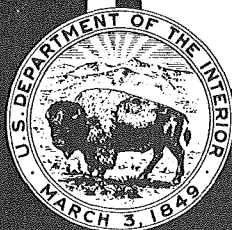


1964

*Robles*

# Water Quality Records in California



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

Prepared in cooperation with  
California Department of Water Resources  
and with other agencies

Streamflow records for most of the water quality stations in this report are contained in the following companion volumes:

1. Surface Water Records of California,  
Volume 1: Colorado River Basin, Southern Great Basin, and Pacific Slope Basins excluding Central Valley.
2. Surface Water Records of California,  
Volume 2: Northern Great Basin and Central Valley.

United States  
Department of the Interior  
Geological Survey

WATER QUALITY RECORDS  
IN CALIFORNIA

1964

Prepared in cooperation with

California Department of Water Resources  
California Water Quality Control Board  
Monterey County Flood Control and Water  
Conservation District  
Bureau of Reclamation, U.S. Department  
of the Interior  
Corps of Engineers, U.S. Army

Copies of this report may be obtained from  
District Chief, Water Resources Division  
U.S. Geological Survey  
345 Middlefield Road  
Menlo Park, California  
94025





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*[Symbols after station name designate type of data; c, chemical; t, water temperature; s, sediment.]*

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# WATER QUALITY RECORDS IN CALIFORNIA, 1964

## INTRODUCTION

The quality-of-water investigations of the U.S. Geological Survey are concerned with the chemical and physical characteristics of surface and ground water supplies of the Nation in conjunction with water usage and its availability. The basic records for the 1964 water year for quality of surface waters within the State of California are given in this report. For convenience and interest there are also records for a few water quality stations in bordering States. The data were collected and computed by the Water Resources Division of the U.S. Geological Survey, under the direction of Eugene Brown, district chemist, Quality of Water Branch.

The Geological Survey began publishing annual basic records of chemical quality, water temperatures, and suspended sediment in 1941 in the water-supply paper series, "Quality of Surface Waters of the United States." The records prior to 1948 were published each year in a single volume for the entire country, and in two volumes in 1948 and 1949. Beginning in 1950, the records were published in four volumes and beginning in 1959 in five volumes; each volume covered an area where boundaries coincided with those of certain natural drainage areas. The records for California are contained in Parts 9-11 of the water-supply series. These publications are available in most public libraries.

Distribution of this report is limited and it is primarily for local and immediate use. The records will be published in the Geological Survey water-supply papers at 5-year intervals. The first compilation will cover only the years 1964 and 1965.

## COOPERATION

The work was done under cooperative agreements between the U.S. Geological Survey and the following organizations:

California Department of Water Resources,  
William Warne, director  
California Water Quality Control Board,  
Paul R. Bonderson, executive officer.

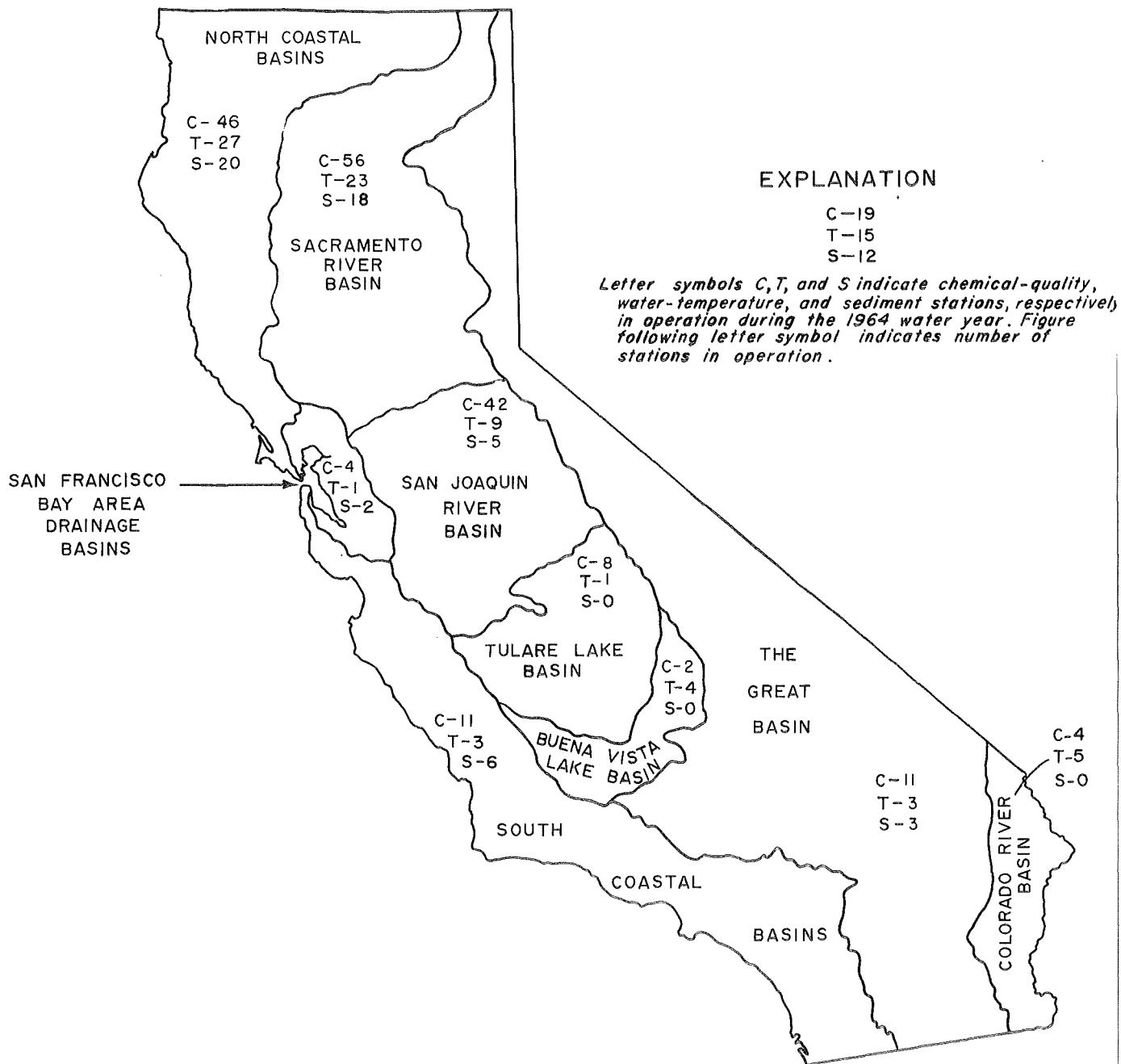


FIGURE 1.—MAP OF CALIFORNIA SHOWING NUMBER AND DISTRIBUTION OF WATER-QUALITY STATIONS.

Monterey County Flood Control and Water  
Conservation District,  
Loran Bunte, Jr., district engineer.

Assistance in the form of funds was given by the Bureau of Reclamation, U.S. Department of the Interior and Corps of Engineers, U.S. Army. Several stations were operated from funds appropriated directly to the Geological Survey.

Municipal agencies furnishing assistance were:

Alameda County Water District;  
M. P. Whitfield, general manager.  
Metropolitan Water District of Southern California;  
Lee Streicher, water purification engineer.  
Kings River Water Association.  
Public Utilities Commission, City and  
County of San Francisco.

Discharge and thermograph records were collected and computed under the direction of Walter Hofmann, district engineer, U.S. Geological Survey, Water Resources Division, Surface Water Branch.

#### DEFINITION OF TERMS AND ABBREVIATIONS

The terms and abbreviations of water-quality and hydrologic data, as used in the text and tabular data of this report, are defined as follows:

Acre-foot (ac-ft) is a quantity of water required to cover 1 acre to a depth of 1 foot and is equal to 43,560 cubic feet or 325,851 gallons. The term is commonly used in measuring volumes of water used or stored.

Cfs-day is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It equals 86,400 cubic feet, 1.983471 acre-feet, or 646,317 gallons.

Channel (watercourse) is an open conduit either naturally or artificially created which periodically or continuously contains moving water, or which forms a connecting link between two bodies of water. River, creek, run, branch, anabranch, and tributary are some of the terms used to describe natural channels. Natural channels may be single or braided. Canal and floodway are

some of the terms used to describe artificial channels.

Cubic feet per second (cfs) is a unit expressing rates of discharge. One cubic foot per second is equal to the discharge of a stream of rectangular cross section, 1 foot wide and 1 foot deep, flowing water at an average velocity of 1 foot per second.

Discharge in its simplest concept, means outflow; therefore, the use of this term is not restricted as to course or location, and it can be applied to describe the flow of water from a pipe or from a drainage basin. It is also correct to speak of the discharge of a canal or stream into a lake, a stream, or an ocean.

Daily mean discharge is the mean discharge for one day.

Mean daily discharge is the arithmetic mean discharge for the same day during a specific period of years.

Mean discharge is the arithmetic mean of individual daily mean discharges during a specific period.

Instantaneous discharge (at time of sampling) If the discharge value at the time of sampling is reported instead of daily mean value, the heading of the discharge column will be given as "Discharge (cfs)."

Drainage area is that area, in a specified location, measured in a horizontal plane, which is enclosed by a drainage divide.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Equivalents per million (epm) is a unit for expressing the concentration of chemical constituents in terms of the interreacting values of the electrically charged particles, or ions, in solution. One equivalent per million of a positively charged ion will react with one equivalent per million of a negatively charged ion. Parts per million is converted to equivalents per million by multiplying by the reciprocal of the combining weight of the ion.

Conversion factors: Parts per million to equivalents  
per million

Ion	Multiply by	Ion	Multiply by
Aluminum ( $\text{Al}^{+3}$ ).....	0.11119	Hydroxide ( $\text{OH}^{-1}$ )....	0.05880
Arsenic ( $\text{As}^{+2}$ ).....	.02669	Iodide ( $\text{I}^{-1}$ ).....	.00788
Barium ( $\text{Ba}^{+2}$ ).....	.01456	Iron ( $\text{Fe}^{+3}$ ).....	.05372
Beryllium ( $\text{Be}^{+1}$ )....	.22192	Lead ( $\text{Pb}^{+2}$ ).....	.00965
Bicarbonate ( $\text{HCO}_3^{-1}$ )	.01639	Lithium ( $\text{Li}^{+1}$ ).....	.14411
Bromide ( $\text{Br}^{-}$ ).....	.01251	Magnesium ( $\text{Mg}^{+2}$ )....	.08226
Cadmium ( $\text{Cd}^{+2}$ ).....	.01779	Manganese ( $\text{Mn}^{+2}$ )....	.03640
Calcium ( $\text{Ca}^{+2}$ ).....	.04990	Nickel ( $\text{Ni}^{+2}$ ).....	.03406
Carbonate ( $\text{CO}_3^{-2}$ )...	.03333	Nitrate ( $\text{NO}_3^{-1}$ ).....	.01613
Chloride ( $\text{Cl}^{-1}$ ).....	.02821	Phosphate ( $\text{PO}_4^{-3}$ )...	.03159
Chromium ( $\text{Cr}^{+6}$ ).....	.11539	Potassium ( $\text{K}^{+1}$ ).....	.02557
Cobalt ( $\text{Co}^{+2}$ ).....	.03394	Sodium ( $\text{Na}^{+1}$ ).....	.04350
Copper ( $\text{Cu}^{+2}$ ).....	.03148	Strontium ( $\text{Sr}^{+2}$ )....	.02282
Fluoride ( $\text{F}^{-1}$ ).....	.05264	Sulfate ( $\text{SO}_4^{-2}$ ).....	.02082
Hydrogen ( $\text{H}^{+1}$ ).....	.99209	Zinc ( $\text{Zn}^{+2}$ ).....	.03060

Gage height is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage", although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of gage height or discharge are obtained. When used in connection with a discharge record, the term is applied only to those gaging stations where a continuous record of discharge is obtained.

Hardness of water is the property of water attributable to the presence of alkaline earths and is expressed as equivalent calcium carbonate ( $\text{CaCO}_3$ ). Hardness is a physical-chemical characteristic, not a substance.

Partial-record station is a particular site where limited data are collected systematically over a period of years for use in hydrologic analyses.

Particle size is the diameter, in millimeters (mm) of suspended sediment or bed sediment determined by sieve and sedimentation methods.

Particle-size classification is the classification recommended by the American Geophysical Union Subcommittee on sediment terminology (Lane and others, 1947, p. 937). According to this classification, a particle having diameter between:

0.002 and 0.004 mm is clay.  
0.004 and 0.062 mm is silt.  
0.062 and 2.0 mm is sand.

Parts per million (ppm) is a unit for expressing the concentration of chemical constituents by weight, usually as grams of constituents per million grams of a solution. In the laboratory the results are expressed in weights of solutes in a given volume of water. To express the results in parts per million, the data must be converted. For most waters this conversion is made by assuming that a liter of water weighs 1 kilogram; and thus milligrams per liter is equivalent to parts per million. Parts per million, for suspended sediment, is computed as 1 million times the ratio of the weight of sediment to the weight of the mixture of water and sediment.

Sediment is fragmental material that originates from weathering of rocks and is transported by, suspended in, or deposited by water. The amount, the characteristics, and the cause of the occurrence of sediment in streams are influenced by environmental factors. Major factors are: degree of slope, length of slope; soil characteristics, land usage, and amount and intensity of rainfall. Differences in slopes and soil characteristics in separate watersheds cause a difference in the sediment discharge from the watersheds. Seasonal variations in land usage, amount of rainfall, and intensity of rainfall, cause seasonal and annual variations in the yield of sediment within a watershed.

Sediment discharge is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry weight, or by volume, that is discharged in a given time.

Solute is any substance derived from the atmosphere, vegetation, soil, or rocks and dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current and is expressed

in micromhos per centimeter at 25°C. Because the specific conductance is related to the number and specific chemical types of ions in solution, it can be used for approximating the salinity of the water. The following general relations are applicable:

Specific conductance x (0.65±0.05)=ppm dissolved solids;

$$\frac{\text{Specific conductance}}{100} = \frac{\text{total epm}}{2}$$

Sodium-adsorption-ratio (SAR) is the expression of relative activity of sodium ions in exchange reaction with soil and is an index of sodium or alkali hazard to the soil. This ratio should be known especially for water used for irrigating farm land.

Stage is the height of a water surface above an established datum plane; also gage height.

Streamflow is the discharge that occurs in a natural channel. Although the term discharge can be applied to the flow of a canal, the word streamflow uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than runoff, as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Thermograph is a thermometer for recording variations of temperature automatically.

Tons per acre-foot indicates the dry weight of dissolved solids in one acre-foot of water. It is computed by multiplying the concentration in parts per million by 0.00136.

Tons per day is a quantity of a substance in solution or suspension that passes a stream section during a 24-hour period.

Water year in Geological Survey reports dealing with surface-water supply is the 12-month period, October 1 through September 30. The water year is designated by the

calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ended September 30, 1964, is called the "1964 water year".

### STATION NUMBERS

A station number has been assigned as an added means of identification for each stream location where regular measurements of streamflow and determinations of water quality have been made. The numbers have been assigned to conform with the standard downstream order of listing gaging stations. The numbering system consists of two digits followed by a hyphen and a six digit number. The notation to the left of the hyphen identifies the Part or hydrologic region used by the Geological Survey for reporting hydrologic data. The number to the right of the hyphen represents the position of the location in the standard downstream order listing the stations within each of the parts. The assigned numbers are in numerical order but are not consecutive. They are so selected from the complete six digit number scale that intervening numbers will be available for future assignments to new locations. The identification number for each station in this report is printed to the left of the station name and contains only the essential digits. For example, the number is printed as 11-100 for a station whose complete identification number is 11-0100.00.

### COLLECTION AND EXAMINATION OF SAMPLES

Water samples for chemical and physical analyses usually are collected at or near points on streams where gaging stations are maintained for measurement of discharge by the Geological Survey. These discharge records have been released in two volumes as Surface Water Records of California, 1964, by U.S. Department of the Interior-Geological Survey.

Most of these records are used in conjunction with the computations of the chemical constituents and sediment loads in the report.

The map on page 2 shows the distribution and number of stations in each river or drainage basin.

### Solutes

The methods of collecting and compositing water samples



for determining the concentration of solutes are described in a manual by Rainwater and Thatcher (1960). One sample can adequately define the water quality at a given time if there is a homogeneous mixture of the solutes throughout the stream-cross section. However, the concentration of solutes at different locations in the stream-cross section may vary widely with different rates of water discharge depending on the source of material and the turbulence and mixing of the stream. It is necessary to sample some streams at several verticals across the channel to accurately determine the solute load. No single method of compositing samples is applicable to all problems related to the study of water quality. Although generally holding to the principle of 10-day periods, or the equivalent of three composite samples per month, modifications usually are made on the basis of dissolved-solids content, as indicated by measurements of conductivity of daily samples. Samples collected at monthly and miscellaneous water quality stations were analyzed individually. The measurements are supplemented by other information, such as chloride content, river stage, and weather conditions.

## Temperature

Water temperatures were measured at most of the water-quality stations. For daily stations, the water temperatures were taken at about the same time each day in order that the data would be relatively unaffected by diurnal variations in temperature. Most large, swiftly flowing streams probably have a small diurnal variation in water temperature, whereas sluggish or shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. The thermometers used for determining the water temperature were accurate to plus or minus 0.5°F.

At stations where thermographs are located, the records consist of maximum and minimum temperatures for each day and the monthly averages of maximum daily and minimum daily temperatures.

## Sediment

In general, suspended-sediment samples were collected daily with U.S. depth-integrating cable-suspended samplers from a fixed sampling point at one vertical in the cross section. The US DH-48 hand sampler was used at many

stations during periods of low flow. Depth-integrated samples were collected periodically at three or more verticals in the cross section to determine the ratio of the cross-sectional distribution of the concentration of suspended sediment to the daily sampling vertical. In streams where transverse distribution of sediment concentration varies widely, samples were taken at two or more verticals to define more accurately the average concentration of sediment at the cross section. During periods of high or rapidly changing flow, samples were taken twice or more often throughout the day at most sampling stations.

For some periods when no samples were collected, daily loads of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately preceding and following the periods, and suspended-sediment loads for other periods of similar discharge. The estimates were further guided by weather conditions and sediment discharge for other stations.

In addition to the records of quantities of suspended sediment transported, records of particle sizes of sediment are included. The particle sizes of the suspended sediment for many of the stations and the particle sizes of the bed material for some of the stations were determined periodically.

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  - Report 13, 1961, The single-stage sampler for suspended sediment: U.S. Gov. Printing Office, Washington, D. C., 20402, 105 p. 51 figs.
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Annual Series of Water-Supply Papers  
for Quality of Surface Waters

U.S. Geological Survey, 1943-53, Quality of surface waters of the United States; water years 1941-49: U.S. Geol. Survey Water-Supply Papers:

<u>Year</u>	<u>WSP</u>	<u>Year</u>	<u>WSP</u>	<u>Year</u>	<u>WSP</u>
1941	942	1944	1022	1947	1102
1942	950	1945	1030	1948	1133
1943	970	1946	1050	1949	1163

U.S. Geological Survey, 1954-64, Quality of surface waters of the United States; Parts 9-14, Colorado River basin to Pacific slope basins in Oregon and lower Columbia River basin; water years 1950-63: U.S. Geol. Survey Water-Supply Papers:

<u>Year</u>	<u>WSP</u>	<u>Year</u>	<u>WSP</u>	<u>Year</u>	<u>WSP</u>
1950	1189	1955	1403	*1960	1745
1951	1200	1956	1453	*1961	1885
1952	1253	1957	1523	1962	1945
1953	1293	1958	1574	*1963	1951
1954	1353	1959	1645		

\*In preparation.

## PART 9. COLORADO RIVER BASIN

## COLORADO RIVER MAIN STEM

9-4210. LAKE MEAD AT HOOVER DAM, ARIZ.-NEV.

LOCATION.--Midway between intake towers, 225 feet upstream from gaging station on state line between Mohave County, Arizona, and Clark County, Nevada.

DRAINAGE AREA.--167,800 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses: October 1940 to September 1964.

REMARKS.--Samples are collected by the U.S. Bureau of Reclamation and analyzed by the Metropolitan Water District of Southern California, LaVerne, California.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Elevation (feet)	Depth (feet)	Silica (SiO <sub>2</sub> )	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Temperature (°F)	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 1, 1963.....	surface	1093	9.6	88	33	103	5	124	0	333	99		0.6		733			353	251	75	1140	8.0
Oct. 1.....	5	1088	--	--	--	--	--	123	0	--	99		--		--			--	--	75	1150	8.0
Oct. 1.....	25	1068	--	--	--	--	--	124	0	--	99		--		--			--	--	74	1150	7.9
Oct. 1.....	50	1043	--	--	--	--	--	--	--	--	98		--		--			348	--	74	1140	8.2
Oct. 1.....	75	1018	10	92	30	96	4	146	0	305	91		2.0		703			353	305	67	1100	7.8
Oct. 1.....	100	993	--	--	--	--	--	--	--	--	89		--		--			347	--	62	1090	7.8
Oct. 1.....	125	968	10	92	30	95	4	154	0	300	91		2.3		702			353	227	58	1100	8.0
Oct. 1.....	150	943	--	--	--	--	--	--	--	--	92		--		--			351	--	56	1110	7.8
Oct. 1.....	175	918	10	94	30	99	4	157	0	307	94		2.5		719			358	229	55	1120	8.0
Oct. 1.....	200	893	--	--	--	--	--	--	--	--	94		--		--			352	--	54	1110	8.0
Oct. 1.....	225	868	11	92	30	98	4	157	0	300	94		2.4		710			353	224	54	1120	7.9
Oct. 1.....	250	843	--	--	--	--	--	--	--	--	94		--		--			349	--	54	1110	8.1
Oct. 1.....	275	818	--	--	--	--	--	159	0	--	94		--		--			--	--	53	1110	8.0
Oct. 1.....	330	793	--	--	--	--	--	--	--	--	94		--		--			348	--	53	1110	7.9
Oct. 1.....	325	768	--	--	--	--	--	159	0	--	95		--		--			--	--	53	1110	7.7
Oct. 1.....	350	743	--	--	--	--	--	--	--	--	94		--		--			350	--	52	1110	7.8
Oct. 28.....	5	1141	10	75	28	89	5	109	0	290	79		.8		632			304	215	76	995	8.1
Oct. 28.....	25	1121	--	--	--	--	--	109	0	--	79		--		--			--	--	76	998	7.6
Oct. 28.....	50	1096	--	--	--	--	--	--	--	--	79		--		--			302	--	76	998	8.0
Oct. 28.....	75	1071	--	--	--	--	--	140	0	--	74		--		--			--	--	66	983	7.8
Oct. 28.....	100	1046	--	--	--	--	--	--	--	--	73		--		--			312	--	61	978	7.8
Oct. 28.....	125	1021	--	--	--	--	--	143	0	--	72		--		--			--	--	60	972	8.2
Oct. 28.....	150	996	--	--	--	--	--	--	--	--	73		--		--			312	--	59	976	7.8
Oct. 28.....	175	971	10	83	26	82	4	145	0	265	71		2.1		616			314	195	58	970	7.9
Oct. 28.....	200	946	--	--	--	--	--	--	--	--	71		--		--			314	--	56	974	7.9
Oct. 28.....	225	921	10	85	26	83	4	153	0	267	73		2.3		627			319	194	56	988	8.1
Oct. 28.....	250	896	--	--	--	--	--	--	--	--	77		--		--			325	--	55	1020	7.8
Oct. 28.....	275	871	10	87	27	89	4	159	0	273	79		2.6		652			330	200	54	1034	7.9
Oct. 28.....	300	846	--	--	--	--	--	--	--	--	81		--		--			334	--	54	1055	7.7
Oct. 28.....	325	821	--	--	--	--	--	156	2	--	82		--		--			--	--	54	1052	8.4
Oct. 28.....	350	796	--	--	--	--	--	--	--	--	83		--		--			337	--	54	1065	7.6
Oct. 28.....	375	771	11	89	28	94	5	163	0	286	83		2.8		681			339	205	54	1069	7.4
Oct. 28.....	400	746	--	--	--	--	--	--	--	--	84		--		--			340	--	54	1075	7.7
Oct. 28.....	425	721	--	--	--	--	--	173	0	--	84		--		--			--	--	54	1078	7.8
Oct. 28.....	429	717	--	--	--	--	--	--	--	--	85		--		--			342	--	54	1080	7.7
Nov. 22.....	5	1138	10	80	28	87	5	123	0	288	80		1.5		641			315	214	66	1020	8.1
Nov. 22.....	25	1118	--	--	--	--	--	123	1	--	80		--		--			--	--	66	1015	8.3
Nov. 22.....	50	1093	--	--	--	--	--	--	--	--	82		--		--			316	--	66	1015	7.6
Nov. 22.....	75	1068	--	--	--	--	--	123	0	--	81		--		--			--	--	66	1010	7.9
Nov. 22.....	100	1043	--	--	--	--	--	--	--	--	81		--		--			316	--	64	1020	7.8
Nov. 22.....	125	1018	--	--	--	--	--	146	0	--	74		--		--			--	--	61	972	8.2
Nov. 22.....	150	993	--	--	--	--	--	--	--	--	72		--		--			315	--	59	981	8.0
Nov. 22.....	175	968	10	82	26	82	5	151	0	265	72		2.3		621			314	190	58	965	8.2
Nov. 22.....	200	943	--	--	--	--	--	--	--	--	72		--		--			317	--	56	979	7.6
Nov. 22.....	225	918	11	84	26	81	4	151	0	257	74		2.4		615			317	193	56	945	8.3
Nov. 22.....	250	893	--	--	--	--	--	--	--	--	77		--		--			327	--	55	1015	7.7
Nov. 22.....	275	868	10	88	28	92	5	165	0	276	82		2.6		666			335	200	54	1040	8.0

COLORADO RIVER MAIN STEM--Continued

9-4210. LAKE MEAD AT HOOVER DAM, ARIZ.-NEV.--Continued

Chemical analyses, in parts per million, water year October 1963 to September 1964--Continued

Date of collection	Elevation (feet)	Depth (feet)	Silica (SiO <sub>2</sub> )	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids			Hardness as CaCO <sub>3</sub>		Temperature (°F)	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Nov. 22, 1963.....	300	843	--	--	--	--	--	--	--	--	82	--	--	--	--	--	--	334	--	54	1050	7.7
Nov. 22.....	325	818	--	--	--	--	--	166	0	--	82	--	--	--	--	--	--	--	--	54	1060	8.0
Nov. 22.....	350	793	--	--	--	--	--	--	--	--	82	--	--	--	--	--	--	337	--	54	1060	7.7
Nov. 22.....	375	768	10	89	28	92	5	166	0	281	84	2.6	--	--	675	--	--	339	203	54	1060	8.0
Nov. 22.....	400	743	--	--	--	--	--	--	--	--	84	--	--	--	--	--	--	340	--	54	1080	7.5
Nov. 22.....	420	723	--	--	--	--	--	172	0	--	86	--	--	--	--	--	--	344	--	54	1080	8.1
Dec. 17.....	5	1134	--	--	--	--	--	--	--	--	80	--	--	--	--	--	--	314	--	60	1000	7.7
Dec. 17.....	100	1039	--	--	--	--	--	--	--	--	84	--	--	--	--	--	--	314	--	59	1000	7.6
Dec. 17.....	150	989	--	--	--	--	--	--	--	--	78	--	--	--	--	--	--	314	--	59	965	7.5
Dec. 17.....	200	939	--	--	--	--	--	151	--	--	74	--	--	--	--	--	--	317	--	57	975	8.2
Dec. 17.....	225	914	11	84	26	81	4	151	0	257	74	2.4	--	--	615	--	--	317	193	56	945	8.3
Dec. 17.....	250	889	--	--	--	--	--	--	--	--	80	--	--	--	--	--	--	328	--	56	1020	7.6
Dec. 17.....	300	839	--	--	--	--	--	--	--	--	84	--	--	--	--	--	--	334	--	55	1040	7.6
Dec. 17.....	325	814	11	88	28	91	4	162	0	275	84	2.0	--	--	663	--	--	333	200	54	1040	8.3
Dec. 17.....	350	789	--	--	--	--	--	--	--	--	87	--	--	--	--	--	--	337	--	54	1050	7.6
Dec. 17.....	400	739	--	--	--	--	--	--	--	--	87	--	--	--	--	--	--	340	--	54	1060	7.5
Jan. 14, 1964.....	5	1129	9.3	84	27	87	5	140	0	279	78	1.9	--	--	641	--	--	321	206	55	1020	8.0
Jan. 14.....	25	1109	--	--	--	--	--	133	2	--	78	--	--	--	--	--	--	--	--	55	1020	8.5
Jan. 14.....	50	1084	--	--	--	--	--	--	--	--	78	--	--	--	--	--	--	320	--	56	1020	7.7
Jan. 14.....	75	1059	--	--	--	--	--	138	0	--	78	--	--	--	--	--	--	--	--	55	1020	7.7
Jan. 14.....	100	1034	--	--	--	--	--	--	--	--	78	--	--	--	--	--	--	319	--	55	1020	7.7
Jan. 14.....	125	1009	--	--	--	--	--	138	0	--	78	--	--	--	--	--	--	--	--	55	1020	7.9
Jan. 14.....	150	984	--	--	--	--	--	--	--	--	78	--	--	--	--	--	--	319	--	55	1020	7.6
Jan. 14.....	175	959	--	--	--	--	--	138	0	--	78	--	--	--	--	--	--	--	--	55	1020	8.0
Jan. 14.....	200	934	--	--	--	--	--	--	--	--	78	--	--	--	--	--	--	319	--	55	1020	7.6
Jan. 14.....	225	909	9.0	84	27	87	5	142	0	277	78	1.8	--	--	640	--	--	312	205	55	1020	7.3
Jan. 14.....	250	884	--	--	--	--	--	--	--	--	78	--	--	--	--	--	--	326	--	55	1040	7.9
Jan. 14.....	275	859	9.2	88	27	88	5	151	4	272	79	2.3	--	--	650	--	--	331	201	55	1040	8.5
Jan. 14.....	300	834	--	--	--	--	--	--	--	--	79	--	--	--	--	--	--	328	--	54	1040	7.6
Jan. 14.....	325	809	--	--	--	--	--	150	5	--	81	--	--	--	--	--	--	--	--	54	1050	8.6
Jan. 14.....	350	784	--	--	--	--	--	--	--	--	81	--	--	--	--	--	--	332	--	54	1060	7.5
Jan. 14.....	375	759	9.2	89	28	92	5	155	4	277	82	2.2	--	--	665	--	--	335	202	54	1060	8.5
Jan. 14.....	400	734	--	--	--	--	--	--	--	--	81	--	--	--	--	--	--	332	--	54	1060	7.7
Jan. 14.....	410	724	--	--	--	--	--	--	--	--	82	--	--	--	--	--	--	333	--	54	1060	7.5
Feb. 3.....	surface	1131	9.6	85	28	87	5	144	0	281	80	2.8	--	--	650	--	--	325	207	56	1030	8.1
Feb. 3.....	5	1126	--	--	--	--	--	140	2	--	80	--	--	--	--	--	--	--	--	55	1030	8.4
Feb. 3.....	25	1106	--	--	--	--	--	139	2	--	79	--	--	--	--	--	--	--	--	54	1020	8.4
Feb. 3.....	50	1081	--	--	--	--	--	--	--	--	79	--	--	--	--	--	--	322	--	54	1020	7.7
Feb. 3.....	75	1056	--	--	--	--	--	143	0	--	79	--	--	--	--	--	--	--	--	54	1020	8.0
Feb. 3.....	100	1031	--	--	--	--	--	--	--	--	79	--	--	--	--	--	--	322	--	54	1030	7.7
Feb. 3.....	125	1006	--	--	--	--	--	143	0	--	79	--	--	--	--	--	--	--	--	54	1030	7.9
Feb. 3.....	150	981	--	--	--	--	--	--	--	--	79	--	--	--	--	--	--	322	--	54	1030	7.7
Feb. 3.....	175	956	--	--	--	--	--	143	0	--	79	--	--	--	--	--	--	--	--	54	1030	8.2
Feb. 3.....	200	931	--	--	--	--	--	--	--	--	79	--	--	--	--	--	--	323	--	54	1030	7.6
Feb. 3.....	225	906	9.4	85	28	87	5	143	0	280	79	2.2	--	--	647	--	--	325	208	54	1030	8.0
Feb. 3.....	250	881	--	--	--	--	--	--	--	--	79	--	--	--	--	--	--	324	--	54	1030	8.1
Feb. 3.....	275	856	9.4	85	28	87	5	145	0	281	80	2.2	--	--	650	--	--	325	206	54	1030	8.0
Feb. 3.....	300	831	--	--	--	--	--	--	--	--	80	--	--	--	--	--	--	325	--	54	1040	7.8
Feb. 3.....	325	806	--	--	--	--	--	145	0	--	80	--	--	--	--	--	--	--	--	54	1040	8.1
Feb. 3.....	350	781	--	--	--	--	--	--	--	--	82	--	--	--	--	--	--	331	--	54	1060	7.5
Feb. 3.....	375	756	9.4	88	28	91	5	160	0	278	82	2.2	--	--	664	--	--	335	204	54	1060	7.9
Feb. 3.....	400	731	--	--	--	--	--	--	--	--	82	--	--	--	--	--	--	332	--	54	1060	7.5
Feb. 3.....	410	721	--	--	--	--	--	--	--	--	81	--	--	--	--	--	--	333	--	54	1060	7.5

Mar. 5.....	surface	1128	11	86	28	91	5	148	0	284	84	1.4	664	330	209	55	1050	7.4
Mar. 5.....	5	1123	--	--	--	--	--	148	0	--	84	--	--	--	--	54	1050	8.2
Mar. 5.....	25	1103	--	--	--	--	--	146	1	--	81	--	--	--	--	53	1060	8.3
Mar. 5.....	50	1078	--	--	--	--	--	--	--	--	80	--	--	327	--	53	1050	7.9
Mar. 5.....	75	1053	--	--	--	--	--	140	4	--	80	--	--	--	--	53	1050	8.4
Mar. 5.....	100	1028	--	--	--	--	--	--	--	--	80	--	--	328	--	53	1050	8.0
Mar. 5.....	125	1003	--	--	--	--	--	148	0	--	80	--	--	--	--	53	1050	7.9
Mar. 5.....	150	978	--	--	--	--	--	--	--	--	80	--	--	329	--	53	1050	7.9
Mar. 5.....	175	953	--	--	--	--	--	146	--	--	82	--	--	--	--	53	1050	7.9
Mar. 5.....	200	928	--	--	--	--	--	--	--	--	80	--	--	329	--	53	1050	8.0
Mar. 5.....	225	903	11	86	28	91	5	142	4	283	82	1.3	662	330	208	53	1050	8.4
Mar. 5.....	250	878	--	--	--	--	--	--	--	--	80	--	--	328	--	53	1050	7.9
Mar. 5.....	275	853	11	86	28	91	5	148	0	285	82	1.3	663	330	209	53	1060	8.1
Mar. 5.....	300	828	--	--	--	--	--	--	--	--	78	--	--	328	--	53	1050	8.0
Mar. 5.....	325	803	--	--	--	--	--	146	1	--	80	--	--	--	--	53	1050	8.3
Mar. 5.....	350	778	--	--	--	--	--	--	--	--	81	--	--	331	--	53	1060	7.9
Mar. 5.....	375	753	11	87	28	92	5	143	4	286	84	1.3	670	334	211	53	1060	8.4
Mar. 5.....	400	728	--	--	--	--	--	--	--	--	88	--	--	336	--	53	1090	7.9
Mar. 5.....	405	723	--	--	--	--	--	--	--	--	92	--	--	337	--	53	1090	7.9
Mar. 31.....	surface	1124	9.1	86	28	90	5	148	0	287	82	1.0	663	332	211	62	1050	7.8
Mar. 31.....	5	1119	--	--	--	--	--	148	0	--	82	--	--	--	--	62	1040	7.8
Mar. 31.....	25	1099	--	--	--	--	--	148	0	--	82	--	--	--	--	55	1050	7.6
Mar. 31.....	50	1074	--	--	--	--	--	--	--	--	82	--	--	330	--	54	1050	8.0
Mar. 31.....	75	1049	--	--	--	--	--	148	0	--	82	--	--	--	--	53	1050	7.5
Mar. 31.....	100	1024	--	--	--	--	--	--	--	--	82	--	--	330	--	53	1050	7.9
Mar. 31.....	125	999	--	--	--	--	--	148	0	--	82	--	--	--	--	53	1050	7.7
Mar. 31.....	150	974	--	--	--	--	--	--	--	--	82	--	--	330	--	53	1050	8.1
Mar. 31.....	175	949	9.7	86	28	93	5	148	0	288	84	.9	669	332	211	53	1060	7.7
Mar. 31.....	200	924	--	--	--	--	--	--	--	--	84	--	--	334	--	53	1080	7.8
Mar. 31.....	225	899	12	88	28	96	5	150	0	291	88	1.2	685	337	214	53	1090	7.6
Mar. 31.....	250	874	--	--	--	--	--	--	--	--	90	--	--	338	--	52	1100	8.0
Mar. 31.....	275	849	9.8	89	29	96	5	153	0	289	90	1.0	685	341	216	52	1100	8.0
Mar. 31.....	300	824	--	--	--	--	--	--	--	--	90	--	--	338	--	52	1100	7.9
Mar. 31.....	325	799	--	--	--	--	--	155	0	--	94	--	--	--	--	52	1100	7.7
Mar. 31.....	350	774	--	--	--	--	--	--	--	--	92	--	--	339	--	52	1100	8.0
Mar. 31.....	375	749	9.3	89	30	99	5	155	0	294	90	.9	694	343	216	52	1100	7.6
Mar. 31.....	400	724	--	--	--	--	--	--	--	--	90	--	--	339	--	52	1100	7.9
Apr. 30.....	surface	1123	11	88	28	90	5	148	0	287	84	1.9	669	335	214	57	1070	7.9
Apr. 30.....	5	1118	--	--	--	--	--	148	0	--	84	--	--	--	--	56	1070	7.9
Apr. 30.....	25	1098	--	--	--	--	--	148	0	--	84	--	--	--	--	55	1070	8.0
Apr. 30.....	50	1073	--	--	--	--	--	--	--	--	85	--	--	334	--	54	1070	7.9
Apr. 30.....	75	1048	--	--	--	--	--	145	1	--	85	--	--	--	--	54	1070	8.3
Apr. 30.....	100	1023	--	--	--	--	--	--	--	--	85	--	--	334	--	53	1070	7.7
Apr. 30.....	125	998	11	88	28	92	5	149	0	291	86	2.0	678	337	215	53	1080	7.8
Apr. 30.....	150	973	--	--	--	--	--	--	--	--	88	--	--	337	--	53	1090	7.9
Apr. 30.....	175	948	11	90	28	94	5	151	0	293	89	2.0	688	342	218	52	1100	8.1
Apr. 30.....	200	923	--	--	--	--	--	--	--	--	90	--	--	341	--	52	1100	7.9
Apr. 30.....	225	898	11	91	28	96	5	154	0	291	91	2.1	693	344	218	52	1100	8.2
Apr. 30.....	250	873	--	--	--	--	--	--	--	--	92	--	--	342	--	52	1110	7.9
Apr. 30.....	275	848	--	--	--	--	--	155	0	--	92	--	--	--	--	52	1120	7.9
Apr. 30.....	300	823	--	--	--	--	--	--	--	--	92	--	--	343	--	52	1120	7.9
Apr. 30.....	325	798	11	91	29	97	5	149	2	296	93	2.2	700	246	220	52	1110	8.4
Apr. 30.....	350	773	--	--	--	--	--	--	--	--	92	--	--	343	--	52	1120	8.0
Apr. 30.....	375	748	--	--	--	--	--	151	1	--	93	--	--	--	--	52	1120	8.3
Apr. 30.....	400	723	--	--	--	--	--	--	--	--	93	--	--	345	--	52	1120	7.8
Apr. 30.....	402	721	--	--	--	--	--	--	--	--	93	--	--	344	--	52	1120	7.7
June 2.....	surface	1119	--	--	--	--	--	--	--	--	86	--	--	341	--	70	1090	8.2
June 2.....	5	1114	10	90	28	94	5	146	0	293	86	1.5	681	340	220	69	1080	8.0
June 2.....	25	1094	--	--	--	--	--	146	0	--	86	--	--	--	--	68	1080	7.9
June 2.....	50	1069	--	--	--	--	--	--	--	--	85	--	--	338	--	65	1080	8.1
June 2.....	75	1044	--	--	--	--	--	146	0	--	85	--	--	--	--	60	1080	7.8
June 2.....	100	1019	--	--	--	--	--	--	--	--	85	--	--	336	--	58	1080	8.1

COLORADO RIVER MAIN STEM--Continued

9-4210. LAKE MEAD AT HOOVER DAM, ARIZ.-NEV.--Continued

Chemical analyses, in parts per million, water year October 1963 to September 1964--Continued

Date of collection	Elevation (feet)	Depth (feet)	Silica (SiO <sub>2</sub> )	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Temperature (°F)	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
June 2, 1964.....	125	994	--	--	--	--	--	148	0	--	86	--	--	--	--	--	--	--	--	56	1080	7.7
June 2.....	150	969	--	--	--	--	--	--	--	--	86	--	--	--	--	--	--	338	--	55	1090	7.8
June 2.....	175	944	10	90	28	94	5	149	0	293	89	1.1	--	--	685	--	--	340	218	54	1090	7.5
June 2.....	200	919	--	--	--	--	--	--	--	--	89	--	--	--	--	--	--	340	--	53	1100	7.9
June 2.....	225	894	10	91	28	96	5	151	0	294	90	2.2	--	--	692	--	--	342	218	52	1100	7.6
June 2.....	250	869	--	--	--	--	--	--	--	--	91	--	--	--	--	--	--	342	--	52	1110	7.9
June 2.....	275	844	--	--	--	--	--	153	0	--	92	--	--	--	--	--	--	--	--	52	1110	7.6
June 2.....	300	819	--	--	--	--	--	--	--	--	91	--	--	--	--	--	--	343	--	52	1110	8.1
June 2.....	325	794	10	91	28	98	5	153	0	292	93	2.1	--	--	696	--	--	344	219	52	1120	7.6
June 2.....	350	769	--	--	--	--	--	--	--	--	92	--	--	--	--	--	--	344	--	52	1110	7.9
June 2.....	375	744	--	--	--	--	--	153	0	--	92	--	--	--	--	--	--	--	--	52	1120	7.7
June 2.....	399	720	--	--	--	--	--	--	--	--	92	--	--	--	--	--	--	345	--	52	1110	7.9
June 30.....	surface	1112	10	88	29	94	6	146	0	291	92	0.9	--	--	684	--	--	339	219	74	1100	8.0
June 30.....	5	1107	--	--	--	--	--	146	1	--	92	--	--	--	--	--	--	338	--	74	1100	7.8
June 30.....	25	1087	--	--	--	--	--	146	0	--	92	--	--	--	--	--	--	--	--	74	1100	7.8
June 30.....	50	1062	--	--	--	--	--	--	--	--	92	--	--	--	--	--	--	341	--	71	1100	7.7
June 30.....	75	1037	--	--	--	--	--	157	0	--	90	--	--	--	--	--	--	--	--	64	1090	7.3
June 30.....	100	1012	--	--	--	--	--	--	--	--	88	--	--	--	--	--	--	340	--	59	1080	8.1
June 30.....	125	987	10	88	30	94	6	156	0	291	88	1.5	--	--	686	--	--	341	213	58	1090	7.9
June 30.....	150	962	--	--	--	--	--	--	--	--	88	--	--	--	--	--	--	340	--	56	1090	7.8
June 30.....	175	937	11	88	30	96	6	157	0	291	90	.5	--	--	691	--	--	341	212	55	1090	8.3
June 30.....	200	912	--	--	--	--	--	--	--	--	92	--	--	--	--	--	--	340	--	54	1100	7.9
June 30.....	225	887	11	89	30	99	6	160	0	294	92	.5	--	--	701	--	--	343	212	54	1100	8.1
June 30.....	250	862	--	--	--	--	--	--	--	--	92	--	--	--	--	--	--	342	--	53	1110	7.8
June 30.....	275	837	--	--	--	--	--	160	0	--	92	--	--	--	--	--	--	--	--	53	1110	8.1
June 30.....	300	812	--	--	--	--	--	--	--	--	94	--	--	--	--	--	--	343	--	52	1110	7.8
June 30.....	325	787	10	89	30	101	6	162	0	293	94	.4	--	--	704	--	--	343	210	52	1120	7.3
June 30.....	350	762	--	--	--	--	--	--	--	--	94	--	--	--	--	--	--	344	--	52	1120	8.0
June 30.....	375	737	--	--	--	--	--	162	0	--	94	--	--	--	--	--	--	--	--	52	1120	7.3
June 30.....	380	732	--	--	--	--	--	--	--	--	94	--	--	--	--	--	--	345	--	52	1120	7.7
July 31.....	surface	1104	11	90	29	100	6	148	0	309	91	.7	--	--	711	--	--	344	233	72	1110	7.7
July 31.....	5	1099	--	--	--	--	--	145	0	--	91	--	--	--	--	--	--	--	--	71	1110	7.9
July 31.....	25	1079	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	70	--	--
July 31.....	50	1054	--	--	--	--	--	--	--	--	91	--	--	--	--	--	--	--	--	68	1110	7.9
July 31.....	75	1029	9.6	89	28	98	6	150	0	298	89	.8	--	--	694	--	--	339	216	62	1090	7.7
July 31.....	100	1004	--	--	--	--	--	--	--	--	90	--	--	--	--	--	--	339	--	58	1100	7.7
July 31.....	125	979	--	--	--	--	--	154	0	--	92	--	--	--	--	--	--	--	--	55	1100	7.3
July 31.....	150	954	--	--	--	--	--	--	--	--	92	--	--	--	--	--	--	341	--	54	1110	7.7
July 31.....	175	929	11	89	28	100	6	154	0	295	92	1.6	--	--	700	--	--	339	213	54	1110	7.7
July 31.....	200	904	--	--	--	--	--	--	--	--	92	--	--	--	--	--	--	340	--	53	1110	7.9
July 31.....	225	879	10	90	28	100	6	156	0	296	92	.5	--	--	701	--	--	342	214	53	1110	7.4
July 31.....	250	854	--	--	--	--	--	--	--	--	93	--	--	--	--	--	--	341	--	53	1110	7.9
July 31.....	275	829	--	--	--	--	--	156	0	--	93	--	--	--	--	--	--	--	--	52	1110	7.3
July 31.....	300	804	--	--	--	--	--	--	--	--	93	--	--	--	--	--	--	342	--	52	1110	7.9
July 31.....	325	779	--	--	--	--	--	157	0	--	93	--	--	--	--	--	--	--	--	52	1110	7.4
July 31.....	350	754	--	--	--	--	--	--	--	--	93	--	--	--	--	--	--	343	--	52	1110	7.7
July 31.....	375	729	--	--	--	--	--	157	0	--	93	--	--	--	--	--	--	--	--	52	1110	7.3
July 31.....	380	724	--	--	--	--	--	--	--	--	93	--	--	--	--	--	--	343	--	52	1110	8.2



Aug. 31.....	surface	1099	8.1	86	30	104	5	124	0	325	96	0.4	717		340	238	78	1130	8.3
Aug. 31.....	5	1094	--	--	--	--	--	124	0	--	96	--	--		341	--	77	1130	7.7
Aug. 31.....	25	1074	--	--	--	--	--	124	0	--	96	--	--		--	--	76	1130	8.3
Aug. 31.....	50	1049	--	--	--	--	--	--	--	--	94	--	--		342	--	72	1120	7.9
Aug. 31.....	75	1024	11	89	30	95	5	149	0	302	88	1.0	695		343	221	65	1100	8.1
Aug. 31.....	100	999	--	--	--	--	--	--	--	--	88	--	--		341	--	61	1100	7.8
Aug. 31.....	125	974	--	--	--	--	--	149	1	--	90	--	--		--	--	59	1090	8.4
Aug. 31.....	150	949	--	--	--	--	--	--	--	--	90	--	--		342	--	57	1100	7.9
Aug. 31.....	175	924	11	90	29	98	5	155	0	296	92	2.0	700		344	217	55	1110	8.0
Aug. 31.....	200	899	--	--	--	--	--	--	--	--	92	--	--		343	--	54	1110	7.9
Aug. 31.....	225	874	11	90	29	98	5	156	0	297	92	.6	700		344	216	54	1110	7.9
Aug. 31.....	250	849	--	--	--	--	--	--	--	--	92	--	--		343	--	53	1110	8.0
Aug. 31.....	275	824	--	--	--	--	--	157	0	--	94	--	--		--	--	53	1110	7.6
Aug. 31.....	300	799	--	--	--	--	--	--	--	--	94	--	--		343	--	53	1120	7.9
Aug. 31.....	325	774	11	90	29	100	5	159	0	296	94	2.0	706		344	214	53	1120	7.6
Aug. 31.....	350	749	--	--	--	--	--	--	--	--	92	--	--		344	--	53	1120	7.9
Aug. 31.....	375	724	--	--	--	--	--	160	0	--	94	--	--		344	--	53	1120	7.9

COLORADO RIVER MAIN STEM--Continued

9-4215. COLORADO RIVER BELOW HOOVER DAM, ARIZ.-NEV.

LOCATION.--At Hoover Dam, on state line between Mohave County, Ariz., and Clark County, Nev., just downstream from gaging station.

DRAINAGE AREA.--167,800 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses: October 1939 to September 1964.

Water temperatures: October 1941 to 1963.

REMARKS.--Records of specific conductance of individual samples available in district office at Salt Lake City, Utah.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 1, 15, 25, 1963.....		11	--	--	--	87	4.2	158		273	80	0.2	1.8	0.13	660	0.90		328	198	2.1	979	7.5
Nov. 5, 15, 26....		9.6	--	78	30	80	3.7	136		--	78	.4	2.3	.10	658	.89		316	188	2.0	980	7.4
Dec. 5, 18, 26....		9.7	0.00	83	28	87	3.8	157		274	77	.4	1.1	.15	663	.90		320	191	2.1	967	7.4
Jan. 6, 15, 24, 1964.....		10	.00	83	28	91	4.0	148		285	81	.4	1.8	.14	683	.93		322	201	2.2	997	7.5
Feb. 5, 14, 25....		9.8	.00	90	26	93	4.1	147		286	83	.3	1.3	.15	689	.94		330	209	2.2	1020	7.9
Mar. 6, 13, 25....		9.9	.01	83	29	96	4.2	150		288	86	.4	1.2	.14	696	.95		326	203	2.3	1030	7.7
Apr. 6, 15, 29....		10	.00	88	26	104	4.1	154		304	98	--	1.1	.11	719	.98		328	202	2.5	1050	7.9
May 5, 15, 25....		9.9	.00	--	--	99	4.4	155		295	98	.4	1.2	--	723	.98		334	207	2.4	1060	7.7
June 5, 16, 25....		9.9	.00	--	--	96	4.4	154		295	97	.4	1.0	--	726	.99		334	208	2.3	1060	7.7
July 6, 15, 24....		9.2	--	92	26	101	4.9	153		299	94	.4	1.3	.15	718	.98		335	210	2.4	1070	7.7
Aug. 5, 15, 25....		9.4	.00	90	28	107	4.7	160		305	92	.4	1.1	.13	729	.99		338	207	2.5	1060	7.6
Sept. 4, 15.....		10	--	92	27	103	4.7	160		302	98	.3	.6	.11	726	.99		340	209	2.4	1070	7.6

COLORADO RIVER MAIN STEM--Continued

9-4280. COLORADO RIVER BELOW PARKER DAM, ARIZ.-CALIF.

LOCATION.--At gaging station on San Bernardino meridian, 3.9 miles downstream from Parker Dam, 10.4 miles upstream from Headgate Rock Dam, and 11 miles north-east of Parker, Ariz.

DRAINAGE AREA.--178,000 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses: October 1963 to September 1964.

Water temperatures: February 1954 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 81°F Aug. 23.

EXTREMES, 1954-64.--Water temperatures: Maximum, 83°F Aug. 12, 13, 18, 1955; minimum (1954-63), 48°F on many days during January and February 1955, January 1961, January 1962, January and February 1963.

REMARKS.--Values reported for sodium (Na) are determined by analysis and do not include potassium (K).

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 28, 1963.....	6300	11		85	25	97		147		279	83		1.4		653	0.89	11110	316	196	2.4	1020	7.7
Nov. 15.....	5500	11		85	25	97		149		280	84		1.9		657	.89	9760	316	194	2.4	1020	7.6
Dec. 2.....	5640	11		86	26	97		152		280	84		1.8		661	.90	10070	320	196	2.4	1030	8.0
Dec. 10.....	6380	16		87	25	97		154		279	84		1.7		666	.91	11470	320	194	2.4	1030	7.9
Feb. 3, 1964.....	7660	11		87	26	96		152		284	84		1.2		664	.90	13730	324	200	2.3	1040	8.1
Mar. 2.....	8450	13		87	27	97		154		281	86		1.9		669	.91	15260	328	202	2.3	1030	7.8
Apr. 1.....	11000	15		87	27	97		154		282	86		1.7		672	.91	19960	330	204	2.3	1040	7.9
May 1.....	8880	12		88	27	99		152		289	88		1.4		679	.92	16280	332	208	2.4	1050	7.7
June 1.....	10300	14		90	28	102		155		295	94		1.2		700	.95	19470	340	213	2.4	1080	8.0
July 1.....	14000	11		88	28	105		150		298	96		.9		701	.95	26500	336	213	2.5	1090	8.0
Aug. 19.....	13900	13		86	29	102		144		300	95		1.1		697	.95	26160	332	214	2.4	1090	7.8
Sept. 1.....	12000	12		92	24	105		144		302	97		1.3		704	.96	22810	330	212	2.5	1110	7.6

## COLORADO RIVER MAIN STEM--Continued

9-4280. COLORADO RIVER BELOW PARKER DAM, ARIZ.-CALIF.--Continued

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum ....	77	77	78	77	76	77	77	78	77	77	76	76	76	75	74	74	73	72	72	72	72	73	72	72	72	73	72	72	72	71	71	74	
Minimum ....	76	76	77	75	75	75	76	77	76	75	75	74	75	74	74	73	72	72	72	71	71	72	71	71	71	71	71	71	71	70	70	73	
November																																	
Maximum ....	71	70	70	70	70	69	69	68	68	68	68	68	68	68	69	68	68	67	67	66	66	65	65	64	64	64	63	63	62	62	—	67	
Minimum ....	70	70	70	69	69	69	68	67	67	67	67	67	67	67	67	68	67	67	66	66	65	64	64	64	63	63	62	62	62	62	—	66	
December																																	
Maximum ....	62	61	60	60	59	59	59	58	58	58	57	57	56	56	56	55	55	55	55	55	54	54	54	54	54	53	53	53	53	53	53	56	
Minimum ....	61	60	60	59	59	59	58	58	57	57	57	56	56	55	55	55	55	54	54	54	54	54	54	53	53	53	53	53	53	53	52	56	
January																																	
Maximum ....	53	52	52	--	--	--	50	50	49	48	48	48	48	49	--	--	--	--	--	--	--	--	48	49	49	50	50	50	51	51	51	--	
Minimum ....	52	52	52	--	--	--	50	49	48	48	48	47	49	--	--	--	--	--	--	--	--	--	48	48	48	50	49	50	51	51	51	--	
February																																	
Maximum ....	52	52	52	52	50	50	50	50	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	50	50	50	50	50	--	50		
Minimum ....	51	51	52	51	50	50	50	50	49	49	49	49	49	48	48	48	49	49	49	49	49	49	49	49	49	49	49	50	50	--	--	49	
March																																	
Maximum ....	50	50	50	50	50	51	52	52	52	52	52	52	52	53	55	55	55	55	55	55	56	56	56	56	56	57	58	59	59	59	59	54	
Minimum ....	49	50	50	50	50	50	51	51	51	51	51	51	52	52	54	54	54	54	55	55	56	56	55	55	56	56	57	58	59	59	59	54	
April																																	
Maximum ....	59	60	60	60	60	60	60	61	61	61	62	63	63	63	63	62	62	62	62	62	63	63	63	62	63	64	64	64	64	64	--	62	
Minimum ....	59	58	60	60	59	59	59	60	61	61	61	61	61	62	63	62	62	61	61	61	61	62	62	62	62	62	63	63	64	64	--	61	
May																																	
Maximum ....	65	65	66	65	65	65	64	65	66	66	66	66	66	66	67	67	67	67	69	69	69	69	69	69	70	72	72	70	71	71	74	68	
Minimum ....	64	64	65	65	64	63	63	64	65	65	65	66	66	66	67	67	66	66	66	66	68	68	68	68	69	70	69	69	69	70	71	74	67
June																																	
Maximum ....	74	72	71	72	72	72	71	73	72	72	73	73	73	73	73	73	73	73	73	73	73	75	76	76	75	75	75	75	75	75	--	73	
Minimum ....	72	71	71	71	71	71	70	71	71	71	71	71	72	72	72	72	72	71	73	72	72	72	73	75	75	75	74	74	74	74	--	72	
July																																	
Maximum ....	75	75	75	75	75	75	75	75	75	76	77	77	77	77	77	76	75	77	77	77	77	77	77	77	78	78	78	79	79	78	77	77	
Minimum ....	75	75	75	74	75	75	75	74	75	75	76	77	76	75	75	75	75	77	77	77	77	77	77	77	77	77	77	78	79	78	77	76	
August																																	
Maximum ....	77	77	79	79	78	79	80	80	79	79	78	79	79	79	80	80	80	80	80	80	80	80	81	80	79	79	78	78	79	79	78	79	
Minimum ....	77	77	77	78	78	78	79	79	79	78	78	78	77	78	78	79	79	79	79	80	80	80	79	80	80	78	78	77	77	78	78	78	
September																																	
Maximum ....	78	78	78	78	77	77	76	76	76	75	76	76	76	76	75	75	75	75	76	77	76	76	76	75	75	75	75	75	75	75	--	76	
Minimum ....	77	76	77	77	77	76	76	76	75	75	75	76	75	74	74	74	74	74	74	74	76	76	75	75	74	74	74	73	73	--	75		

COLORADO RIVER MAIN STEM--Continued

9-4291. COLORADO RIVER BELOW PALO VERDE DAM, ARIZ.-CALIF.

LOCATION.--Temperature recorder at gaging station, 1.2 miles downstream from Palo Verde Canal intake structure, 9.5 miles north-east of Blythe, Calif., and 11.0 miles upstream from Ehrenberg, Yuma County, Arizona.

DRAINAGE AREA.--182,200 square miles, approximately.

RECORDS AVAILABLE.--Water temperatures: April 1956 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 83°F Aug. 12, 13; minimum, 47°F Jan. 11-14, 17.

EXTREMES, 1956-64.--Water temperatures: Maximum, 88°F Aug. 7, 11, 1958; minimum (1956-62, 1963-64), 47°F Jan. 31, Feb. 1, 4, 1960, Jan. 11-14, 17, 1964.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum ....	76	76	76	76	75	75	74	74	73	73	72	72	71	71	71	71	71	71	70	--	--	73	73	73	73	73	73	73	74	74	--	73	
Minimum ....	75	75	75	75	74	73	72	73	72	72	71	71	70	70	70	70	71	70	68	--	--	71	71	71	71	71	72	72	72	73	--	72	
November																																	
Maximum ....	--	--	--	69	69	68	68	65	65	66	65	65	65	65	65	65	63	62	61	61	60	60	60	60	60	60	60	60	60	--	63		
Minimum ....	--	--	--	68	69	67	66	63	63	63	65	65	65	64	64	63	61	61	60	60	60	60	60	60	59	60	60	59	59	60	--	62	
December																																	
Maximum ....	60	60	61	61	61	60	57	57	55	55	54	54	52	51	51	51	51	51	51	51	51	51	50	50	50	49	50	51	51	51	50	53	
Minimum ....	60	59	60	60	61	57	57	56	55	55	54	52	50	50	51	50	50	50	50	50	50	50	48	49	49	58	48	49	50	48	48	52	
January																																	
Maximum ....	50	50	50	50	49	48	49	49	--	--	47	47	47	47	48	48	48	48	50	51	51	51	51	50	50	49	49	50	50	50	49	49	
Minimum ....	49	49	50	48	48	48	48	48	--	--	47	47	47	47	48	48	47	48	49	50	50	50	50	50	49	48	48	49	48	49	49	48	
February																																	
Maximum ....	50	50	49	48	48	48	48	48	49	49	49	49	49	49	49	49	50	50	50	50	50	50	50	50	50	50	50	51	51	--	--	49	
Minimum ....	50	50	48	48	48	48	48	48	48	49	49	48	48	48	48	49	49	49	49	49	49	49	49	49	49	50	50	50	50	51	--	--	49
March																																	
Maximum ....	51	50	50	50	51	52	52	51	51	51	52	53	53	54	53	53	54	54	55	55	55	55	55	55	55	56	57	58	58	58	59	54	
Minimum ....	50	50	48	50	50	51	51	50	50	51	51	52	53	53	53	53	53	54	54	55	55	55	55	54	54	54	55	56	57	58	58	53	
April																																	
Maximum ....	60	60	59	59	60	60	60	61	61	62	63	63	63	63	63	63	64	64	64	64	63	64	66	66	65	66	66	66	66	67	--	63	
Minimum ....	60	59	58	58	59	59	59	60	61	61	62	62	63	63	63	63	64	64	63	63	63	64	66	65	63	63	65	65	66	66	--	62	
May																																	
Maximum ....	67	67	67	67	65	64	64	65	67	69	69	69	69	69	69	69	70	71	71	71	71	71	72	72	72	72	72	72	72	73	74	70	
Minimum ....	67	67	66	65	63	64	64	64	65	67	69	69	69	69	69	69	70	70	70	70	71	71	72	72	72	72	72	72	72	73	73	69	
June																																	
Maximum ....	75	75	74	74	74	74	74	74	73	73	74	74	75	75	75	75	75	75	75	75	75	75	75	76	77	77	77	77	77	77	--	75	
Minimum ....	74	74	74	74	74	74	74	73	72	72	73	73	74	75	75	75	75	75	75	75	75	75	75	75	75	76	77	77	77	77	--	75	
July																																	
Maximum ....	77	77	77	77	77	77	77	77	77	78	80	80	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	80	
Minimum ....	77	77	77	77	77	77	77	77	77	78	78	80	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	80	
August																																	
Maximum ....	81	81	81	81	81	81	81	82	82	82	82	83	83	82	82	82	82	82	82	82	82	81	81	81	81	81	81	81	81	80	80	81	
Minimum ....	81	81	81	81	81	81	81	82	82	82	82	82	82	82	82	82	82	82	82	82	82	81	81	81	81	81	81	81	80	79	79	81	
September																																	
Maximum ....	79	79	78	78	79	79	79	79	79	79	80	80	80	80	79	78	77	77	77	77	77	76	76	76	76	76	76	76	76	--	78		
Minimum ....	79	78	78	78	78	79	79	78	78	78	79	79	79	79	78	78	77	77	77	77	77	76	76	75	76	76	76	76	76	--	--	77	

COLORADO RIVER MAIN STEM--Continued

9-4293. COLORADO RIVER BELOW CIBOLA VALLEY, ARIZ.

LOCATION.--Temperature recorder at gaging station, 6.7 miles south of Cibola, Yuma County, Ariz., 38 miles upstream from Imperial Dam, 39.7 miles downstream from Ehrenberg, Ariz., 52.1 miles downstream from Palo Verde diversion dam near Blythe, Calif. and at mile 620 on Colorado River Profile Survey map.

DRAINAGE AREA.--183,000 square miles, approximately.

RECORDS AVAILABLE.--Water temperatures: March 1956 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 87°F Aug. 7, 8.

EXTREMES, 1956-64.--Water temperatures: Maximum, 88°F Aug. 1, 10, 11, 1959; minimum (1956-63), 41°F Jan. 14, 1963.

REMARKS.--Temperature recorder inoperative Nov. 1-7, 9-11, 15-19, Nov. 22 to Jan. 8, Jan. 17 to Feb. 4, Feb. 18-21.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum ....	81	81	81	81	80	78	79	79	79	78	78	76	74	74	75	76	75	74	72	72	73	76	76	76	76	75	76	75	75	74	73	76
Minimum ....	80	80	80	80	78	77	77	77	78	77	77	75	73	72	73	74	74	72	71	71	71	73	75	74	74	73	73	74	73	72	72	75
November																																
Maximum ....	--	--	--	--	--	--	--	67	--	--	--	68	68	68	--	--	--	--	--	61	61	--	--	--	--	--	--	--	--	--	--	--
Minimum ....	--	--	--	--	--	--	--	66	--	--	--	67	67	66	--	--	--	--	--	59	59	--	--	--	--	--	--	--	--	--	--	--
December																																
Maximum ....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum ....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
January																																
Maximum ....	--	--	--	--	--	--	--	--	48	47	47	47	47	47	47	47	47	47	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum ....	--	--	--	--	--	--	--	--	45	46	47	47	47	46	44	46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
February																																
Maximum ....	--	--	--	--	51	51	50	51	51	52	53	52	52	50	50	50	51	--	--	--	--	53	53	52	53	53	53	53	53	--	--	--
Minimum ....	--	--	--	--	49	49	48	49	50	51	52	52	50	50	49	48	48	--	--	--	--	50	51	50	51	52	51	51	52	--	--	--
March																																
Maximum ....	53	54	54	54	56	57	57	56	55	56	58	59	59	60	60	59	59	61	62	62	61	60	58	58	58	59	61	62	62	62	62	59
Minimum ....	51	53	52	52	54	55	55	55	54	54	55	57	57	58	57	58	58	58	61	60	60	58	57	57	56	57	59	60	61	62	61	57
April																																
Maximum ....	62	61	58	58	59	59	60	62	64	67	68	68	67	68	68	68	69	67	67	64	67	68	68	66	65	67	69	69	70	--	--	65
Minimum ....	61	59	57	57	58	58	59	60	62	63	66	66	65	66	66	68	67	66	64	62	65	67	66	63	62	64	66	68	68	--	--	64
May																																
Maximum ....	70	66	66	66	63	62	64	67	70	73	74	76	76	74	76	76	75	75	76	76	77	77	76	76	76	74	74	74	75	77	78	73
Minimum ....	68	65	64	62	59	60	61	64	67	70	72	73	74	73	74	73	73	74	73	74	75	75	75	75	74	73	72	72	74	74	76	71
June																																
Maximum ....	79	79	78	77	77	77	77	73	73	73	75	77	78	79	79	78	77	77	76	77	77	79	80	81	83	82	82	82	81	81	--	78
Minimum ....	77	77	76	75	76	76	73	72	71	70	73	75	76	77	77	77	75	76	75	75	76	76	78	79	81	81	81	81	79	79	--	76
July																																
Maximum ....	81	81	81	81	80	81	81	81	81	83	84	86	86	84	84	84	84	84	84	84	84	84	84	84	83	84	85	86	86	86	84	83
Minimum ....	79	79	80	80	79	79	79	79	79	79	82	83	84	83	82	83	82	82	82	82	82	82	82	82	82	82	83	84	85	83	82	81
August																																
Maximum ....	83	84	84	84	85	86	87	87	86	85	84	85	84	85	84	85	85	86	86	85	84	84	84	83	83	83	83	82	81	80	80	84
Minimum ....	82	81	82	82	83	83	84	85	84	84	82	83	83	83	83	83	83	84	84	83	82	81	82	82	82	82	81	80	80	79	79	82
September																																
Maximum ....	79	78	78	80	80	80	80	80	81	81	82	83	82	81	80	79	79	78	78	78	77	76	74	76	75	76	77	77	77	--	--	79
Minimum ....	77	77	77	77	78	79	78	78	79	80	80	81	81	80	78	77	78	77	76	77	76	74	73	74	75	74	76	76	76	75	--	--

DIVERSIONS AND RETURN FLOWS AT AND BELOW IMPERIAL DAM

9-5225. GILA GRAVITY MAIN CANAL AT IMPERIAL DAM, ARIZ.-CALIF.

LOCATION.--At gaging station 3,200 feet downstream from intake at east end of Imperial Dam, Yuma County, Ariz.

RECORDS AVAILABLE.--Water temperatures: January 1956 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 89°F on several days during August; minimum, 45°F Jan. 13-17.

EXTREMES, 1956-64.--Water temperatures: Maximum, 89°F on several days during July 1956, July and August 1957, August 1961, and August 1964; minimum, 45°F Jan. 13-17, 1964.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum ....	83	83	83	83	82	81	80	80	80	79	79	79	77	75	75	75	74	73	72	71	72	73	74	74	74	74	74	74	74	74	73	77	
Minimum ....	82	82	82	82	80	79	78	78	78	78	78	77	75	74	73	74	74	71	71	71	71	72	72	73	73	73	73	73	73	73	72	75	
November																																	
Maximum ....	70	68	68	68	67	67	67	65	64	63	64	65	65	65	65	65	64	63	61	59	57	57	57	57	57	57	57	57	57	--	62		
Minimum ....	68	67	67	67	66	66	65	63	63	63	63	63	64	65	65	64	63	61	59	58	57	57	56	57	57	57	57	57	57	--	62		
December																																	
Maximum ....	57	57	57	57	57	57	57	57	56	56	56	56	56	55	54	52	51	51	51	52	52	52	51	51	50	50	50	51	51	51	51	54	
Minimum ....	57	57	57	57	57	57	57	57	56	56	56	56	55	54	52	51	51	51	51	51	52	52	51	51	50	50	50	51	51	51	51	53	
January																																	
Maximum ....	51	51	51	51	51	50	49	49	48	47	47	46	46	45	45	45	45	46	48	49	51	51	51	51	50	50	49	49	50	50	51	49	
Minimum ....	51	51	51	51	50	49	49	48	47	46	46	46	45	45	45	45	45	46	47	47	50	51	51	51	50	49	49	48	48	50	50	48	
February																																	
Maximum ....	50	50	50	50	49	50	49	50	50	51	51	51	51	50	50	49	50	51	53	53	53	53	53	53	53	53	53	53	53	--	--	51	
Minimum ....	50	50	50	49	48	49	49	49	50	51	50	50	50	50	49	49	49	50	51	53	53	53	53	53	53	53	52	52	53	--	--	51	
March																																	
Maximum ....	55	55	55	54	55	56	56	55	55	56	56	57	58	59	59	59	59	59	61	62	61	60	58	58	57	58	60	62	64	66	66	58	
Minimum ....	54	55	54	54	54	55	55	55	55	55	55	55	56	58	58	58	58	58	59	59	59	57	57	57	57	57	58	61	62	65	65	57	
April																																	
Maximum ....	66	65	62	62	63	63	63	65	66	68	70	71	70	71	71	70	70	70	69	65	66	67	67	67	65	67	68	69	71	72	--	67	
Minimum ....	65	62	61	60	61	61	62	63	64	66	67	69	68	63	69	69	69	69	66	65	65	66	66	65	62	64	66	68	69	70	--	66	
May																																	
Maximum ....	72	72	70	68	64	62	60	62	65	69	72	74	75	75	76	77	77	78	79	79	79	79	79	80	79	77	75	75	75	76	80	73	
Minimum ....	70	69	68	65	63	61	60	60	62	66	69	71	73	73	73	74	74	74	77	77	77	78	78	78	78	77	75	73	74	72	73	76	71
June																																	
Maximum ....	82	82	81	81	81	81	81	77	76	76	77	78	80	82	82	82	80	79	79	79	80	81	82	83	83	84	85	85	84	83	--	81	
Minimum ....	79	80	79	79	79	79	77	75	74	74	74	75	77	79	80	80	78	77	78	78	78	79	80	80	82	82	83	83	82	82	--	79	
July																																	
Maximum ....	83	83	83	83	83	83	84	83	83	85	86	88	88	86	86	86	86	86	86	85	85	85	85	84	83	85	86	88	88	87	86	85	
Minimum ....	81	81	82	81	80	81	81	82	81	82	84	87	86	84	83	83	84	84	84	84	83	83	83	82	81	82	83	86	86	85	84	85	
August																																	
Maximum ....	85	84	87	88	88	88	89	89	89	89	88	88	87	87	88	88	88	89	89	89	88	87	87	87	87	87	87	85	84	84	82	87	
Minimum ....	84	83	84	86	87	86	87	88	88	87	86	86	85	86	85	86	86	86	87	87	86	85	85	85	85	85	85	83	83	82	81	85	
September																																	
Maximum ....	81	80	80	81	81	82	82	82	83	83	84	85	85	85	84	82	81	81	80	79	78	78	76	76	76	77	77	78	78	78	--	81	
Minimum ....	80	79	79	79	79	80	80	80	81	82	82	83	84	83	80	80	80	79	79	78	78	76	75	75	75	75	76	77	77	--	79		

DIVERSIONS AND RETURN FLOWS AT AND BELOW IMPERIAL DAM--Continued

9-5255. YUMA MAIN CANAL BELOW COLORADO RIVER SIPHON, AT YUMA, ARIZ.

LOCATION.--At gaging station on Yuma Main Canal below Colorado River siphon on Arizona side of river, 3.5 miles downstream from siphon-drop powerplant, and 0.2 mile downstream from upper highway bridge over Colorado River at Yuma, Yuma County.

RECORDS AVAILABLE.--Chemical analyses: September 1926 to September 1928, October 1942 to September 1964.

Water temperatures: May 1961 to September 1964.

EXTREMES, 1963-64.--Dissolved solids: Maximum, 856 ppm Sept. 1-30; minimum, 798 ppm Mar. 1-31.

Hardness: Maximum, 364 ppm Jan. 1-31; minimum, 344 ppm Oct. 1-31, Feb. 1-29.

Specific conductance: Maximum daily, 1,380 micromhos Jan. 29; minimum daily, 1,130 micromhos Feb. 28, Apr. 20.

EXTREMES, 1943-64.--Dissolved solids: Maximum, 1,000 ppm Jan. 1-31, 1957; minimum, 532 ppm Jan. 1-10, 1953.

Hardness: Maximum, 520 ppm July 7, 1962; minimum, 260 ppm Jan. 1-10, 1953.

Specific conductance: Maximum daily, 1,600 micromhos July 7, 1962; minimum daily, 795 micromhos Jan. 5, 1953.

REMARKS.--Values reported for sodium (Na) are determined by analysis and do not include potassium (K). Records of specific conductance of daily samples available in district office at Tucson, Ariz.

Chemical analyses, in parts per million, water year October 1963 to September 1965

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate				
Oct. 1-31, 1963...	452	15	0.01	95	26	133	5.1	166		316	122	0.5	1.1	0.17	830	1.08	1010	344	208	3.1	1230	8.1	
Nov. 1-30.....	332	14	.01	96	28	138	5.0	172		324	128	.5	1.1	.16	844	1.12	757	356	215	3.2	1270	8.1	
Dec. 1-31.....	238	13	.00	97	29	138	5.2	174		322	130	.4	3.2	.17	848	1.13	545	360	218	3.2	1270	8.1	
Jan. 1-31, 1964...	371	13	.00	97	30	134	5.5	174		321	130	.4	2.6	.15	852	1.12	853	364	222	3.1	1270	8.1	
Feb. 1-29.....	469	17	.00	92	28	127	4.8	162		316	118	.4	1.4	.13	808	1.07	1020	344	211	3.0	1200	8.1	
Mar. 1-31.....	399	16	.00	93	28	124	4.9	169		313	113	.4	1.6	.12	798	1.06	860	348	210	2.9	1190	8.0	
Apr. 1-30.....	519	15	.00	93	29	124	4.9	165		320	116	.4	1.3	.13	818	1.07	1150	350	215	2.9	1200	8.1	
May 1-31.....	600	14	.00	96	29	130	5.1	168		329	123	.4	1.1	.13	842	1.10	1360	360	222	3.0	1240	8.1	
June 1-30.....	525	16	.01	97	27	128	5.1	160		330	121	.6	1.2	.21	847	1.15	1200	354	223	3.0	1250	8.1	
July 1-31.....	583	17	.01	96	28	129	5.2	163		326	117	.5	1.1	.22	844	1.09	1330	356	222	3.0	1250	8.0	
Aug. 1-31.....	517	17	.01	92	30	131	5.4	161		326	120	.5	1.1	.23	842	1.09	1180	352	220	3.0	1270	8.0	
Sept. 1-30.....	613	17	.01	95	29	140	5.3	160		338	132	.5	1.1	.24	856	1.14	1420	358	227	3.2	1310	8.2	
Weighted average	468	16	0.01	95	28	131	5.1	165		324	122	0.5	1.4	0.18	836	1.14	1060	354	218	3.0	1250	8.1	
Time-weighted average.....	--	15	0.00	95	28	131	5.1	166		323	123	0.5	1.5	0.17	836	--	--	354	218	3.0	1250	8.1	
Tons per day....	--	20	0.01	120	36	165	6.5	209		410	154	0.6	1.7	0.22	--	--	--	--	--	--	--	--	--

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																																Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October .....	82	82	82	83	--	--	79	78	78	78	79	--	--	75	73	74	73	73	--	--	73	74	75	78	73	--	--	75	74	74	73	--	
November .....	71	--	--	68	63	67	67	67	--	--	--	67	66	66	66	--	--	64	63	61	59	59	--	--	--	58	58	--	58	--	--	--	
December .....	--	59	58	58	56	55	--	--	--	--	--	53	52	--	--	50	50	50	54	53	--	--	52	51	--	52	49	--	--	53	52	--	
January.....	--	55	52	--	--	50	48	51	46	48	--	--	46	46	45	45	46	--	--	50	49	55	53	51	--	--	48	49	50	51	51	--	
February.....	--	--	52	52	50	49	49	--	--	50	52	52	53	--	--	--	50	49	50	52	--	--	--	52	52	52	53	53	--	--	--	--	
March.....	--	54	53	52	54	55	--	--	52	54	56	56	57	--	--	58	58	63	60	60	60	62	--	--	60	58	57	57	--	--	65	66	--
April.....	65	63	61	--	--	62	59	61	65	66	--	--	68	67	68	70	68	--	--	64	65	66	66	66	--	--	65	68	70	70	--	--	
May.....	70	--	--	68	65	63	63	64	--	--	69	72	75	--	--	76	--	75	76	77	77	77	--	--	--	77	76	74	--	--	--	--	
June.....	78	79	80	78	--	--	76	73	72	75	75	--	--	--	--	80	79	77	79	78	--	--	78	80	80	82	83	--	--	82	--	--	
July.....	82	82	--	82	--	82	82	82	84	83	--	--	86	85	85	85	85	--	--	86	85	85	85	85	--	--	86	86	86	--	85	--	
August.....	--	--	84	85	86	85	86	--	--	87	86	87	85	87	--	--	88	86	86	88	--	--	--	85	85	85	84	84	--	--	81	--	
September.....	80	80	80	80	--	--	--	84	85	85	84	--	--	85	83	82	81	81	--	--	79	77	75	76	76	--	--	78	80	77	--	--	



## PART 10. THE GREAT BASIN

## MISCELLANEOUS ANALYSES OF STREAMS IN SALTON SEA BASIN

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
10-2540.5. SALT CREEK NEAR MECCA, CALIF.																						
Dec. 17, 1963.....		18		94	58	1160		374		800	1320				3640			475	168		5870	8.1
Jan. 20, 1964.....		16		92	56	1130		364		800	1270				3550			460	162		5890	7.9
Mar. 4.....		12		117	66	1260		358		1020	1390				4040			565	272		6600	7.6
Apr. 20.....		14		164	55	348		254		612	388				1710			634	426		2650	7.5
10-2547.3. ALAMO RIVER NEAR NILAND, CALIF.																						
Oct. 20, 1963.....		--		198	104	--		220		--	745				--			920	740		4040	7.7
Nov. 22.....		--		--	--	--		222		--	735				--			920	738		3960	7.6
Dec. 27.....		10		215	122	573		236		825	875				2740			1040	846		4480	7.3
Jan. 24, 1964.....		8.0		182	95	460		208		750	635				2230			845	674		3590	7.2
Feb. 26.....		--		--	--	--		208		--	695				--			920	750		3870	7.1
Mar. 25.....		8.1		171	88	415		212		700	560				2050			790	616		3300	7.4
Apr. 24.....		9.0		206	116	550		232		875	770				2640			990	800		4130	7.1
May 28.....		--		226	111	--		248		--	805				--			1020	816		4220	7.1
June 23.....		--		202	118	--		240		--	825				--			990	793		4280	7.2
July 20.....		--		--	--	--		228		--	850				--			1010	823		4350	7.3
Aug. 18.....		--		--	--	--		212		--	760				--			940	766		4040	7.4
Sept. 23.....		--		--	--	--		216		--	680				--			870	693		3800	7.5
10-2555.5. NEW RIVER NEAR WESTMORELAND, CALIF.																						
Oct. 20, 1963.....		--		194	89	--		240		--	970				--			850	653		4530	7.6
Nov. 22.....		--		--	--	--		254		--	1120				--			920	712		4950	7.6
Dec. 27.....		13		226	96	787		256		725	1210				3180			960	750		5370	7.2
Jan. 24, 1964.....		11		202	101	718		248		725	1080				2960			920	716		5010	7.3
Feb. 26.....		--		--	--	--		240		--	1010				--			880	683		4640	7.1
Mar. 25.....		10		190	94	627		246		700	917				2660			860	658		4470	7.2
Apr. 24.....		11		223	101	727		256		800	1070				3060			970	760		5020	7.1
May 28.....		--		238	113	--		268		--	1270				--			1060	840		5520	7.2
June 23.....		15		246	118	994		264		825	1550				3880			1100	884		6420	7.1
July 20.....		--		--	--	--		256		--	1420				--			1100	890		6020	7.3
Aug. 18.....		--		--	--	--		248		--	1380				--			1080	876		5880	7.4
Sept. 23.....		--		--	--	--		256		--	1180				--			1000	790		5190	7.4

MISCELLANEOUS ANALYSES OF STREAMS IN SALTON SEA BASIN--Continued

Chemical analyses, in parts per million, water year October 1963 to September 1964--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
10-2595.4. WHITEWATER RIVER NEAR MECCA, CALIF.																						
Oct. 23, 1963.....		--		--	--	--		364		--	465				--			650	352		3780	7.9
Nov. 18.....		--		--	--	--		336		--	470				--			590	314		3630	7.8
Dec. 17.....		16		182	37	615		344		925	495				2440			605	323		3700	7.8
Jan. 20, 1964.....		--		160	43	--		330		--	438				--			575	304		3460	7.7
Feb. 19.....		16		171	47	582		348		925	452				2370			620	334		3620	7.8
Mar. 19.....		16		166	49	577		342		925	445				2350			615	334		3620	7.7
Apr. 14.....		18		180	44	603		354		950	470				2440			630	340		3730	7.8
May 12.....		--		166	45	--		328		--	430				--			600	331		3510	7.6
June 17.....		--		166	43	--		332		--	405				--			590	318		3360	7.5
July 15.....		--		178	38	--		348		--	435				--			600	314		3570	7.9
Aug. 3.....		20		170	44	535		332		850	425	5.0			2220			605	333		3470	7.5
Aug. 27.....		20		182	43	567		332		900	465				2340			630	358		3590	7.8
Sept. 22.....		--		185	45	--		356		--	495				--			645	353		3810	7.8

# MOJAVE RIVER BASIN

10-2615. MOJAVE RIVER AT LOWER NARROWS, NEAR VICTORVILLE, CALIF.

LOCATION.--Temperature recorder at gaging station, 1,000 feet upstream from bridge on county road, formerly U.S. Highway 66, 2,500 feet downstream from Atchison, Topeka and Santa Fe Railway bridge, and 3 miles northeast of Victorville, San Bernardino County.

DRAINAGE AREA.--530 square miles.

RECORDS AVAILABLE.--Water temperatures: March 1962 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 78°F Oct. 2; minimum, 46°F Jan. 12-16.

EXTREMES, 1962-64.--Water temperatures: Maximum, 94°F July 23, Aug. 14, 1962; minimum, 39°F Jan. 13, 1963.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum ....	76	78	76	72	73	73	70	70	70	71	67	66	66	68	68	62	62	60	64	63	64	66	63	68	64	63	62	63	63	62	62	67	
Minimum ....	63	63	62	64	62	60	59	59	59	59	59	57	56	57	58	59	59	59	59	59	58	58	60	59	59	59	55	60	60	58	57	59	
November																																	
Maximum ....	60	61	60	61	61	59	58	58	59	59	59	58	58	58	57	57	56	54	54	54	53	54	54	54	53	54	54	54	54	54	--	57	
Minimum ....	55	56	58	58	57	58	55	54	55	55	56	55	56	57	56	55	52	52	52	53	53	51	51	53	52	52	52	52	52	52	--	54	
December																																	
Maximum ....	54	53	52	52	52	52	52	52	52	52	51	50	49	49	50	50	50	50	51	51	51	51	50	49	50	50	50	50	51	51	51	51	
Minimum ....	52	51	50	50	50	50	50	50	50	51	50	49	48	48	48	48	48	48	50	50	50	49	48	48	48	48	48	49	48	50	50	49	
January																																	
Maximum ....	51	51	51	50	49	48	50	50	49	48	48	48	47	47	47	47	48	49	50	50	50	50	49	49	49	49	50	51	51	51	51	49	
Minimum ....	49	49	49	48	47	47	48	49	47	47	47	46	46	46	46	46	47	48	49	49	49	49	48	48	48	48	48	49	49	49	49	48	
February																																	
Maximum ....	51	51	50	50	51	51	50	50	50	51	51	51	51	50	50	49	50	51	51	51	51	51	51	51	51	51	50	50	50	50	--	51	
Minimum ....	49	49	49	49	49	49	48	48	48	49	50	49	49	48	48	48	48	48	49	50	50	49	49	50	49	51	50	48	48	49	49	--	49
March																																	
Maximum ....	51	51	50	52	52	52	50	50	50	51	53	52	52	53	53	53	51	54	55	55	55	55	54	52	51	52	53	56	56	57	57	53	
Minimum ....	48	49	49	48	51	50	49	49	48	48	50	51	51	51	51	51	51	52	52	53	52	53	52	50	50	50	51	54	54	55	55	51	
April																																	
Maximum ....	56	56	54	55	55	54	55	56	57	58	58	58	58	59	60	60	59	58	58	58	58	58	58	56	56	56	57	58	58	59	59	--	57
Minimum ....	55	54	53	53	54	53	53	54	55	55	56	56	56	57	58	58	58	57	56	56	56	56	56	55	55	55	56	57	57	57	--	56	
May																																	
Maximum ....	59	58	57	57	56	56	56	57	58	59	60	61	60	60	60	60	60	62	64	65	66	69	64	63	64	64	62	62	63	65	68	61	
Minimum ....	57	56	56	55	55	55	55	56	57	58	58	59	59	59	59	59	59	59	61	60	60	60	60	61	62	61	59	60	60	61	59		
June																																	
Maximum ....	69	68	67	66	67	68	66	64	63	63	64	66	68	72	70	67	66	68	67	66	66	68	69	70	73	71	69	68	68	69	--	68	
Minimum ....	61	60	62	62	62	64	62	62	61	60	61	62	62	63	62	62	62	62	62	64	63	64	64	64	64	65	64	63	63	62	--	62	
July																																	
Maximum ....	70	70	69	68	69	70	70	70	72	72	73	74	73	72	72	71	73	72	72	72	72	71	70	70	71	71	71	70	73	73	72	71	
Minimum ....	63	63	63	63	63	64	63	64	65	66	67	67	67	68	67	66	67	66	66	65	65	66	66	67	68	69	68	69	68	68	67	66	
August																																	
Maximum ....	70	70	73	74	72	74	72	72	71	73	73	73	72	71	70	70	71	72	72	70	70	69	68	69	--	--	--	--	--	--	--	--	
Minimum ....	66	67	66	69	68	69	68	67	67	68	68	68	67	66	65	63	64	66	67	66	65	65	65	65	66	--	--	--	--	--	--	--	
September																																	
Maximum ....																																	
Minimum ....																																	

MOJAVE RIVER BASIN--Continued

10-2635. BIG ROCK CREEK NEAR VALYERMO, CALIF.

LOCATION.--Temperature recorder at gaging station, 0.1 mile upstream from Punchbowl Canyon, and 1.9 miles southeast of Valyermo, Los Angeles County.

DRAINAGE AREA.--23.0 square miles.

RECORDS AVAILABLE.--Water temperatures: January 1962 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 62°F Oct. 1, 2, on several days during July; minimum, 43°F Feb. 16.

EXTREMES, 1962-64.--Water temperatures: Maximum, 65°F June 20, 21, 1962, Aug. 14-17, 1963; minimum, 43°F Feb. 16, 1964.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum ....	62	62	61	60	60	60	60	60	60	60	58	57	58	58	58	--	--	--	58	57	57	58	57	56	57	58	57	57	56	56	55	58
Minimum ....	59	59	59	59	57	57	57	56	56	57	57	54	54	54	54	--	--	--	56	55	55	56	56	55	54	56	56	56	55	54	54	56
November																																
Maximum ....	55	56	56	56	56	55	54	55	56	56	55	55	54	56	55	54	52	52	52	52	52	52	54	53	52	52	53	53	52	52	--	54
Minimum ....	53	54	53	54	54	54	52	52	54	53	53	53	53	54	54	51	50	51	51	51	51	50	51	51	50	50	50	51	51	51	--	52
December																																
Maximum ....	53	52	52	52	52	52	51	52	50	50	49	50	50	51	51	51	51	50	49	50	48	48	48	49	49	49	49	50	50	48	49	50
Minimum ....	50	49	49	49	49	50	50	48	48	45	48	48	48	48	49	49	49	48	47	47	47	47	46	46	46	46	46	47	48	48	47	46
January																																
Maximum ....	50	49	48	48	47	48	48	47	47	47	47	47	47	46	47	50	49	49	50	49	47	47	47	48	48	49	49	50	49	48	48	48
Minimum ....	47	47	46	45	46	45	46	46	45	46	45	45	44	45	45	44	46	47	46	46	46	44	45	45	46	46	46	46	46	46	46	46
February																																
Maximum ....	49	48	48	48	50	52	47	48	48	48	48	48	48	48	48	47	49	50	50	48	49	50	49	50	46	48	50	49	49	--	--	49
Minimum ....	46	46	44	45	46	45	44	46	45	46	46	45	45	44	44	43	44	46	46	45	44	45	45	45	45	44	44	44	44	--	--	45
March																																
Maximum ....	50	47	49	51	51	49	48	50	51	51	52	51	51	51	51	49	54	55	55	54	52	48	52	52	54	55	56	56	55	55	54	52
Minimum ....	45	45	45	45	46	45	45	45	45	46	46	46	46	46	46	46	45	48	48	48	48	44	45	48	47	47	48	48	49	49	48	46
April																																
Maximum ....	53	48	50	55	53	53	55	56	56	56	57	56	56	57	58	57	57	56	55	57	58	57	55	56	56	57	57	55	59	58	--	56
Minimum ....	48	45	45	46	47	46	46	47	47	47	48	48	48	48	48	50	50	50	48	50	51	51	49	49	50	51	51	53	52	52	--	49
May																																
Maximum ....	57	56	57	54	56	53	56	58	57	58	59	60	59	59	59	59	58	60	60	60	60	60	58	58	57	58	58	58	59	60	60	58
Minimum ....	51	51	50	51	51	50	51	50	51	52	52	52	53	52	52	52	52	52	54	53	53	53	54	54	54	53	52	52	52	53	54	52
June																																
Maximum ....	60	60	59	59	60	60	58	58	57	58	59	60	60	60	60	60	59	59	59	60	60	60	60	61	61	61	60	59	59	60	--	60
Minimum ....	54	53	54	54	54	55	55	53	53	53	53	54	55	55	56	55	55	54	54	55	54	55	55	55	56	56	56	55	54	54	--	54
July																																
Maximum ....	60	61	60	60	60	60	61	61	61	60	62	62	62	62	62	62	62	62	62	62	61	61	61	61	61	60	60	60	61	60	60	61
Minimum ....	55	55	54	54	54	55	54	55	56	56	57	56	57	57	56	56	56	56	56	56	55	55	55	55	56	57	57	55	56	55	56	56
August																																
Maximum ....	59	59	59	59	59	58	60	60	59	60	59	58	58	57	57	57	58	58	59	58	58	58	59	58	60	58	58	58	57	57	56	58
Minimum ....	54	54	54	55	55	57	55	55	55	56	55	54	53	52	52	50	52	54	55	53	53	53	54	54	55	54	53	53	52	52	52	54
September																																
Maximum ....	55	55	56	56	56	56	55	56	57	57	58	57	55	56	56	56	55	55	55	55	54	54	55	54	56	56	55	55	55	55	--	56
Minimum ....	52	49	50	51	51	50	50	50	52	52	53	54	53	50	50	51	53	51	51	51	50	51	50	50	52	52	51	50	50	50	--	51

MISCELLANEOUS ANALYSES OF STREAMS IN MOJAVE RIVER BASIN

Periodic determinations of suspended sediment discharge and particle-size analyses, water year October 1963 to September 1964

(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;

P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concent- ration (ppm)	Sediment discharge (tons per day)	Suspended sediment											Method of analysis
							Percent finer than size indicated, in millimeters											
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
10-2605.5. WEST FORK MOJAVE RIVER ABOVE CEDAR SPRINGS, CALIF.																		
Dec. 4, 1963.....	1235	47		0.1	1	T												S
Jan. 17, 1964.....	1120	40		.1	1	T												
Feb. 4.....	1355	46		.4	1	T												
Apr. 1.....	1515	--		10	138	3.7					63	79	95	100				
Apr. 4.....	1030	50		1.1	2	T												
May 9.....	1325	61		.6	2	T												
June 25.....	0705	67		.1	17	T												
10-2607. EAST FORK OF WEST FORK MOJAVE RIVER, ABOVE CEDAR SPRINGS, CALIF.																		
Oct. 22, 1963.....	1700	56		0.4	6	T						--	--	--	--	--		V
Dec. 4.....	1310	46		.8	1	T						--	--	--	--	--		
Jan. 17, 1964.....	1035	38		.8	29	.1						--	--	--	--	--		
Jan. 21.....	1010	--		75	3330	674						52	55	58	66	100		
Feb. 4.....	1325	46		1.2	2	T						--	--	--	--	--		
Apr. 1.....	1215	--		500	1940	2620	16	20	28	39	55	64	76	84	96	100		
Apr. 2.....	1440	--		80	321	69						57	71	93	100	--	VPWC V	
Apr. 3.....	1725	46		16	145	6.3						--	--	--	--	--		
May 9.....	1300	63		2.5	10	.1						--	--	--	--	--		
June 25.....	0630	57		.8	3	T						--	--	--	--	--		
10-2608. WEST FORK MOJAVE RIVER BELOW CEDAR SPRINGS, CALIF.																		
Nov. 21, 1963.....	2330	45		6.5	92	16						--	--	--	--	--		V V
Dec. 4.....	1215	59		1.0	1	T						--	--	--	--	--		
Jan. 17, 1964.....	1000	47		.8	1	T						--	--	--	--	--		
Jan. 21.....	1530	--		12	838	27						--	--	--	--	--		
Feb. 4.....	1415	58		.8	5	T						--	--	--	--	--		
Apr. 1.....	1515	--		300	706	572						74	78	85	99	100		
Apr. 2.....	0955	--		100	220	59						48	53	68	94	100		
Apr. 3.....	1815	48		60	53	8.6						--	--	--	--	--		
May 9.....	1425	67		15	7	.3						--	--	--	--	--		

T Less than 0.05 ton.

MISCELLANEOUS ANALYSES OF STREAMS IN WALKER LAKE BASIN

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
10-2930. EAST WALKER RIVER NEAR BRIDGEPORT, CALIF.																						
Nov. 7, 1963.....	21	---	---	---	---	10	---	97	0	---	0.3	---	---	0.2	---	---	---	66	0	0.5	179	8.1
Jan. 9, 1964.....	21	---	---	---	---	12	---	102	5	---	2.0	---	---	0	---	---	---	74	0	0.6	200	8.3
Mar. 5.....	19	---	---	---	---	14	---	122	3	---	1.5	---	---	1	---	---	---	84	0	0.7	227	8.5
May 7.....	142	17	---	28	3.4	15	3.2	123	0	14	2.5	0.2	1.5	1	146	0.20	---	84	0	0.7	229	8.1
July 14.....	231	---	---	---	---	15	---	127	3	---	3.0	---	---	2	---	---	---	85	0	0.7	231	8.4
Sept. 15.....	134	8.5	---	30	4.6	15	4.4	138	0	14	2.4	---	1.8	0	147	0.20	---	94	0	0.7	246	8.0
10-2960. WEST WALKER RIVER BELOW LITTLE WALKER RIVER, NEAR COLEVILLE, CALIF.																						
Nov. 7, 1963.....	90	---	---	---	---	7.4	---	54	---	---	0.9	---	---	0.2	---	---	---	34	0	0.5	106	7.8
Jan. 9, 1964.....	57	---	---	---	---	18	---	78	---	---	4.2	---	---	1	---	---	---	44	0	1.2	163	8.2
Mar. 5.....	51	---	---	---	---	10	---	67	---	---	2.0	---	---	1	---	---	---	42	0	0.7	131	8.1
May 7.....	170	15	---	13	1.5	15	1.5	71	---	9.0	5.2	0.0	0.9	1	96	0.13	---	38	0	1.0	148	8.1
July 14.....	198	---	---	---	---	2.8	---	24	---	---	1.0	---	---	0	---	---	---	18	0	0.3	46	7.8
Sept. 15.....	46	11	---	17	2.8	13	1.6	84	---	12	2.8	---	1.2	0	102	0.14	---	54	0	0.8	164	8.0

MISCELLANEOUS ANALYSES OF STREAMS IN CARSON RIVER BASIN

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
10-3065. EAST FORK CARSON RIVER NEAR MARKLEEVILLE, CALIF.																						
Nov. 7, 1963.....		--		--	--	7.2	--	63	0	--	2.7		--	0.2	--	--		46	0	0.5	131	7.8
Jan. 9, 1964.....		--		--	--	9.0	--	71	0	--	3.2		--	.1	--	--		52	0	.5	145	8.1
Mar. 5.....		--		--	--	9.6	--	72	1	--	5.5		--	.3	--	--		51	0	.6	145	8.3
May 7.....	19			11	1.8	6.5	0.6	49	0	4.0	4.0	0.2	1.5	.1	73	0.10		35	0	.5	97	8.0
July 14.....		--		--	--	6.1	--	50	0	--	1.5		--	.1	--	--		38	0	.4	97	8.1
Sept. 15.....	20			16	3.2	9.2	1.7	79	0	8.0	3.0		--	.9	.0	105	.14	53	0	.5	144	7.9
10-3100. WEST FORK CARSON RIVER AT WOODFORDS, CALIF.																						
Nov. 7, 1963.....	45	--		--	--	3.0	--	40		--	--		--	0.2	--	--		28	0	0.2	74	7.5
Jan. 9, 1964.....	36	--		--	--	3.8	--	41		--	1.5		--	.0	--	--		30	0	.3	75	7.9
Mar. 5.....	37	--		--	--	3.8	--	40		--	1.0		--	.0	--	--		29	0	.3	74	8.0
May 7.....	128	17		7.6	1.2	3.1	0.4	33		1.0	1.8	0.1	1.9	.1	56	0.08		24	0	.3	59	7.8
July 14.....	40	--		--	--	3.1	--	36		--	.5		--	.0	--	--		27	0	.3	68	7.9
Sept. 15.....	10	21		11	1.3	4.3	1.8	48		2.0	.4		.8	.0	67	.09		33	0	.3	84	7.5

PYRAMID AND WINNEMUCCA LAKES BASIN

10-3460. TRUCKEE RIVER AT FLORISTON, CALIF.

LOCATION.--At bridge at Floriston, Nevada County, 0.2 mile above flume diversion, 2.5 miles upstream from gage at Farad, and 1.8 miles upstream from Farad.

DRAINAGE AREA.--932 square miles, upstream from gaging station.

RECORDS AVAILABLE.--Chemical analyses: January to September 1964.

Water temperatures: January to September 1964.

EXTREMES, January to September 1964.--Dissolved solids: Maximum, 84 ppm Feb. 1-29; minimum, 56 ppm May 19-31.

Hardness: Maximum, 43 ppm Mar. 1-31; minimum, 26 ppm May 19-31.

Specific conductance: Maximum daily, 141 micromhos Feb. 3; minimum daily, 64 micromhos May 20, 31.

Water temperatures: Maximum, 66°F Aug. 3.

REMARKS.--Records of specific conductance of daily samples available in subdistrict office at Sacramento, Calif. Records of daily discharge data given for Truckee River at Farad.

Chemical analyses, in parts per million, January to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Jan. 1-31, 1964...	380	18	0.00	--	--	7.8	3.2	56		3.0	--	0.2	--	0.2	A 82	0.11	84.1	39	0	0.5	105	7.8
Feb. 1-29.....	361	20	.01	11	3.5	6.4	2.1	56		4.0	6.2	.0	0.5	.0	84	.11	81.2	42	0	.4	114	7.4
Mar. 1-31.....	309	21	.03	10	4.4	6.1	1.7	58		4.0	2.5	.0	2.1	.0	A 81	.11	67.6	43	0	.4	113	8.0
Apr. 1-13.....	526	20	.05	10	3.5	5.2	1.3	49		3.0	2.0	.0	1.4	.0	80	.11	114	40	0	.4	103	7.2
Apr. 14-30.....	755	20	.04	8.8	2.7	4.3	1.0	42		1.0	1.5	.0	1.7	.0	67	.09	136	33	0	.3	86	7.3
May 1-18.....	1025	20	.03	8.0	2.6	3.8	.9	39		3.0	1.5	.0	1.9	.0	A 61	.08	169	30	0	.3	78	7.3
May 19-31.....	1125	17	.03	7.2	2.1	3.8	.9	36		2.0	1.8	.0	1.5	.0	56	.08	170	26	0	.3	68	7.4
June 1-15.....	933	17	.01	7.6	1.9	3.8	1.7	34		2.0	2.0	.1	.8	.0	58	.08	146	27	0	.3	74	7.0
June 16-30.....	531	17	.01	7.8	1.8	4.1	1.5	38		3.0	1.5	.0	1.0	.0	A 57	.08	81.7	27	0	.3	77	7.1
July 1-31.....	529	19	.01	8.6	2.1	4.3	1.9	42		2.0	1.0	.1	.8	.0	A 61	.08	87.1	30	0	.3	81	7.2
Aug. 1-31.....	529	17	.00	9.2	2.9	5.8	2.1	51		6.0	1.0	.0	.9	.0	70	.10	100	35	0	.4	100	7.0
Sept. 1-30.....	500	17	.02	8.8	3.2	5.2	1.8	46		4.0	1.2	.1	1.1	.1	A 66	.11	89.1	35	0	.4	92	7.0
Weighted average	B 526	18	0.02	8.7	2.7	4.9	1.7	45		3.1	1.9	0.0	1.2	0.1	67	0.09	102	33		0.4	89	7.2
Time-weighted average.....	--	19	0.02	9.0	2.9	5.3	1.8	48		3.3	2.1	0.1	1.2	0.2	70	--	--	35	0	0.9	94	7.2
Tons per day....	--	28	0.03	13	4.1	7.5	2.5	68		4.7	2.8	0.1	1.9	0.2	--	--	--	--	--	--	--	--

A Calculated.

B Mean discharge based on 365 days; mean discharge for 274 days of chemical analysis, 563 cfs, 98 per cent of runoff.

Temperature (°F) of water, January to September 1964

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October .....																																
November .....																																
December .....																																
January .....	38	38	34	35	34	36	38	36	35	37	34	35	34	36	32	36	37	35	35	36	34	33	35	34	36	37	36	35	35	36	33	35
February .....	32	36	22	22	22	32	32	32	32	32	35	32	24	32	25	25	32	25	35	34	34	34	34	38	36	34	32	35	38	--	--	34
March .....	29	32	34	34	37	39	38	32	39	41	41	36	36	36	40	44	40	41	40	43	39	36	36	37	36	40	39	44	40	43	42	39
April .....	40	36	40	39	39	37	38	40	41	41	41	40	42	41	43	40	--	40	41	40	41	41	39	40	40	43	43	43	43	44	--	41
May .....	40	38	30	40	40	39	39	45	41	44	43	45	45	42	42	43	43	43	44	46	46	45	45	47	47	47	44	47	49	48	44	
June .....	49	48	48	49	48	50	47	47	47	47	46	49	49	50	50	52	52	50	49	52	51	51	51	54	54	56	52	56	57	55	--	51
July .....	55	54	54	54	54	51	57	56	--	58	52	52	58	58	59	58	58	59	59	59	59	59	--	60	61	63	63	65	--	65	61	58
August .....	--	62	64	64	62	62	65	64	62	63	62	61	61	61	61	60	62	61	60	60	60	60	60	61	60	60	59	--	57	57	57	61
September .....	52	51	50	57	55	55	54	54	55	55	--	54	53	54	53	53	54	53	50	51	54	50	54	54	54	53	54	54	54	54	--	54



MISCELLANEOUS ANALYSES OF STREAMS IN PYRAMID AND WINNEMUCCA LAKES BASIN

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
10-3370. LAKE TAHOE AT TAHOE, CALIF.																						
Nov. 8, 1963.....		--		--	--	5.4	--	51		--	3.4		--	0.0	--	--		33	0	0.4	92	7.9
Jan. 10, 1964.....		--		--	--	6.1	--	48		--	2.2		--	.1	--	--		32	0	.5	92	8.1
Mar. 6.....		--		--	--	6.1	--	50		--	3.6		--	.0	--	--		32	0	.5	94	8.2
May 8.....		13		11	1.1	5.9	1.5	50		1.0	4.0	0.0	0.7	.0	63	0.09		32	0	.5	93	7.9
July 13.....		--		--	--	6.4	--	50		--	1.5		--	.1	--	--		32	0	.5	92	8.1
Sept. 14.....		16		11	1.6	6.5	1.7	52		3.0	1.4		.0	.0	67	.09		34	0	.5	95	8.2
10-3380. TRUCKEE RIVER NEAR TRUCKEE, CALIF.																						
Nov. 8, 1963.....		--		--	--	5.2	--	50		--	3.5		--	0.0	--	--		35	0	0.4	98	7.8
Jan. 10, 1964.....		--		--	--	6.1	--	50		--	2.8		--	.1	--	--		34	0	.5	97	8.2
Mar. 6.....		--		--	--	6.6	--	52		--	4.0		--	.0	--	--		48	5	.4	101	8.2
May 8.....		19		9.6	2.4	4.7	0.5	41		6.0	3.8	0.0	0.8	.0	67	0.09		34	0	.3	90	7.5
July 13.....		--		--	--	6.1	--	51		--	1.5		--	.0	--	--		36	0	.5	98	8.1
Sept. 14.....		13		8.4	3.2	6.2	1.9	51		3.0	1.9		.2	.2	66	.09		34	0	.5	99	8.1

## HONEY LAKE BASIN

10-3565. SUSAN RIVER AT SUSANVILLE, CALIF.

LOCATION.--At gaging station 0.5 mile west of Susanville, Lassen County, and 1.1 miles upstream from Piute Creek.

DRAINAGE AREA.--192 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 10, 1963.....	8.7	--	--	--	--	5.6	--	112	0	--	1.2	--	--	0.0	--	--	--	80	0	0.3	175	8.2
Nov. 6.....	50	--	--	--	--	4.2	--	81	0	--	1.4	--	--	0.0	--	--	--	59	0	.2	133	7.7
Dec. 4.....	19	--	--	--	--	4.9	--	95	0	--	1.5	--	--	0.0	--	--	--	67	0	.3	153	8.0
Jan. 8, 1964.....	17	--	--	--	--	5.7	--	93	1	--	2.2	--	--	0.0	--	--	--	68	0	.3	153	8.3
Feb. 5.....	22	--	--	--	--	5.9	--	93	0	--	1.0	--	--	0.0	--	--	--	67	0	.3	152	8.2
Mar. 4.....	22	--	--	--	--	5.5	--	88	2	--	3.0	--	--	0.0	--	--	--	67	0	.3	151	8.3
Apr. 9.....	121	--	--	--	--	5.1	--	64	0	--	1.6	--	--	0.0	--	--	--	48	0	.3	105	8.2
May 6.....	91	23	--	11	4.0	4.0	0.8	60	0	1.0	1.0	0.0	1.4	0.0	76	0.10	--	44	0	.3	102	8.2
June 11.....	120	--	--	--	--	3.0	--	40	0	--	1.0	--	--	0.0	--	--	--	32	0	.2	71	7.8
July 2.....	89	--	--	--	--	3.2	--	39	0	--	1.0	--	--	0.0	--	--	--	30	0	.3	68	7.8
Aug. 6.....	3.6	--	--	--	--	6.5	--	116	0	--	1.0	--	--	0.0	--	--	--	83	0	.3	181	8.0
Sept. 3.....	5.6	38	--	19	9.6	7.0	2.3	122	0	1.0	.8	--	1.0	0.0	139	.19	--	87	0	.3	189	7.9

## PART 11. PACIFIC SLOPE BASINS IN CALIFORNIA

## SANTA CLARA RIVER BASIN

## 11-1115. SESPE CREEK NEAR WHEELER SPRINGS, CALIF.

LOCATION.--Temperature recorder at gaging station, at Sespe Gorge, 1.6 miles upstream from Tule Creek, 5 miles upstream from Cold Springs damsite, and 5 miles northeast of Wheeler Springs, Ventura County.

DRAINAGE AREA.--51.2 square miles.

RECORDS AVAILABLE.--Water temperatures: February 1962 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 84°F Aug. 11; minimum, 42°F Dec. 11, 12.

EXTREMES, 1962-64.--Water temperatures: Maximum, 84°F Aug. 11, 1964; minimum, 35°F Mar. 16, 1963.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																																Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum ....	67	67	66	60	62	61	60	59	61	59	58	57	57	57	53	56	54	55	56	58	56	58	57	57	56	57	54	56	55	55	54	58	
Minimum ....	59	59	58	56	57	54	52	54	54	50	53	50	49	49	48	52	52	53	52	54	52	52	52	52	52	53	52	53	51	51	50	53	
November																																	
Maximum ....	51	51	52	50	52	52	49	51	52	51	52	52	52	52	52	50	47	46	46	46	46	45	46	48	48	48	44	45	45	44	--	49	
Minimum ....	48	48	50	48	49	49	45	47	49	48	48	48	49	48	50	47	44	44	43	45	45	44	44	46	46	46	43	43	43	43	--	46	
December																																	
Maximum ....	44	43	42	42	41	43	44	43	43	42	41	39	40	41	42	42	42	42	43	45	43	42	41	41	42	43	42	43	45	46	45	43	
Minimum ....	42	42	41	41	40	41	43	41	42	41	39	37	37	38	39	39	39	39	41	42	42	41	38	38	39	40	42	43	43	43	40	40	
January																																	
Maximum ....	43	43	42	42	41	41	42	42	42	41	41	40	39	39	39	40	41	42	42	43	43	40	40	41	42	44	44	44	44	45	44	42	
Minimum ....	41	42	39	38	39	40	41	41	39	41	39	38	38	38	38	38	39	41	41	41	40	39	39	39	40	42	41	41	41	43	40	40	
February																																	
Maximum ....	46	46	44	45	46	44	43	45	44	44	45	45	44	44	43	42	45	46	47	46	46	47	47	47	47	47	46	46	46	--	--	45	
Minimum ....	42	42	40	41	42	41	38	41	38	38	41	39	40	38	37	38	38	39	40	40	38	40	40	40	42	39	39	38	40	--	--	40	
March																																	
Maximum ....	45	45	44	48	50	48	44	47	48	50	50	47	50	52	52	51	54	55	55	54	50	46	42	44	40	50	52	52	54	55	50	50	
Minimum ....	39	40	36	40	44	41	40	39	40	42	42	44	44	42	45	44	44	45	45	44	44	37	39	40	40	42	42	44	45	45	45	42	
April																																	
Maximum ....	48	48	50	51	49	49	52	54	57	58	59	60	60	60	60	58	58	55	52	56	58	53	55	55	55	57	59	59	61	61	--	56	
Minimum ....	44	42	42	44	45	43	44	45	43	49	50	51	51	51	52	52	51	51	50	49	50	50	52	49	49	50	52	56	53	55	--	49	
May																																	
Maximum ....	57	58	55	54	51	51	55	58	60	62	63	64	64	64	64	62	62	64	64	64	65	65	63	64	58	62	58	61	63	65	66	61	
Minimum ....	53	51	50	49	47	49	47	51	52	53	54	56	56	54	54	54	55	55	55	54	56	56	56	57	54	53	53	54	56	56	--	53	
June																																	
Maximum ....	66	67	66	66	68	70	66	60	56	60	63	66	68	70	67	68	67	67	67	67	69	70	70	72	72	72	70	68	67	68	--	67	
Minimum ....	57	58	58	58	58	61	59	56	53	53	53	56	59	61	60	59	58	58	58	57	58	60	60	61	61	62	60	58	56	56	--	58	
July																																	
Maximum ....	69	70	70	70	70	70	72	71	71	74	75	75	74	76	74	74	73	73	74	73	73	73	75	77	77	77	78	78	78	78	77	74	
Minimum ....	58	60	59	59	58	58	60	62	61	59	63	64	66	61	64	64	62	62	63	60	61	61	62	64	64	65	69	66	66	66	62	62	
August																																	
Maximum ....	74	75	77	77	80	78	83	80	80	80	84	83	79	80	75	75	77	76	77	76	76	78	79	79	79	83	83	78	79	77	67	78	
Minimum ....	60	60	61	63	63	66	65	63	65	64	65	63	60	60	56	56	56	60	62	58	54	55	61	59	60	59	60	58	59	51	56	60	
September																																	
Maximum ....	61	76	73	75	75	73	72	72	72	73	75	76	73	72	76	72	72	75	73	71	73	71	73	71	73	69	71	69	67	65	68	72	
Minimum ....	56	54	53	52	54	52	51	47	48	51	54	54	52	52	53	52	52	52	52	51	52	50	50	52	51	52	51	47	45	48	--	51	

## MISCELLANEOUS ANALYSES OF STREAMS IN SANTA CLARA RIVER BASIN

Periodic determinations of suspended sediment discharge and particle-size analyses, water year October 1963 to September 1964  
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentra- tion (ppm)	Sediment discharge (tons per day)	Suspended sediment											Method of analysis
							Percent finer than size indicated, in millimeters											
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
11-1080.7. ELIZABETH LAKE CANYON CREEK NEAR CASTAIC, CALIF.																		
Dec. 4, 1963.....	0950	47		---	1	T												
Jan. 16, 1964.....	1635	51		.6	5	T												
Feb. 3.....	1555	57		.5	3	T												
Apr. 3.....	1335	63		3.5	18	.2												
May 9.....	0915	60		3.0	9	.1												
11-1080.85. CASTAIC CREEK NEAR CASTAIC, CALIF.																		
Apr. 3, 1964.....	1235	67		1.3	148	0.5	--	--	--	--	--	--	--	--	--	--	--	
May 6.....	1545	50		5.0	22900	309	43	55	72	85	96	96	97	97	98	100		VPWC
May 6.....	1655	50		2.1	2380	13	30	42	63	75	82	84	84	85	90	100		VPWC
May 8.....	1225	81		.3	15	T	--	--	--	--	--	--	--	--	--	--	--	

T Less than 0.05 ton.

MISCELLANEOUS ANALYSES OF STREAMS IN SANTA YNEZ RIVER BASIN

Periodic determinations of suspended sediment discharge and particle-size analyses, water year October 1963 to September 1964  
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concen- tration (ppm)	Sediment discharge (tons per day)	Suspended sediment												Method of analysis
							Percent finer than size indicated, in millimeters												
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000		
11-1305. SANTA YNEZ RIVER NEAR BUELLTON, CALIF.																			
Nov. 13, 1963.....	1215	62		0.6	5	T													
Nov. 21.....	0935	54		.8	6	T													
Dec. 3.....	1445	61		.8	14	T													
Dec. 5.....	1315	58		.8	118	.3													
Dec. 17.....	1330	56		1.0	34	.1													
Jan. 6, 1964.....	1330	54		1.2	3	T													
Jan. 16.....	1135	49		1.1	3	T													
Jan. 16.....	1320	54		1.1	15	T													
Jan. 30.....	1240	58		1.6	7	T													
Feb. 10.....	1235	58		2.1	5	T													
Feb. 26.....	1605	59		1.4	33	.1													
Feb. 28.....	1430	61		1.5	6	T													
Mar. 16.....	1045	56		1.4	80	.3													
Apr. 2.....	1240	58		3.4	24	.2													
Apr. 2.....	1845	59		3.6	40	.4													
Apr. 15.....	0920	58		1.9	6	T													
Apr. 30.....	1140	62		1.2	10	T													
May 8.....	1800	64		1.9	13	.1													
May 12.....	1205	64		1.0	104	.3													
May 26.....	1215	64		.7	67	.1													
June 12.....	0950	60		.4	8	T													
June 24.....	1100	67		.6	8	T													
11-1325. SALSIPUEDES CREEK NEAR LOMPOC, CALIF.																			
Nov. 13, 1963.....	0930	55		0.9	71	0.2													
Nov. 21.....	0830	49		3.4	265	2.4							98	100				S	
Dec. 3.....	1350	47		1.8	12	.1													
Dec. 5.....	1030	42		1.7	76	.3													
Dec. 17.....	1115	42		1.8	89	.4													
Jan. 6, 1964.....	1020	38		1.8	13	.1													
Jan. 16.....	1015	39		1.6	32	.1													
Jan. 16.....	1050	39		1.6	6	T													
Jan. 21.....	0920	49		1.4	333	13							100					S	
Jan. 28.....	1325	52		2.3	80	.5													
Feb. 10.....	0935	56		1.7	45	.2													
Feb. 26.....	1650	54		1.5	19	.1													
Feb. 28.....	0900	48		1.5	22	.1													
Mar. 16.....	0925	52		1.3	30	.1													
Mar. 23.....	1300	59		6.1	86	1.4							100					S	
Apr. 1.....	1000	57		1.4	1980	75	77	87	97	99	100							S	
Apr. 2.....	0915	49		3.9	273	2.9												PWC	
Apr. 2.....	1730	56		3.2	204	1.8													
Apr. 14.....	1325	66		1.7	23	.1													
Apr. 30.....	0745	54		1.3	30	.1													
May 12.....	1200	—		.9	110	.3													
May 26.....	0910	68		.8	70	.2													
June 12.....	0710	61		.5	26	T													
June 24.....	1205	71		.2	21	T													

T Less than 0.05 ton.

CARMEL RIVER BASIN

11-1432.5. CARMEL RIVER NEAR CARMEL, CALIF.

LOCATION.--Approximately 30 feet downstream from Rancho San Carlos bridge, 2 miles east of Carmel, Monterey County, and 4.5 miles from mouth.

DRAINAGE AREA.--246 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (microhmhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 2, 1963.....	1.0					26		152	0		25			0.0				160	35	0.9	439	7.6
Nov. 8.....	2.7					21		150	0		18			.0				149	26	.7	382	8.1
Dec. 4.....	47					17		122	0		14			.0				122	22	.7	311	8.1
Jan. 7, 1964.....	13					20		121	4		20			.0				129	23	.8	348	8.5
Feb. 6.....	95					4.0		94	0		9.5			.0				88	11	.2	221	8.2
Mar. 4.....	38					15		106	3		15			.1				108	16	.6	275	8.4
Apr. 7.....	64					13		107	0		11			.0				102	14	.6	269	8.2
May 7.....	41	23		28	9.2	15	2.1	113	0	32	14	0.2	0.7	.0	180	0.24		108	15	.6	286	7.9
June 10.....	4.4					16		114	2		13			.2				107	10	.7	289	8.5
July 8.....	.1					28		144	3		23			.0				175	52	.9	456	8.4

SALINAS RIVER BASIN

11-1475. SALINAS RIVER AT PASO ROBLES, CALIF.

LOCATION.--At gaging station in Paso de Robles Grant, at bridge on State Highway 41 at Paso Robles, San Luis County, and 3.5 miles upstream from Huerhuero Creek.

DRAINAGE AREA.--389 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1962 to September 1964.

REMARKS.--Stream dry most of year.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Jan. 8, 1964.....	2.1					82		286	8		84			0.2				354	106	1.9	1010	8.4
Feb. 4.....	13					50		308	0		54			.0				382	129	1.1	920	8.0
Mar. 3.....	4.9					78		330	6		64			.4				380	100	1.7	1000	8.5
Apr. 8.....	9.0					62		296	0		65			.2				384	141	1.4	951	8.0

SALINAS RIVER BASIN--Continued

11-1488. NACIMIENTO RIVER NEAR BRYSON, CALIF.

LOCATION.--At gaging station 0.6 mile upstream from Turtle Creek, 1.6 miles west of Bryson, Monterey County, and 10 miles south-west of Lockwood.

DRAINAGE AREA.--140 square miles.

RECORDS AVAILABLE.--Water temperatures: March 1958 to September 1959, October 1960 to September 1964.

Sediment records: March 1958 to September 1959, October 1960 to September 1964.

EXTREMES, 1963-64.--Sediment concentrations: Maximum daily, 934 ppm Jan. 22; minimum daily, no flow on many days.

Sediment loads: Maximum daily, 4,470 tons Jan. 22; minimum daily, 0 ton on many days.

EXTREMES, 1958-59, 1960-64.--Sediment concentrations: Maximum daily, 6,860 ppm Nov. 13, 1960; minimum daily, no flow on many days.

Sediment loads: Maximum daily, 50,700 tons Feb. 9, 1962; minimum, 0 ton on many days.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Aver- age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October .....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	67	--	--	--	--	--	--	--	--	--	--	--	--
November .....	--	--	--	--	60	--	--	--	--	--	--	--	--	--	--	--	--	--	--	54	--	--	--	--	54	--	--	50	--	--	--	--
December .....	--	--	45	51	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
January .....	--	--	--	--	--	--	--	--	45	--	--	--	--	--	45	--	--	--	--	--	47	46	45	45	--	45	--	--	46	--	--	--
February .....	--	46	--	--	47	--	--	47	--	--	--	46	--	--	46	--	--	--	45	--	--	--	48	--	--	49	48	--	--	--	--	--
March .....	47	--	--	47	--	--	--	47	--	--	53	--	--	--	61	--	--	--	51	--	--	49	48	47	--	--	--	--	52	--	49	--
April .....	52	52	54	--	54	--	--	--	56	--	--	58	--	--	--	58	--	--	58	--	--	58	--	--	--	59	--	--	59	--	--	--
May .....	--	--	56	--	--	54	--	66	--	--	--	--	--	63	--	--	62	--	--	64	--	--	--	--	64	--	70	--	--	--	69	--
June .....	--	67	67	--	--	--	62	--	--	61	--	--	--	65	--	--	67	--	--	--	69	--	84	70	--	--	--	--	--	--	--	--
July .....																																
August .....																																
September .....																																



## SALINAS RIVER BASIN--Continued

11-1488. NACIMIENTO RIVER NEAR BRYSON, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964  
(Where no concentrations are reported, loads are estimated)

Day	OCTOBER			NOVEMBER			DECEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	0			0.9	--	T	30		0.2
2..	0			1.0	--	T	28		.1
3..	0			1.2	--	T	26	1	.1
4..	0			1.2	--	T	25		.1
5..	0			43	226	S 98	25		.1
6..	0			434	260	K 510	24		.1
7..	0			53	--	43	23		.1
8..	0			25	--	1.0	22		.1
9..	0			15	--	.2	22		.1
10..	0			11	--	.1	23		.1
11..	0			9.4	--	.1	22		.1
12..	0			8.3	--	T	21		.1
13..	0			7.5	--	T	20		.1
14..	0			261	240	K 740	18		T
15..	0			439	120	K 180	18		T
16..	0			118	--	3.2	18		T
17..	0			62	--	.8	17		T
18..	0			43	--	.3	17		T
19..	.2			708	270	S 2000	17		T
20..	.7	4		892	63	S 264	16		T
21..	.7			212	--	8.6	16		T
22..	.7			108	--	2.9	16		T
23..	.7			75	--	1.6	15		T
24..	.8			69	6	1.1	14		T
25..	.8			55	--	.9	13		T
26..	.8			47	--	.8	13		T
27..	.9			43	6	.7	13		T
28..	.9			38	--	.5	13		T
29..	.9			35	--	.4	13		T
30..	1.0			33	--	.3	13		T
31..	1.0			--	--	--	12		T
Total	10.1	--	0.1	3848.5	--	3819.9	583	--	2.1
	JANUARY			FEBRUARY			MARCH		
1..	12	--	T	98	--	0.3	24	1	0.1
2..	12	--	T	86	1	.2	27	--	.2
3..	11	--	T	78	--	.2	29	--	.2
4..	11	--	T	69	--	.2	25	1	.1
5..	11	--	T	64	1	.2	25	--	.1
6..	11	--	T	60	--	.2	23	--	.1
7..	11	--	T	55	--	.1	22	--	.1
8..	11	--	T	50	5	.7	22	2	.1
9..	11	--	T	47	--	.3	21	--	.1
10..	11	--	T	44	--	.2	21	--	.1
11..	11	--	T	41	--	.2	21	2	.1
12..	11	--	T	37	2	.2	28	--	.2
13..	11	--	T	35	--	.2	33	--	.3
14..	10	--	T	34	--	.2	26	--	.1
15..	10	1	T	36	--	.3	23	1	.1
16..	10	--	T	36	5	.5	22	--	.1
17..	10	--	T	34	--	.3	21	--	.1
18..	11	--	.1	33	--	.2	20	--	.2
19..	14	--	.1	31	1	.1	19	4	.2
20..	888	267	S 2420	30	--	.1	19	--	.1
21..	2220	372	S 3230	29	--	.1	18	--	.1
22..	1700	934	S 4470	28	--	.1	28	10	.8
23..	763	325	S 736	27	1	.1	206	19	11
24..	455	17	S 23	26	--	.1	176	4	1.9
25..	321	--	1.7	25	--	.1	123	--	1.0
26..	269	4	2.9	25	1	.1	93	--	.5
27..	212	--	1.7	25	6	.4	78	--	.2
28..	176	--	1.0	24	--	.2	69	--	.2
29..	147	1	.4	24	--	.1	58	1	.2
30..	126	--	.3	--	--	--	53	--	.1
31..	111	--	.3	--	--	--	57	--	.3
Total	7598	--	10888.0	1231	--	6.2	1430	--	19.0

S Computed by subdividing day.

T Less than 0.05 ton.

K Computed from estimated-concentration graph and subdividing day.

## SALINAS RIVER BASIN--Continued

11-1488. NACIMIENTO RIVER NEAR BRYSON, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964--Continued

Day	APRIL				MAY				JUNE			
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	446	49	5 69	18	--	0.5		8.3	--	T		
2..	194	5	2.6	18	--	.5		7.9	--	T		
3..	136	6	2.2	18	30	1.5		7.2	1	T		
4..	103	--	2.2	18	--	1.7		6.8	--	T		
5..	82	12	2.7	19	--	1.8		6.0	--	T		
6..	69	--	.9	20	63	3.4		5.7	--	T		
7..	60	--	.5	21	--	.3		5.3	6	.1		
8..	53	--	.3	18	1	T		5.3	--	T		
9..	47	1	.1	17	--	T		5.7	--	T		
10..	43	--	.1	16	2	.1		6.8	3	.1		
11..	40	--	.1	15	--	.1		6.4	--	.1		
12..	36	1	.1	13	--	.1		5.3	--	T		
13..	33	--	.1	13	--	.1		5.0	--	T		
14..	30	--	.1	14	2	.1		4.1	4	T		
15..	28	--	.1	13	--	.1		3.8	--	T		
16..	26	1	.1	12	--	.1		3.3	--	T		
17..	25	--	.1	12	2	.1		3.0	6	T		
18..	25	--	.1	12	--	.1		2.8	--	T		
19..	25	1	.1	12	--	.1		2.8	--	T		
20..	24	--	.2	11	2	.1		2.3	--	T		
21..	23	--	.2	11	--	T		2.3	2	T		
22..	22	12	.7	10	--	T		1.9	--	T		
23..	21	--	.6	9.8	--	T		1.4	1	T		
24..	21	--	.6	9.4	1	T		1.2	5	T		
25..	21	--	.6	9.0	--	T		.9	--	T		
26..	21	13	.7	9.8	--	T		.7	--	T		
27..	20	--	.5	10	1	T		.5	3	T		
28..	19	--	.5	11	--	T		.5	--	T		
29..	18	24	1.2	11	--	T		.4	--	T		
30..	18	--	.5	10	--	.1		.4	--	T		
31..	--	--	--	9.0	2	T		--	--	--		
Total	1729	--	87.8	420.0	--	11.3		114.0	--	0.9		
	JULY				AUGUST				SEPTEMBER			
1..	0.3											
2..	.3											
3..	.2											
4..	.2											
5..	.2											
6..	.1											
7..	.1											
8..	.1											
9..	.1											
10..	0											
11..	0											
12..	0											
13..	0											
14..	0											
15..	0											
16..	0											
17..	0											
18..	0											
19..	0											
20..	0											
21..	0											
22..	0											
23..	0											
24..	0											
25..	0											
26..	0											
27..	0											
28..	0											
29..	0											
30..	0											
31..	0											
Total	1.6	--	T	0		0		0		0		0
Total discharge for year (cfs-days).....											16,965.2	
Total load for year (tons).....											14,835.3	

S Computed by subdividing day.

T Less than 0.05 ton.

SALINAS RIVER BASIN--Continued

11-1488. NACIMIENTO RIVER NEAR BRYSON, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1963 to September 1964  
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

F, pipet, S, sieve, V, visual accumulation tube, W, in distilled water)																		
Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concen- tration (ppm)	Sediment discharge (tons per day)	Suspended sediment											Method of analysis
							Percent finer than size indicated, in millimeters											
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Jan. 21, 1964.....	1000	47		1550	107							86	92	97	100	—		S
Jan. 22.....	0900	46		1930	1060							43	80	96	98	100		V
Apr. 1.....	0900	52		554	36							87	94	100	—	—		S
May 6.....	0800	54		20	63							42	67	88	99	100		S

Particle-size analyses of bed material, water year October 1963 to September 1964  
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concen- tration (ppm)	Sediment discharge (tons per day)	Bed material											Method of analysis
							Percent finer than size indicated, in millimeters											
							0.062	0.125	0.250	0.500	1.000	2.000	4.000	8.000	16.000	32.000	64.000	
Oct. 20, 1963.....	1515		5	0.7					1	5	12	19	26	39	72	100	S	
Aug. 3, 1964.....			5	0					2	4	13	26	48	68	96	100	S	

## SALINAS RIVER BASIN--Continued

11-1494. NACIMIENTO RIVER BELOW NACIMIENTO DAM, NEAR BRADLEY, CALIF.

LOCATION.--At gaging station, 2.2 miles downstream from Nacimiento Dam, and 7.6 miles southwest of Bradley, Monterey County.

DRAINAGE AREA.--322 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1962 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 2, 1963.....	378					7.2		113	3		5.4			0.0				114	16	0.3	252	8.3
Nov. 6.....	162					8.3		128	0		5.5			.1				122	17	.3	269	8.0
Dec. 3.....	148					8.1		126	0		4.0			.1				121	18	.3	264	8.2
Jan. 8, 1964.....	152					8.5		115	5		6.0			.1				121	19	.3	261	8.5
Feb. 4.....	610					7.3		100	0		5.0			.0				98	16	.3	220	8.2
Mar. 3.....	.1					11		156	5		11			.1				160	24	.4	335	8.4
Apr. 8.....	140					8.1		104	4		4.5			.1				106	14	.3	241	8.5
June 11.....	414					8.4		117	1		3.5			.1				123	25	.3	252	8.3
July 9.....	466					8.2		118	2		4.5			.1				119	19	.3	257	8.4
Aug. 5.....	562					8.4		127	0		5.0			.1				124	20	.3	269	7.8
Sept. 2.....	514	10		31	12	8.6	2.1	134	0	24	5.2		0.9	.1	165	0.22		126	16	.3	279	7.7

SALINAS RIVER BASIN--Continued

11-1497. SAN ANTONIO RIVER AT SAM JONES BRIDGE, NEAR LOCKWOOD, CALIF.

LOCATION.--At gaging station 300 feet downstream from China Gulch, and 3.5 miles southwest of Lockwood, Monterey County.

DRAINAGE AREA.--211 square miles.

RECORDS AVAILABLE.--Water temperatures: January to July 1959, May 1961 to September 1964.

Sediment records: January to July 1959, May 1961 to September 1964.

EXTREMES, 1963-64.--Sediment concentrations: Maximum daily, 1,140 ppm Jan. 21; minimum daily, 1 ppm on many days.

Sediment loads: Maximum daily, 1,890 tons Jan. 21; minimum daily, less than 0.05 ton on many days.

EXTREMES, 1959, 1961-64.--Sediment concentrations: Maximum daily, 6,510 ppm Jan. 31, 1963; minimum daily, no flow on many days during 1961.

Sediment loads: Maximum daily, 153,000 tons Jan. 31, 1963; minimum daily, 0 ton on many days in 1961.

Temperature (°F) of water, water year October 1963 to September 1964																																	
Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October .....	--	--	--	--	--	--	--	--	--	68	--	--	--	--	--	56	58	57	--	--	--	72	--	68	--	--	--	--	--	--	--	--	--
November .....	--	--	--	--	63	--	--	--	--	--	--	--	--	--	--	56	58	57	--	--	49	47	50	49	--	--	--	--	--	--	--	--	--
December .....	--	60	57	--	58	--	--	57	--	56	--	54	--	55	--	--	--	--	58	--	--	--	56	--	--	--	--	59	--	--	--	58	--
January .....	--	--	--	55	--	--	--	57	56	--	--	--	--	--	--	--	--	--	--	55	45	43	45	53	54	56	--	53	--	--	--	51	--
February .....	--	--	--	--	52	49	--	57	48	--	--	--	--	52	54	--	--	--	63	58	--	--	--	--	59	44	--	--	--	--	--	--	--
March .....	--	--	--	49	--	--	--	--	--	--	--	50	--	--	--	--	--	--	--	--	--	67	--	53	--	--	--	--	--	--	--	--	--
April .....	55	--	--	--	--	--	--	--	--	61	--	--	--	73	--	--	63	--	--	--	--	--	--	--	--	--	73	--	--	--	--	--	--
May .....	--	--	--	--	--	66	--	61	--	--	--	70	--	--	--	--	--	--	--	78	69	--	--	--	--	--	--	80	--	--	--	--	--
June .....	--	59	--	77	--	--	--	--	--	72	--	--	--	--	--	--	--	--	80	--	--	--	--	82	--	--	--	--	--	--	--	--	--
July .....	--	--	--	--	--	--	--	--	--	--	--	--	82	--	--	--	--	--	--	79	--	--	78	--	--	--	--	85	--	--	--	--	--
August .....	--	--	84	--	--	87	--	--	--	--	--	--	--	84	--	--	--	--	86	--	--	83	--	--	--	--	--	--	--	80	--	--	--
September .....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

## SALINAS RIVER BASIN--Continued

11-1497. SAN ANTONIO RIVER AT SAM JONES BRIDGE, NEAR LOCKWOOD, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964  
(Where no concentrations are reported, loads are estimated)

Day	OCTOBER			NOVEMBER			DECEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	0.4		T	1.4	--	T	33	--	0.3
2..	.4		T	1.4	--	T	31	3	.3
3..	.4		T	1.4	--	T	29	4	.3
4..	.4		T	1.4	--	T	27	--	.2
5..	.6		T	1.4	--	T	26	2	.1
6..	.8		T	144	--	39	24	--	.1
7..	1.0		T	47	--	3.8	23	--	.1
8..	1.0		T	29	--	.4	23	3	.2
9..	1.3		T	23	--	.1	23	--	.1
10..	1.8		T	19	--	.1	23	2	.1
11..	8.8		.1	18	--	.1	22	--	.1
12..	3.4		T	16	--	.1	21	2	.1
13..	2.2		T	15	--	.1	21	--	.1
14..	1.8		T	42	34 K	39	20	2	.1
15..	3.9		T	319	363 S	388	20	--	.1
16..	7.0		T	100	40	11	20	--	.1
17..	5.0		T	66	9	1.6	19	--	.1
18..	2.5		T	41	--	.7	19	--	.1
19..	1.9		T	68	95 K	120	19	1	.1
20..	1.7		T	502	712 S	1520	18	--	T
21..	1.6	4	T	119	112	36	17	--	T
22..	1.6		T	94	55	14	17	--	.1
23..	1.6		T	83	38	8.5	17	3	.1
24..	1.5		T	70	--	2.3	17	--	.1
25..	1.5		T	61	--	1.0	17	--	.1
26..	1.5		T	54	--	.6	16	--	.2
27..	1.5		T	49	--	.4	16	6	.3
28..	1.4		T	43	--	.3	16	--	.3
29..	1.4		T	41	--	.3	16	--	.3
30..	1.4		T	35	--	.3	16	--	.3
31..	1.4		T	--	--	--	16	6	.3
Total	62.7	--	0.4	2105.0	--	2187.7	642	--	4.9
Day	JANUARY			FEBRUARY			MARCH		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	16	--	0.3	70	--	2.8	27	--	0.1
2..	16	--	.2	69	--	2.4	27	--	.1
3..	15	--	.2	64	--	1.9	27	--	.1
4..	15	5	.2	58	--	1.4	25	9	.6
5..	15	--	.2	57	7	1.1	24	--	.4
6..	15	--	.2	55	--	.9	24	--	.3
7..	15	--	.2	54	--	.7	23	--	.3
8..	15	6	.2	51	--	.7	23	--	.3
9..	14	--	.2	48	4	.5	23	--	.3
10..	14	--	.1	47	--	.5	22	--	.3
11..	14	--	.1	44	--	.5	22	--	.3
12..	14	--	.1	42	--	.3	23	11	.7
13..	14	--	.1	40	--	.3	25	--	.5
14..	14	--	.1	39	9	.9	23	--	.2
15..	14	--	.1	39	4	.4	21	--	.2
16..	14	--	.1	38	--	.3	21	--	.2
17..	14	--	.1	36	--	.3	20	--	.2
18..	15	--	.1	34	--	.3	20	--	.2
19..	16	--	.1	34	--	.3	19	--	.2
20..	21	--	1.1	33	8	.7	18	--	.1
21..	481	1140 S	1890	32	--	.3	17	--	.1
22..	663	849 S	1800	32	--	.3	19	--	.3
23..	275	85	63	31	--	.2	31	10	.8
24..	196	51	27	30	--	.2	41	--	1.2
25..	155	52	22	29	2	.2	35	--	.8
26..	133	57	20	28	3	.2	31	--	.5
27..	115	--	18	27	--	.2	29	--	.3
28..	102	61	17	27	--	.1	27	--	.2
29..	92	--	9.7	27	--	.1	25	--	.2
30..	84	--	5.2	--	--	--	24	--	.2
31..	77	17	3.5	--	--	--	26	--	.5
Total	2673	--	3879.4	1215	--	19.0	762	--	10.7

S Computed by subdividing day.

T Less than 0.05 ton.

K Computed from estimated-concentration graph and subdividing day.

## SALINAS RIVER BASIN--Continued

11-1497. SAN ANTONIO RIVER AT SAM JONES BRIDGE, NEAR LOCKWOOD, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964--Continued

Day	APRIL			MAY			JUNE		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	39	13	1.4	13	--	.1	4.4	--	
2..	38	--	1.0	13	--	.1	4.4	--	
3..	31	--	.6	13	--	.1	4.4	--	
4..	28	--	.4	13	--	.1	3.9	3	
5..	27	--	.3	13	--	.1	3.9	--	
6..	25	--	.3	13	--	.1	3.6	--	
7..	24	--	.3	13	--	.1	3.4	--	
8..	23	--	.2	13	4	.1	3.4	--	
9..	22	5	.3	12	--	.1	3.4	--	
10..	22	--	.2	12	--	.1	3.4	1	
11..	21	--	.2	11	--	.1	3.1	--	
12..	21	--	.2	10	4	.1	2.9	--	
13..	20	--	.2	9.6	--	.1	2.7	--	
14..	19	--	.2	9.2	--	.1	2.3	--	
15..	19	--	.2	8.4	--	T	2.3	--	
16..	19	--	.2	8.1	--	T	2.3	--	
17..	18	3	.1	7.7	--	T	2.2	--	
18..	18	--	.1	7.7	--	T	2.2	3	
19..	18	--	.1	8.1	--	T	2.3	--	
20..	18	--	.1	7.3	2	T	2.3	--	
21..	17	--	.1	6.9	--	T	2.2	--	
22..	17	--	.1	6.5	--	T	2.2	--	
23..	16	--	.1	6.1	--	T	2.0	4	
24..	16	--	.1	5.9	--	T	1.8	--	
25..	15	--	.1	5.1	--	T	1.8	--	
26..	15	2	.1	5.1	--	T	1.8	--	
27..	15	--	.1	5.9	5	.1	1.8	--	
28..	15	--	.1	5.4	--	T	2.0	--	
29..	14	--	.1	5.4	--	T	2.0	--	
30..	13	--	.1	5.1	--	T	2.2	--	
31..	--	--	--	4.6	--	T	--	--	
Total	623	--	7.6	277.1	--	2.1	82.6	--	0.5
Day	JULY			AUGUST			SEPTEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	2.2	--		1.3	--		0.5		
2..	2.2	--		1.3	--		.4		
3..	2.0	--		1.3	4		.4		
4..	2.2	--		1.2	--		.3		
5..	2.2	--		1.0	--		.3		
6..	1.8	--		.8	9		.3		
7..	1.8	--		.7	--		.4		
8..	1.7	--		.6	--		.4		
9..	1.7	--		.6	--		.4		
10..	1.7	--		.5	--		.4		
11..	1.7	--		.5	--		.3		
12..	1.6	--		.5	--		.3		
13..	1.6	2		.5	--		.3		
14..	1.6	--		.6	7		.3		
15..	1.6	--		1.0	--		.3		
16..	1.4	--		.7	--		.2		
17..	1.3	--		.5	--		.3	1	
18..	1.3	--		.5	--		.4		
19..	1.2	--		.5	--		.3		
20..	1.2	3		.5	--		.3		
21..	1.2	--		.5	--		.2		
22..	1.2	--		.5	--		.2		
23..	1.1	--		.4	--		.2		
24..	1.3	--		.2	--		.2		
25..	1.2	--		.2	--		.2		
26..	1.2	--		.2	--		.3		
27..	1.3	3		.1	--		.4		
28..	1.3	--		.2	--		.5		
29..	1.3	--		.2	4		.5		
30..	1.3	--		.2	--		.5		
31..	1.3	--		.4	--		--		
Total	47.7	--	0.3	18.2	--	0.3	10.0	--	T
Total discharge for year (cfs-days).....								8,518.3	
Total load for year (tons).....								6,112.9	

T Less than 0.05 ton.

SALINAS RIVER BASIN--Continued

11-1497. SAN ANTONIO RIVER AT SAM JONES BRIDGE, NEAR LOCKWOOD, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1963 to September 1964  
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment											Method of analysis
							Percent finer than size indicated, in millimeters											
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Nov. 15, 1963.....	1530	56		196	269						87	100	—	—	—		V	
Nov. 20.....	0830	49		514	707						28	43	72	99	100		V	
Jan. 22, 1964.....	0915	43		920	976						16	26	62	96	100		V	

Particle-size analyses of bed material, October 1962 to September 1964  
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

F, pipet, S, sieve, V, visual accumulation tube; W, in distilled water)																			
Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concen- tration (ppm)	Sediment discharge (tons per day)	Bed material												Method of analysis
							Percent finer than size indicated, in millimeters												
							0.062	0.125	0.250	0.500	1.000	2.000	4.000	8.000	16.000	32.000	64.000		
Apr. 10, 1963.....	0905		6	152															
Aug. 3, 1964.....	1515		5	1.0				2	8	29	56	73	83	90	96	98	100	S S	



SALINAS RIVER BASIN--Continued

11-1500. SAN ANTONIO RIVER AT PLEYTO, CALIF.

LOCATION.--At gaging station at old townsite of Pleyto, Monterey County, 1.1 miles downstream from Copperhead Creek, and 15 miles west of Bradley.

DRAINAGE AREA.--284 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1962 to September 1964.

Water temperatures: February 1961 to September 1964.

Sediment records: February 1961 to September 1964.

EXTREMES, 1963-64.--Sediment concentrations: Maximum daily, 608 ppm Jan. 22; minimum daily, no flow on many days.

Sediment loads: Maximum daily, 821 tons Jan. 22; minimum daily, 0 ton on many days.

EXTREMES, 1961-64.--Sediment concentrations: Maximum daily, 3,180 ppm Feb. 1, 1963; minimum daily, no flow on many days during 1961-64.

Sediment loads: Maximum daily, 58,400 tons Feb 1, 1963; minimum daily, 0 ton on many days during 1961-64.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Dec. 3, 1963.....	30					17		172	4		9.0			0.1				188	40	0.5	426	8.3
Jan. 8, 1964.....	14					19		169	7		13			.0				192	42	.6	439	8.5
Feb. 4.....	72					13		156	3		11			.0				172	39	.4	385	8.4
Mar. 3.....	25					40		164	6		12			.1				191	47	1.3	419	8.4
Apr. 8.....	21					17		163	7		10			.1				188	43	.5	423	8.6
May 5.....	10	29		52	15	18	1.6	178	3	57	12	0.3	1.2	.0	288	0.39		192	41	.6	433	8.4

## SALINAS RIVER BASIN--Continued

11-1500. SAN ANTONIO RIVER AT PLEYTO, CALIF.--Continued

Suspended sediment and temperature (°F) of water, water year October 1963 to September 1964

Date	Time (24 hr)	Water tem- per- ature (°F)	Mean discharge (cfs)	Suspended sediment	
				Concen- tration (ppm)	Discharge (tons per day)
Dec. 2, 1963.....		59	32	4	0.3
Jan. 13, 1964.....		55	12	3	.1
Jan. 22.....		47	469	608	S 821
Jan. 23.....		41	308	230	191
Feb. 26.....		46	30	7	.6
Apr. 1.....		58	33	22	2.0
May 8.....		69	12	3	.1

Particle-size analyses of suspended sediment, water year October 1963 to September 1964  
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment												Method of analysis
							Percent finer than size indicated, in millimeters												
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000		
Jan. 22, 1964.....	0820	45		582	555							61	69	93	100			v	
Jan. 22.....	1455	47		612	846							25	31	63	96	100		v	
Jan. 23.....	0840	41		322	259							20	26	86	100			v	

Particle-size analyses of bed material, water year October 1963 to September 1964  
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Bed material												Method of analysis
							Percent finer than size indicated, in millimeters												
							0.062	0.125	0.250	0.500	1.000	2.000	4.000	8.000	16.000	32.000	64.000		
Apr. 10, 1963..... Aug. 3, 1964.....	1200		6 6	193 0			1	1 2	4 8	20 24	52 52	78 74	90 86	95 93	99 100	100	S S		

## SALINAS RIVER BASIN--Continued

11-1505. SALINAS RIVER NEAR BRADLEY, CALIF.

LOCATION.--At gaging station 6 miles northwest of Bradley, Monterey County, and 7 miles downstream from San Antonio River.

DRAINAGE AREA.--2,535 square miles.

RECORDS AVAILABLE.--Chemical analyses: August 1962 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 2, 1963.....	400	--	--	--	--	16	--	146	0	--	9.3	--	--	0.0	--	--	--	132	12	0.6	319	8.0
Nov. 6.....	169	--	--	--	--	13	--	143	0	--	8.5	--	--	.1	--	--	--	140	23	.5	323	8.1
Dec. 3.....	191	--	--	--	--	20	--	156	2	--	11	--	--	.1	--	--	--	156	25	.7	383	8.3
Jan. 8, 1964.....	173	--	--	--	--	19	--	141	6	--	11	--	--	.0	--	--	--	148	23	.7	354	8.6
Feb. 4.....	686	--	--	--	--	11	--	117	0	--	6.5	--	--	.0	--	--	--	115	19	.4	272	8.1
Mar. 3.....	40	--	--	--	--	34	--	197	9	--	28	--	--	.2	--	--	--	249	74	.9	600	8.5
Apr. 8.....	191	--	--	--	--	17	--	141	4	--	11	--	--	.1	--	--	--	151	29	.6	360	8.5
May 5.....	316	14	--	29	13	11	1.6	130	0	33	7.3	0.4	1.4	.1	181	0.25	--	126	19	.4	288	7.8
June 11.....	442	--	--	--	--	12	--	127	2	--	3.5	--	--	.0	--	--	--	124	17	.5	284	8.3
July 9.....	466	--	--	--	--	11	--	130	1	--	5.5	--	--	.1	--	--	--	124	16	.4	287	8.3
Aug. 5.....	567	--	--	--	--	11	--	138	0	--	5.5	--	--	.1	--	--	--	129	16	.4	295	8.1
Sept. 2.....	532	11	--	32	13	10	1.9	142	0	30	5.8	--	--	.9	174	.24	--	135	19	.4	303	7.9

## SALINAS RIVER BASIN--Continued

11-1518.7. ARROYO SECO NEAR GREENFIELD, CALIF.

LOCATION.--At gaging station 0.6 mile downstream from Rocky Creek, and 14.5 miles southwest of Greenfield, Monterey County.

DRAINAGE AREA.--113 square miles.

RECORDS AVAILABLE.--Water temperatures: October 1962 to September 1964.

Sediment records: October 1962 to September 1964.

EXTREMES, 1963-64.--Sediment concentrations: Maximum daily, (estimated) 140 ppm Jan. 21; minimum daily, 1 ppm on many days.

Sediment loads: Maximum daily, (estimated) 480 tons Jan. 21; minimum daily, less than 0.05 ton on many days.

EXTREMES, 1962-64.--Sediment concentrations: Maximum daily, 2,720 ppm Jan. 31, 1963; minimum daily, 1 ppm on many days during 1962-64.

Sediment loads: Maximum daily, 61,200 tons Jan. 31, 1963; minimum daily, less than 0.05 ton on many days during 1962-64.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																														Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
October .....	--	70	--	66	--	66	--	--	63	--	--	--	--	--	--	--	--	--	--	59	--	59	--	--	--	58	--	--	56	--	--
November .....	--	--	54	54	--	54	--	--	--	--	54	--	--	--	--	--	49	--	--	--	--	--	--	--	--	--	--	--	47	--	--
December .....	46	45	54	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	44	43	--	41	--	--	--	--	--	--	--
January .....	--	--	--	--	41	--	54	--	--	--	--	--	--	40	--	--	--	--	--	--	--	--	--	--	--	--	46	--	--	--	48
February .....	--	44	--	--	--	53	46	--	43	--	--	--	45	41	--	--	--	--	--	47	--	--	--	--	46	47	--	--	45	--	--
March .....	46	--	--	--	--	--	46	49	--	--	45	46	--	--	55	--	--	--	--	52	--	47	45	45	--	--	--	--	52	52	--
April .....	53	52	--	--	--	--	58	--	--	58	--	--	--	55	--	60	--	--	--	--	61	--	55	--	--	--	--	--	52	--	--
May .....	--	54	--	54	--	56	57	--	67	--	--	--	68	--	66	--	--	--	67	--	--	--	--	--	68	--	--	--	--	--	--
June .....	65	--	--	68	--	70	--	70	--	--	--	--	--	71	--	73	--	--	--	--	69	--	72	--	--	--	74	--	72	--	--
July .....	--	--	--	--	72	--	--	74	--	--	--	74	--	72	--	--	--	--	73	--	73	--	--	--	--	80	--	--	--	--	82
August .....	75	--	81	--	--	78	--	--	80	--	--	--	--	78	--	77	--	--	--	--	78	--	--	--	78	--	--	76	--	70	--
September .....	70	72	--	--	--	--	72	--	68	--	--	--	--	69	--	--	68	--	--	--	67	67	--	--	--	--	--	70	--	71	--

## SALINAS RIVER BASIN--Continued

11-1518.7. ARROYO SECO NEAR GREENFIELD, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964  
(Where no concentrations are reported, loads are estimated)

Day	OCTOBER			NOVEMBER			DECEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	6.2	--	0.1	14	--	T	54	1	0.1
2..	6.2	5	.1	15	--	T	50	1	.1
3..	6.2	--	.1	16	1	T	48	--	.1
4..	6.2	1	T	18	--	.1	45	--	.1
5..	7.4	--	T	226	71	K 120	43	--	.1
6..	7.7	1	T	301	44	S 65	41	--	.1
7..	7.4	--	T	81	--	.9	40	--	.1
8..	7.4	--	T	50	--	.4	38	--	.1
9..	7.7	4	.1	39	--	.2	42	--	.1
10..	8.0	--	.1	35	--	.2	41	--	.1
11..	25	--	1.0	31	2	.2	37	--	.1
12..	21	--	.3	29	--	.2	35	--	.1
13..	15	--	.2	26	--	.1	35	--	.1
14..	13	--	.1	221	86	K 100	33	--	.1
15..	13	--	.1	263	49	K 40	33	--	.1
16..	20	--	.2	124	--	3.0	32	--	.1
17..	19	--	.2	84	2	.5	32	--	.1
18..	17	--	.2	66	--	.2	32	--	.1
19..	16	--	.2	494	74	K 250	32	--	.1
20..	15	--	.2	443	46	K 72	32	--	.1
21..	15	4	.2	204	--	3.9	31	1	.1
22..	15	--	.1	140	--	1.5	30	1	.1
23..	15	3	.1	117	--	1.6	29	--	.1
24..	16	--	.1	110	--	1.8	29	1	.1
25..	16	--	.1	90	--	1.0	29	--	.1
26..	15	--	.1	.80	--	.6	29	--	.1
27..	15	2	.1	73	--	.4	29	--	.1
28..	15	--	.1	67	--	.2	29	--	.1
29..	14	--	T	61	1	.2	28	--	.1
30..	14	1	T	57	--	.2	27	--	.1
31..	14	--	T	--	--	--	27	--	.1
Total	408.4	--	4.3	3575	--	665.0	1092	--	3.1
Day	JANUARY			FEBRUARY			MARCH		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	26	--	0.1	139	--	0.4	40	7	0.8
2..	26	--	.1	130	1	.4	46	--	1.1
3..	25	--	.1	122	--	.3	41	--	.9
4..	26	--	.1	111	--	.3	39	--	.7
5..	26	1	.1	103	--	.3	36	--	.6
6..	26	--	.1	96	--	.3	35	--	.5
7..	26	--	.1	89	14	3.4	35	4	.4
8..	26	--	.1	84	--	2.0	33	4	.4
9..	25	--	.1	79	--	1.3	33	--	.4
10..	25	--	.1	75	--	1.2	32	--	.3
11..	25	--	.1	71	--	1.0	32	2	.2
12..	25	--	.1	66	--	.9	38	5	.5
13..	25	--	.1	64	--	.9	35	--	.6
14..	25	1	.1	61	5	.8	32	--	.5
15..	25	--	.1	61	3	.5	30	8	.6
16..	25	--	.1	58	--	.5	28	--	.6
17..	26	--	.1	56	--	.5	27	--	.5
18..	31	--	.3	54	--	.4	26	--	.4
19..	32	--	.3	51	--	.4	25	--	.2
20..	481	68	K 260	49	3	.4	25	2	.1
21..	1060	140	K 480	48	--	.4	27	--	.2
22..	804	78	K 220	.46	--	.4	41	12	1.3
23..	397	--	6.4	44	--	.2	94	2	.5
24..	295	--	1.6	42	--	.2	83	2	.4
25..	265	--	1.4	41	1	.1	71	--	.6
26..	263	--	2.1	40	1	.1	65	--	.4
27..	234	1	.6	40	--	.1	65	--	.4
28..	207	--	.6	39	--	.1	63	--	.3
29..	184	--	.5	41	3	.3	61	--	.3
30..	166	--	.4	--	--	--	58	1	.2
31..	150	1	.4	--	--	--	57	2	.3
Total	5002	--	976.3	2000	--	18.1	1353	--	15.2

S Computed by subdividing day.

T Less than 0.05 ton.

K Computed from estimated-concentration graph and subdividing day.

## SALINAS RIVER BASIN--Continued

11-1518.7. ARROYO SECO NEAR GREENFIELD, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964--Continued

Day	APRIL			MAY			JUNE		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	94	2	0.5	27	--	0.1	19	2	0.1
2..	76	1	.2	28	1	.1	19	--	.1
3..	67	--	.2	29	--	.1	19	--	.1
4..	60	--	.2	32	--	.1	19	--	.1
5..	58	--	.2	32	--	.1	18	--	.1
6..	57	--	.3	37	1	.1	18	2	.1
7..	54	2	.3	35	1	.1	18	--	.2
8..	51	--	.3	32	--	.2	19	13	.7
9..	48	--	.4	31	4	.3	25	--	.8
10..	44	3	.4	29	--	.2	24	--	.5
11..	43	--	.3	27	--	.1	22	--	.4
12..	41	--	.3	27	--	.1	21	--	.2
13..	38	--	.3	26	1	.1	19	--	.1
14..	36	3	.3	26	--	.1	16	1	T
15..	35	--	.2	26	--	.1	14	--	.1
16..	33	1	.1	27	1	.1	14	6	.2
17..	32	--	.1	32	--	.2	14	--	.2
18..	32	--	.1	28	--	.1	14	--	.2
19..	32	--	.1	27	--	.1	14	--	.2
20..	32	--	.1	26	1	.1	14	--	.4
21..	31	1	.1	26	--	.1	13	15	.5
22..	31	--	.1	25	--	.1	11	--	.3
23..	31	1	.1	25	--	.1	9.0	7	.2
24..	32	--	.1	23	--	.1	9.0	--	.2
25..	32	--	.1	21	--	.1	9.0	--	.2
26..	31	--	.1	22	2	.1	8.0	--	.1
27..	29	--	.1	25	--	.1	7.4	--	.2
28..	28	--	.2	26	--	.1	7.4	13	.3
29..	27	2	.1	24	--	.1	7.4	--	.2
30..	27	--	.1	22	--	.1	7.4	8	.2
31..	--	--	--	21	--	.1	--	--	--
Total	1262	--	6.0	844	--	3.6	448.6	--	7.2
	JULY			AUGUST			SEPTEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	7.4	--	0.1	1.6	6	--	0.9	3	--
2..	6.7	--	.1	1.5	--	--	1.2	--	--
3..	6.2	--	.1	1.4	3	--	1.4	--	--
4..	6.0	--	.1	1.4	--	--	1.2	--	--
5..	6.2	6	.1	1.4	--	--	1.0	--	--
6..	6.5	--	.1	1.3	3	--	1.0	--	--
7..	6.0	--	.1	1.1	--	--	1.0	1	--
8..	5.5	4	.1	1.1	--	--	1.0	--	--
9..	4.8	--	.1	1.0	6	--	1.0	4	--
10..	4.8	--	.1	.9	--	--	1.1	--	--
11..	4.3	--	T	.8	--	--	1.0	--	--
12..	3.7	6	.1	.8	3	--	1.0	--	--
13..	3.4	--	.1	.8	--	--	1.0	--	--
14..	3.1	13	.1	.7	--	--	.9	6	--
15..	2.9	--	.1	.6	--	--	.8	--	--
16..	2.8	--	.1	.7	3	--	.8	--	--
17..	2.8	--	.1	.7	--	--	.8	1	--
18..	2.9	--	T	.7	--	--	.8	--	--
19..	2.9	5	T	.7	--	--	.8	--	--
20..	2.6	--	T	.7	--	--	1.6	--	--
21..	2.4	--	T	.7	5	--	1.4	8	--
22..	2.4	--	T	.6	--	--	1.4	8	--
23..	2.2	--	T	.6	--	--	1.3	--	--
24..	2.1	--	T	.6	6	--	1.3	--	--
25..	2.0	--	T	.6	--	--	1.4	--	--
26..	1.9	3	T	.5	--	--	1.5	--	--
27..	1.7	--	T	.6	--	--	1.4	--	--
28..	1.7	--	T	.5	5	--	1.2	13	--
29..	1.8	--	T	.4	--	--	1.2	--	--
30..	1.8	--	T	.5	8	--	1.4	10	--
31..	1.7	11	.1	.6	--	--	--	--	--
Total	113.2	--	2.1	26.1	--	0.3	33.8	--	0.5
Total discharge for year (cfs-days).....								16,158.1	
Total load for year (tons).....								1,701.7	

T Less than 0.05 ton.

## SALINAS RIVER BASIN--Continued

## 11-1525. SALINAS RIVER NEAR SPRECKLES, CALIF.

LOCATION.--At gaging station 80 feet upstream from bridge on Salinas-Monterey highway, 0.5 mile upstream from Toro Creek, 2 miles west of Spreckles, Monterey County, and 4 miles south of Salinas.

DRAINAGE AREA.--4,156 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 3, 1963.....	2.8	--	--	--	--	122	--	602	12	--	145	--	--	0.2	--	--	--	494	0	2.4	1440	8.4
Nov. 7.....	19	--	--	--	--	53	--	356	0	--	57	--	--	.2	--	--	--	308	16	1.3	881	8.0
Dec. 4.....	53	--	--	--	--	41	--	252	0	--	37	--	--	.1	--	--	--	256	49	1.1	654	8.0
Jan. 7, 1964.....	39	--	--	--	--	46	--	247	16	--	52	--	--	.2	--	--	--	278	49	1.2	738	8.6
Feb. 6.....	437	--	--	--	--	16	--	143	0	--	13	--	--	.0	--	--	--	146	29	.6	352	7.8
Mar. 4.....	5.8	--	--	--	--	96	--	758	0	--	138	--	--	.4	--	--	--	618	0	1.7	1620	8.2
Apr. 7.....	6.4	--	--	--	--	132	--	732	4	--	148	--	--	.4	--	--	--	578	0	2.4	1630	8.3
May 7.....	5.4	47	--	133	48	132	38	686	0	53	152	0.9	45	.4	A	990	1.35	530	0	2.5	1590	7.5
June 10.....	1.1	--	--	--	--	156	--	398	0	--	168	--	--	.5	--	--	--	370	44	3.5	1380	7.8
July 8.....	1.2	--	--	--	--	135	--	196	0	--	132	--	--	.4	--	--	--	260	99	3.6	1140	8.0
Aug. 6.....	1.2	--	--	--	--	135	--	218	0	--	140	--	--	.5	--	--	--	264	85	3.6	1150	7.4
Sept. 4.....	.9	52	--	37	35	130	11	200	0	102	146	--	50	.4	690	.94	--	235	71	3.7	1080	7.3

A Calculated from sum of determined constituents.

## PAJARO RIVER BASIN

11-1540. UVAS CREEK NEAR MORGAN HILL, CALIF.

LOCATION.--Downstream from Uvas Dam at the outlet, 0.6 mile downstream from Eastman Canyon, and 4.8 miles southwest of Morgan Hill, Santa Clara County.

DRAINAGE AREA.--30.4 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

REMARKS.--No discharge records available.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 3, 1963.....		--		--	--	11	--	186	7	--	7.0		--	0.0	--	--		174	10	0.4	359	8.5
Nov. 7.....		--		--	--	9.5	--	168	0	--	6.2		--	.2	--	--		157	19	.3	334	8.1
Dec. 5.....		--		--	--	11	--	170	4	--	7.5		--	.0	--	--		164	18	.4	347	8.4
Jan. 9, 1964.....		--		--	--	11	--	159	10	--	7.0		--	.0	--	--		166	19	.4	349	8.5
Feb. 5.....		--		--	--	9.3	--	141	4	--	7.0		--	.0	--	--		138	16	.3	295	8.4
Mar. 4.....		--		--	--	10	--	134	10	--	4.5		--	.1	--	--		140	14	.4	299	8.6
Apr. 9.....		--		--	--	10	--	136	9	--	5.5		--	.1	--	--		140	14	.4	298	8.9
May 7.....	17			33	13	9.3	1.0	151	0	26	6.0	0.0	1.9	.1	180	0.24		138	14	.3	306	7.7
June 9.....		--		--	--	10	--	163	0	--	5.5		--	.1	--	--		150	16	.4	312	8.2
July 7.....		--		--	--	11	--	165	5	--	5.5		--	.1	--	--		158	14	.4	333	8.5
Aug. 5.....		--		--	--	12	--	160	14	--	6.0		--	.1	--	--		165	11	.4	345	8.7
Sept. 4.....	16			42	19	17	1.6	210	0	25	8.0		1.0	.1	234	.32		183	11	.5	388	8.1



## PAJARO RIVER BASIN--Continued

11-1565. SAN BENITO RIVER NEAR WILLOW CREEK SCHOOL, CALIF.

LOCATION.--At gaging station 1.7 miles downstream from Willow Creek, San Benito County, 1.8 miles northwest of Willow Creek School, and 10.4 miles northwest of San Benito.

DRAINAGE AREA.--251 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (microhmhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 3, 1963.....	0.2	--	--	--	--	234	--	464	20	--	158	--	--	1.8	--	--	--	560	147	4.3	1960	8.6
Nov. 6.....	.2	--	--	--	--	415	--	470	69	--	304	--	--	2.9	--	--	--	800	300	6.4	3150	8.6
Dec. 5.....	6.4	--	--	--	--	128	--	498	18	--	70	--	--	1.3	--	--	--	518	80	2.4	1370	8.5
Jan. 9, 1964.....	4.3	--	--	--	--	150	--	458	22	--	92	--	--	1.3	--	--	--	512	100	2.9	1510	8.7
Feb. 5.....	6.1	--	--	--	--	133	--	436	39	--	78	--	--	1.2	--	--	--	504	81	2.6	1390	8.7
Mar. 3.....	4.3	--	--	--	--	149	--	480	31	--	92	--	--	1.5	--	--	--	554	108	2.8	1520	8.6
Apr. 9.....	5.7	--	--	--	--	142	--	466	20	--	81	--	--	1.7	--	--	--	466	51	2.9	1410	8.4
May 5.....	4.0	3.7	--	31	114	156	2.6	506	24	294	86	0.2	0.9	1.5	995	1.35	--	545	91	2.9	1540	8.6
June 9.....	.8	--	--	--	--	226	--	474	41	--	140	--	--	1.8	--	--	--	594	136	4.0	1970	8.8
July 7.....	.1	--	--	--	--	272	--	452	28	--	165	--	--	2.0	--	--	--	552	135	5.0	2100	8.6
Sept. 2.....	.1	11	--	44	157	352	4.4	560	30	670	255	--	2.6	2.6	1880	2.56	--	756	248	5.6	2740	8.5

## PAJARO RIVER BASIN--Continued

11-1590. PAJARO RIVER AT CHITTENDEN, CALIF.

LOCATION.--At gaging station on State highway bridge in Salsipuedes Grant, 0.6 mile downstream from Pescadero Creek, 0.6 mile southeast of Chittenden, Santa Cruz County, and 2.3 miles downstream from San Benito River.

DRAINAGE AREA.--1,186 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 3, 1963.....	4.2	--	--	--	--	170	--	544	4	--	189	--	--	1.0	--	--	--	496	43	3.3	1690	8.3
Nov. 7.....	19	--	--	--	--	111	--	462	4	--	111	--	--	.6	--	--	--	482	97	2.2	1310	8.3
Dec. 5.....	18	--	--	--	--	116	--	374	0	--	115	--	--	.7	--	--	--	598	291	2.1	1490	8.2
Jan. 7, 1964.....	22	--	--	--	--	71	--	290	4	--	72	--	--	.4	--	--	--	554	310	1.3	1300	8.3
Feb. 5.....	36	--	--	--	--	76	--	260	24	--	63	--	--	.4	--	--	--	442	189	1.6	1050	8.6
Mar. 4.....	23	--	--	--	--	80	--	376	8	--	76	--	--	.6	--	--	--	560	239	1.5	1250	8.4
Apr. 7.....	23	--	--	--	--	84	--	342	10	--	77	--	--	.5	--	--	--	562	265	1.5	1280	8.5
May 7.....	15	18	--	99	80	85	2.4	430	6	262	95	0.5	19	.6	933	1.27	--	574	212	1.5	1420	8.3
June 9.....	6.3	--	--	--	--	126	--	388	18	--	110	--	--	.8	--	--	--	498	150	2.5	1340	8.4
July 7.....	3.5	--	--	--	--	133	--	472	20	--	110	--	--	.6	--	--	--	540	120	2.5	1470	8.6
Aug. 5.....	2.2	--	--	--	--	149	--	500	10	--	125	--	--	.8	--	--	--	488	62	2.9	1550	8.4
Sept. 4.....	1.8	6.6	--	82	79	156	5.0	556	4	188	135	--	.9	.8	959	1.30	--	530	68	2.9	1520	8.3

SOQUEL CREEK BASIN

11-1600. SOQUEL CREEK AT SOQUEL, CALIF.

LOCATION.--At gaging station, 0.2 mile upstream from highway bridge in town of Soquel, Santa Cruz County, and 0.4 mile downstream from Bates Creek.

DRAINAGE AREA.--40.2 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 3, 1963.....	4.4	--	--	--	--	50	--	236	10	--	65	--	--	0.0	--	--	--	298	88	1.3	787	8.4
Nov. 8.....	9.7	--	--	--	--	49	--	225	0	--	55	--	--	.1	--	--	--	288	104	1.3	750	8.2
Dec. 14.....	11	--	--	--	--	46	--	220	8	--	42	--	--	.1	--	--	--	290	96	1.2	716	8.3
Jan. 7, 1964.....	8.7	--	--	--	--	15	--	217	17	--	58	--	--	.1	--	--	--	288	82	.4	778	8.7
Feb. 6.....	18	--	--	--	--	41	--	182	17	--	36	--	--	.2	--	--	--	262	85	1.1	650	8.6
Mar. 5.....	12	--	--	--	--	43	--	216	11	--	48	--	--	.2	--	--	--	293	98	1.1	717	8.6
Apr. 7.....	11	--	--	--	--	48	--	214	12	--	48	--	--	.1	--	--	--	280	85	1.2	720	8.7
May 6.....	7.4	30	--	80	23	52	3.9	242	4	115	58	0.4	0.6	.1	502	0.68	--	294	89	1.3	774	8.4
June 10.....	5.5	--	--	--	--	60	--	217	11	--	62	--	--	.1	--	--	--	283	87	1.5	768	8.6
July 8.....	2.7	--	--	--	--	51	--	226	14	--	67	--	--	.1	--	--	--	304	96	1.3	780	8.6
Aug. 6.....	1.4	--	--	--	--	45	--	240	4	--	58	--	--	.1	--	--	--	296	93	1.1	746	8.3
Sept. 3.....	3.2	34	--	75	27	44	4.7	252	0	101	62	--	.5	.2	488	.66	--	298	91	1.1	755	8.1

SAN LORENZO RIVER BASIN

11-1605. SAN LORENZO RIVER AT BIG TREES, CALIF.

LOCATION.--At Sequoia Picnic and Camp Grounds at Big Trees, Santa Cruz County, approximately 0.5 mile upstream from gaging station, and 4 miles north of Santa Cruz.

DRAINAGE AREA--111 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 3, 1963.....	23	--	--	--	--	21	--	141	2	--	24	--	--	0.0	--	--	--	139	20	0.8	372	8.3
Nov. 8.....	46	--	--	--	--	20	--	122	0	--	20	--	--	.1	--	--	--	132	32	.8	356	7.9
Dec. 4.....	56	--	--	--	--	10	--	135	0	--	19	--	--	.0	--	--	--	139	28	.4	363	8.1
Jan. 7, 1964.....	35	--	--	--	--	24	--	128	6	--	26	--	--	.1	--	--	--	139	24	.9	370	8.5
Feb. 6.....	78	--	--	--	--	22	--	114	7	--	19	--	--	.1	--	--	--	138	33	.8	360	8.6
Mar. 5.....	45	--	--	--	--	20	--	133	0	--	22	--	--	.1	--	--	--	142	33	.7	375	8.2
Apr. 7.....	40	--	--	--	--	23	--	132	1	--	20	--	--	.1	--	--	--	137	27	.9	373	8.3
May 6.....	30	24	--	42	9.0	22	1.8	141	0	46	23	0.2	1.2	.1	239	0.33	--	142	26	.8	379	7.8
June 10.....	30	--	--	--	--	24	--	134	5	--	24	--	--	.1	--	--	--	149	31	.9	389	8.5
July 8.....	16	--	--	--	--	22	--	142	0	--	25	--	--	.1	--	--	--	138	22	.8	372	8.2
Aug. 6.....	13	--	--	--	--	22	--	138	0	--	23	--	--	.1	--	--	--	133	20	.8	358	8.1
Sept. 3.....	13	22	--	30	14	21	2.0	139	0	34	24	--	.9	.1	230	.31	--	131	17	.8	366	8.0

GUADALUPE RIVER BASIN

11-1680. LOS GATOS CREEK AT LOS GATOS, CALIF.

LOCATION.--At gaging station 0.3 mile downstream from Trout Creek, 0.5 mile downstream from Lexington Reservoir, and 1 mile south of Los Gatos, Santa Clara County.

DRAINAGE AREA.--38.6 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (microhmhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 3, 1963.....	109	--	--	--	--	12	--	176	0	--	9.0	--	--	0.0	--	--	--	175	31	0.4	383	8.1
Nov. 8.....	3	--	--	--	--	18	--	261	1	--	14	--	--	.2	--	--	--	271	55	.5	589	8.3
Dec. 4.....	48	--	--	--	--	11	--	148	0	--	6.0	--	--	.1	--	--	--	150	29	.4	330	8.0
Jan. 7, 1964.....	80	--	--	--	--	13	--	152	14	--	3.0	--	--	.1	--	--	--	177	29	.4	381	8.6
Feb. 6.....	21	--	--	--	--	12	--	122	0	--	7.8	--	--	.1	--	--	--	146	46	.4	335	8.2
Mar. 5.....	34	--	--	--	--	15	--	171	2	--	12	--	--	.2	--	--	--	216	72	.4	454	8.3
Apr. 7.....	7.7	--	--	--	--	23	--	246	5	--	15	--	--	.1	--	--	--	299	89	.6	636	8.5
May 6.....	1.5	16	--	83	31	25	2.8	286	4	116	16	0.3	1.1	.1	451	0.61	--	336	95	.6	685	8.4
June 10.....	4.0	--	--	--	--	20	--	202	10	--	12	--	--	.1	--	--	--	244	62	.6	524	8.6
July 8.....	14	--	--	--	--	32	--	336	8	--	18	--	--	.1	--	--	--	402	113	.7	807	8.4
Aug. 6.....	.4	--	--	--	--	33	--	388	4	--	22	--	--	.2	--	--	--	432	107	.7	863	8.4
Sept. 3.....	.5	15	--	125	20	28	3.0	351	0	131	16	--	.4	.3	525	.71	--	393	105	.6	785	8.1

COYOTE CREEK BASIN

11-1700. COYOTE CREEK NEAR MADRONE, CALIF.

LOCATION.--At gaging station near southeast corner of La Laguna Seca Grant, 1.2 miles downstream from Anderson Dam, and 1.8 miles northeast of Madrone, Santa Clara County.

DRAINAGE AREA.--196 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 3, 1963.....	80	--	--	--	--	14	--	160	2	--	11	--	--	0.0	--	--	--	148	14	0.5	339	8.3
Nov. 7.....	22	--	--	--	--	16	--	174	2	--	10	--	--	.1	--	--	--	165	19	.5	375	8.3
Dec. 5.....	27	--	--	--	--	17	--	176	4	--	9.0	--	--	.0	--	--	--	170	19	.6	379	8.4
Jan. 9, 1964.....	36	--	--	--	--	17	--	178	6	--	11	--	--	.1	--	--	--	173	17	.6	388	8.6
Feb. 5.....	16	--	--	--	--	18	--	156	8	--	12	--	--	.1	--	--	--	159	18	.6	365	8.6
Mar. 4.....	6.2	--	--	--	--	17	--	175	9	--	12	--	--	.2	--	--	--	181	23	.6	401	8.5
Apr. 9.....	88	--	--	--	--	16	--	186	5	--	12	--	--	.6	--	--	--	178	17	.5	403	8.5
May 7.....	102	8.8	--	46	15	17	1.8	191	0	38	12	0.2	1.0	.1	238	0.32	--	177	20	.6	404	8.2
June 9.....	119	--	--	--	--	19	--	185	7	--	10	--	--	.3	--	--	--	192	29	.6	424	8.6
July 7.....	77	--	--	--	--	9.0	--	202	9	--	13	--	--	.2	--	--	--	205	25	.3	452	8.6
Aug. 5.....	1.3	--	--	--	--	28	--	264	9	--	20	--	--	.2	--	--	--	262	31	.8	477	8.5
Sept. 4.....	.7	6.0	--	54	33	32	2.5	274	6	65	25	--	.6	.2	367	.50	--	272	37	.8	615	8.4

## ALAMEDA CREEK BASIN

11-1765. ARROYO VALLE NEAR LIVERMORE, CALIF.

LOCATION.--At gaging station 900 feet downstream from highway bridge, 1.1 miles upstream from Dry Creek, 4.1 miles south of Livermore, Alameda County, and 6.9 miles southeast of Pleasanton.

DRAINAGE AREA.--147 square miles.

RECORDS AVAILABLE.--Chemical analyses: December 1958 to September 1964.

Water temperatures: October 1959 to September 1961, October 1962 to September 1964.

Sediment records: October 1962 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 86°F July 28; minimum, 42°F Dec. 11, 12.

Sediment concentrations: Maximum daily, 260 ppm Jan. 21; minimum daily, no flow on many days.

Sediment loads: Maximum daily, 150 tons Jan. 21; minimum daily, 0 ton on many days.

EXTREMES, 1962-64.--Water temperatures (1963-64): Maximum, 86°F July 28, 1964; minimum, 42°F Dec. 11, 12, 1963.

Sediment concentrations: Maximum daily, 3,290 ppm Feb. 1, 1963; minimum daily, no flow on many days during 1962-64.

Sediment loads: Maximum daily, 45,900 tons Feb. 1, 1963; minimum daily, 0 ton on many days during 1962-64.

REMARKS.--No flow during Aug. 5 to Sept. 30.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Nov. 5, 1963.....	0.1					88		436	0		105			1.8				418	60	1.9	1110	8.1
Dec. 5.....	.2					196		348	0		108			1.8				360	85	4.5	1060	7.4
Jan. 10, 1964.....	1.2					50		276	2		48			1.0				289	59	1.3	752	8.3
Feb. 3.....	15					25		216	10		18			.4				222	28	.7	506	8.5
Mar. 2.....	4.6					29		230	6		26			.6				239	41	.8	557	8.4
Apr. 10.....	2.0					34		264	8		24			.6				259	29	.9	615	8.4
May 4.....	1.1	18		62	34		1.9	318	0	76	35	0.3	0.4	.8	438	0.50		294	33	1.1	694	8.2
June 10.....	.6					58		286	3		21			1.0				268	30	1.5	700	8.3
July 8.....	.5					60		268	6		50			1.1				256	26	1.6	713	8.4

## ALAMEDA CREEK BASIN--Continued

11-1765. ARROYO VALLE NEAR LIVERMORE, CALIF.--Continued

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum ....	78	72	74	66	67	73	74	68	68	67	66	67	69	67	63	62	66	67	65	63	66	67	65	64	66	66	65	66	61	63	63	67
Minimum ....	61	63	62	62	63	61	62	62	61	60	62	59	57	59	59	60	57	57	60	60	56	61	60	55	57	56	53	55	56	54	53	59
November																																
Maximum ....	--	--	--	--	57	58	58	60	63	63	61	59	60	62	61	57	56	55	54	54	55	53	55	54	56	56	55	54	54	54	--	57
Minimum ....	--	--	--	--	56	56	54	56	57	57	54	56	58	55	56	51	51	49	51	53	48	49	50	53	50	48	48	49	51	48	--	52
December																																
Maximum ....	53	51	52	50	48	49	50	50	52	50	48	48	47	47	47	46	48	46	47	51	50	52	50	50	51	52	52	52	52	52	50	
Minimum ....	48	48	48	46	47	47	46	45	49	44	42	42	43	44	44	44	44	43	44	47	48	45	44	44	47	48	47	48	49	50	46	46
January																																
Maximum ....	51	52	52	52	52	50	52	52	51	51	49	49	49	53	53	52	53	52	54	55	51	46	47	50	50	51	51	49	52	52	52	51
Minimum ....	46	48	46	47	45	47	50	47	45	46	44	44	44	47	46	47	51	51	51	51	46	44	44	47	47	47	47	48	51	46	47	
February																																
Maximum ....	52	51	52	52	52	51	51	51	51	51	50	50	50	54	54	54	55	56	56	56	56	56	56	55	55	55	56	52	56	--	--	53
Minimum ....	48	47	47	47	47	46	45	45	45	46	46	48	45	45	50	48	47	48	49	49	48	48	48	48	48	46	46	50	47	--	--	47
March																																
Maximum ....	52	55	57	59	56	54	56	57	56	59	55	57	58	61	63	64	65	64	64	63	57	52	54	57	59	61	62	63	65	64	59	59
Minimum ....	48	48	48	49	51	50	48	47	51	50	51	52	52	50	53	52	52	53	52	53	52	51	50	51	49	51	52	52	56	55	56	51
April																																
Maximum ....	59	61	63	63	63	66	68	66	69	68	70	72	74	76	72	68	66	68	68	69	66	61	65	67	71	73	72	70	68	--	--	68
Minimum ....	55	52	53	54	55	54	56	56	57	57	57	57	58	60	61	60	57	55	57	58	57	57	54	54	55	56	58	60	60	56	--	57
May																																
Maximum ....	66	67	66	64	60	66	69	72	75	76	79	76	74	74	74	70	73	74	74	76	72	72	76	78	78	75	68	75	77	77	75	73
Minimum ....	58	56	58	57	57	55	55	56	58	60	62	62	61	60	59	60	62	60	61	64	62	62	63	63	64	63	63	61	62	63	63	60
June																																
Maximum ....	73	74	74	72	76	70	74	63	64	66	75	76	78	77	66	66	74	74	77	74	80	84	85	86	86	78	80	78	78	80	--	75
Minimum ....	62	60	60	62	64	64	62	59	60	60	58	61	62	64	62	58	60	59	59	60	62	65	67	68	68	66	62	63	64	65	--	62
July																																
Maximum ....	76	76	76	74	79	80	79	78	79	84	83	84	84	80	84	85	82	80	80	78	80	80	84	84	84	83	82	78	86	82	76	80
Minimum ....	64	62	62	63	63	63	65	63	60	63	68	67	68	67	68	65	66	65	64	66	65	64	64	68	68	68	70	71	70	68	64	66
August																																
Maximum ....	78	78	78	81	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum ....	64	63	64	64	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
September																																
Maximum ....																																
Minimum ....																																



## ALAMEDA CREEK BASIN--Continued

11-1765. ARROYO VALLE NEAR LIVERMORE, CALIF.--Continued

Suspended sediment and temperature (°F) of water,  
water year October 1963 to September 1964

Date	Time (24 hr)	Water tem- per- ature (°F)	Mean discharge (cfs)	Suspended sediment	
				Mean concen- tration (ppm)	Discharge (tons per day)
October total.....		--	A 3.1	--	T
November total.....		--	A 7.2	--	B 0.1
Dec. 18, 1963.....		43	.1	7	T
December total.....		--	A 11.8	--	B .2
Jan. 20, 1964.....		51	2.6	22	.2
Jan. 21.....		46	181	260	S 150
Jan. 22.....		44	233	115	72
Jan. 23.....		44	196	50	26
Jan. 24.....		50	122	11	3.6
Jan. 27.....		51	82	11	2.4
Jan. 29.....		51	44	5	.6
Jan. 31.....		46	26	4	.3
January total.....		--	A 1233.3	--	B 265.0
Feb. 4.....		48	13	6	.2
Feb. 12.....		50	5.4	8	.1
Feb. 18.....		55	4.6	9	.1
Feb. 25.....		55	3.2	7	.1
Feb. 26.....		55	3.2	6	.1
February total.....		--	A 191.6	--	B 3.2
Mar. 3.....		57	4.2	11	.1
Mar. 13.....		52	4.2	14	.2
Mar. 18.....		53	3.5	11	.1
Mar. 23.....		54	6.6	14	.2
Mar. 27.....		58	9.9	13	.3
Mar. 28.....		63	9.4	14	.4
March total.....		--	A 152.6	--	B 4.6
Apr. 4.....		54	3.8	5	.1
Apr. 22.....		62	1.2	19	.1
Apr. 29.....		68	1.1	9	T
April total.....		--	A 66.0	--	1.2
May 25.....		69	.6	19	T
May 27.....		68	.7	9	T
May total.....		--	A 28.7	--	B .6
June 12.....		76	.5	19	T
June total.....		--	A 17.1	--	B .3
July total.....		--	A 11.8	--	B .2
August total.....		--	A .4	--	B T
September total.....		--	0	--	0
Total discharge for year (cfs-days).....				1723.6	
Total discharge for year (tons).....				276.0	

S Computed by subdividing day.

T Less than 0.05 ton.

A Monthly totals include days not shown.

B Days not shown are estimated and included in total.

## ALAMEDA CREEK BASIN--Continued

11-1765. ARROYO VALLE NEAR LIVERMORE, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1963 to September 1964  
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentra- tion (ppm)	Sediment discharge (tons per day)	Suspended sediment										Method of analysis	
							Percent finer than size indicated, in millimeters											
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000		2.000
Jan. 21, 1964.....	0830	45		242	364													S
Jan. 22.....	0820	42		234	132							97	99	100				S
												93	97	100				

## ALAMEDA CREEK BASIN--Continued

11-1790. ALAMEDA CREEK NEAR NILES, CALIF.

LOCATION.--At gaging station 0.3 mile downstream from railroad bridge, and 1.2 miles northeast of Niles, Alameda County.

DRAINAGE AREA.--633 square miles.

RECORDS AVAILABLE.--Chemical analyses: February 1952 to September 1964.

Water temperatures: July 1956 to September 1964.

Sediment records: January 1957 to September 1964.

EXTREMES, 1963-64.--Dissolved solids: Maximum, 550 ppm Feb. 9-15; minimum, 255 ppm Jan. 21-31.

Hardness: Maximum, 304 ppm Feb. 9-15.

Specific conductance: Maximum daily, 1,220 micromhos May 6; minimum daily, 315 micromhos Jan. 22.

Water temperatures: Minimum, 40°F Dec. 26.

Sediment concentrations: Maximum daily, 1,410 ppm Jan. 21; minimum daily, 8 ppm Nov. 18, Feb. 7, 8, 12.

Sediment loads: Maximum daily, 2,430 tons Jan. 22; minimum daily, 0.1 ton on many days.

EXTREMES, 1956-64.--Dissolved solids (1956-57, 1959-64): Maximum, 1,070 ppm Jan 1-20, 1962; minimum, 150 ppm Feb. 1, 2, 1963.

Hardness: Maximum (1956-57, 1959-64), 610 ppm Jan. 1-20, 1962; minimum (1956-57, 1959-63), 95 ppm Feb. 1, 2, 1963.

Specific conductance (1956-57, 1959-64): Maximum daily, 1,500 micromhos Jan. 8, 1962; minimum daily, 227 micromhos Feb. 16, 1962.

Water temperatures: Maximum (1956-62), 88°F June 1, 1960; minimum, 37°F Jan. 5, 1961, Jan. 14, 1963.

Sediment concentrations (1957-64): Maximum daily, 3,340 ppm Apr. 3, 1958; minimum daily, no flow on many days during 1957, 1959-61.

Sediment loads (1957-64): Maximum daily, 285,000 tons Apr. 3, 1958; minimum daily, 0 ton on many days during 1957, 1959-61.

REMARKS.--Records of specific conductance of daily samples available in subdistrict office at Sacramento, Calif.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 1-10, 1963...	29.3	20	0.01	38	22	67	4.4	178	0	51	92	0.3	4.0	0.4	388	0.53	30.7	184	38	2.1	674	8.0
Oct. 11-19.....	27.6	18	.01	39	20	67	5.2	174	0	43	96	.3	3.4	.4	378	.51	28.2	180	37	2.2	681	8.1
Oct. 20-31.....	27.3	18	.01	32	18	59	4.2	158	0	45	81	.3	3.0	.4	A 339	.46	25.0	152	22	2.1	593	8.2
Nov. 1-7.....	16.8	15	.01	38	18	62	3.4	171	0	49	75	.0	2.1	.3	359	.49	16.3	171	31	2.1	619	7.5
Nov. 8-13.....	3.1	12	.00	56	28	80	5.1	246	0	73	101	.1	6.4	.6	499	.68	4.18	256	54	2.2	849	7.8
Nov. 14-20.....	15.3	12	.00	53	27	68	5.0	238	0	61	83	.2	6.1	.5	450	.61	18.6	242	47	1.9	766	7.8
Nov. 21-30.....	22.7	16	.04	40	20	60	8.7	172	0	54	74	.1	17	.3	390	.53	23.9	183	42	1.9	654	7.3
Dec. 1-12.....	14.7	17	.01	45	20	73	5.1	188	0	61	88	.1	7.8	.3	424	.58	16.8	196	42	2.3	721	7.7
Dec. 13-24.....	8.9	11	.01	44	21	70	5.4	182	0	65	86	.0	8.4	.3	412	.56	9.90	196	47	2.2	716	7.7
Dec. 25-31.....	2.8	5.8	.00	64	33	70	4.9	284	0	88	78	.0	3.4	.5	504	.69	3.81	294	61	1.8	883	8.0
Jan. 1-9, 1964...	29.0	17	.01	41	19	66	4.1	160	0	53	87	.2	6.5	.5	402	.55	31.5	180	49	2.1	678	8.0
Jan. 10-20.....	24.2	16	.00	37	19	64	3.0	148	0	65	87	.1	4.8	.4	388	.53	25.4	170	49	2.1	658	8.2
Jan. 21-31.....	218	15	.04	33	15	29	3.5	150	0	42	25	.2	5.6	.3	255	.35	150	146	23	1.0	410	7.9

A Calculated.

## ALAMEDA CREEK BASIN--Continued

11-1790. ALAMEDA CREEK NEAR NILES, CALIF.--Continued

Chemical analyses, in parts per million, water year October 1963 to September 1964--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Feb. 1-8, 1964....	14.1	12	0.00	52	29	50	3.6	220	10	76	51	0.1	4.7	0.5	412	0.56	15.7	248	51	1.4	671	8.6
Feb. 9-15.....	12.5	14	.00	66	34	74	4.7	282	0	91	94	.2	8.6	.7	550	.75	18.6	304	73	1.8	914	8.2
Feb. 16-29.....	22.1	13	.00	49	26	78	3.4	192	0	88	107	.2	4.4	.5	488	.66	29.1	228	71	2.2	827	8.2
Mar. 1-13.....	36.2	12	.01	45	25	82	3.0	159	0	97	116	.3	5.5	.6	493	.67	48.2	215	85	2.4	828	8.0
Mar. 14-23.....	22.5	16	.02	46	27	72	3.3	193	0	87	102	.2	5.5	.6	470	.64	28.6	227	69	2.1	795	8.2
Mar. 24-31.....	12.4	18	--	34	32	60	3.8	191	0	80	77	.3	6.1	.5	428	.58	14.3	215	58	1.8	705	7.9
Apr. 1-8.....	14.2	13	.02	56	30	76	4.9	236	0	87	99	.3	7.5	.8	490	.67	18.8	261	67	2.1	842	7.9
Apr. 9-19.....	25.6	16	.02	45	23	66	3.8	175	0	71	91	.3	6.1	.4	413	.56	28.5	207	63	2.0	718	7.8
Apr. 20-30.....	4.6	10	.02	57	29	66	3.5	249	0	75	77	.3	2.6	.6	452	.61	5.61	263	59	1.8	779	8.0
May 1-10.....	23.4	12	.01	54	29	70	5.4	216	10	65	95	.2	6.7	.6	482	.66	30.5	252	58	1.9	802	8.5
May 11-20.....	42.1	13	.01	33	19	48	3.9	148	0	49	64	.1	4.9	.3	A 308	.41	35.0	159	38	1.7	541	7.6
May 21-31.....	45.5	17	.01	34	16	43	3.3	147	0	41	58	.2	4.0	.3	290	.39	35.6	152	31	1.5	498	7.8
June 1-10.....	42.7	14	.01	31	16	41	2.6	136	0	37	58	.1	3.4	.3	288	.39	33.2	143	31	1.5	473	7.7
June 11-20.....	42.8	14	.01	30	17	43	3.2	138	0	42	60	.1	2.9	.3	284	.39	32.8	145	32	1.6	485	7.9
June 21-30.....	40.5	17	.02	29	16	39	2.9	142	0	38	52	.2	3.2	.3	275	.37	30.1	140	24	1.4	461	8.0
July 8 B.....	39.0	--	--	--	--	34	--	133	3	--	40	--	--	.2	--	--	--	132	18	1.3	407	8.4
Aug. 5 B.....	38.0	--	--	--	--	46	--	131	0	--	65	--	--	.2	--	--	--	133	26	1.7	483	8.2
Sept. 2 B.....	33.0	10	--	30	17	65	2.8	124	0	38	106	--	.4	.2	347	.47	--	143	41	2.4	638	8.1
Weighted average	C 31.6	15	0.02	38	19	51	3.8	164	0	54	65	0.2	5.3	0.4	346	0.47	30	175	40	1.7	583	7.9
Time-weighted average.....	--	15	0.01	43	23	62	4.1	184	1	63	81	0.2	5.5	0.4	401	--	--	--	--	1.9	682	7.9
Tons per day	--	1.3	0.00	3.2	1.7	4.4	0.3	14	0	4.7	5.6	0.0	0.5	0.0	--	--	--	--	--	--	--	--

A Calculated.

B Not included in weighted averages.

C Mean discharge based on 365 days; mean discharge for 274 days of chemical analysis, 31.8 cfs, 87.5 percent of runoff.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Aver- age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October .....	68	--	70	60	64	70	70	65	65	60	--	60	65	64	--	60	--	66	--	--	--	--	65	60	62	63	59	--	--	50	51	--
November .....	56	55	56	--	57	57	55	58	58	59	58	58	58	60	60	51	55	52	50	54	51	51	--	--	52	--	51	--	47	50	--	55
December .....	--	50	49	--	45	49	--	--	48	43	--	--	45	42	--	43	41	41	41	--	42	--	49	43	--	40	46	46	48	46	41	--
January .....	45	42	--	45	42	42	44	41	45	44	--	--	45	45	45	43	45	45	51	42	47	45	46	49	45	45	45	45	47	46	50	45
February .....	46	50	48	50	45	45	47	48	--	45	51	48	49	49	45	48	49	51	50	52	--	49	--	49	52	50	51	49	53	--	--	49
March .....	52	51	50	51	50	51	--	50	49	54	55	53	55	55	56	61	--	--	58	55	65	55	52	52	48	61	57	55	55	62	62	55
April .....	--	60	61	--	61	58	58	--	59	61	--	61	59	65	62	67	65	--	65	65	65	59	57	62	57	--	59	67	66	--	--	--
May .....	60	62	58	60	55	60	58	--	61	68	68	--	67	65	61	--	69	66	65	62	67	--	60	58	71	67	65	67	69	68	67	64
June .....	67	68	69	68	71	66	66	61	66	59	61	69	--	72	66	64	66	68	69	70	72	74	76	76	77	73	70	70	69	70	--	69
July .....	69	70	--	--	--	--	71	71	--	--	--	--	74	74	74	74	74	--	70	70	--	72	74	--	--	--	--	--	--	--	--	--
August .....	--	71	--	73	--	74	--	75	--	74	--	74	--	--	--	--	--	69	67	72	68	72	67	68	66	69	64	68	63	66	62	--
September .....	65	61	64	63	66	62	66	61	64	61	64	62	62	64	66	70	65	63	64	62	64	62	69	65	69	65	62	64	60	63	--	64

## ALAMEDA CREEK BASIN--Continued

11-1790. ALAMEDA CREEK NEAR NILES, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964  
(Where no concentrations are reported, loads are estimated)

Day	OCTOBER			NOVEMBER			DECEMBER		
	Suspended sediment			Suspended sediment			Suspended sediment		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1..	38	87	8.9	28	28	2.1	16	--	1.1
2..	38	--	8.4	19	--	1.2	16	27	1.2
3..	12	76	6.6	6.5	17	.3	17	--	1.2
4..	27	62	4.5	3.8	--	.2	9.6	--	.6
5..	27	59	4.3	3.5	--	.1	5.3	--	.3
6..	24	--	3.7	12	23	.7	11	19	.6
7..	26	51	3.6	9.0	15	.4	17	--	.9
8..	27	47	3.4	4.4	--	.1	17	--	.9
9..	27	44	3.2	3.5	10	.1	18	19	.9
10..	27	44	3.2	2.6	--	.1	17	20	.9
11..	34	--	4.3	2.8	14	.1	16	--	.8
12..	30	44	3.6	2.7	20	.1	16	--	.7
13..	28	41	3.1	2.4	17	.1	17	14	.6
14..	28	40	3.0	2.8	19	.1	16	10	.4
15..	28	--	2.9	4.2	30	.3	17	--	.5
16..	23	35	2.2	5.5	--	.4	17	15	.7
17..	29	--	2.6	3.7	10	.1	12	20	.6
18..	20	32	1.7	3.1	8	.1	5.9	16	.3
19..	28	--	2.3	4.7	--	.8	4.8	17	.2
20..	29	--	2.3	83	1230	5 307	4.4	--	.2
21..	29	--	2.3	22	550	33	4.0	18	.2
22..	29	--	2.2	22	199	12	3.2	--	.1
23..	16	27	1.2	26	210	15	2.7	14	.1
24..	24	49	3.2	49	--	71	2.6	--	.1
25..	28	41	3.1	24	240	16	2.8	--	.1
26..	29	--	2.3	17	--	3.8	3.1	--	.1
27..	29	--	2.2	17	47	2.2	3.0	10	.1
28..	28	--	2.1	17	--	1.6	3.0	--	.1
29..	29	--	2.2	17	--	1.2	2.6	--	.1
30..	29	--	2.2	16	24	1.0	2.5	22	.1
31..	29	--	2.2	--	--	--	2.4	--	.1
Total	869	--	103.0	434.2	--	471.2	301.9	--	14.8
Day	JANUARY			FEBRUARY			MARCH		
	Suspended sediment			Suspended sediment			Suspended sediment		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1..	2.7	--	.1	28	43	3.2	34	35	3.2
2..	2.6	11	.1	20	26	1.4	36	22	2.1
3..	--	--	4.1	15	22	.9	34	28	2.6
4..	26	87	9.6	12	--	.6	35	34	3.2
5..	42	29	3.3	9.9	--	.4	36	30	2.9
6..	43	43	5.0	9.9	--	.3	36	34	3.3
7..	44	62	7.4	9.2	8	.2	37	--	3.2
8..	44	48	5.7	8.7	8	.2	38	28	2.9
9..	45	42	5.1	9.1	--	.3	36	29	2.8
10..	38	52	5.3	9.6	16	.4	35	30	2.8
11..	31	--	4.5	9.2	13	.3	35	--	3.1
12..	44	--	7.2	8.7	8	.2	41	--	4.4
13..	44	54	6.4	13	21	.7	38	47	4.8
14..	45	--	5.3	19	--	1.4	27	33	2.4
15..	17	26	1.2	19	16	.8	21	36	2.0
16..	6.1	23	.4	21	--	.9	19	27	1.4
17..	4.9	--	.3	18	22	1.1	18	--	.9
18..	6.4	23	.4	18	19	.9	19	--	.8
19..	8.5	--	.6	20	14	.8	18	16	.8
20..	21	26	1.7	19	14	.7	16	25	1.1
21..	460	1410	1920	19	--	.8	21	22	1.2
22..	749	1200	2430	18	16	.8	26	39	2.7
23..	392	250	265	23	--	1.2	40	102	11
24..	195	100	53	18	16	.8	32	140	12
25..	141	90	34	20	18	1.0	21	99	5.6
26..	128	--	29	22	15	.9	11	103	3.1
27..	103	--	21	26	22	1.5	8.5	48	1.1
28..	84	--	15	34	34	3.1	7.6	--	.5
29..	63	--	11	33	34	3.0	8.0	26	.6
30..	48	--	7.9	--	--	--	5.8	33	.5
31..	36	57	5.5	--	--	--	5.3	22	.3
Total	2955.2	--	4865.1	509.3	--	28.8	795.2	--	89.3

S Computed by subdividing day.

K Computed from estimated-concentration graph and subdividing day.

## ALAMEDA CREEK BASIN--Continued

11-1790. ALAMEDA CREEK NEAR NILES, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964--Continued

Day	APRIL			MAY			JUNE		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	5.9	--	.3	3.4	41	.4	43	--	12
2..	6.1	25	.4	4.0	--	.5	43	128	15
3..	11	24	.7	5.5	43	.6	45	141	17
4..	17	--	1.4	5.7	49	.8	45	134	16
5..	19	42	2.2	10	58	1.6	44	126	15
6..	17	32	1.5	32	51	4.4	38	--	13
7..	16	34	1.5	42	83	9.4	45	130	16
8..	22	--	2.5	41	--	11	45	127	15
9..	33	54	4.8	45	91	11	39	126	13
10..	34	63	5.8	45	100	12	40	--	14
11..	34	--	5.8	45	--	12	40	--	14
12..	34	62	5.7	33	--	8.9	44	122	14
13..	33	60	5.3	36	113	11	36	--	12
14..	25	--	3.7	44	128	15	43	119	14
15..	20	--	2.4	43	122	14	44	114	14
16..	18	37	1.8	43	--	12	44	--	14
17..	17	39	1.8	46	101	13	44	125	15
18..	17	--	1.4	44	118	14	45	109	13
19..	17	27	1.2	43	124	14	44	94	11
20..	9.0	--	.6	44	131	16	44	112	13
21..	5.6	26	.4	45	132	16	48	--	13
22..	4.8	--	.3	33	--	11	48	96	12
23..	4.0	18	.2	43	118	14	41	--	9.7
24..	3.9	--	.2	47	112	14	34	--	7.2
25..	4.0	--	.2	46	--	15	39	74	7.8
26..	3.7	--	.2	39	131	14	37	76	7.6
27..	3.9	--	.2	45	140	17	39	88	9.3
28..	4.8	26	.3	43	126	15	40	100	11
29..	4.0	28	.3	31	102	8.5	40	85	9.2
30..	3.3	--	.3	40	113	12	39	75	7.9
31..	--	--	--	43	103	12	--	--	--
Total	447.0	--	53.4	1109.6	--	330.1	1260	--	374.7
Day	JULY			AUGUST			SEPTEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	37	81	8.1	38	--	18	37	36	3.6
2..	39	88	9.3	40	176	19	33	46	4.1
3..	40	--	9.3	39	--	17	36	44	4.3
4..	37	--	8.6	40	136	15	20	47	2.5
5..	41	--	9.5	38	--	12	32	40	3.5
6..	40	--	9.9	37	106	11	34	56	5.1
7..	39	109	11	37	--	8.7	38	50	5.1
8..	39	136	14	18	67	3.3	32	62	5.4
9..	39	--	14	4.8	--	.8	37	50	5.0
10..	32	--	10	3.4	59	.5	36	53	5.2
11..	34	--	10	2.5	--	.3	34	40	3.7
12..	40	--	11	2.2	35	.2	37	50	5.0
13..	38	102	10	1.7	--	.1	36	42	4.1
14..	38	125	13	1.7	--	.1	39	47	4.9
15..	40	153	17	3.4	--	.3	35	37	3.5
16..	35	180	17	23	--	1.7	37	44	4.4
17..	39	206	22	24	--	2.1	34	61	5.6
18..	35	--	19	24	49	3.2	36	57	5.5
19..	37	192	19	31	78	6.5	31	50	4.2
20..	37	171	17	33	84	7.5	38	69	7.1
21..	35	--	14	33	92	8.2	34	71	6.5
22..	37	136	14	30	82	6.6	37	76	7.6
23..	21	168	9.5	33	92	8.2	24	52	3.4
24..	10	--	5.7	35	80	7.6	23	58	3.6
25..	35	--	20	34	92	8.4	27	48	3.5
26..	36	--	19	33	74	6.6	24	64	4.1
27..	38	190	19	34	74	6.8	28	78	5.9
28..	34	--	16	35	59	5.6	26	55	3.9
29..	35	160	15	35	62	5.9	23	60	3.7
30..	34	--	15	33	45	4.0	27	53	3.9
31..	36	169	16	35	--	3.0	--	--	--
Total	1107	--	421.9	811.7	--	198.2	965	--	137.9
Total discharge for year (cfs-days).....									10,565.1
Total load for year (tons).....									7,088.4

ALAMEDA CREEK BASIN--Continued

11-1790. ALAMEDA CREEK NEAR NILES, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1963 to September 1964  
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentra- tion (ppm)	Sediment discharge (tons per day)	Suspended sediment											Method of analysis
							Percent finer than size indicated, in millimeters											
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Nov. 20, 1963.....	1615	54		66	1240						100	--						S
Jan. 31, 1964.....	1615	47		350	1420		78	79	89	94	98	100	--					SPWC
Jan. 22.....	1600	45		719	900						100	--						S
Jan. 25.....	1530	45		140	88						100	--						S
Mar. 15.....	1700	56		20	40						98	100						S
Mar. 23.....	1615	52		40	118						99	100						S
Mar. 25.....	0745	48		28	97						99	100						S
May 10.....	1645	68		44	103						99	100						S
July 17.....	1735	74		41	206						100	--						S
Aug. 8.....	1820	75		8.4	63						99	100						S

BUENA VISTA LAKE BASIN

11-1855. KERN RIVER CANAL NO. 3 NEAR KERNNVILLE, CALIF.

LOCATION.--Temperature recorder located at gaging station, 4 miles downstream from intake, and 12 miles north of Kernville, Kern County.

RECORDS AVAILABLE.--Water temperatures: October 1962 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 71°F July 24-26, 30, 31, Aug. 10-13; minimum, freezing point on several days during December.

EXTREMES, 1962-64.--Water temperatures: Maximum, 71°F July 24-26, 30, 31, Aug. 10-13, 1964; minimum, freezing point on several days during December 1963.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum .....	60	60	60	59	58	58	58	58	58	57	56	54	53	53	52	51	52	51	51	51	51	52	52	52	51	52	52	52	52	52	52	54
Minimum .....	57	57	57	57	54	54	54	54	53	52	50	47	48	48	49	49	49	50	49	50	50	51	51	50	49	50	50	51	50	50	48	51
November																																
Maximum .....	52	51	50	49	49	49	48	49	47	47	47	47	47	47	47	47	45	44	43	42	41	42	39	40	40	39	39	40	40	39	---	45
Minimum .....	48	48	47	46	47	47	46	44	45	45	45	45	45	45	46	42	40	39	38	41	39	38	38	39	39	38	38	39	38	38	---	42
December																																
Maximum .....	39	39	39	39	38	38	39	39	39	39	36	34	33	33	34	34	34	35	34	35	34	34	34	34	34	34	34	35	35	35	35	36
Minimum .....	38	37	37	36	35	36	37	37	37	36	34	32	32	32	33	33	33	34	34	34	34	33	32	32	32	32	32	33	34	34	35	34
January																																
Maximum .....	35	35	37	37	37	36	35	36	36	35	36	36	36	36	36	36	35	36	37	37	37	37	37	36	36	36	37	37	37	38	39	36
Minimum .....	34	34	34	34	33	33	34	35	33	33	33	34	34	34	34	34	34	35	36	35	36	35	35	35	35	35	35	37	36	37	38	35
February																																
Maximum .....	39	39	39	39	40	39	39	39	39	39	40	39	39	39	39	39	40	40	41	41	41	42	42	42	41	41	41	41	42	---	---	40
Minimum .....	38	38	38	38	38	38	36	36	37	37	38	37	36	34	36	37	38	39	40	41	40	40	40	41	41	39	40	40	41	---	---	38
March																																
Maximum .....	42	42	40	40	42	41	40	39	40	39	40	42	43	43	43	43	46	46	45	47	48	48	47	45	39	38	39	41	45	46	47	43
Minimum .....	41	40	37	38	40	40	40	39	36	37	40	43	40	41	42	44	43	44	43	44	45	45	45	38	36	36	36	38	41	43	45	47
April																																
Maximum .....	47	44	43	46	46	44	46	48	50	51	51	51	51	52	52	52	50	50	47	48	47	49	49	45	45	47	50	50	53	53	---	49
Minimum .....	44	42	42	42	44	42	42	44	46	50	48	48	48	48	49	48	48	47	44	41	44	45	45	41	41	42	47	49	48	50	---	45
May																																
Maximum .....	51	48	47	47	46	44	45	46	50	53	56	56	55	54	53	53	52	53	53	54	53	53	54	54	54	53	52	53	55	57	57	52
Minimum .....	47	46	43	44	43	41	41	43	45	49	52	53	52	50	49	50	48	49	51	52	50	52	52	52	53	51	51	50	50	53	55	49
June																																
Maximum .....	57	57	56	57	57	57	58	57	58	53	55	57	58	58	60	58	57	57	57	57	60	61	62	63	63	63	62	64	63	60	---	59
Minimum .....	54	55	55	55	56	56	55	52	50	49	50	53	55	56	58	54	55	55	54	54	56	58	59	59	60	60	58	57	56	56	---	55
July																																
Maximum .....	61	61	61	61	62	63	64	66	64	66	64	68	69	68	68	67	68	69	69	69	68	68	68	71	71	71	67	68	70	71	71	67
Minimum .....	58	58	58	57	57	57	59	60	60	59	63	66	65	64	62	64	65	64	64	62	62	64	63	65	68	64	66	64	67	67	66	63
August																																
Maximum .....	69	69	70	70	68	68	69	69	69	71	71	71	71	70	69	69	68	68	67	69	69	69	69	69	69	69	69	68	67	66	66	69
Minimum .....	63	63	64	66	64	66	65	66	67	68	67	67	66	64	65	61	62	64	62	65	64	65	65	64	65	66	65	64	62	62	62	61
September																																
Maximum .....	64	63	61	62	62	62	61	61	62	62	63	63	63	63	63	62	63	63	61	61	61	60	60	60	61	61	61	65	64	61	---	62
Minimum .....	60	56	56	57	57	57	56	56	56	58	58	59	61	59	58	59	58	59	59	59	59	58	57	57	58	59	59	59	58	59	56	---



BUENA VISTA LAKE BASIN

11-1860. KERN RIVER NEAR KERNVILLE, CALIF.

LOCATION.--At gaging station 3 miles upstream from Salmon Creek, and 15 miles north of Kernville, Kern County.

DRAINAGE AREA.--848 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1955 to July 1963.

Water temperatures: June 1961 to September 1963.

EXTREMES, 1963-64.--Water temperatures: Maximum, 79°F July 12, 25, 28, 29; minimum, 37°F Jan. 24, Feb. 13-15.

EXTREMES, 1961-64.--Water temperatures: Maximum (1961-62, 1963-64), 84°F June 25, July 11, 1961; minimum, 33°F Jan. 15, 16, 1962, on several days during January 1963.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 4, 1963.....	2.0	--	--	--	--	10	--	50	--	--	5.0	--	--	0.1	--	--	--	31	0	0.8	114	7.3
May 1, 1964.....	97	14	--	9.8	0.9	8.1	1.1	42	--	7.0	3.5	0.0	0.5	.0	68	0.09	--	28	0	.7	93	7.5
July 10.....	4.4	--	--	--	--	8.8	--	39	--	--	2.5	--	--	.1	--	--	--	26	0	.8	93	7.4
Sept. 11.....	63	15	--	15	3.8	16	2.4	83	--	11	7.2	--	.6	.2	111	.15	--	53	0	1.0	180	8.2

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum .....	71	71	69	67	67	67	67	65	67	66	63	62	63	63	60	58	57	57	56	62	61	62	63	61	61	62	62	61	61	61	59	63	
Minimum .....	63	63	63	64	59	59	59	61	59	58	58	54	54	55	56	57	56	56	56	57	56	57	58	56	56	56	56	57	56	56	54	58	
November																																	
Maximum .....	56	53	55	53	52	52	50	52	52	50	52	51	53	52	52	50	48	47	46	46	45	44	43	46	46	46	47	48	47	47	—	49	
Minimum .....	49	49	51	48	51	50	47	48	48	47	47	48	49	49	51	47	45	44	43	45	43	42	42	43	44	42	43	45	44	43	—	46	
December																																	
Maximum .....	47	47	47	46	46	46	46	46	45	43	42	42	42	42	43	44	44	42	44	46	43	44	43	43	44	42	43	46	46	45	45	44	
Minimum .....	43	42	42	42	42	42	42	42	43	43	40	38	38	38	39	39	40	40	40	40	41	41	40	38	38	38	39	41	41	42	42	41	40
January																																	
Maximum .....	46	46	46	43	42	43	46	44	43	43	42	42	42	42	42	43	43	45	46	45	45	42	42	42	41	42	45	46	46	47	46	47	44
Minimum .....	41	42	40	40	38	38	42	41	39	39	39	38	38	38	39	38	39	39	41	42	41	42	38	38	37	38	41	40	41	41	42	41	40
February																																	
Maximum .....	46	47	47	47	47	48	46	47	48	48	45	45	43	44	43	46	46	46	47	48	48	48	48	49	46	47	48	47	47	—	—	47	
Minimum .....	41	41	40	40	40	41	38	38	39	40	40	38	37	37	37	40	40	40	40	41	42	40	41	41	41	41	40	40	40	41	—	—	40
March																																	
Maximum .....	50	50	48	48	48	46	44	46	48	50	50	47	50	51	53	54	54	55	56	57	55	50	41	45	51	53	55	56	56	56	52	51	
Minimum .....	42	46	39	42	41	40	40	38	40	42	42	44	41	42	45	45	45	46	47	48	48	41	38	40	39	43	45	47	48	48	50	43	
April																																	
Maximum .....	52	50	53	55	50	52	56	58	60	61	62	62	58	55	54	54	53	52	49	55	57	61	58	59	59	62	55	56	62	57	—	56	
Minimum .....	49	46	46	46	48	46	46	48	50	51	51	51	51	51	50	51	51	49	47	45	48	52	52	50	50	50	50	53	52	54	—	49	
May																																	
Maximum .....	55	52	56	56	54	52	59	58	62	65	67	62	58	56	55	55	55	55	55	56	55	54	54	54	54	54	54	52	55	57	58	56	
Minimum .....	52	46	44	50	50	48	49	50	51	54	56	54	54	53	53	53	52	52	53	53	52	52	52	53	54	52	52	50	50	53	55	52	
June																																	
Maximum .....	58	58	58	58	58	59	58	55	54	55	58	60	61	63	62	60	59	60	61	64	65	65	65	65	66	67	72	70	71	71	—	62	
Minimum .....	55	54	54	54	56	56	55	53	51	51	52	55	57	58	59	54	56	55	55	56	57	58	60	60	61	61	60	58	59	58	—	56	
July																																	
Maximum .....	72	73	72	71	72	74	74	74	75	75	77	79	78	77	76	77	78	77	77	76	76	76	78	78	79	77	74	79	79	77	76	76	
Minimum .....	59	60	60	60	60	62	62	62	63	63	66	67	67	65	65	66	67	65	66	64	63	66	66	67	69	71	70	68	68	68	65	65	
August																																	
Maximum .....	74	76	76	72	74	74	76	76	74	76	76	76	76	74	73	74	71	74	74	72	68	68	69	68	67	66	66	66	64	64	72		
Minimum .....	63	64	66	66	66	66	66	65	66	66	66	66	66	64	65	62	62	66	64	65	64	65	62	62	63	62	60	60	60	60	59	64	
September																																	
Maximum .....	64	62	62	62	63	63	61	61	60	62	63	64	64	63	63	62	62	62	62	62	62	62	60	58	60	60	62	62	60	59	57	58	61
Minimum .....	59	56	54	56	56	56	55	55	54	56	57	58	59	58	57	56	57	57	57	56	54	55	56	57	57	56	55	53	53	—	—	56	

BUENA VISTA LAKE BASIN--Continued

11-1870. KERN RIVER AT KERNVILLE, CALIF.

LOCATION.--Temperature recorder at gaging station, 300 feet downstream from highway bridge at new town of Kernville, Kern County, 1.1 miles upstream from Isabella Dam, and 41 miles northeast of Bakersfield.

DRAINAGE AREA.--1,009 square miles.

RECORDS AVAILABLE.--Water temperatures: June 1962 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Minimum, 36°F on several days during December, January and March.

EXTREMES, 1962-64.--Water temperatures: Maximum (1962-63), 69°F Aug. 15-17, 26, 27, 1962; minimum, 34°F Jan. 13, 14, 1963.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																																Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum .....	62	61	60	59	59	57	56	56	56	56	55	53	51	52	52	51	51	51	51	53	53	53	54	55	54	53	54	55	54	53	53	55	
Minimum .....	59	59	59	59	55	55	55	55	54	53	53	49	49	50	51	51	51	51	51	51	52	52	53	53	52	52	52	53	53	53	52	51	
November																																	
Maximum .....	52	51	51	51	50	51	51	49	48	48	48	47	48	48	48	48	45	43	42	43	43	43	43	44	45	44	42	43	43	43	43	46	
Minimum .....	50	50	50	49	49	50	49	47	47	47	47	47	47	47	48	45	43	41	41	42	43	41	41	42	44	42	41	42	42	41	45		
December																																	
Maximum .....	43	42	42	41	41	41	41	41	41	40	38	37	37	37	37	37	38	39	39	40	40	39	39	39	39	39	39	40	40	40	40	40	
Minimum .....	41	41	41	40	40	40	41	41	41	40	38	37	36	36	37	37	38	38	39	39	39	39	38	38	38	38	38	39	40	40	40	39	
January																																	
Maximum .....	40	40	41	40	38	37	38	38	38	37	37	37	37	37	37	37	38	40	40	40	39	39	38	37	37	39	39	39	40	41	41	39	
Minimum .....	39	39	40	38	37	36	37	37	37	36	36	36	36	36	36	36	37	38	40	39	39	37	36	36	37	39	39	39	39	39	39	37	
February																																	
Maximum .....	41	41	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	43	42	42	43	43	--	--	
Minimum .....	39	39	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	42	40	40	40	41	--	--	
March																																	
Maximum .....	44	44	41	42	42	42	42	40	41	42	43	43	42	43	45	45	46	47	48	47	47	45	39	37	39	42	44	47	47	49	49	44	
Minimum .....	42	41	38	38	40	41	40	37	38	39	41	42	39	40	42	43	43	44	45	45	44	39	36	36	36	38	40	43	45	46	48	41	
April																																	
Maximum .....	49	47	47	50	50	48	49	52	53	54	54	54	53	54	55	54	54	54	50	54	55	53	53	49	49	53	57	56	56	56	--	52	
Minimum .....	47	44	43	46	47	45	46	48	49	51	52	52	51	51	52	52	52	50	47	45	47	49	49	46	46	47	50	53	52	54	--	49	
May																																	
Maximum .....	56	52	49	49	48	46	49	50	54	56	58	60	60	58	58	58	58	58	59	58	58	58	58	58	58	58	56	55	57	59	62	56	
Minimum .....	51	48	46	48	46	45	45	47	49	52	54	56	56	54	54	54	54	54	55	55	54	54	54	55	55	54	54	50	52	55	57	52	
June																																	
Maximum .....	62	61	60	61	61	62	61	57	56	57	58	60	62	64	64	62	61	60	60	61	62	63	64	64	64	64	64	64	62	63	--	61	
Minimum .....	57	57	56	57	58	58	57	54	53	52	54	56	58	60	61	57	58	57	57	58	59	60	62	62	62	62	62	60	60	60	--	58	
July																																	
Maximum .....	64	64	64	64	64	64	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	70	70	69	71	71	71	68	69	70	70	--	
Minimum .....	61	62	62	62	61	62	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	65	66	64	65	67	67	66	64	66	66	--	
August																																	
Maximum .....	69	68	69	69	68	68	69	69	70	71	71	71	71	71	70	69	69	69	68	70	70	70	74	75	75	75	74	72	72	72	71	71	
Minimum .....	63	63	63	65	64	65	64	65	67	68	67	66	66	66	66	64	64	66	64	66	64	65	67	69	69	68	66	66	65	66	65	66	
September																																	
Maximum .....	69	66	66	68	68	68	68	68	67	69	70	71	72	71	70	70	68	70	70	70	69	67	68	68	70	70	69	68	66	67	--	69	
Minimum .....	63	60	60	62	62	62	61	61	60	62	62	62	65	63	63	63	62	62	62	62	62	61	59	60	62	62	62	60	59	58	--	62	

BUENA VISTA LAKE BASIN--Continued

11-1875. BOREL CANAL BELOW ISABELLA DAM, CALIF.

LOCATION.--Temperature recorder at gaging station, 500 feet downstream from Isabella Dam, Kern County, and 3 miles upstream from point where canal crosses Erskine Creek.

RECORDS AVAILABLE.--Water temperatures: October 1958 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 79°F July 28, Aug. 6, 10; minimum, 43°F Jan. 24, 25.

EXTREMES, 1958-64.--Water temperatures: Maximum, 80°F July 31-Aug. 1, 1959; minimum, 33°F Jan. 17, 18, 1960.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum .....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	66	66	64	65	64	--	64	64	--	--	--	--
Minimum .....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	65	64	64	64	64	--	64	64	--	--	--	--
November																																
Maximum .....	--	--	--	--	--	--	--	--	--	--	--	--	--	59	58	58	57	57	56	56	56	55	55	54	54	53	54	53	53	53	53	--
Minimum .....	--	--	--	--	--	--	--	--	--	--	--	--	--	58	58	57	56	55	55	55	55	55	54	54	53	53	53	53	52	53	--	--
December																																
Maximum .....	53	53	53	53	53	53	52	51	51	51	50	49	49	49	49	50	50	49	49	49	48	48	48	47	47	47	47	47	47	47	47	50
Minimum .....	52	52	53	52	52	52	51	51	51	50	49	49	49	49	49	49	49	49	49	48	48	48	47	47	47	47	47	47	47	47	47	49
January																																
Maximum .....	48	48	47	47	47	46	46	46	46	46	45	45	45	45	45	45	45	44	44	44	44	44	44	44	44	44	44	44	45	44	44	45
Minimum .....	47	47	46	47	46	46	46	46	46	45	45	45	45	45	45	44	45	44	44	44	44	44	44	43	44	44	44	44	44	44	44	45
February																																
Maximum .....	44	44	45	45	45	45	45	45	45	46	45	45	45	45	45	45	45	46	45	46	46	46	47	46	46	46	47	47	46	--	--	45
Minimum .....	44	44	44	44	44	45	44	45	44	45	45	45	44	44	45	45	45	45	45	45	45	45	46	46	46	46	46	46	46	--	--	45
March																																
Maximum .....	47	47	47	47	47	47	47	47	47	47	47	48	47	47	48	47	48	50	49	50	52	50	49	49	48	50	50	51	52	53	54	54
Minimum .....	46	46	46	46	47	47	47	47	47	47	47	46	47	47	47	46	48	49	49	49	49	49	49	48	48	48	48	48	49	51	52	52
April																																
Maximum .....	52	50	50	50	50	50	52	53	52	52	52	54	58	60	60	57	55	55	55	54	54	56	55	55	54	55	59	55	55	55	--	54
Minimum .....	50	50	49	50	50	50	50	51	51	51	51	52	53	56	57	55	54	54	54	54	54	54	54	54	54	54	55	55	55	55	--	53
May																																
Maximum .....	56	55	55	55	55	55	54	55	54	55	57	57	57	60	56	57	58	58	56	59	60	58	60	59	61	60	63	67	61	60	62	63
Minimum .....	55	55	55	55	55	54	54	54	54	54	54	54	55	55	55	55	56	56	56	58	58	58	58	59	60	60	60	60	60	60	61	57
June																																
Maximum .....	62	61	61	62	62	62	63	63	63	63	63	64	63	64	64	64	63	63	64	64	64	64	69	72	73	72	72	67	69	68	71	--
Minimum .....	61	61	61	61	61	62	62	63	63	63	63	63	63	63	63	63	63	63	63	63	64	64	64	64	68	68	68	67	66	66	--	64
July																																
Maximum .....	67	66	67	67	67	70	71	68	71	73	74	72	74	72	71	74	75	72	72	75	72	73	75	75	76	75	78	79	78	75	75	73
Minimum .....	66	66	66	66	66	66	67	68	67	68	69	68	69	69	69	69	70	71	70	71	70	70	71	71	72	73	75	76	74	74	73	70
August																																
Maximum .....	74	76	77	76	78	79	77	77	77	79	75	73	74	76	74	75	76	75	74	77	78	76	76	77	76	74	73	72	74	72	71	75
Minimum .....	73	71	72	73	75	76	74	74	74	74	73	73	72	72	73	72	73	73	73	74	73	73	73	73	73	72	72	71	71	71	70	73
September																																
Maximum .....	70	72	71	71	69	68	69	69	69	69	70	70	68	68	70	71	69	68	70	68	71	70	72	73	72	68	69	70	68	70	--	70
Minimum .....	68	67	68	68	68	67	67	67	67	67	67	67	67	66	66	67	68	67	67	67	66	67	68	68	68	67	67	66	66	--	67	

BUENA VISTA LAKE BASIN--Continued

11-1940. KERN RIVER NEAR BAKERSFIELD, CALIF.

LOCATION.--At gaging station at Kern County Land Co. diversion weir, approximately 2 miles east of Oil City, and 5 miles northeast of Bakersfield, Kern County.  
DRAINAGE AREA.--2,420 square miles.  
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 7, 1963.....	1477	--	--	--	--	8.6	--	56	--	--	4.2	--	--	0.0	--	--	--	36	0	0.6	116	7.8
Nov. 6.....	572	--	--	--	--	10	--	59	--	--	4.2	--	--	.2	--	--	--	40	0	.7	130	7.7
Dec. 9.....	374	--	--	--	--	12	--	68	--	--	4.5	--	--	.1	--	--	--	44	0	.8	144	7.9
Jan. 7, 1964.....	338	--	--	--	--	13	--	72	--	--	5.8	--	--	.1	--	--	--	45	0	.8	154	8.2
Feb. 4.....	422	--	--	--	--	12	--	73	--	--	5.8	--	--	.2	--	--	--	48	0	.8	158	8.0
Mar. 5.....	448	--	--	--	--	14	--	76	--	--	6.0	--	--	.1	--	--	--	51	0	.9	168	8.0
Apr. 7.....	447	--	--	--	--	15	--	80	--	--	5.5	--	--	.2	--	--	--	52	0	.9	172	7.6
May 4.....	444	9.3	--	16	2.4	14	2.0	75	--	10	7.2	0.4	1.0	.2	100	0.14	--	50	0	.9	166	7.9
June 1.....	753	--	--	--	--	13	--	72	--	--	5.5	--	--	.1	--	--	--	48	0	.8	157	7.2
July 1.....	1409	--	--	--	--	12	--	60	--	--	4.5	--	--	.1	--	--	--	40	0	.8	138	6.9
Aug. 4.....	655	--	--	--	--	12	--	68	--	--	4.0	--	--	.1	--	--	--	42	0	.8	140	7.4
Sept. 3.....	260	9.6	--	14	2.9	14	1.6	70	--	12	4.9	--	1.1	.1	94	.13	--	47	0	.9	158	7.8

## MISCELLANEOUS ANALYSES OF STREAMS IN BUENA VISTA LAKE BASIN

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
11-1910. KERN RIVER BELOW ISABELLA DAM, CALIF.																						
Oct. 4, 1963.....	1510	--		--	--	7.8	--	52		--	3.2		--	0.1	--	--		36	0	0.6	112	6.9
Jan. 2, 1964.....	2.7			--	--	12	--	69		--	5.0		--	.2				46	0	.8	148	7.2
May 1.....	7.5	7.4		16	2.2	14	1.8	76		10	5.5	0.0	1.0	.1	98	0.13		49	0	.9	161	7.7
July 10.....	798	--		--	--	11	--	60		--	3.0		--	.1	--	--		40	0	.8	130	7.9
Sept. 11.....	4.1	12		10	4.6	13	2.5	68		9.0	5.1		.6	.1	94	.13		44	0	.9	151	7.9

## TULARE LAKE BASIN

11-2032. TULE RIVER NEAR SPRINGVILLE, CALIF.

LOCATION.--At gaging station 15 feet upstream from highway bridge, 2 miles southwest of Springville, Tulare County, and 4 miles downstream from North Fork.

DRAINAGE AREA.--225 square miles.

RECORDS AVAILABLE.--Chemical analyses: November 1963 to September 1964.

Chemical analyses, in parts per million, November 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Nov. 4, 1963.....	27	--	--	--	--	22	--	254	0	--	14	--	--	0.1	--	--	--	176	0	0.7	424	8.2
Dec. 2.....	61	--	--	--	--	16	--	174	6	--	10	--	--	.1	--	--	--	131	0	.6	312	8.5
Jan. 6, 1964.....	41	--	--	--	--	19	--	210	8	--	12	--	--	.1	--	--	--	158	0	.7	371	8.6
Feb. 14.....	43	--	--	--	--	18	--	206	0	--	10	--	--	.0	--	--	--	145	0	.6	348	7.5
Mar. 5.....	48	--	--	--	--	18	--	190	8	--	10	--	--	.1	--	--	--	145	0	.6	342	8.5
Apr. 8.....	128	--	--	--	--	11	--	117	0	--	2.5	--	--	.1	--	--	--	79	0	.5	202	7.8
May 4.....	117	23	--	26	2.7	8.8	1.6	103	2	4.0	2.0	0.1	4.1	.2	A 126	0.17	--	76	0	.4	183	8.4
June 1.....	125	--	--	--	--	8.8	--	94	0	--	3.5	--	--	.0	--	--	--	67	0	.5	164	7.6
July 6.....	19	--	--	--	--	17	--	186	0	--	8.5	--	--	.1	200	.27	--	135	0	.6	323	7.7
Aug. 5.....	5.5	--	--	--	--	22	--	219	1	--	12	--	--	.2	--	--	--	150	0	.8	372	8.3
Sept. 9.....	2.0	32	--	48	12	28	4.5	248	2	6.0	14	--	1.1	.2	271	.37	--	169	0	.9	429	8.3

A Calculated from sum of determined constituents.

## TULARE LAKE BASIN--Continued

11-2049. TULE RIVER BELOW SUCCESS DAM, CALIF.

LOCATION.--At gaging station 1,000 feet downstream from Success Dam, Tulare County, and 5 miles east of Porterville.

DRAINAGE AREA.--393 square miles.

RECORDS AVAILABLE.--Chemical analyses: December 1961 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 8, 1963.....	39	--	--	--	--	12	--	141	0	--	7.2	--	--	0.0	157	0.21	--	98	0	0.5	244	7.2
Nov. 4.....	436	--	--	--	--	13	--	156	0	--	7.2	--	--	.1	--	--	109	0	.5	270	7.8	
Dec. 2.....	79	--	--	--	--	16	--	162	0	--	9.8	--	--	.1	182	.25	114	0	.7	285	8.0	
Jan. 6, 1964.....	51	--	--	--	--	17	--	162	7	--	11	--	--	.1	196	.27	123	0	.7	305	8.6	
Apr. 9.....	83	--	--	--	--	15	--	156	0	--	7.5	--	--	.1	--	--	108	0	.6	273	8.1	
May 4.....	48	23	--	31	5.5	13	2.2	136	3	6.0	2.5	0.2	3.1	.1	163	.22	100	0	.6	247	8.4	
June 1.....	110	--	--	--	--	12	--	130	0	--	6.0	--	--	.1	142	.19	91	0	.5	227	7.5	
July 6.....	154	--	--	--	--	11	--	119	0	--	5.0	--	--	.2	133	.18	83	0	.5	208	7.3	
Aug. 5.....	109	--	--	--	--	11	--	121	2	--	4.0	--	--	.1	--	--	86	0	.5	212	8.4	
Sept. 9.....	45	22	--	30	4.1	12	2.6	135	0	5.0	5.2	--	1.2	.1	A 149	.20	92	0	.5	235	8.0	

A Calculated from sum of determined constituents.

## TULARE LAKE BASIN--Continued

## 11-2080. MARBLE FORK KAWEAH RIVER AT POTWISHA CAMP, CALIF.

LOCATION.--Temperature recorder at gaging station, 0.1 mile north of Potwisha Camp, Tulare County, and 0.3 mile upstream from confluence with Middle Fork Kaweah River.

DRAINAGE AREA.--51.4 square miles.

RECORDS AVAILABLE.--Water temperatures: January 1962 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 74°F July 30; minimum, 37°F Apr. 24, May 6.

EXTREMES, 1962-64.--Water temperatures: Maximum, 74°F July 30, 1964; minimum (1963-64), 37°F Apr. 24, May 6, 1964.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum ....	67	67	66	67	65	63	62	63	63	62	61	59	58	58	59	60	59	59	59	60	61	60	60	60	59	60	60	59	58	58	58	61	
Minimum ....	65	64	65	65	62	61	61	61	61	60	59	56	57	57	57	59	57	58	58	59	60	59	59	58	58	58	58	58	58	58	56	59	
November																																	
Maximum ....	57	56	57	57	56	55	50	51	50	50	51	52	52	53	52	47	45	45	46	46	45	44	44	45	45	44	44	44	45	44	—	49	
Minimum ....	56	55	56	55	55	49	48	48	48	49	50	50	51	51	47	44	43	45	45	45	44	42	43	44	44	44	43	43	44	44	—	48	
December																																	
Maximum ....	44	43	43	43	42	41	41	42	43	42	41	41	41	41	41	41	41	42	42	42	43	43	42	42	42	42	42	42	43	45	45	42	
Minimum ....	43	43	43	42	41	41	41	41	42	41	40	41	41	41	41	41	41	41	41	42	42	42	41	41	41	41	41	42	42	42	43	45	42
January																																	
Maximum ....	45	46	45	44	43	43	43	43	43	43	43	43	42	42	42	42	42	42	44	45	45	47	46	44	45	45	46	46	46	48	48	44	
Minimum ....	45	45	44	43	43	43	42	43	42	42	42	42	42	42	42	42	42	42	43	43	45	43	43	44	44	44	45	44	44	45	46	44	43
February																																	
Maximum ....	47	48	46	46	46	46	46	46	46	46	46	46	45	45	45	45	45	45	45	45	46	46	46	46	46	47	45	45	44	44	—	46	
Minimum ....	46	46	45	45	45	45	44	44	44	44	44	45	43	43	42	43	43	42	43	43	43	43	44	43	44	44	44	42	43	42	43	—	44
March																																	
Maximum ....	43	44	43	43	43	43	42	42	45	46	45	45	44	46	46	48	49	50	48	47	46	44	43	43	46	45	47	47	47	47	45	45	
Minimum ....	42	42	40	40	41	41	40	40	40	42	43	44	42	42	44	44	45	46	44	44	44	41	41	41	42	42	41	40	42	42	43	42	
April																																	
Maximum ....	43	41	42	47	44	42	46	47	48	47	48	48	49	49	49	48	46	44	44	43	47	48	46	39	43	47	50	49	51	49	—	46	
Minimum ....	41	40	39	41	41	40	40	41	43	42	43	43	43	44	44	44	44	43	39	39	41	44	39	37	38	41	45	47	47	46	—	42	
May																																	
Maximum ....	46	43	44	43	41	40	43	47	49	51	53	54	53	53	54	51	52	55	55	55	55	54	54	54	53	52	49	50	51	55	58	51	
Minimum ....	43	41	40	40	40	37	39	41	43	46	48	47	47	46	47	47	47	47	48	49	48	48	49	50	50	49	47	45	48	49	51	46	
June																																	
Maximum ....	57	55	57	56	58	57	56	51	49	48	54	57	59	61	60	56	55	55	55	58	59	62	63	64	64	64	62	61	62	63	—	58	
Minimum ....	51	51	51	53	53	54	51	49	47	47	48	51	54	56	56	54	53	52	51	53	54	57	58	59	59	59	58	57	57	57	—	54	
July																																	
Maximum ....	63	63	63	62	63	65	66	66	66	66	66	68	71	71	70	69	70	71	72	72	70	70	70	72	72	73	72	72	72	74	72	69	
Minimum ....	58	58	57	57	57	58	60	61	60	61	64	65	66	64	64	65	66	67	66	66	66	66	67	67	67	69	70	67	67	68	69	64	
August																																	
Maximum ....	70	70	70	70	72	73	72	72	72	73	72	71	71	72	70	70	70	71	71	71	71	72	72	71	72	71	69	68	68	68	66	71	
Minimum ....	67	66	67	67	68	70	69	68	69	70	69	68	68	67	67	66	66	67	67	68	67	68	67	68	67	68	67	65	64	64	63	67	
September																																	
Maximum ....	63	61	63	63	66	65	65	64	64	64	64	64	66	66	65	64	64	64	64	64	63	62	63	63	63	64	64	63	62	62	—	64	
Minimum ....	61	58	60	60	62	61	60	60	59	60	59	60	61	62	63	62	61	62	61	61	61	60	60	60	60	61	61	61	60	59	59	—	61



## TULARE LAKE BASIN--Continued

11-2099. KAWEAH RIVER AT THREE RIVERS, CALIF.

LOCATION.--At gaging station opposite schoolhouse in Three Rivers, Tulare County, and 0.25 mile downstream from North Fork Kaweah River.

DRAINAGE AREA.--418 square miles.

RECORDS AVAILABLE.--Chemical analyses: November 1963 to September 1964.

Chemical analyses, in parts per million, November 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Nov. 4, 1963.....	81	--	--	--	--	5.2	--	63	--	--	5.8	--	--	0.0	--	--	--	47	0	0.3	121	7.8
Dec. 5.....	158	--	--	--	--	4.2	--	46	--	--	2.5	--	--	.1	--	--	--	35	0	.3	91	7.1
Jan. 6, 1964.....	98	--	--	--	--	6.1	--	54	--	--	4.8	--	--	.0	--	--	--	40	0	.4	109	8.2
Feb. 4.....	141	--	--	--	--	5.7	--	49	--	--	4.6	--	--	.0	--	--	--	38	0	.4	100	7.1
Mar. 13.....	168	--	--	--	--	6.0	--	52	--	--	4.0	--	--	.0	--	--	--	40	0	.4	103	7.5
Apr. 6.....	325	--	--	--	--	4.8	--	42	--	--	2.5	--	--	.0	--	--	--	32	0	.4	84	7.7
May 11.....	790	12	--	6.0	1.0	2.7	0.8	25	--	1.0	1.0	0.1	4.2	.1	40	0.05	--	19	0	.3	50	7.5
June 10.....	645	--	--	--	--	2.4	--	21	--	--	.5	--	--	.0	--	--	--	15	0	.3	41	6.9
July 6.....	199	--	--	--	--	3.8	--	33	--	--	1.0	--	--	.0	55	.07	--	24	0	.3	66	7.3
Aug. 10.....	63	--	--	--	--	5.5	--	52	--	--	4.0	--	--	.0	--	--	--	38	0	.4	101	8.0
Sept. 14.....	42	12	--	17	.9	7.3	1.9	60	--	1.0	6.8	--	.0	.1	85	.12	--	46	0	.5	131	7.8

## TULARE LAKE BASIN--Continued

11-2109.5. KAWEAH RIVER BELOW TERMINUS DAM, CALIF.

LOCATION.--At gaging station 0.6 mile downstream from Terminus Dam, Tulare County, and 2.2 miles (airline) northeast of Lemoncove.

DRAINAGE AREA.--561 square miles.

RECORDS AVAILABLE.--Chemical analyses: December 1961 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 7, 1963.....	49	--	--	--	--	4.0	--	53	--	--	3.2	--	--	0.1	72	0.10	--	40	0	0.3	104	6.9
Nov. 4.....	60	--	--	--	--	4.4	--	59	--	--	5.2	--	--	.0	--	--	--	45	0	.3	117	7.2
Dec. 5.....	167	--	--	--	--	4.6	--	47	--	--	3.0	--	--	.0	--	--	--	37	0	.3	98	7.1
Jan. 6, 1964.....	96	--	--	--	--	5.5	--	55	--	--	3.5	--	--	.0	75	.10	--	40	0	.4	105	8.1
Feb. 4.....	140	--	--	--	--	5.7	--	57	--	--	5.2	--	--	.0	--	--	--	45	0	.4	113	7.0
Mar. 13.....	156	--	--	--	--	5.8	--	56	--	--	5.0	--	--	.0	--	--	--	44	0	.4	111	7.5
Apr. 6.....	279	--	--	--	--	5.1	--	43	--	--	1.5	--	--	.0	69	.09	--	32	0	.4	87	7.3
May 11.....	399	13	--	8.0	0.7	2.9	1.0	33	--	1.0	1.0	0.0	0.6	.1	47	.06	--	23	0	.3	62	7.5
June 10.....	743	--	--	--	--	2.2	--	20	--	--	1.0	--	--	.0	--	--	--	15	0	.3	41	7.0
July 6.....	915	--	--	--	--	2.6	--	25	--	--	1.0	--	--	.0	41	.06	--	21	1	.2	54	6.7
Aug. 10.....	34	--	--	--	--	3.7	--	41	--	--	2.0	--	--	.0	52	.07	--	32	0	.3	82	7.0
Sept. 14.....	8.6	6.4	--	12	2.4	5.2	2.1	53	--	3.0	3.6	--	.8	.3	69	.09	--	40	0	.4	108	7.5

## TULARE LAKE BASIN--Continued

11-2200. BIG CREEK ABOVE PINE FLAT RESERVOIR, CALIF.

LOCATION.--At gaging station 2.4 miles upstream from mouth, and 2.7 miles northeast of Trimmer.

DRAINAGE AREA.--69.9 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1960 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964																						
Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 1, 1963.....	2.6	--		--	--	10	--	53		--	11		--	0.0	--	--		38	0	0.7	132	7.0
Nov. 9.....	20	--		--	--	7.1	--	48		--	8.5		--	.0	--	--		33	0	.5	111	7.5
Dec. 9.....	18	--		--	--	7.5	--	42		--	4.5		--	.1	--	--		29	0	.6	97	7.0
Jan. 13, 1964.....	11	--		--	--	8.7	--	47		--	5.0		--	.0	--	--		31	0	.7	104	8.1
Feb. 3.....	12	--		--	--	7.3	--	39		--	6.0		--	.0	--	--		26	0	.6	88	7.3
Mar. 9.....	17	--		--	--	8.1	--	41		--	6.0		--	.0	--	--		28	0	.7	95	7.4
Apr. 13.....	46	--		--	--	6.5	--	33		--	3.5		--	.0	--	--		21	0	.6	69	7.0
May 11.....	46	20		5.2	1.0	5.0	1.2	30		1.0	1.5	0.1	1.5	.1	58	0.08		17	0	.5	60	7.7
June 8.....	18	--		--	--	7.5	--	42		--	4.5		--	.0	--	--		26	0	.6	89	7.3
July 13.....	3.2	--		--	--	9.8	--	46		--	7.0		--	.0	--	--		31	0	.8	111	7.7
Sept. 14.....	.5	22		16	1.2	13	2.7	57		4.0	18		.0	.3	124	.17		45	0	.8	164	7.7

## TULARE LAKE BASIN--Continued

11-2227. KINGS RIVER AT PEOPLES WEIR, NEAR KINGSBURG, CALIF.

LOCATION.--Approximately 0.2 mile downstream from gaging station located on diversion weir, 2 miles south of Kingsburg, Fresno County, and approximately 12 miles northeast of Hanford.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

REMARKS.--Records of discharge for water year October 1963 to September 1964 furnished by Kings River Water Association.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 7, 1963.....	732	---	---	---	---	3.2	---	22	0	---	2.9	---	---	0.0	---	---	---	16	0	0.4	48	7.3
Nov. 4.....	71	---	---	---	---	6.1	---	60	0	---	5.6	---	---	0	---	---	---	45	0	.4	120	7.8
Dec. 9.....	25	---	---	---	---	4.3	---	38	0	---	2.0	---	---	.1	---	---	---	30	0	.3	81	7.3
Jan. 13, 1964.....	259	---	---	---	---	4.0	---	28	0	---	2.5	---	---	0	---	---	---	22	0	.4	64	7.9
Feb. 10.....	352	---	---	---	---	4.1	---	26	0	---	3.0	---	---	0	---	---	---	21	0	.4	61	7.6
Mar. 9.....	295	---	---	---	---	3.8	---	26	0	---	2.0	---	---	0	---	---	---	20	0	.4	59	7.5
Apr. 13.....	61	---	---	---	---	13	---	93	2	---	6.8	---	---	0	---	---	---	70	0	.7	194	8.4
May 11.....	128	13	---	8.4	4.1	6.6	1.5	52	0	7.0	1.5	0.1	2.4	0	71	0.10	---	38	0	.5	108	8.0
June 8.....	696	---	---	---	---	2.6	---	19	0	---	1.5	---	---	0	---	---	---	15	0	.3	43	7.6
July 13.....	1378	---	---	---	---	2.7	---	15	0	---	1.5	---	---	0	---	---	---	11	0	.4	34	7.4
Aug. 10.....	1044	---	---	---	---	2.3	---	16	0	---	1.0	---	---	0	---	---	---	12	0	.3	37	7.9
Sept. 14.....	1147	7.0	---	4.8	.5	2.4	.7	18	0	3.0	.8	---	.1	0	28	.04	---	14	0	.3	40	7.1

MISCELLANEOUS ANALYSES OF STREAMS IN TULARE LAKE BASIN

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
11-2185. KINGS RIVER BELOW NORTH FORK, CALIF.																						
Oct. 1, 1963.....	893	--	--	--	--	2.8	--	20	--	--	2.0	--	--	0.0	--	--	--	15	0	0.3	47	6.6
Jan. 13, 1964.....	401	--	--	--	--	2.6	--	23	--	--	2.0	--	--	.0	--	--	--	17	0	.3	55	7.7
May 11.....	2440	8.8	--	2.8	0.2	2.4	0.7	15	--	0.0	.5	0.0	1.0	.1	26	0.04	--	8	0	.4	29	7.4
July 13.....	1230	--	--	--	--	2.3	--	12	--	--	.5	--	--	.0	--	--	--	10	0	.3	31	6.9
Sept. 14.....	720	13	--	4.8	1.2	3.8	.7	21	--	3.0	2.0	--	.1	.2	45	.06	--	17	0	.4	55	7.6
11-2215. KINGS RIVER BELOW PINE FLAT DAM, CALIF.																						
Oct. 1, 1963.....	856	--	--	--	--	1.2	--	9	--	--	0.9	--	--	0.0	--	--	--	8	1	0.2	23	6.6
Jan. 13, 1964.....	638	--	--	--	--	1.1	--	14	--	--	.5	--	--	.0	--	--	--	12	1	.1	33	7.5
May 11.....	1570	7.4	--	4.8	0.2	2.3	0.7	19	--	3.0	.5	0.0	0.2	.0	30	0.04	--	13	0	.3	38	7.5
July 13.....	4640	--	--	--	--	1.8	--	11	--	--	.5	--	--	.0	--	--	--	8	0	.3	25	7.3
Sept. 14.....	1860	6.2	--	3.2	1.0	2.0	.1	15	--	1.0	.8	--	.1	.1	28	.04	--	12	0	.3	34	7.0

SAN JOAQUIN RIVER BASIN

11-2370. BIG CREEK BELOW HUNTINGTON LAKE, CALIF.

LOCATION.--Temperature recorder at gaging station 1,200 feet upstream from Grouse Creek, and 1 mile downstream from Huntington Lake, Fresno County.

DRAINAGE AREA.--80.0 square miles.

RECORDS AVAILABLE.--Water temperatures: July 1961 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 61°F July 26 and on several days during August.

EXTREMES, 1961-64.--Water temperatures: Maximum, 62°F Aug. 20-25, 1961, July 22-24, 1963; minimum (1961-63), 33°F on several days during January to March 1962.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum ....	56	56	55	55	54	53	54	53	54	53	52	51	52	52	52	51	52	53	52	52	52	52	52	52	53	52	52	53	52	50	50	53
Minimum ....	53	53	52	53	50	50	50	51	52	50	47	47	48	48	49	50	49	49	50	50	49	49	51	48	50	50	48	49	49	50	47	50
November																																
Maximum ....	50	50	50	49	48	47	46	47	47	47	47	48	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Minimum ....	47	47	48	47	47	42	43	45	44	44	45	45	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
December																																
Maximum ....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Minimum ....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
January																																
Maximum ....	---	---	35	35	35	35	35	35	35	34	34	34	34	34	---	---	---	---	---	---	---	33	34	34	35	35	35	35	35	35	35	---
Minimum ....	---	---	34	34	33	34	35	33	33	33	32	33	33	33	---	---	---	---	---	---	---	33	33	34	33	34	34	34	34	35	34	---
February																																
Maximum ....	35	35	35	36	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Minimum ....	34	34	33	34	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
March																																
Maximum ....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Minimum ....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
April																																
Maximum ....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	42	42	41	39	42	45	47	44	46	47	---
Minimum ....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	37	38	36	36	37	38	39	40	40	40	---
May																																
Maximum ....	42	39	38	38	38	38	41	44	45	46	48	49	49	49	50	49	49	51	52	52	49	51	50	50	48	48	44	49	51	52	53	47
Minimum ....	37	37	37	36	35	34	37	37	38	39	40	40	41	40	41	41	41	42	42	43	42	43	42	43	44	43	44	40	41	42	43	40
June																																
Maximum ....	53	52	53	51	54	50	47	46	44	45	51	53	54	55	51	51	53	53	53	55	55	56	57	56	55	55	55	55	55	55	---	53
Minimum ....	44	44	45	46	46	46	45	41	40	42	42	44	45	46	47	46	46	45	45	46	47	48	48	49	49	49	48	48	48	48	---	46
July																																
Maximum ....	56	56	56	56	56	57	57	57	57	58	58	59	59	58	58	59	59	59	59	59	59	59	59	60	60	61	57	60	60	60	59	58
Minimum ....	49	49	49	49	49	50	50	51	50	50	52	53	52	52	51	52	53	53	52	52	53	53	53	54	55	55	55	55	54	54	55	54
August																																
Maximum ....	59	59	60	60	61	60	61	61	61	60	61	61	61	61	59	60	60	58	60	60	60	60	60	60	60	60	60	60	59	60	60	56
Minimum ....	54	53	54	54	55	56	56	54	55	57	56	55	55	55	55	54	54	55	55	55	55	55	55	55	55	55	55	54	54	54	53	55
September																																
Maximum ....	56	58	59	60	60	59	59	59	58	60	59	60	60	58	58	58	57	57	57	57	56	57	57	56	57	57	56	55	55	56	---	58
Minimum ....	52	53	54	55	55	54	54	54	53	55	55	55	55	54	53	54	54	53	53	53	52	52	53	52	53	53	53	51	51	52	---	53

SAN JOAQUIN RIVER BASIN--Continued

11-2465. WILLOW CREEK AT MOUTH, NEAR AUBERRY, CALIF.

LOCATION.--Temperature recorder at gaging station 40 feet upstream from bridge, 0.4 mile upstream from mouth, 1.3 miles downstream from Whiskey Creek, and 4.3 miles northeast of Auberry, Fresno County.

DRAINAGE AREA.--130 square miles.

RECORDS AVAILABLE.--Water temperatures: October 1960 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Minimum, 38°F Jan. 6, 13, 24.

EXTREMES, 1960-64.--Water temperatures: Maximum (1960-63), 88°F June 23, 24, 26, 27, 1961; minimum, 36°F Jan. 3, 4, 1961.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum ....	73	73	73	70	69	68	68	65	68	67	63	59	60	61	60	60	60	60	63	61	63	62	61	61	61	61	60	60	61	62	60	64	
Minimum ....	68	66	66	67	64	63	62	62	62	62	59	55	56	57	58	59	58	58	60	60	60	60	60	58	58	58	57	58	58	59	56	60	
November																																	
Maximum ....	57	56	55	55	55	55	49	51	52	51	51	53	54	55	55	49	47	47	47	49	48	46	46	48	48	47	47	47	48	47	--	50	
Minimum ....	54	54	55	54	54	49	47	48	50	49	49	50	52	53	49	46	45	46	45	46	46	45	45	46	47	45	46	45	45	--	48		
December																																	
Maximum ....	47	46	46	45	45	44	44	45	46	45	43	42	41	41	42	42	42	43	43	44	43	42	42	41	41	42	42	43	44	44	43	43	
Minimum ....	45	44	43	44	43	43	44	43	45	42	41	40	40	39	40	40	40	41	41	42	42	42	41	39	39	39	40	40	40	42	43	42	42
January																																	
Maximum ....	44	44	44	42	41	41	42	43	43	42	41	41	41	41	41	41	42	43	44	45	45	45	41	40	41	43	43	43	43	43	44	42	
Minimum ....	42	44	42	40	40	38	40	42	41	39	40	40	38	39	40	39	40	42	43	43	44	41	39	38	39	40	40	40	40	43	42	41	
February																																	
Maximum ....	43	43	43	43	44	44	44	44	44	45	45	43	43	42	42	43	44	45	46	46	46	46	46	46	46	45	45	45	45	--	--	44	
Minimum ....	42	42	40	40	41	42	41	41	41	41	42	40	40	39	39	40	41	41	42	43	43	43	43	43	43	41	41	41	44	--	--	41	
March																																	
Maximum ....	44	44	45	46	46	46	44	44	45	47	47	47	47	48	50	51	52	52	52	50	51	49	46	43	46	48	50	51	52	53	52	48	
Minimum ....	44	43	41	41	43	43	43	40	41	43	43	45	42	43	45	45	46	47	47	48	49	44	42	41	39	43	45	47	47	48	50	44	
April																																	
Maximum ....	50	47	47	49	49	48	50	50	55	55	56	56	57	58	59	58	56	53	51	50	53	57	55	49	51	54	58	59	60	58	--	54	
Minimum ....	47	44	43	43	45	43	43	47	48	49	50	50	51	52	52	52	51	50	48	48	50	51	49	47	44	49	51	54	54	53	--	49	
May																																	
Maximum ....	54	51	48	47	47	46	51	53	56	58	61	62	63	62	63	63	60	63	66	65	62	66	63	65	62	64	61	59	62	63	66	59	
Minimum ....	48	46	45	46	46	43	44	46	49	51	53	55	56	55	56	57	57	55	57	59	58	57	57	59	59	58	57	52	53	55	57	53	
June																																	
Maximum ....	65	65	63	61	64	62	61	58	52	51	58	63	65	67	65	63	64	67	63	66	66	68	70	73	73	73	72	69	70	72	--	65	
Minimum ....	59	58	56	58	57	57	57	52	49	48	48	53	57	59	60	60	60	57	56	59	59	62	63	66	66	67	66	64	65	66	--	59	
July																																	
Maximum ....	72	71	71	71	71	73	74	75	75	76	77	79	80	80	78	79	81	81	80	80	80	80	80	82	83	84	81	84	84	85	83	78	
Minimum ....	66	66	65	65	65	66	67	68	68	68	70	72	72	71	70	71	71	72	71	70	70	70	70	71	73	75	75	74	74	74	73	70	
August																																	
Maximum ....	81	81	82	83	84	83	85	86	84	86	85	85	85	84	82	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Minimum ....	71	70	71	71	73	74	75	74	73	75	74	72	72	72	72	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
September																																	
Maximum ....	--	72	73	74	75	74	74	74	74	76	78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--				

SAN JOAQUIN RIVER BASIN--Continued

11-2470. SAN JOAQUIN RIVER BELOW KERCKHOFF POWERHOUSE, CALIF.

LOCATION.--Temperature recorder at gaging station 1.1 miles downstream from Kerckhoff powerhouse, Fresno County, 1.4 miles downstream from Big Sandy Creek, and 3.8 miles southeast of Prather.

DRAINAGE AREA.--1,480 square miles.

RECORDS AVAILABLE.--Water temperatures: November 1960 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 70°F Aug. 14; minimum, 40°F Mar. 8, 9.

EXTREMES, 1960-64.--Water temperatures: Maximum, 73°F Aug. 22, 1961; minimum, 38°F several days in January 1961.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum .....	63	64	64	64	64	63	63	62	62	62	62	62	62	62	61	61	61	61	61	60	59	59	59	60	60	59	59	59	60	59	59	61
Minimum .....	61	63	64	64	63	63	62	62	62	62	62	61	61	61	61	61	61	61	59	59	59	59	59	59	59	59	59	59	59	59	58	61
November																																
Maximum .....	59	59	59	58	58	58	58	58	57	57	57	56	57	57	57	57	56	56	56	55	55	55	55	55	54	54	54	54	53	--	56	
Minimum .....	58	58	58	58	58	58	57	57	56	56	56	56	57	57	57	56	56	56	55	55	55	55	55	54	53	53	54	53	53	--	56	
December																																
Maximum .....	53	53	53	53	53	53	51	51	51	51	51	51	50	50	50	50	50	50	49	49	48	48	48	47	47	47	47	47	46	46	50	
Minimum .....	53	53	53	53	53	53	51	51	51	51	51	50	50	50	50	50	50	49	49	48	48	48	47	47	47	47	47	46	46	45	46	
January																																
Maximum .....	46	46	46	46	46	46	45	46	45	45	45	45	45	44	45	44	44	44	44	44	44	44	44	44	43	43	43	43	43	43	43	44
Minimum .....	45	45	46	46	46	45	45	45	45	45	45	45	44	44	44	43	43	44	44	44	44	44	44	43	43	43	42	43	42	43	42	44
February																																
Maximum .....	43	43	43	43	42	42	42	42	42	41	41	41	41	41	41	41	41	41	41	42	41	41	42	43	42	42	42	42	43	--	--	42
Minimum .....	42	42	42	42	42	42	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	--	--	41
March																																
Maximum .....	43	43	42	42	42	42	42	42	41	42	43	43	43	44	45	45	46	45	46	46	44	45	45	45	45	46	47	47	48	47	48	44
Minimum .....	42	42	41	41	41	41	41	40	40	41	42	42	42	42	43	44	44	44	44	44	44	45	45	45	45	45	45	45	45	46	47	43
April																																
Maximum .....	49	48	48	48	48	48	48	49	49	50	49	49	48	48	49	49	49	49	48	48	48	48	48	48	48	48	48	48	48	48	--	48
Minimum .....	47	48	47	47	48	48	47	47	47	48	48	48	47	47	47	48	48	48	48	48	47	48	48	48	47	48	48	48	47	48	--	48
May																																
Maximum .....	48	48	48	47	48	48	48	48	48	49	49	49	49	49	50	50	50	51	52	52	52	53	53	54	54	60	60	55	55	57	58	51
Minimum .....	47	47	47	47	47	48	48	47	48	48	48	48	49	49	50	50	50	51	51	52	52	52	53	53	53	55	54	54	55	55	55	50
June																																
Maximum .....	57	57	57	57	58	58	57	57	56	56	57	57	58	59	58	58	58	58	59	59	59	60	60	61	61	61	61	61	60	60	--	58
Minimum .....	55	55	55	55	56	56	56	56	56	56	56	56	56	56	56	57	57	57	57	57	57	58	58	58	58	58	58	59	59	--	57	
July																																
Maximum .....	60	60	60	60	60	60	60	60	60	60	60	60	60	61	61	61	61	62	62	62	61	61	61	61	61	62	62	62	62	63	61	
Minimum .....	60	60	60	60	60	60	60	60	60	60	60	60	60	60	61	61	62	62	61	61	61	61	61	61	61	61	62	62	62	62	63	61
August																																
Maximum .....	63	64	64	64	64	64	65	65	65	65	65	65	64	70	66	65	67	67	66	66	66	66	66	68	68	67	67	67	67	66	66	
Minimum .....	63	63	64	64	64	64	64	65	64	65	64	65	64	63	64	65	65	65	65	65	65	65	65	65	66	66	66	66	66	66	65	65
September																																
Maximum .....	65	65	66	66	66	66	66	66	66	66	66	66	66	66	66	65	66	66	65	65	65	65	65	65	65	65	65	65	65	--	65	
Minimum .....	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	--	65



SAN JOAQUIN RIVER BASIN--Continued

11-2540. SAN JOAQUIN RIVER NEAR MENDOTA, CALIF.

LOCATION.--Approximately 2.5 miles downstream from Mendota Dam, and 4 miles north of Mendota, Fresno County.

DRAINAGE AREA.--4,310 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

REMARKS.--No discharge records available.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Cal- cium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Po- tas- sium (K)	Bi- car- bon- ate (HCO <sub>3</sub> )	Car- bon- ate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluo- ride (F)	Ni- trate (NO <sub>3</sub> )	Bo- ron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		So- dium ad- sorp- tion ratio	Specific con- duct- ance (micro- mhos at 25°C)	pH
															Parts per million	Tons per acre- foot	Tons per day	Cal- cium, Mag- ne- sium	Non- car- bon- ate			
Oct. 8, 1963.....		--		--	--	57	--	129	0	--	75		--	0.2	--	--		139	33	2.1	595	8.2
Nov. 4.....		--		--	--	48	--	103	0	--	68		--	.1	--	--		113	31	2.0	482	8.1
Dec. 9.....		--		--	--	60	--	134	0	--	80		--	.3	--	--		130	20	2.3	559	8.1
Jan. 13, 1964.....		--		--	--	65	--	112	2	--	94		--	.2	--	--		144	49	2.4	624	8.4
Feb. 10.....		--		--	--	79	--	116	0	--	105		--	.3	--	--		158	63	2.7	717	8.1
Mar. 9.....		--		--	--	61	--	94	0	--	89		--	.2	--	--		151	74	2.2	603	7.9
Apr. 13.....		--		--	--	36	--	86	0	--	48		--	.1	--	--		111	40	1.5	397	8.0
May 11.....		12		30	16	57	1.8	106	0	51	83	0.0	1.6	.2	318	0.43		140	53	2.1	547	7.7
June 8.....		--		--	--	41	--	94	0	--	54		--	.2	--	--		106	29	1.7	404	8.1
July 13.....		--		--	--	64	--	116	0	--	95		--	.2	--	--		145	50	2.3	616	7.6
Aug. 10.....		--		--	--	53	--	83	0	--	82		--	.1	--	--		100	32	2.3	467	8.2
Sept. 14.....		16		33	16	82	3.4	121	0	57	124		.9	.3	407	.55		150	51	2.9	712	7.6

SAN JOAQUIN RIVER BASIN--Continued

11-2610. SALT SLOUGH NEAR LOS BANOS, CALIF.

LOCATION.--At gaging station at San Luis Ranch, 600 yards downstream from confluence with Mud Slough, and 7.0 miles north of Los Banos, Merced County.  
RECORDS AVAILABLE.--Chemical analyses: November 1958 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Cal- cium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Po- tas- sium (K)	Bi- car- bon- ate (HCO <sub>3</sub> )	Car- bon- ate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluo- ride (F)	Ni- trate (NO <sub>3</sub> )	Bo- ron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		So- dium ad- sorp- tion ratio	Specific con- duct- ance (micro- mhos at 25°C)	pH
															Parts per million	Tons per acre- foot	Tons per day	Cal- cium, Mag- ne- sium	Non- car- bon- ate			
Oct. 8, 1963.....	49	--	--	--	--	212	--	206		182	344		--	0.6	--	--		340	172	5.0	1770	8.2
Nov. 5.....	48	--	--	--	--	208	--	220		--	298		--	.8	--	--		326	146	5.0	1660	8.0
Dec. 3.....	123	--	--	--	--	234	--	228		341	275		--	1.9	--	--		384	197	5.2	1870	7.9
Jan. 7, 1964.....	120	--	--	--	--	338	--	260		350	370		--	2.7	1670	2.27		525	312	6.4	2500	8.1
Feb. 4.....	105	--	--	--	--	442	--	246		670	428		--	3.9	--	--		624	422	7.7	2980	8.0
Mar. 3.....	94	--	--	--	--	415	--	214		532	465		--	3.3	--	--		618	443	7.2	2850	8.2
Apr. 7.....	89	--	--	--	--	280	--	194		382	355		--	1.8	--	--		458	299	5.7	2110	7.9
May 5.....	137	16		48	24	115	4.4	148		122	148	0.1	2.4	.5	581	.79		220	99	3.4	991	7.6
June 4.....	120	--	--	--	--	180	--	166		196	220		--	.9	--	--		294	158	4.6	1390	8.1
July 7.....	69	--	--	--	--	140	--	166		125	180		--	.4	--	--		249	113	3.9	1120	7.6
Aug. 4.....	73	--	--	--	--	125	--	162		92	180		--	.4	--	--		226	93	3.6	1050	8.0
Sept. 1.....	110	22		46	23	119	4.2	151		92	184		3.3	.4	589	.80		211	87	3.6	1000	7.5

SAN JOAQUIN RIVER BASIN--Continued

11-2615. SAN JOAQUIN RIVER AT FREMONT FORD BRIDGE, CALIF.

LOCATION.--At gaging station 150 feet downstream from Fremont Ford Bridge, Merced County, 2.1 miles downstream from Salt Slough, 4.5 miles west of Stevenson, and 6.7 miles upstream from Merced River.

DRAINAGE AREA.--8,090 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses: July 1955 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 8, 1963.....	116	--	--	--	--	148	--	173	5	95	230	--	--	0.3	--	--	--	262	112	4.0	1250	8.4
Nov. 5.....	112	--	--	--	--	275	--	230	0	--	410	--	--	.9	--	--	--	422	233	5.8	2260	8.1
Dec. 3.....	144	--	--	--	--	250	--	230	0	302	318	--	--	1.3	--	--	--	392	203	5.5	1930	8.2
Jan. 7, 1964.....	258	--	--	--	--	218	--	238	0	274	237	--	--	1.2	1020	1.39	--	324	129	5.3	1630	7.9
Feb. 4.....	187	--	--	--	--	312	--	208	4	412	330	--	--	2.1	--	--	--	448	271	6.4	2160	8.3
Mar. 3.....	120	--	--	--	--	430	--	222	0	536	545	--	--	2.3	--	--	--	640	458	7.4	3070	8.1
Apr. 7.....	148	--	--	--	--	288	--	204	0	372	420	--	--	1.7	--	--	--	492	325	5.7	2320	7.8
May 5.....	182	16	--	62	34	164	4.4	174	0	154	235	0.2	2.9	.5	796	1.08	--	294	151	4.2	1360	7.6
June 9.....	169	--	--	--	--	166	--	192	0	156	269	--	--	.5	--	--	--	308	151	4.1	1470	7.8
July 7.....	113	--	--	--	--	186	--	186	0	153	280	--	--	.4	--	--	--	317	164	4.6	1490	8.0
Aug. 4.....	114	--	--	--	--	184	--	196	0	134	272	--	--	.4	--	--	--	310	149	4.5	1460	8.0
Sept. 1.....	134	22	--	67	32	174	8.4	192	0	132	278	--	3.7	.4	822	1.12	--	300	143	4.4	1400	7.8

SAN JOAQUIN RIVER BASIN--Continued

11-2725. MERCED RIVER NEAR STEVINSON, CALIF.

LOCATION.--At gaging station 5 miles upstream from mouth, and 6 miles northwest of Stevinson, Merced County.

DRAINAGE AREA.--1,274 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1952 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 8, 1963.....	209	--	--	--	--	20	--	104	0	--	13	--	--	0.0	--	--	--	64	0	1.1	224	7.9
Nov. 5.....	141	--	--	--	--	29	--	143	0	--	19	--	--	.0	--	--	--	92	0	1.3	314	8.0
Dec. 3.....	154	--	--	--	--	26	--	129	2	--	14	--	--	.1	--	--	--	86	0	1.2	288	8.3
Jan. 7, 1964.....	140	--	--	--	--	26	--	126	4	--	18	--	--	.0	--	--	--	86	0	1.2	297	8.5
Feb. 4.....	147	--	--	--	--	30	--	126	0	--	16	--	--	.1	--	--	--	83	0	1.4	281	8.2
Mar. 3.....	98	--	--	--	--	34	--	138	1	--	22	--	--	.1	--	--	--	91	0	1.6	330	8.3
Apr. 7.....	114	--	--	--	--	25	--	116	0	--	12	--	--	.0	--	--	--	72	0	1.3	248	8.1
May 5.....	141	23	--	18	6.6	23	2.0	108	0	10	14	0.1	5.8	.0	A 156	0.21	--	72	0	1.2	242	7.9
June 9.....	177	--	--	--	--	22	--	102	0	--	14	--	--	.0	--	--	--	66	0	1.2	231	8.2
July 7.....	82	--	--	--	--	31	--	123	0	--	10	--	--	.1	--	--	--	79	0	1.5	297	8.0
Aug. 4.....	73	--	--	--	--	34	--	130	0	--	25	--	--	.0	--	--	--	83	0	1.6	316	8.0
Sept. 1.....	171	22	--	15	4.5	16	2.7	90	0	7.0	7.1	--	3.6	.0	124	.17	--	56	0	.9	189	7.6

A Calculated from sum of determined constituents.

SAN JOAQUIN RIVER BASIN--Continued

11-2745.5. SAN JOAQUIN RIVER NEAR CROWS LANDING, CALIF.

LOCATION.--At gaging station at Crows Landing Bridge, 4.2 miles northeast of Crows Landing, Stanislaus County, and 6.4 miles southeast of Patterson.

RECORDS AVAILABLE.--Chemical analyses: January 1962 to September 1964.

REMARKS.--No discharge records available.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 8, 1963.....		--		--	--	70	--	146	0	--	92		--	0.1	370	0.50		141	21	2.6	629	7.9
Nov. 5.....		--		--	--	154	--	196	0	--	210		--	.4	--	--		266	105	4.1	1300	8.1
Dec. 3.....		--		--	--	158	--	206	0	--	190		--	.8	777	1.06		264	95	4.2	1260	8.2
Jan. 7, 1964.....		--		--	--	158	--	232	0	--	203		--	.8	887	1.21		286	96	4.1	1400	8.2
Feb. 4.....		--		--	--	210	--	208	0	--	228		--	1.1	1000	1.36		320	149	5.1	1590	8.1
Mar. 3.....		--		--	--	280	--	206	4	328	325		--	1.3	--	--		408	233	6.0	2000	8.3
Apr. 7.....		--		--	--	186	--	194	0	--	300		--	.9	1090	1.48		358	199	4.3	1720	8.2
May 5.....		20		46	24	122	3.4	164	0	114	150	0.1	3.4	.4	582	.79		214	80	3.6	994	7.6
June 9.....		--		--	--	155	--	162	4	--	206		--	.4	722	.98		256	117	4.2	1220	8.3
July 7.....		--		--	--	164	--	181	5	--	231		--	.4	853	1.16		283	126	4.2	1320	8.5
Aug. 4.....		--		--	--	147	--	188	0	--	212		--	.3	--	--		264	110	3.9	1260	7.9
Sept. 1.....		25		46	22	110	3.7	174	0	79	154		4.9	.3	564	.77		205	62	3.3	947	7.8

SAN JOAQUIN RIVER BASIN--Continued

11-2745.7. SAN JOAQUIN RIVER NEAR PATTERSON, CALIF.

LOCATION.--At gaging station at Patterson Bridge, 3.3 miles northeast of Patterson, Stanislaus County, and 7.2 miles north of Crows Landing.  
RECORDS AVAILABLE.--Chemical analyses: January 1962 to September 1964.  
REMARKS.--No discharge records available.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Cal- cium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Po- tas- sium (K)	Bi- car- bon- ate (HCO <sub>3</sub> )	Car- bon- ate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluo- ride (F)	Ni- trate (NO <sub>3</sub> )	Bo- ron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		So- dium ad- sorp- tion ratio	Specific con- duct- ance (micro- mhos at 25°C)	pH
															Parts per million	Tons per acre- foot	Tons per day	Cal- cium, Mag- ne- sium	Non- car- bon- ate			
Oct. 8, 1963.....		--		--	--	61	--	136	0	--	81		--	0.1	332	0.45		134	22	2.3	578	7.9
Nov. 5.....		--		--	--	168	--	204	0	--	228		--	.5	--	--		280	113	4.4	1390	7.9
Dec. 3.....		--		--	--	164	--	196	6	--	187		--	.8	762	1.04		260	89	4.4	1260	8.3
Jan. 7, 1964.....		--		--	--	170	--	222	4	--	189		--	.8	837	1.14		280	91	4.4	1350	8.5
Feb. 4.....		--		--	--	232	--	212	0	--	240		--	1.2	1020	1.39		324	150	5.6	1620	8.0
Mar. 3.....		--		--	--	276	--	214	0	314	325		--	1.1	1240	1.69		402	227	6.0	1990	8.1
Apr. 7.....		--		--	--	186	--	184	0	--	242		--	.7	912	1.24		302	151	4.7	1450	7.8
May 5.....	20			51	27	144	3.4	180	0	128	175	0.1	4.3	.4	658	.89		236	88	4.1	1140	7.9
June 9.....		--		--	--	136	--	172	0	--	174		--	.3	655	.89		232	91	3.9	1100	8.1
July 7.....		--		--	--	169	--	190	0	--	238		--	.4	795	1.08		275	119	4.4	1320	8.0
Aug. 4.....		--		--	--	149	--	194	0	--	204		--	.3	--	--		256	97	4.1	1240	8.1
Sept. 1.....	24			52	26	136	3.7	198	0	111	185		5.0	.3	650	.88		236	74	3.9	1110	8.0

SAN JOAQUIN RIVER BASIN--Continued

11-2747. SAN JOAQUIN RIVER NEAR GRAYSON, CALIF.

LOCATION.--At gaging station at Laird Slough Bridge, 1.8 miles east of Grayson, Stanislaus County, 5 miles upstream from confluence with Tuolumne River, and 14 miles southwest of Modesto.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

REMARKS.--Records of discharge for water year October 1963 to September 1964 furnished by Public Utilities Commission, City and County of San Francisco. Flow is San Joaquin River diversion into Laird Slough which returns to San Joaquin River main channel 2.1 miles downstream.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (microhmhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 12, 1963.....	1020	--	--	--	--	91	--	154	0	--	115	--	--	0.0	--	--	--	170	44	3.0	764	7.6
Nov. 9.....	555	--	--	--	--	164	--	224	0	--	231	--	--	.5	--	--	--	298	113	4.1	1470	7.9
Dec. 9.....	765	--	--	--	--	182	--	226	0	--	225	--	--	.7	--	--	--	304	119	4.5	1460	8.0
Jan. 9, 1964.....	785	--	--	--	--	168	--	244	0	--	186	--	--	.7	--	--	--	276	76	4.4	1330	8.1
Feb. 3.....	605	--	--	--	--	230	--	224	4	--	238	--	--	1.0	--	--	--	330	140	5.5	1620	8.3
Mar. 9.....	355	--	--	--	--	275	--	250	0	--	343	--	--	1.1	--	--	--	470	265	5.5	2040	7.7
Apr. 1.....	500	--	--	--	--	178	--	208	0	--	240	--	--	.8	--	--	--	324	153	4.3	1480	8.0
May 7.....	495	25	--	48	30	123	4.0	164	14	109	155	0.2	6.1	.3	610	0.81	--	242	85	3.5	1020	8.5
June 4.....	465	--	--	--	--	130	--	196	0	--	162	--	--	.4	--	--	--	248	87	3.6	1080	7.9
July 8.....	310	--	--	--	--	168	--	222	0	--	215	--	--	.3	--	--	--	313	131	4.1	1350	8.0
July 31.....	235	--	--	--	--	152	--	240	0	--	218	--	--	.4	--	--	--	338	141	3.6	1400	8.2
Sept. 3.....	480	22	--	46	28	119	3.4	193	0	106	154	--	3.4	.4	601	0.78	--	232	74	3.4	1040	8.0

SAN JOAQUIN RIVER BASIN--Continued

11-2898. TUOLUMNE RIVER AT HICKMAN, CALIF.

LOCATION.--At gaging station approximately 0.6 mile south of Waterford, and 1 mile north of Hickman, Stanislaus County.

DRAINAGE AREA.--1,642 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

REMARKS.--Records of discharge for water year October 1963 to September 1964 furnished by California State Department of Water Resources.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 11, 1963.....	586	--	--	--	--	10	--	29	0	--	18	--	--	0.0	--	--	--	30	6	0.8	119	7.2
Nov. 9.....	1700	--	--	--	--	2.6	--	17	0	--	5.1	--	--	.0	--	--	--	14	0	.3	44	7.1
Dec. 10.....	2280	--	--	--	--	2.8	--	22	0	--	3.5	--	--	.0	--	--	--	18	0	.3	53	7.1
Jan. 9, 1964.....	941	--	--	--	--	6.5	--	24	0	--	11	--	--	.0	--	--	--	22	2	.6	80	7.8
Feb. 3.....	610	--	--	--	--	11	--	41	0	--	20	--	--	.0	--	--	--	41	7	.7	141	7.7
Mar. 9.....	118	--	--	--	--	44	--	94	0	--	90	--	--	.0	--	--	--	105	28	1.9	450	7.9
Apr. 1.....	117	--	--	--	--	47	--	93	2	--	86	--	--	.1	--	--	--	105	25	2.0	446	8.4
May 7.....	122	41	--	28	9.2	47	4.0	95	2	4.0	92	0.1	6.0	.1	303	0.41	--	108	27	2.0	465	8.3
June 4.....	75	--	--	--	--	58	--	102	4	--	110	--	--	.1	--	--	--	124	34	2.3	552	8.5
July 8.....	77	--	--	--	--	58	--	109	2	--	112	--	--	.1	--	--	--	124	31	2.3	558	8.3
July 31.....	73	--	--	--	--	58	--	114	0	--	111	--	--	.1	--	--	--	123	30	2.3	578	8.1
Sept. 3.....	93	51	--	33	8.9	58	4.9	113	0	5.0	104	--	.8	.4	350	.48	--	119	26	2.3	546	8.1



SAN JOAQUIN RIVER BASIN--Continued

11-2902. TUOLUMNE RIVER AT TUOLUMNE CITY, CALIF.

LOCATION.--At gaging station at bridge in Tuolumne City, Stanislaus County, and 3.4 miles from mouth.

DRAINAGE AREA.--1,897 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

REMARKS.--Records of discharge for water year October 1963 to September 1964 furnished by Public Utilities Commission, City and County of San Francisco.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 12, 1963.....	970	--	--	--	--	36	--	70	0	--	69	--	--	0.0	--	--	--	77	20	1.8	353	7.2
Nov. 9.....	1900	--	--	--	--	14	--	31	0	--	31	--	--	.0	--	--	--	37	12	1.0	162	7.3
Dec. 9.....	2620	--	--	--	--	11	--	29	0	--	21	--	--	.1	--	--	--	35	11	0.8	127	7.5
Jan. 9, 1964.....	1470	--	--	--	--	20	--	43	0	--	38	--	--	.0	--	--	--	47	12	1.3	212	8.0
Feb. 3.....	720	--	--	--	--	38	--	72	0	--	70	--	--	.0	--	--	--	85	26	1.8	360	8.1
Mar. 9.....	325	--	--	--	--	93	--	144	0	--	185	--	--	.0	--	--	--	189	71	2.9	862	7.6
Apr. 1.....	300	--	--	--	--	102	--	148	0	--	192	--	--	.1	--	--	--	192	71	3.2	912	7.7
May 7.....	300	38	--	47	15	87	6.0	140	0	11	172	0.3	5.3	.2	523	0.71	--	180	65	2.8	835	7.4
June 4.....	230	--	--	--	--	108	--	156	0	--	205	--	--	.2	--	--	--	202	74	3.3	1020	7.8
July 8.....	220	--	--	--	--	116	--	166	2	--	222	--	--	.2	--	--	--	220	81	3.4	1020	8.3
July 31.....	190	--	--	--	--	113	--	180	0	--	223	--	--	.2	--	--	--	224	76	3.3	1040	7.6
Sept. 3.....	240	40	--	55	17	102	7.6	182	0	11	202	--	1.3	.2	584	.71	--	208	59	3.1	982	7.7

SAN JOAQUIN RIVER BASIN--Continued

11-2905. SAN JOAQUIN RIVER AT MAZE ROAD BRIDGE, NEAR MODESTO, CALIF.

LOCATION.--At Maze Road Bridge 0.2 mile downstream from gaging station, at Hetch Hetchy Crossing, 2.7 miles upstream from Stanislaus River, and 12 miles west of Modesto, Stanislaus County.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

REMARKS.--Records of discharge for water year October 1963 to September 1964 furnished by Public Utilities Commission, City and County of San Francisco.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 12, 1963.....	2175	---	---	---	---	64	---	112	0	---	89	---	---	0.0	---	---	---	122	30	2.5	556	7.4
Nov. 9.....	2275	---	---	---	---	50	---	78	0	---	80	---	---	.0	---	---	---	101	37	2.2	481	7.6
Dec. 9.....	2955	---	---	---	---	44	---	68	0	---	60	---	---	.2	---	---	---	84	28	2.1	399	7.5
Jan. 9, 1964.....	2335	---	---	---	---	68	---	108	0	---	89	---	---	.2	---	---	---	125	36	2.6	605	8.1
Feb. 3.....	1545	---	---	---	---	122	---	140	0	---	151	---	---	.5	---	---	---	200	85	3.8	964	7.6
Mar. 9.....	570	---	---	---	---	166	---	184	0	---	271	---	---	.4	---	---	---	308	157	4.1	1410	7.9
Apr. 1.....	765	---	---	---	---	127	---	172	0	---	218	---	---	.5	---	---	---	262	121	3.4	1190	7.9
May 7.....	780	29	---	50	29	116	4.8	156	8	81	181	0.2	7.6	.3	A 584	0.79	---	246	105	3.2	1000	8.5
June 4.....	525	---	---	---	---	142	---	188	0	---	221	---	---	.3	---	---	---	268	114	3.8	1200	7.4
July 8.....	440	---	---	---	---	144	---	190	0	---	242	---	---	.4	---	---	---	282	126	3.7	1250	7.5
July 31.....	---	---	---	---	---	158	---	200	0	---	289	---	---	.4	---	---	---	312	148	3.9	1420	7.6
Sept. 3.....	---	29	---	59	21	120	4.5	187	0	81	180	---	4.6	.4	610	.81	---	232	79	3.4	1040	7.8

A Calculated from sum of determined constituents.

## SAN JOAQUIN RIVER BASIN--Continued

11-3034. STANISLAUS RIVER NEAR MOUTH, NEAR VERNALIS, CALIF.

LOCATION.--At gaging station 5 miles upstream from mouth, and approximately 8 miles northeast of Vernalis, San Joaquin County.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

REMARKS.--Records of discharge for water year October 1963 to September 1964 furnished by California State Department of Water Resources.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 9, 1963.....	307	--	--	--	--	11	--	99	0	--	6.2	--	--	0.0	--	--	--	73	0	0.6	194	8.2
Nov. 5.....	281	--	--	--	--	11	--	118	0	--	7.0	--	--	.0	--	--	--	88	0	.5	220	8.1
Dec. 4.....	348	--	--	--	--	9.7	--	97	0	--	4.0	--	--	.1	--	--	--	76	0	.5	191	8.0
Jan. 8, 1964.....	889	--	--	--	--	3.2	--	46	0	--	3.0	--	--	.0	--	--	--	37	0	.2	93	8.1
Feb. 4.....	913	--	--	--	--	4.9	--	56	0	--	3.4	--	--	.1	--	--	--	46	0	.3	112	7.8
Mar. 3.....	182	--	--	--	--	18	--	134	1	--	12	--	--	.1	--	--	--	105	0	.8	278	8.3
Apr. 7.....	178	--	--	--	--	13	--	121	0	--	8.0	--	--	.0	--	--	--	91	0	.6	235	7.9
May 5.....	140	28	--	23	9.6	15	2.0	130	0	10	8.5	0.2	4.1	.1	172	0.23	--	97	0	.7	257	7.9
June 4.....	120	--	--	--	--	14	--	119	0	--	7.5	--	--	.0	--	--	--	90	0	.6	235	8.0
July 7.....	132	--	--	--	--	16	--	141	5	--	8.0	--	--	.1	--	--	--	110	0	.7	281	8.5
Aug. 4.....	102	--	--	--	--	18	--	148	0	--	10	--	--	.0	--	--	--	110	0	.7	288	8.2
Sept. 1.....	151	31	--	22	8.0	15	3.8	133	0	7.0	5.5	--	2.4	.1	161	.22	--	88	0	.7	241	7.8

SAN JOAQUIN RIVER BASIN--Continued

11-3035. SAN JOAQUIN RIVER NEAR VERNALIS, CALIF.

LOCATION.--At gaging station at Durham Ferry highway bridge, 3 miles downstream from Stanislaus River, and 3.4 miles northeast of Vernalis, San Joaquin County.

DRAINAGE AREA.--14,010 square miles, approximately

RECORDS AVAILABLE.--Chemical analyses: March 1951 to September 1964.

Water temperatures: March 1951 to September 1964.

Sediment records: November 1956 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 78°F July 13, 25, 30; minimum, 45°F Dec. 16, 17, 19.

Sediment concentrations: Maximum daily, 168 ppm July 1; minimum daily, (estimated) 25 ppm Oct. 19.

Sediment loads: Maximum daily, 1,180 tons Dec. 1; minimum daily, 50 tons July 31.

EXTREMES, 1951-64.--Water temperatures: Maximum, 79°F June 1, 1960; minimum, 37°F Jan. 24, 1962.

Sediment concentrations (1956-64): Maximum daily, 951 ppm Feb. 2, 1963; minimum daily, 9 ppm Jan. 4, 1960, Nov. 18, 1961.

Sediment loads (1956-64): Maximum daily, 28,500 tons Apr. 5, 1958; minimum daily, 2 tons Aug. 10, 1961.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 9, 1963.....	2220	--	--	--	--	58	--	136	0	--	87	--	--	0.1	--	--	--	136	24	2.2	573	8.1
Nov. 6.....	2660	--	--	--	--	47	--	79	0	--	70	--	--	.1	--	--	--	97	32	2.1	445	7.6
Dec. 4.....	3810	--	--	--	--	38	--	73	0	--	50	--	--	.2	--	--	--	84	24	1.8	358	7.6
Jan. 8, 1964.....	3280	--	--	--	--	44	--	81	0	--	58	--	--	.2	--	--	--	93	27	2.0	435	8.2
Feb. 5.....	2480	--	--	--	--	74	--	107	0	--	95	--	--	.3	--	--	--	141	53	2.7	643	8.1
Mar. 4.....	695	--	--	--	--	126	--	166	2	--	209	--	--	.3	--	--	--	264	125	3.6	1170	8.3
Apr. 8.....	686	--	--	--	--	139	--	176	0	--	223	--	--	.4	--	--	--	266	122	3.7	1190	7.7
May 6.....	888	25	--	50	25	119	4.4	176	0	82	171	0.1	5.0	.4	579	0.79	--	229	85	3.4	1010	7.6
June 10.....	1060	--	--	--	--	99	--	166	0	--	146	--	--	.3	--	--	--	208	72	3.0	896	7.8
July 8.....	437	--	--	--	--	149	--	187	0	--	248	--	--	.4	--	--	--	290	137	3.8	1250	7.4
Aug. 5.....	320	--	--	--	--	150	--	198	0	--	259	--	--	.3	--	--	--	306	144	3.7	1390	7.9
Sept. 2.....	930	29	--	55	24	119	5.8	190	0	78	182	--	5.8	.3	601	.82	--	234	78	3.4	1030	7.9

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October .....	74	74	74	69	73	72	72	70	70	69	69	67	67	66	67	67	68	66	66	61	66	65	64	63	64	64	64	65	64	58	--	67
November .....	59	60	60	59	58	57	55	57	58	58	57	58	58	60	58	58	57	52	52	53	51	49	51	51	52	49	50	--	--	--	55	
December .....	50	50	50	50	49	48	49	--	49	47	48	47	46	46	47	45	45	46	45	46	47	47	47	47	48	47	48	48	48	48	--	48
January .....	--	--	--	--	--	54	54	49	49	48	50	50	49	50	50	47	--	50	52	54	49	48	48	49	49	49	47	46	49	47	50	49
February .....	51	50	49	50	46	46	46	50	58	63	58	48	52	49	51	50	58	53	55	56	59	56	58	58	53	52	61	62	58	--	--	54
March .....	58	54	51	54	55	58	52	52	54	54	56	58	59	56	58	59	62	61	59	60	59	58	54	53	58	55	58	62	60	64	58	57
April .....	62	62	56	--	--	59	62	61	64	61	63	62	64	64	68	68	64	63	65	64	63	63	60	58	62	61	65	66	65	63	--	63
May .....	60	59	61	59	58	55	59	62	63	68	65	69	65	62	67	65	67	68	69	66	68	65	68	68	71	69	69	68	69	68	71	65
June .....	73	73	72	73	73	73	69	69	62	64	67	71	73	73	72	68	66	66	68	70	70	73	76	76	77	77	72	68	69	70	--	71
July .....	71	68	70	71	74	70	75	74	71	75	76	76	78	75	73	72	75	75	74	74	75	75	76	75	78	76	76	77	76	78	70	74
August .....	70	70	72	--	73	75	76	75	74	73	72	70	73	71	71	70	75	75	73	75	73	75	74	74	71	71	73	71	71	71	71	73
September .....	65	67	68	72	70	70	69	69	68	69	70	70	68	67	68	71	69	68	67	68	65	65	67	69	69	69	68	65	65	67	--	68

SAN JOAQUIN RIVER BASIN--Continued

11-3035. SAN JOAQUIN RIVER NEAR VERNALIS, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964  
(Where no concentrations are reported, loads are estimated)

Day	OCTOBER			NOVEMBER			DECEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	1440	54	210	2550	46	317	3900	112	1180
2..	1420	63	242	2480	44	295	3920	90	953
3..	1400	43	163	2570	51	350	3910	48	507
4..	1440	34	132	2600	63	442	3810	35	360
5..	1630	30	132	2610	65	458	3620	40	391
6..	1920	35	181	2660	54	388	3560	37	356
7..	2190	39	231	2660	46	330	3550	51	489
8..	2470	90	600	2640	43	307	2530	48	457
9..	2220	81	486	2640	47	335	3540	44	421
10..	2050	54	299	2650	54	386	3540	33	315
11..	2230	28	169	2640	41	292	3490	33	311
12..	2720	46	338	2630	39	277	3400	35	321
13..	3140	50	424	2630	47	334	3400	31	285
14..	3470	88	824	2640	48	342	3410	26	239
15..	3660	73	720	2690	47	341	3370	35	318
16..	3310	45	402	2740	62	459	3260	29	255
17..	3120	39	329	2800	48	360	3260	29	255
18..	3200	32	276	2920	31	244	3280	40	354
19..	3210	25	220	2980	33	270	3230	37	323
20..	3040	62	509	3220	39	339	3150	42	357
21..	3290	79	702	3420	45	416	3350	81	733
22..	3680	61	610	3430	58	537	3490	88	830
23..	3670	44	436	3530	66	629	3510	73	692
24..	3540	32	306	3690	57	568	3540	66	630
25..	3370	45	409	3740	55	555	3790	64	655
26..	3090	58	484	3740	70	707	3910	57	602
27..	2790	44	331	3720	73	733	3980	53	570
28..	2650	41	290	3740	66	670	3700	75	749
29..	2520	40	272	3820	66	680	3460	79	738
30..	2550	33	227	3860	70	730	3360	48	435
31..	2570	44	305	--	--	--	3300	--	E 370
Total	83000	--	11259	90640	--	13091	109520	--	15451
Day	JANUARY			FEBRUARY			MARCH		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	3300	--	E 370	2600	52	365	800	42	91
2..	3330	--	E 400	2530	57	389	760	44	90
3..	3350	--	E 430	2500	80	540	720	44	86
4..	3250	--	E 450	2450	76	503	695	44	83
5..	3190	--	E 470	2480	54	362	695	46	86
6..	3180	59	507	2480	44	295	722	46	90
7..	3200	55	475	2470	51	340	785	48	102
8..	3280	46	407	2440	63	415	826	48	107
9..	3290	75	666	2000	86	464	839	48	109
10..	3050	53	436	1800	78	379	816	50	110
11..	2910	42	330	1600	94	406	776	40	84
12..	2840	33	253	1600	90	389	821	42	93
13..	2710	70	512	1650	60	267	970	48	126
14..	2650	106	758	1650	38	169	960	44	114
15..	2700	55	401	1700	48	220	880	44	105
16..	2680	46	333	1600	70	302	830	44	99
17..	2680	55	398	1500	58	235	767	40	83
18..	2450	77	509	1400	38	144	762	56	115
19..	2360	77	491	1500	42	170	902	60	146
20..	2350	79	501	1400	42	159	893	56	135
21..	2410	86	560	1200	38	123	888	58	139
22..	2510	84	569	1200	52	168	898	54	131
23..	3110	87	731	1150	42	130	1240	98	328
24..	3360	80	726	1150	36	112	1330	102	366
25..	3000	54	437	1100	32	95	1290	86	300
26..	2840	50	B 380	1100	34	101	1260	82	B 280
27..	2730	54	398	1150	52	161	1220	63	208
28..	2600	51	358	1000	40	108	1160	53	B 170
29..	2590	44	308	820	36	80	1120	38	115
30..	2580	51	355	--	--	--	1100	39	116
31..	2550	75	516	--	--	--	1070	46	B 130
Total	89030	--	14435	49220	--	7591	28795	--	4337

E Estimated.  
B Computed from estimated concentration graph.

SAN JOAQUIN RIVER BASIN--Continued

11-3035. SAN JOAQUIN RIVER NEAR VERNALIS, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964--Continued

Day	APRIL			MAY			JUNE		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	1120	53	160	672	122	221	690	110	205
2..	1200	59	191	704	109	207	601	113	183
3..	1170	59	186	736	111	221	589	119	189
4..	925	55	140	785	116	246	569	111	171
5..	862	52	120	834	112	252	557	114	171
6..	844	49	112	888	104	249	537	115	167
7..	740	60	120	935	104	263	569	120	184
8..	686	83	154	898	90	218	628	142	241
9..	677	81	148	850	110	252	848	155	355
10..	659	78	139	800	112	242	1060	129	369
11..	659	72	128	700	112	212	1080	119	347
12..	672	74	134	632	105	179	1060	123	352
13..	636	75	129	581	99	155	960	128	332
14..	589	93	148	561	92	139	852	138	317
15..	561	92	139	501	92	124	848	145	332
16..	614	103	171	505	86	117	776	121	254
17..	593	100	160	505	73	100	708	99	189
18..	589	92	146	561	98	148	614	80	133
19..	597	104	168	654	102	180	577	84	131
20..	749	106	214	650	98	172	521	88	124
21..	780	100	211	672	106	192	541	97	142
22..	767	107	222	672	123	223	593	99	159
23..	776	105	220	664	121	217	533	104	150
24..	785	98	208	668	115	207	441	134	160
25..	772	97	202	722	106	207	425	143	164
26..	785	117	248	726	112	220	409	140	155
27..	808	131	286	722	114	222	429	121	140
28..	821	138	306	744	108	217	489	161	213
29..	776	121	254	740	119	238	481	155	201
30..	713	119	229	780	116	244	517	159	222
31..	--	--	--	740	116	232	--	--	--
Total	22925	--	5393	21802	--	6316	19502	--	6452
Day	JULY			AUGUST			SEPTEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	493	168	224	274	81	60	911	117	288
2..	461	162	202	320	89	77	930	113	284
3..	457	153	189	340	96	88	898	122	296
4..	465	143	180	334	89	80	880	142	337
5..	517	148	207	320	96	83	834	115	259
6..	557	161	242	320	89	77	821	112	248
7..	513	152	211	267	89	64	857	116	268
8..	437	133	157	274	78	58	821	113	250
9..	445	109	131	306	70	58	780	115	242
10..	393	108	115	373	67	67	718	108	209
11..	397	116	124	344	72	67	704	117	222
12..	377	98	100	316	75	64	708	94	180
13..	405	105	115	330	87	78	704	89	169
14..	337	103	94	302	86	70	749	98	198
15..	288	107	83	330	84	75	740	91	182
16..	253	91	62	377	102	104	704	80	152
17..	306	106	88	501	126	170	700	85	161
18..	340	118	108	489	122	161	700	85	161
19..	397	126	135	521	124	174	704	83	158
20..	409	106	117	485	107	140	722	91	177
21..	369	110	110	429	97	112	776	81	170
22..	358	92	89	457	100	123	790	86	183
23..	373	91	92	537	101	146	816	102	225
24..	344	90	84	654	115	203	1040	138	388
25..	298	73	59	650	111	195	1220	146	481
26..	351	89	84	589	104	165	1290	141	491
27..	369	90	90	565	95	145	1390	141	529
28..	358	85	82	581	92	144	1490	132	531
29..	320	81	70	589	96	153	1290	114	397
30..	250	90	61	677	105	192	1300	122	428
31..	236	79	50	790	119	254	--	--	--
Total	11873	--	3755	13641	--	3647	26987	--	8264

Total discharge for year (cfs-days)..... 566,935  
 Total load for year (tons)..... 99,991

B Computed from estimated concentration graph.

## SAN JOAQUIN RIVER BASIN--Continued

11-3035. SAN JOAQUIN RIVER NEAR VERNALIS, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1963 to September 1964  
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

F, pipet, S, sieve, V, visual accumulation tube, W, in distilled water)																	
Date of collection	Time (24 hour)	Water tem- per- ature (° F)	Sam- pling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment										Method of analysis
							Percent finer than size indicated, in millimeters										
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	
Nov. 14, 1963.....	1010	60		2660	50							85	94	97	100		V
Jan. 24, 1964.....	1025	49		3420	85							82	87	91	97	100	S
Jan. 25.....	0900	49		3020	53							83	92	100	--		S
Apr. 29.....	1145	68		780	122							99	100	--	--		S
May 17.....	0700	67		497	80							100	--	--	--		S
Aug. 18.....	0900	75		485	122							99	100	--	--		S
Sept. 16.....	0925	71		704	79							96	98	100	--		S

## SAN JOAQUIN RIVER BASIN--Continued

11-3042. SAN JOAQUIN RIVER AT MOSSDALE, CALIF.

LOCATION.--Boat landing at Mossdale Bridge at Mossdale, San Joaquin County, opposite tidal gaging station, and 7.6 miles northeast of Tracy.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

REMARKS.--No discharge records available.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Dec. 3, 1963.....		--		--	--	36	--	71		--	48		--	0.1	--	--		80	22	1.8	348	8.0
Jan. 10, 1964.....		--		--	--	51	--	97		--	70		--	.2	--	--		106	26	2.2	489	7.8
Feb. 4.....		--		--	--	76	--	112		--	99		--	.2	--	--		148	56	2.7	665	8.0
Mar. 5.....		--		--	--	135	--	168		--	227		--	.5	--	--		268	130	3.6	1190	8.2
Apr. 9.....		--		--	--	134	--	172		--	224		--	.4	--	--		270	129	3.5	1200	8.2
May 8.....		26		52	23	108	3.4	170		73	172	0.2	8.1	.3	563	0.77		226	87	3.1	961	7.9
June 11.....		--		--	--	101	--	172		--	148		--	.2	--	--		210	69	3.0	917	8.2
July 6.....		--		--	--	133	--	184		--	252		--	.4	--	--		286	135	3.4	1280	8.1
Aug. 6.....		--		--	--	147	--	190		--	272		--	.4	--	--		290	134	3.8	1300	7.9
Sept. 3.....		28		55	25	113	2.1	183		76	182		4.5	.4	601	.82		238	88	3.2	1050	7.6



## SAN JOAQUIN RIVER BASIN--Continued

11-3048. SAN JOAQUIN RIVER AT GARWOOD BRIDGE, NEAR STOCKTON, CALIF.

LOCATION.--Boat landing at Garwood Bridge on State Highway 4, opposite tidal gaging station, and 1.8 miles west of Stockton, San Joaquin County.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

REMARKS.--No discharge records available.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 8, 1963.....		--		--	--	77	--	150	4	--	118		--	0.0	--	--		168	38	2.6	734	8.3
Nov. 5.....		--		--	--	50	--	95	0	--	73		--	.3	--	--		107	29	2.1	487	7.8
Dec. 3.....		--		--	--	36	--	70	0	--	47		--	.1	--	--		78	21	1.8	343	7.8
Jan. 10, 1964.....		--		--	--	50	--	90	0	--	66		--	.1	--	--		106	32	2.1	468	8.1
Feb. 3.....		--		--	--	64	--	105	0	--	89		--	.2	--	--		134	48	2.4	610	8.0
Mar. 5.....		--		--	--	119	--	136	0	--	182		--	.5	--	--		202	90	3.6	1060	8.0
Apr. 9.....		--		--	--	114	--	154	0	--	160		--	.4	--	--		199	73	3.3	931	8.1
May 8.....	15			42	17	86	6.2	154	0	49	130	0.3	9.4	.3	437	0.59		176	50	2.8	766	7.5
June 11.....		--		--	--	98	--	152	0	--	136		--	.3	--	--		174	49	3.2	792	7.4
July 6.....		--		--	--	73	--	136	2	--	123		--	.3	--	--		163	48	2.5	713	8.3
Aug. 6.....		--		--	--	54	--	119	0	--	85		--	.2	--	--		129	31	2.1	544	8.0
Sept. 3.....		13		33	14	63	5.4	150	0	22	91		12	.2	333	.45		139	16	2.3	602	7.1

## SAN JOAQUIN RIVER BASIN--Continued

11-3085.5. CALAVERAS RIVER ABOVE HOGAN DAM, CALIF.

LOCATION.--Approximately 6 miles upstream from Hogan Dam, Calaveras County, 1.2 miles west of San Andreas, and 5 miles east of Valley Springs.

RECORDS AVAILABLE.--Chemical analyses: January to September 1964.

REMARKS.--No discharge records available.

Chemical analyses, in parts per million, January to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Jan. 6, 1964.....						8.9		118	0		10			0.0				112	15	0.4	256	8.1
Feb. 3.....						5.9		75	2		6.5			.0				70	5	.3	161	8.4
Mar. 3.....						7.1		105	0		7.7			.0				94	8	.3	215	7.7
Apr. 6.....						7.1		83	5		6.8			.0				77	1	.4	178	8.7
May 5.....		17		25	7.4	7.2	2.3	107	0	13	8.2	0.0	1.0	.0	134	0.18		93	5	.3	217	7.8
June 8.....						8.2		120	0		7.0			.0				101	3	.4	235	8.1
July 8.....						7.8		114	0		7.0			.0				98	5	.3	227	8.0
Aug. 3.....						10		124	3		10			.0				110	3	.4	256	8.3

SAN JOAQUIN RIVER BASIN--Continued

11-3089. CALAVERAS RIVER BELOW HOGAN DAM, CALIF.

LOCATION.--At gaging station at county road bridge, 0.5 mile upstream from Cosgrove Creek, 0.8 mile downstream from Hogan Dam, Calaveras County, and 3.0 miles south of Valley Springs.

DRAINAGE AREA.--363 square miles.

RECORDS AVAILABLE.--Chemical analyses: January to September 1964.

Chemical analyses, in parts per million, January to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Jan. 6, 1964.....	38					9.2		127	0		10			0.0				119	15	0.4	274	8.2
Mar. 3.....	35					6.0		84	0		4.5			.1				80	11	.3	184	7.6
Apr. 6.....	25					7.2		88	4		5.5			.0				87	8	.3	198	8.6
May 5.....	64	13		22	7.9	6.5	1.7	94	0	13	5.7	0.0	2.4	.0	120	0.16		88	11	.3	198	7.7
June 9.....	29					6.8		104	0		5.5			.1				93	8	.3	210	7.8
July 8.....	207					6.4		104	0		4.5			.0				91	6	.3	206	8.1
Aug. 3.....	189					7.5		108	0		5.0			.0				95	6	.3	211	7.7

## SAN JOAQUIN RIVER BASIN--Continued

11-3095. CALAVERAS RIVER AT JENNY LIND, CALIF.

LOCATION.--At bridge on Milton Road 70 feet upstream from gaging station, 0.2 mile south of Jenny Lind, Calaveras County, and 6.5 miles downstream from Cosgrove Creek.

DRAINAGE AREA.--393 square miles.

RECORDS AVAILABLE.--Chemical analyses: November 1954 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 7, 1963.....	7.1					7.0		143	0		6.5			0.0				124	7	0.3	270	8.0
Nov. 6.....	22					7.7		129	2		8.5			.0				129	20	.3	290	8.3
Dec. 2.....	69					7.5		114	0		7.0			.1				107	14	.3	245	8.1
Jan. 6, 1964.....	41					9.2		130	0		11			.0				121	14	.4	270	8.2
Feb. 3.....	23					11		133	0		10			.1				134	25	.4	308	8.2
Mar. 2.....	35					6.4		89	0		5.5			.1				85	12	.3	193	8.1
Apr. 6.....	40					7.4		100	3		6.7			.0				96	9	.3	214	8.7
May 4.....	45	12		23	7.7	6.4	1.7	102	0	15	5.0	0.0	1.4	.1	122	0.17		89	5	.3	200	8.0
June 8.....	33					9.7		109	0		5.0			.0				93	4	.4	208	8.2
July 3.....	110					6.6		112	0		5.0			.0				97	5	.3	215	8.1
Aug. 11.....	222					8.0		110	0		5.0			.0				97	7	.4	215	8.1

SAN JOAQUIN RIVER BASIN--Continued

11-3105. CALAVERAS RIVER NEAR STOCKTON, CALIF.

LOCATION.--At gaging station at Central California Traction Railroad bridge, 3.3 miles southwest of Waterloo, and 4.6 miles northeast of Stockton, San Joaquin County.

RECORDS AVAILABLE.--Chemical analyses: October 1961 to September 1964.

REMARKS.--Records of discharge for water year October 1963 to September 1964 furnished by California State Department of Water Resources. Flow includes diversion from Stockton Diverting Canal. Stream dry most of the year.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Dec. 2, 1963.....	45					7.5		110	0		6.0			0.1				100	10	0.3	233	8.1
Jan. 6, 1964.....	3.2					9.8		117	0		9.5			.0				116	20	.4	266	7.5
Mar. 2.....	2.7					8.0		107	0		8.5			.0				100	12	.4	230	8.2

SAN JOAQUIN RIVER BASIN--Continued

11-3112. STOCKTON SHIP CHANNEL NEAR RINDGE PUMP ON RINDGE TRACT, CALIF.

LOCATION.--Boat landing at ship channel downstream from confluence with Fourteen Mile Slough, downstream from tidal gaging station, and approximately 9.6 miles northwest of Stockton, San Joaquin County.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

REMARKS.--No discharge records available.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 7, 1963.....		--		--	--	74	--	156	0	--	107		--	0.1	--	--		154	26	2.6	676	8.1
Nov. 6.....		--		--	--	58	--	102	0	--	86		--	.3	--	--		117	33	2.3	538	8.1
Dec. 2.....		--		--	--	38	--	80	0	--	52		--	.1	--	--		88	22	1.8	375	8.1
Jan. 6, 1964.....		--		--	--	49	--	77	0	--	76		--	.1	--	--		114	51	2.0	484	8.2
Feb. 3.....		--		--	--	61	--	95	0	--	82		--	.2	--	--		123	45	2.4	560	7.9
Mar. 2.....		--		--	--	69	--	105	0	--	107		--	.3	--	--		146	60	2.5	644	7.8
Apr. 6.....		--		--	--	72	--	108	0	--	111		--	.2	--	--		154	65	2.5	672	8.1
May 4.....		8.2		23	11	40	2.2	88	0	33	59	0.0	1.2	.1	222	0.30		104	32	.4	406	7.9
June 8.....		--		--	--	48	--	102	0	--	66		--	.1	--	--		113	29	2.0	442	7.8
July 7.....		--		--	--	26	--	92	0	--	34		--	.2	--	--		90	15	1.2	297	8.1
Aug. 6.....		--		--	--	27	--	83	1	--	39		--	.1	--	--		80	10	1.3	305	8.3
Sept. 1.....		14		21	10	34	2.1	90	0	20	52		3.9	.1	206	.28		94	20	1.5	357	7.8

SAN JOAQUIN RIVER BASIN--Continued

11-3127. OLD RIVER AT SOUTH TIP OF FABIAN TRACT, NEAR TRACY, CALIF.

LOCATION.--At southern tip of Fabian Tract at trash rack of pump intake at end of Lammers Road, approximately 3 miles east of Bethany, and 6.1 miles north of Tracy, San Joaquin County.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

REMARKS.--No discharge records available.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 8, 1963.....		--		--	--	91	--	170	0	--	140		--	0.1	--	--		200	61	2.8	901	7.8
Nov. 5.....		--		--	--	62	--	103	0	--	91		--	.3	--	--		133	49	2.3	580	8.0
Dec. 3.....		--		--	--	44	--	82	0	--	59		--	.1	--	--		98	31	1.9	425	8.0
Jan. 10, 1964.....		--		--	--	58	--	96	0	--	92		--	.2	--	--		139	60	2.1	585	8.0
Feb. 4.....		--		--	--	80	--	120	0	--	120		--	.3	--	--		174	76	2.6	771	7.8
Mar. 5.....		--		--	--	115	--	152	0	--	192		--	.4	--	--		250	125	3.2	1080	8.1
Apr. 9.....		--		--	--	124	--	190	0	--	199		--	.5	--	--		268	112	3.3	1220	8.0
May 8.....	17	--	66	30	130	4.2	186	4	88	228	0.3	8.4	.4	711	0.97	--		286	127	3.4	1190	8.4
June 11.....		--	--	--	135	--	202	0	--	219		--	.4	--	--	--		282	116	3.5	1210	7.9
July 6.....		--	--	--	129	--	192	8	--	245		--	.5	--	--	--		300	129	3.2	1300	8.4
Aug. 6.....		--	--	--	122	--	160	12	--	218		--	.4	--	--	--		272	121	3.2	1140	8.5
Sept. 3.....		12		65	32	139	2.7	213	0	91	230		3.7	.4	706	.96		292	117	3.6	1240	8.1

SAN JOAQUIN RIVER BASIN--Continued

11-3129.9. DELTA-MENDOTA CANAL ABOVE TRACY PUMPING PLANT, NEAR TRACY, CALIF.

LOCATION.--At Byron Road bridge, 1.1 miles upstream from Tracy Pumping Plant, Alameda-Contra Costa County line, and 9.2 miles northwest of Tracy, San Joaquin County.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

REMARKS.--No appreciable inflow between sampling point and gaging station.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 9, 1963.....	2280	--	--	--	--	86	--	158	0	--	133	--	--	0.2	--	--	--	186	56	2.7	818	8.2
Nov. 5.....	467	--	--	--	--	73	--	110	0	--	107	--	--	.5	--	--	--	152	62	2.6	680	8.2
Dec. 3.....	106	--	--	--	--	57	--	94	0	--	75	--	--	.3	--	--	--	114	37	2.3	522	7.9
Jan. 7, 1964.....	141	--	--	--	--	55	--	88	0	--	82	--	--	.3	--	--	--	116	44	2.2	537	8.0
Feb. 5.....	863	--	--	--	--	82	--	98	8	--	108	--	--	.4	--	--	--	155	62	2.9	696	8.6
Mar. 3.....	2751	--	--	--	--	64	--	87	2	--	89	--	--	.3	--	--	--	157	82	2.2	621	8.3
Apr. 8.....	2315	--	--	--	--	34	--	84	0	--	44	--	--	.2	--	--	--	109	40	1.4	383	8.1
May 6.....	2994	11	--	16	10	23	1.8	76	0	27	30	0.1	1.0	.1	164	0.22	--	82	20	1.1	275	7.7
June 9.....	3514	--	--	--	--	32	--	86	0	--	36	--	--	.1	--	--	--	86	15	1.5	309	8.0
July 7.....	4174	--	--	--	--	27	--	85	1	--	30	--	--	.1	--	--	--	80	9	1.3	287	8.3
Aug. 4.....	4446	--	--	--	--	50	--	84	0	--	84	--	--	.1	--	--	--	101	32	2.2	469	8.2
Sept. 1.....	2285	13	--	38	21	100	3.3	132	0	63	165	--	2.0	.3	484	.66	--	180	72	3.2	864	7.6



SAN JOAQUIN RIVER BASIN--Continued

11-3130.1. DELTA-MENDOTA CANAL BELOW TRACY PUMPING PLANT, NEAR TRACY, CALIF.

LOCATION.--At canal bridge 4.98, 0.5 mile downstream from Mountain House Road siphon, 2.9 miles downstream from Tracy Pumping Plant, and 8.5 miles northwest of Tracy, San Joaquin County.

RECORDS AVAILABLE.--Chemical analyses: July 1959 to June 1963.

Water temperatures: July 1959 to September 1964.

Sediment records: July 1959 to June 1960, October 1962 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 80°F July 28, 29.

Sediment concentrations: Maximum daily, 303 ppm Jan. 28; minimum daily, 20 ppm Dec. 18.

Sediment loads: Maximum daily, 2,360 tons Apr. 12; minimum daily, 6 tons Dec. 18.

EXTREMES, 1959-64.--Water temperatures: Maximum, 81°F July 25, 1960; minimum (1960-63), 41°F Jan. 21, 1961.

Sediment concentrations (1959-60, 1962-64): Maximum daily, 303 ppm Jan. 28, 1964; minimum daily, no flow on many days during December 1962 and January 1963.

Sediment loads (1959-60, 1962-64): Maximum daily, 2,590 tons July 18, 1963; minimum daily, 0 ton on many days during December 1962 and January 1963.

REMARKS.--Records of daily discharge data given for Delta-Mendota Canal Tracy pumping plant near Tracy.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October .....	71	71	70	71	71	70	69	69	69	70	68	69	69	69	69	68	68	67	68	67	67	67	67	66	66	65	65	65	64	63	63	68
November .....	62	62	61	61	59	60	59	58	58	58	57	57	56	60	55	55	54	53	53	53	52	52	52	50	50	51	51	49	50	50	55	
December .....	--	--	--	48	--	--	--	--	--	--	--	--	--	--	--	--	--	45	46	--	--	--	45	--	--	--	45	--	--	--	45	--
January .....	--	--	--	--	45	--	--	46	--	--	46	--	--	46	--	--	48	--	49	--	--	50	--	50	49	50	50	51	50	51	52	--
February .....	51	52	51	52	51	51	52	52	53	53	52	53	53	54	53	54	54	54	53	54	54	54	55	54	54	52	53	52	53	--	--	53
March .....	52	52	51	51	52	50	51	51	53	51	53	54	55	56	57	56	58	57	58	56	55	54	55	56	--	58	56	58	58	59	--	55
April .....	60	60	59	60	60	61	59	60	62	63	64	64	66	65	64	63	65	64	66	64	65	64	63	64	62	62	64	64	63	65	--	63
May .....	63	63	64	63	62	64	65	66	66	67	68	66	67	68	67	68	66	67	68	67	67	68	68	69	69	67	68	69	68	69	70	67
June .....	68	70	69	67	68	67	68	66	67	67	68	66	67	68	69	70	70	71	71	71	73	72	73	74	75	76	74	75	74	71	--	70
July .....	73	72	73	74	73	75	75	76	76	77	76	78	78	76	77	78	76	76	75	76	75	77	77	76	78	79	79	80	80	78	77	76
August .....	75	74	73	75	76	78	79	78	75	77	76	75	77	79	75	--	--	75	78	76	77	76	76	75	75	75	74	74	74	64	73	75
September .....	72	72	73	74	72	74	72	72	70	71	70	--	--	--	--	73	70	69	68	69	70	72	72	73	73	71	71	71	70	69	--	71

SAN JOAQUIN RIVER BASIN--Continued

11-3130.1. DELTA-MENDOTA CANAL BELOW TRACY PUMPING PLANT, NEAR TRACY, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964  
(Where no concentrations are reported, loads are estimated)

Day	OCTOBER			NOVEMBER			DECEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	1666	54	243	644	42	73	105	--	9
2..	1669	76	342	645	46	80	105	--	10
3..	1671	73	329	646	38	66	105	--	13
4..	1904	52	267	538	37	54	106	52	15
5..	2278	50	308	467	37	47	106	--	15
6..	3314	50	447	287	36	28	106	--	15
7..	2276	50	407	286	36	28	105	--	15
8..	2280	54	332	286	34	26	105	--	15
9..	2280	55	339	321	36	31	105	--	15
10..	2281	65	400	321	39	34	105	--	15
11..	2286	58	358	322	38	33	140	--	20
12..	2277	63	387	322	44	38	104	--	15
13..	3113	61	546	429	38	44	104	--	15
14..	2279	54	332	430	28	33	140	--	20
15..	2281	53	326	574	35	54	140	--	20
16..	2280	52	320	681	--	44	105	--	15
17..	2277	72	443	681	24	44	105	--	10
18..	2279	53	326	681	30	55	105	20	6
19..	2277	50	307	646	34	59	105	105	30
20..	3320	84	753	647	32	56	105	--	48
21..	2276	45	277	646	30	52	106	--	54
22..	2251	48	292	608	27	44	105	--	54
23..	1898	72	369	608	26	43	121	190	62
24..	1557	48	202	609	32	53	105	--	54
25..	1560	49	206	608	33	54	105	--	54
26..	1095	56	166	572	32	49	104	--	51
27..	1053	53	151	572	38	59	104	175	49
28..	1027	42	116	212	38	22	104	--	48
29..	928	42	105	104	34	10	104	--	42
30..	928	37	93	105	31	9	104	--	37
31..	789	44	94	--	--	--	105	100	28
Total	61850	--	9483	14498	--	1322	3373	--	869
Day	JANUARY			FEBRUARY			MARCH		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	141	--	29	1004	87	236	3291	47	418
2..	141	--	27	1004	77	209	2675	63	455
3..	141	--	27	934	37	93	2751	57	423
4..	142	--	31	862	109	254	2873	54	419
5..	142	85	33	863	67	156	2907	58	455
6..	141	--	34	865	67	156	2857	62	478
7..	141	--	34	863	33	77	2788	61	459
8..	142	85	33	932	25	63	2635	59	420
9..	140	--	32	1039	26	73	2306	47	293
10..	140	--	36	1040	27	76	2214	56	335
11..	206	110	61	1103	33	98	2217	54	323
12..	1218	--	430	1335	28	101	2128	46	264
13..	631	--	110	1335	27	97	1916	48	248
14..	618	220	367	1396	33	124	1912	53	274
15..	635	--	340	1473	32	127	1913	52	269
16..	420	--	150	1472	31	123	1912	52	268
17..	421	85	97	1405	40	152	1914	54	279
18..	422	--	85	1782	39	188	1908	52	268
19..	423	70	80	1846	42	209	1915	52	269
20..	425	--	78	1907	42	216	1980	55	294
21..	497	--	100	2105	43	244	2197	55	326
22..	497	83	111	2106	--	270	2197	53	314
23..	562	--	93	2106	56	318	1849	49	245
24..	639	22	38	2111	66	376	1508	53	216
25..	1190	44	141	2313	64	400	1503	--	210
26..	639	96	166	2264	54	330	1464	44	174
27..	1183	97	310	2263	47	287	1464	47	186
28..	1167	303	955	2264	63	385	1395	46	173
29..	1185	169	541	2266	59	361	1395	51	192
30..	934	94	237	--	--	--	1398	52	196
31..	934	56	141	--	--	--	1723	50	233
Total	16257	--	5147	44258	--	5799	65105	--	9316

SAN JOAQUIN RIVER BASIN--Continued

11-3130.1. DELTA-MENDOTA CANAL BELOW TRACY PUMPING PLANT, NEAR TRACY, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964--Continued

Day	APRIL			MAY			JUNE		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	1795	52	252	3302	128	1140	3071	124	1030
2..	1828	46	227	3299	108	962	3069	114	945
3..	1823	50	246	3301	110	980	3064	124	1030
4..	1822	50	246	3278	117	1040	3195	126	1090
5..	1895	53	271	2997	116	939	3348	120	1080
6..	1931	53	276	2994	124	1000	3505	123	1160
7..	2181	64	377	2730	123	907	3507	127	1200
8..	2315	57	356	2831	117	894	3501	116	1100
9..	2321	70	439	2833	127	971	3514	120	1140
10..	2320	80	501	3061	115	950	3414	123	1130
11..	2880	140	1090	3064	110	910	3313	107	957
12..	4025	217	2360	3068	119	986	3313	106	948
13..	3098	172	1440	3198	123	1060	3311	96	858
14..	3102	80	670	3220	119	1030	3110	101	848
15..	3365	84	763	3225	124	1080	3372	78	710
16..	3537	85	812	3207	134	1160	3366	84	763
17..	3700	83	829	3198	133	1150	3365	83	754
18..	3700	98	979	3203	130	1120	3611	83	809
19..	3765	102	1040	2991	127	1030	3667	80	792
20..	3754	98	993	2994	138	1120	3856	84	875
21..	3822	93	960	3062	137	1130	4016	80	867
22..	3363	98	890	3161	138	1180	3835	86	890
23..	3317	93	833	3288	144	1280	3867	74	773
24..	3343	97	876	3292	135	1200	3833	83	859
25..	3293	113	1000	3262	126	1110	4221	92	1050
26..	3291	116	1030	3146	125	1060	4319	107	1250
27..	3295	111	988	2944	86	684	4364	114	1340
28..	3172	120	1030	2862	115	889	4442	114	1370
29..	3173	96	822	2810	129	979	4355	116	1360
30..	3170	113	967	2910	127	998	4363	123	1450
31..	--	--	--	3075	126	1050	--	--	--
Total	88396	--	23563	95806	--	31989	109087	--	30428
Day	JULY			AUGUST			SEPTEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	4353	112	1320	4622	110	1370	2285	81	500
2..	4356	89	1050	4592	112	1390	2288	74	457
3..	4351	108	1270	4585	133	1650	2057	63	350
4..	4280	127	1470	4446	111	1330	2059	53	295
5..	4291	113	1310	4450	112	1350	1926	60	312
6..	4309	137	1590	4341	129	1510	1958	57	301
7..	4174	141	1590	4333	129	1510	1959	54	286
8..	4157	144	1620	4426	100	1200	1957	51	269
9..	4151	106	1190	4792	83	1070	1955	54	285
10..	4143	107	1200	4394	80	949	2020	59	322
11..	4148	106	1190	4419	83	990	2086	57	321
12..	4152	125	1400	4416	56	668	1925	55	286
13..	4216	113	1290	4413	63	751	1824	54	266
14..	4300	114	1320	4303	60	697	1822	53	261
15..	4338	99	1160	4309	57	663	1820	51	251
16..	4435	120	1440	4243	64	733	2123	54	310
17..	4443	134	1610	4184	67	757	2127	64	368
18..	4532	126	1540	3867	81	846	2124	64	367
19..	4655	93	1170	3849	94	977	2120	56	321
20..	4640	96	1200	3853	91	947	2121	57	326
21..	4653	89	1120	3958	96	1030	2122	46	264
22..	4633	79	988	3953	108	1150	2178	53	312
23..	4628	78	975	4160	86	966	2876	64	497
24..	4641	103	1290	3691	78	777	3121	66	556
25..	4601	105	1300	3906	73	770	2991	71	573
26..	4605	86	1070	3709	89	891	3003	85	689
27..	4601	76	944	3581	90	870	2996	73	591
28..	4686	75	949	3411	90	829	2995	73	590
29..	4696	76	964	3072	93	771	2859	73	564
30..	4709	79	1000	2981	84	676	2790	73	550
31..	4577	78	964	2591	80	560	--	--	--
Total	137454	--	38494	125050	--	30648	68487	--	11640
Total discharge for year (cfs-days).....								830,421	
Total load for year (tons).....								198,758	

## SAN JOAQUIN RIVER BASIN--Continued

## 11-3130.1. DELTA-MENDOTA CANAL BELOW TRACY PUMPING PLANT, NEAR TRACY, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1963 to September 1964  
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs) (1)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment											Method of analysis
							Percent finer than size indicated, in millimeters											
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Oct. 14, 1963.....	1200	69			47			--	--	--	--	99	99	100				S
Jan. 26, 1964.....	1130	50			102			--	--	--	--	69	95	100				S
Feb. 24.....	1100	54			65			--	--	--	--	98	100	--				S
Feb. 26.....	1245	52			47			--	--	--	--	99	100	--				S
Mar. 27.....	1050	56			40							92	94	100				SBWC
Apr. 27.....	1150	64			109			--	--	--	--	96	97	100				S
Apr. 29.....	1430	63			88			--	--	--	--	94	99	100				S
May 11.....	1450	68			111			--	--	--	--	95	100	--				S
May 27.....	1200	68			61			62	76	86	90	99	100	--				SBWC
July 2.....	1500	72			85			--	--	--	--	95	100	--				S
July 15.....	1050	77			96			--	--	--	--	90	100	--				S
Aug. 18.....	0945	76			69			--	--	--	--	95	98	100				S
Sept. 16.....	1210	73			43			--	--	--	--	98	100	--				S

1. Not determined.

SAN JOAQUIN RIVER BASIN--Continued

11-3130.5. DELTA-MENDOTA CANAL NEAR MENDOTA, CALIF.

LOCATION.--Approximately 1 mile upstream from control gates into Mendota Pool and 2 miles north of Mendota, Fresno County.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

REMARKS.--No discharge records available.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Cal- cium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Po- tas- sium (K)	Bi- car- bon- ate (HCO <sub>3</sub> )	Car- bon- ate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluo- ride (F)	Ni- trate (NO <sub>3</sub> )	Bo- ron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		So- dium ad- sorp- tion ratio	Specific con- duct- ance (micro- mhos at 25°C)	pH
															Parts per million	Tons per acre- foot	Tons per day	Cal- cium, Mag- ne- sium	Non- car- bon- ate			
Oct. 8, 1963.....		--		--	--	72	--	141	0	--	105		--	0.1	--	--		161	45	2.5	678	8.1
Nov. 4.....		--		--	--	66	--	110	0	--	90		--	.3	--	--		143	53	2.4	628	7.8
Dec. 9.....		--		--	--	65	--	98	0	--	86		--	.3	--	--		131	51	2.5	583	8.1
Jan. 13, 1964.....		--		--	--	168	--	104	2	--	124		--	1.6	--	--		284	195	4.3	1390	8.3
Feb. 10.....		--		--	--	75	--	118	0	--	111		--	.4	--	--		168	71	2.5	759	8.2
Mar. 9.....		--		--	--	54	--	88	0	--	76		--	.2	--	--		139	67	2.0	551	7.8
Apr. 13.....		--		--	--	38	--	88	0	--	53		--	.2	--	--		120	48	1.5	426	8.0
May 11.....	13			30	15	56	2.2	106	0	46	86	0.1	6.8	.2	324	0.44		137	50	2.1	559	7.9
June 8.....		--		--	--	27	--	80	0	--	29		--	.1	--	--		82	16	1.3	282	8.0
July 13.....		--		--	--	30	--	88	0	--	34		--	.0	--	--		85	13	1.4	308	8.1
Aug. 10.....		--		--	--	52	--	82	0	--	80		--	.2	--	--		94	27	2.3	463	8.1
Sept. 14.....		14		23	15	70	2.8	95	0	45	104		1.4	.2	335	.46		120	42	2.8	599	7.9

SAN JOAQUIN RIVER BASIN--Continued

11-3132. GRANT LINE CANAL AT TRACY ROAD BRIDGE, CALIF.

LOCATION.--At bridge on Tracy Road approximately 5 miles north of Tracy, San Joaquin County.

RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1964.

REMARKS.--No discharge records available.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Cal- cium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Po- tas- sium (K)	Bi- car- bon- ate (HCO <sub>3</sub> )	Car- bon- ate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluo- ride (F)	Ni- trate (NO <sub>3</sub> )	Bo- ron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		So- dium ad- sorp- tion ratio	Specific con- duct- ance (micro- mhos at 25°C)	pH
															Parts per million	Tons per acre- foot	Tons per day	Cal- cium, Mag- ne- sium	Non- car- bon- ate			
Oct. 8, 1963.....		--		--	--	76	--	154	0	--	115		--	0.0	--	--		168	42	2.6	722	8.2
Nov. 5.....		--		--	--	50	--	87	0	--	74		--	.1	--	--		105	34	2.1	474	8.1
Dec. 3.....		--		--	--	38	--	74	0	--	49		--	.1	--	--		81	20	1.8	357	7.8
Jan. 10, 1964.....		--		--	--	49	--	87	0	--	69		--	.1	--	--		99	28	2.1	464	8.0
Feb. 4.....		--		--	--	66	--	108	0	--	97		--	.3	--	--		144	55	2.4	658	8.1
Mar. 5.....		--		--	--	127	--	150	4	--	216		--	.4	--	--		254	124	3.5	1140	8.4
Apr. 9.....		--		--	--	113	--	168	0	--	190		--	.4	--	--		240	102	3.2	1050	8.1
May 8.....	21			60	24	119	4.0	182	0	75	200	0.3	6.6	.3	611	0.83		250	101	3.3	1070	7.7
June 11.....		--		--	--	130	--	194	0	--	215		--	.3	--	--		270	111	3.4	1200	8.2
July 6.....		--		--	--	126	--	182	8	--	235		--	.4	--	--		284	122	3.2	1190	8.3
Aug. 6.....		--		--	--	84	--	136	0	--	147		--	.4	--	--		183	71	2.7	796	7.8
Sept. 3.....		20		62	30	135	2.4	205	0	75	232		3.9	.4	687	.93		278	110	3.5	1210	7.9

## SAN JOAQUIN RIVER BASIN--Continued

11-3132.5. OLD RIVER AT CLIFTON COURT FERRY, CALIF.

LOCATION.--At Clifton Court Ferry Crossing, 0.3 mile downstream from tidal gaging station, 2.1 miles east of Herdlyn, and 3.6 miles north of Bethany, San Joaquin County.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

REMARKS.--No discharge records available.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 8, 1963.....		--		--	--	68	--	137		--	102		--	0.0	--	--		155	43	2.4	645	8.2
Nov. 5.....		--		--	--	55	--	95		--	84		--	.1	--	--		118	40	2.2	528	8.1
Dec. 3.....		--		--	--	44	--	78		--	58		--	.2	--	--		94	30	2.0	411	7.9
Jan. 10, 1964.....		--		--	--	50	--	85		--	76		--	.2	--	--		107	37	2.1	489	8.2
Feb. 4.....		--		--	--	72	--	106		--	102		--	.3	--	--		156	69	2.5	694	7.8
Mar. 5.....		--		--	--	49	--	88		--	69		--	.3	--	--		130	58	1.9	513	8.2
Apr. 9.....		--		--	--	34	--	84		--	44		--	.2	--	--		106	37	1.4	376	8.0
May 8.....	13			24	11	34	1.6	87		26	53	0.2	2.1	.1	226	0.31		104	33	1.5	379	7.9
June 11.....		--		--	--	21	--	82		--	26		--	.1	--	--		76	9	1.0	257	8.0
July 6.....		--		--	--	34	--	93		--	46		--	.3	--	--		100	24	1.5	359	8.2
Aug. 6.....		--		--	--	48	--	80		--	75		--	.2	--	--		89	23	2.2	427	8.2
Sept. 3.....		14		39	20	93	3.4	139		53	155		2.2	.2	460	.63		180	66	3.0	826	7.9

## SAN JOAQUIN RIVER BASIN--Continued

11-3133. ITALIAN SLOUGH AT MOUTH, NEAR BYRON, CALIF.

LOCATION.--At confluence of Italian Slough and Old River, 3.6 miles east of Byron, Contra Costa County, and 12 miles northwest of Tracy.  
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

REMARKS.--No discharge records available.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 2, 1963.....		--		--	--	41	--	--		--	52		--	0.2	240	0.33		--	--	--	405	7.5
Oct. 8.....		--		20	10	32	1.9	--		23	38		2.3	.1	200	.27		93	--	1.4	342	8.0
Oct. 16.....		--		--	--	42	--	--		--	55		--	.0	236	.32		--	--	--	413	7.9
Oct. 23.....		--		--	--	38	--	--		--	49		--	.0	227	.31		--	--	--	406	7.8
Oct. 30.....		--		--	--	38	--	--		--	53		--	.2	235	.32		--	--	--	399	7.7
Nov. 5.....		--		22	12	41	--	96		43	59		3.6	.1	252	.34		104	25	1.7	425	8.0
Nov. 14.....		--		--	--	46	--	--		--	66		--	.2	265	.36		--	--	--	457	7.8
Nov. 20.....		--		--	--	50	--	--		--	71		--	.3	279	.38		--	--	--	462	8.1
Nov. 27.....		--		--	--	72	--	--		--	103		--	.8	337	.46		--	--	--	577	8.1
Dec. 3.....		--		24	12	67	--	98		43	99		2.4	.7	313	.43		110	30	--	558	8.0
Dec. 11.....		--		--	--	68	--	--		--	90		--	.7	312	.42		--	--	--	554	7.9
Dec. 18.....		--		--	--	70	--	--		--	86		--	.9	345	.47		--	--	--	574	7.4
Dec. 26.....		--		--	--	72	--	--		--	98		--	.8	342	.47		--	--	--	591	7.7
Jan. 2, 1964.....		--		16	17	68	--	--		53	98		4.7	.8	324	.44		111	--	2.8	573	7.7
Jan. 10.....		--		--	--	64	--	87		--	100		--	.5	--	--		118	47	2.6	579	7.9
Jan. 15.....		--		24	15	67	--	--		47	97		6.6	.5	342	.47		122	--	2.6	590	8.0
Jan. 23.....		--		--	--	74	--	--		--	109		--	.5	397	.54		--	--	--	700	7.7
Jan. 29.....		--		--	--	88	--	--		--	124		--	.8	437	.59		--	--	--	755	7.4
Feb. 4.....		--		39	13	98	--	108		64	123		7.1	.7	437	.59		152	63	3.5	749	7.6
Feb. 13.....		--		--	--	92	--	--		--	130		--	.8	458	.62		--	--	--	792	7.9
Feb. 20.....		--		--	--	87	--	--		--	129		--	.6	466	.63		--	--	--	798	7.7
Feb. 27.....		--		--	--	88	--	--		--	132		--	.7	503	.68		--	--	--	844	7.8
Mar. 5.....		--		--	--	60	--	89		--	86		--	.3	--	--		154	81	2.1	631	8.1
Mar. 12.....		--		--	--	42	--	--		--	62		--	.1	278	.38		--	--	--	463	7.6
Mar. 19.....		--		--	--	37	--	--		--	51		--	.1	247	.34		--	--	--	398	7.4
Mar. 26.....		--		--	--	34	--	--		--	52		--	.2	233	.32		--	--	--	390	7.9
Apr. 2.....		--		--	--	41	--	--		--	54		--	.1	262	.36		--	--	--	438	7.7
Apr. 9.....		--		23	13	34	--	83		47	44		3.2	.2	244	.33		109	41	1.4	386	8.0
Apr. 16.....		--		--	--	30	--	--		--	36		--	.5	199	.27		--	--	--	328	8.1
Apr. 23.....		--		--	--	24	--	--		--	34		--	.2	175	.24		--	--	--	300	8.1
Apr. 30.....		--		--	--	22	--	--		--	28		--	.2	175	.24		--	--	--	273	8.2
May 7.....	12			17	8.9	20	1.6	75		25	28	0.2	1.6	.2	153	.21		79	17	1.0	270	8.0
May 14.....		--		--	--	21	--	--		--	28		--	.2	154	.21		--	--	--	263	8.1
May 21.....		--		--	--	21	--	--		--	26		--	.1	153	.21		--	--	--	250	8.1
May 28.....		--		--	--	22	--	--		--	31		--	.2	163	.22		--	--	--	271	7.9
June 4.....		--		--	--	21	--	--		--	27		--	.1	164	.22		--	--	--	260	7.9
June 11.....		--		20	9.7	34	--	81		29	47		1.2	.3	189	.26		90	24	1.6	342	7.9
June 18.....		--		--	--	22	--	--		--	23		--	.2	160	.22		--	--	--	261	7.6
June 25.....		--		--	--	22	--	--		19	21		--	.2	154	.21		--	--	--	252	8.2
July 2.....		--		--	--	21	--	--		23	22		--	.1	159	.22		--	--	--	248	7.9
July 9.....		--		17	8.6	25	--	86		22	27		1.6	.2	155	.21		78	7	1.2	269	8.2
Aug. 6.....		--		18	12	54	3.0	81		22	88		2.6	.2	261	.35		94	28	2.4	469	8.0
Sept. 3.....		16		18	13	68	2.9	83		28	106		1.7	.1	298	.41		100	32	3.0	541	7.7



SAN JOAQUIN RIVER BASIN--Continued

11-3133.1. ITALIAN SLOUGH AT CLIFTON COURT BRIDGE, NEAR BYRON, CALIF.

LOCATION.--At bridge on Clifton Court Road, approximately 2.5 miles downstream from confluence with Old River, and 3 miles southeast of Byron, Contra Costa County.

RECORDS AVAILABLE.--Chemical analyses: May 1963 to September 1964.

REMARKS.--No discharge records available.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 2, 1963.....				--	--	42				--	59		--	0.2	257	0.35		--		--	443	7.6
Oct. 8.....				22	10	36	1.9			23	47		2.3	.1	211	.29		97		1.6	371	7.9
Oct. 16.....				--	--	43				--	59		--	.0	237	.32		--		--	427	7.8
Oct. 23.....				--	--	41				--	54		--	.0	239	.33		--		--	210	7.8
Oct. 30.....				--	--	36				--	53		--	.2	230	.31		--		--	402	8.1
Nov. 5.....				23	12	56				34	71		3.2	.7	286	.39		109		2.3	492	8.2
Nov. 14.....				--	--	86				--	123		--	1.7	390	.53		--		--	700	7.9
Nov. 20.....				--	--	137				--	190		--	3.5	509	.69		--		--	915	8.1
Nov. 27.....				--	--	109				--	151		--	1.6	446	.61		--		--	791	8.1
Dec. 3.....				26	16	105				57	149		3.5	1.7	432	.59		132		--	766	7.9
Dec. 11.....				--	--	106				--	155		--	1.7	433	.59		--		--	775	8.1
Dec. 18.....				--	--	91				--	130		--	1.5	418	.57		--		--	723	7.9
Dec. 26.....				--	--	105				--	156		--	1.7	449	.61		--		--	823	8.0
Jan. 2, 1964.....				26	16	128				62	171		7.5	2.0	497	.68		131		4.9	888	7.8
Jan. 10.....				24	15	96		104		53	131		4.9	1.3	403	.55		122		3.8	721	8.2
Jan. 15.....				26	16	130				63	183		8.0	2.3	510	.69		132		4.9	915	8.2
Jan. 23.....				--	--	105				--	144		--	1.3	447	.61		--		--	783	7.5
Jan. 29.....				--	--	142				--	199		--	2.0	588	.80		--		--	1030	7.5
Feb. 4.....				22	23	122				79	162		13	1.5	507	.69		150		4.3	882	7.7
Feb. 13.....				--	--	167				--	237		--	3.2	680	.92		--		--	1190	7.5
Feb. 20.....				--	--	132				--	190		--	1.9	586	.80		--		--	1010	7.9
Feb. 27.....				--	--	167				--	244		--	3.2	703	.96		--		--	1220	7.9
Mar. 5.....				--	--	81				107	116		7.4	.4	460	.63		178		2.6	768	7.3
Mar. 12.....				--	--	58				--	82		--	.3	340	.46		--		--	571	7.6
Mar. 19.....				--	--	41				--	61		--	.1	--	--		--		--	440	7.2
Mar. 26.....				--	--	44				--	60		--	.4	--	--		--		--	444	7.6
Apr. 2.....				--	--	43				--	58		--	.2	261	.35		--		--	436	7.7
Apr. 9.....				24	13	40				51	52		4.3	.3	261	.35		114		1.6	421	8.1
Apr. 16.....				--	--	30				--	39		--	.5	210	.29		--		--	340	7.9
Apr. 23.....				--	--	38				--	52		--	.4	227	.31		--		--	377	7.9
Apr. 27.....				--	--	--				--	44		--	.7	--	--		--		--	332	--
Apr. 30.....				--	--	28				--	36		--	.3	183	.25		--		--	306	8.0
May 7.....				20	11	47				34	74		1.2	.8	268	.36		97		2.1	444	7.7
May 14.....				--	--	25				--	36		--	.2	165	.22		--		--	301	8.1
May 21.....				--	--	21				--	29		--	.1	153	.21		--		--	268	7.7
May 28.....				--	--	23				--	33		--	.2	162	.22		--		--	282	7.8
June 4.....				--	--	35				--	50		--	.5	206	.28		--		--	350	8.0
June 11.....				20	12	66				30	92		1.4	1.1	288	.39		100		2.9	510	7.9
June 18.....				--	--	30				--	36		--	.3	178	.24		--		--	313	7.7
June 25.....				--	--	23				--	26		--	.2	166	.23		--		--	261	8.0
July 2.....				--	--	23				--	26		--	.2	167	.23		--		--	265	7.9

## SAN JOAQUIN RIVER BASIN--Continued

11-3133.5. INDIAN SLOUGH NEAR BRENTWOOD, CALIF.

LOCATION.--At East Contra Costa Irrigation District Pumping station on Bixler Road, 3.6 miles north of Byron, and 4.1 miles southeast of Brentwood, Contra Costa County.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

REMARKS.--No discharge records available.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 9, 1963.....		--		--	--	45	--	117	1	--	57		--	0.3	--	--		112	14	1.9	457	8.3
Nov. 6.....		--		--	--	101	--	191	1	--	117		--	1.8	--	--		189	30	3.2	876	8.3
Dec. 4.....		--		--	--	124	--	248	4	--	144		--	1.7	--	--		272	62	3.3	1100	8.3
Jan. 8, 1964.....		--		--	--	154	--	342	16	--	183		--	2.2	--	--		358	51	3.5	1370	8.6
Feb. 5.....		--		--	--	166	--	308	10	--	159		--	2.7	--	--		278	9	4.3	1340	8.5
Mar. 6.....		--		--	--	127	--	184	1	--	175		--	1.4	--	--		262	108	3.4	1150	8.3
Apr. 8.....		--		--	--	34	--	92	0	--	39		--	.2	--	--		99	24	1.5	354	8.1
May 6.....	18			18	8.3	23	1.4	82	0	22	29	0.2	2.1	.2	A 162	0.22		79	12	1.1	268	7.8
June 9.....		--		--	--	32	--	91	0	--	35		--	.3	--	--		86	11	1.5	321	8.1
July 2.....		--		--	--	28	--	94	0	--	30		--	.2	--	--		90	13	1.3	289	8.2
Aug. 10.....		--		--	--	79	--	85	1	--	129		--	.2	--	--		109	38	3.3	633	8.3
Sept. 8.....		12		18	20	88	3.5	105	0	40	141		1.3	.5	412	.56		126	40	3.4	720	7.6

A Calculated from sum of determined constituents.

## SAN JOAQUIN RIVER BASIN--Continued

11-3134. OLD RIVER AT ORWOOD BRIDGE, NEAR MIDDLE RIVER, CALIF.

LOCATION.--At Atchison, Topeka and Santa Fe Railroad bridge, 1.6 miles west of Middle River, San Joaquin County, and 7.9 miles east of Brentwood.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

REMARKS.--No discharge records available.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 9, 1963.....		--		--	--	26	--	99	0	--	33		--	0.0	--	--		88	7	1.2	310	8.1
Nov. 6.....		--		--	--	38	--	102	0	--	54		--	.2	--	--		106	22	1.6	417	8.0
Dec. 4.....		--		--	--	44	--	82	0	--	59		--	.2	--	--		98	31	1.9	425	8.0
Jan. 8, 1964.....		--		--	--	50	--	79	0	--	81		--	.2	--	--		124	59	2.0	532	8.1
Feb. 5.....		--		--	--	70	--	96	0	--	108		--	.3	--	--		178	99	2.3	758	7.8
Mar. 6.....		--		--	--	34	--	82	1	--	48		--	.2	--	--		105	36	1.4	390	8.3
Apr. 8.....		--		--	--	22	--	82	0	--	26		--	.1	--	--		87	20	1.0	276	8.0
May 6.....		13		16	6.8	15	1.4	73	0	15	20	0.2	1.9	.1	A 126	0.17		68	8	.8	211	7.6
June 9.....		--		--	--	19	--	79	0	--	20		--	.1	--	--		71	6	1.0	231	8.2
July 2.....		--		--	--	22	--	86	0	--	22		--	.1	--	--		73	2	1.1	247	8.2
Aug. 10.....		--		--	--	64	--	80	0	--	108		--	.2	--	--		96	30	2.8	536	8.1
Sept. 8.....		13		12	16	56	2.4	75	0	25	90		.8	.3	273	.37		94	32	2.5	486	7.5

A Calculated from sum of determined constituents.

SAN JOAQUIN RIVER BASIN--Continued

11-3134.2. ROCK SLOUGH NEAR KNIGHTSEN, CALIF.

LOCATION.--At Contra Costa Canal intake at the end of Tule Lane, 2 miles northeast of Knightsen, Contra Costa County, and 4.2 miles southeast of Oakley.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

REMARKS.--No discharge records available.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 9, 1963.....		--		--	--	25	--	101	0	--	28		--	0.0	--	--		86	3	1.2	294	8.0
Nov. 6.....		--		--	--	32	--	110	0	--	44		--	.3	--	--		101	11	1.4	377	7.6
Dec. 4.....		--		--	--	65	--	112	0	--	88		--	.4	--	--		136	44	2.4	604	7.9
Jan. 8, 1964.....		--		--	--	60	--	91	3	--	90		--	.4	--	--		134	54	2.3	578	8.3
Feb. 5.....		--		--	--	85	--	122	0	--	131		--	.6	--	--		210	110	2.6	908	8.1
Mar. 6.....		--		--	--	40	--	86	0	--	56		--	.2	--	--		116	45	1.6	445	8.2
Apr. 8.....		--		--	--	25	--	87	0	--	28		--	.1	--	--		90	19	1.1	298	8.2
May 6.....	14			18	7.5	16	1.3	73	0	21	21	0.2	2.1	.1	137	0.19		76	16	1.8	231	7.8
June 9.....		--		--	--	18	--	80	0	--	20		--	.1	--	--		70	4	.9	225	8.0
July 6.....		--		--	--	26	--	84	0	--	28		--	.2	--	--		86	17	1.2	261	8.2
Aug. 6.....		--		--	--	76	--	84	0	--	122		--	.2	--	--		103	34	3.3	592	7.9
Sept. 3.....		13		19	15	78	4.6	85	0	26	134		--	.1	359	.49		110	40	3.2	640	7.7

SAN JOAQUIN RIVER BASIN--Continued

11-3134.5. OLD RIVER AT MANDEVILLE ISLAND, CALIF.

LOCATION.--On northwest side of Mandeville Island, San Joaquin County, approximately 0.5 mile upstream from confluence with San Joaquin River, and approximately 5.5 miles southwest of Terminous.

RECORDS AVAILABLE.--Chemical analyses: December 1954 to September 1964.

REMARKS.--No discharge records available.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 7, 1963.....		--		--	--	17	--	91		--	18		--	0.0	--	--		73	0	0.9	227	8.0
Nov. 6.....		--		--	--	25	--	92		--	31		--	.0	--	--		82	7	1.2	289	7.7
Dec. 2.....		--		--	--	42	--	88		--	61		--	.1	--	--		107	35	1.8	436	7.7
Jan. 8, 1964.....		--		--	--	47	--	78		--	68		--	.1	--	--		126	62	1.8	497	8.1
Feb. 3.....		--		--	--	44	--	80		--	70		--	.1	--	--		136	70	1.6	527	7.7
Mar. 6.....		--		--	--	23	--	79		--	29		--	.1	--	--		84	19	1.1	282	8.1
Apr. 6.....		--		--	--	16	--	78		--	18		--	.1	--	--		76	12	.8	219	8.2
May 6.....		14		15	6.2	13	1.5	68		13	17	0.2	1.8	.0	A 115	0.16		63	7	.7	188	7.6
June 8.....		--		--	--	16	--	82		--	16		--	.1	--	--		88	21	.7	209	8.2
July 2.....		--		--	--	23	--	83		--	26		--	.1	--	--		82	14	1.1	249	8.2
Aug. 10.....		--		--	--	76	--	78		--	122		--	.1	--	--		99	35	3.3	590	7.8
Sept. 8.....		16		16	11	45	2.4	88		16	70		--	.9	228	.31		86	14	2.1	404	8.2

A Calculated from sum of determined constituents.

SAN JOAQUIN RIVER BASIN--Continued

11-3195. MOKELUMNE RIVER NEAR MOKELUMNE HILL, CALIF.

LOCATION.--Temperature recorder at gaging station at bridge, 1.2 miles northwest of Mokelumne Hill, Calaveras County, and 8 miles downstream from confluence of North and South Forks.

DRAINAGE AREA (revised).--544 square miles.

RECORDS AVAILABLE.--Water temperatures: February 1961 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 66°F June 21; minimum, 40°F on several days during January to March.

EXTREMES, 1961-64.--Water temperatures: Maximum, 66°F June 21, 1964; minimum, 39°F Jan. 23-28, 1962, Jan. 28-30, 1963.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum ....	53	53	53	53	53	53	53	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	
Minimum ....	52	53	53	53	53	53	53	53	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	
November																																	
Maximum ....	54	54	53	53	53	53	53	52	52	52	53	54	54	54	53	52	50	49	49	48	47	46	46	46	46	48	48	48	47	48	47	--	51
Minimum ....	54	53	53	53	53	53	52	52	52	52	52	53	54	53	52	50	49	49	48	47	46	46	46	46	46	46	46	46	46	47	47	--	50
December																																	
Maximum ....	48	48	48	47	47	47	47	48	49	48	48	46	47	47	46	44	44	44	44	44	44	44	44	44	44	44	44	44	43	43	43	43	46
Minimum ....	47	47	47	47	47	47	47	47	47	47	46	46	46	46	46	44	44	44	44	44	44	44	44	44	44	44	44	43	43	43	43	43	45
January																																	
Maximum ....	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	42	42	42	42	42	42	42	41	40	40	40	40	40	40	40	41	42
Minimum ....	43	43	43	43	43	43	43	43	43	43	43	43	43	43	42	42	42	42	42	42	42	42	41	40	40	40	40	40	40	40	40	40	42
February																																	
Maximum ....	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	42	42	42	42	41	41	41	41	41	40	41	--	--	41
Minimum ....	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	40	40	40	40	--	--	41
March																																	
Maximum ....	41	41	41	40	41	41	41	41	41	41	41	42	42	42	42	43	43	43	43	44	44	46	46	46	45	44	44	43	44	44	46	46	43
Minimum ....	41	41	40	40	40	41	41	41	40	41	41	41	41	42	42	42	42	43	43	44	44	46	45	44	42	43	43	43	44	46	46	42	
April																																	
Maximum ....	46	46	46	47	47	47	46	47	47	47	47	47	47	48	48	55	51	51	50	50	49	49	49	49	49	48	48	48	53	53	--	49	
Minimum ....	46	46	45	45	46	45	45	46	47	47	47	47	47	47	48	48	51	50	50	49	49	49	49	49	47	47	47	48	48	51	51	--	48
May																																	
Maximum ....	52	51	51	50	49	48	47	47	53	53	55	55	55	55	56	56	57	59	57	59	57	57	57	57	56	58	57	56	56	57	62	55	
Minimum ....	51	51	50	49	48	46	46	46	47	50	52	52	55	55	55	56	56	57	57	57	57	56	55	55	56	56	57	56	56	54	54	55	53
June																																	
Maximum ....	56	56	56	56	55	55	55	55	54	53	53	57	54	54	54	54	54	53	53	57	66	59	61	63	61	65	61	60	58	57	--	57	
Minimum ....	56	56	55	55	55	55	55	54	53	52	51	50	53	54	54	54	53	53	53	53	57	57	58	61	60	59	59	58	57	56	--	55	
July																																	
Maximum ....	56	55	54	55	54	55	56	56	56	60	57	58	58	57	57	57	57	57	57	58	57	57	57	57	57	59	58	57	57	58	56	57	
Minimum ....	55	54	54	54	54	54	54	54	54	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	57	57	57	57	56	56	56	
August																																	
Maximum ....	56	56	56	56	56	56	55	55	55	55	55	55	56	56	56	56	56	55	55	55	56	56	56	56	56	56	56	54	55	55	55	53	55
Minimum ....	55	55	55	55	55	55	54	54	54	54	54	54	54	54	54	54	55	54	54	54	54	54	55	55	55	55	54	54	53	53	53	53	54
September																																	
Maximum ....	53	53	53	53	53	53	53	53	53	53	55	55	55	55	55	55	55	55	55	55	56	56	56	56	56	57	57	57	57	57	--	55	
Minimum ....	53	52	52	52	52	52	52	52	52	52	53	54	54	54	54	54	54	54	54	54	55	55	55	55	55	55	55	55	57	57	57	--	54

SAN JOAQUIN RIVER BASIN--Continued

11-3235. MOKELUMNE RIVER BELOW CAMANCHE DAM, CALIF.

LOCATION.--Temperature recorder at gaging station 0.7 mile downstream from Murphy Creek, and 3.4 miles northeast of Clements, San Joaquin County.

DRAINAGE AREA.--627 square miles.

RECORDS AVAILABLE.--Water temperatures: October 1961 to September 1964.

EXTREMES, 1961-63.--Water temperatures: Maximum, 64°F Oct. 14-16, 1961; minimum, 45°F Jan. 22-26, 1962.

Temperature (°F) of water, water year October 1963 to September 1964

Temperature (°F) of water, water year October 1963 to September 1964																																	
Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum ....	62	63	63	62	62	62	61	61	61	61	61	60	60	60	60	60	60	60	60	60	60	59	59	60	60	60	60	60	60	59	59	60	
Minimum ....	62	62	62	62	62	61	61	61	60	60	60	60	60	60	60	60	60	60	60	60	60	59	59	59	59	59	59	59	59	59	59	60	
November																																	
Maximum ....	59	59	59	59	59	58	58	58	58	57	57	57	57	57	57	57	56	56	56	55	55	54	53	53	53	53	53	53	53	53	53	56	
Minimum ....	59	59	59	59	58	58	58	58	57	57	57	57	57	57	57	56	56	56	55	55	54	53	53	53	53	53	53	53	53	53	53	56	
December																																	
Maximum ....	53	53	52	51	51	50	50	50	50	50	50	49	48	48	48	48	48	48	48	47	47	47	47	47	47	47	47	47	47	47	49		
Minimum ....	53	52	51	51	50	49	50	50	50	50	50	49	48	48	48	48	48	48	48	47	47	47	47	47	47	46	47	47	47	47	48		
January																																	
Maximum ....	47	47	47	46	46	46	46	46	46	46	46	46	46	45	45	45	45	45	45	45	45	44	44	44	44	44	44	44	44	44	45		
Minimum ....	47	47	46	46	46	46	46	46	46	46	46	46	45	45	45	45	45	45	45	45	44	44	44	44	44	44	44	44	44	44	45		
February																																	
Maximum ....	44	44	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Minimum ....	44	44	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
March																																	
Maximum ....	--	--	51	51	51	51	51	51	52	52	51	51	51	52	52	51	51	51	51	51	51	52	52	52	52	52	52	52	52	52	52	52	
Minimum ....	--	--	50	50	50	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	52	52	52	52	52	52	52	52	52	52	51	
April																																	
Maximum ....	52	52	52	52	53	53	53	53	53	53	54	54	54	54	54	54	54	54	55	55	55	55	56	56	56	56	56	56	56	56	56	54	
Minimum ....	52	52	52	52	52	53	53	53	53	53	54	54	54	54	54	54	54	54	55	55	55	55	56	56	56	56	56	56	56	56	56	54	
May																																	
Maximum ....	56	56	56	57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Minimum ....	56	56	56	56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
June																																	
Maximum ....	--	--	61	61	61	61	61	61	62	62	62	62	63	63	63	--	--	--	59	59	59	59	59	59	59	58	58	58	58	58	--	60	
Minimum ....	--	--	61	61	61	61	61	61	61	62	62	62	62	63	63	63	--	--	--	59	59	59	59	59	59	58	58	58	58	58	--	60	
July																																	
Maximum ....	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	59	59	59	59	59	59	59	58	58	58	58	58	58	
Minimum ....	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	57	58	
August																																	
Maximum ....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	59	59	58	59	--	
Minimum ....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	58	58	57	57	--	
September																																	
Maximum ....	58	58	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	
Minimum ....	57	57	57	57	58	57	57	57	57	57	58	58	58	58	58	59	58	59	59	59	59	59	59	59	59	59	58	58	58	58	58	58	

Periodic determinations of suspended sediment discharge and particle-size analyses, water year October 1963 to September 1964

(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;

P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (° F)	Sam- pling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment												Method of analysis
							Percent finer than size indicated, in millimeters												
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000		
Oct. 11, 1963.....	1335	61		302	20	16												S	
Nov. 5.....	1300	58		129	10	3.5													
Dec. 8.....	1330	51		346	11	10													
Jan. 9, 1964.....	1335	49		92	8	2.0													
Jan. 21.....	1650	46		660	39	69					90	95	98	100					
Feb. 6.....	1630	48		726	8	16													
Mar. 3.....	1355	51		228	5	3.1													
Apr. 8.....	1530	56		520	8	11													
May 11.....	1535	60		170	26	12													
June 15.....	1335	63		346	5	4.7													
July 23.....	1335	63		333	4	3.6													
Aug. 27.....	1300	62		333	2	1.8													
Sept. 29.....	1240	62		247	4	2.7													

## 11-3255. MOKELUMNE RIVER AT WOODBRIDGE, CALIF.

**DRAINAGE AREA.**--660 square miles upstream from gaging station.

RECORDS AVAILABLE.--Chemical analyses: March 1951 to September 1963.

Water temperatures: March 1951 to September 1958, November 1960 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 76°F June 24-26; minimum, 44°F on several days during January.

**EXTREMES, 1951-58, 1960-64.**--Water temperatures: Maximum (1951-54, 1956-58, 1960-64), 83°F July 9, 1951; minimum (1951-55, 1956-58, 1961-64), 35°F Jan. 29, 30, 1954.

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (microhmhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Nov. 6, 1963.....	97	---	---	---	---	2.0	---	20	---	---	2.6	---	---	0.0	---	---	---	16	0	0.2	42	7.5
Jan. 6, 1964.....	63	---	---	---	---	2.6	---	20	---	---	3.5	---	---	.1	---	---	---	16	0	.3	45	7.7
Mar. 2.....	16	---	---	---	---	3.8	---	22	---	---	3.2	---	---	.0	---	---	---	19	1	.4	52	7.7
May 4.....	11	10	---	5.6	2.2	2.6	1.2	23	---	3.0	4.5	0.2	0.5	.0	43	0.06	---	23	4	.2	54	7.6
July 7.....	26	---	---	---	---	3.0	---	24	---	---	1.0	---	---	.3	---	---	---	19	0	.3	53	7.4
Sept. 1.....	74	8.9	---	6.0	1.1	3.3	1.0	24	---	5.0	2.3	---	.2	.0	42	.06	---	20	0	.3	55	7.3

Month	Day																																	Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
October																																		
Maximum	69	68	68	68	67	67	66	66	66	66	66	66	65	65	65	64	63	63	63	63	63	63	62	62	61	61	61	60	59	59	59	59	64	
Minimum	68	68	67	67	67	66	66	66	66	66	66	66	65	65	65	64	63	63	63	63	63	62	62	61	61	61	60	59	59	59	58	64		
November																																		
Maximum	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Minimum	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
December																																		
Maximum	---	---	---	---	48	48	48	48	48	48	47	47	45	45	45	46	46	46	46	46	46	46	46	46	45	45	45	46	46	46	46	46	46	
Minimum	---	---	---	---	47	48	48	48	48	48	47	45	45	45	45	46	46	46	46	46	46	46	46	46	46	45	45	45	45	46	46	46	46	
January																																		
Maximum	46	46	47	47	47	46	45	46	46	46	46	45	44	44	44	44	44	45	47	47	47	47	47	47	47	47	47	47	47	47	47	47	46	
Minimum	46	46	46	47	46	45	45	45	46	46	46	45	44	44	44	44	44	44	45	47	47	47	47	47	47	47	47	47	47	47	47	46	46	
February																																		
Maximum	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	47	47	48	48	49	50	50	50	50	50	50	50	50	50	50	47	
Minimum	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	47	48	48	49	50	50	50	50	50	50	50	50	50	50	47	
March																																		
Maximum	50	51	50	51	51	51	51	51	51	51	51	51	51	51	51	52	52	54	55	56	56	56	56	56	55	55	55	54	54	56	60	60	54	
Minimum	50	50	50	50	51	51	51	51	51	51	51	51	51	51	51	52	52	54	55	56	56	56	56	55	55	54	54	54	56</					



SAN JOAQUIN RIVER BASIN--Continued

11-3350. COSUMNES RIVER AT MICHIGAN BAR, CALIF.

LOCATION.--At gaging station at Michigan Bar, Sacramento County, 5.5 miles southwest of Latrobe, and 12 miles downstream from confluence of North and Middle Forks.

DRAINAGE AREA.--537 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1963 to September 1963.

Water temperatures: October 1962 to September 1964.

Sediment records: October 1962 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Minimum, 40°F on several days during December.

Sediment concentrations: Maximum daily, 139 ppm Jan. 21; minimum daily, 1 ppm on many days.

Sediment loads: Maximum daily, 1,040 tons Jan. 21; minimum daily, less than 0.05 ton on several days.

EXTREMES, 1962-64.--Water temperatures (1963-64): Minimum, 40°F on several days during December 1963.

Sediment concentrations: Maximum daily, 3,070 ppm Feb. 1, 1963; minimum daily, 1 ppm on many days during 1962-64.

Sediment loads: Maximum daily, 245,000 tons Feb. 1, 1963; minimum daily, less than 0.05 ton on many days during 1962-64.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Nov. 4, 1963.....	41	--	--	--	--	3.6	--	44	--	--	2.0	--	--	0.2	--	--	--	33	0	0.3	83	7.7
Jan. 6, 1964.....	89	--	--	--	--	4.3	--	56	--	--	4.4	--	--	.0	--	--	--	47	1	.3	112	8.2
Mar. 2.....	220	--	--	--	--	4.5	--	56	--	--	3.5	--	--	.0	--	--	--	44	0	.3	108	8.0
May 4.....	462	16	--	6.2	2.1	2.8	0.4	30	--	3.0	2.5	0.0	0.7	.0	49	0.06	--	24	0	.2	61	7.6
July 3.....	50	--	--	--	--	3.9	--	36	--	--	1.0	--	--	.1	--	--	--	26	0	.3	69	8.0
Sept. 1.....	12	15	--	6.4	2.2	3.2	1.0	34	--	2.0	.8	--	3.1	.0	51	.07	--	25	0	.3	66	8.0

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October.....	--	--	--	--	68	--	--	--	--	--	67	64	64	63	63	65	66	66	64	--	65	--	63	62	62	--	62	--	59	--	--	--
November.....	58	--	58	--	57	56	--	55	55	56	55	56	56	57	56	51	50	49	47	49	49	47	48	50	49	48	46	47	46	46	--	52
December.....	45	45	45	43	43	43	44	43	44	43	43	40	40	40	40	40	40	41	44	45	45	44	42	42	42	43	45	45	47	46	--	43
January.....	45	47	44	45	42	41	43	42	43	43	41	42	41	44	42	42	43	45	45	48	42	43	44	45	45	46	45	48	44	44	45	44
February.....	46	46	46	44	46	46	45	45	46	46	44	46	46	43	45	45	45	47	47	48	50	50	49	49	49	48	49	46	48	--	--	47
March.....	46	47	48	50	51	47	50	49	49	50	49	49	48	53	54	55	56	57	57	56	55	49	47	49	50	53	50	57	58	59	55	52
April.....	54	52	55	55	53	53	54	59	59	61	60	60	62	64	66	63	60	58	56	57	58	60	56	53	56	60	62	64	63	61	--	58
May.....	57	57	54	53	50	53	56	60	64	67	65	68	--	63	--	61	--	66	--	67	--	66	--	70	--	66	--	66	--	69	--	--
June.....	72	--	70	--	70	--	70	--	69	--	68	--	75	--	70	68	--	72	--	76	--	76	--	80	--	81	--	76	--	74	--	--
July.....	--	75	--	75	--	--	77	--	76	--	--	--	81	--	--	80	--	--	77	--	78	--	81	--	--	81	--	83	--	82	--	--
August.....	--	76	--	77	--	77	--	--	80	--	80	--	80	--	--	79	--	78	--	78	--	--	78	--	79	--	78	--	--	77	--	--
September.....	--	--	70	--	--	72	--	--	--	--	72	--	--	--	--	--	71	--	--	--	--	--	74	--	--	--	67	--	71	--	--	--

SAN JOAQUIN RIVER BASIN--Continued

11-3350. COSUMNES RIVER AT MICHIGAN BAR, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964  
(Where no concentrations are reported, loads are estimated)

Day	OCTOBER			NOVEMBER			DECEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	22	--	0.1	40	1	0.1	181	2	1.0
2..	18	--	1	40	--	.1	171	1	.5
3..	14	--	1	36	2	.2	159	1	.4
4..	14	--	.1	41	--	.3	151	1	.4
5..	13	2	.1	58	5	.8	145	1	.4
6..	13	--	.1	276	41	S	137	1	.4
7..	13	--	.1	268	73	S	129	1	.3
8..	14	--	.1	142	40	15	124	3	1.0
9..	16	--	.1	104	13	3.7	142	1	.4
10..	17	--	.1	100	7	1.9	168	2	.9
11..	40	2	.2	89	4	1.0	137	1	.4
12..	171	6	S	75	2	.4	124	3	1.0
13..	104	7	2.0	70	2	.4	121	2	.7
14..	64	21	3.6	77	2	.4	121	2	.7
15..	52	30	4.2	559	58	S	116	1	.3
16..	43	10	1.2	420	49	S	114	1	.3
17..	40	6	.6	238	14	9.0	109	2	.6
18..	34	4	.4	181	6	2.9	109	2	.6
19..	31	2	.2	187	7	S	107	1	.3
20..	36	2	.2	682	20	37	111	2	.6
21..	32	--	.2	425	14	16	126	2	.7
22..	31	1	.1	261	8	5.6	126	2	.7
23..	33	--	.1	332	7	S	116	2	.6
24..	38	1	.1	724	18	S	114	1	.3
25..	48	1	.1	474	11	14	109	1	.3
26..	42	2	.2	330	5	4.5	107	1	.3
27..	38	--	.2	268	2	1.4	104	1	.3
28..	35	1	.1	231	2	1.2	102	1	.3
29..	34	--	.1	210	2	1.1	100	1	.3
30..	34	1	.1	193	2	1.0	100	1	.3
31..	34	--	.1	--	--	--	98	2	.5
Total	1168	--	18.2	7131	--	440.2	3878	--	15.8
	JANUARY			FEBRUARY			MARCH		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	98	2	0.5	294	2	1.6	184	1	0.5
2..	100	1	.3	285	2	1.5	220	2	1.2
3..	100	1	.3	276	2	1.5	203	2	1.1
4..	95	2	.5	261	1	.7	174	2	.9
5..	93	1	.3	249	1	.7	174	2	.9
6..	89	2	.5	249	3	2.0	171	2	.9
7..	93	2	.5	238	1	.6	168	1	.5
8..	104	1	.3	228	1	.6	159	2	.9
9..	98	1	.3	224	1	.6	148	1	.4
10..	93	1	.3	220	1	.6	156	1	.4
11..	98	2	.5	214	3	1.7	151	1	.4
12..	91	1	.2	206	2	1.1	200	2	1.1
13..	85	1	.2	200	1	.5	246	2	1.3
14..	91	1	.2	197	1	.5	224	4	2.4
15..	95	1	.3	193	1	.5	203	8	4.4
16..	85	1	.2	197	1	.5	197	4	2.1
17..	93	1	.4	187	1	.5	190	2	1.0
18..	156	1	.4	177	1	.5	197	2	1.1
19..	413	2	S	174	1	.5	210	2	1.1
20..	683	16	S	171	1	.5	206	2	1.1
21..	2780	139	1040	171	1	.5	220	2	1.2
22..	2910	80	S	168	1	.5	276	3	2.2
23..	1100	14	42	171	1	.5	298	3	2.4
24..	700	7	13	171	1	.5	316	3	2.6
25..	578	5	7.8	171	1	.5	340	4	3.7
26..	508	4	5.5	168	1	.5	280	5	3.8
27..	462	4	5.0	162	1	.4	280	4	3.0
28..	400	4	4.3	162	1	.4	268	3	2.2
29..	360	3	2.9	190	1	.5	280	2	1.5
30..	335	2	1.8	--	--	--	294	2	1.6
31..	312	2	1.7	--	--	--	320	2	1.7
Total	13297	--	1908.1	5974	--	21.5	6953	--	49.6

S Computed by subdividing day.

T Less than 0.05 ton.

B Computed from estimated-concentration graph.

SAN JOAQUIN RIVER BASIN--Continued

11-3350. COSUMNES RIVER AT MICHIGAN BAR, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964--Continued

Day	APRIL			MAY			JUNE		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	432	8	S 11	370	3	3.0	206	2	1.1
2..	644	29	50	385	3	3.1	193	--	1.0
3..	564	16	24	395	5	5.3	181	2	1.0
4..	515	5	7.0	462	6	7.5	168	--	.9
5..	494	6	8.0	375	6	6.1	154	2	.8
6..	468	5	6.3	592	26	S 44	151	--	.8
7..	420	3	3.4	522	23	32	154	2	.8
8..	405	5	5.5	432	12	14	193	--	1.0
9..	410	5	5.5	415	6	6.7	224	2	1.2
10..	420	4	4.5	438	6	7.1	224	--	1.2
11..	432	5	5.8	522	11	16	190	2	1.0
12..	456	7	B 8.6	620	13	22	174	--	.9
13..	468	9	11	684	--	30	159	2	.9
14..	487	10	13	676	18	33	142	--	1.2
15..	522	10	14	652	--	30	129	5	1.7
16..	543	12	18	628	14	24	124	2	.7
17..	536	10	14	620	--	20	121	--	.7
18..	508	7	9.6	592	12	19	116	2	.6
19..	480	6	7.8	557	--	18	109	--	.6
20..	438	5	5.9	522	12	17	98	--	.5
21..	410	4	4.4	480	--	12	87	2	.5
22..	400	7	7.6	426	5	5.8	85	--	.5
23..	390	5	5.3	400	--	4.3	77	2	.4
24..	380	4	4.1	365	4	3.9	70	--	.4
25..	350	3	2.8	340	--	3.7	66	2	.4
26..	325	4	3.5	325	3	2.6	63	--	.3
27..	320	4	3.5	350	--	2.8	59	--	.3
28..	345	4	3.7	335	3	2.7	58	2	.3
29..	360	4	3.9	276	--	1.5	50	--	.3
30..	365	4	3.9	242	2	1.3	53	3	.4
31..	--	--	--	220	--	1.2	--	--	--
Total	13287	--	275.6	14218	--	399.6	3878	--	22.4
	JULY			AUGUST			SEPTEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	52	--	0.3	39	--	0.3	12	--	0.1
2..	53	1	.1	39	4	.4	14	--	.1
3..	50	--	.3	40	--	.4	15	3	.1
4..	53	2	.3	39	3	.3	20	--	.2
5..	52	--	.3	36	--	.2	18	--	.1
6..	53	--	.1	29	2	.2	17	2	.1
7..	50	1	.1	27	--	.1	17	--	.1
8..	46	--	.2	25	--	.1	15	--	T
9..	46	2	.2	24	3	.2	18	--	T
10..	39	--	.2	22	--	.2	18	1	T
11..	36	--	.2	21	3	.2	15	--	T
12..	35	--	.3	26	--	.3	14	--	.1
13..	33	3	.3	25	5	.3	14	2	.1
14..	33	--	.3	24	--	.4	14	--	.1
15..	32	--	.3	21	--	.4	14	--	.1
16..	30	4	.3	16	8	.3	12	--	.1
17..	41	--	.4	20	--	.3	11	3	.1
18..	45	--	.4	18	3	.1	9.1	--	.1
19..	42	--	.3	20	--	.1	7.6	--	.1
20..	42	--	.2	34	2	.2	4.9	5	.1
21..	42	2	.2	39	--	.2	5.4	--	.1
22..	40	--	.2	39	--	.2	4.4	--	T
23..	40	1	.1	39	3	.3	3.5	--	T
24..	40	--	.2	39	--	.2	4.9	4	.1
25..	33	--	.3	26	1	.1	5.8	--	.1
26..	35	4	.4	20	--	.1	6.2	--	.1
27..	35	--	.4	20	1	.1	4.9	3	T
28..	31	3	.3	19	--	.1	5.8	--	T
29..	30	--	.2	13	--	.1	6.2	2	T
30..	31	2	.2	12	2	.1	5.8	--	T
31..	39	--	.3	12	--	.1	--	--	--
Total	1259	--	7.9	823	--	6.6	332.5	--	2.5

Total discharge for year (cfs-days)..... 72,198.5  
 Total load for year (tons)..... 3,168.0

S Computed by subdividing day.

T Less than 0.05 ton.

B Computed from estimated-concentration graph.

## SAN JOAQUIN RIVER BASIN--Continued

## 11-3350. COSUMNES RIVER AT MICHIGAN BAR, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1963 to September 1964  
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment										Method of analysis
							Percent finer than size indicated, in millimeters										
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	
Jan. 21, 1964.....	1445	42		1980	111							95	97	98	100		S
Jan. 22.....	0650	43		4010	108							61	72	89	98	100	S

## SAN JOAQUIN RIVER BASIN--Continued

11-3366. DELTA CROSS-CHANNEL NEAR WALNUT GROVE, CALIF.

LOCATION.--Approximately 0.2 mile downstream from control gates, 0.5 mile north of Walnut Grove, Sacramento County, and 7.5 miles south of Courtland.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

REMARKS.--No discharge records available.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 10, 1963.....		--		--	--	8.3	--	74	0	--	6.5		--	0.0	--	--		57	0	0.5	153	8.0
Nov. 8.....		--		--	--	9.4	--	76	0	--	6.0		--	.2	--	--		59	0	.5	164	8.0
Dec. 5.....		--		--	--	9.4	--	70	0	--	6.5		--	.0	--	--		56	0	.5	156	7.9
Jan. 8, 1964.....		--		--	--	10	--	74	2	--	7.5		--	.0	--	--		64	0	.6	171	8.3
Feb. 6.....		--		--	--	11	--	76	0	--	8.8		--	.0	--	--		63	1	.6	176	7.9
Mar. 4.....		--		--	--	9.7	--	74	0	--	5.5		--	.1	--	--		56	0	.6	156	8.2
Apr. 8.....		--		--	--	7.4	--	65	0	--	3.0		--	.0	--	--		52	0	.4	135	8.1
May 6.....	19			11	7.9	13	1.5	72	0	12	9.5	0.1	1.9	.1	111	0.15		60	1	.7	177	7.8
June 10.....		--		--	--	14	--	84	0	--	11		--	.1	--	--		67	0	.7	196	8.1
July 8.....		--		--	--	11	--	74	0	--	5.5		--	.1	--	--		58	0	.6	158	8.1
Aug. 5.....		--		--	--	11	--	69	0	--	6.5		--	.0	--	--		56	0	.6	154	8.1
Sept. 2.....		20		14	8.0	14	1.1	91	0	9.0	8.1		1.6	.0	121	.16		68	0	.7	195	7.5

SAN JOAQUIN RIVER BASIN--Continued

11-3372. SAN JOAQUIN RIVER AT ANTIOCH, CALIF.

LOCATION.--At tidal gaging station at Antioch, Contra Costa County, and 4.5 miles from mouth.

RECORDS AVAILABLE.--Chemical analyses: October 1952 to September 1964.

REMARKS.--No discharge records available.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 9, 1963.....		--		--	--	40	--	95	0	--	58		--	0.0	213	0.29		85	7	1.9	387	7.8
Nov. 6.....		--		--	--	79	--	87	0	--	144		--	.1	--	--		111	40	3.3	681	8.0
Dec. 4.....		--		--	--	22	--	72	0	--	29		--	.1	--	--		70	11	1.1	255	7.7
Jan 8, 1964.....		--		--	--	28	--	77	1	--	37		--	.1	--	--		79	14	1.4	304	8.3
Feb. 5.....		--		--	--	30	--	70	0	--	40		--	.1	--	--		86	29	1.4	319	7.8
Mar. 6.....		--		--	--	34	--	79	0	--	44		--	.1	--	--		86	21	1.6	337	7.8
Apr. 8.....		--		--	--	34	--	81	0	--	44		--	.1	--	--		80	14	1.7	323	7.8
May 6.....		13		21	25	149	5.8	76	0	49	275	0.0	1.1	.1	641	.87		154	92	5.2	1180	8.0
June 9.....		--		--	--	82	--	86	0	--	122		--	.2	--	--		104	33	3.5	618	7.9
July 8.....		--		--	--	275	--	92	0	--	470		--	.3	--	--		226	151	8.0	1820	7.9
Aug. 5.....		--		--	--	532	--	84	0	--	968		--	.3	--	--		390	321	12	3450	7.8
Sept. 2.....		12		26	40	296	9.2	85	0	80	515		1.8	.2	1080	1.47		230	160	8.5	1960	7.7

MISCELLANEOUS ANALYSES OF STREAMS IN SAN JOAQUIN RIVER BASIN

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (microhmhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
11-2510. SAN JOAQUIN RIVER BELOW FRIANT, CALIF.																						
Oct. 7, 1963.....	85	--	--	--	--	3.3	--	16	--	--	3.8	--	--	0.0	--	--	12	0	0.4	45	7.3	
Jan. 13, 1964.....	51	--	--	--	--	3.9	--	18	--	--	1.5	--	--	.0	--	--	14	0	.5	48	7.7	
May 15.....	117	9.2	--	4.0	0.5	3.8	1.0	15	--	0.0	4.2	0.1	2.2	.0	38	0.05	12	0	.5	44	7.3	
July 13.....	166	--	--	--	--	4.4	--	16	--	--	3.0	--	--	.0	--	--	11	0	.6	42	7.6	
Sept. 14.....	120	10	--	3.2	1.0	4.3	.5	17	--	.0	3.2	--	.3	.1	38	.05	12	0	.5	45	7.3	
11-2580. FRESNO RIVER NEAR DAULTON, CALIF.																						
Oct. 9, 1963.....	3.1	20	--	21	2.6	3.0	2.2	68	--	5.0	53	0.2	1.0	0.0	177	0.24	63	7	1.6	292	8.0	
May 11, 1964.....	114	19	--	8.4	.7	6.8	1.0	36	--	4.0	4.5	.0	1.8	.0	64	.09	24	0	.6	86	8.0	
11-2590. CHOWCHILLA RIVER AT BUCHANAN DAMSITE, NEAR RAYMOND, CALIF.																						
Oct. 7, 1963.....	0.1	33	--	46	7.8	4.7	3.0	109	0	2.0	119	0.3	1.1	0.1	355	0.48	147	58	1.7	571	8.1	
May 11, 1964.....	31	28	--	17	3.3	14	1.7	76	1	6.0	12	.0	4.9	.0	124	.17	56	0	.8	188	8.3	
11-2700. MERCED RIVER AT EXCHEQUER, CALIF.																						
Oct. 7, 1963.....	57	--	--	--	--	1.9	--	30	--	--	1.8	--	--	0.0	--	--	25	0	0.2	62	7.4	
Jan. 13, 1964.....	56	--	--	--	--	3.2	--	30	--	--	2.5	--	--	.0	--	--	26	1	.3	68	7.9	
May 11.....	1330	10	--	4.4	1.0	2.4	0.6	19	--	3.0	1.0	0.0	0.3	.1	33	0.04	15	0	.3	40	7.2	
July 13.....	1880	--	--	--	--	1.8	--	12	--	--	1.0	--	--	.0	--	--	10	0	.3	27	7.5	
Sept. 14.....	63	13	--	28	6.6	6.1	2.7	109	--	6.0	6.7	--	6.2	.2	143	.19	97	8	.3	220	7.7	
11-2880. TUOLUMNE RIVER ABOVE LA GRANGE DAM, NEAR LA GRANGE, CALIF.																						
Oct. 11, 1963.....	1680	--	--	--	--	1.1	--	10	--	--	1.0	--	--	0.0	--	--	8	0	0.2	22	6.7	
Jan. 9, 1964.....	929	--	--	--	--	.8	--	12	--	--	1.0	--	--	.0	--	--	10	0	.1	28	7.6	
May 7.....	1250	7.8	--	5.2	0.7	2.0	0.2	18	--	2.0	.5	0.0	5.5	.2	34	0.05	16	1	.2	40	7.5	
July 8.....	2490	--	--	--	--	1.9	--	12	--	--	.5	--	--	.1	--	--	10	0	.3	29	7.1	
Sept. 3.....	1520	4.8	--	2.4	.5	1.3	.0	10	--	1.0	.6	--	.0	.0	19	.03	8	0	.2	21	7.0	
11-2999.98. STANISLAUS RIVER AT TULLOCH DAMSITE, NEAR KNIGHTS FERRY, CALIF.																						
Oct. 7, 1963.....	--	--	--	--	--	1.9	--	29	--	--	1.0	--	--	0.0	--	--	23	0	0.2	57	7.2	
Jan. 13, 1964.....	--	--	--	--	--	2.6	--	34	--	--	3.5	--	--	.0	--	--	27	0	.2	65	7.9	
May 11.....	13	--	--	5.6	2.2	2.5	0.4	27	--	2.0	1.0	0.0	5.4	.0	46	0.06	23	1	.2	57	7.7	
July 13.....	--	--	--	--	--	2.6	--	24	--	--	1.0	--	--	.0	--	--	19	0	.3	50	7.7	
Sept. 14.....	--	--	--	6.4	1.9	2.9	.6	32	--	1.0	.8	--	.4	.3	44	.06	24	0	.3	61	7.3	
11-3210. MOKELUMNE RIVER AT LANCHA PLANA, CALIF.																						
Nov. 6, 1963.....	--	--	--	--	--	2.0	--	14	--	--	2.8	--	--	0.0	--	--	17	6	0.2	48	7.2	
Jan. 6, 1964.....	--	--	--	--	--	2.0	--	14	--	--	3.2	--	--	.1	--	--	11	0	.3	35	7.5	
Mar. 2.....	--	--	--	--	--	4.2	--	12	--	--	2.5	--	--	.0	--	--	34	24	.3	96	7.0	
May 4.....	9.3	--	--	5.2	1.8	3.3	0.7	18	--	8.0	4.2	0.0	0.1	.0	A 42	0.06	20	5	.3	57	7.3	
July 3.....	--	--	--	--	--	3.0	--	19	--	--	1.5	--	--	.0	--	--	15	0	.3	46	7.7	
Sept. 17.....	--	--	--	5.6	1.0	3.0	.5	20	--	6.0	1.9	--	.0	.0	42	.06	18	2	.3	52	7.0	

A Calculated.

MISCELLANEOUS ANALYSES OF STREAMS IN SAN JOAQUIN RIVER BASIN--Continued

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
11-3360. COSUMNES RIVER AT MCCONNELL, CALIF.																						
Nov. 4, 1963.....	17					3.7		48			1.5			0.0				38	0	0.3	96	7.6
Jan. 6, 1964.....	75					4.5		57			4.8			.0				46	0	.3	113	8.2
Mar. 2.....	177					4.5		53			3.0			.0				47	4	.3	102	8.1
May 4.....	394	16		6.4	1.7	3.1	0.8	30		2.0	2.5	0.0	0.4	.0	48	0.07		23	0	.3	59	7.8
11-3368. LITTLE POTATO SLOUGH NEAR TERMINOUS, CALIF.																						
Nov. 8, 1963.....	--			--	--	10	--	72		--	13		--	0.2	--	--		61	2	0.6	176	7.8
Jan. 6, 1964.....	--			--	--	16	--	79		--	24		--	.0	--	--		78	13	.8	234	8.2
Mar. 4.....	--			--	--	13	--	38		--	14		--	.1	--	--		68	37	.7	193	8.1
May 4.....	17		15	8.1	13	1.3	68			8.0	26	0.0	1.4	.0	A 131	0.18		71	15	.7	213	7.5
July 2.....	--		--	--	--	15	--	82		--	21		--	.1	--	--		78	11	.7	219	8.2
Sept. 8.....	19		17	8.4	17	1.6	98			10	15		1.8	.2	150	.20		77	0	.8	234	8.0

A Residue at 180°C.

Periodic determinations of suspended sediment discharge and particle-size analyses, water year October 1963 to September 1964  
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment											Method of analysis
							Percent finer than size indicated, in millimeters											
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
11-3360. COSUMNES RIVER AT McCONNELL, CALIF.																		
Oct. 14, 1963.....	1655	66		53	48	6.9												VPWC
Nov. 5.....	1405	59		25	18	1.2												
Nov. 6.....	0950	54		35	34	3.2												
Dec. 3.....	1445	46		145	25	9.8												
Jan. 9, 1964.....	1510	45		89	5	1.2												
Jan. 22.....	1250	44		5420	655	9590	11	13	17	21	25	31	40	67	98	100		
Feb. 7.....	0910	44		245	15	9.9												
Mar. 3.....	1520	50		214	12	6.9												
Apr. 8.....	1705	61		403	37	40												
May 11.....	1715	71		400	32	35												
June 15.....	1510	67		89	21	5.0												



## SACRAMENTO RIVER BASIN

11-3420. SACRAMENTO RIVER AT DELTA, CALIF.

LOCATION.--At gaging station 0.2 mile downstream from Dog Creek, 0.6 mile southeast of Delta, Shasta County, and 2.8 miles south of La Moine.

DRAINAGE AREA.--427 square miles.

RECORDS AVAILABLE.--Chemical analyses: December 1953 to September 1964.

Water temperatures: June to September 1951, October 1953 to September 1957, October 1962 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 80°F July 24, 25, Aug. 24; minimum, 36°F on several days during January, Feb. 26.

EXTREMES, 1951, 1953-57, 1962-64.--Water temperatures: Maximum (1951, 1953-57, 1963-64), 75°F Aug. 20, 1951; minimum, 35°F Jan. 12-14, 1963.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 8, 1963.....	286	--	--	--	--	8.3	--	76	0	--	8.0	--	--	0.0	--	--	--	53	0	0.5	143	8.1
Nov. 5.....	1890	--	--	--	--	6.1	--	63	0	--	5.6	--	--	.1	--	--	--	48	0	.4	121	7.9
Dec. 3.....	722	--	--	--	--	4.6	--	64	0	--	4.6	--	--	.1	--	--	--	49	0	.3	114	8.0
Jan. 6, 1964.....	460	--	--	--	--	6.5	--	65	0	--	5.8	--	--	.0	--	--	--	50	0	.4	119	8.1
Feb. 3.....	1020	--	--	--	--	4.8	--	57	0	--	2.5	--	--	.1	--	--	--	43	0	.3	107	8.1
Mar. 4.....	590	--	--	--	--	6.4	--	62	0	--	4.5	--	--	.1	--	--	--	48	0	.4	110	8.1
Apr. 7.....	760	--	--	--	--	4.7	--	59	2	--	4.0	--	--	.0	--	--	--	48	0	.3	106	8.4
May 5.....	600	20	--	5.6	7.3	4.9	0.5	59	0	1.0	2.5	0.2	1.1	.0	72	0.10	--	44	0	.3	106	7.9
June 9.....	688	--	--	--	--	5.2	--	62	0	--	3.0	--	--	.1	--	--	--	48	0	.3	112	8.1
July 6.....	260	--	--	--	--	8.6	--	75	0	--	5.8	--	--	.2	--	--	--	55	0	.5	142	8.2
Aug. 4.....	185	--	--	--	--	11	--	79	1	--	5.0	--	--	.2	--	--	--	56	0	.6	160	8.3
Sept. 1.....	208	30	--	11	6.9	12	1.4	76	0	2.0	8.6	--	.3	.3	110	.15	--	56	0	.7	158	8.2

SACRAMENTO RIVER BASIN--Continued  
 11-3420. SACRAMENTO RIVER AT DELTA, CALIF.--Continued  
 Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum ....	69	67	66	62	61	58	63	62	59	57	56	58	59	60	57	61	63	63	64	60	61	60	61	55	57	58	56	54	58	57	54	60	
Minimum ....	58	58	58	57	56	54	55	56	56	55	54	52	54	54	55	53	54	57	58	57	57	57	54	52	52	52	49	49	51	51	48	54	
November																																	
Maximum ....	52	51	51	51	52	50	49	49	53	53	53	51	50	52	50	48	47	49	48	46	44	43	43	46	48	48	48	48	48	47	--	49	
Minimum ....	45	49	49	49	50	48	46	48	49	49	49	48	49	49	47	43	43	45	45	44	41	42	39	40	42	44	44	44	43	43	--	46	
December																																	
Maximum ....	47	47	46	46	47	48	45	43	43	42	40	41	42	42	40	42	40	43	41	42	43	43	43	40	43	43	43	45	47	46	47	44	
Minimum ....	42	43	42	42	44	45	42	41	40	38	37	37	38	40	40	38	39	39	41	42	41	41	41	40	38	40	42	43	45	45	43	43	41
January																																	
Maximum ....	43	45	42	41	39	38	42	41	38	40	37	40	38	40	41	39	39	39	39	43	44	44	41	41	42	42	46	45	44	46	45	42	
Minimum ....	41	42	40	37	36	37	38	38	38	37	34	36	36	36	36	38	38	36	39	43	40	40	40	40	40	41	41	42	40	42	41	39	
February																																	
Maximum ....	48	47	47	48	48	45	45	45	47	46	45	43	43	43	41	43	45	48	49	46	47	47	47	45	44	44	44	40	44	--	--	45	
Minimum ....	44	42	42	42	42	39	39	40	41	41	40	38	37	37	40	37	38	41	42	41	40	41	40	40	40	38	36	40	38	37	--	--	40
March																																	
Maximum ....	44	45	47	50	48	46	46	47	50	48	46	41	47	47	52	53	56	55	56	53	49	48	50	53	54	58	59	59	59	58	62	51	
Minimum ....	40	38	42	45	45	42	39	40	46	43	39	38	40	43	44	46	48	49	48	46	48	46	45	49	47	50	51	52	52	53	52	45	
April																																	
Maximum ....	55	51	54	55	55	55	56	57	54	55	56	55	56	58	57	53	53	54	55	54	57	52	48	47	52	55	58	61	60	54	--	55	
Minimum ....	51	46	45	49	50	47	48	50	51	47	49	47	48	49	50	48	45	46	47	50	50	48	43	43	44	48	50	53	55	49	--	48	
May																																	
Maximum ....	50	47	46	48	50	52	53	58	61	62	62	62	61	59	60	58	56	57	60	61	61	62	63	63	64	62	56	57	62	66	68	58	
Minimum ....	45	42	42	43	44	42	46	48	52	55	55	54	56	54	51	51	49	51	52	55	53	54	55	57	55	56	50	49	52	57	59	51	
June																																	
Maximum ....	64	65	63	60	59	58	59	58	51	53	61	64	67	68	68	62	60	63	64	66	68	70	73	75	75	73	70	69	69	69	--	65	
Minimum ....	60	58	58	57	56	53	51	51	48	48	51	56	59	61	62	56	55	57	55	57	59	59	62	64	65	66	60	59	60	60	--	57	
July																																	
Maximum ....	70	71	71	68	70	74	75	72	74	75	76	79	79	73	74	77	77	76	76	75	75	75	77	80	80	79	78	75	73	75	71	75	
Minimum ....	60	61	61	63	60	62	65	66	63	63	63	63	60	68	66	65	67	67	66	65	65	65	65	67	69	70	68	68	65	67	64	65	
August																																	
Maximum ....	72	72	72	73	74	75	75	75	75	75	74	75	76	76	76	77	76	76	75	77	79	79	79	80	79	75	75	73	73	69	65	75	
Minimum ....	63	62	62	61	63	64	65	65	64	63	65	64	65	66	67	66	67	66	64	66	67	68	69	69	69	67	65	64	61	63	58	65	
September																																	
Maximum ....	59	64	68	68	69	69	67	66	66	65	65	67	66	66	66	65	65	63	64	63	60	63	66	68	66	64	62	60	58	58	--	65	
Minimum ....	55	53	56	58	59	59	60	59	57	55	55	55	58	56	56	56	57	55	54	55	53	52	56	57	57	56	54	52	50	50	--	56	

## SACRAMENTO RIVER BASIN--Continued

11-3455. SOUTH FORK PIT RIVER NEAR LIKELY, CALIF.

LOCATION.--At gaging station, 1.3 miles downstream from West Valley Creek, and 3.5 miles east of Likely, Modoc County.

DRAINAGE AREA.--248 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 10, 1963.....	27	--	--	--	--	5.0	--	68	0	--	0.5	--	--	0.0	--	--	--	44	0	0.3	111	8.0
Nov. 6.....	48	--	--	--	--	5.9	--	76	0	--	1.8	--	--	.0	--	--	--	49	0	.4	126	8.0
Dec. 4.....	15	--	--	--	--	5.0	--	58	0	--	.5	--	--	.0	--	--	--	40	0	.3	103	7.7
Jan. 8, 1964.....	27	--	--	--	--	6.6	--	65	0	--	1.2	--	--	.0	--	--	--	45	0	.4	116	8.0
Feb. 5.....	30	--	--	--	--	6.6	--	75	0	--	1.2	--	--	.0	--	--	--	50	0	.4	124	8.2
Mar. 4.....	31	--	--	--	--	5.8	--	66	0	--	1.0	--	--	.0	--	--	--	44	0	.4	108	8.2
Apr. 9.....	36	--	--	--	--	7.3	--	64	1	--	.8	--	--	.0	--	--	--	44	0	.5	111	8.4
May 6.....	109	31	--	10	3.4	4.9	1.9	55	0	2.0	.8	0.1	2.2	.0	91	0.12	--	39	0	.3	98	8.0
June 11.....	572	--	--	--	--	6.1	--	63	0	--	1.0	--	--	.0	--	--	--	43	0	.4	106	8.1
July 2.....	102	--	--	--	--	5.0	--	56	0	--	.5	--	--	.0	--	--	--	40	0	.4	98	8.1
Aug. 6.....	152	--	--	--	--	8.8	--	76	2	--	2.0	--	--	.0	--	--	--	51	0	.5	138	8.3
Sept. 3.....	81	33	--	14	4.1	9.3	4.5	81	0	4.0	2.1	--	2.1	.1	A 113	.15	--	52	0	.6	147	7.5

A Calculated from sum of determined constituents.

## SACRAMENTO RIVER BASIN--Continued

11-3485. PIT RIVER NEAR CANBY, CALIF.

LOCATION.--At gaging station, at lower end of Warm Spring Valley, 4 miles southwest of Canby, Modoc County.

DRAINAGE AREA.--1,430 square miles, approximately, excluding Goose Lake basin.

RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1965.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 10, 1963.....	57	--	--	--	--	28	--	184	0	--	7.0	--	--	0.0	--	--	--	98	0	1.2	314	8.1
Nov. 6.....	107	--	--	--	--	26	--	156	2	--	9.2	--	--	.1	--	--	--	87	0	1.2	296	8.3
Dec. 4.....	77	--	--	--	--	25	--	137	3	--	7.0	--	--	.2	--	--	--	80	0	1.2	264	8.4
Jan. 8, 1964.....	51	--	--	--	--	28	--	153	0	--	9.5	--	--	.0	--	--	--	86	0	1.3	294	8.2
Feb. 5.....	143	--	--	--	--	34	--	158	0	--	9.0	--	--	.1	--	--	--	91	0	1.6	311	8.2
Mar. 4.....	76	--	--	--	--	34	--	155	0	--	13	--	--	.1	--	--	--	94	0	1.5	331	8.2
Apr. 9.....	254	--	--	--	--	17	--	104	0	--	4.6	--	--	.1	--	--	--	64	0	.9	191	8.2
May 6.....	457	31	--	18	5.8	20	3.9	117	0	12	4.8	0.3	1.8	.1	166	0.23	--	69	0	1.0	217	8.1
June 10.....	786	--	--	--	--	18	--	112	0	--	4.0	--	--	.1	--	--	--	69	0	.9	205	8.2
July 8.....	210	--	--	--	--	18	--	122	1	--	3.5	--	--	.1	--	--	--	74	0	.9	219	8.3
Aug. 6.....	62	--	--	--	--	21	--	132	2	--	5.5	--	--	.1	--	--	--	80	0	1.0	243	8.4
Sept. 3.....	113	32	--	21	9.1	25	6.2	158	0	12	5.9	--	.8	.3	215	.29	--	90	0	1.1	285	8.1

## SACRAMENTO RIVER BASIN--Continued

11-3650. PIT RIVER NEAR MONTGOMERY CREEK, CALIF.

LOCATION.--At gaging station 1 mile upstream from Cow Canyon Creek, and 3.5 miles west of Montgomery Creek, Shasta County.

DRAINAGE AREA.--5,170 square miles, approximately, excluding Goose Lake basin.

RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1964.

Water temperatures: June to September 1951, October 1953 to September 1957, October 1958 to August 1959.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 10, 1963.....	2650	--	--	--	--	10	--	88	0	--	4.8	--	--	0.0	--	--	--	56	0	0.6	154	8.0
Feb. 5, 1964.....	4200	--	--	--	--	11	--	82	2	--	2.8	--	--	.1	--	--	--	58	0	.6	156	8.3
Apr. 9.....	4260	--	--	--	--	11	--	82	1	--	4.2	--	--	.1	--	--	--	51	0	.7	142	8.4
May 6.....	3820	30	--	11	6.4	10	2.0	81	2	3.0	3.8	0.0	0.9	.0	111	0.15	--	54	0	.6	150	8.3
June 10.....	3170	--	--	--	--	13	--	94	0	--	3.5	--	--	.1	--	--	--	61	0	.7	171	8.2
July 8.....	3000	--	--	--	--	11	--	90	2	--	3.5	--	--	.0	--	--	--	59	0	.6	166	8.4
Aug. 7.....	1970	--	--	--	--	11	--	89	0	--	3.5	--	--	.1	--	--	--	56	0	.6	156	8.1
Sept. 4.....	2130	34	--	13	6.0	11	2.3	90	0	4.0	3.0	--	1.5	.1	A 119	.16	--	57	0	.6	161	8.0

A Calculated from sum of determined constituents.

## SACRAMENTO RIVER BASIN--Continued

11-3680. MCCLLOUD RIVER ABOVE SHASTA LAKE, CALIF.

LOCATION.--At gaging station upstream from Shasta Lake, Shasta County, 0.2 mile downstream from Big Bollobokka Creek, and 11.3 miles east of La Moine.

DRAINAGE AREA.--606 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1964.

Water temperatures: June to September 1951, October 1953 to September 1959.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 7, 1963.....	1130	--	--	--	--	4.6	--	54	0	--	2.9	--	--	0.0	--	--	--	36	0	0.3	95	8.1
Nov. 4.....	1460	--	--	--	--	4.4	--	53	0	--	2.0	--	--	.0	--	--	--	38	0	.3	96	7.8
Dec. 2.....	1390	--	--	--	--	4.5	--	55	0	--	.5	--	--	.1	--	--	--	38	0	.3	97	7.9
Jan. 6, 1964.....	1150	--	--	--	--	5.4	--	53	0	--	2.6	--	--	.0	--	--	--	38	0	.4	98	8.1
Feb. 3.....	1740	--	--	--	--	4.5	--	53	0	--	2.4	--	--	.0	--	--	--	39	0	.3	95	8.1
Mar. 4.....	1240	--	--	--	--	4.9	--	54	0	--	3.0	--	--	.0	--	--	--	39	0	.3	98	8.2
Apr. 7.....	1300	--	--	--	--	5.4	--	55	0	--	2.7	--	--	.0	--	--	--	40	0	.4	97	8.1
May 5.....	1220	32	--	10	3.0	4.7	1.1	52	0	1.0	2.8	0.0	0.5	.0	81	0.11	--	38	0	.3	95	8.0
June 9.....	1310	--	--	--	--	5.2	--	54	0	--	1.0	--	--	.1	--	--	--	40	0	.4	97	8.2
July 6.....	1000	--	--	--	--	5.6	--	60	0	--	1.0	--	--	.0	--	--	--	40	0	.4	101	8.2
Aug. 3.....	931	--	--	--	--	5.5	--	54	0	--	1.0	--	--	.0	--	--	--	38	0	.4	96	8.0
Sept. 1.....	931	36	--	10	3.2	5.5	1.5	55	0	1.0	1.2	--	2.3	.0	88	.12	--	38	0	.4	98	7.9

## SACRAMENTO RIVER BASIN--Continued

11-3705. SACRAMENTO RIVER AT KESWICK, CALIF.

LOCATION.--At gaging station 0.4 mile upstream from Middle Creek, 0.8 mile downstream from Keswick Dam, 1.6 miles downstream from Keswick, Shasta County, and 10 miles downstream from Shasta Dam.

DRAINAGE AREA.--6,710 square miles, approximately, excluding Goose Lake basin.

RECORDS AVAILABLE.--Chemical analyses: December 1953 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 7, 1963.....	6280	--	--	--	--	5.2	--	56	0	5.0	2.6	--	--	0.0	--	--	--	41	0	0.4	105	7.6
Nov. 4.....	5550	--	--	--	--	4.8	--	58	0	4.0	3.0	--	--	0	--	--	--	42	0	.3	104	7.9
Dec. 2.....	8020	--	--	--	--	6.5	--	62	0	8.0	3.2	--	--	0	--	--	--	46	0	.4	120	7.7
Jan. 6, 1964.....	7100	--	--	--	--	7.2	--	68	0	5.0	3.6	--	--	0	--	--	--	48	0	.4	124	8.1
Feb. 3.....	8530	--	--	--	--	6.8	--	61	0	8.0	3.5	--	--	0	--	--	--	48	0	.4	124	7.9
Mar. 4.....	5380	--	--	--	--	6.9	--	64	0	7.0	2.5	--	--	.1	--	--	--	50	0	.4	117	8.2
Apr. 7.....	4810	--	--	--	--	5.4	--	61	0	4.0	3.4	--	--	.0	--	--	--	49	0	.3	113	7.8
May 5.....	8680	25	--	11	4.7	7.0	1.5	66	0	4.0	4.0	0.1	0.6	.1	A 91	0.12	--	47	0	.4	120	7.8
June 9.....	9120	--	--	--	--	5.7	--	64	0	3.0	2.0	--	--	.0	--	--	--	47	0	.4	118	8.1
July 6.....	11900	--	--	--	--	6.5	--	65	0	4.0	2.0	--	--	.1	--	--	--	48	0	.4	120	8.2
Aug. 4.....	12800	--	--	--	--	6.6	--	66	0	4.0	2.3	--	--	.1	--	--	--	47	0	.4	119	7.9
Sept. 1.....	10800	23	--	11	5.0	6.5	1.0	65	0	6.0	1.9	--	--	.1	89	.12	--	48	0	.4	120	7.6

A Calculated from sum of determined constituents.

SACRAMENTO RIVER BASIN--Continued

11-3710. CLEAR CREEK AT FRENCH GULCH, CALIF.

LOCATION.--At gaging station 1,200 feet downstream from Right Fork, 0.3 mile south of French Gulch, Shasta County, and 15 miles northwest of Redding.

DRAINAGE AREA.--115 square miles.

RECORDS AVAILABLE.--Water temperatures: October 1962 to September 1964.

Sediment records: October 1962 to September 1964.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																																Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October .....	--	--	--	--	--	--	--	--	--	--	--	--	57	62	--	60	--	--	--	57	--	--	--	53	--	--	56	--	55	--	--	--	--
November .....	--	50	--	52	50	50	--	--	52	49	54	--	52	54	49	--	48	--	46	47	--	--	44	46	--	48	--	--	--	--	--	--	--
December .....	--	--	45	--	--	--	--	42	--	--	--	--	41	43	--	--	--	--	43	--	--	--	41	--	--	--	46	--	45	--	--	--	--
January .....	--	--	--	42	--	--	43	--	40	--	38	--	--	--	--	39	--	39	40	40	43	44	42	--	42	--	--	--	44	--	43	--	--
February .....	--	--	--	--	--	--	39	--	--	47	--	--	--	--	43	--	--	--	--	--	--	--	49	--	--	--	--	--	39	--	--	--	--
March .....	42	--	--	--	--	--	37	--	--	--	43	42	--	--	--	--	--	--	--	--	43	--	46	--	48	--	--	--	--	55	50	--	--
April .....	--	--	--	--	--	53	--	--	--	--	58	--	--	--	--	--	--	--	--	58	--	--	--	--	--	--	60	--	--	53	--	--	--
May .....	--	--	47	--	--	--	--	--	--	66	--	--	--	--	--	--	--	62	--	--	--	--	--	63	--	--	--	--	--	--	72	--	--
June .....	--	--	--	--	59	--	58	--	55	--	--	--	--	73	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
July .....	--	--	--	--	--	--	--	--	75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	83	--	--	--	--	--	73	--	--
August .....	--	--	75	--	--	--	--	--	70	--	--	--	80	--	--	69	--	--	--	--	--	--	--	69	--	--	--	--	66	--	--	--	--
September .....	--	--	--	--	--	--	61	--	--	--	--	--	71	--	--	--	--	--	--	61	--	--	--	--	--	--	61	--	--	--	--	--	--



## SACRAMENTO RIVER BASIN--Continued

11-3710. CLEAR CREEK AT FRENCH GULCH, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964  
(Where no concentrations are reported, loads are estimated)

Day	OCTOBER			NOVEMBER			DECEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..				31	--	0.2	136	--	0.7
2..				32	2	.2	125	--	.7
3..				37	--	.3	115	2	.6
4..				109	18 S	5.8	107	--	.6
5..				128	29 S	13	101	--	.5
6..				227	34	21	97	--	.5
7..				148	--	10	93	--	.3
8..				204	--	14	93	1	.3
9..				350	29 S	29	93	--	.3
10..				204	7	3.9	85	--	.2
11..				141	2	.8	81	--	.2
12..				111	--	.6	77	--	.4
13..				101	3	.8	74	2	.4
14..				474	26 S	41	72	1	.2
15..				440	13	15	70	--	.2
16..				254	--	4.1	68	--	.2
17..				183	2	1.0	67	--	.2
18..				148	--	.8	65	--	.2
19..				278	24 S	22	67	--	.4
20..				325	10	8.8	76	2	.4
21..				230	--	1.9	70	--	.4
22..				185	--	1.5	67	--	.2
23..				227	6	3.7	65	--	.2
24..				245	3	2.0	63	1	.2
25..				221	--	1.8	61	--	.2
26..				204	2	1.1	61	--	.3
27..				199	--	1.1	72	--	.4
28..				183	--	1.0	87	2	.5
29..				162	--	.9	99	3	.8
30..				145	--	.8	95	--	.8
31..				--	--	--	89	--	.7
Total				5926	--	208.1	2591	--	12.2
Day	JANUARY			FEBRUARY			MARCH		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	85	--	0.5	280	1	0.8	109	1	0.3
2..	83	--	.2	277	--	.7	105	--	.3
3..	79	--	.2	261	--	.7	99	--	.3
4..	76	1	.2	248	--	.7	95	--	.3
5..	72	--	.2	245	--	.7	93	--	.3
6..	72	--	.2	236	--	.6	93	--	.3
7..	72	1	.2	221	1	.6	91	1	.2
8..	68	--	.2	204	--	.6	89	--	.2
9..	68	2	.4	193	--	.5	87	--	.2
10..	67	--	.4	185	2	1.0	82	--	.4
11..	63	2	.3	180	--	1.0	85	3	.7
12..	63	--	.3	170	--	.9	101	5	1.4
13..	63	--	.3	162	--	.9	95	--	1.0
14..	63	--	.3	155	--	.4	93	--	1.0
15..	60	--	.3	153	1	.4	91	--	.7
16..	61	2	.3	143	--	.4	87	--	.7
17..	74	--	.4	134	--	.7	91	--	.7
18..	91	2	.5	128	--	.7	97	--	.5
19..	119	8	2.6	121	--	.7	97	--	.5
20..	1980	202 S	1360	119	--	1.0	97	--	.5
21..	1200	81 S	294	115	--	.9	97	2	.5
22..	644	15	26	113	--	.9	101	--	.5
23..	428	8	9.2	111	4	1.2	99	1	.3
24..	340	--	4.6	111	--	1.2	95	--	.5
25..	289	4	3.1	109	--	.9	89	3	.7
26..	277	--	3.0	105	--	.9	85	--	.9
27..	283	--	3.1	103	--	.8	83	--	.7
28..	286	--	2.3	103	--	.6	83	--	.4
29..	293	2	1.6	103	1	.3	83	--	.2
30..	296	--	1.6	--	--	--	85	1	.2
31..	286	1	.8	--	--	--	93	.2	.5
Total	8001	--	1717.3	4788	--	21.7	2870	--	15.9

Total discharge for period (cfs-days)..... 24,176  
 Total load for period (tons)..... 1,975.2

S Computed by subdividing day.

SACRAMENTO RIVER BASIN--Continued

11-3710. CLEAR CREEK AT FRENCH GULCH, CALIF.--Continued

Periodic determinations of suspended sediment discharge,  
water year October 1962 to September 1963

Date	Time (24 hr)	Water tem- per- ature (°F)	Discharge (cfs)	Suspended sediment	
				Concen- tration (ppm)	Discharge (tons per day)
Oct. 13, 1963.....	1055		41	4	0.4
Oct. 14.....	1600		34	2	.2
Oct. 16.....	1600		44	2	.2
Oct. 20.....	1130		33	3	.3
Oct. 24.....	1600		37	1	.1
Oct. 27.....	1500		33	3	.3
Oct. 29.....	1630		33	1	.1
Apr. 6, 1964.....	1800		81	2	.4
Apr. 11.....	1630		76	1	.2
Apr. 20.....	1800		67	1	.2
Apr. 27.....	1900		60	2	.3
Apr. 30.....	1000		57	1	.2
May 3.....	1130		68	4	.7
May 10.....	1700		50	7	.9
May 18.....	1800		52	6	.8
May 24.....	1130		43	2	.2
May 31.....	1700		37	2	.2
June 5.....	0955		43	2	.2
June 7.....	0900		61	7	1.2
June 9.....	1630		57	1	.2
June 14.....	1730		33	6	.5
July 9.....	1610		25	1	.1
July 25.....	1500		20	3	.2
July 31.....	1630		20	2	.1
Aug. 3.....	1700		17	4	.2
Aug. 9.....	0930		11	3	.1
Aug. 13.....	1515		9.2	4	.1
Aug. 16.....	0900		9.8	2	.1
Aug. 23.....	0815		7.4	1	T
Aug. 30.....	0900		7.4	1	T
Sept. 7.....	0800		9.8	2	.1
Sept. 13.....	1600		8.6	1	T
Sept. 20.....	0900		8.6	2	T
Sept. 27.....	0930		8.0	2	T

Particle-size analyses of suspended sediment, water year October 1963 to September 1964  
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concen- tration (ppm)	Sediment discharge (tons per day)	Suspended sediment											Method of analysis
							Percent finer than size indicated, in millimeters											
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Nov. 19, 1963.....	1535	46		371	32							95	100					S
Jan. 21, 1964.....	0730	39		1300	97							80	90	97	100			V

T Less than 0.05 ton.

## SACRAMENTO RIVER BASIN--Continued

11-3720. CLEAR CREEK NEAR IGO, CALIF.

LOCATION.--At gaging station at highway bridge on Redding-Igo road, 1.0 mile northeast of Igo, Shasta County, 8 miles southwest of Redding, and 11.1 miles upstream from mouth.

DRAINAGE AREA.--228 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 10, 1963.....	1340	--	--	--	--	2.2	--	52	0	--	2.8	--	--	0.0	--	--	--	43	0	0.2	93	7.8
Nov. 4.....	1230	--	--	--	--	2.2	--	52	0	--	3.2	--	--	0.0	--	--	--	44	1	.2	96	7.9
Dec. 2.....	1340	--	--	--	--	2.2	--	48	0	--	3.2	--	--	0.0	--	--	--	42	3	.2	93	7.7
Jan. 3, 1964.....	792	--	--	--	--	2.7	--	48	0	--	2.5	--	--	0.0	--	--	--	43	4	.2	92	8.0
Feb. 6.....	783	--	--	--	--	3.1	--	46	0	--	1.0	--	--	0.0	--	--	--	40	2	.2	90	8.1
Mar. 12.....	375	--	--	--	--	3.3	--	46	0	--	3.2	--	--	0.0	--	--	--	40	2	.2	91	8.0
Apr. 9.....	130	--	--	--	--	3.5	--	48	0	--	3.6	--	--	0.0	--	--	--	41	2	.2	92	8.0
May 7.....	117	15	--	11	4.0	2.9	0.5	50	0	3.0	3.8	0.0	0.7	0.0	66	0.09	--	44	3	.2	95	7.9
June 8.....	115	--	--	--	--	2.8	--	51	0	--	2.0	--	--	0.0	--	--	--	44	2	.2	96	8.0
July 9.....	64	--	--	--	--	3.0	--	52	0	--	2.1	--	--	0.0	--	--	--	44	1	.2	98	7.9
Aug. 3.....	54	--	--	--	--	2.8	--	54	0	--	1.5	--	--	.1	--	--	--	46	2	.2	97	8.2
Sept. 4.....	54	12	--	6.4	7.1	2.4	.5	54	0	2.0	1.8	--	1.1	.0	61	.08	--	45	1	.1	98	7.9

## SACRAMENTO RIVER BASIN--Continued

11-3740. COW CREEK NEAR MILLVILLE, CALIF.

LOCATION.--At gaging station 4.2 miles southwest of Millville, Shasta County, and 4.3 miles downstream from Little Cow Creek.

DRAINAGE AREA.--427 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964.

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 10, 1963.....	86	--	--	--	--	7.7	--	92	0	--	7.0	--	--	0.0	--	--	--	68	0	0.4	170	8.1
Nov. 7.....	385	--	--	--	--	8.2	--	62	0	--	8.8	--	--	.1	--	--	--	60	9	.5	150	7.9
Dec. 5.....	200	--	--	--	--	8.7	--	71	0	--	8.0	--	--	.1	--	--	--	59	1	.5	154	8.0
Jan. 2, 1964.....	181	--	--	--	--	8.7	--	71	0	--	8.5	--	--	.0	--	--	--	59	1	.5	156	8.1
Feb. 6.....	300	--	--	--	--	7.8	--	67	0	--	6.6	--	--	.0	--	--	--	53	0	.5	140	8.1
Mar. 12.....	270	--	--	--	--	7.8	--	70	0	--	6.8	--	--	.1	--	--	--	59	2	.4	143	8.2
Apr. 9.....	217	--	--	--	--	7.1	--	65	0	--	6.4	--	--	.0	--	--	--	50	0	.4	126	8.1
May 7.....	211	27	--	12	4.6	6.5	0.8	62	0	5.0	5.8	0.0	1.3	.1	93	0.13	--	49	0	.4	122	7.9
June 11.....	224	--	--	--	--	6.6	--	66	0	--	4.0	--	--	.0	--	--	--	50	0	.4	124	8.1
July 9.....	20	--	--	--	--	8.5	--	88	2	--	3.5	--	--	.1	--	--	--	68	0	.4	167	8.4
Aug. 3.....	12	--	--	--	--	10	--	104	3	--	6.0	--	--	.1	--	--	--	81	0	.5	197	8.4
Sept. 4.....	31	32	--	18	8.3	12	2.3	100	0	5.0	13	--	.9	.2	148	.20	--	79	0	.6	206	8.1

## SACRAMENTO RIVER BASIN--Continued

11-3758. COTTONWOOD CREEK NEAR ONO, CALIF.

LOCATION.--Approximately 1 mile downstream from North Fork, and approximately 8 miles southeast of Ono, Tehama County.

RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1964.

REMARKS.--Records of discharge for gaging stations at Middle Fork Cottonwood Creek near Ono and North Fork Cottonwood Creek near Igo are combined to give the flow at this station.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 10, 1963.....	51	--	--	--	--	9.5	--	126	0	--	16	--	--	0.0	--	--	--	108	5	0.4	250	8.2
Nov. 4.....	285	--	--	--	--	8.0	--	101	0	--	12	--	--	.0	--	--	--	90	7	.4	214	8.0
Dec. 2.....	270	--	--	--	--	6.6	--	119	0	--	7.2	--	--	.0	--	--	--	100	2	.3	219	8.1
Jan. 3, 1964.....	143	--	--	--	--	8.0	--	121	2	--	9.1	--	--	.0	--	--	--	109	7	.3	233	8.4
Feb. 6.....	374	--	--	--	--	6.4	--	120	3	--	3.0	--	--	.0	--	--	--	108	5	.3	230	8.5
Mar. 12.....	198	--	--	--	--	9.2	--	125	0	--	10	--	--	.0	--	--	--	113	11	.4	257	8.2
Apr. 9.....	78	--	--	--	--	7.5	--	133	5	--	9.8	--	--	.0	--	--	--	122	5	.3	253	8.5
May 7.....	92	19	--	24	12	7.1	0.6	130	0	9.0	10	0.1	0.6	.0	146	0.20	--	111	4	.3	239	8.2
June 8.....	64	--	--	--	--	8.5	--	128	4	--	9.0	--	--	.0	--	--	--	117	5	.3	249	8.5
July 9.....	16	--	--	--	--	9.7	--	156	4	--	13	--	--	.0	--	--	--	142	8	.4	302	8.4
Aug. 3.....	8.9	--	--	--	--	10	--	158	4	--	9.0	--	--	.0	--	--	--	144	8	.4	317	8.4
Sept. 4.....	11	20	--	31	16	12	1.3	157	0	8.0	23	--	.8	.0	189	.26	--	142	13	.4	326	8.2

## SACRAMENTO RIVER BASIN--Continued

11-3758.2. SOUTH FORK COTTONWOOD CREEK NEAR COTTONWOOD, CALIF.

LOCATION.--At bridge on Evergreen Road, approximately 1 mile upstream from confluence with Cottonwood Creek, and 3.5 miles southwest of Cottonwood, Shasta County.

DRAINAGE AREA.--218 square miles.

RECORDS AVAILABLE.--Chemical analyses: November 1958 to September 1964.

Sediment records: October 1962 to September 1964.

REMARKS.--Stream dry during summer months.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Nov. 7, 1963.....	74					23		136	3		48			0.2				152	36	0.8	411	8.3
Dec. 5.....	66					17		141	2		26			.1				138	19	.6	337	8.3
Jan. 3, 1964.....	36					19		146	4		32			.1				152	26	.7	373	8.4
Jan. 21.....	709					7.8		85	0		5.0			.0				75	5	.4	182	7.9
Feb. 6.....	161					12		130	2		13			.0				116	6	.5	278	8.4
Mar. 12.....	59					17		145	3		24			.1				138	14	.6	339	8.4
Apr. 9.....	60					15		133	5		21			.1				124	7	.6	306	8.6
May 7.....	53	12		32	8.3	13	0.8	125	2	13	19	0.2	0.4	.1	163	0.22		114	8	.5	280	8.3
June 11.....	34					13		116	4		20			.1				111	9	.5	274	8.5
July 9.....	2.0					15		130	7		21			.1				134	16	.6	317	8.5

SACRAMENTO RIVER BASIN--Continued

11-3758.2. SOUTH FORK COTTONWOOD CREEK NEAR COTTONWOOD, CALIF.--Continued

Periodic determinations of suspended sediment discharge and particle-size analyses, water year October 1963 to September 1964

(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;

P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment											Method of analysis
							Percent finer than size indicated, in millimeters											
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Oct. 25, 1963.....	1030	56		14	1	T												
Nov. 4.....	1030	55		16	1	T												
Nov. 4.....	1730	57		18	1	T												
Nov. 7.....	1000	58		76	12	2.5												
Nov. 13.....	1330	56		64	1	.2												
Nov. 13.....	1445	55		64	1	.2												
Dec. 13.....	1520	47		45	1	.1												
Jan. 16, 1964.....	1105	40		33	1	.1												
Jan. 20.....	1330	50		104	354	99						95	99	100			S	
Jan. 23.....	0950	39		229	26	16												
Jan. 23.....	1730	41		192	16	8.3												
Jan. 24.....	1730	44		138	10	3.7												
Feb. 20.....	0645	44		70	1	.2												
Mar. 1.....	1000	47		53	2	.3												
Mar. 2.....	0715	42		53	2	.3												
Mar. 23.....	0715	45		56	2	.3												
Mar. 27.....	1725	65		50	1	.1						83	88	100			S	
May 2.....	0830	54		67	1	.2												
June 11.....	1000	71		36	1	.1												

Particle-size analyses of bed material, water year October 1963 to September 1964

(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;

P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Bed material											Method of analysis
							Percent finer than size indicated, in millimeters											
							0.062	0.125	0.250	0.500	1.000	2.000	4.000	8.000	16.000	32.000	64.000	
May 21, 1963.....	1030		5	346				1	4	13	28	42	53	65	83	100	S	
Mar. 27, 1964.....	1725		9	50						2	6	11	18	29	66	95	100	S

T Less than 0.05 ton.

## SACRAMENTO RIVER BASIN--Continued

11-3760. COTTONWOOD CREEK NEAR COTTONWOOD, CALIF.

LOCATION.--At gaging station 2 miles east of Cottonwood, Shasta County, and 2.4 miles upstream from mouth.

DRAINAGE AREA.--922 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

Water temperatures: October 1962 to September 1964.

Sediment records: October 1962 to September 1964.

EXTREMES, 1963-64.--Sediment concentrations: Maximum daily, 1,050 ppm Jan. 20; minimum daily, 1 ppm on several days.

Sediment loads: Maximum daily, 24,900 tons Jan. 20; minimum daily, 0.1 ton Sept. 30.

EXTREMES, 1962-64.--Water temperatures (1962-63): Minimum, freezing point on several days during December 1962 and January 1963.

Sediment concentrations: Maximum daily, 2,840 ppm Feb. 10, 1963; minimum daily, 1 ppm on several days during 1963-64.

Sediment loads: Maximum daily, 89,200 tons Jan. 31, 1963; minimum daily, 0.1 ton Sept. 30, 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 10, 1963.....	120	--	--	--	--	7.3	--	98	0	--	6.1	--	--	0.0	--	--	--	75	0	0.4	179	7.6
Nov. 7.....	364	--	--	--	--	13	--	122	0	--	25	--	--	0.1	--	--	--	118	18	0.5	297	8.2
Dec. 5.....	361	--	--	--	--	9.0	--	124	0	--	9.7	--	--	0	--	--	--	107	5	0.4	244	8.2
Jan. 8, 1964.....	210	--	--	--	--	11	--	126	2	--	13	--	--	0	--	--	--	116	9	0.4	260	8.4
Feb. 5.....	645	--	--	--	--	9.0	--	119	4	--	7.3	--	--	0	--	--	--	108	4	0.4	239	8.4
Mar. 3.....	282	--	--	--	--	11	--	130	2	--	12	--	--	0	--	--	--	116	6	0.4	264	8.4
Apr. 6.....	224	--	--	--	--	10	--	130	4	--	12	--	--	0	--	--	--	118	5	0.4	263	8.5
May 4.....	256	18	--	23	11	9.1	0.7	122	0	11	11	0.1	0.4	0	144	0.20	--	103	3	0.4	239	8.1
June 8.....	163	--	--	--	--	9.8	--	119	0	--	8.5	--	--	0	--	--	--	97	0	0.4	223	8.2
July 9.....	56	--	--	--	--	9.1	--	112	0	--	4.7	--	--	0	--	--	--	87	0	0.4	200	8.2
Aug. 3.....	49	--	--	--	--	8.6	--	106	0	--	3.0	--	--	0	--	--	--	78	0	0.4	177	8.1
Sept. 4.....	56	30	--	17	7.9	8.4	1.4	103	0	7.0	3.2	--	1.4	0	127	.17	--	75	0	0.4	179	8.0

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October .....	--	--	70	--	64	--	--	66	--	66	--	64	--	--	63	--	63	--	70	--	--	64	--	56	--	65	--	--	63	--	59	--	
November .....	--	--	--	--	55	--	51	--	--	--	--	56	--	55	--	--	--	50	--	51	--	--	--	--	50	--	51	--	47	--	--		
December .....	--	44	--	46	--	47	--	45	--	42	--	40	--	46	42	42	--	43	--	40	--	47	--	49	--	45	--	47	--	47	--	--	
January .....	--	--	47	--	42	--	45	--	41	--	40	--	40	--	40	42	43	--	--	--	43	42	43	41	42	44	44	43	45	42	42	--	
February .....	45	45	42	42	42	41	41	41	45	44	43	46	42	41	44	40	44	42	43	54	46	45	46	46	43	43	44	43	43	--	--	44	
March .....	43	43	44	46	46	46	48	48	46	47	48	44	44	46	48	48	45	52	52	53	52	48	41	48	48	51	52	50	56	--	--	48	
April .....	--	50	--	--	53	--	55	--	69	--	--	67	--	60	--	51	--	--	65	--	63	--	55	--	--	58	--	61	--	57	--	--	
May .....	--	58	52	--	50	--	51	--	59	--	59	--	61	--	--	65	--	63	--	63	--	--	69	--	67	--	63	--	--	63	--	--	
June .....	--	65	--	65	--	--	63	--	60	--	--	71	--	--	67	--	70	--	--	--	--	70	--	70	--	70	--	--	65	--	66	--	--
July .....	--	73	--	--	75	--	75	--	68	--	--	73	--	73	80	71	--	--	70	--	72	--	71	--	--	74	--	72	--	72	--	--	
August .....	--	70	--	72	--	72	--	--	70	--	68	--	69	--	--	70	--	70	73	72	--	--	72	--	70	--	70	--	--	70	--	--	
September .....	64	--	60	--	--	67	--	66	--	64	--	--	67	--	65	--	63	--	--	65	--	69	--	67	--	67	65	--	63	--	--	--	--



## SACRAMENTO RIVER BASIN--Continued

11-3760. COTTONWOOD CREEK NEAR COTTONWOOD, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964  
(Where no concentrations are reported, loads are estimated)

Day	OCTOBER			NOVEMBER			DECEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	64	--	1.6	107	--	0.9	486	--	22
2..	65	--	2.5	107	--	.9	446	22	26
3..	68	20	3.7	111	--	1.5	406	--	26
4..	66	--	4.1	199	30	20	378	23	23
5..	70	24	4.5	292	62	49	361	--	20
6..	72	--	4.5	279	--	37	327	20	18
7..	74	--	4.4	364	46	45	311	--	12
8..	78	22	4.6	289	--	28	298	8	6.4
9..	80	--	4.8	334	--	35	298	--	7.2
10..	120	21	6.8	386	--	35	289	--	7.8
11..	180	--	7.3	292	--	14	270	--	8.0
12..	270	6	4.4	247	7	4.7	259	--	9.1
13..	180	--	2.4	230	--	2.5	253	14	9.6
14..	110	--	1.2	768	629	1820	247	12	8.0
15..	103	5	1.4	1380	660	2700	241	--	6.5
16..	130	--	3.9	715	--	310	232	--	6.3
17..	147	12	4.8	530	--	110	227	--	6.1
18..	127	--	2.7	462	--	37	215	--	5.8
19..	130	6	2.1	590	116	344	215	--	6.4
20..	127	--	2.7	1010	360	1100	244	12	7.9
21..	123	--	3.7	602	50	81	259	--	9.8
22..	119	13	4.2	494	--	33	244	13	8.6
23..	127	--	4.8	1430	350	2200	230	--	7.5
24..	123	15	5.0	1950	380	2200	224	--	6.7
25..	132	--	3.9	1060	--	370	215	--	6.4
26..	123	6	2.0	854	34	78	213	--	5.8
27..	117	--	1.6	802	--	43	213	--	3.5
28..	113	--	1.8	695	16	30	227	5	3.1
29..	109	8	2.4	602	--	23	241	--	3.9
30..	109	--	1.8	534	14	20	247	7	4.7
31..	111	4	1.2	--	--	--	238	--	4.5
Total	3567	--	106.8	17715	--	11772.5	8554	--	306.6
Day	JANUARY			FEBRUARY			MARCH		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	230	--	3.7	710	9	17	279	3	2.3
2..	227	--	3.7	764	15	31	305	2	1.6
3..	224	6	3.6	720	10	19	282	2	1.5
4..	215	--	3.5	675	9	16	262	2	1.4
5..	208	5	2.8	645	7	12	256	2	1.4
6..	205	--	2.2	630	9	15	253	2	1.4
7..	205	4	2.2	598	11	18	256	2	1.4
8..	210	--	2.3	557	6	9.0	244	2	1.3
9..	205	3	1.7	530	4	5.7	238	2	1.3
10..	202	--	1.1	510	5	6.9	232	3	1.9
11..	200	1	.5	490	5	6.6	235	3	1.9
12..	197	--	.5	474	5	6.4	321	7	6.1
13..	192	1	.5	450	4	4.9	282	7	5.3
14..	192	--	1.0	426	4	4.6	256	3	2.1
15..	190	2	1.0	414	5	5.6	244	4	2.6
16..	182	1	.5	400	7	7.6	244	6	4.0
17..	192	3	1.6	386	3	3.1	227	2	1.2
18..	273	--	9.6	368	4	4.0	213	4	2.3
19..	327	--	19	358	3	2.9	215	6	3.5
20..	4340	1050	24900	344	3	2.8	215	4	2.3
21..	4760	558	8890	330	5	4.5	213	2	1.2
22..	1970	150	798	327	3	2.6	230	2	1.2
23..	1230	50	166	314	2	1.7	270	4	2.9
24..	968	31	81	305	2	1.6	250	2	1.4
25..	890	23	55	298	3	2.4	227	2	1.2
26..	836	11	25	282	2	1.5	213	4	2.3
27..	770	13	27	267	2	1.4	208	4	2.2
28..	748	11	22	270	2	1.5	205	5	2.8
29..	720	--	16	270	2	1.5	208	4	2.2
30..	720	9	17	--	--	--	221	--	2.4
31..	700	10	19	--	--	--	238	6	3.9
Total	22728	--	35077.0	13112	--	216.8	7542	--	70.5

S Computed by subdividing day.

K Computed from estimated-concentration graph and subdividing day.

## SACRAMENTO RIVER BASIN--Continued

11-3760. COTTONWOOD CREEK NEAR COTTONWOOD, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964--Continued

Day	APRIL			MAY			JUNE		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	308	--	5.8	205	--	2.2	154	--	0.8
2..	305	7	5.8	202	3	1.6	134	1	.4
3..	264	--	4.3	230	4	2.5	145	--	.8
4..	247	--	3.3	256	--	3.5	138	3	1.1
5..	232	4	2.5	264	5	3.6	143	--	1.2
6..	224	--	1.8	250	--	2.7	147	--	1.2
7..	213	3	1.7	215	2	1.2	161	3	1.3
8..	208	--	2.2	213	--	1.7	163	--	1.3
9..	221	5	3.0	221	--	3.0	208	14	7.9
10..	230	--	4.3	210	7	4.0	224	--	6.7
11..	230	--	5.6	185	--	3.0	215	7	4.1
12..	224	10	6.0	182	4	2.0	218	--	4.1
13..	221	--	4.2	180	--	1.9	205	--	3.9
14..	215	4	2.3	178	5	2.4	187	8	4.0
15..	218	--	2.9	180	--	1.9	159	--	3.0
16..	238	6	3.9	170	--	1.4	130	7	2.5
17..	253	--	3.4	178	3	1.4	113	--	2.1
18..	247	--	2.7	187	--	1.5	107	8	2.3
19..	221	3	1.8	180	3	1.5	103	--	1.9
20..	218	--	1.8	168	--	1.4	99	--	1.9
21..	215	4	2.3	166	3	1.3	96	6	1.6
22..	215	--	3.5	173	--	1.4	94	--	1.3
23..	213	8	4.6	154	--	1.2	87	5	1.2
24..	213	--	3.5	159	3	1.3	78	--	1.5
25..	215	--	2.9	159	--	1.3	66	8	1.4
26..	210	5	2.8	168	3	1.4	66	--	1.6
27..	213	--	2.3	180	--	1.5	64	--	1.6
28..	202	4	2.2	215	4	2.3	71	9	1.7
29..	205	--	2.8	197	--	2.1	65	--	1.1
30..	218	5	2.9	185	--	2.0	59	4	.6
31..	--	--	--	168	5	2.3	--	--	--
Total	6856	--	99.1	5978	--	62.5	3899	--	66.1
	JULY			AUGUST			SEPTEMBER		
1..	59	--	0.6	52	--	0.8	56	14	2.1
2..	58	4	.6	50	7	.9	59	--	1.4
3..	64	--	.7	49	--	.5	62	7	1.2
4..	66	--	.7	46	2	.2	56	--	1.1
5..	70	4	.8	45	--	.4	59	--	1.3
6..	65	--	.7	48	5	.6	64	9	1.6
7..	62	--	.5	50	--	.5	64	--	1.4
8..	56	--	.5	52	--	.4	64	8	1.4
9..	56	3	.5	49	2	.3	54	--	1.3
10..	58	--	.5	49	--	.3	54	10	1.5
11..	62	--	.7	48	3	.4	59	--	1.4
12..	58	4	.6	52	--	.7	56	--	1.2
13..	54	--	.6	50	7	.9	59	7	1.1
14..	53	5	.7	46	--	.9	60	--	1.5
15..	58	10	1.6	45	--	.9	64	10	1.7
16..	59	4	.6	45	7	.9	58	--	.8
17..	62	--	.5	45	--	1.0	56	2	.3
18..	56	--	.3	41	9	1.0	54	--	.3
19..	53	2	.3	46	12	1.5	56	--	.3
20..	56	--	.3	48	8	1.0	58	2	.3
21..	53	2	.3	46	--	1.0	65	--	.4
22..	49	--	.3	44	--	1.1	56	2	.3
23..	50	3	.4	45	10	1.2	60	--	.3
24..	54	--	.3	46	--	1.2	54	2	.3
25..	56	--	.3	44	9	1.1	58	--	.5
26..	52	2	.3	44	--	1.0	62	3	.5
27..	49	--	.4	45	8	1.0	60	1	.2
28..	53	4	.6	41	--	1.1	68	--	.2
29..	56	--	.6	43	--	1.9	58	1	.2
30..	52	5	.7	44	22	2.6	53	--	.1
31..	53	--	.7	48	--	2.6	--	--	--
Total	1762	--	17.2	1446	--	29.9	1766	--	26.2
Total discharge for year (cfs-days).....									94,925
Total load for year (tons).....									47,851.2

## SACRAMENTO RIVER BASIN--Continued

## 11-3760. COTTONWOOD CREEK NEAR COTTONWOOD, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1963 to September 1964  
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Suspended sediment																	Method of analysis
Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Percent finer than size indicated, in millimeters										
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	
Nov. 14, 1963.....	1050	55		775	904		26	30	44	57	71	77	87	93	98	100	VPWC
Jan. 20, 1964.....	1530	42		5490	2920		20	28	37	49	60	69	81	93	99	100	VPWC
Jan. 21.....	0830	43		4920	551		--	--	--	--	--	92	97	100	--	--	V
Mar. 29.....	1220	56		208	4		--	--	--	--	--	78	85	100	--	--	S

## SACRAMENTO RIVER BASIN--Continued

11-3765.5. BATTLE CREEK BELOW COLEMAN FISH HATCHERY, NEAR COTTONWOOD, CALIF.

LOCATION.--At gaging station, 5.7 miles upstream from mouth, and 7.0 airline miles east of town of Cottonwood, Shasta County.

DRAINAGE AREA.--358 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1961 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 10, 1963.....	278	--	--	--	--	7.6	--	86	0	--	3.9	--	--	0.0	--	--	--	56	0	0.4	138	8.0
Nov. 7.....	404	--	--	--	--	7.0	--	72	0	--	2.0	--	--	.1	--	--	--	44	0	.5	125	8.0
Dec. 5.....	318	--	--	--	--	8.0	--	80	0	--	3.4	--	--	.0	--	--	--	52	0	.5	137	8.0
Jan. 2, 1964.....	309	--	--	--	--	8.0	--	82	0	--	3.6	--	--	.0	--	--	--	52	0	.5	137	8.2
Feb. 6.....	352	--	--	--	--	8.5	--	75	0	--	3.0	--	--	.0	--	--	--	50	0	.5	130	8.2
Mar. 12.....	343	--	--	--	--	8.6	--	78	2	--	3.2	--	--	.1	--	--	--	49	0	.5	139	8.3
Apr. 9.....	384	--	--	--	--	7.5	--	70	0	--	3.0	--	--	.0	--	--	--	48	0	.5	124	8.2
May 7.....	366	43	--	11	5.2	6.9	1.8	71	0	3.0	3.2	0.0	1.0	.1	110	0.15	--	49	0	.4	122	8.0
June 11.....	388	--	--	--	--	7.0	--	66	0	--	1.0	--	--	.0	--	--	--	45	0	.4	114	7.9
July 9.....	235	--	--	--	--	8.2	--	81	1	--	1.0	--	--	.1	--	--	--	54	0	.5	142	8.3
Aug. 3.....	182	--	--	--	--	9.0	--	84	4	--	3.0	--	--	.0	--	--	--	60	0	.5	154	8.5
Sept. 4.....	190	46	--	11	7.7	8.3	3.1	86	1	2.0	2.1	--	.8	.1	124	.17	--	59	0	.5	150	8.3

Periodic determinations of suspended sediment discharge and particle-size analyses, water year October 1963 to September 1964

(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;

P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concen- tration (ppm)	Sediment discharge (tons per day)	Suspended sediment										Method of analysis	
							Percent finer than size indicated, in millimeters											
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000		2.000
Oct. 3, 1963.....	1435	61		246	5	3.3												
Nov. 8.....	1450	50		555	40	60												
Nov. 14.....	1210	54		358	12	12												
Dec. 5.....	1255	40		309	4	3.3												
Dec. 13.....	1250	45		309	7	5.8												
Dec. 31.....	1245	49		309	6	5.0												
Jan. 16, 1964.....	1415	45		296	4	3.2												
Feb. 4.....	0940	45		370	5	5.0												
Feb. 20.....	1510	50		334	4	3.6												
Mar. 4.....	1205	50		334	8	7.2												
Mar. 26.....	1820	52		320	9	7.8												
Mar. 31.....	1110	---		384	11	11												
May 2.....	0845	49		428	6	6.9												
May 5.....	0910	50		388	7	7.3												
June 11.....	1300	59		338	23	21												
July 15.....	1500	67		732	8	16												
Aug. 19.....	1230	64		660	17	30												
Sept. 26.....	0900	59		235	7	4.4												

## SACRAMENTO RIVER BASIN--Continued

11-3772. SACRAMENTO RIVER AT BEND, CALIF.

LOCATION.--At highway bridge at Bend, Tehama County, approximately 7.9 miles upstream from gaging station near Red Bluff, 0.3 mile upstream from Spring Creek, and approximately 9 miles north of Red Bluff.

DRAINAGE AREA.--9,300 square miles, approximately, excluding Goose Lake basin, upstream from gaging station.

RECORDS AVAILABLE.--Chemical analyses: May 1955 to September 1964.

Water temperatures: May 1955 to June 1963.

REMARKS.--Records of discharge given for Sacramento River near Red Bluff. No appreciable inflow between sampling point and gaging station.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 10, 1963.....	8050	--	--	--	--	4.9	--	60	0	--	3.0	--	--	0.0	--	--	--	45	0	0.3	111	7.9
Nov. 7.....	8730	--	--	--	--	5.4	--	62	0	--	4.8	--	--	.1	--	--	--	48	0	.3	121	7.7
Dec. 5.....	10600	--	--	--	--	6.1	--	65	0	--	4.2	--	--	.0	--	--	--	51	0	.4	126	7.9
Jan. 8, 1964.....	8430	--	--	--	--	7.3	--	68	0	--	4.2	--	--	.0	--	--	--	51	0	.4	130	8.1
Jan. 21.....	32300	--	--	--	--	5.3	--	47	0	--	4.0	--	--	.3	--	--	--	40	1	.4	100	7.6
Feb. 5.....	11000	--	--	--	--	7.1	--	67	1	--	2.0	--	--	.0	--	--	--	52	0	.4	130	8.3
Mar. 3.....	7840	--	--	--	--	7.5	--	69	0	--	5.0	--	--	.0	--	--	--	50	0	.5	131	8.2
Apr. 6.....	5480	--	--	--	--	6.6	--	64	0	--	4.4	--	--	.0	--	--	--	50	0	.4	122	8.1
May 4.....	10700	22	--	10	5.6	6.5	1.3	64	0	5.0	2.5	0.0	1.2	.0	87	0.12	--	48	0	.4	124	7.9
June 8.....	10400	--	--	--	--	6.4	--	64	0	--	2.0	--	--	.0	--	--	--	50	0	.4	120	8.1
July 8.....	11300	--	--	--	--	5.9	--	66	0	--	1.5	--	1.1	.0	--	--	--	50	0	.4	121	8.2
Aug. 6.....	11700	--	--	--	--	6.5	--	67	0	--	2.0	--	--	.0	--	--	--	49	0	.4	119	7.9
Sept. 3.....	9210	23	--	10	5.8	5.9	1.4	67	0	4.0	1.9	--	.6	.0	88	.12	--	49	0	.4	121	7.8

## SACRAMENTO RIVER BASIN--Continued

11-3775. PAYNES CREEK NEAR RED BLUFF, CALIF.

LOCATION.--At gaging station, 0.4 mile upstream from mouth, and 6.5 miles northeast of Red Bluff, Tehama County.

DRAINAGE AREA.--92.7 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Cal- cium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Po- tas- sium (K)	Bi- car- bon- ate (HCO <sub>3</sub> )	Car- bon- ate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluo- ride (F)	Ni- trate (NO <sub>3</sub> )	Bo- ron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		So- dium ad- sor- ption ratio	Specific con- duct- ance (micro- mhos at 25°C)	pH
															Parts per million	Tons per acre- foot	Tons per day	Cal- cium, Mag- ne- sium	Non- car- bon- ate			
Oct. 10, 1963.....	0.9					17		109	2		16			0.3				75	0	0.9	223	8.3
Nov. 7.....	24					17		116	0		13			.4				88	0	.8	225	8.2
Dec. 5.....	18					16		114	0		12			.3				75	0	.8	214	8.2
Jan. 2, 1964.....	14					18		116	0		14			.3				75	0	.9	227	8.2
Feb. 5.....	32					13		90	2		10			.2				62	0	.7	180	8.3
Mar. 13.....	13					16		100	4		12			.3				69	0	.8	200	8.4
Apr. 9.....	10					16		107	0		12			.2				71	0	.8	205	8.1
May 4.....	6.8	47		16	8.0	17	1.5	113	0	2.0	13	0.1	1.9	.4	163	0.22		73	0	.9	218	7.7
June 11.....	8.9					19		210	0		12			.4				80	0	.9	228	8.2

## SACRAMENTO RIVER BASIN--Continued

11-3780. SACRAMENTO RIVER NEAR RED BLUFF, CALIF.

LOCATION.--Temperature recorder at gaging station at lower end of Iron Canyon, 0.5 mile downstream from Sevenmile Creek, and 4.6 miles northeast of Red Bluff, Tehama County.

DRAINAGE AREA.--9,300 square miles, approximately, excluding Goose Lake basin.

RECORDS AVAILABLE.--Water temperatures November 1960 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Minimum, 46°F on several days during January.

EXTREMES, 1960-64.--Water temperatures: Maximum (1961-63), 60°F Oct. 3-7, 1961; minimum, 39°F Jan. 22, 23, 1962.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum ....	56	56	56	56	56	56	56	56	57	57	56	56	56	56	56	56	55	55	56	56	56	55	55	55	55	55	55	55	55	55	55	56
Minimum ....	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	55	55	55	55	56	56	55	55	55	55	55	55	55	55	55	55	54
November																																
Maximum ....	54	54	54	54	54	54	54	54	54	54	54	54	53	54	54	54	53	53	53	52	52	52	52	51	51	51	52	52	52	52	—	53
Minimum ....	54	54	54	54	54	54	54	54	54	54	54	53	53	53	54	53	53	53	52	52	52	52	51	51	51	51	52	52	52	52	—	53
December																																
Maximum ....	52	52	52	52	52	52	52	52	52	52	50	50	50	50	50	50	49	48	48	48	48	48	48	48	48	48	48	48	48	48	48	50
Minimum ....	52	52	52	52	52	52	52	52	52	50	50	50	50	50	50	50	49	48	48	48	48	48	48	48	48	48	48	48	48	48	48	50
January																																
Maximum ....	48	48	48	48	48	48	48	48	48	48	48	47	47	47	47	47	47	47	46	46	46	46	46	46	46	46	47	47	47	47	47	47
Minimum ....	48	48	48	48	48	48	48	48	48	48	47	47	47	47	47	47	47	46	46	46	46	46	46	46	46	46	47	47	47	47	47	47
February																																
Maximum ....	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	48	48	—	—	47
Minimum ....	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	48	—	47
March																																
Maximum ....	48	48	48	48	48	48	48	48	49	49	49	49	48	48	49	50	50	52	52	52	52	51	50	50	50	51	52	52	52	52	52	50
Minimum ....	48	48	48	48	48	48	48	48	49	49	48	48	48	48	49	50	50	52	52	52	51	50	49	49	50	50	51	51	52	52	51	49
April																																
Maximum ....	51	51	51	52	52	53	53	53	53	52	52	52	52	52	52	52	51	51	51	51	51	51	51	50	50	50	51	51	51	51	—	52
Minimum ....	51	51	51	51	52	52	53	53	53	52	52	52	52	52	52	52	51	51	51	51	51	51	50	50	50	50	51	51	51	51	—	51
May																																
Maximum ....	50	50	50	49	50	51	52	52	52	53	53	53	53	53	53	53	53	53	53	54	55	55	55	55	56	56	56	55	56	57	57	53
Minimum ....	49	49	49	49	49	50	51	52	52	52	53	53	53	53	53	52	53	52	53	53	53	54	55	55	55	56	55	55	54	55	56	53
June																																
Maximum ....	57	57	57	57	56	55	55	55	54	54	55	56	56	56	56	56	56	56	56	56	56	56	56	56	56	55	55	55	54	53	53	56
Minimum ....	57	57	57	56	55	55	55	54	53	53	54	55	56	56	56	56	56	56	56	56	56	56	56	56	55	55	55	54	53	53	53	55
July																																
Maximum ....	54	54	54	54	54	54	54	54	54	54	54	55	55	55	55	55	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
Minimum ....	53	54	54	54	54	54	54	54	54	54	54	54	55	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
August																																
Maximum ....	54	54	54	54	55	55	55	55	55	55	55	55	56	56	56	56	56	56	55	55	55	55	55	55	55	55	55	56	56	56	56	55
Minimum ....	54	54	54	54	54	54	54	54	54	54	54	54	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	56	56	56	55
September																																
Maximum ....	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Minimum ....	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

SACRAMENTO RIVER BASIN--Continued

11-3785. SACRAMENTO RIVER AT RED BLUFF, CALIF.

LOCATION.--At U.S. Highway 99E bridge at Red Bluff, Tehama County, approximately 5 miles downstream from gaging station near Red Bluff.

DRAINAGE AREA.--9,300 square miles, approximately, excluding Goose Lake basin, upstream from gaging station.

RECORDS AVAILABLE.--Water temperatures: October 1957 to September 1964.

Sediment records: October 1957 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 61°F Sept. 23; minimum, 43°F Jan. 21.

Sediment concentrations: Maximum daily, 625 ppm Jan. 21; minimum daily, 4 ppm on several days.

Sediment loads: Maximum daily, 70,800 tons Jan. 21; minimum daily, 59 tons Apr. 6.

EXTREMES, 1957-64.--Water temperatures: Maximum, 66°F June 1, 1960; minimum, 38°F Jan. 22, 1962.

Sediment concentrations: Maximum daily, 1,510 ppm Feb. 8, 1960; minimum daily, 2 ppm Sept. 23, 1962.

Sediment loads: Maximum daily, 271,000 tons Feb. 8, 1960; minimum daily, 35 tons Sept. 23, 1962.

REMARKS.--Records of daily discharge data given for Sacramento River near Red Bluff. No appreciable inflow between sampling point and gaging station except during periods of heavy local runoff.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																																Average		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
October .....	56	--	56	--	55	--	56	--	57	--	55	54	55	--	55	--	54	--	56	--	54	--	56	--	53	--	54	--	54	--	52	--			
November .....	--	55	--	52	54	52	--	52	53	53	52	57	53	54	53	50	50	50	50	49	49	48	49	48	50	50	50	50	50	50	--	51			
December .....	50	49	46	49	48	49	49	48	48	47	49	46	48	48	46	48	45	47	45	46	46	47	47	46	47	48	49	49	49	48	47	48			
January .....	48	47	48	46	47	49	48	47	48	45	47	46	46	45	45	45	46	46	47	48	43	45	44	45	45	45	47	47	47	46	46	46			
February .....	46	47	45	46	47	45	46	46	45	47	47	47	46	46	46	46	45	46	48	50	48	49	48	48	48	47	47	47	47	--	--	47			
March .....	46	45	46	48	48	49	47	48	48	49	48	46	46	47	48	50	52	52	50	50	49	46	44	45	46	45	52	52	50	54	52	48			
April .....	52	--	51	--	52	--	54	--	55	--	55	--	56	--	56	--	53	--	56	--	55	--	50	--	54	--	54	--	55	--	--	--	--		
May .....	52	--	51	--	52	--	54	--	56	--	58	--	57	--	55	--	57	--	57	--	57	--	58	--	58	--	58	--	55	--	57	--	58	--	
June .....	--	57	--	57	--	56	--	55	--	54	--	59	--	59	--	56	--	57	--	57	--	58	--	60	--	59	--	57	--	57	--	--	--	--	
July .....	--	57	--	57	--	58	--	58	--	59	--	60	--	59	55	59	--	59	--	58	--	59	--	59	--	59	--	58	--	58	--	--	--	--	
August .....	58	--	58	--	59	--	60	--	59	--	60	--	60	--	59	--	59	--	57	--	60	--	60	--	60	--	60	--	58	--	59	--	57	--	--
September .....	55	--	58	--	59	--	59	--	59	--	59	--	60	--	60	--	59	--	60	--	58	--	61	--	60	57	59	--	58	--	--	--	--	--	



## SACRAMENTO RIVER BASIN--Continued

11-3785. SACRAMENTO RIVER AT RED BLUFF, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964  
(Where no concentrations are reported, loads are estimated)

Day	OCTOBER			NOVEMBER			DECEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	10800	14	408	8100	--	260	10800	11	321
2..	10400	--	370	8020	10	217	10800	12	356
3..	9890	11	294	7940	--	210	10100	11	300
4..	9490	--	280	8270	14	313	10200	12	330
5..	8980	11	267	8590	24	557	10600	11	315
6..	8430	--	250	8930	22	530	10600	13	372
7..	7970	10	215	8730	--	490	11000	11	327
8..	8000	--	240	8870	23	551	11400	14	431
9..	7970	13	280	11000	--	1000	11500	16	497
10..	8050	--	260	9320	31	780	11400	13	400
11..	8540	14	323	8540	--	530	11400	13	400
12..	8810	20	476	8290	13	291	11300	11	336
13..	8510	14	322	8540	11	254	11300	12	366
14..	8400	--	320	10200	24	706	11300	13	397
15..	8290	15	336	13300	173	6510	11200	11	333
16..	8320	--	310	11200	40	1210	11200	12	363
17..	7350	10	198	10300	29	806	11200	11	333
18..	7560	--	200	9890	25	668	11200	13	393
19..	8270	12	268	10600	45	1400	11200	12	363
20..	8240	--	270	16500	178	8650	11400	11	339
21..	8270	10	223	12100	30	980	11300	12	366
22..	8290	--	180	11400	28	862	11000	14	416
23..	8430	8	182	17300	140	8560	10800	11	321
24..	8430	--	250	18600	243	13700	10600	9	258
25..	8350	16	361	13300	35	1260	10700	--	230
26..	8240	--	310	12000	23	745	10800	8	233
27..	8210	9	200	11600	20	626	10800	8	233
28..	8210	--	160	11600	12	376	10400	8	225
29..	8210	10	222	11100	14	420	9980	6	162
30..	8080	--	260	10900	12	353	9980	6	162
31..	8080	13	284	--	--	--	9460	6	153
Total	263070	--	8519	325030	--	53815	336920	--	10025
Day	JANUARY			FEBRUARY			MARCH		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	8930	--	140	11400	17	523	8240	6	133
2..	8900	9	216	11300	17	519	8320	6	135
3..	8900	6	144	11200	15	454	7840	9	191
4..	8870	6	144	11100	12	360	7270	8	157
5..	8870	6	144	11000	11	327	6520	5	88
6..	8840	6	143	11000	13	386	6120	5	83
7..	8650	6	140	10900	12	353	6050	4	65
8..	8430	5	114	10800	11	321	6030	5	81
9..	8370	5	113	10800	11	321	6030	6	98
10..	8370	6	136	10800	11	321	6000	5	81
11..	8350	6	135	10700	11	318	6000	6	97
12..	8320	5	112	10600	12	343	6340	6	103
13..	8320	4	90	10600	13	372	6270	8	135
14..	8350	4	90	10600	14	401	6120	6	99
15..	8100	4	87	10600	12	343	6050	6	98
16..	7860	4	85	10600	12	343	6000	4	65
17..	7970	4	86	10500	8	227	5960	4	64
18..	9580	16	414	10200	13	358	5860	5	79
19..	10900	125	4300	9370	8	202	5860	5	79
20..	20000	304	24900	9150	7	173	5800	9	141
21..	32300	625	70800	9180	9	223	5820	5	79
22..	16500	123	5480	9180	12	297	5860	6	95
23..	14200	41	1570	9150	8	198	5960	4	64
24..	13300	27	970	9150	9	222	5930	4	64
25..	13200	25	891	8760	8	189	5960	5	80
26..	13000	26	913	8400	8	181	5910	4	64
27..	12300	21	697	8240	9	200	5860	6	95
28..	11900	18	578	8210	8	177	5840	5	79
29..	11600	19	595	8180	8	177	5840	5	79
30..	11600	19	595	--	--	--	5770	6	93
31..	11500	17	528	--	--	--	5700	7	108
Total	346280	--	115350	291670	--	8829	193130	--	2972

S Computed by subdividing day.

## SACRAMENTO RIVER BASIN--Continued

11-3785. SACRAMENTO RIVER AT RED BLUFF, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964--Continued

Day	APRIL			MAY			JUNE		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	5860	6	95	10500	11	312	8670	--	280
2..	5750	--	93	10500	--	280	8930	10	241
3..	5590	8	121	10700	10	289	9150	--	270
4..	5540	--	120	10700	--	320	9520	15	386
5..	5540	5	75	10100	10	273	9690	--	370
6..	5480	--	59	9520	--	230	9750	10	263
7..	5410	5	73	8870	8	192	10300	--	280
8..	5890	--	110	8460	--	180	10400	14	393
9..	7240	14	274	8430	10	228	10600	--	370
10..	7380	--	260	8430	--	230	10100	11	300
11..	7400	13	260	8370	7	158	9780	--	240
12..	7430	--	260	8370	--	160	9550	9	232
13..	7460	14	282	8370	9	203	9400	--	230
14..	7920	--	320	8400	--	230	9260	8	200
15..	8430	15	341	8370	9	203	9260	--	200
16..	8950	--	390	7940	--	190	9230	9	224
17..	9430	21	535	7940	7	150	9230	--	220
18..	9890	--	590	7890	--	150	9630	9	234
19..	9890	20	534	7890	9	192	10100	--	250
20..	9890	--	480	7890	--	190	10300	9	250
21..	10300	14	389	7890	7	149	10500	--	260
22..	10300	--	360	7860	--	150	10400	11	309
23..	10400	15	421	7860	8	170	10700	--	350
24..	10300	--	420	7860	--	170	10800	12	350
25..	10400	13	365	7780	8	168	10800	--	350
26..	10400	--	340	8210	--	180	10800	13	379
27..	10300	12	334	8370	7	158	11200	--	360
28..	10300	--	360	8460	--	210	11400	10	308
29..	10300	14	389	8790	12	285	11300	--	310
30..	10400	--	370	8810	--	330	11400	11	339
31..	--	--	--	8730	14	330	--	--	--
Total	249770	--	9020	268260	--	6660	302150	--	8748
Day	JULY			AUGUST			SEPTEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	11600	--	340	12500	9	304	11500	11	342
2..	12100	17	555	12800	--	350	10400	--	280
3..	12200	--	330	13100	11	389	9210	8	199
4..	12200	12	395	13000	--	350	8870	--	140
5..	12200	--	430	12400	9	301	8790	6	142
6..	12200	13	428	11700	--	250	8790	--	170
7..	11800	--	350	11600	9	282	8810	9	214
8..	11300	9	275	11700	--	280	8790	--	190
9..	11200	--	270	11700	8	253	8700	7	164
10..	11200	12	363	11700	--	220	8670	--	140
11..	11200	--	330	11700	8	253	8670	7	164
12..	11200	8	242	11700	--	280	8560	--	180
13..	11200	--	210	11600	11	345	8560	8	185
14..	11600	9	282	11700	--	320	8620	--	160
15..	11700	10	316	11700	8	253	8560	7	162
16..	12500	15	506	11600	--	250	8590	--	190
17..	12600	--	440	11700	8	253	8620	11	256
18..	12600	10	340	11700	--	250	8620	--	210
19..	12600	--	340	11600	8	251	8620	7	163
20..	12600	12	408	11600	--	250	8590	--	190
21..	12600	--	370	11600	10	313	8560	11	254
22..	12600	8	272	11600	--	310	8480	--	230
23..	12600	--	240	11600	10	313	8460	7	160
24..	12600	8	272	11600	--	280	8460	--	140
25..	12600	--	270	11600	8	251	8460	7	160
26..	12600	8	272	11700	--	220	8480	6	137
27..	12600	--	270	11600	7	219	8510	8	184
28..	12500	7	236	11300	--	240	8510	--	180
29..	12500	--	240	11300	7	214	8540	7	161
30..	12500	8	270	11300	--	210	8540	--	160
31..	12500	--	300	11300	8	244	--	--	--
Total	376000	--	10162	365300	--	8498	263540	--	5607

Total discharge for year (cfs-days)..... 3,581,120  
 Total load for year (tons)..... 248,205

## SACRAMENTO RIVER BASIN--Continued

## 11-3785. SACRAMENTO RIVER AT RED BLUFF, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1963 to September 1964  
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentra- tion (ppm)	Sediment discharge (tons per day)	Suspended sediment										Method of analysis
							Percent finer than size indicated, in millimeters										
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	
Nov. 12, 1963.....	1615	57		8240	10						81	91	100	—			S
Jan. 21, 1964.....	0100	45		60800	957						86	91	96	99	100		V
Jan. 21.....	1100	45		26200	607						87	92	98	100			V

SACRAMENTO RIVER BASIN--Continued

11-3788. RED BANK CREEK NEAR RED BLUFF, CALIF.

LOCATION.--At gaging station on road bridge, 0.1 mile downstream from unnamed tributary, 1.8 miles southeast of Red Bank, and approximately 13 miles west of Red Bluff, Tehama County.

DRAINAGE AREA.--93.5 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1959 to September 1964.

REMARKS.--Stream dry during most of year.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Dec. 3, 1963.....	6.4					20		257	4		20			0.1				263	46	0.5	549	8.4
Jan. 7, 1964.....	.4					19		256	6		24			.0				268	48	.5	559	8.4
Feb. 4.....	7.1					21		225	4		18			.1				234	43	.6	506	8.4
Mar. 3.....	1.4					20		227	9		20			.2				244	43	.6	515	8.4
Apr. 8.....	.9					20		266	6		20			.1				273	45	.5	563	8.4

## SACRAMENTO RIVER BASIN--Continued

11-3790. ANTELOPE CREEK NEAR RED BLUFF, CALIF.

LOCATION.--At gaging station 1.8 miles upstream from diversion dam of Los Molinos Mutual Water Co., 6.5 miles east of Red Bluff, Tehama County, and 9.7 miles upstream from mouth.

DRAINAGE AREA.--123 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 10, 1963.....	41	--	--	--	--	9.2	--	83	0	--	8.2	--	--	0.0	--	--	--	55	0	0.5	154	7.9
Nov. 7.....	85	--	--	--	--	7.0	--	66	0	--	5.0	--	--	.1	--	--	--	50	0	.4	127	7.8
Dec. 5.....	53	--	--	--	--	9.2	--	80	0	--	8.8	--	--	.1	--	--	--	56	0	.5	151	8.1
Jan. 2, 1964.....	48	--	--	--	--	9.9	--	80	1	--	9.0	--	--	.0	--	--	--	58	0	.6	155	8.3
Feb. 5.....	75	--	--	--	--	8.1	--	68	1	--	6.5	--	--	.0	--	--	--	49	0	.5	129	8.3
Mar. 13.....	76	--	--	--	--	8.0	--	72	1	--	5.2	--	--	.1	--	--	--	50	0	.5	133	8.3
Apr. 9.....	67	--	--	--	--	8.8	--	72	0	--	8.0	--	--	.1	--	--	--	50	0	.5	131	8.2
May 4.....	74	31	--	8.8	5.1	7.1	1.1	62	0	1.0	6.0	0.1	0.7	.1	A 92	0.13	--	43	0	.5	113	8.2
June 11.....	65	--	--	--	--	7.8	--	67	0	--	3.0	--	--	.1	--	--	--	46	0	.5	122	8.1
July 8.....	33	--	--	--	--	11	--	81	1	--	8.5	--	--	.2	--	--	--	55	0	.6	156	8.4
Aug. 3.....	30	--	--	--	--	12	--	77	6	--	10	--	--	.2	--	--	--	60	0	.7	165	8.6
Sept. 3.....	36	35	--	12	7.1	11	1.3	86	0	.0	8.4	--	1.2	.1	120	.16	--	59	0	.6	162	8.2

A Calculated from sum of determined constituents.

## SACRAMENTO RIVER BASIN--Continued

11-3791. ANTELOPE CREEK NEAR MOUTH, NEAR LOS MOLINOS, CALIF.

LOCATION.--At U.S. Highway 99E bridge, 0.2 mile northwest of Lassen View Union School, and approximately 6 miles north of Los Molinos, Tehama County.

RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1964.

REMARKS.--No discharge records available.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 10, 1963.....		--		--	--	17	--	84	0	--	22		--	0.5	--	--		66	0	0.9	223	7.9
Nov. 7.....		--		--	--	9.9	--	64	0	--	8.5		--	.3	--	--		56	4	.6	155	7.7
Dec. 5.....		--		--	--	11	--	96	0	--	9.7		--	.2	--	--		76	0	.6	193	8.1
Jan. 2, 1964.....		--		--	--	13	--	106	0	--	12		--	.2	--	--		82	0	.6	219	8.0
Feb. 5.....		--		--	--	9.9	--	90	0	--	7.5		--	.0	--	--		68	0	.5	170	8.1
Mar. 13.....		--		--	--	11	--	103	2	--	8.5		--	.4	--	--		80	0	.5	193	8.3
Apr. 6.....		--		--	--	13	--	88	0	--	12		--	.4	--	--		59	0	.7	183	7.5
May 4.....	31			13	5.7	11	3.5	58	0	18	11	0.1	1.2	.4	132	0.18		56	8	.6	173	7.1
June 11.....		--		--	--	12	--	59	0	--	11		--	.3	--	--		58	10	.7	176	7.9
July 8.....		--		--	--	15	--	67	0	--	15		--	.4	--	--		63	8	.8	209	8.2
Aug. 3.....		--		--	--	21	--	138	2	--	21		--	.6	--	--		112	0	.9	322	8.3
Sept. 3.....	37			15	6.2	16	3.3	78	0	13	18		1.3	.4	A 148	.20		63	0	.9	209	7.4

A Calculated from sum of determined constituents.

## SACRAMENTO RIVER BASIN--Continued

11-3795. ELDER CREEK NEAR PASKENTA, CALIF.

LOCATION.--At gaging station 2.5 miles downstream from South Fork, 8 miles northeast of Flournoy, and 11 miles north of Paskenta, Tehama County.  
 DRAINAGE AREA.--95.8 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1964.

Water temperatures: October 1962 to September 1963.

Sediment records: October 1962 to September 1963.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (microhmhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 9, 1963.....	5.6	--	--	--	--	58	--	210	8	--	22	--	--	0.0	--	--	--	244	59	1.6	747	8.5
Nov. 5.....	68	--	--	--	--	23	--	210	0	--	42	--	--	.0	--	--	--	196	24	.7	471	8.2
Dec. 3.....	34	--	--	--	--	17	--	188	4	--	23	--	--	.2	--	--	--	174	13	.6	390	8.4
Jan. 7, 1964.....	16	--	--	--	--	28	--	200	16	--	47	--	--	.0	--	--	--	208	18	.8	494	8.8
Feb. 4.....	45	--	--	--	--	13	--	164	6	--	18	--	--	.0	--	--	--	155	11	.5	347	8.6
Mar. 3.....	21	--	--	--	--	21	--	188	7	--	38	--	--	.1	--	--	--	186	20	.7	427	8.6
Apr. 8.....	24	--	--	--	--	20	--	166	5	--	33	--	--	.0	--	--	--	159	15	.7	392	8.5
May 5.....	20	14	--	29	20	21	0.8	161	7	9.0	35	0.2	0.7	.0	218	0.30	--	156	12	.7	391	8.6
June 10.....	15	--	--	--	--	30	--	176	8	--	58	--	--	.1	--	--	--	187	30	1.0	488	8.6
July 8.....	1.7	--	--	--	--	68	--	140	8	--	165	--	--	.1	--	--	--	214	86	2.0	783	8.5
Aug. 4.....	.2	--	--	--	--	158	--	96	4	--	422	--	--	.2	--	--	--	358	273	3.6	1570	8.4
Sept. 3.....	.6	17	--	99	70	232	4.4	134	0	16	660	--	.2	.4	1420	1.93	--	536	426	4.4	2400	8.2

## SACRAMENTO RIVER BASIN--Continued

11-3795. ELDER CREEK NEAR PASKENTA, CALIF.--Continued

Periodic determinations of suspended sediment discharge and particle-size analyses, water year October 1963 to September 1964  
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentra- tion (ppm)	Sediment discharge (tons per day)	Suspended sediment											Method of analysis
							Percent finer than size indicated, in millimeters											
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Oct. 2, 1963.....	1520	77		2.6	2	T						--	--	--				V
Oct. 16.....	1100	58		54	57	8.3						--	--	--				
Nov. 5.....	1200	50		34	98	9.0						--	--	--				
Nov. 6.....	0800	49		109	66	19						--	--	--				
Nov. 6.....	1300	50		82	23	5.1						--	--	--				
Nov. 11.....	1600	49		30	4	.3						--	--	--				
Nov. 12.....	1030	50		25	6	.4						--	--	--				
Nov. 13.....	1200	53		23	1	.1						--	--	--				
Nov. 15.....	1000	48		103	59	16						--	--	--				
Nov. 23.....	1130	45		1020	842	2320						96	99	100				
Nov. 24.....	1100	46		218	955	562						--	--	--				S
Dec. 12.....	1700	42		23	2	.1						--	--	--				
Jan. 16, 1964.....	1620	40		14	1	T						--	--	--				
Feb. 21.....	1625	57		24	1	.1						--	--	--				
Mar. 28.....	1105	52		25	2	.1						60	67	100				
May 1.....	1545	58		19	1	.1						--	--	--				
June 10.....	1515	71		14	2	.1						--	--	--				
July 14.....	1735	87		.8	4	T						--	--	--				
Aug. 18.....	1520	84		.1	1	T						--	--	--				
Sept. 26.....	1600	75		.4	1	T						--	--	--				

Particle-size analyses of bed material, water year October 1963 to September 1964  
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Bed material												Method of analysis
							Percent finer than size indicated, in millimeters												
							0.062	0.125	0.250	0.500	1.000	2.000	4.000	8.000	16.000	32.000	64.000		
Nov. 13, 1963.....	1200		3	23				1	3	10	20	33	47	58	90	100	S		
Mar. 28, 1964.....	1105		9	25					1	3	11	25	44	68	94	100	S		

T Less than 0.05 ton.



## SACRAMENTO RIVER BASIN--Continued

11-3805. ELDER CREEK AT GERBER, CALIF.

LOCATION.--At U.S. Highway 99W bridge, 1,200 feet upstream from gaging station, 1.2 miles west of Gerber, Tehama County, and 3.7 miles upstream from mouth.

DRAINAGE AREA.--136 square miles.

RECORDS AVAILABLE.--Chemical analyses: January 1959 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Nov. 5, 1963.....	33	--	--	--	--	21	--	186	0	--	40	--	--	0.1	--	--	--	182	29	0.7	439	8.0
Dec. 5.....	28	--	--	--	--	16	--	187	8	--	26	--	--	.0	--	--	--	181	15	.5	401	8.6
Jan. 7, 1964.....	9.8	--	--	--	--	20	--	201	10	--	38	--	--	.0	--	--	--	206	25	.6	467	8.6
Feb. 5.....	38	--	--	--	--	16	--	175	8	--	21	--	--	.0	--	--	--	167	10	.5	372	8.6
Mar. 3.....	14	--	--	--	--	18	--	180	14	--	32	--	--	.1	--	--	--	191	20	.6	430	8.5
Apr. 10.....	18	--	--	--	--	20	--	187	8	--	32	--	--	.0	--	--	--	185	19	.6	426	8.6
May 7.....	9.4	14	--	34	23	19	1.0	172	14	10	34	0.1	0.6	.0	238	0.32	--	181	17	.6	416	8.8

## SACRAMENTO RIVER BASIN--Continued

11-3816.2. MILL CREEK AT MOUTH, NEAR LOS MOLINOS, CALIF.

LOCATION.--At bridge on U.S. Highway 99, 0.8 mile upstream from confluence with Sacramento River, and 4.7 miles downstream from gaging station near Los Molinos, Tehama County.

DRAINAGE AREA.--131 square miles upstream from gaging station.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

REMARKS.--Records of daily discharge data given for Mill Creek near Los Molinos. Considerable diversion between gaging station and sampling point.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Nov. 7, 1963.....	215	--	--	--	--	17	--	40	--	--	19	--	--	0.6	--	--	--	60	27	1.0	215	7.7
Dec. 5.....	150	--	--	--	--	16	--	51	--	--	18	--	--	.5	--	--	--	53	11	1.0	192	8.0
Jan. 8, 1964.....	134	--	--	--	--	17	--	54	--	--	20	--	--	.5	--	--	--	54	10	1.0	196	8.0
Feb. 5.....	206	--	--	--	--	14	--	52	--	--	14	--	--	.4	--	--	--	48	5	.9	164	8.1
Mar. 3.....	148	--	--	--	--	16	--	42	--	--	19	--	--	.6	--	--	--	51	17	1.0	186	8.0
Mar. 25.....	168	33	--	12	4.4	15	2.5	51	--	14	17	0.2	1.8	.5	136	0.18	--	48	6	.9	179	7.6
Apr. 6.....	223	--	--	--	--	13	--	47	--	--	14	--	--	.4	--	--	--	47	8	.8	164	8.0
May 4.....	242	32	--	10	3.9	11	2.0	38	--	17	12	.1	1.2	.4	108	.15	--	41	10	.7	144	7.6
June 8.....	278	--	--	--	--	10	--	33	--	--	8.0	--	--	1.1	--	--	--	39	12	.7	144	7.8
July 8.....	133	--	--	--	--	14	--	56	--	--	14	--	--	.4	--	--	--	58	12	.8	190	7.9
Sept. 3.....	101	35	--	14	5.6	17	2.7	62	--	18	21	--	.5	.6	A 145	.20	--	58	7	1.0	208	7.9

A Calculated from sum of determined constituents.

SACRAMENTO RIVER BASIN--Continued

11-3820. THOMES CREEK AT PASKENTA, CALIF.

LOCATION.--At gaging station 0.25 mile upstream from Digger Creek, and 0.3 mile upstream from highway bridge at Paskenta, Tehama County.

DRAINAGE AREA.--194 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1964.

Water temperatures: October 1961 to September 1964.

Sediment records: October 1962 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 92°F July 24, 25; minimum, 35°F Jan. 11.

Sediment concentrations: Maximum daily, 1,980 ppm Nov. 23; minimum daily, 1 ppm on many days.

Sediment loads: Maximum daily, 11,000 tons Nov. 23; minimum daily, less than 0.05 ton on many days.

EXTREMES, 1961-64.--Water temperatures: Maximum, 92°F July 24, 25, 1964; minimum, 33°F on several days during January 1962, Feb. 27, 1962, Jan. 11-13, 1963.

Sediment concentrations (1962-64): Maximum daily, 8,530 ppm Feb. 1, 1963; minimum daily, 1 ppm on many days during 1962-64.

Sediment loads (1962-64): Maximum daily, 271,000 tons Jan. 31, 1963; minimum daily, less than 0.05 ton on many days during 1963-64.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 9, 1963.....	9.4					16		147	5		28			0.0				176	47	0.5	411	8.5
Nov. 5.....	109					7.3		107	0		9.7			.1				100	12	.3	232	7.9
Dec. 3.....	135					4.6		86	0		3.0			.1				77	6	.2	171	7.9
Jan. 7, 1964.....	66					6.6		104	4		5.7			.0				96	4	.3	211	8.5
Feb. 4.....	372					4.7		74	0		2.0			.2				65	4	.2	144	8.2
Mar. 3.....	112					5.9		92	1		5.8			.1				86	9	.3	190	8.3
Apr. 8.....	147					4.9		79	2		3.5			.0				74	6	.2	163	8.3
May 5.....	105	12		22	5.4	5.4	0.7	77	4	11	4.0	0.0	1.6	.0	104	0.14		77	7	.3	170	8.3
June 10.....	55					6.8		96	4		6.0			.1				94	9	.3	206	8.5
July 8.....	11					11		126	3		16			.1				132	24	.4	292	8.4
Aug. 4.....	2.8					15		114	0		30			.2				134	41	.6	334	8.2

## SACRAMENTO RIVER BASIN--Continued

11-3820. THOMES CREEK AT PASKENTA, CALIF.--Continued

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum ....	82	81	79	75	67	74	72	73	70	69	67	62	--	--	64	64	--	--	--	67	65	63	61	57	61	60	59	60	--	--	--	--
Minimum ....	67	67	67	64	64	63	62	63	65	62	62	57	--	--	60	58	--	--	--	61	59	59	56	54	54	54	52	53	--	--	--	--
November																																
Maximum ....	--	--	--	--	55	49	48	42	50	51	52	52	52	53	50	48	48	49	40	47	45	45	44	44	45	46	46	45	45	45	--	48
Minimum ....	--	--	--	--	48	47	45	47	48	48	49	49	51	50	49	45	45	44	47	44	41	41	42	43	43	44	44	42	41	41	--	45
December																																
Maximum ....	44	43	43	43	44	46	44	42	44	42	41	41	42	42	42	42	42	42	44	45	44	45	44	43	44	45	47	47	49	49	48	44
Minimum ....	40	41	39	41	42	43	40	41	42	39	36	36	38	40	40	39	38	40	42	42	42	40	39	38	40	43	44	44	46	46	45	41
January																																
Maximum ....	46	47	44	44	43	42	45	44	42	42	40	41	41	42	41	40	42	42	44	44	42	41	39	39	40	44	44	43	41	42	44	42
Minimum ....	43	43	40	39	38	41	42	40	39	38	35	38	36	38	36	37	40	40	41	42	40	39	38	38	39	41	41	40	41	40	40	39
February																																
Maximum ....	45	43	43	45	45	43	44	46	47	47	46	45	45	45	45	45	47	47	46	45	47	47	47	46	48	49	49	47	49	--	--	46
Minimum ....	48	49	50	53	51	46	49	50	51	51	45	46	52	52	55	55	57	53	54	53	51	43	48	52	53	56	57	58	56	56	49	52
March																																
Maximum ....	43	40	39	42	43	42	39	39	42	41	43	41	41	42	44	43	45	45	44	45	44	41	41	42	41	44	45	46	48	47	46	43
Minimum ....	55	52	54	55	55	56	58	60	57	57	59	59	60	62	62	58	59	59	61	57	62	60	55	56	61	64	68	69	65	62	--	59
April																																
Maximum ....	42	40	40	41	41	40	40	41	42	42	41	40	39	38	40	39	40	41	42	41	42	42	41	41	40	39	40	41	40	--	--	41
Minimum ....	48	44	42	45	45	44	45	47	48	45	43	47	48	49	51	49	47	48	48	50	50	51	46	44	45	50	52	54	56	51	--	48
May																																
Maximum ....	58	55	54	57	54	61	65	69	72	72	73	74	71	69	72	69	70	71	74	73	72	74	75	75	76	76	63	73	76	79	79	69
Minimum ....	50	47	48	46	48	45	47	52	55	56	58	58	58	58	56	56	55	51	58	57	57	58	59	61	61	62	57	58	59	62	64	55
June																																
Maximum ....	74	76	73	69	70	65	71	63	57	63	73	78	80	81	79	75	74	76	78	79	78	81	84	85	84	83	79	80	81	81	--	76
Minimum ....	63	62	63	63	63	61	58	56	54	55	57	61	64	66	68	63	63	62	64	64	66	65	68	70	69	68	63	64	66	66	--	63
July																																
Maximum ....	82	82	82	78	84	85	85	84	85	87	88	91	89	86	84	85	88	88	87	88	87	87	90	92	92	90	89	86	89	87	87	87
Minimum ....	67	66	66	67	67	69	70	70	58	69	71	76	76	72	71	71	73	72	71	71	72	71	71	73	75	75	73	76	73	73	72	71
August																																
Maximum ....	86	87	93	99	90	89	89	88	99	88	86	88	87	86	84	86	85	85	79	82	85	85	86	85	84	82	81	80	75	77	75	85
Minimum ....	70	71	71	73	74	75	76	76	74	74	74	74	75	76	74	73	73	75	72	72	71	74	75	76	76	74	73	72	65	68	67	73
September																																
Maximum ....	70	76	78	79	78	77	76	76	76	76	76	76	75	75	73	74	73	72	74	71	68	73	77	77	77	74	72	72	71	71	--	74
Minimum ....	64	62	65	67	66	66	66	65	64	63	65	66	67	65	65	64	66	64	66	64	66	59	61	67	69	68	65	63	63	64	--	65

## SACRAMENTO RIVER BASIN--Continued

11-3820. THOMES CREEK AT PASKENTA, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964  
(Where no concentrations are reported, loads are estimated)

Day	OCTOBER			NOVEMBER			DECEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	4.4	--	T	17	1	T	168	--	3.2
2..	4.4	1	T	17	--	T	150	5	2.0
3..	4.0	--	T	17	--	T	135	--	1.5
4..	4.0	1	T	115	294	91	127	3	1.0
5..	4.4	--	T	109	42	12	119	--	.6
6..	5.2	--	T	242	254	S 207	114	--	.3
7..	6.3	1	T	127	30	10	109	1	.3
8..	8.2	--	T	351	218	S 433	98	--	.3
9..	9.4	1	T	692	218	S 431	114	2	.6
10..	12	--	T	295	40	32	98	--	.3
11..	32	2	.2	176	12	5.7	86	1	.2
12..	45	3	.4	125	4	1.4	80	1	.2
13..	31	--	.2	107	4	1.2	76	1	.2
14..	19	1	.1	728	331	S 1100	72	--	.2
15..	36	14	S 3.5	571	217	S 389	68	--	.2
16..	117	75	S 26	285	41	32	66	1	.2
17..	53	20	2.9	216	15	8.7	61	--	.2
18..	28	4	.3	179	8	3.9	59	3	.5
19..	23	1	.1	224	75	S 55	59	--	.5
20..	19	--	.1	216	39	23	114	9	2.8
21..	19	1	.1	168	10	4.5	104	--	.8
22..	18	--	T	150	3	1.2	82	2	.4
23..	18	1	T	1720	1980	S 11000	76	--	.2
24..	34	1	.1	740	448	S 1110	72	1	.2
25..	25	--	.1	402	86	93	68	--	.2
26..	23	1	.1	370	52	52	66	1	.2
27..	22	--	.1	355	47	45	72	--	.2
28..	20	1	.1	272	--	25	88	2	.5
29..	19	--	.1	224	16	9.7	109	--	.6
30..	19	1	.1	190	--	5.1	98	1	.3
31..	18	--	T	--	--	--	88	--	.2
Total	700.3	--	34.9	9400	--	15181.5	2896	--	19.1
Day	JANUARY			FEBRUARY			MARCH		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	82	--	.2	378	52	S 58	130	--	0.7
2..	82	1	.2	420	42	48	130	3	1.1
3..	74	--	.2	360	23	22	112	--	.6
4..	68	1	.2	372	22	22	120	2	.6
5..	62	--	.2	426	28	32	120	--	.6
6..	61	1	.2	402	18	20	112	1	.3
7..	66	--	.2	348	14	13	105	--	.3
8..	62	1	.2	324	11	9.6	98	--	.3
9..	59	--	.2	319	9	7.8	98	1	.3
10..	61	1	.2	324	10	8.7	95	--	.3
11..	57	--	.2	308	8	6.7	95	1	.3
12..	57	--	.2	275	7	5.2	112	3	.9
13..	53	1	.1	249	6	4.0	98	--	.3
14..	57	--	.2	223	--	3.0	102	1	.3
15..	50	1	.1	214	4	2.3	112	--	.3
16..	52	--	.1	195	--	1.6	112	1	.3
17..	76	2	.4	176	3	1.4	127	--	.3
18..	130	61	S 25	163	--	1.3	168	7	3.2
19..	132	19	6.8	163	3	1.3	155	--	1.3
20..	1410	1360	S 8600	159	--	1.3	142	2	.8
21..	791	323	S 821	155	3	1.3	147	--	.8
22..	396	68	73	155	--	1.3	151	--	.8
23..	265	26	19	151	--	.8	142	2	.8
24..	218	17	10	151	2	.8	134	--	.7
25..	265	26	19	147	--	.8	120	2	.6
26..	270	20	15	138	2	.7	123	--	.7
27..	265	18	13	134	--	.7	130	--	.7
28..	265	15	11	130	1	.4	147	4	1.6
29..	254	12	8.2	127	--	.3	172	--	3.3
30..	102	24	20	--	--	--	185	8	4.0
31..	265	13	9.3	--	--	--	200	--	4.3
Total	6307	--	9653.6	7086	--	276.3	3994	--	31.4

S Computed by subdividing day.  
T Less than 0.05 ton.

## SACRAMENTO RIVER BASIN--Continued

11-3820. THOMES CREEK AT PASKENTA, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964--Continued

Day	APRIL			MAY			JUNE		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	204	8	4.4	127	1	.3	64	2	.3
2..	185	--	5.0	120	--	.3	62	--	.3
3..	163	18	7.9	120	--	.3	57	5	.8
4..	155	--	5.4	112	4	1.2	52	--	.4
5..	159	--	2.6	105	--	.9	57	1	.2
6..	147	3	1.2	95	3	.8	61	--	.2
7..	138	--	1.1	87	--	.7	62	--	.2
8..	147	3	1.2	84	2	.5	61	1	.2
9..	163	--	1.3	86	--	.5	55	--	.1
10..	163	4	1.8	100	--	.5	55	1	.1
11..	159	--	1.7	102	3	.8	48	--	.1
12..	163	--	1.8	109	--	.9	44	--	.1
13..	163	5	2.2	112	4	1.2	39	1	.1
14..	172	--	2.3	104	--	.8	38	--	.1
15..	200	10	5.4	98	1	.3	34	1	.1
16..	204	--	2.8	100	--	.3	33	--	.1
17..	190	4	2.1	102	--	.3	31	1	.1
18..	172	--	1.4	93	1	.3	29	--	.1
19..	155	--	1.3	91	--	.2	26	1	.1
20..	151	2	.8	93	2	.5	25	--	.1
21..	147	--	.8	86	--	.2	23	--	.1
22..	151	2	.8	84	1	.2	21	1	.1
23..	138	--	.7	82	--	.2	19	--	.1
24..	130	2	.7	78	--	.2	19	2	.1
25..	116	--	.6	76	2	.4	16	--	T
26..	112	--	.6	91	--	2.5	15	1	T
27..	116	3	.9	104	22	6.2	15	--	T
28..	127	--	1.0	84	--	2.3	15	--	T
29..	147	4	1.6	76	3	.6	15	1	T
30..	138	--	1.1	70	--	.4	15	--	T
31..	--	--	--	64	--	.3	--	--	--
Total	4675	--	62.5	2935	--	25.1	1106	--	4.4
	JULY			AUGUST			SEPTEMBER		
1..	13	1		3.0	--		2.6	--	
2..	13	--		3.0	--		2.3	2	
3..	12	1		2.8	1		1.8	--	
4..	12	--		2.8	--		2.0	--	
5..	12	--		2.6	1		2.3	--	
6..	12	1		2.3	--		2.0	--	
7..	12	--		2.3	1		2.0	--	
8..	11	1		2.0	--		2.0	--	
9..	11	--		2.0	--		2.0	2	
10..	9.4	1		2.0	1		1.8	--	
11..	9.4	--		1.8	--		1.6	--	
12..	8.8	--		2.0	2		1.3	--	
13..	7.6	1		1.8	--		1.3	--	
14..	7.6	1		1.8	1		1.3	--	
15..	6.6	1		1.8	--		1.0	--	
16..	6.6	--		2.0	--		.8	2	
17..	6.3	1		1.8	1		1.0	--	
18..	5.9	--		1.8	1		1.0	--	
19..	5.9	--		1.8	--		.8	--	
20..	5.5	1		1.6	--		.7	--	
21..	4.8	--		1.6	--		.6	--	
22..	4.8	1		1.6	--		.6	--	
23..	4.4	--		1.8	--		.6	4	
24..	4.0	1		1.8	--		.6	--	
25..	3.7	--		1.6	--		.5	--	
26..	3.3	--		1.6	6		.6	2	
27..	3.3	1		1.3	--		.8	--	
28..	3.3	--		1.3	--		.8	--	
29..	3.3	1		1.0	--		.7	--	
30..	3.7	--		.8	--		.7	4	
31..	3.7	1		1.0	--		--	--	
Total	228.9	--	0.6	58.4	--	0.2	38.1	--	0.2
Total discharge for year (cfs-days).....									39,425.7
Total load for year (tons).....									25,289.8

T Less than 0.05 ton.

SACRAMENTO RIVER BASIN--Continued

11-3820. THOMES CREEK AT PASKENTA, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1963 to September 1964  
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentra- tion (ppm)	Sediment discharge (tons per day)	Suspended sediment										Method of analysis	
							Percent finer than size indicated, in millimeters											
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000		2.000
Oct. 16, 1963.....	0900	56		168	169						99	100	--	--	--	--	S	
Nov. 4.....	0905	51		D 115	294						100	--	--	--	--	--	S	
Nov. 4.....	1330	53		D 115	208						97	98	100	--	--	--	S	
Nov. 6.....	0935	47		300	420						98	100	--	--	--	--	S	
Nov. 23.....	1610	44		3130	3030		16	17	26	33	43	52	65	79	89	97	100	VPWC
Jan. 20, 1964.....	1115	43		1000	1300							62	74	85	94	99	100	V
Jan. 21.....	1040	40		765	251							79	86	95	100	--	--	V
Mar. 28.....	1540	58		151	4							84	91	100	--	--	--	S

Particle-size analyses of bed material, water year October 1963 to September 1964  
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)																		
Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Bed material											Method of analysis
							Percent finer than size indicated, in millimeters											
							0.062	0.125	0.250	0.500	1.000	2.000	4.000	8.000	16.000	32.000	64.000	
May 20, 1963.....	1420		6	679														S
Nov. 13.....	0950		3	107														S
Mar. 28, 1964.....	1540		9	151														S

D Daily mean discharge.

SACRAMENTO RIVER BASIN--Continued

11-3821. THOMES CREEK NEAR MOUTH, NEAR CORNING, CALIF.

LOCATION.--At U.S. Highway 99W bridge, 2.6 miles upstream from mouth, and 3.5 miles north of Corning, Tehama County.

RECORDS AVAILABLE.--Chemical analyses: January 1959 to September 1964.

REMARKS. No discharge records available. No flow during summer months.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (microhmhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Dec. 5, 1963.....						5.5		122	0		7.0			0.0				108	8	0.2	230	8.2
Jan. 7, 1964.....						6.6		125	6		5.5			.0				124	12	.3	259	8.5
Feb. 5.....						4.7		83	2		3.6			.0				79	8	.2	168	8.3
Mar. 3.....						5.9		112	6		8.2			.1				110	8	.2	229	8.5
Apr. 10.....						5.4		112	0		1.0			.0				99	7	.2	212	8.2
May 7.....						5.5	0.7	126	2	14	5.8	0.1	1.3	.1	146	0.20		114	7	.2	237	8.4
June 18.....		13		34	7.1	6.6		153	0		3.5			.0				138	13	.2	276	7.9
July 8.....						6.2		145	2		3.0			.1				137	15	.2	269	8.3



## SACRAMENTO RIVER BASIN--Continued

11-3838. SACRAMENTO RIVER NEAR HAMILTON CITY, CALIF.

LOCATION.--At gaging station on State Highway 32 bridge, 1.3 miles northeast of Hamilton City, Glenn County, and 2.4 miles upstream from Pine Creek.  
 RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 8, 1963.....	7370	--	--	--	--	5.4	--	63	0	--	4.0	--	--	0.0	--	--	--	47	0	0.3	120	7.9
Nov. 4.....	8110	--	--	--	--	5.2	--	64	0	--	4.0	--	--	0.0	--	--	--	48	0	.3	116	8.0
Dec. 2.....	11400	--	--	--	--	6.2	--	68	0	--	4.8	--	--	0.0	--	--	--	52	0	.4	133	8.0
Jan. 6, 1964.....	9410	--	--	--	--	8.4	--	70	5	--	5.5	--	--	0.0	--	--	--	53	0	.5	137	8.6
Feb. 3.....	12500	--	--	--	--	7.5	--	70	0	--	6.2	--	--	0.0	--	--	--	57	0	.4	141	7.9
Mar. 2.....	9000	--	--	--	--	7.7	--	70	0	--	5.1	--	--	0.0	--	--	--	53	0	.5	137	8.2
Apr. 8.....	4510	--	--	--	--	7.2	--	70	0	--	5.2	--	--	0.0	--	--	--	55	0	.4	133	8.0
May 5.....	8370	25	--	11	5.7	7.2	1.4	67	0	5.0	5.0	0.1	0.8	.1	94	0.13	--	51	0	.4	129	8.0
June 9.....	8630	--	--	--	--	6.8	--	64	0	--	2.5	--	--	.1	--	--	--	50	0	.4	122	8.0
July 8.....	9230	--	--	--	--	6.5	--	68	0	--	2.3	--	--	0.0	--	--	--	51	0	.4	124	8.2
Aug. 3.....	10500	--	--	--	--	7.2	--	68	0	--	2.5	--	--	0.0	--	--	--	49	0	.4	121	8.2
Sept. 2.....	9870	23	--	14	3.4	6.6	.9	66	0	3.0	3.1	--	1.6	0.0	89	.12	--	49	0	.4	119	7.9

SACRAMENTO RIVER BASIN--Continued

11-3840. BIG CHICO CREEK NEAR CHICO, CALIF.

LOCATION.--At gaging station 1.8 miles upstream from golf clubhouse in Bidwell Park, 2.6 miles upstream from Lindo Channel, and 7 miles northeast of Chico, Butte County.

DRAINAGE AREA.--72.5 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 8, 1963.....	25	--	--	--	--	13	--	105	1	--	11	--	--	0.1	--	--	--	74	0	0.7	202	8.3
Nov. 5.....	88	--	--	--	--	10	--	94	0	--	9.5	--	--	.1	--	--	--	71	0	.5	182	7.8
Dec. 3.....	30	--	--	--	--	10	--	88	0	--	8.7	--	--	.1	--	--	--	64	0	.6	171	8.1
Jan. 6, 1964.....	29	--	--	--	--	13	--	100	3	--	11	--	--	.1	--	--	--	75	0	.7	204	8.4
Feb. 4.....	144	--	--	--	--	5.7	--	53	0	--	3.5	--	--	.1	--	--	--	44	0	.4	100	8.2
Mar. 3.....	55	--	--	--	--	9.6	--	76	2	--	7.2	--	--	.1	--	--	--	59	0	.5	154	8.3
Apr. 7.....	91	--	--	--	--	7.3	--	68	0	--	3.5	--	--	.1	--	--	--	48	0	.5	127	8.1
May 4.....	58	39	--	14	6.9	10	0.9	82	3	4.0	8.5	0.0	1.3	.1	128	0.17	--	63	0	.6	166	8.4
June 10.....	51	--	--	--	--	11	--	90	1	--	5.0	--	--	.2	--	--	--	64	0	.6	176	8.3
July 7.....	24	--	--	--	--	15	--	105	3	--	11	--	--	.3	--	--	--	79	0	.7	209	8.5
Aug. 4.....	21	--	--	--	--	16	--	103	5	--	13	--	--	.2	--	--	--	77	0	.8	216	8.4
Sept. 2.....	28	36	--	16	9.0	15	1.7	104	0	7.0	11	--	.4	.2	A 150	.20	--	77	0	.7	210	8.0

A Calculated from sum of determined constituents.

## SACRAMENTO RIVER BASIN--Continued

11-3842. BIG CHICO CREEK AT CHICO, CALIF.

LOCATION.--At gaging station at intersection of Bidwell Way and Rose Avenue, and approximately 1 mile west of Chico, Butte County.

RECORDS AVAILABLE.--Chemical analyses: January 1959 to September 1964.

REMARKS.--Records of discharge for water year October 1963 to September 1964 furnished by California State Department of Water Resources.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 8, 1963.....	7.3	--	--	--	--	13	--	106	2	--	11	--	--	0.1	--	--	--	74	0	0.7	205	8.3
Nov. 4.....	29	--	--	--	--	13	--	106	0	--	12	--	--	.3	--	--	--	75	0	.7	207	7.6
Dec. 2.....	35	--	--	--	--	11	--	86	0	--	10	--	--	.1	--	--	--	62	0	.6	167	8.1
Jan. 6, 1964.....	23	--	--	--	--	13	--	102	2	--	11	--	--	.1	--	--	--	75	0	.7	205	8.4
Feb. 3.....	126	--	--	--	--	6.5	--	53	0	--	3.5	--	--	.1	--	--	--	39	0	.4	100	8.2
Mar. 2.....	41	--	--	--	--	10	--	78	4	--	8.0	--	--	.1	--	--	--	62	0	.6	162	8.4
Apr. 7.....	61	--	--	--	--	8.1	--	69	0	--	3.0	--	--	.1	--	--	--	49	0	.5	127	8.2
May 4.....	40	37	--	14	7.1	10	0.9	89	0	4.0	9.0	0.1	0.4	.2	128	0.17	--	64	0	.6	167	8.1
June 9.....	35	--	--	--	--	12	--	91	1	--	6.0	--	--	.4	--	--	--	67	0	.6	184	8.3
July 7.....	5.9	--	--	--	--	15	--	105	2	--	11	--	--	.2	--	--	--	76	0	.7	212	8.4
Aug. 3.....	--	--	--	--	--	17	--	94	8	--	13	--	--	.2	--	--	--	76	0	.8	216	8.5
Sept. 2.....	9.3	37	--	17	8.9	18	1.8	104	2	9.0	17	--	.4	.2	168	.23	--	79	0	.9	243	8.3

SACRAMENTO RIVER BASIN--Continued

11-3870. STONY CREEK NEAR FRUTO, CALIF.

LOCATION.--At gaging station 0.3 mile downstream from Grindstone Creek, and 6.5 miles northwest of Fruto, Glenn County.

DRAINAGE AREA.--599 square miles.

RECORDS AVAILABLE.--Chemical analyses: March to September 1964.

Chemical analyses, in parts per million, March to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Cal- cium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Po- tas- sium (K)	Bi- car- bon- ate (HCO <sub>3</sub> )	Car- bon- ate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluo- ride (F)	Ni- trate (NO <sub>3</sub> )	Bo- ron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		So- dium ad- sor- ption ratio	Specific con- duct- ance (micro- mhos at 25°C)	pH
															Parts per million	Tons per acre- foot	Tons per day	Cal- cium, Mag- ne- sium	Non- car- bon- ate			
Mar. 2, 1964.....	70	--	--	--	--	13	--	112	0	--	21	--	--	0.0	--	--	--	115	23	0.5	281	8.2
Apr. 1.....	128	--	--	--	--	11	--	97	0	--	14	--	--	.0	--	--	--	96	16	.5	234	8.2
May 1.....	207	8.9	--	27	9.1	14	0.8	111	5	12	17	0.1	1.4	.1	150	0.20	--	105	6	.6	263	8.5
June 1.....	213	--	--	--	--	16	--	134	4	--	19	--	--	.3	--	--	--	121	5	.6	296	8.4
July 1.....	192	--	--	--	--	17	--	154	4	--	20	--	--	.2	182	.25	--	137	4	.6	325	8.4
Aug. 3.....	87	--	--	--	--	18	--	166	5	--	20	--	--	.3	--	--	--	144	0	.6	343	8.5
Sept. 1.....	110	9.7	--	33	17	20	.9	173	5	14	23	--	.8	.4	213	.29	--	153	3	.7	365	8.5

## SACRAMENTO RIVER BASIN--Continued

11-3880. STONY CREEK AT BLACK BUTTE DAMSITE, NEAR ORLAND, CALIF.

LOCATION.--At gaging station 120 feet downstream from diversion dam, and 8.7 miles northwest of Orland, Glenn County.

DRAINAGE AREA.--740 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1957 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 9, 1963.....	127					13		197	0		12			0.1				162	0	0.4	351	8.2
Dec. 3.....	33					17		152	0		26			.1				144	19	.6	355	8.2
Jan. 7, 1964.....	19					19		164	0		28			.1				152	18	.7	372	8.1
Feb. 4.....	12					16		142	3		26			.1				138	17	.6	345	8.3
Mar. 3.....	4.0					15		140	0		24			.1				133	18	.6	326	8.2
Apr. 8.....	45					15		143	1		23			.1				138	19	.6	329	8.3
May 5.....	54	7.4		33	12	15	1.5	140	4	15	21			.0	183	0.25		132	11	.6	325	8.3
June 10.....	4.5					17		150	4		23		0.0	1.1				141	11	.6	331	8.5
July 8.....	104					16		150	8		21			.3				144	8	.6	338	8.5
Aug. 4.....	114					18		177	0		22			.3				152	7	.6	356	8.2

## SACRAMENTO RIVER BASIN--Continued

11-3890. SACRAMENTO RIVER AT BUTTE CITY, CALIF.

LOCATION.--At highway bridge downstream from gaging station, and 0.5 mile south of Butte City, Glenn County.

RECORDS AVAILABLE.--Chemical analyses: May 1955 to September 1964.

Water temperatures: May 1955 to September 1958, October 1959 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 69°F July 14; minimum, 45°F Jan. 22-26.

EXTREMES, 1955-58, 1959-64.--Water temperatures: Maximum, 75°F June 2, 3, 5, 7, 1960; minimum (1955-57, 1959-62, 1963-64), freezing point Jan. 2-5, 1960.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 8, 1963.....	7760	--	--	--	--	5.5	--	68	0	--	3.9	--	--	0.0	--	--	--	50	0	0.3	126	7.8
Nov. 4.....	8000	--	--	--	--	5.2	--	66	0	--	4.0	--	--	.0	--	--	--	50	0	.3	125	7.8
Dec. 2.....	11300	--	--	--	--	6.6	--	70	0	--	5.2	--	--	.1	--	--	--	55	0	.4	139	7.8
Jan. 6, 1964.....	9240	--	--	--	--	7.5	--	75	0	--	5.9	--	--	.0	--	--	--	57	0	.4	146	8.2
Feb. 3.....	13000	--	--	--	--	8.0	--	71	0	--	4.5	--	--	.1	--	--	--	68	.0	.4	144	8.1
Mar. 2.....	8900	--	--	--	--	8.1	--	72	2	--	4.5	--	--	.1	--	--	--	55	0	.5	145	8.3
Apr. 7.....	5170	--	--	--	--	7.4	--	77	0	--	3.0	--	--	.1	--	--	--	58	0	.4	149	8.0
May 4.....	8460	22	--	12	5.1	6.7	1.2	69	0	6.0	4.5	0.0	1.5	.1	A 93	0.13	--	51	0	.4	129	8.0
June 9.....	8240	--	--	--	--	6.4	--	67	0	--	2.0	--	--	.0	--	--	--	55	0	.4	125	8.0
July 7.....	9120	--	--	--	--	6.8	--	67	0	--	2.0	--	--	.1	--	--	--	52	0	.4	127	7.7
Aug. 3.....	9580	--	--	--	--	7.4	--	67	0	--	3.0	--	--	.0	--	--	--	48	0	.5	127	8.1
Sept. 2.....	9820	22	--	10	6.1	7.0	1.2	69	0	5.0	1.4	--	--	.4	93	.13	--	50	0	.4	126	8.1

A Calculated from sum of determined constituents.

## SACRAMENTO RIVER BASIN--Continued

11-3890. SACRAMENTO RIVER AT BUTTE CITY, CALIF.--Continued

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																																Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum .....	61	61	61	61	60	59	60	60	60	60	60	59	58	58	58	58	58	58	60	60	59	58	58	58	58	56	56	56	55	56	56	59	
Minimum .....	60	60	60	60	59	58	58	59	59	59	59	58	57	57	58	57	57	58	58	59	58	58	57	56	55	55	55	55	55	55	54	58	
November																																	
Maximum .....	55	54	54	54	53	53	53	53	53	53	54	54	54	54	54	54	52	52	51	50	49	48	48	48	48	49	50	50	50	50	--	52	
Minimum .....	54	54	54	53	53	53	52	52	53	53	54	54	54	54	54	52	52	51	50	49	48	48	48	48	48	48	49	50	50	50	--	51	
December																																	
Maximum .....	50	50	50	49	49	48	48	48	48	48	48	47	47	47	48	48	48	48	47	47	47	48	48	48	48	49	50	50	50	50	50	48	
Minimum .....	50	50	49	49	48	48	48	48	48	48	47	47	47	47	48	48	48	47	47	47	47	47	48	47	48	47	48	49	50	50	50	48	
January																																	
Maximum .....	50	50	50	49	49	48	48	48	48	48	47	47	47	47	47	47	47	47	48	48	48	47	45	45	45	46	47	47	47	47	47	47	
Minimum .....	50	50	49	49	48	48	48	48	47	46	46	46	46	46	46	46	47	47	48	47	48	47	45	45	45	45	46	47	46	47	47	47	
February																																	
Maximum .....	47	47	48	48	48	48	48	48	49	49	49	49	48	48	48	48	48	49	50	50	50	50	51	51	51	51	50	50	50	--	--	49	
Minimum .....	47	46	47	48	48	47	47	47	48	49	48	48	47	47	47	46	47	47	48	48	49	50	49	50	49	48	49	49	49	--	--	48	
March																																	
Maximum .....	49	49	49	50	50	50	49	49	50	51	50	50	50	50	50	53	55	54	57	55	56	50	49	49	50	52	53	55	55	57	56	52	
Minimum .....	49	48	48	48	49	49	48	47	48	50	50	48	48	48	49	50	51	52	50	50	48	47	47	48	47	50	50	53	53	53	53	49	
April																																	
Maximum .....	55	53	53	56	--	--	--	--	--	--	--	--	--	--	--	60	57	57	57	57	58	58	57	55	55	56	58	59	59	58	--	--	
Minimum .....	53	50	49	51	--	--	--	--	--	--	--	--	--	--	--	56	55	55	55	55	55	55	56	53	53	52	54	55	56	57	56	--	
May																																	
Maximum .....	58	56	54	54	54	55	57	59	61	62	63	65	65	64	63	63	62	62	64	64	64	64	65	65	66	65	63	62	62	65	66	62	
Minimum .....	54	53	52	51	53	52	54	56	59	60	61	62	63	62	61	61	59	61	62	62	62	62	62	62	63	63	62	60	60	62	63	59	
June																																	
Maximum .....	66	65	65	64	63	62	62	62	60	58	61	64	66	66	66	66	63	64	65	65	65	66	67	68	68	67	66	65	64	64	--	64	
Minimum .....	63	62	62	62	61	61	60	60	57	55	58	60	62	64	64	62	61	62	62	62	62	62	62	63	64	64	64	63	62	62	62	--	62
July																																	
Maximum .....	64	64	65	63	64	65	66	67	67	67	67	67	68	69	68	68	67	67	66	67	67	66	66	66	66	67	68	67	66	66	66	66	
Minimum .....	61	61	61	61	61	62	62	63	63	63	63	64	65	65	65	65	64	63	63	64	64	64	64	64	64	64	64	64	64	62	63	64	
August																																	
Maximum .....	66	66	66	65	65	66	66	66	66	66	66	66	66	66	66	66	66	66	64	65	66	66	66	66	66	66	66	65	64	65	64	66	
Minimum .....	64	64	64	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	62	62	63	63	63	63	63	62	61	62	61	63	
September																																	
Maximum .....	61	61	63	55	65	64	64	64	64	63	63	64	64	64	64	64	64	62	61	62	61	61	63	64	64	64	63	62	62	62	--	63	
Minimum .....	60	59	60	61	63	62	62	62	61	61	61	61	62	62	62	62	59	59	60	58	58	60	62	63	62	61	60	59	60	--	--	61	

## SACRAMENTO RIVER BASIN--Continued

11-3895. SACRAMENTO RIVER AT COLUSA, CALIF.

LOCATION.--At gaging station at north end of Jimeno Grant, downstream from highway bridge at Colusa, Colusa County, and at mile 89.4 upstream from Sacramento.  
 RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 8, 1963.....	7980	--	--	--	--	5.5	--	67	--	--	3.8	--	--	0.0	--	--	--	50	0	0.3	126	7.5
Nov. 4.....	8090	--	--	--	--	5.5	--	68	--	--	4.5	--	--	.0	--	--	--	49	0	.3	123	7.8
Dec. 2.....	11600	--	--	--	--	6.8	--	68	--	--	3.5	--	--	.1	--	--	--	54	0	.4	138	8.0
Jan. 6, 1964.....	9410	--	--	--	--	8.4	--	78	--	--	4.5	--	--	.0	--	--	--	56	0	.5	146	8.0
Feb. 3.....	13100	--	--	--	--	7.8	--	71	--	--	4.0	--	--	.1	--	--	--	57	0	.5	143	7.9
Mar. 2.....	8970	--	--	--	--	8.5	--	75	--	--	4.5	--	--	.1	--	--	--	57	0	.5	147	7.7
Apr. 7.....	5100	--	--	--	--	8.0	--	80	--	--	6.2	--	--	.0	--	--	--	62	0	.4	151	7.8
May 4.....	7540	24	--	12	5.4	7.3	1.3	69	--	5.0	4.8	0.2	0.8	.1	95	0.13	--	52	0	.4	132	7.9
June 9.....	7760	--	--	--	--	7.4	--	68	--	--	4.0	--	--	.0	--	--	--	54	0	.4	129	8.1
July 7.....	8860	--	--	--	--	6.9	--	70	--	--	2.2	--	--	.0	--	--	--	52	0	.4	128	8.0
Aug. 3.....	9350	--	--	--	--	7.2	--	69	--	--	2.5	--	--	.0	--	--	--	52	0	.4	129	7.7
Sept. 2.....	9460	23	--	11	5.5	7.0	1.7	70	--	4.0	1.8	--	1.4	.0	89	.12	--	50	0	.4	124	7.9



## SACRAMENTO RIVER BASIN--Continued

11-3900. BUTTE CREEK NEAR CHICO, CALIF.

LOCATION.--At gaging station 0.7 mile downstream from Little Butte Creek, and 7.5 miles east of Chico, Butte County.

DRAINAGE AREA.--147 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

Water temperatures: November 1961 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 73°F July 13, 25, 26, 29, Aug. 8; minimum, 35°F Jan. 15.

EXTREMES, 1961-64.--Water temperatures: Maximum, 73°F July 13, 25, 26, 29, Aug. 8, 1964; minimum, 35°F Jan. 23, 24, 1962, Jan. 13, 14, 1963, Jan. 15, 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 9, 1963.....	144	--	--	--	--	3.3	--	65	--	--	1.8	--	0.0	--	--	--	--	48	0	0.2	108	7.8
Nov. 5.....	408	--	--	--	--	3.3	--	62	--	--	1.8	--	0	--	--	--	--	47	0	.2	106	7.4
Dec. 3.....	138	--	--	--	--	3.4	--	67	--	--	2.0	--	0	--	--	--	--	50	0	.2	111	8.2
Jan. 6, 1964.....	168	--	--	--	--	3.9	--	63	--	--	2.4	--	0	--	--	--	--	46	0	.3	106	8.2
Feb. 4.....	375	--	--	--	--	3.6	--	49	--	--	1.0	--	.1	--	--	--	--	38	0	.3	88	8.2
Mar. 3.....	256	--	--	--	--	3.8	--	50	--	--	1.2	--	0	--	--	--	--	38	0	.3	87	8.2
Apr. 7.....	385	--	--	--	--	3.3	--	46	--	--	.5	--	0	--	--	--	--	34	0	.2	80	8.0
May 4.....	385	22	--	8.4	2.4	3.0	0.6	42	--	0.0	1.6	0.0	1.4	0	60	0.08	--	31	0	.2	74	8.1
June 10.....	320	--	--	--	--	3.1	--	46	--	--	.5	--	.1	--	--	--	--	33	0	.2	80	8.1
July 7.....	157	--	--	--	--	4.2	--	57	--	--	.5	--	.1	--	--	--	--	41	0	.3	97	8.1
Aug. 3.....	132	--	--	--	--	4.3	--	59	--	--	1.0	--	0	--	--	--	--	45	0	.3	103	8.2
Sept. 2.....	150	21	--	12	4.4	4.7	.7	64	--	3.0	.6	--	.7	0	79	.10	--	48	0	.3	107	8.1

## SACRAMENTO RIVER BASIN--Continued

11-3900. BUTTE CREEK NEAR CHICO, CALIF.--Continued

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum ....	51	50	50	51	51	50	49	48	49	49	49	48	49	51	51	49	46	45	45	46	45	43	45	46	45	45	44	45	45	45	--	48	
Minimum ....	49	50	49	49	50	49	47	47	48	48	48	48	48	49	49	46	45	44	44	45	43	43	43	45	44	44	44	44	44	44	--	46	
November																																	
Maximum ....	44	44	44	43	44	44	44	42	44	43	40	39	40	41	41	41	41	41	42	43	43	42	41	41	41	42	44	44	45	45	44	43	
Minimum ....	43	43	42	43	43	44	42	42	42	40	39	38	39	40	41	41	41	41	41	42	42	41	40	40	40	41	42	43	44	44	44	42	
December																																	
Maximum ....	44	43	41	40	38	38	40	39	39	39	37	37	37	37	36	36	38	39	40	42	42	40	40	40	40	41	41	41	41	41	41	40	
Minimum ....	42	41	40	38	37	37	38	38	38	37	36	36	36	36	35	36	36	38	39	40	41	40	40	40	40	41	41	41	41	41	41	39	
January																																	
Maximum ....	41	42	41	42	42	41	42	43	43	43	43	42	41	41	41	41	41	43	43	--	--	--	--	--	--	--	--	--	--	--	--	--	
Minimum ....	41	40	40	41	42	41	40	41	42	42	41	41	41	40	40	40	40	41	42	--	--	--	--	--	--	--	--	--	--	--	--	--	
February																																	
Maximum ....	--	--	--	42	43	43	41	42	44	45	45	44	45	47	48	48	50	49	48	47	47	45	44	45	45	46	47	47	47	47	47	46	
Minimum ....	--	--	--	39	41	41	40	40	41	42	43	43	43	44	46	46	47	47	46	45	45	43	43	43	42	43	44	45	45	46	47	44	
March																																	
Maximum ....	47	44	45	46	47	47	48	49	49	40	49	49	50	52	52	51	49	48	49	49	50	50	49	46	47	49	52	54	54	--	49		
Minimum ....	44	42	42	44	46	45	46	47	48	47	47	47	47	47	50	49	47	46	46	48	48	49	46	43	44	46	49	50	52	52	--	47	
April																																	
Maximum ....	52	47	47	47	47	48	50	52	52	55	56	56	56	55	54	53	54	54	56	56	55	56	57	58	58	57	55	54	55	58	58	54	
Minimum ....	47	45	45	45	46	45	46	48	50	52	53	53	53	52	51	51	51	52	53	53	52	52	53	54	55	55	52	51	52	54	56	51	
May																																	
Maximum ....	59	60	60	59	59	58	57	56	53	53	53	56	59	60	63	62	60	60	60	62	63	64	66	68	68	68	66	65	65	64	--	61	
Minimum ....	57	56	56	57	57	57	56	53	52	51	51	54	56	58	60	59	57	57	57	58	59	61	63	63	63	62	61	60	60	--	58		
June																																	
Maximum ....	65	65	65	64	65	66	67	68	68	69	69	70	73	72	72	72	72	72	71	71	71	71	70	71	73	73	72	70	73	71	70	70	
Minimum ....	59	59	60	59	60	60	62	63	63	63	63	65	64	67	67	66	66	66	65	65	65	65	65	64	64	67	68	67	68	67	66	64	
July																																	
Maximum ....	70	69	69	70	70	70	73	71	70	70	70	70	70	70	70	70	70	70	70	69	70	70	71	72	71	70	68	67	67	66	70	70	
Minimum ....	64	63	63	63	64	65	66	65	65	65	64	65	65	65	65	65	65	65	64	64	64	65	66	67	66	65	64	63	62	62	62	64	
August																																	
Maximum ....	62	61	61	63	64	64	63	63	62	62	62	63	63	63	63	63	62	62	62	62	61	61	62	64	64	63	62	61	60	60	--	62	
Minimum ....	60	57	57	58	59	59	59	59	58	57	57	58	59	59	58	59	59	58	58	57	58	58	57	58	59	60	60	59	58	58	57	--	58
September																																	
Maximum ....																																	
Minimum ....																																	

SACRAMENTO RIVER BASIN--Continued

11-3906.5. SACRAMENTO RIVER ABOVE COLUSA TROUGH, AT KNIGHTS LANDING, CALIF.

LOCATION.--Approximately 200 yards upstream from State Highway 24 bridge at Knights Landing, Yolo County, and approximately 0.3 mile upstream from gaging station.

RECORDS AVAILABLE.--Chemical analyses: July 1960 to September 1964.

REMARKS.--Records of daily discharge data given for Sacramento River at Knights Landing. Considerable inflow between sampling point and gaging station.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 8, 1963.....	9300	--	--	--	--	5.8	--	70	0	--	3.9	--	--	0.0	--	--	--	52	0	0.3	130	8.0
Nov. 4.....	8660	--	--	--	--	5.9	--	72	0	--	4.5	--	--	0.0	--	--	--	52	0	.4	131	7.9
Dec. 2.....	13600	--	--	--	--	7.2	--	72	0	--	4.0	--	--	.2	--	--	--	57	0	.4	147	7.7
Jan. 6, 1964.....	10400	--	--	--	--	9.2	--	75	3	--	6.0	--	--	.0	--	--	--	59	0	.5	152	8.5
Feb. 3.....	14900	--	--	--	--	7.7	--	74	0	--	4.5	--	--	.1	--	--	--	59	0	.4	148	8.0
Mar. 2.....	9520	--	--	--	--	8.3	--	76	0	--	6.6	--	--	.0	--	--	--	58	0	.5	148	8.2
Apr. 7.....	5530	--	--	--	--	8.0	--	79	0	--	6.6	--	--	.0	--	--	--	62	0	.4	156	7.9
May 4.....	6460	24	--	13	7.2	11	1.4	80	0	12	7.5	0.1	0.9	.1	116	0.16	--	62	0	.6	170	8.2
June 9.....	6980	--	--	--	--	11	--	82	0	--	6.0	--	--	.1	--	--	--	63	0	.6	171	8.1
July 7.....	8050	--	--	--	--	9.3	--	76	0	--	4.0	--	--	.0	--	--	--	59	0	.5	151	8.0
Aug. 3.....	8480	--	--	--	--	9.3	--	73	1	--	3.5	--	--	.0	--	--	--	54	0	.5	145	8.3
Sept. 3.....	11500	24	--	12	6.6	9.3	1.7	80	0	6.0	3.7	--	.8	.1	103	.14	--	57	0	.5	148	8.0

## SACRAMENTO RIVER BASIN--Continued

11-3907. COLUSA TROUGH NEAR COLUSA, CALIF.

LOCATION.--At gaging station 3 miles west of Colusa, Colusa County, on State Highway 20, and 6 miles northeast of Williams.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

REMARKS.--Records of discharge for water year October 1963 to September 1964 furnished by California State Department of Water Resources. This water is the drainage from Colusa basin passing down the Back Barrow Pit and entering the Sacramento River just upstream from Knights Landing gaging station.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 8, 1963.....	353	--	--	--	--	50	--	198	0	59	27	--	--	0.0	--	--	--	151	0	1.8	504	8.1
Nov. 4.....	287	--	--	--	--	73	--	202	0	--	46	--	--	.3	--	--	--	173	7	2.4	663	7.6
Dec. 2.....	275	--	--	--	--	134	--	300	0	--	78	--	--	.3	--	--	--	272	26	3.5	1140	8.1
Feb. 3, 1964.....	165	--	--	--	--	225	--	330	30	336	130	--	--	.4	--	--	--	390	70	5.0	1580	8.7
Mar. 2.....	97	--	--	--	--	226	--	354	18	322	133	--	--	.4	--	--	--	388	68	5.0	1560	8.6
Apr. 7.....	272	--	--	--	--	56	--	166	0	77	26	--	--	.2	--	--	--	134	0	2.1	502	7.8
May 4.....	934	17	--	25	15	54	1.8	154	1	64	26	0.2	2.6	.2	294	0.40	--	123	0	2.1	475	8.3
June 9.....	755	--	--	--	--	68	--	183	7	67	30	--	--	.4	--	--	--	135	0	2.5	543	8.6
July 7.....	626	--	--	--	--	53	--	199	4	53	24	--	--	.3	--	--	--	150	0	1.9	501	8.4
Aug. 3.....	509	--	--	--	--	60	--	215	10	--	30	--	--	.3	--	--	--	167	0	2.0	565	8.6
Sept. 2.....	--	18	--	26	19	42	2.8	202	0	39	21	--	1.3	.2	275	.37	--	143	0	1.5	451	8.2

SACRAMENTO RIVER BASIN--Continued

11-3911. SACRAMENTO SLOUGH NEAR KNIGHTS LANDING, CALIF.

LOCATION.--At gaging station on levee near Reclamation District 1,500 pumping plant, 1 mile upstream from mouth, and 5.4 miles southeast of Knights Landing, Yolo County.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

REMARKS.--This water is entire outflow of the Sutter Bypass area and the Reclamation District 1,500.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 8, 1963.....	471	--	--	--	--	42	--	241	7	--	51	--	--	0.0	--	--	--	197	0	1.3	560	8.4
Apr. 7, 1964.....	504	--	--	--	--	15	--	132	0	--	17	--	--	.0	--	--	--	104	0	.6	266	7.8
May 4.....	788	24	--	32	25	46	1.4	197	0	21	70	0.2	1.6	.0	320	0.44	--	181	19	1.5	563	7.8
July 7.....	602	--	--	--	--	46	--	242	0	--	61	--	--	.1	--	--	--	205	7	1.4	600	7.7
Aug. 3.....	547	--	--	--	--	45	--	255	0	--	52	--	--	.1	--	--	--	201	0	1.4	573	8.2
Sept. 3.....	1270	28	--	32	24	34	2.3	240	0	11	33	--	1.1	.1	290	.39	--	180	0	1.1	478	8.2

## SACRAMENTO RIVER BASIN--Continued

11-3915. BIG GRIZZLY CREEK NEAR PORTOLA, CALIF.

LOCATION.--Temperature recorder at gaging station, 500 feet upstream from small tributary, 4.3 miles upstream from mouth, and 4.5 miles north of Portola, Plumas County.

DRAINAGE AREA.--45.5 square miles.

RECORDS AVAILABLE.--Water temperatures: October 1962 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 75°F July 7, 26-28, Aug. 7; minimum, freezing point on many days during winter months.

EXTREMES, 1962-64.--Water temperatures: Maximum, 78°F July 12-14, 1963; minimum, freezing point on many days during winter months.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum ....	57	57	56	55	52	54	52	49	53	52	51	51	52	49	52	53	54	55	57	53	52	52	52	46	50	50	48	46	44	46	44	51	
Minimum ....	49	49	49	50	50	48	44	45	48	45	47	45	45	46	47	47	47	48	50	48	47	48	46	43	44	44	41	40	42	42	38	46	
November																																	
Maximum ....	44	44	44	44	43	40	40	42	45	44	43	44	44	43	43	38	36	36	35	35	35	34	34	34	34	34	35	36	36	35	--	39	
Minimum ....	37	39	42	42	40	37	37	40	42	40	40	40	42	42	38	34	34	34	34	33	33	34	34	34	34	34	34	34	34	34	--	37	
December																																	
Maximum ....	34	34	34	34	33	33	34	33	33	34	34	34	34	34	34	34	34	34	34	34	34	33	33	33	33	32	32	33	33	34	34	34	
Minimum ....	34	34	34	33	33	33	33	33	33	33	33	34	34	34	34	34	34	34	34	34	34	33	33	33	32	32	32	32	33	33	33	33	
January																																	
Maximum ....	34	34	35	34	34	34	34	34	34	34	33	33	33	33	34	34	34	34	34	34	34	34	34	34	34	34	33	33	33	32	32	34	
Minimum ....	34	34	34	34	34	34	34	34	34	33	33	33	33	33	33	33	34	34	34	34	34	34	34	34	34	34	33	33	33	32	32	34	
February																																	
Maximum ....	32	33	33	33	33	33	33	33	33	33	33	33	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	--	--	32	
Minimum ....	32	32	33	33	33	33	33	33	33	33	33	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	--	--	32	
March																																	
Maximum ....	32	32	32	34	34	33	34	33	34	34	35	34	35	34	36	35	36	36	35	35	35	35	35	36	36	38	38	37	36	36	36	35	
Minimum ....	32	32	32	32	32	32	33	33	33	33	34	34	34	33	33	33	33	32	32	33	33	33	33	33	33	33	33	32	32	32	32	33	
April																																	
Maximum ....	35	34	35	34	34	35	40	39	38	37	37	37	41	45	47	51	48	46	47	48	48	47	43	39	45	50	52	53	52	50	--	43	
Minimum ....	32	32	32	32	32	32	32	32	32	32	33	33	33	32	33	33	34	35	36	38	40	35	32	33	35	42	43	46	46	43	--	35	
May																																	
Maximum ....	44	41	41	46	45	45	49	54	57	60	60	62	59	58	60	59	58	59	64	62	62	64	64	65	63	59	52	51	58	60	66	56	
Minimum ....	35	33	33	36	35	34	38	42	48	52	52	53	52	50	49	51	48	52	52	52	49	51	50	56	51	52	48	48	45	49	52	47	
June																																	
Maximum ....	62	62	62	60	61	58	56	54	49	50	60	66	69	66	62	57	58	60	64	66	68	68	70	72	70	70	68	68	--	--	--	63	
Minimum ....	52	50	50	55	54	54	49	48	47	47	46	51	55	58	56	53	51	53	51	56	54	55	54	56	54	56	52	52	--	--	--	52	
July																																	
Maximum ....	72	71	72	70	72	74	75	72	72	72	72	74	73	72	74	74	73	72	72	71	70	72	74	73	75	75	75	74	73	70	73		
Minimum ....	55	54	54	54	53	56	58	55	54	54	56	60	59	58	58	58	60	59	58	58	57	56	57	59	63	61	62	66	64	63	59	58	
August																																	
Maximum ....	70	69	70	70	70	74	75	74	73	70	74	71	72	72	71	72	73	71	70	72	71	71	72	71	71	68	68	69	68	65	60	71	
Minimum ....	58	57	58	56	56	58	62	62	59	58	60	57	59	58	59	59	60	59	58	58	57	57	59	59	59	59	59	57	59	56	55	56	58
September																																	
Maximum ....	56	60	62	63	62	61	62	62	61	63	63	64	65	63	65	63	62	62	62	59	59	62	63	63	62	61	60	58	58	58	--	61	
Minimum ....	52	48	49	51	51	50	51	52	51	51	52	53	54	52	53	52	54	51	50	50	49	50	53	54	51	52	51	50	49	49	--	51	

## SACRAMENTO RIVER BASIN--Continued

11-3915. BIG GRIZZLY CREEK NEAR PORTOLA, CALIF.--Continued

Periodic determinations of suspended sediment discharge and particle-size analyses, water year October 1963 to September 1964

(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;

P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentra- tion (ppm)	Sediment discharge (tons per day)	Suspended sediment										Method of analysis		
							Percent finer than size indicated, in millimeters												
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000		2.000	
Oct. 2, 1963.....	0830	50		3.2	1	T													
Nov. 15A.....	0830	41		D 55	157	23					97	98	100						S
Nov. 19.....	1510	33		6.0	13	.2													
Dec. 11A.....	1600	35		D 2.6	4	T													
Jan. 14, 1964A....	1505	36		D 1.1	3	T													
Feb. 4.....	1135	33		D 2.8	6	T													
Feb. 19A.....	1620	39		D 2.4	4	T													
Mar. 30A.....	0950	38		D 15	24	1.0													
Apr. 15.....	0900	—		171	86	40					72	82	91	100					S
May 1A.....	0800	48		59	7	1.1													
May 19.....	0800	—		48	52	6.7					72	88	98	100					S
June 9.....	1730	49		30	8	.6													
July 16.....	1600	75		.7	3	T													
Aug. 20.....	1545	71		.3	1	T													
Sept. 25.....	0900	49		.5	3	T													

A Sample collected at bridge on U. S. Highway 40A about 4 miles downstream from gage.

D Daily mean.

T Less than 0.05 ton.

SACRAMENTO RIVER BASIN--Continued

11-3925. MIDDLE FORK FEATHER RIVER NEAR CLIO, CALIF.

LOCATION.--Temperature recorder at gaging station 0.6 mile upstream from Frazier Creek, 1.0 mile northwest of Clio, Plumas County, and 2.2 miles southeast of Blairsden.

DRAINAGE AREA.--686 square miles.

RECORDS AVAILABLE.--Water temperatures: October 1963 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 76°F July 24-26; minimum, freezing point on several days during December.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum .....	61	62	61	59	57	59	57	55	57	57	55	56	55	53	55	52	54	54	54	51	53	52	52	50	52	52	50	49	48	48	47	54	
Minimum .....	52	53	53	52	53	52	50	50	52	50	49	50	48	49	49	49	48	48	49	48	48	48	49	47	48	48	45	45	45	45	43	49	
November																																	
Maximum .....	46	49	48	47	46	45	43	45	45	45	44	44	44	44	44	43	41	40	37	38	38	38	37	38	37	37	37	37	37	37	--	42	
Minimum .....	41	43	46	45	45	42	42	43	44	44	42	43	42	44	43	41	40	37	37	37	38	37	37	36	37	37	37	37	37	37	--	40	
December																																	
Maximum .....	37	37	37	36	36	35	35	34	34	34	34	33	33	33	33	33	35	35	36	36	36	36	35	34	34	35	36	38	38	38	38	35	
Minimum .....	37	37	36	36	35	35	33	34	34	34	34	33	32	32	32	32	32	34	35	36	36	34	34	34	34	34	35	36	37	38	37	35	
January																																	
Maximum .....	37	37	37	37	35	36	36	36	36	35	35	35	35	35	35	35	35	35	37	37	35	35	35	35	36	37	36	35	35	35	34	36	
Minimum .....	37	37	37	35	35	35	35	35	35	35	35	35	35	35	35	34	35	35	35	35	35	35	35	35	36	36	35	35	35	34	34	35	
February																																	
Maximum .....	35	35	34	34	34	34	34	34	34	34	34	33	33	33	33	34	34	36	36	36	36	36	36	36	36	36	36	37	38	--	--	35	
Minimum .....	34	34	34	34	34	33	33	33	33	33	33	33	33	33	33	33	33	33	33	34	34	34	34	34	34	34	33	33	34	34	--	--	33
March																																	
Maximum .....	37	34	38	37	38	37	36	36	37	39	38	36	38	39	40	40	44	44	43	43	43	43	43	43	47	48	49	51	53	54	53	42	
Minimum .....	34	34	34	34	37	35	35	34	35	36	36	36	36	37	38	38	38	38	41	40	41	42	41	41	41	42	43	45	47	48	48	50	39
April																																	
Maximum .....	52	48	48	48	48	47	51	52	52	52	52	50	51	54	55	54	54	53	54	54	55	54	50	48	49	52	57	58	59	59	--	52	
Minimum .....	48	46	43	44	46	45	44	46	48	48	45	45	45	48	50	50	48	48	49	50	51	50	47	45	45	48	50	53	55	53	--	48	
May																																	
Maximum .....	53	50	48	49	49	50	49	57	59	61	61	63	62	61	61	61	62	64	63	62	58	62	62	63	62	58	58	54	60	62	64	58	
Minimum .....	46	46	46	47	47	46	46	49	51	55	55	56	56	53	52	53	52	56	54	52	50	50	50	54	52	56	53	52	51	53	55	51	
June																																	
Maximum .....	64	62	61	59	62	68	61	57	54	55	58	62	66	66	64	59	62	62	62	66	67	67	70	71	70	70	70	70	70	70	--	64	
Minimum .....	56	54	54	57	55	56	54	54	52	52	52	54	58	60	59	56	54	55	54	58	58	58	58	60	60	60	58	58	59	56	--	56	
July																																	
Maximum .....	70	70	70	69	70	73	73	71	72	73	73	72	74	70	71	74	74	74	74	74	73	73	74	76	76	76	75	75	75	73	71	73	
Minimum .....	58	58	60	59	58	60	61	60	59	60	62	66	64	62	61	62	65	64	63	63	63	61	62	65	68	67	66	69	68	66	62	63	
August																																	
Maximum .....	71	71	72	72	73	74	74	74	73	70	73	70	72	71	70	72	72	70	70	70	71	70	72	72	70	70	67	67	65	64	62	70	
Minimum .....	62	60	61	60	61	64	67	65	62	63	63	62	62	62	62	62	62	62	59	62	60	62	62	62	62	61	58	61	56	57	56	61	
September																																	
Maximum .....	56	58	62	62	62	59	60	59	59	60	62	62	62	59	61	61	61	58	58	58	56	57	58	60	59	59	58	58	57	57	--	59	
Minimum .....	53	50	51	53	52	50	52	52	51	51	52	54	54	52	53	53	55	52	51	51	51	50	52	54	53	54	54	52	52	51	--	52	



## SACRAMENTO RIVER BASIN--Continued

11-3945. MIDDLE FORK FEATHER RIVER NEAR MERRIMAC, CALIF.

LOCATION.--At gaging station 400 feet downstream from bridge on Milsap Bar Road, 500 feet downstream from Little North Fork, 4.5 miles southeast of Merrimac, Butte County, and 20 miles northeast of Oroville.

DRAINAGE AREA (revised).--1,062 square miles.

RECORDS AVAILABLE.--Chemical analyses: July 1963 to September 1964.

Water temperatures: October 1962 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Minimum, 37°F on several days during December, Jan. 21-25.

EXTREMES, 1962-64.--Water temperatures: Minimum, 35°F on several days during January 1963.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 9, 1963.....	210	--	--	--	--	5.1	--	78	--	--	3.8	--	--	0.0	--	--	--	61	0	0.3	144	8.0
Nov. 6.....	1810	--	--	--	--	2.4	--	40	--	--	1.8	--	--	0.0	--	--	--	34	1	.2	81	7.4
Dec. 5.....	594	--	--	--	--	4.3	--	59	--	--	1.0	--	--	0.0	--	--	--	45	0	.3	108	7.8
Feb. 6, 1964.....	705	--	--	--	--	5.1	--	62	--	--	3.0	--	--	0.0	--	--	--	49	0	.3	117	8.0
Apr. 9.....	1360	--	--	--	--	4.8	--	54	--	--	2.5	--	--	0.0	--	--	--	41	0	.3	98	8.2
May 7.....	1410	15	--	10	2.7	3.6	0.5	46	--	3.0	2.5	0.2	0.7	0.0	61	0.08	--	36	0	.3	85	7.9
June 9.....	1190	--	--	--	--	3.4	--	43	--	--	1.0	--	--	0.0	--	--	--	34	0	.3	80	8.0
July 13.....	259	--	--	--	--	5.1	--	66	--	--	1.5	--	--	0.0	--	--	--	53	0	.3	122	8.2
Aug. 14.....	157	--	--	--	--	5.7	--	76	--	--	2.0	--	--	0.0	--	--	--	60	0	.3	142	8.2
Sept. 11.....	142	14	--	19	4.0	6.2	1.1	79	--	8.0	2.6	--	.6	0.0	94	.13	--	64	0	.3	149	8.1

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October	62	60	60	60	59	58	58	57	57	57	56	55	53	54	54	54	54	55	54	54	54	54	54	54	54	53	53	53	52	51	51	51	55
Maximum .....	60	60	59	59	58	58	57	57	57	56	55	53	53	53	53	53	53	54	53	54	54	54	54	54	53	53	52	51	51	51	50	55	
November	50	49	49	48	48	48	47	44	45	44	44	44	44	44	45	44	43	42	41	41	41	40	40	40	40	40	40	40	40	40	--	44	
Maximum .....	49	49	48	48	48	47	44	44	44	44	44	44	44	44	44	43	42	41	41	41	41	40	40	40	39	40	40	40	40	40	40	--	43
December	40	40	40	40	40	40	39	39	39	39	39	38	37	37	37	37	37	37	37	37	39	39	39	39	39	39	40	40	41	42	42	39	
Maximum .....	40	40	40	40	40	39	39	39	39	39	39	38	37	37	37	37	37	37	37	37	39	39	39	39	39	39	40	40	41	42	42	39	
Minimum .....	40	40	40	40	40	39	39	39	39	39	39	38	37	37	37	37	37	37	37	37	39	39	39	39	39	39	40	40	41	42	42	39	
January	42	42	42	41	41	40	40	40	40	39	39	39	38	38	38	38	38	38	38	39	39	39	37	37	37	38	38	38	38	38	38	39	
Maximum .....	42	42	41	41	40	40	40	40	40	39	39	38	38	38	38	38	38	38	38	38	39	39	37	37	37	38	38	38	38	38	38	39	
Minimum .....	42	42	41	41	40	40	40	40	40	39	39	38	38	38	38	38	38	38	38	38	37	37	37	37	37	38	38	38	38	38	38	39	
February	38	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	38	38	38	39	39	39	39	39	39	39	40	40	40	--	--	39	
Maximum .....	38	38	39	39	39	39	39	39	39	39	39	39	39	39	39	39	38	38	38	38	39	39	39	39	39	39	40	40	40	40	--	39	
Minimum .....	38	38	39	39	39	39	39	39	39	39	39	39	39	39	39	38	38	38	38	38	39	39	39	39	39	39	40	40	40	40	--	39	
March	40	40	40	40	40	40	40	40	39	40	40	40	40	40	41	42	43	43	43	43	43	42	41	41	41	41	42	43	43	44	45	41	
Maximum .....	40	40	39	39	40	40	40	39	39	39	40	40	40	40	40	41	42	43	43	43	43	42	41	41	41	41	41	41	43	44	45	41	
Minimum .....	40	40	39	39	40	40	40	39	39	39	40	40	40	40	40	41	42	43	43	43	43	42	41	41	41	41	41	41	43	44	45	41	
April	45	44	42	42	42	41	41	43	43	44	44	44	43	43	43	43	43	43	43	43	44	45	45	44	42	42	45	46	48	48	--	44	
Maximum .....	44	42	41	41	41	41	41	43	43	44	44	43	43	43	43	43	43	43	43	43	44	44	44	42	40	41	42	45	46	48	47	--	43
Minimum .....	44	42	41	41	41	41	41	43	43	44	44	43	43	43	43	43	43	43	43	43	44	44	44	42	40	41	42	45	46	48	47	--	43
May	47	44	42	42	42	42	45	47	50	51	51	51	51	51	51	51	51	51	51	51	51	52	52	52	53	53	53	52	52	54	55	50	
Maximum .....	44	42	42	42	42	42	45	47	50	51	51	51	51	51	51	51	51	51	51	51	51	52	52	52	53	53	53	52	52	54	55	49	
Minimum .....	44	42	42	42	42	42	45	47	50	51	51	51	51	51	51	51	51	51	51	51	51	52	52	52	53	53	53	52	52	54	55	49	
June	55	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Maximum .....	55	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Minimum .....	55	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
July	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	--	
Maximum .....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	68	68	68	68	67	67	67	67	66	67	70	70	70	70	70	70	--	
Minimum .....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	68	68	68	68	67	67	67	67	66	67	70	70	70	70	70	70	--	
August	70	69	69	70	69	70	70	70	70	70	70	70	70	70	69	69	70	69	68	69	69	70	70	70	70	70	70	68	68	66	66	69	
Maximum .....	67	66	66	66	66	67	68	69	68	68	69	67	68	67	67	67	67	67	66	66	66	66	67	68	69	68	66	66	66	64	64	67	
Minimum .....	67	66	66	66	66	67	68	69	68	68	69	67	68	67	67	67	67	67	66	66	66	66	67	68	69	68	66	66	66	64	64	67	
September	62	60	62	62	62	62	62	61	61	61	62	62	62	62	62	62	61	60	60	60	59	59	60	61	61	61	61	60	60	59	--	61	
Maximum .....	60	58	58	60	61	61	61	60	60	60	60	60	61	61	61	61	60	59	59	59	58	58	58	59	60	60	60	59	59	58	--	60	
Minimum .....	60	58	58	60	61	61	61	60	60	60	60	60	61	61	61	61	60	59	59	59	58	58	58	59	60	60	60	59	59	58	--	60	

SACRAMENTO RIVER BASIN--Continued

11-3963.5. SOUTH FORK FEATHER RIVER BELOW PONDEROSA DAM, CALIF.

LOCATION.--At gaging station 1,000 feet upstream from Sucker Run, 1,800 feet downstream from Ponderosa Dam, Butte County, and 2.8 miles northwest of Forbestown.  
DRAINAGE AREA.--108 square miles.

RECORDS AVAILABLE.--Chemical analyses: July 1963 to September 1964.

Water temperatures: October 1962 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 69°F Aug. 5, 6, 8-10; minimum, 37°F Mar. 3.

EXTREMES, July 1963 to September 1964.--Water temperatures: Maximum, 70°F Sept. 8, 1963; minimum, 37°F Mar. 3, 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Cal- cium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Po- tas- sium (K)	Bi- car- bon- ate (HCO <sub>3</sub> )	Car- bon- ate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluo- ride (F)	Ni- trate (NO <sub>3</sub> )	Bo- ron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		So- dium ad- sorp- tion ratio	Specific con- duct- ance (micro- mhos at 25°C)	pH
															Parts per million	Tons per acre- foot	Tons per day	Cal- cium, Mag- ne- sium	Non- car- bon- ate			
Oct. 9, 1963.....	46	--	--	--	--	2.0	--	24	--	--	2.2	--	--	0.0	--	--	--	18	0	0.2	48	7.4
Nov. 6.....	189	--	--	--	--	2.2	--	27	--	--	3.0	--	--	.0	--	--	--	21	0	.2	54	7.7
Dec. 5.....	150	--	--	--	--	1.6	--	24	--	--	.5	--	--	.1	--	--	--	19	0	.2	49	7.4
Jan. 9, 1964.....	129	--	--	--	--	1.9	--	24	--	--	3.5	--	--	.0	--	--	--	20	0	.2	50	7.7
Feb. 6.....	162	--	--	--	--	2.3	--	26	--	--	1.0	--	--	.0	--	--	--	20	0	.2	51	7.7
Mar. 4.....	142	--	--	--	--	2.4	--	25	--	--	2.1	--	--	.0	--	--	--	20	0	.2	51	7.9
Apr. 9.....	26	--	--	--	--	3.2	--	35	--	--	2.0	--	--	.0	--	--	--	26	0	.3	63	7.9
May 7.....	37	14	--	7.2	1.8	3.2	0.3	32	--	3.0	3.0	0.0	0.7	.0	49	0.07	--	26	0	.3	62	7.8
June 9.....	25	--	--	--	--	2.5	--	27	--	--	1.0	--	--	.0	--	--	--	22	0	.2	54	7.7
July 13.....	18	--	--	--	--	2.2	--	25	--	--	.5	--	--	.0	--	--	--	20	0	.2	49	7.7
Aug. 14.....	25	--	--	--	--	2.1	--	24	--	--	1.0	--	--	.0	--	--	--	20	0	.2	48	7.7
Sept. 11.....	23	12	--	6.0	1.0	2.3	.5	23	--	2.0	.7	--	.6	.0	36	.05	--	19	0	.2	47	7.6

## SACRAMENTO RIVER BASIN--Continued

11-3963.5. SOUTH FORK FEATHER RIVER BELOW PONDEROSA DAM, CALIF.--Continued

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum .....	68	67	67	65	62	64	64	63	64	63	62	62	62	63	62	61	61	61	63	61	62	62	61	60	61	61	61	61	60	60	60	62
Minimum .....	62	62	62	61	61	60	59	59	61	59	58	59	58	59	59	58	58	59	59	59	59	59	59	58	58	58	57	57	58	58	57	59
November																																
Maximum .....	58	58	56	56	56	56	57	57	58	57	56	56	56	55	56	54	54	52	53	52	50	51	52	52	51	51	50	50	49	—	54	
Minimum .....	55	54	54	54	56	55	54	56	55	54	53	53	54	54	54	51	50	49	50	51	49	48	50	50	48	48	47	47	46	—	52	
December																																
Maximum .....	49	49	48	48	48	49	49	47	47	47	47	46	46	46	46	46	46	46	46	46	47	46	47	47	47	47	46	46	47	47	47	47
Minimum .....	46	46	46	46	47	47	46	46	46	45	44	44	44	44	44	44	44	44	45	46	45	44	44	44	44	45	45	44	44	44	44	45
January																																
Maximum .....	46	46	46	46	46	45	46	46	45	45	44	44	44	44	44	44	44	44	44	44	44	46	47	46	46	46	44	43	41	42	42	45
Minimum .....	44	44	44	42	42	44	44	42	42	42	42	42	42	42	42	42	42	43	43	42	42	44	45	45	45	43	42	40	39	40	39	42
February																																
Maximum .....	43	44	44	44	45	44	45	45	44	44	44	44	43	43	42	43	43	45	45	45	45	45	45	44	43	44	44	42	43	—	—	44
Minimum .....	40	39	40	40	40	40	40	40	40	40	39	39	39	38	40	39	39	39	39	39	39	40	39	39	40	41	39	39	39	39	—	39
March																																
Maximum .....	41	41	42	43	43	42	43	44	43	43	43	43	44	45	46	48	49	49	50	49	47	45	47	49	49	50	51	51	52	52	49	46
Minimum .....	40	39	37	38	39	39	38	38	40	39	41	40	41	40	41	40	44	43	43	45	45	44	45	46	44	44	44	45	47	46	46	42
April																																
Maximum .....	49	49	52	52	50	52	53	54	54	54	54	55	56	56	56	56	55	54	54	54	55	54	51	53	55	56	58	57	56	54	—	54
Minimum .....	47	46	45	46	48	46	47	47	48	48	48	48	48	49	50	50	49	49	48	49	49	50	49	49	49	51	50	51	51	51	—	49
May																																
Maximum .....	52	54	52	53	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Minimum .....	50	49	51	49	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
June																																
Maximum .....	---	---	---	---	57	54	55	53	51	54	56	57	57	58	57	55	56	56	58	58	59	61	62	63	63	60	59	59	59	60	---	58
Minimum .....	---	---	---	---	53	52	51	51	50	50	49	50	50	52	53	52	51	52	51	52	52	53	54	56	56	55	53	52	53	52	---	52
July																																
Maximum .....	60	60	60	59	60	61	62	61	61	63	64	64	65	64	63	64	64	63	64	64	64	65	67	67	67	66	66	66	66	66	65	64
Minimum .....	54	53	54	53	53	54	55	55	55	55	55	58	58	58	58	57	57	58	57	57	58	57	57	59	61	60	60	61	60	60	59	57
August																																
Maximum .....	65	65	67	68	69	69	68	69	69	69	67	67	66	66	65	66	67	67	67	68	68	68	68	68	68	67	66	65	65	64	62	67
Minimum .....	60	59	60	60	61	61	63	63	62	61	61	59	60	60	59	59	60	61	60	61	60	61	61	62	61	60	60	59	58	58	54	60
September																																
Maximum .....	54	58	60	62	63	62	62	62	63	64	64	64	64	63	64	65	65	63	65	66	64	64	66	66	66	65	64	63	63	64	---	63
Minimum .....	52	51	54	55	56	56	56	57	57	57	57	58	58	58	58	59	58	59	58	59	59	59	58	59	60	60	60	58	58	58	---	57

## SACRAMENTO RIVER BASIN--Continued

11-4015. INDIAN CREEK NEAR CRESCENT MILLS, CALIF.

LOCATION.--At gaging station, 0.8 mile upstream from Dixie Creek, and 1.5 miles south of town of Crescent Mills, Plumas County.

DRAINAGE AREA.--739 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1963.

Water temperatures: October 1962 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 72°F July 25-27; minimum, freezing point Jan. 22.

EXTREMES, 1962-64.--Water temperatures: Maximum, 82°F July 26-28, 1963; minimum, freezing point on several days during December and January 1963, Jan. 22, 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Nov. 7, 1963.....	305	--	--	--	--	5.7	--	73	0	--	3.5	--	--	0.0	--	--	--	55	0	0.3	136	7.7
Jan. 9, 1964.....	126	--	--	--	--	7.6	--	84	0	--	4.6	--	--	.0	--	--	--	63	0	.4	153	8.2
Mar. 5.....	222	--	--	--	--	7.0	--	79	0	--	3.8	--	--	.0	--	--	--	58	0	.4	142	8.2
May 7.....	749	23	--	13	2.2	5.3	0.7	57	0	3.0	1.5	0.3	0.7	.0	84	0.11	42	0	.4	98	7.7	
July 15.....	21	--	--	--	--	11	--	130	0	--	4.5	--	--	.0	--	--	93	0	.5	226	8.0	
Sept. 16.....	11	27	--	30	7.1	15	1.8	141	2	9.0	7.2	--	1.4	.1	A 170	.23	104	0	.6	258	8.3	

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum .....	67	67	64	62	58	58	60	58	60	62	--	--	--	--	--	--	--	--	--	--	--	--	--	--	54	56	54	52	51	52	50	--	
Minimum .....	58	57	56	55	54	54	53	53	55	55	--	--	--	--	--	--	--	--	--	--	--	--	--	--	52	51	48	47	49	49	46	--	
November																																	
Maximum .....	49	48	48	47	46	46	45	47	49	49	47	46	46	46	46	42	42	41	39	38	38	38	38	41	40	40	40	40	40	40	--	43	
Minimum .....	44	46	46	46	46	44	44	45	47	47	45	45	45	46	42	42	40	39	37	37	36	36	37	37	38	38	39	38	39	39	--	42	
December																																	
Maximum .....	41	40	40	39	39	39	38	38	38	38	37	36	36	36	37	37	36	37	37	38	38	38	38	36	36	36	38	39	40	41	41	40	38
Minimum .....	39	38	38	38	37	38	35	37	37	37	37	37	34	34	34	35	35	35	35	37	37	37	37	35	35	35	36	37	39	40	40	39	37
January																																	
Maximum .....	39	39	39	36	36	36	38	38	37	36	36	36	36	36	37	37	36	36	36	39	39	35	36	37	37	38	40	40	39	39	38	38	37
Minimum .....	38	38	36	35	35	35	36	35	34	35	35	35	35	35	35	36	36	35	36	35	34	32	35	36	36	38	38	38	38	38	37	36	
February																																	
Maximum .....	39	39	38	39	39	39	39	39	39	39	39	39	39	40	39	39	40	37	38	39	39	40	40	40	40	40	40	40	40	40	--	--	39
Minimum .....	37	35	34	35	36	34	35	35	35	36	37	35	36	35	36	35	35	35	36	38	38	39	39	39	39	39	39	39	39	39	--	--	37
March																																	
Maximum .....	40	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	48	48	46	46	45	44	44	44	47	48	48	48	49	49	48	48	--
Minimum .....	39	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	44	45	44	44	44	43	43	44	45	45	45	46	46	46	46	--	
April																																	
Maximum .....	47	46	49	50	50	50	50	50	50	49	49	49	52	53	53	53	54	52	52	53	53	53	50	48	52	53	55	54	54	53	--	51	
Minimum .....	46	46	46	48	49	47	47	48	48	48	48	47	47	49	50	50	49	48	48	49	51	50	47	47	47	51	52	52	52	51	--	49	
May																																	
Maximum .....	52	49	49	50	50	51	50	54	54	54	54	54	54	54	54	54	55	58	60	59	58	60	60	62	62	59	54	53	58	62	64	56	
Minimum .....	49	49	47	48	49	47	49	50	53	53	52	52	51	50	51	52	51	54	55	54	54	54	54	57	55	54	53	52	53	56	58	52	
June																																	
Maximum .....	62	62	62	59	62	60	59	58	53	52	59	64	66	68	70	67	68	68	68	68	68	68	70	70	70	70	70	69	69	69	--	65	
Minimum .....	57	55	54	57	56	57	54	53	51	50	52	58	60	62	65	62	64	65	65	66	67	67	68	69	69	69	68	68	68	68	--	61	
July																																	
Maximum .....	68	68	68	68	68	69	69	70	69	68	69	70	71	70	71	70	70	70	70	69	69	69	69	69	70	72	72	71	71	69	68	70	
Minimum .....	67	67	67	67	67	68	68	69	67	67	67	69	69	68	67	66	69	67	65	66	66	65	65	67	69	68	68	68	68	64	67	67	
August																																	
Maximum .....	68	68	68	70	69	70	69	69	70	68	66	66	66	67	65	67	67	65	67	67	66	67	66	65	64	63	61	61	59	57	57	54	65
Minimum .....	64	64	64	59	58	60	63	61	58	58	59	56	59	58	58	57	59	56	55	56	55	57	58	57	55	53	53	53	52	52	51	57	
September																																	
Maximum .....	52	55	56	57	57	56	54	54	55	55	55	55	55	55	56	56	55	55	55	55	54	54	55	57	57	56	55	55	55	55	--	55	
Minimum .....	48	48	50	52	52	56	52	51	50	50	50	51	52	51	51	51	51	50	50	50	48	49	50	51	51	51	51	51	49	51	--	51	

A Calculated from sum of determined constituents.

## SACRAMENTO RIVER BASIN--Continued

11-4015. INDIAN CREEK NEAR CRESCENT MILLS, CALIF.--Continued

Periodic determinations of suspended sediment discharge and particle-size analyses, water year October 1963 to September 1964

(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;

P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentra- tion (ppm)	Sediment discharge (tons per day)	Suspended sediment										Method of analysis	
							Percent finer than size indicated, in millimeters											
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000		2.000
Oct. 1, 1963.....	1445	67		55	10	1.5												S
Oct. 11.....	1520	58		D 170	95	44					70	74	77	96	100			
Nov. 14.....	1650	48		196	57	30												
Nov. 22.....	1000	36		216	22	13												
Dec. 11.....	1400	39		142	10	3.8												
Jan. 15, 1964.....	1000	33		108	12	3.5												VPWC
Jan. 30.....	1435	--		275	18	13												
Feb. 17.....	1255	35		212	13	7.4												
Feb. 19.....	1440	45		224	14	8.5												
Mar. 16.....	1300	--		285	29	22												
Mar. 30.....	1105	43		995	412	1110	23	28	39	48	63	71	89	96	99	100		
Apr. 13.....	1500	--		1160	131	410												
Apr. 30.....	1340	54		623	66	111												
May 18.....	1300	--		595	31	50						60	74	91	100		S S	
June 9.....	1530	51		421	30	34						89	100					
July 16.....	1320	84		20	39	2.1												
Aug. 20.....	1200	67		14	34	1.3												
Sept. 25.....	1115	59		16	42	1.8												

D Daily mean

## SACRAMENTO RIVER BASIN--Continued

11-4045. NORTH FORK FEATHER RIVER AT PULGA, CALIF.

LOCATION.--At gaging station between railroad and highway bridges, 0.5 mile downstream from Flea Valley Creek and Pulga, Butte County, 1 mile downstream from Big Bar, and 1.5 miles downstream from Poe Dam.

DRAINAGE AREA.--1,953 square miles.

RECORDS AVAILABLE.--Chemical analyses: July 1963 to September 1964.

Water temperatures: October 1962 to September 1964.

EXTREMES, 1963-64.--Minimum, 38°F Dec. 11-13, Jan. 11, 12, 15-17.

EXTREMES, July 1963 to September 1964.--Water temperatures: Maximum, 73°F July 28-30, 1963; minimum, 34°F Jan. 12, 13, 1963.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 9, 1963.....	60	--	--	--	--	4.0	--	62	0	--	2.2	--	--	0.0	--	--	--	46	0	0.3	110	8.0
Nov. 7.....	53	--	--	--	--	3.3	--	62	0	--	2.1	--	--	0	--	--	--	48	0	.2	106	8.0
Dec. 5.....	62	--	--	--	--	3.6	--	65	0	--	.5	--	--	.1	--	--	--	48	0	.2	113	7.9
Jan. 9, 1964.....	61	--	--	--	--	4.5	--	68	0	--	3.0	--	--	0	--	--	--	51	0	.3	119	8.1
Feb. 6.....	70	--	--	--	--	4.3	--	73	0	--	.8	--	--	0	--	--	--	57	0	.3	126	8.2
Mar. 5.....	50	--	--	--	--	4.7	--	72	0	--	1.8	--	--	0	--	--	--	54	0	.3	124	8.2
Apr. 9.....	71	--	--	--	--	3.8	--	62	1	--	2.2	--	--	0	--	--	--	49	0	.2	108	8.3
May 7.....	55	19	--	9.6	5.4	3.8	0.5	58	0	3.0	1.8	0.2	0.9	0	73	0.10	--	46	0	.3	98	8.2
June 10.....	68	--	--	--	--	3.7	--	58	0	--	1.0	--	--	0	--	--	--	44	0	.2	101	8.0
July 13.....	54	--	--	--	--	4.9	--	70	0	--	1.0	--	--	0	--	--	--	52	0	.3	118	8.2
Aug. 14.....	55	--	--	--	--	4.8	--	65	0	--	1.5	--	--	0	--	--	--	47	0	.3	110	8.1
Sept. 10.....	55	12	--	13	4.3	5.1	1.2	68	0	2.0	1.0	--	1.3	0	73	.10	--	50	0	.3	115	8.0

## SACRAMENTO RIVER BASIN--Continued

11-4045. NORTH FORK FEATHER RIVER AT PULGA, CALIF.--Continued

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																																Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum .....	67	64	63	63	63	62	62	61	61	61	59	59	58	58	58	58	59	59	59	58	58	57	57	57	56	56	56	56	55	54	54	54	59
Minimum .....	62	61	61	60	61	61	59	59	60	59	59	56	57	56	57	57	57	59	58	57	57	57	56	55	55	55	55	54	53	54	54	51	57
November																																	
Maximum .....	53	53	53	52	52	52	51	50	49	49	49	50	50	51	50	50	48	47	46	45	45	43	44	44	44	43	43	43	44	44	44	48	
Minimum .....	51	53	52	52	52	51	50	49	49	49	49	49	50	50	50	48	47	46	45	45	43	43	44	44	43	43	43	43	44	44	43	47	
December																																	
Maximum .....	43	43	42	42	42	42	42	40	41	41	39	38	41	39	39	39	39	39	40	40	40	39	39	39	39	39	40	41	42	42	42	40	
Minimum .....	42	42	42	42	42	42	40	40	40	39	38	38	38	39	39	39	39	39	39	40	39	39	39	39	39	39	39	40	41	42	41	40	
January																																	
Maximum .....	41	42	42	41	40	39	39	40	39	39	39	39	39	39	38	38	39	39	40	41	40	41	41	41	41	41	42	42	42	43	43	40	
Minimum .....	40	42	40	40	39	39	39	39	39	39	38	38	39	39	38	38	38	39	39	40	39	39	41	41	41	41	41	42	42	42	42	40	
February																																	
Maximum .....	43	43	43	43	43	43	42	42	42	43	44	44	43	42	42	43	44	46	45	46	46	46	46	46	46	45	45	45	45	45	45	44	
Minimum .....	42	42	41	41	42	40	40	41	42	42	43	41	41	41	41	41	42	43	44	44	43	44	43	44	42	42	43	43	43	43	43	42	
March																																	
Maximum .....	45	45	46	48	46	47	47	46	48	47	46	47	46	48	50	50	50	50	50	50	50	49	48	48	48	48	49	50	51	52	49	48	
Minimum .....	44	44	43	45	46	45	42	43	46	45	46	45	46	46	46	46	47	47	47	48	49	47	48	47	47	47	47	48	49	50	48	46	
April																																	
Maximum .....	48	48	48	48	48	49	51	51	52	52	52	53	54	55	55	54	54	53	54	53	49	--	--	--	--	--	--	--	--	--	--	--	--
Minimum .....	48	46	45	47	47	47	48	49	48	50	48	49	52	52	52	51	50	51	51	48	44	--	--	--	--	--	--	--	--	--	--	--	--
May																																	
Maximum .....	--	49	47	--	--	49	52	51	--	56	--	--	--	--	--	--	59	--	--	--	60	62	61	63	63	61	58	59	62	62	64	--	
Minimum .....	--	47	46	--	--	45	46	49	--	50	--	--	--	--	--	--	51	--	--	--	53	54	56	57	56	58	56	55	55	57	57	--	
June																																	
Maximum .....	64	63	63	63	62	62	60	59	57	56	59	62	63	63	64	62	63	64	66	66	67	66	68	70	70	69	69	69	69	68	--	64	
Minimum .....	57	59	58	60	60	60	59	57	56	55	55	56	57	59	60	59	59	59	59	60	60	61	62	62	63	63	62	62	63	62	--	59	
July																																	
Maximum .....	69	68	68	67	69	70	70	71	71	72	72	73	74	74	74	74	74	74	74	72	72	72	71	72	72	73	73	71	72	72	71	72	
Minimum .....	62	62	62	62	62	64	64	64	64	65	67	67	66	67	66	66	64	64	64	66	64	64	66	68	67	66	68	68	66	65	65	65	
August																																	
Maximum .....	72	71	71	70	70	68	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum .....	65	64	64	65	64	63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
September																																	
Maximum .....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	60	60	--	--
Minimum .....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	56	57	--	--

## 200

LOCATION.--Temperature recorder at gaging station 0.6 mile upstream from Griffin Gulch and 4.0 miles northeast of Paradise, Butte County.

**DRAINAGE AREA.**--113 square miles.

RECORDS AVAILABLE.--Water temperatures: October 1962 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Minimum, 37°F Dec. 12, 13.

EXTREMES, 1962-64. --Water temperatures: Maximum, (1962-63), 78°F on several days during August 1963; minimum, 35°F Jan. 12-14, 1963.

Month	Day																																	Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
October																																		
Maximum .....	71	71	70	68	67	66	65	64	62	62	61	56	57	58	58	58	58	57	57	58	57	57	56	56	54	55	56	55	55	56	55	60		
Minimum .....	70	70	67	66	65	64	63	62	61	61	56	55	56	56	58	58	57	57	57	57	56	56	54	53	53	55	53	53	55	55	53	58		
November																																		
Maximum .....	54	53	53	53	51	50	48	47	48	48	48	46	47	49	47	46	42	42	41	41	41	39	40	41	41	41	41	41	41	41	—	45		
Minimum .....	52	53	53	51	50	48	46	46	47	47	46	46	46	47	46	42	42	41	41	41	39	38	38	40	41	41	41	41	41	41	—	44		
December																																		
Maximum .....	41	41	41	41	41	42	40	42	40	39	38	38	38	39	39	39	40	40	42	43	43	42	40	40	40	40	43	44	45	46	46	42		
Minimum .....	41	41	41	40	40	41	40	40	40	39	38	37	38	39	39	39	39	40	40	42	43	42	40	40	40	40	40	43	44	45	46	41		
January																																		
Maximum .....	46	45	44	44	44	43	44	44	44	43	43	42	42	42	42	42	43	43	44	44	43	40	40	40	41	42	42	42	42	43	43	43		
Minimum .....	45	44	44	44	43	43	44	44	43	43	42	42	42	42	42	42	42	43	43	43	40	40	40	40	41	41	42	42	42	42	43	42		
February																																		
Maximum .....	43	43	43	43	43	42	42	42	43	43	42	42	41	40	40	40	40	42	43	43	44	44	44	44	43	42	42	42	—	—	—	42		
Minimum .....	43	43	43	43	42	42	41	41	42	42	42	41	40	39	39	40	40	40	42	42	42	42	42	42	42	40	41	41	41	—	—	41		
March																																		
Maximum .....	42	42	42	43	44	43	42	41	42	43	43	42	42	44	46	46	48	47	46	45	45	44	40	40	40	41	43	43	44	43	43	43		
Minimum .....	42	41	40	42	43	42	40	39	41	42	42	42	42	44	46	45	45	46	44	44														



## SACRAMENTO RIVER BASIN--Continued

## 11-4070. FEATHER RIVER AT OROVILLE, CALIF.

LOCATION.--At gaging station 200 feet downstream from bridge on Oroville-Chico highway, and 0.4 mile northeast of Oroville, Butte County, business district.

DRAINAGE AREA.--3,632 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

Water temperatures: October 1953 to September 1954, November 1956 to September 1964.

Sediment records: November 1956 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 75°F July 28; minimum, 38°F Jan. 3-7.

Sediment concentrations: Maximum daily, 241 ppm Nov. 15; minimum daily, 1 ppm Feb. 9, 10, 17.

Sediment loads: Maximum daily, 10,400 tons Nov. 15; minimum daily, 7 tons Feb. 9, 10, 17.

EXTREMES, 1953-54, 1956-64.--Water temperatures: Maximum, 81°F Sept. 10, 12, 1959; minimum, 35°F Dec. 27, 1959, Jan. 23-25, 1962.

Sediment concentrations (1956-64): Maximum daily, 4,100 ppm Feb. 1, 1963; minimum daily, 1 ppm on several days in 1961-62, 1964.

Sediment loads (1956-64): Maximum daily, 1,500,000 tons Feb. 1, 1963; minimum daily, 3 tons Jan. 16, 17, 1962.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 9, 1963.....	1540	--	--	--	--	4.2	--	62	--	--	3.0	--	--	0.0	--	--	--	46	0	0.3	111	8.0
Nov. 6.....	7940	--	--	--	--	3.0	--	42	--	--	2.0	--	--	0.0	--	--	--	34	0	.2	81	7.4
Dec. 5.....	3700	--	--	--	--	3.8	--	63	--	--	5	--	--	.1	--	--	--	43	0	.3	102	8.0
Jan. 9, 1964.....	2170	--	--	--	--	4.8	--	62	--	--	3.0	--	--	.0	--	--	--	46	0	.3	110	8.1
Feb. 6.....	2840	--	--	--	--	4.6	--	59	--	--	1.5	--	--	.0	--	--	--	45	0	.3	107	8.1
Mar. 4.....	2480	--	--	--	--	5.1	--	62	--	--	4.0	--	--	.0	--	--	--	47	0	.3	113	8.2
Apr. 9.....	4440	--	--	--	--	4.5	--	54	--	--	2.2	--	--	.0	--	--	--	42	0	.3	99	8.2
May 7.....	4400	15	--	10	3.4	3.4	0.5	49	--	2.0	2.8	0.3	0.1	.0	62	0.08	--	39	0	.2	90	8.0
June 9.....	3830	--	--	--	--	3.6	--	45	--	--	1.0	--	--	.0	--	--	--	36	0	.3	85	7.7
July 9.....	2450	--	--	--	--	5.2	--	72	--	--	1.0	--	--	.0	--	--	--	53	0	.3	118	8.2
Aug. 7.....	2420	--	--	--	--	5.3	--	66	--	--	1.5	--	--	.0	--	--	--	48	0	.3	114	7.9
Sept. 4.....	1760	12	--	14	3.9	5.1	1.2	70	--	2.0	1.4	--	--	.6	74	.10	--	51	0	.3	119	8.0

## SACRAMENTO RIVER BASIN--Continued

11-4070. FEATHER RIVER AT OROVILLE, CALIF.--Continued

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum .....	67	70	70	68	68	67	65	65	65	65	64	59	60	60	60	60	62	62	62	62	62	62	63	62	63	63	63	63	63	63	63	64
Minimum .....	67	67	68	68	67	65	65	65	65	64	59	59	59	59	60	60	60	62	62	62	62	62	59	61	63	63	63	63	63	63	61	63
November																																
Maximum .....	61	61	60	60	53	53	54	53	53	51	52	52	52	51	47	49	49	50	49	47	46	46	46	45	44	44	44	44	44	44	—	50
Minimum .....	61	60	60	53	53	50	51	53	51	51	50	52	51	47	47	46	49	49	47	46	46	46	45	44	44	44	44	44	44	44	—	49
December																																
Maximum .....	44	44	42	42	42	42	42	41	41	41	42	42	42	41	41	42	42	42	42	42	42	42	41	40	40	40	39	39	39	39	39	41
Minimum .....	44	42	42	42	42	41	41	41	41	41	41	41	41	41	41	41	40	42	42	42	42	42	41	40	40	40	39	39	39	39	39	41
January																																
Maximum .....	39	39	39	39	38	38	39	40	40	41	42	43	43	43	43	43	43	43	41	40	40	41	44	45	45	44	44	44	43	42	43	42
Minimum .....	39	39	38	38	38	38	38	39	40	40	41	42	43	43	43	43	43	41	40	39	39	39	41	43	44	44	44	43	42	42	42	41
February																																
Maximum .....	43	43	42	41	41	42	42	41	42	42	42	42	42	42	42	43	43	43	43	43	41	41	42	42	42	42	42	42	42	—	—	42
Minimum .....	43	42	41	41	41	41	41	41	41	42	42	42	42	42	42	42	43	43	43	41	41	41	41	42	42	42	42	42	42	—	—	42
March																																
Maximum .....	43	43	43	43	43	43	43	44	45	45	45	45	45	45	45	47	47	47	47	46	46	46	45	44	44	42	42	42	43	43	43	44
Minimum .....	43	43	43	42	43	43	43	43	44	45	44	44	45	45	45	45	47	47	46	46	45	44	44	42	41	41	41	41	43	43	43	44
April																																
Maximum .....	43	42	42	41	43	44	45	47	47	49	50	50	51	52	54	54	54	54	54	54	54	54	54	54	52	52	53	56	56	56	—	50
Minimum .....	42	42	40	40	41	43	44	45	47	47	49	50	50	51	52	53	54	54	54	54	54	54	54	52	52	52	52	53	56	56	—	50
May																																
Maximum .....	56	56	55	54	53	54	53	54	55	57	58	58	58	58	58	58	58	58	58	59	59	58	58	58	58	58	59	59	58	58	58	57
Minimum .....	56	55	54	53	53	53	53	53	54	55	57	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	57	57
June																																
Maximum .....	58	58	58	57	57	57	56	56	56	55	54	55	56	58	58	60	60	61	62	62	63	65	66	66	67	67	67	66	66	66	—	60
Minimum .....	58	58	57	57	57	56	56	56	55	54	54	54	55	56	56	58	60	60	61	62	62	62	62	65	66	66	66	66	66	65	—	60
July																																
Maximum .....	65	65	65	65	65	65	66	66	66	66	67	68	69	70	70	70	70	70	70	70	70	70	70	71	72	73	74	75	74	74	74	69
Minimum .....	65	65	65	65	65	65	65	66	66	66	67	68	69	70	70	70	70	70	70	70	70	70	70	70	71	72	73	74	71	74	73	69
August																																
Maximum .....	73	72	71	71	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	69	69	69	69	69	70
Minimum .....	72	71	71	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	69	69	69	69	67	70
September																																
Maximum .....	67	66	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	64	64	64	64	63	63	63	—	65
Minimum .....	66	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	64	64	64	63	63	63	62	—	65

## SACRAMENTO RIVER BASIN--Continued

11-4070, FEATHER RIVER AT OROVILLE, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964  
(Where no concentrations are reported, loads are estimated)

Day	OCTOBER			NOVEMBER			DECEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	1610	8	35	1520	14	57	3910	8	84
2..	1490	--	32	1690	12	B 55	3810	7	72
3..	1480	6	24	1660	12	54	3720	9	90
4..	1560	--	25	2720	62	S 432	3680	9	89
5..	1540	6	25	3470	45	422	3700	7	70
6..	1650	--	40	7940	170	K 3800	3740	9	91
7..	1550	16	67	4090	59	652	3650	6	59
8..	1560	--	72	3400	23	211	3590	5	48
9..	1540	12	50	3990	23	248	3700	5	50
10..	1540	--	37	3740	16	162	3520	5	48
11..	2920	114	899	3080	12	100	3450	6	56
12..	3310	30	268	2490	10	67	3540	4	38
13..	3050	15	124	2540	12	82	3490	4	38
14..	2760	11	82	6110	72	S 2100	3520	4	38
15..	2600	--	70	13900	241	S 10400	3540	3	29
16..	2580	10	70	5070	73	S 1100	3380	3	27
17..	2120	--	57	3910	21	222	3520	5	48
18..	1890	8	41	3520	50	475	3410	5	46
19..	1930	--	42	3930	63	668	3410	6	55
20..	1820	12	59	5330	58	835	3520	5	48
21..	1740	--	56	4590	17	211	3610	4	39
22..	1710	10	46	4270	15	173	3140	3	25
23..	2400	16	104	5640	67	S 1060	3450	6	56
24..	1490	15	60	7150	63	S 1310	3430	5	46
25..	1500	--	65	5110	13	179	3430	3	28
26..	1540	16	67	4990	18	243	3430	4	37
27..	1480	--	56	4780	36	465	3380	11	100
28..	1460	10	39	4520	22	268	3400	6	55
29..	1470	--	28	4370	25	295	3380	3	27
30..	1480	7	28	4210	23	261	3400	5	46
31..	1470	--	36	--	--	--	3380	4	37
Total	58240	--	2704	133730	--	26607	109230	--	1620
Day	JANUARY			FEBRUARY			MARCH		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	3360	3	27	3060	3	25	2330	4	25
2..	3340	4	36	3050	3	25	2890	4	31
3..	3190	4	34	3060	3	25	2740	7	52
4..	2840	4	31	2970	4	32	2480	11	74
5..	2740	3	22	2820	4	30	2760	16	119
6..	2730	5	37	2840	2	15	2820	21	160
7..	2760	4	30	2790	3	23	2360	6	38
8..	2270	3	18	2760	2	15	2360	4	25
9..	2170	4	23	2620	1	7	2720	5	37
10..	1950	4	21	2640	1	7	2680	8	58
11..	1950	3	16	2820	2	15	2850	7	54
12..	1800	3	15	2790	3	23	3630	14	137
13..	1960	3	16	2740	3	22	3080	9	75
14..	1990	2	11	2490	2	13	2440	16	105
15..	1890	2	10	2660	3	22	2560	4	28
16..	1840	3	15	2660	2	14	2700	5	36
17..	2070	6	34	2500	1	7	2840	7	54
18..	2580	13	S 114	2560	2	14	2740	9	67
19..	3030	13	106	2620	2	14	3160	13	111
20..	10600	166	S 8400	2560	2	14	3220	17	148
21..	16200	164	S 8790	2670	2	14	2970	16	128
22..	8670	52	1220	2490	3	20	3450	15	140
23..	4830	35	456	2310	2	12	3580	16	155
24..	3810	26	267	2480	6	40	3270	21	185
25..	4130	12	134	2610	4	28	3240	20	175
26..	3680	8	79	2490	2	13	3000	12	97
27..	3770	7	71	2400	4	26	3110	8	67
28..	3970	4	43	2640	6	43	2950	6	48
29..	3670	5	50	2420	5	33	3450	8	75
30..	3410	12	110	--	--	--	3580	12	116
31..	3110	6	50	--	--	--	4190	17	192
Total	116310	--	20286	77520	--	591	92150	--	2812

S Computed by subdividing day.

B Computed from estimated-concentration graph.

K Computed from estimated-concentration graph and subdividing day.

## SACRAMENTO RIVER BASIN--Continued

11-4070. FEATHER RIVER AT OROVILLE, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964--Continued

Day	APRIL			MAY			JUNE		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	6080	32	525	5390	10	146	3200	5	43
2..	5630	36	547	4740	8	102	3180	13	112
3..	5100	30	413	4620	7	87	3060	14	116
4..	4470	22	266	4550	8	98	2870	20	155
5..	4290	14	162	4690	9	114	2810	16	121
6..	4530	16	196	4720	7	89	2760	24	179
7..	4180	14	158	4400	9	107	3020	6	49
8..	4110	14	155	4720	7	89	3600	11	107
9..	4440	23	276	4740	7	90	3830	16	165
10..	5100	23	317	4960	9	121	3620	14	137
11..	5720	22	340	5200	10	140	3380	13	119
12..	5480	26	385	5460	11	162	2920	15	118
13..	5410	33	482	6030	15	244	2830	8	61
14..	5750	29	450	5800	12	188	2580	3	21
15..	6440	24	417	5440	9	132	2530	6	41
16..	6760	25	456	5390	8	116	2450	--	20
17..	6700	24	434	5560	10	150	2360	6	38
18..	6110	17	280	5290	9	129	2330	--	19
19..	5240	14	198	5270	9	128	2330	8	50
20..	5030	13	177	5340	9	130	2330	--	19
21..	5100	11	151	4760	7	90	2270	--	18
22..	5150	11	153	4360	6	71	2380	8	51
23..	4860	10	131	4250	5	57	2710	--	59
24..	4400	9	107	3940	4	43	3040	12	98
25..	4090	8	88	4090	5	55	3100	--	130
26..	3980	7	75	4580	10	124	3080	11	91
27..	4360	7	82	4140	7	78	2780	--	38
28..	4960	8	107	3910	8	84	2670	--	36
29..	5170	8	112	3660	9	89	2980	9	72
30..	5340	10	144	3560	5	48	3160	--	120
31..	--	--	--	3460	4	37	--	--	--
Total	153980	--	7784	141020	--	3338	86160	--	2403
Day	JULY			AUGUST			SEPTEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	3140	24	203	2450	--	120	1950	--	16
2..	3120	--	220	2400	--	97	1920	10	52
3..	3100	21	176	2450	10	66	1830	--	74
4..	3120	--	110	2440	--	53	1760	6	29
5..	3100	--	75	2450	9	60	1750	--	9
6..	3000	11	89	2440	--	66	1700	--	14
7..	2710	--	51	2420	9	59	1700	3	14
8..	2740	8	59	2450	--	53	1660	--	9
9..	2450	--	33	2440	--	40	1630	4	18
10..	2190	7	41	2400	5	32	1620	--	26
11..	2190	--	24	2360	--	25	1570	8	34
12..	2290	--	37	2360	5	32	1550	--	33
13..	2670	16	115	2360	--	38	1540	--	42
14..	2720	19	140	2380	7	45	1380	11	41
15..	2710	16	117	2360	--	38	1320	--	36
16..	2710	--	120	2360	--	38	1280	7	24
17..	2720	10	73	2360	9	57	1300	--	18
18..	2710	--	51	2330	8	50	1300	5	18
19..	2710	--	66	2400	8	52	1300	--	18
20..	2650	14	100	2400	--	58	1300	--	11
21..	2600	--	110	2400	7	45	1280	3	10
22..	2560	13	90	2380	--	39	1660	--	18
23..	2490	--	54	2380	--	32	2450	5	33
24..	2450	5	33	2380	4	26	2650	6	43
25..	2400	--	26	2350	--	25	2650	5	36
26..	2380	--	39	2350	5	32	2650	--	36
27..	2350	8	51	2360	--	64	2710	--	29
28..	2350	--	70	2360	18	115	2780	6	45
29..	2350	16	102	2060	--	110	2800	--	53
30..	2400	--	120	1930	--	73	2800	6	45
31..	2440	19	125	1870	7	35	--	--	--
Total	81520	--	2720	72830	--	1675	55790	--	884
Total discharge for year (cfs-days).....								1,184,480	
Total load for year (tons).....								73,424	

## SACRAMENTO RIVER BASIN--Continued

## 11-4070. FEATHER RIVER AT OROVILLE, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1963 to September 1964  
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment con- cen- tration (ppm)	Sediment discharge (tons per day)	Suspended sediment											Method of analysis
							Percent finer than size indicated, in millimeters											
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Oct. 11, 1963.....	0730	60		2490	607							69	85	100	—			V
Nov. 15.....	0925	47		14400	182							77	89	97	100			S
Nov. 15.....	1250	47		12000	186							90	96	98	100			S
Jan. 21, 1964.....	1010	40		13800	117							60	76	90	100			S
Apr. 1.....	1445	43		6600	42							91	97	100	—			S

## SACRAMENTO RIVER BASIN--Continued

11-4210. YUBA RIVER NEAR MARYSVILLE, CALIF.

LOCATION.--In New Helvetia Grant, 4.2 miles northeast of Marysville, Yuba County, and 5 miles downstream from Dry Creek.

DRAINAGE AREA.--1,340 square miles.

RECORDS AVAILABLE.--Water temperatures: October 1963 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 85°F July 24, 25; minimum, 43°F on several days during January and February.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum .....	73	74	73	71	68	71	70	69	70	69	68	68	68	68	67	68	67	67	68	67	67	67	66	65	65	65	64	64	64	63	62	68	
Minimum .....	69	70	69	67	65	66	66	66	66	66	65	64	64	65	65	64	64	65	65	65	64	65	64	62	61	63	61	61	62	61	59	64	
November																																	
Maximum .....	62	62	61	60	59	59	59	59	61	60	59	58	58	58	57	56	55	54	54	54	53	52	52	51	51	52	52	52	51	51	--	56	
Minimum .....	59	61	58	58	59	57	57	59	59	57	57	56	57	57	56	56	55	54	54	54	52	52	52	51	51	51	51	51	51	51	--	55	
December																																	
Maximum .....	51	49	49	49	49	49	49	49	49	49	48	48	47	47	46	46	46	46	47	47	48	48	48	47	48	48	48	48	47	47	48		
Minimum .....	49	49	49	48	48	48	47	48	48	46	45	46	46	46	46	46	46	46	46	47	47	46	45	45	46	46	47	47	47	46	46	47	
January																																	
Maximum .....	47	48	47	47	47	47	48	47	47	47	46	47	47	47	46	46	46	46	47	47	46	46	46	46	46	46	46	46	46	46	47	47	
Minimum .....	46	46	44	45	43	45	47	44	45	45	43	44	43	44	43	43	45	45	46	46	44	45	45	46	46	46	46	44	44	45	44	45	
February																																	
Maximum .....	47	47	46	46	46	46	46	46	47	47	46	46	46	46	46	46	46	47	47	47	48	48	48	48	48	47	47	47	47	--	--	47	
Minimum .....	44	44	43	44	44	44	44	44	44	44	44	43	43	43	44	44	44	44	44	45	45	45	46	46	46	46	46	46	46	46	--	--	45
March																																	
Maximum .....	47	47	46	47	47	48	47	47	48	48	48	47	48	48	49	49	50	50	50	50	50	49	49	49	50	51	51	52	52	53	53	49	
Minimum .....	47	46	46	46	47	47	46	46	47	47	47	47	47	47	47	48	48	49	48	49	49	49	48	48	48	49	49	50	50	50	50	48	
April																																	
Maximum .....	53	51	51	52	52	52	52	52	53	55	58	58	58	59	59	56	56	55	56	56	56	56	56	55	57	58	60	62	60	59	--	56	
Minimum .....	50	50	50	51	51	51	51	51	52	51	50	50	50	51	52	53	54	53	54	54	54	54	53	53	52	53	53	54	53	52	--	52	
May																																	
Maximum .....	57	57	57	56	56	55	56	57	58	58	59	60	59	59	59	58	58	58	59	59	59	61	61	61	61	61	65	67	68	69	60		
Minimum .....	52	53	54	53	54	53	54	55	55	56	55	56	56	56	56	57	56	57	57	57	58	59	59	59	59	60	59	59	58	59	59	56	
June																																	
Maximum .....	67	68	68	67	68	67	68	66	61	65	66	68	68	69	69	67	69	70	70	71	72	72	73	73	73	71	71	71	71	71	--	69	
Minimum .....	59	60	60	61	62	61	61	60	60	60	61	63	64	64	64	63	63	63	63	64	64	60	64	65	66	66	65	65	64	65	--	63	
July																																	
Maximum .....	71	72	71	71	73	74	74	75	76	79	80	80	80	78	79	80	81	80	80	80	82	80	83	85	85	--	--	--	--	80	80	78	
Minimum .....	65	66	66	64	67	68	68	68	69	71	73	75	74	72	72	73	74	73	72	72	74	74	75	77	78	--	--	--	--	74	72	71	
August																																	
Maximum .....	79	80	80	82	83	83	82	82	82	82	80	81	82	82	79	79	80	80	79	80	82	81	81	80	79	78	76	76	76	76	72	80	
Minimum .....	71	72	72	74	76	76	76	75	75	74	73	74	75	74	72	72	74	73	73	73	75	74	75	74	74	73	72	72	70	71	67	73	
September																																	
Maximum .....	71	73	75	76	75	74	74	73	74	74	75	74	74	74	74	74	74	72	72	72	70	70	74	76	74	72	70	70	71	71	--	73	
Minimum .....	66	68	69	70	70	69	68	68	67	68	69	70	68	68	68	69	68	68	66	68	64	65	68	70	70	67	66	66	67	67	--	68	

## SACRAMENTO RIVER BASIN--Continued

11-4217. FEATHER RIVER BELOW SHANGHAI BEND, NEAR YUBA CITY, CALIF.

LOCATION.--At gaging station north of Barry Road, approximately 3 miles west of Olivehurst, and 5 miles south of Yuba City, Sutter County.

RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1964.

REMARKS.--Records of discharge for water year October 1963 to September 1964 furnished by California State Department of Water Resources.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 9, 1963.....	1440	--	--	--	--	4.5	--	69	--	--	3.5	--	--	0.0	--	--	--	54	0	0.3	127	7.7
Nov. 7.....	6690	--	--	--	--	3.7	--	46	--	--	2.9	--	--	.0	--	--	--	36	0	.3	91	7.6
Dec. 5.....	4970	--	--	--	--	4.1	--	57	--	--	1.0	--	--	.2	--	--	--	43	0	.3	106	7.9
Jan. 7, 1964.....	3830	--	--	--	--	4.6	--	57	--	--	4.0	--	--	.0	--	--	--	45	0	.3	107	8.0
Feb. 6.....	4540	--	--	--	--	4.2	--	54	--	--	2.0	--	--	.0	--	--	--	45	1	.3	101	8.0
Mar. 3.....	4160	--	--	--	--	4.1	--	56	--	--	3.6	--	--	.0	--	--	--	44	0	.3	103	8.1
Apr. 9.....	5660	--	--	--	--	4.3	--	55	--	--	2.0	--	--	.0	--	--	--	42	0	.3	100	8.0
May 5.....	4340	15	--	11	2.2	3.2	0.3	43	--	5.0	2.5	0.1	0.8	.0	61	0.08	--	36	1	.2	85	7.9
June 10.....	4210	--	--	--	--	3.2	--	41	--	--	1.5	--	--	.0	--	--	--	34	0	.2	78	7.9
July 10.....	850	--	--	--	--	5.2	--	69	--	--	2.0	--	--	.0	--	--	--	55	0	.3	129	8.2
Aug. 7.....	591	--	--	--	--	6.2	--	73	--	--	2.5	--	--	.0	--	--	--	58	0	.4	139	7.9
Sept. 4.....	1080	15	--	14	5.1	5.5	1.7	72	--	6.0	1.7	--	.3	.0	84	.11	--	56	0	.3	131	8.1

## SACRAMENTO RIVER BASIN--Continued

11-4240. BEAR RIVER NEAR WHEATLAND, CALIF.

LOCATION.--Near gaging station at bridge on U.S. Highway 99E, 1 mile southeast of Wheatland, Yuba County, and 6.5 miles downstream from Rock Creek.

DRAINAGE AREA.--292 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 9, 1963.....	0.8	--	--	--	--	7.4	--	144	0	--	15	--	--	0.0	--	--	--	160	42	0.3	342	8.1
Nov. 7.....	260	--	--	--	--	5.7	--	93	0	--	9.2	--	--	0.0	--	--	--	91	15	.3	211	8.1
Dec. 5.....	18	--	--	--	--	4.6	--	74	0	--	4.0	--	--	0.0	--	--	--	79	18	.2	175	7.9
Jan. 7, 1964.....	4.4	--	--	--	--	4.9	--	87	1	--	6.5	--	--	0.0	--	--	--	99	26	.2	218	8.3
Feb. 6.....	448	--	--	--	--	3.2	--	30	0	--	2.2	--	--	.1	--	--	--	34	9	.2	88	7.9
Mar. 3.....	13	--	--	--	--	4.0	--	82	0	--	5.0	--	--	0.0	--	--	--	98	31	.2	172	8.1
Apr. 9.....	375	--	--	--	--	3.6	--	46	0	--	1.0	--	--	0.0	--	--	--	44	6	.2	109	7.9
May 5.....	22	15	--	18	8.5	4.6	0.6	74	0	21	7.2	0.1	1.4	0.0	111	0.15	--	80	19	.2	182	8.0
June 10.....	20	--	--	--	--	5.1	--	77	0	--	5.0	--	--	0.0	--	--	--	81	18	.2	185	8.1
July 10.....	17	--	--	--	--	5.5	--	90	0	--	10	--	--	0.0	--	--	--	89	15	.3	202	7.8
Aug. 7.....	16	--	--	--	--	6.0	--	88	0	--	8.0	--	--	0.0	--	--	--	90	18	.3	199	8.1
Sept. 4.....	11	18	--	28	14	6.7	.5	120	0	25	9.5	--	.4	0.0	166	.23	--	126	28	.3	267	8.2



## SACRAMENTO RIVER BASIN--Continued

11-4250. FEATHER RIVER AT NICOLAUS, CALIF.

LOCATION.--At gaging station at Nicolaus, Sutter County, at highway bridge, and 2.9 miles downstream from Bear River.

DRAINAGE AREA.--5,928 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses: March 1951 to September 1964.

Water temperatures: March 1951 to September 1958, November 1959 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 87°F July 13; minimum, 41°F on several days during December, Jan. 12-16.

EXTREMES, 1951-58, 1959-64.--Water temperatures: Maximum, 94°F July 21, 1961; minimum, freezing point Jan. 3-6, 1961.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 9, 1963.....	1410	--	--	--	--	4.6	--	68	--	--	3.5	--	--	0.0	--	--	--	53	0	0.3	126	7.7
Nov. 7.....	7560	--	--	--	--	4.9	--	63	--	--	4.4	--	--	.0	--	--	--	52	0	.3	125	7.8
Dec. 5.....	4960	--	--	--	--	3.5	--	55	--	--	1.0	--	--	.1	--	--	--	43	0	.2	103	7.8
Jan. 7, 1964.....	4000	--	--	--	--	4.6	--	58	--	--	3.8	--	--	.0	--	--	--	46	0	.3	110	8.0
Feb. 6.....	5490	--	--	--	--	4.4	--	52	--	--	2.9	--	--	.0	--	--	--	42	0	.3	103	7.9
Mar. 3.....	4070	--	--	--	--	4.5	--	58	--	--	3.8	--	--	.0	--	--	--	46	0	.3	109	8.2
Apr. 9.....	6050	--	--	--	--	4.3	--	54	--	--	2.0	--	--	.0	--	--	--	43	0	.3	101	8.0
May 5.....	4390	15	--	9.0	3.4	3.2	0.4	43	--	3.0	2.8	0.1	1.0	.0	59	0.08	--	36	1	.2	84	8.0
June 10.....	4480	--	--	--	--	3.3	--	42	--	--	1.0	--	--	.0	--	--	--	34	0	.2	81	7.8
July 10.....	814	--	--	--	--	5.1	--	69	--	--	2.0	--	--	.0	--	--	--	54	0	.3	128	7.9
Aug. 7.....	A 500	--	--	--	--	5.9	--	74	--	--	2.5	--	--	.0	--	--	--	60	0	.3	139	7.9
Sept. 4.....	1130	12	--	14	5.6	6.4	1.3	74	--	5.0	4.0	--	.5	.0	85	.12	--	58	0	.4	135	8.0

A Estimated.

## SACRAMENTO RIVER BASIN--Continued

11-4250. FEATHER RIVER AT NICOLAUS, CALIF.--Continued

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																																Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum .....	74	74	72	71	68	67	68	68	69	68	67	67	65	65	64	65	65	65	66	64	65	65	65	62	62	63	62	62	61	60	60	66	
Minimum .....	71	71	70	68	66	65	66	67	67	67	65	63	63	62	62	62	63	64	64	63	64	64	62	61	61	61	61	61	60	59	59	64	
November																																	
Maximum .....	60	59	58	57	57	57	56	55	56	56	55	55	55	56	54	52	51	50	49	49	47	47	49	49	48	47	47	47	46	--	53		
Minimum .....	58	58	57	57	56	55	53	53	54	54	53	53	53	55	54	52	51	49	49	49	47	47	47	48	47	47	46	46	46	--	51		
December																																	
Maximum .....	46	46	45	45	44	44	44	44	45	45	44	43	42	42	41	41	41	41	42	44	45	45	45	44	44	44	45	45	45	45	44		
Minimum .....	46	45	45	44	44	44	44	44	44	44	43	42	42	42	41	41	41	41	41	42	44	43	43	43	43	43	44	44	44	45	44	43	
January																																	
Maximum .....	45	46	45	45	44	44	45	44	44	44	44	44	44	43	43	43	43	44	44	45	46	46	43	42	42	43	44	44	44	43	44	44	
Minimum .....	44	44	43	43	42	42	43	43	44	42	42	41	41	41	41	41	41	42	43	44	45	43	42	42	42	42	42	43	43	43	43	42	
February																																	
Maximum .....	45	46	45	45	46	45	45	46	46	46	46	46	45	45	45	45	45	47	48	48	49	49	49	49	49	49	48	48	48	--	--	47	
Minimum .....	44	44	43	43	44	43	43	43	44	43	44	43	43	42	43	43	42	43	44	45	45	45	45	45	46	45	44	44	44	--	--	44	
March																																	
Maximum .....	48	46	47	49	50	49	49	48	49	51	51	48	48	48	50	52	53	54	53	53	54	52	51	47	49	51	51	53	54	55	53	51	
Minimum .....	45	43	43	44	46	46	45	44	45	47	47	45	45	45	45	47	48	48	50	48	49	49	47	46	46	47	47	48	49	50	51	47	
April																																	
Maximum .....	52	51	51	51	52	52	54	55	56	57	58	58	58	60	60	59	58	58	58	59	60	60	60	58	59	61	64	65	63	61	--	58	
Minimum .....	50	49	49	49	49	49	50	51	52	52	54	55	55	56	57	57	56	55	55	55	56	56	56	54	54	55	57	59	58	57	--	54	
May																																	
Maximum .....	60	58	58	57	56	58	59	62	64	65	66	66	64	63	63	62	62	62	63	63	64	66	66	66	67	67	65	66	68	70	71	63	
Minimum .....	57	56	56	54	54	54	56	58	59	61	62	62	62	60	60	59	58	60	61	60	61	62	62	62	62	63	62	61	63	64	65	60	
June																																	
Maximum .....	70	69	70	70	70	69	70	69	62	63	68	71	74	75	75	70	69	71	73	73	74	75	77	80	81	81	75	75	73	74	--	72	
Minimum .....	64	64	64	65	66	65	64	62	60	59	61	64	66	68	68	65	64	65	68	71	71	73	75	77	79	75	73	73	71	70	--	68	
July																																	
Maximum .....	74	73	73	73	74	76	77	77	78	81	84	86	87	84	79	81	83	81	80	81	82	82	84	85	86	86	82	84	86	84	84	81	
Minimum .....	71	70	72	68	69	72	74	74	73	74	78	79	78	74	75	75	77	75	75	75	76	76	76	79	79	78	77	77	78	75	74	75	
August																																	
Maximum .....	81	81	81	82	85	85	85	83	84	84	81	82	83	82	80	80	82	81	81	83	84	83	82	82	81	80	78	78	78	78	73	81	
Minimum .....	73	74	74	76	78	79	80	79	78	79	76	76	77	77	76	75	76	76	77	79	79	79	79	78	78	76	75	74	74	73	67	76	
September																																	
Maximum .....	70	72	74	76	76	74	73	72	71	73	74	--	--	72	--	73	72	72	--	--	69	67	69	71	72	72	69	67	69	69	--	72	
Minimum .....	67	68	69	72	72	72	70	69	68	70	72	--	--	69	--	71	69	69	--	--	64	64	66	68	68	67	65	63	65	65	--	68	

## SACRAMENTO RIVER BASIN--Continued

11-4270. NORTH FORK AMERICAN RIVER AT NORTH FORK DAM, CALIF.

LOCATION.--Temperature recorder at gaging station 50 feet upstream from spillway of North Fork Dam, Placer County, 2 miles upstream from Middle Fork, and 4 miles northeast of Auburn.

DRAINAGE AREA.--343 square miles.

RECORDS AVAILABLE.--water temperatures: November 1959 to September 1964.

EXTREMES, 1963-64.--water temperatures: Maximum, 80°F July 29, 30; minimum, 43°F on several days during January, Feb. 19.

EXTREMES, 1959-64.--water temperatures: Maximum, 80°F Aug. 10-14, 1961, July 29, 30, 1964; minimum, 43°F Jan. 6-9, 1961, on several days during January 1964, Feb. 19, 1964.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum ....	72	73	73	72	71	71	71	70	70	70	69	69	69	68	68	68	67	67	67	67	66	66	66	66	65	65	65	65	64	64	64	64	68
Minimum ....	71	71	71	71	70	70	70	70	70	69	69	69	68	68	66	67	67	67	67	66	66	66	66	65	65	65	65	64	64	64	62	67	
November																																	
Maximum ....	63	63	63	63	62	62	60	60	59	57	57	57	56	56	55	54	53	53	52	51	51	51	50	50	49	49	49	49	49	49	--	55	
Minimum ....	63	63	62	62	62	60	60	59	57	57	57	56	55	54	53	53	52	51	51	51	50	50	49	49	49	49	49	49	49	48	--	55	
December																																	
Maximum ....	48	48	48	48	48	48	47	47	47	47	47	47	47	47	46	46	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	46	
Minimum ....	48	48	48	48	48	47	47	47	47	47	47	47	47	46	46	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	46	
January																																	
Maximum ....	45	45	45	45	45	44	44	44	44	44	44	44	43	43	43	44	44	44	43	43	45	45	45	45	45	45	45	45	45	45	45	44	
Minimum ....	45	45	45	45	44	44	44	44	44	44	44	43	43	43	43	43	44	44	43	43	43	45	45	45	45	45	45	45	45	45	45	44	
February																																	
Maximum ....	45	46	46	45	45	45	45	45	45	45	45	45	45	45	45	44	44	44	44	44	44	45	45	45	45	45	46	45	45	45	--	45	
Minimum ....	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	44	44	44	44	43	44	44	44	44	44	44	45	45	45	45	--	45	
March																																	
Maximum ....	45	45	46	47	47	47	47	47	47	47	47	47	46	46	47	48	50	50	50	51	50	50	50	50	50	50	49	49	50	51	52	53	48
Minimum ....	45	45	45	46	46	46	47	47	47	47	47	46	46	46	47	47	48	49	49	50	50	50	50	49	49	49	49	49	50	51	52	48	
April																																	
Maximum ....	53	53	51	51	52	51	52	52	53	54	55	55	56	55	55	55	55	54	54	53	54	55	54	54	53	53	54	54	55	56	--	54	
Minimum ....	53	51	51	51	51	51	51	52	52	53	54	54	55	55	55	55	54	54	53	53	53	52	53	53	53	52	52	52	54	54	--	53	
May																																	
Maximum ....	55	54	53	53	51	51	51	52	55	56	57	58	57	57	57	56	56	57	57	58	58	58	60	60	61	60	59	59	59	61	63	57	
Minimum ....	54	52	52	51	51	50	50	51	52	55	56	56	56	56	56	55	55	55	56	56	57	57	57	57	59	60	59	58	58	59	61	55	
June																																	
Maximum ....	63	64	64	64	64	63	63	62	61	58	58	61	64	67	67	66	64	65	65	67	68	69	71	72	72	72	73	73	72	72	--	66	
Minimum ....	62	63	62	62	62	62	62	61	57	56	56	58	61	64	66	64	63	63	64	65	66	67	69	71	71	70	71	71	70	71	--	64	
July																																	
Maximum ....	72	72	73	72	72	72	73	74	74	74	75	76	76	76	76	77	78	78	78	78	78	78	77	78	78	79	79	79	80	80	79	76	
Minimum ....	71	71	71	71	72	72	72	73	73	73	74	75	75	75	75	76	77	77	77	77	77	77	77	77	77	78	78	79	79	79	78	75	
August																																	
Maximum ....	79	79	78	78	77	77	77	77	76	76	76	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	74	74	74	74	73	76
Minimum ....	78	78	77	77	77	77	77	76	76	76	75	75	75	75	75	75	75	75	75	74	74	74	75	75	74	74	74	74	74	73	72	75	
September																																	
Maximum ....	73	72	72	71	71	70	70	70	69	69	69	69	69	69	69	68	68	68	68	68	68	67	67	67	67	67	67	67	67	67	--	69	
Minimum ....	72	71	71	71	70	70	70	69	69	69	69	69	69	69	68	68	68	68	67	67	67	67	67	67	67	67	67	67	67	66	--	68	

## SACRAMENTO RIVER BASIN--Continued

11-4455. SOUTH FORK AMERICAN RIVER NEAR LOTUS, CALIF.

LOCATION.--At gaging station 0.4 mile downstream from Greenwood Creek, 2.4 miles northwest of Lotus, El Dorado County, and 3.3 miles northwest of Coloma.

DRAINAGE AREA.--673 square miles

RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1963.

Water temperatures: December 1959 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 68°F July 29, Aug. 4, 7-10; minimum, 38°F on several days during February.

EXTREMES, 1959-64.--Water temperatures: Maximum, 85°F July 20, 1960; minimum, 34°F Jan. 2-6, 1960, Dec. 28-31, 1962.

REM

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Nov. 4, 1963.....	1200	--	--	--	--	1.6	--	14	--	--	2.1	--	--	0.0	--	--	--	12	1	0.2	33	7.0
Jan. 6, 1964.....	1190	--	--	--	--	2.5	--	14	--	--	2.8	--	--	.2	--	--	--	12	1	.3	32	7.4
Mar. 2.....	410	--	--	--	--	4.1	--	36	--	--	4.9	--	--	.0	--	--	--	32	2	.3	80	7.9
May 4.....	974	12	--	5.2	1.9	2.6	0.2	25	--	3.0	2.2	0.0	0.9	.0	40	0.05	--	21	1	.2	54	7.8
July 3.....	906	--	--	--	--	2.2	--	15	--	--	.5	--	--	.0	--	--	--	11	0	.3	32	7.6
Sept. 18.....	772	7.8	--	3.2	.5	1.7	.5	13	--	.0	.7	--	.4	.0	21	.03	--	10	0	.2	28	7.1

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum .....	69	65	61	58	56	55	54	53	53	52	52	52	51	50	50	50	50	50	50	50	50	50	50	50	49	49	48	48	48	47	47	52
Minimum .....	65	61	58	56	55	53	53	53	52	52	52	51	51	50	50	50	50	50	50	50	50	50	50	49	49	48	48	47	47	47	51	
November																																
Maximum .....	47	47	47	47	47	47	47	47	47	47	47	47	46	46	46	46	46	45	44	44	44	44	44	44	44	44	44	44	44	44	46	
Minimum .....	47	47	47	47	47	47	47	47	47	47	47	46	46	46	46	46	45	44	44	44	44	44	44	44	44	44	44	44	44	44	45	
December																																
Maximum .....	44	44	44	44	44	44	44	43	43	43	43	43	42	42	42	42	42	42	42	43	43	43	42	42	42	42	42	43	43	43	43	
Minimum .....	44	44	44	44	44	44	43	43	43	43	42	42	42	42	42	42	42	42	42	43	42	42	42	42	42	42	42	43	43	43	42	43
January																																
Maximum .....	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	41	41	41	41	41	41	41	41	40	40	40	42	
Minimum .....	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	41	41	41	41	41	41	41	41	40	40	40	41	
February																																
Maximum .....	40	40	40	39	39	39	39	39	39	40	40	39	39	39	39	38	39	40	39	39	39	40	40	41	41	42	42	41	41	41	41	40
Minimum .....	39	40	39	39	39	39	39	39	39	38	39	39	39	39	38	38	38	38	38	38	39	39	40	40	41	41	40	40	40	40	39	
March																																
Maximum .....	41	41	41	42	43	44	43	43	43	43	43	43	44	45	47	47	49	49	49	49	48	48	47	47	46	48	49	52	53	55	54	46
Minimum .....	40	40	40	40	42	43	42	41	42	41	42	42	43	43	44	45	46	47	47	47	48	47	46	46	45	45	46	49	50	51	53	45
April																																
Maximum .....	54	51	51	50	49	49	51	51	51	54	54	54	55	55	55	55	59	57	53	53	54	55	54	52	52	53	54	55	55	55	53	
Minimum .....	50	48	48	48	47	47	47	47	48	49	51	52	52	53	53	54	53	52	51	51	50	51	51	51	49	48	49	50	51	52	50	
May																																
Maximum .....	53	52	52	50	48	48	49	51	54	56	56	56	56	56	55	57	56	57	57	55	57	57	59	59	60	57	56	57	58	59	63	55
Minimum .....	52	50	50	48	47	46	46	46	47	49	51	53	53	53	53	53	53	53	53	54	53	53	53	54	54	56	54	54	52	53	52	
June																																
Maximum .....	61	60	59	58	58	57	59	59	56	53	55	58	62	66	65	61	59	59	61	63	65	68	66	67	67	66	64	64	63	63	61	
Minimum .....	57	57	56	56	57	56	56	56	53	51	51	52	54	56	61	58	56	55	55	56	57	60	62	59	60	60	59	58	57	56	57	
July																																
Maximum .....	63	63	63	63	66	67	64	63	63	64	64	66	66	67	66	66	66	65	66	66	66	66	66	66	66	66	67	66	67	67	65	
Minimum .....	56	56	55	55	62	63	59	56	56	56	56	56	64	60	59	58	58	57	57	57	57	58	58	58	58	58	59	59	59	59	58	
August																																
Maximum .....	67	66	67	68	66	67	68	68	68	68	67	67	67	67	66	65	67	65	64	63	63	63	63	63	63	63	62	62	62	61	59	65
Minimum .....	59	59	59	59	59	59	59	59	59	59	60	59	59	59	59	59	59	59	58	57	57	57	57	57	57	57	57	57	56	56	58	
September																																
Maximum .....	59	60	60	60	60	63	64	65	61	60	60	60	60	64	60	60	59	59	59	59	59	62	59	59	59	60	59	59	59	58	60	
Minimum .....	56	53	54	54	54	59	58	58	56	54	54	54	55	59	55	55	54	54	54	54	58	54	54	54	55	54	54	57	55	54	55	

## SACRAMENTO RIVER BASIN--Continued

11-4464. AMERICAN RIVER AT NIMBUS DAM, NEAR FAIR OAKS, CALIF.

LOCATION.--At dam, approximately 1.5 miles east of Fair Oaks, Sacramento County.

RECORDS AVAILABLE.--Chemical analyses: November 1958 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 9, 1963.....	1978	--	--	--	--	2.1	--	29	--	--	2.6	--	--	0.0	--	--	--	24	0	0.2	60	7.6
Nov. 4.....	2013	--	--	--	--	2.7	--	34	--	--	9.3	--	--	.0	--	--	--	37	9	.2	91	7.4
Dec. 6.....	4996	--	--	--	--	1.9	--	28	--	--	1.0	--	--	.0	--	--	--	26	3	.2	62	7.6
Jan. 6, 1964.....	1876	--	--	--	--	2.3	--	28	--	--	3.8	--	--	.0	--	--	--	25	2	.2	62	7.4
Feb. 7.....	2110	--	--	--	--	2.7	--	30	--	--	2.6	--	--	.0	--	--	--	26	1	.2	67	7.8
Mar. 2.....	1889	--	--	--	--	3.4	--	32	--	--	3.6	--	--	.0	--	--	--	28	2	.3	71	7.8
Apr. 10.....	1375	--	--	--	--	2.9	--	32	--	--	5.0	--	--	.0	--	--	--	28	2	.2	70	7.9
May 4.....	1298	12	--	8.8	1.9	2.8	0.5	32	--	3.0	5.0	0.0	1.1	.0	A 51	0.07	--	30	4	.2	74	7.5
June 12.....	1478	--	--	--	--	2.5	--	28	--	--	2.0	--	--	.0	--	--	--	24	1	.2	61	7.6
July 7.....	3169	--	--	--	--	3.0	--	28	--	--	1.0	--	--	.0	--	--	--	22	0	.3	58	7.8
Aug. 3.....	3938	--	--	--	--	2.6	--	26	--	--	2.0	--	--	.0	--	--	--	22	1	.2	55	7.5
Sept. 1.....	2955	11	--	6.0	1.3	2.4	.5	25	--	2.0	1.4	--	.9	.0	40	.05	--	20	0	.2	53	7.4

A Calculated from sum of determined constituents.

SACRAMENTO RIVER BASIN--Continued

11-4465. AMERICAN RIVER AT FAIR OAKS, CALIF.

LOCATION.--Temperature recorder at gaging station 2,100 feet downstream from Nimbus Dam, 2.4 miles east of Fair Oaks, Sacramento County, 8.1 miles downstream from South Fork, and at mile 19.3.

DRAINAGE AREA (revised).--1,888 square miles.

RECORDS AVAILABLE.--Chemical analyses: January to December 1906, March 1951 to September 1958, November 1959 to September 1962.

Water temperatures: March 1951 to September 1958, November 1959 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 67°F Oct. 1-3, on several days during August; minimum, 44°F Jan. 28-31, Feb. 1-5.

EXTREMES, 1951-58, 1959-64.--Water temperatures: Maximum, 81°F July 27, Aug. 3, 1954; minimum, freezing point Nov. 25, 26, 1957, Nov. 25-29, 1958.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum ....	67	67	67	66	66	66	66	66	66	66	65	65	64	64	65	64	64	64	64	64	64	64	64	63	63	63	62	62	62	62	62	64
Minimum ....	66	66	66	66	65	65	65	65	65	65	65	64	64	64	64	64	64	64	64	63	63	63	63	63	62	62	62	62	62	62	60	64
November																																
Maximum ....	60	58	57	57	57	57	57	58	58	58	58	57	57	56	56	56	55	54	54	53	53	53	53	52	52	52	51	50	50	---	55	
Minimum ....	58	57	57	57	57	57	57	57	57	58	57	56	56	56	56	55	54	53	53	53	53	52	52	52	51	50	50	50	---	55		
December																																
Maximum ....	50	50	50	50	50	50	50	50	50	50	49	49	49	49	48	48	48	48	48	48	48	48	48	48	48	48	47	47	47	47	49	
Minimum ....	50	50	50	50	50	50	50	50	50	49	49	49	48	48	48	48	48	48	48	48	48	48	48	48	47	47	47	47	47	47	48	
January																																
Maximum ....	47	47	46	46	47	46	46	46	46	46	46	46	46	46	46	45	46	46	46	46	46	46	46	46	46	46	45	45	44	44	45	46
Minimum ....	47	46	46	46	46	46	46	46	46	46	46	45	45	45	45	45	45	45	45	46	46	46	46	45	45	46	45	45	44	44	44	45
February																																
Maximum ....	44	45	45	45	45	46	46	46	46	46	46	46	46	46	46	46	46	46	47	47	47	47	47	47	47	47	47	47	47	---	46	
Minimum ....	44	44	44	44	44	45	45	45	45	45	45	46	45	45	45	45	45	45	45	46	46	46	46	46	46	46	46	46	46	---	45	
March																																
Maximum ....	46	46	46	47	48	48	48	47	47	48	47	48	47	48	48	49	50	50	50	50	50	49	48	48	48	49	50	50	50	51	51	49
Minimum ....	46	46	46	46	47	47	47	46	47	47	47	47	47	47	47	48	48	49	48	49	49	48	48	47	48	48	49	50	50	50	50	48
April																																
Maximum ....	51	51	52	51	52	52	52	53	54	54	54	54	54	55	56	57	56	56	56	56	56	56	57	56	55	56	57	56	56	57	---	54
Minimum ....	50	50	50	50	50	51	51	51	51	52	53	53	53	53	54	54	54	55	54	54	54	55	54	53	54	55	55	55	55	---	53	
May																																
Maximum ....	56	56	55	56	55	56	55	56	57	57	58	57	58	58	58	60	58	57	59	58	58	58	60	60	58	58	58	58	58	58	57	57
Minimum ....	55	54	54	54	54	54	54	54	55	56	56	56	56	57	57	56	57	56	56	56	57	57	56	58	56	56	56	56	56	57	56	56
June																																
Maximum ....	59	59	60	60	58	59	60	59	58	58	58	59	59	60	60	59	59	59	60	59	61	59	59	60	59	60	60	59	59	60	---	59
Minimum ....	57	58	58	58	56	57	57	58	57	56	56	58	58	58	58	58	57	58	58	58	58	58	59	58	58	58	58	58	58	58	---	58
July																																
Maximum ....	59	59	59	58	59	61	61	61	62	62	62	61	61	62	62	62	62	62	61	62	62	62	62	62	63	63	63	63	64	64	64	62
Minimum ....	58	58	58	58	58	59	60	60	60	60	62	61	60	60	60	61	60	61	60	61	61	61	62	62	62	62	62	62	62	63	63	61
August																																
Maximum ....	64	64	64	64	65	65	65	65	66	66	66	66	66	66	66	66	66	66	66	67	67	67	67	67	67	67	67	67	67	67	67	66
Minimum ....	63	63	63	63	64	64	64	65	65	65	65	65	65	65	65	65	65	65	65	66	66	66	66	66	66	66	66	66	66	66	66	65
September																																
Maximum ....	66	64	65	66	66	66	66	66	66	66	66	65	65	65	65	65	65	65	65	65	65	65	65	65	66	66	66	65	65	64	64	65
Minimum ....	64	64	64	65	65	65	65	65	65	65	65	65	64	64	64	64	64	64	64	64	64	64	65	64	64	65	65	64	64	64	---	64

## SACRAMENTO RIVER BASIN--Continued

11-4470. AMERICAN RIVER AT SACRAMENTO, CALIF.

LOCATION.--At site of former gaging station at H Street Bridge, east of Sacramento, Sacramento County, and 6.5 miles upstream from mouth.

DRAINAGE AREA.--1,889 square miles, upstream from gaging station.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

REMARKS.--No discharge records available.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 9, 1963.....		--		--	--	2.2	--	30		--	3.1		--	0.0	--	--		25	0	0.2	63	7.2
Nov. 4.....		--		--	--	2.0	--	26		--	3.0		--	.0	--	--		22	1	.2	56	7.4
Dec. 6.....		--		--	--	2.3	--	30		--	2.0		--	.0	--	--		26	1	.2	65	7.5
Jan. 6, 1964.....		--		--	--	2.5	--	28		--	4.2		--	.0	--	--		26	3	.2	65	7.7
Feb. 7.....		--		--	--	4.5	--	30		--	3.2		--	.0	--	--		27	2	.4	70	7.8
Mar. 2.....		--		--	--	3.6	--	30		--	4.0		--	.0	--	--		28	3	.3	73	7.4
Apr. 10.....		--		--	--	3.4	--	33		--	3.0		--	.0	--	--		29	2	.3	74	7.7
May 4.....	11			8.4	1.8	2.8	0.5	32		5.0	4.0	0.0	1.4	.0	51	0.07		28	2	.2	72	7.8
June 12.....		--		--	--	3.0	--	28		--	2.5		--	.0	--	--		25	2	.3	64	7.7
July 7.....		--		--	--	2.9	--	27		--	1.5		--	.0	--	--		23	1	.3	64	7.8
Aug. 3.....		--		--	--	3.2	--	26		--	2.0		--	.0	--	--		22	1	.3	56	7.4
Sept. 1.....		11		6.0	1.7	2.6	1.2	26		3.0	2.0		.9	.0	42	.06		22	1	.2	56	7.4

## SACRAMENTO RIVER BASIN--Continued

## 11-4475. SACRAMENTO RIVER AT SACRAMENTO, CALIF.

LOCATION.--At Tower Bridge 0.6 mile downstream from gaging station at Sacramento, Sacramento County, and approximately 1.3 miles downstream from confluence with American River.

DRAINAGE AREA.--23,530 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1952 to May 1960.

Water temperatures: May 1955 to September 1964.

Sediment records: October 1956 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 79°F June 24; minimum, 42°F Dec. 8.

Sediment concentrations: Maximum daily, 494 ppm Jan. 22; minimum daily, 17 ppm July 29.

Sediment loads: Maximum daily, 68,100 tons Jan. 23; minimum daily, 501 tons Apr. 28.

EXTREMES, 1955-64.--Water temperatures: Maximum (1955-62, 1963-64), 80°F June 15, 16, 1961; minimum, 39°F Jan. 30, 31, Feb. 1, 1957.

Sediment concentrations (1956-64): Maximum daily, 1,180 ppm Jan. 30, 1963; minimum daily, (estimated) 11 ppm Nov. 30, 1959.

Sediment loads (1956-64): Maximum daily, 229,000 tons Feb. 2, 1963; minimum daily, (estimated) 200 tons Dec. 14, 1959.

REMARKS.--No appreciable inflow between gaging station and sampling point except during periods of heavy local runoff.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October .....	56	53	56	53	58	56	54	56	55	55	54	52	52	54	59	48	47	47	46	45	46	43	40	36	34	34	38	37	38	36	36	
November .....	36	37	34	34	33	32	33	34	34	34	35	36	34	36	35	34	33	34	33	33	33	32	32	33	34	34	35	34	34	35	--	
December .....	40	39	38	38	32	32	33	33	33	33	32	32	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
January .....	--	--	--	--	33	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
February .....	32	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
March .....	--	32	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	34	--	
April .....	35	32	32	34	35	40	38	36	35	43	41	--	--	46	52	49	44	47	43	44	41	42	44	47	48	50	54	52	46	39	--	
May .....	55	50	53	54	48	58	58	61	57	55	57	49	47	46	47	56	55	53	48	47	46	48	52	59	60	59	59	52	55	63	58	--
June .....	66	66	70	73	68	66	63	67	64	56	53	53	59	65	64	62	65	68	63	61	60	67	67	76	76	75	72	77	77	76	--	
July .....	78	68	68	73	76	79	74	74	73	78	72	71	72	68	66	68	69	70	69	74	74	77	75	73	74	76	74	70	68	68	67	
August .....	69	70	72	76	78	73	72	72	73	72	65	68	66	68	67	61	61	60	61	68	65	66	69	66	65	63	64	63	66	61	59	
September .....	66	64	65	64	67	65	61	65	67	68	68	60	56	58	58	61	62	63	61	60	56	55	53	55	59	57	57	57	55	54	--	



## SACRAMENTO RIVER BASIN--Continued

11-4475. SACRAMENTO RIVER AT SACRAMENTO, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964

Day	OCTOBER			NOVEMBER			DECEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	15700	57	2420	12700	26	892	25500	81	5580
2..	15700	52	2200	12800	27	933	24700	62	4130
3..	15400	43	1790	12800	26	899	23800	52	3340
4..	15000	52	2110	13400	22	796	23100	51	3180
5..	15200	74	3040	14300	34	1310	22800	49	3020
6..	14300	56	2160	16800	75	3400	22200	45	2700
7..	14800	48	1920	20600	105	5840	22200	48	2880
8..	13500	44	1600	19900	107	5750	22100	40	2390
9..	12900	43	1500	18100	76	3710	21600	39	2270
10..	12400	43	1440	17900	66	3190	21500	44	2550
11..	13100	62	2190	18400	58	2880	21900	44	2600
12..	14200	72	2760	18400	50	2480	20500	41	2270
13..	15500	68	2850	16800	79	3580	20100	49	2660
14..	15800	55	2350	16400	71	3140	20200	46	2510
15..	15500	50	2090	17400	50	2350	20100	40	2170
16..	14900	58	2330	26600	252	18700	20100	38	2060
17..	14600	58	2290	28100	184	14000	20100	40	2170
18..	14400	60	2330	23900	104	6710	19800	41	2190
19..	13800	46	1710	22900	92	5690	20100	38	2100
20..	13500	35	1280	22900	79	4880	19900	42	2260
21..	13500	39	1420	27500	98	7280	20000	51	2750
22..	13400	36	1300	29600	93	7400	20300	50	2740
23..	13500	54	1970	29300	96	7590	20300	43	2360
24..	13800	83	3090	29800	136	10900	20100	39	2120
25..	14100	54	2060	34200	182	16800	19900	33	1770
26..	13700	27	1000	36300	328	32100	19700	30	1600
27..	13600	27	991	33900	203	18600	19700	30	1600
28..	13400	50	1810	30900	108	9010	19600	29	1530
29..	13200	52	1850	28900	100	7800	19600	33	1750
30..	13900	31	1160	27600	105	7820	19700	36	1910
31..	12900	29	1010	--	--	--	19400	34	1780
Total	439200	--	60021	679100	--	216430	650600	--	76940
Day	JANUARY			FEBRUARY			MARCH		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	18900	36	1840	27300	87	6410	16800	36	1630
2..	18600	38	1910	26300	84	5960	16300	33	1450
3..	18200	40	1970	25100	82	5560	17100	45	2080
4..	18000	42	2040	24400	75	4940	17000	43	1970
5..	17600	35	1660	24300	61	4000	16200	29	1270
6..	17500	32	1500	23600	63	4010	15800	32	1370
7..	17300	34	1590	22800	65	4000	15500	37	1550
8..	17700	34	1620	22400	53	3210	15700	30	1270
9..	17400	30	1410	21800	50	2940	14100	29	1100
10..	16600	27	1210	21300	43	2470	13400	32	1160
11..	16200	28	1220	20900	43	2430	13500	30	1090
12..	16000	26	1120	20800	49	2750	13000	26	913
13..	15600	24	1010	20700	52	2910	13800	29	1080
14..	15400	27	1120	20500	47	2600	14700	35	1390
15..	15700	26	1100	20300	63	3450	14100	40	1520
16..	15600	28	1180	20100	77	4180	13500	38	1390
17..	15500	27	1130	20300	44	2410	13300	34	1220
18..	15200	31	1270	20000	39	2110	13100	42	1500
19..	16300	40	1760	19900	49	2630	12800	53	1830
20..	18500	64	3200	19900	45	2420	12800	49	1690
21..	30900	365	32600	19400	40	2100	12700	42	1440
22..	47200	494	63000	18800	41	2080	12800	34	1180
23..	52200	483	68100	18600	43	2160	13200	36	1280
24..	51200	368	50900	18500	41	2050	14300	35	1350
25..	46000	200	24800	17900	42	2030	15300	40	1650
26..	40400	184	20100	17800	37	1780	15100	40	1630
27..	36100	155	15100	17300	31	1450	14400	33	1280
28..	33700	133	12100	17200	24	1110	13900	36	1350
29..	32000	120	10400	17400	32	1500	13700	36	1330
30..	30400	114	9360	--	--	--	13800	33	1230
31..	28800	101	7850	--	--	--	14100	35	1330
Total	766700	--	345170	605600	--	87650	445800	--	43523

S Computed by subdividing day.

B Computed from estimated-concentration graph.

## SACRAMENTO RIVER BASIN--Continued

11-4475. SACRAMENTO RIVER AT SACRAMENTO, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964--Continued

Day	APRIL			MAY			JUNE		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	14900	43	1730	11200	32	968	11700	38	1200
2..	15900	50	2100	11900	32	1000	11600	36	1130
3..	18200	67	3290	12700	38	1300	11300	34	1040
4..	17400	61	2870	13000	48	1680	11100	36	1080
5..	16300	52	2290	13100	38	1340	10900	32	942
6..	15200	40	1640	13700	49	1810	10500	28	794
7..	14800	34	1360	14700	60	2380	10500	34	964
8..	14300	37	1430	14500	61	2390	11000	36	1070
9..	13300	36	1290	13800	54	2010	12400	32	1070
10..	12800	40	1380	13800	49	1830	13800	46	1710
11..	12700	40	1370	13800	47	1800	14400	55	2140
12..	13500	44	1600	14000	44	1660	14500	51	2000
13..	13200	36	1280	14300	50	1930	13800	47	1750
14..	12500	28	945	15200	58	2380	13100	46	1630
15..	11500	30	932	15700	59	2500	12600	50	1700
16..	11300	31	946	15700	50	2120	11600	36	1130
17..	11700	35	1110	15900	59	2530	11000	--	E 890
18..	12000	28	910	16400	68	3000	10500	--	E 850
19..	11900	22	707	16300	59	2600	10100	--	E 820
20..	11400	28	862	16000	52	2250	9800	--	E 790
21..	10800	32	933	16000	52	2250	9600	--	E 780
22..	10200	30	830	15700	44	1870	9600	--	E 780
23..	10600	29	830	14400	37	1400	9300	--	E 750
24..	10900	29	853	13600	39	1430	9250	33	824
25..	10200	27	744	13000	40	1400	9370	33	835
26..	9420	29	738	12300	36	1200	9840	31	B 820
27..	9030	25	610	12400	38	1270	9790	30	B 790
28..	9280	20	501	12600	40	1360	9780	29	766
29..	10000	32	864	12500	45	1520	9800	26	688
30..	10200	37	1020	12200	44	1450	10600	31	887
31..	--	--	--	11900	34	1090	--	--	--
Total	375430	--	37965	432300	--	55718	333130	--	32620
Day	JULY			AUGUST			SEPTEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	10800	31	904	12000	24	780	13400	54	1950
2..	11200	29	877	12600	28	953	13900	76	2850
3..	11400	27	831	12700	27	926	14600	95	3740
4..	12000	25	810	12400	28	937	14900	94	B 3800
5..	12400	27	900	12400	26	870	14400	85	3300
6..	12500	32	1080	12100	26	849	14200	82	3140
7..	12400	35	1170	12100	35	1140	14100	72	2740
8..	12200	32	1050	11800	34	1080	14000	65	2460
9..	11700	26	821	11500	30	932	14000	60	2270
10..	11200	25	756	11400	32	985	14000	54	2040
11..	10700	27	780	11600	24	752	14100	60	2280
12..	10500	29	822	11500	19	590	13900	52	1950
13..	10700	23	664	11500	24	745	14100	46	B 1800
14..	10600	22	630	11600	30	940	13700	49	B 1800
15..	9970	26	700	11800	26	828	13500	54	1970
16..	11400	28	862	11800	23	730	13300	54	1940
17..	11400	26	800	11800	33	1050	13100	50	1770
18..	12000	24	778	12000	26	842	12800	52	1800
19..	12200	24	791	11800	22	701	12700	46	1580
20..	12200	23	758	11800	30	956	12300	44	1460
21..	12100	22	719	11900	19	610	12200	36	1190
22..	12000	29	940	12100	42	719	11900	37	1190
23..	11700	26	821	12100	27	882	11800	35	1120
24..	11800	20	637	12200	21	692	11700	32	1010
25..	11600	23	720	12400	19	636	11900	34	1090
26..	12000	26	842	12400	22	740	12400	34	1140
27..	12000	23	745	12600	26	880	12400	27	904
28..	11700	20	632	12800	30	1040	12600	54	1840
29..	11900	17	546	13300	37	1300	12500	43	1450
30..	12000	23	745	13500	50	1800	12900	42	1460
31..	12000	26	842	13500	57	2080	--	--	--
Total	360270	--	24973	377000	--	28965	397300	--	59034

Total discharge for year (cfs-days)..... 5,862,430  
Total load for year (tons)..... 1,069,009

E Estimated

B Computed from estimated-concentration graph.

SACRAMENTO RIVER BASIN--Continued

11-4475. SACRAMENTO RIVER AT SACRAMENTO, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1963 to September 1964  
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment										Method of analysis	
							Percent finer than size indicated, in millimeters											
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000		2.000
Jan. 21, 1964.....	1040	46		28900	314							79	98	99	100			V
Jan. 21.....	1055	46		29000	294							73	95	100	—			S
Jan. 22.....	1335	45		48200	450							64	83	98	100			V
Jan. 23.....	1330	46		52700	455							68	83	98	100			V
Jan. 24.....	1330	45		50900	323							61	75	95	100			V
Jan. 27.....	1320	47		35900	145							57	67	81	99	100		S
Jan. 30.....	1335	48		30500	110							71	84	95	100			S
Feb. 7.....	1320	49	D	22800	64							74	90	100	—			S
Apr. 3.....	1420	57		D 18200	70							64	93	100	—			S
Apr. 6.....	1025	54		D 15200	39							74	100	—	—			S
Apr. 10.....	1030	58		D 12800	43							75	91	100	—			S
Apr. 16.....	1945	61		D 11300	38							84	87	100	—			S
May 16.....	1800	63		D 15700	52							76	94	100	—			S
July 28.....	0900	69		D 11700	14							98	100	—	—			S
Aug. 25.....	0915	69		D 12400	20							95	100	—	—			S
Sept. 28.....	1010	64		D 12600	58							84	98	100	—			S

Particle-size analyses of bed material, water year October 1963 to September 1964  
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentra- tion (ppm)	Sediment discharge (tons per day)	Bed material											Method of analysis																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
							Percent finer than size indicated, in millimeters																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
							0.062	0.125	0.250	0.500	1.000	2.000	4.000	8.000	16.000	32.000	64.000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
Oct. 8, 1963.....	1255		3	D 13500																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		</

D Daily mean discharge.

## SACRAMENTO RIVER BASIN--Continued

11-4476.5. SACRAMENTO RIVER AT FREEPORT, CALIF.

LOCATION.--At drawbridge at Freeport, Sacramento County, approximately 11 miles south of Sacramento.

RECORDS AVAILABLE.--Chemical analyses: June 1960 to September 1964.

Water temperatures: June 1960 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 75°F June 27, 28; minimum, 44°F on several days during January.

EXTREMES, 1960-63.--Water temperatures: Maximum, 76°F June 16, 17, 1961; minimum, 41°F Jan. 24-27, 1962.

REMARKS.--Records of discharge data given for Sacramento River at Sacramento. No appreciable inflow between sampling point and gaging station.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 10, 1963.....	12400	--	--	--	--	10	--	80	--	--	8.0	--	--	0.0	--	--	--	61	0	0.6	171	8.0
Nov. 8.....	19900	--	--	--	--	7.6	--	70	--	--	5.8	--	--	0.0	--	--	--	54	0	.4	146	7.9
Dec. 5.....	22800	--	--	--	--	8.2	--	67	--	--	4.0	--	--	.1	--	--	--	54	0	.5	144	8.0
Jan. 8, 1964.....	17700	--	--	--	--	13	--	73	--	--	8.0	--	--	--	--	--	--	63	3	.7	178	7.1
Feb. 6.....	23600	--	--	--	--	10	--	74	--	--	5.8	--	--	.1	--	--	--	66	5	.5	163	8.0
Mar. 4.....	17000	--	--	--	--	9.7	--	76	--	--	8.5	--	--	.0	--	--	--	61	0	.5	163	8.0
Apr. 8.....	14300	--	--	--	--	7.6	--	66	--	--	5.5	--	--	.0	--	--	--	53	0	.5	137	8.1
May 6.....	13700	20	--	12	7.3	1.3	--	75	--	13	8.0	0.0	1.3	.1	A 113	0.15	--	60	0	.7	175	7.8
June 10.....	13800	--	--	--	--	13	--	81	--	--	10	--	--	.0	--	--	--	64	0	.7	192	7.9
July 8.....	12200	--	--	--	--	11	--	77	--	--	9.5	--	--	.0	--	--	--	60	0	.6	170	7.7
Aug. 5.....	12400	--	--	--	--	11	--	72	--	--	4.5	--	--	.0	--	--	--	55	0	.6	152	7.5
Sept. 2.....	13900	19	--	15	8.1	15	1.9	97	--	11	8.2	--	1.8	.1	130	.18	--	71	0	.8	203	7.7

A Calculated from sum of determined constituents.

## SACRAMENTO RIVER BASIN--Continued

11-4476.5. SACRAMENTO RIVER AT FREEPORT, CALIF.--Continued

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																																Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum .....	65	64	64	64	64	64	63	63	63	63	63	62	62	62	62	62	61	61	61	61	61	61	61	61	60	60	60	58	58	58	58	62	
Minimum .....	64	64	64	64	64	63	63	63	62	62	62	62	62	62	62	61	61	61	61	61	60	60	60	60	60	60	58	58	58	58	58	61	
November																																	
Maximum .....	58	58	57	57	56	56	56	55	55	54	53	53	53	53	53	54	53	53	53	53	52	52	51	51	51	50	50	50	50	50	--	53	
Minimum .....	57	57	57	56	56	55	55	54	53	53	53	53	53	53	53	53	53	53	53	52	52	51	51	51	50	50	50	50	50	50	--	53	
December																																	
Maximum .....	50	50	50	50	49	48	47	47	47	47	48	48	48	47	47	47	47	47	47	47	47	47	47	47	47	47	46	46	46	46	47		
Minimum .....	50	50	50	49	48	47	47	47	47	47	47	48	47	47	47	47	47	47	47	47	47	47	47	47	47	47	46	46	46	46	47		
January																																	
Maximum .....	47	47	47	47	47	47	47	47	46	46	45	45	45	45	45	45	46	46	46	46	46	46	46	46	45	44	44	44	44	44	46	46	
Minimum .....	46	47	47	47	47	47	47	46	46	45	45	45	45	45	45	45	45	46	46	46	46	46	46	45	44	44	44	44	44	44	44	45	
February																																	
Maximum .....	46	46	47	47	47	47	47	47	47	47	47	48	49	49	49	49	49	49	49	49	50	50	50	51	50	50	50	50	50	--	--	48	
Minimum .....	46	46	46	47	47	47	47	47	47	47	47	48	49	49	49	49	49	49	49	49	50	50	50	50	50	50	50	50	49	--	--	48	
March																																	
Maximum .....	49	49	49	49	48	49	49	49	49	50	50	50	51	51	52	53	54	54	54	54	54	53	53	53	52	52	51	52	52	54	54	51	
Minimum .....	49	48	49	48	48	48	49	49	49	49	50	50	50	50	51	51	52	53	54	54	54	53	53	52	52	51	51	51	52	52	54	51	
April																																	
Maximum .....	54	54	54	54	54	54	55	55	56	57	57	58	59	60	60	61	61	61	61	61	61	61	61	61	60	60	60	60	61	61	--	58	
Minimum .....	54	54	54	54	54	54	55	55	56	57	57	58	59	60	60	61	61	61	61	61	61	61	61	60	59	59	59	60	60	--	58		
May																																	
Maximum .....	61	61	61	60	60	59	58	59	60	61	63	65	65	65	65	65	65	65	65	65	65	65	66	66	66	66	66	67	68	68	68	64	
Minimum .....	61	61	60	60	59	58	58	58	59	60	61	63	65	65	65	65	65	65	65	65	65	65	65	66	66	66	66	67	67	67	68	63	
June																																	
Maximum .....	69	69	69	69	69	69	69	69	69	69	67	67	68	70	70	70	71	71	72	72	72	72	74	74	74	74	75	75	74	73	--	71	
Minimum .....	68	69	69	69	69	69	69	69	69	67	67	67	67	68	70	70	70	71	71	72	72	72	72	74	74	74	74	74	74	73	72	--	70
July																																	
Maximum .....	72	72	72	71	69	69	69	69	69	69	69	69	70	69	69	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	
Minimum .....	72	72	71	69	69	69	69	69	69	69	69	69	69	69	69	69	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	
August																																	
Maximum .....	70	70	69	69	69	69	69	69	69	69	69	69	69	69	69	70	70	70	70	70	70	70	70	69	68	68	68	68	68	68	68	69	
Minimum .....	70	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	70	70	70	70	69	68	68	67	68	68	68	67	69	
September																																	
Maximum .....	67	65	65	64	64	65	65	66	66	67	67	67	67	67	67	67	67	67	67	66	66	66	64	64	64	64	64	64	65	65	--	66	
Minimum .....	65	65	64	64	64	64	65	65	66	66	67	67	67	67	67	67	67	67	67	66	66	66	64	64	64	64	64	64	65	65	--	65	

SACRAMENTO RIVER BASIN--Continued

11-4500. CLEAR LAKE AT LAKEPORT, CALIF.

LOCATION.--At foot of Third Street, near municipal wharf in Lakeport, Lake County.

DRAINAGE AREA.--488 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Cal- cium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Po- tas- sium (K)	Bi- car- bon- ate (HCO <sub>3</sub> )	Car- bon- ate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluo- ride (F)	Ni- trate (NO <sub>3</sub> )	Bo- ron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		So- dium ad- sorp- tion ratio	Specific con- duct- ance (micro- mhos at 25°C)	pH
															Parts per million	Tons per acre- foot	Tons per day	Cal- cium, Mag- ne- sium	Non- car- bon- ate			
Oct. 8, 1963.....		--	--	--	--	11	--	164	0	--	6.2	--	--	0.9	--	--	--	129	0	0.4	288	7.4
Nov. 5.....		--	--	--	--	11	--	168	0	--	8.2	--	--	.8	--	--	--	130	0	.4	285	8.2
Dec. 4.....		--	--	--	--	12	--	154	5	--	3.5	--	--	.8	--	--	--	128	0	.5	279	8.4
Jan. 7, 1964.....		--	--	--	--	11	--	162	0	--	6.8	--	--	.8	--	--	--	126	0	.4	281	8.2
Feb. 5.....		--	--	--	--	10	--	152	0	--	6.8	--	--	.6	--	--	--	118	0	.4	266	8.1
Mar. 3.....		--	--	--	--	11	--	157	0	--	8.1	--	--	.7	--	--	--	123	0	.4	278	8.2
Apr. 7.....		--	--	--	--	9.0	--	147	4	--	7.0	--	--	.7	--	--	--	122	0	.4	267	8.5
May 5.....	23	--	--	22	17	12	2.0	161	0	10	6.0	0.1	2.6	.8	174	0.24	--	126	0	.5	281	8.2
June 9.....		--	--	--	--	11	--	159	3	--	6.5	--	--	.9	--	--	--	130	0	.4	289	8.3
July 9.....		--	--	--	--	12	--	164	3	--	4.5	--	--	.8	--	--	--	134	0	.4	292	8.4
Aug. 4.....		--	--	--	--	12	--	178	0	--	7.0	--	--	.9	--	--	--	138	0	.4	306	8.2
Aug. 31.....	34	--	--	26	18	12	2.1	174	0	9.0	6.5	--	8.0	1.0	203	.28	--	139	0	.4	323	7.6

## SACRAMENTO RIVER BASIN--Continued

11-4510. CACHE CREEK NEAR LOWER LAKE, CALIF.

LOCATION.--At gaging station 500 feet downstream from Clear Lake Dam, 1.9 miles downstream from Copsey Creek, and 2.5 miles northeast of Lower Lake, Lake County.

DRAINAGE AREA (revised).--527 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 8, 1963.....	108	--	--	--	--	12	--	164	4	--	7.0	--	--	1.0	--	--	--	133	0	0.5	297	8.4
Nov. 5.....	4.1	--	--	--	--	12	--	176	0	--	8.2	--	--	1.0	--	--	--	141	0	.4	314	8.1
Dec. 4.....	3.7	--	--	--	--	13	--	158	0	--	6.0	--	--	.8	--	--	--	127	0	.5	291	8.0
Jan. 7, 1964.....	3.6	--	--	--	--	13	--	138	0	--	11	--	--	.7	--	--	--	120	7	.5	289	8.2
Feb. 5.....	3.3	--	--	--	--	13	--	132	0	--	12	--	--	.5	--	--	--	116	8	.5	284	7.5
Mar. 3.....	3.4	--	--	--	--	14	--	126	0	--	12	--	--	.5	--	--	--	123	20	.6	283	8.2
Apr. 7.....	79	--	--	--	--	15	--	186	0	--	5.0	--	--	1.1	--	--	--	144	0	.5	322	8.1
May 5.....	240	27	--	27	17	13	2.4	176	0	9.0	8.8	0.2	2.6	1.0	203	0.28	--	138	0	.5	305	8.0
June 9.....	244	25	--	--	--	13	--	172	0	--	8.0	--	--	1.0	--	--	--	142	1	.5	319	7.9
July 9.....	404	--	--	--	--	13	--	172	0	--	6.0	--	--	1.0	--	--	--	139	0	.5	312	7.6
Aug. 4.....	398	--	--	--	--	13	--	180	0	--	7.0	--	--	1.0	--	--	--	140	0	.5	314	7.9
Aug. 31.....	270	25	--	27	18	13	2.2	176	0	14	6.9	13	1.1	1.1	206	.28	--	143	0	.5	326	7.1

## SACRAMENTO RIVER BASIN--Continued

11-4515. NORTH FORK CACHE CREEK NEAR LOWER LAKE, CALIF.

LOCATION.--At bridge on State Highway 20, 3 miles downstream from gaging station, 2 miles upstream from confluence with Cache Creek, and 6.5 miles northeast of Lower Lake, Lake County.

DRAINAGE AREA (revised).--197 square miles upstream from gaging station.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

REMARKS.--Miscellaneous suspended-sediment samples collected at gaging station. Some inflow between gaging station and sampling point during rainy season.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 8, 1963.....	2.9	--	--	--	--	32	--	202	10	--	58	--	--	3.3	--	--	--	204	22	1.0	535	8.6
Nov. 5.....	17	--	--	--	--	50	--	258	10	--	107	--	--	5.7	--	--	--	290	62	1.3	773	8.5
Dec. 4.....	35	--	--	--	--	33	--	224	8	--	49	--	--	3.9	--	--	--	209	12	1.0	529	8.4
Jan. 7, 1964.....	30	--	--	--	--	34	--	227	11	--	55	--	--	3.8	--	--	--	215	11	1.0	562	8.6
Feb. 5.....	112	--	--	--	--	19	--	156	7	--	17	--	--	1.2	--	--	--	133	0	.7	329	8.4
Mar. 3.....	55	--	--	--	--	25	--	181	14	--	28	--	--	2.6	--	--	--	172	1	.8	419	8.6
Apr. 7.....	42	--	--	--	--	28	--	196	7	--	30	--	--	2.5	--	--	--	166	0	.9	432	8.5
May 5.....	31	15	--	33	28	37	1.4	220	8	16	42	0.0	0.8	3.5	293	0.40	--	196	2	1.3	505	8.5
June 9.....	16	--	--	--	--	42	--	210	16	--	54	--	--	3.6	--	--	--	204	6	1.3	536	8.6
July 9.....	3.6	--	--	--	--	41	--	220	10	--	60	--	--	4.2	--	--	--	208	11	1.2	587	8.6
Aug. 4.....	2.1	--	--	--	--	45	--	209	16	--	72	--	--	5.4	--	--	--	214	16	1.3	602	8.6
Aug. 31.....	.7	24	--	43	35	45	1.9	256	7	13	82	--	1.1	5.3	385	.52	--	250	29	1.2	676	8.4



## SACRAMENTO RIVER BASIN--Continued

## 11-4515. NORTH FORK CACHE CREEK NEAR LOWER LAKE, CALIF.--Continued

Periodic determinations of suspended sediment discharge and particle-size analyses, water year October 1963 to September 1964  
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentra- tion (ppm)	Sediment discharge (tons per day)	Suspended sediment										Method of analysis	
							Percent finer than size indicated, in millimeters											
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000		2.000
Oct. 8, 1963.....	1455	71		2.9	2	T												
Nov. 10.....	1040	57		39	4	.4												
Nov. 13.....	1130	57		26	2	.1												
Dec. 17.....	1300	41		32	2	.1												
Dec. 19.....	1010	--		33	1	.1												
Jan. 10, 1964.....	1540	46		30	2	.2												
Jan. 21.....	1525	41		1040	301	845					71	76	85	98	100			V
Jan. 22.....	1000	42		626	76	128												
Jan. 22.....	1540	45		540	95	139					83	85	88	100				S
Feb. 21.....	1330	55		52	2	.3												
Feb. 27.....	1050	47		50	2	.3												
Mar. 12.....	1530	50		104	10	2.8												
Mar. 31.....	0930	53		50	2	.3												
Apr. 16.....	0935	59		35	3	.3												
May 6.....	1230	61		28	2	.2												
May 20.....	0750	60		20	7	.4												
June 8.....	1350	64		14	3	.1												
June 16.....	1230	73		9.0	3	.1												
Sept. 23.....	1220	77		.7	5	T												

Particle-size analyses of bed material, water year October 1963 to September 1964  
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Bed material												Method of analysis
							Percent finer than size indicated, in millimeters												
							0.062	0.125	0.250	0.500	1.000	2.000	4.000	8.000	16.000	32.000	64.000		
Oct. 8, 1963.....	1455		5	2.9			1	2	3	5	9	22	38	53	73	90	100	S	
Jan. 21, 1964.....	1525		5	1040					4	21	37	44	62	80	92	100		S	
Jan. 22.....	1540		5	540					1	3	7	12	24	39	71	100		S	

T Less than 0.05 ton.

## SACRAMENTO RIVER BASIN--Continued

11-4520. CACHE CREEK NEAR CAPAY, CALIF.

LOCATION.--At gaging station 1.8 miles upstream from Clear Lake Water Company's diversion dam, 3.2 miles northwest of Capay, Yolo County, and 5.4 miles northwest of Esparto.

DRAINAGE AREA (revised).--1,042 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1952 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 8, 1963.....	127	--	--	--	--	28	--	220	2	--	30	--	--	1.2	--	--	--	172	0	0.9	446	8.3
Nov. 5.....	27	--	--	--	--	53	--	258	10	--	74	--	--	2.0	--	--	--	240	12	1.5	671	8.5
Dec. 4.....	89	--	--	--	--	64	--	257	12	--	83	--	--	2.8	--	--	--	253	23	1.7	730	8.5
Jan. 7, 1964.....	46	--	--	--	--	76	--	276	8	--	118	--	--	3.2	--	--	--	272	33	2.0	866	8.4
Feb. 5.....	194	--	--	--	--	47	--	214	10	--	54	--	--	1.7	--	--	--	195	3	1.5	562	8.5
Mar. 3.....	88	--	--	--	--	64	--	245	17	--	91	--	--	2.7	--	--	--	246	17	1.8	753	8.6
Apr. 7.....	129	--	--	--	--	49	--	234	13	--	60	--	--	2.5	--	--	--	211	0	1.5	612	8.6
May 5.....	279	20	--	28	33	9.8	2.6	208	2	14	26	0.1	2.6	1.6	244	0.33	--	204	30	.3	423	8.3
June 9.....	359	--	--	--	--	22	--	198	0	--	20	--	--	1.3	--	--	--	158	0	.8	388	8.2
July 9.....	361	--	--	--	--	18	--	184	2	--	14	--	--	1.0	--	--	--	149	0	.6	349	8.3
Aug. 4.....	350	--	--	--	--	18	--	186	4	--	12	--	--	1.2	--	--	--	150	0	.6	346	8.4
Aug. 31.....	241	28	--	29	20	19	2.5	194	0	9.0	14	10	1.2	1.2	A 229	.31	--	154	0	.7	374	7.2

A Calculated from sum of determined constituents.

SACRAMENTO RIVER BASIN--Continued

11-4525. CACHE CREEK AT YOLO, CALIF.

LOCATION.--At gaging station 800 feet upstream from highway bridge, and 0.5 mile south of Yolo, Yolo County.

DRAINAGE AREA (revised).--1,138 square miles.

RECORDS AVAILABLE.--Water temperatures: October 1958 to September 1964.

Sediment records: October 1958 to September 1964.

EXTREMES, 1963-64.--Sediment concentrations: Maximum daily, 2,450 ppm Jan. 21; minimum daily, no flow on many days.

Sediment loads: Maximum daily, 33,400 tons Jan. 21; minimum daily, 0 ton on many days.

EXTREMES, 1958-64.--Sediment concentrations: Maximum daily, 6,130 ppm Feb. 17, 1959; minimum daily, no flow on many days each year.

Sediment loads: Maximum daily, 228,000 tons Feb. 1, 1963; minimum daily, 0 ton on many days each year.

REMARKS.--No flow Mar. 7 to Sept. 30.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Aver- age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October .....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
November .....	50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	52	50	50	52	53	50	--	50	51	--	--
December .....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
January .....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	45	43	43	49	49	50	50	47	50	52	52	--
February .....	55	55	50	50	50	45	46	47	50	50	47	54	53	53	50	53	53	55	55	53	56	59	56	55	52	57	58	53	58	--	--	53
March .....	55	56	58	60	59	55	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
April .....																																
May .....																																
June .....																																
July .....																																
August .....																																
September .....																																

## SACRAMENTO RIVER BASIN--Continued

11-4525, CACHE CREEK AT YOLO, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964

Day	OCTOBER			NOVEMBER			DECEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..				0	--	0	9.8	32	0.8
2..				0	--	0	2.8	E	.1
3..				0	--	0	1.5		T
4..				0	--	0	.7		T
5..				0	--	0	.2		T
6..				0	--	0	.1		T
7..				0	--	0	0		0
8..				0	--	0	0		0
9..				0	--	0	0		0
10..				0	--	0	0		0
11..				0	--	0	0		0
12..				0	--	0	0		0
13..				0	--	0	0		0
14..				0	--	0	0		0
15..				0	--	0	0		0
16..				0	--	0	0		0
17..				0	--	0	0		0
18..				0	--	0	0		0
19..				0	--	0	0		0
20..				0	--	0	0		0
21..				214	160	K 110	0		0
22..				74	121	24	0		0
23..				38	114	12	0		0
24..				692	1550	S 3620	0		0
25..				450	520	S 671	0		0
26..				242	149	97	0		0
27..				140	97	37	0		0
28..				74	84	B 17	0		0
29..				36	90	8.7	0		0
30..				17	93	4.3	0		0
31..				--	--	--	0		0
Total	0		0	1977	--	4601.0	15.1		1.0
Day	JANUARY			FEBRUARY			MARCH		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	0	--	0	231	29	18	14	23	0.9
2..	0	--	0	204	28	15	16	188	8.1
3..	0	--	0	177	34	16	15	219	8.9
4..	0	--	0	171	55	25	17	244	11
5..	0	--	0	141	73	28	11	345	10
6..	0	--	0	123	92	31	4.3	65	.8
7..	0	--	0	105	125	35	0	--	0
8..	0	--	0	90	53	13	0	--	0
9..	0	--	0	75	33	6.7	0	--	0
10..	0	--	0	57	129	20	0	--	0
11..	0	--	0	61	159	26	0	--	0
12..	0	--	0	57	185	28	0	--	0
13..	0	--	0	52	188	26	0	--	0
14..	0	--	0	48	28	3.6	0	--	0
15..	0	--	0	47	16	2.0	0	--	0
16..	0	--	0	43	27	3.1	0	--	0
17..	0	--	0	41	263	29	0	--	0
18..	0	--	0	38	327	34	0	--	0
19..	0	--	0	31	243	20	0	--	0
20..	0	--	0	29	401	31	0	--	0
21..	3640	2450	S 33400	26	163	11	0	--	0
22..	2420	1570	S 11900	25	32	2.2	0	--	0
23..	970	476	S 1310	22	30	1.8	0	--	0
24..	556	230	345	21	140	7.9	0	--	0
25..	418	130	147	19	148	7.6	0	--	0
26..	502	130	176	17	26	1.2	0	--	0
27..	471	90	114	15	19	.8	0	--	0
28..	394	88	94	15	136	5.5	0	--	0
29..	330	70	B 62	14	37	1.4	0	--	0
30..	273	48	35	--	--	--	0	--	0
31..	258	29	20	--	--	--	0	--	0
Total	10232	--	47603	1995	--	449.8	77.3	--	39.7

Total discharge for year (cfs-days)..... 14,286.4  
 Total load for year (tons)..... 52,694.5

E Estimated.

S Computed by subdividing day.

T Less than 0.05 ton.

B Computed from estimated-concentration graph.

K Computed from estimated-concentration graph and subdividing day.

## SACRAMENTO RIVER BASIN--Continued

11-4525. CACHE CREEK AT YOLO, CALIF.-Continued

Particle-size analyses of suspended sediment, water year October 1963 to September 1964  
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concent- ration (ppm)	Sediment discharge (tons per day)	Suspended sediment										Method of analysis	
							Percent finer than size indicated, in millimeters											
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000		2.000
Nov. 24, 1963.....	1300	50		955	2540		25	31	41	49	58	65	76	92	100			VPWC
Jan. 21, 1964.....	1235	45		5760	4110		38	47	63	74	84	91	97	99	100			VPWC
Jan. 21.....	1545	45		3620	3250		—	47	—	72	—	86	94	97	100			VPWC
Jan. 22.....	1155	43		2370	1340		50	53	68	78	87	91	96	98	100			VPWC
Jan. 23.....	1515	43		875	370		—	—	—	—	—	91	95	99	100			V
Jan. 28.....	1050	47		398	90		—	—	—	—	—	97	98	100	—			S
Feb. 12.....	1730	54		54	440		—	—	—	—	—	100	—	—	—			S
Feb. 20.....	1700	53		29	543		—	—	—	—	—	92	99	100	—			V
Feb. 21.....	1605	56		25	195		—	—	—	—	—	99	100	—	—			S
Feb. 28.....	1700	53		15	304		—	—	—	—	—	99	99	100	—			S
Mar. 5.....	1700	59		9.2	463		—	—	—	—	—	99	100	—	—			S

Particle-size analyses of bed material, October 1957 to September 1959, October 1961 to September 1964  
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)																		
Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concen- tration (ppm)	Sediment discharge (tons per day)	Bed material											Method of analysis
							Percent finer than size indicated, in millimeters											
							0.062	0.125	0.250	0.500	1.000	2.000	4.000	8.000	16.000	32.000	64.000	
Sept. 18, 1958....	—		14	0				1	9	33	51	66	80	91	98	98	100	S
Jan. 15, 1959.....	1230		8	276				—	5	46	62	69	76	86	93	96	100	S
Feb. 16.....	1605		3	12700				—	2	14	27	43	63	79	89	100	—	S
Feb. 17.....	1115		3	6220				—	1	7	14	20	33	58	94	100	—	S
Mar. 18.....	1435		9	122				1	10	35	40	48	58	75	90	100	—	S
Feb. 15, 1962.....	1610		3	11900				—	—	4	12	24	41	66	96	100	—	S
Oct. 8, 1963.....	—		5	0				1	9	19	25	31	41	58	89	100	—	S
Jan. 28, 1964.....	1050		3	398				—	5	16	23	32	46	70	96	100	—	S

## SACRAMENTO RIVER BASIN--Continued

11-4535. PULAH CREEK NEAR GUENOC, CALIF.

LOCATION.--Temperature recorder at gaging station in Guenoc land grant, just upstream from Coyote Valley damsite, 2.8 miles upstream from Soda Creek, 3.2 miles downstream from highway bridge at Guenoc, Lake County, and 5.6 miles northeast of Middletown.

DRAINAGE AREA.-- 112 square miles.

RECORDS AVAILABLE.--Water temperatures: March 1960 to September 1964.

Sediment records: October 1962 to September 1963.

EXTREMES, 1963-64.--Water temperatures: Maximum, 83°F July 12, 26; minimum, 45°F Jan. 23.

EXTREMES, 1960-64.--Water temperatures: Maximum, 86°F July 20, 1960; minimum, 41°F Jan. 22, 23, 1962.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum ....	68	67	67	65	65	66	66	65	65	65	63	63	64	64	64	64	65	65	65	64	64	63	63	63	63	63	61	62	62	60	60	64	
Minimum ....	64	64	64	63	64	64	64	65	65	63	62	62	62	63	63	62	62	64	64	64	63	63	62	61	61	62	60	60	61	59	58	63	
November																																	
Maximum ....	60	60	60	59	59	58	56	59	59	59	59	59	59	59	57	56	54	54	54	52	52	50	50	51	51	51	51	52	52	51	51	—	55
Minimum ....	58	59	58	58	58	56	55	56	58	58	58	58	59	57	56	54	54	54	52	52	50	50	50	50	50	51	51	51	51	51	—	54	
December																																	
Maximum ....	51	51	51	51	51	51	51	51	50	50	49	48	48	49	49	48	49	49	49	51	50	49	49	48	50	51	53	54	54	53	53	50	
Minimum ....	51	51	50	50	51	51	50	50	50	49	48	47	47	48	48	47	47	47	48	49	48	47	46	48	50	51	53	52	51	51	50	49	
January																																	
Maximum ....	52	51	51	50	50	50	51	51	50	50	48	48	49	49	50	50	50	50	49	49	49	48	46	46	46	46	48	49	49	49	51	49	
Minimum ....	49	50	48	48	47	49	49	48	48	48	47	47	48	47	47	48	49	48	48	48	46	46	45	46	46	46	47	48	48	49	49	48	
February																																	
Maximum ....	52	53	52	53	53	52	53	54	55	54	53	53	51	51	52	52	53	55	55	54	56	55	56	55	53	54	55	53	55	—	—	54	
Minimum ....	50	50	49	50	50	49	49	50	51	50	50	49	48	48	49	48	48	49	50	49	49	50	50	50	48	48	49	49	49	—	—	49	
March																																	
Maximum ....	54	52	55	58	56	54	53	56	56	58	55	52	55	57	59	60	62	61	62	62	59	55	53	57	59	62	64	65	65	63	60	58	
Minimum ....	51	48	49	51	51	50	49	50	52	52	52	48	50	51	54	52	54	55	54	54	55	52	52	52	52	53	54	56	57	57	55	52	
April																																	
Maximum ....	59	59	59	61	62	62	63	64	63	64	64	64	66	67	67	67	65	65	64	66	66	64	58	61	64	66	67	68	66	63	—	64	
Minimum ....	55	51	50	54	53	53	54	54	55	54	55	55	56	57	58	58	57	57	56	57	56	57	54	53	53	55	56	58	58	55	—	55	
May																																	
Maximum ....	61	60	60	61	57	62	65	67	68	69	71	71	67	69	69	66	68	69	69	69	69	69	71	69	70	71	69	65	69	71	72	67	
Minimum ....	56	53	55	54	54	51	54	55	57	58	60	60	60	59	57	59	59	59	60	59	59	60	59	60	60	61	62	59	58	60	62	58	
June																																	
Maximum ....	70	70	69	69	69	67	69	66	61	65	71	73	74	76	73	71	73	73	74	74	76	76	78	79	77	77	76	77	78	77	—	73	
Minimum ....	63	61	62	64	64	63	61	61	59	59	60	63	65	67	68	66	65	65	65	67	68	68	70	71	71	72	69	69	70	71	—	66	
July																																	
Maximum ....	77	77	78	77	78	79	80	79	80	81	81	83	82	80	80	81	82	80	81	81	80	80	82	82	82	83	80	80	82	81	79	80	
Minimum ....	71	70	70	70	71	72	72	74	72	73	74	75	75	76	76	75	77	77	73	74	75	76	74	76	77	76	74	76	77	78	77	74	
August																																	
Maximum ....	79	81	79	80	80	80	81	82	82	79	79	80	81	80	79	81	79	79	80	—	80	80	81	80	—	—	—	—	—	—	76	—	
Minimum ....	76	76	73	76	76	77	78	77	74	74	77	77	77	77	77	77	74	76	76	—	76	77	77	76	—	—	—	—	—	—	75	—	
September																																	
Maximum ....	76	75	75	75	74	74	74	74	73	73	73	—	—	73	75	74	—	—	75	—	71	71	—	—	—	—	—	—	70	69	70	—	
Minimum ....	74	73	72	72	72	73	72	72	71	71	71	—	—	71	71	71	—	—	70	—	69	68	—	—	—	—	—	69	68	68	—	—	

## SACRAMENTO RIVER BASIN--Continued

11-4535. PUTAH CREEK NEAR GUENOC, CALIF.--Continued

Periodic determinations of suspended sediment discharge and particle-size analyses, water year October 1963 to September 1964

(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;

P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concent- ration (ppm)	Sediment discharge (tons per day)	Suspended sediment										Method of analysis	
							Percent finer than size indicated, in millimeters											
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000		2.000
Nov. 4, 1963.....	0840	58		43	80	9.3						81	90	100	—	—		S
Nov. 4.....	1645	59		200	74	40						—	—	—	—	—		
Nov. 6.....	0810	56		336	39	35						—	—	—	—	—		
Nov. 6.....	1610	56		354	28	27						—	—	—	—	—		
Nov. 7.....	0810	55		178	16	7.7						—	—	—	—	—		
Nov. 9.....	0835	58		222	13	7.8						—	—	—	—	—		
Nov. 14.....	0805	58		160	232	100						—	—	—	—	—		
Nov. 14.....	1145	58		627	92	156						—	—	—	—	—		
Nov. 14.....	1555	57		1140	606	1870						77	89	96	98	100		V
Nov. 15.....	0805	56		444	30	36						—	—	—	—	—		
Nov. 15.....	1620	56		318	10	8.6						—	—	—	—	—		
Nov. 19.....	1140	52		474	789	1010						71	78	84	92	100		S
Nov. 19.....	1330	52		2160	825	4810						90	96	100	—	—		V
Nov. 19.....	1550	52		1880	353	1790						73	78	85	94	100		S
Nov. 20.....	0800	52		725	37	72						—	—	—	—	—		
Nov. 20.....	1545	52		477	14	18						—	—	—	—	—		
Nov. 23.....	0745	50		616	204	339						—	—	—	—	—		
Nov. 23.....	1705	51		1610	284	1230						—	—	—	—	—		
Nov. 24.....	0840	50		605	18	29						—	—	—	—	—		
Dec. 17.....	1430	49		44	2	.2						—	—	—	—	—		
Jan. 10, 1964.....	1415	50		34	1	.1						—	—	—	—	—		
Jan. 19.....	0905	48		501	91	123						—	—	—	—	—		
Jan. 19.....	1540	49		498	27	36						—	—	—	—	—		
Jan. 20.....	0810	48		1170	194	613						—	—	—	—	—		
Jan. 20.....	1205	49		1200	168	544						—	—	—	—	—		
Jan. 20.....	1600	48		5950	2090	33600	30	32	44	54	66	77	91	98	99	100		VPWC
Jan. 21.....	0810	46		1740	212	996						—	—	—	—	—		
Jan. 21.....	1540	46		2320	300	1880						—	—	—	—	—		
Jan. 22.....	0810	46		1240	92	308						—	—	—	—	—		
Jan. 23.....	1130	45		605	21	34						—	—	—	—	—		
Feb. 7.....	1445	52		107	2	.6						—	—	—	—	—		
Mar. 12.....	0815	48		214	28	16						—	—	—	—	—		
Mar. 12.....	1420	50		155	13	5.4						—	—	—	—	—		
Apr. 16.....	0825	58		33	2	.2						—	—	—	—	—		
May 19.....	1545	69		14	3	.1						—	—	—	—	—		
June 16.....	1100	68		5.3	2	T						—	—	—	—	—		

T Less than 0.05 ton.

SACRAMENTO RIVER BASIN--Continued

11-4540. PUTAH CREEK NEAR WINTERS, CALIF.

LOCATION.--At gaging station 1 mile downstream from Monticello Dam, 6 miles west of Winters, Yolo County, and 8 miles downstream from Capell Creek.

DRAINAGE AREA (revised).--574 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1952 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 10, 1963.....	108	--	--	--	--	7.5	--	158	8	--	8.0	--	--	0.0	--	--	--	145	2	0.3	298	8.4
Nov. 5.....	12	--	--	--	--	10	--	171	3	--	10	--	--	.2	--	--	--	150	5	.4	320	8.4
Dec. 5.....	31	--	--	--	--	10	--	175	0	--	6.5	--	--	.1	--	--	--	148	4	.4	312	8.2
Jan. 7, 1964.....	45	--	--	--	--	8.7	--	170	6	--	7.8	--	--	--	--	--	--	151	2	.3	313	8.6
Feb. 6.....	26	--	--	--	--	9.8	--	152	10	--	8.5	--	--	.2	--	--	--	159	18	.3	314	8.6
Mar. 3.....	106	--	--	--	--	8.2	--	157	8	--	5.0	--	--	.2	--	--	--	155	13	.3	307	8.6
Apr. 8.....	198	--	--	--	--	9.0	--	166	6	--	5.0	--	--	.4	--	--	--	149	3	.3	305	8.7
May 5.....	452	7.8	--	16	27	9.2	1.9	175	2	18	5.0	0.0	1.2	.2	174	0.24	--	152	5	.3	312	8.5
June 10.....	277	--	--	--	--	9.0	--	168	6	--	6.0	--	--	.2	--	--	--	152	4	.3	318	8.5
July 8.....	523	--	--	--	--	8.8	--	174	4	--	.5	--	--	.3	--	--	--	155	6	.3	318	8.4
Aug. 5.....	541	--	--	--	--	9.0	--	166	8	--	4.0	--	--	.2	--	--	--	154	5	.3	314	8.6
Sept. 2.....	363	10	--	19	25	8.5	1.6	182	0	16	4.7	--	1.1	.1	176	.24	--	152	3	.3	319	8.2



## SACRAMENTO RIVER BASIN--Continued

11-4553. LINDSAY SLOUGH NEAR RIO VISTA, CALIF.

LOCATION.--Near tidal gaging station, 6 miles north of Rio Vista, Solano County, and 1.1 miles upstream from confluence with Cache Slough.  
 RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 9, 1963.....		--		--	--	15	--	99		--	13		--	0.0	--	--		78	0	0.7	223	8.0
Nov. 8.....		--		--	--	12	--	92		--	9.5		--	.1	--	--		71	0	.6	200	8.0
Dec. 5.....		--		--	--	22	--	104		--	19		--	.2	--	--		89	4	1.0	276	8.0
Jan. 8, 1964.....		--		--	--	17	--	97		--	13		--	.0	--	--		84	4	.8	234	8.1
Feb. 6.....		--		--	--	28	--	117		--	27		--	.3	--	--		105	9	1.2	359	7.8
Mar. 4.....		--		--	--	20	--	103		--	18		--	.2	--	--		95	11	.9	269	8.2
Apr. 8.....		--		--	--	18	--	98		--	16		--	.1	--	--		87	7	.8	260	8.2
May 6.....	17			15	9.4	15	1.5	87		17	15	0.2	2.6	.1	A 136	0.18		76	5	.7	215	8.0
June 10.....		--		--	--	18	--	99		--	14		--	.1	--	--		85	4	.8	246	7.9
July 8.....		--		--	--	21	--	97		--	11		--	.2	--	--		83	3	1.0	231	8.2
Aug. 5.....		--		--	--	16	--	92		--	8.5		--	.2	--	--		74	0	.8	214	7.8
Sept. 2.....		19		15	9.4	16	2.2	94		14	12		1.5	.1	151	.21		76	0	.8	218	8.1

A Calculated from sum of determined constituents.

## SACRAMENTO RIVER BASIN--Continued

11-4554. SACRAMENTO RIVER NEAR RIO VISTA, CALIF.

LOCATION.--At pier, 1,500 feet upstream from tidal gaging station, 1 mile south of Rio Vista, Solano County, and approximately 3.1 miles downstream from Steamboat Slough.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 10, 1963.....		--		--	--	11	--	80		--	7.7		--	0.0	--	--		61	0	0.6	171	8.0
Nov. 8.....		--		--	--	8.5	--	75		--	7.5		--	.0	--	--		59	0	.5	160	8.0
Dec. 5.....		--		--	--	11	--	75		--	8.0		--	.1	--	--		60	0	.6	175	8.0
Jan. 8, 1964.....		--		--	--	14	--	74		--	8.0		--	.0	--	--		63	2	.8	178	7.3
Feb. 6.....		--		--	--	12	--	77		--	8.2		--	.1	--	--		64	1	.6	187	7.9
Mar. 4.....		--		--	--	11	--	77		--	9.5		--	.0	--	--		63	0	.6	175	8.0
Apr. 8.....		--		--	--	9.0	--	70		--	7.3		--	.1	--	--		60	3	.5	156	7.8
May 6.....	17	--		12	8.0	10	1.2	69		12	9.5	0.1	1.0	.1	108	0.15		63	6	.6	165	8.0
June 10.....		--		--	--	13	--	85		--	12		--	.1	--	--		68	0	.7	197	8.0
July 8.....		--		--	--	11	--	74		--	12		--	.0	--	--		62	1	.6	184	7.7
Aug. 5.....		--		--	--	15	--	78		--	13		--	.1	--	--		61	0	.8	186	8.1
Sept. 2.....		19		14	7.5	15	2.0	90		9.0	9.9		1.3	.1	A 122	.17		66	0	.8	197	7.8

A Calculated from sum of determined constituents.

## MISCELLANEOUS ANALYSES OF STREAMS IN SACRAMENTO RIVER BASIN

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
11-3520. PIT RIVER NEAR BIEBER, CALIF.																						
Oct. 10, 1963.....	40					30		202			8.2			0.0				111	0	1.2	346	8.1
Nov. 6.....	144					26		162			7.6			.0				92	0	1.2	285	8.1
Dec. 4.....	131					23		139			5.0			.1				77	0	1.1	250	8.2
11-4196. YUBA RIVER NEAR SMARTVILLE, CALIF.																						
Nov. 7, 1963.....	416	----		--	--	3.0	--	54		--	3.0		--	0.0		--	--	50	6	0.2	112	8.0
Jan. 7, 1964.....	903	--		--	--	2.4	--	40		--	3.0		--	.0		--	--	36	3	.2	84	7.9
Mar. 3.....	1350	--		--	--	3.6	--	46		--	2.8		--	.0		--	--	40	2	.3	92	8.1
May 5.....	2197	13		9.8	1.7	2.5	0.2	38		4.0	1.8	0.0	1.0	.0	53	0.07		32	1	.2	70	8.0
July 10.....	2588	--		--	--	2.5	--	38		--	.5		--	.0		--	--	32	1	.2	73	7.8
Sept. 10.....	608	15		15	3.0	3.1	.8	58		5.0	1.2		.5	.0	A 76	.10		50	2	.2	115	8.2
11-4215. YUBA RIVER AT MARYSVILLE, CALIF.																						
Nov. 7, 1963.....	328	--		--	--	3.7	--	66		--	2.5		--	0.0		--	--	60	6	0.2	137	8.0
Jan. 7, 1964.....	884	--		--	--	2.8	--	45		--	3.5		--	.0		--	--	41	4	.2	94	8.0
Mar. 3.....	1260	--		--	--	4.1	--	47		--	2.6		--	.0		--	--	42	3	.3	95	8.0
May 5.....	1780	14		9.6	2.4	2.3	0.2	40		3.0	2.0	0.0	0.8	.0	54	0.07		34	1	.2	77	7.9
July 10.....	116	--		--	--	3.4	--	58		--	1.0		--	.0		--	--	52	4	.2	118	8.2
Sept. 4.....	280	15		15	4.7	3.3	.8	64		8.0	1.0		.3	.0	80	.11		57	5	.2	126	7.9
11-4335. MIDDLE FORK AMERICAN RIVER NEAR AUBURN, CALIF.																						
Nov. 4, 1963.....	182	--		--	--	3.2	--	36		--	6.2		--	0.0		--	--	34	4	0.2	87	7.7
Jan. 6, 1964.....	303	--		--	--	2.4	--	27		--	4.4		--	.1		--	--	24	2	.2	63	7.8
Mar. 2.....	708	--		--	--	3.6	--	27		--	3.9		--	.0		--	--	24	2	.3	62	7.9
May 4.....	1440	12		4.8	1.0	1.9	0.2	19		1.0	2.2	0.0	0.7	.0	33	0.04		16	0	.2	39	7.7
July 3.....	310	--		--	--	3.3	--	28		--	3.0		--	.0		--	--	24	1	.3	60	7.8
Sept. 18.....	82	11		12	2.7	4.7	1.4	46		7.0	5.4		.9	.0	68	.09		41	3	.3	108	7.7

A Residue at 180°C.

MISCELLANEOUS ANALYSES OF STREAMS IN SACRAMENTO RIVER BASIN--Continued

Periodic determinations of suspended sediment discharge and particle-size analyses, water year October 1963 to September 1964

(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;

P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concent- ration (ppm)	Sediment discharge (tons per day)	Suspended sediment											Method of analysis
							Percent finer than size indicated, in millimeters											
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	

11-3744. MIDDLE FORK COTTONWOOD CREEK NEAR ONO, CALIF.																		
Oct. 3, 1963.....	1130	71		7.9	1	T												
Oct. 12.....	0800	55		34	2	0.2												
Oct. 15.....	1500	60		20	3	.2												
Oct. 15.....	1730	60		22	3	.2												
Oct. 16.....	0700	59		57	19	2.9												
Nov. 4.....	1000	54		73	9	1.8												
Nov. 4.....	1530	56		121	77	25												
Nov. 5.....	0700	46		94	26	6.6												
Nov. 5.....	1300	55		79	12	2.6												
Nov. 6.....	1700	53		107	34	9.8												
Nov. 7.....	1000	48		119	17	5.5												
Nov. 9.....	1030	54		141	31	12												
Nov. 13.....	1630	56		56	2	.3												
Nov. 14.....	1030	57		382	378	390												
Nov. 19.....	1430	47		207	18	10												
Nov. 23.....	1200	45		604	245	400												
Nov. 23.....	1600	45		1140	1100	3390					65	82	96	99	100		Y	
Dec. 13.....	1035	38		81	2	.4												
Jan. 16, 1964.....	0930	38		67	1	.2												
Jan. 18.....	0930	40		129	38	13												
Jan. 18.....	1200	40		133	35	13												
Jan. 21.....	1000	44		1510	408	1660					89	95	99	100			S	
Jan. 21.....	1130	44		1410	388	1480					92	97	98	100			S	
Jan. 21.....	1630	43		1120	290	877												
Jan. 23.....	1430	40		425	49	56												
Feb. 20.....	1345	49		120	4	1.3												
Mar. 27.....	1320	57		78	2	.4					79	89	100				S	
May 2.....	1400	56		54	2	.3												
June 11.....	0855	69		41	1	.1												
July 15.....	1320	83		6.5	4	.1												
Aug. 19.....	1050	74		1.7	1	T												
Sept. 26.....	1245	72		2.1	2	T												

11-4230. BEAR RIVER NEAR AUBURN, CALIF.																		
Oct. 11, 1963.....	0800	60		6.1	14	0.2												
Nov. 5.....	0750	53		4.6	8	.1												
Nov. 30.....	1330	—		276	19	14												
Dec. 3.....	0850	43		254	16	11												
Dec. 31.....	1115	—		112	2	.6												
Jan. 9, 1964.....	0815	41		96	3	.8												
Jan. 21.....	0955	39		2280	281	1730					100						S	
Jan. 21.....	1315	—		2030	290	1590					99	99	100				S	
Jan. 31.....	1100	—		390	8	8.4												
Feb. 6.....	0910	44		327	10	8.8												
Feb. 28.....	1015	—		D 12	6	.2												
Mar. 3.....	0815	41		13	5	.2												
Apr. 1.....	1610	—		469	14	18												
Apr. 8.....	0805	51		184	15	7.4												
May 11.....	0935	59		99	12	3.2												
June 15.....	0745	68		6.0	14	.2												
July 23.....	0730	70		D 7	5	.1												
Aug. 27.....	0740	68		3.8	5	.1												
Sept. 29.....	0735	60		5.1	5	.1												

T Less than 0.05 ton.

D Daily mean discharge.

## MISCELLANEOUS ANALYSES OF STREAMS IN SACRAMENTO RIVER BASIN--Continued

Periodic determinations of suspended sediment discharge and particle-size analyses, water year October 1963 to September 1964  
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)																		
Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concen- tration (ppm)	Sediment discharge (tons per day)	Suspended sediment										Method of analysis	
							Percent finer than size indicated, in millimeters											
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000		2.000
11-4335. MIDDLE FORK AMERICAN RIVER NEAR AUBURN, CALIF.																		
Oct. 11, 1963.....	0910	66		138	5	1.9												
Nov. 5.....	0900	55		298	2	1.6												
Nov. 6.....	1515	51		2080	174	977						97	98	100				S
Nov. 30.....	1600	46		750	1	2.0												
Dec. 3.....	0955	44		624	1	1.7												
Dec. 20.....	1715	—		436	1	1.2												
Jan. 9, 1964.....	0945	41		290	1	.8												
Jan. 20.....	1555	—		1130	5	15												
Jan. 21.....	1140	40		2840	138	1060						95	96	96	98	100		S
Jan. 23.....	1250	—		1290	5	17												
Feb. 6.....	1040	42		820	6	13												
Feb. 25.....	1645	—		638	2	3.4												
Mar. 3.....	0935	42		624	2	3.4												
Mar. 23.....	1700	—		916	3	7.4												
Apr. 8.....	1035	50		1240	6	20												
May 11.....	1115	54		3190	74	637												
June 15.....	0845	64		972	6	16												
July 23.....	0900	75		153	1	.4												
Aug. 27.....	0855	73		84	1	.2												
Sept. 29.....	0845	65		76	2	.4												

## 11-4517.2. BEAR CREEK NEAR RUMSEY, CALIF.

Oct. 8, 1963.....	1350	67		1.9	16	0.1													S
Nov. 6.....	1300	55		8.7	27	.6													
Dec. 17.....	1220	39		4.2	1	T													
Jan. 17, 1964.....	1235	45		9.3	4	.1													
Jan. 21.....	1745	41		798	1120	2410													
Jan. 22.....	1710	41		102	116	32						99	100						
Feb. 21.....	1410	53		8.2	3	.1													
Mar. 13.....	1130	50		12	4	.1													
Apr. 16.....	1035	65		4.2	10	.1													
May 20.....	0840	65		3.0	16	.1													
June 16.....	1315	79		1.7	60	.3													
July 22.....	1715	86		1.4	45	.2													
Sept. 1.....	1110	68		.9	31	.1													

Particle-size analyses of bed material, water year October 1963 to September 1964  
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Bed material												Method of analysis
							Percent finer than size indicated, in millimeters												
							0.062	0.125	0.250	0.500	1.000	2.000	4.000	8.000	16.000	32.000	64.000		
11-4517.2. BEAR CREEK NEAR RUMSEY, CALIF.																			
Oct. 8, 1963.....	1350		3	1.9					1	5	12	24	40	61	93	100		S	
Jan. 22, 1964.....	1710		3	102						1	4	10	27	58	95	100		S	

T Less than 0.05 ton.

NAPA RIVER BASIN

11-4560. NAPA RIVER NEAR ST. HELENA, CALIF.

LOCATION.--At gaging station 0.2 mile upstream from highway bridge, 1.3 miles northeast of Zinfandel, and 2.5 miles east of St. Helena, Napa County.

DRAINAGE AREA.--81.1 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

Water temperatures: October 1957 to September 1964.

Sediment records: December 1956 to June 1962.

EXTREMES, 1961-63.--Water temperatures: Maximum, 82°F June 17, 1963; minimum, 41°F Jan. 22, 1962.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 11, 1963.....	6.6	--	--	--	--	19	--	180	--	--	21	--	--	0.3	--	--	--	152	4	0.7	400	7.4
Nov. 13.....	8.1	--	--	--	--	25	--	117	--	--	24	--	--	.7	--	--	--	100	4	1.1	308	8.1
Dec. 13.....	18	--	--	--	--	18	--	90	--	--	14	--	--	.4	--	--	--	76	2	.9	238	7.3
Jan. 8, 1964.....	11	--	--	--	--	24	--	102	--	--	21	--	--	.6	--	--	--	83	0	1.1	274	7.8
Feb. 5.....	49	--	--	--	--	14	--	87	--	--	12	--	--	.1	--	--	--	72	1	.7	208	7.8
Mar. 11.....	26	--	--	--	--	19	--	110	--	--	19	--	--	.7	--	--	--	99	9	.8	270	7.5
Apr. 15.....	9.1	--	--	--	--	24	--	121	--	--	25	--	--	.8	--	--	--	97	0	1.1	315	7.6
May 12.....	4.4	35	--	23	14	24	2.8	139	--	18	22	0.4	5.3	.7	213	0.29	--	114	0	1.0	335	7.8
June 3.....	2.6	--	--	--	--	20	--	151	--	--	22	--	--	.6	--	--	--	122	0	.8	336	8.1
July 15.....	.2	--	--	--	--	20	--	189	--	--	16	--	--	.4	--	--	--	149	0	.7	372	7.6
Aug. 11.....	.6	--	--	--	--	21	--	208	--	--	11	--	--	.4	--	--	--	163	0	.7	388	8.1
Sept. 2.....	.2	33	--	34	18	19	2.5	207	--	17	12	--	1.4	.4	239	.33	--	161	0	.7	387	7.4

## NAPA RIVER BASIN--Continued

11-4560. NAPA RIVER NEAR ST. HELENA, CALIF.--Continued

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum .....																																
Minimum .....																																
November																																
Maximum .....																																
Minimum .....																																
December																																
Maximum .....																																
Minimum .....																																
January																																
Maximum .....																																
Minimum .....																																
February																																
Maximum .....	--	--	--	--	53	52	51	51	52	52	52	52	52	52	52	52	54	54	55	55	55	56	56	55	54	54	53	53	53	--	--	53
Minimum .....	--	--	--	--	51	50	50	50	51	51	50	50	50	50	51	50	50	52	52	52	52	53	53	53	52	51	52	53	51	--	--	51
March																																
Maximum .....	53	53	55	56	56	56	54	54	56	56	55	54	54	53	57	58	59	59	60	60	60	57	54	54	56	57	58	59	59	60	58	56
Minimum .....	53	51	51	54	54	54	52	51	54	54	54	52	52	51	54	53	55	56	55	57	57	54	52	52	52	54	54	56	54	57	54	54
April																																
Maximum .....	58	59	60	60	60	61	62	62	61	62	62	63	65	65	65	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum .....	57	56	55	58	58	58	58	58	59	59	59	59	61	62	63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
May																																
Maximum .....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum .....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
June																																
Maximum .....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum .....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
July																																
Maximum .....	--	--	--	--	--	--	--	72	72	73	76	75	74	74	77	74	74	76	76	76	--	69	69	70	72	72	71	72	75	75	70	--
Minimum .....	--	--	--	--	--	--	--	70	70	70	71	72	72	71	71	69	70	69	69	69	--	64	65	66	66	65	62	66	64	64	62	--
August																																
Maximum .....	70	70	71	70	67	70	71	67	66	66	66	66	66	66	66	67	65	65	66	68	68	68	68	66	66	--	--	--	--	--	--	67
Minimum .....	64	62	62	62	64	64	65	65	65	65	65	64	64	65	64	63	63	64	64	64	64	65	64	64	64	--	--	--	--	--	--	64
September																																
Maximum .....	62	64	66	66	63	63	62	61	62	61	61	60	61	62	62	62	60	59	62	62	60	61	63	63	62	60	58	58	56	57	--	61
Minimum .....	59	58	56	58	59	60	59	58	58	55	55	56	57	56	56	55	56	56	58	58	58	57	58	58	58	58	58	54	54	54	--	57

## SALMON CREEK BASIN

11-4609.2. SALMON CREEK AT BODGEA, CALIF.

LOCATION.--Temperature recorder at gaging station in Estero Americano Grant, 100 feet upstream from private road bridge, 0.3 mile upstream from unnamed tributary, and 0.4 mile northwest of Bodega, Sonoma County.

DRAINAGE AREA.--15.7 square miles.

RECORDS AVAILABLE.--Water temperatures: October 1963 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 65°F Apr. 14; minimum, 33°F Jan. 5, 13-15.

REMARKS.--No flow Oct. 1-8, June 26 to Sept. 30.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum .....	--	--	--	--	--	--	--	--	62	57	61	60	60	58	58	63	58	61	61	59	60	60	61	56	59	59	59	56	56	54	53	--	
Minimum .....	--	--	--	--	--	--	--	--	56	52	54	52	52	54	56	56	55	56	55	55	54	55	54	50	52	51	48	46	48	46	44	--	
November																																	
Maximum .....	51	51	50	57	55	58	55	56	60	62	59	58	57	57	57	55	54	53	53	55	52	48	52	55	54	54	54	53	52	51	--	55	
Minimum .....	41	46	44	50	53	49	46	53	54	52	49	52	54	53	49	45	46	45	48	48	44	43	46	46	44	44	45	46	45	44	--	47	
December																																	
Maximum .....	50	46	48	44	45	47	48	44	49	48	45	45	42	40	40	41	42	40	42	47	47	45	46	46	43	47	51	50	52	50	52	46	
Minimum .....	44	43	42	42	41	42	38	40	41	38	34	35	35	35	36	36	36	36	39	41	38	36	38	38	42	45	47	47	46	44	43	40	
January																																	
Maximum .....	48	50	48	47	47	44	50	49	45	46	45	45	41	44	44	41	44	46	49	50	46	47	44	45	47	52	51	51	50	54	54	47	
Minimum .....	41	40	36	37	33	37	42	39	38	36	35	34	33	33	33	34	39	42	45	46	42	41	39	42	44	42	43	45	47	47	46	40	
February																																	
Maximum .....	54	59	55	54	54	54	51	52	54	54	53	53	51	50	51	50	53	55	60	60	59	59	58	54	57	56	55	54	54	--	--	55	
Minimum .....	49	48	43	41	43	42	40	40	41	46	44	41	41	40	42	40	40	42	43	47	44	46	44	48	45	40	44	42	42	--	--	43	
March																																	
Maximum .....	53	54	56	58	57	56	55	55	55	56	51	51	54	56	60	64	64	64	63	60	58	51	50	53	55	56	59	62	56	57	55	57	
Minimum .....	45	45	44	46	48	47	42	41	46	44	46	44	45	44	48	49	48	49	46	50	50	45	43	43	42	43	44	49	50	47	49	46	
April																																	
Maximum .....	56	56	60	58	57	57	58	58	59	60	58	62	63	65	64	64	61	58	58	57	57	58	58	54	54	56	56	58	57	58	55	--	58
Minimum .....	49	46	45	46	48	49	45	50	48	48	48	47	48	50	50	52	49	48	50	52	50	51	46	44	47	48	51	54	52	49	--	49	
May																																	
Maximum .....	56	55	55	56	53	55	56	55	60	62	64	61	59	58	58	56	61	61	60	61	60	59	58	59	58	59	60	59	60	60	58	58	
Minimum .....	51	48	51	47	49	45	48	51	51	54	54	54	55	51	51	54	55	54	52	55	52	52	55	55	53	55	54	53	53	54	55	52	
June																																	
Maximum .....	58	57	58	61	61	60	60	57	57	60	60	60	63	62	60	58	59	58	59	59	60	62	62	63	61	--	--	--	--	--	--	60	
Minimum .....	53	52	52	56	58	58	57	54	52	54	53	55	54	56	56	54	55	55	54	53	52	52	53	54	53	--	--	--	--	--	--	54	
July																																	
Maximum .....																																	
Minimum .....																																	
August																																	
Maximum .....																																	
Minimum .....																																	
September																																	
Maximum .....																																	
Minimum .....																																	



RUSSIAN RIVER BASIN

11-4610. RUSSIAN RIVER NEAR UKIAH, CALIF.

LOCATION.--At gaging station 200 feet downstream from York Creek, 0.7 mile upstream from East Fork, and 3.6 miles north of Ukiah, Mendocino County.

DRAINAGE AREA.--99.7 square miles.

RECORDS AVAILABLE.--Sediment records: January to September 1964.

Suspended sediment, March to September 1964  
(Where no concentrations are reported, loads are estimated)

Day	JANUARY			FEBRAURY			MARCH		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..							49	15	5 2.6
2..							68	23	4.2
3..							46	7	.9
4..							41	6	.7
5..							38	7	.7
6..							37	7	.7
7..							35	3	.3
8..							33	2	.2
9..							31	4	.3
10..							31	3	.3
11..							146	19	5 27
12..							221	53	5 40
13..							176	29	5 15
14..							116	12	3.8
15..							92	--	2.0
16..							78	8	1.7
17..							69	--	1.5
18..							61	--	1.2
19..							54	6	.9
20..							48	5	.6
21..							54	2	.3
22..							93	17	5 5.5
23..							111	20	6.0
24..							119	18	5.8
25..							97	8	2.1
26..							80	6	1.3
27..							72	4	.8
28..							62	10	1.7
29..							54	4	.6
30..							50	3	.4
31..							49	2	.3
Total							2311	--	129.4

S Computed by subdividing day.

RUSSIAN RIVER BASIN--Continued

11-4610, RUSSIAN RIVER NEAR UKIAH, CALIF.--Continued

Suspended sediment, March to September 1964--Continued

Day	APRIL			MAY			JUNE		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	59	4	0.6	17	25	1.1	6.7	5	0.1
2..	49	3	.4	16	--	.5	5.2	--	.1
3..	45	3	.4	28	--	2.6	5.5	5	.1
4..	42	3	.3	33	42	3.7	6.2	--	.1
5..	39	2	.2	22	--	1.1	6.2	--	.1
6..	37	3	.3	19	12	.6	11	--	.1
7..	34	4	.4	17	--	.4	12	--	.2
8..	32	9	.8	15	7	.3	13	5	.2
9..	31	--	.8	15	--	.2	14	--	.2
10..	29	--	.5	15	--	.2	12	6	.2
11..	28	--	.3	14	4	.2	10	--	.2
12..	27	--	.3	13	--	.1	9.6	6	.2
13..	24	--	.2	12	4	.1	15	--	.4
14..	23	3	.2	12	--	.2	17	--	.6
15..	22	2	.1	12	11	.4	11	10	.3
16..	22	--	.1	13	--	.4	9.1	--	.1
17..	21	2	.1	13	--	.3	5.9	4	.1
18..	21	--	.1	14	8	.3	5.9	--	.1
19..	20	--	.2	13	7	.2	7.6	4	.1
20..	20	4	.2	12	7	.2	5.5	--	.1
21..	19	--	.2	11	--	.2	6.7	--	.1
22..	19	4	.2	9.1	7	.2	7.6	3	.1
23..	22	--	.2	10	6	.2	7.2	--	.1
24..	22	2	.1	11	--	.1	3.1	8	.1
25..	22	--	.1	9.6	4	.1	.8	--	T
26..	20	--	.1	9.1	--	.2	.8	8	T
27..	18	7	.3	8.1	10	.2	.9	--	T
28..	17	--	.2	8.6	--	.2	1.4	--	T
29..	16	5	.2	9.6	5	.1	2.0	5	T
30..	15	--	.2	8.6	--	.1	1.1	--	T
31..	--	--	--	9.6	--	.1	--	--	--
Total	817	--	8.3	429.3	--	14.8	220.0	--	4.1
Day	JULY			AUGUST			SEPTEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	1.2	4		0.2	--		0.1		
2..	.9	--		.2	--		.1		
3..	1.2	4		.2	11		.1		
4..	1.1	--		.2	--		.1		
5..	1.1	--		.2	7		.1		
6..	.8	5		.2	--		.1		
7..	.5	--		.2	8		.1		
8..	.6	4		.2	--		.1		
9..	.8	--		.2	--		.1		
10..	1.1	4		.2	--		.1		
11..	1.4	--		.2	--		.1		
12..	.7	--		.3	--		.1		
13..	.5	4		.2	--		.1		
14..	.7	--		.2	--		.1		
15..	.5	4		.2	--		.1		
16..	.7	--		.2	--		0		
17..	.7	3		.2	--		0		
18..	.5	--		.2	--		0		
19..	.5	--		.2	--		0		
20..	.7	3		.2	--		0		
21..	.7	8		.2	--		0		
22..	.5	5		.2	--		0		
23..	.5	--		.2	--		0		
24..	.2	5		.2	11		0		
25..	.1	--		.1	--		0		
26..	.1	--		.1	10		0		
27..	0	--		.1	--		0		
28..	.7	--		.1	13		0		
29..	.6	5		.1	--		0		
30..	.2	--		.1	--		0		
31..	.2	6		.1	10		--		
Total	20.0	--	0.2	5.6	--	0.1	1.5	--	T
Total discharge for period (cfs-days).....									3,804.4
Total load for period (tons).....									156.9

T Less than 0.05 ton.

RUSSIAN RIVER BASIN--Continued

11-4610. RUSSIAN RIVER NEAR UKIAH, CALIF.--Continued

Periodic determinations of suspended sediment discharge,  
January to September 1964

Date	Time (24 hr)	Water tem- per- ature (°F)	Discharge (cfs)	Suspended sediment	
				Concen- tration (ppm)	Discharge (tons per day)
Jan. 8, 1964.....	1740		41	47	5.2
Feb. 7.....	0925		96	5	1.3
Feb. 19.....	1300		48	3	.4
Feb. 20.....	1015		46	2	.2
Feb. 21.....	0635		44	5	.6
Feb. 22.....	0635		43	3	.3
Feb. 23.....	0625		41	3	.3
Feb. 24.....	0705		40	3	.3
Feb. 25.....	0635		39	4	.4
Feb. 26.....	0705		37	5	.5
Feb. 27.....	1235		36	2	.2
Feb. 28.....	1405		37	6	.6
Feb. 29.....	1605		36	4	.4

## RUSSIAN RIVER BASIN--Continued

11-4615. EAST FORK RUSSIAN RIVER NEAR CALPELLA, CALIF.

LOCATION.--At gaging station 0.5 mile downstream from Cold Creek, and 3.6 miles east of Calpella, Mendocino County.

DRAINAGE AREA.--93.0 square miles.

RECORDS AVAILABLE.--Water temperatures: March to September 1964.

Sediment records: March to September 1964.

Temperature (°F) of water, March to September 1964

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October .....																																
November .....																																
December .....																																
January .....																																
February .....																																
March .....	47	47	49	51	51	50	51	51	51	45	51	51	52	52	55	53	54	55	52	53	53	51	53	51	53	53	53	52	53	55	53	52
April .....	52	52	52	--	--	49	50	58	60	62	60	62	--	63	62	--	62	--	--	60	--	61	--	--	--	--	60	--	61	--	--	--
May .....	--	57	--	58	--	60	--	59	--	--	60	--	60	--	61	--	--	59	63	59	--	--	--	--	63	--	61	--	67	--	--	--
June .....	65	--	65	--	67	--	--	58	--	60	--	68	--	--	70	65	68	--	71	--	--	73	--	70	--	68	--	66	--	--	--	--
July .....	72	--	71	--	--	--	--	72	--	72	--	--	--	--	71	73	66	66	66	69	66	68	74	76	--	--	68	66	73	71	72	--
August .....	62	62	71	72	74	66	64	--	73	68	67	72	74	--	--	71	--	73	--	--	66	72	74	65	74	--	--	--	--	--	--	--
September .....	65	--	67	66	68	67	--	61	60	68	67	68	69	67	--	66	67	66	70	68	72	73	68	68	66	66	67	67	65	66	--	67

RUSSIAN RIVER BASIN--Continued

11-4615. EAST FORK RUSSIAN RIVER NEAR CALPELLA, CALIF.--Continued

Suspended sediment, March to September 1964  
(Where no concentrations are reported, loads are estimated)

Day	JANUARY			FEBRAURY			MARCH		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..							349	28	26
2..							349	28	26
3..							340	27	25
4..							337	28	25
5..							337	26	24
6..							337	24	22
7..							337	22	20
8..							337	26	24
9..							334	28	25
10..							334	25	23
11..							411	38	S 48
12..							421	38	S 46
13..							379	26	27
14..							361	26	25
15..							355	20	19
16..							349	22	21
17..							349	19	18
18..							328	18	16
19..							210	15	8.5
20..							206	12	6.7
21..							208	15	8.4
22..							245	32	21
23..							253	20	14
24..							256	16	11
25..							231	14	8.7
26..							225	11	6.7
27..							225	10	6.1
28..							223	12	7.2
29..							216	10	5.8
30..							208	9	5.1
31..							210	11	6.2
Total							9260	--	575.4

S Computed by subdividing day.

## RUSSIAN RIVER BASIN--Continued

11-4615. EAST FORK RUSSIAN RIVER NEAR CALPELLA, CALIF.--Continued

Suspended sediment, March to September 1964--Continued

Day	APRIL			MAY			JUNE		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	231	14	8.7	44	--	0.4	66	13	2.3
2..	220	20	12	45	--	.5	53	--	1.3
3..	162	11	4.8	99	17	5.0	50	7	.9
4..	149	--	3.2	99	5	1.3	68	--	1.3
5..	140	--	2.6	87	--	.7	61	7	1.2
6..	140	7	2.6	85	4	.9	43	--	.9
7..	138	7	2.6	83	--	1.1	51	--	1.4
8..	136	8	2.9	83	7	1.6	60	22	3.6
9..	136	8	2.9	76	--	1.6	72	--	3.9
10..	138	7	2.6	76	--	1.6	73	13	2.6
11..	112	6	1.8	69	7	1.3	71	--	1.7
12..	105	6	1.7	48	--	.8	66	6	1.1
13..	99	--	1.3	39	4	.4	71	--	1.2
14..	103	5	1.4	37	--	.4	70	--	1.1
15..	100	4	1.1	38	9	.9	47	6	.8
16..	85	--	.5	40	--	1.2	24	6	.4
17..	75	3	.6	56	--	1.8	26	7	.5
18..	74	--	.6	54	11	1.6	23	--	.4
19..	63	--	.5	61	8	1.3	18	7	.3
20..	56	3	.5	66	11	2.0	23	--	.3
21..	56	--	.5	58	--	1.7	25	--	.3
22..	56	3	.5	49	--	1.5	23	4	.2
23..	60	--	.6	47	--	1.4	17	--	.2
24..	55	--	.6	43	--	1.3	20	4	.2
25..	47	--	.5	49	29	3.8	29	--	.4
26..	49	--	.5	74	--	5.6	20	6	.3
27..	51	4	.6	48	27	3.5	19	--	.3
28..	32	--	.3	61	--	3.1	24	4	.3
29..	32	4	.3	66	14	2.5	17	--	.2
30..	35	--	.3	56	--	2.1	19	--	.2
31..	--	--	--	67	--	2.4	--	--	--
Total	2935	--	59.6	1903	--	55.3	1249	--	29.8
Day	JULY			AUGUST			SEPTEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	21	8	.5	133	22	7.9	142	11	4.2
2..	20	--	.3	129	20	7.0	152	--	4.1
3..	17	4	.2	125	13	4.4	148	9	3.6
4..	24	--	.4	136	11	4.0	136	7	2.6
5..	37	--	1.0	121	8	2.6	134	8	2.9
6..	101	--	4.6	114	11	3.4	156	12	5.1
7..	97	--	4.5	110	14	4.2	159	--	5.2
8..	110	17	5.0	122	--	4.9	135	13	4.7
9..	123	--	5.6	143	17	6.6	118	10	3.2
10..	126	17	5.8	110	8	2.4	163	10	4.4
11..	140	--	6.4	91	8	2.0	177	13	6.2
12..	125	--	6.1	111	9	2.7	178	14	6.7
13..	114	--	5.5	115	9	2.8	181	11	5.4
14..	101	--	4.9	121	--	2.9	176	10	4.8
15..	107	19	5.5	113	--	3.1	172	--	4.2
16..	116	16	5.0	123	--	3.3	175	9	4.3
17..	122	20	6.6	127	--	3.4	166	8	3.6
18..	121	19	6.2	114	10	3.1	178	9	4.3
19..	111	20	6.0	109	--	4.1	182	11	5.4
20..	104	16	4.5	123	--	6.6	202	12	6.5
21..	93	14	3.5	116	27	8.5	187	9	4.5
22..	109	18	5.3	127	15	5.1	185	10	5.0
23..	136	21	7.7	132	12	4.3	178	9	4.3
24..	119	20	6.4	115	10	3.1	178	10	4.8
25..	102	--	5.5	108	10	2.9	190	13	6.7
26..	104	--	5.3	106	--	2.9	185	13	6.5
27..	90	19	4.6	105	--	2.8	190	10	5.1
28..	95	15	3.8	110	--	3.0	181	9	4.4
29..	106	22	6.3	117	--	3.5	176	10	4.8
30..	107	14	4.0	123	--	3.7	182	9	4.4
31..	126	17	5.8	128	--	3.8	--	--	--
Total	3024	--	142.8	3677	--	125.0	5062	--	141.9

Total discharge for period (cfs-days)..... 27,110  
 Total load for period (tons)..... 1,129.8

S Computed by subdividing day.

RUSSIAN RIVER BASIN--Continued

11-4620. EAST FORK RUSSIAN RIVER NEAR UKIAH, CALIF.

LOCATION.--At gaging station 500 feet downstream from Coyote Dam, 1,300 feet upstream from mouth, and 3.2 miles northeast of Ukiah, Mendocino County.

DRAINAGE AREA.--105 square miles.

RECORDS AVAILABLE.--Chemical analyses: December 1952 to March 1955.

Water temperatures: December 1952 to March 1955.

Sediment records: December 1952 to March 1955, January to September 1964.

Suspended sediment, March to September 1964  
(Where no concentrations are reported, loads are estimated)

Day	JANUARY			FEBRUARY			MARCH		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..							128	12	4.1
2..							128	11	3.8
3..							128	12	4.1
4..							132	12	4.3
5..							132	11	3.9
6..							132	11	3.9
7..							132	11	3.9
8..							134	11	4.0
9..							240	11	7.1
10..							295	13	10
11..							298	12	9.7
12..							412	13	14
13..							418	15	17
14..							298	14	11
15..							300	--	11
16..							300	12	9.7
17..							300	12	9.7
18..							300	13	11
19..							273	11	8.1
20..							200	12	6.5
21..							164	12	5.3
22..							164	13	5.8
23..							168	12	5.4
24..							168	9	4.1
25..							168	9	4.1
26..							199	8	4.3
27..							213	8	4.6
28..							215	7	4.1
29..							213	6	3.5
30..							213	9	5.2
31..							213	8	4.6
Total							6778	--	207.8

## RUSSIAN RIVER BASIN--Continued

11-4620. EAST FORK RUSSIAN RIVER NEAR UKIAH, CALIF.--Continued

Suspended sediment, March to September 1964--Continued

Day	APRIL			MAY			JUNE		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	210	6	3.4	88	4	1.0	148	5	2.0
2..	210	6	3.4	87	--	.9	148	--	2.4
3..	208	6	3.4	86	--	1.2	150	6	2.4
4..	208	6	3.4	88	5	1.2	164	--	2.2
5..	208	6	3.4	88	--	1.2	170	5	2.3
6..	161	6	2.6	88	4	1.0	170	--	2.3
7..	119	7	2.2	89	--	1.0	173	--	2.8
8..	106	6	1.7	88	4	1.0	173	6	2.8
9..	106	--	1.7	88	--	1.0	173	--	2.3
10..	106	--	1.7	89	--	1.2	173	5	2.3
11..	105	--	1.4	89	5	1.2	173	--	2.3
12..	106	--	1.4	88	--	1.0	158	--	2.6
13..	104	--	1.4	89	4	1.0	152	--	2.5
14..	105	5	1.4	89	--	1.7	152	--	2.9
15..	104	4	1.1	89	11	2.6	150	7	2.8
16..	102	--	1.1	91	--	2.2	150	--	2.0
17..	120	5	1.6	90	--	1.7	150	4	1.6
18..	128	--	1.7	89	--	1.2	150	--	1.6
19..	128	--	1.7	91	4	1.0	161	4	1.7
20..	111	4	1.2	91	7	1.7	164	--	1.8
21..	92	--	1.0	91	--	1.7	164	--	1.3
22..	86	4	.9	93	7	1.8	164	3	1.3
23..	91	--	1.0	93	--	2.0	164	--	1.8
24..	91	4	1.0	93	--	2.0	166	6	2.7
25..	91	--	1.0	95	9	2.3	166	--	2.2
26..	89	--	1.0	93	--	2.3	194	5	2.6
27..	88	4	1.0	93	10	2.5	210	--	3.4
28..	86	--	.7	127	--	2.7	210	--	4.0
29..	86	3	.7	143	6	2.3	239	9	5.8
30..	86	--	.7	143	--	2.3	260	--	4.2
31..	--	--	--	148	--	2.0	--	--	--
Total	3641	--	49.9	2987	--	49.9	5139	--	74.9
Day	JULY			AUGUST			SEPTEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	260	4	2.8	241	--	5.2	240	--	7.1
2..	273	--	2.9	240	--	4.5	238	6	3.9
3..	278	4	3.0	240	7	4.5	237	--	5.1
4..	278	--	3.0	240	--	4.5	236	14	8.9
5..	278	--	3.0	240	8	5.2	235	--	8.9
6..	249	4	2.7	240	--	5.8	235	--	8.2
7..	235	--	2.5	240	10	6.5	235	13	8.2
8..	235	4	2.5	240	--	6.5	235	--	8.9
9..	235	--	2.5	243	--	6.6	235	15	9.5
10..	235	5	3.2	242	--	6.5	235	--	10
11..	235	--	3.2	240	--	6.5	233	17	11
12..	235	--	2.5	238	--	6.4	230	--	9.9
13..	235	4	2.5	248	--	6.7	228	--	9.8
14..	235	--	2.5	248	--	6.7	228	16	9.8
15..	234	4	2.5	248	--	6.7	228	--	7.4
16..	233	--	1.9	248	--	6.7	217	9	5.3
17..	233	3	1.9	247	--	6.7	198	--	4.8
18..	233	--	1.9	246	--	6.6	198	10	5.3
19..	235	--	2.5	245	--	6.6	199	--	5.4
20..	235	4	2.5	245	--	6.6	198	--	4.8
21..	235	4	2.5	245	--	6.6	197	9	4.8
22..	235	5	3.2	245	--	6.6	195	--	4.7
23..	235	--	3.8	244	--	7.2	196	9	4.8
24..	240	6	3.9	241	12	7.8	220	--	4.8
25..	243	--	3.9	240	--	7.8	229	8	4.9
26..	243	--	3.9	240	13	8.4	230	--	5.0
27..	243	6	3.9	240	--	7.8	229	--	4.9
28..	243	--	3.3	240	11	7.1	228	8	4.9
29..	243	5	3.3	240	--	7.8	228	--	4.9
30..	243	--	3.9	240	--	8.4	228	9	5.5
31..	242	8	5.2	240	14	9.1	--	--	--
Total	7544	--	92.8	7514	--	206.6	6698	--	201.4
Total discharge for period (cfs-days).....								40,301	
Total load for period (tons).....								883.3	



RUSSIAN RIVER BASIN--Continued  
 11-4620. EAST FORK RUSSIAN RIVER NEAR UKIAH, CALIF.--Continued  
 Periodic determinations of suspended sediment discharge,  
 January to September 1964

Date	Time (24 hr)	Water tem- per- ature (° F)	Discharge (cfs)	Suspended sediment	
				Concen- tration (ppm)	Discharge (tons per day)
Jan. 8, 1964.....	1430		379	8	8.2
Feb. 6.....	1440		43	66	7.7
Feb. 7.....	0950		43	55	6.4
Feb. 19.....	1405		1820	10	49
Feb. 20.....	0940		358	9	8.7
Feb. 21.....	0740		68	17	3.1
Feb. 22.....	0645		68	21	3.9
Feb. 23.....	0655		70	18	3.4
Feb. 24.....	0735		70	18	3.4
Feb. 25.....	0750		70	17	3.2
Feb. 26.....	0735		95	16	4.1
Feb. 27.....	1305		95	12	3.1
Feb. 28.....	1435		95	13	3.3
Feb. 29.....	1630		126	17	5.8

## RUSSIAN RIVER BASIN

11-4625. RUSSIAN RIVER NEAR HOPLAND, CALIF.

LOCATION.--At gaging station, in Rancho de Sanel Grant, 0.2 mile downstream from McNab Creek, 4 miles north of Hopland, Mendocino County, and 17 miles upstream from Sulfur Creek.

DRAINAGE AREA.--362 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 10, 1963.....	240	--	--	--	--	5.6	--	100	0	--	4.9	--	--	0.1	--	--	--	81	0	0.3	181	7.6
Nov. 13.....	439	--	--	--	--	6.8	--	105	0	--	5.8	--	--	.4	--	--	--	86	0	.3	196	7.7
Dec. 13.....	186	--	--	--	--	8.9	--	119	0	--	6.7	--	--	.4	--	--	--	96	0	.4	227	7.8
Jan. 8, 1964.....	1520	--	--	--	--	6.6	--	97	0	--	4.5	--	--	.3	--	--	--	80	0	.3	178	7.7
Feb. 5.....	464	--	--	--	--	9.0	--	112	0	--	6.2	--	--	.1	--	--	--	93	1	.4	218	7.8
Mar. 11.....	550	--	--	--	--	7.4	--	97	0	--	5.8	--	--	.2	--	--	--	82	2	.4	185	7.7
Apr. 15.....	161	--	--	--	--	8.7	--	115	1	--	7.0	--	--	.3	--	--	--	96	0	.4	216	8.3
May 12.....	123	9.4	--	24	9.2	9.6	0.8	120	0	9.0	10	0.3	1.9	.4	135	0.18	--	98	0	.4	223	8.1
June 3.....	148	--	--	--	--	7.6	--	106	0	--	3.5	--	--	.3	--	--	--	89	2	.3	200	7.4
July 15.....	213	--	--	--	--	7.2	--	102	0	--	3.0	--	--	.3	--	--	--	86	2	.3	191	7.6
Aug. 11.....	208	--	--	--	--	7.6	--	108	0	--	3.5	--	--	.4	--	--	--	88	0	.4	198	8.0
Sept. 2.....	241	7.0	--	25	7.7	7.8	.8	116	0	9.0	3.6	--	.8	.4	120	.16	--	94	0	.4	208	7.6

RUSSIAN RIVER BASIN--Continued

11-4630. RUSSIAN RIVER NEAR CLOVERDALE, CALIF.

LOCATION.--At gaging station 400 feet downstream from Cummysky Creek, and 5 miles northwest of Cloverdale, Sonoma County.

DRAINAGE AREA.--502 square miles.

RECORDS AVAILABLE.--Water temperatures: November 1963 to September 1964.

Sediment records: November 1963 to September 1964.

Temperature (°F) of water, November 1963 to September 1964

Month	Day																															Aver- age	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October .....						56																											
November .....	--	--	--	--	--		--	--	--	--	--	--	--	--	--	--	--	46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
December .....	--	--	--	--	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
January .....	--	--	--	--	--	--	--	--	--	45	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
February .....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
March .....	--	--	--	--	--	--	--	--	--	--	48	45	53	54	57	57	58	57	--	54	53	51	48	53	54	56	58	59	58	58	55	--	
April .....	61	55	59	59	61	59	60	62	62	63	61	64	65	--	59	--	--	--	--	62	--	58	--	55	--	--	68	--	61	--	--	--	
May .....	60	--	--	60	--	--	--	64	--	--	--	74	--	--	--	62	--	66	--	76	--	72	--	--	73	--	65	--	70	--	--	--	
June .....	70	--	70	--	--	68	--	60	--	64	--	--	74	--	69	--	70	--	70	--	76	--	77	--	--	70	--	70	--	67	--	--	--
July .....	--	--	--	74	--	75	--	73	--	--	75	--	75	--	75	--	--	75	--	75	71	77	--	78	--	--	75	--	73	--	73	--	
August .....	--	--	--	--	74	--	74	--	--	75	--	76	--	--	75	--	72	--	77	--	76	--	--	78	--	72	--	72	--	--	71	--	--
September .....	--	73	67	--	73	--	72	--	72	--	72	--	--	73	--	73	--	--	72	--	73	--	73	--	72	--	68	--	--	68	--	--	--

RUSSIAN RIVER BASIN--Continued

11-4630. RUSSIAN RIVER NEAR CLOVERDALE, CALIF.--Continued

Suspended sediment, April to September 1964  
(Where no concentrations are reported, loads are estimated)

Day	APRIL			MAY			JUNE		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	436	12	14	146	10	3.9	152	12	4.9
2..	420	12	14	146	--	3.9	149	--	5.6
3..	360	13	13	155	--	3.8	148	16	6.4
4..	387	13	14	173	9	4.2	152	--	5.7
5..	370	14	14	161	--	4.3	166	--	5.8
6..	360	9	8.7	151	--	4.9	171	11	5.1
7..	298	11	8.9	146	--	5.5	179	--	4.8
8..	260	8	5.6	142	16	6.1	183	10	4.9
9..	245	8	5.3	139	--	5.6	187	--	5.0
10..	235	7	4.4	137	--	5.5	187	--	5.0
11..	228	6	3.7	136	15	5.5	184	--	5.0
12..	222	5	3.0	131	--	5.0	179	--	5.3
13..	216	6	3.5	128	13	4.5	163	11	4.8
14..	212	--	3.4	125	--	3.7	162	--	5.2
15..	203	6	3.3	122	--	3.3	161	14	6.1
16..	200	--	3.2	121	9	2.9	156	--	5.1
17..	198	--	2.7	129	--	3.8	157	10	4.2
18..	209	5	2.8	126	13	4.4	156	--	4.2
19..	212	--	3.4	122	--	4.0	154	11	4.6
20..	206	6	3.3	119	12	3.9	166	--	4.9
21..	184	--	4.0	119	--	3.9	169	--	5.5
22..	170	10	4.6	118	--	3.8	171	12	5.5
23..	168	--	3.2	117	--	3.8	167	--	5.9
24..	173	5	2.3	117	--	4.1	162	13	5.7
25..	165	--	2.2	117	13	4.1	156	--	5.1
26..	157	--	2.1	114	--	3.1	156	--	5.1
27..	155	5	2.1	115	8	2.5	188	11	5.6
28..	150	--	3.2	114	--	2.8	199	--	5.9
29..	148	14	5.6	137	10	3.7	206	11	6.1
30..	147	--	4.8	147	--	4.4	233	--	6.9
31..	--	--	--	151	--	4.5	--	--	--
Total	7094	--	168.3	4121	--	129.4	5119	--	159.9
Day	JULY			AUGUST			SEPTEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	239	--	7.7	224	--	4.8	232	--	2.5
2..	244	--	8.6	227	--	4.9	232	4	2.5
3..	264	--	9.3	226	--	4.3	232	10	6.3
4..	270	14	10	226	--	4.3	230	--	5.0
5..	274	--	9.6	226	7	4.3	228	6	3.7
6..	272	13	9.5	226	--	4.3	230	--	3.7
7..	235	--	8.9	226	7	4.3	231	5	3.1
8..	227	15	9.2	227	--	4.3	230	--	3.1
9..	228	--	8.0	229	--	4.9	228	5	3.1
10..	230	--	7.5	227	8	4.9	227	--	3.1
11..	230	11	6.8	225	--	4.3	225	5	3.0
12..	231	--	7.5	221	7	4.2	224	--	3.0
13..	229	13	8.0	222	--	4.2	223	--	3.0
14..	227	--	6.1	227	--	4.9	218	5	2.9
15..	226	8	4.9	227	8	4.9	218	--	3.5
16..	224	--	5.4	229	--	4.9	217	6	3.5
17..	224	--	5.4	230	9	5.6	204	--	2.8
18..	221	10	6.0	229	--	4.3	195	--	2.6
19..	223	--	6.0	230	6	3.7	193	4	2.1
20..	224	9	5.4	229	--	3.7	193	--	2.1
21..	220	11	6.5	230	6	3.7	195	4	2.1
22..	216	9	5.2	228	--	3.7	191	--	2.1
23..	215	--	4.6	228	--	3.7	188	4	2.0
24..	215	8	4.6	227	6	3.7	189	--	2.0
25..	220	--	4.8	226	--	3.7	209	5	2.8
26..	225	--	4.3	227	6	3.7	213	--	3.4
27..	227	7	4.3	228	--	3.1	217	6	3.5
28..	228	--	4.9	228	4	2.5	220	--	3.6
29..	227	8	4.9	228	--	2.5	218	--	3.5
30..	222	--	4.8	231	--	2.5	219	6	3.5
31..	223	8	4.8	232	4	2.5	--	--	--
Total	7180	--	203.5	7046	--	125.3	6469	--	93.1
Total discharge for period (cfs-days).....								37,029	
Total load for period (tons).....								879.5	

RUSSIAN RIVER BASIN--Continued

11-4630. RUSSIAN RIVER NEAR CLOVERDALE, CALIF.--Continued

Periodic determinations of suspended sediment discharge,  
November 1963 to September 1964

Date	Time (24 hr)	Water tem- per- ature (°F)	Discharge (cfs)	Suspended sediment	
				Concen- tration (ppm)	Discharge (tons per day)
Nov. 6, 1963.....	1610		780	116	244
Dec. 18.....	1030		2590	231	1620
Jan. 10, 1964.....	0900		360	11	11
Feb. 19.....	0850		2190	140	828
Mar. 11.....	1510		436	20	24
Mar. 11.....	1820		744	352	707
Mar. 12.....	0845		1260	402	1370
Mar. 12.....	1000		1200	397	1290
Mar. 13.....	1130		1040	63	177
Mar. 14.....	1600		702	30	57
Mar. 15.....	1600		636	26	45
Mar. 16.....	1800		594	22	35
Mar. 17.....	1600		576	20	31
Mar. 18.....	1800		558	20	30
Mar. 19.....	1700		D 520	22	31
Mar. 20.....	1700		D 430	26	30
Mar. 21.....	1700		D 380	19	19
Mar. 22.....	1000		D 430	14	16
Mar. 23.....	1000		D 500	25	34
Mar. 24.....	1800		474	28	36
Mar. 25.....	1800		436	24	28
Mar. 26.....	1800		414	16	18
Mar. 27.....	1800		447	13	16
Mar. 28.....	1700		430	12	14
Mar. 29.....	1800		420	12	14
Mar. 30.....	1200		420	10	11
Mar. 31.....	1700		414	15	17

Particle-size analyses of suspended sediment, November 1963 to September 1964  
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (° F)	Sam- pling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment										Method of analysis	
							Percent finer than size indicated, in millimeters											
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000		2.000
Dec. 18, 1963.....	1030	46		2590	231		—	—	—	—	—	60	69	82	99	100		V
Feb. 19, 1964.....	0850	46		2190	140		19	27	34	40	46	64	81	99	100			VBWC
Mar. 11.....	1820	48		744	352		44	51	60	74	83	89	98	100	—			VPWC
Mar. 12.....	0845	45		1260	402		47	56	70	83	89	94	98	100	—			VPWC

D Daily mean discharge.

RUSSIAN RIVER BASIN--Continued

11-4640. RUSSIAN RIVER NEAR HEALDSBURG, CALIF.

LOCATION.--At gaging station 2 miles east of Healdsburg, Sonoma County, and 3.5 miles upstream from Dry Creek.

DRAINAGE AREA.--793 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 11, 1963.....	313	--	--	--	--	7.0	--	137	0	--	6.9	--	--	0.2	--	--	--	110	0	0.3	237	7.7
Nov. 13.....	605	--	--	--	--	7.4	--	133	0	--	6.8	--	--	.4	--	--	--	111	2	.3	245	8.0
Dec. 13.....	418	--	--	--	--	9.2	--	162	0	--	7.0	--	--	.4	--	--	--	137	4	.3	292	8.1
Jan. 8, 1964.....	1540	--	--	--	--	7.3	--	102	4	--	5.0	--	--	.3	--	--	--	86	0	.3	192	8.6
Feb. 5.....	812	--	--	--	--	8.8	--	146	0	--	4.5	--	--	.3	--	--	--	124	4	.3	263	8.0
Mar. 11.....	540	--	--	--	--	8.5	--	140	0	--	5.5	--	--	.3	--	--	--	118	3	.3	258	8.0
Apr. 15.....	313	--	--	--	--	9.5	--	158	2	--	6.5	--	--	.4	--	--	--	136	3	.4	288	8.4
May 12.....	166	12	--	33	15	9.2	1.0	171	0	15	8.5	0.2	1.0	.5	179	0.24	--	144	4	.3	309	7.9
June 3.....	150	--	--	--	--	7.4	--	168	2	--	8.0	--	--	.5	--	--	--	144	3	.3	310	8.3
July 15.....	192	--	--	--	--	8.8	--	140	4	--	4.4	--	--	.5	--	--	--	124	3	.3	262	8.4
Aug. 11.....	178	--	--	--	--	9.1	--	148	0	--	4.5	--	--	.6	--	--	--	119	0	.4	258	8.2
Sept. 2.....	180	12	--	27	13	8.8	1.0	145	0	11	4.8	--	.6	.5	150	.20	--	119	0	.3	257	7.9



RUSSIAN RIVER BASIN--Continued

11-4652, DRY CREEK NEAR GEYSERVILLE, CALIF.--Continued

Suspended sediment, March to September 1964  
(Where no concentrations are reported, loads are estimated)

Day	JANUARY			FEBRUARY			MARCH		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..							98	4	1.1
2..							114	--	1.5
3..							83	3	.7
4..							75	2	.4
5..							71	3	.6
6..							68	2	.4
7..							66	--	.4
8..							65	2	.4
9..							62	4	.7
10..							62	--	.8
11..							131	64 S	69
12..							293	172 S	167
13..							136	23	8.4
14..							110	8	2.4
15..							97	9	2.4
16..							88	7	1.7
17..							83	4	.9
18..							78	3	.6
19..							75	3	.6
20..							72	2	.4
21..							74	3	.6
22..							100	6	1.6
23..							124	8	2.7
24..							102	6	1.7
25..							88	2	.5
26..							81	--	.4
27..							75	2	.4
28..							72	3	.6
29..							72	5	1.0
30..							71	5	1.0
31..							72	6	1.2
Total							2858	--	272.1

S Computed by subdividing day.



## RUSSIAN RIVER BASIN--Continued

11-4652. DRY CREEK NEAR GEYSERVILLE, CALIF.--Continued

Suspended sediment, March to September 1964--Continued

Day	APRIL			MAY			JUNE		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	81	11	2.4	30	5	0.4	15	--	0.2
2..	69	9	1.7	30	--	.4	14	--	.2
3..	66	3	.5	36	--	.5	14	--	.2
4..	63	3	.5	38	5	.5	14	--	.1
5..	60	2	.3	33	--	.3	14	2	.1
6..	58	2	.3	29	2	.2	14	--	.1
7..	58	2	.3	26	--	.1	15	--	.1
8..	55	2	.3	27	2	.1	15	--	.1
9..	53	--	.3	27	--	.1	18	--	.1
10..	50	2	.3	26	--	.1	17	--	.1
11..	49	3	.4	24	--	.1	15	--	.1
12..	47	3	.4	23	--	.1	14	--	.1
13..	45	2	.2	23	2	.1	13	--	.1
14..	43	2	.2	23	--	.1	12	--	.1
15..	41	2	.2	22	3	.2	11	3	.1
16..	40	2	.2	23	--	.2	10	--	.1
17..	40	2	.2	27	--	.2	9.7	--	.1
18..	39	--	.2	25	3	.2	8.8	--	.1
19..	38	--	.3	21	--	.2	8.5	--	.1
20..	38	3	.3	20	4	.2	8.2	--	.1
21..	37	--	.3	20	--	.2	8.2	--	.1
22..	35	3	.3	19	2	.1	8.2	6	.1
23..	36	--	.2	18	--	.1	7.6	--	.1
24..	37	2	.2	18	--	.1	6.7	7	.1
25..	36	--	.2	18	--	.1	6.4	--	.1
26..	34	--	.3	18	--	.1	6.4	4	.1
27..	33	7	.6	18	3	.1	5.8	--	.1
28..	30	--	.6	16	--	.2	5.0	--	.1
29..	33	8	.7	15	6	.2	5.4	10	.1
30..	30	--	.5	15	--	.2	5.8	--	.2
31..	--	--	--	15	--	.2	--	--	--
Total	1374	--	13.4	723	--	5.9	325.7	--	3.4
Day	JULY			AUGUST			SEPTEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	5.2			1.3			0.5		
2..	4.8			1.3			.4		
3..	5.0			1.3			.4		
4..	4.8			1.2			.4		
5..	4.5			1.2			.4		
6..	4.8			1.0			.3		
7..	5.0			.8			.4		
8..	5.0			.8			.4		
9..	4.7			.8			.4		
10..	4.2			.8			.3		
11..	3.6			.8			.3		
12..	3.2			.8			.4		
13..	3.0			.8			.9		
14..	3.1			.9			.6		
15..	3.2			1.0			.4		
16..	3.1			1.0			.3		
17..	2.8			1.0			.2		
18..	2.7			.9			.2		
19..	2.5			.8			.1		
20..	2.4			.8			.1		
21..	2.0	10		.7			0		
22..	1.8			.7			0		
23..	1.8			.7			0		
24..	1.9			.7			0		
25..	1.6			.8			0		
26..	1.5			.9			0		
27..	1.4			.8			0		
28..	1.4			.7			0		
29..	1.3			.7			0		
30..	1.4			.6			0		
31..	1.3			.6			--		
Total	95.0		2	27.2		1	7.4		T
Total discharge for period (cfs-days),.....									5,410.3
Total load for period (tons),.....									295.1

T Less than 0.05 ton.

## RUSSIAN RIVER BASIN--Continued

11-4652. DRY CREEK NEAR GEYSERVILLE, CALIF.--Continued

Particle-size analyses of suspended sediment, period March 1964 to September 1964  
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment										Method of analysis
							Percent finer than size indicated, in millimeters										
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	
Mar. 12, 1964.....	0930	47		272	188						67	72	92	100			S

## RUSSIAN RIVER BASIN--Continued

11-4670. RUSSIAN RIVER AT GUERNEVILLE, CALIF.

LOCATION.--On State Highway 12 bridge in Guerneville, Sonoma County, 5.3 miles downstream from gaging station, and 6.5 miles upstream from Austin Creek.

DRAINAGE AREA.--1,340 square miles upstream from gaging station.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

Water temperatures: January to September 1964.

EXTREMES, January to September 1964.--Water temperatures: Maximum, 83°F June 24.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (microhmhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 9, 1963.....	218	--	--	--	--	9.4	--	155	0	--	9.0	--	--	0.2	--	--	--	124	0	0.4	276	7.9
Nov. 14.....	2430	--	--	--	--	7.1	--	89	0	--	5.2	--	--	.3	--	--	--	80	7	.3	189	7.5
Dec. 11.....	644	--	--	--	--	11	--	159	0	--	9.0	--	--	.3	--	--	--	136	6	.4	306	7.8
Jan. 10, 1964.....	780	--	--	--	--	9.3	--	121	7	--	7.1	--	--	.3	--	--	--	101	0	.4	228	8.5
Feb. 5.....	1820	--	--	--	--	9.8	--	144	0	--	7.8	--	--	.2	--	--	--	120	2	.4	264	7.8
Mar. 13.....	1940	--	--	--	--	8.7	--	109	0	--	5.2	--	--	.2	--	--	--	97	8	.4	218	7.8
Apr. 17.....	340	--	--	--	--	12	--	166	3	--	9.0	--	--	.3	--	--	--	142	1	.4	312	8.4
May 14.....	173	14	--	29	19	12	1.7	182	0	17	9.0	0.1	0.7	.4	193	0.26	--	149	0	.4	329	8.1
June 5.....	114	--	--	--	--	12	--	189	0	--	8.5	--	--	.5	--	--	--	156	1	.4	339	8.0
July 16.....	156	--	--	--	--	8.8	--	157	0	--	5.0	--	--	.4	--	--	--	132	3	.3	281	7.9
Aug. 13.....	146	--	--	--	--	9.5	--	152	1	--	4.5	--	--	.6	--	--	--	127	1	.4	273	8.3
Sept. 4.....	166	16	--	27	14	9.0	1.0	154	0	11	4.6	--	.9	.5	160	.22	--	124	0	.4	269	8.0

RUSSIAN RIVER BASIN--Continued  
 11-4670. RUSSIAN RIVER AT GUERNEVILLE, CALIF.--Continued  
 Water temperature (°F) of water, January to September 1964

Water temperature (°F) of water, January to September 1964																																
Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum ....																																
Minimum ....																																
November																																
Maximum ....																																
Minimum ....																																
December																																
Maximum ....																																
Minimum ....																																
January	--	--	--	--	--	--	--	--	--	47	47	47	48	48	48	48	48	48	48	48	48	48	47	46	47	47	47	48	48	49	50	--
Maximum ....	--	--	--	--	--	--	--	--	--	46	46	46	47	48	48	48	48	48	48	48	48	47	46	46	46	46	47	47	48	48	49	--
Minimum ....	--	--	--	--	--	--	--	--	--	46	46	46	47	48	48	48	48	48	48	48	48	47	46	46	46	46	47	47	48	48	49	--
February																																
Maximum ....	51	51	51	50	50	51	50	50	51	51	50	51	50	50	50	50	51	51	50	50	50	51	51	52	52	51	52	52	51	--	--	51
Minimum ....	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	49	49	50	49	50	50	49	50	51	50	50	50	51	50	--	--	50
March																																
Maximum ....	51	50	51	54	54	54	53	53	53	53	53	52	49	52	54	55	56	56	56	54	52	50	48	51	52	54	55	54	54	53	53	53
Minimum ....	50	49	50	50	53	53	51	50	51	51	52	49	49	50	52	53	54	54	54	52	50	48	48	48	50	51	52	53	53	53	51	51
April																																
Maximum ....	53	53	54	56	58	59	59	61	62	62	63	63	64	65	66	66	65	63	62	60	61	61	60	57	58	60	62	62	63	62	--	61
Minimum ....	51	50	50	53	56	56	56	57	58	58	58	57	58	60	61	61	61	61	59	58	58	59	57	56	56	56	57	59	59	58	--	57
May																																
Maximum ....	60	60	59	59	60	60	61	63	65	68	72	73	71	70	69	68	66	66	68	69	71	72	71	71	70	69	68	68	71	72	72	67
Minimum ....	58	58	58	57	58	56	57	60	61	62	66	67	67	66	65	66	64	63	64	65	66	66	66	65	65	66	64	64	64	65	67	63
June																																
Maximum ....	70	72	71	72	72	71	71	70	66	66	70	72	74	76	75	74	74	74	74	75	76	78	79	83	82	80	80	79	76	76	--	74
Minimum ....	66	66	68	69	70	68	66	66	64	63	64	66	67	70	70	70	68	68	69	69	70	71	72	74	76	75	73	73	73	72	--	69
July																																
Maximum ....	75	76	76	76	78	78	78	78	78	80	81	81	80	79	79	80	81	80	80	80	80	81	82	80	78	78	77	78	77	77	77	79
Minimum ....	72	71	71	71	71	72	73	72	72	73	74	74	74	74	74	74	74	74	74	74	75	74	74	75	75	74	74	74	74	73	72	73
August																																
Maximum ....	78	77	78	79	80	79	80	78	78	77	77	78	78	76	74	76	76	77	77	78	76	76	76	75	73	73	73	73	73	73	72	76
Minimum ....	73	72	72	73	74	73	73	73	72	72	72	72	72	72	71	69	70	70	70	72	72	72	72	72	70	69	68	68	68	68	68	71
September																																
Maximum ....	71	71	73	74	73	72	70	70	70	71	70	70	70	72	72	71	71	72	73	73	71	70	72	71	70	68	67	67	68	--	71	
Minimum ....	67	67	67	68	68	66	67	66	66	65	66	65	66	65	66	66	66	66	66	67	67	65	65	66	67	68	66	63	64	63	--	66

## MISCELLANEOUS ANALYSES OF STREAMS IN RUSSIAN RIVER BASIN

Periodic determinations of suspended sediment discharge and particle-size analyses, water year October 1963 to September 1964

(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;

P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concent- ration (ppm)	Sediment discharge (tons per day)	Suspended sediment										Method of analysis	
							Percent finer than size indicated, in millimeters											
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000		2.000
11-4632. BIG SULPHUR CREEK NEAR CLOVERDALE, CALIF.																		
Nov. 6, 1963.....	1430	54		420	249	282												VPWC
Dec. 18.....	0910	41		50	6	.8												
Jan. 10, 1964.....	0935	41		37	3	.3												
Feb. 18.....	1625	53		66	1	.2												
Mar. 11.....	1710	48		85	1620	372	40	45	60	73	85	91	98	100				
Apr. 15.....	1105	63		36	2	.2												
May 18.....	1205	67		25	2	.1												
June 15.....	1234	75		13	2	.1												
July 21.....	1150	79		5.0	3	T												
Sept. 3.....	1120	72		3.5	2	T												
11-4639. MAACAMA CREEK NEAR KELLOGG, CALIF.																		
Nov. 6, 1963.....	1215	57		232	143	90						93	95	96	100			S
Dec. 17.....	1620	45		20	2	.1												
Jan. 10, 1964.....	1200	42		17	2	.1												
Feb. 18.....	1125	48		29	1	.1												
Mar. 9.....	1240	51		16	1	T												
Apr. 15.....	1555	67		10	1	T												
May 18.....	0950	58		8.7	1	T												
June 15.....	1015	68		3.1	1	T												
July 21.....	1000	72		.2	10	T												

T Less than 0.05 ton.

## GUALALA RIVER BASIN

11-4675. SOUTH FORK GUALALA RIVER NEAR ANNAPOLIS, CALIF.

LOCATION.--Approximately 400 feet downstream from gaging station, 1,400 feet downstream from Wheatfield Fork Gualala River, and 4.8 miles west of Annapolis, Sonoma County.

DRAINAGE AREA.--161 square miles.

RECORDS AVAILABLE.--Chemical analyses: January 1959 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 9, 1963.....	15	--	--	--	--	13	--	154	0	--	11	--	--	0.0	--	--	--	118	0	0.5	277	8.0
Nov. 14.....	2650	--	--	--	--	5.5	--	59	0	--	3.8	--	--	.1	--	--	--	50	2	.3	122	7.2
Dec. 11.....	132	--	--	--	--	9.2	--	114	0	--	8.6	--	--	.0	--	--	--	92	0	.4	217	8.0
Jan. 10, 1964.....	98	--	--	--	--	11	--	125	5	--	8.1	--	--	.0	--	--	--	101	0	.5	236	8.5
Feb. 7.....	190	--	--	--	--	9.4	--	106	0	--	6.5	--	--	.0	--	--	--	90	3	.4	201	8.2
Mar. 13.....	245	--	--	--	--	9.4	--	97	0	--	6.0	--	--	.1	--	--	--	83	3	.5	199	8.0
Apr. 17.....	47	--	--	--	--	12	--	128	4	--	7.3	--	--	.1	--	--	--	108	0	.5	252	8.5
May 14.....	28	12	--	26	11	11	1.0	134	0	14	8.0	0.2	0.4	.1	150	0.20	--	110	0	.5	258	7.9
June 5.....	20	--	--	--	--	13	--	136	0	--	6.5	--	--	.1	--	--	--	108	0	.5	257	8.1
July 16.....	7.0	--	--	--	--	13	--	144	3	--	7.5	--	--	.1	--	--	--	119	0	.5	277	8.3
Aug. 13.....	3.4	--	--	--	--	13	--	146	0	--	7.5	--	--	.2	--	--	--	115	0	.5	272	8.1
Sept. 4.....	3.0	16	--	29	11	13	1.1	153	0	13	7.5	--	.6	.1	166	.23	--	119	0	.5	277	8.0

GARCIA RIVER BASIN

11-4676. GARCIA RIVER NEAR POINT ARENA, CALIF.

LOCATION.--Temperature recorder at gaging station 0.9 mile downstream from North Fork Garcia River, and 3.5 miles northeast of town of Point Arena, Mendocino County.

DRAINAGE AREA.--98.5 square miles.

RECORDS AVAILABLE.--Water temperatures: October 1963 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 72°F June 22; minimum, 44°F Jan. 11, 15, Feb. 14.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																																Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum ....	65	65	66	65	61	66	66	66	65	62	63	64	64	62	61	63	63	64	62	62	64	62	61	59	62	61	61	60	60	59	59	63	
Minimum ....	58	59	59	59	60	60	60	60	62	59	59	59	57	59	59	58	59	60	59	58	60	59	57	56	58	56	54	53	55	53	52	58	
November																																	
Maximum ....	59	58	56	57	57	56	55	57	58	57	56	57	57	57	56	53	54	54	54	54	52	52	54	54	54	54	54	54	53	52	--	55	
Minimum ....	52	55	53	54	55	54	53	55	57	55	53	54	55	56	53	52	51	52	53	52	50	50	52	53	52	52	52	52	50	50	--	53	
December																																	
Maximum ....	52	52	52	52	53	55	53	52	52	50	50	50	50	51	51	50	50	52	53	51	50	50	50	49	52	52	53	54	54	54	52	52	
Minimum ....	49	50	50	50	50	52	50	50	50	48	46	46	47	49	48	48	47	46	50	50	49	47	47	46	49	50	51	52	52	51	49	49	
January																																	
Maximum ....	51	52	50	50	49	50	52	50	50	49	48	50	48	48	48	49	49	49	52	52	51	50	49	50	52	51	51	51	50	51	51	50	
Minimum ....	47	49	46	46	45	47	49	47	48	46	44	46	46	45	44	46	48	47	49	51	49	48	48	49	50	50	49	49	49	48	47	47	
February																																	
Maximum ....	53	52	51	51	51	51	51	51	52	52	51	50	50	49	50	50	50	52	53	53	53	53	54	52	53	53	53	50	52	--	--	52	
Minimum ....	50	48	47	47	47	47	46	46	47	48	47	45	45	44	46	45	45	45	46	47	47	47	47	47	48	46	45	46	47	46	--	--	46
March																																	
Maximum ....	51	51	52	54	54	54	53	54	54	55	50	50	53	54	56	56	57	57	57	56	55	52	52	55	56	54	58	59	58	57	54	54	
Minimum ....	47	46	45	48	49	49	47	47	50	48	48	48	49	48	50	49	50	50	49	50	51	49	48	49	48	49	51	51	52	51	52	49	
April																																	
Maximum ....	57	57	58	59	57	59	60	60	60	61	60	60	61	62	61	59	59	60	62	58	61	57	58	58	60	61	63	60	61	60	--	60	
Minimum ....	52	50	49	51	51	50	51	53	52	53	52	51	51	52	52	51	51	51	51	54	51	52	50	51	51	52	54	53	53	52	--	52	
May																																	
Maximum ....	60	58	56	58	56	60	60	60	63	63	63	63	63	63	64	58	63	64	64	65	65	65	62	66	65	64	66	66	66	64	66	63	
Minimum ....	54	52	52	51	52	51	52	54	54	54	55	53	55	53	53	56	56	57	56	58	56	56	56	57	57	58	56	57	57	57	57	55	
June																																	
Maximum ....	64	66	65	64	64	62	66	62	61	62	67	66	68	67	68	66	67	67	67	68	68	72	71	70	70	68	67	68	66	67	--	66	
Minimum ....	58	56	57	59	60	59	59	58	57	58	58	59	59	59	59	60	59	59	58	58	58	59	59	61	60	59	60	58	58	59	59	--	59
July																																	
Maximum ....	65	67	62	66	68	68	69	68	68	69	69	70	70	70	71	69	69	69	69	69	69	69	70	70	70	70	70	68	70	68	68	69	
Minimum ....	59	59	58	58	58	59	60	61	59	59	60	60	60	61	60	63	61	60	60	60	60	61	60	59	60	60	60	61	60	60	58	60	
August																																	
Maximum ....	69	68	69	69	69	68	69	68	69	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	66	67	65	65	--
Minimum ....	61	59	59	60	60	61	60	60	60	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	62	58	59	58	--
September																																	
Maximum ....	66	66	66	66	65	65	65	66	66	66	65	64	64	65	66	66	66	64	65	64	65	67	68	68	67	64	64	64	63	64	--	65	
Minimum ....	58	58	57	58	58	58	58	57	57	57	58	58	58	57	57	57	60	58	57	58	57	57	59	60	60	60	59	57	58	57	--	58	

NAVARRO RIVER BASIN

11-4680. NAVARRO RIVER NEAR NAVARRO, CALIF.

LOCATION.--At gaging station 2.7 miles downstream from North Fork, 5.4 miles upstream from mouth, and 6.6 miles west of Navarro, Mendocino County.

DRAINAGE AREA.--303 square miles.

RECORDS AVAILABLE.--Chemical analyses: January 1959 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 9, 1963.....	23	---	---	---	---	12	---	150	0	---	11	---	---	0.0	---	---	---	113	0	0.5	265	7.8
Nov. 14.....	663	---	---	---	---	9.7	---	88	0	---	7.5	---	---	.1	---	---	---	77	5	.5	193	7.3
Dec. 11.....	151	---	---	---	---	11	---	119	0	---	9.0	---	---	.2	---	---	---	96	0	.5	232	7.9
Jan. 10, 1964.....	144	---	---	---	---	13	---	125	0	---	9.0	---	---	.1	---	---	---	101	0	.6	242	7.9
Feb. 7.....	330	---	---	---	---	10	---	110	0	---	7.0	---	---	.1	---	---	---	86	0	.5	210	8.0
Mar. 13.....	350	---	---	---	---	10	---	95	0	---	7.2	---	---	.1	---	---	---	80	2	.5	197	7.9
Apr. 17.....	80	---	---	---	---	12	---	128	2	---	8.5	---	---	.1	---	---	---	105	0	.5	249	8.4
May 14.....	50	15	---	27	10	10	1.3	138	0	10	9.5	0.3	0.1	.1	154	0.21	---	110	0	.4	259	8.1
June 5.....	36	---	---	---	---	13	---	141	0	---	8.5	---	---	.2	---	---	---	110	0	.5	265	7.8
July 16.....	12	---	---	---	---	13	---	144	0	---	8.6	---	---	.2	---	---	---	111	0	.5	269	7.8
Aug. 13.....	7.4	---	---	---	---	14	---	146	0	---	7.5	---	---	.3	---	---	---	112	0	.6	270	7.7
Sept. 4.....	6.2	16	---	28	10	14	1.3	147	0	9.0	8.1	---	.3	.2	159	.22	---	113	0	.6	269	8.0



## BIG RIVER BASIN

11-4681. BIG RIVER NEAR MOUTH, NEAR MENDOCINO, CALIF.

LOCATION.--Approximately 200 feet upstream from Little North Fork Big River, and approximately 5.5 miles east of Mendocino, Mendocino County.

DRAINAGE AREA.--151 square miles.

RECORDS AVAILABLE.--Chemical analyses: January 1959 to September 1964.

REMARKS.--No discharge records available.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 9, 1963.....		--		--	--	12	--	121		--	9.8		--	0.2	--	--		88	0	0.6	221	7.8
Nov. 14.....		--		--	--	8.3	--	74		--	6.3		--	.2	--	--		61	0	.5	155	7.5
Dec. 11.....		--		--	--	9.4	--	90		--	7.0		--	.2	--	--		71	0	.5	179	7.8
Jan. 9, 1964.....		--		--	--	9.9	--	97		--	7.8		--	.2	--	--		72	0	.5	177	8.0
Feb. 6.....		--		--	--	8.6	--	79		--	6.5		--	.1	--	--		61	0	.5	156	7.7
Mar. 12.....		--		--	--	8.3	--	69		--	5.8		--	.2	--	--		55	0	.5	140	7.6
Apr. 16.....		--		--	--	11	--	100		--	7.0		--	.2	--	--		78	0	.5	193	8.2
May 13.....		17		22	6.6	11	1.2	109		8.0	8.0	0.1	0.2	.2	128	0.17		82	0	.5	205	7.9
June 4.....		--		--	--	12	--	117		--	6.5		--	.3	--	--		86	0	.6	216	7.9
July 16.....		--		--	--	13	--	120		--	7.1		--	.4	--	--		87	0	.6	223	7.7
Aug. 12.....		--		--	--	14	--	124		--	7.0		--	.4	--	--		87	0	.7	223	8.0
Sept. 3.....		16		22	7.8	13	1.2	122		5.0	7.3		.4	.4	133	.18		87	0	.6	224	7.9

## NOYO RIVER BASIN

11-4685. NOYO RIVER NEAR FORT BRAGG, CALIF.

LOCATION.--At gaging station 0.7 mile downstream from South Fork, and 3.5 miles east of Fort Bragg, Mendocino County.

DRAINAGE AREA.--106 square miles.

RECORDS AVAILABLE.--Chemical analyses: January 1959 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 9, 1963.....	9.1	--	--	--	--	10	--	83	0	--	11	--	--	0.0	--	--	--	61	0	0.6	170	7.4
Nov. 14.....	516	--	--	--	--	7.3	--	42	0	--	7.0	--	--	.1	--	--	--	34	0	.5	104	7.2
Dec. 11.....	90	--	--	--	--	8.4	--	68	0	--	7.0	--	--	.0	--	--	--	53	0	.5	143	7.8
Jan. 10, 1964.....	105	--	--	--	--	9.3	--	70	2	--	7.8	--	--	.0	--	--	--	51	0	.6	138	8.4
Feb. 7.....	131	--	--	--	--	8.4	--	58	0	--	3.8	--	--	.1	--	--	--	45	0	.6	123	7.6
Mar. 13.....	246	--	--	--	--	8.6	--	61	0	--	7.4	--	--	.0	--	--	--	47	0	.5	127	7.6
Apr. 17.....	51	--	--	--	--	9.4	--	76	1	--	8.5	--	--	.1	--	--	--	56	0	.5	150	8.3
May 14.....	28	20	--	17	4.0	9.1	0.7	78	0	6.0	7.5	0.1	0.5	.1	103	0.14	--	59	0	.5	160	8.0
June 5.....	22	--	--	--	--	11	--	82	0	--	7.0	--	--	.1	--	--	--	61	0	.6	166	7.8
July 16.....	7.6	--	--	--	--	11	--	83	0	--	8.5	--	--	.2	--	--	--	64	0	.6	174	8.0
Aug. 13.....	3.8	--	--	--	--	12	--	86	0	--	10	--	--	.2	--	--	--	63	0	.7	175	8.0
Sept. 4.....	1.8	19	--	19	4.0	11	.9	84	0	6.0	10	--	.4	.1	111	.15	--	64	0	.6	175	7.8

MATTOLE RIVER BASIN

11-4690. MATTOLE RIVER NEAR PETROLIA, CALIF.

LOCATION.--At gaging station 0.2 mile downstream from Clear Creek, 1.2 miles southeast of Petrolia, Humboldt County, and 1.3 miles upstream from North Fork.

DRAINAGE AREA.--240 square miles.

RECORDS AVAILABLE.--Chemical analyses: January 1959 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 2, 1963.....	39	--	--	--	--	7.9	--	122	0	--	6.0	--	--	0.0	--	--	--	108	8	0.3	243	8.2
Nov. 13.....	2970	--	--	--	--	5.2	--	59	0	--	5.5	--	--	.0	--	--	--	52	4	.3	132	8.0
Dec. 11.....	706	--	--	--	--	5.0	--	67	0	--	3.9	--	--	.0	--	--	--	59	4	.3	145	7.8
Jan. 14, 1964.....	1140	--	--	--	--	6.0	--	60	0	--	3.0	--	--	.0	--	--	--	54	5	.4	131	7.9
Feb. 11.....	880	--	--	--	--	6.4	--	64	0	--	3.5	--	--	.0	--	--	--	55	3	.4	140	8.2
Mar. 10.....	434	--	--	--	--	6.9	--	90	0	--	5.5	--	--	.1	--	--	--	64	0	.4	154	8.1
Apr. 14.....	264	--	--	--	--	6.8	--	77	1	--	5.8	--	--	.0	--	--	--	70	5	.4	165	8.4
May 12.....	148	14	--	26	3.4	7.2	0.9	88	0	15	2.0	0.3	2.1	.0	114	0.16	--	79	7	.3	188	8.1
June 3.....	105	--	--	--	--	8.3	--	97	3	--	1.5	--	--	.2	--	--	--	90	6	.4	209	8.5
July 14.....	54	--	--	--	--	8.6	--	118	0	--	3.0	--	--	.1	--	--	--	104	7	.4	234	8.2
Aug. 11.....	39	--	--	--	--	9.0	--	116	1	--	4.5	--	--	.2	--	--	--	104	7	.4	241	8.3
Sept. 15.....	26	9.3	--	38	3.9	8.8	1.0	121	0	24	4.9	--	--	.8	151	.21	--	111	12	.4	252	8.0

BEAR RIVER BASIN

11-4695.5. BEAR RIVER AT CAPETOWN, CALIF.

LOCATION.--Upstream from bridge on Ferndale-Petrolia Road at Capetown, Humboldt County, approximately 12 miles north of Petrolia, and 8 miles south of Ferndale.

RECORDS AVAILABLE.--Chemical analyses: May to September 1964.

REMARKS.--No discharge records available.

Chemical analyses, in parts per million, May to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
May 12, 1964.....		10		28	4.4	7.7	1.0	90	0	23	5.0	0.3	2.0	0.1	126	0.17		88	14	0.4	212	8.1
June 3.....		--		--	--	9.0	--	106	2	--	5.0		--	.1	--	--	105	15	.4	243	8.3	
July 14.....		--		--	--	9.5	--	118	5	--	6.0		--	.1	--	--	120	15	.4	270	8.4	
Aug. 11.....		--		--	--	10	--	133	4	--	5.5		--	.2	--	--	132	16	.4	293	8.4	
Sept. 15.....		7.4		48	4.9	10	1.3	140	4	32	7.0		.4	.4	195	.27		140	19	.4	315	8.4

## EEL RIVER BASIN

11-4705. EEL RIVER BELOW SCOTT DAM, NEAR POTTER VALLEY, CALIF.

LOCATION.--Temperature recorder at gaging station 0.4 mile upstream from Soda Creek, 0.7 mile downstream from Scott Dam, and 9.7 miles northeast of town of Potter Valley, Mendocino County.

DRAINAGE AREA.--290 square miles.

RECORDS AVAILABLE.--Water temperatures: October 1963 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 67°F on several days during September.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum ....	--	--	63	62	62	62	62	62	62	62	62	62	62	62	62	62	62	61	61	61	60	60	60	60	60	60	59	59	58	58	58	61
Minimum ....	--	--	62	62	62	62	62	62	62	62	62	62	62	62	62	62	61	61	60	60	60	60	60	60	60	59	59	58	58	58	57	61.
November																																
Maximum ....	57	57	57	57	57	56	55	54	54	54	54	53	53	53	53	52	52	52	51	51	50	50	50	49	48	47	47	46	46	—	52	
Minimum ....	57	57	57	57	56	55	54	54	54	53	53	53	53	53	52	52	52	51	51	50	50	50	49	48	47	47	46	46	46	46	52	
December																																
Maximum ....	46	46	46	46	46	46	46	46	46	46	46	46	45	45	45	45	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	
Minimum ....	46	46	46	46	46	46	46	46	46	46	46	46	45	45	45	45	45	46	46	46	46	46	46	46	46	46	46	46	46	46	46	
January																																
Maximum ....	46	46	46	46	46	46	46	46	46	46	46	46	—	—	—	—	—	—	—	—	42	42	41	40	—	—	—	—	—	—	—	
Minimum ....	46	46	46	46	46	46	46	46	46	46	46	—	—	—	—	—	—	—	—	—	42	41	40	40	—	—	—	—	—	—	—	
February																																
Maximum ....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	42	42	42	42	42	42	42	42	41	—	—	—
Minimum ....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	42	42	42	42	42	42	42	41	41	—	—	—
March																																
Maximum ....	41	41	41	43	43	43	43	43	43	43	43	43	43	44	45	45	45	45	45	45	45	45	45	45	45	46	46	46	47	47	46	44
Minimum ....	41	41	41	41	43	43	43	43	43	43	43	43	43	44	44	44	44	44	44	44	44	45	44	45	45	45	45	46	46	46	46	44
April																																
Maximum ....	47	48	49	49	49	49	50	50	52	54	54	54	53	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum ....	46	46	47	47	47	47	47	48	48	48	49	49	49	50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
May																																
Maximum ....	57	57	58	59	58	60	60	60	61	61	61	60	59	59	59	56	59	59	59	59	59	59	59	59	60	58	58	58	60	60	59	
Minimum ....	56	55	56	56	56	56	56	56	57	57	58	56	56	55	55	55	56	56	56	56	56	56	56	56	56	57	56	56	56	56	56	56
June																																
Maximum ....	58	59	59	58	59	59	60	58	--	--	60	60	60	60	60	57	59	60	60	60	61	61	61	61	60	60	60	60	60	60	--	60
Minimum ....	56	56	56	57	58	58	57	56	--	--	56	56	56	56	56	55	55	55	55	55	55	55	55	56	56	56	55	56	56	56	--	56
July																																
Maximum ....	60	60	60	60	58	58	58	58	58	58	58	59	59	58	57	57	57	57	57	57	57	56	56	57	57	57	57	57	57	57	57	58
Minimum ....	56	56	56	56	56	57	57	57	57	57	57	57	57	57	56	56	56	56	55	55	55	55	55	55	55	55	55	56	56	56	56	56
August																																
Maximum ....	57	57	57	57	57	57	57	58	58	58	58	58	58	58	59	59	60	59	58	58	58	59	59	60	60	60	59	60	60	60	60	59
Minimum ....	56	56	56	56	56	56	56	56	56	56	56	56	56	56	57	56	56	56	56	57	57	57	57	57	57	58	58	58	58	58	58	57
September																																
Maximum ....	60	61	61	62	62	62	62	63	65	65	66	66	66	66	66	66	66	66	67	67	67	67	67	67	67	67	67	66	66	66	—	65
Minimum ....	58	59	59	60	60	60	61	61	61	61	62	63	64	65	65	65	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	64

## EEL RIVER BASIN--Continued

11-4710. POTTER VALLEY POWERHOUSE TAILRACE NEAR POTTER VALLEY, CALIF.

LOCATION (revised).--At gaging station 100 feet downstream from powerhouse of Pacific Gas and Electric Company, 1.8 miles southwest of Van Arsdale Dam, and 2.9 miles northwest of town of Potter Valley, Mendocino County.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

Water temperatures: March to September 1964.

Sediment records: March to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 10, 1963.....	237	--	--	--	--	5.0	--	99	0	--	4.8	--	--	0.1	--	--	--	81	0	0.2	178	7.9
Nov. 13.....	242	--	--	--	--	7.0	--	106	0	--	5.8	--	--	.7	--	--	--	85	0	.3	193	8.2
Dec. 13.....	300	--	--	--	--	5.5	--	89	0	--	4.8	--	--	.4	--	--	--	75	2	.3	167	7.8
Jan. 8, 1964.....	307	--	--	--	--	5.9	--	84	6	--	4.5	--	--	.3	--	--	--	74	0	.3	164	8.5
Feb. 5.....	299	--	--	--	--	5.3	--	72	0	--	2.8	--	--	.2	--	--	--	61	2	.3	136	7.9
Mar. 11.....	298	--	--	--	--	5.3	--	77	0	--	3.8	--	--	.3	--	--	--	65	2	.3	146	7.9
Apr. 15.....	64	--	--	--	--	7.0	--	92	4	--	5.2	--	--	.4	--	--	--	79	0	.3	179	8.6
May 12.....	28	9.7	--	22	6.6	6.5	0.5	98	0	10	5.8	0.1	0.5	.6	110	0.15	--	82	2	.3	186	8.0
June 3.....	37	--	--	--	--	7.0	--	97	0	--	3.5	--	--	.5	--	--	--	80	0	.3	182	7.9
July 16.....	143	--	--	--	--	5.6	--	90	0	--	2.6	--	--	.3	--	--	--	75	1	.3	168	7.9
Aug. 11.....	131	--	--	--	--	6.6	--	91	0	--	2.5	--	--	.4	--	--	--	75	0	.3	169	8.2
Sept. 2.....	134	9.9	--	25	3.8	6.0	.4	93	0	7.0	2.9	--	.5	.4	102	.14	--	78	2	.3	172	8.0

Temperature (°F) of water, March to September 1964

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October .....																																
November .....																																
December .....																																
January .....																																
February .....																																
March .....	45	50	45	50	48	48	48	50	46	46	45	45	48	50	52	50	52	52	50	52	49	45	46	48	51	52	53	56	54	50	50	49
April .....	53	50	54	56	53	55	56	58	57	57	58	50	60	62	61	--	60	--	--	60	--	59	--	55	--	--	60	--	62	--	--	--
May .....	55	--	--	58	--	56	--	63	--	--	65	--	66	--	65	--	--	61	62	64	--	68	--	--	67	--	61	--	65	--	--	--
June .....	65	--	65	--	66	--	--	58	--	60	--	67	--	--	--	69	64	--	70	--	--	72	--	75	--	72	--	--	71	--	--	--
July .....	71	--	74	--	--	--	70	69	--	67	--	--	69	--	68	--	66	--	--	64	--	68	--	71	--	--	69	--	71	--	68	--
August .....	--	--	70	--	70	--	71	--	--	70	--	68	--	70	--	--	69	--	68	--	70	--	--	70	--	60	--	62	--	--	64	--
September .....	63	--	--	65	--	--	67	--	66	--	68	--	--	65	--	68	--	67	--	--	70	--	69	--	70	--	--	65	--	64	--	--

## EEL RIVER BASIN--Continued

11-4710. POTTER VALLEY POWERHOUSE TAILRACE NEAR POTTER VALLEY, CALIF.--Continued

Suspended sediment, March to September 1964  
(Where no concentrations are reported, loads are estimated)

Day	JANUARY			FEBRUARY			MARCH		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..							301	22	18
2..							301	21	17
3..							301	18	15
4..							301	17	14
5..							301	23	19
6..							301	20	16
7..							301	17	14
8..							301	16	13
9..							301	18	15
10..							301	17	14
11..							300	18	15
12..							298	26	21
13..							299	24	19
14..							299	22	18
15..							299	20	16
16..							299	19	15
17..							299	19	15
18..							257	17	12
19..							154	14	5.8
20..							154	14	5.8
21..							156	16	6.7
22..							175	16	7.6
23..							170	16	7.3
24..							174	15	7.0
25..							164	11	4.9
26..							167	8	3.6
27..							167	11	5.0
28..							166	12	5.4
29..							162	12	5.2
30..							156	12	5.1
31..							155	13	5.4
Total							7480	--	360.8

## EEL RIVER BASIN--Continued

11-4710. POTTER VALLEY POWERHOUSE TAILRACE NEAR POTTER VALLEY, CALIF.--Continued

## Suspended sediment, March to September 1964--Continued

Day	APRIL			MAY			JUNE		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	182	12	5.9	54	6	0.9	67	8	1.4
2..	161	12	5.2	58	--	.9	67	--	1.4
3..	109	10	2.9	87	--	1.4	66	9	1.6
4..	102	8	2.2	67	6	1.1	66	--	1.4
5..	98	9	2.4	64	--	1.0	59	7	1.1
6..	98	7	1.9	63	7	1.2	54	--	.9
7..	97	7	1.8	64	--	1.2	64	--	.9
8..	97	7	1.8	63	4	.7	66	5	.9
9..	97	7	1.8	59	--	.6	66	--	.9
10..	96	8	2.1	61	--	.7	66	6	1.1
11..	73	8	1.6	60	4	.6	64	--	1.0
12..	67	6	1.1	67	--	.7	66	5	.9
13..	68	8	1.5	54	4	.6	65	--	.9
14..	65	7	1.2	66	--	.7	65	--	.9
15..	70	7	1.3	59	5	.8	65	--	.9
16..	43	--	.6	60	--	1.0	67	5	.9
17..	43	4	.5	66	--	1.2	66	7	1.2
18..	44	--	.5	67	9	1.6	65	--	1.4
19..	38	--	.5	68	7	1.3	63	8	1.4
20..	37	5	.5	73	10	2.0	62	--	1.5
21..	37	--	.5	59	--	1.8	60	--	1.6
22..	46	6	.7	70	7	1.3	59	13	2.1
23..	42	--	.7	65	--	1.2	61	--	2.0
24..	46	5	.6	65	--	1.2	64	10	1.7
25..	34	--	.5	67	7	1.3	65	--	1.6
26..	33	--	.5	87	--	1.6	64	8	1.4
27..	32	6	.5	62	8	1.3	64	--	1.4
28..	33	--	.4	62	--	1.5	63	--	1.2
29..	40	4	.4	65	12	2.1	63	6	1.0
30..	31	--	.3	67	--	2.2	63	--	1.0
31..	--	--	--	69	--	1.9	--	--	--
Total	2059	--	42.4	2018	--	37.6	1915	--	37.6
	JULY			AUGUST			SEPTEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	63	7	1.2	149	--	2.4	144	6	2.3
2..	61	--	1.2	154	--	2.1	140	8	3.0
3..	58	8	1.3	152	4	1.6	150	--	4.1
4..	58	--	1.3	152	--	1.6	143	7	2.7
5..	69	--	1.5	149	6	2.4	136	--	1.5
6..	147	--	3.2	148	--	2.4	141	--	1.5
7..	149	8	3.2	146	5	2.0	145	6	2.3
8..	156	13	5.5	148	--	2.4	143	--	3.1
9..	162	--	6.1	146	--	3.2	165	8	3.6
10..	160	12	5.2	177	10	4.8	217	--	4.1
11..	158	--	5.1	146	--	3.5	202	6	3.3
12..	150	--	4.1	143	7	2.7	190	--	3.1
13..	147	9	3.6	141	--	2.3	190	--	3.1
14..	145	--	3.1	140	6	2.3	183	7	3.5
15..	148	6	2.4	142	--	2.3	186	--	3.5
16..	146	--	2.4	141	--	2.3	187	6	3.0
17..	148	6	2.4	143	6	2.3	187	--	3.0
18..	148	--	2.4	140	--	2.3	181	6	2.9
19..	145	--	2.3	142	6	2.3	182	--	2.9
20..	145	7	2.7	143	--	2.3	181	--	2.9
21..	145	--	2.7	143	5	1.9	182	5	2.5
22..	147	8	3.2	142	--	1.9	180	--	2.4
23..	147	--	2.0	143	--	1.5	178	6	2.9
24..	147	6	2.4	143	4	1.5	180	--	3.4
25..	157	--	3.0	141	--	1.5	180	7	3.4
26..	146	--	2.8	141	4	1.5	180	--	3.4
27..	146	7	2.8	142	--	1.5	180	--	3.4
28..	144	--	2.7	142	4	1.5	180	7	3.4
29..	148	6	2.4	144	--	1.6	182	--	3.4
30..	145	--	2.3	143	--	1.5	181	6	2.9
31..	127	6	2.1	144	4	1.6	--	--	--
Total	4162	--	88.6	4510	--	67.0	5196	--	90.5
Total discharge for period (cfs-days):.....									27,340
Total load for period (tons):.....									724.5



## EEL RIVER BASIN--Continued

11-4721.5. EEL RIVER NEAR DOS RIOS, CALIF.

LOCATION.--At bridge upstream from Outlet Creek, and approximately 6.2 miles south of Dos Rios, Mendocino County.

RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1964.

REMARKS.--Discharge used is difference between gaging stations at Eel River above Dos Rios and Outlet Creek near Longvale. No correction made for inflow between stations.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 8, 1963.....	17	--	--	--	--	10	--	114	3	--	6.8	--	--	0.5	--	--	--	104	6	0.4	246	8.3
Nov. 14.....	4830	--	--	--	--	4.2	--	74	0	--	2.6	--	--	.1	--	--	--	64	3	.2	148	7.6
Dec. 12.....	379	--	--	--	--	5.8	--	92	0	--	3.5	--	--	.2	--	--	--	81	6	.3	185	8.0
Jan. 7, 1964.....	740	--	--	--	--	8.1	--	106	0	--	4.3	--	--	.2	--	--	--	90	3	.4	205	8.0
Feb. 4.....	1512	--	--	--	--	5.0	--	75	0	--	2.0	--	--	.2	--	--	--	62	0	.3	144	7.9
Mar. 11.....	1400	--	--	--	--	6.8	--	104	2	--	4.0	--	--	.3	--	--	--	91	2	.3	205	8.4
Apr. 14.....	218	--	--	--	--	5.9	--	102	2	--	5.2	--	--	.2	--	--	--	92	5	.3	199	8.4
May 11.....	109	7.3	--	27	7.9	7.4	1.0	116	0	14	2.5	0.3	3.4	.2	129	0.18	--	100	5	.3	225	8.1
June 2.....	56	--	--	--	--	9.3	--	118	5	--	4.0	--	--	.3	--	--	--	110	5	.4	241	8.5
July 14.....	14	--	--	--	--	10	--	119	6	--	5.5	--	--	.4	--	--	--	111	4	.4	252	8.5
Aug. 10.....	3.8	--	--	--	--	12	--	112	4	--	6.0	--	--	.6	--	--	--	103	5	.5	247	8.5
Sept. 1.....	1.7	6.8	--	27	8.6	12	.9	113	0	24	9.5	--	.2	.6	145	.20	--	103	10	.5	255	7.8

## EEL RIVER BASIN--Continued

11-4722. OUTLET CREEK NEAR LONGVALE, CALIF.

LOCATION.--At railroad bridge, approximately 0.9 mile downstream from gaging station, approximately 600 feet upstream from Eel River, and 6.5 miles northeast of Longvale, Mendocino County.

DRAINAGE AREA (revised).--161 square miles, upstream from gaging station.

RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1964.

REMARKS.--No appreciable inflow between sampling point and gaging station.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 8, 1964.....	3.1	--	--	--	--	16	--	153	0	--	25	--	--	2.3	--	--	--	130	5	0.6	325	8.1
Nov. 14.....	2060	--	--	--	--	2.2	--	27	0	--	11	--	--	.1	--	--	--	25	3	.2	62	7.0
Dec. 12.....	123	--	--	--	--	6.7	--	70	0	--	4.5	--	--	.4	--	--	--	57	0	.4	142	7.9
Jan. 7, 1964.....	317	--	--	--	--	5.9	--	56	0	--	4.8	--	--	.2	--	--	--	48	2	.4	118	7.8
Jan. 21.....	5440	--	--	--	--	3.3	--	28	0	--	.5	--	1.3	.1	--	--	--	24	1	.3	59	7.2
Feb. 4.....	272	--	--	--	--	5.8	--	60	0	--	4.2	--	--	.2	--	--	--	49	0	.4	120	7.9
Mar. 11.....	643	--	--	--	--	7.2	--	81	0	--	5.0	--	--	.4	--	--	--	67	1	.4	164	8.1
Apr. 14.....	66	--	--	--	--	8.5	--	91	0	--	8.0	--	--	.5	--	--	--	76	1	.4	178	8.2
May 11.....	34	10	--	20	7.8	8.7	0.9	100	0	7.0	4.5	0.2	2.3	.7	113	0.15	--	82	0	.4	197	8.2
June 2.....	15	--	--	--	--	11	--	122	2	--	9.0	--	--	.8	--	--	--	101	0	.5	237	8.4
July 14.....	3.0	--	--	--	--	14	--	145	0	--	14	--	--	1.5	--	--	--	117	0	.6	290	8.0
Aug. 10.....	1.0	--	--	--	--	17	--	139	1	--	19	--	--	1.8	--	--	--	117	1	.7	296	8.3
Sept. 1.....	.7	12	--	29	12	17	1.6	141	0	7.0	25	--	.3	2.0	182	.25	--	121	5	.7	312	8.0

## EEL RIVER BASIN--Continued

11-4725. EEL RIVER ABOVE DOS RIOS, CALIF.

LOCATION.--At gaging station 1.8 miles upstream from Middle Fork, and 2.1 miles south of Dos Rios, Mendocino County.

DRAINAGE AREA.--705 square miles.

RECORDS AVAILABLE.--Water temperatures: October 1957 to September 1959, October 1960 to September 1964.

Sediment records: October 1957 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 82°F July 13; minimum, 41°F Jan. 15, 16.

Sediment concentrations: Maximum daily, 2,130 ppm Jan. 20; minimum daily, 1 ppm on many days.

Sediment loads: Maximum daily, 110,000 tons Jan. 20; minimum daily, less than 0.50 ton on many days.

EXTREMES, 1957-64.--Water temperatures (1962-64): Maximum, 82°F June 16-18, 1963, July 13, 1964; minimum, 41°F Jan. 15, 16, 1964.

Sediment concentrations: Maximum daily, 7,090 ppm Jan. 31, 1963; minimum daily, 1 ppm on many days during 1957-64.

Sediment loads: Maximum daily, 796,000 tons Feb. 8, 1960; minimum daily, less than 0.50 ton on many days during 1957-64.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum .....	71	71	70	67	64	64	64	64	63	63	63	62	63	63	63	62	63	63	64	64	63	63	63	62	60	60	57	56	56	56	56	63	
Minimum .....	66	66	66	64	63	63	62	63	63	63	62	62	62	62	62	62	62	63	63	63	63	63	62	60	60	57	55	55	56	55	54	61	
November																																	
Maximum .....	55	56	56	56	56	56	55	56	56	56	56	56	56	55	55	54	52	52	52	52	50	50	50	50	50	50	50	50	49	—	53		
Minimum .....	54	55	56	56	56	55	55	55	56	56	56	56	55	55	54	52	52	52	52	51	50	48	48	50	50	50	50	50	49	48	53		
December																																	
Maximum .....	48	47	47	46	45	46	45	45	45	45	45	44	43	43	43	43	43	43	43	45	46	46	46	45	44	44	45	46	48	49	45		
Minimum .....	47	47	46	45	45	45	45	45	45	45	44	44	43	43	43	43	43	42	43	45	46	46	45	44	44	43	43	45	46	48	48	45	
January																																	
Maximum .....	48	46	45	44	43	42	43	43	42	42	—	—	42	42	42	42	43	43	46	46	46	45	45	44	44	44	45	45	45	45	45	44	
Minimum .....	46	45	44	43	42	42	42	42	42	42	—	—	42	42	41	41	42	43	44	46	45	45	44	43	43	44	44	45	45	45	45	43	
February																																	
Maximum .....	47	47	46	45	45	46	45	45	45	46	46	46	45	44	44	44	44	45	46	46	46	47	47	47	47	46	46	46	46	—	—	46	
Minimum .....	45	46	45	44	45	45	44	44	45	45	45	45	44	44	43	43	43	44	45	46	46	46	46	46	46	45	45	46	45	—	—	45	
March																																	
Maximum .....	46	46	45	47	47	46	46	46	46	46	46	44	45	47	49	50	51	53	53	53	52	51	49	49	49	50	52	53	54	54	54	49	
Minimum .....	46	45	44	45	46	46	44	44	45	45	44	43	44	45	46	48	49	51	51	52	51	49	47	47	47	47	50	51	52	53	52	47	
April																																	
Maximum .....	52	52	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	61	59	56	58	58	—	—
Minimum .....	52	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	59	56	55	57	58	57	—
May																																	
Maximum .....	57	57	57	56	56	56	57	59	62	63	64	64	65	65	66	66	65	66	67	68	68	68	69	69	71	71	69	68	68	69	69	64	
Minimum .....	57	57	56	56	56	53	55	57	59	62	63	64	64	65	65	65	65	66	67	68	68	68	68	69	69	68	67	67	68	68	68	63	
June																																	
Maximum .....	69	69	69	69	69	70	70	70	69	68	69	70	71	72	73	73	73	73	72	72	72	73	74	74	74	74	75	75	74	74	—	72	
Minimum .....	69	69	69	69	69	69	70	69	67	67	68	68	70	70	72	73	73	72	72	72	72	73	74	74	74	74	74	74	74	73	—	71	
July																																	
Maximum .....	73	73	73	73	74	74	77	76	75	75	77	80	82	80	79	79	79	79	78	78	78	77	78	80	81	80	80	79	80	78	76	77	
Minimum .....	72	72	72	72	72	72	74	74	72	72	73	76	78	78	77	76	74	74	75	75	75	74	74	74	74	74	74	74	74	73	75	75	
August																																	
Maximum .....	77	77	77	77	78	78	78	78	78	78	77	76	77	78	77	78	78	75	75	76	78	78	78	78	78	76	76	74	74	72	71	77	
Minimum .....	74	73	72	73	72	73	73	73	73	74	72	71	70	70	70	70	73	71	69	69	70	71	72	72	72	70	69	69	67	67	65	71	
September																																	
Maximum .....	70	72	72	74	71	72	72	71	70	69	68	68	68	66	68	67	66	66	67	67	67	68	69	70	70	69	67	67	66	65	—	69	
Minimum .....	64	65	66	67	67	67	68	68	67	65	64	64	65	65	63	65	65	62	62	64	63	64	65	65	66	65	65	63	62	62	—	65	

## EEL RIVER BASIN--Continued

11-4725. EEL RIVER ABOVE DOS RIOS, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964  
(Where no concentrations are reported, loads are estimated)

Day	OCTOBER			NOVEMBER			DECEMBER			
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day	
1..	5.1	--	T	26	--	T	368	5	5	
2..	4.9	--	T	29	1	T	311	4	3	
3..	4.7	--	T	43	3	S	274	3	2	
4..	4.7	--	T	1190	237	S	250	3	2	
5..	5.3	--	T	601	132	S	238	5	3	
6..	9.2	2	T	1830	410	K	229	3	2	
7..	13	--	T	802	307	S	205	--	1	
8..	14	--	T	2830	490	S	226	5	4	
9..	19	3	T	3180	258	S	610	25	43	
10..	22	--	T	1130	30	S	383	--	10	
11..	55	60	9	509	20	27	272	--	4	
12..	57	--	8	324	10	9	256	4	3	
13..	40	--	3	254	20	14	213	--	2	
14..	29	--	1	2770	380	S	200	2	1	
15..	120	29	S	2690	139	S	197	--	1	
16..	319	96	K	1290	40	139	189	2	1	
17..	126	--	12	747	19	38	174	--	1	
18..	70	--	3	500	10	14	162	2	1	
19..	47	--	1	1900	270	S	209	25	29	
20..	36	--	1	2040	111	S	1610	132	674	
21..	31	4	T	964	30	78	777	25	52	
22..	32	--	T	1020	140	K	497	10	13	
23..	106	20	K	9160	1420	S	400	4	4	
24..	117	5	2	4770	365	S	344	5	5	
25..	77	2	T	2240	90	544	344	4	4	
26..	55	--	T	1200	27	87	302	5	4	
27..	46	--	T	837	15	34	440	8	10	
28..	39	--	T	639	11	19	433	7	8	
29..	33	2	T	512	--	12	356	4	4	
30..	29	--	T	423	7	8	307	2	2	
31..	27	1	T	--	--	--	268	1	1	
Total	1592.9	--	156	46450	--	63647	11044	--	899	
JANUARY				FEBRUARY			MARCH			
1..	252	--	1	1830	22	109	389	128	S	176
2..	262	2	1	1670	25	113	509	61	S	95
3..	242	--	1	1440	21	82	347	12	11	
4..	231	2	1	1240	--	67	270	5	4	
5..	223	--	1	1080	18	52	242	3	2	
6..	225	3	2	964	17	44	231	3	2	
7..	423	9	10	837	14	32	223	2	1	
8..	300	6	5	737	12	24	211	2	1	
9..	294	12	10	663	12	21	200	--	1	
10..	408	12	13	590	11	18	197	--	1	
11..	300	6	5	524	10	14	757	79	K	370
12..	280	4	3	467	9	11	2200	112	S	705
13..	291	17	13	420	8	9	1690	50	228	
14..	500	26	35	380	7	7	951	22	56	
15..	390	11	12	425	8	9	691	13	24	
16..	561	29	S	413	7	8	541	--	15	
17..	1970	308	S	356	7	7	470	8	10	
18..	4010	266	S	309	5	4	418	5	6	
19..	7710	650	S	278	3	2	371	5	5	
20..	18300	2130	S	264	3	2	338	4	4	
21..	11400	843	S	256	3	2	380	6	6	
22..	7290	350	S	266	--	1	503	8	11	
23..	4740	175	2240	240	2	1	721	16	31	
24..	4070	116	1270	225	2	1	729	14	28	
25..	4960	142	1900	214	2	1	572	9	14	
26..	4450	102	1230	207	2	1	476	7	9	
27..	3610	68	663	200	1	1	435	8	9	
28..	2960	60	480	202	1	1	398	5	5	
29..	2750	81	S	209	2	1	361	4	4	
30..	2520	44	299	--	--	--	331	3	3	
31..	2060	24	133	--	--	--	316	3	3	
Total	87982	--	113230	16906	--	645	16468	--	1840	

S Computed by subdividing day.

T Less than 0.50 ton.

K Computed from estimated-concentration graph and subdividing day.

## EEL RIVER BASIN--Continued

11-4725. EEL RIVER ABOVE DOS RIOS, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964--Continued

Day	APRIL			MAY			JUNE		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	458	6	7	87	--	T	42	--	T
2..	413	6	7	92	2	T	41	2	T
3..	331	4	4	129	6	2	41	--	T
4..	296	3	2	181	6	3	42	1	T
5..	266	2	1	137	3	1	45	3	T
6..	246	3	2	115	3	1	49	1	T
7..	229	2	1	104	--	1	50	1	T
8..	214	3	2	93	2	1	50	3	T
9..	198	2	1	87	--	T	47	--	1
10..	190	2	1	81	--	T	47	5	1
11..	179	2	1	75	--	T	45	--	T
12..	166	2	1	72	--	T	42	3	T
13..	157	1	T	69	--	1	39	--	T
14..	152	2	1	65	4	1	36	--	T
15..	146	2	1	63	--	T	34	--	T
16..	140	1	T	62	1	T	32	2	T
17..	139	2	1	68	2	T	31	--	T
18..	134	--	1	70	--	T	30	3	T
19..	129	2	1	65	2	T	30	--	T
20..	122	3	1	62	--	T	29	2	T
21..	117	--	1	59	1	T	28	--	T
22..	115	2	1	56	--	T	26	2	T
23..	113	3	1	55	2	T	25	--	T
24..	114	1	T	53	--	T	23	2	T
25..	109	--	T	51	2	T	23	--	T
26..	104	1	T	50	--	T	21	6	T
27..	100	2	1	51	1	T	19	--	T
28..	93	2	1	51	--	T	18	--	T
29..	89	--	T	49	2	T	18	--	T
30..	85	2	T	46	--	T	17	3	T
31..	--	--	--	44	3	T	--	--	--
Total	5344	--	44	2342	--	18	1020	--	8
	JULY			AUGUST			SEPTEMBER		
1..	16	--		4.1	--		1.0	--	
2..	16	--		3.9	4		1.1	--	
3..	16	2		3.7	--		1.8	--	
4..	16	--		3.5	--		2.0	--	
5..	15	--		3.4	1		1.9	12	
6..	15	1		3.2	--		2.2	--	
7..	14	--		3.1	--		2.5	--	
8..	14	--		3.1	--		2.6	--	
9..	13	2		2.9	--		2.6	--	
10..	15	--		2.8	2		2.6	--	
11..	18	--		2.6	4		2.4	--	
12..	14	2		2.5	--		2.4	--	
13..	12	--		2.2	--		2.6	--	
14..	11	--		2.0	--		2.6	--	
15..	9.5	1		2.0	--		2.6	--	
16..	8.6	--		1.9	--		2.6	11	
17..	8.0	--		1.9	--		2.4	--	
18..	8.0	1		1.9	--		2.2	--	
19..	7.5	--		1.7	--		2.2	--	
20..	7.5	--		1.7	5		2.0	--	
21..	7.3	2		1.7	--		2.0	--	
22..	7.0	--		1.6	--		2.0	--	
23..	6.3	--		1.6	--		1.9	1	
24..	6.0	1		1.5	--		1.8	--	
25..	5.3	--		1.4	5		1.7	--	
26..	4.9	--		1.4	--		1.7	--	
27..	4.7	2		1.3	--		1.7	--	
28..	4.7	--		1.2	--		1.7	4	
29..	4.7	--		1.0	--		1.8	--	
30..	4.3	2		1.0	--		1.8	2	
31..	3.9	--		.9	1		--	--	
Total	313.2	--	1	68.7	--	1	62.4	--	1
Total discharge for year (cfs-days).....									189,593.2
Total load for year (tons).....									240,490

T Less than 0.50 ton.

## EEL RIVER BASIN--Continued

## 11-4725. EEL RIVER ABOVE DOS RIOS, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1963 to September 1964  
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentra- tion (ppm)	Sediment discharge (tons per day)	Suspended sediment										Method of analysis	
							Percent finer than size indicated, in millimeters											
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000		2.000
Nov. 4, 1963.....	1445	56		1280	137		--	--	--	--	--	99	100	--	--	--	--	S
Nov. 6.....	0735	55		1980	296		--	--	--	--	--	88	94	97	100	--	--	S
Nov. 8.....	1620	55		3800	448		--	--	--	--	--	82	90	98	100	--	--	V
Nov. 10.....	1425	56		964	35		--	--	--	--	--	92	94	96	100	--	--	S
Nov. 14.....	1620	55		4400	630		--	--	--	--	--	87	94	99	100	--	--	V
Nov. 19.....	1615	52		3850	720		--	--	--	--	--	80	89	95	97	100	--	V
Nov. 23.....	1615	50		10400	1590		27	33	39	54	66	75	87	95	100	--	--	VPWC
Dec. 20.....	1350	46		1290	88		--	--	--	--	--	92	94	96	100	--	--	S
Jan. 19, 1964.....	1610	46		7750	480		--	--	--	--	--	73	82	90	97	100	--	V
Jan. 20.....	0855	46		12800	2590		19	24	31	39	50	59	75	88	98	100	--	VPWC
Jan. 20.....	1630	46		27500	2300		20	25	33	42	54	63	80	92	99	100	--	VPWC
Mar. 1.....	1355	46		318	196		--	--	--	--	--	99	100	--	--	--	--	S
Mar. 17.....	1855	51		458	6		--	--	--	--	--	85	89	92	100	--	--	S

## EEL RIVER BASIN--Continued

11-4729. BLACK BUTTE RIVER NEAR COVELO, CALIF.

LOCATION.--Temperature recorder at gaging station 600 feet upstream from highway bridge, 0.6 mile upstream from mouth, and 9.5 miles east of Covelo, Mendocino County.

DRAINAGE AREA.--162 square miles.

RECORDS AVAILABLE.--Water temperatures: May to September 1964.

EXTREMES, May to September 1964.--Water temperatures: Maximum, 89°F Aug. 23.

Temperature (°F) of water, May to September 1964

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum ....																																
Minimum ....																																
November																																
Maximum ....																																
Minimum ....																																
December																																
Maximum ....																																
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Minimum ....																																
March																																
Maximum ....																																
Minimum ....																																
April																																
Maximum ....																																
Minimum ....																																
May																																
Maximum ....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	67	68	70	71	--
Minimum ....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	55	56	58	60	--
June																																
Maximum ....	66	69	67	64	66	65	66	60	57	66	70	72	74	76	75	71	71	73	73	74	77	79	81	82	80	78	76	77	78	78	--	72
Minimum ....	60	59	59	61	60	61	57	56	54	54	58	60	61	64	66	62	60	62	61	62	63	64	66	68	66	66	62	62	65	66	--	62
July																																
Maximum ....	78	78	78	78	79	81	82	80	80	82	85	86	88	85	86	86	86	85	85	85	84	85	86	87	88	87	87	80	82	84	82	83
Minimum ....	65	65	65	66	65	66	69	68	66	67	69	71	73	72	73	70	72	71	69	70	69	70	69	70	71	71	71	74	70	70	67	69
August																																
Maximum ....	83	83	83	85	86	86	86	87	88	87	86	86	86	87	86	86	85	85	84	87	88	88	89	88	86	82	82	81	81	78	76	85
Minimum ....	70	67	66	68	68	70	70	70	70	70	70	70	70	70	70	69	69	69	68	69	69	70	70	69	67	65	65	65	62	64	61	68
September																																
Maximum ....	70	75	77	78	77	77	77	76	74	74	74	74	74	74	74	73	72	73	74	73	72	76	78	78	75	72	70	69	70	70	--	74
Minimum ....	59	57	59	61	61	61	61	60	60	56	56	58	58	58	58	57	58	57	58	59	57	59	62	62	61	59	57	56	56	56	--	59

## EEL RIVER BASIN--Continued

11-4730. MIDDLE FORK EEL RIVER BELOW BLACK BUTTE RIVER, NEAR COVELO, CALIF.

LOCATION.--At gaging station 0.2 mile downstream from Black Butte River and 8.6 miles east of Covelo, Mendocino County.

DRAINAGE AREA.--367 square miles.

RECORDS AVAILABLE.--Water temperatures: July to November 1961, October 1962 to September 1964.

Sediment records: October 1962 to September 1964.

EXTREMES, 1963-64.--Sediment concentrations: Maximum daily, 1,570 ppm Jan. 20; minimum daily, 1 ppm on many days.

Sediment loads: Maximum daily, 49,900 tons Jan. 20; minimum daily, less than 0.05 ton on many days.

EXTREMES, 1962-64.--Water temperatures (1962-63): Maximum, 80°F Sept. 4, 1963.

Sediment concentrations: Maximum daily, 4,500 ppm Jan. 31, 1963; minimum, 1 ppm on many days during 1962-64.

Sediment loads: Maximum daily, 567,000 tons Jan. 31, 1963; minimum daily, less than 0.05 ton on many days during 1962-64.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October .....	--	--	--	--	61	60	--	--	65	--	60	54	--	--	58	59	61	--	--	--	--	--	--	54	--	--	--	--	55	--	--	--	--
November .....	--	--	51	49	47	46	43	47	49	48	46	--	--	48	45	43	--	44	45	43	--	--	--	45	44	--	45	--	42	--	43	--	--
December .....	--	42	--	42	--	--	--	42	42	--	38	--	--	--	39	--	--	--	43	43	39	40	--	41	41	44	44	45	44	45	--	--	--
January .....	42	42	40	--	--	39	--	39	39	--	38	--	39	--	38	39	40	39	41	39	39	38	39	39	42	--	42	42	42	41	--	--	--
February .....	43	40	41	--	42	--	--	42	43	--	41	40	40	--	38	39	--	--	43	--	39	--	--	--	41	--	--	40	--	--	--	--	--
March .....	41	38	42	--	--	--	--	--	44	--	38	37	44	--	46	--	49	49	--	--	--	40	40	43	44	--	47	--	--	48	45	--	--
April .....	45	--	--	--	--	47	--	--	--	50	--	45	--	--	--	50	--	--	--	--	--	--	--	55	--	--	58	--	--	50	--	--	--
May .....	--	--	--	--	--	--	--	54	--	--	--	--	--	--	--	60	--	--	--	--	--	--	--	62	--	59	--	--	--	--	--	--	--
June .....	--	67	64	--	--	--	--	57	--	--	--	--	--	--	--	--	--	--	--	60	--	--	--	--	--	--	--	--	--	--	--	--	--
July .....	74	--	--	--	--	78	--	--	--	--	--	--	--	79	--	--	--	--	--	--	--	78	--	--	--	--	--	--	--	--	--	--	--
August .....	--	--	--	--	--	77	--	--	--	--	80	--	--	--	--	--	--	--	--	--	78	--	--	--	--	--	79	--	--	--	--	--	--
September .....	--	--	--	--	--	74	--	--	--	--	--	70	--	--	--	--	--	--	--	--	--	--	--	77	--	--	--	68	--	--	--	--	--



## EEL RIVER BASIN--Continued

11-4730. MIDDLE FORK EEL RIVER BELOW BLACK BUTTE RIVER, NEAR COVELO, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964

(Where no concentrations are reported, loads are estimated)

Day	OCTOBER			NOVEMBER			DECEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	11	--	T	42	--	.1	529	--	10
2..	11	--	T	43	--	.1	460	8	9.9
3..	11	--	T	47	2	.3	408	8	8.8
4..	11	--	T	595	208 S	413	368	6	6.0
5..	11	1	T	374	51 S	78	332	--	3.6
6..	16	--	T	931	153 S	446	320	--	2.6
7..	17	--	T	388	30	31	292	--	3.2
8..	16	--	T	2170	412 S	3490	296	10	8.0
9..	17	1	T	2440	398 S	2860	372	24 S	25
10..	23	--	.1	918	108	268	299	--	4.0
11..	83	6	1.3	465	27	34	264	6	4.3
12..	78	3	.6	320	--	10	255	--	5.5
13..	45	--	.1	267	--	16	252	--	4.8
14..	34	--	.1	3410	610 S	8050	240	--	3.9
15..	54	8 S	1.5	2070	318 S	2010	231	6	3.7
16..	181	22 S	12	1070	90	260	218	--	3.5
17..	86	4	.9	720	--	78	208	--	3.4
18..	58	--	.2	529	30	43	198	--	3.2
19..	47	--	.1	1130	132 S	568	208	.7	3.9
20..	42	--	.1	1170	80	253	684	132 S	279
21..	39	--	.1	726	--	59	475	26	33
22..	40	--	.2	616	67 K	150	376	17	17
23..	113	13 K	4.4	6450	766 S	15100	332	--	13
24..	89	3	.7	3340	359 S	3650	299	12	9.7
25..	76	--	.2	1770	--	620	285	12	9.2
26..	85	--	.2	1390	60	225	267	13	9.4
27..	66	--	.2	1140	--	100	396	47	50
28..	56	--	.2	905	22	54	496	41	55
29..	51	1	.1	738	24	48	624	54	91
30..	48	--	.1	618	14	23	507	18	25
31..	44	--	.1	--	--	--	249	--	4.0
Total	1559	--	23.8	36792	--	38937.5	10740	--	712.6
Day	JANUARY			FEBRUARY			MARCH		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	392	6	6.4	1960	71 S	380	507	16	22
2..	432	9	10	1820	43	211	465	10	13
3..	364	7	6.9	1560	26	110	408	5	5.5
4..	332	--	5.4	1500	--	77	465	--	6.3
5..	292	--	5.5	1520	20	82	480	--	6.5
6..	313	12	10	1400	--	76	445	--	6.0
7..	496	--	40	1250	--	81	392	--	5.3
8..	404	7	7.6	1180	23	73	380	--	5.1
9..	372	6	6.0	1130	13	40	392	7	7.4
10..	388	--	10	1110	--	24	360	--	8.7
11..	332	4	3.6	1040	11	31	404	18	20
12..	328	--	3.5	931	10	25	424	33	38
13..	324	21	18	853	8	18	428	12	14
14..	310	--	13	786	--	17	445	--	4.8
15..	289	4	3.1	768	10	21	523	8	11
16..	408	33	36	696	9	17	578	--	14
17..	849	346 S	1130	648	--	16	648	8	14
18..	1110	250	749	618	--	15	738	23	46
19..	1580	254 S	1320	624	9	15	660	--	36
20..	9900	1570 S	49900	612	--	13	654	--	28
21..	4180	442 S	5790	595	6	9.6	648	--	21
22..	2110	130	741	612	--	8.3	624	9	15
23..	1520	75	308	595	--	8.0	589	4	6.4
24..	1510	130	530	595	--	8.0	573	9	14
25..	1940	250	1310	562	5	7.6	518	8	11
26..	1840	--	400	523	--	7.1	567	--	11
27..	1610	40	174	496	--	5.4	636	8	14
28..	1440	31	121	485	3	3.9	702	--	17
29..	1450	44	172	450	--	4.9	780	--	25
30..	1560	40	168	--	--	--	828	13	29
31..	1400	24	91	--	--	--	886	21	50
Total	39775	--	63089.0	26919	--	1404.8	17147	--	525.0

S Computed by subdividing day.

T Less than 0.05 ton.

K Computed from estimated-concentration graph and subdividing day.

## EEL RIVER BASIN--Continued

11-4730. MIDDLE FORK EEL RIVER BELOW BLACK BUTTE RIVER, NEAR COVELO, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964--Continued

Day	APRIL			MAY			JUNE		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	1020	32	88	464	--	2.5	187	--	1.0
2..	866	--	61	432	--	1.2	177	2	1.0
3..	764	--	45	440	--	3.6	165	2	.9
4..	725	--	45	412	--	2.2	160	--	.9
5..	769	--	44	412	--	2.2	183	--	.5
6..	703	9	17	358	--	1.9	174	--	.5
7..	676	--	9.1	358	2	1.9	207	--	.6
8..	714	--	9.6	390	--	1.1	177	1	.5
9..	764	--	12	400	--	2.2	169	--	.5
10..	736	7	14	428	--	3.5	163	--	.4
11..	736	--	16	436	--	3.5	149	--	.4
12..	736	8	16	448	--	3.6	136	--	.4
13..	742	--	16	432	--	2.3	126	--	.3
14..	798	--	17	393	--	2.1	117	--	.3
15..	866	--	19	365	2	2.0	111	--	.3
16..	828	8	18	368	--	2.0	106	--	.3
17..	758	--	14	390	--	2.1	103	--	.3
18..	686	--	13	348	--	1.9	101	--	.3
19..	620	--	12	334	--	1.8	96	--	.3
20..	580	--	11	330	--	.9	92	1	.2
21..	570	--	7.7	303	--	.8	87	--	.2
22..	590	--	9.6	282	1	.8	81	--	.2
23..	538	--	8.7	270	--	.7	76	--	.2
24..	484	5	6.5	256	3	2.1	71	--	.2
25..	436	--	2.4	248	--	2.0	66	--	.2
26..	428	--	1.2	267	--	1.4	63	--	.2
27..	444	3	3.6	276	--	1.5	60	--	.2
28..	489	--	6.6	237	--	1.3	57	--	.2
29..	552	--	7.5	236	--	1.3	55	--	.1
30..	489	3	4.0	210	--	1.1	54	--	.1
31..	--	--	--	195	--	1.1	--	--	--
Total	20107	--	554.5	10718	--	58.6	3569	--	11.7
	JULY			AUGUST			SEPTEMBER		
1..	52	1	.1	16	--	T	8.1	--	T
2..	50	--	.1	15	--	T	9.0	--	T
3..	49	--	.1	15	--	.1	9.3	--	.1
4..	50	--	.1	14	--	.1	9.8	--	.1
5..	54	--	.1	14	3	.1	9.8	--	.1
6..	49	1	.1	13	--	.1	9.5	2	.1
7..	45	--	.1	13	--	.1	9.2	--	T
8..	42	--	.1	12	--	.1	9.0	--	T
9..	41	--	.1	12	--	.1	8.9	--	T
10..	39	--	.1	11	2	.1	8.6	--	T
11..	36	--	.1	11	--	.1	8.5	--	T
12..	34	--	.1	11	--	.1	8.2	--	T
13..	32	--	.1	11	--	.1	7.7	--	T
14..	31	1	.1	11	--	.1	7.7	--	T
15..	30	--	.1	10	--	.1	7.4	--	T
16..	29	--	.1	10	--	.1	7.1	--	T
17..	28	--	.1	9.8	--	.1	6.8	1	T
18..	27	--	.1	9.7	--	.1	6.6	--	T
19..	25	--	.1	9.6	--	.1	6.5	--	T
20..	24	--	.1	9.2	2	T	6.3	--	T
21..	23	1	.1	8.9	--	T	6.2	--	T
22..	22	--	.1	8.4	--	T	6.2	--	T
23..	21	--	.1	8.4	--	T	6.1	--	T
24..	20	--	.1	8.2	--	T	6.1	1	T
25..	19	--	.1	8.0	--	T	6.1	--	T
26..	18	--	T	7.8	2	T	6.0	--	T
27..	17	--	T	7.9	--	T	6.0	--	T
28..	17	--	T	8.0	--	T	6.0	1	T
29..	17	--	T	8.0	--	T	6.0	--	T
30..	17	--	T	7.9	--	T	5.9	--	T
31..	17	--	T	7.9	--	T	--	--	--
Total	975	--	2.8	326.7	--	2.3	224.6	--	1.0
Total discharge for year (cfs-days).....									168,852.3
Total load for year (tons).....									105,323.6

T Less than 0.05 ton.

## EEL RIVER BASIN--Continued

11-4730. MIDDLE FORK EEL RIVER BELOW BLACK BUTTE RIVER NEAR COVELO, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1963 to September 1964  
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concen- tration (ppm)	Sediment discharge (tons per day)	Suspended sediment										Method of analysis	
							Percent finer than size indicated, in millimeters											
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000		2.000
Nov. 4, 1963.....	0650	49		600	340							96	98	100	--	--		S
Nov. 8.....	1715	46		3650	883							69	82	91	97	100		V
Nov. 14.....	1730	48		6320	1350							69	83	93	99	100		V
Nov. 23.....	1625	45		8960	1230							68	81	91	98	100		V
Dec. 20.....	0720	41		990	269							67	78	92	99	100		V
Jan. 19, 1964.....	1640	40		1720	291							73	80	86	92	100		S
Jan. 20.....	1720	40		11600	1720		24	25	36	45	57	68	80	91	99	100		VPWC
Jan. 25.....	1630	40		2040	213							76	81	86	92	100		S
Mar. 18.....	1705	49		696	21							87	89	90	93	100		S

Particle-size analyses of bed material, water year October 1963 to September 1964  
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentra- tion (ppm)	Sediment discharge (tons per day)	Bed material											Method of analysis
							Percent finer than size indicated, in millimeters											
							0.062	0.125	0.250	0.500	1.000	2.000	4.000	8.000	16.000	32.000	64.000	
Oct. 9, 1963..... Mar. 18, 1964.....	1445 1705		8 4	17 696			1	2	4	9 1	14 4	20 8	28 17	38 35	62 74	84 100	100	S S

## EEL RIVER BASIN--Continued

11-4739. MIDDLE FORK EEL RIVER AT DOS RIOS, CALIF.

LOCATION.--At bridge on county road, 0.4 mile upstream from mouth, and 0.5 mile southeast of Dos Rios, Mendocino County.

RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1964.

Water temperatures: October 1957 to September 1959, October 1960 to September 1964.

Sediment records: October 1957 to September 1964.

REMARKS.--Water discharge used is difference between discharge at gages on Eel River above Dos Rios and Eel River below Dos Rios. No correction made for inflow between stations.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 8, 1963.....	24	--		--	--	13	--	114	8	--	20		--	0.4	--	--		138	31	0.5	332	8.4
Nov. 9.....	4950	--		--	--	2.4	--	50	0	--	1.5		2.6	--	--	--		48	7	.1	104	7.5
Nov. 14.....	4020	--		--	--	3.7	--	74	0	--	2.1		--	.1	--	--		70	9	.2	155	7.8
Dec. 12.....	520	--		--	--	4.1	--	91	0	--	2.5		--	.1	--	--		84	9	.2	182	7.9
Jan. 7, 1964.....	787	--		--	--	5.0	--	88	0	--	3.7		--	.0	--	--		80	8	.2	173	7.7
Jan. 21.....	15100	--		--	--	3.4	--	62	0	--	1.0		3.1	.1	--	--		53	0	.2	115	7.8
Feb. 4.....	2660	--		--	--	3.8	--	71	0	--	2.0		--	.1	--	--		63	5	.2	134	8.1
Mar. 11.....	893	--		--	--	4.7	--	90	1	--	2.5		--	.1	--	--		83	8	.2	179	8.3
Apr. 14.....	1048					3.8	--	71	0	--	3.2			.0	--	--		64	6	.2	136	8.2
May 11.....	589	8.3		18	6.1	4.0	0.5	77	0	8.0	2.0	0.0	1.8	.1	89	0.12		70	7	.2	151	8.2
June 2.....	256	--		--	--	4.9	--	88	2	--	3.0		--	.0	--	--		84	9	.2	179	8.3
July 14.....	37	--		--	--	9.1	--	112	7	--	8.0		--	.2	--	--		121	18	.4	267	8.6
Aug. 10.....	13					12	--	101	6	--	16		--	.3	--	--		120	27	.5	285	8.6
Sept. 1.....	6.0	9.3		39	9.6	13	1.4	125	0	32	24		.8	.3	A 191	.26		137	35	.5	334	8.1

A Calculated from sum of determined constituents.

Temperature (°F) of water, water year October 1963 to September 1964

Temperature (°F) of water, water year October 1963 to September 1964																																
Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October .....	--	--	--	--	--	69	--	--	63	70	62	--	--	--	62	--	--	--	--	--	61	--	--	56	57	--	--	--	59	--	54	--
November .....	--	57	54	52	51	49	49	49	50	50	50	49	50	52	48	46	46	48	47	46	44	42	47	48	47	49	47	44	46	44	--	48
December .....	44	44	42	--	43	45	--	--	44	--	--	39	--	41	--	42	--	42	43	46	42	42	41	41	41	43	46	48	48	49	45	--
January .....	--	44	--	40	--	39	42	42	41	--	38	41	39	40	40	40	41	42	45	40	39	39	40	42	45	44	44	42	44	45	41	
February .....	47	45	43	45	44	44	43	45	44	46	44	42	42	41	42	42	40	45	46	45	46	--	46	46	45	45	42	43	44	--	44	
March .....	46	47	45	46	46	45	45	46	--	--	--	44	44	48	50	--	48	49	52	49	46	43	45	46	42	45	48	52	48	48	47	
April .....	51	44	51	51	50	48	52	56	53	54	51	55	57	60	57	56	55	--	54	56	--	54	52	47	--	58	52	60	--	57	--	54
May .....	--	52	50	54	51	55	--	55	--	--	--	--	59	--	60	64	--	66	--	67	--	64	--	70	--	60	--	70	--	71	--	--
June .....	--	69	--	66	69	66	63	60	--	66	--	71	--	75	--	70	--	72	--	75	--	70	--	80	--	79	--	--	--	78	--	--
July .....	--	--	75	--	--	77	--	--	81	--	--	77	--	--	77	--	--	70	--	--	82	--	--	79	--	--	74	--	--	--	--	--
August .....	--	80	--	--	77	--	--	--	80	78	--	--	--	79	--	--	--	--	79	--	--	--	--	--	75	--	--	--	--	72	--	--
September .....	--	--	--	--	74	--	--	--	--	--	--	--	--	--	73	--	--	--	--	--	--	--	73	--	--	--	--	71	--	64	--	--

## EEL RIVER BASIN--Continued

11-4739. MIDDLE FORK EEL RIVER AT DOS RIOS, CALIF.--Continued

Monthly and annual summary of suspended-sediment discharge,  
water year October 1963 to September 1964

Month	Discharge (cfs)	Suspended sediment (tons)
October 1963.....	2,315.1	43
November.....	73,745	214,000
December.....	19,508	1,310
January 1964.....	105,711	534,000
February.....	43,764	6,860
March.....	30,856	2,020
April.....	28,102	990
May.....	15,049	180
June.....	5,455	35
July.....	1,273.8	5
August.....	354.6	1
September.....	192.8	1
Total for year.....	326,326.3	759,445

Particle-size analyses of suspended sediment, water year October 1963 to September 1964  
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentra- tion (ppm)	Sediment discharge (tons per day)	Suspended sediment										Method of analysis
							Percent finer than size indicated, in millimeters										
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	
Nov. 6, 1963.....	0715	49		E 4300	1410	--	--	--	--	--	46	57	78	97	100		V
Nov. 10.....	1615	50		E 1600	111	--	--	--	--	--	81	86	96	100	--		V
Nov. 14.....	1645	54		E 5800	4810	--	19	--	32	--	51	66	86	98	100		VPWC
Nov. 23.....	0930	47		E 12000	2710	--	30	--	44	--	68	82	93	98	100		VPWC
Nov. 23.....	1640	48		E 20000	3050	19	26	34	42	53	61	75	88	97	100		VPWC
Dec. 20.....	1415	46		E 1500	217	--	--	--	--	--	76	83	92	100	--		S
Jan. 19, 1964.....	0830	42		E 6900	1100	--	--	--	--	--	61	71	84	96	100		V
Jan. 20.....	0830	45		E 14000	6470	--	27	--	42	--	61	79	92	99	100		VPWC
Jan. 20.....	1655	45		E 49000	5510	23	30	42	51	63	72	85	94	99	100		VPWC
Jan. 22.....	1525	39		E 6900	674	--	--	--	--	--	61	74	89	98	100		V
Jan. 26.....	1355	45		E 4700	274	--	--	--	--	--	70	76	91	99	100		V
Mar. 19.....	1640	52		970	15	--	--	--	--	--	74	79	91	100	--		V

Particle-size analyses of bed material, water year October 1963 to September 1964  
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentra- tion (ppm)	Sediment discharge (tons per day)	Bed material											Method of analysis
							Percent finer than size indicated, in millimeters											
							0.062	0.125	0.250	0.500	1.000	2.000	4.000	8.000	16.000	32.000	64.000	
Oct. 9, 1963.....	1130		5	E 24					1	3	8	17	32	51	80	90	100	S
Mar. 19, 1964.....	1800		7	970						2	6	12	23	43	74	89	100	S

E Estimated.

## EEL RIVER BASIN--Continued

11-4750. EEL RIVER AT ALDERPOINT, CALIF.

LOCATION.--Temperature recorder at gaging station at Alderpoint, Humboldt County, 600 feet downstream from Carter Creek, and 11.4 miles northeast of Garberville.

DRAINAGE AREA.--2,079 square miles.

RECORDS AVAILABLE.--Water temperatures: November 1960 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 85°F July 14; minimum, 44°F on several days during winter months.

EXTREMES, 1960-64.--Water temperatures: Maximum, 85°F July 14, 1964; minimum, 37°F Jan. 14, 15, 1963.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum ....	73	70	70	68	66	69	69	68	67	66	64	67	65	65	64	65	64	64	66	65	64	64	63	63	62	62	60	60	59	58	56	65	
Minimum ....	66	65	66	65	64	64	64	64	66	63	63	64	64	64	64	64	64	64	64	64	64	63	62	62	62	60	58	58	58	56	54	63	
November																																	
Maximum ....	56	56	56	55	54	54	52	52	52	52	52	52	52	52	52	51	50	49	48	48	48	46	47	47	47	47	48	48	48	47	—	51	
Minimum ....	54	54	55	54	54	52	52	52	52	52	52	52	52	52	52	51	50	49	48	48	48	46	45	45	47	47	47	47	48	47	46	50	
December																																	
Maximum ....	46	46	45	46	45	46	46	46	47	47	46	46	45	44	44	44	44	45	45	46	46	46	46	46	45	46	47	48	49	49	49	46	
Minimum ....	46	45	45	45	45	45	46	46	46	46	46	46	45	44	44	44	44	44	45	45	45	46	46	46	45	45	45	46	47	48	49	46	
January																																	
Maximum ....	49	48	48	47	47	46	46	46	46	46	46	45	44	44	44	44	44	44	45	46	46	45	44	44	44	44	45	45	45	45	45	45	
Minimum ....	48	48	47	47	46	46	46	46	46	46	45	44	44	44	44	44	44	44	44	45	45	44	44	44	44	44	45	45	45	45	45	45	
February																																	
Maximum ....	46	46	46	46	46	45	44	44	45	45	45	45	45	45	44	45	45	46	46	46	46	46	46	46	46	46	46	46	46	—	—	45	
Minimum ....	45	46	46	45	45	44	44	44	44	45	45	45	45	44	44	44	44	44	45	46	46	45	46	46	46	46	46	46	46	—	—	45	
March																																	
Maximum ....	46	46	46	46	47	47	47	47	48	48	48	47	46	46	48	49	50	51	51	51	50	50	49	48	48	48	49	51	51	52	52	49	
Minimum ....	46	46	45	45	46	47	47	47	47	47	47	47	46	46	46	48	49	50	50	50	50	49	48	48	48	48	49	50	51	52	52	48	
April																																	
Maximum ....	52	52	51	52	53	53	54	55	55	55	56	56	57	58	59	59	58	57	57	58	58	58	58	56	56	58	60	62	62	60	—	56	
Minimum ....	52	51	50	51	52	52	53	53	55	54	55	55	55	56	58	58	56	56	56	57	57	58	56	54	54	56	58	60	60	59	—	55	
May																																	
Maximum ....	58	58	57	56	56	56	58	60	62	64	66	66	66	65	65	65	65	66	66	66	66	66	67	68	68	68	67	67	68	68	70	64	
Minimum ....	58	57	56	56	55	54	55	58	60	62	64	64	64	63	63	63	64	64	65	64	64	65	66	66	66	67	66	66	66	67	62	62	
June																																	
Maximum ....	70	70	69	67	68	68	68	66	65	65	68	69	70	72	70	71	70	70	70	71	72	74	74	76	76	73	73	74	76	75	—	71	
Minimum ....	67	67	66	67	67	67	66	65	64	64	64	66	66	68	68	67	68	67	68	67	67	67	68	68	70	71	73	70	68	68	69	—	67
July																																	
Maximum ....	72	74	74	72	74	76	77	73	75	76	79	81	80	85	79	78	77	75	76	77	76	77	79	81	83	83	83	78	83	76	78	78	
Minimum ....	69	68	68	68	67	68	70	70	68	67	69	71	72	71	72	69	70	69	67	69	70	69	69	71	73	73	71	74	73	71	69	70	
August																																	
Maximum ....	77	78	78	78	78	76	76	77	77	79	74	76	75	76	74	74	75	74	73	76	79	79	79	80	78	74	73	71	72	69	69	76	
Minimum ....	70	69	68	70	70	69	69	69	69	68	68	68	68	67	66	66	66	66	64	64	68	69	69	72	69	67	64	65	62	63	61	67	
September																																	
Maximum ....	70	72	75	73	73	73	72	71	73	74	74	73	72	72	73	73	70	70	70	70	68	73	76	77	73	72	70	69	68	68	—	72	
Minimum ....	62	61	64	65	66	64	65	64	64	64	64	64	65	64	63	63	64	66	62	62	65	61	62	65	66	66	63	63	63	60	—	64	

## EEL RIVER BASIN--Continued

11-4752.5, EEL RIVER AT MCCANN, CALIF.

LOCATION.--Downstream from Summer Bridge approximately 0.5 mile northwest of McCann, Humboldt County, and 6.5 miles upstream from confluence with the South Fork.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

REMARKS.--No discharge records available.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 2, 1963.....		--	--	--	--	8.0	--	129	8	--	6.5		--	0.2	--	--		131	12	0.3	284	8.4
Nov. 13.....		--	--	--	--	4.2	--	79	0	--	3.2		--	.0	--	--		73	8	.2	164	8.0
Dec. 11.....		--	--	--	--	4.4	--	88	0	--	2.5		--	.1	--	--		79	7	.2	175	8.0
Jan. 14, 1964.....		--	--	--	--	4.2	--	76	2	--	3.2		--	.2	--	--		64	0	.2	163	8.3
Feb. 11.....		--	--	--	--	4.7	--	78	2	--	2.0		--	.1	--	--		71	4	.2	158	8.3
Mar. 10.....		--	--	--	--	5.2	--	91	2	--	2.5		--	.2	--	--		85	7	.2	186	8.5
Apr. 14.....		--	--	--	--	4.9	--	85	2	--	4.0		--	.1	--	--		81	8	.2	173	8.3
May 12.....		8.0		26	6.1	5.3	0.8	100	0	13	2.5	0.2	2.0	.1	113	0.15		90	8	.2	195	8.2
June 3.....		--	--	--	--	6.1	--	106	2	--	2.5		--	.2	--	--		97	7	.3	209	8.4
July 14.....		--	--	--	--	8.1	--	127	5	--	5.0		--	.1	--	--		120	8	.3	256	8.4
Aug. 11.....		--	--	--	--	7.6	--	114	4	--	4.5		--	.2	--	--		120	20	.3	259	8.4
Sept. 15.....		9.6		35	9.4	8.2	1.2	137	0	21	5.5		.8	.2	158	.21		126	14	.3	275	8.2

## EEL RIVER BASIN--Continued

11-4755. SOUTH FORK EEL RIVER NEAR BRANSCOMB, CALIF.

LOCATION.--At gaging station 0.4 mile upstream from Jack of Hearts Creek, and 4.7 miles north of Branscomb, Mendocino County.  
DRAINAGE AREA.--43.9 square miles.

RECORDS AVAILABLE.--Water temperatures: October 1960 to September 1964.  
Sediment records: October 1962 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 79°F July 13, 24, 25; minimum, 41°F on several days during January.

Sediment concentrations: Maximum daily, 1,060 ppm Jan. 20; minimum daily, 1 ppm on many days.

Sediment loads: Maximum daily, 14,300 tons Jan. 20; minimum daily, less than 0.05 ton on many days.

EXTREMES, 1960-64.--Water temperatures: Maximum (1960-61, 1962-64), 82°F Aug. 7, 1961; minimum (1961-64), 37°F Nov. 17, 18, 1961.

Sediment concentrations (1962-64): Maximum daily, 1,300 ppm Jan. 31, 1963; minimum daily, 1 ppm on many days during 1963-64.

Sediment loads (1962-64): Maximum daily, 14,300 tons Jan. 20, 1964; minimum daily, less than 0.05 ton on many days during 1963-64.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum ....	62	62	61	60	58	60	61	60	58	59	57	56	57	57	57	57	58	58	59	59	58	58	58	55	54	54	54	52	53	53	48	57	
Minimum ....	55	56	55	57	58	58	58	57	58	57	56	56	56	57	57	56	56	58	58	58	58	58	55	54	54	53	51	50	50	48	46	55	
November																																	
Maximum ....	46	47	46	47	47	47	47	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	50	50	50	50	49	--	--	
Minimum ....	45	46	46	46	47	47	47	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	50	50	50	49	49	--	--	
December																																	
Maximum ....	49	49	49	48	48	48	47	46	45	44	44	43	43	43	43	43	43	43	44	44	44	44	44	44	44	43	44	45	46	46	45	45	
Minimum ....	49	49	48	48	48	47	46	45	44	43	43	43	43	43	43	43	43	43	43	44	44	44	44	44	44	43	43	43	44	45	45	44	45
January																																	
Maximum ....	44	44	44	43	43	42	44	44	43	42	41	41	41	41	41	41	41	42	42	44	44	44	44	44	44	43	43	43	43	43	43	43	
Minimum ....	44	44	43	43	42	42	42	42	42	41	41	41	41	41	41	41	41	41	42	42	44	44	44	44	43	43	43	43	43	43	43	42	
February																																	
Maximum ....	43	43	43	43	43	43	43	43	43	43	42	42	42	42	43	43	43	43	43	44	44	44	44	44	45	45	44	44	44	44	--	--	43
Minimum ....	43	43	43	43	43	43	43	43	43	43	42	42	42	42	43	43	43	43	43	43	44	44	44	44	44	44	44	44	44	44	--	--	43
March																																	
Maximum ....	45	45	45	48	49	48	47	47	47	47	48	47	46	47	48	51	52	50	50	49	49	46	47	46	45	47	47	49	49	49	49	48	
Minimum ....	44	45	44	45	48	46	45	45	47	47	47	46	46	47	48	48	48	48	47	46	46	46	45	45	45	45	45	46	46	47	48	49	46
April																																	
Maximum ....	49	48	49	50	50	50	51	51	51	51	51	51	53	55	56	55	53	51	52	52	54	54	51	49	51	54	56	58	58	54	--	52	
Minimum ....	48	45	46	47	47	46	47	47	48	47	49	48	49	50	52	51	49	48	48	51	50	51	47	47	48	50	52	54	54	51	--	49	
May																																	
Maximum ....	51	50	48	49	49	50	52	55	58	58	60	59	58	58	58	57	54	56	59	59	60	61	61	62	61	60	57	59	61	63	63	57	
Minimum ....	50	48	46	47	48	46	49	51	53	55	55	56	56	55	54	54	53	54	55	57	56	56	57	58	58	56	55	56	57	58	59	54	
June																																	
Maximum ....	62	60	58	58	58	58	58	58	55	54	59	63	65	67	66	63	62	63	63	65	67	71	73	74	73	70	67	68	70	68	--	64	
Minimum ....	59	57	57	58	58	58	57	55	54	54	54	58	60	62	63	60	59	58	58	58	59	62	62	63	62	63	59	59	62	61	--	59	
July																																	
Maximum ....	67	68	67	68	71	72	72	70	70	72	74	77	79	74	72	73	75	73	73	73	73	74	77	79	79	78	77	75	77	74	72	73	
Minimum ....	61	61	60	62	63	63	64	64	61	63	64	68	70	69	67	65	66	68	65	65	66	68	66	69	69	69	69	72	70	69	66	66	
August																																	
Maximum ....	73	72	70	71	72	71	72	73	73	73	70	70	71	72	71	71	70	70	70	73	72	71	73	72	73	72	69	67	67	66	65	62	70
Minimum ....	70	66	65	64	64	65	65	65	65	66	66	66	63	64	65	65	63	63	64	63	66	66	66	66	66	65	64	62	61	61	58	64	
September																																	
Maximum ....	60	61	62	63	62	62	61	60	61	61	56	60	59	61	62	61	61	61	61	62	62	62	64	66	66	64	62	59	59	58	--	61	
Minimum ....	57	56	56	57	57	57	57	57	56	55	55	54	55	55	56	55	57	55	57	55	57	58	58	57	59	59	58	58	56	56	55	--	57



## EEL RIVER BASIN--Continued

11-4755. SOUTH FORK EEL RIVER NEAR BRANSCOMB, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964  
(Where no concentrations are reported, loads are estimated)

Day	OCTOBER			NOVEMBER			DECEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	3.0	--	T	9.4	--	0.1	138	--	3.0
2..	3.0	--	T	16	12	.5	121	--	2.0
3..	3.0	2	T	15	16	.6	108	--	1.2
4..	3.0	--	T	183	252	S 151	98	3	.8
5..	3.7	--	T	89	38	9.1	89	--	1.0
6..	5.7	--	T	323	357	S 379	83	5	1.1
7..	5.0	2	T	154	--	31	76	--	.8
8..	4.6	--	T	944	348	S 1070	102	15	S 5.6
9..	6.0	--	T	1040	225	S 797	151	22	K 10
10..	11	7	.2	428	20	23	108	6	1.7
11..	32	61	S 5.4	250	10	6.8	96	5	1.3
12..	17	--	1.4	170	--	2.3	87	--	.9
13..	11	24	.7	141	11	4.2	81	--	.9
14..	7.8	--	.5	840	191	S 598	78	5	1.1
15..	34	110	K 14	722	57	S 121	72	--	.8
16..	34	92	8.4	460	--	21	67	4	.7
17..	17	--	1.2	332	8	7.2	63	--	.7
18..	13	6	.2	244	5	3.3	60	--	.8
19..	12	--	.2	350	28	K 29	72	12	S 3.2
20..	9.9	4	.1	332	10	9.0	344	90	S 100
21..	11	--	.1	259	--	4.2	186	12	6.0
22..	15	15	S .9	285	18	S 26	154	4	1.7
23..	36	--	2.0	1470	343	S 1500	133	--	1.8
24..	23	--	.7	1050	100	K 320	126	8	2.7
25..	19	--	.5	607	30	49	116	9	2.8
26..	16	10	.4	428	12	14	106	6	1.7
27..	14	--	.3	320	--	6.9	131	6	2.1
28..	12	6	.2	247	7	4.7	133	4	1.4
29..	11	--	.1	198	--	4.3	124	--	1.0
30..	11	3	.1	161	10	4.3	116	2	.6
31..	9.4	--	.1	--	--	--	108	--	.6
Total	413.1	--	37.9	12067.4	--	5196.5	3527	--	160.0
Day	JANUARY			FEBRUARY			MARCH		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	104	2	0.6	313	--	5.9	136	156	S 96
2..	104	--	.6	268	6	4.3	116	--	31
3..	92	3	.7	223	--	3.6	85	--	5.7
4..	87	--	.5	192	7	3.6	78	6	1.3
5..	81	3	.7	170	--	2.8	71	--	.8
6..	100	10	2.7	151	5	2.0	67	3	.5
7..	156	11	4.6	133	--	1.8	62	--	.3
8..	131	--	2.8	124	5	1.7	56	2	.3
9..	138	6	2.2	112	--	1.2	55	--	.3
10..	138	--	1.9	106	--	.9	52	--	.3
11..	124	3	1.0	98	2	.5	145	52	S 44
12..	114	--	1.2	90	--	.5	262	41	S 32
13..	128	12	S 5.0	85	3	.7	283	--	17
14..	131	--	2.1	85	4	.9	229	--	5.6
15..	116	3	.9	89	--	.7	184	5	2.5
16..	190	13	K 9.0	78	2	.4	159	--	1.7
17..	628	101	S 295	74	2	.4	138	4	1.5
18..	1010	82	S 237	69	--	.4	119	--	1.3
19..	2250	426	S 2700	63	--	.3	108	3	.9
20..	4210	1060	S 14300	60	--	.3	98	6	1.6
21..	2030	370	S 2150	56	--	.3	112	14	4.2
22..	1100	142	S 452	53	--	.3	131	--	6.4
23..	715	--	110	52	--	.3	143	13	5.0
24..	726	44	86	50	2	.3	133	--	2.9
25..	790	32	68	47	--	.3	119	6	1.9
26..	682	23	42	45	--	.2	110	--	1.2
27..	554	--	25	44	--	.2	102	2	.6
28..	448	12	15	45	4	.5	96	--	.5
29..	464	41	S 57	47	--	.5	89	4	1.0
30..	409	14	15	--	--	--	83	--	.9
31..	358	8	7.7	--	--	--	90	9	2.2
Total	18308	--	20596.2	3022	--	35.8	3711	--	271.4

S Computed by subdividing day.

T Less than 0.05 ton.

K Computed from estimated-concentration graph and subdividing day.

## EEL RIVER BASIN--Continued

11-4755. SOUTH FORK EEL RIVER NEAR BRANSCOMB, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964--Continued

Day	APRIL			MAY			JUNE		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	119	--	3.2	32	--	0.3	16	2	0.1
2..	98	--	1.3	29	4	.3	16	--	.2
3..	90	--	1.0	56	20	3.0	16	6	.3
4..	83	3	.7	48	--	2.1	16	--	.3
5..	80	--	.6	38	4	.4	20	7	.4
6..	76	3	.6	36	--	.3	21	--	.3
7..	71	--	.6	32	--	.3	21	4	.2
8..	67	3	.5	29	--	.3	19	--	.2
9..	63	--	.5	28	4	.3	17	--	.1
10..	58	2	.3	26	--	.3	17	3	.1
11..	56	--	.3	25	3	.2	16	--	.1
12..	53	3	.4	24	--	.2	15	--	.1
13..	50	--	.4	23	3	.2	14	2	.1
14..	47	3	.4	22	--	.2	13	--	.1
15..	44	--	.4	22	--	.2	12	2	.1
16..	42	3	.3	23	5	.3	12	--	.1
17..	41	--	.3	25	--	.3	12	2	.1
18..	41	2	.2	23	4	.2	12	--	.1
19..	39	--	.2	22	--	.2	12	--	.1
20..	38	3	.3	21	--	.2	12	--	.1
21..	37	--	.3	20	2	.1	11	2	.1
22..	34	3	.3	20	--	.1	9.9	--	.1
23..	34	--	.3	19	--	.2	8.8	--	T
24..	33	--	.3	18	3	.1	8.8	2	T
25..	33	3	.3	18	--	.1	8.3	--	T
26..	32	--	.3	18	2	.1	8.3	1	T
27..	29	4	.3	18	--	.1	8.3	--	T
28..	29	6	.5	18	--	.1	8.3	--	T
29..	28	--	.4	17	2	.1	8.3	1	T
30..	28	4	.3	17	--	.1	8.3	--	T
31..	--	--	--	16	--	.1	--	--	--
Total	1573	--	15.8	783	--	11.0	397.3	--	3.7
	JULY			AUGUST			SEPTEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	7.8	--		4.6	--		2.5	--	
2..	8.3	1		4.6	--		2.5	1	
3..	8.3	--		4.6	2		2.5	--	
4..	8.3	--		4.3	--		2.5	--	
5..	7.8	--		4.0	--		2.5	--	
6..	7.3	1		3.5	2		2.5	1	
7..	6.8	1		3.2	--		2.7	--	
8..	6.4	--		3.2	--		2.7	--	
9..	6.4	2		3.5	--		2.7	.3	
10..	6.0	--		3.5	2		2.7	--	
11..	5.7	--		3.5	2		2.5	--	
12..	5.3	2		3.5	2		2.5	--	
13..	5.0	--		3.7	--		2.5	1	
14..	5.3	--		3.5	--		2.5	--	
15..	5.7	2		3.5	--		2.3	1	
16..	6.0	--		3.5	1		2.1	--	
17..	5.7	--		3.5	--		2.1	--	
18..	5.3	--		3.5	--		1.7	1	
19..	5.0	2		3.2	2		1.7	--	
20..	5.0	--		3.2	--		1.6	--	
21..	4.6	--		3.0	1		1.6	--	
22..	4.6	2		2.7	--		1.4	--	
23..	4.6	--		2.7	--		1.3	2	
24..	4.3	--		2.5	2		1.3	--	
25..	4.0	--		2.5	--		1.3	--	
26..	3.7	3		2.5	--		1.4	1	
27..	3.7	--		2.3	1		1.7	--	
28..	3.7	2		2.5	--		2.1	--	
29..	4.0	--		2.5	--		2.3	5	
30..	4.0	--		2.5	2		2.1	--	
31..	3.7	2		2.5	--		--	--	
Total	172.3	--	0.8	101.8	--	0.5	63.8	--	0.3

Total discharge for year (cfs-days)..... 44,139.7  
 Total load for year (tons)..... 26,329.9

T Less than 0.05 ton.

## EEL RIVER BASIN--Continued

11-4755. SOUTH FORK EEL RIVER NEAR BRANSCOMB, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1933 to September 1964  
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concent- ration (ppm)	Sediment discharge (tons per day)	Suspended sediment										Method of analysis
							Percent finer than size indicated, in millimeters										
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	
Oct. 16, 1963.....	0745	56		39	108						100	---	---	---			S
Nov. 4.....	0830	47		256	383						100	---	---	---			S
Nov. 23.....	1630	50		1800	458						83	91	98	100			V
Dec. 20.....	0900	44		345	118						100	---	---	---			S
Jan. 19, 1964.....	0930	44		2470	558						70	80	95	100			V
Jan. 20.....	0820	44		3580	971						84	92	99	100			V
Jan. 20.....	1315	44		6700	1880		24	33	46	58	71	80	89	96	99	100	VPWC
Jan. 20.....	1640	44		5270	1220							84	92	98	100		V
Mar. 1.....	1745	45		271	448							100	---	---	---		S
Mar. 11.....	1730	46		178	75							99	100	---	---		S

## EEL RIVER BASIN--Continued

11-4765. SOUTH FORK EEL RIVER NEAR MIRANDA, CALIF.

LOCATION.--At gaging station at Sylvandale Campgrounds on U.S. Highway 101, 0.5 mile upstream from Rocky Glen Creek, 4.3 miles southeast of Miranda, Humboldt County, and 20 miles upstream from mouth.

DRAINAGE AREA.--537 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

Water temperatures: November 1960 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 93°F July 25; minimum, 38°F Jan. 11.

EXTREMES, 1960-64.--Water temperatures: Maximum (1960-61, 1963-64), 93°F July 25, 1964; minimum, 34°F Jan. 20, 21, 1963.

## Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 2, 1963.....	50	--	--	--	--	8.3	--	139	0	--	9.6	--	--	0.0	--	--	--	110	0	0.3	244	8.2
Nov. 9.....	10900	--	--	--	--	3.9	--	38	0	--	3.5	--	2.4	--	--	--	--	36	5	.3	94	7.3
Nov. 13.....	1540	--	--	--	--	5.5	--	70	0	--	5.4	--	--	.1	--	--	--	57	0	.3	139	8.0
Dec. 11.....	964	--	--	--	--	5.5	--	71	0	--	5.0	--	--	.1	--	--	--	58	0	.3	141	8.0
Jan. 14, 1964.....	1400	--	--	--	--	6.6	--	66	0	--	5.0	--	--	.0	--	--	--	56	2	.4	131	8.0
Jan. 21.....	25000	--	--	--	--	4.6	--	42	0	--	2.0	--	2.2	.1	--	--	--	35	1	.3	88	7.5
Feb. 11.....	1100	--	--	--	--	6.4	--	72	1	--	4.0	--	--	.0	--	--	--	58	0	.4	142	8.3
Mar. 10.....	524	--	--	--	--	6.9	--	76	2	--	6.1	--	--	.1	--	--	--	66	0	.4	153	8.3
Apr. 14.....	464	--	--	--	--	6.9	--	82	2	--	5.9	--	--	.1	--	--	--	70	0	.4	159	8.4
May 12.....	254	13	--	20	6.6	7.4	1.0	96	0	7.0	2.5	0.2	2.5	.0	A 107	0.15	--	77	0	.4	183	8.2
June 3.....	170	--	--	--	--	8.3	--	101	3	--	4.0	--	--	.2	--	--	--	87	0	.4	164	8.5
July 14.....	84	--	--	--	--	9.2	--	110	6	--	5.5	--	--	.1	--	--	--	97	0	.4	222	8.5
Aug. 11.....	48	--	--	--	--	9.4	--	114	2	--	6.2	--	--	.2	--	--	--	93	0	.4	219	8.4
Sept. 15.....	32	4.7	--	29	10	9.9	1.2	139	0	9.0	7.4	--	.9	.1	157	.21	--	114	0	.4	248	8.2

A Calculated from sum of determined constituents.

## EEL RIVER BASIN--Continued

11-4765. SOUTH FORK EEL RIVER NEAR MIRANDA, CALIF.--Continued

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum ....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	62	60	59	65	59	63	62	62	57	59	59	60	59	59	59	60	--	
Minimum ....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	57	58	58	58	58	59	58	60	55	56	53	52	51	55	51	52	--	
November																																	
Maximum ....	57	56	54	58	54	53	51	55	60	57	57	55	56	56	53	52	50	53	52	50	48	48	50	53	54	51	54	50	50	49	--	53	
Minimum ....	49	54	52	54	53	51	49	51	55	54	53	54	54	53	50	49	48	50	50	46	43	44	48	49	48	50	50	47	46	46	--	50	
December																																	
Maximum ....	48	48	48	49	48	53	49	47	48	48	42	44	43	42	44	44	44	43	46	48	46	47	47	44	46	46	49	51	52	54	52	47	
Minimum ....	45	44	46	45	45	47	45	45	44	42	41	40	40	40	41	42	42	42	43	46	45	44	42	41	44	46	46	49	51	51	50	48	44
January																																	
Maximum ....	48	49	47	47	45	42	46	46	44	44	42	46	42	46	43	44	44	44	48	48	46	43	43	44	48	49	48	49	47	48	48	46	
Minimum ....	46	45	43	41	39	40	42	40	42	41	38	40	42	40	39	40	42	43	43	46	43	43	43	44	44	44	45	46	45	46	46	43	
February																																	
Maximum ....	50	52	50	54	53	54	54	54	55	52	52	51	50	51	48	50	52	54	47	58	56	57	57	53	55	54	54	48	52	--	--	53	
Minimum ....	47	45	42	45	48	44	44	45	48	49	49	44	44	44	46	44	43	46	47	46	45	45	45	46	45	43	45	47	44	--	--	45	
March																																	
Maximum ....	54	54	48	51	48	46	47	49	49	50	47	43	46	48	52	55	53	53	55	49	48	45	47	47	48	50	53	55	56	54	49	50	
Minimum ....	48	48	41	46	46	42	49	40	45	41	42	41	41	41	45	46	47	47	45	46	45	42	42	41	40	43	43	43	45	47	46	44	
April																																	
Maximum ....	49	48	51	52	50	52	57	58	55	55	53	54	60	63	59	54	54	57	61	59	59	53	51	53	57	60	64	66	60	54	--	56	
Minimum ....	46	43	41	44	45	43	47	50	51	46	48	46	47	50	50	50	48	47	48	51	52	51	46	45	47	50	54	53	51	47	--	48	
May																																	
Maximum ....	50	50	52	52	50	54	58	62	66	66	66	66	64	66	68	58	64	65	66	67	66	67	71	72	74	65	70	70	74	74	77	64	
Minimum ....	49	48	46	48	46	44	50	52	54	56	56	54	56	54	53	54	56	57	54	58	58	55	56	59	59	60	58	59	59	60	61	54	
June																																	
Maximum ....	73	74	71	67	66	66	64	60	62	66	72	72	76	74	72	76	72	72	71	74	76	83	82	82	82	72	73	78	78	78	--	73	
Minimum ....	62	60	61	63	64	63	60	58	57	57	59	62	62	64	64	62	66	62	63	62	63	61	66	65	64	63	62	58	62	63	--	62	
July																																	
Maximum ....	72	76	76	72	76	80	82	76	76	80	89	88	85	77	78	82	79	78	80	81	79	80	86	92	93	90	91	82	90	80	80	81	
Minimum ....	64	62	62	63	63	64	64	66	61	61	65	68	68	67	71	68	66	68	66	66	70	66	66	70	73	73	74	76	74	72	68	67	
August																																	
Maximum ....	82	82	85	84	85	83	80	81	81	85	77	79	78	79	78	80	78	76	76	83	86	88	89	90	86	78	77	74	75	68	70	80	
Minimum ....	72	69	67	70	68	67	66	68	66	67	70	65	66	64	64	63	66	66	62	63	67	69	70	70	70	68	63	66	61	64	61	66	
September																																	
Maximum ....	72	74	77	74	72	73	73	70	74	76	77	77	71	71	74	75	70	69	70	67	70	76	82	84	77	73	68	70	64	67	--	73	
Minimum ....	61	58	60	60	62	61	59	58	59	58	59	58	61	58	58	58	62	56	55	62	54	56	61	63	62	60	58	58	57	54	--	59	

## EEL RIVER BASIN--Continued

11-4770. EEL RIVER AT SCOTIA, CALIF.

LOCATION.--At gaging station at bridge on U.S. Highway 101, 0.5 mile north of Scotia, Humboldt County, and 6 miles upstream from Van Duzen River.

DRAINAGE AREA.--3,113 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

Water temperatures: October 1957 to September 1964.

Sediment records: October 1957 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 72°F July 11, 24, Sept. 24; minimum, 43°F Dec. 13-15, on several days during January.

Sediment concentrations: Maximum daily, 5,090 ppm Jan. 20; minimum daily, 1 ppm on several days.

Sediment loads: Maximum daily, 1,660,000 tons Jan. 20; minimum daily, 0.3 ton Oct. 2, 3.

EXTREMES, 1957-64.--Water temperatures: Maximum (1960-64), 76°F Aug. 16, 1962; minimum, 38°F Jan. 13, 14, 1963.

Sediment concentrations: Maximum daily, 7,340 ppm Feb. 8, 1960; minimum daily, 1 ppm on many days in 1958-64.

Sediment loads: Maximum daily, 5,380,000 tons Feb. 8, 1960; minimum daily, 0.3 ton on many days in 1958-63.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 2, 1963.....	126	---	---	---	---	9.0	---	142	10	---	7.8	---	---	0.2	---	---	---	136	3	0.3	291	8.5
Nov. 13.....	4410	---	---	---	---	5.0	---	79	0	---	4.8	---	---	.1	---	---	---	69	4	.3	156	8.1
Dec. 11.....	3530	---	---	---	---	5.5	---	90	0	---	4.0	---	---	.0	---	---	---	78	4	.3	176	8.2
Jan. 14, 1964.....	4830	---	---	---	---	5.5	---	66	1	---	4.5	---	---	.1	---	---	---	68	12	.3	159	8.3
Feb. 11.....	4930	---	---	---	---	5.5	---	84	0	---	2.8	---	---	.1	---	---	---	72	3	.3	162	8.2
Mar. 10.....	2460	---	---	---	---	6.5	---	91	1	---	2.5	---	---	.1	---	---	---	80	4	.3	183	8.4
Apr. 14.....	2740	---	---	---	---	4.7	---	94	1	---	4.8	---	---	.1	---	---	---	83	4	.2	177	8.3
May 12.....	1350	11	---	23	8.9	6.6	0.9	107	2	15	3.5	0.2	1.9	.1	129	0.18	---	94	3	.3	208	8.4
June 3.....	694	---	---	---	---	7.2	---	115	4	---	3.0	---	---	.1	---	---	---	104	3	.3	227	8.5
July 14.....	240	---	---	---	---	9.2	---	141	7	---	5.0	---	---	.1	---	---	---	132	5	.3	281	8.4
Aug. 11.....	122	---	---	---	---	9.4	---	142	6	---	5.5	---	---	.1	---	---	---	129	3	.4	279	8.6
Sept. 15.....	76	8.6	---	30	11	11	1.6	134	4	15	9.5	---	1.1	.1	A 158	.21	---	119	3	.4	269	8.3

A Calculated from sum of determined constituents.

## EEL RIVER BASIN--Continued

11-4770. EEL RIVER AT SCOTIA, CALIF.--Continued

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																																Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum ....	68	66	67	65	64	63	64	64	64	64	62	61	61	61	60	60	60	60	60	60	60	60	59	59	59	59	58	58	57	57	56	61	
Minimum ....	62	64	63	64	62	62	63	63	64	62	61	61	61	60	60	60	60	60	60	60	60	60	59	59	59	58	58	57	57	56	55	60	
November																																	
Maximum ....	56	56	56	54	54	54	54	52	53	53	53	53	53	53	52	51	50	50	50	50	50	48	48	48	48	48	48	48	48	48	—	51	
Minimum ....	54	56	54	54	54	54	52	52	52	53	53	53	53	53	52	51	50	50	50	50	48	48	48	48	48	48	48	48	48	48	—	51	
December																																	
Maximum ....	48	48	45	45	45	46	46	46	46	46	45	44	44	44	43	44	44	44	44	44	45	45	45	44	44	44	44	46	47	48	48	45	
Minimum ....	47	45	45	45	45	45	46	46	46	45	44	44	43	43	43	44	44	44	44	44	45	45	44	44	44	44	44	46	47	48	46	45	
January																																	
Maximum ....	46	46	46	45	45	44	44	44	44	44	44	43	43	43	43	43	43	43	43	44	45	45	44	44	43	44	44	44	44	44	46	44	
Minimum ....	46	46	45	45	44	44	44	44	44	44	44	43	43	43	43	43	43	43	43	43	44	44	44	43	43	43	44	44	44	44	44	44	
February																																	
Maximum ....	46	46	46	46	45	45	45	44	45	45	45	45	44	44	44	44	44	44	45	46	46	46	46	46	46	46	46	46	46	46	—	45	
Minimum ....	46	46	46	45	45	45	45	44	44	44	44	45	45	44	44	44	44	44	44	44	45	45	45	45	46	46	46	46	46	45	—	45	
March																																	
Maximum ....	46	46	46	46	47	47	47	48	48	48	48	47	46	46	48	50	50	50	51	51	50	50	49	48	48	49	50	—	—	—	48		
Minimum ....	46	45	45	46	46	47	47	46	47	48	47	47	46	45	45	46	48	50	50	50	50	49	48	48	47	47	49	—	—	—	47		
April																																	
Maximum ....	52	52	52	51	51	52	53	54	54	54	54	54	55	56	56	56	55	55	56	56	56	56	55	54	55	56	56	60	60	60	55		
Minimum ....	52	51	50	50	50	51	52	53	54	53	54	53	54	55	56	55	54	54	55	56	56	56	55	54	53	54	54	56	56	60	59	54	
May																																	
Maximum ....	59	58	57	56	56	55	56	---	---	---	61	61	---	---	---	---	---	---	---	---	---	---	63	---	---	---	---	67	---	---	---	---	
Minimum ....	58	57	56	56	55	54	54	---	---	---	60	60	---	---	---	---	---	---	---	---	---	---	62	---	---	---	---	66	---	---	---	---	
June																																	
Maximum ....	---	67	67	66	66	65	64	63	61	60	61	61	66	66	64	63	63	65	65	65	65	65	67	66	66	66	66	65	67	67	67	---	65
Minimum ....	---	64	66	66	65	64	63	61	60	60	60	61	61	64	62	61	63	62	62	62	62	63	64	64	65	65	65	62	63	65	66	---	63
July																																	
Maximum ....	67	64	66	66	64	67	70	70	68	69	72	71	70	70	68	69	68	68	68	70	70	68	70	72	70	70	69	68	69	68	64	68	
Minimum ....	64	63	64	64	62	63	66	68	66	65	68	68	68	68	68	66	67	66	66	67	68	65	65	67	67	67	66	66	66	64	63	66	
August																																	
Maximum ....	67	71	68	68	68	68	67	64	66	67	66	66	66	66	65	65	65	66	66	64	66	68	67	67	66	66	66	64	64	64	63	66	
Minimum ....	63	63	64	66	64	64	64	63	64	64	64	64	62	64	65	63	63	64	64	63	64	63	64	64	64	63	64	62	62	62	60	63	
September																																	
Maximum ....	64	64	65	63	62	63	62	63	64	65	64	64	64	64	65	67	68	64	63	65	64	64	67	71	72	63	64	64	62	65	---	65	
Minimum ....	61	59	62	61	61	61	61	57	60	60	60	60	60	60	62	60	62	62	63	63	62	58	62	60	59	62	63	62	62	61	59	---	61

## EEL RIVER BASIN--Continued

11-4770. EEL RIVER AT SCOTIA, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964  
(Where no concentrations are reported, loads are estimated)

Day	OCTOBER			NOVEMBER			DECEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	128	--	0.7	541	2	2.9	5030	42	570
2..	126	1	.3	541	3	4.4	4630	34	425
3..	122	--	.3	570	3	4.6	4330	28	327
4..	124	--	.7	3130	444	S 4660	3950	27	288
5..	189	37	S 25	6380	702	S 12100	3310	27	241
6..	373	16	16	12000	1340	S 47900	3210	25	217
7..	317	--	7.7	13400	1000	36200	3090	26	217
8..	256	9	6.2	11000	400	11900	2620	23	163
9..	225	4	2.4	32000	1620	S 141000	2780	68	510
10..	256	3	2.1	19300	610	31800	4470	92	1110
11..	972	50	131	9470	210	5370	3530	38	362
12..	1120	147	445	5950	100	1610	3130	26	220
13..	760	150	308	4410	60	714	2830	19	145
14..	630	43	73	15800	1590	S 94000	2650	13	93
15..	895	52	S 157	35600	2170	S 218000	2490	9	B 61
16..	1570	130	551	20900	560	31600	2350	8	51
17..	1560	80	337	12600	212	7210	2200	7	42
18..	1430	--	170	8750	117	2760	2070	10	56
19..	970	17	45	10700	355	S 13100	2040	11	61
20..	727	7	14	21500	794	S 46200	3890	161	S 1930
21..	570	5	7.7	13800	265	9870	6950	32	S 6860
22..	640	10	17	9380	100	2530	4790	98	1270
23..	1880	323	S 1710	29800	2120	S 249000	3970	40	429
24..	1470	165	655	54100	2210	S 348000	3550	33	316
25..	1400	66	249	25700	660	45800	3430	28	B 260
26..	1390	42	158	16600	305	13700	3270	15	132
27..	1090	18	53	11900	159	5110	3250	14	123
28..	918	14	35	8930	100	2400	3890	34	357
29..	793	5	19	7100	62	1190	4430	50	598
30..	672	5	9.1	5920	45	719	4290	29	336
31..	580	2	3.1	--	--	--	3870	49	512
Total	24153	--	5208.3	427772	--	1384454.9	110290	--	18282
Day	JANUARY			FEBRUARY			MARCH		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	3510	16	B 150	14100	280	10700	2580	17	118
2..	3650	17	168	13500	235	8570	3830	114	S 1190
3..	3550	20	192	11600	200	6260	3970	88	S 956
4..	3250	13	114	9780	185	4890	3150	28	238
5..	2940	9	71	8660	135	3160	2890	18	140
6..	3660	26	257	7910	150	3200	2980	17	137
7..	7490	438	S 8420	7100	110	2110	3030	18	147
8..	6480	206	3600	6220	80	1340	2800	12	91
9..	5100	55	757	5680	72	1100	2640	8	57
10..	4950	48	642	5220	64	902	2460	10	66
11..	4750	50	641	4930	64	852	3780	450	S 6720
12..	4390	31	367	4570	50	617	12100	1230	S 41400
13..	4190	24	270	4290	37	429	12000	600	19400
14..	4830	37	483	3970	30	322	9440	60	B 4100
15..	4690	52	658	4030	32	348	7580	183	1700
16..	4430	32	383	4010	37	401	6620	59	1050
17..	6800	175	3210	3710	32	321	5920	42	671
18..	24100	1500	S 102000	3450	23	210	5450	30	441
19..	39800	1530	164000	3250	18	158	5030	28	380
20..	109000	5090	S 1660000	3100	14	117	4670	16	202
21..	122000	3700	S 1300000	3000	12	97	4610	18	224
22..	55200	2380	S 360000	2800	9	68	5150	40	B 560
23..	35800	1500	145000	2700	9	66	6100	66	1090
24..	27400	1050	77700	2650	8	57	6300	46	782
25..	31300	1060	89600	2600	14	98	5920	44	703
26..	31300	880	74400	2510	9	B 61	5320	31	445
27..	24700	550	36700	2330	5	37	4930	21	280
28..	20300	440	24100	2290	6	31	4770	16	206
29..	17900	420	20300	2310	7	44	4590	15	186
30..	18600	480	24100	--	--	--	4430	13	155
31..	15400	280	11600	--	--	--	4370	12	142
Total	651460	--	4109883	152270	--	46566	159410	--	83977

S Computed by subdividing day.

B Computed from estimated-concentration graph.



## EEL RIVER BASIN--Continued

11-4770. EEL RIVER AT SCOTIA, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964--Continued

Day	APRIL			MAY			JUNE		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	4590	20	248	1630	--	44	771	--	2.1
2..	4970	38	376	1670	--	45	716	1	1.9
3..	4530	17	208	1730	10	47	694	2	3.7
4..	4150	15	168	1910	12	62	672	2	3.6
5..	3890	11	116	2070	13	73	705	--	3.8
6..	3670	9	89	1830	8	40	760	2	4.1
7..	3470	7	66	1610	5	22	826	--	4.5
8..	3330	6	54	1490	4	16	859	2	4.6
9..	3170	6	51	1450	--	12	848	--	4.6
10..	3110	9	76	1400	--	11	837	3	6.8
11..	3010	8	65	1380	--	11	771	--	6.2
12..	2910	7	55	1350	--	11	738	3	6.0
13..	2780	9	68	1350	--	11	694	--	5.6
14..	2740	14	100	1350	--	11	630	3	5.1
15..	2620	18	127	1290	2	7.0	590	--	4.8
16..	2600	14	98	1240	--	6.7	570	3	4.6
17..	2560	10	69	1250	2	6.8	532	--	7.2
18..	2490	12	81	1260	--	6.8	514	8	11
19..	2330	8	50	1280	3	10	496	--	9.4
20..	2190	4	24	1220	--	9.9	452	6	7.3
21..	2050	6	33	1110	3	9.0	452	--	6.1
22..	1960	6	32	1050	--	8.5	452	4	4.9
23..	1930	6	31	1010	3	8.2	444	--	6.0
24..	1890	6	31	978	--	5.3	412	8	8.9
25..	1780	5	24	906	2	4.9	388	--	8.4
26..	1690	5	23	906	--	2.4	388	--	6.3
27..	1590	4	17	882	1	2.4	366	5	4.9
28..	1500	5	20	804	--	2.2	359	--	3.9
29..	1470	8	32	906	2	4.9	331	4	3.6
30..	1530	10	41	771	--	2.1	324	--	3.5
31..	--	--	--	760	1	2.1	--	--	--
Total	82500	--	2473	39843	--	515.2	17591	--	163.4
	JULY			AUGUST			SEPTEMBER		
1..	317	4	3.4	154	2	.8	84	3	0.7
2..	317	--	3.4	145	--	.8	76	--	.6
3..	317	4	3.4	142	--	.8	78	--	.6
4..	310	--	3.3	139	--	1.1	78	3	.6
5..	298	--	3.2	133	3	1.1	82	--	.7
6..	304	--	3.3	140	--	1.1	80	--	.6
7..	298	--	3.2	122	--	1.0	82	3	.7
8..	286	9	6.9	126	3	1.0	82	--	.7
9..	280	--	2.3	124	--	1.0	80	--	.6
10..	268	4	2.9	122	--	.7	82	4	.9
11..	262	--	2.8	122	2	.7	82	--	.7
12..	245	3	2.0	122	3	1.0	86	--	.7
13..	240	--	1.3	116	--	.6	84	3	.7
14..	240	2	1.3	116	2	.6	78	--	.6
15..	235	--	1.3	114	--	.6	76	--	.6
16..	225	2	1.2	112	--	.6	78	3	.6
17..	215	--	1.2	112	2	.6	80	--	.6
18..	205	2	1.1	106	--	.6	76	--	.4
19..	196	--	1.1	102	--	.6	76	2	.4
20..	192	2	1.0	113	2	.6	72	--	.4
21..	188	--	1.0	104	--	.6	74	--	.4
22..	188	2	1.0	118	--	.6	74	2	.4
23..	188	--	1.0	139	2	.7	74	--	.4
24..	184	--	1.0	139	--	.7	74	--	.4
25..	176	2	1.0	128	--	.7	68	2	.4
26..	172	--	.9	114	3	.9	68	--	.4
27..	160	3	1.3	100	--	.8	68	--	.4
28..	160	--	1.3	92	--	.7	68	2	.4
29..	157	2	.8	92	3	.7	67	2	.4
30..	157	--	.8	84	--	.7	67	--	.4
31..	154	--	.8	86	--	.7	--	--	--
Total	7134	--	60.5	3678	--	23.7	2294	--	16.4

Total discharge for year (cfs-days)..... 1,678,395

Total load for year (tons)..... 5,651,623.4

B Computed from estimated-concentration graph.

## EEL RIVER BASIN—Continued

11-4770. EEL RIVER AT SCOTIA, CALIF.—Continued

Particle-size analyses of suspended sediment, water year October 1963 to September 1964  
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment										Method of analysis	
							Percent finer than size indicated, in millimeters											
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000		2.000
Nov. 4, 1963.....	1600	54		4570	669		---	---	---	---	---	92	96	100	---	---	---	S
Nov. 6.....	1500	54		14700	1750		---	38	---	58	---	79	91	97	100	---	---	VPWC
Nov. 7.....	0900	52		15500	1130		---	---	---	---	---	78	88	95	96	96	100	S
Nov. 9.....	0900	53		34800	2070		20	25	36	46	61	70	86	97	97	99	100	VPWC
Nov. 12.....	0955	53		6080	110		---	---	---	---	---	85	91	99	100	---	---	S
Nov. 14.....	1500	53		20500	1730		---	---	---	---	---	76	94	100	---	---	---	V
Nov. 24.....	1600	48		47600	1540		---	---	---	---	---	81	96	100	---	---	---	V
Jan. 7, 1964.....	0900	44		7700	502		---	---	---	---	---	76	88	99	100	---	---	V
Jan. 10.....	1440	44		4890	46		---	---	---	---	---	76	83	92	100	---	---	S
Jan. 19.....	1400	43		41700	1630		---	---	---	---	---	66	85	98	99	100	---	V
Jan. 21.....	1400	46		103000	3300		22	26	38	51	65	74	95	100	---	---	---	VPWC
Jan. 23.....	1600	44		33000	1350		---	---	---	---	---	54	84	99	100	---	---	V
Jan. 25.....	1500	44		32700	1180		---	---	---	---	---	56	79	100	---	---	---	V
Feb. 6.....	1000	45		8030	157		---	---	---	---	---	35	46	76	100	---	---	S
Mar. 11.....	1600	48		3690	715		---	---	---	---	---	89	99	100	---	---	---	V
Mar. 13.....	1600	46		11200	371		---	---	---	---	---	67	77	90	100	---	---	V
Mar. 21.....	1820	50		4630	19		---	---	---	---	---	63	63	76	85	100	---	S

## EEL RIVER BASIN--Continued

11-4777. SOUTH FORK VAN DUZEN RIVER NEAR BRIDGEVILLE, CALIF.

LOCATION.--Temperature recorder at gaging station 0.2 mile upstream from Butte Creek, 3 miles upstream from mouth, and 7.8 miles east of Bridgeville, Humboldt County.

DRAINAGE AREA.--36.2 square miles.

RECORDS AVAILABLE.--Water temperatures: November 1960 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 76°F July 24-27; minimum, 38°F Jan. 18-20, Mar. 7.

EXTREMES, 1960-64.--Water temperatures: Maximum, 81°F July 13, 1961; minimum, freezing point Feb. 27-Mar. 1, 1962.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum ....	64	64	63	61	60	60	60	60	60	60	57	56	57	58	58	57	56	56	56	56	56	56	54	52	54	53	52	51	52	51	50	57	
Minimum ....	60	61	60	60	58	58	57	57	60	57	56	56	56	57	56	56	56	56	56	56	56	54	52	52	52	52	48	48	51	48	48	55	
November																																	
Maximum ....	49	50	50	49	49	48	48	50	51	51	51	50	50	51	50	48	48	48	48	48	46	47	48	48	48	49	49	48	48	47	—	49	
Minimum ....	46	49	48	49	48	48	47	48	50	49	49	49	50	50	48	47	47	48	48	46	45	46	47	48	48	48	48	47	47	46	—	48	
December																																	
Maximum ....	47	46	46	46	46	47	46	45	44	44	42	42	44	44	44	44	44	44	44	45	45	44	44	44	44	44	45	48	48	48	47	45	
Minimum ....	46	45	45	45	46	46	44	44	44	42	41	41	42	42	43	42	43	42	44	44	44	44	44	43	42	44	44	45	48	48	47	46	44
January																																	
Maximum ....	46	46	46	44	43	44	44	44	43	43	42	43	42	40	40	41	41	39	39	42	42	42	42	42	42	44	44	44	44	44	45	43	
Minimum ....	46	46	43	42	41	42	42	43	43	41	41	42	40	40	39	41	39	38	38	38	42	42	42	42	42	43	44	43	44	43	44	42	
February																																	
Maximum ....	45	45	45	45	45	44	45	45	45	45	44	44	43	43	42	42	42	43	44	44	45	45	46	46	44	44	44	44	43	—	—	44	
Minimum ....	45	44	44	44	44	42	43	44	44	44	44	42	42	41	41	40	40	40	41	41	43	43	43	43	41	41	41	42	41	—	—	42	
March																																	
Maximum ....	43	42	43	44	44	42	42	43	44	44	44	42	43	44	46	46	46	46	46	46	46	44	44	43	44	45	46	47	48	48	48	45	
Minimum ....	42	41	41	43	42	41	38	41	43	42	42	42	41	42	44	43	44	44	43	44	43	42	42	42	42	43	43	43	45	46	46	43	
April																																	
Maximum ....	46	45	46	48	48	47	49	51	51	50	49	50	52	53	53	52	51	51	52	52	53	52	48	48	52	55	56	58	57	51	—	51	
Minimum ....	45	44	42	44	44	44	44	45	47	46	47	46	46	48	48	48	46	45	46	47	48	48	45	44	45	44	44	50	51	46	—	46	
May																																	
Maximum ....	49	47	48	48	48	54	55	58	60	60	60	60	58	58	60	59	56	57	60	60	60	61	62	62	62	60	56	60	63	64	66	58	
Minimum ....	46	44	44	45	46	44	46	50	50	52	52	52	54	50	51	52	50	52	54	54	53	53	52	56	56	56	54	54	54	56	58	51	
June																																	
Maximum ....	64	64	62	60	58	58	58	56	54	57	63	64	64	66	63	62	60	60	62	64	66	69	70	70	70	66	65	67	68	67	—	63	
Minimum ....	58	58	58	58	58	56	54	53	52	52	54	56	56	58	58	56	58	56	56	56	58	58	61	61	60	61	57	57	60	60	—	57	
July																																	
Maximum ....	65	68	67	66	68	70	70	67	66	68	72	74	74	71	69	71	72	70	70	71	70	72	74	76	76	76	72	75	72	68	71		
Minimum ....	61	60	60	60	61	59	62	60	65	58	62	64	66	65	64	62	62	64	62	62	62	62	62	62	65	66	66	65	68	66	62	63	
August																																	
Maximum ....	68	69	70	71	71	70	70	70	70	72	70	70	70	70	68	68	68	67	66	70	70	71	71	70	70	68	66	65	64	64	62	69	
Minimum ....	63	60	60	62	62	62	62	62	62	63	64	63	63	62	62	60	61	61	59	60	64	64	64	63	63	62	65	60	58	59	57	62	
September																																	

## EEL RIVER BASIN--Continued

11-4785. VAN DUZEN RIVER NEAR BRIDGEVILLE, CALIF.

LOCATION.--At gaging station at bridge on State Highway 36, 0.3 mile downstream from Pip Creek, 0.5 mile upstream from Rogers Creek, and 4 miles west of Bridgeville, Humboldt County.

DRAINAGE AREA.--216 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1964.

Water temperatures: December 1960 to September 1964.

Sediment records: October 1955 to September 1963.

EXTREMES, 1963-64.--Water temperatures: Maximum, 78°F July 26; minimum, 41°F on several days during winter months.

EXTREMES, 1960-64.--Water temperatures: Maximum, 80°F July 11, 12, 1961; minimum, 38°F Jan. 12-16, 1963.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 2, 1963.....	11	--	--	--	--	6.8	--	120	4	--	4.2	--	0.1	--	--	--	--	109	4	0.3	241	8.3
Nov. 10.....	1970	--	--	--	--	3.0	--	58	0	--	1.8	--	4.8	--	--	--	--	52	4	.2	115	7.9
Nov. 13.....	608	--	--	--	--	3.3	--	74	0	--	2.4	--	.1	--	--	--	--	66	5	.2	145	7.9
Dec. 11.....	420	--	--	--	--	3.6	--	70	0	--	1.0	--	.1	--	--	--	--	63	6	.2	139	8.0
Jan. 14, 1964.....	768	--	--	--	--	2.9	--	64	2	--	1.8	--	.1	--	--	--	--	59	3	.2	129	8.3
Jan. 22.....	3800	--	--	--	--	3.6	--	55	0	--	1.0	--	2.6	.0	--	--	--	45	0	.2	104	7.8
Feb. 11.....	641	--	--	--	--	3.9	--	66	0	--	1.8	--	.0	--	--	--	--	56	2	.2	122	8.2
Mar. 10.....	512	--	--	--	--	4.6	--	63	1	--	2.0	--	.1	--	--	--	--	57	4	.3	129	8.3
Apr. 14.....	292	--	--	--	--	3.9	--	76	0	--	3.0	--	.0	--	--	--	--	67	5	.2	142	8.2
May 12.....	157	10	--	22	4.4	4.9	0.7	82	0	9.0	1.5	0.2	3.3	.0	96	0.13	--	73	6	.2	158	8.2
June 3.....	88	--	--	--	--	4.9	--	90	3	--	1.0	--	.1	--	--	--	--	82	3	.2	178	8.4
July 15.....	32	--	--	--	--	6.1	--	114	0	--	2.5	--	.1	--	--	--	--	101	8	.3	216	8.2
Aug. 11.....	15	--	--	--	--	7.0	--	118	4	--	2.0	--	.2	--	--	--	--	108	5	.3	236	8.5
Sept. 15.....	10	6.3	--	37	5.2	7.6	1.1	128	0	19	4.0	--	.5	.2	A 144	.20	--	114	9	.3	250	8.2

A Calculated from sum of determined constituents.

## EEL RIVER BASIN--Continued

11-4785. VAN DUZEN RIVER NEAR BRIDGEVILLE, CALIF.--Continued

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum .....	72	65	66	64	62	64	65	64	63	63	61	59	59	61	61	60	59	59	58	58	58	58	56	54	54	54	54	52	51	51	49	59	
Minimum .....	62	63	62	62	62	62	61	61	62	60	59	57	58	58	60	58	59	58	57	58	58	56	54	54	54	54	51	50	49	49	48	57	
November																																	
Maximum .....	49	50	50	49	49	49	48	51	51	51	50	50	50	51	50	49	48	48	48	48	47	45	47	47	47	48	48	47	46	—	49		
Minimum .....	46	48	48	48	49	48	48	48	51	50	50	50	50	50	49	47	48	48	48	47	45	45	45	47	46	47	48	47	46	46	—	48	
December																																	
Maximum .....	46	46	45	45	45	46	46	45	45	44	44	44	42	41	42	42	42	43	43	44	45	44	44	44	44	44	46	48	48	48	47	45	
Minimum .....	46	45	45	44	44	44	45	45	44	44	44	42	41	41	41	42	42	42	42	43	44	44	44	43	43	44	44	46	48	48	47	46	
January																																	
Maximum .....	46	46	46	44	43	42	43	43	44	44	43	42	42	42	42	43	43	43	43	43	43	42	42	42	42	42	42	43	43	43	44	43	
Minimum .....	46	46	44	43	42	41	42	43	43	43	42	42	42	42	42	42	43	42	42	42	42	42	42	42	42	42	42	42	43	43	43	43	
February																																	
Maximum .....	44	44	44	44	44	44	42	42	43	43	44	44	43	42	42	42	42	43	44	44	46	46	46	46	46	44	44	44	43	—	—	44	
Minimum .....	44	44	44	44	44	42	42	42	42	43	43	43	42	42	42	42	42	41	42	42	42	43	44	44	44	43	42	42	43	42	—	43	
March																																	
Maximum .....	44	43	42	45	45	43	42	43	44	43	43	42	42	44	45	45	45	45	45	46	45	44	44	44	44	44	46	48	49	49	49	45	
Minimum .....	43	42	42	42	43	42	41	41	42	42	41	41	41	42	44	44	45	45	45	45	45	44	43	42	42	43	44	45	46	48	48	49	
April																																	
Maximum .....	49	46	46	49	48	48	50	52	51	50	51	51	53	56	55	53	52	53	53	55	54	53	51	49	53	55	56	58	56	53	—	52	
Minimum .....	46	45	44	46	47	46	47	48	50	47	48	48	49	51	52	50	49	48	48	51	51	51	48	47	48	50	52	53	53	50	—	49	
May																																	
Maximum .....	53	50	48	49	49	52	55	54	58	58	57	60	58	58	60	58	58	57	61	61	60	61	63	63	64	65	62	60	62	62	66	58	
Minimum .....	49	48	48	48	48	46	50	52	53	55	55	55	54	52	53	54	54	56	55	56	56	56	56	58	57	62	57	57	56	58	58	54	
June																																	
Maximum .....	62	66	63	62	62	61	60	58	57	59	64	61	66	64	66	65	62	66	64	67	68	70	71	71	71	69	69	70	70	68	—	65	
Minimum .....	60	59	60	60	60	60	58	57	56	56	57	59	58	61	60	59	60	57	59	59	60	60	60	62	62	62	61	58	58	60	60	—	59
July																																	
Maximum .....	62	70	67	61	68	70	74	66	70	72	75	74	73	66	70	73	68	74	74	74	66	73	75	76	77	78	75	66	74	65	67	71	
Minimum .....	60	58	60	58	58	62	62	58	59	62	64	62	62	63	62	62	62	61	61	61	63	60	62	62	62	61	62	62	62	61	58	61	
August																																	
Maximum .....	74	74	76	76	76	74	69	72	74	74	64	72	66	70	70	71	70	70	66	71	72	71	71	70	70	68	66	67	67	62	64	70	
Minimum .....	62	62	59	63	62	62	62	62	62	62	62	60	62	59	59	57	60	60	59	58	60	62	62	60	60	60	60	58	59	59	58	60	
September																																	
Maximum .....	65	64	66	64	64	63	63	62	63	62	62	61	60	62	62	62	63	60	60	62	60	61	63	63	60	58	57	57	56	55	—	61	
Minimum .....	58	56	57	58	58	57	57	56	56	54	54	55	56	56	55	54	58	57	53	58	54	53	56	57	57	54	52	54	54	51	—	56	

Periodic determinations of suspended sediment discharge and particle-size analyses, water year October 1963 to September 1964

(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment con- cen- tration (ppm)	Sediment discharge (tons per day)	Suspended sediment										Method of analysis	
							Percent finer than size indicated, in millimeters											
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000		2.000
Oct. 4, 1963.....	1120	—		12	3	0.1												S
Oct. 11.....	0950	60		384	375	389					100	—	—	—	—			
Nov. 1.....	1030	—		80	6	1.3						—	—	—	—	—		
Nov. 12.....	1240	50		760	43	88						—	—	—	—	—		
Dec. 6.....	1250	46		328	11	9.7						—	—	—	—	—		
Dec. 11.....	1245	42		415	18	20						—	—	—	—	—		V S
Jan. 6, 1964.....	1220	41		1260	759	2580					90	97	100	—	—			
Jan. 9.....	1445	44		1350	236	860					88	95	99	100	—			
Feb. 5.....	0900	44		1270	76	261					—	—	—	—	—			
Mar. 20.....	1425	46		641	25	43					—	—	—	—	—			
Mar. 21.....	0910	44		732	58	115					90	94	97	100	—		S	
Apr. 1.....	1635	—		776	67	140					—	—	—	—	—			
Apr. 28.....	1540	58		172	5	2.3					—	—	—	—	—			
June 3.....	1455	63		88	3	.7					—	—	—	—	—			
July 7.....	1430	74		39	2	.2					—	—	—	—	—			
Aug. 11.....	1425	64		15	6	.2					—	—	—	—	—			
Sept. 30.....	1015	55		8.6	5	.1					—	—	—	—	—			

MISCELLANEOUS ANALYSES OF STREAM IN EEL RIVER BASIN

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
BAECHTLE CREEK AT WILLITS, CALIF.																						
Nov. 9, 1963.....		12		6.8	3.6	3.5	1.4	36		3.0	5.0	0.0	2.5	0.1	62	0.08		32	2	0.3	83	7.0
Jan. 21, 1964.....		12		5.6	2.7	4.9	1.2	29		4.0	4.4	0.0	1.3	0.0	58	0.08		25	1	0.4	64	7.7
BROADBUSH CREEK AT WILLITS, CALIF.																						
Nov. 9, 1963.....		12		7.6	4.1	3.9	1.7	36		6.0	5.2	0.1	2.9	0.2	70	0.10		36	6	0.3	90	6.7
Jan. 21, 1964.....		10		6.0	3.2	3.6	1.1	32		3.0	3.5	0.1	3.1	0.0	54	0.07		28	2	0.3	69	7.8
LONG VALLEY CREEK AT LONGVALE, CALIF.																						
Nov. 9, 1963.....		8.6		6.4	3.4	3.1	1.2	31		4.0	4.0	0.0	2.7	0.2	54	0.07		30	5	0.2	75	6.9
Jan. 21, 1964.....		10		7.0	3.0	3.4	1.0	34		4.0	3.5	0.0	1.6	0.1	51	0.07		30	2	0.3	72	7.8
TENMILE CREEK NEAR LAYTONVILLE, CALIF.																						
Nov. 9, 1963.....		11		7.2	2.9	3.4	1.4	33		3.0	4.2	0.0	3.0	0.2	63	0.09		30	3	0.3	77	7.3
Jan. 21, 1964.....		13		6.0	2.3	3.9	0.6	30		3.0	3.8	0.0	0.9	0.0	51	0.07		24	0	0.3	64	7.9
Apr. 30.....		14		14	5.6	8.7	1.0	72		5.0	10	0.1	1.3	0.3	A 95	0.13		58	0	0.5	158	8.2
RATTLESNAKE CREEK AT CUMMINGS, CALIF.																						
Nov. 9, 1963.....		12		10	4.1	3.7	1.4	49	0	5.0	3.2	0.1	2.1	0.1	74	0.10		42	2	0.2	99	7.6
Jan. 21, 1964.....		13		9.6	2.8	3.9	1.3	42	0	3.0	3.5	0.0	2.1	0.0	A 60	0.08		36	2	0.3	85	7.9
Apr. 30.....		14		23	6.4	6.6	1.0	98	1	9.0	7.2	0.1	1.4	0.2	A 118	0.16		84	2	0.3	191	8.4
SOUTH FORK EEL RIVER AT LEGGETT, CALIF.																						
Nov. 9, 1963.....		12		7.6	3.9	3.2	1.2	41		4.0	3.0	0.0	2.7	0.1	64	0.09		35	1	0.2	87	7.3
Apr. 30, 1964.....		15		13	9.7	6.7	0.7	88		9.0	6.5	0.1	1.5	0.1	A 105	0.14		72	0	0.3	162	8.2
CEDAR CREEK AT LEGGETT, CALIF.																						
Nov. 9, 1963.....		14		6.4	11	2.2	0.7	73	0	1.0	2.5	0.1	2.2	0.1	78	0.11		60	0	0.1	125	7.8
Apr. 30.....		13		8.2	22	3.6	0.4	121	2	2.0	6.0	0.0	1.1	0.0	A 118	0.16		110	8	0.2	201	8.4
SOUTH FORK EEL RIVER AT DYERVILLE, CALIF.																						
Nov. 9, 1963.....		13		13	5.2	3.3	1.7	60	0	6.0	3.5	0.0	2.4	0.1	78	0.11		54	5	0.2	123	7.6
Jan. 21, 1964.....		12		12	4.0	4.3	1.8	56	0	7.0	3.6	0.1	1.2	0.0	73	0.10		47	1	0.3	109	7.8
Apr. 30.....		13		26	8.3	6.7	1.1	115	2	12	5.5	0.1	1.5	0.0	A 133	0.18		99	1	0.3	215	8.3
LARABEE CREEK NEAR HOLMES, CALIF.																						
Apr. 15, 1964.....		13		18	7.3	6.6	1.1	87	0	10	3.5	0.3	4.3	0.0	112	0.15		75	4	0.3	164	8.2
Apr. 29.....		12		25	4.3	6.0	1.0	93	1	12	4.0	0.1	1.8	0.0	A 113	0.15		80	2	0.3	185	8.3
SOUTH FORK EEL RIVER NEAR WEOIT, CALIF.																						
Nov. 9, 1963.....		13		9.6	3.9	3.7	1.7	45		5.0	3.5	0.1	1.9	0.1	70	0.10		40	3	0.3	97	7.2
Jan. 21, 1964.....		14		8.8	3.0	4.6	1.9	42		5.0	3.6	0.2	1.3	0.0	A 63	0.09		34	0	0.3	88	7.6
Jan. 22.....		--		--	--	5.1	--	47		--	3.5	--	2.1	0.1	--	--		39	0	0.4	97	7.5

A Calculated from sum of determined constituents.

MISCELLANEOUS ANALYSES OF STREAMS IN EEL RIVER BASIN—Continued

Periodic determinations of suspended sediment discharge and particle-size analyses, water year October 1963 to September 1964

(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;

P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentra- tion (ppm)	Sediment discharge (tons per day)	Suspended sediment										Method of analysis
							Percent finer than size indicated, in millimeters										
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	
11-4731. WILLIAMS CREEK NEAR COVELO, CALIF.																	
Oct. 9, 1963.....	1345	66		1.0	4	T											
Nov. 13.....	1500	51		29	30	2.3											
Dec. 17.....	1615	45		15	1	T											
Jan. 23, 1964.....	1350	40		191	46	24					79	82	86	95	100		S
Feb. 26.....	1015	39		28	4	.3											
Apr. 9.....	1315	56		33	3	.3											
May 7.....	1030	48		18	3	.1											
July 21.....	0935	63		1.0	1	T											
July 21.....	1130	73		1.0	3	T											
11-4736. SHORT CREEK NEAR COVELO, CALIF.																	
Nov. 14, 1963.....	1415	54		231	315	196					87	93	98	100			V
Dec. 17.....	1505	44		2.9	1	T											
Jan. 23, 1964.....	1445	43		75	18	3.6											
Feb. 26.....	1020	47		4.9	3	T											
Apr. 9.....	1420	64		5.1	2	T											
May 7.....	0915	52		3.0	2	T											
July 21.....	1235	77		.1	1	T											
11-4744. HULLS CREEK NEAR COVELO, CALIF.																	
Nov. 13, 1963.....	1245	49		24	2	0.1											
Dec. 17.....	1330	41		12	1	T											
Feb. 25, 1964.....	1345	44		20	1	.1											
Apr. 10.....	1050	48		30	2	.2											
May 7.....	1630	58		12	1	T											

T Less than 0.05 ton.

## MISCELLANEOUS ANALYSES OF STREAMS IN SALMON CREEK BASIN

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
SALMON CREEK NEAR MYERS FLAT, CALIF.																						
Nov. 9, 1963.....		15		10	6.8	5.2	1.5	67	0	5.0	4.0	0.2	2.2	0.1	86	0.12		53	0	0.3	129	7.4
Jan. 21, 1964.....		12		9.0	4.0	4.9	1.7	46	0	5.0	4.2	.1	1.8	.0	65	.09		39	1	.3	97	7.8
Apr. 29.....		16		22	9.6	8.5	1.1	114	3	8.0	6.2	.2	1.3	.1	A 132	.18		94	0	.4	213	8.4

A Calculated from sum of determined constituents.



## MAD RIVER BASIN

11-4805. MAD RIVER NEAR FOREST GLEN, CALIF.

LOCATION.--At gaging station 0.7 mile downstream from Lamb Creek, and 7.0 miles northwest of Forest Glen, Trinity County.

DRAINAGE AREA.--143 square miles.

RECORDS AVAILABLE.--Water temperatures: November 1960 to September 1964.

Sediment records: January 1957 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 71°F July 6; minimum, 38°F Feb. 6.

EXTREMES, 1960-64.--Water temperatures: Maximum, 79°F June 25, 1961; minimum, 35°F Jan. 24, 1962.

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																																Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum .....	64	64	62	62	62	61	61	62	61	61	59	59	60	60	60	59	59	60	60	59	59	59	58	56	58	58	56	55	54	55	52	59	
Minimum .....	61	61	60	61	60	60	60	61	61	59	58	58	59	60	59	58	58	59	59	59	59	58	56	56	56	56	54	52	54	52	51	58	
November																																	
Maximum .....	51	52	52	52	52	51	51	52	52	52	52	51	51	51	51	50	50	50	50	50	49	49	49	49	48	48	48	48	47	47	—	50	
Minimum .....	49	50	52	52	51	49	50	51	52	52	51	51	51	51	50	50	50	50	50	49	49	49	49	48	48	48	48	47	47	—	50		
December																																	
Maximum .....	47	47	47	47	47	46	46	46	46	46	46	46	46	46	46	46	45	45	45	45	46	45	44	44	44	44	45	46	46	46	45	46	
Minimum .....	47	47	47	47	46	46	46	46	46	46	46	46	46	46	46	46	45	45	45	45	45	44	44	43	43	44	44	45	46	46	45	44	
January																																	
Maximum .....	44	45	44	44	44	43	43	43	43	43	42	41	41	41	41	41	41	41	41	40	43	42	42	42	42	41	41	40	40	40	40	42	
Minimum .....	44	44	43	43	43	43	43	42	42	42	41	41	41	41	41	40	40	41	40	40	40	42	42	42	41	41	40	40	40	40	40	41	
February																																	
Maximum .....	40	40	40	40	40	40	40	40	40	41	41	41	41	41	41	41	41	41	41	42	42	42	42	42	43	42	42	43	42	43	—	41	
Minimum .....	40	40	40	40	40	38	39	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	41	40	40	41	41	42	—	40	
March																																	
Maximum .....	42	43	43	43	44	44	44	44	44	44	43	40	43	44	45	45	46	46	47	46	44	44	44	44	44	46	46	46	46	46	45	44	
Minimum .....	42	41	41	42	42	41	41	41	40	42	41	40	40	40	40	42	43	41	42	44	43	44	42	42	42	42	42	42	42	42	43	42	
April																																	
Maximum .....	45	44	46	47	47	47	48	49	48	49	49	49	50	51	51	50	50	50	50	51	52	51	47	48	51	53	54	55	54	50	—	50	
Minimum .....	43	42	42	42	42	42	43	44	44	44	45	44	44	45	45	45	44	44	44	44	47	47	44	45	46	48	48	49	50	46	—	45	
May																																	
Maximum .....	47	46	48	48	48	51	52	54	56	56	57	60	60	58	58	56	57	58	61	60	61	61	62	63	61	58	56	57	59	60	60	56	
Minimum .....	45	44	45	46	47	44	47	48	50	52	52	54	55	54	52	52	51	54	55	56	54	54	54	56	55	56	54	52	54	54	54	52	
June																																	
Maximum .....	59	59	58	57	57	57	57	56	54	60	62	63	63	64	63	62	61	62	60	62	64	64	66	65	67	67	66	67	69	68	—	62	
Minimum .....	54	54	54	56	56	56	55	54	54	54	56	58	58	58	60	56	58	56	56	57	57	58	59	58	60	62	59	59	62	62	—	57	
July																																	
Maximum .....	70	68	70	70	70	71	67	64	62	64	64	65	66	64	64	64	64	63	65	63	63	63	63	64	64	64	64	64	64	64	63	65	
Minimum .....	64	62	62	64	63	64	61	56	54	54	56	57	58	58	58	56	58	58	58	56	57	55	56	58	58	58	58	58	59	59	59	56	58
August																																	
Maximum .....	62	67	62	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	64	64	64	64	64	63	62	62	62	60	63	
Minimum .....	58	58	56	58	58	56	57	58	58	58	58	58	58	58	58	57	58	58	58	56	58	58	58	58	58	58	57	58	58	56	58	58	
September																																	
Maximum .....	59	61	61	61	61	61	61	61	61	61	61	61	61	61	61	62	62	62	60	60	63	64	64	64	64	64	63	62	62	62	—	62	
Minimum .....	56	56	55	56	56	58	57	58	56	56	56	57	57	58	58	58	60	57	57	58	56	58	60	60	60	60	59	59	59	59	—	58	

## MAD RIVER BASIN--Continued

## 11-4805. MAD RIVER NEAR FOREST GLEN, CALIF.--Continued

Periodic determinations of suspended sediment discharge and particle-size analyses, water year October 1963 to September 1964

(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;

P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentra- tion (ppm)	Sediment discharge (tons per day)	Suspended sediment										Method of analysis		
							Percent finer than size indicated, in millimeters												
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000		2.000	
Oct. 11, 1963.....	1330	58		15	8	0.3													
Nov. 12.....	1505	51		333	23	21													
Dec. 11.....	1520	46		373	13	13													
Jan. 10, 1964.....	0845	42		76	3	.6													
Jan. 10.....	1000	42		74	3	.6													
Feb. 5.....	1045	40		828	49	110					98	99	100					S	
Feb. 5.....	1315	40		821	57	126					96	98	100					S	
Feb. 7.....	1530	40		628	37	63													
Feb. 9.....	1330	40		506	28	38													
Feb. 11.....	1500	41		432	34	40													
Feb. 13.....	1630	41		418	23	26													
Feb. 15.....	1530	41		418	21	24													
Feb. 17.....	1500	41		409	19	21													
Feb. 19.....	1330	42		400	19	21													
Feb. 21.....	1200	42		391	18	19													
Feb. 23.....	1300	42		387	20	21													
Feb. 25.....	1430	42		382	20	21													
Feb. 27.....	1500	43		382	16	17													
Feb. 29.....	1530	43		291	17	13													
Mar. 2.....	1430	43		195	12	6.3													
Mar. 4.....	1400	43		98	4	1.1													
Mar. 6.....	1330	44		49	4	.5													
Mar. 8.....	1000	44		43	6	.7													
Mar. 10.....	1300	42		45	4	.5													
Mar. 12.....	1130	40		66	6	1.1													
Mar. 14.....	1400	44		74	6	1.2													
Mar. 16.....	1030	44		88	5	1.2													
Mar. 18.....	1630	46		74	3	.6													
Mar. 20.....	1730	44		116	4	1.3													
Mar. 25.....	1530	44		243	12	7.9													
Mar. 30.....	1500	45		224	15	9.1													
Apr. 2.....	1630	44		227	13	8.0													
Apr. 6.....	1330	47		166	6	2.7													
Apr. 9.....	1300	45		133	7	2.5													
Apr. 12.....	1530	49		100	5	1.4													
Apr. 15.....	1630	51		96	6	1.6													
Apr. 28.....	1500	55		86	2	.5													
Apr. 28.....	1730	55		86	2	.5													
May 5.....	1530	48		77	3	.6													
May 11.....	1130	57		67	2	.4													
May 15.....	1330	58		41	1	.1													
May 22.....	1230	61		42	6	.7													
June 3.....	1730	57		69	5	.9													
June 5.....	1230	57		72	2	.4													
June 12.....	1030	63		70	2	.4													
June 19.....	1330	60		67	14	2.5													
June 24.....	1030	62		62	15	2.5													
July 7.....	1625	66		90	12	2.9													
July 9.....	0930	55		94	5	1.3													
July 14.....	1030	58		92	4	1.0													
July 29.....	1000	64		94	5	1.3													
Aug. 11.....	1600	63		94	3	.8													
Sept. 8.....	0900	58		98	3	.8													
Sept. 30.....	1300	61		94	2	.5													

## MAD RIVER BASIN--Continued

11-4810. MAD RIVER NEAR ARCATA, CALIF.

LOCATION.--At gaging station 100 feet upstream from bridge on U.S. Highway 299, 1.0 mile downstream from Warren Creek, and 2.8 miles northeast of Arcata, Humboldt County.

DRAINAGE AREA.--484 square miles.

RECORDS AVAILABLE.--Chemical analyses: November 1958 to September 1964.

Water temperatures: December 1957 to September 1964.

Sediment records: December 1957 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 68°F on several days during July, Aug. 3; minimum, 42°F on many days during winter months.

Sediment concentrations: Maximum daily, 5,010 ppm Jan. 20; minimum daily, 2 ppm on several days.

Sediment loads: Maximum daily, 477,000 tons Jan. 20; minimum daily, 0.6 ton on several days.

EXTREMES, 1957-64.--Water temperatures: Maximum (1963-64), 68°F on several days during July, Aug. 3, 1964; minimum, 37°F Jan. 13, 1963.

Sediment concentrations: Maximum daily, 5,010 ppm Jan. 20, 1964; minimum daily, 1 ppm on many days during 1958-60, 1962.

Sediment loads: Maximum daily, 489,000 tons Feb. 8, 1960; minimum daily, 0.1 ton on many days during 1958-60, 1962.

Chemical analyses, in parts per million, water year October 1963 to September 1965

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 3, 1963.....	205	--	--	--	--	3.6	--	89	0	--	4.0	--	--	0.0	--	--	--	74	1	0.2	155	8.2
Nov. 9.....	12200	--	--	--	--	2.9	--	36	0	--	3.0	--	2.6	--	--	--	--	35	5	.2	82	7.2
Nov. 12.....	1270	--	--	--	--	3.5	--	59	0	--	3.8	--	--	.1	--	--	--	52	4	.2	121	7.4
Dec. 10.....	1620	--	--	--	--	3.2	--	54	0	--	3.8	--	--	.0	--	--	--	47	3	.2	110	7.6
Jan. 15, 1964.....	1420	--	--	--	--	3.7	--	53	0	--	3.5	--	--	.0	--	--	--	49	6	.2	107	7.9
Jan. 22.....	9690	--	--	--	--	3.5	--	46	0	--	2.0	--	1.1	.0	--	--	--	42	4	.2	97	7.6
Feb. 10.....	1610	--	--	--	--	3.6	--	53	0	--	2.2	--	--	.0	--	--	--	46	3	.2	103	8.1
Mar. 9.....	1520	--	--	--	--	4.1	--	52	0	--	3.5	--	--	.0	--	--	--	47	4	.3	103	8.0
Apr. 13.....	646	--	--	--	--	2.6	--	63	0	--	4.0	--	--	.0	--	--	--	54	2	.1	118	8.1
May 11.....	540	6.9	--	17	4.0	3.9	0.8	66	0	9.0	2.5	0.1	1.8	.1	83	0.11	--	59	5	.2	129	8.2
June 2.....	229	--	--	--	--	4.7	--	83	2	--	2.0	--	--	.1	--	--	--	76	5	.2	165	8.4
July 13.....	185	--	--	--	--	4.8	--	91	3	--	2.5	--	--	.1	--	--	--	83	3	.2	182	8.4
Aug. 10.....	110	--	--	--	--	4.5	--	98	2	--	2.0	--	--	.1	--	--	--	87	3	.2	189	8.4
Sept. 14.....	101	10	--	28	4.4	4.7	1.2	100	0	10	2.5	--	.6	.1	110	.15	--	88	6	.2	185	8.2

## MAD RIVER BASIN--Continued

11-4810. MAD RIVER NEAR ARCATA, CALIF.--Continued

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum .....	65	64	63	62	61	61	61	61	61	61	61	61	59	59	59	58	58	58	58	58	57	57	56	56	56	56	56	56	56	56	56	59	
Minimum .....	64	62	62	61	61	61	61	61	61	61	61	59	58	59	58	58	58	58	58	57	57	56	56	56	55	55	56	56	55	56	55	58	
November																																	
Maximum .....	55	55	54	54	54	53	51	51	52	51	51	51	51	52	51	49	48	48	48	48	48	46	47	47	47	47	47	47	46	46	--	50	
Minimum .....	55	54	54	54	53	51	50	50	51	50	50	51	51	51	51	49	48	47	48	48	46	46	47	46	46	47	46	46	46	46	--	49	
December																																	
Maximum .....	46	46	46	46	46	47	46	46	46	46	46	45	44	44	44	44	44	44	44	45	45	45	45	44	45	45	45	46	46	46	45	45	
Minimum .....	46	46	46	46	46	46	46	46	46	46	45	44	44	44	44	44	44	44	44	45	45	45	44	44	44	45	45	45	46	46	45	45	
January																																	
Maximum .....	46	45	45	44	43	44	44	44	44	43	43	43	43	43	43	43	43	43	43	44	44	44	44	42	42	43	43	42	42	42	43	43	
Minimum .....	45	45	44	43	42	42	44	43	43	43	43	43	43	43	43	43	43	43	43	43	44	44	42	42	42	42	42	42	42	42	42	43	
February																																	
Maximum .....	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	42	42	--	--	43	
Minimum .....	42	42	42	43	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	--	--	42	
March																																	
Maximum .....	42	42	42	44	44	44	43	43	43	43	43	44	44	44	44	46	46	46	47	47	47	47	47	45	45	46	46	47	48	48	49	45	
Minimum .....	42	42	42	42	44	43	43	43	43	43	43	43	44	44	44	46	46	46	47	47	47	47	45	45	45	46	46	47	48	48	48	45	
April																																	
Maximum .....	49	49	49	51	52	54	54	54	54	54	55	56	56	56	55	55	56	57	56	58	57	55	54	56	58	58	58	58	56	--	55		
Minimum .....	48	48	49	49	51	52	54	54	54	54	54	54	54	55	55	54	54	54	55	55	54	54	53	54	54	56	55	56	53	--	53		
May																																	
Maximum .....	54	54	53	52	52	54	56	56	58	61	60	62	61	58	60	60	59	60	60	60	61	62	62	62	61	61	61	60	61	61	64	59	
Minimum .....	53	53	52	52	52	54	56	56	58	58	59	62	61	58	56	56	58	57	58	58	58	59	60	59	60	59	60	59	60	60	61	57	
June																																	
Maximum .....	64	64	64	62	62	61	61	59	58	58	50	60	64	64	63	61	61	62	63	64	66	66	66	66	67	63	63	64	64	63	--	63	
Minimum .....	62	60	61	61	61	61	59	58	57	57	58	59	59	62	61	59	60	60	60	60	60	62	63	64	64	63	62	60	60	62	62	--	61
July																																	
Maximum .....	63	62	62	60	62	62	66	65	64	65	66	66	66	64	64	64	67	66	66	67	68	68	67	68	68	68	68	67	65	66	66	65	
Minimum .....	62	60	58	59	59	60	62	63	62	62	64	65	64	64	64	63	64	63	64	64	65	63	64	64	65	65	65	65	64	64	64	62	63
August																																	
Maximum .....	67	67	68	67	67	67	66	66	67	67	66	66	66	65	65	66	65	64	65	65	65	65	65	64	64	64	64	64	63	63	--	65	
Minimum .....	63	64	64	66	65	65	64	64	64	65	64	64	64	64	63	63	64	62	61	62	64	64	64	64	64	63	61	62	60	61	--	63	
September																																	
Maximum .....	63	67	67	67	62	63	63	62	62	62	67	67	61	61	60	62	61	61	62	61	60	60	61	60	61	62	61	58	59	60	61	--	61
Minimum .....	61	60	60	61	61	61	60	59	60	60	60	60	60	60	59	59	59	60	58	58	59	57	57	58	60	60	58	57	57	58	60	--	59

## MAD RIVER BASIN--Continued

11-4810. MAD RIVER NEAR ARCATA, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964  
(Where no concentrations are reported, loads are estimated)

Day	OCTOBER			NOVEMBER			DECEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	159	2	0.9	127	3	1.0	1120	19	57
2..	180	--	1.0	232	16	B	1010	19	52
3..	205	3	1.7	202	11	6.0	935	15	38
4..	211	--	2.3	527	55	S	865	14	33
5..	280	6	4.5	879	99	S	809	12	26
6..	232	--	4.4	2390	186	S	837	14	32
7..	139	5	1.9	1680	142	644	774	12	25
8..	99	--	1.1	11200	2280	S	961	38	S
9..	74	3	.6	12200	1860	S	2370	207	S
10..	58	5	K	3280	360	3190	1620	69	302
11..	246	20	S	1800	150	729	1290	26	B
12..	336	14	S	1270	75	257	1090	16	47
13..	135	10	3.6	1000	50	135	991	15	40
14..	103	--	2.8	3030	503	S	928	11	B
15..	371	26	S	4700	574	7280	851	11	25
16..	718	36	70	2940	480	3810	760	10	21
17..	352	27	26	2000	150	810	664	10	18
18..	155	14	5.9	1740	80	376	605	10	16
19..	79	8	1.7	3230	455	S	605	11	18
20..	46	12	K	4180	308	S	1350	78	S
21..	33	26	2.3	2460	80	531	1320	45	160
22..	324	77	S	1840	60	298	998	22	59
23..	1180	191	S	4270	685	S	809	13	28
24..	580	67	105	5000	440	5940	706	9	17
25..	823	150	K	3240	125	1090	694	8	15
26..	742	72	144	2400	74	480	652	12	21
27..	445	--	52	1960	71	376	1440	104	S
28..	324	37	32	1650	52	232	3500	248	S
29..	253	10	6.8	1400	21	79	3360	186	S
30..	190	5	2.6	1230	20	66	2070	56	313
31..	145	3	1.2	--	--	--	1550	34	142
Total	9217	--	1678.6	84057	--	227663.0	37534	--	8457
Day	JANUARY			FEBRUARY			MARCH		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	1420	34	K	8520	1700	S	1100	47	S
2..	2250	117	711	4960	460	6160	152	698	
3..	1700	34	156	3960	280	2990	1310	46	163
4..	1380	19	71	3260	200	1760	1140	30	92
5..	1170	26	82	2880	180	1400	1690	179	S
6..	5090	915	S	2480	170	1140	1980	213	S
7..	9470	2530	S	2110	123	701	1800	105	510
8..	3870	219	S	1870	123	621	1430	40	154
9..	2730	100	737	1720	98	455	1520	70	287
10..	2500	80	540	1610	74	322	1380	40	149
11..	1880	50	254	1540	67	279	2280	425	S
12..	1580	30	128	1390	56	210	3500	351	3320
13..	1580	220	S	1300	53	186	3050	211	1740
14..	1800	140	680	1220	75	247	1930	140	730
15..	1420	30	115	1480	76	304	1860	51	256
16..	1470	110	437	1500	76	308	1710	55	254
17..	3630	528	S	1300	51	179	1580	47	201
18..	8180	867	S	1220	35	115	1550	50	209
19..	11500	1400	S	1180	34	108	1400	34	129
20..	32600	5010	S	1140	28	86	1300	33	116
21..	16600	2680	S	1090	26	77	1630	42	185
22..	9690	1500	39200	1060	26	74	1920	77	399
23..	6660	850	15300	1020	25	69	1890	66	337
24..	6490	980	17200	991	24	64	1860	75	377
25..	6220	750	12600	963	21	55	1620	40	175
26..	5320	610	8760	907	19	47	1480	49	196
27..	4450	460	5530	872	18	42	1380	48	179
28..	3780	280	2860	879	25	59	1320	41	146
29..	4430	642	S	893	29	70	1330	49	176
30..	4740	500	6400	--	--	--	1340	51	185
31..	5110	693	S	12900	--	--	1300	72	253
Total	170710	--	912861	55315	--	60328	52280	--	17873

S Computed by subdividing day.

B Computed from estimated-concentration graph.

K Computed from estimated-concentration graph and subdividing day.

## MAD RIVER BASIN--Continued

11-4810. MAD RIVER NEAR ARCATA, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964--Continued

Day	APRIL			MAY			JUNE		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	1680	108	S 508	470	67	85	232	3	1.9
2..	1530	119	492	460	11	14	229	--	1.9
3..	1290	64	223	782	84	S 181	223	4	2.4
4..	1160	29	91	781	94	198	226	20	12
5..	1080	17	50	652	103	181	253	37	25
6..	977	16	42	712	58	111	344	44	S 42
7..	872	15	35	640	66	114	1000	149	S 419
8..	816	16	35	595	120	193	748	76	153
9..	795	16	34	620	107	179	555	52	78
10..	816	17	37	590	22	35	455	36	44
11..	748	10	20	540	54	79	404	26	28
12..	694	10	19	570	78	120	360	28	27
13..	646	17	30	470	72	91	328	26	23
14..	625	20	34	412	48	53	304	44	36
15..	625	68	115	372	65	65	280	45	34
16..	600	60	97	360	9	8.7	274	9	6.7
17..	555	27	40	376	11	11	265	26	19
18..	515	7	9.7	348	27	25	274	--	22
19..	490	13	17	324	32	28	259	28	20
20..	465	53	67	304	8	6.6	241	--	9.8
21..	455	63	77	288	9	7.0	232	8	5.0
22..	440	48	57	265	6	4.3	225	--	3.6
23..	436	54	64	256	6	4.1	220	6	3.6
24..	420	87	99	247	19	13	210	--	4.5
25..	400	76	82	235	38	24	200	23	12
26..	380	17	17	241	68	44	185	--	13
27..	364	44	43	288	12	9.3	175	27	13
28..	368	67	67	268	5	3.6	160	--	12
29..	384	79	82	265	4	2.9	155	27	11
30..	372	79	79	253	4	2.7	150	--	16
31..	--	--	--	238	3	1.9	--	--	--
Total	20998	--	2662.7	13222	--	1895.1	9166	--	1098.4
Day	JULY			AUGUST			SEPTEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	140	55	21	154	83	35	99	26	6.9
2..	135	--	12	146	76	30	99	--	7.2
3..	125	9	3.0	130	42	15	99	18	4.8
4..	120	--	1.0	123	34	11	101	--	3.5
5..	115	2	.6	118	17	5.4	101	12	3.3
6..	115	--	.9	116	34	11	101	--	3.3
7..	115	42	13	114	46	14	106	12	3.4
8..	120	6	1.9	114	40	12	103	--	5.6
9..	130	24	8.4	114	--	3.7	103	31	8.6
10..	140	--	2.6	110	2	.6	101	--	8.5
11..	150	5	2.0	110	--	.6	101	30	8.2
12..	165	--	3.6	110	2	.6	101	--	8.2
13..	185	13	6.5	108	3	.9	101	28	7.6
14..	199	--	3.8	108	--	.6	101	--	4.1
15..	214	5	2.9	108	2	.6	101	4	1.1
16..	214	--	2.9	106	--	.6	101	--	1.6
17..	190	5	2.6	103	4	1.1	101	13	3.5
18..	180	--	2.4	101	--	1.1	99	--	5.3
19..	177	4	1.9	106	5	1.4	103	23	6.4
20..	167	--	1.8	114	8	2.5	101	--	6.5
21..	167	33	15	123	48	16	101	24	6.5
22..	164	119	53	134	47	17	101	--	6.3
23..	162	58	25	134	--	17	101	21	5.7
24..	144	--	13	130	57	20	99	--	4.8
25..	139	26	9.8	116	--	22	97	--	4.2
26..	146	--	16	110	80	24	97	--	3.7
27..	144	57	22	101	--	15	101	12	3.3
28..	142	55	21	101	21	5.7	94	--	2.8
29..	144	--	17	101	--	1.9	94	10	2.5
30..	131	30	11	103	4	1.1	92	10	2.5
31..	134	34	12	108	--	2.3	--	--	--
Total	4719	--	309.6	3574	--	289.7	3000	--	149.9

Total discharge for year (cfs-days)..... 463,792  
 Total load for year (tons)..... 1,235,266.0

S Computed by subdividing day.

## MAD RIVER BASIN--Continued

## 11-4810. MAD RIVER NEAR ARCATA, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1963 to September 1964  
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concen- tration (ppm)	Sediment discharge (tons per day)	Suspended sediment										Method of analysis	
							Percent finer than size indicated, in millimeters											
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000		2.000
Nov. 6, 1963.....	0945	51		2420	471		--	--	--	--		87	97	99	100	--		V
Nov. 8.....	1000	51		9170	2660		--	27	--	47	--	68	88	96	99	100		VPWC
Nov. 9.....	0830	51		13800	2180		19	27	33	45	56	64	82	93	98	100		VPWC
Nov. 15.....	0830	51		4720	466		--	--	--	--	--	84	92	100	--	--		V
Nov. 19.....	1700	48		4600	534		--	--	--	--	--	86	99	100	--	--		V
Nov. 23.....	1650	47		7210	1120		--	27	--	47	--	72	89	96	100	--		VPWC
Dec. 29.....	1030	46		3380	192		--	--	--	--	--	95	99	100	--	--		S
Jan. 7, 1964.....	1100	44		9640	1160		--	--	--	--	--	63	79	93	100	--		V
Jan. 8.....	1530	44		3490	140		--	--	--	--	--	92	96	99	100	--		S
Jan. 9.....	0935	43		2580	99		--	--	--	--	--	84	93	98	100	--		S
Jan. 19.....	1000	44		12000	1720		--	24	--	44	--	64	80	95	100	--		VPWC
Jan. 20.....	0800	44		44100	6890		32	36	48	62	77	84	97	100	--	--		VPWC
Jan. 20.....	1520	44		33000	5280		--	31	--	55	--	76	92	99	100	--		VPWC
Jan. 21.....	0900	44		16800	2790		--	22	--	43	--	64	84	96	100	--		VPWC
Feb. 1.....	1100	43		8470	1650		19	24	32	41	52	59	75	91	99	100		VPWC
Feb. 17.....	1530	43		1280	44		--	--	--	--	--	96	100	--	--	--		S
Mar. 5.....	1200	44		1800	255		--	--	--	--	--	84	89	92	94	100		S
Mar. 12.....	1030	44		3170	291		--	--	--	--	--	90	96	100	--	--		S
Mar. 22.....	1300	45		1920	92		--	--	--	--	--	82	86	95	100	--		V
Apr. 1.....	1300	54		1880	119		--	--	--	--	--	96	98	100	--	--		S
June 6.....	1930	61		392	53		--	--	--	--	--	96	100	--	--	--		S
July 22.....	1000	67		167	146		--	--	--	--	--	92	97	99	100	--		S

Particle-size analyses of bed material, water year October 1963 to September 1964  
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Bed material											Method of analysis
							Percent finer than size indicated, in millimeters											
							0.062	0.125	0.250	0.500	1.000	2.000	4.000	8.000	16.000	32.000	64.000	
Oct. 12, 1963.....	0905		5	380				1	4	8	11	15	22	36	76	100		S
Mar. 22, 1964.....	1300		9	1920					1	8	16	20	27	38	64	100		S

## REDWOOD CREEK BASIN

11-4825. REDWOOD CREEK AT ORICK, CALIF.

LOCATION.--At gaging station, on U.S. Highway 101 bridge at Orick, Humboldt County, and 0.9 mile downstream from Prairie Creek.

DRAINAGE AREA.--278 square miles.

RECORDS AVAILABLE.--Chemical analyses: November 1958 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 3, 1963.....	23	--	--	--	--	5.1	--	62	--	--	7.2	--	--	0.0	--	--	--	56	5	.3	136	7.2
Nov. 9.....	12000	--	--	--	--	3.0	--	26	--	--	2.8	--	1.4	--	--	--	--	25	4	.3	63	6.9
Nov. 14.....	3130	--	--	--	--	3.0	--	28	--	--	3.6	--	--	.1	--	--	--	28	5	.2	74	7.4
Dec. 10.....	967	--	--	--	--	3.2	--	37	--	--	2.5	--	--	.0	--	--	--	34	4	.2	87	7.7
Jan. 15, 1964.....	1580	--	--	--	--	2.4	--	32	--	--	4.0	--	--	.1	--	--	--	30	4	.2	74	8.0
Jan. 21.....	11800	6.8	--	6.4	1.3	3.7	1.0	20	--	7.0	4.6	0.1	.7	.0	45	0.06	--	22	6	.3	60	7.3
Feb. 12.....	848	--	--	--	--	3.4	--	32	--	--	4.8	--	--	.0	--	--	--	32	6	.3	79	7.9
Mar. 11.....	1690	--	--	--	--	4.0	--	35	--	--	2.0	--	--	.1	--	--	--	33	4	.3	82	8.0
Apr. 15.....	491	--	--	--	--	3.6	--	39	--	--	5.5	--	--	.0	--	--	--	38	6	.3	90	8.1
May 13.....	356	6.5	--	15	.9	3.5	.6	46	--	7.0	1.0	.2	.7	.0	63	.09	--	41	3	.2	100	8.0
June 4.....	193	--	--	--	--	1.8	--	56	--	--	2.5	--	--	.0	--	--	--	52	6	.1	122	8.2
July 15.....	114	--	--	--	--	4.9	--	61	--	--	4.0	--	--	.0	--	--	--	61	11	.3	133	8.1
Aug. 12.....	66	--	--	--	--	5.1	--	67	--	--	3.5	--	--	.1	--	--	--	63	8	.3	146	8.2
Sept. 16.....	26	7.0	--	22	1.7	5.2	.6	65	--	8.0	5.4	--	.1	.0	97	.13	--	62	9	.3	145	7.9



MISCELLANEOUS ANALYSES OF STREAMS IN LOWER KLAMATH LAKE BASIN

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
11-4985. ANTELOPE CREEK NEAR TENNANT, CALIF.																						
Oct. 8, 1963.....						3.2		35			0.5			0.0				23	0	0.3	60	7.4
Nov. 5.....						2.6		32			.6			.1				21	0	.2	56	7.5
Dec. 3.....						2.6		34			.5			.0				21	0	.2	57	7.7
11-4905. BUTTE CREEK NEAR MacDOEL, CALIF.																						
Oct. 8, 1963.....						3.9		44			0.5			0.0				28	0	0.3	76	7.6
Nov. 5.....						3.5		42			.7			.1				27	0	.3	72	7.8
Dec. 3.....						3.3		40			.5			.0				25	0	.3	69	7.8

KLAMATH RIVER BASIN

11-5165.3. KLAMATH RIVER BELOW IRON GATE DAM, CALIF.

LOCATION.--At gaging station 0.1 mile downstream from Bogus Creek, 0.6 mile downstream from Iron Gate Dam, Siskiyou County, and 5.9 miles northeast of Hornbrook.

RECORDS AVAILABLE.--Chemical analyses: October 1961 to September 1964.

Water temperatures: October 1962 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 72°F July 30; minimum, 36°F Jan. 20, 31, Feb. 2-6.

EXTREMES, 1962-64.--Water temperatures: Maximum, 72°F July 11, several days during August 1963, July 30, 1964; minimum, 36°F on several days during January 1963, Jan. 30, 31, Feb. 2-6, 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 9, 1963.....	1760	--	--	--	--	13	--	86	0	--	4.2	--	1.7	0.1	--	--	--	56	0	0.8	166	7.7
Nov. 6.....	1770	--	--	--	--	19	--	94	0	--	4.6	--	4.7	.0	--	--	--	67	0	1.0	225	7.9
Dec. 4.....	3100	--	--	--	--	25	--	101	1	--	5.0	--	6.6	.0	--	--	--	73	0	1.3	266	8.3
Jan. 7, 1964.....	3100	--	--	--	--	12	--	70	0	--	3.5	--	6.0	.1	--	--	--	45	0	.8	151	8.1
Feb. 4.....	2990	--	--	--	--	16	--	77	0	--	2.5	--	7.0	.2	--	--	--	52	0	1.0	176	8.1
Mar. 5.....	1400	--	--	--	--	18	--	86	0	--	4.5	--	5.3	.1	--	--	--	65	0	1.0	213	7.5
Apr. 8.....	3170	--	--	--	--	23	--	108	0	--	6.0	--	4.2	.1	--	--	--	106	17	1.0	313	7.8
May 6.....	1030	12	--	13	5.7	14	2.3	72	0	19	5.0	0.2	1.2	.1	118	0.16	--	56	0	.8	170	8.0
June 10.....	1360	--	--	--	--	16	--	84	1	--	3.0	--	4.2	.1	--	--	--	61	0	.9	189	8.3
July 7.....	828	--	--	--	--	20	--	91	4	--	4.0	--	1.5	.1	--	--	--	70	0	1.0	226	8.3
Aug. 5.....	1080	--	--	--	--	30	--	117	0	--	5.7	--	2.6	.1	--	--	--	94	0	1.3	319	8.2
Sept. 2.....	1360	25	--	15	8.4	18	3.2	102	0	21	4.7	--	1.8	.1	157	.21	--	72	0	.9	224	7.9

KLAMATH RIVER BASIN--Continued

11-5165.3. KLAMATH RIVER BELOW IRON GATE DAM, CALIF.--Continued

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum ....	67	67	67	67	66	65	65	65	63	62	61	61	61	61	60	59	59	59	59	59	59	59	58	57	57	56	55	54	54	54	54	60
Minimum ....	66	66	66	66	65	64	64	63	62	61	60	61	61	61	59	58	58	58	58	58	58	57	57	57	56	55	54	53	53	53	53	59
November																																
Maximum ....	53	53	52	52	52	52	50	49	50	50	50	50	50	49	48	48	48	48	47	46	46	46	46	46	46	45	44	44	44	43	--	48
Minimum ....	52	52	51	51	51	50	49	48	49	50	50	50	50	49	48	48	48	47	46	46	46	46	46	44	44	45	44	44	43	43	42	47
December																																
Maximum ....	43	42	42	42	41	41	41	41	41	41	41	40	40	40	40	40	39	39	39	39	40	40	39	39	39	39	39	41	41	40	40	40
Minimum ....	42	41	41	40	40	40	40	40	40	40	40	40	40	39	39	39	39	39	39	39	39	38	38	38	38	39	39	39	40	40	39	39
January																																
Maximum ....	40	40	40	41	40	40	41	41	40	40	40	40	40	41	39	39	39	39	39	39	38	38	38	38	38	38	38	38	38	37	37	39
Minimum ....	40	40	40	40	40	40	40	40	40	40	39	39	39	39	38	38	38	38	38	36	37	38	37	37	37	37	37	37	37	37	36	38
February																																
Maximum ....	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	38	38	38	38	38	38	39	39	39	39	39	39	39	39	--	--	38
Minimum ....	37	36	36	36	36	36	37	37	37	37	37	37	37	37	37	37	38	38	38	38	38	38	39	39	39	39	39	39	39	--	--	37
March																																
Maximum ....	39	39	39	39	39	39	40	40	41	41	41	39	40	41	42	42	44	43	43	43	43	43	43	44	45	45	45	45	46	46	46	42
Minimum ....	39	39	39	39	39	39	39	39	40	41	39	39	39	40	41	41	42	42	42	43	42	43	43	43	44	44	44	44	45	45	45	41
April																																
Maximum ....	45	45	45	46	46	47	47	48	47	47	49	49	49	49	49	48	48	48	48	49	49	49	48	48	50	51	51	52	53	52	--	48
Minimum ....	45	45	45	45	45	45	46	47	47	46	47	47	47	47	46	47	47	47	47	48	48	48	48	48	48	49	50	50	51	50	--	47
May																																
Maximum ....	50	50	50	50	50	51	51	53	53	54	54	57	56	56	55	54	54	56	55	56	59	58	59	59	59	59	57	56	57	57	58	55
Minimum ....	49	49	49	49	50	48	50	49	50	52	52	52	54	54	54	50	51	53	53	53	54	55	55	55	55	57	55	55	55	56	57	53
June																																
Maximum ....	61	63	63	62	59	59	59	58	57	57	59	60	60	61	61	61	62	61	60	62	61	63	62	64	63	66	64	64	64	64	--	61
Minimum ....	57	61	61	58	58	58	56	57	55	55	57	58	58	59	59	59	59	60	58	58	58	60	61	61	62	62	61	61	62	62	--	59
July																																
Maximum ....	64	65	66	65	65	66	66	68	66	66	67	68	68	66	69	68	69	70	68	70	70	70	70	70	71	71	70	70	71	72	70	68
Minimum ....	62	62	63	63	64	64	64	64	64	64	65	66	66	66	66	66	67	67	68	68	68	68	68	68	69	69	69	69	69	68	68	66
August																																
Maximum ....	68	68	68	69	69	70	70	70	70	70	69	70	70	70	70	70	70	71	70	68	69	69	69	68	68	68	67	67	67	66	65	69
Minimum ....	68	68	68	68	68	68	69	68	69	68	68	68	68	68	69	69	69	69	68	67	67	67	67	67	67	67	66	67	65	65	65	68
September																																
Maximum ....	65	64	64	64	64	64	63	64	63	62	62	62	63	63	62	61	61	61	61	61	61	60	60	60	61	60	60	59	59	59	--	62
Minimum ....	64	64	64	63	63	63	63	63	62	62	62	62	62	62	61	60	60	60	60	60	60	60	60	60	60	60	59	59	59	59	--	61

## KLAMATH RIVER BASIN--Continued

11-5175. SHASTA RIVER NEAR YREKA, CALIF.

LOCATION.--At gaging station 0.5 mile upstream from mouth, and 7 miles north of Yreka, Siskiyou County.

DRAINAGE AREA (revised).--793 square miles.

RECORDS AVAILABLE.--Chemical analyses: December 1958 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 9, 1963.....	154	--	--	--	--	44	--	300	17	--	27	--	--	0.6	--	--	--	219	0	1.3	556	8.6
Nov. 6.....	220	--	--	--	--	34	--	256	16	--	23	--	--	.6	--	--	--	188	0	1.1	492	8.8
Dec. 4.....	210	--	--	--	--	37	--	260	15	--	20	--	--	.6	--	--	--	193	0	1.2	494	8.6
Jan. 7, 1964.....	230	--	--	--	--	38	--	260	15	--	24	--	--	.6	--	--	--	192	0	1.2	515	8.7
Feb. 4.....	290	--	--	--	--	37	--	278	14	--	20	--	--	.6	--	--	--	211	0	1.1	513	8.7
Mar. 5.....	247	--	--	--	--	33	--	265	9	--	18	--	--	.4	--	--	--	191	0	1.0	480	8.6
Apr. 8.....	138	--	--	--	--	38	--	282	8	--	21	--	--	.5	--	--	--	208	0	1.1	500	8.5
May 6.....	144	44	--	36	41	48	3.7	358	12	10	27	0.4	1.4	.5	400	0.54	--	260	0	1.3	643	8.5
June 10.....	362	--	--	--	--	48	--	304	15	--	19	--	--	1.1	--	--	--	215	0	1.4	571	8.6
July 7.....	30	--	--	--	--	52	--	366	24	--	31	--	--	.7	--	--	--	279	0	1.4	680	8.7
Aug. 5.....	12	--	--	--	--	56	--	364	35	--	34	--	--	.8	--	--	--	288	0	1.4	703	8.9
Sept. 2.....	35	53	--	46	47	60	4.3	419	15	16	38	--	1.2	.6	487	.66	--	307	0	1.5	758	8.5

KLAMATH RIVER BASIN--Continued

11-5178.2. KLAMATH RIVER AT KLAMATH RIVER SCHOOL, NEAR HAMBURG, CALIF.

LOCATION.--At State Highway 96 bridge, 0.9 mile downstream from Klamath River School, 1.8 miles upstream from Horse Creek, and approximately 5.5 miles northeast of Hamburg, Siskiyou County.

RECORDS AVAILABLE.--Chemical analyses: December 1958 to September 1964.

REMARKS.--No discharge records available.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 9, 1963.....		--		--	--	16	--	112	0	--	6.2		1.4	0.1	--	--		71	0	0.8	206	8.0
Nov. 6.....		--		--	--	19	--	119	0	--	7.2		4.1	.2	--	--		83	0	.9	267	8.0
Dec. 4.....		--		--	--	25	--	118	0	--	6.0		6.6	.2	--	--		83	0	1.2	281	7.6
Jan. 7, 1964.....		--		--	--	14	--	86	2	--	5.8		5.2	.2	--	--		62	0	.8	188	8.3
Feb. 4.....		--		--	--	16	--	107	1	--	4.5		5.1	.2	--	--		78	0	.8	221	8.3
Mar. 5.....		--		--	--	20	--	128	0	--	6.5		3.5	.3	--	--		92	0	.9	266	8.2
Apr. 8.....		--		--	--	22	--	118	0	--	5.2		3.9	.1	--	--		112	15	.9	318	8.2
May 6.....	14	--		18	9.0	16	2.1	115	0	15	6.0	0.5	2.3	.0	140	0.19		82	0	.8	228	7.9
June 10.....		--		--	--	21	--	148	2	--	6.5		3.3	.4	--	--		101	0	.9	284	8.3
July 7.....		--		--	--	19	--	113	0	--	4.5		1.5	.1	--	--		81	0	.9	245	8.2
Aug. 5.....		--		--	--	30	--	126	0	--	6.6		2.1	.1	--	--		98	0	1.3	325	8.0
Sept. 2.....		25		18	7.8	19	3.0	109	0	24	5.7		2.4	.0	159	.22		77	0	.9	245	7.6

KLAMATH RIVER BASIN--Continued

11-5195. SCOTT RIVER NEAR FORT JONES, CALIF.

LOCATION.--At gaging station 1.7 miles upstream from Snow Creek, and 10.8 miles downstream from Fort Jones, Siskiyou County.

DRAINAGE AREA (revised).--653 square miles.

RECORDS AVAILABLE.--Chemical analyses: November 1958 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 8, 1963.....	78	--	--	--	--	4.8	--	181	0	--	3.5	--	--	0.0	--	--	--	147	0	0.2	288	8.2
Nov. 5.....	128	--	--	--	--	3.8	--	150	5	--	3.8	--	--	.1	--	--	--	130	0	.1	259	8.5
Dec. 3.....	460	--	--	--	--	2.6	--	95	0	--	1.0	--	--	.0	--	--	--	78	0	.1	159	8.2
Jan. 6, 1964.....	454	--	--	--	--	2.2	--	86	2	--	2.5	--	--	.0	--	--	--	78	4	.1	153	8.4
Feb. 3.....	900	--	--	--	--	3.6	--	105	2	--	1.5	--	--	.1	--	--	--	93	4	.2	186	8.4
Mar. 4.....	481	--	--	--	--	4.2	--	111	3	--	4.5	--	--	.1	--	--	--	97	1	.2	195	8.5
Apr. 7.....	536	--	--	--	--	3.5	--	105	3	--	3.2	--	--	.0	--	--	--	95	4	.2	184	8.4
May 5.....	475	19	--	19	11	3.8	0.9	108	0	4.0	2.0	0.2	2.5	.0	125	0.17	--	91	2	.2	188	8.0
June 9.....	905	--	--	--	--	3.0	--	84	2	--	1.0	--	--	.0	--	--	--	72	0	.2	150	8.3
July 6.....	182	--	--	--	--	4.5	--	134	8	--	2.5	--	--	.0	--	--	--	124	1	.2	245	8.6
Aug. 4.....	72	--	--	--	--	5.1	--	151	9	--	3.4	--	--	.0	--	--	--	144	5	.2	279	8.6
Sept. 1.....	45	19	--	32	13	5.3	.6	151	4	4.0	4.8	--	1.9	.2	159	.22	--	134	4	.2	273	8.4

KLAMATH RIVER BASIN--Continued

11-5205. KLAMATH RIVER NEAR SEIAD VALLEY, CALIF.

LOCATION.--At gaging station 0.4 mile upstream from Bittenbender Creek, 1.4 miles downstream from Grider Creek, and 2.2 miles west of Seiad Valley, Siskiyou County.

DRAINAGE AREA.--6,980 square miles, approximately, not including Lost River or Lower Klamath Lake basins.

RECORDS AVAILABLE.--Chemical analyses: December 1958 to September 1964.

Water temperatures: October 1963 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 78°F July 26; minimum, 37°F Feb. 7.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 9, 1963.....	2080	--	--	--	--	15	--	116	0	--	6.2	--	1.4	0.1	--	--	--	78	0	0.7	214	8.0
Nov. 6.....	2450	--	--	--	--	17	--	121	0	--	6.6	--	5.0	.0	--	--	--	86	0	.8	247	8.2
Dec. 4.....	4240	--	--	--	--	21	--	115	0	--	3.0	--	6.4	.1	--	--	--	83	0	1.0	264	8.0
Jan. 7, 1964.....	4440	--	--	--	--	12	--	90	0	--	5.0	--	4.4	.1	--	--	--	65	0	.6	182	8.2
Feb. 4.....	5530	--	--	--	--	12	--	106	1	--	2.5	--	4.3	.3	--	--	--	80	0	.6	206	8.3
Mar. 5.....	3010	--	--	--	--	13	--	121	0	--	5.0	--	4.9	.2	--	--	--	88	0	.6	236	8.0
Apr. 8.....	4940	--	--	--	--	17	--	112	2	--	5.0	--	2.9	.1	--	--	--	106	11	.7	279	8.4
May 6.....	2440	22	--	18	9.7	11	1.8	110	0	10	6.8	0.2	1.0	.1	135	0.18	--	85	0	.5	205	8.0
June 10.....	3010	--	--	--	--	13	--	118	2	--	4.0	--	5.4	.2	--	--	--	88	0	.6	219	8.3
July 7.....	1280	--	--	--	--	15	--	110	4	--	3.0	--	1.1	.2	--	--	--	91	0	.7	233	8.4
Aug. 5.....	1240	--	--	--	--	25	--	132	0	--	6.5	--	1.6	.2	--	--	--	101	0	1.1	311	8.2
Sept. 2.....	1510	25	--	17	9.1	18	3.0	110	0	22	6.3	--	1.9	.1	164	.22	--	80	0	.9	239	8.0

## KLAMATH RIVER BASIN--Continued

11-5205. KLAMATH RIVER NEAR SEIAD VALLEY, CALIF.--Continued

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum .....	67	67	65	63	61	61	61	62	62	62	61	60	60	60	59	60	60	58	57	58	57	56	55	55	55	53	52	53	53	53	52	59	
Minimum .....	65	65	63	61	60	60	60	60	61	60	60	59	59	60	59	58	58	58	57	56	57	56	55	54	54	53	52	52	52	52	51	58	
November																																	
Maximum .....	52	52	52	52	51	51	50	50	49	50	50	50	50	50	49	48	47	48	48	47	47	46	45	46	46	46	46	46	44	44	—	48	
Minimum .....	51	51	51	51	51	50	49	49	49	49	50	50	50	49	47	47	47	47	47	47	46	45	45	45	45	45	45	44	44	44	—	48	
December																																	
Maximum .....	44	43	43	43	43	43	42	42	42	42	40	39	39	39	39	39	39	39	39	40	40	40	40	40	41	41	41	41	41	42	42	41	
Minimum .....	43	42	42	42	42	42	42	42	42	40	39	39	39	39	39	39	39	39	39	39	40	39	40	40	40	40	40	41	41	41	41	42	41
January																																	
Maximum .....	42	42	41	40	40	40	41	40	40	40	40	40	39	39	39	39	39	39	39	40	40	39	38	38	39	39	40	40	40	40	39	40	
Minimum .....	42	41	40	40	40	40	40	40	40	40	39	39	39	39	39	39	39	39	39	39	38	39	38	38	39	39	39	39	39	39	39	39	
February																																	
Maximum .....	40	40	40	39	39	39	38	39	39	39	40	39	39	39	40	40	41	41	41	42	41	42	41	42	42	41	41	42	41	—	—	40	
Minimum .....	39	40	39	39	39	38	37	38	38	38	39	38	38	38	38	39	39	40	40	40	40	40	41	40	41	40	39	40	40	40	—	—	39
March																																	
Maximum .....	42	42	42	44	44	43	42	42	42	44	44	42	43	44	46	46	46	46	46	46	45	45	46	46	45	47	48	48	49	49	50	45	
Minimum .....	41	41	41	42	43	42	41	40	42	42	42	41	41	42	44	45	45	45	45	45	44	45	45	45	45	44	45	46	47	48	48	44	
April																																	
Maximum .....	49	48	48	49	49	49	50	51	51	50	51	51	51	52	52	51	50	50	51	52	52	52	52	51	50	51	54	55	57	56	54	—	51
Minimum .....	47	47	46	47	48	47	49	50	50	49	49	50	50	51	51	50	49	49	50	51	51	51	51	50	49	50	51	52	54	54	51	—	50
May																																	
Maximum .....	51	49	49	50	49	51	52	54	56	58	57	57	57	56	56	57	59	59	58	58	60	61	61	61	61	61	57	57	60	63	64	56	
Minimum .....	49	47	47	48	49	47	49	50	52	55	54	55	55	53	53	54	52	54	55	56	55	55	56	57	58	57	54	55	56	59	62	53	
June																																	
Maximum .....	63	62	61	60	60	59	58	57	56	59	62	63	63	64	63	61	61	61	62	63	64	66	68	69	69	69	66	66	66	67	—	63	
Minimum .....	60	59	60	59	59	58	57	55	54	56	58	61	62	62	61	58	59	59	58	59	60	61	63	65	65	65	62	61	64	63	—	60	
July																																	
Maximum .....	70	68	69	68	70	71	72	72	69	71	73	73	74	74	71	71	72	72	73	73	72	72	74	76	77	78	77	76	73	73	70	72	
Minimum .....	65	64	65	67	66	67	69	69	65	66	69	72	73	70	69	67	69	68	68	69	69	68	69	71	72	73	74	72	71	71	67	69	
August																																	
Maximum .....	69	70	71	72	72	73	73	74	74	75	75	72	73	73	73	73	72	72	71	72	75	75	75	74	73	72	70	69	68	67	65	72	
Minimum .....	66	66	67	68	68	69	69	70	70	71	72	69	69	69	69	69	70	68	67	68	70	71	72	71	69	69	66	67	65	65	63	68	
September																																	
Maximum .....	64	65	65	66	66	66	66	65	64	64	64	64	65	65	65	62	64	65	64	63	63	63	64	65	65	64	63	62	62	61	—	64	
Minimum .....	62	61	62	63	63	63	64	61	61	62	61	61	62	62	62	61	62	60	61	60	60	60	61	62	62	61	60	60	59	59	—	61	



KLAMATH RIVER BASIN--Continued

11-5225. SALMON RIVER AT SOMESBAR, CALIF.

LOCATION.--At gaging station 0.5 mile east of Somesbar Post Office, Siskiyou County, and 1.5 miles upstream from mouth.

DRAINAGE AREA.--746 square miles.

RECORDS AVAILABLE.--Chemical analyses: November 1958 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 1, 1963.....	185	--	--	--	--	3.4	--	79	--	--	2.0	--	--	0.0	--	--	--	65	0	0.2	142	7.8
Nov. 12.....	1640	--	--	--	--	1.6	--	43	--	--	.9	--	--	.1	--	--	--	38	3	.1	82	7.5
Dec. 9.....	1280	--	--	--	--	1.8	--	50	--	--	.5	--	--	.1	--	--	--	42	1	.1	93	7.8
Jan. 16, 1964.....	1640	--	--	--	--	1.7	--	60	--	--	1.5	--	--	.1	--	--	--	52	3	.1	106	8.2
Feb. 10.....	2760	--	--	--	--	2.4	--	64	--	--	1.2	--	--	.0	--	--	--	53	1	.1	112	8.2
Mar. 9.....	1480	--	--	--	--	2.5	--	62	--	--	1.0	--	--	.1	--	--	--	50	0	.2	108	8.2
Apr. 13.....	2180	--	--	--	--	2.2	--	46	--	--	2.6	--	--	.0	--	--	--	40	2	.2	86	8.0
May 11.....	2390	10	--	9.6	1.7	1.8	0.5	35	--	2.0	1.0	0.1	4.2	.0	48	0.07	--	31	2	.1	68	8.0
June 2.....	2330	--	--	--	--	1.8	--	32	--	--	.5	--	--	.0	--	--	--	26	0	.2	57	7.9
Sept. 14.....	163	15	--	19	3.3	3.8	.9	76	--	5.0	2.3	--	.5	.2	87	.12	--	61	0	.2	137	8.2

KLAMATH RIVER BASIN--Continued

11-5230. KLAMATH RIVER AT SOMESBAR, CALIF.

LOCATION.--At gaging station 300 feet downstream from Salmon River, and 1 mile west of Somesbar Post Office, Siskiyou County.

DRAINAGE AREA.--8,480 square miles, approximately, not including Lost River or Lower Klamath Lake basins.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to June 1964 (discontinued).

Chemical analyses, in parts per million, October 1963 to June 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 1, 1963.....	2500					13		105	0		5.2			0.1				73	0	0.7	196	7.9
Nov. 12.....	7920					7.0		76	0		3.0			.0				60	0	.4	154	8.0
Dec. 9.....	7180					11		85	0		3.0			.1				65	0	.6	179	8.1
Jan. 16, 1964.....	8500					7.2		74	2		3.5			.1				63	0	.4	147	8.3
Feb. 10.....	11000					6.6		78	0		3.2			.0				62	0	.4	147	8.2
Mar. 9.....	6800					7.4		84	1		2.5			.2				68	0	.4	163	8.4
Apr. 13.....	10200					9.0		80	0		2.5			.0				72	6	.5	177	8.2
May 11.....	7780	13		11	5.5	4.5	0.8	62	0	5.0	1.0	0.0	1.8	.0	74	0.10		50	0	.3	114	8.1
June 2.....	7050					3.9		58	0		1.0			.0				46	0	.3	107	8.2

KLAMATH RIVER BASIN--Continued

11-5230.15. KLAMATH RIVER AT ORLEANS, CALIF.

LOCATION.--Approximately 7 miles southwest of Somesbar, on Ishipishi Road bridge at Orleans, Humboldt County.

RECORDS AVAILABLE.--Chemical analyses: January to September 1964.

REMARKS.--No discharge records available.

Chemical analyses, in parts per million, January to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Cal- cium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Po- tas- sium (K)	Bi- car- bon- ate (HCO <sub>3</sub> )	Car- bon- ate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluo- ride (F)	Ni- trate (NO <sub>3</sub> )	Bo- ron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		So- dium ad- sorp- tion ratio	Specific con- duct- ance (micro- mhos at 25°C)	pH
															Parts per million	Tons per acre- foot	Tons per day	Cal- cium, Mag- ne- sium	Non- car- bon- ate			
Jan. 16, 1964.....		--		--	--	6.8	--	73	2	--	3.8		--	0.1	--	--		58	0	0.4	146	8.3
Feb. 10.....		--		--	--	7.0	--	76	0	--	1.5		--	.2	--	--		60	0	.4	143	8.2
Mar. 9.....		--		--	--	7.2	--	85	1	--	2.5		--	.1	--	--		68	0	.4	164	8.4
Apr. 13.....		--		--	--	9.0	--	81	1	--	3.0		--	.0	--	--		75	7	.5	179	8.3
May 11.....		13		11	6.0	4.9	0.8	65	0	6.0	1.5	0.0	0.7	.0	75	0.10		52	0	.3	121	8.1
June 2.....		--		--	--	4.5	--	59	0	--	1.0		--	.0	--	--		46	0	.3	108	8.2
July 13.....		--		--	--	10	--	87	3	--	3.0		--	.1	--	--		74	0	.5	188	8.3
Aug. 10.....		--		--	--	18	--	114	0	--	5.4		--	.2	--	--		93	0	.8	252	8.2
Sept. 14.....		22		16	9.2	14	2.4	106	0	15	4.6		.9	.1	140	.19		78	0	.7	212	8.0

KLAMATH RIVER BASIN--Continued

11-5255. TRINITY RIVER AT LEWISTON, CALIF.

LOCATION.--At old highway bridge in Lewiston. Trinity County, 0.3 mile downstream from gaging station, and 0.8 mile downstream from Deadwood Creek.  
DRAINAGE AREA (revised).--728 square miles.

RECORDS AVAILABLE.--Chemical analyses: December 1953 to September 1964.

Water temperatures: September 1951 to September 1955, October 1957 to September 1958, July 1959 to September 1964.

EXTREMES, 1953-64.--Water temperatures: Minimum, 41°F Jan. 27, 28.

EXTREMES, 1951-55, 1957-58, 1959-64.--Water temperatures: Maximum (1951-55, 1957-58, 1959-63), 79°F July 20, 21, 28, 29, 1960; minimum, 33°F on several days in January 1952.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 1, 1963.....	247	--	--	--	--	2.1	--	52	--	--	1.8	--	--	0.0	--	--	--	44	1	0.1	93	7.8
Nov. 12.....	276	--	--	--	--	2.8	--	45	--	--	2.2	--	--	.1	--	--	--	44	7	.2	101	8.0
Dec. 9.....	288	--	--	--	--	1.7	--	52	--	--	1.0	--	--	.0	--	--	--	45	2	.1	94	7.7
Jan. 13, 1964.....	270	--	--	--	--	1.4	--	50	--	--	1.5	--	--	.1	--	--	--	44	3	.1	92	8.2
Feb. 10.....	276	--	--	--	--	2.6	--	51	--	--	4.5	--	--	.2	--	--	--	44	2	.2	94	8.0
Mar. 9.....	270	--	--	--	--	2.6	--	54	--	--	1.5	--	--	.1	--	--	--	46	2	.2	99	8.2
Apr. 13.....	208	--	--	--	--	2.5	--	54	--	--	3.2	--	--	.0	--	--	--	47	3	.2	96	8.2
May 11.....	159	12	--	7.6	6.3	2.1	0.5	52	--	2.0	1.0	0.2	2.4	.0	60	0.08	--	45	2	.1	94	7.7
June 2.....	154	--	--	--	--	2.2	--	53	--	--	1.0	--	--	.1	--	--	--	45	2	.1	96	8.2
July 13.....	155	--	--	--	--	2.4	--	52	--	--	1.5	--	--	.0	--	--	--	45	2	.1	93	8.1
Aug. 10.....	150	--	--	--	--	2.0	--	52	--	--	.5	--	1.0	.0	--	--	--	43	0	.1	93	7.9
Sept. 14.....	161	12	--	6.4	6.8	2.4	.4	52	--	2.0	1.2	--	.4	.1	58	.08	--	44	1	.2	92	8.1

KLAMATH RIVER BASIN--Continued

11-5255. TRINITY RIVER AT LEWISTON, CALIF.--Continued

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum .....	52	52	51	--	--	--	--	49	48	50	49	49	49	49	49	50	50	50	50	49	49	49	49	48	48	48	48	49	49	49	49	49
Minimum .....	50	50	49	--	--	--	--	48	48	48	48	48	48	48	49	49	49	49	49	49	49	49	48	48	48	48	48	48	48	48	48	48
November																																
Maximum .....	49	48	48	48	48	48	47	47	47	46	45	45	45	45	45	45	45	45	45	45	45	45	44	44	44	44	44	43	43	43	44	--
Minimum .....	48	48	48	48	48	47	47	47	46	45	45	45	45	45	45	45	45	45	45	45	45	45	44	44	44	44	44	43	43	43	43	--
December																																
Maximum .....	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
Minimum .....	43	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
January																																
Maximum .....	44	44	44	44	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	42	42	42	42	42	42	42	42	42	42	42	42
Minimum .....	44	44	44	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	42	42	42	42	42	42	42	42	41	41	42	42	42
February																																
Maximum .....	43	43	44	44	44	45	45	46	46	46	46	46	46	47	47	--	--	--	47	47	47	47	47	46	46	46	46	45	47	--	--	
Minimum .....	42	42	43	43	44	44	44	45	45	45	45	45	45	46	46	--	--	--	46	45	45	45	46	46	45	45	45	45	45	--	--	
March																																
Maximum .....	47	48	49	49	49	49	49	49	49	49	49	48	48	48	49	49	49	50	50	50	49	50	49	50	50	50	50	51	51	51	50	
Minimum .....	47	47	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	49	49	49	49	48	48	49	49	49	49	49	
April																																
Maximum .....	50	49	50	50	50	50	51	50	51	50	51	51	52	51	51	52	51	51	51	51	51	51	50	50	51	51	52	52	52	50	--	
Minimum .....	48	48	48	48	48	48	48	48	49	49	49	49	49	48	48	48	48	48	48	48	48	47	48	47	47	47	47	47	48	48	--	
May																																
Maximum .....	52	50	51	50	51	52	52	53	54	55	55	55	55	55	56	56	54	55	56	56	57	57	57	57	57	54	54	57	57	57	57	
Minimum .....	48	48	48	48	47	47	47	48	49	51	51	51	51	51	51	51	51	51	51	51	51	52	52	52	52	51	52	52	52	51	51	
June																																
Maximum .....	55	55	53	51	51	52	53	49	49	51	53	55	55	55	54	54	54	54	54	55	56	56	56	56	56	55	55	55	55	56	--	
Minimum .....	51	51	50	50	50	49	48	49	49	48	48	48	48	49	50	50	50	49	49	48	48	49	49	50	49	49	49	49	49	50	--	
July																																
Maximum .....	56	57	56	56	56	56	55	--	--	--	--	--	--	--	--	--	--	54	54	54	54	54	53	53	54	53	54	53	51	53	53	
Minimum .....	50	50	50	50	50	50	50	--	--	--	--	--	--	--	--	--	--	50	50	50	50	50	50	50	50	50	50	50	50	50	51	
August																																
Maximum .....	53	52	52	52	53	52	53	53	53	53	53	53	53	53	53	53	53	53	52	53	53	53	52	52	52	52	52	51	52	52	51	
Minimum .....	50	49	49	49	49	49	49	49	49	49	49	49	49	50	50	50	50	50	50	50	50	50	50	50	50	49	49	49	49	49	49	
September																																
Maximum .....	50	51	50	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51										

KLAMATH RIVER BASIN--Continued

11-5270. TRINITY RIVER NEAR BURNT RANCH, CALIF.

LOCATION.--At gaging station 500 feet upstream from Cedar Flat Creek, 700 feet upstream from highway bridge at Cedar Flat, and 2.3 miles southeast of Burnt Ranch, Trinity County.

DRAINAGE AREA (revised).--1,439 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1964.

Water temperatures: October 1961 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 69°F Aug. 24-26.

EXTREMES, 1962-64.--Water temperatures: Maximum, 71°F Sept. 8, 10, 11; minimum (1962-63), 36°F on several days during January 1963.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 4, 1963.....	291	--	--	--	--	4.3	--	84	0	--	6.0	--	--	0.1	--	--	--	71	2	0.2	159	8.1
Nov. 9.....	6200	--	--	--	--	1.9	--	40	0	--	1.5	--	3.1	--	--	--	--	36	3	.1	77	7.5
Nov. 12.....	1330	--	--	--	--	2.4	--	64	0	--	2.8	--	--	.0	--	--	--	55	3	.1	119	8.0
Dec. 9.....	1270	--	--	--	--	2.4	--	77	0	--	2.5	--	--	.1	--	--	--	66	3	.1	138	8.0
Jan. 16, 1964.....	1170	--	--	--	--	2.7	--	80	2	--	4.0	--	--	.1	--	--	--	78	9	.1	153	8.4
Feb. 10.....	2260	--	--	--	--	3.4	--	85	2	--	3.5	--	--	.1	--	--	--	75	2	.2	154	8.3
Mar. 9.....	1240	--	--	--	--	3.8	--	81	2	--	2.0	--	--	.2	--	--	--	69	1	.2	150	8.5
Apr. 13.....	1260	--	--	--	--	3.2	--	70	1	--	4.5	--	--	.0	--	--	--	62	3	.2	130	8.3
May 11.....	1010	13	--	15	4.7	2.9	0.3	66	0	4.0	1.5	0.2	2.8	.0	77	0.10	--	57	3	.2	121	8.1
June 2.....	880	--	--	--	--	2.8	--	53	0	--	1.5	--	--	.0	--	--	--	46	3	.2	101	8.1
July 13.....	413	--	--	--	--	4.1	--	72	0	--	3.5	--	.8	.0	--	--	--	63	4	.2	139	8.1
Aug. 13.....	240	--	--	--	--	5.0	--	84	0	--	3.5	--	1.1	.1	--	--	--	73	4	.3	163	8.2
Sept. 14.....	228	12	--	20	6.1	4.8	.6	83	1	5.0	7.5	--	.3	.0	102	.14	--	75	5	.2	166	8.3

KLAMATH RIVER BASIN--Continued

11-5270. TRINITY RIVER NEAR BURNT RANCH, CALIF.--Continued

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum .....	64	64	64	63	63	63	62	62	62	62	59	59	59	59	59	59	59	58	58	58	58	58	58	58	58	58	58	57	56	56	56	60
Minimum .....	64	63	63	63	62	62	62	62	62	59	59	59	59	59	59	58	58	58	58	58	58	58	58	58	58	58	57	56	56	56	56	59
November																																
Maximum .....	56	54	54	54	54	53	53	53	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	51	51	51	51	51	51	51	---	52
Minimum .....	54	54	54	54	53	53	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	51	51	51	51	51	51	51	51	---	52
December																																
Maximum .....	51	51	51	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Minimum .....	51	51	51	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
January																																
Maximum .....	---	---	---	---	---	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	44	44	44	44	44	44	44	44	44	45
Minimum .....	---	---	---	---	---	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	44	44	44	44	44	44	44	44	44	44	45
February																																
Maximum .....	44	44	44	44	44	44	44	44	44	44	45	45	45	45	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	---	44
Minimum .....	44	44	44	43	44	44	44	44	44	44	44	45	45	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	---	44
March																																
Maximum .....	44	44	44	44	45	46	46	46	46	46	46	46	46	46	46	46	46	47	47	47	47	47	47	47	47	47	47	48	48	48	48	46
Minimum .....	44	44	44	44	44	45	46	46	46	46	46	46	46	46	46	46	46	47	47	47	47	47	47	47	47	47	47	47	47	48	48	46
April																																
Maximum .....	48	48	48	48	48	48	48	48	48	48	48	49	49	49	49	49	49	49	49	49	49	50	50	50	50	50	50	51	51	51	---	49
Minimum .....	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	49	49	49	49	49	49	49	50	50	50	50	50	50	51	51	---	49
May																																
Maximum .....	51	51	51	51	51	51	51	51	51	52	52	52	53	53	53	53	53	53	53	53	53	54	54	54	54	56	56	56	56	56	57	53
Minimum .....	51	51	51	51	51	51	51	51	51	52	52	52	53	53	53	53	53	53	53	53	53	53	54	54	54	56	56	56	56	56	56	53
June																																
Maximum .....	57	57	57	57	56	56	56	56	56	56	56	56	56	56	56	57	57	58	58	58	58	58	58	59	61	61	61	61	61	61	---	58
Minimum .....	56	57	57	56	56	56	56	56	56	56	56	56	56	56	56	57	57	58	58	58	58	58	58	59	61	61	61	61	61	61	---	58
July																																
Maximum .....	61	61	61	61	61	61	61	62	62	62	62	63	64	65	65	65	65	65	65	65	65	65	65	65	66	66	67	67	68	68	68	64
Minimum .....	61	61	61	61	61	61	61	61	61	62	62	62	63	65	65	65	65	65	65	65	65	65	65	65	66	66	67	68	68	68	68	64
August																																
Maximum .....	68	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	68	68	69	69	69	68	68	67	67	67
Minimum .....	67	67	67	66	66	66	67	66	66	66	66	67	66	67	67	67	67	67	67	67	67	67	67	67	68	68	68	67	67	67	66	67
September																																
Maximum .....	66	65	65	64	64	64	64	64	64	64	64	63	63	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	---	63
Minimum .....	65	65	64	64	64	64	64	64	64	64	64	62	62	62	62	62	62	62	62	62	62	62	61	61	61	62	62	62	62	62	---	63

KLAMATH RIVER BASIN--Continued

11-5282. SOUTH FORK TRINITY RIVER NEAR HYAMPOM, CALIF.

LOCATION.--Temperature recorder at gaging station just upstream from private road bridge, 0.3 mile downstream from Deep Gulch, 0.5 mile upstream from Hayfork Creek, and 0.7 mile south of Hyampom, Trinity County.

DRAINAGE AREA.--342 square miles.

RECORDS AVAILABLE.--Water temperatures: November 1960 to September 1962, October 1963 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 68°F Aug. 21-24; minimum, 38°F on several days during February and March.

EXTREMES, 1960-62, 1963-64.--Water temperatures: Maximum (1961-62, 1963-64), 77°F July 27, 29, 30, 1962; minimum (1960-61, 1963-64), 37°F Jan. 3-5, Feb. 2-6, 1961.

Temperature (°F) of water, water year October 1963 to September 1964

Temperature (°F) of water, water year October 1963 to September 1964																																	
Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum ....	62	62	62	62	60	62	61	61	61	61	59	59	59	59	59	59	59	59	59	59	58	57	57	56	56	55	55	54	53	52	52	51	58
Minimum ....	62	62	62	60	60	60	61	61	61	59	59	59	59	59	59	59	59	59	59	58	57	57	56	56	55	54	53	52	52	51	50	58	
November																																	
Maximum ....	50	49	49	49	49	49	48	48	48	48	48	48	48	48	48	47	46	46	46	45	44	44	44	44	44	44	44	44	44	44	—	47	
Minimum ....	49	48	49	49	49	48	48	48	48	48	48	48	48	48	48	47	46	46	46	45	44	44	44	44	44	44	44	44	44	44	—	46	
December																																	
Maximum ....	44	43	42	42	42	44	44	44	44	44	44	43	42	42	42	42	42	42	42	43	44	44	44	44	44	43	43	44	45	46	46	43	
Minimum ....	43	42	42	42	42	42	44	44	44	44	44	43	42	42	42	42	42	42	42	42	43	44	44	44	44	42	42	42	43	44	45	46	43
January																																	
Maximum ....	46	46	46	45	44	43	43	42	42	42	42	42	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	42	42	42	42	
Minimum ....	46	45	45	44	43	43	42	42	42	42	42	42	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	42	42	42	
February																																	
Maximum ....	42	43	43	42	42	42	41	41	42	42	42	41	40	40	39	39	39	39	39	39	39	39	39	40	39	39	39	38	38	38	—	40	
Minimum ....	42	42	42	42	42	41	41	41	41	42	41	40	40	39	39	39	39	39	39	39	38	38	38	38	38	38	38	38	38	38	—	40	
March																																	
Maximum ....	38	38	38	39	39	40	40	39	40	39	40	40	40	40	40	42	42	42	42	42	42	42	42	42	41	41	42	43	43	44	44	41	
Minimum ....	38	38	38	38	39	39	39	39	39	39	40	40	40	39	40	40	41	42	42	42	42	42	42	41	41	41	41	42	42	43	44	41	
April																																	
Maximum ....	44	44	44	44	44	44	46	47	47	47	48	48	49	50	50	50	50	49	49	49	49	50	49	48	48	50	50	52	52	52	—	48	
Minimum ....	44	43	42	43	44	43	44	46	46	46	47	48	48	49	50	49	49	48	48	48	49	49	48	47	47	48	50	50	52	50	—	47	
May																																	
Maximum ....	50	49	48	48	48	48	49	50	52	53	54	54	54	54	54	54	54	54	54	55	56	56	56	56	57	58	57	56	57	58	58	54	
Minimum ....	49	48	48	48	48	47	48	49	50	52	53	54	54	54	54	54	53	53	54	55	56	56	56	56	57	57	56	56	57	58	58	53	
June																																	
Maximum ....	59	58	58	58	58	58	58	58	57	56	58	58	58	59	59	59	59	59	59	60	59	59	60	60	60	60	61	60	60	60	—	59	
Minimum ....	58	58	58	58	58	58	57	56	56	56	56	58	57	58	59	59	59	59	59	59	59	59	59	59	60	60	60	60	60	60	60	58	
July																																	
Maximum ....	60	60	60	60	60	61	61	61	61	60	61	62	63	63	63	62	62	62	62	63	63	63	63	63	64	65	66	66	66	66	66	63	
Minimum ....	60	60	60	60	60	60	61	60	60	60	60	60	62	62	62	62	62	62	62	63	63	62	62	62	63	64	65	66	66	65	65	64	
August																																	
Maximum ....	64	64	63	63	64	64	65	65	64	64	65	64	64	64	64	64	64	65	65	67	68	68	68	68	68	67	66	66	64	65	65	65	
Minimum ....	63	63	63	63	63	64	64	64	63	63	64	63	63	63	63	62	62	62	64	65	66	66	66	66	66	65	64	64	63	63	62	64	
September																																	
Maximum ....	63	62	62	64	63	63	62	62	64	65	65	66	66	65	65	65	65	65	65	65	65	64	65	67	67	66	65	64	64	64	—	64	
Minimum ....	61	61	61	62	61	61	61	61	60	63	63	64	64	64	63	63	65	64	63	64	63	63	64	64	64	64	62	62	62	62	—	63	



KLAMATH RIVER BASIN--Continued

11-5285. HAYFORK CREEK NEAR HYAMPOM, CALIF.

LOCATION.--Temperature recorder at gaging station, 1.2 miles upstream from mouth, and 1.3 miles northeast of Hyampom, Trinity County.

DRAINAGE AREA (revised).--378 square miles.

RECORDS AVAILABLE.--Water temperatures: December 1960 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 77°F July 26, 27; minimum, 40°F Dec. 13, 14, Jan. 12-14.

EXTREMES, 1960-64.--Water temperatures: Maximum (1960-61, 1962-64), 83°F July 13, 1961; minimum, freezing point several days during January 1962.

Temperature (°F) of water, water year October 1963 to September 1964

Temperature (°F) of water, water year October 1963 to September 1964																																	
Month	Day																																Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum ....	64	64	63	61	59	59	59	59	59	58	58	58	57	58	58	58	58	58	59	59	58	58	58	55	54	54	54	52	51	51	50	57	
Minimum ....	61	60	60	59	59	57	57	57	58	58	57	57	56	57	58	58	58	58	58	58	58	55	54	54	54	52	49	49	50	48	56		
November																																	
Maximum ....	48	49	49	49	50	49	47	48	50	50	50	50	50	50	50	48	47	47	47	48	45	45	44	44	46	45	46	46	44	44	—	47	
Minimum ....	46	47	49	49	49	47	47	47	48	50	50	50	50	50	48	47	47	47	45	45	44	44	44	44	45	45	45	44	44	44	—	47	
December																																	
Maximum ....	44	43	42	42	43	45	44	44	44	44	44	42	41	41	41	42	42	42	44	44	44	44	44	42	43	44	45	47	47	47	46	44	
Minimum ....	43	42	42	42	42	43	44	43	43	44	44	42	41	40	40	41	41	42	42	42	43	44	44	44	42	41	42	43	44	45	47	46	43
January																																	
Maximum ....	46	45	45	44	44	42	42	42	42	42	42	41	40	41	41	42	42	42	42	43	42	42	43	42	42	43	43	43	43	44	44	43	
Minimum ....	45	45	44	44	42	42	42	42	42	42	41	40	40	40	41	41	42	41	41	42	42	42	42	42	42	42	43	43	43	43	43	43	42
February																																	
Maximum ....	45	45	44	44	44	43	43	43	44	44	44	44	44	43	43	43	43	43	43	43	44	44	44	44	44	44	44	44	44	—	—	44	
Minimum ....	44	44	42	43	42	41	41	42	42	43	43	42	42	42	42	43	43	43	43	43	43	44	44	44	44	44	43	43	43	43	—	—	43
March																																	
Maximum ....	45	45	44	47	47	45	44	44	45	45	44	44	44	44	44	45	48	48	48	48	48	48	47	46	46	48	49	50	51	52	52	47	
Minimum ....	44	44	44	44	45	44	43	43	44	44	44	44	43	43	44	45	47	48	48	48	48	47	46	45	45	46	47	48	49	50	51	52	46
April																																	
Maximum ....	52	50	49	52	50	52	51	53	52	51	53	53	54	55	55	54	53	53	55	56	57	56	50	49	54	57	59	61	60	56	—	54	
Minimum ....	50	48	48	49	50	49	48	49	50	48	50	49	50	50	52	51	49	49	50	51	52	50	49	47	46	51	54	56	56	52	—	50	
May																																	
Maximum ....	52	51	49	50	49	53	54	58	59	60	61	60	60	60	59	58	60	62	62	62	62	63	64	64	63	60	62	63	65	66	59		
Minimum ....	51	49	48	49	48	47	50	53	55	56	56	56	56	56	56	56	55	57	58	59	58	58	58	60	60	60	59	58	59	60	62	56	
June																																	
Maximum ....	64	64	63	61	61	62	62	60	57	59	64	66	66	68	66	64	64	64	64	65	66	68	70	70	70	68	66	67	68	68	—	65	
Minimum ....	62	60	60	61	60	60	60	57	56	55	58	60	61	62	63	61	60	60	60	60	60	62	64	64	64	64	62	61	63	63	—	61	
July																																	
Maximum ....	69	68	67	68	68	69	71	70	69	70	72	74	76	74	72	73	74	72	73	72	72	73	74	76	76	77	77	76	75	74	72	72	
Minimum ....	64	63	63	64	63	63	65	66	64	64	66	69	71	70	68	68	68	69	68	68	68	68	68	70	71	72	72	70	70	72	68	68	
August																																	
Maximum ....	72	71	72	72	73	72	73	73	73	74	74	72	73	73	72	72	72	70	68	72	72	73	74	72	72	70	70	69	68	67	66	71	
Minimum ....	68	67	67	68	68	68	68	68	68	69	70	69	68	68	68	67	68	64	64	66	67	68	68	68	67	67	65	66	64	64	62	67	
September																																	
Maximum ....	64	64	65	66	65	66	66	65	63	63	64	64	64	64	65	64	64	64	64	64	63	64	66	66	66	66	63	63	62	62	—	64	
Minimum ....	62	61	61	62	62	62	62	62	59	60	60	60	60	61	60	61	62	60	60	61	59	59	61	62	62	60	60	59	59	58	—	61	

KLAMATH RIVER BASIN--Continued

11-5290. SOUTH FORK TRINITY RIVER NEAR SALYER, CALIF.

LOCATION.--At gaging station 4 miles south of Salyer, Humboldt County, and 8 miles upstream from mouth.

DRAINAGE AREA (revised).--898 square miles.

RECORDS AVAILABLE.--Water temperatures: November 1956 to September 1964.

Sediment records: November 1956 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 78°F July 26, 27; minimum, 41°F on several days during January, Feb. 1.

Sediment concentrations: Maximum daily, 2,380 ppm Jan. 20; minimum daily, 1 ppm on many days.

Sediment loads: Maximum daily, 139,000 tons Jan. 20; minimum daily, 0.2 ton on several days.

EXTREMES, 1956-64.--Water temperatures: Maximum (1962-64), 78°F July 26, 27, 1964; minimum (1963-64), 41°F on several days during

January and Feb. 1, 1964.

Sediment concentrations: Maximum daily, 4,190 ppm Jan. 29, 1958; minimum daily, 1 ppm on many days in 1956-64.

Sediment loads: Maximum daily, 255,000 tons Feb. 19, 1958; minimum daily, 0.2 ton on many days in 1957, 1960-62, 1964.

Temperature (°F) of water, water year October 1963 to September 1964

Temperature (°F) of water, water year October 1963 to September 1964																																		
Month	Day																															Average		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
October																																		
Maximum .....	65	65	65	64	62	62	62	62	62	62	62	60	60	60	60	60	60	60	60	60	60	60	60	60	58	57	57	56	55	54	54	53	60	
Minimum .....	63	63	64	61	61	60	61	62	62	62	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	57	57	56	55	54	54	53	59	
November																																		
Maximum .....	52	52	52	52	52	52	51	51	51	52	52	52	52	52	52	51	51	51	51	51	51	51	51	51	51	51	51	49	49	48	48	48		
Minimum .....	51	51	52	52	52	51	51	51	51	51	52	52	52	52	52	51	51	51	51	51	51	51	51	51	51	51	51	49	48	48	48	48		
December																																		
Maximum .....	48	47	46	46	45	45	46	45	45	45	45	45	45	43	43	43	42	42	42	42	43	43	43	43	43	42	42	43	45	45	45	44		
Minimum .....	47	46	46	45	45	45	45	45	45	45	44	43	43	43	43	43	42	42	42	42	42	43	43	43	42	42	42	42	43	45	45	45	44	
January																																		
Maximum .....	45	44	44	43	43	42	42	43	43	43	43	43	43	43	42	42	42	42	42	42	42	41	41	42	42	42	42	42	42	42	41	42		
Minimum .....	44	44	43	42	42	42	42	42	43	43	42	43	43	43	42	42	42	42	42	42	42	41	41	41	42	42	42	42	42	42	41	41	42	
February																																		
Maximum .....	42	42	42	43	43	44	44	44	44	44	44	44	44	44	46	45	45	45	45	45	45	45	46	46	46	46	46	46	46	46	46	45		
Minimum .....	41	42	42	42	43	43	44	44	44	44	44	44	44	44	44	45	45	45	45	45	45	45	45	46	46	46	46	46	46	46	46	44		
March																																		
Maximum .....	47	48	48	48	48	48	47	47	47	48	48	48	48	48	48	49	49	49	49	49	49	49	49	49	49	47	47	48	49	50	50	48		
Minimum .....	46	47	48	48	48	47	47	47	47	48	48	48	48	48	48	48	49	49	49	49	49	49	49	49	47	47	47	48	48	49	50	48		
April																																		
Maximum .....	50	50	49	50	50	50	50	51	51	52	52	52	53	54	55	55	55	53	53	53	53	53	53	53	52	52	53	54	56	56	54	52		
Minimum .....	50	49	47	49	50	50	50	50	51	51	52	52	52	53	53	54	53	52	52	52	52	53	53	51	51	51	51	52	54	54	53	52		
May																																		
Maximum .....	53	52	51	51	52	53	54	57	58	59	59	59	59	59	59	59	58	57	59	57	60	60	60	61	61	61	60	60	60	61	63	58		
Minimum .....	51	51	51	51	51	52	52	53	56	57	59	59	59	59	59	58	58	56	57	57	59	60	60	60	60	60	60	59	59	60	61	57		
June																																		
Maximum .....	62	62	61	61	61	62	62	62	60	60	64	66	67	68	68	67	65	66	66	66	67	69	72	70	70	69	68	67	68	70	70	66		
Minimum .....	61	60	60	60	61	61	62	60	60	59	60	64	65	66	67	64	64	64	64	64	64	66	68	68	67	67	64	64	66	66	66	64		
July																																		
Maximum .....	70	68	68	70	69	70	71	71	69	70	72	75	77	76	73	73	73	72	72	72	72	73	73	76	77	78	78	77	75	75	74	73		
Minimum .....	67	67	65	67	67	67	68	68	66	66	68	71	73	73	72	70	70	70	68	68	70	70	69	71	72	74	74	75	74	72	71	70		
August																																		
Maximum .....	72	72	72	73	74	74	72	72	72	74	73	74	73	73	72	72	72	72	71	73	75	75	76	75	75	74	74	72	71	70	68	73		
Minimum .....	69	68	68	70	70	70	69	70	69	70	72	71	70	70	70	68	69	69	68	70	72	72	73	72	72	72	72	69	69	67	67	70		
September																																		
Maximum .....	66	67	67	68	68	68	68	68	67	67	67	68	67	68	68	70	70	68	67	67	66	68	70	71	72	70	68	68	67	66	66	68		
Minimum .....	64	64	64	64	64	64	64	66	65	62	63	63	63	63	63	63	63	64	63	62	63	60	61	63	63	63	61	61	60	60	59	63		

KLAMATH RIVER BASIN--Continued

11-5290. SOUTH FORK TRINITY RIVER NEAR SALYER, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964  
(Where no concentrations are reported, loads are estimated)

Day	OCTOBER			NOVEMBER			DECEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	103	--	0.3	207	2	1.1	1670	14	63
2..	102	1	.3	212	2	1.1	1500	17	69
3..	100	--	.3	218	4	2.4	1350	18	66
4..	100	1	.3	375	19	19	1230	11	37
5..	111	--	.6	693	67	S 128	1140	9	28
6..	155	--	1.7	1440	286	S 1140	1070	9	26
7..	165	8	3.6	1530	86	355	996	9	24
8..	152	4	1.6	2760	1330	S 11700	987	10	27
9..	145	--	1.2	3960	702	S 8050	1180	26	85
10..	156	3	1.3	2250	190	1150	1040	11	31
11..	261	36	S 28	1440	108	420	947	6	15
12..	281	46	35	1050	65	184	879	7	17
13..	231	10	6.2	854	55	127	846	6	14
14..	193	3	1.6	3360	421	S 6980	814	6	13
15..	205	4	2.2	4900	324	S 4490	790	6	13
16..	358	28	S 29	2990	105	848	762	7	14
17..	370	27	27	2200	50	297	730	5	9.9
18..	271	6	4.4	1770	50	239	703	4	7.6
19..	221	3	1.8	3800	245	2510	718	6	12
20..	204	2	1.1	3300	200	1780	1190	60	S 197
21..	200	2	1.1	2700	70	510	1210	21	69
22..	209	4	2.3	2400	60	389	1060	10	29
23..	333	34	S 33	6900	540	10100	969	6	16
24..	323	40	35	5800	380	5950	897	5	12
25..	340	16	15	4800	210	2720	893	9	22
26..	321	8	6.9	3800	60	616	884	7	17
27..	275	6	4.5	2900	30	235	1220	47	S 160
28..	249	6	4.0	2490	27	182	1660	84	S 400
29..	233	3	1.9	2150	33	192	1950	120	632
30..	223	2	1.2	1880	22	112	1740	32	291
31..	214	3	1.7	--	--	--	1540	66	150
Total	6804	--	254.1	75129	--	61427.6	34565	--	2566.5
Day	JANUARY			FEBRUARY			MARCH		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	1410	34	129	6810	620	11400	1340	12	43
2..	1470	34	135	6000	238	3860	1460	10	39
3..	1330	23	83	5130	200	2770	1320	5	18
4..	1210	20	65	4550	105	1290	1280	8	28
5..	1120	11	33	4300	94	1090	1410	14	53
6..	1450	37	S 179	4010	77	834	1380	12	45
7..	2360	105	669	3610	79	770	1320	12	43
8..	1990	40	215	3300	34	303	1250	7	24
9..	1890	22	112	3080	28	233	1240	6	20
10..	1860	22	110	2950	31	247	1200	12	39
11..	1680	16	73	2850	30	231	1290	20	70
12..	1580	14	60	2610	34	240	1660	24	108
13..	1520	14	57	2450	27	179	1570	14	59
14..	1520	16	66	2300	27	168	1480	13	52
15..	1380	23	86	2240	20	121	1480	14	56
16..	1480	37	148	2110	19	108	1540	13	54
17..	2030	64	S 382	1970	18	96	1610	20	87
18..	3330	188	1690	1860	13	65	1700	22	101
19..	4170	350	S 4490	1780	14	67	1670	39	176
20..	20000	2380	S 139000	1720	10	46	1610	20	87
21..	14000	697	S 31200	1660	12	54	1630	14	62
22..	7780	220	B 4600	1610	11	48	1590	14	60
23..	5610	122	1850	1570	11	47	1510	19	77
24..	4710	123	1560	1530	8	33	1440	146	568
25..	4650	110	1380	1460	6	24	1350	191	696
26..	4710	98	1250	1400	7	26	1300	190	667
27..	4390	59	699	1340	7	25	1280	76	263
28..	4120	60	667	1300	7	25	1300	46	161
29..	4280	60	693	1260	6	20	1370	50	185
30..	4610	52	647	--	--	--	1480	50	200
31..	4710	105	S 1440	--	--	--	1550	47	197
Total	118350	--	193768	78760	--	24420	44610	--	4338

S Computed by subdividing day.

B Computed from estimated-concentration graph.

KLAMATH RIVER BASIN--Continued

11-5290. SOUTH FORK TRINITY RIVER NEAR SALYER, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964--Continued

Day	APRIL			MAY			JUNE		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	1750	88	416	826	7	16	524	3	4.2
2..	1660	65	291	818	8	18	506	3	4.1
3..	1480	61	244	838	6	14	491	3	4.0
4..	1380	43	160	834	7	16	488	3	4.0
5..	1340	47	170	806	6	13	521	3	4.2
6..	1280	38	131	778	5	11	542	3	4.4
7..	1220	39	128	750	5	10	599	34	55
8..	1190	21	67	734	5	9.9	542	13	19
9..	1170	16	51	726	5	9.8	518	7	9.8
10..	1190	17	55	722	5	9.7	500	8	11
11..	1160	17	53	700	5	9.5	479	5	6.5
12..	1120	11	33	686	5	9.3	449	5	6.1
13..	1080	10	29	668	5	9.0	420	4	4.5
14..	1080	10	29	654	4	7.1	400	3	3.2
15..	1110	10	30	640	5	8.6	380	3	3.1
16..	1100	10	30	651	5	8.8	368	--	3.0
17..	1060	9	26	710	6	12	363	3	2.9
18..	1020	11	30	679	4	7.3	355	22	21
19..	978	9	24	658	3	5.3	345	4	3.7
20..	942	8	20	637	2	3.4	333	7	6.3
21..	915	9	22	619	2	3.3	321	--	5.2
22..	911	8	20	599	3	4.9	313	--	4.2
23..	897	6	15	590	3	4.8	301	5	4.1
24..	879	6	14	581	4	6.3	285	13	10
25..	850	8	18	572	3	4.6	275	5	3.7
26..	822	7	16	587	3	4.8	265	--	2.9
27..	810	5	11	665	3	5.4	255	1	.7
28..	814	4	8.8	633	4	6.8	255	--	.7
29..	822	5	11	593	2	3.2	253	2	1.4
30..	802	7	15	566	3	4.6	247	--	1.3
31..	--	--	--	536	3	4.3	--	--	--
Total	32832	--	2167.8	21056	--	260.7	11893	--	214.2
	JULY			AUGUST			SEPTEMBER		
1..	239	4	2.6	131	--	1.8	78	2	.4
2..	231	--	1.9	129	2	.7	82	--	.4
3..	229	2	1.2	126	--	.3	86	2	.5
4..	231	--	1.2	123	1	.3	89	--	.5
5..	243	2	1.3	119	--	.3	86	2	.5
6..	227	--	1.2	115	2	.6	82	--	.4
7..	218	--	1.2	112	--	.6	80	2	.4
8..	214	2	1.2	111	2	.6	78	--	.4
9..	209	4	2.3	106	--	.3	78	2	.4
10..	202	3	1.6	105	1	.3	79	--	.4
11..	197	--	1.6	104	--	.3	78	2	.4
12..	190	3	1.5	102	1	.3	78	--	.4
13..	193	4	2.1	100	2	.5	75	3	.6
14..	187	--	2.0	98	--	.5	73	--	.6
15..	184	3	1.5	95	3	.8	73	3	.6
16..	180	--	1.5	93	--	.8	72	--	.6
17..	174	3	1.4	91	2	.5	71	3	.6
18..	167	--	1.4	91	--	.5	70	--	.4
19..	164	3	1.3	90	2	.5	71	1	.2
20..	159	--	1.3	86	--	.5	71	--	.2
21..	155	--	1.3	86	1	.2	72	2	.4
22..	152	3	1.2	85	--	.2	70	--	.4
23..	151	--	1.6	82	1	.2	69	2	.4
24..	146	5	2.0	81	--	.2	68	--	.4
25..	142	--	1.5	79	2	.4	66	2	.4
26..	139	3	1.1	77	--	.4	63	--	.3
27..	132	--	1.8	75	2	.4	62	2	.3
28..	129	--	2.4	75	--	.2	62	--	.3
29..	136	11	4.0	76	1	.2	63	--	.3
30..	137	--	4.4	76	--	.4	64	2	.3
31..	132	9	3.2	78	3	.6	--	--	--
Total	5589	--	55.8	2997	--	14.4	2209	--	12.4
Total discharge for year (cfs-days).....							434,794		
Total load for year (tons).....							289,499.5		

## KLAMATH RIVER BASIN--Continued

11-5290. SOUTH FORK TRINITY RIVER NEAR SALYER, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1963 to September 1964  
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)																		
Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentra- tion (ppm)	Sediment discharge (tons per day)	Suspended sediment										Method of analysis	
							Percent finer than size indicated, in millimeters											
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000		2.000
Nov. 6, 1963.....	1735	51		1800	308							99	100	—	—			S
Nov. 8.....	0805	51		2510	1850							82	88	95	100			V
Nov. 8.....	1645	51		3030	1310							98	100	—	—			S
Nov. 14.....	1730	52		6130	840							90	100	—	—			S
Nov. 23.....	1640	48	D	6900	833							79	95	100	—			V
Jan. 18, 1964.....	0815	42		3440	329							77	93	97	100			S
Jan. 20.....	1210	42		24000	2740		18	21	30	46	58	67	87	98	100			VPWC
Jan. 21.....	0835	41		14400	690							89	99	100	—			V
Feb. 1.....	0805	42		7020	760							81	93	100	—			V
Feb. 1.....	1310	—		6940	833							77	91	100	—			V
Feb. 7.....	1415	44		3570	103							67	77	94	100			S
Mar. 25.....	1745	47		1320	204							100	—	—	—			S

D Daily mean discharge.

KLAMATH RIVER BASIN--Continued

11-5300. TRINITY RIVER NEAR HOOPA, CALIF.

LOCATION.--At gaging station in Hoopa Indian Reservation, 0.7 mile downstream from Campbell Creek, and 1.8 miles southeast of Hoopa, Humboldt County.

DRAINAGE AREA.--2,848 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

Water temperatures: November 1956 to September 1964.

Sediment records: November 1956 to September 1964.

EXTREMES, 1963-64.--Water temperatures: Maximum, 78°F July 27, 28.

Sediment concentrations: Maximum daily, 2,530 ppm Jan. 20; minimum daily, 1 ppm on many days.

Sediment loads: Maximum daily, 312,000 tons Jan. 20; minimum daily, 1 ton on several days.

EXTREMES, 1956-64.--Water temperatures (1963-64): Maximum, 78°F July 27, 28, 1964.

Sediment concentrations: Maximum daily, 3,360 ppm Jan. 12, 1959; minimum daily, 1 ppm on many days in 1957-64.

Sediment loads: Maximum daily, 967,000 tons Feb. 19, 1958; minimum daily, 1 ton on many days in 1957-64.

REMARKS.--Measurement of suspended sediment made at bridge on State Highway 96, 3.5 miles downstream from gaging station. No appreciable inflow between sampling point and gaging station except during periods of heavy runoff.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 1, 1963.....	470	--	--	--	--	4.5	--	110	0	--	5.2	--	0.1	0.1	--	--	--	95	5	0.2	200	8.0
Oct. 13.....	1070	--	--	--	--	4.9	--	105	0	--	6.2	--	0.0	.0	--	--	--	90	4	.2	196	8.2
Nov. 12.....	3590	--	--	--	--	2.6	--	78	0	--	2.6	--	.1	--	--	--	--	67	3	.1	144	8.0
Dec. 9.....	3260	--	--	--	--	2.6	--	88	0	--	2.5	--	.0	--	--	--	--	75	3	.1	157	8.0
Jan. 13, 1964.....	4430	--	--	--	--	2.2	--	53	0	--	3.5	--	.0	--	--	--	--	46	3	.1	158	8.2
Feb. 10.....	7680	--	--	--	--	3.1	--	88	0	--	1.0	--	.1	--	--	--	--	74	2	.2	153	8.2
Mar. 9.....	3720	--	--	--	--	3.3	--	87	1	--	1.0	--	.1	--	--	--	--	74	1	.2	145	8.4
Apr. 13.....	3480	--	--	--	--	3.3	--	78	2	--	4.1	--	.0	.0	--	--	--	70	3	.2	144	8.4
May 11.....	2580	15	--	16	6.6	3.4	0.4	75	1	6.0	2.0	0.1	2.0	.1	90	0.12	--	67	4	.2	140	8.3
June 2.....	1980	--	--	--	--	5.7	--	72	0	--	2.0	--	.0	--	--	--	--	62	3	.3	131	8.2
July 13.....	825	--	--	--	--	4.3	--	92	0	--	3.0	--	1.0	.0	--	--	--	82	7	.2	171	8.2
Aug. 10.....	478	--	--	--	--	4.9	--	98	2	--	3.0	--	3.3	.1	--	--	--	91	7	.2	191	8.4
Sept. 14.....	406	13	--	24	8.0	5.3	.9	100	2	8.0	5.6	--	.6	.0	116	.16	--	93	8	.2	199	8.3

KLAMATH RIVER BASIN--Continued

11-5300. TRINITY RIVER NEAR HOOPA, CALIF.--Continued

Temperature (°F) of water, water year October 1963 to September 1964

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October	--	65	--	63	--	--	63	--	63	--	61	60	--	63	--	--	59	--	62	--	59	--	57	--	56	--	--	52	--	54	--		
Maximum .....																																	
Minimum .....																																	
November	--	53	--	51	--	51	49	50	51	51	51	--	50	52	50	47	48	49	48	47	45	45	45	48	46	47	48	47	46	43	--	48	
Maximum .....																																	
Minimum .....																																	
December	44	44	44	--	44	47	44	44	44	43	42	41	--	41	--	42	--	43	--	45	--	45	--	41	--	45	--	48	48	47	47	--	
Maximum .....																																	
Minimum .....																																	
January	46	45	45	44	--	42	44	45	44	43	43	42	41	42	41	42	43	42	42	43	42	42	42	42	43	45	43	45	44	45	44	43	
Maximum .....																																	
Minimum .....																																	
February	45	45	43	43	45	43	43	43	44	44	44	42	43	42	42	44	43	43	44	44	43	43	45	43	43	--	41	--	43	--	--	43	
Maximum .....																																	
Minimum .....																																	
March	40	40	40	41	41	41	41	41	41	41	41	41	41	41	41	41	42	43	43	43	43	44	44	44	44	44	44	44	45	45	45	46	43
Maximum .....																																	
Minimum .....																																	
April	46	46	46	47	47	48	48	48	48	48	48	48	49	49	52	52	52	54	54	--	--	--	--	--	--	--	--	53	53	53	53	--	--
Maximum .....																																	
Minimum .....																																	
May	53	53	53	54	55	55	55	55	55	55	56	56	56	56	57	57	57	57	57	58	58	58	58	60	60	60	61	61	61	63	63	57	
Maximum .....																																	
Minimum .....																																	
June	63	64	63	63	62	62	62	62	62	62	62	62	62	65	66	66	65	65	65	65	65	65	65	66	68	69	70	70	69	69	69	--	65
Maximum .....																																	
Minimum .....																																	
July	69	68	68	68	68	70	70	70	70	70	70	72	74	75	74	74	74	74	74	74	74	73	74	74	75	76	77	78	78	76	76	76	73
Maximum .....																																	
Minimum .....																																	
August	76	75	74	74	74	74	74	74	74	74	74	74	74	73	73	73	73	73	73	73	72	72	72	72	72	72	71	71	71	69	67	73	
Maximum .....																																	
Minimum .....																																	
September	67	67	66	66	66	65	65	65	65	64	64	64	64	64	64	63	63	63	63	63	63	63	63	63	63	62	62	62	62	61	61	--	64
Maximum .....																																	
Minimum .....																																	

KLAMATH RIVER BASIN--Continued

11-5300. TRINITY RIVER NEAR HOOPA, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964  
(Where no concentrations are reported, loads are estimated)

Day	OCTOBER			NOVEMBER			DECEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	470	--	3	965	--	8	4090	14	155
2..	481	2	3	1010	4	11	3700	12	120
3..	523	--	7	1000	--	11	3580	9	87
4..	523	6	8	1410	13	S 56	3320	--	72
5..	595	--	16	2130	--	170	3110	--	59
6..	775	--	23	3520	100	S 1120	3010	7	57
7..	815	4	9	3820	110	1130	2940	5	40
8..	730	--	6	10200	472	S 15800	2880	6	47
9..	710	3	6	16200	640	S 29900	3260	14	123
10..	745	--	8	7800	161	S 3590	3010	6	49
11..	1080	16	S 46	4880	60	791	2730	4	29
12..	1420	17	S 67	3590	--	260	2580	4	28
13..	1070	--	23	2860	17	131	2480	--	27
14..	900	7	17	6760	154	S 4920	2430	5	33
15..	992	--	37	13300	278	S 10300	2360	--	38
16..	1610	40	K 190	8250	90	2000	2280	6	37
17..	1480	18	72	6040	38	620	2210	--	24
18..	1130	--	31	4900	25	331	2160	3	17
19..	965	8	21	5600	58	S 992	2170	--	18
20..	910	--	20	8200	140	3100	2720	10	73
21..	930	8	20	6240	45	758	2970	--	100
22..	1060	--	31	5340	28	404	2710	7	51
23..	1530	29	S 131	8950	261	S 9590	2580	--	35
24..	1500	--	93	14400	443	S 18000	2470	4	27
25..	1510	20	82	9670	114	2980	2440	--	26
26..	1620	--	110	7700	60	1250	2470	5	33
27..	1310	--	35	6950	40	751	3210	--	120
28..	1150	5	16	6260	30	507	5130	70	S 1080
29..	1080	--	9	5520	20	298	7080	103	S 1990
30..	1040	2	6	4590	15	186	5860	39	617
31..	980	--	5	--	--	--	5020	22	298
Total	31634	--	1151	188055	--	109965	98960	--	5510
1..	4500	15	182	16400	378	16700	3840	14	145
2..	4610	16	199	15400	210	8730	4120	18	200
3..	4210	14	159	13200	120	4280	3740	10	101
4..	3870	9	94	11800	85	2710	3670	8	79
5..	3610	--	58	11200	68	2060	4120	17	189
6..	4270	22	S 295	10500	62	1760	4090	19	210
7..	6950	124	S 2290	9460	56	1430	3910	10	106
8..	6100	40	659	8560	49	1130	3700	--	80
9..	5620	22	334	8000	41	886	3720	8	80
10..	5440	20	294	7680	40	829	3590	--	68
11..	5000	12	162	7350	39	774	3770	9	92
12..	4610	8	100	6880	33	613	4630	35	438
13..	4430	7	84	6440	36	626	4500	22	267
14..	4300	8	93	6080	28	460	4300	--	170
15..	3940	6	64	5920	26	416	4290	11	127
16..	4110	14	155	5600	26	393	4430	10	120
17..	5400	45	656	5260	21	298	4570	11	136
18..	8620	130	3030	5000	16	216	4880	--	170
19..	10800	359	S 11600	4840	14	183	4860	14	184
20..	42700	2530	S 312000	4740	16	205	4700	--	180
21..	33600	1050	S 102000	4660	14	176	4700	15	190
22..	20400	500	27500	4610	12	149	4570	19	234
23..	14400	278	10800	4590	13	161	4410	--	240
24..	12000	180	5830	4540	10	123	4180	--	203
25..	10800	160	4670	4430	9	108	3890	--	130
26..	10800	120	3500	4210	--	100	3720	9	90
27..	10100	98	2670	3940	9	96	3700	--	100
28..	9520	68	1750	3800	--	72	3720	12	121
29..	9970	93	2500	3720	5	50	3930	--	140
30..	11100	109	3270	--	--	--	4200	14	159
31..	11300	106	3230	--	--	--	4500	--	300
Total	297080	--	500228	208810	--	45734	128950	--	5049

S Computed by subdividing day.

K Computed from estimated-concentration graph and subdividing day.



KLAMATH RIVER BASIN--Continued

11-5300. TRINITY RIVER NEAR HOOPA, CALIF.--Continued

Suspended sediment, water year October 1963 to September 1964--Continued

Day	APRIL			MAY			JUNE		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	5040	--	600	2820	--	23	2070	3	17
2..	4760	45	578	2620	4	28	1980	--	16
3..	4340	--	370	2610	--	28	1880	3	15
4..	4070	20	220	2580	4	28	1870	4	20
5..	3940	--	150	2420	--	26	2260	6	37
6..	3800	11	113	2360	5	32	2550	--	76
7..	3670	--	99	2280	--	25	2800	--	91
8..	3610	10	97	2270	3	18	2300	7	43
9..	3670	--	79	2310	--	19	2020	--	27
10..	3670	7	69	2450	3	20	1900	5	26
11..	3560	--	77	2580	--	21	1800	--	19
12..	3510	11	104	2600	4	28	1720	--	14
13..	3480	--	100	2620	--	28	1730	3	14
14..	3540	7	67	2550	--	28	1710	--	28
15..	3690	--	80	2420	3	20	1660	9	40
16..	3740	6	61	2470	--	20	1590	--	26
17..	3560	--	48	2520	4	27	1480	3	12
18..	3320	5	45	2400	--	19	1400	--	8
19..	3180	--	43	2400	3	19	1360	2	7
20..	3050	5	41	2460	--	20	1330	--	7
21..	3000	--	41	2410	3	20	1310	--	11
22..	2950	5	40	2300	--	19	1290	3	10
23..	2880	--	31	2260	--	18	1270	--	10
24..	2710	3	22	2260	3	18	1270	2	7
25..	2520	--	20	2240	--	18	1260	--	3
26..	2480	--	27	2240	3	18	1200	1	3
27..	2520	5	34	2280	--	18	1160	--	3
28..	2670	--	43	2140	3	17	1120	--	6
29..	2980	7	56	1990	--	16	1080	2	6
30..	2900	5	39	1990	3	16	1050	--	3
31..	--	--	--	2030	--	16	--	--	--
Total	102810	--	3394	73880	--	671	49420	--	605
Day	JULY			AUGUST			SEPTEMBER		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	1020	1	3	580	--	2	424	--	2
2..	1000	--	3	571	--	2	454	--	2
3..	980	2	5	558	1	2	457	2	2
4..	970	--	5	535	--	1	454	--	2
5..	970	--	5	527	--	1	439	2	2
6..	955	2	5	511	1	1	430	--	2
7..	920	2	5	499	--	3	424	2	2
8..	910	2	5	488	2	3	421	--	2
9..	915	--	5	478	--	3	418	--	3
10..	875	2	5	478	--	3	418	3	3
11..	855	--	5	474	--	3	415	--	3
12..	825	--	4	464	2	3	409	3	3
13..	825	2	4	460	--	1	409	--	2
14..	830	--	4	457	1	1	406	--	2
15..	835	3	7	448	--	1	403	2	2
16..	820	--	7	442	--	2	403	--	2
17..	790	--	4	436	2	2	400	2	2
18..	745	2	4	433	--	2	397	--	2
19..	720	--	4	436	--	1	397	3	3
20..	710	2	4	439	1	1	397	--	2
21..	680	--	4	433	--	2	397	--	2
22..	670	--	2	427	2	2	397	2	2
23..	645	1	2	418	--	2	397	--	2
24..	625	--	2	412	2	2	394	3	3
25..	605	1	2	406	--	2	385	--	2
26..	580	--	2	406	--	3	379	2	2
27..	562	2	3	403	5	5	376	--	2
28..	558	--	2	406	--	3	379	--	2
29..	585	1	2	409	2	2	385	2	2
30..	600	--	2	415	--	2	385	--	2
31..	585	1	2	415	2	2	--	--	--
Total	24165	--	118	14264	--	65	12249	--	66
Total discharge for year (cfs-days).....								1,230,277	
Total load for year (tons).....								672,556	

## KLAMATH RIVER BASIN--Continued

11-5300. TRINITY RIVER NEAR HOOPA, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1963 to September 1964  
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment										Method of analysis	
							Percent finer than size indicated, in millimeters											
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000		2.000
Nov. 9, 1963.....	1400	48		13400	375			—		—		74	85	97	100			V
Nov. 24.....	0815	43		35500	2880			23		40		63	80	95	100			VFWC
Jan. 20, 1964.....	1630	42		61400	2810		16	22	31	41	53	62	79	94	100			VFWC
Jan. 20.....	0945	42		33800	1070			—		—		64	81	94	100			V
Jan. 21.....	0940	46		5080	82			—		—		91	93	95	100			S
Apr. 1.....	1000	51		17000	703			—		—		73	83	95	99	100		V

KLAMATH RIVER BASIN--Continued

11-5305. KLAMATH RIVER NEAR KLAMATH, CALIF.

LOCATION.--At gaging station, 2.8 miles upstream from Turwar Creek, and 3.3 miles east of Klamath, Del Norte County.

DRAINAGE AREA.--12,100 square miles, approximately, not including Lost River or Lower Klamath Lake basins.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Cal- cium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Po- tas- sium (K)	Bi- car- bon- ate (HCO <sub>3</sub> )	Car- bon- ate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluo- ride (F)	Ni- trate (NO <sub>3</sub> )	Bo- ron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		So- dium ad- sorp- tion ratio	Specific con- duct- ance (micro- mhos at 25°C)	pH
															Parts per million	Tons per acre- foot	Tons per day	Cal- cium, Mag- ne- sium	Non- car- bon- ate			
Oct. 3, 1963.....	3040	--	--	--	--	10	--	104	0	--	5.0	--	--	0.1	--	--	--	78	0	0.5	195	8.0
Nov. 9.....	84100	--	--	--	--	2.6	--	40	0	--	1.8	--	1.9	--	--	--	--	36	3	.2	77	7.4
Nov. 14.....	18400	--	--	--	--	4.8	--	70	0	--	3.0	--	--	.0	--	--	--	58	1	.3	138	8.0
Dec. 10.....	12700	--	--	--	--	7.0	--	80	0	--	2.0	--	--	.1	--	--	--	62	0	.4	156	8.0
Jan. 15, 1964.....	16200	--	--	--	--	3.8	--	68	2	--	2.8	--	--	.1	--	--	--	64	5	.2	135	8.3
Feb. 12.....	22000	--	--	--	--	4.6	--	78	0	--	2.8	--	--	.0	--	--	--	63	0	.3	140	8.2
Mar. 11.....	15400	--	--	--	--	5.1	--	77	0	--	2.5	--	--	.1	--	--	--	64	1	.3	157	8.2
Apr. 15.....	18200	--	--	--	--	7.0	--	73	2	--	3.0	--	--	.0	--	--	--	68	5	.4	158	8.4
May 13.....	13200	14	--	11	6.0	4.1	0.6	65	0	5.0	1.0	0.1	2.0	.1	76	0.10	--	52	0	.2	119	8.1
June 4.....	9530	--	--	--	--	4.4	--	62	1	--	1.5	--	--	.0	--	--	--	52	0	.3	115	8.3
July 15.....	3540	--	--	--	--	8.0	--	89	0	--	2.5	--	--	.0	--	--	--	74	1	.4	175	8.0
Aug. 12.....	2500	--	--	--	--	13	--	104	2	--	3.5	--	--	.1	--	--	--	87	0	.6	223	8.4
Sept. 16.....	2560	19	--	19	7.4	11	1.9	105	0	14	4.9	--	.6	.1	130	.18	--	78	0	.5	209	8.1

MISCELLANEOUS ANALYSES OF STREAMS IN KLAMATH RIVER BASIN

Periodic determinations of suspended sediment discharge and particle-size analyses, water year October 1963 to September 1964

(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;

P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment												Method of analysis
							Percent finer than size indicated, in millimeters												
							0.002	0.004	0.008	0.016	0.032	0.064	0.125	0.250	0.500	1.000	2.000		

11-5258. WEAVER CREEK NEAR DOUGLAS CITY, CALIF.																		
Oct. 13, 1963.....	0800	54		6.3	5	0.1	---	---	---	---	---	---	---	---	---	---	---	S
Nov. 4.....	0800	38		34	432	40	---	---	---	---	---	---	---	---	---	---	VPWC	
Nov. 5.....	0800	36		15	98	4.0	---	---	---	---	---	---	---	---	---	---		
Nov. 6.....	0800	35		48	1050	136	---	---	---	---	99	100	---	---	---	---		
Nov. 6.....	1600	36		42	386	44	---	---	---	---	---	---	---	---	---	---		
Nov. 7.....	0800	38		23	102	6.3	---	---	---	---	---	---	---	---	---	---		VPWC
Nov. 8.....	0800	36		78	2360	497	---	25	---	47	---	85	97	100	---	---		
Nov. 9.....	1600	40		64	18	3.1	---	---	---	---	---	---	---	---	---	---		
Nov. 14.....	1505	52		258	692	482	20	24	33	43	60	72	89	96	99	100		
Nov. 14.....	1630	52		213	512	294	---	---	---	---	---	---	---	---	---	---		
Nov. 19.....	1630	45		140	603	228	---	---	---	---	---	---	---	---	---	---	V	
Nov. 20.....	0800	43		68	428	79	---	---	---	---	---	---	---	---	---	---		
Nov. 23.....	1600	48		253	391	267	---	---	---	---	---	---	---	---	---	---		
Nov. 24.....	1700	47		95	146	37	---	---	---	---	---	---	---	---	---	---		
Dec. 13.....	1515	41		20	3	.2	---	---	---	---	---	---	---	---	---	---		
Dec. 27.....	1600	41		51	200	28	---	---	---	---	---	---	---	---	---	---	V	
Dec. 28.....	1400	48		156	1590	670	---	---	---	---	87	95	98	99	100	---		
Dec. 29.....	1600	48		56	44	6.7	---	---	---	---	---	---	---	---	---	---		
Jan. 6, 1964.....	1600	43		60	548	89	---	---	---	---	---	---	---	---	---	---		
Jan. 7.....	1630	45		31	24	2.0	---	---	---	---	---	---	---	---	---	---		
Jan. 17.....	1610	41		22	326	19	---	---	---	---	---	---	---	---	---	---	VPWC V	
Jan. 18.....	1440	40		36	154	15	---	---	---	---	---	---	---	---	---	---		
Jan. 19.....	0900	40		50	222	30	---	---	---	---	---	---	---	---	---	---		
Jan. 20.....	1000	38		10700	3700	107000	2	6	13	19	30	41	60	81	98	99		
Jan. 20.....	1615	39		1650	1840	8200	---	---	---	---	---	72	89	95	100	---		
Jan. 21.....	0800	39		352	626	595	---	---	---	---	---	---	---	---	---	---		
Jan. 22.....	1615	42		218	76	45	---	---	---	---	---	---	---	---	---	---		
Jan. 29.....	0800	40		119	42	13	---	---	---	---	---	---	---	---	---	---		
Jan. 29.....	1600	43		153	186	77	---	---	---	---	---	---	---	---	---	---		
Feb. 6.....	1730	43		97	10	2.6	---	---	---	---	---	---	---	---	---	---		
Mar. 25.....	1755	50		35	10	.9	---	---	---	---	---	---	---	---	---	---		
Apr. 4.....	1700	53		36	102	9.9	---	---	---	---	---	---	---	---	---	---		
Apr. 14.....	1600	67		35	15	1.4	---	---	---	---	---	---	---	---	---	---		
Apr. 20.....	1000	63		35	6	.6	---	---	---	---	---	---	---	---	---	---		
Apr. 29.....	1030	62		38	9	.9	---	---	---	---	---	---	---	---	---	---		
Apr. 30.....	0740	43		36	4	.4	---	---	---	---	---	---	---	---	---	---		
May 9.....	0700	48		28	19	1.4	---	---	---	---	---	---	---	---	---	---		
May 27.....	1800	56		25	2	.1	---	---	---	---	---	---	---	---	---	---		
June 5.....	0850	57		30	10	.8	---	---	---	---	---	---	---	---	---	---		
July 9.....	1445	81		5.1	4	.1	---	---	---	---	---	---	---	---	---	---		
July 11.....	1500	80		4.0	2	T	---	---	---	---	---	---	---	---	---	---		
July 16.....	1700	85		3.7	3	T	---	---	---	---	---	---	---	---	---	---		
July 23.....	1600	77		2.1	2	T	---	---	---	---	---	---	---	---	---	---		
Aug. 13.....	1400	80		.6	1	T	---	---	---	---	---	---	---	---	---	---		

T Less than 0.05 ton.

MISCELLANEOUS ANALYSES OF STREAMS IN KLAMATH RIVER BASIN--Continued

Periodic determinations of suspended sediment discharge and particle-size analyses, water, year October 1963 to September 1964--Continued  
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;  
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Sam- pling point	Discharge (cfs)	Sediment concen- tration (ppm)	Sediment discharge (tons per day)	Suspended sediment											Method of analysis
							Percent finer than size indicated, in millimeters											
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
11-5265. NORTH FORK TRINITY RIVER AT HELENA, CALIF.																		
Oct. 15, 1963.....	1745	53		534	25	36					—	—	—	—				
Oct. 16.....	1710	51		170	6	2.8					—	—	—	—				
Oct. 19.....	1535	52		68	1	.2					—	—	—	—				
Oct. 27.....	1505	48		117	4	1.3					—	—	—	—				
Nov. 8.....	1705	46		3620	127	1240					—	—	—	—				
Nov. 14.....	1155	49		3860	172	1790					36	45	59	79	97	100	V	
Nov. 14.....	1340	49		3500	161	1520					—	—	—	—				
Nov. 14.....	1635	49		3250	72	632					—	—	—	—				
Nov. 19.....	1855	46		659	62	110					—	—	—	—				
Dec. 13.....	1400	38		227	1	.6					—	—	—	—				
Dec. 23.....	1505	39		212	1	.6					—	—	—	—				
Dec. 28.....	1405	45		1000	12	32					—	—	—	—				
Dec. 28.....	1605	45		1260	26	88					—	—	—	—				
Jan. 8, 1964.....	0830	41		481	1	1.3					—	—	—	—				
Jan. 20.....	1205	39		4060	298	3270					54	66	85	100			V	
Jan. 22.....	1705	39		937	21	53					—	—	—	—				
Feb. 6.....	1630	42		824	5	11					—	—	—	—				
Mar. 28.....	1230	43		302	1	.8					—	—	—	—				
Apr. 29.....	1735	50		424	1	1.1					—	—	—	—				
June 4.....	1700	52		366	5	4.9					—	—	—	—				
July 9.....	1300	64		114	2	.6					—	—	—	—				
Aug. 13.....	1230	71		34	1	.1					—	—	—	—				

## SMITH RIVER BASIN

11-5325. SMITH RIVER NEAR CRESCENT CITY, CALIF.

LOCATION.--At gaging station, 0.5 mile downstream from South Fork, and 8 miles east of Crescent City, Del Norte County.

DRAINAGE AREA (revised).--605 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1964.

Chemical analyses, in parts per million, water year October 1963 to September 1964

Date of collection	Mean discharge (cfs)	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO <sub>3</sub>		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 3, 1963.....	212	--	--	--	--	2.6	--	81	0	--	2.8	--	--	0.1	--	--	--	69	3	0.1	141	8.0
Nov. 14.....	14000	--	--	--	--	1.4	--	42	0	--	1.8	--	--	.0	--	--	--	37	3	.1	77	7.7
Dec. 10.....	3540	--	--	--	--	1.7	--	54	0	--	.5	--	--	.0	--	--	--	47	3	.1	97	7.8
Jan. 15, 1964.....	4200	--	--	--	--	1.4	--	50	0	--	3.0	--	--	.0	--	--	--	44	3	.1	91	8.2
Feb. 12.....	3040	--	--	--	--	1.9	--	48	0	--	2.0	--	--	.0	--	--	--	41	2	.1	87	8.0
Mar. 11.....	5830	--	--	--	--	2.2	--	49	0	--	2.0	--	--	.1	--	--	--	41	1	.2	88	8.1
Apr. 15.....	2280	--	--	--	--	2.0	--	49	0	--	4.0	--	--	.0	--	--	--	44	3	.1	89	8.3
May 13.....	1780	13	--	6.4	7.1	1.6	0.3	50	0	3.0	1.0	0.0	3.1	.0	60	0.08	--	45	4	.1	88	7.8
June 4.....	1060	--	--	--	--	2.4	--	54	0	--	1.0	--	--	.0	--	--	--	46	2	.1	97	8.2
July 15.....	540	--	--	--	--	3.5	--	70	0	--	1.5	--	--	.0	--	--	--	60	3	.2	122	8.2
Aug. 11.....	295	--	--	--	--	2.8	--	74	1	--	1.0	--	--	.0	--	--	--	64	2	.2	131	8.3
Sept. 16.....	202	12	--	8.4	11	3.0	.2	76	0	3.0	2.7	--	.1	.2	78	.11	--	66	4	.2	135	8.1

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