FLOODS OF JANUARY -- FEBRUARY 1963
IN
CALIFORNIA AND NEVADA

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

FLOODS OF JANUARY-FEBRUARY 1963 IN CALIFORNIA AND NEVADA

by S. E. Rantz and E. E. Harris

Open-file report

U. S. Geological Survey
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FLOODS OF JANUARY-FEBRUARY 1963 IN CALIFORNIA AND NEVADA

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ABSTRACT

Widespread flooding occurred in central California and northwestern Nevada during January 31 - February 1, 1963, as a result of intense precipitation of about 72 hours duration. The flood-producing storm was of the warm type, with precipitation falling as rain at altitudes as high as 8,000 feet. The heavy precipitation, totaling as much as 20 inches or more in the Sierra Nevada, fell on frozen ground or on the sparse snowpack that existed in the higher altitudes. The response of runoff to rainfall was dramatic, as streams throughout the area rose rapidly. Hardest hit were the basins of the American, Yuba, and Truckee Rivers, where flood peaks either reached record-breaking heights or rivalled the discharges attained in the memorable floods of November 1950 and December 1955. Because of the relatively short duration of the storm, the volume of flood flow in 1963 was not outstanding.

Ten deaths were attributed to the storm or flood. Preliminary estimates indicate damage in excess of $16 million in foothill and valley areas, but no attempt has yet been made to assess the heavy damage to highways and drainage structures in the mountain areas. The U. S. Army, Corps of Engineers estimates that its operation of flood-control facilities prevented additional damage of $236 million. Other reservoirs, operated primarily for water conservation or power production, were also instrumental in preventing damage.

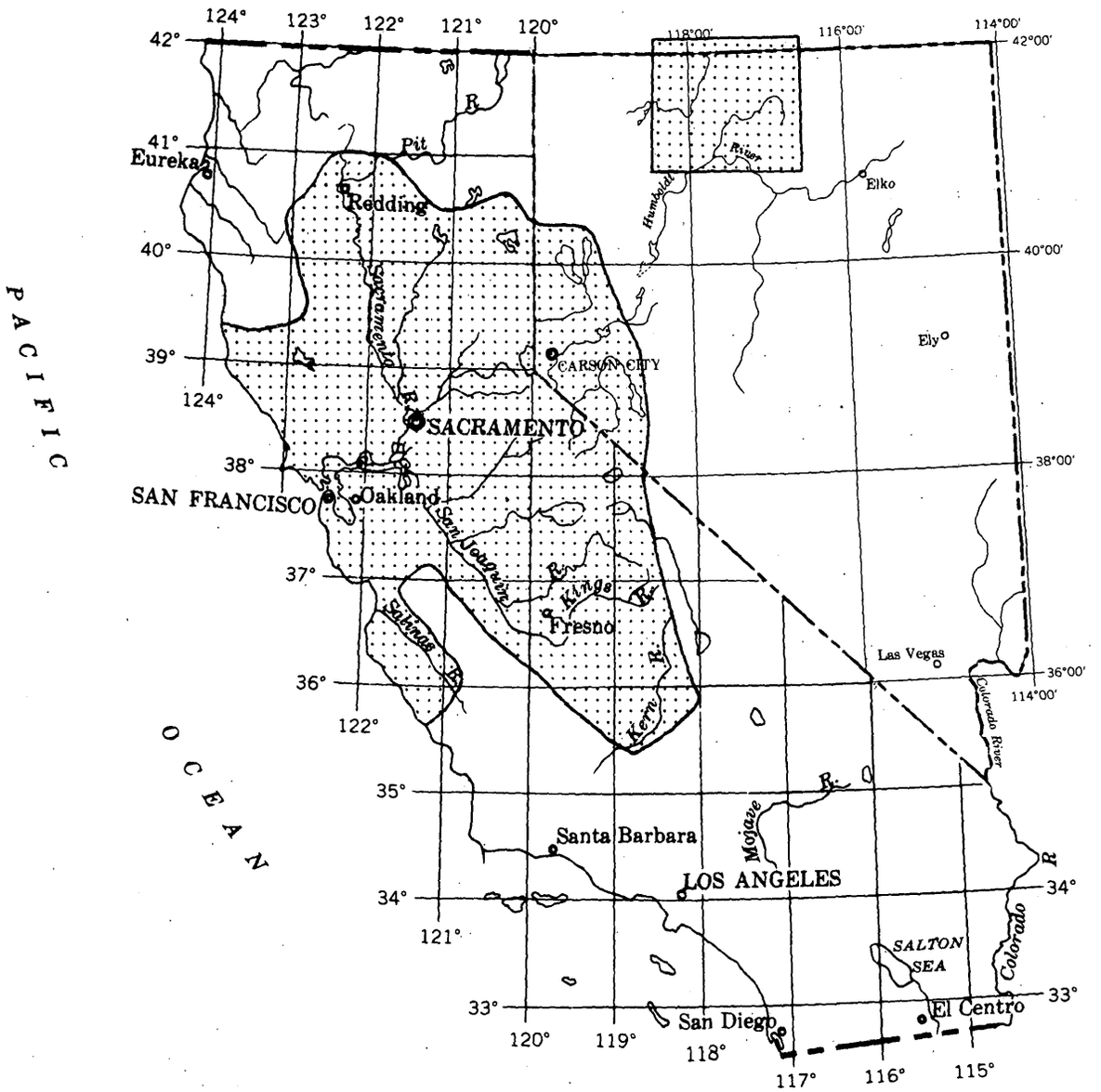
INTRODUCTION

Purpose and Scope

The floods of January-February, 1953, brought damage to large areas in central California and northwestern Nevada (fig. 1). The major flood-affected area includes the basins of California streams and of those Nevada streams that have their source in the Sierra Nevada; the smaller flood-affected area in northern Nevada includes the basins of the Little Humboldt and Quinn Rivers.

In both California and Nevada, those agencies that are concerned with flood control or with the design of structures within the reach of flood waters are now planning remedial measures to reduce the damage from future floods of similar magnitude. It is in the public interest that those agencies be furnished data for the 1963 floods, with as little delay as possible, so as to expedite their task. In recognition of the pressing need for flood information, this interim report presents all flood data available in the files of the U. S. Geological Survey, as of March 8, 1963.

The discharge figures presented are provisional and the areal coverage is not complete. There was insufficient time before the deadline date for this report for the computation of the discharge hydrographs at many stations;



EXPLANATION

Flood-affected area

Figure 1.--Location of flood-affected areas.

consequently, detailed data for the flood hydrographs are tabulated for 23 key sites only, all of them in the major flood-affected area (fig. 2). Values of peak discharge only are listed for other gaging stations. The list of peak discharges, however, is not complete. Indirect measurements of peak flow were necessary at many sites, and many field surveys still remain to be completed.

Acknowledgments

The data in this report were collected as part of the cooperative programs between the U. S. Geological Survey and various Federal, State, county, and municipal agencies. The report was prepared under the supervision of Walter Hofmann, district engineer of the Surface Water Branch in California, and G. F. Worts, district chief of the Water Resources Division in Nevada. Area flood specialist for the Water Resources Division, Harry Hulsing, coordinated the field surveys and office computations.

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

FLOODS IN CALIFORNIA AND WESTERN NEVADA

Description of the Storm

As late as January 27, 1963 California and western Nevada were experiencing one of their worst winter droughts in 100 years. The water year had started auspiciously with record-breaking rains in northern California in early October. Very little precipitation was recorded, however, during the following months and there was mounting concern for the water supply for the ensuing summer as December passed and January wore on without the usual winter storms. The first rainfall in 1963 occurred on January 28 to terminate 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 frontal systems of the warm type were involved. The first crossed California on January 30 and was centered over the Yuba, American, and Truckee River basins; the second, centered about 150 miles to the south over the Kaweah, Tule, and Kern River basins, crossed the state on January 31. The rains ceased on February 2. Almost all the precipitation, however, was concentrated in a 72-hour period between January 29 and February 1. The freezing level, or snow line, during the storm was at the 8,000 foot level and what little snow had previously accumulated at the lower altitudes was for the most part melted. Precipitation was orographically influenced, and several precipitation stations in the Sierra Nevada reported storm totals in excess of 20 inches. Most notable was the 27.15 inches reported at Westfall Ranger Station in the Sierra National Forest, California.

At the time this report was completed, relatively few complete storm reports were available for precipitation stations in the U. S. Weather Bureau network. In general, however, precipitation in coastal California ranged from 4 to 10 inches, on the west flank of the Sierra Nevada from 10 to 20 inches, on the east flank of

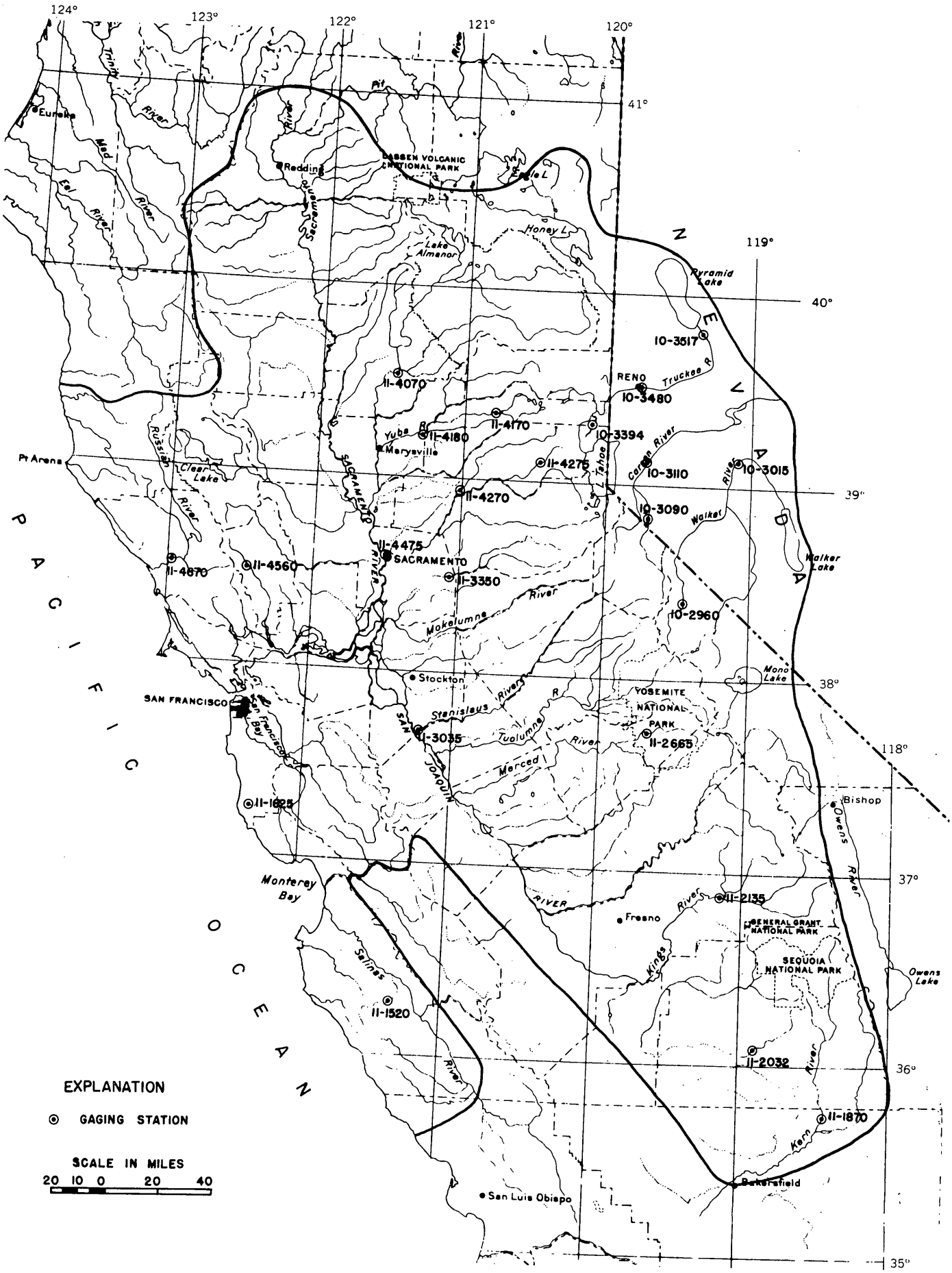


Figure 2.--Location of gaging stations for which detailed flood data is given in this report.

the Sierra Nevada from 5 to 15 inches, and on the valley floors of central California and Nevada from ½ to 4 inches. Figure 3 is an isohyetal map for the storm period of January 29 - February 2, based on incomplete advance precipitation data furnished by the U. S. Weather Bureau and U. S. Army, Corps of Engineers. Because of the small scale of the map and the great variation in precipitation over small areas that results from orographic influences, the isohyets are, of necessity, highly generalized.

Description of the Floods

At the higher elevations where the heaviest rainfall was concentrated, 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 frozen at altitudes above 4,000 feet on the west slope and above 6,000 feet on the east slope of the Sierra Nevada. The response of runoff to the intense rainfall was therefore dramatic. Streams rose rapidly and large areas changed quickly from a condition of potential drought to one of flood. The rain-swollen rivers surged through hundreds of evacuated homes in northern California, pushed against hurriedly built sand-bag dikes in Reno, Nevada, and blocked traffic on main east-west highway and rail routes across the Sierra. Hardest hit were the basins of the American, Yuba and Truckee Rivers. Flood peaks in many areas either reached record-breaking heights or rivalled the discharges attained in the memorable floods of November 1950 and December 1955.

Some generalizations may be made concerning the runoff patterns of the floods in the various 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 which was followed by the major peak. In the coastal basins south of San Francisco Bay there were 2 major peaks preceded by one or more minor rises. In the Sacramento and San Joaquin River basins there was only a single major peak, whereas 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 the major rise.

The principal difference between this flood and those of 1950 and 1955 was in the volume of storm runoff produced. Because the 1963 storm was of relatively short duration, the volume of runoff was not particularly notable. Nevertheless, reservoir storage attained a high level, and as of March 1963 this is the one bright aspect of what is otherwise a bleak outlook for the Sierra 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 of the flood-affected area. The various basins in each region are discussed in the downstream order used by the Geological Survey in its annual reports.

Great Basin

The Great Basin streams discussed in this section of the report are those that drain the east slope of the Sierra Nevada.

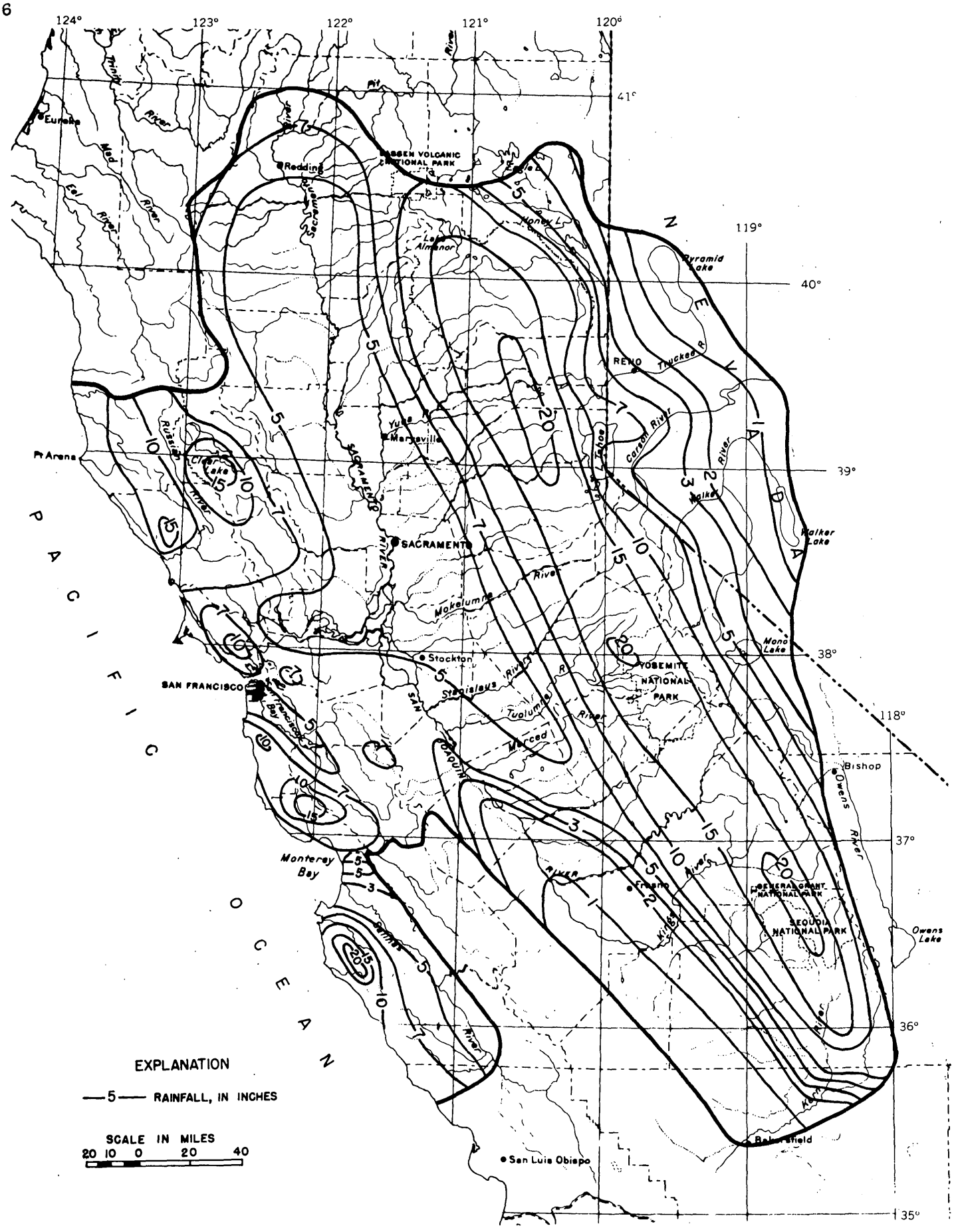


Figure 3.--Isohyetal map for storm of January 29 - February 2, 1963.

In general, peak discharges in the Walker River basin did not exceed those for previous high floods. The data available at this time indicate that discharges greater than those previously recorded were attained only at the gaging stations on Buckeye Creek and Little Walker Creek, near Bridgeport. Bridgeport Reservoir on the East Walker River stored about 13,500 acre-feet of flood runoff. Release from the reservoir began on February 2 and was gradually increased to 650 cfs (cubic feet per second) on February 5. About 13,000 acre-feet of the flood runoff was diverted from West Walker River into Topaz Lake. Release from Topaz Lake was minimal, about 25 cfs for stock water.

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

Serious flooding also occurred in the Carson River basin. Heavy rains falling on frozen ground produced exceptionally high peak discharges in the upper basin at altitudes above 5,000 feet. At the lower altitudes the peak flows were generally less than those reached in the flood of December 1955. The rapidly rising streams, carrying heavy debris loads, caused extensive damage to roads, bridges, and irrigation works in the vicinity of Minden and Gardnerville, Nevada. These communities were isolated for several days when U. S. Highway 395 and State Route 88 were inundated.

Peak discharges, exceeding the maximum previously recorded, occurred at the gaging stations on Silver Creek below Pennsylvania Creek near Markleeville, Calif., and Clear Creek near Carson City, Nev. The peak flow for the Carson River near Carson City was 74 percent of that attained in the December 1955 flood. Storage in Lahontan Reservoir on February 28 was 234,000 acre-feet, which represented an increase in storage of 49,000 acre-feet since January 31, 1963.

Major flooding occurred throughout the Truckee River basin. Peak flows exceeded the maximum previously recorded at several gaging stations on both the main stem and tributaries. Storage in Lake Tahoe, Donner Lake, Boca, and Prosser Creek Reservoirs retarded much of the runoff, thereby lessening flood damage in the downstream urban areas. During the period January 28 - February 4 these four reservoirs stored a combined total of about 190,000 acre-feet. The volume of runoff recorded at the Truckee River gage at Reno during this same period was 64,400 acre-feet, and the peak discharge of 18,400 cfs was only slightly less than that during the great flood of December 1955. The newly constructed Prosser Creek Reservoir began storing water on January 31 and accumulated a total of 16,500 acre-feet during the flood period. It is apparent that had Prosser Creek Reservoir not been in operation, the flood peak of February 1 would have exceeded that of 1955 at Reno. Discharge hydrographs for the Truckee River at Reno and near Nixon are shown on figure 4.

Extensive flooding occurred in the city of Reno, and about 20 square blocks in the downtown area were inundated to depths up to 4 feet (fig. 5). Ten of the twelve bridges in the city were closed for an extended period. Considerable damage to roads, bridges, and irrigation structures occurred in Washoe Valley and Truckee Meadows. Channel rectification work on the Truckee River main stem and on lower

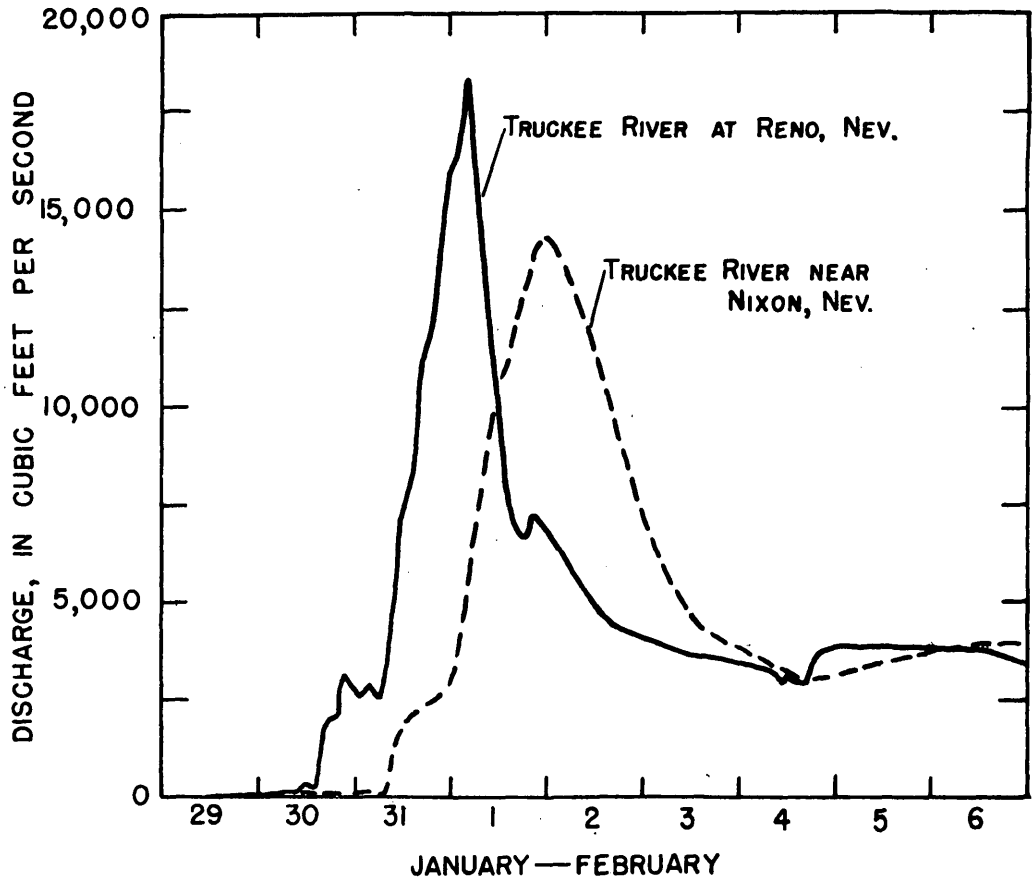


Figure 4.--Discharge hydrographs for the Truckee River.

Photo courtesy of Nevada State Journal

Figure 5.--Truckee River flooding downtown Reno, Nev.

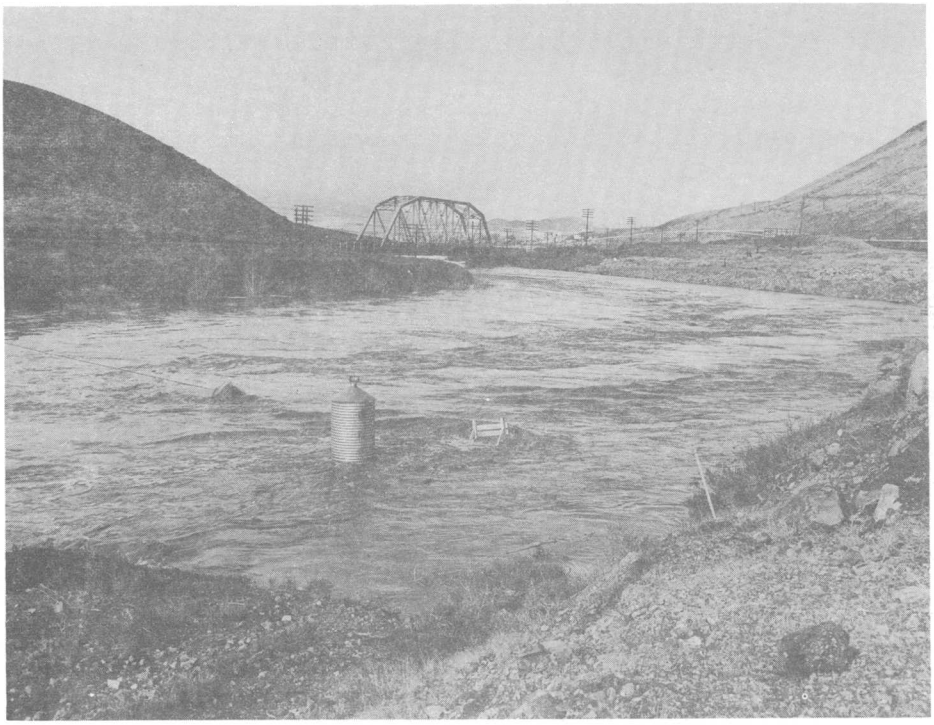


Photo by U. S. Geological Survey

Figure 6.--Photograph taken near time of flood crest, showing gaging station on Truckee River at Vista, Nev.

Steamboat Creek, completed after the flood of December 1955, was instrumental in draining Truckee Meadows much more rapidly than in previous periods of high water.

Central Coast

The Central Coast region in California is the designation used in this report for those Pacific slope drainage basins that lie south of San Francisco Bay.

In the Sur River basin, the heavy rainfall caused the river to slightly exceed bankfull stage from the State park to the mouth. The peak discharge, 5,390 cfs, closely approximated the highest recorded flow, that of April 1958. A brief flood threat existed at park headquarters when overflow from the Sur River reached the threshhold of the administration building, but the river then receded and no damage of consequence resulted. Highway 1 just south of Sur River was closed to traffic as a result 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 Highway 1 bridge the river surged to within 2 feet of the peak it attained during the disastrous flood of April 1958. Hundreds of emergency workers placed sand bags on levees, cleared debris from bridge openings, and patrolled low-lying areas until the flood threat passed. Aside from the loss of Cooper Bridge, which was washed out, there was no serious damage in the basin.

In the Salinas River basin, heavy runoff occurred only in the downstream tributaries that enter the river from west. The Nacimiento River was completely controlled by Nacimiento Reservoir, but the San Antonio River and Arroyo Seco poured large quantities of water into the Salinas River. The discharge hydrograph for the latter stream, whose peak discharge of 24,300 cfs at the Soledad gaging station approached those attained in the floods of December 1955 and April 1958, is shown on figure 7. Along the lower reaches of the Salinas River minor flooding occurred. The mouth of the river was choked by a sand bar and at 0900 on February 1, the restricted flow went over its banks, inundating some farmlands to a depth of 3 feet. One hour later the river broke through its sand-bar constriction and the water subsided.

In the Pajaro River basin the higher runoff rates all occurred in the downstream tributaries that enter the river from the north. 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. Miller Slough in Gilroy went over its banks, closing Highway 101 and inundating the Walnut Lane subdivision and adjacent Gilroy High School. Families were evacuated as water up to 2 feet in depth entered 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-Be Lomond area and 70 homes were evacuated. At least one home 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 discharge of 13,000 cfs, was easily contained in the rectified channel between high levees. In nearby Soquel, Soquel Creek overflowed its banks, causing the evacuation of 15 homes and a trailer court.

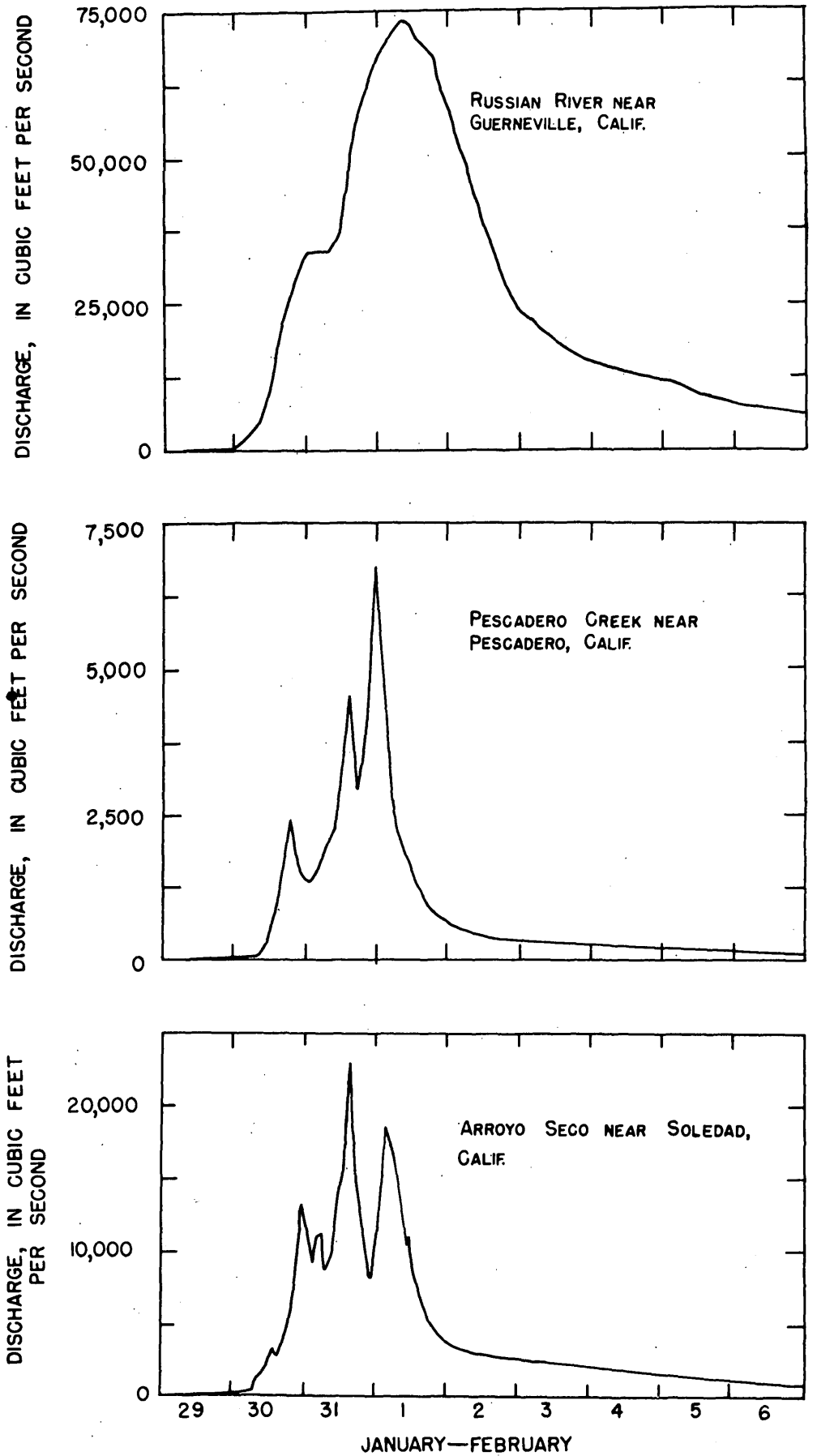


Figure 7.--Discharge hydrographs for selected coastal streams.

In the Santa Clara Valley, flood conditions were considerably alleviated in the Guadalupe River and Coyote Creek basins by the modifying effect of storage reservoirs operated by the Santa Clara Valley Water Conservation District. Guadalupe River threatened to overflow its banks at several places in San Jose and downstream merchants sandbagged their store fronts as a precautionary measure. The river subsided, however, without 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 becomes evident when it is realized that the only divide between Coyote Creek and 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 Guadalupe River, a high tide combined with the heavy runoff to fill the streets with as much as 4 feet of water. About 150 residents were evacuated from their homes. All of the minor streams in the Santa Clara Valley threatened to overtop their banks. At least 100 families along these streams left their homes as volunteer workers sandbagged banks and cleared drift from bridge openings (fig. 8). Streambank revetments were destroyed and streambank erosion was extensive.

North of the Santa Clara Valley and south of San Francisco Bay, there was considerable flooding but relatively minor damage. In various areas streets and roads were closed by high water or slides, streambanks were eroded, agricultural land was inundated, and some homes were damaged by mud and water. Over-taxed storm sewers caused local flooding in many urbanized areas (fig. 9).

San Joaquin Valley

In the Kern River basin, the peak inflow of the Kern River to Isabella Reservoir, about 36,000 cfs, exceeded the peak attained during the memorable flood of December 1955. The peak outflow from the reservoir, however, was regulated to 420 cfs, thereby preventing what would have been certain inundation in the city of Bakersfield. Nevertheless there was heavy damage in the sparsely-settled basin upstream from Isabella Reservoir. The Kern River Fish Hatchery was severely damaged and the 20-mile stretch of road between Kernville and Johnsondale was deeply gouged in a number of places by the surging flood waters. The discharge hydrograph for the Kern River at Kernville is shown on figure 11.

In the Tule River basin, the rapidly-rising river threatened the town of Springville and many families prepared to evacuate their homes. However, the river receded before reaching a damaging flood stage. Downstream from Springville, the peak inflow of the Tule River into Success Reservoir was 15,000 cfs; the controlled outflow was 3,000 cfs. While total damage in the basin was relatively light, widespread inundation would have occurred in the Porterville area if the recently-built Success Reservoir had not been operative.

In the Kaweah River basin, the town of Three Rivers on the main river narrowly escaped serious flooding as bulldozers threw up emergency dikes that were successful in containing the stream. Several families were evacuated, however, as a precautionary measure. Damage to roads and bridges was severe as the rampaging river and its tributaries, heavily laden with floating timbers and other debris, spilled over their banks in many places. Newly-built Terminus Reservoir, downstream

Photo courtesy of San Jose Mercury-News

Figure 8.--Campbell police place sandbags along San Tomas Aquina Creek, Campbell, Calif.

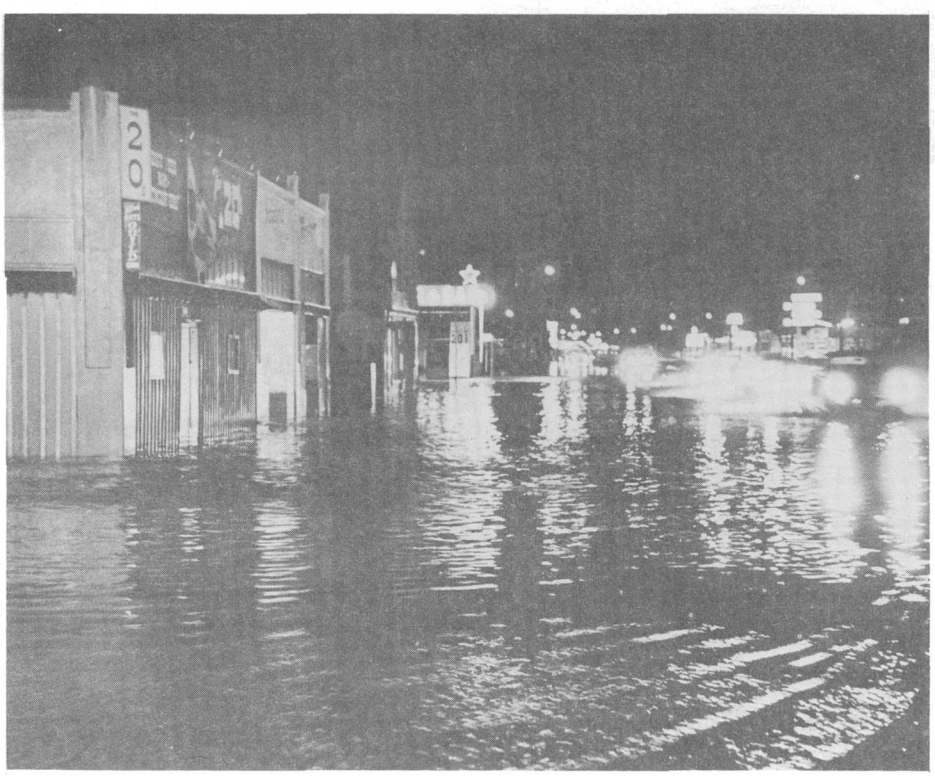


Photo courtesy of Palo Alto Times

Figure 9.--Flooding in Menlo Park, Calif., caused by overtaxed storm sewers.

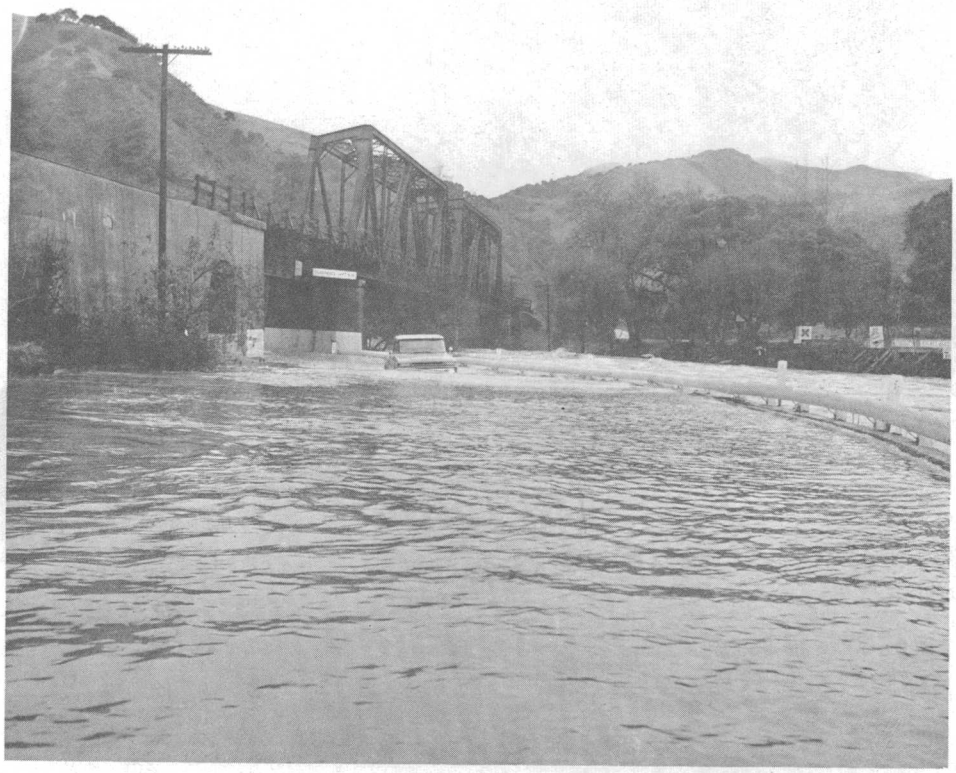


Photo courtesy of Oakland Tribune

Figure 10.--Alameda Creek flooding in the vicinity of Niles, Calif.

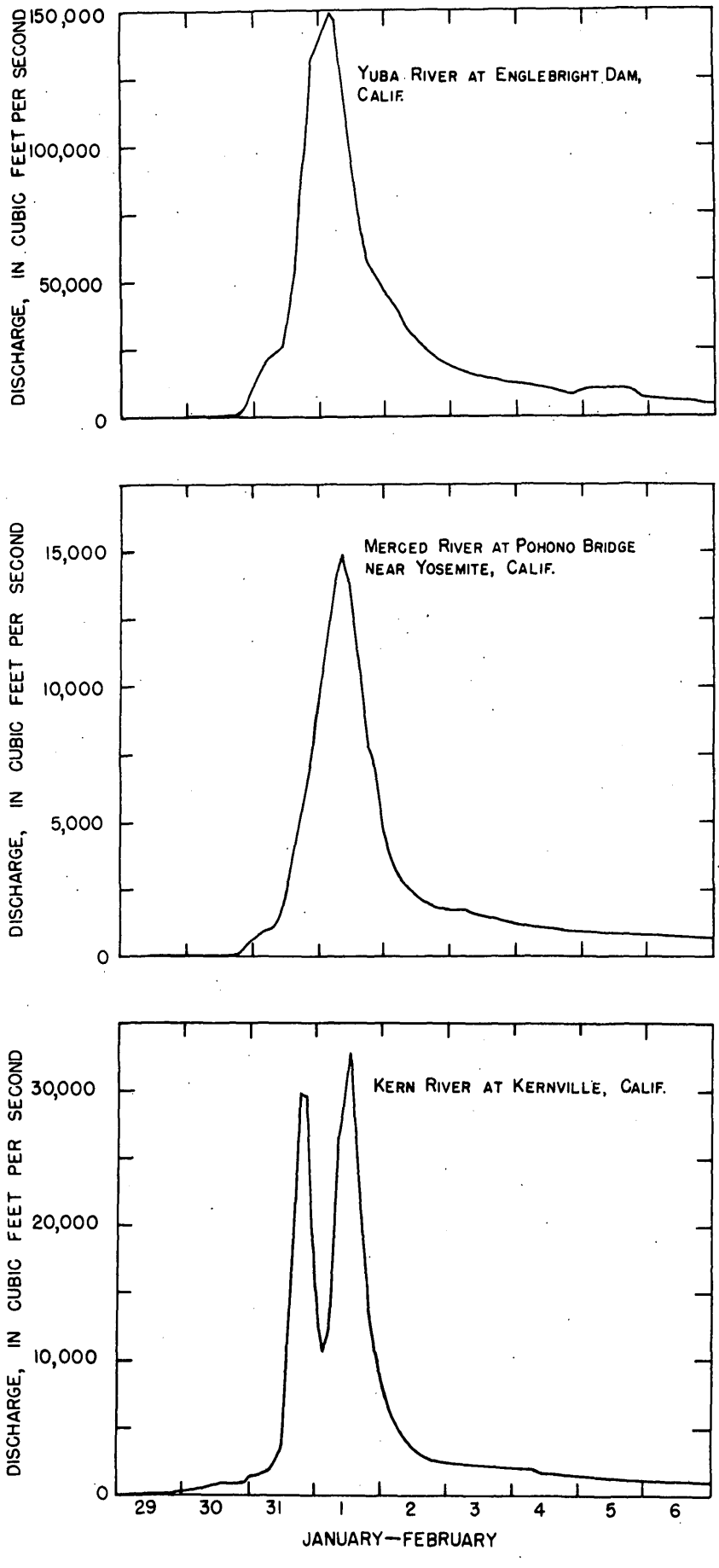


Figure 11.--Discharge hydrographs for selected streams in the Central Valley.

on the Kaweah River, had a peak inflow of 35,000 cfs. The controlled outflow from the reservoir was only 5,000 cfs, and the downstream city of Visalia therefore escaped inundation.

In the Kings River basin, roads and highways in the upper basin bore the brunt of the damage. At Pine Flat Reservoir on the Kings River, a peak inflow of 55,000 cfs was reduced to an outflow of 20 cfs, thereby sparing downstream areas from flooding.

In the upper San Joaquin River basin, public utility reservoirs operated for the generation of hydroelectric power contained much of the flow of the main river and its tributaries. This resulted in there being 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 capacity of the lower river to carry the flow of its downstream tributaries.

In the lower San Joaquin River basin, roads and highways again were the principal recipients of damage. Predicted flood stages on the Chowchilla and Fresno Rivers did not materialize, although both streams inundated roads in some area. 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 closed a section of 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 last-named river have large impounding reservoirs that were very effective in storing the flood waters that arrived. Consequently there was little inundation downstream from these reservoirs, and damage occurred primarily to highways and drainage structures in the upper reaches of the rivers. The discharge hydrograph for Merced River at Pohono Bridge near Yosemite is shown on figure 11.

The Cosumnes River, having no large impounding basins, was responsible for most of the damage that occurred on the San Joaquin Valley floor. At the Michigan Bar gaging station the peak discharge was 39,400 cfs, only 2,600 cfs less than the peak attained in December 1955. There was little contribution from tributary streams below Michigan Bar, and at the downstream McConnell gage the peak flow was only 26,200 cfs. The attenuation of the peak resulted from overbank storage in the reach between the gages, and damage to crops, agricultural lands, roads, and bridges was heavy.

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

Sacramento Valley

As in the San Joaquin Valley, the operation of flood-control facilities in the Sacramento Valley reduced tremendously the damage that would otherwise have 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, in comparison with a peak inflow of 193,000 cfs in December 1955. The peak outflow in 1963 from the reservoir was 11,000 cfs. In the 40-mile reach of river between Shasta Reservoir and the 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. At this point the channel capacity is 100,000 cfs; without the streamflow regulation afforded by Shasta Reservoir the peak discharge at the Red Bluff gage would have been 105,000 cfs. Because there was only moderately heavy inflow into the Sacramento River above the latitude of Chico, there was no flood control problem on the Sacramento River upstream from its confluence with the combined inflow of the Feather River and Sutter bypass.

Runoff in the Feather River basin was extremely high. As in most Sierra floods, the bulk of the runoff originated at altitudes above 4,000 feet, but during this flood the runoff from the lower foothill areas seemed to be disproportionately small. In the headwaters of the basin, the rampaging tributary streams overflowed roads and carried several homes away. Many families were trapped by the rapidly-rising waters, and when helicopter rescues failed, were rescued by boat. 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 project is being constructed, the Feather River peaked at a stage only 1 foot below that reached in the disastrous flood of December 1955. At the dam site a $100,000 temporary bridge was toppled and flood waters damaged access roads and construction equipment.

Downstream from Oroville, there was great apprehension in the Yuba City-Marysville area at the junction of the Yuba and Feather Rivers. There was reason for this apprehension. Still fresh was the memory of 38 drownings in the area when a levee failed during the 1955 flood. Also, the Yuba River, over whose basin the storm was centered, was reaching a record-breaking peak discharge that even exceeded that attained in 1955. However, no levee failures occurred (fig. 12); the Feather River, receiving only moderate inflow from drainage areas in the lower altitudes, crested at Marysville 4.4 feet lower than in 1955; and the danger passed. The discharge hydrograph for the Yuba River at Englebright Dam is shown on figure 11. In the upper Yuba River damage to roads and drainage structures was particularly costly. In a 25-mile length of Highway 49, the roadway was in many places reduced in width to less than one lane, and the bridge 12 miles west of Downieville was destroyed. U. S. Highway 40, paralleling the South Yuba River, was closed by flooding between Cisco and Donner Lake. At the resort settlement of Cisco Grove there was much devastation as the South Yuba River ripped through vacation homes.

There was heavy inflow into the Feather River between Marysville and the mouth. Bear River, the principal tributary in this stretch of river, had a peak discharge at the Wheatland gaging station of only 22,000 cfs after attenuation by the partly constructed Camp Far West Reservoir. This compares with a peak flow of 33,000 cfs in December 1955.

The Feather River peaked February 1 at 280,000 cfs at the downstream gaging station at Nicolas. Although this peak approached the disastrous 357,000 cfs peak of December 1955, there were no levee failures or major flood problems on the lower

Photo courtesy of U. S. Army, Corps of Engineers

Figure 12.--View of Marysville, Calif., during flood of February 1963.

Photo courtesy of U. S. Army, Corps of Engineers

Figure 13.--Flooding of agriculture lands in the vicinity of Marysville-Yuba City, Calif.

Feather River. The 280,000 cfs Feather River peak was augmented by Sacramento River overflow coming down the Sutter bypass. At the confluence of the Sacramento and Feather Rivers, most of the floodwater spilled over the Fremont weir into Yolo bypass. On the Sacramento River downstream from Fremont weir, the peak flow at the gaging station at Verona was 69,400 cfs February 1.

Downstream at Sacramento, the controlled Sacramento River flow plus large releases down the American River from Folsom Reservoir necessitated opening all the gates on the Sacramento weir. A peak discharge of 80,000 cfs passed over the Sacramento weir into Yolo bypass. The peak discharge in the Yolo bypass upstream from Sacramento weir was 163,000 cfs February 2. Yolo bypass at the point of measurement carries the flow from over Fremont weir and water entering from the Knights Landing Ridge Cut and from Cache Creek.

In the American River basin, the greatest peak flows since the deluge of 1862 were being experienced. In the upper basin the roaring tributary streams made a shambles of those roads within reach of the overflowing waters. Other roads, such as U. S. Highway 50 between Pacific House and Myers, were closed by storm-caused landslides. Newly-built Union Valley and Ice House Reservoirs in the Silver Creek basin, however, substantially reduced flood peaks on the South Fork American River downstream from the mouth of Silver Creek. At Folsom Reservoir in the foothills, American River inflow reached a record-breaking figure of 240,000 cfs. Controlled reservoir releases were increased from about 10,000 cfs at the time of peak inflow to a maximum of 101,000 cfs shortly after the peak.

Tributary inflow into the Sacramento River from the west was only moderately heavy. On Stony Creek, the gaging station near Fruto recorded a peak discharge of 16,000 cfs. There was little contribution to this flow from the drainage area above Stony Gorge Reservoir, which 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 outstanding peak discharges. One of these streams, Kelsey Creek, had a peak flow of 8,800 cfs, identical with that reached in the flood of December 1955. In the upper Putah Creek basin, Lake Berryessa retained virtually all the flow that reached it. The peak inflow to Lake Berryessa was 86,000 cfs; the controlled outflow was 10 cfs.

There was little damage in the delta region of the Sacramento River basin. In the Yolo bypass flood plain, a low-leveed island planted to 5,000-acres of asparagus was inundated.

North Coast

The North Coast region is the designation used in this report for those Pacific slope drainage basins in California that lie north of San Francisco Bay.

In the Napa River basin, the river had a record-breaking peak discharge of 12,800 cfs at the St. Helena gaging station and 19,000 cfs at the Napa gage. The river overflowed its banks, flooding downtown Napa and forcing the evacuation of more than 200 persons. More than a foot of muddy water swirled through the downtown streets, causing a serious health hazard as the sewage system became flooded. In other parts of the city, water stood 3 feet deep in the streets. Roads were closed

and bridges threatened as the river, in the environs of Napa, fanned out to a width of a half-mile. The swollen waters of Conn Creek, a tributary of the Napa River, poured over the spillway of Conn Dam and eroded part of Highway 128 that skirts the reservoir.

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

In the Russian River basin rainfall was heaviest in the lower part of the basin. Cazadero, 9 miles northwest of Guerneville, received a storm total of 15.4 inches. At Guerneville the Russian River, reaching the third highest peak in its recorded history, crested at 43.7 feet. This stage had been exceeded only in the devastating floods of 1940 and 1955. Damage in the basin was largely confined to the low-lying resort area near Guerneville, 30 of whose permanent residents were evacuated from flooded homes. Flood damage was in direct ratio to proximity to the river. The Surrey Inn resort adjacent to the river was inundated by waters reaching the ceiling; the Russian River Inn, on higher ground, reported only 2 feet of water in its buildings. The discharge hydrograph for the Russian River near Guerneville is shown on figure 7. Damage in the upper river basin was reduced by the operation of Lake Mendocino which stored the entire runoff of the East Fork Russian River.

The smaller coastal basins north of the Russian River likewise experienced heavy runoff, but damage was minor.

Storage Regulation

From the foregoing description of the floods it is evident that reservoir storage was effective in substantially reducing the magnitude of peak flood flow on many streams. This was true not only of those reservoirs constructed for flood control, but also of those whose primary function is water conservation or hydroelectric power production. Table 1 lists peak inflow and outflow for major reservoirs in the flood-affected area.

Flood Damage

Ten deaths were attributed to the storm or flood. Field study of the damage caused by the flood is still in progress, but preliminary estimates by the U. S. Army, Corps of Engineers indicate damage in excess of $16 million in foothill and valley areas. No attempt has yet been made to assess the heavy damage to highways and drainage structures in the mountain areas. Table 2 summarizes the flood damage by basins in the foothill and valley areas.

More detailed information on flood damage is available for drainage basins in Nevada. Of the $4.4 million loss in the Great Basin, about $3.5 million of damage occurred in Nevada. At the request of Governor Grant Sawyer of Nevada, the federal government declared seven western Nevada counties a disaster 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 the Reno

and Truckee Meadows areas. Flooding in the Carson and Walker River basins, while causing heavy damage to highways, primarily affected irrigation systems and ranch land. Damage in the Walker, Carson, and Truckee River basins in western Nevada is summarized in table 3.

Table 1.--Functioning of major reservoirs in reducing flood peak discharges during January 31 - February 1, 1963.

Reservoir	Stream	Peak inflow (cfs)	Peak outflow (cfs)	Reduction in peak discharge (cfs)
	Great Basin			
Lahontan	Carson River	15,300	120	15,200
Boca	Little Truckee River	14,000	1,040	13,000
Prosser	Prosser Creek	5,000	112	4,900
	Central Coast			
Nacimiento	Nacimiento River	45,000	0	45,000
	San Joaquin Valley			
Isabella	Kern River	36,000	420	35,600
Success	Tule River	15,000	3,000	12,000
Terminus	Kaweah River	35,000	5,000	30,000
Pine Flat	Kings River	55,000	20	55,000
Millerton	San Joaquin River	31,000	25	31,000
Exchequer	Merced River	51,000	40	51,000
Hetch Hetchy	Tuolumne River	25,000	800	24,200
Cherry	Cherry Creek	23,000	700	22,300
Don Pedro	Tuolumne River	64,000	7,000	57,000
Hogan	Calaveras River	34,000	6,000	28,000
Pardee	Mokelumne River	26,000	5,000	21,000
	Sacramento Valley			
Shasta	Sacramento River	72,000	11,000	61,000
Folsom	American River	240,000	101,000	139,000
Berryessa	Putah Creek	86,000	10	86,000
	North Coast			
Mendocino	East Fork Russian River	8,800	0	8,800

Table 2.--Summary of flood damage in foothill and valley areas in California and western Nevada.

(Preliminary estimates by U. S. Corps of Engineers)

Basin	Damage, in thousands of dollars	
Great Basin		
Walker River	$ 300	
Carson River	1,510	
Truckee River	2,600	
Total for Great Basin		$ 4,410
Central Coast		
Pajaro River	210	
Guadalupe River	260	
Total for Central Coast		470
San Joaquin Valley		
Stanislaus River	40	
Cosumnes River	1,380	
Other streams	100	
Total for San Joaquin Valley		1,520
Sacramento Valley		
Sacramento River main stem	1,460	
Feather River main stem	$1,925	
Yuba River	3,000	
Bear River	5	
Feather River basin total	4,930	
Cache Creek	100	
Ulatis Creek and Cache Slough	170	
Total for Sacramento Valley		6,660
North Coast		
Napa River	500	
Sonoma Creek	250	
Russian River	2,500	
Total for North Coast		3,250
Grand Total		$16,310

Table 3.--Detailed summary of flood damage in western Nevada

(Preliminary data from Nevada office of Civil Defense)

Basin	Damage in dollars			
	Private damage	Public Damage		Total
		Highways, railroads	Irrigation systems, water supplies, storm sewers, etc.	
Walker River	$ 60,000	$ 37,000	$ 54,000	$ 151,000
Carson River	694,000	269,000	367,000	1,330,000
Truckee River	1,171,000	501,000	319,000	1,991,000
Total	$1,925,000	$807,000	$740,000	$3,472,000

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 somewhat similar magnitude were produced. There are two reasons for this. First, the floods of January 31 - February 1 were of shorter duration than previous major floods, and consequently the inflows to reservoirs in 1963 could generally be controlled without spill. Second, with each passing year more reservoirs have been constructed and in 1963 there was therefore more regulatory storage available. The Corps of Engineers estimates that its opeation of flood-control facilities in 1963 prevented additional damage of about $236 million.

Streamflow Data

This section of the report presents all streamflow data that is available in the files of the U. S. Geological Survey, as of March 8, 1963. The discharge figures presented are provisional and subject to later revision. Because of the time limitation for assembling the data, the areal coverage is not complete.

Table 4 presents detailed data for the flood hydrographs at 23 key gaging sites. These sites are shown with identifying station number on the location map on figure 2. The prefix "10" in the station number indicates Great Basin drainage, and the prefix number "11" indicates California drainage into the Pacific Ocean. Eight of the 23 discharge hydrographs are plotted on figures 4-6. Table 5 presents peak discharges at the other gaging stations in the area affected by flooding durin January 31 - February 1. Table 5 is not complete; indirect measurements of peak flow were necessary at many sites, and many field surveys still remain to be completed. The station numbers in tables 4 and 5 run in downstream order and are the same as those used in the annual Geological Survey water-supply papers.

Table 4.--Flood hydrograph data for selected gaging stations in California and western Nevada

(Gage heights, in feet, and discharges, in cubic feet per second)

West Walker River below Little Walker River, nr. Coleville, Calif. (10-2960)

Hour	Gage height	Discharge
Jan. 29		
2400	0.96	30
Jan. 30 (mean, 381 cfs)		
0800	1.09	28
1000	1.28	38
1200	1.87	88
1730	3.78	984
1800	3.68	922
1830	3.84	1,030
2100	3.34	739
2300	3.73	952
2400	3.58	866
Jan. 31 (mean, 1,630 cfs)		
0300	3.09	614
0600	3.65	904
0630	3.15	643
0900	3.57	860
1100	4.26	1,340
1200	5.36	2,300
1230	4.68	1,680
1530	5.71	2,700
1830	5.23	2,170
2400	5.70	2,690
Feb. 1 (mean, 2,040 cfs)		
0230	5.65	2,630
0800	5.85	2,870
0900	5.85	2,870
1400	4.73	1,720
1900	4.15	1,250
2400	3.65	904
Feb. 2 (mean, 659 cfs)		
0300	3.40	770
0700	3.20	668
0900	3.14	638
1900	3.10	619
2400	2.87	516
Feb. 3 (mean, 462 cfs)		
Feb. 4 (mean, 388 cfs)		
Feb. 5 (mean, 313 cfs)		
Feb. 6 (mean, 272 cfs)		
Feb. 7 (mean, 235 cfs)		

Walker River nr. Wabuska, Nev. (10-3015)

Hour	Gage height	Discharge
Jan. 31		
2400	3.41	159
Feb. 1 (mean, 307 cfs)		
1000	3.78	226
1200	3.76	222
1500	4.34	330
1600	4.37	336
2400	5.69	622
Feb. 2 (mean, 950 cfs)		
0900	6.42	841
1900	7.37	1,180
2200	7.48	1,220
2400	7.62	1,280
Feb. 3 (mean, 1,540 cfs)		
1000	8.47	1,640
1500	8.76	1,780
1700	8.72	1,760
1900	8.56	1,680
2100	8.07	1,450
2400	7.08	1,050
Feb. 4 (mean, 750 cfs)		
0200	6.60	883
0400	6.27	784
0800	6.00	700
1300	6.08	724
2400	6.03	709
Feb. 5 (mean, 673 cfs)		
Feb. 6 (mean, 643 cfs)		
Feb. 7 (mean, 643 cfs)		

Table 4.--Flood hydrograph data for selected gaging stations in California and western Nevada - Continued

(Gage heights, in feet, and discharges, in cubic feet per second)

East Fork Carson River nr. Gardnerville, Nev. (10-3090)

Hour	Gage height	Discharge
Jan. 29		
2400	1.03	92
Jan. 30 (mean, 942 cfs)		
0500	1.06	98
0900	1.21	135
1430	1.96	421
1500	2.82	958
1700	3.75	1,700
2100	4.80	2,840
2200	4.74	2,770
2400	4.51	2,490
Jan. 31 (mean, 5,040 cfs)		
0400	3.49	1,460
0700	3.91	1,850
0800	3.86	1,800
0900	4.01	1,950
1400	7.06	6,150
1600	7.94	7,850
1800	8.12	8,210
2030	7.85	7,670
2400	9.84	11,870
Feb. 1 (mean, 8,520 cfs)		
0100	9.95	12,130
0300	10.12	12,540
0500	10.49	13,460
0700	10.00	12,250
0800	10.45	13,360
1300	7.39	6,760
2400	4.83	2,880
Feb. 2 (mean, 1,820 cfs)		
0400	4.30	2,270
1000	3.80	1,760
1400	3.58	1,570
2330	3.33	1,370
2400	3.19	1,250
Feb. 3 (mean, 1,180 cfs)		
Feb. 4 (mean, 1,030 cfs)		
Feb. 5 (mean, 937 cfs)		
Feb. 6 (mean, 764 cfs)		
Feb. 7 (mean, 692 cfs)		

Carson River nr. Carson City, Nev. (10-3110)

Hour	Gage height	Discharge
Jan. 29		
2400	1.20	120
Jan. 30 (mean, 184 cfs)		
1200	1.32	149
1700	1.50	196
2000	1.63	238
2400	2.02	401
Jan. 31 (mean, 2,320 cfs)		
0400	3.48	1,390
0600	3.91	1,810
0900	4.26	2,180
1900	5.08	3,090
2400	5.44	3,510
Feb. 1 (mean, 12,180 cfs)		
0300	5.68	3,800
0900	6.90	5,500
1600	12.34	18,860
1900	13.01	21,540
2100	13.11	21,940
2400	12.83	20,820
Feb. 2 (mean, 12,040 cfs)		
1000	10.25	12,150
1600	8.91	8,920
2000	8.16	7,510
2400	7.58	6,550
Feb. 3 (mean, 4,370 cfs)		
0800	6.45	4,850
1030	6.14	4,420
2400	4.67	2,640
Feb. 4 (mean, 2,220 cfs)		
0300	4.45	2,400
2400	4.05	1,960
Feb. 5 (mean, 1,820 cfs)		
Feb. 6 (mean, 1,520 cfs)		
Feb. 7 (mean, 1,250 cfs)		
Feb. 8 (mean, 1,100 cfs)		
Feb. 9 (mean, 972 cfs)		

Table 4.--Flood hydrograph data for selected gaging stations in California and western Nevada - Continued

(Gage heights, in feet, and discharges, in cubic feet per second)

Martis Creek nr. Truckee, Calif. (10-3394)

Hour	Gage height	Discharge
Jan. 29		
2400	1.21	8.2
Jan. 30 (mean, 351 cfs)		
0200	1.33	12
0500	2.62	145
1100	2.75	168
1700	4.48	740
1900	4.31	660
2200	4.32	664
2400	3.82	467
Jan. 31 (mean, 903 cfs)		
0300	3.28	292
0500	3.70	425
0700	3.53	368
1100	4.80	910
1700	5.65	1,420
2000	5.49	1,310
2400	5.60	1,380
Feb. 1 (mean, 874 cfs)		
0200	5.82	1,530
0500	6.16	1,790
0800	5.29	1,190
1200	4.00	530
1600	3.87	484
2400	3.31	301
Feb. 2 (mean, 219 cfs)		
0100	3.22	281
0900	2.95	213
1100	3.06	239
1200	2.99	222
2400	2.70	163
Feb. 3 (mean, 137 cfs)		
1200	2.54	134
1800	2.53	132
2400	2.42	114
Feb. 4 (mean, 114 cfs)		
Feb. 5 (mean, 94 cfs)		
Feb. 6 (mean, 74 cfs)		
Feb. 7 (mean, 61 cfs)		

Truckee River at Reno, Nev. (10-3480)

Hour	Gage height	Discharge
Jan. 29		
2400	2.11	176
Jan. 30 (mean, 987 cfs)		
0500	2.16	191
1000	2.31	242
1200	2.52	324
1330	2.53	328
1500	2.86	475
1600	3.95	1,130
1700	4.85	1,870
1800	5.07	2,070
1900	5.07	2,070
2030	5.23	2,220
2100	5.90	2,840
2230	6.31	3,240
2400	6.03	2,960
Jan. 31 (mean, 7,210 cfs)		
0200	5.71	2,640
0430	6.05	2,980
0700	5.75	2,680
0900	6.15	3,080
1100	7.75	6,240
1200	8.53	7,280
1500	9.32	8,540
1700	10.25	11,000
2100	10.91	12,160
2400	12.06	15,820
Feb. 1 (mean, 11,480 cfs)		
0230	12.74	16,950
0430	13.28	18,390
0500	13.33	17,530
0530	13.23	16,720
0930	12.13	13,390
1200	10.93	10,390
1600	9.14	7,080
1730	8.80	6,800
1800	8.82	6,840
1900	8.82	6,840
2030	9.10	7,370
2130	9.10	7,370
2400	8.97	7,120

Table 4.--Flood hydrograph data for selected gaging stations in California and western Nevada - Continued

(Gage heights, in feet, and discharges, in cubic feet per second)

Hour	Gage height	Dis-charge	Hour	Gage height	Dis-charge	Hour	Gage height	Dis-charge
Truckee River at Reno, Nev. (10-2380) - Continued								
Feb. 2 (mean, 5,350 cfs)			Feb. 3 - Continued			Feb. 4 - Continued		
0700	8.21	5,770	1600	6.77	3,740	2000	6.80	3,770
1100	7.88	5,240	2400	6.64	3,590	2400	6.97	3,970
1800	7.47	4,640						
2400	7.23	4,310	Feb. 4 (mean, 3,400 cfs)			Feb. 5 (mean, 3,960 cfs)		
			1100	6.31	3,240			
Feb. 3 (mean, 3,850 cfs)			1200	6.13	3,060	Feb. 6 (mean, 3,960 cfs)		
			1230	6.28	3,210			
0800	6.91	3,900	1800	6.13	3,060	Feb. 7 (mean, 3,330 cfs)		
1200	6.83	3,810	1900	6.15	3,080			
1430	6.68	3,640				Feb. 8 (mean, 2,520 cfs)		
Truckee River nr. Nixon, Nev. (10-3517)								
Jan. 30			Feb. 2 (mean, 11,550)			Feb. 4 - Continued		
2400	2.48	31	0130	14.39	14,390	1900	7.46	3,210
			0500	13.93	13,920	2000	7.46	3,210
Jan. 31 (mean, 1,370 cfs)			0700	13.53	13,470	2200	7.56	3,350
			1200	12.23	11,820	2400	7.57	3,370
0900	2.49	32	1800	10.89	9,590			
1000	5.56	1,190	2400	9.92	7,530	Feb. 5 (mean, 3,640 cfs)		
1400	6.71	2,250						
2100	6.99	2,590	Feb. 3 (mean, 5,460 cfs)			Feb. 6 (mean, 3,980 cfs)		
2400	7.25	2,920						
			0200	9.63	6,920	Feb. 7 (mean, 3,840 cfs)		
Feb. 1 (mean, 9,460 cfs)			0500	9.33	6,320			
			1800	8.37	4,570	Feb. 8 (mean, 2,660 cfs)		
0200	7.76	3,640	2400	8.07	4,100			
1100	11.26	10,290				Feb. 9 (mean, 2,240 cfs)		
1200	11.32	10,400	Feb. 4 (mean, 3,550 cfs)					
1500	11.86	11,290				Feb. 10 (mean, 2,140 cfs)		
1600	11.90	11,350	0400	7.87	3,800			
1800	12.32	11,970	1300	7.65	3,480			
2100	13.65	13,610						
2400	14.26	14,260						

Table 4.--Flood hydrograph data for selected gaging stations in California and western Nevada - Continued

(Gage heights, in feet, and discharges, in cubic feet per second)

Hour	Gage height	Dis-charge	Hour	Gage height	Dis-charge	Hour	Gage height	Dis-charge
Arroyo Seco near Soledad, Calif. (11-1520)								
Jan. 29			Jan. 31 - Continued			Feb. 3 (mean, 2,330 cfs)		
2400	3.08	26	1700	14.60	17,500	0400	9.02	2,630
			1900	13.40	12,600	1000	8.82	2,330
Jan. 30 (mean, 3,090 cfs)			2100	12.50	9,500	1800	8.72	2,180
			2300	12.03	8,090	2400	8.60	2,000
0300	3.13	29	2400	12.13	8,390			
0400	3.50	60				Feb. 4 (mean, 1,980 cfs)		
0500	3.85	96	Feb. 1 (mean, 10,200 cfs)					
0700	4.12	127				0600	8.56	1,910
0700	5.50	370	0200	13.05	13,600	1200	8.47	1,800
0800	7.27	985	0300	13.70	16,200	1800	8.38	1,670
1000	8.15	1,590	0400	14.24	18,400	2400	8.28	1,530
1200	8.70	2,100	0700	13.65	16,000			
1400	9.55	3,110	0900	12.93	13,100	Feb. 5 (mean, 1,370 cfs)		
1600	9.35	2,840	1100	12.22	10,400			
1800	10.50	4,600	1200	12.37	10,900	0600	8.22	1,450
2000	11.15	5,900	1400	11.52	8,060	1200	8.15	1,370
2200	12.45	9,350	1600	11.00	6,500	1800	8.08	1,290
2400	13.53	13,100	1900	10.52	5,300	2400	8.02	1,210
			2200	10.08	4,390			
Jan. 31 (mean, 12,400 cfs)			2400	9.84	3,930	Feb. 6 (mean, 1,100 cfs)		
0300	12.35	9,050	Feb. 2 (mean, 3,000 cfs)			0600	7.95	1,140
0500	12.95	10,800				1200	7.91	1,100
0600	13.02	11,000	0600	9.38	3,170	1800	7.85	1,040
0800	12.18	8,540	1200	9.18	2,870	2400	7.80	990
1000	12.65	9,950	1600	9.12	2,780			
1200	13.70	13,800	1900	9.08	2,720	Feb. 7 (mean, 908 cfs)		
1400	14.80	18,500	2200	8.97	2,560			
1500	15.55	22,800	2400	8.98	2,570	0600	7.76	950
						1200	7.72	910
						1800	7.67	863
						2400	7.63	827

Table 4.--Flood hydrograph data for selected gaging stations in California and western Nevada - Continued

(Gage heights, in feet, and discharges, in cubic feet per second)

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
Pescadero Creek near Pescadero, Calif. (11-1625)								
Jan. 28			Jan. 31 (mean, 2,960 cfs)			Feb. 1 - Continued		
2400	2.39	6.2	0200	9.44	1,330	1000	11.05	1,880
			0300	9.82	1,450	1500	9.05	1,220
Jan. 29 (mean, 6.9 cfs)			0500	10,00	1,500	1800	8.30	990
			0800	11.37	2,010	2100	7.65	818
1600	2.41	6.8	1000	12.00	2,260	2400	7.22	710
2000	2.43	7.4	1300	14.85	3,660			
2400	2.50	9.5	1400	16.15	4,460	Feb. 2 (mean, 475 cfs)		
			1500	16.26	4,530			
Jan. 30 (mean, 812 cfs)			1600	15.30	3,930	0400	6.73	588
			1800	13.40	2,910	0800	6.38	516
0300	2.59	13	1900	12.88	2,660	1100	6.15	470
0600	2.92	27	2100	15.70	4,170	1700	* 5.70	384
0900	3.40	61	2300	17.90	5,860	2400	* 5.50	348
1100	5.00	264	2400	18.80	6,700			
1300	6.45	530				Feb. 3 (mean, 300 cfs*)		
1500	8.50	1,050	Feb. 1 (mean, 2,200 cfs)					
1800	11.75	2,160				Feb. 4 (mean, 235 cfs*)		
1900	12.28	2,390	0100	18.27	6,190			
2000	11.95	2,240	0300	16.50	4,700	Feb. 5 (mean, 185 cfs*)		
2200	10.70	1,750	0500	13.80	3,100			
2400	9.73	1,420	0700	12.10	2,310	Feb. 6 (mean, 150 cfs*)		
						Feb. 7 (mean, 115 cfs)		
Kern River at Kernville, Calif. (11-1870)								
Jan. 28			Jan. 30 - Continued			Jan. 31 - Continued		
2400	3.92	146	0600	4.73	384	0700	7.10	1,810
			0900	5.32	624	1000	8.15	2,840
Jan. 29 (mean, 146 cfs)			1400	5.73	826	1200	9.85	5,340
			1600	5.66	790	1300	11.35	8,950
1000	3.86	134	2200	5.88	913	1400	13.00	14,400
1400	3.92	146	2400	6.62	1,420	1600	14.68	21,500
2100	3.96	155				1800	16.26	29,800
2400	4.07	179	Jan. 31 (mean, 11,200 cfs)			1900	16.25	29,700
						2100	15.00	23,000
Jan. 30 (mean, 626 cfs)			0100	6.67	1,460	2300	13.35	15,800
			0400	6.74	1,510	2400	12.75	13,500
0200	4.15	202	0600	6.89	1,630			

* Estimated.

Table 4.--Flood hydrograph data for selected gaging stations in California and western Nevada - Continued

(Gage heights, in feet, and discharges, in cubic feet per second)

Kern River at Kernville, Calif. (11-1870) - Continued

Hour	Gage height	Discharge
Feb. 1 (mean, 18,800 cfs)		
0200	11.90	10,600
0400	12.35	12,100
0500	13.00	14,400
0600	14.75	21,800
0700	15.60	26,100
0900	16.15	29,100
1100	16.76	32,800
1200	16.45	30,900
1500	14.78	21,900
1800	13.10	15,000
2100	11.78	10,700
2400	10.82	7,990
Feb. 2 (mean, 4,110 cfs)		
0400	9.67	5,530
1000	8.68	3,920
1800	7.87	2,860
2400	7.57	2,530
Feb. 3 (mean, 2,340 cfs)		
0700	7.45	2,400
0800	7.40	2,350
1000	7.37	2,320
1200	7.41	2,360
2400	7.21	2,160
Feb. 4 (mean, 1,800 cfs)		
0700	7.07	2,020
1000	6.82	1,790
1800	6.61	1,600
2400	6.50	1,510
Feb. 5 (mean, 1,370 cfs)		
1200	6.31	1,360
2400	6.16	1,240
Feb. 6 (mean, 1,150 cfs)		
1200	6.02	1,140
2400	5.92	1,070
Feb. 7 (mean, 1,020 cfs)		
1200	5.85	1,020
2400	5.74	954

Tule River near Springville, Calif. (11-2032)

Hour	Gage height	Discharge
Jan. 29		
2400	3.13	20
Jan. 30 (mean, 477 cfs)		
0700	3.34	47
0800	3.72	137
1000	4.17	325
1200	4.54	529
1400	4.83	724
1600	5.22	1,060
2100	4.86	748
2400	4.87	756
Jan. 31 (mean, 5,520 cfs)		
0200	4.85	740
0500	5.18	1,020
0900	6.00	2,160
1100	6.56	3,150
1200	7.39	4,840
1400	9.24	9,440
1600	10.38	12,400
1800	10.80	13,500
2000	9.33	9,680
2200	8.13	6,590
2400	7.27	4,570
Feb. 1 (mean, 6,810 cfs)		
0100	7.17	4,350
0400	8.00	6,280
0600	10.20	11,900
0700	9.95	11,300
0900	10.04	11,500
1100	9.55	10,200
1600	7.65	5,440
1900	6.95	3,900
2400	6.14	2,390
Feb. 2 (mean, 1,330 cfs)		
0600	5.69	1,660
1200	5.32	1,160
1800	5.05	905
2400	4.89	772

Table 4.--Flood hydrograph data for selected gaging stations in California and western Nevada - Continued

(Gage heights, in feet, and discharges, in cubic feet per second)

Hour	Gage height	Dis-charge	Hour	Gage height	Dis-charge	Hour	Gage height	Dis-charge
Tule River near Springville, Calif. (11-2032) - Continued								
Feb. 3 (mean, 668 cfs)			Feb. 4 - Continued			Feb. 6 (mean, 276 cfs)		
1200	4.86	748	2400	4.30	390	2400	4.03	258
1300	4.67	610						
2400	4.53	523	Feb. 5 (mean, 334 cfs)			Feb. 7 (mean, 247 cfs)		
Feb. 4 (mean, 451 cfs)			1200	4.17	325	2400	3.98	236
			2400	4.11	295			
1200	4.40	445						
Kings River above North Fork, Calif. (11-2135)								
Jan. 29			Jan. 31 - Continued			Feb. 3 (mean, 2,670 cfs)		
2400	0.80	140	2300	7.72	14,100	1200	3.98	2,640
			2400	7.78	14,400	2400	3.81	2,400
Jan. 30 (mean, 1,440 cfs)			Feb. 1 (mean, 18,900 cfs)			Feb. 4 (mean, 2,110 cfs)		
0400	1.04	188						
0800	2.11	585	0300	9.45	22,200	1900	3.45	1,910
1200	3.03	1,170	0400	10.61	27,800	2400	3.50	1,970
1800	4.27	2,700	0500	10.85	29,000			
2200	4.37	2,870	0700	10.57	27,600	Feb. 5 (mean, 1,770 cfs)		
2400	4.58	3,260	1000	10.07	25,200			
			1200	9.30	21,400	1700	3.24	1,660
Jan. 31 (mean, 11,700 cfs)			1600	7.92	15,200	2400	3.25	1,680
			1800	7.51	13,500			
0300	5.12	4,470	2100	6.59	9,860	Feb. 6 (mean, 1,510 cfs)		
0500	5.14	4,520	2400	5.93	7,450			
0900	5.44	5,360				1700	3.00	1,410
1200	6.68	9,740	Feb. 2 (mean, 4,510 cfs)			2400	3.02	1,430
1400	7.88	14,800						
1600	9.60	22,900	0600	5.20	5,210	Feb. 7 (mean, 1,340 cfs)		
1700	9.80	23,800	1200	4.75	4,080			
1800	9.75	23,600	2400	4.20	2,990	2000	2.85	1,280
2000	9.02	20,100				2400	2.89	1,310

Table 4.--Flood hydrograph data for selected gaging stations in California and western Nevada - Continued

(Gage heights, in feet, and discharges, in cubic feet per second)

Merced River at Pohono Bridge near Yosemite, Calif. (11-2665)

Hour	Gage height	Discharge
Jan. 29		
2400	1.50	28
Jan. 30 (mean, 160 cfs)		
0600	1.77	47
0900	1.97	63
1200	2.37	113
1300	2.30	102
1500	2.59	150
1800	2.85	203
2000	3.14	270
2200	3.84	464
2400	4.26	632
Jan. 31 (mean, 3,230 cfs)		
0200	4.59	800
0400	4.76	893
0600	4.80	915
0800	5.16	1,130
1000	5.62	1,430
1200	6.33	2,020
1400	7.44	3,080
1600	8.76	4,550
1800	9.51	5,510
2200	10.69	7,280
2400	11.65	8,970
Feb. 1 (mean, 10,800 cfs)		
0200	12.61	10,900
0400	13.34	12,700
0600	13.89	14,100
0900	14.25	14,900
1200	13.72	13,700
1500	12.41	10,500
1800	11.21	8,180
2100	10.13	6,390
2400	9.04	4,890
Feb. 2 (mean, 2,600 cfs)		
0200	8.33	4,040
0400	7.75	3,390
0600	7.36	3,000
0900	6.88	2,520
1200	6.64	2,300
1500	6.42	2,100
1800	6.30	1,990
2400	6.10	1,810
Feb. 3 (mean, 1,580 cfs)		
0300	6.07	1,790
0600	5.99	1,720
1200	5.76	1,540
1800	5.65	1,460
2400	5.53	1,370
Feb. 4 (mean, 1,170 cfs)		
0600	5.33	1,230
1200	5.18	1,140
1500	5.12	1,100
1800	5.10	1,090
2400	5.06	1,070
Feb. 5 (mean, 938 cfs)		
1200	4.76	893
2100	4.77	898
2400	4.75	888
Feb. 6 (mean, 788 cfs)		
0600	4.61	810
1200	4.51	756
1400	4.54	772
2400	4.49	745
Feb. 7 (mean, 704 cfs)		
1100	4.34	670
2100	4.44	720
2400	4.45	725
Feb. 8 (mean, 670 cfs)		

Table 4.--Flood hydrograph data for selected gaging stations in California and western Nevada - Continued

(Gage heights, in feet, and discharges, in cubic feet per second)

San Joaquin River near Vernalis, Calif. (11-3035)

Hour	Gage height	Discharge
Jan. 31		
2400	--	*1,650
Feb. 1 (mean, 1,920)		
0600	--	*1,720
1200	12.58	1,820
1800	12.98	2,060
2400	13.58	2,480
Feb. 2 (mean, 3,830 cfs)		
0600	14.16	2,880
1200	14.85	3,410
1800	16.25	4,580
2400	18.15	6,410
Feb. 3 (mean, 9,220 cfs)		
0600	19.73	8,090
1200	20.91	9,450
1800	21.77	10,500
2400	22.38	11,300
Feb. 4 (mean, 12,100 cfs)		
0600	22.84	11,900
1200	23.13	12,200
2000	23.27	12,400
2400	23.22	12,300
Feb. 5 (mean, 12,000 cfs)		
0600	23.07	12,200
1200	22.92	12,000
2400	22.82	11,800
Feb. 6 (mean, 11,700 cfs)		
1200	22.76	11,700
1800	22.68	11,600
2400	22.55	11,500
Feb. 7 (mean, 11,000 cfs)		
1200	22.24	11,100
1800	21.98	10,700
2400	21.56	10,200
Feb. 8 (mean, 8,730 cfs)		
0600	20.88	9,420
1200	20.18	8,590
1800	19.63	7,980
2400	--	*7,630

Cosumnes River at Michigan Bar, Calif. (11-3350)

Hour	Gage height	Discharge
Jan. 29		
2400	2.63	65
Jan. 30 (mean, 187 cfs)		
0700	2.68	73
1200	2.78	90
1500	2.87	109
1800	3.09	164
2100	3.53	322
2200	4.00	580
2300	4.38	890
2400	4.53	1,040
Jan. 31 (mean, 6,540 cfs)		
0200	4.74	1,280
Jan. 31 - Continued		
0600	5.73	2,740
0800	5.89	3,060
1100	6.00	3,300
1200	6.10	3,540
1400	6.22	3,860
1600	6.74	5,460
1800	7.40	7,860
2000	8.62	12,900
2100	9.29	15,700
2300	10.83	22,600
2400	11.61	26,400
Feb. 1 (mean, 26,700 cfs)		
0200	12.70	31,900
0400	12.96	33,200
Feb. 1 - Continued		
0700	13.88	38,100
0800	13.85	38,000
0900	14.11	39,400
1100	12.99	33,400
1300	12.14	29,100
1600	10.32	20,300
1800	9.58	17,000
2100	8.99	14,400
2400	8.60	12,800
Feb. 2 (mean, 7,380 cfs)		
0600	7.68	8,690
1200	7.13	6,830
1800	6.74	5,460
2100	6.58	4,940
2400	6.34	4,200

* Estimated.

Table 4.--Flood hydrograph data for selected gaging stations in California and western Nevada - Continued

(Gage heights, in feet, and discharges, in cubic feet per second)

Hour	Gage height	Dis-charge	Hour	Gage height	Dis-charge	Hour	Gage height	Dis-charge
Cosumnes River at Michigan Bar, Calif. (11-3350) - Continued								
Feb. 3 (mean, 3,140 cfs)			Feb. 4 - Continued			Feb. 6 (mean, 1,360)		
0200	6.22	3,860	1800	5.27	2,000	1200	4.80	1,360
0800	6.01	3,320	2400	5.17	1,860	2400	4.69	1,220
1600	5.77	2,820						
2400	5.59	2,480	Feb. 5 (mean, 1,710 cfs)			Feb. 7 (mean, 1,120 cfs)		
Feb. 4 (mean, 2,140 cfs)			0600	5.11	1,770	1200	4.60	1,110
			1200	5.09	1,750	2400	4.52	1,030
0600	5.46	2,280	1800	5.00	1,620			
1200	5.36	2,130	2400	4.92	1,520			
Feather River at Oroville, Calif. (11-4070)								
Jan. 28			Jan. 31 (mean, 84,700 cfs)			Feb. 1 - Continued		
2400	36.56	2,540	0300	44.50	27,700	1400	57.45	110,000
			0700	44.92	29,500	1700	56.02	97,200
Jan. 29 (mean, 2,760 cfs)			0900	45.70	32,900	1900	55.38	91,700
			1100	48.30	45,100	2400	54.60	85,300
0400	36.42	2,360	1300	51.25	61,600			
1100	36.44	2,380	1500	55.20	90,200	Feb. 2 (mean, 61,900 cfs)		
1600	36.97	3,150	1700	59.90	134,000			
2400	37.10	3,360	1900	63.45	170,000	0500	53.10	73,900
			2000	64.80	185,000	0900	52.07	66,900
Jan. 30 (mean, 7,310 cfs)			2100	65.37	191,000	1500	50.60	57,800
			2200	65.17	189,000	1700	48.80	48,200
0200	37.14	3,430	2400	64.00	176,000	1900	48.55	47,000
0400	36.98	3,170				2000	48.25	45,500
0600	37.36	3,800	Feb. 1 (mean, 125,000 cfs)			2200	48.45	46,400
1200	38.69	6,520				2400	48.30	45,800
1600	39.63	8,940	0100	63.78	174,000			
2000	40.09	10,300	0300	62.50	160,000	Feb. 3 (mean, 36,600 cfs)		
2100	40.30	11,000	0500	62.35	158,000			
2200	40.78	12,600	0700	61.50	150,000	0200	47.60	42,500
2400	42.54	19,600	1000	59.95	134,000	0400	47.30	41,100

Table 4.--Flood hydrograph data for selected gaging stations in California and western Nevada - Continued

(Gage heights, in feet, and discharges, in cubic feet per second)

Feather River at Oroville, Calif. (11-4070) - Continued

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
Feb. 3 - Continued			Feb. 4 - Continued			Feb. 5 - Continued		
0500	47.05	40,000	1300	43.35	24,500	2000	41.40	16,900
0700	46.90	39,300	1500	43.00	23,100	2200	41.80	18,400
0800	46.85	39,000	1600	42.85	22,400	2400	41.75	18,200
1200	46.40	37,100	1900	42.85	22,400			
1500	45.80	34,500	2100	43.00	23,100	Feb. 6 (mean, 16,800 cfs)		
1700	45.65	33,800	2400	43.00	23,100			
1900	45.15	31,700				1200	41.35	16,700
2400	44.60	29,500	Feb. 5 (mean, 20,400 cfs)			2400	41.00	15,400
Feb. 4 (mean, 24,900 cfs)			0300	43.00	23,100	Feb. 7 (mean, 14,500 cfs)		
			1500	42.15	19,800			
1100	43.35	24,500				1200	40.77	14,500
						2400	40.50	13,500

South Yuba River near Washington, Calif. (11-4170)

Jan. 29			Feb. 1 (mean, 15,100 cfs)			Feb. 4 (mean, 1,360 cfs)		
2400	1.43	58	0300	17.16	28,500	0600	4.80	1,130
			0600	15.50	22,100	1500	4.65	1,040
Jan. 30 (mean, 950 cfs)			0900	13.85	16,800	1700	5.70	1,830
			1200	12.15	12,300	2400	5.70	1,830
0300	1.77	91	1600	10.75	9,100			
1000	3.19	367	2400	9.45	6,650	Feb. 5 (mean, 1,540 cfs)		
1300	3.65	518						
1700	6.20	2,060	Feb. 2 (mean, 3,890 cfs)			0600	5.70	1,830
1900	6.07	1,940				1200	5.39	1,570
2200	6.34	2,190	0600	8.35	4,890	2400	4.69	1,060
2400	6.25	2,100	1200	7.55	3,770			
			1800	6.95	3,040	Feb. 6 (mean, 865 cfs)		
Jan. 31 (mean, 6,190 cfs)			2100	5.60	1,740			
			2400	5.53	1,680	0900	4.35	875
0300	5.96	1,850				1000	4.70	1,070
0700	6.45	2,290	Feb. 3 (mean, 1,430 cfs)			1600	4.37	885
1000	7.48	3,390				1800	3.87	648
1300	9.10	5,620	1100	5.37	1,560	2400	3.69	576
1600	9.55	6,430	1400	4.90	1,200			
1800	10.42	8,040	1800	4.87	1,180	Feb. 7 (mean, 478 cfs)		
2000	10.48	8,160	1800	5.26	1,470			
2200	13.65	16,000	2200	4.82	1,140	1700	3.37	460
2400	15.90	23,500	2400	4.99	1,260	2400	2.84	300

Table 4.--Flood hydrograph data for selected gaging stations in California and western Nevada - Continued

(Gage heights, in feet, and discharges, in cubic feet per second)

Yuba River at Englebright Dam, Calif. (11-4180)

Hour	Gage height	Discharge
Jan. 29		
2400	27.30	190
Jan. 30 (mean, 1,800 cfs)		
0900	27.40	300
1400	27.66	676
1700	28.05	1,390
2000	28.75	3,270
2200	29.65	6,470
2400	30.95	12,300
Jan. 31 (mean, 56,900 cfs)		
0300	32.40	20,700
0500	32.83	23,300
0900	33.12	25,000
1100	33.75	29,400
1300	35.20	40,500
1500	37.00	56,600
1700	39.30	80,300
1900	41.30	103,000
2100	43.25	127,000
2200	43.80	134,000
2400	44.13	139,000
Feb. 1 (mean, 98,200 cfs)		
0200	44.60	145,000
0430	44.86	149,000
0600	44.70	147,000
0800	43.50	130,000
1000	42.20	114,000
1200	40.65	95,200
1300	39.75	85,200
1500	38.40	70,600
1800	37.10	57,600
2400	36.00	47,500
Feb. 2 (mean, 30,400 cfs)		
0400	35.15	40,100
0800	34.25	33,000
1500	33.18	25,500
2000	32.64	22,100
2400	32.25	19,800
Feb. 3 (mean, 15,500 cfs)		
0300	31.94	17,900
0600	31.74	16,700
1500	31.39	14,700
2200	31.05	12,900
2400	31.03	12,800
Feb. 4 (mean, 10,500 cfs)		
1200	30.57	10,400
1500	30.33	9,280
1800	30.24	8,880
2100	30.30	9,150
2400	30.53	10,200
Feb. 5 (mean, 9,280 cfs)		
0400	30.62	10,600
0800	30.55	10,300
1600	30.26	8,970
1900	29.96	7,680
2100	29.90	7,440
2400	29.89	7,400
Feb. 6 (mean, 6,890 cfs)		
0800	29.85	7,240
1700	29.68	6,580
2400	29.57	6.170
Feb. 7 (mean, 5,460 cfs)		
0600	29.44	5,670
1800	29.29	5,120
2400	29.29	5,120

North Fork American River at North Fork Dam, Calif. (11-4270)

Hour	Gage height	Discharge
Jan. 28		
2400	0.55	165
Jan. 29 (mean, 173 cfs)		
1600	0.56	170
2400	0.61	200
Jan. 30 (mean, 1,780 cfs)		
0400	0.65	225
0900	0.79	318
1200	1.01	494
1400	1.22	684
1700	1.90	1,440
1900	2.61	2,390
2000	3.16	3,430
2100	3.87	5,530
2400	4.96	10,200
Jan. 31 (mean, 26,700 cfs)		
0300	5.41	12,500
0700	5.29	11,900
0900	5.45	12,700
1100	5.69	14,000
1400	7.10	22,900
1600	8.50	33,600
1800	9.50	42,300
2000	10.32	50,000
2200	11.15	58,200
2400	11.30	59,700

Table 4.--Flood hydrograph data for selected gaging stations in California and western Nevada - Continued

(Gage heights, in feet, and discharges, in cubic feet per second)

Hour	Gage height	Dis-charge	Hour	Gage height	Dis-charge	Hour	Gage height	Dis-charge
North Fork American River at North Fork Dam, Calif. (11-4270) - Continued								
Feb. 1 (mean, 33,300 cfs)			Feb. 3 (mean, 4,930 cfs)			Feb. 5 - Continued		
0400	11.20	58,700	1900	3.51	4,350	1500	2.88	2,840
0700	10.12	48,100	2400	3.46	4,210	1800	2.90	2,740
1100	8.00	29,600				2400	2.82	2,600
1500	6.68	20,000	Feb. 4 (mean, 3,570 cfs)					
2000	6.00	15,800				Feb. 6 (mean, 2,420 cfs)		
2400	5.61	13,600	1900	3.04	3,160			
			2200	3.01	3,100	0600	2.77	2,510
Feb. 2 (mean, 8,800 cfs)			2400	3.03	3,140	0900	2.77	2,510
						2400	2.54	2,170
1200	4.47	7,870	Feb. 5 (mean, 3,050 cfs)					
2400	3.96	5,860				Feb. 7 (mean, 1,980 cfs)		
			0400	3.24	3,620			
			1000	3.04	3,160	1200	2.40	1,980
						2400	2.25	1,780
Middle Fork American River at French Meadows, Calif. (11-4275)								
Jan. 29			Jan. 31 - Continued			Feb. 1 - Continued		
2400	3.49	35	1000	9.95	4,200	1800	10.03	4,360
			1200	11.00	6,800	2000	9.33	3,090
Jan. 30 (mean, 344 cfs)			1400	12.85	14,000	2400	8.82	2,330
			1600	13.33	16,400			
0400	3.70	49	1800	13.55	17,600	Feb. 2 (mean, 1,460 cfs)		
0600	3.67	47	1900	14.00	20,300			
0800	3.72	51	2000	13.80	19,100	0600	8.24	1,680
1200	4.02	76	2100	14.20	21,500	1200	7.84	1,310
1500	4.50	130	2300	14.03	20,500	2400	7.46	1,030
1800	5.30	270	2400	14.13	21,100			
2000	6.77	735				Feb. 3 (mean, 923 cfs)		
2100	8.00	1,540	Feb. 1 (mean, 8,030 cfs)					
2100	7.77	1,360				1400	7.23	888
2300	8.07	1,600	0200	13.95	20,000	1800	7.29	924
2400	8.13	1,660	0500	13.10	15,200	2400	7.04	774
			0600	12.73	13,400			
Jan. 31 (mean, 10,000 cfs)			0800	11.08	7,040	Feb. 4 (mean, 722 cfs)		
			1000	10.23	4,760			
0200	8.20	1,720	1200	9.78	3,860	1500	6.68	590
0300	8.28	1,790	1400	10.00	4,300	1900	6.94	720
0600	8.66	2,160	1600	9.95	4,200	2100	7.40	990
0800	9.17	2,830	1700	10.05	4,400	2400	7.17	852

Table 4.--Flood hydrograph data for selected gaging stations in California and western Nevada - Continued

(Gage heights, in feet, and discharges, in cubic feet per second)

Hour	Gage height	Dis-charge	Hour	Gage height	Dis-charge	Hour	Gage height	Dis-charge
Middle Fork American River at French Meadows, Calif. (11-4275) - Continued								
Feb. 5 (mean, 606 cfs)			Feb. 6 (mean, 414 cfs)			Feb. 7 (mean, 330 cfs)		
1200	6.59	546	1500	6.18	384	1200	5.96	318
2400	6.43	482	2400	6.16	378	2400	5.92	306
Sacramento River at Sacramento, Calif. (11-4475)								
Jan. 30			Feb. 1 - Continued			Feb. 4 (mean, 78,800 cfs)		
2400	7.25	23,100	1830	26.12	86,600	0600	24.64	78,900
			2130	28.52	98,100	1800	24.56	78,600
Jan. 31 (mean, 33,200 cfs)			2400	28.33	97,200	2400	24.47	78,200
0400	7.57	24,000	Feb. 2 (mean, 94,400 cfs)			Feb. 5 (mean, 76,400 cfs)		
0600	7.82	24,800						
0800	8.28	26,100	1000	28.43	97,700	1200	24.37	76,900
1300	11.06	34,300	1200	28.21	96,600	2400	23.52	73,500
1400	11.43	35,400	1800	27.14	91,200			
1800	13.28	40,900	2400	26.14	86,600	Feb. 6 (mean, 68,900 cfs)		
2400	15.34	47,300						
			Feb. 3 (mean, 81,800 cfs)			1200	22.18	68,200
Feb. 1 (mean, 71,100 cfs)						2400	21.45	65,800
			0600	25.34	82,900			
0600	17.96	55,600	0900	25.06	81,700	Feb. 7 (mean, 64,400 cfs)		
1200	21.49	67,200	1200	24.89	80,900			
			1800	24.73	80,200	1200	20.94	64,200
			2400	24.66	79,900	2400	20.73	63,500
Napa River near St. Helena, Calif. (11-4560)								
Jan. 28			Jan. 30 (mean, 2,060 cfs)			Jan. 31 (mean, 7,500 cfs)		
2400	1.07	18	0300	2.37	189	0200	6.03	1,890
			0600	3.12	392	0400	5.84	1,760
Jan. 29 (mean, 28 cfs)			1100	4.54	1,020	0500	5.95	1,840
			1300	6.15	1,980	0700	7.14	2,810
1300	1.07	18	1500	8.40	4,000	0900	9.80	5,530
1800	1.18	25	1700	9.15	4,820	1200	13.15	9,760
2100	1.39	38	2000	8.65	4,260	1500	14.75	12,000
2400	2.04	113	2400	6.65	2,380	1730	15.30	12,800

Table 4.--Flood hydrograph data for selected gaging stations in California and western Nevada - Continued

(Gage heights, in feet, and discharges, in cubic feet per second)

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
Napa River near St. Helena, Calif. (11-4560) - Continued								
Jan. 31 - Continued			Feb. 2 - Continued			Feb. 5 (mean, 261 cfs)		
1900	14.88	12,200	1000	4.30	900	1200	2.68	258
2200	13.60	10,400	1200	4.38	940	2400	2.59	233
2400	11.60	7,730	1800	4.17	835			
			2400	3.97	736	Feb. 6 (mean, 218 cfs)		
Feb. 1 (mean, 2,950 cfs)								
			Feb. 3 (mean, 613 cfs)			0700	2.53	218
0200	10.00	5,750				1300	2.53	218
0400	9.55	5,260	1200	3.72	624	2400	2.46	210
0800	7.55	3,180	1900	3.60	570			
1300	5.93	1,820	2100	3.34	469	Feb. 7 (mean, 196 cfs)		
1500	5.84	1,760	2400	3.20	420			
2400	4.90	1,200				1200	2.40	196
			Feb. 4 (mean, 355 cfs)			2400	2.33	180
Feb. 2 (mean, 928 cfs)								
			1200	3.00	352			
0600	4.50	1,000	2400	2.81	295			
Russian River near Guerneville, Calif. (11-4670)								
Jan. 29			Jan. 31 - Continued			Feb. 3 (mean, 18,900 cfs)		
2400	5.70	870	2000	40.50	62,200	0400	23.40	21,500
			2400	42.37	67,800	0800	22.48	20,000
Jan. 30 (mean, 14,700 cfs)						1500	21.05	17,700
			Feb. 1 (mean, 68,400 cfs)			2400	19.60	15,400
0300	8.00	2,030						
0600	10.25	3,640	0400	43.40	70,900	Feb. 4 (mean, 13,300 cfs)		
1100	16.00	10,000	0600	43.65	71,600			
1400	20.45	16,700	0800	43.70	71,800	0600	18.82	14,100
1800	26.00	26,000	1000	43.62	71,600	1600	17.77	12,600
2200	29.10	31,800	1300	43.27	70,500	2400	17.14	11,600
2400	29.72	33,100	1800	42.10	67,000			
			2100	40.93	63,500	Feb. 5 (mean, 9,970 cfs)		
Jan. 31 (mean, 45,300 cfs)			2400	39.35	58,800			
						0600	16.77	11,100
0200	30.01	33,700	Feb. 2 (mean, 39,100 cfs)			0800	16.53	10,700
0400	30.10	33,900				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	Feb. 6 (mean, 9,140 cfs)		
						Feb. 7 (mean, 7,260 cfs)		

Table 5.--Peak stages and discharges in California and western Nevada

(Each station in this table has two or three entries listed under maximum floods; the first pertains to the flood being reported on; the second pertains to the maximum flood previously known during the period of record; the third pertains to the maximum flood known outside the period of record.)

No.	Stream and place of determination	Drainage area (sq.mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft.)	Discharge (cfs)
	PART 10. GREAT BASIN					
	Walker River basin					
2895	Green Creek near Bridgeport, Calif.	19.4	1953-63	Feb. 1, 1963	3.03	199
				Dec. 23, 1955	-	307
2905	Robinson Creek near Bridgeport, Calif.	34.7	1953-63	Feb. 2, 1963	3.63	[a] 312
				June 29, 1956	4.35	445
2915	Buckeye Creek near Bridgeport, Calif.	45	1953-63	Feb. 1, 1963	4.41	950
				Dec. 23, 1955	4.00	700
2920	Swager Creek near Bridgeport, Calif.	53	1911-15, 1953-63	Feb. 1, 1963	5.56	432
				Dec. 23, 1955	6.24	585
2930	East Walker River near Bridgeport, Calif.	362	1921-63	Feb. 5, 1963	2.92	[a] 665
				Jan. 22, 1943	4.95	1,240
2952	West Walker River at Leavitt Meadows, Calif.	73	1945-63	Feb. 1, 1963	5.55	1,370
				Nov. 21, 1950	-	2,180
2955	Little Walker River near Bridgeport, Calif.	63	1910, 1944-63	Jan. 31, 1963	3.22	1,500
				Dec. 23, 1955	2.80	994
2960	West Walker River below Little Walker River, near Coleville, Calif.	182	1938-63	Feb. 1, 1963	5.85	2,870
				Nov. 20, 1950	8.10	6,220
2965	West Walker River near Coleville, Calif.	245	1915-38, 1957-63	Feb. 1, 1963	4.44	2,550
				Dec. 11, 1937	-	6,500

See footnotes at end of table.

Table 5.--Peak stages and discharges in California and western Nevada - Continued

No.	Stream and place of determination	Drainage area (sq.mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft.)	Discharge (cfs)
	PART 10 - GREAT BASIN - Continued					
	Walker River basin - Continued					
3000	West Walker River near Hudson, Nev.	964	1914-25, 1947-63	Feb. 2, 1963 Dec. 24, 1955	5.74 7.42	1,920 2,700
3015	Walker River near Wabuska, Nev.	2,600	1902-08, 1920-35, 1939-63	Feb. 3, 1963 July 10, 11, 1906	8.76 5.90	1,780 3,280
	Carson River basin					
3045	Silver Creek below Pennsylvania Creek near Markleeville, Calif.	20	1946-63	Jan. 31, 1963 Dec. 23, 1955	5.28 6.09	2,080 1,520
3088	East Fork Carson River below Markleeville Creek, near Markleeville, Calif.	299	1960-63	Jan. 31, 1963 May 5, 1962	8.21 3.35	15,100 2,180
3082	Bryant Creek near Gardnerville, Nev.	31.5	1961-63	Jan. 31, 1963	-	975
3090	East Fork Carson River near Gardnerville, Nev.	344	1890-93, 1900-06, 1908-10, 1917, 1924-29, 1935-37, 1939-63	Feb. 1, 1963 Dec. 23, 1955	10.49 11.88	13,460 17,600
3105	Clear Creek near Carson City, Nev.	15	1948-63	Feb. 1, 1963 Dec. 23, 1955	2.29 2.03	170 117
3110	Carson River near Carson City, Nev.	876	1939-63	Feb. 1, 1963 Dec. 24, 1955	13.11 15.0	21,900 30,000
3120	Carson River near Ft. Churchill, Nev.	1,450	1911-63	Feb. 2, 1963 Dec. 26, 1955	10.83 -	15,300 [b] 9,680

See footnotes at end of table.

Table 5.--Peak stages and discharges in California and western Nevada - Continued

No.	Stream and place of determination	Drainage area (sq.mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft.)	Discharge (cfs)
	PART 10. GREAT BASIN - Continued					
	Truckee River basin					
3375	Truckee River at Tahoe City, Calif.	507	1895-96, 1900-63	Feb. 1, 1963 Apr. 5, 6, 1958	3.52 7.30	[a] 210 1,870
3385	Donner Creek at Donner Lake, Calif.	14.5	1909-10, 1929-53, 1955-57, 1958-63	Feb. 2, 1963 Nov. 21, 1950	3.27 -	[a] 278 700
3394	Martis Creek near Truckee, Calif.	40.4	1958-63	Feb. 1, 1963 Feb. 8, 1960	6.16 3.73	1,790 436
3397	Prosser Creek at Hobart Mills, Calif.	27.4	1958-63	Feb. 1, 1963 Feb. 8, 1960	7.90 3.77	4,920 521
3405	Prosser Creek near Boca, Calif.	53.5	1942-63	Feb. 6, 1963 Dec. 23, 1955	6.20 10.13	[a] 1,560 4,560
3420	Little Truckee River near Hobart Mills, Calif.	36.6	1946-63	Feb. 1, 1963 Nov. 20, 1950	7.76 7.53	6,500 7,010
3435	Sagehen Creek near Truckee, Calif.	10.8	1953-63	Feb. 1, 1963 Dec. 23, 1955	4.64 4.28	820 495
3444	Little Truckee River above Boca Reservoir, near Boca, Calif.	146	1903-10, 1939-63	Feb. 1, 1963 Dec. 23, 1955	9.00 -	14,000 9,500
3445	Little Truckee River at Boca, Calif.	172	1890, 1911-15, 1939-63	Feb. 1, 1963 Dec. 24, 1955	6.16 -	[a] 2,600 8,800
3460	Truckee River at Farad, Calif.	932	1899-63	Feb. 1, 1963 Nov. 21, 1950	11.61 14.5	11,900 17,500

See footnotes at end of table.

Table 5.--Peak stages and discharges in California and western Nevada - Continued

No.	Stream and place of determination	Drainage area (sq.mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft.)	Discharge (cfs)
	PART 10. GREAT BASIN - Continued					
	Truckee River basin - Continued					
3480	Truckee River at Reno, Nev.	1,067	1906-21 1925-26, 1930-35, 1943, 1946-63	Feb. 1, 1963 Dec. 23, 1955	13.33 13.83	18,400 20,800
3489	Galena Creek near Steamboat, Nev.	8.5	1961-63	Jan. 31, 1963 June 10, 1962 July 20, 1956	2.26 1.63 -	472 35 4,730
3493	Steamboat Creek near Steamboat, Nev.	123	1961-63	Jan. 31, 1963 Feb. 9, 1962	5.44 3.70	1,000 280
3497	Whites Creek near Steamboat, Nev.	9	1961-63	Jan. 31, 1963		135
3500	Truckee River at Vista, Nev.	1,429	1899-63 1908, 1932-54, 1958-63	Feb. 1, 1963 Mar. 18, 1907	16.80 -	21,300 10,000
3516	Truckee River below Derby Dam, near Wadsworth, Nev.	1,670	1909-10, 1916-63	Feb. 1, 1963 Dec. 13, 1937	14.26 -	[a] 18,400 8,970
3517	Truckee River near Nixon, Nev.	1,869	1957-63	Feb. 2, 1963 May 21, 1958 Dec. 24, 1955	14.39 8.77 14.1	14,400 5,160 14,000
	Honey Lake basin					
3565	Susan River at Susanville, Calif.	192	1900-05, 1913, 1917-21, 1950-63	Jan. 31, 1963 Dec. 23, 1955	6.78 6.62	3,900 3,540
3585	Willow Creek near Susanville, Calif.	92.5	1950-63	Feb. 1, 1963 Dec. 23, 1955	5.59	816 712

See footnotes at end of table.

Table 5.--Peak stages and discharges in California and western Nevada - Continued

No.	Stream and place of determination	Drainage area (sq.mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft.)	Discharge (cfs)
	PART 11. PACIFIC SLOPE BASINS IN CALIFORNIA					
	Arroyo de la Cruz basin					
1425	Arroyo de la Cruz near San Simeon, Calif.	41.4	1950-63	Jan. 31, 1963 Dec. 23, 1955	11.41 12.40	13,700 17,700
	Big Sur River basin					
1430	Big Sur River near Big Sur, Calif.	46.5	1950-63	Feb. 1, 1963 Apr. 2, 1958	11.22 11.56	5,390 5,680
	Carmel River basin					
1432	Carmel River at Robles del Rio, Calif.	193	1957-63	Jan. 31, 1963 Apr. 2, 1958	9.60 10.50	5,000 7,100
1432.5	Carmel River near Carmel, Calif.	246	1962-63	Jan. 31, 1963	14.72	6,200
	Salinas River basin					
1488	Nacimiento River near Bryson, Calif.	140	1955-63	Jan. 31, 1963 Dec. 23, 1955	21.04 24.63	22,700 30,300
1497	San Antonio River at Sam Jones Bridge near Lockwood, Calif.	211	1958-59 1961-63	Jan. 31, 1963 Feb. 16, 1959	8.70 5.45	13,200 1,460
1500	San Antonio River at Pleyto, Calif.	284	1922, 1929-63	Jan. 31, 1963 Apr. 3, 1958	6.35 6.44	10,000 19,100
1505	Salinas River near Bradley, Calif.	2,535	1948-63	Feb. 1, 1963 Apr. 3, 1958	9.87 12.53	12,100 28,400
1513	San Lorenzo Creek below Bitter-water Creek near King City, Calif.	233	1958-63	Jan. 31, 1963 Feb. 18, 1959	6.28 6.39	940 1,030

Table 5.--Peak stages and discharges in California and western Nevada - Continued

No.	Stream and place of determination	Drainage area (sq. mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft.)	Discharge (cfs)
	PART 11. PACIFIC SLOPE BASINS IN CALIFORNIA - Continued					
	Salinas River basin - Continued					
1518.7	Arroyo Seco near Greenfield, Calif.	113	1961-63	Jan. 31, 1963	11.35	10,700
1520	Arroyo Seco near Soledad, Calif.	244	1901-63	Jan. 31, 1963	15.55	24,300
				Apr. 3, 1958	14.40	28,300
1525	Salinas River near Spreckels, Calif.	4,156	1900-01, 1929-63	Feb. 1, 1963	15.22	7,800
				Feb. 12, 1938	[c]25.0	75,000
	Pajaro River basin					
1529	Cedar Creek near Bell Station, Calif.	12.8	1961-63	Jan. 31, 1963	6.90	5,000
1530	Pacheco Creek near Dunneville, Calif.	146	1939-63	Feb. 1, 1963	17.7	8,200
				Dec. 23, 1955	22.6	12,600
1535	Llagas Creek near Morgan Hill, Calif.	19.6	1951-63	Feb. 1, 1963	4.57	870
				Apr. 2, 1958	8.45	3,190
1539	Uvas Creek above Uvas Reservoir, Calif.	21.0	1961-63	Jan. 31, 1963	13.4	6,200
				Oct. 13, 1962	13.5	6,340
1541	Bodfish Creek near Gilroy, Calif.	7.40	1959-63	Jan. 31, 1963	8.27	1,300
				Feb. 1, 1959	6.35	585
1542	Uvas Creek near Gilroy, Calif.	71.2	1959-63	Feb. 1, 1963	17.66	[d]
				Feb. 8, 1960	9.11	2,700
1590	Pajaro River at Chittenden, Calif.	1,186	1939-63	Feb. 1, 1963	20.75	11,000
				Dec. 24, 1955	[e]32.46	24,000
1591.5	Corralitos Creek near Corralitos, Calif.	10.6	1957-63	Jan. 31, 1963	7.70	1,300
				Apr. 2, 1958	7.55	1,970
1592	Corralitos Creek at Freedom, Calif.	27.8	1956-63	Jan. 31, 1963	11.80	2,500
				Apr. 2, 1958	12.59	2,680
				Dec. 22, 1955	15.6	3,620

See footnotes at end of table.

Table 5.--Peak stages and discharges in California and western Nevada - Continued

No.	Stream and place of determination	Drainage area (sq.mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft.)	Discharge (cfs)
	PART 11. PACIFIC SLOPE BASINS IN CALIFORNIA - Continued					
	Aptos Creek basin					
1597	Aptos Creek at Aptos, Calif.	12.2	1958-63	Jan. 31, 1963	10.82	1,900
				Feb. 14, 1962	5.95	500
	Soquel River basin					
1598	West Branch Soquel near Soquel, Calif.	12.2	1958-63	Jan. 31, 1963	10.88	3,600
				Oct. 13, 1962	7.96	2,110
1600	Soquel Creek at Soquel, Calif.	40.2	1951-63	Jan. 31, 1963	16.27	7,900
				Dec. 23, 1955	22.33	15,800
	San Lorenzo River basin					
1603	Zayante Creek at Zayante, Calif.	11.1	1957-63	Jan. 31, 1963	6.96	3,000
				Apr. 2, 1958	7.70	3,700
1605	San Lorenzo River at Big Trees, Calif.	111	1936-63	Jan. 31, 1963	15.80	13,000
				Dec. 23, 1955	22.55	30,400
1615	Branciforte Creek at Santa Cruz, Calif.	17.3	1940-43, 1952-63	Jan. 31, 1963	13.35	2,850
				Dec. 22, 1955	22.04	8,100
	Scott Creek basin					
1619	Scott Creek above Little Creek, near Davenport, Calif.	25.0	1958-63	Jan. 31, 1963	8.73	1,700
				Feb. 13, 1962	9.35	2,100
	Pescadero Creek basin					
1625	Pescadero Creek near Pescadero, Calif.	45.9	1951-63	Jan. 31, 1963	18.8	6,700
				Dec. 23, 1955	21.27	9,420
	Purisima Creek basin					
1626	Purisima Creek near Half Moon Bay, Calif	4.83	1958-63	Jan. 31, 1963	5.31	230
				Oct. 13, 1962	5.72	228

Table 5.--Peak stages and discharges in California and western Nevada - Continued

No.	Stream and place of determination	Drainage area (sq.mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft.)	Discharge (cfs)
	PART 11. PACIFIC SLOPE BASINS IN CALIFORNIA - Continued					
	Atherton Drainage Channel basin					
1629	Sharon Creek near Menlo Park, Calif.	0.38	1958-63	Jan. 31, 1963	3.07	68.0
				Mar. 5, 1962	3.10	56.0
	San Francisquito Creek basin					
1629.4	San Francisquito Creek below Ladera damsite, Calif.	28.5	1961-63	Jan. 31, 1963	16.04	[d]
				Oct. 13, 1962	9.88	1,500
1629.5	San Francisquito Creek tributary near Stanford University, Calif.	0.26	1958-63	Jan. 31, 1963	2.94	37.3
				Mar. 5, 1962	2.98	39.1
1632	Los Trancos Creek tributary near Stanford University, Calif.	0.47	1958-63	Jan. 31, 1963	2.63	66.2
				Mar. 5, 1962	2.53	56.8
1645	San Francisquito Creek at Stanford University, Calif.	37.5	1930-41, 1950-63	Jan. 31, 1963	10.07	3,800
				Dec. 22, 1955	13.60	5,560
	Matadero Creek basin					
1660	Matadero Creek at Palo Alto, Calif.	7.24	1952-63	Jan. 31, 1963	3.97	630
				Dec. 22, 1955	[f] 9.60	854
	Guadalupe River basin					
1669	Alamitos Creek near New Almaden, Calif.	31.9	1958-63	Jan. 31, 1963	8.44	2,500
				Apr. 2, 1958	9.67	4,300
1676.6	Ross Creek at San Jose, Calif.	5.70	1961-63	Jan. 31, 1963	6.24	480
				Oct. 13, 1962	6.30	500
1680	Los Gatos Creek at Los Gatos, Calif.	38.6	1929-44	Feb. 2, 1963	7.77	1,680
			1953-62	Feb. 27, 1940	[g] 14.71	7,110

See footnotes at end of table.

Table 5.--Peak stages and discharges in California and western Nevada - Continued

No.	Stream and place of determination	Drainage area (sq.mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft.)	Discharge (cfs)
	PART 11. PACIFIC SLOPE BASINS IN CALIFORNIA - Continued					
	Guadalupe River basin - Continued					
1690	Guadalupe River at San Jose, Calif.	146	1929-63	Jan. 31, 1963	10.79	6,300
				Apr. 2, 1958	16.55	9,150
1695	Saratoga Creek at Saratoga, Calif.	9.22	1933-63	Jan. 31, 1963	5.68	1,180
				Dec. 22, 1955	6.40	2,730
	Coyote Creek basin					
1698	Coyote Creek near Gilroy, Calif.	110	1960-63	Jan. 31, 1963	12.60	[d]
				Feb. 15, 1962	8.99	4,450
	Alameda Creek basin					
1740	San Antonio Creek near Sunol, Calif.	37.0	1912-30, 1960-63	Jan. 31, 1963	7.4	[d]
				Jan. 3, 1916	-	[b] 1,460
1765	Arroyo Valle near Livermore, Calif.	147	1912-30, 1957-63	Feb. 1, 1963	9.35	9,020
				Apr. 2, 1958	10.91	12,200
				Dec. 23, 1955	13.93	18,200
1766	Arroyo Valle at Pleasanton, Calif.	171	1957-63	Feb. 1, 1963	23.90	8,000
				Apr. 3, 1958	25.36	11,300
1790	Alameda Creek near Niles, Calif.	633	1891-1963	Feb. 1, 1963	11.15	13,400
				Dec. 23, 1955	14.9	29,000
1805	Dry Creek at Union City, Calif.	9.41	1916-19, 1959-63	Jan. 31, 1963	3.24	220
				Oct. 13, 1962	4.16	930
1807	Patterson Creek at Union City, Calif.	-	1958-63	Feb. 1, 1963	20.4	10,700
				Feb. 16, 1959	13.55	3,700
1807.5	Alameda Creek at Union City, Calif.	654	1958-63	Feb. 1, 1963	19.25	1,750
				Feb. 15, 1962	13.08	394
	San Lorenzo Creek basin					
1810	San Lorenzo Creek at Hayward, Calif.	37.5	1939-40, 1946-63	Jan. 31, 1963	14.37	3,600
				Oct. 13, 1962	[h] 19.73	7,460

See footnotes at end of table.

Table 5.--Peak stages and discharges in California and western Nevada - Continued

No.	Stream and place of determination	Drainage area (sq.mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft.)	Discharge (cfs)
	PART 11. PACIFIC SLOPE BASINS IN CALIFORNIA - Continued					
	Pacheco Creek basin					
1825	San Ramon Creek at San Ramon, Calif.	5.89	1952-63	Jan. 31, 1963	12.3	d
				Oct. 13, 1962	16.98	1,600
1830	San Ramon Creek at Walnut Creek, Calif.	50.8	1952-63	Jan. 31, 1963	14.52	d
				Dec. 23, 1955	14.55	6,890
1835	Walnut Creek at Walnut Creek, Calif.	79.2	1952-63	Jan. 31, 1963	12.55	d
				Apr. 2, 1958	20.2	12,200
	Buena Vista Lake basin					
1853	Golden Trout Creek near Cartago, Calif.	23.6	1956-63	Feb. 1, 1963	4.45	25
				May 31, 1958	4.05	182
1853.5	Kern River near Quaking Aspen Camp, Calif.	530	1960-63	Feb. 1, 1963	7.39	3,480
				June 22, 1962	7.08	3,140
1854	Little Kern River near Quaking Aspen Camp, Calif.	132	1957-63	Feb. 1, 1963	9.19	d
				May 19, 1958	5.24	1,100
				Dec. 23, 1955	12.4	-
1860	Kern River near Kernville, Calif.	848	1912-63	Feb. 1, 1963	16.15	21,100
				Dec. 23, 1955	17.55	27,200
1870	Kern River at Kernville, Calif.	1,009	1905-12;	Feb. 1, 1963	16.76	32,800
			1953-63	Dec. 23, 1955	16.20	29,400
				Nov. 19, 1950	18.4	-
1882	South Fork Kern River near Olancha, Calif.	146	1956-63	Feb. 1, 1963	5.37	1,200
				May 10, 1958	5.50	1,280
1895	South Fork Kern River near Onyx, Calif.	530	1911-14,	Feb. 1, 1963	6.79	3,460
			1919-42,	Mar. 2, 1938	6.69	3,450
			1947-63	Jan. 25, 1914	7.2	-
1910	Kern River below Isabella Dam, Calif.	2,074	1945-63	Jan. 30, 1963	2.95	12
				June 28, 1958	15.14	4,260

See footnotes at end of table.

Table 5.--Peak stages and discharges in California and western Nevada - Continued

No.	Stream and place of determination	Drainage area (sq.mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft.)	Discharge (cfs)
	PART 11. PACIFIC SLOPE BASINS IN CALIFORNIA - Continued					
	Tulare Lake basin					
2020	North Fork of Middle Fork Tule River near Springville, Calif.	39.5	1939-63	Feb. 1, 1963	9.68	d
				Dec. 23, 1955	12.47	12,400
2032	Tule River near Springville, Calif.	229	1957-63	Jan. 31, 1963	10.80	13,500
				Apr. 3, 1958	6.70	3,400
				Dec. 1955	13.7	21,000
2045	South Fork Tule River near Success, Calif.	109	1930-54 1956-63	Feb. 1, 1963	7.75	1,780
				Nov. 19, 1950	11.36	7,100
2049	Tule River below Success Dam, Calif. (formerly Tule River at Worth Bridge)	393	1953-63	Jan. 31, 1963	9.25	2,980
				Dec. 23, 1955	g21.65	27,000
2065	Middle Fork Kaweah River near Potwisha Camp, Calif.	100	1949-63	Feb. 1, 1963	13.52	11,900
				Dec. 23, 1955	29.0	46,800
2080	Marble Fork Kaweah River at Potwisha Camp, Calif.	50.6	1950-63	Feb. 1, 1963	9.94	d
				Dec. 23, 1955	13.4	12,500
2099	Kaweah River at Three Rivers, Calif.	418	1958-63	Feb. 1, 1963	13.68	30,900
				Feb. 16, 1959	7.36	3,400
				Dec. 23, 1955	17.9	-
2101	South Fork Kaweah River at Three Rivers, Calif.	86.7	1958-63	Feb. 1, 1963	4.95	2,440
				Feb. 10, 1962	3.71	618
				Dec. 1955	9.5	-
2109.5	Kaweah River below Terminus Dam, Calif.		1962-63	Jan. 31, 1963	8.28	5,080
				Feb. 10, 1962	7.26	3,500
2113	Dry Creek near Lemon Cove, Calif.	80.4	1959-63	Feb. 1, 1963	5.08	1,600
				Feb. 11, 1962	4.37	732

See footnotes at end of table.

Table 5.--Peak stages and discharges in California and western Nevada - Continued

No.	Stream and place of determination	Drainage area (sq.mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft)	Discharge (cfs)
	PART 11. PACIFIC SLOPE BASINS IN CALIFORNIA - Continued					
	Tulare Lake basin - Continued					
2135	Kings River above North Fork, Calif.	956	1926-28; 1931-63	Feb. 1, 1963 Dec. 23, 1955	10.85 16.26	29,000 59,100
2165	North Fork Kings River above Dinkey Creek, Calif.	250	1919-30 1960-63	Feb. 1, 1963 June 4, 1922	13.25 13.18	d 6,080
2184	North Fork Kings River below Dinkey Creek, Calif.	387	1960-63	Feb. 1, 1963 Dec. 1, 1960	19.2 7.64	d 2,680
2185	Kings River below North Fork, Calif.	1,350	1951-63	Feb. 1, 1963 Dec. 23, 1955 Nov. 19, 1950	16.34 23.08 21.6	40,900 85,200 74,200
2200	Big Creek above Pine Flat Reservoir, Calif.	69.2	1953-63	Feb. 1, 1963 Dec. 23, 1955	9.00 9.21	9,600 10,400
2205	Sycamore Creek above Pine Flat Reservoir, Calif.	56.5	1953-63	Jan. 31, 1963 Dec. 24, 1955	7.56 9.78	3,310 6,760
2215	Kings River below Pine Flat Dam, Calif.	1,542	1953-63	Jan. 30, 1963 May 3, 1958	1.56 9.35	172 12,700
2217	Mill Creek near Piedra, Calif.	120	1957-63	Jan. 31, 1963 Mar. 22, 1958	6.68 7.29	3,120 5,000
2245	Los Gatos Creek above Nunez Canyon, near Coalinga, Calif.	95.5	1946-63	Feb. 9, 1963 Feb. 9, 1962	5.18 7.25	570 2,560
	San Joaquin River basin					
2325	Jackass Creek near Jackass Meadow, Calif.	12.8	1921-28 1952-63	Feb. 1, 1963 Dec. 23, 1955	10.10 11.37	540 786

See footnotes at end of table.

Table 5.--Peak stages and discharges in California and western Nevada - Continued

No.	Stream and place of determination	Drainage area (sq.mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft.)	Discharge (cfs)
	PART 11. PACIFIC SLOPE BASINS IN CALIFORNIA - Continued					
	San Joaquin River basin - Continued					
2345	Chiquito Creek near Arnold Meadow, Calif.	59.6	1921-28 1951-63	Feb. 1, 1963 Dec. 23, 1955	13.93 16.38	5,660 8,630
2350	San Joaquin River above Big Creek, Calif.	1,050	1912-15 1922-63	Feb. 1, 1963 Dec. 23, 1955	14.10 24.75	7,120 63,000
2370	Big Creek below Huntington Lake, Calif.	80.0	1925-63	Feb. 1, 1963 June 23, 1925	3.01 11.3	3.7 2,040
2375	Pitman Creek below Tamarack Creek, Calif.	22.7	1927-63	Feb. 1, 1963 Dec. 23, 1963	8.47 11.20	1,460 3,670
2420	San Joaquin River above Willow Creek, near Auberry, Calif.	1,299	1951-63	Feb. 1, 1963 Dec. 23, 1955	23.15 54.2	d 73,200
2465	Willow Creek at mouth, near Auberry, Calif.	130	1952-63	Feb. 1, 1963 Dec. 23, 1955	19.06 28.5	d 12,000
2470	San Joaquin River below Kerckhoff powerhouse, Calif.	1,480	1910-14, 1936-37, 1942-63	Feb. 1, 1963 Dec. 23, 1955	32.20 51.0	30,300 92,200
2510	San Joaquin River below Friant, Calif.	1,675	1907-63	Jan. 30, 1963 Dec. 11, 1937	2.08 g23.8	70 77,200
2575	Fresno River near Knowles, Calif.	132	1911-13, 1915-63	Feb. 1, 1963 Dec. 23, 1955	7.36 11.52	5,180 13,300
2580	Fresno River near Daulton, Calif.	259	1941-63	Feb. 1, 1963 Dec. 23, 1955	7.23 11.64	6,290 17,500

See footnotes at end of table.

Table 5.--Peak stages and discharges in California and western Nevada - Continued

No.	Stream and place of determination	Drainage area (sq.mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft.)	Discharge (cfs)
	PART 11. PACIFIC SLOPE BASINS IN CALIFORNIA - Continued					
	San Joaquin River basin - Continued					
2590	Chowchilla River at Buchanan damsite, Calif.	238	1921-23 1930-63	Feb. 1, 1963 Dec. 23, 1955	11.68 16.50	9,740 30,000
2615	San Joaquin River at Fremont Ford Bridge, Calif.	8,090	1937-63	Feb. 4, 1963 Apr. 6, 1958	61.50 74.91	2,100 5,910
2628	Los Banos Creek near Los Banos, Calif.	159	1958-63	Feb. 1, 1963 Feb. 8, 1960 Dec. 23, 1955	4.80 4.02 12.07	3,300 1,620 11,400
2630	San Luis Creek near Los Banos, Calif.	84.7	1949-63	Feb. 1, 1963 Apr. 2, 1958	7.40 7.99	3,200 3,420
2645	Merced River at Happy Isles Bridge, near Yosemite, Calif.	181	1915-63	Feb. 1, 1963 Dec. 23, 1955	8.29 12.73	5,200 9,860
2665	Merced River at Pohono Bridge, near Yosemite, Calif.	321	1916-63	Feb. 1, 1963 Dec. 23, 1955	14.25 21.52	14,900 23,400
2673	South Fork Merced River at Wawona, Calif.	99.2	1958-63	Feb. 1, 1963 Feb. 16, 1959 Dec. 23, 1955	9.56 5.26 12	8,640 1,860 15,000
2680	South Fork Merced River near El Portal, Calif.	239	1950-63	Feb. 1, 1963 Dec. 23, 1955	15.22 18.70	23,000 46,500
2685	Merced River at Bagby, Calif.	912	1922-63	Feb. 1, 1963 Dec. 23, 1955	19.17 26.80	50,200 92,500
2700	Merced River at Exchequer, Calif.	1,029	1901-63	Feb. 1-4, 1963 Jan. 31, 1911	- g23.3	38 47,700

See footnotes at end of table.

Table 5.--Peak stages and discharges in California and western Nevada - Continued

No.	Stream and place of determination	Drainage area (sq.mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft.)	Discharge (cfs)
	PART 11. PACIFIC SLOPE BASINS IN CALIFORNIA - Continued					
	San Joaquin River basin - Continued					
2725	Merced River near Stevinson, Calif.	1,274	1940-63	Feb. 2, 1963 Dec. 5, 1950	58.48 74.79	564 13,600
2740	San Joaquin River near Newman, Calif.	9,990	1912-63	Feb. 16, 1963 Mar. 7, 1938	56.85 65.81	4,410 33,000
2745	Orestimba Creek near Newman, Calif.	135	1932-63	Feb. 1, 1963 Apr. 2, 1958	9.72 9.57	d 10,200
2750	Falls Creek near Hetch Hetchy, Calif.	45.2	1915-63	Feb. 1, 1963 Nov. 19, 1950 Dec. 23, 1955	8.68 9.0	5,560 6,660
2765	Tuolumne River near Hetch Hetchy, Calif.	462	1910-63	Feb. 1, 1963 June 1, 1943	6.59 13.90	926 12,900
2773	Cherry Creek below Cherry Valley Dam, near Hetch Hetchy, Calif.	118	1956-63	Jan. 31, 1963 Apr. 25, 1958	4.11 9.95	d 3,830
2780	Eleanor Creek near Hetch Hetchy, Calif.	80	1909-63	Feb. 1, 1963 Nov. 19, 1950	12.24 14.95	8,210 11,700
2783	Cherry Creek near Early Intake, Calif.	226	1956-63	Jan. 31, 1963 May 6, 1958	14.5 10.46	16,500 4,940
2810	South Fork Tuolumne River near Oakland Recreation Camp, Calif.	87.6	1923-63	Feb. 1, 1963 Dec. 23, 1955	9.6 10.9	8,000 11,900
2820	Middle Tuolumne River at Oakland Recreation Camp, Calif.	71.0	1916-63	Feb. 1, 1963 Dec. 23, 1955	8.56 11.75	2,300 4,920

See footnotes at end of table.

Table 5.--Peak stages and discharges in California and western Nevada - Continued

No.	Stream and place of determination	Drainage area (sq.mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft.)	Discharge (cfs)
	PART 11. PACIFIC SLOPE BASINS IN CALIFORNIA - Continued					
	San Joaquin River basin - Continued					
2835	Clavey River near Buck Meadows, Calif.	144	1959-63	Feb. 1, 1963	21.40	d
				Feb. 8, 1960	11.52	3,420
2845	Big Creek near Groveland, Calif.	25.0	1931-33	Feb. 1, 1963	7.71	d
			1959-63	Feb. 6, 1932	6.70	3,000
2847	North Fork Tuolumne River near Long Barn, Calif.	23.1	1962-63	Feb. 1, 1963	7.23	1,750
				Dec. 23, 1955	10.5	2,590
2850	North Fork Tuolumne River above Dyer Creek, near Tuolumne, Calif.	68.7	1958-63	Jan. 31, 1963	5.79	d
				Feb. 16, 1959	4.03	1,460
				Dec. 1955	10.7	-
2865	Woods Creek near Jacksonville, Calif.	97.8	1925-63	Feb. 1, 1963	13.50	11,300
				Dec. 23, 1955	14.66	14,400
2990	Tuolumne River at Modesto, Calif.		1940-63	Feb. 3, 1963	50.69	6,910
				Dec. 9, 1950	69.19	57,000
2925	Clark Fork Stanislaus River near Dardanelle, Calif.	65.7	1950-63	Feb. 1, 1963	9.00	2,300
				Nov. 20, 1950	11.88	4,350
2927	Middle Fork Stanislaus River at Hells Half Acre Bridge, Calif.	280	1956-63	Jan. 31, 1963	12.21	7,520
				May 18, 1958	g 9.05	5,820
				Dec. 23, 1955	g17.72	26,600
2929	Middle Fork Stanislaus River below Beardsley Dam, Calif.	311	1956-63	Feb. 4, 1963	6.15	948
				May 23, 1958	10.48	5,860
2943	North Fork Stanislaus River below Ganns Damsite, Calif.	111	1960-63	Jan. 31, 1963	16.12	d
				May 5, 1962	9.14	2,940
				Dec. 23, 1955	17	

See footnotes at end of table.

Table 5.--Peak stages and discharges in California and western Nevada - Continued

No.	Stream and place of determination	Drainage area (sq.mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft.)	Discharge (cfs)
	PART 11. PACIFIC SLOPE BASINS IN CALIFORNIA - Continued					
	San Joaquin River basin - Continued					
2945	North Fork Stanislaus River near Avery, Calif.	163	1914-25 1928-63	Feb. 1, 1963 Dec. 23, 1955	15.0 14.23	36,000 32,000
3020	Stanislaus River below Goodwin Dam, near Knights Ferry, Calif.	980	1957-63	Feb. 2, 1953 Apr. 4, 1958 Dec. 23, 1955	17.18 17.25 -	12,000 12,200 62,900
3030	Stanislaus River at Ripon, Calif.	-	1940-63	Feb. 3, 1963 Dec. 24, 1955 Feb. 12, 1938	55.33 63.25 64.4	7,160 62,500 -
3035	San Joaquin River near Vernalis, Calif.	14,010	1922-63	Feb. 4, 1963 Dec. 9, 1950	23.27 32.81	12,400 79,000
3040	Corral Hollow Creek near Tracy, Calif.	61.6	1958-63	Feb. 1, 1963 Feb. 16, 1959	2.04 2.78	57 129
3060	South Fork Calaveras River near San Andreas, Calif.	118	1950-63	Jan. 31, 1963 Dec. 23, 1955	9.20 10.29	12,600 17,600
3065	Calaveritas Creek near San Andreas, Calif.	53.3	1950-63	Feb. 1, 1963 Apr. 2, 1958	6.35 6.65	3,870 4,410
3080	North Fork Calaveras River near San Andreas, Calif.	85.7	1950-63	Feb. 1, 1963 Dec. 23, 1955	11.72 12.52	6,160 6,200
3089	Calaveras River below Hogan Dam, Calif.	363	1961-63	Feb. 1, 1963 Feb. 16, 1962	6.74 4.48	7,000 5,100
3090	Cosgrove Creek near Valley Springs, Calif.	20.6	1929-63	Feb. 1, 1963 Dec. 23, 1955	5.74 8.96	987 3,240

Table 5.--Peak stages and discharges in California and western Nevada - Continued

No.	Stream and place of determination	Drainage area (sq.mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft.)	Discharge (cfs)
	PART 11. PACIFIC SLOPE BASINS IN CALIFORNIA - Continued					
	San Joaquin River basin - Continued					
3095	Calaveras River at Jenny Lind, Calif.	395	1907-63	Feb. 1, 1963 Jan. 31, 1911	11.11 21.0	6,910 50,000
3120	Bear Creek near Lockeford, Calif.	47.6	1930-63	Feb. 1, 1963 Apr. 3, 1958	12.51 15.13	1,050 2,930
3168	Forest Creek near Wilseyville, Calif.	20.8	1960-63	Jan. 31, 1963 Feb. 15, 1962	7.41 4.60	d 260
3170	Middle Fork Mokelumne River at West Point, Calif.	67.2	1911-63	Feb. 1, 1963 Dec. 23, 1955	8.21 8.98	3,470 4,320
3185	South Fork Mokelumne River near West Point, Calif.	73.8	1933-63	Feb. 1, 1963 Dec. 23, 1955	10.78 g14.8	4,490 6,920
3195	Mokelumne River near Mokelumne Hill, Calif.	538	1901; 1903-4 1927-63	Feb. 1, 1963 Dec. 3, 1950	16.10 18.5	25,700 33,700
3210	Mokelumne River at Lancha Plana, Calif.	584	1926-63	Feb. 1, 1963 Nov. 21, 1950	8.28 20.1	4,930 26,700
3232	Mokelumne River below Camanche dam-site, Calif.		1961-63	Feb. 1, 1963 June 12, 1962	10.87 8.02	5,920 3,100
3255	Mokelumne River at Woodbridge, Calif.	644	1924-63	Feb. 4, 1963 Nov. 22, 1950	22.56 29.58	5,340 27,000
3295	Dry Creek near Galt, Calif.	325	1926-33, 1944-63	Feb. 1, 1963 Apr. 3, 1958	13.96 15.28	9,800 24,000
3330	Camp Creek near Somerset, Calif.	62.7	1924, 1954-63	Feb. 1, 1963 Dec. 23, 1955	12.25 12.48	5,740 6,020

See footnotes at end of table.

Table 5.--Peak stages and discharges in California and western Nevada - Continued

No.	Stream and place of determination	Drainage area (sq.mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft.)	Discharge (cfs)
	PART 11. PACIFIC SLOPE BASINS IN CALIFORNIA - Continued					
	San Joaquin River basin - Continued					
3335	North Fork Cosumnes River near El Dorado, Calif.	202	1911-41; 1948-63	Feb. 1, 1963 Dec. 23, 1955	13.45 14.8	12,700 15,800
3342	Middle Fork Cosumnes River near Somerset, Calif.	108	1957-63	Feb. 1, 1963 Apr. 3, 1958 Dec. 23, 1955	16.07 10.85 18.1	d 3,400 -
3343	South Fork Cosumnes River near River Pines, Calif.	64.3	1957-63	Feb. 1, 1963 Apr. 3, 1958	10.90 9.90	5,540 4,740
3350	Cosumnes River at Michigan Bar, Calif.	537	1907-63	Feb. 1, 1963 Dec. 23, 1955 Mar. 1907	14.11 14.59 16.3	39,400 42,000 -
3360	Cosumnes River at McConnell, Calif.	730	1941-63	Feb. 1, 1963 Dec. 23, 1955	45.47 46.26	26,200 54,000
3375	Marsh Creek near Byron, Calif.	42.5	1953-63	Jan. 31, 1963 Dec. 23, 1955	11.62 12.98	3,900 3,800
	Sacramento River basin					
3420	Sacramento River at Delta, Calif.	427	1944-63	Jan. 31, 1963 Dec. 22, 1955	12.55 19.50	14,800 37,000
3650	Pit River near Montgomery Creek, Calif.	5,170	1944-63	Feb. 3, 1963 Dec. 23, 1955	10.2 14.12	15,900 37,100
3655	Squaw Creek above Shasta Lake, Calif.	65.3	1944-63	Jan. 31, 1963 Dec. 21, 1955	15.60 21.90	5,890 17,800
3680	McCloud River above Shasta Lake, Calif.	606	1945-63	Jan. 31, 1963 Dec. 22, 1955	18.00 28.20	9,700 45,200

See footnotes at end of table.

Table 5.--Peak stages and discharges in California and western Nevada - Continued

No.	Stream and place of determination	Drainage area (sq.mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft.)	Discharge
	PART 11. PACIFIC SLOPE BASINS IN CALIFORNIA - Continued					
	Sacramento River basin - Continued					
3705	Sacramento River at Keswick, Calif.	6,710	1938-63	Jan. 31, 1963	14.09	11,700
				Feb. 23, 1940	g47.2	186,000
3720	Clear Creek near Igo, Calif.	228	1940-63	Jan. 31, 1963	7.72	6,030
				Dec. 21, 1955	13.75	24,500
3720.5	Churn Creek near Redding, Calif.	9.34	1960-63	Jan. 31, 1963	6.61	1,230
				Feb. 13, 1962	6.91	1,410
				Sept. 18, 1959	9.8	4,860
3740	Cow Creek near Millville, Calif.	427	1947-63	Jan. 31, 1963	13.91	16,800
				Dec. 27, 1951	21.55	45,200
3760	Cottonwood Creek near Cottonwood, Calif.	945	1940-63	Jan. 31, 1963	12.28	23,100
				Mar. 1, 1941	15.4	52,300
3765	Battle Creek near Cottonwood, Calif.	362	1961-63	Jan. 31, 1963	8.72	4,640
				Oct. 12, 1962	11.31	9,220
				Dec. 11, 1937	g15.8	35,000
3775	Paynes Creek near Red Bluff, Calif.	92.5	1949-63	Jan. 30, 1963	7.65	3,300
				Dec. 1, 1960	11.33	10,600
3780	Sacramento River near Red Bluff, Calif.	9,300	1892-63	Feb. 1, 1963	17.16	76,700
				Feb. 28, 1940	38.9	291,000
3790	Antelope Creek near Red Bluff, Calif.	124	1940-63	Jan. 31, 1960	9.67	3,740
				Feb. 22, 1956	12.43	11,500
				Dec. 1937	g22	-
3795	Elder Creek near Paskenta, Calif.	95.8	1948-63	Jan. 31, 1963	10.20	4,890
				Feb. 24, 1958	13.90	11,700
3805	Elder Creek at Gerber, Calif.	142	1949-63	Jan. 31, 1963	10.60	6,200
				Feb. 19, 1958	g14.40	11,000
3815	Mill Creek near Los Molinos, Calif.	134	1909-13, 1928-63	Jan. 31, 1963	11.19	9,040
				Dec. 11, 1937	23.4	23,000

See footnotes at end of table.

Table 5.--Peak stages and discharges in California and western Nevada - Continued

No.	Stream and place of determination	Drainage area (sq.mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft.)	Discharge (cfs)
	PART 11. PACIFIC SLOPE BASINS IN CALIFORNIA - Continued					
	Sacramento River basin - Continued					
3820	Thomes Creek at Paskenta, Calif.	188	1920-63	Jan. 31, 1963 Dec. 21, 1955	12.63 13.89	19,200 23,500
3835	Deer Creek near Vina, Calif.	200	1911-15, 1920-37, 1939-63	Jan. 31, 1963 Dec. 10, 1937	11.03 19.2	9,470 23,800
3840	Big Chico Creek near Chico, Calif.	67.9	1930-63	Jan. 31, 1963 Dec. 10, 1937	12.21 g16.6	5,540 8,260
3870	Stony Creek near Fruto, Calif.	598	1901-12, 1960-63	Jan. 31, 1963 Feb. 2, 1909	11.64 g16.3	16,000 36,000
3880	Stony Creek at Black Butte dam-site near Orland, Calif.	741	1955-63	Feb. 1, 1963 Feb. 24, 1958	13.37 11.82	10,700 36,300
3885	Stony Creek near Hamilton City, Calif.	764	1941-63	Feb. 1, 1963 Feb. 25, 1958	12.32 18.31	9,300 39,900
3890	Sacramento River at Butte City, Calif.	-	1938-63	Feb. 2, 1963 Feb. 7, 1942	91.30 96.87	100,000 170,000
3895	Sacramento River at Colusa, Calif.	-	1940-63	Feb. 2, 1963 Feb. 8, 1942	64.78 69.20	38,100 49,000
3897	Butte Creek at Butte Meadows, Calif.	44.4	1960-63	Jan. 31, 1963 Oct. 13, 1962	7.03 6.66	3,450 2,920
3900	Butte Creek near Chico, Calif.	148	1930-63	Jan. 31, 1963 Dec. 22, 1955	11.67 13.35	14,200 18,700
3905	Sacramento River below Wilkins Slough, Calif.	-	1938-63	Feb. 2, 1963 Feb. 27, 1958	48.79 51.41	26,100 28,900

See footnotes at end of table.

Table 5.--Peak stages and discharges in California and western Nevada - Continued

No.	Stream and place of determination	Drainage area (sq.mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft.)	Discharge (cfs)
	PART 11. PACIFIC SLOPE BASINS IN CALIFORNIA - Continued					
	Sacramento River basin - Continued					
3910	Sacramento River at Knights Landing, Calif.	-	1940-63	Feb. 2, 1963 Dec. 3, 1960	39.90 30.31	27,600 30,000
3915	Big Grizzly Creek near Portola, Calif.	44.6	1925-32; 1950-53; 1954-63	Feb. 1, 1963 Mar. 26, 1928	8.03 9.54	 2,680
3925	Middle Fork Feather River near Clio, Calif.	686	1925-63	Feb. 1, 1963 Dec. 23, 1955	16.19 15.77	14,500 14,400
3935	Middle Fork Feather River below Sloat, Calif.	819	1940-62	Feb. 1, 1963 Dec. 23, 1955	20.76 19.25	34,800 31,200
3945	Middle Fork Feather River near Merrimac, Calif.	1,068	1951-63	Feb. 1, 1963 Dec. 23, 1955	21.65 21.2	65,400 62,000
3950.3	South Fork Feather River below Little Grass Valley Dam, Calif.	25.9	1960-63	Feb. 1, 1963 Feb. 9, 1961	- g 8.09	4,250 1,280
3952	South Fork Feather River below diversion dam, near Strawberry Valley, Calif.	37.7	1960-63	Jan. 31, 1963 Oct. 13, 1962	13.21 7.40	6,330 1,320
3953	Lost Creek above Sly Creek Reservoir, Calif.	14.1	1960-63	Jan. 31, 1963 Oct. 13, 1962	7.87 5.97	d 2,190
3960	Lost Creek near Clipper Mills, Calif.	30.0	1927-41 1948-63	Jan. 31, 1963 Dec. 22, 1955	3.22 6.90	555 5,000

See footnotes at end of table.

Table 5.--Peak stages and discharges in California and western Nevada - Continued

No.	Stream and place of determination	Drainage area (sq.mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft.)	Discharge (cfs)
	PART 11. PACIFIC SLOPE BASINS IN CALIFORNIA - Continued					
	Sacramento River basin - Continued					
3962	South Fork Feather River below Forbestown Dam, Calif.	87.5	1961-63	Jan. 31, 1963 Oct. 13, 1963	13.85 13.27	7,510 6,490
3963.5	South Fork Feather River below Ponderosa Dam, Calif.	108	1961-63	Jan. 31, 1963 Oct. 13, 1962	11.24 11.10	8,570 8,320
3970	South Fork Feather River at Enterprise, Calif.	132	1911-63	Jan. 31, 1963 Dec. 22, 1955	16.60 21.60	10,500 19,200
3975	Feather River at Bidwell Bar, Calif.	1,347	1911-63	Jan. 31, 1963 Dec. 23, 1955 Jan. 1862	24.30 25.5 31.2	93,600 104,000 -
4015	Indian Creek near Crescent Mills, Calif.	739	1906-09, 1911-18, 1930-63	Feb. 1, 1963 Dec. 24, 1955	18.35 17.80	24,900 31,500
4020	Spanish Creek above Blackhawk Creek, at Keddie, Calif.	184	1933-63	Feb. 1, 1963 Oct. 13, 1962	13.37 12.50	15,000 13,200
4045	North Fork Feather River at Big Bar, Calif.	1,953	1910-63	Jan. 31, 1963 Dec. 23, 1955	31.72 35.60	54,900 72,400
4053	West Branch Feather River near Paradise, Calif.	113	1957-63	Jan. 31, 1963 Feb. 8, 1960	23.35 18.55	21,200 14,000
4065	West Branch Feather River near Yankee Hill, Calif.	149	1930-63	Jan. 31, 1963 Dec. 11, 1937	30.15 30.3	21,300 21,400
4070	Feather River at Oroville, Calif.	3,632	1901-63	Jan. 31, 1963 Mar. 19, 1907	165.37 167.73	191,000 230,000

Table 5.--Peak stages and discharges in California and western Nevada - Continued

No.	stream and place of determination	Drainage area (sq.mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft.)	Discharge (cfs)
	PART 11. PACIFIC SLOPE BASINS IN CALIFORNIA - Continued					
	Sacramento River basin - Continued					
4075	South Honcut Creek near Bangor, Calif.	30.5	1950-63	Jan. 30, 1963	7.85	2,100
				Oct. 13, 1962	12.40	8,280
4085	Middle Yuba River at Milton, Calif.	39.5	1925-34, 1935-63	Jan. 31, 1963	5.25	9,840
				Dec. 11, 1937	4.18	6,800
4087	Middle Yuba River near Alleghany, Calif.	95.8	1957-63	Jan. 31, 1963	18.95	
				Oct. 13, 1962	12.68	10,900
4090	Middle Yuba River above Oregon Creek, Calif.	162	1910-63	Jan. 31, 1963	18.55	31,600
				Dec. 22, 1955	17.25	26,400
4095	Oregon Creek near North San Juan, Calif.	34.4	1911-63	Jan. 31, 1963	10.44	3,990
				Dec. 22, 1955	11.90	5,390
4130	North Yuba River below Goodyears Bar, Calif.	245	1930-63	Feb. 1, 1963	23.8	d
				Dec. 23, 1955	19.30	26,800
4133	Slate Creek below diversion dam, near Strawberry Valley, Calif.	49.4	1960-63	Jan. 31, 1963	15.90	11,200
				Oct. 13, 1962	12.75	6,740
4135	North Yuba River below Bullards Bar Dam, Calif.	482	1940-63	Jan. 31, 1963	42.0	d
				Dec. 23, 1955	39.0	70,000
4140	South Yuba River near Cisco, Calif.	51.5	1942-63	Jan. 31, 1963	19.6	18,400
				Nov. 20, 1950	15.82	11,700
4165	Canyon Creek below Bowman Lake, Calif.	30.4	1927-63	Jan. 31, 1963	3.05	186
				Dec. 4, 1950	6.28	2,520
4170	South Yuba River near Washington, Calif.	199	1942-53, 1956-63	Feb. 1, 1963	17.16	28,500
				Nov. 20, 1950	17.34	24,700

See footnotes at end of table.

Table 5.--Peak stages and discharges in California and western Nevada - Continued

No.	Stream and place of determination	Drainage area (sq.mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft.)	Discharge (cfs)
	PART 11. PACIFIC SLOPE BASINS IN CALIFORNIA - Continued					
	Sacramento River basin - Continued					
4175	South Yuba River at Jones Bar, Calif.	313	1940-48, 1959-63	Feb. 1, 1963 Oct. 13, 1962 Dec. 23, 1955	21.5 17.70 28.7	40,000 20,000 -
4180	Yuba River at Englebright Dam, Calif.	1,104	1941-63	Feb. 1, 1963 Dec. 23, 1955	- -	150,000 148,000
4185	Deer Creek near Smartville, Calif.	84.6	1935-63	Jan. 31, 1963 Oct. 13, 1962	10.10 13.77	5,600 13,000
4210	Yuba River near Marysville, Calif.	1,335	1943-63	Feb. 1, 1963 Dec. 23, 1955	87.60 -	90,100 [b]136,000
4230	Bear River near Auburn, Calif.	140	1940-63	Jan. 31, 1963 Dec. 22, 1955	16.15 16.56	19,300 19,700
4240	Bear River near Wheatland, Calif.	295	1928-63	Feb. 1, 1963 Dec. 22, 1955	13.95 19.30	22,000 33,000
4250	Feather River at Nicolaus, Calif.	5,920	1943-63	Feb. 1, 1963 Dec. 23, 1955	50.05 51.60	280,000 357,000
4255	Sacramento River at Verona, Calif.	-	1926-63	Feb. 1, 1963 Mar. 1, 1940	38.14 41.20	69,400 79,200
4260	Sacramento weir near Sacramento, Calif.	-	1926-63	Feb. 2, 1963 Mar. 26, 1928	31.83 33.01	89,600 118,000
4261.5	Onion Creek near Soda Springs, Calif.	3.58	1959-63	Jan. 31, 1963 Oct. 13, 1962	3.64 2.62	[d] 218
4262	North Fork Forbes Creek near Dutch Flat, Calif.	1.68	1956-63	Feb. 1, 1963 Oct. 14, 1962	4.90 3.13	295 50
4264	North Shirttail Creek near Dutch Flat, Calif.	9.10	1956-63	Jan. 31, 1963 Oct. 13, 1962	6.36 4.97	[d] 677

See footnotes at end of table.

Table 5.--Peak stages and discharges in California and western Nevada - Continued

No.	Stream and place of determination	Drainage area (sq.mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft.)	Discharge (cfs)
	PART 11. PACIFIC SLOPE BASINS IN CALIFORNIA - Continued					
	Sacramento River basin - Continued					
4270	North Fork American River at North Fork Dam, Calif.	343	1941-63	Jan. 31, 1963 Dec. 23, 1955	11.30 10.22	59,700 49,100
4275	Middle Fork American River at French Meadows, Calif.	46.7	1951-63	Jan. 31, 1963 Dec. 23, 1955	14.13 g14.95	21,500 16,300
4277	Duncan Creek near French Meadows, Calif.	9.94	1960-63	Jan. 31, 1963 Oct. 13, 1962	8.78 6.34	d 841
4280	Rubicon River at Rubicon Springs, near Meeks Bay, Calif.	31.4	1910-14, 1956-63	Feb. 1, 1963 Oct. 13, 1962 Dec. 1955	14.28 8.34 13.0	d 3,100 -
4295	Gerle Creek below Loon Lake Dam near Meeks Bay, Calif.		1910-14, 1962-63	Feb. 1, 1963 Oct. 27, 1962	11.95 6.46	d 430
4310	Rubicon River near Georgetown, Calif.	198	1909-14, 1943-63	Jan. 31 or Feb. 1, 1963 Dec. 23, 1955	25.6 18.76	d 51,000
4318	Pilot Creek above Stumpy Meadows Reservoir, Calif.	11.7	1960-63	Jan. 31, 1963 Oct. 13, 1962	8.05 4.76	d 325
4330.4	Pilot Creek below Mutton Canyon near Georgetown, Calif.		1961-63	Jan. 31, 1963 Oct. 14, 1962	4.51 3.46	d 160
4331	Long Canyon Creek near French Meadows, Calif.	18.0	1960-63	Feb. 1, 1963 Oct. 13, 1962	10.27 6.62	d 672

See footnotes at end of table.

Table 5.--Peak stages and discharges in California and western Nevada - Continued

No.	Stream and place of determination	Drainage area (sq.mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft.)	Discharge (cfs)
	PART 11. PACIFIC SLOPE BASINS IN CALIFORNIA - Continued					
	Sacramento River basin - Continued					
4335	Middle Fork American River near Auburn, Calif.	619	1911-63	Jan. 31 or Feb. 1, 1963 Dec. 23, 1955	43.1 33.9	d 79,000
4395	South Fork American River near Kyburz, Calif.	196	1907, 1922-63	Feb. 1, 1963 Nov. 21, 1950	11.2 9.40	16,000 14,500
4415	South Fork Silver Creek near Ice House, Calif.	27.5	1924-63	Feb. 1, 1963 Dec. 23, 1955	3.16 g 6.71	60 3,940
4419	Silver Creek below Camino diversion dam, Calif.	171	1960-63	Feb. 1, 1963 May 23, 1961	11.28 6.23	 1,950
4435	South Fork American River near Camino, Calif.	497	1922-63	Feb. 1, 1963 Dec. 23, 1955	29.2 32.6	35,900 49,800
4455	South Fork American River near Lotus, Calif.	678	1951-63	Feb. 1, 1963 Dec. 23, 1955 Nov. 21, 1950	19.85 21.37 20.4	60,400 71,800 64,500
4465	American River at Fair Oaks, Calif.	1,889	1904-63	Feb. 2, 1963 Nov. 21, 1950	21.44 g31.85	101,000 180,000
4475	Sacramento River at Sacramento, Calif.	-	1948-63	Feb. 1, 1963 Nov. 21, 1950 Jan. 17, 1909	28.52 g30.14 29.6	98,100 104,000 103,000
4476	Morrison Creek near Sacramento, Calif.	40.6	1959-63	Feb. 1, 1963 Feb. 10, 1962	6.06 6.94	989 988
4485	Adobe Creek near Kelseyville, Calif.	6.39	1954-63	Jan. 31, 1963 Oct. 12, 1962	9.22 9.18	1,450 1,430
4490	Highland Creek near Kelseyville, Calif.	11.9	1954-63	Jan. 31, 1963 Feb. 24, 1958	9.60 g12.19	1,700 2,280

See footnotes at end of table.

Table 5.--Peak stages and discharges in California and western Nevada - Continued

No.	Stream and place of determination	Drainage area (sq.mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft.)	Discharge (cfs)
	PART 11. PACIFIC SLOPE BASINS IN CALIFORNIA - Continued					
	Sacramento River basin - Continued					
4493.5	Burns Valley Creek near Clearlake Highlands, Calif.	4.38	1962-63	Jan. 31, 1963	4.38	277
4495	Kelsey Creek near Kelseyville, Calif.	37.2	1946-63	Jan. 31, 1963 Dec. 21, 1955	12.8 12.80	8,800 8,800
4510	Cache Creek near Lower Lake, Calif.	528	1944-63	Feb. 4, 1963 Feb. 24, 1958	8.38 9.40	5,660 8,000
4515	North Fork Cache Creek near Lower Lake, Calif.	198	1930-63	Jan. 31, 1963 Dec. 11, 1937	11.44 13.98	13,400 20,300
4520	Cache Creek near Capay, Calif.	1,052	1942-63	Feb. 1, 1963 Feb. 24, 1958	16.35 20.90	26,800 51,600
4525	Cache Creek at Yolo, Calif.	1,137	1903-63	Feb. 1, 1963 Feb. 25, 1958	26.92 33.11	24,000 41,400
4530	Yolo bypass near Woodland, Calif.	-	1939-63	Feb. 2, 1963 Feb. 8, 1942	30.62 32.00	163,000 272,000
4532	Dry Creek near Middletown, Calif.	8.41	1959-63	Jan. 31, 1963 Feb. 8, 1960	9.54 9.90	3,010 3,470
4535	Putah Creek near Guenoc, Calif.	112	1904-06, 1930-63	Jan. 31, 1963 Dec. 11, 1937	20.90 22.7	26,500 32,000
4537	Capell Creek tributary near Wooden Valley, Calif.	0.87	1959-63	Jan. 31, 1963 Feb. 8, 1960	7.29 4.91	d 158
4540	Putah Creek near Winters, Calif.	57.7	1930-63	Jan. 31, 1963 Feb. 27, 1940	8.77 30.5	1,060 81,000

See footnotes at end of table.

Table 5.--Peak stages and discharges in California and western Nevada - Continued

No.	Stream and place of determination	Drainage area (sq.mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft.)	Discharge (cfs)
	PART 11. PACIFIC SLOPE BASINS IN CALIFORNIA - Continued					
	Napa River basin					
4560	Napa River near St. Helena, Calif.	81.1	1929-32, 1939-63	Jan. 31, 1963 Dec. 22, 1955	15.30 16.17	12,800 12,600
4570	Dry Creek near Napa, Calif.	17.4	1951-63	Jan. 31, 1963 Feb. 24, 1958	6.96 8.11	2,300 3,460
4580	Napa River near Napa, Calif.	218	1929-32, 1959-63	Jan. 31, 1963 Feb. 8, 1960	28.00 23.10	19,000 12,300
4582	Redwood Creek near Napa, Calif.	9.81	1958-63	Jan. 31, 1963 Feb. 8, 1960	9.90 8.60	1,330 1,070
	Sonoma Creek basin					
4585	Sonoma Creek at Boyes Hot Springs, Calif.	62.2	1955-63	Jan. 31, 1963 Dec. 22, 1955	12.17 17.10	4,710 8,880
	Petaluma River basin					
4590	Petaluma River at Petaluma, Calif.	30.9	1948-63	Jan. 31, 1963 Dec. 22, 26, 1955 Jan. 14, 1956	10.76 13.55	1,320 1,860
	Novato Creek basin					
4595	Novato Creek near Novato, Calif.	17.5	1946-63	Jan. 30, 1963 Feb. 24, 1958	5.90 8.24	800 1,190
	Corte Madera Creek basin					
4600	Corte Madera Creek at Ross, Calif.	18.1	1951-63	Jan. 30, 1963 Dec. 22, 1955	15.38 17.45	2,500 3,620

Table 5.--Peak stages and discharges in California and western Nevada - Continued

No.	Stream and place of determination	Drainage area (sq.mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft.)	Discharge (cfs)
	PART 11. PACIFIC SLOPE BASINS IN CALIFORNIA - Continued					
	Walker Creek basin					
4608	Walker Creek near Tomales, Calif.	37.1	1959-63	Jan. 31, 1963	17.90	3,500
				Feb. 13, 1962	17.72	3,430
				Jan. 31, 1961	18.18	3,430
	Russian River basin					
4610	Russian River near Ukiah, Calif.	99.6	1911-13, 1952-63	Jan. 31, 1963	15.43	11,800
				Dec. 21, 1955	18.0	18,900
4615	East Fork Russian River near Calpella, Calif.	93.0	1941-63	Jan. 31, 1963	12.49	7,940
				Dec. 21, 1955	g15.06	13,300
4625	Russian River near Hopland, Calif.	362	1939-63	Jan. 31, 1963	19.24	21,200
				Dec. 22, 1955	27.00	45,000
4627	Feliz Creek near Hopland, Calif.	31.1	1958-63	Jan. 31, 1963	13.43	2,910
				Feb. 13, 1962	13.35	2,880
4630	Russian River near Cloverdale, Calif.	502	1951-63	Jan. 31, 1963	21.75	25,200
				Dec. 22, 1955	30.9	53,000
4632	Big Sulphur Creek near Cloverdale, Calif.	82.0	1957-63	Jan. 31, 1963	13.65	8,680
				Feb. 24, 1958	14.46	9,960
				Dec. 22, 1955	22.2	20,000
4639	Maacama Creek near Kellogg, Calif.	43.4	1958-63	Jan. 31, 1963	17.15	7,700
				Feb. 24, 1958	g20.6	-
4640	Russian River near Healdsburg, Calif.	791	1939-63	Feb. 1, 1963	20.10	41,800
				Feb. 28, 1940		
4645	Dry Creek near Cloverdale, Calif.	87.8	1941-63	Jan. 31, 1963	17.91	17,700
				Dec. 22, 1955	17.80	17,600
				Dec. 1937	18.0	-
4652	Dry Creek near Geyserville, Calif.	162	1959-63	Jan. 31, 1963	16.50	26,800
				Feb. 13, 1962	15.18	22,500

See footnotes at end of table.

Table 5.--Peak stages and discharges in California and western Nevada - Continued

No.	Stream and place of determination	Drainage area (sq.mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft.)	Discharge (cfs)
	PART 11. PACIFIC SLOPE BASINS IN CALIFORNIA - Continued					
	Russian River basin - Continued					
4658	Santa Rosa Creek near Santa Rosa, Calif.	12.5	1959-63	Jan. 31, 1963 Feb. 8, 1960	9.53 13.35	1,150 3,200
4670	Russian River near Guerneville, Calif.	1,342	1939-63	Feb. 1, 1963 Dec. 23, 1955	43.70 49.7	71,800 90,100
4672	Austin Creek near Cazadero, Calif.	63.1	1959-63	Jan. 31, 1963 Feb. 13, 1962	18.35 20.6	12,600 15,100
	Gualala River basin					
4675	South Fork Gualala River near Annapolis, Calif.	161	1950-63	Jan. 31, 1963 Dec. 22, 1955	16.85 g24.57	23,000 55,000
	Navarro River basin					
4678	Rancheria Creek near Boonville, Calif.	65.8	1959-63	Jan. 31, 1963 Feb. 8, 1960	18.30 15.30	13,900 9,990
4680.4	Navarro River near Navarro, Calif.	304	1950-63	Jan. 31, 1963 Dec. 22, 1955	34.34 40.60	33,100 64,500
	Albion River basin					
4680.1	Albion River near Comptche, Calif.	14.5	1961-63	Jan. 31, 1963 Feb. 13, 1962	7.53 8.30	729 960
	Big River basin					
4680.7	South Fork Big River near Comptche, Calif.	36.3	1960-63	Jan. 31, 1963 Feb. 13, 1962	10.81 9.47	2,960 2,160

See footnotes at end of table.

Table 5.--Peak stages and discharges in California and western Nevada - Continued

No.	Stream and place of determination	Drainage area (sq.mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft.)	Discharge (cfs)
	PART 11. PACIFIC SLOPE BASINS IN CALIFORNIA - Continued					
Noyo	Noyo River basin					
4685	Noyo River near Fort Bragg, Calif.	105	1951-63	Jan. 31, 1963	15.83	5,050
				Dec. 22, 1955	25.64	22,000

a Affected by storage and/or diversion.
b Maximum daily mean discharge.
c Maximum stage, 26.85 feet, Jan. 16, 1952.
d Discharge still to be determined.
e Maximum stage, 33.11 feet, Apr. 3, 1958.
f Maximum stage, 9.88 feet, Dec. 23, 1955
g Site and/or datum then in use.
h Maximum stage, 20.82 feet, Dec. 23, 1955.

FLOODS IN NORTHERN NEVADA

Moderate to heavy flooding occurred in northern Nevada during the period January 31 - February 2, 1963 (fig. 14). Antecedent conditions in the area, as in the Sierra Nevada, were favorable for heavy runoff, in that the ground was frozen. This resulted from the lack of a substantial snowpack and the subnormal temperatures of the preceding month. The rain, falling on forzen ground, ran off rapidly. There are no precipitation figures available for the area at this time, but it is apparent from the runoff data that the areal fainfall pattern was irregular, being influenced by the orographic features of the area. The heaviest flood damage occurred in the Quinn River basin. Several diversion dams were destroyed and bank erosion damaged farmlands adjacent to stream channels.

Table 6 lists peak discharges for the gaging stations shown on figure 14. The gaging stations listed are the only ones for which discharge data are available at present. Table 6 shows that the peak flow on McDermitt Creek exceeded that which occurred during the flood of January 1956.

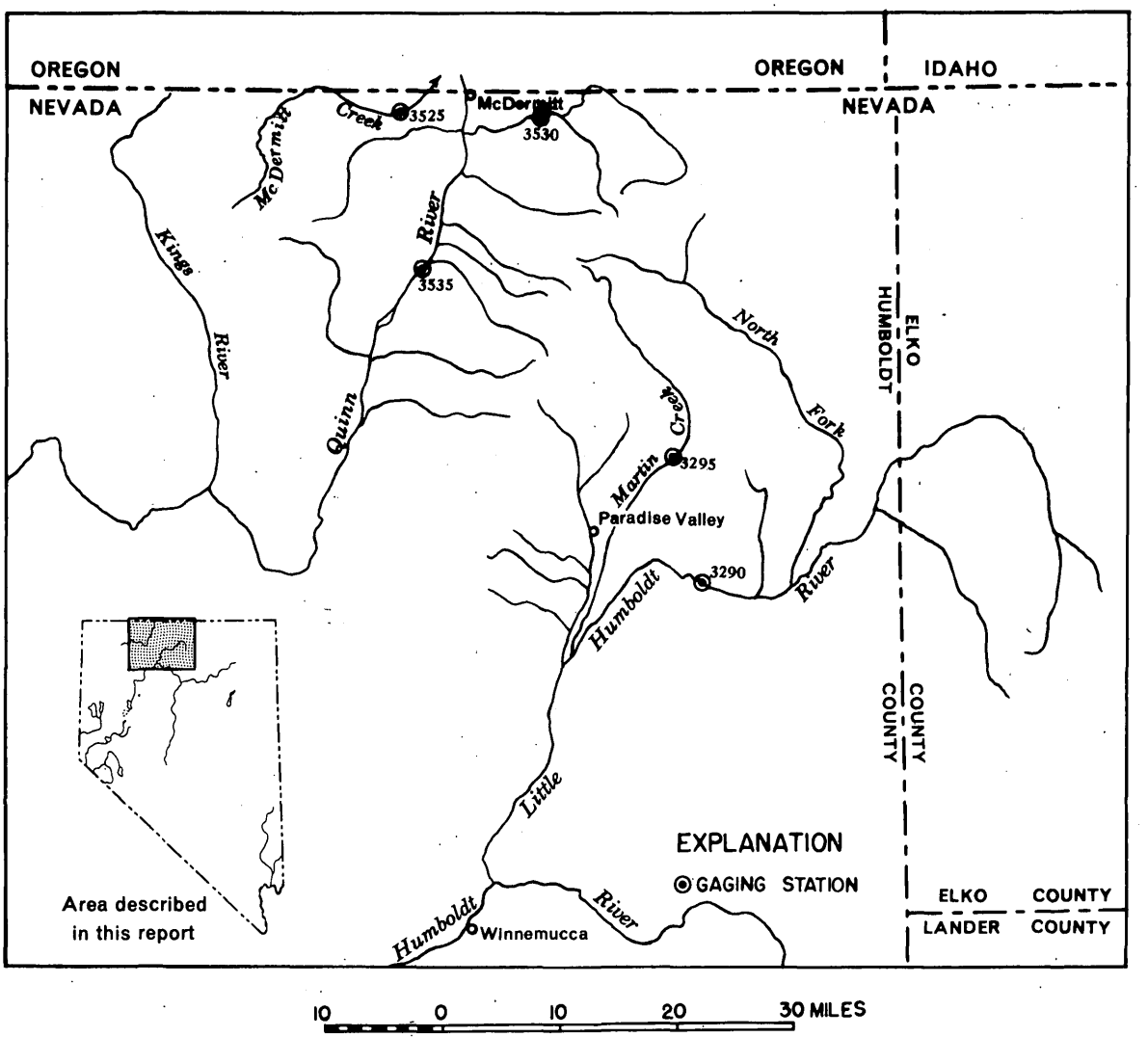


Figure 14.--Location of gaging stations in the flood-affected area in northern Nevada.

Table 6.--Peak stages and discharges in northern Nevada

(Each station in this table has two or three entries listed under maximum floods; the first pertains to the flood being reported on; the second pertains to the maximum flood previously known during the period of record; the third pertains to the maximum flood known outside the period of record.)

No.	Stream and place of determination	Drainage area (sq.mi.)	Period of Record	Maximum floods		
				Date	Gage height (ft.)	Discharge (cfs)
	PART 10. GREAT BASIN					
	Humboldt River basin					
3290	Little Humboldt River near Paradise Valley, Nev.	1,030	1921-28, 1943-63	Feb. 3, 1963 Feb. 2, 1952	1.81 7.71	38 1,100
3295	Martin Creek near Paradise Valley, Nev.	172	1921-63	Jan. 31, 1963 Jan. 21, 1943	7.40 11.1	1,980 9,000
	Quinn River basin					
3525	McDermitt Creek near McDermitt, Nev.	225	1948-63	Feb. 1, 1963 Jan. 15, 1956	8.64 8.60	3,970 2,100
3530	East Fork Quinn River near McDermitt, Nev.	140	1948-63	Jan. 31, 1963 Jan. 15, 1956	7.69 8.52	920 1,270
3535	Quinn River near McDermitt, Nev.	1,100	1948-63	Feb. 2, 1963 Apr. 27, 1952	3.46 8.39	350 1,580