3365.80. Morrison Creek near Sacramento, Calif.

Location.--Lat 38°29'57", long 121°27'04", in NW 1/4 sec. 32, T.8 N., R.5 E., on right bank 1,100 ft upstream from Florin Road, 1.7 miles upstream from Elder Creek, and 2 miles south of Sacramento city limits.

Drainage area.--48.6 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 19.93 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 850 cfs.

Maxima.--January-February 1963: Discharge, 1,010 cfs 0500 hours Feb. 1 (gage height, 6.06 ft).
1959 to December 1962: Discharge, 1,320 cfs Oct. 14, 1962 (gage height, 7.09 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	3.2	691	11.....	4.7	39	21.....	5.0	13
2.....	4.3	157	12.....	5.0	57	22.....	5.0	11
3.....	5.0	67	13.....	5.8	232	23.....	5.4	10
4.....	5.0	44	14.....	6.2	136	24.....	5.8	8.6
5.....	5.0	33	15.....	6.7	53	25.....	5.8	7.6
6.....	6.7	26	16.....	5.4	34	26.....	5.4	6.7
7.....	6.2	21	17.....	5.4	26	27.....	5.8	6.2
8.....	5.8	22	18.....	5.4	20	28.....	5.4	6.2
9.....	5.4	37	19.....	5.4	16	29.....	13	---
10.....	5.4	70	20.....	5.4	14	30.....	114	---
						31.....	462	---

Monthly mean discharge, in cubic feet per second.....	23.9	66.6
Runoff, in inches.....	0.57	1.43
Runoff, in acre-feet.....	1,470	3,700

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.01	32	Jan. 31	0300	3.15	239	Feb. 1	0500	6.06	1,010
	30				0500	2.99	204		0600	6.03	999
	0200	1.96	27		0700	5.02	210		1000	5.46	828
	0400	2.00	31		1000	5.37	287		1300	4.92	676
	0500	1.97	28		1400	4.15	471		1900	4.03	441
	0900	2.21	55		1500	4.68	609		2400	3.40	294
	1400	2.59	120		1700	5.34	793				
	1500	2.59	120		1800	5.37	802	2	0300	3.08	224
	1700	3.02	210		2100	5.24	765		0700	2.86	175
	1900	3.18	246		2400	5.21	757		1600	2.60	122
	2000	3.11	230						2400	2.44	91
	2200	3.09	226	Feb. 1	0100	5.35	796				
	2400	2.82	166		0300	5.85	945				

11-3375. Marsh Creek near Byron, Calif.

Location.--Lat 37°52'25", long 121°43'35", in Los Meganos Grant, on right bank 40 ft downstream from highway bridge on Marsh Creek Road, 1.2 miles upstream from Marsh Creek Dam, and 5.0 miles west of Byron, Contra Costa County.

Drainage area.--42.6 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 177.87 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 880 cfs and by slope-area measurement at 3,380 cfs. Backwater from Marsh Creek Reservoir 0900 hours Feb. 1 to 0600 hours Feb. 3.

Maxima.--January-February 1963: Discharge, 3,880 cfs 2230 hours Jan. 31 (gage height, 11.62 ft).
1953 to December 1962: Discharge, 3,800 cfs Dec. 23, 1955 (gage height, 12.98 ft), from rating curve extended above 320 cfs on basis of slope-area measurement of peak flow.

FLOODS OF 1963 IN THE UNITED STATES

Mean discharge, in cubic feet per second, 1963, of Marsh Creek near Byron, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	1.1	1,370	11.....	0.5	19	21.....	0.2	16
2.....	1.1	232	12.....	.3	40	22.....	.2	14
3.....	1.1	110	13.....	.4	127	23.....	.2	13
4.....	1.0	60	14.....	.2	52	24.....	.3	12
5.....	.9	36	15.....	.2	36	25.....	.2	12
6.....	.8	28	16.....	.2	31	26.....	.3	10
7.....	.6	23	17.....	.2	27	27.....	.3	10
8.....	.6	20	18.....	.4	22	28.....	.3	9.6
9.....	.6	21	19.....	.3	19	29.....	.4	-----
10.....	.6	35	20.....	.2	17	30.....	20	-----
						31.....	977	-----
Monthly mean discharge, in cubic feet per second.....							32.6	86.5
Runoff, in inches.....							0.88	2.11
Runoff, in acre-feet.....							2,000	4,800

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	
Jan. 28	2400	2.21	0.3	Jan. 31	0900	3.74	123	Feb. 1	0400	7.81	1,560	
29					1000	3.91	154		0430	7.79	1,540	
	1200	2.21	.3		1100	4.30	235		0500	7.81	1,560	
	1500	2.21	.3		1100	4.30	235		0600	8.20	1,750	
	1800	2.24	.4		1300	4.90	385		0700	9.15	2,290	
	2400	2.28	.6		1400	5.30	505		0800	9.44	2,460	
					1500	5.99	736		0900	9.34	2,400	
30	0600	2.39	1.4		1600	6.07	768		1100	-	1,750	
	1200	2.63	5.6		1630	6.01	744		1300	-	1,300	
	1500	2.70	8.0		1700	6.08	772		1500	-	900	
	1700	2.81	13		1800	7.10	1,200		1800	-	640	
	2100	3.45	76		1900	8.65	1,990		2400	-	390	
	2400	3.50	84		2000	10.85	3,340					
31					2230	11.62	3,880		2	0600	-	270
	0200	3.43	74		2300	10.50	3,100			1200	-	210
	0400	3.56	94		2400	10.05	2,830			1800	-	180
	0500	3.75	125							2400	-	150
	0600	3.80	134	Feb. 1	0100	9.15	2,290					
	0800	3.73	121		0200	8.45	1,880					
					0300	8.05	1,680					

SACRAMENTO VALLEY

SACRAMENTO RIVER BASIN

11-3415.5 Boulder Creek near La Moine, Calif.

(Crest-stage station)

Location.--Lat 41°01'00", long 122°24'15", in SW¹/₄SE¹/₄ sec.35, T.37 N., R.5 W., on U.S. Highway 99, 3.1 miles northeast of La Moine.

Drainage area.--6.57 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 1,440 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 443 cfs and by computation of flow through culvert at 666 and 2,080 cfs.

Maxima.--January-February 1963: Discharge, 666 cfs Jan. 31 (gage height, 32.59 ft). 1960 to December 1962: Discharge, 2,080 cfs Oct. 12, 1962 (gage height, 39.78 ft).

11-3420. Sacramento River at Delta, Calif.

Location.--Lat 40°56'20", long 122°24'55", in NW $\frac{1}{4}$ sec.35, T.36 N., R.5 W., on left bank 0.2 mile downstream from Dog Creek, 0.6 mile southeast of Delta, and 2.8 miles south of LaMoine.

Drainage area.--425 sq mi.

Gage height record.--Water-stage recorder graph. Datum of gage is 1,075.00 ft above mean sea level (levels by Bureau of Reclamation).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 19,000 cfs and by slope-area measurement at 37,000 cfs.

Maxima.--January-February 1963: Discharge, 14,800 cfs 1700 hours Jan. 31 (gage height 12.55 ft).
1944 to December 1962: Discharge, 37,000 cfs Dec. 22, 1955 (gage height, 19.50 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	722	8,280	11.....	528	2,370	21.....	469	1,510
2.....	700	5,370	12.....	487	2,550	22.....	464	1,400
3.....	700	10,300	13.....	505	4,600	23.....	456	1,300
4.....	672	7,400	14.....	523	3,350	24.....	452	1,240
5.....	645	5,800	15.....	514	2,710	25.....	448	1,160
6.....	625	4,550	16.....	510	2,410	26.....	440	1,120
7.....	610	3,640	17.....	486	2,130	27.....	436	1,050
8.....	590	3,340	18.....	487	1,910	28.....	432	999
9.....	585	2,950	19.....	474	1,760	29.....	444	- - - - -
10.....	570	2,730	20.....	464	1,650	30.....	707	- - - - -
						31.....	7,560	- - - - -
Monthly mean discharge, in cubic feet per second.....							765	3,198
Runoff, in inches.....							2.07	7.80
Runoff, in acre-feet.....							47,040	177,600

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	5.62	1,200	Feb. 1	1400	9.85	7,570	Feb. 3	1400	11.47	11,600
					1600	9.86	7,590		1900	10.85	9,970
31	0100	5.65	1,220		1800	9.82	7,500		2400	10.28	8,550
	0500	5.91	1,450		2100	9.51	6,820				
	0800	6.30	1,650		2400	9.21	6,220	4	0600	9.72	7,280
	0700	6.91	2,490						1000	9.41	6,620
	1000	8.18	4,330	2	0600	8.68	5,190		1300	9.28	6,360
	1300	10.22	8,410		1000	8.46	4,800		1500	9.36	6,520
	1600	12.25	13,600		1300	8.42	4,730		1600	9.42	6,640
	1700	12.55	14,800		1600	8.46	4,800		1900	10.35	8,720
	1800	12.46	14,500		1900	8.71	5,250		2100	10.11	8,140
	2100	12.00	13,100		2200	9.30	6,400		2200	10.06	8,030
	2400	11.46	11,600		2400	9.68	7,200		2400	9.80	7,460
Feb. 1	0100	11.38	11,400	3	0500	11.06	10,500	5	0400	9.42	6,640
	0300	11.11	10,600		0600	11.12	10,700		1000	9.03	5,860
	0700	10.38	8,790		1000	11.56	11,900		1600	8.72	5,270
	1200	9.73	7,310		1200	11.61	12,000		2400	8.44	4,770

11-3645.5. Willow Creek near Round Mountain, Calif.

(Crest-stage station)

Location.--Lat 40°48'55", long 121°56'15", in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.11, T.34 N., R.1 W., on U.S. Highway 299E, 1.4 miles north of Round Mountain.

Drainage area.--2.61 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 2,080 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 92 cfs and by computation of flow through culvert at 784 cfs.

Maxima.--January-February 1963: Discharge, 784 cfs Jan. 31 (gage height, 18.72 ft).
1960 to December 1962: Discharge, 780 cfs Oct. 13, 1962 (gage height, 19.26 ft; backwater caused by debris).

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Squaw Creek above Shasta Lake, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	6.78	68	Jan. 31	0400	8.49	362	Jan. 31	2200	15.38	5,630
					0600	8.66	413		2400	14.90	5,100
30	0600	6.84	74		0800	9.15	600				
	1200	6.98	87		1000	10.00	1,000	Feb. 1	0200	14.33	4,530
	1500	7.26	117		1200	11.70	2,220		0500	13.50	3,750
	1800	7.80	200		1400	13.85	4,060		1100	12.08	2,520
	2100	8.36	324		1600	15.10	5,310		1200	12.08	2,520
	2200	8.42	341		1700	15.25	5,480		1600	11.60	2,140
	2400	8.45	350		1800	15.20	5,420		2000	11.16	1,790
					2000	15.60	5,890		2400	10.86	1,560

11-3680. McCloud River above Shasta Lake, Calif.

Location.--Lat 40°57'30", long 122°13'05", in NW¹ sec.28, T.36 N., R.3 W., on right bank just upstream from Shasta Lake, 0.2 mile downstream from Big Bollibokka Creek and 11.3 miles east of La Moine.

Drainage area.--606 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 1,100.00 ft above mean sea level (levels by Bureau of Reclamation).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 6,400 cfs and by slope-area measurement at 45,200 cfs.

Maxima.--January-February 1963: Discharge, 9,700 cfs 2400 hours Jan. 31 (gage height, 18.00).
1945 to December 1962: Discharge, 45,200 cfs Dec. 22, 1955 (gage height, 28.20 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	1,390	7,500	11.....	1,190	2,410	21.....	1,120	2,010
2.....	1,370	4,780	12.....	1,160	2,450	22.....	1,120	1,930
3.....	1,360	6,320	13.....	1,170	3,240	23.....	1,120	1,870
4.....	1,340	5,830	14.....	1,190	3,090	24.....	1,110	1,800
5.....	1,310	4,970	15.....	1,170	2,840	25.....	1,110	1,760
6.....	1,280	3,970	16.....	1,170	2,610	26.....	1,100	1,710
7.....	1,270	3,350	17.....	1,160	2,470	27.....	1,100	1,660
8.....	1,250	3,110	18.....	1,150	2,300	28.....	1,100	1,630
9.....	1,240	2,900	19.....	1,140	2,180	29.....	1,120	- - - - -
10.....	1,220	2,720	20.....	1,130	2,100	30.....	1,300	- - - - -
						31.....	4,970	- - - - -
Monthly mean discharge, in cubic feet per second.....							1,320	3,054
Runoff, in inches.....							2.51	5.25
Runoff, in acre-feet.....							81,180	169,600

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	11.37	1,160	Jan. 18	1800	17.43	8,590	Feb. 2	0900	14.87	4,720
					2100	17.81	9,320		1200	14.75	4,560
30	0600	11.36	1,150		2400	18.00	9,700		1500	14.67	4,460
	0900	11.37	1,160						1800	14.64	4,430
	1200	11.43	1,200	Feb. 1	0200	17.86	9,420		2100	14.75	4,560
	1900	11.85	1,530		0400	17.65	9,000		2400	14.94	4,810
	2400	11.92	1,590		0800	17.00	7,820				
					1100	16.71	7,360	3	0600	15.72	5,870
31	0400	12.07	1,720		1400	16.62	7,210		1100	16.22	6,600
	0700	12.35	1,980		1800	16.21	6,580		1400	16.42	6,900
	1000	13.19	2,790		2400	15.55	5,630		1600	16.45	6,940
	1200	14.18	3,680						2200	16.32	6,750
	1400	15.40	5,420						2400	16.22	6,600
	1600	16.65	7,260	2	0300	15.30	5,280				
					0600	15.12	5,050				

11-3700. Shasta Lake near Redding, Calif.

Location.--Lat 40°43'10", long 122°25'10", in NW¼ sec.15, T 33 N., R.5 W., in Shasta Dam on Sacramento River near right bank, 2 miles downstream from Squaw Creek and 9.5 miles north of Redding.

Drainage area.--6,665 sq mi, excluding Goose Lake basin.

Gage-height record.--Water stage recorder graph. Datum of gage is at mean sea level (levels by Bureau of Reclamation).

Maxima.--January-February 1963: Computed bihourly inflow, 72,200 cfs 1600 to 1800 hours Jan. 31. Contents, 3,509,800 acre-ft 0800 hours Feb. 15 (elevation, 1,029.06 ft).

1942 to December 1962: Contents, 4,528,900 acre-ft May 18, 1957 elevation, 1,066.22 ft).

Remarks.--Reservoir is formed by concrete gravity-type dam completed in 1949; regulation began Dec. 30, 1943. Usable capacity, 4,377,000 acre-ft between elevations 737.75 (bottom of lowest set of river outlets) and 1,065.0 ft (top of drum-type spillway gates) above mean sea level. Dead storage, 115,700 acre-ft. All water passes down Sacramento River, some first passing through powerplant at dam. Figures given herein represent total contents. Records furnished by Bureau of Reclamation.

Elevation, in feet, and contents, in acre-feet, at 2400 hours, 1963

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	1,018.59	3,253,000	1,018.68	3,255,200	16	1,014.40	3,153,700	1,028.99	3,508,000
2	1,018.25	3,244,400	1,020.30	3,294,200	17	1,014.25	3,150,200	1,028.85	3,504,500
3	1,017.01	3,236,800	1,022.90	3,357,200	18	1,014.09	3,146,500	1,028.66	3,499,700
4	1,017.54	3,228,000	1,024.90	3,406,200	19	1,013.07	3,141,300	1,028.54	3,496,700
5	1,017.17	3,219,100	1,026.41	3,443,600	20	1,013.64	3,136,000	1,028.54	3,496,700
6	1,016.73	3,208,700	1,027.34	3,466,700	21	1,013.50	3,132,700	1,028.51	3,496,000
7	1,016.38	3,200,400	1,027.86	3,479,700	22	1,013.38	3,129,900	1,028.22	3,488,700
8	1,016.06	3,192,800	1,028.21	3,488,400	23	1,013.25	3,126,900	1,027.92	3,481,200
9	1,015.79	3,186,400	1,028.34	3,491,700	24	1,013.15	3,124,500	1,027.63	3,473,900
10	1,015.55	3,180,800	1,028.38	3,492,700	25	1,013.05	3,122,200	1,027.30	3,465,700
11	1,015.32	3,175,400	1,028.30	3,490,700	26	1,012.88	3,118,200	1,026.93	3,456,500
12	1,015.12	3,170,700	1,028.42	3,493,700	27	1,012.66	3,113,100	1,026.57	3,447,500
13	1,014.81	3,163,400	1,028.88	3,505,300	28	1,012.52	3,109,900	1,026.17	3,437,600
14	1,014.67	3,160,100	1,029.02	3,508,800	29	1,012.52	3,109,900	-	-
15	1,014.52	3,156,600	1,029.05	3,509,500	30	1,012.78	3,115,900	-	-
					31	1,016.01	3,191,600	-	-
Change in contents, in acre feet.....						-	-71,300	-	+246,000

Average inflow, in cubic feet per second, for bihourly periods ending at indicated time, 1963

Date	Hour	Inflow	Date	Hour	Inflow	Date	Hour	Inflow
Jan. 30	0200	6,850	Feb. 1	0200	61,100	Feb. 3	0200	40,800
	0400	5,750		0400	55,400		0400	35,500
	0600	5,740		0600	47,500		0600	39,100
	0800	6,460		0800	43,000		0800	45,000
	1000	7,980		1000	41,100		1000	37,800
	1200	9,650		1200	40,100		1200	43,400
	1400	9,390		1400	42,800		1400	42,800
	1600	9,450		1600	36,200		1600	41,800
	1800	12,200		1800	33,100		1800	41,900
	2000	12,800		2000	33,000		2000	41,400
	2200	10,400		2200	32,100		2200	39,200
	2400	11,400		2400	28,600		2400	41,300
31	0200	12,100	2	0200	28,500	4	0200	36,400
	0400	12,800		0400	27,100		0400	36,000
	0600	18,400		0600	26,500		0600	33,200
	0800	22,200		0800	29,500		0800	35,600
	1000	32,100		1000	24,900		1000	36,700
	1200	45,100		1200	28,700		1200	31,700
	1400	60,700		1400	27,300		1400	32,200
	1600	62,600		1600	31,000		1600	31,700
	1800	72,200		1800	28,500		1800	33,500
	2000	68,600		2000	30,800		2000	34,800
2400	2200	65,100	2400	2200	28,300	2400	2200	34,500
	2400	59,800		2400	33,300		2400	31,600

11-3705. Sacramento River at Keswick, Calif.

Location.--Lat 40°36'05", long 122°26'35", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.28, T.32 N., R.5 W., on right bank 0.4 mile upstream from Middle Creek, 0.8 mile downstream from Keswick Dam, 1.6 miles downstream from Keswick, and 10 miles downstream from Shasta Dam.

Drainage area.--6,468 sq mi, excluding Goose Lake basin.

Gage-height record.--Water-stage recorder graph. Datum of gage is 479.81 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 13,600 cfs 1900 hours Feb. 11 (gage height, 15.63 ft).
1938-43 (prior to regulation by Shasta Lake): Discharge, 186,000 cfs Feb. 23, 1940 (gage height, 47.2 ft, site and datum then in use), from rating curve extended above 75,000 cfs on basis of peak discharge at Kennett plus 4,000 cfs estimated inflow.
1944 to December 1962: Discharge, 78,800 cfs Feb. 21, 1958 (gage height, 31.55 ft).

Remarks.--Floodflow regulated by Shasta Lake (see station 11-3700) since Dec. 30, 1943. Diurnal fluctuations from Shasta powerplant re-regulated by Keswick Reservoir (capacity, 4,170 acre-ft between normal operation elevations 579.0 and 586.0 ft) and powerplant.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	11,400	9,700	11.....	8,210	13,500	21.....	6,570	10,200
2.....	11,400	9,630	12.....	7,690	12,600	22.....	6,580	12,600
3.....	11,000	9,640	13.....	7,460	12,900	23.....	6,580	12,700
4.....	10,700	9,710	14.....	7,440	13,600	24.....	6,610	12,700
5.....	10,400	9,950	15.....	7,210	13,500	25.....	6,610	12,700
6.....	10,400	11,000	16.....	6,950	13,500	26.....	6,600	12,800
7.....	10,200	11,700	17.....	6,940	13,600	27.....	6,610	12,800
8.....	9,710	12,500	18.....	6,920	13,300	28.....	6,640	12,800
9.....	9,220	13,400	19.....	6,730	11,800	29.....	6,640	- - - - -
10.....	8,720	13,500	20.....	6,580	10,300	30.....	6,680	- - - - -
						31.....	8,910	- - - - -
Monthly mean discharge, in cubic feet per second.....							8,075	12,090
Runoff, in acre-feet.....							496,500	671,700

11-3710. Clear Creek at French Gulch, Calif.

Location.--Lat 40°41'40", long 122°38'10", in NE $\frac{1}{4}$ sec.27, T.33 N., R.7 W., on right bank 1,200 ft downstream from Right Fork, 0.3 mile south of French Gulch, and 15 miles northwest of Redding.

Drainage area.--115 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 1,320.60 ft above mean sea level, datum of 1929, supplementary adjustment of 1956.

Discharge record.--Stage discharge relation defined by current-meter measurements below 4,600 cfs and by slope-area measurement at 7,050 cfs.

Maxima.--January-February 1963: Discharge, 2,400 cfs 1900 hours Jan. 31 (gage height, 8.64 ft).
1950 to December 1962: Discharge, 7,050 cfs Dec. 22, 1955 (gage height, 13.49 ft).

[illegible][illegible]

Location.--Lat 40°30'50", long 122°31'20", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.27, T.31 N., R.6 W., on left bank at highway bridge on Redding-Igo road, 1.0 mile northeast of Igo, 8 miles southwest of Redding, and 11.1 miles upstream from mouth.

Gage-height record.--Digital-recorder tape punched at 15-minute intervals. Datum of gage is 675 ft (from river-profile map).

Maxima.--January-February 1963: Discharge, 6,030 cfs 1445 hours Jan. 31 (gage height, 7.72 ft).
1940 to December 1962: Discharge, 24,500 cfs Dec. 21, 1955 (gage height, 13.75 ft).

Remarks.--Minor regulation by Whiskeytown Dam in 1963.

[illegible]

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Clear Creek near Igo, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.94	151	Jan. 31	0400	3.80	475	Feb. 1	0800	6.09	2,720
					0600	3.93	542		1000	5.97	2,540
30	0200	2.94	151		0800	4.59	982		1200	5.84	2,360
	0400	2.92	145		1000	6.33	3,110		1400	5.86	2,380
	0600	2.95	154		1200	7.37	5,210		1600	5.83	2,340
	0800	2.96	156		1400	7.69	5,960		1800	5.74	2,220
	1000	3.01	170		1445	7.72	6,030		2000	5.68	2,130
	1200	3.13	207		1600	7.54	5,600		2200	5.61	2,030
	1400	3.49	336		1800	7.08	4,580		2400	5.54	1,950
	1600	3.82	485		2000	6.85	4,100				
	1800	3.88	515		2200	6.80	4,000	2	0400	5.40	1,780
	2000	3.86	505		2400	6.69	3,780		0800	5.28	1,640
	2200	3.84	495	Feb. 1	0200	6.53	3,470		1200	5.21	1,550
	2400	3.77	460		0400	6.41	3,260		1600	5.13	1,470
31	0200	3.76	455		0600	6.23	2,950		2000	5.10	1,440
									2400	5.24	1,590

11-3720.5. Churn Creek near Redding, Calif.

Location.--Lat 40°38'35", long 122°22'05", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 7, T. 32 N., R. 4 W., on right bank 0.3 mile upstream from Newtown Creek, 0.35 mile upstream from Oasis Road bridge, and 4 miles north of Redding.

Drainage area.--9.34 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 640 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,200 cfs and by slope-area measurement at 4,860 cfs.

Maxima.--January-February 1963: Discharge, 1,230 cfs 1400 hours Jan. 31 (gage height, 6.61 ft).

1959 to December 1962: Discharge, 4,860 cfs Sept. 18, 1959 (gage height, 9.8 ft, from floodmarks).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	3.5	148	11.....	2.1	21	21.....	1.6	14
2.....	3.4	72	12.....	2.5	57	22.....	1.6	12
3.....	3.4	95	13.....	1.8	70	23.....	1.6	11
4.....	3.1	82	14.....	1.8	46	24.....	1.6	9.8
5.....	2.7	42	15.....	1.8	34	25.....	1.6	9.0
6.....	2.6	32	16.....	1.8	32	26.....	1.6	8.2
7.....	2.4	26	17.....	1.8	27	27.....	1.6	7.0
8.....	2.4	23	18.....	1.8	22	28.....	1.6	6.6
9.....	2.4	21	19.....	1.6	19	29.....	3.4	-----
10.....	2.3	26	20.....	1.4	17	30.....	32	-----
						31.....	436	-----
Monthly mean discharge, in cubic feet per second.....							17.1	34.6
Runoff, in inches.....							2.11	3.86
Runoff, in acre-feet.....							1,050	1,920

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.98	14	Jan. 31	0200	2.50	47	Jan. 31	2400	4.13	281
					0600	2.68	62				
30	0100	2.02	16		0800	3.20	120	Feb. 1	0400	3.66	192
	0700	1.90	10		0900	3.80	222		1200	3.20	122
	0900	1.90	10		1000	4.55	410		1400	3.32	139
	1100	1.97	14		1200	6.00	930		2000	3.04	102
	1300	2.19	26		1400	6.61	1,230		2400	2.88	84
	1600	2.78	72		1600	5.98	912				
	2100	2.53	49		1800	5.13	567				
	2400	2.50	47		2000	4.63	410				

11-3722. South Cow Creek near Millville, Calif.

Location.--Lat 40°32'55", long 122°05'30", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.16, T.31 N., R.2 W., on left bank 2.5 miles upstream from Old Cow Creek and 4.4 miles east of Millville.

Drainage area.--77.3 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 610 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 3,300 cfs.

Maxima.--January-February 1963: Discharge, 3,630 cfs 1600 hours Feb. 1 (gage height, 7.35 ft).
1956 to December 1962: Discharge, 5,720 cfs May 18, 1957 (gage height, 9.23 ft, site and datum then in use).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	60	1,300	11.....	40	178	21.....	34	130
2.....	57	654	12.....	36	204	22.....	35	120
3.....	57	532	13.....	43	286	23.....	34	113
4.....	55	376	14.....	40	185	24.....	34	107
5.....	52	295	15.....	37	160	25.....	34	102
6.....	50	252	16.....	37	152	26.....	33	98
7.....	48	218	17.....	36	180	27.....	32	94
8.....	47	204	18.....	36	150	28.....	32	90
9.....	46	182	19.....	35	138	29.....	36	-----
10.....	44	189	20.....	34	140	30.....	1,090	-----
						31.....	1,460	-----

Monthly mean discharge, in cubic feet per second.....	121	244
Runoff, in inches.....	1.66	5.29
Runoff, in acre-feet.....	7,430	13,550

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.30	50	Jan. 31	0400	3.25	635	Feb. 1	1300	3.34	680
					0600	4.18	1,170		1500	5.30	1,940
30	0400	1.92	145		0800	5.05	1,760		1600	7.35	3,630
	0800	2.39	267		1000	4.77	1,570		1800	5.60	1,980
	1000	3.38	700		1200	5.55	2,120		2000	4.70	1,290
	1300	5.20	1,870		1300	5.58	2,140		2400	4.05	870
	1500	5.95	2,400		1600	5.15	1,840				
	1700	5.42	2,020		2000	4.65	1,480	2	1000	3.55	628
	2000	5.19	1,860		2100	4.71	1,530		1300	3.64	668
	2400	3.77	922		2400	4.28	1,230		1900	3.42	569
31	0300	3.26	640	Feb. 1	0400	4.07	1,100		2200	3.48	596
									2400	3.42	562

11-3732. Oak Run Creek near Oak Run, Calif.

Location.--Lat 40°41'25", long 122°02'35", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.25, T.33 N., R.2 W., on left bank 800 ft downstream from road bridge, 1.1 miles northwest of town of Oak Run, 3.2 miles upstream from Tracy Creek, and 12.2 miles northeast of Millville.

Drainage area.--11.0 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 1,400 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 240 cfs and by slope-area measurement at 930 cfs.

Maxima.--January-February 1963: Discharge, 380 cfs 1100 hours Jan. 31 (gage height, 5.00 ft).
1957 to December 1962: Discharge, 1,440 cfs Oct. 11, 1962 (gage height, 6.53 ft).

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Little Cow Creek near Ingot, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	8.13	51	Jan. 31	0900	13.23	3,050	Feb. 1	2100	11.06	1,120
					1100	14.50	4,680		2400	10.76	931
30	0200	8.15	54		1300	13.69	3,600				
	0400	8.20	60		1400	13.58	3,460	2	0200	10.62	851
	0600	8.28	70		1700	13.07	2,870		0600	10.40	732
	0800	8.41	88		1800	14.51	4,700		0800	10.33	697
	1000	8.64	123		2000	13.09	2,890		1100	10.29	677
	1200	9.11	229		2100	12.64	2,420		1500	10.35	707
	1400	10.20	633		2300	12.40	2,180		1900	10.27	667
	1600	11.57	1,480		2400	13.66	3,560		2300	10.25	657
	1800	12.12	1,930						2400	10.26	662
	2000	12.73	2,510	Feb. 1	0100	14.57	4,790				
	2200	12.15	1,960		0200	13.52	3,390	3	0100	10.26	662
	2300	11.94	1,770		0400	12.46	2,240		0300	10.44	753
	2400	11.60	1,500		0600	11.90	1,740		0500	10.46	764
31	0200	11.11	1,150		1000	11.29	1,270		0800	10.33	697
	0400	10.84	979		1200	11.03	1,100		1300	10.20	633
	0500	10.83	973		1300	11.11	1,150		1800	10.04	560
	0700	12.28	2,070		1400	12.30	2,090		2400	9.89	496
	0800	13.03	2,820		1800	11.92	1,760				
					1800	11.45	1,390				

11-3740. Cow Creek near Millville, Calif.

Location.--Lat 40°30'20", long 122°13'55", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.32, T.31 N., R.3 W., on right bank 4.2 miles southwest of Millville and 4.3 miles downstream from Little Cow Creek.

Drainage area.--425 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 400 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 17,000 cfs 1500 hours Jan. 31 (gage height, 13.91 ft).
1949 to December 1962: Discharge, 45,200 cfs Dec. 27, 1951 (gage height, 21.55 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	325	7,390	11.....	224	860	21.....	194	860
2.....	311	3,810	12.....	192	1,040	22.....	194	584
3.....	305	3,160	13.....	209	1,930	23.....	194	559
4.....	298	2,040	14.....	216	1,590	24.....	189	500
5.....	279	1,580	15.....	214	1,070	25.....	189	476
6.....	267	1,250	16.....	212	944	26.....	185	448
7.....	258	1,050	17.....	206	1,190	27.....	182	422
8.....	255	958	18.....	204	839	28.....	182	404
9.....	249	874	19.....	194	739	29.....	199	-----
10.....	241	895	20.....	192	714	30.....	4,980	-----
						31.....	11,000	-----

Monthly mean discharge, in cubic feet per second.....	727	1,356
Runoff, in inches.....	1.96	3.31
Runoff, in acre-feet.....	44,710	75,280

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.72	252	Jan. 31	0500	8.09	4,750	Feb. 1	1800	11.48	11,500
					0700	9.00	6,100		2100	9.32	7,410
30	0200	2.79	273		1300	13.68	16,500		2400	7.90	5,250
	0500	3.15	387		1500	13.91	17,000				
	0900	4.25	940		1700	13.03	14,900	2	1100	6.46	3,340
	1100	5.50	1,840		1900	12.77	14,300		1500	7.08	4,140
	1300	7.95	4,550		2400	10.17	8,940		2200	6.50	3,390
	1500	11.41	11,000						2400	6.49	3,380
	1900	10.66	9,240	Feb. 1	0200	9.50	7,720				
	2200	11.39	11,000		0500	10.06	8,730	3	0500	6.79	3,770
	2400	10.46	8,770		0700	8.87	6,700		1800	6.00	2,770
					1300	7.50	4,690		2400	5.70	2,440
31	0400	8.25	4,970		1600	9.80	8,260				

11-3740.6. Shingle Creek near Shingletown, Calif.

(Crest-stage station)

Location--Lat 40°30'00", long 121°58'20", in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.34, T.31 N., R.1 W., on State Highway 44, 4.5 miles west of Shingletown.

Drainage area--3.25 sq mi.

Gage-height record--Crest stages only. Altitude of gage is 2,140 ft (from topographic map).

Discharge record--Stage-discharge relation defined by current-meter measurements below 90 cfs and by computation of flow through culvert at 156 cfs and 167 cfs.

Maxima--January-February 1963: Discharge, 108 cfs Jan. 31 (gage height, 3.06 ft).
1960 to December 1962: Discharge, 167 cfs Dec. 1, 1961 (gage height, 3.62 ft).

11-3741. Bear Creek near Millville, Calif.

Location--Lat 40°31'50", long 122°06'30", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.20, T.31 N., R.2 W., on right bank 10 ft downstream from bridge on State Highway 44 and 3.8 miles south-east of town of Millville.

Drainage area--75.6 sq mi.

Gage-height record--Water-stage recorder graph. Altitude of gage is 720 ft (from topographic map).

Discharge record--Stage-discharge relation defined by current-meter measurements below 1,100 cfs.

Maxima--January-February 1963: Discharge, 1,870 cfs 1500 hours Jan. 31 (gage height, 8.96 ft).
1959 to December 1962: Discharge, 3,140 cfs Dec. 1, 1961 (gage height, 10.44 ft).

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

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	73	826	11.....	50	172	21.....	41	109
2.....	70	505	12.....	45	175	22.....	41	100
3.....	70	418	13.....	52	244	23.....	40	93
4.....	67	315	14.....	51	167	24.....	40	87
5.....	62	251	15.....	46	143	25.....	40	83
6.....	59	213	16.....	45	134	26.....	38	80
7.....	57	187	17.....	44	162	27.....	37	77
8.....	55	186	18.....	44	131	28.....	37	73
9.....	55	166	19.....	42	116	29.....	42	---
10.....	63	173	20.....	41	119	30.....	524	---
						31.....	1,190	---
Monthly mean discharge, in cubic feet per second.....							102	197
Runoff, in inches.....							1.55	2.71
Runoff, in acre-feet.....							6,250	10,920

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	4.13	54	Jan. 31	0800	8.07	1,280	Feb. 1	1800	8.44	1,510
					1000	8.10	1,300		1900	7.77	1,120
					1300	8.91	1,840		2100	7.24	851
					1500	8.96	1,870		2400	6.93	715
					1700	8.50	1,550				
					1800	8.36	1,460	2	0600	6.46	537
					2100	7.77	1,120		1000	6.30	483
					2400	7.37	912		1300	6.30	483
				Feb. 1	0300	7.37	912		1800	6.14	432
					0700	6.86	687		2400	6.10	420
					1400	6.42	523	3	0400	6.09	417
					1500	6.45	533		0700	6.25	467
					1630	7.07	775		0900	6.19	448
					1700	7.74	1,100		1200	6.18	445
					1730	8.68	1,670		2400	5.86	352
Jan. 30	0500	4.23	63								
	0900	4.74	123								
	1300	6.38	509								
	1400	7.00	745								
	1600	7.86	1,160								
	1730	8.06	1,280								
	2000	8.83	1,780								
	2100	8.86	1,800								
	2400	6.89	699								
Jan. 31	0300	6.54	565								
	0400	6.65	605								
	0600	7.00	745								
	0700	7.59	1,020								

11-3744. Middle Fork Cottonwood Creek near Ono, Calif.

Location.--Lat 40°23'25", long 122°31'15", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.3, T.29 N., R.6 W., on left bank 0.4 mile upstream from North Fork and 7.8 miles southeast of Ono.

Drainage area.--249 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 550 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 5,230 cfs 2100 hours Jan. 31 (gage height, 11.71 ft).
1956 to December 1962: Discharge, 9,090 cfs Feb. 18, 1958 (gage height, 14.74 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	85	3,340	11.....	63	1,580	21.....	54	336
2.....	82	1,520	12.....	53	1,440	22.....	54	302
3.....	79	1,210	13.....	58	1,750	23.....	52	285
4.....	77	800	14.....	63	1,080	24.....	51	273
5.....	74	615	15.....	63	752	25.....	50	256
6.....	72	505	16.....	62	668	26.....	49	242
7.....	70	442	17.....	53	561	27.....	49	225
8.....	68	420	18.....	56	482	28.....	49	212
9.....	66	846	19.....	52	420	29.....	51	---
10.....	65	2,910	20.....	52	378	30.....	179	---
						31.....	2,550	---
Monthly mean discharge, in cubic feet per second.....							145	852
Runoff, in inches.....							0.67	3.56
Runoff, in acre-feet.....							8,930	47,310

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.87	48	Jan. 31	0500	4.78	308	Feb. 1	1200	9.86	3,130
					0700	4.91	332		2400	8.89	2,130
30	0100	2.87	48		0900	5.81	520				
	0300	2.95	56		1000	7.05	955	2	0600	8.39	1,710
	0500	2.92	53		1100	8.30	1,650		1200	7.99	1,440
	1000	3.00	61		1200	9.30	2,530		1800	7.71	1,280
	1300	3.23	85		1300	10.14	3,430		2200	7.62	1,190
	1400	3.61	132		1530	11.41	4,870		2300	7.62	1,190
	1600	4.86	322		1800	10.80	4,160		2400	7.67	1,250
	1900	4.54	272		2100	11.71	5,250				
	2030	5.60	470		2200	11.67	5,180	3	0200	7.90	1,390
	2400	5.27	402		2400	11.34	4,790		0400	8.00	1,450
31	0300	4.84	320	Feb. 1	0200	11.17	4,580		1200	7.65	1,220
	0400	4.78	308		0300	11.16	4,570		2400	7.24	940

11-3756. Huling Creek tributary at Ono, Calif.

(Crest-stage station)

Location.--Lat 40°28'40", long 122°36'10", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.1, T.30 N., R.7 W., 0.9 mile east of Ono.

Drainage area.--0.067 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 925 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 2.3 cfs and by computation of flow through culvert at 5.1 cfs and 8.5 cfs.

Maxima.--January-February 1963: Discharge, 4 cfs Jan. 31 (gage height, 3.44 ft).
1960 to December 1962: Discharge, 11 cfs Oct. 12, 1962 (gage height, 4.14 ft).

11-3757. North Fork Cottonwood Creek near Igo, Calif.

Location.--Lat 40°26'32", long 122°32'57", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.21, T.30 N., R.6 W., near right bank on downstream side of bridge on Gas Point Road, 1.2 miles downstream from Huling Creek, 4.4 miles south of Igo, and 4.5 miles upstream from Middle Fork.

Drainage area.--88.7 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 630 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 6,400 cfs.

Maxima.--January-February 1963: Discharge, 7,810 cfs 1400 hours Jan. 31 (gage height, 35.92 ft).
1955 to December 1962: Discharge, 12,100 cfs Dec. 21, 1955, by slope-area measurement at site 1.2 miles upstream (above Huling Creek).

Remarks.--Flow affected by Rainbow Lake (capacity, 4,800 acre-ft). Records furnished by the California Department of Water Resources and reviewed by Geological Survey.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	67	706	11.....	58	462	21.....	48	172
2.....	67	456	12.....	58	705	22.....	47	156
3.....	67	477	13.....	58	816	23.....	46	149
4.....	65	252	14.....	56	488	24.....	46	143
5.....	62	195	15.....	54	362	25.....	46	136
6.....	59	172	16.....	51	344	26.....	46	130
7.....	58	160	17.....	51	276	27.....	45	126
8.....	56	156	18.....	53	219	28.....	43	121
9.....	56	241	19.....	49	192	29.....	49	-----
10.....	56	830	20.....	49	182	30.....	218	-----
						31.....	2,240	-----

Monthly mean discharge, in cubic feet per second.....	130	315
Runoff, in inches.....	1.69	3.70
Runoff, in acre-feet.....	7,980	17,500

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	30.59	80	Jan. 30	2400	31.05	223	Jan. 31	2000	32.78	1,320
	30				31				2400	32.46	1,040
	0200	30.65	95		0200	30.97	195	Feb. 1	0400	32.16	816
	0400	30.67	100		0600	30.90	172		0800	31.97	686
	0800	30.65	95		0700	30.90	172		1300	31.79	574
	1100	30.65	95		0800	30.98	198		1400	31.83	598
	1200	30.68	103		1000	31.73	539		1600	32.11	780
	1300	30.78	133		1100	32.49	1,070		1700	32.13	794
	1500	31.48	405		1200	34.87	5,200		2000	31.86	616
	1700	31.81	586		1400	35.92	7,810		2400	31.65	494
	1900	31.43	381		1500	35.85	7,620				
	2200	31.18	272		1700	34.77	4,980				

11-3758.2. South Fork Cottonwood Creek near Cottonwood, Calif.

Location.--Lat 40°18'58", long 122°26'52", in NE $\frac{1}{4}$ sec.5, T.28 N., R.5 W., on right bank 70 ft upstream from highway bridge, 0.7 mile upstream from Dry Fork, and 10.3 miles southwest of Cottonwood.

Drainage area.--218 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 525 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,300 cfs.

Maximum.--January-February 1963: Discharge, 6,230 cfs 2100 hours Jan. 31 (gage height, 7.84 ft).

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

FLOODS OF 1963 IN THE UNITED STATES

Mean discharge, in cubic feet per second, 1963, of South Fork Cottonwood Creek
near Cottonwood, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	59	4,130	11.....	53	1,060	21.....	39	342
2.....	59	1,980	12.....	48	837	22.....	40	310
3.....	58	1,450	13.....	36	932	23.....	37	288
4.....	57	1,100	14.....	43	728	24.....	36	258
5.....	57	924	15.....	53	620	25.....	35	233
6.....	55	739	16.....	50	550	26.....	35	216
7.....	54	632	17.....	46	523	27.....	32	194
8.....	55	565	18.....	43	447	28.....	32	179
9.....	56	846	19.....	42	403	29.....	32	-----
10.....	55	1,980	20.....	38	369	30.....	59	-----
						31.....	2,630	-----
Monthly mean discharge, in cubic feet per second.....							130	816
Runoff, in inches.....							0.69	3.90
Runoff, in acre-feet.....							7,980	45,290

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.66	38	Jan. 31	0800	3.91	926	Feb. 1	0600	7.52	5,570
					1100	5.00	1,880		0800	7.26	5,090
30	0300	1.69	41		1300	5.86	2,900		1100	6.73	4,170
	1000	1.67	39		1600	6.13	3,270		1600	6.14	3,270
	1600	1.80	56		1800	6.84	4,370		1900	5.94	2,990
	1800	1.83	61		2000	7.57	5,690		2400	5.70	2,680
	2100	2.05	100		2100	7.84	6,230				
	2400	2.28	153		2200	7.73	6,000	2	0400	5.49	2,420
					2300	7.75	6,040		0600	5.33	2,230
31	0400	2.59	245		2400	7.61	5,770		1300	5.00	1,870
	0500	3.43	622	Feb. 1	0100	7.42	5,380		1800	4.81	1,680
	0600	3.64	747						2400	4.66	1,530

11-3758.3. Budden Canyon near Beegum, Calif.

(Crest-stage station)

Location.--Lat 40°19'00", long 122°46'35", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.33, T.29 N., R.8 W., on State Highway 36, 4.7 miles southeast of Beegum.

Drainage area.--1.09 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 1,450 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 4.6 cfs and by computation of flow through culvert at 28, 63, and 66 cfs.

Maxima.--January-February 1963: Discharge, 66 cfs Feb. 1 (gage height, 8.73 ft). 1960 to December 1962: Discharge, 63 cfs Feb. 10, 1961 (gage height, 8.72 ft).

11-3759.5. Cottonwood Creek tributary near Cottonwood, Calif.

(Crest-stage station)

Location.--Lat 40°19'20", long 122°16'25", in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.35, T.29 N., R.4 W., on U.S. Highway 99, 4.4 miles south of Cottonwood.

Drainage area.--0.44 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 600 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 15 cfs and by computation of flow through culvert at 22 and 27 cfs.

Maxima.--January-February 1963: Discharge, 8.7 cfs Jan. 31 (gage height, 3.34 ft). 1960 to December 1962: Discharge, 27 cfs Oct. 12, 1962 (gage height, 5.16 ft, from high-water profile).

11-3760. Cottonwood Creek near Cottonwood, Calif.

Location--Lat 40°23'10", long 122°14'15", in NE $\frac{1}{4}$ sec.7, T.29 N., R.3 W., on right bank 2 miles east of Cottonwood and 2.4 miles upstream from mouth.

Drainage area--922 sq mi.

Gage-height record--Water-stage recorder graph, except Feb. 23-28. Altitude of gage is 370 ft (from river-profile map).

Discharge record--Stage-discharge relation defined by current-meter measurements. Discharge Feb. 23-28 estimated on basis of recorded range in stage, weather records, and hydrographic comparison with Middle Fork Cottonwood Creek near Ono.

Maxima--January-February 1963: Discharge, 23,100 cfs 2030 hours Jan. 31 (gage height, 12.28 ft).
1940 to December 1962: Discharge, 52,300 cfs Mar. 1, 1941 (gage height, 15.4 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	280	12,600	11.....	208	4,430	21.....	178	994
2.....	274	5,340	12.....	188	3,750	22.....	180	868
3.....	268	4,070	13.....	172	4,860	23.....	178	800
4.....	256	2,990	14.....	180	3,270	24.....	178	740
5.....	250	2,410	15.....	208	2,550	25.....	172	690
6.....	241	1,960	16.....	205	2,160	26.....	172	650
7.....	232	1,700	17.....	193	2,170	27.....	170	620
8.....	226	1,520	18.....	190	1,610	28.....	170	590
9.....	223	2,060	19.....	182	1,330	29.....	180	-----
10.....	217	7,730	20.....	178	1,150	30.....	625	-----
						31.....	10,100	-----

Monthly mean discharge, in cubic feet per second.....	538	2,700
Runoff, in inches.....	0.67	3.05
Runoff, in acre-feet.....	33,070	150,000

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.26	205	Jan. 31	0100	4.13	1,680	Feb. 1	0600	10.66	15,800
					0300	4.35	1,820		1200	9.68	12,300
					0500	4.30	1,870		1800	8.66	9,000
					0900	5.39	3,250		2400	8.11	7,680
					1200	7.28	7,050				
					1400	9.49	12,900				
					1600	11.01	17,300	2	0600	7.48	6,270
					2030	12.28	23,100		1200	6.96	5,260
					2400	11.70	20,200		1800	6.66	4,700
									2400	6.38	4,190

11-3762. Summit Creek near Mineral, Calif.

(Crest-stage station)

Location--Lat 40°22'05", long 121°32'20", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.16, T.29 N., R.4 E., on State Highway 36, 3.3 miles northeast of Mineral.

Drainage area--1.80 sq mi.

Gage-height record--Crest stages only. Altitude of gage is 5,600 ft (from topographic map).

Discharge record--Stage-discharge relation defined by current-meter measurements below 26 cfs and by computation of flow through culvert at 88 and 100 cfs.

Maxima--January-February 1963: Discharge, 100 cfs Feb. 1 (gage height, 8.25 ft).
1960 to December 1962: Discharge, 88 cfs Oct. 13, 1962 (gage height, 7.92 ft, from high-water profile).

11-3765.5. Battle Creek below Coleman Fish Hatchery, near Cottonwood, Calif.

Location.--Lat 40°23'55", long 122°08'45", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.1, T.29 N., R.3 W., on right bank 3.7 miles downstream from Spring Branch, 5.7 miles upatream from mouth, and 7.0 miles east of Cottonwood.

Drainage area.--358 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 415 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 4,540 cfs 1400 hours Jan. 31 (gage height, 8.72 ft).
1937 to December 1962: Discharge, 35,000 cfs Dec. 11, 1937 (gage height, 15.8 ft, from floodmarks at former site and datum), from slope-area measurement of peak flow.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	376	2,540	11.....	327	644	21.....	318	505
2.....	372	1,280	12.....	314	656	22.....	318	472
3.....	368	1,380	13.....	309	776	23.....	317	450
4.....	368	1,120	14.....	322	626	24.....	318	440
5.....	358	1,010	15.....	332	566	25.....	314	425
6.....	354	849	16.....	327	560	26.....	314	415
7.....	350	752	17.....	322	614	27.....	309	400
8.....	354	722	18.....	318	544	28.....	309	390
9.....	345	698	19.....	318	522	29.....	327	- - - - -
10.....	345	674	20.....	314	510	30.....	1,800	- - - - -
						31.....	3,080	- - - - -
Monthly mean discharge, in cubic feet per second.....							468	734
Runoff, in inches.....							1.51	2.13
Runoff, in acre-feet.....							28,790	40,740

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	4.22	355	Jan. 31	0200	5.30	1,320	Feb. 1	0030	7.98	3,680
					0300	5.99	1,490		0130	8.38	4,150
					0500	6.08	1,580		0500	7.77	3,430
					0700	6.75	2,280		0600	7.66	3,320
					1100	7.61	3,230		0800	7.30	2,950
					1400	8.72	4,540		1000	7.00	2,600
					1900	7.86	3,540		1200	6.69	2,270
					2100	8.28	4,030		1500	6.39	1,960
					2200	8.34	4,100		1800	6.16	1,730
					2400	8.10	3,820		2100	6.09	1,660
									2400	5.97	1,540

11-3775. Paynes Creek near Red Bluff, Calif.

Location.--Lat 40°15'50", long 122°11'10", in SE $\frac{1}{4}$ sec.22, T.28 N., R.3 W., on right bank 0.4 mile upstream from mouth and 6.5 miles northeast of Red Bluff.

Drainage area.--92.7 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 360 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 3,300 cfs 1700 hours Jan. 30 (gage height, 7.65 ft).
1949 to December 1962: Discharge, 10,600 cfs Dec. 1, 1961 (gage height, 11.33 ft).

Mean discharge, in cubic feet per second, 1963, of Paynes Creek near Red Bluff, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	22	631	11.....	18	82	21.....	16	56
2.....	21	344	12.....	18	154	22.....	16	47
3.....	21	355	13.....	18	278	23.....	16	41
4.....	20	241	14.....	18	144	24.....	16	36
5.....	19	182	15.....	18	102	25.....	15	34
6.....	19	136	16.....	18	96	26.....	15	32
7.....	18	109	17.....	18	150	27.....	15	29
8.....	18	104	18.....	17	87	28.....	15	28
9.....	18	100	19.....	16	72	29.....	17	-----
10.....	18	93	20.....	16	64	30.....	1,270	-----
						31.....	1,740	-----
Monthly mean discharge, in cubic feet per second.....							114	137
Runoff, in inches.....							1.41	1.54
Runoff, in acre-feet.....							6,980	7,590

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.65	24	Jan. 30	2200	6.65	2,120	Feb. 1	0500	4.93	768
					2400	6.00	1,510		1500	4.45	530
30	0700	2.91	57						2400	4.18	422
	0900	3.28	134	31	0400	5.22	942				
	1100	4.32	482		0600	5.35	1,020	2	1000	3.96	341
	1200	4.91	762		0700	6.00	1,510		1500	3.95	338
	1400	6.45	1,920		0900	6.76	2,230		2200	3.87	310
	1600	7.55	3,160		1400	7.25	2,790		2400	3.89	316
	1700	7.65	3,300		1800	6.28	1,760				
	1900	7.48	3,040		2400	5.28	978				

11-3780. Sacramento River near Red Bluff, Calif.

Location.--Lat 40°13'55", long 122°10'50", in SE¹ sec.34, T.28 N., R.3 W., on left bank at lower end of Iron Canyon, 0.5 mile downstream from Sevenmile Creek and 4.6 miles northeast of Red Bluff.

Drainage area.--9,022 sq mi, excluding Goose Lake basin.

Gage-height record.--Water-stage recorder graph. Datum of gage is 253.18 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 76,700 cfs 0200 hours Feb. 1 (gage height, 17.16 ft).
1878-88, 1892 to December 1962: Discharge, 291,000 cfs Feb. 28, 1940 (gage height, 38.9 ft), from rating curve extended above 170,000 cfs on basis of velocity-area studies.

Remarks.--Floodflow affected by Shasta Lake (see station 11-3700).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	12,700	52,300	11.....	9,150	22,300	21.....	7,240	13,800
2.....	12,500	27,300	12.....	8,540	19,800	22.....	7,240	15,300
3.....	12,200	23,500	13.....	8,130	26,000	23.....	7,240	15,900
4.....	11,900	19,900	14.....	8,130	22,300	24.....	7,240	15,600
5.....	11,400	18,000	15.....	8,130	20,200	25.....	7,290	15,500
6.....	11,300	16,600	16.....	7,700	19,200	26.....	7,240	15,400
7.....	11,200	17,400	17.....	7,670	20,000	27.....	7,240	15,200
8.....	10,700	17,500	18.....	7,590	18,600	28.....	7,240	15,100
9.....	10,200	18,000	19.....	7,560	17,000	29.....	7,320	-----
10.....	9,690	24,800	20.....	7,210	15,000	30.....	15,100	-----
						31.....	38,600	-----
Monthly mean discharge, in cubic feet per second.....							10,080	19,900
Runoff, in acre-feet.....							620,000	1,105,000

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.45	7,640	Jan. 31	1300	8.92	30,600	Feb. 1	2100	9.86	35,100
					1500	10.00	35,800		2200	10.00	35,800
30	0900	2.66	8,210		1700	11.00	40,800		2400	10.33	37,400
	1100	2.90	8,870		2000	13.86	56,000				
	1300	3.64	11,000		2200	15.69	67,100	2	0300	9.76	34,600
	1900	7.64	25,000		2400	16.81	74,300		0600	8.58	29,100
	2100	8.68	29,500						1200	7.62	24,900
	2300	9.13	31,600	Feb. 1	0100	17.10	76,300		1400	7.52	24,500
	2400	9.13	31,600		0200	17.16	76,700		1600	7.40	24,000
					0400	16.60	73,000		1800	7.40	24,000
31	0300	8.88	30,400		0900	13.83	55,800		2100	7.46	24,600
	0700	8.17	27,200		1300	12.18	46,800		2400	7.31	23,600
	0900	8.00	26,500		1900	10.00	35,800				
	1100	8.17	27,200		2000	9.83	35,000				

[illegible]

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Red Bank Creek near Red Bluff, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	4.43	3.6	Jan. 31	0300	5.47	242	Jan. 31	1800	7.66	3,030
					0400	5.46	237		2100	6.95	1,700
30	1000	4.49	5.9		0500	5.60	310		2400	6.64	1,260
	1100	4.56	10		0700	5.92	520	Feb. 1	0300	6.48	1,050
	1200	4.80	37		0800	6.30	860		0900	6.09	651
	1300	5.50	257		0900	6.82	1,500		1500	5.88	483
	1400	6.30	860		1000	7.75	3,230		2400	5.70	362
	1500	6.58	1,180		1100	8.40	4,930	2	0600	5.62	315
	1600	6.51	1,190		1200	8.60	5,550		1200	5.57	288
	1800	6.17	732		1300	8.67	5,770		1800	5.52	262
	2100	5.86	476		1400	8.55	5,390		2400	5.48	242
	2400	5.60	310		1600	8.15	4,230				

11-3790. Antelope Creek near Red Bluff, Calif.

Location.--Lat 40°12'10", long 122°07'05", in Rio De Los Berrendos Grant, on right bank 1.8 miles upstream from diversion dam of Los Molinos Mutual Water Co., 6.5 miles east of Red Bluff, Tehama County, and 9.7 miles upstream from mouth.

Drainage area.--123 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 360 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 3,100 cfs and by slope-area measurement at 11,100 cfs.

Maxima.--January-February 1963: Discharge, 3,740 cfs 1400 hours Jan. 31 (gage height, 9.67 ft).

1940 to December 1962: Discharge, 11,500 cfs Feb. 22, 1956 (gage height, 12.43 ft).

Flood of December 1937 reached a stage of about 22 ft, from floodmarks, at former site and datum.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	74	1,580	11.....	53	193	21.....	48	128
2.....	70	668	12.....	48	199	22.....	48	116
3.....	68	696	13.....	49	292	23.....	48	108
4.....	67	493	14.....	53	225	24.....	48	103
5.....	64	391	15.....	51	195	25.....	47	97
6.....	62	308	16.....	50	177	26.....	46	94
7.....	61	261	17.....	50	185	27.....	46	88
8.....	59	251	18.....	48	159	28.....	46	83
9.....	57	227	19.....	48	143	29.....	51	-----
10.....	56	209	20.....	48	137	30.....	1,130	-----
						31.....	2,230	-----
Monthly mean discharge, in cubic feet per second.....							159	272
Runoff, in inches.....							1.49	2.30
Runoff, in acre-feet.....							9,770	15,090

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.97	67	Jan. 31	1100	8.44	2,440	Feb. 1	2400	5.94	860
					1400	9.67	3,740				
30	0600	3.36	116		1800	8.60	2,660	2	0500	5.67	748
	0700	3.49	136		2200	8.16	2,280		1100	5.43	656
	1100	4.85	425		2300	8.23	2,330		1800	5.24	589
	1400	6.97	1,340		2400	8.16	2,280		2300	5.16	561
	1800	9.22	3,220						2400	5.19	572
	2100	8.08	2,140	Feb. 1	0500	7.45	1,740				
	2400	7.21	1,500		0900	7.09	1,480	3	0200	5.70	760
31	0200	6.70	1,180		1300	6.60	1,190		0330	5.66	744
	0400	6.59	1,120		1600	6.35	1,070		0530	5.82	850
	0700	7.07	1,400		1800	6.21	995		1100	5.66	744
	1000	8.39	2,390		1900	6.21	995		1500	5.44	659
					2000	6.23	1,010		1800	5.31	614
									2400	5.16	561

11-3795. Elder Creek near Paskenta, Calif.

Location.--Lat 40°01'30", long 122°30'30", in NW $\frac{1}{4}$ sec.14, T.25 N., R.6 W., on right bank 2.5 miles downstream from South Fork, 8 miles northeast of Flournoy, and 11 miles north of Paskenta.

Drainage area.--95.8 sq mi.

Gage-height record.--Water-stage recorder graph. No gage-height record Jan. 1. Altitude of gage is 720 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 3,500 cfs and by slope-area measurements at 7,160 and 10,700 cfs. Discharge for Jan. 1 estimated on basis of adjacent records.

Maxima.--January-February 1963: Discharge, 4,890 cfs 1400 hours Jan. 31 (gage height, 10.29 ft).
1948 to December 1962: Discharge, 11,700 cfs Feb. 24, 1958 (gage height, 13.90 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	24	1,440	11.....	16	661	21.....	14	175
2.....	24	541	12.....	17	690	22.....	13	156
3.....	22	405	13.....	20	595	23.....	13	138
4.....	22	306	14.....	20	420	24.....	13	122
5.....	21	235	15.....	16	342	25.....	12	109
6.....	19	195	16.....	15	334	26.....	12	100
7.....	19	156	17.....	15	301	27.....	12	89
8.....	18	146	18.....	14	228	28.....	12	83
9.....	18	1,130	19.....	14	211	29.....	15	-----
10.....	18	1,860	20.....	13	195	30.....	250	-----
						31.....	2,600	-----

Monthly mean discharge, in cubic feet per second.....	107	406
Runoff, in inches.....	1.29	4.41
Runoff, in acre-feet.....	6,610	22,540

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	3.13		Jan. 30	1900	5.08	383	Jan. 31	1500	10.27	4,860
					2200	4.98	349		1700	9.88	4,310
30	0200	3.23	32		2400	4.92	351		2100	8.85	3,030
	0400	3.64	69						2400	8.87	3,080
	0600	3.77	86	31	0300	4.85	310	Feb. 1	0300	8.48	2,650
	0900	3.65	70		0400	4.89	322		0600	7.62	1,820
	1000	3.65	70		0700	5.78	652		1100	6.72	1,150
	1200	3.99	120		0900	7.38	1,610		1800	6.18	855
	1300	4.57	238		1000	8.72	2,910		2400	5.98	756
	1400	5.54	556		1200	10.13	4,660				
	1500	6.06	780		1300	10.27	4,860				
	1700	5.40	500		1400	10.29	4,890				

11-3805. Elder Creek at Gerber, Calif.

Location.--Lat 40°03'05", long 122°09'53", in Saucos Grant, on right bank 1.0 mile west of Gerber, Tehama County, and 3.5 miles upstream from mouth.

Drainage area.--136 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 232.14 ft above mean sea level (from Bureau of Reclamation bench mark).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 6,200 cfs 1600 hours Jan. 31 (gage height, 10.60 ft).
1949 to December 1962: Discharge, 11,000 cfs Feb. 19, 1958 (gage height, 14.40 ft, at site 150 ft upstream and at datum 4.32 ft higher).

Mean discharge, in cubic feet per second, 1963, of Elder Creek at Gerber, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	18	1,910	11.....	7.8	870	21.....	7.3	134
2.....	16	707	12.....	9.8	802	22.....	7.3	122
3.....	15	430	13.....	6.3	836	23.....	7.3	109
4.....	15	308	14.....	7.3	440	24.....	7.3	100
5.....	14	238	15.....	9.8	326	25.....	7.3	95
6.....	13	190	16.....	9.8	264	26.....	7.3	90
7.....	12	159	17.....	8.3	295	27.....	7.3	82
8.....	12	152	18.....	8.3	198	28.....	7.3	75
9.....	11	611	19.....	7.3	170	29.....	9.3	-----
10.....	10	2,540	20.....	7.3	152	30.....	252	-----
						31.....	2,510	-----
Monthly mean discharge, in cubic feet per second.....							98.3	443
Runoff, in inches.....							0.83	3.39
Runoff, in acre-feet.....							6,050	24,600

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	5.01	17	Jan. 31	0200	6.21	395	Jan. 31	2400	8.95	3,180
					0800	6.07	326				
30	0800	5.05	21		1000	6.20	390	Feb. 1	0100	8.83	3,010
	1200	5.14	31		1200	7.02	946		0500	8.75	2,900
	1400	5.25	48		1300	8.28	2,280		1000	8.00	1,940
	1600	5.66	156		1400	9.76	4,500		1300	7.65	1,560
	1800	6.56	602		1500	10.35	5,660		1900	7.24	1,150
	2000	7.16	1,060		1600	10.60	6,200		2400	7.12	1,060
	2400	6.37	482		2000	10.08	5,120				

11-3815. Mill Creek near Los Molinos, Calif.

Location.--Lat 40°03'17", long 122°01'23", in NE¼NW¼ sec.6, T.25 N., R.1 W., on right bank 4½ miles northeast of Los Molinos and 5.5 miles upstream from mouth.

Drainage area.--131 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 380 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 5,200 cfs and by slope-area measurement at 23,000 cfs.

Maxima.--January-February 1963: Discharge, 8,600 cfs 2000 hours Jan. 31 (gage height, 11.19 ft).
1928 to December 1962: Discharge, about 23,000 cfs Dec. 11, 1937 (gage height 23.4 ft, from floodmarks).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	206	3,890	11.....	154	449	21.....	140	324
2.....	197	1,480	12.....	142	467	22.....	140	300
3.....	197	1,640	13.....	146	575	23.....	140	285
4.....	190	1,190	14.....	150	458	24.....	140	273
5.....	180	982	15.....	150	410	25.....	138	266
6.....	176	766	16.....	150	386	26.....	136	264
7.....	174	638	17.....	146	383	27.....	136	252
8.....	172	610	18.....	146	353	28.....	136	242
9.....	170	564	19.....	140	340	29.....	150	-----
10.....	166	502	20.....	138	342	30.....	1,290	-----
						31.....	4,740	-----
Monthly mean discharge, in cubic feet per second.....							341	665
Runoff, in inches.....							3.00	5.29
Runoff, in acre-feet.....							20,980	36,950

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.80	186	Jan. 31	0700	6.11	2,300	Feb. 2	0400	5.34	1,660
					0900	6.50	2,680		1000	5.06	1,470
30	0100	1.86	199		1300	8.90	5,620		1400	4.88	1,360
	0400	2.24	288		1400	8.90	5,490		1900	4.78	1,300
	0800	3.07	530		2000	11.19	8,600		2300	4.87	1,350
	1000	3.85	838		2200	10.96	8,300		2400	5.00	1,430
	1200	5.00	1,430		2400	10.20	7,310				
	1500	6.71	2,910					3	0100	5.05	1,460
	1600	6.80	3,010						0200	5.05	1,460
	1900	5.70	1,940	Feb. 1	0500	8.94	5,670		0600	5.48	1,760
	2200	5.02	1,440		1000	7.50	3,850		1000	5.68	1,920
	2400	5.00	1,430		1500	6.48	2,660		1100	5.68	1,920
					2400	5.63	1,880		1600	5.27	1,610
31	0200	4.87	1,350						2400	4.90	1,370

11-3819.9. Thomes Creek tributary at Paskenta, Calif.

(Crest-stage station)

Location.--Lat 39°52'15", long 122°33'20", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.8, T.23 N., R.6 W., 1.2 miles southwest of Paskenta.

Drainage area.--0.64 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 825 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 20 cfs and by computation of flow through culvert at 47 and 53 cfs.

Maxima.--January-February 1963: Discharge, 51 cfs Jan. 31 (gage height, 5.57 ft). 1960 to December 1962: Discharge, 53 cfs Mar. 5, 1962 (gage height, 5.60 ft).

11-3820. Thomes Creek at Paskenta, Calif.

Location.--Lat 39°52'55", long 122°33'05", in NW $\frac{1}{4}$ sec.4, T.23 N., R.6 W., on left bank 0.25 mile upstream from Digger Creek and 0.3 mile upstream from highway bridge at Paskenta.

Drainage area.--194 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 750 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements; affected by ice Jan. 12-14, 19-21.

Maxima.--January-February 1963: Discharge, 19,200 cfs 1730 hours Jan. 31 (gage height, 12.63 ft, from recorder graph; 13.1 ft, from floodmarks). 1921 to December 1962: Discharge, 23,500 cfs Dec. 12, 1955 (gage height, 13.89 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	107	7,420	11.....	55	1,690	21.....	39	420
2.....	99	2,830	12.....	44	1,490	22.....	39	376
3.....	94	2,240	13.....	51	1,330	23.....	37	335
4.....	89	1,500	14.....	59	1,020	24.....	36	305
5.....	80	1,100	15.....	57	824	25.....	36	275
6.....	76	896	16.....	51	723	26.....	34	261
7.....	71	737	17.....	48	642	27.....	33	243
8.....	67	674	18.....	44	558	28.....	33	221
9.....	63	1,630	19.....	39	498	29.....	41	---
10.....	61	3,570	20.....	37	458	30.....	279	---
						31.....	8,210	---
Monthly mean discharge, in cubic feet per second.....							326	1,224
Runoff, in inches.....							1.94	6.57
Runoff, in acre-feet.....							20,050	67,970

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	3.70	76	Jan. 31	0130	6.09	1,590	Feb. 1	0200	11.18	13,200
					0630	5.79	1,250		0400	10.46	10,900
	30	0400	3.77		0900	6.21	1,730		0700	9.50	8,120
		0900	3.69		1100	7.10	2,960		1000	8.94	6,660
		1100	3.78		1200	8.20	4,960		1400	8.40	5,400
		1300	4.28		1300	9.75	8,820		1500	8.40	5,400
		1500	4.74		1400	11.05	12,800		1730	8.56	5,750
		1800	4.45		1500	11.55	14,600		1900	8.38	5,360
		2130	4.22		1730	12.63	19,200		2200	8.00	4,560
		2200	5.00		2100	11.48	14,300		2400	7.80	4,160
		2300	5.53		2200	11.40	14,000				
		2400	5.97		2400	11.60	14,800				

11-3825.5. Deer Creek below Slate Creek, near Deer Creek Meadows, Calif.

Location.--Lat 40°14'00", long 121°27'50", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.1, T.27 N., R.4 E., on right bank 0.4 mile downstream from Slate Creek and 15 miles southwest of Chester.

Drainage area.--69.4 sq mi.

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

Discharge record.--Stage-discharge relation defined by current-meter measurements below 910 cfs and by slope-area measurement at 4,970 cfs; affected by ice Jan. 11, 12.

Maxima.--January-February 1963: Discharge, 4,970 cfs 1800 hours Jan. 31 (gage height, 9.06 ft, from recorder graph; 9.85 ft, from floodmarks).
1961 to December 1962: Discharge, 3,660 cfs Oct. 13, 1962 (gage height, 8.11 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	97	1,800	11.....	70	216	21.....	67	154
2.....	94	732	12.....	65	216	22.....	68	148
3.....	99	691	13.....	67	246	23.....	68	142
4.....	94	517	14.....	70	201	24.....	68	138
5.....	91	414	15.....	70	188	25.....	67	134
6.....	88	336	16.....	71	181	26.....	67	130
7.....	83	292	17.....	70	181	27.....	66	124
8.....	83	282	18.....	68	170	28.....	66	123
9.....	82	252	19.....	69	163	29.....	67	-----
10.....	79	238	20.....	67	172	30.....	91	-----
						31.....	2,140	-----
Monthly mean discharge, in cubic feet per second.....							142	306
Runoff, in inches.....							2.36	4.60
Runoff, in acre-feet.....							8,740	17,020

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.67	68	Jan. 31	1800	9.06	4,970	Feb. 2	0600	4.70	770
					1900	9.04	4,950		1200	4.56	700
30	1200	2.69	71		2400	7.98	3,500		2400	4.46	650
	2200	3.21	162								
	2400	3.22	164	Feb. 1	0100	8.14	3,770	3	0300	4.61	725
31	0600	3.45	220		0300	7.33	2,870		0700	4.71	776
	0900	4.10	455		0900	6.07	1,710		1100	4.73	788
	1200	5.72	1,330		1400	5.49	1,270		1800	4.46	650
	1400	7.47	2,900		1700	5.56	1,320		2400	4.26	550
	1700	8.89	4,740		2400	4.94	914				

11-3835. Deer Creek near Vina, Calif.

Location.--Lat 40°00'50", long 121°56'50", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.23, T.25 N., R.1 W., on left bank 0.5 mile upstream from concrete diversion dam and 7.9 miles northeast of Vina.

Drainage area.--208 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 479.5 ft above mean sea level (river-profile survey).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 9,200 cfs.

Maxima.--January-February 1963: Discharge, 9,470 cfs 2200 hours Jan. 31 (gage height, 11.03 ft).
1911-15, 1920-37, 1939 to December 1962: Discharge, 23,800 cfs Dec. 10, 1937 (gage height, 19.2 ft, from floodmarks).

FLOODS OF 1963 IN THE UNITED STATES

Mean discharge, in cubic feet per second, 1963, of Deer Creek near Vina, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	217	4,620	11.....	156	492	21.....	135	344
2.....	204	1,950	12.....	131	486	22.....	138	320
3.....	202	1,470	13.....	133	601	23.....	138	304
4.....	197	1,120	14.....	151	504	24.....	135	292
5.....	187	953	15.....	151	452	25.....	133	279
6.....	179	760	16.....	149	436	26.....	133	264
7.....	177	660	17.....	147	432	27.....	129	255
8.....	172	620	18.....	142	397	28.....	129	243
9.....	167	588	19.....	138	369	29.....	138	---
10.....	167	543	20.....	133	365	30.....	1,110	---
						31.....	4,610	---

Monthly mean discharge, in cubic feet per second.....	330	719
Runoff, in inches.....	1.85	5.60
Runoff, in acre-feet.....	20,290	39,910

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.38	172	Jan. 31	0400	5.55	1,580	Feb. 1	0900	8.68	4,910
					0700	6.34	2,270		1200	7.97	4,880
30	0300	3.02	209		1000	7.26	3,270		1600	7.33	3,080
	0600	3.35	301		1300	8.16	4,420		1800	7.12	3,850
	0900	3.79	468		1600	8.80	5,360		2000	7.01	2,740
	1200	4.54	866		1800	9.75	6,950		2400	6.86	2,590
	1400	5.53	1,560		2000	10.55	8,480				
	1700	6.34	2,270		2200	11.03	9,470	2	0200	6.75	2,480
	2000	6.16	2,110		2400	10.75	8,880		0700	6.36	2,120
	2400	5.63	1,650						1300	6.03	1,840
31	0100	5.47	1,520	Feb. 1	0400	9.77	6,820		1800	5.79	1,650
					0600	9.58	6,440		2400	5.69	1,570

11-3840. Big Chico Creek near Chico, Calif.

Location.--Lat 39°46'35", long 121°45'10", in Arroyo Chico Grant, on right bank 1.8 miles upstream from golf clubhouse in Bidwell Park, 2.6 miles upstream from Lindo Channel, and 7 miles northeast of Chico, Butte County.

Drainage area.--72.5 sq mi.

Gage-height record.--Digital-recorder tape punched at 15-minute intervals, except Jan. 1-8, Jan. 30 to Feb. 1, Feb. 10-16, 28. Altitude of gage is 300 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements. Discharge for periods of no gage-height record estimated on basis of floodmarks and hydrographic comparison with Butte Creek near Chico.

Maxima.--January-February 1963: Discharge, 5,140 cfs, time unknown, probably Jan. 31 (gage height, 12.21 ft, from floodmark in well).
1930 to December 1962: Discharge, 8,260 cfs Dec. 10, 1937 (gage height, 16.6 ft, site and datum then in use).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	95	2,350	11.....	54	220	21.....	46	154
2.....	90	1,080	12.....	50	230	22.....	46	140
3.....	85	699	13.....	50	270	23.....	45	130
4.....	80	528	14.....	52	260	24.....	45	122
5.....	75	398	15.....	50	250	25.....	45	115
6.....	70	318	16.....	49	240	26.....	44	108
7.....	65	275	17.....	48	230	27.....	42	102
8.....	60	258	18.....	48	200	28.....	44	100
9.....	56	240	19.....	47	182	29.....	48	---
10.....	55	230	20.....	46	167	30.....	600	---
						31.....	2,920	---

Monthly mean discharge, in cubic feet per second.....	166	343
Runoff, in inches.....	2.64	4.92
Runoff, in acre-feet.....	10,210	19,030

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Big Chico Creek near Chico, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	-	70	Jan. 31	0800	-	1,500	Feb. 1	1800	6.43	1,750
					1000	-	2,200		2000	6.28	1,670
30	0200	2.84	82		1200	-	3,100		2200	6.04	1,510
	0400	2.99	109		1400	-	4,000		2400	5.88	1,420
	0600	3.20	160		1600	-	4,700				
	0800	3.45	228		1800	12.21	5,140	2	0200	5.74	1,340
	1000	3.79	338		2000	-	4,700		0400	5.60	1,270
	1200	4.32	552		2200	-	4,200		0600	5.50	1,220
	1400	4.90	830		2400	-	3,700		0800	5.43	1,180
	1600	5.25	1,000						1000	5.33	1,120
	1800	-	1,100	Feb. 1	0200	-	3,500		1200	5.25	1,080
	2000	-	1,150		0400	-	3,200		1400	5.15	1,020
	2200	-	1,100		0600	-	2,900		1600	5.07	970
	2400	-	1,000		0800	-	2,600		1800	4.98	920
31					1000	7.50	2,400		2000	4.91	880
	0200	-	1,000		1200	7.15	2,200		2200	4.85	845
	0400	-	1,000		1400	6.86	2,010		2400	4.80	810
	0600	-	1,200		1600	6.64	1,900				

11-3847. Gilmore Creek near Lodoga, Calif.

(Crest-stage station)

Location.--Lat 39°18'40", long 122°31'40", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.21, T.17 N., R.6 W., 2.3 miles northwest of Lodoga.

Drainage area.--0.49 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 1,250 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 30 cfs and by computation of flow through culvert at 43 cfs.

Maxima.--January-February 1963: Discharge, 53 cfs Jan. 31 (gage height, 23.12 ft). 1959 to December 1962: Discharge, 43 cfs Feb. 14, 1962 (gage height, 22.74 ft).

11-3864. Grindstone Creek tributary near Elk Creek, Calif.

(Crest-stage station)

Location.--Lat 39°39'25", long 122°35'40", in SE $\frac{1}{4}$ sec.24, T.21 N., R.7 W., 4.6 miles northwest of Elk Creek.

Drainage area.--0.80 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 1,050 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 9.7 cfs and by computation of flow through culvert at 23 and 85 cfs.

Maxima.--January-February 1963: Discharge, 14 cfs Feb. 1 (gage height, 16.92 ft). 1959 to December 1962: Discharge, 85 cfs Sept. 16, 1961 (gage height, 21.75 ft, from high-water profile).

11-3870. Stony Creek near Fruto, Calif.

Location.--Lat 39°40'15", long 122°31'05", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.15, T.21 N., R.6 W., on right bank 0.3 mile downstream from Grindstone Creek and 6.5 miles northwest of Fruto.

Drainage area.--599 sq mi.

Gage-height record.--Water-stage recorder graph, except Jan. 1-15. Once-daily telemark-gage readings Jan. 2-4, 7-11, 14, 15. Altitude of gage is 600 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 13,000 cfs. Discharge for periods of no gage-height record interpolated.

Maxima.--January-February 1963: Discharge, 16,000 cfs 2100 hours Jan. 31 (gage height, 11.64 ft).
1901-12, 1960 to December 1962: Discharge, 36,000 cfs Feb. 2, 1909 (gage height, 16.3 ft, site and datum then in use).

Remarks.--Flow regulated by East Park Reservoir beginning in 1910 (usable capacity, 50,600 acre-ft) and by Stony Gorge Reservoir beginning in 1928 (usable capacity, 50,100 acre-ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	75	9,600	11.....	50	4,450	21.....	38	781
2.....	72	5,170	12.....	45	4,740	22.....	38	614
3.....	70	2,800	13.....	40	5,390	23.....	38	669
4.....	66	1,440	14.....	40	3,200	24.....	37	662
5.....	65	894	15.....	44	1,670	25.....	37	634
6.....	60	1,020	16.....	42	1,360	26.....	35	608
7.....	58	713	17.....	42	1,550	27.....	35	590
8.....	58	430	18.....	40	1,460	28.....	34	380
9.....	52	2,530	19.....	38	1,210	29.....	41	-----
10.....	52	6,700	20.....	37	1,090	30.....	900	-----
						31.....	7,970	-----
Monthly mean discharge, in cubic feet per second.....							331	2,227
Runoff, in acre-feet.....							20,330	123,700

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.77	66	Jan. 31	0600	4.63	1,050	Jan. 31	2000	11.62	15,900
					0800	5.29	1,550		2100	11.64	16,000
30	0200	2.80	80		0900	6.29	2,490		2400	11.37	15,000
	1100	3.30	255		1000	7.26	3,550				
	1300	4.10	660		1100	8.08	4,900	Feb. 1	0100	11.11	14,200
	1500	5.55	1,740		1200	9.05	7,080		0300	11.00	13,800
	1700	6.00	2,200		1300	9.77	9,000		1000	9.70	10,600
	1900	5.82	2,030		1400	10.81	12,400		1100	8.55	7,330
	2400	5.04	1,350		1500	11.38	14,800		1700	8.50	7,200
					1700	11.12	13,700		2000	8.61	7,490
31	0500	4.61	1,040		1900	11.27	14,300		2400	8.22	6,500

11-3879. Masterson Hollow Creek near Newville, Calif.

(Crest-stage station)

Location.--Lat 39°47'55", long 122°25'50", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.4, T.22 N., R.5 W., 5.1 miles east of Newville.

Drainage area.--0.93 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 515 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 8.7 cfs and by computation of flow through culvert at 30 cfs.

Maxima.--January-February 1963: Discharge, 22 cfs Feb. 9 (gage height, 12.35 ft).
1959 to December 1962: Discharge, 30 cfs Feb. 2, 1961 (gage height, 12.84 ft).

11-3880. Stony Creek below Black Butte Dam, near Orland, Calif.
(Formerly published as Stony Creek at Black Butte damsite, near Orland)

Location.--Lat 39°49'00", long 122°19'25", in SW $\frac{1}{4}$ sec.28, T.23 N., R.4 W., on downstream side of road bridge, 0.6 mile downstream from Black Butte Dam and 8.1 miles northwest of Orland.

Drainage area.--740 sq mi.

Gage-height record.--Wire-weight gage read once daily, except Jan. 1, 5, 6, 12, 13, 19, 20, 26, 27, Feb. 9, 10, 16, 17, 22-24. Jan. 31 to Feb. 3 based on graph of numerous gage readings. Altitude of gage is 360 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements. Discharge for periods of no gage-height record estimated on basis of hydrographic comparison with Stony Creek near Fruto.

Maxima.--January-February 1963: Discharge, 10,700 cfs 1200 hours Feb. 1 (gage height, 13.37 ft).
1955 to December 1962: Discharge, 36,300 cfs Feb. 24, 1958 (gage height, 11.82 ft, site and datum then in use).

Remarks.--Flow affected by East Park Reservoir, Stony Gorge Reservoir (combined capacity, 100,700 acre-ft), and minor detention storage Jan. 31 to Feb. 3 by cofferdam at Black Butte Dam (under construction in 1963).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	60	9,900	11.....	32	5,250	21.....	25	1,030
2.....	54	8,100	12.....	28	2,930	22.....	28	700
3.....	58	4,010	13.....	25	5,400	23.....	24	650
4.....	50	1,840	14.....	22	3,620	24.....	24	700
5.....	50	1,090	15.....	32	2,090	25.....	24	620
6.....	45	1,060	16.....	32	1,500	26.....	24	585
7.....	43	1,030	17.....	33	1,600	27.....	24	585
8.....	40	605	18.....	28	1,330	28.....	23	494
9.....	38	1,000	19.....	27	1,230	29.....	22	-----
10.....	36	6,800	20.....	26	1,110	30.....	106	-----
						31.....	3,010	-----
Monthly mean discharge, in cubic feet per second.....							132	2,388
Runoff, in acre-feet.....							8,110	132,600

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	6.23	26	Jan. 31	1500	11.00	3,250	Feb. 2	0300	12.90	9,050
	30	0800	6.36		1900	11.98	5,940		1300	12.74	8,490
		1500	6.80		2300	12.30	6,950		1800	12.43	8,100
		1900	7.40		2400	12.60	8,000		2400	12.10	6,300
		2400	8.27								
	31	0400	9.00	Feb. 1	0700	13.15	9,890	3	0600	11.75	5,250
		0800	9.68		1100	13.27	10,300		1200	11.20	3,700
		1200	10.41		1200	13.37	10,700		1800	10.75	2,760
					1700	13.35	10,600		2400	10.50	2,330
					2400	13.07	9,640				

11-3885. Stony Creek near Hamilton City, Calif.

Location.--Lat 39°43'25", long 122°02'47", in Capay Grant, on right bank 2.3 miles southwest of Hamilton City, 6 miles upstream from mouth, and 8 miles east of Orland, Glenn County.

Drainage area.--777 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 150 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 9,300 cfs 2000 hours Feb. 1 (gage height, 12.32 ft).
1940 to December 1962: Discharge, 39,900 cfs Feb. 23, 1958 (gage height, 18.31 ft, at site and datum then in use).

Remarks.--Flow regulated by East Park Reservoir (usable capacity, 50,600 acre-ft), Stony Gorge Reservoir (usable capacity, 50,100 acre-ft), and by temporary detention in Black Butte Reservoir (under construction in 1963).

Mean discharge, in cubic feet per second, 1963, of Stony Creek near Hamilton City, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	26	7,360	11.....	7.8	5,720	21.....	0	1,070
2.....	24	8,030	12.....	2.9	3,480	22.....	0	692
3.....	22	5,040	13.....	3	5,080	23.....	0	610
4.....	19	2,240	14.....	0	4,150	24.....	0	622
5.....	15	1,270	15.....	0	2,510	25.....	0	604
6.....	12	940	16.....	0	1,550	26.....	0	577
7.....	11	863	17.....	0	1,520	27.....	0	560
8.....	10	545	18.....	0	1,470	28.....	0	525
9.....	9.0	559	19.....	0	1,330	29.....	0	-----
10.....	8.6	5,510	20.....	0	1,190	30.....	0	-----
						31.....	1,230	-----
Monthly mean discharge, in cubic feet per second.....							45.1	2,343
Runoff, in acre-feet.....							2,770	130,100

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	-	0	Jan. 31	2200	9.22	2,870	Feb. 1	2400	12.28	9,160
					2400	9.89	3,810				
31	0330	-	0					2	0600	12.13	8,670
	0400	6.15	410	Feb. 1	0200	10.38	4,610		1000	12.00	8,250
	0600	7.22	962		0400	10.58	4,970		1400	11.85	7,810
	0700	7.34	1,040		0700	11.27	6,360		1800	11.69	7,420
	0900	7.46	1,120		1000	11.62	7,180		2100	11.58	7,180
	1200	7.44	1,110		1400	12.00	8,250		2400	11.40	6,790
	1500	7.39	1,070		1600	12.18	8,830				
	1600	7.39	1,070		1800	12.27	9,130	3	0800	10.75	5,610
	1700	7.50	1,150		2000	12.32	9,300		1800	9.86	4,230
	2000	8.42	1,950		2200	12.30	9,230		2100	9.48	3,720
									2400	9.00	3,140

11-3890. Sacramento River at Butte City, Calif.

Location.--Lat 39°27'35", long 121°59'35", in NE $\frac{1}{4}$ sec.32, T.19 N., R.1 W., on left bank 0.5 mile south of Butte City.Drainage area.--12,096 sq mi, excluding Goose Lake basin.Gage-height record.--Water-stage recorder graph, except Jan. 6-15, Jan. 31 to Feb. 2. Datum of gage set to datum of Corps of Engineers.Discharge record.--Stage-discharge relation defined by current-meter measurements. Discharge for periods of no gage-height record estimated on basis of records for station at Colusa.Maxima.--January-February 1963: Discharge, 100,000 about 0200 hours Feb. 2 (gage height, 91.3 ft, from floodmark).
1940 to December 1962: Discharge, 170,000 cfs Feb. 7, 1942 (gage height, 96.87 ft).Remarks.--Flow affected by storage reservoirs.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	14,200	81,100	11.....	10,200	41,600	21.....	7,640	20,100
2.....	13,900	88,700	12.....	9,600	33,800	22.....	7,640	18,600
3.....	13,500	54,600	13.....	9,100	36,300	23.....	7,640	19,500
4.....	13,000	38,400	14.....	8,800	39,400	24.....	7,640	19,500
5.....	12,800	30,400	15.....	8,600	32,400	25.....	7,640	18,200
6.....	12,500	25,800	16.....	8,600	27,900	26.....	7,640	18,900
7.....	12,200	23,400	17.....	8,360	26,800	27.....	7,400	18,600
8.....	11,700	23,100	18.....	8,120	26,500	28.....	7,400	18,300
9.....	11,200	22,800	19.....	8,120	24,300	29.....	7,400	-----
10.....	10,700	30,700	20.....	7,880	22,200	30.....	9,630	-----
						31.....	32,100	-----
Monthly mean discharge, in cubic feet per second.....							10,410	31,530
Runoff, in acre-feet.....							640,000	1,751,000

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Butte Creek at Butte Meadows, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.10	86	Jan. 31	0400	3.45	480	Jan. 31	2100	6.55	2,720
	30				0600	3.61	544		2400	5.69	1,940
	0300	2.14	92		0900	4.35	885	Feb. 1	0200	5.80	2,040
	1300	2.48	156		1100	5.13	1,340		0600	5.08	1,440
	1600	2.89	267		1300	6.09	2,150		0700	5.03	1,420
	1900	3.27	408		1500	6.76	2,890		0900	4.48	1,080
	2100	3.46	484		1600	6.58	2,680		1200	4.26	950
	2300	3.37	448		1800	7.03	3,220		1800	4.27	955
	2400	3.40	460		2000	6.33	2,500		2400	4.03	825

11-3900. Butte Creek near Chico, Calif.

Location.--Lat 39°43'34", long 121°42'28", in NW¼NW¼ sec.36, T.22 N., R.2 E., on right bank 0.7 mile downstream from Little Butte Creek and 7.5 miles east of Chico.

Drainage area.--147 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 320 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 6,900 cfs and by slope-area measurement at 18,700 cfs.

Maxima.--January-February 1963: Discharge, 14,200 cfs 1900 hours Jan. 31 (gage height, 11.67 ft, from recorder graph; 12.0 ft, from floodmarks).
1930 to December 1962: Discharge, 18,700 cfs Dec. 22, 1955 (gage height, 13.35 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	360	5,010	11.....	306	735	21.....	270	525
2.....	360	2,160	12.....	278	721	22.....	266	511
3.....	360	1,640	13.....	294	926	23.....	262	484
4.....	342	1,370	14.....	298	934	24.....	262	460
5.....	355	1,210	15.....	274	798	25.....	254	442
6.....	338	998	16.....	278	735	26.....	254	430
7.....	326	896	17.....	290	686	27.....	250	430
8.....	326	882	18.....	323	637	28.....	250	418
9.....	326	840	19.....	230	802	29.....	270	---
10.....	318	805	20.....	270	595	30.....	1,230	---
						31.....	7,710	---
Monthly mean discharge, in cubic feet per second.....							565	960
Runoff, in inches.....							4.40	6.75
Runoff, in acre-feet.....							34,770	53,320

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.69	306	Jan. 30	2400	5.82	2,960	Jan. 31	2100	11.14	12,900
	30				31				2400	10.04	10,200
	0200	2.76	334		0200	5.52	2,600	Feb. 1	0400	8.65	7,320
	0500	2.98	435		0300	5.55	2,640		0600	8.24	6,590
	0900	3.40	669		0400	5.58	2,680		1200	6.57	4,080
	1500	4.40	1,420		0600	6.00	3,180		1600	6.00	3,380
	1700	4.52	1,520		1200	8.52	7,060		1700	5.87	3,240
	1800	4.63	1,630		1600	10.86	12,200		2000	5.67	3,020
	2100	5.51	2,590		1800	11.55	13,900		2400	5.52	2,850
	2300	5.80	2,940		1900	11.67	14,200				

11-3900.45. Little Chico Creek tributary near Forest Ranch, Calif.

(Crest-stage station)

Location.--Lat 39°52'40", long 121°40'25", in SE $\frac{1}{4}$ sec.6, T.23 N., R.3 E., on State Highway 32, 0.2 mile south of Forest Ranch.

Drainage area.--0.65 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 2,300 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 24 cfs and by computation of flow through culvert at 34 cfs.

Maxima.--January-February 1963: Discharge, 14 cfs Feb. 1 (gage height, 4.04 ft).
July to December 1962: Discharge, 34 cfs Oct. 13, 1962 (gage height, 4.32 ft).

11-3902. Gold Run tributary near Nelson, Calif.

(Crest-stage station)

Location.--Lat 39°35'21", long 121°41'15", on west line sec.18, T.20 N., R.3 E., on U.S. Highway 99E, 4.8 miles northeast of Nelson.

Drainage area.--1.31 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 160 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 170 cfs and by computation of flow through culvert at 205 cfs.

Maxima.--January-February 1963: Discharge, 205 cfs Feb. 13 (gage height, 5.79 ft).
1959 to December 1962: Discharge, 194 cfs Oct. 13, 1962 (gage height, 5.56 ft).

11-3905. Sacramento River below Wilkins Slough, Calif.

Location.--Lat 39°00'35", long 121°49'25", in Jimeno Grant, on right bank 1,500 ft downstream from Wilkins Slough, Colusa County, 6 miles southeast of Grimes, and at mile 62.9 upstream from Sacramento.

Drainage area.--12,940 sq mi, excluding Goose Lake basin.

Gage-height record.--Water-stage recorder graph, except Feb. 1-3. Gage is set to datum of Corps of Engineers.

Discharge record.--Stage-discharge relation defined by current-meter measurements. Discharge for Feb. 1-3 estimated on basis of record for station at Colusa.

Maxima.--January-February 1963: Discharge, 25,500 cfs about 0200 hours Feb. 3 (gage height, 48.79 ft, from floodmark in gage well).
1938 to December 1962: Discharge, 28,900 cfs Feb. 27, 1958 (gage height, 51.41 ft).

Remarks.--Flow affected by storage reservoirs and bypassing for flood control.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1....	14,400	23,600	11....	11,500	24,900	21....	8,750	21,300
2....	14,100	24,800	12....	11,000	25,200	22....	8,570	19,400
3....	13,900	25,000	13....	10,400	24,900	23....	8,480	18,300
4....	13,600	24,400	14....	9,920	24,900	24....	8,480	19,100
5....	13,300	24,000	15....	9,650	24,800	25....	8,390	19,100
6....	12,900	23,500	16....	9,470	24,300	26....	8,390	18,800
7....	12,600	22,500	17....	9,380	23,600	27....	8,300	18,500
8....	12,500	22,000	18....	9,200	23,600	28....	8,210	18,200
9....	12,300	21,600	19....	9,020	23,500	29....	8,210	- - - - -
10....	12,000	22,300	20....	8,840	22,300	30....	8,570	- - - - -
						31....	13,800	- - - - -
Monthly mean discharge, in cubic feet per second.....							10,580	22,440
Runoff, in acre-feet.....							650,800	1,246,000

11-3906.72. Stone Corral Creek near Sites, Calif.

Location.--Lat 39°17'18", long 122°18'00", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.34, T.17 N., R.4 W., on left bank at road bridge 2.4 miles southeast of Sites.

Drainage area.--38.5 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 180 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,200 cfs.

Maxima.--January-February 1963: Discharge, 880 cfs 2100 hours Feb. 12 (gage height, 10.36 ft).
1958 to December 1962: Discharge, 2,500 cfs Apr. 2, 1958 (gage height, 14.93 ft).

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

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0	42	11.....	0	12	21.....	0	2.2
2.....	0	5.7	12.....	0	152	22.....	0	1.9
3.....	0	2.3	13.....	0	75	23.....	0	1.5
4.....	0	1.1	14.....	0	16	24.....	0	1.4
5.....	0	.6	15.....	0	9.2	25.....	0	1.4
6.....	0	.4	16.....	0	6.5	26.....	0	1.3
7.....	0	.3	17.....	0	5.3	27.....	0	1.1
8.....	0	.2	18.....	0	3.7	28.....	0	1.0
9.....	0	31	19.....	0	2.9	29.....	0	-----
10.....	0	116	20.....	0	2.5	30.....	17	-----
						31.....	219	-----
Monthly mean discharge, in cubic feet per second.....							7.61	17.7
Runoff, in inches.....							0.23	0.48
Runoff, in acre-feet.....							468	985

11-3906.8. Salt Creek near Williams, Calif.

(Crest-stage station)

Location.--Lat 39°06'30", long 122°18'20", in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.33, T.15 N., R.4 W., on State Highway 20, 9.2 miles southwest of Williams.

Drainage area.--12.9 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 325 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 233 cfs and by computation of flow through culvert at 499 cfs.

Maxima.--January-February 1963: Discharge, 308 cfs Jan. 31 (gage height, 22.75 ft).
1959 to December 1962: Discharge, 427 cfs Feb. 14, 1962 (gage height, 23.88 ft).

11-3910. Sacramento River at Knights Landing, Calif.

Location.--Lat 38°48'10", long 121°42'55", in NE $\frac{1}{4}$ sec.14, T.11 N., R.2 E., on left bank just upstream from Southern Pacific Railroad bridge at Knights Landing, 13.1 miles upstream from Feather River and at mile 34.0 upstream from Sacramento.

Drainage area.--14,550 sq mi, excluding Goose Lake basin.

Gage-height record.--Water-stage recorder graph. Auxiliary water-stage recorder at site 6.0 miles downstream from base gage. Gages at datum of Corps of Engineers.

Discharge record.--Computed from stage-discharge relation defined by current-meter measurements and using fall as a factor.

Maxima.--January-February 1963: Discharge, 27,600 cfs 2000 hours Feb. 2; gage height, 39.90 ft 0900 hours Feb. 2 (backwater from Feather River and Sutter bypass).
1940 to December 1962: Discharge, 30,000 cfs Dec. 3, 1960; gage height, 41.83 ft Feb. 8, 1942 (backwater from Feather River and Sutter bypass).

Remarks.--Flow affected by storage reservoirs and bypassing for flood control.

Mean discharge, in cubic feet per second, 1963, of Sacramento River at Knights Landing, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	15,000	18,600	11.....	12,600	24,100	21.....	9,610	22,800
2.....	15,000	26,300	12.....	11,600	23,900	22.....	9,360	20,900
3.....	14,900	26,600	13.....	11,500	23,600	23.....	9,230	19,400
4.....	14,500	24,800	14.....	11,000	24,300	24.....	9,150	19,400
5.....	14,200	25,400	15.....	10,600	24,200	25.....	9,110	19,200
6.....	14,000	24,000	16.....	10,400	23,800	26.....	9,230	19,200
7.....	13,700	23,800	17.....	10,300	23,900	27.....	9,120	18,900
8.....	13,500	23,500	18.....	10,100	24,500	28.....	9,010	18,600
9.....	13,400	22,900	19.....	9,890	24,100	29.....	9,070	-----
10.....	13,100	23,100	20.....	9,680	24,100	30.....	9,230	-----
						31.....	9,830	-----
Monthly mean discharge, in cubic feet per second.....							11,320	22,780
Runoff, in acre-feet.....							696,000	1,265,000

11-3914. Little Last Chance Creek near Chilcott, Calif.

Location.--Lat 39°52'00", long 120°10'05", in N $\frac{1}{2}$ NE $\frac{1}{4}$ sec.10, T.23 N., R.16 E., on left bank 500 ft downstream from highway bridge, 0.9 mile downstream from unnamed tributary, 4.5 miles north of Vinton, and 5.0 miles north of Chilcott.

Drainage area.--84.2 sq mi.

Gage-height record.--Water-stage recorder graph, except Jan. 5 to Feb. 28. Altitude of gage is 5,140 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 140 cfs; affected by backwater from ice Jan. 1-5. Discharge for Jan. 5 to Feb. 28 estimated on basis of release from Frenchman Dam, two discharge measurements and runoff per square mile for the intervening area between the dam and the station.

Maxima.--January-February 1963: Daily discharge, 40 cfs Feb. 1.

1958 to December 1962: Discharge, 784 cfs Feb. 8, 1960 (gage height, 5.56 ft).

Remarks.--Flow regulated by Frenchman Reservoir beginning Nov. 7, 1961. Records furnished by California Department of Water Resources and reviewed by Geological Survey.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	1.9	40	11.....	1.9	5.0	21.....	1.9	2.5
2.....	1.9	20	12.....	1.9	4.0	22.....	1.9	2.5
3.....	2.1	12	13.....	1.9	4.5	23.....	1.9	2.5
4.....	2.5	6.0	14.....	1.9	3.5	24.....	1.9	2.5
5.....	2.0	7.0	15.....	1.9	3.0	25.....	1.9	2.5
6.....	1.9	6.0	16.....	1.9	2.8	26.....	1.9	2.5
7.....	1.9	5.5	17.....	1.9	2.7	27.....	1.9	2.5
8.....	1.9	5.0	18.....	1.9	2.6	28.....	1.9	2.5
9.....	1.9	4.5	19.....	1.9	2.6	29.....	1.9	-----
10.....	1.9	6.0	20.....	1.9	2.6	30.....	6.4	-----
						31.....	30	-----
Monthly mean discharge, in cubic feet per second.....							2.98	5.98
Runoff, in acre-feet.....							183	332

11-3915. Big Grizzly Creek near Portola, Calif.

Location.--Lat 39°52'00", long 120°27'20", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.7, T.23 N., R.14 E., on left bank 500 ft upstream from small tributary, 4.3 miles upstream from mouth, and 4.5 miles north of Portola.

Drainage area.--45.5 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 5,320 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 600 cfs and by slope-area measurement at 4,080 cfs; affected by ice Jan. 1-13, 19, 20, 24-28.

Maxima.--January-February 1963: Discharge, 4,080 cfs 0100 hours Feb. 1 (gage height, 8.03 ft).

1925-32, 1950-53, 1954 to December 1962: Discharge, 3,090 cfs Oct. 13, 1962 (gage height, 7.48 ft).

FLOODS OF 1963 IN THE UNITED STATES

Mean discharge, in cubic feet per second, 1963, of Big Grizzly Creek near Portola, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	9.7	1,710	11.....	2.0	98	21.....	4.1	56
2.....	9.0	363	12.....	1.9	82	22.....	5.7	47
3.....	12	250	13.....	2.7	167	23.....	5.7	41
4.....	14	228	14.....	4.0	96	24.....	5.6	41
5.....	9.0	192	15.....	4.7	75	25.....	4.1	39
6.....	6.8	136	16.....	4.9	72	26.....	2.0	39
7.....	5.3	115	17.....	4.7	67	27.....	1.9	31
8.....	4.4	107	18.....	4.7	59	28.....	3.0	30
9.....	5.1	96	19.....	3.4	56	29.....	4.0	---
10.....	4.1	119	20.....	3.0	63	30.....	146	---
						31.....	2,220	---
Monthly mean discharge, in cubic feet per second.....							81.2	160
Runoff, in inches.....							2.06	3.66
Runoff, in acre-feet.....							4,990	8,880

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.58	3.8	Jan. 31	0300	4.66	534	Feb. 2	1200	3.89	308
					0500	4.97	685		2400	3.67	264
30	0600	1.68	6.3		0600	5.50	1,000				
	0900	1.72	7.4		0800	6.13	1,460	3	0300	3.61	252
	1200	1.82	11		1300	7.30	2,800		0600	3.72	274
	1600	2.08	21		2400	7.87	3,770		1200	3.64	258
	1700	2.91	97						2400	3.39	214
	1800	3.41	175	Feb. 1	0100	8.03	4,080				
	1900	3.90	290		0800	6.57	1,870	4	0900	3.12	173
	2000	4.35	420		1400	5.13	778		1500	3.19	184
	2100	4.85	625		1500	5.07	742		1800	3.86	302
	2300	5.05	730		1800	5.44	964		2100	4.06	342
	2400	4.98	690		2400	4.98	690		2400	3.87	304
31	0300	4.83	615	2	0600	4.22	381				

11-3923. Willow Creek tributary near Blairsden, Calif.

(Crest-stage station)

Location.--Lat 39°47'00", long 120°33'15", in SE $\frac{1}{4}$ sec.7, T.22 N., R.13 E., on U.S. Highway Alternate 40, 3.3 miles east of Blairsden.

Drainage area.--1.08 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 4,850 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 32 cfs and by computation of flow through culvert at 77 cfs.

Maxima.--January-February 1963: Discharge, 77 cfs Feb. 1 (gage height, 7.18 ft). August to December 1962: Discharge, 64 cfs Oct. 13 (gage height, 6.73 ft).

11-3925. Middle Fork Feather River near Clilo, Calif.

Location.--Lat 39°45'10", long 120°35'40", in SE $\frac{1}{4}$ sec.23, T.22 N., R.12 E., on left bank 0.6 mile upstream from Frazier Creek, 1.0 mile northwest of Clilo, and 2.2 miles southeast of Blairsden.

Drainage area.--686 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 4,380 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements; affected by ice Jan. 1 to Jan. 13, Jan. 18-28.

Maxima.--January-February 1963: Discharge, 14,500 cfs 0100 hours Feb. 1 (gage height, 16.19 ft). 1925 to December 1962: Discharge, 14,400 cfs Dec. 23, 1955 (gage height, 15.77 ft).

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	
Jan. 29	2400	3.87	595	Jan. 31	1400	17.00	35,500	Feb. 1	2400	14.98	25,700	
30	0300	4.10	710		1700	19.68	51,400	2	0100	14.75	23,800	
	0700	4.32	832		1800	20.22	55,000		0500	14.35	25,200	
	1100	4.62	1,410		1900	20.42	56,400		1200	13.65	20,400	
	1300	4.92	1,210		2000	20.71	58,500		1300	13.59	20,200	
	1500	5.40	1,570		2200	20.45	56,600		1600	13.31	19,200	
	1600	5.85	1,960		2300	20.67	58,200		1900	13.10	18,400	
	1700	6.59	2,790		2400	20.50	57,000		2200	12.77	17,300	
	1800	7.27	3,690						2400	12.65	16,900	
	2000	8.44	5,570	Feb. 1	0100	20.25	55,200		3	0300	12.38	15,900
	2100	8.77	6,180		0200	20.94	60,100			0600	12.18	15,200
2100	8.86	6,350	0230		21.65	65,400	1200	11.59		13,300		
2300	9.88	8,540	0300		20.69	59,700	1500	11.32		12,500		
2400	10.19	9,300	0500		20.28	55,500	1700	11.12		11,900		
31	0200	10.46	10,000		0600	19.96	53,200	4	1900	10.95	11,400	
	0300	10.65	10,500		0800	18.41	43,500		2400	10.53	10,200	
	0500	10.72	10,700		1100	17.00	35,500					
	0600	10.84	11,100		1300	16.21	31,400					
	0700	11.15	12,000		1600	15.73	29,100		0600	10.00	8,830	
	0900	12.14	15,100		1800	15.56	28,300		1200	9.52	7,710	
	1200	14.78	24,900		2000	15.36	27,400		1800	9.31	7,250	
					2200	15.30	27,200		2400	9.32	7,270	

[illegible]

11-3950.2. Little Grass Valley Reservoir near LaPorte, Calif.

Location.--Lat 39°43'25", long 121°01'10", in W½ sec.31, T.22 N., R.9 E., on right bank 300 ft upstream from dam on South Fork Feather River and 3.3 miles northwest of LaPorte.

Drainage area.--25.5 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is at mean sea level (levels by Oroville-Wyandotte Irrigation District).

Contents record.--Contents computed from capacity table dated Dec. 17, 1962, furnished by Oroville-Wyandotte Irrigation District.

Maxima.--January-February 1963: Computed bihourly inflow, 9,020 cfs 1600 to 1800 hours Jan. 31. Contents, 83,600 acre-ft 0300 hours Feb. 1 (elevation, 5,040.05 ft).
1961 to December 1962: Contents, 76,800 acre-ft Dec. 16, 1962 (elevation, 5,035.4 ft).

Remarks.--Reservoir is formed by rockfill dam. Storage began in October 1961. Capacity, 94,600 acre-ft between elevations 4,876 ft (invert of release valve) and 5,047 ft (top of spillway gates), all of which is usable.

Elevation, in feet, and contents, in acre-feet, at 2400 hours, 1963									
Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	5,034.4	75,300	5,038.5	81,300	16	5,034.2	75,000	5,034.8	75,900
2	5,034.4	75,300	5,037.1	79,200	17	5,034.2	75,000	5,034.8	75,900
3	5,034.4	75,300	5,036.4	78,200	18	5,034.2	75,000	5,034.7	75,700
4	5,034.3	75,200	5,035.9	77,500	19	5,034.2	75,000	5,034.7	75,700
5	5,034.3	75,200	5,035.6	77,100	20	5,034.2	75,000	5,034.7	75,700
6	5,034.3	75,200	5,035.4	76,800	21	5,034.2	75,000	5,034.6	75,600
7	5,034.3	75,200	5,035.2	76,500	22	5,034.2	75,000	5,034.6	75,600
8	5,034.3	75,200	5,035.1	76,300	23	5,034.2	75,000	5,034.6	75,600
9	5,034.2	75,000	5,035.0	76,200	24	5,034.2	75,000	5,034.5	75,500
10	5,034.2	75,000	5,034.9	76,000	25	5,034.1	74,900	5,034.5	75,500
11	5,034.2	75,000	5,034.8	75,900	26	5,034.1	74,900	5,034.5	75,500
12	5,034.2	75,000	5,034.9	76,000	27	5,034.1	74,900	5,034.5	75,500
13	5,034.2	75,000	5,035.0	76,200	28	5,034.1	74,900	5,034.5	75,500
14	5,034.2	75,000	5,034.9	76,000	29	5,034.3	75,200	-	-
15	5,034.2	75,000	5,034.8	75,900	30	5,035.0	76,200	-	-
					31	5,039.7	83,000	-	-
Change in contents, in acre-feet.....						-	+7,700	-	-7,500

Average inflow in cubic feet per second, for bihourly periods ending at indicated time

Date	Hour	Inflow	Date	Hour	Inflow	Date	Hour	Inflow
Jan. 31	0200	888	Feb. 1	0200	6,260	Feb. 2	0200	2,200
	0400	1,100		0400	4,220		0400	1,010
	0600	1,140		0600	3,720		0600	1,290
	0800	2,170		0800	2,070		0800	874
	1000	3,320		1000	2,290		1000	1,130
	1200	4,790		1200	1,830		1200	1,020
	1400	5,870		1400	1,860		1400	987
	1600	7,060		1600	2,080		1600	787
	1800	9,020		1800	2,190		1800	949
	2000	8,030		2000	2,000		2000	747
	2200	7,970		2200	1,520		2200	859
	2400	7,230		2400	1,400		2400	547

11-3950.3. South Fork Feather River below Little Grass Valley Dam, Calif.

Location.--Lat 39°43'26", long 121°01'10", in SW¼NW¼ sec.31, T.22 N., R.9 E., on outlet works at base of Little Grass Valley Dam, 0.6 mile downstream from Ice Creek and 3.5 miles northwest of LaPorte.

Drainage area.--25.9 sq mi.

Gage-height record.--No gage-height record available. Datum of gage is 4,850.00 ft above mean sea level.

Discharge record.--Discharge estimated on basis of observer's notations of settings of the release valve, fishwater valve, reservoir elevation, computed discharge over spillway, and two discharge measurements.

Maxima.--January-February 1963: Discharge, 4,240 cfs 0300 hours Feb. 1.
1927-33, 1960-63: Discharge, 2,600 cfs Mar. 26, 1928 (gage height, 7.00 ft, site and datum then in use).

Remarks.--Flow regulated by Little Grass Valley Reservoir (see station 11-3950.2) beginning in October 1961.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	73	3,530	11.....	29	206	21.....	21	134
2.....	71	1,970	12.....	24	189	22.....	21	125
3.....	59	1,210	13.....	24	245	23.....	21	113
4.....	55	808	14.....	26	226	24.....	21	107
5.....	48	606	15.....	26	211	25.....	20	93
6.....	44	456	16.....	26	186	26.....	20	85
7.....	44	372	17.....	26	175	27.....	18	83
8.....	41	318	18.....	26	159	28.....	17	76
9.....	39	265	19.....	24	149	29.....	24	- - - - -
10.....	35	234	20.....	23	143	30.....	112	- - - - -
						31.....	1,400	- - - - -
Monthly mean discharge, in cubic feet per second.....							79.3	446
Runoff, in acre-feet.....							4,880	24,740

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	-	268	Jan. 31	2200	-	3,720	Feb. 1	1800	-	3,020
					2400	-	3,900		2000	-	2,850
31	0200	-	312						2200	-	2,730
	0400	-	350	Feb. 1	0200	-	4,160		2400	-	2,660
	0600	-	420		0300	-	4,240				
	0800	-	535		0400	-	4,140				
	1000	-	735		0600	-	3,940	2	0400	-	2,310
	1200	-	1,030		0800	-	3,800		0800	-	2,090
	1400	-	1,490		1000	-	3,580		1200	-	1,890
	1600	-	2,060		1200	-	3,370		1600	-	1,730
	1800	-	2,640		1400	-	3,230		2000	-	1,580
	2000	-	3,250		1600	-	3,150		2400	-	1,470

11-3952. South Fork Feather River below diversion dam,
near Strawberry Valley, Calif.

Location.--Lat 39°38'51", long 121°07'04", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.30, T.21 N., R.8 E., on right bank 0.1 mile downstream from diversion dam, 3.1 miles upstream from Rock Creek, and 5.8 miles north of Strawberry Valley.

Drainage area.--37.7 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 3,535.02 ft above mean sea level (levels by Oroville-Wyandotte Irrigation District).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 500 cfs and by computation of flow over diversion dam at 6,330 cfs.

Maxima (river only).--January-February 1963: Discharge, 6,330 cfs 2400 hours Jan. 31 (gage height, 13.21 ft).
1960 to December 1962: Discharge observed, 1,380 cfs Feb. 9, 1961 (gage height, 4.10 ft).

Maxima (river plus diversion).--January-February 1963: Discharge, 6,370 cfs 2400 hours Jan. 31.
1960 to December 1962: Discharge, 1,860 cfs Oct. 13, 1962.

Remarks.--Flow regulated by Little Grass Valley Reservoir (usable capacity, 94,700 acre-ft) beginning October 1961. South Fork diversion tunnel (maximum capacity, about 600 cfs) diverts 500 ft upstream to Sly Creek Reservoir. All discharge figures in the tables below are the combined flow of South Fork Feather River below diversion dam and South Fork diversion tunnel.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	91	5,020	11.....	52	260	21.....	33	160
2.....	85	2,870	12.....	42	221	22.....	31	150
3.....	82	1,700	13.....	39	401	23.....	31	140
4.....	83	1,100	14.....	38	361	24.....	31	130
5.....	78	851	15.....	36	301	25.....	31	110
6.....	70	676	16.....	36	261	26.....	30	87
7.....	66	507	17.....	36	241	27.....	29	81
8.....	62	467	18.....	35	220	28.....	28	77
9.....	58	401	19.....	35	200	29.....	31	- - - - -
10.....	54	331	20.....	33	180	30.....	232	- - - - -
						31.....	3,590	- - - - -
Monthly mean discharge, in cubic feet per second.....							168	625
Runoff, in acre-feet.....							10,330	34,720

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	-	37	Jan. 31	0900	-	2,640	Feb. 1	0500	-	6,060
					1000	-	3,270		0800	-	5,510
					1100	-	3,650		1000	-	4,950
30	0800	-	96		1200	-	3,800		1100	-	4,970
	1200	-	141		1300	-	4,460		1500	-	4,560
	1400	-	180		1500	-	5,020		1700	-	4,440
	2100	-	506		1600	-	5,010		1900	-	4,370
	2200	-	568		1700	-	5,770		2400	-	3,850
	2300	-	583		1900	-	5,960				
	2400	-	619		2000	-	5,970				
					2200	-	6,130	2	0700	-	3,230
31	0100	-	640		2300	-	6,150		0900	-	3,020
	0300	-	714		2400	-	6,370		1400	-	2,640
	0400	-	805						2100	-	2,260
	0600	-	1,260						2400	-	2,130
	0700	-	1,430	Feb. 1	0200	-	6,000				
	0800	-	1,770		0400	-	5,930				

11-3953. Lost Creek above Sly Creek Reservoir, Calif.

Location.--Lat 39°37'05", long 121°05'19", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.4, T.20 N., R.8 E., on left bank 0.4 mile upstream from French Creek and 3.8 miles north of Strawberry Valley.

Drainage area.--14.1 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 3,570 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 300 cfs and by slope-area measurements at 2,110 and 4,350 cfs. Affected by ice Jan. 12, 13.

Maxima.--January-February 1963: Discharge, 4,570 cfs 1900 hours Jan. 31 (gage height, 7.87 ft).
1960 to December 1962: Discharge, 1,900 cfs Oct. 13, 1962 (gage height, 5.97 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	31	1,520	11.....	23	79	21.....	19	56
2.....	30	505	12.....	23	79	22.....	19	53
3.....	30	316	13.....	22	131	23.....	18	49
4.....	28	235	14.....	22	99	24.....	18	48
5.....	28	180	15.....	21	86	25.....	17	45
6.....	28	144	16.....	20	79	26.....	17	45
7.....	26	122	17.....	20	72	27.....	17	42
8.....	25	110	18.....	20	66	28.....	17	40
9.....	25	97	19.....	20	60	29.....	17	---
10.....	24	89	20.....	19	58	30.....	179	---
						31.....	1,930	---

Monthly mean discharge, in cubic feet per second.....	88.8	161
Runoff, in inches.....	7.26	11.89
Runoff, in acre-feet.....	5,460	8,940

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.97	22	Jan. 31	0400	4.11	384	Feb. 1	0200	7.09	3,370
					0600	4.28	452		0400	6.28	2,300
	30	2.13	33		0800	4.80	730		0700	5.77	1,730
	0900	2.43	60		1000	5.26	1,100		1200	5.18	1,210
	1200	2.70	92		1300	6.12	2,100		1500	5.00	1,070
	1400	3.09	149		1600	6.48	2,540		2000	4.69	854
	1600	3.60	250		1900	7.87	4,570		2400	4.45	710
	1800	4.05	365		2100	7.27	3,620				
	2300	4.28	452		2200	7.44	3,880	2	0600	4.23	585
	2400	4.20	420		2400	6.97	3,200		1400	3.97	455
									2400	3.75	360
31	0200	4.10	380	Feb. 1	0100	6.97	3,200				

11-3954. Sly Creek Reservoir near Strawberry Valley, Calif.

Location.--Lat 39°35'00", long 121°06'45", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.20, T.20 N., R.8 E., in valve chamber inside dam, 1.4 miles northwest of Strawberry Valley.

Drainage area.--24.1 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is at mean sea level (levels by Oroville-Wyandotte Irrigation District).

Contents record.--Computed from capacity table dated Apr. 23, 1963, furnished by Oroville-Wyandotte Irrigation District.

Maxima.--January-February 1963: Contents, 56,500 acre-ft 1500 to 2000 hours Feb.15 (elevation, 3,515.5 ft).
1961 to December 1962: Contents, 65,500 acre-ft June 2-5, 11, 12, 1962 (elevation, 3,531.5 ft).

Remarks.--Reservoir is formed by earthfill dam. Storage began in November 1961. Capacity, 65,200 acre-ft between elevations 3,285 ft (invert of outlet) and 3,531 ft (top spillway gate). Water is diverted into reservoir from South Fork Feather River through South Fork diversion tunnel and from North Yuba River basin through Slate Creek tunnel.

Elevation, in feet, and contents, in acre-feet, at 2400 hours, 1963, of Sly Creek Reservoir near Strawberry Valley, Calif.

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	3,510.5	53,700	3,501.0	48,700	16	3,498.5	47,400	3,514.0	55,700
2	3,510.5	53,700	3,508.0	51,300	17	3,497.0	46,700	3,514.0	55,700
3	3,510.6	53,800	3,508.0	52,400	18	3,496.5	46,400	3,513.5	55,400
4	3,510.0	53,400	3,510.5	53,700	19	3,495.0	45,700	3,513.0	55,100
5	3,508.5	52,700	3,512.0	54,600	20	3,492.5	44,400	3,513.0	55,100
6	3,508.0	52,400	3,513.0	55,100	21	3,492.0	44,200	3,512.0	54,600
7	3,507.5	52,100	3,513.0	55,100	22	3,491.5	43,900	3,511.5	54,300
8	3,506.0	51,300	3,513.5	55,400	23	3,489.0	42,700	3,510.0	53,400
9	3,506.0	51,300	3,513.5	55,400	24	3,488.0	42,200	3,509.0	52,900
10	3,505.0	50,800	3,513.5	55,400	25	3,486.0	41,300	3,508.0	52,400
11	3,504.0	50,300	3,513.5	55,400	26	3,483.0	39,900	3,507.5	52,100
12	3,502.5	49,500	3,514.0	55,700	27	3,482.0	39,400	3,507.0	51,900
13	3,501.5	48,900	3,514.5	56,000	28	3,480.5	38,700	3,507.1	51,900
14	3,500.5	48,400	3,514.5	56,000	29	3,479.0	38,100	-	-
15	3,499.0	47,700	3,515.0	56,300	30	3,480.0	38,500	-	-
					31	3,487.4	42,000	-	-
Change in contents, in acre-feet.....						-	-12,000	-	+9,900

11-3960. Lost Creek near Clipper Mills, Calif.

Location--Lat 39°34'25", long 121°08'25", in SW $\frac{1}{4}$ sec.24, T.20 N., R.7 E., on left bank 0.3 mile downstream from Lost Creek Reservoir, 0.3 mile downstream from Pinkard Creek, and 2.8 miles north of Clipper Mills.

Drainage area--30.0 sq mi.

Gage-height record--Water-stage recorder graph. Altitude of gage is 3,170 ft (from topographic map).

Discharge record--Stage-discharge relation defined by current-meter measurements.

Maxima--January-February 1963: Discharge, 555 cfs 2000 hours Jan. 31 (gage height, 3.22 ft).

1927-41, 1948 to December 1962: Discharge, 5,000 cfs Dec. 22, 1955 (gage height, 6.90 ft).

Remarks--Flow regulated by Sly Creek Reservoir (see station 11-3954) and Lost Creek Reservoir. Water is diverted into Sly Creek Reservoir through South Fork diversion tunnel from South Fork Feather River and through Slate Creek tunnel from North Yuba River basin. Woodleaf tunnel diverts from Lost Creek Reservoir to Woodleaf powerhouse. Oroville-Wyandotte Canal diverts from Woodleaf penstock for irrigation and domestic use. Records below represent release or spill from Lost Creek Dam to Lost Creek.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	1.7	216	11.....	1.6	1.7	21.....	1.6	1.7
2.....	1.7	5.1	12.....	1.6	2.1	22.....	1.4	1.7
3.....	1.7	3.3	13.....	1.6	2.1	23.....	1.4	1.6
4.....	1.6	2.9	14.....	1.6	2.1	24.....	1.4	1.6
5.....	1.6	2.5	15.....	1.7	1.9	25.....	1.4	1.4
6.....	1.6	2.3	16.....	1.6	1.9	26.....	1.4	1.4
7.....	1.6	2.1	17.....	1.6	1.7	27.....	1.4	1.4
8.....	1.7	2.1	18.....	1.6	1.7	28.....	1.4	1.4
9.....	1.7	1.9	19.....	1.6	1.7	29.....	1.6	-
10.....	1.7	1.9	20.....	1.6	1.7	30.....	4.7	-
						31.....	150	-
Monthly mean discharge, in cubic feet per second.....							6.46	9.68
Runoff, in acre-feet.....							397	537

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	0.82	1.9	Jan. 31	1200	1.12	12	Feb. 1	0800	2.45	250
					1400	1.18	16		1200	2.26	198
					1600	1.20	17		1400	2.23	189
30	0600	.86	2.7		1700	2.45	258		1500	2.23	189
	1000	.90	3.5		1800	2.90	430		1600	2.01	132
	1400	.98	5.9		1900	3.05	505		1700	1.98	126
	1700	1.02	7.4		2000	3.22	555		1900	2.04	140
	2200	1.00	6.5		2200	3.08	490		2000	1.98	126
	2400	.99	6.2		2400	2.90	410		2400	1.22	19
31	0300	.98	5.9	Feb. 1	0100	2.91	414				
	1000	1.11	12								

11-3962. South Fork Feather River below Forbestown Dam, Calif.

Location.--Lat 39°33'05", long 121°12'30", in NE $\frac{1}{4}$ sec.32, T.20 N., R.7 E., 500 ft downstream from Forbestown Dam, 0.4 mile upstream from Oroleve Creek, and 4.0 miles northeast of Forbestown.

Drainage area.--87.5 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 1,690 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 7,510 cfs 2230 hours Jan. 31 (gage height, 13.85 ft, from recorder graph; 15.3 ft, from floodmarks).

July to December 1962: Discharge, 6,490 cfs Oct. 13, 1962 (gage height, 13.27 ft).

Remarks.--Flow regulated by Little Grass Valley Reservoir (see 11-3950.2), Sly Creek Reservoir (see 11-3954) and smaller reservoirs.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	7.0	5,250	11.....	7.7	36	21.....	27	76
2.....	7.0	2,430	12.....	7.5	60	22.....	49	85
3.....	6.6	1,650	13.....	7.0	47	23.....	55	82
4.....	6.2	908	14.....	7.0	82	24.....	55	82
5.....	6.2	682	15.....	7.0	72	25.....	55	78
6.....	24	508	16.....	60	87	26.....	55	81
7.....	6.4	379	17.....	6.4	64	27.....	55	50
8.....	18	229	18.....	6.4	59	28.....	55	70
9.....	6.6	81	19.....	6.4	58	29.....	64	-----
10.....	6.8	72	20.....	6.6	58	30.....	157	-----
						31.....	2,990	-----
Monthly mean discharge, in cubic feet per second.....							124	478
Runoff, in acre-feet.....							7,600	26,570

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	5.63	286	Jan. 31	2230	13.85	7,510	Feb. 1	2100	11.76	4,310
					2400	13.35	6,620		2200	11.35	4,820
31	0600	5.63	286	Feb. 1	0100	13.27	6,490		2400	11.04	3,450
	0700	5.88	336		0200	13.38	6,670		0100	10.55	2,950
	0800	7.00	650		0500	13.07	6,170	2	0700	10.13	2,530
	0900	7.24	734		0600	13.18	6,350		0800	10.42	2,820
	1000	8.06	1,090		1400	12.00	4,620		1000	10.28	2,680
	1200	10.20	2,600		1500	12.15	4,850		1100	9.94	2,370
	1400	11.00	3,400		1600	12.00	4,620		2100	9.39	1,950
	1700	12.00	4,620		1700	11.50	4,000		2200	9.78	2,240
	1900	13.40	6,700		1800	11.45	3,940		2400	9.70	2,180
	2000	13.04	6,120		1900	11.78	4,340				
	2100	13.66	7,170								

11-3963.5. South Fork Feather River below Ponderosa Dam, Calif.

Location.--Lat 39°33'05", long 121°18'30", in NW¼ sec.33, T.20 N., R.6 E., on left bank 1,000 ft upstream from Sucker Run, 1,800 ft downstream from Ponderosa Dam, and 2.8 miles northwest of Forbestown.

Drainage area.--108 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 830 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima (river only).--January-February 1963: Discharge, 8,570 cfs 2030 hours Jan. 31 (gage height, 11.24 ft).
July to December 1962: Discharge, 8,320 cfs Oct. 13, 1962 (gage height, 11.10 ft).

Maxima (river plus diversion).--January-February 1963: Discharge, 8,750 cfs 2030 hours Jan. 31.
July-December 1962: Discharge, 8,320 cfs Oct. 13, 1962.

Remarks.--Flow regulated by several reservoirs and diversions above station (see Remarks for station 11-3962). All discharge figures in the tables below are the combined flow of South Fork Feather River and Miners Ranch Canal.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	366	6,190	11.....	460	523	21.....	488	572
2.....	361	3,530	12.....	425	553	22.....	524	599
3.....	463	2,480	13.....	472	526	23.....	530	590
4.....	482	1,870	14.....	474	601	24.....	514	575
5.....	478	1,480	15.....	455	611	25.....	530	570
6.....	345	1,270	16.....	411	585	26.....	509	513
7.....	464	1,090	17.....	319	575	27.....	522	508
8.....	478	895	18.....	370	565	28.....	519	497
9.....	490	639	19.....	476	561	29.....	529	- - - - -
10.....	464	602	20.....	484	558	30.....	821	- - - - -
						31.....	3,980	- - - - -
Monthly mean discharge, in cubic feet per second.....							587	1,076
Runoff, in acre-feet.....							36,100	59,760

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	-	572	Jan. 31	1300	-	2,830	Feb. 1	2400	-	4,350
					1500	-	4,260				
30	0500	-	572		1700	-	5,770	2	0100	-	4,410
	0900	-	611		1900	-	7,680		0200	-	4,220
	1300	-	702		2000	-	8,640		0700	-	3,750
	1600	-	831		2030	-	8,750		0800	-	3,510
	1800	-	922		2200	-	8,520		1000	-	3,420
	2100	-	1,350		2300	-	8,520		1100	-	3,700
	2200	-	1,430		2400	-	8,420		2100	-	3,020
	2300	-	1,490						2200	-	2,800
	2400	-	1,510	Feb. 1	0600	-	7,650		2400	-	2,820
31	0500	-	1,440		0900	-	6,570				
	0700	-	1,510		1300	-	5,720	3	0900	-	2,550
	0800	-	1,550		1600	-	5,160		1100	-	2,520
	0900	-	1,660		1700	-	5,220		1200	-	2,640
	1100	-	2,220		1800	-	5,110		1300	-	2,500
	1200	-	2,440		2000	-	4,630		1500	-	2,370
					2200	-	4,670		2400	-	2,090

11-3970. South Fork Feather River at Enterprise, Calif.

Location.--Lat 39°32'15", long 121°20'45", in NW $\frac{1}{4}$ sec.6, T.19 N., R.6 E., on left bank 0.5 mile upstream from McCabe Creek, 1 mile upstream from highway bridge at Enterprise, and 11 miles east of Oroville.

Drainage area.--132 sq mi.

Gage-height record.--Stage-discharge relation defined by current-meter measurements below 5,700 cfs and by computed flow over diversion dam at 19,200 cfs.

Maxima.--January-February 1963: Discharge, 10,500 cfs 2100 hours Jan. 31 (gage height, 16.60 ft).
1911 to December 1962: Discharge, 19,200 cfs Dec. 22, 1955 (gage height, 21.60 ft).

Remarks.--Flow regulated by several reservoirs and diversions above station (see Remarks for station 11-3963.5).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	182	7,010	11.....	253	338	21.....	300	380
2.....	178	3,590	12.....	259	368	22.....	338	406
3.....	285	2,360	13.....	307	370	23.....	333	378
4.....	291	1,740	14.....	307	421	24.....	340	361
5.....	287	1,320	15.....	305	413	25.....	344	359
6.....	149	1,050	16.....	286	400	26.....	302	308
7.....	253	860	17.....	120	398	27.....	309	287
8.....	259	726	18.....	176	385	28.....	322	276
9.....	472	482	19.....	285	376	29.....	338	-----
10.....	249	457	20.....	294	375	30.....	698	-----
						31.....	4,600	-----
Monthly mean discharge, in cubic feet per second.....							433	935
Runoff, in acre-feet.....							26,620	51,910

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	4.78	361	Jan. 31	1300	10.20	3,160	Feb. 1	2000	12.17	4,870
					1400	11.10	3,880		2400	11.88	4,580
30	0600	4.86	395		1500	12.15	4,850				
	1500	5.52	575		1600	13.00	5,700	2	0200	11.75	4,460
	1700	6.00	734		1700	13.90	6,740		0400	11.40	4,150
	1800	6.65	980		1900	15.50	8,920		0700	11.10	3,880
	2000	7.18	1,220		2100	16.60	10,500		0900	10.80	3,640
	2300	7.92	1,610		2400	16.35	10,100		1000	10.92	3,740
	2400	8.00	1,660						1100	10.95	3,760
31	0500	7.83	1,560	Feb. 1	0500	15.60	9,060		1600	10.35	3,280
	0700	8.00	1,660		1100	14.20	7,100		2200	9.80	2,840
	0900	8.50	1,960		1500	13.10	5,810		2300	9.58	2,670
	1100	9.35	2,500		1700	12.80	5,500		2400	9.62	2,690
					1800	12.80	5,500				

11-3975. Feather River at Bidwell Bar, Calif.

Location.--Lat 39°33'15", long 121°26'15", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.32, T.20 N., R.5 E., on left bank just upstream from suspension bridge at Bidwell Bar, 2 miles upstream from North Fork and 7 miles northeast of Oroville.

Drainage area.--1,347 sq mi.

Gage-height record.--Water-stage recorder graph, except 2000 hours Jan. 31 to 0400 hours Feb. 1, for which graph was reconstructed on basis of high-water mark in gage well. Altitude of gage is 290 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 28,000 cfs and by studies of upstream and downstream peaks of December 1955.

Maxima.--January-February 1963: Discharge, 93,600 cfs 2400 hours Jan. 31 (gage height, 24.30 ft, from high-water mark in gage well).
1911 to December 1962: Discharge, 104,000 cfs Dec. 23, 1955 (gage height, 25.5 ft); gage height, 31.2 ft in January 1862.

Remarks.--Flow partly regulated by reservoirs and powerplants.

Mean discharge, in cubic feet per second, 1963, of Feather River at Bidwell Bar, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	1,240	61,500	11.....	1,030	3,740	21.....	882	2,570
2.....	1,200	29,200	12.....	865	3,590	22.....	924	2,460
3.....	1,260	19,500	13.....	936	4,790	23.....	918	2,320
4.....	1,290	12,500	14.....	1,010	4,360	24.....	912	2,190
5.....	1,250	9,450	15.....	990	3,810	25.....	930	2,100
6.....	1,100	7,300	16.....	1,000	3,550	26.....	865	1,960
7.....	1,100	6,110	17.....	745	3,300	27.....	860	1,870
8.....	1,100	5,200	18.....	810	2,990	28.....	865	1,760
9.....	1,100	4,450	19.....	876	2,820	29.....	930	-----
10.....	1,060	4,010	20.....	876	2,650	30.....	3,480	-----
						31.....	40,600	-----
Monthly mean discharge, in cubic feet per second.....						2,355		
Runoff, in inches.....						2.02		
Runoff, in acre-feet.....						144,800		
						420,600		

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	4.57	1,080	Jan. 31	1000	13.22	18,600	Feb. 1	1600	17.88	44,100
					1300	14.67	25,500		2000	17.03	38,800
	30	0300	4.70		1400	15.68	30,800		2400	16.53	35,800
		0500	4.89		1500	17.66	42,600				
		1200	6.07		1700	20.00	59,000	2	1100	15.41	29,400
		1600	7.02		1900	23.00	82,500		1800	14.77	26,000
		1900	8.12		2000	23.73	88,700		2400	14.22	23,200
		2100	9.70		2400	24.30	93,600				
		2200	10.63					3	0600	13.88	21,300
		2400	11.26		Feb. 1	0200	23.62		0900	13.77	20,800
						0400	23.73		1800	13.00	17,500
31	0200	12.04	13,900			0700	23.00		2400	12.52	15,500
	0600	12.36	15,100			1200	19.57				

11-3979.7. Lake Almanor tributary near Almanor, Calif.

(Crest-stage station)

Location--Lat 40°12'01", long 121°08'47", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.13, T.27 N., R.7 E., on State Highway 89, 1.8 miles southeast of Almanor.Drainage area--1.66 sq mi.Gage-height record--Crest stages only. Altitude of gage is 4,580 ft (from topographic map).Discharge record--Stage-discharge relation defined by computation of flow through culvert and by slope-area measurement at 111 cfs.Maxima--January-February 1963: Discharge, 52 cfs Feb. 1 (gage height, 6.66 ft). July to December 1962: Discharge, 111 cfs Oct. 13 (gage height, 8.85 ft, backwater from debris in culvert).

11-3990. Lake Almanor near Prattville, Calif.

Location--Lat 40°10'33", long 121°05'17", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.28, T.27 N., R.8 E., at outlet tower at dam on North Fork Feather River, 1.0 mile west of Canyon dam, and 4.4 miles southeast of Prattville.Drainage area--491 sq mi.Gage-height record--Staff gage read once daily. Datum of gage is at mean sea level.Contents record--Contents computed by Pacific Gas & Electric Co. from capacity table based on surveys of 1924-26 by Great Western Power Co.Maxima--January-February 1963: Contents observed, 422,900 acre-ft 2400 hours Feb. 28 (elevation, 4,462.65 ft). 1913 to December 1962: Contents observed, 798,900 acre-ft June 9, 1928 (elevation, 4,480.5 ft).Remarks--Lake is formed by earthfill dam; storage began in July 1913; dam raised to elevation 4,455 ft above mean sea level in 1917 and to 4,515 ft above mean sea level in 1927. Usable capacity, 641,600 acre-ft between elevations 4,422 ft (bottom of outlet to river) and 4,474 ft (present upper storage limit). Figures given herein represent total contents at 2400 hours interpolated from readings made at 1700 hours. Records furnished by Pacific Gas & Electric Co.

11-4000. Butt Creek above Almanor-Butt Creek tunnel, near Prattville, Calif.

Location.--Lat 40°11'23", long 121°11'23", in NW $\frac{1}{4}$ sec.22, T.27 N., R.7 E., on left bank 0.2 mile upstream from outlet of old tunnel from Lake Almanor to Butt Creek and 2.2 miles southwest of Prattville.

Drainage area.--68.6 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 4,400 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 380 cfs.

Maxima.--January-February 1963: Discharge, 1,320 cfs 2200 hours Jan. 31 (gage height, 3.47 ft).

1936 to December 1962: Discharge, 2,320 cfs Dec. 11, 1937 (gage height, 6.48 ft, site and datum then in use), from rating curve extended above 170 cfs on basis of shape of later ratings.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	61	835	11.....	37	138	21.....	43	93
2.....	58	399	12.....	33	132	22.....	43	86
3.....	58	352	13.....	41	152	23.....	43	83
4.....	58	300	14.....	45	123	24.....	44	80
5.....	54	272	15.....	46	115	25.....	43	76
6.....	53	212	16.....	45	110	26.....	42	75
7.....	52	184	17.....	43	108	27.....	42	70
8.....	51	177	18.....	44	104	28.....	41	70
9.....	50	161	19.....	38	96	29.....	45	-----
10.....	49	156	20.....	39	99	30.....	50	-----
						31.....	525	-----
Monthly mean discharge, in cubic feet per second.....							61.7	174
Runoff, in inches.....							1.04	2.63
Runoff, in acre-feet.....							3,800	9,640

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	0.43	73	Jan. 31	2400	3.35	1,250	Feb. 1	2000	2.15	613
	31	0700	.65		Feb. 1	0100	3.40		2400	1.86	494
		1000	1.13			0200	3.30			1.66	414
		1300	1.65			0400	3.13			1.57	378
		1800	2.96			0500	3.17			1.57	378
		1900	2.89			0600	3.12			1.51	354
		2200	3.47			1200	2.58				
		2300	3.30			1800	2.15				
							613				

11-4011.5. Red Clover Creek near Genesee, Calif.

Location.--Lat 40°03'00", long 120°39'50", in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 5, T.25 N., R.12 E., 0.3 mile downstream from Rock Creek, 4.5 miles east of Genesee, and 9.5 miles east of Taylorsville.

Drainage area.--122 sq mi.

Gage-height record.--Water-stage recorder graph, except Jan. 1-31. Altitude of gage is 3,830 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 2,100 cfs. Discharge for period Jan. 1-29 established from records for nearby stations. Discharge for period from 2400 hours Jan. 29 to 1300 hours Jan. 31 estimated from reconstructed gage-height graph.

Maxima.--January-February 1963: Discharge, 7,870 cfs 0130 hours Feb. 1 (gage height, 9.49 ft).

1958 to December 1962: Discharge, 4,720 cfs Oct. 13, 1962 (gage height, 8.50 ft).

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

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Indian Creek near Taylorsville, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 30	2400	3.06	774	Feb. 1	1230	9.62	23,600	Feb. 3	2400	4.89	4,620
31	0300	4.97	2,800		1330	9.78	24,500	4	1400	4.31	3,420
	0600	5.43	3,530		1500	9.20	21,200		1800	4.40	3,590
	0630	5.44	3,540		1530	9.20	21,200		2100	4.59	3,970
	0800	5.83	4,240		1830	8.55	17,800		2400	4.69	4,180
	1000	6.32	5,220		2400	7.65	13,600				
	1200	6.56	5,750	2	0500	7.23	11,800	5	0500	4.60	3,990
	1600	7.88	9,200		1000	6.68	9,790		0700	4.53	3,850
	1800	9.00	12,900		1600	6.00	7,560		1400	4.17	3,160
	1900	9.50	14,800		1900	5.80	6,970		1800	4.07	2,980
2400	10.05	22,400	2400		5.65	6,540	2400	3.99	2,840		
Feb. 1	0700	10.65	30,200	3	0800	5.41	5,900				
	1000	10.40	28,500		1600	5.17	5,290				

11-4015. Indian Creek near Crescent Mills, Calif.

Location.--Lat 40°04'20", long 120°55'35", in SW¹/₄ sec.25, T.26 N., R.9 E., on left bank 0.8 mile upstream from Dixie Creek and 1.5 miles south of town of Crescent Mills.

Drainage area.--739 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 3,500 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 16,000 cfs.

Maxima.--January-February 1963: Discharge, 24,900 cfs 1300 hours Feb. 1 (gage height, 18.35 ft).

1906-9, 1911-18, 1930 to December 1962: Discharge, 25,000 cfs Mar. 19, 1907 (gage height, 20.2 ft, site and datum then in use).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	308	21,700	11.....	140	1,650	21.....	120	920
2.....	280	13,700	12.....	105	1,330	22.....	125	826
3.....	295	6,710	13.....	115	1,580	23.....	130	767
4.....	310	4,730	14.....	130	1,440	24.....	135	745
5.....	283	3,830	15.....	140	1,250	25.....	140	700
6.....	270	3,070	16.....	140	1,180	26.....	140	675
7.....	260	2,360	17.....	130	1,120	27.....	150	631
8.....	244	1,950	18.....	115	1,040	28.....	156	587
9.....	234	1,720	19.....	110	980	29.....	164	-----
10.....	170	1,630	20.....	115	955	30.....	426	-----
						31.....	4,100	-----
Monthly mean discharge, in cubic feet per second.....							312	2,849
Runoff, in inches.....							0.49	4.01
Runoff, in acre-feet.....							19,200	158,200

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.75	173	Jan. 31	0700	7.78	2,660	Feb. 2	1000	14.93	14,500
30					1200	8.71	3,530		1200	14.48	13,600
	0400	2.78	177		1500	9.20	4,060		1400	13.85	12,300
	1200	2.93	206		2000	10.75	6,160		1800	12.83	10,500
	1300	2.96	222		2200	11.80	7,880		2100	12.14	9,250
	1400	3.04	226		2400	12.96	10,000		2200	11.93	8,890
	1500	3.15	250						2400	11.61	8,360
	1600	3.31	288	Feb. 1	0400	16.75	19,500	3			
	1800	3.89	442		0500	17.21	20,900		0400	11.16	7,660
2100	5.37	1,040	0800		17.93	23,500	0700		10.87	7,190	
2300	6.18	1,490	1200		18.34	24,900	1100		10.54	6,660	
2400	6.45	1,670	1300		18.35	24,900	1500		10.30	6,280	
			2000		17.70	22,700	1600		10.25	6,200	
			2300		17.26	21,100	1600		10.26	6,220	
31	0100	6.47	1,680		2400	17.08	20,500		2200	9.90	5,660
	0300	6.47	1,680				2400	9.83	5,560		
	0300	6.65	1,810								
	0500	7.28	2,260	2	0500	16.06	17,300				

11-4019. Spanish Creek near Quincy, Calif.

Location.--Lat 39°56'45", long 121°00'20", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.17, T.24 N., R.9 E., on right bank 0.9 mile downstream from Slate Creek and 3.2 miles west of Quincy.

Drainage area.--69.1 sq mi.

Gage-height record.--Water-stage recorder graph, except Jan. 12-28, Feb. 9-28. Altitude of gage is 3,470 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,100 cfs. Discharge for period of no gage-height record estimated on basis of records for station above Blackhawk Creek at Keddle.

Maxima.--January-February 1963: Discharge, 11,200 cfs 1630 hours Jan. 31 (gage height, 10.90 ft).
1958 to December 1962: Discharge, 7,450 cfs Oct. 13, 1962 (gage height, 9.82 ft).

Remarks.--Flow affected by four small lakes. Records furnished by California Department of Water Resources and reviewed by Geological Survey.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	85	5,040	11.....	54	210	21.....	42	125
2.....	80	1,510	12.....	50	200	22.....	42	118
3.....	79	830	13.....	45	279	23.....	42	110
4.....	77	591	14.....	42	261	24.....	41	105
5.....	70	464	15.....	42	210	25.....	40	100
6.....	68	344	16.....	42	190	26.....	39	95
7.....	66	293	17.....	42	170	27.....	38	90
8.....	65	277	18.....	42	150	28.....	37	85
9.....	62	250	19.....	42	140	29.....	37	-----
10.....	63	220	20.....	42	135	30.....	632	-----
						31.....	6,050	-----
Monthly mean discharge, in cubic feet per second.....							265	450
Runoff, in inches.....							4.41	6.78
Runoff, in acre-feet.....							16,260	24,980

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	3.04	48	Jan. 31	0300	5.71	1,470	Feb. 1	0130	10.71	10,800
30					0600	6.00	1,760		0800	8.05	5,020
	0400	3.31	100		0800	7.04	3,070		1330	7.15	3,590
	0800	3.50	149		1630	10.90	11,200		1500	7.17	3,620
	1200	3.90	284		1830	10.43	8,960		1600	7.13	3,560
	1700	5.27	1,090		1900	10.75	9,730		1700	7.02	3,400
	1830	5.85	1,600		2000	10.40	8,890		2000	6.62	2,860
	1900	5.75	1,500		2030	10.58	9,320		2400	6.31	2,470
	2000	5.82	1,570		2200	10.44	8,980				
	2230	5.64	1,400		2230	10.84	9,950	2	0600	5.70	1,800
	2400	5.65	1,410		2400	10.53	9,200		1200	5.25	1,370
							2400		4.70	925	

11-4019.4. Mill Creek near Quincy, Calif.

(Crest-stage station)

Location.--Lat 39°56'03", long 120°54'18", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.19, T.24 N., R.10 E., on State Highways 24 and 89, 2.2 miles east of Quincy.

Drainage area.--6.72 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 3,500 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 221 cfs and by computation of flow through culvert above.

Maxima.--January-February 1963: Discharge, 447 cfs Jan. 31 (gage height, 5.53 ft).
July to December 1962: Discharge, 338 cfs Oct. 13, 1962 (gage height, 4.73 ft).

11-4020. Spanish Creek above Blackhawk Creek, at Keddle, Calif.

Location.--Lat 40°00'05", long 120°57'20", in NE $\frac{1}{4}$ sec.27, T.25 N., R.9 E., on right bank 200 ft upstream from Blackhawk Creek and 0.9 mile southeast of Keddle.

Drainage area.--184 sq mi.

Gage-height record.--Digital-recorder tape punched at 15-minute intervals, except Jan. 1-4. Altitude of gage is 3,250 ft (from topographic map)

Discharge record.--Stage-discharge relation defined by current-meter measurements below 4,400 cfs and by slope-area measurement at 13,100 cfs. Discharge for Jan. 1-4 estimated on basis of records for Indian Creek near Crescent Mills; affected by ice Jan. 5-26.

Maxima.--January-February 1963: Discharge, 15,000 cfs 0100 hours Feb. 1 (gage height, 13.37 ft, in gage well; 14.5 ft, from floodmarks).
1933 to December 1962: Discharge, 13,200 cfs Oct. 13, 1962 (gage height, 12.50 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	160	8,970	11.....	92	428	21.....	90	268
2.....	170	2,840	12.....	90	368	22.....	90	247
3.....	150	1,800	13.....	89	545	23.....	90	229
4.....	140	1,215	14.....	89	470	24.....	90	218
5.....	135	1,040	15.....	89	410	25.....	90	208
6.....	121	774	16.....	89	374	26.....	90	200
7.....	114	638	17.....	89	345	27.....	89	191
8.....	108	575	18.....	89	313	28.....	91	186
9.....	101	515	19.....	90	293	29.....	96	-----
10.....	95	495	20.....	90	282	30.....	786	-----
						31.....	7,000	-----
Monthly mean discharge, in cubic feet per second.....							348	865
Runoff, in inches.....							2.18	4.90
Runoff, in acre-feet.....							21,410	48,110

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.25	109	Jan. 31	0800	6.05	2,630	Feb. 1	1800	8.81	6,080
					1000	7.01	3,820		1800	8.38	5,380
					1200	7.94	5,100		2000	8.23	5,140
					1400	9.42	7,450		2200	7.99	4,780
					1600	10.89	10,100		2400	7.73	4,410
					1800	11.98	12,100				
					2000	12.81	13,800	2	0200	7.52	4,120
					2200	12.92	14,000		0400	7.31	3,840
					2400	13.23	14,700		0600	6.90	3,330
				Feb. 1	0100	13.37	15,000		0800	6.75	3,150
					0200	13.32	14,900		1000	6.50	2,870
					0400	13.21	14,700		1200	6.32	2,670
					0600	12.74	13,600		1400	6.15	2,500
					0800	11.60	11,400		1600	6.02	2,370
					1000	10.35	8,900		1800	5.75	2,120
					1200	9.41	7,130		2000	5.64	2,020
					1400	8.76	5,990		2200	5.59	1,970
									2400	5.47	1,860

11-4027. Kingsbury Creek near Twain, Calif.

(Crest-stage station)

Location.--Lat 40°01'15", long 121°04'15", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.22, T.25 N., R.8 E., on U.S. Highway Alternate 40, Plumas National Forest, 2 miles west of Twain.

Drainage area.--1.36 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 2,870 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 53 cfs and by computation of flow through culvert above.

Maxima.--January-February 1963: Discharge, 107 cfs Feb. 1 (gage height, 4.64 ft).
July to December 1962: Discharge, 114 cfs Oct. 13 (gage height, 4.75 ft, from crest-stage gage; 4.91 ft, from floodmarks).

11-4033.4. Granite Creek near Tobin, Calif.

(Crest-stage station)

Location.--Lat 39°57'05", long 121°18'00", in NW¼ sec.10, T.24 N., R.6 E., on U.S. Highway Alternate 40, 0.9 mile northeast of Tobin.

Drainage area.--0.79 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 2,020 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 25 cfs and by computation of flow through culvert at 62 and 72 cfs.

Maxima.--January-February 1963: Discharge, 62 cfs Jan. 31 (gage height, 8.74 ft). July to December 1962: Discharge, 72 cfs Oct. 13, 1962 (gage height, 9.01 ft).

11-4035. Bucks Lake near Bucks Lodge, Calif.

Location.--Lat 39°53'45", long 121°12'10", in NW¼ sec.33, T.24 N., R.7 E., in intake tower No. 2 upstream from dam on Bucks Creek, 2 miles northwest of Bucks Lodge and 15 miles west of Quincy.

Drainage area.--28.6 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is at mean sea level (levels by Feather River Power Co.).

Contents record.--Contents computed from capacity table F-574 (Feather River Power Co.).

Maxima.--January-February 1963: Contents, 93,900 acre-ft 2400 hours Feb. 14 to 1200 hours Feb. 15 (elevation, 5,150.5 ft). 1928 to December 1962: Contents, 105,800 acre-ft June 23, 1938 (elevation, 5,157.1 ft).

Remarks.--Reservoir is formed by concrete-faced, rockfill dam completed in 1927; storage began in May 1927. Capacity, 101,400 acre-ft between elevations 5,064.75 ft (sill of outlet gate) and 5,154.85 ft (spillway crest) above mean sea level. Figures given herein represent total contents, of which 274 acre-ft is not available for release. Records furnished by Pacific Gas & Electric Co.

Elevation, in feet, and contents, in acre-feet, at 2400 hours, 1963

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	5,144.8	83,900	5,146.3	86,500	16	5,141.5	78,400	5,150.4	93,600
2	5,144.7	83,700	5,147.1	87,800	17	5,141.3	78,000	5,150.5	93,400
3	5,144.5	83,400	5,147.7	88,800	18	5,141.0	77,600	5,150.1	93,200
4	5,144.3	83,100	5,148.1	89,700	19	5,140.8	77,200	5,150.0	93,000
5	5,144.0	82,600	5,148.5	90,500	20	5,140.5	76,800	5,149.9	92,700
6	5,143.8	82,300	5,148.8	90,800	21	5,140.3	76,400	5,149.9	91,800
7	5,143.6	81,900	5,149.0	91,200	22	5,140.0	75,900	5,149.8	91,600
8	5,143.4	81,500	5,149.4	91,800	23	5,139.8	75,500	5,149.6	91,300
9	5,143.1	81,100	5,149.6	92,300	24	5,139.5	75,100	5,148.9	91,000
10	5,143.1	81,100	5,149.9	92,800	25	5,139.2	74,700	5,148.7	90,700
11	5,142.8	80,600	5,150.0	93,000	26	5,139.0	74,200	5,148.5	90,400
12	5,142.5	80,000	5,150.2	93,300	27	5,138.8	73,900	5,148.3	90,000
13	5,142.3	79,700	5,150.4	93,700	28	5,138.5	73,400	5,148.2	89,800
14	5,142.0	79,200	5,150.5	93,900	29	5,138.5	73,400	-	-
15	5,141.8	78,900	5,150.5	93,800	30	5,139.4	74,900	-	-
					31	5,144.7	83,800	-	-
Change in contents, in acre-feet.....						-	-300	-	+6,000

11-4045. North Fork Feather River at Pulga, Calif.

Location--Lat 39°47'40", long 121°27'00", in NE $\frac{1}{4}$ sec. 6, T. 22 N., R. 5 E., on left bank between railroad and highway bridges, 0.5 mile downstream from Flea Valley Creek and Pulga and 1.5 miles downstream from Poe Dam.

Drainage area--1,953 sq mi.

Gage-height record--Water-stage recorder graph. Altitude of gage is 1,320 ft (from topographic map).

Discharge record--Stage-discharge relation defined by current-meter measurements.

Maxima--January-February 1963: Discharge, 54,900 cfs 1730 hours Jan. 31 (gage height, 31.72 ft).

1910-57 (prior to diversion to Poe powerhouse): Discharge, 72,400 cfs Dec. 23, 1955 (gage height, 35.60 ft), from rating curve extended above 34,000 cfs.

1958 to December 1962: Discharge, 34,300 cfs Feb. 8, 1960 (gage height, 25.10 ft).

Remarks--Flow regulated by Lake Almanor (see station 11-3990), Bucks Lake (see station 11-4035), Butt Valley Reservoir, and Cresta, Rock Creek, and Poe powerplants.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	74	42,600	11.....	61	5,530	21.....	56	90
2.....	73	25,200	12.....	56	5,710	22.....	57	87
3.....	71	14,700	13.....	58	5,350	23.....	57	83
4.....	67	11,200	14.....	58	2,930	24.....	57	82
5.....	64	9,550	15.....	57	171	25.....	66	78
6.....	63	8,180	16.....	56	126	26.....	298	77
7.....	65	7,030	17.....	56	114	27.....	812	72
8.....	73	6,510	18.....	54	103	28.....	253	70
9.....	62	5,350	19.....	53	100	29.....	58	- - - - -
10.....	63	5,270	20.....	56	94	30.....	2,110	- - - - -
						31.....	30,100	- - - - -

Monthly mean discharge, in cubic feet per second.....	1,134	5,588
Runoff, in acre-feet.....	69,750	310,300

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	3.78	79	Jan. 31	0500	14.07	7,600	Feb. 1	1600	27.20	40,600
					0600	16.60	11,800		1700	26.90	39,700
30	0300	4.08	114		0800	18.50	15,500		1800	27.00	40,000
	0600	4.19	129		1000	20.90	20,800		1900	27.00	40,000
	1200	4.62	193		1100	22.90	25,800		2400	25.50	35,500
	1300	7.17	955		1200	24.10	29,300				
	1400	7.35	1,050		1300	26.60	36,800	2	0700	23.51	29,500
	1600	8.19	1,510		1500	29.10	44,400		1000	22.88	27,700
	1700	9.30	2,210		1700	31.00	52,000		1300	21.80	24,800
	1800	11.04	3,840		1730	31.72	54,900		1400	17.39	14,400
	1900	10.04	2,840		1800	31.60	54,400		1500	20.96	22,600
	1900	15.41	9,700		2100	30.20	48,800		1600	18.85	17,400
	2000	10.82	3,620		2200	30.40	49,600		1600	20.12	20,400
	2000	13.86	7,300		2400	28.70	43,100		1700	18.27	16,100
	2100	14.88	8,810						1800	20.30	20,900
	2100	12.65	5,650	Feb. 1	0300	29.30	46,900		1900	20.15	20,500
	2200	14.12	7,670		0400	29.00	46,000		2000	20.15	20,500
	2300	14.07	7,600		0500	29.20	46,000		2100	20.30	20,900
	2400	14.04	7,560		0600	29.20	46,000		2200	19.45	18,800
31	0200	13.91	7,370		0700	28.00	43,000		2300	18.95	17,600
	0300	13.91	7,370		0800	28.90	45,700		2400	18.95	17,600
					1000	28.70	45,100				

11-4053. West Branch Feather River near Paradise, Calif.

Location.--Lat 39°47'15", long 121°33'40", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.6, T.22 N., R.4 E., on left bank 0.6 mile upstream from Griffin Gulch and 4.0 miles northeast of Paradise.

Drainage area.--113 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 1,370 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 21,200 cfs 1700 hours Jan. 31 (gage height, 23.35 ft).
1957 to December 1962: Discharge, 14,000 cfs Feb. 8, 1960 (gage height, 18.55 ft).

Remarks.--Flow regulated by Round Valley Reservoir and Philbrook Reservoir (combined capacity, 6,290 acre-ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	145	6,360	11.....	48	518	21.....	35	308
2.....	132	2,830	12.....	38	491	22.....	34	283
3.....	124	2,030	13.....	42	881	23.....	33	260
4.....	119	1,500	14.....	47	630	24.....	32	245
5.....	96	1,220	15.....	43	514	25.....	31	230
6.....	80	930	16.....	42	445	26.....	30	214
7.....	74	745	17.....	39	413	27.....	28	178
8.....	68	730	18.....	39	378	28.....	28	167
9.....	57	670	19.....	37	345	29.....	27	-----
10.....	55	634	20.....	36	328	30.....	1,260	-----
						31.....	11,900	-----
Monthly mean discharge, in cubic feet per second.....							478	874
Runoff, in inches.....							4.87	8.06
Runoff, in acre-feet.....							29,370	48,550

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	3.53	73	Jan. 31	0800	13.45	6,700	Feb. 1	1300	11.35	4,580
	30				1000	15.65	9,590		1600	10.80	4,080
					1200	18.50	13,600		1700	10.72	4,010
	0300	4.08	143		1400	21.20	17,800		1800	10.81	4,090
	0600	4.73	256		1600	22.90	20,500		2000	11.29	4,520
	0900	5.34	402		1700	23.35	21,200		2100	11.23	4,470
	1200	5.92	588		1800	23.05	20,800		2400	10.71	4,000
	1400	6.62	890		2000	21.40	18,100				
	1600	7.36	1,270		2200	19.90	15,700	2	0400	10.05	3,410
	1800	8.52	1,970		2400	17.95	12,800		0500	9.89	3,260
	2000	10.24	3,360						1100	9.34	2,810
	2100	10.50	3,590						1200	9.22	2,720
	2300	10.70	3,770	Feb. 1	0100	16.50	10,800		1300	9.15	2,660
	2400	10.59	3,670		0200	16.65	11,000		1600	8.87	2,440
					0300	16.93	11,400		2400	8.48	2,140
	31				0500	15.35	9,170				
	0200	10.31	3,420		0700	14.05	7,460				
	0400	10.54	3,630		1000	12.31	5,510				
	0600	11.54	4,560								

11-4065. West Branch Feather River near Yankee Hill, Calif.

Location.--Lat 39°41'55", long 121°33'38", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.6, T.21 N., R.4 E., on right bank 800 ft upstream from highway bridge, 1.7 miles downstream from Concow Creek, 2.1 miles west of Yankee Hill, and 4.9 miles southeast of Paradise.

Drainage area.--149 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 650 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 21,300 cfs 1800 hours Jan. 31 (gage height, 30.15 ft, from recorder graph; 30.45 ft, from floodmarks).
1930 to December 1962: Discharge, 21,400 cfs Dec. 11, 1937 (gage height, 30.3 ft).

Remarks.--Flow regulated by Round Valley Reservoir, Philbrook Reservoir, and Lake Wilenor (combined capacity, 19,100 acre-ft).

FLOODS OF 1963 IN THE UNITED STATES

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Feather River at Oroville, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	137.10	3,360	Feb. 1	0100	163.78	174,000	Feb. 3	1200	146.40	37,100
					0300	162.50	160,000		1500	145.80	34,500
30	0200	137.14	3,430		0500	162.35	158,000		1700	145.65	33,800
	0400	136.98	3,170		0700	161.50	150,000		1900	145.15	31,700
	0600	137.36	3,800		1000	159.95	134,000		2400	144.60	29,500
	1200	138.69	6,520		1400	157.45	110,000				
	1600	139.63	8,940		1700	156.02	97,200	4	1100	143.35	24,500
	2000	140.09	10,300		1900	155.38	91,700		1300	143.35	24,500
	2100	140.30	11,000		2400	154.60	85,300		1500	143.00	23,100
	2200	140.78	12,600						1600	142.85	22,400
	2400	142.54	19,600	2	0500	153.10	73,900		1900	142.85	22,400
					0900	152.07	66,900		2100	143.00	23,100
31	0300	144.50	27,700		1500	150.60	57,800		2400	143.00	23,100
	0700	144.92	29,500		1700	148.80	48,200				
	0900	145.70	32,900		1900	148.55	47,000	5	0300	143.00	23,100
	1100	148.30	45,100		2000	148.25	45,500		1500	142.15	19,800
	1300	151.25	61,600		2200	148.45	46,400		2000	141.40	16,900
	1500	155.20	90,200		2400	148.30	45,800		2200	141.80	18,400
	1700	159.90	134,000						2400	141.75	18,200
	1900	163.45	170,000	3	0200	147.60	42,500		1200	141.35	16,700
	2000	164.80	185,000		0400	147.30	41,100		2400	141.00	15,400
	2100	165.37	191,000		0500	147.05	40,000				
	2200	165.17	189,000		0700	146.90	39,300	7	1200	140.77	14,500
	2400	164.00	176,000		0800	146.85	39,000		2400	140.50	13,500

11-4074. Wyman Ravine tributary near Palermo, Calif.

(Crest-stage station)

Location.--Lat 39°22'57", long 121°34'43", in SE $\frac{1}{4}$ sec.25, T.18 N., R.3 E., on county road 4.1 miles southwest of Palermo.

Drainage area.--1.72 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 99 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 45 cfs and by computation of flow through culverts above, including computation of flow over road at stages above 13.19 ft.

Maxima.--January-February 1963: Discharge, 43 cfs Feb. 1 (gage height, 11.17 ft). 1959 to December 1962: Discharge, 260 cfs Oct. 13, 1962 (gage height, 13.70 ft).

11-4075. South Honcut Creek near Bangor, Calif.

Location.--Lat 39°22'05", long 121°22'15", in SE $\frac{1}{4}$ sec.35, T.18 N., R.5 E., on right bank 2.3 miles southeast of Bangor and 3.3 miles upstream from Tennessee Creek.

Drainage area.--30.5 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 620 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 2,200 cfs and by slope-area measurement at 6,340 cfs.

Maxima.--January-February 1963: Discharge, 2,100 cfs 2200 hours Jan. 30 (gage height, 7.85 ft). 1950 to December 1962: Discharge, 8,280 cfs Oct. 13, 1962 (gage height, 12.40 ft).

FLOODS OF 1963 IN THE UNITED STATES

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Middle Yuba River at Milton, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	0.76	0	Jan. 31	0200	1.35	1,080	Feb. 1	0800	2.12	2,270
	30				0800	1.80	1,730		1100	1.86	1,830
	1200	.76	0		0800	2.43	2,840		1700	1.92	1,920
	1400	.19	0		1200	4.08	6,680		2400	1.36	1,100
	1600	.71	386		1900	5.25	10,200				
	2000	1.31	1,030		2400	4.53	7,960	2	1200	1.04	714
	2100	1.40	1,150	Feb. 1	0600	2.52	3,010		2400	1.02	692
	2400	1.30	1,020								

11-4087. Middle Yuba River near Alleghany, Calif.

Location.--Lat 39°26'19", long 120°48'40", in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.12, T.18 N., R.10 E., 0.5 mile downstream from Wolf Creek and 2.8 miles southeast of Alleghany.

Drainage area.--96.3 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 2,960 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 2,100 cfs and by slope-area measurements at 6,300 and 23,700 cfs.

Maxima.--January-February 1963: Discharge, 23,700 cfs 2200 hours Jan. 31 (gage height, 18.95 ft, from recorder graph; 19.3 ft, from floodmarks).
1957 to December 1962: Discharge, 9,870 cfs Oct. 13, 1962 (gage height, 12.68 ft).

Remarks.--Flow slightly affected by Milton-Bowman tunnel diversion to Bowman Lake.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	101	9,850	11.....	66	258	21.....	59	169
2.....	96	3,200	12.....	62	240	22.....	58	154
3.....	93	1,920	13.....	70	366	23.....	57	140
4.....	91	1,420	14.....	69	296	24.....	57	131
5.....	87	1,160	15.....	65	255	25.....	56	124
6.....	84	816	16.....	66	235	26.....	55	120
7.....	81	438	17.....	64	220	27.....	54	113
8.....	79	366	18.....	63	200	28.....	54	107
9.....	78	320	19.....	60	186	29.....	59	-----
10.....	76	299	20.....	60	177	30.....	829	-----
						31.....	11,800	-----
Monthly mean discharge, in cubic feet per second.....							475	831
Runoff, in inches.....							5.66	8.99
Runoff, in acre-feet.....							29,060	46,170

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.87	78	Jan. 31	0500	8.14	2,850	Feb. 1	0800	12.50	9,530
	30				0600	8.42	3,160		1100	11.21	7,240
	0700	3.65	189		0800	9.38	4,370		1200	10.93	6,760
	1000	3.77	213		1100	12.05	8,710		1300	10.75	6,460
	1200	4.07	277		1300	13.92	12,300		1500	11.00	6,880
	1400	4.70	459		1600	16.50	17,900		2000	11.00	6,880
	1500	5.18	630		1900	18.10	21,700		2100	10.60	6,220
	1800	6.55	1,380		2100	18.67	23,000		2300	10.00	5,260
	2200	8.05	2,760		2200	18.95	23,700		2400	9.74	4,870
	2200	7.92	2,610		2300	18.61	22,900				
	2400	7.99	2,690		2400	18.30	22,100	2	0200	9.40	4,360
									0600	8.91	3,670
31	0100	7.93	2,620	Feb. 1	0300	17.55	20,300		1200	8.40	3,020
	0200	7.99	2,690		0400	15.30	15,200		1800	8.05	2,800
	0400	8.05	2,760		0600	13.80	12,100		2400	7.75	2,280

11-4090. Middle Yuba River above Oregon Creek, Calif.

Location.--Lat 39°23'35", long 121°04'50", in SE $\frac{1}{4}$ sec.28, T.18 N., R.8 E., on left bank 1,000 ft upstream from Oregon Creek and 2 miles northeast of North San Juan.

Drainage area.--162 sq mi.

Gage-height record.--Water-stage recorder graph, except 2400 hours on Jan. 31 which was obtained from floodmark in well. Altitude of gage is 1,440 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 8,200 cfs and by slope-area measurement at 19,500 cfs.

Maxima.--January-February 1963: Discharge, 31,600 cfs 2400 hours Jan. 31 (gage height, 18.55 ft, from floodmark in well).
1910 to December 1962: Discharge, 26,400 cfs Dec. 22, 1955 (gage height, 17.25 ft).

Remarks.--Flow slightly affected by Milton-Bowman tunnel diversion to Bowman Lake.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1....	144	15,200	11....	100	523	21....	84	376
2....	136	4,850	12....	84	481	22....	82	362
3....	130	2,670	13....	104	823	23....	80	339
4....	128	1,900	14....	110	690	24....	80	320
5....	123	1,620	15....	104	572	25....	79	305
6....	119	1,160	16....	92	514	26....	76	286
7....	114	823	17....	91	489	27....	75	281
8....	110	705	18....	88	445	28....	75	266
9....	107	631	19....	84	418	29....	84	---
10....	105	582	20....	86	400	30....	927	---
						31....	12,800	---

Monthly mean discharge, in cubic feet per second.....	536	1,359
Runoff, in inches.....	3.81	8.73
Runoff, in acre-feet.....	32,930	75,450

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	3.00	102	Jan. 31	0200	8.25	3,700	Feb. 1	2300	11.00	8,960
					0600	8.43	3,940		2400	10.70	8,350
	30	0500	3.17		0800	8.63	4,220				
		0800	3.50		1200	11.00	8,440	2	0400	9.54	6,200
		1200	4.47		1800	16.00	21,900		0700	9.00	5,310
		1500	4.83		2400	18.55	31,600		1300	8.33	4,300
		1600	5.00						1400	8.31	4,270
		2300	7.86	Feb. 1	0800	14.00	16,100		2100	7.67	3,400
		2400	8.10		1500	11.20	9,380		2400	7.55	3,240
					1700	11.05	9,060				
31	0100	8.45	3,970		2000	11.50	10,000				

11-4095. Oregon Creek near North San Juan, Calif.

Location.--Lat 39°24'10", long 121°04'35", in NW $\frac{1}{4}$ sec.27, T.18 N., R.8 E., on right bank 0.7 mile upstream from mouth and 2.7 miles northeast of North San Juan.

Drainage area.--34.4 sq mi.

Gage-height record.--Digital-recorder tape punched at 15-minute intervals. Altitude of gage is 1,580 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 3,990 cfs 2300 hours Jan. 31 (gage height, 10.44 ft, from recorder tape; 11.9 ft, from floodmarks).
1911 to December 1962: Discharge, 5,390 cfs Dec. 22, 1955 (gage height, 11.90 ft).

Day	January	February	Day	January	February	Day	January	February
1.....	56	2,900	11.....	35	142	21.....	29	105
2.....	53	1,360	12.....	32	136	22.....	28	96
3.....	53	739	13.....	34	340	23.....	26	92
4.....	50	499	14.....	36	220	24.....	25	87
5.....	46	368	15.....	32	180	25.....	26	83
6.....	44	288	16.....	35	160	26.....	25	76
7.....	44	235	17.....	30	27	27.....	25	73
8.....	42	200	18.....	30	133	28.....	24	72
9.....	41	177	19.....	29	122	29.....	30	---
10.....	41	160	20.....	28	114	30.....	371	---
						31.....	2,200	---

Monthly mean discharge, in cubic feet per second.....	116	332
Runoff, in inches.....	3.88	10.05
Runoff, in acre-feet.....	7.140	18.450

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	
Jan. 29	2400	2.60	41	Jan. 31	1800	9.96	3,460	Feb. 2	1000	7.09	1,420	
30	0200	2.70	47		2000	10.08	3,570		1200	6.92	1,320	
	0400	2.94	63		2200	10.10	3,590		1400	6.74	1,210	
	0600	3.25	87		2300	10.44	3,990		1600	6.54	1,100	
	0800	3.71	130		2400	10.16	3,790		1800	6.46	1,050	
	1000	4.23	203	Feb. 1	0200	10.21	3,820		2000	6.38	1,010	
	1200	4.49	248			0400	10.06	3,710		2200	6.24	955
	1400	4.75	303			0600	9.73	3,470		2400	6.15	890
	1600	5.18	407			0800	9.26	3,120	3	0200	6.05	830
1800	5.39	466			1000	8.73	2,700			0400	6.03	840
2000	6.50	870			1200	8.73	2,430			0600	5.99	810
2200	6.64	950			1400	8.19	2,230			0800	5.96	795
2400	6.69	955			1600	8.80	2,760			1000	5.94	785
31	0200	6.49	866		1800	8.74	2,710			1200	5.87	752
	0400	6.41	834		2000	8.62	2,600			1400	5.81	724
	0600	6.47	858		2200	8.27	2,300			1600	5.72	684
	0800	6.73	975		2400	7.97	2,060		1800	5.68	666	
	1000	7.60	1,500	2	0200	7.78	1,910		2000	5.62	639	
	1200	8.62	2,220			0400	7.55	1,730		2200	5.55	610
	1400	9.28	2,770			0600	7.37	1,620		2400	5.49	586
	1600	9.78	3,280			0800	7.24	1,530				

Location.--Lat 39°33'50", long 120°32'50", in NW¹/₄NW¹/₄ sec.32, T.20 N., R.13 E., 0.4 mile downstream from Dead Horse Canyon and 4.5 miles east of Sierra City.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 5,840 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 180 cfs and by computed flow over weir at 573 and 3,100 cfs; affected by ice Jan. 1 to Feb. 7, Feb. 13, 15-21, 26, 27.

Maxima.--January-February 1963: Discharge, 3,100 cfs 2300 hours Jan. 31 (gage height, 3.75 ft, from recorder graph; 5.2 ft, from floodmarks).
1960 to December 1962: Discharge, 573 cfs Oct. 13, 1962 (gage height, 1.85 ft).

Day	January	February	Day	January	February	Day	January	February
1.....	28	754	11.....	14	82	21.....	11	50
2.....	21	238	12.....	12	75	22.....	11	54
3.....	21	199	13.....	10	75	23.....	11	48
4.....	20	164	14.....	12	69	24.....	11	47
5.....	18	133	15.....	12	65	25.....	11	47
6.....	18	118	16.....	12	63	26.....	10	48
7.....	17	106	17.....	11	60	27.....	10	45
8.....	17	94	18.....	11	58	28.....	9.2	43
9.....	16	90	19.....	11	56	29.....	10	---
10.....	16	88	20.....	11	56	30.....	92	---
						31.....	1.150	---

Monthly mean discharge, in cubic feet per second.....	53.0	108
Runoff, in inches.....	3.36	6.18
Runoff, in acre-feet.....	3,260	6,000

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Haypress Creek near Sierra City, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	0.23	10	Jan. 31	0900	1.24	254	Feb. 1	0500	2.58	1,180
					1100	1.58	412		0700	2.18	814
30	1200	.25	12		1200	2.00	675		0800	1.72	490
	1600	.49	50		1300	2.30	910		0900	1.72	490
	1800	.69	90		1500	2.70	1,310		1000	1.58	412
	1900	.95	156		1800	3.00	1,700		1400	1.45	346
	2000	1.35	300		2000	3.45	2,470		1630	1.57	406
	2100	1.41	327		2200	3.70	2,990		2100	1.50	370
	2200	1.54	391		2300	3.75	3,100		2400	1.41	327
	2400	1.56	401		2400	3.55	2,670				
31	0200	1.48	360	Feb. 1	0130	2.95	1,630	2	1200	1.18	231
	0400	1.52	380		0200	3.36	2,300		2400	1.12	209
	0800	1.45	346		0300	3.08	1,820				

Woodruff Creek at Goodyears Bar, Calif.

(Miscellaneous site)

Location.--Lat 39°32'10", long 120°53'05", in NW $\frac{1}{4}$ sec.8, T.19 N., R.10 E., 0.2 mile above mouth and 0.4 mile south of Goodyears Bar. Altitude is 2,780 ft (from topographic map).

Drainage area.--4.12 sq mi.

Discharge record.--Maximum discharge determined by field estimate.

Maxima.--January-February 1963: Discharge, about 1,000 cfs Jan. 31.
1943 to December 1962: Discharge, 786 cfs Dec. 23, 1955.

11-4120. Rock Creek at Goodyears Bar, Calif.

(Gaging station, discontinued 1933)

Location.--Lat 39°32'15", long 120°53'05", in SW $\frac{1}{4}$ sec.5, T.19 N., R.10 E., at foot-bridge at Goodyears Bar, 350 ft downstream from Woodruff Creek and 600 ft upstream from mouth. Altitude is 2,680 ft (from topographic map).

Drainage area.--8.98 sq mi.

Discharge record.--Maximum discharge determined by summation of field estimate of peak flow on Woodruff Creek and Rock Creek above Woodruff Creek.

Maxima.--January-February 1963: Discharge, about 2,400 cfs Jan. 31.
1910-33: 1943 to December 1962: Discharge, 2,390 cfs Dec. 23, 1955.

11-4125. Goodyears Creek at Goodyears Bar, Calif.

(Gaging station, discontinued 1933)

Location.--Lat 39°32'30", long 120°53'12", in NW $\frac{1}{4}$ sec.5, T.19 N., R.10 E., 300 ft upstream from mouth and 0.5 mile north of Goodyears Bar. Altitude is 2,650 ft (from topographic map).

Drainage area.--12.9 sq mi.

Discharge record.--Maximum discharge by slope-area measurement.

Maxima.--January-February 1963: Discharge, 3,240 cfs Jan. 31.
1910-33: Discharge, about 1,800 cfs Mar. 25, 1928 (gage height, 9.5 ft, probably affected by backwater from North Yuba River).

(Crest-stage station)

11-4130. North Yuba River below Goodyears Bar, Calif.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	474	18,900	11.....	332	1,310	21.....	298	890
2.....	458	7,440	12.....	294	1,180	22.....	298	840
3.....	452	4,910	13.....	339	2,000	23.....	294	795
4.....	449	3,750	14.....	343	1,360	24.....	290	765
5.....	421	2,920	15.....	332	1,220	25.....	286	740
6.....	408	2,360	16.....	326	1,140	26.....	280	730
7.....	396	1,990	17.....	317	1,070	27.....	276	694
8.....	386	1,750	18.....	315	1,010	28.....	273	666
9.....	381	1,580	19.....	298	955	29.....	294	---
10.....	374	1,460	20.....	298	930	30.....	1,980	---
						31.....	16,500	---
Monthly mean discharge, in cubic feet per second.....							918	2,554
Runoff, in inches.....							4.23	9.72
Runoff, in acre-feet.....							56,450	129,600

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge		
Jan. 29	2400	3.02	355	Jan. 31	1000	13.20	11,300	Feb. 2	0400	12.00	9,000		
30	0300	3.40	452		1200	14.80	14,900		0800	11.39	7,980		
	0800	4.28	742		1500	17.00	20,500		1200	10.80	7,060		
	1300	5.10	1,100		1800	19.50	27,400		2400	9.73	5,530		
	1500	5.82	1,490		2400	20.50	30,200						
	1800	7.80	3,200	Feb. 1	0200	23.8	40,000	3	0600	9.47	5,190		
	2100	9.28	4,940			0600	18.00		23,200		0800	9.50	5,230
	2400	10.27	6,280			1000	15.40		16,400		1400	9.10	4,710
					1500	13.65	12,300			1700	8.98	4,560	
31	0400	10.10	6,040		1800	13.83	12,700		2400	8.87	4,420		
	0700	11.00	7,360		2400	12.80	10,500						

11-4133. Slate Creek below diversion dam, near Strawberry Valley, Calif.

Location.--Lat 39°36'52", long 121°03'04", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.2, T.20 N., R.8 E., on right bank 300 ft downstream from diversion dam, 0.2 mile upstream from Feney Ravine, and 4.5 miles northeast of town of Strawberry Valley.

Drainage area.--49.4 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 3,570 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 5,500 cfs and by computation of flow over dam at 7,460 and 12,200 cfs.

Maxima (creek only).--January-February 1963: Discharge, 12,200 cfs 1900 hours Jan. 31 (gage height, 15.90 ft).
1960 to December 1962: Discharge, 7,460 cfs Oct. 13, 1962 (gage height, 12.75 ft).

Maxima (creek plus diversion).--January-February 1963: Discharge, 12,600 cfs 1900 hours Jan. 31.
1960 to December 1962: Discharge, 7,460 cfs Oct. 13, 1962.

Remarks.--Water is diverted through Slate Creek tunnel (maximum capacity about 900 cfs) to Sly Creek Reservoir at times.

Mean discharge, in cubic feet per second, 1963 (combined flow of Creek and Slate Creek tunnel)

Day	January	February	Day	January	February	Day	January	February
1.....	108	5,140	11.....	48	268	21.....	52	202
2.....	101	1,500	12.....	42	420	22.....	51	182
3.....	97	894	13.....	59	882	23.....	49	168
4.....	94	674	14.....	67	779	24.....	48	154
5.....	85	520	15.....	59	493	25.....	45	140
6.....	82	398	16.....	59	327	26.....	45	142
7.....	76	486	17.....	55	275	27.....	44	129
8.....	73	580	18.....	55	246	28.....	44	122
9.....	70	398	19.....	50	228	29.....	47	-----
10.....	69	324	20.....	53	218	30.....	967	-----
						31.....	7,000	-----

Monthly mean discharge, in cubic feet per second.....	316	582
Runoff, in inches.....	7.38	12.28
Runoff, in acre-feet.....	19,430	32,350

Gage height, in feet, and discharge, in cubic feet per second, (combined flow), at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	-	55	Jan. 31	0400	-	2,450	Feb. 1	0800	-	5,470
	0400	-	77		0500	-	2,460		1000	-	4,520
30	0800	-	117		0600	-	2,620		1300	-	5,820
	1000	-	147		0800	-	3,590		1500	-	3,580
	1100	-	173		0900	-	4,350		1700	-	3,110
	1300	-	260		1100	-	5,750		1800	-	3,080
	1400	-	407		1300	-	8,120		2100	-	2,780
	1500	-	1,130		1400	-	8,930		2400	-	2,250
	1600	-	1,210		1700	-	10,500				
	1700	-	1,650		1800	-	12,100	2	0200	-	2,010
	1800	-	2,080		1900	-	12,600		0700	-	2,080
	1900	-	2,400		2100	-	11,200		1200	-	1,430
	2100	-	2,660		2300	-	10,700		1500	-	1,290
	2300	-	3,110		2400	-	10,400		1600	-	1,270
	2400	-	3,040						2100	-	1,110
31	0300	-	2,540	Feb. 1	0100	-	10,100		2400	-	1,050
					0200	-	10,000				
					0500	-	7,970				

11-4135. North Yuba River below Bullards Bar Dam, Calif.

Location.--Lat 39°24'15", long 121°08'30", in SW $\frac{1}{4}$ sec.24, T.18 N., R.7 E., on right bank 2,000 ft downstream from Bullards Bar Dam, 3 miles upstream from confluence with Middle Yuba River, and 3 miles northwest of North San Juan.

Drainage area.--487 sq mi.

Gage-height record.--Digital-recorder tape punched at 15-minute intervals, except Jan. 24 to Feb. 15. Water-stage recorder graph at site 1.5 miles downstream Feb. 16-28. Altitude of gage is 1,390 ft (from river-profile map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 32,000 cfs and by computations of flow over dam at 42,300 and 83,000 cfs. Discharge for period of no gage-height record estimated on the basis of records of spill and release at Bullards Bar Dam, and diversion to Colgate tunnel, records for North Yuba River at Goodyears Bar, and weather records.

Maxima.--January-February 1963: Discharge, 83,000 cfs about 0300 hours Feb. 1 (gage height, 42.0 ft, from floodmark).
1940 to December 1962: Discharge, 70,000 cfs Dec. 23, 1955 (gage height, 39.0 ft, from floodmark).

Remarks.--Flow affected by Bullards Bar Reservoir (usable capacity, 13,050 acre-ft) and diversion out of the basin through Slate Creek tunnel into Lost Creek.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	848	42,000	11.....	652	2,690	21.....	627	1,730
2.....	815	16,500	12.....	631	2,560	22.....	627	1,650
3.....	788	11,000	13.....	630	3,970	23.....	630	1,510
4.....	785	6,010	14.....	630	3,510	24.....	630	1,430
5.....	757	4,160	15.....	612	2,680	25.....	630	1,360
6.....	731	3,590	16.....	627	2,180	26.....	620	1,300
7.....	712	3,580	17.....	627	2,180	27.....	620	1,120
8.....	695	3,580	18.....	627	2,040	28.....	620	1,050
9.....	680	3,140	19.....	627	1,930	29.....	620	-----
10.....	667	2,970	20.....	627	1,840	30.....	630	-----
						31.....	36,000	-----
Monthly mean discharge, in cubic feet per second.....							1,807	4,775
Runoff, in inches.....							4.28	10.21
Runoff, in acre-feet.....							111,100	265,200

11-4136. Sweetland Creek near North San Juan, Calif.

(Crest-stage station)

Location.--Lat 39°20'18", long 121°06'58", in NE $\frac{1}{4}$ sec.18, T.17 N., R.8 E., on State Highway 49, 2.2 miles southwest of North San Juan.

Drainage area.--2.68 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 1,860 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by computation of flow through culvert at 368 and 526 cfs.

Maxima.--January-February 1963: Discharge, 368 cfs Feb. 1 (gage height, 4.46 ft).
August to December 1962: Discharge, 526 cfs Oct. 13, 1962 (gage height, 6.17 ft).

11-4139. Upper Castle Creek at Soda Springs, Calif.

Location.--Lat 39°19'30", long 120°22'05", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.23, T.17 N., R.14 E., on left bank at Central Sierra Snow Laboratory, U.S. Forest Service, 0.25 mile upstream from mouth and 0.6 mile east of Soda Springs.

Drainage area.--3.96 sq mi.

Gage-height record.--Water-stage recorder graph, except 1530 hours Jan. 31 to 0900 hours Feb. 8 and Feb. 27, 28. Altitude of gage is 6,850 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by V-notch weir rating or Parshall flume rating Jan. 1-31, and by current-meter measurements below 220 cfs Feb. 9-28; affected by ice Jan. 12, 13, Feb. 13-15. Peak discharge determined by computation of flow through culvert and adjustment for drainage area difference. Discharge for Jan. 31 to Feb. 8, Feb. 27, 28, estimated on basis of one culvert computation, weather records, recession curve, and records for nearby stations.

Maxima.--January-February 1963: Discharge, 1,300 cfs, time unknown, Jan. 31 (gage height, unknown).
1958 to December 1962: Discharge, 452 cfs Oct. 13, 1962 (gage height, 4.10 ft).

Remarks.--Gage-height record furnished by the U.S. Forest Service.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	4.20	400	11.....	2.34	13.2	21.....	1.77	7.1
2.....	4.20	155	12.....	2.30	11.3	22.....	1.95	6.6
3.....	4.20	85	13.....	2.20	10.0	23.....	1.86	7.1
4.....	3.91	65	14.....	2.14	9.0	24.....	1.77	7.1
5.....	3.77	55	15.....	2.14	8.0	25.....	1.69	8.6
6.....	3.64	40	16.....	2.14	7.6	26.....	1.52	10.6
7.....	3.38	30	17.....	1.95	7.1	27.....	1.44	6.0
8.....	3.25	25	18.....	1.95	7.1	28.....	1.37	5.5
9.....	3.25	19.0	19.....	1.52	7.1	29.....	1.44	-----
10.....	3.01	15.8	20.....	1.52	7.1	30.....	2.00	-----
						31.....	500	-----
Monthly mean discharge, in cubic feet per second.....							18.51	37.0
Runoff, in inches.....							5.39	9.73
Runoff, in acre-feet.....							1,140	2,050

11-4139.5. South Yuba River tributary near Soda Springs, Calif.

(Crest-stage station)

Location.--Lat 39°18'56", long 120°27'24", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.25, T.17 N., R.13 E., on old U.S. Highway 40, 4.3 miles west of Soda Springs.

Drainage area.--0.90 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 6,050 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by computation of flow through culvert at 274 and 489 cfs.

Maxima.--January-February 1963: Discharge, 489 cfs Feb. 1 (gage height, 21.84 ft, from high-water profile).

August to December 1962: Discharge, 274 cfs Oct. 13, 1962 (gage height, 18.96 ft, from high-water profile).

FLOODS OF 1963 IN THE UNITED STATES

11-4140. South Yuba River near Cisco, Calif.

Location.--Lat 39°19'12", long 120°33'38", in SW $\frac{1}{4}$ sec.19, T.17 N., R.13 E., on right bank 0.7 mile downstream from Rattlesnake Creek, 1.3 miles west of Cisco Grove, and 1.5 miles northwest of Cisco.

Drainage area.--51.8 sq mi.

Gage-height record.--Water-stage recorder graph, except 1800 hours Jan. 31 to 1000 hours Feb. 6. Altitude of gage is 5,520 ft (from river-profile map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 4,600 cfs and by slope-area measurement at 11,700 cfs; affected by ice Jan. 11-13, 19. Discharge for Jan. 31 to Feb. 6 estimated on basis of weather records and records for Middle Fork American River at French Meadows.

Maxima.--January-February 1963: Discharge, 18,400 cfs about 2400 hours Jan. 31 (gage height, 19.6 ft, from floodmark in gage house; 20.6 ft, from outside floodmarks).

1942 to December 1962: Discharge, 11,700 cfs Nov. 20, 1950 (gage height, 15.82 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	79	6,500	11.....	66	214	21.....	55	154
2.....	76	1,100	12.....	65	184	22.....	55	139
3.....	79	760	13.....	65	246	23.....	55	127
4.....	76	580	14.....	64	210	24.....	55	129
5.....	73	500	15.....	61	173	25.....	55	134
6.....	69	430	16.....	60	167	26.....	55	152
7.....	67	380	17.....	60	158	27.....	54	139
8.....	66	323	18.....	60	154	28.....	53	122
9.....	65	266	19.....	58	158	29.....	55	-----
10.....	66	249	20.....	56	160	30.....	480	-----
						31.....	8,460	-----
Monthly mean discharge, in cubic feet per second.....							347	500
Runoff, in inches.....							7.77	10.1
Runoff, in acre-feet.....							21,350	27,780

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.63	65	Jan. 30	1900	5.35	932	Jan. 31	0800	9.15	3,440
	30	0500	2.79		2200	6.76	1,680		1100	11.70	5,970
		0700	2.79		2400	7.03	1,840		1400	15.30	10,800
		1000	2.73						1600	16.22	12,300
		1200	2.69	31	0100	7.03	1,840		1800	17.00	13,600
		1500	3.75		0200	7.12	1,890		2400	19.6	18,400
			310		0600	8.12	2,600				

11-4155. Bowman Lake near Graniteville, Calif.

Location.--Lat 39°26'55", long 120°39'05", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.5, T.18 N., R.12 E., on rockfill portion of Bowman Dam on Canyon Creek, 4.5 miles east of Graniteville and 8 miles south of Sierra City.

Drainage area.--27.3 sq mi.

Gage-height record.--Once-daily staff-gage readings obtained between 1000 and 1500 hours furnished by Nevada Irrigation District. Datum of gage is at mean sea level (levels by Nevada Irrigation District).

Contents record.--Contents computed from capacity table dated Mar. 14, 1934.

Maxima.--January-February 1963: Maximum contents observed, 66,200 acre-ft Feb. 20 (elevation, 5,560.5 ft).

1926 to December 1962: Maximum contents observed, 70,500 acre-ft for one or more days in 1937, 1943, 1950-51, 1953-54 (elevation, 5,565.9 ft).

Remarks.--Lake is formed by one rockfill and one concrete-arch dam; completed and storage began in November 1926. Total capacity, 68,200 acre-ft between elevations 5,400 ft (bottom of outlet tunnel) and 5,563 ft (crest of concrete-arch dam) above mean sea level. Flashboards are occasionally added, increasing elevation to 5,565.8 ft and capacity to 70,400 acre-ft, all of which is available for release. Lake receives water from Middle Yuba River through Milton-Bowman tunnel and releases it through Bowman-Spaulding Canal which conveys it to reservoirs of Pacific Gas and Electric Co.

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	5,541.0	50,600	5,550.0	57,800	16	5,535.3	46,500	5,580.3	66,000
2	5,540.7	50,400	5,552.5	59,800	17	5,534.9	46,200	5,580.3	66,000
3	5,540.4	50,100	5,553.5	60,600	18	5,534.5	46,000	5,580.4	66,100
4	5,540.1	49,900	5,554.3	61,200	19	5,534.1	45,700	5,580.4	66,100
5	5,539.8	49,700	5,555.3	62,000	20	5,533.6	45,300	5,580.5	66,200
6	5,539.5	49,400	5,556.1	62,700	21	5,533.1	45,000	5,580.4	66,100
7	5,539.1	49,200	5,556.7	63,200	22	5,532.7	44,700	5,580.4	66,100
8	5,538.7	48,900	5,557.4	63,700	23	5,532.2	44,300	5,580.2	66,000
9	5,538.4	48,700	5,557.8	64,000	24	5,531.7	44,000	5,580.1	65,900
10	5,537.9	48,300	5,558.3	64,400	25	5,531.2	43,600	5,580.0	65,800
11	5,537.4	48,000	5,558.6	64,700	26	5,530.8	43,400	5,559.9	65,700
12	5,537.0	47,700	5,558.8	64,800	27	5,530.3	43,000	5,559.7	65,600
13	5,536.7	47,500	5,559.4	65,300	28	5,529.8	42,700	5,559.6	65,500
14	5,536.3	47,200	5,560.0	65,800	29	5,529.3	42,300	-	-
15	5,535.8	46,900	5,560.2	66,000	30	5,529.4	42,400	-	-
					31	5,535.6	46,700	-	-
Change in contents, in acre-feet.....						-	-4,100	-	+18,800

Location.--Lat 39°26'20", long 120°39'40", in SE $\frac{1}{4}$ sec.7, T.18 N., R.12 E., on left bank 1 mile downstream from Bowman Lake, 3 miles upstream from Texas Creek, and 9 miles south of Sierra City.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 5,100 ft (from topographic map).

Maxima.--January-February 1963: Discharge, 157 cfs 2300 hours Jan. 31 (gage height, 3.05 ft).

1927 to December 1962: Discharge, 2,520 cfs Dec. 4, 1950 (gage height, 6.28 ft).

Remarks.--Flow regulated by French Lake Reservoir (usable capacity, 13,840 acre-ft), by Bowman Lake (see station 11-4155), and several smaller reservoirs.

[illegible]

11-4170. South Yuba River near Washington, Calif.

Location--Lat 39°21'38", long 120°46'14", on line between secs. 5 and 8, T.17 N., R.11 E., on left bank 800 ft upstream from unnamed tributary and 1.5 miles east of Washington.

Drainage area--199 sq mi.

Gage-height record--Water-stage recorder graph. Altitude of gage is 2,735 ft (from river-profile map).

Discharge record--Stage-discharge relation defined by current-meter measurements below 6,500 cfs and by slope-area measurement at 26,300 cfs.

Maxima--January-February 1963: Discharge, 28,500 cfs 0300 hours Feb. 1 (gage height, 17.16 ft, from recorder graph; 18.5 ft, from floodmarks).
1942 to December 1962: Discharge, 26,300 cfs Dec. 23, 1955 (gage height, 17.8 ft, from floodmarks).

Remarks--Flow affected by Lake Spaulding beginning in 1912 (capacity, 74,500 acre-ft), Bowman Lake (see station 11-4155), Fordyce Lake beginning in 1926 (capacity, 46,700 acre-ft), and diversions into and out of basin for several powerhouses.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	115	14,800	11.....	94	218	21.....	82	170
2.....	112	3,600	12.....	92	206	22.....	81	162
3.....	111	1,350	13.....	95	451	23.....	80	157
4.....	109	1,290	14.....	92	297	24.....	79	149
5.....	105	1,440	15.....	88	241	25.....	41	141
6.....	102	854	16.....	88	214	26.....	37	92
7.....	101	475	17.....	88	210	27.....	36	85
8.....	100	264	18.....	87	196	28.....	36	84
9.....	99	241	19.....	85	184	29.....	41	- - - - -
10.....	98	230	20.....	82	176	30.....	950	- - - - -
						31.....	6,190	- - - - -
Monthly mean discharge, in cubic feet per second.....							309	999
Runoff, in acre-feet.....							19,030	55,490

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.43	58	Jan. 31	1800	10.42	8,040	Feb. 2	2100	5.60	1,620
					2000	10.48	8,160		2400	5.53	1,570
30	0300	1.77	91		2200	13.65	16,000				
	1000	3.19	367		2400	15.90	23,500	3	1100	5.37	1,460
	1300	3.65	518						1400	4.90	1,160
	1700	6.20	2,060	Feb. 1	0300	17.16	28,500		1800	4.87	1,140
	1900	6.07	1,940		0600	15.50	22,100		1800	5.26	1,380
	2200	6.34	2,190		0900	13.85	16,600		2200	4.82	1,110
	2400	6.25	2,100		1200	12.15	11,900		2400	4.99	1,210
31	0300	5.96	1,850		1600	10.75	8,700				
	0700	6.45	2,290		2400	9.45	6,250	4	0600	4.80	1,100
	1000	7.48	3,390						1500	4.65	1,020
	1300	9.10	5,620	2	0600	8.35	4,490		1700	5.70	1,690
	1600	9.55	6,430		1200	7.55	3,470		2400	5.70	1,690
					1800	6.95	2,800				

11-4171. Poorman Creek near Washington, Calif.

Location.--Lat 39°21'36", long 120°48'24", in SW $\frac{1}{4}$ sec.1, T.17 N., R.10 E., on left bank just downstream from U.S. Forest Service road bridge, 0.4 mile west of Washington and 1.4 miles downstream from Deadman Creek.

Drainage area.--23.2 sq mi.

Gage-height record.--Digital-recorder tape punched at 15-minute intervals. Altitude of gage is 2,600 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,700 cfs and by slope-area measurement at 4,320 cfs.

Maxima.--January-February 1963: Discharge, 4,320 cfs 2200 hours Jan. 31 (gage height, 10.95 ft, from recorder graph; 12.1 ft, from floodmarks).
1961 to December 1962: Discharge, 2,380 cfs Oct. 13, 1962 (gage height, 8.85 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	32	1,590	11.....	24	89	21.....	22	66
2.....	30	478	12.....	22	84	22.....	22	63
3.....	30	310	13.....	24	162	23.....	21	59
4.....	30	236	14.....	24	113	24.....	21	57
5.....	29	186	15.....	24	95	25.....	20	55
6.....	28	149	16.....	23	88	26.....	20	53
7.....	27	129	17.....	22	84	27.....	20	50
8.....	26	112	18.....	22	78	28.....	20	49
9.....	26	103	19.....	22	72	29.....	22	-----
10.....	26	99	20.....	21	70	30.....	355	-----
						31.....	2,120	-----
Monthly mean discharge, in cubic feet per second.....							102	171
Runoff, in inches.....							5.09	7.66
Runoff, in acre-feet.....							6,300	9,480

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.81	29	Jan. 31	0200	5.78	662	Feb. 1	0600	8.40	2,040
	0400	2.98	38		0400	5.78	662		0800	7.57	1,490
30	0600	3.14	48		0700	6.22	849		1100	6.80	1,080
	0800	3.52	79		1100	7.95	1,740		1400	6.43	909
	0900	3.77	107		1500	8.96	2,470		1900	6.22	814
	1200	4.09	160		1600	9.08	2,560		2000	6.27	837
	1400	4.68	297		1800	10.03	3,400		2200	6.00	720
	1600	5.54	569		1900	10.35	3,720		2400	5.80	640
	1800	5.91	714		2000	10.47	3,840				
	2100	6.39	926		2200	10.95	4,320	2	0600	5.54	536
	2200	6.37	917		2400	10.67	4,040		1200	5.33	461
	2400	6.06	777	Feb. 1	0300	10.17	3,540		1800	5.17	405
									2400	5.09	379

11-4175. South Yuba River at Jones Bar, Calif.

Location.--Lat 39°17'32", long 121°06'13", near center of sec.32, T.17 N., R.8 E., on left bank 100 ft upstream from Rush Creek, 0.9 mile downstream from bridge on State Highway 49, and 5 miles northwest of Grass Valley.

Drainage area.--310 sq mi.

Gage-height record.--Water-stage recorder graph, except Feb. 1-28. Altitude of gage is 1,060 ft (from river-profile map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 18,000 cfs and extended above on basis of comparison with peak for station near Washington and study of runoff per square mile for intervening area. Discharge for period of no gage-height record estimated on basis of three discharge measurements, trend of recorder chart, weather records, and comparison with station near Washington.

Maxima.--January-February 1963: Discharge, about 40,000 cfs 2400 hours Jan. 31 (gage height, 21.5 ft, from floodmarks).
1940-48, 1959 to December 1962: Discharge, 20,700 cfs Oct. 13, 1962 (gage height, 17.70 ft).
Flood of Dec. 23, 1955, reached a stage of 28.7 ft.

Remarks.--Flow affected by Lake Spaulding (capacity, 74,500 acre-ft), Fordyce Lake (capacity, 46,700 acre-ft), Bowman Lake (see station 11-4155), many smaller reservoirs and diversion into and out of the basin for power generation and irrigation.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	217	18,000	11.....	173	600	21.....	149	450
2.....	212	6,000	12.....	158	560	22.....	150	450
3.....	209	2,500	13.....	166	1,100	23.....	153	410
4.....	209	2,100	14.....	165	840	24.....	150	400
5.....	200	2,300	15.....	161	680	25.....	134	380
6.....	192	1,500	16.....	159	600	26.....	101	310
7.....	187	1,000	17.....	158	580	27.....	97	270
8.....	184	760	18.....	157	540	28.....	97	260
9.....	180	690	19.....	152	500	29.....	106	-----
10.....	177	660	20.....	148	480	30.....	1,540	-----
						31.....	12,500	-----
Monthly mean discharge, in cubic feet per second.....							605	1,604
Runoff, in acre-feet.....							37,170	89,060

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	4.18	137	Jan. 30	1600	8.20	1,640	Jan. 31	0500	10.95	4,340
					1800	9.45	2,640		0600	10.96	4,350
30	0500	4.47	175		2100	11.46	5,030		1200	12.75	7,110
	0800	4.84	233		2200	11.37	4,910		1500	14.70	11,200
	1200	5.70	441		2400	11.38	4,920		1800	16.60	16,600
	1400	6.75	828						2400	21.50	40,000

11-4180. Yuba River at Englebright Dam, Calif.

Location.--Lat 39°14'22", long 121°16'00", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.14, T.16 N., R.6 E., on left bank upstream from spillway of Englebright Dam, 1 mile upstream from Deer Creek and 2.5 miles northeast of Smartville.

Drainage area.--1,104 sq mi.

Gage-height record.--Water-stage recorder graph, flowmeter in penstock and watt meter in powerhouse just below dam. Datum of gage is at mean sea level (levels by Corps of Engineers).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 25,000 cfs, by computation of peak flow over spillway of dam at 147,000 cfs.

Maxima.--January-February 1963: Discharge, 150,000 cfs 0430 hours Feb. 1, including flow through powerhouse.

1941 to December 1962: Discharge, 148,000 cfs Dec. 23, 1955, including flow through powerhouse.

Remarks.--Flow partly regulated by several reservoirs. Records show total flow over Englebright Dam spillway and through and past powerhouse. Records of flow through powerplant furnished by Pacific Gas and Electric Co.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	1,360	98,900	11.....	997	4,500	21.....	936	2,700
2.....	1,330	31,100	12.....	942	4,210	22.....	947	2,550
3.....	1,280	16,200	13.....	931	6,380	23.....	926	2,400
4.....	1,260	11,200	14.....	964	5,960	24.....	926	2,300
5.....	1,220	9,890	15.....	991	4,680	25.....	916	2,150
6.....	1,170	7,530	16.....	985	4,120	26.....	875	2,100
7.....	1,130	6,020	17.....	963	3,820	27.....	850	2,000
8.....	1,100	5,560	18.....	952	3,520	28.....	859	1,900
9.....	1,070	5,260	19.....	925	3,000	29.....	883	- - - - -
10.....	1,060	4,840	20.....	917	2,800	30.....	2,520	- - - - -
						31.....	57,600	- - - - -
Monthly mean discharge, in cubic feet per second.....							2,896	9,200
Runoff, in acre-feet.....							178,100	510,900

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	-	916	Jan. 31	1700	-	81,000	Feb. 2	0400	-	40,800
					1900	-	103,000		0800	-	33,600
30	0900	-	1,020		2100	-	128,000		1500	-	26,100
	1115	-	417		2200	-	135,000		2000	-	21,100
	1145	-	460		2400	-	139,000		2400	-	20,400
	1400	-	1,400								
	1700	-	2,120	Feb. 1	0200	-	146,000	3	0300	-	18,600
	2000	-	4,000		0430	-	150,000		0600	-	17,400
	2200	-	7,200		0600	-	147,000		1500	-	15,400
	2400	-	13,000		0800	-	131,000		2200	-	13,500
					1000	-	114,000		2400	-	13,400
31	0300	-	21,400		1200	-	95,800				
	0500	-	24,000		1300	-	85,900	4	1200	-	11,000
	0900	-	25,700		1500	-	71,300		1500	-	9,940
	1100	-	30,100		1800	-	58,300		1800	-	9,540
	1300	-	41,200		2400	-	48,200		2100	-	9,810
	1500	-	57,300						2400	-	10,900

11-4185. Deer Creek near Smartville, Calif.

Location.--Lat 39°13'28", long 121°16'03", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.23, T.16 N., R.6 E., on left bank 400 ft upstream from county road bridge, 0.9 mile upstream from mouth, and 2 miles northeast of Smartville.

Drainage area.--84.6 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 630 ft (from river-profile map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 5,200 cfs.

Maxima.--January-February 1963: Discharge, 5,810 cfs 2000 hours Jan. 31 (gage height, 10.10 ft).
1935 to December 1962: Discharge, 11,600 cfs Oct. 13, 1962 (gage height, 13.77 ft).

Remarks.--Floodflow affected by Scotts Flat Reservoir (usable capacity, 49,000 acre-ft) and Deer Creek Reservoir (capacity, 1,400 acre-ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	106	3,650	11.....	94	153	21.....	99	175
2.....	105	1,580	12.....	94	137	22.....	92	170
3.....	106	765	13.....	94	500	23.....	86	164
4.....	102	536	14.....	94	312	24.....	88	159
5.....	84	421	15.....	94	248	25.....	81	156
6.....	87	318	16.....	94	230	26.....	81	151
7.....	90	252	17.....	96	222	27.....	86	147
8.....	92	216	18.....	94	207	28.....	86	144
9.....	90	194	19.....	115	199	29.....	89	-----
10.....	93	181	20.....	111	200	30.....	1,350	-----
						31.....	4,080	-----

Monthly mean discharge, in cubic feet per second.....	263	421
Runoff, in acre-feet.....	16,170	23,380

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.50	100	Jan. 31	0300	7.67	2,970	Feb. 1	0400	9.15	4,590
					0400	7.81	3,110		0500	9.21	4,660
30	0300	2.66	120		0600	7.84	3,140		0600	9.18	4,630
	0600	2.75	133		0800	8.10	3,410		0800	8.91	4,300
	0800	2.92	157		0900	8.08	3,390		1200	8.28	3,610
	1100	3.45	250		1100	8.22	3,540		1700	7.56	2,860
	1400	4.60	590		1300	8.10	3,410		2100	7.12	2,420
	1600	5.80	1,310		1500	8.45	3,800		2300	6.95	2,260
	1700	6.90	2,210		1700	9.60	5,130		2400	6.95	2,260
	1800	7.75	3,050		1800	9.88	5,500				
	2000	8.32	3,650		2000	10.10	5,810	2	0200	6.87	2,180
	2200	9.12	4,550		2100	9.93	5,570		0900	6.28	1,670
	2400	8.38	3,720		2200	9.89	5,520		1600	5.81	1,320
					2400	9.82	5,420		2200	5.52	1,110
31	0200	7.75	3,050						2400	5.43	1,050

11-4203. Willow Glen Creek near Rackerby, Calif.

(Crest-stage station)

Location.--Lat 39°24'22", long 121°18'31", in NW $\frac{1}{4}$ sec.21, T.18 N., R.6 E., 2 miles southeast of Rackerby.

Drainage area.--1.95 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 1,890 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 83 cfs and by computation of flow through culvert and flow over the road at 344 cfs.

Maxima.--January-February 1963: Discharge, 108 cfs Jan. 31 (gage height, 6.64 ft).
August to December 1962: Discharge, 344 cfs Oct. 13, 1962 (gage height, 10.75 ft, from crest-stage gage; 10.90 ft, from high-water profile).

11-4210. Yuba River near Marysville, Calif.

Location.--Lat 39°10'35", long 121°31'25", on left bank in New Helvetia land grant, 4.2 miles northeast of Marysville, Yuba County, and 5 miles downstream from Dry Creek.

Drainage area.--1,340 sq mi.

Gage-height record.--Water-stage recorder graph, except 0200-1400 hours Feb. 1 and 1500 hours Feb. 5 to 1300 hours Feb. 8. The graph for Feb. 1 was reconstructed based on floodmarks, estimated time of peak and the shape of the trace for the station at Englebright Dam.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 50,000 cfs and by Corps of Engineers flood-routing studies for 100,000, 146,000, and 160,000 cfs. There was backwater from the Feather River about 1100 hours Feb. 1 to about 1200 hours Feb. 3. Discharge for Feb. 5-8 was estimated on basis of normal recession.

Maxima.--January-February 1963: Discharge, 146,000 cfs about 0700-0800 hours

Feb. 1 (gage height, 88.9 ft, from floodmarks).

1943 to December 1962: Discharge, 160,000 cfs Dec. 23, 1955 (gage height, 88.85 ft, from floodmarks).

Remarks.--Flow affected by several reservoirs above station (see station 11-4180).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	1,320	101,000	11.....	1,110	4,120	21.....	1,120	2,660
2.....	1,280	35,000	12.....	1,060	3,580	22.....	1,100	2,530
3.....	1,260	19,100	13.....	1,040	6,880	23.....	1,080	2,350
4.....	1,220	13,900	14.....	1,060	6,970	24.....	1,080	2,270
5.....	1,180	11,600	15.....	1,100	4,910	25.....	1,070	2,180
6.....	1,200	8,140	16.....	1,110	3,990	26.....	1,020	2,120
7.....	1,270	6,820	17.....	1,140	3,670	27.....	1,000	1,950
8.....	1,150	5,800	18.....	1,060	3,340	28.....	1,000	1,880
9.....	1,130	5,080	19.....	1,050	2,980	29.....	1,030	-----
10.....	1,110	4,600	20.....	1,140	2,820	30.....	3,050	-----
						31.....	46,100	-----
Monthly mean discharge, in cubic feet per second.....							2,634	9,723
Runoff, in acre-feet.....							161,900	540,000

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	62.07	1,070	Jan. 31	1000	71.80	29,000	Feb. 1	2100	80.28	53,400
					1200	72.40	31,100		2400	79.31	47,900
	0600	62.13	1,130		1400	73.80	36,000				
30	0900	62.17	1,170		1600	76.20	44,600	2	0600	77.68	42,000
	1200	62.25	1,260		1800	80.25	64,800		1200	75.65	34,000
	1500	62.47	1,510		2000	83.10	85,900		1600	74.39	30,400
	1800	62.61	1,670		2200	85.00	103,000		2000	73.14	26,400
	1800	63.62	3,340		2400	86.62	119,000		2400	72.21	23,600
	2100	65.19	7,360					3	0600	70.73	19,900
	2400	67.50	14,500	Feb. 1	0200	87.60	130,000		1200	69.95	18,600
					0700	88.9	146,000		1800	69.45	18,000
31	0100	68.25	17,000		0800	88.9	146,000		2400	68.91	16,500
	0400	69.65	21,700		1400	84.90	90,400				
	0800	71.34	27,500		1800	81.95	63,400				

11-4230. Bear River near Auburn, Calif.

Location.--Lat 39°00'45", long 121°06'10", in NE $\frac{1}{4}$ sec.5, T.13 N., R.8 E., on right bank 200 ft upstream from bridge on State Highway 49, 2.6 miles upstream from Wolf Creek, and 8 miles north of Auburn.

Drainage area.--139 sq mi.

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

Discharge record.--Stage-discharge relation defined by current-meter measurements below 9,500 cfs and by computation of flow over dam at 19,100 and 19,300 cfs.

Maxima.--January-February 1963: Discharge, 19,100 cfs 2400 hours Jan. 31 (gage height, 16.15 ft).
1940 to December 1962: Discharge, 19,700 cfs Dec. 22, 1955 (gage height, 16.56 ft).

Remarks.--Flow affected by Lake Combie (usable capacity, 7,840 acre-ft) and other reservoirs.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	218	10,600	11.....	183	574	21.....	122	428
2.....	228	3,120	12.....	179	556	22.....	116	383
3.....	245	1,890	13.....	118	1,430	23.....	112	365
4.....	220	1,390	14.....	146	1,030	24.....	113	348
5.....	212	1,100	15.....	152	750	25.....	113	324
6.....	197	919	16.....	127	632	26.....	65	292
7.....	195	850	17.....	122	569	27.....	36	247
8.....	188	710	18.....	125	524	28.....	40	232
9.....	190	680	19.....	122	464	29.....	38	-----
10.....	190	655	20.....	120	460	30.....	1,180	-----
						31.....	8,410	-----
Monthly mean discharge, in cubic feet per second.....							446	1,126
Runoff, in inches.....							3.70	8.43
Runoff, in acre-feet.....							27,410	62,520

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	
Jan. 29	2400	3.66	32	Jan. 31	1000	9.85	5,050	Feb. 1	2400	9.50	4,440	
30					1200	10.07	5,460	2				
	0200	3.66	32		1400	10.45	6,220			1200	9.50	2,980
	0600	3.79	47		1500	10.90	7,140			1400	8.40	2,860
	1000	4.07	83		1700	12.20	10,000			1700	8.09	2,490
	1200	4.58	174		1900	13.10	12,000			2000	8.02	2,400
	1300	5.05	302		2300	16.00	18,800		2400	7.81	2,170	
	1500	5.87	655		2400	16.15	19,100	3				
	1700	6.75	1,200							0600	7.70	2,050
	1900	7.50	1,850	Feb. 1	0400	14.95	16,300			1000	7.82	2,180
	2100	9.21	3,980			0600	14.92		16,200		1700	7.22
2400	10.10	5,520			1000	13.00	11,800			2000	7.22	1,590
31						1400	11.15	7,690		2100	7.30	1,660
	0200	10.25	5,820			1700	10.40	6,120		2400	7.12	1,500
	0700	9.80	4,960		1900	9.98	5,280					

11-4230.5. Magnolia Creek near Auburn, Calif.

(Crest-stage station)

Location.--Lat 39°01'54", long 121°05'45", in SE $\frac{1}{4}$ sec.28, T.14 N., R.8 E., on State Highway 49, 8.2 miles north of Auburn.

Drainage area.--5.65 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 1,385 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 77 cfs and by computation of flow through road culvert at 408 and 1,380 cfs.

Maxima.--January-February 1963: Discharge, 408 cfs Feb. 1 (gage height, 6.82 ft).
August to December 1962: Discharge, 1,380 cfs Oct. 13, 1962 (gage height, 12.01 ft).

11-4240. Bear River near Wheatland, Calif.

Location.--Lat 39°00'01", long 121°24'20", in sec.3, T.13 N., R.5 E., in midstream on downstream side of bridge on U.S. Highway 99E, 1 mile southeast of Wheatland and 6.5 miles downstream from Rock Creek.

Drainage area.--292 sq mi.

Gage-height record.--Water-stage recorder graph, except Feb. 12, 18-28. Altitude of gage is 78.92 ft above mean sea level (levels by California Department of Water Resources).

Discharge record.--Stage-discharge relation defined by current-meter measurements. Discharge for periods of no gage-height record estimated on basis of records for station near Auburn.

Maxima.--January-February 1963: Discharge, 22,000 cfs 0500 hours Feb. 1 (gage height, 13.95 ft).
1928 to December 1962: Discharge, 33,000 cfs Dec. 22, 1955 (gage height, 19.30 ft); gage height, 20.83 ft Nov. 21, 1950.

Remarks.--Flows affected by detention storage in partly-constructed Camp Far West Reservoir.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	310	16,100	11.....	261	660	21.....	187	480
2.....	305	5,340	12.....	249	630	22.....	187	430
3.....	323	3,210	13.....	222	2,660	23.....	178	390
4.....	310	2,030	14.....	187	1,880	24.....	178	350
5.....	293	1,480	15.....	222	1,100	25.....	175	320
6.....	289	1,160	16.....	204	822	26.....	175	300
7.....	273	1,050	17.....	179	714	27.....	112	230
8.....	269	843	18.....	190	620	28.....	98	100
9.....	265	780	19.....	197	560	29.....	112	-----
10.....	273	822	20.....	187	550	30.....	1,160	-----
						31.....	9,020	-----

Monthly mean discharge, in cubic feet per second.....	535	1,628
Runoff, in inches.....	2.09	5.75
Runoff, in acre-feet.....	32,910	90,430

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.08	122	Jan. 31	1500	9.20	8,180	Feb. 1	2100	8.50	8,600
					1700	9.50	8,750		2400	7.90	7,420
30	0900	1.15	142		1900	10.00	9,740				
	1200	1.27	178		2200	11.15	12,200	2	0600	7.13	6,110
	1500	1.62	310		2400	11.90	14,000		1200	6.50	5,150
	1700	2.60	844						1700	6.10	4,590
	1900	4.05	1,830	Feb. 1	0200	13.10	18,400		2200	5.66	4,010
	2000	5.35	2,950		0300	13.65	20,700		2400	5.62	3,960
	2200	7.00	4,770		0500	13.95	22,000				
	2400	8.30	6,640		0800	13.50	20,700	3	1000	5.09	3,290
					1100	13.05	19,400		1500	5.10	3,300
31	0400	9.30	8,370		1400	12.20	17,200		1800	4.72	2,840
	0700	9.50	8,750		1700	10.65	13,400		2300	4.26	2,340
	1200	9.10	8,000		1900	9.30	10,300		2400	4.25	2,320

11-4246. Wellman Creek near Smartville, Calif.

(Crest-stage station)

Location.--Lat 39°11'37", long 121°20'23", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.31, T.16 N., R.6 E., 2.3 miles southwest of Smartville.

Drainage area.--0.59 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 495 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 41 cfs and by computation of flow through culverts above 41 cfs including road overflow above 70 cfs.

Maxima.--January-February 1963: Discharge, 57 cfs Jan. 31 (gage height, 12.56 ft).
1959 to December 1962: Discharge, 211 cfs Oct. 13, 1962 (gage height, 14.56 ft, from crest-stage gage and high-water profiles).

11-4250. Feather River at Nicolaus, Calif.

Location.--Lat 38°54'00", long 121°35'00", on left bank at Nicolaus, Sutter County, at highway bridge 2.9 miles downstream from Bear River.

Drainage area.--5,928 sq mi.

Gage-height record.--Water-stage recorder graph. Gage is set to datum of Corps of Engineers.

Discharge record.--Stage-discharge relation defined by current-meter measurements. Backwater from the Sacramento River Feb. 7-28.

Maxima.--January-February 1963: Discharge, 260,000 cfs 1600 hours Feb. 1 (gage height, 50.05 ft).
1943 to December 1962: Discharge, 357,000 cfs Dec. 23, 1955 (gage height, 51.60 ft).

Remarks.--Flow partly regulated by reservoirs and powerplants.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	6,190	200,000	11.....	5,220	18,100	21.....	4,070	11,300
2.....	6,190	179,000	12.....	5,220	17,000	22.....	4,190	10,500
3.....	6,050	101,000	13.....	4,510	19,300	23.....	4,440	9,460
4.....	6,050	65,400	14.....	4,190	25,200	24.....	4,440	9,280
5.....	6,050	49,000	15.....	4,700	21,900	25.....	4,190	9,120
6.....	6,050	41,300	16.....	4,700	19,000	26.....	4,190	8,640
7.....	5,630	31,400	17.....	4,440	16,800	27.....	3,960	8,160
8.....	5,490	25,200	18.....	4,510	15,200	28.....	3,970	8,160
9.....	5,490	22,200	19.....	4,510	13,700	29.....	4,070	-----
10.....	5,220	19,700	20.....	4,190	12,700	30.....	5,020	-----
						31.....	34,200	-----
Monthly mean discharge, in cubic feet per second.....							5,830	35,280
Runoff, in acre-feet.....							358,500	1,959,000

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	24.2	4,310	Jan. 31	0600	33.2	21,200	Feb. 1	1500	50.0	258,000
					0900	36.7	28,100		1600	50.05	260,000
30	0700	24.2	4,310		1200	37.4	34,100		1800	50.0	258,000
	1000	24.3	4,440		1800	39.5	43,900		2400	49.3	230,000
	1300	24.6	4,830		2100	40.7	51,900				
	1700	24.8	5,090		2400	42.7	72,600	2	1200	47.8	178,000
	1900	25.0	5,350						2400	46.2	130,000
	2100	25.5	6,050	Feb. 1	0600	46.6	149,000	3	1200	44.8	98,000
	2400	27.0	8,320		1200	49.4	238,000		2400	43.6	78,000

11-4255. Sacramento River at Verona, Calif.

Location.--Lat 38°46'50", long 121°36'10", in SE $\frac{1}{4}$ sec.23, T.11 N., R.3 E., on left bank 0.8 mile southeast of Verona, 1 mile downstream from Feather River, 6.2 miles east of Knights Landing, and at mile 19.6 upstream from Sacramento.

Gage-height record.--Water-stage recorder graph. Datum of gage is 0.06 ft below datum of Corps of Engineers.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 69,400 cfs 2300 hours Feb. 1 (gage height, 38.14 ft).
1926 to December 1962: Discharge, 79,200 cfs Mar. 1, 1940 (gage height, 41.20 ft).

Remarks.--Flow regulated by Shasta Lake (see station 11-3700) beginning Dec. 30, 1943, and by several other reservoirs. When discharge exceeds about 55,000 cfs flow begins over Fremont weir into Yolo bypass (see station 11-4530).

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Sacramento weir spill to Yolo bypass near Sacramento, Calif.

of Sacramento weir spill to rock bypass near Sacramento, Calif.													
Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge		
Jan. 31	2400	-	0	Feb. 2	1200	31.70	80,600	Feb. 5	1330	28.05	21,800		
Feb. 1	0830	25.00	0		1800	30.70	61,700		2400	27.43	12,700		
	1900	31.00	980		2400	29.85	48,100						
	2040	32.12	8,320	3	0600	29.10	35,800	6	0800	26.76	6,760		
	2140	32.39	37,800			1200	28.70		30,200		1300	26.30	3,530
	2200	32.10	46,700			1800	28.52		27,500		2400	25.98	1,390
	2300	31.80	65,200			2400	28.48	27,500	7	1200	25.62	276	
	2400	31.70	80,600							2400	25.40	90	
	2	0600	31.78	82,600	4	1200	28.35	25,500	8	1800	25.00	0	
		0930	31.83	82,600			2400	28.21		23,700		2400	-

11-4261.1. Onion Creek tributary No. 3 near Soda Springs, Calif.

Location.--Lat 39°17'04", long 120°21'20", in E½NW¼ sec.1, T.16 N., R.14 E., 0.8 mile upstream from Onion Creek campground and 3.0 miles southeast of Soda Springs.

Drainage area.--0.65 sq mi.

Gage-height record.--Water-stage recorder graph, except Feb. 1-28.

Discharge record.--Stage-discharge relation defined by 120° sharp-crested V-notch weir; affected by ice Jan. 11-13, 19. Discharge for Feb. 1-28 estimated from records for nearby streams.

Maxima.--January-February 1963: Discharge, 242 cfs 0020 hours Feb. 1 (gage height, 5.00 ft).

October 1958 to December 1962: Discharge, 34.5 cfs Oct. 13, 1962 (gage height, 2.29 ft).

Remarks.--Gage-height record furnished by U.S. Forest Service.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0.98	42.0	11.....	0.53	3.44	21.....	0.49	2.34
2.....	.98	16.0	12.....	.61	3.25	22.....	.48	2.14
3.....	.94	11.0	13.....	.60	3.12	23.....	.45	2.02
4.....	.90	9.10	14.....	.60	3.06	24.....	.43	1.82
5.....	.88	7.80	15.....	.59	2.92	25.....	.42	1.76
6.....	.84	5.85	16.....	.56	2.86	26.....	.42	1.76
7.....	.81	4.55	17.....	.54	2.80	27.....	.42	1.62
8.....	.78	4.22	18.....	.52	2.73	28.....	.39	1.56
9.....	.75	3.90	19.....	.50	2.66	29.....	.38	- - - - -
10.....	.71	3.77	20.....	.49	2.54	30.....	2.27	- - - - -
						31.....	74.2	- - - - -
Monthly mean discharge, in cubic feet per second.....							3.05	5.45
Runoff, in inches.....							5.40	8.73
Runoff, in acre-feet.....							187	303

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	0.38	0.40	Jan. 30	2400	1.26	7.82	Jan. 31	1500	3.02	69.0
									1800	4.25	160.0
30	0600	.33	.28		0100	1.24	7.52		1900	4.10	145
	1300	.39	.42	31	0400	1.40	10.2		2200	4.28	164
	1500	.54	.95		0600	1.55	13.1		2400	4.91	231
	1700	.65	1.51		0800	1.91	22.0				
	1900	.95	3.87		1000	2.31	35.4	Feb. 1	0020	5.00	242
	2000	1.35	9.29		1200	2.71	52.7				

11-4261.2. Onion Creek tributary No. 5A near Soda Springs, Calif.

Location.--Lat 39°17'04", long 120°20'44", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.1, T.16 N., R.14 E., 1.1 miles upstream from Onion Creek campground and 3.3 miles southeast of Soda Springs.

Drainage area.--0.39 sq mi.

Gage-height record.--Water-stage recorder graph, except Feb. 1-15, 21-28.

Discharge record.--Stage-discharge relation defined by 120° sharp-crested V-notch weir. Discharge for Feb. 1-15, 21-28 estimated from records for nearby streams.

Maxima.--January-February 1963: Discharge, 135 cfs 2340 hours Jan. 31 (gage height, 3.96 ft).

October 1958 to December 1962: Discharge, 45.3 cfs Oct. 13, 1962 (gage height, 2.55 ft, from floodmarks).

Remarks.--Gage-height record furnished by U.S. Forest Service.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0.42	31.0	11.....	0.22	1.87	21.....	0.22	1.25
2.....	.42	10.0	12.....	.15	1.76	22.....	.22	1.21
3.....	.40	6.20	13.....	.22	1.68	23.....	.20	1.13
4.....	.37	5.10	14.....	.24	1.64	24.....	.20	1.09
5.....	.35	4.30	15.....	.22	1.56	25.....	.17	1.01
6.....	.35	3.50	16.....	.22	1.39	26.....	.15	.94
7.....	.32	2.70	17.....	.22	1.39	27.....	.15	.90
8.....	.32	2.50	18.....	.22	1.51	28.....	.15	.82
9.....	.30	2.20	19.....	.22	1.39	29.....	.15	-----
10.....	.30	1.95	20.....	.22	1.34	30.....	3.53	-----
						31.....	56.0	-----
Monthly mean discharge, in cubic feet per second.....							2.16	3.33
Runoff, in inches.....							6.37	6.90
Runoff, in acre-feet.....							133	185

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	0.26	0.15	Jan. 30	2400	1.65	15.3	Jan. 31	1600	3.27	84.1
	30								1630	3.24	82.2
	1200	.26	.15		0230	1.57	13.5		1700	3.27	84.1
	1400	.28	.18		5000	1.64	15.1		1800	3.41	93.3
	1600	.39	.42		7000	1.82	19.5		1900	3.50	99.6
	1900	.46	.71		9000	2.12	28.6		2000	3.69	114
	1930	1.82	19.5		1030	2.35	36.9		2100	3.58	105
	2000	1.47	11.5		1200	2.63	48.9		2220	3.45	96.1
	2030	1.75	17.7		1300	2.84	59.2		2300	3.79	121
	2100	1.71	16.7		1330	2.82	58.2		2340	3.96	135
	2200	1.77	18.2		1400	2.90	62.3		2400	3.92	132
	2300	1.74	17.5		1500	2.99	67.3				

11-4261.3. Onion Creek tributary No. 2 near Soda Springs, Calif.

Location.--Lat 39°16'34", long 120°21'57", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.2, T.16 N., R.14 E., 0.25 mile above junction with Onion Creek and 3.4 miles southeast of Soda Springs.

Drainage area.--0.48 sq mi.

Gage-height record.--Water-stage recorder graph, except Jan. 1-4 and Feb. 1-4, 18-28. Altitude of gage is 6,160 ft.

Discharge record.--Stage-discharge relation defined by 120° V-notch weir; affected by ice Jan. 11, 12. Discharge for Jan. 1-4 and Feb. 1-4, 18-28 estimated from records for nearby streams.

Maxima.--January-February 1963: Discharge, 116 cfs 2100 hours Jan. 31 (gage height, 3.72 ft, from recorder graph).

October 1957 to December 1962: Discharge, 44.8 cfs Oct. 13, 1962 (gage height, 2.54 ft).

Remarks.--Gage-height record furnished by U.S. Forest Service.

FLOODS OF 1963 IN THE UNITED STATES

Mean discharge, in cubic feet per second, 1963, of Onion Creek tributary No. 2
near Soda Springs, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	0.67	38.0	11.....	0.40	2.60	21.....	0.32	1.82
2.....	.62	13.0	12.....	.40	2.52	22.....	.32	1.68
3.....	.61	8.20	13.....	.40	2.52	23.....	.30	1.54
4.....	.61	7.00	14.....	.40	2.37	24.....	.30	1.39
5.....	.60	6.10	15.....	.40	2.52	25.....	.28	1.39
6.....	.57	4.62	16.....	.40	2.37	26.....	.28	1.34
7.....	.57	3.77	17.....	.37	2.30	27.....	.26	1.30
8.....	.54	3.20	18.....	.37	2.11	28.....	.26	1.20
9.....	.51	2.85	19.....	.35	2.11	29.....	.26	-----
10.....	.51	2.85	20.....	.32	1.97	30.....	2.45	-----
						31.....	57.1	-----

Monthly mean discharge, in cubic feet per second.....	2.31	4.45
Runoff, in inches.....	5.55	9.65
Runoff, in acre-feet.....	142	247

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	0.32	0.26	Jan. 30	2400	1.39	9.99	Jan. 31	1330	3.00	67.8
	30	0700	.29		0100	1.42	10.5		1430	2.82	63.4
		1100	.31		0400	1.62	14.6		1500	3.06	71.3
		1300	.38		0500	1.65	15.3		1600	3.30	86.0
		1500	.66		0700	1.97	23.8		1800	3.49	98.9
		1700	.74		0800	2.08	27.3		1900	3.70	114
		1730	.97		0815	2.60	47.5		2000	3.67	112
		1900	1.09		0900	2.50	43.1		2100	3.72	116
		2100	1.23		0915	2.21	31.7		2230	3.18	78.4
		2200	1.39		1000	2.51	43.5		2300	3.25	82.8
		2300	1.38		1200	2.88	61.3		2400	3.15	76.6

11-4261.4. Onion Creek tributary No. 1 near Soda Springs, Calif.

Location.--Lat 39°16'30", long 120°21'58", in SE $\frac{1}{4}$ sec.2, T.16 N., R.14 E.,
0.25 mile west of Onion Creek campground and 3.4 miles southeast of Soda Springs.

Drainage area.--0.19 sq mi.

Gage-height record.--Water-stage recorder graph, except Jan. 1-4, 12 and Feb. 1-4.

Discharge record.--Stage-discharge relation defined by 120° sharp-crested V-notch
weir; affected by ice Jan. 11. Discharge for Jan. 1-4, 12 and Feb. 1-4 esti-
mated from records for nearby streams.

Maxima.--January-February 1963: Discharge, 54.6 cfs 2400 hours Jan. 31 (gage
height, 2.75 ft).
1957 to December 1962: Discharge, 16.3 cfs Oct. 13, 1962 (gage height,
1.69 ft).

Remarks.--Records of daily discharge furnished by U.S. Forest Service and reviewed
by Geological Survey.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0.21	15.00	11.....	0.10	1.02	21.....	0.11	0.64
2.....	.20	4.80	12.....	.10	.96	22.....	.11	.61
3.....	.20	3.20	13.....	.11	.97	23.....	.10	.55
4.....	.20	2.65	14.....	.12	.90	24.....	.10	.54
5.....	.19	2.38	15.....	.12	.83	25.....	.10	.53
6.....	.19	1.79	16.....	.12	.78	26.....	.09	.52
7.....	.17	1.46	17.....	.12	.74	27.....	.09	.48
8.....	.17	1.29	18.....	.11	.69	28.....	.09	.46
9.....	.16	1.16	19.....	.10	.67	29.....	.09	-----
10.....	.16	1.15	20.....	.11	.66	30.....	.81	-----
						31.....	22.30	-----

Monthly mean discharge, in cubic feet per second.....	0.869	1.69
Runoff, in inches.....	5.27	9.28
Runoff, in acre-feet.....	53.4	94.1

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of
 Onion Creek tributary No. 1 near Soda Springs, Calif.

Date	Hour	Gage height	Dis- charge	Date	Hour	Gage height	Dis- charge	Date	Hour	Gage height	Dis- charge
Jan. 29	2400	0.21	0.09	Jan. 30	2400	0.90	3.38	Jan. 31	1755	2.29	34.6
	30	1100	.21			0230	.98		1840	2.48	42.2
		1300	.23			0630	1.14		1920	2.39	38.5
		1600	.42			0840	1.35		2150	2.52	43.9
		1830	.52			1200	1.89		2300	2.59	47.0
		2100	.91			1500	2.20		2320	2.53	44.4
									2400	2.75	54.6

11-4261.5. Onion Creek near Soda Springs, Calif.

Location.--Lat 39°16'00", long 120°21'50", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 11, T.16 N., R.14 E., on right bank 0.3 mile upstream from unnamed tributary, 1 mile upstream from mouth, and 4.0 miles south of Soda Springs.

Drainage area.--3.58 sq mi.

Gage-height record.--Water-stage recorder graph, except Jan. 14-29. Altitude of gage is 5,900 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 60 cfs and by slope-area measurements at 218 and 960 cfs. Discharge for Jan. 14-29 estimated on basis of weather records and records for Onion Creek tributaries Nos. 1, 2, 3, 5A.

Maxima.--January-February 1963: Discharge, 960 cfs 2000 hours Jan. 31 (gage height, 3.64 ft, from recorder graph; 4.5 ft, from floodmark).
 1959 to December 1962: Discharge, 219 cfs Oct. 13, 1962 (gage height, 2.62 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	3.3	292	11.....	2.3	18	21.....	1.5	13
2.....	3.3	89	12.....	2	17	22.....	1.5	12
3.....	3.0	79	13.....	2	18	23.....	1.5	10
4.....	3.0	63	14.....	2	17	24.....	1.3	9.9
5.....	2.8	54	15.....	2	16	25.....	1.3	9.9
6.....	2.8	39	16.....	2	16	26.....	1.3	9.4
7.....	2.5	27	17.....	2	16	27.....	1.3	8.2
8.....	2.5	25	18.....	1.5	15	28.....	1.3	7.7
9.....	2.5	22	19.....	1.5	15	29.....	1.3	-----
10.....	2.3	22	20.....	1.5	14	30.....	19	-----
						31.....	366	-----
Monthly mean discharge, in cubic feet per second.....							14.3	34.1
Runoff, in inches.....							4.61	9.91
Runoff, in acre-feet.....							881	1,890

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis- charge	Date	Hour	Gage height	Dis- charge	Date	Hour	Gage height	Dis- charge
Jan. 29	2400	1.62	5.4	Jan. 31	0400	2.25	92	Feb. 1	0300	3.12	506
	30	1300	1.64			0600	2.25		0400	3.34	686
		1700	1.72			1000	2.50		0500	3.14	522
		1900	2.07			1200	2.95		0900	2.67	242
		2300	2.11			1500	3.02		1400	2.41	138
		2400	2.11			1800	3.23		1500	2.47	159
						1900	3.15		2000	2.40	134
	31	0200	2.13			2000	3.64		2400	2.30	104
						2300	3.30				
						2400	3.48				

11-4261.6. Onion Creek tributary No. 7 near Soda Springs, Calif.

Location.--Lat 39°15'58", long 120°21'19", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.12, T.16 N., R.14 E., 0.4 mile upstream from junction with Onion Creek, 0.6 mile southeast of Onion Creek campground, and 4.1 miles southeast of Soda Springs.

Drainage area.--0.80 sq mi.

Gage-height record.--Water-stage recorder graph, except Feb. 1-28.

Discharge record.--Stage-discharge relation defined by 120° V-notch weir; affected by ice Jan. 11-13, 19, 20. Discharge for Feb. 1-28 estimated from records for nearby streams.

Maxima.--January-February 1963: Discharge, 181 cfs 2300 hours Jan. 31 (gage height, 4.45 ft); gage height, 5.3 ft Feb. 1 (backwater from debris).
1958 to December 1962: Discharge, 55.1 cfs Oct. 13, 1962 (gage height, 2.76 ft).

Remarks.--Gage-height record furnished by U.S. Forest Service.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0.86	58.0	11.....	0.60	3.89	21.....	0.45	2.45
2.....	.82	22.0	12.....	.58	3.74	22.....	.45	2.30
3.....	.82	14.0	13.....	.56	3.46	23.....	.42	2.16
4.....	.78	11.0	14.....	.54	3.38	24.....	.42	2.02
5.....	.74	8.60	15.....	.54	3.24	25.....	.42	1.94
6.....	.74	6.50	16.....	.51	3.10	26.....	.40	1.87
7.....	.71	5.00	17.....	.51	3.02	27.....	.40	1.73
8.....	.67	4.68	18.....	.51	2.88	28.....	.40	1.66
9.....	.67	4.32	19.....	.45	2.81	29.....	.40	-----
10.....	.64	4.03	20.....	.45	2.66	30.....	3.18	-----
						31.....	80.0	-----
Monthly mean discharge, in cubic feet per second.....							3.21	6.66
Runoff, in inches.....							4.63	8.67
Runoff, in acre-feet.....							198	370

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	0.38	0.40	Jan. 30	2400	1.59	14.0	Jan. 31	1800	4.21	158
	30	1100	.58		0230	1.60	14.2		1830	4.15	152
		1300	.40		0600	1.81	19.3		1900	4.21	158
		1600	.60		1000	2.32	35.8		2000	4.41	177
		1800	.69		1100	2.51	43.5		2030	3.89	130
		1930	1.32		1300	3.22	80.9		2100	4.09	147
		2000	1.49		1500	3.51	100		2200	4.38	174
		2200	1.56		1700	4.08	146		2300	4.45	181
									2400	4.35	171

11-4262. North Fork Forbes Creek near Dutch Flat, Calif.

Location.--Lat 39°08'37", long 120°45'30", in SE $\frac{1}{4}$ sec.17, T.15 N., R.11 E., on right bank 0.2 mile downstream from Big Reservoir and 6.0 miles southeast of Dutch Flat.

Drainage area.--1.68 sq mi.

Gage-height record.--Water-stage recorder graph, except from 2300 hours Jan. 31 to 0100 hours Feb. 1, for which graph was reconstructed on basis of adjacent trace. Altitude of gage is 3,980 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 160 cfs.

Maxima.--January-February 1963: Discharge, 200 cfs 0400 hours Feb. 1 (gage height, 4.18 ft).
1956 to December 1962: Discharge, 91 cfs Feb. 14, 1962 (gage height, 3.64 ft).
Maximum stage known, 6.40 ft probably Dec. 23, 1955, from floodmarks (discharge unknown).

Remarks.--Records furnished by Bureau of Reclamation. Flow affected by Big Reservoir (capacity, 2,200 acre-ft).

Mean discharge, in cubic feet per second, 1963, of North Fork Forbes Creek near Dutch Flat, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	4.6	163	11.....	3.1	15	21.....	2.4	7.0
2.....	4.4	86	12.....	2.8	12	22.....	2.4	7.5
3.....	4.2	54	13.....	2.7	14	23.....	2.3	7.3
4.....	4.2	39	14.....	2.7	13	24.....	2.1	6.4
5.....	3.9	29	15.....	2.7	12	25.....	1.9	5.4
6.....	3.8	25	16.....	2.7	10	26.....	1.9	5.1
7.....	3.6	22	17.....	2.6	9.3	27.....	1.8	4.9
8.....	3.5	19	18.....	2.6	8.4	28.....	2.2	4.7
9.....	3.4	17	19.....	2.5	7.8	29.....	2.9	-----
10.....	3.3	16	20.....	2.5	7.4	30.....	7.6	-----
							59	-----
Monthly mean discharge, in cubic feet per second.....							4.91	22.4
Runoff, in inches.....							3.37	13.9
Runoff, in acre-feet.....							302	1,240

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	
Jan. 29	2400	1.90	3.9	Jan. 31	0700	2.57	20	Feb. 1	0200	3.99	162	
30	1000	2.09	7.0		1000	2.72	27		0400	4.18	200	
	1100	2.07	6.6		1200	2.77	29		0700	4.05	174	
	1400	2.17	8.5		1300	3.03	42		1400	3.91	148	
	1500	2.05	6.2		1500	3.12	48		1600	3.95	155	
	1800	2.18	8.8		1600	3.13	48		2400	3.70	114	
	2100	2.29	11		1900	3.66	109					
	2400	2.33	12		2100	3.61	102	2	0600	3.57	96	
31	0400	2.44	16		2200	3.83	135			1300	3.45	81
	0600	2.49	17		2300	3.90	146			1800	3.41	76
					2400	3.94	153			2400	3.32	67

11-4264. North Shitrtail Creek near Dutch Flat, Calif.

Location.--Lat 39°07'49", long 120°47'44", in SE $\frac{1}{4}$ sec.24, T.15 N., R.10 E., on right bank 200 ft downstream from Forbes Creek and 7.0 miles southeast of Dutch Flat.Drainage area.--9.10 sq mi.Gage-height record.--Water-stage recorder graph. Altitude of gage is 3,500 ft (from topographic map).Discharge record.--Stage-discharge relation defined by current-meter measurements below 590 cfs and by slope-area measurement at 1,250 cfs.

Maxima.--January-February 1963: Discharge, 1,250 cfs 1930 hours Jan. 31 (gage height, 6.36 ft, from floodmark in well; 6.5 ft, from high-water profile).
 1956 to December 1962: Discharge, 737 cfs Oct. 13, 1962 (gage height, 4.97 ft).
 Maximum stage known, 7.30 ft probably Dec. 23, 1955, from floodmarks (discharge, about 1,900 cfs).

Remarks.--Records furnished by U.S. Bureau of Reclamation and reviewed by Geological Survey.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	18	704	11.....	13	50	21.....	10	32
2.....	18	268	12.....	12	46	22.....	10	31
3.....	17	170	13.....	12	89	23.....	10	29
4.....	16	125	14.....	12	65	24.....	9.8	28
5.....	16	104	15.....	12	55	25.....	9.2	26
6.....	15	88	16.....	12	49	26.....	8.9	24
7.....	15	77	17.....	11	45	27.....	8.5	23
8.....	14	67	18.....	11	40	28.....	8.7	22
9.....	14	59	19.....	11	38	29.....	11	-
10.....	14	55	20.....	10	35	30.....	91	-
						31.....	601	-
Monthly mean discharge, in cubic feet per second.....							33.9	87.3
Runoff, in inches.....							4.30	9.99
Runoff, in acre-feet.....							2,080	4,850

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.38	16	Jan. 31	0300	3.25	196	Feb. 1	0100	5.59	949
30	0800	2.03	50		0600	3.30	207		0300	6.26	1,210
	1100	2.16	60		0900	3.57	272		0500	5.67	978
	1400	2.56	98		1100	4.02	409		0900	4.95	731
	1600	2.79	124		1400	4.76	671		1300	4.97	737
	1800	2.78	123		1800	5.75	1,010		1800	4.20	475
	2100	3.17	190		1930	6.56	1,250		2400	3.88	362
	2400	3.04	164		2100	5.96	1,090				
31	0100	3.02	152		2230	6.20	1,180	2	0400	3.70	308
					2400	5.78	1,020		1600	3.46	244
									2400	3.27	200

11-4270. North Fork American River at North Fork Dam, Calif.

Location.--Lat 38°56'15", long 121°01'25", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.31, T.13 N., R.9 E., on left bank 50 ft upstream from spillway of North Fork Dam, 2 miles upstream from Middle Fork, and 4 miles northeast of Auburn.

Drainage area.--343 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 715.0 ft above mean sea level (levels by Corps of Engineers).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 23,200 cfs and by computed flow over spillway of dam at 49,100 cfs.

Maxima.--January-February 1963: Discharge, 59,700 cfs at 2400 hours Jan. 31 (gage height, 11.30 ft, from recorder graph; 11.36 ft, from floodmarks).
1941 to December 1962: Discharge, 49,100 cfs Dec. 23, 1955 (gage height, 10.22 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	362	33,300	11.....	250	1,240	21.....	182	904
2.....	340	8,800	12.....	219	1,070	22.....	182	830
3.....	332	4,930	13.....	206	2,620	23.....	176	760
4.....	318	3,570	14.....	213	2,340	24.....	176	712
5.....	304	3,050	15.....	219	1,620	25.....	170	665
6.....	297	2,420	16.....	213	1,380	26.....	170	658
7.....	284	1,980	17.....	206	1,250	27.....	165	620
8.....	277	1,860	18.....	200	1,100	28.....	165	593
9.....	263	1,500	19.....	194	1,010	29.....	173	-----
10.....	256	1,370	20.....	182	959	30.....	1,780	-----
						31.....	26,700	-----
Monthly mean discharge, in cubic feet per second.....							1,135	2,960
Runoff, in inches.....							3.81	8.99
Runoff, in acre-feet.....							69,770	164,400

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	0.61	200	Jan. 31	1100	5.69	14,000	Feb. 2	1200	4.47	7,870
					1400	7.10	22,900		2400	3.96	5,860
30	0400	.65	225		1600	8.50	33,600				
	0900	.79	318		1800	9.50	42,300	3	1900	3.51	4,350
	1200	1.01	494		2000	10.32	50,000		2400	3.46	4,210
	1400	1.22	684		2200	11.15	58,200				
	1700	1.90	1,440		2400	11.30	59,700	4	1900	3.04	3,160
	1900	2.61	2,390						2200	3.01	3,100
	2000	3.16	3,430	Feb. 1	0400	11.20	58,700		2400	3.03	3,140
	2100	3.87	5,530		0700	10.12	48,100				
	2400	4.96	10,200		1100	8.00	29,600	5	0400	3.24	3,620
31	0300	5.41	12,500		1500	6.68	20,000		1000	3.04	3,160
	0700	5.29	11,900		2000	6.00	15,800		1500	2.88	2,840
	0900	5.45	12,700		2400	5.61	13,600		1800	2.90	2,740
									2400	2.82	2,600

11-4275. Middle Fork American River at French Meadows, Calif.

Location.--Lat 39°06'35", long 120°28'49", in W $\frac{1}{2}$ NW $\frac{1}{4}$ sec.36, T.15 N., R.13 E., on left bank 0.6 mile downstream from French Meadows Dam, 4.1 miles upstream from Chipmunk Creek, and 14 miles south of Cisco.

Drainage area.--47.9 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 4,920 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,100 cfs and by peak flows at former site.

Maxima.--January-February 1963: Discharge, 21,500 cfs 2100 hours Jan. 31 (gage height, 14.20 ft, from recorder graph; 17.6 ft, from floodmarks).
1951 to December 1962: Discharge, 16,300 cfs Dec. 23, 1955 (gage height, 14.95 ft, site and datum then in use).

Mean discharge, in cubic feet per second, 1963, of Middle Fork American River at French Meadows, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	60	7,750	11.....	33	209	21.....	31	151
2.....	57	1,350	12.....	30	192	22.....	31	136
3.....	56	858	13.....	38	294	23.....	31	125
4.....	56	683	14.....	39	252	24.....	30	119
5.....	52	581	15.....	38	211	25.....	29	112
6.....	51	405	16.....	37	198	26.....	29	112
7.....	49	326	17.....	35	183	27.....	28	106
8.....	48	274	18.....	34	172	28.....	28	97
9.....	46	244	19.....	31	166	29.....	29	-----
10.....	45	233	20.....	32	160	30.....	390	-----
						31.....	9,980	-----
Monthly mean discharge, in cubic feet per second.....							371	561
Runoff, in inches.....							12.2	12.2
Runoff, in acre-feet.....							22,820	31,140

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	3.49	38	Jan. 31	0300	8.28	1,920	Feb. 1	0500	13.10	14,900
					0600	8.66	2,280		0600	12.73	13,000
	30	0400	3.70		0800	9.17	2,900		0800	11.08	6,490
		0600	3.67		1000	9.95	4,150		1000	10.23	4,460
		0800	3.72		1200	11.00	6,500		1200	9.78	3,580
		1200	4.02		1400	12.85	13,600		1400	10.00	4,000
		1500	4.50		1600	13.33	16,200		1600	9.95	3,900
		1800	5.30		1800	13.55	17,500		1700	10.05	4,100
		2000	6.77		1900	14.00	20,200		1800	10.03	4,060
		2100	8.00		2000	13.80	19,000		2000	9.33	2,880
		2100	7.77		2100	14.20	21,500		2400	8.82	2,140
		2300	8.07		2300	14.03	20,400				
		2400	8.13		2400	14.13	21,000				
31	0200	8.20	1,850	Feb. 1	0200	13.95	19,900	2	0600	8.24	1,540
									1200	7.84	1,210
									2400	7.46	956

11-4277. Duncan Creek near French Meadows, Calif.

Location.--Lat 39°08'10", long 122°28'39", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.24, T.15 N., R.13 E., on right bank 0.5 mile downstream from Little Duncan Creek, 2 miles northwest of French Meadows, and 20 miles northeast of Foresthill.

Drainage area.--9.94 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 5,280 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 220 cfs and by slope-area measurement at 841 cfs and maximum discharge for flood of Jan. 31 measured at site 2 miles downstream. Affected by ice Jan. 11-17. Stage-discharge relation indefinite from 1000 hours Jan. 31 to 0600 hours Feb. 1; discharge estimated on basis of rating curve extended to slope-area measurement at gage height 8.78 ft.

Maxima.--January-February 1963: Discharge, 4,610 cfs 1500 hours Jan. 31 (gage height, 8.78 ft, from recorder graph; 9.95 ft, from floodmarks).
1960 to December 1962: Discharge, 841 cfs Oct. 13, 1962 (gage height, 6.34 ft, from recorder graph; 6.85 ft, from floodmarks).

[illegible]

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.38	7.9	Jan. 31	0600	5.46	518	Feb. 1	0100	6.75	1,510
30					1000	6.50	910		0400	7.40	2,120
	0400	3.30	65		1200	7.55	1,650		0600	6.45	1,280
	0500	3.29	64		1500	8.78	4,610		1200	5.64	820
	1100	2.98	37		1600	7.75	2,560		1800	5.42	719
	1400	3.75	122		1700	8.50	3,940		2400	4.85	492
	1700	4.78	325		1800	8.40	3,700				
	2000	5.26	458		1900	7.90	2,780	2	0600	4.55	402
	2200	5.21	443		2100	8.40	3,700		1200	4.27	328
	2400	5.08	404		2300	6.75	1,510		1800	4.12	290
					2400	7.15	1,860		2400	3.97	256
31	0300	5.23	449								

Maxima.--January-February 1963: Discharge, 11,500 cfs 0200 hours Feb. 1 (gage height, 14.28 ft).
1910-14, 1955 to December 1962: Discharge, 9,270 cfs Dec. 23, 1955 (gage height, 13.0 ft, from floodmarks).

[illegible]

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.88	10	Jan. 31	0800	7.42	2,210	Feb. 1	1000	10.10	5,040
					1000	8.10	2,830		1200	8.90	3,650
30	0800	2.07	19		1200	9.10	3,870		1400	8.10	2,830
	1000	2.22	28		1500	11.14	6,430		1800	7.10	1,940
	1200	2.58	56		1700	11.93	7,580		2400	5.85	1,060
	1400	3.72	230		2000	12.60	8,620				
	1600	5.13	688		2200	13.20	9,610	2	0600	5.10	675
	2200	6.57	1,530		2400	13.85	10,700		1200	4.66	498
	2400	6.31	1,350						1500	4.59	473
				Feb. 1	0200	14.28	11,500		1900	4.60	476
31	0100	6.11	1,220		0400	14.00	11,000		2400	4.54	456
	0300	6.14	1,230		0600	13.15	9,520				
	0500	6.50	1,480		0800	11.70	7,230				

Day	January	February	Day	January	February	Day	January	February
1.....	8.7	1,560	11.....	5.6	21	21.....	4.1	23
2.....	8.5	237	12.....	5.4	21	22.....	4.0	20
3.....	7.7	109	13.....	5.4	40	23.....	4.0	18
4.....	7.4	74	14.....	4.9	44	24.....	2.8	17
5.....	7.0	68	15.....	4.5	40	25.....	4.0	16
6.....	6.7	49	16.....	4.5	35	26.....	4.0	16
7.....	6.7	36	17.....	4.3	32	27.....	4.0	15
8.....	6.5	27	18.....	4.1	29	28.....	4.0	14
9.....	6.2	24	19.....	3.8	28	29.....	4.5	-
10.....	6.0	23	20.....	4.0	25	30.....	24	-
						31.....	1,650	-

Monthly mean discharge, in cubic feet per second.....	58.9	95.0
Runoff, in inches.....	8.48	12.3
Runoff, in acre-feet.....	3,620	5,280

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.73	5.4	Jan. 31	1200	11.20	2,260	Feb. 1	1500	8.15	920
					1300	11.55	2,470		1800	7.28	672
30	1200	1.82	7.4		1400	11.20	2,260		2400	6.17	431
	1600	2.51	30		1500	11.69	2,550				
	2100	3.05	56		2000	12.20	2,910	2	0400	5.53	316
	2400	3.62	91		2400	12.50	3,120		1000	4.90	227
									1500	4.52	184
31	0400	5.00	221	Feb. 1	0200	12.65	3,240		2400	4.12	147
	0700	6.25	453		0500	11.63	2,520				
	1100	9.10	1,260		1000	9.98	1,630				

[illegible]

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	-	30	Jan. 31	0600	-	2,700	Feb. 1	1700	-	3,080
					0900	-	4,260		1900	-	2,860
30	0700	-	60		1200	-	6,390		2100	-	2,490
	1200	-	132		1600	-	9,400		2400	-	1,970
	1400	-	256		1900	-	11,400				
	1800	-	672		2100	-	11,500	2	0300	-	1,650
	2000	-	961		2300	-	12,800		0500	-	1,480
	2200	-	1,230		2400	-	12,600		0700	-	1,390
	2400	-	1,360						0900	-	1,340
31	0100	-	1,580	Feb. 1	0100	-	12,500		1300	-	1,100
	0200	-	1,750		0500	-	10,300		1900	-	901
	0400	-	2,210		1000	-	5,720		2400	-	808
					1300	-	4,100				

Day	January	February	Day	January	February	Day	January	February
1.....	126	30,000	11.....	86	550	21.....	65	440
2.....	124	5,000	12.....	54	500	22.....	65	410
3.....	120	3,000	13.....	97	650	23.....	65	390
4.....	121	2,000	14.....	100	800	24.....	60	370
5.....	115	1,500	15.....	83	560	25.....	60	350
6.....	112	1,000	16.....	79	540	26.....	60	360
7.....	108	850	17.....	74	520	27.....	60	380
8.....	104	750	18.....	70	500	28.....	60	350
9.....	101	650	19.....	65	480	29.....	65	- - - -
10.....	97	600	20.....	65	460	30.....	1,000	- - - -
						31.....	25,000	- - - -
Monthly mean discharge, in cubic feet per second.....							91.8	1,920
Runoff, in acre-feet.....							56,450	106,600

Monthly mean discharge, in cubic feet per second.....	918	1,920
Runoff, in acre-feet.....	56,450	106,600

11-4318. Pilot Creek above Stumpy Meadows Reservoir, Calif.

Location.--Lat 38°53'41", long 120°34'02", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.18, T.12 N., R.13 E., on right bank 2.1 miles upstream from Stumpy Meadows Dam and 12.5 miles east of Georgetown.

Drainage area.--11.7 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 4,280 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 170 cfs and by field estimate of peak flow at 2,070 cfs.

Maxima.--January-February 1963: Discharge, 2,070 cfs 1900 hours Jan. 31 (gage height, 8.05 ft, from recorder graph; 8.95 ft, from floodmarks).
1960 to December 1962: Discharge, 455 cfs Oct. 13, 1962 (gage height, 4.76 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	9.6	625	11.....	8.4	38	21.....	7.9	26
2.....	9.3	279	12.....	8.4	35	22.....	7.3	25
3.....	9.3	172	13.....	8.4	52	23.....	7.3	24
4.....	9.3	125	14.....	8.4	43	24.....	7.3	23
5.....	9.0	89	15.....	8.4	37	25.....	7.3	22
6.....	8.7	70	16.....	8.2	34	26.....	7.3	21
7.....	8.7	60	17.....	8.2	33	27.....	7.3	20
8.....	8.4	52	18.....	8.2	30	28.....	7.3	19
9.....	8.4	46	19.....	8.2	29	29.....	7.9	-----
10.....	8.4	41	20.....	8.2	28	30.....	128	-----
						31.....	882	-----
Monthly mean discharge, in cubic feet per second.....							40.3	74.9
Runoff, in inches.....							3.97	6.67
Runoff, in acre-feet.....							2,480	4,160

. Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.23	15	Jan. 31	0600	4.18	289	Feb. 1	0200	5.05	902
					0800	4.38	342		0400	5.40	1,060
30	0500	2.78	53		1200	5.70	800		0600	4.70	780
	1200	3.06	78		1500	6.28	1,050		1000	4.00	552
	1500	3.35	116		1900	8.05	2,070		1500	3.72	474
	1800	3.85	209		2100	5.84	1,220		1900	3.63	446
	2100	4.24	304		2200	6.53	1,540		2400	3.37	379
	2200	4.25	307		2300	6.59	1,570				
	2400	4.18	289		2400	5.52	1,110				
31	0300	4.11	271	Feb. 1	0100	5.41	1,060	2	0900	3.02	289
									1800	2.80	236
									2400	2.68	210

11-4330.4. Pilot Creek below Mutton Canyon, near Georgetown, Calif.

Location.--Lat 38°55'25", long 120°38'27", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.4, T.12 N., R.12 E., 450 ft downstream from Mutton Canyon, 500 ft downstream from Georgetown Divide diversion dam, 2.5 miles downstream from Stumpy Meadows Dam, and 10 miles east of Georgetown.

Drainage area.--21.1 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 3,760 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 150 cfs and by slope-area measurement at 690 cfs.

Maxima.--January-February 1963: Discharge, 464 cfs 2200 hours Jan. 31 (gage height, 4.51 ft, from recorder graph; 5.11 ft, from floodmarks).
1961 to December 1962: Discharge, 160 cfs Oct. 14, 1962 (gage height, 3.46 ft).

Remarks.--Flow regulated by Stumpy Meadows Reservoir (usable capacity, 20,000 acre-ft).

Mean discharge, in cubic feet per second, 1963, of Pilot Creek below Mutton Canyon, near Georgetown, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	2.3	228	11.....	1.8	81	21.....	2.6	50
2.....	2.2	115	12.....	1.6	72	22.....	2.6	46
3.....	2.2	86	13.....	1.4	99	23.....	2.6	42
4.....	2.2	68	14.....	1.8	90	24.....	2.6	40
5.....	2.1	99	15.....	2.8	75	25.....	2.6	40
6.....	2.1	127	16.....	2.9	66	26.....	2.5	40
7.....	2.1	114	17.....	2.8	60	27.....	2.5	32
8.....	2.0	104	18.....	2.8	59	28.....	2.5	23
9.....	2.0	95	19.....	2.6	56	29.....	3.3	-
10.....	1.9	91	20.....	2.6	53	30.....	34	-
						31.....	162	-
Monthly mean discharge, in cubic feet per second.....							8.52	76.8
Runoff, in acre-feet.....							524	4,270

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.92	8.5	Jan. 31	1500	3.46	161	Feb. 1	1000	3.58	201
					1900	3.80	235		1300	3.41	175
30	0400	2.20	19		2000	4.07	311		1600	3.45	182
	1500	2.49	36		2100	4.24	364		2100	3.23	147
	1900	2.66	51		2200	4.51	464		2400	3.17	138
	2200	2.70	55		2300	4.34	399				
	2400	2.63	49		2400	4.39	416	2	0600	3.08	126
31	0100	2.61	47	Feb. 1	0200	4.19	350		1200	2.99	114
	0800	2.77	63		0500	4.12	329		1800	2.93	104
	1000	2.94	82		0600	4.13	332		2400	2.87	96
	1200	3.27	128		0800	3.78	242				

11-4331. Long Canyon Creek near French Meadows, Calif.

Location.--Lat 39°01'16", long 120°30'53", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.34, T.14 N., R.13 E., on right bank 75 ft downstream from North Fork Long Canyon, 6 $\frac{1}{2}$ miles south of French Meadows, and 18 miles east of Foresthill.

Drainage area.--18.0 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 4,100 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 170 cfs and by slope-area measurements at 672 and 3,540 cfs.

Maxima.--January-February 1963: Discharge, 3,540 cfs 0400 hours Feb. 1 (gage height, 10.27 ft, from recorder graph; 11.3 ft, from floodmarks).
1960 to December 1962: Discharge, 674 cfs Oct. 13, 1962 (gage height, 6.62 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	15	1,780	11.....	11	79	21.....	9.1	52
2.....	14	496	12.....	9.6	74	22.....	8.9	48
3.....	14	299	13.....	10	157	23.....	8.7	45
4.....	13	226	14.....	11	122	24.....	8.5	41
5.....	13	185	15.....	10	97	25.....	8.2	38
6.....	13	151	16.....	10	86	26.....	8.1	37
7.....	12	126	17.....	9.8	77	27.....	7.9	35
8.....	12	109	18.....	9.6	70	28.....	7.7	33
9.....	11	99	19.....	9.2	64	29.....	8.8	-
10.....	11	89	20.....	9.1	59	30.....	168	-
						31.....	1,450	-
Monthly mean discharge, in cubic feet per second.....							62.0	170
Runoff, in inches.....							3.97	9.86
Runoff, in acre-feet.....							3,810	9,470

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	3.14	15	Jan. 31	1000	6.77	745	Feb. 1	0700	8.75	2,030
					1500	9.00	2,250		1200	7.77	1,310
30	0500	3.59	31		1800	8.85	2,120		1500	7.47	1,110
	0900	3.83	43		1900	9.25	2,480		1700	7.38	1,050
	1200	4.13	65		2100	9.32	2,540		1900	7.47	1,110
	1500	5.09	196		2300	9.90	3,130		2400	6.82	735
	1800	5.75	346		2400	9.98	3,220				
	2100	6.10	460					2	0600	6.44	561
	2400	5.73	340	Feb. 1	0100	10.10	3,350		1200	6.20	465
					0200	10.20	3,460		1800	6.04	409
31	0100	5.60	306		0300	10.09	3,340		2400	5.91	364
	0600	6.00	425		0400	10.27	3,540				

Remarks.--Flow affected by Loon Lake (usable capacity, 8,000 acre-ft), Stumpy Meadows Reservoir (capacity, 20,000 acre-ft), and diversion of up to 1,320 cfs out of the basin in Robbs Peak tunnel.

Mean discharge, in cubic feet per second, 1901			Mean discharge, in cubic feet per second, 1902		
Day	January	February	Day	January	February
1.....	183	44,000	11.....	136	800
2.....	176	7,000	12.....	100	750
3.....	169	4,000	13.....	95	950
4.....	167	3,000	14.....	127	900
5.....	163	2,000	15.....	124	850
6.....	156	1,500	16.....	118	800
7.....	152	1,200	17.....	115	760
8.....	148	1,000	18.....	105	730
9.....	142	900	19.....	95	700
10.....	140	850	20.....	95	660
					31.....
Monthly mean discharge, in cubic feet per second.....					
Runoff, in inches.....					
Runoff, in acre-feet.....					

11-4333. Middle Fork American River near Foresthill, Calif.

Location.--Lat 38°59'58", long 120°47'27", near center sec.6, T.13 N., R.11 E., on right bank 800 ft downstream from Josephine Canyon and 2 miles southeast of Foresthill.

Drainage area.--534 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 940 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 5,600 cfs and by slope-area measurement at 113,000 cfs.

Maxima.--January-February 1963: Discharge, 113,000 cfs 0300 hours Feb. 1 (gage height, 38.00 ft).

1958 to December 1962: Discharge, 29,800 cfs Oct. 14, 1962 (gage height, 20.70 ft, from recorder graph; 22.6 ft, from floodmarks).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	429	60,700	11.....	309	1,680	21.....	238	1,280
2.....	415	11,900	12.....	242	1,540	22.....	232	1,220
3.....	404	7,400	13.....	230	2,210	23.....	232	1,150
4.....	394	5,420	14.....	285	2,180	24.....	228	1,090
5.....	380	4,930	15.....	282	1,800	25.....	223	1,050
6.....	362	3,240	16.....	270	1,640	26.....	218	1,020
7.....	348	2,600	17.....	261	1,530	27.....	214	1,020
8.....	336	2,240	18.....	252	1,440	28.....	209	944
9.....	330	2,000	19.....	242	1,370	29.....	227	-----
10.....	321	1,840	20.....	230	1,330	30.....	3,170	-----
						31.....	48,400	-----

Monthly mean discharge, in cubic feet per second.....	1,933	4,563
Runoff, in inches.....	4.17	8.90
Runoff, in acre-feet.....	118,800	253,400

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	6.66	267	Jan. 31	1000	18.30	21,000	Feb. 1	1400	23.00	39,000
	0300	6.83	318		1100	20.00	27,000		1800	21.50	35,000
30	0600	7.12	415		1200	22.00	35,000		2000	20.00	27,000
	0800	7.45	541		1300	24.00	43,500		2400	18.00	20,000
	1200	8.63	1,160		1400	26.00	52,500				
	1500	9.35	1,710		1600	29.00	67,000	2	0200	17.00	16,900
	1700	10.65	3,040		1800	33.00	87,000		0500	16.00	13,900
	1900	12.45	5,680		2000	35.00	97,000		1200	15.00	11,000
	2200	15.30	11,800		2400	37.00	107,000		1700	14.45	9,580
	2400	16.00	13,900						2400	14.20	8,980
				Feb. 1	0300	38.00	113,000				
31	0100	16.10	14,200		0500	35.50	99,500	3	0600	13.65	7,800
	0300	15.95	13,800		0700	33.50	89,500		1200	13.32	7,160
	0600	16.30	14,800		0800	32.00	82,000		1800	13.12	6,800
	0900	17.50	18,400		1000	29.00	67,000		2200	13.12	6,800
					1200	25.50	50,200		2400	13.00	6,580

Monthly mean discharge, in cubic feet per second.....	12.2	93.3
Runoff, in acre-feet.....	753	5,180

(Crest-stage station)

July to December 1962: No significant floodflow.

1907, 1923 to December 1962: Discharge, 14,500 cfs Nov. 21, 1950.

Mean discharge, in cubic feet per second, 1963

[illegible]

FLOODS OF 1963 IN THE UNITED STATES

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of South Fork American River near Kyburz, Calif. (combined flow of river and El Dorado Canal)

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	-	102	Jan. 30	2300	5.70	1,840	Jan. 31	2400	10.00	13,100
30	0400	-	121		2400	5.70	1,840	Feb. 1	0200	10.50	15,400
	0600	-	127		0300	5.44	1,580		0300	10.50	15,400
	0800	-	142	31	0700	6.05	2,220		0500	10.38	14,800
	1000	-	160		0900	6.64	3,000		0600	10.53	15,600
	1200	-	165		1000	7.12	3,810		0900	9.50	11,100
	1400	-	209		1200	6.15	5,990		1200	8.55	7,770
	1600	-	290		1600	9.08	9,780		1700	8.20	6,710
	1700	-	360		2100	10.00	12,600		2400	7.04	4,090
	1800	-	736		2200	10.26	13,900				
	1900	5.16	1,320		2300	9.80	11,700	2	1100	6.02	2,500
	2000	5.20	1,340		2330	10.33	14,300		2400	5.58	2,010

11-4400. Alder Creek near White Hall, Calif.

Location.--Lat 38°45'19", long 120°22'17", in NE¹/₄SE¹/₄ sec.35, T.11 N., R.14 E., on right bank 0.9 mile upstream from mouth and 2.2 miles southeast of White Hall.

Drainage area.--22.1 sq mi.

Gage-height record.--Water-stage recorder graph, except Jan. 12-29. Altitude of gage is 3,840 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 600 cfs and by slope-area measurement at 4,430 cfs. Discharge for Jan. 12-29 estimated on basis of field estimate of flow, weather records, and records for Cole Creek near Mokelumne Peak.

Maxima.--January-February 1963: Discharge, 4,430 cfs 2400 hours Jan. 31 (gage height, 7.37 ft).

1922 to December 1962: Discharge, 5,500 cfs Dec. 23, 1955 (gage height, 8.40 ft, from floodmarks), from rating curve extended above 500 cfs.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	7.0	1,790	11.....	4.0	64	21.....	3.9	46
2.....	7.7	592	12.....	3.6	61	22.....	3.8	43
3.....	7.2	362	13.....	4.5	82	23.....	5.6	42
4.....	7.2	261	14.....	4.5	80	24.....	5.6	39
5.....	7.6	205	15.....	4.5	71	25.....	6.0	36
6.....	7.5	147	16.....	4.3	65	26.....	6.5	35
7.....	7.4	106	17.....	4.7	61	27.....	6.0	33
8.....	7.2	94	18.....	4.1	57	28.....	5.5	31
9.....	7.0	81	19.....	4.1	52	29.....	6.3	-----
10.....	6.8	73	20.....	4.0	48	30.....	212	-----
						31.....	1,520	-----
Monthly mean discharge, in cubic feet per second.....							61.2	166
Runoff, in inches.....							3.19	7.84
Runoff, in acre-feet.....							3,760	9,240

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.36	6.4	Jan. 31	1000	4.30	1,010	Feb. 1	0700	6.60	3,430
30	0600	1.50	17		1100	4.20	945		0800	5.00	1,710
	0900	1.76	47		1300	4.75	1,330		0900	4.60	1,380
	1200	2.12	97		1300	4.40	1,080		1300	4.48	1,290
	1200	2.00	79		1400	4.90	1,450		1400	4.35	1,190
	1500	2.51	171		1500	5.70	2,250		1600	4.55	1,340
	1900	3.46	515		1600	4.75	1,330		1700	4.52	1,320
	2100	3.71	646		1800	5.85	2,420		1900	4.02	944
	2300	3.61	591		2000	6.00	2,600		2100	3.83	811
	2400	3.47	520		2100	6.80	3,600		2400	3.81	797
					2300	6.65	3,400				
					2400	7.37	4,430	2	1400	3.36	538
31	0200	3.27	427	Feb. 1	0500	5.47	2,150		2400	3.16	436
	0600	3.34	458								

11-4410.01. Union Valley Reservoir near Riverton, Calif.

Location--Lat 38°52'00", long 120°26'25", in SW¹/₄SW¹/₄ sec.20, T.12 N., R.14 E., 0.6 mile upstream from Little Silver Creek and 6.6 miles north of Riverton.

Drainage area--83.6 sq mi.

Gage-height record--Water-stage recorder graph. Datum of gage is at mean sea level (levels by Sacramento Municipal Utility District).

Contents record--Contents computed from capacity table dated July 12, 1962, furnished by Sacramento Municipal Utility District.

Maxima--January-February 1963: Computed bihourly inflow, 21,100 cfs 2400 hours Jan. 31 to 0200 hours Feb. 1. Contents, 121,900 acre-ft 2400 hours Feb. 28 (elevation, 4,802.7 ft).

October to December 1962: Contents, 45,300 acre-ft Dec. 31, 1962 (elevation, 4,736.1 ft).

1924-60: Maximum discharge at former gaging station 0.7 mile upstream, 15,800 cfs Dec. 23, 1955.

Remarks--Reservoir is formed by earthfill dam completed in December 1962. Storage began in May 1962. Usable capacity, 264,000 acre-ft between elevations 4,645.0 (minimum operating level) and 4,870.0 ft (top of radial spillway gates) above mean sea level. Dead storage, 7,000 acre-ft. Figures given herein represent total contents.

Elevation, in feet, and contents, in acre-feet, at 2400 hours, 1963

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	4,736.3	45,400	4,780.8	89,100	16	4,738.8	47,200	4,798.5	114,800
2	4,736.5	45,600	4,784.5	94,300	17	4,738.9	47,200	4,798.9	115,400
3	4,736.8	45,800	4,788.8	97,500	18	4,739.0	47,300	4,799.4	116,100
4	4,736.9	45,800	4,788.6	100,000	19	4,739.1	47,400	4,799.8	116,700
5	4,737.2	46,000	4,790.2	102,300	20	4,739.2	47,400	4,800.1	117,200
6	4,737.4	46,200	4,791.3	104,000	21	4,739.3	47,500	4,800.5	117,900
7	4,737.5	46,200	4,792.2	105,300	22	4,739.4	47,600	4,800.9	118,600
8	4,737.7	46,400	4,793.0	106,500	23	4,739.5	47,600	4,801.2	119,200
9	4,737.9	46,500	4,793.6	107,400	24	4,739.6	47,700	4,801.5	119,700
10	4,738.0	46,600	4,794.2	108,300	25	4,739.7	47,800	4,801.8	120,200
11	4,738.2	46,700	4,794.8	109,200	26	4,739.8	47,900	4,802.2	121,000
12	4,738.3	46,800	4,795.3	110,000	27	4,739.9	47,900	4,802.5	121,500
13	4,738.4	46,900	4,796.4	111,600	28	4,740.1	48,100	4,802.7	121,900
14	4,738.5	47,000	4,797.3	113,000	29	4,740.4	48,300	-	-
15	4,738.6	47,000	4,797.9	113,800	30	4,743.4	50,700	-	-
					31	4,764.7	70,200	-	-
Change in contents, in acre-feet.....							+24,900	-	+51,700

Average inflow, in cubic feet per second, for bihourly periods ending at indicated time, 1963

Date	Hour	Inflow	Date	Hour	Inflow	Date	Hour	Inflow
Jan. 30	0200	281	Jan. 31	1000	4,020	Feb. 1	1800	3,700
	0400	334		1200	6,420		2000	3,390
	0600	268		1400	8,680		2200	3,030
	0800	385		1600	11,200		2400	2,850
	1000	372		1800	11,900	2	0200	2,250
	1200	592		2000	13,300		0400	2,300
	1400	1,020		2200	15,900		0600	2,060
	1600	1,000		2400	19,200		0800	1,700
	1800	1,230	Feb. 1	0200	21,100		1000	1,500
	2000	1,480		0400	17,600		1200	1,360
	2200	1,850		0600	15,000		1400	1,340
	2400	1,970		0800	11,500		1600	1,240
31	0200	2,330		1000	7,380		1800	1,120
	0400	2,350		1200	5,520		2000	1,180
	0600	2,810		1400	4,250		2200	920
	0800	3,420		1600	3,940		2400	897

11-4411. Ice House Reservoir near Kyburz, Calif.

Location.--Lat 38°49'26", long 120°21'34", in SE¹SW¹ sec.1, T.11 N., R.14 E., on left bank at Ice House Dam on South Fork Silver Creek, 0.5 mile upstream from Peavine Creek and 4.75 miles northwest of Kyburz.

Drainage area.--27.2 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is at mean sea level (datum of Sacramento Municipal Utility District).

Contents record.--Contents computed from capacity table dated Apr. 4, 1960.

Maxima.--January-February 1963: Computed bihourly inflow, 5,640 cfs 2400 hours Jan. 31 to 0200 hours Feb. 1. Contents, 20,100 acre-ft 2400 hours Feb. 28 (elevation, 5,405.36 ft).

1959 to December 1962: Contents, 46,100 acre-ft, several days in May and June 1961 (elevation, 5,450.24 ft, from high-water marks).

Remarks.--Reservoir is formed by earthfill dam. Storage began Dec. 15, 1959.

Usable capacity, 45,800 acre-ft between elevations 5,327.5 ft (centerline of fish water outlet) and 5,450.0 ft (top of spillway gates). Dead storage, 160 acre-ft. Figures given herein represent total contents.

Elevation, in feet, and contents, in acre-feet, at 2400 hours, 1963

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	5,363.71	4,730	5,391.58	13,100	16	5,364.50	4,920	5,402.52	18,700
2	5,363.79	4,750	5,393.70	15,000	17	5,364.51	4,920	5,402.81	18,900
3	5,363.88	4,770	5,395.09	15,500	18	5,364.54	4,930	5,403.10	19,000
4	5,363.97	4,790	5,396.36	16,000	19	5,364.56	4,930	5,403.33	19,100
5	5,364.07	4,820	5,397.51	16,500	20	5,364.58	4,940	5,403.59	19,200
6	5,364.13	4,830	5,398.31	16,800	21	5,364.63	4,950	5,403.81	19,300
7	5,364.18	4,840	5,399.00	17,200	22	5,364.68	4,960	5,404.03	19,400
8	5,364.24	4,860	5,399.56	17,400	23	5,364.71	4,970	5,404.25	19,500
9	5,364.28	4,870	5,399.97	17,600	24	5,364.74	4,980	5,404.44	19,600
10	5,364.29	4,870	5,400.29	17,700	25	5,364.75	4,980	5,404.71	19,800
11	5,364.30	4,870	5,400.79	18,000	26	5,364.75	4,980	5,404.90	19,800
12	5,364.30	4,870	5,401.10	18,100	27	5,364.73	4,980	5,405.14	20,000
13	5,364.36	4,890	5,401.55	18,300	28	5,364.71	4,970	5,405.36	20,100
14	5,364.41	4,900	5,401.89	18,500	29	5,364.83	5,000	-	-
15	5,364.46	4,910	5,402.28	18,600	30	5,365.54	5,180	-	-
					31	5,376.16	8,260	-	-
Change in contents, in acre-feet.....						-	+3,540	-	+11,840

Average inflow, in cubic feet per second, for bihourly periods ending at indicated time, 1963

Date	Hour	Inflow	Date	Hour	Inflow	Date	Hour	Inflow
Jan. 30	0200	50	Jan. 31	1000	565	Feb. 1	1800	1,750
	0400	38		1200	613		2000	1,370
	0600	68		1400	976		2200	1,050
	0800	81		1600	1,760		2400	855
	1000	99		1800	2,910	2	0200	710
	1200	117		2000	2,790		0400	613
	1400	135		2200	3,580		0600	492
	1600	196		2400	4,730		0800	468
	1800	135	Feb. 1	0200	5,640		1000	444
	2000	117		0400	5,520		1200	444
	2200	87		0600	4,850		1400	419
	2400	68		0800	4,850		1600	371
31	0200	153		1000	3,030		1800	347
	0400	177		1200	3,030		2000	347
	0600	202		1400	1,900		2200	298
	0800	274		1600	1,780		2400	298

Location.--Lat 38°49'08", long 120°21'51", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.12, T.11 N., R.14 E., on right bank 300 ft upstream from Peavine Creek, 0.4 mile downstream from Ice House Dam, and 4.8 miles northwest of town of Kyburz.

Mean discharge, in cubic feet per second, 1963								
Day	January	February	Day	January	February	Day	January	February
1.....	4.6	20	11.....	4.6	11	21.....	4.9	10
2.....	4.6	11	12.....	4.6	11	22.....	4.9	10
3.....	4.6	10	13.....	4.6	12	23.....	4.9	10
4.....	4.6	11	14.....	4.6	11	24.....	4.9	10
5.....	4.6	11	15.....	4.9	11	25.....	5.8	10
6.....	4.6	11	16.....	4.9	10	26.....	8.0	10
7.....	4.6	11	17.....	4.9	10	27.....	8.0	9.3
8.....	4.6	11	18.....	4.9	10	28.....	8.0	7.4
9.....	4.6	11	19.....	4.9	10	29.....	8.3	- - - - -
10.....	4.6	11	20.....	4.9	10	30.....	12	- - - - -
						31.....	18	- - - - -
Monthly mean discharge, in cubic feet per second.....							5.85	10.7
Runoff, in acre-feet.....							360	596

Mean discharge, in cubic feet per second, 1963								
Day	January	February	Day	January	February	Day	January	February
1.....	34	5,860	11.....	30	85	21.....	34	137
2.....	33	1,710	12.....	28	188	22.....	36	67
3.....	33	366	13.....	28	263	23.....	36	63
4.....	33	730	14.....	30	248	24.....	34	61
5.....	33	242	15.....	33	241	25.....	34	58
6.....	32	222	16.....	33	172	26.....	33	85
7.....	32	453	17.....	33	89	27.....	33	55
8.....	32	240	18.....	32	190	28.....	32	117
9.....	31	303	19.....	32	239	29.....	32	- - - - -
10.....	30	93	20.....	32	168	30.....	611	- - - - -
						31.....	3,200	- - - - -
Monthly mean discharge, in cubic feet per second.....							153	455
Runoff, in acre-feet.....							9,420	25,280

[illegible]

Day	January	February	Day	January	February	Day	January	February
1.....	184	22,300	11.....	146	820	21.....	135	843
2.....	169	6,950	12.....	93	805	22.....	165	537
3.....	182	3,210	13.....	90	1,210	23.....	179	494
4.....	184	2,920	14.....	132	1,140	24.....	155	482
5.....	180	2,310	15.....	159	979	25.....	153	473
6.....	157	1,730	16.....	171	925	26.....	137	473
7.....	169	1,700	17.....	158	687	27.....	134	470
8.....	161	1,410	18.....	121	712	28.....	148	454
9.....	154	1,260	19.....	138	786	29.....	121	---
10.....	149	1,040	20.....	129	717	30.....	1,450	---
						31.....	13,300	---
Monthly mean discharge, in cubic feet per second.....							616	2,055
Runoff, in acre-feet.....							37,890	114,100

FLOODS OF 1963 IN THE UNITED STATES

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of South Fork American River near Lotus, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	4.42	180	Jan. 31	1400	9.44	6,610	Feb. 2	0300	11.20	12,000
					1600	10.86	10,800		0600	10.70	10,300
30	0100	4.42	180		1800	13.00	19,200		0900	10.33	9,170
	0300	4.43	182		2000	14.97	29,300		1200	10.03	8,270
	0600	4.52	206		2300	17.96	47,200		1600	9.68	7,260
	0900	4.68	254		2400	18.59	51,600		1700	9.51	6,800
	1400	5.27	495						2300	9.19	5,940
	1600	6.18	1,130	Feb. 1	0200	19.19	55,800		2400	9.30	6,230
	1900	6.66	1,620		0300	19.44	57,600				
	2200	7.21	2,250		0400	19.37	57,100	3	0300	9.20	5,960
31	2400	7.47	2,620		0430	19.63	60,300		0400	9.12	5,770
					0600	19.85	60,400		0600	8.55	4,460
	0100	8.70	4,800		0800	19.58	58,600		0900	8.35	4,080
	0200	9.32	6,280		1000	18.47	50,800		1200	8.25	3,890
	0300	9.30	6,230		1200	17.22	42,400		1600	8.07	3,570
	0600	9.45	6,640		1400	15.49	32,200		2400	7.95	3,360
	0900	9.04	5,580		1600	14.12	24,700				
	1100	8.96	5,380		2000	12.74	18,100				
	1200	8.98	5,430		2400	11.87	14,500				

11-4462. Folsom Lake near Folsom, Calif.

Location.--Lat 38°42'29", long 121°09'22", in NW¼NE¼ sec.24, T.10 N., R.7 E., 0.7 mile downstream from South Fork American River and 2.3 miles northeast of Folsom.

Drainage area.--1,863 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is at mean sea level (levels by Bureau of Reclamation).

Maxima.--January-February 1963: Computed bihourly inflow, 240,000 cfs 2400 hours Jan. 31 to 0200 hours Feb. 1. Contents, 835,700 acre-ft 1600 hours Feb. 1 (elevation, 450.10 ft).
1955 to December 1962: Contents, 1,020,500 acre-ft June 3, 1960 (elevation, 466.89 ft).

Remarks.--Reservoir is formed by concrete gravity-type dam with rolled-earth wing dams, and dikes, completed May 14, 1956. Spillway gates installed July 31, 1955; control valves installed July 23, 1956. Capacity, 1,010,300 acre-ft between elevations 205.5 ft (invert of lower tier of river outlets) and 466.0 ft (gross pool elevation) above mean sea level, all of which is available for release. Spillway design flood pool elevation is 475.4 ft (capacity, 1,120,200 acre-ft). Folsom Lake is one of the storage units in the Central Valley project. Records furnished by Bureau of Reclamation.

Elevation, in feet, and contents, in acre-feet, at 2400 hours, 1963

Day	January		February		Day	January		February	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	413.12	491,400	448.03	614,100	16	408.38	454,400	425.00	591,900
2	412.85	489,200	439.78	730,700	17	408.15	452,600	425.60	597,300
3	412.61	487,300	435.18	686,000	18	407.93	451,000	426.12	601,900
4	412.33	485,100	429.30	630,800	19	407.85	450,400	426.57	606,000
5	412.03	482,700	424.31	585,800	20	407.75	449,600	427.05	610,300
6	411.72	480,300	423.71	580,500	21	407.65	448,800	427.49	614,300
7	411.40	477,800	423.71	580,500	22	407.60	448,500	427.80	617,100
8	411.06	475,100	423.48	578,400	23	407.52	447,900	426.06	619,500
9	410.73	472,500	423.14	575,400	24	407.44	447,300	428.26	621,300
10	410.38	469,800	422.66	571,200	25	407.33	446,400	428.45	623,000
11	410.02	467,000	422.35	568,500	26	407.24	445,700	428.59	624,300
12	409.68	464,400	422.25	567,700	27	407.12	444,800	428.70	625,300
13	409.30	461,400	423.02	574,400	28	407.02	444,100	428.81	626,300
14	408.93	458,600	423.72	580,500	29	406.94	443,500	-	-
15	408.65	456,400	424.34	586,000	30	407.85	450,400	-	-
					31	427.25	612,100	-	-
Change in contents, in acre-feet.....						-	+118,200	-	+14,200

Average inflow, in cubic feet per second, for bihourly periods ending at indicated time, 1963, of Folsom Lake near Folsom, Calif.

Date	Hour	Inflow	Date	Hour	Inflow	Date	Hour	Inflow
Jan. 30	0200	931	Feb. 1	0200	240,000	Feb. 3	0200	20,400
	0400	1,840		0400	234,000		0400	21,600
	0600	1,400		0600	233,000		0600	19,900
	0800	1,400		0800	228,000		0800	20,400
	1000	1,780		1000	189,000		1000	18,800
	1200	2,780		1200	165,000		1200	17,200
	1400	1,400		1400	136,000		1400	17,300
	1600	3,680		1600	108,000		1600	16,100
	1800	7,030		1800	90,800		1800	16,800
	2000	8,480		2000	77,300		2000	15,700
	2200	10,100		2200	69,100		2200	14,200
	2400	18,300		2400	66,700		2400	13,200
31	0200	27,700	2	0200	61,300	4	0200	13,900
	0400	37,500		0400	49,500		0400	15,800
	0600	41,600		0600	42,500		0600	14,100
	0800	34,000		0800	31,200		0800	13,100
	1000	41,600		1000	39,800		1000	12,600
	1200	42,600		1200	36,400		1200	10,500
	1400	49,800		1400	33,100		1400	13,600
	1600	71,700		1600	33,100		1600	9,730
	1800	113,000		1800	28,900		1800	10,400
	2000	152,000		2000	29,900		2000	13,300
	2200	188,000		2200	26,800		2200	12,300
	2400	207,000		2400	24,400		2400	14,200

11-4465. American River at Fair Oaks, Calif.

Location.--Lat 38°38'08", long 121°13'36", in SE 1/4 sec. 17, T.9 N., R.7 E., on right bank 2,100 ft downstream from Nimbus Dam, 2.4 miles east of Fair Oaks, 8.1 miles downstream from South Fork, and at mile 19.3.

Drainage area.--1,889 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 77.53 ft above mean sea level.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 101,000 cfs 0600 hours Feb. 2 (gage height, 21.44 ft).
1904-52 (prior to regulation by Folsom Lake): Discharge, 180,000 cfs Nov. 21, 1950 (gage height, 31.85 ft, site and datum then in use).
1953 to December 1962: Discharge, 71,500 cfs (fully regulated) Dec. 24, 1955 (gage height, 20.35 ft, site and datum then in use).

Remarks.--Floodflow regulated by Folsom Lake since Feb. 25, 1955 (see station 11-4462).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	2,520	42,400	11.....	2,510	5,880	21.....	1,400	1,980
2.....	2,570	74,100	12.....	2,500	5,410	22.....	1,480	2,050
3.....	2,520	40,400	13.....	2,480	5,350	23.....	1,410	2,050
4.....	2,560	39,900	14.....	2,450	4,510	24.....	1,430	2,050
5.....	2,520	33,700	15.....	2,240	3,530	25.....	1,420	2,040
6.....	2,460	12,200	16.....	2,070	2,310	26.....	1,420	2,050
7.....	2,420	7,790	17.....	1,770	2,080	27.....	1,430	2,040
8.....	2,450	7,540	18.....	1,560	1,690	28.....	1,440	1,980
9.....	2,450	7,600	19.....	1,340	1,970	29.....	1,410	-----
10.....	2,450	7,480	20.....	1,390	2,000	30.....	1,400	-----
						31.....	2,830	-----

Monthly mean discharge, in cubic feet per second..... 2,010 11,570
Runoff, in acre-feet..... 123,600 642,800

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 31	2400	4.98	7,710	Feb. 1	1500	15.17	53,400	Feb. 2	1000	17.96	75,200
					1700	18.90	80,700		1400	16.66	66,800
Feb. 1	0200	4.98	7,710		2000	20.52	93,700		1600	16.32	64,600
	0300	5.18	8,340		2100	20.32	92,100		1700	15.22	57,800
	0800	5.11	8,150		2400	20.57	94,100		2000	14.95	56,200
	1000	6.18	11,000						2100	13.97	50,300
	1100	8.52	19,300	2	0300	20.50	93,500		2200	13.80	49,300
	1200	11.15	31,000		0600	21.44	101,000		2400	13.76	49,100
	1300	12.49	37,600		0800	20.05	89,900				

11-4473. Dry Creek tributary near Roseville, Calif.

(Crest-stage station)

Location.--Lat 38°43'44", long 121°21'08", in NW¼NW¼ sec.17, T.10 N., R.6 E., 3.7 miles southwest of Roseville.

Drainage area.--0.39 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 102 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 32 cfs and by computation of flow through culvert at 71 and 220 cfs (including flow over road).

Maxima.--January-February 1963: Discharge, 42 cfs Feb. 1 (gage height, 14.23 ft). 1959 to December 1962: Discharge, 220 cfs Feb. 9, 1962 (gage height, 17.00 ft).

11-4475. Sacramento River at Sacramento, Calif.

Location.--Lat 38°35'20", long 121°30'15", on left bank 1,000 ft upstream from I Street Bridge, in city of Sacramento, and 0.5 mile downstream from American River.

Gage-height record.--Water-stage recorder graph. Auxiliary water-stage recorder 10.8 miles downstream. Datum of gage is at mean sea level.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 98,100 cfs 2130 hours Feb. 1 (gage height, 28.52 ft).

1909 to December 1962: Discharge, 104,000 cfs Nov. 21, 1950 (gage height, 30.14 ft, site and datum then in use).

Remarks.--Flow affected by Shasta Lake (see station 11-3700), Folsom Lake (see station 11-4462) and several other reservoirs, and by bypassing for flood control. When discharge at Verona exceeds about 55,000 cfs, flow begins over Fremont weir (26 miles upstream) into Yolo bypass (see station 11-4530). When stage at Sacramento reaches 27.5 ft, gates are opened in Sacramento weir 4 miles upstream (see station 11-4260) to reduce discharge at Sacramento.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	24,400	71,100	11.....	20,900	57,200	21.....	15,700	46,300
2.....	24,100	94,400	12.....	20,600	56,200	22.....	15,400	43,000
3.....	23,800	81,800	13.....	19,700	57,800	23.....	15,500	39,200
4.....	23,300	78,800	14.....	18,300	59,900	24.....	15,100	36,100
5.....	23,100	76,400	15.....	18,200	59,200	25.....	14,900	35,100
6.....	22,800	68,600	16.....	17,900	57,100	26.....	15,000	33,800
7.....	22,400	63,800	17.....	17,300	55,300	27.....	14,600	32,300
8.....	21,800	62,100	18.....	16,700	53,400	28.....	14,400	31,400
9.....	21,600	60,500	19.....	16,400	51,500	29.....	14,700	-----
10.....	21,200	59,100	20.....	15,900	49,100	30.....	19,000	-----
						31.....	33,200	-----
Monthly mean discharge, in cubic feet per second.....							19,290	56,090
Runoff, in acre-feet.....							1,186,000	3,115,000

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge		
Jan. 30	2400	7.25	23,100	Feb. 1	0600	17.96	55,600	Feb. 2	2400	26.14	86,600		
31	0400	7.57	24,000		1200	21.49	67,200	3					
	0600	7.82	24,800		1830	26.12	96,600			0600	25.43	82,900	
	0900	8.28	26,100		2130	28.52	98,100			0900	25.06	81,700	
	1300	11.06	34,300		2400	28.33	97,200			1200	24.89	80,900	
	1400	11.43	35,400	2	1000	28.43	97,700			1800	24.73	80,200	
	1800	13.28	40,900			1200	28.21		96,600		2400	24.66	79,900
	2400	15.34	47,300			1800	27.14		91,200				

11-4485. Adobe Creek near Kelseyville, Calif.

Location.--Lat 38°55'40", long 122°52'45", in SE $\frac{1}{4}$ sec.5, T.12 N., R.9 W., on left bank 2.5 miles upstream from Highland Creek and 4.2 miles south of Kelseyville.

Drainage area.--6.39 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 1,478.1 ft above mean sea level (levels by topographic division).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 410 cfs and by computation flow over dam at 1,250 cfs.

Maxima.--January-February 1963: Discharge, 1,450 cfs 1400 hours Jan. 31 (gage height, 9.22 ft).

1954 to December 1962: Discharge, 1,430 cfs Oct. 12, 1962 (gage height, 9.18 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	3.1	246	11.....	1.4	31	21.....	1.2	8.9
2.....	2.9	80	12.....	1.2	75	22.....	1.2	8.9
3.....	2.9	48	13.....	1.2	62	23.....	1.2	7.7
4.....	2.6	33	14.....	1.4	36	24.....	1.2	6.2
5.....	2.1	25	15.....	1.4	26	25.....	1.1	5.4
6.....	1.9	19	16.....	1.4	20	26.....	1.1	5.4
7.....	1.9	15	17.....	1.4	16	27.....	1.1	5.4
8.....	1.9	21	18.....	1.2	14	28.....	1.1	5.4
9.....	1.6	39	19.....	1.2	12	29.....	4.1	-----
10.....	1.6	42	20.....	1.1	10	30.....	294	-----
						31.....	725	-----
Monthly mean discharge, in cubic feet per second.....							34.4	33.0
Runoff, in inches.....							6.21	5.37
Runoff, in acre-feet.....							2,120	1,830

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	4.04	1.1	Jan. 30	1000	5.52	199	Jan. 31	1300	8.42	1,130
					1100	5.58	213		1400	9.22	1,450
29	1200	4.04	1.1		1300	6.65	509		1500	8.95	1,340
	1600	4.12	2.9		1500	7.30	730		1700	8.35	1,100
	2000	4.25	7.7		1700	6.56	488		1900	7.55	818
	2200	4.27	8.9		1900	6.05	335		2000	7.41	769
	2400	4.52	31		2000	6.05	335		2300	6.69	527
					2400	5.60	218		2400	6.72	536
30	0300	4.88	77					Feb. 1	0200	6.48	464
	0400	5.48	190	31	0300	5.41	174		0600	5.93	302
	0600	5.38	168		0400	5.42	176		1200	5.50	194
	0700	5.47	187		0700	6.40	440		1400	5.45	183
	0800	5.45	183		1000	8.04	989		2400	5.12	117
	0900	5.53	201		1200	8.42	1,130				

11-4489. Highland Creek above Highland Creek Dam, Calif.

Location.--Lat 38°55'45", long 122°55'10", in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.36, T.13 N., R.10 W., on left bank 100 ft downstream from Pipeline Creek, 1.7 miles upstream from Highland Creek Dam, and 5.7 miles southwest of Kelseyville.

Drainage area.--11.9 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 1,500 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 1,720 cfs 1300 hours Jan. 31 (gage height, 9.60 ft).

October to December 1962: Discharge, 2,320 cfs Oct. 12, 1962 (gage height, 10.98 ft).

FLOODS OF 1963 IN THE UNITED STATES

Mean discharge, in cubic feet per second, 1963, of Highland Creek above Highland Creek Dam, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	5.3	358	11.....	2.8	52	21.....	2.6	14
2.....	4.9	131	12.....	2.8	104	22.....	2.6	12
3.....	4.4	83	13.....	2.8	82	23.....	2.6	11
4.....	3.8	65	14.....	2.8	55	24.....	2.6	9.4
5.....	3.5	51	15.....	2.8	43	25.....	2.6	8.4
6.....	3.5	43	16.....	2.8	36	26.....	2.5	7.9
7.....	3.2	37	17.....	2.6	27	27.....	2.5	7.6
8.....	3.2	49	18.....	2.6	22	28.....	2.5	6.8
9.....	3.2	96	19.....	2.6	19	29.....	11	-----
10.....	3.0	79	20.....	2.6	16	30.....	426	-----
						31.....	936	-----
Monthly mean discharge, in cubic feet per second.....							47.1	54.5
Runoff, in inches.....							4.56	4.77
Runoff, in acre-feet.....							2,890	3,020

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	2.87	1.9	Jan. 30	1800	6.80	665	Jan. 31	2100	7.43	886
					1900	6.38	530		2200	7.20	805
	29	1100	2.87		2100	6.01	443		2400	7.13	781
		1500	2.99		2200	5.71	370				
		1800	3.24		2400	5.45	313	Feb. 1	0100	7.12	777
		2100	3.64						0300	6.50	575
		2400	3.99						0500	6.10	465
				31	0400	5.12	244		1000	5.50	324
	30	0100	4.00		0600	5.85	403		1700	5.11	242
		0400	4.91		0900	8.12	1,130		2400	4.77	179
		0800	5.01		1100	9.20	1,560				
		1100	5.65		1200	9.10	1,520				
		1300	7.39		1300	9.60	1,720	2	0600	4.62	153
		1400	7.69		1400	9.50	1,680		1200	4.47	129
		1500	7.49		1500	9.37	1,630		1800	4.21	105
		1700	6.90		1800	7.80	1,020		2400	4.23	94
					1900	7.58	938				

11-4490.6. Lyons Creek tributary near Lakeport, Calif.

(Crest-stage station)

Location--Lat 39°05'40", long 122°54'59", in NE¼ sec.1, T.14 N., R.10 W., at culvert on Hill Road 3.3 miles north of Lakeport.

Drainage area--0.16 sq mi.

Gage-height record--Crest stages only. Altitude of gage is 1,410 ft (from topographic map).

Discharge record--Stage-discharge relation not defined.

Maxima--January-February 1963: Discharge, not determined, occurred Jan. 31 (gage height, 12.08 ft).

September to December 1962: Discharge, 23 cfs Oct. 12, 1962 (gage height, 11.65 ft), by computation of flow through culvert.

11-4491. Scotts Creek near Lakeport, Calif.

Location.--Lat 39°03'45", long 122°56'50", in SW $\frac{1}{4}$ sec.14, T.14 N., R.10 W., 100 ft downstream from bridge on Hartley Cemetery Road and 0.8 mile northwest of Lakeport.

Drainage area.--52.3 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 1,420 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,500 cfs.

Maxima.--January-February 1963: Discharge, 6,500 cfs 1530 hours Jan. 31 (gage height, 14.02 ft).
1960 to December 1962: Discharge, 3,910 cfs Feb. 14, 1962 (gage height, 10.98 ft).

Remarks.--Records furnished by California Department of Water Resources.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	14	1,400	11.....	8.3	252	21.....	6.6	57
2.....	13	446	12.....	6.4	426	22.....	6.5	51
3.....	13	259	13.....	6.9	490	23.....	6.0	45
4.....	12	171	14.....	7.5	294	24.....	6.3	41
5.....	10	131	15.....	7.0	187	25.....	6.1	40
6.....	9.9	105	16.....	7.1	141	26.....	5.7	36
7.....	10	88	17.....	6.7	110	27.....	5.6	34
8.....	9.6	96	18.....	7.3	88	28.....	5.7	32
9.....	9.6	283	19.....	6.1	75	29.....	18	-----
10.....	9.1	406	20.....	5.6	66	30.....	1,420	-----
						31.....	3,240	-----
Monthly mean discharge, in cubic feet per second.....							158	209
Runoff, in inches.....							3.49	4.16
Runoff, in acre-feet.....							9,730	11,600

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	1.14	5.7	Jan. 30	2400	5.50	1,250	Jan. 31	2400	8.79	2,750
29	1200	1.15	6.0	31	0100	5.27	1,120	Feb. 1	0100	8.68	2,690
	1800	1.16	6.4		0200	4.92	977		0400	7.49	2,040
	2100	1.33	14		0300	4.82	938		0800	6.30	1,470
	2400	2.54	247		0500	4.63	867		1200	5.56	1,150
30	0300	3.25	448		0700	5.21	1,090		1600	5.20	1,010
	0600	4.45	838		0800	6.20	1,520		1800	4.80	856
	0800	4.16	735		0900	8.70	2,820		2400	4.14	628
	0900	4.22	756		1000	11.10	4,330	2	0800	3.63	471
	1100	5.27	1,160		1100	12.12	5,050		1300	3.44	414
	1300	7.03	1,960		1300	12.35	5,220		1900	3.20	337
	1400	9.30	3,230		1530	14.02	6,500		2400	3.11	310
	1600	9.08	3,100		1800	11.60	4,680				
	1900	7.20	2,050		2000	9.95	3,570				
					2300	8.83	2,890				

11-4493.5. Burns Valley Creek near Clearlake Highlands, Calif.

Location.--Lat 38°58'33", long 122°36'42", in SE $\frac{1}{4}$ sec.15, T.13 N., R.7 W., on right bank 500 ft downstream from unnamed tributary and 2.7 miles northeast of Clearlake Highlands.

Drainage area.--4.38 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 1,380 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 277 cfs 1300 hours Jan. 31 (gage height, 4.38 ft).

[illegible]

Mean discharge, in cubic feet per second, 1963

[illegible]

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	3.25	16	Jan. 30	1500	10.28	3,270	Jan. 31	1700	12.65	6,140
					1800	8.88	1,930		1900	11.06	4,100
29	1000	3.25	16		2100	8.05	1,340		2200	9.83	2,800
	1800	3.38	21		2400	7.43	1,020		2400	9.42	2,400
	2000	3.47	25								
	2100	5.00	165	31	0300	7.12	866	Feb. 1	0200	9.30	2,280
	2200	5.30	228		0400	7.17	888		0600	8.20	1,440
	2300	5.28	224		0600	8.22	1,450		0800	7.92	1,270
	2400	5.41	254		0700	9.00	2,030		1200	7.53	1,070
					0900	10.95	3,970		1800	7.12	866
30	0400	7.00	810		1000	10.85	3,840		2400	6.64	646
	0600	7.20	904		1100	11.20	4,280				
	0900	6.90	760		1200	11.60	4,820	2	0600	6.27	529
	1000	7.06	835		1300	12.35	5,980		1200	6.04	461
	1200	8.38	1,560		1400	12.80	6,300		1800	5.80	391
									2400	5.65	355

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	3.08	1.2	Jan. 30	1600	10.70	1,430	Jan. 31	1800	9.33	1,110
					1700	9.15	1,070		1900	8.35	890
29	1200	3.08	1.2		1800	7.60	751		2000	7.75	762
	1600	3.16	2.4		1900	6.60	553		2100	7.35	680
	1900	3.46	15		2000	6.05	431		2300	6.77	565
	2100	3.91	53		2100	5.70	369		2400	6.54	521
	2200	4.20	96		2300	5.13	275				
	2300	4.51	162		2400	5.10	268	Feb. 1	0100	6.95	600
	2400	4.67	202						0200	7.00	610
				31	0200	5.02	256		0300	6.25	467
30	0100	4.82	225		0400	6.05	431		0400	5.95	413
	0200	5.30	301		0500	7.05	620		0600	5.43	323
	0300	5.93	409		0600	8.20	858		0800	5.08	265
	0500	6.51	516		0700	9.25	1,090		1000	4.76	216
	0600	6.30	476		0800	10.80	1,460		1300	4.50	159
	0800	6.25	467		0900	12.00	1,760		1900	4.26	108
	0900	7.00	610		1000	12.62	1,920		2400	4.12	83
	1000	7.55	721		1200	12.38	1,860				
	1100	9.00	1,030		1300	13.40	2,130	Feb. 2	0600	4.03	69
	1200	12.20	1,810		1400	14.12	2,330		1200	3.97	60
	1330	14.15	2,340		1500	13.15	2,060		2400	3.84	44
	1400	13.25	2,090		1600	11.40	1,610				
	1500	12.00	1,760		1700	10.40	1,360				

[illegible]

11-4515. North Fork Cache Creek near Lower Lake, Calif.

Location.--Lat 39°01', long 122°33', in NE $\frac{1}{4}$ sec.31, T.14 N., R.6 W., on right bank 500 ft upstream from Sweet Hollow Creek, 5 miles upstream from mouth, and 7 miles northeast of Lower Lake.

Drainage area.--198 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 1,035.60 ft above mean sea level, preliminary adjustment of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 13,400 cfs 1900 hours Jan. 31 (gage height, 11.44 ft).
1930 to December 1962: Discharge, 20,300 cfs Dec. 11, 1937 (gage height, 13.98 ft, from floodmarks), from rating curve extended above 7,600 cfs on basis of slope-area measurement at gage height 13.9 ft for peak of Feb. 28, 1940.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	72	4,480	11.....	48	540	21.....	39	179
2.....	66	1,330	12.....	43	705	22.....	39	166
3.....	65	824	13.....	44	777	23.....	38	156
4.....	60	658	14.....	44	490	24.....	37	148
5.....	57	530	15.....	43	394	25.....	37	141
6.....	54	453	16.....	42	340	26.....	37	137
7.....	53	403	17.....	41	296	27.....	36	127
8.....	52	385	18.....	41	252	28.....	36	123
9.....	52	403	19.....	40	223	29.....	41	---
10.....	51	707	20.....	39	201	30.....	1,430	---
						31.....	6,420	---
Monthly mean discharge, in cubic feet per second.....							297	556
Runoff, in inches.....							1.73	2.92
Runoff, in acre-feet.....							18,240	30,880

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.75	63	Jan. 31	0700	5.29	1,200	Feb. 1	1100	7.55	3,990
					0900	5.75	1,600		1400	7.20	3,400
30	0400	2.95	95		1000	6.52	2,430		1600	7.09	3,230
	1000	3.73	315		1200	8.83	6,670		1900	6.86	2,880
	1400	5.03	1,010		1400	9.95	9,470		2400	6.21	2,060
	1600	6.41	2,290		1600	10.90	11,900				
	1700	7.48	3,870		1900	11.44	13,400	2	0400	5.78	1,620
	1900	7.76	4,370		2100	10.65	11,500		0900	5.49	1,360
	2000	7.57	4,030		2200	10.18	10,100		1600	5.18	1,120
	2200	6.72	2,690		2400	9.60	8,590		1900	5.16	1,100
	2400	6.14	1,980						2400	4.94	948
31	0400	5.55	1,420	Feb. 1	0400	8.93	6,920				
					0800	8.07	4,980				

11-4515.3. Phipps Creek near Lower Lake, Calif.

(Crest-stage station)

Location.--Lat 38°59'51", long 122°33'16", T.13 N., R.6 W. (unsurveyed), at culvert on State Highway 20, 6.7 miles northeast of Lower Lake.

Drainage area.--3.05 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 1,020 ft (from topographic map).

Discharge record.--Maximum discharge by computation of flow through culvert.

Maxima.--January-February 1963: Discharge, 99 cfs Jan. 31 (gage height, 12.95 ft).
September to December 1962: Discharge, 63 cfs Oct. 12, 1962 (gage height, 12.14 ft).

11-4517. Bear Creek tributary near Wilbur Springs, Calif.

Location.--Lat 39°00'45", long 122°21'30", in SE $\frac{1}{4}$ sec.36, T.14 N., R.5 W., on State Highway 20, 3.8 miles southeast of Wilbur Springs.

Drainage area.--4.50 sq mi.

Gage-height record.--Water-stage recorder graph and crest-stage gage. Altitude of gage is 1,050 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 240 cfs and by computation of flow through culvert.

Maxima.--January-February 1963: Discharge, 357 cfs 1415 hours Jan. 30 (gage height, 27.54 ft, from recorder graph; 27.79 ft, from crest-stage gage).
1961 to December 1962: Discharge, 355 cfs (revised) Feb. 14, 1962 (gage height, 27.92 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0	16	11.....	0	1.6	21.....	0	.7
2.....	0	2.7	12.....	0	34	22.....	0	.6
3.....	0	1.7	13.....	0	9.2	23.....	0	.5
4.....	0	1.1	14.....	0	2.4	24.....	0	.5
5.....	0	.8	15.....	0	1.7	25.....	0	.4
6.....	0	.7	16.....	0	1.3	26.....	0	.4
7.....	0	.6	17.....	0	1.1	27.....	0	.3
8.....	0	.6	18.....	0	1.0	28.....	0	.4
9.....	0	7.6	19.....	0	.8	29.....	.4	-----
10.....	0	6.7	20.....	0	.8	30.....	70	-----
						31.....	81	-----
Monthly mean discharge, in cubic feet per second.....							4.88	3.44
Runoff, in inches.....							1.25	0.79
Runoff, in acre-feet.....							300	191

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	20.18	1.6	Jan. 30	1730	22.25	62	Jan. 31	1700	22.10	56
					1900	21.55	36		1830	21.95	50
					2100	21.05	20		2030	21.45	32
					2200	20.88	16		2200	21.15	24
					2400	20.69	11		2345	20.95	18
									2400	20.96	18
				31	0300	20.56	8.2				
					0400	20.56	8.0	Feb. 1	0100	21.34	29
					0600	21.15	24		0215	22.58	75
					0700	22.45	70		0230	22.50	72
					0800	24.70	187		0330	21.16	43
					0900	25.57	239		0430	21.36	30
					0945	25.30	223		0600	21.02	20
					1100	24.24	159		0900	20.73	12
					1130	24.46	173		1230	20.57	8.4
					1230	24.10	151		1730	20.45	6.0
					1400	24.86	197		2100	20.38	4.7
					1530	23.20	105		2400	20.34	4.0

11-4517.2. Bear Creek near Rumsey, Calif.

Location.--Lat 39°56'35", long 122°20'40", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.30, T.13 N., R.4 W., on left bank 0.3 mile downstream from Brophy Canyon, 1.4 miles upstream from mouth, and 7.3 miles northwest of Rumsey.

Drainage area.--96.8 sq mi.

Gage-height record.--Water-stage recorder graph, except from 0600 hours Feb. 1 to 1100 hours Feb. 4, for which graph was reconstructed on basis of three staff-gage readings. Altitude of gage is 750 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 2,300 cfs.

Maxima.--January-February 1963: Discharge, 5,600 cfs 1500 hours Jan. 31 (gage height, 9.95 ft).
1958 to December 1962: Discharge, 5,040 cfs (revised) Feb. 14, 1962 (gage height, 9.59 ft).
Maximum stage since 1955, 12.33 ft Feb. 24, 1958.

Remarks.--Records furnished by California Department of Water Resources and reviewed by U.S. Geological Survey.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	11	1,120	11.....	8.2	117	21.....	6.2	52
2.....	10	196	12.....	5.6	415	22.....	6.9	47
3.....	10	122	13.....	7.2	531	23.....	6.6	43
4.....	9.9	88	14.....	8.0	149	24.....	7.4	40
5.....	9.6	71	15.....	7.5	108	25.....	6.9	37
6.....	9.3	59	16.....	7.6	91	26.....	6.6	36
7.....	8.7	52	17.....	7.6	83	27.....	6.6	33
8.....	8.7	50	18.....	7.6	68	28.....	6.9	31
9.....	8.7	119	19.....	7.2	61	29.....	10	-----
10.....	8.7	401	20.....	6.3	56	30.....	1,150	-----
						31.....	2,940	-----
Monthly mean discharge, in cubic feet per second.....							139	153
Runoff, in inches.....							1.66	1.64
Runoff, in acre-feet.....							8,570	8,480

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.67	20	Jan. 31	0200	4.71	757	Feb. 1	0700	-	1,840
30					0500	4.23	555		1000	-	1,180
	0200	1.78	27		0700	5.00	896		1300	-	734
	0400	2.13	57		0800	6.39	1,760		1700	-	474
	0500	2.36	84		0900	6.83	2,100		2100	-	357
	0800	2.68	152		1200	7.18	2,400		2400	-	301
	1000	3.22	242		1300	9.16	4,530				
	1200	5.00	896		1400	9.64	5,160	2	0300	-	257
	1300	6.21	1,630		1500	9.95	5,600		0800	-	210
	1400	7.62	2,810		1600	9.89	5,510		1300	-	178
	1430	7.69	2,880		1700	9.86	5,470		1500	-	168
	1500	7.69	2,880		1800	9.88	5,500		1800	-	159
	1600	7.05	2,290		2000	9.60	5,110		2100	-	150
	1700	7.34	2,540		2200	8.56	3,800		2400	-	144
	1800	7.31	2,520		2400	7.41	2,610				
	1900	7.48	2,670					3	0400	-	136
	2000	7.43	2,630	Feb. 1	0100	7.12	2,350		1000	-	124
	2200	6.39	1,760		0200	7.07	2,300		1300	-	121
	2400	5.31	1,060		0300	7.08	2,310		1800	-	111
					0500	6.90	2,160		2400	-	88

11-4520. Cache Creek near Capay, Calif.

Location.--Lat 38°43'40", long 122°06'15", in Canada de Capay Grant, in Yolo County, on right bank 1.8 miles upstream from Clear Lake Water Co.'s diversion dam, 3.2 miles northwest of Capay, and 5.4 miles northwest of Esparto.

Drainage area.--1,052 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 225 ft (from river-profile map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 20,000 cfs.

Maxima.--January-February 1963: Discharge, 26,300 cfs 0200 hours Feb. 1 (gage height, 16.35 ft).
1942 to December 1962: Discharge, 51,600 cfs Feb. 24, 1958 (gage height, 20.90 ft).

Remarks.--Flow regulated by Clear Lake (see station 11-4500).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	114	14,600	11.....	77	946	21.....	61	450
2.....	109	4,530	12.....	73	873	22.....	60	412
3.....	105	2,110	13.....	70	2,700	23.....	60	379
4.....	101	1,980	14.....	68	1,220	24.....	59	358
5.....	95	1,370	15.....	68	952	25.....	58	334
6.....	90	961	16.....	68	815	26.....	57	315
7.....	85	685	17.....	67	710	27.....	56	298
8.....	83	600	18.....	66	608	28.....	55	282
9.....	80	588	19.....	64	536	29.....	55	---
10.....	79	1,540	20.....	62	492	30.....	2,910	---
						31.....	11,600	---
Monthly mean discharge, in cubic feet per second.....							537	1,480
Runoff, in acre-feet.....							33,040	82,200

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.89	77	Jan. 31	2400	16.15	25,400	Feb. 4	0200	7.75	2,870
30	0300	1.99	90	Feb. 1	0100	16.09	25,100		0400	6.83	1,890
	0600	2.17	115		0200	16.35	26,300		0600	6.56	1,680
	0700	2.31	138		0400	15.82	23,900		1200	6.31	1,500
	1000	3.82	540		0800	13.82	16,300		1800	6.15	1,400
	1400	5.80	1,690		1200	12.73	12,800		2000	8.33	3,560
	1600	7.50	3,550		1800	11.07	8,750		2200	6.88	1,940
	1800	8.80	5,330		2400	10.00	6,320		2400	6.21	1,430
	2000	10.40	8,250	2	0600	9.44	5,170	5	0300	5.88	1,220
	2100	10.88	9,210		1200	8.95	4,360		0600	5.73	1,130
	2200	10.98	9,410		1800	8.61	3,910		1200	5.54	1,020
	2400	10.58	8,610		2000	8.48	3,750		1900	5.38	940
31	0200	10.24	7,930		2400	7.73	2,840		2000	6.70	1,790
	0400	10.00	7,450						2100	6.12	3,310
	0900	9.05	5,740	3	0600	7.25	2,290		2400	7.00	2,050
	1000	9.02	5,690		1200	6.88	1,940	6	0300	5.78	1,160
	1300	10.80	9,050		2200	6.01	1,300		0600	5.44	970
	1500	12.03	11,500		2300	8.35	3,590		0900	5.29	900
	1800	13.44	15,000		2400	8.88	4,260		1500	5.12	820
	2100	15.30	21,800						2400	4.98	755

11-4525. Cache Creek at Yolo, Calif.

Location.--Lat 38°43'30", long 121°48'25", in Rio Jesus Maria Grant, on left bank 800 ft upstream from highway bridge and 0.5 mile south of Yolo, Yolo County.

Drainage area.--1,137 sq mi.

Gage-height record.--Water-stage recorder graph, except Jan. 1-10, 15-29. Record for Jan. 4 based on two staff-gage readings. Datum of gage is 52.27 ft above mean sea level, adjustment of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements. Discharge for period of no gage-height record estimated on basis of hydrographer's and observer's notes, and trend in flow.

Maxima.--January-February 1963: Discharge, 24,000 cfs 0700 hours Feb. 1 (gage height, 26.92 ft).
1903 to December 1962: Discharge, 41,400 cfs Feb. 25, 1958 (gage height, 33.11 ft); gage height observed, 34.2 ft Mar. 10, 1904.

Remarks.--Flow regulated by Clear Lake beginning in 1915 (see station 11-4500).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	50	18,200	11.....	14	1,200	21.....	0.6	447
2.....	40	5,790	12.....	29	830	22.....	.5	413
3.....	35	2,460	13.....	13	3,420	23.....	.4	371
4.....	26	2,160	14.....	10	1,760	24.....	.3	338
5.....	20	1,510	15.....	3	1,180	25.....	.2	299
6.....	18	1,400	16.....	2	920	26.....	.1	299
7.....	18	707	17.....	1	774	27.....	0	272
8.....	16	590	18.....	.9	671	28.....	0	248
9.....	16	574	19.....	.8	586	29.....	0	-----
10.....	16	1,350	20.....	.7	496	30.....	1,260	-----
						31.....	11,100	-----
Monthly mean discharge, in cubic feet per second.....							409	1,759
Runoff, in acre-feet.....							25,170	97,720

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	-	0	Jan. 31	2400	23.60	18,600	Feb. 4	0500	8.66	3,950
30	0600	-	0						0800	6.09	2,190
	0700	1.45	9	Feb. 1	0500	26.44	23,100		1000	5.73	1,980
	0900	1.57	18		0600	26.82	23,800		1200	5.46	1,820
	1100	1.67	22		0700	26.92	24,000		1600	5.21	1,670
	1300	1.89	81		0800	26.87	23,900		2000	5.01	1,560
	1500	2.03	120		0900	26.68	23,600		2200	4.93	1,520
	1600	2.25	185		1200	24.82	20,400		2400	7.36	3,020
	1700	3.85	365		1800	19.77	13,900				
	1800	5.60	1,720		2400	14.52	8,730	5	0100	7.69	3,240
	1900	7.20	2,750						0500	5.32	1,730
	2100	9.85	4,740	2	0200	13.37	7,720		0700	4.85	1,470
	2400	13.40	7,620		0600	12.04	6,650		1200	4.41	1,230
31	0200	15.60	9,610		1200	10.71	5,590		1800	4.14	1,080
	0300	16.10	10,100		1800	9.59	4,690		2400	3.96	995
	0400	16.20	10,200		2400	8.79	4,050	6	0200	7.08	2,840
	0700	15.84	9,830	3	0400	7.34	3,010		0300	7.30	2,980
	0900	15.30	9,340		0600	6.92	2,730		0800	4.79	1,440
	1200	14.27	8,410		1000	6.41	2,400		1000	4.35	1,200
	1300	14.40	8,530		1600	5.88	2,070		1200	4.11	1,070
	1500	15.50	9,520		2400	5.44	1,800		1500	3.68	855
	1700	17.20	11,100	4	0200	5.35	1,750		1800	3.77	900
	2000	20.50	14,600		0400	8.26	3,640		2400	3.59	810

11-4530. Yolo bypass near Woodland, Calif.

Location.--Lat 38°40'40", long 121°38'35", on left bank just upstream from Sacramento and Woodland railroad bridge, 6 miles upstream from Sacramento bypass, 7 miles downstream from Fremont weir, and 7 miles east of Woodland, Yolo County.

Gage-height record.--Water-stage recorder graph. Datum of gage is set to Corps of Engineers datum.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February, 1963: Discharge, 163,000 cfs 0900 hours Feb. 2 (gage height, 30.62 ft).
1939 to December 1962: Discharge, 272,000 cfs Feb. 8, 1942 (gage height, 32.00 ft).

Remarks.--Flow is from Cache Creek and Knights Landing Ridge Cut plus floodwater passing over Fremont weir.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	211	65,700	11.....	104	3,570	21.....	26	1,930
2.....	164	157,000	12.....	69	3,390	22.....	26	1,560
3.....	142	114,000	13.....	56	4,400	23.....	26	1,290
4.....	144	75,600	14.....	52	7,920	24.....	25	1,100
5.....	134	50,700	15.....	45	9,970	25.....	24	948
6.....	113	32,400	16.....	39	7,800	26.....	22	818
7.....	100	20,200	17.....	35	5,600	27.....	22	764
8.....	87	12,200	18.....	34	4,020	28.....	22	665
9.....	92	6,180	19.....	32	3,060	29.....	22	-----
10.....	134	3,740	20.....	27	2,570	30.....	86	-----
						31.....	4,480	-----
Monthly mean discharge, in cubic feet per second.....							213	21,400
Runoff, in acre-feet.....							13,080	1,188,000

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	10.44	20	Jan. 31	1300	21.34	5,500	Feb. 2	0900	30.62	163,000
					1800	22.10	7,030		1200	30.61	163,000
30	0800	10.51	27		2100	22.41	7,720		1800	30.36	154,000
	0900	9.45	35		2400	22.96	9,430		2400	29.99	141,000
	1100	9.61	42	Feb. 1	0600	24.32	15,100	3	1200	29.14	111,000
	1500	10.50	103		0800	24.75	19,000		2400	28.36	91,100
	2000	11.34	174		1000	25.34	24,100	4	1200	27.79	74,600
	2400	11.93	223		1300	27.00	56,000		2400	27.20	62,000
31	0200	12.20	253		1600	28.78	98,800	5	1200	26.70	50,500
	0300	12.70	303		1800	29.54	125,000		2400	26.26	39,700
	0400	14.00	516		2100	30.09	145,000				
	0600	16.70	1,310		2400	30.32	153,000				
	0800	19.00	2,630								
	1000	20.54	4,210	2	0600	30.59	162,000				

11-4531.5. Putah Creek tributary near Whispering Pines, Calif.

(Crest-stage station)

Location.--Lat 38°47'10", long 122°41'30", in NE¹ sec.25, T.11 N., R.8 W. at culvert on State Highway 29, 2 miles southeast of Whispering Pines.

Drainage area.--0.24 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 1,600 ft (from topographic map).

Discharge record.--Maximum discharge by computation of flow through culvert.

Maxima.--January-February 1963: Discharge, 58 cfs Feb. 1 (gage height, 13.60 ft).
1958 to December 1962: Discharge, 40 cfs Feb. 13, 1962 (gage height, 12.41 ft).

11-4532. Dry Creek near Middletown, Calif.

Location.--Lat 38°44'05", long 122°38'50", in NW $\frac{1}{4}$ sec.9, T.10 N., R.7 W., on right bank 0.3 mile downstream from Kroll Creek, 2.1 miles southwest of Middletown, and 2.7 miles upstream from mouth.

Drainage area.--8.41 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 1,160 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 950 cfs.

Maxima.--January-February 1963: Discharge, 3,010 cfs 1000 hours Jan. 31 (gage height, 9.54 ft).
1959 to December 1962: Discharge, 3,470 cfs Feb. 8, 1960 (gage height, 9.90 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	9.4	421	11.....	6.4	68	21.....	4.6	22
2.....	9.0	162	12.....	6.0	173	22.....	4.6	19
3.....	8.5	95	13.....	5.8	144	23.....	4.5	17
4.....	8.1	72	14.....	5.9	81	24.....	4.5	17
5.....	7.6	57	15.....	5.8	60	25.....	4.3	15
6.....	7.4	50	16.....	5.6	50	26.....	4.5	14
7.....	7.0	42	17.....	5.4	41	27.....	4.1	13
8.....	6.8	72	18.....	5.2	33	28.....	7.7	- - - - -
9.....	6.6	91	19.....	5.0	27	29.....	573	- - - - -
10.....	6.4	93	20.....	4.8	24	30.....	1,560	- - - - -
						31.....		- - - - -

Monthly mean discharge, in cubic feet per second.....	74.5	71.0
Runoff, in inches.....	10.21	8.79
Runoff, in acre-feet.....	4,580	3,940

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	2.16	4.1	Jan. 30	2100	6.14	500	Feb. 1	0100	7.37	1,070
					2300	5.86	421		0300	6.57	650
					2400	5.78	400		0600	6.06	478
29	1100	2.16	4.1						0900	5.70	379
	1500	2.21	5.0						1200	5.57	348
	1700	2.29	6.4	31	0100	5.77	397		1300	5.64	365
	2100	2.54	12		0300	6.14	500		1400	5.38	312
	2200	2.68	15		0400	6.48	620		1500	5.36	308
	2400	3.20	44		0600	7.75	1,320		1900	5.06	257
30	0200	4.33	153		0800	8.82	2,220		2400	4.87	227
	0400	5.20	280		0900	9.12	2,520				
	0600	5.65	368		1000	9.54	3,010				
	0700	5.55	344		1100	9.05	2,450				
	0800	5.79	403		1200	9.23	2,640	2	0200	4.83	222
	1000	5.64	365		1400	8.65	2,060		0300	4.83	222
	1200	7.30	1,030		1500	8.93	2,330		0600	4.61	190
	1300	7.55	1,180		1700	8.28	1,720		1200	4.31	150
	1400	7.80	1,360		1900	7.92	1,440		1900	4.09	125
	1800	6.52	636		2300	7.09	904		2100	4.09	125
	1900	6.69	695		2400	7.07	892		2400	4.01	117

11-4535. Putah Creek near Guenoc, Calif.

Location.--Lat 38°46'45", long 122°31'00", in Guenoc land grant, on right bank just upstream from Coyote Valley damsite, 2.8 miles upstream from Soda Creek, 3.2 miles downstream from highway bridge at Guenoc, Lake County, and 5.6 miles northeast of Middletown.

Drainage area.--112 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 913.4 ft above mean sea level (river-profile survey).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 13,000 cfs.

Maxima.--January-February 1963: Discharge, 26,500 cfs 1600 hours Jan. 31 (gage height, 20.91 ft).

1904-6, 1930 to December 1962: Discharge, 32,000 cfs Dec. 11, 1937 (gage height, 22.7 ft), from rating curve extended above 7,200 cfs.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	93	5,070	11.....	58	669	21.....	46	260
2.....	88	1,710	12.....	55	1,650	22.....	45	235
3.....	83	1,060	13.....	54	1,770	23.....	44	212
4.....	79	766	14.....	53	923	24.....	43	196
5.....	75	586	15.....	52	677	25.....	43	180
6.....	71	471	16.....	51	550	26.....	42	167
7.....	68	391	17.....	50	451	27.....	41	157
8.....	66	467	18.....	49	382	28.....	41	146
9.....	64	790	19.....	48	325	29.....	59	-----
10.....	61	1,070	20.....	47	291	30.....	5,270	-----
						31.....	13,800	-----
Monthly mean discharge, in cubic feet per second.....							669	772
Runoff, in inches.....							6.89	7.18
Runoff, in acre-feet.....							41,140	42,890

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	1.95	41	Jan. 30	1700	14.97	12,200	Jan. 31	2400	14.10	10,700
					1800	14.20	10,900				
29	1200	1.95	41		2100	11.25	6,280	Feb. 1	0100	13.49	9,580
	1500	1.98	44		2400	9.48	4,190		0200	13.37	9,390
	1800	2.04	50						0300	13.25	9,200
	2000	2.13	60	31	0200	8.70	3,400		0400	12.90	8,640
	2100	2.17	64		0300	8.50	3,220		0600	11.48	6,570
	2200	2.35	89		0400	8.43	3,160		0900	10.16	4,940
	2400	3.48	308		0500	8.70	3,400		1400	8.95	3,650
30	0100	4.10	491		0700	10.46	5,290		1600	8.75	3,450
	0300	5.26	954		0800	11.88	7,120		2000	8.05	2,820
	0500	6.67	1,750		1000	15.30	12,900		2400	7.48	2,340
	0800	8.17	2,920		1200	18.32	19,600				
	1000	8.70	3,400		1500	20.77	26,200	2	0400	7.13	2,070
	1100	9.20	3,900		1600	20.91	26,500		1100	6.59	1,690
	1300	11.98	7,260		1700	20.60	25,700		1700	6.22	1,470
	1600	14.80	11,900		2000	18.18	19,200		2400	5.91	1,290
					2200	15.82	13,900				

11-4536. Pope Creek near Pope Valley, Calif.

Location.--Lat 38°37'48", long 122°19'52", in SW¹ sec.17, T.9 N., R.4 W., on left bank 0.2 mile upstream from Lake Berryessa, 0.7 mile downstream from Maxwell Creek, and 5.2 miles east of Pope Valley.

Drainage area.--78.3 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 450 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 7,700 cfs.

Maxima.--January-February 1963: Discharge, 18,000 cfs 1430 hours Jan. 31 (gage height, 19.79 ft).
1960 to December 1962: Discharge, 7,540 cfs Feb. 14, 1962 (gage height, 13.58 ft).

Remarks.--Records furnished by California Department of Water Resources.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	28	2,350	11.....	17	221	21.....	13	95
2.....	27	599	12.....	15	662	22.....	13	86
3.....	26	365	13.....	15	697	23.....	13	77
4.....	24	248	14.....	15	330	24.....	13	73
5.....	22	195	15.....	15	239	25.....	12	68
6.....	21	152	16.....	15	194	26.....	12	63
7.....	20	129	17.....	14	160	27.....	12	59
8.....	19	138	18.....	14	134	28.....	12	55
9.....	19	345	19.....	13	119	29.....	18	-----
10.....	18	473	20.....	13	104	30.....	3,010	-----
						31.....	8,630	-----
Monthly mean discharge, in cubic feet per second.....							391	301
Runoff, in inches.....							5.76	4.00
Runoff, in acre-feet.....							24,060	16,720

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	
Jan. 28	2400	3.33	11	Jan. 31	0300	7.86	1,650	Feb. 1	0800	9.09	2,490	
29	1200	3.33	8.5		0400	8.00	1,740		1000	8.40	1,990	
	1400	3.35	9.2		0600	9.29	2,660		1200	8.00	1,720	
	1700	3.42	12		0700	10.61	3,830		1500	7.50	1,420	
	1900	3.53	18		0800	12.74	6,160		1800	7.15	1,220	
	2100	3.65	26		0900	14.80	8,960		2100	6.80	1,040	
	2400	4.40	132		1100	17.03	12,600		2400	6.53	916	
					1200	18.14	14,600					
30					1300	19.05	16,400	2	0500	6.15	741	
	0300	5.22	324		1400	19.72	17,800			0800	5.94	657
	0600	6.40	730		1430	19.79	18,000			1000	5.84	619
	0900	7.61	1,330		1600	19.13	16,600			1300	5.84	619
	1100	8.70	2,030		1700	17.95	14,300		1800	5.65	549	
	1200	10.15	3,220		1800	16.35	11,400		2400	5.47	487	
	1300	12.89	6,270		2000	15.06	9,350	3				
	1400	14.42	8,450		2200	13.55	7,200		0600	5.35	445	
	1600	13.73	7,420		2400	12.18	5,490			1200	5.26	405
	1800	12.36	5,600							1600	5.21	382
	2000	10.53	3,580	Feb. 1	0100	11.65	4,870			1700	5.24	395
	2200	9.63	2,760		0300	11.77	5,000			1900	5.18	368
	2400	8.44	1,850		0500	10.78	3,970		2400	5.11	338	
				0600	9.98	3,230						

11-4537. Capell Creek tributary near Wooden Valley, Calif.

Location.--Lat 38°26'05", long 122°12'15", in SW $\frac{1}{4}$ sec.21, T.7 N., R.3 W., on State Highway 37, 4 miles north of town of Wooden Valley.

Drainage area.--0.87 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 790 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 95 cfs and by indirect measurement of peak flow through culvert at 376 cfs.

Maxima.--January-February 1963: Discharge, 376 cfs 1245 hours Jan. 31 (gage height, 7.29 ft in gage well; 7.70 ft, from floodmarks).
1958 to December 1962: Discharge, 158 cfs Feb. 8, 1960 (gage height, 4.91 ft), by computation of maximum flow through culvert.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	0.2	28	11.....	0.2	3.5	21.....	0.2	1.2
2.....	.2	6.9	12.....	.2	6.6	22.....	.2	.9
3.....	.2	4.1	13.....	.2	7.6	23.....	.2	.8
4.....	.2	3.2	14.....	.2	4.4	24.....	.2	.8
5.....	.2	2.3	15.....	.2	3.2	25.....	.2	.8
6.....	.2	1.4	16.....	.2	2.6	26.....	.2	.5
7.....	.2	1.4	17.....	.2	2.3	27.....	.2	.5
8.....	.2	1.3	18.....	.2	2.0	28.....	.2	.4
9.....	.2	5.6	19.....	.2	1.4	29.....	1.7	-----
10.....	.2	6.6	20.....	.2	1.4	30.....	53	-----
						31.....	159	-----
Monthly mean discharge, in cubic feet per second.....							7.07	3.63
Runoff, in inches.....							9.37	4.35
Runoff, in acre-feet.....							435	202

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	1.89	0.2	Jan. 30	1800	4.78	126	Jan. 31	1330	6.57	284
					1900	4.34	97		1345	6.08	235
29	1400	1.92	.3		1915	4.29	94		1430	7.05	342
	1700	2.01	2.0		2000	3.78	69		1430	6.00	227
	2100	2.12	5.3		2115	3.30	46		1530	5.45	179
	2300	2.20	7.8		2145	3.32	47		1545	6.70	299
	2400	2.17	6.9		2330	2.95	32		1630	6.15	242
30	0100	2.15	6.2		2400	3.01	35		1830	5.68	197
	0400	2.34	12						1930	5.65	195
	0700	2.55	19	31	0330	3.26	45		2000	4.68	119
	0745	2.50	17		0500	4.22	91		2200	4.35	98
	0900	3.03	36		0530	4.07	84		2400	3.75	68
	1000	3.07	37		0600	4.12	86				
	1045	3.78	69		0615	3.91	76	Feb. 1	0015	3.72	66
	1045	3.67	64		0715	5.25	163		0045	3.78	69
	1115	4.10	85		0745	5.24	162		0100	3.70	65
	1130	4.70	120		0745	5.32	169		0145	4.35	98
	1200	5.05	147		0830	5.24	162		0200	3.87	74
	1215	5.00	143		0900	5.67	197		0245	3.57	59
	1230	5.16	156		0915	5.40	175		0315	3.53	57
	1300	4.70	120		1000	6.60	287		0530	3.04	36
	1330	4.00	80		1045	5.95	222		0600	3.05	36
	1415	3.60	60		1100	6.78	309		0830	2.80	26
	1430	3.71	66		1130	6.31	258		1200	2.56	19
	1530	3.50	56		1200	6.58	285		1500	2.44	15
	1600	3.90	75		1200	6.10	237		1800	2.36	13
	1730	4.48	106		1245	7.29	376		2400	2.24	9.0
					1315	6.45	272				

11-4539. Lake Berryessa near Winters, Calif.

Location.--Lat 38°30'50", long 122°06'15", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.29, T.8 N., R.2 W., near center of Monticello Dam on Putah Creek, 7.4 miles west of Winters.

Drainage area.--577 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is at mean sea level (levels by Bureau of Reclamation).

Contents record.--Contents computed from capacity table dated September 1956.

Maxima.--January-February 1963: Computed bihourly inflow, 84,200 cfs 1400 to 1600 hours Jan. 31. Contents, 1,441,800 acre-ft 2400 hours Feb. 28 (elevation, 431.50 ft).
1957 to December 1962: Contents, 1,243,400 acre-ft Apr. 3-7, 1962 (elevation, 420.43 ft).

Remarks.--Reservoir is formed concrete arch-gravity dam, completed November 1956. Usable capacity, 1,592,000 acre-ft between elevations 253.25 (invert of outlet valves) and 440 ft (controlled spillway elevation) above mean sea level. Dead storage, 10,340 acre-ft. Records, including extremes, show total contents. Record of contents furnished by Bureau of Reclamation.

Contents, in acre-feet, at 2400 hours, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	1,202,600	1,363,400	11.....	1,203,100	1,399,900	21.....	1,201,900	1,436,200
2.....	1,202,600	1,372,100	12.....	1,203,200	1,409,200	22.....	1,201,900	1,437,000
3.....	1,202,700	1,376,900	13.....	1,202,100	1,413,900	23.....	1,201,900	1,438,100
4.....	1,202,900	1,379,700	14.....	1,202,200	1,423,400	24.....	1,201,700	1,439,000
5.....	1,202,900	1,382,100	15.....	1,202,400	1,425,700	25.....	1,201,500	1,439,900
6.....	1,202,900	1,384,100	16.....	1,202,400	1,428,300	26.....	1,201,400	1,440,300
7.....	1,202,900	1,385,500	17.....	1,202,100	1,430,300	27.....	1,201,000	1,440,900
8.....	1,203,100	1,387,200	18.....	1,201,900	1,432,200	28.....	1,201,000	1,441,800
9.....	1,203,100	1,391,900	19.....	1,201,900	1,435,600	29.....	1,202,400	-----
10.....	1,203,100	1,397,400	20.....	1,201,900	1,435,100	30.....	1,240,500	-----
						31.....	1,335,100	-----
Change in contents, in acre-feet.....							+135,000	+106,700

Average inflow, in cubic feet per second, for bihourly periods ending at indicated time, 1963

Date	Hour	Inflow	Date	Hour	Inflow	Date	Hour	Inflow
Jan. 30	0200	-	Jan. 31	1200	64,500	Feb. 1	2000	7,660
	0400	2,080		1400	74,300		2200	8,760
	0600	3,120		1600	84,200		2400	4,390
	0800	9,360		1800	78,100			
	1000	8,310		2000	76,300	2	0200	6,570
	1200	17,700		2200	59,300		0400	9,860
	1400	31,100		2400	35,700		0600	1,100
	1600	45,800	Feb. 1				0800	4,380
	1800	36,600		0200	32,400		1000	4,380
	2000	35,500		0400	31,500		1200	4,380
	2200	23,000		0600	19,600		1400	3,290
	2400	15,800		0800	18,500		1600	5,480
31				1000	13,100		1800	1,100
	0200	15,800		1200	10,900		2000	2,200
	0400	10,500		1400	12,000		2200	6,570
	0600	12,600		1600	5,440		2400	2,190
	0800	24,200		1800	8,730			
	1000	38,000						

FLOODS OF 1963 IN THE UNITED STATES

11-4540. Putah Creek near Winters, Calif.

Location.--Lat 38°30'55", long 122°04'50", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.28, T.8 N., R.2 W., on left bank 1.3 miles downstream from Monticello Dam, 6 miles west of Winters, and 8 miles downstream from Capell Creek.

Drainage area.--577 sq mi.

Gage-height record.--Water-stage recorder. Datum of gage is 160.75 ft above mean sea level (river-profile survey).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February, 1963: Discharge, 1,060 cfs 1300 hours Jan. 31 (gage height, 8.77 ft).
1930 to December 1962: Discharge, 81,000 cfs Feb. 27, 1940 (gage height, 30.5 ft).

Remarks.--Flow regulated by Lake Berryessa (station 11-4539) since Jan. 11, 1957.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	83	196	11.....	74	29	21.....	58	39
2.....	77	54	12.....	69	35	22.....	62	43
3.....	74	34	13.....	69	58	23.....	65	41
4.....	76	26	14.....	51	39	24.....	90	41
5.....	78	21	15.....	36	34	25.....	141	40
6.....	78	41	16.....	35	32	26.....	187	40
7.....	78	52	17.....	42	28	27.....	145	40
8.....	78	41	18.....	56	25	28.....	65	39
9.....	78	39	19.....	56	24	29.....	58	---
10.....	77	43	20.....	56	27	30.....	170	---
						31.....	621	---
Monthly mean discharge, in cubic feet per second.....							96.2	42.9
Runoff, in acre-feet.....							5,920	2,380

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	4.52	40	Jan. 31	0300	5.71	163	Jan. 31	2400	6.97	416
	30	1100	4.50		0500	5.88	189				
		1300	5.60		0700	6.65	339	Feb. 1	0300	6.52	310
		1500	7.00		0800	7.10	450		0500	6.57	321
		1800	6.38		1000	8.15	790		1000	5.85	184
		2100	6.78		1300	8.77	1,060		1800	5.28	108
		2400	6.00		1400	8.72	1,030		2400	5.00	78
Jan. 31	0300	5.71	163		1600	8.72	1,030				
					1800	8.54	953				
					2100	7.73	636				

11-4540.2. Putah Creek tributary No. 2 near Winters, Calif.

(Crest-stage station)

Location.--Lat 38°30'30", long 122°02'30", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.26, T.8 N., R.2 W., on State Highway 128, 4.1 miles southwest of Winters.

Drainage area.--0.050 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 170 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 0.2 cfs and by computation of flow through culvert at 1.8 cfs and 7.2 cfs.

Maxima.--January-February 1963: Discharge, 6.3 cfs Feb. 1 (gage height, 21.49 ft).
1959 to December 1962: Discharge, 7.2 cfs Feb. 9, 1962 (gage height, 21.60 ft).

11-4541. Pleasants Creek near Winters, Calif.

Location.--Lat 38°28'40", long 122°01'43", in SW¹/₄SE¹/₄ sec.1, T.7 N., R.2 W., on left bank 0.2 mile upstream from unnamed tributary, 0.3 mile above bridge on Pleasants Valley road, 1.3 miles northeast of Pleasants Valley School, and 5 miles west of Winters.

Drainage area.--15.9 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 150.33 ft above mean sea level.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,100 cfs.

Maxima.--January-February 1963: Discharge, 3,780 cfs 1730 hours Jan. 31 (gage height, 12.36 ft).
1959 to December 1962: Discharge, 1,580 cfs Feb. 9, 1962 (gage height, 8.55 ft).

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

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	1.2	380	11.....	1.0	26	21.....	.9	13
2.....	1.2	78	12.....	1.0	62	22.....	.9	12
3.....	1.1	47	13.....	1.1	72	23.....	.9	11
4.....	1.2	33	14.....	1.1	37	24.....	.9	10
5.....	1.2	25	15.....	1.0	29	25.....	.9	10
6.....	1.2	20	16.....	1.1	25	26.....	.9	9.2
7.....	1.2	17	17.....	1.0	21	27.....	.9	8.8
8.....	1.2	15	18.....	1.0	18	28.....	.9	8.2
9.....	1.3	44	19.....	1.0	16	29.....	4.0	- - - - -
10.....	1.2	58	20.....	.9	15	30.....	605	- - - - -
						31.....	1,660	- - - - -

Monthly mean discharge, in cubic feet per second.....	74.1	40.0
Runoff, in inches.....	5.37	2.62
Runoff, in acre-feet.....	4,560	2,220

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	1.38	0.8	Jan. 30	1500	9.00	1,790	Jan. 31	1600	9.79	2,160
					1600	6.94	931		1730	12.36	3,780
29	1400	1.38	.4		1700	6.24	705		1900	11.04	2,890
	1700	1.42	.7		2030	7.35	1,080		2000	10.26	2,430
	2200	1.61	3.1		2200	5.96	623		2200	8.84	1,680
	2300	2.81	64		2400	5.00	384		2400	7.14	980
	2400	2.74	58								
30	0200	2.78	56	31	0100	4.63	296	Feb. 1	0230	6.04	549
	0400	2.58	41		0300	5.40	462		0400	8.11	1,150
	0600	3.14	88		0500	5.29	436		0600	6.58	690
	0800	3.52	131		0600	5.64	521		0800	5.53	432
	0900	3.71	156		0700	7.57	1,140		1000	4.99	325
	1100	4.73	327		0900	8.15	1,370		1200	4.61	257
	1200	6.15	678		1000	9.18	1,850		1600	4.08	181
	1300	8.55	1,580		1200	10.30	2,450		2000	3.72	135
	1400	9.96	2,290		1300	10.08	2,320		2400	3.47	109
					1500	9.54	2,030				

NORTH-COASTAL CALIFORNIA

NAPA RIVER BASIN

11-4559.5. Sulphur Creek near St. Helena, Calif.

(Crest-stage station)

Location.--Lat 38°29'16", long 122°28'50", in NE $\frac{1}{4}$ sec.2, T.7 N., R.6 W., at bridge on private road, 1.3 miles southwest of St. Helena.

Drainage area.--4.49 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 300 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 170 cfs and by slope-area measurement at 924 cfs.

Maxima.--January-February 1963: Discharge, 500 cfs Jan. 31 (gage height, 11.71 ft).
1957 to December 1962: Discharge, 924 cfs Feb. 24, 1958 (gage height, 13.53 ft).

Flood of Dec. 21, 1955, reached a stage of 15.80 ft, from floodmarks.

11-4560. Napa River near St. Helena, Calif.

Location.--Lat 38°29'40", long 122°25'50", in SE $\frac{1}{4}$ sec.32, T.8 N., R.5 W., on right bank 0.2 mile upstream from highway bridge, 1.3 miles northeast of Zinfandel, and 2.5 miles east of St. Helena.

Drainage area.--81.1 sq mi.

Gage-height record.--Water-stage recorder graph, except Feb. 26-28. Altitude of gage is 200 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements. Discharge Feb. 26-28 estimated on basis of interpolation and records for station near Napa.

Maxima.--January-February 1963: Discharge, 12,300 cfs 1730 hours Jan. 31 (gage height, 15.30 ft).

1929-32, 1939 to December 1962: Discharge, 12,600 cfs Dec. 22, 1955 (gage height, 16.17 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	44	2,920	11.....	28	310	21.....	21	147
2.....	42	967	12.....	26	533	22.....	20	122
3.....	41	626	13.....	25	962	23.....	20	94
4.....	38	341	14.....	25	436	24.....	20	86
5.....	36	241	15.....	24	334	25.....	19	82
6.....	34	201	16.....	24	254	26.....	18	76
7.....	33	174	17.....	24	215	27.....	18	70
8.....	32	183	18.....	23	185	28.....	18	67
9.....	31	424	19.....	21	150	29.....	27	-----
10.....	30	674	20.....	20	147	30.....	2,020	-----
						31.....	7,160	-----

Monthly mean discharge, in cubic feet per second.....	321	394
Runoff, in inches.....	4.57	5.05
Runoff, in acre-feet.....	19,760	21,860

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	1.07	18	Jan. 31	0200	6.03	1,890	Feb. 1	1300	5.93	1,900
					0400	5.84	1,760		1500	5.84	1,840
					0500	5.95	1,840		2400	4.90	1,280
29	1300	1.07	18		0700	7.14	2,770				
	1800	1.18	25		0900	9.80	5,300	2	0600	4.50	1,040
	2100	1.39	38		1200	13.15	9,220		1000	4.30	930
	2400	2.04	108		1500	14.75	11,400		1200	4.38	974
30	0300	2.37	164		1730	15.30	12,300		1800	4.17	865
	0600	3.12	377		1900	14.88	11,600		2400	3.97	765
	1100	4.54	1,020		2200	13.60	9,800				
	1300	6.15	1,980		2400	11.60	7,280	3	1200	3.72	640
	1500	8.40	3,900						1900	3.60	580
	1700	9.15	4,650	Feb. 1	0200	10.00	5,500		2100	3.34	458
	2000	8.65	4,150		0400	9.55	5,050		2400	3.20	400
	2400	6.65	2,580		0800	7.55	3,120				

11-4564. Lake Hennessey tributary near Rutherford, Calif.

(Crest-stage station)

Location.--Lat 38°29'00", long 122°21'15", in SW $\frac{1}{4}$ sec.6, T.7 N., R.4 W., at culvert on State Highway 128, 4 miles northeast of Rutherford.

Drainage area.--1.04 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 330 ft (from topographic map).

Discharge record.--Maximum discharge by computation of flow through culvert.

Maxima.--January-February 1963: Discharge, 149 cfs Jan. 31 (gage height, 7.71 ft).
1958 to December 1962: Discharge, 64 cfs Feb. 14, 1962 (gage height, 5.69 ft).

11-4570. Dry Creek near Napa, Calif.

Location.--Lat 38°21'23", long 122°21'50", in Napa Grant, on right bank 3.7 miles upstream from mouth and 5.5 miles northwest of Napa, Napa County.

Drainage area.--17.4 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 190 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 2,230 cfs 1700 hours Jan. 31 (gage height 6.88 ft).
1951 to December 1962: Discharge, 3,460 cfs Feb. 24, 1958 (gage height, 8.11 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	9.3	675	11.....	6.0	66	21.....	4.7	36
2.....	9.0	236	12.....	5.6	105	22.....	4.7	32
3.....	8.5	133	13.....	5.5	142	23.....	4.7	28
4.....	8.0	90	14.....	5.5	94	24.....	4.7	26
5.....	7.5	69	15.....	5.6	76	25.....	4.7	24
6.....	7.1	57	16.....	5.3	68	26.....	4.7	21
7.....	6.9	50	17.....	5.3	57	27.....	4.7	20
8.....	6.7	49	18.....	5.3	50	28.....	4.7	18
9.....	6.4	79	19.....	5.1	44	29.....	5.8	-----
10.....	6.2	97	20.....	4.7	41	30.....	4.08	-----
						31.....	1,340	-----
Monthly mean discharge, in cubic feet per second.....							62.0	88.7
Runoff, in inches.....							4.11	5.31
Runoff, in acre-feet.....							3,810	4,920

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	2.42	4.6	Jan. 30	1100	3.88	162	Jan. 31	1000	6.43	1,820
					1400	5.45	1,050		1500	6.23	1,640
	29	1600	2.42		1600	4.94	696		1700	6.88	2,230
		1800	2.45		1800	5.00	735		2000	6.33	1,730
		2000	2.53		1900	4.93	690		2200	6.06	1,500
		2200	2.63		2000	4.94	696		2400	5.62	1,160
		2300	2.80		2400	4.60	465				
		2400	2.92					Feb. 1	0200	5.32	954
					31	0500	4.66		0400	5.48	1,070
	30	0500	3.54			0700	5.15		1300	4.70	545
		0700	3.75			0900	6.00		2400	4.30	325
			125				1,450				

11-4580. Napa River near Napa, Calif.

Location.--Lat 38°22'06", long 122°18'08", in Yajome Grant, on left bank at downstream side of Oak Knoll Avenue Bridge, 0.4 mile downstream from Dry Creek and 5 miles north of Napa, Napa County.

Drainage area.--218 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 24.72 ft above mean sea level (levels by Corps of Engineers).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 16,900 cfs 2230 hours Jan. 31 (gage height, 27.59 ft).

1929-32, 1959 to December 1962: Discharge, 12,300 cfs Feb. 8, 1960 (gage height, 23.10 ft).

Remarks.--Flow slightly regulated by Lake Hennessey since December 1945 (capacity, 31,000 acre-ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	90	9,820	11.....	55	663	21.....	50	336
2.....	87	2,950	12.....	52	838	22.....	50	294
3.....	85	1,600	13.....	52	2,240	23.....	50	248
4.....	80	898	14.....	52	1,260	24.....	50	229
5.....	76	690	15.....	50	938	25.....	50	212
6.....	75	637	16.....	50	740	26.....	50	197
7.....	73	462	17.....	50	601	27.....	50	186
8.....	71	435	18.....	50	487	28.....	50	170
9.....	65	788	19.....	50	403	29.....	34	-----
10.....	59	1,480	20.....	50	362	30.....	3,000	-----
						31.....	11,100	-----
Monthly mean discharge, in cubic feet per second.....							510	1,077
Runoff, in inches.....							2.70	5.15
Runoff, in acre-feet.....							31,350	59,830

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	4.97	30	Jan. 31	0800	17.42	6,280	Feb. 1	1500	18.58	7,380
					0900	18.58	7,380		1600	18.00	6,800
29	1900	4.97	30		1000	19.95	8,750		1900	16.59	5,570
	2400	5.33	70		1100	21.13	10,000		2200	15.48	4,740
					1200	22.28	11,300		2400	14.92	4,340
30	0300	5.65	145		1300	23.20	12,200				
	0500	6.32	262		1500	25.00	14,000	2	0500	13.71	3,530
	0700	7.28	489		1700	26.72	15,900		0900	12.87	3,020
	0800	7.58	579		1800	27.20	16,400		1300	12.23	2,690
	1000	8.37	858		1900	27.44	16,700		1400	12.21	2,680
	1300	9.76	1,460		2100	27.54	16,800		1600	12.02	2,580
	1400	13.82	3,590		2230	27.59	16,900		2100	11.34	2,240
	1600	15.61	4,830		2300	27.54	16,800		2400	11.04	2,090
	1800	17.37	6,230		2400	27.37	16,600				
	2000	18.36	7,160					3	0700	10.36	1,750
	2200	18.80	7,600						1100	10.05	1,600
	2400	18.48	7,280	Feb. 1	0300	26.53	15,700		1800	9.63	1,400
					0500	25.61	14,700		2000	9.53	1,360
31	0200	17.38	6,240		0700	23.97	13,000		2100	9.42	1,310
	0500	16.18	5,240		0900	22.30	11,300		2200	9.29	1,250
	0800	16.31	5,350		1100	20.73	9,600		2400	8.94	1,090
					1300	19.61	8,410				

11-4582. Redwood Creek near Napa, Calif.

Location.--Lat 38°19'05", long 122°20'35", in Napa Grant, on right bank 2.9 miles upstream from confluence with Browns Valley Creek and 3.4 miles northwest of Napa, Napa County.

Drainage area.--9.81 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 170 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 270 cfs and by slope-area measurement at 1,070 cfs.

Maxima.--January-February 1963: Discharge, 1,330 cfs 1600 hours Jan. 31 (gage height, 9.90 ft).
1958 to December 1962: Discharge, 1,120 cfs Feb. 13, 1962 (gage height, 8.83 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	3.9	334	11.....	2.2	30	21.....	1.9	16
2.....	3.3	115	12.....	2.1	78	22.....	1.9	14
3.....	3.1	65	13.....	2.1	84	23.....	1.9	12
4.....	3.0	46	14.....	2.1	44	24.....	1.9	11
5.....	2.8	30	15.....	2.1	33	25.....	1.9	8.7
6.....	2.7	22	16.....	2.1	29	26.....	1.9	8.0
7.....	2.4	16	17.....	2.1	26	27.....	1.8	8.0
8.....	2.4	16	18.....	2.1	23	28.....	1.8	7.7
9.....	2.3	54	19.....	2.0	20	29.....	2.5	-
10.....	2.3	51	20.....	1.9	17	30.....	297	-
						31.....	775	-

Monthly mean discharge, in cubic feet per second.....	36.7	43.6
Runoff, in inches.....	4.32	4.63
Runoff, in acre-feet.....	2,260	2,420

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	2.06	1.8	Jan. 30	1500	6.62	674	Jan. 31	1500	7.45	840
					1700	4.85	358		1600	9.90	1,530
29	1500	2.07	1.9		1800	5.23	410		1700	9.22	1,190
	2100	2.17	2.9		1900	5.85	528		1800	8.55	1,060
	2300	2.39	6.5		2100	5.00	366		1900	8.74	1,100
	2400	2.50	10		2200	4.62	298		2200	7.04	758
					2400	4.49	274		2400	6.09	573
30	0100	2.68	18								
	0200	2.73	21	31	0200	4.74	319	Feb. 1	0200	5.61	482
	0400	2.88	28		0300	4.78	326		0300	6.63	676
	0500	3.06	41		0400	5.00	366		0500	5.63	486
	0600	3.62	118		0500	5.41	444		0800	4.97	361
	0700	3.94	175		0600	5.99	554		1200	4.54	283
	0900	3.90	168		0700	6.20	594		2000	4.07	199
	1000	3.93	173		0800	7.01	752		2400	3.88	164
	1100	4.02	190		0900	8.13	976				
	1200	5.00	366		1000	7.91	932	2	0500	3.92	136
	1200	6.00	556		1100	8.66	1,080		1300	3.75	105
	1300	7.00	750		1200	8.10	970		2400	3.62	83
	1400	7.59	868		1300	7.58	866				
	1400	6.75	700		1400	7.75	900				

SONOMA CREEK BASIN

11-4584. Sonoma Creek near Kenwood, Calif.

(Crest-stage station)

Location.--Lat 38°26'32", long 122°32'15", in NE $\frac{1}{4}$ sec.20, T.7 N. R.6 W., at bridge on private road, 2.0 miles north of Kenwood.

Drainage area.--6.06 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 580 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurement at 878 cfs and slope-area measurements at 642 and 934 cfs.

Maxima.--January-February 1963: Discharge, 910 cfs Jan. 31 (gage height, 13.10 ft). 1957 to December 1962: Discharge, 1,510 cfs Feb. 24, 1958 (gage height, 13.25 ft), by slope-area measurement of maximum flow.

11-4585. Sonoma Creek at Boyes Hot Springs, Calif.

Location.--Lat 38°18'49", long 122°29'09", in Agua Caliente Grant, on left bank 10 ft downstream from county highway bridge at Boyes Hot Springs, Sonoma County, and 2.2 miles northwest of Sonoma.

Drainage area.--62.2 sq mi.

Gage height record.--Water-stage recorder graph. Altitude of gage is 75 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 4,710 cfs 1700 hours Jan. 31 (gage height, 12.17 ft). 1955 to December 1962: Discharge, 8,880 cfs Dec. 22, 1955 (gage height, 17.10 ft), from rating curve extended above 4,100 cfs on basis of slope-area measurement of peak flow.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	26	1,510	11.....	15	147	21.....	10	79
2.....	25	480	12.....	13	439	22.....	11	71
3.....	25	295	13.....	13	491	23.....	12	64
4.....	23	205	14.....	13	250	24.....	10	60
5.....	21	158	15.....	13	168	25.....	10	54
6.....	20	135	16.....	13	168	26.....	10	50
7.....	18	122	17.....	12	142	27.....	10	48
8.....	16	124	18.....	12	118	28.....	9.5	43
9.....	15	218	19.....	10	100	29.....	21	-----
10.....	15	248	20.....	10	92	30.....	1,650	-----
						31.....	3,330	-----
Monthly mean discharge, in cubic feet per second.....							175	218
Runoff, in inches.....							3.24	3.65
Runoff, in acre-feet.....							10,730	12,100

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	2.29	9.0	Jan. 30	1200	9.12	2,710	Jan. 31	1400	11.59	4,290
	29				1500	11.23	4,050		1500	11.26	4,070
		1400	2.30		1500	9.25	2,780		1700	12.17	4,710
		1800	2.37		1600	8.74	2,480		2000	11.93	4,530
		2100	2.56		1900	8.50	2,350		2400	9.78	3,110
		2300	2.89		2000	8.28	2,220				
		2400	3.45		2400	6.19	1,150	Feb. 1	0100	8.87	2,560
	30								0200	8.61	2,410
		0100	3.64		0100	6.14	1,120		0300	9.14	2,720
		0200	3.64		0300	6.43	1,250		0400	8.92	2,590
		0300	4.18		0500	7.17	1,620		0500	8.61	2,410
		0400	4.84		0700	8.92	2,590		0700	7.61	1,860
		0600	5.61		0800	9.95	3,220		1000	6.76	1,410
		0800	5.83		1000	11.59	4,290		1900	5.45	848
		0900	5.90		1100	11.26	4,070		2400	4.99	687
		1000	5.96		1200	11.49	4,220				

PETALUMA RIVER BASIN

11-4590. Petaluma River at Petaluma, Calif.

Location.--Lat 38°15'40", long 122°39'35", in Roblar de la Miseria Grant, on right bank 70 ft downstream from county highway bridge in Petaluma, Sonoma County, and 1.3 miles downstream from Lichau Creek.

Drainage area.--30.9 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 20 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 1,320 cfs 1900 hours Jan. 31 (gage height, 10.76 ft).

1948 to December 1962: Discharge, 1,860 cfs Dec. 22, 26, 1955, Jan. 14, 1956; gage height, 13.55 ft Dec. 22, 1955.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	2.0	490	11.....	1.0	52	21.....	0.5	8.4
2.....	2.0	91	12.....	.8	236	22.....	.4	6.6
3.....	2.0	49	13.....	.6	383	23.....	.4	5.3
4.....	1.9	32	14.....	.6	56	24.....	.5	4.2
5.....	1.7	22	15.....	.5	28	25.....	.6	4.0
6.....	1.3	17	16.....	.5	29	26.....	.6	3.4
7.....	.9	15	17.....	.5	36	27.....	.7	2.8
8.....	.8	25	18.....	.6	17	28.....	.6	2.2
9.....	.9	100	19.....	.6	13	29.....	1.8	- - - - -
10.....	.9	163	20.....	.6	11	30.....	668	- - - - -
						31.....	977	- - - - -
Monthly mean discharge, in cubic feet per second.....							53.9	67.9
Runoff, in inches.....							2.01	2.29
Runoff, in acre-feet.....							3,320	3,770

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	1.97	0.7	Jan. 30	0800	5.72	355	Jan. 31	2400	9.72	1,110
					1100	7.23	626				
29	1600	1.97	0.7		1400	9.45	1,060	Feb. 1	0200	8.58	885
	1800	2.05	1.5		1600	10.65	1,300		0300	8.33	838
	2000	2.31	5.7		1700	10.55	1,280		0500	8.13	800
	2100	2.31	5.7		2400	8.52	874		0700	7.72	722
	2200	2.27	4.9						1100	6.37	472
	2300	2.35	6.6	31	0400	7.48	674		1700	5.03	236
	2400	2.35	6.6		0500	7.29	631		2000	4.62	176
					0600	7.35	642		2400	4.30	135
30	0100	2.48	9.5		1200	8.95	956				
	0200	3.28	44		1800	10.63	1,290	2	0600	4.01	104
	0300	3.60	67		1900	10.76	1,320		1100	3.85	89
	0500	3.88	91		2000	10.74	1,310		2400	3.55	63
	0600	4.28	133		2100	10.63	1,290				

NOVATO CREEK BASIN

11-4595. Novato Creek near Novato, Calif.

Location.--Lat 38°06'45", long 122°35'05", in Novato Grant, on right bank 500 ft downstream from highway bridge and 1 mile west of U.S. Highway 101 in Novato, Marin County.

Drainage area.--17.5 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 45 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 733 cfs 1230 hours Jan. 30 (gage height, 5.77 ft).

1946 to December 1962: Discharge, 1,190 cfs Feb. 24, 1958 (gage height, 8.24 ft).

Remarks.--Flow partly regulated by Stafford Lake (capacity, 4,500 acre-ft).

[illegible]

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	0.34	1.1	Jan. 30	0800	2.28	115	Jan. 31	1900	3.96	389
					0900	2.16	101		2400	2.94	207
29	1300	.34	1.1		1100	4.01	399				
	1500	.37	1.3		1230	5.77	733	Feb. 1	0300	2.72	173
	1600	.41	1.6		1600	3.57	317		0600	3.27	263
	1700	.51	2.6		1800	3.63	327		0900	3.00	217
	1800	.58	3.6		2400	2.55	149		1200	3.19	249
	1900	.86	9.8						1700	3.03	222
	2000	1.35	31	31	0200	2.60	156		2000	2.85	173
	2300	1.46	38		0400	2.50	142		2400	2.74	196
	2400	1.39	33		0600	3.25	260				
					0900	4.37	467	2	1300	2.38	127
30	0200	1.21	24		1400	3.92	382		2400	2.15	100
	0500	1.52	42		1600	4.32	458				
	0600	2.12	96		1800	3.81	361				

11-4600. Corte Madera Creek at Ross, Calif.

Remarks.--Flow slightly regulated by Phoenix Lake (capacity, 612 acre-ft).

[illegible]

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Corte Madera Creek at Ross, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	4.49	2.9	Jan. 30	1300	15.24	2,460	Jan. 31	1200	12.58	1,670
					1400	14.10	2,120		1400	11.32	1,330
29	1100	4.49	2.9		1500	13.03	1,800		1500	12.15	1,550
	1200	4.71	13		1600	12.53	1,660		1700	12.84	1,750
	1300	4.80	19		1700	13.13	1,830		1900	14.70	2,300
	1400	5.14	56		1900	14.03	2,100		2100	13.65	1,990
	1600	5.68	129		2000	13.55	1,960		2200	12.62	1,680
	1700	6.13	195		2100	12.35	1,610		2300	11.58	1,400
	1900	6.81	306		2200	11.67	1,420		2400	10.81	1,200
	2000	6.71	289		2300	11.00	1,250				
	2100	7.27	389		2400	10.90	1,220	Feb. 1	0200	9.66	908
	2400	6.39	235						0300	9.78	937
30	0200	6.72	290	31	0100	10.87	1,220		0500	10.31	1,070
	0300	7.18	372		0200	10.42	1,100		0600	9.64	904
	0400	8.00	534		0400	10.08	1,010		0700	9.12	780
	0600	9.15	787		0500	10.96	1,240		0900	8.56	657
	0800	10.75	1,190		0600	11.70	1,430		1200	8.03	541
	1100	13.00	1,790		0700	13.43	1,920		1800	7.62	456
	1200	14.87	2,350		0800	13.08	1,810		2400	7.26	387
					1000	13.93	2,070				

REDWOOD CREEK BASIN

11-4601.5. Redwood Creek near Tamalpais Valley, Calif.

(Crest-stage station)

Location.--Lat 37°52'30", long 122°34'55", in Mount Tamalpais game refuge, at culvert on Frank Valley road, 2.5 miles southwest of Mill Valley and 3.0 miles west of Tamalpais Valley.

Drainage area.--6.38 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 35 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 710 cfs Jan. 31 (gage height, 6.28 ft). 1961 to December 1962: Discharge, 880 cfs Feb. 13, 1962 (gage height, 6.67 ft).

LAGUNITAS CREEK BASIN

11-4604.4. Nicasio Creek near Nicasio, Calif.

(Crest-stage station)

Location.--Lat 38°02'57", long 122°38'33", at culvert on Lucas Valley road, 3.1 miles southeast of Nicasio.

Drainage area.--1.74 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 375 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 55 cfs and by computation of flow through culvert at 380 cfs.

Maxima.--January-February 1963: Discharge, 290 cfs Jan. 31, 1963 (gage height, 11.38 ft). 1961 to December 1962: Discharge, 380 cfs Feb. 9, 1962 (gage height, 12.96 ft).

WALKER CREEK BASIN

11-4608. Walker Creek near Tomales, Calif.

Location.--Lat 38°12'35", long 122°51'35", in Nicasio Grant, on left bank 1,300 ft upstream from Chileno Creek and 3.5 miles southeast of Tomales, Marin County.

Drainage area.--37.1 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 70 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 3,210 cfs 2000 hours Jan. 31 gage height, 17.89 ft).

1959 to December 1962: Discharge, 3,430 cfs Jan. 31, 1961, Feb. 13, 1962; gage height, 18.18 ft Jan. 31, 1961.

Flood of Feb. 24, 1958, reached a stage of 19.8 ft, from floodmarks.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	15	1,100	11.....	8.7	126	21.....	5.3	49
2.....	14	336	12.....	8.3	318	22.....	5.3	42
3.....	14	183	13.....	7.9	439	23.....	5.3	38
4.....	13	120	14.....	7.9	217	24.....	5.0	35
5.....	12	87	15.....	7.5	146	25.....	5.0	31
6.....	11	71	16.....	7.5	117	26.....	5.0	27
7.....	13	63	17.....	7.1	94	27.....	5.0	24
8.....	10	66	18.....	6.7	71	28.....	4.8	22
9.....	10	141	19.....	6.3	62	29.....	7.9	-----
10.....	9.5	215	20.....	5.5	56	30.....	1,200	-----
						31.....	2,210	-----
Monthly mean discharge, in cubic feet per second.....							118	153
Runoff, in inches.....							3.66	4.31
Runoff, in acre-feet.....							7,250	8,520

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	5.31	51	Jan. 30	2400	12.21	1,430	Jan. 31	2000	17.89	3,210
30	0300	5.91	132	31	0200	11.50	1,250		2200	16.80	2,840
	0700	7.30	363		0400	11.22	1,180		2400	15.20	2,320
	1100	9.70	826		0500	11.29	1,190	Feb. 1	0300	13.09	1,670
	1200	12.25	1,440		0600	11.85	1,340		0500	12.35	1,470
	1300	15.00	2,250		0800	13.65	1,840		0800	11.81	1,330
	1400	15.73	2,490		1100	15.82	2,510		1200	10.36	971
	1600	15.88	2,530		1300	16.07	2,590		1600	9.43	767
	1900	13.58	1,810		1500	15.70	2,480		2000	8.67	614
	2000	13.29	1,730		1600	16.10	2,600		2400	8.10	506
	2100	13.39	1,760		1900	17.79	3,170				

ROSCOE CREEK BASIN

11-4609. Roscoe Creek near Bodega Bay, Calif.

(Crest-stage station)

Location.--Lat 38°20'25", long 123°02'44", at culvert on State Highway 1, 0.5 mile north of Bodega Bay.

Drainage area.--0.25 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 110 ft (from topographic map).

Discharge record.--Maximum discharge by computation of flow through culvert.

Maxima.--January-February 1963: Discharge, 48 cfs Jan. 31 (gage height, 8.59 ft).

1961 to December 1962: Discharge, 37 cfs Feb. 13, 1962 (gage height, 8.16 ft).

SALMON CREEK BASIN

11-4609.2. Salmon Creek at Bodega, Calif.

Location.--Lat 38°20'54", long 122°58'45", in Estero Americano Grant, on left bank 100 ft upstream from private road bridge, 0.3 mile upstream from unnamed tributary, and 0.4 mile northwest of Bodega, Sonoma County.

Drainage area.--15.7 sq mi.

Gage-height record.--Digital recorder tape punched at 15-minute intervals. Altitude of gage is 80 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 800 cfs.

Maxima.--January-February 1963: Discharge, 1,430 cfs 1200 hours Jan. 31 (gage height, 15.56 ft).
July to December 1962: Discharge, 813 cfs Dec. 15 (gage height, 11.52 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	6.4	226	11.....	4.0	45	21.....	2.9	15
2.....	6.0	82	12.....	3.9	280	22.....	2.9	14
3.....	5.7	54	13.....	4.3	186	23.....	2.9	12
4.....	5.2	38	14.....	3.7	66	24.....	3.0	11
5.....	4.7	29	15.....	3.7	45	25.....	3.0	10
6.....	4.5	29	16.....	3.7	43	26.....	3.1	9.2
7.....	4.3	23	17.....	3.7	34	27.....	3.0	8.4
8.....	4.2	34	18.....	3.6	24	28.....	2.9	7.7
9.....	4.1	74	19.....	3.3	21	29.....	26	- - - - -
10.....	4.2	75	20.....	2.8	18	30.....	567	- - - - -
						31.....	797	- - - - -

Monthly mean discharge, in cubic feet per second.....	48.4	53.3
Runoff, in inches.....	3.55	3.54
Runoff, in acre-feet.....	2,970	2,960

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	4.18	2.9	Jan. 30	1200	13.86	1,160	Jan. 31	1400	13.80	1,150
					1400	14.74	1,300		1600	13.00	1,030
29	1200	4.16	2.6		1600	11.73	842		1800	13.18	1,060
	1800	4.44	7.9		1800	9.13	487		2000	12.34	931
	2000	5.02	30		2000	8.02	343		2200	10.80	712
	2200	6.38	142		2400	7.09	225		2400	9.19	495
	2400	6.91	203								
30	0200	7.04	219	31	0200	6.99	213	Feb. 1	0200	8.36	387
	0400	6.97	210		0600	7.75	308		0600	7.32	252
	0600	8.38	389		0800	11.69	837		1400	6.61	167
	1000	10.72	701		1000	14.79	1,310		2000	6.27	130
					1200	15.56	1,430		2400	6.09	111

RUSSIAN RIVER BASIN

11-4610. Russian River near Ukiah, Calif.

Location.--Lat 39°12'07", long 123°11'55", in Yokayo Rancho Grant, on left bank 200 ft downstream from York Creek, 0.7 mile upstream from East Fork, and 3.6 miles north of Ukiah, Mendocino County.

Drainage area.--99.6 sq mi.

Gage-height record.--Water-stage recorder graph, except Feb. 20-28. Datum of gage is 612.02 ft above mean sea level (levels by Corps of Engineers).

Discharge record.--Stage-discharge relation defined by current-meter measurements. Discharge for period of no gage-height record estimated on basis of recorded range in stage and records for Outlet Creek near Longvale.

Maxima.--January-February 1963: Discharge, 11,800 cfs 1700 hours Jan. 31 (gage height, 15.43 ft).
1911-13, 1952 to December 1962: Discharge, 18,900 cfs Dec. 21, 1955 (gage height, 21.0 ft), from rating curve extended above 13,000 cfs on basis of slope-area measurement of peak flow.

FLOODS OF 1963 IN THE UNITED STATES

Mean discharge, in cubic feet per second, 1963, of Russian River near Ukiah, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	51	2,690	11.....	31	225	21.....	27	126
2.....	49	941	12.....	31	359	22.....	27	110
3.....	47	537	13.....	29	363	23.....	27	100
4.....	44	383	14.....	29	266	24.....	27	90
5.....	43	320	15.....	29	223	25.....	27	82
6.....	37	263	16.....	29	204	26.....	27	76
7.....	35	223	17.....	28	184	27.....	27	71
8.....	34	230	18.....	28	157	28.....	27	67
9.....	33	298	19.....	27	147	29.....	31	---
10.....	32	314	20.....	27	138	30.....	1,210	---
						31.....	4,790	---
Monthly mean discharge, in cubic feet per second.....							224	329
Runoff, in inches.....							2.59	3.44
Runoff, in acre-feet.....							13,770	18,260

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.36	66	Jan. 31	0500	3.93	739	Jan. 31	2300	9.71	4,910
					0600	3.88	717		2400	10.00	5,200
30	0100	1.81	121		0700	3.92	734	Feb. 1	0100	10.64	5,840
	0300	2.46	246		0800	4.54	1,020		0200	9.80	5,000
	0500	3.29	492		0900	5.83	1,760		0300	9.25	4,470
	0800	4.20	860		1000	7.60	3,030		0500	8.20	3,520
	0900	4.30	905		1100	10.47	5,670		0700	7.45	2,910
	1100	4.86	1,180		1200	11.56	6,820		0800	7.24	2,740
	1200	5.05	1,290		1300	11.93	7,220		1200	6.48	2,200
	1400	6.33	2,090		1400	11.97	7,270		1400	6.18	1,990
	1500	7.13	2,650		1500	12.50	7,900		1500	6.14	1,960
	1600	7.26	2,760		1600	14.40	10,400		1600	6.17	1,980
	1800	5.95	1,630		1700	15.43	11,800		1700	6.19	1,990
	1900	5.63	1,640		1800	14.40	10,400		2000	5.68	1,670
	2200	5.14	1,340		2000	11.78	7,060		2400	5.21	1,390
	2400	4.69	1,100		2200	10.38	5,580				

11-4614. East Fork Russian River tributary near Potter Valley, Calif.

(Crest-stage station)

Location.--Lat 39°15'30", long 123°06'55", in NE $\frac{1}{4}$ sec.7, T.16 N., R.11 W., at culvert on Potter Valley road, 4.4 miles south of Potter Valley.

Drainage area.--0.15 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 900 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 8 cfs and by computation of flow through culvert at 19, 65, and 94 cfs.

Maxima.--January-February 1963: Discharge, 20 cfs Jan. 31 (gage height, 8.04 ft). 1958 to December 1962: Discharge, 94 cfs Oct. 12, 1962 (gage height, 11.72 ft).

11-4615. East Fork Russian River near Calpella, Calif.

Location.--Lat 39°14'35", long 123°08'10", in NW $\frac{1}{4}$ sec.13, T.16 N., R.12 W., on left bank 0.5 mile downstream from Cold Creek and 3.6 miles east of Calpella.

Drainage area.--93.0 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 800 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 3,200 cfs.

Maxima.--January-February 1963: Discharge, 7,940 cfs 1600 hours Jan. 31 (gage height, 12.49 ft).
1941 to December 1962: Discharge, 13,300 cfs Dec. 21, 1955 (gage height, 15.06 ft, site and datum then in use), from rating curve extended above 8,600 cfs.

Remarks.--Flows affected by importation of average daily flow of 300 cfs diverted from Eel River through Potter Valley powerhouse.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	358	1,920	11.....	307	495	21.....	325	403
2.....	349	669	12.....	322	586	22.....	325	394
3.....	334	686	13.....	322	574	23.....	325	394
4.....	334	562	14.....	325	495	24.....	322	394
5.....	328	516	15.....	322	460	25.....	322	394
6.....	325	474	16.....	322	454	26.....	322	391
7.....	325	454	17.....	325	445	27.....	322	388
8.....	322	471	18.....	328	433	28.....	322	382
9.....	322	631	19.....	325	424	29.....	334	-----
10.....	245	646	20.....	325	418	30.....	1,130	-----
						31.....	3,960	-----
Monthly mean discharge, in cubic feet per second.....							467	541
Runoff, in acre-feet.....							28,710	30,060

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.61	373	Jan. 31	0300	3.72	778	Jan. 31	2400	9.28	4,600
					0400	3.59	726				
30	0300	2.86	448		0600	3.60	730	Feb. 1	0100	8.87	4,230
	0600	3.56	714		0700	3.90	855		0300	7.30	2,940
	0800	3.67	758		0800	4.87	1,320		0600	6.10	2,090
	1000	3.95	878		0900	6.89	2,640		1100	5.18	1,510
	1100	4.25	1,010		1000	9.00	4,350		1200	5.10	1,460
	1300	5.38	1,630		1100	10.58	5,880		1400	5.23	1,540
	1400	5.91	1,960		1300	11.02	6,320		1500	5.26	1,560
	1500	6.21	2,170		1600	12.49	7,940		1600	5.21	1,530
	1600	6.10	2,090		1700	12.29	7,720		1700	5.06	1,440
	1800	5.35	1,610		1800	11.70	7,070		1800	5.00	1,400
	2000	5.06	1,440		2000	9.56	4,860		2400	4.33	1,050
	2100	4.78	1,270		2200	8.46	3,870				
	2400	4.04	918		2300	8.64	4,030				

11-4620. East Fork Russian River near Ukiah, Calif.

Location.--Lat 39°11'45", long 123°11'30", in Yokayo Rancho Grant, on right bank of outlet channel, 500 ft downstream from Coyote Dam, 1,300 ft upstream from mouth, and 3.2 miles northeast of Ukiah, Mendocino County.

Drainage.--105 sq mi.

Gage-height record.--Digital-recorder tape punched at 15-minute intervals, except Jan. 1, 2. Datum of gage is 614.43 ft above mean sea level (levels by Corps of Engineers).

Discharge record.--Stage-discharge relation defined by current-meter measurements. Discharge for Jan. 1, 2 estimated on basis of one discharge measurement.

Maxima.--January-February 1963: Discharge, 4,150 cfs 1145 hours Feb. 2 (gage height, 8.92 ft).

1911-13, 1951-56, 1957 to December 1962: Discharge, 13,300 cfs Dec. 21, 1955 (gage height, 16.86 ft, site and datum then in use), from rating curve extended above 1,700 cfs on basis of peak flow at station upstream which was defined to 8,600 cfs.

Remarks.--Flow regulated by Lake Mendocino since 1958 (capacity, 122,500 acre-ft).

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Russian River near Hopland, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	5.38	241	Jan. 31	0300	9.00	2,460	Feb. 1	0300	16.97	15,200
					0500	8.64	2,120		0600	15.15	11,500
30	0200	5.64	321		0600	8.62	2,100		0900	13.25	8,080
	0400	6.26	576		0800	9.20	2,660		1200	12.30	6,510
	0800	7.88	1,500		1000	10.95	4,720		1500	11.60	5,460
	1200	9.16	2,620		1200	14.00	9,450		1700	11.94	5,960
	1500	11.19	5,040		1400	16.50	14,200		1800	11.95	5,980
	1700	12.22	6,510		1600	17.90	17,500		2000	11.67	5,560
	1800	12.42	6,830		1800	18.40	18,800		2400	11.06	4,770
	1900	12.24	6,540		1900	18.35	18,700				
	2100	11.08	4,890		2000	18.66	19,500				
	2300	10.06	3,610		2200	19.24	21,200				
	2400	9.75	3,250		2400	18.62	19,400				

11-4627. Feliz Creek near Hopland, Calif.

Location.--Lat 38°58'20", long 123°08'30", in Rancho de Sanel Grant, on left bank just upstream from county road bridge, 0.1 mile upstream from Johnson Creek and 1.4 miles west of Hopland, Mendocino County.

Drainage area.--31.1 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 500 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 2,910 cfs 1300 hours Jan. 31 (gage height, 13.43 ft).

1958 to December 1962: Discharge, 2,880 cfs Feb. 13, 1962 (gage height, 13.35 ft).

Flood of Dec. 23, 1955, reached a stage of 13.60 ft, from floodmarks (discharge, 2,710 cfs on basis of slope-area measurement of peak flow).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	11	723	11.....	6.5	126	21.....	4.7	46
2.....	10	288	12.....	6.0	329	22.....	4.7	42
3.....	9.5	163	13.....	5.6	235	23.....	4.7	38
4.....	9.0	109	14.....	6.0	143	24.....	4.7	35
5.....	8.5	83	15.....	5.6	106	25.....	4.3	31
6.....	8.0	71	16.....	5.6	91	26.....	4.3	27
7.....	7.5	60	17.....	5.1	76	27.....	4.3	27
8.....	7.5	96	18.....	5.1	65	28.....	3.9	24
9.....	7.5	268	19.....	5.1	58	29.....	39	---
10.....	7.0	215	20.....	4.7	52	30.....	1,030	---
						31.....	1,690	---

Monthly mean discharge, in cubic feet per second.....	94.7	130
Runoff, in inches.....	3.51	4.34
Runoff, in acre-feet.....	5,820	7,190

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	4.31	3.9	Jan. 30	1200	11.00	1,870	Jan. 31	1500	12.83	2,640
					1300	11.80	2,190		1600	11.80	2,190
29	1200	4.33	4.7		1400	11.33	2,000		1700	10.70	1,770
	1600	4.37	6.5		1500	10.75	1,780		1900	9.95	1,500
	1800	4.48	12		1700	9.01	1,170		2000	9.97	1,510
	2000	5.29	87		1900	8.25	908		2100	9.73	1,430
	2200	5.67	143		2100	7.76	736		2200	9.50	1,350
	2300	6.31	278		2400	7.35	593		2300	9.68	1,410
	2400	6.53	339						2400	9.48	1,340
30	0100	6.97	471	31	0300	7.09	507	Feb. 1	0300	8.76	1,090
	0200	7.17	531		0400	7.14	522		0500	8.30	925
	0400	8.25	908		0600	8.34	939		0800	7.84	764
	0500	8.00	820		0700	9.87	1,470		1000	7.60	680
	0700	8.02	827		0800	11.50	2,070		1200	7.45	628
	0900	8.26	911		1000	13.42	2,910		1400	7.47	635
	1000	8.30	925		1200	13.10	2,770		1800	7.15	525
	1100	8.98	1,160		1300	13.43	2,910		2400	6.79	417
					1400	13.17	2,800				

11-4630. Russian River near Cloverdale, Calif.

Location.--Lat 38°52'55", long 123°03'15", in SW $\frac{1}{4}$ sec.14, T.12 N., R.11 W., on left bank at Lambert Ranch, 400 ft downstream from Cumisky Creek and 5 miles northwest of Cloverdale.

Drainage area.--502 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 373.44 ft above mean sea level (levels by Corps of Engineers).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 25,200 cfs 1900 hours Jan. 31 (gage height, 21.75 ft).
1951 to December 1962: Discharge 53,000 cfs Dec. 22, 1955 (gage height, 30.9 ft, from floodmarks), from rating curve extended above 21,000 cfs on basis of determination of peak flow at upstream and downstream stations.

Remarks.--Flow slightly regulated by Lake Mendocino (capacity, 122,500 acre-ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	177	14,700	11.....	243	1,590	21.....	159	738
2.....	165	6,410	12.....	206	2,350	22.....	159	570
3.....	159	6,580	13.....	190	2,530	23.....	156	469
4.....	151	5,340	14.....	177	1,790	24.....	156	408
5.....	143	4,020	15.....	169	1,490	25.....	154	360
6.....	138	4,440	16.....	162	1,280	26.....	169	325
7.....	552	1,630	17.....	156	1,170	27.....	177	298
8.....	3,440	1,440	18.....	164	1,160	28.....	177	275
9.....	2,210	1,950	19.....	164	2,820	29.....	206	-----
10.....	357	2,200	20.....	162	1,500	30.....	6,090	-----
						31.....	16,200	-----

Monthly mean discharge, in cubic feet per second.....	1,067	2,487
Runoff, in inches.....	2.45	5.16
Runoff, in acre-feet.....	65,630	138,100

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	7.03	512	Jan. 31	0500	11.76	5,080	Feb. 1	1200	15.92	12,000
					0700	12.47	6,150		1500	14.73	9,810
30	0200	7.98	1,080		0900	15.10	10,500		1800	14.05	8,660
	0400	9.00	1,970		1000	16.75	13,600		2000	14.10	8,760
	0700	9.88	2,830		1200	19.25	18,800		2100	14.02	8,630
	0900	10.23	3,200		1600	21.60	24,800		2400	13.48	7,770
	1100	11.02	4,120		1900	21.75	25,200				
	1300	13.18	7,290		2100	21.58	24,700	2	0400	12.79	6,660
	1600	15.50	11,200		2300	21.45	24,400		0800	12.27	5,830
	1700	15.63	11,400		2400	21.50	24,500		1400	11.85	5,210
	2000	15.10	10,500						1800	13.06	7,100
	2200	14.80	9,580	Feb. 1	0200	21.50	24,500		1900	13.11	7,180
	2400	13.56	7,900		0400	21.13	23,500		2400	12.94	6,900
31	0300	12.22	5,750		0700	19.60	19,600				
					0900	18.24	16,600				

11-4632. Big Sulphur Creek near Cloverdale, Calif.

Location.--Lat 38°49'25", long 122°59'05", in NW $\frac{1}{4}$ sec.10, T.11 N., R.10 W., on right bank 500 ft downstream from unnamed tributary, 1.9 miles upstream from mouth, and 3.1 miles northeast of Cloverdale.

Drainage area.--82.3 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 380 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 2,900 cfs and by slope-area measurement at 20,000 cfs.

Maxima.--January-February 1963: Discharge, 8,680 cfs 1500 hours Jan. 31 (gage height, 13.65 ft).

1955 to December 1962: Discharge, 20,000 cfs Dec. 22, 1955 (gage height, 22.2 ft, from floodmarks), on basis of slope-area measurement of peak flow.

Mean discharge, in cubic feet per second, 1963, of Big Sulphur Creek near Cloverdale, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	93	2,870	11.....	55	555	21.....	41	264
2.....	85	1,500	12.....	52	885	22.....	41	239
3.....	92	1,050	13.....	50	957	23.....	41	218
4.....	75	670	14.....	49	615	24.....	40	201
5.....	69	483	15.....	48	515	25.....	39	184
6.....	66	429	16.....	47	461	26.....	37	172
7.....	64	393	17.....	46	407	27.....	37	160
8.....	61	461	18.....	45	363	28.....	36	148
9.....	60	726	19.....	42	327	29.....	53	-----
10.....	57	735	20.....	42	295	30.....	2,810	-----
						31.....	5,820	-----
Monthly mean discharge, in cubic feet per second.....							328	582
Runoff, in inches.....							4.60	7.56
Runoff, in acre-feet.....							20,200	32,300

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	3.09	36	Jan. 30	1400	10.75	5,330	Jan. 31	1400	13.64	8,670
					1500	11.00	5,600		1500	13.65	8,680
29	1200	3.09	36		1700	10.53	5,080		1600	13.44	8,430
	1500	3.14	41		1800	9.89	4,440		1900	12.07	6,780
	1800	3.24	50		2200	8.31	3,000		2300	10.30	4,850
	2100	3.47	82		2400	7.92	2,650		2400	10.05	4,600
	2400	3.84	172								
30	0200	4.36	359	31	0200	7.65	2,420	Feb. 1	0200	10.10	4,650
	0300	4.89	605		0300	7.60	2,380		0300	9.90	4,450
	0400	5.78	1,090		0400	7.66	2,430		0600	8.92	3,550
	0700	7.13	2,000		0500	8.05	2,770		0900	8.29	2,980
	0800	7.05	1,940		0700	9.77	4,320		1200	7.78	2,520
	0900	6.95	1,870		0800	11.67	6,340		1600	7.56	2,190
	1000	7.13	2,000		0900	12.29	7,050		2000	7.04	1,930
	1200	8.49	3,160		1100	13.15	8,080		2400	6.77	1,740
					1200	13.20	8,140				

11-4639. Maacama Creek near Kellogg, Calif.

Location.--Lat 38°38'25", long 122°45'45", in SW $\frac{1}{4}$ sec.9, T.9 N., R.8 W., on right bank 0.5 mile downstream from Redwood Creek and 4.4 miles west of Kellogg.

Drainage area.--43.4 sq mi.

Gage-height record.--Water-stage recorder graph, except Feb. 7-28. Altitude of gage is 200 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,900 cfs. Discharge for Feb. 7-28 estimated on basis of one discharge measurement and records for Santa Rosa Creek near Santa Rosa.

Maxima.--January-February 1963: Discharge, 7,700 cfs 1000 hours Jan. 31 (gage height, 17.15 ft).

1958 to December 1962: Discharge, 8,100 cfs Feb. 24, 1958 (gage height, 20.6 ft, from floodmarks, site and datum then in use).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	40	1,020	11.....	23	145	21.....	17	88
2.....	35	442	12.....	22	280	22.....	17	81
3.....	33	298	13.....	21	295	23.....	17	74
4.....	31	221	14.....	21	200	24.....	17	67
5.....	29	175	15.....	21	165	25.....	17	60
6.....	28	152	16.....	20	145	26.....	16	56
7.....	28	125	17.....	20	130	27.....	16	56
8.....	27	130	18.....	20	115	28.....	16	52
9.....	26	185	19.....	18	105	29.....	47	-----
10.....	25	205	20.....	17	97	30.....	1,580	-----
						31.....	4,110	-----
Monthly mean discharge, in cubic feet per second.....							206	184
Runoff, in inches.....							5.46	4.43
Runoff, in acre-feet.....							12,640	10,240

FLOODS OF 1963 IN THE UNITED STATES

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Maacama Creek near Kellogg, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	
Jan. 28	2400	2.88	16	Jan. 30	0900	8.35	1,220	Jan. 31	1400	15.06	5,650	
29	1000	2.88	16		1000	10.31	2,230		1600	13.13	4,040	
	1300	2.92	17		1100	13.35	4,220		1900	11.75	3,090	
	1500	3.01	21		1300	11.84	3,140		2300	10.20	2,160	
	1600	3.09	25		1400	11.50	2,940		2400	10.30	2,220	
	1700	3.23	31		1700	8.96	1,490	Feb. 1				
	2000	3.96	77		1900	9.06	1,540		0300	9.10	1,560	
	2200	4.90	190		2000	8.25	1,180		0700	8.16	1,140	
	2300	4.97	201		2300	7.78	992		1000	7.68	952	
2400	5.15	232		2400	7.83	1,010		1200	7.58	912		
30				31	0100	8.09	1,120		1800	6.88	662	
	0300	6.96	686		0300	9.80	1,920		2100	6.70	617	
	0400	7.56	904		0500	12.57	3,640		2400	6.59	587	
	0600	7.75	980		0800	14.73	5,360	2	1000	6.00	440	
	0700	8.13	1,130		1000	17.15	7,700			1700	5.79	388
	0800	7.94	1,060		1300	14.82	5,440			2400	5.63	350

11-4640. Russian River near Healdsburg, Calif.

Location.--Lat 38°36'48", long 122°50'07", in Sotoyome Grant, on left bank 2 miles east of Healdsburg, Sonoma County, and 3.5 miles upstream from Dry Creek.

Drainage area.--793 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 76.84 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 41,800 cfs 0200 hours Feb. 1 (gage height, 20.10 ft).

1939 to December 1962: Discharge, 67,000 cfs Feb. 28, 1940 (gage height, 30.0 ft).

Flood in December 1937 reached a stage of 30.8 ft, from floodmarks.

Remarks.--Flow slightly regulated by Lake Mendocino (capacity, 122,500 acre-ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	508	31,600	11.....	615	3,420	21.....	375	1,680
2.....	486	10,500	12.....	512	4,330	22.....	372	1,330
3.....	470	8,600	13.....	470	6,480	23.....	368	1,180
4.....	454	7,250	14.....	458	3,890	24.....	361	1,080
5.....	434	5,480	15.....	438	3,060	25.....	361	1,000
6.....	426	5,820	16.....	418	2,590	26.....	358	940
7.....	414	3,690	17.....	406	2,350	27.....	364	884
8.....	1,920	2,920	18.....	392	2,010	28.....	382	837
9.....	2,570	3,510	19.....	389	2,850	29.....	8,960	- - - - -
10.....	1,110	4,710	20.....	378	2,820	30.....	27,500	- - - - -
						31.....		- - - - -
Monthly mean discharge, in cubic feet per second.....							1,711	4,529
Runoff, in inches.....							2.35	5.95
Runoff, in acre-feet.....							105,200	251,500

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	
Jan. 29	2400	2.44	553	Jan. 31	0200	12.86	18,600	Feb. 1	0500	19.81	40,700	
30	0100	2.68	674		0600	12.02	16,400		1100	18.25	35,100	
	0500	3.80	1,500		0700	12.08	16,600		1500	16.72	29,900	
	0800	5.38	3,380		0900	13.08	19,200		2000	13.40	20,100	
	1200	7.78	7,320		1200	16.00	27,600		2300	11.72	15,700	
	1500	10.52	12,900		1500	18.00	34,200		2400	11.33	14,800	
	1700	11.78	15,900		1900	18.73	36,800	2	0800	9.73	11,200	
	2100	12.51	17,700		2300	19.83	40,800			1400	8.82	9,340
	2400	12.96	18,900		2400	20.03	41,500			1900	8.30	8,310
31	0100	12.88	18,700	Feb. 1	0100	20.06	41,600		2100	8.24	8,200	
					0200	20.10	41,800		2400	8.64	8,980	

11-4640.5. Dry Creek tributary near Hopland, Calif.

(Crest-stage station)

Location.--Lat 38°53'10", long 123°09'15", in sec.13, T.12 N., R.12 W., at culvert on State Highway 128, 6.5 miles southwest of Hopland.

Drainage area.--1.27 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 800 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 77 cfs and by computations of flow through culvert at 113, 158, and 189 cfs.

Maxima.--January-February 1963: Discharge, 193 cfs Jan. 31 (gage height, 9.38 ft). 1958 to December 1962: Discharge, 185 cfs Feb. 13, 1962 (gage height, 9.25 ft).

11-4645. Dry Creek near Cloverdale, Calif.

Location.--Lat 38°44'59", long 123°05'28", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.5, T.10 N., R.11 W., on left bank 500 ft downstream from Smith Creek and 5 miles southwest of Cloverdale.

Drainage area.--87.8 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 320 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 17,700 cfs 1500 hours Jan. 31 (gage height, 17.91 ft).

1941 to December 1962: Discharge, 17,600 cfs Dec. 22, 1955 (gage height, 17.80 ft).

Flood in December 1937 reached a stage of about 18 ft, from floodmarks.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	50	3,860	11.....	33	371	21.....	27	159
2.....	48	1,230	12.....	32	670	22.....	26	152
3.....	46	690	13.....	31	655	23.....	26	141
4.....	44	482	14.....	31	440	24.....	26	133
5.....	41	374	15.....	30	349	25.....	25	125
6.....	40	322	16.....	30	289	26.....	25	121
7.....	38	286	17.....	30	243	27.....	24	116
8.....	38	353	18.....	29	212	28.....	24	112
9.....	37	556	19.....	28	189	29.....	47	-----
10.....	35	518	20.....	27	170	30.....	1,910	-----
						31.....	8,880	-----
Monthly mean discharge, in cubic feet per second.....							379	476
Runoff, in inches.....							4.98	5.64
Runoff, in acre-feet.....							23,320	26,420

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	3.15	24	Jan. 30	1300	9.18	4,230	Jan. 31	1400	17.50	17,100
					1400	9.16	4,210		1500	17.91	17,700
29	1100	3.15	24		1500	9.58	4,750		1600	17.38	16,800
	1400	3.20	28		1700	8.32	3,200		1900	14.30	11,900
	1700	3.33	40		1900	7.75	2,580		2200	12.70	9,320
	2100	3.63	79		2400	6.82	1,640		2400	12.11	8,380
	2300	4.13	177					Feb. 1	0100	11.98	8,170
	2400	4.28	214	31	0300	6.38	1,270		0500	9.94	5,220
					0400	6.31	1,220		1000	8.58	3,500
30	0200	4.93	428		0500	6.53	1,390		1500	7.91	2,750
	0500	5.64	769		0700	8.00	2,850		2400	6.94	1,750
	0800	5.66	781		0800	9.50	4,850				
	1000	5.83	885		0900	12.00	8,200				
	1200	7.44	2,240		1100	14.54	12,300				

11-4650.5. Dutcher Creek near Asti, Calif.

(Crest-stage station)

Location.--Lat 38°43'20", long 122°58'35", in Tzabaco Grant, at culvert on Dutcher Creek Road, 3 miles south of Asti.

Drainage area.--2.25 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 240 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 76 cfs and by computation of flow through culvert at 381 cfs.

Maxima.--January-February 1963: Discharge, 250 cfs Jan. 31 (gage height, 8.14 ft). 1958 to December 1962: Discharge, 381 cfs Feb. 16, 1959 (gage height, 9.46 ft).

11-4652. Dry Creek near Geyserville, Calif.

Location.--Lat 38°41'55", long 122°57'25", in Tzabaco Grant, on left bank pier of bridge, 0.3 mile downstream from Pena Creek and 3 miles west of Geyserville, Sonoma County.

Drainage area.--162 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 160 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 25,800 cfs 1600 hours Jan. 31 (gage height, 16.50 ft). 1959 to December 1962: Discharge, 22,500 cfs Feb. 13, 1962 (gage height, 15.18 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	136	9,180	11.....	75	1,350	21.....	45	374
2.....	126	2,730	12.....	72	1,990	22.....	44	330
3.....	119	1,780	13.....	66	2,000	23.....	42	307
4.....	109	1,400	14.....	66	1,400	24.....	42	282
5.....	100	1,170	15.....	62	1,070	25.....	41	251
6.....	94	1,020	16.....	57	836	26.....	41	228
7.....	92	860	17.....	57	670	27.....	40	216
8.....	87	1,020	18.....	54	556	28.....	37	201
9.....	85	1,490	19.....	52	475	29.....	108	-----
10.....	61	1,800	20.....	48	418	30.....	5,900	-----
						31.....	15,300	-----
Monthly mean discharge, in cubic feet per second.....							751	1,264
Runoff, in inches.....							5.34	8.13
Runoff, in acre-feet.....							46,170	70,220

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	1.43	37	Jan. 30	1300	8.05	6,700	Jan. 31	1400	15.28	22,700
					1400	9.80	10,200		1500	16.40	25,500
29	1400	1.46	41		1500	10.56	12,100		1600	18.50	29,800
	1700	1.57	57		1600	11.09	13,000		1700	16.45	25,700
	1900	1.74	89		1700	11.18	13,200		1900	15.75	23,900
	2000	1.91	129		1800	10.50	11,700		2400	13.17	17,600
	2200	2.63	362		2000	9.15	8,900				
	2400	3.53	788		2100	8.68	7,960	Feb. 1	0200	12.72	16,600
					2400	7.68	6,020		0600	10.87	12,500
30	0100	4.00	1,100						1000	9.24	9,080
	0400	4.94	1,910		0400	6.90	4,630		1500	7.93	6,470
	0700	5.78	2,880	31	0600	7.00	4,800		1900	7.16	5,090
	1000	5.98	3,170		0700	7.50	5,700		2400	6.50	3,990
	1100	6.10	3,350		0900	10.10	10,800				
	1200	6.40	3,830		1100	12.75	16,700				

11-4658. Santa Rosa Creek near Santa Rosa, Calif.

Location.--Lat 38°27'25", long 122°37'50", in Los Guillecos Grant, on left bank 500 ft downstream from highway bridge, 1,500 ft upstream from unnamed tributary, and 4.6 miles east of Santa Rosa, Sonoma County.

Drainage area.--12.5 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 335 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 390 cfs and by slope-area measurements at gage heights 11.0 and 13.35 ft.

Maxima.--January-February 1963: Discharge, 1,250 cfs 1000 hours Jan. 31 (gage height, 9.53 ft).

1959 to December 1962: Discharge, 3,200 cfs Feb. 8, 1960 (gage height, 13.35 ft, from floodmarks), from rating curve extended above 390 cfs on basis of slope-area measurements at gage heights 11.0 and 13.35 ft.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	11	374	11.....	6.7	39	21.....	4.4	24
2.....	10	129	12.....	6.1	77	22.....	4.4	22
3.....	9.8	81	13.....	5.8	81	23.....	4.2	20
4.....	9.2	58	14.....	5.6	53	24.....	4.2	18
5.....	8.5	45	15.....	5.3	43	25.....	4.2	17
6.....	8.1	38	16.....	5.3	39	26.....	4.0	16
7.....	7.8	33	17.....	5.0	35	27.....	4.0	16
8.....	7.5	35	18.....	4.8	31	28.....	3.8	15
9.....	7.2	51	19.....	4.6	28	29.....	6.1	-----
10.....	7.0	56	20.....	4.4	26	30.....	289	-----
						31.....	771	-----
Monthly mean discharge, in cubic feet per second.....							40.0	53.6
Runoff, in inches.....							3.69	4.46
Runoff, in acre-feet.....							2,460	2,980

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	4.14	3.8	Jan. 30	1600	7.38	564	Jan. 31	1200	9.06	1,080
					1700	7.00	450		1400	8.64	945
29	1100	4.14	3.8		1900	7.13	489		1500	9.13	1,110
	1600	4.21	5.3		2000	7.00	450		1700	8.25	825
	2000	4.35	9.5		2200	6.49	309		1800	8.13	789
	2400	4.50	16		2300	6.36	276		2000	8.10	780
					2400	6.33	268		2200	7.75	675
30	0100	4.57	19						2300	7.40	570
	0300	4.78	30	31	0100	6.37	278		2400	7.45	585
	0400	4.99	45		0200	6.28	255				
	0600	5.54	110		0300	6.39	283	Feb. 1	0100	7.50	600
	0800	5.79	152		0500	7.17	501		0200	8.08	774
	1000	5.87	167		0700	8.86	1,020		0300	7.63	639
	1100	6.44	296		0800	8.62	938		1000	6.65	352
	1200	7.70	660		0900	8.68	958		1400	6.35	273
	1400	7.03	459		1000	9.53	1,250		2400	5.95	182

11-4670. Russian River near Guerneville, Calif.

Location.--Lat 38°30'00", long 122°56'05", in NE¹/₄ sec.35, T.8 N., R.10 W., on left bank 0.6 mile downstream from Hobson Creek and 3.4 miles east of Guerneville.

Drainage area.--1,340 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 70 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 71,800 cfs 0800 hours Feb. 1 (gage height, 43.70 ft).

1939 to December 1962: Discharge, 90,100 cfs Dec. 23, 1955 (gage height, 49.7 ft, from floodmarks).

Remarks.--Flow slightly regulated by Lake Mendocino (capacity, 122,500 acre-ft).

Mean discharge, in cubic feet, per second, 1963, of Russian River near Guerneville, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	740	68,400	11.....	810	7,500	21.....	457	3,080
2.....	700	39,100	12.....	671	8,040	22.....	445	2,300
3.....	658	18,900	13.....	612	15,900	23.....	441	1,960
4.....	630	13,500	14.....	576	9,840	24.....	433	1,740
5.....	604	9,970	15.....	545	7,200	25.....	425	1,580
6.....	576	9,140	16.....	521	5,710	26.....	421	1,440
7.....	554	7,260	17.....	505	4,820	27.....	425	1,300
8.....	1,400	5,560	18.....	489	3,940	28.....	429	1,210
9.....	2,970	6,410	19.....	473	4,180	29.....	457	-----
10.....	1,730	9,660	20.....	465	4,680	30.....	14,700	-----
						31.....	45,300	-----
Monthly mean discharge, in cubic feet per second.....							2,586	9,790
Runoff, in inches.....							2.22	7.61
Runoff, in acre-feet.....							159,000	543,700

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	
Jan. 29	2400	5.70	870	Jan. 31	2000	40.50	62,200	Feb. 3	0400	23.40	21,500	
30					2400	42.37	67,800		0800	22.48	20,000	
	0300	8.00	2,030	Feb. 1					1500	21.05	17,700	
	0600	10.25	3,640			2400	19.60	15,400				
	1100	16.00	10,000									
	1400	20.45	16,700		4	0600	18.82	14,100				
	1800	26.00	26,000				1600	17.77	12,600			
	2200	29.10	31,800				2400	17.14	11,600			
2400	29.72	33,100										
31					2100	40.93	63,500	5	0600	16.77	11,100	
	0200	30.01	33,700		2400	39.35	58,800			0800	16.53	10,700
	0400	30.10	33,900	2					1200	15.80	9,740	
	0700	30.10	33,900			0600	35.70	48,200		1600	15.36	9,170
	0900	30.47	34,800			1200	31.74	37,800		2300	14.89	8,570
	1100	31.56	37,400			1800	27.88	29,500		2400	14.87	8,540
	1400	34.64	45,200			2100	26.13	26,200				
	1700	38.20	55,400			2400	24.63	23,600				

11-4670.4. Ward Creek tributary near Cazadero, Calif.

(Crest-stage station)

Location.--Lat 38°32'30", long 123°06'19", in NW $\frac{1}{4}$ sec.17, T.8 N., R.11 W., at culvert on ranch road, 1.3 miles northwest of Cazadero.Drainage area.--0.11 sq mi.Gage-height record.--Crest stages only. Altitude of gage is 490 ft (from topographic map).Discharge record.--Stage-discharge relation defined by current-meter measurements below 20 cfs and by computation of flow through culvert at 35 cfs.Maxima.--January-February 1963: Discharge, 24 cfs Jan. 31 (gage height, 10.39 ft). 1961 to December 1962: Discharge, 35 cfs Feb. 13, 1962 (gage height, 10.78 ft).

11-4672. Austin Creek near Cazadero, Calif.

Location.--Lat 38°30'05", long 123°04'05", on left bank 0.6 mile downstream from confluence of Big Austin and East Austin Creeks, 2.3 miles southeast of Cazadero, Sonoma County, and 3.4 miles upstream from mouth.Drainage area.--63.1 sq mi.Gage-height record.--Water-stage recorder graph, except Feb. 6-16, 23-28. Altitude of gage is 40 ft (from topographic map).Discharge record.--Stage-discharge relation defined by current-meter measurements. Discharge for periods of no gage-height record estimated on basis of record for South Fork Gualala River near Annapolis.Maxima.--January-February 1963: Discharge, 11,500 cfs 1800 hours Jan. 31 (gage height, 17.35 ft).

1959 to December 1962: Discharge, 15,100 cfs Feb. 13, 1962 (gage height, 20.6 ft, crest-stage gage).

Mean discharge, in cubic feet per second, 1963, of Austin Creek near Cazadero, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	77	2,800	11.....	43	700	21.....	33	199
2.....	69	1,300	12.....	42	1,050	22.....	32	174
3.....	66	940	13.....	39	1,450	23.....	31	160
4.....	61	733	14.....	39	800	24.....	31	140
5.....	55	610	15.....	39	550	25.....	30	130
6.....	53	470	16.....	38	450	26.....	30	115
7.....	50	370	17.....	37	351	27.....	29	105
8.....	50	400	18.....	36	290	28.....	29	100
9.....	47	1,100	19.....	35	251	29.....	125	- - - - -
10.....	46	1,400	20.....	34	223	30.....	3,650	- - - - -
						31.....	6,820	- - - - -
Monthly mean discharge, in cubic feet per second.....							381	620
Runoff, in inches.....							6.95	10.23
Runoff, in acre-feet.....							23,400	34,440

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	3.76	28	Jan. 30	1300	12.38	6,080	Jan. 31	1200	14.43	8,270
					1400	13.65	7,420		1400	15.15	9,060
29	1300	3.76	28		1500	13.18	6,900		1500	16.32	10,400
	1500	3.81	32		1800	11.45	5,150		1700	16.81	10,900
	1700	3.91	42		1900	10.03	3,750		1800	17.35	11,500
	1900	4.10	69		2000	9.50	3,270		1900	16.55	10,600
	2100	4.75	216		2100	9.83	5,570		2000	15.00	8,900
	2200	5.50	468		2400	8.82	2,660		2200	12.92	6,620
	2400	7.05	1,300						2400	11.61	5,310
30	0200	8.22	2,130	31	0300	8.45	2,320	Feb. 1	0500	9.85	3,580
	0500	8.80	2,640		0500	8.58	2,440		0900	9.00	2,820
	0700	8.40	2,280		0600	9.06	2,870		1300	8.45	2,330
	0800	8.40	2,280		0700	10.07	3,780		2400	7.51	1,650
	1100	9.45	3,220		0800	12.00	5,700				
	1200	10.50	4,200		0900	13.97	7,770				
					1000	15.46	9,410				

GUALALA RIVER BASIN

11-4673. Wheatfield Fork Gualala River tributary near Annapolis, Calif.

(Crest-stage station)

Location.--Lat 38°40'30", long 123°15'12", at culvert on Stewarts Point-Skaggs Spring road, 7 miles southeast of Annapolis.Drainage area.--0.19 sq mi.Gage-height record.--Crest stages only. Altitude of gage is 250 ft (from topographic map).Discharge record.--Stage-discharge relation defined by current-meter measurements below 11 cfs and by computation of flow through culvert at 49 cfs.Maxima.--January-February 1963: Discharge, 32 cfs Jan. 31 (gage height, 9.23 ft). 1961 to December 1962: Discharge, 54 cfs Dec. 3, 1962 (gage height, 9.90 ft).

11-4675. South Fork Gualala River near Annapolis, Calif.

Location.--Lat 38°42'14", long 123°25'13", in German Grant, on left bank 2,700 ft downstream from Wheatfield Fork Gualala River and 3.1 miles southwest of Annapolis, Sonoma County.Drainage area.--161 sq mi.Gage-height record.--Water-stage recorder graph. Altitude of gage is 70 ft (from topographic map).Discharge record.--Stage-discharge relation defined by current-meter measurements below 5,400 cfs and by slope-area measurement at 12,000 cfs.Maxima.--January-February 1963: Discharge, 23,000 cfs 1800 hours Jan. 31 (gage height, 16.86 ft). 1950 to December 1962: Discharge, 55,000 cfs Dec. 22, 1955 (gage height, 24.57 ft, site and datum then in use), from rating curve extended above 13,000 cfs on basis of slope-area measurement of maximum flow.

Mean discharge, in cubic feet per second, 1963, of South Fork Gualala River near Annapolis, Calif.

Day	January	February	Day	January	February	Day	January	February
1.....	105	5,780	11.....	44	1,380	21.....	29	412
2.....	85	2,190	12.....	41	1,980	22.....	29	352
3.....	76	1,440	13.....	38	2,800	23.....	29	310
4.....	70	1,060	14.....	38	1,530	24.....	28	275
5.....	63	829	15.....	37	1,100	25.....	28	250
6.....	57	716	16.....	36	919	26.....	27	225
7.....	54	612	17.....	34	764	27.....	27	206
8.....	52	724	18.....	33	628	28.....	25	190
9.....	49	1,840	19.....	33	545	29.....	30	-----
10.....	47	2,530	20.....	30	468	30.....	6,290	-----
						31.....	13,000	-----
Monthly mean discharge, in cubic feet per second.....							663	1,144
Runoff, in inches.....							4.75	7.40
Runoff, in acre-feet.....							40,790	63,560

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	3.38	56	Jan. 30	2400	9.37	6,630	Jan. 31	1900	16.64	22,500
	30	0200	3.70		0400	8.37	5,030		2200	13.80	15,400
		0300	4.28		0500	8.22	4,810		2400	12.18	11,900
		0400	5.90		0600	8.24	4,840	Feb. 1	0400	10.47	8,550
		1000	8.60		0800	9.08	6,140		0800	9.10	6,170
		1500	12.00		1000	12.00	11,500		1200	8.28	4,890
		1600	12.52		1400	14.90	18,100		1600	7.68	4,080
		1700	12.32		1700	16.69	22,600		2000	7.25	3,530
		2000	10.40		1800	16.86	23,000		2400	6.82	2,980

11-4675.6. China Gulch at Gualala, Calif.

(Crest-stage station)

Location.--Lat 38°46'00", long 123°31'35", in SW $\frac{1}{4}$ sec.27, T.11 N., R.15 W., at culvert on State Highway 1, in Gualala.

Drainage area.--0.54 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 10 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 11 cfs and by computation of flow through culvert at 112 cfs.

Maxima.--January-February 1963: Discharge, 40 cfs Jan. 31 (gage height, 11.66 ft). 1961 to December 1962: Discharge, 112 cfs Feb. 13, 1962 (gage height, 13.96 ft).

GARCIA RIVER BASIN

11-4676. Garcia River near Point Arena, Calif.

Location.--Lat 38°55'35", long 123°37'45", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.3, T.12 N., R.16 W., on left bank 0.9 mile downstream from North Fork Garcia River and 3.5 miles north-east of town of Point Arena.

Drainage area.--98.8 sq mi.

Gage-height record.--Digital-recorder tape punched at 15-minute intervals, except 0900 hours Jan. 31 to 1600 hours Feb. 1 for which graph was reconstructed on basis of high-water marks in well and several gage readings. Altitude of gage is 50 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 3,600 cfs and by slope-area measurement at 23,900 cfs.

Maxima.--January-February 1963: Discharge, 23,900 cfs 2100 hours Jan. 31 (gage height, 15.11 ft, from high-water marks in well). 1951-56, August to December 1962: Discharge, 26,300 cfs Dec. 22, 1955 (gage height, 20.75 ft, from gage; 20.78 ft, from high-water profile, datum then in use), from rating curve extended above 4,200 cfs on basis of slope-area measurement of peak flow.

Mean discharge, in cubic feet per second, 1963, of Garcia River near Point Arena, Calif.

[illegible]

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	4.13	158	Jan. 30	2200	8.92	5,940	Jan. 31	2200	14.90	23,200
					2400	8.50	5,120		2400	13.50	18,400
30	0200	4.43	285		0400	7.75	3,780	Feb. 1	0400	10.30	9,020
	0400	5.31	788	31	0600	7.62	3,570		0600	9.00	6,100
	0600	6.00	1,400		0800	8.50	5,120		0800	8.88	5,860
	0800	6.27	1,700		1000	10.70	10,000		1000	8.70	5,500
	1000	6.64	2,160		1200	11.50	12,000		1200	8.30	4,740
	1200	7.35	2,860		1400	12.45	15,500		1600	7.75	3,780
	1400	8.90	4,400		1700	13.10	17,100		2000	7.20	2,930
	1600	9.34	6,820		2000	14.65	22,300		2400	6.82	2,400
	1800	9.33	6,800		2100	15.11	23,900				
	2000	9.37	6,880								

NAVARRO RIVER BASIN

11-4678. Rancheria Creek near Boonville, Calif.

Location.--Lat 38°59'35", long 123°26'00", in SE $\frac{1}{4}$ sec.7, T.13 N., R.14 W., on left bank at county road bridge, 100 ft downstream from Minnie Creek and 3.7 miles west of Boonville.

Drainage area.--65.6 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 427 ft above mean sea level, unadjusted (by Topographic Division).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 4,200 cfs.

Maxima.--January-February 1963: Discharge, 13,900 cfs 1400 hours Jan. 31 (gage height, 18.30 ft).
1959 to December 1962: Discharge, 9,990 cfs Feb. 8, 1960 (gage height, 15.30 ft).

Mean discharge, in cubic feet per second, 1963

[illegible]

FLOODS OF 1963 IN THE UNITED STATES

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of Rancheria Creek near Boonville, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	2.73	30	Jan. 30	1300	9.70	4,030	Jan. 31	1800	16.32	11,300
					1400	10.32	4,620		2000	14.85	9,420
29	1100	2.73	30		1700	9.25	3,630		2200	13.65	8,020
	1500	2.81	40		1800	8.25	2,740		2400	12.72	7,020
	2000	2.96	64		2400	6.79	1,700				
	2200	3.10	90					Feb. 1	0100	12.59	6,850
	2300	3.69	242						0500	10.64	4,790
	2400	4.19	407	31	0200	6.59	1,580		0800	9.72	3,870
					0400	7.29	2,050		1200	8.97	3,120
					0600	8.50	3,850		2400	7.62	1,860
30	0200	5.08	776		0800	12.90	7,200				
	0300	5.29	875		1000	14.90	9,480				
	0400	5.63	1,050		1100	16.00	10,900				
	0600	5.86	1,160		1300	17.00	12,200	2	0400	7.33	1,600
	0700	5.85	1,160		1400	18.30	13,900		1200	7.00	1,320
	1000	6.20	1,350		1600	17.63	13,000		1800	6.79	1,150
	1200	8.05	2,590		1700	16.95	12,100		2400	6.74	1,120

11-4680. Navarro River near Navarro, Calif.

Location.--Lat 39°10'15", long 123°39'55", in SE $\frac{1}{4}$ sec.7, T.15 N., R.16 W., on left bank 2.7 miles downstream from North Fork, 5.4 miles upstream from mouth, and 6.6 miles west of Navarro.

Drainage area.--303 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 20 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 33,100 cfs 2100 hours Jan. 31 (gage height, 34.34 ft).

1950 to December 1962: Discharge, 64,500 cfs Dec. 22, 1955 (gage height, 40.60 ft), from rating curve extended above 19,000 cfs on basis of slope-area measurement of peak flow.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	171	14,000	11.....	106	1,350	21.....	76	434
2.....	158	3,920	12.....	101	1,170	22.....	76	396
3.....	151	2,260	13.....	97	1,670	23.....	76	372
4.....	146	1,530	14.....	92	1,190	24.....	74	345
5.....	136	1,140	15.....	90	956	25.....	72	324
6.....	127	884	16.....	88	802	26.....	72	306
7.....	122	730	17.....	86	746	27.....	72	291
8.....	117	646	18.....	84	606	28.....	70	276
9.....	112	1,130	19.....	82	536	29.....	74	-----
10.....	110	1,960	20.....	78	487	30.....	2,170	-----
						31.....	15,000	-----

Monthly mean discharge, in cubic feet per second.....	648	1,452
Runoff, in inches.....	2.46	4.99
Runoff, in acre-feet.....	39,840	80,640

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	4.72	92	Jan. 31	0100	13.82	5,160	Jan. 31	2400	32.90	29,200
					0200	13.83	5,160				
30	0200	4.80	110		0300	13.80	5,140	Feb. 1	0400	28.70	21,900
	0400	4.95	146		0500	13.40	4,820		0700	24.75	16,600
	0500	5.19	207		0700	12.36	4,000		1200	20.45	11,900
	0700	6.35	578		0800	12.30	3,960		1900	16.80	8,000
	0900	8.68	1,630		0900	12.32	3,970		2400	14.77	5,990
	1200	10.10	2,490		1000	12.60	4,180				
	1300	10.17	2,520		1100	15.90	7,100	2	0500	13.27	4,720
	1400	10.11	2,490		1300	20.60	12,100		1200	11.32	3,690
	1500	10.28	2,590		1400	25.70	17,700		1800	11.11	3,130
	1800	11.38	3,320		1700	30.40	24,600		2100	10.79	2,900
	2200	13.29	4,730		2000	34.00	32,000		2400	10.54	2,740
	2400	13.73	5,080		2100	34.34	33,100				

ALBION RIVER BASIN

11-4680.1. Albion River near Comptche, Calif.

Location.--Lat 39°15'40", long 123°37'00", in SW $\frac{1}{4}$ sec.11, T.16 N., R.16 W., on right bank 2,000 ft downstream from Morrison Gulch and 1.7 miles west of Comptche.

Drainage area.--14.5 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 150 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 400 cfs.

Maxima.--January-February 1963: Discharge, 729 cfs 1500 hours Jan. 31 (gage height, 7.53 ft).
1961 to December 1962: Discharge, 960 cfs Feb. 13, 1962 (gage height, 8.30 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	5.9	283	11.....	2.8	46	21.....	2.2	15
2.....	5.3	122	12.....	2.6	53	22.....	2.2	15
3.....	4.9	71	13.....	2.6	60	23.....	2.1	11
4.....	4.3	51	14.....	2.5	51	24.....	2.0	10
5.....	4.0	37	15.....	2.5	41	25.....	2.0	8.9
6.....	3.7	32	16.....	2.4	36	26.....	2.0	8.0
7.....	3.5	24	17.....	2.4	30	27.....	2.0	7.5
8.....	3.4	29	18.....	2.3	23	28.....	1.9	6.8
9.....	3.2	47	19.....	2.3	19	29.....	3.2	---
10.....	3.1	58	20.....	2.2	17	30.....	127	---
						31.....	426	---
Monthly mean discharge, in cubic feet per second.....							20.6	43.2
Runoff, in inches.....							1.64	3.10
Runoff, in acre-feet.....							1,270	2,400

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	2.24	1.9	Jan. 30	0900	3.95	91	Jan. 31	1100	6.55	487
					1100	3.98	93		1200	6.57	491
29	1100	2.24	1.9		1200	4.50	143		1500	7.53	729
	1600	2.29	2.4		1400	5.27	246		1800	7.09	608
	2000	2.42	4.1		1700	4.98	203		2000	6.91	566
	2300	2.65	9.5		2100	4.80	179		2200	6.84	551
	2400	2.83	16		2400	4.58	152		2400	6.48	472
30	0100	3.11	30	31	0400	4.42	135	Feb. 1	0400	5.97	368
	0200	3.14	31		0500	4.46	139		1000	5.48	279
	0500	3.30	41		0600	4.76	174		1200	5.53	287
	0600	3.43	49		0800	5.65	309		1700	5.08	217
	0700	3.77	75		1000	6.38	450		2400	4.68	164

11-4680.2. Albion River tributary near Comptche, Calif.

(Crest-stage station)

Location.--Lat 39°14'22", long 123°35'44", in SW $\frac{1}{4}$ sec.13, T.16 N., R.16 W., at culvert on Navarro-Comptche road, 1.8 miles south of Comptche and 6.5 miles north-west of Navarro.

Drainage area.--0.40 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 350 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 43 cfs Jan. 31 (gage height, 8.76 ft).
1961 to December 1962: Discharge, 50 cfs Feb. 13, 1962 (gage height, 8.97 ft).

BIG RIVER BASIN

11-4680.7. South Fork Big River near Comptche, Calif.

Location.--Lat 39°13'45", long 123°27'55", in sec.19, T.16 N., R.14 W., on left bank 250 ft downstream from Daugherty Creek and 7.2 miles east of Comptche.

Drainage area.--36.3 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 500 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 2,930 cfs 1500 hours Jan. 31 (gage height, 10.77 ft).
1960 to December 1962: Discharge, 2,160 cfs Feb. 13, 1962 (gage height, 9.47 ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	20	784	11.....	12	69	21.....	10	33
2.....	17	296	12.....	12	78	22.....	10	31
3.....	17	201	13.....	12	73	23.....	10	29
4.....	16	160	14.....	12	62	24.....	10	28
5.....	15	132	15.....	11	55	25.....	8.3	26
6.....	14	105	16.....	11	52	26.....	9.2	25
7.....	13	93	17.....	11	47	27.....	8.9	25
8.....	13	93	18.....	11	43	28.....	8.0	24
9.....	13	99	19.....	11	38	29.....	8.6	+
10.....	12	85	20.....	11	36	30.....	104	-----
						31.....	1,240	-----
Monthly mean discharge, in cubic feet per second.....							54.5	101
Runoff, in inches.....							1.73	2.89
Runoff, in acre-feet.....							3,350	5,600

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	3.08	17	Jan. 31	0500	4.08	92	Jan. 31	2400	8.41	1,580
					0600	4.18	103				
	30	0200	3.15		0800	5.49	357	Feb. 1	0100	8.06	1,410
		0400	3.40		0900	6.67	768		0400	7.46	1,110
		0600	3.47		1100	7.88	1,320		1000	6.58	732
		0900	3.70		1200	8.07	1,410		1200	6.48	692
		1200	4.15		1300	8.64	1,700		1300	6.54	716
		1400	4.92		1400	10.63	2,850		2000	5.86	471
		1600	4.64		1500	10.77	2,930		2400	5.61	393
		1800	4.78		1700	9.46	2,150				
		2000	4.53		1800	9.29	2,060	2	0500	5.41	333
		2400	4.21		2100	8.51	1,630		1600	5.11	262
					2300	8.87	1,830		2400	5.00	240
31	0400	4.07	91								

11-4680.85. North Fork Big River tributary near Willits, Calif.

(Crest-stage station)

Location.--Lat 39°20'50", long 123°31'25", at culvert on State Highway 20, 10 miles southwest of Willits.

Drainage area.--0.43 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 400 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 9 cfs and by computation of flow through culvert at 18 cfs.

Maxima.--January-February 1963: Discharge, 11 cfs Jan. 31 (gage height, 12.60 ft).
1961 to December 1962: Discharge, 18 cfs Feb. 13, 1962 (gage height, 13.35 ft).

WARNER CREEK BASIN

11-4681.5. Warner Creek near Fort Bragg, Calif.

(Crest-stage station)

Location.--Lat 39°23'13", long 123°48'42", in NE $\frac{1}{4}$ sec.36, T.18 N., R.18 W., at culvert on State Highway 1, 1.5 miles north of Caspar and 4 miles south of Fort Bragg.

Drainage area.--0.61 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 50 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 10 cfs and by computation of flow through culvert at 48 cfs.

Maxima.--January-February 1963: Discharge, 37 cfs Jan. 31 (gage height, 8.30 ft). 1961 to December 1962: Discharge, 48 cfs Jan. 19, 1962 (gage height, 8.98 ft).

NOYO RIVER BASIN

11-4685. Noyo River near Fort Bragg, Calif.

Location.--Lat 39°25'41", long 123°44'10", in SW $\frac{1}{4}$ sec.10, T.18 N., R.17 W., on right bank 0.7 mile downstream from South Fork and 3.5 miles east of Fort Bragg.

Drainage area.--106 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 12.1 ft above mean sea level (planetable survey).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 5,050 cfs 2100 hours Jan. 31 (gage height, 15.83 ft).

1951 to December 1962: Discharge, 22,000 cfs Dec. 22, 1955 (gage height, 25.64 ft), from rating curve extended above 3,600 cfs on basis of slope-conveyance study.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	82	3,110	11.....	51	260	21.....	37	174
2.....	76	1,500	12.....	49	306	22.....	37	159
3.....	71	898	13.....	47	443	23.....	36	147
4.....	67	634	14.....	45	400	24.....	36	135
5.....	64	470	15.....	44	334	25.....	36	126
6.....	60	370	16.....	43	298	26.....	36	117
7.....	58	302	17.....	43	270	27.....	33	102
8.....	56	286	18.....	42	235	28.....	33	
9.....	54	278	19.....	41	211	29.....	41	-----
10.....	53	294	20.....	39	194	30.....	366	-----
						31.....	2,630	-----

Monthly mean discharge, in cubic feet per second.....	142	434
Runoff, in inches.....	1.55	4.27
Runoff, in acre-feet.....	8,740	24,120

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	2.40	71	Jan. 31	0600	5.68	754	Feb. 1	0300	14.41	4,260
					0800	6.15	895		0900	12.28	3,280
	30	0600	2.83		1000	7.33	1,290		1500	10.77	2,610
		1000	3.25		1200	9.35	2,040		1700	10.53	2,510
		1200	3.63		1400	12.41	3,330		2400	9.32	2,030
		1900	5.47		1600	14.44	4,270				
		2000	5.81		1900	15.60	5,910	2	0500	8.58	1,730
		2100	5.84		2000	15.80	5,030		1000	8.03	1,540
		2400	5.74		2100	15.83	5,050		1600	7.44	1,330
					2200	15.68	4,960		2400	6.86	1,130
					2400	15.16	4,650				
	31	0400	5.62								
		0500	5.62								

11-4707. Alder Creek near Potter Valley, Calif.

Location.--Lat 39°23'20", long 123°02'37", in NE $\frac{1}{4}$ sec.26, T.18 N., R.11 W., at culvert on Valley Lake-Pillsbury road 5.8 miles northeast of Potter Valley.

Gage-height record.--Crest stages only. Altitude of gage is 1,650 ft (from topo-graphic map).

Discharge record.--Maximum discharge by computation of flow through culvert.

Maxima--January-February 1963: Discharge, 149 cfs Jan. 31 (gage height, 54.52 ft).
September to December 1962: Discharge, 95 cfs Oct. 12, 1962 (gage height, 53.04 ft).

11-4721.7. Fulweiter Creek tributary near Willits, Calif.

Location.--Lat 39°23'56", long 123°18'07", in NE $\frac{1}{4}$ sec.21, T.18 N., R.13 W., at culvert on north-south county road 2.8 miles east of Willits.

Gage-height record.--Crest stages only. Altitude of gage is 1,430 ft (from topographic map).

Discharge record.--Maximum discharge by computation of flow through culvert at 72 cfs.

Maxima.--January-February 1963: Discharge, 72 cfs Jan. 31 (gage height, 54.84 ft).
September to December 1962: Discharge, 72 cfs Oct. 12, 1962 (gage height, 54.85 ft).

Location.--Lat 39°37'05", long 123°21'20", in NE $\frac{1}{4}$ sec.1, T.20 N., R.14 W., on right bank 0.2 mile downstream from Bloody Run Creek, 0.9 mile upstream from mouth, and 8.2 miles downstream from Longvale.

Gage-height record,--Water-stage recorder graph. Altitude of gage is 1,020 ft (from topographic map).

Discharge record--Stage-discharge relation defined by current-meter measurements below 9,900 cfs.

Maxima.--January-February 1963: Discharge, 19,100 cfs 1600 hours Jan. 31 (gage height, 17.03 ft).
1956 to December 1962: Discharge, 26,500 cfs Feb. 8, 1960 (gage height, 20.27 ft).

[illegible]

FLOODS OF 1963 IN THE UNITED STATES

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963, of
Eel River above Dos Rios, Calif.

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	6.25	402	Jan. 31	0600	13.19	5,650	Feb. 1	1900	23.79	29,400
					0700	13.15	5,600		2400	21.82	23,800
30	0200	6.58	494		0800	13.42	5,950				
	0300	7.09	666		0900	15.06	8,500	2	0600	20.07	19,100
	0500	8.58	1,360		1000	17.75	13,800		1200	18.64	15,700
	0600	8.75	1,460		1100	22.37	25,300		1600	17.64	13,900
	0700	8.89	1,540		1200	24.41	31,200		2000	17.19	12,500
	0900	9.43	1,910		1500	27.22	40,300		2400	16.61	11,700
	1200	11.00	3,200		1700	29.24	47,300	3	0800	16.00	10,200
	1500	12.97	5,360		2000	31.00	54,000		1600	15.27	8,860
	1700	14.52	7,580		2300	32.40	59,600		2400	14.61	7,740
	1900	14.62	7,750		2400	32.35	59,400	4	1200	13.66	6,230
	2100	14.97	8,350	Feb. 1	0200	31.70	56,800		1800	13.37	5,820
	2200	14.94	8,300		0500	30.17	50,700		2400	12.97	5,270
	2400	14.57	7,670		1000	27.53	41,400				
31	0300	13.78	6,440		1400	25.55	34,600				

11-4729. Black Butte River near Covelo, Calif.

Location.--Lat 39°49'10", long 123°04'40", in SE $\frac{1}{4}$ sec.28, T.23 N., R.11 W., on right bank 600 ft upstream from highway bridge, 0.6 mile upstream from mouth, and 9.5 miles east of Covelo.

Drainage area.--162 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 1,490 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 4,200 cfs.

Maxima.--January-February 1963: Discharge, 14,900 cfs 1700 hours Jan. 31 (gage height, 17.77 ft).

1953-57, 1958 to December 1962: Discharge, 25,000 cfs Dec. 21, 1955 (gage height, 35.8 ft, from floodmarks, site and datum then in use), on basis of slope-area measurement of peak flow.

Flood of Dec. 11, 1937, reached a stage of 36.2 ft, from floodmarks at crest-stage gage site (discharge, 26,000 cfs).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	110	5,430	11.....	61	841	21.....	49	336
2.....	103	2,180	12.....	58	783	22.....	49	291
3.....	101	1,550	13.....	66	810	23.....	47	263
4.....	97	1,010	14.....	66	628	24.....	45	245
5.....	88	740	15.....	61	548	25.....	44	235
6.....	84	620	16.....	56	510	26.....	43	218
7.....	80	520	17.....	54	472	27.....	42	206
8.....	75	513	18.....	52	412	28.....	47	194
9.....	74	678	19.....	50	376	29.....	30	---
10.....	69	1,330	20.....	47	370	31.....	7,580	---
Monthly mean discharge, in cubic feet per second.....							334	797
Runoff, in inches.....							2.38	5.12
Runoff, in acre-feet.....							20,530	44,250

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	3.23	80	Jan. 31	0400	6.39	1,140	Feb. 1	0800	11.57	5,180
					0500	6.36	1,120		1000	11.11	4,630
30	0200	3.50	116		0600	6.37	1,130		1100	11.04	4,550
	0400	3.67	145		0700	6.55	1,220		1200	10.59	4,110
	0500	3.74	158		0800	7.31	1,650		1300	10.59	4,110
	0700	3.76	162		0900	9.00	2,760		1400	10.61	4,130
	0800	3.87	185		1000	11.55	5,160		1500	10.83	4,330
	1000	4.15	253		1100	14.27	8,710		1600	11.11	4,630
	1200	4.69	415		1300	16.26	12,000		1700	11.12	4,640
	1400	5.25	620		1600	17.47	14,300		1800	11.05	4,560
	1500	6.80	1,340		1700	17.77	14,900		1900	10.89	4,390
	1700	7.41	1,710		1800	17.32	14,000		2400	9.49	3,150
	1800	8.03	2,080		2000	15.90	11,500	2	0400	8.75	2,590
	1900	8.35	2,310		2300	15.60	10,800		0900	8.35	2,310
	2000	8.44	2,370		2400	15.70	11,000		1500	7.73	1,900
	2100	8.23	2,220	Feb. 1	0100	15.37	10,400		1800	7.54	1,780
	2400	7.33	1,660		0200	14.48	9,020		2200	7.38	1,690
31	0200	6.71	1,300		0500	12.91	6,790		2400	7.62	1,630

11-4730. Middle Fork Eel River below Black Butte River, near Covelo, Calif.

Location.--Lat 39°49'35", long 123°05'30", in NW $\frac{1}{4}$ sec.28, T.23 N., R.11 W., on right bank 0.2 mile downstream from Black Butte River and 8.6 miles east of Covelo.

Drainage area.--367 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 1,434.33 ft above mean sea level (levels by Corps of Engineers).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 19,000 cfs and by slope-area measurement at 89,100 cfs.

Maxima.--January-February 1963: Discharge, 60,500 cfs 1700 hours Jan. 31 (gage height, 20.24 ft).
1951 to December 1962: Discharge, 89,100 cfs Dec. 21, 1955 (gage height, 25.0 ft, from floodmarks), from rating curve extended above 19,000 cfs on basis of slope-area measurement of peak flow.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	372	21,300	11.....	198	2,100	21.....	155	905
2.....	340	8,510	12.....	173	2,080	22.....	152	810
3.....	328	5,150	13.....	188	2,210	23.....	147	750
4.....	313	3,280	14.....	195	1,760	24.....	143	702
5.....	285	2,340	15.....	190	1,520	25.....	138	636
6.....	270	1,970	16.....	178	1,350	26.....	135	589
7.....	255	1,680	17.....	169	1,270	27.....	130	551
8.....	240	1,670	18.....	165	1,100	28.....	130	518
9.....	234	2,050	19.....	159	1,040	29.....	145	-----
10.....	220	3,410	20.....	153	977	30.....	2,650	-----
						31.....	30,000	-----
Monthly mean discharge, in cubic feet per second.....							1,244	2,508
Runoff, in inches.....							3.91	7.12
Runoff, in acre-feet.....							76,460	139,500

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	3.60	225	Jan. 31	0400	8.68	5,080	Feb. 1	0200	17.57	44,500
					0600	8.36	4,570		0800	13.66	21,100
					0800	8.90	5,470		1300	12.15	13,900
					1000	11.60	11,900		1500	12.01	13,300
					1200	15.70	33,300		1600	12.03	13,400
					1500	19.20	54,300		1700	11.95	13,100
					1600	20.15	60,000		2400	10.60	8,960
					1700	20.24	60,500				
					2000	18.56	50,500				
					2100	18.25	48,600				
					2400	18.63	50,900				

11-4735.7. Mill Creek tributary near Covelo, Calif.

(Crest-stage station)

Location.--Lat 39°51'20", long 123°15'45", in NW $\frac{1}{4}$ sec.13, T.23 N., R.13 W., at culvert on Covelo-Zenia road, 4.4 miles north of Covelo.

Drainage area.--0.26 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 1,950 ft (from topographic map).

Discharge record.--Maximum discharge by computation of flow through culvert.

Maxima.--January-February 1963: Discharge, 26 cfs Jan. 31 (gage height, 11.80 ft).
September to December 1962: Discharge, 11 cfs Oct. 12, 1962 (gage height, 10.75 ft).

11-4738.8. Goforth Creek near Dos Rios, Calif.

(Crest-stage station)

Location.--Lat 39°42'45", long 123°20'29", in NE $\frac{1}{4}$ sec.6, T.21 N., R.13 W., at culvert on Dos Rios-Covelo road, 0.7 mile southeast of Dos Rios.

Drainage area.--3.83 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 930 ft (from topographic map).

Discharge record.--Maximum discharge by computation of flow through culvert.

Maxima.--January-February 1963: Discharge, 483 cfs Jan. 31 (gage height, 15.66 ft).
September to December 1962: Discharge, 317 cfs Oct. 12, 1962 (gage height, 14.15 ft).

11-4740. Eel River below Dos Rios, Calif.

Location.--Lat 39°44'15", long 123°22'15", in NE $\frac{1}{4}$ sec.25, T.22 N., R.14 W., on left bank 1.1 miles downstream from Burger Creek, 1.7 miles northwest of Dos Rios, and 2.2 miles downstream from Middle Fork.

Drainage area.--1,484 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 800 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge, 159,000 cfs 2000 hours Jan. 31 (gage height, 36.60 ft).
1911-13, 1951 to December 1962: Discharge, 283,000 cfs Dec. 22, 1955 (gage height, 49.86 ft), from rating curve extended above 120,000 cfs on basis of a slope-conveyance study.

Remarks.--Flow partly regulated by Lake Pillsbury (capacity, 93,700 acre-ft).

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	1,170	95,400	11.....	572	9,090	21.....	439	3,170
2.....	1,040	37,100	12.....	532	8,750	22.....	439	2,780
3.....	960	22,600	13.....	508	10,600	23.....	432	2,470
4.....	880	15,600	14.....	512	8,080	24.....	425	2,210
5.....	792	11,800	15.....	520	6,650	25.....	418	2,010
6.....	732	9,190	16.....	504	5,700	26.....	408	1,860
7.....	690	7,670	17.....	488	5,320	27.....	400	1,680
8.....	660	7,220	18.....	472	4,440	28.....	397	1,540
9.....	630	6,950	19.....	464	3,850	29.....	442	-----
10.....	610	11,800	20.....	446	3,500	30.....	8,770	-----
						31.....	77,500	-----
Monthly mean discharge, in cubic feet per second.....							3,331	11,040
Runoff, in inches.....							2.59	7.74
Runoff, in acre-feet.....							204,800	613,000

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	6.53	400	Jan. 30	1800	13.28	11,900	Jan. 31	2000	36.60	159,000
					1800	14.66	15,800		2400	35.30	148,000
29	0700	6.54	404		2300	16.28	21,600				
	1400	6.53	400		2400	16.42	22,200	Feb. 1	0500	33.15	131,000
	1800	6.62	432						1100	27.90	89,800
	2000	6.76	484	31	0200	16.02	20,600		1800	24.98	68,900
	2300	7.12	642		0700	14.58	15,600		2400	23.00	56,000
	2400	7.34	792		0800	14.63	15,700				
30	0100	7.60	1,000		1000	18.00	29,000	2	0600	20.77	42,700
	0300	7.89	1,270		1200	23.56	59,600		1200	19.28	34,900
	0600	9.12	2,620		1400	28.60	95,000		1800	18.10	29,400
	1200	10.94	5,640		1600	32.50	126,000		2400	17.47	26,600
					1800	35.80	152,000				

11-4745. North Fork Eel River near Mina, Calif.

Location.--Lat 39°56'15", long 123°20'45", in SW $\frac{1}{4}$ sec.8, T.24 N., R.13 W., on right bank 1.2 miles upstream from Asbill Creek, 2 miles south of Mina, and 8.8 miles northeast of Nashmead.

Drainage area.--250 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 1,030 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 8,000 cfs and extended above on basis of slope-area measurement at 58,400 cfs.

Maxima.--January-February 1963: Discharge, 26,600 cfs 1600 hours Jan. 31 (gage height, 19.25 ft).

1953 to December 1962: Discharge, 58,400 cfs Dec. 22, 1955 (gage height, 24.00 ft), from rating curve extended above 8,000 cfs on basis of slope-area measurement of peak flow.

Flood in December 1937 reached a stage of about 30.7 ft (former site and datum), from information by local residents.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	158	8,670	11.....	85	676	21.....	62	451
2.....	145	3,390	12.....	72	977	22.....	62	399
3.....	139	2,680	13.....	77	1,400	23.....	61	356
4.....	131	1,830	14.....	76	975	24.....	59	314
5.....	119	1,480	15.....	78	777	25.....	57	288
6.....	110	1,160	16.....	74	732	26.....	55	265
7.....	104	910	17.....	70	777	27.....	53	243
8.....	98	975	18.....	67	616	28.....	53	222
9.....	94	853	19.....	66	548	29.....	90	-----
10.....	91	920	20.....	62	532	30.....	2,240	-----
						31.....	12,500	-----
Monthly mean discharge, in cubic feet per second.....							555	1,193
Runoff, in inches.....							2.56	4.97
Runoff, in acre-feet.....							34,130	66,280

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	3.89	53	Jan. 30	1100	6.98	920	Jan. 31	1500	19.10	25,800
					1200	7.22	1,040		1600	19.25	26,600
29	0600	3.91	55		1400	8.28	1,680		1700	19.00	25,400
	1400	3.99	62		1600	10.05	3,310		2000	17.22	18,000
	1600	4.05	68		1800	11.26	4,810		2100	16.94	17,000
	1800	4.19	82		1900	11.55	5,190		2200	16.92	16,900
	1900	4.37	104		2000	11.67	5,340		2300	16.98	17,100
	2100	4.99	208		2100	11.50	5,120		2400	17.06	17,400
	2200	5.12	235		2200	11.07	4,560				
	2300	5.10	230		2400	10.32	3,630	Feb. 1	0100	16.93	17,000
	2400	5.11	233						0300	16.11	14,200
30	0200	6.30	620	31	0400	9.44	2,640		0700	14.17	9,150
	0300	6.49	696		0600	9.17	2,370		1300	12.57	6,510
	0400	6.66	772		0700	9.15	2,360		1400	12.47	6,380
	0500	6.91	885		0800	9.45	2,650		1500	12.42	6,320
	0600	6.98	920		1000	12.00	5,770		1600	12.62	6,580
	0900	6.83	849		1200	15.77	13,200		1700	12.70	6,690
	1000	6.84	853		1300	17.95	20,800		1800	12.50	6,420
					1400	18.72	24,100		2400	11.22	4,760

11-4745.7. Wilson Creek near Mina, Calif.

(Crest-stage station)

Location.--Lat 40°00'17", long 123°23'21", in SE $\frac{1}{4}$ sec.21, T.5 S., R.7 E., at culvert on Covelo-Zenia road, 3.2 miles northwest of Mina.

Drainage area.--2.84 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 2,550 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 37 cfs and by computation of flow through culvert at 273 cfs.

Maxima.--January-February 1963: Discharge, 235 cfs Jan. 31 (gage height, 13.17 ft). September to December 1962: Discharge, 273 cfs Oct. 12, 1962 (gage height, 13.55 ft).

11-4755. South Fork Eel River near Branscomb, Calif.

Location.--Lat 39°43'09", long 123°39'06", in NW $\frac{1}{4}$ sec.32, T.22 N., R.16 W., on right bank 0.4 mile upstream from Jack of Hearts Creek and 4.7 miles north of Branscomb.

Drainage area.--43.9 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 1,380 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--January-February 1963: Discharge 4,090 cfs 2400 hours Jan. 31 (gage height, 8.03 ft).
1946 to December 1962: Discharge, 20,100 cfs Dec. 22, 1955 (gage height, 16.20 ft), from rating curve extended above 4,600 cfs on basis of slope-area measurement of peak flow.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	78	2,280	11.....	52	209	21.....	39	136
2.....	74	1,060	12.....	50	256	22.....	39	128
3.....	69	646	13.....	47	307	23.....	39	116
4.....	65	509	14.....	45	280	24.....	38	110
5.....	63	409	15.....	45	250	25.....	37	104
6.....	58	358	16.....	45	232	26.....	37	98
7.....	58	301	17.....	44	206	27.....	36	90
8.....	56	283	18.....	44	181	28.....	36	89
9.....	53	256	19.....	42	164	29.....	37	-----
10.....	52	241	20.....	41	151	30.....	260	-----
						31.....	2,080	-----
Monthly mean discharge, in cubic feet per second.....							121	338
Runoff, in inches.....							3.18	8.01
Runoff, in acre-feet.....							7,460	18,740

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 29	2400	1.40	42	Jan. 31	0300	2.88	432	Feb. 1	0900	6.26	2,380
	30	0500	1.46		0600	2.74	387		1300	5.60	1,850
		1000	1.73		0700	2.83	416		1400	5.67	1,910
		1000	1.88		0900	3.55	670		1600	5.51	1,790
		1200	1.88		1100	6.00	2,170		1700	5.70	1,930
		1400	2.14		1300	6.87	2,880		2000	5.28	1,630
		1600	2.56		1500	6.98	2,980		2400	4.94	1,390
		1800	3.23		1700	7.65	3,670				
		1900	3.26		1900	7.36	3,360	2	1400	4.18	970
		2000	3.44		2200	7.69	3,700		2400	3.86	810
		2300	3.41		2400	8.03	4,090				
		2400	3.28	Feb. 1	0500	6.75	2,780				

11-4756.9. Steep Creek near Laytonville, Calif.

(Crest-stage station)

Location.--Lat 39°45'41", long 123°32'22", in center of sec.16, T.22 N., R.15 W., at culvert on U.S. Highway 101, 6.0 miles northwest of Laytonville.

Drainage area.--2.90 sq mi.

Gage-height record.--Crest stages only. Altitude of gage is 1,480 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 39 cfs and by computation of flow through culvert at 843, 973, and 1,090 cfs.

Maxima.--January-February 1963: Discharge, 1,090 cfs Jan. 31 (gage height, 22.67 ft).

September to December 1962: Discharge, 843 cfs Oct. 12, 1962 (gage height, 20.63 ft).

11-4757. Tenmile Creek near Laytonville, Calif.

Location.--Lat 39°45'45", long 123°32'30", in NW $\frac{1}{4}$ sec.16, T.22 N., R.15 W., on right bank 0.1 mile downstream from Step Gulch Creek and 6.0 miles northwest of Laytonville.

Drainage area.--50.3 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 1,450 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 4,300 cfs and by slope-area measurement at 16,300 cfs.

Maxima.--January-February 1963: Discharge, 9,530 cfs 1400 hours Jan. 31 (gage height, 16.63 ft).

1955 to December 1962: Discharge, 16,300 cfs Dec. 22, 1955 (gage height, 22.9 ft, from floodmarks), on basis of slope-area measurement of peak flow.

Mean discharge, in cubic feet per second, 1963

Day	January	February	Day	January	February	Day	January	February
1.....	62	2,770	11.....	36	177	21.....	25	122
2.....	58	1,140	12.....	33	493	22.....	25	110
3.....	54	737	13.....	31	407	23.....	24	100
4.....	50	571	14.....	31	247	24.....	23	92
5.....	46	425	15.....	30	200	25.....	23	84
6.....	44	366	16.....	30	212	26.....	22	79
7.....	43	257	17.....	29	191	27.....	22	73
8.....	41	282	18.....	27	157	28.....	21	70
9.....	40	254	19.....	25	142	29.....	50	-----
10.....	38	242	20.....	25	139	30.....	1,120	-----
						31.....	5,290	-----
Monthly mean discharge, in cubic feet per second.....							239	362
Runoff, in inches.....							5.49	7.50
Runoff, in acre-feet.....							14,720	20,110

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1963

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Jan. 28	2400	2.97	23	Jan. 30	1200	6.93	972	Jan. 31	1900	14.12	7,020
					1300	7.18	1,090		2000	14.25	7,150
29	1400	2.99	24		1500	8.97	2,120		2100	14.17	7,070
	1700	3.06	29		1600	9.16	2,250		2400	13.12	6,020
	1800	3.11	33		1700	9.05	2,180				
	1900	3.22	43		2000	8.34	1,710	Feb. 1	0300	11.21	4,110
	2000	3.52	72		2400	7.14	1,070		0500	10.55	3,450
	2100	4.12	141						0600	10.15	3,090
	2200	4.38	177	31	0400	6.30	730		0800	9.92	2,880
	2300	4.47	193		0500	6.25	713		1100	8.92	2,080
	2400	4.78	259		0600	6.51	804		1200	8.85	2,040
					0800	8.38	1,740		1400	9.13	2,230
30	0300	5.60	494		0900	11.15	4,050		1500	9.67	2,660
	0400	5.78	552		1000	14.30	7,200		1600	9.49	2,510
	0500	5.79	555		1200	16.45	9,350		1700	9.52	2,540
	0600	5.77	548		1300	16.49	9,390		2000	8.54	1,830
	0700	5.76	545		1400	16.63	9,530		2400	7.84	1,420
	0800	5.84	571		1500	16.48	9,380				
	0900	6.12	667		1700	15.01	7,910				

REFERENCES CITED

- Bodhaine, G. L., 1963, Indirect measurement of peak discharge through culverts: U.S. Geol. Survey open-file report, 49 p.
- Dalrymple, Tate, and others, 1938, Major Texas floods of 1936: U.S. Geol. Survey Water-Supply Paper 816, 146 p.
- Grover, N. C., 1937, New England rivers, pt. 1 of The floods of March 1936: U.S. Geol. Survey Water-Supply Paper 798, 466 p.
- Hofmann, Walter, and Rantz, S. E., 1963, Description, pt. 1 of Floods of December 1955-January 1956 in the Far Western States: U.S. Geol. Survey Water-Supply Paper 1650-A, p. A1-A156.
- _____, 1963, Streamflow data, pt. 2 of Floods of December 1955-January 1956 in the Far Western States: U.S. Geol. Survey Water-Supply Paper 1650-B, p. B1-B580.
- Johnson, Hollister, 1936, The New York State flood of July 1935: U.S. Geol. Survey Water-Supply Paper 773-E, p. 233-268.
- Kindsvater, C. E., Carter, R. W., and Tracy, H. J., 1953, Computation of peak discharges at contractions: U.S. Geol. Survey Circ. 284, 35 p.
- McGlashan, H. D., and Briggs, R. C., 1939, Floods of December 1937 in northern California: U.S. Geol. Survey Water-Supply Paper 843, 497 p. (1940).
- Rantz, S. E., and Harris, E. E., 1963, Floods of January-February 1963 in California and Nevada: U.S. Geol. Survey open-file report, 74 p.
- Rantz, S. E., and Stafford, H. M., 1956, Floods of 1952 in California: U.S. Geol. Survey Water-Supply Paper 1260-D, p. 531-575.
- Rostvedt, J. O., 1965, Floods in the United States during 1960: U.S. Geol. Survey Water-Supply Paper 1790-B, p. B1-B147.
- U.S. Geological Survey, 1953, Floods of November-December 1950 in the Central Valley basin, California: U.S. Geol. Survey Water-Supply Paper 1137-F, p. 505-789 (1954).
- _____, 1954, Floods of November-December 1950 in western Nevada: U.S. Geol. Survey Water-Supply Paper 1137-H, p. 897-956.
- _____, 1963, Summary of floods in the United States during 1958: U.S. Geol. Survey Water-Supply Paper 1660-B, p. B1-B97.

INDEX

	Page		Page
Adobe Creek near Kelseyville, Calif...	A411	Big Chico Creek near Chico, Calif.....	A330
Alameda Creek, at Union City, Calif...	172	Big Creek (tributary to Kings River)	
near Niles, Calif.....	169	above Pine Flat Reservoir,	
tributary No. 1 near Warm Springs,		Calif.....	213
Calif.....	166	Big Creek (tributary to San Joaquin	
Alameda Creek basin, records.....	55,166-172	River) below Huntington Lake,	
Alamitos Creek near New Almaden,		Calif.....	224
Calif.....	157	Big Creek (tributary to Tuolumne	
Albion River, near Comptche, Calif....	455	River) near Groveland, Calif.....	258
tributary near Comptche, Calif.....	455	Big Grizzly Creek near Portola, Calif...	339
Alder Creek (tributary to Eel River)		Big Pine Creek near Big Pine, Calif....	74
near Potter Valley, Calif.....	458	Big River, North Fork, tributary near	
Alder Creek (tributary to Prosser		Willits, Calif.....	456
Creek) near Truckee, Calif.....	101	South Fork, near Comptche, Calif.....	456
Alder Creek (tributary to South Fork		Big River basin, records.....	70,456
American River) near Whitehall,		Big Sandy Creek tributary near Toll-	
Calif.....	402	house, Calif.....	229
Alec Canyon near Morgan Hill, Calif...	135	Big Sulphur Creek near Cloverdale	
Almaden Reservoir near New Almaden,		Calif.....	444
Calif.....	155	Big Sur River near Big Sur, Calif.....	118
American River, at Fair Oaks, Calif...	409	Black Butte River near Covelo, Calif...	460
Middle Fork, at French Meadows,		Blacks Creek, North Fork, near Coulter-	
Calif.....	390	ville, Calif.....	245
near Auburn, Calif.....	44,400	Boca Reservoir at Boca, Calif.....	104
near Foresthill, Calif.....	399	Bodfish Creek near Gilroy, Calif.....	137
North Fork, at North Fork Dam,		Boulder Creek near La Moine, Calif....	306
Calif.....	390	Bowman Lake near Grantville, Calif...	372
South Fork, near Camino, Calif.....	406	Branciforte Creek at Santa Cruz	
near Kyburz, Calif.....	401	Calif.....	145
near Lotus, Calif.....	407	Bridgeport Creek near Bodie, Calif....	76
Anderson Lake near Madrone, Calif....	164	Bridgeport Reservoir, near Bridgeport,	
Antelope Creek (tributary to North		Calif.....	83
Fork Mokelumne River) near West		tributary near Bridgeport, Calif....	82
Point, Calif.....	290	Bryant Creek near Gardnerville, Nev...	92
Antelope Creek (tributary to Sacra-		Buckeye Creek near Bridgeport, Calif...	81
mento River) near Red Bluff,		Buckland ditch near Fort Churchill,	
Calif.....	325	Nev.....	95
Aptos Creek at Aptos, Calif.....	141	Bucks Lake near Bucks Lodge, Calif....	358
Arroyo Calero tributary near New		Budd Creek near Tuolumne Meadows,	
Almaden, Calif.....	156	Calif.....	250
Arroyo de la Cruz near San Simeon,		Budden Canyon near Beegum, Calif....	320
Calif.....	116	Buena Vista Lake basin, records...	56,178-188
Arroyo del Hambre near Martinez,		Burns Valley Creek near Clearlake High-	
Calif.....	175	lands, Calif.....	413
Arroyo Mocho near Pleasanton, Calif...	167	Butano Creek near Pescadero, Calif....	147
Arroyo Seco, near Greenfield, Calif...	128	Butt Creek above Almanor-Butt Creek	
near Soledad, Calif.....	42,129	tunnel, near Prattville, Calif...	353
Arroyo Valle, at Pleasanton, Calif...	169	Butte Creek, at Butte Meadows, Calif...	335
near Livermore, Calif.....	168	near Chico, Calif.....	337
tributary near Livermore, Calif....	168		
Austin Creek near Cazadero, Calif....	450		
		Cache Creek, at Yolo, Calif.....	421
		near Capay, Calif.....	420
		near Lower Lake, Calif.....	416
		North Fork, near Lower Lake, Calif...	417
Bass Lake near Bass Lake, Calif.....	226	Calaveras River, at Jenny Lind, Calif..	285
Battle Creek below Coleman Fish		below Hogan Dam, Calif.....	283
Factory, near Cottonwood, Calif.	322	North Fork, near San Andreas, Calif..	282
Bear Creek (tributary to Cache Creek),		South Fork, near San Andreas, Calif..	280
near Rumsey, Calif.....	419	Calaveritas Creek near San Andreas,	
tributary near Wilbur Springs,		Calif.....	281
Calif.....	418	Calero Reservoir near New Almaden,	
Bear Creek (tributary to Sacramento		Calif.....	156
River) near Millville, Calif....	317	Camp Creek near Somerset, Calif.....	299
Bear Creek (tributary to San Joaquin		Canyon Creek below Bowman Lake,	
River, lower), near Lockeford,	286	Calif.....	373
Calif.....	285	Capell Creek tributary near Wooden	
tributary near Valley Springs,		Valley, Calif.....	426
Calif.....	236	Carmel River, at Robles del Rio,	
Bear Creek (tributary to San Joaquin		Calif.....	119
River, upper), near Catheys		near Carmel, Calif.....	120
Valley, Calif.....	237	Carson River, East Fork, below Marklee-	
tributary near Catheys Valley,		ville Creek, near Markleeville,	
Calif.....	217	Calif.....	92
Bear Mountain Creek near Squaw Valley,		East Fork, near Gardnerville, Nev....	93
Calif.....	380	near Carson City, Nev.....	94
Bear River (tributary to Feather		near Fort Churchill, Nev.....	96
River), near Auburn, Calif.....	381	West Fork, at Woodfords, Calif.....	42,94
near Wheatland, Calif.....	290	Carson River basin, records.....	51,91-97
Bear River (tributary to North Fork		Cascade Creek near Pinecrest,	
Mokelumne River, near Salt	268	Calif.....	266
Springs Dam, Calif.....	167	Cedar Creek near Bell Station, Calif...	131
Beardsley Lake near Strawberry, Calif.			
Big Canyon Creek near Dublin, Calif...			

	Page		Page
Central-coastal California, records...	A10, 19, 52-56, 115-178.	Dry Creek (tributary to Alameda Creek) at Union City, Calif.....	A170
Cherry Creek, below Cherry Valley Dam, near Hetch Hetchy, Calif.....	253	Dry Creek (tributary to American River) tributary near Roseville, Calif..	410
near Early Intake, Calif.....	255	Dry Creek (tributary to Kaweah River) near Lemoncove, Calif.....	201
Cherry Lake near Hetch Hetchy, Calif..	252	Dry Creek (tributary to Mokelumne River), above Sutter Creek, near Ione, Calif.....	296
Chesbro Reservoir near Morgan Hill, Calif.....	133	near Galt, Calif.....	298
China Gulch at Gualala, Calif.....	452	Dry Creek (tributary to Napa River) near Napa, Calif.....	431
Chiquito Creek near Bass Lake, Calif..	221	Dry Creek (tributary to Putah Creek) near Middletown, Calif.....	423
Chowchilla River, at Buchanan damsite, near Raymond, Calif.....	235	Dry Creek (tributary to Russian River), near Cloverdale, Calif.....	44, 447
East Fork, near Ahwahnee, Calif.....	233	near Geyserville, Calif.....	448
Middle Fork, near Nipinnawassee, Calif.....	235	tributary near Hopland, Calif.....	447
West Fork, near Mariposa, Calif.....	234	Duncan Creek near French Meadows, Calif.....	391
Churn Creek near Redding, Calif.....	313	Dutcher Creek near Asti, Calif.....	448
Clavey River near Buck Meadows, Calif..	258	Eagle Lake tributary near Susanville, Calif.....	113
Clay Creek near Ione, Calif.....	298	East Walker River, above Strosnider ditch, near Mason, Nev.....	84
Clear Creek (Carson River basin) near Carson City, Nev.....	94	near Bridgeport, Calif.....	83
Clear Creek (Sacramento River basin), at French Gulch, Calif.....	311	Eel River, above Dos Rios, Calif.....	459
near Igo, Calif.....	312	below Dos Rios, Calif.....	462
Clear Lake at Lakeport, Calif.....	415	Middle Fork, below Black Butte River, near Covelo, Calif.....	461
Coho Creek near White River, Calif....	189	North Fork, near Mina, Calif.....	463
Cole Creek near Salt Springs Dam, Calif.....	289	South Fork, near Branscomb, Calif.....	464
Convict Creek near Mammoth Lakes, Calif.....	72	Eel River basin, records.....	70, 458-465
Copsey Creek near Lower Lake, Calif....	415	Elder Creek, at Gerber, Calif.....	326
Corral Hollow Creek near Tracy, Calif.....	279	near Paskenta, Calif.....	326
Corralitos Creek, at Freedom, Calif....	140	Eldorado Creek at Mountain Ranch, Calif.....	283
near Corralitos, Calif.....	139	Eleanor Creek near Hetch Hetchy, Calif..	254
Corte Madera Creek at Ross, Calif.....	436	Esperanza Creek near Mokelumne Hill, Calif.....	281
Cosgrove Creek near Valley Springs, Calif.....	284	Falls Creek near Hetch Hetchy, Calif...	250
Cosumnes River, at McConnell, Calif....	304	Feather River, at Bidwell Bar, Calif....	350
at Michigan Bar, Calif.....	43, 302	at Nicolaus, Calif.....	382
Middle Fork, near Somerset, Calif....	301	at Oroville, Calif.....	361
North Fork, near El Dorado, Calif....	300	Middle Fork, near Clio, Calif.....	43, 340
South Fork, near River Pines, Calif.....	301	near Merrimac, Calif.....	341
Cottontail Creek, tributary near Cayucos, Calif.....	115	North Fork, at Pulga, Calif.....	359
Cottontail Creek basin, records.....	52, 115	near Prattville, Calif.....	352
Cottonwood Creek, Middle Fork, near Ono, Calif.....	318	South Fork, above Little Grass Valley Reservoir, Calif.....	342
near Cottonwood, Calif.....	321	at Enterprise, Calif.....	350
North Fork, near Igo, Calif.....	319	below diversion dam, near Strawberry Valley, Calif.....	345
South Fork, near Cottonwood, Calif....	319	below Forbestown Dam, Calif.....	348
tributary near Cottonwood, Calif.....	320	below Little Grass Valley Dam, Calif.....	344
Courtright Reservoir near Nelson Mountain, Calif.....	203	below Ponderosa Dam, Calif.....	349
Cow Creek (Sacramento River basin) near Millville, Calif.....	316	West Branch, near Paradise, Calif....	360
Cow Creek (Salinas River basin) near San Ardo, Calif.....	127	near Yankee Hill, Calif.....	360
Coyote Creek, near Gilroy, Calif.....	162	Feliz Creek near Hopland, Calif.....	443
near Madrone, Calif.....	164	Flood discharge, determination.....	45
Coyote Creek basin, records.....	55, 163-165	Flood frequencies.....	38
Coyote Lake near San Martin, Calif....	163	Flood stages and discharges, summary..	50
Curtis Creek tributary near Standard, Calif.....	261	Floods, damage.....	33
Data, explanation of.....	46	Floods, general description.....	15
Deer Creek (tributary to Cosumnes River), near Shingle Springs, Calif.....	303	Florence Lake near Big Creek, Calif...	218
near Sloughhouse, Calif.....	303	Folsom Lake near Folsom, Calif.....	408
Deer Creek (tributary to Sacramento River), below Slate Creek, near Deer Creek Meadows, Calif.....	329	Forbes Creek, North Fork, near Dutch Flat, Calif.....	388
near Vina, Calif.....	329	Forest Creek near Wilseyville, Calif...	291
Deer Creek (tributary to Yuba River) near Smartville, Calif.....	378	Fresno River, near Daulton, Calif.....	232
Del Puerto Creek, near Patterson, Calif.....	250	near Knowles, Calif.....	281
tributary No. 1 near Patterson, Calif.....	249	Fulweiler Creek tributary near Willits, Calif.....	458
tributary No. 2 near Patterson, Calif.....	249	Galena Creek near Steamboat, Nev.....	108
Don Pedro Reservoir near La Grange, Calif.....	249	Garcia River near Point Arena, Calif...	452
Donnell Lake near Dardanelle, Calif...	262	Garzas Creek near Gustine, Calif.....	240
Donner Creek at Donner Lake, near Truckee, Calif.....	99	Gerle Creek below Loon Lake Dam, near Meeks Bay, Calif.....	393
Dorst Creek near Kaweah Camp, Calif...	198	Gilmore Creek near Lodoga, Calif.....	331
Doud Creek near Carmel, Calif.....	119	Goforth Creek near Dos Rios, Calif....	462
		Gold Run tributary near Nelson, Calif..	337
		Golden Trout Creek near Cartago, Calif.....	178
		Goodyears Creek at Goodyears Bar, Calif.....	367
		Granite Creek near Tobin, Calif.....	358

	Page		Page
Great Basin, records.....	A9, 16,50-52,72-115.	Lagunitas Creek basin, records.....	A69,437
Green Creek near Bridgeport, Calif....	78	Lahontan Reservoir near Fallon, Nev....	96
Green Valley Creek near Corralitos, Calif.....	141	Lake Almanor, near Prattville, Calif.....	351
Grindstone Creek tributary near Elk Creek, Calif.....	331	tributary near Almanor, Calif.....	351
Grizzly Creek near Cedar Grove, Calif.....	202	Lake Berryessa near Winters, Calif.....	427
Guadalupe Reservoir near New Almaden, Calif.....	157	Lake Eleanor near Hetch Hetchy, Calif.....	254
Lake Hennessy tributary near Ruthersford, Calif.....		Lake Elsanor near Los Gatos, Calif.....	159
Guadalupe River at San Jose, Calif.....	161	Lake Kawanah near Lemoncove, Calif.....	431
Guadalupe River basin, records....	55,155-162	Lake McClure at Exchequer, Calif.....	200
Gualala River, South Fork, near Annapolis, Calif.....	451	Lake Success near Success, Calif.....	246
Wheatfield Fork, tributary near Annapolis, Calif.....	451	Lake Success near Success, Calif.....	193
Gualala River basin, records.....	70,451-452	Lake Tahoe, at Tahoe City, Calif.....	98
Haypress Creek near Sierra City, Calif.....	366	tributary at Tahoe City, Calif.....	97
Hayward Creek near La Grange, Calif....	247	tributary near Weeks Bay, Calif.....	97
Helms Creek below Courtright Dam, Calif.....	204	Lake Thomas A. Edison near Big Creek, Calif.....	219
Hetch Hetchy Reservoir at Hetch Hetchy, Calif.....	251	Laurel Creek near Laurel, Calif.....	142
Highland Creek (Sacramento River basin) above Highland Creek Dam, Calif.....	411	Lee Vining Creek near Lee Vining, Calif.....	77
Highland Creek (San Joaquin River basin) below Spicer Meadows Reservoir, Calif.....	271	Lexington Reservoir near Los Gatos, Calif.....	159
Honey Lake basin, records.....	52,113-115	Little Chico Creek tributary near Forest Ranch, Calif.....	337
Horse Creek near Clayton, Calif.....	178	Little Cow Creek near Ingot, Calif.....	315
Huling Creek tributary at Ono, Calif....	318	Little Grass Valley Reservoir near LaPorte, Calif.....	343
Hunter Creek near Reno, Nev.....	106	Little Kern River near Quaking Aspen Camp, Calif.....	179
Huntington Lake near Big Creek, Calif.....	223	Little Last Chance Creek near Chilcott, Calif.....	339
Ice House Reservoir near Kyburz, Calif.....	404	Little Truckee River, above Boca Reservoir, near Boca, Calif.....	103
Independence Creek below Flinoy Creek, near Independence, Calif.....	75	at Boca, Calif.....	105
Indian Creek, near Crescent Mills, Calif.....	355	near Hobart Mills, Calif.....	102
near Taylorsville, Calif.....	354	Little Walker River near Bridgeport, Calif.....	85
Indian Valley Creek tributary near Valletton, Calif.....	122	Llagas Creek near Morgan Hill, Calif....	133
Isabella Reservoir near Isabella, Calif.....	186	Long Canyon Creek near French Meadows, Calif.....	397
Jack Creek near Templeton, Calif.....	121	Los Banos Creek near Los Banos, Calif.....	239
Jackass Creek near Bass Lake, Calif.....	220	Los Gatos Creek at Los Gatos, Calif.....	160
Jesus Maria Creek near Mokelumne Hill, Calif.....	282	Los Trancos Creek tributary near Stanford University, Calif.....	152
Kaweah River, at Three Rivers, Calif..	198	Lost Creek, above Sly Creek Reservoir, Calif.....	346
below Terminus Dam, Calif.....	201	near Clipper Mills, Calif.....	347
East Fork, near Three Rivers, Calif.....	197	Lower Twin Lake near Bridgeport, Calif.....	80
Marble Fork, at Potwisha Camp, Calif.....	196	Lyons Creek tributary near Lakeport, Calif.....	412
Middle Fork, near Potwisha Camp, Calif.....	195	Maacama Creek near Kellogg, Calif.....	445
tributary near Hammond, Calif.....	197	McCloud River above Shasta Lake, Calif.....	309
Kellogg Creek tributary near Byron, Calif.....	287	Madeline Plains basin, records.....	52,115
Kelsey Creek near Kelseyville, Calif.....	414	Magnolia Creek near Auburn, Calif.....	380
Kelso Creek near Weldon, Calif.....	185	Mammoth Pool Reservoir near Big Creek, Calif.....	222
Kern River, at Kernville, Calif.....	183	Mariposa Creek near Catheys Valley, Calif.....	237
below Isabella Dam, Calif.....	187	Marsh Creek near Byron, Calif.....	305
below Kern Canyon powerhouse, near Bakersfield, Calif.....	188	Martis Creek near Truckee, Calif.....	100
near Democrat Springs, Calif.....	187	Masterson Hollow Creek near Newville, Calif.....	332
near Kernville, Calif.....	42,181	Matadero Creek at Palo Alto, Calif.....	153
near Quaking Aspen Camp, Calif.....	178	Maxwell Creek at Coulterville, Calif....	245
South Fork, near Olancha, Calif.....	184	Melones Reservoir at Melones Dam, Calif.....	275
near Onyx, Calif.....	184	Merced River, at Bagby, Calif.....	244
tributary near Miracle Hot Springs, Calif.....	187	at Exchequer, Calif.....	246
Kings River, above North Fork, Calif..	202	at Happy Isles Bridge, near Yosemite, Calif.....	241
below North Fork, Calif.....	212	at Pohono Bridge, near Yosemite, Calif.....	241
below Pine Flat Dam, Calif.....	216	near Stevenson, Calif.....	247
North Fork, above Dinkey Creek, at Balch Camp, Calif.....	210	South Fork, at Wawona, Calif.....	242
below Dinkey Creek, near Balch Camp, Calif.....	211	near El Portal, Calif.....	243
near Cliff Camp, Calif.....	205	Merced River Slough near Newman, Calif.....	248
Kingsbury Creek near Twain, Calif.....	357	Miami Creek near Oakhurst, Calif.....	231
Kirkwood Creek near Silver Lake, Calif.....	401	Middle Tuolumne River at Oakland Recreation Camp, Calif.....	257
		Middle Yuba River, above Oregon Creek, Calif.....	365
		at Milton, Calif.....	363
		near Alleghany, Calif.....	364
		Mill Creek (tributary to Kings River) near Piedra, Calif.....	216

	Page		Page
Mill Creek (tributary to Middle Fork Eel River) tributary near Covelo, Calif.....	A461	Pilot Creek, above Stumpy Meadows Reservoir, Calif.....	A396
Mill Creek (tributary to Sacramento River) near Los Molinos, Calif..	327	below Mutton Canyon, near Georgetown, Calif.....	396
Mill Creek (tributary to Spanish Creek) near Quincy, Calif.....	356	Pine Creek at division box, near Bishop, Calif.....	73
Millberry Creek at Markleeville, Calif.....	91	Pine Flat Reservoir near Piedra, Calif.....	215
Millerton Lake at Priant, Calif.....	230	Pinole Creek at Pinole, Calif.....	174
Mokelumne River, at Lancha Plana, Calif.....	294	Pinole Creek basin, records.....	56,174-175
at Woodbridge, Calif.....	296	Pit River near Montgomery Creek, Calif.....	308
below Camanche Dam, Calif.....	295	Pitman Creek below Tamarack Creek, Calif.....	224
Middle Fork, at West Point, Calif..	291	Pleasants Creek near Winters, Calif....	429
near Mokelumne Hill, Calif.....	293	Poorman Creek near Washington, Calif..	375
North Fork, below Salt Springs Dam, Calif.....	288	Pope Creek near Pope Valley, Calif....	425
South Fork, near West Point, Calif..	292	Poso Creek near Oildale, Calif.....	189
Mon Canyon Creek near Oildale, Calif..	189	Precipitation.....	4-9
Mono Creek below Lake Thomas A. Edison, Calif.....	220	Prosser Creek, at Hobart Mills, Calif..	100
Mono Lake basin, records.....	50,76-77	near Boca, Calif.....	101
Moro Cojo Slough tributary near Castroville, Calif.....	131	Purisima Creek near Half Moon Bay, Calif.....	148
Morrison Creek near Sacramento, Calif.	305	Putah Creek, near Guenoc, Calif.....	424
Mountain House Creek, near Midway, Calif.....	287	near Winters, Calif.....	428
tributary near Altamont, Calif.....	286	tributary near Whispering Pines, Calif.....	422
Murray Creek near San Andreas, Calif..	283	tributary No. 2 near Winters, Calif..	428
Nacimiento River, below Nacimiento Dam, near Bradley, Calif.....	124	Pyramid and Winnemucca Lakes basin, records.....	51,97-112
near Bryson, Calif.....	123	Pyramid Lake near Nixon, Nev.....	97
Napa River, near Napa, Calif.....	432	Rancheria Creek near Boonville, Calif..	453
near St. Helena, Calif.....	430	Rat Creek near Lucia, Calif.....	117
Napa River basin, records.....	69,430-433	Red Bank Creek near Red Bluff, Calif....	324
Navarro River, near Navarro, Calif.....	454	Red Clover Creek near Genesee, Calif....	353
Navarro River basin, records.....	70,453-454	Redwood Creek (tributary to Corte Madera Creek) near Tamalpais Valley, Calif.....	437
Nicasio Creek near Nicasio, Calif.....	437	Redwood Creek (tributary to Napa Creek) near Napa, Calif.....	433
North-coastal California, records.....	15,	Redwood Creek (tributary to San Francisco Bay) at Redwood City, Calif.....	149
32,69-71,430-465.		Redwood Gulch near Jolon, Calif.....	117
North Shitetail Creek near Dutch Flat, Calif.....	389	Rheem Creek at San Pablo, Calif.....	173
North Yuba River, below Bullards Bar Dam, Calif.....	370	Robinson Creek at Twin Lakes Outlet, near Bridgeport, Calif.....	80
below Goodyears Bar, Calif.....	368	Rock Creek (tributary to North Fork Kings River) at Dinkey Creek, Calif.....	211
tributary near Goodyears Bar, Calif.	368	Rock Creek (tributary to North Fork Yuba River) at Goodyears Bar, Calif.....	367
Novato Creek near Novato, Calif.....	435	Rock Creek (tributary to Owens River) at Little Round Valley, near Bishop, Calif.....	72
Noyo River near Fort Bragg, Calif.....	457	Roscoe Creek near Bodega Bay, Calif....	438
Oak Run Creek near Oak Run, Calif.....	314	Ross Creek at San Jose, Calif.....	158
Onion Creek, near Soda Springs, Calif. tributary No. 1 near Soda Springs, Calif.....	387	Rubicon River, at Rubicon Springs, near Meeks Bay, Calif.....	392
tributary No. 2 near Soda Springs, Calif.....	386	near Foresthill, Calif.....	398
tributary No. 3 near Soda Springs, Calif.....	385	near Georgetown, Calif.....	395
tributary No. 5A near Soda Springs, Calif.....	384	South Fork, below Gerle Creek, near Georgetown, Calif.....	394
tributary No. 7 near Soda Springs, Calif.....	385	Rush Creek above Grant Lake, near June Lake, Calif.....	76
Oregon Creek near North San Juan, Calif.....	368	Russian River, East Fork, near Calpella, Calif.....	441
Orestimba Creek near Newman, Calif....	248	East Fork, near Ukiah, Calif.....	441
Outlet Creek near Longvale, Calif.....	458	tributary near Potter Valley, Calif.....	440
Owens Lake basin, records.....	50,72-75	near Cloverdale, Calif.....	444
Pacheco Creek, near Dunneville, Calif.	132	near Guerneville, Calif.....	449
Pacheco Creek basin, records.....	56,175-177	near Healdsburg, Calif.....	446
Packsaddle Canyon Creek near Fairview, Calif.....	180	near Hopland, Calif.....	442
Pajaro River, at Chittenden, Calif....	139	near Ukiah, Calif.....	439
near Gilroy, Calif.....	134	Russian River basin, records.....	69,439-451
Pajaro River basin, records.....	53,131-141	Sacramento River, at Butte City, Calif.	334
Paradise Creek near Paradise Camp, Calif.....	73	at Colusa, Calif.....	335
Pardee Reservoir near Valley Springs, Calif.....	294	at Delta, Calif.....	307
Patterson Creek at Union City, Calif..	171	at Keswick, Calif.....	311
Paynes Creek near Red Bluff, Calif....	322	at Knights Landing, Calif.....	338
Pescadero Creek, near Pescadero, Calif.....	147	at Sacramento, Calif.....	410
tributary near La Honda, Calif.....	146	at Verona, Calif.....	382
Pescadero Creek basin, records.....	54,146-148	below Wilkins Slough, Calif.....	337
Petaluma River at Petaluma, Calif.....	435	near Red Bluff, Calif.....	323
Phipps Creek near Lower Lake, Calif....	417	Sacramento River basin, records....	63,306-429
Picayune Creek near Coarsegold, Calif.	232		

	Page		Page
Sacramento Valley, records.....	Al3, 27,63-68,306-429.	Shasta Lake near Redding, Calif.....	A310
Sacramento weir spill to Yolo bypass		Shaver Lake near Big Creek, Calif.....	225
near Sacramento, Calif.....	382	Shingle Creek near Shingletown, Calif..	317
Sagehen Creek near Truckee, Calif.....	103	Shirley Creek tributary near Alta	
Salinas River, near Bradley, Calif.....	126	Sierra, Calif.....	183
near Spreckels, Calif.....	130	Silver Creek (Carson River basin) below	
Salinas River basin, records.....	53,121-130	Pennsylvania Creek, near	
Salmon Creek (tributary to Kern		Markleeville, Calif.....	91
River), tributary B near Fair-		Silver Creek (Sacramento River basin),	
view, Calif.....	182	below Camino diversion dam, Calif.	405
tributary C near Fairview, Calif.....	182	South Fork, near Ice House, Calif....	405
tributary E near Fairview, Calif.....	182	Silver Falls Creek near Sonora Junction,	
Salmon Creek (tributary to Pacific		Calif.....	85
Ocean) at Bodega, Calif.....	439	Silver Lake Outlet near Kirkwood,	
Salt Creek near Williams, Calif.....	338	Calif.....	400
Salt Slough near Los Banos, Calif.....	234	Slate Creek below diversion dam, near	
Salt Springs Reservoir near West		Strawberry Valley, Calif.....	369
Point, Calif.....	287	Slide Creek near Ukiah, Calif.....	442
San Antonio Creek (tributary to		Slinkard Creek tributary near Topaz,	
Alameda Creek) near Sunol,		Calif.....	87
Calif.....	166	Sly Creek Reservoir near Strawberry	
San Antonio Creek (tributary to South		Valley, Calif.....	346
Fork Calaveras River) near San		Smoky Jack Creek near Yosemite Village,	
Andreas, Calif.....	280	Calif.....	256
San Antonio River, at Pleyto, Calif....	125	Sonoma Creek, at Boyes Hot Springs,	
at Sam Jones Bridge, near Lockwood,		Calif.....	434
Calif.....	124	near Kenwood, Calif.....	434
tributary near Pleyto, Calif.....	126	Soquel Creek, at Soquel, Calif.....	143
San Benito River near Hollister,		West Branch, near Soquel, Calif.....	142
Calif.....	138	Soquel Creek basin, records.....	54,142-143
San Domingo Creek near San Andreas,		South Cow Creek near Millville,	
Calif.....	279	Calif.....	314
San Francisquito Creek, at Stanford		South Honcut Creek near Bangor, Calif..	362
University, Calif.....	153	South Yuba River, at Jones Bar, Calif..	376
below Ladera damsite, near Stanford		near Cisco, Calif.....	372
University, Calif.....	150	near Washington, Calif.....	374
tributary near Stanford University,		tributary near Soda Springs, Calif....	371
Calif.....	151	Spanish Creek, above Blackhawk Creek,	
San Francisquito Creek basin, records.	54, 150-153.	at Keddie, Calif.....	357
San Joaquin River, above Shakeflat		near Quincy, Calif.....	356
Creek, near Big Creek, Calif.....	222	Squaw Creek above Shasta Lake, Calif..	308
above Willow Creek, near Auberry,		Stanislaus River, at Ripon, Calif.....	278
Calif.....	226	below Goodwin Dam, near Knights	
at Fremont Ford Bridge, Calif.....	238	Perry, Calif.....	277
at Miller Crossing, Calif.....	217	below Melones powerhouse, near	
below Friant, Calif.....	230	Sonoma, Calif.....	276
below Kerckhoff powerhouse, near		Clark Fork, near Dardanelle, Calif....	264
Prather, Calif.....	229	Middle Fork, at Hells Half Acre	
near Newman, Calif.....	248	Bridge, Calif.....	267
near Vernalis, Calif.....	278	at Kennedy Meadows, near Dardanelle,	
South Fork, near Florence Lake,		Calif.....	264
Calif.....	218	at Sand Bar Flat, near Avery, Calif.	269
San Joaquin River basin, records..	58,217-306	below Beardsley Dam, Calif.....	268
San Joaquin Valley, records.....	11, 23,56-63,178-306.	North Fork, below Ganns damsite,	
San Lorenzo Creek (tributary to		Calif.....	272
Salinas River) below Bitterwater		below Silver Creek, Calif.....	270
Creek, near King City, Calif.....	128	near Avery, Calif.....	43,273
tributary near Bitterwater, Calif....	127	tributary near Lake Alpine, Calif..	269
San Lorenzo Creek (tributary to San		South Fork, at Strawberry, Calif.....	274
Francisco Bay) at Hayward,		near Long Barn, Calif.....	274
Calif.....	172	Steamboat Creek at Steamboat, Nev....	108
San Lorenzo River, at Big Trees,		Steep Creek near Laytonville, Calif....	464
Calif.....	144	Stevens Creek Reservoir near Monte	
tributary near Boulder Creek, Calif.	144	Vista, Calif.....	154
San Lorenzo River basin, records.....	54, 144-145.	Stone Corral Creek near Sites, Calif....	338
San Luis Creek near Los Banos, Calif..	240	Stony Creek, below Black Butte Dam,	
San Marcos Creek tributary near Paso		near Orland, Calif.....	333
Robles, Calif.....	122	near Fruto, Calif.....	332
San Ramon Creek, at San Ramon, Calif..	175	near Hamilton City, Calif.....	333
at Walnut Creek, Calif.....	176	Storage regulation.....	36
Sand Creek near Paraiso Springs,		Strawberry Creek near Wawona, Calif..	243
Calif.....	129	Sugarpine Creek near Long Barn, Calif..	260
Santa Rita Creek near Templeton,		Sulphur Creek near St. Helena, Calif....	430
Calif.....	121	Sulphur Springs Canyon near Jolon,	
Santa Rosa Creek (tributary to Pacific		Calif.....	124
Ocean) near Cambria, Calif.....	116	Summit Creek near Mineral, Calif.....	321
Santa Rosa Creek (tributary to Russian		Susan River at Susanville, Calif.....	113
River) near Santa Rosa, Calif....	449	Sutter Creek near Sutter Creek, Calif..	297
Sapaque Creek tributary at Bryson,		Swager Creek near Bridgeport, Calif....	82
Calif.....	123	Sweetland Creek near North San Juan,	
Saratoga Creek at Saratoga, Calif.....	162	Calif.....	370
Scarot Creek above Little Creek, near		Sycamore Creek above Pine Flat Reser-	
Davenport, Calif.....	146	voir, Calif.....	214
Scotts Creek near Lakeport, Calif.....	413	Tamarack Creek, South Fork tributary	
Sharon Creek near Menlo Park,		near Big Creek, Calif.....	224
Calif.....	149	Teakettle Creek, at site No. 3, near	
		Patterson Mountain, Calif.....	205
		tributary No. 1 near Patterson	
		Mountain, Calif.....	209

	Page		Page
Teakettle Creek, tributary No. 2 near Patterson Mountain, Calif.....	A207	Virginia Creek near Bridgeport, Calif..	A78
tributary No. 2A near Patterson Mountain, Calif.....	208	Walker Creek near Tomales, Calif.....	438
tributary No. 7 near Patterson Mountain, Calif.....	206	Walker Lake, near Hawthorne, Nev.....	77
Tenmile Creek near Laytonville, Calif.	465	Walker Lake basin, records.....	50, 77-90
Thomes Creek, at Paskenta, Calif.....	328	Walker River near Wabuska, Nev.....	90
tributary at Paskenta, Calif.....	328	Walnut Creek at Walnut Creek, Calif....	177
Topaz Reservoir near Topaz, Calif.....	88	Ward Creek tributary near Cazadero, Calif.....	450
Truckee River, at Farad, Calif.....	105	Warner Creek near Fort Bragg, Calif....	457
at Reno, Nev.....	107	Wellman Creek near Smartville, Calif....	381
at Tahoe City, Calif.....	98	West Walker River, at Hoyer bridge, near Wellington, Nev.....	88
at Vista, Nev.....	110	at Leavitt Meadows, near Coleville, Calif.....	84
below Derby Dam, near Wadsworth, Nev.....	111	below Little Walker River, near Coleville, Calif.....	86
near Nixon, Nev.....	112	near Coleville, Calif.....	87
near Truckee, Calif.....	99	near Hudson, Nev.....	89
tributary near Truckee, Calif.....	99	Whiskey Creek near Termo, Calif.....	115
Tulare Lake basin, records.....	57, 189-217	Whites Creek near Steamboat, Nev.....	109
Tule River, below Success Dam, Calif..	194	Willow Creek (tributary to Middle Fork Feather River), tributary near Blairsden, Calif.....	340
Middle Fork, North Fork of, near Springville, Calif.....	190	Willow Creek (tributary to Montgomery Creek) near Round Mountain, Calif.....	307
near Springville, Calif.....	191	Willow Creek (tributary to San Joaquin River) at mouth, near Auberry, Calif.....	228
North Fork, at Springville, Calif.....	191	North Fork, near Bass Lake, Calif.....	227
South Fork, near Success, Calif.....	192	Willow Creek (tributary to Susan River) near Susanville, Calif.....	114
tributary near Success, Calif.....	195	tributary near Susanville, Calif.....	114
Tulloch Reservoir near Knights Ferry, Calif.....	277	Willow Glen Creek near Rackerby, Calif.....	378
Tumbleweed Creek near Oildale, Calif..	188	Wilson Creek near Mina, Calif.....	463
Tuolumne River, above La Grange Dam, near La Grange, Calif.....	262	Winding Creek near Camp Nelson, Calif.....	190
at Modesto, Calif.....	263	Windmill Canyon Creek near Patterson, Calif.....	250
near Hetch Hetchy, Calif.....	252	Wishon Reservoir near Cliff Camp, Calif.....	204
North Fork, above Dyer Creek, near Tuolumne, Calif.....	260	Wolf Creek near Volta, Calif.....	239
near Long Barn, Calif.....	259	Woodruff Creek at Goodyears Bar, Calif.....	367
South Fork, near Oakland Recreation Camp, Calif.....	256	Woods Creek near Jacksonville, Calif....	261
Union Valley Reservoir near Riverton, Calif.....	403	Wyman Ravine tributary near Palermo, Calif.....	362
Upper Castle Creek at Soda Springs, Calif.....	371	Yolo bypass near Woodland, Calif.....	422
Upper Penitencia Creek at San Jose, Calif.....	165	Yuba River, at Englebright Dam, Calif..	377
Upper Twin Lake near Bridgeport, Calif.....	79	near Marysville, Calif.....	379
Uvas Creek, above Uvas Reservoir, near Morgan Hill, Calif.....	135	Zayante Creek at Zayante, Calif.....	144
near Gilroy, Calif.....	137		
Uvas Reservoir near Morgan Hill, Calif.....			
Vale Gulch tributary near Red Bank, Calif.....	324		