STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES

GOODWIN J. KNIGHT, Governor
FRANK B. DURKEE, Director of Public Works
A. D. EDMONSTON, State Engineer

REPORT OF

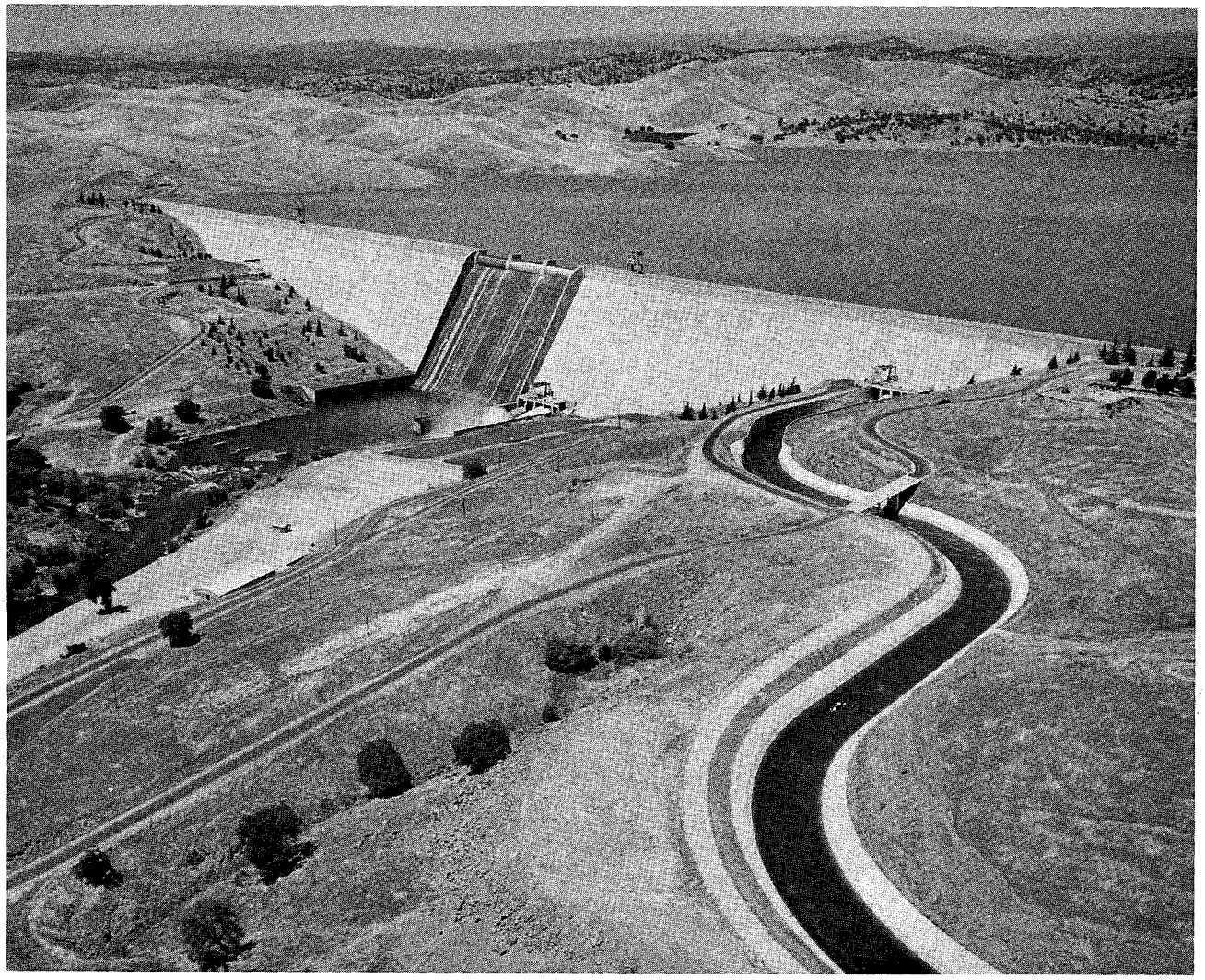
SACRAMENTO-SAN JOAQUIN

WATER SUPERVISION

FOR

1953

OCTOBER 1954



Bureau of Reclamation Photograph

FRIANT DAM AND MILLERTON LAKE

Crest Length . . . . . 3,430 feet

Height . . . . . 296.5 feet

Capacity . . . . . 520,000 acre-feet

Reservoir Area . . . . . 4,900 acres

	Madera Canal	Friant-Kern Canal
Capacity at Inlet, cubic feet per second	1000	4000
Length, miles	37	153

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The United States Bureau of Reclamation provided the funds necessary to maintain the regular program of salinity observations in the Sacramento-San Joaquin Delta during 1953.

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Lee W. Carter	Assistant Hydraulic Engineer
Al E. Lewis, Jr.	Assistant Civil Engineer
William D. Harrison	Assistant Hydrographer
Walter D. McIntyre	Assistant Hydrographer
Kenneth E. Morgan	Assistant Hydrographer
Alfred L. Welsh	Assistant Hydrographer
Arthur L. Winslow, Jr.	Assistant Hydrographer
Walter H. Fisher, Jr.	Junior Civil Engineer
Elwood C. Johnson	Junior Civil Engineer
Kenneth E. Lerch	Junior Civil Engineer
Morris McClung	Junior Civil Engineer
John E. Meunier	Junior Civil Engineer
Emil Padjen	Junior Civil Engineer
Donald A. Williams	Junior Civil Engineer
Linwood L. Bates	Junior Hydrographer
Newell E. Burtis	Junior Hydrographer
Erle W. Danley	Junior Hydrographer
Norman E. Grussenmeyer	Junior Hydrographer
Ernest G. Olsen	Junior Hydrographer
T. I. Rausch	Junior Hydrographer
James J. Delaney	Senior Engineering Aid
Robert W. Grimshaw	Senior Engineering Aid
Doris M. Jacinto	Senior Engineering Aid
Arvel R. Shackelford	Senior Engineering Aid
Kenneth L. Sullivan	Senior Engineering Aid
Jan L. Warnshuis	Senior Engineering Aid
Keithal B. Dick	Hydrographic Aid
Ernestine Martin	Senior Stenographer Clerk
Nina M. Rowe	Intermediate Typist Clerk
Dolores M. Thompson	Intermediate Typist Clerk

T. R. Merryweather
Administrative Officer

FOREWORD

A contract between the United States and the Department of Public Works provides for the performance by the Division of Water Resources of certain hydrographic work formerly performed by the U. S. Bureau of Reclamation and the continuation of the Sacramento-San Joaquin Water Supervision activities of the Division of Water Resources. The original contract, designated as U. S. Bureau of Reclamation Contract No. I75r-1596 and Division of Water Resources Agreement No. 3-170, was executed on December 30, 1948, became effective October 1, 1948, and expired on March 31, 1952. A new contract, providing for the same scope of work with some minor revisions, was entered into on March 31, 1952, for a three-year period ending March 31, 1955, and was designated as U. S. Bureau of Reclamation Contract No. I75r-4504 and Division of Water Resources Agreement No. 3C-600.

The work performed during 1953 by the Division of Water Resources under this contract included the collection of data on stream flows and diversions of the Sacramento and San Joaquin Rivers and their tributaries formerly obtained by both agencies and in addition data formerly obtained by the Bureau of Reclamation on measurements of inflows to Tulare Lake, temperacures of water, and detailed crop surveys of specified areas in the Sacramento Valley. In accordance with the terms of this contract, the Division transmitted to the Bureau of Reclamation periodic hydrographic reports for the latter's use in the operation of the Central Valley Project.

SACRAMENTO-SAN JOAQUIN WATER SUPERVISION

Water Supervision activities, resulting from the efforts of the first Sacramento-San Joaquin River Problems Conference and its Permanent Committee working with the former Division of Water Rights, were inaugurated in 1924. A complete description of the origin, history and conduct of the work is found in the 1924 and 1926 Biennial Reports of the former Division of Water Rights, in Bulletin Number 4 of that Division, and in Bulletin Number 23 of the succeeding Division of Water Resources. The latter bulletin brings together all data and measurements obtained in the first five-year period, 1924 to 1928, inclusive. Annual Water Supervision reports for subsequent years are in separately bound books similar to this report.

Objectives

At the outset, the objective of the work of Water Supervision in the valley floor areas along the Sacramento and San Joaquin river system was to afford relief to water users from the difficulties of obtaining irrigation supplies occasioned by uncoordinated diversions during years of substantially subnormal runoff. The situation called for voluntary regulation of diversions in order to alleviate as far as possible the damage from the serious shortages in the water supplies needed for irrigation, municipal consumption, salinity control in the Sacramento-San Joaquin Delta, and navigation purposes. Equitable coordination of diversions was accomplished primarily through the Water Supervision program.

There is no agreement between the water users under which a watermaster might distribute the natural water supply equitably to those entitled to receive it, but it appears inevitable that such an agreement, embracing a definite schedule of relative water rights, will be developed. Its realization will require, however, reliable data, covering a long period of years, on the actual diversions and uses of water, stream flows, stream accretions and salinity encroachment into the Sacramento-San Joaquin Delta. Looking toward that end, it has been the objective of the Division of Water Resources through its Water Supervision work, to collect and record all of the basic hydrographic data necessary to formulate an intelligent and practicable agreement.

A "Memorandum of Understanding Relating to a General Approach to Negotiations for Settlement of Water Diversions from the Sacramento River and the Sacramento-San Joaquin Delta with the Objective of Avoiding Litigation" was entered into on July 7, 1952, by the Bureau of Reclamation, the Sacramento Valley Water Users Committee, and the State of California. The execution of this Memorandum of Understanding following more than 30 years of contention among various water diverters over their respective rights to divert water from the Sacramento River, and subsequent changes in stream flow regimen and other complications attributable to the construction and operation of the Central Valley Project by the United States, opened the way toward an amicable approach to a settlement of these

differences. By utilizing data gathered by the Sacramento-San Joaquin Water Supervision function of the Division of Water Resources during the past thirty years, studies were made to formulate various diversion schedules which would adequately supply the diverters of water along the Sacramento River in consonance with Delta diversions and uses and with the operation of the Central Valley Project. These studies progressed by September, 1953, to the point where it became apparent in the office of the State Engineer that a diversion schedule for the diverters of water upstream from the latitude of the City of Sacramento should be tentatively established and tested by trial distribution and detailed observation, and recordation.

Scope of Work

The area embraced by the Sacramento-San Joaquin Water Supervision work lies on the Sacramento and San Joaquin Valley floors. It specifically covers all of the lands irrigated from the Sacramento River between Redding and Sacramento, including those irrigated from the Colusa Trough, Back Borrow Pit, Knights Landing Ridge Cut, and Yolo By-Pass above West Sacramento, from Lower Butte Creek and Butte Slough, from the Feather River below Oroville, from the Yuba River below Smartville, from the Bear River below Wheatland, from the Sutter By-Pass and Sacramento Slough, from the American River below Fair Oaks, from the Cosumnes River below Michigan Bar, from the Mokelumne River below Clements, from the Calaveras River below Jenny Lind, from the San Joaquin River between Friant Dam and Mossdale Bridge, from the Merced River below Snelling, from the Tuolumne River below La Grange, from Dry Creek (tributary to Tuolumne River) below Oakdale-Waterford road, from the Stanislaus River below Knights Ferry, and from the Tule River below South Fork, and the irrigated areas lying on the "uplands" side of and receiving water from the San Joaquin River between Mossdale Bridge and Stockton, Old San Joaquin River and Tom Paine Slough. The area covered and its geographical relation to the Central Valley Drainage Basin are shown on Plate 1.

Water Supervision Activities

The work of the Sacramento-San Joaquin Water Supervision unit of the Division of Water Resources is divided into two portions: field work, mainly during the spring, summer and fall months, and office work during the winter and early spring months.

The field activities include:

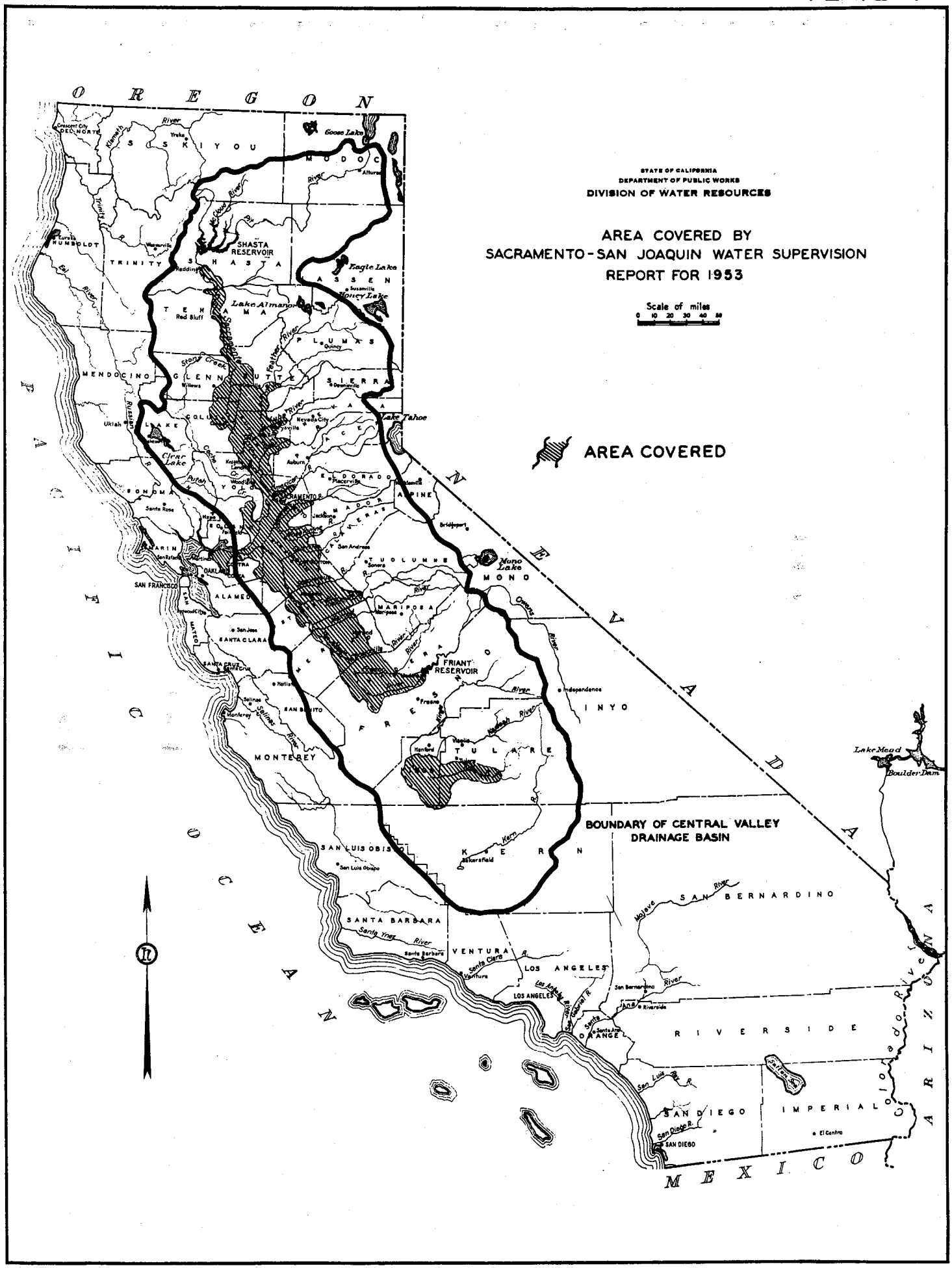
(1) Measurement of stream flow passing the many recording stations along the river and drainage channels;

(2) Measurements of the amounts of water diverted and collection of records of use by each water user;

(3) Measurements of the amounts of water returned to natural channels, through drainage plants or gravity drains, for possible re-use;

(4) Obtaining an annual census of irrigated acreages and crops supplied by either a primary, or drainage water supply, or both;

PLATE I


STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES
AREA COVERED BY
SACRAMENTO-SAN JOAQUIN WATER SUPERVISION
REPORT FOR 1953
Scale of miles
0 10 20 30 40 50
AREA COVERED
BOUNDARY OF CENTRAL VALLEY
DRAINAGE BASIN
OREGON
NEVADA
ARIZONA
MEXICO
PACIFIC OCEAN
SHASTA RESERVOIR
FRIANT RESERVOIR
Lake Tahoe
Mono Lake
Lake Mead
Boulder Dam
Clear Lake
Eagle Lake
Honey Lake
Lake Almanor
Goose Lake
SISKIYOU
MODOC
HUMBOLDT
TRINITY
SHASTA
TEHAMA
PLUMAS
LASSEN
MENDOCINO
GLENN
BUTTE
SIERRA
LAKE
SONOMA
MARIN
ALAMEDA
SANTA CLARA
SANTA CRUZ
MONTEREY
SAN LUIS OBISPO
SANTA BARBARA
VENTURA
LOS ANGELES
ORANGE
SAN BERNARDINO
RIVERSIDE
SAN DIEGO
IMPERIAL
INYO
MONO
TUOLUMNE
MARIPOSA
FRESNO
TULARE
KERN
SAN FRANCISCO
OAKLAND
SAN JOSE
Sacramento
Stockton
Fresno
Bakersfield
Los Angeles
San Diego
Salton Sea
Colorado River

(5) Maintaining the Delta salinity observation program;

(6) Cooperation with and assistance to water users in connection with individual problems of diversion; and

(7) Assistance with hydrographic activities of cooperating public and private agencies, and of other units of the Division.

The office work comprises mainly the assembly, computation and analysis of hydrographic and other data collected during the field season for presentation in the annual report of Water Supervision. This report contains the basic records of water supply available to, and the water utilization by, each user of water from the streams covered in the area. The computation of stream flow. drainage and accretions involves the conversion of the recorded daily gage records to figures showing the daily flows in second-feet and monthly runoffs in acre-feet. The computation of the amounts of water diverted by each water user involves the calibrating and rating of suitable measuring devices at each point of gravity diversion and the calibrating and rating of each pumping plant diversion usually based on its electric power consumption and efficiency. The final computations of the diversion quantities, as shown in this report, are the result of giving full consideration to all measurements and records of operation during the entire season for each individual diversion. The results of these computations are then compiled in the tabulations in this report for the purpose of giving basic records that are readily usable by all interested parties. The office work also includes the preparation of certain hydrographic data in form to be used as a guide in the ensuing season's field work.

In accordance with the provisions of Contract No. 3C-600 between the Division of Water Resources and the U. S. Bureau of Reclamation. the Division has computed, on a preliminary basis, the daily mean flows at 31 stream flow stations, and the diversions by reaches, from the main streams and tributaries in the Sacramento and San Joaquin valleys and has transmitted the results of these computations monthly to the Regional headquarters of the Bureau of Reclamation.

The office work in connection with the program of observing Delta salinity conditions consists of collating the results of the chloride tests from samples taken at four-day intervals at each observation station. These salinity records are presented each month in a bulletin which is distributed to governmental agencies and to many individuals and organizations that are interested in the results.

Hydrographic Activities of Cooperating Agencies

The United States Geological Survey, Water Resources Branch, through continued cooperative agreements with the Division of Water Resources, has maintained a series of stream gaging stations in the Sacramento and San Joaquin valleys. A large amount of the stream flow data contained in this report has been collected and computed by the Geological Survey, much of which has been completed and made available for inclusion in this report prior to its official publication in Federal reports.

The Modesto, Oakdale, South San Joaquin, and Turlock Irrigation Districts in the San Joaquin Valley have cooperated with Water Supervision engineers by assisting in the installation of certain recorder equipped stream gaging stations. The Kings River Water Association, Kern County Land Company, Corcoran Irrigation District, and Tulare Lake Basin Water Storage District have cooperated in furnishing records of stream flow for inclusion in this report.

The City of San Francisco Public Utilities Commission, Hetch Hetchy Water Supply, has continued to cooperate with the Water Supervision engineers by maintaining, operating, and compiling records from a series of stream gaging stations on the San Joaquin and Tuolumne Rivers in the San Joaquin Valley.

The United States Bureau of Reclamation, through its offices at Sacramento and Fresno, cooperated by operating recorders and furnishing records of flow at certain stations.

The specific degree of cooperation by these agencies with Water Supervision engineers is detailed in footnotes on the many stream flow tabulations contained in this report.

SHASTA AND MILLERTON LAKE OPERATIONS

Shasta Lake (Shasta Reservoir) on the Sacramento River above Redding was first used to store water for irrigation use during the winter of 1943-44 and releases for supplemental irrigation water along the Sacramento River commenced in the late spring of 1944. The release of water from the lake since 1944 has substantially altered the regimen of flow of the Sacramento River and in many respects greatly benefited conditions along that stream. However, it has also created added diversion and drainage problems.

Millerton Lake (Friant Reservoir) on the San Joaquin River near Friant was first used to store water for irrigation use during the winter and spring of 1943-44 and the first releases for supplemental irrigation water occurred during 1944. Friant Dam was operated during 1953 to divert water into Friant-Kern and Madera Canals, and to regulate releases in coordination with deliveries through Delta-Mendota Canal.

The operations of Shasta and Millerton Lakes are under the jurisdiction of the United States Bureau of Reclamation.

Reservoir Data

Shasta Lake is created by a gravity concrete dam, 528 feet high above stream bed, located 13 miles upstream from Redding. The gross capacity of the reservoir with spillway gates closed is 4,500,000 acre-feet, of which a space of 4,000,000 acre-feet will be available for the active storage of water and 500,000 acre-feet of space will be reserved for silt deposits and to create head for the generation of power. The steel spillway drum gates were installed in 1948, thus providing a storage of 786,000 acre-feet

above the 3,714,000 acre-feet at the fixed crest of the spillway. There will be sufficient water to fill the entire storage capacity in all years of normal or greater than normal runoff above the dam. Water from the lake is conveyed through the Sacramento Valley in the channel of the Sacramento River.

Millerton Lake, on the San Joaquin River, is created by a gravity concrete dam about 275 feet high above streambed, and is located at the base of the foothills about 20 miles northeast of Fresno. The gross capacity of the reservoir with spillway gates closed, is 520,000 acre-feet, of which a space of 404,000 acre-feet between the top of the spillway gates at elevation 578 and the bottom of the Friant-Kern Canal outlet at elevation 459.4 feet is available for the storage of water for flood control and to supply irrigation demands in the San Joaquin Valley. The major portion of the water from Millerton Lake is being conveyed through the Madera and Friant-Kern Canals to lands north and south of the San Joaquin River in Madera, Fresno, Kings, Tulare, and Kern Counties. The spillway gates on Friant Dam were completely installed in 1948, thus providing a storage of 84,000 acre-feet above the 350,000 acre-feet of space between the fixed crest of the spillway at elevation 560 feet and the bottom of the Madera Canal outlets at elevation 442.2 feet.

Shasta Lake Operation - 1953

Shasta Lake was designed to (1) furnish water for irrigation in the Sacramento and San Joaquin valleys, including the Sacramento-San Joaquin Delta area; (2) provide salinity control in the Delta by maintaining a flow in the lower Sacramento River sufficient to repel the intrusion of salt water from Suisun Bay; (3)control floods on Sacramento River; (4) provide sufficient depths for navigation on the Sacramento River between Sacramento and Chico Landing; and (5) generate hydroelectric power.

Although the storage of water in the lake commenced in the early part of the winter of 1943-44, the ensuing season's subnormal runoff into it was not sufficient to fill the lake to the spillway lip. However, the United States Bureau of Reclamation was able to release sufficient stored water throughout the irrigation season of 1944 to augment the natural stream flows and thereby facilitate diversions of those natural flows by the diverters along the Sacramento River.

Since 1944, including 1953, the quantity of water in storage in Shasta Lake was sufficient to afford releases (1) to facilitate irrigation diversions by maintaining higher river levels along the Sacramento River, (2) to sustain minimum flow for navigation of approximately 5,000 second-feet upstream from Knights Landing, (3) to supplement irrigation supplies in the Delta area below Sacramento, (4) to control salinity, and (5) to supply water for exportation via the Delta-Mendota and Contra Costa Canals. The Delta Cross Channel near Walnut Grove was operated during 1953 allowing approximately 3,000 second-feet of Sacramento River water to be transferred into the San Joaquin portion of the Delta. This flow afforded approximately 2,500 second-feet of water for exportation by the Delta-Mendota and Contra Costa Canals and aided in maintaining the stream flow out of the Delta into Suisun Bay sufficient to hold the line of excess saline concentration (1000 ppm of chlorides) to the lower end of Sherman Island.

The daily mean second-foot flows into Shasta Lake during 1953 are given in Table 7. These inflows to the reservoir are representive of the amounts of water that would have been flowing in the Sacramento River at the dam site if the dam had not been built. The inflow figures are computed by combining the effects of daily change in storage, reservoir evaporation, releases and spill.

A tabulation of the daily amounts of water in storage in Shasta Lake during 1953 is given in Table 8. The daily mean second-foot flows as measured below Shasta Dam at the United States Geological Survey station near Keswick are given in Table 9. The flows at the Keswick station are the same as the releases from Shasta Lake except for daily regulation by Keswick Reservoir and the amounts of inflow between the station and Shasta Dam. The amounts of this inflow are small during the irrigation season, and can be ignored, so that the average daily flows at the gaging station are nearly the same as the releases from the reservoir during that period.

A chart depicting the operation of Shasta Lake for 1953, as prepared by the U. S. Bureau of Reclamation, giving the inflows to the lake, the amounts released, the water surface elevations, and the amounts of water in storage, is shown on Plate 2.

Millerton Lake (Friant Reservoir) Operation - 1953

Millerton Lake is used only for the storage of water for flood control and irrigation purposes. The daily mean second-foot inflows to Millerton Lake during 1953 are given in Table 109. A daily tabulation of the amounts of water in storage in the lake during 1953 is given in Table 110. The daily mean second-foot flows, as measured at the United States Geological Survey gaging station below Friant, are given in Table 111. These flows are the same as the releases from Millerton Lake except for the amounts of inflow between the station and Friant Dam. The amounts of this intermediate inflow are small during the irrigation season so that the measured flows at the gaging station are practically the same as the releases from the reservoir during that period. A chart depicting the operation of Millerton Lake for 1953, as prepared by the U. S. Bureau of Reclamation, giving the same data as are shown by the chart for Shasta Lake, is also shown on Plate 2.

During the 1953 irrigation season, water stored in Millerton Lake was released into the Madera Canal, the Friant-Kern Canal, and into the channel of the San Joaquin River. Diversions by the Madera Canal served largely to aid in the replenishment of ground water supplies in the Madera area. The quantities of diversions into the Madera and Friant-Kern Canals are shown in Table 186. The regulated releases flowing down the San Joaquin River served not only the irrigation requirements of the lands along that stream above the head of the Gravelly Ford Canal, but also the requirements of the numerous diversions below that point to Temple Slough in coordination with the deliveries of water through the Delta-Mendota Canal.

RUNOFF AND WATER SUPPLY

The variable flows of the streams entering the Sacramento and San Joaquin valleys on the north and east sides result from the rainfall runoff occurring each winter and spring season principally from December to April, the snowmelt runoff occurring during the spring and summer seasons from March through June, and a combination of runoff from perennial springs and released stored water during the summer and fall seasons. Flood flows in the valley floor channels are caused by runoffs from rainfall and melting snow in the mountain areas in excess of mountain reservoir capacities, and by rain storm runoff from the vast area of minor foothill watersheds and valley floor lands. Some incidental flood control is accomplished by reservoirs in many of the tributary watersheds including those of the Sacramento, Feather, Yuba, Stanislaus, Tuolumne, Merced, and San Joaquin Rivers. The extent of the flood flows in 1953 is given by the tabulations of daily stream flows, Tables 9 through 167.

During the summer irrigation season, variations in flow of the streams on the valley floor are affected, (1) by the combination of diversions from the streams for irrigation and of accretions to the streams from both direct surface drainage and seepage from ground water, and (2) by releases of stored water for irrigation, navigation, salinity control, and the generation of electric power.

1953 Inventory of Runoff

A comprehensive summary and inventory of the monthly stream flows, diversions and accretions, in acre-feet, is contained in Tables 2, 3, and 4. This inventory is arranged to give these data for each reach of each stream covered by Water Supervision work in a summarized ready-reference form. The inventory is designed to give a picture of the complete disposition of the season's water supply, with stress upon the amounts of losses or gains in flow along each reach of each stream.

1953 Runoff Comparisons

A comparison of the unimpaired flows for the period 1920-1953, in the major streams tributary to the Sacramento and San Joaquin valleys in per cent of a 60-year normal is given in Table 1. This table was recomputed in 1950 from original data furnished by the Snow-Survey section of this Division which was based on a 60-year (1889-1949) normal runoff. The annual runoff figures given in Table 1 have been modified by as much as five per cent from the corresponding figures given in Table 1 of the Water Supervision reports prior to 1950. These changes were the result of the change from a 50-year normal to a 60-year normal and of the omission of the runoff from the Calaveras, Cosumnes, and Bear Rivers in the computations of the new 60-year normal runoff of Sacramento-San Joaquin Rivers to the Delta. As shown in Table 1, the 1953 unimpaired runoff may be summarized as follows:

Stream and Station	Percentage of 60-year normal
Sacramento River at Red Bluff	112 per cent
Sacramento River at Sacramento	107 per cent
San Joaquin River at Friant	63 per cent
San Joaquin River at Vernalis	70 per cent
Sacramento and San Joaquin Rivers flow to the Delta	97 per cent

A comparison of the season's actual minimum flows is given in Table 209. The minimum 10-day flows during 1953 were:

Stream and Station	Average minimum 10-day flow
Sacramento River at Sacramento	8,020 second-feet
San Joaquin River at Vernalis	650 second-feet
Combined Sacramento and San Joaquin Rivers flow to the Delta	8,690 second-feet

Comparisons with other years indicate that the water supply available during the 1953 season was above normal in the Sacramento Valley and below normal in the San Joaquin Valley. Observations of water utilization and the amounts of residual flows in the streams reaching the Delta in the 1953 growing season indicated that the demands for irrigation and salinity control in the Delta exceeded the natural flow supplies, and the releases of stored water from Shasta Reservoir were of primary importance in maintaining satisfactory river flows and fresh water conditions in the Delta.

Primary Irrigation Supplies

The flows onto the valley floor during the summer season through the major streams are considered to be the primary water supplies for irrigation. This primary water is differentiated from the flows available for irrigation in the lower reaches of the streams resulting from large accretions including the return of a substantial amount, through drainage, from the flows diverted for irrigation upstream. The amounts of primary water available for irrigation in the Sacramento Valley are given in the flow tabulations for those gaging stations located at the edge of the valley floor.

In the San Joaquin River service area, primary water supplies are almost entirely diverted from the upper reaches of the Stanislaus, Tuolumne, and Merced Rivers by the large irrigation districts, and from the San Joaquin River at Friant Dam by the Friant-Kern and Madera Canals. These upper diversions from the Stanislaus, Tuolumne, Merced, and San Joaquin Rivers are included in Tables 191, 189, 188, and 186 respectively. Primary regulated water supplies in the San Joaquin River for irrigation below Friant are measured at the San Joaquin River gaging station below Friant, Table 111. These latter regulated water supplies are almost entirely diverted in the vicinity of Mendota by the large canal companies.

Accretions to Stream Flow

As evidenced by the data for stream flow and diversions, summarized in Tables 2, 3, and 4, there are large quantities of accretions to the flows of the streams and channels in their courses across the valley floors. These accretions are of major importance as available irrigation supplies. They are made up of measured flows from surface drains and of many other flows, not susceptible to direct measurement, from minor ephemeral streams, from scores of small surface drains, from seepage and return of percolated irrigation water, and from escaping underground water normally present as the result of percolated rainfall on the valley floor. The amount of total accretion along any stream reach is the summation of amounts of measured drains plus unmeasured accretions, as shown in these tabulations.

During the summer season, a large portion of the accrete water is derived from upstream irrigation returning to the streams either as surface drainage or waste into open drains or as deep percolation to the ground water from which it finds its way to nearby streams or drains.

Throughout the year, along certain reaches of the stream, the flows are augmented by outflows from seepage of the natural ground water. This portion of the ground water, which is independent of irrigation as a source, is replenished from two other sources, (1) rainfall on the valley floor, a portion of which percolates to the water table during periods of abundant precipitation, and (2) infiltration and escape from stream channels through the banks during high flood flow conditions, later to partially return to that stream when its water levels recede to low flow conditions of the summer and fall.

The figures shown in all reports prior to 1947, giving the relation of "return water in per cent of diversion" as discussed under heading "Drainage and Return Water", may be misleading inasmuch as all accretions, heretofore referred to as "return water", actually may include substantial amounts of ground water seepage not derived from upstream irrigation and unmeasured contributions from small tributaries.

Sacramento Valley Accretions. In the Sacramento Valley all of the accretions to natural and regulated flows which are not diverted on lands north and west of the Sacramento Delta flow into the Delta and are available for use in that area. Practically all of the summer accrete flows in Colusa Trough, Back Borrow Pit, Knights Landing Ridge Cut, and Yolo By-Pass are mainly return waters derived from diversions from the Sacramento River. Since the Sacramento River is the main stream through the Sacramento Valley, the accretions to that stream include substantial amounts of return water from irrigated areas served by water from other sources, particularly the Feather River. A large part of the summer return water flows reaching the Sacramento River through the Butte Slough Outfall Gates (Mile 84.0L) and from Sutter By-Pass through Sacramento Slough (Mile 21.2L) are of Feather River origin. However, the measured flows in Sacramento Slough, Table 54, include not only return water from Feather River diversions but also return water from Sacramento

River diversions into Reclamation District No. 1500, Table 53. In Water Supervision reports prior to 1947, estimates are given showing that bank seepage into the West Borrow Pit of the Sutter By-Pass from Reclamation District No. 1500 amounts to 10 per cent of that district's diversions from the Sacramento River.

Along the Sacramento River between Colusa and Red Bluff there are no large well defined artificial drainage channels. However, records or estimates of natural inflow to the Sacramento River from streams in this reach were obtained where available. Above Red Bluff to Redding there is considerable drainage water from the Anderson-Cottonwood Irrigation District, but it is not recorded.

Along the Feather River, during years of subnormal water supply, practically all of the primary regulated water is diverted upstream from, or at, the Sutter-Butte diversion dam, yet accretions accumulate below that point in amounts sufficient to afford a limited supply for all diversions.

Table 2 is designed to give a summary not only of monthly flows measured on the Sacramento Valley floor, but also the computed monthly amounts of accretions (or losses, as shown by a minus sign preceding the figure) occurring along each reach of each stream between gaging stations. At the end of each series of data for one stream as shown in Table 2, there are summations of diversion and accretion quantities.

In order to compare 1953 season conditions along the Sacramento River with those of previous years, the following tabulation gives the seasonal accretions, July through September, in per cent of simultaneous diversions. This tabulation, in part, is excerpted from Table 147 in the 1946 Water Supervision report. Since 1947 these figures were derived from the summation data in Table 2 in each report, but under the same provisions detailed in the "note" under Table 150 in the 1946 Water Supervision report, except that additional tributary streams have been excluded from the unmeasured accretions and the method of computing the flow of the Sacramento River at Sacramento has been changed as detailed under "Notes on Certain Gaging Stations". These changes in computation procedure will not affect the comparative figures in the following tabulation more than five per cent because the contribution from the tributary creeks is a small percentage of the total accretions during the summer months.

Since 1947 the accretions used in computing the comparative accretions in per cent of diversion figures were obtained by taking the total unmeasured accretions, Red Bluff to Sacramento, from Table 2 in each report and adding to this total the measured flow in the definite return flow channels of Reclamation Districts 70, 108, 787, 1000, 1500, and the return flow of Colusa Basin Drain including Knights Landing Ridge Cut and Sycamore Slough.

Comparative Seasonal Accretion Percentages - 1938-1953

Sacramento River - Red Bluff to Sacramento

Year	Seasonal Runoff at Red Bluff in per cent of 60-year Normal	Accretions in per cent of Diversions* July through September
1938	169	64
1939	50	36
1940	121	40
1941	165	56
1942	130	56
1943	98	53
1944	54	49
1945	77	43
1946	93	51
1947	59	52
1948	88	62
1949	70	58
1950	66	63
1951	105	57
1952	133	52
1953	112	52

*Excludes City of Sacramento municipal.

It is apparent from the above tabulations that there are variations in the accretion percentages with relation to the seasonal runoffs. However, a definite trend in this relation indicates that summer accretions to stream flow on the Sacramento Valley floor are influenced not only by return water from irrigation but also by natural ground water seepage. Ground water seepage, as indicated by the above accretion ratio, is observed to be accelerated during those summer seasons which follow late and abundant spring rains on the valley floor.

San Joaquin Valley Accretions. The summer and fall season stream flows in the lower San Joaquin River and its tributaries on the valley floor consist mainly of accrete flows derived to a large extent, from irrigation water returning to the stream channels by way of percolation to the ground water and ground water seepage to the channels. The exceptions to this condition are on the Tuolumne and Stanislaus Rivers when irregular releases for power generation below upstream diversion points further augment the flows.

The channels of the Stanislaus, Tuolumne, and Merced Rivers in their Westward flow across the valley floor from the foothills are in deep degraded canyons between more or less sheer bluffs rising from 10 to 50 feet to the predominant level of the upper plains of the valley floor. The plains areas are intensively irrigated with regulated gravity water supplies derived from the upper reaches of the same streams. Thus, an abundant water supply in normal years, a deep and permeable soil and the deep river channels are all conducive to relatively steep slopes of the ground water table toward the rivers and the consequent high rate per mile of accretions to the stream flow.

The channel of the San Joaquin River between Friant and the valley trough near Mendota passes through the plains area in a deeply degraded canyon 10 feet to 100 feet deep between relatively sheer bluffs. The plains area along the south side of this reach

is intensively irrigated with Kings River water through the Fresno Irrigation District distribution system. On the plains along the north side of this reach in Madera County, irrigation water is derived mainly from ground water, except where occasional parcels are served with pumped river water and other parcels receive gravity supplies from Fresno River. In general the elevation of the ground water plane on the south side of the San Joaquin River is above the river bed and along the north side it is below the bed. Consequently, there are accretions from the south and losses to the north along this reach of the San Joaquin River.

The magnitude and importance of these accrete waters in the San Joaquin Valley as a water supply is brought out in Table 3. There does not appear to be as definite a relation of accretions with respect to diversions along these San Joaquin Valley streams as exists in the Sacramento Valley. This lack of a relation may be due, (1) to the considerable lag between the time diversions are made from the streams for storage in terminal reservoirs (Woodward, Dallas-Warner, and Owens) and the time a portion of those waters return to the stream channels after having been applied for irrigation, and (2) to the prevailing climatic effects upon rainfall, humidity, transpiration, and evaporation.

The ratio of accretion (including return water from irrigation) to diversions along the lower San Joaquin River and its tributaries, Stanislaus, Tuolumne, and Merced Rivers, is considerably smaller than that for the Sacramento River. Analysis of pertinent data in Table 3 and comparison with the data contained in Table 147 of the 1946 Water Supervision report indicate this San Joaquin Valley ratio to vary between 19 and 35 per cent while the foregoing table shows the Sacramento Valley ratio to vary between 36 and 64 per cent. This difference may be attributed to the fact that, whereas, due to basin topography and geology, practically all drainage from Sacramento River diversions is quickly returned to the river, considerable return water in the San Joaquin Valley may never reach the surface streams because it percolates to ground water and is recovered by drainage and deep well pumps in the areas of many of the irrigation districts for re-use through the irrigation canals.

The Tule River debouches onto the valley floor in the vicinity of Porterville through a shallow meandering channel. The bed of the channel as it crosses the valley floor is made up of unconsolidated sediments with high permeability. This latter fact accounts for the heavy channel losses along Tule River as shown in Table 4.

Stream Flow Measurements

Many of the stream gaging stations, the records from which are reported herein, are maintained, operated, and rated, and the flows at them are computed, by agencies cooperating with the work of the Sacramento-San Joaquin Water Supervision. The methods used by all cooperating parties are standardized and the results obtained are equally good. In order to obtain uniformity, however, the Water Supervision engineers cooperate with the other agencies in obtaining and correlating the records for each of the cooperative stations.

During the 1953 season, 67 of the total of 155 gaging stations on streams and drainage channels for which records are reported herein were maintained, operated and rated, and the flows at them were computed, solely by the Division of Water Resources through Water Supervision, Flood Control, and other functions.

An automatic water stage recorder is in operation at each of the gaging stations used in this work. The continuous records of water surface elevations at the stations serve two major purposes in the preparation of the data presented in this report. First, the actual surface elevations at two adjacent stations on a stream afford the means of obtaining the water surface elevations at the pumping plants along the stream between those stations. These elevations give the pumping heads, which heads, in turn, become factors in determining the rates of diversion by the pumping plants. Second, the water surface elevation (gage height) is a factor in determining the flow of the stream, in second-feet, passing the station.

A stream-flow rating is made for each gaging station. This rating gives the flow in second-feet for each gage height at the station. Normally this gage height-flow relation, or rating, is more or less permanent where there is a fixed channel and a fixed flow regimen at the station. The rating varies however where the bed of the channel is of loose shifting sand, or heavy weed growth accumulates as the season progresses, or where there may be back water effects from downstream conditions. In this latter case, more frequent measurements of flow are made to obtain accurate records of the flows passing the stations.

Water surface elevations at any time at certain gaging stations may be derived by the reader by using Table 6 coupled with the appropriate stream flow data in Tables 9 through 164. From the stream flow table the flow on any desired day is interpolated into the specific station's rating table in Table 6 to give a gage height (or elevation) of the stream's water surface for that day.

Preliminary Data from Cooperating Agencies

Some of the stream flow records submitted by cooperating agencies and included in this report must be considered "Preliminary Data" since this report is published prior to final preparation of the data for publication by those agencies. This condition is particularly true with respect to some data furnished by the U. S. Geological Survey.

Stream Flow Bulletins

During 1953, stream flow bulletins were compiled from time to time and mailed to interested agencies and persons. The bulletins listed the results of stream flow current meter measurements made along the Sacramento and San Joaquin River system on the valley floor by Division of Water Resources (Sacramento-San Joaquin Water Supervision) and U. S. Geological Survey engineers.

Notes on Certain Gaging Stations

Records are obtained and published in this report for 155 gaging stations in the Sacramento and San Joaquin Valleys, including two stations not heretofore published

in this series of reports. A brief description of each station is given at the bottom of the stream flow data table. The location of each station is shown on Plate 3 in the pocket on the back cover of this report. Notes on the newly included stations, together with a repetition of notes on the Sacramento River at Sacramento, are believed desirable, however, for a better understanding of the records. These notes are as follows:

Sacramento River at Sacramento. The method of computing daily mean flows at this station, beginning with 1947, has been radically changed. Heretofore, as shown in reports prior to 1947, the low flows which are affected by tidal action, were derived from (1) the records of flows at Verona on the Sacramento River and at H Street Bridge on the American River and (2) records of diversions from and drainage to the rivers between those two upper stations and the I Street Bridge at Sacramento. The method previously used did not take into account unmeasured accretions or losses in the reach between Verona and I Street Bridge and in the American River below H Street.

Since 1947, rating of the I Street Bridge gaging station and the computations of daily mean Sacramento River flows passing Sacramento have been made by the slope-velocity method. This method requires a consideration of the gage heights recorded at the river gaging station at Snodgrass Slough (20 miles downstream from Sacramento) as well as the recorded gage heights at Sacramento.

The final relation for tidal influenced flow conditions at Sacramento involves the construction of a rating curve having as the ordinate the difference between the gage heights at Sacramento and at Snodgrass Slough and as the abscissa a function of velocity (fV) equalling the measured discharge in second-feet divided by the gage height at Sacramento. Flows, in second-feet, passing Sacramento are obtained from this relation by multiplying the scale value of fV for any particular differential gage height, by the corresponding gage height at the I Street recorder. This relation is used for gage heights at Sacramento less than 10.5 feet (a flow of 33,000 second-feet) below which tidal fluctuations are effective. Tidal fluctuations cease above the 10.5-foot stage and the regular stage-discharge rating is used for these higher flows.

During 1952, an investigation of the tidal-affected flow of the Sacramento River at Sacramento was undertaken under a cooperative agreement by the Division of Water Resources, the U. S. Bureau of Reclamation, and the U. S. Geological Survey. Principal features of the investigation were the continuous measurement of discharge at the Sacramento station throughout a 14-day tidal period, the operation of a recording current meter and a recording deflection meter as aids in studying the affect of tidal forces, and the making of additional tidal cycle measurements during the tidal flow period. Particular attention was also given to the rating of the upstream gaging stations to assure that these records were entirely dependable. Studies by the U. S. Geological Survey of the data gathered during 1952 indicated that improvements could be made on the present method of rating, particularly during periods of mean flow at Sacramento below 10,000 second-feet and that the field investigation should be continued. Consequently, during 1953, a program of

measurements was scheduled to augment the findings of the 1952 investigation. As a result of these cooperative efforts, a more accurate means of rating the tidal-affected flows at Sacramento was under study by the U. S. Geological Survey at the time of publication of this report.

Discontinued Stations. The flow records of five stream flow stations were discontinued in 1953. The record of Feather River below Yuba River was discontinued in January, 1953. The record at Lone Tree Creek near Valley Home was discontinued on May 26, 1953. The records at Panoche Creek near Panoche, San Luis Creek near Los Banos, and White River near Ducor were each discontinued on September 30, 1953.

The records of five stream flow stations were discontinued in 1952 and are not included in this report. These stations were Sacramento River at Redding, Sacramento River at Balls Ferry, Colusa Trough (Back Borrow Pit) near College City, Putah Creek at Liberty Island Road, and Tule River above Little Pioneer Ditch.

Additional Stations Reported in 1953. The daily diversions from the Sacramento-San Joaquin Delta to the Delta-Mendota Canal at Tracy Pumping Plant and to the Contra Costa Canal at Pumping Plant No. 1 have been included in this report in Tables 163 and 164. Previous reports have included only the monthly diversion quantities. Data on these diversions are supplied by the U. S. Bureau of Reclamation.

Precipitation

In the Central Valley of California, direct precipitation is a negligible source of water supply for growing crops during the late spring, summer, and fall seasons. During the early irrigating season, however, the attendant cooler temperatures and higher humidities of rain storms substantially reduce the demand for irrigation diversions, and are two of the main factors affecting the variations in demand in the same month from year to year.

The following tabulation gives the 1953 precipitation by months at representative valley floor rainfall stations and the normals based on 30 years of record from 1920 to 1952. Records are from the U. S. Weather Bureau.

Station		Inches in Precipitation - 1953												
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Red Bluff	- 1953	3.56	.26	.55	4.24	1.29	1.13	0.00	0.10	0.00	.58	3.11	.96	15.28
	- normal	3.73	3.53	2.61	1.79	1.06	.46	0.02	0.05	0.33	1.49	2.27	4.23	21.57
Colusa	- 1953	2.10	0.00	1.39	2.63	.52	.04	.00	.28	0.00	.70	2.13	.57	10.36
(High School)	- normal	3.09	2.89	2.19	1.10	.57	.27	.01	.01	0.28	0.69	1.62	3.23	15.95
Marysville	- 1953	3.20	.01	2.45	2.92	.52	.46	0.00	.41	0.00	.42	2.51	.41	13.31
	- normal	3.71	3.41	2.79	1.45	.81	.24	0.00	.01	.30	1.06	2.24	3.75	19.77
Sacramento	- 1953	3.51	.21	1.42	2.59	.52	.61	0.00	.67	0.00	.18	1.79	.56	12.16
(City)	- normal	2.86	3.31	2.23	1.43	.57	.14	0.00	0.00	.08	.92	1.59	3.19	16.32
Modesto	- 1953	1.30	.07	.88	1.45	.42	.35	0.00	.18	.02	.33	.49	1.07	6.56
	- normal	2.11	1.75	1.76	.90	.48	.11	.01	.01	.16	.56	1.18	1.96	10.99
Merced	- 1953	1.23	.04	.68	1.47	.26	.33	0.00	.00	.00	.09	1.93	1.03	7.06
	- normal	2.23	1.87	1.86	1.00	.49	.10	.01	.02	.17	.51	1.20	1.80	11.26
Fresno	- 1953	1.49	.09	.59	.96	.48	.32	T	T	.00	.18	1.51	.51	6.13
	- normal	1.57	1.66	1.63	.96	.28	.11	.01	.00	.05	.66	.75	1.63	9.31

Analysis of the above data show that the Central Valley floor precipitation averaged 67 per cent of normal for the 1953 calendar year.

USE OF WATER FOR IRRIGATION

The prevailing warm temperatures and a prolonged frost-fee period during the summer season in the Sacramento and San Joaquin Valleys favors the profitable production of a wide variety of marketable crops in large quantities. The availability of irrigation water during the dry summer season affords continuous growing conditions necessary for the many crops.

The major irrigated crops in the Sacramento Valley include rice, alfalfa and clover, citrus and orchard fruits, nuts, grapes, hops, truck crops, and field crops; in the Delta area they include alfalfa, orchard fruits, corn and truck crops; and in the San Joaquin River and tributaries service area they include grapes, nuts, orchard fruits, cotton, alfalfa and clover, truck crops, corn, grain, flax, and pasture.

Irrigation Diversions

Measurements and records of diversions in 1953 have included all of the points of diversion on the valley floor along the Sacramento River and its tributaries; along the Cosumnes, Mokelumne, and Calaveras Rivers; along the upland banks of the delta channels of Old San Joaquin River, Tom Paine Slough, and San Joaquin River; along the Stanislaus, Tuolumne, and Merced Rivers and Dry Creek tributary to Tuolumne River; along the San Joaquin River between Friant Dam and Durham Ferry Bridge (Vernalis); along Fresno Slough and Fresno Slough By-Pass; and along Tule River.

This report contains records of a total of 1,256 points of diversion segregated by sources as follows: Sacramento River 338, Colusa Trough (above Colusa-Williams Highway Crossing) 35, Back Borrow Pit (extension of Colusa Trough along back levees of Reclamation Districts 108 and 787) 41, Knights Landing Ridge Cut 8, Yolo By-Pass 6, Cache Slough 2, Lower Butte Creek and Butte Slough 37, Sutter By-Pass and Sacramento Slough 65, Feather River 45, Yuba River 13, Bear River 4, American River 21, Cosumnes River 27, Mokelumne River 75, Calaveras River (including Mormon Slough) 122, Tom Paine Slough 8, Old San Joaquin River (between Vernalis gaging station and Fremont Ford Bridge) 41, San Joaquin River (between Fremont Ford Bridge and Friant Dam) 96, Fresno Slough and Fresno Slough By-Pass 4, Merced River 81, Tuolumne River 43, Dry Creek (tributary to Tuolumne River) 12, Stanislaus River 36, and Tule River 12. The locations of these points of diversion are shown on Plate 3 in the pocket at the back of this report.

All of the diversions, except 76 by gravity, are accomplished by pumping. The records of diversion by gravity are obtained by means of canal ratings established by flow measurements. In the case of pumping diversions, there are a few instances where the records are obtained by means of canal ratings, but, in the main, the records are obtained from a relation established between electric power consumption, static head and

plant efficiency. This is made possible by the fact that nearly all of the pumping plants are electrically operated. The relation between water pumped and power input is determined from current meter or flow meter measurements of the discharge and the measured kilowatt input. At the larger pumping plants, several measurements are made during each season. At the smaller plants, a number of measurements are made initially to determine the ratings and thereafter measurements are made at intervals to discover any changes which may occur in the ratings. Due to intermittent operation of the smaller plants and the large area to be covered by the field engineers, it is not possible to make many discharge measurements at any one of them. However, it is believed that the rating, as initially determined, remains more or less constant and that over a period of time enough measurements are secured to determine any change in the rating. All rating measurements made by owners or cooperating agencies have been given full consideration in the final computations of the amounts of water diverted by each individual plant.

Prior to 1933, a daily diversion record for each plant was compiled. However, since that year, except for some of the larger plants, the monthly diversion records only are available. The diversions for 1953 have been computed on a monthly basis only, and the breakdown into daily records was not made. The monthly amounts of water diverted at the individual points of diversion along all of the streams covered by the Water Supervision work are given in Tables 165 through 192.

The monthly amounts of diversions in acre-feet by the large east-side irrigation districts from the Stanislaus, Tuolumne, and Merced Rivers during 1953 are shown at the end of Tables 188, 189, and 191. The monthly diversions in acre-feet into the Friant-Kern and Madera Canals from Friant Reservoir on the upper San Joaquin River are set forth in Table 186 and those into the Delta-Mendota and Contra Costa Canals from the Sacramento-San Joaquin Delta in Table 181. The daily diversions to the Delta-Mendota and Contra Costa Canals are set forth in Tables 163 and 164. The monthly deliveries in acre-feet from the Main Canals of the Central Valley Project to the various water users along those canals are presented in Table 193.

Fresno Slough and James By-Pass normally convey excess Kings River water flood flows into the San Joaquin River at a point above Mendota Dam, but during the irrigation season, San Joaquin River water is backed up through those channels by the Mendota Dam to afford irrigation supplies to the James and Tranquillity Irrigation Districts and to certain other diverters. The diversion and irrigated acreage data for these streams shown in Table 187 were furnished by the U. S. Bureau of Reclamation.

Table 171 presents the diversions by Reclamation District 2068 and the City of Vallejo from Cache Slough during 1953. Diversions by the City of Vallejo started in April, 1953. The irrigated area in Reclamation District 2068 lies outside of the established boundary of the Delta shown on Plates 3 and 4 and can be classed as a "Delta Uplands" area. The purpose of including Table 171 in this 1953 report is to present as full a record as

is available of the use of water in and from the Delta, in conjunction with the Delta crop survey data in Table 198 of the 1950 Water Supervision report.

A seasonal summary of water utilization during the past ten years, 1943 through 1952, from the Sacramento River and its tributaries and the San Joaquin River and its tributaries as compared with the 1953 summary is shown in Table 165. This table presents an overall picture of the water utilization in these areas.

In Table 194 there are shown the average monthly diversions in per cent of the seasonal for the streams in the Sacramento and San Joaquin Valleys. A summary of the monthly diversions from the Sacramento and San Joaquin valley streams for the eleven-year period, 1943 through 1953, is given in Tables 195 through 205. Table 206 shows, for the Sacramento River only, the seasonal diversions and acreages irrigated for the period 1943 through 1953, segregated to the different river sections.

Irrigated Acreage

Toward the end of the irrigating season in 1953, as was done in previous years, a complete canvass was made of acreages irrigated from each of the points of diversion covered by the Water Supervision work. The irrigated acreages for all of the points of diversion on the streams on the Sacramento and San Joaquin valley floors were plotted on suitable maps and are retained on file in the office of the Division of Water Resources for record.

The area irrigated through each individual point of diversion along the streams covered in this work is given in Tables 166 to 192 inclusive. These tabulations and the associated summarizing tables do not include data on diversions and use of water in the Delta.

The following is a summary of the total acreage irrigated during 1953 in the area covered by the Water Supervision work as shown in Table 5. This tabulation, as noted in the footnotes of Table 5, does not include the acreage of the large east-side irrigation districts in the lower San Joaquin Valley, nor does it include the acreage served by the Friant-Kern, Madera, and Delta-Mendota Canals. Detailed acreage tabulations of the totals shown below, as well as those of the large irrigation districts mentioned, may be found in Tables 165 through 192 and in Table 198 (Delta Crop Survey) of the 1950 Water Supervision report.

Area	1953 Irrigated Acreage	
Sacramento Valley Floor above Sacramento	468,374	
San Joaquin Valley Floor above Delta	393,383	
Delta Uplands and Tributaries	112,981	
Total area served by measured diversions		974,738
Sacramento-San Joaquin Delta - 1950 Survey		
Cropped	365,800	
Water Consuming - not cropped	82,500	
Total Delta		448,300
Grand Total		1,423,038

Table 207 shows a comparison of the acreage of rice irrigated during the period 1924 through 1953 from the stream channels within the Sacramento and San Joaquin Valleys which are covered by Water Supervision work, and the total acreage of rice in California irrigated from all sources as reported by the Federal-State Crop Reporting Service.

In view of the methods of farming, which usually employ rotation of crops with summer-fallow, it is probable that the acreage of land under irrigation facilities in the area covered by the Water Supervision activities excluding the large east-side irrigation districts and the areas served by the Central Valley Project Canals exceeds 1,500,000 acres.

1950 Sacramento-San Joaquin Delta Crop Survey

A complete survey of the acreages of crops, including both irrigated and non-irrigated, in the Sacramento-San Joaquin Delta was made during November and December of 1950 and January and February of 1951, as called for in the State-Federal contract described in the "Foreword" of this report. The crop segregations were plotted on a series of suitable maps of the Delta islands which are on file with the Division of Water Resources. Similar surveys of the Delta area had been made previously, the last one in 1948. All of the 1950 Delta acreage data are tabulated in Table 198 to be found in the pocket on the back cover of the 1950 Water Supervision report. That table gives the acreage of each cultivated or uncultivated crop segregated by tracts and islands.

The total water consuming area of the Delta is segregated for 1950 as follows:

Total irrigated cultivated crops, not including double- or inter-crops	365,800 acres
Total idle lands below 5.0 feet in elevation, including interior water surfaces	42,900 acres
Total exterior channel water surfaces	37,600 acres
Small islands (est.)	300 acres
Total brush and trees in exterior channels (est.)	1,700 acres
Total water consuming area, 1950	448,300 acres

These data are similar and are comparable to data in Table 148 of the 1948 Water Supervision report.

Use of Water in Delta

Previous Water Supervision annual reports have included considerable analyses of the utilization of water in the Sacramento-San Joaquin Delta. The work of Water Supervision does not cover the delta area to the extent of measuring flows in the numerous interconnected channels or quantities of water diverted for irrigation, other occasional special studies, but periodically, surveys have been made of crops and irrigated acreages. Special investigations of the Delta irrigation problems have been conducted and the results therefrom have been reported in previous reports.

In some previous reports, for years in which crop surveys were made, the total consumptive use of water has been segregated to show the use in each river delta. There was also shown a classification of the irrigated crops with respect to the peat and sedimentary soils on which they were produced.

Gross Duty of Water

The term "gross duty of water", as used in this report, is defined as being the total amount of water diverted to serve one acre of irrigated land. The gross duty for any particular period may be expressed as the amount of water diverted in acre-feet per acre irrigated, or, conversely stated, may be expressed as the number of acres irrigated per one second-foot average diversion rate. The gross duty of water does not include solely the net amount of water consumed by plants in their processes of transpiration and growth, but also includes all irrecoverable losses through evaporation and deep percolation, plus canal and conveyance losses, and those amounts of water which act as a necessary vehicle to carry irrigation heads across porous soils or to maintain fresh water ponds in the growing of rice and which return to some river or drainage channel, with little loss, to become available for re-use.

Gross duty of water figures for the individual stream channels covered by Water Supervision work are given for the Sacramento and San Joaquin Valleys in Table 165.

SALINITY INVESTIGATIONS

The intrusion of salty water from San Francisco Bay into the channels of the Delta from which irrigation supplies are derived, is a matter of extreme importance and the Water Supervision work, with cooperation from the U. S. Bureau of Reclamation, has included observations during 1953 of the saline content of the water at several stations throughout the Delta and upper San Francisco and Suisun Bay areas.

Purpose

The purpose of the salinity investigation, as outlined in previous reports, has been to record the occurrence and extent of salinity encroachment from San Francisco Bay, and to establish the relation between movement of salinity, stream flow to the Delta, and tidal action. As reported in Bulletin 27 of the Division of Water Resources, this relation was established for the conditions which obtained during the period of the special investigation for that bulletin and upon the basis of all data available at that time. Subsequent investigations, therefore, have been directed to the maintenance of an unbroken record of the salinity, tidal and stream flow variations, essential not only in the corroboration of the relation presently established, but as the basis for a check of possible modifications attributable to changes in channel and tidal conditions which may have taken place or will occur in the future. Also, during periods of low stream flow, the continuation of salinity sampling has been essential in keeping the Delta irrigators advised of conditions through periodic bulletins so that damage from the use of water of too high salt content might be averted. (A chloride ion concentration of 1000 parts of chloride per million is

commonly used as an average criterion beyond which usefulness of water for irrigation is limited).

During 1953 the continuous observations of salinity served as an important factor in determining the amounts of release from Shasta Reservoir as controlled by the U. S. Bureau of Reclamation.

Scope

The general scope of this investigation each season has been such as to insure that samples of water to be tested for salinity could be taken at regular intervals at a sufficient number of stations throughout the Delta and upper Bay region so that the advance and retreat of the salinity from early summer to late fall would be completely recorded. Plate 4 shows the limit of encroachment into the Delta of water having 1000 parts of chloride per million parts of water for the years 1931, 1938, 1952, and 1953. These certain years are chosen to show the maximum and minimum seasonal limits of encroachment for conditions prior to the commencement of releases from Shasta Reservoir, to wit, 31 per cent of normal runoff during 1931, 172 per cent of normal runoff during 1938. The salinity encroachment lines for each of the years 1920 through 1944, may be found on the Delta map, Plate 5 in the 1944 annual Water Supervision report, and for each of the years 1945 through 1951 on the Delta map, Plate 4 in the 1951 or 1952 Water Supervision report.

The curtailment of appropriations to the Division of Water Resources by the Legislature in the 1941-1942 budget resulted in the suspension of the salinity sampling program at all stations in the Bay and Delta areas on July 15, 1941. Through cooperation of the Fontana Farms Company, the City of Antioch Water Department, the U. S. Bureau of Reclamation, the Dow Chemical Company at Pittsburg, and the City of San Francisco, miscellaneous samples were taken during the 1943 season and the results of the analyses are presented in the 1943 report of Water Supervision. In that same report, there are tabulated a large number of complete analyses of water from the channels of the Sacramento and San Joaquin Valleys and the Delta as prepared by the U. S. Bureau of Reclamation.

A regular program of salinity sampling and testing was re-established early in 1944 as part of the activities of the Sacramento-San Joaquin Water Supervision, with the necessary funds therefor being provided by the U. S. Bureau of Reclamation under a cooperative contract. This regular program was continued throughout 1953. The records of water samples taken during 1953 from the active sampling stations are given in Table 211. A description of the location of each of these stations is contained in Table 210. Descriptions of inactive stations are not included in Table 210 but can be found in previous reports.

Prior to 1952, the salinity values were reported in the Water Supervision reports as the number of parts of chloride per 100,000 parts of water. Beginning with the 1952 report, the salinity values are reported as parts per million to be consistent with the analyses presented in other tabulations.

Station Maintenance and Records

The salinity sampling at all stations is performed by local observers. Each observer is provided with a schedule showing the exact time for taking the samples, so that, throughout the Delta and upper bays all samples are taken at four-day intervals approximately one and one-half hours after the same high tide.

The observers are furnished with stamped containers for the sample bottles which can be mailed, as filled, to the laboratory at Sacramento. Analyses of the water during the 1953 season were made at the Materials and Research Laboratory of the Division of Highways in Sacramento before July 1 and at the Water Quality Laboratory of the Division of Water Resources in Bryte after July 1.

The maximum salinity as recorded at the stations in 1953 is shown in Table 208. For comparative purposes, this table shows also the maximum salinity recorded at these stations in representative years before and after Shasta Reservoir operation. Only presently indicative and active stations are included in this comparison.

Salinity Bulletins

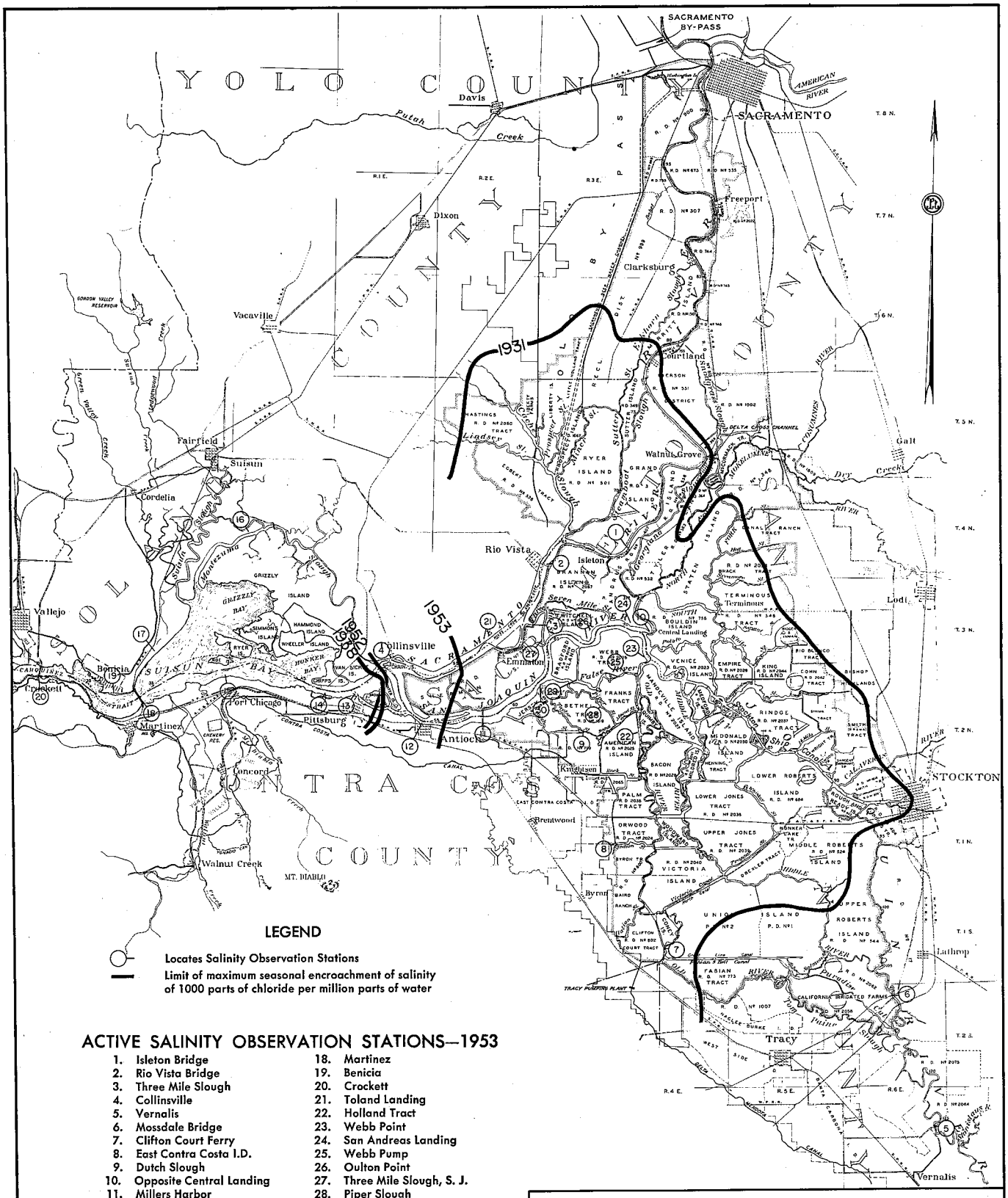
During 1953 a salinity bulletin was mailed each month to many cooperating agencies and individuals giving the results of samples taken and analyzed at four-day intervals at all stations. The figures given were the laboratory determination of the number of parts of chloride per million parts of water.

Area of Salinity Encroachment

There is an apparent relation between the average stream flow to the Delta during the ten-day period of minimum flow and the area affected by salinity encroachment. Data amassed in this regard indicate that when the flow to the Delta drops below a certain amount the rate of advance of salinity encroachment greatly accelerates. A comparison of the average stream flows during the ten-day period of minimum flow and the affected acreage in the Delta is presented in Table 209. An area of approximately 4,480 acres within the boundary of the Delta was affected by salinity encroachment of 1000 parts of chloride per million parts of water in 1953.

Complete or Partial Analyses of Surface Flows

As a matter of record, there is included in this report a tabulation of the results of complete or partial chemical analyses of samples of water taken at many points along the Sacramento and San Joaquin Rivers and in the Delta during 1953. These results are contained in Tables 212 and 213. The results in Table 212 were furnished entirely by the U. S. Bureau of Reclamation. The results in Table 213 were furnished by the Water Quality function of the Division of Water Resources. The complete analyses reported in Table 213 were analyzed by the U. S. Geological Survey Laboratory under a cooperative agreement with the Division of Water Resources and must be considered as "preliminary data, subject to revision". The methods of collecting and analyzing these samples are appreciably



LEGEND

Locates Salinity Observation Stations

Limit of maximum seasonal encroachment of salinity of 1000 parts of chloride per million parts of water

ACTIVE SALINITY OBSERVATION STATIONS—1953

1. Isleton Bridge
2. Rio Vista Bridge
3. Three Mile Slough
4. Collinsville
5. Vernalis
6. Mossdale Bridge
7. Clifton Court Ferry
8. East Contra Costa I.D.
9. Dutch Slough
10. Opposite Central Landing
11. Millers Harbor
12. Antioch
13. Pittsburg
14. O & A Ferry
15. Port Chicago
16. Innisfail Ferry
17. West Suisun
18. Martinez
19. Benicia
20. Crockett
21. Toland Landing
22. Holland Tract
23. Webb Point
24. San Andreas Landing
25. Webb Pump
26. Oulton Point
27. Three Mile Slough, S. J.
28. Piper Slough
29. Webb Ferry
30. Jersey Island

Off Map. Grandview
Off Map. Point Davis
Off Map. Point Pinole
Off Map. Point Orient

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES
SACRAMENTO - SAN JOAQUIN WATER SUPERVISION

LINES OF SALINITY ENCROACHMENT

SACRAMENTO - SAN JOAQUIN DELTA AND UPPER BAYS

Scale of miles
0 2 4 6 8 10

different and more complex than the methods employed in determining the chloride component as part of the regular salinity observation activities in the Sacramento-San Joaquin Delta.

TIDE GAGES

The 28 recording tide gages located on the Delta channels and on the upper bays were continued during 1953. Previous Water Supervision reports contained detailed descriptions and locations of the gages. The Flood Control unit of the Division of Water Resources operates and maintains 18 of these tide gages. The remaining 10 are operated by Federal agencies.

DELTA OUTFLOW MEASUREMENTS

During September, 1953, a series of tidal-cycle current-meter measurements utilizing new methods and techniques were made simultaneously on both the Sacramento River about four miles above and the San Joaquin River about seven miles above their confluence. The purpose of the measurements was to determine accurately the actual amounts of fresh-water outflow from the Sacramento-San Joaquin Delta into Suisun Bay which act to control and counteract the natural intrusion of saline sea-water from the bays into the Delta area. The results of such measurements are essential basic data for studies of salinity control and water availability in the Delta. Previous measurements made for this purpose gave inconclusive results because of the employment of conventional methods which were proved inadequate under the adverse hydrographic conditions encountered.

The Water Supervision function of the Division of Water Resources performed the flow measurements with funds supplied by the Water Project Authority of the State of California. Members of the staff of the Water Project Authority participated in the actual field work and contributed to the development of the new procedural techniques involved. The Water Quality function of the Division of Water Resources with personnel assistance from the U. S. Bureau of Reclamation observed the variations in salinity during the flow measurements by sampling and by recording salinity meters. Under a contract with the Division of Water Resources the Corps of Engineers, U. S. Army, furnished and manned the two steel tug boats used for the measurements. The Surface Water Branch of the U. S. Geological Survey assisted with technical advice. The Water Quality Branch of the U. S. Geological Survey, under a cooperative arrangement with the Division of Water Resources, provided results of water analyses of samples collected during the measurement.

The conventional method of determining the flows in tidal-affected streams involved the suspension of the current meter at a series of fixed points from either a bridge or from a boat anchored to a tag-line. It was necessary to modify that method in order to avoid the inaccuracies in measuring the slow and indeterminable direction of velocities before and after slack-water periods, and to avoid the errors induced in the current-meter observations due to the pitch and roll of an anchored boat. In this series of measurements

the new method consists, basically, of moving the current meter through the water by a free moving boat at a constant velocity over a measured distance parallel to the thread of the stream. The true water velocity with respect to the shore is equal to the velocity of the boat with respect to the water minus the velocity of the boat with respect to the shore. This method was proposed by the staff of the Water Project Authority and was adopted after consultation with the U. S. Geological Survey and after actual trial comparison tests were made between the new moving-boat method and the heretofore accepted conventional method.

A survey of the channel bottom at the selected sites on the Sacramento River at Mayberry Slough and on the San Joaquin River below Antioch Bridge was made using sonic echo sounding equipment mounted on a boat furnished under a cooperative arrangement by the U. S. Bureau of Reclamation. A contour map of the channel bottom at each site was then prepared and the most uniform reach, 150 feet in length along the channel, was selected. Locations of the points at which velocities were to be measured were determined from a study of the average cross section of the selected reach. Each of the measuring points across the channel was located in the field by triangulation and accurately sounded with cable and weight equipment. Tables were then prepared showing depth and settings of current meters at each of the sections for water surface elevations throughout the tidal range.

Two 45-foot tugs were rented under contract from the U. S. Corps of Engineers, San Francisco District, for the two simultaneous measurements. Measurements were started at 4 p.m. on September 14 and continued uninterruptedly until 10 a.m. on September 17, 1953. The hydrographic crew consisted of 32 men including boat operators, meter men, note keepers, range men and crew chiefs. These men were organized into two shifts at each of the measuring sites and worked on 8-hours-on and 8-hours-off basis. The Army tugs were rigged with reels and booms to suspend two current meters, one each over the port and starboard bows. Range lines consisting of parallel lines 150 feet apart perpendicular to the channel at the ends of the selected reaches were identified on each bank by colored flags and lights. A transit was set up on each of the range lines and sighted on the far bank range marker. Velocities were measured at 11 sections across the Sacramento River and 13 sections across the San Joaquin River. The sections were marked by colored and lighted buoys on the Sacramento River and by flagging and lighting specific piers of the Antioch Bridge at the San Joaquin River site. The boat and shore crews coordinated their activities by means of two-way radio communication. The meters in the boats were positioned to the 0.2 and 0.8 depths at each of the sections across the channel from the predetermined depths. Local gages established at each site afforded a means of keeping a constant check on water surface elevations. Measurements at each of the sections were made with the boat moving against the current at a constant speed perpendicular to the range lines with the current meters correctly positioned. The actual velocity of the boat with respect to the shore as determined by clocking it between the range lines with stopwatches was then subtracted from the differential velocity between the boat and the water as determined by the current meter measurements to compute the actual velocity of the water. The average time required

to make one complete measurement across the channel, (including time for salinity observations which were carried on concurrently), was approximately one hour. The width of the Sacramento and San Joaquin River measuring sections were approximately 2,540 feet and 3,370 feet, respectively. Depths ranged down to 40 feet. Velocities varied between 0 to 2½ feet per second. Flows moved in both upstream and downstream directions varying from zero to as much as 152,000 second-feet in the San Joaquin River section and as much as 106,000 second-feet in the Sacramento River section.

Upon completion of the tidal-cycle measurement, the field data was compiled, plotted and analyzed by the staff of the Water Project Authority. From the current-meter observations, the water velocity and direction were determined. In previous tidal-cycle measurements made by the Division of Water Resources, the usual procedure was to plot a weighted mean flow for each complete measurement across the channel. A new technique was devised for this measurement in that each section was considered as a separate stream channel. For each section the flow was plotted at the exact time the current-meter observation was made. These points were connected by straight lines resulting in a hydrograph of each section which showed the variations in the flow between measurements. A final hydrograph of the flow in each stream was then compiled by adding algebraically, from each section's hydrograph, the instantaneous flow at each section every hour. A point on the final hydrograph indicated the total flow for the channel at that particular instant as though each of the sections across the entire river had been measured simultaneously. An important factor in the determination of the outflow from the Delta was the change of tidal volume during each tidal-cycle phase. Gage heights from 31 recorders in the Delta area were compiled and a water surface area was assigned to each water stage recorder. From these the change in Delta volume between any two periods of time was calculated.

Various methods were tried in the analysis of the data to determine the net outflow from the Delta. The method finally adopted was to calculate the net outflow between times of equal Delta volumes. The net outflow as computed by this method varied from 6,900 second-feet to 24,600 second-feet during periods of equal tidal volumes with an average for the measurement period of 16,500 second-feet. The range in rate of outflow during the 60-hour period indicated that there were variations in the outflow throughout a lunar cycle which should be taken into account before the average net outflow from the Delta could be determined, and that the measurements of outflow should be extended over a period of at least 14 days. Since the method and techniques involved in making this 60-hour measurement proved satisfactory, it was concluded that at least one 14-day measurement would be made during 1954.

TABLES

TABLE 1

ANNUAL RUNOFF IN PERCENT OF 60 YEAR NORMAL[a]

SACRAMENTO-SAN JOAQUIN RIVER SYSTEM

Water Year Ending September 30	Sacramento and San Joaquin Rivers to Delta	Sacramento River at Red Bluff	Sacramento River at Sacramento	Feather River near Oroville	Yuba River at Smartville	American River at Fair Oaks	Mokelumne River at Mokelumne Hill	Stanislaus River below Melones	Tuolumne River near La Grange	Merced River at Exchequer	San Joaquin River Friant	San Joaquin River Vernalis
Mean Annual Runoff (a) Thous. Ac. Ft.	(b) 25701	8667	(b) 18753	4778	2464	2844	789	1248	1972	1053	1885	(b) 6159
1920	53	49	49	46	53	52	59	59	68	65	70	66
1921	119	132	127	126	129	113	111	101	102	96	85	96
1922	104	77	96	106	121	115	117	115	125	135	125	125
1923	76	62	71	64	84	97	90	91	91	89	88	90
1924	29	38	31	27	24	19	24	21	28	24	24	24
1925	87	93	86	66	86	96	106	98	98	86	77	89
1926	61	65	63	66	65	49	48	49	57	58	62	57
1927	122	127	128	122	144	128	114	109	104	103	107	106
1928	85	88	90	89	99	89	81	76	77	70	62	71
1929	45	51	45	38	41	40	43	41	50	46	46	46
1930	67	70	72	82	74	58	58	59	59	49	47	53
1931	31	38	33	31	26	25	27	25	31	25	26	27
1932	80	59	70	69	86	91	94	108	107	106	109	108
1933	49	53	47	40	44	45	54	49	57	49	59	55
1934	44	52	46	42	40	40	38	34	41	34	37	37
1935	92	86	88	89	91	91	89	97	107	111	103	104
1936	96	82	92	90	105	119	114	106	110	109	99	106
1937	80	69	71	66	75	82	88	89	101	115	117	106
1938	172	169	169	178	164	159	157	164	174	197	196	183
1939	44	50	44	39	37	37	43	42	46	45	49	46
1940	116	121	119	118	116	120	109	112	113	104	100	107
1941	140	165	145	136	130	111	107	107	127	138	141	129
1942	131	130	134	139	138	138	125	119	120	122	119	120
1943	114	98	113	117	127	136	127	125	120	122	109	118
1944	57	54	55	58	57	51	57	54	67	65	64	63
1945	87	77	80	78	86	88	98	102	106	104	113	107
1946	93	93	93	87	97	101	95	94	96	89	92	93
1947	55	59	55	53	55	50	50	52	56	54	59	56
1948	80	88	84	81	82	79	80	72	72	65	64	68
1949	63	70	64	54	60	65	66	60	63	60	62	62
1950	77	66	77	80	85	94	95	86	79	68	70	76
1951	125	105	126	119	164	169	147	136	127	116	98	118
1952	154	133	153	165	172	175	168	154	156	148	162	156
1953	97	112	107	108	104	93	86	77	78	59	63	70

(a) 60-year normal taken as 60-year (1889-1949) mean annual unimpaired flow (Oct.-Sept., incl.).

(b) Summation of unimpaired flow at foothill stations on major tributaries only, and does not include runoff from minor tributaries and from valley floor.

TABLE 2

SUMMARY AND INVENTORY OF MONTHLY STREAM FLOW - SACRAMENTO RIVER AND TRIBUTARIES - 1953

Item	Mileage	Record in Table No.	Quantities in Acre-Feet												Annual Total
			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
SACRAMENTO RIVER															
INFLOW TO SHASTA LAKE (Computed)		7	1677360	496940	663290	629390	664920	538270	295600	232700	229200	246680	393260	349510	6417120
Unmeasured Accretions			+66340	+2560	+12310	+2510	-9620	-12970	-19500	-12900	-8600	-7580	+8840	+9990	+31380
Change in Storage		8	-277300	+77500	+424100	+373900	+255500	+25600	-276900	-393400	-276700	-130100	+34500	-500	-163800
AT KESWICK	250.5	9	2021000	422000	251500	258000	399800	499700	553000	613200	497300	369200	367600	360000	6612300
CLEAR CREEK nr. IGO	237.1R	20	121100	28620	46250	31710	25490	17180	6660	3680	2720	3310	16110	12380	315210
COW CREEK nr. MILLVILLE	228.6L	21	180800	28050	39920	50330	54850	37320	7450	3980	3350	5610	21530	20960	451150
COTTONWOOD CREEK nr. COTTONWOOD	222.2R	22	292100	55440	47720	47700	44230	36680	13120	5760	5440	7540	14330	15020	585080
BATTLE CREEK nr. COTTONWOOD	221.5L	23	60880	25010	22880	31140	43750	39350	22710	15110	13580	15340	18780	17570	326100
PAYNES CREEK nr. RED BLUFF	201.5L	24	20360	2480	2480	2560	2750	793	115	12	15	128	879	1700	34272
Unmeasured Accretions			+318907	+35154	+48506	+37252	+50136	+31130	+28362	+29457	+31238	+22177	+13831	+6432	+654582
Diversions			147	154	556	20792	19006	22353	30417	28899	26443	23305	3560	162	175794
NEAR RED BLUFF	198.6	10	3015000	596600	458700	437900	602000	639800	601000	642300	527200	400000	449500	435900	8805900
REDBANK CREEK nr. FOOTHILLS	191.2R	25	17150	1837	2125	724	338	210	0	0	0	0	194	19	22597
ANTELOPE CREEK nr. RED BLUFF (a)	180.7L	26	30420	5600	7580	11260	11860	7760	3220	2440	2300	2780	3970	3160	92350
ANTELOPE CREEK nr. MOUTH	180.7L	27	21220	1644	2210	4159	3852	1577	738	461	428	418	1323	490	38520
NORTH FORK MILL CREEK nr. MOUTH	179.3L	30	2911	3	53	253	150	84	24	36	75	154	180	255	4178
ELDER CREEK nr. GERBER	178.5R	28	27130	6550	5230	6060	4500	2140	168	0	0	0	1250	326	53354
MILL CREEK nr. LOS MOLINOS (a)	178.0L	29	62130	13850	17320	28020	29040	27340	16920	9340	7220	7680	11300	9810	239970
MILL CREEK nr. MOUTH	178.0L	31	57160	13180	12770	21940	24150	20810	9491	16144	372	2471	10160	8614	182732
THOMES CREEK at PASKENTA	173.2R	32	100400	28540	20870	35310	25270	14890	4250	909	515	572	7490	7900	246916
DEER CREEK nr. VINA (a)	168.5L	33	81530	17420	21750	34200	35840	22520	11050	8570	7150	7430	11660	9470	271590
DEER CREEK at HIGHWAY 99E	168.5L	34	75880	17170	20080	25430	27110	12240	1346	218	250	1315	8906	7575	197520
Unmeasured Accretions			+231149	+30676	+38134	+44142	+42055	+15719	+4571	+20666	+26125	+43079	+28319	+21723	+546358
Diversions			0	0	72	118	125	170	588	404	265	109	22	2	1875
AT VINA BRIDGE	166.5	11	3548000	696200	560100	575800	729300	707300	621000	665800	554700	447900	507300	482800	10096200
Unmeasured Accretions			-169000	+28701	+32063	+17284	+4180	+7365	-4446	-13258	-3361	-12555	-26395	+9940	-129482
Diversions			0	1	9763	94684	109280	123365	139754	135242	88239	48545	14005	40	762918
AT HAMILTON CITY	149.5	12	3379000	724900	582400	498400	624200	591300	476800	517300	463100	386800	466900	492700	9203800
BIG CHICO CREEK nr. CHICO (a)	141.5L	35	48620	5750	13370	11980	9170	4690	2650	2030	1610	1620	3500	2970	107960
BIG CHICO CREEK nr. MOUTH	141.5L	36	48390	5754	13170	10600	9301	2932	313	0	21	46	1554	1250	93131
STONY CREEK nr. HAMILTON CITY	136.3R	37	220700	23660	17180	21260	20740	4350	502	831	774	947	2380	2370	311694
Unmeasured Accretions			+544950	+100187	+11300	-7004	+31437	+24991	+6585	+6905	+6294	+2808	+15506	-2083	+741876
Diversions (b)			40	1	15750	22256	22278	5773	4900	7036	3989	1001	240	37	83301
AT ORD FERRY	130.8	13	4193000	853500	608300	501000	663400	617800	479300	518000	466200	389600	486100	494200	10270400
Unmeasured Accretions			-116000	-41057	-3337	+902	+1329	+8591	+11264	-10310	-11189	+6783	-9282	+4251	-158355
Diversions			0	43	63	14602	17629	15591	19464	15390	8211	1883	118	2651	95645
AT BUTTE CITY	115.8	14	4077000	812400	604900	487300	647100	610800	471100	492300	446500	394500	476700	495800	10016400
Unmeasured Accretions			-358300	+35102	-3900	-23491	-21081	-27564	-905	+9382	+20951	+2779	+13134	+11813	-342080
MOULTON WEIR	104.0L	39	267700	0	0	0	0	0	0	0	0	0	0	0	267700
COLUSA WEIR	92.4L	40	1344000	0	0	0	0	0	0	0	0	0	0	0	1344000
Diversions			0	2	300	14909	23219	23636	30995	27782	13451	779	34	13	135120
AT COLUSA	89.4	15	2107000	847500	600700	448900	602800	559600	439200	473900	454000	396500	489800	507600	7927500
BUTTE CREEK nr. CHICO (a)	84.0L	38	92670	22890	33100	40440	38950	25740	12800	5960	9010	9820	13220	14270	322870
BUTTE SLOUGH to SACRAMENTO RIVER	84.0L	41	0	1490	17980	21150	33200	26490	5734	16500	36520	6680	10920	1496	181160
R. D. 70 DRAIN	68.8L	42	3715	1183	114	1305	6194	3622	3604	4776	5921	610	246	207	31497
TISDALE WEIR	64.2L	43	1047000	10560	0	0	0	0	0	0	0	0	0	0	1057560
Unmeasured Accretions			+372285	+16987	+4424	+24540	+37934	+30672	+2713	+2031	-9474	+705	-15237	+22897	+490477
Diversions			0	0	118	51295	77228	74084	93951	89507	42367	4895	1829	0	435274
BELOW WILKINS SLOUGH	62.9	16	1436000	856600	623100	447600	602900	546300	357300	407700	444600	399600	483900	532200	7137800
R. D. 108 DRAIN	44.0R	44	10040	3281	1347	5163	25210	15830	20630	27420	27040	2410	1646	1337	141354
R. D. 787 DRAIN	37.0R	45	3043	613	258	2344	4161	1868	2735	4378	2539	129	75	40	22183
COLUSA BASIN DRAIN	34.15R	48	0	6972	14360	14840	40830	23070	6595	36650	92200	32280	27170	9806	304773
SYCAMORE SLOUGH	34.15R	49	835	269	253	82	2333	1093	1616	1963	645	80	37	43	4249
Unmeasured Accretions			+8082	+43278	+24092	-9732	+11873	+5665	+37813	+17982	+23851	+13818	+4508	-7	+181223
Diversions			0	13	410	18497	35607	30326	45589	38293	17875	1017	236	119	187982
AT KNIGHTS LANDING	34.0	17	1458000	911000	663000	441800	651700	563500	381100	457800	573000	447300	517100	543300	7608600
SACRAMENTO SLOUGH	21.2L	54	NR	NR	NR	NR	NR	NR	40960	45150	65820	15650	6662	5849	180091
FEATHER RIVER at NICOLAUS	20.9L	60	2259000	526400	650300	919400	975300	750900	159100	66150	116400	182900	245400	256900	7108150
COON CREEK at HIGHWAY 99E (a)	19.6L	68	16220	2580	4495	3810	2160	1484	372	435	567	1462	3205	2672	39462
AUBURN RAVINE at HIGHWAY 99E (a)	19.6L	69	8277	2118	4114	3273	3293	2567	4316	3707	1654	558	1426	1620	36923
NATOMAS CROSS CANAL at HEAD	19.6L	70	41140	5266	6952	4927	3757	2940	105	557	2523	1980	3701	3792	80640
R. D. 1001 DRAIN	19.6L	71	1894	666	632	383	1304	69	0	0	0	0	0	248	5196
Unmeasured Accretions			-1851966	+225618	-24854	-44940	+135715	+83610	-17696	-15220	-3596	-1034	+11592	-3989	+2197172
FREMONT WEIR	23.0R	50	2057000	5950	0	0	0	0	0	0	0	0	0	0	2062950
Diversions (c)			0	0	30	5570	11776	11019	16769	15037	9747	496	55	0	70499
AT VERONA	19.6L	18	3558000	1663000	1296000	1316000	1756000	1390000	546800	539400	744400	646300	784400	806100	15046400
R. D. 1000 (#3) DRAIN	6.85L	72	2563	1314	1408	1299	3185	2067	2212	2985	1093	842	371	203	19542
R. D. 1000 (2nd BANNON SL.) DRAIN	2.1L	74	8817	1511	0	424	3697	1127	0	982	7704	1480	0	73	25815
LINDA CREEK nr. ROSEVILLE	1.3L	75	16620	3229	3632	3062	3003	2126	613	786	1373	2362	2188	2592	41586
AMERICAN RIVER at SACRAMENTO	1.1L	77	444300	165300	239600	464900	493400	501200	155500	27520	24720	36830	55430	77570	2686270
SACRAMENTO WEIR	4.2R	73	0	0	0	0	0	0	0	0	0	0	0	0	0
Unmeasured Accretions			-130187	-1213	+13871	-72518	-84435	-65370	-16607	+9055	-29200	-31004	-11021	+13338	-405291
Diversions (d)			2113	2141	2511	11167	21850	29150	38918	34828	16790	6610	2868	8076	177022
AT SACRAMENTO	0.4	19	3898000	1831000	1552000	1702000	2153000	1802000	649600	545900	733300	650200	828500	891800	17237300
SHASTA LAKE TO SACRAMENTO															
Total Unmeasured Accretions			-2620192	+475993	+152609	-31055	+199523	+101839	+32154	+43790	+42739	+39976	+33795	+96305	+3807860
Total Diversions			2300	2355	29573	253890	337998	335467	421345	392418	227377	88640	22967	11100	2125430

NR No record.
(a) Not included in inventory or totals.
(b) Includes diversions from Stony Creek by Glenn-Colusa Irrigation District.
(c) Includes diversions from the Feather River below Nicolaus.
(d) Includes diversions from American River below "H" Street Bridge.

TABLE 2 (Contd)

SUMMARY AND INVENTORY OF MONTHLY STREAM FLOW - SACRAMENTO RIVER AND TRIBUTARIES - 1953

Item	Mileage	Record in Table No.	Quantities in Acre-Feet												Annual Total
			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
FEATHER RIVER															
NEAR OROVILLE	71.0	55	1183000	328700	403700	662800	692300	517400	216900	168700	160200	166200	213900	195300	4909100
Unmeasured Accretions			-39000	-900	-11528	-65131	-45653	-37123	-1378	+674	+2487	-15890	-33084	-25900	-272426
Diversions			0	0	8672	65169	137347	137077	149422	126154	76567	37510	13416	0	751334
NEAR GRIDLEY	49.7	56	1144000	327800	383500	532500	509300	343200	66100	43220	86120	112800	167400	169400	3885340
SOUTH HONCUT CREEK at BANGOR ROAD	43.7L	61	9800	715	2090	2060	817	235	25	0	0	77	332	343	16494
Unmeasured Accretions			+88200	+35785	+31879	+40245	+95396	+93917	+38047	+8542	+10651	+18196	+41668	+51757	+584283
Diversions			0	0	369	405	1513	1852	4692	6402	2851	273	0	0	18357
AT YUBA CITY	28.0	57	1242000	364300	417100	574400	604000	435500	99480	45360	93920	160800	209400	221500	4467760
YUBA RIVER at MARYSVILLE	27.3L	63	575200	136700	206600	321600	349300	350800	76820	24960	27000	29770	34490	38350	2171590
Unmeasured Accretions			-200	0	+2	+16	-82	+84	-3753	-31158	-24429	-25768	-16590	-23350	-125528
Diversions (b)			0	0	2	16	18	84	147	112	21	2	0	0	402
BELOW SHANGHAI BEND	23.0	59	1817000	501000	623700	896000	953200	786300	172400	38750	96470	168800	227300	236500	6513420
BEAR RIVER nr. WHEATLAND	12.0L	67	95390	19350	35740	48450	28080	7710	643	963	1320	4680	11430	14380	268136
DRY CREEK nr. WHEATLAND	12.0L	66	14880	1180	1860	2220	1320	765	141	286	367	229	403	602	24253
Unmeasured Accretions			+331730	+4919	-10590	-24247	-2440	-37873	-6745	+31980	+22279	+13577	+6299	+5418	+334307
Diversions (c)			0	49	410	3023	4860	6002	7339	5829	4036	386	32	0	31966
AT NICOLAUS	9.3	60	2259000	526400	650300	919400	975300	750900	159100	66150	116400	182900	245400	256900	7108150
OROVILLE TO NICOLAUS															
Total Unmeasured Accretions			+380730	+39804	+9763	-49117	+47221	+19005	+26171	+9738	+10988	+20115	-1707	+7925	+520636
Total Diversions			0	49	9453	68613	143738	145015	161600	138497	83475	38171	13448	0	802059
AMERICAN RIVER															
AT FAIR OAKS	19.2	76	469700	157100	231900	467500	489200	499900	158400	27510	24040	34380	63130	83130	2705890
Unmeasured Accretions			-25400	+8203	+7761	-2484	+4424	+2224	-1572	+992	+1379	+2776	-7682	-5560	-11939
Diversions			0	3	61	116	224	924	1328	982	699	326	18	0	4681
AT SACRAMENTO	6.1	77	444300	165300	239600	464900	493400	501200	155500	27520	24720	36830	55430	77570	2686270
SUTTER BY-PASS															
BUTTE SLOUGH TO SUTTER BY-PASS	29.4	51	1798000	79130	20870	13530	29180	21800	20910	20000	15870	5823	8965	4913	2041991
WADSWORTH CANAL	25.7L	52	10770	2861	2069	5938	11490	10100	3410	6010	12470	5808	3715	11456	76097
R. D. 1500 DRAIN	0.0R	53	22630	7686	3804	7414	24970	20220	51990	36890	32280	7384	3227	11432	219927
Unmeasured Accretions									-19945	+7901	+19200	-1935	-8427	-956	
TISDALE WEIR	18.9R	43	1047000	10560	0	0	0	0	0	0	0	0	0	0	1057560
Diversions			0	224	680	6628	16005	18215	27075	25651	14000	1430	818	996	111722
SACRAMENTO SLOUGH	-1.0	54	NR	NR	NR	NR	NR	NR	40960	45150	65820	15650	6662	5849	
BACK BORROW PIT															
COLUSA TROUGH AT COLUSA-WILLIAMS HWY.	37.0	46	115500	13750	15840	28870	73210	26750	20910	46300	82710	22860	21690	6968	475358
Unmeasured Accretions			+98100	+3064	+2472	-414	+7977	+17764	+5940	+13715	+18706	+11550	+6830	+4443	+190147
KNIGHTS LANDING RIDGE CUT	0.4R	47	213600	9744	3917	6567	26930	7415	3793	4635	2947	12	129	0	278689
Diversions			0	98	35	7049	13427	14029	17462	18730	6269	2118	1221	1605	82043
COLUSA BASIN DRAIN	0.0	48	0	6972	14360	14840	40830	23070	6595	36650	92200	32280	27170	9806	304773
YUBA RIVER															
AT NARROWS DAM	20.5	62	474000	118900	169800	286800	330100	356600	99400	43000	39640	37150	33670	38490	2027550
DEER CREEK nr. SMARTSVILLE	20.0	64	22000	7610	18250	11430	8200	4380	591	746	729	1040	3110	2590	80676
DRY CREEK nr. VIRGINIA RANCH	12.7	65	29560	3370	10870	9009	4620	1720	400	271	466	418	791	1550	63045
Unmeasured Accretions			+49640	+6820	+7680	+25278	+29716	+11457	-1326	+3381	+5886	+2148	+2227	+1647	+141554
Diversions			0	0	0	10917	23336	23357	22245	22438	19721	10986	5308	5927	144235
AT MARYSVILLE	0.9	63	575200	136700	206600	321600	349300	350800	76820	24960	27000	29770	34490	38350	2171590
DELTA TRIBUTARIES															
CACHE CREEK nr. CAPAY (a)		78	253000	46360	33540	35780	30240	25360	31590	24950	12390	1230	3560	4480	502480
CACHE CREEK nr. YOLO (a)		79	258300	49670	27900	15340	7570	0	0	0	0	0	0	0	358780
YOLO BY-PASS nr. WOODLAND		80	2461000	74790	18100	12820	29910	7970	4080	4480	7260	1360	1220	1420	2624410
SACRAMENTO WEIR		73	0	0	0	0	0	0	0	0	0	0	0	0	0
SACRAMENTO RIVER at SACRAMENTO		19	3898000	1831000	1552000	1702000	2153000	1802000	649600	545900	733300	650200	828500	891800	17237300
SALT CREEK nr. WINTERS		81	489	97	89	60	9	0	0	0	0	0	0	0	744
PLEASANT CREEK nr. WINTERS (a)		82	2797	317	508	183	97	17	0	0	0	0	0	0	3919
PUTAH CREEK nr. WINTERS (a)		83	190500	19250	43120	16730	10000	3400	451	237	186	218	5050	4210	293352
PUTAH CREEK nr. DAVIS		84	184700	19580	37630	15790	8770	2140	0	0	0	0	2450	2600	273660
SWEENEY CREEK nr. WINTERS (a)		85	1710	99	134	46	7	0	0	0	0	0	0	0	1996
ULATIS CREEK nr. VACAVILLE (a)		86	1118	149	273	212	86	40	3	0	0	0	0	6	1887
ULATIS CREEK nr. BINGHAMPTON		87	12160	148	394	76	10	0	0	0	0	0	0	0	13088
HAAS SLOUGH nr. MAINE PRAIRIE		89	285	0	0	0	0	0	0	0	0	0	0	0	285
BARKER SLOUGH nr. DOZIER		88	1409	0	0	0	0	0	0	0	0	0	0	0	1409
COSUMNES RIVER at McCONNELL		91	81890	20790	32870	52060	46570	31430	4880	219	0	603	3556	5530	280398
DRY CREEK nr. GALT		92	19960	2780	5500	3240	1690	310	31	24	6	0	0	0	33541
MOKELUMNE RIVER at WOODBRIDGE		93	54650	32590	22990	12860	30800	82630	14320	5350	12880	19700	28640	32030	349440
BEAR CREEK nr. LOCKEFORD		96	1600	64	26	48	19	10	8	32	35	4	0	20	1866
CALAVERAS RIVER nr. STOCKTON		99	5800	1883	0	135	834	1255	740	250	0	0	0	378	11275
STOCKTON DIVERTING CANAL		101	29110	1030	0	298	4	17	50	0	0	0	0	61	30570
LITTLEJOHNS CREEK at FARMINGTON (a)		102	9854	1281	274	704	327	214	34	34	79	93	0	0	12894
DUCK CREEK nr. FARMINGTON (a)		103	864	0	33	86	110	371	844	1150	861	19	1	7	4346
DUCK CREEK nr. STOCKTON		104	1574	2	53	410	132	31	70	136	138	18	7	0	2571
LONE TREE CREEK nr. MANTECA (a)		106	1761	49	941	3821	2332	2338	1064	716	864	712	104	237	14942
TEMPO CREEK nr. MANTECA (a)		107	903	53	393	1646	554	386	46	49	258	400	148	205	5041
FRENCH CAMP SLOUGH nr. FRENCH CAMP		108	11750	1258	1398	4207	2402	1861	264	86	366	836	184	236	24848
SAN JOAQUIN RIVER nr. VERNALIS		120	365700	204000	71480	90440	188100	292400	98640	45970	65030	100200	98900	108300	1729160
Total Measured Flow to Delta			7130377	2190012	1742530	1894444	2462250	2222054	772683	602447	819015	772921	963457	1042375	22614565

NR No record.
(a) Not included in inventory or totals.
(b) Includes diversions from Yuba River below Simpson Lane Bridge.
(c) Includes diversions from Bear River below Wheatland.

TABLE 3

SUMMARY AND INVENTORY OF MONTHLY STREAM FLOW - SAN JOAQUIN RIVER AND TRIBUTARIES - 1953

Item	Mileage	Record in Table No.	Quantities in Acre-Feet												Annual Total
			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
SAN JOAQUIN RIVER															
INFLOW TO MILLERTON LAKE (Computed)		109	111626	58588	72627	150150	136705	229388	154663	90335	60725	53072	43426	46582	1207887
Change in Storage		110	+103100	+23200	-51400	+32300	+57900	+75300	-79000	-143700	-98300	-19000	+16600	+31700	-51300
Unmeasured Accretions			+532	+833	-499	-1447	-3230	-3585	-4999	-4194	-3898	-3068	-1523	-332	-25410
MADERA CANAL			26	0	11111	11856	10520	27555	51771	48592	29159	873	0	60	191523
FRIANT-KERN CANAL			202	1101	56137	54231	40124	99278	163736	160362	74618	22512	7375	0	679976
Diversions			0	0	0	46	51	30	27	17	0	9	38	0	218
BELOW FRIANT	268.13	111	8830	35120	55980	50270	24880	23640	13130	20870	51350	45610	17890	14490	362060
LITTLE DRY CREEK nr. FRIANT	264.0L	121	1490	355	272	148	48	17	9	10	0	0	5	2	2356
Unmeasured Accretions			+1148	-2181	-1174	-1640	+1458	-358	-77	-2019	-605	+108	+2771	-949	-3518
Diversions			18	174	518	1378	946	1599	3382	3131	1635	568	226	13	13618
NEAR BIOLA		112	11450	33120	54530	47400	25440	21700	9680	15730	49110	45150	20440	13530	347280
Unmeasured Accretions			-823	-3184	-1210	+850	-2213	-3039	-3268	-4592	-8360	-3877	-1952	-2074	-33742
Diversions			0	7	12	36	86	169	150	126	85	17	0	5	693
AT WHITEHOUSE	219.83	113	10627	29929	53308	48214	23141	18492	6262	11012	40665	41256	18488	11451	312845
JAMES BY-PASS nr. SAN JOAQUIN (a)	208.9L	122	3850	0	0	0	59	0	0	0	0	0	0	0	3909
DELTA MENDOTA CANAL (b)			0	9136	34138	81983	127063	133843	174122	149778	46523	24992	1418	875	784171
Unmeasured Accretions			+2503	-12437	-15239	-23907	-15792	-18423	-41656	-37908	-15239	-4233	-2741	+2278	-182794
Diversions (c)			3580	23368	61817	89440	113532	110032	115948	103272	58469	53895	13275	10104	756732
NEAR MENDOTA	206.2	114	9550	3260	10390	16850	20880	23880	23080	19610	13480	8120	3890	4500	157490
PANOCHE CREEK nr. PANOCHE (a)		123	149	24	17	8	3	0	0	0	0	NR	NR	NR	
Unmeasured Accretions			+1100	+1960	+748	+1382	+1269	+775	+556	+179	+300	+1215	+579	+231	+10294
Diversions			0	1930	10943	18166	21872	24474	23577	19661	13661	9249	4441	3963	151937
NEAR DOS PALOS	186.0	115	10650	3290	195	66	277	181	59	128	119	86	28	768	15847
FRESNO RIVER nr. DAULTON (a)	184.0R	124	12630	4450	5720	7070	6870	5550	1420	120	89	304	772	1080	46075
CHOWCHILLA RIVER at BUCHANAN DAM SITE(a)	151.0R	126	11580	2760	3140	2640	1880	1120	48	0	0	0	255	581	24004
SAN LUIS CREEK nr. LOS BANOS (a)		127	607	155	129	73	34	52	48	40	17	NR	NR	NR	
SALT SLOUGH nr. LOS BANOS (a)		125	6800	3630	3070	3840	6360	6190	3890	3210	2910	2630	2320	1720	46570
BEAR CREEK above SAN JOAQUIN RIVER	140.5R		35371	4844	3527	5098	5792	3675	502	561	2995	2582	1511	1323	67781
Unmeasured Accretions			+12589	+6556	+5095	+3875	+11269	+12657	+5714	+3818	+1874	+2436	+2311	+1609	+72803
Diversions			0	0	107	29	88	163	475	407	198	24	0	0	1491
AT FREMONT FORD	129.5	116	58610	14690	8710	9010	17250	16350	5800	4100	7790	5080	3850	3700	154940
MERCED RIVER nr. STEVINSON	123.75R	132	79480	25080	11600	12690	12620	10270	8760	10960	12010	9650	8250	9210	210580
Unmeasured Accretions			+11810	+5892	+1112	+1489	+1994	+1990	+587	+253	+5272	+938	+335	+1810	+33482
Diversions (d)			0	2	462	379	424	510	827	563	462	298	15	0	3942
NEAR NEWMAN	123.7	117	149900	45660	20960	22810	31440	28100	14320	14750	24610	15370	12420	14720	395060
MERCED RIVER SLOUGH	122.2	133	0	0	0	0	0	0	0	0	0	0	0	0	0
ORESTIMBA CREEK nr. NEWMAN		134	843	387	33	0	0	0	0	0	0	0	0	0	1263
Unmeasured Accretions			+10673	+18935	+17170	+16454	+17333	+28230	+20649	+16443	+15006	+14548	+9591	+9260	+194292
Diversions			1	1808	7459	11277	9679	11008	15529	11914	8039	1535	34	40	78323
NEAR GRAYSON	96.05	118	161415	63174	30704	27987	39094	45322	19440	19279	31577	28383	21977	23940	512292
TUOLUMNE RIVER at TUOLUMNE CITY	91.0R	140	128152	93858	30347	29653	36000	120179	68469	22810	20132	49071	48060	52701	699432
Unmeasured Accretions			-9838	+3844	+7986	+5225	+3242	+11845	+6899	+10749	+5770	+4832	+3117	+5584	+63555
Diversions (e)			0	2476	9097	14151	11473	16226	21082	17790	10305	2055	224	308	105187
AT HETCH HETCHY CROSSING	82.65	119	279729	158400	59940	48714	66863	161120	73726	35048	51174	80231	73230	81917	1170092
STANISLAUS RIVER nr. MOUTH	79.7R	146	84320	38590	13440	46070	109700	137000	25880	11370	10720	13710	20470	23310	534580
Unmeasured Accretions			+1651	+7422	+1422	-171	+15058	-1208	+4673	+5082	+7018	+7903	+5456	+3144	+57450
Diversions (f)			0	412	3322	4173	3521	4512	5639	5530	3882	1644	256	71	32962
NEAR VERNALIS	76.7	120	365700	204000	71480	90440	188100	292400	98640	45970	65030	100200	98900	108300	1729160
MILLERTON LAKE TO VERNALIS															
Total Unmeasured Accretions			+31345	+27640	+15411	+2110	+30388	+28884	-10922	-12189	+14138	+20802	+18244	+20561	+186412
Total Diversions			3827	31278	161315	205162	212316	295556	402143	371365	200513	92679	25884	14564	2016602
MERCED RIVER															
AT EXCHEQUER		129	64960	13920	40930	69790	75160	85710	115000	100400	74360	3010	2720	2890	648850
Unmeasured Accretions			-15600	-3168	-768	-4229	-4040	-2883	-7952	-8111	-4044	-2433	-2566	-2608	-58402
MERCED IRRIGATION DISTRICT CANALS	46.0		0	964	38468	63695	68968	81383	105314	91554	69367	401	0	0	520114
BELOW SNELLING	42.1	130	49360	9788	1694	1866	2152	1444	1734	735	949	176	154	282	70334
Unmeasured Accretions			+27500	+10043	+4286	+4912	+4730	+5568	+4482	+5749	+6248	+4962	+4477	+5426	+88383
Diversions			0	1	228	1686	1221	1335	1541	1498	1118	634	2	0	9264
AT CRESSEY	27.6	131	76860	19830	5752	5092	5661	5677	4675	4986	6079	4504	4629	5708	149453
Unmeasured Accretions			+2621	+5457	+7640	+9220	+8607	+6676	+8060	+8888	+7661	+5895	+4132	+3504	+78361
Diversions			1	207	1792	1622	1648	2083	3975	2914	1730	749	511	2	17234
NEAR STEVINSON	4.6	132	79480	25080	11600	12690	12620	10270	8760	10960	12010	9650	8250	9210	210580
EXCHEQUER TO STEVINSON															
Total Unmeasured Accretions			+14521	+12332	+11158	+9903	+9297	+9361	+4590	+6526	+9865	+8424	+6043	+6322	+108342
Total Diversions			1	1172	40488	67003	71837	84801	110830	95966	72215	1784	513	2	546612
TUOLUMNE RIVER															
ABOVE LA GRANGE DAM		135	98480	87630	93730	134100	149000	254900	184900	125800	108400	94140	42470	51980	1425530
Unmeasured Accretions			-1164	-2126	+800	+516	-1031	-7736	-750	+507	+1068	-1155	-1825	-1752	-14648
MODESTO IRRIGATION DISTRICT CANAL	53.5R		176	7553	25983	45723	50309	57802	55083	47655	30660	22165	5352	1283	349744
TURLOCK IRRIGATION DISTRICT CANAL	53.5L		3620	3181	62594	83032	86430	92162	95167	78089	77455	38690	4173	13115	637708
AT LA GRANGE	50.5	136	93520	74770	5953	5861	11230	97200	33900	563	1353	32130	31120	35830	423430
Unmeasured Accretions			+4400	+380	+2442	+1201	+2534	+6867	+4133	+1852	+1619	+1823	+3600	+4360	+35211
Diversions			0	0	17	46	64	67	93	96	40	73	0	0	496
AT ROBERTS FERRY BRIDGE	39.9	137	97920	75150	8378	7016	13700	104000	37940	2319	2932	33880	34720	40190	458145
Unmeasured Accretions			+3880	+5210	+5378	+5004	+4592	+9699	+9603	+5353	+5741	+7468	+7080	+4993	+74001
Diversions			0	0	26	60	92	99	183	145	116	28	0	13	762
AT HICKMAN BRIDGE	31.7	138	101800	80360	13730	11960	18200	113600	47360	7527	8557	41320	41800	45170	531384
DRY CREEK nr. MODESTO	16.5R	141	13390	1972	2809	4068	4596	6097	4102	3870	3769	2769	1386	1712	50540
Unmeasured Accretions			+310	+5499	+8322	+7111	+8183	-1304	+8574	+8173	+5160	+3775	+2460	+4728	+59291
Diversions (g)			0	1	151	309	269	393	446	450	306	164	16	0	2505
AT MODESTO	16.1	139	115500	87830	24710	22830	29010	118000	59590	19120	17180	47700	45630	51610	638710
Unmeasured Accretions			+12652	+6087	+5947	+7197	+7454	+2707	+9412	+4236	+3280	+1540	+2490	+1132	+64164
Diversions			0	59	310	374	464	528	563	546	328	169	60	41	3442
AT TUOLUMNE CITY	3.35	140	128152	93858	30347	29653	36000	120179	68469	22810	20132	49071	48060	52701	699432
ABOVE LA GRANGE TO TUOLUMNE CITY															
Total Unmeasured Accretions			+20078	+15050	+22889	+21029	+20032	+10233	+31002	+20121	+16868	+13451	+13805	+13461	+218019
Total Diversions			3796	10794	89081	129544	137628	151051	151535	126981	108905	61289	9601	11452	994657

NR No record.
(a) Not included in inventory or totals.
(b) Deliveries from Delta Mendota Canal to Mendota Pool as computed by U. S. Bureau of Reclamation.
(c) Includes diversions from Fresno Slough and James By-Pass.
(d) Includes diversions from Merced River below Stevinson.
(e) Includes diversions from Tuolumne River below Tuolumne City.
(f) Includes diversions from Stanislaus River below Mile 2.9.
(g) Includes diversions from Dry Creek below Gaging Station (near Modesto).

TABLE 3 (Contd)

SUMMARY AND INVENTORY OF MONTHLY STREAM FLOW - SAN JOAQUIN RIVER AND TRIBUTARIES - 1953

Item	Mileage	Record in Table No.	Quantities in Acre-Feet												Annual Total
			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
STANISLAUS RIVER															
BELOW MELONES POWER HOUSE		142	67990	41970	38330	128800	158500	223100	107700	79120	43430	13220	14750	13730	930640
Unmeasured Accretions			+16489	+7964	+340	-2083	+4681	+134	+5820	+49	+632	+2195	+2538	+2090	+40849
OAKDALE CANAL	50.2		79	0	6830	21650	27310	29020	30120	24370	13680	83	100	27	153269
SOUTH SAN JOAQUIN CANAL	50.2		60	16700	29820	47400	51400	60960	68510	52820	28820	9326	268	113	366197
Diversions			0	14	15	37	51	54	60	45	90	32	10	0	408
AT ORANGE BLOSSOM BRIDGE	44.7	143	84340	33220	2005	57630	84420	133200	14830	1934	1472	5974	16910	15680	451615
Unmeasured Accretions			-600	+1497	+4390	+3418	+17182	+11431	+5418	+4428	+3837	+2837	+590	+1780	+56208
Diversions			0	7	129	188	202	231	448	406	164	52	0	0	1827
AT RIVERBANK	32.0	144	83740	34710	6266	60860	101400	144400	19800	5956	5145	8759	17500	17460	505996
Unmeasured Accretions			+380	+4340	+6522	-4173	+8504	+9596	+11380	+7052	+6970	+6626	+3725	+3890	+64812
Diversions			0	20	358	307	404	396	820	818	385	85	25	0	3618
AT RIPON BRIDGE	16.0	145	84120	39030	12430	56380	109500	153600	30360	12190	11730	15300	21200	21350	567190
Unmeasured Accretions			+200	+527	+3345	-6477	+4745	-11059	+2501	+5100	+3318	+1273	-444	+1960	+4989
Diversions			0	967	2335	3833	4545	5541	6981	5920	4328	2863	286	0	37599
NEAR MOUTH	2.9	146	84320	38590	13440	46070	109700	137000	25880	11370	10720	13710	20470	23310	534580
MELONES POWER HOUSE TO MOUTH															
Total Unmeasured Accretions			+16469	+14328	+14597	-9315	+35112	+10102	+25119	+16629	+14757	+12931	+6409	+9720	+166858
Total Diversions			139	17708	39487	73415	83912	96202	106939	84379	47467	12441	689	140	562918
MORMON SLOUGH															
AT BELLOTA	0.05	100	28940	1413	95	409	1941	2352	3308	1471	0	0	398	939	41266
Unmeasured Accretions			+170	-383	-93	-70	-1523	-1335	-2126	-927	+4	0	-398	-878	-7559
Diversions			0	0	2	41	414	1000	1132	544	4	0	0	0	3137
STOCKTON DIVERTING CANAL AT STOCKTON	17.6	101	29110	1030	0	298	4	17	50	0	0	0	0	61	30570
CALAVERAS RIVER															
AT JENNY LIND	36.9	97	34960	3730	483	2150	5980	9060	10630	4880	27	379	1630	2890	76799
Unmeasured Accretions			+1188	-268	-326	-845	-227	+642	+2192	+888	+76	-371	-968	-664	+1317
MORMON SLOUGH AT BELLOTA		100	28940	1413	95	409	1941	2352	3308	1471	0	0	398	939	41266
Diversions			0	0	62	204	438	812	1183	824	103	8	5	0	3639
AT BELLOTA	25.25	98	7208	2049	0	692	3374	6538	8331	3473	0	0	259	1287	33211
Unmeasured Accretions			-1408	-166	0	-355	-1263	-3341	-4887	-1703	+27	0	-259	-909	-14864
Diversions			0	0	0	202	1277	1942	2704	1520	27	0	0	0	7672
NEAR STOCKTON	8.9	99	5800	1883	0	135	834	1255	740	250	0	0	0	378	11275
JENNY LIND TO STOCKTON															
Total Unmeasured Accretions			-220	-434	-326	-1200	-1490	-2699	-2695	-815	+103	-371	-1227	-1573	-12947
Total Diversions			0	0	62	406	1715	2754	3887	2344	130	8	5	0	11311
MOKELUMNE RIVER															
AT LANCHA PLANA		93	53600	34050	34590	33530	58520	115900	40260	32690	33430	33840	33870	34120	538400
NEAR CLEMENTS	39.35	94	56180	33830	34300	34260	67870	88450	38310	29760	31140	33050	34120	36860	518130
Unmeasured Accretions			-1530	-905	-997	-2376	-16839	+16588	+3545	+685	-214	-928	-1936	-4829	-9736
Diversions			0	335	10313	19024	20231	22408	27535	25095	18046	12422	3544	1	158954
AT WOODBRIDGE	19.2	95	54650	32590	22990	12860	30800	82630	14320	5350	12880	19700	28640	32030	349440
COSUMNES RIVER															
AT MICHIGAN BAR	34.3	90	58420	19470	32380	49420	44030	30340	6550	1750	942	1790	4420	5950	255462
Unmeasured Accretions			+23470	+1320	+592	+3165	+3237	+2515	+62	-250	+18	-713	-830	-420	+32166
Diversions			0	0	102	525	697	1425	1732	1281	960	474	34	0	7230
AT McCONNELL	10.7	91	81890	20790	32870	52060	46570	31430	4880	219	0	603	3556	5530	280398

TABLE 4

SUMMARY AND INVENTORY OF MONTHLY STREAM FLOW - TULE RIVER AND TULARE LAKE AREA - 1953

Item	Mileage	Record in Table No.	Quantities in Acre-Feet												Annual Total
			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
TULE RIVER															
NEAR PORTERVILLE	-1.0	149	14990	6460	7170	12380	12700	8550	1780	369	292	712	1880	2990	70273
SOUTH FORK TULE RIVER nr. SUCCESS	0.0	150	6300	1960	2660	3740	3350	1670	477	114	55	162	468	728	21684
Unmeasured Accretions			+2783	+283	-266	-268	-471	+136	+66	+75	+107	-78	+31	-129	+2269
Diversions			23	69	484	822	759	1006	1082	158	76	256	279	69	5083
AT WORTH BRIDGE	2.2	151	24050	8634	9080	15030	14820	9350	1241	400	378	540	2100	3520	89143
FRIANT-KERN CANAL to TULE RIVER	11.3	155	0	0	8144	2452	1864	16088	25563	27553	15267	0	0	0	96931
Unmeasured Accretions			-6996	-3691	-13314	-10770	-7149	-18246							
Diversions			7400	4677	3910	4713	9034	6898	1134	469	152	257	906	1571	41121
FRIANT-KERN CANAL to PORTER SLOUGH		156	0	0	0	0	0	294	476	766	109	108	0	0	1753
ELK BAYOU above ELK BAYOU AVENUE		157	2509	262	0	0	0	0	NR	NR	NR	NR	NR	NR	
AT TURNBULL STATION	39.0	152	7145	4	0	1999	501	0	0	0	197	0	0	0	9846
INFLOW TO TULARE LAKE BASIN															
KINGS RIVER at PIEDRA (a)		147	67510	43490	60580	172600	215000	326200	150400	30700	12710	10520	13500	15340	1118550
KINGS RIVER (S.F) below EMPIRE WEIR #2		158	0	0	0	0	279	0	0	0	0	0	0	0	279
CROSS CREEK below LAKELAND CANAL #2		159	0	0	0	0	0	0	0	0	0	0	0	0	0
KAWEAH RIVER at THREE RIVERS (a)		148	25550	15600	21040	51510	57200	79160	24900	5020	2690	2790	3820	5090	294670
TULE RIVER at TURNBULL STATION		152	7145	4	0	1999	501	0	0	0	197	0	0	0	9846
WHITE RIVER nr. DUCOR (a)		153	1570	429	1040	919	800	260	0	0	0	NR	NR	NR	
KERN RIVER nr. BAKERSFIELD (a)		154	60760	40500	38710	70730	86020	103200	69660	21500	12730	13120	15020	16920	548870
BUENA VISTA SLOUGH nr. LOST HILLS		161	0	0	0	0	0	0	0	0	0	0	0	0	0
GOOSE LAKE CANAL nr. LOST HILLS		160	NR	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL INFLOW TO TULARE LAKE BED			7145	4	0	1999	780	0	0	0	197	0	0	0	10125

NR No record.
(a) Not included in inventory or totals.

TABLE 5

ANNUAL IRRIGATED ACREAGE 1944 - 1953

SACRAMENTO-SAN JOAQUIN RIVER SYSTEM SERVICE AREA
AS COVERED BY SACRAMENTO-SAN JOAQUIN WATER SUPERVISION

Stream	Year	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953
						SACRAMENTO RIVER SYSTEM					
Sacramento River Redding to Sacramento	General Rice	111871 122243	106545 115115	117556 124135	121590 123981	149734 124117	143495 137269	152817 108479	162233 140835	142931 139053	134911 164611
Colusa Trough (a) Above Highway 20	General Rice	1540 4487	200 3882	3030 3694	1035 6574	3249 4745	3140 5561	4933 5150	4053 6640	5144 7279	3519 11006
Back Borrow Pit Highway 20 to Knights Landing	General Rice	965 9017	1585 5175	2062 7880	2295 9044	2455 7079	1272 9003	3227 5925	2855 6973	2698 5896	2918 6400
Knights Landing Ridge Cut Knights Landing to Yolo By-Pass	General Rice	305 3230	230 3320	1170 2795	1975 1087	685 1265	880 1220	996 757	3174 1970	3052 540	1089 1645
Yolo By-Pass Above Highway 40	General Rice	1235 1000	1594 500	620 200	1241 1895	1023 1000	860 930	650 1168	475 1390	715 0	1418 600
Lower Butte Creek (a) and Butte Slough	General Rice	7754 1760	7824 2110	8247 1846	4524 1115	4647 660	7136 1875	7195 1537	6984 1702	8656 2850	6944 2563
Sutter By-Pass and (a) Sacramento Slough	General Rice	5889 4303	4712 6996	9380 4925	8841 3211	7918 2635	8303 6184	11651 4479	11118 6114	10060 5575	11078 7446
Feather River Oroville to Mouth	General Rice	25235 49843	25106 47865	27189 51082	28264 49749	29534 43258	31022 51131	34013 41331	31185 56503	30292 57888	29062 64122
Yuba River Smartville to Mouth	General Rice	7009 2401	8815 1085	8872 1956	8282 3630	8716 3115	8838 3300	10005 2641	9635 3415	9803 3603	9116 5304
Bear River Wheatland to Mouth	General Rice	NOT COVERED PRIOR TO 1949					974 0	705 0	725 0	50 0	50 0
American River Fairoaks to Mouth	General Rice	3205 0	2935 0	2893 0	3670 0	3628 0	3865 0	4000 0	4834 0	4556 0	4572 0
						SAN JOAQUIN RIVER SYSTEM					
San Joaquin River(b) Friant to Fremont Ford	General Rice	NOT COVERED PRIOR TO 1946		265888 9727	296245 10563	285884 8670	288751 14638	295874 11705	240107 9493	280397 17031	264929 21949
San Joaquin River Fremont Ford to Vernalis	General Rice	42196 1464	41601 849	43094 1396	43076 1355	46385 535	45781 625	48114 390	48745 730	47394 623	51635 1501
Fresno Slough and James By-Pass	General Rice	NOT COVERED PRIOR TO 1946		19145 1808	17421 2698	19706 1579	22671 4081	19184 2815	23537 1700	24076 2996	23541 7609
Merced River (c) Snelling to Mouth	General Rice	4509 0	4403 0	4484 0	5912 0	6494 0	7941 0	7912 0	8088 0	7465 0	7431 0
Tuolumne River (c) La Grange to Mouth	General Rice	3161 0	3259 0	3564 0	3761 0	3745 0	4406 0	4690 0	4497 0	4788 0	5283 120
Dry Creek Waterford to Mouth	General Rice	NOT COVERED PRIOR TO 1949					421 0	435 0	429 0	467 0	481 0
Stanislaus River (c) Melones to Mouth	General Rice	7915 0	6872 0	6343 0	6598 0	7916 0	8548 0	8445 0	8336 0	7769 0	8904 0
						DELTA UPLANDS AND TRIBUTARIES					
San Joaquin River - Delta Uplands Vernalis to Stockton	General Rice	20729 0	19935 0	24505 0	25122 0	25551 0	26946 0	26604 0	26609 0	24752 0	27272 0
Old San Joaquin River(b) Delta Uplands	General Rice	32331 0	32139 0	34263 0	37859 0	40301 0	46101 0	45013 0	44811 0	43956 0	46845 0
Tom Paine Slough Delta Uplands	General Rice	5596 235	5165 221	5733 317	5278 546	5077 468	5207 383	5221 364	4745 411	5213 0	5387 0
Cosumnes River Michigan Bar to Mouth	General Rice	NOT COVERED PRIOR TO 1949					1791 0	1608 0	1711 0	2110 0	3074 190
Mokelumne River Clements to Delta	General Rice	NOT COVERED PRIOR TO 1949					344 0	331 0	18718 1645	18971 1585	20197 1937
Calaveras River Jenny Lind to Delta	General Rice	NOT COVERED PRIOR TO 1949					3571 0	4420 0	5300 0	6158 80	7664 415
						TOTAL ABOVE DELTA					
Sacramento River System	General Rice	165008 198284	159546 186048	181019 198513	181717 200286	211589 187874	209785 216473	230192 171467	237271 225542	217957 222684	204677 263697
San Joaquin River System	General Rice	57781 1464	56135 849	342518 12991	373013 11616	370130 10784	378519 19344	384654 14910	333739 11923	372356 20650	362204 31179
Delta Uplands and Tributaries	General Rice	58656 235	57239 221	64501 317	68259 546	70929 468	83960 383	83197 364	101894 2056	101160 1665	110439 2542
Grand Totals	General Rice	2814445 199983	272920 187118	588038 211821	622989 215448	652648 199126	672264 236200	698043 186741	672904 239521	691473 244999	677320 297418

(a) Figures for General Crops include acreage flooded for gun clubs.
(b) Figures exclude acreages irrigated from Madera, Friant-Kern and Delta-Mendota Canals.
(c) Figures exclude acreage in Merced, Turlock, Modesto, Waterford, Oakdale and South San Joaquin Irrigation Districts.

TABLE 6

RELATION OF GAGE HEIGHT TO STREAM FLOW - 1953 SEASON

SACRAMENTO-SAN JOAQUIN VALLEY STREAM GAGING STATIONS

STATION	Gage Height, U.S.E.D. elevation, for rated flows of:								
	2000 cfs	3000 cfs	4000 cfs	5000 cfs	6000 cfs	7000 cfs	8000 cfs	9000 cfs	10000 cfs
Sacramento River at Sacramento	Flows under 30000 cfs are affected by tidal action and are rated by slope-velocity methods not applicable to this table.								
at Verona							12.8	13.4	13.9
at Wilkins Slough			25.7	27.1	28.5	29.8	31.0	32.2	33.5
at Colusa				39.8	40.9	41.9	42.9	43.9	44.9
at Butte City				70.5	71.0	71.5	71.9	72.3	72.8
near Red Bluff (a)				254.5	255.0	255.4	255.8	256.1	256.5
	200 cfs	500 cfs	1000 cfs	2000 cfs	3000 cfs	4000 cfs	5000 cfs	6000 cfs	7000 cfs
Feather River near Oroville (a)			186.9	189.2	191.0	192.7	194.3	195.9	197.2
at Nicolaus	20.0	20.6	21.4	22.6	23.6	24.5	25.2	25.9	26.6
American River at Fair Oaks (a)	65.7	66.2	66.9	67.7	68.4	68.9	69.5	70.0	70.4
San Joaquin River near Vernalis		13.9	14.9	16.5	17.7	18.8	19.8	20.8	21.2
at Hetch Hetchy Crossing			20.2	22.2	23.4	24.5	25.5	26.7	
near Grayson	26.5	27.7	29.2	31.6	33.6	35.4			
near Newman	52.8	53.8	55.0	56.8	58.3	59.6	60.8	61.8	62.8
at Fremont Ford	59.8	61.2	63.1	65.6	67.6	69.2			
Merced River at Cressy Bridge (b)	2.0	3.4	5.0	7.3	9.2	10.8	12.3	13.6	14.8
Tuolumne River at Modesto (a)		37.6	39.2	41.8	43.7	45.6	47.2	48.6	49.9
Stanislaus River near Mouth (b)	15.6	16.9	18.3	20.3	21.9	23.2	24.3	25.4	26.3

(a) U.S.G.S. Datum. (b) Assumed Datum.

TABLE 7

INFLOW TO SHASTA RESERVOIR - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	12120	10690	5700	10600	12770	10060	6220	3370	4070	3590	3270	5300
2	11030	10110	6170	10690	11870	9840	6500	2300	4380	3500	4640	4780
3	8600	10070	6690	9830	11450	9440	6130	3920	4080	3720	5160	6140
4	7470	10380	6720	10070	11200	9440	4840	4170	4620	2360	3880	5560
5	8530	11240	7020	10530	11530	9330	4280	4580	4140	4210	5330	4250
6	8880	10590	6790	10300	12180	11820	5000	4710	4470	4010	5040	7340
7	21700	11120	6300	10030	11520	11750	5990	4610	3770	4340	3520	7220
8	37820	11410	5260	9430	10760	11050	6210	3320	3570	4210	2640	5620
9	80770	10490	6770	10220	9880	10780	5970	2380	3910	4200	4220	5690
10	41000	10310	9760	9450	9610	10240	5320	3350	3790	4000	6390	6260
11	30380	9920	9560	8820	9970	10280	3690	5000	3520	3210	5670	5180
12	43350	9810	13200	8230	9390	10330	3100	4410	2040	3700	6830	4980
13	66310	9550	10460	7420	9450	10130	4270	4240	2390	3930	8100	4050
14	46280	8640	8590	8080	9130	10070	5270	4270	2610	4500	14600	5310
15	30700	9140	7360	8140	9570	10760	5150	2330	4070	4420	7300	4850
16	22350	8690	8480	8930	10060	10410	5420	2250	4350	4340	7120	5180
17	25360	8700	8010	8430	9190	10210	5410	3890	3910	3640	6160	5670
18	38650	7770	10730	8020	10040	9670	3880	4210	4740	6300	5070	5490
19	43840	8270	24350	6500	12150	8940	3090	4160	2300	4300	5910	6250
20	55860	8480	20290	7700	10530	9100	4360	4070	2270	3820	4890	7220
21	39850	7360	15910	9200	10930	8000	5270	2870	3660	4680	4800	6820
22	28130	7050	13460	10950	10530	8100	5000	4520	4310	4500	6400	6770
23	23590	6180	13170	11120	12200	7380	4590	4990	4120	4580	14990	6630
24	20170	6500	14200	10210	11930	7510	3980	3220	4500	3260	12340	6290
25	16820	6890	14730	10020	12250	7330	3520	2480	4130	2400	8780	5500
26	16130	6560	14190	(a)12120	11800	7480	2980	4880	4320	4240	7830	5400
27	13690	7420	13240	24070	10870	5170	4330	4590	(b)4620	3840	7440	4360
28	12380	7200	13650	18300	10940	4180	5020	4400	4110	5270	7030	5170
29	11780	—	11170	16000	10630	6160	4810	3290	4570	4490	6630	5840
30	11510	—	11420	14410	10320	6420	4180	2830	4020	4420	6290	5420
31	10620	—	11060	—	10580	—	5250	3710	—	2390	—	5670
Mean	27280	8948	10787	10594	10814	9046	4807	3785	3845	4012	6609	5684
Runoff in Ac.Ft.	1677360	496940	663290	629390	664920	538270	295600	232700	229200	246680	393260	349510
	Water Year Total 6540690								Calendar Year Total 6417120			

These quantities are the daily mean second-feet inflow to Shasta Lake as computed by taking a summation of the change in storage, release, spill, precipitation, and evaporation and are representative of the natural flow passing the dam site if the dam had not been constructed. Drainage area is 6665 square miles. Records for 1953 computed by U. S. Bureau of Reclamation.

(a) 23-hour day.

(b) 25-hour day.

TABLE 8

DAILY CONTENT OF SHASTA RESERVOIR IN ACRE-FEET - 1953

Date	Storage at end of day in thousands of acre-feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3531.0	3252.8	3327.3	3760.8	4135.9	4382.9	4398.0	4111.8	3720.6	3450.8	3320.7	3356.7
2	3533.5	3251.8	3331.9	3774.0	4149.6	4388.4	4393.7	4096.5	3709.1	3444.8	3319.0	3354.7
3	3531.0	3250.9	3337.2	3784.6	4165.1	4393.1	4388.7	4083.9	3696.8	3439.6	3315.9	3354.7
4	3525.9	3249.9	3342.6	3796.6	4175.0	4397.8	4381.5	4071.4	3685.9	3433.4	3311.0	3353.5
5	3523.4	3250.9	3348.6	3811.1	4188.3	4401.8	4373.9	4060.3	3674.9	3429.2	3309.8	3349.9
6	3520.9	3250.9	3354.0	3824.4	4201.8	4411.4	4367.0	4049.3	3664.6	3424.7	3307.4	3353.5
7	3543.6	3252.8	3358.4	3836.1	4211.8	4421.7	4361.2	4038.2	3652.9	3421.0	3302.6	3355.9
8	3597.1	3259.3	3361.1	3846.7	4220.3	4428.7	4356.6	4024.5	3640.8	3417.3	3296.6	3354.7
9	3724.0	3259.3	3366.9	3859.0	4226.0	4434.2	4351.3	4010.7	3629.4	3413.6	3291.7	3354.7
10	3731.9	3257.4	3379.2	3868.4	4231.7	4439.2	4344.7	3997.0	3617.6	3408.7	3294.2	3354.7
11	3710.9	3254.5	3390.0	3877.5	4236.0	4444.2	4334.8	3986.1	3607.3	3403.0	3296.6	3352.3
12	3724.0	3250.9	3408.7	3887.2	4240.2	4448.3	4323.6	3974.6	3594.5	3398.8	3300.2	3350.3
13	3777.5	3244.9	3422.2	3893.9	4244.5	4451.8	4314.9	3962.9	3584.3	3393.9	3306.2	3346.7
14	3760.8	3238.9	3430.9	3901.9	4248.8	4455.1	4307.7	3951.2	3570.3	3391.4	3325.6	3346.0
15	3703.1	3241.3	3438.3	3911.4	4253.1	4459.5	4300.5	3935.7	3561.4	3388.2	3330.4	3343.5
16	3615.0	3244.9	3447.0	3920.8	4258.8	4462.7	4293.3	3920.8	3553.8	3383.1	3335.3	3341.8
17	3564.9	3253.3	3454.5	3928.9	4263.1	4463.6	4285.2	3907.3	3544.9	3376.7	3340.1	3341.6
18	3595.5	3260.5	3467.4	3936.3	4268.8	4462.1	4273.4	3895.2	3537.3	3378.7	3338.9	3340.1
19	3606.3	3270.1	3509.3	3942.5	4278.9	4459.5	4260.0	3883.1	3525.9	3374.3	3340.1	3340.9
20	3627.9	3279.7	3539.8	3951.2	4286.1	4457.4	4249.1	3870.8	3514.1	3371.8	3338.9	3343.5
21	3597.1	3284.5	3565.2	3960.7	4293.5	4453.0	4240.3	3856.4	3505.8	3369.9	3338.4	3345.5
22	3533.5	3290.5	3584.3	3972.4	4300.5	4448.6	4230.8	3844.9	3497.5	3365.5	3341.6	3349.9
23	3460.7	3295.1	3604.8	3983.3	4310.8	4442.7	4220.3	3834.5	3490.7	3362.0	3360.3	3352.3
24	3381.6	3302.4	3626.3	3993.2	4320.7	4436.9	4208.9	3820.7	3485.7	3357.2	3369.4	3354.7
25	3313.4	3305.7	3647.2	4002.5	4332.2	4431.0	4194.8	3805.8	3480.7	3351.1	3369.9	3355.9
26	3274.9	3311.0	3666.6	4016.2	4340.9	4427.2	4180.9	3794.7	3473.7	3346.2	3370.6	3356.4
27	3253.3	3317.6	3683.5	4056.2	4348.7	4420.8	4169.3	3783.8	3470.7	3341.3	3368.4	3356.4
28	3243.7	3323.6	3703.1	4081.4	4356.3	4412.0	4159.8	3772.7	3465.7	3340.1	3366.0	3357.2
29	3241.3	—	3718.8	4103.1	4363.2	4407.1	4148.2	3759.5	3460.7	3337.7	3363.3	3358.4
30	3242.5	—	3734.5	4121.6	4369.9	4402.7	4135.6	3745.5	3455.7	3332.8	3360.1	3358.4
31	3246.1	—	3747.7	—	4377.1	—	4125.8	3732.4	—	3325.6	—	3359.6
Monthly Change	-277.3	+77.5	+424.1	+373.9	+255.5	+25.6	-276.9	-393.4	-276.7	-130.1	+34.5	-0.5

Annual Gain or Loss in Storage: Calendar Year -163800; Water Year +24300 Acre-Feet.
Differences in Storage 1952 to 1953: Maximum -41000; Minimum -55300 Acre-Feet.

Reservoir water level recorder maintained by U. S. Bureau of Reclamation.

TABLE 9

FLOW OF SACRAMENTO RIVER AT KESWICK - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	9410	8160	3910	3950	5320	6940	8350	9980	10000	6010	5990	7720
2	10900	10800	3940	3950	4940	6940	8370	9960	10100	5950	5990	6160
3	10300	10800	3940	4000	4930	6940	8320	9980	10100	6000	5980	6110
4	10300	10700	3920	4000	5080	6920	8320	10000	10000	6000	6000	6200
5	10300	10600	3940	4020	5080	6920	7580	9980	9560	5960	6000	6200
6	10300	10600	3920	4090	5020	6970	8340	9980	9570	5990	6120	6180
7	11500	10600	3910	4080	5900	6890	8350	9980	9570	5980	6120	6200
8	11400	8170	3940	4090	6400	7360	8350	9990	9570	6000	6120	6200
9	18500	10600	3960	4100	6890	7620	8320	9150	9590	5950	6130	6140
10	37400	10900	4000	4100	6920	7620	8350	9990	9440	5940	5410	6140
11	42700	11500	3970	4070	6920	7650	8350	10000	8450	5990	5270	6170
12	38700	12100	3990	4070	6920	8090	8350	10000	8490	6020	5120	6120
13	41600	12000	3970	4050	6920	8300	8340	10000	8490	6000	5110	6120
14	55900	11500	3970	4050	6930	8300	8380	10000	8480	5960	5140	6100
15	61700	8150	4000	4070	6940	8350	8370	9980	8420	5990	5140	6080
16	69100	7660	4010	4060	6920	8310	8870	10000	8450	6170	5120	6110
17	53400	4010	3990	4060	6800	9280	9250	9980	7960	7140	5140	6110
18	24900	3990	4060	4050	6920	10000	9400	9990	7970	5940	5130	6120
19	38900	3990	7190	4050	6890	10000	9410	10000	7960	5990	5140	6140
20	46200	4000	4240	4050	6940	10000	9480	10000	7970	5210	5180	6120
21	56300	3990	4150	4060	6920	9990	9480	10000	8000	6000	5160	6100
22	61200	3990	4060	4520	5930	10000	9460	10000	7930	5990	5150	5100
23	61200	4010	4030	5010	6890	10000	9440	9960	7450	6020	6190	5090
24	60900	4010	4010	5050	6900	10000	9890	10000	7140	6000	8240	5100
25	51200	3990	3990	5020	6900	10000	9910	10100	7140	5980	8220	5100
26	35600	4010	3990	5070	6900	9040	9900	9990	7140	6000	8220	5080
27	24900	4010	3980	5150	6880	8370	9980	10100	6560	6000	8230	5110
28	17900	3940	3980	5090	6900	8380	10100	10100	6500	6000	8170	5120
29	13000		3940	5080	6890	8380	9920	10000	6500	6000	8200	5080
30	10800	—	3940	5080	6890	8350	9920	9990	6240	6000	8190	5090
31	9210	—	3950	—	6890	—	9940	9990	—	5960	—	5100
Mean	32870	7599	4090	4336	6502	8397	8993	9973	8358	6005	6177	5855
Runoff in Ac.Ft.	2021000	422000	251500	258000	399800	499700	553000	613200	497300	369200	367600	360000
	Water Year Total 6589400								Calendar Year Total 6612300			

U. S. Geological Survey and Division of Water Resources cooperative station located at Mile 250.5 above Sacramento. These flows include releases from Shasta Reservoir. Drainage area is 6,710 square miles. Period of record 1938 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 10

FLOW OF SACRAMENTO RIVER NEAR RED BLUFF (IRON CANYON) - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	20800	12800	5910	6600	9840	9920	9580	10500	10600	6470	6540	9180
2	21800	13500	5820	6400	9690	9550	9490	10500	10600	6400	6570	7190
3	17600	14900	5800	6240	8730	9490	9490	10500	10600	6340	6600	7210
4	16200	14800	5750	6220	8460	9290	9460	10500	10500	6320	6640	8100
5	15200	14900	5700	6220	8050	9210	8870	10500	10300	6300	6670	7560
6	17200	14800	5660	6270	8020	9720	9260	10500	10000	6270	6850	7510
7	29300	14700	5660	6240	8480	11600	9350	10500	10000	6270	6980	10100
8	27200	14000	5640	6220	9580	11000	9370	10500	10000	6270	6820	8050
9	41100	13300	5680	6240	9860	11400	9290	9920	9980	6320	6930	7620
10	54400	14500	5800	6640	9600	11200	9290	10200	10000	6370	6470	7380
11	55900	14500	6950	6400	9430	10800	9290	10400	9260	6470	6170	7290
12	60900	15000	6640	6120	9210	10700	9290	10400	8980	6400	6170	7240
13	67100	14900	7560	6000	9150	11300	9260	10500	9010	6420	6200	7060
14	72200	14800	6520	5980	9210	11000	9150	10400	8980	6520	7780	7080
15	75100	12300	6270	5910	9290	10900	9210	10400	8900	6600	8160	6950
16	78900	10900	6200	5860	9260	10700	9230	10500	8930	6570	6850	7010
17	85700	8290	6270	6340	9290	10600	9600	10400	8650	7860	6720	6950
18	68800	6720	6080	6170	9230	12000	10200	10400	8370	6770	6300	6930
19	62700	6540	12400	6030	11000	12000	10100	10400	8400	6950	6220	7240
20	78400	6370	17200	6080	12200	11900	10100	10400	8460	6600	6270	7730
21	83000	6300	12300	6000	11000	11800	10100	10500	8480	6080	6150	7590
22	79800	6150	9520	5980	10400	11700	10000	10500	8460	6600	6540	6700
23	77200	6030	8480	7140	10500	11600	10100	10400	8100	6540	8210	6220
24	74900	6030	8240	7380	10800	11500	10500	10400	7700	6570	13400	6170
25	70600	5980	8370	7270	11400	11400	10400	10400	7480	6600	10900	6000
26	52000	5960	8180	7640	11100	11300	10500	10400	7480	6540	9950	6030
27	38200	5910	7830	15100	10600	9810	10500	10400	6820	6470	9630	5980
28	27400	5910	7540	17400	10200	9810	10500	10500	6930	6420	9430	5980
29	20600		7320	11900	9950	9720	10500	10600	6950	6440	9290	5860
30	16500	—	7080	10800	10000	9630	10500	10700	6880	6440	9210	5930
31	15600	—	6900	—	10000	—	10500	10700	—	6470	—	5910
Mean	49040	10740	7460	7360	9791	10750	9774	10450	8860	6505	7554	7089
Runoff in Ac.Ft.	3015000	596600	458700	437900	602000	639800	601000	642300	527200	400000	449500	435900
	Water Year Total 9240400								Calendar Year Total 8805900			

U. S. Geological Survey station located near the Iron Canyon dam site at Mile 198.6 above Sacramento. Drainage area is 9,300 square miles. Period of record 1902 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 11

FLOW OF SACRAMENTO RIVER AT VINA BRIDGE - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	24500	15600	7180	8550	14200	11200	10200	10900	11100	7250	7160	9690
2	27900	14900	7060	8370	12900	11000	10100	10900	11100	6960	7250	8900
3	22000	17000	6960	8240	11600	10800	10000	10900	11000	6960	7280	7980
4	19100	16800	6890	8220	11000	10600	9980	10900	11000	6990	7280	8420
5	17500	17000	6820	8350	10700	10500	9980	10900	10900	7060	7420	8820
6	21200	17100	6770	8480	10600	10800	9230	10900	10500	7010	7470	8320
7	35800	17200	6770	8350	10600	12900	9780	10900	10500	7040	7590	10200
8	42000	17500	6800	8220	11700	13200	9690	10800	10400	7060	7520	9360
9	64600	14600	6920	8030	11700	12900	9630	10800	10300	7080	7490	8550
10	70900	16400	7080	8320	11500	12700	9610	10000	10300	7200	7670	8240
11	67200	16300	7960	8160	11200	12300	9520	10700	10100	7200	7040	8030
12	73500	16800	7900	7850	10900	12000	9550	10800	9420	7300	7130	7930
13	88800	16700	8880	7640	10800	12300	9520	10800	9360	7300	7250	7800
14	84000	16400	8090	7540	10700	12100	9470	10800	9340	7370	9070	7640
15	83500	14900	7670	7470	11000	12000	9420	10800	9340	7400	10400	7800
16	81500	12300	7570	7490	11000	11800	9420	10800	9310	7440	8160	7770
17	87800	11000	7620	7980	11000	11600	9800	10800	9230	7900	8090	7670
18	88400	8290	7540	8030	10900	12800	10200	10800	8820	8190	7540	7640
19	71000	7980	9830	7850	11400	13200	10400	10800	8800	7770	7350	7770
20	90100	7770	22800	7880	16300	13100	10400	10800	8770	7640	7520	8450
21	92100	7540	15100	8010	13300	12800	10400	10800	8820	6840	7350	8530
22	85600	7520	12500	8240	12800	12700	10300	10800	8770	7440	7300	8110
23	83600	7350	10800	9170	12300	12500	10300	10800	8660	7400	8480	7080
24	80000	7280	10500	9780	12700	12300	10400	10800	8290	7420	13900	6870
25	77400	7280	10600	9610	12900	12200	10800	10800	7900	7350	13100	6750
26	61800	7200	10500	9780	13400	12100	10800	10900	7880	7370	11300	6650
27	46000	7130	10100	16000	12400	10900	10800	10900	7590	7280	10600	6580
28	33700	7160	9750	25400	11900	10500	10800	10900	7400	7250	10200	6530
29	25900		9470	17700	11600	10500	11000	11000	7370	7160	10100	6490
30	22100	—	9090	15600	11400	10300	10800	11100	7370	7130	9750	6400
31	19200	—	8850	—	11300	—	10800	11100	—	7060	—	6420
Mean	57700	12540	9109	9677	11860	11890	10100	10830	9321	7284	8525	7851
Runoff in Ac.Ft.	3548000	696200	560100	575800	729300	707300	621000	665800	554700	447900	507300	482800
	Water Year Total 10654200								Calendar Year Total 10096200			

Division of Water Resources and U. S. Bureau of Reclamation cooperative station located at Mile 166.5 above Sacramento. Period of record 1945 to date. Records for 1953 computed by Division of Water Resources.

TABLE 12

FLOW OF SACRAMENTO RIVER AT HAMILTON CITY (GIANELLA BRIDGE) - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	25200	17300	7710	8360	13300	9830	8000	8330	8870	7180	6170	9530
2	27800	15800	7610	8000	11800	9300	7850	8380	8810	6050	6270	9120
3	23000	17400	7530	7790	10600	9180	7820	8410	8750	5930	6290	7980
4	19800	17200	7450	7710	9830	9010	7820	8360	8700	5950	6420	8080
5	18300	17300	7320	7740	9380	8840	7820	8410	8610	5950	6500	8870
6	20600	17300	7260	7610	9100	9120	7080	8380	8300	6020	6570	8330
7	33400	17300	7260	7550	8930	10700	7550	8380	8270	5950	6670	9560
8	42700	17600	7290	7240	9800	11500	7500	8380	8220	5930	6670	9590
9	57200	15200	7340	6930	9560	11200	7450	8410	8160	5880	6600	8670
10	66400	16500	7580	7080	9620	11200	7400	7820	8220	5950	7080	8300
11	63500	16200	8220	6980	9300	10700	7340	8270	8140	6050	6700	8190
12	65600	16700	8360	6650	9010	10300	7260	8240	7550	6090	6750	8060
13	82400	16800	9180	6320	8780	10400	7290	8300	7630	6090	6500	7950
14	78600	16600	8670	6020	8700	10200	7240	8360	7710	6190	8030	7930
15	78600	15800	8240	5780	8780	10100	7160	8360	7790	6340	9770	7900
16	76900	13000	8110	5730	8980	9920	7130	8330	7850	6390	7870	7870
17	79900	12200	7850	6070	9120	9620	7500	8440	7950	6620	7580	7870
18	85000	9270	7770	6440	8980	10300	7770	8410	7710	7530	7210	7870
19	70600	8750	8930	6190	9240	11000	7980	8440	7660	7260	6930	7930
20	79600	8410	23000	6120	13000	10800	7950	8440	7610	6930	7080	8470
21	83300	8270	15800	6120	11400	10600	7930	8410	7710	6000	6900	8750
22	81800	8080	13500	6340	11200	10400	7900	8440	7770	6500	6900	8530
23	79000	7900	11700	6880	10600	10200	7930	8440	7660	6420	7820	7400
24	75700	7930	11000	7690	11000	10100	7870	8410	7320	6420	11600	7210
25	73800	7790	10700	7530	11000	9980	8190	8440	7010	6390	12400	7110
26	62800	7630	10700	7710	11800	9890	8160	8440	6980	6340	10800	7010
27	48100	7630	10300	11600	11000	9040	8380	8470	6930	6240	10200	6930
28	35200	7630	9890	27100	10600	8360	8380	8530	6570	6140	9890	6900
29	27600		9620	17200	10200	8220	8300	8700	6520	6090	9680	6880
30	21700	—	9120	14800	10100	8080	8240	8780	6500	6120	9560	6800
31	19400	—	8610	—	10000	—	8220	8900	—	6090	—	6800
Mean	54950	13050	9472	8376	10150	9936	7755	8413	7783	6291	7847	8013
Runoff in Ac.Ft.	3379000	724900	582460	498400	624200	591300	476800	517300	463100	386800	466900	492700
	Water Year Total 9856200								Calendar Year Total 9203800			

Division of Water Resources and U. S. Bureau of Reclamation cooperative station located at Mile 149.5 above Sacramento. Period of record 1945 to date. Records for 1953 computed by Division of Water Resources.

TABLE 13

FLOW OF SACRAMENTO RIVER AT ORD FERRY - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	43700	22900	8480	8310	14800	10400	*8160	8330	8980	6420	6270	9970
2	31400	19600	8330	8030	12900	9780	*8060	8410	8860	6020	6340	9780
3	27700	20800	8110	7670	11700	9620	*7980	8410	8830	6000	6400	8260
4	23400	20600	7960	7620	10500	9520	*7900	8380	8780	6000	6550	8260
5	21200	20400	7810	7650	10100	9300	*7960	8430	8760	6020	6570	9060
6	23100	20400	7670	7510	9680	9430	*7280	8410	8380	6020	6700	8530
7	35900	20700	7550	7440	9460	10700	7460	8410	8310	5980	6880	9190
8	55600	20600	7510	7230	10200	12200	7530	8410	8330	5980	6950	10300
9	68400	18400	7480	6760	10100	11800	7510	8430	8310	5940	6880	9040
10	91600	19100	7670	6830	10200	11800	7390	7880	8310	5980	7140	8510
11	83300	19000	8230	6860	9970	11300	7370	8230	8310	6020	6930	8330
12	79800	18800	8830	6480	9780	10800	7340	8280	7690	6150	6970	8210
13	102000	19100	9490	6190	9330	10800	7370	8310	7690	6170	6860	7980
14	102000	18700	9160	5830	9270	10900	7320	8410	7690	6230	7900	7900
15	97600	18300	8560	5500	9240	10600	7200	8410	7740	6340	10400	7780
16	94000	15300	8260	5540	9520	10400	7180	8360	7780	6400	8660	7690
17	93100	14500	7860	5680	9600	10100	7390	8430	7880	6480	7930	7650
18	102000	11400	7670	6170	9520	10400	7600	8430	7740	7650	7690	7670
19	93700	10300	9160	6020	9620	11300	8010	8430	7620	7250	7250	7720
20	91100	9890	23400	5910	12800	11200	8030	8430	7670	7160	7280	8130
21	104000	9650	18500	5980	12400	11200	8010	8430	7670	6250	7230	8660
22	104000	9430	15300	6120	12000	10900	7900	8460	7810	6460	7140	8380
23	97200	9160	12500	6550	11200	10800	7900	8480	7780	6500	7760	7320
24	91700	8930	11500	7620	11400	10500	7830	8480	7530	6480	11100	7160
25	87500	8730	11000	7460	11600	10300	8210	8460	7140	6550	13700	7040
26	78000	8680	10900	7620	12400	10200	8330	8380	7070	6480	11700	6930
27	58000	8480	10400	10800	11800	9700	8330	8430	7000	6420	*10900	6880
28	44500	8460	9950	28700	11400	8710	8360	8480	6460	6320	*10600	6790
29	35300		9680	20000	10800	8560	8210	8630	6480	6270	*10300	6760
30	28500	—	9140	16500	10600	*8280	8260	8810	6440	6250	*10100	6650
31	24800	—	8610	—	10600	—	8260	8880	—	6250	—	6630
Mean	68200	15370	9893	8419	10790	10380	7795	8424	7835	6337	8169	8037
Runoff in Ac.Ft.	4193000	853500	608300	501000	663400	617800	479300	518000	466200	389600	486100	494200
	Water Year Total 11090700								Calendar Year Total 10270400			

Division of Water Resources station located at Mile 130.8R above Sacramento. Records of flows in excess of 40,000 second-feet were computed by extending the rating curve. Period of record 1948 to date.

* Estimated

TABLE 14

FLOW OF SACRAMENTO RIVER AT BUTTE CITY - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	36000	20500	8310	8800	14300	10400	8330	7760	8490	6310	6540	9690
2	30600	18200	8240	8530	12700	9920	8270	7890	8400	5930	6620	9490
3	28900	18500	8070	8160	11500	9720	8160	7940	8350	5950	6640	8180
4	23700	18800	7960	7960	10500	9530	8070	7940	8290	5930	6640	7980
5	21100	18700	7850	7910	10100	9420	8130	7980	8270	5950	6690	8730
6	21000	18700	7720	7760	9510	9350	7720	7940	8070	5970	6790	8440
7	29700	18800	7670	7610	9230	10200	7690	7980	7870	5930	6880	8550
8	51500	18800	7630	7470	9300	11600	7740	7960	7850	5910	6990	9990
9	58000	17700	7580	7080	9760	11400	7720	7980	7830	5870	6840	8960
10	84300	17500	7690	6990	10000	11500	7580	7850	7740	5930	7060	8420
11	89900	17800	7980	7030	9740	11200	7500	7610	7830	6040	7140	8200
12	82700	17600	8800	6730	9390	10700	7410	7890	7390	6140	7210	8070
13	93600	18000	9050	6410	9350	10600	7410	7870	7320	6180	7010	7960
14	104000	17700	9300	6060	9190	10800	7250	7980	7300	6290	7470	7760
15	101000	17600	8550	5760	9070	10500	7170	7980	7340	6390	9760	7890
16	98800	15400	8310	5570	9370	10400	7060	7960	7410	6500	8840	7960
17	95500	14400	8020	5660	9420	10100	7080	8000	7470	6540	7980	7940
18	98800	12200	7870	6040	9490	10000	7280	8020	7450	7410	7720	7940
19	98700	10700	8380	5970	9440	10900	7650	8020	7360	7230	7280	7890
20	88600	10200	17500	5780	11400	11000	7540	8020	7390	7300	7230	8130
21	99100	9850	18900	5760	12400	10900	7500	8110	7390	6660	7190	8640
22	101000	9530	15600	5910	11600	10700	7470	8090	7450	6390	7030	8550
23	95600	9190	13100	6380	11000	10500	7430	8090	7470	6620	7280	7870
24	90300	8930	11900	7080	10800	10400	7430	8090	7320	6710	9420	7410
25	84600	8820	11400	7170	11200	10200	7740	8070	7060	6750	12900	7280
26	78200	8660	11200	7280	11800	10100	7870	8000	6920	6810	11300	7190
27	43900	8460	10900	8530	11600	9990	7890	8070	6840	6750	10400	7100
28	42800	8350	10500	21900	11100	8860	7940	8050	6480	6690	10000	7030
29	33400		10100	20600	10900	8620	7830	8200	6390	6640	9810	6970
30	27600	—	9740	15800	10500	8460	7870	8420	6350	6560	9670	6900
31	22800	—	9140	—	10600	—	7780	8440	—	6620	—	6880
Mean	66310	14630	9837	8190	10520	10270	7662	8006	7503	6416	8011	8064
Runoff in Ac.Ft.	4077000	812400	604900	487300	647100	610800	471100	492300	446500	394500	476700	495800
	Water Year Total 10766600								Calendar Year Total 10016400			

Station is maintained jointly by the Division of Water Resources and the U. S. Geological Survey. Station is at Butte City Bridge at Mile 115.8 above Sacramento. Period of record 1921 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 15

FLOW OF SACRAMENTO RIVER AT COLUSA - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	33200	22800	8720	8620	15100	9720	7370	7620	8190	6480	6710	9980
2	29800	20800	8700	8340	13300	9410	7310	7700	8270	6390	6750	9860
3	29100	19400	8520	8030	11900	9050	7200	7790	8240	6090	6830	9100
4	25700	19800	8350	7760	10500	8920	7110	7800	8240	6040	6900	8420
5	22300	19600	8210	7620	9720	8770	7110	7770	8190	6020	6950	8680
6	21200	19400	8090	7540	9160	8680	7060	7780	8180	6050	7000	8900
7	24500	19300	7970	7300	8780	8910	6610	7790	7930	6030	7100	8580
8	32500	19200	7910	7190	8630	10100	6780	7780	7830	6000	7200	9780
9	34200	19100	7860	6910	9150	10700	6810	7770	7830	5970	7190	9790
10	36700	17600	7820	6640	9100	10600	6770	7790	7750	5970	7160	8960
11	38300	17700	7910	6640	9080	10600	6780	7370	7750	6010	7490	8750
12	38100	17600	8430	6560	8800	10200	6740	7560	7750	6100	7270	8390
13	38400	17600	8740	6270	8470	9860	6720	7630	7430	6200	7260	8330
14	39100	17600	9240	5950	8190	9680	6700	7650	7390	6230	7310	8200
15	38700	17300	8870	5670	8100	9780	6690	7700	7430	6350	8680	8040
16	37800	16500	8460	5400	8100	9640	6630	7710	7500	6390	9670	7920
17	37600	14600	8230	5310	8190	9520	6620	7710	7610	6470	8470	7890
18	37800	13500	7980	5430	8270	9190	6880	7720	7760	6680	8260	7880
19	38500	11400	7910	5620	8210	9440	7200	7720	7660	7280	7910	7840
20	37800	10700	11300	5440	8680	9820	7390	7660	7600	7240	7670	7930
21	38600	10300	18700	5390	11300	9840	7410	7650	7590	7040	7670	8400
22	39700	10000	16700	5440	10800	9770	7430	7650	7580	6390	7550	8530
23	39700	9790	14300	5530	10500	9550	7380	7660	7660	6540	7520	8260
24	39300	9460	12300	5990	10000	9390	7340	7690	7660	6630	8400	7520
25	38700	9290	11300	6590	10200	9170	7340	7690	7430	6710	11700	7330
26	38400	9130	10900	6570	10500	9030	7640	7650	7180	6780	12200	7230
27	37000	8960	10700	6870	10900	8940	7700	7620	7070	6810	11100	7200
28	34300	8830	10300	12000	10500	8350	7710	7660	6970	6800	10600	7050
29	31400		9890	20300	10200	7770	7690	7700	6670	6790	10300	7040
30	28700	—	9510	17400	9860	7540	7660	7910	6560	6720	10100	7040
31	25100	—	9040	—	9710	—	7640	8040	—	6700	—	7070
Mean	34260	15260	9770	7544	9803	9405	7143	7708	7630	6448	8231	8255
Runoff in Ac.Ft.	2107000	847500	600700	448900	602800	559600	439200	473900	454000	396500	489800	507600
	Water Year Total 8463000								Calendar Year Total 7927500			

Station is maintained jointly by the Division of Water Resources and the U. S. Geological Survey. Station is at the Colusa Bridge, Mile 89.4 above Sacramento. Period of record 1921 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 16

FLOW OF SACRAMENTO RIVER BELOW WILKINS SLOUGH - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	22700	21300	9010	9580	15000	10000	6190	6100	7510	6820	6580	10200
2	22300	20500	8990	9260	13000	9940	6280	6240	7640	6750	6470	10100
3	22200	19600	8860	8850	11000	9740	6230	6280	7630	6370	6550	9830
4	21800	19400	8660	8410	10000	9580	6140	6290	7650	6190	6640	9080
5	21100	19300	8510	8260	9000	9380	6160	6290	7570	6120	6710	8880
6	20400	19100	8370	8290	9000	9260	6180	6450	7530	6060	6860	9280
7	20800	19000	8230	8180	8800	9300	5690	6550	7240	5960	6940	9110
8	22200	19000	8140	8050	8900	10200	5720	6650	7040	5950	7050	9420
9	22800	19000	8060	7800	9060	11000	5770	6670	7020	6010	7070	9990
10	23300	18000	8010	7420	9130	10900	5720	6670	7020	5960	7030	9510
11	24000	17800	8060	7250	9040	10900	5590	6260	7020	5900	7220	9190
12	24100	17800	8490	7180	8670	10500	5560	6280	7060	5920	7180	8960
13	24000	17800	8960	6700	8260	10100	5480	6460	6820	6000	7100	8900
14	24400	17800	9420	6060	7990	9960	5410	6550	6740	6080	7220	8750
15	24600	17700	9370	5520	7940	9830	5340	6680	6790	6360	7930	8660
16	24500	17200	8940	5000	8010	9430	5260	6720	7050	6500	9420	8570
17	24400	15600	8670	4760	8140	9080	5180	6680	7420	6620	8970	8530
18	24400	14300	8380	4900	8260	8700	5300	6680	7760	6740	8300	8490
19	24500	12400	8260	5220	8260	8660	5570	6720	7890	7480	8170	8390
20	24400	11300	9550	4930	8610	9090	5820	6790	7910	7500	7950	8370
21	24400	10700	16600	4600	11200	9140	5760	6860	7980	7330	7840	8580
22	24600	10300	17400	4520	11200	8990	5760	6860	8040	6680	7700	8840
23	24600	10000	15500	4550	11000	8660	5800	6860	8180	6540	7510	8710
24	24500	9730	13500	4940	10700	8430	5770	6820	8270	6660	7980	8210
25	24300	9540	12300	5720	10600	8240	5750	6740	8140	6700	10200	7710
26	24200	9390	11700	5840	10700	8060	6060	6640	7910	6820	12100	7560
27	23900	9230	11500	6200	11000	7900	6160	6680	7700	6840	11500	7470
28	23400	9080	11200	9680	10800	7500	6180	6770	7570	6740	10900	7380
29	22800		10900	21000	10500	6670	6120	6860	7140	6680	10600	7290
30	22400	—	10500	17000	10200	6310	6090	7120	6930	6610	10300	7220
31	21900	—	10100	—	10000	—	6110	7340	—	6570	—	7160
Mean	23350	15420	10130	7522	9805	9182	5810	6631	7472	6499	8133	8656
Runoff in Ac.Ft.	1436000	856600	623100	447600	602900	546300	357300	407700	444600	399600	483900	532200
	Water Year Total 7459300								Calendar Year Total 7137800			

Station is maintained jointly by the Division of Water Resources and the U. S. Geological Survey. Station is located at Mile 62.9 above Sacramento, 0.3 of a mile below Wilkins Slough pumping plant of Reclamation District 108, and 1.3 miles below Tisdale Weir. Period of record 1931 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 17

FLOW OF SACRAMENTO RIVER AT KNIGHTS LANDING - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	23700	21600	9850	10500	15500	11500	6410	6760	9170	8040	7060	10600
2	23400	21000	9830	10100	13600	11000	6190	6920	9610	7950	7100	10400
3	23300	20900	9770	9710	12100	11100	6240	7000	9620	7610	7100	10200
4	23100	21800	9660	9200	11200	10800	6090	7120	9560	7310	7180	9380
5	22900	20700	9370	8800	9950	10500	6120	7230	9440	7200	7210	8730
6	22600	19600	9160	8580	9430	9990	6210	7520	9560	7020	7400	9100
7	22000	19400	9020	8470	9200	9560	5980	7670	9360	6960	7490	9200
8	22000	19900	8820	8380	9220	10000	5700	7860	8910	6880	7600	9140
9	22600	20900	8680	8420	9410	11000	5810	7870	8920	6870	7710	9980
10	22000	20000	8710	8040	9770	11200	5920	7720	8940	6760	7710	9730
11	23800	18100	8620	7510	9990	11300	5800	7380	8990	6750	7790	9270
12	24300	18900	8860	7580	9760	11100	5850	6970	9280	6750	7930	8980
13	24000	19300	9410	7400	9010	10500	5840	7210	9350	6730	7760	8880
14	23900	19300	9650	6760	8540	10100	5830	7210	9230	6760	7850	8840
15	24700	19300	9980	5940	8620	10200	5780	7370	9290	7120	8170	8690
16	24800	18700	9790	5350	9320	9740	5770	7470	9640	7320	10100	8620
17	24800	16900	9450	4810	9250	9160	5820	7270	10200	7490	10300	8520
18	24700	15000	9030	4570	9500	8570	5820	7280	10600	7490	9480	8510
19	24500	13300	8980	5000	9210	8210	6130	7260	10900	8010	9010	8510
20	24300	12100	10000	5080	8890	8440	6430	7340	10800	8200	8610	8470
21	24000	11200	15900	4640	10300	8780	6460	7460	10800	8140	8410	8740
22	24800	10600	18300	4180	11100	8900	6370	7470	10800	7630	8370	8920
23	25000	10000	16300	4410	11500	8630	6390	7510	10700	7010	8150	9000
24	24700	9610	14000	4360	11500	8390	6330	7550	10500	6910	8130	8660
25	24900	10300	12700	5020	11500	8180	6340	7450	10200	6920	9460	8190
26	24400	10500	12200	5380	11700	8050	6620	7400	9660	7180	12000	8060
27	24400	10300	12200	5620	12100	7880	6750	7390	9180	7700	12100	7890
28	23800	10100	11900	6140	12200	7740	6800	7560	9030	7400	11600	7820
29	23100		11700	15000	12000	7020	6830	7680	8510	7220	11100	7720
30	22600	—	11400	17800	11700	6550	6740	8170	8140	7120	10800	7610
31	22200	—	11000	—	11500	—	6780	8760	—	7040	—	7550
Mean	23720	16400	10780	7425	10600	9470	6198	7446	9630	7274	8689	8836
Runoff in Ac.Ft.	1458000	911000	663000	441800	651700	563500	381100	457800	573000	447300	517100	543300
	Water Year Total 8111100								Calendar Year Total 7608600			

Station is maintained jointly by the Division of Water Resources and the U. S. Geological Survey. It is located at the Knights Landing Railroad Bridge, Mile 34.0 above Sacramento, below the point of discharge to the river of Colusa Basin drainage via the Back Borrow Pit of Reclamation Districts 108 and 787. Period of record 1921 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 18

FLOW OF SACRAMENTO RIVER AT VERONA - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	46900	53600	16800	23600	51500	26200	12600	7700	11100	11900	9890	15400
2	47700	50800	17000	23100	47700	26000	12300	7850	11500	11500	10000	15000
3	47500	46600	16600	22700	42100	25300	12100	7980	11700	11000	9930	15000
4	46400	42600	16100	22400	36900	24900	11700	8020	11700	10700	9950	14600
5	43800	39700	15700	22300	32900	24700	11500	8180	11400	10500	10200	15300
6	40200	37700	15400	23000	30700	24600	11000	8410	11700	10500	10300	14500
7	39000	36400	15400	23600	29400	26100	10200	8650	11400	10300	10400	14200
8	43800	35800	15400	23100	28500	29000	9550	8750	10700	10100	10800	14300
9	50800	35400	15400	21900	27100	29500	9430	8840	11200	9930	10700	15300
10	62200	34300	15600	20500	25800	29000	9550	8940	10800	9800	10600	15200
11	65400	32600	16800	19700	24000	27500	8860	8770	11000	9910	10700	14800
12	64100	31800	18000	19000	22500	26000	8430	8500	11200	9950	11500	14200
13	64100	30600	18900	18100	21500	25500	8330	8650	11600	10000	11600	13800
14	65600	29900	19500	17000	21100	25600	8280	8700	11200	10300	12300	13100
15	66000	29600	18700	15500	21000	25200	8070	8690	11600	10500	14300	12700
16	64700	28800	17700	14500	21200	24200	7700	8770	12200	10600	16300	12800
17	63500	27100	17300	14500	22300	24200	7560	8700	12800	10700	16000	12400
18	63100	25100	17100	14800	22600	24400	7400	8550	13600	10800	14700	12300
19	64100	23500	16800	14700	23500	24900	7510	8640	14100	11200	14000	12200
20	64900	22000	24200	14500	26000	25700	7860	8720	14600	12000	14100	12000
21	65900	20200	31700	14600	30000	25200	7940	8790	14400	11600	13700	11800
22	65700	19100	34200	15800	30900	23100	7940	8860	14400	11000	13400	12700
23	64700	18600	32200	17900	29900	21100	7930	8980	14600	10300	13200	13100
24	63800	18300	29300	20400	29000	19400	7800	9080	14600	10000	14100	12600
25	63000	17700	27400	21800	28200	17900	7560	9040	14400	9950	16800	11900
26	62000	17200	26500	22300	28000	16900	7610	9030	14000	10100	18600	11300
27	61400	16900	26400	23400	27000	16500	7800	9040	13800	10500	18000	10800
28	60500	16700	26100	37400	26300	15500	7850	9200	13000	10400	17000	11000
29	59300		25800	48600	26500	14100	7830	9370	12700	10100	16600	10600
30	57800	—	25200	53000	26200	12800	7720	9970	12300	9910	15800	10700
31	56000	—	24400	—	25000	—	7770	10600	—	9800	—	10800
Mean	57870	29950	21080	22120	28560	23370	8893	8773	12510	10510	13180	13110
Runoff in Ac.Ft.	3558000	1663000	1296000	1316000	1756000	1390000	546800	539400	744400	646300	784400	806100
	Water Year Total 15763600								Calendar Year Total 15046400			

Station is maintained jointly by the Division of Water Resources and the U. S. Geological Survey. It is located at Mile 19.6 above Sacramento at the mouth of "Natomas Cross Canal", main drain between Reclamation Districts 1000 and 1001, and below the mouth of the Feather River. Flows are measured below the mouth of Cross Canal. Drainage area is 21400 square miles. Period of record 1926 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 19

FLOW OF SACRAMENTO RIVER AT SACRAMENTO - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	47400	58000	20300	29400	58600	31400	16800	8080	10800	12000	10100	16400
2	48400	54800	20400	29000	54500	32300	16200	8130	11300	11200	10200	15800
3	48200	50500	19700	28800	49000	31900	15700	8070	11600	10800	10200	16100
4	47100	45800	19000	29100	43600	31500	15200	8070	11800	10500	10400	16200
5	44700	42200	18500	29300	39900	31800	14800	8440	11600	10200	10700	17500
6	41300	39900	18300	30300	38000	30300	13800	8670	11600	10100	10600	16500
7	40600	38500	18300	30500	36700	34400	13100	8840	11300	10100	10600	15700
8	45600	37700	18300	29600	35100	38800	12300	8710	10700	10100	11100	15800
9	53500	37300	18900	27700	33000	38300	12000	8830	10800	9960	11100	16700
10	72800	36500	19400	25900	33000	37300	11800	9150	10600	9860	11200	16500
11	73100	35000	20500	24500	30900	35000	11100	9140	10500	9670	11200	16100
12	70600	35100	22300	23400	29000	33200	10600	8830	10700	9920	11800	15500
13	71800	34000	22700	22200	28100	33000	10400	8750	11000	10100	12600	15200
14	77200	32900	23800	20800	28200	32500	10400	9000	10800	10100	13500	14500
15	74800	32600	23000	19200	28300	31400	9860	8760	11200	10200	15100	14100
16	71000	31800	22000	18200	28000	30900	9380	8560	11800	10400	16700	14500
17	68500	30300	21500	18400	28900	30700	9110	8470	12300	10700	16900	14300
18	68800	28100	21300	18900	29600	32500	8750	8390	13100	11000	15800	14100
19	73300	26900	21100	18300	29100	33300	8610	8620	13700	10900	15300	13900
20	74200	25300	27500	18600	35000	33700	8480	8990	14100	11800	15100	13600
21	78800	23900	34400	20400	37600	32400	8290	8890	14300	11400	14900	13200
22	75900	22300	37000	23500	38200	31400	8370	8890	14000	11300	14700	14100
23	72400	21300	35800	27300	36200	28600	8140	9220	14100	11100	14400	14400
24	70200	21200	33500	29500	34800	26300	8360	9350	14500	10800	15100	14000
25	68600	20900	33900	30700	33100	24600	7880	9490	14500	10700	17500	13200
26	67500	20200	32700	31900	33400	22900	7870	9240	14300	10700	19400	12600
27	66600	20000	32600	32700	32300	21700	7960	9210	14100	10900	19100	11900
28	65300	20100	32400	53100	31100	20300	8080	9360	13200	10700	18100	11900
29	64000	—	32200	56700	30700	19000	8160	9280	12900	10500	17400	11800
30	62400	—	31200	60200	30800	17300	8030	9490	12500	10100	16900	11700
31	60400	—	30200	—	30600	—	7970	10300	—	9980	—	11800
Mean	63390	32970	25250	28600	35010	30290	10560	8878	12320	10570	13920	14500
Runoff in Ac.Ft.	3898000	1831000	1552000	1702000	2153000	1802000	649600	545900	733300	650200	828500	891800
	Water Year Total 17892900								Calendar Year Total 17237300			

Division of Water Resources and U. S. Geological Survey cooperative station located at Mile 0.4 above M Street Bridge. This represents the flow of the Sacramento River past Sacramento (below the City of Sacramento intake) to the Delta. Additional water flows to the Delta via East Borrow Pit of Yolo By-Pass (See Tables 73 and 80). Daily mean flows are computed from newly derived curves which take into account tidal fluctuations during low stages. Period of record 1904, 1905, 1921, 1924 to date. Records for 1953 computed by Division of Water Resources. (See discussion in text.)

TABLE 20

FLOW OF CLEAR CREEK NEAR IGO - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1140	692	343	632	604	334	169	68	65	43	57	180
2	958	680	330	604	555	325	163	66	60	42	58	169
3	817	668	317	582	515	309	158	68	56	43	58	196
4	716	680	305	576	500	289	150	73	52	41	58	236
5	638	710	297	570	490	281	142	69	51	40	61	196
6	626	680	293	560	490	352	142	66	51	39	65	233
7	1930	692	289	535	480	338	134	66	50	38	63	266
8	2810	722	293	510	455	338	130	65	49	37	61	240
9	4630	656	301	510	425	525	125	62	47	38	58	219
10	2750	609	611	525	402	430	125	58	45	40	100	206
11	1910	570	598	475	388	415	122	56	44	45	125	193
12	2600	540	859	445	374	384	116	53	46	48	163	180
13	3680	515	728	430	361	361	111	53	45	46	191	172
14	2860	500	614	415	361	330	111	53	42	48	1670	163
15	1960	485	550	402	348	309	109	52	40	53	604	158
16	1520	465	515	415	343	293	104	52	40	53	352	152
17	1910	450	480	420	338	274	102	52	41	52	270	150
18	3580	440	639	406	330	258	98	52	39	106	212	155
19	4060	415	2600	410	352	251	94	50	39	102	193	255
20	4270	406	1740	410	334	240	91	50	39	69	177	325
21	3420	388	1360	430	343	230	87	50	41	62	163	309
22	2420	374	1050	455	313	216	87	51	45	60	219	266
23	1840	366	929	470	455	209	85	49	47	60	530	236
24	1500	361	958	445	455	202	91	48	46	60	789	212
25	1280	348	1210	435	510	199	78	49	42	58	505	196
26	1110	338	1090	540	455	193	76	52	41	58	370	183
27	966	334	950	1080	415	186	76	65	41	58	293	174
28	880	343	873	845	388	183	73	65	42	57	247	166
29	810		796	775	370	180	71	83	43	57	212	160
30	747	—	728	680	361	177	69	87	43	57	199	152
31	704	—	674	—	343	—	68	71	—	57	—	144
Mean	1969	515	752	533	415	289	108	59.8	45.7	53.8	271	201
Runoff in Ac.Ft.	121100	28620	46250	31710	25490	17180	6660	3680	2720	3310	16110	12380
	Water Year Total 343110								Calendar Year Total 315210			

U. S. Geological Survey and U. S. Army Corps of Engineers cooperative station located nine miles upstream from the mouth. Clear Creek is a west-side tributary to the Sacramento River at Mile 237.1R. Drainage area is 231 square miles. Period of record 1940 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 21

FLOW OF COW CREEK NEAR MILLVILLE - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3020	670	374	471	1220	680	218	71	84	62	103	213
2	2040	635	331	458	1010	655	207	71	71	66	103	189
3	1180	610	312	444	896	625	204	76	64	63	103	196
4	882	595	298	435	824	585	194	77	58	66	105	848
5	720	650	292	440	782	565	186	72	59	62	118	354
6	1520	710	285	448	776	868	174	67	64	53	148	1150
7	5410	675	281	430	1310	1970	161	67	62	49	139	1430
8	3300	914	288	426	1020	1360	154	67	52	52	124	530
9	7460	665	295	490	854	1120	150	72	48	52	120	366
10	3630	605	506	585	728	944	139	66	48	70	143	302
11	2220	570	787	505	655	842	137	57	50	124	247	259
12	4960	530	963	435	605	776	137	54	54	94	194	232
13	4410	505	868	408	580	722	128	56	56	91	221	218
14	3120	490	515	386	605	650	118	61	51	96	435	207
15	2090	471	430	362	630	620	114	54	46	101	285	199
16	1580	453	417	366	650	610	109	59	51	100	210	194
17	5980	435	495	471	605	560	96	62	46	96	331	186
18	7930	422	404	448	585	540	94	57	46	132	207	202
19	7920	399	2360	404	1600	515	101	53	47	171	188	434
20	5910	386	1700	412	1280	476	94	56	50	122	213	471
21	3470	374	1520	430	1170	426	89	55	54	109	188	339
22	2360	362	1030	480	908	390	76	55	55	101	689	275
23	1820	350	818	540	980	362	78	58	55	101	2480	241
24	1510	342	704	535	1010	320	78	55	58	105	1820	224
25	1310	335	640	545	1330	302	78	54	58	103	615	213
26	1170	327	595	631	1100	288	83	54	57	93	378	202
27	1000	327	570	6810	932	278	82	61	61	96	288	191
28	908	335	550	3060	806	272	76	58	61	98	238	184
29	848		525	1980	752	256	66	78	63	103	213	178
30	770	—	495	1540	734	241	66	109	62	100	207	174
31	710	—	480	—	716	—	71	96	—	98	—	168
Mean	2941	505	649	846	892	627	121	64.8	56.4	91.3	362	341
Runoff in Ac.Ft.	180800	28050	39920	50330	54850	37320	7450	3980	3350	5610	21530	20960
	Water Year Total 545300								Calendar Year Total 454150			

U. S. Geological Survey and U. S. Bureau of Reclamation cooperative station located approximately five miles southwest of Millville. Cow Creek is an east-side tributary to the Sacramento River at Mile 228.8. Drainage area is 427 square miles. Period of record October, 1949, to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 22

FLOW OF COTTONWOOD CREEK NEAR COTTONWOOD - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3840	1370	590	774	980	730	345	108	150	92	99	232
2	3320	1350	570	758	890	746	330	108	139	97	95	224
3	2490	1300	555	763	834	730	312	106	110	99	99	214
4	2200	1360	535	768	790	715	304	110	106	103	108	295
5	2020	1350	515	768	758	690	295	117	103	94	110	317
6	2300	1340	510	768	768	785	286	121	94	83	126	274
7	5480	1370	485	752	763	906	286	126	90	90	131	317
8	3380	1400	470	730	725	856	274	126	88	86	117	335
9	8280	1270	465	715	690	912	262	108	83	90	106	290
10	7330	1180	490	768	665	851	254	99	81	99	106	270
11	4720	1110	550	715	645	763	242	94	80	103	137	254
12	7400	1060	545	685	630	725	239	85	80	114	156	242
13	10800	1020	550	670	620	705	221	80	85	119	162	232
14	6720	974	520	665	610	665	210	81	95	126	467	221
15	4320	944	510	645	605	645	210	85	95	142	595	214
16	3100	917	505	635	620	605	207	81	97	150	370	207
17	4960	878	505	665	640	575	203	81	88	150	299	197
18	11000	856	495	660	635	570	203	85	76	159	262	197
19	11300	829	2220	650	685	560	195	88	78	180	239	254
20	9510	796	1760	650	705	540	185	90	75	180	246	326
21	7350	780	1320	620	690	515	175	92	83	162	239	312
22	5100	720	974	640	700	490	165	81	80	156	235	278
23	3800	680	939	685	705	465	155	69	76	142	286	254
24	3100	650	1020	675	710	440	150	70	83	144	540	235
25	2630	630	1080	655	812	425	145	72	86	150	465	221
26	2270	615	1010	680	774	400	140	72	83	147	365	214
27	2010	605	950	1590	741	390	135	68	92	126	308	203
28	1810	595	917	1900	725	375	130	74	95	110	274	194
29	1670	—	878	1300	720	365	125	80	88	106	250	190
30	1570	—	829	1100	720	355	119	101	86	101	235	184
31	1470	—	796	—	746	—	112	147	—	99	—	177
Mean	4750	998	776	802	719	616	213	93.7	91.5	123	241	244
Runoff in Ac.Ft.	292100	55440	47720	47700	44230	36680	13120	5760	5440	7540	14330	15020
	Water Year Total 738310								Calendar Year Total 585080			

U. S. Geological Survey and U. S. Army Corps of Engineers cooperative station located two miles upstream from the mouth. Cottonwood Creek is a west-side tributary to Sacramento River at Mile 222.2R. Drainage area is 945 square miles. Period of record 1940 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 23

FLOW OF BATTLE CREEK NEAR COTTONWOOD - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	730	522	378	386	695	670	461	270	239	233	242	286
2	626	522	370	394	612	670	453	263	233	233	242	270
3	490	508	362	394	576	645	453	276	227	233	230	293
4	438	508	355	406	576	630	449	267	222	227	230	441
5	422	531	347	422	594	630	453	267	222	236	233	318
6	625	531	351	450	598	745	441	260	220	230	248	307
7	1220	544	355	426	598	974	425	260	222	230	239	343
8	769	585	351	410	572	926	409	260	222	230	239	307
9	2030	518	362	414	531	806	397	248	220	233	236	293
10	1610	495	366	402	486	730	385	260	222	248	245	286
11	1120	482	370	386	472	700	381	245	225	276	276	276
12	1580	472	374	362	459	700	369	239	227	257	276	276
13	1730	454	366	370	472	675	393	239	227	251	307	270
14	1340	450	351	359	495	650	381	245	225	248	526	276
15	978	434	340	370	518	680	385	242	225	251	343	280
16	818	430	359	378	508	675	373	236	225	248	307	267
17	1040	414	343	477	490	700	373	245	227	245	335	267
18	1610	414	340	406	526	735	373	236	225	260	290	270
19	1700	394	370	402	2190	730	358	233	230	318	321	293
20	1730	394	430	410	1150	680	369	230	227	270	310	307
21	1310	386	398	422	1090	650	350	233	233	260	286	300
22	978	378	374	477	842	620	346	233	230	260	506	283
23	829	378	390	549	872	598	328	227	233	257	508	263
24	752	378	390	549	884	575	318	236	233	260	566	270
25	700	370	398	540	956	552	310	227	239	248	405	260
26	660	366	386	576	836	526	296	230	230	251	343	263
27	612	370	390	1690	745	512	300	239	227	251	310	257
28	594	382	390	1220	705	490	286	236	239	245	293	263
29	567	—	374	888	680	494	283	239	236	245	290	260
30	549	—	410	763	670	469	280	248	233	254	286	269
31	536	—	394	—	660	—	270	248	—	248	—	245
Mean	990	450	372	523	712	661	369	246	228	250	316	286
Runoff in Ac.Ft.	60880	25010	22880	31140	43750	39350	22710	15110	13580	15340	18780	17570
	Water Year Total 345660								Calendar Year Total 326100			

U. S. Geological Survey and U. S. Army Corps of Engineers cooperative station located three miles upstream from the mouth. Battle Creek is an east-side tributary to Sacramento River opposite Mile 221.5L. Drainage area is 362 square miles. Period of record 1940 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 24

FLOW OF PAYNES CREEK NEAR RED BLUFF - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	342	65	36	26	149	33	6.2	0.2	0.4	0.2	6.6	15
2	324	61	34	23	104	29	5.2	.2	.4	.3	7.0	14
3	215	58	32	19	79	29	3.1	.2	.4	.3	7.0	15
4	168	55	30	18	65	20	2.5	.3	.4	.2	7.0	19
5	132	55	29	17	53	12	2.0	.2	.3	.2	7.0	19
6	310	55	28	15	47	19	1.8	.2	.4	.3	6.6	18
7	852	53	26	15	43	22	1.8	.2	.4	.3	6.6	240
8	576	57	26	16	40	23	1.8	.2	.3	.3	6.6	67
9	902	52	26	17	32	20	2.1	.1	.3	.3	6.6	41
10	442	50	26	17	25	17	2.1	.1	.2	.4	7.0	34
11	314	49	26	16	24	16	2.1	.1	.3	.6	7.0	28
12	696	46	27	15	22	14	2.0	.1	.4	.4	7.0	26
13	780	45	27	15	20	13	1.8	.1	.3	.4	8.0	24
14	568	45	26	15	20	12	1.8	.1	.2	.4	40	22
15	352	41	27	14	20	11	2.0	.1	.3	.5	23	21
16	265	40	31	16	20	10	1.6	.2	.4	.8	17	20
17	123	39	32	40	20	9.6	1.5	.2	.2	.8	22	17
18	345	39	31	23	20	9.0	1.5	.1	.1	.6	16	17
19	442	37	39	20	21	8.5	1.6	.1	.1	.7	18	17
20	404	36	137	19	22	9.0	1.6	.1	.1	1.4	22	16
21	356	36	96	17	23	8.5	1.5	.2	.1	0.8	19	15
22	265	35	76	14	24	6.2	1.4	.2	.2	1.3	22	15
23	212	34	63	12	31	4.6	1.2	.2	.2	5.2	30	15
24	176	33	57	11	77	5.8	0.5	.1	.2	5.8	22	15
25	146	33	50	11	79	5.8	.4	.2	.1	5.8	20	15
26	123	33	47	13	81	6.2	.4	.2	.2	5.8	19	15
27	108	33	45	299	60	6.6	.7	.2	.2	5.8	17	15
28	96	34	36	256	49	6.6	3.3	.3	.2	5.8	16	15
29	85		30	154	42	6.6	2.3	.5	.2	6.2	15	15
30	76	—	29	128	39	6.6	0.2	.6	.2	6.2	15	15
31	68	—	26	—	35	—	.2	.5	—	6.6	—	15
Mean	331	44.6	40.4	43.0	44.7	13.3	1.88	.20	.26	2.09	14.8	27.6
Runoff in Ac.Ft.	20360	2480	2480	2560	2750	793	115	12	15	128	879	1700
	Water Year Total 52927								Calendar Year Total 34272			

U. S. Geological Survey and U. S. Bureau of Reclamation cooperative station located approximately one mile above mouth. Paynes Creek is an east-side tributary to Sacramento River at Mile 201.5. Drainage area is 92.5 square miles. Period of record October, 1949, to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 25

FLOW OF REDBANK CREEK AT FOOTHILLS - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	251	79	12	13	9.7	12					0	0
2	205	71	10	12	8.5	8.0					0	0
3	168	64	9.0	11	7.5	6.5					0	0
4	145	60	8.5	10	7.0	7.0					0	0
5	129	57	8.5	8.5	6.5	6.5					0	0
6	271	53	8.0	7.5	6.0	6.5					0	0
7	940	50	7.5	6.5	5.5	8.0					0	0
8	392	46	8.0	8.0	5.0	6.5					0	0
9	551	42	8.0	9.0	4.0	9.7					0	0
10	378	39	11	12	3.7	8.5					0	0
11	313	35	13	9.7	3.1	6.0					0	0
12	771	33	13	9.0	2.8	5.0	N	N	N	N	0	0
13	458	30	11	9.0	2.5	4.0	0	0	0	0	0	0
14	336	29	9.7	8.5	2.2	3.4					88	0
15	278	26	9.0	9.0	1.6	2.8					9.7	0
16	248	23	8.0	9.7	1.9	1.9					0.1	0
17	245	21	7.5	9.7	2.5	1.3	F	F	F	F	0.1	0
18	303	19	8.5	9.7	3.1	0.9	L	L	L	L	0	0.4
19	326	17	393	9.7	3.7	0.7	O	O	O	O	0	0.5
20	310	17	125	9.7	4.5	0.5	W	W	W	W	0	0.6
21	256	16	79	9.7	3.4	0.3					0	0.7
22	222	15	53	9.0	4.0	0.1					0	0.8
23	192	15	*48	9.0	3.7	0					0	0.9
24	168	15	*42	9.0	3.4	0					0	1.0
25	149	15	*36	9.0	7.5	0					0	1.3
26	134	15	*30	9.0	7.5	0					0	1.6
27	118	12	24	46	9.7	0					0	1.9
28	110	12	22	32	8.0	0					0	0
29	103		19	25	7.0	0					0	0
30	91	—	16	16	7.0	0					0	0
31	84	—	14	—	18	—			—		—	0
Mean	279	33.1	34.5	12.2	5.5	3.5	0	0	0	0	3.3	0.3
Runoff in Ac.Ft.	17150	1837	2125	724	338	210	0	0	0	0	194	19
	Water Year Total 40744								Calendar Year Total 22597			

Division of Water Resources and U. S. Bureau of Reclamation cooperative station located approximately 15 miles above the mouth. Redbank Creek is a west-side tributary to Sacramento River at Mile 191.2R. Period of record 1948 to date. Records for 1953 computed by Division of Water Resources.

* Estimated

TABLE 26

FLOW OF ANTELOPE CREEK NEAR RED BLUFF - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	276	124	85	112	435	141	72	40	40	40	44	47
2	270	121	78	110	298	144	70	40	40	41	44	47
3	200	116	74	108	248	141	67	40	39	41	44	47
4	166	114	73	109	227	139	64	40	38	40	44	65
5	144	118	71	114	222	141	63	40	38	40	44	56
6	260	120	71	120	222	166	61	40	38	40	48	54
7	1160	120	70	121	218	200	59	40	38	41	47	77
8	1080	143	70	118	200	186	59	40	38	41	46	69
9	2150	130	72	112	184	173	58	40	37	40	44	62
10	969	122	83	112	173	159	56	40	38	46	48	59
11	525	115	91	103	166	148	55	40	37	53	58	55
12	927	110	102	97	161	144	55	40	38	46	55	52
13	1180	106	104	92	161	137	54	40	38	44	61	52
14	853	100	90	92	162	134	53	40	38	46	285	50
15	485	97	84	90	166	135	53	39	37	47	81	49
16	328	90	83	104	164	141	52	40	38	46	60	48
17	276	91	92	132	157	139	51	40	38	46	120	48
18	339	88	85	106	157	139	51	39	38	51	58	49
19	500	85	330	100	192	137	50	39	38	65	53	50
20	625	85	318	106	222	128	48	38	38	50	66	52
21	565	83	237	112	213	120	47	38	38	47	68	49
22	382	80	190	130	188	112	45	38	39	46	81	47
23	298	80	170	155	182	104	44	38	40	46	88	47
24	243	79	159	164	179	98	44	38	40	46	84	47
25	211	78	153	168	179	94	44	38	39	46	68	47
26	186	75	146	179	175	90	42	38	40	46	59	46
27	168	74	139	985	157	85	42	38	40	46	54	46
28	157	79	134	688	148	83	42	40	40	45	51	45
29	146	—	130	490	144	79	41	42	40	45	50	45
30	137	—	122	450	139	77	40	45	40	44	48	44
31	130	—	115	—	139	—	40	42	—	42	—	44
Mean	495	101	123	189	193	130	52.3	39.7	38.6	45.3	66.7	51.5
Runoff in Ac.Ft.	30420	5600	7580	11260	11860	7760	3220	2440	2300	2780	3970	3160
	Water Year Total 110100								Calendar Year Total 92350			

U. S. Geological Survey and U. S. Army Corps of Engineers cooperative station located six miles upstream from the mouth. Antelope Creek is an east-side tributary to Sacramento River at Mile 180.3L. Drainage area is 124 square miles. Period of record 1940 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 27

FLOW OF ANTELOPE CREEK NEAR MOUTH - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	*235	*49	23	25	249	33			13	5.0	16	10
2	*225	46	21	24	137	31			10	5.7	18	10
3	158	43	19	24	102	26			9.0	5.7	17	9.5
4	105	41	18	23	86	24		*8.0	6.4	6.0	17	10
5	80	40	17	22	76	25			5.3	6.8	18	12
6	*160	40	16	22	75	35			5.7	5.3	21	10
7	*920	38	16	24	75	50			7.2	3.8	21	12
8	*900	40	16	27	69	47		6.0	8.6	4.7	12	12
9	*1700	38	16	25	64	46		6.0	9.5	5.3	9.0	11
10	*630	34	18	29	59	42		6.0	8.3	6.8	8.3	10
11	*425	32	22	25	52	34		6.4	6.8	7.9	12	9.0
12	*750	31	22	25	46	28		5.3	7.5	7.9	9.5	9.0
13	*900	30	29	22	42	28		5.7	8.6	7.2	10	8.6
14	*540	29	25	21	40	28		5.7	8.6	7.5	128	8.3
15	*320	28	24	21	41	26	*12	6.8	9.0	8.6	36	7.9
16	*210	25	23	23	40	24		6.8	8.6	9.5	19	7.9
17	*170	24	21	48	40	24		6.4	8.3	9.0	54	7.2
18	*250	23	20	34	37	24		6.8	8.3	8.3	21	7.5
19	*370	22	51	31	41	22		6.4	8.3	10	13	7.5
20	*460	22	243	31	66			5.7	6.8	7.9	30	6.8
21	*280	21	87	32	61			6.0	6.8	6.0	22	6.8
22	*175	21	62	33	54			7.2	7.5	5.7	18	6.8
23	*132	19	44	35	51			6.4	6.0	5.7	22	6.0
24	*110	19	35	34	49			8.6	5.0	5.7	19	6.0
25	*94	19	34	37	48	*18		12	5.0	6.0	18	6.0
26	*84	19	38	42	51			10	4.7	6.0	15	5.3
27	*76	18	37	492	45			11	5.3	6.0	20	5.3
28	*70	18	33	468	40			7.9	3.6	6.0	22	5.0
29	*62		29	211	36			8.6	3.6	5.7	11	4.7
30	*56	—	27	187	36			7.5	4.7	6.0	10	4.4
31	*52	—	28	—	34	—		11	—	13	—	4.4
Mean	345	29.6	35.9	69.9	62.6	26.5	12.0	7.5	7.2	6.8	22.2	8.0
Runoff in Ac.Ft.	21220	1644	2210	4159	3852	1577	738	461	428	418	1323	490
	Water Year Total 63137								Calendar Year Total 38520			

Division of Water Resources and U. S. Bureau of Reclamation cooperative station located approximately 2.3 miles above the mouth. Antelope Creek is an east-side tributary to Sacramento River at Mile 180.3L. Period of record 1948 to date. Records for 1953 computed by Division of Water Resources.

* Estimated mean for period.

TABLE 28

FLOW OF ELDER CREEK AT GERBER - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	314	177	68	79	131	55	11				0	3.6
2	266	177	63	79	113	55	10				0	3.2
3	214	171	61	82	101	53	9.5				0	3.6
4	192	174	59	89	94	48	8.3				0	4.8
5	180	171	57	98	91	46	7.7				0	11
6	316	162	55	103	96	57	6.7				0	8.3
7	896	171	53	98	94	66	4.8				0	8.9
8	455	177	55	91	84	57	4.4				0	13
9	1240	159	57	84	77	61	3.6				0	10
10	662	145	66	86	70	57	2.9				0	8.3
11	459	131	70	72	63	50	2.6				0	7.2
12	1050	121	61	68	59	46	2.3	N	N	N	0	6.2
13	1010	113	57	61	57	42	2.3	0	0	0	0	5.7
14	577	108	53	59	59	40	2.0				323	5.2
15	413	106	50	57	59	38	1.8				162	4.8
16	336	103	48	59	61	34	1.3				42	4.4
17	306	98	48	68	66	30	0.8	F	F	F	14	3.6
18	448	94	48	61	61	30	.9	L	L	L	7.7	3.6
19	668	86	287	59	63	29	1.3	O	O	O	6.7	4.0
20	617	84	225	63	63	29	0.5	W	W	W	9.5	4.4
21	514	79	134	68	66	25	.2				6.2	5.7
22	396	77	101	89	61	21	0				3.6	5.2
23	333	75	94	111	59	18	0				4.4	4.8
24	300	72	106	103	59	14	0				8.9	4.0
25	274	70	108	98	84	13	0				13	3.6
26	249	68	103	108	79	13	0				10	3.2
27	231	66	96	314	75	13	0				7.2	3.2
28	210	68	96	290	61	13	0				5.7	2.9
29	195		94	201	55	13	0				4.4	2.9
30	183	—	84	159	55	12	0				4.0	2.6
31	174	—	82	—	55	—	0		—		—	2.6
Mean	441	118	85.1	102	73.3	35.9	2.7	0	0	0	21.1	5.3
Runoff in Ac.Ft.	27130	6550	5230	6060	4500	2140	168	0	0	0	1250	326
	Water Year Total 79674								Calendar Year Total 53354			

U. S. Geological Survey and U. S. Bureau of Reclamation cooperative station located 1.0 mile west of Gerber and 3.5 miles above the mouth. Elder Creek is a west-side tributary to the Sacramento River at Mile 178.5. Drainage area is 142 square miles. Period of record October, 1949, to date. Records for 1953 computed by U. S. Geological Survey.
(Prior records are available at a site approximately 20 miles upstream.)

TABLE 29

FLOW OF MILL CREEK NEAR LOS MOLINOS - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	378	281	216	314	618	395	357	175	137	120	122	158
2	339	274	203	311	523	387	353	173	133	120	122	153
3	276	268	198	332	475	384	368	173	130	118	122	153
4	244	274	195	357	483	403	380	170	128	115	122	213
5	221	287	195	391	511	423	372	168	126	118	126	175
6	393	301	203	415	531	547	346	165	124	118	142	168
7	1280	318	208	365	519	721	335	163	124	115	130	185
8	2100	361	221	328	455	547	325	161	122	115	128	170
9	5240	318	229	307	403	479	318	158	122	115	126	163
10	2270	294	265	294	376	411	304	156	122	124	135	163
11	1240	274	249	271	365	415	297	156	120	130	170	156
12	1680	261	265	258	368	427	294	153	120	124	173	153
13	2050	249	243	255	384	415	301	151	120	122	182	151
14	1540	246	229	255	407	427	290	151	120	124	484	151
15	930	238	223	255	415	467	287	151	118	124	200	151
16	672	232	223	274	415	503	281	149	115	122	200	149
17	595	229	226	304	395	559	277	146	115	122	203	149
18	1100	226	218	284	439	595	271	146	113	158	163	153
19	1390	218	576	287	690	583	261	144	113	165	161	165
20	1590	213	511	301	712	519	255	142	115	133	170	203
21	1280	208	380	395	649	479	243	142	120	128	168	180
22	865	208	321	515	531	467	232	140	120	126	192	165
23	654	203	314	631	523	451	226	140	120	126	291	156
24	535	198	335	583	495	443	218	140	120	126	487	153
25	467	198	343	563	495	415	208	140	120	126	277	151
26	407	195	332	600	447	399	200	137	120	124	213	146
27	365	200	332	1810	407	395	195	140	120	124	188	146
28	332	213	332	1270	407	384	190	140	122	124	173	144
29	314		325	874	395	380	185	146	122	122	165	142
30	294	—	311	726	395	365	182	153	120	122	163	140
31	284	—	311	—	415	—	178	140	—	122	—	140
Mean	1010	249	282	471	472	460	275	152	121	125	190	160
Runoff in Ac.Ft.	62130	13850	17320	28020	29040	27340	16920	9340	7220	7680	11300	9810
	Water Year Total 252050								Calendar Year Total 239970			

U. S. Geological Survey and Division of Water Resources cooperative station located five miles upstream from the mouth. Mill Creek is an east-side tributary to Sacramento River at Mile 179.0L. Drainage area is 134 square miles. Period of record 1909 to 1913; 1928 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 30

FLOW OF NORTH FORK OF MILL CREEK NEAR MOUTH - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.9	0.2	0	0.7	5.8	1.2	0.5	0.2	1.2	2.0	2.6	2.4
2	2.5	.2	0	1	4.4	0.4	.4	.4	1.1	2.5	2.8	2.4
3	1.6	.2	0.4	1.3	3.8	.3	.4	.2	0.5	2.2	2.9	2.4
4	1.2	.1	.4	0.7	4	.7	.8	.2	1.2	1.7	2.6	2.8
5	0.9	.1	0	.2	3.8	1.2	.4	.2	1.2	1.5	3.1	2.6
6	4.8	.1	0	1.6	3.5	2.4	.7	.5	1	1.7	4.8	2.5
7	50	.1	0	2.5	2.2	4.4	.9	.6	0.5	1.4	4.4	4.8
8	93	.1	0.6	3.1	1	3.3	.2	.1	.6	0.2	5.5	7.2
9	323	.1	0	2.9	0.7	3.7	.7	.2	.9	0	5.3	7.0
10	79	.1	0	0.4	.4	2.9	.5	.2	1.3	0	6.2	6.7
11	24	.1	0.2	.3	.2	3.1	.1	.4	1.1	0.2	9.1	6.7
12	38	.1	.4	.8	.2	2.5	.5	.1	0.5	.5	1.5	5.8
13	70	0	.8	2.6	.2	1.4	.5	.4	.7	.5	0.1	4.0
14	35	0	1.9	3.8	.4	1.2	.1	.9	.6	1.2	.6	4.0
15	21	0	2.4	1.7	.7	1.6	.4	.4	.5	0.9	0	4.2
16	13	0	3.1	1.3	1.4	0.7	.3	.4	.6	2.4	0	4.0
17	174	0	3.1	3.5	0.5	1.4	.2	.4	1.4	3.3	0.1	4.0
18	126	0	2.4	2.6	1.4	1.7	.4	.4	1.1	5.3	1.9	4.0
19	21	0	1.2	2.4	3.5	1.7	.1	.2	1.1	8.8	1.4	4.0
20	175	0	1.1	2.6	5.5	1.1	.4	.1	1.3	4.8	1.7	4.6
21	171	0	0.4	1.6	4.2	0.7	.3	.5	2.0	4.4	2.5	4.4
22	26	0	.2	0.2	3.1	.5	0	.6	2.8	4.4	2.8	4.4
23	9.4	0	.4	1.6	3.5	.6	0	.6	1.6	4	3.5	4.2
24	2.1	0	1.4	1.5	3.5	.6	0.1	.9	0.6	3.8	6.0	3.8
25	1.1	0	1.0	1.1	3.8	.6	.4	.4	1.7	3.8	4.6	3.8
26	0.6	0	0.6	2.1	3.3	.3	.4	.6	1.4	3.3	4.6	3.8
27	.4	0	.2	45	2.8	.4	.5	1.5	2.6	2.6	2.8	3.5
28	.3	0	.7	22	2.6	.7	.7	1.9	2.8	2.5	2.6	3.7
29	.2		1.9	9.4	2.5	.4	.1	0.6	2.4	2.5	2.4	3.5
30	.2	—	0.8	7.2	1.6	.4	.5	1.9	1.4	2.5	2.5	3.7
31	.2	—	1.0	—	1.2	—	.4	2.0	—	2.8	—	3.5
Mean	47.3	0	0.9	4.3	2.4	1.4	0.4	0.6	1.2	2.5	3	4.1
Runoff in Ac.Ft.	2911	3	53	253	150	84	24	36	75	154	180	255
	Water Year Total 4267								Calendar Year Total 4178			

Division of Water Resources and U. S. Bureau of Reclamation cooperative station located approximately 0.5 mile above the mouth. This creek is an east-side tributary to Sacramento River at Mile 179.3L. Period of record 1948 to date. Records for 1953 computed by Division of Water Resources.

TABLE 31

FLOW OF MILL CREEK NEAR MOUTH - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	267	261	162	213	585	310	248		13	4.8	56	142
2	260	251	152	209	476	299	243		13	5.6	57	136
3	221	238	140	227	416	288	256	*51	11	6.0	57	136
4	199	243	130	248	399	299	261		11	7.0	59	209
5	190	251	119	277	412	310	258		11	8.4	62	166
6	300	264	119	302	433	376	240		10	9.2	74	156
7	968	274	118	261	423	581	225		9.6	9.6	74	170
8	1320	310	124	232	376	460	211	*38	8.8	11.0	103	152
9	*4100	*294	131	209	324	392	204		6.7	11.0	103	146
10	*2500	*288	158	198	294	336	191		5.6	17	118	142
11	*1100	*280	168	*190	282	324	178		7.8	23	156	138
12	*1500	*274	178	*187	310	336	176		7.4	14	156	136
13	*1800	*266	170	*186	316	324	168	*27	5.6	22	182	131
14	*1670	*261	158	*186	322	330	160		6.4	29	518	131
15	1050	*256	152	*186	333	352	162		6.0	34	204	133
16	760	*248	154	*200	336	380	156		5.6	45	193	130
17	648	*238	168	*208	322	423	142		5.3	57	215	131
18	1000	230	160	*198	352	457	136	*18	5.0	89	160	135
19	1360	232	466	*198	503	453	128		5.0	109	154	140
20	1570	204	503	*210	656	399	123		4.6	64	164	198
21	1340	204	367	*280	561	361	112		3.0	66	158	176
22	913	196	305	*410	464	339	107		2.6	64	176	150
23	697	191	266	*535	426	327	101	*13	2.8	64	264	136
24	569	187	258	*520	409	324	97		2.6	66	514	128
25	495	182	261	*500	409	316	87		2.5	66	288	119
26	433	185	238	*525	383	302	80	*12	2.1	60	211	118
27	380	176	230	*1350	346	288	*76	*12	2.6	57	180	116
28	339	160	227	*1100	336	277	*71	12	2.8	57	164	114
29	313		225	837	327	271	*67	13	3.6	57	154	112
30	288	—	215	679	322	258	*62	17	4.3	57	148	109
31	269	—	215	—	324	—	*59	13	—	56	—	107
Mean	930	237	208	369	393	350	154	26.3	6.2	40.2	171	140
Runoff in Ac.Ft.	57160	13180	12770	21940	24150	20810	9491	1614	372	2471	10160	8614
	Water Year Total 195498								Calendar Year Total 182732			

Division of Water Resources and U. S. Bureau of Reclamation cooperative station located approximately 0.8 mile above the mouth. Mill Creek is an east-side tributary to Sacramento River at Mile 179.0L. Period of record 1948 to date. Records for 1953 computed by Division of Water Resources.

* Estimated mean for period.

TABLE 32

FLOW OF THOMES CREEK AT PASKENTA - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	371	750	274	472	686	307	116	21	18	6.4	9.2	72
2	478	694	253	504	588	288	111	21	15	6.0	8.6	63
3	390	710	232	588	532	278	111	21	13	6.0	8.6	61
4	348	822	216	654	539	278	109	20	12	6.0	8.6	270
5	335	774	216	734	574	274	102	20	12	6.0	9.2	151
6	400	950	225	662	581	395	97	20	11	6.0	11	114
7	609	1000	239	532	511	460	93	19	10	6.0	12	222
8	1420	942	256	448	442	358	86	18	9.8	5.6	12	148
9	7750	766	274	390	385	323	78	17	8.6	6.0	12	145
10	2850	630	292	353	348	299	72	16	8.0	6.0	16	137
11	1920	560	281	319	331	270	74	15	8.0	6.0	45	121
12	4070	511	260	295	319	260	78	13	8.0	6.0	55	106
13	3410	466	253	281	331	253	84	13	7.6	6.8	142	100
14	1840	472	225	270	335	246	90	13	7.6	8.0	425	97
15	1320	448	213	274	340	260	88	13	7.2	9.2	162	93
16	1050	410	213	303	358	270	82	12	7.2	11	86	86
17	1390	380	204	353	348	288	76	12	6.8	10	78	80
18	3880	362	204	315	362	288	74	12	6.8	11	61	88
19	3260	331	407	335	525	270	68	11	6.8	21	54	145
20	2900	311	348	358	466	228	63	10	7.2	21	59	371
21	2000	288	281	532	484	213	57	11	7.2	16	48	253
22	1430	278	284	718	425	198	54	10	7.2	13	154	186
23	1170	267	390	718	405	186	50	9.8	7.2	12	644	151
24	1050	253	670	602	366	174	47	9.8	6.8	11	760	129
25	959	242	638	595	353	159	39	9.8	6.8	9.8	299	114
26	830	236	595	718	319	151	28	10	6.8	9.8	189	97
27	726	250	588	2250	292	145	27	11	6.8	9.8	137	93
28	646	288	567	1370	288	137	24	12	6.8	9.2	104	84
29	595	—	497	1020	295	129	23	16	6.8	9.2	88	76
30	574	—	454	838	299	124	22	20	6.8	9.2	78	68
31	623	—	472	—	315	—	21	22	—	9.2	—	63
Mean	1632	514	339	593	411	250	69.2	14.8	8.7	9.3	126	129
Runoff in Ac.Ft.	100400	28540	20870	35310	25270	14890	4250	909	515	572	7490	7900
	Water Year Total 251955								Calendar Year Total 246916			

U. S. Geological Survey and Division of Water Resources cooperative station located 0.5 mile upstream from Paskenta. Thomes Creek is a west-side tributary to Sacramento River at Mile 173.2R. Drainage area is 188 square miles. Period of record 1920 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 33

FLOW OF DEER CREEK NEAR VINA - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	450	380	246	448	845	441	237	148	135	116	116	148
2	400	366	223	440	746	410	231	148	130	116	118	144
3	350	356	217	452	687	424	222	148	128	114	124	146
4	300	362	214	468	660	408	219	148	126	114	124	228
5	280	380	217	498	664	404	210	148	126	112	124	182
6	500	401	220	520	660	476	207	146	124	112	135	170
7	1600	412	226	480	651	552	201	144	124	112	130	180
8	2500	451	237	456	615	552	195	144	122	112	126	170
9	7000	408	246	424	566	498	193	144	120	112	122	162
10	3000	384	297	412	525	464	188	141	118	116	130	162
11	1700	356	294	380	498	440	185	139	118	141	172	155
12	2000	338	334	353	476	424	185	137	120	126	165	148
13	2500	324	307	346	468	408	182	139	118	120	198	144
14	1900	314	277	346	472	392	180	139	122	120	648	141
15	1320	303	268	342	534	384	177	139	122	120	237	141
16	966	294	265	360	489	384	177	137	118	120	190	141
17	834	284	268	408	476	368	172	137	118	118	213	141
18	1280	274	265	388	464	364	170	135	116	133	167	144
19	1700	262	1240	380	570	360	167	135	116	172	158	155
20	2110	255	888	400	765	349	165	137	116	130	162	193
21	1850	249	664	468	728	335	162	135	116	124	155	190
22	1260	243	561	552	660	317	160	135	118	120	185	158
23	972	237	534	642	620	304	158	133	118	120	328	146
24	798	232	538	633	628	290	158	130	118	120	512	141
25	690	229	538	615	602	280	155	130	116	120	277	139
26	598	223	512	624	566	274	155	130	116	120	210	137
27	522	226	498	1780	525	268	155	133	116	118	182	137
28	475	240	494	1470	507	258	153	133	116	118	165	137
29	443		480	1170	484	252	153	137	116	118	158	135
30	412	—	456	990	464	243	150	153	116	118	150	130
31	394	—	452	—	456	—	150	141	—	116	—	128
Mean	1326	314	402	575	583	379	180	139	120	121	196	154
Runoff in Ac.Ft.	81530	17420	24750	34200	35840	22520	11050	8570	7150	7430	11660	9470
	Water Year Total 290520								Calendar Year Total 271590			

U. S. Geological Survey and Division of Water Resources cooperative station located nine miles northeast of Vina and 0.8 mile upstream from a diversion dam. Deer Creek is an east-side tributary to Sacramento River at Mile 168.5L. Drainage area is 200 square miles. Period of record 1911 to 1915; 1920 to 1937; 1939 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 34

FLOW OF DEER CREEK AT HIGHWAY 99E - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	462	270	183	311	759	297	71	3.8	3.1	1.4	44	122
2	417	270	174	311	623	277	65	3.8	2.8	1.6	53	118
3	360	345	161	304	541	258	59	3.8	2.8	1.6	62	118
4	319	392	157	324	515	252	53	3.8	3.3	1.8	62	188
5	286	392	149	351	506	247	51	3.6	3.6	2.3	64	160
6	467	417	146	365	506	297	43	3.3	3.6	2.6	78	142
7	1120	417	149	317	488	385	35	3.3	3.8	2.8	76	152
8	*1500	452	157	290	461	399	31	2.8	3.8	3.1	69	140
9	*4200	417	170	252	392	345	31	2.8	4.2	3.1	67	130
10	*1800	385	206	252	358	297	29	3.1	4.6	4.6	76	130
11	*1020	365	206	226	338	270	21	3.1	4.9	26	115	122
12	*1200	351	242	206	317	252	21	2.8	5.3	12	106	115
13	*1800	331	231	196	317	226	21	2.8	5.3	13	150	112
14	3090	311	201	192	317	215	19	3.3	6.1	14	560	110
15	1810	304	188	188	379	201	14	3.3	7.2	15	200	110
16	1200	297	183	188	345	192	13	3.3	8.1	29	128	110
17	990	290	188	226	338	174	11	3.8	8.1	28	160	110
18	1500	277	183	236	324	170	12	3.6	7.6	44	128	112
19	2180	277	1260	242	417	170	13	3.6	7.6	93	132	120
20	2760	270	1000	236	668	161	11	3.3	8.1	45	140	155
21	2560	263	634	252	623	153	4.8	3.3	4.9	35	125	160
22	1670	252	479	324	550	138	6.4	3.1	*2.8	31	135	130
23	1200	258	444	385	488	123	2.8	2.8	*2.6	29	252	120
24	947	247	452	379	506	114	6.8	2.6	*2.3	30	472	112
25	771	236	452	365	470	108	11	2.6	*2.3	29	274	112
26	634	210	408	385	426	102	4.8	2.8	*2.1	29	194	108
27	532	183	379	1710	379	96	*5.7	2.8	*1.4	29	163	108
28	452	178	358	1640	351	91	3.1	3.1	*1.1	26	142	106
29	379		351	1180	338	86	3.1	3.6	1.2	26	135	97
30	331	—	324	990	317	76	2.8	11	1.2	26	128	95
31	297	—	311	—	311	—	3.1	5.3	—	29	—	95
Mean	1234	309	327	427	441	206	21.9	3.5	4.2	21.4	150	123
Runoff in Ac.Ft.	75880	17170	20080	25430	27110	12240	1346	218	250	1315	8906	7575
	Water Year Total 214174								Calendar Year Total 197520			

Division of Water Resources and U. S. Bureau of Reclamation cooperative station located at the Highway 99 Bridge. Deer Creek is an east-side tributary to Sacramento River at Mile 168.5L. Period of record 1948 to date. Records for 1953 computed by Division of Water Resources.

* Estimated

TABLE 35

FLOW OF BIG CHICO CREEK NEAR CHICO - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	369	162	72	182	408	93	51	34	32	22	28	44
2	278	155	68	173	316	93	51	36	31	22	29	43
3	226	149	64	164	262	89	51	36	30	21	29	45
4	199	146	63	158	222	85	51	36	30	21	30	84
5	178	142	62	149	196	82	53	36	29	21	32	68
6	243	142	63	146	172	98	51	35	28	21	42	64
7	1230	140	65	139	169	105	49	35	28	22	36	84
8	2170	139	68	137	155	118	51	35	28	21	35	76
9	4350	127	72	130	149	112	49	35	28	21	34	68
10	1880	115	88	128	133	102	49	34	27	24	44	61
11	1070	110	88	122	130	98	51	34	27	34	72	57
12	1030	105	98	116	125	91	51	32	28	25	65	53
13	1350	100	90	113	118	87	49	31	27	25	72	47
14	1160	95	82	111	115	87	51	31	28	28	164	46
15	804	92	80	110	115	80	51	31	29	28	87	44
16	573	88	80	113	115	82	42	31	29	28	62	43
17	483	85	80	130	108	78	38	31	29	26	72	42
18	546	82	80	116	105	76	38	30	29	46	58	40
19	850	80	855	111	115	72	36	31	28	46	55	40
20	1150	76	931	111	122	70	36	31	28	31	54	42
21	1140	74	543	111	128	68	35	32	28	26	47	40
22	728	72	432	111	120	63	35	31	26	25	58	38
23	519	71	387	110	120	59	35	30	25	26	92	37
24	405	70	387	106	125	57	36	30	24	26	108	37
25	327	68	363	108	128	55	34	31	24	26	82	37
26	271	68	315	110	122	55	35	31	23	26	67	36
27	233	70	278	903	115	55	36	32	23	26	58	36
28	210	74	252	736	112	53	40	34	23	26	54	36
29	194		231	576	105	53	32	35	22	26	50	36
30	178	—	210	508	100	51	34	38	22	26	47	36
31	169	—	192	—	98	—	34	35	—	26	—	35
Mean	791	103	217	201	149	78.9	43.1	33.0	27.1	26.4	58.8	48.2
Runoff in Ac.Ft.	48620	5750	13370	11980	9170	4690	2650	2030	1610	1620	3500	2970
	Water Year Total 121360								Calendar Year Total 107960			

U. S. Geological Survey and Division of Water Resources cooperative station located six miles northeast of Chico. Big Chico Creek is an east-side tributary to Sacramento River at Mile 141.5L. Drainage area is 68.3 square miles. Period of record 1930 to date. Records for 1953 computed by U. S. Geological Survey.

Formerly published as Chico Creek.

TABLE 36

FLOW OF BIG CHICO CREEK NEAR MOUTH - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	412	*171	58	191	419	72	14		3.0	0	8.2	17
2	340	*168	52	171	354	69	12		1.7	0	9.2	16
3	290	156	50	156	308	66	10		1.3	0	0.4	16
4	256	147	47	147	272	55	8.2		1.0	0	6.9	32
5	234	142	44	138	244	53	8.2		0.8	0	10	32
6	283	145	43	128	225	75	6.6		0.6	0	6.6	26
7	1010	142	41	128	216	86	5.9		.7	0	7.2	38
8	1440	156	40	124	212	112	4.9		.4	0	12	43
9	2910	145	40	117	196	105	6.2		0	0	9.2	33
10	2030	128	52	122	166	90	8.2		0	0	11	28
11	1160	119	82	114	138	77	8.9		0	0	14	24
12	978	112	133	103	119	69	9.6	N	0	0	17	21
13	1360	107	193	95	103	61	8.2	O	0	0	22	21
14	1210	103	140	92	102	54	9.6		0	0	143	20
15	908	95	117	86	90	45	9.2		0	0	58	18
16	694	90	108	86	83	46	6.6		0	0	22	15
17	619	83	108	135	82	41	2.0	F	0	0	17	16
18	736	80	102	115	76	37	3.5	L	0	0	20	16
19	839	76	564	105	82	34	3.2	O	0	0	17	16
20	1030	72	984	100	93	32	3.0	W	0	0	18	17
21	1260	69	573	92	105	29	1.6		0.4	0	14	17
22	970	65	429	85	105	26	1.3		.5	0	13	16
23	732	62	377	83	97	23	2.3		0	0	26	15
24	587	58	370	77	119	22	0		0	0	100	15
25	497	54	356	73	115	18	0.10		0	0	69	15
26	415	52	318	76	114	18	0		0	0	46	14
27	*320	51	283	633	105	17	0		0	0	27	15
28	*270	53	261	759	95	16	0.10		0	3.10	22	14
29	*230		243	524	92	15	2.5		0	6.2	20	15
30	*195	—	224	488	85	15	1.8		0	6.9	18	15
31	*180	—	206	—	77	—	0		—	7.2	—	14
Mean	787	104	214	178	151	49.3	5.1	0	0.3	0.8	26.1	20.3
Runoff in Ac.Ft.	48390	5754	13170	10600	9301	2932	313	0	21	46	1554	1250
	Water Year Total 104188								Calendar Year Total 93331			

Division of Water Resources and U. S. Bureau of Reclamation cooperative station located approximately 1.5 miles above mouth. Big Chico Creek is an east-side tributary to Sacramento River at Mile 141.5L. Period of record 1948 to date. Records for 1953 computed by Division of Water Resources.
Formerly published as Chico Creek.
* Estimated

TABLE 37

FLOW OF STONY CREEK NEAR HAMILTON CITY - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2470	772	101	345	1060	152	18	13	27	13	1.5	31
2	2200	676	78	335	940	118	20	22	15	27	0.9	24
3	1830	646	72	320	849	86	11	24	14	27	.4	20
4	1530	622	61	290	744	70	18	17	5.9	13	.2	23
5	1300	598	61	280	640	57	17	5.6	7.9	7.9	7.1	106
6	1760	610	43	330	538	56	17	1.6	9.6	8.3	20	80
7	3950	652	35	315	440	101	16	2.8	22	7.9	21	57
8	4180	640	32	271	355	176	15	1.8	25	15	16	86
9	7370	634	37	271	290	194	9.6	0.5	24	17	15	66
10	12000	556	45	305	240	183	10	.1	11	14	11	65
11	7810	490	52	310	183	183	8.3	0	6.7	15	5.9	59
12	5900	452	54	266	115	152	4.7	1.3	7.9	27	1.8	50
13	7410	408	61	244	86	126	2.8	10	4.7	27	1.4	44
14	5560	375	72	194	76	90	2.0	22	2.2	27	13	37
15	4220	350	123	155	88	59	1.6	22	0.9	31	120	32
16	3150	330	142	132	109	48	5.6	21	3.5	29	80	28
17	2470	315	136	142	109	37	11	10	15	14	56	24
18	3860	300	148	148	120	27	8.3	2.8	12	13	40	21
19	4820	280	202	142	162	31	7.5	0.9	7.9	13	31	18
20	4480	262	574	148	202	39	12	2.4	18	16	29	18
21	4540	248	821	162	248	30	8.3	17	30	15	21	35
22	3510	235	682	180	300	26	2.4	26	22	21	18	44
23	2750	223	664	190	305	26	1.4	11	9.6	22	19	39
24	2240	206	658	214	295	22	1.0	15	13	17	141	35
25	1910	187	682	214	330	15	0.2	21	13	7.9	183	34
26	1670	142	640	223	350	15	0	25	8.3	4.1	118	27
27	1510	112	574	631	345	15	3.1	19	6.3	6.7	80	23
28	1370	101	514	1440	315	15	5.0	18	20	4.7	63	21
29	1260	—	479	1330	253	21	4.7	18	13	6.3	48	18
30	1170	—	440	1190	206	21	5.6	37	15	8.7	37	16
31	1080	—	380	—	165	—	5.9	31	—	1.8	—	14
Mean	3590	408	279	357	337	73.0	8.2	13.5	13.0	15.4	40.0	38.5
Runoff in Ac.Ft.	220700	22660	17180	21260	20740	4350	502	831	774	947	2380	2370
	Water Year Total 393582								Calendar Year Total 314694			

U. S. Geological Survey and U. S. Army Corps of Engineers cooperative station located about five miles above the mouth and above the Glenn-Colusa Irrigation District canal crossing. The flow to the Sacramento River is cut off during irrigation season by an earth fill installed by Glenn-Colusa Irrigation District to transport water from their main canal across Stony Creek. Stony Creek is a west-side tributary to Sacramento River at Mile 136.3R. Water diverted from Stony Creek by G.C.I.D. in acre-feet amounted to: March 15470, April 21260, May 20740, June 4350, July 502, August 831. September 774, October 947 and November 203. Drainage area is 761 square miles. Period of record 1941 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 38

FLOW OF BUTTE CREEK NEAR CHICO - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	780	544	330	550	920	498	259	176	170	152	152	226
2	600	524	321	537	822	473	267	176	161	152	146	212
3	480	492	316	537	770	455	259	167	161	155	114	216
4	410	492	304	518	734	449	255	173	158	146	112	308
5	380	485	304	576	727	449	248	164	158	143	108	252
6	560	485	304	582	713	596	223	167	158	146	124	252
7	2200	498	308	550	699	657	240	164	158	146	112	304
8	3500	563	312	530	636	643	234	158	158	146	102	263
9	6890	524	321	511	615	582	220	158	155	146	100	255
10	2910	461	372	511	530	518	226	158	155	152	130	252
11	1730	467	372	473	550	485	226	158	155	189	216	237
12	1970	431	467	455	537	485	209	158	146	158	209	244
13	2700	414	455	443	556	467	206	158	149	146	209	237
14	2010	414	409	437	582	443	212	158	141	152	537	234
15	1430	398	393	431	570	437	202	158	161	158	308	230
16	1130	388	383	461	576	449	199	158	146	164	252	230
17	1040	367	367	576	544	431	199	158	146	155	263	196
18	1370	363	377	504	570	437	206	158	146	209	240	223
19	1920	353	1520	492	713	425	189	158	143	216	240	223
20	2320	334	1270	504	755	404	199	158	146	189	244	244
21	1860	334	928	563	762	372	176	158	149	127	230	240
22	1410	330	755	615	636	358	183	158	149	170	244	230
23	1160	312	692	678	657	339	179	158	149	158	348	223
24	1010	316	706	664	650	334	186	158	149	167	425	216
25	920	321	713	664	636	316	186	158	146	158	312	212
26	830	316	671	678	576	312	179	155	141	152	263	209
27	727	291	650	2390	550	304	183	158	164	161	244	209
28	671	321	629	1670	537	295	176	158	138	152	234	206
29	636	—	596	1230	518	286	176	167	146	152	226	202
30	596	—	576	1060	498	278	176	176	141	155	220	209
31	570	—	568	—	498	—	176	176	—	179	—	202
Mean	1507	412	538	680	633	433	208	162	151	160	222	232
Runoff in Ac.Ft.	92670	22890	33100	40440	38950	25740	12800	9960	9010	9820	13220	14270
	Water Year Total 329930								Calendar Year Total 322870			

U. S. Geological Survey and Division of Water Resources cooperative station located 0.8 mile downstream from Little Butte Creek and 7.5 miles east of Chico. Butte Creek is a tributary to Butte Slough 0.6 mile above its junction with the Sacramento River. Flows into the Sacramento River are regulated by gates at the mouth of Butte Slough. (See notes on Tables 41 and 51.) Drainage area of Butte Creek near Chico is 148 square miles and period of record 1930 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 39

FLOW OVER MOULTON WEIR FROM SACRAMENTO RIVER TO BUTTE BASIN - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0											
2	0											
3	0											
4	0											
5	0											
6	0											
7	0											
8	0											
9	80											
10	3200											
11	5900											
12	4600	N	N	N	N	N	N	N	N	N	N	N
13	5500	0	0	0	0	0	0	0	0	0	0	0
14	9800											
15	*9200											
16	*8300											
17	*7400	F	F	F	F	F	F	F	F	F	F	F
18	*8300	L	L	L	L	L	L	L	L	L	L	L
19	*10000	0	0	0	0	0	0	0	0	0	0	0
20	7000	W	W	W	W	W	W	W	W	W	W	W
21	9200											
22	11000											
23	*10000											
24	*9200											
25	*7800											
26	*6100											
27	*2400											
28	0											
29	0	—										
30	0	—										
31	0	—		—		—			—		—	
Mean	4354	0	0	0	0	0	0	0	0	0	0	0
Runoff in Ac.Ft.	267700	0	0	0	0	0	0	0	0	0	0	0
	Water Year Total 267700								Calendar Year Total 267700			

Elevation of crest is 76.75 U.S.E.D. datum; length of crest is 500 feet. Weir is on left bank of Mile 104.0L. Period of record 1940 to date. Records for 1953 computed by Division of Water Resources.
* Estimated

TABLE 40

FLOW OVER COLUSA WEIR FROM SACRAMENTO RIVER TO BUTTE BASIN - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	7470											
2	989											
3	573											
4	0											
5	0											
6	0											
7	0											
8	6260											
9	10700											
10	24400											
11	33100											
12	30000	N	N	N	N	N	N	N	N	N	N	N
13	30700	0	0	0	0	0	0	0	0	0	0	0
14	42200											
15	43100											
16	40600											
17	37700	F	F	F	F	F	F	F	F	F	F	F
18	37200	L	L	L	L	L	L	L	L	L	L	L
19	39300	0	0	0	0	0	0	0	0	0	0	0
20	33800	W	W	W	W	W	W	W	W	W	W	W
21	37200											
22	41000											
23	39100											
24	35400											
25	33500											
26	31400											
27	24200											
28	11500											
29	5250	—										
30	1040	—										
31	0	—		—		—			—		—	
Mean	21860	0	0	0	0	0	0	0	0	0	0	0
Runoff in Ac.Ft.	1344000	0	0	0	0	0	0	0	0	0	0	0
	Water Year Total 1524500								Calendar Year Total 1344000			

Elevation of crest is 61.80 U.S.E.D. datum; length of crest is 1650 feet. Weir is on left bank at Mile 92.4. Period of record 1950 to date. Records for 1953 computed by Division of Water Resources.

TABLE 41

FLOW OF BUTTE SLOUGH TO SACRAMENTO RIVER - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1		0	259	550	0	765	14	96	511	466	108	175
2		0	279	531	0	755	50	107	500	461	114	0
3		0	279	531	0	775	39	116	512	306	200	0
4		0	286	565	436	805	57	122	559	246	212	0
5		0	293	600	585	838	74	184	545	183	203	0
6		0	286	590	645	848	73	223	518	0	193	0
7		0	273	692	669	875	130	271	509	0	180	0
8		0	253	685	682	818	134	290	515	164	180	0
9		0	240	708	575	655	127	282	514	120	214	0
10		0	200	728	536	718	112	296	485	35	200	0
11		0	166	718	431	695	114	229	441	0	337	0
12	N	0	191	411	366	692	116	225	393	0	120	0
13	0	0	135	370	319	698	112	245	399	0	135	0
14		0	183	421	526	665	109	326	365	79	216	0
15		0	253	386	655	565	98	315	402	77	0	0
16		0	339	310	665	501	85	285	467	64	120	0
17	F	0	359	246	610	353	72	275	549	73	376	0
18	L	0	436	261	546	346	91	287	661	61	293	0
19	0	0	456	242	595	511	85	280	664	52	436	0
20	W	0	0	202	702	216	82	269	715	65	565	0
21		0	0	204	279	102	99	273	765	76	481	0
22		0	0	213	516	160	111	271	848	87	421	0
23		0	0	210	540	0	106	273	842	72	*200	0
24		*140	319	237	679	0	96	286	835	70	0	273
25		75	476	268	685	0	99	292	958	72	0	0
26		120	506	213	732	0	94	293	931	75	0	0
27		183	496	254	640	0	104	294	888	77	0	0
28		233	531	828	745	0	116	337	808	85	0	306
29		—	516	0	768	0	104	384	698	93	0	0
30		—	521	0	788	0	93	408	615	103	0	0
31		—	536	—	822	—	95	487	—	106	—	0
Mean	0	26.8	292	406	540	445	93.3	268	614	109	183	24.3
Runoff in Ac.Ft.	0	1490	17980	24150	33200	26490	5734	16500	36520	6680	10920	1496
	Water Year Total 186308								Calendar Year Total 181160			

This is discharge from Butte Slough to Sacramento River at Mile 84.0L and is measured at and regulated by the gravity culverts at the mouth of the slough. These flows, together with those shown in Tables 51 and 52 are, during the summer months, made up almost entirely of return water from lands irrigated by Feather River diversions. Discharge from the Sacramento to Butte Basin over Moulton and Colusa Weirs is shown in Tables 39 and 40. This is a Division of Water Resources station. Period of record 1924 to date.

* Estimated

TABLE 42

FLOW OF RECLAMATION DISTRICT 70 DRAIN - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	51	0	6.4	0	159	134	*43	*65	130	41	3.7	0
2	40	0	18	0	170	100	*44	*66	128	30	3.7	0
3	55	0	0	0	88	78	*51	*66	167	0.6	5.4	0
4	54	0	0	0	59	27	*52	*66	106	*7.2	5.4	0
5	48	0	0	15	86	*52	*64	*88	120	*8.6	7.2	0
6	35	0	0	8.3	82	31	*47	*105	119	*10	5.4	0
7	69	0	0	4.8	92	10	*69	*103	118	*8.6	3.7	0
8	*67	*25	0	0	92	28	*61	*87	121	*10	3.7	0
9	66	*27	0	0	92	16	*65	*65	122	*8.6	5.4	0
10	66	27	33	0	92	26	*62	*86	117	*5.4	3.7	0
11	65	2.3	0	0	92	69	*57	*72	113	*8.6	1.6	0
12	65	0	0	0	88	65	*56	*66	135	*11	7.2	31
13	87	26	0	9.1	78	78	*55	*65	109	*8.6	5.4	10
14	88	28	0	9.1	79	78	*56	*64	109	1.6	0	00
15	68	28	0	9.1	91	78	*56	*62	106	5.4	0	0
16	64	39	0	8.7	91	78	*57	*77	106	7.2	0	0
17	64	*9.5	0	0	103	55	*59	*79	130	7.2	0	0
18	64	0	0	0	113	52	*59	*88	142	0	1.6	1.6
19	64	0	0	0	103	74	*58	*88	131	34	8.6	1.6
20	64	0	0	*24	102	69	*54	*92	119	*11	0	0
21	64	*6.2	0	*20	95	116	*62	*99	106	7.4	1.6	0
22	64	*5.3	0	*7.4	93	100	*62	*95	105	4.9	7.2	0
23	64	*17	0	0	119	24	*61	*87	140	3.7	10	0
24	64	*81	0	0	96	48	*62	*90	82	*3.7	0	7.2
25	64	*82	0	*12	100	51	*60	*86	76	*1.6	0	7.2
26	64	*82	0	*9.5	123	51	*65	*74	0	*26	0	8.6
27	43	*82	0	*68	102	79	*62	*74	0	*23	0	8.6
28	57	*29	0	106	116	75	*64	*74	0	*5.4	30	7.2
29	*54	—	0	176	103	26	*64	*91	16	0	3.8	7.2
30	*52	—	0	171	136	58	*65	*77	12	3.7	0	7.2
31	*39	—	0	—	88	—	*65	*11	—	3.7	—	7.2
Mean	60.4	21.3	1.8	21.9	101	60.9	58.6	77.7	99.5	9.9	4.1	3.4
Runoff in Ac.Ft.	3715	1183	114	1305	6194	3622	3604	4776	5921	610	246	207
	Water Year Total 33049								Calendar Year Total 31497			

This is the drainage from Reclamation District 70 returned to the Sacramento River at Mile 68.8L. This plant discharges both to the Sacramento River and to an irrigation canal as is a combination irrigation and drainage plant. The above flow includes gravity as well as pumped drainage. Period of record 1924 to date. Records for 1953 computed by Division of Water Resources.

* Estimated

TABLE 43

FLOW OVER TISDALE WEIR FROM SACRAMENTO RIVER TO SUTTER BY-PASS - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	17300	4100										
2	10800	1200										
3	9500	24										
4	6700	0										
5	3100	0										
6	1000	0										
7	2300	0										
8	10300	0										
9	18000	0										
10	*19700	0										
11	*21100	0										
12	*21200	0	N	N	N	N	N	N	N	N	N	N
13	*21100	0	0	0	0	0	0	0	0	0	0	0
14	*21500	0										
15	*21800	0										
16	*21700	0										
17	*21500	0	F	F	F	F	F	F	F	F	F	F
18	*21500	0	L	L	L	L	L	L	L	L	L	L
19	*21700	0	0	0	0	0	0	0	0	0	0	0
20	*21700	0	W	W	W	W	W	W	W	W	W	W
21	*21700	0										
22	*22000	0										
23	*22000	0										
24	*21800	0										
25	*21500	0										
26	*21400	0										
27	*21100	0										
28	*20200	0										
29	*18800	—										
30	16300	—										
31	7700	—		—		—			—		—	
Mean	17030	190	0	0	0	0	0	0	0	0	0	0
Runoff in Ac.Ft.	1047000	10560	0	0	0	0	0	0	0	0	0	0
	Water Year Total 1277260								Calendar Year Total 1057560			

Elevation of crest is 45.45 U.S.E.D. datum; length of crest is 1155 feet. Weir is on left bank at Mile 64.2L. Period of record 1940 to date. Records for 1953 computed by Division of Water Resources.

* Estimated

TABLE 44

FLOW OF RECLAMATION DISTRICT 108 DRAIN AT ROUGH AND READY BEND - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	174	102	67	0	269	347	314	381	474	112	0	42
2	129	117	0	0	258	401	300	413	474	114	60	28
3	124	87	93	75	245	437	290	381	467	43	38	26
4	171	70	0	0	220	406	331	401	451	98	26	13
5	113	76	0	0	279	354	331	424	474	73	0	19
6	126	80	95	76	302	98	331	426	621	0	39	0
7	169	0	0	0	315	379	331	428	591	78	21	30
8	212	122	56	0	339	365	255	428	447	53	0	27
9	208	89	0	0	358	298	336	498	567	0	39	23
10	204	0	0	78	445	235	336	422	467	0	31	26
11	368	113	93	0	393	208	336	428	474	84	40	19
12	176	96	0	0	409	195	336	422	472	69	19	19
13	196	0	0	90	429	192	336	412	644	0	22	0
14	196	0	0	0	445	195	331	398	464	61	29	32
15	188	136	0	81	466	214	322	428	481	0	0	20
16	188	98	0	92	466	284	307	521	481	63	88	27
17	176	0	0	0	615	266	307	428	560	0	34	25
18	235	0	0	0	456	228	322	474	571	57	54	25
19	129	117	0	263	453	224	331	462	565	0	17	19
20	155	0	68	26	442	306	331	477	640	0	42	0
21	152	0	0	140	445	259	331	477	475	83	0	40
22	150	116	52	97	445	231	331	428	430	0	0	20
23	151	82	0	141	452	229	331	533	408	0	52	19
24	145	0	0	104	714	223	335	422	372	75	37	20
25	144	82	0	131	425	214	386	451	358	0	32	0
26	130	0	91	124	439	204	406	428	361	53	0	38
27	84	71	0	208	438	218	360	462	317	0	42	0
28	120	0	0	322	432	238	377	457	250	0	29	42
29	101		64	283	396	248	377	401	200	53	0	24
30	111	—	0	272	468	293	377	655	76	0	39	27
31	136	—	0	—	453	—	377	456	—	46	—	24
Mean	163	59.1	21.9	86.8	410	266	336	446	454	39.2	27.7	21.7
Runoff in Ac.Ft.	10040	3281	1347	5163	25210	15830	20630	27420	27040	2410	1646	1337
	Water Year Total 149678								Calendar Year Total 141354			

This is the drainage from Reclamation District 108 discharged to the Sacramento River at Mile 44.0R. Additional drainage from Reclamation District 108 is sometimes discharged to Back Borrow Pit at Mile 19.9L. Period of record 1924 to date. Records for 1953 computed by Division of Water Resources.

TABLE 45

FLOW OF RECLAMATION DISTRICT 787 DRAIN - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13	Records sufficient to compute only monthly flows.											
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29		—										
30		—										
31		—		—		—			—		—	
Mean	49.5	11.0	4.2	39.4	67.7	31.4	44.5	71.2	42.7	2.1	1.2	0.6
Runoff in Ac.Ft.	3043	613	258	2344	4161	1868	2735	4378	2539	129	75	40
	Water Year Total 22981								Calendar Year Total 22183			

This is the drainage from Reclamation District 787 discharged by pumping to the Sacramento River at Mile 37.0R. Additional drainage from Reclamation District 787 is discharged to the Back Borrow Pit below the Knights Landing Outfall Gates via Sycamore Slough. (See Table 49.) Period of record 1949 to date. Records for 1953 computed by Division of Water Resources.

TABLE 46

FLOW OF COLUSA TROUGH AT COLUSA-WILLIAMS HIGHWAY - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2880	402	191	554	1380	1390	131	464	1480	519	334	131
2	2840	375	184	546	1200	1220	142	485	1480	518	321	120
3	2740	352	171	495	977	1160	183	519	1390	468	350	120
4	2560	336	169	491	867	1060	234	589	1310	433	379	120
5	2320	321	166	518	803	805	264	653	1300	433	350	116
6	2260	309	166	491	737	681	252	697	1310	404	314	110
7	2460	298	164	519	847	885	271	693	1340	399	280	114
8	2560	289	166	480	923	785	261	689	1380	356	298	109
9	2670	269	166	338	877	719	269	733	1420	354	316	110
10	2890	247	167	459	893	701	268	767	1440	422	338	110
11	3000	234	167	533	911	605	329	747	1540	417	388	110
12	2950	232	174	438	865	478	334	707	1680	370	321	110
13	2890	230	172	413	845	408	370	703	1860	374	249	112
14	2790	225	167	271	895	339	350	741	1940	402	493	120
15	2660	225	167	174	1050	318	359	701	1980	476	909	114
16	2540	220	166	159	1120	174	384	681	2010	440	827	110
17	2330	212	166	203	1170	139	399	705	2050	413	635	114
18	2100	203	164	249	1200	132	415	737	2010	410	523	115
19	1810	198	174	215	1250	123	399	723	1900	429	415	124
20	1470	191	271	203	1340	123	401	705	1690	336	388	132
21	1180	186	325	276	1360	124	399	759	1490	247	368	127
22	965	184	296	282	1320	126	426	809	1340	191	325	121
23	865	179	240	266	1390	124	392	853	1200	230	294	115
24	765	194	223	232	1440	121	374	819	1030	269	284	116
25	695	205	273	228	1460	121	370	761	845	327	251	114
26	633	225	466	206	1520	121	399	777	763	330	232	109
27	557	210	573	667	1660	123	419	815	711	302	223	109
28	506	183	550	1510	1790	123	433	831	655	287	206	104
29	480		518	1610	1720	129	426	931	591	305	171	97
30	455	—	536	1530	1570	131	437	1190	563	327	153	92
31	431	—	489	—	1530	—	453	1360	—	339	—	88
Mean	1879	248	258	485	1191	450	340	753	1390	372	364	113
Runoff in Ac.Ft.	115500	13750	15840	28870	73210	26750	20910	46300	82710	22860	21690	6968
	Water Year Total 598880								Calendar Year Total 475358			

Division of Water Resources station located 37.0 miles above the mouth of Back Borrow Pit of Reclamation District 108. This station is also known as Colusa Trough at Highway 20 and Colusa Trough at Tahoe-Ukiah Highway. The flow is return water flowing in the main drain of Reclamation District 2047; it is drainage chiefly from lands irrigated by Glenn-Colusa, Provident, Princeton-Codora-Glenn, Compton-Delevan, Maxwell, and Jacinto Irrigation Districts. Flow reaches Sacramento River, at Mile 34.15R, through the Knights Landing Outfall Gates via Back Borrow Pit, (see Table 48). Period of record 1924 to date.

TABLE 47

FLOW OF RIDGE CUT AT KNIGHTS LANDING - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2880	456	0	63	1090	302	0	61	*133		0	
2	2960	389	0	53	1050	283	0	61	*123		0	
3	2940	350	0	44	963	238	0	64	*114		0	
4	2940	331	0	34	821	195	0	69	*104		0	
5	2940	299	0	27	684	138	0	85	*95		0	
6	2940	290	0	32	472	83	9.1	104	*85		0	
7	2820	264	0	34	322	106	20	70	*76		0	
8	2940	261	0	29	264	302	27	66	*81		0	
9	2940	230	0	18	216	462	33	65	*71		0	
10	3270	203	0	11	180	450	40	68	*62		0	
11	4300	201	0	36	117	347	47	70	*77		0	
12	4470	205	0	59	61	208	54	67	*68		0	N
13	4840	193	0	65	48	130	61	64	*58		0	0
14	5680	195	0	59	56	98	64	63	*49	*0.2	0	
15	6110	195	3	45	85	80	66	57	*66		0	
16	5760	188	0	36	109	57	66	54	*56		2.1	
17	5060	185	0	34	122	45	60	56	*47		6.9	F
18	4580	187	0	40	143	36	57	64	*37		0	L
19	4570	154	0	43	127	32	58	65	*28		0	O
20	4670	64	0	47	172	32	60	65	*18		0	W
21	4790	38	30	50	593	36	59	64	*9.0		0	
22	4600	21	69	53	928	32	59	68	*7.8		0	
23	4160	12	166	57	872	23	59	87	*6.5		0	
24	3460	1.5	213	55	735	17	56	106	*5.3		0	
25	2900	0	270	50	613	6.3	59	87	*4.0		0	
26	2390	0	270	44	526	0	63	70	*2.8		4.2	
27	1930	0	274	38	507	0	67	70	*1.6		25	
28	1520	0	230	172	485	0	67	79	*0.3		20	
29	1050		200	923	462	0	69	88	*0.3		6.6	
30	750	—	154	1060	414	0	66	138	*0.3		0	
31	552	—	96	—	341	—	62	142	—		—	
Mean	3475	175	63.7	110	438	125	45.4	75.4	49.5	0.2	2.2	0
Runoff in Ac.Ft.	213600	9744	3917	6567	26930	7415	2793	4635	2947	12	129	0
	Water Year Total 370458								Calendar Year Total 278689			

Knights Landing Ridge Cut diverts water from the Back Borrow Pit of Reclamation District 108, at a point above the outfall gates, into the Yolo By-Pass above Elkhorn. Winter flows are uncontrolled. Summer flows for irrigation are controlled at the outfall gates and at the junction with Yolo By-Pass by weir boards and gates. This is a Division of Water Resources station. Period of record 1933 to date.

* Estimated mean for period.

TABLE 48

FLOW OF COLUSA BASIN DRAINAGE TO SACRAMENTO RIVER AT KNIGHTS LANDING - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1		0	288	652	0	1040	0	241	1360	764	482	342
2		0	278	678	0	996	0	244	1510	744	505	308
3		0	197	678	0	924	0	254	1570	720	505	199
4		0	200	574	0	882	0	297	1540	697	519	224
5		0	174	540	151	810	0	394	1500	672	534	155
6		0	168	530	445	714	0	556	1480	638	519	129
7		0	153	476	496	572	0	613	1480	579	505	159
8		0	147	480	630	476	0	590	1510	553	460	124
9		0	137	464	714	466	0	577	1530	497	460	30
10		0	121	360	756	546	4.0	601	1580	475	475	172
11		0	126	139	832	608	21	651	1620	523	505	170
12	N	0	126	256	841	626	41	655	1680	542	519	163
13	O	0	188	329	744	572	65	635	1740	534	441	143
14		0	192	326	613	520	103	629	1880	534	416	145
15		0	330	194	713	520	126	593	1960	579	545	139
16		0	328	91	867	538	188	577	2000	638	614	128
17	F	0	304	20	870	414	203	501	2030	638	664	129
18	L	0	202	8.3	973	298	193	525	2000	620	670	128
19	O	159	165	14	1070	0	194	559	1960	601	600	119
20	W	432	42	24	828	0	203	591	1930	553	475	143
21		428	0	32	476	0	197	605	1900	460	423	155
22		414	0	46	528	108	199	630	1830	382	397	133
23		404	0	60	634	0	200	664	1710	217	375	135
24		380	0	53	740	0	140	718	1580	0	315	151
25		372	58	37	836	0	98	716	1150	0	126	157
26		318	458	21	872	0	111	694	998	453	0	170
27		304	520	332	864	0	161	694	908	756	322	186
28		304	564	69	942	0	187	705	878	575	498	155
29			564	0	1030	0	226	719	870	460	442	161
30		—	600	0	1050	0	230	818	800	427	386	151
31		—	608	—	1070	—	235	1230	—	445	—	141
Mean	0	126	233	249	664	388	107	596	1549	525	456	159
Runoff in Ac.Ft.	0	6972	14360	14840	40830	23070	6595	36650	92200	32280	27170	9806
		Water Year Total 310337							Calendar Year Total 304773			

This is the drainage from Colusa Basin passing down the Back Borrow Pit of Reclamation Districts 108 and 787 and entering the Sacramento River at Mile 34.15R, just above the Knights Landing gaging station. Flows are controlled at the Knights Landing outfall gates and a portion of the flow of the Back Borrow Pit is diverted to the Knights Landing Ridge Cut, (see Table 47). Total flow to Sacramento River is sum of Tables 48 and 49. This is a Division of Water Resources station. Period of record is 1924 to date.

TABLE 49

FLOW OF SYCAMORE SLOUGH NEAR KNIGHTS LANDING - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
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		—		—		—			—		—	
Mean	13.6	4.9	4.1	1.4	37.9	18.4	26.3	31.9	10.8	1.3	0.6	0.7
Runoff in Ac.Ft.	835	269	253	82	2333	1093	1616	1963	645	80	37	43
		Water Year Total 9680							Calendar Year Total 9249			

Records sufficient to compute only monthly flows.

This water is discharged from Reclamation District 787 by pumping into Colusa Basin Drain below the outfall gates and is not included in the flow shown in Table 48. Daily distribution of flows are not available since the plant operates on an automatic float switch. See Table 45 for additional drainage from Reclamation District 787. Period of record 1940 to date. Records for 1953 computed by Division of Water Resources.

TABLE 50

FLOW OVER FREMONT WEIR FROM SACRAMENTO RIVER TO YOLO BY-PASS - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	*2700										
2	0	*300										
3	0	0										
4	0	0										
5	0	0										
6	0	0										
7	0	0										
8	0	0										
9	*2200	0										
10	36800	0										
11	64400	0										
12	53400	0	N	N	N	N	N	N	N	N	N	N
13	51000	0	0	0	0	0	0	0	0	0	0	0
14	64400	0										
15	68300	0										
16	57700	0										
17	47900	0	F	F	F	F	F	F	F	F	F	F
18	44200	0	L	L	L	L	L	L	L	L	L	L
19	48600	0	0	0	0	0	0	0	0	0	0	0
20	58400	0	W	W	W	W	W	W	W	W	W	W
21	65600	0										
22	66000	0										
23	58400	0										
24	50600	0										
25	44200	0										
26	39800	0										
27	36000	0										
28	30400	0										
29	23400	—										
30	16500	—										
31	9000	—		—		—			—		—	
Mean	33460	107	0	0	0	0	0	0	0	0	0	0
Runoff in Ac.Ft.	2057000	5950	0	0	0	0	0	0	0	0	0	0
	Water Year Total 2062950								Calendar Year Total 2062950			

Station is located on Sacramento River at Mile 28.0R. Elevation of crest is 33.5 U.S.E.D. datum; length is 9120 feet. Period of record 1947 to date. Records for 1953 computed by Division of Water Resources.

* Estimated

TABLE 51

FLOW OF BUTTE SLOUGH TO SUTTER BY-PASS - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	*6810	5920	186	276	1130	514	326	338	325	141	147	208
2	6550	4720	185	247	1020	503	326	342	318	118	157	190
3	5340	3760	174	220	836	472	313	335	313	72	149	151
4	4460	2980	159	201	670	464	348	351	313	49	80	86
5	3640	2380	147	200	525	473	345	354	273	39	71	71
6	3030	2050	134	197	472	466	332	337	258	22	68	95
7	2520	1810	125	202	416	488	340	350	248	7.5	70	83
8	2470	1640	117	194	381	575	320	325	256	10	72	110
9	5880	1500	112	182	396	670	322	331	257	28	85	156
10	14600	1390	99	169	359	685	311	345	244	80	88	118
11	28700	1310	97	166	331	694	340	316	239	153	87	89
12	*35300	1260	129	149	278	648	357	325	242	189	67	76
13	*37700	1210	167	131	220	584	328	323	236	203	65	71
14	45000	1150	222	152	203	543	329	354	227	203	73	62
15	49900	1080	220	154	221	491	331	318	254	104	120	56
16	50200	1020	187	140	225	413	319	304	271	60	203	53
17	47600	967	168	137	230	326	353	316	261	62	174	53
18	47000	825	156	154	232	269	360	328	247	70	137	56
19	49200	512	155	127	237	271	348	311	248	94	139	57
20	48300	409	260	120	283	274	357	311	257	118	162	58
21	47400	345	788	139	503	261	375	311	271	134	149	71
22	49900	302	1033	146	545	267	360	302	311	108	132	92
23	51300	273	1060	157	535	290	343	311	328	81	114	89
24	49800	246	856	171	516	276	348	320	351	72	121	60
25	47800	226	708	198	539	265	351	316	321	73	264	49
26	45200	214	626	156	569	244	351	308	290	81	406	45
27	40700	203	579	154	617	242	351	306	262	87	350	40
28	32500	194	520	353	594	247	353	328	242	96	294	38
29	23300		446	800	569	274	332	322	183	110	251	34
30	15100	—	387	1030	539	312	332	323	154	130	225	32
31	9310	—	323	—	518	—	342	323	—	141	—	28
Mean	29240	1425	339	227	474	417	340	325	267	94.7	151	79.9
Runoff in Ac.Ft.	1798000	79130	20870	13530	29180	24800	20910	20000	15870	5823	8965	4913
	Water Year Total 2191184								Calendar Year Total 2041991			

This is discharge from Butte Slough to Sutter By-Pass. During low flow periods gates at head of slough are regulated (Table 41) which forces water under Long Bridge as shown in this table. Normal summer flows are primarily from Feather River sources. During flood perious Sacramento River water enters Butte Basin above Butte City by bank spill and over Moulton and Colusa weirs. The purpose of the summer regulation is to make water available for use on Sutter By-Pass lands (below Long Bridge) and Butte Slough Irrigation Company in Reclamation District 70. This is a Division of Water Resources station. Period of record 1939 to date.

* Estimated

TABLE 52

FLOW OF WADSWORTH CANAL TO SUTTER BY-PASS - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	211	99	37	32	108	252		51	194	114	93	24
2	199	92	36	29	114	252		43	185	122	93	20
3	168	88	35	17	134	236	*42	70	140	118	87	17
4	149	84	34	27	124	276		102	150	115	84	15
5	138	83	37	47	104	316		97	176	127	102	13
6	167	78	36	52	110	361		110	190	106	104	7.3
7	326	77	35	65	134	403		121	213	98	94	7.9
8	411	74	33	128	158	357	*49	120	201	124	100	7.9
9	506	72	36	204	114	331		116	236	112	100	34
10	429	70	33	156	81	300		109	250	104	110	59
11	237	70	28	98	79	270		109	219	115	94	68
12	224	65	32	106	48	287		116	208	97	83	63
13	334	63	28	116	63	242	*55	106	219	88	75	65
14	220	61	26	114	106	188		80	236	115	68	27
15	149	59	28	100	151	163		79	260	122	55	1.8
16	118	58	28	126	187	163		106	304	112	50	24
17	101	54	26	75	217	81		102	289	100	42	24
18	110	51	27	72	217	63	*62	86	258	108	37	25
19	115	22	42	79	236	66		96	300	79	36	20
20	99	6.2	43	81	298	56		93	287	48	43	25
21	94	7.9	40	100	285	55		90	238	43	41	22
22	103	6.2	40	98	238	54	*66	98	252	57	36	19
23	88	3.0	36	72	262	45		98	217	79	34	16
24	79	4.1	34	62	268	53	70	93	213	83	32	20
25	63	2.8	33	76	279	31	62	93	192	83	31	14
26	95	26	28	184	285	33	60	76	154	77	32	18
27	90	31	29	212	308	40	60	81	138	77	33	16
28	107	35	30	222	279	40	55	88	132	72	32	19
29	102		35	130	274	42	67	104	118	67	26	15
30	95	—	38	114	266	36	50	151	118	68	26	12
31	103	—	40	—	264	—	57	146	—	98	—	15
Mean	175	51.5	33.6	99.8	187	170	55.4	97.7	210	94.5	62.4	23.7
Runoff in Ac.Ft.	10770	2861	2069	5938	11490	10100	3410	6010	12470	5808	3715	1456
	Water Year Total								Calendar Year Total		76097	

This is the discharge (measured at Weir #4) to the East Borrow Pit of the Sutter By-Pass at Mile 16.5 (north from Chandler). This flow is made up primarily of Feather River drainage or return flows. This flow and flow from Butte Slough (Table 51) makes up the entire Feather River contribution to the Sutter By-Pass. This is a Division of Water Resources station. Period of record 1939 to date.
* Estimated mean for period.

TABLE 53

FLOW OF RECLAMATION DISTRICT 1500 DRAIN - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	540	274	65	229	301	447	445	1010	725	303	101	0
2	180	240	65	226	187	570	513	1010	629	241	44	0
3	365	246	66	148	374	636	574	1010	690	203	7.9	65
4	360	246	66	0	190	539	574	900	601	130	131	0
5	240	185	66	144	305	375	513	687	337	142	0	65
6	246	187	66	0	427	264	513	687	802	155	0	65
7	551	187	0	168	386	568	513	687	509	285	310	0
8	575	187	99	0	450	305	770	687	486	108	4.8	0
9	361	187	99	0	387	314	770	734	695	130	0	0
10	341	140	66	32	444	321	679	687	548	130	0	98
11	494	122	33	64	360	340	734	687	583	17	0	0
12	430	111	65	97	283	342	780	734	536	130	0	0
13	476	126	32	97	334	214	822	734	581	181	122	33
14	435	190	0	65	421	408	900	687	487	152	0	33
15	444	158	152	0	421	212	937	581	538	151	0	33
16	341	126	33	107	421	218	973	450	570	142	167	33
17	346	126	33	99	576	386	1010	450	599	107	0	33
18	511	128	163	66	412	238	1070	519	571	80	65	33
19	341	116	37	99	411	249	1070	450	550	82	219	0
20	341	64	120	99	527	251	1010	450	685	80	65	33
21	341	0	0	99	477	326	1010	519	530	66	0	33
22	346	78	55	99	500	250	937	450	509	71	65	0
23	346	101	63	163	320	277	937	450	559	80	0	99
24	346	116	53	130	624	402	937	519	549	103	65	0
25	367	0	54	96	399	292	1010	450	514	115	130	0
26	342	104	64	159	504	293	1040	581	422	91	0	0
27	288	65	121	343	396	294	1010	513	457	68	0	33
28	292	65	0	304	401	228	1040	513	348	66	65	33
29	292		62	302	267	189	1040	574	339	70	0	0
30	296	—	60	303	637	445	1040	*191	323	44	65	0
31	237	—	60	—	396	—	1040	0	—	0	—	0
Mean	368	138	61.9	125	406	340	846	600	542	120	54.2	23.3
Runoff in Ac.Ft.	22630	7686	3804	7414	24970	20220	51990	36890	32280	7384	3227	1432
	Water Year Total			228250					Calendar Year Total		219927	

This is the drainage from Reclamation District 1500 discharged to West Borrow Pit of Sutter By-Pass and thence via Sacramento Slough (in the By-Pass) to Sacramento River, (see Table 54). Drainage is by pumping and gravity. Period of record 1930 to date. Records for 1953 computed by Division of Water Resources.
* Estimated

TABLE 54

FLOW OF SACRAMENTO SLOUGH TO SACRAMENTO RIVER - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	(a)	(a)		*1010	(a)	1560	*728	592	990	927	0	0
2	(a)	(a)		986	(a)	1540	566	591	1050	753	225	0
3	(a)	(a)		972	3590	1670	677	605	1120	675	0	338
4	(a)	(a)		688	4080	1700	760	657	1150	617	224	328
5	(a)	4580		374	3690	1610	751	673	1080	506	355	341
6	4740	4460		0	2770	1540	766	707	1200	514	182	387
7	4060	3880		0	2220	1370	807	708	1030	523	415	373
8		*3600		0	2010	1060	752	691	769	465	378	0
9		*3270		0	1930	1740	777	693	1270	0	239	271
10		*3380		578	1900	1850	809	734	800	0	188	340
11	F	*3190		832	1560	1950	741	731	958	344	0	261
12	L	NR	N	896	1410	1810	687	773	1010	175	0	0
13	O	NR	O	862	1110	*1500	674	768	1240	442	0	310
14	O	NR		784	1220	NR	671	774	798	522	0	0
15	D	NR		642	994	NR	664	741	994	461	462	0
16	E	NR		540	934	NR	648	718	1140	370	0	0
17	D	NR	R	498	1210	NR	610	729	1200	352	0	0
18		NR	E	263	1160	NR	575	659	1190	243	0	0
19		NR	C	398	1200	NR	556	666	1230	0	0	0
20		NR	O	480	0	NR	541	721	1440	0	250	0
21		NR	R	334	649	NR	608	752	1070	0	0	0
22		NR	D	422	1760	NR	706	756	1180	0	0	0
23		NR		0	2260	NR	686	728	1220	0	0	0
24		NR		644	2220	NR	675	730	1230	0	0	0
25		NR		880	2110	NR	633	755	1250	0	0	0
26		NR		901	1940	NR	574	800	1210	0	0	0
27		NR		884	1830	NR	562	812	1320	0	0	0
28		NR		0	1880	NR	608	814	946	0	0	0
29		—		(a)	1750	NR	613	830	1100	0	441	0
30		—		(a)	1760	NR	599	1080	1000	0	0	0
31		—		—	1750	—	626	776	—	0	—	0
Mean							666	734	1106	254	112	95.1
Runoff in Ac.Ft.							40960	45150	65820	15650	6662	5849
	Water Year Total								Calendar Year Total			

This is the discharge to the Sacramento River at Mile 21.2L via Sacramento Slough. This is the entire outflow of the Sutter By-Pass area and Reclamation District 1500. During high water periods the slough is entirely submerged as it lies within the By-Pass area. Sharp rises in river elevation will cause zero or negative flow. See Tables 51, 52, 53, and 43, which, when combined, will give the measured flow entering the By-Pass area. This is a Division of Water Resources station. Period of record 1924 to date.

* Estimated

(a) Flooded

TABLE 55

FLOW OF FEATHER RIVER NEAR OROVILLE - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	5070	7760	4550	8500	15400	9160	5160	2840	2740	2750	2450	3730
2	4790	7310	4420	8560	13900	9260	5020	2830	2710	2750	2480	3880
3	4810	7410	4270	8940	12900	9160	4950	2840	2700	2710	2460	3820
4	4480	7040	4030	9290	12700	9260	4450	2830	2680	2720	2500	4890
5	4380	7330	4150	10100	13000	9550	4240	2850	2680	2720	2520	3670
6	5370	7240	4300	10800	13200	11500	3860	2830	2640	2740	2660	3640
7	9120	7640	4330	9830	12900	12600	3700	2810	2650	2790	2640	4290
8	18000	7960	4520	9120	11900	11300	4240	2790	2620	2870	2560	4130
9	97100	7680	4550	8330	10800	10700	3870	2780	2640	2820	2520	4180
10	48100	7360	5850	8130	9710	9440	3670	2750	2640	2800	2630	3940
11	26800	7160	5850	7600	9010	9010	3630	2750	2550	2920	3250	3910
12	26900	6380	6380	7270	9520	9100	3510	2740	2480	2820	3040	3370
13	40300	6070	5850	7010	9660	10300	3500	2740	2630	2800	3240	3110
14	30700	5910	5230	6790	9750	8260	3430	2740	2710	2810	5600	3630
15	20700	5280	4940	6820	9620	8200	3170	2740	2640	2760	4310	3100
16	16100	4790	5460	7210	10400	8990	3280	2720	2630	2760	3260	2990
17	14200	4780	5170	7620	10100	9570	3220	2720	2610	2750	3450	2980
18	17400	5660	5140	7400	10800	9910	3290	2720	2700	3120	3740	2840
19	25000	5200	10000	7110	11400	9980	3240	2700	2760	3090	3780	2330
20	30800	4510	10800	7640	14800	9260	3170	2680	2760	2660	3900	2320
21	27900	4260	8850	8800	14200	8340	3150	2700	2750	2660	3800	3380
22	20300	4630	8020	11000	12200	7940	3100	2680	2750	2580	4010	3240
23	16400	4760	7580	12900	11800	7460	3010	2670	2750	2500	5690	2680
24	14100	4340	8100	13200	10800	6950	3030	2670	2750	2480	6790	2720
25	12400	4230	8620	12900	10300	6630	2980	2680	2740	2500	5120	1980
26	11200	4220	8960	12400	10200	6400	2960	2680	2750	2490	4150	2320
27	10000	4320	8940	32600	9440	5820	2920	2690	2760	2510	3880	1990
28	9180	4480	8830	28300	9210	5710	2960	2680	2790	2480	4090	2140
29	8580	—	8780	20500	8980	5550	2910	2710	2800	2480	3630	2280
30	8180	—	8620	17500	8660	5550	2860	2750	2780	2480	3700	2490
31	7940	—	8420	—	8760	—	2850	2750	—	2460	—	2490
Mean	19240	5918	6565	11140	11260	8695	3527	2744	2693	2703	3595	3176
Runoff in Ac.Ft.	1183000	328700	403700	662800	692300	517400	216900	168700	160200	166200	213900	195300
	Water Year Total 4932300								Calendar Year Total 4909100			

U. S. Geological Survey and Division of Water Resources cooperative station located at highway crossing about 4.5 miles above Oroville on right bank, at Mile 71.0. Drainage area is 3611 square miles. Period of record 1902 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 56

FLOW OF FEATHER RIVER NEAR GRIDLEY - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	5120	7790	4730	7550	13800	6020	2520	641	944	2040	1680	3130
2	4210	7340	4570	7640	12000	6240	2200	652	944	2000	1660	3420
3	4320	7420	4460	7790	10500	6280	2100	663	944	2010	1620	3280
4	4150	7070	4360	7940	9950	6230	2060	668	944	1950	1650	3910
5	3880	7090	4270	8460	9910	6310	1630	674	950	1940	1660	3520
6	4270	7020	4350	9070	10100	6310	1310	674	957	1960	1710	3170
7	6830	7320	4430	8700	9950	8770	1280	674	964	1900	1820	3310
8	10200	7550	4560	7920	9420	8680	1220	684	985	1970	1760	3540
9	63400	7470	4570	7210	8560	8090	1440	684	992	1890	1700	3520
10	60300	7180	5220	6950	7660	7230	1230	684	992	1860	1720	3500
11	32300	6950	5950	6620	6660	6430	1110	674	1020	1960	2140	3380
12	25900	6450	5690	6230	6380	6380	1030	674	985	1920	2280	3360
13	39600	5920	6280	5850	6460	6450	964	674	1030	1900	2490	2810
14	34100	5930	5510	5510	6480	6550	950	668	1150	1900	3410	2750
15	23300	5570	4910	5220	6450	5480	824	663	1300	1870	4100	3140
16	18200	5080	5200	5340	6690	5980	741	657	1310	1830	3080	2710
17	15200	4780	5340	5670	6970	6280	771	657	1490	1790	2860	2680
18	16600	5110	4740	5640	7000	6670	747	663	1590	1840	2930	2570
19	23600	5480	6330	5260	7900	6800	789	668	1750	2230	3230	2350
20	28000	4890	10600	5480	11600	6570	777	668	1860	1840	3240	1950
21	29500	4340	8850	5950	10600	5770	736	679	1940	1810	3230	2540
22	21500	4620	7960	7440	9800	5260	724	684	2020	1720	3200	2840
23	17600	4670	7210	8930	8480	4710	724	701	2050	1650	3940	2500
24	15000	4640	7450	9680	8240	4210	690	706	2040	1660	5430	2350
25	13000	4290	7840	9530	7090	3810	701	718	2040	1640	4880	2080
26	11500	4460	8220	9210	7140	3550	701	741	2040	1600	3860	1710
27	10400	4340	8200	17600	6720	3290	701	765	2040	1600	3370	1990
28	9440	4480	8070	29100	6380	2890	679	789	2040	1620	3370	1620
29	8850		8100	19000	6130	2570	668	818	2040	1620	3200	1870
30	8460	—	7860	16000	6000	2700	663	893	2070	1640	3160	1910
31	8090	—	7510	—	5770	—	647	931	—	1730	—	1990
Mean	18610	5902	6237	8950	8284	5767	1075	703	1447	1835	2813	2755
Runoff in Ac.Ft.	1144000	327800	383500	532500	509300	343200	66100	43220	86120	112800	167400	169400
	Water Year Total 3964640								Calendar Year Total 3885340			

Division of Water Resources station located at Gridley Bridge, Mile 49.7 above mouth. Period of record 1944 to date.

TABLE 57

FLOW OF FEATHER RIVER AT YUBA CITY (5TH ST. BRIDGE) - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	7380	8900	4690	8600	16800	7530	4110	535	1060	2510	2410	3830
2	5760	8600	4790	8600	14300	7830	3660	555	1040	2420	2340	4120
3	5430	8400	4740	8500	12500	8050	3630	603	980	2500	2300	4060
4	5330	8300	4620	8500	11300	7880	3440	661	920	2520	2270	4490
5	5080	7900	4530	8600	11000	7850	3080	641	910	2590	2270	4610
6	4630	7900	4530	9200	11200	8160	2800	681	910	2620	2310	4040
7	5240	7800	4650	9900	11000	9060	2390	631	880	2600	2480	4030
8	9480	8100	4810	9700	10800	10000	2170	690	880	2610	2420	4440
9	9800	8200	4890	9600	10100	9550	2370	740	950	2670	2320	4360
10	83000	8200	5170	9200	9000	8990	2110	760	900	2600	2330	4330
11	66800	8000	5960	8920	8040	8470	1810	720	940	2710	2540	4220
12	32500	7600	6290	8720	7800	8100	1670	740	910	2720	3010	4180
13	29100	6860	6970	8480	7910	8020	1500	750	830	2710	3120	3670
14	46000	6570	6260	8280	7880	8650	1450	760	1150	2730	3980	3560
15	34100	6480	5780	7960	7950	7390	1340	750	1310	2760	5250	3960
16	22200	5950	5730	7630	7960	7310	1010	750	1350	2720	4090	3570
17	17800	5400	6130	6910	8370	7650	1000	790	1590	2710	3560	3480
18	15500	5330	5690	7040	8150	7700	880	770	1740	2790	3580	3430
19	15400	5990	4020	7160	8240	7750	910	750	1910	3320	3960	3320
20	22400	5470	10900	6880	11600	7980	1080	730	2110	3000	3920	2860
21	32100	4860	10300	6600	12900	7790	950	690	2200	2780	3920	3210
22	32200	4760	10300	7560	12400	7140	870	700	2260	2680	3920	3700
23	19800	4910	9500	8220	9830	6620	810	720	2460	2600	4400	3470
24	17600	5060	8800	9900	9510	6230	720	750	2420	2510	6010	3260
25	15400	4720	8500	10300	8970	4610	681	750	2430	2490	5800	3170
26	13500	4580	8800	9250	8900	4840	681	780	2400	2410	4800	2490
27	12300	4440	8900	4500	8660	5150	700	790	2440	2360	4240	2920
28	11300	4400	8520	21400	8160	4590	603	790	2470	2360	4110	2420
29	10100		8560	24000	7920	4380	612	840	2490	2300	4000	2700
30	9600	—	8390	19500	7880	4270	593	980	2510	2320	3930	2810
31	9200	—	8560	—	7490	—	526	1070	—	2450	—	2960
Mean	20190	6560	6783	9654	9823	7318	1618	738	1578	2615	3520	3602
Runoff in Ac.Ft.	1242000	364300	417100	574400	604000	435500	99480	45360	93920	160800	209400	221500
	Water Year Total 4532260								Calendar Year Total 4467760			

Division of Water Resources station located at Yuba City-Marysville (5th St.) Bridge, Mile 28.0 above mouth. Backwater from the Yuba River at times affects the stage-discharger relationship of this station. Period of record 1944 to date. The flows at this station for the period January 1 through July 19, 1953, were estimated by subtracting flow of Yuba River at Marysville from the flow of the Feather River at Shanghai Bend because of the erroneous gage heights obtained from the recorder at the Yuba-Feather river junction prevented the use of the slope-discharge relationship.

TABLE 58

FLOW OF FEATHER RIVER BELOW YUBA RIVER - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15	Flow records for this station discontinued January, 1953.											
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29		—										
30		—										
31		—		—		—			—		—	
Mean												
Runoff in Ac.Ft.												
	Water Year Total								Calendar Year Total			

Station is maintained jointly by the Division of Water Resources and the U. S. Geological Survey. It is located on the right bank of the Feather River just below the mouth of the Yuba River at Mile 27.0R. Period of record 1949 through 1952.

TABLE 59

FLOW OF FEATHER RIVER BELOW SHANGHAI BEND - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	10400	12300	6760	12400	24800	12600	7000	697	982	2600	2490	*4190
2	8200	11900	6800	12300	21100	13100	6490	675	994	2500	2460	*4230
3	7600	11600	6620	12300	18600	12900	6180	675	948	2560	2460	*4300
4	7220	11300	6440	12500	17300	12800	5930	708	902	2570	2410	*4310
5	6780	10900	6320	12900	17300	13400	5360	720	902	2620	2440	*5780
6	6480	10900	6300	13900	17800	13900	4900	720	902	2650	2470	*4670
7	9520	10900	6440	14500	17700	17800	4390	720	914	2620	2660	*4200
8	16200	11300	6620	13900	17000	18500	4070	708	925	2630	2650	*4460
9	42600	11500	6820	13400	15500	16600	4190	720	971	2690	2530	*4660
10	107000	11200	7250	12700	13900	15300	3690	708	960	2690	2540	*4600
11	79600	10700	8760	12400	12400	13600	3160	686	982	2760	2740	*4470
12	42300	10100	9050	11900	11900	13200	2910	653	994	2850	3420	*4400
13	47200	9260	9840	11400	12000	14000	2810	632	890	2780	3390	*4280
14	62300	8970	9050	11000	12100	14800	2710	599	1180	2810	4280	*3900
15	45400	8780	8200	10500	12300	13600	2460	588	1330	2870	6420	*3900
16	29900	8250	8050	10200	12400	14000	2060	557	1390	2810	4920	*3800
17	24100	7600	8480	10000	13400	14700	1960	546	1670	2780	4110	*3700
18	24200	7530	7990	10000	13400	15700	1770	526	1850	2820	4150	*3680
19	30900	8090	9840	9890	14700	16800	1730	526	1940	3330	*4120	*3550
20	40400	7470	19700	9700	21800	17300	1700	515	2160	3160	*4280	*3160
21	52100	6760	17800	9860	20900	15000	1500	505	2270	2770	*4500	*3100
22	48200	6660	15300	11800	19500	13200	1360	484	2330	2750	*4430	*3330
23	29800	6710	13600	14200	16700	12000	1280	474	2540	2660	*4550	*3730
24	24600	6760	12800	16300	15900	10700	1150	546	2470	2570	*4850	*3520
25	21400	6420	12600	16800	14700	9640	1030	536	2540	2570	*5380	*3480
26	19000	6280	12800	16300	14000	9430	948	567	2490	2490	*5500	*2980
27	17100	6140	13000	18800	13200	8990	948	588	2520	2440	*5100	*2900
28	15600	6300	13000	41400	12400	8100	879	578	2560	2430	*4600	*2850
29	14100		13000	39000	12100	7570	822	610	2570	2380	*4480	*2800
30	13300	—	12600	29500	12100	7200	787	799	2560	2410	*4250	*3020
31	12700	—	12600	—	11700	—	731	971	—	2530	—	*3270
Mean	29550	9021	10140	15060	15500	13210	2803	630	1621	2681	3819	3846
Runoff in Ac.Ft.	1817000	501000	623700	896000	953200	786300	172400	38750	96470	164800	227300	236500
	Water Year Total 6669320								Calendar Year Total 6513420			

Division of Water Resources station located on the right bank at Mile 23.0 above mouth. Station is rated above 30,000 c.f.s. by means of simultaneous measurements of Yuba River and Feather River at Marysville with appropriate time lag between Marysville and Shanghai Bend. Period of record 1944 to date.

* Estimated

TABLE 60

FLOW OF FEATHER RIVER AT NICOLAUS - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	11600	14000	7120	12800	29400	12100	6480	931	1390	2980	2710	4420
2	9920	14500	7280	12800	24000	12700	6080	938	1390	2920	2660	4440
3	9490	12100	6900	12800	20700	12600	5680	959	1360	2970	2770	4570
4	8740	11700	6580	13100	18500	12400	5360	994	1320	2990	2650	5140
5	7770	11300	6400	13600	17700	12600	4990	1020	1300	3030	2690	6130
6	7230	11400	6390	14400	18000	13100	4390	1020	1330	3030	2710	4850
7	9590	11600	6500	15100	18100	15700	3850	1020	1350	3020	2860	4610
8	15100	11900	6640	14200	17400	17900	3600	1040	1350	2970	2910	5470
9	29700	12100	6820	13200	16000	16400	3610	1090	1380	3030	2840	5410
10	104000	11600	7190	12400	14400	15300	3290	1080	1360	2990	2840	5400
11	110000	11000	9170	12200	12900	13600	2810	1060	1360	3040	2930	5180
12	59200	10500	9420	11300	12000	12700	2530	1080	1400	3150	3520	5100
13	54600	9670	10400	10800	12000	13300	2420	1090	1320	3010	3530	4730
14	69100	9120	9900	10300	12000	14000	2380	1060	1480	3030	4380	4070
15	62400	8960	8710	9590	12200	13300	2170	1060	1620	3080	6610	4130
16	47800	8320	8120	9400	12200	13100	1820	1080	1800	3040	5760	4040
17	36400	7680	8420	10200	13200	13800	1740	1080	1940	3030	4710	3780
18	33300	7490	8450	10600	13200	14600	1610	1080	2160	3060	4640	3740
19	41600	8130	9170	10200	14200	15600	1540	1080	2250	3350	4650	3620
20	53100	7760	19300	9840	19000	16300	1550	1060	2410	3560	4830	3260
21	62200	7010	19800	10400	21100	15000	1450	1040	2540	3100	4890	3180
22	59300	6820	16300	11700	19800	12800	1340	1030	2620	3040	4690	3950
23	46800	7030	14200	13900	17400	11500	1270	1050	2760	2940	4890	3970
24	37100	7030	13200	15900	16000	10300	1190	1080	2780	2860	5520	3650
25	30600	6790	13600	16500	15000	9170	1100	1070	2790	2810	5580	3610
26	26300	6710	13800	16400	14000	8740	1050	1110	2770	2820	5650	3190
27	23100	6530	13900	17400	13300	8580	1060	1140	2780	2770	5200	3140
28	21300	6660	13800	36300	12400	7600	1010	1150	2820	2730	4750	3120
29	19000	—	13800	48300	12100	7200	966	1200	2800	2680	4850	3040
30	17100	—	13500	37900	11900	6580	952	1280	2780	2580	4480	3260
31	15600	—	13100	—	11600	—	917	1380	—	2620	—	3340
Mean	36740	9479	10580	15450	15860	12620	2588	1076	1957	2975	4123	4179
Runoff in Ac.Ft.	2259000	526400	650300	919400	975300	750900	159100	66150	116400	182900	245400	256900
	Water Year Total 7141350								Calendar Year Total 7108150			

Station is maintained jointly by Division of Water Resources and U. S. Geological Survey. It is located on left bank at Mile 9.3 above mouth. Period of record 1921 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 61

FLOW OF SOUTH HONCUT CREEK NEAR BANGOR - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	31	23	16	12	50	6.9	0.7			0	1.2	2.8
2	36	20	11	12	31	6.3	.7			0	1.1	2.6
3	23	19	9.9	11	23	5.7	.6			0	1.0	3.0
4	17	18	8.9	10	19	5.3	.5			0	1.0	51
5	14	17	8.9	9.9	16	4.9	1.3			0.1	1.0	9.4
6	55	17	8.7	9.4	14	8.5	3.1			.2	1.7	6.5
7	316	16	8.2	9.4	14	8.7	2.4			.2	3.4	7.7
8	471	15	7.5	9.4	14	6.5	0.3			.1	3.0	6.9
9	972	14	7.3	9.2	13	5.7	.3			.1	2.2	5.5
10	176	13	13	16	12	5.3	.2			.1	2.3	4.7
11	83	13	14	14	12	4.9	.2			.1	3.0	4.5
12	309	12	35	10	12	5.5	.2	N	N	.1	4.5	4.2
13	312	12	23	9.4	10	5.1	.2	0	0	.1	5.1	3.9
14	157	12	15	8.9	12	4.9	.2			.1	27	3.7
15	98	12	13	8.2	12	5.1	.2			.6	9.7	3.6
16	66	11	12	9.7	14	3.4	.2			1.1	5.9	3.4
17	146	11	13	14	13	3.1	.2	F	F	1.3	8.0	3.4
18	257	11	12	9.9	9.7	2.9	.1	L	L	4.8	4.7	3.4
19	379	11	349	9.9	9.4	2.8	.1	0	0	6.3	4.3	3.4
20	348	10	124	11	8.5	2.6	.1	W	W	3.7	11	3.7
21	161	9.9	88	9.7	9.2	2.4	.1			3.4	6.3	3.9
22	102	9.4	60	8.7	8.2	2.3	.1			3.1	4.5	3.7
23	80	9.2	41	8.2	7.5	2.0	.1			2.9	18	3.4
24	66	9.2	34	7.5	8.0	1.6	.1			2.2	13	3.3
25	55	8.7	26	6.9	9.7	1.2	.1			1.5	6.5	3.3
26	46	8.7	21	6.7	10	1.2	.1			1.2	4.7	3.1
27	40	8.7	17	514	8.5	1.0	.1			1.2	3.9	3.1
28	36	9.9	16	106	8.7	1.0	.1			1.1	3.4	3.0
29	32		15	90	7.7	0.9	0			1.1	3.1	3.0
30	30	—	14	68	8.2	.8	0			1.2	2.9	3.0
31	26	—	13	—	7.5	—	0		—	1.1	—	2.9
Mean	159	12.9	34.0	34.6	13.3	4.0	0.4	0	0	1.3	5.6	5.6
Runoff in Ac.Ft.	9800	715	2090	2060	817	235	25	0	0	77	332	343
	Water Year Total 18417								Calendar Year Total 16494			

U. S. Geological Survey and Division of Water Resources station located approximately 2.5 miles southeast of Bangor and 16 miles above the mouth. Honcut Creek is an east-side tributary to the Feather River at Mile 43.7L. Drainage area is 68.6 square miles. Prior records available at a site eight miles downstream. Period of record 1950 to date. Records for 1953 computed by the U. S. Geological Survey.

TABLE 62

FLOW OF YUBA RIVER AT NARROWS DAM - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2050	2830	1780	3420	6430	5510	3550	705	695	635	550	635
2	1780	2770	1660	3440	5840	5260	3460	705	695	635	548	640
3	1580	2670	1620	3660	5350	4910	3130	705	690	640	535	645
4	1430	2600	1600	3880	5440	5330	3060	705	687	640	525	649
5	1350	2600	1560	4260	6090	5690	2800	705	680	635	525	645
6	1620	2650	1580	4480	6400	6240	2660	705	680	635	525	640
7	3360	2650	1620	4030	6060	8500	2540	705	680	610	525	640
8	5840	3040	1710	3660	5450	7150	2360	705	680	635	505	640
9	34600	2780	1820	3260	4750	6430	2200	685	675	627	525	645
10	16800	2580	2160	3160	4280	5730	1820	705	675	625	525	648
11	8900	2420	2480	2890	4020	4980	1590	705	675	622	525	590
12	7940	2260	2480	2650	3920	5440	1590	702	675	620	530	575
13	16000	2170	2530	2530	3980	6040	1670	700	660	620	526	575
14	12800	2100	2120	2410	4240	6240	1500	703	660	620	540	625
15	7910	2040	1970	2410	4220	6540	1370	698	660	620	550	625
16	5920	1990	1930	2570	4610	7000	1310	698	660	618	550	625
17	5400	1900	2060	2980	4820	7300	1230	698	660	615	570	622
18	8360	1880	2010	2700	5440	8420	1170	698	660	610	590	625
19	13900	1800	4820	2620	7820	9350	1140	698	660	605	600	625
20	16900	1730	6680	2860	10100	8780	1060	698	660	605	595	635
21	15400	1690	4380	3480	8020	6840	986	698	660	605	575	650
22	9740	1630	3500	4440	6730	6160	930	698	660	595	595	590
23	7080	1510	3300	5820	5870	5620	900	695	660	550	600	630
24	5920	1550	3470	6260	5550	4810	850	695	655	560	610	630
25	5080	1530	3600	6030	5120	4500	818	695	650	565	610	630
26	4480	1500	3530	6100	4570	5010	786	695	650	570	620	610
27	3960	1520	3590	16100	4140	4370	758	695	648	570	622	620
28	3550	1580	3660	14700	4140	4110	741	695	648	570	625	615
29	3330		3620	9660	4210	4020	717	695	645	565	625	630
30	3090	—	3420	8140	4240	3520	710	695	640	560	627	625
31	2930	—	3360	—	4570	—	710	695	—	550	—	625
Mean	7710	2142	2762	4820	5368	5993	1617	699	666	604	566	626
Runoff in Ac.Ft.	474000	118900	169800	286800	330100	356600	99400	43000	39640	37150	33670	38490
	Water Year Total 2043680								Calendar Year Total 2027550			

U. S. Geological Survey and Division of Water Resources cooperative station located above spillway of Narrows Dam. Combined with flows in Table 64 for total flow of Yuba River near Smartville. Drainage area is 1110 square miles. Period of record 1941 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 63

FLOW OF YUBA RIVER AT MARYSVILLE (SIMPSON LANE BRIDGE) - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3020	3400	2070	3800	8000	5070	2890	410	413	472	462	580
2	2440	3300	2010	3700	6800	5270	2830	410	410	466	458	584
3	2170	3200	1880	3800	6100	4850	2550	407	398	469	458	596
4	1890	3000	1820	4000	6000	4920	2490	422	401	458	455	810
5	1700	3000	1790	4300	6300	5550	2280	425	401	455	443	748
6	1850	3000	1770	4700	6600	5740	2100	416	398	458	428	656
7	4280	3100	1790	4600	6700	8740	2000	419	404	462	462	660
8	6720	3200	1810	4200	6200	8480	1900	416	401	469	455	680
9	32800	3300	1930	3800	5400	7050	1820	425	404	476	449	656
10	24000	3000	2080	3500	4900	6310	1580	398	404	486	469	640
11	12800	2700	2800	3480	4360	5130	1350	407	395	508	476	632
12	9760	2500	2760	3180	4100	5100	1240	410	395	458	476	624
13	18100	2400	2870	2920	4090	5980	1310	410	392	480	497	608
14	16300	2400	2790	2720	4220	6150	1260	410	392	483	756	596
15	11300	2300	2420	2540	4350	6210	1120	401	428	486	802	608
16	7650	2300	2320	2570	4440	6690	1050	401	462	500	628	624
17	6290	2200	2350	3090	5030	7050	960	401	497	494	636	604
18	8740	2200	2300	2960	5250	8000	890	401	500	518	608	600
19	15500	2100	5820	2730	6460	9050	820	407	486	539	616	608
20	18000	2000	8800	2820	10200	9320	766	398	500	511	680	608
21	20000	1900	7500	3260	8000	7210	700	389	514	490	648	608
22	16000	1900	5000	4240	7130	6060	628	383	539	497	632	608
23	10000	1800	4100	5980	6870	5380	592	389	539	500	648	604
24	7000	1700	4000	6400	6390	4470	546	392	542	494	824	600
25	6000	1700	4100	6500	5730	5030	494	395	532	497	784	596
26	5500	1700	4000	7050	5100	4590	455	401	508	497	668	596
27	4800	1700	4100	14300	4540	3840	440	404	500	486	624	596
28	4300	1900	4480	20000	4240	3510	425	401	497	480	624	600
29	4000		4440	15000	4180	3190	422	410	490	480	620	600
30	3700	—	4210	10000	4220	2930	413	416	469	476	604	600
31	3500	—	4040	—	4210	—	407	410	—	466	—	604
Mean	9358	2461	3360	5405	5681	5896	1249	406	454	484	580	624
Runoff in Ac.Ft.	575200	136700	206600	321600	349300	350800	76820	24960	27000	29770	34490	38350
	Water Year Total 2193210								Calendar Year Total 2171590			

Station maintained jointly by the Division of Water Resources and the U. S. Geological Survey is at 7th Street Bridge at Mile 0.9L above mouth. Stage-discharge relationship is affected at times by variable backwater from the Feather River. Period of record 1939 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 64

FLOW OF DEER CREEK NEAR SMARTVILLE - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	93	328	164	204	283	117	14	9.2	14	12	15	30
2	97	322	129	57	213	118	13	9.2	13	12	16	30
3	71	308	120	48	179	110	9.5	11	14	11	16	40
4	58	147	114	46	150	104	19	13	11	11	15	245
5	52	139	111	59	129	101	19	12	11	11	17	59
6	178	134	108	145	122	144	15	12	11	11	27	48
7	656	131	107	181	111	140	9.5	12	11	11	26	81
8	570	131	103	197	101	116	7.8	12	10	12	22	54
9	1210	116	100	183	107	105	6.7	11	10	12	20	45
10	289	54	171	206	89	103	5.8	11	9.2	17	22	40
11	161	46	195	186	84	96	6.4	11	10	32	40	38
12	698	45	288	168	85	104	7.0	11	10	22	37	35
13	840	48	240	164	87	100	7.8	12	9.5	18	45	32
14	407	107	179	154	96	89	9.2	18	10	21	282	32
15	214	117	161	140	129	83	9.5	14	10	24	87	58
16	149	120	150	159	132	90	9.2	9.5	10	24	67	39
17	246	137	154	204	122	92	8.4	10	11	15	69	32
18	493	154	149	149	117	78	7.4	9.2	13	28	50	32
19	661	152	1480	128	144	64	8.1	10	15	32	60	32
20	714	129	630	118	154	58	7.4	12	15	18	120	33
21	335	123	524	111	150	46	7.8	11	16	17	76	29
22	198	122	358	107	114	27	8.1	11	19	16	77	27
23	157	118	294	93	124	21	9.2	11	16	15	81	26
24	294	117	273	64	144	22	9.5	12	15	15	65	26
25	322	129	261	38	171	12	9.5	12	12	15	48	25
26	310	118	249	28	145	11	9.2	13	13	15	38	24
27	285	114	242	1220	132	13	8.8	14	13	15	35	23
28	289	131	626	403	142	15	9.5	12	13	15	34	22
29	380		542	432	132	14	9.2	15	12	15	32	24
30	335	—	494	372	126	14	8.8	20	11	16	30	24
31	330	—	485	—	118	—	8.8	16	—	16	—	23
Mean	358	137	297	192	133	73.6	9.6	12.1	12.3	16.9	52.3	42.2
Runoff in Ac.Ft.	22000	7610	18250	11430	8200	4380	591	746	729	1040	3110	2590
	Water Year Total 84015								Calendar Year Total 80676			

U. S. Geological Survey and Division of Water Resources cooperative station located one mile upstream from the mouth. Deer Creek is tributary to the Yuba River one mile below Narrows Dam. For total flow of Yuba River near Smartville combine with flows in Table 62. Drainage area is 83.5 square miles. Period of record 1935 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 65

FLOW OF DRY CREEK AT VIRGINIA RANCH - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	116	96	80	78	207	42	12	4.4	6.2	8.2	5.7	15
2	126	92	53	71	156	40	12	5.2	6.2	7.6	5.4	15
3	87	86	46	68	130	38	11	5.2	6.2	7.6	5.4	17
4	69	81	43	42	111	35	10	4.9	6.5	7.3	5.4	98
5	58	84	42	16	88	34	10	4.7	6.5	7.0	5.4	55
6	165	84	40	15	78	68	9	4.7	6.5	7.0	7.6	34
7	970	76	38	32	74	62	9	4.4	6.2	6.7	10.0	62
8	1310	73	38	56	74	44	8	4.4	6.2	6.5	10	42
9	2910	66	38	50	68	38	8	4.2	6.0	6.5	9.7	31
10	524	62	100	90	60	35	8	4.2	6.0	7	11	27
11	263	61	106	80	55	34	8	4.4	6.5	8	11	23
12	554	59	232	65	52	33	8	4.4	9.4	6.5	11	21
13	906	57	154	60	48	31	7	4.4	9.1	6.5	12	20
14	530	57	90	58	57	29	7	4.2	9.1	6.5	26	19
15	291	55	71	56	88	28	7	4.2	9.1	6.5	15	19
16	205	53	66	61	86	28	6	4.0	9.1	6.5	14	18
17	480	52	82	99	74	26	6	3.9	8.8	6.5	17	18
18	832	52	71	61	55	23	5	3.7	8.8	10	14	18
19	1150	50	1790	54	60	23	4	3.7	8.5	8	15	18
20	1080	49	546	58	58	22	3.7	3.7	8.8	7	20	19
21	544	47	419	49	71	21	3.7	3.9	8.8	6.5	15	18
22	338	46	252	42	57	20	3.0	3.9	8.8	6.5	16	18
23	252	44	192	40	51	18	3.1	3.7	8.5	6.5	22	18
24	210	42	159	36	52	16	3.1	3.7	8.5	6.5	20	18
25	179	42	135	34	64	14	4.9	3.7	8.5	6.5	17	18
26	157	42	120	33	90	14	4.4	3.7	8.5	6.2	16	18
27	139	42	108	2050	59	14	4.4	3.9	8.5	6.0	15	17
28	128	47	102	429	60	13	4.2	4.0	8.5	5.7	15	17
29	118	—	100	383	54	13	4.2	6.5	8.5	6.0	16	17
30	110	—	87	276	49	12	4.0	6.7	8.2	5.7	16	17
31	104	—	82	—	44	—	4.0	6.2	—	5.4	—	17
Mean	481	60.6	177	151	75.2	28.9	6.5	4.4	7.83	6.8	13.3	25.2
Runoff in Ac.Ft.	29560	3370	10870	9009	4620	1720	400	271	466	418	791	1550
	Water Year Total 68357								Calendar Year Total 63045			

U. S. Geological Survey station located 0.4 mile south of Virginia Ranch and 2.9 miles southwest of Oregon House. Dry Creek is a north-side tributary to the Yuba River at Mile 11.0. Drainage area is 71.5 square miles. Period of record 1948 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 66

FLOW OF DRY CREEK NEAR WHEATLAND - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	88	41	14	15	62	21	3.8	1.8	4.6	7.8	0	2.2
2	121	40	17	14	44	21	3.8	2.0	5.8	6.8	0	1.6
3	77	37	12	13	35	21	3.2	2.8	5.8	6.2	0	1.6
4	62	35	10	12	29	19	0.8	7.0	5.4	5.2	0	68
5	52	34	9.7	11	23	16	0.9	6.4	5.0	3.0	0	46
6	127	33	9.7	9.9	14	20	2.4	4.0	4.8	1.6	0	14
7	522	31	9.2	8.9	20	35	1.2	4.8	5.0	3.0	0	8.3
8	450	30	8.9	8.5	20	26	0	5.0	4.8	5.6	0	22
9	949	28	8.5	8.7	19	21	0	5.0	5.0	6.2	0	19
10	239	25	9.7	11	14	19	1.6	5.0	5.0	4.0	0	14
11	128	24	20	13	16	19	2.2	5.2	4.8	2.6	0	9.8
12	484	23	18	7.8	14	18	1.0	6.0	5.0	3.0	0	8.3
13	730	23	36	4.3	11	18	0.8	5.2	6.5	4.2	0	6.8
14	343	22	24	2.3	8.3	17	2.2	5.4	6.4	4.0	28	6.4
15	167	21	18	1.9	11	14	3.4	6.4	6.5	7.8	52	6.2
16	114	20	14	1.6	14	12	3.6	4.8	6.8	5.6	16	5.6
17	145	15	14	13	14	8.6	3.4	5.0	6.6	4.6	6.6	5.6
18	430	13	13	17	13	7.0	3.0	5.0	6.5	4.4	9.2	4.8
19	703	12	118	12	13	6.4	3.6	5.4	5.6	9.2	6.4	5.4
20	514	12	188	22	18	6.2	4.4	4.8	5.2	11	7.0	5.4
21	286	11	81	23	22	6.2	5.0	5.0	5.2	4.8	19	5.4
22	153	11	58	19	24	6.2	4.0	5.0	5.6	2.6	8.6	4.8
23	115	9.7	41	12	20	5.6	3.0	3.4	6.2	1.1	6.0	4.4
24	93	9.2	33	11	22	4.0	2.6	4.4	7.5	0.3	8.6	4
25	80	8.9	29	8.9	30	2.0	2.2	5.6	12	0	14	3.6
26	70	8.7	26	7.4	26	1.3	2.0	5.8	7.8	0	7.0	3.6
27	61	8.5	22	377	20	2.8	1.2	4.0	6.8	0.1	5.2	3.6
28	56	8.9	21	244	16	3.4	1.3	3.2	7.2	0.4	4.0	3.4
29	52	—	19	88	26	5.0	1.6	3.2	7.8	0.2	3.2	3.4
30	48	—	19	122	25	4.0	1.6	3.8	7.8	0	2.6	3.2
31	44	—	16	—	22	—	1.3	4.0	—	0	—	3.2
Mean	242	21.2	30.2	37.3	21.5	12.9	2.3	4.7	6.2	3.7	6.8	9.8
Runoff in Ac.Ft.	14880	1180	1860	2220	1320	765	141	286	367	229	403	602
	Water Year Total 28344								Calendar Year Total 24253			

U. S. Geological Survey and Division of Water Resources cooperative station located 2300 feet upstream from Highway 99E bridge and 1.3 miles northwest of Wheatland. Dry Creek is a north-side tributary to the Bear River at Mile 4.5 above the mouth. Drainage area is 99.5 square miles. Period of record October, 1946, to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 67

FLOW OF BEAR RIVER NEAR WHEATLAND - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	568	458	272	433	1260	276	8.4	10	29	22	33	99
2	575	409	233	385	1020	271	8.7	9.0	28	19	82	84
3	352	403	215	368	855	258	9.4	9.5	24	18	166	88
4	134	445	186	352	712	198	10	11	21	20	53	819
5	106	490	203	341	629	24	11	16	23	19	40	352
6	262	490	168	549	580	31	11	13	24	16	29	180
7	1180	490	168	820	524	101	9.8	14	22	14	39	387
8	1300	484	146	820	480	231	9.8	14	24	20	31	658
9	2330	458	134	813	475	253	9.8	14	25	23	29	612
10	1890	397	298	890	430	235	9.8	15	24	31	28	590
11	1140	421	715	883	395	219	11	13	24	33	66	558
12	1410	397	523	736	370	215	12	10	21	29	99	524
13	3610	368	862	799	380	223	16	9.5	21	29	144	456
14	3480	363	530	715	307	199	13	8.5	22	33	583	168
15	1930	341	368	666	258	167	12	10	23	34	372	91
16	1380	314	199	645	280	157	12	12	21	61	430	77
17	1260	309	304	869	280	145	13	13	19	101	541	74
18	2350	325	219	813	266	139	13	15	19	99	455	74
19	3610	298	336	743	258	122	12	14	20	110	390	69
20	4060	267	2750	715	380	118	12	18	24	131	415	84
21	3640	252	1760	617	350	90	10	19	21	149	198	95
22	2230	272	1330	346	395	62	8.4	19	19	149	144	103
23	1710	248	1030	243	335	52	6.9	19	18	144	227	123
24	1420	248	911	238	360	40	5.6	19	18	141	298	123
25	1200	252	799	228	435	24	6.0	22	21	171	226	121
26	1060	199	694	199	395	9.8	7.5	20	20	220	146	114
27	848	179	568	2640	385	7.5	10	20	23	199	114	123
28	792	179	562	3200	390	6.9	9.0	22	23	171	139	121
29	771	—	562	1700	360	7.5	10	24	23	115	139	110
30	757	—	510	1660	315	7.5	14	26	23	24	105	103
31	736	—	464	—	298	—	13	27	—	15	—	71
Mean	1551	348	581	814	457	130	10.5	15.7	22.2	76.1	192	234
Runoff in Ac.Ft.	95390	19350	35740	48450	28080	7710	643	963	1320	4680	11430	14380
	Water Year Total 257114								Calendar Year Total 268136			

U. S. Geological Survey and Division of Water Resources cooperative station located on Highway 99E bridge 11.3 miles above the mouth. The Bear River flows into the Feather River above Nicolaus at Mile 12.0L. Drainage area is 295 square miles. Period of record 1928 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 68

FLOW OF COON CREEK AT HIGHWAY 99E - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	114	69	52	45	103	*24	12	*3.7	12	14	17	55
2	158	66	41	44	78	24	12	*4.5	10	15	25	54
3	92	72	41	31	65	21	9.2	*5.4	9.2	19	22	59
4	75	66	41	20	56	17	9.2	*7.2	7.2	19	15	224
5	68	63	39	23	42	14	8.8	*8.3	*7.2	16	14	89
6	216	63	40	30	33	62	8.3	*9.7	*6.9	16	16	73
7	524	59	38	*26	33	94	9.7	*10	*7.2	15	18	80
8	399	52	39	27	32	63	9.7	*8.8	*7.6	10	35	61
9	650	48	36	25	34	47	9.2	*8.3	*8.3	8.3	37	49
10	263	52	51	38	33	39	8.3	*7.6	*7.6	15	44	54
11	151	46	96	31	25	37	8.3	*7.2	*6.5	58	54	49
12	299	39	70	24	18	35	8.8	*6.9	*6.9	45	54	46
13	668	36	101	27	17	35	8.3	*6.5	*7.2	38	54	27
14	360	36	62	25	15	25	*7.2	*6.1	*7.6	41	205	30
15	218	40	52	20	23	21	*5.4	*6.1	*7.2	35	83	24
16	151	40	48	14	*19	18	5.8	*5.4	*7.2	29	49	20
17	176	44	47	37	*21	15	*7.9	*6.1	*8.8	25	62	21
18	518	44	44	34	*19	12	*6.1	*6.1	7.6	25	40	21
19	538	40	272	27	20	11	*5.1	*6.1	8.8	58	30	23
20	891	39	228	34	31	12	*4.0	*4.7	9.2	47	75	25
21	408	37	158	29	29	*12	*3.3	*3.7	9.7	45	90	25
22	245	37	108	19	30	*13	*2.3	*4.7	11	24	81	26
23	185	36	89	15	23	12	*1.8	*6.1	8.3	15	81	25
24	151	37	75	12	29	12	*1.5	*7.9	7.9	11	76	25
25	128	38	66	13	*55	*12	*1.5	7.6	13	11	63	23
26	108	34	61	13	45	*11	*1.8	7.2	14	18	56	23
27	98	33	58	691	38	*12	*2.0	8.8	14	18	55	23
28	89	35	56	230	34	*12	*2.2	6.9	16	16	55	23
29	85		*54	137	33	*12	*2.3	10	15	11	55	24
30	78	—	*54	180	30	14	*2.8	12	17	10	55	*19
31	73	—	*49	—	26	—	*3.0	9.7	—	10	—	17
Mean	264	46.5	73.1	64.0	35.1	24.9	6.1	7.1	9.5	23.8	53.9	43.4
Runoff in Ac.Ft.	16220	2580	4495	3810	2160	1484	372	435	567	1462	3205	2672
	Water Year Total 43235								Calendar Year Total 39462			

Division of Water Resources station located at the Highway 99E bridge. Coon Creek is an east-side tributary to the Sacramento River at Mile 19.6L, via "Natomas Cross Canal", to the main drain between Reclamation Districts 1000 and 1001. Drainage area is 82.5 square miles. Period of record 1947 to date. Records for 1953 computed by Division of Water Resources.
* Estimated

TABLE 69

FLOW OF AUBURN RAVINE AT HIGHWAY 99E - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	57	56	26	41	91	29	70	*60	*63	6.0	3.9	21
2	62	56	24	40	54	28	65	*60	*63	6.6	5.8	18
3	46	51	47	36	34	27	58	*60	*63	8.0	7.0	27
4	40	48	47	36	29	27	53	*60	*63	8.4	7.2	*140
5	36	50	46	35	28	27	51	*60	50	8.4	9.8	40
6	109	52	45	28	30	52	56	*60	41	7.0	14	30
7	*211	*48	42	*10	32	40	73	*60	42	3.9	15	37
8	*221	*47	37	*10	47	33	78	60	41	3.6	14	27
9	*256	*44	36	*10	58	32	77	61	38	3.7	13	24
10	118	*43	*58	*10	58	32	74	62	32	6.6	15	22
11	86	40	*70	*10	56	30	74	*61	31	14	20	21
12	*322	40	50	*10	56	30	76	*61	28	11	19	20
13	*335	40	28	*10	54	*24	79	*61	24	12	24	21
14	164	43	21	*10	59	*24	76	*61	23	11	*132	20
15	104	42	*18	*10	60	*24	74	60	23	15	43	22
16	86	37	*20	*10	58	*24	73	61	21	17	33	20
17	*123	28	*20	*10	56	32	67	60	21	11	38	20
18	*239	27	*22	*10	56	36	78	56	21	21	24	21
19	*214	24	*157	*10	59	48	79	51	20	22	24	21
20	*374	36	*173	*10	59	60	75	52	22	17	39	21
21	*204	34	*173	*10	62	61	78	52	23	13	23	20
22	127	34	*173	38	61	*63	78	54	*21	13	24	20
23	104	34	*173	49	65	*63	79	58	*15	7.6	23	20
24	86	32	*173	90	76	*63	77	58	*11	5.2	25	19
25	73	28	36	81	*77	*63	70	59	*7.2	4.8	21	18
26	62	18	67	78	67	*63	70	59	5.8	4.8	21	18
27	57	18	69	*496	53	*63	70	60	5.6	4.0	20	20
28	51	*18	60	*146	54	*63	65	66	5.6	3.6	20	21
29	48		58	*160	45	*63	61	70	4.8	4.2	20	21
30	80	—	*63	146	34	70	61	*74	5.0	4.2	21	23
31	78	—	*42	—	32	—	*61	*72	—	4.0	—	24
Mean	135	38.1	66.9	55.0	53.5	43.1	70.2	60.3	27.8	9.1	24.0	26.4
Runoff in Ac.Ft.	8277	2118	4114	3273	3293	2567	4316	3707	1654	558	1426	1620
	Water Year Total 37807								Calendar Year Total 36923			

Division of Water Resources station located at the Highway 99E bridge. Auburn Ravine is an east-side tributary to the Sacramento River at Mile 19.6L via "Natomas Cross Canal", the main drain between Reclamation Districts 1000 and 1001. Drainage area is 34.6 square miles. Period of record 1947 to date.
* Estimated mean for period.

TABLE 70

FLOW OF NATOMAS CROSS CANAL AT HEAD - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	337	159	60	84	264	74			26	67	*12	64
2	315	112	73	78	169	70			26	46	*12	64
3	298	110	72	78	128	95			24	38	*15	61
4	195	116	79	70	100	85			23	38	21	82
5	177	117	82	60	80	61			25	32	18	197
6	242	117	82	56	51	67			*21	24	*16	122
7	955	117	82	53	42	110			*16	*17	*13	101
8	1650	113	78	41	38	173			*13	*16	*18	101
9	1810	106	73	35	58	153			*16	*13	24	88
10	1260	103	74	34	57	131			*18	*12	38	73
11	911	101	97	45	48	104			19	*12	47	68
12	816	*100	131	53	36	83			*16	*16	57	67
13	1540	*97	110	41	42	84			*17	44	60	66
14	1420	*94	116	36	*19	79			*15	46	72	61
15	969	*92	86	38	*18	52		*8.7	*13	45	149	54
16	730	*89	70	30	*17		*1.7		24	48	139	49
17	618	*86	67	29	*16				23	45	94	43
18	*724	*82	66	34	*15				28	44	86	39
19	*741	75	75	39	*14				40	38	76	40
20	*975	69	354	33	*13				46	53	64	39
21	1400	78	272	31	*20				55	57	83	41
22	908	78	224	22	29				74	54	100	42
23	669	79	165	21	33	*4.1			89	49	101	41
24	551	78	145	19	34				93	34	97	40
25	457	79	123	18	46				95	21	95	38
26	374	79	107	18	69				84	*14	82	38
27	302	67	119	42	85				83	*13	74	38
28	290	62	116	701	88				80	*16	70	38
29	211		107	384	97				86	*17	68	39
30	208	—	*103	261	92				84	*16	65	39
31	199	—	*97	—	76	—		20	—	*13	—	39
Mean	718	94.8	113	82.8	61.1	49.4	1.7	9.1	42.4	32.2	62.2	61.7
Runoff in Ac.Ft.	44140	5266	6952	4927	3757	2940	105	557	2523	1980	3701	3792
	Water Year Total 94077								Calendar Year Total 80640			

Division of Water Resources station located approximately five miles northeast of Verona on Pacific Avenue Highway bridge. Natomas Cross Canal is an east-side tributary to the Sacramento River at Mile 19.6L. Period of record December, 1949, to date.
* Estimated mean for period.

TABLE 71

FLOW OF RECLAMATION DISTRICT 1001 DRAIN INTO NATOMAS CROSS CANAL(a) - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	46	22	34	0	0	0						0
2	35	18	0	29	0	35						26
3	21	0	0	0	7.4	0						0
4	20	19	31	0	0	0						0
5	17	20	0	32	15	0						0
6	32	20	31	0	18	0						0
7	87	26	0	0	58	0						0
8	109	0	27	0	0	0						0
9	77	0	0	32	43	0						0
10	43	25	0	0	0	0						0
11	17	0	0	0	40	0						0
12	33	0	42	26	0	0	N	N	N	N	N	0
13	51	46	0	0	53	0	0	0	0	0	0	0
14	47	0	0	0	52	0						50
15	22	23	30	0	26	0						34
16	20	0	0	27	26	0						0
17	19	0	0	0	26	0	F	F	F	F	F	15
18	20	31	0	0	0	0	L	L	L	L	L	0
19	20	0	8.6	19	22	0	0	0	0	0	0	0
20	25	0	30	0	43	0	W	W	W	W	W	0
21	17	44	0	0	29	0						0
22	21	0	24	0	36	0						0
23	20	0	0	0	0	0						0
24	14	0	0	0	34	0						0
25	19	42	0	0	28	0						0
26	18	0	34	0	34	0						0
27	16	0	0	0	0	0						0
28	17	0	0	9.7	0	0						0
29	16		27	9.4	32	0						0
30	20	—	0	9.2	28	0						0
31	16	—	0	—	7.1	—			—		—	0
Mean	30.8	12.0	10.3	6.4	21.2	1.2	0	0	0	0	0	4.0
Runoff in Ac.Ft.	1894	666	632	383	1304	69	0	0	0	0	0	248
	Water Year Total 6770								Calendar Year Total 5196			

This is drainage return to the Sacramento River via the cross canal by pumping and gravity. Period of record 1940 to date. Records for 1953 computed by Division of Water Resources.
(a) Natomas Cross Canal is the main drain between Reclamation Districts 1000 and 1001 and joins the Sacramento River at Mile 19.6L.

TABLE 72

FLOW OF RECLAMATION DISTRICT 1000 DRAIN (#3 PLANT) - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1 2 3 4 5												
6 7 8 9 10												
11 12 13 14 15	Records sufficient to compute only monthly flows.											
16 17 18 19 20												
21 22 23 24 25												
26 27 28 29 30 31		— —		—		—			—		—	
Mean	41.7	23.6	22.9	21.8	51.8	34.7	36.0	48.5	18.4	13.7	6.2	3.3
Runoff in Ac.Ft.	2563	1314	1408	1299	3185	2067	2212	2985	1093	842	371	203
	Water Year Total 21228								Calendar Year Total 19542			

This is drainage from Reclamation District 1000 return to Sacramento River by pumping and gravity at Mile 6.85L. Daily distribution of flows are not available since the plant operates automatically on float switch. Additional water was returned to Sacramento River from same district at Mile 2.1L (see Table 74). An undetermined amount of water was also returned to the Sacramento River by the Pritchard Lake Plant at Mile 16.0L. Period of record 1940 to date. Records for 1953 computed by Division of Water Resources.

TABLE 73

FLOW OVER SACRAMENTO WEIR FROM SACRAMENTO RIVER TO YOLO BY-PASS - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1 2 3 4 5												
6 7 8 9 10												
11 12 13 14 15	No flow in 1953											
16 17 18 19 20												
21 22 23 24 25												
26 27 28 29 30 31		— — —		—		—			—		—	
Mean	0	0	0	0	0	0	0	0	0	0	0	0
Runoff in Ac.Ft.	0	0	0	0	0	0	0	0	0	0	0	0
	Water Year Total 0								Calendar Year Total 0			

Elevation of fixed crest is 25.0 U.S.E.D. Movable crest (top of needles) 31.0 U.S.E.D. Weir has 48 gates, each 38 feet in length. Weir is on right bank at Mile 4.2R above Sacramento. Period of record 1926 to date.

TABLE 74

FLOW OF RECLAMATION DISTRICT 1000 DRAIN (2ND BANNON SLOUGH) - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	160	54		0	0	0		0	76	154		0
2	157	66		0	0	42		0	68	155		0
3	57	68		0	0	31		0	169	74		0
4	51	66		0	0	0		0	171	66		0
5	157	66		0	0	0		0	46	66		0
6	157	66		0	0	70		0	64	65		0
7	283	66		0	0	0		0	162	49		0
8	317	54		0	0	136		0	10	39		0
9	188	66		0	0	63		0	65	39		0
10	147	64		0	0	68		68	67	39		0
11	147	63		0	0	69		65	0	0		0
12	214	63	N	0	0	28	N	51	0	0	N	0
13	337	0	0	0	61	61	0	0	70	0	0	0
14	207	0		0	57	0		0	69	0		37
15	141	0		0	99	0		0	50	0		0
16	148	0		0	133	0		0	124	0		0
17	149	0	F	0	166	0	F	0	147	0	F	0
18	150	0	L	0	175	0	L	0	160	0	L	0
19	146	0	O	0	135	0	O	0	158	0	O	0
20	145	0	W	0	182	0	W	0	159	0	W	0
21	144	0		0	143	0		62	158	0		0
22	146	0		0	122	0		0	192	0		0
23	145	0		0	68	0		46	229	0		0
24	72	0		0	56	0		0	223	0		0
25	31	0		0	68	0		0	228	0		0
26	152	0		0	70	0		0	236	0		0
27	37	0		38	70	0		0	235	0		0
28	66	0		122	21	0		0	194	0		0
29	65	—		0	73	0		66	195	0		0
30	66	—		54	122	0		54	159	0		0
31	63	—		—	43	—		83	—	0	—	0
Mean	143	27.2	0	7.1	60.1	18.9	0	16.0	129	24.1	0	1.2
Runoff in Ac.Ft.	8817	1511	0	424	3697	1127	0	982	7704	1480	0	73
	Water Year Total 31031								Calendar Year Total 25815			

This is drainage from Reclamation District 1000 returned to the Sacramento River by pumping at Mile 2.1L. Additional water was returned to the Sacramento River at Mile 6.85L (see Table 72) and an undetermined amount was returned to the Sacramento River from the Pritchard Lake Plant at Mile 16.0L. Period of record 1925 to date. Records for 1953 computed by Division of Water Resources.

TABLE 75

FLOW OF LINDA CREEK NEAR ROSEVILLE - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	169	85	59	*58	62	42	14	9.4	21	35	27	34
2	196	82	52	*56	54	41	13	10.0	20	39	28	33
3	129	77	49	*54	50	37	12	10.0	18	*38	28	39
4	105	76	47	*52	46	33	12	12	14	*38	28	120
5	95	75	45	*49	41	31	11	12	14	*37	28	61
6	333	73	45	*42	36	65	8.8	12	16	*35	30	48
7	654	67	43	*30	37	92	8.8	11	17	*34	30	46
8	515	66	41	24	42	79	8.3	11	17	*34	29	43
9	531	62	39	22	40	60	8.3	10	16	*32	28	42
10	270	59	52	33	38	54	8.8	11	15	35	27	41
11	200	58	74	36	39	52	9.4	11	14	48	28	40
12	313	59	64	28	39	51	10	11	14	48	27	38
13	700	57	64	26	38	46	12	11	15	48	28	39
14	403	54	53	24	58	40	13	12	15	48	105	40
15	244	53	48	21	61	36	13	12	16	46	64	40
16	192	51	48	23	56	34	12	12	16	43	43	40
17	216	53	47	28	55	30	9.4	12	19	41	42	38
18	395	53	43	30	51	28	8.8	13	22	44	41	37
19	346	54	108	30	49	24	8.8	13	23	53	37	37
20	619	50	117	43	58	22	9.4	13	31	48	43	37
21	381	48	79	48	52	21	8.8	13	33	44	41	37
22	236	49	69	38	55	21	8.3	13	31	39	37	36
23	186	47	*68	33	46	21	8.3	12	29	36	37	35
24	162	42	*64	28	49	19	8.8	12	35	37	40	42
25	152	41	61	28	61	*18	8.8	12	35	35	37	38
26	131	45	*58	29	58	*16	9.4	13	34	35	35	38
27	117	45	*58	307	49	*16	8.8	14	35	33	34	39
28	108	47	*58	172	53	*15	9.4	15	35	28	34	38
29	101		*60	77	51	*14	8.8	16	36	27	33	37
30	93	—	*60	75	47	14	9.4	23	36	27	34	37
31	86	—	*58	—	43	—	9.4	25	—	26	—	37
Mean	270	58.1	59.1	51.5	48.8	35.7	10.0	12.8	23.1	38.4	36.8	42.2
Runoff in Ac.Ft.	16620	3229	3632	3062	3003	2126	613	786	1373	2362	2188	2592
	Water Year Total 47111								Calendar Year Total 41586			

Division of Water Resources station located at Antelope Road bridge 0.5 mile downstream from Highway 99E. Linda Creek is an east-side tributary to the Sacramento River at Mile 1.3L via the Back Borrow Pit of Reclamation District 1000. Period of record 1949 to date.

* Estimated

TABLE 76

FLOW OF AMERICAN RIVER AT FAIR OAKS - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2900	3620	2540	5130	10100	8050	5230	698	373	440	670	1130
2	2580	3640	2510	5330	8860	7880	4950	634	418	366	548	1080
3	2310	3560	2440	5840	8320	7070	5030	580	386	330	412	1140
4	2170	3400	2180	6410	8600	7600	4680	590	380	348	462	1270
5	2010	3400	2100	7110	9740	7860	4400	600	432	366	418	1940
6	2310	3440	2140	7420	9850	9050	4140	540	440	366	399	1620
7	4450	3500	2210	6320	10000	13200	4060	530	412	366	448	1570
8	5200	3720	2390	5440	8630	9690	3800	510	380	392	448	2120
9	14900	3640	2630	4690	7670	9120	3470	490	373	366	380	1720
10	17900	3320	3060	4460	6710	8100	3320	470	412	418	373	1510
11	9570	3080	3850	4100	6440	7450	3070	470	399	455	406	1460
12	7250	2910	3260	3660	6560	7840	2930	455	399	508	532	1390
13	12600	2780	3600	3440	6900	8080	3040	455	399	485	643	1270
14	15400	2670	3100	3360	7640	8290	2870	440	392	470	1680	1240
15	9620	2670	2820	3300	7500	8680	2640	425	392	500	2460	1360
16	6840	2590	2720	3740	7240	9250	2420	412	392	500	1480	1420
17	5680	2580	2870	4690	7160	9250	2210	412	392	564	1330	1390
18	10200	2610	2820	4310	7860	12200	2100	392	348	616	1270	1380
19	14300	2580	3460	4120	8980	12200	2070	380	425	801	1050	1260
20	14000	2400	6940	4940	15000	11500	1790	386	418	701	1130	1240
21	17400	2340	5530	7520	10400	9300	1580	399	373	822	1460	1680
22	10500	2240	5050	9650	8650	8120	1400	380	399	746	1140	1780
23	7980	2180	4720	11700	7450	7840	1260	360	360	689	1340	1400
24	6630	2080	4870	11600	7310	7550	1160	360	373	708	1790	1220
25	5770	2060	5240	10900	6400	7430	1080	360	399	765	2330	1200
26	5310	2020	5330	11700	6110	6830	1010	348	462	736	2000	1210
27	4830	2000	5490	20700	5720	6020	930	348	462	727	1550	1060
28	4370	2150	5600	27600	5500	5670	850	354	432	689	1330	1000
29	4120		5490	14300	6090	5540	803	360	448	689	1180	970
30	3890	—	5020	12200	6270	5390	803	373	448	708	1170	950
31	3800	—	4940	—	6970	—	746	360	—	698	—	930
Mean	7638	2828	3772	7856	7956	8402	2576	447	404	559	1061	1352
Runoff in Ac.Ft.	469700	157100	231900	467500	489200	499900	158400	27510	24040	34380	63130	83130
	Water Year Total 2706570								Calendar Year Total 2705890			

U. S. Geological Survey station located on right bank at Mile 19.2 above mouth. Drainage area is 1921 square miles. Period of record 1904 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 77

FLOW OF AMERICAN RIVER AT SACRAMENTO (H ST. BRIDGE) - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2900	3800	2630	5320	10000	8150	5240	691	362	458	718	1050
2	2500	3700	2680	5560	8800	8260	4980	664	408	415	655	1010
3	2300	3600	2380	6060	8300	7360	5000	628	408	368	530	1020
4	2100	3500	2300	6750	9000	7620	4720	637	394	356	514	1730
5	2000	3500	2240	7450	9580	8020	4340	586	429	429	546	2240
6	2200	3600	2240	7890	9800	8420	4050	546	466	422	436	1400
7	4500	3710	2310	6960	9870	12600	3970	546	436	415	506	1270
8	5000	3940	2490	5910	7670	9820	3780	498	394	429	554	1610
9	15000	3900	2720	4960	7800	8840	3440	408	387	436	482	1430
10	17500	3520	3050	4540	6750	8090	3210	474	422	429	458	1310
11	9430	3250	3900	4260	6400	7360	3080	458	408	506	466	1280
12	7120	3100	3350	3750	6480	7580	2860	450	408	514	570	1250
13	9440	2940	3650	3500	6840	8110	2910	443	408	562	709	1200
14	14200	2800	3250	3430	7600	8200	2860	436	401	506	1040	1170
15	9720	2800	2920	3600	7840	8790	2620	422	401	546	1940	1240
16	7150	2700	2820	4000	7360	9320	2410	422	394	578	1300	1310
17	5860	2680	2920	4780	7540	9210	2190	408	401	570	1060	1280
18	7570	2740	2940	4500	7890	11600	1970	394	368	664	1050	1280
19	12000	2700	3170	4160	8930	11900	2060	380	401	727	950	1180
20	11600	2550	6880	4800	14400	11600	1760	380	436	772	900	1160
21	16800	2460	5980	7360	10800	9580	1500	394	387	860	1170	1380
22	10600	2410	5410	9630	9390	8520	1310	387	408	800	1040	1580
23	7990	2410	4840	11600	7800	8060	1170	362	401	754	990	1320
24	6710	2280	4960	11700	7800	7800	1070	350	380	763	1340	1160
25	5770	2180	5430	11100	6790	7600	1000	374	408	772	1700	1140
26	5250	2160	5560	11700	6400	7140	950	344	458	781	1640	1140
27	4680	2190	5740	14400	5950	6350	880	350	490	763	1360	1080
28	4360	2220	5870	28100	5530	5790	800	344	436	745	1180	1000
29	3930		5910	14500	6080	5600	772	356	490	736	1080	980
30	3900	—	5240	12100	6480	5410	745	374	474	745	1060	960
31	3900	—	5040	—	6880	—	736	368	—	745	—	950
Mean	7225	2976	3897	7812	8024	8423	2528	448	415	599	931	1262
Runoff in Ac.Ft.	444300	165300	239600	464900	493400	501200	155500	27520	24720	36830	55430	77570
	Water Year Total 2696300								Calendar Year Total 2686270			

Station is maintained jointly by Division of Water Resources and the U. S. Geological Survey. Station is located at the "H" Street Bridge and is 6.0 miles above the mouth. The American River flows into the Sacramento River at Mile 1.1L. Period of record 1921, 1926 to date. Record for 1953 computed by U. S. Geological Survey.

TABLE 78

FLOW OF CACHE CREEK NEAR CAPAY - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1390	2940	218	530	2060	345	620	433	333	44	4.5	55
2	1480	2880	218	508	1740	353	602	425	325	41	4.5	50
3	1120	2820	206	490	670	305	584	468	333	40	4.5	50
4	918	2770	200	472	526	274	566	481	369	37	4.0	45
5	770	2720	197	458	433	293	553	472	385	36	4.0	140
6	1480	2510	194	445	409	321	562	437	369	36	4	95
7	4000	688	188	305	450	282	580	425	365	35	4	130
8	4080	481	194	212	454	240	562	421	373	34	4	165
9	13600	421	170	200	450	218	544	397	393	32	4	150
10	8410	389	176	203	450	209	548	373	369	30	4	140
11	5280	369	206	200	441	200	544	361	333	24	4	120
12	4630	349	212	185	417	212	512	401	313	22	6	108
13	6040	329	218	173	463	337	504	433	264	20	22	94
14	5460	313	240	164	468	421	490	429	232	19	135	81
15	4920	301	212	155	445	425	476	413	212	19	271	72
16	4370	285	197	152	385	441	476	405	191	18	135	65
17	4030	271	194	161	305	468	463	421	173	17	84	60
18	4780	260	194	200	254	481	458	429	148	15	62	57
19	5040	250	697	472	268	504	441	413	117	14	51	54
20	5110	243	1870	638	301	522	425	397	88	12	50	51
21	5200	240	1100	630	329	535	417	385	81	11	50	48
22	4470	236	870	620	353	535	433	369	62	10	51	64
23	4110	222	715	607	333	576	445	365	53	9	47	44
24	3880	218	630	733	325	584	486	361	48	8	110	43
25	3670	218	760	785	353	589	512	373	44	7	230	40
26	3510	218	1140	800	381	620	530	393	54	6	150	40
27	3360	218	1140	1120	385	625	535	401	57	6	100	40
28	3240	212	1760	2140	365	625	535	377	56	5.0	80	40
29	3150		1040	2160	337	625	535	381	54	4.5	60	40
30	3070	—	945	2120	349	620	512	377	53	4.5	55	40
31	3000	—	607	—	349	—	476	365	—	4.5	—	40
Mean	4115	835	545	601	492	426	514	406	208	20.0	59.8	72.9
Runoff in Ac.Ft.	253000	46360	33540	35780	30240	25360	31590	24950	12390	1230	3560	4480
	Water Year Total 590150								Calendar Year Total 502480			

U. S. Geological Survey and U. S. Bureau of Reclamation cooperative station located three miles northwest of Capay and two miles upstream from Clear Lake Water Company diversion dam. Cache Creek is a west-side tributary to Yolo By-Pass opposite Mile 7.0 north of Sacramento By-Pass. Drainage area is 1052 square miles. Period of record 1944 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 79

FLOW OF CACHE CREEK AT YOLO - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1360	3130	175	418	1560							
2	1460	3040	178	367	1510							
3	1110	2980	165	335	387							
4	876	2920	162	307	185							
5	705	2860	162	299	121							
6	898	2810	156	291	55							
7	3070	1250	153	255	0							
8	4860	600	144	144	0							
9	10500	472	132	113	0							
10	10100	418	132	63	0							
11	6140	383	141	6.5	0							
12	4940	359	156	0	0	N	N	N	N	N	N	N
13	6080	339	159	0	0	0	0	0	0	0	0	0
14	5310	315	168	0	0							
15	5020	299	153	0	0							
16	4500	283	141	0	0							
17	4180	271	129	0	0	F	F	F	F	F	F	F
18	4730	259	110	0	0	L	L	L	L	L	L	L
19	5160	247	132	0	0	0	0	0	0	0	0	0
20	5190	231	1670	66	0	W	W	W	W	W	W	W
21	5520	220	1050	135	0							
22	4870	216	812	104	0							
23	4490	209	655	20	0							
24	4240	198	565	28	0							
25	3990	188	585	118	0							
26	3810	185	856	124	0							
27	3660	182	1010	202	0							
28	3520	178	1360	1270	0							
29	3420		1170	1520	0							
30	3320	—	845	1550	0							
31	3200	—	638	—	0	—			—		—	
Mean	4201	894	454	258	123	0	0	0	0	0	0	0
Runoff in Ac.Ft.	258300	49670	27900	15340	7570	0	0	0	0	0	0	0
	Water Year Total 429370								Calendar Year Total 358780			

U. S. Geological Survey and Division of Water Resources cooperative station located 0.5 mile south of Yolo. Cache Creek is a west-side tributary to Yolo By-Pass opposite Mile 7.0 north of Sacramento By-Pass. Drainage area is 1150 square miles. Period of record 1903 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 80

FLOW OF YOLO BY-PASS NEAR WOODLAND - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	4790	7700	206	458	2410	230	86	55	121	52	15	14
2	4440	4700	200	404	2600	204	78	49	122	47	15	12
3	4280	3680	188	360	2310	189	72	53	120	38		11
4	4060	3330	178	339	1450	175	66	57	116	34		15
5	3860	3190	166	300	996	150	61	63	110	31	10	17
6	3780	3070	153	285	440	134	57	69	110	28		17
7	4170	2620	143	245	348	122	62	74	112	26		18
8	6840	1440	119	212	266	118	70	74	114	25		17
9	8500	984	104	216	183	151	83	72	116	24	25	15
10	36000	586	101	197	115	211	76	70	120	23	75	16
11	74600	536	96	173	80	275	68	68	126	22	60	15
12	63600	520	106	161	54	256	64	64	131	21	40	17
13	59600	496	124	134	37	196	66	62	135	21	35	20
14	73000	468	130	90	36	144	64	62	138	20	30	22
15	79900	464	137	66	41	118	65	62	140	21	25	25
16	67700	437	144	62	41	105	63	62	139	20	25	27
17	56100	432	141	63	46	106	64	60	142	20	20	29
18	50600	414	130	65	51	106	66	59	135	18	20	33
19	55600	406	116	63	61	103	66	61	130		16	32
20	65300	377	132	62	64	93	66	73	134			32
21	74000	325	390	66	77	86	68	91	147			32
22	76200	271	584	63	158	81	67	100	194			30
23	68300	242	546	65	401	80	66	89	168			29
24	59100	209	514	68	458	84	64	84	141			29
25	51400	189	484	65	432	84	65	80	120		14	29
26	45300	197	512	59	384	84	63	80	100	15		29
27	40500	208	620	66	347	84	62	82	84			30
28	36600	218	678	76	326	83	62	84	73			28
29	27500		765	218	306	84	61	90	63			25
30	21200	—	650	1760	297	84	58	100	60			25
31	14000	—	566	—	267	—	57	112	—		—	25
Mean	40030	1347	294	215	487	134	66.3	72.9	122	22.1	20.5	23.1
Runoff in Ac.Ft.	2461000	74790	18100	12820	29910	7970	4080	4480	7260	1360	1220	1420
	Water Year Total 2790046								Calendar Year Total 2624410			

Station is maintained jointly by the Division of Water Resources and the U. S. Geological Survey.• This station is also known as Yolo By-Pass at Elkhorn. The flow of this station is referred to the recorder at the end of the Sacramento By-Pass except during periods of high water when it is referred to the recorder at the Woodland-Elkhorn highway crossing. To get total flow through Yolo By-Pass below Sacramento, combine this flow with the flow in Tables 73 and 84. The flow in this table includes the flows of Cache Creek (Table 79), Knights Landing Ridge Cut (Table 47), and Fremont Weir (Table 50). Period of record 1930 to date. Records for 1953 computed by U. S. Geological Survey.
* Estimated mean for period.

TABLE 81

FLOW OF SALT CREEK NEAR WINTERS• (SCOTT'S RANCH) - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	6.4	2.0	1.5	1.0	0.5							
2	4.9	2.0	1.5	1.0	.5							
3	4.1	2.0	1.4	1.0	.4							
4	3.7	2.0	1.3	1.0	.5							
5	3.7	1.8	1.2	0.9	.3							
6	13	1.8	1.2	.8	.2							
7	48	1.8	1.2	.8	.1							
8	15	1.8	1.2	.9	0							
9	26	1.9	1.2	1.0	0							
10	11	1.8	2.1	1.0	0							
11	7.6	2.1	1.6	1.0	0							
12	10	1.9	1.6	1.0	0	N	N	N	N	N	N	N
13	18	1.9	1.5	1.1	0	0	0	0	0	0	0	0
14	9.8	1.9	1.3	1.0	0							
15	6.2	1.8	1.1	0.9	1.1							
16	4.5	1.8	1.0	.9	0.4							
17	4.1	1.6	1.1	1.0	.2	F	F	F	F	F	F	F
18	3.7	1.6	1.1	1.0	.2	L	L	L	L	L	L	L
19	3.9	1.6	5.1	0.9	0	0	0	0	0	0	0	0
20	5.5	1.6	3.0	1.0	0	W	W	W	W	W	W	W
21	5.1	1.5	2.5	1.0	0							
22	4.5	1.5	1.4	0.8	0							
23	4.3	1.6	0.9	.5	0							
24	3.9	1.6	1.0	.3	0							
25	3.6	1.5	0.9	.1	0							
26	3.1	1.5	1.0	0	0.3							
27	2.8	1.5	1.0	5.7	0							
28	2.5	1.5	1.0	1.3	0							
29	2.5		1.0	0.8	0							
30	2.6	—	1.1	.6	0							
31	2.4	—	1.0	—	0	—			—		—	
Mean	7.9	1.7	1.4	1.0	0.2	0	0	0	0	0	0	0
Runoff in Ac.Ft.	489	97	89	60	9	0	0	0	0	0	0	0
	Water Year Total 1236								Calendar Year Total 744			

Division of Water Resources station located about six miles northwest of Winters and approximately 1.0 mile east of Scott Ranch. Flow of Salt Creek reaches the Yolo By-Pass via Willow Slough. Drainage area is 10.8 square miles. Period of record, October, 1951 to date.

TABLE 82

FLOW OF PLEASANTS CREEK NEAR WINTERS (GONZALES RANCH) - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	29	11	2.8	3.2	3.0	0.6						
2	24	9.8	2.8	3.2	2.5	.1						
3	20	9.0	2.8	3.0	2.5	.1						
4	18	8.3	2.6	2.8	2.6	.1						
5	14	7.6	2.5	2.6	2.3	.1						
6	42	7.6	2.6	2.3	2.1	.7						
7	277	7.6	2.5	2.3	1.9	1.0						
8	109	6.9	2.3	2.5	1.9	1.1						
9	118	6.9	2.3	2.8	1.9	0.9						
10	56	6.6	4.0	3.0	1.9	.8						
11	41	6.2	3.2	2.6	1.6	.8						
12	84	6.2	3.2	2.5	1.6	.7	N	N	N	N	N	N
13	117	6.2	2.8	2.5	1.2	.6	0	0	0	0	0	0
14	58	5.8	2.6	2.3	1.9	.5						
15	41	5.5	2.3	2.1	1.9	.3						
16	32	4.8	2.1	2.1	1.2	.2						
17	29	4.5	2.1	2.6	1.2	0	F	F	F	F	F	F
18	27	4.2	2.1	2.1	1.4	0	L	L	L	L	L	L
19	30	4.2	107	1.9	1.2	0	0	0	0	0	0	0
20	45	4.0	27	2.6	1.1	0	W	W	W	W	W	W
21	30	4.0	24	2.1	1.2	0						
22	24	4.0	10	2.1	1.1	0						
23	21	3.8	6.6	1.7	1.2	0						
24	20	3.5	5.5	1.7	1.2	0						
25	18	3.0	5.0	1.6	1.2	0						
26	17	3.0	4.2	1.2	1.1	0						
27	15	3.0	4.2	18	1.1	0						
28	15	2.8	4.2	5.0	1.1	0						
29	14		3.8	4.0	1.0	0						
30	13	—	3.8	3.8	1.2	0						
31	12	—	3.2	—	0.4	—			—		—	
Mean	45.5	5.7	8.3	3.1	1.6	0.3	0	0	0	0	0	0
Runoff in Ac.Ft.	2797	317	508	183	97	17	0	0	0	0	0	0
	Water Year Total 6497								Calendar Year Total 3919			

Division of Water Resources station located approximately one mile above the mouth. Pleasants Creek is a south-side tributary to Putah Creek. Drainage area is 16.2 square miles. Period of record, November, 1951 to date.

TABLE 83

FLOW OF PUTAH CREEK NEAR WINTERS - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1670	619	216	340	373	90	17	4.2	4.6	2.4	8.5	54
2	1780	586	213	321	319	90	15	5.7	3.4	2.5	9.6	50
3	1280	548	204	303	278	90	14	8.5	2.6	2.4	12	46
4	1060	521	194	284	250	86	14	9.1	2.4	2.6	12	46
5	898	488	189	272	230	79	13	6.4	2.8	4.0	12	73
6	1480	471	181	259	214	89	12	6.0	2.9	4.4	14	96
7	6820	452	178	244	204	102	10	4.8	2.5	3.0	15	84
8	5800	426	175	242	197	94	8.2	3.8	2.8	2.0	16	176
9	23800	391	170	233	184	80	7.4	4.4	3.2	1.6	16	155
10	7020	368	199	255	173	77	7.7	6.4	3.2	1.2	17	118
11	3440	350	284	259	161	73	7.7	6.0	3.0	1.0	21	98
12	2750	345	286	230	148	73	7.4	5.5	2.9	0.9	24	84
13	6270	326	388	210	144	68	8.2	3.8	2.5	.9	31	75
14	4040	312	310	200	147	63	8.0	2.5	2.4	1.1	199	69
15	2760	303	260	190	148	60	7.2	2.0	3.4	1.6	632	64
16	2090	288	233	180	130	51	8.5	1.8	4.2	2.5	223	60
17	1760	284	223	185	123	45	7.2	1.7	4.4	3.0	126	57
18	2100	276	216	185	119	44	6.4	2.5	4.0	3.4	79	55
19	2410	264	4390	175	114	42	6.2	2.4	3.0	3.8	63	54
20	2830	255	4600	170	110	37	3.6	1.6	2.6	4.0	52	52
21	2900	250	2090	165	110	37	3.4	1.3	2.8	4.0	53	51
22	1920	244	1320	160	138	35	6.7	1.4	3.8	3.8	63	61
23	1590	242	992	150	138	30	6.0	3.0	3.6	4.0	64	60
24	1360	226	796	130	123	29	4.0	3.8	4.0	4.6	141	60
25	1200	220	682	125	123	29	2.5	3.2	3.4	5.5	196	52
26	1050	218	586	120	123	25	1.9	2.5	2.8	6.1	135	50
27	930	220	518	400	120	27	2.0	2.4	2.9	5.7	100	48
28	851	214	466	1450	113	25	3.2	1.8	2.4	6.0	81	46
29	788		426	560	98	24	3.4	2.0	2.3	6.7	69	45
30	722	—	391	440	96	21	2.8	3.0	2.8	7.4	61	43
31	675	—	362	—	93	—	3.0	6.0	—	8.0	—	42
Mean	3098	347	701	281	163	57.2	7.3	3.8	3.1	3.6	84.8	68.5
Runoff in Ac.Ft.	190500	19250	43120	16730	10000	3400	451	237	186	218	5050	4210
	Water Year Total 423422								Calendar Year Total 293352			

U. S. Geological Survey and Division of Water Resources cooperative station located six miles west of Winters. Putah Creek is a west-side tributary to Yolo By-Pass below Sacramento By-Pass. Drainage area is 577 square miles. Period of record 1930 to date. (Records six miles downstream available 1905 to 1931). Records for 1953 computed by U. S. Geological Survey.

TABLE 84

FLOW OF PUTAH CREEK NEAR DAVIS - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1760	632	206	330	370	68					0	34
2	1860	599	202	312	316	63					0	28
3	1420	560	196	294	272	65					0	26
4	1170	533	185	276	244	63					0	24
5	1010	500	178	258	220	58					0	22
6	1180	478	174	240	200	63					0	50
7	5340	462	168	228	186	70					0	56
8	5220	434	160	220	179	75					0	73
9	22300	406	157	216	165	63					0	128
10	8240	375	171	224	156	53					0	95
11	3780	360	232	236	144	53					0	73
12	2830	345	280	216	132	51	N	N	N	N	0	60
13	5490	332	316	200	124	47	0	0	0	0	0	52
14	3980	324	328	186	122	45					0	47
15	2910	316	260	176	135	44					208	44
16	2240	292	228	168	116	37					224	41
17	1850	288	210	168	105	33	F	F	F	F	106	38
18	1970	280	202	172	100	26	L	L	L	L	56	35
19	2250	272	1810	165	95	24	0	0	0	0	36	32
20	2430	256	5050	156	90	19	W	W	W	W	27	30
21	2920	252	2070	153	87	16					20	28
22	1950	248	1300	147	90	15					21	30
23	1570	240	906	135	105	11					27	38
24	1340	228	726	119	98	7.4					35	36
25	1180	220	626	113	90	3.8					131	34
26	1030	216	550	111	90	2.8					120	31
27	924	213	492	279	87	2.3					78	28
28	840	210	447	1450	87	1.3					58	27
29	768		411	575	77	1.2					47	26
30	704	—	380	438	72	0.4					39	24
31	670	—	352	—	68	—			—		—	23
Mean	3004	353	612	265	143	36.0	0	0	0	0	41.1	42.4
Runoff in Ac.Ft.	184700	19580	37630	15790	8770	2140	0	0	0	0	2450	2600
	Water Year Total 403810								Calendar Year Total 273660			

U. S. Geological Survey, U. S. Bureau of Reclamation and Division of Water Resources cooperative station located about one mile upstream from Highway 40. Putah Creek is a west-side tributary to Yolo By-Pass below Sacramento By-Pass. Drainage area is 636 square miles. Period of record 1948 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 85

FLOW OF SWEENEY CREEK NEAR WINTERS - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	18	3.0	1.2	0.5	0.2							
2	10	3.0	1.2	0.5	0.2							
3	7.7	2.5	1.2	0.5	0.2							
4	6.7	2.0	1.2	0.5	0.2							
5	8.0	2.2	1.2	0.4	0.2							
6	85	2.2	1.2	0.4	0.1							
7	304	2.0	1.2	0.4	0.1							
8	51	2.0	1.0	0.4	0.1							
9	31	1.9	0.9	0.3	0.1							
10	9.2	1.8	0.9	0.4	0.1							
11	6.7	1.6	0.9	0.4	0.1							
12	92	1.8	0.9	0.4	0.1	N	N	N	N	N	N	N
13	64	1.8	0.9	0.6	0.1	0	0	0	0	0	0	0
14	20	1.8	1.0	0.6	0.1							
15	11	1.8	1.0	0.6	0.1							
16	10	1.6	1.2	0.6	0.1							
17	10	1.6	1.2	0.6	0.1	F	F	F	F	F	F	F
18	11	1.6	1.2	0.6	0.1	L	L	L	L	L	L	L
19	16	1.6	20	0.6	0.1	0	0	0	0	0	0	0
20	36	1.6	5.8	0.6	0.1	W	W	W	W	W	W	W
21	10	1.3	11	0.6	0.1							
22	7.0	1.3	1.8	0.4	0.1							
23	6.1	1.3	1.4	0.4	0.1							
24	5.8	1.3	1.4	0.4	0.1							
25	4.3	1.3	1.3	0.4	0.1							
26	4.1	1.3	1.2	0.4	0.1							
27	4.1	1.3	1.0	10	0.1							
28	3.9	1.3	0.9	0.2	0.1							
29	3.4		0.8	0.2	0.1							
30	3.0	—	0.8	0.2	0.1							
31	3.0	—	0.7	—	0.1	—			—		—	
Mean	27.8	1.8	2.2	0.8	0.1	0	0	0	0	0	0	0
Runoff in Ac.Ft.	1710	99	134	46	7	0	0	0	0	0	0	0
	Water Year Total 8052								Calendar Year Total 1996			

Division of Water Resources station located approximately five miles north of Vacaville. Sweeney Creek is a tributary to Ulatis Creek. Drainage area is 8.4 square miles. Period of record November, 1951, to date.

TABLE 86

FLOW OF ULATIS CREEK NLAR VACAVILLE (CAMPOS RANCH) - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	11	5.4	1.3	4.6	1.7	1.3	*0.1					0.0
2	8.4	5.4	1.3	4.4	1.7	1.1	*0.1					0.0
3	7.2	5.2	1.2	4.0	1.7	1.0	*0.1					0.0
4	6.3	4.6	1.1	3.8	1.6	0.9	*0.1					0.0
5	5.8	4.4	1.0	3.6	1.5	0.9	*0.1					0.0
6	13	4.2	1.0	4.0	1.4	1.1	*0.1					0.0
7	54	3.8	1.1	4.0	1.3	1.0	*0.1					0.0
8	37	3.6	1.0	3.6	1.2	1.0	*0.1					*0.0
9	49	3.2	1.0	4.0	1.2	1.0	*0.1					*0.0
10	28	2.8	1.8	3.8	1.1	0.9	*0.1					*0.0
11	20	2.8	1.2	3.6	1.3	0.9	*0.1					*0.0
12	32	2.6	1.4	3.4	1.2	0.9	*0.1	N	N	N	N	*0.0
13	36	2.6	1.1	3.2	1.2	0.9	*0.1	O	O	O	O	*0.0
14	27	2.4	1.0	2.8	1.7	*0.8	*0.0					*0.0
15	21	2.2	0.9	2.8	1.4	*0.8	*0.0					0.1
16	18	2.0	0.9	3.0	1.4	*0.8	*0.0					0.1
17	16	1.9	0.9	2.8	1.4	*0.8	*0.0	F	F	F	F	0.1
18	17	1.8	1.5	2.6	1.4	*0.8	*0.0	L	L	L	L	0.1
19	20	1.8	31	2.6	1.4	*0.6	*0.0	O	O	O	O	0.1
20	22	1.6	15	2.4	1.4	*0.5	*0.0	W	W	W	W	0.2
21	18	1.4	14	2.2	1.4	*0.5	0.0					0.2
22	15	1.4	7.5	1.9	1.4	*0.4	0.0					0.2
23	14	1.3	6.6	1.8	1.4	*0.3	0.0					0.2
24	12	1.4	6.0	1.8	1.4	*0.2	0.0					0.2
25	11	1.3	5.8	1.7	1.4	*0.2	0.0					0.2
26	9.8	1.5	5.6	1.7	1.4	*0.2	0.0					0.2
27	8.1	1.3	5.4	18	1.4	*0.2	0.0					0.2
28	7.8	1.2	5.2	4.2	1.4	*0.1	0.0					0.2
29	6.9		5.2	2.6	1.3	*0.1	0.0					0.2
30	6.6	—	5.0	2.0	1.3	*0.1	0.0					0.2
31	5.6	—	4.6	—	1.3	—	0.0		—		—	0.2
Mean	18.2	2.7	4.4	3.6	1.4	0.7	0.1	0	0	0	0	0.1
Runoff in Ac.Ft.	1118	149	273	212	86	40	3	0	0	0	0	6
	Water Year Total 2421								Calendar Year Total 1887			

Division of Water Resources station located approximately five miles northwest of Vacaville. Ulatis Creek is a west-side tributary to Cache Slough. Drainage area is 4.3 square miles. Period of record November, 1951, to date.
* Estimated.

TABLE 87

FLOW OF ULATIS CREEK NEAR BINGHAMPTON - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	115	6.1	*2.5	0.8	2.7							
2	215	6.4	2.8	.6	1.4							
3	60	6.4	2.1	.6	0.6							
4	32	5.5	1.6	.4	.2							
5	22	4.5	1.3	.3	0							
6	565	4.0	1.3	.2	0							
7	1460	3.7	1.1	.2	0							
8	817	3.0	1.0	.2	0							
9	491	2.3	0.9	.2	0							
10	162	1.9	2.5	.2	0							
11	67	2.1	4.8	.2	0							
12	155	2.1	2.8	.2	0	N	N	N	N	N	N	N
13	944	2.1	2.1	.2	0	0	0	0	0	0	0	0
14	345	2.1	1.6	.1	0							
15	93	1.9	1.6	.1	0							
16	47	2.1	2.7	0	0							
17	35	1.9	2.5	0	0	F	F	F	F	F	F	F
18	34	1.8	1.8	0	0	L	L	L	L	L	L	L
19	89	1.8	16	0	0	0	0	0	0	0	0	0
20	203	1.6	53	0	0	W	W	W	W	W	W	W
21	165	*1.3	47	0	0							
22	45	*1.3	21	0	0							
23	28	*1.3	9.4	0	0							
24	20	*1.3	4.2	0	0							
25	16	1.2	2.8	0	0							
26	14	1.2	1.8	0	0							
27	11	1.8	1.2	0.6	0							
28	9.4	*2.1	1.2	22	0							
29	8.0		1.3	7.1	0							
30	7.1	—	1.6	4.2	0							
31	6.1	—	1.2	—	0	—			—		—	
Mean	203	2.7	6.4	1.3	0.2	0	0	0	0	0	0	0
Runoff in Ac.Ft.	12460	148	394	76	10	0	0	0	0	0	0	0
	Water Year Total 28958								Calendar Year Total 13088			

Division of Water Resources station located approximately 0.7 mile south of Binghampton and one-quarter mile downstream from the Dixon highway. Ulatis Creek is a west-side tributary to Cache Slough. Period of record January, 1952, to date.
* Estimated.

TABLE 88

FLOW OF BARKER SLOUGH NEAR DOZIER - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	19											
2	32											
3	13											
4	3.8											
5	0.6											
6	47											
7	156											
8	109											
9	41											
10	20											
11	7.1											
12	7.7	N	N	N	N	N	N	N	N	N	N	N
13	66	O	O	O	O	O	O	O	O	O	O	O
14	87											
15	30											
16	9.3											
17	3.6	F	F	F	F	F	F	F	F	F	F	F
18	2.4	L	L	L	L	L	L	L	L	L	L	L
19	9.3	O	O	O	O	O	O	O	O	O	O	O
20	8.4	W	W	W	W	W	W	W	W	W	W	W
21	18											
22	13											
23	4.6											
24	1.8											
25	0.5											
26	0.1											
27	0											
28	0											
29	0											
30	0	—		—		—			—		—	
31	0	—										
Mean	22.9	0	0	0	0	0	0	0	0	0	0	0
Runoff in Ac.Ft.	1409	0	0	0	0	0	0	0	0	0	0	0
	Water Year Total 2884								Calendar Year Total 1409			

Division of Water Resources station located approximately one-half mile west of Dozier on a County road bridge. Barker Slough is a west-side tributary to Lindsey Slough. Period of Record January, 1952, to date.

TABLE 89

FLOW OF HASS SLOUGH NEAR MAINE PRAIRIE - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.0											
2	2.2											
3	1.3											
4	0.6											
5	0.2											
6	3.0											
7	49											
8	28											
9	8.5											
10	3.3											
11	1.4											
12	1.9	N	N	N	N	N	N	N	N	N	N	N
13	16	O	O	O	O	O	O	O	O	O	O	O
14	11											
15	3.5											
16	1.3											
17	0.7	F	F	F	F	F	F	F	F	F	F	F
18	0.4	L	L	L	L	L	L	L	L	L	L	L
19	0.4	O	O	O	O	O	O	O	O	O	O	O
20	1.5	W	W	W	W	W	W	W	W	W	W	W
21	3.8											
22	1.4											
23	0.7											
24	0.4											
25	0.2											
26	0.1											
27	0.1											
28	0.0											
29	0.0											
30	0.0	—		—		—			—		—	
31	0.0	—										
Mean	4.6	0	0	0	0	0	0	0	0	0	0	0
Runoff in Ac.Ft.	285	0	0	0	0	0	0	0	0	0	0	0
	Water Year Total 402								Calendar Year Total 285			

Division of Water Resources station located approximately one mile east of Maine Prairie School. Hass Slough is a west-side tributary to Cache Slough. Period of record January, 1952, to date.

TABLE 90

FLOW OF COSUMNES RIVER AT MICHIGAN BAR - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	410	475	305	663	1310	607	223	45	23	16	33	60
2	375	464	289	656	1160	710	210	42	23	16	34	57
3	317	453	263	670	1040	642	195	41	21	15	37	64
4	274	436	256	702	984	614	183	42	21	14	36	283
5	249	426	253	726	951	594	172	42	20	16	36	257
6	341	426	253	759	900	702	162	40	19	16	38	139
7	838	426	256	718	880	850	149	38	18	16	42	125
8	759	436	260	694	822	742	142	36	17	15	47	164
9	930	431	267	642	786	686	136	34	17	15	46	127
10	1100	410	313	635	710	642	123	33	17	16	45	106
11	710	390	542	587	656	594	119	32	16	17	47	95
12	621	375	410	529	621	574	114	30	15	19	53	90
13	1070	356	481	499	594	568	110	28	14	20	58	84
14	2490	343	385	475	594	535	102	27	14	22	156	81
15	1500	330	356	464	621	517	97	26	14	22	260	79
16	962	321	343	487	587	505	91	26	13	23	134	76
17	804	313	356	635	568	511	90	24	12	24	101	79
18	2100	309	361	594	568	511	84	24	12	27	102	81
19	1740	301	577	574	580	505	88	24	11	58	88	79
20	1740	289	1400	628	759	487	83	23	12	95	84	79
21	2150	281	940	678	710	436	74	22	12	62	91	81
22	1470	278	804	726	670	400	68	21	12	46	83	83
23	1160	271	726	822	600	370	64	23	13	40	79	79
24	962	267	718	822	607	343	60	19	15	37	84	70
25	822	256	742	813	554	317	58	20	16	35	79	72
26	734	249	768	840	574	305	54	20	16	34	76	73
27	656	249	768	2000	554	281	54	20	14	34	70	70
28	600	253	777	2630	535	263	52	20	16	34	66	70
29	554	—	759	1740	574	249	51	20	16	34	64	68
30	523	—	718	1510	561	236	49	20	16	33	61	67
31	493	—	678	—	568	—	47	22	—	32	—	62
Mean	950	350	527	831	716	510	107	28.5	15.8	29.1	74.3	96.8
Runoff in Ac.Ft.	58420	19470	32380	49420	44030	30340	6550	1750	942	1790	4420	5950
	Water Year Total 264602								Calendar Year Total 255462			

U. S. Geological Survey and Division of Water Resources cooperative station located at road bridge at Michigan Bar. Drainage area is 537 square miles. Period of record 1907 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 91

FLOW OF COSUMNES RIVER AT McCONNELL - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	798	536	278	700	1510	606	207	17		0	18	46
2	620	518	316	676	1300	696	196	19		0	19	45
3	525	508	268	679	1140	682	180	18		0	18	46
4	391	484	268	704	1060	651	166	14		0	19	92
5	319	469	260	748	1000	640	158	11		0	23	400
6	334	460	253	732	960	648	139	12		0	23	196
7	1200	457	253	772	915	880	123	6.6		0	25	134
8	1900	454	255	720	872	816	109	1.7		0	30	134
9	1360	469	262	686	828	736	104	4.6		0	35	147
10	1510	445	278	640	764	700	94	0.7		0	36	114
11	1030	424	427	644	700	654	82	0		0	35	100
12	764	400	469	564	665	598	83	0	N	0	36	90
13	1340	379	454	525	637	588	78	0	0	0	43	82
14	3330	361	430	508	612	554	69	0		0	61	77
15	2660	349	373	484	626	536	67	0		0	208	73
16	1370	337	349	490	637	527	60	0		0	178	70
17	995	322	310	588	602	524	55	0	F	0	109	67
18	2110	313	358	676	570	509	56	0	L	0	89	70
19	2790	308	376	612	581	515	55	0	0	0	87	66
20	2180	300	1290	637	700	512	56	2.2	W	28	75	64
21	3720	292	1120	690	736	488	49	3.1		59	73	64
22	2200	290	915	740	736	434	45	0.5		39	75	68
23	1520	280	800	824	651	380	39	0		29	67	68
24	1200	280	752	872	640	353	30	0		23	67	64
25	1000	270	764	860	602	332	24	0		20	68	59
26	864	262	792	868	578	300	31	0		19	63	62
27	776	258	804	1060	574	272	30	0		16	58	61
28	690	258	808	3460	542	252	24	0		17	55	58
29	637		808	2250	567	240	20	0		18	51	58
30	595	—	760	1840	592	223	16	0		18	49	57
31	560	—	720	—	581	—	16	0	—	18	—	56
Mean	1332	374	535	875	757	528	79.4	3.6	0	9.8	59.8	89.9
Runoff in Ac.Ft.	81890	20790	32870	52060	46570	31430	4880	219	0	603	3556	5530
	Water Year Total 293019								Calendar Year Total 280398			

U. S. Geological Survey, U. S. Bureau of Reclamation, and Division of Water Resources cooperative station located on Highway 99 bridge 10.7 miles above the mouth. When flow in main channel reaches 4600 cfs water starts to by-pass station. Figures here given include all overflow. Drainage area is 730 square miles. Period of record 1942 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 92

FLOW OF DRY CREEK NEAR GALT - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	240	88	31	56	122	6.5	0.6	0.4	0.1			
2	190	82	41	46	94	7.1	.8	.6	.2			
3	143	78	34	32	74	14	.8	0	.1			
4	112	72	29	30	63	12	.1	0.1	0			
5	93	78	28	27	55	4.6	.4	1.0	0.1			
6	105	74	34	24	49	4.6	.4	0.6	0			
7	408	65	30	23	43	10	.3	.3	0.1			
8	546	61	28	25	39	24	.5	.8	.5			
9	363	56	26	24	39	20	.4	1.0	.4			
10	252	52	28	22	36	9.4	.1	0.8	.4			
11	190	51	95	30	32	9.0	.1	.7	.4			
12	149	49	88	30	28	5.5	.6	.8	.2	N	N	N
13	245	48	78	26	38	6.2	.7	1.0	.4	O	O	O
14	694	48	72	22	22	6.2	.8	1.2	0			
15	688	45	57	22	17	5.4	.9	0.6	0			
16	352	42	49	23	16	3.6	1.0	.3	0			
17	246	41	45	23	14	2.3	1.8	0	0	F	F	F
18	688	40	44	32	13	0.4	0.8	0	0	L	L	L
19	726	39	52	28	6.8	.2	.8	0	0	O	O	O
20	546	37	488	25	2.9	.2	.3	0	0	W	W	W
21	965	36	328	28	2.0	.1	0	0	0			
22	492	36	229	27	1.2	.2	0	0	0			
23	350	36	166	23	1.1	.2	0	0	0			
24	268	33	143	18	1.3	.3	0.2	0	0			
25	217	32	111	7.4	4.0	.3	.3	0.2	0			
26	179	29	93	4.0	4.2	.1	.4	.3	0			
27	152	28	82	76	5.0	.8	1.0	.2	0			
28	136	28	72	522	7.4	.4	0.8	.3	0			
29	122		64	188	7.4	.6	.2	.3	0			
30	109	—	58	166	6.8	1.0	.2	.3	0			
31	97	—	52	—	7.1	—	.5	.3	—		—	
Mean	325	50.1	89.5	54.4	27.5	5.2	0.5	0.4	0.1	0	0	0
Runoff in Ac.Ft.	19960	2780	5500	3240	1690	310	31	24	6.0	0	0	0
	Water Year Total 37151								Calendar Year Total 33541			

U. S. Geological Survey, U. S. Bureau of Reclamation, and Division of Water Resources cooperative station. Station is also known as Dry Creek at Dustin Road and is located at Dustin Road Bridge. Drainage area is 325 square miles. Period of record 1926 to 1933; 1944 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 93

FLOW OF MOKELUMNE RIVER AT LANCHA PLANA - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	446	456	475	480	509	1200	1610	512	520	517	322	531
2	600	571	682	676	534	1720	841	194	650	665	550	676
3	676	665	682	559	272	1690	1000	582	650	603	665	687
4	509	665	682	558	495	1410	1330	625	625	305	709	682
5	486	665	676	450	655	1540	746	625	529	486	670	450
6	676	665	676	498	655	2080	650	625	564	665	645	317
7	687	676	660	676	575	2580	1100	615	379	665	549	676
8	676	415	655	676	890	2030	1000	558	530	665	358	645
9	515	525	490	676	1020	1730	665	346	655	603	559	676
10	670	670	540	569	1030	1670	640	453	655	522	665	676
11	316	670	504	676	815	1610	530	635	655	283	586	676
12	500	670	503	478	650	1630	386	501	536	549	665	676
13	566	670	586	516	650	1630	733	635	260	587	670	240
14	541	680	515	670	650	1740	645	640	528	665	682	477
15	675	675	196	580	634	1870	610	542	603	635	290	499
16	952	615	531	562	1040	1860	600	233	670	655	478	497
17	973	680	676	590	1050	1770	600	495	670	665	665	496
18	980	560	676	484	773	2160	468	645	650	335	665	676
19	980	665	639	501	603	2360	189	645	670	515	665	526
20	980	670	551	517	933	2480	497	620	228	665	665	284
21	1170	558	545	591	1300	3010	610	645	507	665	498	642
22	1510	532	312	586	1370	3190	605	485	605	665	298	676
23	1510	551	547	608	1500	2040	610	216	670	665	556	676
24	1490	520	594	577	1550	2140	610	505	605	591	665	676
25	1470	600	563	581	1790	2190	365	640	665	258	665	406
26	1480	599	607	518	1680	2050	179	492	617	501	564	475
27	1490	665	670	566	1240	1920	451	532	291	665	574	332
28	1150	616	552	553	1160	1740	519	650	507	525	676	665
29	973	—	338	550	1160	1680	497	554	560	475	420	563
30	902	—	670	381	1160	1700	530	535	600	576	437	527
31	475	—	446	—	1160	—	482	502	—	227	—	502
Mean	872	613	563	563	952	1947	655	532	562	550	569	555
Runoff in Ac.Ft.	53600	34050	34590	33530	58520	115900	40260	32690	33430	33840	33870	34120
	Water Year Total 539030								Calendar Year Total 538400			

U. S. Geological Survey and Division of Water Resources cooperative station located three miles downstream from Pardee Dam. Drainage area is 584 square miles. Period of record 1926 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 94

FLOW OF MOKELUMNE RIVER NEAR CLEMENTS - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	478	466	436	410	504	2320	1580	451	447	462	194	524
2	606	543	656	660	582	1820	979	307	611	639	520	703
3	681	664	660	559	392	1650	774	377	606	578	660	721
4	551	664	660	578	410	1330	1280	586	586	357	694	743
5	500	664	664	516	664	1380	840	586	478	367	681	566
6	699	660	660	462	668	1740	586	586	586	639	656	268
7	800	672	652	664	594	2580	899	578	310	643	547	699
8	734	500	660	672	774	2200	1080	547	451	643	350	699
9	555	459	474	668	994	1750	648	386	615	590	551	716
10	686	656	539	594	1000	1670	631	310	611	504	672	725
11	374	660	590	672	904	1720	493	578	611	297	586	730
12	470	660	497	531	664	1720	371	462	497	500	677	730
13	627	652	582	489	660	1720	681	582	307	570	681	367
14	619	656	516	668	660	1670	639	594	403	652	708	396
15	660	656	350	590	594	1420	578	493	555	627	382	531
16	984	602	324	555	941	1500	570	293	631	648	378	535
17	1010	660	652	602	998	1460	566	334	631	652	677	531
18	1130	570	660	543	849	1400	524	590	615	360	681	721
19	1050	652	656	455	611	927	207	586	631	474	686	582
20	1140	660	547	520	755	974	334	578	309	656	681	330
21	1140	566	566	594	1200	582	574	590	337	656	551	668
22	1530	531	421	598	1240	262	578	440	566	660	285	734
23	1520	559	418	611	1420	977	578	310	635	656	543	734
24	1510	524	590	582	1410	1370	578	326	574	656	681	738
25	1470	606	574	598	1640	1040	403	602	635	230	681	602
26	1500	598	615	539	1670	1270	186	455	639	421	586	371
27	1490	648	668	602	2150	1390	276	500	255	656	590	389
28	1290	648	566	582	2320	1460	474	602	436	516	694	712
29	998		350	574	2320	1690	451	524	524	462	449	631
30	979	—	652	586	2310	1600	493	389	606	566	482	594
31	543	—	528	—	2320	—	462	462	—	324	—	594
Mean	914	609	558	576	1104	1486	623	484	523	537	573	599
Runoff in Ac.Ft.	56180	33830	34300	34260	67870	88450	38310	29760	31140	33050	34120	36860
	Water Year Total 512700								Calendar Year Total 518130			

Division of Water Resources station located one mile north of Clements, 700 feet upstream from the highway bridge. Drainage area is 630 square miles. Period of record 1904 to date.

TABLE 95

FLOW OF MOKELUMNE RIVER AT WOODBRIDGE - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	554	574	391	152	304	700	1130	32	112	250	141	423
2	496	520	315	146	247	844	884	36	115	259	160	543
3	640	638	390	230	287	1160	385	29	187	343	363	641
4	634	682	382	199	70	1040	743	29	227	286	497	681
5	506	678	405	224	216	923	736	66	197	80	538	646
6	563	675	396	108	235	1200	263	103	184	255	514	415
7	719	675	392	250	220	1630	257	141	178	373	458	341
8	776	640	366	352	223	1890	616	148	61	357	406	606
9	664	461	334	263	490	1450	339	109	140	333	252	613
10	598	574	345	307	554	1300	209	40	212	205	423	635
11	645	656	366	305	554	1250	177	34	217	252	491	637
12	344	660	355	284	260	1230	109	62	224	129	480	637
13	550	660	388	150	210	1220	58	37	167	271	529	591
14	600	660	445	173	214	1220	163	112	35	337	562	280
15	550	669	387	230	198	1330	156	155	83	383	514	409
16	700	634	134	182	328	1250	134	94	266	382	237	457
17	952	647	299	182	536	1340	126	34	295	447	389	468
18	1030	627	457	199	544	1190	112	34	372	411	540	505
19	1050	609	480	127	212	1590	72	94	390	208	558	582
20	1050	662	488	104	222	1710	41	114	208	386	1100	489
21	1050	631	432	170	530	1930	38	141	63	476	643	332
22	1200	554	420	197	774	2250	44	154	275	463	486	591
23	1440	538	191	178	875	2270	65	81	331	445	329	624
24	1440	534	405	172	956	1440	87	36	334	445	544	630
25	1440	546	416	166	1080	1650	81	36	350	361	626	615
26	1440	534	418	165	1210	1540	38	72	361	134	602	394
27	1440	252	461	312	1030	1450	32	46	287	287	525	423
28	1440	242	459	295	752	1360	30	134	65	374	566	353
29	1200	—	340	345	738	1150	31	235	190	308	569	577
30	1020	—	199	315	726	1150	32	182	277	282	398	514
31	824	—	334	—	733	—	34	77	—	322	—	497
Mean	889	587	374	216	501	1389	233	87.0	216	320	481	521
Runoff in Ac.Ft.	54650	32590	22990	12860	30800	82630	14320	5350	12880	19700	28640	32030
	Water Year Total 357090								Calendar Year Total 349440			

U. S. Geological Survey and Division of Water Resources cooperative station located 0.4 mile below diversion dam of Woodbridge Irrigation District. Drainage area is 644 square miles. Period of record 1924 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 96

FLOW OF BEAR CREEK NEAR LOCKEFORD - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	25	2.4	0	0	1.2	0	0	0	0.4	0		0
2	17	2.4	0	0	0.7	0	0	0	0	0		0
3	13	2.2	0	0	.6	0.1	0	0.1	1.4	0.2		0
4	11	2.4	0	0	.6	.1	0	0	0.5	.5		0
5	9	2.6	0	0	.4	.7	0	1.4	1.7	.4		0
6	50	2.4	0	0	.2	1.2	0	0.1	0.4	0		1.9
7	75	2.4	0	0	.1	0.2	0	1.0	0	0		8.0
8	25	2.2	0	0	.1	.2	0	0.5	0	0		0.2
9	20	1.7	0	0	.1	.1	0	.2	0	0		0
10	15	1.4	0.1	0	.2	0	0.7	0	0.3	0.3		0
11	10	1.4	.4	0	.2	0	.2	0.6	2.4	.2		0
12	10	1.4	.1	0	.1	0	0	.5	4.0	0	N	0
13	50	1.2	.1	0	.1	0.2	0	.5	0.4	0	0	0
14	80	1.1	.1	0.2	.7	.2	0	1.8	0	0.1		0
15	40	1.0	.2	.2	.6	.2	0	0	1.4	.5		0
16	15	0.8	.2	1.0	.5	.1	0	0.6	1.4	0		0
17	11	.8	0	0.5	.1	0	0	0	1.4	0	F	0
18	56	.8	0	.1	.1	0	0	0	0.3	0	L	0
19	38	.5	0.2	0	.9	0	0	0.9	0	0	O	0
20	74	.4	.5	0	0	0.6	0	.6	0	0	W	0
21	84	.2	4.9	0	0.1	.5	0	.6	0	0		0
22	26	.2	2.2	0.1	.1	0	0.1	2.1	0	0		0
23	13	.2	1.3	.1	.1	0	0	0	0	0		0
24	10	0	0.8	.1	.1	0	0.2	0	0	0		0
25	8.0	0	.6	.6	.1	0	.9	0	0	0		0
26	6.2	0	.5	.1	.3	0	0	1.4	0	0		0
27	4.3	0	.4	8.6	.6	0	0	1.2	0	0		0
28	3.8	0	.3	6.4	.5	0	0.1	1.2	0.6	0		0
29	3.2	—	.2	4.1	.1	0.1	1.0	0.2	.7	0		0
30	3.0	—	.1	2.0	0	.7	0.9	0	.1	0		0
31	2.6	—	0	—	0.1	—	.1	0.5	—	0	—	0
Mean	26.1	1.2	0.4	0.8	0.3	0.2	0.1	0.5	0.6	0.1	0	0.3
Runoff in Ac.Ft.	1600	64	26	48	19	10	8	32	35	4	0	20
	Water Year Total 2362								Calendar Year Total 1866			

U. S. Geological Survey and Division of Water Resources cooperative station located at County Road bridge 0.8 mile southeast of Lockeford. Drainage area is 48.4 square miles. Period of record 1930 to 1933; 1943 to date. (Prior records available at a site three miles downstream.) Records for 1953 computed by U. S. Geological Survey.

TABLE 97

FLOW OF CALAVERAS RIVER AT JENNY LIND - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	548	158	2.7	13	47	115	150	176	0	0	11	25
2	315	148	3.8	13	59	115	150	176	0	0	9.6	23
3	237	141	3.8	12	59	117	148	176	0	0	9.6	25
4	540	130	3.5	12	59	130	148	168	0	0	9.6	87
5	500	126	2.7	12	72	155	160	163	0	0	9.2	260
6	192	121	2.5	12	96	160	186	160	0	0	9.6	119
7	704	119	2.0	12	96	160	186	158	0	0	10	74
8	964	115	1.5	12	96	158	168	153	0	0	10	63
9	572	109	0.8	12	96	158	143	148	0	0	12	60
10	399	106	1.3	12	96	158	138	150	0	0	13	51
11	301	100	4.6	12	98	158	146	183	0	0	13	44
12	241	96	4.6	12	98	160	163	176	0	0	13	41
13	288	93	3.1	12	98	163	173	148	0.2	0	14	39
14	1530	88	2.0	11	98	160	170	121	.2	0	60	36
15	1550	86	1.3	11	100	160	170	121	2.7	0	80	35
16	713	74	0.9	11	100	160	178	75	4.6	0	76	34
17	448	13	.6	11	100	160	189	5.7	4.6	0	54	33
18	1140	8.8	.3	11	98	160	189	0.4	1.3	1.1	40	32
19	1140	7.8	8.7	11	98	158	183	0	0	4.2	34	31
20	825	8.3	25	11	98	158	183	0	0	13	33	29
21	1150	6.5	18	11	98	158	178	0	0	26	33	29
22	764	5.4	18	38	104	158	176	0	0	25	35	29
23	516	4.6	18	104	117	155	181	0	0	20	36	29
24	402	4.2	18	104	117	155	195	0	0	17	33	29
25	346	3.8	15	104	117	155	195	0	0	14	31	29
26	290	2.7	15	106	117	155	192	0	0	13	29	29
27	247	2.4	14	126	117	155	192	0	0	12	29	29
28	215	2.4	13	123	117	153	186	0	0	12	27	29
29	198		13	91	117	150	183	0	0	12	25	28
30	181	—	13	42	117	150	181	0	0	11	25	29
31	170	—	13	—	117	—	178	0	—	11	—	29
Mean	569	67.1	7.9	36.1	97.3	152	173	79.3	0.4	6.2	27.5	47.1
Runoff in Ac.Ft.	34960	3730	483	2150	5980	9060	10630	4880	27	379	1630	2890
	Water Year Total 89140								Calendar Year Total 76799			

U. S. Geological Survey and Division of Water Resources cooperative station located 0.2 mile south of Jenny Lind at Milton Road bridge. Drainage area is 395 square miles. Period of record 1907 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 98

FLOW OF CALAVERAS RIVER AT BELLOTA - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	125	79		1.7	31	77	127	127			0	11
2	100	77		0	33	78	131	126			0	11
3	88	75		0	36	77	132	126			0	11
4	83	75		0	36	82	133	124			0	11
5	79	73		0	35	120	136	116			0	48
6	84	73		0	52	121	138	110			0	66
7	121	72	N	0	54	118	137	108	N	N	0	53
8	153	71	O	0	47	119	138	107	O	O	0	45
9	126	71		0	62	118	131	107			0	33
10	109	71		0	68	118	130	103			0	26
11	97	70		0	58	119	131	106			0	26
12	89	69		0	52	119	135	110			0	26
13	96	68		0	52	107	134	115			0	26
14	169	63		0	52	102	135	88			0	18
15	206	26		0	52	101	138	80			0	14
16	146	0		0	51	102	140	75			0	14
17	116	0	F	0	51	103	149	23	F	F	0	14
18	152	0	L	0	52	104	151	0	L	L	0	14
19	175	0	O	0	52	106	152	0	O	O	0.7	14
20	152	0	W	0	52	108	148	0	W	W	9.9	14
21	173	0		0	52	110	142	0			16	14
22	145	0		0	53	110	134	0			15	14
23	121	0		0.4	76	110	132	0			14	14
24	109	0		1.0	83	114	133	0			11	14
25	100	0		38	60	130	133	0			11	14
26	95	0		71	60	131	133	0			10	14
27	90	0		54	60	130	131	0			10	14
28	87	0		72	60	128	132	0			11	14
29	84			71	68	117	131	0			11	14
30	83	—		40	75	117	127	0			11	14
31	81	—		—	76	—	126	0	—		—	14
Mean	117	36.9	0	11.6	54.9	110	135	56.5	0	0	4.4	20.9
Runoff in Ac.Ft.	7208	2049	0	692	3374	6538	8331	3473	0	0	259	1287
	Water Year Total 33899								Calendar Year Total 33211			

Division of Water Resources station located just above the highway bridge at Bellota. Flows in the Calaveras River and in Mormon Slough are regulated by headgates near Bellota. Period of record 1948 to date.

TABLE 99

FLOW OF CALAVERAS RIVER NEAR STOCKTON - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	113	66		0	11	17	7.2	2.1			0	0
2	92	65		0	6.1	8.5	12	8.8			0	0
3	79	64		0	6.3	7.6	9.9	21			0	0
4	72	62		0	3.4	0.5	18	23			0	0
5	68	61		0	*8.2	0.2	27	21			0	0
6	67	60		0	*8.2	23	23	14			0	*29
7	82	60	N	0	*8.2	43	16	9.2			0	*25
8	116	60	O	0	*8.2	34	4.6	3.3			0	*21
9	112	58		0	*8.2	28	1.8	2.1			0	*17
10	95	58		0	*8.2	27	6.7	6.3			0	*13
11	84	58		0	*8.2	24	1.9	5.6			0	*11
12	76	58		0	*8.2	31	11	2.1	N	N	0	10
13	75	57		0	11	33	16	4.5	O	O	0	11
14	95	56		0	10	29	9.5	1.4			0	11
15	143	48		0	14	26	1.6	0.4			0	7.1
16	129	46		0	14	15	1.7	.5			0	2.7
17	104	11	F	0	19	20	11	.5	F	F	0	2.1
18	99	1.3	L	0	9.3	24	18	.4	L	L	0	1.8
19	128	0	O	0	11	15	21	0	O	O	0	1.7
20	121	0	W	0	21	14	23	0	W	W	0	1.7
21	126	0		0	18	22	17	0			0	1.7
22	125	0		0	18	23	18	0			0	1.7
23	107	0		0	19	16	12	0			0	1.8
24	95	0		0	37	21	10	0			0	1.9
25	87	0		0	27	13	16	0			0	2.4
26	81	0		0	18	15	22	0			0	2.5
27	76	0		0	16	21	20	0			0	2.8
28	72	0		5.1	15	35	8.1	0			0	2.8
29	70			39	16	31	3.6	0			0	2.6
30	68	—		24	17	16	2.1	0			0	2.7
31	67	—		—	18	—	3.2	0	—		—	2.7
Mean	94.3	33.9	0	2.3	13.6	21.1	12.0	4.1	0	0	0	6.2
Runoff in Ac.Ft.	5800	1883	0	135	834	1255	740	250	0	0	0	378
	Water Year Total 13226								Calendar Year Total 11275			

Division of Water Resources station located upstream from Solari Road bridge and 3.5 miles above the mouth of Stockton Diverting Canal. Flows in the Calaveras River are regulated by headgates near Bellota. Period of record 1948 to date.
* Estimated mean for period.

TABLE 100

FLOW OF MORMON SLOUGH AT BELLOTA - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	512	67	1.3	0	2.9	35	51	54			0	5.6
2	241	55	1.3	0	8.5	35	42	56			0	6.3
3	147	50	1.0	0	25	35	42	53			0	7.1
4	97	44	0.6	0	22	32	47	53			0	16
5	75	39	.1	0	23	31	52	52			0	94
6	121	37	0	0	31	35	60	50			0	55
7	524	36	0	0	35	33	62	49			0	21
8	936	33	0	0	38	34	64	46			0	13
9	525	31	0	0	34	33	49	49			0	17
10	311	29	0	0	30	33	44	41			0	20
11	209	24	0	0	33	33	47	56			0	16
12	153	22	0	0	36	33	59	57	N	N	0	12
13	197	20	0	0	36	36	55	50	0	0	0	9.3
14	1230	22	0	0	36	42	56	23			0	12
15	*1510	22	0	0	35	39	55	33			0	14
16	*778	46	0	0	35	42	49	19			37	13
17	*543	39	0	0	35	41	54	0.2	F	F	33	12
18	*978	19	0	0	33	41	54	.2	L	L	22	12
19	*1120	14	0	0	36	41	56	0	0	0	17	10
20	816	12	2.5	0	36	44	51	0	W	W	12	8.6
21	1130	11	11	0	35	48	52	0			7.8	8.6
22	747	9.3	*8.6	0	36	46	53	0			*11	8.6
23	437	7.8	*6.3	15	29	46	54	0			*10	9.3
24	306	6.3	*4.3	53	36	48	61	0			*9.3	9.3
25	237	5.6	*3.4	26	*34	40	64	0			*8.6	9.3
26	183	4.7	2.6	0.3	*34	41	65	0			*7.8	8.6
27	147	3.9	1.7	34	35	42	58	0			*7.1	9.3
28	119	2.6	1.2	41	37	49	52	0			6.3	9.3
29	102	—	1.2	26	35	48	54	0			6.3	9.3
30	87	—	0.6	11	32	50	53	0			5.6	8.6
31	75	—	.1	—	35	—	53	0	—		—	9.3
Mean	471	25.4	1.5	6.9	31.6	39.5	53.8	23.9	0	0	6.7	15.3
Runoff in Ac.Ft.	28940	1413	95	409	1941	2352	3308	1471	0	0	398	939
	Water Year Total 51974								Calendar Year Total 41266			

Division of Water Resources station located just below the Bellota-Escalon Road bridge. Flows in Mormon Slough and Calaveras River are regulated by headgates near Bellota. Period of record 1948 to date.

* Estimated.

TABLE 101

FLOW OF STOCKTON DIVERTING CANAL AT STOCKTON - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	678	62			1.0							0
2	285	54										0
3	169	48				*0	*0					0
4	106	42										0
5	71	34										0
6	76	32										*10
7	347	29										*6.5
8	987	29					*5.0					*3.4
9	624	26										*1.1
10	352	24		*0								*3.2
11	234	18										*2.6
12	162	14	N					N	N	N	N	*1.9
13	172	9.8	0					0	0	0	0	*1.3
14	868	7.4										*0.8
15	1800	10			*0	*0.5						0
16	875	10										0
17	414	43	F					F	F	F	F	0
18	612	19	L					L	L	L	L	0
19	1190	6.5	0					0	0	0	0	0
20	798	1.3	W				*0	W	W	W	W	0
21	1200	0										0
22	868				1.0							0
23	488											0
24	330				*0							0
25	251	0		*15								0
26	198					*0						0
27	153											0
28	118											0
29	98	—										0
30	82	—										0
31	70	—		—	—	—	—		—		—	0
Mean	473	18.5	0	5	0.01	0.3	0.8	0	0	0	0	1.0
Runoff in Ac.Ft.	29110	1030	0	298	4	17	50	0	0	0	0	61
	Water Year Total 39869								Calendar Year Total 30570			

U. S. Geological Survey, U. S. Bureau of Reclamation, and Division of Water Resources cooperative prior to September 30, 1953. Subsequent to that date station was operated by the Division of Water Resources. The station is located at Sanguinetti Lane bridge near the mouth of the canal. Period of record 1944 to date. Records for 1953 computed by U. S. Geological Survey prior to September 30, and by Division of Water Resources after that date.

* Estimated mean for period.

TABLE 102

FLOW OF LITTLEJOHNS CREEK AT FARMINGTON - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	55	40	*13	4	17	3	0	0	1	1		
2	40	33	11	2	16	3	0	0	1	2		
3	36	31	7	2	16	3	1	0	1	2		
4	33	29	5	3	18	3	1	0	1	2		
5	31	28	4	4	15	2	1	0	1	2		
6	33	27	3	6	13	5	1	0	2	2		
7	245	26	3	5	13	6	1	1	2	2		
8	222	26	2	5	11	6	1	1	1	2		
9	157	25	2	5	8	5	1	1	1	2		
10	126	24	2	4	6	6	1	1	1	2		
11	97	24	3	2	3	7	1	1	2	2		
12	78	24	2	2	1	7	1	1	2	2	N	N
13	72	23	4	4	1	8	1	1	1	2	0	0
14	303	23	4	8	0	7	0	1	1	2		
15	356	22	2	12	1	7	0	0	1	2		
16	317	22	2	12	1	5	1	0	2	2		
17	182	21	1	10	1	7	1	0	2	2	F	F
18	265	21	1	8	1	4	0	0	1	1	L	L
19	352	20	1	6	1	2	0	0	1	1	0	0
20	336	20	5	4	1	1	0	0	1	1	W	W
21	359	20	13	8	1	1	0	1	1	1		
22	365	19	12	8	1	1	0	1	1	1		
23	280	18	9	11	1	0	0	1	1	1		
24	143	17	8	11	2	1	0	1	2	1		
25	113	17	5	10	3	2	0	1	1	1		
26	90	16	3	13	2	2	1	1	2	1		
27	74	15	3	30	2	3	1	1	2	1		
28	62	15	2	84	2	1	1	1	2	1		
29	54	—	2	45	3	0	1	0	1	1		
30	48	—	2	27	1	0	0	0	1	1		
31	44	—	2	—	3	—	0	1	—	1	—	
Mean	160	23.1	4.4	11.8	5.3	3.6	0.5	0.5	1.3	1.5	0	0
Runoff in Ac.Ft.	9854	1281	274	704	327	214	34	34	79	93	0	0
	Water Year Total 14088								Calendar Year Total 12894			

U. S. Corps of Engineers station located approximately 300 feet downstream from Farmington-Escalon road. Station was moved to this location in June, 1952, from its former location approximately one mile upstream. The flows recorded by this station since June, 1952, include flows entering Littlejohns Creek via the Duck Creek diversion canal. Period of record December, 1945, to date. Records for 1953 computed by U. S. Corps of Engineers.
* Estimated.

TABLE 103

FLOW OF DUCK CREEK AT FARMINGTON - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	14		0	0	0	2.1	15	17	16	0	0	0.4
2	8.6		0	0	0	1.1	16	18	20	0	0	.1
3	6.6		0	0	0	0	16	19	22	0	0	.1
4	2.6		0	0	0	0	15	19	20	0	0	1.5
5	0.4		0	0	0	0	14	18	16	0	0	1.0
6	18		0	0	0	0	14	18	19	0	0	0.4
7	63		0	0	0	4	14	18	22	0	0	.1
8	40		0	0	0	5.1	13	14	21	0	0	0
9	23		0	0	0.7	3.5	3.5	16	20	0.9	0	0
10	9		0	0	2.9	3.2	0	19	20	5.1	0	0
11	4		0	0	3.7	3.2	0	19	21	0	0	0
12	1.8	N	0	0	2.3	2.3	6.8	18	21	0	0	0
13	14	0	0	0	1.6	1.6	11	*18	22	0	0	0
14	57		0	0	0.6	0	15	*20	22	0	0	0
15	32		0	0	1.5	0	15	20	21	0	0	0
16	10		0	0	2.4	0	14	18	17	0	0	0
17	4.7	F	0	0	2.6	12	14	17	15	0	0	0
18	35	L	0	0	3.0	13	16	17	13	0	0	0
19	20	0	0	0	2.4	14	15	19	14	0	0	0
20	18	W	13	0	2.5	14	14	19	14	0	0	0
21	38		3.5	0	3.5	14	16	18	13	0	0	0
22	11		0	0	3.5	14	16	21	13	0	0	0
23	3.7		0	0	2.3	12	16	20	7.5	0	0	0
24	1.2		0	0	2.6	10	17	20	9.4	0	0	0
25	0		0	0	2.6	1.1	17	20	4.7	0	0	0
26	0		0	0	2.5	2.7	16	18	6.6	0	0	0
27	0		0	20	3.4	14	17	20	4.0	0	0	0
28	0		0	21	2.6	13	18	22	0	0	0	0
29	0	—	0	2.2	1.4	13	17	22	0	3.7	0	0
30	0	—	0	0	1.7	14	17	20	0	0	0.3	0
31	0	—	0	—	3.1	—	17	18	—	0	—	0
Mean	14.0	0	0.5	1.4	1.8	6.2	13.7	18.7	14.5	0.3	0	0.1
Runoff in Ac.Ft.	864	0	33	86	110	371	844	1150	861	19	1	7
	Water Year Total 4615								Calendar Year Total 4346			

Division of Water Resources station located 0.5 mile northwest of Farmington, 300 feet west of Bellota-Escalon Road. Duck Creek is an east-side tributary to the San Joaquin River at Mile 46.1R, via French Camp Slough. Period of record 1950 to date.
* Estimated.

TABLE 104

FLOW OF DUCK CREEK NEAR STOCKTON (MARIPOSA ROAD) - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	57	0	0	0.7	20	0	1.9	1.0	1.5	0.9	0	
2	30	0	0	2.4	9.6	0	1.2	2.8	13	2.2	0	
3	19	0	0.1	2.5	5.3	0.3	1.9	1.3	12	1.9	0	
4	14	0	0	0.3	2.4	1.6	1.2	4.9	2.5	0.2	0	
5	9.8	0	0	2.5	1.4	0	1.6	9.3	0.7	0	0.6	
6	8.8	0	0.2	1.6	1.6	5.3	1.2	9.6	.2	0	2.2	
7	31	0	0	3.3	1.9	0.5	0.6	5.6	.1	0	0.8	
8	116	0	0	2.2	3.7	0	.1	1.0	.4	0	0	
9	57	0	0	1.8	3.5	0.1	.4	0	4.5	*0.7	0	
10	36	0	0	1.5	4.5	0	.8	0	4.9	1.5	0	
11	23	0	0	1.0	3.9	0	0	0.2	6.9	0.8	0	
12	14	0	0	2.4	3.0	0	0	3.3	5.3	0	0	N
13	9.8	0	0	1.3	0.5	0	0.2	9.3	4.3	0	0	O
14	11	0	0	1.6	.4	0	1.6	1.8	4.3	0	0	
15	86	0	0	0	.9	0	1.3	1.3	1.6	0	0	
16	44	0	0	0	.8	0	3.3	1.0	1.9	0	0	
17	25	0	0	0.6	0	0	3.0	1.2	1.6	0	0	F
18	14	0	0	1.4	0	0.8	1.8	0.9	1.4	0	0	L
19	27	0	0	2.4	0	.4	1.9	2.4	0.9	0	0	O
20	31	0	0.8	4.1	0.8	0	0.2	2.8	0	0	0	W
21	30	0	0	4.1	.2	0	0	1.3	0	0	0	
22	47	0	4.1	3.1	.3	1.4	0.2	0.2	0	0	0	
23	25	0	7.9	5.6	*.4	0.8	1.0	0	0.1	0	0	
24	13	0	4.9	4.3	*0	.4	1.9	0	1.5	0	0	
25	7.4	0	2.8	3.9	*0	.8	0.6	0	0.1	0	0	
26	4.5	0	1.8	5.3	*0	1.0	.4	0.2	0	0	0	
27	2.4	0.5	1.6	10	0	1.0	.4	2.2	0	0.2	0	
28	0.8	.4	0.9	43	0	0.8	0	1.4	0	.7	0	
29	.2		1.0	61	1.3	.2	1.4	1.6	0	0		
30	0	—	0	33	0	.4	2.5	0.4	0	0	0	
31	0	—	0.4	—	0	—	2.8	1.4	—	0	—	
Mean	25.6	0	0.9	6.9	2.1	0.5	1.1	2.2	2.3	0.3	0.1	0
Runoff in Ac.Ft.	1574	2	53	410	132	31	70	136	138	18	7	0
	Water Year Total 2787								Calendar Year Total 2571			

Division of Water Resources station located 0.3 mile east of Highway 99, 150 feet downstream from Mariposa Road bridge. Duck Creek is an east-side tributary to the San Joaquin River at Mile 46.1R via French Camp Slough. During high-flow periods Duck Creek water enters Mormon Slough at a point approximately two miles east of the head of the Stockton Diverting Canal. Recorder was moved to Pock Lane approximately 0.5 mile downstream on November 20, 1953. Period of record 1950 to date.
* Estimated.

TABLE 105

FLOW OF LONE TREE CREEK NEAR VALLEY HOME - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.3			2								
2	*2.0			0								
3	*0			6.3								
4	*0			14	*0.5							
5	*0			18								
6	*0			11								
7	*3.0			7.4								
8	*13.0		*0.6	8.7	9.6							
9	*1.5			9.6	21							
10	*1.0			15	16							
11	*0.8			20	12							
12	*1.2			25	12							
13	*2.2			19	14							
14	31	*0.6		14	21							
15	13		7.0	15	11							
16	4.2		5.6	17	13							
17	2.5		6.3	9.6	20							
18	2.6		4.8	18	12							
19	2.7		19.0	23	16							
20	5.8		18	40	13							
21	13		5.6	17	10							
22	4.5			17	16							
23				20	21							
24				11	11							
25				9	17							
26				12								
27	*0.7		*0.5	154								
28				18								
29				5.8								
30		—		*0.5								
31		—		—		—			—		—	
Mean	3.7	0.6	2.6	18.6								
Runoff in Ac.Ft.	227	33	158	1105								
	Water Year Total								Calendar Year Total			

Division of Water Resources station located 1.5 miles west of Valley Home 300 feet north of Lone Tree Road. Lone Tree Creek is an east-side tributary to the San Joaquin River at Mile 46.1R via French Camp Slough. Period of record 1950 to May 25, 1953, when station was discontinued.
* Estimated mean for period.

TABLE 106

FLOW OF LONE TREE CREEK NEAR MANTECA (AUSTIN ROAD) - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	94	1.6	*.6	15	76	34	12	8.6	8.9	22	3.1	0
2	59	1.6	*.6	19	51	39	14	13	8.0	9.8	5.3	0
3	29	1.5	*.6	26	56	33	14	15	7.9	7.1	3.2	.3
4	17	1.6	5.6	36	51	41	11	7.9	6.3	12	2.4	3.1
5	10	1.4	6.6	35	44	43	20	10	4.7	12	2.8	38.0
6	7	1.1	7.7	34	29	56	19	8.8	6.5	16	2.4	40
7	23	1.0	8.3	36	27	71	28	10	11	20	2.6	17
8	108	.9	7.9	42	27	98	20	22	17	20	3.2	7.0
9	122	.8	21.0	42	47	67	18	20	20	15	2.6	3.4
10	72	1.2	28	40	38	62	14	17	20	22	2.9	1.6
11	32	0.8	25	48	43	76	18	27	15	23	*2.1	0.7
12	14	.8	25	59	46	74	16	17	*1.6	22	*2.6	0.6
13	11	.8	18	76	30	67	16	8.1	*3.2	15	*3.3	0.5
14	18	.8	31	56	21	29	10	5.8	*2.6	9.1	2.9	0.5
15	72	.8	20	61	28	13	26	8.8	*6.9	19	5.3	0.6
16	66	.7	18	58	26	19	15	5.6	6.9	16	*1.5	0.5
17	30	.8	18	68	31	30	18	6.3	5.5	15	*.7	0.5
18	14	*.6	21	52	38	32	10	4.4	*3.2	12	*.7	0.5
19	8.9	*.6	14	56	31	39	5.5	4.3	8.6	12	*.7	0.4
20	8.4	*.6	52	71	38	40	19	6.3	16	16	*.6	0.5
21	12	*.6	71	68	22	29	36	7.9	17	13	.4	0.5
22	25	*.6	33	64	33	31	27	15	14	7.0	*.3	0.4
23	12	*.6	14	45	25	16	26	12	28	4.2	*.2	0.3
24	6.4	*.6	6.1	50	14	28	17	11	36	3.4	*.2	0.3
25	4.4	*.6	3.1	43	23	17	20	5.4	19	3.4	*.2	0.1
26	3.0	*.6	2.0	35	45	22	16	11	18	3.7	*.2	0
27	2.6	*.6	1.7	88	42	21	11	13	38	*2.8	*.2	0
28	2.1	*.6	1.6	222	49	21	12	4.9	22	*2.2	*.1	0
29	1.9		1.6	237	44	19	17	7.7	28	*1.7	0	0
30	1.7	—	2.1	146	60	12	14	21	33	*1.4	0	0.5
31	1.6	—	9.5	—	41	—	17	26	—	1.1	—	1.8
Mean	28.6	0.9	15.3	64.3	37.9	39.3	17.3	11.6	14.5	11.6	1.3	3.8
Runoff in Ac.Ft.	1761	49	941	3824	2332	2338	1064	716	864	712	104	237
	Water Year Total 18575								Calendar Year Total 14942			

Division of Water Resources station located four miles north and two miles east of Manteca at Austin Road bridge. Lone Tree Creek is an east-side tributary to the San Joaquin River at Mile 46.1R via French Camp Slough. Period of record 1950 to date.
* Estimated mean for period.

TABLE 107

FLOW OF TEMPO CREEK NEAR MANTECA (JACK TONE ROAD) - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	47	1.0	2.6	2.7	52	5.8	0.2	1.1	0.3	7.7	3.7	0.4
2	42	1.2	1.9	5.6	25	2.2	0.2	0.6	0.3	6.4	4.6	0.6
3	15	0.9	2.9	6.5	21	4.1	0	0.4	0.3	5.0	3.2	0.4
4	8	1.2	3.8	6.5	27	9.2	0.3	0.2	0.4	12	2.8	5.6
5	*4	1.1	4.7	7.0	17	11	0.6	0	1.0	10	3.0	29
6	*2.8	0.9	2.8	8.6	10	14	2.2	0.1	0.6	13	2.6	27
7	5.6	0.8	3.7	8.8	8.2	18	0.9	4.0	0.6	9.3	3.4	13
8	42	0.6	4.9	11	8.7	26	0.6	1.3	0.6	8.1	3.5	5.6
9	83	1.0	4.4	9.8	7.8	14	0.1	0.6	0.1	6.4	3.4	2.7
10	52	1.3	4.6	6.3	7.1	15	0	1.2	0	6.8	3.4	1.5
11	16	1.2	8.0	10	12	18	0	1.3	0.2	8.0	3.1	1.0
12	7.5	1.4	8.6	19	11	21	0	1.7	1.2	7.1	4.1	0.9
13	6.3	1.2	6.0	25	5.9	17	1.3	0.5	0.8	7.7	4.4	0.7
14	9.2	0.9	7.7	20	0.6	5.4	0.4	*0.6	0.6	4.7	4.0	0.9
15	26	0.7	7.8	21	0.3	2.0	2.1	*0.6	0.6	12	3.9	0.9
16	29	0.6	6.0	16	0.2	2.4	1.1	*0.7	0.1	10	7.0	0.8
17	14	0.5	9.6	17	0.8	1.5	0.8	*0.7	0	9.5	3.7	0.9
18	7.0	0.4	8.6	21	0.5	1.1	0.5	*0.8	3.5	8.1	1.9	0.7
19	4.7	0	7.2	20	0.5	1.6	0.3	*0.8	3.2	8.2	1.1	0.8
20	4.4	0	22	24	0.4	1.2	2.2	*0.7	7.1	12	2.1	1.0
21	6.3	0	34	27	0.7	0.9	1	*0.6	5.4	8.1	2.4	1.0
22	5.4	0	17	26	0.7	0.9	2.1	0.5	2.9	4.0	1.0	0.8
23	4.7	2.5	6.8	18	0.6	0.8	1.0	1.6	10	2.1	0.6	0.7
24	3.7	1.8	3.4	18	0.9	0.3	0.2	0.5	16	1.9	0.6	0.7
25	2.7	1.1	2.1	15	4.0	0	0	1.2	9.8	2.7	0.4	0.6
26	1.9	1.2	1.5	13	8.0	0	0	0.7	8.7	3.2	0.2	0.5
27	1.4	1.5	1.1	38	13	0.1	0.3	0.5	14	1.5	0.2	0.5
28	1.1	1.6	0.9	136	19	0.9	0.5	0.4	16	2.2	0.2	0.4
29	0.9		1.2	161	6.3	0.4	1.3	0.3	13	1.0	0.2	0.4
30	0.8	—	1.4	112	3.5	0	1.3	0.3	13	0.7	0.2	1.6
31	0.7	—	1.1	—	6.4	—	1.8	0.3	—	2.1	—	2.1
Mean	14.7	1.0	6.4	27.7	9.0	6.5	0.8	0.8	4.3	6.5	2.5	3.3
Runoff in Ac.Ft.	903	53	393	1646	554	386	46	49	258	400	148	205
	Water Year Total 6769								Calendar Year Total 5041			

Division of Water Resources station located 5.5 miles northeast of Manteca at Jack Tone Road bridge. Tempo Creek is an east-side tributary to the San Joaquin River at Mile 46.1R via Lone Tree Creek and French Camp Slough. Period of record October, 1950 to date.
* Estimated.

TABLE 108

FLOW OF FRENCH CAMP SLOUGH NEAR FRENCH CAMP (SHARPS LANE) - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	265	39	13	21	125	23	7.3	0.3	3.0	5.8	3.4	0
2	148	35	13	22	80	30	2.6	0	0	8.2	8.4	0
3	83	32	13	32	71	28	3.8	0	0	10	6.3	0
4	61	29	15	51	75	35	5.1	1.8	0	7.8	4.9	0.6
5	49	28	14	50	59	36	6.1	0.6	0	13	3.9	27
6	42	27	12	26	41	40	6.5	0	0.3	17	4.4	49
7	59	25	10	36	40	58	17	0	.1	21	3.4	25
8	362	24	15	47	34	91	5.8	1.3	12.0	22	4.9	10
9	328	23	10	46	56	79	3.1	5.8	9.2	22	4.4	3.9
10	250	24	43	43	45	46	4.2	2.3	9.9	20	4.4	2.0
11	160	23	32	47	44	47	0.6	7.4	2.0	31	3.4	0.9
12	115	22	33	46	42	66	2.5	4.8	0.8	24	3.9	0.6
13	92	23	25	72	28	60	7.8	0.2	0	17	5.4	0
14	99	22	30	59	22	40	1.7	0	0	10	5.4	0
15	382	21	38	57	26	*13	4.0	0	0	18	3.4	0
16	399	20	27	60	24	12	5.4	0	3	16	6.3	0
17	305	20	27	71	30	15	2.6	0	0	24	6.3	0
18	181	20	27	63	29	23	1.0	0	4	19	2.9	0
19	318	20	21	51	15	22	0	0	8.6	18	1.4	0
20	343	20	46	68	34	25	3.9	0	11	20	1.2	0
21	330	19	99	71	21	18	11	0	14	18	2.3	0
22	379	20	58	56	30	21	16	0	14	15	1.4	0
23	348	20	32	54	22	13	2.3	0.3	9.6	7.3	0.9	0
24	228	19	20	54	15	12	2.4	2.6	16	4.9	0	0
25	148	18	12	49	7.8	28	4.0	0	16	4.4	0	0
26	117	16	6.8	37	22	17	2.0	0	3.0	5.8	0	0
27	94	13	2.9	103	25	12	0.6	0	14	6.8	0	0
28	76	12	2.0	259	30	4.8	0	0	8.8	3.4	0	0
29	65		0.9	263	34	14	0	0	13	5.4	0	0
30	52	—	1.7	207	47	9.4	1.4	1.1	12	3.9	0	0
31	45	—	5.8	—	37	—	2.5	15	—	2.9	—	0
Mean	191	22.6	22.7	70.7	39.1	31.3	4.3	1.4	6.1	13.6	3.1	3.8
Runoff in Ac.Ft.	11750	1258	1398	4207	2402	1861	264	86	366	836	184	236
	Water Year Total 29435								Calendar Year Total 24848			

Division of Water Resources station, sometimes referred to as Littlejohns Creek near French Camp, located 1.5 miles southeast of French Camp at Sharps Lane Bridge. French Camp Slough is an east-side tributary to the San Joaquin River at Mile 46.1R. Period of record 1950 to date.
* Estimated.

TABLE 109

INFLOW TO FRIANT RESERVOIR (MILLERTON LAKE) - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1304	1272	800	1753	2059	2609	3208	1592	1074	1072	549	717
2	1393	1384	949	2155	2021	2282	3080	1588	1072	1012	988	819
3	1244	1740	889	2132	1878	2467	2886	1444	1008	1001	876	881
4	1294	1367	861	2405	2121	2642	2921	1549	1047	723	992	1171
5	1303	1376	845	2219	2581	3229	2872	1497	951	924	886	549
6	1404	1280	802	2576	2680	3287	2903	1399	940	989	786	545
7	2044	1099	962	2274	2567	3648	3014	1561	1130	1023	512	776
8	1911	1240	721	1944	2244	3283	3341	1597	1057	987	419	965
9	2329	1274	1162	1845	1988	3320	3329	1503	1073	911	635	960
10	1950	1129	1270	1661	1914	3299	3066	1569	1031	653	719	949
11	1353	1055	1219	1793	1911	3031	2834	1615	1048	681	447	894
12	1783	1032	1191	1377	1916	3440	2977	1628	971	912	812	472
13	2558	1042	1083	1437	1912	3470	2657	1544	1027	858	958	356
14	4004	657	694	1446	1907	3924	2934	1552	1106	931	1305	557
15	2375	837	723	1413	2297	4443	2628	1597	982	835	627	856
16	2345	1033	1095	1801	2125	5113	2480	1573	888	872	791	819
17	1931	1028	1087	1762	2004	4803	2483	1588	996	624	928	753
18	1726	1015	1088	1996	2521	5187	2795	1513	993	649	1051	822
19	1686	1032	1252	1803	2882	5879	2657	1569	960	773	974	832
20	2050	938	1756	2057	3116	5476	2353	1545	947	1010	909	564
21	2305	734	1338	2253	2809	4848	2098	1493	1062	887	387	851
22	1943	617	1037	3053	2565	4928	2173	1425	969	847	458	1078
23	1948	1097	1196	3493	2752	4781	2020	1392	1047	832	486	856
24	1775	750	1459	3981	2305	4933	2020	1447	1044	752	866	724
25	1618	976	1537	3964	1955	4776	1916	1427	971	602	801	247
26	1488	773	1664	(a)4234	1921	4202	1697	1399	1126	859	563	565
27	1587	789	1656	5634	1948	3448	1643	1296	(b)1002	1022	590	487
28	1419	972	1549	5519	2070	2895	1766	1285	992	975	424	852
29	1508	—	1716	3344	1885	3040	1751	1292	1017	897	425	817
30	1301	—	1596	2553	1917	2967	1754	963	1043	1057	730	1023
31	1399	—	1419	—	2151	—	1720	1102	—	587	—	728
Mean	1815	1055	1181	2529	2223	3855	2515	1469	1019	863	730	758
Runoff in Ac.Ft.	111626	58588	72627	150150	136705	229388	154663	90335	60725	53072	43426	46582
	Water Year Total 1275533								Calendar Year Total 1207887			

This is the total mean second-feet flow inflowing to Friant Reservoir as computed by the U. S. Bureau of Reclamation, taking into account change in storage, release, spill and evaporation; and is representative of the natural flow passing the dam site if the dam had not been constructed. Drainage area is 1671 square miles. Records for 1953 computed by U. S. Bureau of Reclamation.
(a) 23-hour day.
(b) 25-hour day.

TABLE 110

DAILY CONTENT OF MILLERTON LAKE (FRIANT RESERVOIR) IN ACRE-FEET - 1953

Date	Storage at end of day in thousands of acre-feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	241.1	343.2	363.6	312.0	348.2	406.0	478.5	395.6	251.8	157.1	138.4	156.8
2	243.6	345.3	362.6	311.3	350.5	407.8	477.8	391.1	247.1	156.3	138.7	158.2
3	246.0	348.3	361.2	310.6	352.5	409.8	476.9	386.3	242.0	155.9	138.9	159.6
4	248.5	350.4	360.1	310.5	354.9	412.1	475.9	381.6	237.3	154.9	139.2	161.1
5	250.9	352.3	358.9	310.1	358.3	415.5	474.5	377.0	232.5	154.3	139.4	161.4
6	253.6	353.8	357.7	310.5	361.8	418.9	473.1	372.1	227.8	153.6	139.4	161.7
7	257.4	355.0	356.8	310.3	364.8	422.9	471.9	367.7	223.5	152.9	138.9	162.7
8	261.1	356.4	355.2	309.5	367.2	426.0	471.4	363.5	219.0	152.1	138.2	164.2
9	265.6	357.9	354.1	308.6	369.2	429.0	470.6	359.1	214.4	151.2	138.1	165.7
10	269.4	359.1	352.9	307.5	370.8	431.9	469.2	354.8	209.7	149.8	138.3	166.9
11	271.9	360.2	351.4	306.7	372.4	434.2	467.2	350.6	205.2	148.3	138.0	167.9
12	275.4	361.2	349.9	305.3	373.9	437.2	465.6	346.4	200.7	147.2	138.4	168.3
13	280.3	362.2	348.3	304.2	375.3	440.0	463.3	342.0	196.3	145.9	139.3	168.6
14	288.2	362.3	345.8	303.2	376.3	443.4	461.4	337.7	192.1	144.9	140.9	169.3
15	292.8	362.7	343.3	302.2	378.0	447.2	458.9	333.5	188.3	143.8	141.2	170.6
16	297.3	363.5	341.4	301.9	379.4	452.2	456.2	329.3	185.2	143.2	141.9	171.7
17	301.0	364.1	339.3	301.6	380.6	456.3	453.7	324.8	182.7	142.1	142.9	172.6
18	304.3	364.7	337.1	301.7	382.8	461.0	451.7	320.0	180.6	141.1	144.4	173.6
19	307.5	365.2	335.4	301.4	385.6	466.7	449.5	315.3	178.4	140.3	145.8	174.7
20	311.5	365.5	334.8	301.6	388.8	471.3	446.6	310.6	176.3	140.1	147.1	175.2
21	315.9	365.3	333.2	302.2	391.4	474.4	443.2	305.9	173.8	139.7	147.3	176.3
22	319.7	364.9	330.9	304.4	393.6	477.5	439.6	301.2	171.2	139.3	147.7	177.8
23	323.3	365.5	328.6	307.5	396.2	479.9	435.6	296.4	168.7	139.2	148.3	179.1
24	326.6	365.3	326.6	311.7	397.8	482.2	431.6	291.6	166.4	139.0	149.8	180.4
25	329.5	365.7	324.7	316.1	398.6	484.1	427.4	286.6	164.5	138.5	151.2	180.6
26	331.9	365.6	323.0	320.9	398.8	484.4	422.6	281.6	163.0	138.5	152.1	181.6
27	334.4	365.4	321.1	329.1	399.4	483.7	417.7	276.4	161.2	138.9	153.1	182.3
28	336.4	364.9	319.0	337.8	400.4	481.4	413.1	271.3	159.9	139.1	153.7	183.8
29	338.4	—	317.4	342.4	401.4	479.7	408.6	266.1	158.9	139.2	154.4	185.2
30	340.0	—	315.7	345.8	402.4	479.0	404.3	260.8	158.0	139.6	155.6	186.7
31	341.7	—	313.5	—	403.7	—	400.0	256.3	—	139.0	—	187.3
Monthly Change	+103.1	+23200	-51.4	+32.3	+57.9	+75.3	-79.0	-143.7	-98.3	-19.0	+16.6	+31.7

Annual Gain or Loss in Storage: Calendar Year -51300; Water Year -30700 Acre-Feet
Difference in Storage 1952 to 1953: Maximums +38900; Minimums -6100 Acre-Feet.

Reservoir water level recorder maintained by U. S. Bureau of Reclamation. Period of record 1941 to date.

TABLE 111

FLOW OF SAN JOAQUIN RIVER BELOW FRIANT - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	63	510	912	904	475	393	352	201	566	756	520	98
2	55	382	912	904	490	394	272	201	628	756	510	93
3	53	146	904	904	485	398	212	198	777	756	470	173
4	51	206	904	896	485	398	212	198	770	756	470	419
5	50	374	904	896	423	398	212	201	770	756	470	419
6	58	515	904	896	382	398	212	203	770	865	470	424
7	78	515	896	896	382	402	212	203	777	984	470	307
8	85	515	896	896	382	402	212	201	770	984	470	212
9	65	525	896	896	386	398	212	198	770	984	419	212
10	52	525	912	896	386	394	209	201	777	984	374	318
11	60	525	912	896	386	402	203	201	777	984	374	424
12	58	525	904	896	390	402	203	201	770	992	363	300
13	67	566	904	896	390	406	203	198	763	1000	335	212
14	119	640	904	896	394	402	203	198	770	960	342	212
15	90	640	904	896	394	402	203	203	777	865	335	214
16	76	670	904	896	398	402	203	203	770	696	335	272
17	74	722	904	896	398	402	203	307	770	658	300	306
18	74	722	912	896	398	402	203	386	770	658	240	290
19	71	770	936	896	398	398	203	402	763	658	240	290
20	69	835	936	896	398	390	203	428	763	658	240	293
21	68	835	928	896	394	390	198	428	1030	658	240	293
22	64	835	928	896	386	390	206	424	1220	658	240	293
23	91	842	920	904	390	394	206	419	1220	616	183	187
24	173	842	920	904	390	394	206	475	1220	572	85	72
25	173	850	912	835	390	394	212	582	1220	572	87	72
26	240	850	912	676	394	398	214	577	1220	572	87	72
27	328	888	912	616	394	398	212	577	1210	555	87	74
28	410	936	912	582	398	394	209	577	971	520	87	74
29	505		912	582	394	390	203	577	756	520	87	75
30	510	—	904	510	394	386	203	577	756	520	88	221
31	510	—	904	—	394	—	203	577	—	520	—	382
Mean	144	632	910	845	405	397	214	339	863	742	301	236
Runoff in Ac.Ft.	8830	35120	55980	50270	24880	23640	13130	20870	51350	45610	17890	14490

Water Year Total 351000 — Calendar Year Total 362060

U. S. Geological Survey station located at Mile 268.13L and 1.5 miles downstream from Friant Dam. Drainage area is 1675 square miles. Period of record 1938 to date. (Prior records available at sites 2.5 and 4.5 miles upstream.) Records for 1953 computed by U. S. Geological Survey.

TABLE 112

FLOW OF SAN JOAQUIN RIVER NEAR BIOLA - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	313	520	901	847	563	391	312	144	532	748	512	122
2	181	520	901	829	514	386	298	129	532	734	512	122
3	141	425	892	838	514	380	245	132	596	727	502	119
4	125	223	892	829	508	380	195	127	741	734	470	132
5	115	200	892	847	490	370	166	122	748	727	470	316
6	110	297	892	838	446	391	160	127	748	720	470	352
7	113	480	883	811	408	462	160	127	762	838	475	362
8	156	504	883	820	391	430	160	127	755	942	475	316
9	228	504	883	811	391	391	160	136	748	949	470	224
10	209	504	901	811	391	370	155	141	741	963	440	212
11	173	504	892	811	396	370	155	118	741	956	400	252
12	153	496	892	811	391	365	150	124	741	956	395	347
13	130	496	892	829	370	360	150	129	741	949	385	316
14	118	536	892	829	375	370	145	149	741	956	395	220
15	156	608	883	815	380	380	145	116	720	921	390	208
16	200	608	874	815	386	365	145	132	720	837	362	205
17	159	642	874	815	391	360	145	139	713	717	352	220
18	141	694	865	808	391	365	141	192	720	678	338	273
19	132	694	883	822	386	370	146	273	720	678	290	281
20	125	739	901	830	380	365	149	294	727	665	281	286
21	120	793	928	815	370	360	149	340	734	658	277	286
22	115	802	901	808	380	355	155	360	1000	646	273	286
23	110	820	901	800	375	340	110	360	1170	639	273	286
24	108	820	883	792	386	326	118	360	1180	613	256	252
25	141	811	874	792	413	330	118	396	1190	582	175	148
26	159	802	892	741	402	321	120	496	1200	576	144	119
27	181	802	865	706	386	321	132	508	1200	564	135	110
28	278	856	865	692	408	321	129	520	1200	546	132	107
29	365		874	643	452	330	129	532	937	518	129	102
30	496	—	874	643	402	316	122	538	762	512	126	102
31	520	—	865	—	391	—	118	544	—	512	—	140
Mean	186	596	887	797	414	365	157	256	825	734	343	220
Runoff in Ac.Ft.	11450	33120	54530	47400	25440	21700	9680	15730	49110	45150	20440	13530
	Water Year Total 338300								Calendar Year Total 347280			

U. S. Geological Survey and U. S. Bureau of Reclamation cooperative station located at Mile 236.4R and 1.8 miles downstream from Skaggs Bridge. Drainage area is 1805 square miles. This station is at approximately the same location as a former Southern California Edison Company station known as San Joaquin River below Skaggs Bridge for which records are available for the period 1926 through 1938 and October, 1952, to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 113

FLOW OF SAN JOAQUIN RIVER AT WHITEHOUSE - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	214	426	802	857	630	349	277	50	470	665	481	85
2	265	440	832	855	543	339	265	76	447	656	481	82
3	177	443	839	853	526	330	244	64	446	658	477	78
4	141	332	840	847	527	320	196	57	528	655	448	82
5	129	225	848	845	507	312	149	56	604	655	435	122
6	112	218	847	848	474	309	125	53	608	654	427	273
7	105	342	850	836	385	356	111	52	608	670	420	302
8	118	427	857	821	324	416	94	55	618	808	422	314
9	168	454	861	823	324	380	92	60	614	835	422	239
10	214	456	872	810	337	342	90	73	612	841	417	184
11	207	456	893	807	338	325	84	77	604	840	369	175
12	176	457	880	815	342	312	82	59	605	854	341	247
13	153	460	880	830	332	298	96	54	606	856	334	305
14	135	466	880	830	321	293	88	57	611	868	348	234
15	134	518	878	832	319	312	83	66	603	863	359	181
16	187	554	880	830	315	306	84	50	598	832	324	167
17	208	566	877	825	332	288	77	63	594	711	312	161
18	172	612	874	815	340	290	75	167	594	649	313	206
19	151	647	878	822	336	292	76	204	597	626	277	249
20	134	656	890	831	332	312	78	180	601	611	248	258
21	125	706	904	825	322	298	84	229	612	602	242	263
22	115	722	883	824	320	300	82	276	656	592	234	266
23	108	742	886	811	311	292	88	296	931	582	230	265
24	105	759	880	806	312	276	54	293	1000	579	224	262
25	109	751	868	801	340	273	53	284	1006	553	190	201
26	139	751	883	803	348	278	51	347	1010	547	141	129
27	156	750	862	728	348	274	51	425	1011	540	118	102
28	192	753	860	748	342	275	59	444	1018	532	103	91
29	253		863	672	390	284	61	456	970	503	94	87
30	348	—	866	658	394	292	56	462	720	485	90	83
31	408	—	863	—	356	—	52	467	—	478	—	80
Mean	173	539	867	810	376	311	102	179	683	671	311	186
Runoff in Ac.Ft.	10627	29929	53308	48214	23141	18492	6262	11012	40665	41256	18488	11451
	Water Year Total 305186								Calendar Year Total 312845			

San Joaquin Canal Company station located at Mile 219.83R, below the head of Gravelly Ford Canal. Period of record 1901 to date. Records for 1953 computed by San Joaquin Canal Company.

TABLE 114

FLOW OF SAN JOAQUIN RIVER NEAR MENDOTA - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	21	23	173	219	162	298	474	361	224	278	68	26
2	72	31	177	281	212	296	459	361	220	267	66	26
3	194	39	175	289	212	291	406	350	202	248	65	25
4	30	44	175	289	212	293	369	343	175	235	61	26
5	122	45	171	296	265	291	371	328	170	208	59	23
6	277	41	171	301	301	291	376	328	170	161	92	22
7	199	40	162	310	291	296	379	313	181	144	132	120
8	154	41	148	343	284	298	361	306	218	108	134	403
9	141	42	148	340	289	298	333	306	252	106	163	212
10	134	45	138	343	289	306	346	308	256	111	190	75
11	136	46	129	343	323	336	358	310	254	111	186	46
12	138	48	145	343	356	363	356	310	208	106	182	43
13	138	48	163	340	392	428	374	308	197	104	98	52
14	136	45	163	306	423	454	398	293	200	104	33	67
15	130	44	163	281	426	456	382	298	224	112	28	86
16	114	42	154	265	428	426	363	298	222	125	27	75
17	134	48	145	247	434	437	363	301	220	125	27	61
18	300	44	145	279	414	479	361	326	218	125	27	61
19	565	42	145	303	384	503	363	330	218	128	27	71
20	639	39	147	308	384	497	363	336	218	144	27	94
21	471	37	177	298	390	494	363	338	215	163	26	119
22	304	36	191	277	392	491	366	334	213	134	26	137
23	122	36	191	277	392	482	376	334	213	94	26	140
24	28	61	197	277	392	456	371	330	231	91	26	122
25	21	148	197	277	398	445	366	320	273	88	27	78
26	17	156	195	279	395	454	369	310	280	86	27	16
27	16	162	193	243	398	468	376	312	282	83	28	11
28	15	171	191	208	369	468	379	310	282	80	28	9.6
29	15		189	191	320	468	379	302	280	77	28	7.8
30	15	—	191	143	298	474	371	296	280	75	27	6.9
31	17	—	191	—	301	—	363	286	—	72	—	6.0
Mean	155	58.7	169	283	340	401	375	319	227	132	65.4	73.1
Runoff in Ac.Ft.	9550	3260	10390	16850	20830	23880	23080	19610	13480	8120	3890	4500
	Water Year Total 165550								Calendar Year Total 157490			

U. S. Geological Survey and U. S. Bureau of Reclamation cooperative station located 2.5 miles below Mendota Dam at Mile 206.2L. Drainage area is 4310 square miles. Period of record 1939 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 115

FLOW OF SAN JOAQUIN RIVER NEAR DOS PALOS - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	61	47	25	0.7	1.6	2.0	1.3	1.4	3.0	2.8	0.7	0.2
2	58	44	10	.5	1.7	2.0	1.3	1.6	2.5	2.8	.6	.2
3	95	45	9.4	.4	1.7	2.1	1.3	1.8	2.3	2.8	.6	.2
4	180	48	8.7	.6	2.0	2.1	1.2	1.8	2.1	2.6	.6	.2
5	106	52	8.7	.6	2.1	2.3	1.2	1.8	1.8	2.6	.5	.2
6	161	53	8.4	.8	2.2	2.7	1.1	1.8	1.7	2.0	.5	.1
7	257	52	6.0	.8	3.0	2.7	1.0	1.9	1.5	1.7	.5	.2
8	212	46	1.7	.9	3.0	2.8	0.8	1.9	1.6	1.5	.6	58
9	182	46	1.4	1.1	3.0	2.9	.8	1.9	1.7	1.3	.6	231
10	173	48	1.4	1.2	3.0	2.9	.5	1.9	1.9	1.1	.7	51
11	166	51	1.3	1.4	3.4	3.0	.5	2.0	2.0	1.1	.8	7.8
12	164	51	1.2	1.4	4.0	3.1	.6	1.9	2.0	1.0	.8	3.3
13	164	53	1.1	1.3	5.1	2.9	.7	1.8	1.7	1.1	.8	0.6
14	164	21	1.0	1.0	8.4	2.4	.8	1.7	1.5	1.0	.8	.6
15	160	3.1	1.0	0.9	9.8	2.3	.8	1.7	1.5	1.1	.6	3.5
16	155	2.4	0.9	.9	9.8	2.2	1.0	1.7	1.6	1.1	.5	7.2
17	140	2.4	.9	.9	9.8	2.0	0.9	1.7	1.6	1.2	.4	4.9
18	162	2.7	.8	1.0	9.8	2.1	.9	1.7	1.6	1.2	.4	2.7
19	289	2.7	.8	1.1	9.0	2.7	1.0	1.8	1.7	1.2	.3	2.0
20	510	2.3	.6	1.2	8.4	3.4	1.0	1.9	1.7	1.2	.3	1.0
21	520	91	.6	1.2	8.4	6.2	1.1	2.0	1.7	1.3	.3	1.0
22	396	276	.6	1.2	8.4	14	1.1	2.1	1.7	1.4	.3	1.7
23	242	347	.6	1.3	5.9	7.6	1.1	2.3	1.7	1.3	.3	2.4
24	157	150	.6	1.3	2.3	3.5	1.1	2.5	1.9	1.0	.2	2.6
25	93	22	.7	1.4	2.0	2.3	1.1	2.8	2.1	1.0	.2	2.6
26	70	31	.7	1.4	1.8	1.7	0.8	2.8	2.4	0.9	.2	1.9
27	61	32	.8	1.7	1.8	1.5	.8	2.7	2.7	.8	.2	0
28	54	36	.8	1.7	2.0	1.4	.8	2.9	2.8	.8	.2	0
29	80	—	.8	1.6	2.0	1.3	1.0	2.9	2.9	.8	.2	0
30	76	—	.8	1.6	2.1	1.3	1.0	2.8	2.9	.8	.2	0
31	59	—	.8	—	2.1	—	1.2	2.9	—	.8	—	0
Mean	173	59.2	3.2	1.1	4.5	3.0	1.0	2.1	2.0	1.4	0.5	12.5
Runoff in Ac.Ft.	10650	3290	195	66	277	181	59	128	119	86	28	768
	Water Year Total 26792								Calendar Year Total 15847			

U. S. Geological Survey and U. S. Bureau of Reclamation cooperative station located 800 feet downstream from the head of Temple Slough at Mile 186.0L. Drainage area is 5630 square miles. Period of record 1940 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 116

FLOW OF SAN JOAQUIN RIVER AT FREMONT FORD BRIDGE - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	528	438	193	86	509	397	152	60	90	141	52	67
2	928	410	174	80	460	411	134	61	96	167	60	64
3	1350	379	164	78	380	390	114	59	89	188	58	60
4	1310	356	158	79	296	373	112	66	87	170	47	49
5	1110	339	147	74	280	378	115	70	74	180	47	44
6	949	325	141	73	260	365	112	65	77	149	49	45
7	836	311	137	73	249	387	106	60	86	147	47	41
8	783	304	132	80	226	421	102	60	90	125	43	44
9	865	290	132	82	212	440	97	67	97	101	41	48
10	973	275	126	89	218	411	96	70	128	76	41	56
11	1100	259	122	123	215	392	94	73	174	66	40	60
12	1080	245	132	143	225	358	101	64	115	61	39	85
13	952	238	143	171	210	325	97	64	108	56	43	96
14	825	233	171	150	204	298	90	67	92	52	50	74
15	766	228	179	137	202	270	84	68	101	46	56	66
16	910	223	174	136	214	236	81	74	125	45	68	63
17	1420	204	165	140	238	218	80	85	143	55	90	60
18	1580	188	146	122	250	194	88	85	136	52	96	55
19	1320	180	119	118	249	173	90	83	147	57	95	53
20	1080	168	116	133	250	167	90	71	168	56	96	55
21	1030	158	146	136	274	173	89	59	168	54	94	59
22	1100	150	154	148	272	177	89	54	174	52	89	58
23	1110	152	133	157	260	173	83	53	177	52	85	52
24	1090	236	139	164	266	180	82	51	186	50	81	53
25	961	317	152	171	272	164	87	53	176	53	77	65
26	800	317	158	194	306	156	88	51	183	58	74	69
27	684	259	143	195	314	149	82	54	163	54	74	65
28	603	224	115	249	308	152	75	65	161	48	72	64
29	543	—	96	460	316	157	78	78	161	50	70	69
30	496	—	93	501	358	156	81	86	156	50	68	67
31	466	—	92	—	402	—	57	90	—	50	—	60
Mean	953	264	142	151	280	275	94.4	66.6	131	82.6	64.7	60.2
Runoff in Ac.Ft.	58610	14690	8710	9010	17250	16350	5800	4100	7790	5080	3850	3700
	Water Year Total 181440								Calendar Year Total 154940			

U. S. Geological Survey, U. S. Bureau of Reclamation, and Division of Water Resources cooperative station located at highway bridge on road between Gustine and Stevinson, Mile 129.5 above mouth of San Joaquin River and 5.7 miles above the confluence of the Merced River. Drainage area is 8090 square miles. Period of record 1937 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 117

FLOW OF SAN JOAQUIN RIVER NEAR NEWMAN - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2330	1780	387	261	922	684	318	164	324	370	181	214
2	2390	1750	359	252	868	668	294	204	324	401	192	208
3	2780	1710	348	264	783	628	255	252	330	426	198	206
4	2850	1680	359	258	640	556	255	237	294	394	186	202
5	2670	1660	336	270	544	544	291	207	255	381	181	194
6	2460	1640	330	306	482	564	291	231	279	334	185	200
7	2330	1430	309	297	440	624	264	216	315	304	185	204
8	2300	968	285	297	384	704	255	204	300	295	183	200
9	2410	819	273	288	359	720	216	237	279	256	179	200
10	2480	729	258	294	390	656	178	264	306	236	179	210
11	2580	668	294	370	401	624	184	237	348	236	177	228
12	2590	620	324	404	422	584	210	213	288	236	176	225
13	2460	596	408	436	384	540	252	210	384	221	176	261
14	2320	568	384	460	376	506	252	204	443	219	188	259
15	2300	544	390	390	394	471	213	178	342	230	204	245
16	2500	524	376	359	408	426	178	192	370	232	221	250
17	2800	492	348	352	474	390	159	249	380	223	239	254
18	3060	482	336	321	506	366	189	252	401	206	254	300
19	2900	450	321	309	454	352	216	258	415	212	247	324
20	2640	429	380	398	429	333	258	240	415	206	250	304
21	2520	401	390	440	446	345	246	234	548	210	245	290
22	2540	394	370	359	440	352	225	225	564	202	241	266
23	2570	390	373	330	454	321	210	243	474	200	239	236
24	2520	432	370	336	496	330	192	255	636	194	232	223
25	2410	496	387	342	513	312	195	261	628	196	225	225
26	2240	502	384	394	502	291	225	267	676	202	221	234
27	2090	457	352	468	536	303	237	246	632	194	223	239
28	1980	408	309	588	564	291	231	288	524	185	219	243
29	1910		282	760	588	339	264	303	502	185	217	259
30	1850	—	279	896	592	345	261	333	432	183	217	266
31	1800	—	267	—	660	—	207	333	—	181	—	254
Mean	2438	822	341	383	511	472	233	240	414	250	209	239
Runoff in Ac.Ft.	149900	45660	20960	22810	31440	28100	14320	14750	24610	15370	12420	14720
	Water Year Total 456310								Calendar Year Total 395060			

U. S. Geological Survey and Division of Water Resources cooperative station located at Hills Ferry bridge, Mile 123.7 above mouth of San Joaquin River and just below the mouth of the Merced River. Combine flow with Merced River Slough (Table 133) to give total flow passing this point. Drainage area is 9990 square miles. Period of record 1912 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 118

FLOW OF SAN JOAQUIN RIVER AT GRAYSON (LAIRD SLOUGH) - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2310	2050	500	340	1120	750	550	280	470	610	340	380
2	2470	2050	500	320	1170	760	550	300	410	590	340	400
3	2540	1980	460	290	1100	740	540	310	410	640	350	410
4	2830	1960	460	330	990	710	480	330	420	690	350	430
5	2890	1950	440	350	790	640	490	320	430	670	340	410
6	2760	1930	420	370	640	650	400	280	410	600	330	390
7	2600	1920	430	350	590	720	340	280	440	540	340	380
8	2480	1630	420	340	550	810	280	290	410	520	330	370
9	2500	1330	390	330	480	810	280	290	380	500	340	360
10	2550	1200	400	380	460	720	270	320	370	480	340	360
11	2610	1140	430	430	490	690	260	290	400	490	350	370
12	2680	1090	470	460	460	680	270	280	420	490	350	380
13	2670	1010	530	510	490	660	290	260	430	500	340	390
14	2570	950	600	500	480	640	300	270	500	510	350	400
15	2480	900	570	480	530	630	300	260	500	520	380	390
16	2560	850	610	450	530	540	270	270	470	550	390	390
17	2700	810	600	390	540	480	240	280	480	460	390	390
18	2960	760	560	410	590	460	250	300	510	400	390	390
19	3160	720	540	400	550	430	300	290	550	380	400	420
20	3070	710	610	480	480	790	300	280	590	370	430	420
21	2860	690	650	530	440	1560	270	310	640	360	420	420
22	2830	660	670	540	480	1850	260	330	680	360	410	420
23	2820	630	630	490	490	1360	220	350	800	350	400	390
24	2810	580	560	410	550	580	250	370	610	350	390	370
25	2740	590	490	400	630	1130	230	340	670	350	390	370
26	2640	620	450	430	640	940	240	340	700	340	380	370
27	2470	600	470	610	640	640	260	310	760	350	380	380
28	2330	540	470	850	650	490	280	320	760	340	380	380
29	2240		420	900	720	500	270	390	680	330	380	380
30	2160	—	380	1040	710	490	290	430	620	330	380	380
31	2090	—	350	—	730	—	270	450	—	340	—	380
Mean	2625	1138	499	470	636	762	316	314	531	462	369	389
Runoff in Ac.Ft.	161415	63174	30704	27987	39094	45322	19440	19279	31577	28383	21977	23940
	Water Year Total 588508								Calendar Year Total 512292			

Station is maintained jointly by City of San Francisco (Hetch Hetchy Water Supply). Division of Water Resources, Modesto Irrigation District, and Turlock Irrigation District. Station is at Laird Slough Bridge, Mile 96.05 above mouth of San Joaquin River and five miles above the confluence of the Tuolumne River. High flows by-passing this station through old channel of San Joaquin River are included in this Table. Period of record 1931 to date. Records for 1953 computed by the City of San Francisco.

TABLE 119

FLOW OF SAN JOAQUIN RIVER AT HETCH HETCHY CROSSING - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	4930	4030	1490	610	2650	1510	2880	510	800	1020	1250	1250
2	4650	4010	1330	580	2110	1660	3000	540	670	1000	1220	1410
3	4350	4010	1250	570	1740	1640	2990	630	640	1040	1160	1520
4	4560	4030	1240	600	1430	1580	2680	590	670	1180	1220	1580
5	4570	4050	1230	650	1010	1480	2640	560	730	1190	1170	1580
6	4500	4090	1150	660	1020	1500	1880	510	730	1100	1160	1310
7	4340	4050	950	610	950	1870	1850	500	740	1270	1180	1290
8	4200	3720	850	580	810	2510	1720	550	730	1390	1120	1400
9	4420	3270	810	560	720	2580	1700	540	670	1420	1020	1340
10	4360	3110	790	590	750	2140	1650	590	660	1430	900	1310
11	4290	3100	850	630	720	1900	1400	560	670	1440	1010	1280
12	4270	2950	890	670	920	1770	1250	530	700	1480	1160	1290
13	4270	2680	920	720	770	1670	1120	500	730	1460	1130	1270
14	4230	2280	1020	720	770	2020	860	490	830	1500	1220	1290
15	4390	2120	1000	700	790	1950	720	520	790	1570	1340	1310
16	4800	2000	990	660	820	1820	640	580	730	1540	1270	1280
17	4610	1940	980	640	800	1800	580	590	730	1540	1220	1290
18	4730	1920	920	630	880	1600	590	560	800	1410	1340	1320
19	4950	2890	910	670	850	2030	600	510	850	1390	1440	1340
20	5070	2430	1040	740	800	4330	630	490	920	1340	1400	1380
21	4880	2440	1110	860	790	6040	570	540	1050	1330	1390	1380
22	5190	2350	1090	1040	990	6440	560	620	1090	1270	1380	1370
23	4990	2230	1050	680	1040	5600	530	640	1040	1270	1320	1340
24	4800	2090	950	730	960	3470	530	650	1010	1250	1250	1310
25	4710	2100	850	690	1060	4330	520	590	1070	1250	1310	1280
26	4600	2040	830	720	1050	4420	500	600	1130	1240	1310	1260
27	4480	2050	790	570	1130	3600	520	570	1230	1240	1260	1270
28	4370	1880	810	1200	1250	2880	520	540	1240	1220	*1240	1280
29	4260		780	2360	1320	2680	490	590	1130	1200	*1250	1270
30	4170	—	710	2920	1370	2450	530	700	1020	1220	*1280	1260
31	4090	—	640	—	1440	—	520	780	—	1250	—	1240
Mean	4549	2852	975	819	1087	2709	1199	570	860	1305	1231	1332
Runoff in Ac.Ft.	279729	158400	59940	48714	66863	161120	73726	35048	51174	80231	73230	81917
	Water Year Total 1292394								Calendar Year Total 1170092			

Station is maintained jointly by City of San Francisco (Hetch Hetchy Water Supply) and Division of Water Resources. Station is at Mile 82.65 above mouth of San Joaquin River and 2.9 miles above the confluence of the Stanislaus River. Period of record 1936 to date. Records for 1953 computed by the City of San Francisco.

TABLE 120

FLOW OF SAN JOAQUIN RIVER NEAR VERNALIS - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	6040	5510	1780	690	7700	2700	3600	630	1070	1260	1490	1630
2	5560	5490	1560	650	6430	3460	3800	690	994	1290	1470	1780
3	5240	5480	1400	650	5580	3640	3800	814	904	1290	1400	1920
4	5670	5500	1390	710	4930	3400	3480	798	898	1490	1440	1980
5	5660	5490	1340	817	4360	3190	3420	740	958	1500	1550	2030
6	5450	5480	1250	844	4090	3320	2750	705	970	1390	1670	2120
7	5300	5380	1030	725	4010	3940	2510	675	970	1460	1750	2110
8	5280	5020	944	668	3660	5080	2390	755	958	1620	1750	1910
9	5640	4470	905	628	3330	5300	2390	730	904	1630	1630	1780
10	5660	4140	856	659	3430	4660	2290	803	898	1710	1520	1800
11	5610	4060	1000	822	3270	4340	2090	750	898	1790	1420	1710
12	5570	3850	1120	1070	2640	4110	1830	665	934	1830	1560	1710
13	5570	3440	1150	1070	1740	3800	1620	665	970	1780	1500	1680
14	5600	3100	1220	974	1490	4300	1220	665	1040	1810	1570	1680
15	5880	2800	1210	884	1400	4200	990	670	988	2070	1710	1670
16	6460	2600	1210	812	1380	4210	886	712	916	2320	1830	1660
17	6220	2650	1190	806	1660	4310	808	762	934	2270	1710	1700
18	6230	2650	1130	818	2060	4200	786	718	1040	1930	1850	1750
19	6560	2600	1120	854	2050	4430	814	665	1110	1820	1950	1790
20	6740	2870	1370	986	1860	6910	874	615	1150	1760	1860	1830
21	6620	2840	1540	1110	2100	9450	792	660	1290	1660	1830	1830
22	7120	2730	1470	1660	3040	9880	720	746	1360	1590	1830	1790
23	6740	2640	1370	1540	3040	8520	670	817	1300	1570	1790	1730
24	6460	2680	1210	1210	2570	5420	650	874	1230	1520	1710	1690
25	6330	2540	1060	1020	2690	7370	650	806	1260	1510	1720	1640
26	6210	2340	1040	980	2560	6400	635	784	1320	1470	1730	1620
27	6040	2300	938	1710	2370	5360	690	822	1450	1450	1710	1610
28	5880	2210	905	4520	2410	4350	630	734	1460	1420	1640	1630
29	5780		844	7040	2270	3850	620	756	1370	1400	1620	1610
30	5670	—	785	8670	2280	3330	655	910	1240	1450	1650	1620
31	5580	—	700	—	2440	—	670	1040	—	1460	—	1610
Mean	5947	3674	1162	1520	3059	4914	1604	748	1093	1629	1662	1762
Runoff in Ac.Ft.	365700	204000	71480	90440	188100	292400	98640	45970	65030	100200	98900	108300
	Water Year Total 1890660								Calendar Year Total 1729160			

This station is maintained jointly by the Division of Water Resources and the U. S. Geological Survey. It is located at Durham Ferry Bridge, three miles below the confluence of the Stanislaus River and is at Mile 76.7 above the mouth of the San Joaquin River. Drainage area is 14,010 square miles. Period of record 1922 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 121

FLOW OF LITTLE DRY CREEK NEAR FRIANT - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	31	8.4	6.3	2.8	2.8	0.8	0.1	0.1	0.1		0	0
2	14	8.4	6.3	3.0	2.0	1.0	.1	.1	0		0	0
3	9.5	8.4	5.2	2.6	1.5	1.0	.1	.1	0		0	0
4	7.5	8.4	4.7	2.5	1.2	0.7	.1	.2	0		0	0.1
5	6.0	8.1	4.5	2.3	1.0	.5	.1	.1	0		0	.1
6	18	7.8	4.5	2.1	1.0	.8	.1	.1	0		0	.1
7	59	7.5	4.5	2.0	0.9	.6	.1	.1	0		0	.1
8	72	7.8	4.2	2.0	.8	.4	.1	.1	0		0	.1
9	28	7.5	4.2	1.8	.7	.4	.1	.1	0		0	.1
10	15	6.9	4.5	1.8	.6	.3	.1	.2	0		0	.1
11	15	6.6	5.0	1.8	.6	.2	.2	.2	0		0	.1
12	15	6.6	4.7	1.7	.5	.1	.2	.2	0	N	0	.1
13	36	6.3	4.5	1.8	.4	.1	.1	.2	0	0	0	.1
14	108	6.0	4.2	1.7	.4	0	.1	.2	0		0.7	.1
15	60	6.0	4.0	1.5	.4	0	.2	.2	0		.4	.1
16	37	5.7	3.8	1.5	.4	0	.2	.2	0	F	.3	0
17	28	5.7	3.6	1.4	.4	0	.1	.2	0	L	.3	0
18	25	5.7	3.6	1.3	.4	0	.1	.2	0	0	.2	0
19	21	5.2	4.7	1.3	.5	0	.1	.2	0	W	.2	0
20	20	5.0	9.1	1.5	.5	0	.1	.2	0		.2	0
21	16	5.0	6.0	1.5	.5	0.1	.1	.2	0		.1	0
22	15	4.7	4.7	1.5	.5	.1	.2	.2	0		.1	0
23	14	6.6	4.2	1.2	.6	.1	.2	.2	0		.1	0
24	13	6.0	4.0	1.1	.6	.1	.2	.1	0		0	0
25	12	4.7	3.4	1.0	.6	.2	.2	.2	0		0	0
26	11	4.7	3.2	0.9	.6	.2	.2	.2	0		0	0
27	10	4.7	3.2	4.1	.7	.2	.2	.2	0		0	0
28	9.1	4.7	3.0	16	.7	.2	.2	.2	0		0	0
29	9.1	—	3.2	5.2	.7	.2	.2	.2	0		0	0
30	8.7	—	3.2	3.6	.7	.2	.2	.2	0		0	0
31	8.7	—	3.0	—	.8	—	.1	.1	—		—	0
Mean	24.2	6.4	4.4	2.5	0.8	0.3	0.1	0.2	0.0	0	0.9	0.0
Runoff in Ac.Ft.	1490	355	272	148	48	17	9	10	0	0	5	2
	Water Year Total 3019								Calendar Year Total 2356			

U. S. Geological Survey and U. S. Bureau of Reclamation cooperative station located four miles above the mouth. Little Dry Creek enters the San Joaquin River at Mile 264.0L. Drainage area is 58 square miles. Period of record 1937 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 122

FLOW OF JAMES (FRESNO SLOUGH) BY-PASS NEAR SAN JOAQUIN, CALIFORNIA - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0				0							
2	0				21							
3	0				8.0							
4	0				0.6							
5	0				0							
6	0				0							
7	0				0							
8	0				0							
9	0				0							
10	0				0							
11	0				0							
12	18	N	N	N	0	N	N	N	N	N	N	N
13	32	0	0	0	0	0	0	0	0	0	0	0
14	8.9				0							
15	1.4				0							
16	186				0							
17	626	F	F	F	0	F	F	F	F	F	F	F
18	469	L	L	L	0	L	L	L	L	L	L	L
19	276	0	0	0	0	0	0	0	0	0	0	0
20	170	W	W	W	0	W	W	W	W	W	W	W
21	72				0							
22	36				0							
23	19				0							
24	13				0							
25	10				0							
26	4.0				0							
27	1.2				0							
28	0				0							
29	0	—			0							
30	0	—			0							
31	0	—		—	0	—			—		—	
Mean	62.7	0	0	0	1.0	0	0	0	0	0	0	0
Runoff in Ac.Ft.	3850	0	0	0	59	0	0	0	0	0	0	0
	Water Year Total 3909								Calendar Year Total 3909			

U. S. Geological Survey and U. S. Bureau of Reclamation cooperative station, also known as Fresno Slough By-Pass and Fresno Slough Cut-off. Station is located below Kerman-San Joaquin highway crossing on James By-Pass 5.8 miles above its confluence with Fresno Slough. James By-Pass enters Fresno Slough at Mile 11.8R above mouth of Fresno Slough. Period of record (including a station operated by King's River Water Association a short distance upstream) 1927 to 1932; 1935 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 123

FLOW OF PANOCHE CREEK NEAR PANOCHE - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	9	0.6	0.4	0.1	0.2							
2	3	.6	.4	.1	.1							
3	2	.6	.4	.1	.1							
4	1	.5	.4	.1	.1							
5	1	.5	.4	.1	.1							
6	1	.5	.3	.1	0							
7	1.2	.5	.2	.1	.1							
8	28	.5	.1	.1	.1							
9	4.7	.3	.1	.1	.1							
10	3	.3	0	.2	.1							
11		.4	.3	.2	0							
12		.5	.4	.2	0	N	N	N	N			
13		.5	.6	.2	0	0	0	0	0			
14		.5	.4	.2	0							
15		.4	.4	.1	0							
16		.2	.3	.1	0							
17		.2	.2	.1	0	F	F	F	F			
18		.3	.2	.1	0	L	L	L	L			
19		.2	.3	.1	0	0	0	0	0			
20		.1	.5	.3	0	W	W	W	W			
21		.3	.4	.1	0							
22	*1	.6	.3	.1	0							
23		.6	.2	.1	0							
24		.5	.2	.1	0							
25		.5	.2	.1	0.1							
26		.4	.2	.1	.1							
27		.4	.2	.2	.1							
28		.4	.2	.3	0							
29		—	.2	.1	0							
30		—	.2	.1	0							
31		—	.2	—	0	—			—		—	
Mean	2.4	0.4	0.3	0.1	0.04	0	0	0	0			
Runoff in Ac.Ft.	149	24	17	8	3	0	0	0	0			
	Water Year Total 1467								Calendar Year Total			

U. S. Geological Survey and U. S. Bureau of Reclamation cooperative station located approximately ten miles east of Panoche. Period of record October, 1949, to September 30, 1953, when station was discontinued. Records for 1953 computed by U. S. Geological Survey.

* Estimated mean for period.

TABLE 124

FLOW OF FRESNO RIVER NEAR DAULTON - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	205	99	80	102	152	100	46	13	3.0	2.8	8.0	15
2	138	99	85	112	140	114	43	7.3	2.8	2.8	6.6	14
3	112	102	69	109	132	102	43	4.6	2.5	2.5	5.9	15
4	97	99	69	112	121	100	42	4.6	2.3	2.5	5.2	28
5	90	94	69	122	112	100	39	3.0	2.1	3.0	5.2	39
6	94	92	65	127	112	106	36	3.0	1.9	3.2	5.2	24
7	164	94	67	122	110	130	35	2.8	1.2	2.8	6.6	21
8	283	97	73	109	106	123	34	2.3	0.4	2.1	6.6	20
9	270	94	76	102	110	117	30	2.5	.9	2.1	6.6	19
10	205	80	78	87	117	114	27	2.1	.8	2.1	7.3	17
11	170	80	94	85	117	106	27	1.4	.8	2.3	8.6	18
12	144	76	85	80	108	104	23	1.4	.7	2.5	8.0	17
13	215	73	87	80	104	110	21	0.9	.4	2.5	9.3	16
14	819	76	80	80	104	108	21	.8	.3	3.0	21	17
15	466	73	78	80	112	106	20	.6	.4	3.9	49	18
16	290	73	76	82	112	99	21	.7	.4	3.9	29	19
17	236	76	69	87	110	95	20	.8	.2	4.6	20	19
18	223	69	67	85	108	95	19	.6	.2	5.9	15	18
19	208	71	73	90	104	95	19	.5	.3	7.3	15	17
20	211	78	232	97	108	95	18	.4	.4	10	14	17
21	300	69	158	99	110	88	16	.5	.7	12	14	17
22	217	73	114	104	114	79	14	.8	1.2	11	14	16
23	184	73	109	117	108	79	14	.6	2.1	8.6	13	14
24	170	67	109	122	110	79	12	.2	2.5	6.6	13	14
25	152	65	107	125	104	72	12	.4	3.2	5.9	12	12
26	136	67	104	127	102	63	11	.4	3.0	5.9	13	14
27	117	69	102	157	100	61	10	.3	2.3	5.9	13	11
28	112	65	109	308	112	56	10	.5	2.5	5.9	15	15
29	114	—	109	197	110	54	10	.7	2.5	6.6	15	14
30	117	—	97	168	102	50	11	.8	2.8	5.9	15	14
31	109	—	94	—	95	—	13	1.9	—	7.3	—	14
Mean	205	80.1	93.0	119	112	93.3	23.1	2.0	1.5	5.0	13.0	17.5
Runoff in Ac.Ft.	12630	4450	5720	7070	6870	5550	1420	120	89	304	772	1080
	Water Year Total 50766								Calendar Year Total 46075			

U. S. Geological Survey and U. S. Bureau of Reclamation cooperative station located five miles southeast of Daulton. Drainage area 270 square miles. Fresno River is an east-side tributary to the San Joaquin River at Mile 184.0R. Period of record October, 1941, to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 125

FLOW OF SALT SLOUGH NEAR LOS BANOS - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	113	85	44	44	116	113	95	39	57	78	31	32
2	121	84	38	43	99	109	66	42	59	79	31	30
3	124	84	39	45	86	108	76	64	61	76	28	28
4	134	83	43	41	87	104	87	65	51	82	32	26
5	140	82	46	38	88	101	85	60	47	78	34	25
6	142	81	49	35	93	104	76	51	46	68	32	24
7	142	78	49	42	90	114	71	48	44	63	31	22
8	142	77	51	42	94	115	72	47	43	56	28	21
9	138	74	44	42	96	108	72	52	43	52	24	20
10	133	71	42	45	95	110	71	64	43	42	20	18
11	127	69	45	56	102	106	67	61	41	34	23	20
12	122	67	47	56	102	104	61	61	40	32	30	24
13	117	65	49	53	98	105	58	62	42	32	34	25
14	114	63	52	56	97	104	58	61	48	31	44	28
15	110	60	56	62	105	98	61	61	48	28	52	28
16	107	58	55	61	108	93	57	59	47	28	57	26
17	105	56	57	63	108	87	57	56	48	28	62	24
18	103	54	60	70	105	89	61	52	50	28	61	24
19	101	49	56	75	101	102	65	52	50	28	56	28
20	99	47	50	70	102	109	64	48	44	26	53	28
21	98	46	51	79	107	108	64	47	40	27	50	28
22	97	47	50	77	104	103	61	39	41	24	47	28
23	95	55	55	68	104	103	57	34	46	29	44	30
24	93	47	59	75	109	104	56	37	46	40	42	39
25	91	56	60	75	112	106	62	34	46	39	41	35
26	89	70	51	74	112	104	60	34	47	38	40	34
27	87	68	51	80	114	103	60	41	50	32	38	34
28	86	54	46	105	113	102	55	65	57	30	37	36
29	87		48	132	121	100	47	65	69	28	36	36
30	86	—	56	133	120	104	32	59	74	34	34	33
31	85	—	48	—	116	—	29	57	—	35	—	32
Mean	110	65.4	49.9	64.6	103	104	63.3	52.2	48.9	42.7	39.1	27.9
Runoff in Ac.Ft.	6800	3630	3070	3840	6360	6190	3890	3210	2910	2630	2320	1720
	Water Year Total 50880								Calendar Year Total 46570			

U. S. Geological Survey and U. S. Bureau of Reclamation cooperative station located at San Luis Ranch approximately seven miles north of Los Banos. Salt Slough is an overflow channel of the San Joaquin River. Period of record 1941 to date. Record for 1953 computed by U. S. Geological Survey.

TABLE 126

FLOW OF CHOWCHILLA RIVER AT BUCHANAN DAM SITE - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	195	70	50	40	67	27	5.0				0	5.2
2	122	66	52	37	55	34	4.8				0	5.2
3	98	64	44	36	48	31	4.0				0	5.7
4	83	62	40	34	42	26	3.3				0	19
5	73	60	39	34	39	23	2.7				0	38
6	76	58	39	32	34	26	1.9				0	21
7	216	57	38	32	32	48	1.2				0	15
8	339	57	36	32	31	40	.6				0	12
9	234	56	34	31	30	30	.3				0	11
10	152	51	38	33	30	27	.2				0	10
11	119	50	51	35	28	25	0				0	9.5
12	100	49	49	34	27	22	0	N	N	N	0	8.8
13	145	48	49	32	24	20	0	0	0	0	0	8.4
14	1090	48	50	31	23	18	0				3.4	8.0
15	517	47	43	30	25	17	0				27	7.6
16	260	46	40	29	29	16	0				14	7.6
17	189	45	38	27	27	15	0	F	F	F	8.4	7.3
18	174	44	37	28	25	15	0	L	L	L	6.3	7.3
19	158	43	42	27	23	14	0	0	0	0	5.4	7.3
20	140	42	169	27	23	14	0	W	W	W	6.1	6.9
21	298	42	100	27	24	13	0				6.1	6.5
22	174	41	70	27	21	11	0				6.3	6.5
23	141	45	60	25	20	9.5	0				6.1	6.5
24	123	45	55	24	20	8.8	0				5.9	6.5
25	111	41	50	22	22	7.6	0				5.9	6.5
26	99	39	48	22	21	6.5	0				5.9	6.5
27	91	39	46	46	22	6.1	0				5.7	6.5
28	86	39	44	325	31	5.7	0				5.7	6.5
29	82		45	95	45	5.4	0				5.4	6.9
30	79	—	46	75	34	5.2	0				5.2	6.5
31	75	—	42	—	27	—	0		—		—	6.5
Mean	188	49.8	51.1	44.3	30.6	18.9	0.8	0	0	0	4.3	9.4
Runoff in Ac.Ft.	11580	2760	3140	2640	1880	1120	48	0	0	0	255	581
	Water Year Total 29201								Calendar Year Total 24004			

U. S. Geological Survey and Division of Water Resources cooperative station located five miles west of Raymond. Drainage area 238 square miles. Chowchilla River is an east-side tributary to the San Joaquin River at Mile 151.0R. Period of record October, 1921, to September, 1923; October 1930 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 127

FLOW OF SAN LUIS CREEK NEAR LOS BANOS - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	6.8	2.7	2.7	1.3	1.0	0.4	4.2	0	0			
2	2.4	3.0	2.7	1.3	.8	.4	4.2	0	0			
3	2.2	2.7	2.4	1.5	.8	.5	4.2	0	0			
4	2.0	3.0	2.4	1.3	.7	.6	4.2	0	0			
5	2.2	3.0	2.7	1.7	.7	.6	2.7	0	0			
6	2.4	3.3	2.7	1.5	.8	1.0	3.9	0	0			
7	3.0	3.3	2.7	1.5	.8	0.8	0.8	0	0			
8	21	3.3	2.4	1.5	.6	.8	0	0	0			
9	25	3.0	2.7	1.7	.6	.8	0	0	0.1			
10	13	3.0	2.7	1.7	.6	.4	0	0	.1			
11	8.4	3.0	2.7	1.7	.7	0	0	0	.1			
12	5.2	3.3	2.7	1.7	.7	0	0	0	.1			
13	22	3.0	2.7	1.7	.7	0	0	0	.1			
14	67	2.7	2.7	1.3	.8	0	0	0	0			
15	31	2.7	2.4	1.5	.7	0	0	0	0			
16	16	2.7	2.4	1.5	.8	0	0	0.1	0			
17	10	3.0	2.0	1.5	1.0	0	0	.1	0			
18	8.0	2.7	2.0	1.3	0.5	0.2	0	.2	0			
19	6.0	2.4	1.7	1.5	.5	.4	0	.2	0			
20	4.9	2.7	1.5	2.2	.5	.4	0	.3	0			
21	10	2.7	1.7	1.3	.6	1.2	0	.4	0.3			
22	6.0	2.4	1.7	0	.1	1.2	0	.4	.3			
23	4.9	2.4	1.5	0	0	1.3	0	.2	.4			
24	4.6	2.4	1.7	0	0	1.3	0	.1	.4			
25	3.6	2.4	1.5	0.1	0	1.5	0	0	.5			
26	3.3	2.4	1.5	.2	0	1.0	0	0	.7			
27	3.3	2.4	1.3	1.0	0.1	1.5	0	0	1.2			
28	3.0	2.7	1.5	1.2	.6	2.7	0	0	1.3			
29	3.0	—	1.3	1.0	.7	3.3	0	0	1.3			
30	3.0	—	1.5	1.0	.6	3.9	0	0	1.5			
31	2.7	—	1.2	—	.3	—	0	0	—		—	
Mean	9.9	2.8	2.1	1.2	0.6	0.9	0.8	0.1	0.3			
Runoff in Ac.Ft.	607	155	129	73	34	52	48	4	17			
	Water Year Total 1506								Calendar Year Total			

U. S. Geological Survey and U. S. Bureau of Reclamation cooperative station located approximately 12 miles west of Los Banos. San Luis Creek is a west-side tributary to the San Joaquin River via Los Banos Creek. Period of record October, 1949, to September 30, 1953, when station was discontinued. Records for 1953 computed by U. S. Geological Survey.

TABLE 128

FLOW OF BEAR CREEK ABOVE SAN JOAQUIN RIVER - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	452	163	44	30	265	134	9	6	19	63	36	19
2	1140	152	41	29	241	143	8	7	16	110	42	17
3	1200	140	39	28	168	134	8	6	15	80	23	16
4	865	131	36	27	107	126	9	6	16	70	22	16
5	635	123	33	26	89	124	9	7	16	60	21	17
6	490	116	31	29	78	113	9	7	20	70	19	19
7	410	110	30	37	67	119	9	8	19	63	16	22
8	405	105	31	35	59	131	9	8	20	48	16	22
9	530	104	30	35	56	147	9	11	28	38	16	25
10	670	93	30	38	60	140	8	14	38	35	17	26
11	700	83	31	40	63	115	9	9	41	31	17	42
12	570	77	55	56	59	85	9	9	39	27	17	70
13	455	76	83	62	60	71	9	8	35	22	16	50
14	370	73	124	69	59	57	9	10	41	21	19	31
15	415	71	110	64	65	39	9	11	49	25	24	23
16	806	71	107	58	69	24	9	10	54	40	36	16
17	1300	63	94	53	67	21	6	11	59	39	50	15
18	1035	61	60	47	71	14	6	10	55	35	36	15
19	695	65	41	43	77	13	7	8	60	34	36	15
20	570	58	53	44	83	10	7	8	64	37	38	15
21	575	53	88	49	90	9	8	8	75	35	35	14
22	600	50	85	54	75	9	7	9	85	37	31	14
23	590	55	72	66	65	10	7	9	94	33	28	16
24	535	93	83	59	62	10	8	9	117	32	26	19
25	415	83	80	91	79	10	8	10	96	32	23	19
26	325	63	70	75	89	9	8	10	87	31	22	18
27	270	57	50	81	105	9	8	10	62	29	21	17
28	235	53	38	604	108	8	8	10	67	32	20	16
29	210	—	40	343	118	10	8	11	64	31	20	15
30	190	—	36	298	133	9	8	11	59	31	19	14
31	175	—	33	—	133	—	8	12	—	31	—	14
Mean	575	87	57	86	94	62	8	9	50	42	25	22
Runoff in Ac.Ft.	35371	4844	3527	5098	5792	3675	502	561	2995	2582	1511	1323
	Water Year Total 78591								Calendar Year Total 67781			

U. S. Bureau of Reclamation station located about one mile above the mouth. Bear Creek is an east-side tributary to the San Joaquin River at Mile 140.5R. Period of record 1940 to date. Records for 1953 computed by U. S. Bureau of Reclamation.

TABLE 129

FLOW OF MERCED RIVER AT EXCHEQUER - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1060	1040	512	1110	423	1200	1770	1810	1460	87	48	49
2	1060	1050	503	1210	416	1180	1780	1810	1440	69	48	49
3	1060	1050	78	1240	498	1220	1810	1810	1410	69	48	48
4	1050	1040	74	1240	597	1270	1810	1790	1380	68	48	48
5	1040	1050	84	1260	745	1320	1770	1770	1360	66	48	48
6	1040	49	84	1260	975	1150	1750	1750	1350	65	48	48
7	1040	50	82	1240	1080	1040	1770	1710	1300	65	48	48
8	1050	37	87	1260	1220	1070	1820	1680	1270	47	48	48
9	1050	30	194	1290	1260	1120	1860	1670	1230	39	48	48
10	1040	35	765	1320	1270	1160	1890	1640	1220	41	48	48
11	1050	43	876	1350	1360	1220	1910	1640	1220	41	48	48
12	1060	44	892	1360	1460	1210	1910	1640	1220	41	48	48
13	1050	44	898	1360	1500	1210	1900	1640	1230	41	45	48
14	1060	44	898	1360	1520	1210	1910	1640	1250	40	45	48
15	1060	44	942	1360	1510	1270	1930	1640	1250	41	44	41
16	1040	39	986	1350	1480	1410	1920	1630	1260	41	44	45
17	1070	35	975	1340	1410	1580	1930	1620	1280	41	44	53
18	1050	35	1000	1330	1390	1640	1930	1600	1250	41	44	46
19	1070	35	920	1340	1400	1660	1930	1600	1200	41	44	42
20	1070	35	680	1340	1430	1640	1930	1620	1190	42	44	46
21	1080	35	592	1180	1440	1670	1930	1600	1190	43	44	46
22	1060	35	615	1100	1440	1720	1930	1580	1160	44	44	48
23	1050	36	646	1090	1400	1740	1930	1580	1200	43	44	48
24	1050	36	745	1120	1360	1740	1930	1570	1220	43	44	46
25	1060	34	795	1250	1390	1750	1910	1560	1220	43	44	46
26	1060	34	821	1420	1400	1760	1890	1520	1220	43	44	46
27	1070	469	854	789	1430	1750	1880	1500	1240	43	44	46
28	1060	510	931	409	1390	1740	1850	1510	1250	48	43	46
29	1080	—	986	453	1260	1790	1840	1520	1250	48	43	46
30	1060	—	1050	453	1230	1770	1840	1490	770	48	46	46
31	1050	—	1070	—	1210	—	1830	1460	—	46	—	46
Mean	1056	251	666	1173	1222	1440	1871	1632	1250	49.0	45.7	47.0
Runoff in Ac.Ft.	64960	13920	40930	69790	75160	85710	115000	100400	74360	3010	2720	2890
	Water Year Total 700100								Calendar Year Total 648850			

U. S. Geological Survey and Merced Irrigation District cooperative station located 0.5 mile downstream from Lake McClure. Drainage area is 1035 square miles. Period of record 1922 to date. (Prior records available at a site one mile upstream.) Records for 1953 computed by U. S. Geological Survey.

TABLE 130

FLOW OF MERCED RIVER BELOW SNELLING - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	878	740	28	*21	*21	*29	28	17	6.6	13	1.4	3.1
2	866	745	18	*26	*20	*31	26	14	5.4	7.1	1.4	3.5
3	860	757	17	*38	*19	*28	22	12	5.0	5.4	1.4	3.5
4	848	762	12	*38	*20	*27	29	15	4.2	5.4	1.8	8.8
5	854	768	7.9	*34	*20	*29	36	16	3.5	5	2.0	8.3
6	831	388	4.1	*34	*19	*38	24	14	3.5	3.8	2.7	5.8
7	872	135	14	*36	*19	*52	17	21	3.5	2.7	2.5	5.8
8	854	93	13	*38	*20	*22	16	23	3.5	2.5	2.5	4.6
9	831	60	25	*38	*28	*20	19	23	3.1	2.0	2.5	4.6
10	820	38	51	*40	*38	*25	30	18	3.1	2.3	2.5	4.6
11	820	28	18	*43	*36	*23	36	8.8	3.8	2.7	2.7	4.6
12	814	29	16	*35	*37	*25	27	8.3	3.8	2.7	2.7	4.6
13	820	31	19	*36	*39	*26	24	8.8	3.5	2.5	2.3	4.6
14	860	33	16	*33	*39	*28	25	7.7	3.1	2.3	9.4	4.6
15	825	32	17	*31	*41	*31	38	5.0	4.2	2.3	5.4	4.2
16	808	33	19	*21	*42	*26	38	6.2	3.5	2.0	3.1	5
17	802	33	22	*21	*42	*12	36	6.6	4.6	1.8	2.5	7.1
18	802	28	*22	*21	*43	*13	38	10	8.8	2.7	2.5	6.2
19	797	22	*30	*24	*45	*26	39	14	14	2.5	2.5	4.2
20	797	19	*32	*24	*44	*19	40	12	27	2.0	2.5	3.1
21	780	18	*48	*33	*45	*14	38	12	36	2.0	1.8	2.7
22	768	18	*49	*29	*47	*18	37	12	43	1.8	1.8	3.5
23	757	21	*51	*25	*48	*18	36	15	39	1.4	1.8	3.8
24	*757	23	*53	*24	*51	*18	34	14	39	1.4	1.8	3.8
25	*751	25	*58	*25	*49	*16	36	15	34	1.4	2.3	3.8
26	*745	18	*38	*29	*64	22	30	15	32	1.4	2.3	3.8
27	*740	8.6	*29	*50	*31	24	18	7.7	34	1.4	2.3	3.8
28	*734	29	*32	*42	*27	21	15	4.6	39	1.2	2.3	3.8
29	*729	—	*36	*28	*29	18	12	4.2	38	1.2	2.5	3.8
30	734	—	*33	*24	*34	29	14	5.4	27	1.2	2.7	4.2
31	734	—	*26	—	*28	—	16	5.4	—	1.4	—	4.2
Mean	803	176	27.6	31.4	35	24.3	28.2	12	16	2.9	2.6	4.6
Runoff in Ac.Ft.	49360	9788	1694	1866	2152	1444	1734	735	949	176	154	282
	Water Year Total								Calendar Year Total		70334	

Division of Water Resources station located at Merced-Snelling highway bridge Mile 42.1 above mouth. This station was formerly known as Merced River at Yosemite Valley Railroad Crossing. Period of record 1930 to date.
* Estimated.

TABLE 131

FLOW OR MERCED RIVER AT CRESSEY BRIDGE - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1420	1180	100	80	115	125	79	72	87	146	63	82
2	1270	1180	100	81	104	111	90	70	94	135	64	82
3	1240	1180	94	80	97	102	81	86	78	124	61	82
4	1210	1170	93	87	88	104	79	84	69	103	60	98
5	1200	1180	87	93	81	102	81	87	68	90	61	105
6	1210	1090	84	81	73	112	91	84	79	85	63	107
7	1230	362	79	82	68	143	84	81	78	79	65	100
8	1330	250	76	85	65	159	78	75	65	75	63	97
9	1270	200	80	87	65	121	69	80	73	65	63	92
10	1240	171	85	91	75	107	65	82	65	62	65	91
11	1220	150	98	90	97	107	60	76	63	63	66	88
12	1200	137	93	86	91	110	62	73	88	65	58	92
13	1200	131	92	81	80	102	65	79	86	64	65	92
14	1260	126	92	80	79	90	65	69	80	63	96	90
15	1500	125	91	78	85	81	68	70	86	57	110	91
16	1320	121	90	72	82	85	75	80	85	57	110	91
17	1260	118	88	69	91	68	86	79	80	62	99	92
18	1250	115	87	66	97	66	84	78	80	68	93	96
19	1290	110	88	65	88	79	81	76	90	67	91	97
20	1270	107	97	66	88	87	82	82	98	65	88	94
21	1260	104	94	68	88	85	78	82	117	65	85	90
22	1270	104	108	70	91	80	81	88	142	61	84	88
23	1240	102	108	72	92	73	73	90	148	63	84	97
24	1220	99	114	65	97	75	65	82	150	67	82	94
25	1220	99	114	70	93	90	66	85	164	63	80	94
26	1200	98	112	69	93	80	75	82	158	59	81	94
27	1190	96	100	97	129	82	82	97	145	59	84	94
28	1200	92	92	166	125	82	78	96	142	59	84	93
29	1190		90	150	111	75	81	85	151	60	82	92
30	1190	—	88	140	112	74	80	82	156	60	84	92
31	1180	—	86	—	114	—	73	82	—	60	—	91
Mean	1250	357	93.5	85.6	92.1	95.4	76.0	81.1	102	73.3	77.8	92.8
Runoff in Ac.Ft.	76860	19830	5752	5092	5661	5677	4675	4986	6079	4504	4629	5708
	Water Year Total			184918					Calendar Year Total		149453	

Division of Water Resources station located at Cressey Bridge, Mile 27.6 above mouth. Period of record 1941 to date.

TABLE 132

FLOW OF MERCED RIVER NEAR STEVINSON - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1780	1180	167	165	303	236	140	153	210	218	129	140
2	1410	1170	167	155	300	229	136	172	205	235	131	138
3	1310	1170	164	171	299	210	130	190	212	232	131	139
4	1280	1160	190	163	249	183	143	171	179	211	130	141
5	1250	1160	168	188	208	172	155	157	172	194	131	147
6	1240	1160	174	203	189	177	158	173	199	164	132	152
7	1240	836	152	207	175	219	143	171	205	152	133	156
8	1310	448	140	198	158	236	130	163	175	155	133	151
9	1350	363	140	188	158	216	105	175	165	142	132	150
10	1300	317	144	199	184	197	92	184	160	147	131	147
11	1250	283	174	223	189	179	94	163	151	160	131	148
12	1240	268	206	222	189	173	120	160	142	162	132	150
13	1220	260	243	228	179	166	147	164	179	145	130	152
14	1230	243	199	252	185	165	141	154	212	157	136	151
15	1360	236	193	216	188	170	120	126	196	173	146	148
16	1450	220	189	206	218	157	109	141	206	179	152	148
17	1320	208	178	203	235	157	100	167	222	153	151	151
18	1280	206	178	181	233	165	120	154	229	143	148	157
19	1290	199	206	196	193	164	148	160	228	141	147	155
20	1310	192	258	258	175	158	170	164	207	140	146	155
21	1310	188	229	256	173	158	145	175	211	140	144	153
22	1290	185	206	197	161	141	145	179	237	139	145	151
23	1300	185	232	184	181	129	153	212	223	136	146	151
24	1270	176	235	187	206	130	140	223	210	136	142	153
25	1250	161	222	182	198	135	138	215	211	138	141	152
26	1250	158	201	198	176	142	173	214	219	135	140	151
27	1220	157	192	270	189	139	171	196	216	132	143	152
28	1190	154	185	300	211	143	190	210	229	128	140	151
29	1190	—	175	283	223	165	206	208	232	125	141	151
30	1190	—	176	318	212	165	194	223	215	126	144	151
31	1190	—	165	—	226	—	162	210	—	126	—	151
Mean	1293	452	189	213	205	173	143	178	202	157	139	150
Runoff in Ac.Ft.	79480	25080	11600	12690	12620	10270	8760	10960	12010	9650	8250	9210
	Water Year Total 243420								Calendar Year Total 210580			

U. S. Geological Survey, U. S. Bureau of Reclamation, and Division of Water Resources cooperative station, also known as Merced River below Stevinson Drain, located at Mile 4.6R above mouth. Drainage area is 1274 square miles. Period of record 1944 to date (prior records available at a site 3.5 miles downstream). Records for 1953 computed by U. S. Geological Survey.

TABLE 133

FLOW OF MERCED RIVER SLOUGH NEAR NEWMAN - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13						No flow in 1953						
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29		—										
30		—										
31		—		—		—			—		—	
Mean	0	0	0	0	0	0	0	0	0	0	0	0
Runoff in Ac.Ft.	0	0	0	0	0	0	0	0	0	0	0	0
	Water Year Total								Calendar Year Total			

U. S. Geological Survey, U. S. Bureau of Reclamation, and Division of Water Resources cooperative station, also known as Merced River Slough near Hills Ferry Road Bridge, located 500 feet downstream from the head of the slough between Merced River and San Joaquin River. This station records the flow which at high stages in the Merced River by-passes the Hills Ferry Road Bridge and reaches the San Joaquin River at Mile 122.2 at a point below the Newman gaging station. Period of record 1941 to date. Records for 1953 computed by the U. S. Geological Survey.

TABLE 134

FLOW OF ORESTIMBA CREEK NEAR NEWMAN - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	28	3.0	2.7									
2	16	3.0	2.0									
3	11	2.5	1.8									
4	7.8	2.5	1.5									
5	6.7	2.2	1.4									
6	6.3	2.2	1.3									
7	9.2	2.2	1.1									
8	32	4.2	0.9									
9	47	13	.8									
10	37	14	.7									
11	26	13	.5									
12	18	14	.5	N	N	N	N	N	N	N	N	N
13	14	14	.4	O	O	O	O	O	O	O	O	O
14	16	14	.3									
15	22	12	.2									
16	18	11	.2									
17	14	9.5	.1	F	F	F	F	F	F	F	F	F
18	13	8.8	.1	L	L	L	L	L	L	L	L	L
19	11	7.4	.1	O	O	O	O	O	O	O	O	O
20	9.5	7.4	.1	W	W	W	W	W	W	W	W	W
21	8.8	6.3	.1									
22	9.5	5.5	0									
23	7.8	4.8	0									
24	6.7	4.4	0									
25	5.9	4.2	0									
26	5.2	3.7	0									
27	4.2	3.4	0									
28	3.9	3.0	0									
29	3.7	—	0									
30	3.4	—	0									
31	3.2	—	0	—		—			—		—	
Mean	13.7	7.0	0.5	0	0	0	0	0	0	0	0	0
Runoff in Ac.Ft.	843	387	33	0	0	0	0	0	0	0	0	0
	Water Year Total 1504								Calendar Year Total 1263			

U. S. Geological Survey and Division of Water Resources cooperative station located at highway bridge five miles west of Newman. Orestimba Creek is a west-side tributary to the San Joaquin River at Mile 115. Period of record 1932 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 135

FLOW OF TUOLUMNE RIVER ABOVE LA GRANGE DAM - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1620	1670	967	1530	1860	2330	5420	2080	1830	1950	812	806
2	1730	1810	1330	1810	1870	2900	5380	2090	1980	1910	896	843
3	1720	1820	1270	1980	1780	3180	4770	2100	1940	1830	860	1010
4	1600	1870	1290	2040	1900	3180	4540	2080	1860	1710	844	836
5	1740	1880	1420	2060	1920	3170	3830	2110	1780	1720	857	730
6	1490	1890	1600	2160	1910	2560	4310	2120	1650	1630	839	621
7	1450	1500	1580	2220	2040	2300	4370	2110	1710	1650	609	865
8	1390	1410	1520	2230	2310	2300	4410	2140	1880	1640	432	849
9	1340	1630	1640	2160	2320	2300	4300	2150	1850	1650	763	841
10	1360	1590	1750	2310	2320	2300	3550	2080	1870	1530	763	996
11	1300	1530	1610	2450	2150	2300	3580	2040	1940	1370	591	801
12	1390	1530	1750	2440	2310	2880	3180	1970	1780	1570	650	744
13	1390	1530	1740	2460	2310	3190	2570	1970	1720	1600	710	624
14	1380	1450	1630	2490	2320	3190	2230	1960	1890	1610	572	984
15	1390	1400	1560	2480	2320	3200	2260	1970	1850	1540	506	1070
16	1680	1580	1680	2660	2320	2540	2420	1850	1780	1420	853	1090
17	1670	1580	1740	2660	2300	2780	2400	2010	1810	1320	839	1150
18	1740	1640	1750	2680	2300	4600	2340	1940	1790	1270	835	891
19	1640	1730	1800	2680	2300	7790	2350	2010	1750	1380	871	801
20	1640	1710	1680	2640	2320	9040	2240	1980	1670	1390	834	632
21	1760	1580	1450	2660	2490	9230	2080	2010	1810	1400	661	891
22	1730	1420	1240	2680	3070	6660	2070	1980	1830	1410	495	936
23	1730	1510	1420	2460	3200	5020	2070	1900	1830	1420	723	970
24	1760	1520	1460	2090	3200	7250	2060	2010	1860	1390	796	813
25	1710	1450	1490	2050	3190	6650	2070	2010	1850	1310	748	594
26	1730	1440	1510	1930	3190	5420	2060	2010	1800	1440	480	703
27	1740	1340	1560	1980	3190	5140	2070	2030	1710	1440	632	617
28	1720	1170	1430	1890	3190	4630	2070	2040	1870	1500	644	853
29	1700	—	1290	1880	2590	5100	2090	2190	1860	1510	492	884
30	1700	—	1560	1870	2320	5390	2070	2340	1910	1520	803	892
31	1710	—	1540	—	2320	—	2070	2120	—	1430	—	870
Mean	1602	1578	1524	2254	2424	4284	3007	2045	1822	1531	714	845
Runoff in Ac.Ft.	98480	87630	93730	134100	149000	254900	184900	125800	108400	94140	42470	51980
	Water Year Total 1520760								Calendar Year Total 1425530			

U. S. Geological Survey, City of San Francisco, Modesto Irrigation District, and Turlock Irrigation District cooperative station located 0.5 mile downstream from Don Pedro Dam and 3.5 miles upstream from La Grange Dam. Drainage area is 1540 square miles. Period of record 1915 to date. (Prior records available at a site 3.5 miles downstream.) Records for 1953 computed by U. S. Geological Survey.

TABLE 136

FLOW OF TUOLUMNE RIVER AT LA GRANGE BRIDGE - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1540	1620	456	11	537	503	2420	4.3	8.6	81	503	571
2	1620	1750	598	51	527	532	2430	5.0	26	88	527	571
3	1640	1760	602	11	409	522	1950	5.7	17	122	571	532
4	1510	1780	592	9.7	418	494	1840	5.7	7.9	79	517	566
5	1650	1820	346	36	308	489	1110	13	7.2	390	530	566
6	1400	1840	30	14	30	498	1480	6.4	7.2	587	520	561
7	1360	1440	45	14	23	494	1360	5.7	7.2	597	358	542
8	1290	1350	20	13	23	494	1360	6.4	7.2	587	167	561
9	1230	1560	20	13	22	456	1280	6.4	7.9	587	309	561
10	1240	1510	22	14	22	379	692	6.4	13	592	503	561
11	1200	1460	17	15	20	379	746	6.4	20	587	494	556
12	1260	1060	13	15	19	618	260	6.4	12	597	527	556
13	1260	780	12	15	19	862	14	7.9	14	587	*542	551
14	1320	702	13	15	19	675	13	35	50	587	571	561
15	1260	653	14	15	19	518	12	17	19	587	406	542
16	1570	821	13	17	19	197	46	7.2	7.9	592	542	587
17	1590	846	13	15	19	245	12	7.9	15	587	571	602
18	1680	1380	22	15	19	1520	11	12	19	597	617	597
19	1540	1680	15	15	19	4420	9.7	12	19	617	658	602
20	1540	1660	14	623	19	5660	11	8.6	19	592	617	597
21	1670	1530	12	15	19	5850	3.6	9.7	19	607	576	617
22	1660	1370	12	7.9	32	3860	6.1	7.9	19	607	532	627
23	1690	1450	13	7.2	35	1990	2.1	7.9	19	612	532	602
24	1720	1500	15	7.2	17	4060	1.4	9.7	30	592	587	612
25	1660	1400	13	6.4	182	3440	2.1	9.7	24	592	622	597
26	1690	1380	9.7	6.4	402	2300	2.8	9.7	19	592	612	617
27	1690	1020	9.7	343	451	1850	2.8	9.7	18	587	474	602
28	1670	576	9.7	551	446	1560	4.3	8.6	71	592	587	612
29	1670		9.7	532	551	1870	3.6	8.6	80	597	576	612
30	1660	—	9.7	532	508	2270	3.6	9.7	79	597	542	607
31	1670	—	11	—	508	—	3.6	7.2	—	582	—	617
Mean	1521	1346	96.8	98.5	183	1634	551	9.2	22.7	522	523	583
Runoff in Ac.Ft.	93520	74770	5953	5861	11230	97200	33900	563	1353	32130	31120	35830
	Water Year Total 509220								Calendar Year Total 423430			

Division of Water Resources station located at Mile 50.5 above mouth. Period of record 1937 to date.
* Estimated.

TABLE 137

FLOW OF TUOLUMNE RIVER AT ROBERTS FERRY BRIDGE - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1760	1640	506	42	584	596	2470	42	42	93	610	638
2	1670	1720	492	50	584	603	2510	42	40	93	532	638
3	1720	1780	645	58	451	623	1980	42	47	127	652	659
4	1630	1780	610	40	455	584	2060	45	42	106	538	681
5	1720	1840	530	42	503	584	1140	42	40	138	570	645
6	1570	1830	138	52	96	616	1560	45	38	603	610	638
7	1500	1510	74	38	60	603	1420	42	40	610	462	659
8	1400	1390	65	34	52	596	1420	36	42	616	347	688
9	1370	1540	52	34	50	590	1360	40	40	616	169	674
10	1350	1530	52	38	50	480	939	38	40	616	499	674
11	1320	1460	55	38	50	474	822	38	38	616	610	674
12	1340	1150	58	34	50	584	474	34	42	616	551	674
13	1390	845	58	34	52	914	106	34	42	630	603	659
14	1430	753	52	34	52	860	63	38	42	630	688	666
15	1380	731	55	38	52	638	55	45	60	623	525	659
16	1610	768	55	45	52	451	68	38	50	630	551	623
17	1640	845	52	45	50	150	65	36	47	638	659	645
18	1700	1220	52	45	45	1060	47	34	50	652	681	659
19	1630	1630	60	45	45	3990	45	36	50	645	681	652
20	1610	1630	63	384	45	6030	47	36	52	666	688	645
21	1710	1520	55	233	45	6290	50	34	52	638	659	645
22	1690	1430	50	60	45	4950	47	32	50	652	623	652
23	1710	1360	47	42	55	1710	42	32	55	652	564	659
24	1710	1450	42	40	58	4230	45	34	50	652	638	645
25	1680	1360	45	36	60	3790	47	34	55	630	674	630
26	1710	1360	45	36	421	2640	45	34	58	645	666	630
27	1720	1170	45	175	512	1880	45	34	52	645	558	652
28	1700	645	45	584	525	1840	42	38	52	638	630	645
29	1680		42	577	616	1760	40	38	77	652	659	659
30	1670	—	42	584	596	2320	38	38	93	659	610	645
31	1650	—	42	—	596	—	38	38	—	652	—	652
Mean	1592	1353	136	118	223	1748	617	37.7	49.3	551	584	654
Runoff in Ac.Ft.	97920	75150	8378	7016	13700	104000	37940	2319	2932	33880	34720	40190
	Water Year Total 566005								Calendar Year Total 458145			

Division of Water Resources station located at Mile 39.9 above mouth. Period of record 1930 to date.

TABLE 138

FLOW OF TUOLUMNE RIVER AT HICKMAN BRIDGE - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1910	1730	622	117	645	695	2660	123	129	202	750	735
2	1680	1780	549	114	641	705	2700	125	127	196	655	730
3	1760	1850	710	138	515	745	2250	121	136	235	772	745
4	1690	1860	680	121	506	715	2300	125	129	223	670	800
5	1730	1910	655	121	599	710	1360	121	127	235	680	745
6	1660	1900	670	131	214	761	1780	117	127	685	730	740
7	1550	1630	*150	127	158	735	1630	117	129	715	609	740
8	1510	1520	*130	123	144	735	1610	117	138	725	528	745
9	1440	1570	*115	121	136	740	1570	117	138	730	282	740
10	1400	1630	*115	121	133	650	1200	112	136	730	563	735
11	1400	1590	*120	119	129	641	1010	112	133	735	750	730
12	1390	1370	*120	117	127	695	725	119	133	735	650	730
13	1440	998	*120	117	123	1080	298	121	140	750	725	730
14	1510	878	*118	114	125	1100	208	117	140	745	832	730
15	1460	838	*118	117	125	827	186	133	142	849	695	710
16	1630	844	*120	117	125	735	176	123	148	750	636	715
17	1700	944	*120	117	123	310	202	123	144	750	778	735
18	1740	1160	*115	119	123	923	171	123	140	772	805	735
19	1730	1670	*130	119	123	3710	161	123	154	766	805	740
20	1660	1700	*140	217	121	6150	156	125	148	794	805	745
21	1730	1640	*130	485	121	6320	156	123	144	766	794	730
22	1740	1520	*125	154	121	5560	148	123	140	772	740	740
23	1770	1440	*120	136	123	1930	140	125	148	778	660	761
24	1760	1550	*118	133	138	4270	138	127	151	788	761	740
25	1770	1450	*120	131	140	4100	142	125	154	761	761	725
26	1770	1440	*120	133	401	3040	138	123	156	772	783	715
27	1780	1340	117	268	567	2120	138	121	156	778	655	730
28	1780	761	114	685	604	2220	140	125	154	761	740	720
29	1750		112	735	670	1850	129	129	174	772	756	725
30	1750	—	114	665	670	2510	129	131	199	783	705	715
31	1730	—	114	—	685	—	125	129	—	778	—	715
Mean	1655	1447	223	201	296	1909	770	122	144	672	702	734
Runoff in Ac.Ft.	101800	80360	13730	11960	18200	113600	47360	7527	8557	41320	41800	45170
	Water Year Total 617514								Calendar Year Total 531384			

Division of Water Resources station located at Mile 31.7 above mouth. Period of record 1932 to date.
* Estimated.

TABLE 139

FLOW OF TUOLUMNE RIVER AT MODESTO - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3070	1860	818	262	824	882	2680	303	311	339	860	786
2	1750	1840	670	258	821	882	2780	322	282	326	776	798
3	1800	1960	796	283	762	902	2640	458	292	337	809	798
4	1750	1990	790	297	692	898	2430	305	303	371	818	894
5	1700	2020	800	287	723	890	1870	303	290	353	776	846
6	1700	2050	558	285	594	982	1660	303	278	543	788	870
7	1650	1930	400	280	366	1050	1720	311	288	785	782	846
8	1600	1640	340	268	346	1010	1690	303	272	818	647	834
9	1700	1580	320	260	330	952	1670	326	274	854	513	834
10	1700	1740	300	266	341	878	1580	326	276	854	508	810
11	1600	1710	320	266	341	797	1150	292	284	860	749	822
12	1500	1640	320	274	310	767	1050	280	274	868	725	810
13	1520	1180	350	272	285	1010	746	266	280	874	767	810
14	1550	1030	359	287	278	1190	494	290	280	934	864	822
15	1750	946	346	297	274	976	448	311	272	994	812	810
16	2000	886	325	295	293	882	404	324	274	941	665	810
17	2000	1010	319	325	304	620	385	333	301	868	774	846
18	1900	1070	310	310	297	579	406	299	297	878	822	858
19	1900	1650	348	314	304	2300	385	282	294	896	822	858
20	2000	1840	404	343	299	5350	364	284	301	878	846	870
21	2100	1840	355	709	293	6070	339	307	303	846	822	846
22	2450	1710	343	432	297	6280	335	305	278	857	810	858
23	2100	1560	323	321	295	3140	330	294	280	860	726	870
24	2050	1670	304	306	343	3270	332	292	284	864	762	858
25	2000	1630	299	304	319	4290	318	303	294	850	810	858
26	1950	1600	297	310	364	3510	320	322	309	860	834	846
27	1920	1570	276	543	670	2310	316	305	305	868	786	858
28	1910	1130	276	966	744	2480	301	305	286	860	738	846
29	1880	—	266	998	790	1800	305	324	294	860	810	858
30	1880	—	260	894	860	2520	297	341	307	874	786	846
31	1860	—	268	—	866	—	299	322	—	878	—	846
Mean	1879	1582	402	384	472	1982	969	311	289	776	767	839
Runoff in Ac.Ft.	115500	87830	24710	22830	29010	118000	59590	19120	17180	47700	45630	51610
	Water Year Total 727600								Calendar Year Total 638710			

Station is maintained jointly by Division of Water Resources and the U. S. Geological Survey. Station is located at the Tidewater Southern Railroad bridge at Mile 15.92 above the mouth of the Tuolumne River and 0.6 mile downstream from the confluence of Dry Creek. Period of record 1940 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 140

FLOW OF TUOLUMNE RIVER AT TUOLUMNE CITY - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	*2620	1980	1000	380	1010	1000	2740	370	380	350	890	820
2	2150	1950	830	370	980	990	2850	400	340	350	850	840
3	2120	2030	840	390	970	970	2820	420	340	350	800	850
4	2100	2070	900	420	850	990	2460	370	340	380	860	920
5	1980	2080	890	420	800	970	2340	370	340	370	790	900
6	2070	2110	790	410	830	1010	1820	360	330	420	790	890
7	1900	2080	540	400	540	1160	1950	370	330	760	810	890
8	1900	1830	450	380	460	1140	1890	380	330	830	700	870
9	2080	1830	420	370	440	1070	1890	400	320	860	720	860
10	1900	1820	400	370	430	1010	1820	400	330	860	470	850
11	1800	1820	420	370	450	910	1420	320	330	890	670	850
12	1720	1780	410	380	420	880	1340	360	320	900	780	840
13	1720	1440	430	380	400	990	1020	340	320	890	750	830
14	1750	1210	460	380	380	1270	690	350	330	970	830	830
15	2140	1110	440	410	370	1190	590	370	320	1000	910	830
16	2310	1040	420	400	380	1010	520	390	310	1030	800	830
17	2140	1110	400	430	410	870	480	410	370	920	760	850
18	2080	1150	390	430	400	600	510	380	360	910	870	850
19	2200	1540	410	420	400	1520	480	350	360	940	890	860
20	2270	1870	460	460	400	4050	470	340	350	920	900	860
21	2280	1890	440	700	400	6120	430	350	360	910	900	860
22	2610	1790	410	760	400	6350	430	360	330	890	870	860
23	2260	1670	400	490	400	3890	420	370	330	900	830	870
24	2180	1700	380	430	430	2780	420	380	330	900	780	870
25	2140	1730	350	430	450	4010	410	350	340	890	850	860
26	2070	1670	360	420	440	3650	410	380	360	890	860	890
27	2070	1640	340	570	670	2740	400	370	350	900	850	850
28	2050	1380	340	890	840	2490	370	350	340	890	780	850
29	2020		330	1180	880	2480	380	360	330	880	830	850
30	2000	—	320	1110	960	2480	370	390	330	890	840	850
31	1980	—	330	—	960	—	380	390	—	900	—	840
Mean	2084	1690	494	498	585	2020	1114	371	338	798	808	857
Runoff in Ac.Ft.	128152	93858	30347	29653	36000	120179	68469	22810	20132	49071	48060	52701
	Water Year Total 790779								Calendar Year Total 699432			

Station is maintained jointly by Division of Water Resources, City of San Francisco (Hetch Hetchy Water Supply), and Turlock Irrigation District. Station is at highway bridge, 3.35 miles above the mouth. Period of record 1930 to date. Records for 1953 computed by City of San Francisco.

TABLE 141

FLOW OF DRY CREEK NEAR MODESTO (CLAUSS ROAD BRIDGE) - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	650	48	30	22	51	103	79	63	73	50	34	22
2	203	46	31	23	47	110	67	56	61	43	31	22
3	120	44	30	35	46	119	61	55	66	43	30	23
4	84	42	28	45	51	112	79	59	70	44	28	34
5	67	41	30	43	49	103	75	67	71	44	26	56
6	57	40	36	40	48	118	65	66	70	47	22	67
7	53	39	31	36	54	219	62	76	67	49	22	52
8	412	38	30	36	68	213	70	67	63	53	23	40
9	369	37	30	40	71	166	74	70	63	48	22	32
10	204	36	31	44	75	143	77	70	58	46	20	28
11	120	36	38	43	81	122	76	65	57	43	20	33
12	84	38	58	43	68	99	62	47	58	42	18	23
13	69	38	97	39	66	107	53	48	62	45	18	29
14	66	35	99	64	67	97	63	62	63	48	23	33
15	1020	34	78	75	65	92	67	57	57	50	23	26
16	398	33	62	66	79	86	57	61	64	72	22	24
17	179	32	60	81	82	90	60	68	63	63	24	22
18	120	31	62	80	88	90	71	65	67	58	23	23
19	309	31	61	66	86	86	73	65	77	60	22	25
20	240	31	94	88	82	78	74	65	63	50	23	23
21	625	30	74	99	81	77	75	63	60	43	23	22
22	481	29	68	90	81	84	64	61	66	36	23	21
23	199	31	49	81	81	79	63	56	69	30	24	20
24	129	30	36	76	79	68	61	58	61	28	23	21
25	101	29	30	73	87	62	62	60	61	44	23	20
26	86	33	28	58	92	65	61	63	59	45	22	20
27	76	31	25	117	99	68	61	61	59	40	22	20
28	67	31	23	269	92	73	60	62	57	37	22	20
29	60		23	115	94	73	63	66	60	30	21	21
30	54	—	22	64	101	72	66	72	55	29	22	21
31	51	—	22	—	106	—	67	77	—	36	—	20
Mean	218	35.5	45.7	68.4	74.7	102	66.7	62.9	63.3	45.0	23.3	27.8
Runoff in Ac.Ft.	13390	1972	2809	4068	4596	6097	4102	3870	3769	2769	1386	1712
	Water Year Total 56628								Calendar Year Total 50540			

Division of Water Resources station located at Clauss Road bridge, 5.4 miles above Modesto. Dry Creek enters the Tuolumne River above the Modesto gaging station at Mile 16.5R. Period of record (including a former station located 2.9 miles above mouth) 1930 to date.

TABLE 142

FLOW OF STANISLAUS RIVER BELOW MELONES POWERHOUSE - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	436	1240	4.5	1060	3180	3280	2510	1340	1170	360	6.0	204
2	809	1230	4.5	1080	2620	3160	2410	1340	1160	360	210	202
3	918	1200	4.5	1250	2530	2810	2290	1340	1160	360	460	199
4	540	1180	4.5	1270	2640	2860	2160	1330	1160	360	450	446
5	546	1150	4.8	1280	3120	3080	2050	1330	977	356	444	455
6	524	1150	4.8	1260	3120	3900	2060	1330	935	356	436	191
7	662	1100	4.8	1270	2800	5220	2140	1320	930	352	423	176
8	823	998	649	1270	2900	4040	2070	1320	940	352	440	394
9	1150	810	800	1510	2870	3810	1990	1310	935	356	154	171
10	1150	925	800	1520	2660	3730	1880	1310	930	360	152	208
11	1150	770	800	1520	2100	2950	1750	1310	930	404	144	190
12	1150	634	805	1520	1660	3550	1690	1310	930	560	158	195
13	1150	648	805	1520	1670	3350	1690	1310	925	662	164	158
14	1240	605	805	1520	1680	3580	1690	1300	925	590	389	193
15	1290	974	810	1520	2090	4150	1680	1310	920	448	213	251
16	1280	964	795	1520	2540	4530	1680	1310	910	150	394	251
17	1280	942	790	1530	2540	4350	1610	1320	900	76	412	251
18	1290	942	790	1530	2410	5740	1570	1330	520	79	143	266
19	1300	892	795	1530	2390	6380	1560	1340	464	57	151	271
20	1320	860	800	1530	3640	5760	1560	1340	456	4.5	272	245
21	1330	668	805	1540	4020	4080	1560	1330	412	4.2	229	168
22	1330	865	810	1550	3060	3750	1560	1330	372	3.2	224	182
23	1320	360	810	1580	2640	3730	1550	1330	372	4.5	202	172
24	1310	33	805	1580	2810	3740	1560	1330	372	8.6	166	172
25	1310	4.5	805	1640	2460	3540	1550	1170	368	7.3	142	178
26	1300	4.2	810	3600	2360	3320	1560	1150	368	6.0	152	184
27	1290	4.5	815	7430	2180	2850	1550	1160	364	6.0	160	190
28	1290	4.5	815	9050	2050	2520	1330	1160	364	6.0	165	212
29	1280	—	815	5000	2140	2360	1340	1160	364	6.0	186	174
30	1260	—	810	3970	2180	2380	1340	1160	364	6.0	194	185
31	1250	—	947	—	2840	—	1340	1160	—	6.0	—	190
Mean	1106	756	623	2165	2577	3750	1751	1287	730	215	248	223
Runoff in Ac.Ft.	67990	41970	38330	128800	158500	223100	107700	79120	43430	13220	14750	13730
	Water Year Total 960120								Calendar Year Total 930640			

U. S. Geological Survey and Pacific Gas and Electric Company cooperative station located one mile downstream from Melones Dam. Drainage area is 898 square miles. Period of record 1931 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 143

FLOW OF STANISLAUS RIVER AT ORANGE BLOSSOM BRIDGE - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	651	1380	12	23	3060	1970	969	25	34	11	12	212
2	759	1370	9.7	28	2540	1890	904	28	28	14	18	203
3	1170	1350	8.2	28	2300	1520	793	30	28	16	189	217
4	696	1330	6.8	34	2090	1440	694	30	26	17	490	481
5	677	1230	5.5	37	2290	1570	555	28	32	17	493	507
6	739	1070	5.5	36	2460	2060	514	25	32	15	486	348
7	1300	1040	5.5	31	2210	3730	582	28	34	14	479	193
8	1060	998	4.2	67	2110	2890	582	26	32	13	487	302
9	1360	768	4.6	131	2180	2460	480	30	32	9.0	344	314
10	1310	814	26	357	1890	2340	388	28	26	71	184	217
11	1290	596	28	435	1120	1840	198	28	20	81	184	232
12	1290	292	28	95	198	1940	89	31	24	98	180	222
13	1370	281	28	92	177	2140	57	32	30	470	198	188
14	1960	276	28	71	165	2060	53	32	30	528	352	193
15	1650	467	24	57	221	2530	51	32	30	562	386	263
16	1540	600	22	55	1020	2890	48	32	28	408	389	305
17	1460	541	20	51	1020	2830	48	32	28	106	488	304
18	1780	356	22	50	933	3670	37	34	23	109	342	305
19	1580	299	23	51	843	4370	36	34	24	100	196	314
20	2220	242	200	381	1630	4060	34	34	23	83	254	296
21	1930	212	146	649	2380	2680	36	36	20	73	318	243
22	1600	470	73	541	1740	2180	38	37	23	48	304	209
23	1550	582	64	217	1140	2120	37	36	24	31	289	221
24	1530	89	37	123	1310	2100	37	34	22	17	252	191
25	1490	42	31	86	1030	1970	38	36	21	13	198	196
26	1470	25	28	1480	883	1770	37	34	16	13	188	195
27	1450	17	28	4960	712	1420	34	28	17	10	198	196
28	1430	13	26	10000	538	1030	34	30	13	13	203	215
29	1420		25	5060	590	868	28	34	10	17	208	218
30	1400	—	24	3830	642	804	23	34	12	20	217	196
31	1390	—	18	—	1140	—	25	37	—	15	—	211
Mean	1372	598	32.6	969	1373	2238	241	31.4	24.7	97.2	284	255
Runoff in Ac.Ft.	84340	33220	2005	57630	84420	133200	14830	1934	1472	5974	16910	15680
	Water Year Total 462463								Calendar Year Total 451615			

Division of Water Resources station located at highway bridge, Mile 44.7 above mouth or 5.7 miles above Oakdale. Period of record 1930 to date.

TABLE 144

FLOW OF STANISLAUS RIVER AT RIVERBANK (BURNEYVILLE BRIDGE) - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	751	1380	94	72	3730	1840	1020	*86	94	77	68	252
2	672	1370	91	78	3150	1990	1030	*92	91	78	69	243
3	1140	1350	88	79	2700	1730	912	*99	88	78	70	243
4	862	1330	85	79	2460	1540	827	*100	88	78	380	329
5	712	1270	82	77	2480	1600	651	*100	92	77	468	526
6	710	1100	79	84	2850	1900	564		96	81	477	503
7	960	1040	78	85	2670	3520	577		91	79	479	276
8	1220	996	73	86	2320	3600	648		88	78	474	245
9	1310	808	73	148	2480	2690	532		86	77	480	417
10	1310	827	78	229	2300	2530	450	*98	90	82	241	262
11	1290	668	113	492	1680	2300	352		84	116	228	271
12	1280	403	100	246	606	1790	226		82	122	219	262
13	1290	300	107	158	420	2460	160		84	274	217	257
14	1670	293	103	152	398	2100	139	97	84	458	241	223
15	1810	324	110	132	662	2500	123	99	84	536	438	252
16	1540	561	107	120	1220	2970	127	99	84	473	298	303
17	1480	561	97	128	1440	3180	130	100	85	277	449	308
18	1650	371	84	125	*1280	3320	128	99	84	170	482	310
19	1640	329	99	123	*1140	4630	116	99	86	170	241	313
20	1580	283	184	232	*2000	4830	115	99	90	141	230	326
21	2450	257	237	447	2480	3570	111	94	88	125	310	305
22	1650	308	178	614	2160	2430	111	96	84	110	298	239
23	1560	617	134	382	1350	2300	110	97	85	90	293	254
24	1540	298	115	250	1330	2270	105	99	88	79	278	228
25	1500	143	94	200	1240	2230	111	96	92	74	243	232
26	1480	115	88	647	988	2020	111	97	86	72	223	230
27	1460	103	82	3460	846	1760	110	90	79	70	226	234
28	1440	96	79	10300	631	1270	107	91	82	68	228	234
29	1440		77	6630	587	1030	105	92	81	68	232	259
30	1420	—	77	4830	644	880	*90	99	78	69	241	234
31	1400	—	73	—	857	—	*84	99	—	69	—	232
Mean	1362	625	102	1020	1648	2426	322	96.9	86.5	142	294	284
Runoff in Ac.Ft.	83740	34710	6266	60860	101400	144400	19800	5956	5145	8759	17500	17460
	Water Year Total 524417								Calendar Year Total 505996			

Division of Water Resources station located at Mile 32.0 above mouth. Period of record 1940 to date.
* Estimated mean for period.

TABLE 145

FLOW OF STANISLAUS RIVER AT RIPON - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	973	1400	195	160	4490	1870	1240	187	224	217	154	312
2	705	1390	195	152	3500	2080	1330	204	209	192	157	315
3	807	1380	174	160	2920	2050	1240	222	182	208	150	315
4	1090	1350	168	172	2680	1750	1130	193	168	224	212	341
5	750	1330	166	174	2520	1720	1020	196	180	216	450	506
6	703	1200	166	171	2730	1940	810	188	201	184	506	553
7	740	1110	150	182	2780	2690	762	212	200	184	516	448
8	1310	1050	152	163	2820	3710	781	208	196	177	538	348
9	1150	973	152	169	2490	3200	710	226	192	193	532	384
10	1330	822	160	253	2480	2790	611	203	182	192	435	401
11	1320	812	263	404	2140	2780	547	187	201	193	330	339
12	1310	628	221	468	1310	2240	468	185	193	219	314	339
13	1310	448	212	314	694	2450	393	177	180	228	301	326
14	1440	399	193	251	562	2480	328	174	203	422	314	312
15	1900	376	195	221	498	2480	290	168	193	520	397	297
16	1640	482	196	211	580	2840	272	201	198	589	427	333
17	1540	574	188	233	1180	3140	276	201	200	526	433	359
18	1530	504	176	233	1260	3050	274	198	216	348	514	366
19	1750	402	212	234	1130	3820	285	182	184	323	427	376
20	1600	370	348	231	1090	4410	251	182	200	292	328	385
21	2160	341	351	416	2080	4260	231	182	229	256	335	378
22	1870	319	319	641	2420	3060	221	193	204	234	368	342
23	1630	482	253	547	1860	2580	217	212	182	216	359	312
24	1560	520	208	384	1490	2480	200	212	200	195	350	310
25	1530	321	198	310	1850	2450	203	198	190	182	332	296
26	1500	253	198	279	1260	2310	212	229	212	172	308	294
27	1480	236	188	1870	1100	2120	203	233	204	169	296	290
28	1470	206	182	4680	886	1920	219	192	195	162	297	292
29	1450	—	163	8990	738	1500	208	180	192	164	301	301
30	1440	—	162	5750	762	1290	198	204	203	160	305	305
31	1420	—	162	—	902	—	176	217	—	158	—	288
Mean	1368	703	202	947	1781	2582	494	198	197	249	356	347
Runoff in Ac.Ft.	84120	39030	12430	56380	109500	153600	30360	12190	11730	15300	21200	21350
	Water Year Total 581210								Calendar Year Total 567190			

Station maintained jointly by Division of Water Resources and the U. S. Geological Survey. Station is at Highway 99 and is 16 miles above mouth of river. Period of record 1940 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 146

FLOW OF STANISLAUS RIVER NEAR MOUTH - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1320	1330	226	111	5220	1100	1000	153	221	205	175	330
2	1050	1320	221	115	3960	1800	1060	189	209	205	174	332
3	888	1310	202	131	3220	1920	1020	191	217	184	167	337
4	1150	1300	182	150	2800	1640	944	191	191	226	167	349
5	1020	1280	145	191	2480	1560	892	182	160	192	288	354
6	920	1210	138	204	2490	1710	782	182	182	167	399	428
7	876	1120	146	172	2630	2170	652	189	182	148	437	485
8	1060	1030	177	143	2360	3280	626	200	177	148	459	456
9	1180	956	150	131	2240	3200	652	200	191	132	456	412
10	1260	815	163	155	2350	2680	571	213	187	177	456	415
11	1250	804	255	238	2120	2560	490	175	165	221	344	412
12	1240	711	292	431	1510	2230	470	148	179	211	322	399
13	1240	546	257	389	831	2070	394	153	179	187	290	386
14	1260	445	232	274	669	2220	322	165	150	226	297	381
15	1600	407	222	236	580	2060	236	165	140	397	313	373
16	1680	412	228	221	522	2350	221	168	127	490	378	363
17	1520	540	215	219	928	2600	196	186	160	462	394	368
18	1480	543	189	251	1150	2630	181	170	186	351	407	378
19	1660	445	217	234	1120	2950	205	172	194	311	451	394
20	1650	402	322	251	1020	3700	217	157	194	297	407	407
21	1790	322	371	274	1480	4230	204	163	194	247	361	417
22	2070	292	356	473	2350	3570	191	155	209	232	358	417
23	1700	325	308	577	2040	2640	174	200	174	221	368	399
24	1590	499	270	462	1580	2100	162	226	170	192	371	381
25	1540	356	219	366	1610	2110	160	209	174	187	371	368
26	1500	266	255	308	1360	2090	177	213	174	146	358	356
27	1460	242	217	900	1160	1860	196	224	215	137	349	346
28	1420	226	179	3430	1020	1660	160	202	170	131	339	337
29	1400	—	148	5680	846	1280	170	174	165	148	334	327
30	1380	—	132	6510	793	1090	155	205	167	174	332	325
31	1360	—	114	—	872	—	160	211	—	162	—	320
Mean	1371	695	219	774	1784	2302	421	185	180	223	344	379
Runoff in Ac.Ft.	84320	38590	13440	46070	109700	137000	25880	11370	10720	13710	20470	23310
	Water Year Total 549490								Calendar Year Total 534580			

Division of Water Resources station located 2.9 miles above the mouth. Period of record September 1951 to date. (Prior records available at other sites for 1930 to 1950.) The former station located 4.3 miles above the mouth was destroyed in the flood of November, 1950.

TABLE 147

FLOW OF KINGS RIVER AT PIEDRA - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	665	920	740	1660	3340	4320	3630	896	292	161	175	235
2	640	938	680	1890	3050	4080	3450	849	306	161	166	225
3	640	944	650	2120	3220	4020	3320	800	282	159	168	212
4	630	938	660	2380	3590	4020	3190	745	266	157	173	358
5	620	938	670	2720	4060	4930	3360	680	253	155	180	365
6	690	938	695	2890	4150	5240	3620	640	244	150	178	268
7	896	980	725	2560	4000	5210	3710	600	238	150	178	298
8	1520	1010	778	2150	3710	5080	3690	573	235	142	170	289
9	1430	932	844	1810	3100	5330	3550	546	229	142	168	274
10	1210	822	896	1760	2810	4930	3230	537	217	142	170	268
11	1100	805	884	1550	2540	5850	3030	528	212	142	168	271
12	1050	788	822	1490	2530	6540	2890	519	214	144	175	265
13	1290	756	794	1410	2480	6380	2900	537	217	148	175	271
14	2870	740	750	1330	2740	6770	2800	582	214	150	260	277
15	1830	761	740	1410	3130	6970	2560	564	212	153	415	283
16	1410	772	756	1660	2930	7390	2350	524	217	153	292	280
17	1250	761	794	1850	2810	7080	2820	488	214	153	279	277
18	1150	756	832	1870	3310	6200	2680	457	209	157	285	280
19	1130	725	860	2410	4260	6320	2410	429	203	170	247	256
20	1160	670	1450	2580	4460	6560	2120	409	195	212	244	241
21	1360	660	1050	2630	5020	6240	1920	385	190	217	266	247
22	1120	645	1090	3010	5300	6040	1780	374	187	223	256	232
23	1040	645	1080	4140	5450	6020	1640	354	185	203	256	210
24	1010	625	1210	4880	4380	5980	1500	340	182	195	253	195
25	980	605	1320	5430	3810	5590	1360	330	175	195	244	198
26	956	605	1350	5700	3140	4930	1210	323	170	195	244	177
27	914	610	1420	5720	2920	4270	1090	309	166	192	247	198
28	860	635	1520	6140	2810	4150	1060	299	161	187	253	200
29	849	—	1550	6000	2640	4090	1040	285	164	220	250	200
30	872	—	1450	3880	2870	3910	994	289	161	192	241	195
31	896	—	1480	—	3830	—	938	289	—	182	—	190
Mean	1098	783	985	2901	3496	5481	2447	499	214	171	227	250
Runoff in Ac.Ft.	67510	43490	60580	172600	215000	326200	150400	30700	12710	10520	13500	15340
	Water Year Total 1154680								Calendar Year Total 1118550			

U. S. Geological Survey and Division of Water Resources cooperative station located 0.5 mile downstream from highway bridge at Piedra. The Kings River flows into the Tulare Lake area and during high stages into the San Joaquin River via James By-Pass. Drainage area 1694 square miles. Period of record 1895 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 148

FLOW OF KAWEAH RIVER NEAR THREE RIVERS - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	234	344	277	494	971	1090	724	135	64	40	44	66
2	231	344	227	551	868	971	691	130	62	40	44	63
3	231	347	237	610	899	1010	648	126	56	43	44	62
4	231	344	247	684	1020	1130	610	123	51	39	44	225
5	221	340	250	772	1120	1300	621	114	49	38	44	123
6	231	340	256	822	1150	1360	610	108	50	37	46	98
7	356	358	263	684	1030	1300	600	104	51	36	46	94
8	610	362	277	580	915	1420	551	94	48	35	45	87
9	570	329	290	507	800	1420	520	91	46	35	44	86
10	469	301	312	490	730	1470	473	86	46	35	44	89
11	437	290	290	449	684	1640	449	84	45	35	44	86
12	406	280	284	433	665	1710	437	82	43	39	44	86
13	719	267	263	425	678	1710	437	86	43	40	44	91
14	1170	267	256	403	779	1760	453	86	40	40	84	92
15	621	273	253	445	899	1810	399	80	40	42	145	94
16	511	273	256	502	765	1790	384	77	38	43	80	87
17	449	270	277	524	751	1470	461	74	40	43	74	84
18	414	270	290	528	891	1420	380	73	40	46	76	84
19	410	250	308	691	1160	1520	498	70	40	74	69	82
20	414	237	623	678	1260	1520	358	64	40	67	80	82
21	481	237	395	678	1390	1460	308	63	40	59	77	71
22	399	231	369	698	1360	1400	273	62	43	54	76	71
23	376	234	403	1080	1330	1360	250	59	44	50	77	64
24	365	215	441	1320	1090	1310	224	58	43	54	76	60
25	358	215	445	1420	923	1200	206	56	43	53	76	59
26	351	209	453	1430	808	1050	191	56	43	53	76	60
27	326	212	469	3340	758	939	177	55	42	50	74	66
28	315	224	490	2200	737	883	166	54	40	49	74	66
29	318		498	1380	704	860	158	56	43	48	70	64
30	322	—	453	1150	779	779	153	62	42	46	67	63
31	333	—	457	—	923	—	142	63	—	46	—	63
Mean	415	281	342	866	930	1335	405	81.6	45.2	45.5	64.3	82.8
Runoff in Ac.Ft.	25550	15600	21040	51510	57200	79460	24900	5020	2690	2790	3820	5090
	Water Year Total 308130								Calendar Year Total 294670			

U. S. Geological Survey and Division of Water Resources cooperative station located three miles southwest of Three Rivers post office. Kaweah River is a tributary of the Tulare Lake area. Period of record 1936 to date. Prior records available at a site two miles upstream. Records for 1953 were computed by the U. S. Geological Survey.

TABLE 149

FLOW OF TULE RIVER NEAR PORTERVILLE - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	142	155	114	144	351	171	64	9.0	7.8	6.6	14	36
2	125	152	103	144	297	182	59	9	7.3	5.9	15	36
3	125	148	101	150	280	171	54	9.3	6.1	6.6	15	36
4	122	144	101	150	277	171	51	10	5.9	6.6	16	135
5	117	140	99	163	266	176	46	9.0	4.6	6.1	18	99
6	142	140	99	171	253	182	43	9.6	4.8	5.9	29	54
7	203	140	98	167	238	189	42	10	4.4	6.1	29	54
8	516	146	98	152	225	189	39	9.3	4.3	5.6	27	53
9	393	137	93	140	211	182	37	8.4	3.9	5.9	24	53
10	290	128	93	130	198	173	34	7.8	4.3	6.4	24	53
11	252	123	94	109	182	169	29	6.6	3.9	7.3	24	52
12	226	119	91	102	173	171	29	4.1	3.4	7.8	23	51
13	436	114	88	101	162	169	30	5.4	3.4	7.8	22	50
14	771	112	83	95	165	169	27	5.4	3.4	8.1	43	49
15	407	111	81	95	202	162	25	5.4	3.4	8.7	60	48
16	304	111	76	99	195	162	26	5.9	3.5	9.6	39	47
17	259	106	78	96	180	158	27	6.1	3.9	9.9	34	46
18	228	105	76	95	176	148	24	5.6	3.9	12	34	45
19	219	103	79	106	180	144	24	4.8	4.1	20	32	44
20	214	99	264	111	191	142	23	3.5	4.6	24	41	43
21	275	96	159	117	202	130	23	3.7	5.6	20	42	42
22	224	93	137	114	195	117	21	3.5	6.4	18	39	41
23	203	94	142	132	198	106	18	3.2	6.8	18	39	40
24	196	93	146	157	198	101	17	3.4	5.4	18	39	39
25	188	89	148	171	182	93	16	3.4	4.8	18	39	38
26	177	87	144	175	171	85	15	3.0	4.3	17	38	38
27	169	87	139	912	162	80	14	2.9	4.6	16	39	38
28	163	83	139	993	176	76	13	2.8	5.9	15	39	38
29	159		157	535	180	75	11	3.2	5.4	14	37	38
30	157	—	152	418	171	70	9.6	5.2	7.1	14	36	37
31	155	—	142	—	165	—	9.3	7.3	—	14	—	36
Mean	244	116	117	208	207	144	29	6.0	4.91	11.6	31.7	48.8
Runoff in Ac.Ft.	14990	6460	7170	12380	12700	8550	1780	369	292	712	1880	2990
	Water Year Total 76291								Calendar Year Total 70273			

U. S. Geological Survey and Division of Water Resources cooperative station located at highway bridge one mile upstream from the South Fork. Drainage area is 266 square miles. Period of record 1901 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 150

FLOW OF SOUTH FORK OF TULE RIVER NEAR SUCCESS - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	37	48	41	48	102	40	15	4.7	2.6	1.5	2.6	9.7
2	34	47	34	47	91	45	14	3.5	1.7	1.0	2.6	9.7
3	34	46	33	48	84	40	13	3.0	1.3	0.8	2.6	9.7
4	35	45	35	48	77	37	12	4.0	1.3	.7	2.8	46
5	33	44	33	49	70	36	11	3.3	0.8	.6	3.0	22
6	52	42	31	50	66	36	10	3.0	.6	.4	4.7	16
7	93	42	31	46	65	37	10	3.0	.6	.2	4.7	14
8	274	47	31	46	64	36	9.7	2.8	.6	.1	4.2	13
9	158	42	31	44	61	35	9.3	2.4	.4	.1	3.3	12
10	109	39	31	44	57	33	8.6	1.9	.3	.1	3.0	12
11	95	37	32	41	54	31	8.3	1.2	.2	.3	3.1	12
12	82	34	31	40	51	31	8.0	1.5	0	.4	3.1	12
13	308	33	30	40	48	30	8.0	1.7	0.1	.4	3.1	12
14	414	32	29	37	48	29	7.7	1.4	0	.5	15	12
15	189	31	28	34	56	29	7.1	1.3	0	.9	21	12
16	132	31	27	35	51	28	7.1	1.4	0	.9	11	12
17	106	31	27	34	47	26	7.7	1.5	0	.8	8.0	12
18	95	31	27	31	45	26	6.8	1.6	0.1	1.5	8.0	12
19	89	30	32	31	44	26	6.2	1.4	.4	16	7.4	10
20	84	28	151	31	42	25	5.9	0.7	1.2	8.9	12	8.3
21	107	28	65	33	42	23	5.7	.9	1.7	6.5	12	8.3
22	81	28	56	33	41	22	5.2	.8	2.0	5.2	11	8.3
23	74	30	56	35	40	21	5.2	.7	2.0	4.9	11	8.0
24	69	28	55	38	41	20	5.2	.7	1.5	4.7	11	8.0
25	65	28	53	38	40	19	5.2	.6	1.5	4.0	11	7.7
26	61	28	51	37	41	16	4.9	.6	1.0	3.7	12	8.0
27	57	28	50	288	40	16	4.7	.6	1.0	3.5	12	8.3
28	55	28	50	291	46	16	4.7	.6	1.5	3.3	11	8.3
29	52		58	145	51	16	4.7	1.0	1.5	3.3	10	8.0
30	51	—	52	124	45	15	4.9	2.6	2.0	3.5	9.7	8.0
31	49	—	50	—	40	—	4.9	3.3	—	2.8	—	7.7
Mean	102	35.2	43.3	62.9	54.5	28.0	7.8	1.9	0.9	2.6	7.9	11.8
Runoff in Ac.Ft.	6300	1960	2660	3740	3350	1670	477	114	55	162	468	728
	Water Year Total 23326								Calendar Year Total 21684			

U. S. Geological Survey and U. S. Bureau of Reclamation cooperative station located five miles upstream from the mouth. Drainage area is 106 square miles. Period of record 1930 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 151

FLOW OF TULE RIVER AT WORTH BRIDGE - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	216	220	123	189	468	189	65	8.7	14	3.5	6.3	50
2	189	216	116	189	395	202	58	8.7	19	3.0	6.8	50
3	193	211	113	193	362	197	49	8.7	16	2.8	6.3	48
4	197	202	116	193	340	193	49	10	12	3.0	5.8	142
5	202	197	110	206	317	193	43	7.8	10	2.4	6.8	101
6	230	193	113	216	294	197	36	7.8	6.9	2.4	18	75
7	311	189	113	216	271	206	32	8.7	7.8	2.8	21	63
8	818	197	116	206	260	206	31	10	5.5	2.4	21	60
9	606	189	116	193	249	202	27	8.7	4.1	2.4	17	58
10	442	176	116	176	235	197	23	6.0	4.1	2.6	16	58
11	395	167	116	148	220	189	19	5.5	4.6	3.0	16	58
12	357	159	113	133	206	184	17	5.1	3.6	3.2	17	55
13	661	156	107	130	189	184	17	6.9	3.2	3.5	16	56
14	1390	148	100	126	184	180	15	6.0	2.2	5.4	49	58
15	699	148	94	120	225	176	13	6.0	2.7	6.3	90	58
16	502	144	89	126	230	176	13	4.6	2.7	7.4	52	58
17	422	141	83	123	216	167	15	5.1	1.8	7.4	40	58
18	375	137	86	120	206	159	11	5.1	1.3	8.7	43	58
19	362	137	94	126	206	156	9.6	6.0	1.8	26	40	58
20	351	130	350	133	211	152	8.7	4.6	2.7	38	52	50
21	442	126	225	141	216	141	10	5.1	5.1	26	55	50
22	357	120	193	141	206	130	9.6	5.1	6.9	20	48	48
23	328	123	197	148	206	120	5.5	5.1	7.8	15	48	48
24	317	116	197	176	206	110	4.6	5.5	6.9	13	48	45
25	305	113	197	193	193	104	5.1	6.0	7.8	13	50	45
26	277	107	197	197	184	91	7.8	6.0	6.0	12	55	45
27	260	100	193	*638	176	83	8.7	5.1	5.5	9.5	58	45
28	240	91	189	*1390	189	80	6.0	4.6	6.0	8.0	55	45
29	235	—	211	726	216	78	6.0	5.1	5.5	6.8	50	45
30	225	—	206	566	202	72	5.5	5.5	6.9	6.3	50	45
31	220	—	189	—	193	—	5.5	8.7	—	6.3	—	45
Mean	391	155	148	253	241	157	20.2	6.5	6.3	8.8	35.2	57.3
Runoff in Ac.Ft.	24050	8634	9080	15030	14820	9350	1241	400	378	540	2100	3520
	Water Year Total								Calendar Year Total 89143			

Division of Water Resources and U. S. Bureau of Reclamation cooperative station until September 30, 1953. Subsequent to that date, a U. S. Geological Survey and Division of Water Resources Station located one mile above the head of Porter Slough and 2.2 miles downstream from the junction of South Fork. Period of record 1944 to date. Records for 1953 computed by Division of Water Resources to September 30 and by U. S. Geological Survey for balance of year.

* Estimated mean for period.

TABLE 152

FLOW OF TULE RIVER AT TURNBULL STATION - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	2.1		0	118				0			
2	0	0		0	47				0			
3	0	0		0	53				0			
4	0	0		0	33				0			
5	13	0		0	1.7				0			
6	23	0		0	0				0			
7	18	0		0	0				0			
8	22	0		0	0				0			
9	160	0		0	0				0			
10	275	0		0	0				0			
11	191	0		0	0				0			
12	135	0	N	0	0	N	N	N	0	N	N	N
13	116	0	0	0	0	0	0	0	0	0	0	0
14	292	0		0	0				0			
15	576	0		0	0				69			
16	485	0		0	0				20			
17	294	0	F	0	0	F	F	F	10	F	F	F
18	165	0	L	0	0	L	L	L	0.3	L	L	L
19	135	0	0	0	0	0	0	0	0	0	0	0
20	120	0	W	0	0	W	W	W	0	W	W	W
21	93	0		0	0				0			
22	155	0		0	0				0			
23	135	0		0	0				0			
24	81	0		0	0				0			
25	62	0		0	0				0			
26	39	0		0	0				0			
27	6.7	0		0	0				0			
28	4.2	0		3.8	0				0			
29	0			590	0				0			
30	0	—		414	0				0			
31	6.2	—		—	0	—			—		—	
Mean	116	0.1	0	33.6	8.2	0	0	0	3.3	0	0	0
Runoff in Ac.Ft.	7145	4	0	1999	501	0	0	0	197	0	0	0
	Water Year Total 9846								Calendar Year Total 9846			

Division of Water Resources and U. S. Bureau of Reclamation cooperative station located 1200 feet downstream from the Corcoran-Angiola Highway bridge, 39.2 miles downstream from the junction of South Fork. This station measures inflow to Tulare Lake area and at times the flows are a combination of direct Tule River water, Kaweah River water via Elk Bayou (see Table 157), and Kings River water via Homeland Canal, and waste water from Tulare Irrigation District. Period of record 1942 to date. Records for 1953 computed by Division of Water Resources.

TABLE 153

FLOW OF WHITE RIVER NEAR DUCOR - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	36	10	15	18	25	12						
2	14	10	13	12	20	13						
3	11	10	9.3	10	18	11						
4	9	10	8.5	9.0	16	9.3						
5	8	10	9	9.3	14	8.8						
6	19	10	8.8	11	14	8.8						
7	26	10	8.5	13	14	9.3						
8	73	9.5	8.5	13	14	8.5						
9	41	9.5	8.0	14	14	7.4						
10	21	9	7.7	14	13	6.6						
11	12	9	8.5	13	12	6.1						
12	9.8	8.5	8.8	11	9.8	5.7	N	N	N			
13	51	8.5	9.0	9.8	9.0	5.3	0	0	0			
14	100	8	8.8	8.5	9.3	4.8						
15	62	8	8.2	7.7	13	3.9						
16	40	8	7.4	8.2	13	3.3						
17	32	7	6.9	8.2	11	2.4	F	F	F			
18	26	6.5	7.1	8.2	11	1.9	L	L	L			
19	22	6	7.4	9.0	11	1.8	0	0	0			
20	20	5.3	56	11	9.3	1.1	W	W	W			
21	19	5.3	50	10	8.8	0						
22	18	5.3	38	9.8	8.5	0						
23	17	6.1	31	9.0	8.2	0						
24	16	5.9	24	11	9.3	0						
25	15	5.2	20	11	10	0						
26	14	5.2	18	9.8	11	0						
27	13	5.2	15	25	12	0						
28	13	5.3	15	86	17	0						
29	12	—	37	39	20	0						
30	11	—	32	35	15	0						
31	11	—	22	—	13	—			—		—	
Mean	25.5	7.7	17.0	15.4	13.0	4.4	0	0	0			
Runoff in Ac.Ft.	1570	429	1040	919	800	260	0	0	0			
	Water Year Total 6100								Calendar Year Total			

U. S. Geological Survey and U. S. Bureau of Reclamation cooperative station located 500 feet downstream from bridge at Gilliam Ranch and eight miles southeast of Ducor. White River is a tributary of the Tulare Lake Basin. Period of record 1944 to date. Records for 1953 computed by U. S. Geological Survey.

TABLE 154

FLOW OF KERN RIVER NEAR BAKERSFIELD - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	606	787	587	811	2009	1289	1455	546	247	217	227	313
2	563	793	584	835	1827	1359	1379	527	251	208	223	270
3	576	800	545	900	1661	1344	1332	500	246	204	223	261
4	569	798	545	982	1557	1292	1307	478	238	200	230	268
5	568	799	559	1085	1516	1352	1268	457	227	190	231	337
6	574	809	565	1208	1460	1514	1300	426	226	189	229	293
7	616	836	553	1293	1449	1616	1392	408	222	184	233	281
8	900	841	544	1241	1427	1625	1448	392	218	187	229	294
9	1440	891	554	1130	1401	1567	1542	384	215	190	235	298
10	1282	831	555	1029	1310	1576	1556	363	212	194	231	289
11	1103	789	567	969	1265	1561	1404	353	210	194	225	289
12	1020	779	554	913	1219	1677	1306	352	215	196	234	287
13	1093	754	544	875	1175	1812	1243	359	219	201	237	285
14	2035	730	533	847	1122	1879	1268	387	212	199	246	289
15	2057	725	532	812	1130	2001	1305	400	206	197	286	290
16	1593	714	526	817	1188	2050	1224	377	205	205	313	285
17	1343	695	537	833	1191	2126	1205	354	209	204	276	285
18	1183	676	568	866	1174	2093	1327	333	215	205	285	284
19	1082	680	580	879	1219	1941	1252	309	211	212	271	283
20	1058	657	618	915	1333	1950	1153	292	205	261	262	282
21	1062	637	781	959	1472	1985	1013	280	200	216	208	277
22	1055	642	724	988	1547	1965	966	275	197	236	191	272
23	961	639	695	1033	1563	1984	903	279	197	226	339	258
24	891	643	688	1159	1594	1984	841	263	199	225	309	235
25	850	615	704	1375	1556	2017	802	249	202	232	290	240
26	814	605	740	1515	1473	1951	766	249	200	239	280	231
27	803	614	767	1648	1375	1815	720	246	201	238	281	241
28	764	639	782	2915	1323	1629	651	250	200	239	285	254
29	727	—	814	2627	1282	1547	615	248	208	234	216	254
30	724	—	836	2201	1281	1511	596	255	205	234	249	254
31	721	—	835	—	1269	—	580	250	—	231	—	249
Mean	988	729	630	1189	1399	1734	1133	350	214	213	252	275
Runoff in Ac.Ft.	60760	40500	38710	70730	86020	103200	69660	21500	12730	13120	15020	16920
	Water Year Total 587360								Calendar Year Total 548870			

Kern County Land Company station located five miles northeast of Bakersfield (also known as Kern River at First Point). Drainage area 2420 square miles. Kern River is a tributary of the Tulare Lake Basin. Period of record 1893 to date. Records for 1953 computed by Kern County Land Company.

TABLE 155

DELIVERY FROM FRIANT-KERN CANAL TO TULE RIVER - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1			0	71	0	197	404	436	491			
2			0	102	0	186	396	436	489			
3			0	108	0	186	394	432	480			
4			0	116	0	185	388	435	475			
5			0	120	0	175	392	442	491			
6			0	126	0	172	400	440	496			
7			0	130	0	210	394	436	487			
8			53	134	0	235	375	426	498			
9			229	140	0	227	367	432	502			
10			254	140	0	232	385	436	508			
11			251	49	0	244	398	440	512			
12	N	N	245	0	0	245	404	438	524	N	N	N
13	0	0	218	0	0	273	421	432	522	0	0	0
14			195	0	0	280	428	432	518			
15			198	0	0	267	436	432	502			
16			186	0	0	250	426	432	186			
17	F	F	160	0	0	250	423	430	16	F	F	F
18	L	L	149	0	0	250	428	428	0	L	L	L
19	0	0	152	0	0	250	435	444	0	0	0	0
20	W	W	152	0	0	258	432	444	0	W	W	W
21			152	0	0	273	430	442	0			
22			152	0	0	287	428	442	0			
23			169	0	0	311	424	444	0			
24			180	0	0	319	424	442	0			
25			182	0	0	354	421	456	0			
26			173	0	0	379	426	485	0			
27			165	0	144	373	435	496	0			
28			183	0	198	411	444	496	0			
29			202	0	200	417	418	496	0			
30		—	91	0	194	405	446	493	0			
31		—	15	—	204	—	436	496	—		—	
Mean	0	0	132	41.2	30.3	270	416	448	257	0	0	0
Runoff in Ac.Ft.	0	0	8144	2452	1864	16088	25563	27553	15267	0	0	0
	Water Year Total 118349								Calendar Year Total 96931			

This flow is the delivery from Friant-Kern Canal into Tule River under contract agreements with the U. S. Bureau of Reclamation. This point of delivery is located on the Tule River approximately four miles west of Porterville. Records for 1953 computed by U. S. Bureau of Reclamation.

TABLE 156

DELIVERY FROM FRIANT-KERN CANAL TO PORTER SLOUGH - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1						0	3.3	0	40	0		
2						0	0	0	15	0		
3						0	0	0	0	0		
4						0	0	0	0	0		
5						0	0	0	0	0		
6						0	0	0	0	0		
7						0	0	0	0	0		
8						0	0	0	0	0		
9						0	0	0	0	0		
10						0	0	0	0	0		
11						0	0	0	0	0		
12	N	N	N	N	N	0	0	0	0	0	N	N
13	0	0	0	0	0	0	0	0	0	0	0	0
14						0	0	0	0	0		
15						17	0	0	0	0		
16						30	0	0	0	0		
17	F	F	F	F	F	10	0	0	0	0	F	F
18	L	L	L	L	L	0	0	0	0	0	L	L
19	0	0	0	0	0	0	0	0	0	4.7	0	0
20	W	W	W	W	W	0	0	11	0	8	W	W
21						0	0	25	0	8		
22						0	0	25	0	8		
23						0	17	25	0	8		
24						9.4	36	25	0	6		
25						15	40	35	0	5		
26						15	40	40	0	5		
27						15	40	40	0	1.7		
28						15	40	40	0	0		
29						12	20.2	40	0	0		
30		—				10	3.3	40	0	0		
31		—		—		—	0	40	—	0	—	
Mean	0	0	0	0	0	4.9	7.7	12.4	1.8	1.8	0	0
Runoff in Ac.Ft.	0	0	0	0	0	294	476	766	109	108	0	0
	Water Year Total 1774								Calendar Year Total 1753			

This flow is the delivery from Friant-Kern Canal into Porter Slough under contract agreements with the U. S. Bureau of Reclamation. This point of delivery is at the intersection of Porter Slough with the Friant-Kern Canal approximately four miles west of Porterville. Records for 1953 computed by U. S. Bureau of Reclamation.

TABLE 157

FLOW OF ELK BAYOU ABOVE ELK BAYOU AVENUE - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	40	2										
2	28	2										
3	20	19										
4	18	20										
5	17	17										
6	17	16										
7	23	15										
8	42	13										
9	100	14										
10	96	14										
11	72	0										
12	60	0	N	N	N	N	N					
13	51	0	0	0	0	0	0					
14	98	0										
15	163	0										
16	89	0										
17	96	0	F	F	F	F	F					
18	35	0	L	L	L	L	L					
19	28	0	0	0	0	0	0					
20	21	0	W	W	W	W	W					
21	21	0										
22	41	0										
23	24	0										
24	15	0										
25	12	0										
26	11	0										
27	9	0										
28	6	0										
29	5	—										
30	4	—										
31	3	—		—		—			—		—	
Mean	41	5	0	0	0	0	0					
Runoff in Ac.Ft.	2509	262	0	0	0	0	0					
	Water Year Total								Calendar Year Total			

U. S. Bureau of Reclamation station located one mile east of Elk Bayou Avenue and 3.6 miles downstream from Highway 99. The flows passing this station, mainly of Kaweah River origin, can enter Tule River above the Turnbull gaging station. At times Tule River water enters Elk Bayou above this station via Porter Slough. Period of record 1942 to July 17, 1953, when station was discontinued. Records for 1953 were computed by U. S. Bureau of Reclamation.

TABLE 158

FLOW OF SOUTH FORK KINGS RIVER BELOW EMPIRE WEIR #2 - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1					56							
2					85							
3					0							
4					0							
5					0							
6					0							
7					0							
8					0							
9					0							
10					0							
11					0							
12	N	N	N	N	0	N	N	N	N	N	N	N
13	0	0	0	0	0	0	0	0	0	0	0	0
14					0							
15					0							
16					0							
17	F	F	F	F	0	F	F	F	F	F	F	F
18	L	L	L	L	0	L	L	L	L	L	L	L
19	0	0	0	0	0	0	0	0	0	0	0	0
20	W	W	W	W	0	W	W	W	W	W	W	W
21					0							
22					0							
23					0							
24					0							
25					0							
26					0							
27					0							
28					0							
29					0							
30		—			0							
31		—		—	0	—			—		—	
Mean	0	0	0	0	5	0	0	0	0	0	0	0
Runoff in Ac.Ft.	0	0	0	0	279	0	0	0	0	0	0	0
	Water Year Total								Calendar Year Total			

Kings River Water Association station located one mile southwest of Stratford. This station measures inflow of Kings River water to the Tulare Lake area. Period of record 1937 to date. Records for 1953 computed by Kings River Water Association.

TABLE 159

FLOW OF CROSS CREEK BELOW LAKELAND CANAL #2 - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12					No flow in 1953.							
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29		—										
30		—										
31		—		—		—			—		—	
Mean	0	0	0	0	0	0	0	0	0	0	0	0
Runoff in Ac.Ft.	0	0	0	0	0	0	0	0	0	0	0	0
	Water Year Total								Calendar Year Total			

Corcoran Irrigation District station located below the Cross Creek weir. four miles east of Guernsey. Cross Creek is a tributary of Tulare Lake area. At times the flow is a combination of Kaweah River water, Kings River water and Cottonwood Creek water. Period of record 1921 to date. Records for 1953 computed by Corcoran Irrigation District.

TABLE 160

FLOW OF GOOSE LAKE CANAL NEAR LOST HILLS - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12	N	N	N	N	N	N	N	N	N	N	N	N
13	O	O	O	O	O	O	O	O	O	O	O	O
14												
15												
16												
17	F	F	F	F	F	F	F	F	F	F	F	F
18	L	L	L	L	L	L	L	L	L	L	L	L
19	O	O	O	O	O	O	O	O	O	O	O	O
20	W	W	W	W	W	W	W	W	W	W	W	W
21												
22												
23												
24												
25												
26												
27												
28												
29												
30		—		—		—			—		—	
31		—										
Mean	0	0	0	0	0	0	0	0	0	0	0	0
Runoff in Ac.Ft.	0	0	0	0	0	0	0	0	0	0	0	0
	Water Year Total								Calendar Year Total			

Division of Water Resources and U. S. Bureau of Reclamation cooperative station located approximately one-half mile north of the Wasco-Lost Hills road and below the confluence of Goose Lake and main drainage canals. This station measures inflow of Kern River water to the Tulare Lake area. Period of record 1944 to date. Records for 1953 computed by Division of Water Resources.

TABLE 161

FLOW OF BUENA VISTA SLOUGH NEAR LOST HILLS - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12	N	N	N	N	N	N	N	N	N	N	N	N
13	O	O	O	O	O	O	O	O	O	O	O	O
14												
15												
16												
17	F	F	F	F	F	F	F	F	F	F	F	F
18	L	L	L	L	L	L	L	L	L	L	L	L
19	O	O	O	O	O	O	O	O	O	O	O	O
20	W	W	W	W	W	W	W	W	W	W	W	W
21												
22												
23												
24												
25												
26												
27												
28												
29												
30		—		—		—			—		—	
31		—										
Mean	0	0	0	0	0	0	0	0	0	0	0	0
Runoff in Ac.Ft.	0	0	0	0	0	0	0	0	0	0	0	0
	Water Year Total								Calendar Year Total			

Division of Water Resources and U. S. Bureau of Reclamation cooperative station, formerly listed as Westside Canal near Lost Hills and also known as Main Drain at Hart's Station, located at bridge on State Highway between Wasco and Lost Hills. This station measures inflow of Kern River water to the Tulare Lake area. Period of record 1944 to date. Records for 1953 computed by Division of Water Resources.

TABLE 162

DAILY ELEVATION OF TULARE LAKE IN KINGS COUNTY - 1953

Date	Daily Elevation in Feet(a)											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	188.06	190.48	190.70	189.65	188.75	187.63						
2	188.10	190.50	190.65	189.52	188.73	187.57						
3	188.20	190.58	190.61	189.48	188.73	187.51						
4	188.30	190.60	190.58	189.45	188.70	187.45						
5	188.40	190.66	190.56	189.40	188.66	187.40						
6	188.42	190.70	190.56	189.31	188.66	187.25						
7	188.54	190.72	190.53	189.28	188.60	187.17						
8	188.68	190.78	190.50	189.25	188.55	187.11						
9	188.76	190.80	190.45	189.20	188.51	187.01						
10	188.84	190.82	190.42	189.17	188.48	187.00						
11	188.94	190.86	190.37	189.15	188.44	186.70						
12	189.00	190.90	190.35	189.13	188.44	186.38						
13	189.12	190.90	190.32	189.10	188.44	186.07						
14	189.20	190.92	190.25	189.08	188.41	185.66						
15	189.30	190.94	190.23	189.06	188.38	185.46						
16	189.42	190.98	190.20	189.03	188.34	184.96						
17	189.54	191.04	190.15	189.01	188.30	184.58						
18	189.62	191.06	190.10	189.00	188.28	184.24						
19	189.70	191.10	190.10	188.98	188.24	183.82						
20	189.78	191.16	190.05	188.96	188.20	183.42						
21	189.86	190.85	190.05	188.95	188.16	183.05						
22	189.90	190.84	189.98	188.93	188.11	182.55						
23	189.98	190.83	189.95	188.90	188.06	181.98						
24	190.04	190.82	189.90	188.87	188.01	(b)						
25	190.10	190.81	189.85	188.83	187.96							
26	190.14	190.80	189.83	188.80	187.92							
27	190.24	190.76	189.79	188.77	187.88							
28	190.28	190.75	189.75	188.77	187.85							
29	190.34	—	189.72	188.75	187.82							
30	190.40	—	189.70	188.75	187.70							
31	190.44	—	189.68	—	187.67	—			—		—	
Mean												
Runoff in Ac.Ft.												
	Water Year Total								Calendar Year Total			

Station is maintained and operated by Tulare Lake Basin Water Storage District. Station is located approximately six miles southwest of Corcoran on the south end of El Rico Bridge. Records are available at this and other sites from 1937 to date.
(a) U. S. Geological Survey datum.
(b) Sump pumped by June 24, 1953.

TABLE 163

FLOW OF DELTA-MENDOTA CANAL AT TRACY PUMPING PLANT - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1		0	305	1117	1340	1737	2808	2739	2050	829	71	0
2		0	313	1333	1334	1691	2808	2742	1979	747	0	0
3		0	312	1510	1333	1796	2813	2741	1333	884	71	0
4		0	498	1460	1332	1870	3004	2645	1335	686	0	0
5		0	315	1464	1364	1869	3012	2643	1334	1118	72	0
6		0	549	1462	1299	1869	2819	2433	1331	1109	72	0
7		0	550	1463	1871	1741	2759	2432	1330	1114	0	0
8		0	347	1469	2078	1548	2639	2430	1167	828	72	0
9		0	312	1492	2285	1531	2689	2428	1167	828	0	0
10		0	311	1535	2286	1423	2684	2434	754	829	71	0
11		0	645	1563	2286	1489	2675	2439	754	713	0	0
12	N	0	1015	1527	2291	1489	2686	2408	502	712	215	0
13	0	503	309	1526	2299	1741	2684	2365	965	711	0	0
14		0	369	1514	2363	2082	2691	2400	432	570	0	0
15		0	747	1541	2373	2202	2745	2394	570	357	0	0
16		58	1148	1576	2457	2323	2806	2502	432	70	71	0
17	F	193	519	1467	2449	2512	2812	2501	678	0	0	0
18	L	194	430	1325	2445	2535	2812	2296	541	71	0	0
19	O	189	425	1353	2455	2651	2813	2276	781	0	0	204
20	W	288	467	1347	2500	2747	2814	2258	627	71	0	237
21		284	430	1147	2427	3026	2821	2324	294	0	0	0
22		290	465	1130	2367	2816	2829	2501	313	69	0	0
23		291	426	1330	2268	2827	2841	2579	0	0	0	0
24		454	452	1196	2265	2825	2968	2547	314	72	0	0
25		789	426	1213	2268	2821	3011	2531	323	0	0	0
26		438	680	1217	2268	2834	3362	2564	309	71	0	0
27		330	677	1201	2145	2826	2996	2236	296	0	0	0
28		305	830	1197	2149	3025	3002	2232	307	71	0	0
29		—	654	1342	1914	2822	2866	2251	558	0	0	0
30		—	862	1367	1880	2811	2865	2147	667	70	0	0
31		—	923	—	1670	—	2804	2095	—	0	—	0
Mean	0	164	555	1379	2066	2249	2837	2436	781	406	23.8	14.2
Runoff in Ac.Ft.	0	9136	34138	81983	127063	133843	174422	149778	46523	24992	1418	875
	Water Year Total								Calendar Year Total		784171	

This flow is the diversion from Old River by the Tracy Pumping Plant and is the flow at the head of the Delta-Mendota Canal. Records for 1953 computed by the U. S. Bureau of Reclamation.

TABLE 164

FLOW OF CONTRA COSTA CANAL AT PUMPING PLANT NO. 1 - 1953

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	32	30	36	35	32	46	71	58	71	47	35	36
2	32	35	38	39	31	46	67	57	68	46	42	36
3	32	32	35	42	32	45	61	56	64	43	45	37
4	32	31	38	41	40	49	58	57	67	30	48	37
5	31	37	37	40	39	50	62	80	61	43	48	39
6	29	26	33	40	41	52	62	77	63	41	48	39
7	31	28	37	57	43	49	67	76	62	48	47	35
8	32	26	36	60	45	45	72	78	65	47	54	36
9	32	21	39	60	44	49	72	77	66	49	79	37
10	31	21	38	66	43	51	69	74	68	43	47	40
11	30	20	32	38	42	55	66	69	69	32	37	41
12	30	21	32	37	45	56	73	70	70	53	47	41
13	31	49	30	51	45	58	65	67	71	67	39	42
14	32	42	32	45	46	65	68	68	82	66	34	40
15	30	31	33	53	48	64	71	63	80	50	32	41
16	32	27	26	38	46	65	75	76	77	55	37	40
17	30	47	32	38	44	66	72	73	72	32	37	41
18	31	27	32	38	44	67	71	71	75	31	40	41
19	32	26	28	38	43	61	71	71	76	46	40	39
20	30	29	29	40	44	60	72	70	70	61	40	41
21	30	27	26	36	44	63	69	70	69	60	40	34
22	32	24	27	33	46	70	70	69	62	42	42	35
23	29	25	33	33	46	72	69	71	66	49	37	42
24	29	29	33	40	46	79	71	72	70	61	35	41
25	31	36	34	40	46	82	69	75	62	31	35	37
26	39	46	33	39	47	94	64	76	73	30	35	35
27	42	39	32	39	47	82	59	75	64	63	36	37
28	35	41	41	36	46	83	67	74	70	73	35	36
29	33	—	50	37	46	75	65	74	70	45	35	44
30	30	—	35	35	45	73	67	75	58	31	36	48
31	32	—	29	—	43	—	63	69	—	31	—	49
Mean	31.7	31.2	33.7	42.1	43.3	62.4	67.7	70.6	68.7	46.6	41.4	39.3
Runoff in Ac.Ft.	1951	1732	2074	2503	2659	3714	4162	4339	4094	2868	2463	2414
	Water Year Total								Calendar Year Total 34973			

This flow is the diversion of Contra Costa Canal from Rock Slough. Records for 1953 computed by U. S. Bureau of Reclamation.

TABLE 165

SUMMARY OF WATER UTILIZATION OF SACRAMENTO-SAN JOAQUIN VALLEYS

	Year	Acreage			Diversion Acre-Feet	Irrigation Draft Average c.f.s. July	Gross Duty of Water		Runoff in % of Normal Sacto. R. at Red Bluff
		General	Rice	Total			Ac. Ft. per Acre	Acres per Sec. Ft.	
							(a)	(a)	
Sacramento River Redding to Sacramento	1943	115300	115600	230900	1417000	4699	6.0	81	98
	1944	111900	122200	234100	1678000	5502	7.1	69	54
	1945	106500	115100	221600	1676000	5766	7.4	65	77
	1946	117600	124100	241700	1778000	5560	7.2	67	93
	1947	121600	124000	245600	1707000	5600	6.8	71	59
	1948	149700	124100	273800	1593000	5947	5.7	85	88
	1949	143500	137300	280800	1873000	6344	6.6	74	70
	1950	152800	108500	261300	1794000	5944	6.7	72	66
	1951	162200	140800	303000	1975000	6653	6.4	76	105
	1952	142900	139100	282000	1805000	5987	6.3	77	133
	Av. 1943 to 1952	132400	125100	257500	1730000	5800	6.6	74	84
	1953	134900	164600	299500	2018000	6829	6.6	73	112
									Sacto. R. at Red Bluff
Colusa Trough above Highway 20 Bridge	1943	600	2770	3370	40700	160	(b) 12.1	(b) 40	98
	1944	1540	4490	6030	53700	198	8.9	55	54
	1945	200	3880	4080	48500	171	11.9	41	77
	1946	3030	3690	6720	71200	256	10.6	46	93
	1947	1040	6570	7610	80500	281	10.6	46	59
	1948	3250	4740	7990	67500	275	8.4	58	88
	1949	3140	5560	8700	90200	310	10.4	47	70
	1950	4930	5150	10080	108100	353	10.7	45	66
	1951	4050	6640	10690	130200	417	12.2	40	105
	1952	5140	7280	12420	162300	519	13.1	37	133
	Av. 1943 to 1952	2690	5080	7770	85300	294	11.0	44	84
	1953	3520	11010	14530	175000	618	12.0	40	112
									Sacto. R. at Red Bluff
Back Borrow Pit Knights Landing Outfall Gates to Highway 20 Bridge	1943	2810	11680	14490	74600	279	5.1	94	98
	1944	960	9020	9980	65800	240	6.6	74	54
	1945	1580	5180	6760	38500	161	5.7	85	77
	1946	2060	7880	9940	70900	256	7.1	68	93
	1947	2300	9040	11340	73900	254	6.5	75	59
	1948	2460	7080	9540	59100	257	6.2	78	88
	1949	1270	9000	10270	69500	230	6.8	72	70
	1950	3230	5920	9150	64400	203	7.0	69	66
	1951	2860	6970	9830	73500	241	7.5	65	105
	1952	2700	5900	8600	73000	295	8.5	57	133
	Av. 1943 to 1952	2220	7770	9990	66300	242	6.6	73	84
	1953	3070	6400	9470	79100	284	8.4	58	112
									Sacto. R. at Red Bluff
Yolo By-Pass and Knights Landing Ridge Cut	1943	1860	1410	3270	18700	84	5.7	85	98
	1944	1540	4230	5770	33400	126	5.8	84	54
	1945	1820	3820	5640	35800	141	6.3	77	77
	1946	1790	3000	4790	30300	112	6.3	77	93
	1947	3220	2980	6200	27200	110	4.4	111	59
	1948	1710	2260	3970	27800	93	7.0	69	88
	1949	1740	2150	3890	34600	83	8.9	55	70
	1950	1650	1920	3570	29300	84	8.2	59	66
	1951	3650	3360	7010	40700	141	5.8	84	105
	1952	3770	540	4310	12200	40	2.8	172	133
	Av. 1943 to 1952	2280	2570	4850	29200	101	6.0	81	84
	1953	2510	2240	4750	23500	80	4.9	98	112
									Feather R. near Oroville
Lower Butte Creek and Butte Slough	1943	8730	2020	10750	35900	77	3.3	146	117
	1944	7750	1760	9510	33700	60	3.5	137	58
	1945	7820	2110	9930	39600	88	4.0	122	78
	1946	8250	1850	10100	45600	123	4.5	108	87
	1947	4520	1120	5640	19800	58	3.5	138	53
	1948	4650	660	5310	27600	106	5.2	93	81
	1949	7140	1880	9020	65200	205	7.2	67	54
	1950	7200	1540	8740	50500	187	5.8	84	80
	1951	6980	1700	8680	53400	206	6.2	79	119
	1952	8660	2850	11510	52400	181	4.6	107	165
	Av. 1943 to 1952	7170	1750	8920	42400	129	4.8	102	89
	1953	6940	2560	9500	49400	218	5.2	93	108

(a) Excluding Municipal diversions, the City of Sacramento and the City of Redding.
(b) Includes an undetermined amount of water used by cooperative plants and is not indicative of use.

TABLE 165

SUMMARY OF WATER UTILIZATION OF SACRAMENTO-SAN JOAQUIN VALLEYS

	Year	Acreage			Diversion Acre-Feet	Irrigation Draft Average c.f.s. July	Gross Duty of Water		Runoff in % of Normal Feather R. near Oroville
		General	Rice	Total			Ac. Ft. per Acre	Acres per Sec. Ft.	
East and West Borrow Pits of Sutter By-Pass and Sacramento Slough	1943	5380	3040	8420	33100	133	3.9	124	117
	1944	5890	4300	10190	51100	195	5.0	97	58
	1945	4710	7000	11710	54700	199	4.7	104	78
	1946	9380	4920	14300	59200	217	4.1	117	87
	1947	8840	3210	12050	48400	180	4.0	121	53
	1948	7920	2640	10560	36200	149	3.4	142	81
	1949	8300	6180	14480	77600	252	5.4	91	54
	1950	11650	4480	16130	89100	329	5.5	88	80
	1951	11120	6110	17230	103200	405	6.0	81	119
	1952	10060	5580	15640	78400	284	5.0	97	165
	Av. 1943 to 1952	8320	4750	13070	63100	234	4.8	101	89
	1953	11080	7450	18530	109700	440	5.9	82	108
									Feather R. near Oroville
Feather River Mouth to Oroville Bridge	1943	24100	46600	70700	624000	2135	8.8	55	117
	1944	25200	49800	75000	713000	2312	9.5	51	58
	1945	25100	47900	73000	698000	2313	9.5	51	78
	1946	27200	51100	78300	745000	2362	9.5	51	87
	1947	28300	49700	78000	674000	2245	8.6	56	53
	1948	29500	43300	72800	586000	2292	8.0	60	81
	1949	31000	51100	82100	716000	2241	8.7	56	54
	1950	34000	41300	75300	662000	2229	8.8	55	80
	1951	31200	56500	87700	727000	2319	8.3	59	119
	1952	30300	57900	88200	727000	2438	8.2	59	165
	Av. 1943 to 1952	28600	49500	78100	687000	2289	8.8	55	89
	1953	29100	64100	93200	792000	2640	8.5	57	108
									Yuba R. at Smartville
Yuba River Mouth to Smartville	1943	6280	2310	8590	93800	280	10.9	45	127
	1944	7010	2400	9410	93300	273	9.9	49	57
	1945	8820	1080	9900	84200	229	8.5	57	86
	1946	8870	1960	10830	98700	278	9.1	53	97
	1947	8280	3630	11910	100100	282	8.4	58	55
	1948	8720	3120	11840	92800	281	7.8	62	82
	1949	8840	3300	12140	106800	316	8.8	55	60
	1950	10000	2640	12640	127400	342	10.1	48	85
	1951	9640	3420	13060	110300	313	8.4	58	164
	1952	9800	3600	13400	131800	362	9.8	49	172
	Av. 1943 to 1952	8630	2750	11380	103900	296	9.1	53	98
	1953	9120	5300	14420	133100	362	9.2	53	104
									American R. at Fairoaks
American River Mouth to Fairoaks	1943	3110		3110	/ 4580	25	1.9 (a)	257 (a)	136
	1944	3200		3200	4820	25	1.6	296	51
	1945	2940		2940	3860	17	1.3	375	88
	1946	2890		2890	4120	18	1.8	275	101
	1947	3670		3670	5910	19	1.7	291	50
	1948	3630		3630	5880	28	1.9	255	79
	1949	3860		3860	5510	24	2.6	186	65
	1950	4000		4000	4600	18	2.5	192	94
	1951	4830		4830	5450	21	2.0	249	169
	1952	4560		4560	3950	17	1.7	293	175
	Av. 1943 to 1952	3670		3670	4870	21	1.9	258	101
	1953	4570		4570	4860	23	1.6	297	93
									Sacto. R. at Sacramento
Sacramento River System Sacramento River and Tributaries	1943	168200	185400	353600	2342000	7872	6.6 (b)	74 (b)	113
	1944	165000	198200	363200	2727000	8931	7.5	65	55
	1945	159500	186100	345600	2679000	9085	7.7	63	80
	1946	181100	198500	379600	2903000	9182	7.6	64	93
	1947	181800	200200	382000	2737000	9029	7.1	68	55
	1948	211500	187900	399400	2496000	9428	6.2	78	84
	1949	208800	216500	425300	3038000	10005	7.1	68	64
	1950	229500	171400	400900	2929000	9689	7.3	67	77
	1951	236500	225500	462000	3219000	10716	6.9	70	126
	1952	217900	222700	440600	3046000	10123	6.9	71	153
	Av. 1943 to 1952	196000	199300	395300	2812000	9406	7.1	69	90
	1953	204800	263700	468500	3385000	11494	7.2	67	107

(a) Excludes diversion and acreage of Carmichael Irrigation District.
(b) Excluded Municipal and Carmichael Irrigation District diversions and acreages of Carmichael Irrigation District.

TABLE 165

SUMMARY OF WATER UTILIZATION OF SACRAMENTO-SAN JOAQUIN VALLEYS

	Year	Acreage			Diversion Acre-Feet	Irrigation Draft Average c.f.s. July	Gross Duty of Water		Runoff in % of Normal San Joaquin R. near Vernalis
		General	Rice	Total			Ac. Ft. per Acre	Acres per Sec. Ft.	
Old San Joaquin River and Tom Paine Slough Delta Uplands (a)	1943	35530	150	35680	76100	267	2.1	228	118
	1944	37930	240	38170	105700	325	2.8	175	63
	1945	37300	220	37520	106400	369	2.8	171	107
	1946	40000	320	40320	126100	374	3.1	155	93
	1947	43140	550	43690	136800	423	3.1	155	56
	1948	45380	470	45850	135600	427	3.0	164	68
	1949	51310	380	51690	157700	480	3.1	159	62
	1950	50230	360	50590	161200	491	3.2	153	76
	1951	49560	410	49970	152000	477	3.0	160	118
	1952	49170		49170	135400	459	2.8	176	156
	Av. 1943 to 1952	43960	310	44270	129300	409	2.9	166	92
	1953	52230		52230	166500	487	3.2	152	70
									San Joaquin R. near Vernalis
San Joaquin River Stockton to Vernalis	1943	19500		19500	51700	189	2.7	183	118
	1944	20730		20730	59300	185	2.9	170	63
	1945	19940		19940	62300	213	3.1	156	107
	1946	24500		24500	77200	250	3.2	154	93
	1947	25120		25120	84500	251	3.4	144	56
	1948	25550		25550	66600	226	2.6	186	68
	1949	26950		26950	78600	243	2.9	167	62
	1950	26600		26600	81600	277	3.2	153	76
	1951	26610		26610	74900	242	2.8	173	118
	1952	24750		24750	58700	199	2.4	205	156
	Av. 1943 to 1952	24020		24020	69800	228	2.9	167	92
	1953	27270		27270	85800	295	3.1	154	70
									San Joaquin R. near Vernalis
San Joaquin River Vernalis to Fremont Ford	1943	41140	340	41480	121700	486	2.9	166	118
	1944	42200	1460	43660	138300	440	3.2	153	63
	1945	41600	850	42450	131400	495	3.1	157	107
	1946	43090	1400	44490	160000	520	3.6	135	93
	1947	43080	1360	44440	181400	554	4.1	119	56
	1948	46380	540	46920	144800	471	3.1	157	68
	1949	45780	620	46400	166900	551	3.6	135	62
	1950	48110	390	48500	175100	537	3.6	135	76
	1951	48740	730	49470	172700	571	3.5	139	118
	1952	47400	620	48020	147300	508	3.1	158	156
	Av. 1943 to 1952	44750	830	45580	154000	513	3.4	144	92
	1953	51640	1500	53140	205900	673	3.9	125	70
									Merced R. at Exchequer
Merced River Mouth to below Snelling (b)	1943	3680		3680	11700	50	3.2	153	122
	1944	4510		4510	13500	42	3.0	162	65
	1945	4400		4400	11800	50	2.7	181	104
	1946	4480		4480	14400	59	3.2	151	89
	1947	5910		5910	21100	71	3.6	136	54
	1948	6490		6490	17800	80	2.7	177	65
	1949	7940		7940	25600	92	3.2	151	60
	1950	7910		7910	23900	78	3.0	161	68
	1951	8090		8090	22200	78	2.7	177	116
	1952	7460		7460	18100	64	2.4	200	148
	Av. 1943 to 1952	6090		6090	18000	66	3.0	164	89
	1953	7430		7430	29700	103	4.0	122	59
									Tuolumne R. near La Grange
Tuolumne River Mouth to La Grange Dam (c)	1943	1830		1830	2620	9	1.4	339	120
	1944	3160		3160	4100	13	1.3	375	67
	1945	3260		3260	3560	12	1.1	445	106
	1946	3560		3560	4920	15	1.4	352	96
	1947	3760		3760	7470	20	2.0	245	56
	1948	3740		3740	6230	21	1.7	292	72
	1949	4410		4410	6440	18	1.5	333	63
	1950	4690		4690	6100	18	1.3	374	79
	1951	4500		4500	4620	14	1.0	473	127
	1952	4790		4790	5080	18	1.1	458	156
	Av. 1943 to 1952	3770		3770	5110	16	1.4	359	94
	1953	5280	120	5400	11350	34	2.1	231	78

(a) Excluding diversions and acreages of Delta Mendota Canal.
(b) Excluding diversion and acreage of Merced Irrigation District.
(c) Excluding diversion and acreage of Modesto, Turlock and Waterford Irrigation Districts.

TABLE 165

SUMMARY OF WATER UTILIZATION OF SACRAMENTO-SAN JOAQUIN VALLEYS

	Year	Acreage			Diversion Acre-Feet	Irrigation Draft Average c.f.s. July	Gross Duty of Water		Runoff in % of Normal Stanislaus R. below Melones
		General	Rice	Total			Ac. Ft. per Acre	Acres per Sec. Ft.	
Stanislaus River Mouth to Goodwin Dam	1943	7360		7360	22100	73	3.0	162	125
	1944	7920		7920	21800	69	2.8	177	54
	1945	6870		6870	21700	72	3.2	154	102
	1946	6340		6340	26800	82	4.2	115	94
	1947	6600		6600	30100	88	4.6	107	52
	1948	7920		7920	29700	99	3.8	130	72
	1949	8550		8550	34000	106	4.0	122	60
	1950	8440		8440	33400	102	4.0	123	86
	1951	8340		8340	34700	99	4.2	117	136
	1952	7770		7770	30200	91	3.9	125	154
	Av. 1943 to 1952	7610		7610	28400	88	3.7	130	94
	1953	8900		8900	42500	136	4.8	102	77
									San Joaquin R. near Vernalis
San Joaquin River System									
San Joaquin River Stockton-Fremont Ford and Tributaries	1943	109000	500	109500	286000	1074	2.6	186	118
	1944	116400	1700	118100	343000	1074	2.9	167	63
	1945	113300	1100	114400	337000	1211	2.9	165	107
	1946	122000	1700	123700	409000	1300	3.3	147	93
	1947	127600	1900	129500	461000	1407	3.6	137	56
	1948	135500	1000	136500	401000	1324	2.9	165	68
	1949	144900	1000	145900	469000	1490	3.2	151	62
	1950	146000	700	146700	484000	1503	3.3	147	76
	1951	145900	1100	147000	461000	1481	3.1	155	118
	1952	141600	600	142200	395000	1339	2.8	175	156
	Av. 1943 to 1952	130200	1100	131300	405000	1320	3.1	158	92
	1953	152800	1600	154400	542000	1728	3.5	138	70
							(a)	(a)	Sacramento and San Joaquin Rivers to Delta
Combined above Delta Sacramento River and Tributaries and San Joaquin River Stockton-Fremont Ford and Tributaries	1943	277200	185900	463100	2628000	8946	5.6	86	114
	1944	281400	199900	481300	3070000	10005	6.3	77	57
	1945	272800	187200	460000	3016000	10296	6.5	75	87
	1946	303100	200200	503300	3312000	10482	6.5	74	93
	1947	309400	202100	511500	3198000	10436	6.2	78	55
	1948	347000	188900	535900	2897000	10752	5.4	90	80
	1949	353700	217500	571200	3507000	11495	6.1	80	63
	1950	375500	172100	547600	3413000	11192	6.2	78	77
	1951	382400	226600	609000	3680000	12197	6.0	81	125
	1952	359500	223300	582800	3441000	11462	5.9	83	154
	Av. 1943 to 1952	326200	200400	526600	3217000	10726	6.1	80	90
	1953	357600	265300	622900	3927000	13222	6.3	77	97

(a) Excludes Municipal and Carmichael Irrigation District diversions and acreage of Carmichael Irrigation District.

TABLE 166

DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER - 1953

Water User	Mile and Bank above Sacramento	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
--"M" STREET BRIDGE--	0.0												
--"I" STREET BRIDGE--	0.4												
--GAGING STATION - SACRAMENTO RIVER AT SACRAMENTO--	0.43L												
City of Sacramento	0.8L	3-18" 2-20" 2-24"	2389	2856	3232	3763	5341	4409	4212	3207	(a) 29409	Municipal	
--AMERICAN RIVER--	1.1L												
--BACK BORROW PIT RECLAMATION DISTRICT 1000	1.3L												
E. Fourness	1.45R	1-8"		1	33	97	106	81			318	130	
--RECLAMATION DISTRICT 1000 DRAIN--	2.1L												
Elmer F. Christophel	2.15L	1-8"		11	14	20	22	11	4		82	36	
D. D. Parr	3.15L	1-6"				NO DIVERSION							
Rose Orchard	3.55R	1-16"					435	437	18		890	170	
Evergreen Farms	3.75R	1-6"				NO DIVERSION							
M. Owyang	4.0R	1-10"				8	58	95			161	65	
--SACRAMENTO WEIR--	4.2												
Reese and Greer	4.65R	1-7"				29	38	7			74	39	
George W. Reed	5.05R	1-14"		26	32	119	86	112	87		462	100	
Mary S. Seydel Estate	5.25R	1-8"				66	27	86	50		229	38	
A. R. Merkley	5.3R	1-6"				28	27	1			56	50	
Lucy Casselman	5.5R	1-6"				18	19				37	30	
A. A. Casselman	5.55R	1-6"				26	30	4			60	40	
J. E. Bandy	6.0R	1-6"				NO DIVERSION							
Riverside Mutual Water Company	6.1L	2-18"			440	1249	1080	1158	677	394	4998	(b) 2042	
W. W. White	6.6R	1-6"				NO DIVERSION							
--RECLAMATION DISTRICT 1000 DRAIN #3--	6.85L												
Fred C. Jones	7.5L	1-8"				29	53	30			112	100	
A. Marty and C. Inderkum (c)	7.7R	1-8"		8	19	49	98	103	16		293	(d) 182	
M. R. Williamson	7.8L	1-10"					18	12			30	86	
E. D. Willey	7.9L	1-10"				61	37	23			121	100	
A. Marty and C. Inderkum (c)	8.25R	1-8"						95	19		(d) 114	(e)	
A. Marty and C. Inderkum (c)	8.3R	1-8"		12	17	42	77				(d) 148	(e) 218	
Pearl Blauth (f)	8.5R	1-7"				30	45	2			77	90	
H. Waldeck	8.7R	1-6"			25	15	51	34		24	149	40	
Fong Yen, et al. and Fong Shee	9.3L	1-10"			96	218	219	137	91		761	252	
Henry Amen and E. C. Peabody (g)	9.35R	1-14"			242	198	443	139	181		1203	365	
F. C. Jones	9.8L	1-8"			2	18	9	21	9	8	(h) 67	30	
Carl Casselman	9.9R	1-12"	8	6	16		1				31	27	
Lloyd M. Robbins	10.25L	1-14"			45	63	162	75	151	10	506	300	
Leona Hughes	10.65R	1-12"		41		43	75	95	21		275	135	
Edward Russell	10.75L	1-12"			8	40	36	40	9	26	(i) 159	120	
W. A. Ten Eyck	11.1R	1-12"			132	217	294	207	73	36	959	355	
--ELKHORN FERRY--	11.9												
Woodland Farms, Incorporated (j)	12.0R	4-36"		3639	7768	11369	16054	13884	6560	1836	(k) 61110	(m)2538	(m)7820
Thomas O'Connor Estate	12.5R	1-12"				10	105	97	59		271	145	
William Plumb, Jr.	12.7R	1-6"				1	1	1	1		4	1	
Lewis Thornton	12.95L	(n)1-5"					2	3			5	4	
S. C. Farms Incorporated	13.1R	1-12"		29	49	134	122	84	66	107	(p) 591	(q) 178	
S. C. Farms Incorporated	13.25R	1-12"			25	51	35		88	50	249	(r) 50	

(a) Additional acre feet diverted: January 2113, February 2089, November 2224 and December 2820.
(b) A portion of this acreage received an undetermined amount of controlled drainage water.
(c) Formerly listed as A. Marty and F. Inderkum.
(d) Miles 8.25R and 8.3R furnished an undetermined amount of water to 40 acres served by 7.7R.
(e) Combined acreage for Miles 8.25R and 8.3R.
(f) Formerly listed as Blauth Estate.
(g) Formerly listed as Henry Amen.
(h) Additional acre feet diverted: November 1.
(i) Additional acre feet diverted: December 5.
(j) Formerly listed as Conaway Ranch.
(k) Additional acre feet diverted: November 626 and December 5241.
(m) This acreage also received an undetermined amount of water from Willow Slough. Includes 925 acres of rice outside of Conaway Ranch and 900 acres reused for duck club lands.
(n) Formerly listed as a 3" unit.
(p) Additional acre feet diverted: February 28, November 17, and December 10.
(q) Of this acreage, 122 were double cropped.
(r) All acreage was double cropped.

TABLE 166

DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER - 1953 (Cont'd)

Water User	Mile and Bank above Sacramento	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
Elkhorn Mutual Water Company (Natomas)	14.1L	1-24" 1-30"		410	863	1628	2476	2287	692	190	8546	2109	
Joseph Veress	14.25R	1-14"			119	255	392	411	390	19	1586	130	75
D. J. Damron	15.1R	1-10"		28	39	39	141	131	30		408	175	
A. Bianchi (a)	15.1L	1-4"			1			1			2	3	
Natomas Central Mutual Water Company	16.0L	1-24" 2-32" 2-38"		3836	6983	7246	8528	8456	2577	701	(b) 38327	(c) 2500	5188
Hershey Estate	16.27R	1-20"				NO DIVERSION							
Sacramento River Ranch	16.62R	1-14"				62	19	65			146	200	
Sacramento River Ranch	17.0R	1-14"				NO DIVERSION							
Frank and Ruth Lang	17.4R	1-16"				114		154			268	85	
California Western States Life Insurance Company	17.75R	1-16"				NO DIVERSION							
Jose Alves and Sons	18.0R	1-20"	113	141	339	475	611	173			(d) 1852	777	
H. C. Lauppe	18.2L	2-10"				68	195	25	60		348	195	
M. and J. Scheiber	18.45L	1-12"				NO DIVERSION							
J. L. Brannely	18.7L	1-8"				NO DIVERSION							
Layton Knaggs (e)	18.7R	1-24"		122	1308	1240	1292	1524	642		6128	190	300
SACRAMENTO TO VERONA Totals Average cubic feet per second Monthly use in per cent of seasonal			2510 41 1.6	11166 188 6.9	21847 355 13.5	29138 490 18.0	38860 632 24.0	34710 564 21.5	16783 282 10.4	6608 107 4.1	161622 333	14420	13383
--GAGING STATION - SACRAMENTO RIVER AT VERONA--	19.6L												
--CROSS CANAL - RECLAMATION DISTRICTS 1000 AND 1001--	19.6L												
Arthur Drown	✱(0.05S)	1-20"			17		39	38	49	7	150	47	
Natomas Central Mutual Water Company (Bennett Subd. Plant)	✱(1.0S)	(f) 1-28"		428	1809	1277	2116	1636	1409		8675	200	905
Natomas Central Mutual Water Company	✱(2.0S)	1-20" 2-24"		2750	4861	4688	5506	5274	4003		27082	550	(b) 3489
B. J. Ukropina (e)	✱(3.3N)	1-24"		488	929	847	1156	1196	780		5396		(g) 1052
B. J. Ukropina	✱(3.35N)	1-16"		214	544	338	706	803	420	76	3101		(g)
Roy C. Osterli	✱(3.35N)	1-14"		5			663	753	203	6	1630		(g)
--FEATHER RIVER--	20.9L												
--SACRAMENTO SLOUGH--	21.2L												
Lumber Carrier Company (h)	21.7R	1-15"				NO DIVERSION							
Sacramento River Ranch	22.5R	1-22"				49	1100	33			(i) 1182	500	
A. F. Johnston	26.8L	1-16"					36	16			52	170	
Anthony Furlan	26.8L	1-16"					63	44			107	92	
--FREMONT WEIR GAGING STATION--	28.0												
Anthony Furlan (e)	28.2L	1-12"					24				24	75	
Gus Inglin	28.2R	1-6"				8	9	7	7		31	15	
Ralph White	(j) 28.6L	1-8"				NO DIVERSION							
Hershey Estate	29.0R	1-12" 2-16"							22	3	25	(k)	
Russell Brothers	29.2R	1-12"				10	99	22			131	150	
Sebastian Yturralde	29.9L	1-12"			17	17	45	44			123	105	
M. R. Richardson	30.1R	1-8"				NO DIVERSION							
Leo Giovanetti	30.2L	1-5"			5		19	5			29	36	
Anthony Furlan	30.5L	1-14"				NO DIVERSION							
M. R. Richardson	30.7R	1-10"		30	40	110	264	198	81		(m) 723	87	

✱ Mile 19.6L, Cross Canal. Distance from Sacramento River and bank are shown in ().
(a) Installed prior to 1953, not previously listed.
(b) Mile 16.0L furnished an undetermined amount of water to 497 acres of rice served by Mile 19.6L (2.0S).
(c) This acreage also received an undetermined amount of controlled drain water.
(d) Additional acre feet diverted: February 24.
(e) New installation in 1953.
(f) Formerly listed as a 24" unit.
(g) Combined acreage of Miles (3.3N) and (3.35N).
(h) Formerly listed as West Coast Life Insurance Company.
(i) Includes 638 acre feet furnished to 650 acres of rice served by Mile 6.3L Knights Landing Ridge Cut.
(j) Formerly listed as Mile 28.9L.
(k) All diversion for stock water.
(m) Includes an undetermined amount of water furnished to 70 acres of rice served by Mile 0.82L, Knights Landing Ridge Cut.

TABLE 166

DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER - 1953 (Cont'd)

Water User	Mile and Bank above Sacramento	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
Albert Nusz	30.75R	1-6"					26	50			76	22	
Alice E. West	30.9L	1-6"				NO DIVERSION							
A. C. Huston, Jr., and Mrs. E. Huston	31.5R	1-12"					95	23	23		141	100	
M. R. Richardson	31.75R	(a) 1-14" 1-20"			191	187	182	399	323		1282		(b) 140
M. Alonso	31.8L	1-6"				7	7	19			33	29	
Sutter Mutual Water Company (Portuguese)	32.0L	1-20" 2-24"		1446	2758	2311	2667	2584	1505	139	(c) 13410	825	1020
J. F. Waters and E. Furlan	(d) 32.5L	1-12"				40	27	56			123	72	
Collier Brothers	32.5R	1-10"				4	60	31	9	5	109	63	
W. H. Zeigler and H. Carlson	33.2L	1-8" 2-10"		168	503	552	749	424	348		2744	165	230
J. G. Knox	33.35L	1-10" 1-12"				20	61				81	65	
Clarence Du Bois	33.5R	1-12"	30	16		113	151	149			459	180	
P. K., G. J. and W. N. Leiser and L. J. Mansager	33.75L	1-14"			1		32	15	9		57	58	
Neil Wilson	33.85R	1-6"				NO DIVERSION							
--SOUTHERN PACIFIC RAILROAD BRIDGE--	33.95												
VERONA TO KNIGHTS LANDING													
Totals			30	5545	11675	10578	15902	13819	9191	236	66976	3606	6836
Average cubic feet per second			0	93	190	178	259	225	154	4	138		
Monthly use in per cent of seasonal			0.1	8.3	17.4	15.8	23.7	20.6	13.7	0.4			
--GAGING STATION - SACRAMENTO RIVER AT KNIGHTS LANDING--	34.0L												
--KNIGHTS LANDING BRIDGE--	34.1												
--COLUSA BASIN DRAIN--	34.15												
River Farms Company	34.5R	1-16" 1-20" 1-24"	242	1922	2383	2019	3624	3278	1227	374	(e) 15069	1109	1156
Wallace Ernst and A. Johnson	34.85L	1-8" 1-12"			23	104	21	51			199	100	
Walter Raymond	35.2L	1-12"				233	15	108	20		376	163	
Knox and Andersen	35.8L	1-10"				10	23				33	70	
J. Goffitzer	35.85L	1-6"	3		6	22	22	14	2	2	71	17	
Frank Rossi (f)	36.2L	1-12" 1-14"		10	343	342	478	225	261		(g) 1659	40	110
Earl H. Gray	36.45L	1-8"				NO DIVERSION							
--RECLAMATION DISTRICT 787 DRAINAGE PLANT--	37.0R												
Albert Nuttall	37.2L	1-14"					34				34	96	
Maybelle J. Bundock	37.75L	1-8"					35	19			54	80	
Alice Reel and Mabel Green	38.4L	1-10"				NO DIVERSION							
C. L. Reel	38.8L	1-10				NO DIVERSION							
Ivan Shuey	39.4L	1-12"				NO DIVERSION							
C. L. Reel	39.8L	1-10"					74				74	80	
William Duffy, Jr.	39.9L	1-5" 1-6"					17	6			23	20	
Sutter Mutual Water Company (State Ranch Bend)	40.6L	2-24" 1-36"	22	1928	4542	3885	5028	4829	2982	146	23362	2446	2143
River Farms Company	41.0R	1-14" 1-16"		1122	1445	1070	1584	1377			6598	50	432
Buell Ranch (B. E. Dean)	42.2L	1-6"				NO DIVERSION							
El Dorado Ranch	42.3R	1-14" 1-16"		11	110	228	529	10			888	557	

(a) The 14" unit was installed in 1953.
(b) This acreage also received an undetermined amount of water from Mile C.82L Knights Landing Ridge Cut.
(c) Additional acre feet diverted: November 54.
(d) Formerly listed as 32.4L.
(e) Additional acre feet diverted: February 13.
(f) Formerly listed as Kilgore and Rossi.
(g) Includes an undetermined amount of water returned to river by spill.

TABLE 166

DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER - 1953 (Cont'd)

Water User	Mile and Bank above Sacramento	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
Mrs. N. Lorenzetti	42.3L	1-8"					37	23			60	50	
Kramer Ranch	43.1L	1-12"					83				83	110	
El Dorado Ranch	43.1R	1-18"				NO DIVERSION							
Reclamation District #2047	43.1R	3-50"		7756	14561	12178	19876	16925	7146		(a) 78442	(b) 438	(b) 7883
Bill Erdman	43.4R	1-10"				36	15	39	15		105	125	
--RECLAMATION DISTRICT #108 DRAINAGE PLANT--	44.0R												
John Clauss	44.2L	1-18"		109	842	767	963	1004	495	4	(c) 4184	30	(d) 320
John Clauss (Fuchlin)	45.6L	1-14"				NO DIVERSION							
John Clauss (e)	46.45L	1-16"		24	432	36	422	75	143	2	(d) 1134	370	
George J., Jr. and J. H. Henle	46.5L	1-14" 1-20"	143	270	146	275	254	167	105	101	(f) 1461	212	
P. J. Hiatt	48.7L	2-20"		549	1571	1650	1771	1206	935		7682	462	253
G. J. Hiatt	49.7L	1-14"		89	438	330	390	375	286		1908	150	75
Reclamation District #108	51.1R	2-24" 1-36"		3292	4278	2628	3322	2927	1178		17625	(g) 527	(g) 662
Holmes and Westover Company	51.2L	2-16"		81	1540	1102	1126	1189	1129	52	6219	430	315
Fritz Erdman	51.9R	1-12"				55	73	40			168	100	
Thomas Nelson	52.0L	1-16"				8	101	30	30		169	240	
George Van Ruiten	52.9L	1-10"				NO DIVERSION							
River Farms Company	53.8R	1-12" 1-15"		270		423	621	658	108	162	(h) 2242	515	
George Van Ruiten	53.9L	1-12"					249	157	72		478	200	
Broomieside Farm	55.1L	1-20"			59	70	199	92			420	355	
Broomieside Farm	56.3L	1-16"				56	208				264	135	
Reclamation District #108	56.4R	1-12" 1-18" 2-22"			423	459	830	341	234		2287	(i) 1186	
C. M. Miller	56.42R	1-6"				NO DIVERSION							
Jacob Miller	56.65R	1-12"				NO DIVERSION							
Broomieside Farm (S. C. Crawford)	56.95L	1-20"		564	778	719	1171	955	217		(j) 4404	320	(k) 300
L. M. Miller	57.0R	1-10"					129	87	51	7	274	112	
Lamb Brothers	57.5L	1-16"				NO DIVERSION							
J. A. Neilson Estate	58.2L	1-15"		105	156	310	303	309	138	39	1360	305	(m) 33
Alex Grant	58.9L	1-16"					101	56	6		163	65	
I. G. Zumwalt	59.1R	1-12"				NO DIVERSION							
Lamb Brothers	59.8L	1-14"				NO DIVERSION							
W. A. Larner	60.4L	1-14" 1-16"		166	638	638	949	826	602	24	3843	(n) 540	230
Dr. A. G. Richter	60.5L	1-12"		25	24	47	99	77	83	24	379	147	
Richard Moore	61.5R	1-12"					29	22			51	65	
Dr. A. G. Richter	61.8L	1-12"		55	53	78	95	127	39	75	(p) 522	100	
Wayne Hine	62.3R	1-10"			5	10	16	18	13	5	67	36	
John Mack	62.3L	1-14"		149	811	538	657	639	358		(q) 3152	(r) 220	140
Jake Locovich Estate (s)	62.6R	1-8"					16	12			28	49	
KNIGHTS LANDING TO WILKINS SLOUGH Totals			410	18497	35607	30326	45589	38293	17875	1017	187614	12422	14052
Average cubic feet per second			7	311	579	510	741	623	300	17	386		
Monthly use in per cent of seasonal			0.2	9.9	19.0	16.2	24.3	20.4	9.5	0.5			
--GAGING STATION - SACRAMENTO RIVER AT WILKINS SLOUGH--	62.9R												
Reclamation District #108 (Wilkins Slough)	63.2R	5-42"		22428	19294	24092	26337	23724	6559		122434	448	(t) 14968

(a) Includes 15,486 acre feet delivered to River Farms Company.
(b) Includes acreage as follows: Reclamation District #108 - rice 5560 and general 174, River Farms Company - rice 2323 and general 264.
(c) Additional acre feet diverted: November 5.
(d) Mile 46.45L furnished an undetermined amount of water to 320 acres of rice served by Mile 44.2L.
(e) New installation in 1953.
(f) Includes an undetermined amount of water spilled into a lake.
(g) Includes acreage as follows: Reclamation District #108 - rice 215 and general 190, River Farms Company - rice 447 and general 337.
(h) Additional acre feet diverted: November 120.
(i) Includes 395 acres of River Farms Land.
(j) Additional acre-feet diverted: November 60 and December 62.
(k) Of this acreage 100 were reused for duck club.
(m) This acreage also received an undetermined amount of well water.
(n) Includes 250 acres of Sutter Basin Corporation lands.
(p) Additional acre feet diverted: November 1.
(q) Additional acre feet diverted: November 50 and December 57. Includes an undetermined amount of water returned to river by spill.
(r) Includes 30 acres of abandoned rice planted to milo.
(s) Formerly listed as Jake Locovitch Estate.
(t) Combined acreage for Mile 63.2R and plant on the Back Borrow Pit at Mile 19.9L. This acreage also received 11197 acre feet of water by controlled drainage.

TABLE 166

DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER - 1953 (Cont'd)

Water User	Mile and Bank above Sacramento	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
R. L. Young	63.3L	1-12"				90	85	34	5		214	124	
Meister Ranch	63.65L	1-5" 1-8"		3		24	29	49	46	29	180	106	
Sutter Mutual Water Company Tisdale Plants #1 and #2	63.75L	2-48" 5-42"		19438	37639	32184	42684	43155	26262	4269	(a) 205631	14431	14552
Robert E. Seaman	63.9L	2-14"		181	316	424	759	647	246		2573	560	140
--TISDALE WEIR--	64.2L												
Ornbaum Livestock Company	64.3R	1-12"			4	39	46	37			126	150	
Lamb Brothers	64.35L	1-14"				35	173	97			305	80	
Tisdale Irrigation and Drainage Company	64.4L	(b) 1-8" 1-12"		59	388	235	260	259	162	1	1364	319	123
Van Horn Ranch	64.9R	1-14"				NO DIVERSION							
Juan Valsyves	65.1R	1-4"				NO DIVERSION							
Fred Schohr	65.6R	1-16"				NO DIVERSION							
Walter Ettl	65.7L	1-8"				102	171	151			424	160	
J. L. Browning	66.4R	1-18"				293	290	310	15	2	910	475	
Tisdale Irrigation and Drainage Company	67.1L	1-22" 1-16"		337	1038	904	1614	1339	870	133	6235	1254	234
Newhall Land and Farming Company	67.5L	1-12" 2-24"		1788	3808	2796	3453	3532	2210		17587	1549	1006
--RECLAMATION DISTRICT #70 DRAIN PLANT--	68.8L												
Meridian Farms Water Company #5 (c)	68.8L	1-24"				1274	1634	1489			4397	49	309
J. L. Browning	69.0R	1-14" 1-22"				6	2	4	5		17	7	
Faxon, Morton and P. Andreotti	69.2R	(d) 1-10" 2-16"		279	684	752	1058	752	419		(e) 3944	440	(f) 215
--EDDY'S FERRY SITE (GRIMES)--	69.45												
J. E. Hollenbeck	69.8R	1-4"				NO DIVERSION							
H. F. Daly	70.4L	1-10"			7	59	26	58	27	8	185	(g) 84	
Hoffman, Beckley, Ritchie, Poundstone and Andreotti	70.4R	(h) 1-16"		14		204	139	77	28		462	89	
Meridian Farms Water Company #4	71.1L	1-24"		916	1841	507	1640	1669	834		7407	1372	379
A. B. Armstrong	71.9R	1-14"			15	71	42	58	1	1	188	120	
H. and A. Andreotti	72.1L	2-14"		12	6	86	275	136			515	340	
C. T. Froh	73.6R	1-10"				26	35	21		10	92	60	
Meridian Farms Water Company #3	74.8L	1-18"		647	1546	1274	1132	1232	884		6715	356	288
L. B. Westfall	75.3R	1-10"			106	19	142	83	27		377	(i) 175	
J. H. Yates Estate	76.1L	1-10"		128	368	293	424	376	282		1871	(j) 85	(k) 161
Robert Chesney	76.15L	1-10"		94		11	62	24			(m)(k) 191	52	
M. S. Davis and C. K. Anderson	76.2L	1-8"					26				26	50	
Steidlmayer Brothers	76.5R	1-16"			203		320	28			551	200	
Olive Percy Davis, et al.	77.8R	1-16"			70	35	81	83			269	207	
J. J. Hankins	77.9L	1-16"					155				155	200	
Olive Percy Davis, et al.	78.75R	1-16" 2-12"		281	387	593	647	334	15	8	(n) 2265	524	
Olive Percy Davis, et al.	78.8R	1-24		968	2477	1264	1958	1996			8663		(n) 1173
Steidlmayer Brothers	78.9R	1-12"				NO DIVERSION							
C. E. Reische	79.0L	1-10"				53	54	44			151	(p)163	
Richard Wilbur (q)	79.3R	1-10"			24	25					49	48	
J. J. Hankins	79.5L	1-8"				NO DIVERSION							
A. M. Wood	79.7L	1-10"				10	15	61			86	(r) 113	
--MERIDIAN BRIDGE - RECORDING GAGE--	79.85												
Meridian Farms Water Company #1 and #2	80.0L	1-10" 1-20" 1-24"		2765	4030	3392	4590	4722	2181	13	21693	(s) 2756	(s) 1586
Richard Wilbur (t)	80.3R	1-8"		15	65	79	82				241	65	

(a) Additional acre feet diverted: November 1417.
(b) The 8" unit was installed in 1953.
(c) Reactivated in 1953. This unit is a Reclamation District #70 drain pump which can divert river water.
(d) The 2-16" units replaced an 18" unit formerly listed at this location.
(e) Includes an undetermined amount of water returned to river by spill.
(f) Does not include 200 additional acres which received an undetermined amount of water from R. D. #108, wells and controlled drainage of this acreage.
(g) Includes 37 acres of Rohleter lands.
(h) The 16" unit replaced 1-6" and 1-24" units formerly listed at this location.
(i) Includes 120 acres of Steidlmayer lands.
(j) Includes 20 acres of George Kauffman lands.
(k) Mile 76.15L furnished an undetermined amount of water to 91 acres served by Mile 76.1L.
(m) Additional acre feet diverted: November 7.
(n) Mile 78.75R furnished an undetermined amount of water to land served by Mile 78.8R.
(p) Includes acreage on following lands: 29 Goodnow and Thomas, 19 Rockholt, 29 Lemos and 29 Staas.
(q) Formerly listed as Mayfair Packing Company.
(r) Includes 62 acres of S. Burtis lands.
(s) An additional 288 acres of rice, and 1117 acres of general crops were irrigated by controlled drainage.
(t) Formerly listed as Roger C. Wilbur.

TABLE 166

DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER - 1953 (Cont'd)

Water User	Mile and Bank above Sacramento	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
Wayne Hall and E. J. Burrows	81.5L	1-16"				57	91	47	66		261	150	
Wayne Hall	81.8L	1-16"		40	785	586	885	869	466		3631		(a) 268
F. T. Reische and L. F. Wood	82.5L	1-12"				NO DIVERSION							
Steidlmayer Brothers	83.0R	1-20"		95	138	70	81	69	64	130	647	141	
J. E. Clark	83.3L	1-14"		128	453		231	444	239		1495	(b)25	(b) 100
J. E. Clark	83.5L	1-10"		56	103	296	159		10		624	(b)	(b)
--BUTTE SLOUGH OUTFALL GATES--	84.0L												
Reclamation District #1004 (c)	85.3L	1-8"			137	29	31	6			203	35	
Steidlmayer Brothers	85.6R	1-12"				NO DIVERSION							
Clifford Reichel	85.8L	(d) 1-10"					30	23			53	27	
W. H. Halsey	86.1R	1-12"	36	83	56	136	215	132	162	58	878	257	
Lydell Peck	86.1L	1-8"			10		39		13	17	79	70	
Howell Davis (e)	86.2R	1-18"				159	45	205			409	153	
Mitchel Lobrovich and John Brayovich	86.8L	1-8"			22	17	40				79	45	
Roger Wilbur	86.9R	1-10"	51	26		89	70	72	27		335	145	
Roger Wilbur	87.4R	1-10"	31	28		53	53				165	40	
C. E. Francis (f)	87.45L	1-6"				5	5				10	23	
Mrs. D. Locovitch (g)	87.6L	1-8"				24					(h) 24	12	
Swinford Tract Irrigation Company	87.7R					94	81				175	136	
Frank Azevedo (i)	88.0R	1-6"					19				19	25	
Nagel and Locovitch	88.2L	1-10"				17	32			3	52	42	
Mrs. W. D. DeJarnatt (j)	88.7L	1-14"				42	29			71	142	114	
Colusa Irrigation Company	89.2R	1-20"				158	308	76		12	554	315	
Grace S. Arnold	(k) 89.24L	1-8"					61	27			88	81	
Reclamation District #1004	89.25L	1-12" 1-18"		293	931	888	864	956	240	130	(m) 4302	(n,p) 620	(n,p)1800
W. H. Halsey and M. Yerxa	89.26L	1-12"		193	277	113	142		2		(n) 727	116	
WILKINS SLOUGH TO COLUSA Totals			118	51295	77228	74084	93951	89507	42367	4895	433445	29783	37302
Average cubic feet per second			2	862	1256	1245	1528	1456	712	80	892		
Monthly use in per cent of seasonal			0.0	11.8	17.8	17.1	21.7	20.7	9.8	1.1			
--COLUSA BRIDGE - GAGING STATION - SACRAMENTO RIVER AT COLUSA--	89.4R												
Lillian and Hattie Boggs	89.7L	1-10"				NO DIVERSION							
Roberts Ditch Company	90.7R	1-18" 1-20"	272	476	438	904	1023	687	756	284	(q) 4840	1347	
I. G. Zumwalt	91.0R	1-6"				NO DIVERSION							
Paul Westfall	91.1L	1-8"					18	14			32	30	
I. G. Zumwalt	91.6R	1-12"					105				105	150	
--COLUSA WEIR--	92.4L												
George P. Ahlf	92.5L	1-6" 1-10"				NO DIVERSION							
W. H. Halsey and M. Yerxa	93.0R	1-8"				13	11				24	20	
Paul R. Westfall	(r) 93.6L	1-10"					40	41	14		95	62	
Tuttle Land Company	94.3R	1-20"				144	319	95			558	(s) 235	
Roger Wilbur	95.25L	1-12" 1-18"		736	803	864	1222	1204	447	1	(t) 5277	145	350
Ezra N. Lewis	95.6L	1-12" (u) 1-20"			645	773	797	943	424		3582		(v) 583
J. G. Griffin (f)	95.75L	1-15"			170	290	659	556	240		1915	305	160

(a) Includes 60 acres of F. T. Reische lands.
(b) Combined acreage for Miles 83.3L and 83.5L.
(c) Formerly listed as Butte Creek Farms.
(d) This unit replaced an 8" unit formerly listed at this location.
(e) Formerly listed as Olive Percy Davis, et al.
(f) New installation 1953.
(g) Formerly listed as Jacobson and O'Rourke.
(h) Acre feet partially estimated.
(i) Formerly listed as J. Azevedo.
(j) Formerly listed as Mayfair Packing Company.
(k) Formerly listed at Mile 89.25L.
(m) Additional acre feet diverted: November 405.
(n) Mile 89.26L furnished an undetermined amount of water to acreage served by Mile 89.25L.
(p) Combined acreage for Mile 89.25L and plant on Butte Creek at Mile 4.3R.
(q) Additional acre feet diverted: December 13.
(r) Plant was moved to this location from 93.4L.
(s) Includes 10 acres of Halsey lands and 25 acres of Mayfair lands.
(t) Additional acre feet diverted: November 23.
(u) This unit was installed in 1953.
(v) This acreage also received approximately 425 acre feet of water from controlled drainage.

TABLE 166

DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER - 1953 (Cont'd)

Water User	Mile and Bank above Sacramento	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
J. G. Griffin	95.8L	1-18"				NO DIVERSION							
W. G. Graham	95.85L	1-18"		148	1037	1035	1032	1114	515		4881	40	250
I. G. Zumwalt	96.8R	1-15"				75	211	17			303	285	
H. Heitman	97.7R	1-12"	21	21	16	57	82	43	54	19	(a) 313	79	
Frank N. Beckley	98.0L	1-10"			12		61	48			121	70	
J. L. Erisey	98.3R	1-10"		129		60	219	122	86		616	130	
Otterson and Boggs	98.6L	1-15"			233	163	385	581	313		1675	160	250
D. Boggs	98.8L	1-18"			14	14	173	85	12	27	(b) 325	75	
Elizabeth Reimer	99.0R	1-14"			35	137	189	166	19		546	180	
J. E. Boggs	99.1L	1-10"				39	117	56			212	157	
Hollis Sartain	99.2L	1-20"		246	1015	763	1200	1124	750		5098	20	630
L. W. Seaver	99.3R	1-10" 1-12"	7	117	97	133	233	71	87	79	824	(c) 208	
Dave George	99.8L	1-16"				NO DIVERSION							
St. Patrick Home Ranch	101.1R	1-20"		416	499	732	1072	492			3211	(d) 810	(d) 300
Nettie, George and Ella Packer	102.8R	(e) 2-12" 1-20"		260	562	636	952	1233	583	6	4232	209	534
C. B. Carter (f)	102.9L	1-16"			14	264	356	150	2		(g) 786	280	
Charles W. Welch	103.7R	1-16"		484	625	734	787	745	415	63	3853	(h) 165	(i) 950
Charles W. Welch	103.8R	1-14"		387	720	498	712	692	379		3388	(h)	(i)
C. W. Tuttle	103.9R	1-12" 1-18"		1240	1221	1174	1358	1274	427		6694	40	850
--MOULTON WEIR--	104.0L												
I. G. Zumwalt	104.8L	1-12"					64				64	110	
Lawrence Boyd	105.5L	1-10"				NO DIVERSION							
Thousand Acre Ranch (H.W. Keller)	106.0R	1-14"		200	281	402	393	225	24		1525	218	79
Olive Percy Davis, et al.	106.5R	1-16"		130		432	452	235			1249	554	
Princeton Ranch Company	110.0R	1-12"				58	73	25			156	180	
I. G. Zumwalt	110.7L	1-12"				NO DIVERSION							
Princeton Ranch Company	111.2R	1-6"				NO DIVERSION							
--PRINCETON FERRY--	112.0												
I. G. Zumwalt	112.05L	1-12"					27				27	65	
Reclamation District #1004	112.1L	2-30" 1-50"		5598	10386	8672	11293	10373	5958	300	52580	(j) 2211	(j) 8156
Princeton-Codora-Glenn Irrigation District	112.4R	3-24"		4320	4392	4507	5226	5311	1942		25698	(k,m) 1971	(k) 5985
I. G. Zumwalt	112.6L	1-10"				31	66				97	240	
Emerson B. Estes (f)	114.9R	1-5"					42	55			97	35	
L. B. Lucas	(p) 115.4R	1-4"		1	4	7	8	5	4		29	25	
Opal L. Cushman	115.5L	1-12"				25	18				43	30	
COLUSA TO BUTTE CITY Totals Average cubic feet per second Monthly use in per cent of seasonal			300 5 0.2	14909 251 11.0	23219 378 17.2	23636 397 17.5	30995 504 22.9	27782 452 20.6	13451 226 10.0	779 13 0.6	135071 278	10841	19077
--BUTTE CITY BRIDGE--	115.8												
--GAGING STATION - SACRAMENTO RIVER AT BUTTE CITY--	115.8L												
L. B. Lucas	115.8R	1-1½" (q) 1-2"			1	2	4	2	2	1	12	11	
R. H. Gebicke	115.85L	1-14"				33	127	86	16		(r) 262	70	
L. D. Ohlson (f)	115.9L	1-4"					18	7			25	40	
A. J. Stone	116.37L	1-12"					33	34	50	15	(s) 132	(d) 280	

(a) Additional acre-feet diverted: February 2.
(b) Additional acre-feet diverted: November 11.
(c) Includes 26 acres of Middlecamp lands.
(d) This acreage also received an undetermined amount of well water.
(e) The 12" units were installed in 1953.
(f) New installation in 1953.
(g) Includes an undetermined amount of water returned to the Sacramento River by spill.
(h) Combined acreage for Miles 103.7R and 103.8R.
(i) Combined acreage for Miles 103.7R, 103.8R and plant on Colusa Trough at Mile 11.7L (0.3).
(j) Combined acreage for Mile 112.1L and plants on Butte Creek at Miles 11.8R (2.6) and Opp. 14.4R (0.2W). Includes 810 acres rice outside of District, 175 acres rice which also received an undetermined amount of well water, and 1525 acres of general crops (duck pond). Of these acreages, 922 rice and 170 general were reused for duck ponds.
(k) Combined acreage for Miles 112.4R,123.9R and plant on Colusa Trough at Mile 17.2L.
(m) Includes 147 acres that received 735 acre-feet of water from Glenn-Colusa Irrigation District, Mile 154.8R.
(p) This plant was moved to this location from Mile 115.5R.
(q) The 2" unit was installed in 1953.
(r) Includes an undetermined amount of water spilled into a lake.
(s) Additional acre-feet diverted: November 5.

TABLE 166

DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER - 1953 (Cont'd)

Water User	Mile and Bank above Sacramento	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
Cronin Estate	116.9L	1-16"	5	87	211	108	318	193	37	27	(a) 986	170	
W. F. Wright, Jr.	117.5R	1-6"				15	57	11		10	93	136	
W. H. Stewart, Jr.	120.3R	1-10"					6	17			23	35	
Robert T. Millar	122.3R	1-10"				NO DIVERSION							
Clarence Reed	123.7R	1-6"		28		35	13	14	12	16	118	35	
P. K. Friesen (b)	123.8R	1-4"					1				1	1	
Princeton-Codora-Glenn Irrigation District	123.9R	5-24"		8780	9513	9142	10379	9753	5499	1607	54673	(c)	(c)
Provident Irrigation District	124.2R	2-24" 1-36" 2-42"		5420	7676	6005	7972	4947	2241		(d) 34261	(e) 1101	(e) 9985
J. Bertapelle	124.3R	1-12"	31	229	198	167	325	137	206	156	(f) 1449	290	
Joe Thomas	(g) 125.5R	1-12"					24	17	17		58	40	
Duart Geise	128.3R	1-6"				18	76	70	69	24	257	87	
F. S. Reager	130.75R	1-8"	27	58	30	66	111	102	62	27	(h) 483	217	
--GAGING STATION - SACRAMENTO RIVER AT ORD FERRY--	130.8R												
E. S. Ballard	133.45L	1-6"				8	78	13			99	70	
E. S. Ballard	133.5L	1-5"				6	35	13			54	40	
--STONY CREEK--	138.0R												
--CHICO CREEK--	141.5L												
M. and T. Incorporated and Parrott Investment Company	141.5L	1-20" 4-24"	247	948	1479	1187	4009	5742	3084	8	(i) 16704	(j) 1515	(j) 2715
--OLD CHICO LANDING RAILROAD BRIDGE SITE--	142.1												
W. H. Fischer	142.8R	1-14"	33	48	59	67	95	139	69	16	(k) 526	(m) 159	
Leonard Horning	143.6R	1-10"				51	68	54	48	30	251	55	
J. O. Bentz	143.8L	1-6"				15	23	17	14		69	29	
Glenn Beagle	146.3L	1-6"						14			14	17	
Leonard Horning	146.8R	1-3"				NO DIVERSION							
Holly Sugar Corporation	148.9R	1-2" 1-10"				NO DIVERSION							
Wallace E. Ferrin and George A. Zundel	149.5L	1-12"				89	90	213			392	60	
--GAGING STATION - SACRAMENTO RIVER AT HAMILTON CITY-(GIANELLA BRIDGE)--	149.5L												
J. A. and A. E. Lewis	149.7L	1-14"	6	62		41	69	91	39		308	(n) 205	
James A. Lewis	150.0L	1-10"		60	13	16	36	23	39		187	(n)	
V. G. Strain	150.8R	1-12" 1-16"	172	164	97	239	347	249	238	109	(p) 1615	619	
Joe E. Johnsen	152.2R	1-6"		6	2	12	13	15	11	12	(q) 71	32	
W. M. Edwards and Son	152.4R	1-6"					6		2		8	45	
Jessie and McClain	154.6R	1-5"				6	9	2			17	12	
G. G. Maas	154.7R	1-4"				3					3	10	
Jacinto Irrigation District	154.75R	1-36" 1-48"	2578	8710	9962	10289	10673	7902	4348	6463	(r) 60925	8373	757
Glenn-Colusa Irrigation District	*154.8R	1-48" 1-54" 4-66" 3-72" 1-100"	7001	83858	93577	107114	122806	121209	81347	41946	(r,s) 658858	(t) 26900	(t) 57202
Compton-Delevan Irrigation District	*	*		1500	5000	5000	5000	5000	1716		23216		2915
Maxwell Irrigation District	*	*		300	600	600	600	600	396		3096		387

* This is a common point of diversion for Glenn-Colusa, Compton-Delevan and Maxwell Irrigation Districts.

(a) Additional acre-feet diverted: November 69.

(b) Formerly listed as Howard Leach.

(c) Combined acreage for Miles 112.4R, 123.9R and plant on Colusa Trough at Mile 17.2L.

(d) Additional acre-feet diverted: December 2651. Includes 3008 acre-feet furnished to 375 acres of rice of Glenn-Colusa Irrigation, Mile 154.8R.

(e) Combined acreage of this plant and plants on Colusa Trough opposite Miles 20.5R (2.4W), 24.2R (1.5W), 25.8L (2.5W), 27.2R (2.6W) and at Mile 27.2R (0.1). Includes 614 acres of rice and 100 acres of general crops that received 5312 acre-feet of water from Glenn-Colusa Irrigation District, Mile 154.8R.

(f) Additional acre-feet diverted: February 43, November 30.

(g) Plant moved to this location from Mile 125.6R.

(h) Additional acre-feet diverted: November 14.

(i) Additional acre-feet diverted: November 37, December 37.

(j) This acreage also received an undetermined amount of water from Butte Creek.

(k) Additional acre-feet diverted: January 40, February 1.

(m) Of this acreage 25 was irrigated by controlled drainage water.

(n) Combined acreage for Miles 149.7L and 150.0L.

(p) Additional acre-feet diverted: November 8 and December 40.

(q) Additional acre-feet diverted: November 1.

(r) An undetermined amount of water was exchanged between Mile 154.75R and Glenn-Colusa Irrigation District, Mile 154.8R.

(s) Additional acre-feet diverted: November 13989 and by gravity from Stony Creek: March 15470, April 21260, May 20740, June 4350, July 502, August 831, September 774, October 945, and November 203. Includes 5312 acre-feet served to 614 acres of rice and 100 acres of general crops of Provident Irrigation District, Mile 124.2R and 735 acre-feet served to 147 acres of general crops for Princeton-Codora-Glenn Irrigation District, Mile 112.4R.

(t) Includes 375 acres of rice that received 3008 acre-feet from the plant at Mile 124.2R. Includes the following acreage and water served outside the district: 2415 acres of rice received 19322 acre-feet and 159 acres of duck club received 300 acre-feet. A portion of this acreage also received 1754 acre-feet from the plant on Back Borrow Pit at Mile 29.8R (1.4).

TABLE 166

DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER - 1953 (Cont'd)

Water User	Mile and Bank above Sacramento	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
J. Ewert	155.6R	(a) 1-4"				1	8	12	10	8	(b) 39	20	
R. Pheiffer	155.7R	1-2½"		6	3	6	5	5	4	2	(c) 31	8	
F. Williams	156.0R	1-6"	5	4	8	8	8	10	6	1	(d) 50	12	
H. H. Penner	156.02R	1-6"		1	3	11	13	10	8	3	49	16	
O. L. Shearman	156.8R	1-2½"	1	1	1	2	2	1	1	1	10	4	
Taresh Ranch	158.8R	1-10"		12	14	14	89	60	36		225	80	
Jonathan Garst	161.7L	1-8"				3	70	53	38		164	140	
--GAGING STATION - SACRAMENTO RIVER AT VINA BRIDGE--	166.5R												
E. L. Dietz	166.7R	1-3"				NO DIVERSION							
Russell L. Deckman	166.8R	1-2"				1	1	1	1		(b) 4	9	
Ernest Peterson	166.9R	1-6"		7	2	7	10	10	2	9	47	(e)33	
--DEER CREEK--	168.5L												
A. J. McFadden	168.5L	1-8"				22	64	40			(f) 126	42	
C. F. O'Connor (g)	168.9R	1-6"							9		9	(h)	
C. F. O'Connor	169.1R	1-10"	4			10		69			(b) 83	(h) 53	
Rumiano Brothers (g)	169.8L	1-10"				14	24	11			49	70	
Dr. O. T. Wood	173.7L	1-8"		14		2	47	34	20		117	(i) 130	
Dutro Brothers	176.6R	(j) 1-5"	10	22	6	10	21	21	17	11	118	67	
--TEHAMA BRIDGE--	177.5												
--MILL CREEK--	179.0L												
--ANTELOPE CREEK--	180.3L												
La Vere Barneson	(k) 180.7R	1-7"				NO DIVERSION							
Los Molinos Mutual Water Company	187.6L	1-12"					83	10			93	(m) 150	
Henry Tieden	188.5L	1-1½"	1	1		3	1	3	1		10	5	
J. M. Drew	188.51L	1-2½"	7				25	11	14	1	58	45	
Henry Kerber	188.8L	1-10"	13	46	75	57	163	70	141	16	(n) 581	126	
--RED BLUFF BRIDGE--	193.45												
Arthur Stanley (p)	196.5L	1-2½"					1	1			2	2	
S. and E. Erickson	196.6L	1-5"		3	8	5	29	14	7		66	34	
Diamond Match Company	197.0L	1-8"	30		25	12	70	59	6	42	244	50	
J. W. Bulkely	197.5L	1-1½"	1			1	1	1	1		5	4	
C. A. Droz	198.0L	1-3"	6	25	9	26	48	49	46	30	239	62	
BUTTE CITY TO RED BLUFF Totals			10178	110400	128572	140549	164204	157241	99930	50591	861665	41816	73961
Average cubic feet per second			166	1855	2091	2362	2670	2557	1679	823	1773		
Monthly use in per cent of seasonal			1.2	12.8	14.9	16.3	19.1	18.2	11.6	5.9			
--GAGING STATION - SACRAMENTO RIVER NEAR RED BLUFF--	198.6												
C. T. Loftus (q)	205.1L	1-4"	4	7	4	8	21	19	17	1	(r) 81	57	
--BEND FERRY BRIDGE--	207.0												
D. Mills	207.3L	1-8"					13	99	39	14	165	(s)	
D. Mills	207.5L	1-12"	78	134	47	217	344	223	219	49	1311	(s) 343	
G. Tetzlaff	209.0L	1-3"						6			6	13	
Table Mountain Gun Club	210.0R	1-2½"								12	12	10	
J. F. Nunes	213.0R	1-7"				NO DIVERSION							
F. L. Jelly	213.5L	1-3"			1	7	11	9	6	4	(b) 38	20	
J. F. Nunes	216.0R	1-5"					34	13	26	6	79	40	
--JELLY FERRY BRIDGE--	216.0												

(a) This unit replaced a 2½" unit formerly listed at this location.
(b) Additional acre feet diverted: November 1.
(c) Additional acre feet diverted: February 1 and November 1.
(d) Additional acre feet diverted: November 5.
(e) This acreage also received an undetermined amount of water from wells and the Corning Sewage Disposal plant.
(f) Additional acre feet diverted: December 2.
(g) New installation in 1953.
(h) Combined acreage for Miles 168.9R and 169.1R.
(i) This acreage also received an undetermined amount of water from Mill Creek Irrigation District.
(j) This is a portable unit which is also used at Mile 175.5R. However the diversion and acreage listed are totals and are not segregated for the two locations.
(k) Formerly listed as Mile 180.0R.
(m) This acreage also received an undetermined amount of water from Antelope Creek.
(n) Additional acre feet diverted: November 20.
(p) Formerly listed as Dave Singletary.
(q) Installed in 1950. Not previously listed.
(r) Additional acre feet diverted: November 2.
(s) Combined acreage for Miles 207.3L and 207.5L.

TABLE 166

DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER - 1953 (Cont'd)

Water User	Mile and Bank above Sacramento	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
W. A. Hunaeus	216.4L	1-3"				7	18	10	10	5	50	10	
Haakonson Brothers	217.5L	(a) 1-4"	3	13	3	42	87	27	19	10	204	66	
J. L. Haskins	217.9L	1-6"	10		10	55	100	40	5		(b) 220	58	
J. L. Haskins	218.0L	1-5"				NO DIVERSION							
Rio Alto Rancho	221.0R	(c) 1-12"			162	245	422	414	307	54	1604	340	
--BATTLE CREEK--	221.5L												
--COTTONWOOD CREEK--	222.2R												
--GAGING STATION - SACRAMENTO RIVER AT BALLS FERRY--	224.5												
J. H. Trisdale	228.0R	1-16"			28	56	50	104	77	10	325	90	
--ANDERSON BRIDGE--	232.9												
--CLEAR CREEK--	237.1R												
William Menzel Company, Incorporated	240.2L	1-12"				109	349	331	151		940	186	
Lou Gerard	240.3L	1-2"	1	4	1	5	9	9	9	3	(b) 41	6	
W. A. and Lucy Keagy	240.4L	1-4"					1				1	7	
Anderson Cottonwood Irrigation District	240.5L	4-16"		1872	1119	2032	4254	3983	3657	2221	19138	(i) 20720	
--GAGING STATION - SACRAMENTO RIVER NEAR REDDING--	240.7												
Riverview Golf Course (d)	241.5L	1-4"		26	26	26	28	26	27	18	(b) 177	35	
--HIGHWAY 44 BRIDGE--	242.0												
--HIGHWAY 99 BRIDGE--	245.9												
Anderson Cottonwood Irrigation District	246.0R	Gravity	270	18516	17374	19161	23926	22958	21366	20576	(e) 144147	(i)	
--SOUTHERN PACIFIC RAILROAD BRIDGE--	246.2S												
Maybell Diestelhorst (f)	246.3R	1-8"		2	19	33	72	86	31	18	(g) 261	22	
--OLD REDDING-YREKA BRIDGE--	246.4												
City of Redding	246.7R	3-8"	190	218	212	350	678	542	477	304	(h) 2971	Municipal	
--GAGING STATION - SACRAMENTO RIVER AT KESWICK--	250.5												
RED BLUFF TO REDDING Totals Average cubic feet per second Monthly use in per cent of seasonal			556 9 0.3	20792 349 12.1	19006 309 11.1	22353 376 13.0	30417 495 17.7	28899 470 16.8	26443 444 15.4	23305 379 13.6	171771 353	22023	0
SACRAMENTO TO REDDING Totals Average cubic feet per second Monthly use in per cent of seasonal			14102 229 0.7	232604 3909 11.5	317154 5158 15.7	330664 5557 16.4	419918 6829 20.8	390251 6347 19.4	226040 3799 11.2	87431 1422 4.3	2018164 4153	134911	164611

(a) This unit replaced a 3½" unit formerly listed at this location.
(b) Additional acre feet diverted: November 1.
(c) This unit replaced a 10" unit formerly listed at this location.
(d) Installed prior to 1953; Not previously listed.
(e) Additional acre feet diverted: November 3374.
(f) Formerly listed as I. and M. Diestelhorst.
(g) Additional acre feet diverted: November 4.
(h) Additional acre feet diverted: January 147, February 154, November 176 and December 162.
(i) Combined acreage for Miles 240.5L and 246.0R.

TABLE 167

DIVERSIONS AND ACREAGES IRRIGATED - COLUSA TROUGH* - 1953

Water User	Mile and Bank **	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
--GAGING STATION - COLUSA TROUGH AT COLUSA - WILLIAMS HIGHWAY--	0.0												
I. G. Zumwalt	2.2L	(a) 6-20"		2919	3338	4370	6489	5381	1955	238	(b) 24690	(c) 2430	(c) 2495
East Williams Lands Company (d)	2.2R	1-16"				479	572	143			1194		(e) 360

* Main Drain of Reclamtion District 2047.
** Mileage along Colusa Trough above Colusa Williams Highway.
(a) Two 20" units were installed in 1953.
(b) Additional acre feet diverted: November 115 and December 181.
(c) Includes 5 acres of rice on Seaver lands. Of these acreages, 100 rice and 300 general were reused for duck ponds.
(d) New installation in 1953.
(e) This acreage also received an undetermined amount of water from controlled drainage.

TABLE 167

DIVERSIONS AND ACREAGES IRRIGATED - COLUSA TROUGH* - 1953 (Cont'd)

Water User	Mile and Bank **	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
J. H. Cave	2.98R	1-10"			269	292	254	200	40	103	(a) 1158		(b,c) 81
A. E. Zaniboni and L. W. Seaver	3.0L	(d) 3-16"	404	564	632	801	933	563	374	223	(e) 4494	575	(b) 180
J. H. Cave	3.5R	1-14"			197	326	299	396	327		1545		157
Lloyd W. Seaver and F. J. Byington	4.5L	(f) 4-16"		638	1710	972	1763	2088	811		(g) 7982		(h) 1260
Coffman and Camel	5.6L	1-16"		181	355	274	427	406	149		(i) 1792		(j) 229
Watt Brothers (k)	6.3L	1-16"		264	439	330	209	495	18		1755		(m) 319
Watt Brothers	6.4R	1-12"						50	20		70	104	
S. Ash	8.0L	(f) 2-16"		288	905	917	1070	1052	696		4928		(n) 530
C. W. Welch and Compton Water District (p)	8.0R	1-15" 1-16"		358	595	742	724	1012	455		3886		360
El Dorado Sportsmans Club	9.5R	1-16"			143	401	325	437	342	119	(q) 1767	(r) 50	120
I. G. Zumwalt	9.75L	1-24"		496	812	580	631	688	229	5	3441		456
Lloyd Kahn	10.5L (0.4)	2-16"		403	810	897	657	697	141		(s) 3605		(t) 475
C. W. Welch and Compton Water District (p)	11.7L (0.3)	1-12" (u) 1-16"		540	274	362	403	377	185		2141		(v)
C. W. Welch and Compton Water District (p)	11.7R (0.8)	1-14" (u) 2-16" 2-20"		3276	1814	2463	3869	3796	610		(w) 15828		1740
Del Valley Farms, Incorporated	12.1R	1-10"		151	231	326	340	336	157		(x) 1541		(c) 75
Lynn and Bohne	12.58L (0.9)	1-10" 1-12"		471	353	399	364	321	139		2047		265
Lynn and Bohne	12.59R	(y) 1-12"		95	186	149	179	175	93		(z) 877		(c) 82
Helphenstine Rice Lands	12.69L	1-16"		344	570	491	582	659	237		2883		290
E. Butler, E. Meyer and J. Jones	12.7L	1-14"		274	361	364	500	496	94	20	(i,aa) 2109		(ab) 145
Manuel Barrett	Opp. 16.6R (1.3W)	1-12"		166	43	127	194	230	50		810		180
Princeton-Cordora-Glenn Irrigation District	17.2L	2-18"		1458	2592	2154	2687	2470	478		11839	(ac)	(ac)
John S. Lopes	17.9R	1-12"			68	32	58	46	20		224		24
J. P. Cardoza	18.0R	1-4"	7	18	18	31	18	10	8	2	(ad) 112	(ae) 32	13
--LATERAL HIGHWAY-BUTTE CITY TO WEST SIDE--	20.5												
Provident Irrigation District (Willow Creek Plant)	Opp. 20.5R (2.4W)	1-24" 1-36"		595		642	486	555	40		2318	(af)	(af)
Walter McGowan	21.4L	(ag) 1-8" 2-16"		511	736	378	799	748	144		3316		400
Joe Navarro	22.0R	1-18"	207	543	555	467	735	711	227	77	(i) 3522	100	300
Provident Irrigation District (Drain #55)	Opp. 24.2R(1.5W)	Gravity		1109	6138	4455	4653	6138	4752	2099	(ah) 29344	(af)	(af)
I. G. Zumwalt	25.4L	1-16"	11	104	78	56	107	140	61		557	158	
Provident Irrigation District (k)	Opp. 25.8L (2.5W)	2-16"			271	372	379	358			1380	(af)	(af)
Terril Knight	26.2L	(ai) 1-12" 1-16"		331	445	441	432	446	116		2211		265
John M. Demmer and Mary R. Bohach (aj)	27.1L	1-12" 1-14"	52	303	480	458	607	568	254	58	(i,ak) 2780	70	205
Provident Irrigation District (Colusa Drain)	27.2R (0.1)	1-20" 1-24"	242	1806	1211	1852	3475	3880	1145	99	13710	(af)	(af)
Provident Irrigation District (Drain #13)	Opp. 27.2R (2.6W)	1-16" 1-20" 1-24"	185	1717	2452	1876	2766	2743	1382	69	(am) 13190	(af)	(af)
Totals			1108	19923	29081	29276	37986	38811	15749	3112	175046	3519	11006
Average cubic feet per second			18	335	473	492	618	631	265	51	360		
Monthly use in per cent of seasonal			0.6	11.4	16.6	16.7	21.7	22.2	9.0	1.8			

* Main Drain of Reclamation District 2047.
** Mileage along Colusa Trough above Colusa-Williams Highway.
(a) Additional acre-feet diverted: November 54.
(b) This acreage also received an undetermined amount of water from controlled drainage.
(c) This acreage was reused for duck ponds.
(d) One 16" unit was installed prior to 1953. Not previously listed.
(e) Additional acre-feet diverted: November 17.
(f) One 16" unit was installed in 1953.
(g) Additional acre-feet diverted: December 15.
(h) Of this acreage 20 were reused for duck ponds and 300 also received an undetermined amount of water from controlled drainage.
(i) Includes an undetermined amount of water returned to Colusa Trough by spill.
(j) Includes 30 acres on Watt Brothers lands.
(k) New installation in 1953.
(m) Includes 30 acres of rice on Coffman and Camel lands.
(n) Of this acreage 200 received an undetermined amount of well water.
(p) Formerly listed as Compton Water District.
(q) Additional acre-feet diverted: November 50 and December 110.
(r) All duck club lands.
(s) Additional acre-feet diverted: November 28.
(t) Of this acreage 17 were reused for duck ponds.
(u) One 16" unit was a temporary installation during 1953.
(v) See Sacramento River Mile 103.7R.
(w) Additional acre-feet diverted: December 130. Includes an undetermined amount of water furnished to 1500 acres rice and 840 acres general in Maxwell Irrigation District in April.
(x) Additional acre-feet diverted: November 103 and December 170.
(y) This unit replaced a 10" unit formerly listed at this location.
(z) Additional acre-feet diverted: November 86 and December 37.
(aa) Additional acre-feet diverted: November 21 and December 50.
(ab) Of this figure 15 were reused by duck clubs.
(ac) See Sacramento River Mile 112.4R.
(ad) Additional acre-feet diverted: November 29 and December 37.
(ae) Of this acreage 20 were duck ponds.
(af) See Sacramento River Mile 124.2R.
(ag) The 8" unit was installed in 1953.
(ah) Additional acre-feet diverted: November 198. Includes the following acre-feet diversions for duck ponds: September 198 and October 614.
(ai) The 12" unit was installed in 1953.
(aj) Formerly listed as J. Azevedo.
(ak) Additional acre-feet diverted: January 11, February 17, November 19, and December 10.
(am) Additional acre-feet diverted: January 480 and February 948.

TABLE 168

DIVERSIONS AND ACREAGES IRRIGATED - BACK BORROW PIT* - 1953

Water User	Mile and Bank **	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
E. E. Nuttal	0.2R	1-6"					13				13	20	
--GAGING STATION - COLUSA BASIN DRAIN AT KNIGHTS LANDING (KNIGHTS LANDING OUTFALL GATES)--	0.25												
River Farms Company	0.3L	1-10" 1-20"				NO DIVERSION							
--KNIGHTS LANDING RIDGE CUT--	0.4R												
John J. Anderson	1.45R	2-16"		145	84	84	217	54			584	283	
John C. Cooling	4.2R (0.1)	1-16"	31	156		90	219	167			663	301	
B. C. and T. D. Tolson	4.2R (0.8)	1-18"				NO DIVERSION							
W. Crawford	4.35R	1-20"				NO DIVERSION							
Cornelia Walker (Heidrick Brothers)	7.2R	1-8" 2-16"		354	888	833	1070	909	464		4518	(a) 150	(b) 480
George E. Youngmark	8.8R	1-14" 1-16"		408	841	865	894	781	158		3947		630
Hershey Estate	11.15R	1-14" 1-16"		596	1482	1347	1604	1845	300	171	(c) 7345		(d) 850
Hershey Estate	13.75R	1-16"				NO DIVERSION							
C. M. Mumma	14.75R	(e) 1-10"		62	185	60					307		90
--COUNTY LINE BRIDGE--	15.25												
J. V. Doherty	15.5R	1-16"			550	363	671	780	298		(f)(g) 2662		80
M. T. Emmert	15.75R	1-12"		67	415	469	475	464	98		(h) 1988		(g) 300
H. B. West, Jack Hughes and Dr. R. C. West	18.1R	1-15" 1-20"		359	1590	1407	1153	720	211		(i) 5440		(d)(h) 925
Hilary Farms Incorporated	18.5R (0.8)	1-14"		73	103	57	186	395	230	91	(h) 1135	140	
--RECLAMATION DISTRICT 108 GRAVITY DRAIN--	19.9L												
Reclamation District 108	19.9L	1-16" 1-24" 1-30"		2316	1473	1682	2094	1961			9526	(j)	(j)
William West	20.0R	1-15"			278	354	355	375	139		1501		253
B. W. Whitmire and D. S. Adams	21.35R	2-16"			631	688	760	718	234	157	(f)(k) 3188	20	80
Albert Brandenburg	22.15R	(m) 1-14"		117	701	629	844	745	321		3357		(n) 225
Aileen B. Armstrong	22.65L	1-16" 1-20"				NO DIVERSION							
--GAGING STATION - BACK BORROW PIT NEAR COLLEGE CITY--	22.7												
Aileen B. Armstrong	22.75R (0.1)	(p) 1-14" 1-16"			125	205	331	372	153		1186		110
--SOUTHERN PACIFIC RAILROAD BRIDGE--	23.6												
Balsdon Ranch	Opp. 24.6L (0.3E)	2-16" 1-20"	4	47	104	441	756	108		175	(q) 1635	(r) 1013	
Balsdon Ranch	24.6R (0.3)	(s) 2-16"		483	651	522	927	978	221	2	(t) 3784	(u) 254	200
A. M. Dobrosky and Henry Olin	24.7L	1-12"				NO DIVERSION							
Luta King	25.1R	1-10"			146	236	251	275	251		1159		130
Gertrude M. Sherer	25.3L	1-16"				NO DIVERSION							
Gertrude M. Sherer	25.5R	1-10"				23		48			71	42	
--GRIMES - COLLEGE CITY CAUSEWAY--	25.5												
Fred Schutz	25.9L (0.2)	1-16" 1-20"		913	730	1230	1452	1562	413		(v) 6300		(w) 730
Roy E. Kitts (x)	26.4R (0.1)	1-18"		112	311	195	568	490	60		1736		(y) 350
C. W. and M. E. Struckmeyer	27.25L (0.3)	1-16"		85		147	222	241			(f) 695	320	

* Back Borrow Pit of Reclamation Districts 108 and 787 carries return water from Colusa Basin for discharge to Sacramento River at Mile 34.15R or partial diversion via Knights Landing Ridge Cut.

** Mileage along Borrow Pit from Knights Landing Outfall Gates above junction with Sacramento River.

(a) This acreage also received an undetermined amount of well water.

(b) Includes the following acreages: 75 Ray Houx, 125 William Crawford and 80 William Walker Estate.

(c) Includes an undetermined amount of water returned to Borrow Pit by spill. Additional acre-feet diverted: December 103.

(d) Of this acreage 50 were reused for duck club.

(e) A 14" unit was removed in 1953.

(f) Includes an undetermined amount of water returned to Borrow Pit by spill.

(g) Mile 15.5R furnished an undetermined amount of water to lands served by Mile 15.75R.

(h) Miles 15.75R and 18.5R (0.8) furnished an undetermined amount of water to lands served by Mile 18.1R.

(i) Additional acre-feet diverted: December 240.

(j) See Sacramento River Mile 63.2R.

(k) Additional acre-feet diverted: December 124.

(m) This unit replaced a 12" unit formerly listed at this location.

(n) Includes 20 acres of L. Arcand lands.

(p) The 14" unit was installed in 1953.

(q) Additional acre-feet diverted: November 183.

(r) Includes 75 acres of Spicer lands.

(s) One 16" unit was installed in 1953.

(t) Additional acre-feet diverted: February 98.

(u) Includes 254 acres of L. Traynham lands.

(v) Additional acre-feet diverted: November 62 and December 137.

(w) Includes following acreages: 347 F. Grevie and 193 A. Christian. Of this acreage 5 were reused for duck club.

(x) Formerly listed as Roy E. Kittz.

(y) Of this acreage 150 also received an undetermined amount of well water. Includes 200 acres of C. W. and M. E. Struckmeyer lands.

TABLE 168

DIVERSIONS AND ACREAGES IRRIGATED - BACK BORROW PIT* - 1953 (Cont'd)

Water User	Mile and Bank **	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
William P. Wallace Ranch	28.0R	1-12" 1-16"		269	861	831	799	867	605		4232		180
--WALLACE CROSSING (OLD MERIDIAN-WILLIAMS BRIDGE)--	29.2												
Olive Percy Davis, et al.	29.8R	1-16"				NO DIVERSION							
Glenn Colusa Irrigation District (a)	29.8R (1.4)	1-38"						1605	149		1754	(b)	(b)
Olive Percy Davis, et al.	31.5L	1-24"				NO DIVERSION							
Olive Percy Davis, et al.	32.1R	1-16"				NO DIVERSION							
Federal Fish and Wild Life Service	32.6R	1-16"					120	563	587	473	(c) 1743	(d) 500	
J. G. Olvey	32.6L	1-14"		14	356	226	401	462	205		1664		(e) 147
Arata Brothers	32.9L	1-8"			14	24	6	27	10	62	(f) 143	(d) 25	
Richard Moore	33.5L	1-16" 1-18"				NO DIVERSION							
Federal Fish and Wildlife Service	36.65R	1-15" 1-20"		473	908	1021	1074	1218	1162	987	(g) 6843		(d) 640
Federal Fish and Wildlife Service	37.0L (0.1)	1-15"				NO DIVERSION							
--COLUSA - WILLIAMS HIGHWAY--	37.0												
Totals			35	7049	13427	14029	17462	18730	6269	2118	79119	3068	6400
Average cubic feet per second			1	118	218	236	284	305	105	34	163		
Monthly use in per cent of seasonal			0	8.9	17.0	17.7	22.1	23.7	7.9	2.7			

* Back Borrow Pit of Reclamation Districts 108 and 787 carries return water from Colusa Basin for discharge to Sacramento River at Mile 34.15R or partial diversion via Knights Landing Ridge Cut.
** Mileage along Borrow Pit from Knights Landing Outfall Gates above junction with Sacramento River.
(a) New installation in 1953.
(b) See Sacramento River Mile 154.8R.
(c) Additional acre-feet diverted: November 341 and December 271.
(d) All duck refuge lands.
(e) Includes 30 acres of Davis lands.
(f) Additional acre-feet diverted: November 14 and December 41.
(g) Additional acre-feet diverted: November 621 and December 689.

TABLE 169

DIVERSIONS AND ACREAGES IRRIGATED - KNIGHTS LANDING RIDGE CUT - 1953

Water User	Mile and Bank *	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
E. L. Wallace	0.8R	1-16" 1-20"		1217	1094	987	1261	1455	501		6515	126	500
M. R. Richardson	0.82L	1-14"		279	590	488	910	854	170		(a) 3291		(b) 295
Ralph W. Pollock	3.5L	Gravity				NO DIVERSION							
--RECLAMATION DISTRICT 730 DRAIN PLANT #2--	(c) 3.2R												
Ralph W. Pollock	4.55L	1-12"				NO DIVERSION							
Albert Bacchini	4.7R	1-6"			14		10	8			32	23	
Layton D. Knaggs	5.25R	1-16"				NO DIVERSION							
--WEST LEVEE YOLO BY-PASS--	6.3												
Henry Rich	6.3L	Gravity		1264	1596	1607	824	1612	832		7735	340	(d) 850
E. L. Wallace	6.3R	Gravity					300				300	600	
Totals			0	2760	3294	3082	3305	3929	1503	0	17873	1089	1645
Average cubic feet per second			0	46	54	52	54	64	25	0	37		
Monthly use in per cent of seasonal			0	15.4	18.4	17.3	18.5	22.0	8.4	0			

* Mileage downstream from head on Back Borrow Pit near Knights Landing. Flow is principally Colusa Basin drainage diverted to the Ridge Cut by checking at Knights Landing Outfall Gates on Back Borrow Pit of Reclamation District 787.
(a) Includes an undetermined amount of water furnished to 140 acres of rice served by Mile 31.75R Sacramento River.
(b) Of this acreage, 70 also received an undetermined amount of water from plant on Sacramento River at Mile 30.7R.
(c) Formerly listed as Mile 3.8.
(d) Of this acreage, 650 also received 638 acre-feet of water from Mile 22.5R Sacramento River.

TABLE 170

DIVERSIONS AND ACREAGES IRRIGATED - YOLO BY-PASS (EAST BORROW PIT OR TULE CANAL) - 1953

Water User	Mile and Bank *	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
Robert Swanston Estate (a)	*1.8S	1-16" 1-18"					40				40	60	
Robert Swanston Estate (a)	*1.1S	1-18" 1-20"				NO DIVERSION							
Robert Swanston Estate (a)	(b) *0.8S	1-16"					227	21			248	280	
Robert Swanston Estate (a)	*0.5S	1-16"				NO DIVERSION							
--NORTH LEVEE SACRAMENTO BY-PASS RECORDING GAGE--	0.0												
Robert Swanston Estate (a)	*1.8N	(c) 1-16" 1-24"			690	725	716	772	420		3323		600
Ensher, Alexander and Barsoom	2.4N	1-20"	101	155	221	566	636	360			2039	(d) 1078	
--SACRAMENTO-WOODLAND HIGHWAY--	6.18N												
--SACRAMENTO-WOODLAND RAILROAD BRIDGE--	6.2N												
--CACHE CREEK--	7.0N												
--KNIGHTS LANDING RIDGE CUT--	9.6N												
--RECLAMATION DISTRICT 1600 DRAINAGE PLANT--	10.0N												
Totals Average cubic feet per second Monthly use in per cent of seasonal			101 2 1.8	155 3 2.7	911 15 16.1	1291 22 22.9	1619 26 28.7	1153 19 20.4	420 7 7.4	0 0 0	5650 12	1418	600

* Mileage is given northerly or southerly from North Levee of Sacramento By-Pass. Diversions from East Borrow Pit of Yolo By-Pass are primarily from water diverted through Knights Landing Ridge Cut.
* Asterisk indicates that land irrigated is within By-Pass Area.

(a) Formerly listed as Robert Swanston.
(b) Formerly listed as Mile 0.7S.
(c) These units replaced a 20" unit formerly listed at this location.
(d) This acreage also received an undetermined amount of well water.

TABLE 171

DIVERSIONS AND ACREAGES IRRIGATED - CACHE SLOUGH - 1953

Water User	Location	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
Reclamation District #2068	SW¼ NE¼ Sec. 34 T6N, R2E	2-30" 1-36"	2520	4293	6716	7907	9683	9260	7437	4804	(a) 52620	(b,c)9089	
City of Vallejo (d)	NW¼ NW¼ Sec. 10 T5N, R2E	2-20"		780	808	792	920	875	762	615	(e) 5552	Municipal	
Totals Average cubic feet per second Monthly use in per cent of seasonal			2520 41 4.3	5073 85 8.7	7524 122 13.0	8699 146 15.0	10603 172 18.2	10135 165 17.4	8199 138 14.1	5419 88 9.3	58172 120	9089	0

(a) Additional acre-feet diverted: November 113 and December 1953.
(b) An additional 2771 acres, including 600 acres outside district, were irrigated by 16484 acre-feet of controlled drainage water. The reuse of drainage water by Reclamation District 2068 has not been specifically noted in previous reports.
(c) Does not include 525 acres of duck club.
(d) New installation in 1953.
(e) Additional acre-feet diverted: November 508 and December 573.

TABLE 172

DIVERSIONS AND ACREAGES IRRIGATED - LOWER BUTTE CREEK AND BUTTE SLOUGH - 1953

Water User	Mile and Bank	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
	*					Lower Butte Creek							
Reclamation District 833	3.3L	1-16"				14	552	586			1152	600	
Colusa Shooting Club	4.1L	(a)1-16"					20	233	92		345	174	
West Butte Farms Company	4.25L	1-18"				12	364	72			448	550	

* Mileage on Butte Creek is approximate mileage from junction with Butte Slough at Mile 0.6E.

(a) This unit replaced a 12" unit formerly listed at this location.

TABLE 172

DIVERSIONS AND ACREAGES IRRIGATED - LOWER BUTTE CREEK AND BUTTE SLOUGH - 1953 (Cont'd)

Water User	Mile and Bank	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
	*					Lower Butte Creek							
Reclamation District 1004	4.3R	1-20" 1-24"		366	778	1026	1579	1010	622		(a) 5381	(b)	(b)
El Anzar, Incorporated	5.7L	1-12"			335	381	598	891	455		2660		285
Field and Tule	7.5L	1-8" 1-16"					NO DIVERSION						
Reclamation District 1004	11.8R (2.6)	Gravity		789	299	1240	2775	2714	1140		(c) 8957	(d)	(d)
White Mallard Duck Club	11.8R	Gravity					NO DIVERSION						
White Mallard Duck Club	11.8R (0.5)	1-12" 1-16"		232	216	294	540	476	228		(e) 1986	40	200
Reclamation District 1004	Opp. 14.4R (0.2W)	Gravity		150	200						350	(d)	(d)
Murdock Land Company	Opp. 14.4R (0.4W)	1-14"	24	40	17	21	171	104	22		(f) 399	280	
--GRIDLEY ROAD BRIDGE--	15.4												
Butte Basin Gun Clubs	15.6L	Gravity									(g)	(h) 4000	
Murdock Land Company	19.3R	1-16"	33	49	31	51	68	67	49	19	(i) 367	120	
--BIGGS - AFTON ROAD BRIDGE--	19.4												
Murdock Land Company	Opp. 19.6R (0.8W)	1-14"								112	(j) 112	(k) 70	
Baker and Kemper	Opp. 20.7R (0.8W)	1-12" (m)1-20"		104	1088	977	1287	1218	576		5250	5	320
McGowan Brothers	Opp. 20.9R (0.5W)	1-16"			65	165	219	156	85		690		(n) 120
McGowan Brothers	21.0R	1-20"			439	458	659	470	311		2337		(n) 320
E. McPherrin (p)	21.1L	2-16"			689	754	682	576	16		2717		330
R. H. Hulen Estate	Opp. 21.4R (1.0W)	1-16"		58	324	398	467	465	217		1929		160
McGowan Brothers	Opp. 22.4R (0.7W)	1-16"		127	345	293	486	452	235		1938		130
--RICHVALE - BUTTE CITY ROAD BRIDGE--	22.5												
McGowan Brothers	23.0R	2-16"					NO DIVERSION						
McGowan Brothers	Opp. 23.0R (0.7S)	1-16"		257	507	598	630	543	312		2847		280
McGowan Brothers	(q)	(q)1-14"		66	266	75	91	87			585		(q)
	*					Butte Slough							
--SACRAMENTO RIVER JUNCTION--	0.0												
Butte Slough Irrigation Company	0.0	Gravity									(r)	(s)	(s)
M. Marty	0.3W	(t)1-10"				78	120	80	88	11	377	181	
--BUTTE CREEK--	0.6E												
George Smith Estate	0.9E	1-7"				12	98	41			151	(u) 243	
Joe Marty	1.0W	(v)1-6"			11	39	48	28	37	2	165	37	
George Smith Estate	1.4E	1-8"				14	73	48			135	(u)	
Fred Tarke	1.9W	1-14"		276	418	461	570	569	244		(w) 2538		120
--MAWSON BRIDGE--	2.1												
C. W. Rawley	2.5W	1-14"		147	443	459	520	524	461		(x) 2554	116	133
J. E. Smith	3.0W	1-10"				7	36	24	4		71	70	
Pearl Clark and Alice Brewer	3.5W	1-10"			9	12	36	46	40		143	133	
P. A. Reische	3.7W	1-10"			9	9	15	9	10		52	51	
Granniman and Fieth	4.08W	1-6"					1	3			4	6	
P. A. Reische	4.1W	1-10"		8	15	38	61	31	4		157	170	
W. J. Hankins	4.8W	(y)1-12"		26	679	155	528	511	271		2170		(z) 165
P. B. Hensen	5.1W	1-12"		65	40	41	106	83	57	7	(z) 399	98	
Totals			57	2760	7223	8082	13400	12117	5576	151	49366	6944	2563
Average cubic feet per second			1	46	117	136	218	197	94	2	102		
Monthly use in per cent of seasonal			0.1	5.6	14.6	16.4	27.1	24.6	11.3	0.3			

* Mileage on Butte Creek is approximate mileage from junction with Butte Slough at Mile 0.6E.

* Mileage on Butte Slough is from its junction with Sacramento River at Mile 84.0L

(a) Additional acre-feet diverted: November 410 and December 418.
(b) See Sacramento River Mile 89.25L.
(c) Additional acre-feet diverted: November 3000 and December 3000.
(d) See Sacramento River Mile 112.1L.
(e) Additional acre-feet diverted: December 180.
(f) Additional acre-feet diverted: November 100.
(g) Estimated acre-feet diverted: November 3000 and December 3000.
(h) All gun club lands. Acreage is partially estimated.
(i) Additional acre-feet diverted: November 19.
(j) Additional acre-feet diverted: November 101 and December 19.
(k) All duck club.
(m) The 20" unit replaced an 18" unit formerly listed at this location.
(n) This acreage also received an undetermined amount of water from the 14" portable unit. See note (q).
(p) New installation in 1953.
(q) This is a portable unit which pumped at Mile 21.0R and Opposite Mile 20.9R (0.5W).
(r) Flow in Butte Slough, derived from Butte Creek, is controlled by Outfall Gates at junction with Sacramento River and is thereby retained in Butte Slough to discharge into East and West Borrow Pits of Sutter By-Pass near "Long Bridge". The Outfall Gates are maintained by the Division of Water Resources and are operated cooperatively with the Butte Slough Irrigation Company. See Sutter By-Pass Diversions.
(s) See acreages under rediversion - West Borrow Pit Sutter By-Pass.
(t) Formerly listed as a 12" unit.
(u) Combined acreage for Miles 0.9E and 1.4E. Includes 8 acres of Browning Estate lands.
(v) Formerly listed as a 7" unit.
(w) Additional acre-feet diverted for duck club: November 5.
(x) Additional acre-feet diverted: February 1.
(y) This unit replaced a 10" unit formerly listed at this location.
(z) Mile 5.1W furnished an undetermined amount of water to land served by Mile 4.8W.

TABLE 173

DIVERSIONS AND ACREAGES IRRIGATED - SUTTER BY-PASS AND SACRAMENTO SLOUGH - 1953

Water User	Mile and Bank	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
	*			West Borrow Pit of Sutter By-Pass*									
--SOUTHERN PACIFIC RAILROAD BRIDGE--	2.5												
C. Fred Holmes	8.0R	1-18"					194	28			222	200	
--STATE HIGHWAY 24 CAUSEWAY--	12.7												
Sutter Basin Corp., Ltd.	17.5R	1-18"				NO DIVERSION							
--SOUTH LEVEE OF TISDALE BY-PASS--	18.9												
--RECLAMATION DISTRICT 1660 GRAVITY DRAIN--	19.3												
G. Guisti and Sons	23.7R	(a) 1-16" 1-24"		1031	1724	1935	2368	2567	1268		10893	593	900
Butte Slough Irrigation Company, Ltd.	25.0R	Gravity	97	641	596	586	514	386	69		2889	(b)	(b)
Butte Slough Irrigation Company, Ltd.	28.4R	Gravity	106	566	774	1253	1693	1816	739		6947	(b)4425	(b)638
Fred Tarke	28.6R	1-12"				NO DIVERSION							
Frye Brothers	29.0R	1-7"				NO DIVERSION							
--STATE HIGHWAY 20 BRIDGE--	29.1												
Fred Tarke	29.2R	1-10"		6	7	16	13	5			47	20	
--SACRAMENTO NORTHERN RAILROAD BRIDGE--	29.25												
	†			East Borrow Pit of Sutter By-Pass*									
R. E. Hughes #8	80.95S	1-16"		55	203	330	411	454	210		(c) 1663	420	(d) 170
T. H. Richards	0.5S	1-18"		250	1036	781	1272	1101	562		5002	189	460
--WILLOW SLOUGH--	0.0												
R. E. Hughes #7	80.5N	(e) 1-20"		151	506	714	800	711	382		3264		350
--RECLAMATION BOARD DRAINAGE PLANT #1--	1.4N												
Cliff P. Childers	‡(0.3)	1-16"		494	670	624	846	656	149		(f) 3439		220
Cliff P. Childers	‡(1.29)	1-16"		37	220	496	513	493	290		2049		300
E. H. Christensen and Sons	‡(1.3)	1-16"		146	594	789	890	918	575		3912		(g) 900
E. H. Christensen and Sons	‡(1.75)	1-16"			401	454	501	565	488		2409		400
E. H. Christensen	‡(3.3)	1-16"		314	634	704	742	680	411		(g)(h) 3485	390	
E. H. Christensen	‡(3.3)	1-12"		210	335	332	371	65			(g) 1313		
E. H. Christensen	‡(4.0)	1-18"		479	638	531	877	758	611		3894		(h) 330
R. E. Hughes #6	8 1.5N	1-14"		318	371	514	561	515	234		2513		340
R. E. Hughes #5	8 2.9N	1-14"		80	323	344	890	655	325		2617	(i) 180	(i) 470
Leona Hughes	8 4.0N	(j) 2-14"		154	479	399	608	560	197		2397	(i)	(i)
--STATE HIGHWAY 24 CAUSEWAY--	4.3N												
Leona Hughes (k)	8 4.5N	1-14"		3			109				112	200	
Ira Mulligan	5.7N	1-16"					82				82	(m) 335	
R. J. Hughes #2	8 5.9N	1-14"		213	41		231	574	250		1309	(n) 389	
J. Etcheverry (p)	5.91N	1-14"				169	167	22	147		505	260	
O. O. Orrick	8 6.9N	(q) 1-16"		78	295	435	564	541	172		2085	200	210
Ira Mulligan	7.1N	1-16"					413	2			415	(m)	
--GILSIZER SLOUGH--	8.0N												
Leona Hughes	88.0N (0.5)	1-6"				NO DIVERSION							
Crepps and Middleton	8.4N	1-12" 1-16"				NO DIVERSION							
Crepps and Middleton	8 9.99N	1-15"			86	132	140	151	268	39	816	(r) 350	(r) 179
Crepps and Middleton	810.0N	1-16"			165	291	374	369	293	164	(s) 1656	(r)	(r)
--RECLAMATION BOARD DRAINAGE PLANT #2--	10.0N												

* Mileages on West Borrow Pit are given northerly from drainage plant of Reclamation District 1500. Mile 9.15 on West Borrow Pit is opposite Chandler.
8 Area irrigated is within By-Pass.
* Water used for irrigation in Sutter By-Pass is mainly Feather River return water which enters East and West Borrow Pits via Butte Creek, Butte Slough and Wadsworth Canal.
† Mileages on East Borrow Pit are given northerly or southerly from Chandler.
‡ Plant is on the main drain canal for drainage plant #1 that joins East Borrow Pit Sutter By-Pass at Mile 1.4N. Figure in () indicates distance along drain from East Borrow Pit.
(a) The 16" unit was installed in 1953.
(b) Combined acreage for Miles 25.0R and 28.4R.
(c) Additional acre-feet diverted: November 13.
(d) Of this acreage 5 were reused for duck club.
(e) This unit replaced a 16" unit formerly located at this location.
(f) Additional acre-feet diverted: December 10.
(g) The 12" plant at Mile 1.4N (3.3) furnished 1313 acre-feet, and the 16" plant at Mile 1.4N (3.3) furnished an undetermined amount of water to 600 acres of rice served by Mile 1.4N (1.3).
(h) The 16" plant at Mile 1.4N (3.3) furnished an undetermined amount of water to acreage under plant at Mile 1.4N (4.0).
(i) Combined acreage for Miles 2.9N and 4.0N.
(j) One 14" unit was installed in 1953.
(k) Formerly listed as R. E. Hughes #3.
(m) Combined acreage for Miles 5.7N and 7.1N.
(n) This acreage was originally planted to rice which was flooded out in May.
(p) New installation in 1953.
(q) One 16" unit was removed in 1953.
(r) Combined acreage for Miles 9.99N and 10.0N. General acreage is all duck club.
(s) Additional acre-feet diverted: November 34 and December 100.

TABLE 173

DIVERSIONS AND ACREAGES IRRIGATED - SUTTER BY-PASS AND SACRAMENTO SLOUGH - 1953 (Cont'd)

Water User	Mile and Bank	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
	*		East Borrow Pit of Sutter By-Pass* (Cont'd)										
Crepps and Middleton (a)	¥(0.3)	1-12"			343	255	343	392	255		1588		80
Crepps and Middleton	¥(0.5)	1-12"				PLANT REMOVED							
Dettling Brothers	¥(0.9)	1-20"				NO DIVERSION							
Sutter Extension Water District	¥(2.0)	(b) 1-20" 1-30"		451	2018	1253	2651	2752	1064		10189	(c)	(c)
Ira Mulligan (d)	¥(2.5)	1-16"		329	470	489	402	688	349		(e) 2727		100
Bridge Investment Company	¥(2.6)	1-16" 1-20"	114	123	112	392	594	407	222	8	1972	500	
Bridge Investment Company	¥(2.65)	1-14" 1-20"	355	214	275	354	550	399	226	12	(f) 2385	411	
Bridge Investment Company	¥(3.0)	1-12"		54	58	76	189	69	86	6	538	125	
Percy Davis	¥(4.5)	1-12"			32	145	120	77	65	47	486	120	
Sutter Extension Water District (d)	¥(6.7)	1-20"		20	259	352	1043	1150	475		3299	(c)	(c)
Sutter Home Investment Company	11.5N	1-15"				NO DIVERSION							
Sutter Home Investment Company	12.0N	1-15"				NO DIVERSION							
Federal Fish and Wildlife Service	ß16.3N	(g)Gravity				212	726	1119	1083	1020	(h) 4160	(j) 570	(j) 350
R. A. Schnabel	ß16.4N	1-14"				52	42	81	33	56	(i) 264	(k) 45	
--WADSWORTH CANAL--	16.5												
R. A. Schnabel	¥(1.0L)	1-16"			395	364	518	505	322		2104		160
Fred S. Betty	¥(1.0R)	1-10"		68	2	5	116	36	70	16	313	43	
H. T. and H. D. Brown	¥(1.35R)	(m) 1-10" 1-12"			208	158	215	249	180		1010		(n) 230
A. H. Muns	¥(1.36R)	(p) 1-14"			358	401	477	470	340		2046		(n)
Vesper Kellogg	¥(1.5L)	1-14"			263	334	396	378	276		1647		106
--STATE HIGHWAY 20 BRIDGE--	¥(2.0)												
Epperson, Kennedy and Joaquin	¥(2.5R)	2-10" 1-14"				NO DIVERSION							
Clara Farrington	¥(2.5R)	1-10"			61	51	92	84	51		339		30
Youill Joaquin	¥(3.0L)	1-14"				NO DIVERSION							
Gilbert Williamson	¥(3.6R)	(m) 1-10" 1-16"	8	24	169	185	312	335	227	17	1277	32	(q) 109
--GAGING STATION - WADSWORTH CANAL AT BUTTE HOUSE ROAD--	¥(3.6)												
--RECLAMATION BOARD DRAINAGE PLANT #3--	16.7N												
Fred S. Betty	ð(0.9)	1-8"			8	48	94	47	24	25	246	100	
Fred S. Betty	ð(1.3)	1-14"				54	159	121			334	110	
Fred S. Betty	ð(1.4)	1-16"			472	594	710	752	559		3087		200
Mrs. H. C. and C. H. Epperson (d)	ð(1.49)	1-10"				40	178	19			237	(r)	
Phillip Niesen	ð(1.5)	1-20"				NO DIVERSION							
H. C. and C. H. Epperson	ð(1.5)	1-16"				NO DIVERSION							
Elden Tarke	ð(3.0)	1-14"		119	310	219	304	303	157		1412		114
Edward Dean	ß16.7N	1-12"			5	41	44	37	32	20	(s) 179	(k) 128	
Edward Dean	ß16.75N	1-16"			89	143	296	338	264		1130		100
Epperson, Myers, DeWitt and Middleton	19.1N					169	360	251			780	(r) 743	
--STATE HIGHWAY 20 BRIDGE--	19.98N												
--SACRAMENTO NORTHERN RAILROAD BRIDGE--	20.0N												
	‡		Sacramento Slough										
C. Fred Holmes	1.4R	1-12"				NO DIVERSION							
Totals			680	6628	16005	18215	27075	25651	14000	1430	109684	11078	7446
Average cubic feet per second			11	111	260	306	440	417	235	23	226		
Monthly use in per cent of seasonal			0.6	6.0	14.6	16.6	24.7	23.4	12.8	1.3			

* Mileages of East Borrow Pit are given northerly or southerly from Chandler.

* Water used for irrigation in Sutter By-Pass is mainly Feather River return water which enters East and West Borrow Pits via Butte Creek, Butte Slough and Wadsworth Canal.

ß Area irrigated is within By-Pass.

¥ Plant is on drain canal for Drainage Plant #2 that joins East Borrow Pit of Sutter By-Pass at Mile 10.0N. Figure in () indicates distance along drain from East Borrow Pit.

¥ Plant is on Wadsworth Canal which joins East Borrow Pit Sutter By-Pass at Mile 16.5N. Figure in () indicates distance along Canal from East Borrow Pit.

ð Plant is on Poodle Creek which joins East Borrow Pit - Sutter By-Pass at Mile 16.7N. Figure in () indicates distance along Creek from East Borrow Pit.

‡ Mileages on Sacramento Slough are given easterly from head of Slough at drainage plant of Reclamation District 1500.

(a) Reinstallation in 1953 of a plant previously removed.

(b) The 20" unit was formerly listed as a 16" unit and the 30" unit replaced a 16" unit formerly listed at this location.

(c) See Feather River Mile 38.1R.

(d) New installation in 1953.

(e) Includes an undetermined amount of water returned to drain by spill.

(f) Additional acre-feet diverted: February 224.

(g) A 20" unit was removed in 1953.

(h) Additional acre-feet diverted: November 750 and December 800.

(i) Additional acre-feet diverted: November 21 and December 39.

(j) All duck refuge.

(k) This acreage was reused for duck club.

(m) The 10" unit was installed in 1953.

(n) Combined acreage for Miles 1.35R and 1.36R.

(p) Formerly listed as a 12" unit.

(q) Includes 34 acres of Joaquin lands.

(r) Combined acreage for Miles 16.7N (1.49) and 19.1N.

(s) Additional acre-feet diverted: December 47.

TABLE 174

DIVERSIONS AND ACREAGES IRRIGATED - FEATHER RIVER - 1953

Water User	Mile and Bank above Mouth	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
Walter Raymond	0.6R	1-20"				NO DIVERSION							
Walter Raymond	1.0R	1-16"					69	92			161	400	
Walter Raymond	2.6R	2-20"		3		60	194	576	42		875	590	
John C. Johnston (a)	3.0L	1-10"			49	154	199	216	179		797	15	(b) 60
White Oak Ranch	5.6L	1-14"		22	13	72	199	200	155	105	766	199	
A. L. Haymore	6.44L	1-10"					45	48	89	60	242	(c) 124	
M. Scheiber	7.7L	1-10"			39	155	161	86	91	95	(d) 627	141	
--GAGING STATION - FEATHER RIVER AT NICOLAUS--	9.3L												
--NICOLAUS BRIDGE--	9.4												
T. H. Richards	9.75R	1-20"				NO DIVERSION							
--MOUTH OF BEAR RIVER--	12.0L												
Garden Highway Mutual Water Company	13.1R	(e) 2-20" 1-24"	100	1971	3064	3236	4127	3036	1752	37	(f) 17323	(g) 1155	(g) 2220
Farm Lands and/or Plumas Mutual Water Companies (h)	17.5L	(i) 2-20"	8	666	1433	2207	2604	2328	1767	309	(j) 11322	(k) 1174	(k) 1000
Oswald Water District	21.4R	2-16"	294	378	362	548	597	465	493	40	3177	(m) 713	
--GAGING STATION - FEATHER RIVER BELOW SHANGHAI BEND--	23.0R												
Earl R. Huffmaster (n)	25.2R	1-10"				70	121	88			279	137	
--MOUTH OF YUBA RIVER--	27.3L												
--GAGING STATION - FEATHER RIVER AT YUBA CITY--	28.0R												
--10TH STREET HIGHWAY BRIDGE--	28.2												
A. C. Rackerby	32.3R	1-10"				NO DIVERSION							
A. A. Sligar and Son	33.2L	1-3"					20	21			41	85	
G. D. Prindiville	33.3R	1-10"	29	26	66	36	120	62		4	343	126	
J. L. Sullivan, Jr.	33.9R	1-10"	108	45	33	139	91	80			496	202	
Sutter Extension Water District	38.1R	1-26" 2-42"			200	106	995	3742	1540		6583	(p) 1945	(p) 10810
La Finca Orchard	38.5L	1-4"				NO DIVERSION							
--HONCUT SLOUGH--	43.7L												
Mathews, Sullivan and Prindiville	*(0.4L)	1-18"	138	109	15	193	226	90			771	245	
Jesse Frakes	*(1.2L)	1-8"	3	39		41	67	33			183	66	
Ray Washburn	*(1.25L)	1-8"				35	63	25	50	5	178	92	
W. R. Madsen	44.0R	1-4"					7	11			18	43	
W. Earl Willey	44.5R	1-7"				3	11	10			24	27	
Arnold Christenson	46.3L	1-20" 1-24"	91	145	1189	1226	2718	2061	1213	264	8907	970	370
Manuel Aguiar	47.4L	1-7"				NO DIVERSION							
Manuel Aguiar	47.9L	1-12"		41	10	12	108	109	48		328	(q) 262	
Robert S. Biggs	48.0L	1-7"					90	96			186	(r) 190	
Robert S. Biggs	48.3L	1-10"					110	60			(r) 170	180	
Edward Dunning	49.0L	1-8"				61	66	2			129	75	
--GRIDLEY BRIDGE - GAGING STATION - FEATHER RIVER NEAR GRIDLEY--	49.7												
M. A. Pedroza and Sons	50.7L	1-6"		17	19	65	58	57	39	9	264	86	
S. T. Machado	50.7R	1-8" 1-10"				13	229	243	109		594	185	
Frank E. Norton	51.0R	1-6"				12	36	18			66	24	
A. E. Bettencourt	51.0L	1-6"			2	16	27	20	13		78	(s) 39	
Steadman Orchards	51.4R	1-10"				NO DIVERSION							

* Honcut Slough Plants divert Feather River water backed into Slough. Mouth of Slough at Mile 43.7L. Distance from Feather River and bank is shown in ().

(a) Installed in 1953 at old point of diversion.
(b) All Spangler Brothers lands.
(c) This acreage also received an undetermined amount of well water.
(d) Additional acre-feet diverted: November 1.
(e) One 24" unit was removed in 1953.
(f) Additional acre-feet diverted: February 49.
(g) Also received an undetermined amount of controlled drainage water.
(h) Formerly listed as Farm Lands Company.
(i) One 20" unit replaced a 15" unit formerly listed at this location.
(j) Additional acre-feet diverted: November 32.
(k) This acreage also received an undetermined amount of well and controlled drainage water.
(m) Includes 20 acres outside district. Of this acreage, 115 also received an undetermined amount of well water.
(n) Formerly listed as Alfred Montna.
(p) This is the combined acreage for Mile 38.1R, the Sutter Extension Water District diversion at Mile 58.1R, and Miles 10.0N (2.0) and (6.7) on East Borrow Pit of Sutter By-Pass. This acreage also received an undetermined amount of controlled drainage water.
(q) Of this acreage 75 also received an undetermined amount of well water.
(r) Mile 48.3L furnished an undetermined amount of water to 170 acres served by Mile 48.0L.
(s) Includes 7 acres of M. A. Pedroza and Sons land.

TABLE 174

DIVERSIONS AND ACREAGES IRRIGATED - FEATHER RIVER - 1953 (Cont'd)

Water User	Mile and Bank above Mouth	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
Chester L. Hoar	51.6R	1-6"				NO DIVERSION							
S. J. and J. R. Fratus	52.1L	1-10"			79	35	48	38	24		224	65	25
Mart Butler	52.5L	1-5"		9	18	26	33	34	33	11	164	76	
A. K. Johnson	52.7L	1-8"				15	34	22	7	14	92	62	
Hearst Magazines, Inc.	55.1L	1-14"		74		80	291	202	79		(a) 726	305	
Henry Haselbusch	57.9R	1-9"				7	35	14			56	48	
--SUTTER BUTTE CANAL COMPANY DAM--	57.9												
Sutter Butte Canal Company	*58.1R	Gravity	2285	15480	29832	28565	29502	24040	15761	7838	(b) 153303	13494	2908
Biggs-West Gridley Water District	*58.1R	Gravity	2428	16450	31700	30353	31349	25545	16748	8328	(c) 162901	3312	9592
Richvale Irrigation District	*58.1R	Gravity	2311	15656	30172	28890	29838	24313	15940	7927	(d) 155047	1037	13815
Sutter Extension Water District	*58.1R	Gravity	1648	11162	21511	20597	21272	17334	11365	5651	(e) 110540	(f)	(f)
--WESTERN CANAL COMPANY DAM--	61.1												
Western Canal Company	61.2R	Gravity		6321	24014	28403	36670	34274	16449	7732	(g) 153863	1173	23322
--OROVILLE-RICHVALE HIGHWAY BRIDGE--	62.6												
--OROVILLE-CHICO HIGHWAY BRIDGE--	65.0												
--GAGING STATION - FEATHER RIVER NEAR OROVILLE--	71.0												
Totals			9443	68614	143820	145431	162430	139691	83986	38429	791844	29062	64122
Average cubic feet per second			154	1153	2339	2444	2642	2272	1411	625	1629		
Monthly use in per cent of seasonal			1.2	8.7	18.2	18.4	20.5	17.6	10.6	4.8			

* This is a common point of diversion for Sutter Butte Canal Company, Biggs-West Gridley Water District, Richvale Irrigation District and Sutter Extension Water District.
(a) Includes an undetermined amount of water returned to river by spill.
(b) Additional acre-feet diverted: November 2380.
(c) Additional acre-feet diverted: November 2529.
(d) Additional acre-feet diverted: November 2408.
(e) Additional acre-feet diverted: November 1716.
(f) See Mile 38.1R.
(g) Includes 7202 acre-feet of duck water in October. Additional acre-feet diverted (duck water): November 4383.

TABLE 175

DIVERSIONS AND ACREAGES IRRIGATED - YUBA RIVER - 1953

Water User	Mile and Bank above "D" Street	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
--HIGHWAY 99E BRIDGE ("D" STREET)--	0.0												
C. Wesley Reed	0.9L	1-10"	2	16	18	14	26	24	21	2	123	60	
--GAGING STATION - YUBA RIVER AT MARYSVILLE (SIMPSON LANE BRIDGE--	0.9												
Ben Williams	1.4R	1-4"		1	3	1	6				11	4	
W. B. Harrington	1.8R	1-6"				NO DIVERSION							
W. B. Harrington	2.2L	1-4" 1-5"				NO DIVERSION							
River Bend Ranch	3.0L	(a) 1-14"		145		72	170	57			444	70	
River Bend Ranch (b)	3.1R	1-12"					14	13	13		40	30	
E. O. Rubke	4.1L	(c) 2-14"				82	278	334	180		874	(d) 280	
E. O. Rubke	4.3L	1-10"		60	15	131	149	148	30		533	(d)	
Di Giorgio Fruit Corporation	4.75L	1-6"			7	58	69				134	50	
Scott Hendricks	6.2L	(e) 1-12"				112	239				351	300	
--DAGUERRE POINT DAM--	11.0												
Hallwood Irrigation Company	11.0R	Gravity		6729	13507	13179	12049	12824	13072	6215	77575	5093	2020
Cordua Irrigation District	11.0R	Gravity		3982	9804	9722	9271	9062	6426	4771	(f) 53038	(g) 3229	(h) 3284
Yuba Consolidated Gold Field Company	14.5L	Gravity				NO AGRICULTURAL USE							
--HIGHWAY 20 BRIDGE	17.1												
--NARROWS DAM--	22.8												
Totals			2	10933	23354	23371	22271	22462	19742	10988	133123	9116	5304
Average cubic feet per second			0	184	380	393	362	365	332	179	274		
Monthly use in per cent of seasonal			0	8.2	17.6	17.5	16.7	16.9	14.8	8.3			

(a) This unit replaces a 10" unit formerly listed at this location.
(b) New installation in 1953.
(c) One 14" unit was installed in 1953.
(d) Combined acreage for Miles 4.1L and 4.3L. Includes 150 acres of Hendrick land and 25 acres of Chiem Estate lands.
(e) This unit replaces a 16" unit formerly listed at this location.
(f) Additional acre-feet diverted: November 5308 and December 5927.
(g) Includes 234 acres of duck ponds inside district and 122 acres outside of district of which 95 acres were duck ponds.
(h) Of this acreage 1339 were reused for duck ponds. Includes 140 acres outside of district which also received an undetermined amount of well water.

TABLE 176

DIVERSIONS AND ACREAGES IRRIGATED - BEAR RIVER - 1953

Water User	Mile and Bank above Mouth	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
--MARYSVILLE - NICOLAUS COUNTY ROAD BRIDGE--	2.7												
--SACRAMENTO NORTHERN RAILROAD BRIDGE--	3.4												
--WESTERN PACIFIC RAILROAD BRIDGE--	3.9												
--TROWBRIDGE - WHEATLAND COUNTY ROAD BRIDGE--	6.8												
Whitney Warren	7.8R	1-6"				NO DIVERSION							
W. H. Gilbert	8.1R	1-6"	8	8	1	11	11		24		63	50	
California Packing Corporation	9.0L	1-10"				PLANT REMOVED							
California Packing Corporation	10.7L	1-10"				NO DIVERSION							
--HIGHWAY 99E BRIDGE--	11.3												
--GAGING STATION - BEAR RIVER NEAR WHEATLAND--	11.3												
--SOUTHERN PACIFIC RAILROAD BRIDGE--	11.35												
Totals			8	8	1	11	11	0	24	0	63	50	0
Average cubic feet per second			0	0	0	0	0	0	0	0	0		
Monthly use in per cent of seasonal			12.7	12.7	1.6	17.4	17.5	0	38.1	0			

TABLE 177

DIVERSIONS AND ACREAGES IRRIGATED - AMERICAN RIVER - 1953

Water User	Mile and Bank above Mouth	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
--GARDEN HIGHWAY BRIDGE--	0.2												
--HIGHWAY 40 AND 99E BRIDGE (16TH STREET)--	1.9												
--SACRAMENTO - NORTHERN RAILROAD BRIDGE--	2.0												
--WESTERN PACIFIC RAILROAD BRIDGE--	2.1												
Joe Gomez	2.4L	1-5"	1	1	3	4	7	8	1	2	27	7	
North Sacramento Lands Company	2.65R	(a) 1-8"					39	98			137	75	
North Sacramento Lands Company	2.75R	1-5"				8	12	12	6		38	31	
--SOUTHERN PACIFIC RAILROAD BRIDGE--	3.0												
C. Swanston and Sons	4.2R	1-10"				PLANT REMOVED							
C. Swanston and Sons	(b) 4.8R	1-10"				PLANT REMOVED							
--GAGING STATION (H STREET) AMERICAN RIVER AT SACRAMENTO--	6.0												
E. Clemens Horst Company	6.5R	1-6"			11	64	41				116	(c) 445	
E. Clemens Horst Company	7.5R	1-8"			25	106	78				209	(c)	
J. I. Haas, Incorporated (d)	7.7R	1-4"		3		38	51	12			104	83	
Del Paso Rock Products Company (e)	8.9R	1-1½"				NO AGRICULTURAL USE							
W. J. Wissemann	9.0L	1-6"				14	26	12			52	37	
G. L. Browning	9.05R	1-5"	3	8	10	13	15	15	17	14	(f) 95	12	
J. G. and F. F. Dauenhauer	9.2L	1-8"				37	25	18	9		89	(g) 72	
Ruth Coleman	9.4L	1-5"				NO DIVERSION							
Sweem Brothers	10.2R	1-8"	27	39	52	83	103	61	20	37	422	70	
Gold Nugget Orchard Company	10.4R	1-5"			13	11	25	7	14		70	17	
Mucke Sand and Gravel Company	11.2L	1-6"	1	6	5	11	15	19	11	7	(h) 75	(i) 24	
J. T. Gore	11.5L	1-4"				NO DIVERSION							
William A. Meyer	11.7L	1-4"				4	7	2		5	18	27	
C. W. Deterding and Mrs. May McDonnell	13.9R	1-6"				PLANT REMOVED							
J. R. Deterding	(j) 15.8R	1-4"				5	29	30	18	9	(k) 91	45	
Carmichael Irrigation District	16.0R	1-6" 2-12"	30	60	108	538	913	806	610	254	(m) 3319	(g,n)3627	

(a) This unit replaced a 7" unit formerly listed at this location
(b) Formerly listed as Mile 5.3R.
(c) Combined acreage for Miles 6.5R and 7.5R. This acreage also received an undetermined amount of well water.
(d) Formerly listed as John I. Haas Company.
(e) Installed prior to 1953. Not previously listed.
(f) Additional acre-feet diverted: February 2 and November 5.
(g) This acreage also received an undetermined amount of well water.
(h) Additional acre-feet diverted: February 1 and November 1.
(i) Of this acreage 20 were double cropped.
(j) Formerly listed as Mile 15.1R.
(k) Additional acre-feet diverted: November 2.
(m) Additional acre-feet diverted: November 10.
(n) District is suburban land and no segregation of irrigated acreage is available.

TABLE 177

DIVERSIONS AND ACREAGES IRRIGATED - AMERICAN RIVER - 1953 (Cont'd)

Water User	Mile and bank above Mouth	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
--GAGING STATION - AMERICAN RIVER AT FAIROAKS--	19.2												
Totals			62	117	227	936	1386	1100	706	328	4862	4572	0
Average cubic feet per second			1	2	4	16	23	18	12	5	10		
Monthly use in per cent of seasonal			1.3	2.4	4.7	19.3	28.5	22.6	14.5	6.7			

TABLE 178

DIVERSIONS AND ACREAGES IRRIGATED - COSUMNES RIVER - 1953

Water User	Mile and Bank above Mouth	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
--WESTERN PACIFIC RAILROAD BRIDGE--	0.4												
Kenworthy and Patterson (a)	2.0L	1-30"		118	414	406	460	424	144		1966	270	190
--STATE HIGHWAY 104 BRIDGE--	5.3												
Fred G. Cary (b)	(c) 6.0L	1-3"				36	43				79	90	
L. G. Kilkeary and H. Trevor (a)	9.8R	1-8"		124	167	176	112				579	450	
J. R. Guttridge (b)	10.5R	1-6"					89				89	(d) 80	
--SOUTHERN PACIFIC RAILROAD BRIDGE--	10.6												
--U. S. 50 AND 99 HIGHWAY BRIDGE--	10.7												
--GAGING STATION - COSUMNES RIVER AT McCONNELL--	10.7												
J. C. Carli	14.3R	1-10"				39	42	14			95	(e) 80	
J. C. Carli	14.4R	1-10"				NO DIVERSION							
M. F. Larkin (a)	14.6L	1-5"					32	21			53	40	
--COUNTY ROAD BRIDGE (FREEMAN ROAD)--	14.9												
H. A. Saner	15.4R	1-8"				NO DIVERSION							
J. I. Nix (a)	15.8L	1-4"					4	5	2		11	9	
--COUNTY ROAD BRIDGE (WILTON ROAD)--	16.8												
--CENTRAL CALIFORNIA TRACTION COMPANY RAILROAD BRIDGE--	16.8												
George D. Beitzel	18.2R	1-12"				54	60	22			136	135	
Bright Estate (Mike Marinelli)	20.1R	(f)1-12"		165	176	228	249	245	223	184	1470	(d) 200	
J. I. Haas, Incorporated	20.9R	1-12"				48	67	20			135	72	
F. Barbero (a)	21.6L	1-6"			11		15	13			39	30	
Rooney Brothers	23.7R	1-12"				59	68				127	(d) 140	
W. Jared Sheldon	24.4R	1-8"		45	32	73	101	81	51	21	(g) 404	(d) 176	
--DILLARD ROAD BRIDGE--	24.8												
P. Westerberg	25.5R	1-14"				70	92	26	2	78	(h) 268	(d) 130	
A. V. Signorotti (b)	25.6R	1-3"					2	2			4	3	
R. F. and R. M. Grimshaw	25.9R	1-8"				12	15	7			34	45	
A. V. Signorotti	26.3R	1-5"				13	12	10			35	16	
F. Morse Grimshaw	26.4R	1-6"			6		8	3			17	10	
G. C. Johnson	26.5L	1-5"				15	39	4			58	(i)	
G. C. Johnson	27.3L	1-6"				14	37	28			79	(j) 98	
F. Silva, Jr.	27.8L	1-6" 1-8"		14		40	32	28	15		129	(d) 75	
R. C. Catlett	29.4R	1-5"				PLANT REMOVED							
Schneider Ranch (b)	30.0L	1-8"		9	36		56	26			127	100	
--STATE HIGHWAY SIXTEEN BRIDGE--	31.3												
A. Granlees	32.6R	1-3"				7	19	11	17	2	56	25	
--GRANLEES DAM--	33.0												
Cosumnes River Water District	33.0R	Gravity	102	292	436	753	782	715	650	189	(k) 3919	800	

(a) Installed prior to 1953. Not previously listed.
(b) New installation in 1953.
(c) Portable unit diverted between Miles 5.3L and 6.1L in 1953.
(d) This acreage also received an undetermined amount of well water.
(e) Of this acreage, 40 also received an undetermined amount of well water.
(f) The 12" unit replaced a 15" unit formerly listed at this location.
(g) Additional acre-feet diverted: November 3.
(h) Additional acre-feet diverted: November 22.
(i) See Mile 27.3L.
(j) Of this acreage, 68 acres also received water from Mile 26.5L, the remaining 30 acres also received an undetermined amount of well water.
(k) This is the diversion entering the district across State Highway 16 and includes an undetermined amount of spill to the Cosumnes River at Mile 29.9R but does not include the spill above Highway 16. Additional acre-feet diverted: November 9.

TABLE 178

DIVERSIONS AND ACREAGES IRRIGATED - COSUMNES RIVER - 1953 (Cont'd)

Water User	Mile and Bank above Mouth	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	General Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
--GAGING STATION - COSUMNES RIVER AT MICHIGAN BAR--	34.3												
Totals			102	767	1278	2043	2436	1705	1104	474	9909	3074	190
Average cubic feet per second			2	13	21	34	40	28	19	8	20		
Monthly use in per cent of seasonal			1.0	7.7	12.9	20.6	24.6	17.2	11.2	4.8			

TABLE 179

DIVERSIONS AND ACREAGES IRRIGATED - MOKELUMNE RIVER - 1953

Water User	Mile and Bank *	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
--FRANKLIN-THORNTON HIGHWAY BRIDGE--	4.9												
--COSUMNES RIVER--	5.0R												
--WESTERN PACIFIC RAILROAD BRIDGE--	5.4												
Manuel Lopes (a)	6.6R	1-12"		3	4	43	213	205	18		486	200	
Thornton Farms (a)	6.9R	1-8"				6	5	5			16	13	
--GALT-THORNTON HIGHWAY BRIDGE--	7.0												
Thornton Farms (a)	7.6R	2-12"		119	65	211	518	444	67	68	1492	(b) 355	(b) 140
Thornton Farms (a)	8.1R	1-12"		310	134	135	166	120			(c) 865		60
A. Steffan (d)	8.7R	1-12"		41	31	71	84	81	60	20	388	111	
S. and J. Frandy	10.4L	1-12"	10	7	5	6	14	15	7	4	68	18	
A. Steffan (e)	10.6R	(f)1-16"	42	278	269	418	508	451	314	140	2420	(g) 639	
H. C. Braly (a)	15.5R	1-3"	3	4	3	10	12	11	2	2	47	10	
A. Taddei	15.6R	1-6"		2	5	13	26	4	1	5	(h) 56	53	
R. J. Linde (i)	16.8R	1-6"	32	82	3	11	35	15			178	107	
--GAGING STATION-MOKELUMNE RIVER AT WOODBRIDGE--	19.2												
--SACRAMENTO ROAD BRIDGE--	19.8												
--WOODBRIDGE IRRIGATION DISTRICT DAM--	19.9												
Woodbridge Irrigation District	19.9L	Gravity	9710	17560	19110	21020	25340	23220	17210	12130	(j) 145300	14567	1737
LeMoin Beckman	21.1L	1-5"				NO DIVERSION							
LeMoin Beckman	21.3L	(k)1-3"				NO DIVERSION							
Lewis D. Bridge	21.85R	1-6"				41	26	16			83	32	
Sidney Halsey (m)	22.5R	1-5"				10	10	10			30	17	
J. R. Benty	22.9R	1-6"				PLANT REMOVED							
L. R. Sanguinetti (n)	23.4L	1-6"			6		4				10	8	
Nora E. Mumbert (p)	23.4R	1-4"		22	17		11				50	13	
--SOUTHERN PACIFIC RAILROAD BRIDGE--	23.5												
M. M. Bender	23.6R	1-4"				DOMESTIC USE ONLY							
Ben Bechthold	24.0L	1-4"	20			17	7	3			(q) 47	13	
--HIGHWAY 99 BRIDGE--	24.2												
Litts, Mullen and Perovich (r)	24.45L	(s)1-5"			1	2	4	2	5		14	7	
Lawrence Ranch	24.5L	(t)1-6" 1-10"	79	197	83	25	38	44	10		476	115	
S. and M. Miller	(u) 24.8L	1-6"		6	4	5	5	3	9		32	14	
Kirschenmann and Mettler (v)	25.2R	1-6"	11	98	20	4	6	7	1		147	(w) 67	
M. and N. Palmer (x)	25.5L	1-4"		11							11	22	

* Mileage listed is approximate mileage above New Hope Bridge.
(a) Installed prior to 1953. Not previously listed.
(b) This acreage also received an undetermined amount of water from Dry Creek.
(c) Additional acre-feet diverted: November 3 and December 11.
(d) New installation in 1953.
(e) Formerly listed as M. R. Steffans.
(f) This unit replaced a 12" unit formerly listed at this location.
(g) Of this acreage 70 also received an undetermined amount of well water.
(h) Additional acre-feet diverted: November 8 and December 20.
(i) Formerly listed as R. J. Lange.
(j) Additional acre-feet diverted: February 190 and November 3490.
(k) Formerly listed as a 5" unit.
(m) Formerly listed as E. and M. Mayer.
(n) Formerly listed as L. R. Sangueniti.
(p) Formerly listed as J. and M. Mumbert.
(q) Additional acre-feet diverted: February 10.
(r) Formerly listed as Matt Barr.
(s) Formerly listed as a 6" unit.
(t) Formerly listed as 1-8" and 1-18" units.
(u) Formerly listed as Mile 24.6L.
(v) Formerly listed as T. and M. Kirschenmann.
(w) This acreage also received an undetermined amount of well water.
(x) Formerly listed as M. and M. Palmer.

TABLE 179

DIVERSIONS AND ACREAGES IRRIGATED - MOKELUMNE RIVER - 1953 (Cont'd)

Water User	Mile and Bank *	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
--CENTRAL CALIFORNIA TRACTION COMPANY BRIDGE--	25.6												
Vasco Mencarini (a)	26.9R	1-5"					8	25	7		40	50	
Irene Green (b)	27.5L	1-5"		86	49		16	8			159	100	
R. J. Linde	27.6L	1-8"	35			8	5	3			51	20	
A. E. Joens (c)	27.9L	1-10"	114	76		4	10				(d) 204	105	
Frank G. Dick (e)	28.5L	1-4"					5	5			10	10	
P. T. Nakagawa, et al.	28.6R	(f)1-6"		4	29	20	117	109	43		322	98	
L. M. Peterson	28.9L	1-4"				NO DIVERSION							
W. E. Mehlhaff (g)	29.9R	1-8"			37	6	1	3	2		49	64	
E. Bender	30.0L	1-10"	9	8	16	21	32	27	22	20	(h) 155	26	
--BRUELLA ROAD BRIDGE--	30.0												
V. W. Hoffman and Sons (i)	30.15R	1-5" (j)1-6"	7	20	54	29	44	26	12		192	70	
N. H. Davis	30.35R	(k)1-6"	2	7	9	17	14	10	7	3	69	51	
J. J. Schmiedt	30.95L	(m)1-7"					8	20	20	8	56	50	
L. Kirschenmann (n)	31.0L	(p)1-8"	88	136	115		27	6	1	1	(q) 374	155	
Rosa D. Soucie	31.7L	1-4" (r)1-7"				15	5	3	5		28	50	
L. M. Peterson	32.5L	1-5"		5	2	7	11	11	9	10	55	16	
Langford Ranch (Herbert Buck) (s)	32.75R	(t)1-5"			3	16	6				25	(u) 107	
C. M. Locke	33.25L	1-10"		61	16	55	104	104	44		384	130	
Acampo Vineyards (v)	33.45R	1-8"	5	8	4	9	17	19	9		71	18	
Acampo Vineyards (v)	33.6R	1-8"	32	24	20	30	52	36	4	3	(w) 201	92	
Niel C. Locke (x)	33.7L	1-12"	46	63	67	88	165	141	40	42	652	355	
H. C. Russell	33.75L	1-10"					24	58			82	(y) 70	
T. and E. Schmierer	33.8R	1-4"	2	5	4	8	9	10	7	5	(z) 50	15	
C. J. Seibel	34.05R	1-4"	1	5	11	6	5	5	2		35	(aa) 16	
A. and M. Knoll	34.1R	1-4"	4	37	32	6	23	6			108	23	
N. D. and D. D. Knoll	34.3R	1-4"	1	23	2	5	5	2			38	24	
--COUNTY ROAD BRIDGE--	34.35												
J. B. Ward	34.5R	1-4"	3	3	3	3	6	10	5		(ab) 33	17	
H. C. Russell	34.55L	(ac)1-10"	67	67	78	134	138	131	84	50	(y)(ad) 749	175	
Kenneth H. Beckman (e)	34.6R	1-5"				6	6	6	4	3	25	15	
H. C. Russell	34.75L	1-12"	10	49	32	73	154	69	27		414	217	
E. R. Thomas	35.15R	(k)1-6"	7	14	32	50	67	39	28	8	245	(ae)171	
E. M. Locke	35.2L	1-8"	11	43	24	40	51	53	43		(af) 265	67	
J. N. Borroughs	35.4L	(ag)1-8"	11	18	17	34	37	40	33	18	(ah) 208	(u) 134	
E. R. Thomas	35.5R	1-8"			4	11	40	25			80	45	
C. L. Allen	35.7L	1-8"	1	2	5	8	49	21	3	2	(q) 91	70	
P. Montgomery	35.9L	(p)1-7"				NO DIVERSION							
W. S. Montgomery	36.0L	1-8"	25	40	30	48	79	56	3		281	(ai) 105	
E. R. Thomas	36.2R	(m)1-10"		25	20	49	66	58	34		252	97	
O. Parker	36.45L	1-12"			52	25	50	101	49		277	125	
W. L. Moffat (a)	36.8R	1-8"				4	12	15	16		47	71	
W. L. Moffat	36.95R	1-10"				PLANT REMOVED							
J. R. Wiederrich	37.15L	1-10"				10	52				62	42	
W. L. Moffat	37.45R	(aj)1-8"				44	18	38	20		120	63	
W. L. Moffat	37.65L	1-10"				26	18				44	90	

* Mileage listed is approximate mileage above New Hope Bridge.
(a) New installation in 1953.
(b) Formerly listed as T. C. Green.
(c) Formerly listed as A. E. Jones.
(d) Additional acre-feet diverted: February 96.
(e) Installed prior to 1953. Not previously listed.
(f) A 3" unit formerly listed at this location was removed.
(g) Formerly listed as W. E. Mehlhoff.
(h) Additional acre-feet diverted: February 2.
(i) Formerly listed as V. and E. Hoffman.
(j) This 6" unit was installed in 1953.
(k) Formerly listed as a 7" unit.
(m) Formerly listed as an 8" unit.
(n) Formerly listed as L. Schenmann.
(p) This unit replaced a 12" unit formerly listed at this location.
(q) Additional acre-feet diverted: November 1.
(r) The 7" unit was a temporary installation during 1953.
(s) Formerly listed as Schuman Company.
(t) Formerly listed as a 6" unit.
(u) This acreage also received an undetermined amount of well water.
(v) Formerly listed as Campo Vineyards.
(w) Additional acre-feet diverted: February 9.
(x) Formerly listed as Neil C. Locke.
(y) Mile 34.55L furnished an undetermined amount of water to Mile 33.75L.
(z) Additional acre-feet diverted: February 1.
(aa) Includes 3 acres of Leonard Mettler lands.
(ab) Additional acre-feet diverted: February 2 and November 2.
(ac) This unit replaced an 8" unit formerly listed at this location.
(ad) Additional acre-feet diverted: November 5.
(ae) Of this acreage 136 also received an undetermined amount of well water.
(af) Additional acre-feet diverted: November 1 and December 1.
(ag) Formerly listed as a 10" unit.
(ah) Additional acre-feet diverted: November 7.
(ai) Of this acreage 25 also received an undetermined amount of well water.
(aj) This unit replaced a 10" unit formerly listed at this location.

TABLE 179

DIVERSIONS AND ACREAGES IRRIGATED - MOKELUMNE RIVER - 1953 (Cont'd)

Water User	Mile and Bank *	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
Costa Estate (a)	37.7R	1-12"		20		3	24	5			52	36	
M. C. and H. L. Thompson	38.0L	(b)2-6"				31	34	14			79	70	
J. N. Borroughs (c)	38.1L	1-6"	3	37		38	29	32	22	5	(d) 166	50	
P. L. and V. A. Stabel	38.3L	(e)1-10"				39	17	38	4		98	36	
Gertrude W. Chrisman	38.5L	1-12"		28	24	47	101	103			303	80	
Clements Estate	39.0L	1-12"	9	216	199	211	323	299	202	114	(f) 1573	325	
R. S. Featherston	39.3R	1-14"				NO DIVERSION							
--HIGHWAY 88 BRIDGE--	39.3												
--GAGING STATION - MOKELUMNE RIVER NEAR CLEMENTS--	39.35												
Totals			10400	19870	20750	23332	29116	26446	18515	12661	161090	20197	1937
Average cubic feet per second			169	334	337	392	474	430	311	206	331		
Monthly use in per cent of seasonal			6.4	12.3	12.9	14.5	18.1	16.4	11.5	7.9			

* Mileage listed is approximate mileage above New Hope Bridge.
(a) Formerly listed as Marie Costa.
(b) Formerly listed as 1-8" unit.
(c) Installed prior to 1953. Not previously listed.
(d) Additional acre-feet diverted: November 10.
(e) Formerly listed as an 8" unit.
(f) Additional acre-feet diverted: February 25 and November 27.

TABLE 180

DIVERSIONS AND ACREAGES IRRIGATED - CALAVERAS RIVER - 1953

Water User	Mile and Bank above Mouth	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
--PACIFIC AVENUE BRIDGE--	3.7												
Charles M. Weber (a)	4.4R	4-6"	7	11	362	367	406	407	174		1734	200	75
--SOUTHERN PACIFIC RAILROAD BRIDGE--	5.3												
--STOCKTON DIVERTING CANAL--	5.4L												
--U. S. 50 AND 99 HIGHWAY BRIDGE--	6.8												
--CENTRAL CALIFORNIA TRACTION COMPANY RAILROAD BRIDGE--	7.9												
A. V. Lagorio (a)	8.5L	1-6"		17	10	11	12				50	(b) 25	
--SOLARI ROAD BRIDGE--	8.8												
--GAGING STATION - CALAVERAS RIVER NEAR STOCKTON--	8.9												
E. Leonardini (a)	9.1R	1-4"		1	5	10	18	9			43	(b) 25	
Uyeda Brothers (a)	9.9L	1-6"		1	20	35	47	18			121	(b) 61	
Rugani Brothers (a)	9.9R	1-6"			12	27	52	19			110	(b) 54	
E. and R. Sanguinetti (c)	10.2R	1-8"		1	5	10	16	8			40	(b) 25	
--ALPINE ROAD BRIDGE--	10.6												
John Arata (a)	11.2L	1-5"			5	10	15	8			(d) 38	(b) 20	
Edith Foppiano (a)	11.4L	1-4"			4						4	(b) 6	
Frank Solari (a)	11.4R	1-6"			6	28	52	25			111	(b) 85	
--PEZZI DAM--	11.8												
Julia Pezzi and Sons (e)	11.8R	Gravity			16	26	42	21			(d) 105	(b) 55	
Julia Pezzi and Sons (e)	11.85L	Gravity			9	14	23	11			(d) 57	(b) 30	
A. Navone (e)	11.85R	Gravity			3	4	8	4			(d)(f) 19	(b)(f) 10	
A. Navone (e)	11.95R	Gravity									(f)	(f)	
Julia Pezzi and Sons (e)	11.95L	Gravity			2	3	5	3			(d) 13	(b) 7	
Julia Pezzi and Sons (e)	12.0L	Gravity			3	6	9	5			(d) 23	(b) 12	
L. Freggiaro and Son (e)	12.05R	Gravity			5	10	15	8			(d)(g) 38	(b)(g) 20	
Julia Pezzi and Sons (e)	12.05L	Gravity			4	6	10	5			(d) 25	(b) 13	
Julia Pezzi and Sons (e)	12.1L	Gravity			2	3	4	2			(d) 11	(b) 6	
Julia Pezzi and Sons (e)	12.15L	Gravity			4	7	11	6			(d) 28	(b) 15	

(a) Installed prior to 1953. Not previously listed.
(b) This acreage also received an undetermined amount of well water.
(c) New installation in 1953.
(d) This figure is partially estimated.
(e) Diversion quantities and acreages for these points were formerly combined and listed as Pezzi Dam.
(f) Combined acreage and diversion for Miles 11.85R and 11.95R.
(g) Combined acreage and diversion for Miles 12.05R and 12.3R.

TABLE 180

DIVERSIONS AND ACREAGES IRRIGATED - CALAVERAS RIVER - 1953 (Cont'd)

Water Users	Mile and Bank above Mouth	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
--MURPHY DAM--	12.3												
A. Sciutti (a)	12.3L	Gravity			6	11	17	8			(b) 42	(c) 22	
L. Freggiaro and Son (a)	12.3R	Gravity									(d)	(d)	
Tony Pastore (a)	12.35L	Gravity									(e)	(e)	
G. Freggiaro and Son (a)	12.39R	Gravity									(f)	(f)	
G. Freggiaro and Son (a)	12.40R	Gravity				NO DIVERSION							
G. Freggiaro and Son (a)	12.41R	Gravity			5	10	15	8			(b)(f) 38	(c)(f) 20	
H. B. Murphy and C. Bava and Son (a)	12.42R	Gravity			16	27	42	21			(b) 106	(g) 56	
Tony Pastore (a)	12.5L	Gravity									(e)	(e)	
Tony Pastore (a)	12.6L	Gravity			3	4	7	3			(b)(e) 17	(c)(e) 9	
Vic Freggiaro (a)	12.6R	Gravity			12	19	30	15			(b) 76	(c) 40	
--STATE HIGHWAY 88 BRIDGE--	12.7												
Tony Pastore (a)	12.8L	Gravity			1	2	2	1			(b) 6	(c) 3	
Percy Pope (a)	12.9R	Gravity			15	15	22	21			(b) 73	(c) 28	
N. Tassano (h)	14.0R	1-4"			11	14	12	12			49	(c) 30	
J. Schiaffini (h)	14.4R	1-4"			12	16	20	9			57	(c) 20	
Grattone and Bava (i)	14.5R	1-12"			36	155	219	139			549	(c) 194	
A. Girardi	15.4R	1-12"			24	101	88	3			216	(c)(j) 160	
J. H. Tone	15.7L	1-10"			53	53	68	62			236	(c) 90	
--JACK TONE ROAD BRIDGE--	15.8												
John Plotz	16.0R	1-5"				14	4	5			23	(c) 37	
T. Cademartori	16.2L	(k)1-5"			31	49	63	14			157	(c) 65	
Joe Phillips (h)	16.5L	1-6"			23	36	40	58			157	80	
C. Paoletti	16.6L	1-5"				11	21	10			42	(c) 34	
Lawrence Zolezzi	16.8L	1-6"				50	55	47			152	(c) 60	
--TULLY ROAD BRIDGE--	17.8												
John Boggiano	17.3L	1-6"				21	10				31	(c) 40	
Steve Solari	18.4L	(u)1-8"				176	178	69			423	(c) 255	
Joe Landoni	19.3R	1-5"				24	24	9			57	(c) 38	
E. F. Messick	19.8R	1-5"			2	4	2	1			9	(c) 4	
W. E. Lynch	19.8L	1-4"				NO DIVERSION							
L. Vaccarezza	20.1L	1-5"				19	18	7			44	(c) 33	
Guernsey Ranch (i)	20.3L	1-10"			6	20	39	20			85	(c) 57	
Frank G. Rossi	(m) 20.6L	1-5"				6	7	7			20	(c) 20	
Guernsey Ranch	20.9R	1-8"			13	32	32	21			98	(c) 45	
G. Arboco	21.0L	1-4"				18	31	21			(n) 70	(c) 38	
Frank Giannecchini (i)	21.01L	1-5"			19	11	12	16			58	(c,n) 40	
--CLEMENTS ROAD BRIDGE--	21.1												
E. W. Marciano, D. Canepa, and C. DeMartini (p)	21.1L	Gravity			88	88	154	110			(b) 440	(c) 220	
Albert Metzler (p)	21.11L	Gravity			19	25	43	37			(b) 124	(r) 62	
Mailand Ferrill	21.3L	1-5"				NO DIVERSION							
D. Giordano	21.4L	1-4"			4	7	7	3			21	(c) 10	
Domonick Figone	(s) 21.5L	(t)1-5"			6		8	7			21	(c) 30	
--NORTH SLOUGH--	21.6R												
--NORTH SLOUGH CONTROL GATES--	*(0.0)												
F. Harrison (i)	*(1.3L)	1-4"				1	3	1			5	(c) 13	
L. Robinson (i)	*(1.3R)	1-3"			1	3	2	1			7	7	
S. Filippone (i)	*(1.8L)	1-4"				13	5	3			21	(c) 17	
W. G. Fisher (h)	*(4.1L)	1-4"					37	35	15		87	(c) 106	

* North Slough - North Slough diverts from Calaveras River at Mile 21.6R. Distance from Calaveras River and bank is shown in ().
(a) Diversion quantities and acreages for these points were formerly combined and listed as Murphy Dam.
(b) This figure is partially estimated.
(c) This acreage also received an undetermined amount of well water.
(d) Combined acreage and diversion for Miles 12.05R and 12.3R.
(e) Combined acreage and diversion for Miles 12.35L, 12.5L and 12.6L.
(f) Combined acreage and diversion for Miles 12.39R and 12.41R.
(g) Of this acreage 16 also received an undetermined amount of well water.
(h) Installed prior to 1953. Not previously listed.
(i) New installation in 1953.
(j) Combined acreage Miles 15.4R and 21.6R (6.1L).
(k) Formerly listed as a 6" unit.
(m) Formerly listed as Mile 20.9L.
(n) Mile 21.0L furnished one acre-foot of water to Mile 21.01L.
(p) Diversion quantities and acreages for these points were formerly combined and listed as Clements Road Dam.
(r) Of this acreage 28 also received an undetermined amount of well water.
(s) Formerly listed as Mile 21.4L.
(t) Formerly listed as a 4" unit.
(u) Formerly listed as a 10" unit.

TABLE 180

DIVERSIONS AND ACREAGES IRRIGATED - CALAVERAS RIVER - 1953 (Cont'd)

Water User	Mile and Bank above Mouth	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
--TULLY ROAD BRIDGE--	*(4.2)												
J. H. Tone	(a) *(6.0R)	(b)1-10"		28		10	42	46	12		138	136	
A. Girardi	*(6.1L)	1-16"			29	22	79	41			171	(c)	
A. G. Steltzner (d)	*(7.3R)	1-8"		1	335	86	89				511		(e)120
J. W. Hannah, Jr. (f)	*(7.8L)	(g)1-9"		159	185	195	249	141			929		(e)90
--STATE HIGHWAY 88 BRIDGE--	*(8.1)												
A. G. Steltzner (d)	*(8.1R)	1-6"		11	65	43	35				154		(e)100
Webster Ranch	21.7R	1-8"			33	44	99	70			246	(h) 132	
Ralph Houston	21.9R	1-8"				18	43	17			78	(e) 86	
Andrew Cuneo	(i) 22.0L	1-12"			84	57	124	88			353	120	
Nick Genetti	22.1L	1-4"				15	14	7			36	(e) 19	
Joe DeMartini	22.2R	1-8"			4	37	43	20			104	(e) 78	
Carroll and Anderson	22.3L	1-8"			25	70	64	44			203	(e) 94	
John Boggiano	22.4R	(j)1-10"				28	44	12			84	(e) 69	
Caeser DeMartini	22.7R	1-12"				32	66	34			132	(e) 130	
Louis Tassano	22.9L	1-8"			6	15	16	20			57	(e) 75	
Frank DeBenedetti	23.1L	1-7"					6	3			9	(e) 7	
Fred Podesta	(k) 24.3L	(m)1-12"				NO DIVERSION							
Fred Podesta	24.4L	(n)1-12"				16	27	21			64	(p) 450	
--STATE HIGHWAY 8 BRIDGE--	25.2												
--GAGING STATION - CALAVERAS RIVER AT BELLOTA--	25.25												
--CALAVERAS RIVER - MORMON SLOUGH CONTROL GATES--	25.28												
Armanino Brothers (q)	25.3R	1-10"		9	29	102	159	112			411	(e) 115	
D. Creary (d)	25.3L	1-3"			1	1	2	1			5	2	
--MORMON SLOUGH--	25.3L												
--GAGING STATION - MORMON SLOUGH AT BELLOTA--	*(0.05)												
--FARMINGTON - BELLOTA COUNTY ROAD BRIDGE--	*(0.2)												
J. G. Watkins	*(0.3R)	1-8"		2		31	24	13			70	(e) 64	
A. Solari	*(0.5L)	1-8"			33	20	41	11			105	(e) 82	
Fred Casella	*(0.9L)	1-6"	2	12	8	53	58	30			163	(e) 80	
Linden Orchard	*(1.4R)	1-12"			10	126	151	44			331	(e) 300	
Sam Motoike (r)	*(1.5L)	1-8"				17	18	12			47	(e) 60	
E. Marugliano	(s) *(2.0R)	(m)1-7"		4		20	20	15			59	(e) 42	
C. and F. Sanguinetti	*(2.0L)	1-8"		7	1	38	56	33			135	(e) 84	
--FINE ROAD BRIDGE--	*(2.7)												
Frank Solari	*(2.7L)	1-5"				28		5			33	(e) 24	
Caeser DeMartini	*(3.4R)	1-10"				13	21	18			52	(e) 48	
John Avansino	*(3.5L)	1-5"				19	10	5			34	(e) 30	
Louis J. Lagorio (t)	*(3.6R)	1-6"					20	14			34	(e)114	
P. W. Leonardini (u)	*(4.1L)	1-7"		1	4	30	60	30			125	(e)100	
Clarence R. Russell (u)	*(4.4L)	1-8"			10	20	31				61	(e) 60	
John A. Lagorio	*(5.8L)	1-7"				17	20	12			49	(e) 40	
C. and F. Sanguinetti	*(6.1L)	1-6"			8	34	30	21			93	(e) 64	
P. Paoletti (u)	*(6.2R)	1-6"			2	6	6	6			20	(e) 18	
A. and R. Lagorio	*(6.9L)	1-8"				17	28	15			60	(e) 83	
A. and R. Lagorio	(v) *(7.2L)	1-8"		10	10	19	39	17			95	(e) 70	

* North Slough - North Slough diverts from Calaveras River at Mile 21.6R. Distance from Calaveras River and bank is shown in ().

* Mormon Slough - Mormon Slough diverts from Calaveras River at Mile 25.3L, and rejoins river through Stockton Diverting Canal. Distance from Calaveras River and bank is shown in ().

(a) Formerly listed as Mile 21.6R (5.9R).
(b) Formerly listed as a 12" unit.
(c) Combined acreage of Miles 15.4R and 21.6R (6.1L).
(d) New installation in 1953.
(e) This acreage also received an undetermined amount of well water.
(f) Formerly listed as J. W. Hannah.
(g) Formerly listed as an 8" unit.
(h) Of this acreage 64 also received an undetermined amount of well water.
(i) Formerly listed as Mile 21.9L.
(j) This unit replaced a 5" unit formerly listed at this location.
(k) Formerly listed as Mile 23.8L.
(m) Formerly listed as a 10" unit.
(n) Formerly listed as a 14" unit.
(p) This acreage also received an undetermined amount of well water and controlled drainage water.
(q) Formerly listed as Armaninio Brothers.
(r) Formerly listed as Sadaki Higashi.
(s) Formerly listed as Mile 1.8R.
(t) Formerly listed as V. Lagorio.
(u) Installed prior to 1953. Not previously listed.
(v) Formerly listed as Mile 7.1L.

TABLE 180

DIVERSIONS AND ACREAGES IRRIGATED - CALAVERAS RIVER - 1953 (Cont'd)

Water User	Mile and Bank above Mouth	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
--COPPEROPOLIS ROAD BRIDGE--	*(7.8)												
Frank C. Raffel (a)	*(11.9L)	1-6"			9	15	20	6	4		54	(b) 22	
--END OF MORMON SLOUGH-BEGINNING OF STOCKTON DIVERTING CANAL--	*(13.0)												
Homer D. Riddle	8(13.3R)	1-6"		5	73	115	117	56			366	(b) 220	
--STATE HIGHWAY 8 BRIDGE--	8(14.9)												
--U. S. 50 AND 99 HIGHWAY (FREEWAY) BRIDGE--	8(16.0)												
R. Moresco (a)	8(16.2R)	1-12"			246	362	362	181			1151	(b) 40	(b) 30
--U. S. 50 AND 99 HIGHWAY BRIDGE--	8(17.2)												
--GAGING STATION - STOCKTON DIVERTING CANAL AT STOCKTON--	8(17.6)												
Albert A. Anderson	25.5L	1-12"			63	6	75				144	(b) 115	
L. F. Grimsley	25.9L	(c)1-16"			86	1	88	105			280	191	
Vignolo and Pallavicino	26.3R	1-10"			9	84	94	110			297	(b) 150	
Field Brothers	26.8L	1-6"	14	7	29	47	68	38			203	(b) 110	
McGurk Ranch	26.8R	1-8"		35	23	49	66	43			216	(b) 132	
Saverio Nogare	(d) 27.2R	1-12"		7	37	64	70	3			181	(b) 105	
Saverio Nogare	27.5L	1-10"				57	30	32			119	(b) 99	
E. E. Cady	28.3L	1-6"		11		31	14	22			78	(b) 80	
L. and A. V. Lagorio	28.9L	(e)1-10"					30	19			49	(b) 50	
Garavano and Maffeo	29.0L	1-6"				20	15	3			38	(b) 50	
O. R. Shelley	29.3L	(f)1-10"		41	13	30	74	59	43		260	152	
O. R. Shelley	29.3R	1-5"					PLANT REMOVED						
M. N. Yocum	29.4L	1-8"			30	24	68	4			126	(b) 75	
A. G. Watkins	30.1R	1-10"	19	64	84	103	144	84			498	(g) 100	
--BELLOTA - RIVER ROAD BRIDGE--	30.4												
L. and D. Hoag	30.6R	1-14"		10		48	65	68	25	8	224	(b) 162	
Lynn Barnett	30.7R	1-7"				13		15			28	26	
Lois E. Hunt	31.1R	(f)1-7"		7	5	29	30	21	1		93	(h) 62	
S. M. Gregory	31.3R	(i)1-8"	2		8	44	17	36	11		(j) 118	(k) 87	
S. M. Gregory	31.6R	1-6"			1	25	10	6			(k) 42	(m) 38	
Eva Hunt	32.5R	(n)1-5"	3	5	6	10	17	9	15		(p) 65	15	
Eva Hunt	32.6L	1-6"	24	8	14	24	47	34	8		159	55	
--GAGING STATION - CALAVERAS RIVER AT JENNY LIND--	36.9												
Totals			71	475	2501	4132	5437	3295	308	8	16227	7664	415
Average cubic feet per second			1	8	41	69	88	54	5	0	33		
Monthly use in per cent of seasonal			0.4	2.9	15.4	25.5	33.5	20.3	1.9	0.1			

* Mormon Slough - Mormon Slough diverts from Calaveras River at Mile 25.3L, and rejoins river through Stockton Diverting Canal. Distance from Calaveras River and bank is shown in ().

8 Stockton Diverting Canal - Stockton Diverting Canal diverts from Mormon Slough at Mile 25.3L (13.0) and rejoins the Calaveras River at Mile 5.4L. Distance from Calaveras River and bank is shown in ().

(a) New installation in 1953.
(b) This acreage also received an undetermined amount of well water.
(c) Formerly listed as a 14" unit.
(d) Formerly listed as Mile 27.5R.
(e) Formerly listed as a 12" unit.
(f) Formerly listed as an 8" unit.
(g) Of this acreage 80 also received an undetermined amount of well water.
(h) Of this acreage 25 also received an undetermined amount of well water.
(i) Formerly listed as a 10" unit.
(j) Additional acre-feet diverted: November 4.
(k) Mile 31.6R furnished 5 acre-feet to Mile 31.3R.
(m) Of this acreage 6 also received an undetermined amount of well water.
(n) Formerly listed as a 6" unit.
(p) Additional acre-feet diverted: November 1.

TABLE 181

DIVERSIONS AND ACREAGES IRRIGATED - OLD SAN JOAQUIN RIVER DELTA UPLANDS - 1953

Water User	Mile and Bank *	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
Contra Costa Canal	(a)30.5L	2-30" 2-42"	2074	2503	2659	3714	4162	4339	4094	2868	(b) 26413	(c) 5580	
Leo Fallman	836.5L	1-16"	52	112	126	195	192	199	126	126	(d) 1128	270	
East Contra Costa Irrigation District	836.5L	2-18" 2-24" 2-30"	2037	4392	4296	5286	6529	5036	2435	226	30237	(e) 16382	
Augustus Sarija	836.5L	2-6"	5	12	14	13	19	25	16	14	118	82	
--STATE HIGHWAY 4 BRIDGE--	38.8												
Byron-Bethany Irrigation District	¥40.9L	1-24" 1-30"	3626	4064	4547	4767	5741	5309	4143	1840	(f) 34037	9629	
--CLIFTON COURT FERRY--	43.8												
--DELTA-MENDOTA CANAL--	44.6L												
M. R. Furtado	44.6L	1-14"	175	128	101	140	230	236	118	70	(g) 1198	327	
George Covert	47.2L	1-16"	139	151	125	378	295	193	204	40	(h) 1525	(i) 385	
Lucio J. Costa	47.2L	1-14"	55	117	122	108	303	317	305	104	1431	(i) 250	
West Side Irrigation District	¥47.65L	7-15"	3681	5880	4577	4753	6080	6290	3692	1371	(j) 36324	(k) 10358	
Johnny Costa	¥47.65L	1-8"	13	15	27	25	44	35	26	19	(m) 204	80	
Vance Brown	48.4L	1-12"	39	29	8	18	53	32	16	21	(n) 216	123	
Naglee Burke Irrigation District (p)	49.5L	1-4"	1	1	1	3	2	2	1	2	13	6	
Naglee Burke Irrigation District	50.4L	1-16" 1-18"	1024	1048	1201	1454	1992	1718	1399	576	10412	2439	
Freemont Irrigation Assn.	50.9L	1-16"	297	159	83	212	220	202	145	26	(q) 1344	685	
Joe M. Freitas	51.0L	1-8"		28	26	36	20	19	23		152	36	
Attilio Casserini	51.2L	1-10"			8		9		9		26	36	
Excelsior Ranch #2	52.4L	1-10"	44	19	30	59	47	36	23	2	(q) 260	120	
A. L. Galli	53.0L	1-8"	5	19	20	20	27	17	12	9	(r) 129	57	
--RECORDING GAGE--	53.0												
--MOUTH OF TOM PAINE SLOUGH--	54.3L												
Totals			13267	18677	17971	21181	25965	24005	16787	7314	145167	46845	0
Average cubic feet per second			216	314	292	356	422	390	282	119	299		
Monthly use in per cent of seasonal			9.1	12.9	12.4	14.6	17.9	16.5	11.6	5.0			
Delta-Mendota Canal	44.6L		34138	81983	127063	133843	174422	149778	46523	24992	(s) 772742		

* Mileage along Old San Joaquin River from mouth of San Joaquin River 4½ miles below Antioch.
ß Indian Slough joins the Old San Joaquin River at Mile 36.5L. Pumping plant is located on intake canal which joins Indian Slough.
¥ Italian Slough joins the Old San Joaquin River at Mile 40.9L. Pumping plant is located on intake canal which joins Italian Slough.
¥ Pumping plant is located on intake canal which joins Old San Joaquin River at Mile 47.65L.
(a) Point of diversion is at head of Rock Slough.
(b) Additional acre-feet diverted: January 1951, February 1732, November 2463 and December 2414.
(c) In addition to this acreage, water was also served for industrial and municipal uses.
(d) Additional acre-feet diverted: February 50 and November 12.
(e) This acreage also received 3898 acre-feet of well water.
(f) Additional acre-feet diverted: February 236 and November 91.
(g) Additional acre-feet diverted: November 1.
(h) Additional acre-feet diverted: February 30 and November 161.
(i) This acreage also received an undetermined amount of water from Mountain House Creek.
(j) Additional acre-feet diverted: February 354, November 301 and December 81.
(k) Of this acreage, 764 were double cropped. General acreage reported as 10094 acres in 1952 report, should have been 10686 acres.
(m) Additional acre-feet diverted: February 7.
(n) Additional acre-feet diverted: February 41 and November 2.
(p) Formerly listed as Salles Brothers.
(q) Additional acre-feet diverted: February 2.
(r) Additional acre-feet diverted: February 4 and November 1.
(s) Additional acre-feet diverted: February 9136, November 1418 and December 875.

TABLE 182

DIVERSIONS AND ACREAGES IRRIGATED - TOM PAINE SLOUGH DELTA UPLANDS - 1953

Water User	Mile and Bank *	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
Independent Mutual Water Corp. and Co.	0.7S	2-18"	335	231	204	313	586	607	191	9	2476	1059	
Independent Mutual Water Corp. and Co.	1.5S	1-18"	54	102	7		61	25	150		(a) 399	227	
--HOLLY SUGAR CORPORATION DREDGER CUT--	2.1S												
George J. Lake	*(0.5W)	1-10"				89	11				100	170	
Holly Sugar Corporation	*(1.2W)	1-12" 1-14"	292	341	245	348	409	483	340	352	(b) 2810	622	

* Mileage along Tom Paine Slough from its mouth at Mile 54.3L on Old San Joaquin River.
* Holly Sugar Corporation dredger cut joins Tom Paine Slough at Mile 2.1S. Distance along dredger cut and bank is shown in ().
(a) Includes an undetermined amount of water returned to slough by spilling. Additional acre-feet diverted: February 69.
(b) Additional acre-feet diverted: February 108, November 340 and December 170. Includes an undetermined amount of water used for industrial purposes.

TABLE 182

DIVERSIONS AND ACREAGES IRRIGATED - TOM PAINE SLOUGH DELTA UPLANDS - 1953 (Cont'd)

Water User	Mile and Bank *	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
--RECORDING GAGE--	2.2S												
Pescadero Reclamation District #2058 (#1)	2.9S	1-12"	126	123	108	182	224	205	155	60	(a) 1183	219	
Pescadero Reclamation District #2058 (#3)	6.3S	1-12" 1-20" 1-24"	1301	1366	1068	1770	2166	2228	1484	462	(b) 11845	2543	
Pescadero Reclamation District #2058 (#5)	8.3S	1-12"	15	328	204	197	285	274	181	56	(c) 1540	306	
--RECORDING GAGE--	8.7S												
Pescadero Reclamation District #2058 (#5A)	9.0S	1-12"	15	183	108	120	225	151	150	33	(d) 985	241	
Totals			2138	2674	1944	3019	3967	3973	2651	972	21338	5387	0
Average cubic feet per second			35	45	32	51	65	65	45	16	44		
Monthly use in per cent of seasonal			10.0	12.5	9.1	14.2	18.6	18.6	12.4	4.6			

* Mileage along Tom Paine Slough from its mouth at Mile 54.3L on Old San Joaquin River.
(a) Additional acre-feet diverted: February 27.
(b) Additional acre-feet diverted: February 148.
(c) Additional acre-feet diverted: February 45.
(d) Additional acre-feet diverted: February 47.

TABLE 183

DIVERSIONS AND ACREAGES IRRIGATED - SAN JOAQUIN RIVER DELTA UPLANDS - 1953
(Stockton to Vernalis)

Water User	Mile and Bank *	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
--STATE HIGHWAY 4 BRIDGE--	45.3												
Carolyn Weston	46.1R	1-4"				NO DIVERSION							
Carolyn Weston	46.2R	1-6"		8	4	4	9	7	4		(a) 36	35	
Carolyn Weston	46.3R	1-12"	90		162	134	101	131	98		716	225	
Ivy Ranney	46.65R	1-10"		37	48	38	54	82	42		301	80	
Frank West	46.85R	1-10"	12	77	59	50	128	85	31	94	536	160	
F. Asano	47.2R	1-6"	6	19	6	11	20	20	9	2	(b) 93	39	
Wolfinger Brothers	47.3R	1-10"	1		31	22	41	18	28		141	47	
C. C. Long	47.55R	1-10"							90		90	110	
Waldo C. Haack	48.0R	1-14"		111	22	70	52	49	80		384	365	
Chow L. Young	48.3R	1-4½"	2	3	5	6	8	7	5	2	(c) 38	23	
Chow L. Young	48.5R	1-3"				NO DIVERSION							
Joe Calcagno	48.5R	1-6"	5	18	12	13	25	25	15		113	90	
Mike Calcagno (d)	48.55R	1-6"	6	5	10	1	2	7	8		39	30	
Calcagno Brothers	48.66R	1-12"	49	38	36	44	114	64	44	3	392	155	
Minna M. and Ema J. C. Ott	49.0R	1-12"	23	20	46	31	60	68	49	55	(e) 352	75	
Herbert Spangenberg and S. B. Chapman	49.3R	1-14"	64	65	85	121	159	132	131	90	(f) 848	185	
Herbert Spangenberg and S. B. Chapman	49.5R	1-12"	30	32	42	42	40	31	20	40	(g) 276	40	
A. A. Rodgers	50.1R	1-10"	15	24	36	32	56	36	46	28	(h) 273	80	
--BRANDT BRIDGE--	50.2												
A. Hirata	50.4R	1-10"	1	21	38	31	39	41	36		207	34	
K. R. and F. Watanabe	50.6R	1-6"	24	20		36	32	22	19		153	53	
D. Toscano	50.8R	1-6"	11	18	26	29	27	33	25	17	(i) 186	35	

* Mileage along San Joaquin River from its mouth 4½ miles below Antioch.
(a) Additional acre-feet diverted: December 18.
(b) Additional acre-feet diverted: February 4.
(c) Additional acre-feet diverted: November 1.
(d) Formerly listed as Beulah L. Carr.
(e) Additional acre-feet diverted: November 46.
(f) Additional acre-feet diverted: February 40 and November 11.
(g) Additional acre-feet diverted: February 11 and November 12.
(h) Additional acre-feet diverted: February 10 and November 4.
(i) Additional acre-feet diverted: February 5 and November 3.

TABLE 183

DIVERSIONS AND ACREAGES IRRIGATED - SAN JOAQUIN RIVER DELTA UPLANDS - 1953
(Stockton to Vernalis)
(Cont'd)

Water User	Mile and Bank *	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
Pastorino Brothers	50.9R	1-12"	39	15	72	69	87	84	89	20	(a) 475	150	
Pastorino Brothers	51.0R	1-6" 1-10"				NO DIVERSION							
Felipe Esteban	51.2R	1-12"	2	47		31	54	37			(b) 171	34	
J. Burchel	52.1R	1-10"				NO DIVERSION							
G. Santini	52.4R	1-5"	2	3	4	2	4	5	2		22	17	
D. J. Macedo	52.65R	1-10"	42	32				72			146	96	
J. Widmer	53.2R	1-12"	73	80	125	126	214	191	166	17	(c) 992	376	
William Mishimura	53.4R	1-8"	9	10	8	13	12	14	8	6	(d) 80	32	
John Domingo	53.6R	1-4"	2	11	10	3	4	3	4	1	(e) 38	(f) 13	
John Domingo	53.7R	(g)1-14"	108	63	87	15	156	159	106	55	(h)(i) 749	262	
I. N. Robinson, Jr.	53.8R	1-14"	73	226	228	222	292	294	222	95	(j) 1652	(i) 388	
R. E. Albertson	54.9R	1-10"	2	48	21	80	83	60	91	65	(k) 450	146	
--JUNCTION WITH MIDDLE RIVER--	56.2L												
Oakwood Stock Farm	57.0R	1-14"	194	212	245	251	422	376	126	113	(m) 1939	459	
James Tobin	57.15R	1-7"		41	6	37	56	36	18	10	(k) 204	(n) 40	
Frank Dewar, et al.	57.38R	1-4"		1	1		1				3	2	
Andrew B. Calori (p)	57.45R	1-6"		15		10	26	22			73	30	
G. Gardella and Company	57.5R	1-4"	6	2	1	2	6	4	1		(q) 22	16	
A. Queirolo	57.65R	1-3"				NO DIVERSION							
A. Queirolo	58.6R	1-3"			1	1	1	2	2		7	36	
R. Mauro	58.7R	1-4"					2	2			4	9	
--SOUTHERN PACIFIC RAILROAD BRIDGE--	58.8												
--U. S. 50 HIGHWAY-MOSSDALE BRIDGE RECORDING GAGE--	58.9												
Mertle Abersold	59.25R	1-6"	3	39	40	22	43	38	18	9	(r) 212	50	
M. H. Madruga	59.3R	1-15"	56	56	83	150	216	188	168	66	983	254	
Eugene J. Rossi, et al.	59.5L	1-14"				62	144	158	23		387	170	
--WESTERN PACIFIC RAILROAD BRIDGE--	59.5												
M. H. Madruga	60.1R	1-6"	11	6	6	6	7	24	8	3	71	30	
James and Leslie Little	60.4L	1-4"		4				10	6		20	(f) 7	
A. F. Windeler	60.5L	1-12"		99	85	63	91	54	34		426	186	
E. Pecchi and Son	60.5R	1-8"		49	8	16	42	73			188	68	
E. Pecchi and Son	61.4R	1-12"	15	22	46	29	106	112	28		358	222	
A. F. Windeler	61.5L	1-8"				NO DIVERSION							
Jack Williams (p)	62.0R	1-6"				5	17	8			30	55	
Bernice Von Sosten	62.0L	1-12"	98	55	90	72	140	161	70	9	(s) 695	(t) 208	
--PARADISE DAM (HEAD OF PARADISE CUT)--	62.2L												
Paradise Mutual Water Company	(u) 62.2L	1-14" 1-20"	363	278	293	401	402	386	329	69	(v) 2521	813	
Dethlefsen Brothers	63.0L	2-20"	171	298	88	104	1037	877	790	88	3453	(w) 1490	
H. H. Grimes	63.6R	1-12"		82	51	78	103	110	48	14	486	208	
Dethlefsen Brothers	64.6L	1-10"		16	1	9	27	24			77	50	
Manuel Brazil	66.7L	1-8"	70	72	53	74	171	108	62		610	135	
Banta-Carbona Irrigation District	67.5L	2-10" 2-16" 2-20" 3-24" 1-36"	5970	10136	6137	6932	11943	8679	4912	1961	(x) 56670	(y)17562	

* Mileage along San Joaquin River from its mouth 4½ miles below Antioch.
(a) Additional acre-feet diverted: February 8 and November 9.
(b) Includes an undetermined amount of water returned to river by spill.
(c) Additional acre-feet diverted: November 3 and December 2.
(d) Additional acre-feet diverted: February 1.
(e) Additional acre-feet diverted: February 1, November 2 and December 2.
(f) This acreage was double cropped.
(g) A 12" unit was removed in 1953.
(h) Additional acre-feet diverted: November 16.
(i) Mile 53.7R furnished an undetermined amount of water to acreage served by Mile 53.8R.
(j) Additional acre-feet diverted: February 33 and November 15.
(k) Additional acre-feet diverted: November 4.
(m) Additional acre-feet diverted: November 28.
(n) Of this acreage 10 were double cropped.
(p) New installation in 1953.
(q) Additional acre-feet diverted: December 1.
(r) Additional acre-feet diverted: February 4 and November 3.
(s) Additional acre-feet diverted: November 1.
(t) Of this acreage 35 were double cropped.
(u) Plant is located on south side of Paradise Cut 0.9 miles from junction with San Joaquin River.
(v) Additional acre-feet diverted: November 16 and December 80.
(w) Includes 300 acres of State of California lands.
(x) Additional acre-feet diverted: February 1576 and November 146.
(y) Acreage includes the following outside the district: Banta Farms 811, Kasson District 599 and outside contracts 1168. Acreage includes 606 acres double cropped in the district. This acreage also received an undetermined amount of controlled drainage water.

TABLE 183

DIVERSIONS AND ACREAGES IRRIGATED - SAN JOAQUIN RIVER DELTA UPLANDS - 1953
(Stockton to Vernalis)
(Cont'd)

Water User	Mile and Bank *	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
Glen M. West (a)	70.0L	1-6"	12	74	51	48	59	97	71	9	(b) 421	132	
Richard Burnley	70.5R	1-10"				NO DIVERSION							
Reclamation District #2075	71.0R	2-16"	155	525	227	721	586	743	408	68	(c) 3433	(d,e)1192	
E. Filippini	71.0R	1-4"				NO DIVERSION							
H. J. Mortensen and Barker	73.2R	1-8" 1-12"	157	297	84	88	228	286			1140	293	
San Joaquin River Club	74.7L	1-6"			35	58	159	100	153	90	(f) 595	(g) 50	
E. A. Tassi	75.6R	1-16"	28	117	28	88	202	175	92	63	(e,h) 793	130	
STOCKTON TO VERNALIS Totals Average cubic feet per second Monthly use in per cent of seasonal			8000 130 9.3	13547 228 15.8	8883 144 10.3	10603 178 12.4	18110 295 21.1	14630 238 17.1	8835 148 10.3	3162 51 3.7	85770 176	27272	0

* Mileage along San Joaquin River from its mouth 4⅛ miles below Antioch.
(a) Formerly listed as Bradford S. Crittenden.
(b) Additional acre-feet diverted: February 13 and November 6.
(c) Additional acre-feet diverted: February 48 and November 18.
(d) Of this acreage 37 were double cropped.
(e) Mile 75.6R furnished an undetermined amount of water to a portion of the acreage served by Mile 71.0R.
(f) Additional acre-feet diverted: February 190, November 113, and December 152.
(g) Lakes for recreational purposes.
(h) Additional acre-feet diverted: February 4 and November 26.

TABLE 184

DIVERSIONS AND ACREAGES IRRIGATED - SAN JOAQUIN RIVER - 1953
(Vernalis to Fremont Ford Bridge)

Water User	Mile and Bank *	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
--DURHAM FERRY BRIDGE - GAGING STATION - SAN JOAQUIN RIVER NEAR VERNALIS--	76.7												
A. J. Chisholm	78.9R	1-10"		42	36	54	96	15			243	90	
Cruze, Kirby and Moresco	79.4R	1-20"	68	115	35		56	44	26		344	(a) 193	
--STANISLAUS RIVER--	79.7R												
W. C. Blewett Estate	80.7L	1-12"	75	130	127	300	80	173			(b) 885	221	
W. C. Blewett Estate	81.8L	(c)1-10" 2-12"	221	285	480	875	1090	1023	873	233	(d) 5080	(e) 490	(e) 360
--GAGING STATION - SAN JOAQUIN RIVER AT MAZE ROAD BRIDGE--	81.85												
Blewett Mutual Water Company	81.95L	3-12"	450	847	707	378	848	889	490	37	(f) 4646	1064	
El Solyo Water Company	82.0L	3-18" 1-10"	2406	2703	2091	2861	3403	3334	2455	1350	(g) 20603	(h) 3763	
--GAGING STATION - SAN JOAQUIN RIVER AT HETCH HETCHY WATER SUPPLY CROSSING--	82.65												
E. T. Mapes	89.9R	1-4"	28	18	33	68	30	18	36		231	400	
--TUOLUMNE RIVER--	91.0R												
--RECORDING GAGE--	91.8L												
--WEST STANISLAUS IRRIGATION DISTRICT INTAKE CANAL--	91.8L												
West Stanislaus Irrigation District	91.8L	1-12" 1-24" 6-26"	7170	12164	8705	12913	17098	14207	7583	1320	(i) 81160	(j) 24290	
J. B. Erkenbrecher #1	*(0.6S)	1-14"	162	107					90		(k) 359	100	
Frank Sarmento #1	*(0.7N)	2-16"	165	105	111	172	314	211	118	134	(m) 1330	213	
Frank Sarmento #2	*(1.1N)	1-14" 1-16"	435	446	437	802	920	911	687	97	(n) 4735	(p) 760	140
J. B. Erkenbrecher #2	*(2.2S)	1-16"	31	20	33	41	68	47			240	80	
Frank Sarmento #3	*(2.3N)	2-16"	11	28	578	390	472	415	452	7	(q) 2353	155	157
George Covert (r)	(s) 94.1L	1-6" 1-3"	14	41	41	83	23	25	92	66	(t) 385	(u) 95	

* Mileage along San Joaquin River from its mouth 4⅛ miles below Antioch.
* West Stanislaus Irrigation District Intake Canal - The Intake Canal joins the San Joaquin River at Mile 91.8L. Distance from the San Joaquin River and the bank is shown in ().
(a) Includes 60 acres of Chisholm lands.
(b) Additional acre-feet diverted: February 124.
(c) The 10" unit was a temporary installation for 1953.
(d) Additional acre-feet diverted: February 98, November 72, and December 71.
(e) This acreage also received an undetermined amount of controlled drainage water and an undetermined amount of water from Mile 81.95L.
(f) Includes an undetermined amount of water furnished to Mile 81.8L.
(g) Includes an undetermined amount of water returned to river by spill. Additional acre-feet diverted: February 188 and November 172.
(h) Of this acreage 257 were double cropped and 268 acres also received an undetermined amount of well water. This acreage also received an undetermined amount of controlled drainage water.
(i) Additional acre-feet diverted: February 1979, November 184, and December 179.
(j) This acreage also received 7009 acre-feet of Delta Mendota Canal water as follows: April 1538, June 249, July 2531, and August 2691. Of this acreage 1583 were double cropped. Includes 1785 acres irrigated outside of district.
(k) Additional acre-feet diverted: February 9.
(m) Additional acre-feet diverted: November 9.
(n) Additional acre-feet diverted: February 61 and November 8.
(p) Of this acreage 85 were double cropped.
(q) Additional acre-feet diverted: November 2.
(r) Plant installed prior to 1953. Not previously listed.
(s) Pumping plant is located on old channel which joins the river at Mile 94.1L.
(t) Additional acre-feet diverted: November 13.
(u) Of this acreage 15 were double cropped.

TABLE 184

DIVERSIONS AND ACREAGES IRRIGATED - SAN JOAQUIN RIVER - 1953
(Vernalis to Fremont Ford Bridge)
(Cont'd)

Water User	Mile and Bank *	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
Rancho Dos Rios #1	94.7R	1-12"	108	231	380	368	386	364	364	289	(a) 2490	(b) 410	
C. H. Geer (c)	95.5R	1-10"	210	196	99	136	134	32			(d) 807	(e) 281	
Bostick Brothers	95.8R	1-10"	94	56	61	65	46	39	54		(f) 415	81	
W. F. Cook	96.0L	1-18"	131	377	428	451	777	675	255	107	(g) 3201	500	
--GAGING STATION - SAN JOAQUIN RIVER AT GRAYSON (LAIRD SLOUGH BRIDGE)--	96.05												
E. S. Brush (h)	98.5R	1-7"		16	21	16	38	25	17	5	138	50	
Rancho El Pescadero	98.9L	1-18"	41	277	79	201	516	401	101		(i) 1616	(j) 959	
--PATTERSON BRIDGE - RECORDING GAGE--	104.4												
Patterson Water Company	104.4L	1-14" 2-18" 3-20" 1-36"	5752	8013	6842	7752	11214	8265	5937	804	(k,m) 54579	(n)13584	374
Chase Brothers	104.5R	1-10"	94	161	160	182	214	226	128	86	(p) 1251	212	
M. L. Simmons	104.52L	1-5"		4	3	5	11	5	6		34	6	
Harry Black	104.7L	1-3" 1-4"	1	2	1	2	1	1	1	2	(q) 11	(r) 3	
Chase Brothers	106.5R	1-10" (s)1-12"	438	222	275	320	439	356			(t) 2050	500	
Tony Spinelli	109.1R	1-12"	21	13	41	49	62	38	34	30	(u) 288	79	
Twin Oaks Irrigation Company	109.8L	1-12" 3-16"	621	1660	1312	1473	1829	1603	868	157	(v) 9523	(m,w)1575	470
T. J. Henderson	(x) 110.8R	1-8"	31	16	37	41	8	29		36	(y) 198	(e) 110	
J. Holtzman	112.5L	1-4"		4	1	4	18	3	9		39	(b) 20	
Roy Ustick	112.55R	1-16"	143	137	140	183	285	263	275	84	(z) 1510	(aa) 480	
Frank C. Mosier	113.4R	1-10"	44	41	61	50	80	69	66	32	443	103	
--CROWS LANDING BRIDGE - RECORDING GAGE--	113.5												
A. J. Silveria	113.85R	1-6"	4		8		11	8	3		34	10	
A. J. Silveria	114.35R	1-7"	14	8	17	1	21	17	16		94	26	
Frank C. Mosier	114.63R	1-8"	74	69	66	81	89	99	65	57	(ab) 600	90	
Manuel A. Serpa	(ac) 114.75R	1-10"				NO DIVERSION							
Hazel P. Crow	115.0L	1-10"		17	30	32	23	18	17	4	141	26	
Roy F. Crow	115.8L	1-10"	66	166	106	140	193	107	95	68	(ad) 941	(ae) 149	
L. B. Crow	116.05L	1-14"	52	126	182	184	201	140	181	109	(af) 1175	210	
John W. Greer	116.5R	1-12"		264	266	209	201	188	165	31	1324	170	
D. L. McCoy	(ag) 116.95R	1-10" 1-12"	63	61	31	83	75	53	55	30	(ah) 451	(b) 87	
--MERCED RIVER SLOUGH--	122.2R												
--GAGING STATION - SAN JOAQUIN RIVER NEAR NEWMAN--	123.7												
--MERCED RIVER--	123.75R												
Emil Giovannoni	123.9L	1-4"				NO DIVERSION							
VERNALIS TO FREMONT FORD BRIDGE Totals Average cubic feet per second Monthly use in per cent of seasonal			19238 313 9.3	29188 491 14.2	24061 391 11.7	30965 520 15.0	41370 673 20.1	34336 558 16.7	21614 363 10.5	5175 84 2.5	205947 424	51635	1501

* Mileage along San Joaquin River from its mouth 43 miles below Antioch.
(a) Additional acre-feet diverted: February 206.
(b) This acreage also received an undetermined amount of controlled drainage water.
(c) Formerly listed as Rancho Dos Rios #2.
(d) Additional acre-feet diverted: February 4.
(e) This acreage also received an undetermined amount of Turlock Irrigation District water.
(f) Additional acre-feet diverted: February 15.
(g) Additional acre-feet diverted: November 8.
(h) Installed prior to 1953. Not previously listed.
(i) Additional acre-feet diverted: February 83 and November 1.
(j) This acreage also received an undetermined amount of well water.
(k) Additional acre-feet diverted: February 1295.
(m) Mile 104.4L furnished an undetermined amount of water to acreage served by Mile 109.8L.
(n) Of this acreage 2221 were double cropped.
(p) Additional acre-feet diverted: February 48.
(q) Additional acre-feet diverted: November 1.
(r) This acreage was double cropped.
(s) The 12" unit was installed in 1953.
(t) Additional acre-feet diverted: February 65.
(u) Additional acre-feet diverted: February 10.
(v) Additional acre-feet diverted: December 40.
(w) Of this acreage 65 were double cropped.
(x) Formerly listed as Mile 109.9R.
(y) Additional acre-feet diverted: February 23.
(z) Additional acre-feet diverted: January 1, February 111, and November 3.
(aa) Of this acreage 60 were double cropped.
(ab) Additional acre-feet diverted: February 38.
(ac) Plant moved to this location from Mile 114.9R.
(ad) Additional acre-feet diverted: February 55 and November 14.
(ae) Of this acreage 40 were double cropped.
(af) Additional acre-feet diverted: February 65 and November 15.
(ag) Pumping plants are located on drain which joins the San Joaquin River at Mile 116.95R.
(ah) Additional acre-feet diverted: February 15.

TABLE 185

DIVERSIONS AND ACREAGE IRRIGATED - SAN JOAQUIN RIVER - 1953
(Fremont Ford to Gravelly Ford)

Water User	Mile and Bank *	Number and Size of Pump	Monthly Diversions in Acre-Feet												Total Diversion January to December Acre-Feet	Acreage Irrigated	
			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		General	Rice
--GAGING STATION - SAN JOAQUIN RIVER AT FREMONT FORD BRIDGE--	129.5																
Stevenson Corporation	135.7L	1-14"			48	19	42	16	95	81	39	24			364	225	
Erreca Farms	161.9R	1-18"						63	44	120	88				315	(a)440	
Dye Farms	163.2R	(b)1-12"			14		46	46	291	177	55				629	(a)478	
D. L. McNamara	(c)163.6R	1-16"			45	10		38	45	29	16				183	(a)100	
--GAGING STATION - SAN JOAQUIN RIVER NEAR DOS PALOS--	186.0																
San Luis Canal Company	(d)186.6L	Gravity		1930	10943	18159	21872	24474	23566	19648	13652	9249	4441	3963	151897	(a)39225	5335
--FIREBAUGH BRIDGE--	198.4																
Antone Zaninovich	206.02R	1-4"				7			11	13	9				40	21	
--GAGING STATION - SAN JOAQUIN RIVER NEAR MENDOTA--	206.2																
--MENDOTA DAM--	208.63																
--DELTA-MENDOTA CANAL--	208.63L																
San Joaquin Canal Company	(e)208.63L	Gravity	3580	13974	44799	68239	80479	74418	75201	61466	34866	22842	9455	6327	(f)495646	(g)138822	5417
Firebaugh Canal Company	(e)208.63L	2-24" 2-36" 2-42"		2793	5036	10255	12881	13462	13741	9164	4126	2664	869	1539	76530	(a)16527	(a)6453
Grasslands Water Assn.(h)	(e)208.63L	Gravity				349	732	169			2500	22957	547		27254	(j)20000	
Panoche Water District(h)	(e)208.63L	Gravity		2275	3479			178	1240	799	165	193			8329	(k)29178	(k)814
Eagle Field Water Assn.(h)	(e)208.63L	Gravity						46	13	982	585				1626	(m)257	(m)1381
Central California Irrigation District(h)	(e)208.63L	Gravity						159	3792	7398	6665	2234			20248	(n)	
San Luis Water District(h)	(e)208.63L	Gravity							51	238	10				(p)299	(p)	
--FRESNO SLOUGH--	208.93L																
--LONE WILLOW SLOUGH--	219.8R																
Columbia Canal Company	219.8R	Gravity		1831	4092	6369	8799	9792	7325	7674	4558	3005	2404	2238	(q)58087	(a)15758	(a)2549
--GAGING STATION - SAN JOAQUIN RIVER AT WHITEHOUSE--	219.83																
Horseshoe Bend Water District(h)	220.33L	1-4"										9		4	13	(n)	
Rose Campbell	232.55L	1-4"		2	2	5	3	6	11	9	5	1			44	(a)20	
Gravelly Ford Water Assn.(h)	232.8R	Gravity							NO DIVERSION								
--HEAD OF GRAVELLY FORD CANAL--	232.8R																
FREMONT FORD TO GRAVELLY FORD Totals			3580	22805	68458	103412	124854	122867	125426	107798	67339	63178	17716	14071	841504	261051	21949
Average cubic feet per second			58	411	1113	1738	2031	2065	2040	1753	1132	1027	298	229	1162		
Monthly use in per cent of seasonal			0.4	2.7	8.1	12.3	14.9	14.6	14.9	12.8	8.0	7.5	2.1	1.7			

* Mileage along San Joaquin River from its mouth 4½ miles below Antioch. (Mileage as established by War Department Survey 1913-15).
(a) This acreage also received an undetermined amount of well water.
(b) This is a portable unit which diverts water at Mile 163.2R and the East Side Canal.
(c) Plant is located on East Side Canal which diverts from San Joaquin River at this mile.
(d) Point of diversion is at head of Temple Slough.
(e) Point of diversion is considered to be Mendota Pool.
(f) Includes Main and Outside Canals and Helm Ditch.
(g) Includes some double cropping and interplanting.
(h) Data furnished by U. S. Bureau of Reclamation.
(j) Scattered flooding of an estimated acreage of grazing land and duck ponds.
(k) This acreage also received 37815 acre-feet of water from Delta-Mendota Canal.
(m) This acreage also received 1975 acre-feet of water from Delta-Mendota Canal.
(n) Acreage not available.
(p) Supplemental water for district acreage of 16207 acres.
(q) Includes gravity diversion in Lone Willow Slough, Mowry Canal and Mendota Pool pumps.

TABLE 186

DIVERSIONS AND ACREAGES IRRIGATED - UPPER SAN JOAQUIN RIVER - 1953
(Gravelly Ford to Friant Dam)

Water User	Mile and Bank *	Number and Size of Pump	Monthly Diversions in Acre-Feet												Total Diversi on January to December Acre-Feet	Acreage Irrigated	
			Jan.	Feb.	Mar.	Apr.	May	June	July,	Aug.	Sept.	Oct.	Nov.	Dec.		General	Rice
W. A. Kochergen (a)	233.66R	1-6"				19	49	112	56	6					242	66	
W. A. Kochergen	234.00R	1-6"	NO DIVERSION														
Ernest D. Hart	235.03L	1-3"						1	1	2	2	1		1	8	1	
C. G. Newbecker	235.33R	1-5"		5	10	8	18	37	65	74	66	2			285	(b)95	
Ruben Quinonez	236.28R	1-6"				4	16	13	17	35	12	4			101	(c)42	
--GAGING STATION - SAN JOAQUIN RIVER NEAR BIOLA--	236.4																
Smith and McInturf (d)	237.33L	1-8"				116		4	67	77			27		291	(e)235	
Lorraine Beatty	237.43L	1-6"	NO DIVERSION														
Milton A. Peterson	237.98R	1-6"			1	33	6	25	63	49		14	5		196	82	
--SKAGGS BRIDGE--	238.18																
--BOWSER RECORDING GAGE--	242.41L																
A. and M. Overgaard	243.84R	1-5" 1-6"		39	37	17	107	107	128	141	76	37	13		702	154	
C. B. Hines	244.03L	1-5"				1	2	1	3	2	1				(q) 10	(q) 5	
Y. H. Donny	244.86L	1-7"			27	43	4		33	39		17	6		169	(e)126	
C. L. Hammar	245.36R	1-6"			11	95	72	84	5		52	2			321	(c)79	
George Mordeca	245.63R	1-1½"					1		1		1				3	1	
Y. H. Donny	245.81L	1-6"			11				11	13		7			42	(e)41	
Jasper Ranch	246.15L	1-5"				5	6	4	12	6	5	4			42	14	
Jasper Ranch	246.34L	1-8"	NO DIVERSION														
H. W. Valentine	246.73L	1-5"	NO DIVERSION														
Vincent Jura	246.98L	1-4"	PLANT REMOVED														
--U. S. 99 HIGHWAY BRIDGE--	247.38																
Sam Deanda	247.50R	1-5"	NO DIVERSION														
G. Oberti and Sons	247.64R	1-5"			15	1	7	5	25	56	26	10			145	(c)132	
G. Oberti and Sons	247.65R	1-4"	NO DIVERSION														
San Joaquin Light and Power Company	247.82R	1-3"				12	9	11	13	11	10	1			67	30	
--HERNDON RECORDING GAGE--	248.31L																
Bud Bradburn	248.51L	1-3"				10	4	10	20	4	10				58	15	
--SANTA FE RAILROAD BRIDGE--	249.23																
Moosios, Moosios and Vlahos	249.51R	1-4"	PLANT REMOVED														
Moosios, Moosios and Vlahos	250.56R	1-6"	PLANT REMOVED														
Moosios, Moosios and Vlahos	250.76R	1-7"	PLANT REMOVED														
Miller Brothers (f)	251.46L	1-5"	5	24	20	10	30	29	16	8	3				145	75	
J. W. Carrell	253.10L	1-6"				8	3	6	9	7	1	3	3		40	9	
J. W. Carrell	253.30L	1-4"				35	45	16	57	49	24	2	17		245	21	
Fred Russell	253.79R	1-6"		1	3	20	13	8	26	22	6	9			108	50	
L. L. Howard	254.82R	1-5" 1-6"				25			68	55					148	(g)80	
L. L. Howard	254.93R	1-6"							64	64	2				130	(g)	
Greiner and Wright	254.98L	1-7"			11	36	29	27	61	21	11	9			205	58	
Sycamore Island (h) Stock Ranch #6	*255.00	1-3"			10	8		7	20	13	10	21	5		94	30	
Fresno State College	255.05L	1-4"	NO DIVERSION														
Sycamore Island (i) Stock Ranch #5	255.34R	1-6"			16	23		28	76	46	13	25			227	49	
Sycamore Island (j) Stock Ranch #4	*255.84	1-5"			8	5		15	53	12		7	8		108	17	
Sycamore Island (k) Stock Ranch #3	255.93R	1-4"			12	6	13	24	51	40	3				149	(m)25	
Sycamore Island (n) Stock Ranch #2	256.52R	1-6"		5	12	34	28	4	103	107	39				(m)332	74	
Holland Ranch and Development Corporation	257.1L	1-8"						27	61	47	26	20			181	(p)143	

* Mileage along San Joaquin River from its mouth 4½ miles below Antioch.
* Point of diversion and place of use is on island in midstream.
(a) Formerly listed as Roland Betzer.
(b) Of this acreage 30 also received an undetermined amount of well water.
(c) This acreage also received an undetermined amount of well water.
(d) Formerly listed as Morello Winery.
(e) This acreage also received an undetermined amount of Fresno Irrigation District water.
(f) Formerly listed as Sandstone Land and Cattle Company.
(g) Combined acreage for Miles 254.82R and 254.93R.
(h) Formerly listed as Edward A. Larson #6.
(i) Formerly listed as Edward A. Larson #5.
(j) Formerly listed as Edward A. Larson #4.
(k) Formerly listed as Edward A. Larson #3.
(m) Mile 256.52R furnished an undetermined amount of water to acreage served by Mile 255.93R.
(n) Formerly listed as Edward A. Larson #2.
(p) Combined acreage for Miles 257.1L and 257.7L.
(q) Diversion and acreage are estimated.

TABLE 186

DIVERSIONS AND ACREAGES IRRIGATED - UPPER SAN JOAQUIN RIVER - 1953
(Gravelly Ford to Friant Dam)
(Cont'd)

Water User	Mile and Bank *	Number and Size of Pump	Monthly Diversions in Acre-Feet												Total Diversion January to December Acre-Feet	Acreage Irrigated	
			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		General	Rice
Holland Ranch and Development Company	257.70L	1-12"					16	62	83	99	56				316	(a)	
L. D. Cobb	258.08R	1-6" 1-7"			32	55	30	125	165	120	77	52	4		660	155	
--NEW LANES BRIDGE--	258.33																
R. J. Curtis	258.39L	1-7"			8	59	13	36	52	67	63				298	70	
W. E. Roberts	258.50L	1-4"						NO DIVERSION									
W. E. Roberts	258.80L	1-6"	3	4	7	34	29	45	63	52	30	16	10	8	301	(b)150	
W. E. Roberts	258.90L	1-12"		14	39	61	53	48	61	73	61	29	9		448	(b)	
J. E. Cobb	259.30R	1-6"						NO DIVERSION									
J. E. Cobb	259.39R	1-6" 1-7"			39	20		30	122	77	14				302	105	
--SITE OF OLD LANES BRIDGE--	259.78																
Marjorie E. Sims	259.80L	1-6"			4	22	5	23	51	39	12				156	36	
J. E. Cobb (c)	260.4R	1-6"					9	2	40	37	15				103	95	
Duane M. Folsom	261.10L	1-2½"				3	3	4	4	4					18	15	
R. C. Arnold	261.53R	1-4"			7	21	3	31	63	39	23				187	82	
Duane M. Folsom	261.70L	1-6"				95	20	21	155	150	48				489	159	
E. G. Rank	*261.90	1-5"			1	11	8	21	29	23	10	4			107	(d)70	
E. G. Rank	*262.07	1-6"			1	16	11	27	34	27	15	4			135	(d)	
Duane M. Folsom	262.27L	1-7"			2	15		24	73	69	29				212	84	
A. Brown	262.43L	1-5"				16		21	40	46	21				144	(e,f)133	
E. G. Rank	262.48L	1-5"				11		20	38	47	20				136	(f)	
Dale McCoon	262.60R	1-6"						7	115	142	114				378	(g)120	
--SAMPLES RANCH RECORDING GAGE--	262.66																
Holland Ranch and Development Corporation	262.66L	1-7"				13		10	79	68	4				174	109	
D. E. Beebe (c)	262.8L	1-1½"				1		1							2	1	
E. M. Beebe	262.90L	1-7"						NO DIVERSION									
Dale McCoon	263.40R	1-7"	8	22	18	37	56	69	208	236	152	36			(g)842	62	
Dale McCoon	263.48R	1-6"		5	6	9	7	52	124	137	72	4			416	103	
Richard Jensen	263.76R	1-5"		21	89	73	92	97	99	113	115	84	28		811	90	
Pacific Coast Aggregate Company	264.00L	1-6" 1-8"						INDUSTRIAL USE ONLY									
H. W. Ball #1	(h)264.00L	1-6"						26	51	45	26				148	15	
H. W. Ball #3	(h)264.00L	1-3"						15	21	11	13	2			62	(i)46	
H. W. Ball #2	(h)264.00L	1-5"				10	5	19	17	21	7	5			84	(i)	
H. W. Ball #4	264.08L	1-6"			44	57	38	57	95	94	46	23			454	(i)	
Ike D. Ball	264.60R	1-6"		27	30	69	72	92	97	77	74	53	49		640	16	
W. F. Ball	264.83L	1-4"		1	5	20	34	36	61	68	43	15	9	1	293	52	
Ike D. Ball (c)	265.2R	1-2"										23	3		26	15	
V. D. Roullard	265.38L	1-6"				33		37	109	89	46	4			318	70	
V. D. Roullard	265.40L	1-5"			3	5	10	16	32	24	24	11	4		129	17	
Durando and Bellin	267.56L	1-7"	2	11	19	69	53	83	155	148	86	15	26	4	671	218	
--GAGING STATION - SAN JOAQUIN RIVER BELOW FRIANT--	268.13L																
--FRIANT BRIDGE--	268.88																
Wishon-Watson Company	269.18R	1-5"				46	51	30	27	17		9	38		218	41	
--COTTONWOOD CREEK--	269.53R																
--FRIANT DAM--	269.63																
GRAVELLY FORD TO FRIANT DAM																	
Totals			18	179	558	1455	1080	1792	3548	3265	1715	584	264	14	14472	3878	0
Average cubic feet per second			0	3	9	24	18	30	58	53	29	9	4	0	20		
Monthly use in per cent of seasonal			0.1	1.2	3.9	10.0	7.5	12.4	24.5	22.6	11.9	4.0	1.8	0.1			
Friant-Kern Canal (j)	269.63L	Gravity	202	1101	56437	51231	40124	99278	163736	160362	74618	22512	7375	0	679976		
Madera Canal (j)	269.63R	Gravity	26	0	11111	11856	10520	27555	51771	48592	29159	873	0	60	191523		

* Distance along San Joaquin River from its mouth 4½ miles below Antioch.
* Point of diversion and place of use is on island in midstream.
(a) Combined acreage for plants at Miles 257.1L and 257.7L.
(b) Combined acreage for plants at Miles 258.80L and 258.90L.
(c) New installation in 1953.
(d) Combined acreage for plants at Miles 261.90 and 262.07.
(e) Of this figure 26 acres received an undetermined amount of well water.
(f) Combined acreage for plants at Miles 262.43L and 262.48L.
(g) Plant at Mile 263.40R furnished an undetermined amount of water to acreage under plant at Mile 262.60R.
(h) Pump is located on pond whose major source of supply is from the Pacific Coast Aggregate Company plant located at this mile.
(i) Combined acreage for plants at Miles 264.00L (#3), 264.00L (#2), and 264.08 (#4).
(j) Pertinent data furnished by U.S. Bureau of Reclamation.

TABLE 187

DIVERSIONS AND ACREAGES IRRIGATED - FRESNO SLOUGH AND JAMES BY-PASS (a) - 1953
(The following table arranged from data furnished by U.S. Bureau of Reclamation)

Water User	Mile* From	Mile* To	Monthly Diversions in Acre-Feet Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total Diversion	Acreage Irrigated General	Rice
Borland Water District	6.45	8.20			206	458	1345	992	1386	1256	413				6056	2307	857
Wilbur Brothers	*(0.75)				20	637	945	1885	2177	2039	506				(b)8209	636	1414
James Irrigation District	*(4.4)			713	1678	906	2120	2013	4094	4854	1956				18334	15486	2351
J. W. Wilson	13.50					83	411	333	45	38					910	(c)	
Tranquillity Irrigation District	14.10	15.90		1782	2507	2144	5820	6585	6883	7364	2119				35204	5112	2987
Totals			0	2495	4411	4228	10641	11808	14585	15551	4994	0	0	0	68713	23541	7609
Average cubic feet per second			0	45	72	71	173	198	237	253	84	0	0	0	95		
Monthly use in per cent of seasonal			0	3.6	6.4	6.2	15.5	17.2	21.2	22.6	7.3	0	0	0			

* Mileage along Fresno Slough from its Mouth.
* Plant is located on James By-Pass. Mileage above Confluence of James By-Pass with Fresno Slough is indicated in ().
(a) The water in Fresno Slough and James By-Pass is mainly derived from the San Joaquin River (Mendota Pool backwater created by Mendota Dam) and is occasionally augmented by flows from the Kings River via James By-Pass.
(b) Includes water pumped from Slough Channel.
(c) Acreage not available.

TABLE 188

DIVERSIONS AND ACREAGES IRRIGATED - MERCED RIVER - 1953

Water User	Mile and Bank above Mouth	Number and Size of Pump	Monthly Diversions in Acre-Feet Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Total Diversion March to October Acre-Feet	Acreage Irrigated General	Rice
--HILLS FERRY BRIDGE--	1.1												
Stevinson Water District #1	1.8R	1-16"	35		36	101	73	57	69		371	215	
Stevinson Water District #2	3.8R	1-20"	421	338	361	356	692	465	368	288	(a)3289	690	
Milton Gordon	4.3L	1-10"	6	41	27	53	62	41	25	10	(b)265	(c)51	
--GAGING STATION - MERCED RIVER NEAR STEVINSON--	4.6												
Salvador De Angelis	4.8L	1-12"	13	5	16	15	15	15	7	9	95	33	
Maria De Angelis	5.8L	1-12"	17	37	12	88	109	20	8	11	(d)302	85	
Lydell Peck	6.1L	1-15"	53	114	109	79	142	112	99	43	751	194	
Stevinson Water District #3	7.7L	1-20"	434	44		73	637	306	106		(e)1600	(f)1068	
Manuel Clemintino	8.5L	1-12"	17	37	35	50	59	62	40	56	(g)356	120	
Manuel Clemintino	8.9L	1-12"	60	29	56	62	120	72	23	55	477	102	
Samuel B. McCullagh	9.4L	1-12"	131	54	94	124	194	180	157	59	993	229	
J. R. Jacinto	9.6L	1-12"	78	28	52	48	68	86	39	16	(h)415	113	
R. W. Adams and Mrs. J. B. Silva	10.35L	1-10"	93	130	297	231	377	350	310	102	(i)1890	386	
R. E. Prusso	10.8R	1-6"		13	4	3	7	4	5		36	25	
Manuel Freitas	10.9L	1-12"	93	32	96	59	221	181	83	70	(j)835	170	
R. E. Prusso and John Vierra	10.9L	1-5" 1-12"	67	14	81	47	111	101	49	14	(k)484	(m)219	
Tony Vierra	11.6L	1-6" 1-8"	135	76	116	176	216	167	72	105	(n)1063	119	
J. R. Silva	11.6L	1-12"	65	90	62	66	117	90	82	27	599	129	
--MILLIKEN BRIDGE--	11.65												
M. Turner	11.7R	(p)1-4"				NO DIVERSION							
E. and J. Gallo Winery Ranch	12.35L	1-10"	28	38							66	(q)260	
Soren Husman	12.4L	1-6"	18		16	15	26	19	15	3	(r)112	28	
M. Turner	12.8R	(p)1-4"					8	3			11	10	
E. and J. Gallo Winery Ranch	12.85L	(s)1-10" 1-12"	74	195	21	190	302	137			(t)919	(q)	
M. Turner	13.4R	(p)1-4"				NO DIVERSION							

(a) Additional acre-feet diverted: February 2 and November 1.
(b) Additional acre-feet diverted: November 14.
(c) Of this acreage 24 were double cropped.
(d) Additional acre-feet diverted: December 1.
(e) Additional acre-feet diverted: February 181.
(f) This acreage also received an undetermined amount of East Side Canal water.
(g) Additional acre-feet diverted: November 4.
(h) Additional acre-feet diverted: February 5 and November 3.
(i) Additional acre-feet diverted: November 9.
(j) Additional acre-feet diverted: November 38.
(k) Additional acre-feet diverted: November 10.
(m) Of this acreage 76 were double cropped.
(n) Additional acre-feet diverted: November 2.
(p) This is a portable unit which diverts water at Miles 11.7R, 12.8R and 13.4R.
(q) Combined acreage for Miles 12.35L and 12.85L.
(r) Additional acre-feet diverted: November 6.
(s) The 12" unit was installed in 1953.
(t) Additional acre-feet diverted: November 244.

TABLE 188

DIVERSIONS AND ACREAGES IRRIGATED - MERCED RIVER - 1953
(Cont'd)

Water User	Mile and Bank above Mouth	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
Anthony C. Pires	14.3R	1-6"	6	8	14	12	19	20	13	2	(a)94	45	
J. M. Souza	14.5L	1-10"	44	24	31	55	83	74	32	8	351	84	
Anthony C. Pires	14.8R	1-6"		19		23	21	22		14	(b)99	25	
Conie Koehn	14.8L	1-5"				NO DIVERSION							
Anthony C. Pires	15.4R	(c)1-4"				1		1			2	4	
Frank Cole (d)	16.2R	1-7"	15	18	2	20	18	22	13		108	38	
E. and J. Gallo Winery Ranch	16.5L	1-10"	101	155	21	138	184	104			(e)703	150	
--RECORDING GAGE--	16.55												
C. J. Carpenter	17.05L	1-7"	5	14	31	12	29	14	16	10	131	35	
Ervey Schmidt	17.7L	1-5"	4	3	7	6	17	13	6	8	(f)64	(g)17	
E. C. Millhous (h)	18.1R	1-6"				11		8	3		22	20	
J. H. Thomas	(i)18.4L	1-6"	14	16	12	24	29	25	20	9	(j)149	(k)19	
C. P. Hockett	18.5L	1-4"	6	1	6	6	8	8	7	6	48	17	
John Francis	18.6R	1-6"				2	10	9	4		25	15	
John Francis (m)	19.3R	1-5"				2	12	7	8		29	21	
S. P. Magsalay	19.8L	1-6"	3	5	3	7	6	6	4	1	(n)35	20	
Howard A. Jones	19.8L	1-6"		2	3	6	7	2	3		23	21	
John Francis	20.3R	1-5"				NO DIVERSION							
H. P. Juneman	20.4L	1-7"	12	21	41	38	55	56	40	2	265	106	
G. L. Carlson	20.6R	1-6"	12	5	16	24	31	26	16	9	139	35	
G. L. Carlson	20.65R	1-4"				PLANT REMOVED							
--U.S. HIGHWAY 99 BRIDGE--	21.04												
--SOUTHERN PACIFIC RAILROAD BRIDGE--	21.05												
A. C. Jorgensen #1	21.05R	1-6"		12	4	4	5	4	2		31	27	
Ben Bartlett	21.5L	1-6"				NO DIVERSION							
A. C. Jorgensen #2	22.2R	1-16"	58	68	117	101	217	186	152	19	(j)918	275	
A. C. Jorgensen #3	22.8R	1-12" 1-15"	27	70	63	55	131	53	37	37	473	186	
A. C. Jorgensen #4	23.6R	1-8"				NO DIVERSION							
C. H. Passadori, Jr.	24.2R	1-6"	2	18	16	22	22	38	12	12	(p)142	(q)63	
Helen Varnum (r)	24.2L	1-5"				NO DIVERSION							
T. Nishihara	24.3R	1-5"				NO DIVERSION							
Helen Varnum (r)	24.5L	1-6"	15	20	21	25	32	33	32		178	35	
T. Nishihara	24.6R	1-6"					28		28		56	(s)25	
T. Nishihara	25.0R	1-5"			7	5	13		18		43	(t)31	
T. Nishihara	25.5R	1-6"	5	7	21	12	10	11	7		(u)73	49	
Merced River Farms Association	26.3R	1-8"	70	88	97	109	166	169	106	33	(v)838	90	
W. C. Magneson	26.55R	1-5" 1-6"	4	15	17	5	23	22	15	1	(u)102	28	
Joseph Vierra (w)	26.8L	1-8"				NO DIVERSION							
--SANTA FE RAILROAD BRIDGE--	27.05												
W. C. Magneson	27.5R	1-10"	13	97	31	32	70	76	41	8	368	(x)101	
--GAGING STATION - MERCED RIVER AT CRESSY BRIDGE--	27.6												
T. Nishihara	27.8R	1-4" 1-6"		18	12	2	13	13	11	3	(y)72	27	

(a) Additional acre-feet diverted: February 3.
(b) Additional acre-feet diverted: February 3, November 1, and December 1.
(c) This unit replaced 2-6" units formerly listed at this location.
(d) Formerly listed as William J. Silva.
(e) Additional acre-feet diverted: November 173.
(f) Additional acre-feet diverted: February 2.
(g) Of this acreage 8 were double cropped.
(h) Formerly listed as John Francis.
(i) Plant moved to this location from Mile 17.85L in 1953.
(j) Additional acre-feet diverted: November 3.
(k) Of this acreage 7 were triple cropped.
(m) New installation in 1953.
(n) Additional acre-feet diverted: January 1 and February 1.
(p) Additional acre-feet diverted: November 6.
(q) Includes 18 acres of Nishihara lands.
(r) Formerly listed as Warren F. McConnell.
(s) This acreage was double cropped.
(t) Of this acreage 26 were double cropped.
(u) Additional acre-feet diverted: February 1.
(v) Additional acre-feet diverted: February 10 and November 9.
(w) Formerly listed as Carl Cunningham.
(x) Of this acreage 24 were double cropped.
(y) Additional acre-feet diverted: November 1.

TABLE 188

DIVERSIONS AND ACREAGES IRRIGATED - MERCED RIVER - 1953
(Cont'd)

Water User	Mile and Bank above Mouth	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
M. Uyekubo	28.1R	1-5"	1	4	7	3	8	5	5	2	(a)35	(b)19	
John Farie	28.4R	1-5"		5	5	2	6	6	3	2	29	18	
J. Campadonica	28.6R	1-6"					1	7	9		17	12	
Oliver Alves	28.6R	1-8"			33	52	46	27	31	24	213	75	
Anthony Demchille	29.1R	1-7"		29	20	36	10	39	13		147	58	
Anthony Demchille	29.75R	1-6"		8		7	49	33			97	38	
Manuel Silva (High Lift)	29.9R	1-6"				NO DIVERSION							
Manuel Silva (Low Lift)	29.9R	1-6"		4	3	18	53	55	17		150	70	
Rose and Shaffer	30.7L	1-6"	30	46	54	27	34	56	18	36	301	51	
Manuel Silva	30.95R	1-12"		104	24	127	74	125	124	1	579	175	
Rose and Shaffer	31.1L	1-8"	74	119	98	73	130	134	52		680	57	
Manuel Silva	31.5R	1-6"				NO DIVERSION							
Albert Chavas (c)	31.6R	1-6"				NO DIVERSION							
--SOUTHERN PACIFIC RAILROAD BRIDGE (OAKDALE BRANCH)--	32.52												
Albert Chavas (c)	33.1R	1-6"	34	54	57	99	164	133	80	18	639	100	
Ivan Spiva (d)	33.2L	1-4"	1	6	3	1	16	18	8		53	11	
Albert Chavas (c)	33.55R	1-6"					31	26			57	80	
W. F. Bettencourt, P. Halaris and Cowel Land and Cement Co.	36.9L	Gravity	88	1289	905	888	906	821	747	548	6192	812	
Reinero Brothers	39.2L	1-24"				NO DIVERSION							
E. M. Davis	40.2L	1-4"				NO DIVERSION							
--GAGING STATION - MERCED RIVER BELOW SNELLING--	42.1												
Totals			2482	3687	3293	3928	6343	4975	3310	1681	29699	7431	0
Average cubic feet per second			40	62	54	66	103	81	56	27	61		
Monthly use in per cent of seasonal			8.4	12.4	11.1	13.2	21.4	16.7	11.1	5.7			
Merced Irrigation District	(e)46.0	Gravity											
Totals - Main Canal			37304	61118	66427	78337	101305	88033	66243	349	(f,g)499116	(h)103755	(h)5776
Average cubic feet per second			607	1027	1080	1317	1648	1432	1113	6	1029		
Monthly use in per cent of seasonal			7.5	12.2	13.3	15.7	20.3	17.6	13.3	0.1			
Totals - Northside Canal			1164	2577	2541	3046	4009	3521	3124	52	(f)20034	(h)	(h)
Average cubic feet per second			19	43	41	51	65	57	53	1	41		
Monthly use in per cent of seasonal			5.8	12.9	12.7	15.2	20.0	17.6	15.6	0.2			

(a) Additional acre-feet diverted: February 1 and November 1.
(b) Of this acreage 4 were double cropped.
(c) Formerly listed as Jack Pretzer.
(d) Formerly listed as A. L. Felling.
(e) Approximate mileage of the Crocker-Hoffman Diversion Dam.
(f) This total does not include 3641 acre-feet from Main Canal and 2985 acre-feet from Northside Canal used by riparian users.
(g) Additional acre-feet diverted: February 964.
(h) This is the total acreage served by the Main and Northside Canals.

TABLE 189

DIVERSIONS AND ACREAGES IRRIGATED - TUOLUMNE RIVER - 1953

Water User	Mile and Bank above Mouth	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
E. T. Mapes	1.3R	1-20"	259	162	60	97	92	72	90	35	(a)867	(b)2650	
J. V. Steenstrupt	1.9L	1-12"	65	111	67	156	205	198	33		835	(c)165	
J. DeSouza and J. B. Silva	2.2R	1-6"	31	12		10	11	2	5		71	50	
J. V. Steenstrupt	2.9L	1-12"	183	77	440	474	506	574	446		(d)2700	(e)203	(f)120
--GAGING STATION - TUOLUMNE RIVER AT TUOLUMNE CITY--	3.35												

(a) Additional acre-feet diverted: February 202 and December 86.
(b) This acreage also received an undetermined amount of controlled drainage water from the Modesto Irrigation District.
(c) Of this acreage 80 were double cropped.
(d) Additional acre-feet diverted: December 43.
(e) Of this acreage 30 also received an undetermined amount of Turlock Irrigation District water and 78 acres were double cropped.
(f) Of this acreage 40 also received an undetermined amount of Turlock Irrigation District water.

TABLE 189

DIVERSIONS AND ACREAGES IRRIGATED - TUOLUMNE RIVER - 1953
(Cont'd)

Water User	Mile and Bank above Mouth	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
Russel Murray	3.4L	1-5"		5	4	11	6	10	6		42	18	
Bancroft Fruit Farms	4.1R	1-12"	21	19	40	35	27	24	37	5	(a)208	77	
Bancroft Fruit Farms	5.0R	1-10"	82	56	81	75	109	87	51	12	(b)553	195	
R. L. Maxfield	6.9R	1-7"	13	33	21	48	42	31	13	1	202	22	
Eugene Boone, Galen Hartwich and Tony Lemos	7.1R	1-10"	58	53	47	82	103	74	50	40	(c)507	160	
W. F. Duffy	7.2R	1-7"	9	25	21	50	32	19	7		(d)163	49	
Ella T. Rahilly	7.8L	1-10"		50	61	44	22	42	35	35	289	17	
W. F. Duffy	8.4R	1-10"	52	63	74	77	94	85	31	42	518	121	
Ella T. Rahilly	8.5L	1-10"		6	14	3	2	21	7	4	57	35	
A. C. Watkins	9.4L	1-12"				16	2	55	4		77	90	
Tuolumne Cooperative Farms, Inc.	10.2R	1-14"	71	63	98	84	119	93	87	30	645	89	
G. B. and L. D. Podesto	15.75R	1-3"	4	1	3	3	5	5			21	24	
--SOUTHERN PACIFIC RAILROAD BRIDGE--	15.8												
--U. S. HIGHWAY 99 BRIDGE--	16.05												
--GAGING STATION - TUOLUMNE RIVER AT MODESTO--	16.1												
--DRY CREEK--	16.5R												
Modesto Terminal Company	20.1R	1-8"				PLANT REMOVED							
Joseph Sanguinetti	20.3R	1-10"	19	26	29	35	49	35	28	11	232	(e)70	
L. J. Foit	20.4L	1-5"				8	24	17			49	(f)37	
H. W. Ortman	20.5R	1-12"	20	39	1	6	41	15	28	4	154	(g)80	
--SANTA FE RAILROAD BRIDGE--	21.6												
G. R. Trent	23.5R	1-6"		5	6	15	15	12	11		64	(h)38	
C. S. Blakesley	23.6R	1-6"		8	5	4	7	9	4	2	(i)39	16	
M. A. Goodman and Sons	25.6R	1-2"			7	2	7	6			22	14	
L. B. and J. H. Fox (j)	25.8L	1-3"	28	40	37	58	41	63	26	43	(k)336	(m)110	
H. W. Low	26.6L	1-4"	19	31	35	34	47	46	45	5	(n)262	(p)50	
H. W. Low	27.0L	1-4"	13	29	37	38	46	43	31	23	(q)260	50	
George H. Johnson	27.1R	1-8"				NO DIVERSION							
Paul J. Ferguson	27.3R	1-10"	8		8		11	13			40	20	
B. and L. Ranch	27.9R	1-12"		37		13	10	22	25	2	109	40	
Ronald R. Painter	28.3R	1-7"				17	10		7		34	28	
Michel Investment Company	28.8R	1-12"	39	57	59	86	33	76	47	45	442	150	
J. W. and Lola May Short	29.4L	1-7"				NO DIVERSION							
Firpo Ranch	30.2L	1-10"	2	9	32	55	67	61	47	28	301	105	
W. C. Chase (r)	30.4R	1-4"	1	1	1	2	1	2	1		9	4	
--SOUTHERN PACIFIC RAILROAD BRIDGE (OAKDALE BRANCE)--	31.5												
--GAGING STATION - TUOLUMNE RIVER AT HICKMAN BRIDGE--	31.7												
A. G. Laughlin	34.2R	1-6"	1		4	5	7	6	5		28	17	
Donald Ketcham	38.4R	1-5"				1	2	1	1		5	10	
A. E. Ketcham	39.4R	1-8"	10	30	34	38	60	55	43	17	(s)287	51	
George H. Sawyer	39.8L	1-6"	15	30	54	55	114	83	67	11	429	(t)362	
--GAGING STATION - TUOLUMNE RIVER AT ROBERTS FERRY BRIDGE--	39.9												
William J. Silva (j)	44.6L	1-6"	1	4	7	9	13	11	7	9	61	16	
Dolling Brothers	46.3R	1-8"	16	42	57	58	80	85	33	64	435	50	
--GAGING STATION - TUOLUMNE RIVER AT LA GRANGE--	50.5												

(a) Additional acre-feet diverted: February 23, November 42, and December 41.
(b) Additional acre-feet diverted: February 4 and November 18.
(c) Additional acre-feet diverted: February 26.
(d) Additional acre-feet diverted: February 6.
(e) This acreage also received an undetermined amount of drain water from Empire Sewer Farm.
(f) Includes 10 acres of Vieira lands and 12 acres of Caswell lands.
(g) Of this acreage 30 were double cropped.
(h) Includes 15 acres of A. L. Leib lands which were double cropped.
(i) Additional acre-feet diverted: February 1 and November 2.
(j) New installation in 1953.
(k) Additional acre-feet diverted: November 9.
(m) Of this acreage 25 received an undetermined amount of Turlock Irrigation District water.
(n) Additional acre-feet diverted: November 3.
(p) This acreage also received an undetermined amount of well water.
(q) Additional acre-feet diverted: November 2.
(r) Formerly listed as Oscar Jones.
(s) Additional acre-feet diverted: December 13.
(t) This acreage also received an undetermined amount of well water. Of this acreage 10 were double cropped.

TABLE 189

DIVERSIONS AND ACREAGES IRRIGATED - TUOLUMNE RIVER - 1953
(Cont'd)

Water User	Mile and Bank above Mouth	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
Totals Average cubic feet per second Monthly use in per cent of seasonal			1040 17 9.1	1124 19 9.9	1444 23 12.7	1804 30 15.9	2062 34 18.2	2053 33 18.1	1358 23 12.0	468 8 4.1	11353 23	5283	120
TURLOCK IRRIGATION DISTRICT Totals Average cubic feet per second Monthly use in per cent of seasonal	*53.5L	Gravity	62594 1018 10.2	83032 1395 13.5	86430 1406 14.1	92162 1549 15.1	95167 1548 15.5	78089 1270 12.7	77455 1302 12.6	38690 629 6.3	(a,b)613619 1263	(c)165657	0
MODESTO IRRIGATION DISTRICT Totals Average cubic feet per second Monthly use in per cent of seasonal	*53.5R	Gravity	24483 398 8.3	40409 679 13.7	44567 725 15.2	51397 864 17.5	47578 774 16.2	41006 667 13.9	25425 427 8.6	19306 314 6.6	(d)294171 605	(e)69115	445
WATERFORD IRRIGATION DISTRICT Totals Average cubic feet per second Monthly use in per cent of seasonal	*53.5R	Gravity	1500 24 3.6	5314 89 12.9	5742 93 13.9	6405 108 15.5	7505 122 18.3	6649 108 16.2	5235 88 12.7	2859 46 6.9	41209 85	(f)7028	0

* Approximate mileage of La Grange Dam.
(a) Additional acre-feet diverted: January 3620, February 3181, November 4173, and December 13115.
(b) Includes the following acre-feet used by the La Grange Mining Company: March 184, April 178, May 184, June 179, July 184, August 184, September 179, October 184. Additional acre-feet used by La Grange Mining Company: January 184, February 167, November 179, and December 184.
(c) Of this acreage 16151 were double cropped.
(d) Additional acre-feet diverted: January 176, February 7553, November 5352 and December 1283.
(e) Of this acreage 7612 were double cropped.
(f) Of this acreage 142 were double cropped.

TABLE 190

DIVERSIONS AND ACREAGES IRRIGATED - DRY CREEK - 1953

Water User	Mile and Bank above Mouth	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
Podesto and Arata	0.4R	1-6"	2	26	10	18	35	30	6		127	(a)125	
--MODESTO EMPIRE TRACTION COMPANY RAILROAD BRIDGE--	0.7												
--STATE HIGHWAY 132 BRIDGE (YOSEMITE BOULEVARD)--	0.8												
--LA LOMA BOULEVARD BRIDGE--	1.2												
James L. Melrose #1	5.0L	1-3"		1	2	2	2			1	8	(a)7	
James L. Melrose #2	5.3L	1-6"	PLANT REMOVED										
--GAGING STATION - DRY CREEK NEAR MODESTO (CLAUSS ROAD BRIDGE)--	5.4												
--SANTA FE RAILROAD BRIDGE--	6.4												
--CHURCH STREET BRIDGE--	7.2												
--WELLS FORD ROAD BRIDGE--	8.7												
Roy Brant	10.6R	1-5"			3	2	3	2	4		14	(a)23	
--ALBERS ROAD BRIDGE--	11.0												
--MODESTO IRRIGATION DISTRICT CANAL CROSSING--	11.1												
Lucksinger Brothers	12.1R	1-6"			5	5	5	5			20	12	
John Luiz	12.6R	1-4"					14	10	16	17	(b)57	(c)100	
Lucksinger Brothers	12.7R	1-6"		2	2	2	3	8	5	1	23	(c)32	
W. C. Hopper	12.9L	1-4"	PLANT REMOVED										
Lucksinger Brothers	13.4L	1-7"	8	3	5	5	9	6	5		(d)41	(a)40	
Leonard Jacabson (e)	14.4L	1-4"		2	2	4	3	8	1		20	(f)30	
Joe Fagundes	14.7R	1-10"	45	62	76	80	106	140	111	62	(g)682	(f)90	
H. H. French	17.2R	1-8"	7	2	5	7	16	10	6	4	57	22	
--OAKDALE - WATERFORD HIGHWAY BRIDGE--	17.4												
Totals Average cubic feet per second Monthly use in per cent of seasonal			62 1 5.9	98 2 9.3	110 2 10.5	125 2 11.9	196 3 18.7	219 4 20.9	154 3 14.7	85 1 8.1	1049 2	481	0

(a) This acreage also received an undetermined amount of controlled drainage water from Modesto Irrigation District.
(b) Additional acre-feet diverted: December 5.
(c) This acreage also received an undetermined amount of Oakdale Irrigation District water.
(d) Additional acre-feet diverted: February 2.
(e) Formerly listed as Harold D. Carver.
(f) This acreage also received an undetermined amount of Waterford Irrigation District water.
(g) Additional acre-feet diverted: February 21.

TABLE 191

DIVERSIONS AND ACREAGES IRRIGATED - STANISLAUS RIVER - 1953

Water User	Mile and Bank above Mouth	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
A. S. Machado	1.1R	1-6"	32	20		15		9			76	30	
E. W. Hawkins	1.8R	1-6"	16	12	11	9	25	16	4	3	(a)96	28	
A. J. Chisholm	2.9R	1-8"	54	19	34	20	41	27	34	21	(b)250	40	
--GAGING STATION - STANISLAUS RIVER NEAR MOUTH--	2.9												
C. M. Carroll	3.0R	1-6"		49	67	53	81	52	68	30	400	40	
C. C. Angyal (c)	4.4R	1-18"	135	80	87	160	187	104		103	856	300	
Overton Ranch (D. F. Koetitz)	5.25L	2-12"	172	145	185	330	408	365	351	246	(d)2202	510	
Louis W. Pelucca (e)	5.85L	1-14"			86	161	186	104	95		(f)632	(g)210	
Reclamation District #2064	5.9R	1-14" 1-16" 1-20"	615	1162	1313	1459	1854	1417	1002	659	(h)9481	1898	
Reclamation District #2075	5.95R	2-16" 1-20"	1041	1837	2167	2464	3026	2895	2084	1335	(i)16849	2591	
Henry Pelucca	6.7L	1-15"				PLANT REMOVED							
C. C. Updike	8.2L	1-12"	5	42	1	29	45	46	46	38	252	115	
Ekelund Ripon Ranch	9.8R	1-16"	115	193	278	344	409	316	235	161	(j)2051	381	
N. E. Cannon	10.0R	1-10"	68	94	121	243	333	171	154	70	(k)1254	215	
D. F. Koetitz	10.1L	1-10"	116	143	199	260	344	346	217	195	(m)1820	341	
--RECORDING GAGE--	10.2												
Joseph Hertle	10.5L	1-10"	14	29	18	37	32	41	15	9	195	(n)68	
G. S. Tornell	13.1R	1-12"	40	33	3		20	27	27		(p)150	(q)40	
R. V. Konenyburg	13.9R	1-8"	14	26	20	1	56	36	34	17	204	54	
--GAGING STATION - STANISLAUS RIVER NEAR RIPON--	15.89												
--SOUTHERN PACIFIC RAILROAD BRIDGE--	15.9												
--U. S. HIGHWAY 99 BRIDGE--	16.0												
A. Girardi	17.0L	1-16"		16	117	20	263	134	56		606	(r)296	
E. J. Freethy (s)	18.8R	1-14"	13	58	45	55	164	189	78	58	(t)660	160	
E. J. Freethy (s)	19.4R	1-6"				NO DIVERSION							
Allen Ranch	20.75R	1-14"	324	178	214	141	210	250	198		1515	280	
Heath Ranch	20.9L	1-5"	17	20		21	15	22		10	(a)105	10	
B. Bonora	21.6R	1-6"	4	5	5						(u)14	20	
B. Bonora	21.75R	1-10"		30	23	159	168	223	53	17	(v)673	50	
Ruth M. Ladd	23.4L	1-4"				NO DIVERSION							
--MODESTO - ESCALON HIGHWAY BRIDGE--	28.15												
--SANTA FE RAILROAD BRIDGE--	31.85												
--GAGING STATION - STANISLAUS RIVER AT RIVERBANK--	32.0												
O. B. Trette	32.1R	1-2" 1-4"				NO DIVERSION							
R. P. Barton	34.1R	1-6"				NO DIVERSION							
R. P. Barton	34.6R	1-7"	1	1	2	1	34	12	1		52	160	
Oakdale Irrigation District (Crawford Pump)	(w)35.9L	1-14"	72	152	143	149	280	246	71	43	(x)1156	(y)550	
Oakdale Irrigation District (Brady Pump)	(w)37.0L	1-12"	56	35	57	81	134	148	92	9	612	(z)398	
--OAKDALE - STOCKTON HIGHWAY BRIDGE--	38.9												
--SOUTHERN PACIFIC RAILROAD BRIDGE (OAKDALE BRANCH)--	39.0												
--GAGING STATION - STANISLAUS RIVER AT ORANGE BLOSSOM BRIDGE--	44.7												
Harry Himes	46.1L	1-6"	6	8	6	10	9	14	8	1	62	35	

(a) Additional acre-feet diverted: February 2.
(b) Additional acre-feet diverted: November 12.
(c) Formerly listed as A. Bianchi.
(d) Additional acre-feet diverted: February 43.
(e) New installation in 1953.
(f) Includes an undetermined amount of water returned to river by spill.
(g) Includes 160 acres of Henry Pelucca lands. Of this acreage 160 received an undetermined amount of well water.
(h) Additional acre-feet diverted: February 230 and November 146.
(i) Additional acre-feet diverted: February 536 and November 109.
(j) Additional acre-feet diverted: February 33.
(k) Additional acre-feet diverted: February 68 and November 2.
(m) Additional acre-feet diverted: February 49 and November 29.
(n) Of this acreage 20 were double cropped.
(p) Additional acre-feet diverted: February 8.
(q) This acreage was double cropped.
(r) This acreage also received an undetermined amount of Modesto Irrigation water.
(s) Formerly listed as Edward B. Regan.
(t) Additional acre-feet diverted: November 25.
(u) Additional acre-feet diverted: February 4.
(v) Additional acre-feet diverted: February 14.
(w) Oakdale Irrigation District for season of 1953 maintained plants at Miles 35.9L and 37.0L to supplement District gravity supply.
(x) Additional acre-feet diverted: February 7.
(y) Of this acreage 277 were double cropped.
(z) Of this acreage 80 were double cropped. This acreage also received an undetermined amount of well water.

TABLE 191

DIVERSIONS AND ACREAGES IRRIGATED - STANISLAUS RIVER - 1953
(Cont'd)

Water User	Mile and Bank above Mouth	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
J. H. Anderson (a)	46.8L	1-6"	2	18	19	20	13	24	21	16	(b)133	40	
Walter B. Wilms	47.5L	1-10"	7	11	26	24	38	7	61	15	(c)189	44	
Totals			2939	4416	5247	6266	8375	7241	5005	3056	42545	8904	0
Average cubic feet per second			48	74	85	105	136	118	84	50	88		
Monthly use in per cent of seasonal			6.9	10.4	12.3	14.7	19.7	17.0	11.8	7.2			
SOUTH SAN JOAQUIN I. D.	(d)50.2	Gravity											
Totals			26018	31681	32298	35084	46228	37492	20461	8385	(e)237647	(f)63590	0
Average cubic feet per second			423	532	525	590	752	610	344	136	489		
Monthly use in per cent of seasonal			10.9	13.3	13.6	14.8	19.5	15.8	8.6	3.5			
OAKDALE IRRIGATION DISTRICT	(d)50.2	Gravity											
Totals - Northside			3536	14947	16512	18467	17801	13464	7435	282	(g)92444	(h)20955	1820
Average cubic feet per second			58	251	269	310	289	219	125	5	190		
Monthly use in per cent of seasonal			3.8	16.2	17.9	20.0	19.2	14.6	8.0	0.3			
Totals - Southside			6793	21367	27220	28914	30052	24095	13582	0	152023	(i)34372	531
Average cubic feet per second			110	359	443	486	489	392	228	0	313		
Monthly use in per cent of seasonal			4.5	14.1	17.9	19.0	19.8	15.8	8.9	0			

(a) Formerly listed as H. J. Schwatkin.
(b) Additional acre-feet diverted: February 5 and November 1.
(c) Additional acre-feet diverted: February 9 and November 9.
(d) Approximate mileage of Goodwin Dam.
(e) Additional acre-feet diverted: February 16615.
(f) Of this acreage 2084 was double cropped; includes 5047 acres served by subirrigation.
(g) Additional acre-feet diverted: January 13 and February 45.
(h) Of this acreage 218 were double cropped.
(i) Of this acreage 587 were double cropped.

TABLE 192

DIVERSIONS AND ACREAGES IRRIGATED - TULE RIVER - 1953

Water User	Mile and Bank *	Number and Size of Pump	Monthly Diversions in Acre-Feet											Total Diversion January to December Acre-Feet	Acreage Irrigated	
			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		General	Rice
S. W. Templeton	0.2R	1-2½"		1	1	1	2	6	17	16	16				60	50	
Pioneer Ditch	0.3R	Gravity	23	68	480	815	746	969	1032	112	31	240	270	69	4855	(a)1738	
S. W. Templeton	0.4L	1-4"						NO DIVERSION									
Rosedale Water Company	1.5L	2-4"			3	6	11	31	33	30	29	16	9		168	(b)162	
--GAGING STATION - TULE RIVER AT WORTH BRIDGE--	2.2																
Campbell-Moreland Ditch	3.2L	Gravity	935	1152	641	832	946	886	369	95	50	257	838	1223	(c)8224	872	
Porter Slough	3.2R	Gravity	6064	2226	306	1301	3979	1022							(d)14898	(e)	
Porter Slough Ditch	(f)3.2R	Gravity			9	95	875	528	5	5					1517	1588	
Vandalia Ditch	3.9L	Gravity	310	280	185	220	396	254	99				68	297	(g)2109	(h)158	
--SANTA FE RAILROAD BRIDGE--	5.9																
Poplar Ditch	6.6L	Gravity	25	546	1670	1032	1834	2431	121					2	7661	4888	
--STATE HIGHWAY 65 BRIDGE--	6.7																
--SOUTHERN PACIFIC RAILROAD BRIDGE--	6.8																
Hubbs-Miner Ditch	7.2R	Gravity	66	425	663	683	761	888	222					49	(i)3757	(j)2100	
Rhodes-Fine Ditch	9.2L	Gravity		23	318	370	31	705	75						1522	1034	
--OLIVE AVENUE BRIDGE--	10.7																
--FRIANT-KERN CANAL CROSSING--	11.3																
--ROCKFORD AVENUE BRIDGE--	12.6																
--HUBBS-MINER SPILL--	12.9R																
Little Pioneer Ditch	15.0L	Gravity		25	118	180	212	184	243	369	102				(k)1433	735	
--OTTLE BRIDGE--	15.2																
Totals			7423	4746	4394	5535	9793	7904	2216	627	228	513	1185	1640	46204	13325	0
Average cubic feet per second			121	85	71	93	159	133	36	10	4	8	20	27	64		
Monthly use in per cent of seasonal			16.1	10.3	9.5	12.0	21.2	17.1	4.8	1.3	0.5	1.1	2.6	3.5			

* Mileage downstream from junction with South Fork Tule River.
(a) This acreage is partially estimated.
(b) This acreage also received an undetermined amount of well water.
(c) Includes an undetermined amount of water served to the Vandalia Irrigation District.
(d) This figure is the measured flow at the head of Porter Slough minus the diversion of Porter Slough Ditch.
(e) Use other than replenishing ground water is neglegible.
(f) Point of diversion is on Porter Slough, 4.5 miles below head.
(g) Figures from January through July furnished by Vandalia Irrigation District.
(h) This acreage also received an undetermined amount of water from the Campbell-Moreland Ditch. This acreage is pasture land and is used as a well field by Vandalia Irrigation District.
(i) This figure is measured diversion at head minus measured spill to river at Mile 12.9R. Hubbs-Miner Ditch Company receives approximately 71.4 per cent of measured diversion at head while Gilliam-McGee Ditch Company received approximately 28.6 per cent.
(j) Includes 1777 acres in the Hubbs-Miner Ditch Company and 323 acres in the Gilliam-McGee Ditch Company.
(k) The source of the water diverted by Little Pioneer Ditch may be from the Tule River or the Friant-Kern Canal. No segregation was made in 1953.

TABLE 193

DELIVERIES FROM CENTRAL VALLEY PROJECT CANALS - 1953
(The following table arranged from data furnished by U. S. Bureau of Reclamation)

Water User	Mile Post * From	Mile Post * To	Deliveries in Acre-Feet Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
							Contra Costa Canal								
Municipal and Industrial			1657	1354	1624	1832	2102	2288	2488	3290	3203	2011	2136	2152	26137
Agricultural				3	26	173	269	1001	1234	921	480	179	19	31	4336
Total			1657	1357	1650	2005	2371	3289	3722	4211	3683	2190	2155	2183	30473
							Delta-Mendota Canal								
Plain View Water District	8.51	20.00		8	337	596	563	680	944	731	452	124	6		4441
Hospital Water District	20.58	30.96			508	2418	1981	2434	3377	2666	1163	632	38		15217
West Stanislaus Irrigation District	31.31					1538		249	2422	2800					7009
Kern Canon Water District	31.31	33.70		79	376	405	533	1031	1449	951	503	164			5491
Del Puerto Water District	35.70	42.08		13	429	598	718	744	1002	1061	524	43	25		5157
Salado Water District	42.51	45.20			246	827	187	365	1184	487	214	54			3564
Sunflower Water District	44.23	49.00			148	460	659	691	1624	1291	198	28			5099
Orestimba Water District	46.83	50.66					19	263	436	264	83	1			1066
Davis Water District	54.01	55.85			47	57	125	131	143	170	55	98			826
Mustang Water Users Association	58.26	61.84				18	74	118	164	164	70				608
Quinto Water Users Association	64.28	64.47		33	87		131	45		268	83				647
Romero Water Users Association	68.03								153	234	192	108			687
San Luis Water District	69.21	88.91			801	937	1133	1102	1753	1180	332	293	64		7595
Panoche Water District	93.25			398	3715	4921	2971	4263	8819	8420	3186	965	157		37815
Eagle Field Water Association	94.26							330	1030	310	305				1975
Westside Golf Association	95.98										3	8	3	2	16
Ora Loma Water Association	96.62			110	66	885	772	642	800	712	126	16			4129
Total (excluding deliveries to Mendota Pool)			0	641	6760	13660	9866	13088	25300	21709	7489	2534	293	2	101342
							Madera Canal								
Madera Irrigation District	6.1	32.2			3779	2291	3725	11068	25684	23608	10299				80454
Mrs. Moses	20.6										56	182			238
Chowchilla Water District	35.9				6147	10917	6232	14856	24740	24022	19452	1134			107500
Total			0	0	9926	13208	9957	25924	50424	47630	29807	1316	0	0	188192
							Friant-Kern Canal								
International Water District	14.90							129	230	125	99	117			700
C. Baird	20.20				12	11	11	15	13	19	11	8			100
Orange Cove Irrigation District	35.00	54.30			541	2694	2055	3237	7587	7383	4614	1561	454		30126
Wahtoke Water Association	35.60								587	1325	288				2200
City of Orange Cove	43.44					1	2	10	23	19	16	5	1		77
Lovell Community Service District	54.04								432	942	326				1700
Yettem-Seville Water Association	54.40								893	1460	447				2800
Stone Corral Irrigation District	56.90	64.40			129	1053	417	609	2374	2285	1333	218	71		8489
Ivanhoe Irrigation District	65.04	69.08			115	730	976	2360	3642	3535	2255	835	356		14804
Tulare Irrigation District	68.14	71.29			12145	15920	6498	18074	39730	36633					129000
Cottonwood Ditch Association	69.08								44	492	64				600
Kaweah-Delta Water C. District	69.40	71.29						15300							15300
Exeter Irrigation District	72.52	80.63			262	908	946	1364	2154	2094	1394	829	349		10300
Lindmore Irrigation District	81.17	93.20			1853	5885	3187	4972	10255	9326	6188	2446	652		44764
Lindsay-Strathmore Irrigation District	85.56			30		400			3012	3929	3180	1983	678	26	13238
Porterville Irrigation District	92.12	98.13			95	323	641	774	1759	2196	1301	766	105		7960
Lower Tule Irrigation District	94.92	98.62			15832	9194	8124	28594	52245	51198	27813	3500			196500
Nunes Water District	95.64										870				870
Homeland Reclamation District #780	95.64									649	1741				2390
Saucelito Irrigation District	98.62	107.37			3001	4110	1609	2487	6845	6230	3780	1123	109	35	29329
Terra Bella Irrigation District	102.65							528	1424	1537	1130	674	112		5405
Delano-Earlimart Irrigation District	107.65	119.47		30	7129	7450	7323	8700	13121	11651	8085	4239	2918	1482	72128
Rag Gulch Mutual Water Company	117.96							331	645	575	228	184	56	42	2061
Southern San Joaquin M. U. D.	120.07	128.05			5667	5859	4586	7392	16487	17070	10786	2670	1311	61	71889
Kern County Land Company	129.94										15				15
Total			0	60	46781	54538	36375	94876	163502	160673	75964	21158	7172	1646	662745

* Mileage from head of canals.

TABLE 194

AVERAGE MONTHLY DIVERSIONS IN PER CENT OF SEASONAL FOR SACRAMENTO AND SAN JOAQUIN VALLEY STREAMS

	Period of Record	March	April	May	June	July	Aug.	Sept.	Oct.
SACRAMENTO VALLEY									
Sacramento River - Redding to Sacramento	1943 to 1953	0.5	8.6	17.8	18.2	20.6	19.5	10.9	3.9
Feather River - Oroville to Mouth	1943 to 1953	0.2	6.0	18.7	19.4	20.5	18.4	11.4	5.4
Yuba River - Smartville to Mouth	1943 to 1953	0.2	6.1	15.9	16.7	17.4	17.1	14.9	11.7
American River - Fairoaks to Mouth	1943 to 1953	0.9	1.6	6.4	20.8	27.0	22.6	16.1	4.6
DELTA UPLANDS									
Old San Joaquin River	1943 to 1953	3.9	10.2	16.1	16.6	19.3	17.1	11.4	5.4
Tom Paine Slough	1943 to 1953	2.3	10.4	14.8	15.9	19.3	18.9	13.9	4.5
San Joaquin River - Vernalis to Stockton	1943 to 1953	4.2	13.8	15.3	14.6	20.1	18.0	10.1	3.9
SAN JOAQUIN VALLEY									
San Joaquin River - Fremont Ford Bridge to Vernalis	1943 to 1953	4.5	13.3	15.3	15.3	20.5	17.6	10.8	2.7
Merced River - Yosemite Valley Railroad Crossing to Mouth	1943 to 1953	2.3	7.9	13.9	17.8	22.5	19.0	12.4	4.2
Tuolumne River - La Grange Dam to Mouth	1943 to 1953	3.9	9.0	14.0	17.1	18.9	18.9	13.0	5.2
Stanislaus River - Goodwin Dam to Mouth	1943 to 1953	2.7	9.9	14.8	16.7	19.1	18.3	12.6	5.9

TABLE 195

ANNUAL COMPARATIVE MONTHLY DIVERSIONS IN ACRE-FEET 1943 to 1953

SACRAMENTO RIVER - SACRAMENTO TO REDDING

Year (a)	March	April	May	June	July	Aug.	Sept.	Oct.	Seasonal Diversions
1943	1769	61409	257673	276759	288930	288024	190456	51915	1416935
1944	3236	155666	310227	305633	338429	318184	180858	65917	1678150
1945	2134	117302	316912	305333	346868	326148	200601	60473	1675771
1946	7968	187267	333991	328508	341952	326956	179671	71666	1777979
1947	2743	167131	346326	313389	344334	326100	170785	36296	1707104
1948	53935	16451	251478	271737	365701	351666	217464	65042	1593474
1949	2389	167438	344764	349497	390112	359905	173367	85391	1872863
1950	3072	187703	336767	321253	365503	333194	172902	73766	1794160
1951	6356	254102	303045	380961	409062	373947	177260	69993	1974726
1952	2469	110037	319610	339591	368122	370312	213291	81215	1804647
1953	14102	232604	317154	330664	419918	390251	226040	87431	2018164
Average Acre-Feet	9107	150646	312541	320302	361721	342244	191154	68101	1755816
Average c.f.s.	148	2532	5083	5383	5883	5566	3213	1108	3613
Monthly Diversion in per cent of seasonal	0.5	8.6	17.8	18.2	20.6	19.5	10.9	3.9	

(a) See 1946 Water Supervision Report for prior years.

TABLE 196

ANNUAL COMPARATIVE MONTHLY DIVERSIONS IN ACRE-FEET 1943 to 1953

FEATHER RIVER - OROVILLE TO MOUTH

Year (a)	March	April	May	June	July	Aug.	Sept.	Oct.	Seasonal Diversions
1943	0	13290	101539	125280	131283	123403	93318	35528	623641
1944	205	43792	130779	126206	142128	133130	85924	50747	712911
1945	0	26056	130729	133918	142224	132832	92953	39682	698394
1946	47	53967	156398	140210	145235	132948	82010	33985	744800
1947	90	30240	152827	130731	138055	124426	77161	20873	674403
1948	3181	5717	66373	127596	140904	120658	85122	36722	586273
1949	0	57396	146342	141278	137822	126739	59327	47400	716304
1950	164	35170	138368	134088	137034	113954	65197	38076	662051
1951	18	94369	131356	141610	142619	124035	60440	32875	727322
1952	0	29180	131898	142305	149920	140116	91834	42177	727430
1953	9443	68614	143820	145431	162430	139691	83986	38429	791844
Average Acre-Feet	1195	41617	130039	135332	142696	128358	79752	37863	696852
Average c.f.s.	19	699	2115	2274	2321	2087	1340	616	1434
Monthly Diversion in per cent of seasonal	0.2	6.0	18.7	19.4	20.5	18.4	11.4	5.4	

(a) See 1946 Water Supervision Report for prior years.

TABLE 197

ANNUAL COMPARATIVE MONTHLY DIVERSIONS IN ACRE-FEET 1943 to 1953

YUBA RIVER - SMARTVILLE TO MOUTH

Year (a)	March	April	May	June	July	Aug.	Sept.	Oct.	Seasonal Diversions
1943	0	1903	10622	15237	17203	16972	16610	15252	93799
1944	1665	7327	13857	15601	16786	15532	13311	9185	93264
1945	0	4338	9815	15479	14112	13848	13046	13590	84228
1946	0	7222	15231	15845	17082	16356	13940	13010	98686
1947	0	3820	17316	16339	17364	19152	15577	10517	100085
1948	33	23	12350	13849	17305	17954	16994	14256	92764
1949	0	9062	18933	17288	19416	17890	13338	10920	106847
1950	0	7306	22080	20741	21023	20372	19401	16461	127384
1951	0	13225	20513	19885	19266	17756	12477	7202	110324
1952	0	5959	22828	22537	22231	22622	20056	15580	131813
1953	2	10933	23354	23371	22271	22462	19742	10988	133123
Average Acre-Feet	154	6465	16991	17834	18551	18265	15863	12451	106574
Average c.f.s.	3	109	276	300	302	297	267	202	219
Monthly Diversion in per cent of seasonal	0.2	6.1	15.9	16.7	17.4	17.1	14.9	11.7	

(a) See 1946 Water Supervision Report for prior years.

TABLE 198

ANNUAL COMPARATIVE MONTHLY DIVERSIONS IN ACRE-FEET 1943 to 1953

AMERICAN RIVER - FAIROAKS TO MOUTH

Year (a)	March	April	May	June	July	Aug.	Sept.	Oct.	Seasonal Diversions
1943	0	0	54	941	1513	1226	753	94	4581
1944	0	6	113	980	1566	1211	790	153	4819
1945	0	8	119	909	1017	894	760	149	3856
1946	0	10	228	1022	1104	889	766	105	4124
1947	308	422	483	1113	1193	1086	1071	237	5913
1948	92	34	209	866	1737	1420	1030	495	5883
1949	0	58	574	1269	1448	1239	724	200	5512
1950	9	128	546	1096	1110	819	584	307	4599
1951	4	52	450	1194	1297	1404	829	217	5447
1952	0	20	439	824	1073	810	583	204	3953
1953	62	117	227	936	1386	1100	706	328	4862
Average Acre-Feet	43	78	313	1014	1313	1100	781	226	4868
Average c.f.s.	1	1	5	17	21	18	13	4	10
Monthly Diversion in per cent of seasonal	0.9	1.6	6.4	20.8	27.0	22.6	16.1	4.6	

(a) See 1946 Water Supervision Report for prior years.

TABLE 199

ANNUAL COMPARATIVE MONTHLY DIVERSIONS IN ACRE-FEET 1943 to 1953

OLD SAN JOAQUIN RIVER - DELTA UPLANDS

Year (a)	March	April	May	June	July	Aug.	Sept.	Oct.	Seasonal Diversions
1943	0	2048	11293	12463	13745	11945	7568	3104	62166
1944	2921	11827	13918	13224	16911	15667	10753	4694	89915
1945	595	7544	16791	17092	19809	14818	10873	4433	91955
1946	4640	14371	17736	16948	19662	18238	9914	4927	106436
1947	2923	17121	21435	18016	22248	17672	12494	4880	116789
1948	11808	4765	18259	15460	21943	21547	14574	7029	115385
1949	1941	17522	22945	23207	25229	19779	14272	9521	134416
1950	7658	16785	21483	22108	26290	23206	15775	7462	140767
1951	1301	11955	20232	25003	24990	24612	15115	6198	129406
1952	1604	4452	19309	22159	24036	22202	14549	8239	116550
1953	13267	18677	17971	21181	25965	24005	16787	7314	145167
Average Acre-Feet	4423	11552	18307	18806	21893	19426	12970	6164	113541
Average c.f.s.	72	194	298	316	356	316	218	100	234
Monthly Diversion in per cent of seasonal	3.9	10.2	16.1	16.6	19.3	17.1	11.4	5.4	

(a) See 1946 Water Supervision Report for prior years.

TABLE 200

ANNUAL COMPARATIVE MONTHLY DIVERSIONS IN ACRE-FEET 1943 to 1953

TOM PAINE SLOUGH - DELTA UPLANDS

Year (a)	March	April	May	June	July	Aug.	Sept.	Oct.	Seasonal Diversions
1943	0	891	2526	2728	2629	2578	2041	589	13982
1944	84	1630	2186	2466	3046	2852	2487	1019	15770
1945	34	539	2527	2792	2891	3153	2114	377	14427
1946	874	2588	2756	3145	3324	3732	2490	798	19707
1947	74	3064	3136	3319	3735	3487	2816	414	20045
1948	629	998	2795	2866	4327	4222	3422	953	20212
1949	155	3534	3114	3570	4324	4017	3226	1362	23302
1950	737	2286	3081	3163	3860	3542	2601	1147	20417
1951	81	2321	3434	3581	4371	4653	3261	886	22588
1952	27	1309	3639	2766	4198	3658	2253	972	18822
1953	2138	2674	1944	3019	3967	3973	2651	972	21338
Average Acre-Feet	439	1985	2831	3038	3697	3624	2669	863	19146
Average c.f.s.	7	33	46	51	60	59	45	14	39
Monthly Diversion in per cent of seasonal	2.3	10.4	14.8	15.9	19.3	18.9	13.9	4.5	

(a) See 1946 Water Supervision Report for prior years.

TABLE 201

ANNUAL COMPARATIVE MONTHLY DIVERSIONS IN ACRE-FEET 1943 to 1953

SAN JOAQUIN RIVER-DELTA UPLANDS - STOCKTON TO VERNALIS

Year (a)	March	April	May	June	July	Aug.	Sept.	Oct.	Seasonal Diversions
1943	0	3169	10172	8940	11617	10886	5142	1793	51719
1944	1110	10346	8439	8039	11349	11489	6261	2275	59308
1945	7	6476	11947	9629	13025	12417	7045	1780	62326
1946	5246	13974	10681	9238	15347	13071	6727	2875	77159
1947	5322	13358	14176	11626	15454	14698	7794	2053	84481
1948	6012	4564	9919	8251	13912	13356	7911	2682	66607
1949	1227	13434	11893	13141	14933	12382	7857	3768	78635
1950	5746	13092	12205	11860	17047	13272	7855	3558	84635
1951	279	12239	11485	13346	14860	12649	6840	3181	74879
1952	6	3791	10315	9465	12254	12353	7128	3401	58713
1953	8000	13547	8883	10603	18110	14630	8835	3162	85770
Average Acre-Feet	2996	9817	10920	10376	14355	12837	7218	2775	71294
Average c.f.s.	49	165	178	174	233	209	121	45	147
Monthly Diversion in per cent of seasonal	4.2	13.8	15.3	14.6	20.1	18.0	10.1	3.9	

(a) See 1946 Water Supervision Report for prior years.

TABLE 202

ANNUAL COMPARATIVE MONTHLY DIVERSIONS IN ACRE-FEET 1943 to 1953

SAN JOAQUIN RIVER - VERNALIS TO FREMONT FORD BRIDGE

Year (a)	March	April	May	June	July	Aug.	Sept.	Oct.	Seasonal Diversions
1943	0	4417	20849	20115	29913	25046	16595	4789	121724
1944	4790	21177	22013	20102	27066	24430	14554	4128	138260
1945	1327	14036	21325	21383	30463	25540	15202	2087	131363
1946	6967	21399	24961	23751	32002	28792	17026	5144	160042
1947	11658	31645	28072	27725	34079	27812	17318	3049	181358
1948	12902	18449	21675	15491	28962	27906	15977	3423	144785
1949	852	27448	26456	27787	33889	26998	18376	5054	166860
1950	15118	26342	25420	26245	33028	28227	15748	4963	175091
1951	4051	30310	24320	27237	35082	30422	16901	4333	172656
1952	1296	7960	28045	25635	31266	28604	18859	5647	147312
1953	19238	29188	24061	30965	41370	34336	21614	5175	205947
Average Acre-Feet	7109	21125	24291	24222	32465	28010	17106	4345	158673
Average c.f.s.	116	355	395	407	528	456	287	71	327
Monthly Diversion in per cent of seasonal	4.5	13.3	15.3	15.3	20.5	17.6	10.8	2.7	

(a) See 1946 Water Supervision Report for prior years.

TABLE 203

ANNUAL COMPARATIVE MONTHLY DIVERSIONS IN ACRE-FEET 1943 to 1953

MERCED RIVER - YOSEMITE VALLEY RAILROAD CROSSING TO MOUTH

Year (a)	March	April	May	June	July	Aug.	Sept.	Oct.	Seasonal Diversions
1943	0	198	1782	2249	3077	2258	1680	474	11718
1944	84	1117	1844	2535	2564	2466	2071	820	13501
1945	30	558	1696	2292	3058	2500	1552	132	11818
1946	231	1380	1595	2393	3608	2787	1720	684	14398
1947	228	2863	3128	3372	4342	4095	2518	529	21075
1948	931	328	2321	2634	4899	4162	1953	534	17762
1949	62	2479	3696	5296	5676	3652	2998	1778	25637
1950	676	2086	4050	4793	4809	4336	2673	455	23878
1951	161	1590	3347	4572	4825	4298	2678	739	22210
1952	37	242	2370	3177	3962	4402	2833	1098	18121
1953	2482	3687	3293	3928	6343	4975	3310	1681	29699
Average Acre-Feet	447	1503	2647	3386	4288	3630	2362	811	19074
Average c.f.s.	7	25	43	57	70	59	40	13	39
Monthly Diversion in per cent of seasonal	2.3	7.9	13.9	17.8	22.5	19.0	12.4	4.2	

(a) See 1946 Water Supervision Report for prior years.

TABLE 204

ANNUAL COMPARATIVE MONTHLY DIVERSIONS IN ACRE-FEET 1943 to 1953

TUOLUMNE RIVER - LA GRANGE DAM TO MOUTH

Year (a)	March	April	May	June	July	Aug.	Sept.	Oct.	Seasonal Diversions
1943	0	116	354	541	542	520	360	183	2616
1944	80	304	517	665	778	801	656	300	4101
1945	33	463	535	630	748	723	376	47	3555
1946	216	565	765	734	940	889	559	254	4922
1947	283	893	1132	1112	1245	1135	1229	439	7468
1948	299	280	822	889	1275	1404	1032	233	6234
1949	39	645	962	1255	1137	1173	806	423	6440
1950	305	588	970	1107	1121	1170	580	259	6100
1951	154	477	586	979	866	890	503	160	4615
1952	7	139	692	945	1077	1073	687	455	5075
1953	1040	1124	1444	1804	2062	2053	1358	468	11353
Average Acre-Feet	223	509	798	969	1072	1075	741	293	5680
Average c.f.s.	4	9	13	16	17	17	12	5	12
Monthly Diversion in per cent of seasonal	3.9	9.0	14.0	17.1	18.9	18.9	13.0	5.2	

(a) See 1946 Water Supervision Report for prior years.

TABLE 205

ANNUAL COMPARATIVE MONTHLY DIVERSIONS IN ACRE-FEET 1943 to 1953

STANISLAUS RIVER - GOODWIN DAM TO MOUTH

Year (a)	March	April	May	June	July	Aug.	Sept.	Oct.	Seasonal Diversions
1943	3	873	3439	4241	4458	3935	3518	1598	22065
1944	186	2013	3266	3565	4246	4292	2659	1603	21830
1945	0	2664	3013	3869	4431	4136	2866	681	21660
1946	862	3316	3780	4563	5046	4832	2754	1655	26808
1947	1206	4320	4933	4644	5417	5085	3462	1008	30075
1948	1261	1114	4631	4826	6089	6070	4259	1455	29705
1949	41	4747	4661	6152	6531	5648	4251	1940	33971
1950	1313	3240	5385	5493	6266	6254	4055	1382	33388
1951	1163	3733	5043	6101	6076	6333	4240	1970	34659
1952	0	1872	5063	4746	5604	5963	4076	2921	30245
1953	2939	4416	5247	6266	8375	7241	5005	3056	42545
Average Acre-Feet	816	2937	4406	4951	5685	5435	3741	1752	29723
Average c.f.s.	13	49	72	83	92	88	63	28	61
Monthly Diversion in per cent of seasonal	2.7	9.9	14.8	16.7	19.1	18.3	12.6	5.9	

(a) See 1946 Water Supervision Report for prior years.

TABLE 206

COMPARATIVE SEASONAL DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER - 1943-1953

Year	River Sections							
	Sacramento to Verona	Verona to Knights Ldg.	Knights Ldg. to Wilkins Slu	Wilkins Slu to Colusa	Colusa to Butte City	Butte City to Red Bluff	Red Bluff to Redding	Total Sacramento to Redding
1943 Seasonal diversion acre-feet	116503	35934	136688	333715	60963	594046	139086	1416935
Average cubic feet per second	240	74	281	687	126	1222	286	2916
Acreage irrigated - general	9052	1250	4594	29580	4765	51683	14362	115286
Acreage irrigated - rice	9817	1115	9299	35777	4275	55316	0	115599
Acre-feet per acre (a)	4.9	15.2	9.8	5.1	6.7	5.6	9.6	6.0
1944 Seasonal diversion acre-feet	150171	31565	142341	405665	77255	715850	155303	1678150
Average cubic feet per second	309	65	293	835	159	1473	319	3453
Acreage irrigated - general	8781	1997	8086	32591	4478	40614	15324	111871
Acreage irrigated - rice	11687	1573	14459	32161	5743	56620	0	122243
Acre-feet per acre (a)	6.1	8.8	6.3	6.3	7.6	7.4	10.0	7.1
1945 Seasonal diversion acre-feet	162521	21776	162825	409292	85269	690859	143229	1675771
Average cubic feet per second	334	45	335	842	175	1422	295	3448
Acreage irrigated - general	9266	2506	9757	28843	4680	36103	15390	106545
Acreage irrigated - rice	12476	795	13094	34461	5574	48715	0	115115
Acre-feet per acre (a)	6.3	6.6	7.1	6.5	8.3	8.1	9.2	7.4
1946 Seasonal diversion acre-feet	185716	38680	159077	402022	98953	729606	163925	1777979
Average cubic feet per second	382	80	327	827	204	1502	337	3659
Acreage irrigated - general	10722	2024	10923	30861	8719	38934	15373	117556
Acreage irrigated - rice	17187	2485	13995	30828	6445	53195	0	124135
Acre-feet per acre (a)	5.7	8.6	6.4	6.5	6.5	7.9	10.5	7.2
1947 Seasonal diversion acre-feet	157490	56993	140736	405829	103476	704544	138036	1707104
Average cubic feet per second	324	117	290	835	213	1450	284	3513
Acreage irrigated - general	13658	2982	11070	33853	4361	38149	17517	121590
Acreage irrigated - rice	13687	2688	12549	31584	7393	56080	0	123981
Acre-feet per acre (a)	4.7	10.1	6.0	6.2	8.8	7.5	7.7	6.8
1948 Seasonal diversion acre-feet	137292	56342	132701	387490	92661	632230	154758	1593474
Average cubic feet per second	283	116	273	797	191	1301	318	3279
Acreage irrigated - general	18117	3947	12685	35760	7860	52944	18421	149734
Acreage irrigated - rice	15145	1568	12125	33503	8299	53477	0	124117
Acre-feet per acre (a)	3.3	10.2	5.3	5.6	5.7	5.9	8.3	5.7
1949 Seasonal diversion acre-feet	182069	69658	189604	396587	96498	758697	179750	1872863
Average cubic feet per second	375	143	390	816	199	1561	370	3854
Acreage irrigated - general	14341	5511	12431	37584	6532	48721	18375	143495
Acreage irrigated - rice	15606	7337	14891	35148	8080	56207	0	137269
Acre-feet per acre (a)	5.1	5.4	6.9	5.5	6.6	7.2	9.6	6.6
1950 Seasonal diversion acre-feet	158567	60217	186229	370134	87246	751503	180264	1794160
Average cubic feet per second	326	124	383	762	180	1546	371	3692
Acreage irrigated - general	15284	4936	12706	39099	11163	50542	19087	152817
Acreage irrigated - rice	10897	5274	13359	26757	9107	43085	0	108479
Acre-feet per acre (a)	4.9	5.9	7.1	5.6	4.3	8.0	9.3	6.7
1951 Seasonal diversion acre-feet	169060	77772	207624	400587	116568	830331	172784	1974726
Average cubic feet per second	348	160	427	824	240	1709	356	4064
Acreage irrigated - general	19516	4905	15151	41097	10307	51394	19863	162233
Acreage irrigated - rice	16665	3434	15061	32823	14243	58609	0	140835
Acre-feet per acre (a)	3.8	9.3	6.9	5.4	4.7	7.5	8.5	6.4
1952 Seasonal diversion acre-feet	132275	66514	158455	410789	102813	754768	179033	1804647
Average cubic feet per second	272	137	326	845	212	1553	368	3714
Acreage irrigated - general	14608	5186	12326	33350	10308	46686	20467	142931
Acreage irrigated - rice	11550	6761	12622	35766	15314	57040	0	139053
Acre-feet per acre (a)	3.9	5.6	6.4	5.9	4.0	7.3	8.6	6.3
1953 Seasonal diversion acre-feet	161622	66976	187614	433445	135071	861665	171771	2018164
Average cubic feet per second	333	138	386	892	278	1773	353	4153
Acreage irrigated - general	14420	3606	12422	29783	10841	41816	22023	134911
Acreage irrigated - rice	13383	6836	14052	37302	19077	73961	0	164611
Acre-feet per acre (a)	4.8	6.4	7.1	6.5	4.5	7.4	7.7	6.6
Average 1943 - 1953								
Seasonal diversion acre-feet	155753	52948	163990	395960	96070	729464	161631	1755816
Average cubic feet per second	320	109	337	815	198	1501	333	3613
Acreage irrigated - general	13133	3532	11105	33855	7638	45235	17836	132634
Acreage irrigated - rice	13463	3624	13228	33283	9414	55664	0	128676
Acre-feet per acre (a)	4.7	7.4	6.7	5.9	5.6	7.2	8.9	6.6
Per cent of total diversion	8.9	3.0	9.3	22.6	5.5	41.5	9.2	

(a) Excluding such diversions for municipal use as the City of Sacramento and the City of Redding.

TABLE 207

RICE ACREAGE IN CALIFORNIA

A Comparison of Total Rice Acreage in California with Rice Acreage Irrigated from the Sacramento and San Joaquin River Systems Covered by Sacramento-San Joaquin Water Supervision

Year	Total in State (a)	Irrigated from Sacramento & San Joaquin River Systems (b)	Ratio in Per Cent (c)	Year	Total in State (a)	Irrigated from Sacramento & San Joaquin River Systems (b)	Ratio in Per Cent (c)	Year	Total in State (a)	Irrigated from Sacramento & San Joaquin River Systems (b)	Ratio in Per Cent (c)
1924	90000	89000	99	1934	108000	92000	85	1944	246000	212000	83
1925	103000	95000	92	1935	100000	78000	78	1945	239000	187000	78
1926	149000	129000	87	1936	138000	104000	75	1946	255000	200000	78
1927	160000	123000	77	1937	149000	109000	73	1947	250000	215000	86
1928	132000	101000	77	1938	125000	95000	76	1948	238000	199000	84
1929	95000	74000	78	1939	120000	104000	87	1949	298000	236000	79
1930	110000	88000	80	1940	118000	94000	80	1950	240000	187000	78
1931	125000	126000	100	1941	153000	120000	78	1951	319000	240000	75
1932	110000	91000	83	1942	212000	159000	75	1952	335000	245000	73
1933	108000	87000	81	1943	237000	186000	78	1953	425000	297000	70

(a) As reported by Federal-State Crop Reporting Service.
(b) Does not include the rice acreage of Merced, Turlock, Modesto, Waterford, Oakdale and South San Joaquin Irrigation Districts, and Friant-Kern and Madera Canals. Prior to 1947, the rice acreage in the reach from Fremont Ford to Friant Dam of the San Joaquin River was not included.
(c) Ratio of rice acreage in Sacramento and San Joaquin River Systems to total rice acreage in State.

TABLE 208

MAXIMUM RECORDED SALINITY AT PRESENTLY INDICATIVE BAY AND DELTA STATIONS

(Releases of stored water from Shasta Reservoir commenced in 1944.)

YEAR (a)	1931	1934	1938	1939	1944	1947	1948	1949	1950	1951	1952	1953
Sacramento-San Joaquin Runoff in percent of Normal (b)	31	44	172	44	57	55	80	63	77	125	154	97
Station (c)	Maximum Recorded Salinity in Parts of Chloride per Million											
				San Francisco, San Pablo and Suisun Bays								
Point Orient	18700	18400	17000	19200	17300	18800	17400	17700	17600	17700	16700	16900
Point Pinole						16800	15000	15700	15400	15500	14200	13300
Point Davis	18100	18000	*14600	18400	15200	16500	*14200	15100	14400	14600	12700	14400
Grand View	18700				15300	18000	13300	14600	13800	15900	12100	14000
Crockett						17900	13300	14600	15200	15100	13200	14680
Benicia					13900	15100	11300	12400	12500	12200	10400	12020
Martinez (Bulls Head Point)	16900	16400	11600	16400		13400	12600	11600	11500	10100	8900	10500
West Suisun						13500	11800	10000	10300	10800	7900	9940
Port Chicago						12400	9300	10600	10100	8700	6900	8940
O & A Ferry	13900	12000	2560	11800	7300	6100	3600	4000	4800	4400	2800	3640
Innisfail Ferry	14000	12600	3300	13600	7900	8200	4400	5300	4700	4400	4200	6430
Pittsburg						5000	1700	3300	2200	2400	1200	1830
				Sacramento River Delta								
Collinsville	12600	10800	860	10400	4700	4500	1790	2500	2800	1750	783	2200
Toland Landing											(e)	8
Three Mile Slough Bridge	8600	6600		5900	1610	1250	130	200	150	600	175	155
Rio Vista Bridge	7400	5200		4050	550	270	120	150	200	70	175	33
Isleton Bridge	6350	3100		2500	50	50	70	50	50	60	125	29
				San Joaquin River Delta								
Antioch	12400	9600	510	9200	4000	4700	1500	1920	1330	970	354	1440
Millers Harbor						3000	440	1600	1390	(d)	(d)	360
Jersey Island											(e)	490
Three Mile Slough											(e)	49
Oulton Point											(e)	65
San Andreas Landing											(e)	61
Opposite Central Landing	4250	*1250	100	1380	200	200	90	100	80	80	250	44
Dutch Slough	5100	2800	110	2250	690	840	120	340	230	170	88	114
Webb Ferry											(e)	160
Webb Pump	6800	*3500	80	2650	520	450	100	140	(d)		(d)	(d)
East Contra Costa I. D.		730		320	140	190	320	210	200	190	152	167
Clifton Court Ferry	1300	400		190		160	230	180	170	120	112	122
Mossdale	120	250	120	160	130	180	250	180	170	190	122	194
Vernalis (Durham Ferry Bridge)						*180	240	170	160	220	121	205

* Estimated.
(a) For maximum salinities recorded and not shown in this table, see previous reports.
(b) Normal taken as 60-year (1889-1949) mean annual unimpaired flow (Oct.-Sept., Incl.) at foothill stations of major tributaries.
(c) For location and description see Table 210.
(d) Record incomplete.
(e) Station established during 1952.

TABLE 209

COMPARATIVE ANNUAL MINIMUM 10-DAY FLOW TO DELTAS OF SACRAMENTO AND SAN JOAQUIN RIVERS AND AREA OF EACH AFFECTED BY SALINITY ENCROACHMENT GREATER THAN 1000 PARTS OF CHLORIDE PER MILLION PARTS OF WATER

Year	Flow for Minimum 10-day period (b)					Runoff in % of Normal (a)			Area Affected by Salinity					
	Sacramento River at Sacramento		San Joaquin River at Vernalis		Sacramento and San Joaquin to Delta	Sacramento and San Joaquin to Delta	At Sacramento	At Vernalis	All Deltas		Sacramento and Mokelumne		San Joaquin	
	Date	c.f.s	Date	c.f.s.	c.f.s.				% of Total	Acres (c)	% of Total	Acres (d)	% of Total	Acres
1920		(e)540		(e)450		53	49	66	15.1	65800	7.7	33500	7.4	32300
1921						119	127	96	2.1	9150	2.0	8715	0.1	435
1922						104	96	125	2.9	12600	2.4	10420	0.5	2180
1923						76	71	90	2.1	9150	2.0	8715	0.1	435
1924	7/14	858	7/26	407	1280	29	31	24	50.0	217500	18.4	80100	31.6	137400
1925	8/7	2860	8/29	745	3730	87	86	89	3.6	15630	3.1	13450	0.5	2180
1926	7/28	1460	8/21	586	2080	61	63	57	18.5	80500	8.5	37000	10.0	43500
1927	8/23	3560	8/23	1300	4850	122	128	106	2.9	12600	2.4	10420	0.5	2180
1928	8/15	2660	8/22	866	3550	85	90	71	5.7	24800	3.7	16100	2.0	8700
1929	7/18	2460	8/12	590	3090	45	45	46	7.1	30900	4.2	18300	2.9	12600
1930	8/5	2500	8/9	735	3230	67	72	53	5.4	23500	3.8	16500	1.6	7000
1931	7/20	-79	7/21	211	131	31	33	27	73.8	321000	30.2	131000	43.6	190000
1932	8/11	1980	9/10	1030	3030	80	70	108	5.7	24800	3.4	14800	2.3	10000
1933	8/21	1450	8/14	607	2070	49	47	55	9.8	42600	5.2	22600	4.6	20000
1934	7/20	1150	8/14	346	1530	44	46	37	37.5	163000	17.8	77500	19.7	85500
1935	8/12	2920	8/12	922	3940	92	88	104	2.9	12600	2.4	10420	0.5	2180
1936	8/20	2540	8/17	1040	3600	96	92	106	2.6	11600	2.2	9840	0.4	1760
1937	8/16	1720	8/24	1020	2820	80	71	106	3.5	15200	2.6	11280	0.9	3920
1938	8/12	5190	8/27	2130	7365	172	169	183	0	0	0	0	0	0
1939	8/5	630	7/25	610	1315	44	44	46	29.0	126000	17.0	74000	12.0	52000
1940	8/12	2550	8/9	1080	3620	116	119	107	4.2	18300	3.0	13000	1.2	5300
1941	8/24	4190	9/14	1480	5800	140	145	129	1.2	5100	1.2	5100	0	0
1942	8/22	3740	8/20	1520	5300	131	134	120	1.2	5100	1.2	5100	0	0
1943	8/17	2600	8/4	1480	4140	114	113	118	2.8	12200	2.2	9600	0.6	2600
1944	8/13	2790	8/9	1033	3830	57	55	63	7.2	31300	4.8	20800	2.4	10500
1945	8/24	6560	8/1	1530	8180	87	80	107	0.2	1000	0.2	1000	0	0
1946	8/7	6460	8/5	1160	7640	93	93	93	0.6	2500	0.6	2500	0	0
1947	7/7	4700	7/21	477	5270	55	55	56	7.5	32400	5.0	21500	2.5	10900
1948	7/24	7550	8/9	(f)606	8260	80	84	68	0.3	1200	0.3	1200	0	0
1949	7/18	6460	8/1	452	6970	63	64	62	2.3	10100	2.0	8500	0.4	1600
1950	8/20	7080	7/31	502	7670	77	77	76	1.1	5000	1.1	4500	0.1	500
1951	7/8	7100	8/5	572	8130	125	126	118	0.4	1800	0.4	1800	0	0
1952	8/14	(g)9880	8/24	1280	(g)11190	154	153	156	0	0	0	0	0	0
1953	7/31	8020	7/27	650	4350	97	107	70	1.0	4480	1.0	4300	0	180

(a) Normal = 60-year (1889-1949) mean annual unimpaired flow (October - September, incl.).
(b) Does not include inflows from Mokelumne and Calaveras Rivers, Yolo By-Pass and other minor tributaries.
(c) Delta area taken at 435,000 acres which includes all lands, levees, water surfaces, etc., within Delta boundary.
(d) Sacramento and Mokelumne deltas combined as the Sacramento River contributes a large flow to Mokelumne River Delta through Georgiana and Three Mile Sloughs.
(e) No continuous record. Lowest discharge measured.
(f) Figure shown is minimum 10-day flow during summer. Minimum 10-day flow for year occurred March 8 with average flow of 357 cfs.
(g) Figure shown is minimum 10-day flow during summer. Minimum 10-day flow for year occurred in November.

TABLE 210

DESCRIPTION OF ACTIVE SALINITY OBSERVATION STATIONS - 1953

(Refer to previous Water Supervision Reports for description of stations which have been discontinued.)

Station	Miles from Golden Gate (a)	Time Interval (b) Hours	Time Interval (b) Mins.	Location
				SAN FRANCISCO, SAN PABLO, AND SUISUN BAYS
Point Orient	12.3	2	20	North end of San Francisco Bay, East Shore, one-half mile south of Point San Pablo Wharf of Standard Oil Company.
Point Pinole	19.0	2	50	South Shore of San Pablo Bay, at Point Pinole on wharf of Atlas Powder Company.
Point Davis	25.2	3	15	East end San Pablo Bay. South Shore, Oleum Wharf of Union Oil Company.
Grand View	25.2	3	15	Northwest Shore of San Pablo Bay at mouth of Petaluma Creek.
Crockett	27.7	3	30	West end of Carquinez Strait, South Shore, 0.2 mile east of Carquinez Bridge on wharf of C. and H. Sugar Refining Corporation.
Benicia	32.5	3	50	East end of Carquinez Strait, North Shore, 1.1 mile west of Southern Pacific Company railroad bridge, at Benicia Arsenal.
Martinez	32.7	3	50	East end of Carquinez Strait, South Shore, 1.0 mile west of Southern Pacific Company railroad bridge, at Municipal Ferry Slip. (Bulls Head Point).
West Suisun	37.0	4	10	West end of Suisun Bay, North Shore, 2.5 miles northeast of Southern Pacific railroad bridge at service pier of U. S. Maritime Commission, Reserve Fleet Mooring area.
Port Chicago	41.0	4	20	South Shore of Suisun Bay at U. S. Naval ammunition loading wharf below Port Chicago.
O & A Ferry	46.5	4	40	Upper end Suisun Bay between Mallard Station and Chipps Island at Sacramento Northern Railroad Ferry Crossing.
Innisfail Ferry	47.3	4	50	Montezuma Slough, about one mile east of junction with Cutoff Slough near North end of Grizzly Island.
Pittsburg	48.0	5	00	East end of Suisun Bay, South Shore. at Pittsburg Yacht Harbor.
				SACRAMENTO RIVER DELTA
Collinsville	50.8	5	25	Sacramento River, north bank at junction with San Joaquin River.
Toland Landing	57.2	5	45	Sacramento River, west bank, 5.3 miles downstream from Rio Vista at Dozier Ranch.
Threemile Slough Bridge	60.0	5	55	At junction of Slough and Sacramento River.
Rio Vista Bridge	63.5	6	05	At Highway Bridge near northerly limits of Rio Vista.
Isleton Bridge	68.7	6	30	Sacramento River, one mile upstream from Isleton.
				SAN JOAQUIN RIVER DELTA
Antioch	54.9	5	55	San Joaquin River, at City Water Works pumping plant.
Millers Harbor	58.2	6	10	South Shore San Joaquin River at Antioch Bridge.
Jersey Island	61.4	6	20	San Joaquin River, left bank, one mile below mouth of False River.
Threemile Slough (S.J.)	64.2	6	30	Threemile Slough, west bank, at junction of Slough with the San Joaquin River.
Oulton Point	67.2	6	40	San Joaquin River, right bank, three miles upstream from junction of Threemile Slough.
San Andreas Landing	70.3	6	55	San Joaquin River. right bank, one mile below the mouth of the Mokelumne River.
Opposite Central Landing	72.0	7	00	Mokelumne River, on Andrus Island directly opposite Central Landing on Bouldin Island.
Dutch Slough	73.0	7	05	At Bethel Island Bridge.
Piper Slough	73.0	7	00	Piper Slough at Delta Fishing Resort on Bethel Island one-half mile north of Sand Mound Slough junction.
Webb Ferry	68.0	6	40	False River at Junction with Fisherman's Cut.
Holland Tract	77.5	7	35	Old River two miles north of Rock Slough junction.
East Contra Costa I.D.	86.7	8	20	Indian Slough, at East Contra Costa Irrigation District Pumping Plant
Clifton Court Ferry	94.2	9	10	Old River just below junction with Grant Line Canal
Mossdale Bridge	108.5	10	50	San Joaquin River at U. S. 50 Highway Crossing about three miles southwest of Lathrop.
Vernalis (Durham Ferry Bridge)	127.0	11	00	San Joaquin River at Durham Ferry Bridge, above tidal influence.

(a) Mileage measured to station along main channel. For stations off the main channel, the mileage shown is the same distance along the main channel to a point whereon the time of the occurrence of the tidal phase is the same as that of the observation station.

(b) Time interval between high tide at Golden Gate and time for taking samples at station.

TABLE 211

SALINITY OBSERVATIONS, SACRAMENTO-SAN JOAQUIN DELTA AND UPPER BAYS

Samples taken by local observers approximately one and one-half hours after high high tide

Salinity expressed in parts of chloride per million parts of water.

Station	January - 1953							
	2	6	10	14	18	22	26	30
			San Francisco. San Pablo, and Suisun Bays					
Point Orient	10200		7800	8800	6000	6300	8200	7800
Point Pinole								
Point Davis	2200	6400	2400	(b)1300		700	1400	1600
Grand View	2000	2000	2300	2700		1300	1600	
Crockett	2300	(a)2700	3400	900	188	(*)800	200	1200
Benicia			1100	300	32	222	400	400
Martinez	500	2100	800	48	(d)28	31	200	600
West Suisun	72	1500	172	52	48	27	(c)28	47
Innisfail Ferry		796	548	304	(a)180	124		204
Port Chicago	(a)56	(a)1104	48	20	(a)24	32	40	29
O & A Ferry	28	28	24	8	20	32	18	20
Pittsburg	(b)43	40	44	(b)28	20	32	27	(*)28
			Sacramento River Delta					
Collinsville		24	16	(*)12		11	22	14
Toland Landing								
Threemile Slough Bridge	12	13	11	7	8	7	6	8
Rio Vista Bridge	12	11	17	17	12	12	8	8
Isleton Bridge	10	10	10	7	8	6	8	5
			San Joaquin River Delta					
Antioch	43	45	45	37	36	32	27	29
Millers Harbor	(a)54	49	52	53	53	48	40	(b)38
Jersey Island	(a)24	46	46	35	32		(*)36	(a)32
Threemile Slough	(a)30	26	(a)32	26	25	13	19	
Oulton Point	(a)43	43	(b)32	28	(a)40	19	15	(a)20
San Andreas Landing	22	32	34	25	(a)30	17	22	19
Opp. Central Landing	(a)26	16	14	14	(a)7	9	9	(a)8
Dutch Slough	(a)77	(a)78	79	(a)69	(a)66	69	68	61
Piper Slough	(a)61	58	61	55	(a)59	57	59	(a)53
Webb Ferry	43	(a)40	39	34	34	(b)32	(e)32	(a)31
Holland Tract	(a)67	65	60	68	63	64	56	(a)59
East Contra Costa I. D.	(a)112	110	118	116	103	(b)89	74	(a)83
Clifton Court Ferry		53						
Mossdale Bridge	(a)43	40	(a)42	(a)35	(a)33	36	(a)40	(a)39
Vernalis	(d)29	(e)35	(de)42	(df)37	(b)28			(d)38

Station	February - 1953							
			San Francisco. San Pablo, and Suisun Bays					
Point Orient	7900	9000	13300	13100	12400	10800	14100	
Point Pinole			8900					
Point Davis	3600	2400	7300	7100	6900	7400		
Grand View	1200	1800	3800	4600	5000	5900	6100	
Crockett		1900		6900	6500	8400	8900	
Benicia			(*)2500	4200	1000		6200	
Martinez	300	2504	2600	2100	800	6100	5400	
West Suisun	33	396	936	2100	1000	2400		
Innisfail Ferry	(a)184	180	244	400	500	400		
Port Chicago	23	132	836	(*)926	(a)500	1900	(a)2800	
O & A Ferry	(a)24	31	29	36	(b)29	(b)192	284	
Pittsburg		33	(c)33	28	26		32	
			Sacramento River Delta					
Collinsville	11	15	35		16	20	18	
Toland Landing								
Threemile Slough Bridge	8	16	13	14	12	12	36	
Rio Vista Bridge	15	(a)13	11	14	16	14	20	
Isleton Bridge	8	11	9	9	9	16	14	
			San Joaquin River Delta					
Antioch	30	30	26	26	32	27	30	
Millers Harbor	40	38	41	37	35	32	(a)37	
Jersey Island	27	32	37					
Threemile Slough	11	28	(a)25	(a)28	25	27	29	
Oulton Point	(a)22	40	28	(a)30	(a)26	41	31	
San Andreas Landing	23	28		26	26	25	44	
Opp. Central Landing	11	12	15	(a)12	12	32	16	
Dutch Slough	56	59	58	(a)51	43	47	48	
Piper Slough	57	46	(b)38	(ab)43	46	35	(ab)44	
Webb Ferry	29	31	(a)34	(a)31	31	31	30	
Holland Tract		50	48		48		47	
East Contra Costa I. D.	77	82	86	(a)100	(b)97	106	114	
Clifton Court Ferry								
Mossdale Bridge	38	44	(a)65	(a)78	95	70	(a)71	
Vernalis		(d)47	(d)70	(ae)69	(de)122	(dc)73	(ac)66	

(*) Presumed.
(a) Taken on Low High Tide.
(b) Taken on following day.
(c) Taken two days later.
(d) Taken over one hour off scheduled time.
(e) Taken on preceding day.
(f) Taken two days earlier.

TABLE 211

SALINITY OBSERVATIONS, SACRAMENTO-SAN JOAQUIN DELTA AND UPPER BAYS

Samples taken by local observers approximately one and one-half hours after high high tide
Salinity expressed in parts of chloride per million parts of water

Station	March - 1953							
	2	6	10	14	18	22	26	30
				San Francisco, San Pablo, and Suisun Bays				
Point Orient	13600	12200	13900	(*)14400	(*)14200	12700	12100	13400
Point Pinole							8900	(a)9500
Point Davis	7400	7800		8500	8800			
Grand View	7100	8100	8100	8600	8700	9000	9000	(b)8300
Crockett	(a)7900	8800		8600	8400	(ab)5200	5900	
Benicia		6200	(a)7700	6400	5500	2300	3100	
Martinez	2600	6200	7100	3200	4600	1200	1400	2100
West Suisun	(a)2200	3200		4000	2600	1000	1400	1000
Innisfail Ferry	600	600	800	905	700	600	700	(a)700
Port Chicago	2100	3400	(c)5850	2200	2400	600	330	600
O & A Ferry	119	(b)254	1100	340	(a)163	23	25	(a)20
Pittsburg	(a)36	35	178	176	(b)64		27	(a)20
				Sacramento River Delta				
Collinsville		25	55	24	18	24	15	(a)12
Toland Landing								
Threemile Slough Bridge	25	13	22	24	15	24	14	16
Rio Vista Bridge	18	15	15	17	15	12	13	13
Isleton Bridge	14	29	11	21	11	10	24	12
				San Joaquin River Delta				
Antioch	(a)33	32	60	(a)57	50	35	30	27
Millers Harbor	(a)38	37	36	40	(a)36	32	bkn	31
Jersey Island		32			30			(a)31
Threemile Slough	28	26	23	22	20	49	18	(a)16
Oulton Point	(a)31	(b)26	51	25		23	(a)23	(a)20
San Andreas Landing	(a)28	30	29	25	(a)22	24	22	(a)18
Opp. Central Landing	17	34	15	22	11	14	12	(a)10
Dutch Slough	48	44	43	(a)50	48	47	53	42
Piper Slough	44	41	41	40	42	37	(b)39	35
Webb Ferry	38	32	bkn	27	36	28	26	27
Holland Tract	(b)53	54	(a)55	48	46	77	45	45
East Contra Costa I. D.	21	133	(b)111	(a)118	135	129	142	129
Clifton Court Ferry								
Mossdale Bridge	100	124	(a)168	162	149	116	(a)147	178
Vernalis	(b)126	(d)109		(d)164	(e)167	(de)122	(bd)162	(bd)205

Station	April - 1953							
				San Francisco, San Pablo, and Suisun Bays				
Point Orient		12700	(e)11600	13800	13300	(e)12900	(e)14300	12100
Point Pinole			bkn	(a)9400				
Point Davis		6300	8100	(*)5700	7800	(b)10300	(a)7300	
Grand View	9100	8600	9200	8500	8800	(e)8800	8700	7400
Crockett	6400	(a)5200	6400	8800	8200		(b)8200	(e)5500
Benicia	(e)4800		3600		5500	(e)5500	5100	2100
Martinez	2800	3600	(a)2100	4500	4200	(a)4800	(a)2700	400
West Suisun	2300		2100	1400	2800	3400	3200	
Innisfail Ferry	(a)600	600	(a)700	(a)300	500	(a)500	(a)300	(a)372
Port Chicago	1500	1000	1200	2500	(a)2400	(ae)3000	1600	64
O & A Ferry	(a)20	20	(a)28	(a)36	(b)115	(a)80	(ab)28	(a)16
Pittsburg	(a)21	19	(ab)17	(ab)39	(b)47	(a)28	(ab)24	(a)16
				Sacramento River Delta				
Collinsville	(a)13	14	8	all	13	(a)16		8
Toland Landing								
Threemile Slough Birdge	12	9	16		12	(a)12	16	16
Rio Vista Bridge	10	12	9	12	13	16	8	4
Isleton Bridge	8	16	10	(*)8	21	8	16	8
				San Joaquin River Delta				
Antioch	20	17	(a)20	(a)22	23	(a)20	(a)32	
Millers Harbor	30	25	(a)25	22	24	(a)20	(a)28	24
Jersey Island					19			
Threemile Slough	(a)33	17	(a)19	(a)17		(a)24	(a)16	(a)16
Oulton Point	19		(a)19	22	14	(a)20		
San Andreas Landing	(a)18	18	(a)16	(a)18	12	(a)16		(a)28
Opp. Central Landing	14	17	(a)12	13	8	(a)4	(a)16	12
Dutch Slough	40	35	(a)38	28	38	(a)32	(a)48	
Piper Slough	25	23	(a)26	24	22	(a)24		
Webb Ferry	33	21	23	25	18	28	36	20
Holland Tract		32	(a)29	28		(a)24	(a)24	
East Contra Costa I. D.	116	116	91	77	70	72	(a)92	92
Clifton Court Ferry								108
Mossdale Bridge	194	177	168	117	138	(a)124	104	24
Vernalis		(b)192		(d)137	(e)152	(ae)136	(df)84	(df)52

(*) Presumed.
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(b) Taken on following day.
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(e) Taken on preceding day.
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TABLE 211

SALINITY OBSERVATIONS, SACRAMENTO-SAN JOAQUIN DELTA AND UPPER BAYS

Samples taken by local observers approximately one and one-half hours after high high tide.
Salinity expressed in parts of chloride per million parts of water.

Station	May - 1953							
	2	6	10	14	18	22	26	30
				San Francisco, San Pablo, and Suisun Bays				
Point Orient	11900	12500		14100	13200	(e)10900	(e)11000	(b)9200
Point Pinole		8600				(a)7400		
Point Davis	3000	5700	(e)4700		5400		6200	5700
Grand View	8700	8300	7800	8600	8400	(e)8800	8500	8900
Crockett		5400	(a)3600		6400		6100	5200
Benicia	800	1100	3700	5900	2300	(e)4060	4900	4100
Martinez	600	1400	710	3100	2300	(e)970	(a)410	4000
West Suisun	52		630	2440	1400	(ae)390	1450	1660
Innisfail Ferry	400	300	(a)220	(a)190	152	(ae)180	(a)190	164
Port Chicago	16	260	60	2140	640	512	1240	1080
O & A Ferry	(ab)16	12	(a)24	(a)36	20	(a)16	(a)16	(ab)16
Pittsburg	(a)16	20	(a)16	(b)20	20	(ab)20	(a)16	
				Sacramento River Delta				
Collinsville	16	12	(a)12	(a)12	16	(a)8	(a)8	12
Toland Landing								
Threemile Slough Bridge	12	12	8	10	8	12	8	12
Rio Vista Bridge	8	12	8	8	8	10	12	12
Isleton Bridge	8	8	4	8	16	8	8	8
				San Joaquin River Delta				
Antioch	20	12	(a)16	20	16	(a)24	(a)20	(a)16
Millers Harbor	28	20	(a)28	(a)24	20	(a)24	(a)20	(a)20
Jersey Island					20			12
Threemile Slough		24	(a)16	14	(ab)16	(a)20	(a)16	(a)12
Oulton Point	12						(a)12	
San Andreas Landing		28	(a)16	22	12	(a)16	(a)12	
Opp. Central Landing	12	12	(a)8	16	8	(a)12	(a)8	12
Dutch Slough	(a)28	32	(a)30	30	28	(a)28	(a)28	24
Piper Slough	28	40	bkn	20	24	(a)28	(a)32	16
Webb Ferry	24	16	82	24	16	24	(e)16	16
Holland Tract	28	36		32	28	(a)24	(a)24	
East Contra Costa I. D.	72	(ab)72	54	52	72	(a)72	(a)72	84
Clifton Court Ferry		32	50	(a)48	56	(a)56	56	48
Mossdale Bridge	36	36	40	100	84	(a)44	64	72
Vernalis	(de)28	(e)36	(df)32	(bd)128		(d)48	56	

Station	June - 1953							
				San Francisco, San Pablo, and Suisun Bays				
Point Orient	12300	12200	13600	13000	12500	(e)9100	13200	13900
Point Pinole			(a)7300			(a)7600		
Point Davis	5900	7100	5100	5200		(e)4700	9520	
Grand View	8500	(bd)8200	8400	8300	7500		6880	6860
Crockett	(a)4300	7200	5500	4500	6500	(ab)4800	9500	6720
Benicia	2500		3600	3800	3400			2880
Martinez	1600	2700	(a)460	1700	1500	(e)1800	5700	4200
West Suisun	440	3600	1300	700	1900	2730	4200	1860
Innisfail Ferry	132	(a)148	(a)136	124	96	(a)110	(a)110	140
Port Chicago	300	1100	1000	300	268	1564	3680	2340
O & A Ferry	20	(a)28	(a)20	12	(a)12	(a)12	(a)36	(a)48
Pittsburg	(a)16	20	(a)16	(b)20	20	(ab)20	(a)16	
				Sacramento River Delta				
Collinsville	24	(a)12		16	(a)8	(ab)4		12
Toland Landing								
Threemile Slough Bridge	8	(b)8	8	4	(a)4	4		32
Rio Vista Bridge	12	(b)12	8	8	12	(a*)6	6	4
Isleton Bridge	8	(b)12	16	8	(b)4	4	4	4
				San Joaquin River Delta				
Antioch	16	(a)16	(a)16	16		(a)12	(a)16	20
Millers Harbor	16	(a)20	(a)24	20	bkn	(a)16	(a)24	20
Jersey Island	32		(a)16	(a)16	(a)12		(a)12	16
Threemile Slough	12	(a)16	(a)12	(a)16	(a)12	(a)16	12	(a)14
Oulton Point	12	(a)16			(a)12			16
San Andreas Landing	12	(a)16	(a)16	16	(a)12		(a)28	16
Opp. Central Landing	12	(a)12	(a)20	16	(a)8	(a)4	(a)8	10
Dutch Slough	24	(a)24	(a)24	(a)28	(a)16	20	(a)24	24
Piper Slough	20		(a)28	12	(a)24	(a)24	(a)24	28
Webb Ferry	16	16	(a)16	20	(a)8	8	(e)12	16
Holland Tract	20		20	28	(a)20	(a)28	24	24
East Contra Costa I. D.	(ab)64	60	(a)64	(b)56	(ab)104	(a)68	48	42
Clifton Court Ferry	68	60	(a)32	36	(a)36	(a)8	32	24
Mossdale Bridge	52	(a)40	32	36	(a)20	(a)12	32	28
Vernalis		(de)44	(de)32	(de)44	(df)32	(ab)12		

(*) Presumed.
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(f) Taken two days earlier.

TABLE 211

SALINITY OBSERVATIONS, SACRAMENTO-SAN JOAQUIN DELTA AND UPPER BAYS

Samples taken by local observers approximately one and one-half hours after high high tide.
Salinity expressed in parts of chloride per million parts of water.

Station	July - 1953							
	2	6	10	14	18	22	26	30
			San Francisco, San Pablo, and Suisun Bays					
Point Orient			13960					
Point Pinole								
Point Davis	(e)8520		10360	10430	11840	(e*)12100		(a)12200
Grand View	7420		7600	8080	(d)8940	(e)9000	8660	9360
Crockett	8460	(a)7200	7920		10060	(ae)10240	11700	11260
Benicia			8280	6880	7680	(e)9460	10100	9240
Martinez	2340	3800	(a)2740	5800	6580	(a)5340	(a)6140	7460
West Suisun	3340	4600	4880	4980		9060	7600	7240
Innisfail Ferry	124	(a)140	(a)216	472	(a)508	(a)616	(a)1740	(a)2260
Port Chicago	1044	4320	4420	4080	5540	7640	6620	
O & A Ferry	(a)76	(a)100	(a)292	(a)692	(a)532	1276	(a)1550	(a)2120
Pittsburg	26		(a)104	228	(a)304		(a)932	(a)1090
				Sacramento River Delta				
Collinsville	28	(a)12		100	(a)208	(a)492	(a)892	(a)1240
Toland Landing	8							
Threemile Slough Bridge	8	24	8	12	16	20	(a)24	28
Rio Vista Bridge	4	4	20	8	12	20	12	10
Isleton Bridge	12	8	8	8	(b)8	8	10	10
				San Joaquin River Delta				
Antioch	(a)16	(a)20	(a)36	96	168	(a)152	740	(a)588
Millers Harbor	(a)20	20	(a)20	20	(a)24	(a)48	(a)64	88
Jersey Island	(a)24		(a)16	20		(a)24		(a)84
Threemile Slough	(a)10	(a)8	(a)20			(a)28	(a)20	(a)28
Oulton Point				12	(a)12		(a)14	(a)20
San Andreas Landing	(a)16	(a)20	(a)12	(a)12	(a)12	(a)16	(a)16	(a)14
Opp. Central Landing	(a)8	(a)12	(a)6	8	(a)12	(a)12	10	(a)28
Dutch Slough	(a)24	(a)40	20	24	20	(a)24	32	(a)28
Piper Slough	(a)30	(a)16	16	16		(a)16	14	(a)20
Webb Ferry	16	(a)20	16	16	16	14	36	36
Holland Tract	(a)24	(a)28	(a)20	20		(a)20	(a)14	24
East Contra Costa I. D.	(a)48	52	48	44	(a)36	(a)36	40	(a)20
Clifton Court Ferry			44	56			20	(a)28
Mossdale Bridge	(a)20	32	36	64	(a)140	148	152	(a)144
Vernalis	(d)24	(d)40	44	(d)80	(d)128	(de)132	(df)156	(b)136

Station	August - 1953							
			San Francisco, San Pablo, and Suisun Bays					
Point Orient					16800	(e)16700	16900	16700
Point Pinole								
Point Davis	(b)11440	13200	11540	13200	13600	13800	13700	14200
Grand View		(e)10120	11100	11700	12800	(e)12900	13800	13900
Crockett		11700			14100		(a)14300	13810
Benicia	8780	(f)9640	8780	10600	10000		9120	11400
Martinez	8500		(a)6920		(*)10500		(a)9980	(a)7300
West Suisun	6860	8460	8120	8200	9940	(a)6900	7960	
Innisfail Ferry	(a)2060	(a)2660	(a)1960	(a)3200	(a)3080	(a)3410	(a)4160	(a)4080
Port Chicago	8000	8100	8060	7400	(*)7952	8530	7890	8940
O & A Ferry	(a)2130	3040	3640				(a)3140	(ab)3180
Pittsburg		(ab)1160	(a)1520	1440	(b)1740	(ab)1450	(a)1510	2180
				Sacramento River Delta				
Collinsville	(a)920	(a)1530	(a)2020	2200	1990	(a)1150	1570	
Toland Landing								
Threemile Slough Bridge	(b)48	80	64	(f)48	(b)40	124	69	155
Rio Vista Bridge	(b)10	(a)12	12	(a)16	(b)16	24	16	16
Isleton Bridge	(b)14	12	(a)12	16	(b)16	12	20	16
				San Joaquin River Delta				
Antioch	1090	(a)624	1170	1090	(a)492	(a)668	1350	1440
Millers Harbor	(a)124	(a)180	252	256	(a)288	(b)360	359	(a)355
Jersey Island		(a)72		140	(a)64	(a)163	(a)155	486
Threemile Slough	(a)28	(a)72	(a)60	(a)52	(a)36	72	65	(a)33
Oulton Point			(a)40		(a)32	(a)36	65	(a)37
San Andreas Landing	(a)16	(a)24	(a)20	(a)20	(a)32	(a)61	(a)20	24
Opp. Central Landing	(a)14	(a)16	16	(a)44	(a)16	(a)16	12	(a)12
Dutch Slough	(a)32	(a)32	64	104	(a)68	(a)72	86	(a)78
Piper Slough	(ab)44	(b)48	40	36	(a)65	(a)37	41	(a)41
Webb Ferry	40	40	88	(d)120	48	45	159	69
Holland Tract			(a)44	(a)28	(a)32	(a)36	33	(a)33
East Contra Costa I. D.	(a)20	20	20	(a)36	(a)40	44	41	(a)49
Clifton Court Ferry		24	28	(a)28	(a)20	(a)24		
Mossdale Bridge	(a)140	128	140	(a)152	(a)136	156	151	(a)155
Vernalis	(dc)108	(bd)128	(b)132	160	(d)136	(de)148	(e)139	(af)155

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TABLE 211

SALINITY OBSERVATIONS, SACRAMENTO-SAN JOAQUIN DELTA AND UPPER BAYS

Samples taken by local observers approximately one and one-half hours after high high tide.

Salinity expressed in parts of chloride per million parts of water.

Station	September - 1953							
	2	6	10	14	18	22	26	30
				San Francisco, San Pablo, and Suisun Bays				
Point Orient	(a)16600	16900	16100	15600	(e)16400	(*)16500	16500	15400
Point Pinole								
Point Davis	(e)14400	(a)13300	12200	(e)11500	(ae)13800	13100	13600	
Grand View		13000	13900	14000	(e)14000	(b)13400	13000	13200
Crockett	(a)12500	13800	13100		(a)11400	11600		(ab)9910
Benicia	(e)12000	11000	9890	11200	(e)10500	8360	9830	8670
Martinez	8300	(a)7360	6900	(a)6670	8510	5200	(a)4490	(a)4650
West Suisun		8080		9360	8320	6430		5980
Innisfail Ferry	(a)4020	(a)4300	(a)4260	(a)4080	(a)4040	3730	(a)3060	(a)2510
Port Chicago	8570	(b)6900	6240	6650	(e)6920	4060	5610	3940
O & A Ferry	(a)3060	(a)2180	2550	(a)1710	(a)1650	1370	1290	551
Pittsburg	1830		918	1310		310	306	
				Sacramento River Delta				
Collinsville	1830		1120	1510	(a)592	355	(a)196	(a)171
Toland Landing								
Threemile Slough Bridge	(a)110	41	33	24	29	20	24	16
Rio Vista Bridge	(e)12	12	24	16	24	(b)16	24	16
Isleton Bridge	(*e)16	16	12	12	16	12	16	12
				San Joaquin River Delta				
Antioch	1200	(a)853	530	571	347	151	200	118
Millers Harbor	(a)298	(a)200	159	(a)86		49	49	(a)33
Jersey Island			114	(a)65				(a)33
Threemile Slough		(a)82	(a)37	(a)37	(a)37	24	24	(a)24
Oulton Point			(a)37	(a)37	(a)20	20	(a)20	
San Andreas Landing	(a)24	(a)24	16	(a)16	(a)24	20		(a)45
Opp. Central Landing	(a)12	(a)12	(a)16	(a)16	(a)16	(f)16	(a)20	(a)12
Dutch Slough	(a)86	(a)114	(a)78	(a)78	(a)57	45	(a)37	(a)37
Piper Slough		45		(a)37	(a)41	37	(a)37	(a)37
Webb Ferry	49	41	78	53	45		33	24
Holland Tract	(a)37		49		(a)37			
East Contra Costa I. D.	33	(a)53	(a)73	(a)49	(a)53	(a)57	(a)65	(a)78
Clifton Court Ferry			(a)49	57	(a)41	(a)61	(*a)122	
Mossdale Bridge	(a)110	151	(a)126	(a)135	(a)139	(a)110	(a)110	(a)94
Vernalis	(ae)110	(af)147	(f)131	126	131	106	(e)110	(e)94
	October - 1953							
				San Francisco, San Pablo, and Suisun Bays				
Point Orient	(e)15300	15000	15400	15100	15500	16600	15700	
Point Pinole						12400		
Point Davis		11900	11700	10700	11400		11200	10900
Grand View	(e)13300	13300	13100	13000	12700	12600	12600	12700
Crockett	9400	11300	11500	10000	(e)11000	12500	4770	9360
Benicia	5410	(a)9320	9120	(a)8750	8570	8790	8160	7220
Martinez	3410	6530	7670	8300	5980	5590	7830	5160
West Suisun	3710		6940	5810		5750	5180	3960
Innisfail Ferry	2310	1820	2020	2260	2350	2260	(a)2310	(a)2350
Port Chicago	(e)4120	4350	6120	4800	(b)5160	3370	5260	4100
O & A Ferry	(e)347	(a)1060	1240	1240	(a)653	(a)571	1140	(a)857
Pittsburg	(e)131		367				449	
				Sacramento River Delta				
Collinsville		106	579	285	269	473	(a)237	98
Toland Landing								
Threemile Slough Bridge	20	16	20	12		8	20	12
Rio Vista Bridge	33	16	12	12	8	8	8	4
Isleton Bridge	12	12	12	4	8	4	8	4
				San Joaquin River Delta				
Antioch	45	90	163	171	110	102	(a)86	110
Millers Harbor	(a)49	29		(a)29	29	24	(a)24	24
Jersey Island	(a)29	29	(a)24	(a)24		33	(a)24	20
Threemile Slough		24	(a)20	(a)16		20	(a)16	16
Oulton Point	(a)20		20	(a)12	12		(a)20	16
San Andreas Landing	(a)29	20	20	16	16	12	20	(b*)4
Opp. Central Landing	(a)12	16	(a)16	(a)8	16	12	(a)8	4
Dutch Slough	(a)41	33	(a)33		(a)33	24	(a)29	33
Piper Slough		33	29	(a)24	29		49	29
Webb Ferry		24	20	20	16	20	(a)20	(b)16
Holland Tract							(a)45	37
East Contra Costa I. D.	(a)110	122	(a)147	(a)65	78	110	(ab)106	106
Clifton Court Ferry		(a)106	(a)102	90		(a)69	(a)106	
Mossdale Bridge	(a)106	(a)106	(a)82	(a)86	90	(a)118	(a)110	118
Vernalis	(d)106	106	(de)90	(d)86	(e)69	(da)106	(a)114	

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(f) Taken two days earlier.

TABLE 211

SALINITY OBSERVATIONS, SACRAMENTO-SAN JOAQUIN DELTA AND UPPER BAYS

Samples taken by local observers approximately one and one-half hours after high high tide.
Salinity expressed in parts of chloride per million parts of water.

Station	November - 1953							
	2	6	10	14	18	22	26	30
San Francisco, San Pablo, and Suisun Bays								
Point Orient	(e)15000	15400		15700	15600	15500	15000	14400
Point Pinole	13300				11910			11100
Point Davis	11700	11600	12400		10300	10000	10700	9360
Grand View	12400	12300	12200	12000	11600	11500	11400	11000
Crockett	10900	12000	11000		10300		(b)8630	8570
Benicia	8320	9260	7650	8340	(e)8040	7370	5930	7900
Martinez	6410	7380	9100	6920	5330	7280	4700	7000
West Suisun		5630	7550	5040	5020	4470	2360	
Innisfail Ferry	(*)2180	2350	(a)2450	(a)2410		1410	1880	1900
Port Chicago	4590	5300	7260	6020		4680	2120	5260
O & A Ferry	(a)116	1370	(a)1200	918	745	(a)373	297	853
Pittsburg		265	857	306	156	137	(a)138	
Sacramento River Delta								
Collinsville	518	(a)86	(a)355	139	90	133	71	36
Toland Landing								
Threemile Slough Bridge	12	16	8	12	39	24	20	12
Rio Vista Bridge	4	8	12	4	4	8	12	4
Isleton Bridge	4	20	12	8	4	8	24	4
San Joaquin River Delta								
Antioch	98	155	326	253	106	119	48	48
Millers Harbor	20	29	29	71	59	39	36	32
Jersey Island	29	24	(a)29		27			
Threemile Slough	16	(a)16	20		20	(a)24	24	36
Oulton Point	16	(a)24	(a)20	20		43		
San Andreas Landing	16	20	24	20		27	36	24
Opp. Central Landing	8	(a)24	(a)12	16	8	(a)12	12	20
Dutch Slough	33	(a)41	(a)41	39	35	39	52	52
Piper Slough	41	37	(a)41		39	(a)47	48	
Webb Ferry		33	24	24	20	31	32	28
Holland Tract	45	(*a)53	45		55	(a)59	87	63
East Contra Costa I. D.	106	(a)122	(a)126	126	137	149	151	151
Clifton Court Ferry		(a)114						
Mossdale Bridge	(a)106	(a)102	(a)98	110	(a)106	(a)82	91	(a)103
Vernalis		(a)98			(cd)86	(a)90	(bd)95	(bd)99

Station	December - 1953							
San Francisco. San Pablo, and Suisun Bays								
Point Orient	15000	15300	14300	15000	16200	16400	15300	14000
Point Pinole						11700		12700
Point Davis	9820		8990	10900	11500		9560	10800
Grand View	10800	11300	10500	10200	10100	10200	10100	9920
Crockett	9770		8170	9460	10800	9230		9480
Benicia	7500		5870					
Martinez	6750	8930	(a)3080	7620	7700	6130	5140	7700
West Suisun							2960	5320
Innisfail Ferry	1980	1490	(*)1110	1270	6430	(a)1750	(a)1850	1790
Port Chicago	5320	5510	2260	4210	5830	3790	3730	4700
O & A Ferry	734	376	(a)99	496	833	675	516	1230
Pittsburg	570	95			436	218		159
Sacramento River Delta								
Collinsville	71	67	32	28	(*b)329	198	60	194
Toland Landing								
Threemile Slough Bridge	28	16	4	12	12	8	(*)12	12
Rio Vista Bridge	12	(*)8	4	4	4	(d)8	8	8
Isleton Bridge	8	8	16	4	4	8	8	8
San Joaquin River Delta								
Antioch	48	67	56	44	111	115	71	79
Millers Harbor	36	24	36	36	40	40	40	40
Jersey Island			(a)32	32	36			
Threemile Slough	32	20	(a)32	16				24
Oulton Point	28			28	24		28	36
San Andreas Landing	32	32	32	24	28	36	32	40
Opp. Central Landing		(a)2	(a)8	8	16	(a)16	16	16
Dutch Slough	52	44	(a)52	52	32	(a)56	60	52
Piper Slough	(*e)52		(a)60					
Webb Ferry	36	36	48	28	28	36		32
Holland Tract	63	75	(a)87	60	52	56		60
East Contra Costa I. D.	151	(a)167	(a)143	143	135	(a)143	147	
Clifton Court Ferry	(a)103				107	(a)107		111
Mossdale Bridge	(a)103	95	(a)99	99	(a)103	(a)99	107	(a)99
Vernalis	(ac)143	(ac)103	(de)95	(bd)95				(d)107

(*) Presumed.
(a) Taken at Low High Tide.
(b) Taken on following day.
(c) Taken two days later.
(d) Taken over one hour off scheduled time.
(e) Taken on preceding day.
(f) Taken two days earlier.

TABLE 212

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1953

DATA COPIED FROM UNITED STATES BUREAU OF RECLAMATION COMPILATION
(Daylight Saving Time effective April 26 through September 27)

Date of Sample	Time of Sample	G. H.	c.f.s.	Temp. °F.	Parts per Million Ca	Mg	Na	K	CO_3	HCO_3	SO_4	Cl	B	NO_3	Total Solids	Kx10^6	% Na
					SACRAMENTO RIVER BELOW SHASTA DAM							T33N, R5W, Sec. 15					
1/26	1030	595.1	35124	48	11	3.5	5.3	1.6	0	57.3	8.2	2.1		0.6	112	120	21
2/9	1300	586.5	12400	47	10.6	3.9	5.3	2.0	0	59.8	3.8	1.4		0.6	82	106	20
3/9	0800	582.0	3240		14.6	3.0	2.8	1.6	0	66.5	3.8	2.1		0.3	90	123	10
4/13	0900	582.0	5637		11	3.8	6.9	1.6	0	58	3.4	5.7		0	92	106	25
5/11	1530	587.5	12349	48	11	4.2	5.5	0.8	0	60	4.3	4.3		0	92	108	21
6/8	1500	587.0	12765	48	9.4	5.0	5.3	1.6	0	55	2.4	3.9		0	72	107	20
7/10	1400	587.2	12739	51	13	5.5	5.3	1.2	0	73	4.8	2.8		0	104	125	17
8/10	1000	587.0	12856	52	9.6	4.3	3.7	2.0	0	55	3.4	2.5		0	78	106	15
9/8	0800	581.85	3683	52	13	3.5	4.8	0.8	0	55	2.4	2.8		0.6	116	103	18
10/13	0900	580.55	5247	52	8.6	4.8	6.0	1.2	0	57	5.3	3.2		0.2	50	107	23
11/9	1300	583.9	6550	52	7.9	5.7	5.5	1.2	0	58	3.4	2.5		0.6	78	106	21
12/10	1400	583.8	5528	52	10.2	4.8	5.3	0.8	0	64.1	2.9	3.9		0.5	70	120	20
					AMERICAN RIVER AT FAIR OAKS BRIDGE							T9N, R6E, Sec. 13					
7/28	1614			80		1.8						3.9			64	67	
9/30	1430			72		3.5						5.7				73	
					SACRAMENTO RIVER AT HEAD OF SNODGRASS SLOUGH							T6N, R4E, Sec. 22					
1/30	1005			50	12	5.0	6.8	1.5	0	59	5.8	7.5		0	98	120	23
3/3	1045			50	13	7.2	11	1.3	0	72	8.2	14		0	110	160	28
3/27	1200			62	11	4.1	6.7	1.1	0	49	6.2	12		0	92	120	24
4/23				60	7.9	3.3	5.2	0.9	0	41	3.4	5.5		0.27	65	92	25
5/21	1340			58	6.9	2.9	6.3	0.8	0	43.0	6.0	2.1		0.4	69	100	31
6/25	1035			69	7.6	3.9	6.9	0.8	0	43	4.3	7.6		0.44	67	100	29
7/30	1100			75	14	8.5	16	1.0	0	88	11	14		0.7	140	210	32
8/27	1015			74	15	10.0	21	1.2	0	110	13	17		0.53	150	250	36
10/1	1100			64	14	9.5	15	1.5	0	100	11	12		0.4	130	220	30
10/30	1120			57	13	7.3	12	1.4	0	77	9.3	11		0.4	110	180	30
11/30	1345			53	11	6.5	11	1.2	0	69	10	8.0		0.5	110	160	30
					SACRAMENTO RIVER AT RIO VISTA							T4N, R3E, Sec. 30					
7/28	1630			75		14						15			114	194	31
8/27	1530			72		19						17			158	252	33
					SACRAMENTO RIVER AT TOLAND LANDING							T3N, R2E, Sec. 21					
7/28	1550			72											142		
8/31	1145			70								139			432	777	
10/5	1055			67											172	267	
					SACRAMENTO RIVER AT COLLINSVILLE							T3N, R1E, Sec. 27					
3/27	1415			54		6.2						7.8			96	147	18
4/23	1310			61		9.4						12			96	150	27
5/22	1100			60		10						9.9			102	148	30
6/25	1310			65		6.2						7.5			78	95	28
7/28	1510			71		179						341			736	1308	59
8/31	1115			70		750						1349			2780	4596	72
10/5	1145			68		40						67			236	389	45
					PUTAH CREEK NEAR WINTERS							T8N, R2W, Sec. 28					
3/26	1120			60		10						7.1	0.5			382	12
6/25	1515			80		23						22			406	632	16
9/28	1330			74		36						31	1.3		466	774	20
					CACHE SLOUGH BELOW LINDSEY SLOUGH							T5N, R3E, Sec. 31					
1/27	1050			50		24.1						17.0				329	32
4/28	1045			60		7.4						9.2			88	139	23
7/30	1505			76		14						13			128	206	30
10/30	1315			64		9.2						11			108	176	23
					SAN JOAQUIN RIVER AT SAN ANDREAS LANDING							T3N, R3E, Sec. 13					
1/30	1135			50	10.6	5.6	6.2	1.6	0	59.8	6.24	6.39	0.32	0.06	86	120	21
3/3	1140	3.10		52	14	8.4	12.6	0.8	0	73.8	13.9	17.4		0.06	124	199	28
3/27	1040			61	13.2	4.9	6.2	1.6	0	52	7.2	7.1		0.19	96	129	20
4/23	1135			61	11	4.9	7.4	0.8	0	52	6.7	12		0	94	141	24
5/22	1245			61	10	5.6	10	2.0	0	51	8.2	14		0	116	152	31
6/25	1135			69	7.6	3.1	5.3	1.2	0	40	2.9	7.1		1.2	64	86	26
7/30	1230			76	15	6.7	14	1.6	0	75	11	15		0	144	197	32
8/27	1140			71	16	10	20	0.4	0	103	18	22		0.2	160	259	34
10/2	1405				15	14	20	1.2	0	107	19	23		0.2	170	273	31
10/30	0950			61	16	11	16	1.2	0	87	14	23		0.6	138	222	28
11/30	1200			54	16	9.3	19	0.8	0	78	20	29		0	160	256	34
					SAN JOAQUIN RIVER AT TWITCHELL ISLAND (OULTON POINT)							T3N, R3E. Sec. 17					
7/26	0532											33			130	227	
7/30	1300			74											140		
8/7	0348											68			208	371	
8/23	0433											74			282	441	
8/27	1215			74											212	346	
10/2	1325														172	267	

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(Daylight Saving Time effective April 26 through September 27)

Date of Sample	Time of Sample	G. H.	c.f.s.	Temp. °F.	Parts per Million Ca	Mg	Na	K	CO_3	HCO_3	SO_4	Cl	B	NO_3	Total Solids	Kx10^6	% Na
					SAN JOAQUIN RIVER AT JERSEY POINT							T2N, R3E, Sec. 6					
7/26	0502											114			294	522	
7/27	0547											123			302	543	
7/31	0930			72											274		
8/7	0314											254			568	1195	
8/8	0418											280			570	1412	
8/23	0402											444			976	1696	
8/25	0548											349			788	1374	
8/28	0845			69											398	690	
10/1				67											204	301	
					SAN JOAQUIN RIVER AT ANTIOCH							T2N, R2E, Sec. 18					
1/30	1140			50	22							29			150	270	35
1/30	1140			50	19.3							28.8			164	249	34
3/3	1315	0.10		53	21.4							30.5			170	263	35
3/27	1003			56	18							26			156	240	32
4/24	0957			63	13							19			134	188	31
5/21	1345			63	15							18			132	172	38
6/26	0930			70	11							17			112	145	32
7/30	1545			75	142							261			590	1039	59
8/28	0750			69	407							799			1734	2888	61
10/1	1330			66	55							80			282	495	48
10/30	1140			60	36							60			230	395	40
12/4	0940			52	33							52			210	344	42
					HOLLAND TRACT AT OLD RIVER							T2N, R4E, Sec. 19					
1/30	1000			50	40.5							57.2			260	420	42
3/4	0935	4.21		50	39.0							61.8			266	425	40
3/27	1240			66	35							56			280	412	37
4/24	1123			65	18							29			160	238	32
5/21	1150			63	21							30			160	230	40
6/26	1100			73	23							36			168	255	38
7/31	1100			75	14							19			130	180	34
8/28	1225			72	27							36			188	293	40
9/2	0202											47			190	335	
10/1	1500			68	26							32			196	312	36
10/30	1150			59	33							55			246	407	35
12/1	1030			53	59							94			358	576	45
					MIDDLE RIVER AT SANTA FE RAILROAD							T1N, R4E, Sec. 15					
3/3	1450			51	63.9							96.9				585	48
5/27	0945			62	27							43			200	296	40
9/1	1230			72	21							31				278	33
12/1	0930			52	66							110			388	638	45
					OLD RIVER AT CLIFTON COURT FERRY							T1S, R4E, Sec. 21					
1/27	1200	3.84		52	27.6							37.6				298	40
3/4	1245	3.03		54	46							74.9				450	44
3/27	0910			60	92							145			500	806	50
4/28	1345	2.80		68	55							93			320	550	44
5/27	1055	3.35		63	39							55			228	366	46
6/22	1015	2.85		66	5.3							9.9			62	72	32
7/31	1140			76	15							21			140	189	34
8/28	1315			73	21							32			180	264	34
10/1	1545			69	73							112			420	691	46
10/30	1430			61	66							112			384	658	44
12/1	0820			53	61							100			362	601	44
					MOKELUMNE RIVER BELOW COSUMNES RIVER							T5N, R5E, Sec. 29					
3/26	1415			58	3.9							5.0				78.7	22
4/28	1150			59	2.8							3.9				58	21
5/25	1500				2.3							4.6				49	20
6/24	1325			66	2.1							3.9				42	21
7/27	1310			68	4.8							5.0			70	86	24
8/25	0932			73	3.5							3.9			166	67	22
9/28	1050			68	3.0							3.9				44	30
10/30	1050			61	2.5							3.9				53	21
					MOKELUMNE RIVER BELOW GEORGIANA SLOUGH							T3N, R4E, Sec. 7					
3/26	0930			54	5.3							5.0				115	20
4/28	1000			58	4.4							6.0			80	89	21
5/25	1600				7.4							8.5			78	116	28
6/24	0950			68	4.8							7.5			64	73	29
7/27	1033			68	14							41			126	205	30
8/25	1202			73	19							17			144	247	34
9/28	1120			70	20							27			158	258	34
10/30	1015			62	6.7							11			100	158	18
					SAN JOAQUIN RIVER AT BRANDT BRIDGE							T1S, R6E, Sec. 9					
3/4	1320	4.5		54	75							110				681	48
5/27	1345	4.32		62	37							52			228	362	45
8/31	1530			74	79										446	771	44
12/1	0900	3.7		53	63							101			360	592	46

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(Daylight Saving Time effective April 26 through September 27)

Date of Sample	Time of Sample	G. H.	c.f.s.	Temp. °F.	Parts per Million Ca	Mg	Na	K	CO_3	HCO_3	SO_4	Cl	B	NO_3	Total Solids	Kx10^6	% Na
					SAN JOAQUIN RIVER AT MOSSDALE BRIDGE							T2S, R6E, Sec. 3					
1/27	1340	5.6		53			32					34				300	47
3/2	1420			56			69					102			382	631	48
3/25	1515			66			89					143			468	799	49
4/29	1455	5.05		60			20					29			130	216	40
5/26	1505			62			38					55			220	362	46
6/22	0940			65			5.8					11			64	79	32
7/28	1000			74			81					157			492	815	43
8/26	1320			70			46					132			440	748	27
9/28	1440			70			65					94			376	615	46
11/2	1005			58			61					109			370	634	42
11/30	0955			54			62					103			356	587	46
					SAN JOAQUIN RIVER BELOW FRIANT DAM							T11S, R21E, Sec. 7					
1/23	1420	2.06	79	52	4.6	1.1	7.0	1.0	0	18	6.6	8.2		0	56	61	46
2/19	1620	4.16	902	48	3.3	0.7	7.2	0.9	0	18	1.2	8.8		0	40	54	56
6/19	1045	3.39	401	34	4.3	0.94	5.1	0.8	0	20	1.1	5.9		0.62	43	53	41
					SAN JOAQUIN RIVER AT WHITEHOUSE							T13S. R15E, Sec. 25					
4/15	1050	2.30	832	60	4.0	0.4	5.0	0.9	0	22	0.3	4.2		0.1	44	54	46
4/27	0940	2.14	728	60	4.0	0.5	5.6	0.7	0	22	0.4	4.9		0.08	44	55	48
5/4	1446	1.65	527	76			6.0					5.5				67	39
5/18	1230	1.27	340	70	4.5	1.2	6.1	1.0	0	25	1.3	5.1		0.35	43	65	44
5/25	1045	1.23	340	61	4.6	1.2	6.4	0.9	0	27	1.3	5.1		0.39	46	63	44
6/8	1040	1.42		61	4.2	1.1	5.6	0.8	0	24	0.93	5.2		0.35	40	58	43
6/22	0800	1.00		71	4.8	1.3	6.0	0.9	0	28	1.5	5.2		0.27	39	66	41
7/13	0805	0.49	86	71	13	1.6	8.2	1.0	0	54	2.2	5.2		0.88	75	79	31
7/27	0815	0.13	50	69	6.7	1.7	8.0	1.0	0	39	1.7	5.9		0.70	58	82	41
8/10	0920	0.40		75	6.3	1.5	8.2	0.8	0	40	1.9	4.9		0.3	58	82	44
8/24	1030	0.94		74	4.9	1.5	5.6	0.8	0	28	1.2	4.2		0.3	49	64	38
9/14	1325	2.04		77	3.7	0.9	4.8	1.0	0	20	2.5	3.5		0.4	83	50	42
9/28	1240	2.81		71	3.8	0.8	4.3	0.8	0	19	1.5	3.1		0.4	39	42	41
10/12	1500	2.46	850	66	2.5	0.6	3.1	0.5	0	16	1.0	2.1		0.3	32	38	42
10/26	1230	1.76		61	2.8	1.0	3.8	0.5	0	20	1.2	2.1		0.2	36	55	41
11/10	1030	1.44		57	3.8	0.83	4.1	0.7	0	20	0.82	2.8		0.26	39	45	39
11/23	1105	0.93		52	4.8	1.1	5.5	0.8	0	26	1.1	2.9		0.35	47	58	41
12/7	1020	1.17		49	0.22	1.0	5.0	0.7	0	25	1.1	2.8		0.53	43	55	41
12/28	1040	0.34		44	5.9	1.3	6.6	0.8	0	32	1.7	3.8		0.62	52	79	41
					SAN JOAQUIN RIVER AT MENDOTA POOL							T13S, R15E, Sec. 19					
1/25	1345	7.98		56	7.1	1.3	9.6	1.0	0	37	4.1	8.2		0.2	69	92	46
2/16	1225	12.85		49	4.6	1.3	7.1	0.9	0	23	1.6	9.5		0	66	65	46
3/23	1615	13.54		62	5.9	1.3	8.5	1.1	0	22	1.6	14		0	57	72	46
					SAN JOAQUIN RIVER AT TEMPLE SLOUGH							T11S, R13E, Sec. 12					
1/27	1015	3.29	45	51	18	5.2	38	1.8	0	71	30	44		0.2	210	320	54
2/24	0915	3.96	137	47	37	17	110	1.3	0	120	150	110		0.7	530	880	60
3/24	0930	2.02	194	62	6.7	0.9	10	1.3	0	26	4.9	13		0.2	66	81	51
4/28	0930	2.21	264	62			26					35				270	42
5/26	0920		416	62			45					62				450	44
6/23	0855			76	15	6.3	30	1.8	0	65	28	37		0.97	180	290	50
7/28	0915			78	15	6.8	23	1.3	0	61	24	28		1.2	150	240	42
8/25	0930			72	16	7.6	28	1.5	0	75	26	32		0.5	170	280	45
9/29	0927			69	4.0	1.3	4.7	0.8	0	23	0.6	3.5		0.3	45	59	38
10/27	1120	2.60		61	5.9	2.1	8.4	1.2	0	32	5.0	7.6		0.2	63	90	42
11/24	0910			54	11	3.1	15	1.2	0	50	8.6	16		0.26	94	150	44
12/28	1140			48	8.6	2.7	12	0.9	0	41	6.6	12		0.05	78	120	43
					SAN JOAQUIN RIVER AT FREMONT FORD							T7S, R9E, Sec. 24					
1/28	0915	61.46	540	50	42	17	110	3.2	0	140	110	130		0.9	530	820	57
2/25	1350	60.27	280	53	43	18	110	1.5	0	140	120	140		0.4	520	910	56
3/25	1455	59.31	230	64	52	27	150	3.7	0	150	110	240		0.2	710	1200	58
4/29	1026	60.80	380	66	20	12	71	3.2	0	130	44	80		1.9	320	560	58
5/27	1519	60.13	260	68	35	16	86	2.8	0	160	66	110		1.2	420	740	54
6/24	1430	59.36		76	45	22	130	3.2	0	160	100	170		1.8	600	1000	57
7/29	1640	58.52		81	66	35	190	3.8	0	190	140	300		1.4	300	1500	57
8/26	1626	58.24		74	82	45	270	3.5	0	210	190	440		0.7	1200	2100	59
9/30	1430	59.07		69	30	15	78	3.0	0	150	45	91		1.9	360	630	55
10/28	1506	58.22		62	70	39	210	3.7	0	180	160	340		0.8	960	1700	57
11/25	1400	58.53		57	54	31	180	3.7	0	160	150	270		1.4	830	1300	60
12/4	1125	58.22		52	91	53	300	3.9	0	190	260	470	0.51	1.2	1400	2200	59
12/23	1100			44			300					450			1400	2200	59
					SAN JOAQUIN RIVER ABOVE MERCED RIVER							T7S, R9E, Sec. 3					
1/27	1115			51			78.7					80.2				626	55
3/2	1035			50			320					420			1500	2300	61
3/25	1100			62			260					380			1200	2000	57
4/29	1035			64			81					79			380	630	56
5/26	1110			64			110					140			550	950	52
6/19	1155			72			210					310			980	1700	54
7/27	1115			78			240					350			1200	1900	56
8/25	1400			74			310					530			1600	2600	52
9/28	1150			70			89					120			430	750	52
10/23	1330			56			290					470				2300	55
12/14	1105			48			270					340			1200	1900	62

TABLE 212

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1953 (Contd.)

DATA COPIED FROM UNITED STATES BUREAU OF RECLAMATION COMPILATION
(Daylight Saving Time effective April 26 through September 27)

Date of Sample	Time of Sample	G. H.	c.f.s.	Temp. °F.	Parts per Million Ca	Mg	Na	K	CO_3	HCO_3	SO_4	Cl	B	NO_3	Total Solids	Kx10^6	% Na
					SAN JOAQUIN RIVER AT CROWS LANDING BRIDGE								T6S, R9E, Sec. 7				
1/27	1140			51			48					52				400	53
3/2	1100			50			180					230			840	1400	56
3/25	1135			62			140					190			650	1100	56
4/29	1100			67			75					91			350	609	54
5/26	1140	44.05		66			92					107			454	737	54
6/19	1215	44.6		74			131					165			606	991	58
7/27	1140	43.1		78			120					160			600	990	54
8/25	1435	43.0		74			99					130			460	790	54
9/28	1205	43.9		70			60					82			320	550	47
10/23	1345	42.8		58			140					190				1100	55
12/14	1140	43.0		51			130					150			610	980	58
					SAN JOAQUIN RIVER AT PATTERSON WATER COMPANY INTAKE								T5S, R8E, Sec. 15				
1/27	1225			51			47					47				400	51
3/2	1135	37.0		52			180					230			890	1400	57
3/25	1200			62			150					200			640	1200	53
4/29	1130	38.0		66			78					89			370	640	53
5/26	1200	38.4		67			85					110			420	730	51
6/19	1235	36.9		75			130					180			610	1100	53
7/27	1335	35.7		78			140					180			640	1100	53
8/25	1450	36.0		74			110					160			520	910	53
9/28	1220	37.8		69			54					61			270	460	51
10/23	1410	36.3		60			170					230				1300	57
12/14	1210	36.5		51			170					220			790	1300	57
					SAN JOAQUIN RIVER NEAR LAIRD SLOUGH BRIDGE								T4S, R7E, Sec. 25				
1/27	1345			52			50					51				450	49
3/2	1155	27.7		53			200					240			940	1500	57
3/25	1225			64			140					190			650	1200	49
4/29	1205	29.7		66			77					93			390	670	50
5/26	1230	28.25		67			93					120			470	800	51
6/19	1400			76			140					180			650	1100	55
7/27	1450	26.7		78			150					200			760	1300	50
8/25	1130	27.1		70			110					150			540	940	51
9/28	1300	28.7		70			68					83			340	590	50
10/23	1455	7.1		60			170					230				1300	57
12/14	1300						160					200			760	1200	58
					SAN JOAQUIN RIVER AT WEST STANISLAUS I. D. DIVERSION								T4S, R7E, Sec. 10				
1/27	1415			51			50					54				430	50
					SAN JOAQUIN RIVER AT EL SOLYO PUMPS								T3S, R7E, Sec. 29				
1/27	1445			51			39					50				350	48
3/2	1310			52			110					140			450	790	61
3/25	1350			64			120					200			610	1100	47
4/29	1310			66			63					94			330	570	48
5/26	1330			64			88					130			460	790	48
6/19	1425			76			75					120			390	700	47
7/27	1515			78			100					180			560	950	47
8/26	1200			72			110					170			550	940	51
9/28	1320			70			72					110			390	670	47
10/23	1515			61			84					130				730	50
12/14	1350			50			83					120			400	710	51
					SAN JOAQUIN RIVER NEAR VERNALIS								T3S, R6E, Sec. 13				
1/27	1300	12.5		52	16	8.5	31	1.5	3.3	70	17	42	0.2		180	300	47
3/5	1040			57	32.2	18.5	71.3	2.7	0	110	58.6	118	0.6		396	671	49
3/25	1410			65	54	19	94	3.5	0	150	52	170	0.2		530	850	48
4/29	1330	13.0		59	11	5	17	2.0	0	49	10	23	0.71		140	190	42
5/26	1400			62	22	10	41	2.0	0	88	33	60	0.9		230	410	48
6/19	1525	10.9		68	12	4.1	20	1.3	0	49	12	32	0.71		120	210	48
7/27	1530	6.1		78	42	17	74	3.6	0	140	31	130	1.8		430	740	47
8/26	1215			70	42	19	83	3.6	0	150	45	140	1.8		450	780	49
9/28	1330	7.3		70	32	15	61	3.2	0	150	35	90	2.3		340	590	48
11/2	0910			59	40	15	70	2.5	0	110	46	120	1.1		370	650	48
11/30	0915			54	30	14	62	2.5	0	110	42	96	1.6		340	560	50
					POSO DRAIN ABOVE BELMONT DRAIN CROSSING								T9S, R12E, Sec. 31				
1/27	1130	6.40	5.82	49			97					84				990	43
2/24	1000		13.5	44			79					160				690	49
3/24	1045	6.41	0.75	62			59					82				510	50
4/28	1025	8.34	29.4	60			66					83				600	48
5/26	1140	8.80	84.0	61			110					130				950	51
6/23	1100	8.63	79.3	78			110					140				920	52
7/28	1110	6.50		81			81					100				690	51
8/25	1020			71			68					89				620	48
9/29	1101	7.75		71			62					76				550	49
10/27	1310			63			74					110				700	46
11/24	1050		3.8	55			94					150				850	48

TABLE 213

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1953

Date of Sample	Time of Sample	G. H.	c.f.s.	Temp. °F.	Parts per Million HCO_3	CO_3	Cl	NO_3	SO_4	Ca	Mg	K	Na	B	% Na	$Kx10^6$
					SACRAMENTO RIVER AT DELTA									T36N, R5W, Sec. 35		
2/10	1430	6.31	1610	45.5	50		3.0									89.2
3/14	1230	6.41	1710	44.1	51		3.8			6.4	5.6		4.5	0.19	20	88.2
4/3	1815			55.4						7.5						
5/12	1430	6.38	1680	50.0	48	0	2.2	0.2	2.3	5.0	5.7	0.3	2.8	0.00	14	79.2
6/10	1500	6.31	1610	54	48		2.0							0.03	15	90.5
7/22	1853	4.76	516	72	87		5.0							0.10	21	115
8/30	1808			61	70		6.0							0.13	25	239
9/14	1410			82	76	0	8.0	0.3	3.5	8.6	7.7	1.2	10	0.18	28	148
11/9	1530	4.14	270	56	71		8.0							0.1	30	140
12/9	1520	5.18	743	56	59		4.0							0.08	22	110
					SACRAMENTO RIVER AT KESWICK									T32N, R5W, Sec. 28		
2/13	1427	14.50	12100	48	57	0	2.0			10	3.9	1.2	6.1		24	107
3/17	1130	8.34	4030	47	60	0	2.5			11	4.0		5.6	0.10	22	111
5/4	0945	12.31	7970	51	56	0	6.2	0.6	11	11	4.2	0.9	9.2	0.03	30	128
6/9	1430	11.95	7480	51.3	58		2.0							0.00	23	113
7/22	1328	13.65	10000	52	56		2.0							0.08	22	103
9/14	1600	12.68	8490	52	59	0	2.0	0.4	5.0	10	4.0	1.2	5.8	0.01	23	110
12/10	1500	11.82	8050	52	66		2.8							0.04	26	122
					SACRAMENTO RIVER AT REDDING									T31N, R4W, Sec. 6		
1/15	1030			44	63	0	2.8			10	5.3	1.3	7.8		26	120
2/14	1415	45.10		49	58	0	2.5			9.7	4.1	1.1	6.1		24	105
3/13	1415	42.3	4520	48	58	0	2.5			11	3.8		6.5	0.01	25	115
5/12	1715	42.95	5980	50	58	0	3.2	0.5	7.0	10	5.1	1.2	6.1	0.02	22	112
6/9	1000	42.9	5860	51												
7/22	1500	44.20	9290	54	67		1							0.07	22	103
9/1	0915	44.20		52	58		3.0							0.08	21	107
9/15	0830	43.77	8080	54	61	0	2.0	1.2	4.6	9.8	4.5	1.2	6.1	0.07	23	113
12/9	1300	43.6	7620	54	66		1.8							0.06	26	122
					SACRAMENTO RIVER AT HAMILTON CITY									T22N, R1W, Sec. 17		
1/15	1200			49.1	62	0	2.5			9.3	5.1	1.2	6.3		23	114
2/19	1315	29.20	8600	46.4	76		5									146
3/27	1030	29.28	9140	55.4	70	0	3.8			13	5.3		6.5		21	136
4/22	1215	27.92	5620	64	72		4.0									139
5/7	1100	29.25	10180	59.0	67	0	2.8	0.4	5.5	11	5.2	1.0	6.5	0.00	22	124
6/12	0800	29.73	10300	58.1	62		4							0.10	22	127
7/9	1100	28.70	7470	71.6	60		1							0.07	20	112
8/13	0730	28.74	8320	59.9	63		3.2							0.01	23	117
9/24	0950	28.60	7420	51.8	71	0	2.0	0.2	8.7	12	6.1	1.0	6.5	0.04	20	125
10/6	1700	28.20	6030	59	66		3.0							0.35	25	123
11/10	1400	28.76	7110	52	63		3							0.06	35	119
12/8	1120	29.48	9600	50	61		2.0							0.10	22	122
					SACRAMENTO RIVER AT KNIGHTS LANDING									T11N, R2E, Sec. 14		
1/13	1000			48.2	62	0	4.2			11	5.3	1.5	7.6		24	126
2/10	1355	30.26	18000	48	73	0	4.5			13	5.9	1.1	7.8		23	142
3/12	0900	21.27	8690	55.4	111	0	18			20	11		24	0.05	35	283
4/23	1545	19.65	4160	65	86		6.0							0.08	23	169
5/15	1445	20.50	10740	68	96	0	13	0.8	24	11	12	1.4	20	0.11	36	239
6/15	1015			67.1	88		13							0.10	38	225
7/10	0820	17.59	5760	73.4	96		8							0.11	30	191
8/21	1500	15.95	7440	72.5	92		11							0.03	34	209
9/23	1330	21.46	10700	69.8	108	0	12	0.2	17	16	10	1.3	20	0.10	34	237
10/19	1700	19.21	7980	59	102		15							0.11	37	259
11/13	1400	17.05	7840	57	74		7							0.20	28	155
12/10	1420	21.04	9890	50	73		6.8							0.15	31	157
					SACRAMENTO RIVER AT SACRAMENTO									T9N, R4E, Sec. 35		
1/23	1300	23.35	72300	49.1	44	0	3.5			7.5	3.7	0.9	4.1		20	86.9
2/26	1200			46	81	0	7.5			15	7.0	1.1	11		26	181
3/30	0940	10.20	30500	54	65	0	7.5			12	5.8		10	0.18	29	145
4/24	0915	9.70	30300	59.0	51		4.0							0.04	25	103
5/15	1000	9.75	35350	59	67	0	7.8	0.2	10	11	5.8	1.0	10	0.25	29	146
6/30	0810	6.65	18000	64.4	46		4							0.03	27	106
7/17	0725	3.29	9140	74.3	76		11							0.09	28	176
8/21	1115	2.58	8220	70	108		17							0.02	35	225
9/18	1215	4.20		76.1	123	0	19	0.4	17	17	12	1.7	25	0.07	37	283
10/19	1100	3.38	11200	59	78		7.5								25	164
11/13	1100	4.00		57	74		4							0.04	25	148
12/17	1515	5.64	13800	48	77		8.0							0.00	29	169
					COTTONWOOD CREEK AT COTTONWOOD									T29N, R3W, Sec. 7		
1/15	0900	6.30	4700	45.5	97	0	4.0			19	8.8	1.0	6.1		13	188
2/19	1100	3.19	1280	42.8	122		5.8									233
3/27	0830	3.40	940	51.8	113		5.5			23	9.6		6.9	0.08	13	211
4/15	1430	2.81	978	58.1	115		5.0							0.02	16	217
5/7	0830	3.08	1050	57.2	104	0	4.0	0.2	9.1	20	8.7	0.8	6.7	0.11	14	186
6/11	1315	2.82	836	71.2	108		5							0.04	10	203
7/9	0730	2.05	265	72.5	108		4							0.08	14	201
8/10	1340	1.50	100	79.5	117		7.5							0.00	16	214
9/23	1300	1.40	80	69.8	113	0	7.0	0.2	5.8	18	10	1.3	8.7	0.09	18	202
10/7	1110	1.47	93	64	103		5.0							0.07	22	189
11/10	1700	1.56	110	57	109		11							0.01	17	198
12/8	1530	2.09	280	47	122		15							0.05	19	270

TABLE 213

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1953 (Contd.)

Date of Sample	Time of Sample	G. H.	c.f.s.	Temp. °F.	Parts per Million											
					HCO_3	CO_3	Cl	NO_3	SO_4	Ca	Mg	K	Na	B	% Na	Kx10^6
					STONY CREEK AT HAMILTON CITY									T22N, R2W, Sec. 36		
1/15	1300	10.18	4100		110	0	9.5			22	9.9	1.3	10		18	223
2/19	1355	6.51	345	48.2	158		14									336
3/27	1115	7.05	600	59	139		15			30	12		15	0.23	21	300
4/22	1130	6.28	130	70	145	14								0.11	18	297
5/7	1200	6.71	405	66.2	132	0	10	0.3	15	28	10	0.8	12	0.02	19	267
6/12	0830	6.45	258	62.6	136		6							0.11	7	273
7/9	1145	5.34	9	78.8	154		12							0.17	18	300
8/13	0840	5.30	8	74.1	166		14							0.06	18	327
9/24	1040	5.42	13	68.0	180	0	15	0.2	15	33	16	1.0	16	0.24	19	346
10/6	1630	5.32	8.5	77	161		16							0.13	20	336
11/10	1330	5.40	15	59	180		16							0.04	19	365
12/8	1055	5.97	88	50	122		15							0.10	18	276
					COLUSA TROUGH (BACK BORROW PIT) NEAR COLUSA											
1/15	1530	10.95	2670	48.2	171	0	36			21	21	3.7	55		45	512
2/19	1500	1.28	163	48.2	304		100									1170
3/27	1330	4.32		63	166	0	26			32	16		34	0.30	34	436
4/22	1000	1.86		69	163		36							0.18	50	550
5/7	1420			64.4	172	0	32	1.3	83	23	18	2.2	64	0.25	51	535
6/16	0900	1.36	117	70.7	202		80							0.31	56	816
7/9	1310	1.72	251	78.8	228		55							0.26	47	639
8/13	1015	3.80	701	78.8	222		41							0.14	47	595
9/24	1210	5.75	965	78.8	212	0	39	0.9	68	27	22	2.4	65	0.20	47	581
10/6	1520	2.48	409	69	169		28							0.37	43	503
11/10	1130	2.20	323	55	192		40							0.20	46	598
12/8	0915	0.70	98	50	320		142							0.29	52	1470
					SACRAMENTO SLOUGH AT KNIGHTS LANDING									T11N, R3E, Sec. 20		
1/13	1100	36.58	Flooded	48.2	98	0	36			17	12	1.4	21		33	216
2/10	1320	25.90		48.2	132		14									263
3/12	1000	18.48		55.4	198	0	29			29	20		28	0.05	28	405
4/23	1500	18.80	735	67	128		26							0.04	27	291
5/15	1400	20.24	1070	68	130	0	12	1.4	12	23	9.9	1.6	17	0.08	27	259
6/15	1115		Flooded	70.7	118		7							0.03	27	223
7/10	0930	15.04	790	78.8	210		29							0.11	28	407
8/21	1410	14.24	810	78.8	227		24							0.04	27	424
9/23	1430	17.16	1220	73.4	212	0	14	0.4	6.2	27	19	1.8	25	0.10	27	373
10/19	1630	15.47	0	63	216		30							0.09	27	432
11/13	1220	15.48	0	59	156		28							0.09	27	406
12/10	1330	17.23	340	50	194		26							0.11	26	392
					PIT RIVER AT CANBY									T41N, R9E, Sec. 10		
3/25	1530	3.81	586	51.8	85	0	5.5			13	5.2		14	0.04	36	175
4/15	0845	3.05	205	46	105		5.5							0.03	37	200
5/6	0850	2.53	50	59.0	97	0	2.0	1.3	6.6	15	5.2	3.7	14	0.00	32	175
6/11	0750	6.20	2150	55.9	88		4							0.08	35	168
7/8	0900	3.26	2194	64.4	112		0							0.09	27	190
9/25	0830	2.67	86	59	140	0	5.0	0.9	8.2	19	9.0	5.1	21	0.07	33	254
10/7	1600	2.78	115	54	130		4.8							0.00	36	235
11/11	1215	2.69	90	46	135		9							0.06	45	263
12/15	1530	2.84	133	37	138		8.5							0.14	46	299
					PIT RIVER AT MONTGOMERY CREEK									T35N, R1W, Sec. 32		
2/16	1005	5.21	4820	44	78	0	3.0			12	5.0	1.6	10		29	137
3/15	1258	4.07	2800	48	79	0	4.0			13	5.2		9.2	0.03	27	138
5/13	1730	5.22	4840	55	75	0	3.2	0.6	4.0	11	5.1	1.7	8.2	0.05	26	156
6/11	1030	5.90	6340	57.9	98		3							0.13	29	147
7/26	1915	2.39	852	70	84		4							0.09	24	149
9/15	1300	3.97	2660	64	88	0	3.5	0.3	2.9	11	6.4	2.0	11	0.08	30	155
10/11	1400			54	88		1.5							0.10	27	157
12/11	1230	1.82	4080	50	87		4.5							0.08	31	161
					McCLOUD RIVER AT SHASTA RESERVOIR									T36N, R3W, Sec. 28		
5/13	1340			50	53	0	3.0	1.4	2.5	9.6	3.6	1.2	4.3	0.09	19	94.1
6/11	1500	12.17		52.0	34		1							0.04	16	92.7
7/26	1415			56	53		0							0.03	19	90.8
9/15	1700	11.22		44	56	0	1.5	0.1	2.2	8.6	3.5	1.4	6.1	0.02	26	95.9
					BURNEY CREEK AT BURNEY									T35N, R3E, Sec. 18		
3/26	1010	0.62		43.7	39	0	1.0			6.4	1.9		3.8	0.04	26	60.2
4/15	1145			45.5	39		0.5							0.01	22	62.4
5/6	1030	1.55		49.1	27	0	0.2	0	0.7	4.0	1.9	0.4	2.0	0.04	19	42.3
6/11	1005			50	32		1							0.02	16	63.6
7/8	1100			69.8	56		0							0.03	17	80.4
8/12	1100			60.8	62		1.5							0.01	15	98.1
9/23	1100			50	68	0	0.2	0.1	2.1	10	5.6	1.0	4.1	0.05	15	105
10/7	1400			54	68		0.2							0.01	21	108
11/11	1000			46	58		1							0.01	21	93.3
12/16	0815			33	58		0.5							0.03	16	94.8
					INDIAN CREEK AT CRESCENT MILLS									T26N, R9E, Sec. 25		
3/25	1045	5.91	1170	45.5	52	0	1.0			8.5	3.3		5.0	0.00	24	85.4
4/14	1030	5.34	870	44.6	56		1.0							0.02	24	92.7
5/5	1200	6.29	1490	53.6	46	0	0.8	0.2	2.5	8.8	2.3	1.0	4.1	0.02	21	79.4
6/10	1130	5.40	930	50.9	52		0							0.08	16	96.4
7/7	1130	3.28	202	66.2	66		1							0.05	18	113
8/11	1205	1.81	27	66.2	107		2.5							0.00	34	191
9/22	1130	1.77	24	62.6	115	0	4.2	0.2	7.7	22	7.9	1.7	10	0.07	20	211
10/8	1200	2.13		55	101		4.8							0.12	24	181
11/12	0930	2.91	143	47	79		4							0.02	22	146
12/15	0930	2.83	132	37	89		3.0							0.09	20	163

TABLE 213

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1953 (Contd.)

Date of Sample	Time of Sample	G. H.	c.f.s.	Temp. °F.	Parts per Million HCO_3	CO_3	Cl	NO_3	SO_4	Ca	Mg	K	Na	B	% Na	Kx10^6
					MILL CREEK NEAR LOS MOLINOS						T25N, R2W, Sec. 5					
1/15	1000	2.20	770	46	41	0	5.5			8.0	2.7	1.0	5.6		27	81.1
2/19	0935	0.24	162	39.2	54	0	12			9.5	4.2	2.0	12		38	140
3/13	1430	0.37	169	44	49	0	12			9.7	4.3		12	0.36	38	142
4/15	1530	0.26	118	56.1	36		10							0.21	40	135
5/12	0915	0.37	186	54.4	42	0	6.8	0.2	9.3	7.6	3.4	1.5	8.2	0.17	34	108
6/11	1430	0.58	232	60.8	380		8							0.18	33	101
7/9	0930	0.21	156	71.6	36		8							0.14	32	113
8/12	1530	0.30	173	78.8	51		13							0.24	34	151
9/23	1410			64.4	62	0	14	0.1	13	12	5.5	2.1	14	0.51	36	176
10/6	1000	1.75	10.2	61	63		16							0.45	36	179
11/10	1530	0.30	76	52	58		20							0.60	40	204
12/8	1410	0.08	106	45	55		18							0.46	39	175
					DEER CREEK NEAR VINA						T24N, R2W, Sec. 14					
1/15	1100	3.77	2470	45	46	0	1.5			7.0	3.7	0.9	3.8		20	74.8
2/19	0910	2.68		39.2	62		2.2									106
3/13	1400	2.51	878	47	61	0	4.2			8.4	4.9		6.9	0.16	27	103
4/15	1600	2.45	838	59	59		1.5							0.03	28	59.0
5/12	0945	2.69	1000	57	51	0	0.8	0.2	1.7	6.8	3.6	1.0	5.0	0.03	25	84.9
6/11	1500	2.58		63.5	54		2							0.04	24	84.4
7/9	1015	2.01	572	67.1	74		3							0.08	25	119
8/12	1615			84.2	132		4.8							0.08	20	215
9/23	1440			75.2	149	0	4.0	0.2	5.4	18	14	2.3	13	0.15	21	244
10/7	0900	0.38	3.1	64	151									0.71	22	247
11/10	1500	1.22	75	52	83		4.2							0.18	28	148
12/8	1210	1.57	360	48	77		3.8							0.09	24	134
					CHICO CREEK NEAR CHICO											
1/14	1600	6.74	1060	50	37	0	2.0			6.1	2.8	0.4	2.8		18	64.6
2/18	1555	3.55	114	45	72	0	5.0			11	6.1	0.9	7.4		23	133
3/13	1300	3.51	138	46	62	0	4.5			10	5.3		6.9	0.12	24	117
4/22	1325	3.27	103	63	70		4.8							0.05	24	91.4
5/12	1200	3.38	86	60.8	67	0	4.8	0.2	3.5	10	6.1	0.7	6.1	0.01	21	118
6/11	1600	3.52	105	59.7	70		2							0.11	22	93.1
7/16	0915	3.22	40	72.7	91		9							0.11	27	168
8/20	1015	3.21	38	68.0	102		10							0.10	26	193
9/22	1230	3.16	27	67.1	104	0	9.5	0.1	6.3	16	8.7	1.0	14	0.10	28	194
10/20	1245	3.19	33	55	94		10							0.15	28	181
11/12	1310	3.31	56	54	95		10							0.20	27	189
12/9	0730	3.08	71	43	80		6.5							0.09	25	153
					BUTTE CREEK NEAR CHICO						T22N, R2E, Sec. 36					
1/14	1500	4.81	2260	43.7	34	0	2.0			5.3	3.1	0.5	1.8		13	58.0
2/18	1515	2.80	570	44.6	50		0.5									84.8
3/13	1100	2.92	642	50	49	0	2.5			9.2	3.6		4.0	0.12	19	83.1
4/22	1420	3.18	798	59	41		0.9							0.02	21	66.9
5/12	1235	3.14	575	54	42	0	0.8	0.3	1.4	6.2	3.5	0.6	2.8	0.04	17	70.1
6/12	1000	3.03	502	55.4	42		2							0.03	9.8	73.8
7/16	1030	2.29	185	66.2	58		1							0.03	14	91
8/20	1100	2.22	162	63.5	63		1.8							0.01	13	104
9/22	1130	2.26	159	62.6	66	0	0.8	0.0	1.3	11	4.8	0.9	4.5	0.20	17	119
10/20	1130	2.37	195	51	62		1.0							0.01	16	106
11/12	1105	2.28	165	53	66		0.8							0.02	14	114
12/9	0920	2.48	237	43	59		0.5							0.04	14	99.9
					FEATHER RIVER AT OROVILLE						T19N, R4E, Sec. 5					
1/14	1345	34.58	24800	41.9	34	0	1.5			5.3	3.1	0.6	3.3		21	59.0
2/18	1400	12.72	5180	42.8	50	0	1.2			8.0	3.4	0.8	4.1		20	84.9
3/13	0930	12.66	5140	41.0	50	0	1.5			7.4	4.0		3.8	0.01	19	83.7
4/22	1535	19.59	10700	58	40	0	0.8			7.8	2.1		2.8	0.15	18	67.8
5/12	1340	18.27	9540	55.4	41	0	0.5	0.2	2.1	6.7	3.2	0.6	3.1	0.01	18	70.7
6/12	1145	18.08	9370	55.9	40		1							0.00	13	74
7/16	1150	9.45	3090	60.1	50		0							0.03	14	87.8
8/20	1300	8.48	2510	67.1	59	0	1.0			12	2.9	3.8	0.9	0.02	16	96.9
9/22	1400	8.62	2590	68	61	0	2.0	0.2	1.8	10	4.8	1.1	4.1	0.07	16	102
10/20	1445	8.16	2340	57	59	0	1.5			11	3.3	1.2	4.1	0.05	17	105
11/12	1425	8.96	2800	52	55		1							0.01	17	95.1
12/9	1030	9.05	3010	44	59	0	1.5			11	3.7	1.9	5.0	0.00	19	103
					FEATHER RIVER AT NICOLAUS						T12N, R3E, Sec. 12					
1/13	1230	41.35	48900	50	44	0	2.8			9.2	2.9	0.9	3.2		16	83.1
2/10	1140	30.09	12200	45	48	0	1.8			8.1	4.8	0.7	4.5		19	93.1
3/23	1545	30.75	13400	51.8	47	0	2.0			9.2	3.4		3.1	0.03	15	85.9
4/23	1345	30.84	13400	60	42		1.5							0.02	17	73.0
5/15	0900	29.50	15610	62	42	0	0.8	0.3	3.0	7.0	3.5	0.5	3.1	0.03	17	73.0
6/15	1230			59.7	38		2							0.07	13	78.3
7/10	1415	23.43	3250	73.4	43		1							0.02	13	79.2
8/20	0830	20.08	1080	71.1	69		6.2								17	128
9/11	1530	21.55	1400	78.4	72	0	2.5	0.4	4.6	13	5.3	1.2	5.6	0.07	18	131
10/19	1045	23.69	2100	59	66		1.8							0.12	23	122
11/20	1530	24.91	4870	52	54		2							0.01	16	97.6
12/10	0930	25.33	5440	47	55		1.5							0.04	18	99.5
					SOUTH HONCUT CREEK NEAR BANGOR						T18N, R5E, Sec. 35					
1/14	1200	4.15	154	46.4	42	0	2.8			5.9	3.7	0.3	4.3		24	76.5
2/18	1300	2.51	9.2	48	68	0	4.2			10	6.1	0.3	9.6		29	162
3/12	1430	3.39	63	53.6	70	0	4.8			9.9	6.1		9.6	0.02	30	135
4/22	1650	2.45	7.6	71.6	77		4.0							0.01	33	148
5/12	1430	2.54	11	68.0	75	0	4.5	0.1	6.3	12	5.5	0.5	8.7	0.01	26	134
6/12	1240	2.28	4.8	68.7	82		4							0.01	27	152
7/16	1300	1.70	0.2	80.6	117		14							0.08	34	255
10/20	1600	2.62	15	64	74		7.5							0.06	40	183
11/20	1230	2.62	13	52	70		8.0							0.11	30	176
12/9	1125	2.30	5.5	50	70		6.2							0.12	32	157

TABLE 213

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1953 (Contd.)

Date of Sample	Time of Sample	G. H.	c.f.s.	Temp. °F.	Parts per Million											
					HCO_3	CO_3	Cl	NO_3	SO_4	Ca	Mg	K	Na	B	% Na	Kx10^6
					YUBA RIVER AT SMARTVILLE									T16N, R6E. Sec. 14		
1/14	1030			46	28	0	1.5			5.9	1.8	0.6	1.6		13	48.2
2/18	1100			45	37	0	0.7			7.7	2.6	0.4	2.0		13	66.1
3/12	1300			51.8	40	0	2.0			9.2	2.2		2.0	0.00	12	72.5
4/23	1000			54	37		0.9							0.04	13	66.6
5/15	1100			53.6	34	0	1.0	0.2	2.7	6.3	2.5	0.4	2.2	0.01	15	57.1
6/15	1530	2.34	6390	57.0	28		3							0.01	10	59
7/16	1440			63.9	28		0							0.02	10	56.9
8/21	1100			73.4	49		1.8							0.02	12	83.2
9/21	1230			73.4	58	0	1.2	0.0	8.2	14	4.6	0.5	2.5	0.04	9	112
10/20	1645			64	63		1.5							0.05	11	110
11/20	1000			52	51		2							0.00	10	99.2
12/9	1215			50	50		1.5							0.00	13	96.5
					YUBA RIVER AT MARYSVILLE									T15N, R4E, Sec. 18		
1/13	1530	61.22		46	27	0	1.5			6.1	2.4	0.6	1.5		11	50.4
2/18	0945	47.96	2100	44.6	39	0	1.0			7.8	3.0	0.6	2.8		16	75.7
3/12	1100	48.30	2700	53.6	43	0	1.5			8.5	3.1		2.8	0.02	15	75.4
4/23	0900	50.77	5400	54	38	38	1.1			7.6	2.7		2.0	0.12	13	68.1
5/15	1330	49.90	4290	55.4	34	0	1.5	0.0	3.5	5.8	3.5	0.5	2.0	0.01	13	59.0
6/16	0745	51.33	6080	55.9	30	0	4							0.03	10	59.0
7/10	1045	46.71	1500	71.6	28		0							0.03	9	53
8/21	0945	44.11	431	68.0	50	0	2.2			11	4.1	0.5	2.4	0.00	10	94.5
9/11	1220	43.95	380	71.6	57	0	2.0	0.1	6.6	12	4.2	0.5	3.0	0.01	12	108
10/19	1430	44.42	532	64.4	60	0	2.2			13	4.6	0.7	4.5	0.14	16	115
11/12	1610	43.25	195	60	55	0	1						5.4	0.09	19	108
12/10	1230	44.37	610	50	52	0	2.0			12	3.7	0.6	3.4	0.00	14	104
					BEAR RIVER NEAR WHEATLAND									T13N, R5E, Sec. 3		
1/13	1400	7.42	3200	48.2	45	0	1.8			11	3.3	0.9	2.8		13	93.3
2/10	1050	3.93	400	44.6	39		2.0									87.3
3/23	1430	4.76	941	55.4	39	0	2.8			8.5	3.1		3.1	0.01	17	80.8
4/23	1300	3.59	336	63.5	31		2.2							0.04	19	65.5
5/15	0845	3.62	349	59.0	40	0	3.0	0.1	7.7	8.8	4.2	0.5	2.6	0.01	12	83.4
6/15	1340	3.41	151	72.7	44		4							0.13	12	88.9
7/10	1330	2.43	11	86.0	118		8							0.01	9	257
8/21	0900	2.53	15	74.1	106		7.5							0.01	4	217
9/11	1000	2.57	24	77	106	0	7.8	0.2	17	23	10	0.8	6.9	0.05	13	221
10/19	1330	3.14	110	62	103		9.0							0.00	14	242
11/20	1430	3.98	420	51	42		3.8							0.00	15	106
12/10	1030	4.37	610	47	38		1.8							0.00	12	82.1
					AMERICAN RIVER AT SACRAMENTO									T8N, R5E, Sec. 3		
1/23	1100			46	29	0	2.8			5.9	2.7	0.6	2.6		18	65.3
2/26	1315	19.01	2130	45	33	0	3.2			6.8	2.2	0.7	2.8		18	63.6
3/30	1115	21.10	5060	51.8	29	0	2.2			5.3	2.1		2.2	0.00	18	53.0
4/24	1200	24.00	10500	54.5	19		1.2							0.03	21	36
5/15	1130	22.02	8220	53.6	22	0	0.5	0.0	2.0	4.6	1.2	0.5	1.6	0.02	17	40.2
6/30	0730	20.68	5390	60.8	20		1							0.02	10	43.5
7/16	1520	19.10	2560	78.6	22		0							0.03	17	39.8
8/21	1300	17.46	405	77.4	46		2.8							0.07	17	91.7
9/18	1400	17.42	351	75.6	41	0	4.0	0.5	4.7	9.6	3.2	0.8	3.4	0.03	16	87.1
10/16	1545	17.71	574	63	37		2.8							0.03	15	79.6
11/13	1620	17.82	714	57	37		4							0.00	16	81.0
12/17	1420	18.22	1280	46	34		1.8							0.00	14	69.7
					SACRAMENTO RIVER AT SNODGRASS SLOUGH (NEAR COURTLAND)									T6N, R4E, Sec. 27		
1/6	1140	10.72		48.2	69	0	8.0			12	6.6	1.1	8.2		23	150
1/22	1530	17.35		49	40	0	3.5	0.4	3.5	7.4	3.1	0.8	3.6	0.06	20	80.8
2/3	1330	11.77		49	69	0	5.5	1.3	7.4	12	5.7	1.7	8.2	0.02	24	142
2/26	1100	5.60		46.4	77		8.0									167
3/11	1255	7.60		53.6	72	0	7.2			14	6.6	0.8	8.7	0.02	23	156
3/26	1530	8.45		55.4	56	0	3.5	0.4	6.4	9.7	4.6	0.7	6.3	0.01	24	108
4/9	1435	7.68		54.0	55		4.8							0.00	23	113
4/24	1030	6.75		59.0	41		4.0							0.02	27	83.9
5/11	1500	7.50		59.04	58	0	7.5	0.3	7.8	10	4.8	0.9	9.8	0.02	32	135
5/26	0945	8.00		57.2	57	0	5.5	0.1	7.7	10	4.0	0.8	9.2	0.03	32	123
6/8	1220	8.81		60.8	56		6							0.00	27	102
6/26	0900	7.10		66.2	51		7.8							0.03	33	118
7/14	0735	6.54		73.4	70		11							0.05	30	166
7/24	1000	4.86		76.1	86		13							0.09	32	210
8/7	1315			72	97		14							0.06	31	226
8/26	1345			71.2	109		16							0.04	34	253
9/16	0850	5.20		71.6	110	0	14	0.8	16	16	10	1.7	20	0.07	34	251
10/16	1245	5.54		61	81		9.2							0.10	23	176
11/9	1100	5.14		57	78		5.5							0.13	24	159
11/19	1445	7.48		52	70		8.5							0.13	30	167
12/4	1200	6.24		52	72		6.2							0.08	27	152
12/15	1000	6.06		46	74		6.2							0.14	28	158
					DELTA-CROSS CHANNEL NEAR WALNUT GROVE											
1/22	1430			51.8	42	0	3.2			7.9	3.2	0.8	3.8		20	83.7
2/13	0924	3.24		46.4	84		19									221
3/11	1340			56	63	0	15			13	7.3		10	0.17	26	163
4/13	1545	5.50		54.3	58		4.0							0.02	26	111
5/11	1420	3.20		62.6	44	0	6.8	0.4	4.9	7.5	4.7	1.2	6.7	0.22	27	102
6/8	1325			60.8	46		6							0.05	25	101
7/14	0820			73.2	67		10			7.7				0.05	30	153
8/20	1240	1.98		70.2	104		15							0.11	34	244
9/16	0920	3.75		71.6	117	0	20	1.2	16	17	11	1.8	24	0.04	37	272
10/16	1150	3.78		61	88		13							0.00	30	201
11/19	1400			52	70		11							0.12	30	172
12/15	1110	3.45		48	43		5.5							0.00	26	101

TABLE 213

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1953 (Contd.)

Date of Sample	Time of Sample	G. H.	c.f.s.	Temp. °F.	Parts per Million HCO_3	CO_3	Cl	NO_3	SO_4	Ca	Mg	K	Na	B	% Na	$Kx10^6$
					SACRAMENTO RIVER AT RIO VISTA									T4N, R3E, Sec. 31		
1/22	1200			50	73	0	7.0			14	6.0	1.7	9.6		25	156
2/13	1025	4.10		46	81	0	9.0			14	7.5	1.0	11		26	177
3/11	1500	4.50		53.6	88	0	11			15	8.9		13	0.03	28	195
4/13	1400	5.69		56	64		5.8							0.11	22	133
5/11	1315	5.16		59.9	60	0	6.8	0.1	10	9.8	6.0	0.8	9.8	0.12	30	137
6/11	0900			59.9	56		6							0.08	30	127
7/14	0940	3.65		72.3	62		8							0.06	27	137
8/20	1020	4.42		71.6	106		16							0.00	34	259
9/16	1130			71.6	116	0	19	1.0	18	16	12	1.7	23	0.07	35	271
10/16	1000	5.23		63	92		12							0.10	32	211
11/18	1200	6.84		52	72		8							0.06	27	157
12/17	1045	6.87		48	73		6.5							0.00	25	159
					CLEAR LAKE, NORTH END, CLEAR LAKE OAKS									T14N, R10W, Sec. 24		
1/16	1030	7.37		49.1	154	0	7.0			22	16	1.8	11		16	282
2/20	1215	6.70		48.2	142	0	5.5			22	15	2.0	11		17	259
3/19	1100	6.9		50	141	0	7.8			22	15		12	0.90	18	260
4/16	1015	7.40		54.5	136		6.0							0.57	18	248
5/8	0900	7.10		57.2	140	0	5.5	4.7	9.0	22	14	1.9	10	0.67	16	255
6/16	1030	6.40		65.1	136		6							0.60	18	252
7/17	0900			78.8	146		7							0.82	16	259
8/13	1200	4.01		83.7	142		5.5							0.52	15	268
9/24	1410			75.2	160	0	5.5	0.8	10	23	17	1.9	12	0.89	17	281
10/6	1240	2.74		72	149		6.8							0.78	16	287
11/10	0930			57	158		6.2							0.86	15	294
12/7	1430	2.78		50	159		6.8							0.86	17	286
					CLEAR LAKE, WEST SIDE, LAKEPORT									T14N, R8W, Sec. 28		
1/16	1230	7.32		50	116	0	5.8			18	12	1.8	8.7		16	219
2/20	1130	6.70		50	128	0	5.2			20	13	2.6	10		17	239
3/18	1420	6.90		50.1	130	0	6.0			19	14		10	0.42	17	240
4/16	1110	7.40		53.6	133		5.5							0.55	18	241
5/8	0710	7.1		58.1	134	0	5.0	4.0	9.7	20	13	2.1	9.6	0.43	16	244
6/16	1130	6.40		66.4	138		4							0.42	16	248
7/17	1030			79.7	137		7							0.78	16	267
8/13	1930	4.01		82.4	152		7.5							0.52	16	266
9/24	1510			86	168	0	6.5	0.2	8.1	25	16	2.1	11	0.84	15	295
10/6	1130	2.74		70	160		6.0							0.72	17	284
11/9	1700			57	156		6.5							0.81	17	293
12/7	1330	2.78		50	156		6.2							0.81	17	281
					CLEAR LAKE, SOUTH END, LOWER LAKE									T13N, R6W. Sec. 31		
1/16	1400	6.81	2490	49.1	155	0	8.0			23	16	2.1	12		17	286
2/20	1000	0.85	7.4	48.4	164		7.0									300
3/18	1300	-0.79	6.5	50	176	0	21			24	22		20	1.2	22	365
4/16	1400	0.72	6.0	54.5	165		7.2							0.60	18	299
5/8	1000	3.32	295	60	156	0	5.8	3.7	10	23	16	2.4	11	0.61	16	280
6/16	1245	3.86	440	69.8	156		6							0.6	16	269
7/17	1245	3.91	455	81.9	146		8							0.32	16	265
8/14	0830	3.85	437	80.6	155		6.5							0.55	15	277
9/24	1600	1.94	58	82.4	162	0	6.5	2.4	11	24	17	2.2	12	0.85	16	311
10/6	0950	1.57	30	66	163		7.0							0.86	17	284
11/9	1530	0.13	0.6	55	176		7.8							0.92	17	316
12/7	1225		98	50	203		36							2.2	23	447
					NORTH FORK CACHE CREEK NEAR LOWER LAKE									T14N, R6W, Sec. 31		
1/16	0903	4.51	950	47.3	122	0	7.5			16	13	0.9	9.8		18	227
2/20	0900	2.02	100	39.2	216		16									392
3/19	1400	-5.10	1350	48	114	0	11			17	12		15	0.56	26	227
4/16	0945	1.86	103	53.6	196		18							1.0	19	369
5/8	1100	1.95	118	59.9	179	0	15	0.9	13	25	20	1.0	16	0.46	19	338
6/16	1400	1.47	48	77.0	200		36							1.3	23	441
7/17	1400	1.06	12	80.6	230		45							3.0	26	471
8/13	1100	0.88	4.0	84.6	243		48							2	25	534
9/24	1340	0.82	2.8	86	245	6	66	0.0	15	40	37	1.9	33	1.9	22	602
10/6	1340	0.80	2.8	81	236		68							2.8	23	616
11/10	1015	0.93	5.0	57	248		80							3.8	25	653
12/7	1535	1.99	130	50	142		42							3.0	30	421
					CACHE CREEK NEAR CAPAY									T10N, R2W, Sec. 8		
1/19	1530	9.12	5400	52	152	0	12	2.0	15	23	16	2.0	15	0.35	21	302
2/11	1000	2.72	333	46.4	291		46	1.8	44	38	39	2.2	42	0.94	26	649
3/19	1730	-5.00	1410	48.2	300		73			43	39	2.3	58	1.1	32	752
4/17	1010	2.11	156	59	278		57							1.3	29	665
5/18	1000	2.51	293	67.1	225	0	34	1.3	25	31	27	2.4	32	1.1	27	490
6/17	0945	3.03	504	70.7	187		19							0.85	22	376
7/13	1545	3.05	486	81.7	167		14							0.92	22	342
8/17	1205	2.88	429	78.8	173		12							0.26	20	326
9/23	1030	1.59	50	68	232	0	42	0.1	20	36	25	2.3	35	1.1	28	501
10/14	1430	1.35	10	61	240		68							1.6	33	636
11/13	1105	1.45	30	61	286		85							2.0	35	729
12/11	1100	1.71	72	49	232		93							2.9	38	713
					PUTAH CREEK NEAR WINTERS									T8N, R2W, Sec. 28		
1/19	1400	11.00	2700	52	166	0	7.8	1.2	20	13	27	1.2	10	0.05	13	306
2/11	1120	6.58	336	48.2	296	10	13	1.4	38	27	51	0.9	19	0.27	13	558
3/11	1500	6.46	309	55.4	332	8	12			30	57	1.1	19	0.32	12	589
4/17	1130	5.81	189	59.9	302		12							0.31	12	521
5/18	1200	5.31	117	69.8	286	16	16	0.6	29	25	50	1.3	16	0.22	11	521
6/17	1045	4.55	42	76.1	302		14							0.40	13	588
7/13	1440	3.85	8.8	81.7	322		27							0.70	20	593
8/17	1030	4.39	32	77.0	389		28							0.38	18	636
9/23	0900	3.64	3.8	68	394	18	30	0.4	49	37	66	2.2	40	1.1	19	761
10/14	1230	3.49	1.7	61	421		32							1.0	20	774
11/13	0850	4.37	31	57	426		32							1.6	22	784
12/11	1402	5.08	94	50	217		9.2							0.40	12	383

TABLE 213

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1953 (Contd.)

Date of Sample	Time of Sample	G. H.	c.f.s.	Temp. °F.	Parts per Million											
					HCO_3	CO_3	Cl	NO_3	SO_4	Ca	Mg	K	Na	B	% Na	Kx10^6
LINDSAY SLOUGH NEAR RIO VISTA																
1/22	1330	7.2		54	146	0	20			21	17	2.2	28		33	362
2/13	1120	4.39		48.2	147	0	22			22	18	1.8	27		31	368
3/11	1530	3.98		54	115	0	18			20	12		20	0.36	30	275
4/13	1445	5.81		58.1	90		11							0.11	24	199
5/11	1245	4.90		62.6	83	0	10	0.4	16	13	9.4	1.3	13	0.06	28	198
6/11	0800			60.8	70		10							0.14	32	167
7/14	1015	3.12		71.8	63		8							0.08	28	143
8/20	1110	4.91		72.1	109		16							0.05	33	267
9/16	1040			71.6	127	0	24	0.7	25	18	14	1.7	29	0.16	38	
10/16	1045	5.30		63	106		17							0.14	33	250
11/19	1300	7.02		54	88		12							0.14	30	211
12/17	1000	6.18		48	82		9.8							0.07	26	182
ROCK SLOUGH AT KNIGHTSEN																
1/21	1550			52.7	107	0	91			31	18	2.7	73		51	655
2/17	0930			52	96	0	68			19	16	1.8	51		49	482
3/24	1400			57.2	98	0	79			27	14		48	0.16	46	531
4/14	1100			61.0	82		52							0.16	42	372
5/14	1320			67.1	77	0	49	1.1	3.1	19	10	2.0	33	0.10	44	348
6/11	1130			66.9	68		30							0.09	43	246
7/14	1415			79.2	59		29							0.06	40	222
8/19	1600			75.7	76		28							0.07	40	253
9/17	1420			76.1	96	0	38	0.3	24	18	11	1.8	30	0.10	41	339
10/15	1500			66	106		46							0.14	43	377
11/18	1515			55	120		99							0.28	49	633
12/16	1530			50	125		109							0.00	49	622
OLD RIVER AT ORWOOD TRACT																
1/21	1510			52.7	77	0	46			19	10	1.8	36		46	362
2/17	1030			53	92	0	71			25	11	1.9	51		50	470
3/24	1500			57.2	96	0	87			27	16		52	0.14	46	556
4/14	1130			63.0	79		50							0.13	41	364
5/14	1230			65.3	73	0	47	1.2	28	19	9.3	2.1	30	0.09	42	332
6/11	1230			63.5	72		38							0.04	46	316
7/14	1500			77	64		31							0.08	40	226
8/19	1430			75.2	77		26							0.05	37	240
9/17	1345			75.2	166	0	128	1.3	50	42	19	4.3	85	0.20	50	770
10/15	1330			66	111		62							0.15	45	439
11/18	1415			57	116		110							0.18	50	655
12/16	1400			50	111		104							0.00	48	640
INDIAN SLOUGH NEAR BRENTWOOD																
1/21	1445			55.4	290	0	188			67	42	2.6	132		46	1290
2/17	1115			55	270	0	222			54	38	2.7	156		50	1280
3/24	1530			59	130	0	131			33	23		87	0.51	52	788
4/14	1200			62.0	92		70							0.27	45	481
5/14	1145			67.1	85	0	60	1.1	36	21	11	2.1	42	0.21	48	406
6/11	1430			62.6	88		56							0.19	48	398
7/14	1600			79.5	114		78							0.59	47	494
8/19	1320			77.5	97		50							0.31	45	385
9/17	1320			74.3	99	0	51	0.7	31	21	12	2.1	36	0.14	43	382
10/15	1230			63	218		203							1.7	55	1260
11/18	1330			55	314		140							1.9	44	1140
12/16	1315			55	296		184							1.6	50	1290
OLD RIVER NEAR CLIFTON COURT FERRY																
1/21	1315	6.46		52	74	0	32			17	6.7	1.9	27		45	270
2/17	1415	3.33		55	111	0	91			30	14	2.2	64		51	583
3/13	1300	3.28		57	111	0	124			37	17		82	0.36	42	702
4/14	1430			61.7	131		132							0.12	47	739
5/14	0935	4.72		64.4	70	0	44	1.0	24	18	7.8	2.1	32	0.08	47	309
6/12	1100	4.03		66.2	56		30							0.05	39	214
7/15	0830	4.72		75.0	58		34							0.09	41	250
8/19	1000	1.43		75.4	122		102							0.07	47	596
9/17	1240	3.89		74.3	118	0	74	0.8	32	28	13	2.6	49	0.09	46	490
10/15	1000	2.68		64	125		90							0.17	51	576
11/18	1115			57	114		112							0.16	51	643
12/16	1017	3.04		50	114		106							0.01	50	619
SAN JOAQUIN RIVER AT ANTIOCH														T2N, R2E, Sec. 12		
1/22	1100			54	64	0	33			19	9.2	1.9	22		35	280
2/13	1300	3.40		53.6	76		28									268
3/24	1315	1.96		53.7	76	0	23			14	8.9		18	0.05	35	229
4/13	1100	1.38		59	67		18							0.05	35	1951
5/11	1100	0.10		62.6	58	0	18	0.4	11	11	6.2	1.3	13	0.09	34	172
6/11	1000	-1.1		64.0	60		13							0.01	34	164
7/14	1200	-1.0		74.7	51		65							0.04	56	322
8/20	0820	0.12		70.3	76		182							0.00	72	1320
9/16	1345	1.90		73.4	101	0	295	0.9	57	22	28	6.8	168	0.09	67	1180
10/15	1600	1.64		68	112		100							0.09	56	573
11/19	1100	2.66		56	87		66							0.07	52	396
12/16	1620	0.30		52	80		68							0.00	51	389
DELTA-MENDOTA CANAL AT TRACY PUMPING PLANT														T1S, R4E, Sec. 31		
1/21	1245			52	108	0	96			25	12	2.2	79		60	608
2/17	1445			55	107	0	92			28	14	2.1	67		53	578
3/13	1200			59	114	0	126			39	17		82	0.22	52	718
4/17	1330			62	83		59							0.12	43	412
5/14	1000			64.7	70	0	46	0.5	26	18	8.3	2.1	30	0.01	44	312
6/12	1145			67.1	56		30							0.07	47	223
7/15	1030			74.8	62		39							0.09	43	260
8/19	0825			72.9	75		28							0.03	39	251
9/17	1100			73.4	155	0	137	1.0	71	42	21	3.6	86	0.21	49	812
10/15	0900			64	134		94							0.20	51	617
11/18	1030			55	128		117							0.37	53	701
12/16	0945			48	153		153							0.41	59	865

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COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1953 (Contd.)

Date of Sample	Time of Sample	G. H.	c.f.s.	Temp. °F.	Parts per Million											
					HCO_3	CO_3	Cl	NO_3	SO_4	Ca	Mg	K	Na	B	% Na	$Kx10^6$
ITALIAN SLOUGH NEAR MOUTH																
1/21	1340			51.8	77	0	50			17	9.7	2.0	34		47	352
2/17	1330			54	98	0	85			27	14	2.2	60		50	549
3/13	1345			56.4	94	0	94			29	13		55	0.10	49	558
4/14	1345			65.0	83		66							0.28	41	432
5/14	0915			64.0	65	0	42	1.3	24	17	7.8	2.0	29	0.09	45	299
6/12	1000			66.2	62		38							0.17	38	248
7/15	0915			76.1	62		35							0.07	43	235
8/19	1050			76.1	74		26							0.05	36	238
9/17	1200			76.1	93	0	41	1.1	24	19	10	2.0	30	0.08	42	328
10/15	1045			64	138		97							0.21	50	628
11/18	1145			55	120		118							0.24	50	678
12/16	1100			50	110		104							0.05	48	634
ITALIAN SLOUGH NEAR BYRON-BETHANY I.D. PUMPING PLANT (BYRON)																
1/21	1415			54	264	0	558			43	28	6.0	418		80	2420
2/17	1200			57	270	0	485			42	30	5.3	356		77	2150
3/13	1425			56.8	101	0	150			34	17		79	0.62	53	776
4/14	1230			63.5	96		134							0.59	49	773
5/14	1100			65.3	69	0	62	1.4	38	21	9.9	2.3	41	0.16	48	394
6/12	0900			64.4	80		54							0.11	44	353
7/15	0800			71.6	66		52							0.16	44	312
8/19	1215			74.8	71		33							0.14	42	274
9/17	1300			75.2	98	0	54	0.6	24	19	11	23	39	0.29	47	376
10/15	1130			63	150		128							0.63	53	744
11/18	1245			50	172		258							2.9	69	1260
12/16	1200			48	190		415							6.2	70	1930
COSUMNES RIVER NEAR MICHIGAN BAR T8N, R8E, Sec. 36																
1/22	1630	4.60	1390	45	38	0	3.2			7.3	3.1	0.8	3.4		19	76.4
2/16	1000	3.31	330	50	42	0	2.2			7.3	3.4	0.9	4.1		21	83.6
3/23	1145	3.62	487	53.6	39	0	2.0			4.2	4.5		3.8	0.04	22	74.3
4/15	1530	3.62	487	59	30		1.3							0.01	27	57.4
5/12	0740	3.80	600	55.0	28	0	0.8	0.0	1.5	4.2	1.8	0.6	2.8	0.04	25	47.8
6/19	0830	4.91	1810	58.1	26		2							0.06	19	42.2
7/13	0955	2.58	108	75.6	33		0							0.03	20	60.5
8/17	1230	1.95	24	80.1	43		1.5							0.00	21	75.6
9/14	1100	1.76	12	79.2	48	0.00	1.5	0.3	3.2	8.3	3.5	1.2	3.8	0.01	18	84.5
10/13	1400	1.88	19	66	51		2.0							0.01	21	94.8
11/16	1030	2.71	137	54	34		1.5							0.07	20	71.7
12/14	1230	2.44	83	45	47		2.5							0.00	18	99.0
MOKELUMNE RIVER AT LANCHA PLANA T4N, R10E, Sec. 4																
1/22	1430	4.98	1590	48.2	22	0	2.5			4.0	2.2	0.7	2.4		21	50.2
2/16	1130	3.72	676	52	23	0	3.0			5.0	1.1	0.9	2.8		25	49.1
3/23	1340	3.71	670	54	23	0	4.0			5.6	1.2		3.8	0.16	30	51.1
4/15	1400	3.71	670	54	22		2.5							0.11	23	49.4
5/12	0930			51.8	23	0	3.0	0.1	2.3	4.6	2.1	0.8	3.0	0.00	24	52.2
6/9	1000	5.15		56.7	24		2							0.00	20	53.8
7/13	1220	4.10	847	63.9	17		1							0.03	21	34.3
8/17	1435	3.66	645	60.8	18		2.0							0.02	18	36.3
9/14	1245	3.69	660	59.9	16	0	1.5	0.1	2.4	3.4	1.1	0.7	1.8	0.01	22	33.5
10/13	1545	3.69	660	52	17		0.8							0.04	32	34.3
11/16	1200	3.70	665	59	14		0							0.00	45	32.8
12/14	1410	3.72	676	54	18		0.2							0.03	21	39.6
MOKELUMNE RIVER AT WOODBRIDGE T4N, R6E, Sec. 24																
1/22	1120	11.41	1250	48.2	24	0	2.5			4.8	1.9	0.8	2.6		21	56.0
2/16	1530	8.65	620	50	24	0	3.2			4.8	1.5	0.9	2.9		25	50.6
3/23	1615	5.62	127	55.4	26	0	3.5			5.3	2.0		3.8	0.01	28	82.3
4/15	1100	6.50	246	57.6	26		2.0							0.02	25	55.4
5/12	1230	5.96	510	58.9	26	0	3.5	0.1	2.1	5.4	1.8	0.8	3.1	0.02	24	56.5
6/9	1415	11.90	1450	55.9	24		3							0.00	20	55.3
7/10	1130	6.04	223	66.7	22		1							0.03	21	41.1
8/18	0710	4.07	17	64.8	27		2.0							0.01	20	54.7
9/14	1510	4.10	12	70.7	27	0	2.2	0.3	2.8	5.1	2.0	0.6	2.8	0.00	22	55.6
10/14	1000	6.98	341	61	20		1.2							0.00	26	43.2
11/16	1530	6.60	249	57	10		2							0.00	26	53.0
12/11	1245	8.45	642	52	19		0.0							0.22	25	40
LITTLE POTATO SLOUGH NEAR TERMINOUS																
1/21	0900	8.10		46	53	0	7.2			11	4.6	1.3	6.5		23	122
2/18	0900	6.60		50	63	0	8.0			14	5.8	1.3	8.7		24	141
3/24	1145	6.83		53.6	62	0	9.5			12	5.9		9.6	0.02	28	158
4/15	1000	4.98		60.8	48		18							0.01	30	142
5/13	0915	5.53		61.7	50	0	9.5	0.5	6.1	9.6	4.9	1.1	9.0	0.02	30	126
6/29	1035	5.76		65.3	28		6							0.01	27	699
7/16	0850	6.54		75	62		11							0.05	31	154
8/18	0820	3.68		70.7	101		34							0.06	42	301
9/15	1200	6.56		72.7	115	0	19	0.7	17	17	11	1.6	24	0.05	37	273
10/14	1045	5.99		63	82		21							0.06	31	209
11/17	1000	4.91		54	60		40							0.09	33	249
12/15	1245	6.92		50	55		35							0.00	30	224
STOCKTON SHIP CHANNEL NEAR RINDGE PUMP																
1/21	1010	4.57		50	80	0	36			22	7.7	2.0	28		41	306
2/18	1030	2.55		52	92	0	61			25	10	2.0	44		47	421
3/13	0925	0.48		52	97	0	81			28	13		52	0.32	48	515
4/17	1000	2.20		60	106		74							0.22	45	513
5/13	1000	1.20		65.1	75	0	40	1.9	17	17	7.4	2.3	29	0.07	45	290
6/29	1200	1.07		70.2	42		20							0.10	42	149
7/16	0945	2.50		77.5	62		34							0.06	44	217
8/18	0930	0.36		73.9	80		38							0.02	39	291
9/15	1320	2.38		77	116	0	54	0.7	20	24	11	2.6	40	0.11	44	403
10/14	1200	2.25		66	155		116							0.24	50	735
11/17	1130	2.14		57	130		112							0.18	50	682
12/15	1340	3.06		52	114		108							0.06	48	647

TABLE 213

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1953 (Contd.)

Date of Sample	Time of Sample	G. H.	c.f.s.	Temp. °F.	Parts per Million HCO_3	CO_3	Cl	NO_3	SO_4	Ca	Mg	K	Na	B	% Na	Kx10⁶
					CALAVERAS RIVER AT JENNY LIND									T3N, R10E, Sec. 22		
1/22	1330	4.32	720	51.8	71	0	4.0			15	6.1	1.1	5.0		15	145
2/16	1400	2.43	86	57	107	0	5.5			22	8.8	1.0	6.9		14	214
3/23	1445	1.83	12	62	163	0	14			39	13		12	0.19	15	332
4/15	1300	1.68	5.4	67.5	118		6.8							0.06	17	232
5/12	1030	2.52	100	59.5	90	0	4.2	0.1	8.6	19	7.0	1.4	6.1	0.00	15	176
6/8	1330	2.80	160	64.4	94		4							0.02	13	191
7/13	1330	2.83	168	74.3	100		3							0.04	13	179
8/17	1615	1.46	2.0	81.1	119		4.8							0.01	13	223
9/14	1445	1.21	0.1	79.3	131	0	6.8	2.2	15	29	11	1.9	8.0	0.06	13	258
11/16	1400	2.36	72	59	127		10							0.02	15	261
12/14	1530	2.04	35	48	104		6.0							0.00	15	221
					SAN JOAQUIN RIVER AT GARWOOD BRIDGE											
1/20	1440			52	72	0	24			16	4.9	1.5	20		41	217
2/18	1330			52	126	0	100			33	15	2.7	74		52	635
3/12	1550	7.35		57	125	0	103			35	14		67	0.24	50	630
4/17	1100	6.11		63.5	164		109							0.16	49	730
5/13	1215	5.11		64.4	72	0	46	1.1	18	18	6.8	2.0	32	0.02	48	303
6/29	1330	5.89		68.4	52		22							0.10	42	186
7/16	1100	5.87		78.1	83		51							0.09	47	324
8/18	1140	5.08		77.4	178		72							0.11	52	543
9/17		4.27		77	94	0	38	0.4	26	18	11	1.8	29	0.11	41	323
10/14	1345	5.83		66	133		78							0.29	49	541
11/17	1330	6.60		59	124		58							2.1	50	639
12/15	1600	6.23		50	119		100							0.04	49	600
					SAN JOAQUIN RIVER AT MOSSDALE BRIDGE											
1/20	1345	6.80		53.6	70	0	26			9.1	9.1	0.7	21		43	231
2/18	1415	3.90		54	112	0	99			35	12	2.4	67		51	604
3/12	1445	2.63		59	155	0	172			56	21		104	0.40	50	931
4/17	1415	2.01		65.1	154		142							0.14	50	806
5/13	1230	2.72		65.7	88	0	66	0.8	29	23	9.8	2.4	43	0.10	48	416
6/12	1330	4.21		64.0	58		30							0.03	45	217
7/15	1215	2.27		76.6	89		85							0.10	46	471
8/18	1240	0.72		78.5	162		138							0.12	49	786
9/17		1.39		77	163	0	130	1.1	45	41	18	3.8	85	0.13	50	754
10/14	1450	2.62		64	118		90							0.07	50	565
11/17	1420	2.43		57	106		90							0.14	51	559
12/15	1645	3.17		52	112		105							0.01	50	630
					OLD RIVER NEAR SOUTH TIP FABIAN TRACT (TRACY)											
1/21	1155			50	73	0	26			13	7.4	1.8	21		41	237
2/18	1500			52	123	0	111			37	16	2.7	73		49	693
3/13	1130			55	119	0	139			41	19		86	0.25	51	767
4/17	1230			52.7	166		184							0.20	49	960
5/13	1350			64.8	71	0	52	0.8	22	19	7.8	2.0	33	0.06	47	330
6/12	1230			64.4	58		32							0.06	45	230
7/15	1130			76.8	63		41							0.07	43	252
8/18	1430			75.7	158		142							0.13	49	801
9/17	1025			75.2	172	0	142	0.7	52	46	20	4.5	90	0.16	49	827
10/14	1540			64	138		94							0.19	50	613
11/17	1515			57	134		118							0.21	50	710
12/16	0745			46	123		108							0.00	49	639
					SAN JOAQUIN RIVER AT FRIANT									T11S, R21E, Sec. 7		
1/14	1555	2.47	152	49.4	43	0	6.2			8.4	2.2	1.4	8.7		37	108
2/10	0830	3.64	574	45.5	24		3.5									50.2
3/17	0900	4.23	963	48	22	0	3.4			4.6	0.4		5.0	0.05	45	49.2
4/22	1430	4.23	963	52	21		4.0							0.08	43	48.6
5/6	0745	3.32	409	50.9	28	0	3.8	0.5	1.6	3.6	1.2	0.8	4.8	0.01	41	50.1
6/17	0810	3.38	436	53.2												
7/8	0810	2.82	206	53.2	19		3							0.03	42	203
8/12	0815	2.77	218	54.5	21		4.5							0.00	38	47.5
9/23	0755	4.63	1277	53.6	17	0	2.0	0.5	1.2	3.4	0.6	0.6	2.8	0.07	34	37.6
10/7	1255	4.33	1038	61	16		2.0							0.06	38	41.3
11/17	0800	3.21		56	15		2							0.00	38	37.4
12/7	1240	2.90		55	20		3.0							0.00	41	49.0
					SAN JOAQUIN RIVER AT MENDOTA									T13S, R15E, Sec. 7		
1/15	1020	1.38	133	50	65	0	17			15	3.8	2.2	18		41	194
2/11	1445	0.78	49	52.7	36	0	5.8			6.0	2.2	1.0	9.2		44	78.3
3/18	1530	1.28	145	61	28	0	4.3			5.1	1.3		6.1	0.12	42	62.1
4/20	1730	2.05	305	67	41		23							0.06	45	168
5/6	1610	1.94	301	68.0	79	0	56	0.5	33	20	8.7	2.4	40	0.01	50	371
6/17	0940	2.26	423	72.0	62		36							0.16	46	273
7/8	1020	2.06	376	77	52		36							0.10	44	261
8/12	1045	1.67	310	78.4	78		35							0.09	41	302
9/23	1000	1.10		71.2	22	0	3.5	0.2	2.1	4.2	1.1	0.8	4.1	0.02	36	47.2
10/7	1010	0.79		68	81		53							0.15	52	379
11/18	1100	1.83	27	51	29		4							0.00	42	63.2
12/9	0900	3.27	240	46	47		17							0.00	49	154
					DELTA-MENDOTA CANAL AT MENDOTA									T13S, R15E, Sec. 19		
1/15	1055			50	140	0	154			58	32	3.0	209		62	1460
2/11	1530			56.5	152		165									1630
3/18	1600			59	109	0	112			38	16		86	0.44	54	732
4/20	1700			66.2	90		70							0.16	44	501
5/6	1645			65.3	64	0	31	1.5	22	14	6.4	2.2	26	0.02	47	252
6/17	1015			66.2	64		32							0.15	53	262
7/8	1045			75.2	54		48							0.08	38	207
8/12	1140			78.4	70		22							0.06	38	243
9/23	1045			71.6	133	0	93	0.8	86	34	17	3.1	73	0.34	50	653
10/7	1045			67	160		117							0.34	60	776
11/18	1130			56	156		118							0.43	53	851
12/9	0935			50	146		104							0.00	54	766

TABLE 213

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1953 (Contd.)

Date of Sample	Time of Sample	G. H.	c.f.s.	Temp. °F.	Parts per Million											
					HCO_3	CO_3	Cl	NO_3	SO_4	Ca	Mg	K	Na	B	% Na	Kx10⁶
SAN JOAQUIN RIVER AT DOS PALOS																
1/15	1155	3.82	157	50	66	0	16			15	3.3	2.0	16		39	174
2/11	1630	3.22	52	52.7	50	0	12			9.9	4.0	1.4	15		43	153
3/19	0945	2.06	0.8	55.4	48	0	13			11	2.9		15	0.05	45	145
4/20	1615	2.15	1.4	71	48		28							0.08	46	217
5/7	0815	2.30	3.3	65.3	73	0	38	0.6	28	20	6.5	1.7	30	0.13	45	302
6/17	1130	2.26	1.5	77.0	90		56							0.16	47	371
7/8	1210	2.07	0.9	82.0	75		35							0.10	43	290
8/12	1330	2.13	1.8	82.2	78		32							0.08	43	221
9/23	1230	2.55		73.4	56	0	21	0.8	18	13	3.9	1.5	20	0.08	46	200
10/7	0900	2.65		68	36		7.0							0.00	39	97.0
11/18	1230	2.30	0.7	52	49		18							0.02	38	155
12/9	1055	4.98	269	48	53		16							0.13	44	185
SAN JOAQUIN RIVER AT GRAYSON																
1/20	1140	33.70	3080	53.6	97	0	41			19	8.7	2.0	37		48	363
2/13	1200	29.40	1040	54	173	0	170			47	26	3.1	129		55	1060
3/12	1100	27.64	490	57	159	0	232			56	34		164	0.56	56	1360
4/16	1400	27.51	460	67.1	166		144							0.24	55	942
5/7	1310	28.06	600	70.7	169	0	137	2.3	104	43	21	3.7	109	0.06	54	895
6/19	1100	27.41	420	77.0	186		180							0.23	35	1040
7/9	1350	26.88	300	80.6	183		200							0.23	55	1150
8/13	1500	26.73	270	80.6	180		188							0.23	55	1110
9/24	1500	28.13	620	73.8	157	0	92	0.8	57	33	16	2.7	77	0.16	52	653
10/6	0900	28.14	620	65	160		106							0.30	55	727
11/19	0900	27.35		52	194		192							0.30	59	1100
12/10	1350	27.15		52	195		216							0.34	57	1240
SAN JOAQUIN RIVER AT MAZE ROAD BRIDGE																
1/20	1100	24.95		54	75	0	35			17	6.4	2.3	29		47	275
2/13	1045	21.95		51.8	108	0	90			29	14	2.3	65		52	585
3/12	1230	19.30	600	59	154	0	215			55	26		132	0.36	54	1130
4/16	1230	19.36	645	68	171		177							0.32	53	960
5/7	1500	20.66	1540	68.0	124	0	110	2.0	53	35	15	3.2	72	0.01	51	657
6/19	1330	21.38	1900	77.0	26		121							0.14	52	639
7/9	1430	19.76	1800	73.9	56		37							0.05	44	2100
8/13	1330	18.2	500	78.6	162		176							0.08	49	917
9/25	0845	19.3	1000	66.2	156	0	122	2.0	47	40	16	4.0	82	0.17	51	720
10/5	1715	19.5	1030	68	146		103							0.18	51	655
11/19	1100			55	103		117							0.1	56	607
12/10	1430	19.75		52	106		120							0.73	53	631
SAN JOAQUIN RIVER AT VERNALIS																
1/20	1030	13.23		50	72	0	27			16	6.1	1.7	22		42	237
2/13	0900	10.03	3380	52	85	0	5.0			16	3.5	1.4	10		28	165
3/12	1330	7.23	1190	58.1	138	0	153			45	19		7.9	0.20	47	845
4/16	1200	9.49	2890	66	146		140							0.20	49	779
5/7	1530	10.22	3103	61.7	54	0	29	0.5	15	13	5.2	1.5	20	0.01	44	210
6/19	1420	10.70	4140	77.0	52		32							0.10	47	217
7/10	0820	8.78	2410	69.1	68		29							0.03	40	2020
8/13	0745	5.95	671	74.3	156		142							0.10	48	778
9/25	0930	6.92	1270	70.5						36	18	3.6	71			662
10/5	1630	7.27	1510	69	150		90							0.18	49	603
11/19	1330	7.93	1910	55	95		86							0.08	57	491
12/10	1615	7.74	1800	52	103		89							0.11	48	524
KERN RIVER AT BAKERSFIELD																
1/13	1525			48	95	0	9.5			20	3.1	1.8	19		39	204
2/11	1015	2.64		45.7	96	0	8.2			20	3.4	1.8	19		38	203
3/18	1010	2.04		52	92	0	9.5			19	3.6		20	0.24	41	200
4/21	1045	2.00		59	83		6.5							0.18	39	176
5/5	0720	2.31		59	70	0	4.2	0.4	9.0	14	2.1	1.4	12	0.10	37	142
6/15	1730	2.42		68.0												
7/6	1750	2.30		72.9	35		3							0.07	36	75.9
8/10	1900	1.58		78.8	61		7.0							0.08	42	156
9/21	1615	1.64		76.1	88	0	14	0.1	19	18	3.4	2.2	23	0.18	45	222
10/9	0845	1.61		65	92		14							0.15	46	234
11/17	2010	1.68		61	97		10							0.22	42	231
12/8	0745	1.65		41	108		11							0.34	45	241
TULE RIVER NEAR PORTERVILLE																
1/14	0930	4.50	694	46	74	0	3.5			17	1.8	1.9	8.2		25	134
2/11	0830	3.70	426	54	144	0	7.5			32	5.4	1.8	14		23	258
3/18	0835	2.27	80	49	162	0	9.2			36	5.3		16	0.22	24	275
4/21	1300	2.56	119	56	126		5.5							0.07	21	219
5/5	0930	3.19	267	58.3	92	0	4.0	0.3	3.0	21	3.1	1.3	7.8	0.03	20	155
6/16	0815	2.77	155	68.0	98		2							0.03	21	162
7/7	0920	1.92	4.3	68.4	157		6							0.07	26	329
8/11	0810	1.32	5.6	74.8	207									0.05	21	356
9/22	0740	1.25	5.2	64.4	248	0	13	0.1	4.9	56	9.5	3.3	22	0.08	21	421
10/8	1540	1.22	4.7	75	224		12							0.15	26	386
11/17	1540	1.86	36	55	236		13							0.16	23	411
12/8	0935	1.98	45	46	217		11							0.30	23	374
KAWEAH RIVER AT THREE RIVERS																
1/14	1100	5.79	1050	44	41	0	3.0			9.7	1.4	1.3	5.2		26	79.7
2/10	1430	4.42	291	48	50		3.2									100
3/17	1650	4.40	305	52	48	0	2.9			11	1.3		5.4	0.07	26	89.7
4/21	1400	5.28	724	58	28		1.4							0.05	24	51.8
5/5	1125	5.85	1080	57.2	26	0	0.8	0.3	1.7	5.0	1.1	0.6	2.4	0.00	23	46.4
6/16	0940	6.56	1740	57.6	16		1							0.03	16	34.5
7/7	1130	5.18	600	69.8	25		2							0.04	20	40.4
8/11	0945	3.65	90	73.8	48		3.5							0.03	20	97.7
9/22	0920	3.36	45	64.8	65	0	9.0	0.1	3.7	17	2.0	1.7	7.4	0.02	23	136
10/8	1345	3.27	35	72	67		7.0							0.00	26	145
11/12	1405	3.62	76	55	67		7.0							0.01	23	138
12/8	1100	3.72	91	46	63		5.8							0.56	26	133

TABLE 213

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1953 (Contd.)

Date of Sample	Time of Sample	G. H.	c.f.s.	Temp. °F.	Parts per Million											
					HCO_3	CO_3	Cl	NO_3	SO_4	Ca	Mg	K	Na	B	% Na	Kx10^6
					KINGS RIVER AT PEOPLES WEIR									T17S, R22E, Sec. 1		
1/13	1245			53	64	0	5.0			12	1.1	1.6	14		45	125
2/11	1230	4.18		50	52		3.5									101
3/18	1400	3.81	190	58.1	53	0	4.2			10	2.8		6.3	0.06	27	105
4/21	0820	4.36	342	58	24		1.4							0.02	31	45.3
5/6	1400	4.90		65.3	24	0	0.8	0.6	2.4	4.0	1.5	0.7	2.8	0.00	26	43.8
6/15	1400	9.09		62.6												
7/6	1345	4.64		75.6	20		1							0.04	21	38.3
8/10	1600	2.84		84.9	65		4.5							0.02	27	133
9/21	1230	2.43		76.1	139	0	11	1.8	11	25	8.3	2.7	20	0.04	30	270
10/9	1130	2.01		73	74		6.0							0.04	28	152
11/18	0830	2.90		52	51		4.0							0.00	29	109
12/7	1425	2.80		50	59		4.0							0.00	30	126
					KINGS RIVER AT PIEDRA									T13S, R24E, Sec. 8		
1/14	1330			46	39	0	2.5			7.8	2.6	1.2	4.5		24	74.2
2/10	1030	3.05	815	46	31	0	2.5			6.8	1.0	0.8	4.5		31	68.5
3/17	1045	3.01	795	52.6	32	0	2.5			5.5	1.5		4.1	0.02	31	60
4/22	0835	5.76	3298	54	15		0.6							0.04	40	27
5/5	1630	6.42	4240	59.9	16	0	0.2	0.5	1.6	2.7	0.5	0.6	2.2	0.02	33	28.3
6/16	1130	8.26	7724	63.5	10		1							0.09	32	25.6
7/7	1355	6.30	4060	68.7	15		0							0.04	18	19.7
8/11	1245	2.47	543	80.1	21		2.0							0.00	26	45.9
9/22	1205	1.53	217	72.1	30	0	4.0	0.0	4.4	6.7	2.3	1.0	3.8	0.00	23	64.7
10/8	1145	1.30	163	69	34		2.2							0.03	31	74.4
11/17	1220	1.81		53	31		2.2							0.04	29	71.8
12/8	1315	1.86		48	31		2.5							0.06	29	71.9
					KINGS RIVER ABOVE NORTH FORK									T12S, R26E, Sec. 27		
3/17	1230	1.95	455	52	28	0	1.9			6.0	0.7		4.5	0.08	35	54.6
4/22	1100	3.44	1540	54.5						16			1.2	0.02	40	44.0
5/6	1040	4.19	2470	54.5	13	0	0.5	0.4	1.7	2.7	0.5	0.5	1.8	0.00	29	27.1
6/16	1400	5.41	5030	57.2	12		1								32	24.6
7/7	1545	4.61	3140	65.8	11		0							0.05	21	19.1
8/11	1440	1.96	460	78.4	20		1.5							0.00	25	40.2
9/22	1400	1.05	159	68.5	27	0	3.5	0.0	4.7	6.3	1.5	0.9	3.8	0.00	26	59.1
10/8	0930	0.86	138	64	27		2.8							0.04	35	66.5
11/17	1040	1.10	166	55	27		1.0							0.05	28	63.8
12/8	1450	1.20	184	45	28		1.5							0.00	32	66.4
					BEAR CREEK NEAR STEVINSON									T7S, R10E, Sec. 36		
2/12	1330	2.22		50	206		28									441
4/22	1630			75.2	149		18							0.13	47	315
5/7	1025	1.91		64.4	185	0	25	2.5	20	25	9.3	3.0	48	0.04	50	404
6/19	0900	1.00		68.0	238		40							0.05	47	70.9
7/8	1445	0.87		83.5	238		116							0.07	49	773
8/12	1700	0.77		79.0	212		90							0.05	65	691
9/23	1615	2.13		73.8	150	0	12	0.7	9.9	20	8.2	2.4	31	0.01	44	286
10/6	1630	2.06		70	156		14							0.03	46	313
11/18	1400	1.30		50	178		36							0.06	49	430
12/9	1415	1.24		50	172		41							0.00	50	435
					MERCED RIVER AT EXCHEQUER DAM									T4S, R15E, Sec. 23		
1/16	0950	3.53	1290	50	39	0	2.2			9.7	3.9	0.9	2.8		13	78.1
2/9	1430	0.07	30	52	44	0	2.8			10	2.2	0.7	3.6		18	86.7
3/16	1545	3.02	986	50	38	0	2.8			8.4	2.6		3.1	0.02	18	77.8
4/23	0920	3.21	1100	55.4	34		2.0							0.01	19	67.4
5/8	1125	3.51	1280	53	19	0	1.2	0.0	2.0	4.0	1.2	0.6	1.4	0.01	16	35.2
6/14	1400			60.8	20		1							0.02	18	41.2
7/9	0830	4.30	1830	56.8	16		0							0.05	22	34.6
8/13	0800	4.06	1650	71.2	14		0.5							0.03	29	28.7
9/24	0815	3.40	1190	73.8	30	0	2.2	0.3	2.1	6.7	2.0	0.8	1.9	0.00	14	57.9
10/6	1400			73	44		2.5							0.00	15	84.8
11/16	1430	0.21	44.2	61	48		1.8							0.00	15	91.4
12/10	0820	0.24	46	52	55		3.2							0.73	16	115
					MERCED RIVER AT STEVINSON									T6S, R9E, Sec. 36		
1/15	1430	6.11	1320	51.8	56	0	6.5			11	5.0	1.0	7.8		26	123
2/12	1530	2.25	240	47.8	108		14									239
3/19	1150	1.62	189	56	101	0	16			17	5.2		26	0.18	47	233
4/22	1720	1.31	174	72	113		22							0.01	45	265
5/7	1130	1.21	203	68	114	0	20	2.6	8.5	19	5.6	2.0	28	0.02	45	267
6/19	1000	1.12	131	69.8	90		17							0.05	50	213
7/8	1350	0.77	126	80.6	115		29							0.03	49	285
8/12	1550	0.86		79.7	0		23							0.02	49	222
9/23	1450	1.49	222	72.9	98	0	28	1.2	7.7	17	5.2	1.7	29	0.01	49	262
10/6	1730	0.92	161	69	111		20							0.00	47	267
11/18	1500	1.04	147	55	133		18							0.03	46	294
12/9	1255	1.06	148	54	129		18							0.00	46	267
					TUOLUMNE RIVER AT DON PEDRO DAM									T3S, R14E, Sec. 3		
1/16	1145	7.80	1440	46.4	28	0	2.0			4.4	2.7	0.6	1.9		15	52.7
2/9	1330	7.80	1440	46.4	30		1.8									57.9
3/16	1415	7.90	1520	46.5	24	0	1.5			4.2	1.7		2.4	0.01	23	46.7
4/23		8.80	2350	52.7	22		0.5							0.03	27	37.7
5/8	1005	8.80	2350	53.6	17	0	0.5	0.4	1.5	3.2	1.0	0.5	1.5	0.00	20	35.6
6/18	1100	8.8	2350	56.3	18		2							0.00	21	36.0
7/9	1030	11.00	4300	58.6	10	0								0.02	20	13.3
8/12	1000	8.6	2200	62.6	9		1.5							0.00	24	20.2
9/24	1030	8.50	2125	66.2	13	0	1.0	0.1	0.7	2.5	0.9	0.3	1.1	0.02	19	25.0
10/6	1200	8.1	1825	66	14		0.5							0.05	19	28.3
11/16	1300			59	12		0							0.00	44	24.4
12/10	1010	7.5	1400	52	18		0.5							0.00	23	34

TABLE 213

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1953 (Contd.)

DATA COPIED FROM UNITED STATES BUREAU OF RECLAMATION COMPILATION
(Daylight Saving Time effective April 26 through September 27)

Date of Sample	Time of Sample	G. H.	c.f.s.	Temp. °F.	Parts per Million											Kx10^6	% Na
					Ca	Mg	Na	K	CO_3	HCO_3	SO_4	Cl	B	NO_3	Total Solids		
SALT SLOUGH AT SAN LUIS RANCH												T9S, R11E, Sec. 7					
1/27	1300	2.84	87	53			190					220				1500	55
2/24	1120	2.25	46.2	49			270					430				2000	59
3/24	1325	2.29	57.8	70			200					300				1600	54
4/28	1235	2.92	108	64			110					160				930	52
5/26	1425	2.98	115	62			120					160				1000	50
6/23	1420	2.74	103	82			110					150				950	50
7/28	1410	2.12	53.5	86			120					170				980	53
8/25	1255	1.84	33.6	76			160					250				1300	54
9/29	1458	2.35		75			84					120				750	49
10/27	1513	1.69		65			170					210				1200	62
11/24	1300	1.95		56			160					210				1200	58
12/4	1025	1.68		53	66	46	280	4.2	0	200	260	390	0.64	2.9	1200	1900	63
12/23	1000			44			230					300			1000	1600	62
BEAR CREEK NEAR MOUTH												T8S, R11E, Sec. 6					
1/28	1400	3.65	224	52			39					25				350	49
2/25	0945	2.40	83	49			170					170				1300	57
3/25	1050	2.20	80.5	62			44					32				360	53
4/29	1200	4.19	320	64			22					8.3				220	44
5/27	1400	2.33	111	65			40					15				330	53
6/24	1145	0.86	9.4	73			140					140				940	65
7/29	1425	0.79	8.2	84			120					120				820	64
8/26	1315	0.81	9.9	75			95					80				660	63
9/30	1315	1.74		69			35					18				320	48
10/28	1200	1.18		62			51					42				430	52
11/25	1600	1.06	23.4	58			65					55				510	55
MERCED RIVER ABOVE MOUTH (AT HILLS FERRY BRIDGE)												T7S, R9E, Sec. 3					
3/2	1020			53			34					21			170	270	56
3/25	1040			62			23					15			130	220	46
4/29	1020			66			21					14			140	220	42
5/26	1055			64			31					30			170	290	47
6/19	1140	2.2		74			200					300			940	1600	56
7/27	1100			76			23					18			140	200	50
8/25	1410			74			20					14			120	190	46
9/28	1140			69			21					14			140	210	43
10/23	1320			60			35					22				310	49
12/14	1040			52			29					19			190	270	47
MERCED RIVER AT STEVINSON DRAIN												T6S, R9E, Sec. 36					
1/27	1000			57			7.8					8.5				124	27
PATTERSON DRAIN AT SAN RAMON LAKE												T5S, R8E, Sec. 27					
1/27	1210			58			200					160				2025	43
TUOLUMNE RIVER AT TUOLUMNE CITY												T4S, R8E, Sec. 7					
1/27	1330			51			14.5					31.9				188	34
3/2	1245	29.45		54			45					89			230	410	48
3/25	1310			66			92					180			530	880	45
4/29	1240	29.95		65			39					76			260	400	42
5/26	1300	28.05		67			64					120			380	630	44
6/19	1300	30.6		74			37					71			200	360	45
7/27	1410	28.0		78			72					130			350	700	45
8/25	1100	27.9		70			65					120			360	620	46
9/28	1250	27.7		70			71					140			410	690	45
10/23	1440	29.3		60			36					74				370	42
12/14	1320			51			35					71			210	350	43
STANISLAUS RIVER AT BRET HARTE PUMPS												T3S, R7E, Sec. 9					
1/27	1515			48			4.1					2.1				107	17
3/2	1350			56			19					22			200	270	30
3/25	1440			64			18					15			180	270	29
4/29	1410	32.17		56			3.4					1.4			64	62	24
5/27	1210			62			4.4					4.6			72	102	19
6/19	1550	28.8		66			2.4					0.7			40	49	20
7/28	1530			76			16					6.9			180	270	26
8/26	1300			70			14					9.0			150	240	25
9/28	1350			68			16					9.7			170	270	26
10/23	1530			60			15					9.7				260	25
12/14	1430			50			10					5.0			130	190	23

TABLE 213

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1953 (Contd.)

Date of Sample	Time of Sample	G. H.	c.f.s.	Temp. °F.	Parts per Million											
					HCO_3	CO_3	Cl	NO_3	SO_4	Ca	Mg	K	Na	B	% Na	$Kx10^5$
					TUOLUMNE RIVER AT TUOLUMNE CITY						T4S, R8E, Sec. 12					
1/20	1220	32.46	2130	52	50	0	31			15	3.5	1.7	16		39	187
2/13	1445	30.82	1550	52.7	61		45									259
3/12	1145	27.20	375	58.1	126	0	156			43	14		76	0.09	50	730
4/16	1300	27.92	296	69.8	142		162							0.13	50	780
5/7	1400	28.30	524	69	96	0	107	3.0	7.8	31	9.4	3.9	55	0.07	50	532
6/19	1200	29.55	1030	74.3	72		53							0.06	50	344
7/9	1330	31.40	1670	71.6	36		26							0.02	43	142
8/13	1545	27.74	352	80.6	154		152							0.04	50	744
9/24	1410	27.70	364	73.8	145	0	136	0.8	7.6	41	15	5.3	71	0.08	47	680
10/6	0830	27.80	441	65	134		125							0.10	48	648
11/19	1000	29.24	849	55	60		73							0.01	50	336
12/10	1315	29.20	813	54	63		35							0.17	48	343
					TUOLUMNE RIVER AT HICKMAN						T3S, R11E, Sec. 34					
1/16	1340	76.20		49.4	37	0	6.0			6.4	3.9	0.8	4.3		22	83.4
2/9	1200	75.75	1320	49	38	0	9.2			7.7	3.1	0.9	6.5		30	98.0
3/16	1245	73.10	125	63	97	0	105			30	11		52	0.05	48	516
4/23	1245	75.13	938	71.6	87		98							0.02	51	471
5/8	0845	73.11	127	64	80	0	92	0.8	3.5	24	9.6	4.0	47	0.06	49	443
6/18	0900	73.51	229	78.8	44		24							0.00	40	134
7/9	1120	76.92	2230	64.8	22		9							0.04	40	60.3
8/13	1145	73.00	104	75.4	100		106							0.06	49	517
9/24	1220	72.98	100	73.6	105	0	112	0.3	3.2	30	12	5.1	55	0.06	48	539
10/6	1015	74.50	604	68	44		22							0.02	38	148
11/16	1200	75.35	1070	59	36		24							0.00	39	136
12/10	1135	74.65	675	52	34		18							0.06	42	128
					STANISLAUS RIVER AT MOUTH						T3S, R7E, Sec. 11					
1/20	0940	20.39	670	50	64	0	3.2			12	6.7	5.0	1.3		16	127
2/13	0900	17.45	608	51.8	85		5.0									165
3/12	1400			58.1	102	0	8.0			18	6.8		10	0.07	23	206
4/16	1000	15.78	380	54	115		7.2							0.02	24	222
5/7	1600	21.35	1647	58.3	30	0	1.5	1.4	3.0	5.8	2.3	0.8	2.6	0.01	18	56.1
6/19	1530	22.30	3120	67.6	28		1							0.00	14	56.4
7/10	0900	17.37	575	70.5	70		2							0.02	21	124
8/14	1045			77.5	146		11							0.03	28	286
9/25	1045	15.12	150	69.8	129	0	9.2	2.0	8.9	23	9.6	2.3	14	0.02	23	244
10/5	1530	15.25	130	71	119		7.0							0.06	24	232
11/19	1400	16.60	448	53	67		3							0.00	21	126
12/10	1520	16.36	398	52	83		4.8							0.00	23	162

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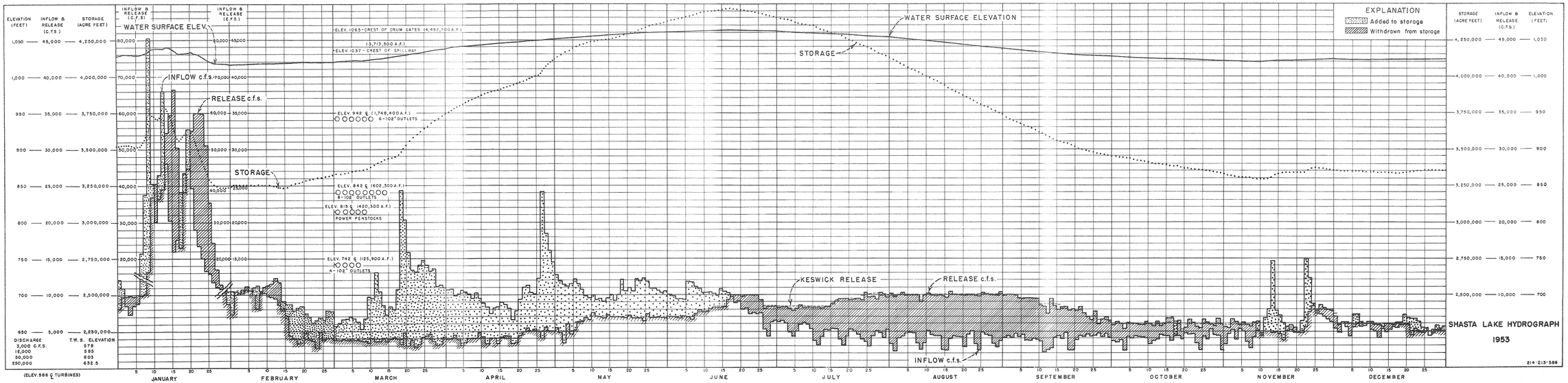
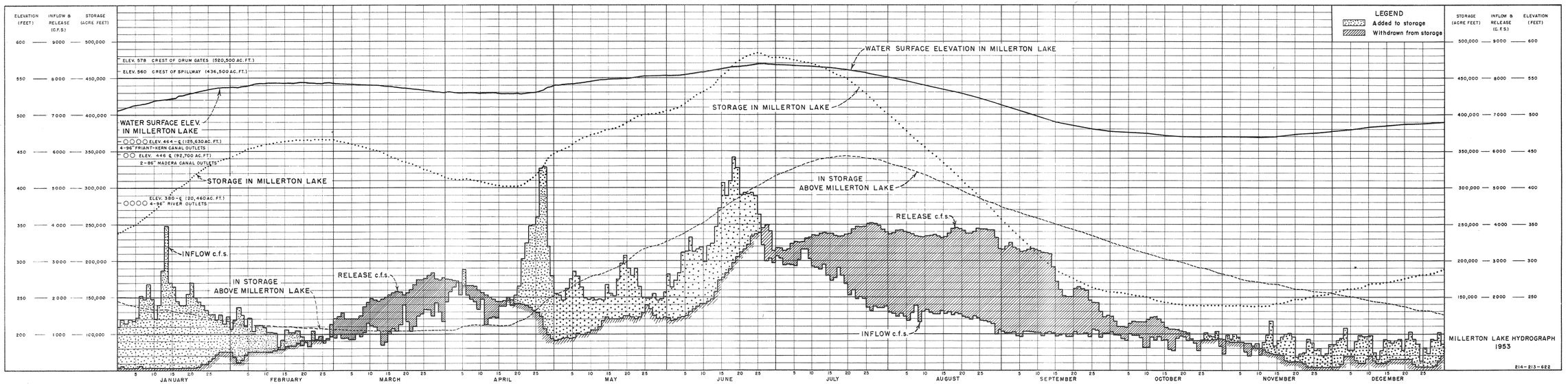
PLATE 2


ELEVATION (FEET)
INFLOW & RELEASE (C.F.S.)
STORAGE (ACRE FEET)
1,050 — 45,000 — 4,250,000
1,000 — 40,000 — 4,000,000
950 — 35,000 — 3,750,000
900 — 30,000 — 3,500,000
850 — 25,000 — 3,250,000
800 — 20,000 — 3,000,000
750 — 15,000 — 2,750,000
700 — 10,000 — 2,500,000
650 — 5,000 — 2,250,000
DISCHARGE
2,000 C.F.S.
12,000
50,000
250,000
T.W.S. ELEVATION
578
585
603
632.5
(ELEV. 586 ℄ TURBINES)
INFLOW & RELEASE (C.F.S.)
WATER SURFACE ELEV.
INFLOW c.f.s.
RELEASE c.f.s.
STORAGE
ELEV. 1065 - CREST OF DRUM GATES (4,492,700 A.F.)
(3,713,500 A.F.)
ELEV. 1037 - CREST OF SPILLWAY
ELEV. 942 ℄ (1,748,400 A.F.)
6-102" OUTLETS
ELEV. 842 ℄ (602,300 A.F.)
8-102" OUTLETS
ELEV. 815 ℄ (420,300 A.F.)
POWER PENSTOCKS
ELEV. 742 ℄ (125,900 A.F.)
4-102" OUTLETS
WATER SURFACE ELEVATION
STORAGE
KESWICK RELEASE
RELEASE c.f.s.
INFLOW c.f.s.
EXPLANATION
Added to storage
Withdrawn from storage
STORAGE (ACRE FEET)
INFLOW & RELEASE (C.F.S.)
ELEVATION (FEET)
4,250,000 — 45,000 — 1,050
4,000,000 — 40,000 — 1,000
3,750,000 — 35,000 — 950
3,500,000 — 30,000 — 900
3,250,000 — 25,000 — 850
3,000,000 — 20,000 — 800
2,750,000 — 15,000 — 750
2,500,000 — 10,000 — 700
SHASTA LAKE HYDROGRAPH
1953
214-213-586
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER


ELEVATION (FEET)
INFLOW & RELEASE (C.F.S.)
STORAGE (ACRE FEET)
600 — 9000 — 500,000
550 — 8000 — 450,000
500 — 7000 — 400,000
450 — 6000 — 350,000
400 — 5000 — 300,000
350 — 4000 — 250,000
300 — 3000 — 200,000
250 — 2000 — 150,000
200 — 1000 — 100,000
ELEV. 578 CREST OF DRUM GATES (520,500 AC. FT.)
ELEV. 560 CREST OF SPILLWAY (436,900 AC. FT.)
WATER SURFACE ELEV. IN MILLERTON LAKE
ELEV. 464 - ℄ (125,630 AC. FT.)
4-96" FRIANT-KERN CANAL OUTLETS
ELEV. 446 ℄ (192,700 AC. FT.)
2-86" MADERA CANAL OUTLETS
STORAGE IN MILLERTON LAKE
ELEV. 380 - ℄ (20,460 AC. FT.)
4-96" RIVER OUTLETS
INFLOW c.f.s.
IN STORAGE ABOVE MILLERTON LAKE
RELEASE c.f.s.
WATER SURFACE ELEVATION IN MILLERTON LAKE
STORAGE IN MILLERTON LAKE
IN STORAGE ABOVE MILLERTON LAKE
RELEASE c.f.s.
INFLOW c.f.s.
LEGEND
Added to storage
Withdrawn from storage
STORAGE (ACRE FEET)
INFLOW & RELEASE (C.F.S.)
ELEVATION (FEET)
500,000 — 9000 — 600
450,000 — 8000 — 550
400,000 — 7000 — 500
350,000 — 6000 — 450
300,000 — 5000 — 400
250,000 — 4000 — 350
200,000 — 3000 — 300
150,000 — 2000 — 250
MILLERTON LAKE HYDROGRAPH
1953
214-213-622
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES

SACRAMENTO–SAN JOAQUIN WATER SUPERVISION

1953

SCALE 1 0 5 10 15 20 25 30 35 40 MILES

LEGEND

- POINTS OF DIVERSION
- SALINITY OBSERVATION STATIONS
- STREAM GAGING STATIONS
- DRAINAGE PUMPING PLANTS
- SACRAMENTO-SAN JOAQUIN DELTA AREA

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