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

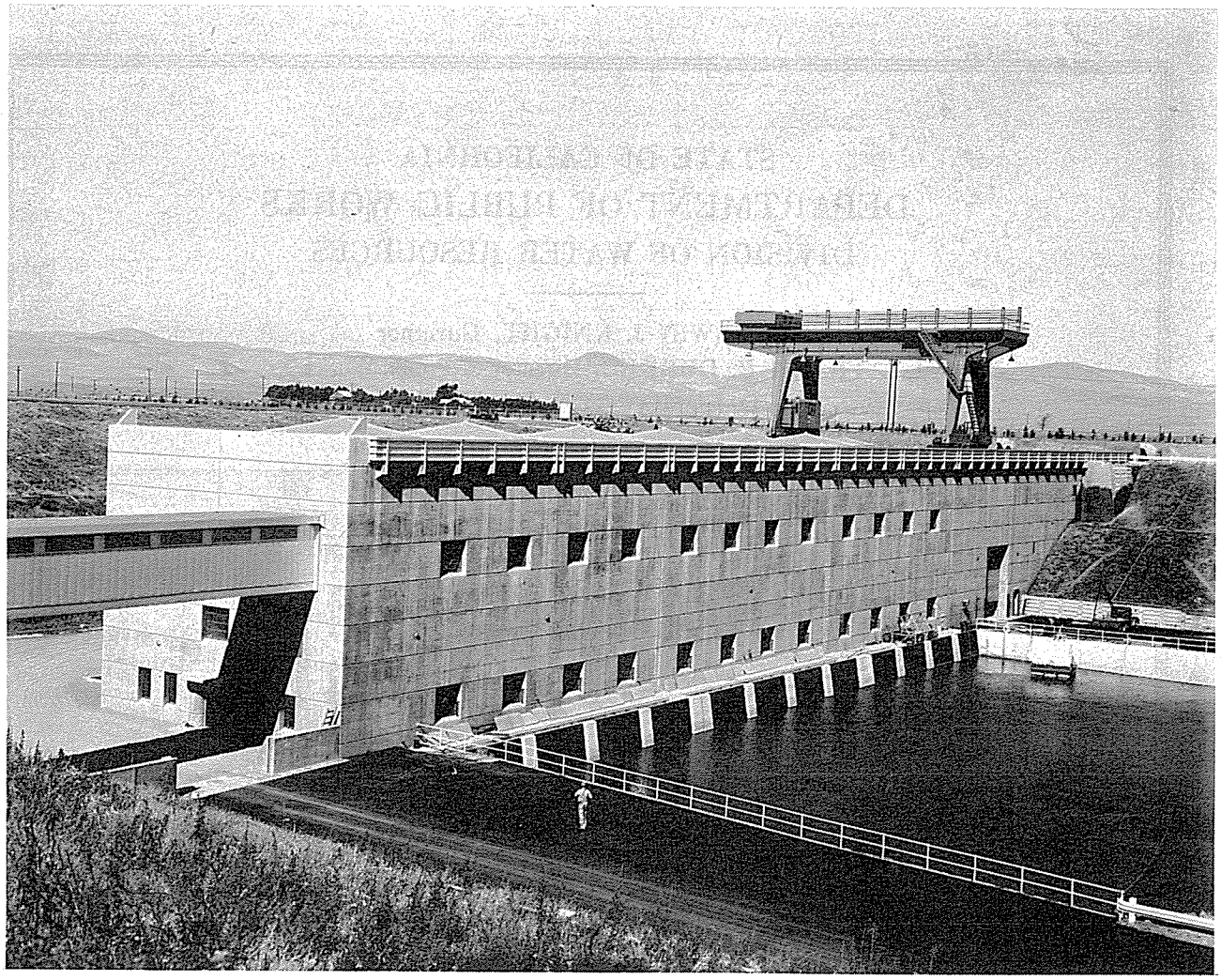
SACRAMENTO-SAN JOAQUIN

WATER SUPERVISION

FOR

1954

August 1955



U. S. Bureau of Reclamation Photograph

TRACY PUMPING PLANT
for
DELTA-MENDOTA CANAL

Capacity of Plant, cubic feet per second	4,600
Number of Units	6
Designed Capacity of Pumps, cubic feet per second	767
Motor Horsepower	22,500
Pumping Lift, feet	197

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CHIEF OF DIVISION

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August 22, 1955

Mr. Frank B. Durkee
Director of Public Works
Sacramento, California

Dear Sir:

There is transmitted herewith a report entitled "Report of Sacramento-San Joaquin Water Supervision for 1954." This report is the thirtieth of a series prepared by the Division of Water Resources presenting, for the thirty-one year period 1924 through 1954, data on stream flow and diversions in the Sacramento and San Joaquin Valleys.

The data contained in the report show the daily mean flow in second-feet at gaging stations along the Sacramento and San Joaquin Rivers and their tributaries, the amounts of water diverted from those streams and the acreages irrigated, salinity concentration conditions in the Sacramento-San Joaquin Delta, and chemical analyses of surface waters in the Central Valley area.

Attention is invited to the cooperation received from Federal and other public and private agencies, shown in the report under "Acknowledgment," that have assisted in making available a substantial portion of the data presented.

Respectfully submitted,

A. D. Edmonston

A. D. Edmonston
State Engineer

ACKNOWLEDGMENT

Valuable assistance has been rendered by many individuals and by many public and private agencies in the conduct of the field work and the preparation of data for this report of the Sacramento-San Joaquin Water Supervision activities.

Landowners, water users, and the executives, engineers, managers, and superintendents of various water organizations throughout the territory covered by this work have cooperated fully in furnishing the many varied data requested.

The Pacific Gas and Electric Company, the Sacramento Municipal Utility District, and the Modesto and Turlock Irrigation Districts have furnished a large number of electric power consumption records for use in the compilation of pumped diversions.

The United States Geological Survey, Department of Interior, has extended valuable cooperation in gathering and reporting stream flow data.

The United States Bureau of Reclamation, Department of Interior, has furnished data on reservoir operations, stream flow, diversions, deliveries, and water quality relating to the Central Valley Project, and has provided the funds necessary to maintain the regular program of salinity observations in the Sacramento-San Joaquin Delta during 1954.

The City of San Francisco Public Utilities Commission, Kings River Water Association, Central California Irrigation District, Corcoran Irrigation District, Kern County Land Company, Tulare Lake Basin Water Storage District, and the U. S. Army Corps of Engineers have made available stream flow data for certain San Joaquin Valley streams.

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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. 175r-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. 175r-4504 and Division of Water Resources Agreement No. 3C-600.

The work performed during 1954 by the Division of Water Resources under this contract included the collection of data on stream flows, diversions, irrigated areas and other hydrographic information in the Sacramento and San Joaquin Valleys formerly obtained by both agencies. In accordance with the terms of this contract, the Division transmitted to the Bureau of Reclamation periodic hydrographic reports for 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 and in Bulletin Number 4 of the former Division of Water Rights, 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 among 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 essential to the formulation of an intelligent and practicable agreement.

Trial Water Distribution Program

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. This Memorandum of Understanding followed more than 30 years of contention among various water diverters over their respective rights to divert water from the Sacramento River and from Delta channels. In later years added complications arose which were attributable to the

construction and operation of the Central Valley Project by the United States. The Memorandum 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 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.

Representatives of the Bureau of Reclamation and of the diverters of more than ninety per cent of the water diverted from the Sacramento River were contacted and expressed their approval of this trial distribution program. The "Agreement for Trial Distribution of Water of the Sacramento River during 1954" was then worked out in conferences with these parties. Representatives of some interests in the Delta area and in the San Joaquin Valley expressed their approval of this trial distribution plan at that time. The agreement was executed and operation under the plan began in March, 1954.

It was specifically provided in the agreement that this trial distribution program did not alter or affect the water rights of the parties involved nor of any others who have rights to the use of Sacramento River or Delta water, and that the data to be collected were to be used for informative purposes only. However, by the actual testing of a trial diversion schedule in this manner, and by the observation of its effect in detail upon the water utilization practices along the Sacramento River above Sacramento, and also in and from the Delta and on Delta Upland areas, it is anticipated that it will be possible to develop an ultimate and comprehensive diversion schedule satisfactorily to all interests. It is expected that with the experience so gained, a settlement concerning the rights to divert water from the Sacramento River and from the Delta channels can be negotiated without recourse to litigation.

During the latter part of 1954 negotiations were initiated among the parties to formulate another agreement for 1955 which would include, within its scope, the Sacramento-San Joaquin Delta. The Sacramento River and Delta Water Association, successor to the Sacramento Valley Water Users Committee, was organized in September, 1954. These organizations were instrumental in the formulation of the 1954 trial distribution agreement and in coordinating the activities of the Sacramento River and Delta water users.

The compilation and analysis of the data on the utilization of water heretofore collected, enhanced and augmented by the data collected under this trial distribution activity serves to clarify and define the supply of water available for use through the

facilities of the Central Valley Project. The development of comprehensive schedules for the diversion of water from, and the orderly distribution of the water of, the Sacramento River and Delta would benefit not only those immediately concerned, but also the large area in the Sacramento-San Joaquin Valleys to be serviced through the facilities of the Central Valley Project.

The activities under the 1954 trial distribution program concerning the collection of additional data on stream flow, diversions, accretions, and return flows performed by the Water Supervision function were financed by funds furnished by the Water Project Authority under a service agreement with the Division of Water Resources.

Scope of Water Supervision Work

The area embraced by the Sacramento-San Joaquin Water Supervision work lies on the Sacramento and San Joaquin Valley floors. The area covered and its geographical relation to the Central Valley Drainage Basin are shown on Plate 1. 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, 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, Tom Paine Slough, and Cache Slough.

The scope of work also includes the recording of the diversions and acreages irrigated by the large eastside irrigation districts (Modesto, Merced, Oakdale, South-San Joaquin, and Turlock) and the diversions and deliveries by the canals of the Central Valley Project.

Records of daily flows at all the foothill gaging stations on streams entering the Sacramento and San Joaquin Valleys and at most of the valley floor gaging stations operated by State, Federal, or private agencies are collected and presented in the Water Supervision annual report. Records of salinity in the Sacramento-San Joaquin Delta and records of analyses of water samples taken at many locations throughout the Central Valley are also presented in that report.

The work of the Sacramento-San Joaquin Water Supervision unit of the Division of Water Resources is concerned mainly with the gathering of basic data relating to water supply and water utilization in the Sacramento and San-Joaquin Valleys. The work

consists of field measurements and observations and office computations to determine and tabulate the daily or monthly quantities of stream flow, accretions, diversions, and use of water.

The field activities include:

(1) Measurement of stream flow passing the many recording stations along the rivers 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 and mapping of irrigated acreages and crops supplied by either a primary, or drainage water supply, or both;

(5) Maintaining the Delta salinity observation program;

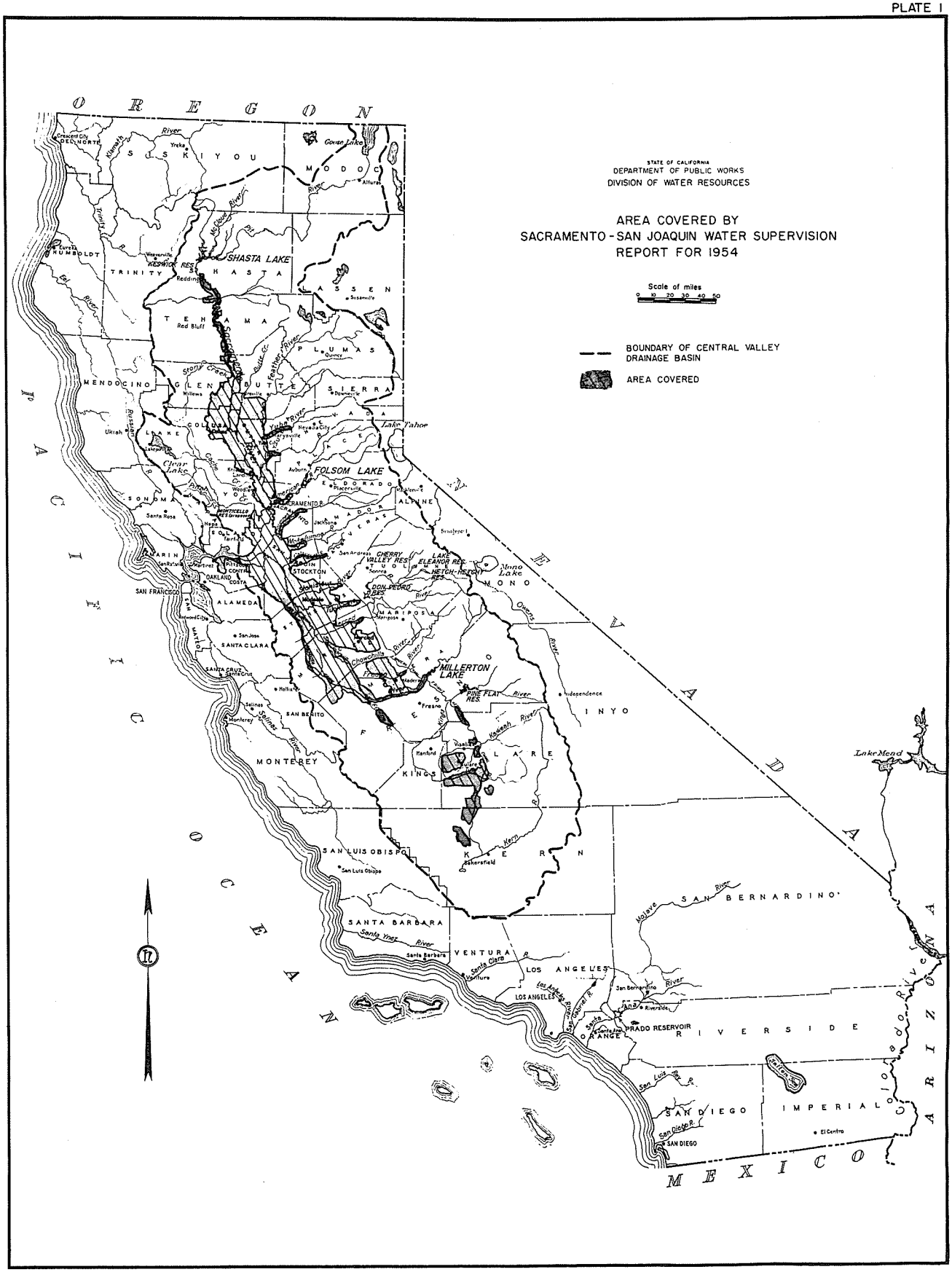
(6) Cooperation with and assistance to water users and agencies and furnishing hydrographic data in connection with individual problems of water supply and water utilization;

(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 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 diversion pumping plant. 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. The results of these computations have been transmitted monthly to the Regional headquarters of the Bureau of Reclamation.

PLATE I


STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES
AREA COVERED BY
SACRAMENTO - SAN JOAQUIN WATER SUPERVISION
REPORT FOR 1954
Scale of miles
0 10 20 30 40 50
BOUNDARY OF CENTRAL VALLEY DRAINAGE BASIN
AREA COVERED
OREGON
NEVADA
ARIZONA
MEXICO
PACIFIC OCEAN
SHASTA LAKE
FOLSOM LAKE
Lake Tahoe
Mono Lake
MILLERTON LAKE
Lake Mead
CHERRY VALLEY RES.
LAKE ELEANOR RES.
HETCH-HETCHY RES.
DON PEDRO LAKES
PINE FLAT RES.
KESWICK RES.
PRADO RESERVOIR
Salton Sea
Colorado River
Sacramento River
San Joaquin River
Feather River
Yuba River
American River
Stanislaus River
Tuolumne River
Merced River
Kings River
Kaweah River
Kern River
Owens River
Mojave River
Santa Ynez River
Santa Clara R.
Los Angeles R.
San Gabriel R.
Santa Ana R.
San Luis R.
San Diego R.
Salinas River
Russian River
Eel River
Trinity R.
Klamath River
McCloud River
Pit River
Butte Cr.
Stony Creek
Cache Creek
Putah Creek
Chowchilla River
Fresno River
Los Angeles River
San Bernardino River
Santa Ana River
Colusa
Lake
Glenn
Butte
Plumas
Sierra
Nevada
Yuba
Placer
El Dorado
Alpine
Amador
Calaveras
Tuolumne
Mariposa
Madera
Fresno
Kings
Tulare
Kern
Inyo
Mono
Sonoma
Napa
Solano
Yolo
Sacramento
Contra Costa
Alameda
San Francisco
Marin
Santa Clara
Santa Cruz
San Benito
Monterey
San Luis Obispo
Santa Barbara
Ventura
Los Angeles
San Bernardino
Riverside
Orange
San Diego
Imperial
Lassen
Modoc
Siskiyou
Trinity
Shasta
Tehama
Glenn
Mendocino
Lake
Humboldt
Del Norte
Sacramento
Stockton
Oakland
San Francisco
San Jose
Santa Rosa
Ukiah
Redding
Red Bluff
Willows
Oroville
Marysville
Auburn
Placerville
Jackson
Modesto
Merced
Fresno
Hanford
Visalia
Bakersfield
Monterey
Salinas
Hollister
Santa Cruz
San Luis Obispo
Santa Barbara
Ventura
Los Angeles
Riverside
San Diego
El Centro
Susanville
Quincy
Downieville
Nevada City
Grass Valley
Placerville
Sonora
Mariposa
Independence
Lone Pine
Bishop
Big Pine
Lancaster
Palmdale
Barstow
Victorville
San Bernardino
Redlands
Pomona
Long Beach
Santa Ana
Oceanside
Escondido
Chula Vista
Calexico
Brawley
Indio
Blythe
Needles
Parker
Yreka
Alturas
Weaverville
Hayfork
Eureka
Crescent City
Gasquet
Orleans
Happy Camp
Mt. Shasta
Dunsmuir
Burney
Susanville
Chester
Quincy
Portola
Loyalton
Truckee
Tahoe City
Auburn
Colfax
Grass Valley
Nevada City
Placerville
Jackson
Sonora
Angels Camp
Columbia
Coulterville
Yosemite
Mariposa
Oakhurst
Madera
Chowchilla
Fresno
Clovis
Sanger
Reedley
Dinuba
Visalia
Tulare
Porterville
Lindsay
Exeter
Farmersville
Woodlake
Orosville
Delano
Wasco
Shafter
Bakersfield
Taft
Maricopa
Fellows
McKittrick
Buttonwillow
Kettleman City
Coalinga
Huron
Avenal
Lemoore
Hanford
Corcoran
Kingsburg
Selma
Reedley
Dinuba
Sanger
Clovis
Fresno
Madera
Chowchilla
Merced
Atwater
Livingston
Gustine
Los Banos
Newman
Patterson
Crows Landing
Modesto
Oakdale
Riverbank
Waterford
Turlock
Ceres
Hughson
Denair
Keyes
Empire
Salida
Modesto
Stockton
Lodi
Galt
Elk Grove
Sacramento
West Sacramento
Davis
Woodland
Winters
Vacaville
Fairfield
Suisun
Benicia
Martinez
Pittsburg
Antioch
Concord
Walnut Creek
Oakland
Alameda
San Leandro
Hayward
Richmond
San Rafael
Novato
Petaluma
Santa Rosa
Healdsburg
Cloverdale
Ukiah
Lakeport
Clear Lake
Willits
Fort Bragg
Eureka
Arcata
Crescent City
Gasquet
Orleans
Happy Camp
Yreka
Weed
Mt. Shasta
Dunsmuir
Burney
Susanville
Chester
Quincy
Portola
Loyalton
Truckee
Tahoe City
Auburn
Colfax
Grass Valley
Nevada City
Placerville
Jackson
Sonora
Angels Camp
Columbia
Coulterville
Yosemite
Mariposa
Oakhurst
Madera
Chowchilla
Fresno
Clovis
Sanger
Reedley
Dinuba
Visalia
Tulare
Porterville
Lindsay
Exeter
Farmersville
Woodlake
Orosville
Delano
Wasco
Shafter
Bakersfield
Taft
Maricopa
Fellows
McKittrick
Buttonwillow
Kettleman City
Coalinga
Huron
Avenal
Lemoore
Hanford
Corcoran
Kingsburg
Selma

The office work in connection with the program of observing Delta salinity conditions consists of compiling and tabulating 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 portion of the stream flow records contained in this report have been collected and computed by the U. S. Geological Survey. These data have been completed and made avilable for inclusion in this report prior to their 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 when necessary 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, Chico, Tracy, and Fresno, has continued to cooperate by furnishing certain records of diversions, stream flow, and water quality and records of operations of the various units of the Central Valley Project.

The specific degree of cooperation by these agencies with the Water Supervision function is detailed in footnotes on the tables 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 1954 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 is available for the active storage of water and 500,000 acre-feet of space is reserved for silt deposits and to create head for the generation of power. 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 296 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 about 434,000 acre-feet is usable storage above the Madera Canal outlets, the lower of the two canals diverting from the reservoir. The major portion of the water from Millerton Lake is 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.

Shasta Lake Operation - 1954

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 1954, 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 1954 allowing approximately 3,000 second-feet of Sacramento River water to be transferred into the San Joaquin portion of the Delta. The transfer of Sacramento River water through the Cross Channel and other existing channels was sufficient to allow approximately 3,300 second-feet of water for exportation by the Delta-Mendota and Contra Costa Canals during the peak of the season, 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 the Delta.

The daily mean second-foot flows into Shasta Lake during 1954 are presented in Table 13. 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 have been computed by combining the effects of daily change in storage, reservoir evaporation, releases, and spill. The inflows as measured at gaging stations on the major tributaries to the reservoir are presented in Tables 9, 10, 11, and 12.

A tabulation of the daily amounts of water in storage in Shasta Lake during 1954 is presented in Table 14. The daily mean second-foot flows as measured below Shasta Dam at the United States Geological Survey Gaging Station near Keswick are presented in Table 15. 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, 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 1954, 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 Operation - 1954

Millerton Lake is used only for the storage of water for flood control and irrigation purposes. The computed daily mean second-foot inflows to Millerton Lake during 1954 are presented in Table 120. A daily tabulation of the amounts of water in storage in the lake during 1954 is presented in Table 121. The daily mean second-foot flows, as measured at the United States Geological Survey gaging station below Friant, are presented in Table 122. These flows are the same as the releases from Millerton Lake except for the amounts of inflow and pump diversions between the station and Friant Dam. A chart depicting the operation of Millerton Lake for 1954, 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 1954 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 201. 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.

SUMMARY OF MONTHLY STREAM FLOWS, DIVERSIONS, AND ACCRETIONS - 1954

A comprehensive summary and inventory of the monthly stream flows, diversions and accretions, in acre-feet for the 1954 calendar year, is contained in Tables 3, 4, and 5. Table 6 presents a summary of the inflow to and diversions from the Sacramento-San Joaquin Delta. The daily flows in second-feet at the various gaging stations and the monthly diversions in acre-feet by individual points of diversion are presented in other tables in this report.

Tables 3, 4, and 5 present summaries of: (1) monthly flows in acre-feet at each gaging station along the main streams, drain canals, and by-pass channels from which diversions are measured in the Sacramento and San Joaquin Valleys, (2) monthly flows in acre-feet at gaging stations on tributaries or distributaries of the main stream channels, (3) monthly total diversions in acre-feet in reaches between gaging stations on the main stream channels, and (4) monthly unmeasured accretions in acre-feet as computed for each of the reaches. The unmeasured accretions between gaging stations were computed by subtracting the measured inflows to a reach from the sum of the measured diversions and measured outflows from that reach. An accretion with a negative sign indicates a net outflow or loss.

Table 6 presents summaries of: (1) monthly flows in acre-feet at gaging stations on streams tributary to the Sacramento-San Joaquin Delta, (2) monthly diversions in acre-feet to the Delta Uplands, (3) monthly diversions in acre-feet from streams tributary to the Delta between the lowest gaging stations on those streams and the Delta Area boundary, (4) monthly diversions in acre-feet exported from Delta channels to areas outside of the Delta Uplands, and (5) monthly estimated consumptive use in the Delta Area based on unit consumptive use data presented in Division of Water Resources Bulletin 27 combined with a land use survey made in 1950.

RUNOFF AND WATER SUPPLY

The variable flows of the streams entering the Central Valley 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 tributaries 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 1954 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 caused (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.

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 March and April, however, rain storms substantially reduce the demand for irrigation diversions, and is one of the main factors affecting the variations in demand in the same month from year to year.

Table 1 presents records of the monthly precipitation in inches at representative valley floor rainfall stations. The corresponding computed normal precipitations for each month based on the 60-year period 1890-1949 are also shown. The monthly precipitation figures were obtained from U. S. Weather Bureau records.

Runoff Comparisons

A comparison of the unimpaired October through September flows for the period 1920-1954, in the major streams tributary to the Sacramento and San Joaquin Valleys in per cent of an estimated 60-year normal is presented in Table 2. These unimpaired flows are considered to be the flows at the foothill gaging stations as they would be if unaltered by upstream diversions, importations, or storage development. As shown in Table 2, the 1954 unimpaired runoff may be summarized as follows:

Stream and Station	Percentage of 60-year normal
Sacramento River at Red Bluff	107 per cent
Sacramento River at Sacramento	93 per cent
San Joaquin River below Friant	63 per cent
San Joaquin River near Vernalis	68 per cent
Sacramento and San Joaquin Rivers flow to the Delta	86 per cent

A comparison of the season's actual minimum flows in given in Table 218. The minimum 10-day flows during 1954 were:

Stream and Station	Average minimum 10-day flow
Sacramento River at Sacramento	7,750 second-feet
San Joaquin River near Vernalis	340 second-feet
Combined Sacramento and San Joaquin Rivers flow to the Delta	8,120 second-feet

Comparisons with other years indicate that the water supply available during the 1954 season was near or slightly above normal in the upper 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 1954 growing season indicated that the demands for irrigation and salinity control in the Delta would have exceeded the residual from the natural flow supplies, and the releases of stored water from Shasta Reservoir were of primary importance in maintaining satisfactory flows and water quality conditions in the major portion of 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 Table 201. 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 122. These latter regulated water supplies are almost entirely diverted in the vicinity of Mendota by the large canal companies.

Inflow to Sacramento-San Joaquin Delta

The inflow to the Sacramento-San Joaquin Delta is measured at gaging stations on major tributary streams around its perimeter. These stations are: Sacramento River at Sacramento (Table 29), Yolo By-Pass near Woodland (Table 92), Putah Creek near Davis (Table 96), Cosumnes River at McConnell (Table 103), Dry Creek near Galt (Table 104), Mokelumne River at Woodbridge (Table 107), Bear Creek near Lockeford (Table 108), Calaveras River near Stockton (Table 111), Stockton Diverting Canal at Stockton (Table 113), Duck Creek near Stockton (Table 116), French Camp Slough near French Camp (Table 119), and San Joaquin River near Vernalis (Table 131). The flows past these stations make up most of the surface inflow to the Delta.

The monthly flows in acre-feet at each of the above stations and the total measured inflow to the Delta are summarized in Table 6.

Accretions to Stream Flow

As evidenced by the data for stream flow and diversions, summarized in Tables 3, 4, and 5, 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 streams and drains, and of other flows, not susceptible to direct measurement such as those from minor ephemeral streams, from seepage 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 the amounts of measured inflows plus the amounts of unmeasured accretions, as shown in Tables 3, 4, and 5.

During the summer season, a large portion of the accrete water is derived from upstream irrigation returning to the streams either by surface drainage or by percolation. Throughout the

year, along certain reaches of the stream, the flows are augmented by outflows from seepage of the natural groung 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) return of bank storage during low flow conditions following periods of high flood-flow conditions.

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.

Along the Sacramento River between Colusa and Redding there are no large well defined artificial drainage channels. However, records or estimates of inflow to the Sacramento River from streams in this reach were obtained where practicable.

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 Canal Company diversion dam, yet accretions accumulate below that point in amounts sufficient to afford a limited supply for other diversions.

Table 3 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 3, there are summations of diversion and accretion quantities.

In order to compare 1954 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. The accretion used in computing the per cent of diversion figure was obtained by taking the total unmeasured accretion, Red Bluff to Sacramento, from Table 3 and adding to this total the measured flows of the drainage pumping plants of Reclamation Districts 70, 108, 787, 1000, 1500, and the return flows of Colusa Basin Drain including Knights Landing Ridge Cut and Sycamore Slough.

Comparative Seasonal Accretion Percentages - 1948-1954

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
1948	88	62
1949	70	58
1950	66	63
1951	105	57
1952	133	52
1953	112	49
1954	107	48

*Excludes City of Sacramento municipal.

Similar percentage figures for years prior to 1948 are presented in the 1953 and 1946 Water Supervision reports.

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 where 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 steep 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 the central portion of 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 4. 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 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.

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. 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 5.

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.

During the 1954 season, 71 of the total of 161 gaging stations on streams and drains 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.

An automatic water stage recorder is in operation at most 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 or drainage by 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 stream 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 these latter cases, 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 estimated by using Table 8 coupled with the appropriate stream flows in second-feet as shown in the stream flow tables. From the stream flow table, the flow on any desired day is interpolated into the specific station's rating table in Table 8 to give an average 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 1954, 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 159 gaging stations in the Sacramento and San Joaquin Valleys, including eight stations not heretofore published in this series of reports. A brief description of each station is given in the footnotes 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 newly included stations and discontinued 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. Flows at this station below 33,000 second-feet (a gage height of 10.5) are affected by tidal action. The method of computing daily mean flows in this tidal-affected range, beginning with 1947, has been radically changed. As shown in reports prior to 1947, the flows 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 which may have occurred in the reach between Verona and I Street Bridge and in the American River below H Street Bridge.

Since 1947 and including 1953, 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. Tidal fluctuations cease above the 10.5-foot stage and the regular stage-discharge rating is used for these higher flows. The technique involved in rating the flows by the slope-velocity method is described in previous Water Supervision reports.

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. Studies by the U. S. Geological Survey of the data gathered during 1952 indicated that improvements could be made on the slope-velocity 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 and 1954, a program of measurements was undertaken cooperatively by the Division of Water Resources and the U. S. Geological Survey to augment the findings of the 1952 investigation. As a result of these cooperative efforts, and the exhaustive studies made by the U. S. Geological Survey a method of computation known as the "Rating Fall" method has been tentatively adopted as the most accurate and practical means to determine the tidal-affected daily mean flows. The flows shown in Table 29 have been computed by this method.

Discontinued Stations. The flow records of eight stream flow stations were discontinued during 1954. These stations were: Barker Slough near Dozier, Haas Slough near Main Prairie, Pleasants Creek near Winters, Salt Creek near Winters, South Fork Tule River near Success, Sweeney Creek near Winters, Ulatis Creek near Binghampton, and Ulatis Creek near Vacaville. The date of discontinuance of each of these stations may be found in the footnotes following the table in which the data for the station is presented.

The records of seven stream flow stations were discontinued in 1953 and are not included in this report. These stations were: Bear Creek above San Joaquin River, Elk Bayou above Elk Bayou Avenue, Feather River below Yuba River, Lone Tree Creek near Valley Home, Panoche Creek near Panoche, San Luis Creek near Los Banos, and White River near Ducor.

Additional Stations Reported in 1954. The following stream flow stations for which data have not been heretofore published in the reports of Sacramento-San Joaquin Water Supervision, are included in this 1954 report. These stations, numbering eight in total, were included to provide additional runoff data in the Sacramento Valley. Three of these stations are maintained and operated by the Division of Water Resources.

Squaw Creek above Shasta Lake
Pit River near Montgomery Creek
McCloud River above Shasta Lake
Sacramento River at Delta
Sacramento River opposite Moulton Weir
Sacramento River at Meridian
Yuba River near Marysville
Stony Creek below Black Butte Dam Site

Three of the stream flow stations which were dscontinued during 1952 were reactivated by the Division of Water Resources in connection with the Sacramento River Trial Water Distribution program for 1954. The records for these three stations, which are listed below, are also included in this report.

Sacramento River near Redding
Sacramento River at Balls Ferry
Back Borrow Pit near College City

A brief description of the location, the cooperative agency involved, the drainage area where applicable, and the period of record may be found in the footnotes under the respective tables of flows for each of the stations listed.

USE OF WATER FOR IRRIGATION

The prevailing warm temperatures and a prolonged frost-free 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, orchard fruits, nuts, grapes, hops. truck crops, field crops, and pasture grasses; in the Delta area they include alfalfa, asparagus, sugar beets, orchard fruits, corn, and truck crops; and in the San Joaquin River and tributaries service area they include grapes, nuts, orchard fruits, cotton, alfalfa, truck crops, corn, grain, flax, and pasture grasses.

Irrigation Diversions

Measurements and records of diversions in 1954 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 James By-Pass; and along Tule River.

This report contains records of a total of 1,305 points of diversion segregated by sources as follows: Sacramento River 344, Colusa Trough (above Colusa-Williams Highway Crossing) 38, Back Borrow Pit (extension of Colusa Trough below Colusa-Williams Highway along back levees of Reclamation Districts 108 and 787) 43, Knights Landing Ridge Cut 10, Yolo By-Pass 8, Cache Slough 1, Lower Butte Creek and Butte Slough 40, Sutter By-Pass and Sacramento Slough 71, Feather River 48, Yuba River 13, Bear River 3, American River 18, Cosumnes River 28, Mokelumne River 76, Calaveras River (including Mormon Slough) 142, Old River (Delta Uplands) 19, Tom Paine Slough (Delta Uplands) 8, San Joaquin River (between Stockton and Vernalis gaging station) 67, San Joaquin River (between Vernalis gaging station and Friant Dam) 133, Fresno Slough and James By-Pass 6, Merced River 79, Tuolumne River 42, Dry Creek (tributary to Tuolumne River) 11, Stanislaus River 35, Tule River 9, exportations from the Delta by Central Valley Project and City of Vallejo 3, and canal diversions by the Central Valley Project and Irrigation Districts along the east side of the valley 10. The approximate 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 77 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, measured kilowatt input, and measured pumping lift. 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. Some of the records of diversions included in this report were furnished by the agencies that diverted the water. Wherever practicable, check measurements have been made to verify those records. The monthly amounts of water diverted at the individual points of diversion along all of the streams covered by the Water Supervision work are presented in Tables 173 through 201.

The monthly amounts of diversions in acre-feet by the large east-side irrigation districts from the Stanislaus, Tuolumne, and Merced Rivers during 1954 are presented in Table 201. The monthly diversions in acre-feet into the Friant-Kern and Madera Canals from Friant Reservoir on the upper San Joaquin River are also presented in Table 201. The monthly diversions exported from the Sacramento-San Joaquin Delta via the Delta-Mendota and Contra Costa Canals of the Central Valley Project and by the City of Vallejo are presented in Table 200. The daily diversions to the Delta-Mendota and Contra Costa Canals are set forth in Tables 169 and 170. 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 202.

Fresno Slough and James By-Pass (also known as Fresno Slough 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 194 were furnished by the U. S. Bureau of Reclamation.

Table 178 presents the diversions by Reclamation District 2068 from Cache Slough during 1954. The irrigated area in Reclamation District 2068 lies outside of the established boundary of the Delta shown on Plates 3 and 4 and is classed as a "Delta Uplands" area.

A seasonal summary of water utilization during the past ten years, 1945 through 1954, from the Sacramento River and its tributaries and the San Joaquin River and its

tributaries is shown in Table 172. This table presents an overall picture of the water utilization in these areas.

In Table 203 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 ten-year period, 1945 through 1954, is presented in Tables 204 through 214. Table 215 shows, for the Sacramento River only, the seasonal diversions and acreages irrigated for the period 1945 through 1954, segregated to the different river sections.

Irrigated Acreage

Toward the end of the irrigating season in 1954, 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 segregated to rice and general crops through each individual point of diversion along the streams covered in this work is presented in Tables 173 to 199 inclusive.

The following is a summary of the total acreage irrigated during 1954 in the area covered by the Water Supervision work exclusive of the acreage served by the Friant-Kern, Madera, and Delta-Mendota Canals. Detailed acreage tabulations of the totals shown below may be found in Tables 173 through 199 and in Table 198 (Delta Crop Survey) of the 1950 Water Supervision report.

Area	Irrigated Acreage-1954	
Sacramento Valley Floor above Sacramento	498,428	
San Joaquin Valley Floor above Delta (including large east-side irrigation districts)	815,842	
Delta Uplands and Tributaries	119,454	
Total area served by measured diversions		1,433,724
Sacramento-San Joaquin Delta Area - 1950 Survey		448,300
Grand Total		1,882,024

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 areas served by the Central Valley Project Canals exceeds 2,000,000 acres.

Table 216 shows a comparison of the acreage of rice irrigated during the period 1924 through 1954 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.

Sacramento-San Joaquin Delta

The Sacramento-San Joaquin Delta, as considered in this report, consists of two parts: (1) the "Delta Area" as shown on Plate 3, which consists in general of land lying below an elevation of five feet above mean sea level, and (2) the "Delta Uplands", which consists of land lying outside the Delta Area that is served by irrigation water pumped from Delta tide-water channels.

The water supply for the Sacramento-San Joaquin Delta is measured at gaging stations on major tributary streams around its perimeter. The flows passing these stations make up most of the surface inflows to the Delta and are the supply for: (1) diversions for use on the Delta Uplands, (2) consumptive use within the Delta Area, (3) exportations by the Central Valley Project via the Delta-Mendota and Contra Costa Canals and exportation by the City of Vallejo, and (4) outflow for salinity control.

Delta Uplands Diversions. The records in this report considered to be Delta Uplands diversions are the diversions to the uplands side of Old River, Tom Paine Slough, San Joaquin River between Stockton and Vernalis, and Cache Slough.

The diversions from streams tributary to the Delta, between the lowest gaging stations on those streams and the Delta Area boundary, utilize a portion of the measured inflow and may be considered as being in the same category as the Delta Uplands diversions. The diversions from the Cosumnes River below the McConnell gaging station, from the Mokelumne River below the Woodbridge gaging station, and from the Calaveras River below the Stockton gaging station are in this classification.

The records of these diversions are presented in the tables of diversion for their respective streams and are summarized in Table 6.

Consumptive Use of Water in Delta Area. The Sacramento-San Joaquin Delta Area has not been covered by detailed hydrographic observations of sufficient extent to rate the flows in the numerous interconnected channels or to measuring the quantities of water diverted for irrigation, other than occasional special studies. Periodically, however, surveys are made of the acreage of land use both irrigated and non-irrigated. The last such survey, made by the Division of Water Resources, was for the 1950 season. In compiling the area of irrigated crops, it has been assumed that all crops planted on lands which lie below an elevation of five feet above mean sea level consume percolated water from the Delta channels even though no artificial diversion with siphons or pumps is made for irrigation.

The total water-consuming acreage of the Delta Area based on the 1950 survey is segregated as follows:

Total irrigated cultivated crops, not including double- or inter-crops	365,800 acres
Total idle lands including aquatic growths and interior water surfaces	44,900 acres
Total exterior channel water surfaces within Delta Area	37,600 acres
Total water-consuming acreage, 1950	448,300 acres

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. A detailed survey of the Delta made by the U. S. Bureau of Reclamation in 1952 with the use of large scale aerial mosaic photographs indicates that acreages of land and water surface areas determined from early maps and used as a basis for the 1950 survey may require revision to conform with present conditions. A crop survey of the Delta will be made during the 1955 season which will incorporate any necessary acreage revisions.

Estimates of consumptive use of water in the Delta Area by months are shown in Table 6. These estimates were based upon unit consumptive use data presented in Division of Water Resources Bulletin 27 combined with acreages of land use and water surfaces determined by the 1950 survey. The estimates include evaporation and transpiration from non-irrigated and uncropped lands and from open water surfaces in channels and ponds.

Special investigations of the Delta irrigation problems have been conducted and the results therefrom have been presented in previous reports.

Exportations. Exportations from the Sacramento-San Joaquin Delta are those amounts of water diverted from Delta Channels and transported by canal systems or pipe lines to areas outside of the Delta for agricultural, industrial, or municipal uses.

Exportations are made from the Delta by the U. S. Bureau of Reclamation in their operation of the Central Valley Project and by the City of Vallejo. The exportations for Central Valley Project operation are accomplished by diverting water from Old River at the U. S. Bureau of Reclamation's Tracy Pumping Plant to the Delta-Mendota Canal and at that agency's Pumping Plant No. 1 on Rock Slough to the Contra Costa Canal. The exportations by the City of Vallejo for municipal and other uses are made by pumping water from Cache Slough.

Tables 169 and 170 present records of daily mean diversions in second-feet to the Delta-Mendota Canal and to the Contra Costa Canal. The locations of the two pumping plants are shown on Plate 4.

The exportations from the Delta in acre-feet per month by the Central Valley Project canals and by the City of Vallejo are summarized in Table 6 under the heading "Exportations".

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 includes not only the net amount of water consumed by plants in their processes of transpiration and growth, but also includes all irrecoverable losses through evaporation, percolation, and conveyance. It also includes 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 drainage channel 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 172.

The diversion quantities listed in this report are the gross diversions in acre-feet as measured into the distribution system at its head. The gross diversions include leakage or regulatory spills, if such occurred, from the distribution system below the point of measurement. Regulatory spills which may have been made at the point of diversion are not included in the gross diversion quantities except as otherwise noted in the footnotes under the table in which the point of diversion is listed.

SALINITY INVESTIGATIONS

The intrusion of saline water from San Francisco Bay into the channels of the Delta from which irrigation supplies are derived, is a matter of extreme importance. During 1954, Sacramento-San Joaquin Water Supervision maintained, under a cooperative agreement with the U. S. Bureau of Reclamation, a program of observations of the saline content of the water at several stations throughout the Delta and upper San Francisco and Suisun Bay areas.

Purpose

A purpose of the salinity investigation since 1924 has been to record the occurrence and extent of salinity encroachment from San Francisco Bay into the Delta and to establish the relation between movement of salinity, stream flow entering the Delta, and tidal action. As reported in Bulletin 27 of the Division of Water Resources, this relation was established for the conditions which occurred during the period of the special investigation for that bulletin and upon the basis of all data available at that time. Subsequent investigations by the Division of Water Resources, therefore, have been primarily directed to the maintenance of an unbroken record of the salinity and stream flow variations, essential not only for the verification of the relation established in Bulletin 27, but as the basis for a check of possible modifications in the relation due 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 1954 the continuous observations of salinity also served as an aid 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 location of the sampling stations and the limit of maximum seasonal encroachment of salinity into the Delta of water having 1000 parts of chloride per million parts of water for the years 1931, 1938, 1944, 1947, 1952, 1953, and 1954. Lines for 1931 and 1938 are delineated to show the limits of maximum seasonal encroachment for a low and high runoff year, respectively, prior to the operation of Shasta Lake. The lines for 1944 and 1947 are delineated to show the greatest encroachment subsequent to the operation of Shasta Lake, and those for 1952, 1953, and 1954 are delineated to show conditions during the last three years.

A regular program of salinity sampling and testing was established in 1924 as part of the activities of the Sacramento-San Joaquin Water Supervision. This program has continued in operation through 1954, with the exception of the period 1941 through 1943. Miscellaneous samples were taken during the 1941-1943 period with the help of interested cooperators, and the results of the analyses are shown in the 1943 Water Supervision report. Beginning in 1944, the necessary funds for the program have been provided by the U. S. Bureau of Reclamation under cooperative agreements which have been renewed each year.

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 at slack tide, 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 1954 season were made at the Water Quality Laboratory of the Division of Water Resources.

The records of samples taken during 1954 from the active sampling stations are presented in Table 220. A description of the location of each of these stations is contained in Table 219.

The maximum salinity as recorded at the stations in 1954 is shown in Table 217. 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.

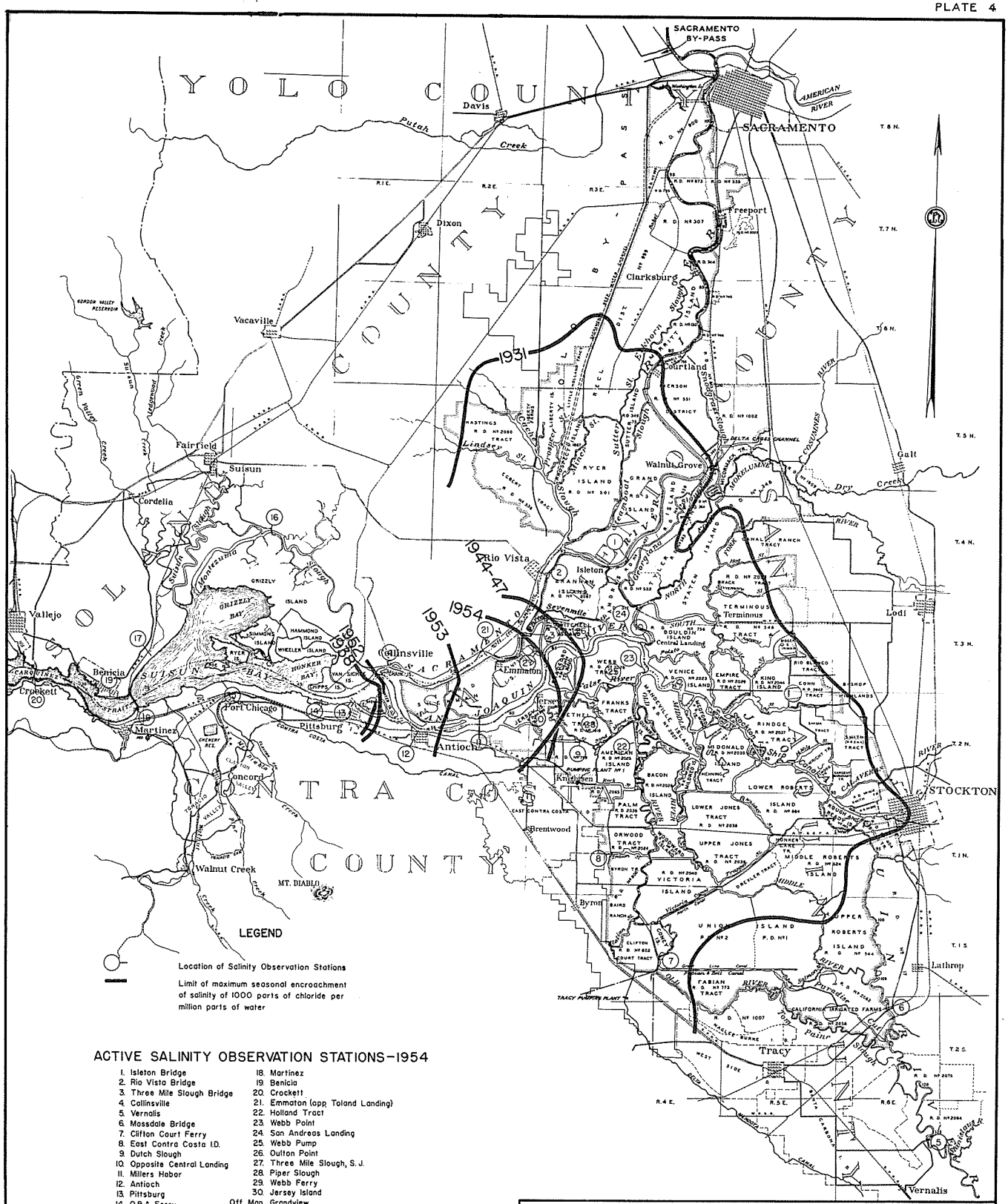
Salinity Bulletins

During 1954 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.

Flows Available for Salinity Control

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

PLATE 4



LEGEND

Location of Salinity Observation Stations

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

ACTIVE SALINITY OBSERVATION STATIONS–1954

1. Isleton Bridge
2. Rio Vista Bridge
3. Three Mile Slough Bridge
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 Habor
12. Antioch
13. Pittsburg
14. O&A Ferry
15. Port Chicago
16. Innisfail Ferry
17. West Sulsun
18. Martinez
19. Benicia
20. Crockett
21. Emmaton (opp 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

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 218. An area of approximately 20,500 acres within the boundary of the Delta Area was affected by salinity encroachment of 1000 parts of chloride per million parts of water in 1954.

The exportations through the Tracy Pumping Plant of the Central Valley Project, since 1951, must be considered before the relation between minimum inflows to the Delta and the area affected by salinity encroachment can be compared with that relation for years prior to 1951.

The present method of controlling the intrusion of saline water from Suisun Bay into the Delta is to provide a rate of fresh water outflow from the Delta in sufficient quantities to neutralize the rate of intrusion of salt water. The rate of fresh water outflow to accomplish this purpose is not susceptible of measurement by the same methods used at upstream gaging stations. In September, 1954, a special 14-day continuous tidal cycle Delta outflow measurement was made by the Division of Water Resources. The results of that measurement, which are discussed later in this report, indicate that an estimate of the net surface outflow from the Delta available for salinity control can be computed by subtracting from the total measured surface inflow to the Delta all of the demands on that supply consisting of consumptive use within the Delta Area, of measured diversions to Delta Uplands, and of measured exportations to land beyond the Delta. Table 6 presents a summary of the inflows to, and diversions and exportations from the Delta as measured during 1954, and an estimate of the consumptive use of water in the Delta Area based on the 1950 crop survey. This summary, however, does not include all of the diversions to uplands areas from sloughs and cuts around the entire perimeter of the Delta, nor does it include all of the surface inflow by minor drains and drainage pumping plants.

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 periodically at many points within the Sacramento and San Joaquin Valleys and in the Delta during 1954. The results for each sampling point are grouped together and presented in geographical arrangement in Table 221. The results set forth in Table 221 were furnished in part by the U. S. Bureau of Reclamation and in part by the Water Quality function of the Division of Water Resources as noted in that table. The records furnished by the Water Quality function in Table 221 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 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

There were 31 continuous recording tide gages located on the Delta channels in operation during 1954. The Division of Water Resources operated and maintained 18 of these tide gages. The remaining 13 were operated by Federal agencies.

DELTA OUTFLOW MEASUREMENTS

During September 1954, a series of current meter and salinity measurements spanning a two-week lunar cycle period were made of the tidal flows below the confluence of the Sacramento and San Joaquin Rivers at the mouth of the Delta. The measurements were made, under the sponsorship of the staff of the Water Project Authority of the State of California, for the purpose of determining accurately the amounts and qualities of fresh water outflow from the Delta into Suisun Bay for use in hydraulic studies concerned with salinity control, water availability and use, and with the conveyance of water across the Delta.

The measurements were made on the Sacramento River below the junction of the San Joaquin River at a location approximately midway between Pittsburg and the western tip of Chipps Island. Montezuma Slough and Spoonbill Creek by-pass this location and their flows were measured concurrently with those on the main stream at the point where the Sacramento Northern Railway crosses each of these channels. Measurements of the main Sacramento River channel were made by the newly devised "moving boat" method. Measurements of the two side channels were made by the conventional boat and tagline method.

The "moving boat" method of measurement has been adopted as the most practical means of accurately measuring the velocities and magnitudes of ebb and flood flows encountered in the wide and deep channel of the Sacramento River in the vicinity of Chipps Island. This new method was proposed by the staff of the Water Project Authority and was tested during 1953, first, on a smaller scale by actual comparison with the conventional boat method and later that year by full scale simultaneous measurements over a 60-hour period of the Sacramento and San Joaquin Rivers above their confluence. A description of the 1953 measurements and the technique of the moving boat method of measurement was presented in the 1953 report of Sacramento-San Joaquin Water Supervision.

The 1954 Delta outflow measurements were supervised by the personnel of Sacramento-San Joaquin Water Supervision with funds supplied by the Water Project Authority. Members of the staff of the Water Project Authority also participated in the actual field work. The Water Quality function of the Division of Water Resources conducted observations and measurements of salinity concentration at each of the measuring sections across the main channel and at each of the two side channels concurrently with the flow measurements. The Corps of Engineers, U. S. Army, furnished and manned a 45-foot steel tug for use in the main channel measurements. The U. S. Bureau of Reclamation cooperated by loaning echo sounding and salimeter equipment. The U. S. Geological Survey assisted with technical advice.

Measurements were started on September 11, and continued, except for operational pauses, uninterruptedly until September 27, 1954. The hydrographic crew consisted of 52 men including boat operators, meter men, notekeepers, range men, salimeter men, crew chiefs and supervisors. These men were organized into three eight hour shifts at the main channel and at each of the two side channel locations.

Velocities were measured at 14 sections across the main channel which was approximately 3700 feet wide. The maximum depth of the main channel was approximately 50 feet at mean tide. Velocities in the sections varied between zero and approximately four feet per second, both downstream and upstream, and the total instantaneous flow varied from zero at slack tide to 400,000 second-feet during the peaks of ebb or flood flows.

Upon completion of the tidal cycle measurement, the field data were computed, plotted, and analyzed by the staff of the Water Project Authority. Computations of flow from the current meter notes for the main channel were made by the "parallel section" method which was developed by that staff for computing the Delta flow measurements and described briefly in the 1953 Water Supervision report. Flow computations for the two side channels were made by the conventional method. Measured-flow hydrographs were prepared for each of the three channels and the mean rate of fresh water outflow was determined for the fourteen day period, September 12 to September 26, 1954, between times of equal Delta tidal volume on each of those dates. The measured mean outflow for that period was computed to be:

Sacramento River at Pittsburg	7,353 second-feet
Montezuma Slough	44 second-feet
Spoonbill Creek	- 117 second-feet
Total Measured Mean Outflow from Delta in the Vicinity of Pittsburg, September 12 to 26, 1954,	7,280 second-feet

TABLES

TABLE 1

MONTHLY PRECIPITATION
JANUARY THROUGH DECEMBER - 1954

In Inches

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Shasta Dam	1954	21.34	10.13	9.37	8.10	T	2.21	.01	4.14	.28	1.75	10.01	9.63	76.97
	Normal	10.15	9.30	7.25	4.09	2.67	1.27	.18	.08	1.06	3.31	5.93	9.33	54.61
Redding	1954	13.76	5.06	8.07	2.28	.00	1.47	.07	2.20	.40	1.08	6.82	7.56	48.77
	Normal	7.09	6.50	5.06	2.90	1.80	.86	.13	.06	.74	2.31	4.14	6.55	38.14
Red Bluff	1954	3.55	3.00	4.07	1.24	.01	.83	T	1.23	.15	.40	6.82	5.26	26.56
	Normal	4.41	3.84	3.21	1.60	1.13	.44	.03	.04	.65	1.41	2.54	4.28	23.58
Orland	1954	3.67	2.49	3.26	2.29	.02	.69	.00	1.06	.19	.58	5.59	3.77	23.61
	Normal	3.58	3.25	2.53	1.25	.71	.31	.02	.02	.40	1.03	1.84	3.38	18.32
Chico	1954	4.58	3.94	4.77	4.29	.06	.49	T	.21	T	.37	4.99	5.70	29.40
	Normal	4.95	4.41	3.42	1.84	1.08	.42	.02	.04	.54	1.33	2.74	4.75	25.54
Colusa	1954	1.97	1.57	3.11	1.62	.13	T	.00	.52	.00	.24	2.97	2.72	14.85
	Normal	3.08	2.95	2.22	1.05	.60	.23	.00	.01	.35	.71	1.70	2.98	15.88
Marysville	1954	3.63	4.38	3.32	2.80	.25	.10	.00	.15	.00	.16	3.37	4.39	22.55
	Normal	3.87	3.77	2.97	1.44	.87	.22	.00	.01	.33	1.08	2.29	3.75	20.60
Woodland	1954	3.03	3.76	2.75	1.89	.19	.02	T	.07	.00	.01	2.92	3.86	18.50
	Normal	3.66	3.00	2.36	1.10	.62	.16	.00	.02	.28	.88	1.77	3.26	17.11
Folsom	1954	4.02	3.34	5.08	2.48	.00	.74	.00	.28	.00	.02	3.11	6.57	25.64
	Normal	4.82	4.45	3.80	1.80	1.02	.21	.01	.02	.35	1.27	2.42	4.05	24.22
Sacramento	1954	3.26	3.70	3.29	1.88	.21	T	.00	.35	.00	.02	3.35	4.93	20.99
	Normal	3.45	3.17	2.47	1.19	.71	.14	.00	.01	.28	.91	1.61	3.03	16.97
Antioch	1954	1.96	2.61	2.20	1.19	.39	.05	.00	.00	.00	.02	1.53	3.44	13.39
	Normal	2.69	2.30	1.90	.71	.41	.10	.00	.01	.27	.65	1.20	2.46	12.70
Stockton	1954	1.36	1.63	3.20	1.54	.26	.14	.00	T	.00	T	2.16	2.86	13.15
	Normal	2.88	2.48	2.22	.97	.60	.11	.00	.01	.26	.71	1.40	2.53	14.17
Modesto	1954	1.15	.66	2.81	.78	.27	.16	.00	.00	.00	.00	1.83	3.18	10.84
	Normal	2.17	2.04	1.82	.89	.48	.11	.01	.01	.19	.56	1.14	2.06	11.48
Merced	1954	2.21	1.98	2.50	.85	.33	.17	.00	.00	.00	.00	.75	1.71	10.50
	Normal	2.25	2.08	2.03	.92	.51	.08	.01	.02	.18	.53	1.12	1.89	11.62
Los Banos	1954	1.66	1.05	1.95	.81	.27	T	.00	.00	.00	.00	1.32	1.42	8.48
	Normal	1.75	1.46	1.41	.66	.40	.05	.01	.01	.13	.41	.79	1.51	8.59
Fresno	1954	1.80	1.13	2.90	.48	.09	.29	T	.00	.00	.00	1.32	1.82	9.83
	Normal	1.75	1.61	1.67	.79	.39	.11	.01	.01	.17	.62	.79	1.57	9.49

T - Trace.
1954 records from U. S. Weather Bureau. Normals are based on the 60-year period 1890-1949.

TABLE 2

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 below Friant	San Joaquin River near 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
1954	86	107	93	88	78	70	67	71	73	63	63	68

(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 3

SUMMARY OF MONTHLY STREAM FLOW, DIVERSIONS AND ACCRETIONS
SACRAMENTO RIVER AND TRIBUTARIES - 1954

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						
SACRAMENTO RIVER AT DELTA (a)		9	125800	192600	143300	197200	96330	33120	18800	17450	14750	15700	49040	81870	985960
PIT RIVER nr. MONTGOMERY CREEK		10	291000	355400	400300	390300	212200	176900	147800	147100	144300	147700	168200	189800	2771000
McCLOUD RIVER above SHASTA LAKE		11	150800	203100	187100	225600	128500	89810	78450	72790	66570	66820	74660	104200	1448400
SQUAW CREEK above SHASTA LAKE		12	55390	47880	41190	37380	6280	3180	1750	1490	1220	1360	4310	11900	213330
Measured Inflow to Shasta Lake			622990	798980	771890	850480	443310	303010	246800	238830	226840	231580	296210	387770	5418690
COMPUTED INFLOW TO SHASTA LAKE		13	951510	1055480	959460	1035870	479700	324710	256520	252440	234520	241410	349750	502140	6643510
Unmeasured Accretions			+47090	-1580	+13740	+8530	-10600	-14210	-4420	+6560	-6320	-1110	+10050	+20060	+67790
Change in Storage			+61400	-170100	+565500	+614600	-31500	-213200	-451800	-440800	-236900	-112100	+76200	+173300	-165400
AT KESWICK	250.5	15	937200	1224000	407700	429800	500600	523700	703900	699800	465100	352400	283600	348900	6876700
AT REDDING*	240.7	16			411900	419200	477900	491100	666100	666000	450800	336900	276700	356000	
CLEAR CREEK nr. IGO	237.1R	30	79520	85760	62160	61650	21420	9770	4090	3240	2880	3100	14060	29610	377260
COW CREEK nr. MILLVILLE	228.8L	31	93940	72800	93890	74910	21930	9710	2770	2890	3610	5110	39230	66120	486910
AT BALLS FERRY*	224.5	17				600800	531900	529700	680100	683100	464800	358800	371500	499600	
COTTONWOOD CREEK nr. COTTONWOOD	222.2R	32	163600	163900	157800	129800	44490	20280	7690	6310	6810	7090	30560	61820	800150
BATTLE CREEK nr. COTTONWOOD	221.5L	33	28360	38690	46180	51720	35300	21860	15450	12960	12700	13290	19930	26620	323060
PAYNES CREEK nr. RED BLUFF	201.5L	34	8380	14760	12750	6120	919	253	40	83	114	157	4540	10190	58306
Measured Inflow for Reach			1311000	1599910	780480	754000	624659	585573	733940	725283	491214	381147	391920	543260	8922386
Unmeasured Accretions			+106158	+183231	+116585	+49283	+17231	+22671	+2372	+8283	+26771	+22120	+48071	+66705	+669481
Diversions			158	141	165	18283	28590	28544	30612	27866	26085	24567	5791	165	190967
NEAR RED BLUFF	198.6	18	1417000	1783000	896900	785000	613300	579700	705700	705700	491900	378700	434200	609800	9400900
REDBANK CREEK nr. FOOTHILLS	191.2R	35	7648	6768	6912	3451	428	179	0	0	0	0	3332	5528	34246
ANTELOPE CREEK nr. RED BLUFF*	180.3L	36	13540	20150	17620	19990	7350	3650	2650	2410	2290	2340	6000	10860	108850
ANTELOPE CREEK nr. MOUTH	180.3L	37	8463	14150	11860	7260	1878	786	435	335	276	745	3922	7327	57437
NORTH FORK MILL CREEK nr. MOUTH	179.3L	40	250	619	771	1174	866	713	230	129	145	160	553	309	5919
ELDER CREEK nr. GERBER	178.5R	38	26000	20880	16270	14900	3190	1160	35	0	0	0	4630	7690	94755
MILL CREEK nr. LOS MOLINOS*	179.0L	39	20390	28480	33630	44730	29580	18280	10750	8180	7640	7660	11970	16170	237460
MILL CREEK nr. MOUTH	179.0L	41	21850	25190	30680	37800	20340	9302	2314	188	746	1434	12250	20060	182154
THOMES CREEK AT PASKENTA	173.2R	42	40550	56340	47910	52260	16040	5510	1290	637	497	545	8560	16220	246399
DEER CREEK nr. VINA*	168.5L	43	29130	42640	44470	60590	23830	11680	8240	7330	6640	6760	10400	16620	268130
DEER CREEK at HIGHWAY 99E	168.5L	44	25670	40000	44050	52030	15270	2760	271	227	195	3046	11810	19490	214819
Measured Inflow for Reach			1547471	1946947	1055353	953875	671312	600110	710275	707216	493759	384630	479257	686424	10236629
Unmeasured Accretions			+95538	+232053	+54647	+71126	+27751	+6704	+11257	+2623	+9919	+19087	+53644	+92176	+676525
Diversions			9	0	0	1	163	414	732	539	78	17	1	0	1954
AT VINA BRIDGE	166.5	19	1643000	2179000	1110000	1025000	698900	606400	720800	709300	503600	403700	532900	778600	10911200
Unmeasured Accretions			-139000	-138000	+31000	-4369	+5905	-5848	-10770	-8214	+5102	+8888	-6230	-12400	-273936
Diversions			0	0	0	29731	129005	138152	149530	140486	88402	43588	9770	0	729264
AT HAMILTON CITY	149.5	20	1504000	2041000	1141000	990900	575200	462400	560500	560600	420300	369000	516900	766200	9908000
BIG CHICO CREEK nr. CHICO*	141.5L	45	19340	26910	19630	24220	5950	2940	1950	1760	1740	1880	3160	6790	116270
BIG CHICO CREEK nr. MOUTH	141.5L	46	15130	24870	17860	21620	3546	795	99	42	27	0	1611	5952	91552
STONY CR. below BLACK BUTTE DAM SITE*	138.0R	47	46610	68500	63980	75960	24550	22420	24300	19000	15450	10430	13200	21480	405880
STONY CREEK nr. HAMILTON CITY	138.0R	48	47820	83540	68470	67180	4720	1630	772	799	695	756	5300	16680	295362
Measured Inflow for Reach			1566950	2149410	1224330	1079700	583466	464825	561371	561441	421022	369756	523811	788832	10294914
Unmeasured Accretions			+35068	+215590	+51670	+14704	+19952	+20177	+9709	+26305	+14140	+5596	+28767	+69931	+546609
Diversions (b)			18	0	0	22404	5518	3802	6680	6246	3962	1552	378	63	50623
AT ORD FERRY	130.8	21	1602000	2365000	1276000	1107000	597900	481200	564400	581500	431200	373800	552200	858700	10790900
Unmeasured Accretions			-100546	-25000	+6000	-14598	+15936	+4261	-3512	-25404	-8290	-7499	-30929	-68845	-258426
Diversions			454	0	0	3402	20836	19461	21888	16696	7910	1201	71	1455	93374
AT BUTTE CITY	115.8	22	1501000	2340000	1282000	1089000	593000	466000	539000	539400	415000	365100	521200	788400	10439100
OPPOSITE MOULTON WIER*	103.9	23			1260000	1083000	550200	442400	536700	526200	409000	365600			
Unmeasured Accretions			-136822	-162440	-51663	-16840	+12825	-3953	+15065	+24175	+11883	+5146	+7042	+33200	-262382
MOULTON WEIR	104.0L	50	9778	52960	0	0	0	0	0	0	0	0	0	0	62738
COLUSA WEIR	92.4L	51	205400	448600	0	17490	0	0	0	0	0	0	0	0	671490
Diversions			0	0	337	4670	30325	28547	32065	28675	14283	946	42	0	139890
Measured Outflow for Reach			215178	501560	337	22160	30325	28547	32065	28675	14283	946	42	0	874118
AT COLUSA	89.4	24	1149000	1676000	1230000	1050000	575500	433500	522000	534900	412600	369300	528200	821600	9302600
BUTTE CREEK nr. CHICO*	84.0L	49	31470	51240	52040	74770	29380	15410	10840	9660	8880	8280	11540	18890	325400
BUTTE SLOUGH to SACRAMENTO RIVER	84.0L	52	10750	0	13110	15210	19270	22000	4974	17500	28350	23760	21780	28160	204864
AT MERIDIAN*	79.85	25			1285000	1116000	586400	449800	518200	541300	440200	384900			
R. D. 70 DRAIN	68.8L	53	371	140	1036	2088	6252	5157	5480	6730	4780	787	494	1192	35767
Measured Inflow for Reach			1160121	1677400	1241146	1067298	601022	460657	532454	559130	445730	393647	550474	850952	9543231
Unmeasured Accretions			+2679	+202295	+43988	+18732	+25636	+19229	-6620	-6957	+12470	-8765	-7674	-22832	+272181
TISDALE WEIR	64.2L	54	302600	592500	127900	52440	0	0	0	0	0	0	6496	12520	1094456
Diversions			0	195	234	22590	103358	96186	101934	94973	46800	3382	1404	0	471056
Measured Outflow for Reach			302600	592695	128134	75030	103358	96186	101934	94973	46800	3382	7900	12520	1565512
BELOW WILKINS SLOUGH	62.9	26	860200	1287000	1160000	1011000	523300	383700	423900	457200	411400	381700	534900	815600	8249900
R. D. 108 DRAIN	44.0R	55	1956	5593	3277	5165	26970	23620	27020	33580	28640	3340	21146	5518	166825
R. D. 787 DRAIN	37.0R	56	26	1856	918	1019	2652	2479	2423	3899	3269	160	138	596	19435
COLUSA BASIN DRAIN	34.15R	60	6444	0	0	0	6403	31660	5633	43180	89520	40530	32060	15400	270830
SYCAMORE SLOUGH	34.15R	61	62	272	184	1015	2540	1479	1046	1303	597	111	74	119	8802
Measured Inflow for Reach			868688	1294721	1164379	1018199	561865	441938	460022	539162	533426	425841	569318	837233	8715792
Unmeasured Accretions			+24127	-11721	+10621	-17428	+14009	+14376	+22501	+23017	-5021	+4094	+20607	+30367	+129549
Diversions			15	0	0	9071	40074	38414	44523	39079	19065	835	25	0	191641
AT KNIGHTS LANDING	34.0	27	892800	1283000	1175000	991700	535800	418900	438000	523100	408300	429100	589900	867600	8653700
SACRAMENTO SLOUGH	21.2L	66	NR	NR	NR	NR	32190	43150	36470	48050	59060	22640	27340	75320	
FEATHER RIVER at NICOLAUS	20.9L	71	435700	817100	1201000	1262000	581100	154400	59930	59150	87170	152700	230300	341100	5381650
COON CREEK at HIGHWAY 99E*	19.6L	80	6982	8844	10760	4915	1421	636	118	667	528	1012	2896	10530	49309
AUBURN RAVINE at LINCOLN*	19.6L	81	3652	4268	4986	3870	3160	3370	5167	4647	1948	569	1864	5476	42977
NATOMAS CROSS CANAL at HEAD	19.6L	82	9255	17370	13610	6629	1152	298	153	575	1250	1942	4134	26920	83288
R. D. 1001 DRAIN	19.6L	83	454	1355	764	664	44	0	0	0	0	0	198	1811	5320
Measured Inflow for Reach			1338209	2118825	2390374	2260993	1150286	616748	534553	630875	656280	606382	852472	1312781	14468778
Unmeasured Accretions			+233991	+1275475	+270026	+2813140	+57035	+928	-21497	-18065	+11162	+2624	-12469	-27781	+2052769
FREMONT WEIR	23.0R	62	24200	568300	132400	82550	0	0	0	0	0	0	0	0	807450
Diversions (c)			0	0	0	2783	17321	17576	20556	19410	13742	906	3	0	92297
Measured Outflow for Reach			24200	568300	132400	85333	17321	17576	20556	19410	13742	906	3	0	899747
AT VERONA	19.6	28	1548000	2826000	2528000	2457000	1190000	600100	492500	593400	653700	608100	840000	1285000	15621800
R. D. 1000 (#3) DRAIN	6.85L	84	324	273	378	356	1185	1308	934	2832	1809	1244	571	452	11666
R. D. 1000 (2ND BANNON SL.) DRAIN	2.1L	86	1121	4161	2741	2021	787	474	0	2624	8336	4344	916	6631	34156
LINDA CREEK nr. ROSEVILLE	1.3L	87	4707	6754	7722	5052	2041	1293	916	1162	1119	2013	2914	9221	44914
AMERICAN RIVER at SACRAMENTO	1.1L	89	139400	223900	452200	547200	363900	97670	25400	11150	20380	27350	46630	121100	2079280
Measured Inflow for Reach			1693552	3061088	2991041	3011629	1557913	700845	519750	611168	685344	643051	891031	1422404	17791816
Unmeasured Accretions			-12808	+9795	-11842	-26681	+426	-5841	+21033	-8633	-559	+12590	-21176	+38680	-5016
SACRAMENTO WEIR	4.2R	85	0	0	0	0	0	0	0	0	0	0	0	0	0
Diversions (d)			2744	1803	2199	5948	31339	38604	42883	37635	22385	5341	4155	4084	199200
Measured Outflow for Reach			2744	1883	2199	5948	31339	38604	42883	37635	22385	5341	4155	4084	199200
AT SACRAMENTO	0.4	29	1678000	3069000	2977000	2979000	1527000	656400	497900	567900	662400	650300	865700	1457000	17587600
SHASTA LAKE TO SACRAMENTO															
Total Unmeasured Accretions			+155475	+1779698	+534772	+398799	+186106	+58494	+35118	+23690	+71257	+62771	+89703	+219261	+3015144
Total Diversions			3398	2219	2935	118883	407129	409700	451403	411605	243252	82335	21640	5767	2160266

* Not included in computations of unmeasured accretions.
(a) Above Shasta Lake.
(b) Includes diversions from Stony Creek by Glenn-Colusa Irrigation District.
(c) Includes diversions from the Feather River below Nicolaus.
(d) Includes diversions from the American River below "H" Street Bridge.

TABLE 3 (contd.)

SUMMARY OF MONTHLY STREAM FLOW, DIVERSIONS AND ACCRETIONS
SACRAMENTO RIVER AND TRIBUTARIES - 1954

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	67	268800	451100	697800	878400	456600	235700	179600	167900	160700	171000	211300	251100	4130000
Unmeasured Accretions			-37138	-23000	-29200	-15305	+3081	-9829	+2105	+280	+4538	+7080	+5106	+400	-91882
Diversions			1262	0	0	14495	130181	143031	145055	126920	85348	46280	11406	0	703978
NEAR GRIDLEY	49.7	68	230400	428100	668600	848600	329500	82840	36650	41260	79890	131800	205000	251500	3334140
SOUTH HONCUT CREEK at BANGOR ROAD	43.7L	72	3270	5280	5230	4190	694	135	12	2	0	3	334	1690	20840
Measured Inflow for Reach			233670	433380	673830	852790	330194	82675	36662	41262	79890	131803	205334	253190	3354980
Unmeasured Accretions			+53630	+12320	+55970	+9210	+44194	+29927	+7076	+5417	+7972	+12113	-12834	-90	+224905
Diversions			0	0	0	0	3388	4502	6408	6679	4012	416	0	0	25405
AT YUBA CITY	28.0	69	287300	445700	729800	862000	371000	108400	37330	40000	83850	143500	192500	253100	3554480
YUBA RIVER nr. MARYSVILLE (a)	27.3L	74									7240	5280	22450	51820	
YUBA RIVER at MARYSVILLE	27.3L	75	134300	249200	406100	431400	219100	51130	19280	16810	7780	5600	24720	54720	1620140
Measured Inflow for Reach			421600	694900	1135900	1293400	590100	159530	56610	56810	91630	149100	217220	307820	5174620
Unmeasured Accretions			-28600	+23600	-33900	-80400	-78200	-24767	-4220	-9849	-9255	-13300	-8920	-12920	-280731
Diversions (b)			0	0	0	0	0	63	110	171	105	0	0	0	449
BELOW SHANGHAI BEND	23.0	70	393000	718500	1102000	1213000	511900	134700	52280	46790	82270	135800	208300	294900	4893440
BEAR RIVER nr. WHEATLAND	12.0L	79	39210	51660	78600	40610	8460	665	467	351	516	1000	3250	25750	250539
DRY CREEK nr. WHEATLAND	12.0L	78	5850	9740	9760	3520	147	24	0	0	0	54	161	3190	32446
Measured Inflow for Reach			438060	779900	1190360	1257130	520507	135389	52747	47141	82786	136854	211711	323840	5176425
Unmeasured Accretions			-2360	+37200	+10640	+5173	+67800	+26552	+14545	+19189	+9368	+17046	+18664	+17345	+241162
Diversions (c)			0	0	0	303	7207	7541	7362	7180	4984	1200	75	85	35937
AT NICOLAUS	9.3	71	435700	817100	1201000	1262000	581100	154400	59930	59150	87170	152700	230300	341100	5381650
OROVILLE TO NICOLAUS															
Total Unmeasured Accretions			-14468	+50120	+3510	-81322	+36875	+21883	+19506	+15037	+12623	+22939	+2016	+4735	+93454
Total Diversions			1262	0	0	14798	140776	155137	158935	140950	94449	47896	11481	85	765769
AMERICAN RIVER															
AT FAIR OAKS	19.2	88	140500	220200	451400	546600	358400	103600	27380	14950	20730	26400	44690	129100	2083950
Unmeasured Accretions			-1100	+3700	+820	+862	+6167	-4349	-68	+432	+741	+1393	+1961	-8000	+2559
Diversions			0	0	20	262	667	1581	1912	1232	1091	443	21	0	7229
AT SACRAMENTO	6.1	89	139400	223900	452200	547200	363900	97670	25400	14150	20380	27350	46630	121100	2079280
SUTTER BY-PASS															
BUTTE SLOUGH TO SUTTER BY-PASS	29.4	63	262500	832800	136500	113400	17120	13760	13400	14740	9624	2621	10510	30730	1457705
WADSWORTH CANAL	25.7L	64	2779	6127	2930	2959	2423	6812	2197	7277	11790	7684	5084	6573	64635
R. D. 1500 DRAIN	0.0R	65	17150	12830	8567	7595	20680	32430	32470	33870	32390	8961	4423	10060	221426
TISDALE WEIR	18.9R	54	302600	592500	127900	52440	0	0	0	0	0	0	6496	12520	1094456
Measured Inflow for Reach			585029	1444257	275897	176394	40223	53002	48067	55887	53804	19266	26513	59883	2838222
Unmeasured Accretions							+9012	+16521	+17747	+20420	+25238	+6397	+1969	+15450	
Diversions			20	0	0	1233	17045	28373	29344	28257	19982	3023	542	13	125832
SACRAMENTO SLOUGH	-1.0	66					32190	43150	36470	48050	59060	22640	27940	75320	
BACK BORROW PIT															
COLUSA TROUGH at COLUSA-WILLIAMS HIGHWAY	37.0	57	12120	24270	14480	17360	15600	36250	20310	57010	78330	25850	41450	33850	376880
COLUSA TROUGH at COLLEGE CITY (a)	22.7	58			18390	20260	15660	44240	20390	64230	91960	33500	43960	34880	
Unmeasured Accretions			+2431	+5290	-3860	-4537	+8216	+12098	+8640	+8279	+21783	+16322	-2284	-836	+71542
KNIGHTS LANDING RIDGE CUT	0.4R	59	7551	29560	10620	10690	4950	3769	5101	4217	3788	448	6816	17450	104960
Diversions			556	0	0	2133	12463	12919	18216	17892	6805	1194	290	164	72632
Measured Outflow for Reach			8107	29560	10620	12823	17413	16688	23317	22109	10593	1642	7106	17614	177592
COLUSA BASIN DRAIN	0.0	60	6444	0	0	0	6403	31660	5633	43180	89520	40530	32060	15400	270830
YUBA RIVER															
AT ENGLEBRIGHT DAM	22.8	73	96920	195300	303700	363500	227800	73060	43940	40200	22050	14190	26710	40200	1447570
DEER CREEK nr. SMARTSVILLE	21.8	76	13300	12010	15200	10910	2260	658	477	457	334	546	1760	6250	64162
DRY CREEK nr. VIRGINIA RANCH	11.0	77	14160	16220	16050	13840	3030	1000	287	319	311	238	540	5480	71475
NEAR MARYSVILLE (a)		74									7240	5280	22450	51820	
Measured Inflow for Reach			124380	223530	334950	388250	233090	74718	44704	40976	22695	14974	29010	51930	1583207
Unmeasured Accretions			+10752	+25670	+71165	+43150	+9640	+3372	+2130	+2280	+6155	+5410	+8103	+8772	+196599
Diversions			832	0	15	0	23630	26960	27554	26446	21070	14784	12393	5982	159666
AT MARYSVILLE	0.9	75	134300	249200	406100	431400	219100	51130	19280	16810	7780	5600	24720	54720	1620140

(a) Not included in computations of unmeasured accretions.
(b) Includes diversions from Yuba River below Simpson Lane Bridge.
(c) Includes diversions from Bear River below Wheatland.

TABLE 4

SUMMARY OF MONTHLY STREAM FLOW, DIVERSIONS AND ACCRETIONS
SAN JOAQUIN RIVER AND TRIBUTARIES - 1954

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)		120	44509	73369	129201	232396	291659	171614	91129	71611	51925	39076	48040	70199	1314728
Unmeasured Accretions			-1267	-948	-515	-1264	-5654	-5349	-5141	-3444	-1643	-1272	+1002	-179	-25674
Change in Storage		121	+20700	+42900	+65700	+137800	+58800	-38500	-151200	-139400	-41200	+4700	+25500	+56100	+41900
MADERA CANAL			63	204	3685	17826	23508	46822	53973	51073	19678	0	0	0	210832
FRIANT-KERN CANAL			149	11937	52801	58016	124886	153069	172126	145736	63133	25444	6232	0	813129
Diversions			0	0	0	0	21	54	39	8	21	0	0	0	143
Measured Outflow for Reach			20912	55041	122186	213642	206815	155445	74938	57417	41632	30144	31732	56100	1066004
BELOW FRIANT	268.13	122	22330	17380	6500	17490	79190	10820	11050	10750	8650	7660	17310	13920	223050
LITTLE DRY CREEK nr. FRIANT	264.0L	132	31	266	482	246	23	1	2	1	0	0	0	0	1052
Measured Inflow for Reach			22361	17646	6982	17736	79213	10821	11052	10751	8650	7660	17310	13920	224102
Unmeasured Accretions			+401	+1303	+355	-2594	-795	+1412	-1019	-844	-1039	-812	-4567	+2728	-5471
Diversions			52	19	117	642	1588	2363	3453	2707	1301	698	143	8	13091
NEAR BIOLA	236.4R	123	22710	18930	7220	14500	76830	9870	6580	7200	6310	6150	12600	16640	205540
Unmeasured Accretions			-2820	-583	-1743	-4491	-5926	-3343	-4583	-4390	-3873	-3528	-4245	-1757	-41282
Diversions			0	2	38	56	78	134	129	109	71	40	1	1	659
AT WHITEHOUSE	219.83	124	19890	18345	5439	9953	70826	6393	1868	2701	2366	2582	8354	14882	163599
JAMES BY-PASS nr. SAN JOAQUIN	208.9L	133						NO FLOW							
DELTA-MENDOTA CANAL (a)			5169	50285	69033	119288	80636	173429	196487	174795	107779	54734	13492	498	1045625
Measured Inflow for Reach			25059	68630	74472	129241	151462	179822	198355	177496	110145	57316	21846	15380	1209224
Unmeasured Accretions			-7086	-36137	-14473	-24495	-23621	-34559	-45417	-32993	-17665	-7854	-4578	-1055	-249933
Diversions (b)			10953	19683	52409	86976	106391	118423	124718	118003	75900	43246	14854	7222	778778
NEAR MENDOTA	206.2	125	7020	12810	7590	17770	21450	26840	28220	26500	16580	6216	2414	7103	180513
Unmeasured Accretions			+713	+17451	+1805	+1087	+1327	+217	-400	-222	+936	+820	+851	+664	+25249
Diversions			6143	121	8995	18508	22529	26758	27622	26173	17373	6899	2105	5833	169059
NEAR DOS PALOS	186.0	126	1590	30140	400	349	248	299	198	105	143	137	1160	1934	36703
FRESNO RIVER nr. DAULTON*	184.0R	134	2800	4880	10450	8820	8130	3410	957	38	0	94	823	1990	42392
CHOWCHILLA RIVER at BUCHANAN DAM SITE*	151.0R	135	2480	5570	9270	5540	1900	483	10	0	0	0	92	1060	26405
SALT SLOUGH nr. LOS BANOS		136	3970	3310	3870	1620	5540	5640	6180	5960	6050	2320	2000	2130	51590
Measured Inflow for Reach			5560	33450	4270	4969	5788	5939	6378	6065	6193	2457	3160	4064	88293
Unmeasured Accretions			+4700	+4368	+17735	+12307	+14311	+8945	+1965	+1737	+2173	+717	+330	+1226	+70514
Diversions			0	88	135	226	109	354	383	522	166	254	0	0	2237
AT FREMONT FORD	129.5	127	10260	37730	21870	17050	19990	14530	7960	7280	8200	2920	3490	5290	156570
MERCED RIVER nr. STEVINSON	123.75R	140	9610	9760	32010	41310	101600	15170	8170	10350	7900	6360	7630	9260	259130
Measured Inflow for Reach			19870	47490	53880	58360	121590	29700	16130	17630	16100	9280	11120	14550	415700
Unmeasured Accretions			+3770	+7000	+1226	+437	+128	+3497	+2692	+368	+2104	+1499	+1039	+843	+24603
Diversions (c)			0	0	206	407	518	647	1002	658	754	219	139	3	4553
NEAR NEWMAN	123.7	128	23640	54490	54900	58390	121200	32550	17820	17340	17450	10560	12020	15390	435750
MERCED RIVER SLOUGH	122.2	141	0	0	4	0	2310	0	0	0	0	0	0	0	2314
ORESTIMBA CREEK nr. NEWMAN		142	0	0	0	0	0	0	0	0	0	0	0	0	0
Measured Inflow for Reach			23640	54490	54904	58390	123510	32550	17820	17340	17450	10560	12020	15390	438064
Unmeasured Accretions			+6133	+1566	+26599	+21048	+11685	+17170	+14822	+13871	+13055	+10690	+6038	+7618	+150295
Diversions			80	241	5496	10612	11268	12550	14315	12943	8310	1693	42	0	77550
NEAR GRAYSON	96.05	129	29693	55815	76007	68826	123927	37170	18327	18268	22195	19557	18016	23008	510809
TUOLUMNE RIVER at TUOLUMNE CITY	91.0R	148	54129	47326	134023	84972	125911	24614	20509	18803	18186	31359	38876	46393	645401
Measured Inflow for Reach			83822	103141	210030	153798	249838	61784	38836	37071	40681	50916	56892	69401	1156210
Unmeasured Accretions			+1020	+3278	-2103	+38928	+34197	+14809	+13555	+9165	+7385	+3670	+2705	+3338	+129947
Diversions (d)			743	2426	6287	13123	13807	15938	19168	14798	9825	2996	331	45	99487
AT HETCH HETCHY CROSSING	82.65	130	84099	103993	201640	179603	270228	60655	33223	31438	38241	51590	59266	72694	1186670
STANISLAUS RIVER nr. MOUTH	79.7R	154	14170	20520	61540	132800	146500	10150	5474	5219	6902	10840	15860	32970	462945
Measured Inflow for Reach			98269	124513	263180	312403	416728	70805	38697	36657	45143	62430	75126	105664	1649615
Unmeasured Accretions			+3805	+6653	+13439	-6718	+157	+10807	+589	+2813	+3616	+3866	+7468	+5836	+52331
Diversions (e)			174	166	2419	4685	3985	5102	5956	5870	3899	2186	144	0	34586
NEAR VERNALIS	76.7	131	101900	131000	274200	301000	412900	76510	33330	33600	44860	64110	82450	111500	1667360
MILLERTON LAKE TO VERNALIS															
Total Unmeasured Accretions			+9369	+3951	+42325	+34245	+25809	+13606	-22937	-13939	+5049	+7796	+6043	+19262	+130579
Total Diversions			18357	34887	132588	211077	308288	376214	422884	378600	200431	83675	23991	13112	2204104
MERCED RIVER															
AT EXCHEQUER		137	3180	2690	29790	86740	193300	108500	118000	103800	26360	4710	3410	3100	683580
Unmeasured Accretions			-2477	-1406	-396	+583	-3248	-1602	-3326	-7968	-2939	-4375	-2984	-2434	-32572
MERCED IRRIGATION DISTRICT CANALS	46.0		0	0	2694	62613	99032	103602	113597	94837	23183	0	0	0	499558
BELOW SNELLING	42.1	138	703	1284	26700	24710	91020	3296	1077	995	238	335	426	666	151450
Unmeasured Accretions			+5892	+5767	+5481	+6786	+10011	+5259	+5164	+5630	+4052	+3761	+3879	+5052	+67334
Diversions			0	2	1	166	931	1288	1711	1234	864	750	23	0	6970
AT CRESSEY	27.6	139	6595	7049	32180	31330	100100	7267	4530	5391	4026	3346	4282	5718	211814
Unmeasured Accretions			+3062	+2720	+738	+11922	+3347	+10818	+7877	+7558	+5933	+4406	+3824	+3710	+65915
Diversions			47	9	908	1942	1847	2915	4237	2599	2059	1392	476	168	18599
NEAR STEVINSON	4.6	140	9610	9760	32010	41310	101600	15170	8170	10350	7900	6360	7630	9260	259130
EXCHEQUER TO STEVINSON															
Total Unmeasured Accretions			+6477	+7081	+5823	+19291	+10110	+14475	+9715	+5220	+7646	+3792	+4719	+6328	+100677
Total Diversions			47	11	3603	64721	101810	107805	119545	98670	26106	2142	499	168	525127

* Not included in computations of unmeasured accretions.
(a) Deliveries from Delta-Mendota Canal to Mendota Pool as computed by U. S. Bureau of Reclamation.
(b) Includes diversions from Fresno Slough and James By-Pass.
(c) Includes diversions from Merced River below Stevinson.
(d) Includes diversions from Tuolumne River below Tuolumne City.
(e) Includes diversions from Stanislaus River below Mile 2.9.

TABLE 4 (contd.)

SUMMARY OF MONTHLY STREAM FLOW, DIVERSIONS AND ACCRETIONS
SAN JOAQUIN RIVER AND TRIBUTARIES - 1954

Item	Mileage	Record in Table No.	Quantities in Acre-Feet												Annual Total
			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
TUOLUMNE RIVER															
ABOVE LA GRANGE DAM		143	43960	41880	193700	198000	261400	155500	139400	123500	95250	45940	26960	50720	1376210
Unmeasured Accretions			-506	-1624	-440	+3060	+3190	+808	+778	+677	+1048	-350	-1627	+240	+5254
MODESTO IRRIGATION DISTRICT CANAL	53.5R		64	56	37290	57800	63790	54570	49510	49040	28280	9130	43	14320	363893
TUOLOCK IRRIGATION DISTRICT CANAL	53.5L		4560	6680	37770	83680	100800	101000	89770	74480	67020	21090	1300	5870	594020
Measured Outflow for Reach			4624	6736	75060	141480	164590	155570	139280	123520	95300	30220	1343	20190	957913
AT LA GRANGE	50.5	144	38830	33520	118200	59580	100000	738	898	657	998	15370	23990	30770	423551
Unmeasured Accretions			+1510	+470	-4400	-4575	+7786	+1996	+1469	+1203	+1391	+1135	+2010	+2400	+12395
Diversions			0	0	0	45	86	98	171	146	110	95	0	0	751
AT ROBERTS FERRY BRIDGE	39.9	145	40340	33990	113800	54960	107700	2636	2196	1714	2279	16410	26000	33170	435195
Unmeasured Accretions			+3830	+3450	+10212	+13640	-5408	+4100	+4191	+5052	+4194	+4344	+3453	+3410	+54468
Diversions			0	0	12	30	92	76	115	117	72	44	13	0	571
AT HICKMAN BRIDGE	31.7	146	44170	37440	124000	68570	102200	6660	6272	6649	6401	20710	29440	36580	489092
DRY CREEK nr. MODESTO	16.5R	149	2021	3148	5040	4635	5873	3386	2067	2144	1882	1603	1652	3138	36589
Measured Inflow for Reach			46191	40588	129040	73205	108073	10046	8339	8793	8283	22313	31092	39718	525681
Unmeasured Accretions			+6899	+5373	+7297	+9291	+14530	+9262	+7231	+6744	+6907	+7421	+6800	+5992	+93747
Diversions (a)			0	11	37	176	303	458	550	517	310	194	22	0	2578
AT MODESTO	16.1	147	53090	45950	136300	82320	122300	18850	15020	15020	14880	29540	37870	45710	616850
Unmeasured Accretions			+1162	+1402	-2009	+3030	+4415	+6533	+6335	+4580	+4162	+1971	+1032	+683	+33296
Diversions			123	26	268	378	804	769	846	797	556	152	26	0	4745
AT TUOLUMNE CITY	3.35	148	54129	47326	134023	84972	125911	24614	20509	18803	18486	31359	38876	46393	645401
ABOVE LA GRANGE TO TUOLUMNE CITY															
Total Unmeasured Accretions			+12895	+9071	+10660	+24446	+24513	+22699	+20004	+18256	+17702	+14521	+11668	+12725	+199160
Total Diversions			4747	6773	75377	142109	165875	156971	140962	125097	96348	30705	1404	20190	966558
STANISLAUS RIVER															
BELOW MELONES POWER HOUSE		150	17440	26160	69750	229200	238600	84000	76600	65900	18720	9970	9770	23150	869260
Unmeasured Accretions			+1373	+2614	+1791	-21709	-7839	-1087	+118	+401	-166	-457	-26	+3997	-20990
OAKDALE CANAL	50.2		81	84	217	18430	30600	25540	23850	20770	3780	169	192	86	123799
SOUTH SAN JOAQUIN CANAL	50.2		12740	9650	10090	18430	66300	55450	51510	43840	12460	4700	206	21	315397
Diversions			0	0	4	31	61	66	79	75	57	36	0	0	412
Measured Outflow for Reach			12821	9734	10311	66891	96961	81059	75439	64685	16297	4905	398	107	439608
AT ORANGE BLOSSOM BRIDGE	44.7	151	5992	19040	61230	140600	133800	1854	1279	1616	2257	4608	9346	27040	408662
Unmeasured Accretions			+2134	-760	+3740	+3323	+583	+4806	+3519	+3116	+2287	+1866	+2804	+1650	+29068
Diversions			0	0	0	123	283	281	532	448	141	69	0	0	1877
AT RIVERBANK	32.0	152	8126	18280	64970	143800	134100	6379	4266	4284	4403	6405	12150	28690	435853
Unmeasured Accretions			+5494	+4645	+5946	+2454	+13789	+8058	+5830	+5329	+5040	+5791	+3228	+4940	+70544
Diversions			0	5	16	254	389	477	476	623	513	226	18	0	2997
AT RIPON BRIDGE	10.0	153	13620	22920	70900	146000	147500	13960	9620	8990	8930	11970	15360	33630	503400
Unmeasured Accretions			+622	-2389	-7648	-8268	+4286	+2062	+2695	+2987	+2680	+1508	+843	-660	-1282
Diversions			72	11	1712	4932	5286	5872	6841	6758	4708	2638	343	0	39173
NEAR MOUTH	2.9	154	14170	20520	61540	132800	146500	10150	5474	5219	6902	10840	15860	32970	462945
MELONES POWER HOUSE TO MOUTH															
Total Unmeasured Accretions			+9623	+4110	+3829	-24200	+10819	+13839	+12162	+11833	+9841	+8708	+6849	+9927	+77340
Total Diversions			12893	5750	12039	72200	102919	87689	83288	72514	21659	7838	759	107	483655
MORMON SLOUGH															
AT BELLOTA	0.05	112	4277	4228	1518	6500	3152	2491	4084	2397	0	0	0	12480	41127
Unmeasured Accretions			-33	+206	-506	-1958	-1229	+117	-1209	+265	+267	+2	0	+3650	-428
Diversions			0	0	58	115	1270	2136	2265	2088	267	2	0	0	8201
STOCKTON DIVERTING CANAL AT STOCKTON	17.6	113	4244	4434	954	4427	653	472	610	574	0	0	0	16130	32498
CALAVERAS RIVER															
AT JENNY LIND	36.9	109	8300	7480	2130	9440	8830	11060	12200	9940	4	0	1010	14510	84904
Unmeasured Accretions			-1589	-1339	-144	+137	+88	-8441	-401	-740	+245	+23	-1008	-2022	-7594
MORMON SLOUGH at BELLOTA		112	4277	4228	1518	6500	3152	2491	4084	2397	0	0	0	12480	41127
Diversions			0	144	55	143	482	1324	1078	1046	239	23	2	0	4536
Measured Outflow for Reach			4277	4372	1573	6643	3634	3815	5162	3443	23	23	2	12480	45663
AT BELLOTA	25.25	110	2434	1769	413	2934	5284	6401	6637	5757	10	0	0	8	31647
Unmeasured Accretions			-995	-998	-262	-1194	-2166	-2656	-2456	-2494	+31	0	0	-8	-13198
Diversions			154	127	119	459	1709	2685	3072	2622	40	0	0	0	10987
NEAR STOCKTON	8.9	111	1285	644	32	1281	1409	1060	1109	641	1	0	0	0	7462
JENNY LIND TO STOCKTON															
Total Unmeasured Accretions			-2584	-2337	-406	-1057	-2078	-3500	-2857	-3234	+276	+23	-1008	-2030	-20792
Total Diversions			154	271	174	602	2191	4009	4150	3668	279	23	2	0	15523
MOKELUMNE RIVER															
AT LANCHA PLANA		105	30020	26620	30270	62830	75180	31880	31520	32480	33440	34410	34550	34710	457910
NEAR CLEMENTS	39.35	106	36150	29140	32060	60800	70710	31490	32070	33180	34620	36570	36220	41520	474530
Unmeasured Accretions			-7080	-2618	-4787	-2108	+272	-2406	-3169	-3720	-6265	-4945	-2855	-6700	-46381
Diversions			20	12	243	11072	23212	25374	26831	24730	17485	14035	3675	0	146689
AT WOODBRIDGE	19.2	107	29050	26510	27030	47620	47770	3710	2070	4730	10870	17590	29690	34820	281460
COSUMNES RIVER															
AT MICHIGAN BAR	34.3	102	15560	34830	65820	65080	25480	7140	1890	594	457	724	2730	19630	239935
Unmeasured Accretions			+620	+6260	+9490	+4747	+2418	-186	-440	+101	+106	-207	-1163	+10440	+32186
Diversions			0	0	0	37	768	2004	1370	695	563	517	37	0	5991
AT MC CONNELL	10.7	103	16180	41090	75310	69790	27130	4950	80	0	0	0	1530	30070	266130

(a) Includes diversions from Stanislaus River below Mile 2.9.

TABLE 5

SUMMARY OF MONTHLY STREAM FLOW, DIVERSIONS AND ACCRETIONS
TULE RIVER AND TULARE LAKE BASIN - 1954

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	157	5630	8500	13620	20420	13170	3920	655	87	79	385	1630	3600	71696
SOUTH FORK TULE RIVER nr. SUCCESS *	0.0	158	1780	2300	3920	5990	2890	1070	177	32	34	67	444		
Unmeasured Accretions			+2122	+1528	+3016	+5150	+3169	+1053	-3	-83	-79	-57	+399	+872	+17087
Diversions			292	98	296	640	999	1013	378	0	0	101	399	662	4878
AT WORTH BRIDGE	2.2	159	7460	9930	16340	24930	15340	3960	274	4	0	227	1630	3810	83905
FRIANT-KERN CANAL to TULE RIVER	11.3	162	0	0	5609	232	95	1462	21612	11223	0	0	0	0	40233
Measured Inflow for Reach			7460	9930	21949	25182	15435	5422	21886	11227	0	227	1630	3810	124138
Unmeasured Accretions			-4831	-5142	-16937	-16921	-3801	-1850	-21418	-11080	0	-186	-1019	-1808	-84993
FRIANT-KERN CANAL to PORTER SLOUGH *		163	0	1125	0	0	0	0	8	0	0	444	198	0	1775
Diversions			2629	4788	5012	8241	11634	3572	468	147	0	41	611	2002	39145
AT TURNBULL STATION	39.0	160	0	0	0	0	0	0	0	0	0	0	0	0	0
							INFLOW TO TULARE LAKE BASIN								
KINGS RIVER (S.F.) below EMPIRE WEIR #2		164	0	0	0	0	0	0	867	921	0	0	0	0	1788
CROSS CREEK below LAKELAND CANAL #2		165	0	0	0	0	0	0	0	0	0	0	0	0	0
TULE RIVER AT TURNBULL STATION		160	0	0	0	0	0	0	0	0	0	0	0	0	0
BUENA VISTA SLOUGH nr. LOST HILLS		167	0	0	0	0	0	0	0	0	0	0	0	0	0
GOOSE LAKE CANAL nr. LOST HILLS		166	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL INFLOW TO TULARE LAKE BED			0	0	0	0	0	0	867	921	0	0	0	0	1788

* Not included in computations of unmeasured accretions.

TABLE 6

SUMMARY OF MONTHLY INFLOW, DIVERSIONS, AND CONSUMPTIVE USE
SACRAMENTO-SAN JOAQUIN DELTA - 1954

Item	Record in Table No.	Quantities in Acre-Feet												Annual Total
		Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
MEASURED INFLOW														
SACRAMENTO RIVER AT SACRAMENTO	29	1678000	3069000	2977000	2979000	1527000	656400	497900	567900	662400	650300	865700	1457000	17587600
SACRAMENTO WEIR	85	0	0	0	0	0	0	0	0	0	0	0	0	0
YOLO BY-PASS nr. WOODLAND	92	60830	663600	249500	151700	10740	1940	1310	4650	9220	4400	7570	28970	1194430
PUTAH CREEK nr. DAVIS	96	70190	73490	45000	50350	6860	288	0	0	0	0	7850	26440	284468
COSUMNES RIVER at MC CONNELL	103	16180	41090	75310	69790	27130	4950	80	0	0	0	1530	30070	266130
DRY CREEK nr. GALT	104	2470	6430	15710	6960	366	6	11	12	5	0	0	6270	38240
MOKELUMNE RIVER at WOODBRIDGE	107	29050	26510	27030	47620	47770	3710	2070	4730	10870	17590	29690	34820	281460
BEAR CREEK nr. LOCKEFORD	108	6	308	344	14	1	5	9	5	9	1	23	931	1656
CALAVERAS RIVER nr. STOCKTON	111	1285	644	32	1281	1409	1060	1109	641	1	0	0	0	7462
STOCKTON DIVERTING CANAL at STOCKTON	113	4244	4434	954	4427	653	472	610	574	0	0	0	16130	32498
DUCK CREEK nr. STOCKTON	116	0	39	36	4	40	50	0	3	2	36	44	491	745
FRENCH CAMP SLOUGH nr. FRENCH CAMP	119	202	696	3730	2555	2045	171	11	0	0	0	291	5225	14926
SAN JOAQUIN RIVER nr. VERNALIS	131	101900	131000	274200	301000	412900	76510	33330	33600	44860	64110	82450	111500	1667360
TOTAL MEASURED INFLOW		1964357	4017241	3672846	3614701	2036914	745562	536440	612115	727367	736437	995148	1717847	21376975
MEASURED DIVERSIONS														
DELTA UPLANDS														
OLD SAN JOAQUIN RIVER	188	9	434	6164	17966	19952	22634	24152	19953	13157	7271	507	5	132204
TOM PAINE SLOUGH	189	524	265	1394	2711	2588	3627	4515	4155	2477	1371	299	309	24235
SAN JOAQUIN RIVER (STOCKTON to VERNALIS)	190	232	1688	6711	11821	9550	14980	18362	13284	8677	4164	788	944	91201
CACHE SLOUGH	178	233	0	0	2147	8644	9515	10189	9359	7734	5959	1194	0	54974
TRIBUTARY STREAMS ABOVE DELTA AREA BOUNDARY														
COSUMNES RIVER below MC CONNELL GAGING STATION	185	0	0	0	128	386	617	364	345	335	112	132	0	2419
MOKELUMNE RIVER below WOODBRIDGE GAGING STATION	186	12	0	1	547	1841	2105	2283	2043	1117	512	26	0	10487
CALAVERAS RIVER below STOCKTON GAGING STATION	187	0	0	0	0	453	468	435	516	408	9	0	0	2289
EXPORTATIONS														
DELTA-MENDOTA CANAL	169	5169	50285	64033	119288	80636	173429	196487	174795	107779	54734	13492	498	1045625
CONTRA COSTA CANAL	170	2480	2107	2418	2600	3686	5108	5935	5732	4608	2989	2332	2186	42181
CITY OF VALLEJO	200	392	327	571	568	756	806	821	1102	998	1048	858	751	8998
CONSUMPTIVE USE IN DELTA AREA (Estimated from 1950 Crop Survey - See Text)		25900	29600	44300	133100	195000	161300	212200	229000	170700	106900	51400	35900	1395300
TOTAL MEASURED DIVERSIONS AND CONSUMPTIVE USE		34951	84706	130592	290876	323492	394589	475743	460284	317990	185069	71028	40593	2809913

TABLE 7

ANNUAL IRRIGATED ACREAGE 1945 - 1954

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

Stream	Crop	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954
					SACRAMENTO RIVER SYSTEM						
Sacramento River Redding to Sacramento	General Rice	106545 115115	117556 124135	121590 123981	149734 124117	143495 137269	152817 108479	162233 140835	142931 139053	134911 164611	139806 184938
Colusa Trough (a) Above Highway 20	General Rice	200 3882	3030 3694	1035 6574	3249 4745	3140 5561	4933 5150	4053 6640	5144 7279	3519 11006	2807 11791
Back Borrow Pit Highway 20 to Knights Landing	General Rice	1585 5175	2062 7880	2295 9044	2455 7079	1272 9003	3227 5925	2855 6973	2698 5896	2918 6400	2473 5195
Knights Landing Ridge Cut Knights Landing to Yolo By-Pass	General Rice	230 3320	1170 2795	1975 1087	685 1265	880 1220	996 757	3174 1970	3052 540	1089 1645	2001 2105
Yolo By-Pass Above Highway 40	General Rice	1594 500	620 200	1241 1895	1023 1000	860 930	650 1168	475 1390	715 0	1418 600	1955 745
Lower Butte Creek (a) and Butte Slough	General Rice	7824 2110	8247 1846	4524 1115	4647 660	7136 1875	7195 1537	6984 1702	8656 2850	6944 2563	8173 3883
Sutter By-Pass and (a) Sacramento Slough	General Rice	4712 6996	9380 4925	8841 3211	7918 2635	8303 6184	11651 4479	11118 6114	10060 5575	11078 7446	11418 7993
Feather River Oroville to Mouth	General Rice	25106 47865	27189 51082	28264 49749	29534 43258	31022 51131	34013 41331	31185 56503	30292 57888	29062 64122	28859 64776
Yuba River Smartville to Mouth	General Rice	8815 1085	8872 1956	8282 3630	8716 3115	8838 3300	10005 2641	9635 3415	9803 3603	9116 5304	8637 6080
Bear River Wheatland to Mouth	General Rice	NO COVERED PRIOR TO 1949				974 0	705 0	725 0	50 0	50 0	161 0
American River Fair Oaks to Mouth	General Rice	2935 0	2893 0	3670 0	3628 0	3865 0	4000 0	4834 0	4556 0	4572 0	4632 0
					SAN JOAQUIN RIVER SYSTEM						
San Joaquin River (b) Friant to Fremont Ford	General Rice		265888 9727	296245 10563	285884 8670	288751 14638	295874 11705	240107 9493	280397 17031	264929 21949	196302 24067
San Joaquin River Fremont Ford to Vernalis	General Rice	41601 849	43094 1396	43076 1355	46385 535	45781 625	48114 390	48745 730	47394 623	51635 1501	49994 2479
Fresno Slough and James By-Pass	General Rice		19145 1868	17421 2698	19706 1579	22671 4081	19184 2815	23537 1700	24076 2996	23541 7609	26764 9545
Merced River (c) Snelling to Mouth	General Rice	4403 0	4484 0	5912 0	6494 0	7941 0	7912 0	8088 0	7465 0	7431 0	8394 0
Tuolumne River (c) La Grange to Mouth	General Rice	3259 0	3564 0	3761 0	3745 0	4406 0	4690 0	4497 0	4788 0	5283 120	5758 140
Dry Creek Waterford to Mouth	General Rice	NOT COVERED PRIOR TO 1949				421 0	435 0	429 0	467 0	481 0	483 0
Stanislaus River (c) Melones to Mouth	General Rice	6872 0	6343 0	6598 0	7916 0	8548 0	8445 0	8336 0	7769 0	8904 0	9289 0
					DELTA UPLANDS AND TRIBUTARIES						
San Joaquin River - Delta Uplands Vernalis to Stockton	General Rice	19935 0	24505 0	25122 0	25551 0	26946 0	26604 0	26609 0	24752 0	27272 0	27358 0
Old San Joaquin River (d) Delta Uplands	General Rice	32139 0	34263 0	37859 0	40301 0	42187 0	40234 0	40110 0	39151 0	41265 0	40739 0
Tom Paine Slough Delta Uplands	General Rice	5165 221	5733 317	5278 546	5077 468	5207 383	5221 364	4745 411	5213 0	5387 0	5467 0
Cosumnes River Michigan Bar to Mouth	General Rice	NOT COVERED PRIOR TO 1949				1791 0	1608 0	1711 0	2110 0	3074 190	3767 190
Mokelumne River Clements to Delta	General Rice	NOT COVERED PRIOR TO 1949				344 0	331 0	18718 1645	18971 1585	20197 1937	20609 2592
Calaveras River Jenny Lind to Delta	General Rice	NOT COVERED PRIOR TO 1949				3571 0	4420 0	5300 0	6158 80	7664 415	9025 471
					TOTAL ABOVE DELTA						
Sacramento River System	General Rice	159546 186048	181019 198513	181717 200286	211589 187874	209785 216473	230192 171467	237271 225542	217957 222684	204677 263697	210922 287506
San Joaquin River System	General Rice	56135 849	342518 12991	373013 14616	370130 10784	378519 19344	384654 14910	333739 11923	372356 20650	362204 31179	296984 36231
Delta Uplands and Tributaries	General Rice	57239 221	64501 317	68259 546	70929 468	80046 383	78418 364	97193 2056	96355 1665	104859 2542	106965 3253
Grand Totals	General Rice	272920 187118	588038 211821	622989 215448	652648 199126	668350 236200	693264 186741	668203 239521	686668 244999	671742 297418	614871 326990

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

TABLE 8

RELATION OF GAGE HEIGHT TO STREAM FLOW - 1954 SEASON

SACRAMENTO-SAN JOAQUIN VALLEY STREAM GAGING STATIONS

STATION	Gage Height, U.S.E.D. elevation, for rated flows of:								
	4000 cfs	5000 cfs	6000 cfs	7000 cfs	8000 cfs	9000 cfs	10000 cfs	12000 cfs	14000 cfs
Sacramento River	Flows under 30000 cfs are affected by tidal action and are rated by slope-velocity methods not applicable to this table.								
at Sacramento					12.8	13.3	13.9	14.9	15.7
at Verona	25.7	27.0	28.4	29.4	30.7	31.8	32.9	35.8	38.0
at Wilkins Slough	39.3	40.2	41.3	42.4	43.4	44.1	45.2	47.0	49.0
at Colusa	69.9	70.6	71.2	71.8	72.3	72.8	73.2	74.0	74.7
at Butte City	127.0	127.5	127.9	128.3	128.7	129.1	129.4	130.0	130.6
at Hamilton City	253.5	254.0	254.4	254.8	255.2	255.5	255.9	256.6	257.2
near Red Bluff (a)									
	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	195.8	197.2
at Nicolaus	19.9	20.8	21.7	23.1	24.1	24.9	25.7	26.4	27.0
American River									
at Fair Oaks (a)	65.7	66.2	66.8	67.7	68.4	69.0	69.5	70.0	70.5
San Joaquin River									
near Vernalis		5.5	6.5	8.1	9.4	10.4	11.4	12.4	13.2
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	52.4	53.5	54.8	56.7	58.3				
at Fremont Ford	59.3	60.8	62.7	65.6	67.9	69.9			
Merced River									
at Cressey 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)	36.8	37.8	39.2	41.8	43.9	45.8	47.4	49.0	50.4
Stanislaus River									
at Ripon (a)	38.1	39.8	41.9	45.2	48.0	50.5	52.8	53.6	54.1

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

TABLE 9

FLOW OF SACRAMENTO RIVER AT DELTA (a) - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	535	2790	1900	1560	1910	707	409	235	297	222	241	452
2	530	2920	1780	1580	1770	678	385	231	280	222	241	651
3	651	2940	1690	2580	1820	673	374	228	270	222	244	684
4	530	2870	1650	7190	1990	634	362	235	267	225	244	814
5	565	2710	1670	9300	2140	678	355	251	264	225	241	4870
6	560	2530	1710	5800	2200	646	351	241	257	231	241	8380
7	985	2430	1780	4170	2230	607	344	231	254	385	241	3210
8	892	2420	3670	3520	2210	640	344	225	251	314	834	2010
9	774	2400	8910	3000	2100	651	344	22	247	274	2480	2030
10	713	2250	6270	2650	1870	618	332	219	244	264	930	1630
11	668	2220	4060	2480	1870	590	329	219	260	257	1030	1310
12	634	8990	3140	2450	1830	662	325	219	257	251	1700	1120
13	590	9190	2630	2690	1760	646	318	219	251	251	872	1110
14	575	5780	2310	2920	1770	585	308	235	257	247	1040	1010
15	966	4160	2140	2800	1750	596	304	244	267	241	3630	937
16	7310	3560	2060	3020	1760	607	297	241	264	241	1930	872
17	9570	6710	1860	3350	1730	555	290	231	257	251	1190	820
18	3890	5130	1710	3440	1780	530	283	225	254	244	898	768
19	2530	3680	1700	3280	1750	502	283	225	247	318	755	731
20	1910	3020	1680	3020	1630	493	280	235	241	290	673	707
21	1670	2640	1720	2890	1380	479	277	231	235	264	612	701
22	2060	2400	1710	2920	1190	466	274	225	231	257	580	719
23	3990	2280	1700	2960	1090	452	270	219	231	251	560	725
24	2690	2300	1700	3070	1060	443	264	210	228	251	535	713
25	2000	2330	1620	2960	999	439	270	219	225	251	512	678
26	1760	2330	1550	2690	930	430	270	318	225	247	497	670
27	2290	2140	1540	3280	872	426	260	355	222	247	470	596
28	2370	1990	1550	3020	820	409	254	1190	219	247	452	602
29	3090	—	1670	2590	800	397	244	530	216	241	435	585
30	3250	—	1620	2230	768	409	238	370	216	241	414	590
31	2840	—	1560	—	737	—	238	322	—	241	—	612
Mean	2046	3468	2331	3314	1567	557	306	284	248	255	824	1332
Ac-Ft	125800	192600	143300	197200	96330	33120	18800	17450	14750	15700	49040	81870

Maximum Discharge	Calendar year 19,600 c.f.s. December 1, 1954 of record 30,500 c.f.s. October 29, 1950	Total Runoff in Acre-Feet	Calendar Year Water Year	985960 971250

U. S. Geological Survey and U. S. Bureau of Reclamation cooperative station located 0.6 Miles southeast of Delta, California and about three miles upstream from Shasta Lake.
Period of record 1944 to date. Records for 1954 computed by U. S. Geological Survey.
(a) Above Shasta Lake.

TABLE 10

FLOW OF PIT RIVER NEAR MONTGOMERY CREEK - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2170	4940	5220	5400	4930	3480	3360	737	2900	2410	2780	3380
2	2250	5720	5180	5290	4840	3340	3350	2490	3140	1830	3230	3810
3	2350	5350	5090	5530	4800	3410	1570	3440	3030	2410	3270	3590
4	3180	5550	5010	6870	4780	3660	1160	2940	2910	2600	3140	3450
5	3380	5350	4990	10200	4700	2520	954	3030	2300	2600	2770	3640
6	3370	5260	4880	10800	4660	1140	2880	2680	2480	2580	1390	4040
7	3640	5160	4400	9580	4620	3260	3360	846	2190	2680	1180	3780
8	3540	4600	5420	9410	4580	3670	3380	881	2470	2620	2910	3090
9	2580	4860	10700	8790	3040	3640	3250	2480	3120	1450	3700	4490
10	1650	4740	12600	8030	3560	3660	1160	3190	2980	1400	3330	4180
11	2760	4080	11100	7450	4540	3610	900	3170	997	2990	3190	3250
12	3380	7220	10300	6940	4290	2120	2820	3150	1370	3040	3590	1840
13	3460	9240	9020	6560	3820	2310	3320	3170	2230	3060	2320	3760
14	3340	8840	7830	6340	3480	3110	3230	1230	2340	3030	876	2950
15	3660	8840	6890	6160	1790	3480	3150	1960	2270	2800	4760	2910
16	7110	8220	6630	6200	2250	3650	2850	2930	2370	2280	4770	2780
17	11600	9240	6340	6220	3490	3650	1200	3170	2380	1600	4210	2960
18	6660	8400	6180	6090	3730	3690	740	3150	2380	2260	3310	2500
19	5770	7780	6110	5840	3620	1940	2540	3140	2310	2870	2680	1110
20	5240	7420	5880	5700	3900	1030	2970	3140	2410	3030	2540	2570
21	4990	6940	5840	5640	3930	3120	3130	1130	1650	3030	1370	3600
22	5830	6480	5590	5370	2600	3660	3120	731	2290	2990	2610	3230
23	8620	6160	5440	5480	1080	3600	2830	2270	2580	2490	2750	3270
24	5980	6060	5480	5400	3230	3460	936	3040	2550	739	2540	3080
25	5230	5930	5440	5240	3510	3350	975	2720	2580	2160	2770	1200
26	5160	5790	5660	5140	3430	943	2960	2820	2580	3010	3020	1960
27	5860	5590	5860	5480	3320	858	3010	2740	2560	3010	2800	3080
28	6060	5420	5810	5400	3120	2980	2350	940	2550	3010	1570	3080
29	6390	—	5730	5200	980	3420	2420	1270	2540	3010	2560	3140
30	6200	—	5660	5010	1060	3440	2730	2820	2300	782	2870	2980
31	5310	—	5530	—	1200	—	1910	2740	—	650	—	2990
Mean	4733	6399	6510	6559	3451	2973	2404	2392	2425	2402	2827	3087
Ac-Ft	291000	355400	400300	390300	212200	176900	147800	147100	144300	147700	168200	189800

Maximum Discharge	Calendar year 16,700 c.f.s. March 9, 1954 of record 21,300 c.f.s. December 9, 1952	Total Runoff in Acre-Feet	Calendar Year 2771000 Water Year 2780900

U. S. Geological Survey and U. S. Bureau of Reclamation cooperative station located about three miles up-stream from Shasta Lake. Period of record 1944 to date. Records for 1954 computed by U. S. Geological Survey.

TABLE 11

FLOW OF McCLOUD RIVER ABOVE SHASTA LAKE - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1150	2760	2280	2190	2520	1640	1380	1200	1160	1080	1060	1110
2	1140	2800	2230	2230	2410	1620	1360	1200	1150	1080	1060	1220
3	1230	2780	2160	2670	2350	1620	1350	1190	1150	1080	1060	1240
4	1180	2700	2100	5760	2340	1620	1340	1200	1150	1090	1050	1380
5	1160	2600	2070	11800	2340	1620	1340	1190	1140	1090	1050	2650
6	1180	2480	2070	9050	2350	1590	1320	1180	1140	1100	1050	6370
7	1580	2370	2080	6120	2340	1560	1310	1180	1140	1150	1050	3280
8	1540	2320	2670	4920	2350	1600	1310	1180	1130	1120	1220	2300
9	1410	2280	8950	4180	2330	1600	1310	1180	1130	1100	1720	2160
10	1340	2230	9380	3710	2260	1570	1300	1180	1130	1100	1280	2010
11	1300	2190	5780	3470	2230	1550	1300	1170	1130	1100	1270	1740
12	1260	6650	4300	3280	2220	1580	1300	1170	1130	1100	1480	1620
13	1220	10500	3640	3230	2180	1550	1300	1170	1130	1100	1250	1600
14	1210	7110	3260	3230	2160	1520	1290	1180	1130	1090	1320	1540
15	1540	5060	3010	3140	2140	1510	1280	1180	1130	1080	2310	1490
16	6350	4120	2960	3100	2110	1510	1270	1160	1130	1090	1830	1440
17	9670	6110	2730	3150	2110	1490	1270	1150	1130	1090	1490	1400
18	4560	5850	2570	3190	2100	1460	1260	1150	1120	1080	1340	1370
19	3090	4300	2500	3150	2100	1460	1250	1150	1110	1140	1270	1340
20	2480	3590	2430	3040	2090	1450	1250	1150	1110	1100	1220	1330
21	2210	3200	2430	2960	2020	1450	1240	1150	1100	1080	1190	1310
22	2320	2920	2410	2920	1870	1440	1240	1140	1100	1070	1170	1300
23	4040	2740	2370	2910	1890	1440	1240	1140	1100	1070	1150	1310
24	3240	2670	2370	2920	1850	1430	1230	1140	1100	1070	1140	1300
25	2590	2630	2280	2900	1830	1420	1240	1150	1090	1070	1130	1280
26	2330	2590	2210	2820	1790	1420	1240	1210	1080	1070	1110	1260
27	2400	2480	2190	3030	1740	1420	1220	1220	1080	1060	1100	1240
28	2610	2370	2210	3120	1720	1380	1210	1460	1080	1060	1100	1240
29	2850	—	2270	2870	1700	1380	1200	1220	1080	1060	1090	1220
30	3030	—	2240	2680	1680	1380	1200	1190	1080	1060	1080	1240
31	2830	—	2190	—	1660	—	1200	1170	—	1060	—	1260
Mean	2453	3657	3043	3791	2090	1509	1276	1184	1119	1087	1255	1695
Ac-Ft	150800	203100	187100	225600	128500	89810	78450	72790	66570	66820	74660	104200

Maximum Discharge	Calendar year 12,800 c.f.s. March 9, and April 5, 1954 of record 19,300 c.f.s. January 9, 1953	Total Runoff in Acre-Feet	Calendar Year 1448400 Water Year 1431040

U. S. Geological Survey and U. S. Bureau of Reclamation cooperative station located about 4 miles upstream from Shasta Lake. Period of record 1945 to date. Records for 1954 computed by U. S. Geological Survey.

TABLE 12

FLOW OF SQUAW CREEK ABOVE SHASTA LAKE - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	65	900	321	321	163	66	40	22	23	19	21	34
2	64	850	296	313	155	65	37	22	22	19	21	78
3	111	770	279	393	150	64	36	22	22	19	21	90
4	90	688	261	1410	144	65	35	22	21	19	21	118
5	82	598	246	3840	140	69	34	22	21	19	21	409
6	84	521	234	2800	133	65	33	22	21	20	21	1240
7	210	463	225	1440	127	61	33	22	21	36	21	504
8	217	418	310	1040	125	65	33	21	21	31	35	279
9	173	337	4230	814	122	66	32	21	21	23	179	481
10	147	352	3410	670	117	63	32	21	21	22	61	387
11	131	336	1350	573	113	60	31	20	21	21	57	257
12	117	1670	910	498	109	65	30	20	21	21	118	195
13	106	2550	724	446	105	59	29	20	21	21	57	179
14	98	2020	594	399	102	55	28	21	21	21	66	155
15	444	1410	513	364	98	54	28	24	22	21	478	141
16	4470	1090	505	336	95	54	28	22	22	21	260	129
17	5640	1790	442	313	92	51	26	21	21	21	124	120
18	1620	1580	409	294	89	49	26	20	21	21	84	110
19	910	1080	412	274	87	48	26	20	21	27	69	103
20	652	842	409	257	86	47	26	20	20	28	58	98
21	509	698	452	240	83	46	25	20	20	23	52	94
22	909	585	488	226	80	44	25	20	20	22	46	91
23	2590	521	474	214	78	43	24	19	19	22	42	89
24	1320	474	498	202	77	41	24	19	19	21	40	86
25	864	435	470	193	75	41	24	20	19	21	37	82
26	724	402	428	182	74	41	25	40	19	21	36	79
27	950	369	396	224	73	41	24	32	19	21	34	75
28	1190	339	381	212	70	40	23	68	19	21	33	73
29	1240	—	396	186	69	38	23	38	19	21	31	72
30	1200	—	361	172	69	38	22	28	19	21	30	74
31	1000	—	344	—	67	—	22	24	—	21	—	79
Mean	901	862	670	628	102	53.5	28.5	24.3	20.6	22.1	72.5	194
Ac-Ft	55390	47880	41190	37380	6280	3180	1750	1490	1220	1360	4310	11900

Maximum Discharge	Calendar year 11,200 c.f.s. March 9, 1954 of record 11,200 c.f.s. March 9, 1954	Total Runoff in Acre-Feet	Calendar Year 213330 Water Year 209300

U. S. Geological Survey and U. S. Bureau of Reclamation cooperative station located about two miles upstream from Shasta Lake. Period of record 1944 to date. Records for 1954 computed by U. S. Geological Survey.

TABLE 13

INFLOW TO SHASTA RESERVOIR - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	4250	15650	11620	10810	10140	6160	5850	2960	4550	3770	4010	6240
2	4730	15610	10520	11750	10090	6240	5200	3890	4580	3180	4620	7430
3	5900	15050	10430	15050	10020	6020	3580	5040	4670	3790	4640	6590
4	5290	14060	10180	34730	9930	6460	2980	4410	4360	4410	4540	7500
5	5780	13790	10080	50210	10210	5280	2980	4410	3930	3620	4230	19950
6	6540	12520	9970	38700	9980	3540	4250	4360	3980	4890	2730	31470
7	7190	12420	9430	26760	10270	6110	5600	1850	3690	5690	2420	14520
8	7210	11330	16460	23890	9790	7340	5380	3040	3920	4120	9590	10150
9	5640	11560	43170	20130	8540	6790	5160	3280	4630	3290	10800	15040
10	4450	11150	41050	17840	8330	6050	3110	4730	4640	2490	6190	11320
11	5490	11000	27760	16280	10190	6390	2810	4770	2640	4280	7200	8420
12	6080	37990	21410	15470	8280	5150	4420	4020	2720	4620	7890	6160
13	5600	45380	19200	14880	8960	4850	5430	4890	3730	4680	5180	8470
14	5340	35920	16300	14700	8160	5350	4800	2820	4050	4340	6140	6850
15	14130	26630	14930	14190	6180	6280	5050	3470	3850	4320	17270	6440
16	53880	24420	15620	14440	6460	5720	4440	4440	3950	3810	10400	5730
17	61250	37240	12810	14720	8570	6330	3180	4520	3810	3400	8110	6000
18	24300	29390	12870	14260	8210	5660	2100	4670	3840	3230	6150	5560
19	16270	23500	14250	13960	7890	4550	4110	4690	3670	4900	5310	3870
20	13040	18600	13680	13180	8330	2940	4420	4550	3860	4740	4930	5470
21	12710	16260	14100	13430	7740	5360	4570	2700	3090	4630	3440	6200
22	20330	15190	13340	12200	6510	6450	5110	2120	3700	4230	4810	6030
23	32350	14300	13000	12610	4640	6170	4550	3340	4100	3950	4870	5780
24	19520	13460	12600	12660	6060	5430	3000	4990	3840	2410	4440	5780
25	14510	13140	11870	(a)12500	7180	5100	2330	4830	4360	3220	4720	3770
26	15090	12990	12060	11700	6750	3770	4540	5560	(b)4040	4270	5030	4040
27	21260	11930	11640	15260	6150	2360	4920	5490	4060	4590	4490	5260
28	22730	11610	11900	13500	6210	5070	3880	5460	3800	4440	3420	5500
29	21880	—	12960	11540	4140	5670	4230	3120	3940	4580	4090	5430
30	20020	—	11440	11090	4090	5070	4150	4390	4070	2070	4670	5990
31	16410	—	12080	—	3850	—	3200	4460	—	1750	—	6200
Mean	15475	19005	15604	17426	7802	5457	4172	4105	3936	3926	5878	8166
Ac-Ft	951510	1055480	959460	1035870	479700	324710	256520	252440	234520	241410	349750	502140

Maximum Discharge	Calendar year daily mean 61,210 c.f.s. January 17, 1954. of record daily mean 80,770 c.f.s. January 9, 1953.	Total Runoff in Acre-Feet	Calendar Year 6643510 Water Year 6539660

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. Period of Record 1944 to date. Records for 1954 computed by U. S. Bureau of Reclamation.

(a) 23-hour day.
(b) 25-hour day.

TABLE 14

DAILY CONTENT OF SHASTA RESERVOIR IN ACRE-FEET - 1954

Date	Storage at end of day in thousands of acre-feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3360.8	3384.1	3258.1	3829.7	4434.8	4395.4	4176.4	3716.1	3283.3	3051.8	2942.3	3024.8
2	3362.0	3376.7	3262.4	3844.3	4439.8	4391.1	4165.1	3699.2	3274.4	3045.6	2940.9	3031.0
3	3366.9	3379.2	3266.7	3867.0	4443.3	4386.4	4150.7	3684.8	3266.0	3041.2	2940.0	3036.4
4	3369.4	3379.7	3271.3	3928.9	4445.1	4382.9	4135.6	3669.2	3256.4	3037.6	2938.7	3042.6
5	3374.3	3379.7	3276.8	4021.7	4448.0	4377.1	4118.8	3653.7	3246.6	3033.0	2938.0	3075.2
6	3379.9	3377.2	3284.8	4090.9	4451.5	4367.0	4104.8	3638.2	3236.3	3030.3	2934.4	3127.1
7	3386.5	3374.5	3294.2	4132.8	4455.9	4361.8	4093.7	3617.6	3226.3	3028.9	2931.3	3147.6
8	3390.2	3369.6	3316.6	4168.2	4458.9	4361.2	4082.0	3599.6	3217.0	3025.0	2941.8	3159.6
9	3393.4	3365.0	3402.5	4196.2	4459.8	4358.9	4069.5	3581.7	3209.2	3019.1	2954.3	3180.3
10	3396.6	3359.6	3469.4	4215.8	4459.8	4355.4	4053.4	3567.7	3201.4	3012.3	2958.1	3194.5
11	3399.3	3353.8	3508.3	4233.1	4463.3	4351.1	4036.9	3553.8	3189.8	3008.4	2964.4	3202.8
12	3403.7	3398.8	3533.5	4247.1	4463.3	4345.3	4023.1	3538.5	3178.4	3005.3	2971.4	3206.8
13	3407.4	3428.4	3556.3	4258.8	4464.7	4339.2	4011.8	3524.9	3169.0	3002.5	2973.4	3213.7
14	3409.9	3425.0	3572.3	4271.7	4464.7	4333.7	3998.4	3508.3	3161.0	2999.4	2978.1	3215.1
15	3428.4	3405.0	3586.8	4283.8	4460.3	4329.3	3986.1	3493.2	3152.6	2996.4	3002.8	3216.0
16	3528.4	3397.6	3602.2	4295.9	4457.4	4325.0	3972.4	3479.9	3144.4	2992.4	3014.1	3215.1
17	3637.7	3396.4	3612.4	4309.1	4457.4	4320.7	3956.1	3466.4	3136.9	2988.3	3020.5	3214.6
18	3662.7	3359.6	3621.2	4321.8	4457.4	4315.7	3938.4	3453.2	3129.4	2983.5	3023.2	3213.4
19	3668.2	3311.0	3633.5	4332.2	4456.5	4308.2	3923.5	3440.1	3121.5	2981.3	3024.3	3208.9
20	3667.2	3270.1	3644.4	4340.9	4456.5	4297.6	3910.0	3426.9	3114.3	2980.2	3024.1	3207.5
21	3665.6	3252.1	3657.6	4350.8	4455.1	4288.9	3896.6	3411.1	3105.9	2979.0	3021.4	3207.8
22	3676.2	3243.7	3669.2	4358.3	4451.2	4281.8	3884.2	3393.9	3099.0	2977.0	3021.4	3207.5
23	3671.8	3241.3	3688.5	4367.0	4444.5	4273.2	3869.7	3379.2	3092.7	2974.3	3021.4	3206.8
24	3632.3	3240.1	3705.7	4375.7	4439.2	4261.7	3850.2	3367.4	3086.7	2968.7	3020.5	3206.3
25	3592.0	3238.2	3721.4	4384.4	4436.9	4250.2	3831.3	3355.7	3081.7	2964.4	3021.4	3202.1
26	3548.7	3236.5	3737.1	4391.6	4433.9	4236.0	3816.4	3346.7	3077.0	2962.4	3022.5	3197.8
27	3528.4	3243.7	3752.1	4406.2	4429.8	4220.3	3801.9	3337.7	3071.7	2960.6	3022.8	3196.1
28	3512.0	3250.9	3767.7	4417.9	4425.2	4208.9	3784.6	3329.0	3067.4	2959.0	3021.4	3195.4
29	3508.3	—	3786.0	4425.2	4417.0	4197.6	3768.7	3315.9	3061.6	2957.5	3020.3	3193.8
30	3468.2	—	3800.5	4431.0	4408.5	4186.3	3752.9	3304.3	3056.8	2951.2	3020.9	3193.8
31	3421.0	—	3816.4	—	4399.5	—	3734.5	3293.7	—	2944.7	—	3194.2
Monthly Change	+61.4	-170.1	+565.5	+614.6	-31.5	-213.2	-451.8	-440.8	-236.9	-112.1	+76.2	+173.3

Annual Gain or Loss in Storage: Calendar Year -165400; Water Year -398900 Acre-Feet
Differences in Storage 1953 to 1954: Maximums +1100; Minimums -307600 Acre-Feet

Period of record 1944 to date. Records for 1954 computed by U. S. Bureau of Reclamation.

TABLE 15

FLOW OF SACRAMENTO RIVER AT KESWICK - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	4080	19600	8130	4000	8130	8020	10600	12400	9640	6180	5240	4440
2	4070	19600	8130	4000	8270	8020	10600	12400	9060	6200	5240	4460
3	4080	14200	8130	4000	8410	7970	10600	12400	8960	6180	5280	4430
4	4070	14200	8120	5010	8310	8020	10500	12400	8820	6190	5260	4470
5	4060	14100	8160	4800	8160	8250	11200	12400	8840	6160	4740	5110
6	4040	14100	4940	4010	8130	8270	11200	12400	8840	6160	4320	6030
7	4040	14000	4830	6000	8130	8200	11300	12400	8820	6140	4310	4470
8	4050	14100	5480	6000	8140	7930	11300	12400	8440	6130	4890	4440
9	4080	14100	7880	6000	8230	7880	11200	12400	8450	6120	4640	5160
10	4060	14100	8440	8160	8200	7780	11200	11900	8450	6130	4380	4460
11	4080	14100	8410	8300	8230	7850	11200	11900	8480	6140	4380	4440
12	4060	17800	8170	8390	8180	7920	11200	11900	8460	6140	4340	4440
13	4070	32300	8050	8310	8180	7920	11200	11900	8440	6080	4300	5380
14	4100	38500	8090	8170	8160	7920	11200	11300	8060	5680	4470	6330
15	4290	36900	8090	8160	8180	7970	11200	11300	8020	5720	5680	6330
16	7380	29100	8130	8200	8160	7970	11200	11300	7990	5740	5020	6350
17	8580	40200	8160	8230	8170	8020	11200	11300	7600	5710	5020	6340
18	12400	49100	8160	8300	8170	7960	11200	11300	7620	5740	5020	6340
19	14400	49000	8150	8370	8200	7900	11200	11300	7580	5750	4990	6350
20	14200	39000	8150	8280	8210	7800	11200	11300	7550	5300	4990	6360
21	14300	25400	8160	8240	8250	9380	11200	10800	7150	5290	4970	6320
22	18100	19800	7670	8240	8170	9770	11000	10800	7150	5290	5000	6320
23	34600	15600	4000	8170	8270	10700	11900	10800	7110	5280	4990	6340
24	40500	14200	4000	8180	8180	10700	12400	10800	6640	5260	4770	6350
25	35200	14200	3960	8130	7880	10700	12300	10800	6640	5280	4460	6340
26	38400	13800	3970	8210	7920	10700	12400	10200	6630	5270	4470	6330
27	32900	8120	4000	8230	7970	10600	12400	10200	6620	5280	4450	6320
28	34000	8130	4000	8310	7920	10600	12400	10200	6130	5300	4460	6330
29	23500	—	4000	8160	7880	10700	12400	10100	6140	5290	4450	6360
30	41600	—	4000	8110	7990	10600	12400	10200	6170	5290	4470	6360
31	41200	—	4000	—	7990	—	12400	9620	—	5260	—	6380
Mean	15240	22050	6631	7222	8142	8801	11450	11380	7817	5732	4767	5674
Ac-Ft	937200	1224000	407700	429800	500600	523700	703900	699800	465100	352400	283600	348900

Maximum Discharge	Calendar year 51,100 c.f.s. February 17, 1954 of record 186,000 c.f.s. February 28, 1940	Total Runoff in Acre-Feet	Calendar Year	6876700
			Water Year	6988600

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 1954 computed by U. S. Geological Survey.

TABLE 16

FLOW OF SACRAMENTO RIVER NEAR REDDING - 1954

Date	Daily Mean Flow in Second-Feet										
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1			*7980	4200	7840	7600	9970	11700	9410	5960	4990	4470
2			7980	4100	7920	7570	9970	11600	8770	5980	5010	4560
3			7980	4180	8110	7650	9970	11600	8740	5960	4990	4490
4			7950	5050	8030	7510	9820	11700	8520	5960	4970	4560
5			8000	5580	7840	7730	10500	11600	8550	5960	4540	5070
6			4920	4390	7840	7760	10600	11700	8550	5960	4040	6400
7			4990	6030	7810	7780	10600	11700	8550	6010	3980	4620
8			5720	6300	7840	7490	10600	11700	8170	5980	4360	4580
9			8330	6300	8000	7510	10600	11600	8170	5960	4900	5420
10			8410	7980	7980	7380	10700	11200	8140	5910	4320	4690
11			8330	8220	8000	7350	10700	11200	8190	5910	4300	4620
12			8110	8300	7890	7490	10700	11200	8190	5910	4450	4620
13			7950	8250	7890	7490	10700	11200	8170	5860	4300	5440
14			7950	7980	7840	7460	10700	10800	7780	5560	4430	6380
15			8000	7870	7810	7510	10700	10800	7840	5470	5770	6400
16			8110	7840	7760	7510	10700	10800	7780	5490	4990	6420
17			8110	7810	7730	7540	10700	10800	7400	5440	4900	6400
18			8060	7810	7700	7490	10700	10800	7380	5470	4900	6420
19			8220	7870	7730	7490	10700	10800	7350	5490	4900	6480
20			8220	7780	7730	7510	10700	10800	7350	5070	4880	6500
21			8360	7700	7730	8490	10700	10400	6950	4990	4790	6450
22			8140	7730	7680	9060	10700	10300	6900	4990	4880	6480
23			4360	7620	7700	9820	11100	10300	6880	4990	4860	6480
24			4240	7650	7650	9820	11600	10300	6450	4990	4710	6480
25			4200	7620	7650	9880	11600	10300	6420	4970	4360	6480
26			4120	7700	7540	9880	11600	9880	6400	4970	4360	6420
27			4100	7840	7600	9910	11600	9880	6380	4940	4360	6420
28			4200	7920	7510	9940	11600	9970	6010	4940	4430	6400
29			4260	7870	7510	9970	11600	9880	5940	4920	4390	6420
30		—	4240	7870	7490	10000	11700	9850	5960	4920	4430	6430
31		—	4120	—	7570	—	11700	9440	—	4940	—	6500
Mean			6699	7045	7772	8253	10830	10830	7576	5480	4650	5790
Ac-Ft			411900	419200	477900	491100	666100	666000	450800	336900	276700	356000

Maximum Discharge	Calendar year 13,600 March 9, 1954	Total Runoff in Acre-Feet	Calendar Year Water Year

Division of Water Resources station located at Mile 240.7 above Sacramento. Station is located below the diversion dam of Anderson-Cottonwood Irrigation District and is also known as Sacramento River above Churn Creek pumps. Period of record 1945 to 1952 and 1954 to date. Recorder installed March 1, 1954.

* Estimated.

TABLE 17

FLOW OF SACRAMENTO RIVER AT BALLS FERRY - 1954

Date	Daily Mean Flow in Second-Feet										
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1				6140	9440	8190	10400	11900	9750	6080	5530	*5410
2				6000	9370	8190	10400	12000	9100	6080	5560	10100
3				7850	9440	8100	10300	11900	9070	6110	5560	7650
4				13900	9310	8190	10000	11900	8810	6160	5530	8250
5				15900	9040	8510	10800	11900	8870	6140	5220	8900
6				12500	8870	8600	10800	11900	8870	6220	4600	19400
7				11000	8810	8540	10800	12000	8780	6350	4580	10100
8				10500	8780	8190	10900	11900	8450	6430	5140	7430
9				10100	8870	8750	10800	11900	8400	6370	7910	14900
10				11000	8900	8220	10800	11500	8370	6370	5630	9590
11				11000	8840	8130	10800	11400	8450	6400	5290	7090
12				10900	8750	8280	10800	11400	8480	6400	6850	6400
13				10600	8720	8250	10800	11400	8400	6320	5360	6850
14				10300	8630	8160	10800	11000	8050	6060	6160	7770
15				9970	8660	8160	10800	11000	8020	5850	19800	7570
16				9780	8570	8160	10800	11000	8020	5880	10500	7430
17				9660	8570	8160	10900	10900	7680	5830	6930	7320
18				9690	8510	8020	10900	10900	7650	5850	6290	7230
19				9720	8540	7930	10900	11000	7650	5800	6060	7040
20				9530	8510	8020	10900	11000	7600	5510	5880	7010
21				9400	8480	8780	10900	10600	7180	5340	5780	6980
22				9370	8400	9620	10900	10500	7090	5340	5750	6900
23				9190	8450	10500	11200	10500	7040	5290	5680	6960
24			*7320	9190	8280	10400	11900	10400	6640	5290	5580	6960
25			6980	9220	8220	10500	11900	10500	6590	5310	5090	6930
26			6510	9160	8250	10500	12000	10300	6560	5340	5070	6850
27			6220	10200	8280	10500	12000	10200	6530	5310	5020	6820
28			6140	11100	8160	10500	12000	10700	6140	5310	5020	6880
29			6590	10300	8100	10500	11900	10600	6030	5340	4990	6850
30		—	6670	9720	8220	10500	11900	10400	6060	5360	4950	6850
31		—	6270	—	8220	—	11900	9880	—	5460	—	9470
Mean				10100	8651	8902	11060	11110	7811	5835	6244	8125
Ac-Ft				600800	531900	529700	680100	683100	464800	358800	371500	499600

Maximum Discharge	Calendar year 28,000 November 15, 1954	Total Runoff in Acre-Feet	Calendar Year Water Year

Division of Water Resources station located at Mile 224.5 above Sacramento.
Period of record 1945 to 1952 and 1954 to date. Recorder installed March 24, 1954.

TABLE 18

FLOW OF SACRAMENTO RIVER NEAR RED BLUFF (IRON CANYON) - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	5890	49300	11900	8700	11500	9090	11000	12100	10200	6440	5820	6470
2	5000	32800	11600	8400	11200	9010	10900	12100	9780	6440	5840	15000
3	5120	21400	11300	9780	11000	9010	10900	12100	9550	6440	5840	12200
4	5390	19800	11100	17000	11000	8980	10700	12200	9290	6440	5840	11100
5	5100	19100	11000	26000	10800	9400	11100	12200	9180	6470	5730	11100
6	5100	18500	9490	19400	10400	9430	11400	12200	9320	6500	4980	22500
7	5500	18000	7810	16000	10300	9430	11400	12100	9290	6640	4930	16300
8	5430	17500	9380	14900	10300	9120	11400	12200	8930	6770	5170	9840
9	5280	17400	35000	14400	10400	9690	11400	12100	8810	6750	9810	17000
10	5190	17300	30900	14100	10400	9520	11300	11800	8760	6700	7160	15500
11	5120	17000	20000	14200	10400	9230	11400	11700	8760	6700	6120	9550
12	5080	30200	16700	13800	10200	9370	11300	11600	8870	6640	8590	8180
13	5060	54800	14900	13400	10000	9400	11300	11700	8840	6620	6440	7940
14	5060	55200	13900	13100	10000	9210	11200	11500	8590	6340	7030	9260
15	5100	53000	13300	12500	10000	9150	11200	11300	8510	6050	21800	8840
16	12400	40700	15000	12300	9890	9150	11300	11300	8540	6080	18600	8540
17	50700	56600	16200	12100	9840	9120	11300	11300	8290	6080	9120	8320
18	23400	68100	14100	12100	9780	8900	11300	11300	8100	6100	7640	8160
19	21000	61200	15700	12100	9780	8710	11300	11300	8080	6120	7080	8050
20	22300	55800	21600	11900	9810	8710	11300	11400	8050	5980	6750	7970
21	17300	39300	25600	11600	9690	9120	11300	11100	7670	5770	6520	7830
22	26400	28100	19600	11500	9520	10400	11300	10900	7510	5700	6420	7810
23	55200	23800	13700	11300	9490	11100	11400	10900	7510	5700	6270	7810
24	55100	19500	10900	11300	9430	11100	12200	10900	7190	5680	6220	7830
25	44200	19000	10400	11400	9260	11200	12100	10900	6950	5700	5700	7830
26	46900	18600	9490	11300	9210	11200	12200	10900	7010	5730	5590	7730
27	41400	14800	11900	11900	9180	11200	12200	10700	6980	5700	5520	7620
28	68300	12100	11600	11500	9120	11100	12200	11200	6620	5610	5480	7540
29	43700	—	9090	12900	9090	11100	12200	11400	6400	5640	5480	7560
30	55800	—	10000	11900	9090	11100	12100	10900	6400	5660	5410	7620
31	52100	—	9020	—	9150	—	12200	10500	—	5750	—	8430
Mean	23050	32100	14590	13190	9975	9742	11480	11480	8266	6159	7297	9917
Ac-Ft	1417000	1783000	896900	785000	613300	579700	705700	705700	491900	378700	434200	609800

Maximum Discharge	Calender year 80,000 c.f.s. January 28, 1954 of record 296,000 c.f.s February 28, 1940	Total Runoff in Acre-Feet	Calendar Year 9400900 Water Year 9263600

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 1954 computed by U. S. Geological Survey.

TABLE 19

FLOW OF SACRAMENTO RIVER AT VINA BRIDGE - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	6720	56800	13700	10700	13800	9660	11400	12300	10400	6650	6240	7800
2	6030	44900	13200	10400	13200	9580	11400	12300	10200	6700	6280	21100
3	6010	28700	12800	10800	13100	9550	11200	12300	9750	6720	6350	20200
4	6260	24300	12400	21000	12900	9520	11200	12300	9500	6700	6350	16300
5	6100	23200	12200	40400	12700	9750	11100	12300	9260	6680	6350	15000
6	6030	22200	11600	31200	12300	9890	11600	12300	9360	6700	6330	25200
7	6280	21400	9200	24000	12000	9860	11600	12200	9340	6870	6120	23400
8	6440	20800	9550	21100	12000	9630	11800	12300	9200	7010	5970	14000
9	6240	20500	36700	19500	12000	10100	11800	12300	8800	7060	9560	18600
10	6120	20200	43200	18200	12100	10400	11800	12100	8820	6990	10000	27300
11	6080	20000	29200	18200	11900	9920	11800	11800	8880	6960	7080	13500
12	6010	35900	22300	17400	11800	9780	11800	11700	8930	6960	11500	10600
13	5990	79500	18800	16900	11600	9860	11700	11700	8900	6990	9400	9690
14	5990	69000	16900	16600	11500	9800	11600	11700	8900	6940	7590	10600
15	6030	64700	15900	15800	11400	9610	11600	11400	8690	6560	27100	10400
16	10600	52500	17100	15500	11300	9630	11600	11400	8690	6510	29000	9950
17	*62300	61800	20300	15300	11300	9630	11500	11300	8630	6510	13400	9690
18	43100	82100	17300	15400	11300	9440	11500	11200	8370	6510	9610	9440
19	25500	70800	18400	15300	11200	9310	11500	11200	8270	6530	8480	9310
20	22600	65600	28600	14900	11100	9230	11400	11200	8190	6530	7960	9150
21	20400	50500	35400	14600	10900	9170	11400	11200	8030	6330	7540	9090
22	24600	34400	29300	14300	10700	10800	11400	10800	7670	6260	7440	9090
23	52400	29400	19700	14200	10400	10800	11400	10700	7620	6240	7300	9150
24	67200	23100	14200	14000	10400	11600	12000	10700	7490	6240	7180	9170
25	53500	22000	13400	14000	10100	11600	12300	10800	7200	6210	6940	9150
26	49200	21500	12100	13800	10100	11600	12300	10800	7160	6210	6650	9010
27	47600	18700	11100	14200	10000	11600	12400	10700	7180	6210	6560	8820
28	68800	14200	10700	17900	9950	11500	12400	11200	7110	6210	6510	8720
29	67000	—	10700	16500	9780	11500	12300	11500	6680	6190	6440	8770
30	60100	—	12200	14800	9750	11400	12300	11100	6680	6170	6420	8770
31	61300	—	11300	—	9780	—	12300	10800	—	6190	—	11600
Mean	26730	39240	18050	17230	11370	10190	11720	11540	8463	6566	8955	12660
Ac-Ft	1643000	2179000	1110000	1025000	698900	606400	720800	709300	503600	403700	532900	778600

Maximum Discharge	Calender year 89,900 c.f.s. January 28, 1954 of record 146,000 December 28, 1951	Total Runoff in Acre-Feet	Calendar Year 10911200 Water Year 10634000

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 1954 computed by Division of Water Resources.

*Estimated

TABLE 20

SACRAMENTO RIVER AT HAMILTON CITY - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	6880	52600	14600	11600	12400	7400	8750	9620	8440	5880	5690	7180
2	6290	44600	14200	11300	11600	7340	8730	9620	8300	5930	5780	20300
3	6070	29600	13800	11300	11300	7290	8700	9620	7850	6000	5810	20600
4	6270	24200	13500	18200	11000	7240	8640	9620	7690	6000	5810	16000
5	6170	22600	13200	36800	10700	7420	8500	9650	7500	6000	5810	14700
6	6070	21600	12900	31200	11600	7610	9070	9620	7530	6120	5480	23800
7	6140	20700	10600	24500	10400	7580	9100	9620	7500	6340	5070	25100
8	6470	20000	10600	21300	10200	7450	9100	9620	7450	6470	5300	14400
9	6240	19600	31000	19600	10100	7630	9120	9620	7110	6500	8440	15500
10	6140	19300	43400	18200	10100	8000	9150	9560	7110	6440	10300	28500
11	6090	18800	30200	18200	9930	7610	9120	9270	7060	6420	7290	14300
12	6000	26500	23000	17400	9740	7480	9150	9210	7110	6440	10600	11100
13	5970	68800	19700	16900	9500	7550	9070	9240	7110	6440	8810	9860
14	6050	63200	17900	16600	9320	7450	9040	9240	7180	6390	7450	10300
15	6140	59300	16800	16100	9180	7260	9010	8900	7030	6090	25100	10300
16	8210	50600	17100	15700	9150	7180	8980	8900	7160	6070	29900	9860
17	49800	50500	20400	15500	9070	7180	8980	8900	7290	6070	13500	9500
18	46100	74500	18200	15500	9040	7080	8980	8810	7060	6050	9950	9270
19	24000	65600	18000	15200	9040	6960	9010	8780	7030	6090	8700	9070
20	21500	60100	26800	14700	8900	6850	8980	8840	7060	6090	8060	8900
21	19400	49200	33000	14000	8750	6900	8900	8870	7030	5850	7690	8900
22	21000	35000	30300	13400	8470	7900	8870	8560	6780	5690	7400	8840
23	43000	29200	21200	13000	8270	8240	8870	8500	6730	5640	7210	8870
24	61300	23900	15800	12800	8220	8930	9320	8470	6730	5640	7060	8930
25	50800	22200	14600	12600	7980	8980	9650	8530	6370	5640	6800	8930
26	44300	21500	13500	12300	7850	9040	9650	8640	6340	5640	6470	8730
27	45000	20000	12400	12400	7770	8980	9650	8530	6320	5640	6390	8610
28	54400	15400	11900	15100	7710	8900	9650	9010	6240	5640	6270	8500
29	67600	—	11700	15000	7550	8870	9650	9300	5880	5600	6240	8560
30	51900	—	12900	13200	7580	8840	9620	9070	5900	5570	6220	8560
31	56800	—	12300	—	7550	—	9590	8900	—	5640	—	10300
Mean	24450	36750	18560	16650	9355	7771	9116	9117	7063	6001	8687	12460
Ac-Ft	1504000	2041000	1141000	990900	575200	462400	560500	560600	420300	369000	516900	766200

Maximum Discharge	Calendar year 77,200 c.f.s. February 18, 1954 of record *350,000 c.f.s. February 28, 1940	Total Runoff in Acre-Feet	Calendar Year 9908000 Water Year 9602300

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 1954 computed by Division of Water Resources.

* Estimated

TABLE 21

FLOW OF SACRAMENTO RIVER AT ORD FERRY - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	6570	58500	16200	12800	13100	7720	8930	9890	8810	6020	5810	6900
2	6290	52100	15500	12300	12400	7620	8910	9890	8630	6060	5870	21200
3	5770	35100	15100	12200	11900	7580	8810	9890	8080	6080	5940	26200
4	5940	26800	14500	18600	11600	7580	8780	9890	7930	6060	5960	19200
5	5980	25000	14100	40600	11200	7690	8610	9920	7690	6080	5960	17200
6	5810	23700	14000	41600	11800	7860	9110	9950	7670	6100	5720	24700
7	5850	22700	11800	31900	11200	7930	9160	9950	7670	6320	5310	31300
8	6230	21800	10900	26500	10600	7860	9140	9970	7600	6460	5450	18200
9	6040	21300	25500	23600	10400	7930	9110	9970	7300	6500	7320	16300
10	5890	21000	49300	21600	10500	8560	9110	9970	7250	6530	11300	35000
11	5790	20600	38300	20600	10400	8160	9110	9650	7250	6500	7900	18400
12	5770	25800	27600	19600	10100	7860	9080	9570	7280	6500	10100	13100
13	5620	74600	23100	18800	9870	7980	9040	9570	7300	6480	9870	11200
14	5580	79200	20300	18300	9650	7900	8980	9620	7370	6400	7670	11000
15	5580	71100	18600	17600	9520	7720	8960	9330	7250	6210	22700	11300
16	6650	61600	18400	16900	9490	7620	8910	9270	7280	6080	36600	10700
17	42600	54800	22800	16400	9300	7600	8960	9300	7460	6100	17300	10300
18	64100	87200	20500	16200	9270	7530	8930	9220	7280	6120	11400	10000
19	27600	81100	19600	16000	9240	7320	8960	9110	7250	6150	9520	9680
20	23700	70900	29200	15500	9110	7250	8960	9220	7160	6150	8730	9520
21	20800	60600	36000	14600	9010	7230	8960	9240	7180	5980	8210	9350
22	20200	43000	37200	14000	8780	7830	8930	8980	6970	5830	7880	9300
23	37500	34400	26400	13500	8530	8480	8930	8830	6930	5750	7720	9300
24	66100	28800	18900	13200	8530	9080	9300	8760	6860	5750	7530	9270
25	60500	25600	16700	13100	8310	9160	9760	8830	6590	5750	7320	9350
26	48300	24400	15400	12800	8130	9220	9780	8960	6440	5750	6860	9240
27	49200	23200	14000	12700	8060	9160	9870	8830	6440	5770	6740	9060
28	50600	17700	13200	15700	8010	9140	9870	9220	6380	5750	6610	8930
29	80200	—	12800	16400	7880	9040	9840	9700	6100	5720	6570	8930
30	57100	—	13800	14300	7780	9010	9870	9460	6020	5720	6550	8930
31	63700	—	13600	—	7780	—	9870	9190	—	5790	—	9870
Mean	26050	42590	20750	18600	9724	8087	9179	9456	7247	6079	9281	13970
Ac-Ft	1602000	2365000	1276000	1107000	597900	481200	564400	581500	431200	373800	552200	858700

Maximum Discharge	Calendar year 91,300 c.f.s. February 18, 1954 of record 370,000 c.f.s. February 28, 1940	Total Runoff in Acre-Feet	Calendar Year 10790900 Water Year 10376100

Division of Water Resources station located at Mile 130.8 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.

TABLE 22

FLOW OF SACRAMENTO RIVER AT BUTTE CITY - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	6720	58600	17500	14000	13300	7610	8600	9280	8380	5910	5650	6540
2	6630	53800	16600	13400	12600	7460	8570	9280	8160	5870	5690	6890
3	5930	38700	16000	13200	12100	7440	8550	9310	7800	5960	5710	24200
4	5970	29300	15400	15700	11700	7440	8430	9260	7610	6000	5740	18000
5	6160	26300	15000	31500	11400	7460	8280	9310	7390	5960	5760	16200
6	5970	24600	14700	40200	11500	7680	8570	9280	7310	6000	5670	19500
7	5970	23400	13100	33000	11400	7680	8790	9280	7240	6170	5290	28900
8	6280	22400	11600	27200	10600	7680	8810	9240	7200	6270	5300	19000
9	6240	21700	17900	23800	10400	7610	8810	9210	7030	6380	6190	14200
10	6070	21300	41000	21800	10400	8190	8790	9180	6900	6380	10300	29600
11	6010	21000	40000	20200	10200	8000	8720	8940	6900	6340	7680	20000
12	5930	22300	30200	19300	10000	7700	8760	8840	6950	6320	8720	13400
13	5840	53200	24600	18500	9710	7700	8670	8790	6970	6310	9560	11300
14	5840	74300	21400	18000	9440	7680	8620	8860	6990	6310	7390	10800
15	5820	71300	19600	17500	9310	7530	8600	8670	7010	6170	13700	11100
16	6200	64700	18800	16900	9260	7420	8600	8570	6990	6000	32100	10600
17	26300	53600	21500	16500	9210	7420	8600	8600	7070	5980	19700	10200
18	60400	71200	21200	16200	9160	7350	8600	8570	7030	5940	11900	9860
19	33400	78900	19400	16000	8860	7180	8600	8380	6970	5960	9820	9560
20	24600	72200	25500	15700	8910	7050	8570	8450	6900	5980	8880	9390
21	21000	64800	31800	14900	8880	7050	8550	8520	6900	5890	8300	9220
22	19700	48700	34700	14300	8640	7310	8520	8380	6740	5710	7910	9120
23	30100	35600	28900	13900	8430	8160	8550	8190	6660	5650	7720	9090
24	53800	31100	21000	13500	8360	8640	8670	8140	6660	5600	7490	9070
25	59800	27100	17900	13300	8190	8790	9260	8160	6460	5600	7330	9050
26	48700	25600	16800	13000	8050	8760	9210	8260	6340	5580	6960	8970
27	46700	24100	15500	12900	7930	8790	9280	8190	6320	5580	6740	8810
28	44900	19900	14800	14400	7890	8790	9310	8430	6310	5580	6630	8690
29	68000	—	14200	15900	7770	8690	9310	8880	6080	5560	6500	8610
30	60800	—	14500	14300	7680	8670	9310	8860	5940	5530	6450	8640
31	61000	—	15000	—	7700	—	9260	8620	—	5560	—	8950
Mean	24410	42130	20840	18300	9645	7831	8767	8772	6974	5937	8759	12820
Ac-Ft	1501000	2340000	1282000	1089000	593000	466000	539000	539400	415000	365100	521200	788400

Maximum Discharge	Calendar year 80,700 c.f.s. February 19, 1954 of record 170,000 c.f.s. February 7, 1942	Total Runoff in Acre-Feet	Calendar Year 10439100 Water Year 10135700

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 1954 computed by U. S. Geological Survey.

TABLE 23

FLOW OF SACRAMENTO RIVER OPPOSTITE MOULTON WEIR (GORDON PUMP) 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1			17100	14000	13100	6320	8570	9130	8100	5960		
2			16100	13200	12000	6370	8550	9130	7870	5970		
3			15400	12700	11400	6940	8530	9110	7620	6060		
4			14800	13200	11100	6880	8520	9110	7300	6100		
5			14400	23200	10700	6980	8410	9090	7060	6080		
6			14000	40000	10500	7400	8550	9090	6930	6140		
7			13300	34600	11000	7400	8840	9090	7010	6300		
8			11700	27800	9990	7300	8890	9050	7060	6420		
9			12900	24400	9800	7250	8890	9140	6900	6560		
10			36100	22200	9710	7840	8850	9090	6750	6620		
11			*38000	20300	9710	7920	8820	8840	6750	6660		
12			*30000	19400	9560	7580	8870	8730	6740	6660		
13			*25000	18600	9320	7550	8780	8600	6820	6670		
14			*24000	18100	9070	7520	8730	8670	6850	6690		
15			*22000	17700	8930	7200	8690	8570	7040	6430		
16			*19000	17200	8780	6830	8600	8380	6980	6110		
17			*20000	16700	8710	6850	8570	8390	7040	5960		
18			*21300	16300	8710	6830	8530	8360	7060	5800		
19			*19600	16100	8640	6620	8570	8220	6880	5700		
20			*24000	16200	8520	6590	8530	8150	6880	5600		
21			*29500	16000	8410	6580	8530	8170	6860	5450		
22			*33600	15300	8240	6750	8460	8170	6750	5310		
23			*29000	14500	7770	7890	8480	7980	6700	5260		
24			*23500	13900	7550	8310	8460	7840	6500	5260		
25			*18900	13400	7140	8500	9000	7870	6560	5300		
26			*17000	13100	6720	8530	9050	7940	6420	5370		
27			16600	13000	6660	8620	8980	7960	6370	5450		
28			15400	14000	6610	8620	9070	8060	6320	5530		
29			14500	16100	6300	8530	9130	8430	6140	5590		
30		—	14200	14900	6350	8530	9070	8570	5960	5590		
31		—	14600	—	6420	—	9090	8380	—	5710	—	
Mean			20500	18200	8949	7434	8729	8558	6874	5945		
Ac-Ft			1260000	1083000	550200	442400	536700	526200	409000	365600		

	Total Runoff in Acre-Feet	Calendar Year Water Year

Division of Water Resources Station located at Mile 103.9 above Sacramento.
Daily flow records were computed for the irrigation season only as part of the Sacramento River Trial Water Distribution program. The records are based on current meter measurements and on correlation with adjacent gaging stations, and should not be considered to have the same degree of accuracy as the records for other gaging stations published in this report.

TABLE 24

FLOW OF SACRAMENTO RIVER AT COLUSA - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	6980	38600	19100	14100	14000	7100	8210	9110	8280	6000	5600	6390
2	6990	38000	17100	13600	13100	7030	8230	9130	7980	5980	5640	9300
3	6630	36100	16100	13200	12400	6990	8240	9120	7740	6030	5720	20500
4	6300	31500	15500	13600	11900	6970	8260	9170	7420	6080	5720	21300
5	6420	27500	15000	20900	11500	6980	8270	9200	7220	6070	5730	17800
6	6440	25100	14700	31200	11100	7050	8220	9240	7080	6050	5740	16700
7	6330	23300	14100	30500	11300	7230	8490	9270	7090	6130	5360	25500
8	6360	22500	12500	27600	10900	7210	8600	9310	7050	6310	5210	25800
9	6620	21500	13200	24600	10400	7180	8660	9360	6990	6450	5620	17300
10	6540	20700	26600	22400	10200	7260	8720	9360	6780	6510	8570	21500
11	6410	20300	31900	20800	10000	7620	8770	9300	6750	6500	9050	27600
12	6350	20300	29600	20100	9820	7500	8860	9070	6740	6460	9790	18000
13	6290	29100	25700	19400	9550	7300	8830	8930	6830	6470	8050	13200
14	6240	36700	22300	18600	9260	7220	8650	8860	6850	6480	8470	11500
15	6220	37500	20700	18000	8970	7120	8430	8840	6990	6360	9370	11500
16	6220	36900	19500	17300	8750	6950	8220	8720	6930	6080	23800	11200
17	12300	35800	19600	16600	8630	6890	8190	8640	7000	6010	27800	10700
18	34300	36100	21400	16100	8480	6870	8170	8550	7070	6000	16600	10300
19	35600	38200	20400	15800	8390	6910	8170	8320	6920	6000	11300	9890
20	28700	37800	21500	15600	8290	6680	8150	8240	6930	6010	9500	9640
21	23600	37000	27200	15200	8210	6610	8150	8240	6920	6000	8670	9420
22	20900	35300	30400	14600	8100	6580	8140	8230	6850	5830	8200	9270
23	22900	32400	29200	14100	7910	7320	8140	8040	6780	5720	7860	9140
24	34300	30200	24400	13600	7700	7580	8240	7890	6730	5630	7620	9120
25	38200	26800	19900	13200	7590	7860	8420	7880	6690	5620	7460	9100
26	37500	24500	17800	13000	7460	7960	8660	7930	6480	5610	7200	9050
27	36100	23400	17400	12800	7370	8060	8870	8030	6400	5590	6880	8890
28	35900	21700	15000	13100	7310	8140	9000	8060	6350	5590	6710	8700
29	37800	—	14200	14900	7270	8180	9030	8480	6220	5560	6580	8700
30	39500	—	13800	15000	7190	8190	9090	8670	5980	5530	6470	8590
31	38500	—	14200	—	7120	—	9100	8500	—	5530	—	8600
Mean	18690	30170	20000	17650	9360	7285	8490	8700	6935	6006	8876	13360
Ac-Ft	1149000	1676000	1230000	1050000	575500	433500	522000	534900	412600	369300	528200	821600

Maximum Discharge	Calendar year 40,000 c.f.s. January 30, 1954 of record 49,000 c.f.s. February 8, 1942	Total Runoff in Acre-Feet	Calendar Year 9302600 Water Year 8977200

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 1954 computed by U. S. Geological Survey.

TABLE 25

FLOW OF SACRAMENTO RIVER AT MERIDIAN 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1			19300	14600	14600	7110	7960	9020	8700	6490		
2			17500	14100	13700	7150	7950	9020	8320	6450		
3			16400	13700	12900	7210	8010	9040	8100	6500		
4			15800	14100	12400	7250	8020	9090	7690	6530		
5			15200	20700	12000	7280	8020	9120	7500	6510		
6			14800	33400	11600	7370	7960	9200	7330	6500		
7			14200	33700	11800	7610	8250	9220	7290	6550		
8			12800	30700	11000	7680	8340	9250	7280	6710		
9			12900	26900	10600	7770	8320	9300	7260	6840		
10			26000	24200	10300	7960	8350	9270	7060	6920		
11			34400	22300	10200	8270	8440	9170	6990	6920		
12			32600	21500	9880	8090	8480	8920	6980	6870		
13			28300	20700	9570	7980	8460	8850	7180	6850		
14			24000	19900	9280	8030	8430	8830	7220	6820		
15			21600	19200	9030	7000	8420	8860	7380	6670		
16			20500	18400	8820	7670	8420	8690	7460	6310		
17			20500	17700	8660	7480	8410	8670	7530	6110		
18			22400	17100	8510	7290	8410	8670	7630	6070		
19			21400	16900	8400	7030	8420	8610	7530	6010		
20			21800	16600	8290	6830	8410	8540	7530	5960		
21			28800	16000	8160	6710	8390	8530	7540	5940		
22			32800	15400	8120	6610	8340	8580	7560	5830		
23			32300	14800	8000	7250	8330	8410	7480	5740		
24			26300	14300	7830	7550	8300	8250	7450	5690		
25			20700	13900	7710	7840	8660	8210	7450	5700		
26			18500	13700	7600	7900	8890	8250	7190	5700		
27			16800	13400	7490	7990	8920	8340	7010	5740		
28			15500	13700	7410	8010	8970	8340	6930	5780		
29			14700	15500	7340	8020	9010	8740	6790	5800		
30		—	14400	15800	7240	7950	8990	9020	6560	5770		
31		—	14800	—	7200	—	8990	8890	—	5780	—	
Mean			20900	18760	9537	7560	8428	8803	7397	6260		
Ac-Ft			1285000	1116000	586400	449800	518200	541300	440200	384900		

		Total Runoff in Acre-Feet	Calendar Year Water Year

Division of Water Resources Station located at Mile 79.85 above Sacramento.

Daily flow records were computed for the irrigation season only as part of the Sacramento River Trial Water Distribution program. The records are based on current meter measurements and on correlation with adjacent gaging stations, and should not be considered to have the same degree of accuracy as the records for other gaging stations published in this report.

TABLE 26

FLOW OF SACRAMENTO RIVER BELOW WILKINS SLOUGH - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	6820	24600	19600	14600	14100	6100	6670	7390	7850	6490	5620	6700
2	6790	24600	17600	14000	13000	6130	6610	7400	7520	6470	5730	7660
3	6570	24400	16400	13600	12000	6160	6650	7370	7280	6480	5850	15300
4	6220	23700	15600	13600	11400	6130	6650	7430	6890	6480	5970	19700
5	6260	23000	15100	17500	10900	6110	6620	7440	6680	6520	6060	18000
6	6300	22400	14700	23300	10400	6270	6490	7510	6470	6500	6150	16400
7	6210	21900	14300	23700	10400	6500	6750	7600	6420	6540	6080	20000
8	6240	21400	13100	23400	9960	6520	6960	7730	6480	6690	5890	22600
9	6500	20900	12600	22700	9500	6570	6870	7760	6440	6810	6150	19300
10	6480	20500	19800	22100	9250	6740	6920	7760	6320	6920	7620	18000
11	6380	20100	23900	21600	9100	7220	7010	7720	6230	6960	9980	23100
12	6350	19800	23800	21100	8820	7190	7040	7460	6270	6900	8820	20200
13	6300	21800	23100	20400	8530	7050	7000	7390	6430	6890	9810	15800
14	6230	24200	22200	19500	8220	7090	6960	7400	6560	6830	9910	13600
15	6220	24700	21400	18700	7950	6970	6900	7490	6750	6720	9050	12900
16	6240	24800	20500	17900	7800	6720	6870	7330	6940	6440	16100	12600
17	8080	24600	20000	17000	7700	6480	6880	7300	7050	6180	22500	12100
18	20800	24500	21300	16400	7520	6280	6880	7380	7220	6110	18600	11500
19	23600	24900	20900	16100	7490	5990	6880	7390	7270	6060	13400	11000
20	22800	25100	20800	15700	7280	5740	6840	7330	7260	6040	11000	10600
21	21700	25000	22600	15200	7230	5590	6800	7300	7300	6040	9790	10300
22	20500	24700	23400	14600	7220	5440	6730	7390	7390	5900	9080	10100
23	20300	24100	23400	14000	7010	5800	6680	7250	7350	5720	8570	9820
24	23300	23700	22500	13400	6740	6290	6630	7070	7340	5590	8190	9700
25	24200	23100	20700	12900	6610	6620	6870	6990	7330	5490	7920	9590
26	24300	22500	18700	12600	6460	6720	7170	7040	7160	5450	7640	9500
27	24200	22200	17000	12400	6390	6800	7180	7200	6960	5430	7280	9330
28	24200	21600	15700	12600	6290	6800	7260	7230	6840	5430	7090	9100
29	24300	—	14900	14300	6240	6770	7310	7570	6800	5400	6980	8960
30	24700	—	14400	15000	6200	6660	7320	7940	6600	5450	6860	8860
31	24600	—	14700	—	6140	—	7310	7970	—	5500	—	8860
Mean	13990	23170	18860	17000	8511	6448	6894	7436	6913	6207	8990	13260
Ac-Ft	860200	1287000	1160000	1011000	523300	383700	423900	457200	411400	381700	534900	815600

Maximum Discharge	Calendar year 25,200 c.f.s. February 20, 1954 of record 26,200 c.f.s. February 8, 1942	Total Runoff in Acre-Feet	Calendar Year 8249900 Water Year 7933400

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 1954 computed by U. S. Geological Survey.

TABLE 27

FLOW OF SACRAMENTO RIVER AT KNIGHTS LANDING - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	7590	24000	21100	15700	14600	6810	6700	7980	9930	7460	6250	7050
2	7580	24100	18900	14700	13900	6860	6550	8000	9580	7490	6290	7120
3	7420	23700	16500	13600	12600	6850	6670	7930	9120	7340	6390	14100
4	6850	23500	15800	13400	11700	6870	6730	8010	8630	7440	6420	21200
5	6910	22800	16200	16500	11100	6850	6680	7990	8280	7660	6480	20100
6	6990	22600	16000	22200	10400	6980	6590	8210	7950	7260	6510	18100
7	6960	22500	15200	22000	10300	7250	6580	8360	7750	7240	6440	20300
8	6820	23500	14200	22000	9860	7490	7000	8660	7760	7360	6210	24200
9	7100	23000	12500	21600	9260	7470	6920	8690	7820	7500	6260	21200
10	7220	22600	16000	21100	8990	7650	6920	8730	7690	7630	7270	17600
11	7070	22100	21300	20800	9190	8300	7060	8680	7600	7700	10300	23600
12	7060	21600	22800	20700	8820	8640	7150	8490	7670	7640	10200	21600
13	7130	23200	22100	20100	8500	8430	7230	8330	7750	7480	10000	17000
14	7080	23200	21500	19500	8200	8310	7210	8350	7960	7420	11100	14600
15	6970	21900	20900	18700	7910	7890	7120	8440	8370	7360	9990	14200
16	6970	24200	20500	17600	7080	7580	7080	8440	8830	7200	14500	13900
17	6380	24100	19500	17100	7680	7150	7050	8410	9040	6720	23600	12400
18	18200	23000	20900	16300	7500	6970	7120	8500	9200	6620	22500	12500
19	25800	24100	21500	15800	7500	6600	7170	8590	9240	6680	16800	12000
20	25200	24500	21000	15700	7280	6290	7180	8500	9280	6670	13900	11600
21	24100	24300	22700	15000	7330	5800	7170	8510	9250	6720	12300	11200
22	22900	24100	23900	14400	7530	5580	7050	8640	9310	6640	10800	10900
23	22000	23800	24000	13900	7500	5600	7050	8640	9270	6590	9850	10700
24	23100	22700	23100	13100	7390	6250	6940	8430	9200	6380	9200	10500
25	23700	22200	21700	13100	6850	6700	7150	8260	9030	6430	8740	10400
26	24300	21900	20300	12600	6650	6860	7610	8290	8880	6340	8490	10300
27	23800	22000	18600	12500	6610	6900	7620	8320	8360	6350	8060	10200
28	23800	21600	17000	12100	6700	6840	7600	8510	8060	6280	7730	9930
29	24100	—	16000	13400	6830	6740	7920	9110	8020	6250	7490	9740
30	24500	—	15400	14800	6960	6700	7990	9710	7710	6220	7360	9630
31	24500	—	15300	—	6830	—	8020	10000	—	6280	—	9550
Mean	14520	23100	19110	16670	8715	7040	7124	8507	8551	6979	9914	14110
Ac-Ft	892800	1283000	1175000	991700	535800	418900	438000	523100	508800	429100	589900	867600

Maximum Discharge	Calendar year daily mean 25,800 c.f.s. (a) January 19, 1954 of record 27,900 c.f.s. February 9, 1942	Total Runoff in Acre-Feet	Calendar Year 8653700 Water Year 8274800

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 1954 computed by U. S. Geological Survey.

(a) Station has been rated entirely by slope method since 1952. Instantaneous flows have not been computed during this period.

TABLE 28

FLOW OF SACRAMENTO RIVER AT VERONA - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	10600	54700	43200	31400	38100	9790	7860	8320	12000	10500	8760	11000
2	10500	55000	38400	29800	34400	9730	7760	8300	11600	10400	8800	11200
3	10200	55000	34700	28600	31000	9910	7940	8270	11100	10600	8830	16500
4	9910	54300	32100	28500	28000	9840	8180	8380	10600	10400	8890	26100
5	9640	52500	30100	32800	25900	10200	8080	8540	10300	10600	8900	27900
6	9970	49300	28300	44900	24900	10600	7810	8690	10000	10600	8980	25900
7	10000	44700	26900	55600	24500	10800	7680	8980	9840	10400	8940	28400
8	10200	40100	25500	58400	24600	11000	7950	9370	9710	10500	8810	32500
9	10000	36700	27200	57500	24400	11200	8000	9660	9500	10800	9010	32000
10	9860	34300	35900	55800	24100	12000	7970	9840	9440	10800	10200	33900
11	9790	32700	54000	53900	22400	12900	8060	9930	9350	10600	13500	36700
12	9590	31000	58800	51400	21100	13200	8240	9790	9460	10600	14300	35000
13	9710	35200	58900	48800	20400	13300	8300	9480	9620	10600	14300	30500
14	9610	47500	56500	46400	19400	13000	8300	9480	9930	10500	16000	26000
15	9440	58100	53500	44400	18100	12400	8160	9610	10300	10200	15100	21400
16	9610	59300	50200	42900	17600	12000	8110	9660	11000	10000	19800	21100
17	16400	59200	48100	41400	16700	11300	8060	9610	11300	9820	29300	19900
18	32500	60800	46700	40700	16700	10700	8030	9800	11500	9840	29500	18900
19	36200	61300	44800	40300	16600	9950	8080	9840	12000	9790	24800	17600
20	35800	60800	43800	39700	16600	9010	7950	9790	11600	9680	20600	16700
21	34600	60400	43700	39000	16300	8220	7900	9790	11900	9640	17900	16000
22	33300	59600	44300	38200	15300	7780	7870	9860	12200	9640	16100	15400
23	32500	58600	45800	37000	14500	7420	7740	9950	12400	9350	14900	15100
24	41600	57000	46400	36000	12200	7710	7700	9840	12400	9100	14000	14800
25	48600	55400	45500	34800	11000	7860	7700	9680	12400	8940	13300	14500
26	49700	53300	42000	33700	11400	8160	7970	9660	12400	8810	12900	14200
27	50600	50600	38000	33000	11400	8300	8100	9970	11600	8800	12400	14200
28	51600	47200	34200	34300	11000	8220	8020	10400	11500	8780	11900	13900
29	52000	—	32700	39000	10800	8060	8140	10900	11400	8760	11600	13600
30	52600	—	31900	40500	10600	7970	8300	11700	11200	8780	11200	13500
31	54000	—	32200	—	10100	—	8350	12100	—	8760	—	13400
Mean	25180	50880	41110	41290	19360	10080	8010	9651	10980	9890	14120	20900
Ac-Ft	1548000	2826000	2528000	2457000	1190000	600100	492500	593400	653700	608100	840000	1285000

Maximum Discharge	Calendar year 61,500 c.f.s. February 19, 1954 of record 79,200 c.f.s. March 1, 1940	Total Runoff in Acre-Feet	Calendar Year 15621800 Water Year 15125500

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 1954 computed by U. S. Geological Survey.

TABLE 29

FLOW OF SACRAMENTO RIVER AT SACRAMENTO - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	11400	57700	47400	37200	46200	11100	8680	8260	11900	11100	9220	11400
2	11400	58300	42500	35200	41300	10900	8670	8280	11500	11000	9580	11900
3	11000	58500	38600	33500	37300	11200	8740	8220	11000	11200	9720	15900
4	10900	58100	35500	33000	34700	10900	8750	8390	10700	11100	9800	30100
5	10600	56400	32800	37600	33000	11400	8770	8370	10200	11200	9920	32100
6	10800	53200	30900	54600	32200	11900	8530	8200	10100	11200	9730	29800
7	10900	48600	29400	66300	32000	12000	8310	8120	9730	11100	9660	31000
8	11100	43600	28100	69100	32500	12300	8400	8350	9960	11200	9530	35800
9	11300	39700	34200	67300	32500	12300	8220	8590	9890	11300	9290	36000
10	10900	36700	66700	64800	31800	13300	7900	8870	9820	11400	10100	41200
11	10900	34800	76200	62500	29200	13900	7960	9100	9680	11300	12400	42600
12	10600	33800	73300	60100	27800	14100	8110	9060	9700	11200	14000	39600
13	10600	38400	68400	57800	26600	14200	8140	9000	9970	10800	14000	34600
14	10600	55700	64400	55500	25300	14700	8200	8970	10300	10900	15700	29600
15	10200	65800	61100	53700	24200	13500	8050	8950	10500	10800	15000	25200
16	10600	64900	57900	52300	23300	12600	8010	9140	10900	10400	19900	23600
17	19800	63800	55600	51500	22900	12000	7980	9180	11300	10300	28500	22300
18	33700	67800	53500	51200	22900	11400	7950	9290	11600	10400	30100	21600
19	38500	68400	51200	50900	22700	10700	8110	9500	12000	10600	25800	20400
20	38000	66200	50300	49800	22700	9760	7920	9400	11900	10400	22400	19300
21	36600	65100	49900	48600	22000	9160	7690	9410	12000	10500	19000	18900
22	35100	64100	50100	47900	20400	8740	7720	9420	12300	10400	17200	17500
23	34500	62900	51000	47300	18200	8360	7670	9510	12400	10100	15600	16800
24	48800	61200	52000	46100	15800	8520	7580	9600	12600	10000	14500	16600
25	55100	59500	51900	43800	14000	8650	7490	9740	12500	10100	13900	16400
26	54300	57600	48500	42000	14000	8780	7670	9470	12700	9840	13300	16000
27	54200	55000	44000	41000	13800	8690	7910	9820	12000	9850	12900	16000
28	55100	51400	40000	44400	13100	8440	7900	10200	11600	9740	12400	15800
29	55600	—	37800	48300	12600	8560	7950	10700	11700	9730	11800	15500
30	56000	—	38200	48800	12300	8870	8000	11300	11500	9410	11500	15400
31	57000	—	39300	—	12400	—	8030	11900	—	9270	—	15600
Mean	27290	55260	48410	50070	24830	11030	8097	9236	11130	10580	14550	23690
Ac-Ft	1678000	3069000	2977000	2979000	1527000	656400	497900	567900	662400	650300	865700	1457000

Maximum Discharge	Calendar year 76,800 c.f.s. March 11, 1954 of record 104,000 c.f.s. November 21, 1950	Total Runoff in Acre-Feet	Calendar Year 17587600 Water Year 16985100

Station is maintained jointly by the Division of Water Resources and U. S. Geological Survey. It is 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 85 and 92.) 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 1954 computed by U. S. Geological Survey.

TABLE 30

FLOW OF CLEAR CREEK NEAR IGO - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	142	1370	740	768	620	194	103	42	59	42	48	136
2	140	1290	698	754	570	187	101	41	55	43	50	305
3	196	1220	662	958	545	184	92	39	52	43	51	277
4	160	1140	632	2420	520	194	86	40	52	43	52	277
5	150	1030	609	3180	495	201	84	42	52	44	52	1380
6	150	936	598	2130	475	191	84	43	51	46	51	2970
7	251	866	598	1670	460	180	84	40	48	86	51	1250
8	226	817	1060	1430	450	208	82	38	47	63	419	740
9	202	803	3610	1240	440	258	82	36	46	56	644	915
10	186	761	2370	1090	420	215	82	36	46	54	285	728
11	180	734	1630	982	392	197	80	35	48	52	270	555
12	172	3960	1300	908	374	222	74	35	50	50	334	460
13	163	3990	1100	887	361	211	68	35	48	50	218	425
14	158	2580	974	824	352	180	65	39	50	48	377	374
15	553	1880	894	803	338	174	63	47	60	47	1290	338
16	5020	1710	887	768	325	171	60	47	57	47	598	313
17	6170	3430	810	754	309	159	59	44	55	46	356	289
18	2180	2960	740	740	293	153	57	39	52	47	270	266
19	1480	2050	803	716	277	142	55	36	51	54	222	251
20	1050	1630	887	680	274	139	55	39	48	56	191	240
21	852	1370	1100	644	262	134	54	40	46	52	168	233
22	2070	1190	1070	632	255	128	54	38	44	51	153	229
23	2510	1050	982	614	243	123	52	35	44	48	139	225
24	1680	990	922	609	236	113	50	33	43	48	131	222
25	1190	950	845	598	233	113	51	35	42	50	125	215
26	1050	908	775	570	229	115	55	59	42	51	118	204
27	2420	838	740	969	222	120	51	68	42	51	113	194
28	3610	782	734	1250	215	110	46	253	41	50	108	194
29	2300	—	887	810	211	108	45	134	40	50	103	191
30	1900	—	866	686	204	103	44	82	41	48	101	204
31	1580	—	817	—	197	—	43	66	—	48	—	330
Mean	1293	1544	1011	1036	348	164	66.5	52.8	48.4	50.5	236	482
Ac-Ft	79520	85760	62160	61650	21420	9770	4090	3240	2880	3100	14060	29610

Maximum Discharge	Calendar year 10,000 c.f.s. January 17, 1954 of record 19,200 c.f.s. March 1, 1941	Total Runoff in Acre-Feet	Calendar Year 377260 Water Year 362290

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 1954 computed by U. S. Geological Survey.

TABLE 31

FLOW OF COW CREEK NEAR MILLVILLE - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	166	1040	500	690	630	161	80	17	79	52	80	316
2	166	860	462	660	576	146	76	22	73	55	83	2850
3	230	728	444	1560	541	150	73	27	69	57	91	1620
4	323	650	422	4790	511	170	71	24	63	55	90	2180
5	241	585	404	3210	490	217	64	25	66	58	93	1900
6	224	535	390	3540	474	204	58	29	61	62	93	4900
7	531	490	386	2030	462	186	56	33	56	87	98	2200
8	346	448	1560	1660	454	214	59	30	50	113	121	1040
9	275	417	7930	1820	462	336	59	29	43	102	1020	5180
10	244	394	4150	1260	442	296	57	32	44	91	388	1910
11	227	404	2000	1100	418	239	62	26	52	91	273	990
12	213	3430	1460	998	406	236	55	26	50	85	1200	710
13	202	3360	1180	938	386	236	47	29	50	87	339	757
14	191	2670	1000	890	364	206	47	30	51	87	798	595
15	199	2080	896	836	353	191	42	37	87	79	8680	490
16	2370	1750	2140	818	343	189	42	33	87	80	2360	418
17	7180	5530	1940	812	336	163	42	29	88	85	774	366
18	1620	2640	1330	806	329	146	42	23	88	80	486	334
19	956	1610	2520	784	319	138	39	25	83	91	370	308
20	645	1250	2700	745	312	140	35	34	71	120	305	287
21	510	1030	3280	718	299	120	30	42	69	106	267	274
22	4040	896	1920	712	268	107	24	40	61	98	242	267
23	7850	788	1360	690	256	97	31	35	57	88	225	260
24	2090	722	1120	685	242	91	33	31	53	87	208	254
25	1190	665	998	712	228	87	29	34	52	87	201	245
26	1060	630	842	660	217	85	29	85	53	85	192	230
27	2020	570	767	1000	204	87	31	102	49	79	182	214
28	5160	530	740	1060	186	93	29	194	39	85	176	211
29	3360	—	878	872	184	82	20	146	34	88	172	222
30	2160	—	860	712	186	80	19	102	42	80	170	236
31	1370	—	756	—	179	—	17	87	—	77	—	1570
Mean	1528	1311	1527	1259	357	163	45.1	47.0	60.7	83.1	659	1075
Ac-Ft	93940	72800	93890	74910	21930	9710	2770	2890	3610	5110	39230	66120

Maximum Discharge	Calendar year 18,800 c.f.s. March 9, 1954 of record 45,200 c.f.s. December 27, 1951	Total Runoff in Acre-Feet	Calendar Year 486910 Water Year 424550

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 228.8L. Drainage area is 427 square miles. Period of record 1949, to date. Records for 1954 computed by U. S. Geological Survey.

TABLE 32

FLOW OF COTTONWOOD CREEK NEAR COTTONWOOD - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	171	3060	1340	1810	1220	384	178	79	152	91	106	577
2	168	2750	1240	1690	1140	372	174	82	130	100	106	2820
3	174	2560	1060	2280	1070	365	167	91	113	106	110	1650
4	177	2360	974	4750	1040	360	163	100	103	123	110	1200
5	171	2140	920	7240	992	372	159	97	103	134	106	1270
6	168	1920	878	4990	894	378	156	88	113	130	106	3920
7	174	1730	903	3630	852	365	159	82	127	130	113	2060
8	194	1610	1440	2990	852	384	159	76	127	141	141	1190
9	194	1520	10200	2670	912	521	156	70	130	141	475	2740
10	184	1450	6680	2370	912	545	148	70	110	134	348	2020
11	180	1370	3810	2150	878	482	144	70	106	130	246	1140
12	177	7530	2860	1970	835	460	134	76	106	127	343	894
13	174	10500	2380	1880	767	460	127	97	106	123	321	792
14	162	6100	2070	1830	742	410	120	106	110	113	323	716
15	162	3790	1890	1630	742	372	117	117	130	106	4030	641
16	3220	3060	1880	1540	733	365	113	113	134	110	2410	593
17	13600	5330	2030	1510	716	332	110	94	120	123	1060	545
18	4040	3980	1710	1520	682	310	106	82	106	120	724	475
19	2180	2910	2660	1480	657	300	110	79	106	120	569	438
20	1640	2530	3510	1410	633	290	117	82	117	120	475	417
21	1320	2280	7000	1340	601	275	120	79	123	120	417	404
22	4680	2050	3580	1290	569	270	117	76	123	113	378	410
23	7150	1890	2610	1240	529	265	117	76	127	110	354	445
24	3700	1800	2240	1240	498	256	106	76	123	106	332	468
25	2070	1750	2140	1240	468	251	97	82	106	103	316	475
26	1620	1670	1880	1190	452	251	94	123	110	106	300	438
27	2070	1560	1780	1350	430	242	88	163	103	103	285	398
28	14500	1440	1730	2350	417	207	82	211	97	97	275	384
29	8450	—	1990	1520	410	194	79	220	88	94	270	384
30	5790	—	2210	1320	398	186	79	163	85	100	260	372
31	3820	—	1940	—	391	—	79	159	—	103	—	894
Mean	2661	2951	2566	2181	724	341	125	103	114	115	514	1005
Ac-Ft	163600	163900	157800	129800	44490	20280	7690	6310	6810	7090	30560	61820

Maximum Discharge	Calendar year 19,500 c.f.s. January 28, 1954 of record 52,300 c.f.s. March 1, 1941	Total Runoff in Acre-Feet	Calendar Year Water Year	800150 737570

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 1954 computed by U. S. Geological Survey.

TABLE 33

FLOW OF BATTLE CREEK NEAR COTTONWOOD - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	248	501	478	542	700	413	284	210	208	213	218	366
2	245	456	456	538	661	392	291	216	208	216	213	1110
3	270	434	443	690	608	384	281	216	202	208	224	730
4	267	426	434	1190	642	392	278	210	199	224	221	685
5	257	417	430	1640	647	430	275	210	202	210	221	554
6	260	405	426	1220	642	405	284	216	205	216	221	770
7	283	396	434	975	642	388	266	216	210	224	216	491
8	270	396	944	904	647	392	269	208	194	227	238	379
9	257	380	2480	1050	661	487	266	216	205	221	452	1140
10	251	380	1530	887	652	426	266	205	210	213	321	595
11	263	384	1030	828	628	388	262	208	218	227	395	395
12	257	1790	817	792	642	376	269	205	210	218	721	342
13	248	1950	728	792	618	376	262	208	213	224	318	376
14	251	1070	666	792	618	359	259	210	218	218	471	338
15	248	860	623	782	604	351	259	199	230	213	1230	319
16	350	671	942	792	599	400	256	218	224	213	594	305
17	1690	1780	849	817	618	384	256	208	221	210	367	290
18	547	1140	695	833	608	355	241	202	227	221	307	287
19	392	782	823	823	623	344	247	208	218	216	288	276
20	347	666	926	812	608	325	241	205	233	230	281	273
21	329	604	942	797	565	332	241	205	218	224	266	276
22	519	561	738	792	524	344	238	199	213	218	269	276
23	1070	538	632	802	496	355	227	213	218	216	259	276
24	782	529	637	817	496	344	230	202	218	205	256	276
25	552	515	666	833	474	340	218	202	213	216	247	273
26	478	506	599	812	465	329	233	221	213	210	259	266
27	447	496	584	987	443	321	224	221	221	208	244	259
28	931	474	584	953	430	318	213	230	210	213	238	259
29	797	—	594	833	426	288	221	216	213	210	253	266
30	661	—	589	748	405	284	216	221	213	213	241	276
31	529	—	561	—	405	—	216	210	—	205	—	698
Mean	461	697	751	869	574	367	251	211	214	216	335	433
Ac-Ft	28360	38690	46180	51720	35300	21860	15450	12960	12700	13290	19930	26620

Maximum Discharge	Calendar year 4680 c.f.s. March 9, 1954 of record 12,800 c.f.s. February 6, 1942	Total Runoff in Acre-Feet	Calendar Year Water Year	323060 314910

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 at Mile 221.5L. Drainage area is 362 square miles. Period of record 1940 to date. Records for 1954 computed by U. S. Geological Survey.

TABLE 34

FLOW OF PAYNES CREEK NEAR RED BLUFF - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	15	92	42	89	33	4.3	1.0	0.2	2.3	2.0	2.7	109
2	15	70	37	81	32	4.6	0.9	.2	2.1	2.5	2.7	688
3	15	58	35	90	27	4.6	.8	.2	2.1	2.5	2.7	423
4	15	50	33	237	22	4.9	.6	.2	2.1	2.7	2.9	450
5	14	45	32	404	21	5.2	.6	.2	2.1	2.7	2.7	324
6	15	40	31	286	19	5.2	.7	.2	2.0	2.7	2.7	454
7	15	34	30	215	19	5.2	.8	.2	2.1	3.1	2.7	193
8	15	31	73	170	19	5.8	1.1	.2	2.1	2.9	4.0	115
9	15	30	827	226	19	8.0	2.1	.2	2.3	2.7	196	579
10	15	28	336	170	19	6.6	2.3	.2	2.1	2.7	52	406
11	15	29	226	137	19	6.2	2.1	.2	2.1	2.7	54	186
12	14	1090	168	113	18	5.8	1.4	.2	2.1	2.7	360	117
13	14	1510	130	98	17	5.8	0.4	.4	2.3	2.7	45	110
14	14	670	106	85	15	5.8	.4	.4	2.5	2.7	182	90
15	14	373	92	72	19	5.8	.4	.5	2.9	2.7	762	70
16	70	265	339	61	21	5.8	.4	.9	2.7	2.7	188	58
17	1470	1080	295	57	11	5.5	.4	1.8	2.7	2.5	72	50
18	290	614	220	52	10	5.5	.4	2.0	2.7	2.5	47	45
19	144	331	433	43	9.6	5.5	.4	2.1	2.7	2.5	39	43
20	89	235	545	34	9.0	5.5	.3	2.3	2.7	2.5	33	40
21	60	176	576	33	8.5	5.2	.3	2.1	2.5	2.3	30	35
22	191	139	362	33	7.5	3.7	.2	2.1	0.8	2.1	28	33
23	321	108	247	32	7.5	0.9	.2	2.1	.7	2.1	26	32
24	247	92	204	32	8.0	.9	.2	2.1	.9	2.1	25	31
25	123	77	223	32	8.5	.9	.3	2.1	.9	2.3	24	29
26	85	67	178	32	8.5	.9	.4	2.5	1.0	2.5	23	28
27	72	58	144	39	8.5	.9	.3	2.9	1.1	2.7	21	27
28	232	49	128	55	8.0	.7	.2	4.9	1.0	2.5	20	27
29	271	—	119	40	8.0	.8	.2	3.1	0.8	2.5	20	27
30	212	—	115	35	7.0	.9	.2	2.7	.9	2.5	19	27
31	128	—	100	—	4.6	—	.2	2.3	—	2.7	—	291
Mean	136	266	207	103	14.9	4.2	0.6	1.4	1.9	2.6	76.3	166
Ac-Ft	8380	14760	12750	6120	919	253	40	83	114	157	4540	10190

Maximum Discharge	Calendar year 3680 c.f.s February 13, 1954 of record 4060 c.f.s. December 27, 1951	Total Runoff in Acre-Feet	Calendar Year 58306 Water Year 46126

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 201.5L. Drainage area is 92.5 square miles. Period of record 1949 to date. Records for 1954 computed by U. S. Geological Survey.

TABLE 35

FLOW OF REDBANK CREEK AT FOOTHILLS - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	51	30	74	*18	0.6					0	216
2	0	39	28	67	*16	.5					0	426
3	0	33	27	95	*15	.4					0	163
4	0	28	24	205	*14	.4					0	134
5	0	26	23	161	*12	0					0	380
6	0	25	23	118	*12	0					0	239
7	0	23	21	99	8.5	0					0	114
8	0	22	42	91	6.5	20					0	84
9	0	23	138	79	6.0	53					0	216
10	0	21	66	66	5.5	8.5					0	108
11	0	24	46	57	4.5	3.1					0	77
12	0	748	36	*50	7.5	1.9	N	N	N	N	53	66
13	0	505	31	*47	11	1.0	0	0	0	0	46	60
14	0	257	30	*46	10	0.4					205	51
15	0	136	29	*43	9.0	.3					707	47
16	880	147	32	*41	8.5	.2					110	41
17	968	442	42	*40	7.0	0	F	F	F	F	69	36
18	*129	187	31	*37	7.0	0	L	L	L	L	53	34
19	*69	132	174	*36	5.5	0	0	0	0	0	42	33
20	*51	106	558	*34	5.0	0	W	W	W	W	42	31
21	41	88	678	*32	4.5	0					40	28
22	286	74	365	*31	4.5	0					37	27
23	249	63	184	*29	3.7	0					36	26
24	106	54	134	*28	3.1	0					36	22
25	*66	48	125	*26	2.8	0					36	22
26	*55	42	95	*25	2.2	0					34	20
27	*310	35	84	*23	1.6	0					34	16
28	*284	33	77	*21	1.6	0					33	17
29	*194	—	108	*20	1.3	0					34	17
30	101	—	118	*19	1.0	0					33	17
31	67	—	86	—	0.9	—			—		—	19
Mean	124	122	112	58.0	7.0	3.0	0	0	0	0	56.0	89.9
Ac-Ft	7648	6768	6912	3451	428	179	0	0	0	0	3332	5528

Maximum Discharge	Calendar year 3790 c.f.s. January 17, 1954	Total Runoff in Acre-Feet	Calendar Year 34246 Water Year 25599

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. Record for 1954 computed by Division of Water Resources.

* Estimated

TABLE 36

FLOW OF ANTELOPE CREEK NEAR RED BLUFF - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	44	126	105	166	195	68	48	40	39	38	39	78
2	44	108	98	156	177	64	48	39	39	37	39	410
3	47	98	93	172	168	62	47	39	39	36	39	401
4	48	89	90	721	162	65	46	39	39	36	39	401
5	47	83	87	1360	158	72	46	39	39	36	39	267
6	46	78	85	806	156	66	45	39	39	36	37	589
7	57	75	84	545	154	64	45	39	39	39	39	237
8	53	73	137	430	154	70	45	39	39	40	47	145
9	50	71	1070	390	150	94	45	39	38	39	146	704
10	48	69	744	317	139	78	44	38	38	38	73	418
11	48	70	455	275	136	70	44	38	38	36	102	194
12	47	1470	334	248	132	67	44	38	38	38	346	138
13	47	1700	263	237	127	68	44	39	39	38	74	128
14	47	964	218	234	124	63	43	39	39	38	163	110
15	47	485	188	226	120	62	43	39	39	38	801	94
16	672	310	401	228	117	63	42	39	40	37	227	86
17	2650	1520	357	240	116	62	42	39	43	37	104	77
18	372	841	272	251	116	59	42	38	41	38	75	72
19	166	435	358	251	112	57	42	38	39	39	63	68
20	114	294	540	248	108	56	42	39	38	41	57	66
21	89	228	550	242	101	56	42	39	38	40	53	62
22	132	186	377	242	93	54	42	39	38	39	51	61
23	350	158	272	245	89	51	41	38	38	38	50	60
24	280	143	254	245	85	51	41	38	38	38	48	59
25	160	132	284	242	83	51	41	39	37	39	47	57
26	121	126	228	226	79	49	41	42	37	39	46	56
27	111	117	202	304	76	50	41	42	37	38	45	53
28	240	110	190	334	73	49	40	43	37	38	45	54
29	280	—	184	269	70	49	40	41	37	39	45	55
30	213	—	187	228	69	48	40	40	37	39	45	56
31	154	—	177	—	66	—	40	39	—	39	—	221
Mean	220	363	287	336	120	61.3	43.1	39.2	38.5	38.1	101	177
Ac-Ft	13540	20150	17620	19990	7350	3650	2650	2410	2290	2340	6000	10860

Maximum Discharge	Calendar year 6850 c.f.s. January 17, 1954 of record 10,400 c.f.s. February 6, 1942	Total Runoff in Acre-Feet	Calendar Year 108850 Water Year 99560

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 1954 computed by U. S. Geological Survey.

TABLE 37

FLOW OF ANTELOPE CREEK NEAR MOUTH - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.4	*80	76	52	58	10	8.6	5.7	3.3	6.0	5.0	53
2	4.4	*63	78	46	53	10	9.0	4.4	3.3	6.8	8.6	337
3	3.8	*60	70	50	53	10	9.0	3.6	3.8	9.5	12	293
4	3.8	*56	75	242	51	12	8.6	3.6	5.0	8.6	14	306
5	3.8	*52	81	947	46	12	8.6	4.1	5.3	5.3	24	238
6	3.6	*48	74	359	42	12	9.0	5.7	4.4	6.0	24	435
7	3.6	*46	79	187	41	12	10	7.2	6.8	12	17	259
8	5.0	*44	90	140	39	12	10	5.3	7.2	20	*29	120
9	4.1	*42	*820	126	38	18	10	4.4	7.2	22	*110	*250
10	3.3	*41	*590	99	38	23	10	4.4	7.5	21	*56	*290
11	3.3	*42	*330	85	35	18	8.6	7.2	6.0	21	*74	182
12	3.6	*1100	*250	73	34	19	8.3	8.3	5.0	20	*260	126
13	3.0	*1260	*210	67	34	20	8.3	6.4	5.0	16	*60	109
14	3.0	*700	*180	66	32	22	7.5	7.9	5.3	14	*120	93
15	3.0	*325	*150	64	31	17	7.2	5.0	5.7	12	*530	76
16	77	*210	*240	74	29	18	7.5	4.4	6.0	10	*120	63
17	*2000	*1100	*230	74	32	15	6.8	6.0	7.2	11	*86	51
18	*404	*500	*185	69	31	14	6.4	5.7	4.1	12	*73	46
19	125	*265	*260	70	25	12	6.0	5.7	1.7	12	*64	40
20	60	*210	*350	64	25	12	5.7	6.0	1.7	19	59	36
21	40	*170	*360	62	22	12	6.0	7.2	1.5	19	44	31
22	*105	*140	*260	61	21	12	5.3	6.8	2.0	16	35	29
23	*260	*120	*180	59	18	11	5.0	6.0	2.7	14	30	26
24	*220	*107	*165	60	19	10	5.0	5.0	5.0	15	25	23
25	*112	*97	*188	62	18	10	4.7	3.3	3.3	16	22	21
26	*82	91	93	60	19	9.0	4.7	4.4	4.7	12	18	19
27	*58	92	75	80	15	8.6	4.7	4.4	4.7	8.6	16	16
28	*180	75	66	109	12	8.6	4.7	7.5	5.7	5.3	14	16
29	*220	—	61	84	12	8.6	4.7	5.3	3.6	0.8	12	18
30	*160	—	60	69	12	8.6	4.1	4.7	4.7	2.2	16	18
31	*108	—	56	—	12	—	5.3	3.3	—	2.7	—	74
Mean	138	255	193	122	30.5	13.2	7.1	5.4	4.6	12.1	65.9	119
Ac-Ft	8463	14150	11860	7260	1878	786	435	335	276	745	3922	7327

Maximum Discharge	Calendar year *2000 c.f.s. January 17, 1954	Total Runoff in Acre-Feet	Calendar Year 57437 Water Year 47674

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 1954 computed by Division of Water Resources.

* Estimated

TABLE 38

FLOW OF ELDER CREEK AT GERBER - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.6	322	179	208	100	21	3.4				0	183
2	2.6	284	169	192	93	20	2.9				0	522
3	2.3	265	158	277	88	19	2.3				0	194
4	2.6	239	149	640	84	19	1.8				0	160
5	3.2	212	144	795	80	21	1.5				0	301
6	4.0	188	138	544	76	21	1.0				0	599
7	5.2	169	138	412	73	19	1.1				0	220
8	6.2	159	152	348	71	22	0.8				0	132
9	5.2	156	684	313	69	72	.7				56	322
10	4.0	151	536	270	67	54	.7				32	180
11	4.0	144	364	242	61	38	.5				12	106
12	6.2	1690	277	222	58	32	.3	N	N	N	62	84
13	7.7	1510	232	218	54	30	.3	0	0	0	25	74
14	5.7	630	198	218	52	25	.2				77	65
15	6.2	428	179	198	51	21	.1				1070	60
16	915	372	172	195	49	20	.1				268	53
17	3510	768	185	205	44	18	0	F	F	F	129	48
18	560	426	155	205	42	16	0	L	L	L	90	45
19	370	325	242	195	41	14	0	0	0	0	74	43
20	257	295	440	179	38	12	0	W	W	W	63	41
21	194	266	716	166	36	10	0				54	41
22	695	246	457	155	35	9.2	0				48	44
23	932	225	306	149	32	8.6	0				45	48
24	464	222	256	146	31	6.8	0				41	48
25	257	222	218	141	30	6.3	0				38	47
26	197	218	192	127	30	5.8	0				35	41
27	332	205	185	144	28	6.3	0				31	37
28	2300	188	188	172	25	6.3	0				30	35
29	1000	—	235	127	24	5.4	0				29	35
30	645	—	325	110	22	4.6	0				27	35
31	415	—	235	—	22	—	0		—		—	36
Mean	423	376	265	250	51.8	19.4	0.6	0	0	0	77.9	125
Ac-Ft	26000	20880	16270	14900	3190	1160	35	0	0	0	4630	7690

Maximum Discharge	Calendar year 8720 c.f.s. January 17, 1954 of record 8720 c.f.s. January 17, 1954	Total Runoff in Acre-Feet	Calendar Year 94755 Water Year 84011

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 178.5R. Drainage area is 142 square miles. Period of record 1949, to date. Records for 1954 computed by U. S. Geological Survey.
(Prior records are available at a site approximately 20 miles upstream.)

TABLE 39

FLOW OF MILL CREEK NEAR LOS MOLINOS - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	140	308	289	324	477	334	240	134	130	123	121	149
2	140	302	276	318	444	331	234	130	130	123	121	419
3	151	292	264	400	447	341	228	130	128	123	123	444
4	146	280	258	1880	455	368	222	130	128	123	123	444
5	142	264	261	2290	496	341	213	132	130	123	121	337
6	144	252	264	1440	511	315	210	130	128	123	121	829
7	175	243	270	965	535	299	204	130	128	128	121	397
8	158	240	557	762	555	337	202	130	128	134	134	258
9	149	240	2040	680	559	337	199	125	125	130	187	962
10	144	237	1740	587	481	302	193	125	125	125	156	474
11	144	240	1030	527	504	286	188	128	125	125	325	261
12	142	1490	708	511	523	292	188	132	128	123	547	210
13	140	1830	543	539	507	283	182	132	125	125	164	202
14	140	1170	462	559	515	286	179	132	125	125	247	182
15	142	626	411	555	523	324	172	132	137	123	1060	172
16	981	455	631	600	535	361	166	132	132	121	389	161
17	2080	1460	543	662	579	318	161	134	149	121	213	154
18	396	864	462	703	600	302	159	132	139	121	172	149
19	264	547	600	690	613	299	154	137	132	130	154	146
20	213	429	748	672	575	305	154	137	130	144	146	144
21	185	372	662	658	515	321	151	134	128	128	139	142
22	243	334	504	649	451	321	149	134	128	125	134	139
23	667	312	422	685	436	315	144	132	128	123	132	139
24	523	315	426	703	436	305	144	132	125	123	130	142
25	344	321	444	708	422	290	146	132	125	123	130	139
26	280	328	386	654	397	280	146	144	123	121	128	134
27	252	312	361	874	375	270	144	146	123	121	128	128
28	429	296	358	775	372	260	142	144	123	121	125	130
29	481	—	348	636	368	249	137	137	123	121	125	132
30	408	—	348	547	358	246	137	134	123	121	121	137
31	337	—	337	—	351	—	134	132	—	121	—	296
Mean	332	513	547	752	481	307	175	133	128	125	201	263
Ac-Ft	20390	28480	33630	44730	29580	18280	10750	8180	7640	7660	11970	16170

Maximum Discharge	Calendar year 4910 c.f.s. January 17, 1954 of record 23,000 c.f.s. December 11, 1937	Total Runoff in Acre-Feet	Calendar Year 237460 Water Year 230450

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 1954 computed by U. S. Geological Survey.

TABLE 40

FLOW OF NORTH FORK OF MILL CREEK NEAR MOUTH - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.5	4.2	6.7	9.4	24	12	7.2	2.8	4.0	0.7	4.2	16
2	3.5	4.0	6.2	9.4	24	12	6.0	2.8	3.1	0.9	4.6	16
3	3.5	4.0	6.0	12	23	13	5.8	2.1	2.9	0.4	5.8	8.4
4	3.3	3.8	6.0	24	22	15	7.0	1.6	1.7	0.9	6.5	8.1
5	3.5	5.0	6.0	34	12	13	5.8	1.4	3.3	0.8	7.2	7.0
6	3.5	7.0	6.0	27	2.9	12	5.3	2.1	3.1	1.6	7.5	7.2
7	3.7	7.0	6.2	21	3.7	10	4.4	2.2	3.1	2.5	8.1	4.8
8	3.5	7.0	10	12	2.0	12	4.4	1.7	2.5	2.2	8.4	3.8
9	3.1	6.7	29	8.1	1.7	16	4.2	2.0	1.5	2.2	15	9.4
10	2.9	7.0	27	9.4	3.3	15	4.6	1.5	3.3	1.6	7.0	5.8
11	2.9	7.0	21	9.1	2.9	13	4.2	1.2	2.8	2.2	10	5.0
12	3.1	28	16	7.3	1.7	11	3.5	1.3	2.6	1.9	13	4.6
13	3.3	30	13	8.2	7.3	11	4.0	1.5	3.3	1.9	9.1	4.4
14	2.4	24	12	19	16	11	4.4	1.2	3.3	1.7	12	4.2
15	2.4	16	11	19	18	12	4.4	1.3	2.6	2.0	19	4.0
16	5.0	12	15	20	18	15	3.8	1.6	3.1	2.0	13	3.8
17	11	26	14	22	18	15	3.7	2.0	3.5	2.4	10	3.5
18	5.0	23	12	24	20	13	4.8	1.9	2.4	2.4	10	3.3
19	3.3	14	15	24	22	12	4.2	1.9	3.1	0.7	9.7	3.3
20	2.8	12	18	23	21	12	3.3	1.9	2.8	0.6	9.4	3.1
21	2.4	10	19	22	21	12	2.8	1.6	1.6	0.6	9.1	2.9
22	2.9	8.4	15	22	17	11	1.9	2.1	2.1	2.8	9.1	2.9
23	5.3	7.8	13	24	17	12	2.2	2.6	2.5	4.8	9.1	2.9
24	4.4	7.5	12	24	18	12	1.5	2.0	2.1	4.8	9.1	2.8
25	4.6	8.1	13	25	17	11	1.5	1.5	1.7	5.8	8.8	2.8
26	3.8	8.1	11	23	16	11	1.5	2.4	1.2	4.8	8.8	2.6
27	3.7	7.5	10	28	16	9.7	2.0	3.1	1.1	5.5	9.1	2.6
28	9.1	7.2	10	29	15	9.1	2.1	4.6	1.1	5.5	8.8	2.5
29	5.5	—	10	27	12	8.1	2.1	2.6	0.9	5.5	8.8	2.5
30	4.8	—	10	26	12	8.8	1.6	2.8	0.9	4.6	8.4	2.5
31	4.4	—	9.7	—	12	—	2.0	3.7	—	4.6	—	3.1
Mean	4.1	11.2	12.5	19.7	14.1	12.0	3.7	2.1	2.4	2.6	9.3	5.0
Ac-Ft	250	619	771	1174	866	713	230	129	145	160	553	309

Maximum Discharge	Calendar year 46 c.f.s. February 12, 1954	Total Runoff in Acre-Feet	Calendar Year 5919 Water Year 5486

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 1954 computed by Division of Water Resources.

TABLE 41

FLOW OF MILL CREEK NEAR MOUTH - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	111	296	*255	302	376	*198	91	0	18	14	32	158
2	109	280	*248	288	373	*189	86	0	12	12	33	533
3	126	264	*230	324	376	*194	80	0	6.2	12	32	558
4	121	243	*218	1680	373	*210	75	0	5.9	14	35	570
5	119	227	*220	2770	373	*205	72	0	6.4	14	37	417
6	123	204	*225	1490	380	*189	68	0	6.4	15	45	1240
7	160	189	*230	959	389	*170	64	0	5.6	15	71	508
8	144	180	*500	702	412	156	60	0	5.4	23	91	319
9	128	180	*2000	600	423	193	57	0	4.9	20	158	1510
10	123	168	*1500	518	358	146	53	0	6.4	21	125	731
11	123	168	934	453	373	124	51	0	6.2	22	130	328
12	124	1360	620	429	386	130	48	0	8.1	22	1020	253
13	119	1760	480	440	376	128	46	0	7.8	21	153	239
14	121	977	440	433	367	123	44	0	9.6	19	221	206
15	135	515	436	395	367	131	42	0	22	18	1650	182
16	1080	367	538	409	373	207	40	0	19	18	496	173
17	2740	1300	480	460	399	162	38	0	25	20	228	153
18	478	746	443	499	419	136	36	0	21	23	167	144
19	299	*505	507	495	364	130	35	0	19	25	144	141
20	225	*406	643	476	305	135	26	0	19	37	134	136
21	193	*350	581	446	285	164	19	0	21	28	127	134
22	251	*310	476	436	264	170	13	0	20	27	123	132
23	676	*285	433	472	261	174	13	0	16	27	123	132
24	569	*288	409	491	266	164	5.3	0	13	31	118	134
25	370	*290	412	495	266	158	2.6	0	12	30	116	132
26	294	*292	361	446	243	148	1.3	0	12	30	118	127
27	256	*290	339	656	*240	128	0.3	4.7	11	32	114	125
28	431	*260	333	608	*230	119	0	23	11	34	112	123
29	515	—	327	476	*220	111	0	25	12	34	112	127
30	419	—	330	409	*212	98	0	23	14	32	109	130
31	336	—	322	—	*208	—	0	19	—	33	—	319
Mean	355	454	499	635	331	156	37.6	3.0	12.5	23.0	206	326
Ac-Ft	21850	25190	30680	37800	20340	9302	2314	188	746	1434	12250	20060

Maximum Discharge	Calendar year 6640 c.f.s. January 17, 1954	Total Runoff in Acre-Feet	Calendar Year 182154 Water Year 169655

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 1954 computed by Division of Water Resources.

* Estimated

TABLE 42

FLOW OF THOMES CREEK AT PASKENTA - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	57	1160	602	430	369	112	40	9.8	13	6.5	9.0	400
2	55	1140	539	430	342	107	39	9.8	12	6.5	10	600
3	59	1110	490	944	342	107	36	9.2	11	6.5	12	300
4	61	995	472	2300	338	112	34	8.6	9.8	6.5	15	250
5	54	894	472	2280	346	112	32	8.6	8.6	6.8	15	700
6	54	814	472	1600	351	104	30	8.6	8.6	6.8	15	900
7	66	750	478	1240	360	92	29	8.6	8.6	7.1	15	446
8	63	718	1540	1080	369	104	28	8.6	8.0	9.8	100	249
9	55	734	4210	977	374	184	28	8.0	7.7	16	150	249
10	57	654	2300	862	333	136	27	7.4	7.7	12	60	187
11	63	691	1440	774	320	107	24	7.1	7.7	10	80	148
12	68	3700	1090	750	299	102	23	7.1	7.7	9.2	100	130
13	61	2490	902	814	279	110	21	7.4	7.7	8.6	70	130
14	59	1490	774	830	275	97	20	7.7	8.6	8.0	40	133
15	62	1110	686	774	287	97	20	7.7	8.6	8.0	1500	127
16	1120	942	630	838	287	128	19	7.4	8.6	8.0	400	122
17	2200	1050	560	878	303	102	18	7.4	9.8	8.0	250	114
18	659	854	484	878	299	89	17	7.1	9.8	8.0	200	111
19	371	718	525	806	287	82	16	7.1	9.2	8.6	170	114
20	270	686	553	758	264	80	16	7.1	8.0	8.6	150	124
21	216	662	546	710	216	80	15	7.1	7.7	12	130	154
22	283	638	497	696	184	77	14	6.8	7.7	12	120	245
23	2150	678	448	703	169	75	13	6.8	7.4	10	110	270
24	1130	806	436	710	167	66	13	6.5	7.1	9.8	100	274
25	702	814	390	661	155	62	13	6.8	6.8	9.8	95	214
26	504	798	376	584	150	58	13	8.0	6.8	9.2	90	170
27	575	694	390	598	136	56	12	9.8	6.8	9.2	85	142
28	3730	616	415	552	128	50	11	21	6.8	8.6	80	130
29	2610	—	511	477	125	45	10	48	6.5	8.6	75	116
30	1790	—	484	415	120	44	9.8	24	6.5	8.0	70	114
31	1260	—	442	—	115	—	9.8	16	—	8.0	—	815
Mean	660	1014	779	878	261	92.6	21.0	10.4	8.4	8.9	144	264
Ac-Ft	40590	56340	47910	52260	16040	5510	1290	637	497	545	8560	16220

Maximum Discharge	Calendar year 5390 c.f.s. March 9, 1954 of record 18600 c.f.s. January 21, 1943	Total Runoff in Acre-Feet	Calendar Year 246399 Water Year 237036

U. S. Geological Survey and Division of Water Resources cooperative station located 0.5 mile upstream from Paskenta. Thomas 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 1954 computed by U. S. Geological Survey.

TABLE 43

FLOW OF DEER CREEK NEAR VINA - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	128	408	387	479	620	221	150	122	113	108	109	159
2	128	384	367	467	571	215	148	120	111	108	109	470
3	146	364	348	592	547	209	146	120	111	109	109	407
4	141	342	337	2240	527	230	144	122	111	109	109	415
5	137	321	329	3660	515	256	144	122	111	109	109	345
6	137	304	329	2720	503	237	144	120	111	109	109	874
7	213	287	333	1760	495	212	142	120	109	111	109	475
8	170	277	595	1320	491	237	142	120	111	114	120	295
9	150	274	2250	1080	487	281	140	118	111	113	189	840
10	146	268	2410	930	463	246	140	118	111	111	146	535
11	141	268	1430	835	447	221	140	118	109	111	214	314
12	139	2910	1010	778	431	209	138	118	109	109	356	243
13	135	2660	815	768	419	212	135	118	109	111	160	221
14	135	1720	710	768	403	197	133	118	113	111	193	197
15	144	1010	642	750	391	192	133	120	123	108	823	180
16	2080	768	764	750	371	212	131	120	120	108	423	172
17	3950	2130	674	778	364	189	129	118	122	108	209	162
18	714	1370	604	796	356	183	129	118	120	108	158	155
19	428	890	737	786	348	178	129	118	114	113	142	150
20	321	710	805	764	337	175	129	118	111	123	133	146
21	261	604	760	746	322	170	129	118	111	114	129	144
22	287	531	670	737	307	165	127	118	109	111	127	142
23	634	483	620	732	292	162	127	116	109	109	125	140
24	656	467	629	728	277	158	127	116	109	109	123	144
25	460	459	629	719	270	158	127	118	108	108	122	144
26	372	455	575	692	263	155	129	125	108	108	120	135
27	338	431	555	865	253	155	127	127	108	108	118	129
28	436	403	547	912	243	153	125	123	108	108	118	129
29	584	—	535	764	240	150	123	120	108	108	116	133
30	525	—	523	683	233	150	123	116	108	108	114	138
31	448	—	503	—	227	—	123	114	—	108	—	244
Mean	474	768	723	1020	388	196	134	119	112	110	175	270
Ac-Ft	29130	42640	44470	60690	23830	11680	8240	7330	6640	6760	10400	16620

Maximum Discharge	Calendar year 8370 c.f.s. January 17, 1954 of record 23800 c.f.s. December 10, 1937	Total Runoff in Acre-Feet	Calendar Year 268430 Water Year 263210

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 1954 computed by U. S. Geological Survey.

TABLE 44

FLOW OF DEER CREEK AT HIGHWAY 99E - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	93	402	407	402	528	87	*8.4	*3.8	*3.2	*3.9	110	296
2	93	373	397	382	477	82	*7.9	*3.8	*3.2	*3.9	115	675
3	106	352	378	462	432	80	*7.3	*3.9	*3.1	*4.0	115	604
4	97	330	369	1480	407	78	*6.8	3.9	*3.1	*4.0	115	592
5	93	305	369	2890	382	83	*6.2	*3.9	*3.0	*4.1	112	494
6	99	292	373	2230	365	78	*5.7	*3.8	*2.9	*4.2	112	1060
7	166	274	378	1590	360	*66	*5.2	*3.8	2.8	4.4	102	662
8	132	259	517	1220	356	62	4.9	*3.8	*2.9	*6.2	112	462
9	110	252	2000	1020	352	69	*4.7	*3.8	*2.9	*11	197	827
10	102	240	2310	841	330	64	*4.5	*3.8	*3.0	*15	138	569
11	99	244	1590	733	309	59	*4.2	*3.8	*3.0	*19	145	339
12	99	2010	1160	662	285	54	*4.0	*3.8	*3.0	*24	400	255
13	97	2460	930	649	259	54	*3.7	*3.7	*3.1	*28	169	219
14	99	1580	769	662	252	52	*3.5	*3.7	*3.1	*33	244	197
15	112	1030	681	649	244	45	3.3	*3.7	*3.2	*42	852	182
16	1530	791	784	668	240	48	*3.3	*3.7	*3.2	*47	477	166
17	3360	1790	688	700	229	44	*3.3	*3.7	*3.2	*51	248	160
18	762	1450	604	748	213	34	*3.3	*3.7	*3.3	*55	191	155
19	462	982	748	726	191	27	*3.4	*3.8	*3.3	*57	176	148
20	330	769	856	694	179	25	*3.4	*3.7	*3.4	60	169	145
21	278	643	776	662	169	23	*3.4	*3.7	*3.4	*60	166	145
22	300	563	649	649	148	21	*3.5	*3.7	*3.5	*65	166	145
23	567	499	563	649	130	20	*3.5	*3.7	*3.5	*65	169	142
24	604	477	552	643	125	24	*3.5	3.6	*3.6	*63	169	140
25	452	472	569	624	120	24	*3.6	*3.6	*3.6	*65	169	142
26	378	462	505	592	112	28	*3.6	*3.6	*3.6	233	166	138
27	352	442	482	805	106	32	*3.6	*3.5	*3.7	108	163	132
28	442	422	467	904	106	10	*3.7	*3.5	*3.7	104	163	128
29	575	—	457	700	102	*9.5	*3.7	*3.4	*3.8	99	163	132
30	511	—	447	598	99	*9.0	*3.7	*3.3	*3.8	95	163	130
31	442	—	432	—	93	—	*3.8	*3.3	—	102	—	244
Mean	417	720	716	874	248	46.4	4.4	3.7	3.3	49.5	198	317
Ac-Ft	25670	40000	44050	52030	15270	2760	271	227	195	3046	11810	19490

Maximum Discharge	Calendar year 7690 c.f.s. January 17, 1954	Total Runoff in Acre-Feet	Calendar Year 214819 Water Year 198269

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 1954 computed by Division of Water Resources.
* Estimated

TABLE 45

FLOW OF BIG CHICO CREEK NEAR CHICO (a) - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	29	198	148	278	181	50	37	29	28	29	32	37
2	31	193	139	260	168	51	36	29	28	29	32	138
3	48	190	133	310	155	51	35	29	28	29	32	205
4	63	180	127	1180	148	59	35	29	28	29	33	164
5	52	172	124	2180	142	60	34	30	28	30	32	158
6	55	164	115	1440	134	57	33	29	28	29	32	474
7	116	160	109	976	128	54	33	29	28	32	32	258
8	107	154	142	614	122	57	34	29	29	32	37	146
9	86	152	684	464	120	84	33	29	27	31	70	258
10	72	150	761	380	114	65	33	29	25	30	49	234
11	63	150	558	324	107	57	33	28	26	30	48	152
12	58	1190	425	283	104	54	33	28	29	30	92	116
13	53	2030	352	259	102	54	32	29	29	30	44	98
14	50	1320	313	242	97	51	31	31	29	30	44	82
15	55	740	285	222	95	50	31	29	38	29	336	74
16	1390	534	344	208	90	49	31	29	31	29	148	66
17	2670	1570	334	194	84	46	31	29	33	29	72	61
18	741	1390	296	184	82	45	31	28	32	29	51	57
19	403	775	397	177	78	44	31	28	30	32	44	53
20	288	442	397	171	76	44	31	28	30	36	38	51
21	235	320	390	161	74	44	31	28	30	31	36	48
22	252	254	352	155	68	42	30	28	30	31	32	46
23	626	226	330	152	65	41	30	27	30	31	30	46
24	503	211	369	148	64	40	30	27	29	31	29	44
25	316	196	355	142	62	40	30	27	29	31	29	44
26	254	181	334	136	60	40	30	29	29	32	29	43
27	238	169	324	239	59	40	29	30	29	31	28	42
28	235	154	324	300	54	39	30	31	28	32	28	40
29	238	—	324	232	54	39	29	29	29	32	28	40
30	219	—	316	201	56	37	29	28	29	32	27	41
31	203	—	296	—	59	—	29	27	—	31	—	106
Mean	314	484	319	407	96.8	49.5	31.8	28.7	29.2	30.6	53.1	110
Ac-Ft	19340	26910	19630	24220	5950	2940	1950	1760	1740	1880	3160	6790

Maximum Discharge	Calendar year 4360 c.f.s. January 17, 1954 of record 8260 c.f.s. December 10, 1937	Total Runoff in Acre-Feet	Calendar Year 116270 Water Year 112250

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 1954 computed by U. S. Geological Survey.
(a) Formerly published as Chico Creek

TABLE 46

FLOW OF BIG CHICO CREEK NEAR MOUTH - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.3	176	142	243	142	18	7.7	0	0		0	15
2	1.1	155	129	226	124	14	6.4	0	0		0	62
3	0.8	137	120	262	112	15	5.8	0	0		0	186
4	31	121	112	*800	104	16	5.1	0	0		0	144
5	22	108	104	*1690	96	20	5.1	0	0		0	155
6	20	96	100	*1390	90	18	4.4	0	0		0	359
7	49	86	96	1000	83	16	3.0	0	0		0	266
8	74	78	115	715	79	16	2.3	0	0		*9.0	147
9	53	72	571	542	75	34	2.7	0	0		*34	226
10	41	68	700	429	71	27	1.9	0	0		22	280
11	33	65	544	353	67	21	1.5	0	0		15	179
12	28	*800	398	296	62	18	0.4	0	0	N	45	134
13	23	*1600	315	258	58	16	0	0	0	0	30	109
14	16	*1200	258	230	55	13	0.4	0	0		22	93
15	14	*900	226	204	52	13	0	0	0		177	78
16	*700	*520	286	182	50	11	0	0	7.7		152	70
17	*1720	*1400	292	165	47	13	0	0	1.5	F	63	58
18	*740	*1300	247	153	46	5.8	0	0	2.7	L	43	52
19	441	986	311	142	44	4.4	0	0	1.9	O	34	44
20	266	629	376	132	38	3.8	0	0	0	W	29	38
21	174	448	374	121	35	5.1	0.4	0	0		26	33
22	176	344	359	115	30	9.6	2.7	0	0		21	31
23	528	280	327	108	31	9.6	0	0	0		14	29
24	655	239	353	104	30	8.4	0	0	0		14	27
25	376	215	355	99	29	9.0	0	0	0		13	26
26	256	193	325	93	28	9.6	0	0	0		11	24
27	202	172	308	147	26	9.0	0	0	0		10	20
28	198	153	306	323	23	9.0	0	9.6	0		9.6	20
29	348	—	300	209	20	9.0	0	8.4	0		9.6	19
30	235	—	288	169	21	9.6	0	3.4	0		9.0	19
31	206	—	266	—	20	—	0	0	—		—	58
Mean	246	448	290	363	57.7	13.4	1.6	0.7	0.5	0	27.1	96.8
Ac-Ft	15130	24870	17860	21620	3546	795	99	42	27	0	1611	5952

Maximum Discharge	Calendar year *1720 c.f.s. January 17, 1954	Total Runoff in Acre-Feet	Calendar Year	91552
			Water Year	86839

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 1954 computed by Division of Water Resources.
Formerly published as Chico Creek.

* Estimated

TABLE 47

FLOW OF STONY CREEK BELOW BLACK BUTTE DAM SITE - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	29	1010	490	1020	552	386	398	399	125	295	171	355
2	29	742	494	993	502	392	391	391	152	282	156	1530
3	29	634	532	1200	448	418	374	394	193	243	136	670
4	30	609	550	2450	450	424	379	398	214	222	125	520
5	30	554	564	3900	441	401	372	396	238	187	117	830
6	30	502	520	3500	425	389	383	375	251	173	77	1350
7	32	468	420	2650	399	389	403	375	310	133	41	682
8	35	435	464	2190	387	390	401	367	353	71	69	452
9	34	416	2020	1880	389	368	393	351	385	65	108	532
10	35	401	2600	1510	391	335	402	353	378	62	88	524
11	34	397	1840	1220	380	310	393	370	383	87	70	383
12	32	2970	1320	1220	354	281	381	365	333	110	82	321
13	36	4080	1250	1150	338	275	404	367	301	116	76	252
14	33	2720	1040	1100	357	269	399	359	274	120	106	211
15	31	1820	902	1000	377	333	393	329	245	140	1570	183
16	1110	1400	916	982	378	368	392	264	210	162	958	167
17	6180	2630	916	892	400	387	395	271	173	179	545	148
18	1040	3020	857	908	379	400	388	297	148	209	405	129
19	545	2140	902	902	374	396	391	300	149	198	321	114
20	515	1610	1000	888	400	370	392	277	159	187	246	103
21	485	1330	1440	703	420	364	391	240	180	186	196	98
22	639	1000	1680	699	416	391	394	260	224	185	167	109
23	2060	714	1310	713	412	410	401	286	302	166	145	122
24	1700	654	1240	684	407	416	409	318	319	163	129	116
25	1320	624	1100	665	386	433	405	334	314	170	114	111
26	634	599	1010	634	383	422	410	324	314	188	103	93
27	654	545	972	571	376	420	400	305	305	181	93	85
28	2020	511	902	820	354	387	399	236	290	202	87	78
29	1570	—	845	644	362	390	405	102	265	206	78	76
30	1350	—	1100	610	376	389	407	85	301	190	78	74
31	1200	—	1060	—	363	—	404	92	—	179	—	410
Mean	758	1233	1040	1277	399	377	395	309	260	170	222	349
Ac-Ft	46610	68500	63980	75960	24550	22420	24300	19000	15450	10430	13200	21480

Maximum Discharge	Calendar year 10,700 c.f.s. January 17, 1954 of record 15,400 c.f.s. January 9, 1953	Total Runoff in Acre-Feet	Calendar Year	405880
			Water Year	380605

Division of Water Resources and U. S. Bureau of Reclamation cooperative station located below the proposed Black Butte Dam Site. The flows at this station are the sum of the flows as measured in Stony Creek below Orland South Diversion and in the Orland South Diversion Canal. Period of record 1953 to date. Records for 1954 computed by Division of Water Resources.

TABLE 48

FLOW OF STONY CREEK NEAR HAMILTON CITY - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	13	1430	658	1010	332	23	10	5.4	29	0.9	7.0	26
2	11	1240	630	980	278	27	11	7.4	28	4.6	9.6	811
3	11	966	658	1030	250	27	17	9.2	16	7.4	23	620
4	9.6	847	665	1990	215	28	13	10	11	14	28	462
5	8.7	756	672	3490	182	21	25	10	9.6	26	22	354
6	7.9	672	651	3770	135	15	23	6.6	9.6	21	23	1160
7	7.1	610	511	2960	98	23	22	5.6	9.2	49	15	780
8	5.9	572	517	2400	78	27	21	7.0	5.6	43	10	450
9	4.7	541	1340	2060	69	46	21	11	1.1	23	53	438
10	3.5	523	2520	1680	71	60	15	15	.2	17	31	571
11	2.6	500	2200	1230	62	75	12	14	9.2	8.6	25	354
12	2.4	1310	1610	1150	49	62	16	14	15	19	23	261
13	2.0	4710	1340	1080	42	59	18	19	10	21	23	215
14	1.4	3380	1130	1030	36	54	15	16	12	17	23	182
15	1.1	2470	888	942	30	33	10	12	13	5.6	628	164
16	8.3	1940	852	780	36	38	10	18	26	4.3	629	147
17	4440	2630	852	660	40	35	14	15	25	6.6	310	131
18	1710	3490	798	613	37	22	18	6.6	14	9.2	178	119
19	966	2740	852	585	35	12	20	1.1	7.4	12	119	108
20	721	2150	906	529	33	6.3	10	2.0	15	13	92	98
21	565	1820	1230	462	36	12	14	8.2	13	9.6	73	92
22	535	1590	1800	344	30	8.2	8.2	1.8	4.6	12	60	89
23	1150	1110	1560	344	31	12	4.6	2.0	5.4	7.4	54	98
24	2480	958	1310	372	26	6.6	5.6	2.4	4.3	8.2	49	95
25	1810	875	1160	384	36	3.8	1.8	.4	12	12	37	92
26	942	826	1030	349	29	3.6	5.1	4.3	15	5.6	32	85
27	770	763	960	322	18	15	7.8	17	12	1.6	28	80
28	1450	700	933	468	14	24	.9	37	10	.2	24	73
29	2430	—	756	468	18	22	2.7	43	6.6	0	22	71
30	2270	—	1000	390	14	22	9.2	45	1.6	0	20	67
31	1770	—	1020	—	21	—	8.0	37	—	2.1	—	116
Mean	778	1504	1065	1129	76.8	27.4	12.6	13.0	11.7	12.3	89.0	271
Ac-Ft	47820	83540	65470	67180	4720	1630	772	799	695	756	5300	16680

Maximum Discharge	Calendar year 7980 c.f.s. January 17, 1954 of record 37500 c.f.s. March 1, 1941	Total Runoff in Acre-Feet	Calendar Year 295362 Water Year 278323

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 138.0R. Water diverted from Stony Creek by G. C. I. D. in acre-feet amounted to: April 22360, May 4720, June 1630, July 772, August 799, September 695, October 756 and November 324. Drainage area is 761 square miles. Period of record 1941 to date. Records for 1954 computed by U. S. Geological Survey.

TABLE 49

FLOW OF BUTTE CREEK NEAR CHICO - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	199	473	537	684	790	289	202	159	152	155	118	178
2	199	473	485	668	727	280	202	159	148	142	113	380
3	220	449	479	923	700	275	198	159	152	148	124	467
4	237	425	467	2370	684	299	198	159	148	139	121	398
5	220	409	455	3980	644	318	194	166	139	148	118	404
6	223	398	461	2700	636	289	194	159	155	145	118	942
7	282	388	467	1940	606	275	194	155	148	152	110	564
8	271	383	628	1610	571	285	194	155	152	155	133	377
9	244	377	2370	1370	585	348	189	159	148	152	237	495
10	237	362	2210	1240	544	313	189	159	145	148	178	455
11	226	362	1490	1150	537	299	185	152	145	148	178	362
12	226	1880	1150	1080	518	285	163	155	148	145	299	299
13	220	2970	942	1040	498	285	185	155	148	145	211	285
14	216	1880	838	1020	479	266	181	159	148	142	166	270
15	220	1310	772	961	467	261	170	148	155	142	651	247
16	1570	1060	894	932	455	256	170	159	163	133	462	211
17	3120	2440	885	990	443	252	159	152	155	124	285	228
18	1030	1930	772	990	437	247	166	155	170	133	219	219
19	571	1330	876	970	431	237	170	148	142	142	215	215
20	443	1070	942	952	409	237	178	152	148	145	206	198
21	377	914	914	914	393	228	163	159	155	124	155	211
22	414	800	838	894	372	224	174	155	155	118	189	194
23	1490	709	763	866	357	224	159	155	145	118	163	198
24	1110	644	790	866	338	219	178	148	139	105	163	198
25	676	644	772	856	333	219	152	152	148	133	139	211
26	544	620	628	818	323	219	159	166	136	121	152	206
27	485	585	636	1380	313	219	159	166	145	97	148	185
28	492	550	676	1490	309	215	163	170	148	115	148	185
29	564	—	692	1090	309	211	159	159	148	124	152	189
30	557	—	718	952	304	194	159	159	148	115	148	194
31	498	—	692	—	299	—	159	159	—	121	—	357
Mean	561	923	846	1257	478	259	176	157	149	135	194	307
Ac-Ft	34470	51240	52040	74770	29380	15410	10840	9660	8880	8280	11540	18890

Maximum Discharge	Calendar year 5330 c.f.s. April 4, 1954 of record 17000 c.f.s. December 11, 1937	Total Runoff in Acre-Feet	Calendar Year 325400 Water Year 324000

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 52 and 63). Drainage area of Butte Creek near Chico is 148 square miles and period of record 1930 to date. Records for 1954 computed by U. S. Geological Survey.

TABLE 50

FLOW OVER MOULTON WEIR FROM SACRAMENTO RIVER TO BUTTE BASIN - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	1200										
2	0	280										
3	0	0										
4	0	0										
5	0	0										
6	0	0										
7	0	0										
8	0	0										
9	0	0										
10	0	0										
11	0	0										
12	0	0	N	N	N	N	N	N	N	N	N	N
13	0	190	0	0	0	0	0	0	0	0	0	0
14	0	3600										
15	0	3800										
16	0	2400										
17	0	400	F	F	F	F	F	F	F	F	F	F
18	230	2000	L	L	L	L	L	L	L	L	L	L
19	0	5800	0	0	0	0	0	0	0	0	0	0
20	0	4100	W	W	W	W	W	W	W	W	W	W
21	0	2600										
22	0	330										
23	0	0										
24	0	0										
25	0	0										
26	0	0										
27	0	0										
28	0	0										
29	1500	—										
30	2000	—										
31	1200	—		—		—			—		—	
Mean	159	954	0	0	0	0	0	0	0	0	0	0
Ac-Ft	9778	52960	0	0	0	0	0	0	0	0	0	0

Maximum Discharge	Calendar year 6300 c.f.s. February 19, 1954	Total Runoff in Acre-Feet	Calendar Year 62738 Water Year 62738

Station is located on Sacramento River at Mile 104.0L. Elevation of crest is 76.75 U. S. E. D. datum; length of crest is 500 feet. Period of record 1940 to date. Records for 1954 computed by Division of Water Resources.

TABLE 51

FLOW OVER COLUSA WEIR FROM SACRAMENTO RIVER TO BUTTE BASIN - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	15600		0								
2	0	12500		0								
3	0	7740		0								
4	0	1230		0								
5	0	0		110								
6	0	0		5120								
7	0	0		3360								
8	0	0		229								
9	0	0		0								
10	0	0		0								
11	0	0		0								
12	0	0	N	0	N	N	N	N	N	N	N	N
13	0	3490	0	0	0	0	0	0	0	0	0	0
14	0	20600		0								
15	0	23700		0								
16	0	20300		0								
17	0	13500	F	0	F	F	F	F	F	F	F	F
18	6850	16100	L	0	L	L	L	L	L	L	L	L
19	5160	27200	0	0	0	0	0	0	0	0	0	0
20	5.0	25000	W	0	W	W	W	W	W	W	W	W
21	*0	20500		0								
22	*0	11900		0								
23	*0	5250		0								
24	*3810	1560		0								
25	*13700	0		0								
26	9800	0		0								
27	8380	0		0								
28	7740	0		0								
29	13000	—		0								
30	19800	—		0								
31	15300	—		—0		—			—		—	
Mean	3340	8078	0	294	0	0	0	0	0	0	0	0
Ac-Ft	205400	448600	0	17490	0	0	0	0	0	0	0	0

Maximum Discharge	Calendar year 28400 c.f.s. February 19, 1954	Total Runoff in Acre-Feet	Calendar Year 671490 Water Year 671490

Station is located on Sacramento River at Mile 92.4L. Elevation of crest is 61.80 U. S. E. D. datum; length of crest is 1650 feet. Period of record 1950 to date. Record for 1954 computed by Division of Water Resources.

* Estimated.

TABLE 52

FLOW OF BUTTE SLOUGH TO SACRAMENTO RIVER - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	251		0	547	410	23	55	38	322	502	268	0
2	239		285	587	621	273	62	38	268	593	274	85
3	188		638	616	804	354	122	70	231	542	262	0
4	285		416	564	787	333	144	123	203	524	274	0
5	302		205	0	895	347	134	153	206	536	268	0
6	268		422	0	781	408	112	189	195	462	274	0
7	274		399	0	758	415	100	212	203	439	268	0
8	342		416	0	650	456	43	232	216	513	331	0
9	370		456	0	604	541	34	253	273	547	342	0
10	365		0	0	553	586	39	250	268	570	336	0
11	370		0	0	644	668	71	229	241	587	479	0
12	410	N	0	0	336	781	77	261	263	593	484	0
13	405	O	0	0	353	895	119	251	453	564	422	791
14	428		0	0	331	901	145	269	458	502	0	1340
15	439		0	0	262	866	135	295	494	456	456	1280
16	484		0	0	684	758	135	297	592	319	0	1190
17	0	F	0	0	134	619	127	343	634	279	0	889
18	0	L	0	0	85	474	113	367	590	285	0	935
19	0	O	0	0	23	351	126	384	594	302	730	781
20	0	W	0	462	0	278	126	359	602	291	770	684
21	0		0	405	0	225	104	350	677	285	730	610
22	0		0	445	0	145	74	383	772	274	616	564
23	0		0	502	0	70	62	391	775	251	621	547
24	0		0	536	0	64	45	376	798	228	587	519
25	0		0	542	0	51	37	372	809	228	484	502
26	0		251	559	0	32	32	393	678	86	376	496
27	0		502	621	0	30	29	383	581	228	342	553
28	0		604	587	0	38	23	338	673	251	302	616
29	0		684	370	0	55	25	382	610	228	291	593
30	0	—	707	325	0	53	26	433	616	251	392	610
31	0	—	627	—	0	—	32	410	—	262	—	610
Mean	175	0	213	256	313	370	80.9	285	476	386	366	458
Ac-Ft	10750	0	13110	15210	19270	22000	4974	17500	28350	23760	21780	28160

Total Runoff in Acre-Feet	Calendar Year	204864
	Water Year	150260

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 63 and 64 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 50 and 51. Period of record 1924 to date. Records for 1954 computed by Division of Water Resources.

TABLE 53

FLOW OF RECLAMATION DISTRICT 70 DRAIN - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	9.3	0	27	17	108	87	92	107	138	24	13	0
2	9.3	0	28	13	63	82	92	88	133	21	9.6	0
3	9.3	24	17	13	59	80	104	88	124	21	9.6	6.3
4	11	25	3.7	30	65	73	104	88	105	19	9.6	15
5	9.3	8.3	12	46	95	76	97	90	105	16	9.6	12
6	6.6	0	30	9.8	90	76	96	93	105	16	9.6	16
7	6.6	0	0	14	90	99	92	96	107	16	13	27
8	9.3	0	24	28	114	90	93	96	105	13	9.6	17
9	0	27	15	11	127	89	93	96	94	13	24	24
10	4.6	27	12	22	142	89	90	132	95	13	0	35
11	11	0	25	27	165	99	90	124	34	13	0	46
12	6.6	0	11	16	133	116	100	122	65	13	0	45
13	9.3	49	12	8.8	139	116	90	121	115	13	0	35
14	4.6	61	4.4	0	120	110	90	119	94	9.6	13	22
15	2.0	35	27	0	113	106	87	108	92	19	0	22
16	2.0	34	26	0	119	117	89	116	92	16	16	22
17	0	35	11	5.8	127	98	89	131	92	13	13	13
18	0	57	13	5.8	117	53	89	137	84	18	13	13
19	0	35	14	0	101	68	89	138	81	13	9.5	39
20	0	51	23	8.7	88	59	84	127	75	13	9.5	16
21	0	32	11	39	94	61	87	88	90	13	9.5	19
22	0	24	26	43	110	62	84	114	87	13	9.5	9.6
23	0	50	31	51	104	79	81	98	78	26	0	32
24	19	36	11	56	105	91	70	95	30	7.3	0	22
25	8.1	18	11	83	84	103	81	95	29	3.7	13	0
26	0	25	12	82	30	81	85	100	56	5.5	0	16
27	0	26	12	81	78	84	85	104	29	6.2	13	16
28	25	26	5	82	93	81	85	106	24	6.2	16	13
29	24	—	30	110	93	81	85	106	24	3.1	6.3	16
30	0	—	24	150	93	94	85	125	28	0	0	16
31	0	—	14	—	93	—	85	145	—	0	—	16
Mean	6.0	25.2	16.8	35.1	102	86.7	89.1	109	80.3	12.8	8.3	19.4
Ac-Ft	371	1400	1036	2088	6252	5157	5480	6730	4780	787	494	1192

Total Runoff in Acre-Feet	Calendar Year	35767
	Water Year	34357

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 and 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 1954 computed by Division of Water Resources.

TABLE 54

FLOW OVER TISDALE WEIR FROM SACRAMENTO RIVER TO SUTTER BY-PASS - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	19200	0	0							0	0
2	0	18300	0	0							0	0
3	0	17500	0	0							0	0
4	0	10600	0	0							0	0
5	0	6000	0	19							0	0
6	0	3400	0	5900							0	0
7	0	1900	0	8300							0	525
8	0	900	0	6500							0	1950
9	0	240	0	3600							0	25
10	0	0	2650	1600							0	0
11	0	0	12400	500							0	3550
12	0	0	10800	19	N	N	N	N	N	N	0	262
13	0	3400	6300	0	0	0	0	0	0	0	0	0
14	0	18200	2500	0							0	0
15	0	19700	650	0							0	0
16	0	19800	0	0							*25	0
17	0	19600	0	0	F	F	F	F	F	F	*3200	0
18	3690	19500	550	0	L	L	L	L	L	L	*50	0
19	10400	20200	197	0	0	0	0	0	0	0	0	0
20	5300	20300	317	0	W	W	W	W	W	W	0	0
21	1400	19800	5000	0							0	0
22	12	19200	9200	0							0	0
23	359	16600	9400	0							0	0
24	7700	10400	4200	0							0	0
25	17000	6600	300	0							0	0
26	17600	3800	0	0							0	0
27	16700	2500	0	0							0	0
28	16500	1100	0	0							0	0
29	17700	—	0	0							0	0
30	19100	—	0	0							0	0
31	19100	—		—		—			—		—	0
Mean	4921	10670	2079	881	0	0	0	0	0	0	109	204
Ac-Ft	302600	592500	127900	52440	0	0	0	0	0	0	6496	12520

Maximum Discharge	Calendar year 20500 c.f.s. February 20, 1954	Total Runoff in Acre-Feet	Calendar Year	1094456
			Water Year	1075440

Station is located on Sacramento River at Mile 64.2L. Elevation of crest is 45.45 U. S. E. D. datum; length of crest is 1155 feet. Period of record 1940 to date. Record for 1954 computed by Division of Water Resources.

* Estimated

TABLE 55

FLOW OF RECLAMATION DISTRICT 108 DRAIN AT ROUGH AND READY BEND - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	36	79	58	322	481	354	482	558	229	45	72
2	0	43	59	27	392	481	393	482	563	109	0	58
3	42	38	65	49	322	454	401	482	529	145	51	146
4	32	37	49	53	290	501	442	531	571	111	0	108
5	26	42	56	63	220	462	377	528	543	109	36	86
6	19	43	43	79	302	498	445	525	517	98	0	129
7	13	40	0	66	307	422	376	508	520	98	0	132
8	0	36	103	64	307	422	466	508	547	59	58	102
9	0	41	49	55	307	422	355	508	587	59	0	144
10	19	39	53	42	403	422	482	497	580	51	62	358
11	26	38	57	38	325	416	482	468	660	58	0	150
12	26	40	43	47	509	416	358	475	630	0	68	75
13	13	326	36	45	438	527	482	528	560	79	0	110
14	19	374	44	48	323	480	482	528	686	51	48	89
15	13	178	55	36	370	422	482	606	659	0	76	80
16	0	125	45	36	515	415	482	502	656	65	81	82
17	89	161	63	0	437	378	368	551	534	0	77	65
18	69	199	47	0	474	405	482	571	527	65	51	80
19	65	164	37	0	474	370	482	520	479	0	36	46
20	55	130	61	127	481	303	482	558	413	64	47	90
21	24	113	55	57	534	282	469	580	382	0	30	46
22	38	68	80	100	589	331	358	627	424	59	44	62
23	42	105	49	69	757	326	467	657	353	39	48	61
24	49	88	49	142	490	326	471	534	340	0	37	56
25	51	91	46	142	474	326	418	580	274	53	0	0
26	44	88	41	183	481	322	482	580	233	0	76	0
27	43	81	55	288	488	322	436	580	171	53	41	134
28	43	56	53	199	537	279	405	580	334	0	0	57
29	38	—	44	235	574	326	482	718	324	0	70	51
30	48	—	76	256	614	374	482	571	287	30	0	44
31	40	—	60	—	541	—	482	563	—	0	—	69
Mean	31.8	101	53.3	86.8	439	397	440	546	481	54.3	36.1	89.7
Ac-Ft	1956	5593	3277	5165	26970	23620	27020	33580	28640	3340	2146	5518

		Total Runoff in Acre-Feet	Calendar Year	166825
			Water Year	161214

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 1954 computed by Division of Water Resources.

TABLE 56

FLOW OF RECLAMATION DISTRICT 787 DRAIN - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	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	0.4	33.4	14.9	17.1	43.1	41.7	39.4	63.4	54.9	2.6	2.3	9.7
Ac-Ft	26	1856	918	1019	2652	2479	2423	3899	3269	160	138	596

Total Runoff in Acre-Feet — Calendar Year 19435; Water Year 18785

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 61.) Period of record 1949 to date. Records for 1954 computed by Division of Water Resources.

TABLE 57

FLOW OF COLUSA TROUGH AT COLUSA-WILLIAMS HIGHWAY - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	86	150	200	212	735	593	212	500	1620	661	275	181
2	74	148	194	183	516	601	189	527	1500	697	262	596
3	76	156	184	203	343	595	215	607	1380	753	307	1200
4	76	156	198	470	237	631	227	609	1260	697	334	1300
5	73	150	189	459	164	719	201	625	1230	607	345	1170
6	74	151	183	350	176	753	167	707	1170	569	345	1000
7	74	151	178	266	131	747	215	717	1110	593	374	859
8	68	148	178	242	102	843	206	741	1100	657	440	669
9	64	155	215	206	66	1060	269	769	1090	542	849	601
10	96	158	215	167	34	1250	284	733	1160	519	1200	1030
11	178	155	198	147	6.0	1390	298	695	1140	491	1200	1220
12	249	181	186	139	58	1310	320	715	1190	449	1080	993
13	198	712	176	135	33	1150	330	759	1240	428	955	647
14	131	804	172	134	9.0	996	356	817	1380	377	823	540
15	88	679	169	230	8.0	853	320	896	1530	338	1140	468
16	76	498	172	205	7.0	687	348	961	1630	348	1640	397
17	472	696	176	200	48	639	361	1010	1740	359	1630	372
18	905	1400	179	167	222	546	388	977	1800	383	1540	345
19	643	1390	188	184	166	472	410	947	1760	350	1310	336
20	375	1110	285	210	271	388	397	965	1740	334	1020	325
21	230	760	307	213	422	339	392	1010	1710	309	781	307
22	134	535	455	276	478	276	350	1060	1670	293	585	309
23	249	422	487	330	293	240	293	1040	1590	285	472	294
24	261	345	361	268	225	208	305	983	1350	291	404	291
25	210	302	266	341	230	167	341	935	1160	273	356	276
26	174	268	307	374	311	167	379	977	1020	240	314	261
27	147	237	298	483	446	167	444	1060	957	251	273	244
28	137	217	237	639	508	156	485	1320	845	232	254	227
29	137	—	213	645	533	169	535	1660	745	210	210	205
30	153	—	271	677	556	166	525	1700	673	246	181	194
31	153	—	266	—	529	—	476	1720	—	252	—	208
Mean	197	437	236	292	254	609	330	927	1316	420	697	550
Ac-Ft	12120	24270	14480	17360	15600	36250	20310	57010	78330	25850	41450	33850

Maximum Discharge: Calendar year 1810 c.f.s. September 18, 1954

Total Runoff in Acre-Feet — Calendar Year 376880; Water Year 327248

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 District. Flow reaches Sacramento River, at Mile 34.15R, through the Knights Landing Outfall Gates via Back Borrow Pit, (see Table 60). Period of record 1924 to date.

TABLE 58

FLOW OF BACK BORROW PIT (COLUSA TROUGH) NEAR COLLEGE CITY - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1				300	682	688	189	526	1780	888	300	186
2				277	589	739	202	556	1700	916	297	414
3			*225	292	355	698	194	604	1600	990	313	1120
4				547	292	717	199	625	1500	963	352	1480
5			204	553	252	814	186	662	1430	837	368	1280
6				403	186	916	156	723	1380	752	362	1120
7				331	134	905	152	807	1330	733	384	865
8				303	86	929	172	841	1300	810	448	669
9				234	70	1150	216	902	1290	714	767	559
10			*270	212	*57	1410	269	902	1360	650	1180	926
11				226	*44	1570	295	861	1360	634	1260	1230
12				226	*31	1590	326	824	1390	583	1180	1080
13				234	*17	1420	342	875	1450	559	1040	672
14				179	*4.0	1240	365	933	1550	514	905	577
15				352	*30	1030	355	1020	1700	459	1030	628
16				352	*55	895	326	1100	1770	440	1510	499
17				266	*80	787	339	1180	1850	434	1700	398
18				216	*105	742	373	1170	1910	440	1600	339
19				216	130	592	395	1130	1930	440	1620	310
20			*335	229	154	544	400	1130	1940	392	1410	295
21				236	284	479	389	1150	1920	395	964	292
22				274	583	423	392	1220	1900	365	628	290
23				373	386	406	323	1230	1860	378	465	290
24				303	209	344	310	1200	1760	375	392	287
25			336	360	204	321	342	1140	1580	412	355	282
26			355	389	229	214	373	1130	1420	362	332	279
27			381	529	352	242	445	1230	1310	336	290	272
28			334	662	505	170	529	1420	1150	300	259	264
29			321	637	553	163	574	1690	1010	259	254	239
30		—	352	502	610	165	604	1790	933	272	196	209
31		—	373	—	625	—	547	1810	—	287	—	232
Mean			299	340	255	743	332	1045	1545	545	739	567
Ac-Ft			18390	20260	15660	44240	20390	64230	91960	33500	43960	34880

Total Runoff in Acre-Feet	Calendar Year / Water Year

Division of Water Resources station located on Back Borrow Pit of Reclamation District 108 at Mile 22.7. This is return water derived chiefly from lands irrigated by Glenn-Colusa, Provident, Princeton-Codora-Glenn, Compton-Delevan, Maxwell, and Jacinto Irrigation Districts. Period of record 1946 to 1952 and 1954 to date. Recorder installed March 5, 1954.

* Estimated.

TABLE 59

FLOW OF RIDGE CUT AT KNIGHTS LANDING - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	286	167	258	443	72	41	54	117	49	0	0
2	0	299	135	211	459	69	44	55	64	49	0	0
3	0	299	116	190	398	68	*47	*53	58	53	0	8.2
4	0	302	96	195	267	66	*50	*55	58	45	0	331
5	0	277	93	299	138	68	*54	*58	53	18	0	857
6	0	214	87	331	63	95	*57	*62	47	6.3	0	923
7	0	172	74	286	50	90	*60	*66	45	1.5	0	882
8	0	135	68	299	43	64	*64	77	47	1.8	0	770
9	0	112	66	318	32	68	*67	75	54	2.1	0	674
10	0	91	82	270	24	96	*70	70	56	0	0	720
11	0	74	101	208	19	92	*87	65	59	0	17	887
12	0	66	526	153	5.4	79	*96	60	60	0	24	933
13	0	235	520	104	0	68	101	60	65	0	19	826
14	0	549	322	72	0	58	106	61	70	0	19	504
15	0	593	219	70	0	56	114	66	92	0	9.4	221
16	0	674	162	100	0	57	98	79	69	0	62	119
17	0	826	122	95	0	52	85	87	64	0	862	62
18	63	1140	88	72	0	53	80	80	66	0	1130	44
19	434	1650	72	68	0	49	95	69	70	0	882	27
20	424	1690	83	67	0	50	100	68	79	0	325	12
21	350	1540	119	67	0	51	98	67	83	0	64	0
22	286	1170	150	65	11	62	95	69	87	0	23	0
23	258	826	203	70	45	65	83	70	75	0	0	0
24	312	501	242	79	58	63	67	67	67	0	1.0	0
25	302	386	221	82	55	62	65	64	58	0	0	0
26	261	341	187	98	52	55	68	62	52	0	0	0
27	229	261	184	143	59	49	88	64	55	0	0	0
28	209	193	187	264	70	46	129	70	52	0	0	0
29	206	—	177	411	68	39	135	111	47	0	0	0
30	219	—	213	443	67	38	132	92	41	0	0	0
31	254	—	274	—	69	—	96	70	—	0	—	0
Mean	123	532	173	180	80.4	63.3	83.0	68.6	63.7	7.3	115	284
Ac-Ft	7551	29560	10620	10690	4950	3769	5101	4217	3788	448	6816	17450

Total Runoff in Acre-Feet	Calendar Year / Water Year
	104960 / 80387

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. Period of record 1933 to date. Records for 1954 computed by Division of Water Resources.

* Estimated

TABLE 60

FLOW OF COLUSA BASIN DRAINAGE TO SACRAMENTO RIVER AT KNIGHTS LANDING - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	137				0	464	0	263	1750	866	347	237
2	134				0	513	0	250	1780	866	361	243
3	115				0	505	0	*240	1630	878	358	0
4	129				388	493	0	*250	1550	1180	382	0
5	134				528	505	0	*268	1510	1100	416	0
6	135				494	556	0	*324	1470	952	445	0
7	143				220	707	0	*403	1330	906	449	0
8	161				0	782	0	491	1180	892	478	0
9	155				0	808	0	537	1190	900	646	0
10	153				0	1120	0	593	1220	830	982	0
11	181				128	1350	0	589	1240	788	980	0
12	279	N	N	N	0	1480	*62	555	1240	752	1060	0
13	335	0	0	0	0	1450	103	553	1260	720	980	0
14	322				0	1240	105	564	1320	683	764	546
15	254				0	801	122	597	1500	634	824	644
16	192				0	591	120	681	1730	571	318	634
17	290	F	F	F	0	568	111	803	1780	549	0	634
18	0	L	L	L	0	574	109	847	1790	530	0	644
19	0	O	O	O	0	441	118	823	1830	538	862	534
20	0	W	W	W	0	373	131	813	1840	527	1220	458
21	0				0	174	138	805	1850	497	1230	428
22	0				0	77	136	821	1850	479	498	386
23	0				0	85	130	883	1840	486	454	362
24	0				50	80	113	895	1800	456	331	364
25	0				72	76	97	867	1680	456	325	265
26	0				66	60	99	849	1480	482	300	259
27	0				73	48	114	865	1250	445	300	248
28	0				181	32	149	951	1180	416	302	245
29	0				316	7.7	228	1270	1120	375	300	230
30	0	—			350	0	330	1520	944	341	251	204
31	0	—		—	362	—	325	1600	—	338	—	202
Mean	105	0	0	0	104	532	91.6	702	1504	659	539	250
Ac-Ft	6444	0	0	0	6403	31660	5633	43180	89520	40530	32060	15400

Total Runoff in Acre-Feet	Calendar Year	270830
	Water Year	252096

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 59). Total flow to Sacramento River is sum of Tables 60 and 61. Period of record is 1924 to date. Records for 1954 computed by Division of Water Resources.

* Estimated

TABLE 61

FLOW OF SYCAMORE SLOUGH NEAR KNIGHTS LANDING - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	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	1.0	4.9	3.0	17.1	41.3	24.9	17.0	21.2	10.0	1.8	1.2	1.9
Ac-Ft	62	272	184	1015	2540	1479	1046	1303	597	111	74	119

Total Runoff in Acre-Feet	Calendar Year	8802
	Water Year	8658

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 60. Daily distribution of flows are not available since the plant operates on an automatic float switch. See Table 56 for additional drainage from Reclamation District 787. Period of record 1940 to date. Records for 1954 computed by Division of Water Resources.

TABLE 62

FLOW OVER FREMONT WEIR FROM SACRAMENTO RIVER TO YOLO BY-PASS - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	8700	0	0								
2	0	9820	0	0								
3	0	9340	0	0								
4	0	6910	0	0								
5	0	*1960	0	0								
6	0	0	0	0								
7	0	0	0	*6000								
8	0	0	0	15300								
9	0	0	0	12400								
10	0	0	0	6390								
11	0	0	14900	*1530								
12	0	0	25300	0	N	N	N	N	N	N	N	N
13	0	0	17300	0	0	0	0	0	0	0	0	0
14	0	0	8140	0								
15	0	*14900	*1110	0								
16	0	21600	0	0								
17	0	22900	0	0	F	F	F	F	F	F	F	F
18	0	29300	0	0	L	L	L	L	L	L	L	L
19	0	32600	0	0	O	O	O	O	O	O	O	O
20	0	30600	0	0	W	W	W	W	W	W	W	W
21	0	28800	0	0								
22	0	25700	0	0								
23	0	20200	0	0								
24	0	13800	0	0								
25	0	7580	0	0								
26	0	*1810	0	0								
27	*620	0	0	0								
28	*1240	0	0	0								
29	*1780	—	0	0								
30	*2300	—	0	0								
31	6260	—	0	—		—			—		—	
Mean	394	10230	2153	1387	0	0	0	0	0	0	0	0
Ac-Ft	24200	568300	132400	82550	0	0	0	0	0	0	0	0

Maximum Discharge	Calendar year 33100 c.f.s. February 19, 1954 of record 236000 March 1, 1940 & February 8, 1942	Total Runoff in Acre-Feet	Calendar Year 807450 Water Year 807450

Station is located on Sacramento River at Mile 23.0R. Elevation of crest is 33.5 U.S.E.D. datum; length of crest is 9120 feet. Period of record 1947 to date. Records for 1954 computed by Division of Water Resources

* Estimated

TABLE 63

FLOW OF BUTTE SLOUGH TO SUTTER BY-PASS - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	24	22600	2920	1220	982	174	233	256	153	91	16	*60
2	23	22400	2290	1070	886	222	240	243	132	85	18	*150
3	20	19900	1870	986	794	228	232	258	135	72	18	*240
4	16	14600	1560	1000	722	206	227	274	142	67	20	*330
5	20	9380	1340	1280	650	230	220	278	155	72	18	*420
6	23	5920	1200	1480	561	243	219	274	147	71	19	*510
7	26	4600	1060	3970	526	234	209	264	150	69	18	*600
8	32	3440	777	4980	406	237	207	278	156	74	22	*690
9	49	2600	743	4780	320	249	207	271	162	82	34	*780
10	58	2100	1130	4310	278	254	213	265	156	87	89	*870
11	65	1740	2140	3780	239	249	228	261	150	92	195	*1000
12	68	1540	4780	3250	185	243	220	262	161	93	129	*1100
13	71	1590	4210	2780	160	270	220	262	175	87	198	*1200
14	72	5730	3420	2450	139	287	216	267	174	71	200	*1150
15	92	19400	2760	2160	117	284	206	266	186	56	185	1120
16	97	27200	2360	1950	97	245	212	247	195	23	543	925
17	219	27700	2110	1750	89	201	207	254	185	9.0	825	707
18	980	26400	1920	1590	103	182	207	257	181	11	866	516
19	4560	31200	1860	1480	124	210	215	230	173	12	537	418
20	5580	36800	1910	1390	126	197	203	216	180	11	361	346
21	4710	36200	1960	1280	108	208	195	224	195	13	261	295
22	3920	31900	2210	1120	100	215	200	243	206	12	115	267
23	3250	23900	3700	1000	95	232	201	225	200	9.0	166	248
24	3020	15900	3890	893	92	233	207	203	206	6.4	131	237
25	7870	10200	3410	805	92	228	219	206	214	5.3	103	230
26	12900	6170	2910	754	88	231	222	207	159	4.6	73	219
27	14200	4930	2330	731	88	237	212	208	116	5.0	45	199
28	14300	3820	1820	791	108	240	230	165	100	5.3	29	178
29	14600	—	1510	1050	110	237	237	195	110	5.3	23	164
30	19600	—	1370	1100	113	231	238	198	98	8.6	40	162
31	21900	—	1350	—	134	—	254	174	—	12	—	163
Mean	4270	15000	2220	1906	278	231	218	240	162	42.6	177	500
Ac-Ft	262500	832800	136500	113400	17120	13760	13400	14740	9624	2621	10510	30730

Maximum Discharge	Calendar year 38100 c.f.s. February 20, 1954	Total Runoff in Acre-Feet	Calendar Year 1457705 Water Year 1433545

This is discharge from Butte Slough to Sutter By-Pass. During low flow periods gates at head of slough are regulated (Table 52) which forces water under Long Bridge as shown in this table. Normal summer flows are primarily from Feather River sources. During flood periods 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. Period of record 1939 to date. Records for 1954 computed by Division of Water Resources.

* Estimated

TABLE 64

FLOW OF WADSWORTH CANAL TO SUTTER BY-PASS - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	26	76	69	36	71	126	14	48	171	240	106	46
2	20	78	66	33	77	120	41	88	158	250	114	60
3	20	71	61	38	100	135	57	81	143	242	122	94
4	42	63	58	104	106	126	62	72	137	246	138	83
5	54	54	56	130	96	129	63	84	145	222	126	80
6	27	*49	52	86	103	153	47	86	159	148	104	206
7	26	*44	51	*62	86	190	59	94	137	158	129	183
8	24	*39	51	*58	44	244	52	134	124	154	148	151
9	24	*34	54	52	30	256	50	130	115	142	180	*179
10	24	*34	52	48	21	248	38	110	135	142	150	*207
11	13	*34	48	46	48	212	47	86	151	138	86	237
12	0	102	46	42	51	206	48	106	159	124	80	179
13	0	391	45	41	63	215	28	104	173	110	67	149
14	0	293	45	40	54	197	30	112	201	96	63	129
15	0	209	43	34	25	158	33	109	208	100	100	118
16	0	122	46	32	6.9	153	13	120	228	115	124	107
17	0	232	43	31	4.2	114	12	110	244	98	88	98
18	194	242	42	26	0	84	28	110	246	90	75	90
19	79	154	44	11	0	81	36	80	266	84	63	91
20	62	82	47	5.7	11	104	23	76	279	91	55	88
21	52	106	47	27	20	63	19	118	268	86	45	84
22	55	104	48	25	8.7	17	7.9	114	254	79	41	86
23	79	104	46	21	0	20	29	126	258	70	40	86
24	74	43	46	54	0	9.3	42	120	252	72	38	79
25	66	98	43	81	0	17	37	145	221	76	34	77
26	63	84	39	44	15	4.0	57	159	256	83	43	75
27	82	76	38	62	34	0	36	190	248	88	53	70
28	78	71	38	76	36	15	26	190	199	70	52	60
29	75	—	36	74	28	28	20	188	194	62	51	66
30	70	—	39	72	30	10	20	203	213	86	48	38
31	72	—	38	—	53	—	33	176	—	112	—	18
Mean	45.2	110	47.6	49.7	39.4	114	35.7	118	198	125	85.4	107
Ac-Ft	2779	6127	2930	2959	2423	6812	2197	7277	11790	7684	5084	6573

Maximum Discharge	Calendar year 434 c.f.s. February 13, 1954	Total Runoff in Acre-Feet	Calendar Year	64635
			Water Year	56273

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 63) makes up the entire Feather River contribution to the Sutter By-Pass. Period of record 1939 to date. Records for 1954 computed by Division of Water Resources.

* Estimated

TABLE 65

FLOW OF RECLAMATION DISTRICT 1500 DRAIN - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	364	204	123	0	187	629	551	541	513	330	97	97
2	445	106	187	63	190	574	551	520	574	365	56	161
3	513	162	125	128	158	574	536	520	574	289	62	128
4	581	138	156	192	144	445	536	520	574	256	60	126
5	581	54	126	87	150	513	519	520	574	304	59	233
6	368	57	126	62	206	513	536	541	574	274	42	126
7	450	100	116	120	202	513	519	498	574	256	65	170
8	364	60	198	142	218	513	503	544	629	221	64	125
9	450	62	126	180	283	513	503	540	574	159	133	253
10	519	100	61	120	274	513	519	512	574	223	96	444
11	519	128	186	120	296	574	519	512	574	149	95	418
12	519	394	153	152	420	574	519	561	574	138	63	334
13	450	248	115	123	310	1020	519	561	574	133	63	226
14	368	750	117	185	352	23	519	512	574	122	79	216
15	519	220	180	198	291	513	519	512	574	115	160	126
16	67	371	169	0	442	629	519	512	610	104	128	180
17	427	372	120	125	340	629	519	512	617	105	111	128
18	0	386	144	94	346	574	551	512	524	99	63	128
19	62	358	163	109	408	629	536	543	650	90	63	172
20	2.5	337	122	125	405	567	551	629	527	3.9	96	128
21	78	361	123	125	519	503	566	629	557	96	60	128
22	124	225	169	94	422	536	551	574	559	96	47	96
23	62	220	122	125	540	566	536	629	563	77	64	170
24	122	224	171	0	0	551	536	574	528	32	65	0
25	59	228	122	280	323	536	503	629	452	97	65	122
26	118	228	123	126	445	519	519	629	552	32	65	166
27	58	214	123	190	445	503	519	629	418	97	65	100
28	116	160	125	190	513	519	519	629	424	93	48	96
29	116	—	187	187	513	536	519	574	376	32	48	64
30	116	—	116	187	513	551	519	513	370	97	48	112
31	110	—	125	—	574	—	539	445	—	32	—	100
Mean	279	231	139	128	336	545	528	551	544	146	74.3	164
Ac-Ft	17150	12830	8567	7595	20680	32430	32470	33870	32390	8961	4423	10060

	Total Runoff in Acre-Feet	Calendar Year	221426
		Water Year	210025

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 66). Drainage is by pumping and gravity. Period of record 1930 to date. Records for 1954 computed by Division of Water Resources.

TABLE 66

FLOW OF SACRAMENTO SLOUGH TO SACRAMENTO RIVER - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0		3580	1830	1500	524	539	635	895	668	155	0
2	0		4520	740	2190	699	581	635	961	0	0	0
3	0		4540	1330	2070	780	599	646	946	289	198	773
4	0	(a)	4100	1450	1350	807	609	683	937	453	157	0
5	0		4880	2260	787	685	645	671	893	551	0	0
6	0		2880		680	770	645	668	910	713	240	649
7	297		2190		670	718	641	683	897	823	0	764
8	0	4960	1960		0	760	616	732	890	570	0	0
9	0	5020	1480		511	770	647	770	973	649	0	1970
10	0	4810		(a)	0	802	642	796	1000	726	0	1260
11	0	4370			0	898	618	800	1060	542	402	875
12	0	3670			356	963	610	815	966	520	383	2970
13	174				0	1250	608	779	847	467	542	3770
14	284				0	777	617	748	888	603	692	3270
15	0				0	953	630	735	909	497	729	2460
16	0			672	501	1050	618	777	947	549	0	*2180
17	0		(a)	1270	0	989	632	765	984	498	0	*2010
18	0			1240	290	897	617	771	972	433	1810	*1820
19	584			1780	290	816	602	802	1230	460	2150	*1670
20	3370	(a)		940	290	565	557	804	770	313	1520	*1540
21	4560			927	286	609	544	787	1020	217	1240	*1400
22	4830			909	497	626	569	795	1170	280	952	*1270
23	4340			1150	736	540	571	782	1190	0	727	*1160
24				1210	0	456	547	820	1180	240	617	*1100
25				1020	368	479	539	853	1140	200	512	*1010
26				898	340	498	516	862	1370	0	336	*924
27			2860	1110	340	507	505	864	875	0	353	*860
28	(a)		3350	1380	506	515	541	896	1010	0	374	*753
29			3290	1340	568	519	564	882	977	155	0	*643
30		—	2870	636	589	531	571	961	967	0	0	*522
31		—	2200	—	513	—	646	1010	—	0	—	*352
Mean					523	725	593	782	992	368	470	1225
Ac-Ft					32190	43150	36470	48050	59060	22640	27940	75320

Total Runoff in Acre-Feet | Calendar Year / Water Year

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 63, 64, 65 and 54, which, when combined, will give the measured flow entering the By-Pass area. Period of record 1924 to date. Records for 1954 computed by Division of Water Resources.

* Estimated

(a) Flooded

TABLE 67

FLOW OF FEATHER RIVER NEAR OROVILLE - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1980	4450	6620	6960	11200	3940	3160	2720	2670	2620	2980	3400
2	2010	4480	6280	6840	10000	4080	3630	2720	2670	2620	2930	4480
3	2100	4420	6270	7940	9460	4180	3350	2710	2780	2630	2910	5840
4	2300	4350	5780	14200	9160	5080	3100	2700	2850	2630	2910	5210
5	2440	4260	5720	31700	9350	4420	3040	2700	2830	2540	2910	4740
6	2340	4180	5800	27400	9570	4480	2980	2680	2760	2620	2880	7590
7	2740	4170	5420	20800	9930	4310	3000	2710	2720	2730	2850	7560
8	1800	4120	7860	17300	9950	4540	2950	2700	2750	2750	2870	5260
9	1930	4090	44700	15200	9790	4910	2920	2690	2740	2650	3220	5460
10	1500	3930	45200	13700	8760	4470	2960	2700	2740	2630	3100	5190
11	1520	3580	27000	12400	8650	4500	2980	2680	2750	2640	2950	4420
12	1370	8620	18700	12000	8420	4420	2950	2670	2770	2630	3730	4070
13	1410	22600	14800	12400	8080	4310	2940	2650	2830	2630	3340	3930
14	1400	16400	12400	13000	7620	4230	2920	2670	2840	2630	3160	3890
15	1310	11500	10400	13200	7380	4160	2910	2670	2760	2620	7590	3650
16	6730	9410	10800	13700	6900	4150	2870	2660	2740	2770	7400	3520
17	16300	16500	10300	14500	6930	4070	2860	2700	2660	2910	4480	3460
18	7570	16600	9160	14500	7090	3880	2870	2700	2640	2930	3730	3430
19	5030	11900	9160	14500	7380	3710	2880	2680	2630	2980	3560	3370
20	2680	9890	8650	14700	7270	3580	2860	2670	2640	2990	3460	3240
21	3120	8520	8440	14200	6650	3470	2830	2670	2650	2920	3460	3330
22	3210	7600	7700	14100	6300	3450	2800	2670	2630	2920	3410	3330
23	12400	7000	7520	13900	5110	3450	2780	2670	2620	2980	3350	3320
24	12200	7060	7780	13800	5460	3400	2770	2660	2620	2830	3320	3090
25	7500	6970	7320	13000	5730	3580	2770	2820	2620	2800	3340	3090
26	6000	6430	6960	12600	5320	3330	2760	2910	2620	2850	3340	3050
27	5360	7430	6860	17200	5170	3220	2750	2970	2630	2900	3330	2960
28	4890	6960	6900	19500	4930	3210	2750	2980	2630	2930	3340	2960
29	5120	—	6830	14800	4420	3150	2740	2930	2620	2980	3340	3010
30	5010	—	7560	12800	4160	3160	2740	2830	2620	2980	3350	2660
31	4230	—	6900	—	4040	—	2740	2750	—	2980	—	4070
Mean	4371	8122	11350	14760	7425	3961	2921	2730	2701	2781	3551	4083
Ac-Ft	268800	451100	697800	878400	456600	235700	179600	167900	160700	171000	211300	251100

Maximum Discharge: Calendar year 54800 c.f.s. March 9, 1954; of record 230000 c.f.s. March 19, 1907

Total Runoff in Acre-Feet | Calendar Year / Water Year: 4130000 / 4072000

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 1954 computed by U. S. Geological Survey.

TABLE 68

FLOW OF FEATHER RIVER NEAR GRIDLEY - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1940	4000	6160	6830	10800	1440	794	448	931	1860	2460	3520
2	1780	4200	5800	6760	9530	1560	978	462	887	1880	2450	3940
3	1920	4220	5610	7230	8710	1370	906	462	906	1890	2400	5690
4	1860	4200	5390	10100	8260	1990	777	453	985	1900	2420	5290
5	1990	4110	5190	27900	8090	2040	663	453	1070	1900	2430	4780
6	1960	4030	5110	29700	8050	1850	620	453	1100	1900	2470	6240
7	2130	4030	5120	22600	8200	1750	630	453	1040	2020	2480	8030
8	1990	4020	5090	18300	8090	1800	620	518	1030	2150	2490	5640
9	1690	3970	28200	15700	7940	*2300	588	553	1050	2080	3000	5250
10	1700	3940	45100	14000	7230	*2500	588	548	1080	1970	3280	5690
11	1390	3480	30100	12600	6670	*2780	636	548	1110	1970	3080	4690
12	1470	4020	20300	11900	6360	*3000	625	553	1200	2040	3510	4310
13	1350	18400	16100	12100	6030	*3000	620	588	1270	2000	3520	4110
14	1330	17800	13300	12700	5620	*2860	603	593	1330	1960	3290	4000
15	1450	12500	11200	12900	5230	*2640	588	609	1340	1960	5570	3810
16	1950	9950	10600	13300	4770	*2400	578	620	1300	2050	7840	3650
17	11500	12300	10600	14100	4360	*2150	553	663	1340	2370	4880	3550
18	8360	17300	9650	14400	4360	*1950	548	674	1350	2400	3850	3520
19	5370	12800	8990	13900	4590	*1720	543	657	1380	2420	3640	3450
20	3230	10400	8950	14300	4640	*1470	553	630	1420	2500	3560	3350
21	2300	8850	8360	13700	4140	*1280	533	636	1520	2400	3540	3350
22	2650	7920	8140	13400	3770	*1150	533	684	1550	2290	3500	3360
23	5030	7210	7450	13200	2690	*1050	533	695	1640	2320	3450	3310
24	11800	6800	7580	12900	2460	900	513	753	1680	2260	3430	3160
25	8030	6720	7510	12300	2990	971	508	783	1730	2140	3460	3100
26	6160	6160	6970	11700	2630	937	498	944	1800	2150	3450	3060
27	5280	6380	6760	12500	2460	818	494	1080	1840	2230	3460	2990
28	4730	6110	6830	19300	2140	747	484	1120	1750	2270	3460	2920
29	4590	—	6670	15000	2100	701	471	1030	1810	2350	3470	2980
30	4880	—	7340	12500	1690	718	453	1060	1840	2410	3500	2710
31	4340	—	6930	—	1530	—	448	1080	—	2430	—	3360
Mean	3747	7708	10870	14260	5359	1728	596	671	1343	2144	3445	4091
Ac-Ft	230400	428100	668600	848600	329500	102800	36650	41260	79890	131800	205000	251500

Maximum Discharge	Calendar year 47400 c.f.s. March 10, 1954	Total Runoff in Acre-Feet	Calendar Year	3354100
			Water Year	3215400

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

* Estimated

TABLE 69

FLOW OF FEATHER RIVER AT YUBA CITY (5TH ST. BRIDGE) - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2980	4520	7180	7990	10900	1650	593	354	*930	*1980	2420	3160
2	2530	4710	6920	7830	9720	1690	661	411	*910	*2000	2420	3350
3	2560	4760	6690	7920	8850	1690	1090	420	*925	*2010	2340	4930
4	2490	4690	6500	9540	8420	1960	930	440	*980	*2030	2320	5360
5	2660	4620	6220	*18500	8160	2540	830	440	*1040	*2090	2310	4900
6	2600	4500	6130	*25000	8360	2260	671	420	*1070	*2120	2280	5160
7	2700	4390	6220	*24000	8490	2260	603	430	*1060	*2230	2270	7660
8	2760	4380	6020	*21000	8640	2190	574	459	*1060	*2380	2320	6260
9	2250	4310	13800	*17000	8790	2630	583	545	*1070	2350	2670	5220
10	2300	4320	*37400	14800	8310	2940	593	583	*1110	2250	3100	7360
11	1890	3980	*37300	*13500	7310	2630	622	612	*1150	2220	2920	6000
12	1940	4700	*28000	*12800	7150	2760	700	564	*1230	2250	2970	4770
13	1780	13300	*21000	*13000	6790	2770	730	574	*1320	2340	3510	4260
14	1550	*15500	*15500	*13500	6360	2650	700	593	*1360	2260	3160	4040
15	1860	*14000	*12500	*14000	6050	2480	671	*590	*1400	2240	3620	3870
16	2120	11400	11200	*14400	5850	2390	631	*605	*1380	2280	7460	3690
17	10900	10800	11900	*14800	5630	2230	593	*635	*1400	2540	5770	3640
18	10900	*15500	11100	*15200	5610	2140	564	*645	*1420	2620	4070	3470
19	7070	*14500	10600	*15000	5590	1850	593	*645	*1480	2630	3600	3400
20	4940	11600	10800	*15000	5800	1630	574	*645	*1560	2690	3410	3320
21	3540	9770	10100	*14800	5290	1370	574	*660	*1640	2640	3330	3250
22	3590	8760	9750	*14500	4650	1210	516	*695	*1700	2550	3310	3300
23	6300	8050	9000	*14200	3920	1110	507	*735	*1750	2500	3240	3260
24	14300	7680	8760	*13600	2900	870	507	*770	*1820	2480	3210	3180
25	10700	7650	8750	*13400	3260	870	497	*820	*1870	2350	3200	3070
26	7780	7560	8270	*12800	3550	980	487	*880	*1940	2330	3190	3030
27	6460	7180	7910	*13500	3190	860	497	*990	*1950	2350	3170	2990
28	5680	7600	7840	15500	2880	760	468	*1040	*1900	2380	3170	2920
29	5330	—	7810	15000	2640	671	459	*990	*1900	2400	3140	2920
30	5420	—	8340	12500	2120	603	420	*1000	*1950	2440	3160	2850
31	4980	—	8410	—	1850	—	382	*975	—	2430	—	2990
Mean	4673	8026	11870	14490	6033	1821	607	650	1409	2334	3235	4115
Ac-Ft	287300	445700	729800	862000	371000	108400	37330	40000	83850	143500	192500	253100

Maximum Discharge	Calendar year *37400 c.f.s..March 10, 1954	Total Runoff in Acre-Feet	Calendar Year	3554480
			Water Year	3557080

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-discharge relationship of this station. Period of record 1944 to date. The flows at this station were estimated for periods of backwater and missing gage height record.

* Estimated

TABLE 70

FLOW OF FEATHER RIVER BELOW SHANGHAI BEND - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	*3100	6210	10300	11400	*17000	*2870	*1000	*580	*1220	*1940	*2500	3460
2	*2800	6480	9930	11200	*14900	*2620	*1120	*580	*1150	*2000	*2490	3660
3	*2700	6580	9450	11200	*13000	*2490	*1180	*590	*1080	*2040	*2480	5330
4	*2750	6560	9120	13500	*11900	*2310	*1150	*600	*1100	*2080	*2450	6210
5	*2800	6440	8710	23900	*11100	*2760	*1060	*590	*1200	*2090	*2450	5650
6	*2850	6340	8500	41100	*11000	*2720	*940	*580	*1300	*2120	*2410	5740
7	*2850	6200	8630	39300	*11200	*2520	*890	*580	*1320	*2150	*2400	9200
8	*2950	6180	8290	30100	*11600	*2580	*880	*590	*1180	*2200	*2520	7750
9	*2650	6090	23300	25300	*11900	*2900	*870	*600	*1050	*2150	*2740	5860
10	*2550	6050	61100	21900	*12000	*3120	*860	*620	*1010	*2040	*3150	9330
11	2330	5620	65100	19800	*10900	*3180	*860	*630	*990	*2000	*3000	7600
12	2230	6510	41900	18300	*9910	*3250	*890	*630	*1050	*2010	*3180	5770
13	2160	21500	28000	17800	*9180	*3320	*910	*590	*1150	*2100	*3550	5020
14	1930	32700	21900	*17900	*8780	*3270	*950	*630	*1220	*2010	*3270	4660
15	2200	27800	18400	*18200	*8310	*3050	*900	*650	*1280	*1980	*3670	4470
16	2270	18800	17200	*18300	*7960	*2820	*900	*660	*1300	*2000	*8420	4230
17	15200	16900	18400	*18900	*7580	*2600	*880	*700	*1330	*2330	6870	4020
18	*16600	28800	17100	*19800	*7330	*2420	*840	*740	*1340	*2400	4640	3950
19	9660	25700	15300	*19800	*7070	*2220	*840	*760	*1410	*2380	3970	3890
20	6640	18900	16500	*19700	*6910	*1930	*820	*750	*1430	*2430	3750	3840
21	4620	15300	15300	*19400	*6490	*1820	*790	*760	*1470	*2410	3660	3740
22	4470	13400	14600	*18800	*5840	*1700	*760	*750	*1540	*2360	3630	3780
23	8300	12100	13300	*18600	*5240	*1500	*730	*750	*1600	*2290	3560	3770
24	24000	11300	12800	*18100	*4370	*1330	*720	*760	*1730	*2290	3520	3720
25	17500	11300	12800	*17600	*4180	*1220	*710	*790	*1750	*2300	3490	3550
26	11500	11100	11900	*17200	*4150	*1250	*700	*880	*1770	*2280	3490	3490
27	9090	10400	11200	*16600	*4050	*1160	*690	*1160	*1820	*2310	3460	3440
28	7860	11000	11100	*24600	*3920	*1060	*680	*1220	*1860	*2380	3440	3390
29	7290	—	11000	*24300	*3700	*960	*640	*1270	*1900	*2430	3420	3380
30	7380	—	12000	*19200	*3460	*960	*610	*1300	*1930	*2480	3420	3410
31	6930	—	12300	—	*3130	—	*590	*1300	—	*2500	—	3350
Mean	6392	12940	17920	20390	8325	2264	850	761	1383	2209	3500	4795
Ac-Ft	393000	718500	1102000	1213000	511900	134700	52280	46790	82270	135800	208300	294900

Maximum Discharge	Calendar year 71900 c.f.s. March 10, 1954	Total Runoff in Acre-Feet	Calendar Year	4893440
			Water Year	4883040

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. Severe silting conditions and shifting control necessitated the estimating of much of the record for 1954. Period of record 1944 to date.

* Estimated

TABLE 71

FLOW OF FEATHER RIVER AT NICOLAUS - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3240	8500	11500	12800	19200	2790	1150	753	1310	1990	2550	3950
2	2920	8280	10700	12100	16300	2630	1170	753	1240	2100	2570	4150
3	2860	8640	9990	11800	14200	2670	1400	779	1160	2180	2560	5570
4	2980	8400	9650	13300	13200	2450	1350	779	1210	2180	2550	6820
5	2930	7890	9220	20100	12400	3300	1260	766	1310	2210	2550	6010
6	3040	7670	9160	38700	12800	3120	1150	766	1380	2230	2550	5930
7	3020	7490	9170	38900	13100	3190	1090	772	1360	2290	2570	9830
8	3370	7290	8900	31900	13600	2980	1060	792	1220	2440	2660	8670
9	2790	6620	16200	26500	13900	3160	1060	864	1140	2560	2880	6970
10	2730	6150	51800	22600	13900	3800	1020	898	1120	2490	3410	12700
11	2620	5750	78000	20300	11700	3610	1040	884	1150	2410	3400	10100
12	2460	7760	58000	18900	11200	3500	1070	857	1200	2430	3340	7310
13	2430	16400	31200	18500	10800	3540	1040	844	1280	2490	3940	5970
14	2220	34300	23900	19000	10000	3640	1000	926	1310	2450	3830	5380
15	2370	33500	19700	19900	9370	3460	982	919	1360	2420	3910	5660
16	2360	22900	18500	19500	9000	3210	961	933	1370	2410	7760	5280
17	13000	18700	21000	19500	8500	3100	926	947	1380	2560	8240	5030
18	19100	28100	20000	20200	8560	2970	919	989	1420	2750	6280	4780
19	11900	31900	17100	20600	8400	2720	919	968	1480	2750	4790	4430
20	7600	23000	19300	20500	8630	2450	891	068	1520	2790	4290	4250
21	5520	19100	18100	20500	8220	2140	864	975	1580	2820	4120	4150
22	4880	16900	16200	20100	7070	1900	818	961	1610	2770	4060	4160
23	6680	15000	14600	19800	6060	1760	824	968	1700	2730	3980	4150
24	23300	13600	13600	19500	4460	1560	824	982	1810	2720	3940	4080
25	22600	12500	13700	19000	4350	1440	805	1000	1770	2630	3910	3910
26	13900	12200	12900	20600	4940	1480	805	1070	1820	2570	3910	3880
27	10700	11500	12100	18100	4680	1440	792	1210	1870	2540	3900	3810
28	9600	11900	12000	22600	4160	1370	766	1350	1920	2470	3900	3730
29	9020	—	12000	21600	3840	1290	753	1360	1980	2510	3880	3740
30	8860	—	13100	22900	3420	1170	753	1400	1970	2550	3870	3810
31	8650	—	14000	—	3010	—	753	1390	—	2540	—	3740
Mean	7085	14710	19530	21210	9451	2595	975	962	1465	2483	2870	5547
Ac-Ft	435700	817100	1201000	1262000	581100	154400	59930	59150	87170	152700	230300	341100

Maximum Discharge	Calendar year 80800 c.f.s. March 11, 1954 of record 145000 c.f.s. November 21, 1950	Total Runoff in Acre-Feet	Calendar Year	5381650
			Water Year	5342750

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 1954 computed by U. S. Geological Survey.

TABLE 72

FLOW OF SOUTH HONCUT CREEK NEAR BANGOR - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.9	9.4	15	36	35	2.9	0.5	0.1		0	0.3	6.5
2	4.0	8.7	14	32	28	2.8	.4	.1		0	.3	37
3	5.1	8.0	13	69	24	2.6	.4	.1		0	.4	40
4	4.7	7.5	12	297	18	2.8	.4	.1		0	.5	32
5	4.3	7.1	12	352	18	3.2	.3	.1		0	.6	16
6	3.4	6.9	11	153	16	3.2	.3	.1		0	.7	71
7	9.4	6.5	11	100	15	2.9	.2	.1		0	.7	31
8	8.0	6.3	24	79	14	3.0	.2	.1		0	1.3	11
9	6.5	5.9	358	66	15	4.4	.2	.1		0	4.7	155
10	5.9	5.5	170	54	16	4.2	.2	.1		0	5.7	82
11	5.7	5.3	84	44	14	3.7	.2	.1		0	6.5	25
12	5.5	342	57	37	13	3.5	.2	0	N	0	8.2	12
13	5.1	646	42	34	11	3.4	.2	0	0	0	6.1	9.7
14	4.9	451	34	30	11	3.0	.2	0		0	5.1	8.0
15	4.7	122	30	28	10	2.8	.2	0		0	34	6.9
16	400	79	133	24	9.6	2.6	.2	0		0	18	5.7
17	630	408	171	22	9.1	2.4	.2	0	F	0	8.2	4.9
18	69	170	123	20	8.8	2.2	.2	0	L	0	5.9	4.3
19	29	91	224	18	8.0	2.0	.1	0	O	0	5.7	4.2
20	16	63	198	17	7.8	1.8	.1	0	W	0	6.5	4.2
21	12	47	188	16	6.8	1.4	.1	0		0	4.5	4.2
22	11	35	144	15	5.6	1.3	.1	0		0	4.5	4.2
23	235	29	110	14	5.2	1.1	.1	0		0	4.5	4.7
24	62	25	91	14	4.6	0.9	.1	0		0	4.7	5.9
25	28	22	71	13	4.4	.8	.1	0		0.2	4.7	6.1
26	18	20	55	13	4.4	.7	.1	0		.2	4.9	6.1
27	15	17	47	194	4.0	.7	.1	0		.2	4.9	5.7
28	13	16	42	203	3.5	.6	.1	0		.2	5.1	5.7
29	12	—	45	59	3.5	.6	.1	0		.3	5.5	5.9
30	11	—	63	60	3.4	.6	.1	0		.3	5.9	6.3
31	9.9	—	44	—	3.2	—	.1	0	—	.3	—	231
Mean	53.3	95.0	85.0	70.4	11.3	2.3	0.2	0.1	0	0.1	5.6	27.5
Ac-Ft	3270	5280	5230	4190	694	135	12	2	0	3	334	1690

Maximum Discharge	Calendar year 1640 c.f.s. January 17, 1954 of record 3170 c.f.s. November 20, 1950	Total Runoff in Acre-Feet	Calendar Year 20840 Water Year 19565

U. S. Geological Survey and Division of Water Resources cooperative 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 1954 computed by the U. S. Geological Survey.

TABLE 73

FLOW OF YUBA RIVER AT ENGLEBRIGHT DAM - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	635	1510	2610	3020	4480	1630	724	695	605	244	223	595
2	625	1630	2450	2880	3940	1550	715	695	608	153	200	595
3	625	1730	2330	2960	3740	1410	715	695	601	150	175	595
4	625	1730	2260	3960	3620	1410	715	690	600	150	180	600
5	625	1710	2210	11900	4100	1500	715	690	600	149	191	603
6	648	1660	2180	13000	4480	1600	715	685	595	149	225	622
7	655	1620	2180	8860	5020	1480	715	680	445	150	315	630
8	670	1620	2500	7120	5630	1410	715	680	350	187	369	650
9	675	1640	23900	6060	6250	1520	718	675	355	198	344	653
10	675	1610	20000	5410	4940	1560	725	675	355	198	333	665
11	670	1570	11900	5020	4380	1430	687	550	355	265	369	591
12	670	2750	7980	4850	4680	1330	723	674	355	200	408	675
13	670	9620	6160	4920	4250	1450	722	673	352	174	474	660
14	610	9090	5080	5020	4040	1500	720	670	349	213	518	650
15	648	5120	4470	5090	4110	1340	724	670	346	237	584	660
16	653	3660	4470	5310	4100	1310	725	665	346	330	577	670
17	675	6880	4340	5740	4480	1280	725	660	345	247	549	675
18	680	9060	3800	6280	4480	1210	723	650	345	220	545	675
19	950	5490	3870	6100	4480	1140	723	649	345	110	575	675
20	1370	4260	3850	6000	4510	1080	668	649	345	288	565	675
21	1180	3620	3710	5820	3760	1030	722	648	345	330	553	675
22	1080	3190	3390	5820	3060	979	722	645	398	334	555	675
23	8520	3010	3200	6030	2290	935	720	635	337	335	575	675
24	8700	2990	3200	5760	2060	915	715	625	185	312	570	677
25	3920	3000	3040	5800	2210	880	715	626	258	310	565	678
26	2690	3000	2800	6090	2550	849	710	625	238	280	577	678
27	2160	2940	2760	6920	2010	840	710	625	154	260	580	678
28	1830	2760	2800	9800	1900	808	710	625	153	290	580	678
29	1640	—	2940	6390	1820	732	710	620	160	223	595	676
30	1590	—	3480	5340	1750	724	705	618	294	226	595	677
31	1500	—	3260	—	1710	—	700	605	—	240	—	685
Mean	1576	3517	4939	6109	3704	1228	715	654	371	231	449	654
Ac-Ft	96920	195300	303700	363500	227800	73060	43940	40200	22050	14190	26710	40200

Maximum Discharge	Calendar year 34500 c.f.s. March 9, 1954 of record 109000 c.f.s. November 21, 1950	Total Runoff in Acre-Feet	Calendar Year 1447570 Water Year 1475780

U. S. Geological Survey and Division of Water Resources cooperative station located above spillway of Englebright Dam. Combine with flows in Table 76 for total flow of Yuba River near Smartville. Drainage area is 1110 square miles. Period of record 1941 to date. Records for 1954 computed by U. S. Geological Survey.

Formerly published as Yuba River at Narrows Dam.

TABLE 74

FLOW OF YUBA RIVER NEAR MARYSVILLE - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1									238	61	81	592
2									232	82	74	708
3									223	57	68	926
4									217	53	67	886
5									229	47	63	774
6									226	45	63	1110
7								256	211	44	72	1170
8								252	100	44	155	846
9								256	84	46	202	1410
10								252	78	47	175	2140
11								246	73	50	198	1030
12								182	72	51	249	926
13								256	70	64	329	950
14								263	70	61	435	750
15								263	72	60	592	736
16								263	89	84	687	708
17								270	107	137	592	694
18								274	113	115	550	694
19								260	123	98	562	680
20								270	121	73	580	680
21								266	119	91	568	673
22								260	119	146	562	659
23								263	182	153	562	652
24								249	106	153	556	652
25								242	68	155	550	652
26								249	70	157	544	645
27								263	70	113	544	638
28								256	60	119	544	631
29								252	56	106	544	631
30		—						246	53	74	550	652
31		—		—		—		242	—	78	—	1230
Mean									122	85.9	377	843
Ac-Ft									7240	5280	22450	51820

		Total Runoff in Acre-Feet	Calendar Year Water Year

U. S. Geological Survey and Division of Water Resources cooperative station located at Mile 5.2 above mouth. Period of record 1954 to date. Records for 1954 computed by U. S. Geological Survey. Station installed August 7, 1954.

TABLE 75

FLOW OF YUBA RIVER AT MARYSVILLE (SIMPSON LANE BRIDGE) - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	608	1640	2970	3810	5320	1260	345	272	248	71	84	592
2	608	1680	2820	3670	4500	1180	345	280	246	89	78	679
3	620	1750	2600	3650	4400	1090	345	277	240	64	76	965
4	656	1770	2480	4920	4280	1020	340	269	231	57	70	935
5	652	1750	2390	13000	4220	1080	340	266	238	54	67	818
6	656	1710	2340	18000	4780	1170	340	277	243	50	69	1040
7	680	1680	2330	12000	5040	1150	335	277	226	49	78	1630
8	660	1660	2360	8910	5530	1080	335	266	109	49	156	1090
9	656	1650	22400	7710	6180	1120	330	277	95	54	215	1260
10	680	1650	32500	6380	5330	1220	330	277	90	63	185	2500
11	779	1620	18800	5940	4380	1140	330	269	85	64	215	1200
12	725	2310	11600	5590	4480	1030	330	197	85	62	278	912
13	716	12200	9500	5500	4180	1010	315	280	85	69	365	832
14	676	16100	8000	5520	3810	1190	310	291	82	67	469	791
15	689	8250	7000	5570	3640	1050	309	294	83	67	592	773
16	1290	4540	6200	5760	3620	960	300	288	91	81	1310	743
17	7480	6720	7000	6220	3840	960	306	291	109	131	814	735
18	3580	14000	5060	6710	3900	920	315	297	112	124	603	723
19	1470	7870	5140	7070	3880	830	300	277	122	106	578	715
20	1490	5240	5450	6680	3940	764	280	291	120	81	574	711
21	1340	5020	5170	6450	3440	665	285	288	119	90	567	703
22	1190	4210	4460	6390	2760	570	265	280	119	137	567	695
23	5800	3720	4520	6650	2100	520	306	274	180	156	564	691
24	14300	3500	4310	6490	1730	488	312	256	124	154	556	691
25	6050	3480	4240	6450	1660	460	312	256	80	158	556	687
26	3430	3430	3760	7120	2060	420	315	269	80	162	556	683
27	2590	3280	3570	7040	1730	385	309	282	86	124	553	683
28	2160	3210	3550	13300	1530	350	300	274	68	116	553	679
29	1940	—	3590	8540	1450	350	285	272	64	114	550	683
30	1840	—	4420	6460	1390	345	277	261	60	81	567	687
31	1720	—	4220	—	1340	—	272	248	—	78	—	1060
Mean	2185	4487	6605	7250	3563	859	313	273	131	910	416	890
Ac-Ft	134300	249200	406100	431400	219100	51130	19280	16810	7780	5600	24720	54720

Maximum Discharge	Calendar year 40500 c.f.s. March 10, 1954 of record 78800 c.f.s. November 21, 1950	Total Runoff in Acre-Feet	Calendar Year Water Year	16201140 1637710

Station maintained jointly by the Division of Water Resources and the U. S. Geological Survey is at 7th Street Bridge at Mile 0.9 above mouth. Stage-discharge relationship is affected at times by variable backwater from the Feather River. Period of record 1939 to date. Records for 1954 computed by U. S. Geological Survey.

TABLE 76

FLOW OF DEER CREEK NEAR SMARTVILLE - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	22	61	59	283	93	10	6.4	8.0	6.4	5.8	13	26
2	21	58	56	304	86	10	6.7	8.4	6.4	5.8	14	149
3	32	57	54	268	81	10	6.7	8.4	6.1	6.4	16	212
4	33	56	53	315	73	10	6.4	7.4	5.8	6.1	14	156
5	28	53	56	683	54	14	7.4	7.4	6.1	6.4	15	64
6	28	50	50	513	40	14	7.7	7.0	6.1	6.1	20	266
7	71	46	48	405	34	14	7.7	7.0	5.6	7.0	22	140
8	44	46	63	333	31	13	7.7	7.4	5.1	7.7	30	66
9	34	45	1250	287	25	33	7.7	7.7	5.3	7.4	52	695
10	31	38	553	248	24	20	6.7	8.0	5.6	6.4	37	340
11	29	35	216	214	46	14	6.7	8.8	5.8	6.4	28	86
12	32	370	135	190	46	13	7.0	9.6	6.1	6.4	48	58
13	28	1220	107	165	52	13	7.0	9.2	6.4	6.1	19	46
14	28	1330	94	93	48	12	6.7	8.8	6.1	6.1	17	44
15	28	272	87	88	50	9.2	7.0	7.7	5.1	6.4	168	37
16	1050	165	294	87	52	8.4	6.4	7.7	5.1	6.4	76	32
17	2080	817	387	82	50	9.2	7.0	8.0	5.8	6.1	34	31
18	216	376	227	74	46	8.8	7.4	8.0	6.1	6.1	23	30
19	114	185	424	68	39	8.8	7.7	8.0	5.8	8.4	22	31
20	88	134	390	58	22	9.2	8.0	7.0	5.3	14	24	29
21	73	110	330	46	19	11	8.0	5.6	5.1	13	22	27
22	71	95	250	40	16	7.4	8.0	5.8	5.1	13	20	27
23	1510	86	264	34	14	6.4	8.4	5.8	5.1	12	20	27
24	335	80	291	32	14	6.4	8.8	5.8	4.7	12	19	27
25	170	74	272	38	14	7.0	8.8	5.6	5.1	12	19	26
26	114	71	244	39	16	8.0	9.2	6.7	5.1	13	18	24
27	93	63	234	180	14	8.4	9.2	8.0	5.3	12	20	23
28	84	61	228	164	12	9.6	9.2	7.4	5.6	13	20	24
29	80	—	248	83	9.6	7.7	10	7.0	5.6	12	19	24
30	74	—	395	86	9.6	6.1	9.6	6.4	5.8	13	20	28
31	63	—	302	—	11	—	9.2	6.7	—	13	—	358
Mean	216	216	247	183	36.8	11.1	7.8	7.4	5.6	8.9	29.6	102
Ac-Ft	13300	12010	15200	10910	2260	658	477	457	334	546	1760	6250

Maximum Discharge	Calendar year 4330 c.f.s. January 17, 1954 of record 11300 c.f.s. March 9, 1943	Total Runoff in Acre-Feet	Calendar Year 64162 Water Year 62346

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 73. Drainage area is 83.5 square miles. Period of record 1935 to date. Records for 1954 computed by U. S. Geological Survey.

TABLE 77

FLOW OF DRY CREEK AT VIRGINIA RANCH - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	17	44	71	161	128	22	6.1	3.6	5.6	5.0	2.4	14
2	17	40	65	142	106	20	6.1	3.6	5.4	4.8	2.3	32
3	19	36	62	190	94	20	5.6	3.4	5.6	4.8	2.2	28
4	18	36	60	742	90	20	5.4	3.4	5.6	4.8	2.0	34
5	18	37	58	1140	77	23	5.0	3.4	5.4	4.8	1.9	61
6	18	36	56	580	69	22	5.0	3.4	5.4	4.8	2.0	366
7	27	34	55	364	64	20	4.5	3.4	5.4	4.8	1.9	145
8	34	33	91	278	60	21	5.2	4.5	5.2	4.5	2.7	60
9	28	36	1110	240	60	35	5.4	5.0	5.4	4.5	3.6	484
10	24	36	572	205	59	29	5.2	5.4	5.2	4.3	2.5	353
11	24	35	296	179	54	24	5.0	5.2	5.4	4.1	2.8	102
12	22	737	198	163	51	23	5.9	5.4	5.2	4.1	3.4	58
13	19	1680	157	150	48	22	5.0	5.6	5.2	4.1	8.5	44
14	18	1260	135	141	46	20	4.8	5.6	5.2	3.9	10	36
15	18	381	120	128	42	19	4.3	5.6	5.0	3.9	26	31
16	1670	240	305	120	40	19	4.3	5.6	5.0	3.9	16	28
17	2640	1500	424	75	40	17	4.3	5.6	5.2	3.9	13	25
18	276	614	316	22	36	17	4.1	5.9	5.0	4.1	13	23
19	130	300	530	95	35	20	3.9	5.6	5.0	4.5	13	22
20	82	189	500	74	33	10	4.1	5.9	5.0	3.9	13	20
21	59	169	451	72	32	9.0	4.1	5.6	4.8	3.8	13	20
22	55	139	381	68	31	8.5	4.8	6.6	5.2	3.6	13	19
23	1010	120	322	62	29	7.9	4.5	6.3	5.2	3.4	13	19
24	328	106	303	62	28	9.0	4.5	6.3	5.2	3.2	13	20
25	156	98	249	62	27	13	4.5	6.6	5.2	3.2	13	20
26	105	88	198	59	27	6.6	4.1	6.6	5.2	2.8	13	20
27	80	81	179	459	26	6.3	4.1	5.6	5.2	2.5	13	18
28	66	73	165	549	24	6.6	3.9	5.6	5.2	2.5	13	18
29	59	—	179	207	24	7.1	3.8	5.6	5.0	2.5	13	17
30	55	—	290	187	23	7.4	3.6	5.4	5.0	2.7	13	18
31	48	—	194	—	23	—	3.6	5.6	—	2.5	—	608
Mean	230	292	261	233	49.2	16.8	4.7	5.2	5.2	3.9	9.1	89.1
Ac-Ft	14160	16220	16050	13840	3030	1000	287	319	311	238	540	5480

Maximum Discharge	Calendar year 5410 c.f.s. January 16, 1954 of record 7400 c.f.s. November 20, 1950	Total Runoff in Acre-Feet	Calendar Year 71475 Water Year 67976

U. S. Geological Survey and Division of Water Resources cooperative 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 1954 computed by U. S. Geological Survey.

TABLE 78

FLOW OF DRY CREEK NEAR WHEATLAND - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.6	16	35	92	30	0				0	0	0.3
2	3.6	14	34	64	20	0				0	0	.6
3	3.8	13	31	61	8.2	0				0	0	30
4	4.0	15	30	68	0.1	0				0	0	52
5	4.6	14	28	224	0	0				0	0	31
6	4.8	14	26	214	0	0				0	0	54
7	4.8	13	26	121	0	0				0	0	82
8	5.2	12	26	89	0	0				0	0	23
9	6.2	11	416	76	0	0				0	0	326
10	5.6	11	401	73	0	0				5.5	0	483
11	5.2	10	181	62	4.6	0.1				2.2	0	79
12	6.0	125	106	53	3.1	1.2	N	N	N	1.9	0	41
13	5.4	875	78	50	0.8	1.5	0	0	0	2.3	0	26
14	5.0	1430	63	34	.6	1.5				2.3	0.1	20
15	4.6	295	55	27	.5	1.6				1.9	1.1	16
16	9.4	152	467	36	.4	1.7				1.6	43	12
17	1570	786	422	32	.3	1.7	F	F	F	1.2	16	9.3
18	204	374	252	31	.3	1.6	L	L	L	0.8	6.9	7.8
19	72	166	398	28	1.0	1.0	O	O	O	.8	3.6	6.6
20	40	114	342	20	2.9	0.3	W	W	W	1.2	2.0	6.1
21	26	89	267	24	0.9	0				1.9	1.6	5.2
22	19	74	192	12	.3	0				1.8	1.2	4.9
23	400	62	137	7.8	.1	0				0.8	1.2	4.5
24	280	53	124	12	0	0				.5	1.0	4.0
25	90	49	108	9.7	0	0				.2	0.8	3.8
26	47	45	82	10	0	0				.2	.8	3.4
27	33	41	70	19	0	0				.1	.6	2.8
28	26	37	64	133	0	0				0	.4	2.5
29	22	—	64	51	0	0				0	.4	2.5
30	20	—	267	41	0	0				0	.3	2.6
31	17	—	129	—	0	—			—	0	—	267
Mean	95.1	175	159	59.2	2.4	0.4	0	0	0	0.9	2.7	51.9
Ac-Ft	5850	9740	9760	3520	147	24	0	0	0	54	161	3190

Maximum Discharge	Calendar year 3050 c.f.s. January 17, 1954 of record 5610 c.f.s. January 12, 1952	Total Runoff in Acre-Feet	Calendar Year 32446 Water Year 30275

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 1946 to date. Records for 1954 computed by U. S. Geological Survey.

TABLE 79

FLOW OF BEAR RIVER NEAR WHEATLAND - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	58	584	792	1080	484	56	6.0	6.0	4.8	18	14	43
2	51	318	778	927	425	56	6.0	6.8	1.6	20	14	118
3	53	295	772	837	379	17	6.8	6.8	3.5	18	22	360
4	72	286	766	844	350	8.4	10	6.8	3.8	14	26	370
5	62	277	759	1690	295	6.8	6.0	9.4	3.5	17	22	165
6	60	277	759	2300	248	5.4	6.8	8.4	3.5	17	20	550
7	85	269	759	1660	214	6.0	6.0	8.4	5.4	15	24	404
8	84	261	778	1310	192	5.4	6.0	7.6	6.8	15	26	346
9	71	192	3340	1130	178	4.8	8.4	7.6	7.6	17	43	1360
10	65	178	3320	962	192	17	8.4	6.8	7.6	17	54	2240
11	65	178	2320	844	175	17	7.6	5.4	8.4	14	41	872
12	68	382	1690	772	175	12	6.8	3.8	7.6	13	60	716
13	68	1540	1360	708	168	9.4	8.4	6.0	8.4	12	52	674
14	63	4360	920	690	165	6.0	10	5.4	7.6	10	35	650
15	60	1980	811	590	158	5.4	8.4	4.8	8.4	10	255	626
16	455	1190	1260	198	84	6.8	7.6	3.8	6.0	12	234	584
17	3460	1620	1300	35	41	8.4	10	2.4	6.0	12	89	552
18	694	2680	1110	30	30	9.4	12	3.8	6.0	18	62	387
19	508	1400	1350	33	66	9.4	9.4	4.2	8.4	14	54	139
20	338	1030	1590	30	43	8.4	8.4	6.0	10	24	49	112
21	253	927	1590	278	17	7.6	7.6	5.4	10	28	47	107
22	277	885	1470	331	10	6.0	7.6	3.2	12	22	47	107
23	3550	850	1250	299	6.0	4.8	6.8	2.6	13	18	52	107
24	3060	837	1190	286	13	5.4	8.4	2.9	13	18	49	109
25	1220	824	1110	269	13	5.4	7.6	3.2	12	20	49	109
26	990	818	941	237	12	4.8	6.8	6.0	17	17	45	104
27	892	811	871	336	10	4.2	6.8	6.8	17	22	41	102
28	844	798	837	824	24	8.4	6.8	7.6	15	18	39	100
29	811	—	837	512	32	7.6	6.0	6.8	13	14	39	102
30	785	—	1540	430	39	6.0	6.0	6.8	13	8.4	37	104
31	648	—	1260	—	26	—	6.0	5.4	—	14	—	665
Mean	638	930	1278	682	138	11.2	7.6	5.7	8.7	16.3	54.7	419
Ac-Ft	39210	51660	78600	40610	8460	665	467	351	516	1000	3250	25750

Maximum Discharge	Calendar year 8230 c.f.s. January 23, 1954 of record 31300 c.f.s. January 21, 1943	Total Runoff in Acre-Feet	Calendar Year 250539 Water Year 251029

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 1954 computed by U. S. Geological Survey.

TABLE 80

FLOW OF COON CREEK AT HIGHWAY 99E - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	17	58	65	121	52	5.8	2.5	*0	11	11	12	31
2	16	55	68	107	42	5.4	3.0	4.5	9.7	13	9.2	106
3	18	51	68	99	40	6.5	4.5	2.8	9.7	11	*11	233
4	21	54	69	96	35	5.1	*3.5	5.1	*7.8	*11	12	364
5	*21	49	65	287	30	7.2	*2.5	1.9	*7.8	*10	14	126
6	*19	48	65	198	28	9.7	*1.6	6.9	*7.8	12	16	385
7	27	49	59	121	32	11	*0.6	10	*7.8	17	16	240
8	26	46	61	101	31	11	.6	12	5.8	20	20	112
9	21	41	*491	90	39	19	0	12	4.0	24	59	870
10	17	39	*386	78	48	24	0	11	5.8	23	42	879
11	21	41	190	72	38	20	2.0	6.9	11	27	40	*227
12	27	148	130	68	35	22	2.2	7.6	10	*25	58	153
13	*25	504	105	61	31	21	3.3	12	14	*21	40	126
14	25	*1110	90	56	29	17	0.8	10	15	18	39	108
15	21	297	80	46	26	15	3.0	10	12	18	225	98
16	145	188	*378	46	25	15	*0	14	10	17	180	90
17	1260	372	348	49	21	12	*0	12	13	16	76	83
18	207	293	198	49	17	*6.9	*0	11	15	14	59	80
19	112	166	270	38	17	*6.5	*0	12	11	14	54	65
20	83	135	306	40	15	*6.5	*0	8.8	11	19	49	56
21	70	114	259	40	13	*6.9	4.2	12	4.5	20	48	54
22	63	105	230	44	*12	*6.9	4.7	14	4.7	19	46	54
23	413	92	166	35	*11	8.8	6.1	12	7.6	18	45	51
24	286	92	*161	36	*9.2	7.6	1.6	7.6	6.5	18	45	51
25	130	87	*174	33	*8.3	7.2	5.1	14	6.9	18	44	49
26	*92	80	*137	39	*6.5	*7.2	2.0	17	7.2	*14	45	47
27	*78	76	*117	99	5.1	*7.6	1.3	21	10	*14	34	46
28	70	69	98	172	4.7	9.7	4.2	18	7.6	*14	40	42
29	65	—	99	89	4.7	7.9	*0	15	5.4	11	37	44
30	63	—	*319	68	5.8	*4.2	*0	18	6.5	*11	34	*44
31	61	—	172	—	5.1	—	*0	17	—	*12	—	*394
Mean	114	159	175	82.6	23.1	10.7	1.9	10.8	8.9	16.4	48.7	171
Ac-Ft	6982	8844	10760	4915	1421	636	118	667	528	1012	2896	10530

Maximum Discharge	Calendar year 3120 c.f.s. February 14, 1954	Total Runoff in Acre-Feet	Calendar Year	49309
			Water Year	42210

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.

* Estimated

TABLE 81

FLOW OF AUBURN RAVINE AT LINCOLN - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	28	*24	26	85	34	53	82	*85	55	*12	8.2	38
2	24	*23	24	79	32	56	79	*85	54	*11	8.4	90
3	28	*18	23	78	26	49	84	*85	49	*11	*10	146
4	25	34	20	82	27	48	84	*85	49	11	12	*194
5	24	34	20	211	38	51	84	85	*48	11	12	86
6	24	30	18	135	40	57	84	84	*48	11	12	168
7	32	28	19	95	51	52	85	85	*47	13	11	109
8	24	28	26	89	67	61	86	84	45	15	18	81
9	20	25	*227	81	78	80	85	83	45	12	34	*393
10	18	23	150	77	75	70	84	83	46	11	17	*389
11	18	23	77	74	74	58	85	*86	46	10	20	126
12	20	68	58	74	68	56	85	*86	47	10	25	85
13	18	*262	47	70	52	58	86	*86	47	*10	22	72
14	18	*539	46	70	47	*56	85	*85	46	9.2	20	58
15	17	147	43	61	48	*49	84	*85	43	8.2	143	54
16	81	86	*183	43	46	*44	85	*85	36	7.0	65	56
17	*495	*175	128	*33	50	42	83	*84	34	*7.2	*36	53
18	91	113	82	*24	59	42	82	*84	21	*7.2	36	37
19	56	78	114	*22	55	40	82	78	19	*7.4	36	36
20	*50	68	127	*19	54	40	83	70	19	8.6	36	32
21	*42	60	98	*17	56	40	*84	60	18	7.8	36	32
22	*36	54	105	18	54	48	*84	58	17	6.2	36	27
23	*248	48	82	33	54	60	*84	*58	14	6.0	36	27
24	130	40	86	52	49	64	*83	*57	14	6.2	36	28
25	69	36	78	48	51	67	*83	61	13	6.8	36	26
26	50	32	82	45	47	69	*83	73	*13	8.8	36	25
27	39	28	78	86	47	69	*83	65	*13	10	36	24
28	33	28	77	71	49	69	*86	63	*12	9.2	35	24
29	32	—	81	43	55	71	*86	58	*12	8.4	35	25
30	*26	—	190	36	54	80	*86	59	*12	7.4	36	*25
31	*25	—	99	—	56	—	*86	58	—	7.2	—	*195
Mean	59.4	76.9	81.1	65.0	51.4	56.6	84.0	75.6	32.7	9.2	31.3	89.1
Ac-Ft	3652	4268	4986	3870	3160	3370	5167	4647	1948	569	1864	5476

Maximum Discharge	Calendar year 1320 c.f.s. February 14, 1954	Total Runoff in Acre-Feet	Calendar Year	42977
			Water Year	38672

Division of Water Resources station located 500 feet downstream from the Lincoln-Newcastle Road. 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. Formerly published as Auburn Ravine at Highway 99E.

* Estimated

TABLE 82

FLOW OF NATOMAS CROSS CANAL AT HEAD - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	38	133	72	220	64				*20	*39		*60
2	38	140	65	153	49				*17	*44		*69
3	35	155	65	133	38			*3.0	*15	*47	*11	*163
4	36	166	65	122	31		*2.0		*13	*52		*492
5	38	106	64	137	29	*5.0			*11	*40		*526
6	39	72	60	379	23					29	*12	*346
7	41	73	59	*248	17					29	*12	*820
8	44	64	60	280	17			*5.0	*13	38	*14	*520
9	47	60	88	244	*18					46	*17	*502
10	44	54	509	185	*17					55	*53	*4800
11	40	51	358	127						55	*66	*2030
12	38	66	403	93						56	*66	*858
13	42	420	316	65	*16			*6.0	*12	*52	*73	*400
14	43	1390	160	67			*3.0			49	*72	*233
15	40	1320	152	69						45	*80	*173
16	44	561	103	59		*7.0				39	*179	*150
17	305	470	639	54					*20	32	*270	*139
18	1130	748	428	50	*14			*10	*21	28	*189	*126
19	376	545	245	48					*17	18	*114	*114
20	187	434	418	41	14				*21	14	*94	*108
21	134	369	376	30				*13	*20	16	*84	*97
22	111	344	288	24				*13	*23	19	*83	*94
23	116	275	258	24	*10			*13	*19	24	*74	*92
24	635	252	206	24				*12	*34	18	*72	*90
25	327	192	191	36				*12	*42	16	*70	*88
26	159	141	167	44				*12	*37	*15	*69	*85
27	118	87	144	47		*1.0	*2.0	*13	*31	*14	*69	*84
28	107	69	134	95	*13			*17	*44	*14	*69	*82
29	101	—	125	150				*24	*43	*13	*68	*79
30	101	—	215	94				*21	*45	*12	*60	*78
31	112	—	427	—				*20		*11		*76
Mean	150	313	221	111	18.7	5.0	2.5	9.4	21.0	31.6	69.5	438
Ac-Ft	9255	17370	13610	6629	1152	298	153	575	1250	1942	4134	26920

Maximum Discharge	Calendar year *6850 December 10, 1954	Total Runoff in Acre-Feet	Calendar Year	83288
			Water Year	59765

Division of Water Resources Station located approximately three and one-half miles northeast of Verona on El Centro Road. Station was moved to this new location on June 30, 1954. Natomas Cross Canal is an east-side tributary to the Sacramento River at Mile 19.6L. Period of record 1949 to date. * Estimated mean for period.

TABLE 83

FLOW OF RECLAMATION DISTRICT 1001 DRAIN INTO NATOMAS CROSS CANAL(a) - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	20	0	0	0						0	0
2	0	0	28	0	22						0	0
3	20	0	0	36	0						0	0
4	0	18	0	0	0						0	0
5	0	0	30	0	0						0	49
6	0	0	0	23	0						0	49
7	0	0	0	0	0						0	36
8	0	0	0	19	0						0	27
9	0	0	43	0	0						0	111
10	0	34	0	20	0						0	211
11	0	0	0	0	0						0	118
12	0	24	0	0	0	N	N	N	N	N	0	85
13	0	109	22	28	0	0	0	0	0	0	0	47
14	0	160	0	0	0						28	43
15	0	78	9.0	0	0						0	31
16	0	24	27	30	0						32	25
17	46	31	0	0	0	F	F	F	F	F	21	0
18	54	40	29	0	0	L	L	L	L	L	0	0
19	27	28	0	27	0	0	0	0	0	0	0	38
20	16	24	32	0	0	W	W	W	W	W	0	0
21	0	0	0	0	0						0	0
22	0	12	0	0	0						0	0
23	0	23	9.0	38	0						0	32
24	32	13	43	0	0						19	0
25	16	10	0	26	0						0	0
26	0	20	33	16	0						0	0
27	18	0	0	16	0						0	0
28	0	15	0	22	0						0	26
29	0	—	0	20	0						0	0
30	0	—	40	14	0						0	0
31	0	—	40	—	0	—			—		—	0
Mean	7.4	24.4	12.4	11.2	0.7	0	0	0	0	0	3.3	29.9
Ac-Ft	454	1355	764	664	44	0	0	0	0	0	198	1841

		Total Runoff in Acre-Feet	Calendar Year	5320
			Water Year	3529

This is drainage return to the Sacramento River via the cross canal by pumping and gravity. Period of record 1940 to date. Records for 1954 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 84

FLOW OF RECLAMATION DISTRICT 1000 DRAIN (#3 PLANT) - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	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	5.2	4.9	6.2	6.0	19.3	22.0	15.2	46.0	30.4	20.2	9.6	7.4
Ac-Ft	324	273	378	356	1185	1308	934	2832	1809	1244	571	452

	Total Runoff in Acre-Feet	Calendar Year	11666
		Water Year	10815

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 86). 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 1954 computed by Division of Water Resources.

TABLE 85

FLOW OVER SACRAMENTO WEIR FROM SACRAMENTO RIVER TO YOLO BY-PASS - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	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	No flow in 1954.											
21 22 23 24 25												
26 27 28 29 30 31		— —		—		—			—		—	
Mean	0	0	0	0	0	0	0	0	0	0	0	0
Ac-Ft	0	0	0	0	0	0	0	0	0	0	0	0

Maximum Discharge	Calendar year = 0 of record * 118,000 c.f.s. March 26, 1928	Total Runoff in Acre-Feet	Calendar Year Water Year

Station is located on Sacramento River at Mile 4.2R above Sacramento. Elevation of fixed crest is 25.0 U.S.E.D. datum. Movable crest (top of needles) 31.0 U.S.E.D. datum. Weir has 48 gates, each 38 feet in length. Period of record 1926 to date. Records for 1954 computed by Division of Water Resources.

* Estimated

TABLE 86

FLOW OF RECLAMATION DISTRICT 1000 DRAIN (2ND BANNON SLOUGH) - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	29	68	63	0	68		0	104	241	0	0
2	0	50	59	30	0	33		0	104	233	0	0
3	0	40	67	0	0	21		0	102	216	0	105
4	0	48	0	0	0	16		0	97	203	0	243
5	0	0	0	68	0	0		0	109	162	0	160
6	0	37	0	68	0	14		0	103	162	0	160
7	0	0	0	60	0	0		0	0	160	0	161
8	0	0	0	26	0	0		0	101	62	0	104
9	0	0	49	66	0	0		52	127	80	0	365
10	0	0	46	66	0	24		62	123	73	0	592
11	0	0	57	0	0	0		0	66	80	0	366
12	0	150	58	68	0	37	N	80	108	68	0	211
13	0	159	58	66	0	0	0	59	132	68	0	157
14	0	285	0	67	0	26		30	128	68	0	25
15	0	158	64	0	0	0		0	127	68	0	64
16	0	153	84	32	0	0		84	208	68	101	75
17	0	27	62	61	0	0	F	38	163	61	80	68
18	182	254	61	0	0	0	L	40	163	49	66	73
19	0	150	59	0	0	0	O	0	164	68	67	52
20	0	24	63	0	0	0	W	76	164	0	33	63
21	0	62	0	0	0	0		44	197	0	0	67
22	106	69	68	0	52	0		52	163	0	0	67
23	44	104	67	0	45	0		57	164	0	0	64
24	39	93	60	0	0	0		21	164	0	0	40
25	42	70	64	0	0	0		110	171	0	0	0
26	23	69	0	0	0	0		0	191	0	0	0
27	35	67	66	26	96	0		66	162	0	115	0
28	36	0	0	119	70	0		116	163	0	0	0
29	0	—	68	65	59	0		117	208	0	0	0
30	58	—	67	68	26	0		100	227	0	0	0
31	0	—	67	—	49	—		119	—	0	—	61
Mean	18.2	74.9	44.6	40	12.8	8.0	0	42.7	140	70.6	15.4	108
Ac-Ft	1121	4161	2741	2021	787	474	0	2624	8336	4344	916	6631

	Total Runoff in Acre-Feet	Calendar Year	34156
		Water Year	23818

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 84) 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 1954 computed by Division of Water Resources.

TABLE 87

FLOW OF LINDA CREEK NEAR ROSEVILLE - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	38	54	64	109	51	*22	15	13	18	19	26	38
2	38	55	63	102	46	*18	15	12	16	23	28	156
3	40	57	62	99	42	*17	14	16	17	28	*29	*294
4	43	57	59	101	42	*16	14	*14	20	32	31	398
5	42	57	58	224	39	*18	16	14	*24	35	30	112
6	43	58	57	171	32	*21	16	15	*28	34	28	249
7	47	55	57	116	31	*21	17	15	*27	36	25	152
8	47	54	60	101	35	*24	19	14	27	36	36	83
9	43	53	244	94	42	46	18	14	24	39	61	632
10	41	49	203	88	52	47	18	13	22	42	52	674
11	39	49	113	88	45	41	18	12	19	39	52	226
12	40	135	92	81	43	38	17	13	20	38	60	147
13	42	434	81	76	39	36	16	14	20	37	48	118
14	40	668	78	75	36	*28	14	14	18	36	45	102
15	38	*201	75	74	37	*24	14	16	18	36	188	91
16	66	126	*378	73	30	*25	15	18	17	34	144	83
17	508	235	*262	61	28	*24	15	18	16	32	64	77
18	169	210	134	60	28	*22	14	18	16	32	52	74
19	89	108	210	60	29	*18	15	18	18	32	45	72
20	74	93	241	61	27	*16	14	20	18	35	43	70
21	66	86	152	59	27	*15	15	23	18	32	40	68
22	64	81	141	54	*25	*13	14	23	16	30	42	68
23	100	77	124	50	*25	*11	13	22	16	32	42	70
24	154	74	112	44	*24	*10	12	20	15	33	39	68
25	89	75	112	43	*24	*10	13	22	15	32	36	67
26	72	72	95	42	*26	*11	14	30	16	32	36	63
27	65	68	94	67	*27	*13	*14	38	16	31	36	60
28	62	64	94	134	*26	*14	*14	34	16	32	36	59
29	60	—	103	78	*24	*17	13	28	16	31	38	62
30	59	—	*131	62	*23	*16	13	24	17	28	37	*65
31	55	—	144	—	*24	—	13	21	—	27	—	*151
Mean	76.5	122	126	84.9	33.2	21.7	14.9	18.9	18.8	32.7	49.0	150
Ac-Ft	4707	6754	7722	5052	2041	1293	916	1162	1119	2013	2914	9221

Maximum Discharge	Calendar year 1230 c.f.s. December 9, 1954	Total Runoff in Acre-Feet	Calendar Year	44914
			Water Year	37908

Division of Water Resources station located near Southern Pacific Railroad bridge 0.6 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 88

FLOW OF AMERICAN RIVER AT FAIR OAKS - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	940	1860	3120	5760	6570	2250	708	251	321	409	436	674
2	980	1900	3070	5320	5740	2300	726	240	290	430	460	880
3	991	2000	2880	5220	6060	2180	674	240	284	314	502	4420
4	1000	2010	2800	5300	6680	2180	634	235	328	278	530	6970
5	980	1970	2730	10000	7590	2320	626	215	295	374	530	3310
6	920	1920	2700	16600	7910	2360	610	225	321	354	523	2520
7	1000	1890	2730	14600	8340	2000	554	230	284	409	523	4680
8	1200	1860	2790	11000	8820	2030	538	235	295	438	502	3310
9	1250	1900	21500	8990	9260	1990	495	230	308	430	578	3340
10	1100	1900	36500	8030	7430	2170	509	215	308	490	538	6750
11	1050	1860	20300	7520	6860	1970	516	220	308	423	618	3310
12	1020	2080	12700	7450	6970	1860	509	215	308	416	610	2280
13	1000	7180	8480	7790	6640	2180	498	210	321	416	800	1860
14	980	12800	7100	8220	6440	2460	460	225	284	402	708	1680
15	980	7450	6300	8630	6400	1990	445	225	328	416	1040	1540
16	1050	4640	6420	9040	6360	1820	416	215	360	402	2440	1420
17	3800	4600	6420	9960	6880	1790	416	220	367	438	1960	1240
18	4200	10200	5780	10800	7150	1720	374	246	367	423	1180	1130
19	2400	6420	5620	10600	7010	1540	360	240	367	482	830	1060
20	1800	5040	5680	9910	6620	1450	347	205	360	409	708	1050
21	1500	4440	5820	9440	5940	1380	340	215	367	520	666	1020
22	1300	4060	5760	9750	4820	1450	328	230	367	520	642	910
23	2500	3670	5380	10400	4060	1440	334	220	360	528	650	950
24	13500	3430	5420	9700	3700	1360	328	215	416	452	674	1060
25	6500	3560	5460	8940	3590	1260	308	205	430	438	674	1040
26	3670	3560	4940	8460	3230	1170	295	230	416	468	650	1040
27	3200	3540	4620	8650	3020	1040	302	308	416	490	626	940
28	2800	3280	4700	12600	2800	940	290	374	416	452	634	810
29	2600	—	4900	9410	2740	860	273	334	423	374	650	900
30	2420	—	8220	7480	2620	771	268	328	438	468	650	1160
31	2200	—	6750	—	2430	—	321	340	—	445	—	1850
Mean	2285	3965	7342	9186	5828	1741	445	243	348	429	751	2100
Ac-Ft	140500	220200	451400	546600	358400	103600	27380	14950	20730	26400	44690	129100

Maximum Discharge	Total Runoff in Acre-Feet	
Calendar year 42600 c.f.s. March 9, 1954 of record 180000 c.f.s. November 21, 1950	Calendar Year Water Year	2083950 2067830

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 1954 computed by U. S. Geological Survey.

TABLE 89

FLOW OF AMERICAN RIVER AT SACRAMENTO (H ST. BRIDGE) - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	960	1960	2860	5920	6870	2170	740	248	317	394	452	721
2	990	2010	3100	5420	5520	2180	740	231	293	430	460	820
3	990	2060	2850	5330	5520	2050	712	231	270	354	507	2670
4	1010	2130	2740	5500	6430	2020	609	226	293	264	555	7260
5	1030	2170	2660	9300	7490	2160	609	215	287	354	555	3650
6	950	1900	2610	17600	8060	2220	609	210	323	348	564	2470
7	1030	1860	2640	15000	8560	1940	555	215	270	400	564	4330
8	1280	1840	2630	11300	9020	1910	499	215	293	430	555	3570
9	1330	1990	13200	9410	9450	1780	475	215	293	438	609	3020
10	1130	1980	41000	8320	8080	2080	430	210	323	468	600	7360
11	1100	1950	23100	7850	7100	1810	460	200	311	460	636	3810
12	1100	2020	12600	7630	7140	1740	460	200	305	430	654	2440
13	1050	6170	9240	7810	6960	1800	452	195	305	438	750	1950
14	1020	12400	7120	8140	6770	2530	400	200	305	415	770	1760
15	1000	8980	6340	8490	6680	1900	394	205	311	415	830	1610
16	1060	4750	6300	8800	6570	1680	368	210	354	430	1850	1500
17	4030	4600	6590	10200	7050	1680	374	210	368	430	2160	1320
18	4260	10000	6080	10900	7330	1630	342	215	380	438	1270	1260
19	2140	6500	5710	10700	7230	1460	329	258	368	491	970	1140
20	1740	5660	5840	9980	6870	1370	305	200	374	452	840	1120
21	1500	4460	5910	9330	6250	1310	311	200	368	499	780	1070
22	1340	4100	5830	9470	5000	1370	287	210	361	547	780	1030
23	2350	3670	5400	9930	4020	1340	287	210	342	555	760	1030
24	13600	3650	5470	9500	3570	1280	287	200	400	499	760	1120
25	6390	3450	5580	8660	3480	1200	264	200	415	523	740	1120
26	3780	3820	4970	8060	3230	1100	270	210	408	475	712	1130
27	2970	3620	4820	8020	2920	990	258	264	408	499	692	1060
28	2660	3200	4660	11600	2710	920	253	354	394	523	712	950
29	2430	—	4780	9810	2640	840	242	342	415	445	721	980
30	2180	—	8150	7920	2580	780	220	305	422	452	702	1210
31	1870	—	7190	—	2380	—	264	329	—	491	—	1550
Mean	2267	4032	7354	9197	5919	1641	413	230	343	445	784	1969
Ac-Ft	139400	223900	452200	547200	363900	97670	25400	14150	20380	27350	46630	121100

Maximum Discharge	Total Runoff in Acre-Feet	
Calendar year 41800 c.f.s. March 10, 1954 of record 176000 c.f.s. November 21, 1950	Calendar Year Water Year	2079280 2054030

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 1954 computed by U. S. Geological Survey.

TABLE 90

FLOW OF CACHE CREEK NEAR CAPAY - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	40	616	337	602	379	429	468	517	329	96	12	45
2	39	535	311	512	230	445	454	472	333	106	12	481
3	40	458	290	481	200	445	463	463	341	114	13	730
4	40	413	270	706	183	417	468	499	311	124	14	517
5	41	373	253	2160	183	425	499	508	294	116	14	385
6	44	333	240	3420	230	433	468	468	297	91	14	1220
7	46	297	230	3700	353	421	458	409	311	74	13	914
8	50	273	227	3370	437	429	476	405	333	67	16	472
9	75	246	314	3340	429	433	494	429	337	56	25	353
10	72	230	1140	3220	476	389	486	441	337	47	77	717
11	67	215	1970	3020	548	361	481	441	322	41	67	405
12	64	535	1910	1610	548	365	481	429	304	35	56	290
13	74	2270	3060	726	571	357	476	385	297	32	52	243
14	68	1640	2920	494	566	397	486	373	311	27	62	212
15	62	1130	2900	433	562	472	504	365	300	26	305	189
16	832	845	724	393	553	508	504	361	287	29	662	170
17	12300	1950	865	494	548	504	472	409	270	32	250	154
18	2900	2860	931	765	566	499	463	454	256	32	147	138
19	1220	1530	1180	805	625	517	458	458	243	32	108	127
20	784	1150	1850	1730	634	458	472	450	224	32	87	120
21	564	931	2900	377	602	476	504	421	200	32	75	112
22	458	775	3070	283	576	494	486	389	160	27	67	106
23	1450	661	2890	253	535	517	476	397	133	21	59	102
24	2020	584	3220	240	504	517	504	401	127	18	54	96
25	1190	522	3210	230	450	540	508	417	122	16	50	93
26	840	458	3420	843	437	562	490	417	120	15	46	89
27	892	381	3310	1190	429	566	481	381	120	14	45	84
28	785	369	3240	2570	437	602	472	385	114	13	42	80
29	702	—	3190	2420	472	566	476	333	100	12	42	77
30	805	—	1560	892	445	508	508	314	98	12	42	77
31	715	—	795	—	421	—	522	333	—	12	—	77
Mean	944	806	1101	1376	456	468	483	417	244	45.2	84.3	286
Ac-Ft	58070	44790	104600	81880	28020	27870	29670	25630	14540	2780	5010	17600

Maximum Discharge	Calendar year 17700 c.f.s. January 17, 1954 of record 23000 c.f.s. January 21, 1943	Total Runoff in Acre-Feet	Calendar Year 440460 Water Year 424330

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 1954 computed by U. S. Geological Survey.

TABLE 91

FLOW OF CACHE CREEK AT YOLO - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	431	280	690	250						0	0
2	0	363	254	575	140						0	0
3	0	319	240	511	60						0	470
4	0	283	220	595	34						0	332
5	0	247	210	1510	17						0	286
6	0	216	200	2870	12						0	550
7	0	191	190	3470	0						0	1010
8	0	168	180	3230	0						0	435
9	0	159	300	3190	0						0	282
10	0	153	1000	3090	0						0	496
11	0	260	1800	3010	0						0	374
12	0	500	1700	1750	0	N	N	N	N	N	0	248
13	0	2000	3100	934	0	0	0	0	0	0	0	190
14	0	1500	2600	485	0						0	160
15	0	990	2500	390	0						0	136
16	0	700	700	340	0						166	119
17	8390	1000	750	410	0	F	F	F	F	F	145	97
18	4320	3050	850	600	0	L	L	L	L	L	67	84
19	1340	1610	1100	635	0	0	0	0	0	0	20	72
20	757	1220	1700	1360	0	W	W	W	W	W	0	62
21	495	800	2500	596	0						0	55
22	371	650	2700	270	0						0	43
23	444	580	2500	188	0						0	34
24	2070	510	2900	170	0						0	22
25	1020	450	2950	148	0						0	16
26	675	400	3080	285	0						0	15
27	595	350	3140	808	0						0	14
28	585	300	3040	1720	0						0	12
29	495	—	3020	2110	0						0	10
30	510	—	2030	760	0						0	3.2
31	431	—	942	—	0	—			—		—	0
Mean	726	693	1570	1223	16.5	0	0	0	0	0	13.3	182
Ac-Ft	44620	38480	96550	72790	1020	0	0	0	0	0	789	11160

Maximum Discharge	Calendar year 15100 c.f.s. January 17, 1954 of record 38700 c.f.s. February 28, 1940	Total Runoff in Acre-Feet	Calendar Year 265409 Water Year 253460

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 1954 computed by U. S. Geological Survey.

TABLE 92

FLOW OF YOLO BY-PASS NEAR WOODLAND - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	30	5580	915	1660	1510	25	25	35	120	130	35	90
2	30	7490	795	1300	846	25	25	35	130	130	35	90
3	30	8360	682	849	692	30	25	40	130	120	35	100
4	30	7460	598	802	584	30	25	40	130	120	30	100
5	30	4840	524	858	410	30	25	45	130	110	30	360
6	36	1970	511	2320	274	35	25	45	140	110	30	963
7	38	765	490	3760	186	35	25	50	140	108	30	1190
8	40	604	452	12600	144	35	20	55	140	100	25	1270
9	41	526	459	15200	114	40	20	55	140	90	25	1220
10	42	462	490	10000	90	40	20	60	150	90	25	1200
11	63	410	5450	6060	70	40	20	60	150	80	25	1210
12	137	360	26100	4230	50	45	20	65	150	80	26	1270
13	128	320	22000	2720	27	45	20	65	160	70	30	1250
14	105	1850	14100	1620	25	45	20	70	160	64	30	1150
15	84	7170	6730	903	25	50	17	75	160	60	30	912
16	64	24600	4310	760	25	50	15	75	170	60	30	553
17	170	27600	2460	618	25	52	15	80	170	60	35	255
18	6200	34900	1530	538	25	45	15	80	170	60	259	170
19	3890	40500	1470	594	25	40	15	85	180	50	813	126
20	2050	35200	1550	708	25	35	15	85	180	50	765	106
21	1370	32500	2030	1410	24	30	20	90	186	50	524	92
22	1010	29300	2700	682	25	25	20	90	180	50	277	89
23	810	24300	2980	397	25	20	20	95	180	45	131	92
24	1150	17500	3060	293	25	15	20	95	170	45	74	86
25	1960	10400	3320	256	20	12	20	100	170	45	70	90
26	1450	5300	3430	234	20	15	22	103	160	45	70	90
27	1120	2890	3580	228	20	20	20	110	160	40	80	90
28	1420	1420	3550	548	20	20	25	110	150	40	80	90
29	1900	—	3500	2080	20	25	25	110	150	40	80	100
30	2080	—	3540	2270	20	24	30	120	140	40	90	100
31	3160	—	2460	—	25	—	30	120	—	35	—	100
Mean	989	11950	4060	2550	175	32.6	21.3	75.6	155	71.5	127	471
Ac-Ft	60830	663600	249500	151700	10740	1940	1310	4650	9220	4400	7570	28970

Maximum Discharge	Total Runoff in Acre-Feet	
Calendar Year 41400 c.f.s. February 19, 1954 of record 272000 c.f.s. February 8, 1942	Calendar Year Water Year	1194430 1157490

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 85 and 96. The flow in this table includes the flows of Cache Creek (Table 91), Knights Landing Ridge Cut (Table 59), and Fremont Weir (Table 62). Period of record 1930 to date. Records for 1954 computed by U. S. Geological Survey.

TABLE 93

FLOW OF SALT CREEK NEAR WINTERS (SCOTT'S RANCH) - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1		0	0	0.3	0							
2		0	0	0.1	0							
3		0	0	0	0							
4		0	0	0.3	0							
5		0	0	2.4	0							
6		0	0	1.3	0							
7		0	0	0.4	0							
8		0	0	0.2	0							
9		0	0	0.1	0							
10		0	0	0	0							
11		0	0	0								
12	N	*0.5	0	0								
13	0	*13	0	0								
14		*16	0	0								
15		0.7	0	0								
16		0.3	0	0								
17	F	40	0.2	0								
18	L	1.1	0	0								
19	0	0.1	0.4	0								
20	W	.1	0.8	0								
21		.1	1.0	0								
22		.1	0.5	0								
23		0	.2	0								
24		0	.2	0								
25		0	.3	0								
26		0	.1	0								
27		0	0	0								
28		0	0	0								
29		—	10	0								
30		—	23	0								
31		—	1.2	—		—			—		—	
Mean	0	2.6	1.2	0.2								
Ac-Ft	0	143	75	10								

Total Runoff in Acre-Feet	Calendar Year Water Year

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 May 10, 1954, when station was discontinued.

* Estimated

TABLE 94

FLOW OF PLEASANTS CREEK NEAR WINTERS (GONZALES RANCH) - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0.6	2.1	12	3.0	0.1						
2	0	.2	1.9	11	3.0	0						
3	0	.5	1.6	9.0	3.0	0						
4	0	.3	1.4	14	2.5	0						
5	0	.2	1.4	65	2.1	0						
6	0	.2	1.2	32	1.9	0						
7	0	.1	1.1	22	1.9	0						
8	0	.2	1.2	17	2.1							
9	0	.2	21	14	2.1							
10	0	.2	15	12	2.1							
11	0	.1	6.9	11	2.1							
12	0	20	4.5	9.0	1.7							
13	0	84	3.5	8.3	1.7							
14	0	46	3.0	7.6	1.6							
15	0	11	3.0	7.6	1.2							
16	4.9	12	4.8	7.2	1.1							
17	209	180	3.8	6.9	1.1							
18	5.2	35	2.8	6.6	1.1							
19	2.3	13	12	5.5	1.0							
20	1.0	9.0	11	5.0	0.9							
21	0.6	7.2	16	4.8	.8							
22	0.5	5.5	19	4.5	.7							
23	9.8	4.8	11	4.0	.7							
24	4.5	4.2	9.8	3.8	.7							
25	1.9	4.0	9.8	3.5	.6							
26	1.4	3.0	6.9	3.2	.7							
27	1.0	2.5	6.2	4.8	.7							
28	0.9	2.1	5.5	4.5	.5							
29	.8	—	78	3.0	.2							
30	.9	—	60	4.5	.1							
31	.8	—	17	—	.2	—			—		—	
Mean	7.9	15.9	11.0	10.8	1.4							
Ac-Ft	487	885	679	641	85							

Total Runoff in Acre-Feet	Calendar Year / Water Year

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 June 7, 1954, when station was discontinued.

TABLE 95

FLOW OF PUTAH CREEK NEAR WINTERS - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	42	452	357	988	268	35	7.0	1.7	3.4	3.2	6.3	32
2	41	388	316	809	244	36	6.7	1.5	3.6	4.6	6.7	951
3	41	338	301	722	230	31	7.6	2.1	5.5	5.8	5.0	1200
4	42	307	284	1170	221	31	6.9	2.2	3.8	4.0	4.9	678
5	46	280	266	5300	209	30	7.6	1.6	4.2	3.3	5.4	541
6	53	253	257	3160	194	30	6.9	1.4	4.9	3.3	5.2	2040
7	56	232	244	1930	183	34	4.8	1.2	4.4	2.4	5.5	1430
8	77	213	239	1440	172	33	3.4	1.1	4.8	1.4	6.7	663
9	110	202	538	1210	175	36	2.6	1.1	5.2	1.4	21	517
10	96	192	1830	1020	188	37	2.1	1.0	2.7	1.9	26	1460
11	88	181	1060	872	168	40	1.8	0.7	2.0	3.0	64	618
12	87	1350	733	752	156	37	2.6	.6	1.6	2.7	33	400
13	89	8770	567	668	149	34	4.0	.9	1.4	2.4	40	310
14	89	4460	468	602	135	33	4.0	2.8	1.4	2.2	65	262
15	81	2020	412	539	127	28	3.3	4.3	1.4	2.7	1800	222
16	1860	1310	435	480	99	24	4.4	3.7	1.4	4.2	1330	194
17	20100	5170	521	429	102	25	5.0	4.2	1.1	2.3	359	172
18	3030	4680	432	396	94	24	4.4	3.7	0.8	1.8	232	152
19	1350	4200	822	365	88	24	3.3	2.3	.7	1.4	157	138
20	838	2100	2060	338	82	22	4.6	2.6	.5	1.2	114	126
21	577	1100	2420	314	78	20	4.8	2.7	.4	1.0	92	118
22	446	894	2620	294	72	19	4.0	2.4	.3	0.9	75	110
23	2760	741	1670	280	65	13	4.0	2.3	.2	.7	60	104
24	2600	629	1300	268	60	11	4.2	2.6	.1	.6	53	99
25	1200	548	1050	262	54	8.6	6.1	2.8	.3	.5	47	93
26	809	482	825	255	53	7.2	5.6	3.2	1.4	1.4	42	86
27	859	432	711	266	50	7.0	3.7	3.4	3.3	2.8	38	80
28	714	386	632	489	48	7.8	2.8	4.2	3.7	2.9	34	75
29	632	—	636	424	43	7.6	2.2	4.3	5.2	2.8	32	72
30	622	—	2140	312	39	6.9	2.2	4.3	4.3	6.1	30	72
31	533	—	1340	—	38	—	2.1	3.2	—	3.7	—	73
Mean	1289	1511	887	878	125	24.4	4.4	2.4	2.5	2.5	160	422
Ac-Ft	79280	83920	54520	52270	7700	1450	267	151	147	156	9500	25960

Maximum Discharge	Calendar year 33900 c.f.s. January 17, 1954 of record 81000 c.f.s. February 27, 1940	Total Runoff in Acre-Feet	Calendar Year 315321 Water Year 289183

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 1954 computed by U. S. Geological Survey.

TABLE 96

FLOW OF PUTAH CREEK NEAR DAVIS - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	23	465	344	998	268	19					0	27
2	23	415	316	809	236	18					0	388
3	22	370	296	704	214	14					0	1340
4	22	332	280	837	204	8.1					0	769
5	24	312	264	4250	196	6.9					0	612
6	28	288	252	3740	180	6.9					0	1500
7	35	268	240	2050	168	6.3					0	1820
8	38	248	232	1440	153	8.1					0	790
9	65	232	264	1190	153	8.1					0	558
10	76	220	1450	998	164	10					0	1370
11	67	208	1000	851	156	10					0	741
12	60	228	652	732	138	12	N	N	N	N	0	474
13	60	7520	515	654	131	8.8	0	0	0	0	0	370
14	65	4620	435	594	118	4.7					0	312
15	60	2260	385	540	106	3.0					261	267
16	73	1290	370	486	100	1.2					2180	228
17	16700	3150	445	432	87	0	F	F	F	F	496	196
18	4460	6240	405	396	85	0	L	L	L	L	262	168
19	1520	2140	470	365	76	0	O	O	O	O	172	154
20	896	1400	1470	330	69	0	W	W	W	W	115	142
21	625	1030	2120	310	62	0					89	133
22	490	804	2410	286	58	0					69	122
23	1250	670	1730	268	53	0					58	118
24	3330	575	1280	254	50	0					49	110
25	1360	515	1010	250	43	0					44	103
26	839	460	816	240	40	0					39	95
27	748	415	697	250	38	0					36	89
28	700	375	624	340	35	0					32	87
29	616	—	594	468	31	0					28	83
30	570	—	1820	325	27	0					26	81
31	540	—	1520	—	22	—			—		—	81
Mean	1141	1323	797	846	112	4.8	0	0	0	0	132	430
Ac-Ft	70190	73490	49000	50350	6860	288	0	0	0	0	7850	26440

Maximum Discharge	Calendar year 29700 c.f.s. January 17, 1954 of record 39000 c.f.s. December 7, 1952	Total Runoff in Acre-Feet	Calendar Year Water Year	284468 255228

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 1954 computed by U. S. Geological Survey.

TABLE 97

FLOW OF SWEENEY CREEK NEAR WINTERS - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0.2	0.4	4.1								
2	0	.2	.4	4.1								
3	0	.2	.4	4.1								
4	0	.2	.4	4.1								
5	0	.2	.4	4.9								
6	0	.2	.4									
7	0	.2	.4									
8	0	.2	.4									
9	0	.2	.4									
10	0	.3	.4									
11	0	.3	.4									
12	0	76	.4									
13	0	117	.4									
14	0	67	.4									
15	0	5.4	.5									
16	1.7	11	.5									
17	202	154	.5									
18	0.6	8.4	.1									
19	.1	1.2	3.9									
20	0	0.4	1.8									
21	0	0.4	8.4									
22	0	.3	5.8									
23	1.8	.3	1.9									
24	0.3	.3	1.0									
25	.1	.3	0.8									
26	.1	.4	.4									
27	.2	.4	.4									
28	.2	.4	.4									
29	.3	—	65									
30	.3	—	24									
31	.2	—	5.1	—		—			—		—	
Mean	6.7	15.9	4.1									
Ac-Ft	412	884	250									

	Total Runoff in Acre-Feet	Calendar Year Water Year

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 April 5, 1954 when station was discontinued.

TABLE 98

FLOW OF ULATIS CREEK NEAR VACAVILLE (CAMPOS RANCH) - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.4	0.4	2.2	6.6								
2	.4	.4	1.9	5.6								
3	.4	.4	1.8	5.0								
4	.4	.4	1.8	6.3								
5	.4	.3	1.7	11								
6	.4	.3	1.7									
7	.4	.3	1.6									
8	.4	.3	1.6									
9	.4	.3	9.8									
10	.3	.3	5.6									
11	.4	.2	2.8									
12	.3	8.7	2.0									
13	.3	17	1.6									
14	.3	14	1.5									
15	.3	5.4	1.3									
16	11	5.6	3.6									
17	65	38	2.8									
18	1.6	14	2.0									
19	0.8	8.1	7.2									
20	.4	5.8	6.9									
21	.3	4.8	9.4									
22	.4	4.2	9.4									
23	7.8	4.2	8.1									
24	2.0	3.6	7.5									
25	1.2	3.0	6.6									
26	1.0	2.4	6.3									
27	0.8	2.0	6.0									
28	.7	2.2	5.6									
29	.6	—	19									
30	.4	—	16									
31	.4	—	8.1	—		—			—		—	
Mean	3.2	5.2	5.3									
Ac-Ft	198	291	324									

Total Runoff in Acre-Feet	Calendar Year / Water Year

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 April 5, 1954, when station was discontinued.

TABLE 99

FLOW OF ULATIS CREEK NEAR BINGHAMPTON - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	1.3	1.1	24								
2	0	1.3	1.1	11								
3	0	1.3	1.1	8.4								
4	0	1.3	1.0	7.3								
5	0	1.3	1.0	28								
6	0	1.3	0.9	*69								
7	0	1.3	0.9	*36								
8	0	1.3	0.9	*20								
9	0	1.3	1.1	*14								
10	0	1.3	4.1	*9.8								
11	0	1.3	4.5	*8.6								
12	0	1.3	2.4	*8.1								
13	0	614	1.1									
14	0	847	1.0									
15	0	180	0.8									
16	0	37	0.8									
17	284	410	1.5									
18	77	528	1.1									
19	14	72	1.1									
20	4.1	20	8.1									
21	2.1	13	15									
22	1.9	8.1	50									
23	2.5	4.1	28									
24	15	3.1	14									
25	8.1	2.4	7.9									
26	4.5	1.8	5.2									
27	2.3	1.3	4.1									
28	1.5	1.3	3.9									
29	1.3	—	3.6									
30	1.4	—	199									
31	1.3	—	62	—		—			—		—	
Mean	13.6	98.5	13.8									
Ac-Ft	835	5472	850									

Total Runoff in Acre-Feet	Calendar Year / Water Year

Division of Water Resources station located approximately 0.7 mile south of Binghamton 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 April 12, 1954, when station was discontinued.

* Estimated

TABLE 100

FLOW OF BARKER SLOUGH NEAR DOZIER - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0		0								
2	0	0		0								
3	0	0		0								
4	0	0		0								
5	0	0		0								
6	0	0		0								
7	0	0		0								
8	0	0		0								
9	0	0		0								
10	0	0		0								
11	0	0		0								
12	0	0	N	0								
13	0	1.1	0									
14	0	58										
15	0	15										
16	0	2.8										
17	19	2.8	F									
18	3.8	26	L									
19	0.1	8.4	O									
20	0	1.5	W									
21	0	0.1										
22	0	0										
23	0	0										
24	0.1	0										
25	.1	0										
26	0	0										
27	0	0										
28	0	0										
29	0	—										
30	0	—										
31	0	—		—		—			—		—	
Mean	0.7	4.1	0									
Ac-Ft	46	229	0									

Total Runoff in Acre-Feet	Calendar Year / Water Year

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 April 12, 1954, when station was discontinued.

TABLE 101

FLOW OF HASS SLOUGH NEAR MAINE PRAIRIE - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0		0								
2	0	0		0								
3	0	0		0								
4	0	0		0								
5	0	0		0								
6	0	0		0								
7	0	0		0								
8	0	0		0								
9	0	0		0								
10	0	0		0								
11	0	0		0								
12	0	*0	N	0								
13	0	*0	0									
14	0	*6.6										
15	0	*2.8										
16	0	0.9										
17	*0	1.2	F									
18	*0	2.5	L									
19	0	1.0	O									
20	0	0.4	W									
21	0	.3										
22	0	.2										
23	0	.1										
24	0.2	0										
25	.3	0										
26	.2	0										
27	.1	0										
28	.1	0										
29	0	—										
30	0	—										
31	0	—		—		—			—		—	
Mean	0	0.6	0									
Ac-Ft	2	32	0									

Total Runoff in Acre-Feet	Calendar Year / Water Year

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 April 12, 1954, when station was discontinued.

* Estimated

TABLE 102

FLOW OF COSUMNES RIVER AT MICHIGAN BAR - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	61	210	431	1180	726	154	54	13	9.0	7.4	16	34
2	61	201	415	1030	642	146	54	8.5	8.5	7.8	16	70
3	64	195	395	973	607	139	53	12	8.2	8.2	17	445
4	74	195	375	940	594	132	49	11	7.1	8.2	19	1130
5	78	189	356	1310	587	139	46	11	7.4	9.0	19	350
6	70	183	343	1940	568	146	44	9.8	7.4	9.4	21	320
7	83	178	330	1840	568	139	42	7.1	7.4	9.8	21	499
8	146	175	334	1580	568	130	41	12	6.8	9.8	22	317
9	116	175	1630	1400	587	181	39	11	7.4	9.8	24	1240
10	91	172	3020	1270	600	216	38	9.8	7.8	11	25	1970
11	90	167	2110	1200	517	164	37	9.4	7.4	11	32	538
12	90	207	1460	1160	493	152	36	9.0	6.8	9.8	40	309
13	86	1490	1160	1100	458	175	33	8.2	7.4	11	49	236
14	79	2880	962	1100	436	172	32	9.4	7.8	12	54	195
15	74	1280	840	1070	426	142	30	9.8	7.8	11	68	172
16	84	750	1120	1060	410	127	28	9.4	7.4	11	202	152
17	677	1110	1200	1070	405	116	27	7.8	8.2	11	154	139
18	513	1820	1040	1060	395	108	29	8.2	8.5	10	86	127
19	281	1020	920	995	385	102	28	7.8	7.4	11	62	123
20	210	786	951	910	361	95	24	14	8.2	11	52	116
21	172	663	1150	840	334	90	21	9.8	8.2	15	47	112
22	146	574	1030	831	297	86	20	8.5	8.2	16	44	108
23	279	523	920	822	271	81	19	8.5	7.8	15	41	104
24	1560	505	1190	786	249	79	19	8.5	7.1	15	38	102
25	786	499	1540	734	232	68	18	9.4	7.4	15	37	99
26	487	487	1070	678	216	67	18	9.0	7.8	15	36	97
27	356	475	890	805	207	67	17	9.8	7.1	16	34	88
28	301	453	822	1370	195	66	14	9.4	7.8	15	34	73
29	267	—	920	962	178	62	13	9.0	7.8	14	33	91
30	242	—	2770	795	172	60	13	9.4	7.4	15	33	101
31	223	—	1490	—	164	—	15	9.8	—	15	—	438
Mean	253	627	1070	1094	414	120	30.7	9.6	7.7	11.8	45.9	319
Ac-Ft	15560	34830	65820	65080	25480	7140	1890	594	457	724	2730	19630

Maximum Discharge	Calendar year 3860 c.f.s. March 30, 1954 of record 27600 c.f.s. November 18, 1950	Total Runoff in Acre-Feet	Calendar Year 239935 Water Year 229051

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 1954 computed by U. S. Geological Survey.

TABLE 103

FLOW OF COSUMNES RIVER AT McCONNELL - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	52	208	466	1480	832	131	14				0	21
2	51	200	451	1190	736	117	5.5				0	28
3	50	194	424	1060	672	108	6.5				0	100
4	51	190	400	1010	648	92	7.5				0	1170
5	61	186	379	1150	636	81	4.7				0	1100
6	63	184	364	2020	616	98	2.2				0	429
7	59	178	349	2210	608	106	0.1				0	928
8	76	174	340	1780	600	98	0				0	606
9	130	170	706	1530	616	98	0				0	782
10	96	168	3240	1360	672	180	0				0	4390
11	75	164	3100	1260	584	153	0				0	1840
12	73	168	1750	1180	539	122	0	N	N	N	0	672
13	75	570	1280	1140	511	120	0	0	0	0	0	419
14	72	4050	1070	1120	483	147	0				14	321
15	66	2580	928	1120	455	129	0				38	264
16	66	1080	981	1090	438	104	0				62	228
17	252	811	1970	1080	420	91	0	F	F	F	186	192
18	846	2520	1340	1080	417	78	0	L	L	L	109	168
19	442	1350	1040	1050	390	70	0	0	0	0	63	153
20	275	952	1100	980	375	61	0	W	W	W	44	143
21	200	776	1190	940	348	52	0				35	135
22	160	660	1200	884	315	48	0				30	131
23	145	587	1060	880	273	40	0				28	127
24	1130	545	1070	852	250	31	0				26	119
25	1240	534	1800	812	225	31	0				25	113
26	734	520	1320	768	200	24	0				24	105
27	486	510	1050	744	184	22	0				22	97
28	364	486	944	1320	170	26	0				22	83
29	292	—	908	1150	166	21	0				22	73
30	252	—	2990	943	158	19	0				21	94
31	225	—	2760	—	142	—	0		—		—	129
Mean	263	740	1225	1173	441	83.3	1.3	0	0	0	25.7	489
Ac-Ft	16180	41090	75310	69790	27130	4950	80	0	0	0	1530	30070

Maximum Discharge	Calendar year 4960 c.f.s. December 10, 1954 of record 21900 c.f.s. November 21, 1950	Total Runoff in Acre-Feet	Calendar Year 266130 Water Year 244223

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 1954 computed by U. S. Geological Survey.

TABLE 104

FLOW OF DRY CREEK NEAR GALT - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	26	46	392	32	0.4	0.1	0.3	0.3		0	0
2	0	30	48	286	21	.3	.2	.3	.3		0	0
3	0	22	40	240	18	0	.4	.1	.3		0	0.3
4	0	17	32	216	16	0	.3	0	.2		0	0
5	0	15	28	212	12	0	.2	0	0		0	1.3
6	0	14	24	247	12	0	.2	0	0		0	0.1
7	0	12	22	232	12	0	.4	0.1	0		0	32
8	0	10	23	175	6.5	0	0	.2	0		0	28
9	0	10	59	143	7.1	0	0.1	.3	0		0	235
10	0	9.4	287	121	12	0	.2	.2	0		0	1550
11	0	8.0	340	100	17	0	.2	.4	0		0	585
12	0	9.8	185	83	5.2	0	.3	.4	0	N	0	217
13	0	41	124	81	0.8	0	0	.4	0.3	0	0	115
14	0	613	100	79	3.2	0.1	0.2	.2	.1		0	72
15	0	555	88	72	3.0	.1	.3	0	.2		0.1	54
16	0	222	168	68	2.4	.1	.4	0	.2		.1	42
17	0.2	188	582	63	1.4	0	.2	0.4	.2	F	0	34
18	196	487	315	60	0.6	0	0	.5	.4	L	0	28
19	70	237	213	55	.2	0	0	.6	0	O	0	22
20	42	137	261	47	0	0	0.1	.4	0	W	0	19
21	28	108	377	43	0	0	.2	.2	0		0	18
22	20	93	393	37	0	0.1	.1	.5	0		0	17
23	20	80	285	30	0.1	.1	0	.4	0		0	15
24	222	71	326	28	0	.2	0	.2	0		0	12
25	259	66	598	28	0.2	.3	0.1	0	0		0	11
26	127	60	506	28	.2	.3	.1	0	0		0	10
27	83	51	322	30	.3	.3	.2	0	0		0	8.1
28	60	48	255	151	.3	.3	.2	0	0		0	6.9
29	48	—	230	107	.3	.2	.2	0	0		0	7.5
30	37	—	936	54	.2	0	.2	0	0		0	7.8
31	31	—	708	—	.4	—	.3	0.2	—		—	14
Mean	40.1	116	256	117	6.0	0.1	0.2	0.2	0.1	0	0	102
Ac-Ft	2470	6430	15710	6960	366	6	11	12	5	0	0	6270

Maximum Discharge	Calendar year 1950 c.f.s. December 10, 1954 of record 13200 c.f.s. February 2, 1945	Total Runoff in Acre-Feet	Calendar Year 38240 Water Year 31970

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 1954 computed by U. S. Geological Survey.

TABLE 105

FLOW OF MOKELUMNE RIVER AT LANCHA PLANA - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	451	507	509	505	1130	704	535	500	522	568	549	592
2	670	514	517	655	848	460	537	518	538	572	548	601
3	571	516	513	822	693	532	522	522	561	547	547	583
4	520	518	521	828	908	539	519	528	532	520	562	575
5	660	493	497	840	1060	547	437	524	561	533	576	565
6	670	386	433	1010	1420	622	533	522	593	511	619	549
7	665	332	229	1400	1220	537	528	515	566	527	688	551
8	670	523	460	1460	1150	536	522	516	536	575	594	543
9	535	527	499	1220	1150	532	530	524	540	580	573	559
10	303	528	516	944	1520	535	501	511	534	598	574	583
11	495	492	454	1110	1240	533	502	514	562	566	544	592
12	548	512	426	920	1010	509	520	526	578	588	567	566
13	593	503	226	890	1010	495	511	511	676	604	580	558
14	546	344	245	1100	1030	537	503	562	538	584	547	538
15	682	490	495	1100	1340	523	490	535	545	563	569	540
16	338	464	556	985	1710	530	536	528	548	563	628	541
17	294	501	559	932	1590	522	541	557	568	570	582	534
18	494	545	665	902	1890	539	606	548	566	571	603	548
19	440	545	665	926	1890	546	556	548	565	534	585	533
20	433	509	480	978	1820	543	513	527	576	532	573	535
21	376	281	412	1220	1740	535	507	500	543	554	587	586
22	397	474	505	1220	2010	530	520	424	512	580	572	693
23	348	508	665	1220	1440	534	507	554	582	586	598	609
24	234	532	650	1220	872	533	303	534	590	512	584	586
25	456	408	645	1080	622	534	491	573	614	571	580	688
26	523	676	478	1220	517	490	520	577	552	586	593	551
27	536	389	239	1230	1280	506	506	563	567	575	602	361
28	514	405	480	1220	1360	518	489	563	542	553	565	523
29	482	—	523	1300	783	537	503	504	557	552	565	526
30	280	—	532	1220	902	534	564	560	596	548	566	608
31	410	—	665	—	748	—	541	486	—	525	—	584
Mean	488	479	492	1056	1223	536	513	528	562	560	581	565
Ac-Ft	30020	26620	30270	62830	75180	31880	31520	32480	33440	34410	34550	34710

Maximum Discharge	Calendar year 2250 c.f.s. May 22, 1954 of record 26700 c.f.s. November 21, 1950	Total Runoff in Acre-Feet	Calendar Year 457910 Water Year 456070

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 1954 computed by U. S. Geological Survey.

TABLE 106

FLOW OF MOKELUMNE RIVER NEAR CLEMENTS - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	490	552	482	531	1120	681	555	531	516	594	574	635
2	752	599	529	598	858	418	551	516	531	602	590	664
3	658	605	531	818	606	497	555	520	570	590	574	648
4	604	595	548	818	831	493	531	528	570	570	563	656
5	743	561	500	822	908	512	500	539	543	566	590	635
6	756	500	443	881	1290	611	485	531	606	555	648	643
7	756	339	329	1310	1200	520	551	520	611	555	721	635
8	756	560	399	1440	1090	516	531	539	566	578	606	623
9	611	580	516	1280	1000	520	535	531	559	615	615	895
10	433	576	543	979	1390	516	512	524	555	652	590	960
11	516	549	520	1050	1280	520	508	524	555	590	598	690
12	655	560	451	979	941	512	531	531	598	590	570	672
13	690	591	300	826	936	512	512	524	686	643	598	677
14	627	509	244	1070	946	504	512	535	578	639	578	656
15	782	498	460	1090	1140	520	497	574	559	611	598	639
16	664	548	675	1010	1630	543	520	551	570	611	656	643
17	474	498	660	908	1410	528	551	555	578	602	623	643
18	500	589	725	890	1800	539	619	559	594	627	623	643
19	594	574	725	904	1790	543	590	555	590	590	602	648
20	524	528	586	899	1760	566	520	520	598	574	598	672
21	521	362	414	1160	1630	539	508	524	594	574	602	660
22	479	416	512	1160	1880	543	524	440	535	615	615	818
23	396	504	699	1160	1510	535	508	547	563	627	611	738
24	358	535	694	1160	931	543	382	570	606	555	611	712
25	545	415	668	1040	623	531	440	547	639	590	611	822
26	556	677	528	1150	447	516	516	590	582	627	627	822
27	662	440	319	1180	974	504	528	574	586	590	643	512
28	648	429	400	1160	1360	528	493	574	611	606	623	425
29	589	—	528	1240	826	531	512	563	555	574	594	558
30	379	—	563	1140	813	535	535	535	648	570	611	627
31	506	—	672	—	730	—	559	555	—	555	—	660
Mean	588	525	521	1020	1150	529	522	540	582	595	609	675
Ac-Ft	36150	29140	32060	60800	70710	31490	32070	33180	34620	36570	36220	41520

Maximum Discharge	Calendar year 2000 c.f.s. May 22, 1954 of record 28800 c.f.s. November 21, 1950	Total Runoff in Acre-Feet	Calendar Year Water Year	474530 464250

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 107

FLOW OF MOKELUMNE RIVER AT WOODBRIDGE - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	451	402	388	587	856	258	31	27	108	252	288	531
2	474	482	467	515	771	165	31	27	105	268	301	577
3	580	504	487	665	476	49	34	26	115	262	304	573
4	527	511	495	768	334	51	51	24	138	258	301	568
5	547	506	482	768	476	58	74	24	146	234	324	545
6	617	482	467	764	761	107	34	30	158	234	372	531
7	632	396	418	938	920	126	31	27	171	226	451	534
8	632	317	230	1230	729	68	31	35	153	242	487	522
9	582	493	412	1230	695	52	31	65	141	271	498	568
10	510	502	495	1020	860	43	31	50	142	291	469	912
11	300	511	484	876	1080	42	31	33	154	288	478	699
12	447	491	432	973	695	131	32	26	173	250	473	610
13	522	520	402	695	543	70	33	28	278	285	465	573
14	549	561	238	736	614	54	32	68	235	317	482	561
15	551	416	224	842	637	41	32	123	168	302	623	536
16	606	489	447	821	1060	39	31	106	164	285	965	538
17	538	473	621	621	1060	36	31	51	167	298	614	536
18	322	513	596	600	1250	35	54	98	191	304	561	531
19	435	548	653	591	1330	34	74	86	240	293	559	536
20	419	545	612	580	1280	39	42	80	234	264	548	529
21	391	502	467	662	1240	74	28	70	201	259	536	534
22	369	299	159	748	1320	38	27	82	185	285	543	610
23	360	436	166	743	1310	35	26	53	161	310	531	635
24	330	511	584	807	858	32	26	114	147	370	536	584
25	257	534	575	784	317	31	24	120	250	312	557	616
26	406	434	527	640	149	31	23	121	250	372	541	662
27	480	591	436	943	230	31	24	154	228	338	561	495
28	516	398	235	950	886	33	24	162	244	326	554	360
29	503	—	392	964	708	34	24	180	206	306	524	436
30	489	—	489	945	274	31	24	155	226	291	524	538
31	306	—	548	—	364	—	24	138	—	277	—	577
Mean	473	477	440	800	777	62.3	33.7	76.8	183	286	499	566
Ac-Ft	29050	26510	27030	47620	47770	3710	2070	4730	10870	17590	29690	34820

Maximum Discharge	Calendar year 1460 c.f.s. May 18, 1954 of record 27000 c.f.s. November 22, 1950	Total Runoff in Acre-Feet	Calendar Year Water Year	281460 280730

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 1954 computed by U. S. Geological Survey.

TABLE 108

FLOW OF BEAR CREEK NEAR LOCKEFORD - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0	2.8	0	0.1	0.3	0.2	0	0	0	0
2	0	0	0	1.7	0	0	.5	0	0	0	0	0
3	0	0	0	0.9	0	0	.1	0	0	0	0	0.1
4	0	0	0	.5	0	0.1	.3	0.2	0	0	0.1	.5
5	0	0	0	.4	0	.1	.5	.1	0	0	0	.2
6	0	0	0	.2	0.1	0	.5	.1	0	0.2	0	.5
7	0	0	0	.2	0	0	.6	.1	0	0	0	1.6
8	0	0	0	.1	0	0	.3	0	0	0	0	0.4
9	0	0	0	0	0	0	.1	0	0	0	0	104
10	0	0	0	0	0	0.1	.1	0.1	0.4	0	0	288
11	0	0	0	0	0	0	0	0	.1	0	0	38
12	0	0	0	0	0.1	0.2	0	0.2	.1	0	0	14
13	0	0	0	0	0	0	0	.1	0	0	0	7.6
14	0	61	0	0	0	0	0.2	0	0.2	0	0	4.6
15	0	40	0	0	0	0.1	0.1	0.1	0	0	7.8	3.0
16	0	25	21	0	0	.1	0	0	0	0	3.0	2.0
17	2.0	14	50	0	0	.1	0.1	0.3	0	0	0.4	1.4
18	0.9	8.0	12	0	0	0	0.2	.1	0	0	.1	1.0
19	.2	4.3	14	0	0	0	0	0	0	0	0	0.7
20	.1	1.7	20	0	0	0	0	0.1	0	0	0	.5
21	0	0.7	12	0	0	0	0	0	0.2	0	0	.4
22	0	.2	8.0	0	0	0	0	0.4	0	0	0	.2
23	0	.1	6.0	0	0	0.2	0	0	0.5	0	0	.2
24	0	.1	4.3	0	0	.3	0.2	0	.7	0	0	.2
25	0	0	2.8	0	0	.2	0.1	0	1.1	0	0	.1
26	0	0	2.0	0	0	.2	0	0	1.0	0	0	.1
27	0	0	3.0	0.1	0.2	.1	0	0	0	0	0	0
28	0	0	2.0	0	.2	.2	0	0.2	0	0.1	0	0
29	0	—	1.6	0	.1	.2	0.2	.1	0.1	0	0	0
30	0	—	7.5	0	0	.2	0	0	0.1	0	0	0
31	0	—	7.4	—	0	—	0.1	0	—	0	—	0
Mean	0.1	5.5	5.6	0.2	0	0.1	0.2	0.1	0.2	0	0.4	15.1
Ac-Ft	6	308	344	14	1	5	9	5	9	1	23	931

Maximum Discharge	Calendar year 534 c.f.s. December 9, 1954 of record 2260 c.f.s. February 2, 1945	Total Runoff in Acre-Feet	Calendar Year 1656 Water Year 725

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 record available at a site three miles downstream.) Records for 1954 computed by U. S. Geological Survey.

TABLE 109

FLOW OF CALAVERAS RIVER AT JENNY LIND - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	29	89	13	82	150	183	200	209	1.3		0	13
2	29	84	13	100	150	183	200	206	.6		0	18
3	30	78	13	107	145	183	200	203	.1		0	53
4	30	74	16	113	140	183	198	200	0		0	1070
5	29	68	18	119	140	181	198	200	0		0	503
6	29	66	18	130	135	181	198	198	0		0	183
7	29	63	18	146	130	192	195	195	0		0	202
8	29	59	18	153	125	195	195	192	0		0	214
9	36	58	20	155	120	178	181	189	0		0	557
10	37	55	22	163	120	176	143	186	0		0	2030
11	36	51	25	209	113	176	165	186	0		0	904
12	35	49	27	212	111	176	176	183	0	N	0	296
13	34	65	26	209	117	173	176	181	0	0	0	176
14	34	1680	25	203	121	173	176	178	0		0	126
15	33	1020	18	200	117	173	186	176	0		0	100
16	31	20	50	198	121	173	203	173	0	F	26	85
17	60	18	79	190	130	170	212	170	0	L	55	73
18	63	61	29	190	141	176	218	168	0	O	48	66
19	221	20	84	185	134	181	215	203	0	W	199	61
20	136	14	30	180	130	181	215	225	0		27	57
21	96	11	54	175	126	181	212	173	0		23	56
22	74	9.2	38	160	126	183	209	165	0		19	54
23	67	8.8	34	155	146	183	206	158	0		18	51
24	636	9.2	34	150	170	189	203	150	0		15	49
25	1050	8.8	84	145	163	215	203	168	0		14	48
26	492	8.8	51	140	176	215	200	176	0		14	46
27	260	12	38	140	200	212	206	123	0		13	44
28	173	13	31	150	195	206	218	51	0		13	42
29	134	—	29	150	189	203	215	17	0		13	40
30	113	—	52	150	186	200	215	6.8	0		13	41
31	100	—	66	—	186	—	212	4.2	—		—	57
Mean	135	135	34.6	159	144	186	198	162	0.1	0	17.0	236
Ac-Ft	8300	7480	2130	9440	8830	11060	12200	9940	4	0	1010	14510

Maximum Discharge	Calendar year 2330 c.f.s. December 10, 1954 of record 50000 c.f.s. January 31, 1911	Total Runoff in Acre-Feet	Calendar Year 84904 Water Year 74283

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 1954 computed by U. S. Geological Survey.

TABLE 110

FLOW OF CALAVERAS RIVER AT BELLOTA - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	14	56	2.2	1.1	94	105	116	116	3.2			0
2	14	54	3.2	1.1	92	104	112	115	1.0			0
3	14	52	3.2	1.1	91	102	113	112	0.8			0
4	14	47	3.3	1.0	88	103	112	113	.2			0
5	14	44	4.5	1.0	86	98	110	113	0			0.2
6	14	44	3.3	1.0	84	99	111	114	0			.2
7	14	43	1.1	1.0	82	96	112	114	0			.1
8	14	26	1.1	1.0	80	107	110	112	0			.1
9	14	25	1.0	18	80	106	110	107	0			.2
10	14	28	1.0	52	77	106	98	104	0			.3
11	19	26	0.9	53	75	104	97	106	0			.2
12	25	26	.9	54	72	109	103	104	0	N	N	.2
13	17	28	.9	61	73	110	101	102	0	0	0	.2
14	13	98	.9	68	76	107	97	101	0			.1
15	13	120	.9	70	77	107	97	103	0			.1
16	13	57	1.0	69	76	104	103	102	0			.1
17	27	25	0.9	68	80	108	*104	94	0	F	F	.1
18	53	13	.9	68	80	106	*106	90	0	L	L	.1
19	65	13	5.2	66	80	108	*107	92	0	O	O	.1
20	64	13	12	64	78	112	*108	109	0	W	W	.1
21	59	12	12	63	77	109	*110	98	0			.1
22	55	9.2	25	63	78	108	110	98	0			.1
23	53	7.1	36	62	84	108	110	92	0			.1
24	*68	7.2	35	61	91	108	110	84	0			.1
25	*108	7.1	20	60	92	115	111	82	0			.2
26	91	7.0	5.2	74	92	117	107	94	0			.2
27	83	3.1	9.0	92	102	117	107	83	0			.2
28	77	1.2	8.7	93	105	114	111	94	0			.2
29	66	—	6.8	96	108	114	115	35	0			.2
30	60	—	1.2	96	109	116	115	15	0			.2
31	58	—	1.1	—	105	—	113	4.6	—		—	.2
Mean	39.6	31.8	6.7	49.3	85.9	108	108	93.6	0.2	0	0	0.1
Ac-Ft	2434	1769	413	2934	5284	6401	6637	5757	10	0	0	8

Maximum Discharge	Calendar year 118 c.f.s. August 6, 1954	Total Runoff in Acre-Feet	Calendar Year 31647 Water Year 33185

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.

* Estimated

TABLE 111

FLOW OF CALAVERAS RIVER NEAR STOCKTON - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.9	34	0	0	42	35	27	24	0			
2	3.0	29	0	0	39	32	22	19	0			
3	3.0	25	0	0	35	24	23	11	0.4			
4	2.8	23	0	0	30	30	25	14	0			
5	2.8	15	0	0	34	31	23	12	0			
6	3.0	14	0	0	29	28	11	16	0			
7	3.2	12	0	*0	21	26	15	23	0			
8	2.9	11	0	*0	37	27	25	27	0			
9	2.9	2.6	0	*0	27	16	26	18	0			
10	3.0	0	0	*22	29	16	*19	13	0			
11	3.3	0	0	*23	20	11	*24	11	0			
12	6.0	0	0	*24	15	13	*16	15	0	N	N	N
13	11	1.1	0	*25	15	18	*12	15	0	0	0	0
14	7.1	9.5	0	*25	17	23	*7.0	8.5	0			
15	3.2	64	0	27	26	14	2.0	11	0			
16	1.3	41	0	28	25	15	1.4	15	0			
17	0.6	24	0	27	33	*6.0	11	11	0	F	F	F
18	14	7.2	0	38	28	*8.0	22	3.8	0	L	L	L
19	19	5.7	0	37	20	*10	25	1.0	0	0	0	0
20	36	1.7	0	36	18	*8.0	21	0.6	0	W	W	W
21	30	1.9	0	36	15	*7.0	21	1.9	0			
22	28	1.9	0	33	3.1	*7.0	20	2.2	0			
23	28	1.2	0	27	1.6	*9.0	24	5.1	0			
24	36	0.1	0	27	11	3.0	23	5.9	0			
25	65	0	8.4	25	11	3.4	31	3.6	0			
26	80	0	6.7	12	9.4	21	27	4.0	0			
27	65	0	1.2	14	6.1	24	8.5	10	0			
28	58	0	0	55	18	25	11	12	0			
29	51	—	0	53	25	19	14	6.8	0			
30	40	—	0	52	34	25	13	2.5	0			
31	36	—	0	—	36	—	9.2	0.3	—		—	
Mean	20.9	11.6	0.5	21.5	22.9	17.8	18.0	10.4	0	0	0	0
Ac-Ft	1285	644	32	1281	1409	1060	1109	641	1	0	0	0

Maximum Discharge	Calendar year 104 c.f.s. February 15, 1954	Total Runoff in Acre-Feet	Calendar Year 7462 Water Year 7840

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

TABLE 112

FLOW OF MORMON SLOUGH AT BELLOTA - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	8.6	20	6.3	77	78	51	70	78				0
2	8.6	14	6.3	94	70	41	65	75				0
3	12	10	4.7	105	67	38	67	65				0
4	10	9.3	3.4	110	60	42	67	62				499
5	10	8.6	4.7	119	*57	31	66	64				718
6	10	7.8	7.1	130	*53	32	69	69				245
7	11	8.6	9.3	147	*50	25	69	69				193
8	11	15	10	153	*47	46	68	66				170
9	12	6.3	12	140	*43	38	70	56				426
10	17	0	11	110	*40	37	39	51				2220
11	7.8	13	12	144	*36	33	40	55				1020
12	0	*15	14	157	*33	43	56	50	N	N	N	269
13	6.3	*51	14	147	29	44	53	43	0	0	0	110
14	11	*870	16	140	36	37	47	41				65
15	11	*986	13	134	37	35	46	45				44
16	11	18	26	127	36	33	60	42				31
17	5.0	0.8	85	124	53	35	65	27	F	F	F	26
18	94	42	41	121	57	33	74	20	L	L	L	21
19	119	16	24	113	52	38	78	23	0	0	0	20
20	55	7.1	18	107	48	44	86	57	W	W	W	19
21	27	3.4	33	102	39	36	85	34				18
22	13	2.2	37	97	33	35	78	33				17
23	7.1	2.2	10	92	43	33	73	22				17
24	188	1.3	3.4	87	55	35	74	12				17
25	739	0.1	55	82	52	52	73	11				17
26	405	0	73	48	45	59	58	26				17
27	160	0	42	52	66	64	55	12				17
28	77	3.9	31	65	70	59	70	0.6				18
29	50	—	30	75	74	60	83	0				17
30	34	—	46	78	74	67	81	0				18
31	26	—	67	—	56	—	74	0	—		—	22
Mean	69.6	76.1	24.7	109	51.0	42.0	66.4	39.0	0	0	0	203
Ac-Ft	4277	4228	1518	6500	3152	2491	4084	2397	0	0	0	12480

Maximum Discharge	Calendar year 2500 c.f.s. December 10, 1954	Total Runoff in Acre-Feet	Calendar Year	41127
			Water Year	29984

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 113

FLOW OF STOCKTON DIVERTING CANAL AT STOCKTON - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	*10	*19	1.3	56	35	3.8	16	20				0
2	*10	13	1.4	68	25	1.8	14	20				0
3	*10	7.3	1.4	79	27	1.0	14	14				0
4	*10	3.6	1.3	83	22	1.1	13	10				85
5	*10	1.4	0	86	19	1.3	22	12				956
6	*10	2.3	0	92	14	4.3	13	17				318
7	*10	0.3	0	104	14	4.0	19	28				174
8	*10	0	0	112	11	14	18	19				176
9	*10	0	0	117	11	19	14	15				204
10	*10	5.0	0	79	16	12	6.6	8.6				2440
11	*8.0	0	0	86	3.8	7.9	2.5	11				2230
12	*8.0	0	0	110	0	4.8	0.6	16	N	N	N	524
13	*8.0	0	0	108	0	18	.3	14	0	0	0	268
14	*8.0	525	0	96	0	16	.2	7.6				158
15	*8.0	1380	0	88	0	8.6	0	5.0				109
16	*10	169	0	83	0	6.0	0	8.3				81
17	*6.0	*15	67	81	0	1.0	0.3	9.0	F	F	F	65
18	*50	26	62	80	4.9	1.3	12	7.9	L	L	L	53
19	*90	38	35	74	11	0.8	26	5.6	0	0	0	42
20	83	14	16	68	9.0	1.8	7.0	7.3	W	W	W	37
21	39	6.3	12	65	6.6	14	3.0	22				33
22	14	2.6	46	61	0.6	6.6	2.6	8.6				29
23	4.6	1.1	17	56	0	3.3	4.3	2.8				26
24	5.0	1.1	5.3	49	5.3	1.6	7.6	0.6				22
25	675	1.3	0.5	52	16	2.5	13	0				20
26	547	1.4	65	52	4.0	6.3	20	0				18
27	224	1.6	41	41	12	20	9.0	0				16
28	110	1.3	24	32	18	22	15	0				14
29	66	—	16	34	15	16	15	0				13
30	46	—	20	40	13	17	7.3	0				11
31	30	—	49	—	16	—	12	0	—		—	11
Mean	69	79.8	15.5	74.4	10.6	7.9	9.9	9.3	0	C	0	262
Ac-Ft	4244	4434	954	4427	653	472	610	574	0	0	0	16130

Maximum Discharge	Calendar year 2860 c.f.s. December 10, 1954 of record 7950 c.f.s. November 19, 1950	Total Runoff in Acre-Feet	Calendar Year	32498
			Water Year	16429

Division of Water Resources station located approximately 300 feet downstream from Waterloo Road Bridge. Period of record 1944 to date.

* Estimated

TABLE 114

FLOW OF LITTLEJOHNS CREEK AT FARMINGTON - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	8.0	70	11							0
2	0	0	6.0	50	12							0
3	0	0	2.0	37	9.0	E					E	0
4	0	0	0	30	7.0	S					S	50
5	0	0	0	25	6.0	T					T	35
6	0	0	0	23	7.0	I					I	20
7	0	0	0	20	5.0	M					M	15
8	0	0	0	19	5.0	A					A	15
9	0	0	0	19	5.0	T					T	105
10	0	0	0	18	10	E					E	*620
11	0	0	0	14	12	D					D	360
12	0	0	0	14	9.0							274
13	0	0	0	12	7.0	B					B	65
14	0	0	0	8.0	5.0	E	N	N	N	N	E	40
15	0	85	0	4.0	5.0	T	0	0	0	0	T	35
16	0	97	0	2.0	7.0	W					W	30
17	0	56	220	2.0	6.0	E	F	F	F	F	E	25
18	0	25	301	2.0	3.0	E	L	L	L	L	N	20
19	0	25	106	2.0	3.0	N	0	0	0	0		20
20	0	30	240	2.0	3.0	0.0	W	W	W	W	0.0	20
21	0	24	283	2.0	2.0							15
22	0	20	211	4.0	3.0	A					A	15
23	0	19	80	7.0	3.0	N					N	10
24	0	18	57	9.0	2.0	D					D	10
25	0	18	50	9.0	1.0							10
26	0	17	60	9.0	3.0	1.0					1.0	10
27	0	15	62	13	3.0							5.0
28	0	10	48	24	1.0	C					C	5.0
29	1	—	40	18	2.0	F					F	5.0
30	1	—	46	13	2.0	S					S	2.0
31	1	—	70	—	2.0	—			—		—	2.0
Mean	0.1	16.4	61.0	16.0	5.2	*0.3	0	0	0	0	*0.3	59.3
Ac-Ft	6	910	3749	954	321	*20	0	0	0	0	*20	3646

	Total Runoff in Acre-Feet	Calendar Year	9626
		Water Year	6053

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 1945 to date. Records for 1954 computed by U. S. Corps of Engineers.

* Estimated

TABLE 115

FLOW OF DUCK CREEK AT FARMINGTON - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1		0	0	0.8	0	0	1.9	0.2	0.8	3.4	0.2	0
2		0	0	1.0	0	0	1.4	1.1	1.7	2.6	.2	0
3		0	0	0.4	0	0	0.9	1.5	2.0	2.1	0	0
4		0	0	0	*0	0	.7	0.7	2.4	1.9	0	5.5
5		0	0	0	*0	2.1	.8	.7	2.7	1.9	0	3.9
6		0	0	0	0	1.2	.1	1.2	2.7	1.6	0	1.6
7		0	0	0	0	0.6	0	1.3	2.8	0.8	0	4.8
8		0	0	0.4	0	0	0	1.9	2.3	.2	0	3.6
9		0	0	0	0.2	*0	0	1.9	3.0	.1	0	15
10		0	0	0	0	*0.6	0	1.7	4.3	.2	0	65
11		0	0	0	0	*2.2	0.1	1.0	3.2	.6	0	16
12	N	0	0	0	0	*4.5	.5	0.8	3.6	.5	0	5.0
13	0	0	0	0	0	*6.0	1.5	.5	3.4	.5	0	2.7
14		11	0	0	0	*9.6	2.0	1.3	*3.3	.8	0	1.9
15		23	0	0	0	*7.8	2.1	1.6	*3.2	.6	0.1	1.4
16		5.8	0	0	0	*6.1	1.5	1.3	2.6	.3	.3	1.2
17	F	2.6	4.3	0	0	2.6	1.2	1.4	3.1	.4	.2	0.9
18	L	2.5	4.4	0	0	1.1	1.4	1.7	3.0	.4	.2	.5
19	O	5.7	1.6	0	0	1.5	1.1	1.6	1.9	.7	.1	.4
20	W	2.2	0.6	0	0	0	1.2	1.3	2.8	.5	.1	.4
21		0.8	2.1	0	0	0	1.5	1.8	3.0	.4	.1	.3
22		.3	18	0	0	0.3	1.7	2.5	2.0	.6	0	.3
23		0	6.6	0	0	0	1.7	2.3	1.7	.2	0	.2
24		0	2.8	0.6	0	0	1.5	1.7	1.7	.1	0	.2
25		0	1.1	1.2	0	0	1.2	1.8	1.9	.1	0	.2
26		0	1.0	0	0	0	1.2	2.3	2.4	0	0	.2
27		0	0.5	0.5	0	1.6	1.3	2.7	2.3	0	0	.1
28		0	0	4.5	0	2.0	1.1	1.6	2.4	0	0	.1
29		—	0	4.0	0	1.8	1.3	0.9	3.2	0	0	.1
30		—	0	1.4	0	2.2	0.8	1.5	3.2	0	0	0
31		—	0	—	0	—	.2	1.0	—	0.2	—	0
Mean	0	1.9	1.4	0.5	0	1.8	1.0	1.4	2.6	0.7	0	4.2
Ac-Ft	0	107	85	29	0	107	63	89	156	43	3	261

Maximum Discharge	Calendar year 69 c.f.s. December 10, 1954	Total Runoff in Acre-Feet	Calendar Year	943
			Water Year	663

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 116

FLOW OF DUCK CREEK NEAR STOCKTON (POCK LANE) - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1		0	0	0.1	0	*1.0		0	*0.1	*0	*0	*0
2		0	0	0	0	*1.9		0.3	*0	*0.2	*0.1	*0
3		0	0	0	0.4	0.8		.2	*0	*0.1	* .1	*0
4		0	0	0	0.4	0.5		0	*0	*0	* .3	*0
5		0	0	0	.2	0.5		0	*0	*0.4	* .3	*0
6		0	0	0	0	0.8		0	*0	*1.5	*0	*0
7		0	0	0	0.1	*1.3		0.2	*0	*2.0	*0	*0
8		0	0	0	.9	*1.9		.3	*0	*3.5	*0.2	*0
9		0	0	0	1.5	*2.4		.1	*0	*1.4	* .4	*9.2
10		0	0	0	1.5	2.9		0	*0	*2.1	*0	49
11		0	0	0	1.4	2.6		0	*0	*2.2	*0	94
12	N	0	0	0	3.1	1.8	N	0	*0	*2.3	*0	44
13	O	0	0	0	1.3	0.6	O	0	*0.2	*1.7	*0	22
14		0	0	0	0.3	1.7		0	* .3	*0.3	*0	13
15		0	0	0	.2	2.0		0	*0	* .1	*0	7.3
16		0	0	0	.3	1.8		0.1	*0	*0	*5.2	4.4
17	F	4.2	0	0	.7	0.7	F	0	*0	*0	*1.4	2.6
18	L	6.1	0	0	.3	0.1	L	0	*0	*0	*4.7	1.3
19	O	4.0	0	0	.5	0	O	0	*0	*0	*4.8	0.5
20	W	2.3	0.2	0	0	0.1	W	0	*0.1	*0	*3.5	0.2
21		0.8	.2	0	0	0		0	*0.1	*0	*1.1	0
22		1.1	0	0	0.2	0		0	* .1	*0	*0.2	0
23		0.9	0	0.2	.1	0		0	* .2	*0	*0	0
24		.3	3.2	.4	.4	0		0	*0.1	*0	*0	0
25		.1	7.1	.1	1.4	0.2		0.4	*0	*0	*0	0
26		.1	4.2	0	1.4	0.1		*0.1	*0	*0	*0	0
27		0	2.0	0	0.7	0.4		*0	*0	*0	*0	0
28		0	0.5	0.9	.3	0.2		*0	*0	*0.1	*0	0
29		—	.2	.4	.5	0.2		*0	*0	* .1	*0	0
30		—	.3	0	.8	0		*0	*0	*0	*0	0
31		—	.2	—	1.1	—		*0	—	*0	—	0
Mean	0	0.7	0.6	0.1	0.6	0.8	0	0.1	0	0.6	0.7	8.0
Ac-Ft	0	39	36	4	40	50	0	3	2	36	44	491

Maximum Discharge	Calendar year 112 c.f.s. December 11, 1954	Total Runoff in Acre-Feet	Calendar Year	745
			Water Year	199

Division of Water Resources station located approximately 0.5 mile west of Highway 99 on Pock Lane 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. Period of record 1950 to date.

* Estimated

TABLE 117

FLOW OF LONE TREE CREEK NEAR MANTECA (AUSTIN ROAD) - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.2	0.1	0	1.2	93	22	3.4	1.2	0.1	0.5	12	0.1
2	0	0	0.2	0.6	84	14	2.5	1.7	.2	.5	8.9	.1
3	0	0	.1	.6	68	9.1	2.2	3.3	.4	.6	8.2	.1
4	0	0	0	.5	47	12	2.8	3.1	.2	.4	4.9	*5.6
5	0	0	0	.9	30	32	6.7	2.5	.1	.4	3.7	46
6	0	0	1.0	.6	24	26	5.7	4.1	.1	1.4	6.4	42
7	0	0	1.1	.4	19	19	2.6	0.9	0	1.2	6.9	26
8	0	0	1.1	.2	12	24	5.5	.5	0	10	8.0	13
9	0	0	1.0	0	25	46	9.5	1.1	0	8.4	12	16
10	0	0	1.1	11	51	43	4.0	0.6	0	10	9.3	104
11	0	0	1.0	52	87	42	4.6	.5	0	15	5.5	148
12	3.5	0	1.0	23	74	50	3.1	.4	0.1	6.4	5.9	122
13	5.7	0.1	0.6	16	51	50	2.6	.6	.2	4.9	4.4	89
14	1.2	3.0	.4	22	42	32	3.0	.5	*.1	3.0	3.0	51
15	0.8	12	1.3	28	43	12	2.1	.7	*.1	4.7	11	20
16	*.3	18	9.0	18	14	15	1.6	1.0	.2	7.1	27	9.7
17	*.5	7.6	30	10	15	21	2.3	0.4	.2	9.3	38	6.0
18	*1.3	3.0	21	14	34	29	1.0	.5	.2	7.8	29	4.3
19	*7.1	1.5	8.2	39	33	19	1.3	.4	.3	3.5	18	3.1
20	*5.1	0.8	3.8	45	26	31	1.5	1.3	.3	2.0	7.6	2.3
21	1.5	.5	6.2	38	33	20	1.2	3.8	.1	4.1	3.5	2.0
22	0.3	.5	8.0	26	21	9.9	1.5	1.4	.1	6.0	2.1	1.7
23	.1	.2	9.1	16	14	9.9	1.0	3.5	.1	4.9	1.4	2.2
24	0	.1	6.7	24	14	5.4	1.7	0.1	1.5	4.9	1.0	2.2
25	5.0	.1	3.4	38	22	6.7	0.7	1.2	4.4	8.5	0.6	2.3
26	34	0	2.2	46	14	6.2	.5	1.4	2.6	6.7	.4	3.0
27	18	0	1.6	62	11	5.5	.4	0.7	0.7	6.0	.5	2.8
28	4.9	0.2	1.3	130	6.9	6.6	.2	.1	.3	7.2	.3	2.6
29	1.2	—	1.3	158	16	7.4	.3	.2	.2	7.8	.2	2.3
30	0.5	—	2.1	109	30	9.3	.5	.1	.5	8.9	.2	2.3
31	.3	—	2.1	—	24	—	.7	.1	—	9.1	—	3.0
Mean	3.0	1.7	4.1	31.0	34.8	21.1	2.5	1.2	0.4	5.5	8.0	23.7
Ac-Ft	181	95	249	1845	2138	1260	152	75	26	340	476	1457

Maximum Discharge	Calendar year 165 c.f.s April 29, 1954	Total Runoff in Acre-Feet	Calendar Year	8294
			Water Year	7074

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

TABLE 118

FLOW OF TEMPO CREEK NEAR MANTECA (JACK TONE ROAD) - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.6	1.1	0.2	1.6	46	0	0.4	0	0.3	2.2	15	0.6
2	1.2	0.9	.5	1.3	29	1.8	.3	0	.4	2.1	12	.6
3	1.1	.8	.3	1.1	19	3.0	.2	0	.4	1.7	12	.6
4	1.0	.8	0	1.4	18	1.8	.1	0	.4	1.6	7.4	1.4
5	0.9	.6	0.2	1.7	15	1.0	0	0	0	2.3	7.4	7.6
6	.8	.6	1.2	1.4	13	0	0.4	0	0	4.1	11	22
7	.8	.5	1.2	1.1	10	3.2	0	0.5	0	5.6	11	16
8	.8	.4	1.1	0.5	6.7	3.3	0	.7	0	14	12	7.2
9	1.0	.5	1.2	0	7.8	4.7	0	1.4	0	11	15	13
10	1.1	.7	1.0	0.4	14	14	0.1	0.8	0.4	14	12	65
11	1.4	.6	0.6	18	31	16	0	.7	0	15	8.0	91
12	5.4	.6	.4	9.0	34	14	0	.5	0.4	8.4	8.8	93
13	5.6	.8	.3	7.4	28	13	0	.4	0	7.2	5.2	70
14	3.1	3.1	0	7.1	21	2.3	0	.2	0	5.0	4.7	37
15	2.9	6.5	0.7	7.2	16	1.6	0	.3	0	7.8	12	14
16	2.2	8.1	2.8	11	9.8	3.3	0.8	.5	0	10	24	7.2
17	2.6	3.9	5.1	12	7.4	4.1	.2	.3	0.5	13	22	4.6
18	3.1	2.4	4.9	14	8.6	8.2	.5	0	.4	12	19	3.7
19	6.5	1.7	3.8	14	5.1	8.6	.7	0	.5	6.5	15	3.0
20	4.4	1.2	2.2	14	4.3	5.4	.7	0	.7	4.6	8.1	2.4
21	2.5	0.9	2.3	18	1.7	3.0	.6	0	.7	8.1	5.5	2.1
22	1.9	.8	3.2	16	0.7	1.2	.5	0.4	.8	9.0	3.8	2.0
23	1.6	.6	5.0	13	3.1	1.1	.4	.7	1.2	7.7	3.4	2.0
24	1.3	.4	4.6	13	0.6	0.4	.2	0	3.3	9.2	2.4	1.8
25	2.1	.4	2.7	12	0	.8	0	0	6.7	11	1.8	2.3
26	13	.3	2.0	15	1.0	.3	0	0	3.5	9.5	1.6	2.9
27	10	.4	1.6	18	.5	.3	0	0	2.0	9.5	2.1	2.8
28	4.0	.4	1.4	51	0	.2	0	0.2	1.3	12	1.4	2.6
29	2.3	—	1.4	82	0	0	0	.3	1.4	11	1.0	2.3
30	1.6	—	2.1	64	2.2	0.5	0	.2	1.7	12	0.7	2.8
31	1.3	—	2.1	—	0.5	—	0	.3	—	13	—	3.0
Mean	2.9	1.4	1.8	14.2	11.4	3.9	0.2	0.3	0.9	8.4	8.8	15.7
Ac-Ft	177	79	111	845	702	232	12	17	54	516	526	965

Maximum Discharge	Calendar year 97 c.f.s. December 12, 1954	Total Runoff in Acre-Feet	Calendar Year 4236 Water Year 2982

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 1950 to date.

TABLE 119

FLOW OF FRENCH CAMP SLOUGH NEAR FRENCH CAMP (SHARPS LANE) - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.6	0	2.9	116	103	30	3.0				0	*0
2	.3	0	2.0	82	83	0	0				0	*0
3	0	0	0.9	50	69	0	0				0	*0
4	0	0	0	35	46	0	0				0	*0
5	0	0	0	25	35	0	0				0	*60
6	*0	0	0	20	29	13	0				0	*57
7	*0	0	0	15	24	0	0				0	*35
8	*0.3	0	1.4	10	15	0	0				0	*20
9	*1.2	0	1.2	12	30	7.2	*0.9				0	*25
10	*2.3	*0	1.2	16	43	0	*.5				0	*555
11	*3.4	*0	0.3	43	76	0	*.4				0	*570
12	*4.9	*0	.6	31	72	0	*.4	N	N	N	*0	*496
13	*6.3	*1.7	0	15	58	26	*.2	0	0	0	*0	*234
14	3.9	*3.9	0	26	43	3.3	*0				*0	*100
15	1.7	*5.8	0	26	39	0	0				*0	*40
16	1.7	69	9.8	22	20	0	0				*26	*35
17	0.9	89	32	6.8	13	0	0	F	F	F	*30	*26
18	1.4	44	239	7.3	32	1.0	0	L	L	L	*26	*23
19	3.9	26	234	27	35	0	0	0	0	0	*18	*20
20	6.3	23	144	37	20	0	0	W	W	W	*15	*17
21	3.4	27	253	31	42	0	0				*12	*15
22	1.4	18	270	25	29	0	0				*9.0	*12
23	0.3	12	177	13	15	1.0	0				*6.0	*9.1
24	0.3	8.4	101	17	2.0	0	0				*3.0	*8.0
25	0	6.8	63	26	6.9	0	0				*1.0	*7.0
26	23	6.3	50	58	23	0	0				*0.7	*6.0
27	21	5.4	101	61	5.2	0	0				*0	*5.0
28	7.8	4.4	69	128	0	0	0				*0	*4.0
29	3.4	—	46	173	0	0	0				*0	*3.0
30	2.0	—	38	134	0	4.7	0				*0	*2.3
31	0.3	—	43	—	23	—	0		—		—	*250
Mean	3.3	12.5	60.6	42.9	33.3	2.9	0.2	0	0	0	4.9	85.0
Ac-Ft	202	696	3730	2555	2045	171	11	0	0	0	291	5225

Maximum Discharge	Calendar year 740 c.f.s. December 10, 1954	Total Runoff in Acre-Feet	Calendar Year 14926 Water Year 10666

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 120

INFLOW TO MILLERTON LAKE (FRIANT RESERVOIR) - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	403	799	1378	2517	3101	3242	2112	793	1173	937	760	1097
2	596	790	1436	2487	3033	3310	2099	1159	1227	713	776	978
3	553	756	1437	2730	3356	3486	1856	1119	1158	567	852	1189
4	734	802	1392	2479	3690	3638	1865	1149	1075	810	728	1578
5	758	768	1474	3056	5074	3122	1868	1133	266	1010	803	804
6	578	619	1177	2888	5917	2945	1862	1164	746	989	392	1146
7	646	548	1125	2889	5589	2607	1781	1164	1050	771	348	1177
8	538	804	1384	2633	5994	2278	1554	564	896	678	741	1280
9	400	887	6244	2885	6323	2903	1696	1147	983	792	884	1310
10	289	771	4702	3199	4639	2734	1458	1300	1078	384	782	1419
11	511	943	2774	2839	4534	2959	1513	1165	879	742	936	1333
12	662	1096	2221	3034	5341	2793	1314	1502	333	710	766	1028
13	511	2381	1993	3408	4983	2834	1484	1371	872	729	835	1225
14	554	4580	1462	3930	5207	2600	1425	1282	876	796	283	1370
15	596	1770	1603	4441	5268	2813	1600	1078	873	815	930	1237
16	410	1622	2178	4584	4645	2893	1744	1210	911	452	1648	1248
17	378	1403	1859	4823	5727	3204	1673	1302	818	282	1107	1212
18	522	2226	1738	5001	6365	3082	1397	1360	522	673	886	1045
19	562	1779	1794	4958	7054	2678	1374	1348	567	750	864	864
20	509	1264	1955	4861	6734	2666	1224	1380	747	729	713	1158
21	370	1131	2294	4630	6307	2733	1328	1319	1017	594	438	1281
22	374	1188	1752	5051	5470	3400	1307	1015	840	596	809	1333
23	358	1346	1915	5209	4211	3263	1218	1365	966	337	990	1255
24	2521	1474	2115	5274	4254	3345	1227	1326	909	256	900	1175
25	3771	1416	2095	(a)5009	3928	3233	740	1157	856	392	776	834
26	1244	1359	1919	4528	3720	2780	1045	1171	(b)455	545	923	884
27	764	1308	1794	4975	3282	2370	1206	1148	1036	601	785	1099
28	647	1160	1733	5184	3433	2375	1231	949	1053	618	735	1163
29	714	—	2159	4275	3674	2368	1179	809	1005	531	950	1127
30	513	—	3496	3598	3410	1868	1309	1058	973	546	880	793
31	454	—	2541	—	2782	—	1255	1097	—	356	—	750
Mean	724	1321	2101	3912	4743	2884	1482	1165	872	636	807	1142
Ac-Ft	44509	73369	129201	232396	291659	171614	91129	71611	51925	39076	48040	70199

Maximum Discharge	Calendar year 7054 c.f.s. daily mean May 19, 1954 of record 33317 c.f.s. daily mean November 19, 1950	Total Runoff in Acre-Feet	Calendar Year 1314728 Water Year 1300493

This is the total mean second-feet inflow 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.

(a) 23-hour day.
(b) 25-hour day.

TABLE 121

DAILY CONTENT OF MILLERTON LAKE (FRIANT RESERVOIR) IN ACRE-FEET - 1954

Date	Storage at end of day in thousands of acre-feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	187.3	208.7	253.1	319.7	456.8	512.2	469.8	317.0	181.0	143.1	148.2	173.6
2	187.7	209.3	255.4	322.7	459.2	511.4	465.1	311.6	178.0	143.1	149.0	174.2
3	188.0	209.7	257.6	326.5	462.0	511.5	460.2	306.3	174.9	143.0	150.0	175.6
4	188.7	210.2	259.7	330.1	464.6	512.0	455.2	301.5	171.8	143.5	150.8	177.7
5	189.4	210.2	261.6	334.3	469.3	512.0	450.3	296.9	167.1	144.3	151.7	178.3
6	189.8	209.8	262.9	339.0	475.1	511.6	445.4	292.5	164.0	145.0	151.8	179.5
7	190.4	209.1	263.8	342.8	479.0	510.6	440.3	288.2	162.1	145.4	151.8	180.8
8	190.8	209.1	264.7	345.9	483.2	508.4	435.9	282.8	160.1	145.7	152.6	182.7
9	191.0	209.4	274.9	349.5	488.1	507.4	431.7	278.4	158.8	146.3	153.7	184.8
10	191.0	209.3	282.0	353.5	489.9	506.1	427.0	273.6	157.9	146.0	154.7	187.3
11	191.4	209.3	284.8	356.9	492.1	505.4	422.5	268.5	156.7	146.4	155.9	189.7
12	192.1	208.9	286.5	360.5	496.8	504.5	417.6	264.1	154.5	146.7	156.9	191.5
13	192.3	211.8	287.5	364.4	500.8	503.7	413.0	259.5	153.3	147.1	158.0	193.6
14	192.5	220.1	287.6	369.1	505.3	502.5	408.1	254.8	152.2	147.5	158.1	196.0
15	192.8	223.0	287.8	374.7	506.8	501.6	403.6	249.8	151.2	148.1	159.5	189.3
16	192.7	225.8	289.2	380.5	506.3	500.6	399.4	245.0	150.4	147.9	162.6	200.6
17	192.5	228.2	290.6	386.8	507.8	500.2	395.1	240.3	149.5	147.5	164.6	202.8
18	192.6	232.0	291.6	393.2	510.7	499.8	390.6	235.8	148.2	147.8	166.2	204.6
19	192.3	235.0	292.6	399.1	514.3	498.8	386.0	231.5	147.0	148.1	167.7	206.2
20	193.0	237.1	294.0	404.2	516.3	497.7	381.3	227.4	146.1	148.5	168.9	208.3
21	192.8	238.9	295.9	408.7	517.3	496.4	376.6	223.8	145.6	148.5	169.6	210.6
22	192.6	240.7	296.7	413.9	517.0	496.4	371.8	219.7	144.7	148.7	171.0	213.0
23	192.4	242.4	297.8	419.4	515.6	495.6	366.8	216.4	144.2	148.3	172.4	215.3
24	196.5	244.3	299.5	425.1	515.5	494.5	361.9	212.9	143.5	147.8	172.8	217.4
25	203.8	246.1	301.4	430.1	515.2	493.1	356.1	208.8	142.9	147.7	173.0	218.9
26	205.9	247.8	303.2	434.5	514.3	490.6	350.7	204.6	141.9	147.8	173.5	220.4
27	206.8	249.4	304.6	440.0	513.2	487.3	345.6	200.3	142.2	148.1	173.7	222.4
28	207.4	250.9	306.0	446.3	512.8	484.0	340.0	195.8	142.6	148.2	173.7	224.5
29	207.9	—	308.3	450.9	513.8	480.0	334.4	191.2	142.8	148.1	173.6	226.5
30	208.0	—	313.4	454.4	514.3	474.7	328.9	187.4	142.9	148.0	173.1	227.9
31	208.0	—	316.6	—	513.2	—	323.5	184.1	—	147.6	—	229.2
Monthly Change	+20.7	+42.9	+65.7	+137.8	+58.8	-38.5	-151.2	-139.4	-41.2	+4.7	+25.5	+56.1

Annual Gain or Loss in Storage: Calendar Year +41900; Water Year -15100 Acre-Feet.
Difference in Storage 1953 to 1954: Maximums +32900; Minimums +3900 Acre-Feet.

Period of record 1941 to date. Records for 1954 computed by U. S. Bureau of Reclamation.

TABLE 122

FLOW OF SAN JOAQUIN RIVER BELOW FRIANT - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	382	432	98	110	652	228	153	185	180	115	123	842
2	382	475	98	110	658	228	150	188	183	115	127	658
3	382	540	100	110	770	231	162	185	178	115	127	515
4	386	540	101	108	1060	231	162	183	178	115	127	515
5	386	540	101	108	1260	231	162	183	175	115	127	515
6	374	540	101	108	1450	231	162	183	175	117	127	515
7	328	535	101	108	2090	209	164	188	178	117	127	515
8	286	535	103	108	2310	178	164	188	173	119	129	358
9	290	535	106	108	2310	178	171	185	162	127	123	210
10	286	624	108	108	2310	175	190	178	155	133	117	142
11	286	842	105	110	1980	175	190	171	155	135	119	142
12	296	820	100	131	1540	175	196	171	155	137	121	142
13	366	388	100	220	1540	175	198	168	155	137	119	142
14	437	98	100	220	1550	175	185	168	150	139	119	127
15	437	93	100	220	1560	175	171	168	142	137	117	98
16	432	90	105	223	1560	175	173	171	142	135	92	96
17	437	90	112	223	1560	175	185	171	135	135	92	98
18	432	92	106	223	1560	175	188	168	135	133	92	98
19	432	93	106	283	1940	175	185	166	135	135	92	98
20	428	93	112	505	2370	175	180	166	137	137	92	98
21	428	95	110	505	2240	175	185	166	131	135	92	98
22	428	95	108	505	1960	175	183	164	117	121	92	96
23	428	95	106	515	1080	164	188	166	117	112	301	96
24	373	95	110	530	562	155	193	171	117	113	805	96
25	79	96	115	535	363	153	193	171	117	115	784	101
26	149	96	110	530	370	153	190	168	115	117	749	105
27	282	96	108	485	356	153	190	173	119	119	812	105
28	321	98	108	460	286	153	188	178	117	119	820	101
29	437	—	110	652	226	153	188	178	117	121	944	98
30	437	—	117	658	226	153	190	178	117	121	1020	98
31	432	—	113	—	226	—	190	175	—	121	—	100
Mean	363	313	106	294	1288	182	180	175	145	125	291	226
Ac-Ft	22330	17380	6500	17490	79190	10820	11050	10750	8650	7660	17310	13920

Maximum Discharge	Calendar year 2510 c.f.s. May 21, 1954 of record 77200 c.f.s. December 11, 1937	Total Runoff in Acre-Feet	Calendar Year 223050 Water Year 262260

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 1954 computed by U. S. Geological Survey.

TABLE 123

FLOW OF SAN JOAQUIN RIVER NEAR BIOLA - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	325	415	119	144	632	232	107	116	119	78	102	954
2	357	415	116	138	646	224	110	122	116	83	99	826
3	362	450	116	129	652	220	116	116	107	86	99	655
4	366	502	116	126	730	220	116	116	107	86	105	530
5	371	512	113	122	980	220	126	113	113	86	110	490
6	376	512	113	122	1170	224	116	116	129	86	113	480
7	371	518	113	116	1370	224	107	126	126	81	113	480
8	343	518	107	113	1960	216	105	132	122	88	116	475
9	303	518	119	110	2160	205	99	138	119	94	116	400
10	298	518	119	107	2220	197	102	129	110	96	116	303
11	298	600	122	107	2230	186	110	126	107	107	110	221
12	298	788	110	105	1830	182	132	110	113	107	122	186
13	307	830	110	99	1570	179	135	113	126	102	122	173
14	347	492	105	144	1550	172	126	116	119	105	119	165
15	410	224	102	165	1550	165	119	116	116	105	119	161
16	425	182	110	168	1560	148	99	116	105	107	144	141
17	430	155	132	165	1550	144	83	113	107	119	129	128
18	440	144	122	161	1560	148	99	107	107	129	94	124
19	445	135	129	161	1560	141	102	105	107	126	88	122
20	450	129	135	172	1940	144	88	102	110	122	88	120
21	445	129	129	376	2060	151	86	110	105	119	88	118
22	440	126	122	425	1890	135	86	113	96	116	88	118
23	440	122	119	435	1670	126	91	119	91	107	86	116
24	460	122	122	445	995	110	94	110	88	99	98	116
25	440	122	116	470	632	105	105	113	86	96	511	115
26	232	119	113	470	450	105	119	122	86	91	614	115
27	208	116	116	480	410	110	119	113	91	94	608	113
28	303	132	113	490	380	113	113	113	88	96	655	113
29	334	—	113	440	320	119	102	116	83	96	662	111
30	410	—	122	606	260	113	96	129	81	96	718	109
31	415	—	129	—	248	—	107	122	—	99	—	109
Mean	369	341	117	244	1250	166	107	117	106	100	212	271
Ac-Ft	22710	18930	7220	14500	76830	9870	6580	7200	6310	6150	12600	16640

Maximum Discharge	Calendar year 2240 c.f.s. May 11, 1954 of record 2240 c.f.s. May 11, 1954	Total Runoff in Acre-Feet	Calendar Year 205540 Water Year 249270

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. Records for this station available from October 1952 to date. Records for 1954 computed by U. S. Geological Survey.

TABLE 124

FLOW OF SAN JOAQUIN RIVER AT WHITEHOUSE - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	163	388	98	103	478	219	31	36	56	24	45	750
2	294	393	90	110	498	196	29	46	48	26	47	788
3	320	419	88	101	518	180	30	46	40	27	46	663
4	327	482	85	93	519	173	31	44	38	30	46	551
5	333	510	77	89	663	168	33	40	39	33	49	474
6	337	521	74	84	923	168	36	42	41	33	53	448
7	338	524	74	81	1048	169	30	42	45	33	54	441
8	326	526	76	75	1425	170	26	44	50	30	54	437
9	289	517	76	71	1924	160	23	50	48	32	55	436
10	262	512	82	70	1925	142	28	54	44	37	55	356
11	256	506	86	68	2023	134	30	49	37	40	58	277
12	254	635	85	64	1930	118	33	46	35	45	60	205
13	254	742	79	64	1469	111	45	42	40	46	63	167
14	273	700	76	65	1417	106	53	46	44	44	67	148
15	322	344	76	95	1411	97	45	47	42	46	67	129
16	361	224	87	108	1414	88	31	48	45	44	65	118
17	375	176	100	112	1429	83	28	47	35	44	73	98
18	389	136	100	113	1422	80	24	44	38	50	63	88
19	393	119	99	111	1413	77	26	38	40	56	51	83
20	398	106	105	111	1526	77	27	40	42	60	46	78
21	395	100	109	137	2017	75	25	38	46	60	44	75
22	392	100	100	268	2047	73	24	42	42	57	45	73
23	392	100	94	309	1817	66	22	48	36	52	44	71
24	405	96	90	323	1374	56	21	43	35	47	*44	71
25	434	95	91	336	825	43	20	38	33	44	*425	70
26	338	94	84	354	535	34	27	38	30	43	*450	67
27	214	92	86	367	443	38	39	47	30	42	*450	68
28	221	92	88	391	402	41	38	43	33	44	*501	70
29	276	—	91	353	364	41	36	39	30	45	529	69
30	320	—	96	392	278	40	26	43	31	44	563	67
31	377	—	100	—	231	—	25	52	—	44	—	67
Mean	323	330	88	167	1152	107	30	44	40	42	140	242
Ac-Ft	19890	18345	5439	9953	70826	6393	1868	2701	2366	2582	8354	14882

	Total Runoff in Acre-Feet	Calendar Year	163599
		Water Year	208976

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 1954 computed by San Joaquin Canal Company.

* Estimated

TABLE 125

FLOW OF SAN JOAQUIN RIVER NEAR MENDOTA - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	6.5	17	155	55	271	448	465	458	400	86	58	65
2	6.5	17	155	54	282	448	436	458	395	110	57	73
3	84	18	155	52	289	441	424	465	381	124	58	94
4	182	18	165	51	315	424	410	455	353	129	58	112
5	244	20	180	79	333	419	407	443	353	150	58	108
6	236	24	180	108	317	426	405	443	353	148	55	105
7	200	27	175	108	285	436	414	422	353	150	55	102
8	182	30	175	195	280	446	429	419	355	145	50	98
9	157	30	175	311	289	446	429	417	357	141	60	100
10	132	30	170	320	315	438	429	417	353	141	68	155
11	103	30	165	326	342	426	431	414	344	136	60	283
12	101	30	160	331	340	431	446	412	342	114	55	335
13	78	30	160	335	337	436	450	407	324	97	49	495
14	64	30	160	337	340	414	468	402	293	86	40	416
15	63	80	150	364	318	388	480	395	293	84	37	151
16	80	857	135	400	300	395	505	407	296	82	33	105
17	102	1300	118	400	309	422	515	436	293	82	32	95
18	109	680	118	395	326	431	490	448	291	82	29	81
19	103	337	118	388	359	462	495	448	289	81	27	67
20	96	359	115	410	388	453	500	446	298	81	26	71
21	118	438	115	443	388	448	485	446	291	81	24	61
22	126	510	91	441	386	441	478	446	254	78	22	54
23	98	550	67	438	379	453	490	448	220	71	21	49
24	110	416	62	441	375	485	482	453	161	70	21	44
25	232	282	61	443	366	508	480	455	122	68	18	41
26	278	165	60	426	377	520	475	453	115	82	16	38
27	150	57	60	381	417	530	468	422	134	98	15	38
28	44	76	58	359	443	532	465	400	143	97	16	36
29	20	—	57	300	448	505	462	410	106	97	38	36
30	18	—	56	269	450	478	462	410	95	79	61	36
31	17	—	55	—	448	—	453	405	—	64	—	37
Mean	114	231	123	299	349	451	459	431	279	101	41	116
Ac-Ft	7020	12810	7590	17770	21450	26840	28220	26500	16580	6216	2414	7103

Maximum Discharge	Calendar year 1380 c.f.s. February 17, 1954 of record 8840 c.f.s. June 1, 1952	Total Runoff in Acre-Feet	Calendar Year	180513
			Water Year	181340

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 1954 computed by U. S. Geological Survey.

TABLE 126

FLOW OF SAN JOAQUIN RIVER NEAR DOS PALOS - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	22	91	1.2	3.7	3.6	3.6	2.0	1.5	1.0	0	1.0
2	0	5.0	51	1.1	3.6	4.1	3.3	2.2	1.6	1.0	0	1.0
3	0	9.4	12	1.1	3.6	4.5	2.6	2.2	5.0	1.0	0	1.0
4	0	33	1.7	1.1	3.6	4.8	2.2	2.4	7.0	1.0	0	1.0
5	2.7	36	1.8	1.1	4.1	4.3	1.9	2.2	4.0	1.0	0	1.0
6	20	36	2.5	1.5	4.5	4.3	2.2	2.1	3.0	5.0	0	1.0
7	20	37	2.6	2.4	5.2	4.8	2.0	2.2	2.5	7.0	2.0	1.0
8	6.8	38	2.6	2.4	5.0	5.5	1.8	1.7	2.4	1.0	1.0	1.0
9	4.8	40	2.4	2.5	5.0	6.5	1.9	1.8	2.4	1.0	1.0	1.0
10	4.0	49	2.3	5.0	5.5	5.5	2.0	2.2	2.5	1.0	0	1.0
11	3.2	980	2.2	6.5	6.0	5.2	2.3	1.9	2.1	1.0	0	22
12	2.6	1470	2.1	7.8	6.5	5.0	2.6	1.8	1.8	1.0	0	97
13	2.5	1560	2.0	8.6	6.8	5.0	3.5	1.8	2.0	1.0	0	143
14	2.4	2050	1.9	9.4	7.4	5.5	5.0	1.8	2.2	1.0	0	310
15	2.1	2050	1.7	9.4	7.4	6.0	7.3	1.7	2.4	1.0	2.0	155
16	2.1	668	1.9	9.8	7.0	6.5	5.6	1.8	1.7	6.0	27	29
17	2.3	1030	1.9	11	6.8	7.5	4.5	1.8	1.8	2.0	57	8.0
18	2.5	1100	1.7	12	6.2	5.5	4.0	1.8	1.7	2.0	57	2.0
19	2.7	576	1.7	12	6.2	5.0	3.8	1.7	3.9	3.0	55	1.0
20	2.7	406	1.7	11	6.2	5.4	6.7	1.5	2.8	5.0	52	1.0
21	2.6	415	1.5	7.0	2.0	4.8	6.9	1.3	2.5	8.0	50	0
22	2.7	472	1.5	7.0	1.1	4.4	3.9	1.0	2.2	10	46	0
23	3.0	530	1.4	7.0	0.9	4.0	3.0	0.8	2.2	7.0	42	0
24	9.0	548	1.2	6.5	.7	3.9	2.8	.9	2.2	1.0	40	0
25	76	389	1.1	5.8	.6	4.6	1.7	1.0	2.0	0	37	0
26	189	321	1.0	5.8	.8	5.0	2.0	1.4	1.7	0	34	0
27	228	195	1.0	6.0	1.0	7.0	2.0	1.8	1.4	0	31	8.0
28	97	129	1.0	5.0	1.2	3.6	2.0	1.8	1.2	0	31	41
29	48	—	1.1	4.5	1.5	4.6	2.1	1.5	1.2	0	18	48
30	34	—	1.2	4.3	2.1	4.2	2.2	1.4	1.0	0	2.0	49
31	27	—	1.2	—	3.0	—	2.2	1.5	—	0	—	51
Mean	25.8	543	6.5	5.9	4.0	5.0	3.2	1.7	2.4	2.2	19.5	31.4
Ac-Ft	1590	30140	400	349	248	299	198	105	143	137	1160	1934

Maximum Discharge	Calendar year 2220 c.f.s. February 15, 1954 of record 8200 c.f.s. June 5, 1952	Total Runoff in Acre-Feet	Calendar Year 36703 Water Year 34485

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 1954 computed by U. S. Geological Survey.

TABLE 127

FLOW OF SAN JOAQUIN RIVER AT FREMONT FORD BRIDGE - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	58	270	394	508	718	198	141	112	174	70	48	59
2	58	236	326	582	760	203	155	112	162	65	53	53
3	57	215	274	565	748	203	154	114	164	60	45	57
4	56	198	233	505	700	212	164	103	155	51	46	59
5	58	183	204	461	592	232	160	109	155	41	44	55
6	61	173	186	420	518	258	148	103	157	42	33	50
7	61	171	164	378	407	279	141	92	146	46	50	49
8	61	168	150	264	310	310	140	98	153	44	59	48
9	61	164	147	202	283	301	127	96	157	38	62	50
10	68	163	146	180	285	321	119	102	154	33	58	65
11	76	160	149	180	280	319	116	97	146	38	62	65
12	123	184	152	186	280	319	122	96	144	42	69	70
13	134	502	157	183	280	325	119	96	146	39	69	80
14	134	814	184	182	280	326	112	96	133	41	64	77
15	137	1210	182	176	280	316	107	87	132	43	59	129
16	141	1820	166	177	280	294	102	92	162	39	57	197
17	145	2140	156	182	280	290	94	110	190	36	59	206
18	146	1790	174	190	230	274	112	105	166	48	65	161
19	152	1550	272	201	200	258	133	96	146	55	65	132
20	160	1340	374	202	160	253	122	114	140	61	61	112
21	150	1030	434	201	170	250	112	115	135	62	57	96
22	146	811	620	188	180	229	130	120	130	62	55	92
23	147	700	867	184	200	208	134	123	120	61	55	87
24	150	670	860	182	215	188	133	134	110	45	55	82
25	166	676	661	190	210	178	132	141	100	42	56	80
26	202	649	535	201	210	170	133	153	110	38	65	80
27	432	555	628	210	209	161	133	158	100	39	74	79
28	595	480	649	253	206	155	136	174	90	51	71	73
29	515	—	568	445	216	148	132	174	80	52	73	69
30	407	—	508	620	196	146	126	173	75	50	70	75
31	318	—	505	—	196	—	126	173	—	39	—	79
Mean	167	679	356	287	325	244	130	118	138	47.5	58.6	86.0
Ac-Ft	10260	37730	21870	17050	19990	14530	7960	7280	8200	2920	3490	5290

Maximum Discharge	Calendar year 2190 c.f.s. February 17, 1954 of record 4470 c.f.s. March 25, 1952	Total Runoff in Acre-Feet	Calendar Year 156570 Water Year 157500

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 1954 computed by U. S. Geological Survey.

TABLE 128

FLOW OF SAN JOAQUIN RIVER NEAR NEWMAN - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	241	507	634	1700	1330	717	329	259	357	195	175	223
2	234	459	541	1750	1400	682	342	264	342	185	185	219
3	232	426	477	1740	1400	637	349	266	339	175	178	229
4	225	407	418	1630	1310	603	365	254	329	182	182	233
5	228	388	383	1580	1160	617	383	248	326	182	175	226
6	230	370	357	1540	1020	640	373	242	336	182	159	223
7	230	535	331	1470	868	640	329	236	339	162	162	223
8	228	519	314	1340	686	644	336	266	365	172	192	216
9	223	471	326	1200	672	654	321	268	365	162	199	229
10	225	538	314	1100	1760	664	304	273	334	159	195	240
11	252	386	334	1030	2910	644	300	271	326	165	192	250
12	326	596	312	1010	2990	637	304	250	331	159	195	243
13	373	749	312	926	3250	661	292	256	334	149	202	257
14	381	1140	352	836	3130	654	276	278	300	153	209	261
15	378	1450	349	749	2780	620	268	266	288	159	216	279
16	378	2090	344	714	2750	590	256	266	292	165	212	334
17	378	2510	401	651	2880	570	245	273	319	189	206	357
18	375	2380	415	623	2790	550	254	271	302	182	209	323
19	388	1990	554	640	3030	525	297	259	280	169	216	293
20	399	1750	658	564	3250	530	278	278	278	169	212	279
21	386	1400	784	532	3470	525	254	292	266	169	209	261
22	373	1130	1640	519	3420	459	256	292	247	169	212	257
23	370	994	2030	498	2830	407	259	297	247	178	209	250
24	378	935	2120	501	2120	381	250	288	232	169	212	240
25	394	926	1990	507	1640	362	254	290	232	172	216	229
26	438	908	1910	504	1310	365	266	304	239	169	219	229
27	689	800	1960	516	1260	360	259	312	230	162	229	229
28	890	717	1960	627	1060	383	250	336	223	182	226	229
29	809	—	1770	1120	1020	365	239	365	204	182	229	226
30	686	—	1680	1320	840	336	239	365	196	185	229	229
31	580	—	1710	—	780	—	256	355	—	172	—	243
Mean	384	981	893	981	1971	547	290	282	293	172	202	250
Ac-Ft	23640	54490	54900	58390	121200	32550	17820	17340	17450	10560	12020	15390

Maximum Discharge	Calendar year 3500 c.f.s. May 21, 1954 of record 33000 c.f.s. March 7, 1938	Total Runoff in Acre-Feet	Calendar Year 435750 Water Year 440520

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 141 to give total flow passing this point. Drainage area is 9990 square miles. Period of record 1912 to date. Records for 1954 computed by U. S. Geological Survey.

TABLE 129

FLOW OF SAN JOAQUIN RIVER AT GRAYSON (LAIRD SLOUGH) - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	370	700	730	2280	1410	850	390	230	370	330	280	310
2	370	630	650	2230	1480	800	390	250	340	350	280	310
3	370	590	520	2230	1520	710	380	250	340	390	270	330
4	360	560	440	2170	1390	680	410	230	330	350	270	350
5	360	540	390	2090	1280	670	410	230	370	340	270	360
6	350	520	360	2050	1190	660	420	200	400	330	270	340
7	350	500	320	1980	1150	710	380	180	410	350	270	330
8	350	620	300	1830	1080	700	350	230	380	350	270	320
9	350	620	310	1640	1030	760	340	300	360	340	290	330
10	350	600	390	1470	1370	800	340	270	350	360	300	370
11	360	630	830	1290	2090	850	350	270	350	360	300	380
12	380	550	1480	1200	2720	800	380	290	380	330	300	360
13	420	680	1320	1490	2950	800	330	280	410	310	300	360
14	450	860	680	950	3100	860	290	280	400	320	310	360
15	470	1120	390	850	2930	730	280	310	350	340	330	360
16	470	1380	430	760	2700	660	260	340	350	360	340	390
17	490	1830	1090	730	2570	650	270	310	370	360	330	440
18	500	2110	1930	660	2640	620	250	270	430	320	320	460
19	490	2000	1920	630	2690	590	220	250	420	310	320	450
20	500	1800	1430	580	2970	570	190	260	420	300	320	450
21	500	1620	1430	490	3010	530	220	280	370	290	320	450
22	500	1380	1690	440	3240	480	190	340	340	290	310	420
23	490	1210	2160	430	3170	430	220	380	340	280	320	410
24	500	1100	1930	400	2740	360	250	340	390	270	310	390
25	510	1050	1920	400	2210	320	250	310	390	270	310	390
26	520	1030	2280	430	1790	370	270	340	390	270	310	370
27	580	980	2230	450	1480	440	270	370	410	270	310	360
28	760	930	2230	590	1330	480	290	390	350	280	320	370
29	880	—	2200	710	1180	440	220	430	340	280	310	360
30	850	—	2140	1250	1090	420	210	420	340	280	320	360
31	770	—	2200	—	980	—	220	380	—	280	—	360
Mean	483	1005	1236	1157	2015	625	298	297	373	318	303	374
Ac-Ft	29693	55815	76007	68826	123927	37170	18327	18268	22195	19557	18016	23008

	Total Runoff in Acre-Feet	Calendar Year 510809 Water Year 524528

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 1954 computed by the City of San Francisco.

TABLE 130

FLOW OF SAN JOAQUIN RIVER AT HETCH HETCHY CROSSING - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1220	1590	1860	5220	3870	1470	*700	390	580	650	910	1050
2	1220	1440	1350	4960	3650	1390	*690	420	550	620	840	1110
3	1210	1440	1270	4840	3400	1250	*670	400	520	690	940	1150
4	1220	1430	1180	4640	2820	1170	*690	380	520	720	980	1220
5	1210	1400	830	4420	2720	1140	*740	380	590	690	1000	1210
6	1200	1380	670	4410	3110	1100	*780	360	*690	620	1000	1110
7	1200	1340	580	4410	3620	1110	*830	350	*690	660	970	1010
8	1190	1410	540	4200	4010	1090	*580	340	*670	680	880	1110
9	1170	1400	550	3930	4270	880	570	470	*530	680	900	1160
10	1160	1450	700	3660	5030	*1230	640	480	*650	690	1010	1270
11	1170	1480	3610	3320	5690	*1270	670	440	*630	710	1010	1340
12	1160	1370	5170	3000	6170	*1270	670	490	*680	680	1030	1360
13	1210	1480	5040	2620	6220	*1250	610	480	*680	640	1000	1300
14	1290	1690	3400	2020	6270	*1310	560	500	640	690	1000	1190
15	1300	1980	1870	1780	5820	*1190	510	560	610	770	950	1090
16	1310	2240	1920	1670	5340	*1050	480	620	600	970	970	1270
17	1350	2010	4310	1680	5270	*1040	490	570	630	1110	1120	1340
18	1380	3210	5840	1830	5220	*1010	480	500	670	1070	1070	1360
19	1340	3170	5910	2000	4480	*980	490	470	720	910	1060	1330
20	1440	2930	4710	1890	6260	*970	400	470	670	980	1050	1280
21	1520	2770	4290	1830	6340	*930	440	530	640	1010	1100	1280
22	1440	2400	4570	2120	6250	*800	380	560	620	1010	980	1260
23	1400	2080	4950	1780	6160	*700	400	650	640	1000	960	1240
24	1470	1880	4970	2160	5640	*650	420	630	670	980	1080	1210
25	1440	1810	4670	2230	4500	*590	430	560	690	910	1150	1180
26	1400	1730	5180	2040	3350	*670	430	570	730	840	1120	1110
27	1590	1690	4320	2030	2740	*750	420	620	730	940	940	970
28	1720	2230	4240	2640	2560	*820	410	650	710	1010	950	940
29	1890	—	4090	3320	2090	*780	400	670	660	1020	970	1050
30	1850	—	4250	3900	1780	*720	390	720	670	1030	940	1080
31	1730	—	4820	—	1590	—	380	620	—	1030	—	1070
Mean	1368	1873	3279	3018	4395	1019	540	511	642	839	996	1182
Ac-Ft	84099	103993	201640	179603	270228	60655	33223	31438	38241	51590	59266	72694

Total Runoff in Acre-Feet	Calendar Year	1186670
	Water Year	1238498

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 1954 computed by the City of San Francisco.

* Estimated

TABLE 131

FLOW OF SAN JOAQUIN RIVER NEAR VERNALIS - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1590	1940	2640	7210	6370	2050	724	328	640	773	1210	1420
2	1590	1760	2030	6970	5840	1930	729	392	595	828	1110	1470
3	1580	1730	1740	6740	5210	1760	712	380	560	868	1220	1520
4	1580	1710	1510	6600	4330	1670	756	340	575	904	1290	1620
5	1560	1670	1180	6210	4330	1620	822	348	685	839	1300	1870
6	1540	1630	946	6110	5060	1590	812	340	768	812	1310	1750
7	1510	1590	850	6150	5910	1540	778	316	762	795	1300	1540
8	1460	1620	850	5910	6540	1470	635	392	734	868	1200	1600
9	1430	1640	839	5490	6800	1540	620	499	665	874	1190	1760
10	1400	1640	862	5080	8070	1590	696	512	707	880	1320	1920
11	1400	1690	3340	4780	9120	1580	773	445	680	898	1340	2270
12	1420	1610	6040	4470	9700	1570	795	517	751	880	1390	2350
13	1450	1670	6300	4110	9260	1590	696	504	778	828	1360	2190
14	1510	1900	4520	3580	9370	1560	575	555	734	844	1370	2030
15	1510	2440	2880	3410	8810	1460	504	635	707	892	1340	2090
16	1540	2880	2800	3600	8060	1300	494	740	680	1080	1370	2120
17	1560	3350	5100	3810	7900	1190	472	675	707	1310	1550	2320
18	1610	3800	7690	4240	7880	1130	463	540	784	1190	1540	2360
19	1540	3910	8160	4590	8080	1100	422	490	868	1110	1520	2030
20	1640	3670	6880	4410	9430	1080	368	494	862	1140	1520	1840
21	1830	3460	6230	4380	9920	1040	400	535	756	1290	1570	1810
22	1710	3150	6530	4150	9770	922	352	645	702	1350	1460	1780
23	1620	2830	6910	4160	9500	817	364	734	740	1300	1420	1750
24	1690	2600	6950	4600	8300	746	414	690	806	1240	1540	1710
25	1670	2520	6730	4750	5930	690	372	615	874	1160	1630	1670
26	1690	2440	6480	4560	4340	740	388	615	982	1070	1630	1610
27	1980	2370	6290	4470	3580	806	364	675	1000	1160	1450	1490
28	2120	2820	6140	4940	3200	898	354	718	910	1250	1400	1520
29	2270	—	6000	5780	2800	839	332	768	800	1260	1400	1590
30	2240	—	6090	6510	2500	756	310	795	806	1310	1320	1670
31	2110	—	6730	—	2280	—	310	707	—	1320	—	1560
Mean	1656	2359	4459	5059	6716	1286	542	546	754	1043	1386	1814
Ac-Ft	101900	131000	274200	301000	412900	76510	33330	33600	44860	64110	82450	111500

Maximum Discharge	Calendar year 9990 c.f.s. May 21, 1954 of record 79000 c.f.s. December 9, 1950	Total Runoff in Acre-Feet	Calendar Year	1667360
			Water Year	1716700

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 1954 computed by U. S. Geological Survey.

TABLE 132

FLOW OF LITTLE DRY CREEK NEAR FRIANT - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0.3	1.8	10	3.7	0	0	0				
2	0	.3	1.8	7.6	2.3	0.1	0	0				
3	0	.3	1.6	6.2	1.5	0	0	0				
4	0	.3	1.5	5.4	1.1	0.1	0.1	0				
5	0	.4	1.2	5.0	0.5	.1	.1	0				
6	0	.5	1.3	4.7	.3	0	.1	0				
7	0	.5	1.5	4.4	.1	0	.1	0				
8	0	.5	1.6	4.4	.1	0	.1	0				
9	0	.5	2.5	3.7	0	0.1	.1	0				
10	0	.5	4.0	3.5	0.1	.1	.1	0				
11	0	.5	4.0	3.5	.2	0	.1	0				
12	0	.5	3.5	3.0	.2	0	.1	0	N	N	N	N
13	0	1.9	2.8	3.0	.1	0	.1	0	0	0	0	0
14	0	48	2.8	3.0	0	0	.1	0				
15	0	22	2.5	2.8	0	0	.1	0				
16	0	7.1	4.2	2.5	0.1	0	0	0				
17	0.1	4.7	24	2.1	.1	0	0	0	F	F	F	F
18	.1	15	9.9	1.8	.1	0	0	0	L	L	L	L
19	.1	6.2	5.8	1.6	.1	0	0	C	O	O	O	O
20	.1	4.0	16	1.3	.1	0	0	0.1	W	W	W	W
21	.1	3.5	13	1.1	.1	0	0	.1				
22	.1	3.2	8.6	0.9	.1	0	0	.1				
23	.1	2.8	7.1	.7	.1	0	0	0				
24	.6	2.5	8.1	.7	.1	0	0	0				
25	7.6	2.3	18	.8	.1	0	0	0				
26	3.3	2.1	9.2	.9	.1	0	0	0				
27	1.3	2.0	7.1	3.2	.1	0	0	0.1				
28	0.8	1.8	7.1	15	.1	0	0	0				
29	.5	—	7.6	14	.1	0	0	0				
30	.4	—	42	7.1	.1	0	0	0				
31	.3	—	20	—	0	—	0	0	—		—	
Mean	0.5	4.8	7.8	4.1	0.4	0.0	1.0	0.0	0	0	0	0
Ac-Ft	31	266	482	246	23	1	2	1	0	0	0	0

Maximum Discharge	Calendar year 99 c.f.s. March 30, 1954 of record 1810 c.f.s. January 25, 1952	Total Runoff in Acre-Feet	Calendar Year 1052 Water Year 1059

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 1954 computed by U. S. Geological Survey.

TABLE 133

FLOW OF JAMES (FRESNO SLOUGH) BY-PASS NEAR SAN JOAQUIN, CALIFORNIA - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1–5	No flow in 1954											
6–10												
11–15												
16–20												
21–25												
26												
27												
28												
29												
30		—										
31		—		—		—			—		—	
Mean	0	0	0	0	0	0	0	0	0	0	0	0
Ac-Ft	0	0	0	0	0	0	0	0	0	0	0	0

Maximum Discharge	Calendar year = 0 of record = 4780 c.f.s. May 19, 1938	Total Runoff in Acre-Feet	Calendar Year 0 Water Year 0

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 1954 computed by U. S. Geological Survey.

TABLE 134

FLOW OF FRESNO RIVER NEAR DAULTON - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	14	39	66	224	181	68	28	5.2		0	5.2	10
2	14	35	64	202	165	49	26	4.7		0	5.8	10
3	14	31	63	190	154	45	25	4.2		0	5.8	20
4	15	30	57	179	152	44	25	2.1		0	6.4	78
5	16	30	59	167	154	60	23	1.1		0	6.9	63
6	16	30	57	165	156	60	22	0.7		0	4.9	41
7	16	28	56	156	156	60	21	.4		0	3.2	33
8	18	27	56	146	156	62	21	.3		0	5.2	34
9	19	24	106	142	156	83	20	.2		0	5.8	33
10	16	23	209	137	167	96	19	.1		0	5.8	68
11	15	21	152	133	159	80	18	0		0	6.9	64
12	16	22	120	129	152	81	18	0	N	0	4.2	45
13	16	43	103	123	144	81	18	0	0	0	23	42
14	16	455	94	117	139	76	17	0		0	18	33
15	14	274	91	114	135	70	17	0		0	17	29
16	15	148	111	108	135	68	17	0		0.7	52	28
17	22	116	229	105	133	63	16	0	F	1.1	45	29
18	29	223	174	99	133	59	14	0	L	1.1	25	28
19	36	161	148	94	129	53	13	0	0	1.3	20	27
20	34	116	213	89	123	55	12	0	W	1.7	18	26
21	30	98	362	83	122	53	10	0		1.9	16	26
22	27	89	254	80	118	49	10	0		2.1	15	25
23	24	80	199	98	116	45	10	0		2.3	14	24
24	79	74	282	135	112	42	9.6	0		3.0	14	24
25	439	68	381	142	108	41	8.8	0		3.6	14	25
26	144	63	275	142	105	39	8.8	0		4.2	14	26
27	84	57	236	148	98	37	8.8	0		4.7	12	24
28	66	56	226	332	92	35	8.0	0		4.7	11	22
29	56	—	219	259	88	33	6.9	0		4.7	11	20
30	50	—	325	207	83	30	6.4	0		5.2	10	23
31	44	—	283	—	78	—	5.2	0	—	5.2	—	24
Mean	45.6	87.9	170	148	132	57.2	15.6	0.6	0	1.5	13.8	32.4
Ac-Ft	2800	4880	10450	8820	8130	3410	957	38	0	94	823	1990

Maximum Discharge	Calendar year 723 c.f.s. January 25, 1954 of record 10700 c.f.s. November 19, 1950	Total Runoff in Acre-Feet	Calendar Year 42392 Water Year 41641

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 1941 to date. Records for 1954 computed by U. S. Geological Survey.

TABLE 135

FLOW OF CHOWCHILLA RIVER AT BUCHANAN DAM SITE - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	6.5	22	32	187	85	9.1	1.4				0	2.8
2	6.5	20	30	161	71	8.7	1.2				0	4.0
3	6.5	18	28	142	62	8.1	0.8				0	8.1
4	6.5	16	26	129	56	7.5	.6				0	62
5	6.5	16	25	119	51	6.8	.4				0	54
6	6.8	15	24	115	47	7.1	.2				0	26
7	7.5	14	23	104	41	7.5	.1				0	16
8	7.5	14	23	94	39	7.8	.1				0	15
9	7.8	13	57	88	37	13	0				0	15
10	7.8	13	123	81	41	29	0				0	47
11	7.5	13	104	77	41	20	0				0	54
12	7.1	14	69	71	37	15	0	N	N	N	0	28
13	6.8	167	53	66	34	13	0	0	0	0	0	19
14	6.8	914	46	63	32	12	0				0	16
15	6.5	339	41	60	29	11	0				0	14
16	6.5	136	54	55	27	9.1	0				0	12
17	9.7	105	204	50	26	8.4	0	F	F	F	7.0	11
18	14	318	162	48	24	7.5	0	L	L	L	5.4	11
19	18	144	112	45	21	6.8	0	0	0	0	4.1	11
20	16	95	200	41	19	6.3	0	W	W	W	3.4	10
21	13	77	446	40	17	5.7	0				2.9	9.7
22	11	64	247	38	16	5.0	0				2.7	9.4
23	11	55	161	37	15	4.1	0				2.6	9.1
24	114	48	256	35	14	3.1	0				2.5	9.1
25	622	45	491	36	13	2.6	0				2.5	9.1
26	115	41	336	37	12	2.2	0				2.5	8.7
27	61	37	254	43	12	2.0	0				2.6	8.7
28	44	35	214	428	11	1.8	0				2.7	8.4
29	35	—	197	194	11	1.7	0				2.8	8.4
30	29	—	371	111	9.7	1.5	0				2.8	8.4
31	25	—	267	—	9.4	—	0		—		—	9.7
Mean	40.3	100	151	93.2	31.0	8.1	0.2	0	0	0	1.6	17.2
Ac-Ft	2480	5570	9270	5540	1900	483	10.	0	0	0	92	1060

Maximum Discharge	Calendar year 1390 c.f.s. January 25, 1954 of record 22500 c.f.s. November 18, 1950	Total Runoff in Acre-Feet	Calendar Year 26405 Water Year 26089

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 1954 computed by U. S. Geological Survey.

TABLE 136

FLOW OF SALT SLOUGH NEAR LOS BANOS - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	29	67	53	72	102	89	102	90	104	44	27	27
2	30	66	53	66	100	83	105	91	108	42	35	26
3	30	65	50	62	98	88	109	90	108	44	36	26
4	30	64	49	59	92	93	102	88	111	46	37	26
5	29	62	50	59	88	98	96	84	110	54	34	24
6	28	59	46	58	86	99	91	86	109	48	31	24
7	28	57	43	55	86	100	85	90	110	53	29	24
8	30	56	44	55	86	97	92	93	112	44	36	24
9	41	55	50	57	86	100	96	98	111	39	41	27
10	44	54	55	59	93	107	100	98	110	37	36	29
11	50	56	56	62	92	112	100	93	114	38	36	35
12	64	52	60	68	91	109	100	89	112	37	35	36
13	73	52	62	79	96	110	98	90	109	32	35	35
14	78	57	56	81	97	109	93	90	110	32	36	35
15	80	61	55	87	95	104	95	90	162	35	37	36
16	81	61	54	89	91	99	94	89	168	36	38	37
17	86	62	61	87	90	91	98	88	111	49	41	38
18	90	63	67	91	92	87	105	90	105	36	39	39
19	87	65	66	91	90	86	104	90	99	56	37	39
20	82	64	67	90	88	90	104	96	90	44	33	40
21	78	64	78	83	84	88	105	104	89	38	32	41
22	75	62	83	80	86	86	105	111	89	37	32	41
23	76	61	85	81	87	85	104	112	84	30	30	41
24	76	58	85	83	90	87	104	114	86	28	30	42
25	84	57	84	85	90	88	108	110	87	29	30	44
26	93	59	81	89	88	90	107	110	81	29	30	41
27	97	55	76	92	87	87	107	107	71	26	30	41
28	95	54	71	101	88	87	107	107	67	26	30	41
29	86	—	69	104	85	92	102	104	65	27	29	39
30	79	—	71	102	85	102	101	106	57	27	28	39
31	73	—	71	—	86	—	96	105	—	26	—	38
Mean	64.6	59.6	62.9	77.6	90.2	94.8	100	96.9	102	37.7	33.7	34.7
Ac-Ft	3970	3310	3870	4620	5540	5640	6180	5960	6050	2320	2000	2130

Maximum Discharge	Calendar year 297 c.f.s. September 15, 1954 of record 1440 c.f.s. June 4, 1952	Total Runoff in Acre-Feet	Calendar Year 51590 Water Year 51820

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. Records for 1954 computed by U. S. Geological Survey.

TABLE 137

FLOW OF MERCED RIVER AT EXCHEQUER - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	46	46	42	1200	1560	1930	1930	1900	1610	63	75	49
2	46	46	42	1210	1530	1940	1940	1890	1610	63	75	50
3	46	46	43	1190	1530	1940	1950	1870	1610	63	66	50
4	46	46	43	1190	1550	1940	1930	1850	1610	63	53	52
5	46	48	43	1170	1540	1910	1940	1850	1620	73	58	53
6	46	48	44	1200	1560	1860	1930	1830	1600	80	58	54
7	46	49	44	1190	1660	1850	1940	1830	1560	80	58	50
8	46	48	45	1280	2550	1830	1940	1810	802	80	58	46
9	46	48	48	1300	4660	1770	1920	1810	72	80	58	49
10	46	49	49	1320	4520	1750	1900	1780	68	80	58	49
11	46	49	49	1340	4760	1740	1890	1760	65	80	58	49
12	46	51	50	1360	4880	1710	1890	1710	65	80	58	49
13	46	59	50	1370	4380	1700	1910	1700	61	80	58	50
14	46	59	50	1380	3790	1700	1910	1640	58	80	58	51
15	46	51	50	1410	4160	1700	1910	1590	55	80	58	51
16	46	53	57	1440	4120	1700	1900	1580	53	80	58	51
17	48	53	52	1430	4320	1700	1920	1580	52	80	59	51
18	48	53	39	1440	4800	1690	1920	1580	52	80	60	52
19	48	52	50	1570	5230	1690	1920	1580	52	80	60	52
20	48	46	1120	1710	5340	1690	1920	1570	52	80	60	51
21	48	46	1180	1770	4880	1730	1920	1560	52	78	60	51
22	48	45	1180	1800	3590	1790	1920	1560	52	78	55	51
23	46	45	1170	1800	3070	1860	1910	1540	51	78	51	51
24	52	45	1170	1790	2580	1910	1930	1540	51	78	50	51
25	69	45	1180	1790	2340	1940	1920	1600	51	78	50	51
26	84	45	1180	1790	2330	1950	1930	1630	51	77	50	51
27	81	43	1180	1650	2320	1950	1920	1640	66	77	50	51
28	81	41	1200	1550	2060	1940	1910	1640	63	77	50	51
29	69	—	1190	1530	1940	1940	1910	1650	63	77	49	51
30	49	—	1190	1560	1950	1940	1910	1630	63	77	49	49
31	46	—	1190	—	1940	—	1910	1620	—	77	—	46
Mean	51.6	48.4	485	1458	3143	1823	1919	1688	443	76.7	57.3	50.4
Ac-Ft	3180	2690	29790	86740	193300	108500	118000	103800	26360	4710	3410	3100

Maximum Discharge	Calendar year 5520 c.f.s. May 11, 1954 of record 46200 c.f.s. December 4, 1950	Total Runoff in Acre-Feet	Calendar Year 683580 Water Year 680980

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 1954 computed by U. S. Geological Survey.

TABLE 138

FLOW OF MERCED RIVER BELOW SNELLING - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.8	8.8	11	907	281	143	23	12	9.4	0.5	7.1	8.3
2	3.8	6.6	11	858	251	140	24	12	8.8	.5	7.1	9.4
3	4.2	5.4	11	829	231	138	26	19	8.8	.8	7.1	10
4	4.2	4.2	10	818	212	130	26	18	8.8	1.6	7.1	12
5	3.8	3.5	11	832	153	112	25	13	8.8	1.8	5.8	10
6	3.8	3.5	11	843	117	85	26	13	10	2.0	4.2	8.8
7	3.8	3.5	11	784	99	72	23	14	10	2.3	3.1	8.8
8	3.1	3.5	11	763	369	71	22	14	10	4.2	2.7	9.4
9	3.1	6.2	13	694	2950	82	19	16	8.3	8.3	3.5	10
10	3.1	7.7	20	586	3160	59	19	18	5.4	9.4	3.5	14
11	3.5	7.1	19	492	2960	50	20	18	4.6	10	4.2	14
12	3.1	6.2	18	424	3250	47	22	19	3.5	11	5.4	10
13	3.5	58	18	380	2820	53	21	23	2.7	11	5.8	10
14	3.8	164	18	329	2240	50	22	24	2.5	12	5.4	10
15	3.8	78	17	269	2420	46	22	13	2.3	13	5.8	10
16	3.8	46	24	228	2530	39	14	10	1.8	5.0	6.6	10
17	7.1	31	53	199	2490	34	11	9.4	1.6	2.7	5.4	10
18	9.4	28	38	173	2950	17	12	10	1.4	2.7	5.4	8.8
19	9.4	26	27	133	3250	15	10	10	1.4	3.1	6.6	9.4
20	9.4	23	843	167	3460	15	8.8	9.4	1.4	3.8	8.8	11
21	9.4	20	1310	181	3160	16	8.3	12	1.2	3.8	10	11
22	10	19	1240	156	2020	16	8.8	19	1.0	4.6	12	12
23	10	18	1210	126	1310	18	8.8	23	1.0	4.6	12	12
24	18	14	1240	104	828	30	9.4	18	0.8	5.0	11	12
25	129	14	1330	89	497	29	12	17	1.0	5.4	10	12
26	26	14	1200	89	468	37	18	22	0.8	5.4	10	12
27	10	14	1080	140	468	28	22	21	.8	5.8	10	12
28	9.4	14	974	379	398	31	19	22	.6	6.6	10	12
29	13	—	898	247	190	31	17	26	.6	7.1	10	12
30	14	—	887	238	184	28	12	17	.6	7.1	9.4	12
31	12	—	896	—	173	—	12	10	—	7.7	—	13
Mean	11.4	23.1	434	415	1480	55.4	17.5	16.2	4.0	5.4	7.2	10.8
Ac-Ft	703	1284	26700	24710	91020	3296	1077	995	238	335	426	666

Maximum Discharge	Calendar year 3520 c.f.s. May 9, 1954 of records 26000 c.f.s. December 4, 1950	Total Runoff in Acre-Feet	Calendar Year 151450 Water Year 150635

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.

TABLE 139

FLOW OF MERCED RIVER AT CRESSEY BRIDGE - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	92	94	98	1070	414	214	94	74	94	*55	56	82
2	92	91	97	1020	424	195	92	78	85	*54	56	81
3	93	88	97	968	390	193	92	84	81	*53	57	85
4	93	85	96	936	385	190	102	84	79	*52	63	92
5	92	82	94	919	327	174	86	90	73	*51	65	93
6	92	82	93	902	262	161	78	93	72	*50	62	93
7	92	80	94	891	200	138	79	88	70	*49	61	91
8	94	80	94	838	198	125	79	92	70	*48	61	87
9	92	79	98	809	1460	135	81	87	76	48	63	94
10	88	79	98	727	3260	146	78	87	82	48	65	97
11	91	81	99	637	2890	126	79	90	82	50	66	100
12	88	82	115	560	3380	121	74	92	78	51	70	100
13	90	91	110	507	3170	128	76	82	73	54	75	94
14	87	247	104	455	2640	121	73	80	66	58	75	92
15	85	521	103	376	2410	117	69	88	63	58	76	91
16	79	280	110	318	2750	115	73	92	62	59	76	90
17	82	176	129	274	2570	105	70	97	60	*60	78	88
18	92	145	252	264	2980	100	70	92	60	*60	76	90
19	98	128	164	191	3330	92	66	86	61	*60	76	92
20	94	122	251	183	3740	85	64	86	59	53	78	92
21	93	118	1500	216	3620	84	60	87	58	54	80	94
22	93	112	1390	202	2870	79	59	88	58	55	80	92
23	93	107	1320	166	1710	81	59	79	58	56	80	93
24	100	105	1310	137	1270	80	61	81	59	56	81	93
25	204	103	1390	137	851	99	68	81	59	56	80	96
26	347	99	1360	125	709	97	70	84	59	56	80	96
27	167	99	1300	137	673	94	69	91	59	56	80	98
28	122	98	1090	738	673	86	66	90	*59	57	80	98
29	103	—	1050	654	376	92	64	91	*58	57	82	99
30	100	—	1060	440	278	91	63	102	*57	58	81	100
31	97	—	1060	—	260	—	70	102	—	55	—	100
Mean	107	127	523	527	1628	122	73.7	87.7	67.7	54.4	72.0	93.0
Ac-Ft	6595	7049	32180	31330	100100	7267	4530	5391	4026	3346	4282	5718

Maximum Discharge	Calendar year 3810 c.f.s. May 20, 1954	Total Runoff in Acre-Feet	Calendar Year 211814 Water Year 213309

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

* Estimated

TABLE 140

FLOW OF MERCED RIVER NEAR STEVINSON - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	150	157	154	1200	572	421	143	138	172	81	117	135
2	151	153	151	1210	585	389	166	156	163	88	117	143
3	151	152	147	1180	562	350	164	149	140	106	120	138
4	151	151	138	1150	505	330	185	146	146	127	119	136
5	152	148	130	1170	447	336	192	127	153	122	119	143
6	154	145	128	1160	283	350	164	140	161	111	119	141
7	154	143	123	1140	259	324	160	149	178	93	117	146
8	151	142	126	1080	300	310	163	200	205	106	122	143
9	150	142	148	1040	402	324	154	191	185	110	125	149
10	148	141	138	953	2130	330	140	193	156	111	120	156
11	147	141	148	897	2920	292	139	166	166	111	119	166
12	144	138	129	869	2920	279	154	161	198	99	116	160
13	144	142	132	791	3180	319	136	173	168	95	122	160
14	143	146	148	668	2920	295	126	196	136	91	133	168
15	144	225	143	562	2510	270	121	191	133	96	140	166
16	141	350	162	510	2620	240	119	193	125	119	136	165
17	138	276	207	437	2710	226	118	170	127	135	133	154
18	139	235	208	301	2690	205	130	161	127	112	132	153
19	143	212	250	411	3020	194	154	149	125	93	133	158
20	150	199	235	299	3320	203	134	166	112	88	132	160
21	147	193	493	287	3470	203	117	165	99	80	133	161
22	145	187	1200	295	3280	175	114	170	81	86	140	163
23	145	181	1240	268	2370	146	97	166	96	89	136	153
24	148	173	1250	289	1690	141	96	138	95	93	138	146
25	154	169	1290	295	1280	143	107	146	112	106	136	144
26	192	163	1400	279	946	156	118	156	96	108	136	144
27	248	160	1360	295	845	173	106	156	84	108	133	144
28	205	156	1250	373	752	199	96	194	89	104	133	144
29	183	—	1150	806	707	170	81	221	76	110	135	144
30	169	—	1160	612	550	156	100	205	77	114	135	144
31	162	—	1200	—	485	—	124	185	—	114	—	144
Mean	156	176	521	694	1653	255	133	168	133	103	128	151
Ac-Ft	9610	9760	32010	41310	101600	15170	8170	10350	7900	6360	7630	9200

Maximum Discharge	Calendar year 3480 c.f.s. May 21, 1954 of record 13600 c.f.s. December 5, 1950	Total Runoff in Acre-Feet	Calendar Year 259130 Water Year 262990

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 1954 computed by U. S. Geological Survey.

TABLE 141

FLOW OF MERCED RIVER SLOUGH NEAR NEWMAN - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1			0		0							
2			0		0							
3			0		0							
4			0		0							
5			0		0							
6			0		0							
7			0		0							
8			0		0							
9			0		0							
10			0		25							
11			0		82							
12	N	N	0	N	82	N	N	N	N	N	N	N
13	0	0	0	0	107	0	0	0	0	0	0	0
14			0		84							
15			0		53							
16			0		58							
17	F	F	0	F	64	F	F	F	F	F	F	F
18	L	L	0	L	60	L	L	L	L	L	L	L
19	0	0	0	0	84	0	0	0	0	0	0	0
20	W	W	0	W	116	W	W	W	W	W	W	W
21			0		158							
22			0		124							
23			0		52							
24			0		15							
25			0		1.8							
26			0.8		0							
27			.7		0							
28			.3		0							
29			0		0							
30		—	0		0							
31		—	0	—	0	—			—		—	
Mean	0	0	0.1	0	37.6	0	0	0	0	0	0	0
Ac-Ft	0	0	4	0	2310	0	0	0	0	0	0	0

Maximum Discharge	Calendar year 162 c.f.s. May 21, 1954 of record 6410 c.f.s. December 5, 1950	Total Runoff in Acre-Feet	Calendar Year 2314 Water Year 2314

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 1954 computed by the U. S. Geological Survey.

TABLE 142

FLOW OF ORESTIMBA CREEK NEAR NEWMAN - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13					No Flow in 1954.							
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
Ac-Ft	0	0	0	0	0	0	0	0	0	0	0	0

Maximum Discharge	Calendar year = 0 of record = 4900 c.f.s. January 21, 1943	Total Runoff in Acre-Feet	Calendar Year Water Year	0 0

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 1954 computed by U. S. Geological Survey.

TABLE 143

FLOW OF TUOLUMNE RIVER ABOVE LA GRANGE DAM - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	607	732	1300	3000	4830	2170	2140	2350	1750	1350	460	766
2	732	769	778	3000	4140	2200	2130	2350	1510	1200	496	760
3	614	801	969	2950	3360	2190	2210	2520	1510	895	525	704
4	847	815	903	2790	3630	2170	2160	2320	1610	1290	465	404
5	853	802	936	2980	4420	2170	2140	2310	1760	1350	509	273
6	707	654	914	3020	4890	2100	2170	2130	1760	1330	367	618
7	762	504	796	3030	4890	2100	2240	2000	1590	1310	220	598
8	766	832	962	3010	5310	2170	2240	2000	1580	1190	587	746
9	654	806	2510	3040	5760	2150	2200	2010	1560	893	437	921
10	524	758	6420	3050	5810	2140	2210	2040	1480	460	521	729
11	793	720	7470	2900	5830	2140	2190	1860	1580	989	367	534
12	865	783	6300	3020	5840	2150	2190	1840	1540	973	394	318
13	818	635	3580	3060	5250	2090	2280	1820	1620	964	366	666
14	834	494	2930	3060	4170	2120	2290	1820	1580	900	242	917
15	838	714	3630	3060	3900	2490	2300	1830	1520	745	658	1180
16	789	748	6580	3040	3830	3090	2310	1860	1500	380	442	1140
17	514	675	7250	3040	3870	3100	2320	1910	1500	241	469	1130
18	796	590	5720	2940	5030	3080	2300	2000	1400	567	435	1060
19	868	602	3390	3010	6010	3090	2230	1910	1530	503	539	897
20	739	509	3500	3040	5170	3070	2290	1880	1590	536	366	1270
21	662	448	3600	3030	4840	3080	2270	1870	1590	527	267	1280
22	751	471	3360	3440	4830	3130	2290	1870	1570	542	626	1120
23	568	554	3010	3900	4760	3150	2310	2080	1530	345	605	1020
24	554	648	2300	3870	3590	3130	2320	1930	1640	254	662	853
25	781	534	2290	3810	3040	3100	2270	1910	1460	636	217	570
26	681	896	2270	3840	3020	3060	2280	1920	1580	603	447	594
27	781	2080	2210	3870	3040	3030	2370	1940	1860	567	404	893
28	706	1540	2030	4370	3250	3050	2380	1940	1810	540	244	916
29	686	—	2710	4800	2200	3070	2420	1920	1790	506	623	871
30	591	—	3500	4830	2160	2620	2420	2030	1720	334	634	945
31	480	—	3560	—	2130	—	2390	2110	—	243	—	880
Mean	715	754	3150	3327	4252	2613	2266	2010	1601	747	453	825
Ac-Ft	43960	41880	193700	198000	261400	155500	139400	123500	95250	45940	26960	50720

Maximum Discharge	Calendar year 7700 c.f.s. March 11, 1954 of record 61000 c.f.s. December 8, 1950	Total Runoff in Acre-Feet	Calendar Year 1376210 Water Year 1441180

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 1954 computed by U. S. Geological Survey.

TABLE 144

FLOW OF TUOLUMNE RIVER AT LA GRANGE BRIDGE - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	602	542	439	1910	1380	19	7.9	13	12	34	379	513
2	607	597	597	1890	786	19	7.2	12	18	17	442	546
3	602	602	256	1820	573	22	7.2	15	13	9.7	442	537
4	602	602	42	1650	1030	17	6.4	12	17	14	438	397
5	607	597	35	1860	1470	15	6.4	13	12	17	442	272
6	617	602	34	1890	1960	18	6.4	17	12	11	338	474
7	607	551	32	1850	2240	15	15	11	13	9.7	279	537
8	617	561	30	1820	2660	19	20	11	32	9.7	420	546
9	602	607	*790	1750	3020	15	19	11	22	9.7	424	576
10	602	592	*4500	1410	3080	13	19	9.7	13	4.3	438	551
11	582	602	*6140	1100	3270	13	23	8.6	15	0	384	508
12	612	592	4800	786	3380	13	18	8.6	12	149	388	350
13	617	607	1980	412	2840	19	18	6.4	30	172	310	527
14	607	566	942	357	1900	7.9	18	0.8	19	205	276	551
15	602	576	1390	367	1530	19	18	8.6	12	503	479	571
16	632	691	4300	361	1530	22	18	5.7	12	402	446	582
17	587	638	5740	356	1480	8.6	19	1.1	12	302	410	571
18	607	592	4530	119	2450	7.2	17	2.1	13	374	420	576
19	851	542	2330	355	3180	7.2	14	6.4	13	508	498	576
20	713	542	2380	371	2480	6.4	14	12	13	474	350	571
21	617	456	2510	363	2090	6.4	14	12	12	460	283	592
22	730	438	2310	610	2060	7.9	13	12	12	456	465	561
23	602	494	1900	679	2020	7.2	13	19	20	379	579	566
24	546	518	1160	586	996	7.2	14	14	26	290	556	551
25	696	465	1100	402	326	7.2	13	13	18	384	338	330
26	686	667	1060	560	290	8.6	13	13	13	508	293	247
27	752	1510	1010	606	302	7.9	28	12	22	498	362	406
28	686	549	840	957	34	7.9	13	13	20	484	290	498
29	658	—	1500	1390	23	7.9	13	13	22	494	420	456
30	602	—	2390	1450	23	8.6	13	13	23	350	508	489
31	527	—	2540	—	19	—	14	12	—	222	—	484
Mean	632	604	1923	1001	1626	12.4	14.6	10.7	16.8	250	403	500
Ac-Ft	38830	33520	118200	59580	100000	738	898	657	998	15370	23990	30770

Maximum Discharge	Calendar year *6140 c.f.s. March 11, 1954	Total Runoff in Acre-Feet	Calendar Year	423551
			Water Year	452501

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

* Estimated

TABLE 145

FLOW OF TUOLUMNE RIVER AT ROBERTS FERRY BRIDGE - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	659	538	426	1720	1370	77	34	28	30	42	307	577
2	645	623	570	1690	1040	68	36	26	30	55	462	596
3	659	630	430	1630	668	60	36	30	30	45	474	610
4	652	638	99	1490	897	58	34	30	30	38	468	499
5	652	616	68	1620	1440	52	34	30	36	36	468	403
6	645	623	63	1670	1890	50	30	26	34	38	427	403
7	652	610	60	1650	2280	47	30	26	34	38	295	584
8	645	544	58	1590	2540	55	30	26	38	38	355	596
9	652	623	483	1530	3160	58	36	26	52	38	480	623
10	652	616	4310	1280	3230	50	40	24	40	38	451	645
11	616	610	5860	981	3400	40	40	26	34	36	445	564
12	630	610	5030	845	3580	36	45	30	34	30	409	471
13	645	616	2520	435	3230	38	40	30	36	139	409	551
14	652	652	922	340	2180	42	40	26	47	183	311	596
15	652	564	1030	343	1680	40	40	24	40	474	413	630
16	652	659	3560	332	1690	45	42	28	38	456	544	623
17	652	659	5600	344	1660	47	40	28	38	311	439	623
18	584	630	4980	224	2250	40	36	24	38	326	486	623
19	783	570	2360	266	3400	36	34	20	38	512	486	630
20	710	577	2060	371	2790	34	36	26	36	506	486	603
21	666	486	2320	379	2230	34	38	28	38	486	337	638
22	630	462	2220	466	2200	34	40	28	36	486	427	590
23	674	474	1720	740	2140	34	34	30	36	439	544	590
24	616	532	1190	590	1470	36	30	32	42	342	633	570
25	616	468	1030	464	490	36	32	32	50	339	486	398
26	717	512	983	559	430	36	32	28	45	525	274	269
27	724	1330	921	637	409	38	40	28	42	518	404	321
28	695	666	784	781	265	38	40	32	40	480	407	468
29	688	—	1210	1330	106	36	32	30	45	550	409	468
30	652	—	1990	1410	90	34	30	32	42	433	570	451
31	570	—	2510	—	84	—	26	30	—	295	—	512
Mean	656	612	1850	924	1751	44.3	35.7	27.9	38.3	267	437	540
Ac-Ft	40340	33990	113800	54960	107700	2636	2196	1714	2279	16410	26000	33170

Maximum Discharge	Calendar year 6310 c.f.s. March 11, 1954	Total Runoff in Acre-Feet	Calendar Year	435195
			Water Year	468405

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

TABLE 146

FLOW OF TUOLUMNE RIVER AT HICKMAN BRIDGE - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	720	586	485	2090	1450	133	96	108	104	110	324	627
2	705	680	650	2000	1280	127	86	106	102	114	532	650
3	715	675	558	1970	699	123	88	110	100	121	541	670
4	705	680	196	1800	838	117	86	110	102	110	545	595
5	710	675	146	1910	1400	114	82	112	108	108	528	472
6	705	675	131	1980	1790	117	82	110	108	108	524	408
7	705	680	127	1990	2170	117	84	112	104	108	370	636
8	700	599	125	1920	2300	117	88	110	106	110	385	645
9	695	680	133	1870	2930	127	*102	110	119	108	576	670
10	700	675	3750	1660	2930	125	117	108	112	110	*506	690
11	665	665	5940	1330	3050	123	110	106	106	114	545	599
12	685	670	5340	1180	3190	117	*110	110	104	108	485	519
13	700	685	3110	719	3020	119	106	106	104	191	476	576
14	695	715	1140	550	2140	117	104	112	108	248	378	645
15	695	613	1130	543	1560	119	104	112	110	474	408	675
16	695	700	3460	519	1590	117	108	108	108	572	627	665
17	725	761	5760	521	1560	119	108	110	108	408	498	675
18	645	715	5440	476	1860	112	106	106	106	378	545	670
19	772	645	2810	322	3080	114	104	104	110	554	524	675
20	860	660	2230	515	2670	114	106	104	106	581	581	645
21	761	549	2620	523	2100	102	104	106	108	563	400	685
22	700	528	2560	533	2060	100	106	108	106	554	424	650
23	778	515	2010	929	2040	98	108	108	106	511	590	655
24	700	586	1560	741	1590	96	104	106	104	424	665	636
25	636	558	1290	634	524	98	106	112	114	385	599	519
26	794	545	1250	635	462	96	108	110	114	576	327	356
27	761	1340	1190	872	430	96	106	106	108	599	444	317
28	794	823	1080	927	372	96	123	106	108	567	452	558
29	756	—	1340	1420	174	96	110	106	114	599	424	558
30	730	—	2210	1490	148	92	106	106	110	545	618	532
31	660	—	2730	—	136	—	104	104	—	385	—	567
Mean	718	674	2016	1152	1663	112	102	108	108	337	495	595
Ac-Ft	44170	37440	124000	68570	102200	6660	6272	6649	6401	20710	29440	36580

Maximum Discharge	Calendar year 6180 c.f.s. May 11, 1954 of record 59000 c.f.s. December 8, 1950	Total Runoff in Acre-Feet	Calendar Year 489092 Water Year 530652

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

* Estimated

TABLE 147

FLOW OF TUOLUMNE RIVER AT MODESTO - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	844	726	737	2720	1830	406	264	244	244	252	481	740
2	833	779	726	2320	1760	373	252	240	250	244	590	767
3	833	811	800	2270	1120	376	264	219	250	262	686	815
4	833	822	515	2160	934	360	262	227	250	268	701	832
5	833	822	359	2060	1380	341	258	227	250	266	692	722
6	844	811	329	2240	1820	344	244	233	250	244	701	608
7	844	811	311	2240	2250	333	234	229	250	246	593	728
8	833	748	305	2120	2400	307	250	244	246	260	516	779
9	844	790	305	2100	3110	333	246	240	250	250	644	812
10	833	822	1950	1980	3280	350	256	242	252	256	674	868
11	822	811	5530	1650	3370	353	252	240	256	258	689	927
12	811	811	5790	1440	3590	346	258	229	246	254	647	930
13	833	822	4300	1070	3660	341	233	238	250	270	635	698
14	844	855	1520	790	2910	339	236	242	244	373	565	785
15	844	800	1210	695	2010	322	227	262	246	489	526	797
16	844	946	2460	676	1920	303	229	256	244	770	716	794
17	877	994	5350	676	1870	313	231	233	242	641	728	794
18	822	910	5970	686	1860	316	240	238	240	529	683	791
19	855	833	4080	515	3130	311	246	238	240	608	680	788
20	1030	833	2620	610	3190	311	242	248	258	725	743	779
21	922	768	2930	648	2460	282	240	242	262	710	611	782
22	844	695	2910	638	2360	274	242	262	254	701	518	785
23	910	648	2560	844	2340	276	244	260	248	695	674	764
24	833	716	2210	934	2280	264	231	248	254	620	779	761
25	790	716	1660	866	1130	262	240	252	266	532	770	725
26	958	676	1630	726	866	268	238	262	264	611	585	526
27	982	1120	1630	958	790	282	236	256	256	740	510	423
28	982	1270	1650	1420	686	276	238	254	246	740	576	559
29	910	—	1360	1600	491	274	252	256	246	737	526	659
30	866	—	2160	1850	435	268	248	266	246	740	653	638
31	811	—	2830	—	428	—	238	248	—	602	—	668
Mean	863	827	2216	1383	1989	317	244	244	250	480	636	743
Ac-Ft	53090	45950	136300	82320	122300	18850	15020	15020	14880	29540	37870	45710

Maximum Discharge	Calendar year 6190 c.f.s. March 18, 1954 of record 57000 c.f.s. December 9, 1950	Total Runoff in Acre-Feet	Calendar Year 616850 Water Year 647630

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 1954 computed by U. S. Geological Survey.

TABLE 148

FLOW OF TUOLUMNE RIVER AT TUOLUMNE CITY - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	850	780	900	2600	1780	510	350	290	300	310	560	740
2	840	780	720	2550	1750	490	340	300	290	310	530	770
3	840	830	820	2320	1400	490	350	280	310	320	660	810
4	850	830	620	2260	1030	470	350	290	310	330	690	850
5	850	840	460	2110	1180	450	360	290	320	330	700	770
6	850	840	390	2240	1610	460	360	290	310	310	690	690
7	850	830	360	2270	1980	450	360	290	310	320	660	660
8	850	810	350	2160	2250	420	360	300	300	320	650	760
9	850	780	340	2090	2670	440	*350	310	310	320	590	810
10	840	830	800	1930	3050	450	*350	310	310	330	690	870
11	830	830	4300	1750	3140	450	*350	300	320	320	680	890
12	820	830	5680	1510	3430	460	*350	290	310	310	680	930
13	840	840	4600	1280	3610	440	*350	310	300	320	640	790
14	850	870	2130	960	3160	440	*330	310	310	360	620	770
15	850	870	1410	820	2930	430	*330	330	310	430	570	800
16	850	870	1780	790	2040	400	*320	320	310	680	650	810
17	880	1020	4580	750	1990	400	*320	300	310	720	760	800
18	870	990	5840	750	1920	400	*320	300	310	580	690	800
19	830	930	4690	680	2590	400	*330	290	300	570	700	790
20	980	890	2820	640	3230	400	*330	290	310	710	720	790
21	970	870	2750	710	2760	370	*320	310	320	730	690	780
22	900	760	2850	730	2620	360	*320	320	320	720	570	800
23	900	730	2700	800	2620	350	*320	320	310	720	620	770
24	910	720	2410	990	2420	350	*320	320	320	680	760	770
25	870	750	1900	920	1680	350	*290	320	320	580	800	760
26	880	720	1780	810	1040	360	300	320	320	560	710	630
27	1010	830	1770	900	930	360	290	310	320	710	540	510
28	1000	1390	1680	1340	850	360	290	320	310	740	590	510
29	960	—	1530	1420	710	350	330	320	310	730	590	650
30	930	—	1980	1760	560	350	310	320	310	750	600	660
31	890	—	2630	—	550	—	390	310	—	690	—	650
Mean	880	852	2180	1428	2048	414	334	306	311	510	653	754
Ac-Ft	54129	47326	134023	84972	125911	24614	20509	18803	18486	31359	38876	46393

Maximum Discharge		Total Runoff in Acre-Feet	Calendar Year	645401
			Water Year	678605

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 1954 computed by City of San Francisco.

* Estimated

TABLE 149

FLOW OF DRY CREEK NEAR MODESTO (CLAUSS ROAD BRIDGE) - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	20	23	*58	138	158	56	41	29	28	23	21	24
2	20	20	*53	110	156	58	37	31	30	22	23	28
3	20	18	*49	83	128	62	34	24	27	28	27	29
4	21	18	*44	70	75	70	33	24	25	31	28	56
5	21	19	*39	63	68	59	33	28	28	26	24	103
6	21	19	*35	57	73	60	36	29	25	23	23	105
7	20	20	*30	36	79	60	44	30	30	29	24	64
8	21	21	*26	27	81	60	46	40	35	31	25	44
9	22	22	*22	28	93	74	48	39	36	29	28	37
10	21	21	19	38	172	66	42	34	31	32	31	75
11	21	21	19	48	166	72	36	33	32	28	29	192
12	21	21	21	53	152	70	29	34	35	28	28	207
13	22	23	58	54	143	65	32	32	36	34	30	91
14	23	23	27	55	122	71	29	38	38	32	27	54
15	23	32	29	66	91	70	25	40	29	31	28	40
16	23	207	56	63	93	67	23	34	29	30	50	33
17	30	115	219	52	88	66	23	35	24	22	56	28
18	33	*110	226	53	109	74	35	34	26	32	46	26
19	27	*105	173	57	92	66	45	43	33	33	36	24
20	42	*100	109	50	74	54	37	48	46	28	31	24
21	40	*95	117	55	70	44	32	40	45	25	26	25
22	32	*90	139	51	68	38	28	42	40	27	24	24
23	28	*86	153	52	60	40	32	40	37	24	23	25
24	26	*81	108	59	60	39	27	36	34	21	21	25
25	31	*76	87	67	59	38	24	37	33	18	20	25
26	99	*72	131	79	69	39	27	41	29	17	20	26
27	127	*67	178	97	72	41	31	40	30	20	20	28
28	66	*62	108	260	72	38	31	34	27	22	21	30
29	42	—	85	245	79	46	34	33	26	23	21	30
30	31	—	71	171	73	44	36	32	25	21	22	30
31	25	—	52	—	66	—	32	27	—	18	—	30
Mean	32.9	56.7	82.0	77.9	95.5	56.9	33.6	34.9	31.6	26.1	27.8	51.0
Ac-Ft	2021	3148	5040	4635	5873	3386	2067	2144	1882	1603	1652	3138

Maximum Discharge	Calendar year 313 c.f.s. April 28, 1954	Total Runoff in Acre-Feet	Calendar Year	36589
			Water Year	36063

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.

* Estimated

TABLE 150

FLOW OF STANISLAUS RIVER BELOW MELONES POWERHOUSE - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	175	464	500	1690	3260	1770	1260	1230	359	307	130	160
2	179	465	241	1680	2700	1780	1250	1220	355	307	130	200
3	174	464	282	1680	2990	1590	1240	1220	320	300	130	250
4	177	463	247	1540	3680	1450	1240	1210	307	300	112	250
5	171	476	248	1630	4610	1450	1240	1200	307	300	96	250
6	169	458	246	1720	5240	1440	1230	1190	582	300	89	250
7	171	455	24	1730	5020	1450	1240	1180	566	290	81	457
8	198	457	276	1760	5760	1450	1240	1170	463	290	67	486
9	234	449	594	2110	6560	1450	1240	1170	330	300	82	488
10	239	451	921	2530	5830	1450	1240	1160	330	170	100	517
11	242	456	942	2580	4180	1450	1250	1160	330	4	130	735
12	241	468	605	2810	4280	1460	1250	1350	378	4	130	725
13	180	470	1210	3070	4460	1460	1250	1440	398	130	150	720
14	166	479	1560	3600	4520	1460	1250	1450	398	4	180	715
15	157	478	1560	4220	4660	1460	1250	1440	402	190	180	892
16	157	476	1570	4730	4720	1460	1250	1450	220	4	200	990
17	160	490	1460	5750	4950	1460	1160	1440	81	4	250	367
18	482	490	1480	6020	5200	1460	1280	1430	21	200	250	123
19	343	465	1590	5870	5460	1300	1270	1420	19	340	210	188
20	313	465	1600	5360	5490	1260	1260	1400	10	170	250	188
21	313	465	1600	5270	5400	1280	1260	1370	14	4	250	178
22	186	465	1620	5720	4780	1290	1260	1030	125	4	250	172
23	167	477	1610	6150	2310	1290	1260	604	486	4	220	173
24	427	489	1630	5790	1760	1290	1260	604	482	170	260	201
25	476	489	1610	5570	1770	1290	1240	604	430	130	220	266
26	484	489	1640	5310	1780	1290	1250	599	398	130	170	483
27	500	489	1640	4680	1780	1280	1240	594	339	150	150	237
28	504	489	1660	6150	1780	1280	1240	590	317	130	150	334
29	471	—	1660	4890	1780	1280	1240	586	346	130	150	77
30	471	—	1670	3920	1790	1270	1240	369	327	130	160	381
31	468	—	1670	—	1790	—	1230	343	—	130	—	216
Mean	284	471	1134	3851	3880	1412	1246	1072	315	162	164	376
Ac-Ft	17440	26160	69750	229200	238600	84000	76600	65900	18720	9970	9770	23150

Maximum Discharge	Calendar year 6800 c.f.s. May 9, 1954 of record 49500 c.f.s. November 21, 1950	Total Runoff in Acre-Feet	Calendar Year 869260 Water Year 868070

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 1954 computed by U. S. Geological Survey.

TABLE 151

FLOW OF STANISLAUS RIVER AT ORANGE BLOSSOM BRIDGE - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	219	86	391	1450	1660	76	23	17	21	53	101	144
2	187	84	302	1430	1040	71	22	22	21	48	98	161
3	191	84	265	1420	1060	69	21	20	20	48	108	303
4	186	82	310	1260	1710	51	21	18	21	50	94	602
5	128	67	260	1340	2530	34	21	21	21	98	89	323
6	38	61	260	1420	3240	37	21	24	22	116	76	269
7	23	59	257	1360	3270	32	22	23	24	89	71	422
8	15	56	57	1030	3580	28	22	23	31	73	61	509
9	16	60	332	1060	4650	31	22	21	22	71	71	530
10	81	58	792	1270	4630	30	22	22	21	69	86	1080
11	91	58	764	1360	2980	28	22	21	18	51	100	915
12	73	62	420	1290	2550	28	22	22	18	38	131	781
13	46	327	494	1370	2810	30	24	28	17	32	124	762
14	24	828	938	1720	2890	30	24	37	17	32	128	751
15	16	641	889	2220	2970	25	22	37	16	37	157	813
16	12	536	1010	2610	3060	23	18	36	16	66	192	1020
17	20	543	1640	3350	3170	23	22	37	38	44	209	703
18	64	614	1420	3710	3410	23	22	34	66	37	243	207
19	138	548	1580	3610	3590	26	22	31	23	183	240	163
20	26	540	1620	3270	3700	24	22	36	15	256	241	217
21	14	532	1620	3060	3590	21	20	38	15	76	250	217
22	11	530	1580	3350	3150	22	20	38	13	46	251	205
23	13	527	1450	3840	1410	22	20	34	135	40	253	196
24	18	528	1510	3650	193	20	17	24	208	36	252	216
25	406	522	1710	3320	146	17	18	21	100	117	249	233
26	238	516	1530	3130	116	22	20	21	48	76	244	337
27	211	525	1470	2740	83	21	18	23	34	85	149	449
28	167	524	1440	4640	71	22	18	21	37	94	143	248
29	142	—	1450	3260	69	24	21	22	32	86	142	350
30	116	—	1620	2360	64	25	18	21	48	88	159	199
31	91	—	1490	—	66	—	18	22	—	88	—	308
Mean	97.4	343	996	2363	2176	31.2	20.8	26.3	37.9	74.9	157	440
Ac-Ft	5992	19040	61230	140600	133800	1854	1279	1616	2257	4608	9346	27040

Maximum Discharge	Calendar year 5280 c.f.s. May 9, 1954 of record 52000 c.f.s. November 21, 1950	Total Runoff in Acre-Feet	Calendar Year 408662 Water Year 406232

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 152

FLOW OF STANISLAUS RIVER AT RIVERBANK (BURNEYVILLE BRIDGE) - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	257	96	560	1560	1980	144	*81	68	66	73	135	184
2	237	88	432	1540	1330	152	*79	66	68	69	148	198
3	228	86	349	1530	968	146	*78	62	61	68	154	259
4	226	85	379	1390	1440	128	*77	62	62	66	150	675
5	198	77	346	1440	2130	115	*74	65	61	77	141	445
6	127	68	344	1520	2870	108	*70	66	61	137	128	338
7	91	62	342	1520	3300	111	*62	66	65	141	120	334
8	79	60	190	1250	3160	113	69	68	64	108	110	522
9	76	62	302	1120	4070	123	69	66	68	90	108	560
10	92	66	568	1300	4850	127	72	65	64	92	113	966
11	128	66	836	1500	3580	123	70	64	61	86	134	948
12	123	70	820	1380	2370	122	74	66	61	70	176	815
13	100	112	342	1420	2640	122	68	69	59	64	170	793
14	86	542	898	1560	2720	107	68	72	57	60	172	774
15	72	672	992	2060	2800	97	70	76	61	61	184	766
16	65	533	876	2400	2920	96	64	74	60	74	259	965
17	66	510	1640	2920	3000	96	68	76	61	86	264	955
18	68	555	1460	3550	3240	94	70	74	85	70	309	381
19	145	556	1590	3630	3430	99	69	72	74	81	308	213
20	90	534	1700	3450	3620	*97	68	72	60	318	292	240
21	62	536	1690	3170	3600	*96	68	77	55	220	296	236
22	56	532	1620	3260	3340	*96	66	79	55	97	299	227
23	54	532	1560	3720	2280	*94	66	77	54	78	297	222
24	56	538	1560	3800	489	*92	66	76	234	72	305	225
25	242	543	1730	3460	313	*90	69	68	182	73	302	239
26	279	538	1660	3210	269	*88	64	69	108	162	299	292
27	222	545	1580	2960	223	*86	64	68	70	107	206	485
28	188	552	1560	4330	217	*85	65	69	62	130	184	297
29	154	—	1550	3810	164	*85	64	68	61	132	180	373
30	125	—	1660	2750	144	*84	69	72	60	132	184	152
31	105	—	1620	—	139	—	70	68	—	135	—	385
Mean	132	329	1060	2417	2180	107	69.4	69.7	74	104	204	467
Ac-Ft	8126	18280	64970	143800	134100	6379	4266	4284	4403	6405	12150	28690

Maximum Discharge	Calendar year 5040 c.f.s. May 10, 1954 of record 52000 c.f.s. November 21, 1950	Total Runoff in Acre-Feet	Calendar Year 435853 Water Year 432327

Division of Water Resources station located at Mile 32.0 above mouth. Period of record 1940 to date.

* Estimated

TABLE 153

FLOW OF STANISLAUS RIVER AT RIPON - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	296	222	611	1790	2660	333	180	142	126	163	201	265
2	305	212	526	1720	2060	359	171	139	122	180	207	267
3	290	208	454	1680	1510	332	172	132	136	172	213	283
4	281	206	437	1650	1560	303	163	134	133	187	219	458
5	287	203	435	1520	2020	270	166	128	136	171	208	633
6	255	195	422	1630	2630	253	158	144	132	187	206	466
7	203	187	446	1650	3150	238	168	157	133	222	196	408
8	177	182	490	1550	3180	241	157	171	133	233	185	486
9	166	179	330	1300	3540	299	177	169	150	208	188	574
10	157	176	524	1330	4290	285	176	151	150	200	182	764
11	184	179	812	1500	4410	255	180	152	140	192	187	1100
12	201	180	842	1530	3130	240	198	130	148	180	201	914
13	196	184	593	1480	2840	251	156	146	151	166	224	852
14	179	330	666	1560	2890	234	150	151	138	158	228	836
15	164	716	986	1870	2880	241	166	160	136	164	228	826
16	156	661	1020	2240	2980	224	180	168	134	158	255	916
17	156	606	1360	2600	3070	201	152	138	132	195	292	1040
18	156	613	1620	3230	3180	206	140	142	133	176	297	754
19	168	650	1620	3540	3360	217	157	133	169	156	319	456
20	231	617	1770	3490	3560	226	157	139	157	204	324	372
21	177	611	1800	3220	3620	211	156	157	136	328	324	376
22	158	604	1820	3130	3570	193	172	157	139	255	332	361
23	154	602	1790	3360	3140	198	151	157	132	195	339	348
24	156	600	1730	3690	1520	176	140	162	168	179	341	342
25	193	608	1820	3570	822	168	127	151	262	164	350	341
26	372	606	1900	3300	633	162	136	152	238	184	348	372
27	346	604	1800	3210	520	180	124	139	184	219	341	452
28	317	613	1760	3400	500	180	128	133	156	198	281	490
29	290	—	1740	4250	410	190	128	138	144	216	267	442
30	260	—	1770	3620	376	172	130	130	152	212	262	406
31	238	—	1850	—	330	—	132	130	—	211	—	357
Mean	222	413	1153	2454	2398	235	156	146	150	195	258	547
Ac-Ft	13620	22920	70900	146000	147500	13960	9620	8990	8930	11970	15360	33630

Maximum Discharge	Calendar year 4600 c.f.s. May 11, 1954 of record 48500 c.f.s. November 21, 1950	Total Runoff in Acre-Feet	Calendar Year 503400 Water Year 500290

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 1954 computed by U. S. Geological Survey.

TABLE 154

FLOW OF STANISLAUS RIVER NEAR MOUTH - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	313	230	*530	1770	2760	240	137	54	75	113	189	259
2	308	211	*500	1690	2110	238	130	55	68	153	189	251
3	304	207	*480	1630	1560	232	122	54	71	191	204	268
4	299	205	*420	1630	1320	226	170	52	88	170	205	304
5	292	205	*400	1460	1590	219	162	61	124	148	205	584
6	283	200	*375	1480	2130	213	115	61	128	142	209	517
7	276	198	*362	1520	2700	209	92	71	96	148	217	428
8	253	196	*350	1460	3000	204	94	103	91	198	196	412
9	228	194	*290	1260	3260	198	94	83	73	198	205	528
10	207	194	*360	1160	3990	191	108	66	96	187	202	606
11	198	196	*600	1290	4430	186	143	62	97	170	202	992
12	211	196	*800	1370	3840	180	145	86	128	180	211	944
13	215	200	*780	1290	3130	177	106	74	96	182	224	857
14	204	209	*580	1340	3170	182	80	97	74	155	238	823
15	180	337	*860	1560	3000	180	76	124	88	136	245	812
16	186	540	*910	1940	2890	170	99	130	86	160	255	827
17	184	553	*1100	2220	2900	134	92	90	85	163	292	976
18	177	559	1520	2770	2940	120	82	55	113	162	318	900
19	174	*571	1630	3170	3110	136	73	58	153	158	332	574
20	191	*568	1420	3190	3510	167	71	59	170	148	346	437
21	204	*560	1380	3000	3660	138	60	68	101	247	344	407
22	180	*558	1460	2770	3620	128	60	140	97	288	344	391
23	170	*558	1520	2920	3330	121	63	115	101	232	349	373
24	168	*555	1540	3280	2060	117	74	92	137	202	349	361
25	168	*540	1510	3320	896	130	52	100	184	182	351	354
26	209	*540	1600	3040	711	128	59	92	253	155	354	356
27	286	*528	1520	2940	609	146	54	110	219	177	346	378
28	292	*540	1490	3020	520	148	46	111	142	160	334	485
29	279	—	1460	3840	440	137	32	124	121	160	276	423
30	261	—	1600	3630	366	124	24	85	125	196	264	451
31	242	—	1680	—	297	—	45	99	—	204	—	346
Mean	230	370	1001	2232	2382	171	89.0	84.9	116	176	266	536
Ac-Ft	14170	20520	61540	132800	146500	10150	5474	5219	6902	10840	15860	32970

Maximum Discharge	Calendar year 4470 c.f.s. May 11, 1954	Total Runoff in Acre-Feet	Calendar Year	462945
			Water Year	460765

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.

* Estimated

TABLE 155

FLOW OF KINGS RIVER AT PIEDRA - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	190	486	1220	1060	5000	4920	5030	3380	756	167	48	32
2	188	481	1460	1070	4720	4560	5010	3550	778	126	48	32
3	181	481	1580	1140	4700	4910	4990	3420	756	119	49	36
4	183	463	1560	1150	4690	4910	4940	3330	756	119	49	36
5	188	458	1640	1190	4640	5110	4720	3290	761	119	49	33
6	183	472	1630	1220	4660	5380	4280	2610	756	121	48	32
7	188	476	1620	1220	4260	5380	4240	2370	756	123	48	33
8	190	463	1630	1610	3670	4890	4820	2350	665	115	49	32
9	190	463	1690	1780	3900	4740	4560	2400	582	115	49	60
10	183	454	1720	1900	3870	4560	4340	2320	488	113	49	110
11	167	445	1750	1940	3890	4610	4070	2190	315	106	51	82
12	177	441	1870	1960	3810	4590	4090	2170	298	106	53	67
13	181	626	1700	1970	4060	4480	4040	2160	280	65	50	64
14	169	717	1640	1970	4100	4380	4020	2090	298	60	50	63
15	165	389	1670	1970	2730	4250	4130	1590	301	58	57	78
16	177	312	1380	2170	2060	4280	4180	1490	298	57	50	85
17	183	302	1350	2800	2170	4300	4190	1480	132	56	45	90
18	218	501	1290	3090	2190	4010	4180	1440	154	56	45	94
19	225	337	1260	3390	2240	4530	4160	1470	208	56	45	94
20	215	309	1180	3600	2280	5010	4250	1370	184	51	44	94
21	218	298	1130	4020	2300	6270	4250	1410	138	48	44	94
22	205	295	1060	4670	2320	5800	4160	1430	146	48	44	94
23	208	286	1110	5140	2310	5660	4190	1430	156	48	44	94
24	931	286	1170	5590	2830	6020	4130	1210	154	48	44	95
25	2700	302	1180	5590	2920	5740	3920	1130	162	48	44	95
26	2100	441	1180	5450	3060	5600	3900	1080	160	48	44	94
27	610	696	1090	5450	3750	5700	3830	1070	158	48	44	94
28	535	774	1080	4960	3780	5840	3620	1050	152	48	44	94
29	548	—	1020	4980	4540	5550	3600	1000	150	48	44	94
30	517	—	988	5050	4790	4990	3270	838	156	46	35	94
31	494	—	992	—	4800	—	3130	788	—	47	—	94
Mean	413	445	1382	2970	3582	5032	4201	1900	368	78.5	46.9	73.6
Ac-Ft	25400	24700	84970	176700	220200	299400	258300	116800	21930	4830	2790	4530

Maximum Discharge	Calendar year 6350 c.f.s. June 21, 1954 of record 91000 c.f.s. November 19, 1950	Total Runoff in Acre-Feet	Calendar Year	1267580
			Water Year	1240550

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 1954 computed by U. S. Geological Survey.

TABLE 156

FLOW OF KAWEAH RIVER NEAR THREE RIVERS - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	62	166	384	606	1050	1060	360	81	37	27	32	68
2	62	166	376	630	1010	1130	328	78	40	27	32	68
3	62	162	372	666	1210	1080	311	74	45	27	34	68
4	62	162	336	726	1470	1030	300	68	42	27	35	314
5	62	160	325	759	1780	871	280	66	40	29	33	164
6	63	162	318	778	1980	702	249	63	39	27	32	126
7	63	164	322	746	2140	660	240	60	38	28	32	120
8	65	166	336	830	2320	642	237	56	38	28	32	113
9	63	166	1180	885	2240	660	225	52	37	28	33	107
10	59	164	1000	878	1660	624	206	50	35	29	33	303
11	59	158	660	824	1780	654	186	48	35	29	35	171
12	60	155	500	837	1920	589	176	50	35	29	134	155
13	57	610	418	976	1970	530	169	50	35	27	96	149
14	56	961	388	1150	2000	520	173	51	35	27	65	140
15	60	465	380	1290	1930	636	201	50	34	27	70	134
16	60	368	400	1480	1810	720	178	48	35	26	513	130
17	63	166	436	1720	2100	733	160	47	36	27	158	126
18	84	520	396	1790	2270	708	151	45	36	27	111	126
19	76	372	384	1730	2350	690	143	44	35	27	96	126
20	84	325	480	1710	2270	696	134	43	33	28	87	124
21	76	308	594	1750	2070	726	126	47	32	29	81	122
22	71	311	475	1840	1690	746	120	50	32	28	78	120
23	71	332	470	1860	1600	720	113	47	32	28	78	120
24	932	356	495	1870	1530	678	111	45	31	29	78	117
25	1450	380	460	1650	1460	600	119	45	29	31	78	111
26	339	388	427	1520	1330	530	119	44	27	32	74	100
27	222	380	432	1630	1260	460	107	45	26	31	74	84
28	201	376	515	1750	1290	409	105	45	26	32	74	84
29	198	—	589	1390	1230	396	102	43	26	32	73	102
30	180	—	892	1250	1080	380	92	40	27	32	71	89
31	171	—	648	—	1040	—	86	38	—	32	—	90
Mean	168	306	496	1251	1705	686	181	52.0	34.3	28.6	81.7	128
Ac-Ft	10300	17000	30520	74420	104800	40820	11120	3200	2040	1760	4860	7880

Maximum Discharge	Calendar year 4080 c.f.s. January 24, 1954 of record 52000 c.f.s. November 19, 1950	Total Runoff in Acre-Feet	Calendar Year 308720 Water Year 306060

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 avilable at a site two miles upstream. Records for 1954 were computed by the U. S. Geological Survey.

TABLE 157

FLOW OF TULE RIVER NEAR PORTERVILLE - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	36	81	140	293	275	107	23	2.0	1.1	0.9	10	34
2	36	84	134	295	246	102	23	1.7	1.0	1.3	10	33
3	36	78	125	304	241	92	22	1.4	1.0	1.6	11	37
4	35	76	118	318	239	88	17	1.2	0.9	1.6	12	122
5	35	75	113	336	251	87	19	1.2	.9	2.0	11	73
6	33	72	107	339	259	87	18	1.2	1.0	2.7	11	57
7	34	70	104	326	275	83	17	1.3	0.9	3.2	11	55
8	36	68	104	342	288	79	17	1.3	.8	4.6	11	52
9	36	66	328	362	293	104	17	1.7	.6	5.7	13	49
10	35	64	295	352	282	104	17	1.3	.6	6.1	14	149
11	35	61	232	329	254	104	16	0.9	1.6	5.3	15	86
12	34	60	178	323	251	87	15	.8	2.4	5.0	22	73
13	33	280	152	345	241	83	14	.8	1.4	5.5	30	67
14	33	606	136	376	234	79	14	1.4	0.6	5.5	23	62
15	34	272	127	387	232	73	13	3.8	.6	6.4	29	61
16	32	194	150	394	220	67	10	3.2	.8	7.8	111	59
17	33	160	215	405	222	62	7.6	2.1	.8	8.1	57	58
18	42	316	178	394	229	57	7.6	1.2	.9	6.9	43	56
19	42	203	168	362	234	54	6.9	1.3	1.1	7.3	28	54
20	51	168	222	339	229	51	3.4	1.1	1.6	7.6	26	54
21	46	154	306	326	212	45	3.2	1.1	2.0	7.3	31	53
22	42	148	227	326	191	41	2.9	1.3	2.3	7.5	31	51
23	43	150	311	326	176	39	3.0	1.3	2.4	7.5	31	50
24	308	160	484	326	162	35	2.9	1.2	2.1	7.5	33	50
25	929	162	394	306	154	32	2.9	1.1	2.0	8.0	33	49
26	225	160	269	275	146	30	4.0	1.1	1.8	11	33	48
27	142	152	244	301	136	29	3.2	0.9	1.8	10	32	46
28	112	144	259	498	125	27	3.4	1.0	1.6	10	32	44
29	98	—	288	365	118	25	3.4	1.3	1.6	10	32	45
30	88	—	445	323	113	24	2.1	1.3	1.4	10	34	44
31	82	—	315	—	110	—	1.8	1.3	—	10	—	45
Mean	91.5	153	222	343	214	65.9	10.7	1.4	1.3	6.2	27.3	58.6
Ac-Ft	5630	8500	13620	20420	13170	3920	655	87	79	385	1630	3600

Maximum Discharge	Calendar year 2050 c.f.s. January 25, 1954 of record 25500 c.f.s. November 19, 1950	Total Runoff in Acre-Feet	Calendar Year 71696 Water Year 71663

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 1954 computed by U. S. Geological Survey.

TABLE 158

FLOW OF SOUTH FORK OF TULE RIVER NEAR SUCCESS - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	7.4	23	34	105	79	26	7.0	0.6	0.4	1.2	1.2	
2	7.1	21	33	107	71	24	7.0	.4	.3	1.3	1.4	
3	7.4	20	31	109	67	22	6.3	.2	.3	0.8	1.6	
4	7.7	19	30	110	63	22	6.0	.3	.4	1.0	1.6	
5	7.7	18	29	121	60	23	6.0	.4	.3	1.0	1.8	
6	7.7	18	27	121	59	24	6.0	.4	.2	1.2	3.8	
7	8.0	17	26	112	58	23	5.6	.4	.4	1.3	3.5	
8	8.3	16	26	114	59	22	4.8	.3	1.6	1.3	3.8	
9	8.6	16	68	116	60	34	5.0	.3	0.2	1.3	3.8	
10	8.3	15	71	112	67	31	4.8	.3	0	1.6	4.0	
11	8.3	15	58	107	58	30	4.5	.2	0	1.8	4.2	
12	8.6	15	45	107	54	24	3.2	.1	0	1.0	17	
13	8.3	94	39	112	51	23	2.4	.3	0.3	0.9	13	
14	8.0	133	37	116	48	22	2.6	.2	.5	.8	7.7	
15	8.0	61	35	110	47	20	1.4	.5	.6	.8	6.6	
16	8.3	48	43	110	46	18	1.3	.6	.8	.7	41	
17	8.3	44	54	105	44	18	1.3	.6	.9	.8	17	
18	13	118	46	98	42	16	1.4	.5	.9	.9	11	
19	12	61	46	88	41	15	1.3	.5	.8	.9	7.7	
20	15	51	60	84	40	15	4.0	.6	.7	1.0	7.0	
21	13	46	86	80	39	13	1.4	.7	.7	1.0	6.6	
22	11	43	67	76	37	11	0.8	.7	.7	1.2	6.3	
23	11	42	92	72	34	9.5	.6	.7	.7	1.0	6.3	
24	143	42	116	71	32	8.2	.7	.6	.7	1.0	6.0	
25	332	41	117	69	31	7.7	.8	.6	.6	1.2	6.6	
26	60	39	93	63	30	7.4	.7	.8	.6	1.2	6.6	
27	37	46	92	67	30	7.7	.7	1.0	.6	1.0	6.6	
28	32	36	98	167	29	9.0	.7	1.0	.6	1.0	6.3	
29	30	—	105	105	27	8.6	.7	0.8	.9	1.0	6.6	
30	26	—	158	88	27	7.4	.5	.7	1.2	1.2	7.0	
31	24	—	112	—	26	—	.5	.7	—	1.2	—	
Mean	28.9	41.4	63.7	101	47.0	18.0	2.9	0.5	0.6	1.1	7.5	
Ac-Ft	1780	2300	3920	5990	2890	1070	177	32	34	67	444	

Maximum Discharge	Calendar year 766 c.f.s. January 24, 1954 of record 7100 c.f.s. November 19, 1950	Total Runoff in Acre-Feet	Calendar Year Water Year 19551

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 November 30, 1954, when the station was discontinued. Records for 1954 computed by U. S. Geological Survey.

TABLE 159

FLOW OF TULE RIVER AT WORTH BRIDGE - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	40	109	158	385	355	120	12	0.8		0	6.2	30
2	38	105	154	385	311	114	10	.7		0	6.2	28
3	36	101	141	391	311	103	9.1	.2		0	7.2	34
4	36	93	133	409	290	96	8.0	.2		0	8.0	154
5	34	90	125	448	300	92	8.0	.1		0	8.5	96
6	34	87	113	441	311	96	7.6	.1		0	8.5	63
7	36	84	109	428	316	89	8.0	.1		0	7.6	52
8	38	81	109	441	328	86	6.7	0		0	6.7	50
9	38	78	254	448	333	117	6.7	0		0.1	8.0	46
10	38	72	367	434	350	128	8.5	0		1.9	10.3	176
11	36	69	284	403	306	117	8.0	0		2.8	12	114
12	34	66	205	397	290	96	7.6	0	N	3.4	20	86
13	34	264	172	428	280	92	6.2	0	0	3.7	28	79
14	31	719	154	454	270	89	5.8	0		4.0	21	69
15	31	343	145	467	265	72	5.8	0		4.4	25	66
16	31	235	158	460	250	63	3.4	0		4.9	162	63
17	34	190	262	474	250	54	1.9	0	F	4.4	69	59
18	45	376	205	454	255	50	1.3	0	L	4.0	44	56
19	50	256	190	422	250	46	1.7	0	0	4.9	35	54
20	66	205	256	397	250	42	1.5	0	W	6.2	32	52
21	60	181	361	385	236	38	1.3	0		6.2	31	52
22	50	172	284	379	214	31	1.5	0		5.4	30	50
23	50	172	343	367	196	27	1.3	0		4.9	30	48
24	325	176	530	367	184	24	0.9	0		5.4	30	48
25	1540	176	550	355	179	22	.7	0		7.2	30	46
26	295	176	379	350	162	22	.9	0		7.6	28	46
27	176	168	344	328	158	19	.7	0		7.2	30	42
28	145	163	367	592	143	19	.9	0		6.7	28	38
29	133	—	391	467	139	16	.9	0		6.7	28	42
30	117	—	571	415	128	14	.8	0		6.2	30	42
31	109	—	422	—	124	—	.5	0	—	6.2	—	42
Mean	121	179	265	419	249	66.5	4.5	0.1	0	3.7	27.3	62.0
Ac-Ft	7460	9930	16340	24930	15340	3960	274	4	0	227	1630	3810

Maximum Discharge	Calendar year 3110 c.f.s. January 25, 1954	Total Runoff in Acre-Feet	Calendar Year 83905 Water Year 84398

U. S. Geological Survey and Division of Water Resources cooperative 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 1954 computed by U. S. Geological Survey.

TABLE 160

FLOW OF TULE RIVER AT TURNBULL STATION - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13					No flow in 1954.							
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
Ac-Ft	0	0	0	0	0	0	0	0	0	0	0	0

Total Runoff in Acre-Feet	Calendar Year	0
	Water Year	0

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, and Kings River water via Homeland Canal, and waste water from Tulare Irrigation District. Period of record 1942 to date. Records for 1954 computed by Division of Water Resources.

TABLE 161

FLOW OF KERN RIVER NEAR BAKERSFIELD - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	244	433	616	946	1304	1224	1499	940	398	337	193	281
2	251	413	617	940	1227	1164	1477	941	395	325	221	238
3	252	411	606	951	1203	1113	1398	947	400	314	225	259
4	249	399	598	998	1200	1100	971	935	415	309	219	290
5	255	380	572	1050	1194	1103	974	961	403	310	217	366
6	255	375	534	1094	1203	1104	1282	977	393	327	209	298
7	260	374	548	1127	1214	1087	1109	956	385	333	209	282
8	261	368	556	1137	1330	1018	956	730	385	330	204	283
9	261	370	577	1203	1327	1005	935	674	407	316	208	270
10	254	371	851	1300	1339	1005	924	757	412	308	218	281
11	237	364	1153	1341	1323	1111	886	704	416	310	237	303
12	249	377	985	1352	1325	1255	1009	675	430	291	207	283
13	248	424	846	1353	1327	1304	1015	704	411	255	270	282
14	245	867	737	1393	1341	1298	958	699	372	248	266	296
15	230	1089	674	1551	1378	1353	942	651	350	166	247	287
16	249	781	658	1535	1384	1353	971	627	364	138	331	291
17	254	677	664	1337	1383	1431	995	615	371	173	403	292
18	255	650	678	1399	1389	1491	1025	604	375	169	377	289
19	289	735	669	1527	1317	1513	1013	587	375	167	386	283
20	296	644	695	1551	1296	1513	949	550	355	168	384	281
21	293	603	724	1545	1292	1511	955	529	325	170	386	280
22	288	581	737	1549	1385	1549	947	522	310	191	386	278
23	296	575	712	1543	1401	1652	877	459	318	198	400	280
24	341	581	714	1528	1401	1723	883	378	350	192	378	283
25	813	601	721	1523	1353	1751	877	389	356	185	343	287
26	1314	616	723	1517	1345	1737	850	421	360	222	333	284
27	735	622	762	1499	1319	1726	799	441	341	160	328	266
28	551	626	801	1479	1337	1691	805	453	327	141	340	234
29	474	—	877	1310	1279	1520	827	424	325	175	348	240
30	453	—	902	1296	1257	1528	846	422	325	177	350	279
31	449	—	966	—	1232	—	830	409	—	180	—	425
Mean	358	547	725	1329	1310	1364	993	648	372	235	294	282
Ac-Ft	22019	30361	44575	79089	80539	81189	61059	39830	22114	14450	17500	17595

Total Runoff in Acre-Feet	Calendar Year	510320
	Water Year	505835

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 1954 computed by Kern County Land Company.

TABLE 162

DELIVERY FROM FRIANT-KERN CANAL TO TULE RIVER - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1			0	5.0	4.9	157	431	446				
2			0	5.0	8.4	302	414	330				
3			0	5.0	8.9	283	409	229				
4			0	5.0	11	239	409	61				
5			0	5.0	11	236	401	0				
6			103	5.0	3.7	236	374	0				
7			197	5.0	0	229	355	0				
8			200	1.2	0	215	284	0				
9			200	0	0	204	367	0				
10			198	0	0	204	438	248				
11			201	0	0	204	440	506				
12	N	N	183	0	0	201	440	468	N	N	N	N
13	0	0	175	0	0	198	440	440	0	0	0	0
14			176	0	0	183	430	428				
15			179	0	0	176	426	421				
16			181	0	0	174	419	424				
17	F	F	116	8.7	0	182	413	415	F	F	F	F
18	L	L	65	14.0	0	201	267	400	L	L	L	L
19	0	0	58	4.4	0	215	204	390	0	0	0	0
20	W	W	100	0	0	204	204	396	W	W	W	W
21			134	2.8	0	204	204	56				
22			150	13	0	200	204	0				
23			144	19	0	269	235	0				
24			65	6.0	0	298	250	0				
25			0	0	0	330	250	0				
26			0	8.2	0	344	250	0				
27			0	4.7	0	342	242	0				
28			0	0	0	360	360	0				
29			0	0	0	390	444	0				
30		—	0	0	0	392	446	0				
31		—	2.7	—	0	—	446	0	—		—	
Mean	0	0	91.2	3.9	1.5	246	351	182	0	0	0	0
Ac-Ft	0	0	5609	232	95	1462	21612	11223	0	0	0	0

Total Runoff in Acre-Feet	Calendar Year	40233
	Water Year	40233

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 1954 computed by U. S. Bureau of Reclamation

TABLE 163

DELIVERY FROM FRIANT-KERN CANAL TO PORTER SLOUGH - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1		0					0			0	50	
2		0					0			0	50	
3		0					0			0	0	
4		0					0			0	0	
5		0					0			0	0	
6		0					0			0	0	
7		0					0			0	0	
8		0					0			0	0	
9		0					0			0	0	
10		0					0			0	0	
11		0					0			0	0	
12	N	0	N	N	N	N	2.6	N	N	0	0	N
13	0	0	0	0	0	0	1.5	0	0	0	0	0
14		0					0			0	0	
15		17					0			0	0	
16		49					0			0	0	
17	F	48	F	F	F	F	0	F	F	0	0	F
18	L	13	L	L	L	L	0	L	L	0	0	L
19	0	0	0	0	0	0	0	0	0	0	0	0
20	W	19	W	W	W	W	0	W	W	0	0	W
21		52					0			0	0	
22		49					0			0	0	
23		48					0			0	0	
24		48					0			0	0	
25		62					0			0	0	
26		62					0			0	0	
27		51					0			19	0	
28		49					0			51	0	
29		—					0			51	0	
30		—					0			51	0	
31		—		—		—	0		—	52	—	
Mean	0	20.2	0	0	0	0	0.1	0	0	7.2	3.3	0
Ac-Ft	0	1125	0	0	0	0	8	0	0	444	198	0

Total Runoff in Acre-Feet	Calendar Year	1775
	Water Year	1241

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 1954 computed by U. S. Bureau of Reclamation.

TABLE 164

FLOW OF SOUTH FORK KINGS RIVER BELOW EMPIRE WEIR #2 - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1							0	21				
2							0	23				
3							0	23				
4							0	22				
5							0	24				
6							0	45				
7							0	38				
8							0	23				
9							0	14				
10							0	0				
11							0	0				
12	N	N	N	N	N	N	0	0	N	N	N	N
13	0	0	0	0	0	0	0	0	0	0	0	0
14							13	0				
15							41	18				
16							51	22				
17	F	F	F	F	F	F	37	26	F	F	F	F
18	L	L	L	L	L	L	31	18	L	L	L	L
19	0	0	0	0	0	0	20	24	0	0	0	0
20	W	W	W	W	W	W	19	22	W	W	W	W
21							18	0				
22							19	0				
23							15	0				
24							16	0				
25							20	18				
26							28	26				
27							23	34				
28							27	24				
29							22	0				
30		—					20	0				
31		—		—		—	18	0	—		—	
Mean	0	0	0	0	0	0	14	20	0	0	0	0
Ac-Ft	0	0	0	0	0	0	867	921				

Total Runoff in Acre-Feet	Calendar Year 1788 Water Year 1788

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 1954 computed by Kings River Water Association.

TABLE 165

FLOW OF CROSS CREEK BELOW LAKELAND CANAL #2 - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	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							No flow in 1954.					
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
Ac-Ft	0	0	0	0	0	0	0	0	0	0	0	0

Total Runoff in Acre-Feet	Calendar Year Water Year

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 1954 computed by Corcoran Irrigation District.

TABLE 166

FLOW OF GOOSE LAKE CANAL NEAR LOST HILLS - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	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
Ac-Ft	0	0	0	0	0	0	0	0	0	0	0	0

Total Runoff in Acre-Feet	Calendar Year / Water Year

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 1954 computed by Division of Water Resources.

TABLE 167

FLOW OF BUENA VISTA SLOUGH NEAR LOST HILLS - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	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
Ac-Ft	0	0	0	0	0	0	0	0	0	0	0	0

Total Runoff in Acre-Feet	Calendar Year / Water Year

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 1954 computed by Division of Water Resources.

TABLE 168

DAILY ELEVATIONS OF TULARE LAKE IN KINGS COUNTY - 1954

Date	Daily Elevation in Feet[a]											
	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						Lake dry during 1954.						
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29		—										
30		—										
31		—		—		—			—		—	

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.

TABLE 169

FLOW OF DELTA-MENDOTA CANAL AT TRACY PUMPING PLANT - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	883	613	2414	2515	3115	3235	2392	1294	464	0
2	0	0	884	613	2200	2514	3066	3234	2365	1294	354	0
3	0	0	957	894	2093	2684	2898	3229	2376	1293	354	0
4	0	0	1367	891	1770	2714	2894	3224	2373	1291	354	0
5	0	0	1474	881	1791	2970	2892	3171	2373	1292	333	0
6	0	225	1473	883	1305	2897	2886	3157	2376	1291	355	0
7	0	908	1474	883	1112	2822	2921	3164	2377	1079	356	0
8	0	901	1574	1247	1114	2900	3059	3167	2179	1062	357	69
9	600	946	1447	1754	1111	2856	3056	3170	2050	1183	359	0
10	0	1742	1780	1755	373	2962	3045	2791	1724	1184	349	0
11	0	1720	1879	1754	288	2990	3050	2744	1724	1182	320	0
12	0	1721	1858	2269	297	2996	3301	2705	1615	1178	321	0
13	0	1725	1861	2258	865	3005	3308	2700	1612	970	320	0
14	0	1728	1873	2257	871	2799	3313	2687	1504	864	319	0
15	0	1722	1868	2528	870	2556	3380	2686	1503	863	314	0
16	0	1504	1403	2525	869	2581	3380	2692	1502	972	318	36
17	0	873	1042	2528	871	2578	3379	2682	1505	864	319	0
18	0	870	1039	2545	871	2574	3377	2790	1503	790	0	0
19	0	867	1023	2556	869	2569	3369	2790	2077	718	261	0
20	276	867	1055	2625	833	2512	3293	2788	2075	715	0	0
21	583	867	1038	2627	288	2893	3289	2791	1752	717	104	0
22	571	874	543	2627	288	3049	3288	2798	1789	710	274	0
23	576	881	535	2635	290	3132	3301	2804	1650	645	0	38
24	0	882	555	2625	875	3339	3311	2803	1503	609	297	0
25	0	882	507	2619	1804	3358	3313	2799	1432	609	0	0
26	0	883	491	2618	2049	3356	3315	2838	1719	610	0	0
27	0	883	523	2621	2446	3360	3309	2795	1152	464	0	0
28	0	881	521	2607	2445	3359	3235	2515	1331	462	0	0
29	0	—	629	2592	2467	3364	3241	2442	1331	462	0	108
30	0	—	634	2420	2458	3233	3240	2343	1402	464	0	0
31	0	—	614	—	2457	—	3238	2392	—	464	—	0
Mean	84.1	905	1123	2008	1311	2915	3196	2843	1809	890	227	8.1
Ac-Ft	5169	50285	69033	119288	80636	173429	196487	174795	107779	54734	13492	498

Maximum Discharge		Total Runoff in Acre-Feet	Calendar Year 1045625 Water Year 1004186

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 1954 computed by the U. S. Bureau of Reclamation.

TABLE 170

FLOW OF CONTRA COSTA CANAL AT PUMPING PLANT NO. 1 - 1954

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	48	31	85	30	41	80	100	95	75	78	42	38
2	48	32	77	27	33	81	100	91	68	78	41	39
3	32	31	29	28	38	83	96	85	69	74	37	39
4	46	31	29	27	53	85	94	76	73	66	39	40
5	45	33	29	29	49	84	94	73	71	47	39	40
6	41	31	34	84	53	85	92	99	70	44	37	36
7	42	32	33	69	55	89	96	91	75	43	39	31
8	41	45	113	32	57	91	101	90	81	41	35	37
9	41	55	77	32	55	87	100	101	82	41	30	30
10	43	47	29	32	57	83	95	117	80	46	29	39
11	38	64	28	32	57	79	92	105	79	53	26	43
12	42	67	29	32	56	76	95	103	78	55	26	39
13	43	32	32	34	60	68	97	99	79	54	27	40
14	44	32	33	36	55	76	98	95	84	52	26	39
15	48	50	34	40	56	82	98	96	87	58	35	36
16	45	70	32	43	55	82	100	113	85	57	30	35
17	50	30	30	43	55	85	102	95	82	58	45	36
18	41	32	28	46	59	89	100	83	74	55	59	36
19	52	46	29	45	59	88	97	92	67	41	67	35
20	40	32	29	49	58	76	95	107	76	39	26	36
21	46	32	27	50	58	79	95	92	76	37	32	31
22	40	32	28	58	59	82	93	96	76	37	68	38
23	40	32	75	56	61	87	99	111	78	40	74	34
24	38	32	32	53	68	91	94	100	79	39	46	32
25	26	26	31	51	73	89	93	92	77	38	39	32
26	31	29	32	53	77	90	88	87	76	39	35	31
27	32	28	33	52	79	91	93	84	78	39	33	31
28	32	28	33	55	82	105	94	82	82	39	37	32
29	32	—	33	53	87	106	99	81	83	39	40	33
30	31	—	30	42	79	106	101	82	80	39	37	32
31	32	—	26	—	74	—	100	77	—	41	—	32
Mean	40.3	37.9	39.3	43.7	59.9	85.8	96.5	93.2	77.4	48.6	39.2	35.5
Ac-Ft	2480	2107	2418	2600	3686	5108	5933	5732	4608	2989	2332	2186

Total Runoff in Acre-Feet	Calendar Year	42179
	Water Year	42417

This flow is the diversion of Contra Costa Canal from Rock Slough. Records for 1954 computed by U. S. Bureau of Reclamation.

TABLE 171

FLOW OF STONY CREEK BELOW BLACK BUTTE DAM SITE - 1953

Date	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1930	550	229	588	776	366	412	375	200	224	164	37
2	1660	537	218	604	660	357	399	390	225	214	169	34
3	1440	554	208	594	594	342	396	373	250	186	176	32
4	1280	550	195	560	587	326	361	394	275	179	177	177
5	1180	550	192	569	579	318	343	408	319	192	180	125
6	1830	604	219	566	575	366	334	397	314	220	151	83
7	4890	599	259	538	566	475	337	394	262	234	86	138
8	4830	604	269	505	523	449	335	399	243	243	70	119
9	12200	584	275	481	472	430	374	396	245	244	66	98
10	11900	515	287	459	419	432	391	406	248	238	67	87
11	8280	481	279	434	379	424	409	414	323	235	37	76
12	7750	443	220	402	357	396	420	397	323	228	21	67
13	8560	427	210	409	342	367	424	386	283	204	22	59
14	6050	423	230	324	337	352	427	399	266	173	288	54
15	4390	408	238	306	340	377	420	406	262	112	201	48
16	3210	397	238	314	337	373	412	396	278	73	87	50
17	2750	383	248	364	337	393	391	386	275	58	62	48
18	5270	369	255	354	334	427	361	388	285	51	54	41
19	6400	359	414	350	353	445	350	393	282	43	39	46
20	5840	341	857	355	417	420	355	383	254	48	35	64
21	5560	318	876	370	450	385	358	361	225	71	34	76
22	4280	317	660	412	492	361	387	333	195	84	33	60
23	2860	286	649	463	461	372	401	319	221	90	139	54
24	2290	256	685	489	456	342	468	322	253	47	481	55
25	1880	231	729	479	446	328	413	328	269	30	206	51
26	1550	224	694	506	428	336	393	326	257	84	109	49
27	1240	214	651	1130	413	350	370	319	261	137	85	48
28	1120	218	638	1460	380	379	363	316	248	154	70	44
29	1020	—	626	1160	360	386	352	291	253	152	59	36
30	937	—	622	973	353	395	366	248	225	158	46	32
31	801	—	611	—	371	—	363	236	—	161	—	31
Mean	4038	419	419	551	448	382	383	364	261	147	114	65.1
Ac-Ft	248300	23290	25750	32760	27560	22750	23570	22370	15510	9058	6772	4005

Maximum Discharge	Calendar year 15400 c.f.s. January 9, 1953 of record 15400 c.f.s. January 9, 1953	Total Runoff in Acre-Feet	Calendar Year Water Year	461695

Division of Water Resources and U. S. Bureau of Reclamation cooperative station located below the proposed Black Butte Dam Site. The flows at this station are the sum of the flows as measured in Stony Creek below Orland South Diversion and in the Orland South Diversion Canal. Period of record 1953. Records for 1953 computed by Division of Water Resources.

TABLE 172

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
		General	Rice	Total			Ac. Ft. per Acre	Acres per Sec. Ft.	Sacto. R. at Red Bluff
							(a)	(a)	
	1945	106500	115100	221600	1676000	5766	7.4	65	77
Sacramento River	1946	117600	124100	241700	1778000	5560	7.2	67	93
	1947	121600	124000	245600	1707000	5600	6.8	71	59
Redding	1948	149700	124100	273800	1593000	5947	5.7	85	88
	1949	143500	137300	280800	1873000	6344	6.6	74	70
to	1950	152800	108500	261300	1794000	5944	6.7	72	66
	1951	162200	140800	303000	1975000	6653	6.4	76	105
Sacramento	1952	142900	139100	282000	1805000	5987	6.3	77	133
	1953	134900	164600	299500	2018000	6829	6.6	73	112
	1954	139800	184900	324700	2091000	7301	6.3	77	107
	Av. 1945 to 1954	137200	136200	273400	1831000	6193	6.6	74	91
									Sacto. R. at Red Bluff
							(b)	(b)	
	1945	200	3880	4080	48500	171	11.9	41	77
Colusa Trough	1946	3030	3690	6720	71200	256	10.6	46	93
	1947	1040	6570	7610	80500	281	10.6	46	59
above	1948	3250	4740	7990	67500	275	8.4	58	88
	1949	3140	5560	8700	90200	310	10.4	47	70
Highway 20 Bridge	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
	1953	3520	11010	14530	175000	618	12.0	40	112
	1954	2810	11790	14600	198800	706	13.6	36	107
	Av. 1945 to 1954	3110	6630	9740	113200	391	11.6	42	91
									Sacto. R. at Red Bluff
	1945	1580	5180	6760	38500	161	5.7	85	77
Back Borrow Pit	1946	2060	7880	9940	70900	256	7.1	68	93
	1947	2300	9040	11340	73900	254	6.5	75	59
Knights Landing Outfall Gates	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
to	1951	2860	6970	9830	73500	241	7.5	65	105
	1952	2700	5900	8600	73000	295	8.5	57	133
Highway 20 Bridge	1953	3070	6400	9470	79100	284	8.4	58	112
	1954	2470	5200	7670	71600	296	9.3	52	107
	Av. 1945 to 1954	2400	6860	9260	67400	248	7.3	67	91
									Sacto. R. at Red Bluff
	1945	1820	3820	5640	35800	141	6.3	77	77
Yolo By-Pass	1946	1790	3000	4790	30300	112	6.3	77	93
	1947	3220	2980	6200	27200	110	4.4	111	59
and	1948	1710	2260	3970	27800	93	7.0	69	88
	1949	1740	2150	3890	34600	83	8.9	55	70
Knights Landing Ridge Cut	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
	1953	2510	2240	4750	23500	80	4.9	98	112
	1954	3960	2850	6810	44900	192	6.6	74	107
	Av. 1945 to 1954	2580	2510	5090	30600	108	6.0	81	91
									Feather R. near Oroville
	1945	7820	2110	9930	39600	88	4.0	122	78
Lower Butte Creek	1946	8250	1850	10100	45600	123	4.5	108	87
	1947	4520	1120	5640	19800	58	3.5	138	53
and	1948	4650	660	5310	27600	106	5.2	93	81
	1949	7140	1880	9020	65200	205	7.2	67	54
Butte Slough	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
	1953	6940	2560	9500	49400	218	5.2	93	108
	1954	8170	3880	12050	63800	247	5.3	92	88
	Av. 1945 to 1954	7030	2020	9050	46700	162	5.2	94	91

(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 172

SUMMARY OF WATER UTILIZATION OF SACRAMENTO-SAN JOAQUIN VALLEYS (contd.)

	Year	Acreage			Diversion Acre-Feet	Irrigation Draft Average c.f.s. July	Gross Duty of Water		Runoff in % of Normal
		General	Rice	Total			Ac. Ft. per Acre	Acres per Sec. Ft.	Feather R. near Oroville
East and West Borrow Pits of Sutter By-Pass and Sacramento Slough	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
	1953	11080	7450	18530	109700	440	5.9	82	108
	1954	11420	7990	19410	125300	477	6.5	75	88
	Av. 1945 to 1954	9450	5550	15000	78200	293	5.2	93	91
									Feather R. near Oroville
Feather River Mouth to Oroville Bridge	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
	1953	29100	64100	93200	792000	2640	8.5	57	108
	1954	28900	64800	93700	757000	2612	8.1	60	88
	Av. 1945 to 1954	29400	52800	82200	708000	2369	8.6	56	91
									Yuba R. at Smartville
Yuba River Mouth to Smartville	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
	1953	9120	5300	14420	133100	362	9.2	53	104
	1954	8640	6080	14720	140600	448	9.6	51	78
	Av. 1945 to 1954	9080	3410	12490	112600	321	9.0	54	98
							(a)	(a)	American R. at Fair Oaks
American River Mouth to Fair Oaks	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
	1953	4570		4570	4860	23	1.6	297	93
	1954	4630		4630	7250	32	1.3	368	70
	Av. 1945 to 1954	3960		3960	5140	22	1.8	267	98
							(b)	(b)	Sacto. R. at Sacramento
Sacramento River System Sacramento River and Tributaries	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
	1953	204800	263700	468500	3385000	11494	7.2	67	107
	1954	210800	287500	498300	3500000	12311	7.0	69	93
	Av. 1945 to 1954	204200	216000	420200	2993000	10106	7.1	69	93

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

TABLE 172

SUMMARY OF WATER UTILIZATION OF SACRAMENTO-SAN JOAQUIN VALLEYS (contd.)

	Year	Acreage			Diversion Acre-Feet	Irrigation Draft Average c.f.s. July	Gross Duty of Water		Runoff in % of Normal
		General	Rice	Total			Ac. Ft. per Acre	Acres per Sec. Ft.	San Joaquin R. near Vernalis
Old San Joaquin River Delta Uplands (a)	1945	32140		32140	81600	289	2.5	191	107
	1946	34260		34260	94100	276	2.7	177	93
	1947	37860		37860	98600	313	2.6	187	56
	1948	40300		40300	98100	315	2.4	200	68
	1949	42190		42190	108300	332	2.6	189	62
	1950	40230		40230	116300	362	2.9	168	76
	1951	40110		40110	105200	344	2.6	185	118
	1952	39150		39150	94800	334	2.4	201	156
	1953	41260		41260	118800	355	2.9	169	70
	1954	40740		40740	131200	393	3.2	151	68
	Av. 1945 to 1954	38820		38820	104700	331	2.7	180	87
									San Joaquin R. near Vernalis
Tom Paine Slough Delta Uplands	1945	5160	220	5380	14400	47	2.7	182	107
	1946	5730	320	6050	19700	54	3.3	149	93
	1947	5280	550	5830	20000	61	3.4	142	56
	1948	5080	470	5550	20200	70	3.6	134	68
	1949	5210	380	5590	23300	70	4.2	117	62
	1950	5220	360	5580	20400	63	3.7	133	76
	1951	4750	410	5160	22600	71	4.4	111	118
	1952	5210		5210	18800	68	3.6	135	156
	1953	5390		5390	21300	65	4.0	123	70
	1954	5470		5470	22800	73	4.2	117	68
	Av. 1945 to 1954	5250	270	5520	20400	64	3.7	131	87
									San Joaquin R. near Vernalis
San Joaquin River Stockton to Vernalis Delta Uplands	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	84600	277	3.2	153	76
	1951	26610		26610	74900	242	2.8	173	118
	1952	24750		24750	58700	199	2.4	205	156
	1953	27270		27270	85800	295	3.1	154	70
	1954	27360		27360	87500	299	3.2	152	68
	Av. 1945 to 1954	25460		25460	76100	250	3.0	163	87
									San Joaquin R. near Vernalis
San Joaquin River Vernalis to Fremont Ford	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
	1953	51640	1500	53140	205900	673	3.9	125	70
	1954	49990	2480	52470	200900	618	3.8	127	68
	Av. 1945 to 1954	46580	1050	47630	168600	550	3.5	137	87
									Merced R. at Exchequer
Merced River Mouth to below Snelling (b)	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
	1953	7430		7430	29700	103	4.0	122	59
	1954	8390		8390	29300	113	3.5	139	63
	Av. 1945 to 1954	6850		6850	21400	79	3.1	156	83

(a) Excluding diversions and acreage irrigated by Delta-Mendota and Contra Costa Canals.
(b) Excluding diversion and acreage of Merced Irrigation District.

TABLE 172

SUMMARY OF WATER UTILIZATION OF SACRAMENTO-SAN JOAQUIN VALLEYS (contd.)

	Year	Acreage			Diversion Acre-Feet	Irrigation Draft Average c.f.s. July	Gross Duty of Water		Runoff in % of Normal
		General	Rice	Total			Ac. Ft. per Acre	Acres per Sec. Ft.	Tuolumne R. near La Grange
Tuolumne River	1945	3260		3260	3560	12	1.1	445	106
	1946	3560		3560	4920	15	1.4	352	96
Mouth	1947	3760		3760	7470	20	2.0	245	56
	1948	3740		3740	6230	21	1.7	292	72
to	1949	4410		4410	6440	18	1.5	333	63
	1950	4690		4690	6100	18	1.3	374	79
La Grange Dam	1951	4500		4500	4620	14	1.0	473	127
	1952	4790		4790	5080	18	1.1	458	156
(a)	1953	5280	120	5400	11350	34	2.1	231	78
	1954	5760	140	5900	14610	50	2.5	196	73
	Av. 1945 to 1954	4370	30	4400	7040	22	1.6	304	91
									Stanislaus R. below Melones
Stanislaus River	1945	6870		6870	21700	72	3.2	154	102
	1946	6340		6340	26800	82	4.2	115	94
Mouth	1947	6600		6600	30100	88	4.6	107	52
	1948	7920		7920	29700	99	3.8	130	72
to	1949	8550		8550	34000	106	4.0	122	60
	1950	8440		8440	33400	102	4.0	123	86
Goodwin Dam	1951	8340		8340	34700	99	4.2	117	136
	1952	7770		7770	30200	91	3.9	125	154
(b)	1953	8900		8900	42500	136	4.8	102	77
	1954	9290		9290	44100	129	4.7	102	71
	Av. 1945 to 1954	7900		7900	32700	100	4.1	117	90
									San Joaquin R. near Vernalis
San Joaquin River System	1945	113400	1100	114500	327000	1178	2.9	170	107
	1946	122000	1700	123700	397000	1256	3.2	151	93
San Joaquin River	1947	127600	1900	129500	443000	1358	3.4	142	56
	1948	135500	1000	136500	383000	1282	2.8	173	68
Stockton-Fremont Ford	1949	141000	1000	142000	443000	1412	3.1	156	62
	1950	141200	800	142000	460000	1437	3.2	150	76
and Tributaries	1951	141100	1200	142300	437000	1419	3.1	158	118
	1952	136500	600	137100	373000	1282	2.7	179	156
	1953	147200	1600	148800	515000	1661	3.5	140	70
	1954	147000	2600	149600	530000	1675	3.5	137	68
	Av. 1945 to 1954	135200	1400	136600	431000	1396	3.2	154	87
							(c)	(c)	Sacramento and San Joaquin Rivers to Delta
Combined above Delta	1945	272900	187200	460100	3006000	10263	6.5	75	87
	1946	303100	200200	503300	3300000	10438	6.5	75	93
	1947	309400	202100	511500	3180000	10387	6.2	79	55
Sacramento River and Tributaries	1948	347000	188900	535900	2879000	10710	5.3	91	80
	1949	349800	217500	567300	3481000	11417	6.1	80	63
and	1950	370700	172200	542900	3389000	11126	6.2	78	77
San Joaquin River	1951	377600	226700	604300	3656000	12135	6.0	81	125
Stockton-Fremont Ford	1952	354400	223300	577700	3419000	11405	5.9	82	154
and Tributaries	1953	352000	265300	617300	3900000	13155	6.3	77	97
	1954	357800	290100	647900	4030000	13986	6.2	78	86
	Av. 1945 to 1954	339400	217400	556800	3424000	11502	6.1	79	92

(a) Excluding diversion and acreage of Modesto, Turlock, and Waterford Irrigation Districts.
(b) Excluding diversion and acreage of South San Joaquin and Oakdale Irrigation Districts.
(c) Excluding municipal and Carmichael Irrigation District diversions and acreage of Carmichael Irrigation District.

TABLE 173

DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER - 1954

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												
--GAGING STATION - SACRAMENTO RIVER AT SACRAMENTO--	0.43L												
City of Sacramento	0.8L	3-18" 2-20" 2-24"	2199	2783	3766	4615	5426	4605	4117	3372	(a)30883	Municipal	
--AMERICAN RIVER--	1.1L												
--BACK BORROW PIT RECLAMATION DISTRICT 1000--	1.3L												
E. Fourness	1.45R	1-8"		14	48	166	195	129	15		567	152	
--RECLAMATION DISTRICT 1000 DRAIN--	2.1L												
Elmer F. Christophel	2.15L	1-8"		1	22	42	40	15	15		135	35	
D. D. Parr	3.15L	1-6"				20	46	1			67	26	
Rose Orchard	3.55R	1-16"			74	290	233	69			666	170	
Evergreen Farms	3.75R	1-6"				NO DIVERSION							
M. Owyang	4.0R	1-10"				23	41	10			74	71	
--SACRAMENTO WEIR--	4.2												
Reese and Greer	4.65R	1-7"				50	34	20			104	38	
George W. Reed	5.05R	(b)1-12"			1	75	97	37			210	90	
Mary S. Seydel Estate	5.25R	1-8"			42	100	38				180	37	
A. R. Merkley	5.3R	1-6"				36	25				61	55	
Lucy Casselman	5.5R	1-6"			9	20	12				41	30	
A. A. Casselman	5.55R	(c)1-8"			2	27	30	1			60	40	
J. E. Bandy	6.0R	1-6"				NO DIVERSION							
Riverside Mutual Water Company	6.1L	2-18"			506	1250	1034	1619	1134	117	5660	1552	110
W. W. White	6.6R	1-6"				NO DIVERSION							
--RECLAMATION DISTRICT 1000 DRAIN #3--	6.85L												
Fred C. Jones	7.5L	1-8"				20	48	28	11		107	100	
A. Marty and C. Inderkum	7.7R	1-8"				94	88	101	28		311	159	
M. R. Williamson	7.8L	1-10"				47	58		11		116	86	
E. D. Willey	7.9L	1-10"				47	57	54			158	135	
A. Marty and C. Inderkum	8.25R	1-8"				1	37	35	55		128	(d)215	
A. Marty and C. Inderkum	8.3R	1-8"				58	90	17	9		174	(d)	
Pearl Blauth	8.5R	1-7"			5	35	22	10			72	20	
H. Waldeck	8.7R	1-6"				29	33	6	6		74	30	
Fong Shee Farm (e)	9.3L	1-10"			30	216	236	165	51		698	222	
Henry Amen and E. C. Peabody	9.35R	1-14"		10	57	366	358	50	151		992	415	
Fred C. Jones	9.8L	1-8"			12	22	43	54	26	10	167	30	
Carl Casselman	9.9R	1-12"				70	33	135			238	33	
Lloyd M. Robbins	10.25L	1-14"			41	82	130	84	50	36	423	232	
Leona Hughes	10.65R	1-12"				100	139	107	36		382	195	
Edward Russell	10.75L	1-12"			98	102	80	60			340	120	
W. A. Ten Eyck	11.1R	1-12"			61	399	288	283	178	79	1288	310	
--ELKHORN FERRY--	11.9												
Woodland Farms, Incorporated	12.0R	4-36"		403	11665	14171	14473	11794	4234		(f)56740	(g)3306	(g,h)8333
Thomas O'Connor Estate	12.5R	1-12"				41	93				134	140	
William Plumb, Jr.	12.7R	1-6"				58	17				75	66	
Lewis Thornton	12.95L	1-5"				2		2			4	4	
S. C. Farms, Incorporated	13.1R	1-12"		28	52	334	380	254	60	71	(i)1179	(j)235	
S. C. Farms, Incorporated	13.25R	1-12"		73	92	140	179	143	72	159	(k)858	(j)	
Elkhorn Mutual Water Company	14.1L	1-24" 1-30"		114	1160	2379	2706	2305	1502	393	10559	(m,n)2502	(m,n)408
Joseph Veress	14.25R	1-14"				58	88	65	14		225	150	

(a) Additional acre-feet diverted: January 2132, February 1883, November 2217, and December 2132.
(b) Replaces a 14" unit.
(c) Replaces a 6" unit.
(d) Combined acreage for Miles 8.25R and 8.3R.
(e) Formerly listed as Fong Yen, et al., and Fong Shee.
(f) Additional acre-feet diverted: January 610, November 1929, and December 1926.
(g) This acreage also received 2414 acre-feet of water from Willow Slough, 12100 acre-feet of water from controlled drainage, and an undetermined amount of water from Cache Creek.
(h) Includes 1655 acres outside of Woodland Farms and 1120 acres reused for duck club lands.
(i) Additional acre-feet diverted: January 2 and November 5.
(j) Combined acreage for Miles 13.1R and 13.25R. This acreage was double cropped.
(k) Additional acre-feet diverted: November 4.
(m) Of this acreage 156 acres of rice and 210 acres of general crops listed for Mile 14.1L were wholly irrigated by 3012 acre-feet of water from Mile 16.0L.
(n) Of this acreage 252 acres of rice and 107 acres of general crops listed for Mile 14.1L were partially irrigated by 1376 acre-feet of water from Mile 16.0L.

TABLE 173

DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER - 1954 (contd.)

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
William H. Mitchel (a)	15.1R	(b)1-16"		91	485	677	640	564	575		3032	55	185
A. Bianchi	15.1L	1-4"				NO	DIVERSION						
Natomas Central Mutual Water Company	16.0L	1-24" 2-32" 2-38"		1508	10255	8054	10251	9525	7139	859	(c,d)47591	(e)1517	(f)5681
Hershey Estate	16.27R	1-20"		380	418	511	599	552	223		2683		(g)390
Sacramento River Ranch	16.62R	1-14"				119	169	137			425	(h)180	
Sacramento River Ranch	17.0R	1-14"							11		11	(h)	
Frank and Ruth Lang	17.4R	1-16"				136		132			268	95	
Jose Alves and Sons (i)	17.75R	1-16"				507	776	773	456		2512		(j)
Jose Alves and Sons	18.0R	1-20"			678	1101	1067	1297	1145	242	(k)5530		(j)790
H. C. Lauppe	18.2L	2-10"			29	76	113	46	11		275	160	
Burton H. Lauppe (m)	18.45L	(n)1-14"				102	68	58	4		232	150	
Layton Knaggs	18.7R	1-24"		408	1613	1679	2047	2168	946		8861		535
J. L. Brannely	18.7L	(p)1-12"		135	114	41	211	118	99		718		100
SACRAMENTO TO VERONA Totals Average cubic feet per second Monthly use in per cent of seasonal			2199 36 1.2	5948 100 3.2	31335 510 16.8	38588 649 20.7	42868 697 23.0	37628 612 20.2	22384 376 12.0	5338 87 2.9	186288 383	13158	16532
--GAGING STATION - SACRAMENTO RIVER AT VERONA--	19.6L												
--CROSS CANAL RECLAMATION DISTRICTS 1000 AND 1001--	19.6L												
Arthur Drown	*(0.05S)	1-20"				71	69	58	48	9	255	177	
Natomas Central Mutual Water Company	*(1.0S)	1-28" (q)1-36"		431	3574	2846	3119	2742	1698	38	14448	205	1399
Natomas Central Mutual Water Company	*(2.0S)	1-20" 2-24"		2317	4513	4173	5200	5276	3248	33	24760	(r)538	(r)4261
B. J. Ukropina	*(3.3N)	(s)2-24"			1279	1665	1763	2076	2109		8892	480	1007
B. J. Ukropina	*(3.35N)	1-16"			762	1002	951	1050	979	121	4865	(t)667	(t)600
Roy C. Osterli	*(3.35N)	1-14"			417	287	467	479	328	28	2006	(t)	(t)
--FEATHER RIVER--	20.9L												
--SACRAMENTO SLOUGH--	21.2L												
Sacramento River Ranch (u)	21.5R	1-16"							825	139	(v) 964		
Sacramento River Ranch (w)	21.7R	1-15"			91	656	492	628	34	19	1920	175	(v)130
Sacramento River Ranch	22.5R	(x)1-24"			1190	646	1223	719	236	4	4018	(y)70	(y)880
A. F. Johnston	26.8L	1-16"				NO	DIVERSION						
Anthony Furlan	26.8L	1-16"					34	6			40	120	
--FREMONT WEIR GAGING STATION--	28.0												
Gus Inglin	28.2R	1-6"				18	32	32	12		94	31	
Anthony Furlan	28.2L	1-12"				8	33				41	75	
Ralph White	28.6L	1-8"					87	48			135	48	
Hershey Estate	29.0R	1-12" 2-16"				NO	DIVERSION						
Russell Brothers	29.2R	1-12"				34	142	61			237	160	
Sebastian Yturralde	29.9L	1-12"				146		85			231	105	
M. R. Richardson	30.1R	1-8"				NO	DIVERSION						
Leo Giovanetti	30.2L	(z)1-6"				14	3	14			31	36	
Anthony Furlan	30.5L	1-14"			223	46	60				329	80	(aa)100

* Mile 19.6L, Cross Canal. Distance from Sacramento River and bank are shown in ().

(a) Formerly listed as D. J. Damron.
(b) Replaces a 10" unit.
(c) 156 acres of rice and 210 acres of general crops listed for Mile 14.1L were wholly irrigated by 3012 acre-feet of water from Mile 16.0L.
(d) 252 acres of rice and 107 acres of general crops listed for Mile 14.1L were partially irrigated by 1376 acre-feet of water from Mile 16.0L.
(e) Does not include 250 acres wholly irrigated from controlled drainage.
(f) Includes 2493 acres of rice partially irrigated from controlled drainage. Does not include 1182 acres wholly irrigated from controlled drainage.
(g) This acreage also received 2506 acre-feet of water from controlled drainage.
(h) 70 acres listed for Mile 16.62R also received 11 acre-feet of water from Mile 17.0R.
(i) Formerly listed as California Western States Life Insurance Company.
(j) Combined acreage for Miles 17.75R and 18.0R.
(k) Additional acre-feet diverted: December 26.
(m) Formerly listed as M. and J. Scheiber.
(n) Replaces a 12" unit.
(p) Replaces an 8" unit.
(q) The 36" unit was installed in 1954.
(r) Includes 543 acres of rice and 210 acres of general crops which also received an undetermined amount of water from controlled drainage.
(s) One 24" unit was installed in 1954.
(t) Combined acreage for Ukropina and Osterli plants at Mile *(3.35N).
(u) New installation in 1954.
(v) The rice acreage listed for Mile 21.7R also received 964 acre-feet of water from Mile 21.5R.
(w) Formerly listed as Lumber Carrier Company.
(x) Previously listed as a 22" unit.
(y) The acreage listed for Mile 22.5R also received 5791 acre-feet of water from Knights landing Ridge Cut, Mile 6.3L.
(z) Replaces a 5" unit.
(aa) This acreage also received an undetermined amount of water from controlled drainage.

TABLE 173

DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER - 1954 (contd.)

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. R. Richardson	30.7R	1-10"			24	307	10	99	27		467	75	
Albert Nusz	30.75R	1-6"					14	6			20	7	
Alice E. West	30.9L	1-6"				NO	DIVERSION						
A. C. Huston, Jr. and Mrs. E. Huston	31.5R	1-12"					82	61	52		195	150	
M. R. Richardson	31.75R	1-14" 1-20"			405	509	510	612	508	53	2597		(a)215
M. Alonso	31.8L	1-6"					7	4			11	30	
Sutter Mutual Water Company (Portuguese)	32.0L	1-20" 2-24"			3428	3232	3468	2552	1983	102	14765	1364	730
Collier Brothers	32.5R	1-10"				57	11	58	11	8	(b)145	75	
J. F. Waters and E. Furlan	32.5L	1-12"			51	23	72	21			167	67	
W. H. Zeigler and H. Carlson	33.2L	2-10" (c)1-12"			734	754	486	975	751	66	3766	345	260
J. G. Knox	33.35L	1-10" 1-12"				19	42	95			156	170	
Clarence Du Bois	33.5R	1-12"				NO	DIVERSION						
P. K., G. J., and W. N. Leiser and L. J. Mansager	33.75L	1-14"			458	517	491	480	345		2291	112	258
Neil Wilson	33.85R	1-6"						11		23	34	32	
--SOUTHERN PACIFIC RAILROAD BRIDGE--	33.95												
VERONA TO KNIGHTS LANDING Totals Average cubic feet per second Monthly use in per cent of seasonal			0 0 0	2748 46 3.1	17149 279 19.5	17030 286 19.4	18868 307 21.5	18248 297 20.8	13194 222 15.0	643 10 0.7	87880 181	5394	9840
--GAGING STATION - SACRAMENTO RIVER AT KNIGHTS LANDING--	34.0L												
--KNIGHTS LANDING BRIDGE--	34.1												
--COLUSA BASIN DRAIN--	34.15R												
River Farms Company	34.5R	1-16" 1-20" 1-24"		1828	4867	4149	4298	4272	1614	211	(d)21239	172	(e)2242
Wallace Ernst and A. Johnson	34.85L	1-8" 1-12"			101		75	35			211	100	
Walter Raymond	35.2L	1-12"				38	59	37	32		166	110	
Knox and Anderson	35.8L	1-10"				NO	DIVERSION						
J. Goffitzer	35.85L	1-6"				25	7	5			37	16	
Frank Rossi	36.2L	1-12" 1-14"			237	427	400	371	304		(f)1739	210	100
Earl H. Gray	36.45L	1-8"				NO	DIVERSION						
--RECLAMATION DISTRICT 787 DRAINAGE PLANT--	37.0R												
Albert Nuttall	37.2L	1-14"				NO	DIVERSION						
Maybelle J. Bundock	37.75L	1-8"					44	16			60	93	
Alice Reel and Mabel Green	38.4L	1-10"				25	48	8			81	96	
C. L. Reel	38.8L	1-10"				NO	DIVERSION						
Ivan Shuey	39.4L	1-12"				NO	DIVERSION						
C. L. Reel	39.8L	1-10"				NO	DIVERSION						
William Duffy, Jr.	39.9L	1-5" 1-6"				13		5			18	25	
Sutter Mutual Water Company (State Ranch Bend)	40.6L	2-24" 1-36"		362	4798	4443	5424	5292	3009	38	23366	3247	1771
River Farms Company	41.0R	1-14" 1-16"			1681	1550	1620	1631	1022		7504		397
Buell Ranch (g)	41.0L	1-6"				6					6	23	
Buell Ranch (B. E. Dean)	42.2L	1-6"					13	6			19	18	
Mrs. N. Lorenzetti	42.3L	1-8"				NO	DIVERSION						
El Dorado Ranch	42.3R	(h)1-10" 1-14" 1-16"				100	148	63			311	300	
Kramer Ranch	43.1L	1-12"			16	105	56	6			183	110	

(a) This acreage also received 643 acre-feet of water from Knights Landing Ridge Cut, Mile 0.82L.
(b) Additional acre-feet diverted: November 3.
(c) The 12" unit replaced an 8" unit in 1954.
(d) 351 acres of rice of River Farms Company, listed for Mile 43.1R, also received an undetermined amount of water from Mile 34.5R.
(e) Includes 554 acres which also received 4052 acre-feet of water from plant on Back Borrow Pit, Mile 0.3L, and 353 acres which also received 2687 acre-feet of water from controlled drainage.
(f) Includes an undetermined amount of water returned to the river by spill.
(g) New installation in 1954.
(h) The 10" unit was installed in 1954.

TABLE 173

DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER - 1954 (contd.)

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
ElDorado Ranch	43.1R	(a)1-12"				294	137				431	307	
Reclamation District #2047	43.1R	3-50"		1619	13392	12168	13960	13062	6218		(b)60419	(c)586	(c,d)5941
Bill Erdman	43.4R	1-10"				35	61		63		159	125	
--RECLAMATION DISTRICT #108 DRAINAGE PLANT--	44.0R												
John Clauss	44.2L	1-18"			870	969	1014	1062	1052	174	5141	30	(e)350
John Clauss (Fuchlin)	45.6L	1-14"				NO DIVERSION							
John Clauss	46.45L	1-16"			265	141	388	220	67	5	(e)1086	347	
George J., Jr. and J. H. Henle	46.5L	1-14" 1-20"		120	307	151	330	215	47		(f)1170	223	
P. J. Hiatt	48.7L	(g)2-22"			1537	1152	1399	1147	1050		6285	372	340
G. J. Hiatt	49.7L	1-14"			412	362	444	378	151		1747	(h)180	70
Reclamation District #108	51.1R	2-24" 1-36"		4927	7384	6682	7097	5919	2153		34162	1427	2469
Holmes and Westover Company	51.2L	2-16"		215	1677	1248	1651	1346	828	159	7124	460	327
Fritz Erdman	51.9R	1-12"			13	59	119				191	100	
Thomas Nelson	52 0L	1-16"				57	262	79	14		412	282	
George Van Ruiten	52.9L	1-10"				NO DIVERSION							
River Farms Company	53.8R	1-12" 1-15"			65	750	661	573	476	218	(i)2743	505	
George Van Ruiten	53.9L	1-12"				78	297	337	9		721	285	
Broomieside Farm	55.1L	1-20"				218	190	271			679	306	
Broomieside Farm	56.3L	1-16"			75		89				164	100	
Reclamation District #108	56.4R	1-12" 1-18" 2-22"			782	823	1635	692	458	6	4396	(j)1676	
C. M. Miller	56.42R	1-6"				PLANT REMOVED							
Jacob Miller	56.65R	1-12"				NO DIVERSION							
Broomieside Farms (S. C. Crawford)	56.95L	1-20"			100	324	106	141			671	335	
L. M. Miller	57.0R	1-10"									(j)	(j)	
Lamb Brothers	57.5L	1-16"				NO DIVERSION							
J. A. Neilson Estate	58.2L	1-15"			2	175	93	106	7		383	252	
Alex Grant	58.9L	1-16"					164	71	20		255	140	
I. G. Zumwalt	59.1R	1-12"			50	200	113	17			380	295	
Lamb Brothers	59.8L	1-14"				86	251	36			373	325	
W. A. Larner	60.4L	1-14" 1-16"			1203	1204	1247	1377	961	1	5993	444	624
L. A. Butler (k)	60.5L	1-12"			58	130	109	95			392	227	
Richard Moore	61.5R	1-12"						45	27	7	79	50	
L. A. Butler (k)	61.8L	1-12"			81	1	106				188	100	
Wayne Hine	62.3R	1-10"			2	32	105	65	23	16	243	(m)120	
John Mack	62.3L	1-14"			99	178	267	74			618	280	
Jake Locovich Estate	62.6R	1-8"				16	36	4			56	50	
KNIGHTS LANDING TO WILKINS SLOUGH Totals Average cubic feet per second Monthly use in per cent of seasonal			0 0 0	9071 152 4.7	40074 652 20.9	38414 646 20.1	44523 724 23.3	39079 636 20.4	19605 329 10.2	835 14 0.4	191601 394	14449	14631
--GAGING STATION - SACRAMENTO RIVER AT WILKINS SLOUGH--	62.9R												
Reclamation District #108 (Wilkins Slough)	63.2R	5-42"		10755	29612	27395	29072	26824	10357		134015	(n)1017	(n)13938

(a) Replaces an 18" unit.
(b) Includes 1613 acre-feet delivered to River Farms Company.
(c) Includes acreage as follows: Reclamation District 108 - rice 5590 and general 305, River Farms Company - rice 351 and general 281.
(d) 351 acres of rice of River Farms Company listed for Mile 34.1R also received an undetermined amount of water from Mile 34.5R.
(e) The rice acreage listed for Mile 44.2L also received an undetermined amount of water for flooding from Mile 46.45L.
(f) Includes 166 acre-feet of water spilled into a lake.
(g) Previously listed as 2-20" units.
(h) Includes 160 acres which also received an undetermined amount of water from controlled drainage.
(i) Additional acre-feet diverted: November 25.
(j) 20 acres listed under Mile 56.4R received 15 acre-feet of water in January from Mile 57.0R.
(k) Formerly listed as Dr. A. G. Richter.
(m) Includes 80 acres of Zumwalt lands.
(n) This acreage also received water from controlled drainage and the plant on Back Borrow Pit, Mile 19.9L.

TABLE 173

DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER - 1954 (contd.)

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"			12	79	100	85	3	8	(a)287	134	
Meister Ranch	63.65L	(c)1-8"			19	21	30				70	60	
Sutter Mutual Water Company	63.75L	5-42" 2-48"		5874	53174	44854	47827	45984	26824	3124	(c)227661	15887	18520
Robert E. Seaman	63.9L	2-14"			477	597	688	509	275		2546	407	160
--TISDALE WEIR--	64.2L												
Ornbaum Livestock Company	64.3R	1-12"				45	88	61	28		(d)222	120	
Lamb Brothers	64.35L	1-14"				NO DIVERSION							
Tisdale Irrigation and Drainage Company	64.4L	1-8" 1-12"			226	434	442	352	99		1553	474	
Van Horn Ranch	64.9R	1-14"				148	137	30			315	200	
Juan Velasquez (e)	65.1R	1-4"					22	22	10		54	34	
Fred Schohr	65.6R	1-16"				NO	DIVERSION						
Walter Ettl	65.7L	1-8"			15	178	172	103			468	136	
J. L. Browning	66.4R	1-18"				401	646	292	2		1341	701	
Tisdale Irrigation and Drainage Company	67.1L	1-16" 1-22"		193	672	1029	1111	932	603		4540	(f)1292	145
Newhall Land and Farming Company	67.5L	1-12" 2-24"		724	3055	3161	3281	3293	2126	19	15659	1789	937
--RECLAMATION DISTRICT #70 DRAIN PLANT--	68.8L												
Meridian Farms Water Company #5	68.8L	1-24"		416	1274	1251	1395	739			5075	(g)532	(g)95
J. L. Browning	69.0R	1-14" 1-22"					13	5			18	7	
Faxon, Morton and P. Andreotti	69.2R	(h) 2-16"		494	906	1150	1221	973	165		4909	349	601
--EDDY'S FERRY SITE (GRIMES)--	69.45												
J. E. Hollenbeck	69.8R	1-4"				NO	DIVERSION						
H. F. Daly	70.4L	1-10"			32	49	40	65	22	5	213	(i)88	
Hoffman, Beckley, Ritchie, Poundstone and Andreotti	70.4R	1-16" 1-20"		1045	997	920	944	929	55		4890	37	525
Meridian Farms Water Company #4	71.1L	1-24"		217	596	1024	947	1697	606		5087	1125	(j)245
A. B. Armstrong	71.9R	1-14"			67	28	99	99	44		(k)337	(m)360	
H. and A. Andreotti	72.1L	2-14"			230	305	371	50			956	400	
C. T. Froh	73.6R	1-10"			38	48	36	4	25		151	103	
Meridian Farms Water Company #3	74.8L	1-18"		700	1227	1177	1273	1276	687		6340	326	337
L. B. Westfall	75.3R	1-10"				77	57	93			227	85	
J. H. Yates Estate	76.1L	1-10"			37	90	93	73	41		334	(n)225	
Robert Chesney	76.15L	1-10"				NO	DIVERSION						
M. S. Davis and C. K. Anderson	76.2L	1-8"					33				33	(p)68	
Steidlmayer Brothers	76.5R	1-16"				NO	DIVERSION						
Olive Percy Davis, et al.	77.8R	1-16"				90	82		89		261	207	
J. J. Hankins	77.9L	1-16"			27	116	92	179			414	229	
Olive Percy Davis, et al.	78.75R	2-12" 1-16"		45	1407	382	225	37	58		(q)2154	199	
Olive Percy Davis, et al.	78.8R	1-24"			2366	1892	2596	2529	839		10222		(q)1600
Steidlmayer Brothers	78.9R	1-12"								62	62	140	
C. E. Reische	79.0L	1-10"			33	53	76	35			197	(r)163	
Richard Wilbur	79.3R	1-10"			11	35	51	9			106	(s)78	
J. J. Hankins	79.5L	1-8"			9	79	19	13			120	(t)38	
A. M. Wood	79.7L	1-10"			10	22	57	8			(t)97	(u)96	
--GAGING STATION - SACRAMENTO RIVER AT MERIDIAN--	79.85												

(a) Additional acre-feet diverted: November 7.
(b) A 5" unit was removed in 1954.
(c) Additional acre-feet diverted: November 815.
(d) Additional acre-feet diverted: November 4.
(e) Formerly listed as Juan Valsyves.
(f) Includes 220 acres of F. Winship lands outside of district.
(g) This acreage also received 767 acre-feet of water from controlled drainage.
(h) A 10" unit was removed in 1954.
(i) Includes 41 acres of Rohleter lands.
(j) Includes 201 acres which also received an undetermined amount of water from controlled drainage.
(k) Additional acre-feet diverted: November 163.
(m) Includes 100 acres of Steidlmayer lands.
(n) Includes 70 acres of Robert Chesney lands and 20 acres of Coffman lands.
(p) Includes 18 acres of Albertson lands.
(q) The acreage listed for Mile 78.8R also received an undetermined amount of water from Mile 78.75R.
(r) Includes 29 acres of Goodnow and Thomas lands, 19 acres of Lemos lands, and 29 acres of Staas lands.
(s) Includes 30 acres of Oil Terminals Company lands.
(t) The acreage listed for Mile 79.5L also received an undetermined amount of water from Mile 79.7L.
(u) Includes 54 acres of S. Burtis lands.

TABLE 173

DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER - 1954 (contd.)

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
Meridian Farms Water Company #1 and #2	80.0L	1-10" 1-20" 1-24"		2005	3800	4409	4355	4429	1970		20968	(a,b)3279	(a)1409
Roger Wilbur (c)	80.3R	1-8"			26	148	77				251	65	
Wayne Hall and E. J. Burrows	81.5L	1-16"			94	374		112			(d)580	65	
Wayne Hall	81.8L	1-16"			752	874	915	918	772	14	4245	245	(d,e)245
F. T. Reische and L. F. Wood	82.5L	1-12"				67	127	69			263	(f)127	
Steidlmayer Brothers	83.0R	1-20"	234	73	46	323	345	274	54		(g)1349	780	
J. E. Clark	83.3L	1-14"				24	12	43			79	60	
J. E. Clark	83.5L	1-10"				NO DIVERSION							
--BUTTE SLOUGH OUTFALL GATES--	84.0L												
Reclamation District #1004	85.3L	1-8"			63	19	27	15			(h)124	45	
Steidlmayer Brothers	85.6R	1-12"				63	41				104	130	
Clifford Reichel	85.8L	1-10"			2	205	307	258	280		1052	83	96
Lydell Peck	86.1L	1-8"				36	34			43	113	70	
W. H. Halsey	86.1R	1-12"		5	217	233	197	162	139	44	(i)997	293	
Howell Davis	86.2R	1-18"			144	36	178	135	65		558	153	
Mitchel Lobrovich and John Brayovich	86.8L	1-8"			25	18	38				81	45	
Roger Wilbur	86.9R	1-10"		44	268	264	194	166	142		(j)1078	136	(e)50
Roger Wilbur	87.4R	1-10"			43	47	43	6	22		161	55	
W. H. Halsey (k)	87.45L	1-6"				1	23				24	23	
Mrs. D. Locovitch	87.6L	1-8"				9	12				21	12	
Swinford Tract Irrigation Company	87.7R	1-12"			64	240	115				419	96	
Frank Azevedo	88.0R	1-6"				19	1				20	25	
Nagel and Locovitch	88.2L	1-10"				48	30			1	79	44	
Mayfair Packing Company (m)	88.7L	1-14"				91	47			62	200	117	
Colusa Irrigation Company	89.2R	1-20"			73	327	256	33			689	291	
Grace S. Arnold	89.24L	1-8"				79	62				141	81	
Reclamation District #1004	89.25L	1-12" 1-18"			929	913	996	983	398		(n)4219	(p,q)1125	(p,q)1190
W. H. Halsey and M. Yerxa	89.26L	1-12"			283	189	166	70			(p)708	116	
WILKINS SLOUGH TO COLUSA Totals Average cubic feet per second Monthly use in per cent of seasonal			234 4 0.1	22590 380 4.8	103358 1681 22.0	96186 1617 20.5	101934 1658 21.7	94973 1545 20.2	46800 787 10.0	3382 55 0.7	469457 966	34667	40093
--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"		95	554	982	860	529	510	288	3818	1214	
I. G. Zumwalt	91.0R	1-6"				NO DIVERSION							
Paul R. Westfall	91.1L	1-8"					20	11			31	26	
I. G. Zumwalt	91.6R	1-12"				93	36				129	175	
--COLUSA WEIR--	92.4L												
George P. Ahlf	92.5L	1-6" 1-10"				NO DIVERSION							
W. H. Halsey (r)	93.0R	1-8"				40	12				52	35	
Paul R. Westfall	93.6L	1-10"					52	54	1		107	59	
Tuttle Land Company	94.3R	(s)2-20"			63	216	249	32			560	(t)290	
Roger Wilbur	95.25L	1-12" 1-18"			663	801	823	906	481	13	(u)3687	150	(e)300

(a) Includes 1020 acres of general crops and 269 acres of rice which also received 3564 acre-feet of water from controlled drainage.
(b) Includes 596 acres which also received an undetermined amount of water from controlled drainage.
(c) Formerly listed as Richard Wilbur.
(d) 145 acres of rice listed for Mile 81.8L also received an undetermined amount of water from Mile 81.5L.
(e) This acreage also received an undetermined amount of water from controlled drainage.
(f) Includes 50 acres of W. Hall lands.
(g) Additional acre-feet diverted: February 195.
(h) Includes an undetermined amount of water furnished to 130 acres of rice listed for Mile 89.25L.
(i) Additional acre-feet diverted: November 16.
(j) Additional acre-feet diverted: November 9.
(k) Formerly listed as C. E. Francis.
(m) Formerly listed as Mrs. W. D. DeJarnatt.
(n) Additional acre-feet diverted: November 390.
(p) Acreage listed for Mile 89.25L also received an undetermined amount of water from Mile 89.26L.
(q) Includes 400 acres of rice reused for duck ponds. Includes 170 acres of general crops and 200 acres of rice which also received an undetermined amount of water from Mile 4.3R on Butte Creek. Includes 400 acres of general crops and 500 acres of rice which also received an undetermined amount of water from Mile 4.3R on Butte Creek and controlled drainage. Includes 130 acres of rice which also received an undetermined amount of water from Mile 85.3L, Mile 4.3R on Butte Creek and controlled drainage.
(r) Formerly listed as W. H. Halsey and M. Yerxa.
(s) One 20" unit was a temporary installation during 1954.
(t) Includes 10 acres of Halsey lands and 35 acres of Mayfair lands.
(u) Additional acre-feet diverted: November 23.

TABLE 173

DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER - 1954 (contd.)

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
Azro N. Lewis(a)	95.6L	1-12" 1-20"			11	1122	1001	993	371		3498	200	(b)525
J. G. Griffin	95.75L	1-15"			572	668	624	504	344		2712	265	200
J. G. Griffin	95.8L	1-18"				NO DIVERSION							
W. G. Graham	95.85L	1-18"			722	683	807	852	311	21	3396	40	(c)550
I. G. Zumwalt	96.8R	1-15"			82	146	179			52	459	340	
H. Heitman	97.7R	1-12"			42	93	120	89	89	67	(d)500	79	
Frank N. Beckley	98.0L	1-10"				9	23	33			(e)65	75	
J. L. Erisey	98.3R	1-10"				9	70	100			179	130	
Otterson and Boggs	98.6L	1-15"			390	259	98	186			(c)933	52	
D. Boggs	98.8L	1-18"				27	20		11	3	61	80	
Elizabeth Reimer	99.0R	1-14"			31	169	208	105			513	300	
J. E. Boggs	99.1L	1-10"			8	93	46	36			183	147	
Hollis Sartain	99.2L	1-20"			849	902	1112	1140	974		4977	20	630
L. W. Seaver	99.3R	1-10" 1-12"			164	215	167	122	77	30	775	(f)208	
Dave George	99.8L	(g)1-4" 1-16"					235	108			343	145	
St. Patrick Home Ranch	101.1R	1-20"	337		489	155	231	287			1499	(i)465	(i)300
Jane Foster Carter(h)	101.8L	1-14"			92		106	88			286	203	
Nettie, George, and Ella Packer	102.8R	2-12" 1-20"			1176	896	852	841	180		3945	(j)300	620
C. B. Carter	102.9L	1-16"			48	99	221	64	25		457	272	
Charles W. Welch	103.7R	1-16"		59	1033	599	797	832	379		3699	(k)200	(k)960
Charles W. Welch	103.8R	1-14"		123	601	439	601	610	106		2480	(k)	(k)
C. W. Tuttle	103.9R	1-12" 1-18"		324	1555	1318	1025	1021	308		5551		850
--GAGING STATION - SACRAMENTO RIVER OPPOSITE MOULTON WEIR--	103.9R												
--MOULTON WEIR--	104.0L												
I. G. Zumwalt	104.8L	1-12"			11	53	60			1	125	155	
Lawrence Boyd	105.5L	1-10"				NO DIVERSION							
Thousand Acre Ranch (H. W. Keller)	106.0R	1-14"		82	216	292	427	239	51		1307	210	79
Olive Percy Davis, et al.	106.5R	(m)2-16"		16	634	912	965	685			3212	230	316
Princeton Ranch Company	110.0R	1-12"			39	131	35				205	180	
H. Womble(n)	110.1L	1-15"		116	430	604	664	697	557		(p)3068		250
I. G. Zumwalt	110.7L	1-12"					128				128	170	
Princeton Ranch Company	111.2R	1-6"				NO DIVERSION							
--PRINCETON FERRY--	112.0												
I. G. Zumwalt	112.05L	1-12"				33				20	53	65	
Reclamation District #1004	112.1L	2-30" 1-50"		2489	13723	11314	13536	13259	7952	125	62398	(r)1931	(r,s)8293
Princeton-Codora-Glenn Irrigation Dist.	112.4R	3-24"		1366	6126	5022	5571	4233	1548	312	24178	(q)1864	(q)5771
I. G. Zumwalt	112.6L	1-10"				132	25			11	168	355	
Emerson B. Estes	114.9R	1-5"				12	6	12	7		37	32	
L. B. Lucas	115.4R	1-4"			1	9	9	7	1	3	30	20	
Opal L. Cushman	115.5L	1-12"					44				44	30	
COLUSA TO BUTTE CITY Totals Average cubic feet per second Monthly use in per cent of seasonal			337 5 0.3	4670 78 3.3	30325 493 21.7	28547 480 20.4	32065 521 22.9	28675 466 20.5	14283 240 10.2	946 15 0.7	139848 288	10712	19644
--BUTTE CITY BRIDGE--	115.8												
--GAGING STATION - SACRAMENTO RIVER AT BUTTE CITY--	115.8L												

(a) Formerly listed as Ezra N. Lewis.
(b) Of this figure, 25 acres also received approximately 1/3 of its water from controlled drainage.
(c) Rice acreage listed for Mile 95.85L also received an undetermined amount of water from Mile 98.6L.
(d) Additional acre-feet diverted: November 13.
(e) Additional acre-feet diverted: November 6
(f) Includes 26 acres of Middlecamp lands.
(g) The 4" unit was installed in 1954.
(h) New installation in 1954.
(i) The rice acreage and 325 acres of general crops also received an undetermined amount of water from wells.
(j) Includes 170 acres which also received an undetermined amount of water from controlled drainage.
(k) Combined acreage for Miles 103.7R and 103.8R.
(m) One 16" unit was installed in 1954.
(n) Installed prior to 1954. Not previously listed.
(p) Includes an undetermined amount of water returned to the river by spill.
(q) Combined acreage for Miles 112.4R and 123.9R and plant on Colusa Trough, Mile 17.2L.
(r) Combined acreage for Mile 112.1L and plants on Butte Creek, Miles 11.8R (2.6) and 14.4R (0.2).
(s) Of this figure, 837 acres was outside the district and 1130 acres was reused for duck ponds.

TABLE 173

DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER - 1954 (contd.)

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
L. B. Lucas	115.8R	1-1½" (a)1-6"			2	16	30	24	24		96	56	
R. H. Gebicke	115.85L	1-14"					184	144	146		474	200	
L. D. Ohlson	(b)115.9R	1-4"				NO DIVERSION							
A. J. Stone	116.37L	1-12"				NO DIVERSION							
Cronin Estate	116.9L	1-16"			57	155	91	98	24	24	449	100	
W. F. Wright, Jr.	117.5R	1-6"				11	68			22	(c)101	136	
W. H. Stewart, Jr.	120.3R	1-10"			13		21	1			35	40	
Robert T. Millar	122.3R	1-10"				NO DIVERSION							
Clarence Reed	123.7R	1-6"				16	21	4	2		43	35	
P. K. Friesen	123.8R	1-4"					1				1	1	
Princeton-Codora-Glenn Irrigation Dist.	123.9R	5-24"		2790	11420	11685	11326	9541	5415	1056	53233	(d)	(d)
Provident Irrigation District	124.2R	2-24" (e)2-36"		612	8990	7156	9728	6429	1974		(f)34889	(g)616	(g)11554
J. Bertapelle	124.3R	1-12"			280	336	233	282	229	83	1443	367	
Joe Thomas	125.5R	1-12"						48	16		64	48	
Duart F. Geis (h)	128.3R	1-6"			19	35	56	36	40	2	188	83	
F. S. Reager	130.75R	1-8"			55	51	129	89	40	14	(i)378	202	
--GAGING STATION - SACRAMENTO RIVER AT ORD FERRY--	130.8R												
E. S. Ballard	133.45L	1-6"				34	39	51			124	(j)68	
E. S. Ballard	133.5L	1-5"				7	11	6			24	40	
--STONY CREEK--	138.0R												
--CHICO CREEK--	141.5L												
M. & T. Incorporated and Parrott Investment Company	141.5L	1-20" 4-24"			659	1845	5414	5136	3157	697	(k)16908	(m)1691	(m)2758
--OLD CHICO LANDING RAILROAD BRIDGE SITE--	142.1												
W. H. Fischer	142.8R	1-14"		44	103	177	198	77	95	99	(n)793	134	
Leonard Horning	143.6R	1-10"			36	41	54	40	5		176	40	
J. O. Bentz	143.8L	1-6"					29		9		38	18	
Glenn Beagle	146.3L	1-6"					NO DIVERSION						
Leonard Horning	146.8R	1-3"				1	2	2			5	3	
Holly Sugar Corporation	148.9R	1-2" 1-10"					NO DIVERSION						
Wallace E. Ferrin and George A. Zundel	149.5L	1-12"				67	161	135	1		364	135	
--GAGING STATION - SACRAMENTO RIVER AT HAMILTON CITY (GIANELLA BRIDGE)--	149.5L												
J. A. and A. E. Lewis	149.7L	(p)1-12"			71	123	109	80	26	14	423	(q)190	
James A. Lewis	150.0L	1-10"			21	19	19	37	14		(q)110	60	
V. G. Strain	150.8R	1-12" 1-16"		103	355	293	498	326	181	100	(r)1856	595	
Joe E. Johnsen	152.2R	1-6"			12	13	13	11	8	3	(s)60	31	
W. M. Edwards and Son	152.4R	1-6"					NO DIVERSION						
Jessie and McClain	154.6R	1-5"		1	1	2	17				21	12	
G. G. Mass	154.7R	1-4"				2	2				4	9	
Jacinto Irrigation District	154.75R	1-36" 1-48"		2392	10094	10147	10794	10497	10311	9855	(t)64090	7735	1557

(a) The 6" unit replaced a 2" unit in 1954.
(b) Previously listed as 115.9L.
(c) Additional acre-feet diverted: November 9.
(d) Combined acreage for Miles 112.4R and 123.9R and plant on Colusa Trough, Mile 17.2L.
(e) One 36" unit was installed and 2-42" units were removed in 1954.
(f) Additional acre-feet diverted: January 454, November 52, and December 1455. Includes 3208 acre-feet furnished to 401 acres of rice under Glenn-Colusa Irrigation District plant at Mile 154.8R.
(g) 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 607 acres of rice and 88 acres of general crops that received 5296 acre-feet of water from Glenn-Colusa Irrigation District plant at Mile 154.8R.
(h) Formerly listed as Duart Geise.
(i) Additional acre-feet diverted: November 10.
(j) Includes 8 acres which also received an undetermined amount of well water.
(k) Additional acre-feet diverted: January 18, November 32, and December 63.
(m) This acreage also received 27049 acre-feet of water from Butte Creek as follows: March 1400, April 1380, May 6550, June 5450, July 3070, August 3530, September 3160, October 1300, November 597, and December 612.
(n) Additional acre-feet diverted: November 12.
(p) Previously listed as a 14" unit.
(q) Forty-five acres listed for Mile 149.7L also received an undetermined amount of water from Mile 150.0L.
(r) Additional acre-feet diverted: November 21.
(s) Additional acre-feet diverted: November 1.
(t) Additional acre-feet diverted: November 2475.

TABLE 173

DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER - 1954 (contd.)

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
Glenn-Colusa Irrigation District	*154.8R	(a)1-42" 1-48" 4-66" 3-72" 1-100"		24675	111721	120415	130164	122132	73090	33592	(b)615789	(c)23813	(c)63774
Compton-Delevan Irrigation District	*	*		2050	5858	5565	6150	5858	3807		29288		3661
Maxwell Irrigation District	*	*		500	1430	1359	1502	1431	930		7152		894
J. Ewert	155.6R	1-4"		5	10	18	16	12	9	7	(d)77	27	
R. Pheiffer	155.7R	1-2½"		2	6	5	6	3	4	3	(d)29	6	
F. Williams	156.0R	1-6"		1	1	16	15	5			38	12	
H. H. Penner	156.02R	1-6"		1	8	12	14	10	8	2	55	16	
O. L. Shearman	156.8R	1-2½"		1	2	1	2	1	1	1	9	4	
Taresh Ranch	158.8R	1-10"				29	29	16	13	11	98	80	
Jonathan Garst	161.7L	1-8"			15	133	180	67			395	170	
--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	2	1	1	1	7	9	
Ernest Peterson	166.9R	1-6"			4	6	9	9	5	1	(e)34	33	
--DEER CREEK--	168.5L												
A. J. McFadden	168.5L	1-8"			9	38	36	34		2	119	66	
C. F. O'Connor	168.9R	1-6"				11	5	1	8	7	32	(f)50	
C. F. O'Connor	169.1R	1-10"				12	40	5			57	(f)	
Rumiano Brothers	169.8L	1-10"			7	34	50	44			135	70	
Dr. O. T. Wood	173.7L	1-8"			13	25	33	17	5		93	80	
Dutro Brothers(g)	175.5R	1-5"			5	31	33	33	13		115	60	
Dutro Brothers	176.6R	(h)1-4"			6	36	39	39	16		136	87	
--TEHAMA BRIDGE--	177.5												
--MILL CREEK--	179.0L												
--ANTELOPE CREEK--	180.3L												
La Vere Barneson	180.7R	1-7"				PLANT REMOVED							
Los Molinos Mutual Water Company	187.6L	1-12"					170	48			218	(i)591	
Henry Tieden	188.5L	1-1½"		1	2	2	3	2			10	5	
L. F. Bray(j)	188.51L	1-2½"				NO DIVERSION							
Henry Kerber	188.8L	1-10"				93	158	208			459	126	
--RED BLUFF BRIDGE--	193.45												
Arthur Stanley	196.5L	1-2½"					1				1	9	
S. and E. Erickson	196.6L	1-5"			16	13	32	6			67	37	
Diamond Match Company	197.0L	1-8"			60	67	77	44			248	50	
J. W. Bulkely	197.5L	1-1¼"			1	2	1	1			5	4	
C. A. Droz	198.0L	1-3"			39	43	43	47	30	6	(d)208	64	
BUTTE CITY TO RED BLUFF Totals Average cubic feet per second Monthly use in per cent of seasonal			0 0 0	33178 558 4.0	151402 2462 18.2	160199 2693 19.3	178058 2896 21.4	163168 2654 19.6	99657 1675 12.0	45602 742 5.5	831264 1710	38114	84198
--GAGING STATION - SACRAMENTO RIVER NEAR RED BLUFF--	198.6												
C. T. Loftus	205.1L	1-4"	1	4	8	7	15	12	10	7	(d)64	17	
--BEND FERRY BRIDGE--	207.0												
D. Mills	207.3L	1-8"		42	88	72	80	65	63	46	(k)456	85	
D. Mills	207.5L	1-12"		110	269	217	276	198	150	109	(m)1329	291	
G. Tetzlaff	209.0L	(n)1-4"			8	18	21	14	6	1	68	30	

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

(a) The 42" unit replaces a 54" unit.

(b) Additional acre-feet diverted: November 7272 and by gravity from Stony Creek: April 22360, May 4720, June 1630, July 772, August 799, September 695, October 756, and November 324. Includes 5296 acre-feet served to 607 acres of rice and 88 acres of general crops under plant at Mile 124.2R and 700 acre-feet served to 140 acres of general crops under plant at Mile 112.4R.

(c) Includes 401 acres of rice that received 3208 acre-feet of water from plant at Mile 124.2R. Includes the following acreage outside the district: rice 1768 and general 720. Includes 150 acres of rice that also received 464 acre-feet of water from plant on Back Borrow Pit, Mile 29.8R (1.0). Includes an undetermined acreage that received 14605 acre-feet of water from plant on Back Borrow Pit, Mile 29.8R (1.4). Of this rice acreage, 1150 acres was reused for duck ponds.

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

(e) Additional acre-feet diverted: January 9.

(f) Combined acreage for Miles 168.9R and 169.1R.

(g) The diversion and acreage irrigated at this point of diversion were previously combined with and listed under Mile 176.6R.

(h) Replaces a 5" portable unit.

(i) This acreage also received an undetermined amount of water from Antelope Creek.

(j) Formerly listed as J. M. Drew.

(k) Additional acre-feet diverted: November 9.

(m) Additional acre-feet diverted: November 5.

(n) Replaces a 3" unit.

TABLE 173

DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER - 1954 (contd.)

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	
			Mar.	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
Table Mountain Gun Club	210.0R	1-2½"						9	11	3	23	(a)10	
J. F. Nunes	213.0R	1-7"				NO DIVERSION							
F. L. Jelly	213.5L	1-3"			5	6	9	7	6	5	38	24	
J. F. Nunes	216.0R	1-5"			7	13	13	10	1	3	(b)47	12	
--JELLY FERRY BRIDGE--	216.0												
W. A. Hunaeus	216.4L	1-3"			3	9	16	12	8	8	56	10	
Haakonson Brothers	217.5L	(c)1-5"		2	93	106	127	88	52	37	(d)505	66	
J. L. Haskins	217.9L	1-6"		1	51	94	114	33	20	45	358	58	
J. L. Haskins	218.0L	1-5"				NO DIVERSION							
Rio Alto Rancho	221.0R	(e)1-18"			400	332	388	373	283	150	(f)1926	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"		12	54	29	64	49	13	37	258	90	
--ANDERSON BRIDGE--	232.9												
Floyd Leonard(g)	233.5L	1-6"			19	18	29	25	12		103	23	
--CLEAR CREEK--	237.1R												
William Menzel Co., Inc.	240.2L	1-12"			200	319	488	302	110	51	1470	186	
Lou Gerard	240.3L	1-2"		1	1	9	6	6	4		27	6	
John Gladwell(h)	240.4L	1-4"				1	1	1			3	7	
Anderson-Cottonwood Irrigation Dist.	240.5L	4-16"		1300	3558	3493	3960	3146	2916	2204	20577	2500	
--GAGING STATION - SACRAMENTO RIVER NEAR REDDING--	240.7												
Riverview Golf Course	240.8L	1-4"	2	10	23	26	34	25	20	9	(i)149	35	
--HIGHWAY 44 BRIDGE--	242.0												
--HIGHWAY 99 BRIDGE--	245.9												
Anderson-Cottonwood Irrigation Dist.	246.0R	Gravity		16571	23301	23267	24035	22914	22040	21594	(j)153722	19500	
--SOUTHERN PACIFIC RAILROAD BRIDGE--	246.25												
Maybell Diestelhorst	246.3R	1-8"			46	63	86	44	13		252	22	
--OLD REDDING-YREKA BRIDGE--	246.4												
City of Redding	246.7R	3-8"	162	230	456	445	850	533	347	258	(k)3281	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			165 3 0	18283 307 9.9	28590 465 15.5	28544 480 15.5	30612 498 16.6	27866 453 15.1	26085 438 14.1	24567 400 13.3	184712 380	23312	0
SACRAMENTO TO REDDING Totals Average cubic feet per second Monthly use in per cent of seasonal			2935 48 0.1	96488 1622 4.6	402233 6542 19.2	407508 6849 19.5	448928 7301 21.5	409637 6662 19.6	242008 4067 11.6	81313 1322 3.9	2091050 4303	139806	184938

(a) All gun club lands.
(b) Additional acre-feet diverted: November 3.
(c) Replaces a 4" unit.
(d) Additional acre-feet diverted: November 18.
(e) Replaces a 12" unit.
(f) Additional acre-feet diverted: November 36.
(g) New installation in 1954.
(h) Formerly listed as W. A. and Lucy Keagy.
(i) Additional acre-feet diverted: November 3 and December 1.
(j) Additional acre-feet diverted: November 5548. Includes operational spill in acre-feet as follows: April 5613, June 249, August 712, September 396, October 1756, and November 4231.
(k) Additional acre-feet diverted: January 158, February 141, November 168, and December 164.

TABLE 174

DIVERSIONS AND ACREAGES IRRIGATED - COLUSA TROUGH - 1954

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)8-20"		914	4122	4645	5903	5156	3243	246	(b)24229	(c)1865	(c)3825
East Williams Lands Company	2.2R	1-16"			126	238	120			32	(d)516	(e)200	(f)140
J. H. Cave	2.98R	1-10"			153	105	222	330	121	49	(g)980		(h,c)96
A. E. Zaniboni and L. W. Seaver	3.0L	3-16"		287	781	1035	688	640	623	369	(i)4423	570	
J. H. Cave	3.5R	1-14"			93	255	255	346	57	49	(j)1055		126
Lloyd W. Seaver and F. J. Byington	4.5L	4-16"			1371	1332	1944	2121	954		(k)7722		(m)870
Coffman and Campbell(n)	5.6L	1-16"			352	224	337	393	125		1431		250
Louis G. Sutton(p)	5.7R	1-16"			197	229	330	385	178		1319		90
Watt Brothers	(q)6.2L	(r)2-16"			495	354	740	672	168		2429		444
Watt Brothers	6.4R	1-12"		132	290	249	245	217	50		1183		114
S. Ash	8.0L	2-16"			1120	965	1333	1256	527		5201		(s)595
Charles W. Welch(t)	8.0R	1-15" 1-16"		54	914	894	1031	1562	560		5015		380
El Dorado Sportsmans Club	9.5R	1-16"							132	122	(u)254	(e)50	
I. G. Zumwalt	9.75L	1-24"		301	445	554	641	635	184		2760		420
Lloyd Kahn	10.5L (0.4)	2-16"		156	460	535	640	650	105		(w)2546		(v)480
Charles W. Welch(t)	11.7L (0.2)	1-12"			309	103	103	82			597		(x)
Charles W. Welch(t)	11.7L (0.3)	1-12"			356	424	428	448	116		1772		(x)300
Charles W. Welch(t)	11.7R (0.8)	1-14" 1-16" 2-20"		656	3297	2849	3847	4026	1021		15696		1150
Del Valley Farms, Incorporated	12.1R	1-10"		78	149	213	300	308	76		(y)1124	(e)20	(z)120
Lynn and Bohne	12.58L (0.9)	1-10" 1-12"			715	515	597	586	298		2711		265
Lynn and Bohne	12.59R	1-12"			215	255	278	269	59		(aa)1076		(h)80
Helphenstine Rice Lands	12.69L	1-16"			639	775	769	858	309		(ab)3350		(ac)290
E. Butler, E. Meyer, and J. Jones	12.7L	1-14"			402	385	443	408	66	29	(ad)1733		(v)140
Manuel Barrett	Opp. 16.6R (1.3)	1-12"			115	91	203	144	53		606		(c)180
Princeton-Cordora-Glenn I. D.	17.2L	2-18"		82	2352	1286	1902	2853	1082		9557	(ae)	(ae)
John S. Lopes	17.9R	1-12"				NO DIVERSION							
J. P. Cardoza	18.0R	1-4"		18	51	44	15	19	4	22	(af)173	(ag) 32	13
--LATERAL HIGHWAY - BUTTE CITY TO WEST SIDE--	20.5												
Provident Irrigation District (Willow Creek Plant)	Opp. 20.5R (2.4)	1-24" 1-36"			1233	927	1316	505	16		3997	(ah)	(ah)
Walter McGowan	21.4L	1-8" 2-16"		68	1192	778	743	888	336		4005		400
Joe Navarro	22.0R	1-18"		229	765	674	623	676	282		3249		400
Provident Irrigation District (Drain #55)	Opp. 24.2R (1.5)	Gravity		970	6184	6625	7662	8896	7825	5823	(ai)43985	(ah)	(ah)
I. G. Zumwalt	25.4L	1-16"			231	172	131	132	116		782		158
Provident Irrigation District	Opp. 25.8L (2.5)	2-16"		154	649	590	822	578	453		3246	(ah)	(ah)
Terril Knight	26.2L	1-12" 1-16"			698	576	602	565	129		2570		265
John M. Demmer and Mary R. Bohach	27.1L	1-12" 1-14"		58	432	592	618	612	369	48	(aj,ak)2729	70	200
Provident Irrigation District (Colusa Drain)	27.2R (0.1)	1-20" 1-24"		73	3685	3734	4154	3072	2340		17058	(ah)	(ah)
Provident Irrigation District (Drain #13)	Opp. 27.2R (2.6)	1-16" 1-20" 1-24"		383	2350	2086	2454	2366	1284	99	11022	(ah)	(ah)
Provident Irrigation Dist.(am) (Drain #13)	Opp. 27.2R (2.6)	Gravity		203	829	1097	951	1247	1476	942	(an)6745	(ah)	(ah)
Totals			0	4816	37767	36405	43390	43901	24737	7830	198846	2807	11791
Average cubic feet per second			0	81	614	612	706	714	416	127	409		
Monthly use in per cent of seasonal			0	2.4	19.1	18.3	21.8	22.1	12.4	3.9			

* Main drain of Reclamation District 2047.
** Mileage along Colusa Trough above Colusa-Williams Highway.
(a) Two 20" units were installed in 1954.
(b) Additional acre-feet diverted: November 45 and December 94.
(c) This acreage also received an undetermined amount of water from controlled drainage.
(d) Additional acre-feet diverted: December 22.
(e) All duck club lands.
(f) This acreage also received an undetermined amount of water from Glenn-Colusa Irrigation District.
(g) Additional acre-feet diverted: November 71 and December 79.
(h) This acreage was reused for duck ponds.
(i) Additional acre-feet diverted: November 60
(j) Additional acre-feet diverted: November 42 and December 27.
(k) Additional acre-feet diverted: January 15.
(m) Of this acreage, 20 was reused for duck clubs.
(n) Formerly listed as Coffman and Camel.
(p) New installation in 1954.
(q) Previously listed as Mile 6.3L.
(r) One 16" unit was installed in 1954.
(s) Of this acreage 417 also receives an undetermined amount of well water.
(t) Formerly listed as C. W. Welch and Compton Water District.
(u) Additional acre-feet diverted: January 60, November 26, and December 59.
(v) Of this acreage, 17 was reused for duck ponds.
(w) Additional acre-feet diverted: December 41.
(x) Combined acreage for Miles 11.7L (0.2) and 11.7L (0.3).
(y) Additional acre-feet diverted: November 93 and December 107.
(z) Of this acreage, 40 was reused for duck clubs.
(aa) Additional acre-feet diverted: January 47 and December 81.
(ab) Additional acre-feet diverted: January 17 and December 61.
(ac) Of this acreage, 10 was reused for duck clubs.
(ad) Additional acre-feet diverted: January 15 and December 3.
(ae) See plant on Sacramento River at Mile 112.4R.
(af) Additional acre-feet diverted: January 23, November 7, and December 15.
(ag) Includes 20 acres of duck club lands.
(ah) See plant on Sacramento River Mile 124.2R.
(ai) Additional acre-feet diverted: November 105 and December 300.
(aj) Additional acre-feet diverted: November 14.
(ak) Includes an undetermined amount of water returned to Colusa Trough by spill.
(am) Formerly reported under pumping plant at Opp. Mile 27.2R (2.6).
(an) Additional acre-feet diverted: November 84 and December 180.

TABLE 175

DIVERSIONS AND ACREAGES IRRIGATED - BACK BORROW PIT* - 1954

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. Nuttall (a)	0.2R	1-6"						4			4	5	
--GAGING STATION - COLUSA BASIN DRAIN AT KNIGHTS LANDING (KNIGHTS LANDING OUTFALL GATES)--	0.25												
River Farms Company	0.3L	1-10" 1-20"		320	780	1009	1160	783			(b)4052		
--KNIGHTS LANDING RIDGE CUT--	0.4R												
John J. Anderson	1.45R	2-16"				NO DIVERSION							
John C. Cooling	4.2R (0.1)	1-16"						237			237	301	
J. E. Taylor (c)	4.2R (0.7)	1-12"			1	51	46	32	33		163	65	
B. C. and T. D. Tolson	4.2R (0.8)	1-18"				NO DIVERSION							
W. Crawford	4.35R	1-20"			699	880	969	1020	939	56	4563		(d)780
W. Crawford (e)	7.2R	(f)1-16"			527	672	704	620	555		3078		(d)
George E. Youngmark	8.8R	1-14" 1-16"			678	810	865	817	380	16	3566	310	604
Hershey Estate	11.15R	1-16 (g)1-18			558	592	424	507	389		(h)2470		(i)285
Hershey Estate	13.75R	1-16"			611	546	608	553	126		2444		480
C. M. Mumma	14.75R	1-10"			239	198	305	291	169		1202		150
--COUNTY LINE BRIDGE--	15.25												
J. V. Doherty	15.5R	1-16"				NO DIVERSION							
M. T. Emmert	15.75R	1-12"				NO DIVERSION							
H. B. West, Jack Hughes, and Dr. R. C. West	18.1R	1-15" 1-20"			357	649	867	894	280		(j)3047	50	(i,k)270
Hilary Farms Incorporated	18.5R (0.8)	1-14"			137	261	330	178	55	16	(k,m)977	140	
--RECLAMATION DISTRICT 108 GRAVITY DRAIN--	19.9L												
Reclamation District 108	19.9L	1-16" 1-24" 1-30"		952	414			971	600		(n)2937	(p)	(p)
William West	20.0R	1-15"				NO DIVERSION							
B. W. Whitmire and D. S. Adams	21.35R	2-16"			980	816	930	626	201	15	(q)3568	45	(i)250
Albert Brandenburg	22.15R	1-14"				NO DIVERSION							
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)	1-14" 1-16"		81	247	230	245	236	87		1126		110
--SOUTHERN PACIFIC RAILROAD BRIDGE--	23.6												
Balsdon Ranch	Opp. 24.6L (0.3)	2-16" 1-20"		30	58	767	843	616		72	(r)2386	805	
Balsdon Ranch	24.6R (0.3)	2-16"		4	1	176	264	145	3		593	254	
A. M. Dobrosky and Henry Olin	24.7L	1-12"				NO DIVERSION							
Luta King	25.1R	(s)1-6"			20	181	168	179	192	59	799		130
Gertrude M. Sherer	25.3L	1-16"				48	99	40			187	120	
Gertrude M. Sherer	25.5R	1-10"				NO DIVERSION							
--GRIMES - COLLEGE CITY CAUSEWAY--	25.5												
Fred Schutz	25.9L (0.2)	1-16" 1-20" (t)1-24"		734	1172	1871	1741	1582	161		(u)7261		(v)940
Roy E. Kitts	26.4R (0.1)	1-18"			264	384	431	378	167		1624		(w)175
C. W. and M. F. Struckmeyer	27.25L(0.3)	1-16"			68	199	207	194	137		(m)805	253	
William P. Wallace Ranch	28.0R	1-12" 1-16"				NO DIVERSION							

* 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 junction with Sacramento River.
(a) Formerly listed as E. E. Nuttal.
(b) This water was served to 554 acres of rice under plant on Sacramento River Mile 34.5R.
(c) New installation in 1954.
(d) Combined acreage for Miles 4.35R and 7.2R.
(e) Formerly listed as Cornelia Walker.
(f) An 8" and 1-16" unit were removed in 1954.
(g) The 18" unit replaces a 14" unit.
(h) Additional acre-feet diverted: January 19.
(i) Of this acreage, 50 was reused for duck ponds.
(j) Additional acre-feet diverted: January 329.
(k) Acreage under plant at Mile 18.1R also received an undetermined amount of water from plant at Mile 18.5R (0.8).
(m) Includes an undetermined amount of water returned to Back Borrow Pit by spill.
(n) An additional 7972 acre-feet of water was also diverted by this plant from a drain into the R. D. 108 irrigation system.
(p) See plant on Sacramento River at Mile 63.2R.
(q) Additional acre-feet diverted: November 1, December 116.
(r) Additional acre-feet diverted: January 56.
(s) Replaces a 10" unit.
(t) The 24" unit was installed in 1954.
(u) Additional acre-feet diverted: January 20. Includes an undetermined amount of water returned to Borrow Pit by spill.
(v) Of this acreage, 20 was reused for duck ponds.
(w) Includes 25 acres of Struckmeyer lands.

TABLE 175

DIVERSIONS AND ACREAGES IRRIGATED - BACK BORROW PIT* - 1954 (contd.)

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
--WALLACE CROSSING (OLD MERIDIAN-WILLIAMS BRIDGE)--	29.2												
Olive Percy Davis, et al.	29.8R	1-16"				NO DIVERSION							
Fred Wilkins (a)	29.8R (1.0)	1-14"			464						(b)464		
Glenn-Colusa Irrigation District	29.8R (1.4)	(c)1-20" 1-38"			1756	1533	5024	5054	1238		(d)14605	(e)	(e)
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 Wildlife Service	32.6R	1-16"				NO DIVERSION							
J. G. Olvey	32.6L	1-14"				NO DIVERSION							
Arata Brothers	32.9L	1-8"						30	8	38	(f)76	(g)25	
Richard Moore	33.5L	(h)1-12" 1-16"			620	613	585	501	20	4	(i)2343		(j)290
Federal Fish and Wildlife Service	36.65R	1-15" 1-20"			1701	203	1229	1115	831	770	(k)5849		(m,n)601
Federal Fish and Wildlife Service	37.0L (0.1)	1-15"		12	111	230	172	289	234	148	(p)1196	(m)100	(m)130
--COLUSA-WILLIAMS HIGHWAY--	37.0												
Totals			0	2133	12463	12919	18216	17892	6805	1194	71622	2473	5195
Average cubic feet per second			0	36	203	217	296	291	114	19	147		
Monthly use in per cent of seasonal			0	3.0	17.4	18.0	25.4	25.0	9.5	1.7			

* Back Borrow Pit or Reclamation District's 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 junction with Sacramento River.
(a) New installation in 1954.
(b) This water was served to 150 acres of rice under G. C. I. D. plant on Sacramento River Mile 154.8R.
(c) The 20" unit was installed in 1954.
(d) Includes an undetermined amount of water returned to Back Borrow Pit by spill.
(e) See plant on Sacramento River at Mile 154.8R.
(f) Additional acre-feet diverted January 5, November 3, December 40.
(g) All duck club lands.
(h) The 12" unit replaces an 18" unit.
(i) Additional acre-feet diverted: November 3, December 8.
(j) Of this acreage, 10 was reused for duck ponds.
(k) Additional acre-feet diverted: January 127, November 275.
(m) All duck refuge lands.
(n) This acreage also received an undetermined amount of water from controlled drainage.
(p) Additional acre-feet diverted: November 8.

TABLE 176

DIVERSIONS AND ACREAGES IRRIGATED - KNIGHTS LANDING RIDGE CUT - 1954

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 24 BRIDGE--	0.3												
--SOUTHERN PACIFIC RAILROAD BRIDGE--	0.7												
E. L. Wallace	0.8R	1-16" 1-20"		2027	1497	1932	1781	1526	405		9168	(a)773	(a)545
M. R. Richardson	0.82L	1-14"			183	169	291				(b)643		
--RECLAMATION DISTRICT 730 DRAIN PLANT #2--	3.2R												
Ralph W. Pollock	3.5L	Gravity			55	54	114	55	54		332	(a)125	
W. K. Lowe (c)	4.3R	3-16"		1063	987	1282	1321	1356	550		6559		450
Ralph W. Pollock	4.55L	(d)1-16"					91	30	24		145	90	
Albert Bacchini	4.7R	1-6"			12	16	14	10			52	23	
Layton D. Knaggs	5.25R	1-16"		24	427	407	434	467	207		1966	34	160
--WEST LEVEE YOLO BY-PASS--	6.3												
Sacramento River Ranch (e)	6.3L	Gravity			217	2034	2852	2214	1955	289	(f)9561	330	350
H. Rich and L. Knaggs (g)	6.3	Gravity				32	370				402	(h)626	
E. L. Wallace	6.3R	Gravity			587	1607	1660	1660	1607	239	7360		(i)600
Totals			0	3114	3965	7533	8928	7318	4802	528	36188	2001	2105
Average cubic feet per second			0	52	64	127	145	119	81	9	74		
Monthly use in per cent of seasonal			0	8.6	10.9	20.8	24.7	20.2	13.3	1.5			

* 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) This acreage also received an undetermined amount of well water.
(b) This water was served to acreage under plant on Sacramento River Mile 31.75R
(c) New installation in 1954.
(d) Replaces a 12" unit.
(e) Formerly listed as Henry Rich.
(f) Includes 5791 acre-feet of water served to acreage under plant on Sacramento River Mile 22.5R.
(g) Not previously listed.
(h) Includes 466 acres of Knaggs lands and 160 acres of Rich lands.
(i) This acreage also received 2040 acre-feet of water from controlled drainage.

TABLE 177

DIVERSIONS AND ACREAGES IRRIGATED - YOLO BY-PASS (EAST BORROW PIT OF TULE CANAL) - 1954

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	*1.8S					NO DIVERSION							
Robert Swanston Estate (a)	*1.5S	1-8"				36	29				65	30	
Robert Swanston Estate	*1.1S	1-18" 1-20"				NO DIVERSION							
Robert Swanston Estate	*0.8S	1-16"				NO DIVERSION							
Robert Swanston Estate	*0.5S	(b)1-14"			457	752	778	778	302		3067		280
--NORTH LEVEE SACRAMENTO BY-PASS RECORDING GAGE--	0.0												
Robert Swanston Estate	*1.8N	1-16" 1-24"			322	746	1562	905	490		4025	720	465
Ensher, Alexander, and Barsoom	2.4N	1-20"		86	174	432	430	296			1418	(c)820	
--SACRAMENTO-WOODLAND HIGHWAY--	6.18N												
--SACRAMENTO-WOODLAND RAILROAD BRIDGE--	6.2N												
Lou Ulrich (d)	*6.5N	1-12"					87	46			133	(e)385	
--CACHE CREEK--	7.0N												
--KNIGHTS LANDING RIDGE CUT--	9.6N												
--RECLAMATION DISTRICT 1600 DRAINAGE PLANT--	10.0N												
Totals			0	86	953	1966	2886	2025	792	0	8708	1955	745
Average cubic feet per second			0	1	15	33	47	33	13	0	18		
Monthly use in per cent of seasonal			0	1.0	10.9	22.6	33.1	23.3	9.1	0			

* 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) Temporary installation during 1954.
(b) Replaces a 16" unit.
(c) This acreage also received an undetermined amount of well water.
(d) New installation in 1954.
(e) The main source of water for this acreage is the Woodland Sewer Farm.

TABLE 178

DIVERSIONS AND ACREAGES IRRIGATED - DELTA UPLANDS FROM CACHE SLOUGH - 1954

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"		2147	8644	9515	10189	9359	7734	5959	(a)53547	(b,c)9236	
Totals			0	2147	8644	9515	10189	9359	7734	5959	53547	9236	0
Average cubic feet per second			0	36	141	160	166	152	130	97	110		
Monthly use in per cent of seasonal			0	4.0	16.2	17.8	19.0	17.5	14.4	11.1			

(a) Additional acre-feet diverted: January 233 and November 1194.
(b) Does not include 136 acres of duck club land.

(c) Controlled drainage water irrigated an additional 2850 acres, including 1216 acres outside of District; and an additional 323 acres of duck club land, including 238 acres outside of District.

TABLE 179

DIVERSIONS AND ACREAGES IRRIGATED - LOWER BUTTE CREEK AND BUTTE SLOUGH - 1954

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"				105	552	287	53		997	510	
Colusa Shooting Club	4.1L	1-16"				8	103	17	70	162	(a)360	(b)860	
West Butte Farms Company	4.25L	1-18"					376	113	16		505	550	
Reclamation District 1004	4.3R	1-20" 1-24"			1003	1021	1356	1243	494		(c)5117	165	140
El Anzar, Incorporated	5.7L	1-12"					166	9			175	150	

* Mileage on Butte Creek is from its junction with Butte Slough at Mile 0.6E.
(a) Additional acre-feet diverted: November 178.
(b) Includes 700 acres of duck ponds on West Butte Farms Company lands.

(c) Additional acre-feet diverted: January 250, November 72, and December 152. An undetermined amount of water was furnished to 830 acres of rice and 570 acres of general crops listed for Mile 89.25L, Sacramento River.

TABLE 179

DIVERSIONS AND ACREAGES IRRIGATED - LOWER BUTTE CREEK AND BUTTE SLOUGH - 1954

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 (contd.)							
Field and Tule	7.5L	1-8" 1-16"				NO DIVERSION							
Reclamation District 1004	11.8R (2.6)	Gravity			1752	904	2496	1676	2043	1894	(a)10765	(b)	(b)
White Mallard Duck Club	11.8R	Gravity				NO DIVERSION							
White Mallard Duck Club	11.8R (0.5)	1-12" 1-16"			304	323	495	532	137	78	(c)1869	(d)100	(f)110
Reclamation District 1004	Opp. 14.4R (0.2)	Gravity		750	697	316	668		1202		3633	(b)	(b)
Murdock Land Company	Opp. 14.4R (0.4)	1-14"				82	149	136	155	172	694	280	
--GRIDLEY ROAD BRIDGE--	15.4												
Butte Basin Gun Clubs	15.6L	Gravity									(e)	(d)4000	
Murdock Land Company	19.3R	1-16"			97	97	120	108	112	97	(g)631	120	
--BIGGS-AFTON ROAD BRIDGE--	19.4												
Murdock Land Company	Opp. 19.6R (0.8)	1-14"								13	(h)13	(d)70	
McGowan Brothers (i)	Opp. 20.7R (0.8)	(j)2-16"			302	619	530	536	446		(k)2433		(m)230
McGowan Brothers	Opp. 20.9R (0.5)	1-16"				NO DIVERSION							
McGowan Brothers	21.0R	1-20"			225	716	571	724	730	21	2987		(n)300
E. McPherrin	21.1L	1-16" (p)1-24"			1288	1740	1528	974	892	150	6572		(q)729
R. H. Hulen Estate	Opp. 21.4R (1.0)	1-16"			203	449	443	441	234		1770		190
McGowan Brothers	Opp. 22.4R (0.7)	1-16"			178	269	347	388	338	39	1559		(n)130
--RICHVALE-BUTTE CITY ROAD BRIDGE--	22.5												
McGowan Brothers	23.0R	1-16" (r)1-20"			658	1307	1287	1340	1384		5976		(n)510
Harris Lands (s)	23.0L	1-16"			26	50	55	35	25	12	203	40	
McGowan Brothers	Opp. 23.0R (0.75)	1-16"			506	637	835	811	742	49	3580		(n)390
McGowan Brothers (t)	Opp. 23.5R (1.2)	1-16"			170	309	251	241	215	14	1200		(n)95
McGowan Brothers (t)	Opp. 24.0R (0.5)	1-20"		111	635	859	768	787	464		3624		(n)354
McGowan Brothers	(u)	(u)1-14" 1-16"		139	502	166					807		(u)
Ruth Baldwin and Charles K. Layton (t)	Opp. 25.6L (0.6)	1-16"			626	841	917	783	265		3432		520
	**					Butte Slough							
--SACRAMENTO RIVER JUNCTION--	0.0												
Butte Slough Irrigation Company	0.0	Gravity									(v)	(w)	(w)
M. Marty	0.3W	1-10"		24	111	73	166	127	99	35	635	222	
--BUTTE CREEK--	0.6E												
Mrs. Mamie M. Smith (x)	0.9E	1-7"				25	77	54			156	111	
Joe Marty	1.0W	1-6"			22	29	38	25	29	8	(y)151	(z)40	
Mrs. Mamie M. Smith (x)	1.4E	1-8"				6	77	51			134	168	
Fred Tarke	1.9W	1-14"				NO DIVERSION							
--MAWSON BRIDGE--	2.1												
C. W. Rawley	2.5W	1-14"				208	100	100	20		428	260	
J. E. Smith	3.0W	1-10"				94	51	103			248	120	
Pearl Clark and Alice Brewer	3.5W	1-10"				27	57	31	17	23	155	60	
P. A. Reische	3.7W	1-10"				20	10	4			34	(aa)	
Granniman and Fieth	4.08W	1-6"				1	1	1			3	6	
P. A. Reische	4.1W	1-10"				89	42	65			196	(aa)172	
W. J. Hankins	4.8W	1-12"		149	547	503	523	528	161		2411	60	(ab)185
P. B. Hensen	5.1W	1-12"		65	30	85	61	39	37		(ab)317	109	
Totals			0	1238	9882	11978	15216	12309	10380	2767	63770	8173	3883
Average cubic feet per second			0	21	161	201	247	200	174	45	131		
Monthly use in per cent of seasonal			0	1.9	15.5	18.8	23.9	19.3	16.3	4.3			

* Mileage on Butte Creek is from its junction with Butte Slough at Mile 0.6E.
** Mileage on Butte Slough is from its junction with Sacramento River at Mile 84.0L.
(a) Estimated additional acre-feet diverted: November 3000 and December 3000.
(b) See plant on Sacramento River Mile 112.1L.
(c) Additional acre-feet diverted: November 58 and December 225.
(d) All duck club lands.
(e) Estimated acre-feet diverted: November 3000 and December 3000.
(f) This acreage was reused for duck clubs.
(g) Additional acre-feet diverted: November 22.
(h) Additional acre-feet diverted: November 43 and December 28.
(i) Formerly listed as Baker and Kemper.
(j) Replaces a 12" and a 20" unit.
(k) Additional acre-feet diverted: December 11.
(m) This acreage also received an undetermined amount of water from the 14" and 16" portable units. Of this acreage, 30 was reused for duck clubs.
(n) This acreage also received an undetermined amount of water from the 14" and 16" portable units.
(p) The 24" unit replaces one 16" unit.
(q) This acreage also received an undetermined amount of well water.
(r) The 20" unit replaces one 16" unit.
(s) Installed prior to 1954. Not previously listed.
(t) New installation in 1954.
(u) These are portable units which pumped at Miles 21.0R, 23.0R and Opp. Miles 20.7R (0.8), 22.4R (0.7), 23.0R (0.75), 23.5R (1.2), and 24.0R (0.5). The 16" unit was installed in 1954.
(v) 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 Co. See Sutter By-Pass Diversions.
(w) See acreages under rediversions - West Borrow Pit, Sutter By-Pass.
(x) Formerly listed as George Smith Estate.
(y) Additional acre-feet diverted: December 40.
(z) Of this acreage, 18 was reused for duck ponds.
(aa) Combined acreage for Miles 3.7W and 4.1W.
(ab) Plant at Mile 5.1W furnished an undetermined amount of water to 185 acres under plant at Mile 4.8W.

TABLE 180

DIVERSIONS AND ACREAGES IRRIGATED - SUTTER BY-PASS AND SACRAMENTO SLOUGH - 1954

Water User	Mile and Bank	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage	
			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"					NO DIVERSION						
--STATE HIGHWAY 24 CAUSEWAY--	12.7												
Sutter Mutual Water Company (a)	17.5R	1-18"			617	815	831	863	250		3376		312
--SOUTH LEVEE OF TISDALE BY-PASS--	18.9R												
--RECLAMATION DISTRICT 1660 GRAVITY DRAIN--	19.3R												
G. Guisti and Sons	23.7R	1-16" 1-24"		595	1654	2396	2443	2358	982	10	10438	527	900
Butte Slough Irrigation Company Ltd.	25.0R	Gravity		2	144	423	443	394			1406	(b)	
Butte Slough Irrigation Company Ltd.	28.4R	Gravity		275	1065	1384	1542	1432	601		6299	(b)4867	190
Fred Tarke	28.6R	(c)1-2" 1-12"				2	18	22	11		53	53	
Frye Brothers	29.0R	1-7"					26	4			30	26	
--STATE HIGHWAY 20 BRIDGE--	29.1												
Fred Tarke	29.2R	1-10"				30	20	22	7		79	47	
--SACRAMENTO NORTHERN RAILROAD BRIDGE--	29.25												
	**				East Borrow Pit of Sutter By-Pass **								
R. E. Hughes #8	*0.95S	1-16"			208	599	968	736	1690	153	(d)4354	350	250
T. H. Richards	0.5S	1-18"			940	931	1066	1149	984	25	5095	148	610
--WILLOW SLOUGH--	0.0												
R. E. Hughes #7	*0.5N	1-20"			188	732	820	843	845	45	3473		560
--RECLAMATION BOARD DRAINAGE PLANT #1--	1.4N												
Cliff P. Childers	8(0.3)	1-16"			153	378	417	435	303		1686		220
Cliff P. Childers	8(1.29)	1-16"			424	561	637	541	401		2564		(e)300
E. H. Christensen and Sons	8(1.3)	1-16"			793	834	1052	1189	905		4773		(f,e)640
E. H. Christensen and Sons	8(1.75)	1-16"			283	377	506	570	584	34	2354		400
E. H. Christensen	8(3.3)	1-16"			319	317	395	423	299	8	(f)1761		(g)
E. H. Christensen	8(3.3)	1-12"			166	364	417	434	422	9	(f)1812		(g,e)300
E. H. Christensen	8(4.0)	1-18"					NO DIVERSION						
R. E. Hughes #6	*1.5N	1-14"			67	97	210	91			465	220	
R. E. Hughes #5	*2.9N	1-14"				149	175	28	93		445	375	
Leona Hughes	*4.0N	1-14" (h)1-16"			405	613	711	724	385		2838	50	320
--STATE HIGHWAY 24 CAUSEWAY--	4.3N												
Leona Hughes	*4.5N	1-14" (i)1-15"				141	128				269	200	
Ira Mulligan	5.7N	1-16"			465	591	552	804	469		2881	165	192
R. J. Hughes #2	*5.9N	1-14"			252	643	734	750	522		(d)2901	140	161
J. Etcheverry	5.91N	1-14"		86	849	779	842	1033	842		4431	110	330
O. O. Orrick	*6.9N	(j)2-16"			255	941	1151	1058	613		(d)4018		450
Ira Mulligan	7.1N	1-16"				305	125				430	(k)475	
--GILSIZER SLOUGH--	8.0N												
Leona Hughes	*8.0N (0.5)	1-6"					NO DIVERSION						
Crepps and Middleton	8.4N	1-12" 1-16"					NO DIVERSION						
Crepps and Middleton	9.99N	1-15"					NO DIVERSION						
Crepps and Middleton	*10.0N	1-16"						137	372	112	(m)621	(n)350	
--RECLAMATION BOARD DRAINAGE PLANT #2--	10.0N												

* Indicates 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 West Borrow Pit are given northerly from drainage plant of Reclamation District 1500. Mile 9.15 on West Borrow Pit is opposite Chandler.
** Mileages on East Borrow Pit are given northerly or southerly from Chandler.
8 Plant is on the main drainage 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) Formerly listed as Sutter Basin Corporation, Ltd.
(b) Combined acreage for Miles 25.0R and 28.4R.
(c) The 2" unit was installed in 1954.
(d) Includes an undetermined amount of water returned to Borrow Pit by spill.
(e) This acreage also received an undetermined amount of water from a portable unit.
(f) The acreage listed for Mile (1.3) also received an undetermined amount of water from the plants at Mile (3.3).
(g) Combined acreage for plants at Mile (3.3).
(h) The 16" unit replaces one 14" unit.
(i) The 15" unit was installed in 1954.
(j) One 16" unit was installed in 1954.
(k) Combined acreage for Mile 7.1N and 10.0N (2.5).
(m) Additional acre-feet diverted: January 11 and November 24.
(n) All duck club lands.

TABLE 180

DIVERSIONS AND ACREAGES IRRIGATED - SUTTER BY-PASS AND SACRAMENTO SLOUGH - 1954 (contd.)

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 ** (contd.)										
Crepps and Middleton	¥(0.3)	1-12"			20	185	283	315	321	33	1157		78
Dettling Brothers	¥(0.9)	1-20"					NO DIVERSION						
Rodeo Rooster Club (a)	¥(1.5)	1-3"								5	(b)5	(c)25	
Sutter Extension Water District	¥(2.0)	1-20" 1-30"			2598	2923	3265	3238	1864		13888	(d)	(d)
Ira Mulligan (a)	¥(2.3)	1-10"			44	102	133	125	124		528		30
Ira Mulligan	¥(2.5)	1-16"				58	198	227	42		525	(e)	
Bridge Investment Company	¥(2.6)	1-16" 1-20"		95	472	654	864	439	266	182	2972	560	
Bridge Investment Company	¥(2.65)	1-14" 1-20"		148	420	464	297	245	103		1677	284	
Bridge Investment Company	¥(3.0)	1-12"		32	79	72	52	55	42	15	347	125	
Guisti and DeMartini (a)	¥(3.5)	1-16"							168		168	151	
Percy Davis	¥(4.5)	1-12"			50	44	122	63	63	70	412	135	
Sutter Extension Water District	¥(6.7)	1-20"			777	1408	1429	1480	795		5889	(d)	(d)
Sutter Home Investment Company	11.5N	1-15"					PLANT REMOVED						
Sutter Home Investment Company	12.0N	1-15"					PLANT REMOVED						
Federal Fish and Wildlife Service	*16.3N	(f)1-20" Gravity			462	1840	1945	1914	1658	1820	(g)9639	(h)400	(h)600
R. A. Schnable	*16.4N	1-14"				37	36	30	27	40	(i)170	(j)45	
--WADSWORTH CANAL--	16.5N												
R. A. Schnabel	¥(1.0L)	1-16"			240	617	657	661	606	173	2954		110
Fred S. Betty	¥(1.0R)	1-10"			42	19	43	45	62	60	271	60	
H. T. and H. D. Brown	¥(1.35R)	1-10" 1-12"			180	71	127				(k)378	(m)79	(m)119
A. H. Muns	¥(1.36R)	1-14"			238	387	378	405	331	52	(k)1791	(m)	(m)
Vesper Kellogg	¥(1.5L)	1-14"			160	360	377	388	367	91	1743		106
Albert Thomasen (a)	¥(1.7R)	1-16"			451	284	324	320	234		1613		(k)95
--STATE HIGHWAY 20 BRIDGE--	2.0												
Epperson, Kennedy, and Joaquin	¥(2.5R)	(n)1-10"			104	12	11	23	8		158		(p)
Clara Farrington	¥(2.5R)	1-10"			95	194	199	197	192	14	891		(p) 60
Youill Joaquin	¥(3.0L)	1-14"			217	158	193	206	104		878		95
Gilbert Williamson	¥(3.6R)	1-10" 1-16"			253	343	357	360	172		1485		(q)144
--GAGING STATION - WADSWORTH CANAL AT BUTTE HOUSE ROAD--	¥(3.6)												
--RECLAMATION BOARD DRAINAGE PLANT #3--	16.7N												
Fred S. Betty	♁(0.9)	1-8"				69	45	39	34		187	90	
Fred S. Betty (a)	♁(1.0)	1-10"							9	6	15	5	
Fred S. Betty	♁(1.3)	1-14"					NO DIVERSION						
Fred S. Betty	♁(1.4)	1-16"				77					77	110	
Mrs. H. C. and C. H. Epperson	♁(1.49)	1-10"			7	78	129	27			241	(r)	
Mrs. H. C. and C. H. Epperson (t)	♁(1.5)	1-20"			239	214	164	99			716		(s)260
H. C. and C. H. Epperson	(u)♁(1.51)	1-16"			355	587	601	662	453		2658		(s)
Elden Tarke	♁(3.0)	1-14"					NO DIVERSION						
Edward Dean	*16.7N	1-12"				42	42	34	60	66	(v)244	(j)128	
Edward Dean	*16.75N	1-16"				23	33	16			72	100	
Frye, Bryant, and Frye (a)	*18.6N	1-20"					4	69	14		87	275	

* Indicates 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 drain canal for drainage plant #2 that joins East Borrow Pit, 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.

♁ 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.

(a) New installation in 1954.
(b) Additional acre-feet diverted: November 16.
(c) All duck club lands.
(d) See plant on Feather River at Mile 58.1R.
(e) Combined acreage for Miles 7.1N and 10.0N (2.5).
(f) The 20" unit was installed in 1954.
(g) Additional acre-feet diverted: November 486.
(h) All duck refuge lands.
(i) Additional acre-feet diverted: January 2.
(j) This acreage was reused for duck ponds.
(k) The acreage listed for Mile (1.7R) also received an undetermined amount of water from Miles (1.35R) and (1.36R).
(m) Combined acreage for (1.35R) and (1.36R). Includes 19 acres of Kellogg lands.
(n) One 10" and a 14" unit were removed in 1954.
(p) Combined acreage for plants at Mile (2.5R).
(q) Includes 34 acres of Joaquin land.
(r) Combined acreage for Miles 16.7N (1.49) and 19.1N. Includes acreage as follows: Middleton 100, Bertha DeWitt 53, M. G. DeWitt 47, LeRoy Myers 47, W. Nall 80, Madden 70, and Epperson 346.
(s) Combined acreage for Miles (1.5) and (1.51).
(t) Formerly listed as Phillip Niesen.
(u) Formerly listed as (1.5).
(v) Additional acre-feet diverted: January 7, November 16 and December 13.

TABLE 180

DIVERSIONS AND ACREAGES IRRIGATED - SUTTER BY-PASS AND SACRAMENTO SLOUGH - 1954 (contd.)

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 ** (contd.)								
Epperson, Myers, DeWitt, and Middleton	19.1N	1-14"			114	305	443	166			1028	(a)743	
T. S. Madden (b)	19.9N	1-16"			181	344	364	369	283		1541		161
--STATE HIGHWAY 20 BRIDGE--	19.98N												
--SACRAMENTO NORTHERN RAILROAD BRIDGE--	20.0N												
	*						Sacramento Slough						
C. Fred Holmes	1.4R	1-12"					NO DIVERSION						
Totals			0	1233	17045	26373	29344	28257	19982	3023	125257	11418	7993
Average cubic feet per second			0	21	277	443	477	460	336	49	258		
Monthly use in per cent of seasonal			0	1.0	13.6	21.0	23.4	22.6	16.0	2.4			

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

(a) Combined acreage for Miles 16.7N (1.49) and 19.1N. Includes acreage as follows: Middleton 100, Bertha DeWitt 53, M. G. DeWitt 47, LeRoy Myers 47, W. Nall 80, Madden 70, and Epperson 346.
(b) New installation in 1954.

TABLE 181

DIVERSIONS AND ACREAGES IRRIGATED - FEATHER RIVER - 1954

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"					172	183			355	480	
Kipp and Reith (a)	2.2L	1-18"				128	82	367	274	127	978	170	
Walter Raymond	2.6R	2-20"				32	987	290			1309	922	
John C. Johnston	3.0L	1-10"				NO DIVERSION							
White Oak Ranch	5.6L	1-14"		35	109	163	188	111	117		723	218	
A. L. Haymore	6.44L	1-10"			23	116	114	72	53	81	459	(b)126	
M. Scheiber	7.7L	1-10"			40	107	145	139	104	55	590	223	
--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	2-20" 1-24"			5120	4493	4197	4081	2997	189	(c)21077	1034	(d)2087
Farm Lands and/or Plumas Mutual Water Companies	17.5L	2-20"		303	1699	2244	2497	2471	1863	885	(e)11962	(f)1294	(f)800
Oswald Water District	21.4R	2-16"			296	787	668	628	124	126	2629	630	
--GAGING STATION - FEATHER RIVER BELOW SHANGHAI BEND--	23.0R												
Earl R. Huffmaster	25.2R	1-10"				63	90	105	87		345	223	
--MOUTH OF YUBA RIVER--	27.3L												
--GAGING STATION - FEATHER RIVER AT YUBA CITY--	28.0R												
--10TH STREET HIGHWAY BRIDGE--	28.2												
Ray Chandler (g)	32.3R	1-10"					13	42	3		58	70	
A. A. Sligar and Son	33.2L	1-3"				11	11	11	11		44	85	
G. D. Prindiville	33.3R	1-10"			45	137	88	93	14		377	126	
J. L. Sullivan, Jr.	33.9R	1-10"				82	118	42			242	115	
Sutter Extension Water District	38.1R	1-26" 2-42"			2174	879	2761	3754	2095		11663	(h)	(h)
La Finca Orchard	38.5L	1-4"					10				10	10	

(a) New installation in 1954.
(b) This acreage also received an undetermined amount of well water.
(c) Additional acre-feet diverted: December 85.
(d) Of this acreage, 20 was reused for duck club.
(e) Additional acre-feet diverted: November 75.
(f) This acreage also received an undetermined amount of water from wells and controlled drainage.
(g) Formerly listed as A. C. Rackerby.
(h) This is the combined acreage for plant at Mile 38.1R, the Sutter Extension Water District Diversion at Mile 58.1R, and the plants on Sutter By-Pass, East Borrow Pit at Mile 10.0N, (2.0) and (6.7). This acreage also received an undetermined amount of controlled drainage water.

TABLE 181

DIVERSIONS AND ACREAGES IRRIGATED - FEATHER RIVER - 1954 (contd.)

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 Irrigates	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
--HONCUT SLOUGH--	43.7L												
Mathews, Sullivan, and Prindiville	*(0.4L)	1-18"			95	160	173	97			525	322	
Jesse Frakes	*(1.2L)	1-8"				42	23	13			78	68	
Ray Washburn	*(1.25L)	1-8"				53	94	67	54	6	274	91	
W. R. Madsen	44.0R	1-4"					28	9			37	43	
W. Earl Willey	44.5R	1-7"				4	9	21			34	27	
Fred Harrington and Brothers (a)	46.3L	1-20" 1-24"			1052	2891	2737	2227	1739	362	11008	890	450
Manuel Aguiar	47.4L	1-7"				19	17	41	14	5	96	40	
Manuel Aguiar	47.9L	1-12"				50	69	68	66	33	286	(b)200	
Robert S. Biggs	48.0L	1-7"			9	72	93	85	14		273	(c)390	
Robert S. Biggs	48.3L	1-10"			8	60	120	105	2		(c)295	60	
Bowers Ranch (d)	49.0L	1-8"			5	42	44	4		10	105	56	
--GRIDLEY BRIDGE - GAGING STATION - FEATHER RIVER NEAR GRIDLEY--	49.7												
Robinson Estate (e)	50.4L	1-14"				109	116	332	214		771	(b)35	(b)115
M. A. Pedroza and Sons	50.7L	1-6"			56	51	62	69	41	20	(f)299	89	
S. T. Machado	50.7R	1-8" 1-10"				154	145	154	86		539	200	
Frank E. Norton	51.0R	1-6"				NO DIVERSION							
A. E. Bettencourt	51.0L	1-6"			3	7	15	9		1	35	36	
Steadman Orchards	51.4R	1-10"				NO DIVERSION							
Chester L. Hoar	51.6R	1-6"				1	21	14			36	55	
S. J. and J. R. Fratus	52.1L	1-10"			188	255	279	276	229		1227		(g)125
S. J. and J. R. Fratus (a)	52.2L	1-5"			86	56	74	62	18		296		(g)
Mart Butler	52.5L	(i)1-7"			27	47	56	50	32	14	(h)226	80	
A. K. Johnson	52.7L	1-8"			15	53	43	31	28	13	183	76	
Hearst Magazines, Incorporated	55.1L	1-14"				274	398	164			836	285	
--SUTTER BUTTE CANAL COMPANY DAM--	57.9												
Henry Haselbusch	57.9R	1-9"				17	50	11			78	48	
Sutter Butte Canal Company	(j)58.1R	Gravity		3479	27636	28937	28144	24118	16981	10740	(k)140035	13108	2875
Biggs-West Gridley Water District	(j)58.1R	Gravity		3697	29366	30749	29906	25628	18045	11413	(m)148804	3166	10084
Richvale Irrigation District	(j)58.1R	Gravity		3519	27951	29267	28464	24392	17175	10863	(n)141631	346	14371
Sutter Extension Water District	(j)58.1R	Gravity		2509	19927	20866	20294	17391	12244	7744	(p)100975	(q)2147	(q)10394
--WESTERN CANAL COMPANY DAM--	61.1												
Western Canal Company	61.2R	Gravity		1291	24926	32188	36988	34219	20255	5472	(r)155339	1275	23475
--OROVILLE-RICHVALE HIGHWAY BRIDGE--	62.6												
--OROVILLE-CHICO HIGHWAY BRIDGE--	65.0												
--GAGING STATION - FEATHER RIVER NEAR OROVILLE--	71.0												
Totals			0	14833	140856	155666	160603	142046	94979	48159	757142	28859	64776
Average cubic feet per second			0	249	2291	2616	2612	2310	1596	783	1558		
Monthly use in per cent of seasonal			0	1.9	18.6	20.6	21.2	18.8	12.5	6.4			

* Honcut Slough - Plant diverts Feather River water backed into Slough. Mouth of Slough at Mile 43.7L Distance from Feather River and bank is shown in ( ).
(a) Formerly listed as Fred Christenson.
(b) This acreage also received an undetermined amount of well water.
(c) The acreage listed for Mile 48.0L also received an undetermined amount of water from Mile 48.3L.
(d) Formerly listed as Edward Dunning.
(e) New installation in 1954.
(f) Additional acre-feet diverted: January 2 and November 2.
(g) Combined acreage for Miles 52.1L and 52.2L
(h) Additional acre-feet diverted: November 5.
(i) Replaces a 5" unit.
(j) 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.
(k) Additional acre-feet diverted: November 2323.
(m) Additional acre-feet diverted: November 2469.
(n) Additional acre-feet diverted: November 2350
(p) Additional acre-feet diverted: November 1675.
(q) This is the combined acreage for plant at Mile 38.1R, the Sutter Extension Water District Diversion at Mile 58.1R, and the plants on Sutter By-Pass, East Borrow Pit at Mile 10.0N (2.0) and (6.7).
(r) Includes 3451 acre-feet of duck-water in October. Additional acre-feet of duck-water diverted: January 1260 and November 2582.

TABLE 182

DIVERSIONS AND ACREAGES IRRIGATED - YUBA RIVER - 1954

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												
Richard Wilbur (a)	0.9L	1-10"					20	66	18		104	60	
--GAGING STATION - YUBA RIVER AT MARYSVILLE (SIMPSON LANE BRIDGE)--	0.9												
Ben Williams	1.4R	1-4"				7	5	3	1		16	4	
W. B. Harrington	1.8R	1-6"			78	49	60	40	12		239	46	
W. B. Harrington	2.2L	1-4" 1-5"				NO DIVERSION							
River Bend Ranch	3.0L	1-14"			91	57	148	96			392	70	
River Bend Ranch	3.1R	1-12"				30	33	3			66	30	
E. O. Rubke	4.1L	2-14"	15		23	284	288	188	15	23	836	(b)163	
E. O. Rubke	4.3L	1-10"			23	22	110	98	18		271	(b)	
Di Giorgio Fruit Corporation	4.75L	1-6"			19	141	14				174	(c)144	
Scott Hendricks	6.2L	1-12"				NO DIVERSION							
--DAGUERRE POINT DAM--	11.0												
Hallwood Irrigation Company	11.0R	Gravity			13469	15087	15572	14070	9766	8779	(d)76743	4732	2390
Cordua Irrigation District	11.0R	Gravity			9927	11283	11324	11948	11258	5982	(e)61722	(g)3388	(f)3690
Yuba Consolidated Gold Field Company	14.5L	Gravity				NO AGRICULTURAL USE							
--HIGHWAY 20 BRIDGE--	17.1												
--NARROWS DAM--	22.8												
Totals			15	0	23630	26960	27574	26512	21088	14784	140563	8637	6080
Average cubic feet per second			0	0	384	453	448	431	354	240	289		
Monthly use in per cent of seasonal			0	0	16.8	19.2	19.6	18.9	15.0	10.5			

(a) Formerly listed as C. Wesley Reed.
(b) Combined acreage for Miles 4.1L and 4.3L.
(c) This acreage also received an undetermined amount of well water.
(d) Additional acre-feet diverted: November 6615.
(e) Additional acre-feet diverted: January 832, November 5778, and December 5982.
(f) Of this acreage, 1025 were reused for duck ponds. Includes 315 acres outside of District. Includes 40 acres inside of District which also received an undetermined amount of well water.
(g) Includes 257 acres outside of District of which 235 acres were duck ponds. Includes 433 acres of duck ponds inside of District.

TABLE 183

DIVERSIONS AND ACREAGES IRRIGATED - BEAR RIVER - 1954

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"			6	17					23	(a)50	
California Packing Corporation	10.7L	1-10"			86						86	(a)111	
--HIGHWAY 99E BRIDGE--	11.3												
--GAGING STATION - BEAR RIVER NEAR WHEATLAND--	11.3												
--SOUTHERN PACIFIC RAILROAD BRIDGE--	11.35												
Totals			0	0	92	17	0	0	0	0	109	161	0
Average cubic feet per second			0	0	1	0	0	0	0	0	0		
Monthly use in per cent of seasonal			0	0	84.4	15.6	0	0	0	0			

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

TABLE 184

DIVERSIONS AND ACREAGES IRRIGATED - AMERICAN RIVER - 1954

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												
--WESTERN PACIFIC RAILROAD BRIDGE--	2.1												
Joe Gomez	2.4L	1-5"			4	9	8	1	1	3	26	7	
North Sacramento Lands Company	2.65R	1-8"				NO DIVERSION							
North Sacramento Lands Company	2.75R	1-5"				7	7	6			20	32	
--SOUTHERN PACIFIC RAILROAD BRIDGE--	3.0												
--GAGING STATION - AMERICAN RIVER AT SACRAMENTO (H STREET)--	6.0												
E. Clemens Horst Company	6.5R	1-6"			15	66	45				126	(a)445	
E. Clemens Horst Company	7.5R	1-8"			35	118	90				243	(a)	
J. I. Haas, Incorporated	7.7R	1-4"				44	61	8		9	122	83	
Del Paso Rock Products Company	8.9R	1-1½"				NO AGRICULTURAL USE							
Walter J. Wissemann (b)	9.0L	1-6"				18	33	6			57	37	
G. L. Browning	9.05R	1-5"				1	7	11	8		27	20	
J. G. and F. F. Dauenhauer	9.2L	1-8"			1	39	43	23	12		118	(c)72	
Ruth Coleman	9.4L	1-5"				NO DIVERSION							
Del Paso Rock Products Company (d)	10.2R	1-8"			41	70	82	7	39		239	65	
Gold Nuggett Orchard Company	10.4R	1-5"			6	18	17	12	3		56	17	
Mucke Sand and Gravel Company	11.2L	1-6"		2	4	6	6	5	3	4	30	24	
J. T. Gore	11.5L	1-4"					11	1			12	30	
William A. Meyer	11.7L	1-4"				9	9	3		7	28	25	
J. R. Deterding	15.8R	1-4"		4	7	14	20	18	17	15	95	50	
Carmichael Irrigation District	16.0R	1-6" (e)3-12"	20	256	558	1178	1488	1138	1009	408	(f)6055	(g,h)3725	
--GAGING STATION - AMERICAN RIVER AT FAIROAKS--	19.2												
Totals			20	262	671	1597	1927	1239	1092	446	7254	4632	0
Average cubic feet per second			0	4	11	27	32	20	18	7	15		
Monthly use in per cent of seasonal			0.4	3.6	9.2	22.0	26.6	17.1	15.0	6.1			

(a) Combined acreage of plants at Miles 6.5R and 7.5R. This acreage also received an undetermined amount of well water.
(b) Previously listed as W. J. Wissemann.
(c) This acreage also received an undetermined amount of well water.
(d) Formerly listed as Sweem Brothers.
(e) One 12" unit was installed in 1954.
(f) Additional acre-feet diverted: November 21.
(g) District is suburban land and no segregation of irrigated acreage is available.
(h) This acreage also received 1354 acre-feet of well water.

TABLE 185

DIVERSIONS AND ACREAGES IRRIGATED - COSUMNES RIVER - 1954

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	2.0L	1-30"		128	313	305	345	345	335	112	1883	270	190
--STATE HIGHWAY 104 BRIDGE--	5.3												
Fred G. Cary	(a)6.0L	1-3"				6	6				12	40	
L. G. Kilkeary and H. Trevor	9.8R	(b)1-16"				235					(c)235	(d)910	
J. R. Guttridge	10.5R	1-6"			73	71	13				157	(e)100	
--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"		22	19	49	24				114	(f)80	
J. C. Carli	14.4R	1-10"				NO DIVERSION							
M. F. Larkin	14.6L	1-5"				2	8				10	28	
--FREEMAN ROAD BRIDGE--	14.9												
Ralph Nix (g)	15.2L	1-8"				22					22	25	
H. A. Saner	15.4R	1-8"				NO DIVERSION							
J. I. Nix	15.8L	(h)1-6"				3					3	9	
--WILTON ROAD BRIDGE--	16.8												
--CENTRAL CALIFORNIA TRACTION COMPANY RAILROAD BRIDGE--	16.8												
George D. Beitzel	18.2R	1-12"			34	65	44				143	135	
Bright Estate (Mike Marinelli)	20.1R	1-12"			119	263	235				617	(e)300	
J. I. Haas, Incorporated	20.9R	1-12"				65	43				108	(e)72	
F. Barbero	21.6L	1-6"			7	27					34	(e)30	
Rooney Brothers	23.7R	1-12"				82	21				103	(e)140	
W. Jared Sheldon	24.4R	1-8"				91	59			43	193	(e)176	
--DILLARD ROAD BRIDGE--	24.8												
P. Westerberg	25.5R	1-14"			20	58	46				(i)124	(e)135	
A. V. Signorotti	25.6R	1-3"				2	2	1			5	3	
R. F. and R. M. Grimshaw	25.9R	1-8"				26	4				30	45	
A. V. Signorotti	26.3R	1-5"				15	7	5			27	16	
F. Morse Grimshaw	26.4R	1-6"				7		7			14	10	
G. C. Johnson	26.5L	1-5"			8	26	30				64	(j)	
G. C. Johnson	27.3L	1-6"			5	38	70				113	(j)98	
F. Silva, Jr.	27.8L	1-6" 1-8"				63	85				148	(e)165	
R. Sartain (g)	28.6R	1-5"				10	36	25			71	55	
Schneider Ranch	30.0L	1-8"			118	111	105	103	92	90	619	100	
--STATE HIGHWAY SIXTEEN BRIDGE--	31.3												
A. Granlees	32.6R	1-3"			3	8	10	10	9	9	(k)49	25	
--GRANLEES DAM--	33.0												
Cosumnes River Water District	33.0R	Gravity		15	435	971	541	544	462	375	(m)3343	800	
--GAGING STATION - COSUMNES RIVER AT MICHIGAN BAR--	34.3												
Totals			0	165	1154	2621	1734	1040	898	629	8241	3767	190
Average cubic feet per second			0	3	19	44	28	17	15	10	17		
Monthly use in per cent of seasonal			0	2.0	14.0	31.8	21.1	12.6	10.9	7.6			

(a) Portable unit diverted between Miles 5.3L and 6.1L in 1954.
(b) Replaces an 8" unit.
(c) Additional acre-feet diverted: November 132.
(d) Includes 160 acres of Maitre Brothers land.
(e) This acreage also received an undetermined amount of well water.
(f) Includes 40 acres which also received an undetermined amount of well water.
(g) Installed prior to 1954. Not previously listed.
(h) Replaces a 4" unit.
(i) Additional acre-feet diverted: November 18.
(j) Combined acreage for Miles 26.5L and 27.3L.
(k) Additional acre-feet diverted: November 4.
(m) This figure is the diversion entering the District under 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 15.

TABLE 186

DIVERSIONS AND ACREAGES IRRIGATED - MOKELUMNE RIVER - 1954

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	6.6R	1-12"		1	263	277	234	233	207	31	(a)1246	79	135
Thornton Farms	6.9R	1-8"	NO DIVERSION										
--GALT-THORNTON HIGHWAY BRIDGE--	7.0												
Thornton Farms	7.6R	2-12"		204	761	802	966	891	363	14	4001	(b)372	(b)395
Thornton Farms	8.1R	1-12"		186	165	178	206	202	46		983		60
Albin G. Steffan (c)	8.7R	1-12"		4	75	84	76	60	51	42	392	113	
S. and J. Frandy	10.4L	1-12"			5	35	12	24	18	4	98	14	
Albin G. Steffan (c)	10.6R	1-16"	1	150	563	618	712	600	402	408	(d)3454	445	
H. C. Braly	15.5R	1-3"		2	8	25	15	20	7	10	(e)87	10	
A. Taddei	15.6R	1-6"			1	31	36	6	23	3	(f)100	56	
R. J. Linde	16.8R	1-6"				55	26	7			88	111	
--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		10100	21390	23070	24000	22510	16530	13400	(g)131000	15170	2002
LeMoin Beckman	21.1L	1-5"	NO DIVERSION										
LeMoin Beckman	21.3L	1-3"	NO DIVERSION										
Lewis D. Bridge	21.85R	1-6"			5	35	43	15			98	33	
Sidney Halsey	22.5R	1-5"			18	25	15	12			70	18	
J. B. Ballantine (h)	22.7L	1-6"			32	23	25	21		16	(i)117	(j)38	
L. R. Sanguinetti	23.4L	1-6"				5	1	3	1		10	8	
Nora E. Mumbert	23.4R	1-4"			5	10	6				21	16	
M. M. Bender	(k)23.5R	1-4"	DOMESTIC USE ONLY										
--SOUTHERN PACIFIC RAILROAD BRIDGE--	23.6												
Ben Bechthold	24.0L	1-4"		3	9	23	4	4	1	5	(m)49	.13	
Ben Bechthold (n)	24.05L	1-4"					1	1			2	8	
--HIGHWAY 99 BRIDGE--	24.2												
Litts, Mullen, and Perovich	24.45L	1-5"		1		10	4	1			16	7	
Lawrence Ranch	24.5L	1-6" 1-10"	109	115	88	43	55	38	21	5	474	129	
S. and M. Miller	24.8L	1-6"		1	1	7	6	6	1		22	14	
Kirschenmann and Mettler	25.2R	1-6"		93	45	3	1				142	(j)69	
M. and N. Palmer	25.5L	1-4"	NO DIVERSION										
--CENTRAL CALIFORNIA TRACTION COMPANY BRIDGE--	25.6												
Vasco Mencarini	26.9R	1-5"				28	8	30			66	59	
Irene Green	27.5L	1-5"	23	67			21	16			127	(p)87	
R. J. Linde	27.6L	1-8"		11		9	4	7			31	20	
A. E. Joens	27.9L	1-10"	75	96	80	8	7				(q)266	105	
Frank G. Dick	28.5L	1-4"						2			2	9	
P. T. Nakagawa, et al.	28.6R	1-6"		6	27	87	109	66	21		316	132	
L. J. Peterson (r)	28.9L	1-4"	NO DIVERSION										
W. E. Mehlhaff	29.9R	1-8"		33	40	8	12	6	8	5	112	68	
E. Bender	30.0L	1-10"	1	12	22	23	24	36	25	11	154	20	
--BRUELLA ROAD BRIDGE--	30.0												

* Mile and Bank above New Hope Bridge.
(a) Additional acre-feet diverted: November 2.
(b) Of this acreage, 310 of rice and 290 of general crops also received an undetermined amount of water from Dry Creek.
(c) Previously listed as A. Steffan.
(d) Additional acre-feet diverted: November 22.
(e) Additional acre-feet diverted: November 1.
(f) Additional acre-feet diverted: January 12, November 1.
(g) Additional acre-feet diverted: November 3500.
(h) New installation in 1954.
(i) Additional acre-feet diverted: November 27.
(j) This acreage also received an undetermined amount of well water.
(k) Previously listed as Mile 23.6R.
(m) Additional acre-feet diverted: January 20.
(n) Temporary installation in 1954.
(p) Includes 37 acres which also received an undetermined amount of water from controlled drainage.
(q) Additional acre-feet diverted: February 12, November 116.
(r) Previously listed as L. M. Peterson.

TABLE 186

DIVERSIONS AND ACREAGES IRRIGATED - MOKELUMNE RIVER - 1954 (contd.)

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
V. W. Hoffman and Sons	30.15R	1-5" 1-6"	25	12	14	41	43	19	8		162	70	
N. H. Davis	30.35R	1-6"		6	18	9	14	11	2	1	61	51	
J. J. Schmiedt	30.95L	1-7"					16	30	20	20	86	55	
Leon Kirschenmann and Leonard Preszler, et al. (a)	31.0L	1-8"		113	242	39	20	10	2		426	155	
Rosa D. Soucie	31.7L	(b)1-5"				2	12				14	26	
L. J. Peterson (c)	32.5L	1-5"			8	7	16	11	9	5	56	15	
Langford Ranch (Herbert Buck)	32.75R	1-5"		14	15	15					44	(d)105	
C. M. Locke	33.25L	1-10"		6	58	61	75	71	12		283	119	
Acampo Vineyards	33.45R	1-8"				30	8	10			48	18	
Acampo Vineyards	33.6R	1-8"	6	26	19	52	63	48		1	215	(e)110	
Niel C. Locke	33.7L	1-12"	1	132	123	199	258	251	92	19	(f)1075	(g)307	
H. C. Russell	33.75L	1-10"					33	18	6		57	70	
T. and E. Schmierer	33.8R	1-4"		3	10	11	14	16	12	4	70	15	
C. J. Seibel	34.05R	1-4"		5	12	3	2	4	2	1	29	(h)16	
A. and M. Knoll	34.1R	1-4"				40	53	13			106	(i)76	
N. D. and D. D. Knoll	34.3R	1-4"			5	24	2		1		32	17	
--COUNTY ROAD BRIDGE--	34.35												
J. B. Ward	34.5R	1-4"			7	8	11	9	12	10	57	13	
H. C. Russell	34.55L	1-10"		45	88	136	158	119	75	73	694	115	
H. C. Russell (j)	34.56L	1-5"			4	4	4	4			16	14	
Kenneth H. Beckman	34.6R	1-5"	3	7	7	7	8	5			37	15	
H. C. Russell	34.75L	1-12"			105	120	196	97	22	7	547	(f)202	
E. R. Thomas	35.15R	1-6"		14	46	78	78	61	15	11	303	(k,d)180	
E. M. Locke	35.2L	1-8"			27	41	37	24	11	27	167	53	
J. N. Borroughs	35.4L	1-8"		6	40	38	45	44	24	40	237	(d)145	
E. R. Thomas	35.5R	1-8"		10	19	55	45	59	18		206	50	
C. L. Allen	35.7L	1-8"		3	3	25	43	39	8	2	123	70	
P. Montgomery	35.9L	1-7"				17	31	22	4		74	72	
W. S. Montgomery	36.0L	(m)1-12"			15	54	90	60	38	10	(n)267	(p)141	
E. R. Thomas	36.2R	1-10"			38	87	92	60	33	11	(k)321	99	
O. Parker	36.45L	1-12"			34	54	88	78	16		270	125	
W. L. Moffat	36.8R	1-8"			11	34	58	23			126	53	
J. R. Wiederrich	37.15L	1-10"				13	85				98	41	
W. L. Moffat	37.45R	1-8"				25	59	50	10		144	80	
W. L. Moffat	37.65L	1-10"				71	42	46	8		167	90	
Costa Estate	37.7R	1-12"		28			39	22	4		93	30	
M. C. and H. L. Thompson	38.0L	2-6"			27	11	21	29	15		103	70	
J. N. Borroughs	38.1L	1-6"			19	32	60	43	53	81	288	53	
P. L. and V. A. Stabel	38.3L	1-10"				34	23	29	15		101	46	
Gertrude W. Chrisman	38.5L	1-12"					35	66	7		108	80	
Clements Estate	39.0L	1-12"		104	436	480	508	455	323	270	(q)2576	324	
R. S. Featherston	39.3R	1-14"				NO DIVERSION							
--HIGHWAY 88 BRIDGE--	39.3												
--GAGING STATION - MOKELUMNE RIVER NEAR CLEMENTS--	39.35												
Totals			244	11619	25053	27479	29114	26773	18602	14547	153431	20609	2592
Average cubic feet per second			4	195	407	462	473	435	313	237	316		
Monthly use in per cent of seasonal			0.2	7.6	16.3	17.9	19.0	17.4	12.1	9.5			

* Mile and Bank above New Hope Bridge.
(a) Previously listed as L. Kirschenmann.
(b) Replaces a 4" unit.
(c) Previously listed as L. M. Peterson.
(d) This acreage also received an undetermined amount of well water.
(e) Includes 16 acres of F. L. Bacheller lands.
(f) 50 acres listed at Mile 34.75L also received an undetermined amount of water from Mile 33.7L.
(g) Includes 13 acres which also received an undetermined amount of well water.
(h) Includes 3 acres of Leonard Mettler lands.
(i) Includes 25 acres George Lewis lands and 25 acres John Grafina lands.
(j) Temporary installation for 1954.
(k) The acreage listed for Mile 35.15R also received an undetermined amount of water from Mile 36.2R.
(m) Previously listed as an 8" unit.
(n) Additional acre-feet diverted: November 9.
(p) Includes 61 acres which also received an undetermined amount of well water.
(q) Additional acre-feet diverted: November 23.

TABLE 187

DIVERSIONS AND ACREAGES IRRIGATED - CALAVERAS RIVER - 1954

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	4.4R	4-6"			416	434	388	472	408	9	2127	150	75
--SOUTHERN PACIFIC RAILROAD BRIDGE--	5.3												
--STOCKTON DIVERTING CANAL--	5.4L												
Roy Moresco (a)	5.7L	1-4"			10	15	11	6			42	(b)25	
Claude Moresco (c)	6.0L	1-5"			9	9	16	18			52	(b)30	
--U. S. 50 AND 99 HIGHWAY BRIDGE--	6.8												
--CENTRAL CALIFORNIA TRACTION COMPANY RAILROAD BRIDGE--	7.9												
A. V. Lagorio	8.5L	1-6"			18	10	20	20			68	(b)25	
--SOLARI ROAD BRIDGE--	8.8												
--GAGING STATION - CALAVERAS RIVER NEAR STOCKTON--	8.9												
E. Leonardini	9.1R	1-4"		2	10	11	10	10			43	(b)25	
Uyeda Brothers	9.9L	1-6"			17	37	42	25			121	(b)62	
Rugani Brothers	9.9R	1-6"			9	16	26	19			70	(b)54	
E. and R. Sanguinetti	10.2R	1-8"	3		7	8	14	8			(d)40	(b)25	
--ALPINE ROAD BRIDGE--	10.6												
John B. Garibaldi (a)	11.0L	1-5"			16	22	28	21			87	(b)33	
John Arata	11.2L	1-5"			9	8	23				40	(b)20	
Irene Saccone (e)	11.4L	1-4"		2	15	13	18	19			67	30	
Frank Solari	11.4R	1-6"		8	28	34	53	37			160	(b)100	
--PEZZI DAM--	11.8												
Julia Pezzi and Sons	11.8R	Gravity			27	45	63	45			180	60	
Julia Pezzi and Sons (c)	11.81L	Gravity			14	22	32	22			(f)90	(f)30	
Julia Pezzi and Sons	11.85L	Gravity									(f)	(f)	
A. Navone	11.85R	Gravity			8	7	7	5			(g)27	(g,h)9	
Julia Pezzi and Sons	11.95L	Gravity			3	5	8	5			21	7	
A. Navone	11.95R	Gravity									(g)	(g)	
Julia Pezzi and Sons	12.0L	Gravity			5	9	13	9			36	12	
Julia Pezzi and Sons	12.05L	Gravity			6	10	13	10			39	13	
L. Freggiaro and Son	12.05R	Gravity			15	14	13	9			(i)51	(i,b)17	
Julia Pezzi and Sons	12.1L	Gravity			3	4	6	5			18	6	
Julia Pezzi and Sons	12.15L	Gravity			7	11	16	11			45	15	
--MURPHY DAM--	12.3												
A. Sciutti	12.3L	Gravity			17	16	16	11			60	20	
L. Freggiaro and Son	12.3R	Gravity									(i)	(i)	
Tony Pastore	12.35L	Gravity									(j)	(j)	
G. Freggiaro and Son	12.39R	Gravity									(k)	(k)	
G. Freggiaro and Son	12.40R	Gravity				NO DIVERSION							
G. Freggiaro and Son	12.41R	Gravity			9	15	24	12			(k)60	(k,b)20	
H. B. Murphy and C. Bava and Son	12.42R	Gravity			24	42	69	33			168	56	
Tony Pastore	12.5L	Gravity									(j)	(j)	
Tony Pastore	12.6L	Gravity				9	9	9			(j)27	(j)9	
Vic Freggiaro	12.6R	Gravity			24	36	24	36			120	40	
--STATE HIGHWAY 88 BRIDGE--	12.7												
Tony Pastore	12.8L	Gravity					2				2	(b)3	
Percy Pope	12.9R	Gravity			24	20	20	19			83	32	
Ed O. Brandstad (a)	13.6R	1-6"				56	31	22	8		117	(b)58	

(a) New installation in 1954.
(b) This acreage also received an undetermined amount of well water.
(c) Installed prior to 1954. Not previously listed.
(d) Additional acre-feet diverted: February 2.
(e) Formerly listed as Edith Foppiano.
(f) Combined acreage and diversion for Miles 11.81L and 11.85L.
(g) Combined acreage and diversion for Miles 11.85R and 11.95R.
(h) Includes one acre which also received an undetermined amount of well water.
(i) Combined acreage and diversion for Miles 12.05R and 12.3R.
(j) Combined acreage and diversion for Miles 12.35L, 12.5L, and 12.6L.
(k) Combined acreage and diversion for Miles 12.39R and 12.41R.

TABLE 187

DIVERSIONS AND ACREAGES IRRIGATED - CALAVERAS RIVER - 1954 (contd.)

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
William Thrush (a)	13.9L	1-6"			51	98	9				158	(b)160	
N. Tassano	14.0R	1-4"		25	27	28	29	11			120	(b)30	
J. Schiaffini	14.4R	1-4"			31	14	18	21			84	20	
Grattone and Bava	14.5R	1-12"		23	134	178	196	166			697	194	
L. and R. DeVincenzi (a)	14.8R	1-16"		21	30	58	72	64			245	(b)95	
Dave V. Sanguinetti (a)	15.1L	1-5"		11	10	37	53	29			140	(c)53	
A. Girardi	15.4R	1-12"		15	65	42	63	28			213	(d,e)197	
J. H. Tone	15.7L	1-10"		7	7	56	49	30			149	90	
--JACK TONE ROAD BRIDGE--	15.8												
John Plotz	16.0R	1-5"				15	14	15			44	(f)37	
L. A. Cademartori (g)	16.2L	1-5"			33	50	29	54			166	(b)65	
Joe Phillips	16.5L	1-6"			58	17	94	70			239	(h)95	
C. Paoletti	16.6L	1-5"			12	13	16	15			56	(i)32	
Lawrence Zolezzi	16.8L	1-6"			34	52	50	25			161	64	
John Boggiano	17.3L	1-6"			46						46	(b)40	
--TULLY ROAD BRIDGE--	17.8												
Steve Solari	18.4L	1-8"			119	122	145	99			485	250	
Joe Landoni	19.3R	1-5"			19	32	25	39	9		124	(b)38	
E. F. Messick	19.8R	1-5"		1	3	1	3	3			11	(b)4	
W. E. Lynch	19.8L	1-4"				NO DIVERSION							
L. Vaccarezza	20.1L	1-5"		6	16	21	20	20			83	(b)30	
Bethel Guernsey (j)	20.3L	1-10"		15	19	34	41	28			137	(b)54	
G. Pacini (a)	20.4L	1-3"				4		4			8	(b)10	
Frank G. Rossi	20.6L	1-5"			5	6	5	5			21	(b)20	
Guernsey Ranch	20.9R	1-8"		12	107	81	94	101			395	(b)100	
G. Arboco	21.0L	1-4"			5	26	31	27			(k)89	(b)38	
Frank Giannecchini	21.01L	1-5"				11	10				21	(b,k)40	
--CLEMENTS ROAD BRIDGE AND DAM--	21.1												
E. W. Marciano, D. Canepa, and C. DeMartini	21.1L	Gravity			88	117	205	175			585	(b)195	
Albert Metzler	21.11L	Gravity			26	35	61	52			174	(b)58	
Mailand Ferrill	21.3L	1-5"				12	10		1		23	(b)25	
D. Giordano	21.4L	1-4"				3					3	(b)8	
Domonick Figone	21.5L	1-5"			6		6	6			18	(b)30	
--NORTH SLOUGH--	21.6R												
--NORTH SLOUGH CONTROL GATES--	*(0.0)												
F. Harrison	*(1.3L)	1-4"				2					2	(b)3	
L. Robinson	*(1.3R)	1-3"		1	3	1	3	2			10	10	
S. Filippone	*(1.8L)	1-4"				11	11	4			26	(b)12	
Webster Ranch (a)	*(1.81L)	1-12"			75	78	86	81			320	(b)194	
W. G. Fisher	*(4.1L)	1-4"		10	36	69	62	66			243	(b)60	
--TULLY ROAD BRIDGE--	*(4.2)												
George and Charles Hansen (m)	*(4.3L)	1-4"			14						14	(b)14	
J. H. Tone	*(6.0R)	1-10"				78	43	74	30		225	(b)146	
A. Girardi	*(6.1L)	1-16"			15	49	59	53			(d)176	(b)50	
Lyons Brothers (a)	*(6.6R)	1-10"			7	64	44	37	18		170	(n)127	
A. G. Steltzner	*(7.3R)	1-8"			9	67	33	99	36		244		(b)130
J. W. Hannah, Jr.	*(7.8L)	(p)1-8"			197	233	297	369	158		1254		(b) 60
--STATE HIGHWAY 88 BRIDGE--	*(8.1)												
A. G. Steltzner	*(8.1R)	1-6"			16	44	19	46	23		148		(b)100

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

(a) New installation in 1954.
(b) This acreage also received an undetermined amount of well water.
(c) Includes 24 acres which also received an undetermined amount of well water.
(d) The acreage listed for Mile 15.4R also received an undetermined amount of water from Mile 21.6R (6.1L).
(e) Includes 27 acres which also received an undetermined amount of well water.
(f) Includes 13 acres which also received an undetermined amount of well water.
(g) Previously listed as L. Cademartori.
(h) Includes 50 acres which also received an undetermined amount of well water.
(i) Includes 15 acres which also received an undetermined amount of well water.
(j) Formerly listed as Guernsey Ranch.
(k) The acreage listed for Mile 21.01L also received 18 acre-feet of water from Mile 21.0L.
(m) Temporary installation for 1954.
(n) Includes 40 acres which also received an undetermined amount of well water.
(p) Previously listed as a 9" unit.

TABLE 187

DIVERSIONS AND ACREAGES IRRIGATED - CALAVERAS RIVER - 1954 (contd.)

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
W. C. Leffler (a)	*(11.5L)	1-10"			187	330	340	275			1132		(b)41
Webster Ranch	21.7R	1-8"			25	100	128	132	22		407	(b)125	
Ralph Houston	21.9R	1-8"		22	28	44	39	50			183	(b)86	
Andrew Cuneo	22.0L	1-12"			10	152	80	152			(c)394	140	
Nick Genetti	22.1L	1-4"		15		11	11	5			42	(b)19	
Joe DeMartini	22.2R	1-8"		8		39	62	42			151	78	
Carroll and Anderson	22.3L	1-8"		28	69	85	40	43			265	(b)96	
John Boggiano	22.4R	1-10"		5	16	37	35	44			137	(d)65	
Caeser DeMartini	22.7R	1-12"		7	13	52	71	61			204	162	
Louis Tassano	22.9L	1-8"			11	4					15	(b)75	
Frank DeBenedetti	23.1L	1-7"			2	9	4	7			22	(b)23	
Fred Podesta	24.3L	1-12"		25		25	33				83	(e)	
Fred Podesta	24.4L	1-12"	116	201	100	164	301	322			1204	(e)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	25.3R	1-10"		7	49	78	76	144	41		395	(b)103	
D. Creary	25.3L	1-3"				1	2	1			4	(b)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"		7		24	51	50			132	(b)60	
Angelo Solari (f)	*(0.5L)	1-8"			14	39	38	51			142	(b)74	
Fred Casella	*(0.9L)	1-6"			50	21	48	27			146	(b)89	
Linden Orchard	*(1.4R)	* 1-12"	20	49	129	217	223	164			802	(g)324	
Sam Motoike	*(1.5L)	1-8"	2	6		17	15	13			53	(b)30	
Raymond Motoike (a)	*(1.7L)	1-6"				22	16	16			54	(b)30	
E. Marugliano	*(2.0R)	1-7"			26	18	19	35			98	42	
C. and F. Sanguinetti	*(2.0L)	1-8"	2		40	41	94	73			250	(b)85	
--FINE ROAD BRIDGE--	*(2.7)												
Frank Solari	*(2.7L)	1-5"				PLANT REMOVED							
Caeser DeMartini	*(3.4R)	1-10"		5	16	26	34	20			101	48	
John Avansino	*(3.5L)	1-5"				20	5	16			41	30	
Louis J. Lagorio	*(3.6R)	1-6"			18	32	21	35			106	(b)101	
P. W. Leonardini	*(4.1L)	1-7"	18	12	28	44	38	58			198	(b)100	
Bertha E. Case (h)	*(4.4L)	1-8"			8	5	35	17			65	(b)60	
John A. Lagorio	*(5.8L)	1-7"				15	23	13			51	(b)40	
C. and F. Sanguinetti	*(6.1L)	1-6"	16		10	36	39	26			127	(b)64	
P. Paoletti	*(6.2R)	1-6"			10	3	5	5			23	(b)18	
A. and R. Lagorio	*(6.9L)	1-8"			35	48	62	50			195	(b,i)98	
A. and R. Lagorio	*(7.2L)	1-8"			19	39	29	17			104	(b)102	
Mapes Brothers (a)	*(7.5R)	1-3"			2	22	38	29			91	(b)60	
D. Paoletti and Son (a)	*(7.8R)	1-6"			6	19	23	11			59	(b)41	
--COPPEROPOLIS ROAD BRIDGE--	*(7.8)												
Dick Wilma (a)	*(11.7R)	1-5"				35	39	26			100	(b)60	
Frank C. Raffel	*(11.9L)	1-6"			17	34	33	39			123	(b)117	
Joseph Caffese and Sons (j)	*(12.8R)	1-7"		4	7	4	18	12	2	2	49	(b)15	

* 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 the river through Stockton Diverting Canal. Distance from Calaveras River and Bank is shown in ( ).

(a) New installation in 1954.

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

(c) Additional acre-feet diverted: January 154, February 125.

(d) Includes 10 acres which also received an undetermined amount of well water.

(e) Combined acreage for Miles 24.3L and 24.4L. This acreage also received an undetermined amount of well water and controlled drainage water.

(f) Formerly listed as A. Solari.

(g) Includes 200 acres which also received an undetermined amount of well water.

(h) Formerly listed as Clarence R. Russell.

(i) Includes 24 acres of Caffese lands.

(j) Installed prior to 1954 not previously listed.

TABLE 187

DIVERSIONS AND ACCREAGES IRRIGATED - CALAVERAS RIVER - 1954 (contd.)

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
--END OF MORMON SLOUGH - BEGINNING OF STOCKTON DIVERTING CANAL--	*(13.0)												
Homer D. Riddle	**(13.3R)	1-6"		21	108	95	118	110			452	(a)150	
Homer D. Riddle (b)	**(13.7R)	1-6"			63	71	67	32			233	(a)77	
--STATE HIGHWAY 8 BRIDGE--	**(14.9)												
Budiselich and Boggiano Brothers (b)	**(15.7R)	2-12"			292	493	477	312			1574	90	(a)65
--U. S. 50 AND 99 HIGHWAY (FREEWAY) BRIDGE--	**(16.0)												
--GAGING STATIONS - STOCKTON DIVERTING CANAL AT STOCKTON--	**(16.2)												
R. Moresco	**(16.2R)	1-12"				NO DIVERSION							
--U. S. 50 AND 99 HIGHWAY BRIDGE--	**(17.2)												
Albert A. Anderson	25.5L	1-12"				103	103	96			(c,d)302	115	
L. F. Grimsley	25.9L	1-16"			12	74	127				213	(d,e)191	
Vignolo and Pallavicino	26.3R	1-10"		31	64	103	136	69			403	(a)150	
Field Brothers	26.8L	1-6"	26	17	55	79	58	67			(f)302	(a)110	
McGurk Ranch	26.8R	1-8"		8	32	54	41	59	25		219	(a)132	
Saverio Nogare	27.2R	1-12"				75	31	27			133	(a)125	
Saverio Nogare	27.5L	1-10"				32	19	21			72	(a)107	
E. E. Cady	28.3L	1-6"		6	5	34	36	31	11		123	(a)80	
R. T. and A. V. Lagorio (g)	28.9L	1-10"				22	25	22			69	50	
Garavano and Maffeo	29.0L	1-6"	22			31	24	29			106	(h)50	
O. R. Shelley (b)	29.2R	1-6"			16	14	8	10			48	(i)66	
O. R. Shelley	29.3L	1-10"			47	79	61	41	30		(i)258	(a)87	
M. N. Yocum	29.4L	1-8"				142	3	121			266	(a)110	
A. G. Watkins	30.1R	1-10"	2	74	100	132	160	115	60		643	(j)100	
--BELLOTA - RIVER ROAD BRIDGE--	30.4												
L. and D. Hoag	30.6R	1-14"			31	81	67	80	40	5	304	(k)151	
Lynn Barnett	30.7R	1-7"				14	5	11			30	26	
Lois E. Hunt	30.1R	(m)1-6"				37	4	27			68	37	
S. M. Gregory	31.3R	1-8"	5		41	47	13	32	26		(n,f)164	(p,q)130	
S. M. Gregory	31.6R	1-6"			2	42	9	8			(q)61	(n)35	
Eva Hunt	32.5R	1-5"			10	8	16	8	6	8	(r)56	15	
Eva Hunt	32.6L	1-6"			18	42	54	27		10	151	55	
--GAGING STATION - CALAVERAS RIVER AT JENNY LIND--	36.9												
Totals			232	717	3914	6613	6850	6272	954	34	25586	9025	471
Average cubic feet per second			4	12	64	111	111	102	16	1	53		
Monthly use in per cent of seasonal			0.9	2.8	15.3	25.9	26.8	24.5	3.7	0.1			

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

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

(a) This acreage also received an undetermined amount of well water.
(b) New installation in 1954.
(c) Additional acre-feet diverted: February 126.
(d) The acreage listed for Mile 25.9L also received an undetermined amount of water from Mile 25.5L
(e) Includes 45 acres of W. D. Wintin lands which also received an undetermined amount of well water.
(f) Additional acre-feet diverted: February 9.
(g) Previously listed as L. and A. V. Lagorio.
(h) Includes 5 acres which also received an undetermined amount of well water.
(i) The acreage listed for Mile 29.2R also received an undetermined amount of water from Mile 29.3L.
(j) Includes 80 acres which also received an undetermined amount of well water.
(k) Includes 28 acres which also received an undetermined amount of well water.
(m) Previously listed as a 7" unit.
(n) 30 acres listed for Mile 31.6R also received 10 acre-feet of water from Mile 31.3R.
(p) Includes 40 acres of Milton Gill lands which also received an undetermined amount of well water.
(q) 65 acres of F. R. Gregory lands listed for Mile 31.3R also received 18 acre-feet of water from Mile 31.6R.
(r) Additional acre-feet diverted: November 2.

TABLE 188

DIVERSIONS AND ACREAGES IRRIGATED - OLD SAN JOAQUIN RIVER DELTA UPLANDS - 1954

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--	30.5L												
Leo Fallman	ß36.5L	1-16"		105	154	212	222	166	146	103	(a)1108	253	
East Contra Costa Irrigation District	ß36.5L	2-18" 2-24" 2-30"	1182	5255	6740	7306	7445	5330	2623	877	(b)36758	(c)15797	
Augustus Sarija	ß36.5L	2-6"	12	28	34	46	58	36	34	8	256	82	
--STATE HIGHWAY 4 BRIDGE--	38.8												
Byron-Bethany Irrigation District	¥40.9L	1-24" 1-30"	1171	5180	5788	6256	6332	5977	4505	2993	(d)38202	(e)9315	
--CLIFTON COURT FERRY--	43.8												
--DELTA-MENDOTA CANAL--	44.6L												
M. R. Furtado	¥44.6L	1-14"	60	135	167	191	300	200	121	67	(f)1241	327	
Emil Hoefer (g)	44.7L	1-6"		10	12	24	16	17	18	16	(h)113	(i)14	
William M. Ralph (j)	45.3L	1-12"	66	55	164	207	226	180	170	118	(k)1186	247	
George Covert	¥47.2L	1-16"	38	248	317	354	319	275	298	163	2012	(m)385	
Lucio J. Costa	¥47.2L	1-14"		84	90	216	271	207	151	102	(n)1121	(m)250	
West Side Irrigation District	¥47.65L	7-15"	2965	5296	4742	5502	6390	5312	3241	1835	(p)35283	(q)10446	
Johnnie L. Costa (r)	¥47.65L	1-8"	11	19	31	39	47	49	33	18	247	80	
Vance Brown	48.4L	1-12"	59	15	89	56	81	82	78	34	(s)494	155	
Naglee Burke Irrigation District	49.5L	1-4"		2	1	3	4	2		2	14	6	
Naglee Burke Irrigation District	50.4L	1-16" 1-18"	417	1218	1369	1873	1931	1751	1533	840	10932	(t)2437	
Freemont Irrigation Assn.	50.9L	1-16"	149	233	160	240	355	274	172	75	(u)1658	697	
Joe M. Freitas	51.0L	1-8"		36	33	30	39	21			159	36	
Attilio Casserini	51.2L	1-10"				12	9	10			31	36	
Excelsior Ranch #2	52.4L	1-10"	34	30	33	44	79	39	12		271	119	
A. L. Galli	53.0L	1-8"		17	28	23	28	25	22	20	(v)163	57	
--RECORDING GAGE--	53.0												
--MOUTH OF TOM PAINE SLOUGH--	54.3L												
Totals			6164	17966	19952	22634	24152	19953	13157	7271	131249	40739	0
Average cubic feet per second			101	302	324	380	393	324	221	118	270		
Monthly use in per cent of seasonal			4.7	13.7	15.2	17.3	18.4	15.2	10.0	5.5			

* Mileage along Old San Joaquin River from mouth of San Joaquin River 4½ miles below Antioch.
ß Indian Slough joins 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.
Ψ Plant is located on intake canal which joins the Old San Joaquin River at this mile.
⊥ Pumping plant is located on Mountain House Creek which joins the Old River at this mile.
(a) Additional acre-feet diverted: February 4, November 20, December 2.
(b) Additional acre-feet diverted: February 142.
(c) This acreage also received 3810 acre-feet of well water.
(d) Additional acre-feet diverted: November 398.
(e) Of this figure, 302 acres were double cropped.
(f) Additional acre-feet diverted: February 5.
(g) Installed in 1950. Not previously listed.
(h) Additional acre-feet diverted: February 8.
(i) Includes 4 acres of Hammer lands.
(j) Reinstallation in 1952 of a plant previously removed. Not listed in 1952 and 1953.
(k) Additional acre-feet diverted: November 21.
(m) This acreage also received an undetermined amount of water from Mountain House Creek.
(n) Additional acre-feet diverted: November 55.
(p) Additional acre-feet diverted: January 9, February 139.
(q) Of this figure, 837 acres were double cropped.
(r) Formerly listed as Johnny Costa.
(s) Additional acre-feet diverted: February 23, November 9, December 3.
(t) Includes 8 acres of Tracy Clover District lands.
(u) Additional acre-feet diverted: February 111.
(v) Additional acre-feet diverted: February 2, November 4.

TABLE 189

DIVERSIONS AND ACREAGES - TOM PAINE SLOUGH DELTA UPLANDS - 1954

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. & Co.	0.7S	2-18"	66	444	174	482	689	680	285	115	(a)2935	(b)1065	
Independent Mutual Water Corp. & Co.	1.5S	1-18"		83	69	17	137	116	46		(c)468	(d)227	
--HOLLY SUGAR CORPORATION DREDGER CUT--	2.1S												
George J. Lake	*(0.5W)	1-10"				111					(e)111	170	
Holly Sugar Corporation	*(1.2W)	1-12" 1-14"	210	220	414	427	333	309	299	309	(f)2521	660	
--RECORDING GAGE--	2.2S												
Pescadero Reclamation Dist. #2058 (#1)	2.9S	1-12"	65	156	126	196	220	194	152	79	(g)1188	219	
Pescadero Reclamation Dist. #2058 (#3)	6.3S	1-12" 1-20" 1-24"	990	1275	1410	2018	2524	2336	1447	737	12737	2579	
Pescadero Reclamation Dist. #2058 (#5)	8.3S	1-12"	54	266	265	274	373	278	195	85	(h)1790	306	
Pescadero Reclamation Dist. #2058 (#5A)	9.0S	1-12"	9	267	130	102	239	242	53	46	(i)1088	241	
Total			1394	2711	2588	3627	4515	4155	2477	1371	22838	5467	0
Average cubic feet per second			23	46	42	61	73	68	42	22	47		
Monthly use in per cent of seasonal			6.1	11.9	11.3	15.9	19.8	18.2	10.8	6.0			

* 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) Additional acre-feet diverted: January 365, February 52.
(b) Of this figure, 35 acres were double cropped.
(c) Additional acre-feet diverted: February 139.
(d) Of this figure, 68 acres were double cropped.
(e) Additional acre-feet diverted: January 159.
(f) Additional acre-feet diverted: February 9, November 299, December 309. Includes an undetermined amount of water used for industrial purposes.
(g) Additional acre-feet diverted: February 24.
(h) Additional acre-feet diverted: February 26.
(i) Additional acre-feet diverted: February 15.

TABLE 190

DIVERSIONS AND ACREAGES IRRIGATED - SAN JOAQUIN RIVER DELTA UPLANDS - 1954
(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"				10	19	21	23	13	86	35	
Carolyn Weston	46.3R	1-12"		99	4	153	137	79	69	104	(a)645	(b)225	
Ivy Ranney	46.65R	1-10"		9	48	56	61	46	42		262	80	
Frank West	46.85R	1-10"			137	129	131	103	70	53	623	160	
F. Asano	47.2R	1-6"	2	4	5	7	10	6	3	2	39	(c)39	
Wolfinger Brothers	47.3R	1-10"		1	15	29	24	13	14		96	50	
C. C. Long	47.55R	1-10"		36	13	20	32	110	77		288	150	
Waldo C. Haack	48.0R	1-14"	14	119	68	90	72	171	33		567	365	
Chow L. Young	48.3R	1-4½"		4	6	5	13	7	7	2	(d)44	23	
Chow L. Young	48.5R	1-3"				NO DIVERSION							
Joe Calcagno	48.5R	1-6"	2	18	1	48	27	24	19	3	(e)142	90	
C. J. Pregno (f)	48.55R	1-6"			9	15	11		8	6	49	30	
John Calcagno (g)	48.66R	1-12"	35	21	25	126	62	62	32	16	379	153	
Minna M. and Ema J. C. Ott	49.0R	1-12"	4	8	61	68	99	71	65	63	(h)439	75	
Herbert Spangenberg and S. B. Chapman	49.3R	1-14"	14	29	107	117	165	154	120	124	830	(i)225	
Herbert Spangenberg and S. B. Chapman	49.5R	1-12"		23	57	26	49	56	61	56	328	(i)	
A. A. Rodgers	50.1R	1-10"	5	31	22	52	65	46	39	25	(j)285	80	
--BRANDT BRIDGE--	50.2												
A. Hirata	50.4R	1-10"			51	40	64	31	37	20	243	38	
K. R. and F. Watanabe	50.6R	1-6"		13	5	21	34	16	16	21	126	53	
D. Toscano	50.8R	1-6"	9	17	19	36	33	32	26	15	(k)187	34	
Pastorino Brothers	50.9R	1-12"		27	84	68	73	117	102	66	537	100	
Pastorino Brothers	51.0R	1-6" 1-10"				NO DIVERSION							
Felipe Esteban	51.2R	1-12"	23	22	24	27	53	25	8		182	90	
J. Burchel	52.1R	1-10"				NO DIVERSION							
G. Santini	52.4R	1-5"			9	4	8	7	1	2	31	17	
D. J. Macedo	52.65R	1-10"		68	44	41	88	42	44		327	96	
J. Widmer	53.2R	1-12"	46	127	162	243	301	187	184	44	(m)1294	394	
William Nishimura	53.4R	1-8"		21	2	23	13	6	4		(n)69	47	
Julio Lorenzo (p)	53.5R	1-8"				4	18	18	9	15	(q)64	44	
John Caparra (r)	53.6R	1-4"		8	8	6	10	8	5	3	(d)48	(s)13	
John Barkett (r)	53.7R	1-14"		117	107	54	107	89	61	44	(t,u)579	319	
I. N. Robinson, Jr.	53.8R	1-14"	192	168	221	386	381	274	326	188	(v)2136	(t)388	
R. E. Albertson	54.9R	1-10"		23	36	83	79	68	81	43	(w)413	(x)169	
--JUNCTION WITH MIDDLE RIVER--	56.2L												
Oakwood Stock Farm	57.0R	1-14"	62	94	154	208	464	344	322	115	(y)1763	(z)459	
James Tobin	57.15R	1-7"		19	1	10	54	35	19	3	141	(aa)34	
Frank Dewar, et al.	57.38R	1-4"		9	6	5	4	2	1		(ab)27	(ac)8	
Andrew B. Calori	57.45R	1-6"	10	7		13	18	15	2		65	30	
G. Gardella and Company	57.5R	1-4"	10	2	3	5	7	5	1		(ad)33	16	
A. Queirolo	57.65R	1-3"				NO DIVERSION							

* Mileage along San Joaquin River from its mouth 4½ miles below Antioch.
(a) Additional acre-feet diverted: February 58 and November 15.
(b) Of this acreage, 60 were double cropped.
(c) Of this acreage, 22 were double cropped.
(d) Additional acre-feet diverted: November 1.
(e) Additional acre-feet diverted: February 1.
(f) Formerly listed as Mike Calcagno.
(g) Formerly listed as Calcagno Brothers.
(h) Additional acre-feet diverted: February 9 and November 4.
(i) Combined acreage for Miles 49.3R and 49.5R.
(j) Additional acre-feet diverted: November 8.
(k) Additional acre-feet diverted: November 5.
(m) Additional acre-feet diverted: January 126 and December 52.
(n) Additional acre-feet diverted: February 10.
(p) New installation in 1954.
(q) Additional acre-feet diverted: November 3.
(r) Formerly listed as John Domingo.
(s) This acreage was double cropped.
(t) The acreage listed for Mile 53.8R also received an undetermined amount of water from Mile 53.7R.
(u) Additional acre-feet diverted: November 6.
(v) Additional acre-feet diverted: November 43.
(w) Additional acre-feet diverted: February 2.
(x) This acreage also received an undetermined amount of well water.
(y) Additional acre-feet diverted: November 102.
(z) Of this acreage, 170 were double cropped.
(aa) Of this acreage 10 were double cropped.
(ab) Additional acre-feet diverted: February 9.
(ac) Of this acreage, 5 were double cropped.
(ad) Additional acre-feet diverted: January 8.

TABLE 190

DIVERSIONS AND ACREAGES IRRIGATED - SAN JOAQUIN RIVER DELTA UPLANDS - 1954
(Stockton to Vernalis)
(contd.)

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
A. Queirolo	58.6R	1-3"		2		3	5	1	1		12	36	
R. Mauro	58.7R	1-4"				1	2	1			4	9	
--SOUTHERN PACIFIC RAILROAD BRIDGE--	58.8												
--U. S. 50 HIGHWAY - MOSSDALE BRIDGE RECORDING GAGE--	58.9												
Mertle Abersold	59.25R	1-6"	2	13	30	26	35	30	19	7	(a)162	(b)53	
M. H. Madruga	59.3R	1-15"		97	108	244	276	204	80	144	1153	254	
Eugene J. Rossi, et al.	59.5L	1-14"		115		216	70	90	60	61	612	(c)170	
--WESTERN PACIFIC RAILROAD BRIDGE--	59.5												
M. H. Madruga	‡60.1R	1-6"		6	9	12	16	8	8	7	66	30	
James and Leslie Little	60.4L	1-4"	1	4	5	6	4	6	5		(d)31	7	
A. F. Windeler	60.5L	1-12"		63		10	108	62	56		299	(c)171	
E. Pecchi and Son	60.5R	1-8"				83		68	8		159	68	
E. Pecchi and Son	61.4R	1-12"	60	42	72	72	110	45	113	18	532	214	
A. F. Windeler	61.5L	1-8"				NO DIVERSION							
Jack Williams	62.0R	1-6"	6		3	5	24	17	2		57	30	
Bernice Von Sosten	62.0L	1-12"		138	128	114	174	37	40	29	(e)660	(f)212	
--PARADISE DAM (HEAD OF PARADISE CUT)--	62.2L												
Paradise Mutual Water Company	‡‡62.2L	1-14" 1-20"	203	257	259	545	610	332	203	70	(g)2479	815	
Dethlefsen Brothers	63.0L	2-20"				451	629	504	204		(h)1788	1190	
State of California (i)	63.3L	1-14"			83	193	219	180	277	64	(j)1016	287	
H. H. Grimes	63.6R	1-12"		24	136	92	225	128	27	61	693	208	
Dethlefsen Brothers	64.6L	1-10"			14	25	49	14			102	50	
Manuel Brazil	66.7L	1-8"		149	61	155	208	144	62	108	(k)887	(m)160	
Banta-Carbona Irrigation District	§67.5L	2-10" 2-16" 2-20" 3-24" 1-36"	5679	8804	6504	9244	11230	7945	4803	2136	(n)56345	(p)17063	
Glen M. West	70.0L	1-6"	6	92	61	91	112	62	88	57	(q)569	132	
Richard Burnley	70.5R	1-10"				NO DIVERSION							
San Joaquin River Water Users Company (r)	71.0R	2-16"	138	439	323	703	736	715	462	133	(s)3649	(t)1312	
E. Filippini	71.0R	1-4"					2	3	1		6	10	
H. J. Mortensen and Barker	73.2R	1-8" 1-12"	160	321	22	226	303	285	130	11	1458	(u)368	
San Joaquin River Club	74.7L	1-6"		67	185	95	149	17	17	164	(v)694	(w)50	
E. A. Tassi	75.6R	1-16"	28	44	33	140	280	96	80	48	(x)749	(y)330	
STOCKTON TO VERNALIS													
Totals			6711	11821	9550	14980	18362	13284	8677	4164	87549	27358	0
Average cubic feet per second			109	199	155	252	299	216	146	68	180		
Monthly use in per cent of seasonal			7.7	13.5	10.9	17.1	21.0	15.2	9.9	4.7			

* Mileage along San Joaquin River from its mouth 43 miles below Antioch.
‡ Plant is located on Walthall Slough which joins the San Joaquin River at this mile.
‡‡ Plant is located on Paradise Cut which joins the San Joaquin River at this mile.
§ Plant is located on intake canal which joins the San Joaquin River at this mile.
(a) Additional acre-feet diverted: February 4 and November 5.
(b) Of this acreage, 50 were double cropped.
(c) This acreage was double cropped.
(d) Additional acre-feet diverted: November 3.
(e) Additional acre-feet diverted: February 79.
(f) Of this figure, 85 acres were double cropped.
(g) Additional acre-feet diverted: February 120.
(h) Additional acre-feet diverted: November 179 and December 793.
(i) New installation in 1954.
(j) Additional acre-feet diverted: November 12.
(k) Additional acre-feet diverted: February 52.
(m) Includes 20 acres of Banta Irrigated Farm's land.
(n) Additional acre-feet diverted: February 1196 and November 258.
(p) Includes 810 acres of Banta Irrigated Farms, 599 acres of Kasson District, and 1168 acres of outside contracts. Of this figure, 1009 acres were double cropped in the district and 153 acres were double cropped in the outside contracts. This acreage also received an undetermined amount of water from controlled drainage.
(q) Additional acre-feet diverted: February 13 and December 9.
(r) Formerly listed as Reclamation District #2075.
(s) Additional acre-feet diverted: February 4.
(t) Of this figure, 51 acres were double cropped.
(u) Of this figure, 160 acres were double cropped.
(v) Additional acre-feet diverted: January 98, February 116, November 129, and December 87.
(w) Recreational lakes. Also received an undetermined amount of controlled drainage.
(x) Additional acre-feet diverted: February 15, November 15, and December 3.
(y) Of this acreage, 200 also received an undetermined amount of water from controlled drainage.

TABLE 191

DIVERSIONS AND ACREAGES IRRIGATED - SAN JOAQUIN RIVER - 1954
(Vernalis to Fremont Ford)

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"		52	33	76	169	103	54	60	547	200	
Cruze, Kirby, and Moresco	79.4R	1-20"	35	133	16	103	129	206	9	57	688	(a)209	
--STANISLAUS RIVER--	79.7R												
W. C. Blewett Estate	80.7L	1-12"		286	138	282	358	443	246		1753	221	
W. C. Blewett Estate	81.8L	2-12" (b)1-14"	224	292	1095	1175	1206	1141	993	491	(c)6617	597	320
--GAGING STATION - SAN JOAQUIN RIVER AT MAZE ROAD BRIDGE--	81.85												
Blewett Mutual Water Company	81.95L	(d)1-10" 2-12"	478	967	593	626	784	907	473	249	5077	(e)1070	
El Solyo Water Company	82.0L	1-10" 3-18"	1682	2923	2097	2815	3289	3060	2124	1329	(f)19319	(g)3750	
--GAGING STATION - SAN JOAQUIN RIVER AT HETCH HETCHY WATER SUPPLY CROSSING--	82.65												
Faith Ranch (h)	84.4R	1-20"							98	39	137	370	
E. T. Mapes	89.9R	1-4"				PLANT MOVED							
--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"	5238	9348	9980	11583	14024	10204	7047	1931	(i)69355	(j)23143	30
Fred Lara #1 (k)	**(0.6S)	1-14"		38	64	96	138	9			345	120	
Frank Sarmento #1	**(0.7N)	2-16"	53	826	705	695	706	533	240	14	(m)3772	(n)	(n)
Frank Sarmento #2	**(1.1N)	1-14" 1-16"	184	1187	884	1057	1162	1016	461	17	(p)5968	(n)415	(n)614
Fred Lara #2 (q)	**(2.2S)	1-16"	4	23	10	20	40	29			126	85	
Frank Sarmento #3	**(2.3N)	2-16"		439	312	446	537	395	73	30	2232	55	302
George Covert	*94.1L	1-3" 1-6"	31	40	90	112	73	82	80	45	(r)553	95	
Rancho Dos Rios #1	94.7R	1-12"	77	281	343	311	446	313	356	207	(s)2334	(t)406	
C. H. Geer	95.5R	1-10"	126	115	113	201	108	321	368	341	(u)1693	(v)241	
Bostick Brothers	95.8R	1-10"		49	14	133	83	85	90		454	81	
W. F. Cook	96.0L	1-18"	297	211	360	344	431	497	481	84	2705	500	
--GAGING STATION - SAN JOAQUIN RIVER AT GRAYSON (LAIRD SLOUGH BRIDGE)--	96.05												
E. S. Brush	98.5R	1-7"	9	13	21	23	39	32	22	4	163	50	
Rancho El Pescadero	98.9L	1-18"	6	336	198	147	774	433	74		(w)1968	(x)951	
--PATTERSON BRIDGE - RECORDING GAGE--	104.4												
Patterson Water Company	104.4L	1-14" 2-18" 3-20" 1-36"	4614	7588	7464	8695	9629	9074	5665	803	(y)53532	(z)13507	423
Chase Brothers	104.5R	1-10"	118	178	259	232	281	195	231	100	1594	252	
M. L. Simmons	104.52L	1-5"		5	3	2	2	3	2		17	4	

* 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 ( ).
* Pumping plant is located on old channel which joins the San Joaquin River at this mile.
(a) Includes 60 acres of Chisholm lands.
(b) The 14" unit was installed in 1954.
(c) Additional acre-feet diverted: January 174, February 8, and November 79.
(d) The 10" unit replaces one 12" unit.
(e) Of this acreage, 100 was double cropped.
(f) Includes an undetermined amount of water returned to river by spill. Additional acre-feet diverted: February 158 and November 65.
(g) Of this acreage, 49 were double cropped and 268 also received an undetermined amount of well water. This acreage also received an undetermined amount of controlled drainage water.
(h) New installation in 1954.
(i) Additional acre-feet diverted: January 633, February 2282, and November 120.
(j) This acreage also received 7718 acre-feet of Delta-Mendota Canal water as follows: April 1137, May 295, June 726, July 3359, and August 2201 acre-feet. Of this acreage, 1460 were double cropped. Includes 1929 acres irrigated outside of district.
(k) Formerly listed as J. B. Erkenbrecher #1.
(m) Additional acre-feet diverted: November 4.
(n) Combine acreage for Miles **(0.7N) and **(1.1N).
(p) Additional acre-feet diverted: November 9.
(q) Formerly listed as J. B. Erkenbrecher #2.
(r) Additional acre-feet diverted: November 18.
(s) Additional acre-feet diverted: February 13 and November 54.
(t) Of this acreage, 160 were double cropped and 125 received an undetermined amount of controlled drainage water.
(u) Additional acre-feet diverted: February 24 and November 17.
(v) This acreage also received an undetermined amount of Turlock Irrigation District water.
(w) Additional acre-feet diverted: February 136.
(x) This acreage also received an undetermined amount of well water. Of this figure, 55 were double cropped.
(y) The acreage listed for Mile 109.8L also received an undetermined amount of water from Mile 104.4L
(z) Of this acreage, 3049 were double cropped. This acreage also received 600 acre-feet of Delta-Mendota Canal water as follows: July 211, August 169, and September 220 acre-feet.

TABLE 191

DIVERSIONS AND ACREAGES IRRIGATED - SAN JOAQUIN RIVER - 1954
(Vernalis to Fremont Ford Bridge)
(contd.)

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
Harry Black	104.7L	(a)1-3"		1	2	2	2	2	3	2	14	(b)4	
Chase Brothers	106.5R	1-10" 1-12"		240	506	375	502	382	462	77	2544	500	
Tony Spinelli	109.1R	1-12"	5	14	32	29	42	51	40	15	(c)228	79	
Twin Oaks Irrigation Company	109.8L	1-12" 2-16" (d)1-18"	410	1405	1926	2087	1923	1646	1007	136	(e)10540	(f,g)1325	(f)790
T. J. Henderson	110.8R	1-8"		9	64	31	53	77	35	28	(h)297	(i)110	
J. Holtzman	112.5L	1-4"	13	1	6	4	12	1	1		(j)38	(k)20	
Roy Ustick	112.55R	1-16"	110	266	197	265	258	315	213	176	(m)1800	449	
Frank C. Mosier	113.4R	1-10"	43	99	139	139	160	142	130	122	(n)974	173	
--CROWS LANDING BRIDGE - RECORDING GAGE--	113.5												
A. J. Silveria	113.85R	1-6"		5	5	8	4	5	3		30	8	
A. J. Silveria	114.35R	1-7"	4	7	10	11	11	16	9	4	72	26	
Frank C. Mosier	114.63R	1-8"	36	67	58	9	96	90	73	60	(p)489	90	
Manuel A. Serpa	114.75R	(q)2-10"	56	41	94						191	180	
Hazel P. Crow	115.0L	1-10"	14	32	19	38	41	32	35	11	222	25	
Roy F. Crow	115.8L	1-10"	42	73	45	149	145	179	106	43	(r)782	(s)149	
L. B. Crow	116.05L	1-14"	6	94	172	185	189	155	145	80	(t)1026	210	
John W. Greer	116.5R	1-12"	8	113	29	64	90	75			379	245	
D. L. McCoy	**116.95R	1-10" 1-12"	2	25	19	55	62	38	54	32	(u)287	(k)79	
--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 Totals Average cubic feet per second Monthly use in per cent of seasonal			13925 226 6.9	27822 468 13.9	28115 457 14.0	32625 548 16.2	37998 618 18.9	32287 525 16.1	21503 361 10.7	6587 107 3.3	200862 413	49994	2479

* Mileage along San Joaquin River from its mouth 43 miles below Antioch.
** Pumping plants are located on drain which joins the San Joaquin River at this mile.
(a) A 4" unit was removed in 1954.
(b) This acreage was double cropped.
(c) Additional acre-feet diverted: January 6 and February 7.
(d) The 18" unit replaces one 16" unit.
(e) Additional acre-feet diverted: January 43.
(f) The acreage listed for Mile 109.8L also received an undetermined amount of water from Mile 104.4L.
(g) Of this acreage, 90 were double cropped.
(h) Additional acre-feet diverted: November 29.
(i) This acreage also received an undetermined amount of Turlock Irrigation District water.
(j) Additional acre-feet diverted: February 1.
(k) This acreage also received an undetermined amount of controlled drainage water.
(m) Additional acre-feet diverted: January 7, February 9, and November 1.
(n) Additional acre-feet diverted: February 8.
(p) Additional acre-feet diverted: January 10
(q) One 10" unit was installed in 1954.
(r) Additional acre-feet diverted: January 14.
(s) Of this figure, 40 acres were double cropped.
(t) Additional acre-feet diverted: February 80 and November 9.
(u) Additional acre-feet diverted: November 3.

TABLE 192

DIVERSIONS AND ACREAGES IRRIGATED - SAN JOAQUIN RIVER - 1954
(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																
Stevinson Corporation	135.7R	1-14"				88	20	168	152	214	93	80			815	265	
Erreca Farms	161.9R	1-18"		33	52			44	72	41	36	27			305	(a)416	
Dye Farms	163.2R	(b)1-12"		55	83	138	55	121	130	239	13	147			981	(c)479	
D. L. McNamara	(d)163.6R	1-16"					34	21	29	28	24				136	(a)50	
--GAGING STATION - SAN JOAQUIN RIVER NEAR DOS PALOS--	186.0																
San Luis Canal Company	(e)186.6L	Gravity	6143	121	8995	18508	22520	26751	27620	26160	17363	6169	1964	6833	168147	39370	4204
State Game Refuge	(f)	(f)										730	141		(f)871		
--FIREBAUGH BRIDGE--	198.4																
Antone Zaninovich	206.02R	1-4"					9	7	2	13	10				41	17	
--GAGING STATION - SAN JOAQUIN RIVER NEAR MENDOTA--	206.2																
--MENDOTA DAM--	208.63																
--DELTA-MENDOTA CANAL--	208.63L																
Central California Irrigation District (g)	(h)208.63L	Gravity	8606	16161	39473	62965	74410	78450	83685	80410	43605	22266	10265	2930	(i)523226	(j)120229	12974
Grasslands Water Association (k)	(m)	(m)						976			13212	15263	817	2483	(m)32751		
Laguna Water District (k)	(m)	(m)					51	49	169	206	38				(m)513	135	152
Panoche Water District (k)	(m)	(m)		698	2186	157		783	799	778	222				(m)5623		
Eagle Field Water Association (k)	(m)	(m)					407	667	589	559	539	22			(m)2783		
Firebaugh Canal Company	(h)208.63L	2-24" 2-36" 2-42"	772	1039	3457	10015	11195	12748	15320	13400	6904	2967	1313	177	79307	18784	4062
--FRESNO SLOUGH--	208.93L																
--LONE WILLOW SLOUGH--	219.8R																
Columbia Canal Company	219.8R	(n)	1575	1785	3897	7896	8099	8237	8727	8428	5699	2698	2459	1632	(n)61042	12674	2675
Columbia Canal Company (k)									198	307	95				600		
--GAGING STATION - SAN JOAQUIN RIVER AT WHITEHOUSE--	219.83																
United Farms Company	225.2L	1-12"							46						46	(a)25	
Rose Campbell	232.55L	1-4"				3	5	7	6	5	2				28	(a)20	
--HEAD OF GRAVELLY FORD CANAL--	232.8R																
FREMONT FORD TO GRAVELLY FORD																	
Totals			17096	19892	58143	99770	116715	129029	137544	130788	87855	50369	16959	13055	877215	192464	24067
Average cubic feet per second			278	358	945	1677	1898	2168	2237	2127	1476	819	285	212	1212		
Monthly use in per cent of seasonal			2.0	2.3	6.6	11.4	13.3	14.7	15.7	14.9	10.0	5.7	1.9	1.5			

* Mileage along San Joaquin River from its mouth 4½ miles below Antioch.
(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 from the East Side Canal.
(c) Of this acreage, 40 were double cropped. This acreage also received an undetermined amount of well water.
(d) Plant is located on East Side Canal which joins the San Joaquin River at this mile.
(e) Point of diversion is at head of Temple Slough.
(f) This water was transported by the San Luis Canal Company.
(g) Formerly listed as San Joaquin Canal Company.
(h) Point of diversion is considered to be Mendota Pool.
(i) Includes Main and Outside Canals and Helm Ditch.
(j) Includes some double cropping and interplanting.
(k) Data furnished by U. S. Bureau of Reclamation.
(m) This water was transported by the Central California Irrigation District.
(n) Includes gravity diversion in Lone Willow Slough, Mowry Canal pumps, and Columbia pumps in Mendota Pool.

TABLE 193

DIVERSIONS AND ACREAGE IRRIGATED - SAN JOAQUIN RIVER - 1954
(Gravelly Ford to Friant Dam)

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
W. A. Kochergen	233.66R	1-16"		1	22	14		43	29	51	48	36			244	(a)66	
W. A. Kochergen	234.00R	1-6"						NO DIVERSION									
Ernest D. Hart	235.03L	1-3"		1	1	1		1	1	1	1	1	1	1	10	1	
W. M. Swegart (b)	235.33R	1-5"			10	31	44	58	34	49	20	3			249	(c)49	
Ruben Quinonez	236.28R	1-6"			5	7	29	25	13	3					82	(d)47	
--GAGING STATION - SAN JOAQUIN RIVER NEAR BIOLA--	236.4R																
Smith and McInturf	237.33L	1-8"					3	16	98	67	35				219	240	
Lorraine Beatty	237.43L	1-6"						NO DIVERSION									
Milton A. Peterson	237.98R	1-6"				5	12	28	64	45	14				168	72	
--SKAGGS BRIDGE--	238.18																
--BOWSER RECORDING GAGE--	242.41L																
A. and M. Overgaard	243.84R	1-5" 1-6"	21		15	41	22	88	128	132	42	1			490	(e)128	
C. B. Hines	244.03L	1-5"						NO DIVERSION									
Y. H. Donny	244.86L	1-7"			17	22	4	7	26	15	37	28	4		160	(f)126	
C. L. Hammer	245.36R	1-6"					42	40							82	(d)79	
George Mordeca	245.63R	1-1½"				4	3	3	2	1					13	4	
Y. H. Donny	245.81L	1-6"											12		12	(f)41	
Jasper Ranch	246.15L	1-5"				2	5								7	8	
Jasper Ranch	246.34L	1-8"						NO DIVERSION									
H. W. Valentine	246.73L	1-5"						NO DIVERSION									
--U. S. 99 HIGHWAY BRIDGE--	247.38																
Sam Deanda	247.50R	1-5"						NO DIVERSION									
G. Oberti and Sons	247.65R	1-5"					11	10	28	34	14				97	(d)126	
G. Oberti and Sons	247.65R	1-4"						NO DIVERSION									
San Joaquin Light and Power Company	247.82R	1-3"				7	12	10	11	9	7	4			60	30	
--HERNDON RECORDING GAGE--	248.31L																
Fred B. Punch (g)	248.51L	1-3"				13	8	14	7	6					48	10	
--SANTA FE RAILROAD BRIDGE--	249.23																
Miller Brothers	251.46L	1-5"						10	16						26	12	
J. W. Carrell (h)	253.0L	1-8"				56	100	121	123	100	93	29			622	(i)121	
J. W. Carrell	253.10L	1-6"						NO DIVERSION									
J. W. Carrell	253.30L	1-4"				15	38	45	44	44	15	17			218	(i)	
Fred Russell	253.79R	1-6"				6	19	19	23	26	3	2	8	4	110	46	
L. L. Howard	254.82R	1-5" 1-6"						36	35	30	4				105	(j)80	
L. L. Howard	254.93R	1-6"						40	51	34	4				129	(j)	
Greiner and Wright	254.98L	1-7"				15	39	21	54		13				142	(d)34	
Sycamore Island Stock Ranch #6	*255.00	1-3"						18	31	20	22	8	2		101	30	
Fresno State College	255.05L	1-4"						NO DIVERSION									
Sycamore Island Stock Ranch #5	255.34R	1-6"				20	46	31	38	36	28	11			210	57	
Sycamore Island Stock Ranch #4	*255.84	1-5"					69	82	49						200	26	
Sycamore Island Stock Ranch #3	255.93R	1-4"					52	13	9	5					79	(k)26	
Sycamore Island Stock Ranch #2	256.52R	1-6"					29	39	31	45	56	19			(k)219	74	
Holland Ranch and Development Corporation	257.1L	1-8"							89	78					167	(m)190	

* Mileage along San Joaquin River from its mouth 44½ miles below Antioch.
** Point of diversion and place of use is on island in midstream.
(a) This acreage was double cropped.
(b) Formerly listed as C. G. Newbecker.
(c) Of this acreage, 9 also received an undetermined amount of well water.
(d) This acreage also received an undetermined amount of well water.
(e) Of this acreage, 39 were double cropped.
(f) This acreage also received an undetermined amount of Fresno Irrigation District water.
(g) Formerly listed as Bud Bradburn.
(h) New installation in 1954.
(i) Combined acreage for Miles 253.0L and 253.3L.
(j) Combined acreage for Miles 254.82R and 254.93R.
(k) The acreage listed for Mile 255.93R also received an undetermined amount of water from Mile 256.52R.
(m) Combined acreage for Miles 257.1L and 257.7L.

TABLE 193

DIVERSIONS AND ACREAGES IRRIGATED - SAN JOAQUIN RIVER - 1954
(Gravelly Ford to Friant Dam)
(contd.)

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 Corporation	257.70L	1-12"							68	122	20				210	(a)	
L. D. Cobb	258.08R	1-6" 1-7"				7	48	134	150	139	88	82	2		650	(b)159	
--STATE HIGHWAY 41 BRIDGE--	258.33																
R. J. Curtis	258.39L	1-7"					73	63	80	51	27	3			297	70	
W. E. Roberts	258.50L	1-4"						PLANT REMOVED									
W. E. Roberts	258.80L	1-6"	10	6	20	39	38	22	52	11	14	8	6		226	(c)139	
W. E. Roberts	258.90L	1-12"			7	90	112	91	127	97	79	30	38	1	672	(c)	
J. E. Cobb	259.30R	1-6"						PLANT REMOVED									
J. E. Cobb	259.39R	1-6" 1-7"				12	24	95	119	92	28	11			381	103	
--SITE OF OLD LANES BRIDGE--	259.78																
Marjorie E. Sims	259.80L	1-6"				9	6	33	46	32	7				133	36	
J. E. Cobb	260.4R	1-6"				6	13	34	34	24	13	12			136	95	
Duane M. Folsom	261.10L	1-2½"						NO DIVERSION									
R. C. Arnold	261.53R	1-4"					36	50	21	31	16	15	5		174	82	
Duane M. Folsom	261.70L	1-6"						63	171	111	14	3			362	155	
E. G. Rank	*261.90	1-5"					23	8	25	14	7	8			85	(d)92	
E. G. Rank	*262.07	1-6"				2	34	13	37	17	9	9			121	(d)	
Duane M. Folsom	262.27L	1-7"				7	8	42	92	74	27	8			258	88	
A. Brown	262.43L	1-5"						28	52	42	7				129	(e)133	
E. G. Rank	262.48L	1-5"				5	10	28	54	51	22	6			176	(e)	
Dale McCoon	262.60R	1-6"					1	56	21						78	(f)142	
--SAMPLES RANCH RECORDING GAGE--	262.66																
Holland Ranch and Development Corporation	262.66L	1-7"				6	6	29	89	72	24				226	110	
D. E. Beebe	262.8L	1-1½"						PLANT REMOVED									
E. M. Beebe	262.90L	1-7"						PLANT REMOVED									
Dale McCoon	263.40R	1-7"					102	189	322	110	7	75			(f)805	21	
Dale McCoon	263.48R	1-6"						11	64	97	37				209	100	
Richard Jensen	263.76R	1-5"			34	84	110	98	103	101	99	104	29		762	90	
Pacific Coast Aggregate Company	264.00L	1-6" 1-8"						INDUSTRIAL USE ONLY									
H. W. Ball #1	(g)264.00L	1-6"					3	33	50	48	12				146	15	
H. W. Ball #3	(g)264.00L	1-3"				7	20	20	14	15	16	13			105	(h)55	
H. W. Ball #2	(g)264.00L	1-5"					38	61	49	40	18	7			213	(h)	
H. W. Ball #4	264.08L	1-6"					64	87	134	122	49	10			466	(h)	
Ike D. Ball	264.60R	1-6"				37	149	111	135	104	79	92	26		733	32	
W. F. Ball	264.83L	1-4" (i)1-5"	2		2	11	37	47	54	61	48	23	4		289	52	
Ike D. Ball	265.2R	1-2"						PLANT REMOVED									
V. D. Roullard	265.38L	1-6"				27		64	107	93	41				332	68	
V. D. Roullard	265.40L	1-5"			3	12	35	39	46	36	26	24	5		226	17	
Durando and Bellin	267.56L	1-7"	19	13	19	75	84	123	180	173	80	36	2	3	807	220	
--GAGING STATION - SAN JOAQUIN RIVER BELOW FRIANT--	268.13L																
--FRIANT BRIDGE--	268.88																
Wishon-Watson Company	269.18R	1-5"					21	54	39	8	21				143	41	
--COTTONWOOD CREEK--	269.53R																
--FRIANT DAM--	269.63																
GRAVELLY FORD TO FRIANT DAM																	
Totals			52	21	155	695	1682	2544	3569	2819	1391	738	144	9	13819	3838	0
Average cubic feet per second			1	0	3	12	27	43	58	46	23	12	2	0	19		
Monthly use in per cent of seasonal			0.4	0.2	1.1	5.0	12.2	18.4	25.8	20.4	10.1	5.3	1.0	0.1			

* 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 Miles 257.1L and 257.7L.
(b) Of this acreage, 45 were double cropped.
(c) Combined acreage for Miles 258.8L and 258.9L.
(d) Combined acreage for Miles *261.9 and *262.07.
(e) Combined acreage for Miles 262.43L and 262.48L. Includes 38 acres which also received an undetermined amount of well water.
(f) 100 acres listed for Mile 262.6R received an undetermined amount of water from Mile 263.4R.
(g) Plant is located on pond whose major source of supply is from the Pacific Coast Aggregate Company plant located at this mile.
(h) Combined acreage for Miles 264.0L (#3), 264.0L (#2), and 254.08L (#4). Of this acreage, 2 were double cropped.
(i) The 5" unit was installed in 1954.

TABLE 194

DIVERSIONS AND ACREAGES IRRIGATED - FRESNO SLOUGH AND JAMES BY-PASS (a) - 1954
(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 January to December Acre-Feet	Acreage Irrigated General	Rice
Borland Water District	6.45	8.20			169	387	920	1371	1428	1319	333	6			5933	2817	805
Wilbur Brothers	*(0.75)				71	502	714	1428	1585	833	83				5216	1110	962
James Irrigation District	*(4.4)				1250	2077	2947	3997	3564	3967	2553				20355	16382	4075
Fresno Slough Water Association	9.20	10.50					668	1559	1472	1311	780	24			5814	208	854
J. W. Wilson	11.70				34	14	399	323	448	421	28				1667		
Tranquillity Irrigation District	12.00	13.75			1872	2963	6671	7835	6734	6064	1809				33948	6247	2849
Totals			0	0	3396	5943	12319	16513	15231	13915	5586	30	0	0	72933	26764	9545
Average cubic feet per second			0	0	55	100	200	278	248	226	94	0	0	0	101		
Monthly use in per cent of seasonal			0	0	4.7	8.1	16.9	22.6	20.9	19.1	7.7	0	0	0			

* Mileage along Fresno Slough from its mouth at Mile 208.93L on the San Joaquin River.
* 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.

TABLE 195

DIVERSIONS AND ACREAGES IRRIGATED - MERCED RIVER - 1954

Water User	Mile and Bank above Mouth	Number and Size of Pump	Monthly Diversions in Acre-Feet March	April	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"	61	68	16	183	187	144	103		(a)762	215	
Stevinson Water District #2	3.8R	1-20"	130	323	479	404	741	454	615	170	(b)3316	(c)811	
Milton Gordon	4.3L	1-10"	15	16	23	60	74	60	36	49	(d)333	(e)98	
--GAGING STATION - MERCED RIVER NEAR STEVINSON--	4.6												
Salvador De Angelis	4.8L	1-12"		15	14	24	15	21	18	7	114	33	
Maria De Angelis	5.8L	1-12"	2	10	23	56	45	13	8	13	170	(f)84	
Lydell Peck	6.1L	1-15"		117	140	179	87	117	75	17	732	(g)278	
Stevinson Water District #3	7.7L	1-20"	481	444	188	110	1186	396	595	662	4062	(h)1078	
Manuel Clemintino	8.5L	1-12"	17	38	50	63	82	35	38	18	(i)341	100	
Manuel Celmintino	8.9L	1-12"	3	59	80	21	71	70	15		(j)319	(k)122	
Samuel B. McCullagh	9.4L	1-12"	89	50	66	116	128	118	81	32	(m)680	229	
J. R. Jacinto	9.6L	1-12"	53	27	47	91	76	46	53	39	432	113	
R. W. Adams and Mrs. J. B. Silva	10.35L	1-10"		190	207	261	362	307	279	169	(n)1775	(p)405	
Jack Vierra (q)	10.8R	(r)1-3"		13	13	19	20	14	14	12	105	49	
Manuel Freitas	10.9L	1-12"	33	32	85	143	129	121	41	45	(s)629	170	
R. E. Prusso and John Vierra	10.9L	1-5" 1-12"	43	51	58	111	95	104	52	33	(t)547	(u)220	
Tony Vierra	11.6L	1-6" 1-8"	2	138	97	134	186	145	79	65	(v)846	133	
J. R. Silva	11.6L	1-12"		142	73	119	157	41	119	40	(w)691	(x)149	
--MILLIKEN BRIDGE--	11.65												
M. Turner	11.7R	1-4"				2	3				5	25	
E. and J. Gallo Winery Ranch	12.35L	1-10"	9	16	6	40	66	20			(y)157	(z)	
Soren Husman	12.4L	1-6"		8	21	11	31	33	15	3	122	(aa)40	
M. Turner	12.8R	(ab)1-14"			1	20		17	6		44	30	
E. and J. Gallo Winery Ranch	12.85L	1-10" 1-12"	28	78	23	198	257	64			(ac)648	(z)405	
M. Turner	13.4R	1-4"				NO DIVERSION							

(a) Additional acre-feet diverted: November 72.
(b) Additional acre-feet diverted: November 54.
(c) Of this acreage, 40 were double cropped.
(d) Additional acre-feet diverted: November 13, December 3.
(e) Of this acreage, 28 were double cropped.
(f) Of this acreage, 15 were double cropped.
(g) Of this acreage, 68 were double cropped.
(h) Of this acreage, 205 were double cropped. Includes 993 acres which also received an undetermined amount of East Side Canal water.
(i) Additional acre-feet diverted: November 2.
(j) Additional acre-feet diverted: January 45.
(k) Of this acreage, 80 were double cropped.
(m) Additional acre-feet diverted: February 9.
(n) Additional acre-feet diverted: November 56, December 4.
(p) Of this acreage, 20 were double cropped.
(q) Formerly listed as R. E. Prusso.
(r) Replaces a 6" unit.
(s) Additional acre-feet diverted: November 4.
(t) Additional acre-feet diverted: November 14.
(u) Of this acreage, 77 were double cropped.
(v) Additional acre-feet diverted: November 8, December 9.
(w) Additional acre-feet diverted: November 21.
(x) Of this acreage, 50 were double cropped.
(y) Additional acre-feet diverted: November 45, December 21.
(z) Combined acreage for Miles 12.35L and 12.85L. Includes 145 acres which also received an undetermined amount of well water.
(aa) Of this acreage, 18 were double cropped.
(ab) Replaces a 4" unit.
(ac) Additional acre-feet diverted: November 185, December 63.

TABLE 195

DIVERSIONS AND ACREAGES IRRIGATED - MERCED RIVER - 1954 (contd.)

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
Anthony C. Pires	14.3R	1-6"		7	7	15	10	16	8		(a)63	(b)46	
J. M. Souza	14.5L	1-10"	18	40	40	70	84	43	42	3	340	87	
Anthony C. Pires	14.8R	1-6"		4	4		26		5		39	30	
Conie Koehn	14.8L	1-5"	NO DIVERSION										
Anthony C. Pires	15.4R	(c)1-6"			10	3	6	4	6		29	20	
Frank Bello (d)	16.2R	1-7"		6	21	29	25	15	8	1	105	38	
E. and J. Gallo Winery Ranch	16.5L	1-10"	19	40	27	149	127	81			(e)443	(f)300	
--RECORDING GAGE--	16.55												
C. J. Carpenter	17.05L	1-7"		2	19	20	20	10	15	8	94	(g)68	
Ervey Schmidt	17.7L	1-5"		8	15	16	11	9	9	4	(g)72	14	
E. C. Millhous	18.1R	1-6"			8	15	14	16	8	1	62	17	
J. H. Thomas	18.4L	1-6"	1	19	20	38	31	28	26	14	(h)177	(i)30	
C. P. Hockett	18.5L	1-4"		2	6	10	9	9	5	6	(a)47	20	
John Francis	18.6R	1-6"	NO DIVERSION										
John Francis	19.3R	1-5"			8	8	4	5			25	21	
S. P. Magsalay	19.8L	1-6"		7	5	2	7	7	8	2	(j)38	20	
Howard A. Jones	19.8L	1-6"		7	7	6	8	7	3		38	18	
John Francis	20.3R	(k)1-6"			6	4	3	2			15	(m)19	
H. P. Juneman	20.4L	1-7"		17	36	90	60	44	22		269	(n)109	
G. L. Carlson	20.6R	1-6"		7	12	24	17	18	17	3	98	35	
--U. S. HIGHWAY 99 BRIDGE--	21.04												
--SOUTHERN PACIFIC RAILROAD BRIDGE--	21.05												
A. C. Jorgensen #1	21.05R	1-6"				12	3	15	12	2	44	27	
Ben Bartlett	21.5L	1-6"	PLANT REMOVED										
A. C. Jorgensen	22.2R	(p)1-10" 1-16"	51	125	158	228	254	206	139	63	1224	298	
A. C. Jorgensen #3	22.8R	1-12" 1-15"	20	74	49	98	100	94	63	29	527	186	
A. C. Jorgensen #4	23.6R	1-8"	NO DIVERSION										
Helen Varnum	24.2L	1-5"	PLANT REMOVED										
C. H. Passadori, Jr.	24.2R	1-6"			21	20	33	26	27	16	(q)143	(r)63	
T. Nishihara	24.3R	1-5"	NO DIVERSION										
Helen Varnum	24.5L	1-6"				57	40	36	7		140	35	
T. Nishihara	24.6R	1-6"	NO DIVERSION										
T. Nishihara	25.0R	1-5"	NO DIVERSION										
T. Nishihara	25.5R	1-6"		6	8	26	25	7	29		(a)101	(s)50	
Merced River Farms Association	26.3R	1-8"		64	78	178	165	155	71	65	(t)776	104	
W. C. Magneson	26.55R	1-5" 1-6"	39	17	23	22	43	28	16		188	33	
Joseph Vierra	26.8L	1-8"	NO DIVERSION										
--SANTA FE RAILROAD BRIDGE--	27.05												
W. C. Magneson	27.5R	1-10"		62	67	57	116	36	25	20	383	(u)104	
--GAGING STATION - MERCED RIVER AT CRESSY BRIDGE--	27.6												
T. Nishihara	27.8R	(v)1-6"		1	3	26	3	17	5	6	61	27	
M. Uyekubo	28.1R	1-5"	1	3	5	6	11	8	8	3	(w)45	19	
John Farie	28.4R	1-5"			2	6	4	2	1		15	18	
J. Campadonica	28.6R	1-6"				5	7	7	4		23	14	
Oliver Alves	28.6R	1-8"			21	32	16	47	12		128	66	
Anthony Demchille	29.1R	1-7"				40	35		36		111	58	
Anthony Demchille	29.75R	1-6"				23	27	33			83	33	
Manuel Silva (High Lift)	29.9R	1-6"	NO DIVERSION										

(a) Additional acre-feet diverted: November 1.
(b) Of this acreage, 13 were double cropped.
(c) Replaces a 4" unit.
(d) Formerly listed as Frank Cole.
(e) Additional acre-feet diverted: November 108, December 71.
(f) Includes 150 acres which also received an undetermined amount of well water.
(g) Twelve acres listed for Mile 17.05L also received an undetermined amount of water from Mile 17.7L.
(h) Additional acre-feet diverted: November 5.
(i) Of this acreage, 8 were double cropped.
(j) Additional acre-feet diverted: January 2, November 1.
(k) Replaces a 5" unit.
(m) Of this acreage, 9 were double cropped.
(n) This acreage also received an undetermined amount of well water.
(p) The 10" unit was installed in 1954.
(q) Additional acre-feet diverted: November 11.
(r) Includes 18 acres of Nishihara lands.
(s) Of this acreage, 20 were double cropped.
(t) Additional acre-feet diverted: November 14.
(u) Of this acreage, 37 were double cropped.
(v) A 4" unit was removed in 1954.
(w) Additional acre-feet diverted: February 2.

TABLE 195

DIVERSIONS AND ACREAGES IRRIGATED - MERCED RIVER - 1954 (contd.)

Water User	Mile and Bank above Mouth	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversions March to October Acre-Feet	Acreage Irrigated	
			March	April	May	June	July	Aug.	Sept.	Oct.		General	Rice
Manuel Silva (Low Lift)	29.9R	1-6"				NO DIVERSION							
Rose and Shaffer	30.7L	1-6"		29	7	28	40	51	32	17	204	51	
Manuel Silva	30.95R	1-12"		82	196	106	156	137	21	165	863	175	
Rose and Shaffer	31.1L	1-8"			28	52	76	24	18	60	258	57	
Manuel Silva	31.5R	1-6"				NO DIVERSION							
Albert Chavas	31.6R	1-6"				NO DIVERSION							
--SOUTHERN PACIFIC RAILROAD BRIDGE (OAKDALE BRANCH)--	32.52												
Albert Chavas	33.1R	1-6"		35	60	117	100	80	28		420	100	
Ivan Spiva	33.2L	1-4"		16	8	6	15	4	9	5	63	11	
Albert Chavas	33.55R	1-6"				76	49	30	14		169	80	
W. F. Bettencourt, P. Halaris, and Cowel Land and Cement Company	36.9L	Gravity			599	753	1155	782	675	473	4437	1009	
Reinero Brothers (a)	39.1L	1-6"				2	15	12	1		30	(b)	
Reinero Brothers	39.2L	(c)1-6"			2	10	2				14	(b)47	
E. M. Davis	40.2L	1-4"								21	(d)21	50	
--GAGING STATION - MERCED RIVER BELOW SNELLING--	42.1												
Totals			1115	2515	3296	4850	6950	4491	3677	2361	29255	8394	0
Average cubic feet per second			18	42	54	82	113	73	62	38	60		
Monthly use in per cent of seasonal			3.8	8.6	11.3	16.6	23.7	15.3	12.6	8.1			

(a) New installation in 1954
(b) Combined acreage for Miles 39.1L and 39.2L.
(c) Replaces a 24" unit.
(d) Additional acre-feet diverted: November 23.

TABLE 196

DIVERSIONS AND ACREAGES IRRIGATED - TUOLUMNE RIVER - 1954

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 (a)	0.4R	1-4"	34	69	54		43			107	307	300	
E. T. Mapes	1.3R	1-20"	163	199	143	124	314	193	136	64	(b)1336	(c)2650	
J. V. Steenstrupt	1.9L	1-12"	20	82	149	160	335	133	86	11	(e)976	(d)180	
J. DeSouza and J. B. Silva	2.2R	1-6"		27		31	8	21	5	1	93	(f)63	
J. V. Steenstrupt	2.9L	(h)1-10" 2-12"	60	189	586	625	720	967	304	105	(i)3556	(g)203	(j)140
--GAGING STATION - TUOLUMNE RIVER AT TUOLUMNE CITY--	3.35												
Russel Murray	3.4L	1-5"		7	14	4	9	14	10		58	18	
Bancroft Fruit Farms	4.1R	1-12"	1	13	40	38	44	23	34	4	(k)197	70	
Bancroft Fruit Farms	5.0R	1-10"	13	58	93	105	99	84	55	16	(m)523	202	
R. L. Maxfield	6.9R	1-7"	41		22	69	62	49	25	1	269	36	
Eugene Boone, Galen Hartwich, and Tony Lemos	7.1R	1-10"	24	28	93	94	106	96	48	48	(n)537	160	
W. F. Duffy	7.2R	1-7"		4	54	17	23	15	19	13	145	(p)76	
Ella T. Rahilly	7.8L	1-10"		33	55	36	48	101	33		306	40	
W. F. Duffy	8.4R	1-10"	3	88	62	109	101	94	93	31	(q)581	(f)88	
Ella T. Rahilly	8.5L	1-10"		30	38	30	36	53	43		230	78	
A. C. Watkins	9.4L	1-12"	159	30	263	188	195	162	105		1102	90	
Tuolumne Cooperative Farms, Inc.	10.2R	1-14"	27	86	67	73	118	103	91	39	(r)604	(s)99	
G. B. and L. D. Podesto	15.75R	1-3"		1	3	6	5	3			18	24	
--SOUTHERN PACIFIC RAILROAD BRIDGE--	15.8												

(a) Plant moved from San Joaquin River, Mile 89.9R in 1954.
(b) Additional acre-feet diverted: January 44, February 107, November 109, and December 6.
(c) This acreage also received an undetermined amount of controlled drainage water from Modesto Irrigation District.
(d) Of this acreage, 50 were double cropped.
(e) Additional acre-feet diverted: January 1 and December 39.
(f) Of this acreage, 25 were double cropped.
(g) Of this acreage, 173 were double cropped and 30 acres also received an undetermined amount of water from Turlock Irrigation District.
(h) One 12" and one 10" unit were installed in 1954.
(i) Additional acre-feet diverted: January 65.
(j) Includes 40 acres which also received an undetermined amount of water from Turlock Irrigation District.
(k) Additional acre-feet diverted: January 20 and February 3.
(m) Additional acre-feet diverted: January 38, February 1, and November 26.
(n) Additional acre-feet diverted: February 1.
(p) Of this acreage, 22 were double cropped.
(q) Additional acre-feet diverted: February 3.
(r) Additional acre-feet diverted: February 18.
(s) Of this acreage, 14 were double cropped.

TABLE 196

DIVERSIONS AND ACREAGES IRRIGATED - TUOLUMNE RIVER - 1954 (contd.)

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
--U. S. HIGHWAY 99 BRIDGE--	16.05												
--GAGING STATION - TUOLUMNE RIVER AT MODESTO--	16.1												
--DRY CREEK--	16.5R												
Joseph Sanguinetti	20.3R	1-10"	3	17	39	43	49	35	27	16	229	(a)70	
L. J. Foit	20.4L	1-5"				NO DIVERSION							
H. W. Ortman	20.5R	1-12"	16	26	16	50	35	47	19	11	(b)220	(c)80	
--SANTA FE RAILROAD BRIDGE--	21.6												
G. R. Trent	23.5R	(d)1-1½" 1-6"		17	16	17	19	24	8		101	38	
C. S. Blakesley	23.6R	1-6"	1	6	10	9	10	6	8	4	(e)54	16	
M. A. Goodman and Sons	25.6R	1-2"				NO DIVERSION							
L. B. and J. H. Fox	25.8L	1-3"	7	21	40	56	64	57	53	55	(f)353	85	
H. W. Low	26.6L	1-4"		14	21	20	38	28	23	11	(g)155	(h)60	
H. W. Low	27.0L	1-4"	4	19	29	28	36	36	30	15	(g)197	50	
George H. Johnson	27.1R	1-8"				PLANT REMOVED							
Paul J. Ferguson	27.3R	1-10"			11			13			24	10	
B. and L. Ranch	27.9R	1-12"	5		14	23	14	28	11	7	102	(i)40	
Ronald R. Painter	28.3R	1-7"					9		15		24	28	
Michel Investment Company	28.8R	(j)1-8" 1-12"		30	52	116	168	126	72	63	627	(k)150	
E. B. and D. V. Butterfield (m)	29.4R	1-10"		1	1	19	20	19	2		62	60	
J. W. and Lola May Short	29.4L	1-7"				NO DIVERSION							
Firpo Ranch	30.2L	1-10"		24	39	60	66	66	36	12	(n)303	(k)105	
W. C. Chase	30.4R	1-4"	1	1	2	2	2	2			10	4	
--SOUTHERN PACIFIC RAILROAD BRIDGE (OAKDALE BRANCH)--	31.5												
--GAGING STATION - TUOLUMNE RIVER AT HICKMAN BRIDGE--	31.7												
A. G. Laughlin	34.2R	1-6"			2	4	4	5	5	1	21	(p)16	
Donald Ketcham	38.4R	1-5"				2	1	1	2		6	10	
A. E. Ketcham	39.4R	1-8"	12	15	29	46	49	38	41	25	(q)255	50	
George H. Sawyer	39.8L	1-6"		15	61	24	61	73	24	18	276	(r)345	
--GAGING STATION - TUOLUMNE RIVER AT ROBERTS FERRY BRIDGE--	39.9												
William J. Silva	(s)43.3L	1-6"			16	24	26	5	8		79	16	
Curtner Zanker (m)	45.7L	1-10"					46	52	32		130	(t)98	
Dolling Brothers	46.3R	1-8"		45	70	74	99	89	70	95	542	50	
--GAGING STATION - TUOLUMNE RIVER AT LA GRANGE--	50.5												
Totals			594	1195	2204	2326	3082	2861	1573	773	14608	5758	140
Average cubic feet per second			10	20	36	39	50	47	26	13	30		
Monthly use in per cent of seasonal			4.1	8.2	15.1	15.9	21.1	19.6	10.7	5.3			

(a) This acreage also received an undetermined amount of drain water from Empire Sewer Farm.
(b) Additional acre-feet diverted: February 2.
(c) Of this acreage, 30 were double cropped.
(d) The 1½" unit was installed in 1954.
(e) Additional acre-feet diverted: February 3.
(f) Additional acre-feet diverted: February 7 and November 10.
(g) Additional acre-feet diverted: November 3.
(h) This acreage also received an undetermined amount of well water.
(i) Of this acreage, 10 were double cropped.
(j) The 8" unit was installed in 1954.
(k) Of this acreage, 55 were double cropped.
(m) New installation in 1954.
(n) Additional acre-feet diverted: November 9.
(p) Of this acreage, 8 were double cropped.
(q) Additional acre-feet diverted: November 13.
(r) This acreage also received an undetermined amount of well water.
(s) Previously listed as Mile 44.6L.
(t) Includes 8 acres of O. F. Fine lands.

TABLE 197

DIVERSIONS AND ACREAGES IRRIGATED - DRY CREEK - 1954

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"			10	12	18	30	4		(a)74	(b)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"			3	3	2		2		10	(c)8	
--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												
Charles J. and Frances E. Carroll (d)	9.7R	1-1½"	1	1	2	3	3	2	1	1	14	3	
Roy Brant	10.6R	1-5"		1		7	7	7			22	(e)29	
--ALBERS ROAD BRIDGE--	11.0												
--MODESTO IRRIGATION DISTRICT CANAL CROSSING--	11.1												
Lucksinger Brothers	12.1R	1-6"				12	2	6	5		25	12	
John Luiz	12.6R	1-4"			1	8	42	17	30	28	(f)126	(g)100	
Lucksinger Brothers	12.7R	1-6"				8	12	7	10	4	(h)41	(g)32	
Lucksinger Brothers	13.4L	1-7"					6		3	14	(i)23	(e)32	
Earl R. Petersen (j)	14.4L	1-6"			2	2	3	2	1		10	(k)30	
Joe Fagundes	14.7R	1-10"	14	63	130	121	156	101	110	111	(m)806	90	
H. H. French	17.2R	1-8"	4	6	8	8	10	8	6	2	52	22	
--OAKDALE - WATERFORD HIGHWAY BRIDGE--	17.4												
Totals			19	71	156	184	261	180	172	160	1203	483	0
Average cubic feet per second			0	1	3	3	4	3	3	3	2		
Monthly use in per cent of seasonal			1.6	5.9	13.0	15.3	21.7	14.9	14.3	13.3			

(a) Additional acre-feet diverted: February 2.
(b) This acreage also received an undetermined amount of controlled drainage water from Modesto Irrigation District.
(c) This acreage also received an undetermined amount of water from Modesto Irrigation District.
(d) New installation in 1954.
(e) This acreage received an undetermined amount of water from Modesto Irrigation District.
(f) Additional acre-feet diverted: February 1.
(g) This acreage also received an undetermined amount of water from Oakdale Irrigation District.
(h) Additional acre-feet diverted: November 3.
(i) Additional acre-feet diverted: February 5.
(j) Formerly listed as Leonard Jacabson.
(k) This acreage also received an undetermined amount of water from Waterford Irrigation District.
(m) Additional acre-feet diverted: November 1.

TABLE 198

DIVERSIONS AND ACREAGES IRRIGATED - STANISLAUS RIVER - 1954

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"		11							11	30	
E. W. Hawkins	1.8R	1-6"		21	13	25	21	10			90	(a)28	
A. J. Chisholm	2.9R	1-8"				PLANT REMOVED							
--GAGING STATION - STANISLAUS RIVER NEAR MOUTH--	2.9												
A. J. Chisholm and C. M. Carroll (b)	2.95R	1-16"			60	90	106	124	135	99	614	(c)80	
C. M. Carroll	3.0R	1-6"		47							47	(c)	
C. C. Angyal	4.4R	1-18"	185	197	46	224	231	155			1038	300	
Overton Ranch (D. F. Koetitz)	5.25L	2-12"	157	272	251	326	554	426	265	261	2512	510	
Louis W. Pelucca	5.85L	1-14"	31	14	28	38	37	23	9	5	185	50	
Reclamation District #2064	5.9R	1-14" 1-16" 1-20"	404	1080	1499	1504	1782	1552	1131	589	(d)9541	(e)1872	
Reclamation District #2075	5.95R	2-16" 1-20"	681	2371	2432	2586	2694	3322	2291	1252	(f)17629	2773	

(a) This acreage was double cropped.
(b) New installation in 1954.
(c) Combined acreage for Miles 2.95R and 3.0R.
(d) Additional acre-feet diverted: January 18 and November 147.
(e) Of this acreage, 98 were double cropped.
(f) Additional acre-feet diverted: January 48 and November 85.

TABLE 198

DIVERSIONS AND ACREAGES IRRIGATED - STANISLAUS RIVER - 1954 (contd.)

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
Henry Pelucca (a)	6.6L	1-16"		98	8	275	238	171	180		970	(b)180	
J. W. Updike (a)	7.5L	1-12"				15	31	22	11	1	80	25	
C. C. Updike	8.2L	1-12"				5	41	9	27	22	104	125	
Ekelund Ripon Ranch	9.8R	1-16"	78	416	355	228	336	279	232	96	(c)2020	372	
N. E. Cannon	10.0R	1-10"	34	170	239	210	249	186	123	43	(d)1254	215	
D. F. Koetitz	10.1L	1-10"	73	214	326	283	415	393	264	266	(e)2234	370	
--RECORDING GAGE--	10.2												
Joseph Hertle	10.5L	1-10"	12	28	14	45	46	41	40	4	230	(f)68	
G. S. Tornell	13.1R	1-12"	57	25	28	13	62	55			240	(g)40	
R. B. Konenyburg	13.9R	1-8"				30	19				49	(h)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"			48	25	29	75	19	11	207	(i)326	
E. J. Freethy	18.8R	1-14"	16	24	65	150	116	170	138	81	(j)760	180	
E. J. Freethy	19.4R	(k)1-3" 1-4"				1	9	10	13		33	18	
Allen Ranch	20.75R	1-14"		189	186	255	219	294	292	97	(m)1532	280	
Heath Ranch	20.9L	1-5"		41	37	11	62	45	27	13	(n)236	14	
B. Bonora	21.6R	1-6"				NO DIVERSION							
B. Bonora	21.75R	1-10"			53	35	41	29	24	24	206	(p)68	
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	2	22	39	14			78	160	
Oakdale Irrigation District (Crawford Pump)	(q)35.9L	1-14"		75	208	150	337	303	72	45	1190	(r)587	
Oakdale Irrigation District (Brady Pump)	(q)37.0L	1-12"		47	73	109	156	131	69	24	609	(s)445	
--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"		9	12	16	12	17			66	35	
J. H. Anderson	46.8L	1-6"	4	9	16	22	29	22	21	12	135	40	
Walter B. Wilms	47.5L	1-10"		13	33	31	38	36	36	24	211	44	
Totals			1732	5372	6032	6724	7949	7914	5419	2969	44111	9289	0
Average cubic feet per second			28	90	98	113	129	129	91	48	91		
Monthly use in per cent of seasonal			4.0	12.2	13.7	15.2	18.0	17.9	12.3	6.7			

(a) New installation in 1954.
(b) Of this acreage, 10 were double cropped.
(c) Additional acre-feet diverted: January 2 and November 51.
(d) Additional acre-feet diverted: January 4, February 11, and November 3.
(e) Additional acre-feet diverted: November 57.
(f) Of this acreage, 20 were double cropped.
(g) This acreage was couble cropped.
(h) This acreage also received an undetermined amount of well water.
(i) Includes 155 acres which also received an undetermined amount of Modesto Irrigation District water.
(j) Additional acre-feet diverted: February 3.
(k) These units replace a 6" unit.
(m) Additional acre-feet diverted: November 9.
(n) Additional acre-feet diverted: February 2 and November 9.
(p) Includes 38 acres which also received an undetermined amount of well water.
(q) Oakdale Irrigation District for season of 1954 maintained plants at Miles 35.9L and 37.0L to supplement District gravity diversion.
(r) Of this acreage, 305 were double cropped. This acreage also received an undetermined amount of water from Mile 50.2, the District's gravity diversion.
(s) Of this acreage, 72 were double cropped. This acreage also received an undetermined amount of water from wells and Mile 50.2, the District's gravity diversion.

TABLE 199

DIVERSIONS AND ACREAGES IRRIGATED - TULE RIVER - 1954

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
Pioneer Ditch	0.3R	Gravity	292	98	296	640	999	1013	378			101	399	662	4878	(a)	
--GAGING STATION - TULE RIVER AT WORTH BRIDGE--	2.2																
Campbell-Moreland Ditch	3.2L	Gravity	998	713	669	982	1380	887	179			41	588	1174	(b)7611	(c,d)1099	
Porter Slough	3.2R	Gravity	1029	2519	814	1323	2303	13						678	(e)8679	(f)	
Porter Slough Ditch (g)	(g)3.2R	Gravity		155	509	1027	1506	7							3204	(h)813	
Vandalia Ditch	3.9L	Gravity	228	295	180	204	345	150					23	150	1575	(i)1235	
--SANTA FE RAILROAD BRIDGE--	5.9																
Poplar Ditch	6.6L	Gravity		812	2311	3455	4635	1475							12688	(j)4302	
--STATE HIGHWAY 65 BRIDGE--	6.7																
--SOUTHERN PACIFIC RAILROAD BRIDGE--	6.8																
Hubbs-Miner Ditch	7.2R	Gravity	374	294	446	749	1027	766							(k)3656	(m)2086	
Rhodes-Fine Ditch	9.2L	Gravity				251	197	171							619	(n)1054	
--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			83	250	241	103	289	147					1113	(n)537	
--OTTLE BRIDGE--	15.2																
Totals			2921	4886	5308	8881	12633	4585	846	147	0	142	1010	2664	44023	11126	0
Average cubic feet per second			48	88	86	149	205	77	14	2	0	2	17	43	61		
Monthly use in per cent of seasonal			6.6	11.1	12.1	20.2	28.7	10.4	1.9	0.3	0	0.3	2.3	6.1			

* Mileage downstream from junction with South Fork Tule River.
(a) Acreage not available.
(b) Includes an undetermined amount of water served to Vandalia Irrigation District well field.
(c) This acreage also received an undetermined amount of well water.
(d) Includes 87 acres used by Porterville State Hospital for recharging well fields.
(e) This figure is the measured flow at the head of Porter Slough, minus the diversion of Porter Slough Ditch.
(f) Use, other than replenishing ground water, is negligible.
(g) Point of diversion is on Porter Slough 4.5 miles below head.
(h) This acreage is in Porterville Irrigation District which also receives water from Friant-Kern Canal and wells.
(i) This acreage also received an undetermined amount of water from Campbell-Moreland Ditch via well field. Does not include 153 acres used by District as a well field.
(j) Includes acreage as follows: Porterville Irrigation District 2682, Lower Tule River Irrigation District 1220 and Saucelito Irrigation District 400. This acreage also received water from Friant-Kern Canal and wells.
(k) This figure is measured diversion at head minus measured spill to river at 12.9R.
(m) Includes 1770 acres in the Hubbs-Miner Ditch Company and 316 acres in the Gilliam-McGee Ditch Company. This acreage also received an undetermined amount of water from Friant-Kern Canal and wells.
(n) This acreage also received an undetermined amount of water from Friant-Kern Canal and wells.

TABLE 200

EXPORTATIONS FROM SACRAMENTO-SAN JOAQUIN DELTA - 1954

Water User	Mile & Bank	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
							Cache Slough							
City of Vallejo														
Total acre-feet diverted		392	327	571	568	756	806	821	1102	998	1048	858	751	8998
Average cubic feet per second		6	6	9	10	12	14	13	18	17	17	14	12	12
Monthly diversion in per cent of seasonal		4.4	3.6	6.3	6.3	8.4	9.0	9.1	12.3	11.1	11.7	9.5	8.3	
							Old San Joaquin River							
Contra Costa Canal	30.5L													
Total acre-feet diverted		2480	2107	2418	2600	3686	5108	5935	5732	4608	2989	2332	2186	42181
Average cubic feet per second		40	38	39	44	60	86	97	93	77	49	39	36	58
Monthly diversion in per cent of seasonal		5.9	5.0	5.7	6.2	8.7	12.1	14.1	13.6	10.9	7.1	5.5	5.2	
Delta-Mendota Canal	44.6L													
Total acre-feet diverted		5169	50285	69033	119288	80636	173429	196487	174795	107779	54734	13492	498	1045625
Average cubic feet per second		84	905	1123	2005	1311	2915	3195	2843	1811	890	227	8	1444
Monthly diversion in per cent of seasonal		0.5	4.8	6.6	11.4	7.7	16.6	18.8	16.7	10.3	5.2	1.3	0.1	

TABLE 201

DIVERSIONS AND ACREAGES IRRIGATED - EAST SIDE CANALS AND IRRIGATION DISTRICTS - 1954

Water User	Mile and Bank	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	Acreage Irrigated: General	Acreage Irrigated: Rice
							San Joaquin River									
Friant-Kern Canal	269.63L															
Total acre-feet diverted		149	11937	52801	58016	124486	153069	172126	145736	63133	25444	6232	0	813129		
Average cubic feet per second		2	215	859	975	2025	2572	2799	2370	1061	414	105	0	1123		
Monthly diversion in % of seasonal		0	1.5	6.5	7.1	15.3	18.8	21.2	17.9	7.8	3.1	0.8				
Madera Canal	269.63R															
Total acre-feet diverted		63	204	3685	17826	23508	40822	53973	51073	19678	0	0	0	210832		
Average cubic feet per second		1	4	60	300	382	686	878	831	331	0	0	0	291		
Monthly diversion in % of seasonal		0	0.1	1.7	8.5	11.2	19.4	25.6	24.2	9.3	0	0	0			
							Merced River									
Merced Irrigation District	(a)46.0															
Main Canal		0	0	2694	60318	95670	99744	108948	90469	22160	0	0	0	480003		
Northside Canal		0	0	0	2295	3362	3858	4649	4368	1023	0	0	0	19555		
Total acre-feet diverted		0	0	2694	62613	99032	103602	113597	94837	23183	0	0	0	(b)499558	(c)100726	6603
Average cubic feet per second		0	0	44	1052	1611	1741	1847	1542	390	0	0	0	690		
Monthly diversion in % of seasonal		0	0	0.5	12.5	19.8	20.7	22.8	19.0	4.7	0	0	0			
							Tuolumne River									
Turlock Irrigation District	51.5L															
Total acre-feet diverted		3430	5708	37408	84386	101576	101980	90394	75470	67692	21030	1194	6870	597138	(d)167131	0
Average cubic feet per second		56	103	608	1418	1652	1714	1470	1227	1138	342	20	112	825		
Monthly diversion in % of seasonal		0.6	1.0	6.3	14.1	17.0	17.1	15.1	12.6	11.3	3.5	0.2	1.2			
Modesto Irrigation District	51.5R															
Total acre-feet diverted		64	56	36709	52523	56781	47254	42394	43502	23377	7023	43	14319	324045	(e)68945	493
Average cubic feet per second		1	1	597	883	923	794	689	707	393	114	1	233	448		
Monthly diversion in % of seasonal		0	0	11.4	16.2	17.5	14.6	13.1	13.4	7.2	2.2	0	4.4			
Waterford Irrigation District	51.5R															
Total acre-feet diverted		0	0	582	5277	7009	7319	7119	5539	4901	2111	0	0	39857	(f)7070	0
Average cubic feet per second		0	0	9	89	114	123	116	90	82	34	0	0	55		
Monthly diversion in % of seasonal		0	0	1.4	13.2	17.6	18.4	17.9	13.9	12.3	5.3	0	0			
							Stanislaus River									
Oakdale Irrigation District	50.2															
Northside Canal		24	42	432	11957	18274	14645	13960	11623	2229	537	0	0	73723	(g)20810	1963
Southside Canal		0	0	195	18260	30571	25285	23568	20553	3724	297	197	0	122650	(h)34403	531
Total acre-feet diverted		24	42	627	30217	48845	39930	37528	32176	5953	834	197	0	(i)196373	(j)55213	2494
Average cubic feet per second		0	1	10	508	794	671	610	523	100	14	3	0	271		
Monthly diversion in % of seasonal		0	0	0.3	15.4	24.9	20.4	19.1	16.4	3.0	0.4	0.1	0			
South San Joaquin Irrigation District	50.2R															
Total acre-feet diverted		12609	9282	10806	35863	46371	40155	37485	31665	11058	7709	0	0	243003	(k)62788	38
Average cubic feet per second		205	167	176	603	754	675	610	515	186	126	0	0	336		
Monthly diversion in % of seasonal		5.2	3.8	4.4	14.8	19.1	16.5	15.4	13.0	4.6	3.2	0	0			

(a) Approximate mileage of the Crocker-Hoffman Diversion Dam.
(b) An additional 112,146 acre-feet of water was pumped from wells.
(c) Includes double-cropped acreage.
(d) Of this acreage, 20,323 were double cropped.
(e) Of this acreage, 10,359 were double cropped.
(f) Of this acreage, 144 were double cropped and 154 were interplanted.
(g) Of this acreage, 363 were double cropped.
(h) Of this acreage, 488 were double cropped.
(i) Does not include diversion at Miles 35.9L and 37.0L on Stanislaus River.
(j) Includes 1,029 acres listed for Miles 35.9L and 37.0L on Stanislaus River. This acreage also received an undetermined amount of water from wells and controlled drainage.
(k) Of this acreage, 2,324 were double cropped. Includes 3,038 acres served by subirrigation.

TABLE 202

DELIVERIES FROM CENTRAL VALLEY PROJECT CANALS - 1954
(The following table arranged from data furnished by U. S. Bureau of Reclamation)

Water User	Mile Post * From	To	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
							Deliveries in Acre-Feet								
							Contra Costa Canal								
Contra Costa County Water Dist.			2219	1623	1738	1937	2387	2793	4221	4204	4135	2780	1708	2056	31801
Industrial and Municipal			108	54	69	237	862	1912	1394	830	440	199	127	96	6328
Agricultural															
Camp Stoneman			0	0	0	1	1	2	1	0	0	0	0	0	5
Total			2327	1677	1807	2175	3250	4707	5616	5034	4575	2979	1835	2152	38134
							Delta-Mendota Canal								
Plain View Water District	8.51	20.00	6		188	786	885	1055	1376	1200	675	344	111	12	6638
Hospital Water District	20.58	30.96	203		1016	1579	2112	3687	4250	3403	1654	730	116	0	18750
West Stanislaus Irr. Dist.	31.31		0		0	1034	398	674	3360	2252	0	0	0	0	7718
Kern Canon Water District	31.31	33.70	207		164	417	733	1056	1085	811	328	149	51	0	5001
Del Puerto Water District	35.70	42.08	23		396	878	1105	1164	1636	1602	727	386	140	21	8078
Patterson Water Company	42.51		0		0	0	0	0	211	169	220	0	0	0	600
Salado Water District	42.51	45.20	10		195	1076	646	602	1392	705	370	191	18	0	5205
Sunflower Water District	44.23	49.00	66		258	891	1294	1244	2038	1465	571	197	0	0	8024
Orestimba Water District	46.83	50.66	0		96	827	508	363	1374	452	89	12	17	0	3738
Foothill Water District	51.65	52.40	0		4	345	360	342	567	497	72	6	0	0	2193
Davis Water District	54.01	55.85	46		152	171	220	80	377	172	5	0	0	0	1223
Mustang Water District	58.26	61.84	0		0	70	186	623	738	585	299	25	0	0	2526
Quinto Water District	64.28	64.47	0		32	98	238	221	481	468	163	0	0	0	1701
Romero Water District	68.03		0		47	216	217	216	222	217	208	153	0	0	1496
San Luis Water District	69.21	88.91	41		708	830	1845	2242	2362	2041	1109	362	335	4	11879
Pacheco Water District	90.56		0		0	0	0	418	898	728	0	0	0	0	2044
Panoche Water District	93.25		718		6229	4070	4088	8078	9863	8702	3075	1234	1132	0	47189
Eagle Field Water Users Assoc.	94.26		0		0	0	666	823	905	770	539	22	0	0	3725
West Side Golf Association	95.98		3		2	7	16	16	16	11	8	5	0	0	84
Oro Loma Water District	96.62		47		0	686	558	542	575	469	106	290	0	0	3273
Widren Water Users Assoc.	102.03		0		0	0	255	342	284	244	240	21	4	0	1390
Total			1370		9487	13981	16330	23788	34010	26963	10458	4127	1924	37	142475
Net Deliveries, Delta-Mendota Canal to Mendota Pool			0	24223	57662	99329	63592	147710	162006	149609	97509	44198	9578	0	855416
							Madera Canal								
Madera Irrigation District	6.1	32.2	0	0	659	7581	7329	20232	28792	25524	3205	0	0	0	93322
Mrs. Moses	20.6		0	0	0	0	0	0	0	0	104	90	42	0	236
Chowchilla Water District	35.9		0	0	1269	10842	15537	19772	24379	24540	17084	0	0	0	113423
Total			0	0	1928	18423	22866	40004	53171	50064	20393	90	42	0	206981
							Friant-Kern Canal								
International Water Dist.	14.90		0	0	0	0	0	109	45	41	154	5	0	0	354
C. Baird	20.20		0	0	0	0	11	25	21	27	18	15	11	0	128
Pacific Gas and Electric Co.	28.52	151.80	0	0	0	0	55603	7043	0	0	0	44	7	115	62812
Consolidated Irrigation Dist.	28.52		0	0	0	0	0	16878	10610	0	0	0	0	0	27488
Orange Cove Irrigation Dist.	35.00	54.30	0	71	9	1008	4161	5835	7583	6686	3578	1785	415	0	31131
City of Orange Cove	43.44		0	0	0	7	16	21	28	22	17	8	0	0	119
Lovell Community Service Dist.	54.04		0	0	0	0	0	0	0	500	302	0	0	0	802
Yettem-Seville Water Assoc.	54.40		0	0	0	0	0	0	0	0	760	0	0	0	760
Stone Corral Irrigation Dist.	56.90	64.40	0	0	0	637	1277	1759	2493	2188	949	337	60	0	9700
Ivanhoe Irrigation District	65.04	69.08	0	0	88	1035	2358	2739	3751	3178	1765	791	395	0	16100
Tulare Irrigation District	68.14	71.29	0	0	17512	14503	10862	27259	34247	39638	7579	0	0	0	151600
Cottonwood Ditch Assoc.	69.08		0	0	0	0	0	0	56	0	0	0	0	0	56
Kaweah-Delta Water C. District	69.40	71.29	0	0	0	0	0	0	0	0	0	496	111	0	607
Exeter Irrigation District	72.52	80.63	0	30	82	807	1688	1930	2338	2182	1111	857	355	0	11380
Lindmore Irrigation District	81.17	93.20	0	0	781	3362	6649	8707	10709	9279	5147	2350	1063	0	48047
Lindsay-Strathmore Irr. Dist.	85.56		0	200	93	1343	3812	3840	4475	4328	3064	2186	851	0	**24192
Porterville Irrigation Dist.	92.12	98.13	0	1244	9	508	20	569	910	567	315	528	198	0	4868
Lower Tule Irrigation Dist.	94.92	98.62	0	0	14144	10766	13208	35409	47170	33729	14608	966	0	0	170000
Nunes Water District	95.64		0	0	0	0	0	184	728	0	0	0	0	0	912
Homeland Reclamation Dist. 780	95.64		0	0	0	0	0	198	0	0	0	0	0	0	198
Saucelito Irrigation Dist.	98.62	107.37	0	63	375	3247	2906	4586	6910	7331	2985	1194	40	0	29637
Terra Bella Irrigation Dist.	102.65		0	0	0	143	726	1125	1569	1678	1210	692	161	0	7304
Delano-Earlimart Irr. Dist.	107.65	119.47	397	2104	7827	9221	11076	15473	17120	14892	9174	5629	4594	448	97955
Rag Gulch Mutual Water Co.	117.96		46	0	0	373	839	1081	950	1023	661	686	290	0	5949
Southern San Joaquin M. U. D.	120.07	128.05	0	184	7627	9475	9126	16306	20202	16596	9033	4368	1944	63	94924
Total			443	3896	48547	56435	124338	151076	171915	143885	62430	22937	10495	626	797023

* From head of canal.
** Includes transported water from Wutchumna Ditch.

TABLE 203

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 - Sacramento to Redding	1945 to 1954	0.5	8.4	17.9	18.3	20.7	19.5	10.8	3.9
Feather River - Oroville to Mouth	1945 to 1954	0.2	5.9	18.9	19.6	20.6	18.3	11.2	5.3
Yuba River - Smartville to Mouth	1945 to 1954	0	5.5	16.5	17.1	17.6	17.3	14.7	11.3
American River - Fairoaks to Mouth	1945 to 1954	0.9	2.2	7.7	21.1	25.9	21.2	15.8	5.2
DELTA UPLANDS									
Old San Joaquin River	1945 to 1954	3.7	11.2	16.8	17.0	19.4	16.8	10.6	4.5
Tom Paine Slough	1945 to 1954	3.0	10.8	14.3	15.6	19.4	19.0	13.4	4.5
San Joaquin River - Vernalis to Stockton	1945 to 1954	5.1	14.0	14.6	14.7	20.1	17.4	10.1	4.0
SAN JOAQUIN VALLEY									
San Joaquin River - Fremont Ford Bridge to Vernalis	1945 to 1954	5.2	13.9	15.0	15.3	20.0	17.3	10.6	2.7
Merced River - Snelling to Mouth	1945 to 1954	2.8	8.3	13.4	17.4	22.7	18.6	12.1	4.7
Tuolumne River - La Grange Dam to Mouth	1945 to 1954	4.2	9.0	14.4	16.7	19.3	19.0	12.4	5.0
Stanislaus River - Goodwin Dam to Mouth	1945 to 1954	3.2	10.6	14.6	16.3	18.9	18.2	12.4	5.8

TABLE 204

ANNUAL COMPARATIVE MONTHLY DIVERSIONS IN ACRE-FEET 1945 to 1954

SACRAMENTO RIVER - SACRAMENTO TO REDDING

Year (a)	March	April	May	June	July	Aug.	Sept.	Oct.	Seasonal Diversions
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
1954	2935	96488	402233	407508	448928	409637	242008	81313	2091050
Average Acre-Feet	9810	153652	327228	334844	380050	356812	197339	71259	1830994
Average c.f.s.	160	2582	5322	5627	6181	5803	3316	1159	3768
Monthly Diversion in per cent of seasonal	0.5	8.4	17.9	18.3	20.7	19.5	10.8	3.9	

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

TABLE 205

ANNUAL COMPARATIVE MONTHLY DIVERSIONS IN ACRE-FEET 1945 to 1954

FEATHER RIVER - OROVILLE TO MOUTH

Year (a)	March	April	May	June	July	Aug.	Sept.	Oct.	Seasonal Diversions
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
1954	0	14833	140856	155666	160603	142046	94979	48159	757142
Average Acre-Feet	1294	41554	133897	139283	145685	125744	79301	37838	708596
Average c.f.s.	21	698	2178	2341	2369	2110	1333	615	1458
Monthly Diversion in per cent of seasonal	0.2	5.9	18.9	19.6	20.6	18.3	11.2	5.3	

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

TABLE 206

ANNUAL COMPARATIVE MONTHLY DIVERSIONS IN ACRE-FEET 1945 to 1954

YUBA RIVER - SMARTVILLE TO MOUTH

Year (a)	March	April	May	June	July	Aug.	Sept.	Oct.	Seasonal Diversions
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
1954	15	0	23630	26960	27574	26512	21088	14784	140563
Average Acre-Feet	5	6189	18605	19229	19765	19492	16566	12731	112582
Average c.f.s.	0	104	303	323	321	317	278	207	232
Monthly Diversion in per cent of seasonal	0	5.5	16.5	17.1	17.6	17.3	14.7	11.3	

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

TABLE 207

ANNUAL COMPARATIVE MONTHLY DIVERSIONS IN ACRE-FEET 1945 to 1954

AMERICAN RIVER - FAIROAKS TO MOUTH

Year (a)	March	April	May	June	July	Aug.	Sept.	Oct.	Seasonal Diversions
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
1954	20	262	671	1597	1927	1239	1092	446	7254
Average Acre-Feet	49	111	395	1083	1329	1090	814	269	5140
Average c.f.s.	1	2	6	18	22	18	14	4	11
Monthly Diversion in per cent of seasonal	0.9	2.2	7.7	21.1	25.9	21.2	15.8	5.2	

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

TABLE 208

ANNUAL COMPARATIVE MONTHLY DIVERSIONS IN ACRE-FEET 1945 to 1954

OLD SAN JOAQUIN RIVER (a) - DELTA UPLANDS

Year (b)	March	April	May	June	July	Aug.	Sept.	Oct.	Seasonal Diversions
1945	0	6798	15761	15462	17779	13088	9573	3133	81594
1946	4080	13613	16225	14712	16987	16229	8565	3686	94097
1947	1637	15687	18983	15788	19269	14525	9633	3105	98627
1948	9279	3099	16258	13796	19366	18878	12142	5331	98149
1949	343	15999	19756	18892	20406	16134	10718	6026	108274
1950	6009	15315	18832	18626	22274	19021	12010	4258	116345
1951	202	9746	18249	21022	21130	19784	11329	3706	105168
1952	3	2613	16903	19368	20557	18572	10763	5992	94771
1953	11193	16174	15312	17467	21803	19666	12693	4446	118754
1954	6164	17966	19952	22634	24152	19953	13157	7271	131249
Average Acre-Feet	3891	11701	17623	17777	20372	17585	11058	4696	104703
Average c.f.s.	63	197	287	299	331	286	186	76	215
Monthly Diversion in per cent of seasonal	3.7	11.2	16.8	17.0	19.4	16.8	10.6	4.5	

(a) Excluding diversion by Delta Mendota and Contra Costa Canals.
(b) See 1946 Water Supervision Report for prior years.

TABLE 209

ANNUAL COMPARATIVE MONTHLY DIVERSIONS IN ACRE-FEET 1945 to 1954

TOM PAINE SLOUGH - DELTA UPLANDS

Year (a)	March	April	May	June	July	Aug.	Sept.	Oct.	Seasonal Diversions
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
1954	1394	2711	2588	3627	4515	4155	2477	1371	22838
Average Acre-Feet	614	2203	2902	3185	3951	3859	2731	925	20370
Average c.f.s.	10	37	47	54	64	63	46	15	42
Monthly Diversion in per cent of seasonal	3.0	10.8	14.3	15.6	19.4	19.0	13.4	4.5	

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

TABLE 210

ANNUAL COMPARATIVE MONTHLY DIVERSIONS IN ACRE-FEET 1945 to 1954

SAN JOAQUIN RIVER-DELTA UPLANDS - STOCKTON TO VERNALIS

Year (a)	March	April	May	June	July	Aug.	Sept.	Oct.	Seasonal Diversions
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
1954	6711	11821	9550	14980	18362	13284	8677	4164	87549
Average Acre-Feet	3856	10630	11105	11214	15330	13211	7667	3062	76075
Average c.f.s.	63	179	181	188	249	215	129	50	157
Monthly Diversion in per cent of seasonal	5.1	14.0	14.6	14.7	20.1	17.4	10.1	4.0	

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

TABLE 211

ANNUAL COMPARATIVE MONTHLY DIVERSIONS IN ACRE-FEET 1945 to 1954

SAN JOAQUIN RIVER - VERNALIS TO FREMONT FORD BRIDGE

Year (a)	March	April	May	June	July	Aug.	Sept.	Oct.	Seasonal Diversions
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
1954	13925	27822	28115	32625	37998	32287	21503	6587	200862
Average Acre-Feet	8734	23460	25245	25884	33814	29093	17852	4546	168628
Average c.f.s.	142	394	411	435	550	473	300	74	347
Monthly Diversion in per cent of seasonal	5.2	13.9	15.0	15.3	20.0	17.3	10.6	2.7	

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

TABLE 212

ANNUAL COMPARATIVE MONTHLY DIVERSIONS IN ACRE-FEET 1945 to 1954

MERCED RIVER - YOSEMITE VALLEY RAILROAD CROSSING TO MOUTH

Year (a)	March	April	May	June	July	Aug.	Sept.	Oct.	Seasonal Diversions
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	3975	3310	1681	29699
1954	1115	2515	3296	4850	6950	4491	3677	2361	29255
Average Acre-Feet	595	1773	2879	3731	4847	3970	2591	999	21385
Average c.f.s.	10	30	47	63	79	65	44	16	44
Monthly Diversion in per cent of seasonal	2.8	8.3	13.4	17.4	22.7	18.6	12.1	4.7	

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

TABLE 213

ANNUAL COMPARATIVE MONTHLY DIVERSIONS IN ACRE-FEET 1945 to 1954

TUOLUMNE RIVER - LA GRANGE DAM TO MOUTH

Year (a)	March	April	May	June	July	Aug.	Sept.	Oct.	Seasonal Diversions
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
1954	594	1195	2204	2326	3082	2861	1573	773	14608
Average Acre-Feet	297	637	1011	1178	1356	1337	870	351	7037
Average c.f.s.	5	11	16	20	22	22	15	6	14
Monthly Diversion in per cent of seasonal	4.2	9.0	14.4	16.7	19.3	19.0	12.4	5.0	

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

TABLE 214

ANNUAL COMPARATIVE MONTHLY DIVERSIONS IN ACRE-FEET 1945 to 1954

STANISLAUS RIVER - GOODWIN DAM TO MOUTH

Year (a)	March	April	May	June	July	Aug.	Sept.	Oct.	Seasonal Diversions
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
1954	1732	5372	6032	6724	7949	7914	5419	2969	44111
Average Acre-Feet	1052	3479	4779	5338	6178	5948	4039	1904	32717
Average c.f.s.	17	58	78	90	100	97	68	31	67
Monthly Diversion in per cent of seasonal	3.2	10.6	14.6	16.3	18.9	18.2	12.4	5.8	

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

TABLE 215

COMPARATIVE SEASONAL DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER - 1945-1954

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
1945 Seasonal diversion acre-feet	162521	21776	162825	409292	85269	690859	143229	1075771
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 in 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	19853	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
1954 Seasonal diversion acre-feet	186288	87880	191601	469457	139848	831264	184712	2091050
Average cubic feet per second	383	181	394	966	288	1710	380	4303
Acreage irrigated - general	13158	5394	14449	34667	10712	38114	23312	139806
Acreage irrigated - rice	16532	9810	14631	40093	19644	84198	0	184938
Acre-feet per acre (a)	5.2	5.8	6.6	6.3	4.6	6.8	7.8	6.3
Average 1945-1954								
Seasonal diversion acre-feet	163290	60281	171646	408563	105840	754547	166826	1830994
Average cubic feet per second	336	124	353	841	218	1553	343	3768
Acreage irrigated - general	14309	4100	12392	34490	8548	44340	18983	137162
Acreage irrigated - rice	14312	4702	13638	33826	11318	58457	0	136253
Acre-feet per acre (a)	4.7	6.8	6.6	6.0	5.3	7.3	8.7	6.6
Per cent of total diversion	8.9	3.3	9.4	22.3	5.8	41.2	9.1	

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

TABLE 216

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	1935	100000	78000	78	1946	255000	212000	83
1925	103000	95000	92	1936	138000	104000	75	1947	250000	215000	86
1926	149000	129000	87	1937	149000	109000	73	1948	238000	199000	84
1927	160000	123000	77	1938	125000	95000	76	1949	298000	236000	79
1928	132000	101000	77	1939	120000	104000	87	1950	240000	187000	78
1929	95000	74000	78	1940	118000	94000	80	1951	319000	240000	75
1930	110000	88000	80	1941	153000	120000	78	1952	335000	245000	73
1931	125000	126000	100	1942	212000	159000	75	1953	429000	297000	69
1932	110000	91000	83	1943	237000	186000	78	1954	485000	327000	67
1933	108000	87000	81	1944	246000	200000	81				
1934	108000	92000	85	1945	239000	187000	78				

(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 217

MAXIMUM RECORDED SALINITY AT PRESENTLY INDICATIVE BAY AND DELTA STATIONS

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

YEAR	1931	1934	1938	1939	1944	1947	1950	1951	1952	1953	1954
Sacramento-San Joaquin Runoff in per cent of Normal (a)	31	44	172	44	57	55	77	125	154	97	86
Station (b)	Maximum Recorded Salinity in Parts of Chloride per Million										
					San Pablo Bay						
Point Orient	18700	18400	17000	19200	17300	18800	17600	17700	16700	16900	19320
Point Pinole						16800	15400	15500	14200	13300	15600
Point Davis	18100	18000	*14600	18400	15200	16500	14400	14600	12700	14400	15800
Grand View	18700				15300	18000	13800	15900	12100	14000	15500
Crockett						17900	15200	15100	13200	14680	16000
					Carquinez Strait						
Benicia					13900	15100	12500	12200	10400	12020	14000
Martinez	16900	16400	11600	16400		13400	11500	10100	8900	10500	11800
					Suisun Bay						
West Suisun						13500	10300	10800	7900	9940	12800
Port Chicago						12400	10100	8700	6900	8940	10900
Innisfail Ferry	14000	12600	3300	13600	7900	8200	4700	4400	4200	6430	6900
O & A Ferry	13900	12000	2560	11800	7300	6100	4800	4400	2800	3640	5670
Pittsburg						5000	2200	2400	1200	1830	4580
					Sacramento River Delta						
Collinsville	12600	10800	860	10400	4700	4500	2800	1750	783	2200	4520
Opposite Toland Landing										(c)	1380
Threemile Slough Bridge	8600	6600		5900	1610	1250	150	600	175	155	818
Rio Vista Bridge	7400	5200		4050	550	270	200	70	175	33	126
Isleton Bridge	6350	3100		2500	50	50	50	60	125	29	28
					San Joaquin River Delta						
Antioch	12400	9600	510	9200	4000	4700	1330	970	354	1440	3430
Millers Harbor						3000	1390	(c)	(c)	360	1970
Jersey Island										490	1480
Threemile Slough										49	960
Oulton Point										65	395
San Andreas Landing										61	123
Opposite Central Landing	4250	*1250	100	1380	200	200	80	80	250	44	75
Dutch Slough	5100	2800	110	2250	690	840	230	170	88	114	688
Webb Ferry										160	652
East Contra Costa I. D.		730		320	140	190	200	190	152	167	200
Clifton Court Ferry	1300	400		190		160	170	120	112	122	160
Mossdale Bridge	120	250	120	160	130	180	170	190	122	194	209
Vernalis						*180	160	220	121	205	198

* Estimated.
(a) Normal taken as 60-year (1889-1949) mean annual unimpaired flow (Oct.-Sept., Incl.) at foothill stations of major tributaries.
(b) For location see Plate 3.
(c) Record incomplete.

TABLE 218

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
1954	7/24	7750	8/2	340	8120	86	93	68	4.7	20500	1.2	5000	3.6	15500

(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 219

DESCRIPTION OF ACTIVE SALINITY OBSERVATION STATIONS - 1954

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

Station	Miles from Golden Gate (a)	Time Interval (b)		Location
		Hours	Mins.	
				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 peir of U. S. Maritime Commission, Reserve Fleet Mooring area.
Innisfail Ferry	47.3	4	50	Montezuma Slough, about one mile east of junction with Cutoff Slough near North end of Grizzly Island.
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.
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.
Emmaton (Opp. Toland Landing)	57.6	5	45	Sacramento River, east bank, 5.9 miles downstream from Rio Vista.
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.
Webb Pump	72.0	7	00	False River, north bank, two miles below Old River junction.
Webb Point	72.6	7	05	San Joaquin River at mouth of Old River.
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 220

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 - 1954							
	2	6	10	14	18	22	26	30
			San Francisco, San Pablo and Suisun Bays					
Point Orient	15100	15600	15100	13900	15500	13500	10900	
Point Pinole						(a)10100		
Point Davis	11600	11200	11000	11900	9540	(b)5930	5830	6520
Grand View	9840	9900	10100	9780	8970	(b)9160	9080	7510
Crockett		(b)10900	10400	12300	10200	5320	4310	6070
Benicia	6050		7160	9560	8810		1640	
Martinez	8210	7960	5060	8810	6030	(a)2480	3450	2560
West Suisun	7080		4720	(*)6650		768	374	
Innisfail Ferry	2340	2460	2340	2480	2420	2230	1080	788
Port Chicago	6110	5910	3950	6030	4250	(b)512	315	(*)315
O & A Ferry	1650	(a)1430	992	2400	615	79	(b) 35	28
Pittsburg	337		(b)298	754	198	(a)39		39
			Sacramento River Delta					
Collinsville	468	762	(a)143	492	190	16	4	12
Opposite Toland Landing								
Threemile Slough Bridge	12	20	16	24	12	20	12	4
Rio Vista Bridge	12	12	8	8	12	4	4	4
Isleton Bridge	8	12	8	8	8	4	8	4
			San Joaquin River Delta					
Antioch	226	286	147	194	214	47	43	39
Millers Harbor	40	(a)44	40	64	48	43	47	47
Jersey Island								
Threemile Slough	20	(a)20		24	16	35	12	43
Oulton Point		(a)36		(a)36	44		39	32
San Andreas Landing		36	(a)36	40		28	32	32
Opposite Central Landing	20	28	12	32	16	4	4	12
Dutch Slough	(a)56	(a)56	60	56	(a)63	63	75	83
Piper Slough								
Webb Ferry	52	40	40	44	40	39	35	35
Webb Pump								
Webb Point (Hdqs.)								
Holland Tract	60	(a)75						
East Contra Costa I. D.	(a)143	(a)139	143	139	155	165	173	(b)4
Clifton Court Ferry								
Mossdale Bridge	(a)103	(a)107	115	127	(a)111	91		(a)71
Vernalis (g)		(c)115	131	(b)135	(b)111		106	

Station	February - 1954							
			San Francisco, San Pablo and Suisun Bays					
Point Orient	13300	(b)13100	12900	(e)10200	9550	7860	9770	
Point Pinole					5060			
Point Davis	6900	5560	5630	5730	3800	2250	4830	
Grand View	6230	6030	5400	5460	4630	4310	4290	
Crockett	(b)5220	4000	4930			2270	1600	
Benicia	3880	1420	(*)4670	4040	197	690	1480	
Martinez	2250	(a)335	3370	2860	99	670	374	
West Suisun	453		827	1640	99	24	134	
Innisfail Ferry	997	946	630	394	414	(a)410	(ae)205	
Port Chicago	374	39	591	(b)59	39	24	63	
O & A Ferry	20	20		39	24	(b)24	12	
Pittsburg	35	(a)20	39	20	32			
			Sacramento River Delta					
Collinsville			8	12	12	12	8	
Opposite Toland Landing								
Threemile Slough Bridge	12	4	16	8	8		4	
Rio Vista Bridge	4	4	8	8	12	16	12	
Isleton Bridge	4	4	4	4	8	8	8	
			San Joaquin River Delta					
Antioch	35	35	28	35	35	32	24	
Millers Harbor	47	47	43	43	39	39	35	
Jersey Island			35		24	32	35	
Threemile Slough	8	16	24	28	12	(a)12	16	
Oulton Point		35	28	28	(a)20	24	20	
San Andreas Landing	32	(a)28		20	20	20		
Opposite Central Landing	8	12	4	16	(a)4	4	12	
Dutch Slough	83	87	83	71	(a)71	75	79	
Piper Slough								
Webb Ferry	39	43		39	35	(*)24	35	
Webb Pump								
Webb Point (Hdqs.)								
Holland Tract								
East Contra Costa I. D.	(a)169	(b)165	(b)158	138	(a)177	(a)169	165	
Clifton Court Ferry		91	99		(a)122	75	79	
Mossdale Bridge	(a)79	95	122	(a)114	(a)67	63	83	
Vernalis (g)		(e)99	(e)122	(c)87	(c)63		79	

(*) 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.
(g) Station located above tidal action.

TABLE 220

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 - 1954							
	2	6	10	14	18	22	26	30
				San Francisco, San Pablo, and Suisun Bays				
Point Orient	12000	19320	13600		*8810	8830	8490	10700
Point Pinole					(a)6820			8200
Point Davis	6460	(b)5950	5790	4020	4560	3810	2590	5510
Grand View	4290	5670	6010	5920	*5630	1860	3560	3660
Crockett	5610	5100	4070	3180	2530	(a)2470	(a)1840	5370
Benicia	5590	3580	4470	610		1450	415	2920
Martinez	4750	(a)751	2250	560	108	1260	(a)553	2270
West Suisun	138	(*)569	1380		44	40	32	1320
Innisfail Ferry	252	(a)296	(a)316	368	(a)320	(a)225	(a)217	237
Port Chicago	973	79	1060	24	(e)16	20	28	810
O & A Ferry	24	(a)24	40	12	(a)12	(a)12	16	20
Pittsburg		(a)24	28		(ab)20		20	28
				Sacramento River Delta				
Collinsville		(a)20	12	8				
Opposite Toland Landing(**)								
Threemile Slough Bridge	12	16	(a)8	8	4	4	8	12
Rio Vista Bridge	8	8	8	4	4	4	4	8
Isleton Bridge	8	4	8	4	4	2	4	8
				San Joaquin River Delta				
Antioch	24	(a)28	28	20	(a)24	20	24	24
Millers Harbor	39	40	36	28	(a)24	24	32	40
Jersey Island					(a)32		24	
Threemile Slough	20	(a)24	20	16	(a)12	(a)24	32	28
Oulton Point	24	24	20	16		16	24	28
San Andreas	20	(a)24		20	(a)12	(a)24	24	16
Opposite Central Landing	4	12	12	4	(a)4	4	8	16
Dutch Slough	51	43	47	56	52	59	71	63
Piper Slough								
Webb Ferry	24	28	20	24	(a)24	32	47	32
Webb Pump								
Webb Point (Hdqs.)								
Holland Tract								
East Contra Costa I. D.	165	154	119	140	136	126	75	
Clifton Court Ferry	(a)91		108		48	36	24	(a)24
Mossdale Bridge	(a)67	107	150	(a)52	16	32	28	(a)20
Vernalis(g)	71		(e)154	(f)16	(b)20	(b)24	24	
	April - 1954							
				San Francisco, San Pablo, and Suisun Bays				
Point Orient	8620	10800	9760	(e)8420	11400	9450	9900	11500
Point Pinole	(a)7590							(a)8240
Point Davis		5710	2900	3680	5910	3460	5120	6780
Grand View	4430	5390	4960	5120	4290	4530	4600	5590
Crockett	(a)4350	4170		1700	5000		2610	
Benicia	2870	1960	138	1560	2690	2170	1050	4000
Martinez	(a)1210	(a)99	138	(a)790	(a)375	908	1460	(a)514
West Suisun	256	217	47	103	367	636		731
Innisfail Ferry	(a)256	261	332	(a)209	(a)158	158	123	(a)127
Port Chicago	55	118	24	20	296	47	16	613
O & A Ferry	(a)36	(c)28						
Pittsburg	(a)40	(a)28			(a)20	(a)12		
				Sacramento River Delta				
Collinsville	(a)12	8		(a)12	(a)12	4		(a)8
Opposite Toland Landing (**)	(a)8	16	8	(a)16	(a)4	4		(a)8
Threemile Slough Bridge	12	16	8	8	4	4	8	4
Rio Vista Bridge	12	16	4	8	8	4	8	8
Isleton Bridge	8	4	4	8	4	4	4	16
				San Joaquin River Delta				
Antioch	(a)40	32	28	(a)28	(a)16	20	(*)12	(a)20
Millers Harbor	(a)40	(f)36	32	(a)24	(a)24	16	20	(a)20
Jersey Island							20	
Threemile Slough	(a)24	20		(a)12	(a)16	12	8	(a)12
Oulton Point	(a)24	20	16				12	(a)16
San Andreas Landing	(a)28	20	16	(a)12	(a)8	16	8	(a)16
Opposite Central Landing	(a)4	12	4	(a)4	4	12	4	(a)8
Dutch Slough	(a)55	51	43	(a)47	36	32	28	24
Piper Slough								
Webb Ferry	40	32	24	(a)24	16	12	12	(a)16
Webb Pump								
Webb Point (Hdqs.)								
Holland Tract								
East Contra Costa I. D.	47	(a)47	40	(a)40	40	40	40	(a)47
Clifton Court Ferry	28	24			36	40		43
Mossdale Bridge	24	24	36	36	32	32	24	24
Vernalis(g)	24	28	(e)32	36	(c)28		(b)28	24

(*) Presumed.
(**) Station relocated to a point on the east bank, 4.9 miles below Rio Vista, immediately downstream from Horseshoe Cut.
(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.
(g) Station located above tidal action.

TABLE 220

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 - 1954							
	2	6	10	14	18	22	26	30
				San Francisco, San Pablo, and Suisun Bays				
Point Orient	13000	12600		12800	12300	12900	13300	
Point Pinole								
Point Davis	4860	6300	5870		7210		7190	10200
Grand View		6030	6540	(b)6940	7030	6840	7330	9010
Crockett	(e)4920	3810	(ab)2860	6340	(a)4940	4470		
Benicia	2880	3710	3680	4680	5340	(a)1440	(ae)5020	7100
Martinez	(a)180	2330	(a)909	(a)1500	(a)593	1170	(a)1720	(a)3460
West Suisun	316	929	(b)1170	2540	2400	810		1150
Innisfail Ferry	(a)158	111	(a)182	(a)169	(a)158	142	178	(a)150
Port Chicago	257	565	(b)589	1490	885	344	(b)2170	5830
O & A Ferry			(b)20	16	16	16	(b)79	1130
Pittsburg	(a)12	16		(a)20	(a)20		(a)593	
				Sacramento River Delta				
Collinsville	(a)16	12	(a)16	(a)16	(a)8	12		(a)24
Opposite Toland Landing		(a)8	(a)8		(a)8	8	(a)12	(a)16
Threemile Slough Bridge		8	(*b)8	12	8	20	(b)12	16
Rio Vista Bridge	8	12	(b)8	8	8	8	(b)8	8
Isleton Bridge	8	4	(b)8	4	8	8	(b)16	16
				San Joaquin River Delta				
Antioch	(a)16	12	(a)16	(a)24	(a)20	24	(a)16	(a)24
Millers Harbor	(a)16	(a)20	(a)20	20	20		(a)28	(a)20
Jersey Island			(a)16		(a)20			
Threemile Slough		24	(a)20	(a)16	16	16	(a)16	
Oulton Point	(a)16	12		(a)16		16	(a)24	
San Andreas Landing	(a)16	16	(ac)8		(a)20	24	(a)16	(a)20
Opposite Central Landing	(a)8	16	(a)12	(a)16	16	12	(a)16	(a)12
Dutch Slough		24	28	(a)24	32	(a)24	(a)24	28
Piper Slough								
Webb Ferry	20	20	20	20	24	20	16	20
Webb Pump								
Webb Point (Hdqs.)								
Holland Tract								
East Contra Costa I. D.	(a)55	43	(ab)59	(a)36	32	20	(a)20	24
Clifton Court Ferry		32	(a)24	16	20			20
Mossdale Bridge	24	(*d)36	(a)16	12	20	16	(a)40	55
Vernalis(g)		(b)20	(c)20	16	20	(e)16	32	(f)55
	June - 1954							
				San Francisco, San Pablo, and Suisun Bays				
Point Orient	14900	14600		15000	15600	(*)15500	(e)16400	16500
Point Pinole			(a)11600	(a)12100			(a)13800	
Point Davis	(e)9760	11600	(e)10200	(*)11000	11200		(b)12900	(b)13300
Grand View	9700	9370		11300	10100	11400	(e)11400	11500
Crockett	9110	9760	(e)9410	(a)8870		12300	10400	(a)12000
Benicia	8900	(c)8620		9290	7710	8360		10000
Martinez	(a)3620	(a)5060	(a)3640	(a)4210	(a)4000	5790	(a)6210	(a)7230
West Suisun	5530	4430		6300	6150	6520	8390	9290
Innisfail Ferry		771	(e)514	(a)731	1230	1400	(a)1470	(a)2510
Port Chicago	5120	3380	(a)4450	5100	(a)3120	5200	8130	3280
O & A Ferry	336	889	1210	1520	652	1460	2690	4050
Pittsburg	(a)165	(a)257	(a)198		(a)296	412		(a)1230
				Sacramento River Delta				
Collinsville		(a)119	(a)51		514	(a)454		(a)1070
Opposite Toland Landing	(a)28	(a)20		(a)24	(a)28		(a)39	(*a)126
Threemile Slough Bridge	20	16	20	20	20	24	31	91
Rio Vista Bridge	12	16	12	16	16	20	16	24
Isleton Bridge	20	(b)16	16	20	16	(b)16	16	(*)16
				San Joaquin River Delta				
Antioch	99	99	(a)59	(a)91	217	206	(a)216	1250
Millers Harbor	24	24	(a)36	36	40	(a)47	(a)63	(a)229
Jersey Island	(a)24	(a)20	(a)24	(a)24	(a)28			
Threemile Slough	(a)20	(a)16	(a)20	(a)16	20	(a)24	(a)35	(a)36
Oulton Point				(a)20	36			
San Andreas Landing	20	(a)20	(a)16	(a)16	16	(a)20	(a)20	(a)20
Opposite Central Landing	16	(a)20	(a)20		20	(a)24		16
Dutch Slough	24	24	(a)28	24	(a)28	28	28	43
Piper Slough								
Webb Ferry	20	20	24	16	20	24	24	40
Webb Pump								
Webb Point (Hdqs.)								
Holland Tract								
East Contra Costa I. D.	28	(a)32	(a)43	(b)32	28	(b)36	27	(a)40
Clifton Court Ferry	24			24	24	(a)24		28
Mossdale Bridge	95	(a)119	111	107	142	(a)154	180	175
Vernalis(g)	(e)87	(e)123	(b)107	(b)115	158		(e)188	

(*) 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.
(g) Station located above tidal action.

TABLE 220

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 - 1954							
	2	6	10	14	18	22	26	30
				San Francisco, San Pablo and Suisun Bays				
Point Orient	16600	16300	(e)15700	16800	16700	16900		
Point Pinole							(a)15600	
Point Davis	13600	12500	(e)13400	14700	14800	13500	(b)14700	(b)15700
Grand View	11700	11900	(e)12300	13400	13300	13500	(e)13700	(b)13900
Crockett			(e)13600	15300	14400	(b)16000	(a)14400	15200
Benicia	(b)11100	10400	11500	12100	12400	12000	13600	14000
Martinez	(a)7110	(a)8580	(a)7750	(a)8540	(a)9960	(a)8640	(a)9290	(a)9900
West Suisun	8950	8790	(e)9760	10800	10600	11800	(e)11900	12800
Innisfail Ferry	(a)3140	2960	(a)3140	(a)3700	(a)4350	3790	(a)4800	(a)5730
Port Chicago	8340	7210	(e)8870	9430	8910	10400	10900	10800
O & A Ferry	3120	2790	(e)4000	4510	4410	5060	(e)5670	(a)5590
Pittsburg	2410		(d)2060	(a)2060	3320	3320		(a)3280
				Sacramento River Delta				
Collinsville	(a)1860	(a)1550	(a)1570	(a)2450	3440	3930	(a)3020	(a)4270
Opposite Toland Landing	(a)103	(a)209	(a)134	(a)241	(a)569	(a)348	(a)767	(a)1200
Threemile Slough Bridge	(*)56	63	83	229	217	431	818	(a)668
Rio Vista Bridge	28	20	20	36	36	51	87	126
Isleton Bridge	20	16	20	16	16	16	24	24
				San Joaquin River Delta				
Antioch	1230	980	(a)692	(a)1230	1980	2610	(a)1970	(a)2460
Millers Harbor	(a)243	(a)245	(a)368	865	454	(a)589	(a)779	1200
Jersey Island							(a)522	(a)798
Threemile Slough	72	(a)63	(d)111	(a)170	146	(a)158	(d)320	960
Oulton Point			(a)43	(a)75			(a)174	(a)241
San Andreas Landing	(a)24	(a)20	(a)28	(a)36	47	(a)47	(a)75	(a)99
Opposite Central Landing	28	(a)20	(d)20	(a)20	24	(a)20		75
Dutch Slough	64	(a)63	(a)83	(d)119	(a)162	(d)190	(a)348	(a)427
Piper Slough								
Webb Ferry	52	(a)108	55	(a)99	241	134	(a)237	253
Webb Pump								
Webb Point (Hdqs.)								
Holland Tract								
East Contra Costa I. D.	36	(a)36	(a)40	36	67	(b)51	59	75
Clifton Court Ferry		(a)36		40				55
Mossdale Bridge	183	(a)142	154	154	190	(a)174	202	194
Vernalis(g)	147		(e)170	(e)154	(c)182	198	(b)186	

Station	August - 1954							
				San Francisco, San Pablo and Suisun Bays				
Point Orient							17600	
Point Pinole								
Point Davis	15400	15000	15600	14800	15800	15400	15500	(b)14800
Grand View	14100	14300	(c)14700		15000	15200	(b)15300	15400
Crockett	14700	14300		(a)13700	14700	(ab)13800	(a)15400	15200
Benicia	12600	13300	(e)13900	13400		13400	12000	11200
Martinez	(a)11100	11600	(a)10000	(a)9580	10700	11800	(a)9640	(a)9820
West Suisun	11200	11500	12100	9660	11800		10700	
Innisfail Ferry	6400	(a)6240	(a)6360	(a)6900	6900	6800	(a)6660	(a)6700
Port Chicago	9330	10400	10700	8730	10100	10200	10900	8660
O & A Ferry								
Pittsburg	3950	4580		(a)3440	3450	4100	(a)4060	3300
				Sacramento River Delta				
Collinsville	(a)4150	(a)3340		(a)4050	4520	(a)3600		(a)2840
Opposite Toland Landing	1380	1340	(a)1010	(a)1070	1120		(a)640	784
Threemile Slough Bridge	707	790	782		656	676	636	
Rio Vista Bridge	36	51	20	36	43	(b)39	24	20
Isleton Bridge	24	24	28	20	20	(b)16	20	20
				San Joaquin River Delta				
Antioch	3060	3430	(a)2770	(a)2980	3180	(a)2010	(a)2140	2320
Millers Harbor	1370	1970	(a)1200	1340	(a)1010	(a)1370	(a)780	(a)860
Jersey Island	1170			1480	(a)730	(a)592		
Threemile Slough	(a)605	(a)375	(a)411	(a)522	418		(a)364	(a)320
Oulton Point	(a)395	(*a)229	(a)371			(a)103	(a)268	(a)232
San Andreas Landing	(a)123	(a)103	(*)95	(a)79	99	(a)75	(d)84	64
Opposite Central Landing	(a)40	(a)24	(a)32	43	(a)36	(a)24	20	(a)28
Dutch Slough	(a)526	462	688	617	473	400	388	(a)432
Piper Slough								
Webb Ferry	652	399	530	320	418	260	304	396
Webb Pump								
Webb Point (Hdqs.)								
Holland Tract								
East Contra Costa I. D.	103	(a)126	(ab)158	162	(a)178	(b)193	196	(a)196
Clifton Court Ferry	(a)87			138	(a)110		160	(a)144
Mossdale Bridge	(a)194	(a)186	209	194	(a)146	(a)201	156	(a)160
Vernalis(g)	(e)190	(e)178	174	(e)174	(e)154	(c)152	(b)168	(b)152

(*) 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.
(g) Station located above tidal action.

TABLE 220

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 - 1954							
	2	6	10	14	18	22	26	30
				San Francisco, San Pablo and Suisun Bays				
Point Orient	17200	17200	17400	17500	17400	(e)16800	17000	17200
Point Pinole								
Point Davis	15500	13800	14000	14800	(*)13100	(e)13800	(e)14100	13400
Grand View	15500	15500	15500	15400	15200		15000	14800
Crockett	(ab)12200	13800	(a)13500	14800		(e)14800		13200
Benicia	11900	11700	11900	11700	11600	7860	11300	11800
Martinez	(a)8780	(a)8200	(a)8900	9600	9340	(a)7280	8260	(a)8180
West Suisun	9660		9220		8880		7420	8180
Innisfail Ferry	6680	(a)6460	(a)6120	5580	(a)5600	(a)5060	4700	4460
Port Chicago	8620	9120	9560	8220	8160	8380	6160	6420
O & A Ferry							2760	2660
Pittsburg	3080	3210		(*)2540	1980		1240	
				Sacramento River Delta				
Collinsville	(a)1800	(a)1600	(a)2170	2380	(a)1260	(a)1080	1240	1220
Opposite Toland Landing	(a)332			(*)240	88	(a)120	52	48
Threemile Slough Bridge	164	(b)112	96	92	88	72	48	40
Rio Vista Bridge	20	(b)12	24	24	24	24	28	28
Isleton Bridge	20	(b)16	20	20	24	20	28	20
				San Joaquin River Delta				
Antioch	1880	(a)1090	(a)1200	1400	1180	(a)528	540	624
Millers Harbor	(a)588	(a)572	548	348	(a)212	(a)272	(b)160	(a)108
Jersey Island	(a)384	(a)244						
Threemile Slough	(a)176		(a)80	100	76	(a)64	52	(a)44
Oulton Point	104	(a)96	(a)64	(a)100	(a)48		(a)52	(a)44
San Andreas Landing	56	(a)52	(a)48	48	(a)44	(a)36	28	32
Opposite Central Landing	(a)24	(a)24	(a)20	24	(a)24	(a)28	28	(a)24
Dutch Slough	340	(a)284	(a)248	(a)200		(a)124	108	(a)96
Piper Slough								
Webb Ferry	232	(a)172	136	(a)112	(a)76	(a)96	76	60
Webb Pump								
Webb Point (Hdqs.)								
Holland Tract								
East Contra Costa I. D.	196	(a)184	172	(a)164	(a)160	140	128	(a)132
Clifton Court Ferry	(a)144			(a)120	(*)156			(a)92
Mossdale Bridge	(a)180	(a)184	164	(a)160	(a)196	164	(a)164	(a)164
Vernalis(g)	(b)176	(b)164		160		(e)156	(f)176	(f)164

Station	October - 1954							
				San Francisco, San Pablo and Suisun Bays				
Point Orient			16700	16700	15500		16700	
Point Pinole								
Point Davis	12900	12600	12800					(b)12900
Grand View	15100	15000	14300		14000	14000	14100	14000
Crockett	11900	11500	12800	13000	11500	(b)11400		11000
Benicia	10600	9840	9900	9300	9340	9180	9080	9600
Martinez		(a)7480	6700	(a)6920	(a)6620	5940	7300	(a)6800
West Suisun	8200	6520	7800	6480	6420	7480		6560
Innisfail Ferry	4700	(a)4260	(a)3940	3720	(*)3500	3560		3340
Port Chicago	6980		5920	6480	5800	6080	4720	5620
O & A Ferry	2240	1500	1980	2200	1460	1380	1340	2100
Pittsburg	(a)560			460				
				Sacramento River Delta				
Collinsville	(a)580	(a)328	640	1120	(a)540	480	560	
Opposite Toland Landing	44	(a)40	48	(a)28	(a)40	24	24	(a)20
Threemile Slough Bridge	40	(b)36		32	24	20	28	
Rio Vista Bridge	20	(b)24	20	16	24	12	20	20
Isleton Bridge	16	(b)20	12	20	16	8	16	12
				San Joaquin River Delta				
Antioch	456	(a)216	260	340	292	260	212	352
Millers Harbor	(a)96	(a)76	56	(a)56	(a)52	(f)40	48	(a)40
Jersey Island								
Threemile Slough	44		33	24	(a)24	24	28	
Oulton Point		(a)36		(a)28	(a)24	24	24	
San Andreas Landing	28	(a)32	28	24	(a)20	24	24	24
Opposite Central Landing	(a)24	(a)16	20	(a)20	(a)16	16	16	(a)16
Dutch Slough	84	72	64	(a)52	48	(a)48	44	(a)40
Piper Slough								
Webb Ferry	48	32	(a)36	36	32	(ae)28	32	24
Webb Pump								
Webb Point (Hdqs.)								
Holland Tract								
East Contra Costa I. D.	(b)128	(a)140	120	(a)132	(a)120	(f)160	(a)140	(a)80
Clifton Court Ferry							124	
Mossdale Bridge	(a)176	(a)160	(a)156	(a)164	(a)108	(a)104	(a)116	(a)124
Vernalis(g)	168	(e)160	(c)176	(c)180	(c)116	(b)104	140	(e)112

(*) 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.
(g) Station located above tidal action.

TABLE 220

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 - 1954							
	2	6	10	14	18	22	26	30
				San Francisco, San Pablo and Suisun Bays				
Point Orient	15400	(e)15000	16700		13900	15500	(f)14900	14900
Point Pinole								
Point Davis	11000	12900		11800	9900	10900	11200	10400
Grand View	14100	13600	13000	12700		12300	11100	10800
Crockett	10300	12000		11200	(ab)8440	(b)9440	8820	9020
Benicia	7240	10000	11100	8960	6400	6740	6280	6280
Martinez		6840	10300	8200	5380	5740	6580	5460
West Suisun	5620		7320	6180			3820	4100
Innisfail Ferry	3440	(*e)3520	(a)3500	3400	(*a)3800	2240	2640	2220
Port Chicago	4420	6600	6080	6660	784	3500	3740	2700
O & A Ferry	1160	1380	2570	1680	172			592
Pittsburg				528				
				Sacramento River Delta				
Collinsville	236	736	1110	(a)484	60	56	(a)32	(a)60
Opposite Toland Landing	(a)20	20		(a)24			20	24
Threemile Slough Bridge	24	20	24	12	20	20	20	16
Rio Vista Bridge	16	16	12	12	20	20	20	16
Isleton Bridge	12	16	12	16	12	16	16	12
				San Joaquin River Delta				
Antioch	224	160	532	344	76	44	48	68
Millers Harbor	40	(a)32	40	36	.32	32	(a)32	(*)36
Jersey Island								
Threemile Slough	(a)24	24	20	(a)20	24	20	30	(a)28
Oulton Point	(a)32	24					(a)28	(a)28
San Andreas Landing	(a)24	24	20	24	24	28	32	36
Opposite Central Landing	(a)12	12		(a)12	24	16	(a)16	(a)24
Dutch Slough	40	40	40	36	(a)28	(a)28	32	(a)48
Piper Slough								
Webb Ferry	32	24	(e)32	24	24	28	32	32
Webb Pump								
Webb Point (Hdqs.)								
Holland Tract								
East Contra Costa I. D.	(a)92	104	108	(a)124	140	152	(e)160	(a)164
Clifton Court Ferry								
Mossdale Bridge	(a)136	(a)124	(a)140	(a)120	108	(a)112	(a)100	(a)112
Vernalis (g)	140		(e)140	(c)124	(b)108		(b)120	

Station	December - 1954							
				San Francisco, San Pablo and Suisun Bays				
Point Orient	14900	14500	14700	11900	12500	13300	14500	14500
Point Pinole								
Point Davis	10400	9100					9200	
Grand View	10400	8860	8520	7880	6420	6060	6520	7020
Crockett	(a)8880	10400	7640	4620	6080	8920	8480	
Benicia	6700	7920	4980	2340	5660	7920	7460	4880
Martinez	6000	5720	3640	800	4940	7020	4420	(a)3680
West Suisun	4580		2260	232			4640	3260
Innisfail Ferry	(a)2300	(a)2480	1760	1780	(ae)2040	(a)1800	(a)1820	(a)1720
Port Chicago	3620	(*a)1120	1640	(*)96	2980	(a)4120	3420	2900
O & A Ferry	704	632	12	32	32	556	952	172
Pittsburg		76						
				Sacramento River Delta				
Collinsville	148	48	40	(a)20	32		108	52
Opposite Toland Landing	(a)24		20	16				20
Threemile Slough Bridge	20	12	16	16	20	(b)20	24	16
Rio Vista Bridge	12	12	20	12	20	16	20	12
Isleton Bridge	12	8	12	16	12	16	20	12
				San Joaquin River Delta				
Antioch	68	68	40	32	36	40	60	56
Millers Harbor	36	36	36	(a)40	40	44	44	56
Jersey Island								
Threemile Slough		24	24	(a)24		40	40	20
Oulton Point	28	28	(a)32					
San Andreas Landing	32	28	28	(a)32	36	52	(a)44	44
Opposite Central Landing	24	12	(a)8	(a)8	16	24	(a)20	20
Dutch Slough	(a)48	15	(a)60	68	72	76	68	72
Piper Slough								
Webb Ferry	28	32	36	36	40	40	48	52
Webb Pump								
Webb Point (Hdqs.)								
Holland Tract								
East Contra Costa I. D.	164	172	(a)172	(a)168	176	192	(a)192	200
Clifton Court Ferry								
Mossdale Bridge	120	88	(a)96	(a)80	80	(a)88	(a)124	124
Vernalis (g)	(e)124	(b)108	80	(b)80	(e)76	(e)80	(f)100	(e)116

(*) 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.
(g) Station located above tidal action.

TABLE 221

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1954

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 AT DELTA							T36N, R5W, Sec. 35					
1/20	1430	6.8	2120	44	6.2	5.0	3.0	0.5	0				0.08			82.6	15
2/18	1530	7.91	3530	48	4.8	4.3	1.8	0.2	0	39		0.8	0.04			68.4	12
3/15	1525	6.77	2090	48	5.3	5.1	3.1	0.3	0	44		1.0	0.05			79.0	16
4/23	1800	7.4	2840	54	4.3	5.7	2.4	0.1	0	41		1.0	0.00			69.8	13
5/26	1500	5.46	924	57	5.2	5.7	3.8	0.5	0	50	3.0	1.5	0.01	0.2	64	89.5	18
6/22	1045	4.67	474	68	6.7	7.2	5.8	0.8	0	64	3.2	2.8				114	21
7/14	0845	4.25	308	70	7.8	7.4	8.1	0.8	0	70		7.5	0.05			133	26
8/12	1330	4.00	225	70	9.0	7.2	10	1.2	0	76		8.0	0.15			144	29
9/14	1730	4.12	264	60	9.1	6.9	9.9	1.2	0	76	3.7	6.5	0.15	0.2	104	144	29
10/12	1100	4.06	244	56	9.1	6.9	9.3	1.1	0	75		7.0	0.11			146	28
11/17	1000	5.82	1190	48	6.1	6.5	3.6	0.5	0	54		2.2	0.10			98	16
					*SACRAMENTO RIVER BELOW SHASTA DAM							T33N, R5W, Sec. 15					
1/11	1300	582.7	5060	50	11	5.9	6.4	0.8	0	70	7.2	3.9		0.3	76	132	21
2/8	1345	588.5	13828	50	10	4.4	6.2	0.8	0	57	4.8	3.2		0.6	94	118	23
3/8	1500	583.6		48	11	4.1	5.5	1.2	0	61	4.3	2.8		0.2	88	117	20
4/12	0850	584.5	6000	48	11	3.8	4.6	1.2	0	56	4.3	2.7		0	86	107	20
5/11	0900	585.6	10300	49	10	3.4	4.8	1.6	0	52	4.3	2.8		0	80	102	20
6/8	0845	586.6	10322	52	9.8	3.4	4.6	2.0	0	52	4.3	3.2		0	56	106	19
7/12	1100	587.6	12941	52	9.6	3.9	4.4	1.6	0	49	2.9	1.8		0.6	92	101	18
8/10	0800	587.9	11380	52	9.4	4.3	5.3	1.2	0	52	3.8	2.1		0	80	104	21
9/13	0835	585.1	8514	52	9.2	3.9	4.6	1.6	0	51	3.4	3.2		0.1	78	104	20
10/8	1100	584.5	8800	54	8.8	4.3	3.9	1.2	0	51	6.7	3.2		0.1	100	99	17
11/10	1400	583.3	4751	55	9.6	4.4	4.4	1.2	0	51	1.4	2.1		0.6	140	110	18
12/13	1515	583.1	4473	50	10	4.6	5.8	1.6	0	62	2.9	2.8		0.12	90	118	21
					SACRAMENTO RIVER AT KESWICK							T32N, R5W, Sec. 28					
1/21	1100	15.5	13900	50	11	4.7	6.7	1.5	0	65		3.0	0.06			122	23
2/27	1335	11.84	8080	51	11	4.3	5.4	1.1	0	58		2.0	0.02			116	20
3/26	1440	8.25	3940	52	11	3.4	6.3	0.7	0	58		1.0	0.06			113	24
4/22	1400	12.25	8230	52	9.9	4.5	6.5	0.8	0	56		1.5	0.05			109	24
5/27	1410	12.35	8030	52	11	3.2	6.5	0.9	0	56	6.1	3.5	0.05	0.2	80	115	25
6/23	0715	13.92	10500	50	9.4	4.3	4.5	1.1	0	56	4.1	0.5				102	19
7/13	1300	14.26	11200	54	10	4.6	5.5	0.9	0	59		3.0	0.00			110	21
8/11	1530	14.56	11700	54	10	3.9	5.6	1.1	0	58		2.0	0.01			108	22
9/14	0930	12.32	7990	54	10	3.7	5.3	1.0	0	58	4.4	1.0	0.04	0.2	76	101	22
10/12	1400	10.94	6170	54	9.5	4.0	4.6	1.1	0	58		1.5	0.03			104	19
11/16	1120	9.42	5100	52	10	4.6	5.1	1.2	0	54		1.5	0.02			114	20
12/29	1400	10.45	6280	54	8.7	5.5	6.2	1.2	0	64		3.0	0.06			118	23
					SACRAMENTO RIVER AT REDDING							T31N, R4W, Sec. 6					
1/20	1030	45.5	13400	50	11	4.7	7.4	1.3	0	65		3.0	0.02			122	25
2/27	1505	43.6	7620	54	11	4.0	5.4	1.1	0	58		2.0	0.03			115	21
3/23	1705	42.0	4360	53	9.9	4.3	6.3	0.9	0	57		1.8	0.04			112	24
4/22	1600	43.5	7810		10	4.4	6.5	0.8	0	56		1.8	0.14			111	24
5/25	1110	43.5	7650	54	10	3.9	5.0	1.0	0	54	5.8	1.0	0.02	0.3	75	105	20
6/23	1130	44.57	9820	54	10	3.6	5.5	0.8	0	60		2.5	0.16			107	23
7/13	1500	44.4	10700	54	15	2.8	5.6	1.2	0	54		4.0	0.05			128	19
8/11	0730	44.65	11200	52	11	3.1	5.4	1.0	0	58		2.5	0.03			105	22
9/13	1430	43.7	8170	58	10	3.7	5.0	0.9	0	58	4.6	1.0	0.03	0.2	75	101	21
10/10	1700	42.3	5910	58	10	3.7	4.6	0.9	0	58		1.5	0.03			104	20
11/16	0900	42.4	4990	52	10	4.6	5.3	1.3	0	53		2.5	0.02			117	20
12/29	1000	43.0	6100	55	8.3	6.0	6.3	1.4	0	64		2.8	0.02			121	23
					SACRAMENTO RIVER AT HAMILTON CITY							T22N, R1W, Sec. 17					
1/12	1300	27.80	6080	47	14	5.0	8.2	1.6	0	78		4.2	0.00			149	24
2/10	1500	32.05	20000	48	12	4.9	6.1	1.2	0	68		3.0	0.03			133	20
3/9	1300	35.2	4320	54	12	4.7	5.0	1.4	0	62		2.0	0.08			123	18
4/16	1045	31.11	15700	56	12	5.0	6.1	0.7	0	67		1.8	0.10			128	20
5/13	1415	29.26	9560	61	12	4.6	5.2	1.0	0	62	6.7	2.2	0.13	0.2	83	121	18
6/9	1100	28.72	7630	58	11	4.6	6.0	1.4	0	64		3.5	0.12			126	21
7/15	1330	29.19	9010	63	11	4.0	9.8	1.0	0	65		4.0	0.07			124	32
8/11	1100	29.27	9270	58	11	4.0	6.3	1.0	0	64		3.2	0.09			120	23
9/16	1500	28.51	7010	61	10	4.4	5.6	1.1	0	61	4.1	2.5	0.03	0.9	82	116	22
10/14	0845	28.08	6390	58	12	3.9	6.2	1.1	0	65		2.0	0.04			121	22
11/11	0820	28.48	7260	54	12	4.6	7.9	2.1	0	58		7.0	0.07			135	25
12/7	1430	33.44	25200	51	9.3	3.4	4.9	1.0	0	44		3.0	0.04			96.6	22
					SACRAMENTO RIVER AT KNIGHTS LANDING							T11N, R2E, Sec. 14					
1/15	1605	17.87	6920	49	14	6.5	9.2	1.5	0	87		6.0	0.12			169	24
2/18	1400	37.50	23200	51	11	5.2	7.4	1.2	0	64		4.0	0.08			133	24
3/11	1400	33.19	29900	54	11	4.3	4.7	1.3	0	55		2.0	0.07			110	18
4/12	1500	35.00	21300	58	13	7.2	6.3	0.7	0	71		5.2	0.00			140	18
5/10	1300	21.93	8950	65	15	6.5	9.4	1.1	0	77	12	6.0	0.12	0.3	110	170	24
6/11	0825	17.73	8280	65	18	8.8	27	1.4	0	107	27	17	0.17			278	41
7/22	0740	17.60	7060	72	31	15	71	1.5	0	196		45	0.24			573	52
8/16	1230	18.85	8520	72	38	18	85	6.8	0	263		21	0.86			676	51
9/24	0930	20.09	9200	66	31	20	25	2.0	0	220	6.8	20	0.07	0.2	239	409	25
10/19	1330	15.96	6970	61	23	13	38	1.8	0	142		26	0.09			388	42
11/15	1330	18.88	10120	55	27	20	67	3.8	0	166		44	0.19			597	48
12/13	0930	28.58		50	12	4.3	6.5	1.0	0	58		5.0	0.03			125	22

* Data copied from U. S. Bureau of Reclamation compilation. (Daylight Saving Time in effect April 25 through September 26).

TABLE 221

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1954 (contd.)

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 AT SACRAMENTO							T9N, R4E, Sec. 35					
1/13	1530		11300	50.5	16	7.9	15	1.4	0	91	17	12	0.07	0.1	136	216	31
2/18	1200	21.29	67500	50	10	4.1	5.0	1.3	0	53		3.5	0.10			107	20
3/12	1030	23.06		46	6.8	3.2	2.4	1.2	0	38		1.5	0.06			74	14
4/16	1400	16.69	51100	60	12	4.6	6.3	0.7	0	62		7.2	0.04			124	22
5/21	1310	7.32	21200	67	11	5.7	8.4	0.8	0	62	89	6.8	0.07	0.1	90	144	26
6/18	0900	4.78	11300	70	17	11	19	1.1	0	102	20	20				257	32
7/16	1400	2.52	7940	74	17	8.0	18	1.1	0	98		17	0.09			230	34
8/9	1300	2.67	8990	72	16	9.3	21	0.6	0	108		16	0.32			249	37
9/23	1400	3.28	11800	66	19	12	24	1.5	0	132	17	18	0.08	0.4	179	296	35
10/18	1440	3.53	10600	63	15	7.7	12	1.2	0	94		10	0.03			193	27
11/19	0900	8.25	24600	52	12	5.2	8.4	2.2	0	62		7.2	0.04			136	25
12/17	0900	6.63	20900	46	17	7.9	15	1.6	0	93		10	0.00			214	30
					COTTONWOOD CREEK AT COTTONWOOD							T29N, R3W, Sec. 7					
1/12	1100	1.79	213	45	37	14	18	0.8	0	148		3.7	0.14			389	21
2/10	1230	3.87	1350	49	21	9.3	6.1	0.8	0	107		3.8	0.03			201	13
3/9	1545	8.80	10000	55	15	6.0	4.1	1.8	0	74		1.0	0.08			135	12
4/15	1500	4.05	1630	69	23	11	7.4	1.1	0	119		3.0	0.00			226	13
5/6	1415	3.27	894	73	23	9.7	6.7	1.0	0	114	12	5.2	0.01	0.4	134	216	13
6/8	1500	2.61	362	68	26	8.1	7.3	1.4	0	117		6.5	0.18			216	14
7/15	0830	2.04	114	74	23	11	8.4	1.2	0	126		6.0	0.06			227	15
8/10	1330	1.91	75	80	21	10	8.9	1.4	0	120		5.0	0.02			219	17
9/16	1030	2.08	130	66	17	8.8	7.7	1.0	0	103	6.7	5.0	0.03	0.4	120	191	17
10/13	1420	2.07	127	69	18	8.5	8.3	1.3	0	100		7.2	0.05			190	18
11/10	1330	2.20	174	57	28	6.8	14	1.5	0	111		24	0.09			292	23
12/6	1215	5.78	3630	52	8.1	5.1	5.6	1.5	0	47		6.8	0.10			112	22
					STONY CREEK AT HAMILTON CITY							T22N, R2W, Sec. 36					
1/12	1345	5.74	310	48	32	16	14	0.8	0	154		17	0.15			346	17
2/10	1015	6.74	517	50	30	9.0	12	0.7	0	121		14	0.08			276	19
3/9	1200	8.02	1540	58	26	8.8	10	2.3	0	111		14	0.13			259	17
4/16	1130	7.40		61	27	9.7	11	0.6	0	119		10	0.06			252	18
5/13	1445	5.96		79	28	14	12	0.8	0	146	16	11	0.10	0	166	297	17
6/9	1200	6.03		65	34	11	14	1.3	4.0	148		16	0.24			312	19
7/15	1430	5.61	8.6	85	31	14	15	0.9	0	164		16	0.25			318	19
8/11	1200	5.73	17	79	35	13	16	0.9	3	166		16	0.64			334	20
9/16	1415	5.83	26	77	35	14	16	1.0	5	167	13	16	0.19	0.3	196	344	19
10/14	0920	5.77	21	61	40	16	17	1.1	0	197		17	0.21			379	18
11/11	0915	5.83	26	57	40	16	18	1.1	0	184		23	0.18			388	19
12/7	1540	7.29	692	51	31	12	17	1.2	0	128		26	0.09			328	23
					COLUSA TROUGH (BACK BORROW PIT) NEAR COLUSA												
1/12	1515	2.12	217	47	47	40	174	3.2	0	298		133	0.32			1300	57
2/10	0830	1.04	143	51	33	73	222	2.1	10	318		172	0.34			1670	56
3/9	1015	1.32	213	58	63	52	203	1.9	0	324		152	0.37			1560	54
4/16	1330	1.21	203	73	51	38	135	1.8	0	260		102	0.28			1130	51
5/13	1015	0.82	34	74	37	34	135	3.0	0.00	227	199	91	0.27	0.4	629	1010	55
6/9	1300		1060	65	35	21	112	3.3	8.0	227		60	0.25			730	58
7/22	1000	2.73	350	71	32	24	86	1.1	0	260		49	0.14			693	51
8/11			697	76	49	17	94	1.2	0	305		44	0.36			747	51
9/20	1300	8.34	1730	66	29	16	52	1.7	0	207	40	26	0.35	0.8	282	484	45
10/15	0855	2.33	345	63	36	24	78	2.6	0	224		50	0.31			680	47
11/12	0945	5.93	1080	54	33	26	100	5.3	0	200		63	0.24			804	52
12/10	0815	5.32	1030	46	38	34	148	3.9	0	243		101	0.34			1070	57
					SACRAMENTO SLOUGH AT KNIGHTS LANDING							T11N, R3E, Sec. 20					
1/15	1510	14.43		49	32	22	30	1.9	0	230		28	0.11			455	27
2/18	1430	25.59		53	11	4.9	5.8	1.1	0	60		3.5	0.13			119	20
3/11	1300	24.95	22900	56	16	8.6	10	1.2	0	92		11	0.10			201	22
4/12	1300	32.30		77	13	6.7	8.2	0.9	0	75		95	0.04			157	23
5/10	1400	21.20		73	16	9.2	9.2	1.5	0	101	7.0	5.5	0.10	0.8	119	192	20
6/11	0900	16.58	899	69	28	18	25	1.9	0	180	15	22	0.00			388	27
7/22	0835	13.85	569	75	38	29	47	1.6	0	250		66	0.11			592	32
8/16	1300	14.87	777	75	33	25	36	1.6	0	249		34	0.08			495	30
9/24	0840	16.23	1180	70	27	19	64	2.5	0	216	54	37	0.00	0.5	325	555	48
10/15	1300	14.84	529	66	35	22	29	2.3	4	254		28	0.01			447	26
11/15	1130	17.36		54	30	20	25	3.2	0	210		24	0.07			408	25
12/10	1020	25.39		49	21	15	23	2.4	0	154		23	0.06			318	30
					PIT RIVER AT CANBY							T41N, R9E, Sec. 10					
4/15	1030	3.29	340	56	14	5.9	14	2.3	0	89		3.0	0.03			175	33
5/6	0810	3.09	210	61	18	6.1	17	4.0	0	114	9.1	4.8	0.09	0.8	146	214	33
6/8	1100	2.87	143	58	20	7.5	23	5.0	3.0	137		5.0	0.25			255	36
7/14	1400	2.56	60	79	26	5.2	25	4.7	0	154		4.8	0.17			257	37
8/10	0730	2.38	22	74													
9/15	1400			59	21	8.6	19	4.9	0	144	6.8	3.5	0.08	0.9	165	246	31
10/13	0845	3.42	63	49	23	5.0	27	5.6	0	156		6.0	0.13			285	41
11/10	0830	2.83	43	45	20	8.5	32	5.5	0	152		10	0.14			294	43
					PIT RIVER AT MONTGOMERY CREEK							T35N, R1W, Sec. 32					
2/11	0840	4.70	3860	48	14	4.1	6.1	1.2	0	73		1.2	0.05			133	20
3/27	1530	5.62	5700	53	12	4.9	9.8	1.5	0	78		2.0	0.06			139	29
4/23	1100	2.60	5660	60	12	4.4	7.5	1.5	0	69		3.0	0.16			120	25
6/22	1430	4.80	4040	68	12	6.0	13	2.2	0	96		4.2	0.00			183	33
7/13	1900	4.72	3900	70	12	5.3	11	2.2	0	91		3.0	0.00			156	30
8/11	1130	1.30	3170	66	12	6.3	11	2.2	0	89		4.5	0.08			152	29
9/15	1000	4.80	4040	60	11	6.5	11	2.0	0	90	2.7	4.5	0.06	0.1	115	152	30
10/11	0830	4.22	3040	56	11	6.5	10	2.2	0	90		3.0	0.04			157	28

TABLE 221

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1954 (contd.)

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
					McCLOUD RIVER AT SHASTA LAKE							T36N, R3W, Sec. 28					
4/23	1500	13.25		56	9.4	2.3	3.8	0.6	0	46		1.0	0.00			79.0	20
6/24	1650			58	9.6	3.2	4.9	1.6	0	55		3.0	0.00			91.5	21
7/14	0530	11.50	1280	56	9.3	3.0	5.0	1.4	0	56		1.5	0.00			93.9	23
8/16	0845	11.32	1150	54	9.5	3.0	5.3	1.4	0	56		2.0	0.03			93.2	23
9/15	1600	11.30		42	10	2.6	5.3	1.4	0	57	1.9	1.0	0.72	0.4	86	95.1	24
10/11	1400	11.24		50	8.6	3.8	4.6	1.4	0	58		0.8	0.00			95.2	20
					BURNEY CREEK AT BURNEY							T35N, R3E, Sec. 18					
4/15	1230		e110	48	4.6	1.7	1.9	0.4	0	28		0.0	0.0			45.2	18
5/6	1145		e60	51	4.7	2.1	1.8	0.5	0	30	0.7	0.3	0.01	0.2	44	48.9	16
6/8	1230		e15	53	7.2	3.4	3.4	1.1	0	47		2.0	0.14			79.4	18
7/14	1545		e7	74	15	1.9	4.2	1.1	0	65		1.0	0.02			99.9	16
8/10	0930		e6	57	11	5.1	4.7	1.1	0	70		0.5	0.00			113	17
9/15	1615		e20	57	11	4.9	4.6	1.4	0	68	0.3	0.5	0.01	0.2	86	108	17
10/13	1100		e10	47	12	5.5	4.8	1.0	0	71		1.0	0.00			110	16
11/10	1030			45	11	4.5	4.5	1.6	0	64		1.0	0.03			101	17
					MILL CREEK NEAR LOS MOLINOS							T25N, R2W. Sec. 5					
1/12	0900	-0.10	158	43	12	5.2	14	2.4	0	60		18	0.60			189	36
2/10	1345	+0.18	218	48	10	3.6	11	1.7	0	50		12	0.34			145	36
3/9	1500	+3.77	80	51	6.2	1.7	4.1	1.2	0	29		3.0	0.16			70.0	27
4/15	1700	+0.61	395	61	6.8	2.9	7.4	1.1	0	36		4.8	0.11			94.1	35
5/12	1230	+0.52	370	62	7.5	2.5	6.5	1.5	0.00	32	12	5.5	0.12	0.3	78	97.7	31
6/9	0810	-0.47	94	55	10	3.0	9.4	1.9	0	40		10	0.27			145	34
7/15	1000		172	74	12	3.5	11	2.2	0	48		12	0.42			145	34
8/10	1445	0.02	e4	81	17	4.7	14	3.2	0	77		16	0.31			202	32
9/16	1230		e20	66	13	4.8	16	2.5	0	62	13	18	0.48	0.2	135	180	39
10/13	1545		125	63	13	5.3	17	2.5	0	64		20	0.43			195	39
11/11	1530		325	54	13	6.2	18	2.7	0	63		24	0.65			214	39
12/7	1230		397	47	8.1	4.6	10	1.7	0	47		13	0.35			131	35
					DEER CREEK NEAR VINA							T24N, R2W, Sec. 14					
1/12	0830			42	11	6.2	9.0	1.6	0	82		3.0	0.14			147	26
2/10	1410	1.85		45	8.8	4.9	6.5	1.1	0	63		3.0	0.08			110	25
3/9	1640	4.25	2400	52	4.8	2.5	2.2	1.2	0	34		0.0	0.07			56.0	17
4/15	1720	2.76	656	60	5.3	3.7	4.0	0.7	0	44		0.2	0.00			74.9	23
5/13	1315	1.90	259	69	6.6	3.9	4.5	1.2	0	50		1.0	0.09	0.0	73	87.8	22
6/9	0830	1.52	80	59	9.5	5.2	6.8	1.8	0	67	2.2	4.5	0.19			128	24
7/15	1030	1.96	281	81	18	10	12	2.2	3	127		3.2	0.32			216	23
8/10	1515		3	80	20	12	13	2.8	0	148		4.5	0.16			244	22
9/16	1315	1.69	3.2	78	22	14	13	2.5	0	160	3.5	5.0	0.13	0.5	177	262	20
10/11	1620		3.0	67	13	6.1	11	2.0	0	92		6.5	0.19			162	28
11/10	1600		138	55	13	7.2	11	1.8	0	90		6.0	0.12			167	27
12/7	1300		662	50	7.8	5.1	5.6	1.2	0	60		3.0	0.09			90.6	23
					CHICO CREEK NEAR CHICO												
1/11	1530	3.05	66	44	13	5.6	8.2	0.8	0	78		6.5	0.15			148	24
2/10	1600	3.3	160	46	11	5.0	6.5	0.7	0	67		4.2	0.07			126	22
3/10	0800	5.73	856	49	6.8	3.0	2.2	0.4	0	40		0.8	0.06			69.8	14
4/16	0900	3.79	205	55	9.3	4.2	5.2	0.5	0	56		2.0	0.01			104	22
5/13	1615	3.43	97	65	12	5.6	7.5	0.8	0.00	75	4.0	5.0	0.06	0.4	104	14.1	23
6/9	0940	3.38	86	58	14	6.5	9.2	1.1	0	85		7.5	0.12			165	24
7/15	1145	3.00	32	75	15	8.1	13	1.2	0	102		10	0.19			192	28
8/11	1000	2.96	29	72	16	8.2	14	1.2	3	103		10	0.14			206	29
9/17	0755	3.01	32	61	16	8.0	13	1.3	0	108	3.0	9.5	0.13	0.1	142	201	28
10/14	1025	3.00	31	58	17	7.9	14	1.3	0	108		10	0.16			207	28
11/11	1030	3.09	40	52	15	7.4	13	1.2	0	91		12	0.12			191	29
12/8	0900	3.54	138	44	7.7	5.2	5.3	0.6	0	56		5.3	0.04			104	22
					BUTTE CREEK NEAR CHICO							T22N, R2E, Sec. 36					
1/11	1450	2.44	224	43	11	4.3	3.1	0.8	0	62		0.2	0.06			103	13
2/10	1630	2.77	358	46	7.9	3.7	2.8	0.5	0	48		0.8	0.04			83.5	15
3/10	0900	5.08	2490	45	4.8	2.2	1.2	0.5	0	29		0.5	0.05			47.3	11
4/16	0930	3.58	961	54	5.9	3.0	2.0	0.3	0	36		0.0	0.00			60.7	14
5/13	1645	3.00	485	61	7.1	2.7	2.4	1.1	0.00	29	12	1.0	0.00	0.4	59	76.3	23
6/9	1100	2.75	348	55	8.4	4.4	4.1	0.9	0	53		1.5	0.21			90.0	18
7/15	1245	2.38	177	72	11	4.0	3.9	0.9	0	55		1.2	0.00			103	16
8/11	1045	2.25	133	67	12	3.6	4.1	1.0	0	66		1.5	0.01			106	16
9/17	0830	2.26	136	56	12	4.6	3.7	1.0	0	66	1.2	0.5	0.01	0.1	79	109	14
10/14	1105	2.11	95	55	13	4.0	3.9	0.9	0	70		0.5	0.00			116	14
11/11	1115	2.35	166	50	12	4.6	3.7	1.0	0	64		1.0	0.05			106	14
12/8	1000	2.83	388	42	8.1	4.3	2.8	0.8	0	51		1.6	0.03			84.0	14
					INDIAN CREEK AT CRESCENT MILLS							T26N, R9E, Sec. 25					
4/14	1300	6.28	1490	51	9.0	2.1	3.4	0.9	0	44		0.0	0.02			77.0	19
5/4	1130	5.13	795	54	9.3	2.8	3.4	0.9	0	49	2.9	1.0	0.00	0.3	66	85.3	17
6/7	1330	3.42	225	62	15	4.4	6.2	1.7	0	78		3.5	0.16			163	19
7/14	0815	1.59	15	71	27	7.4	13	2.2	0	136		5.0	0.12			243	22
8/9	1430	1,15	10	70	31	9.1	14	3.1	0	160		5.0	0.13			277	20
9/15	0800	1.27	14	57	26	8.3	14	1.6	0	137	9.8	6.0	0.11	0.3	161	248	23
10/12	1210	1.55	27	54	25	6.3	12	1.8	0	122		4.7	0.08			219	22
11/9	1200	2.15	88	47	19	7.0	9.2	1.6	0	102		4.2	0.05			184	20

e Estimated.

TABLE 221

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1954 (contd.)

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
					FEATHER RIVER AT OROVILLE							T19N, R4E, Sec. 5					
1/11	1230	5.60	1280	42	11	3.8	4.1	0.9	0	58		1.0	0.06			101	17
2/11	0900	10.37	3800	44	8.8	3.4	3.4	0.6	0	49		1.0	0.01			84.3	17
3/10	1100	42.42	47100	46	4.8	2.4	1.2	0.7	0	28		0.2	0.08			48.0	10
4/13	1100	20.66	11800	52	7.3	2.6	2.6	0.5	0	40		1.5	0.01			72.0	16
5/14	0745	15.86	7510	57	7.3	3.1	2.0	0.7	0	38	2.0	1.2	0.04	0.0	51	68.6	12
6/7	1200	10.59	3930	58	9.7	3.4	3.9	1.1	0	54		2.5	0.14			93.7	18
7/15	1610	8.89	2910	74	10	3.7	4.1	1.2	0	58		0.8	0.01			98.3	18
8/9	1100	8.50	2700	68	12	3.6	5.1	1.2	0	64		1.8	0.05			108	19
9/23	1430	8.31	2590	66	11	4.0	4.6	1.1	0	62	1.9	1.4	0.02	0.1	68	106	18
10/14	1245	7.96	2400	63	11	4.3	5.0	1.2	0	65		1.0	0.03			111	19
11/11	1300	8.88	2910	53	11	4.3	4.4	1.3	0	64		1.0	0.03			108	17
12/8	1215	12.83	5350														
					FEATHER RIVER AT NICOLAUS							T12N, R3E, Sec. 12					
1/18	1100	33.67	16500	48	7.1	2.7	3.0	1.1	0	38	3.5	1.5	0.04	1.1	50	73.6	18
2/18	1600	39.17	30000	49	7.0	3.0	1.8	0.6	0	38		0.5	0.11			70.8	11
3/11	1000	42.64	74900	46	5.7	2.1	1.5	0.9	0	31		0.2	0.08			54.6	12
4/16	1215	33.57	15000	51	7.3	2.6	2.6	0.5	0	40		1.5	0.00			70.3	16
5/13	0740	29.08	10800	61	7.5	3.8	2.8	0.5	0	38	2.9	1.8	0.04	0.0	51	73.6	12
6/11	1500	23.78	3560	69	10	4.6	2.7	0.8	0	50	7.2	2.5				90.1	12
7/16	1340	21.11	960	80	15	5.5	5.6	1.2	0	77		4.5	0.07			138	17
8/12	1000	21.02	1500	76	15	5.5	5.8	1.3	0	78		3.8	0.08			141	17
9/17	1200	21.71	1360	69	13	5.2	6.0	1.3	0	75	3.9	2.5	0.05	0.5	84	135	19
10/15	1120	22.82	2480	63	17	1.6	5.8	1.3	0	71		1.9	0.01			123	20
11/12	1300	23.91	4170	55	12	4.4	4.8	1.4	0	66		1.8	0.03			118	17
12/9	1115	27.29	7460	50	9.5	4.2	4.1	1.1	0	53		2.8	0.00			97.7	17
					SOUTH HONCUT CREEK NEAR BANGOR							T18N, R5E, Sec. 35					
1/11	1100	2.30	5.5	46	11	5.7	10	0.2	0	69		6.0	0.07			154	30
2/11	1000	2.29	5.3	48	11	6.0	11	0.2	0	64		5.0	0.04			152	31
3/10	1045	4.23	171	52	6.6	3.0	3.1	0.3	0	40		0.2	0.07			72.2	19
4/13	1300	3.99	34	61	9.5	5.2	7.2	0.2	0	63		4.0	0.01			115	26
5/13	0845	2.50	11	64	12	5.7	8.7	0.1	0	74	9.7	3.0	0.00	2.8	106	146	26
6/11	1030	2.22	37	69	15	6.0	13	0.4	0	87		7.5	0.14			170	31
7/16	0820	1.75	0.3	75	22	9.3	26	0.4	0	119		18	0.25			289	38
8/12	1230	1.60	0.1	78	25	11	34	0.6	0	144		22	0.17			352	41
11/11	1445	2.33	6.3	55	14	6.8	17	0.5	0	82		8.5	0.06			195	37
12/8	1345	2.53	12	48	11	4.9	8.3	0.2	0	58		5.5	0.02			132	27
					YUBA RIVER AT SMARTVILLE							T16N, R6E, Sec. 14					
1/15	1140		712	45	12	2.7	2.6	0.5	0	53		2.0	0.00			99.4	12
2/11	1100		1367	47	8.4	2.7	2.0	0.4	0	40		0.8	0.03			75.9	12
3/10	1200			48	6.6	1.8	1.2	0.4	0	31		1.0	0.08			56.4	10
4/13	1500		877	51	6.4	2.4	1.6	0.3	0	32		1.5	0.00			63.6	12
5/14	0930			59	6.2	1.3	1.1	0.3	0	26	3.1	0.0	0.00	0.2	36	49.9	10
6/11	1145		734	66	8.1	1.9	2.0	0.4	0	35	4.7	1.7				62.5	10
7/16	0900		728	68	7.0	4.7	2.7	0.5	0	46		2.5	0.07			83.7	14
8/12	1330		710	77	14	2.7	3.4	1.0	0	59		2.0	0.03			107	14
9/23	1630		265	70	16	3.7	3.6	0.6	0	66	6.3	2.5	0.00	0.2	80	123	12
10/14	1445		281	67	16	3.9	5.7	0.7	0	67		2.0	0.00			130	18
11/11	1630			55	17	3.1	3.5	0.8	0	66		2.0	0.01			125	12
12/8	1510			48	12	3.7	2.9	0.7	0	50		1.8	0.3			101	12
					YUBA RIVER AT MARYSVILLE							T15N, R4E, Sec. 18					
1/15	1330	44.94	770	47	13	3.6	2.6	0.5	0	57		1.0	0.02			111	11
2/11	1300	46.60	1615	47	9.3	2.9	2.4	0.4	0	42		0.2	0.01			81.3	13
3/10	1400	63.39	32500	50	6.6	2.6	1.5	0.6	0	33		0.2	0.08			60.7	10
4/16	1045	51.43	7060	52	7.3	2.1	1.9	0.2	0	34		2.0	0.01			62.2	13
5/14	1145	49.09	3730	61	6.2	2.0	1.2	0.3	0	30	2.7	0.0	0.00	0.3	38	56.3	10
6/11	1315	45.65	1120	68	8.3	2.7	2.1	0.5	0	38	6.1	1.4				68.9	12
7/16	1140	43.75	300	72	12	3.0	3.2	0.7	0	53		2.8	0.10			98.5	14
8/13	0700	43.69	283		13	4.0	3.4	1.2	0	60		2.2	0.00			114	13
9/17	1015	42.89	118	69	15	4.9	3.6	0.7	0	66	11	1.5	0.02	0.2	87	132	12
10/14	1615	42.55	64	67	16	6.0	4.2	0.8	0	72		3.6	0.01			144	12
11/12	0815	62.60	227	56	15	5.1	3.7	0.9	0	67		1.8	0.02			132	12
12/9	0830	63.82	910	49	11	4.6	3.3	0.5	0	53		2.8				106	13
					BEAR RIVER NEAR WHEATLAND							T13N, R5E, Sec. 3					
1/15	1015	2.86	68	45	19	12	6.5	1.9	0	95		7.5	0.15			228	12
2/11	1400	3.40	160	50	20	5.7	4.5	1.8	0	73		4.0	0.04			171	11
3/11	1100	6.69	2310	49	8.4	2.2	1.6	0.7	0	34		1.0	0.06			71.2	10
4/16	0930	3.73	304	62	11	4.9	3.1	0.4	0	48		3.0	0.01			105	12
5/14	1400	3.37	165	76	11	4.4	2.7	0.5	0.00	48	9.3	2.3	0.00	0.3	65	109	11
6/11	1400	2.72	10	77	25	14	4.1	0.8	0	93	24	6.7				209	7
7/16	1240	2.69	7.6	87	36	16	7.0	1.4	0	156		7.0	0.13			320	9
8/12	1600	2.65	5.0	80	37	16	7.9	1.2	6	146		7.0	0.01			328	10
9/17	1115	2.71	6.8	74	35	15	7.9	1.2	0	157	28	8.5	0.01	0.2	193	320	10
10/15	1040	2.76	12	68	33	10	7.8	1.0	0	131		9.5	0.10			273	12
11/12	1100	3.03	57	57	26	9.5	7.3	1.8	0	103		10	0.02			238	13
12/9	0945	3.97	430	46	24	8.1	5.8	2.6	0	90		8.2	0.06			189	12
					*AMERICAN RIVER AT FAIR OAKS							T9N; R6E Sec. 13					
7/30	1055			72		4.4						8.2				100	19
9/27	1000			69		2.3						5.0				67	15

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TABLE 221

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1954 (contd.)

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
					AMERICAN RIVER AT SACRAMENTO											T8N, R5E, Sec. 3	
1/13	1430	18.03	1090	47	8.4	2.2	2.8	0.7	0	35	4.7	3.5	0.03		49	86.9	16
2/11	1440	18.78	1940	48	6.8	2.4	2.2	0.5	0	32		1.0	0.03			69.5	15
3/11	0935	29.95	20000	50	5.7	1.3	1.1	0.6	0	25		0.5	0.05			47.6	11
4/22	1130	22.81	9490	57	4.4	0.9	1.5	0.1	0	20		0.2	0.04			37.2	18
5/21	1400	21.07	6130	67	3.5	1.1	1.5	0.4	0	18	2.4	0.0	0.03	0.2	27	34.5	19
6/11	0715	18.32	1830	61	3.5	3.2	2.2	0.7	0	28		2.8	0.12			56.7	17
7/23	0715	17.24	278	76	10	3.9	3.8	0.9	0	54		3.0	0.00			96.1	17
8/9	1430	17.11	205	81	11	2.9	4.9	1.2	0	49		6.0	0.04			104	21
9/27	1015	17.50	413	75	8.4	2.2	3.3	0.8	0	36	3.0	2.8	0.00	0.4	50	73.6	19
10/18	1345	16.86	429	66	7.7	2.1	3.0	0.7	0	35		3.0	0.00			71.5	18
11/15	1345	17.95	834	57	8.8	2.0	2.6	0.8	0	36		2.5	0.01			78.0	15
12/13	1445	18.23	1130	47	8.9	3.4	3.4	0.6	0	41		3.5	0.08			90.7	17
					SACRAMENTO RIVER AT SNODGRASS SLOUGH (NEAR COURTLAND)											T6N, R4E Sec. 27	
1/5	1315			48	13	6.9	9.6	1.1	0	79	8.4	8.2	0.08	0.5	107	157	25
2/5	1530	12.36		46	12	4.7	6.7	1.5	0	64	7.7	4.0	0.05	0.5	90	145	22
3/8	1130	7.59		53	12	5.4	5.8	1.0	0	66	7.2	4.5	0.02	0.1	89	137	19
4/2	1510	8.90		54	12	5.8	6.5	0.8	0	66	7.4	5.0	0.02	0.5	90	165	21
5/11	0930	7.25		63	8.6	4.0	5.0	0.7	0	46	6.0	4.0	0.06	0.4	66	99.8	22
6/3	1300	4.85		69	15	7.6	15	1.2	0	84	16	16	0.08	0.7	134	218	32
7/8	0800	3.98		72	14	8.9	16	1.3	0	90		14	0.24			214	32
8/20	1100			70	18	10	22	1.4	0	118		18	0.06			270	35
9/8	1530	5.25		74	18	10	23	1.3	0	119	16	16	0.00	0.8	163	280	36
10/18	1200	5.63		65	15	7.4	11	1.2	0	91		11	0.03			196	26
11/15	1200	6.76		55	16	7.1	14	1.9	0	80		12	0.00			198	30
12/13	1330	8.15		49	11	5.7	7.1	1.5	0	60	7.1	6.8	0.00	1.6	90	133	23
					*SACRAMENTO RIVER AT SNODGRASS SLOUGH											T6N, R4E, Sec. 22F	
1/6	1045			45	15	6.9	11	1.2	0	84	10	8.5		0.3	110	170	25
2/5	1420			48	11	5.2	7.1	1.2	0	63	5.1	4.5		1.1	88	130	24
2/24	1420			51	9.9	4.5	8.4	1.0	0	61	6.2	4.5		0	120	120	29
3/29	1150				12	5.7	6.0	0.9	0	64	6.1	4.0		0.3	90	130	20
5/3	1135			57	8.7	3.8	5.5	1.0	0	47	5.2	4.0		0.53	71	130	24
5/24	1210			67	11	5.0	9.0	0.9	0	61	7.2	9.0		0.44	94	180	29
6/28	1210			74	14	8.3	15	1.1	2.3	78	13	12		0.4	120	200	32
8/2	1135			72	15	9.3	20	1.2	0	95	15	16		1.6	150	240	36
8/30	1300			68.5	17	11	22	1.2	0	110	16	16		0.35	160	270	36
9/24	1225			69	17	11	19	1.4	0	120	14	13		1.4	140	250	32
10/25	1342			59	13	7.1	11	1.4	0	82	7.2	7.0		0.5	110	170	28
12/1	1250			48	14	7.9	12	1.4	0	81	12	9.5		2.0	110	190	27
12/30	1345			42	15	8.6	15	1.4	0	86	15	13		2.2	130	220	30
					DELTA CROSS CHANNEL NEAR WALNUT GROVE												
1/21	0950	3.79		47	6.6	3.5	5.2	1.1	0	38		4	0.04			87.3	26
2/11	1125	5.23		48	12	5.8	7.1	1.2	0	68		4.2	0.09			143	22
3/8	1215	3.70		53	13	6.6	7.1	0.9	0	72		6	0.05			147	20
4/22	0815			61	9	3.8	6.1	0.5	0	48		3.5	0.05			100	26
5/11	1030			63	8.4	3.9	5.2	0.7	0	46	6.6	4.5	0.03	0.03	67	103	23
6/17	0800			69	14	8.4	19	1.4	0	90	19	11				217	37
7/20	0815			74	17	8.1	18	1.5	0	96		16	0.08			228	34
8/16	0820			68	17	9.5	21	1.3	0	110		16	0.10			252	35
9/22	0830			68	20	9.9	24	1.6	0	123	15	19	0.59	2.1	175	280	36
10/18	1100	3.83		64	15	8.4	12	1.4	0	96		12	0.02			204	26
11/16	1600	1.98		55	14	6.8	13	1.9	0	76		11	0.03			191	30
12/13	1245	3.56		48	13	4.8	8.3	1.4	0	60		9.8	0.12			146	25
					*SACRAMENTO RIVER AT TOLAND LANDING											T3N, R2E, Sec. 21	
7/7	1215			71											372	613	
7/29	1230			76											1322	2259	
8/12	1220			73											1100	2000	
8/31	1115			71											688	1167	
9/15	1130			68								61					
9/29	1455			69											248	350	
10/25	1118			61											152	246	
12/1	1420			50			14					17			198	230	27
12/30	1200			43			14					18			178	237	26
					SACRAMENTO RIVER AT RIO VISTA											T4N, R3E. Sec. 31	
1/21	1105	3.57		47	9.7	5.1	5.8	2.9	0	54		4.5	0.13			119	21
2/11	0930	7.24		47	12	6.0	8.2	1.2	0	71		5	0.12			150	24
3/8	1340	2.42		54	15	8.4	11	1.2	0	84		8.8	0.10			197	25
4/21	1445			64	11	6.8	9.6	0.9	0	67		6.8	0.10			157	27
5/11	1400	4.10		68	9.7	4.3	6.9	0.8	0	52	8.1	6.0	0.10	0.3	77	118	26
6/16	1140	2.10		68	15	8.3	20	1.2	0	96		19	0.19			235	37
7/20	1300	2.15		73	19	7.0	17	1.3	0	95		18	0.06			232	32
8/16	0930	2.47		69	19	9.1	21	1.3	0	106		9.0	0.24			257	35
9/22	0930	4.60		67	20	11	26	1.6	0	128	17	21	0.05	1.0	181	298	37
10/20	1400	4.37		64	16	9.8	17	1.4	0	102		14	0.08			238	31
11/16	1045	5.51		57	15	7.2	13	1.6	0	84		12	0.05			193	29
12/15	1300	3.46		46	14	7.3	13	1.6	0	76		12	0.15			191	30
					*SACRAMENTO RIVER AT RIO VISTA											T4N, R3E, Sec. 30A	
7/2	1150			72			16					17			190	257	27
7/29	1030			75			19					22			174	257	32
8/31	1245			71.5			19					20			148	273	30
9/29	1520			68			24					24			222	309	34

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TABLE 221

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS. THEIR TRIBUTARIES AND THEIR DELTAS - 1954 (contd.)

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 AT COLLINSVILLE							T3N, R1E, Sec. 27					
7/7	1245			71			607					1189			2490	4238	62
7/29	1130			76			1072					1960			4036	6555	71
8/31	1155			71			782					1487			2942	4945	69
9/29	1430			68			419					738			1616	2651	69
					CLEAR LAKE, NORTH END, CLEAR LAKE OAKS							T14N, R10W, Sec. 24					
1/12	1645	3.00		51	26	15	11	2.1	0	164		6.0	0.94			296	16
2/9	1600	4.84		51	24	14	10	2.0	0	153		6.0	0.79			275	15
3/9	0800	7.50		53	23	14	9.2	1.9	0	149		5.8	0.79			270	15
4/20	1115			68	21	14	10	1.9	0	135		4.0	0.56			247	16
5/12	1510			68	24	13	9.6	2.2	0	139	10	5.5	0.68	0.9	151	260	15
6/10	0800	6.1		66	25	14	10	2.2	3.0	143		7.5	0.80			266	15
7/12	1400			79	24	14	11	2.0	0	150		8.2	1.09			270	17
8/13	1100				25	16	12	2.3	0	160		6.0	0.76			284	17
9/21	1400			72	27	14	12	2.2	0	162	9.6	6.5	0.85	1.1	162	288	17
10/19	0850	2.04		63	27	15	12	2.1	0	166		6.0	0.81			292	16
11/16	1350			56	26	16	11	2.2	0	167		6.0	0.91			296	15
12/14	0930			48	26	16	11	1.9	0	163		6.8	0.79			291	15
					CLEAR LAKE, WEST SIDE, LAKE PORT							T14N, R8W, Sec. 28					
1/13	0830	3.00		46	24	15	11	2.1	0	155		6.0	0.91			283	16
2/9	1430	4.84		57	22	14	9.6	2.1	0	146		5.5	0.67			261	15
3/8	1600	7.43		53	21	12	7.8	1.9	0	132		4.8	0.62			241	14
4/20	1210	7.39		69	22	13	10	1.4	0	133		5.5	0.53			246	16
5/12	1315	7.05		69	22	13	9.0	2.0	0	136	9.5	0.1	0.67	1.5	139	252	15
6/10	0700	6.10		65	24	14	8.7	2.1	0	142		6.8	0.60			260	14
7/12	1300			79	23	15	11	1.9	0	150		7.2	0.92			269	16
8/13	1130				25	16	12	2.2	0	160		6.0	0.71			285	17
9/21	1300			73	28	14	11	2.0	0	163	9.7	6.8	0.78	1.0	167	290	16
10/18	1615	2.04		65	28	14	12	2.2	0	165		5.5	0.89			294	16
11/16	1450			55	27	15	11	2.2	0	161		6.0	0.77			289	16
12/14	0815			45	24	15	10	1.8	0	150		6.8	0.66			272	15
					CLEAR LAKE AT CACHE CREEK DAM												
1/13	1030	0.52	3.2	43	29	31	25	3.9	0	241		34	2.1			490	21
2/9	1315	0.08	0.2	52	21	14	13	2.4	0	131		12	0.67			276	20
3/8	1430	0.14	1.5	52	21	12	11	2.1	0	112		8.5	0.39			259	19
4/20	1415	0.88	6.7	74	24	16	12	1.9	0	158		6.0	0.86			287	17
5/12	1130	3.76	411	68	24	16	10	2.2	0	152	9.9	6.5	0.83	0.6	153	282	14
6/10	0900	3.44	324	63	25	15	11	2.2	0	158	9.7	7.5	0.93			278	16
7/12	1115	3.96	471	80	24	16	12	2.1	0	150		7.8	1.05			281	17
8/13	1400	3.70	394		30	13	12	2.0	0	161		7.8	1.2			293	17
9/21	1150	2.81	184	70	27	15	12	2.2	0	168	9.6	7.0	1.2	0.9	159	296	16
10/18	1515	1.37	21	62	29	16	13	2.1	0	174		7.0	0.90			309	17
11/16	1050	0.08	0.5	53	25	15	12	2.2	0	154		6.0	0.70			292	17
12/14	1240	0.02	0.1	46	18	14	14	2.5	0	120		12	0.67			264	23
					NORTH FORK CACHE CREEK NEAR LOWER LAKE							T14N, R6W, Sec. 31					
1/12	1610	1.58	62	47	29	26	32	1.5	8	197		42	3.1			481	28
2/9	1645	2.33	202	54	22	17	15	0.9	0	157		14	0.95			309	21
3/9	0850	3.53	550	55	22	18	12	0.8	0	161		12	0.85			306	17
4/20	1015	2.34	175	64	23	20	14	0.7	0	170		10	0.69			315	18
5/12	1630	1.79	93	77	29	23	17	1.5	6	188	13	18	1.4	0.2	215	388	18
6/9	1400	1.58	63	65	34	31	23	1.6	14	202	13	34	2.32			456	19
7/12	1445	1.13	7.2	88	35	28	30	1.8	0	236		43	3.1			506	24
8/13	1000	0.96	1.5		38	30	37	2.0	10	224		58	3.6			571	27
9/21	1445	0.97	2.1	78	45	29	33	1.6	0	235	12	64	2.9	0.2	334	587	23
10/19	0945	1.00	2.7	62	38	27	40	1.8	12	204		69	4.6			574	29
11/16	1230	2.45	200	55	29	24	27	1.5	0	182		50	3.7			465	25
12/14	1030	2.11	130	45	25	21	24	1.2	0	187		29	2.3			395	26
					CACHE CREEK NEAR CAPAY							T10N, R2W, Sec. 8					
1/14	1400	1.68	69	50	41	34	81	3.4	0	268		115	3.6			836	42
2/8	1515	2.43	260	53	30	25	35	1.7	0	204		44	1.2			501	30
3/12	1315	5.50	1910	48	20	18	14	2.0	0	151		12	0.77			299	19
4/12	1100	5.03	1580	63	27	20	18	1.7	0	178		14	0.78			351	21
5/7	1330	2.79	429	74	32	27	29	2.3	0	223	26	30	1.3	0.0	268	486	25
6/10	1430	2.73	381	70	30	19	23	2.3	0	192	16	26	1.20			394	24
7/22	1200	3.00	463	75	27	17	15	2.1	0	178		11	1.0			323	19
8/16	1415	2.71	369	77	28	18	18	2.1	0	185		15	0.99			346	
9/23	0840	1.98	138	66	33	18	24	2.5	0	207	14	23	1.1	0.2	224	400	24
10/15	1425	1.29	25	69	41	26	45	2.9	6	242		57	1.6			586	32
11/12	1540	1.51	52	61	50	34	78	3.6	8	264		116	2.7			804	39
12/10	1145	3.62	775	46	26	27	37	1.8	0	192		44	1.5			502	31
					PUTAH CREEK NEAR WINTERS							T8N, R2W, Sec. 28					
1/14	1300	5.05	90	49	22	41	13	0.9	0	262		10	0.50			461	11
2/8	1330	5.01	213	50	19	33	11	1.0	6	200		8.0	0.26			375	11
3/12	1200	7.86	741	51	15	27	8.2	0.9	0	170		5.5	0.17			304	11
4/12	1000	7.88	748	62	20	35	12	0.9	0	218		8.5	0.29			393	12
5/7	1145	5.74	183	72	25	46	14	1.1	0.00	289	26	11	0.28	0.5	293	495	11
6/10	1300	4.45	40	71	22	52	22	1.5	15	296	28	18	0.70			555	15
7/12	0745	3.40	0.9	76	35	62	34	2.2	0	382		28	1.09			703	18
8/16	1515	3.57	3.2	79	113	16	40	2.7	35	391		28	1.2			768	20
9/21	0845	3.10	0.4	67	59	49	45	2.0	20	388	46	30	1.3	0.6	469	751	22
10/18	1030	3.46	1.8	60	36	58	45	5.6	10	384		33	1.3			753	23
10/15	1615	11.36	3060	55	21	31	8.8	1.6	0	205		9.5	0.30			370	10
12/10	1300	9.42	1500	46	13	28	12	1.2	0	165		11	0.21			287	15

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TABLE 221

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1954 (contd.)

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
					*PUTAH CREEK NEAR WINTERS							T8N, R2W, Sec. 28					
1/6	1100			42		18						15			310	520	15
3/23	0915	9.70		51		7.6						5.4			172	273	12
6/28	1245	3.6		78		26						23	0.8		424	707	16
9/29	1400	3.7		70		41						36	1.4		500	802	22
12/29	1245			43		11						13	0.75		294	433	11
					*CACHE SLOUGH BELOW LINDSEY SLOUGH							T5N, R3E. Sec. 31					
5/5	1150			65		9.9						23			128	189	23
8/9	1320			74		19						18			170	245	34
10/25	1036			60		16						15			152	234	30
					LINDSEY SLOUGH NEAR RIO VISTA												
1/21	1200	3.30		48	14	12	15	2.3	0	97		14	0.18			237	27
2/11	1020	7.08		47	16	10	15	1.8	0	96		13	0.20			237	28
3/8	1435	2.52		55	18	13	21	1.9	0	110		17	0.17			284	31
4/21	1530			68	18	13	21	2.1	0	113		16	0.28			280	31
5/11	1530			66	12	8.0	11	1.1	0	70	15	9.2	0.13	0.5	106	179	27
6/16	1500			69	15	11	23	1.4	0	101	24	18				262	37
7/14	1415	2.64		71	17	11	19	1.5	0	105		16	0.10			254	32
8/16	1030	2.49		73	20	12	22	1.8	2	110		18	0.15			271	32
9/22	1030			69	22	13	32	1.7	0	139	25	29	0.02	0.8	212	359	38
10/20	1450	4.15		67	18	12	25	1.7	0	120		22	0.15			298	36
11/16	1000	6.41		56	15	9.4	17	1.7	0	96		15	0.11			237	32
12/15	1415	3.44		48	18	15	30	2.2	0	117		26	0.22			343	37
					ROCK SLOUGH AT KNIGHTSEN												
1/20	1345			49	53	25	84	3.7	0	140		122	0.32			876	43
2/10	1455			48	45	23	99	3.2	0	120		136	0.41			880	50
3/9	0840			56	37	20	77	2.9	0	102		106	0.28			721	48
4/21	0845			70	16	7.9	29	1.8	0	64		36	0.14			286	46
5/12	0900	3.75		70	18	9.7	29	1.9	0	70	30	39	0.12	0.9	179	319	42
6/8	1100	5.32		68	17	2.4	16	1.4	0	49		23	0.14			186	39
7/23	1320			76	18	11	38	2.2	0	88		52	0.12			357	47
8/17	1030	4.56		75	26	18	110	4.9	0	95		186	0.08			743	62
9/22	0845	3.23		67	25	13	69	3.3	0	110	31	106	0.00	0.1	319	535	55
10/21	1100	3.81		67	22	13	45	2.6	0	120		58	0.12			437	47
11/16	1230	5.85		59	27	16	54	3.1	0	122		77	0.19			539	46
12/16	1030	5.65		48	43	22	87	3.9	0	124		132	0.35			820	48
					OLD RIVER NEAR MANDEVILLE ISLAND												
12/14	1300			50	29	13	44	2.8	0	100	45	70	0.10	3.1	275	480	42
					OLD RIVER NEAR ORWOOD BRIDGE												
1/20	1220			48	55	26	91	3.5	0	98		140	0.31			932	44
2/10	1340			48	42	19	84	3.3	0	110		120	0.32			769	49
3/9	0930			56	40	19	72	2.8	0	96		106	0.23			702	46
4/21	0930			70	16	7.4	26	1.7	0	61		37	0.09			278	44
5/12	0950			66	13	4.5	15	1.4	0	42	1.9	23	0.10	0.2	108	190	38
6/8	1200			68	13	4.7	15	1.4	0	49		28	0.06			180	38
7/23	1215			71	18	10	36	2.2	0	87		50	0.11			347	47
8/17	1145			73	26	18	101	4.2	0	94		170	0.21			803	60
9/22	0930			70	22	15	69	3.5	0	108	35	104	0.13	0.8	320	582	55
10/21	1220			68	23	14	50	2.7	0	116		69	0.12			481	48
11/16	1340			57	36	18	73	3.4	0	120		112	0.21			647	49
12/16	1130			49	42	19	79	4.0	0	110		124	0.23			735	48
					INDIAN SLOUGH NEAR BRENTWOOD												
1/20	1140			47	68	39	174	3.3	0	246		170	2.0			1240	53
2/10	1250			50	62	40	172	2.7	0	252		210	1.6			1350	54
3/9	1030			57	48	28	114	3.5	0	156		162	0.88			1010	51
4/21	1115			70	15	8.1	29	1.8	0	65		41	0.10			297	46
5/12	1015			70	16	8.8	30	1.8	0	66	27	42	0.21	0.8	174	311	45
6/8	1230			69	13	4.7	19	1.5	0	50		28	0.15			203	43
7/23	1000			78	19	9.9	37	2.2	0	90		48	0.15			350	47
8/17	1230	19.76	80.5	75	27	20	112	4.4	0	105		181	0.28			866	61
9/22	1000	14.70		68	25	19	89	3.6	0	121	45	138	0.31	0.9	399	737	57
10/19	1510			67	40	25	101	4.4	0	147		163	0.30			923	52
11/16	1430			58	43	35	140	3.4	0	209		177	1.3			1070	54
12/16	1200			48	52	32	140	4.1	0	186		201	1.4			1210	53
					OLD RIVER NEAR CLIFTON COURT FERRY												
1/20	0900	5.49		48	37	19	88	3.4	0	112		132	0.26			770	52
2/10	1020	4.79		49	32	16	70	3.4	0	108		97	0.25			637	50
3/9	1150	5.44		57	36	17	73	3.1	0	100		103	0.29			670	49
4/20	1400			68	13	5.8	21	1.6	0	53		30	0.00			219	44
5/12	1120			64	9.4	3.8	13	1.2	0	40	11	19	0.09	0.1	89	157	41
6/8	1345	3.93		67	13	5.0	17	1.5	0	45		27	0.15			194	40
7/22	1130			72	20	7.7	29	1.8	0	86		40	0.04			309	43
8/17	1345	2.22		75	24	15	82	4.2	0	97		122	0.10			625	58
9/22	1245	2.75		70	37	15	83	4.1	0	139	43	128	0.10	2.0	400	702	53
10/11	1130	2.18		69	44	18	92	3.5	0	156		140	0.19			814	52
11/19	1540	4.38		57	35	19	77	3.4	0	128		123	0.24			721	50
12/16	1245	4.85		49	32	14	60	4.0	0	98		94	0.09			586	48

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TABLE 221

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1954 (contd.)

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
					*OLD RIVER AT CLIFTON COURT FERRY							T1S, R4E, Sec. 21					
1/5	1545			48			69					114			394	663	45
2/10	0905	4.10		48			64					100			368	623	45
2/25	1405			55.5			51					75			306	499	44
3/30	1109			56			18					26			136	211	37
5/7	1530			70			21					50			184	261	35
5/24	1145			64			7.4					36			82	107	30
6/28	1330			73			41					67			260	445	40
8/2	1140			72			43					74			254	436	43
9/7	0915			70			21					134			394	689	13
10/1	0910			70			71					92			336	568	54
11/3	1010			59			73					124			402	696	46
12/6	1315			56			81					121			458	722	49
					SAN JOAQUIN RIVER AT ANTIOCH							T2N, R2E, Sec. 12					
1/20	1510	3.75		50	20	14	55	3.3	0	82		89	0.12			506	52
2/10	1600			49	20	10	26	1.8	0	70		38	0.12			323	38
3/8	1630	1.83		55	18	11	25	1.7	0	72		35	0.08			308	37
4/21	1345			70	12	5.9	13	1.0	0	58		14	0.07			169	34
5/11	1320	1.70		65	10	5.6	10	1.2	0	52	11	14	0.07	0.4	92	156	31
6/16	1030			69	20	18	100	4.9	0	66		174	0.07			747	62
7/20	1015	0.14		74	53	104	840	34	0	84		1525	0.29			5180	75
8/16	1200	-1.0		74	54	105	840	34	0	96		1500	0.40			5120	75
9/22	1145	1.96		69	25	29	187	6.8	0	117	54	310	1.1	2.6	693	1260	68
10/21	0955	1.51		66	19	15	55	2.9	0	118		76	0.10			490	51
11/16	1145	1.47		59	19	16	76	4.1	0	99		118	0.14			614	58
12/16	0930	2.70		49	18	9.4	24	2.0	0	80	23	36	0.02		172	292	38
					*SAN JOAQUIN RIVER AT ANTIOCH							T2N, R2E, Sec. 18					
1/6	1245			48			73					130			358	627	51
2/5	1245			48	21	9.3	24	2.7	0	65	36	40		2.5	214	321	36
3/30	0935			54			19					31			176	259	32
5/4	1200			64			8.7					28			100	147	26
6/28	1250			70			94					172			426	789	52
8/2	0930			69			1527					2900			6116	9565	69
8/30	0950			69			1007					1857				6244	70
9/15	1015			68								880					
10/1	0850						163					295			708	1256	56
10/27	1210			62			76					127			380	653	51
11/30	1220			52			34					55			256	370	40
					ITALIAN SLOUGH NEAR MOUTH												
1/20	0950			48	48	22	96	3.7	0	102		142	0.31			876	49
2/10	1110			49	36	17	78	3.4	0	110		106	0.30			685	51
3/9	1235			58	36	16	71	3.0	0	100		101	0.30			665	49
4/20	1430			74	15	7.7	26	1.6	0	61		38	0.17			277	44
5/12	1100			67	9.3	3.6	13	1.2	0	39	11	18	0.06	0.5	88	149	42
6/8	1345			68	12	5.2	18	1.6	0	46		26	0.08			198	42
7/22	1050			76	17	9.4	30	1.9	0	90		41	0.00			314	44
8/17	1410			80	24	15	82	3.6	0	94		136	0.47			671	59
9/22	1330			71	23	14	66	3.2	0	109	32	102	0.02	0.2	312	568	54
10/11	1215			69	22	15	55	2.8	0	115		78	0.12			502	50
11/18	1620			57	37	22	87	4.5	0	123		135	0.26			760	50
12/16	1320			49	35	14	65	4.0	0	96		102	0.23			627	48
					DELTA-MENDOTA CANAL AT TRACY PUMPING PLANT							T1S, R4E, Sec. 31					
1/20	0820			48	35	19	89	3.0	0	124		131	0.37			767	53
2/10	0930		1730	49	32	16	73	3.5	0	112		103	0.29			639	51
3/9	1340			51.5	34	17	71	2.9	0	100		98	0.28			646	49
4/20	1330			70	15	6.9	25	1.6	0	60		38	0.10			270	44
5/12	1200			68	10	4.1	15	1.2	0	39	13	24	0.09	0.3	100	173	43
6/9	1300		2510	65	29	13	52	2.7	0	98		86	0.17			501	47
7/22	1210			77	17	9.9	30	1.8	0	90		40	0.02			310	43
8/17	1500		2502	75	25	15	77	3.8	0	98		126	0.17			635	56
9/13	1130		1712	73	25	14	75	3.8	0	104	33	118	0.17	0.7	339	627	56
10/11	1100		860	69	28	15	58	2.8	0	122		90	0.17			562	49
11/18	1445			58	38	19	91	3.9	0	133		138	0.31			795	52
12/7	0930			52	43	22	101	3.6	0	150		149	0.52			878	52
					ITALIAN SLOUGH NEAR BYRON BETHANY I. D. PUMPING PLANT												
1/20	1035			48	72	34	219	5.0	0	116		335	4.1			1710	59
2/10	1150			48	68	35	344	4.8	0	194		465	6.9			2190	70
3/9	1120			57	38	19	90	3.4	0	100		131	0.56			770	52
4/20	1500			72	19	9.2	40	2.0	0	65		60	0.62			367	50
5/12	1030			68	26	12	54	2.6	0	58	47	94	0.52	5.4	283	524	50
6/8	1330			66	13	4.2	20	1.6	0	48		31	0.20			209	46
7/22	1140			74	18	9.1	31	1.8	0	88		40	0.21			320	44
8/17	1315			75	31	10	79	4.0	0	96		128	0.38			650	58
9/13	1230			73	26	17	89	3.6	0	101	45	140	0.25	4.6	393	712	58
10/11	1300			72	30	18	87	3.3	0	119		145	0.46			681	55
11/18	1700			56	37	21	202	5.2	0	174		296	3.5			1370	70

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TABLE 221

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1954 (contd.)

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
					COSUMNES RIVER NEAR MICHIGAN BAR							T8N, R8E, Sec. 36					
1/18	1415	3.53	440	46	93	4.5	3.4	1.8	0	47		2.0	0.04			100	14
2/8	1430	2.87	178	45	7.5	4.2	3.4	0.8	0	42		1.8	0.08			84.9	17
3/10	1650	5.91	3580	49	5.9	2.1	2.6	1.1	0	32		0.8	0.02			62.2	19
4/19	1000	4.30	1050	61	4.7	2.7	2.8	0.6	0	28		1.0	0.25			50.3	21
5/14	1100	3.53	436	70	5.7	2.7	2.8	0.8	0	33	4.4	0.8	0.02	0.1	50	63.5	19
6/7	1000	2.75	146	66	6.4	2.7	3.2	1.0	0	37		2.5	0.18			71.5	20
7/23	0840	1.89	19	78	8.8	2.8	3.9	1.3	0	47		1.5	0.01			83.9	19
8/18	0845	1.66	7.0	74	11	3.3	5.1	1.3	0	60		2.2	0.02			108	21
9/23	1250	1.70	8.5	73	11	4.5	5.3	1.2	0	65	2.8	3.0	0.07	0.2	76	112	19
10/20	0930	1.76	11	62	12	3.9	4.9	1.3	0	66		2.8	0.03			119	18
11/17	1015	2.80	159	52	7.3	3.4	3.4	1.4	0	40		3.2	0.00			83.9	18
12/6	0920	3.19	281	50	9.7	3.5	4.2	1.2	0	40		3.5	0.10			99.1	19
					MOKELUMNE RIVER AT LANCHA PLANA							T4N, R10E, Sec. 4					
1/18	1545	3.74	687	50	3.3	1.7	1.8	0.8	0	18		1.5	0.09			37.2	19
2/8	1600	3.73	682	48	4.0	1.0	2.2	0.6	0	20		1.5	0.03			42.6	24
3/10	1505	3.72	676	48	4.4	1.5	2.0	0.6	0	22		2.5	0.06			49.3	20
4/19	1115	4.13	931	51	4.7	1.3	3.1	0.7	0	22		2.8	0.35			47.1	27
5/14	0930	4.32	1070	51	4.9	1.2	1.7	0.7	0	21	2.4	2.2	0.07	0.0	30	45.6	17
6/7	1130	3.65	640	58	4.8	1.0	2.2	0.8	0	22		2.5	0.00			43.7	22
7/23	1000	3.67	650	59	4.5	0.4	2.1	0.6	0	20		1.5	0.00			38.3	25
8/18	1015	3.69	654	65	4.5	0.4	4.1	0.7	0	20		1.8	0.03			36.9	39
9/23	1005	3.73	676	61	3.8	0.7	2.1	0.9	0	18	1.8	1.0	0.00	0.2	28	34.0	25
10/20	1100	3.76	693	62	4.5	0.2	1.9	0.6	0	18		1.8	0.00			33.5	25
11/17	1145	3.76	693	58	3.7	0.7	1.6	0.6	0	17		2.0	0.00			32.1	22
12/6	1030	3.76	693	54	5.3	0.1	2.1	0.6	0	18		1.8	0.08			39.2	24
					*MOKELUMNE RIVER BELOW COSUMNES RIVER							T5N, R5E. Sec. 29B					
2/10	1430			49			3.0					4.6			44	60	22
5/24	1250			60			1.8					21				52	15
6/28	1235			75			4.6					3.9				110	18
8/2	1200			74			18					23			169	242	32
8/31	1115			72			2.8					3.9			40	49	24
9/29	1155			68			3.4					4.3			48	50	30
10/25	1420			58			2.3					2.8			46	41	24
					MOKELUMNE RIVER AT WOODBRIDGE							T4N, R6E, Sec. 24					
1/19	0820	7.78	466	48	5.9	2.2	2.8	1.0	0	18		2.0	0.06			67.3	20
2/9	0915	8.04	490	47	4.4	1.5	2.0	0.7	0	20		1.5	0.05			52.1	19
3/10	0835	7.88	488	52	4.8	1.3	2.8	0.8	0	23		3.0	0.03			55.1	25
4/19	1500	7.97	592	58	4.7	1.5	2.9	0.6	0	23		2.8	0.02			48.6	25
5/20	1230	10.84	1240	58	4.0	1.7	1.8	0.7	0	22	2.6	1.2	0.01	0.1	32	46.1	18
6/7	1450	5.04	137	66	5.2	2.2	2.4	1.0	0	23		3.0	0.05			49.2	18
8/18	1400	5.36	98	69	4.5	0.6	2.4	0.6	0	20		0.8	0.00			41.1	26
9/24	0900	6.07	114	62	4.2	0.9	2.2	0.6	0	20	2.1	1.2	0.03	0.2	31	39.4	34
10/20	1245	6.58	258	62	4.1	0.8	1.9	0.8	0	19		1.0	0.00			38.6	22
11/17	1600	8.32	651	60	3.9	0.8	1.8	0.6	0	18		1.5	0.00			34.4	22
12/6	1400	8.23	628	54	4.0	0.7	2.0	0.5	0	18		1.8	0.00			39.5	24
					*MOKELUMNE RIVER BELOW GEORGIANA SLOUGH							T3N, R4E, Sec. 7					
2/10	1345			48			5.5					5.7			108	126	19
5/24	1125			68			5.8					7.1			154	110	23
6/28	1130			75			15					16			162	225	29
8/2	1030			74			16					18			140	222	32
8/31	1150			72			20					20			168	267	33
9/29	1300			70			20					20			182	281	43
10/25	1257			60			12					13			132	193	27
					LITTLE POTATO SLOUGH NEAR TERMINOUS												
1/19	0920	5.87		47	15	8.4	14	1.2	0	59		28	0.08			231	29
2/9	1020	7.18		47	12	5.8	7.4	1.2	0	60		9.5	0.10			148	23
3/10	0950	8.1		52	12	6.6	7.4	0.9	0	69		5.5	0.13			148	22
4/19	1540			68	8.1	4.3	6.7	0.7	0	42		9.0	0.36			102	27
5/20	1430			68	9.2	4.5	8.0	1.0	0	37	5.0	18	0.04	0.6	76	134	29
6/8	0900			67	15	7.0	16	1.3	0	76		21	0.05			210	34
7/22	0815			73	17	9.9	19	1.4	0	100		25	0.03			256	33
8/18	1600			74	24	9.5	26	1.6	0	112		38	0.12			330	36
9/22	1330			68	22	9.4	25	1.5	0	118	18	24	1.1	0.1	179	298	36
10/19	0930			64	16	9.0	15	1.5	0	84		29	0.04			245	29
11/17	1830			55	19	11	21	1.5	0	76		46	0.01			299	32
12/10	1445			50	12	5.4	9.3	1.4	0	53	8.4	15	0.00	1.8	95	153	27
					STOCKTON SHIP CHANNEL NEAR RINDGE PUMP												
1/19	1050	1.53		48	44	21	83	3.6	0	106		132	0.17			807	47
2/9	1145	2.85		49	35	17	74	3.2	0	110		104	0.23			669	50
3/10	1100	3.82		55	28	13	52	2.7	0	94		76	0.16			506	47
4/20	0900			68	16	7.4	26	1.8	0	68		36	0.43			273	44
5/20	1345	0.62		72	9.2	4.2	13	1.4	0	42	9.1	19	0.03	0.8	88	157	40
6/9	0915	0.46		65	17	5.0	23	2.6	0	56		35	0.11			242	43
7/19	1400			80	24	8.6	31	2.1	0	91		46	0.01			349	41
8/18	1500	0.35		81	26	9.1	43	2.2	0	100		66	0.02			424	47
9/22	1225	1.39		70	27	13	54	3.0	0	120	30	80	1.6	0.4	279	503	49
10/19	1045	1.60		67	36	17	75	4.5	0	148		119	0.15			693	50
11/17	1700	0.61		58	38	20	86	4.8	0	139		136	0.22			766	51
12/13	1115	2.10		51	30	12	42	3.4	0	87	43	68	0.04	10	270	458	41

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TABLE 221

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1954 (contd.)

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
					CALAVERAS RIVER AT JENNY LIND								T3N, R10E, Sec. 22				
1/18	1645	3.41	356	47	25	9.8	6.5	1.6	0	110		5.0	0.02			231	12
2/8	1700	2.21	56.2	50	24	8.2	6.9	1.2	0	51		5.5	0.07			214	14
3/10	1345	1.92	22	56	17	8.0	5.8	1.2	0	86		4.2	0.06			174	14
4/19	1315	2.90	186	67	18	5.9	6.1	1.3	0	80		3.2	0.04			161	16
5/14	0830	2.63	121	66	18	6.7	4.8	1.3	0	83	9.9	2.0	0.09	0.1	102	165	12
6/7	1300	2.97	206	57	19	5.7	4.9	1.3	0	84		3.2	0.06			161	13
7/23	1045	2.98	209	71	23	7.0	5.7	1.8	0	102		3.0	0.01			191	12
8/18	1220	2.82	165	76	26	5.2	6.6	1.8	0	106		4.5	0.00			200	14
11/17	1330	2.18	53	56	35	11	8.4	2.3	0	142		12	0.12			306	12
12/6	1145	2.83	168	53	19	6.0	5.4	1.9	0	69		5.8	0.10			164	14
					SAN JOAQUIN RIVER AT GARWOOD BRIDGE												
1/19	1250	5.48		49	33	18	87	3.3	0	124		119	0.23			733	54
2/9	1330	6.25		50	31	14	69	3.6	0	120		94	0.23			613	52
3/9	1700	4.92		59	27	14	57	3.0	0	108		86	0.20			536	49
4/20	1030			65	13	4.6	20	1.4	0	51		26	0.38			199	45
5/12	1430			67	8.4	2.5	11	1.2	0	37	6.7	14	0.05	0.6	75	123	43
6/9	1045	5.11		67	34	12	63	3.5	0	140		90	0.23			578	50
7/22	1015			74	32	14	67	4.2	0	138		98	0.27			594	50
8/17	1715	4.83		76	34	14	73	6.4	0	174		92	0.20			614	51
9/17	1330	5.16		72	46	16	95	6.0	0	174	32	148	0.14	3.8	436	803	52
10/19	1210	5.92		67	51	19	109	4.6	0	178		166	0.24			743	53
11/18	1215	5.96		56	34	17	76	4.9	0	131		112	0.14			652	51
12/10	1345	6.03		52	28	12	45	5.5	0	108		68	0.11			473	44
					***SAN JOAQUIN RIVER AT BRANDT BRIDGE**								T1S, R6E, Sec. 9L				
2/25	0925			56			52					79			304	499	45
5/24	1115	8.2		64			6.7					28			110	103	28
9/7	1040			72.5											540	878	
12/6	1240			58			59					103			382	575	45
					SAN JOAQUIN RIVER AT MOSSDALE BRIDGE												
1/19	1400	2.34		50	30	16	81	3.4	0	120		102	0.22			650	55
2/9	1420	3.23		50	33	16	79	3.2	0	116		111	0.27			674	53
3/9	1600	2.22		59	44	21	89	3.5	0	128		155	0.20			815	49
4/20	1130			67	12	4.6	18	1.2	0	47		24	0.46			186	44
5/12	1325			65	7.2	2.4	7.6	1.1	0	32	4.9	10	0.07	0.0	58	102	36
6/9	1130	1.00		64	39	15	73	4.2	0	137		113	0.14			657	49
7/22	1400			77	56	21	102	5.2	0	182		176	0.25			940	49
8/17	1630	0.26		75	51	18	92	4.2	0	180		144	0.27			855	49
9/17	1300	2.10		72	54	20	109	4.4	0	180	61	172	0.28	3.7	541	947	52
10/19	1330	1.59		68	37	13	74	3.6	0	125		110	0.20			638	52
11/18	1315	1.72		57	31	15	64	3.7	0	123		99	0.13			604	49
12/10	1250			52	30	13	57	3.1	0	102		89	0.22			551	49
					***SAN JOAQUIN RIVER AT MOSSDALE BRIDGE**								T2S, R6E, Sec. 3				
1/6	0920	2.58		48			64					110			390	615	45
2/8	1340			50			70					108			382	644	47
2/25	0902			56			52					79			302	501	45
3/29	0933						16					25			132	204	34
5/10	1045	8.0		64			9.9					28			82	133	32
5/24	1050	7.3		64			7.4					36			80	107	30
6/28	1330	1.86		72			106					196			656	1054	44
8/2	1025			73			101					283			596	982	45
9/2	1230			75			96					163			532	878	47
10/1	1015			70			104					174			570	994	45
11/3	1055			59			83					142			450	768	47
12/6	1040			56			48					79			330	496	42
					OLD RIVER NEAR SOUTH TIP FABIAN TRACT (TRACY)												
1/19	1450			49	35	18	87	3.1	0	74		128	0.25			751	53
2/9	1515			49	34	16	75	3.4	0	120		104	0.26			649	51
3/9	1510			59	30	13	58	2.7	0	104		92	0.17			557	49
4/20	1300			64	15	6.0	22	1.6	0	56		34	0.48			247	43
5/12	1220			65	9.2	3.2	12	1.2	0	38	9.1	17	0.10	0.0	81	135	41
6/9	1230			63	39	15	73	3.1	0	128		109	0.26			669	49
7/22	1300			75	53	22	104	4.5	0	177		167	0.32			930	50
8/17	1530			76	66	9.7	104	5.8	0	178		177	0.28			954	52
9/17	1200			69	56	22	110	4.9	0	187	6.5	178	0.19	3.0	556	988	50
10/19	1415			68	57	21	112	4.6	0	185		176	0.23			991	51
11/18	1410			57	38	20	82	5.4	0	147		28	0.21			721	49
12/10	1220			53	35	15	68	4.2	0	120		102	0.16			635	49
					***OLD RIVER AT HOLLAND TRACT**								T2N, R4E, Sec. 19				
1/5	1405			48			53					87			368	588	39
2/8	1515			48			94					123			502	814	50
2/24	1042	5.5		52.5			52					85			378	584	39
3/29	1415	5.0					28					44			204	319	38
5/3	1435	2.60		66			23					28			172	279	36
5/24	1005	5.8		70			13					43			130	175	33
6/28	0943			73			17					7.1			140	235	31
7/30	1010			74			95					161			436	732	56
8/30	0925			73			110					196			594	862	55
9/30	1235			70			46					67			298	459	44
10/26	1145			61			35					48			244	384	40
12/1	1000	e5.1		50			40					64			298	466	37

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e Estimated.

TABLE 221

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1954 (contd.)

Date of Sample	Time of Sample	G. H.	c.f.s.	Temp. °F.	Ca	Mg	Na	K	CO_3	HCO_3	SO_4	Cl	B	NO_3	Total Solids	Kx10^6	% Na
					Parts per Million												
					*MIDDLE RIVER AT SANTA FE RAILROAD BRIDGE							T1N, R4E, Sec. 15					
2/25	1035			53			82					135			726	818	44
5/25	1255						4.4					36			144	141	13
9/8	1015			69											290	493	
12/6	1130			56			79					137			612	887	39
					*SAN JOAQUIN RIVER AT SAN ANDREAS LANDING							T3N, R3E, Sec. 13					
1/6	1205			47	19	9.4	23	1.6	0	79	24	36	1.9		186	295	36
2/10	1330			48	16	8.8	16	0.4	0	60	22	26	1.2		176	241	31
2/24	1335	4.2		51			5.5					5.7			98	114	21
3/29	1300				14	6.5	14	2.7	0	56	15	22	0		136	208	32
5/3	1310	2.87		58	10	3.2	3.9	0	0	43	4.8	4.3	0		72	98	18
5/24	1110			68	10	4.5	11	0	0	43	7.2	16	0		128	168	35
6/28	1108			74	15	8.3	15	1.2	0	84	4.3	18	0.6		144	230	28
7/30	1030			73	16	13	40	3.1	0	88	20	64	0.12		238	395	47
8/30	1100			69	17	12	27	1.6	0	110	21	31	0.6		196	319	39
9/29	1320			68	18	11	20	1.1	1.5	115	16	22	0		188	242	32
10/25	1232			61	15	9.4	17	2.7	0	92	12	18	0.6		154	226	31
12/1	1100	e5.5		50	15	11	20	1.2	0	77	21	31	0		208	278	32
12/30	1230			43	18	13	21	1.2	0	75	28	38	0.6		256	313	30
					*SAN JOAQUIN RIVER AT TWITCHELL ISLAND							T3N, R3E, Sec. 17					
6/28	1047			72											160	269	
7/30	1055			72											764	1330	
8/30	1130			71											518	847	
9/29	1340														246	346	
					*SAN JOAQUIN RIVER AT JERSEY POINT							T2N, R3E, Sec. 6					
5/27	1332			70											132	161	
6/28	1140	1.90		71											166	248	
7/30	1100			71											1078	1820	
8/30	1235			71											604	1015	
9/30	1135			68											248	406	
					SAN JOAQUIN RIVER AT FRIANT							T11S, R21E, Sec. 7					
1/14	0940	3.56	528	49	4.0	0.5	3.8	0.8	0	10		3.2	0.00			44.1	39
2/15	1210	2.26	111	51	5.8	1.8	5.6	1.0	0	30		5.0	0.34			70.1	35
3/15	1400	2.31	120	55	4.4	0.7	0.8	4.8	0	22		5.0	0.06			54.7	41
4/6	0940	2.36	129	50	5.1	1.0	5.4	0.6	0	25		3.8	0.08			73.3	40
5/17	1600	4.99	1601	50	3.6	0.8	4.0	0.7	0	20	2.0	2.5	0.00	0.2	32	47.0	40
6/15	1300	2.68	197	60	3.3	1.2	4.5	0.8	0	20	3.6	3.1				43.6	41
7/13	0900	2.77	218	54	4.9	0.2	4.4	0.7	0	22		4.0	0.00			47.6	41
8/10	1520	2.76	215	60	4.5	0.4	4.4	0.8	0	21		3.5	0.03			46.0	41
9/13	1630	2.66	192	56	4.0	0.5	4.2	0.6	0	20	1.5	2.5	0.00	0.2	36	42.0	42
10/12	1500	2.57	173	59	3.1	0.8	3.3	0.7	0	19		2.0	0.03			41.8	38
11/9	1600	4.26	985	55	3.9	0.4	3.2	0.8	0	18		2.2	0.01			38.6	36
12/8	0945	3.47	480	48	4.7	0.1	3.5	0.7	0	20		2.2	0.03			42.9	37
					*SAN JOAQUIN RIVER BELOW FRIANT							T11S, R21E, Sec. 7B					
1/22	1125	3.58		52	3.2	0.68	4.0	0.6	0	17	0.1	4.0		0.88	34	43	43
6/26	1510	2.58	170	58	3.5	0.7	5.3	0.9	1.8	18	1.2	3.5		0.8	41	52	47
					SAN JOAQUIN RIVER AT MENDOTA							T13S, R15E, Sec. 7					
1/12	1830	2.37	94	50	5.0	1.1	5.4	1.0	0	27		3.5	0.01			62.5	39
2/17	0930	6.94	1380	52	33	14	67	3.3	0	102		94	0.29			587	50
3/17	0950	2.50	122	55	35	16	75	3.0	0	106		117	0.26			688	51
4/8	1130	2.75	190	66	16	6.7	28	1.6	0	61		32	0.17			267	47
5/19	1015	3.46	346	74	4.2	0.9	4.5	1.0	0	22	2.7	3.2	0.07	0.2	38	54.0	39
6/17	0810	3.77	417	69	17	4.9	23	1.9	0	59		38	0.07			268	43
7/14	1235	3.95	475	77	21	7.1	29	1.8	0	89		34	0.00			308	43
8/12	1345	3.61	410	88	23	14	66	3.3	0	98		100	0.15			555	55
9/16	0850	3.11	298	68	27	15	86	3.6	0	110	49	128	0.08	1.9	385	686	58
10/14	1600			75	40	20	92	3.4	0	152		134	0.23			808	52
11/11	1445	1.72		62	40	18	88	4.0	0	140		125	0.28			786	52
12/9	1345	2.12		51	4.7	1.0	4.6	0.9	0	26		3.5	0.02			55.7	37
					DELTA-MENDOTA CANAL AT MENDOTA							T13S, R15E, Sec. 19					
1/12	1915			46	48	20	120	3.3	0	152		115	0.52			922	56
2/17	1030			53	36	16	80	3.4	0	116		114	0.43			662	52
3/17	0910	14.5		54	36	23	89	3.6	0	124		152	0.25			825	51
4/8	1200			64	17	6.9	31	1.6	0	64		36	0.15			292	48
5/19	1045			75	19	7.7	34	2.5	0	70	44	39	0.17	1.5	198	341	47
6/17	0830			69	16	5.8	21	1.6	0	52		31	0.21			243	41
7/14	1415			77	20	7.4	27	1.8	0	87		32	0.29			292	42
8/12	1615			76	23	14	69	3.5	0	97		105	0.14			568	56
9/16	0940			69	36	18	97	4.3	0	131	62	150	0.26	0.6	452	821	55
10/14	1615			70	43	20	99	3.8	0	156		144	0.23			856	53
11/11	1515			59	46	20	104	4.0	0	151		146	0.14			911	53
12/9	1415			52	46	22	117	3.6	0	138		135	0.71			956	55
					*SAN JOAQUIN RIVER AT WHITEHOUSE							T13S, R15E, Sec. 25C					
1/25	1515	1.55		50	3.8	0.90	4.9	0.7	0	22	0.8	4.5		1.5	39	56	43
2/24	1620			66	6.9	1.4	9.7	1.5	0	39	1.2	8.5		0.2	72	99	46
3/30	1515	0.20		65	8.4	2.1	9.9	1.2	0	47	2.8	7.3		0.6	68	110	41
4/27	1300	1.27		64	3.8	0.98	5.2	0.9	0	25	0.51	4.3		0.25	47	88	43
5/28	1100	3.72		65	4.0	0.70	4.7	0.8	0	24	0.1	4.0		0.2	50	72	42
6/29	1140	0.30	41	76	6.5	1.4	8.1	1.1	5.8	26	2.2	4.5		0.4	49	80	43
7/27	1025	3.12	39	77.5	6.4	1.4	7.9	0.7	0	39	2.3	3.5		0.4	60	81	43
9/27	1235		30	79	5.7	1.5	8.1	0.7	0	36	2.1	4.5		1.2	54	88	46

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TABLE 221

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1954 (contd.)

Date of Sample	Time of Sample	G. H.	c.f.s.	Temp. °F.	Ca	Mg	Na	K	CO_3	HCO_3	SO_4	Cl	B	NO_3	Total Solids	Kx10^6	% Na
					Parts per Million												
					SAN JOAQUIN RIVER AT DOS PALOS							T11S. R13E, Sec. 12					
1/12	1710	2.63	1.9	48	5.9	1.7	7.8	1.5	0	30		5.2	0.04			87.5	42
2/17	1135	6.93	988	54	30	13	64	3.0	0	98		92	0.42			519	51
3/17	1130	2.58	1.8	55	32	13	64	2.8	0	96		87	0.26			599	50
4/8	1300	2.63	2.5	67	17	7.6	34	1.7	0	65		40	0.30			321	49
5/19	1230	2.86	6.2	78	6.5	1.5	9.0	1.1	0	32	5.8	8.5	0.07	0.3	58	96.8	45
6/17	0930	2.46	7.6	68	18	6.9	28	1.6	0	61	35	37				291	45
7/14	1400	1.75	6.2	81	22	7.8	32	1.8	0	89		38	0.00			327	44
8/12	1700	1.18	1.8	78	23	14	67	3.2	0	100		99	0.30			554	55
9/16	1325	1.13	1.6	74	33	17	92	4.0	0	124	57	138	0.17	0.5	422	760	56
10/15	0845	0.96		66	37	16	82	3.4	0	140		114	0.20			706	52
11/11	1600	0.93		61	38	18	84	3.9	0	136		20	0.28			744	51
12/9	1515	2.36		50	6.7	2.1	8.9	1.1	0	35		9.0	0.00			98.6	42
					*SAN JOAQUIN RIVER AT HEAD OF TEMPLE SLOUGH							T11S, R13E, Sec. 12A					
1/25	1215	1.60		48	4.7	1.5	6.2	0.9	0	25	2.3	6.5		0.79	49	70	41
2/22	1450	2.36		58	19	7.6	36	1.9	0	61	38	46		0.6	200	280	49
3/30	1407	1.96		65	22	8.4	45	1.9	0	72	52	52		0.5	240	410	51
4/27	1400	3.94		66	12	4.4	20	1.4	0	48	17	25		0.7	130	280	46
5/28	1100	3.72		65	5.8	1.2	8.6	1.1	0	29	4.7	8.8		0.3	70	130	47
6/29	1040		529	75	17	7.3	27	1.5	0	70	28	32		1.1	170	330	44
					*SAN JOAQUIN RIVER AT FREMONT FORD BRIDGE							T7S. R9E, Sec. 24G					
1/21	1005			45	55	32	190	4.7	0	210	190	230		3.0	840	1400	60
2/24	1340			55	33	18	80	2.8	0	120	82	100		0.7	450	700	52
3/23	1500	62.3		55	19	9.5	32	2.5	0	92	28	36	0.22	0.02	210	330	44
4/27	1355	59.28		65			100					140			500	1100	40
5/25	1445	59.44		71			100					140			490	1100	40
6/24	1020	60.67		74			130					180			650	1100	62
7/27	1410	58.8		82	58	27	140	3.4	0	190	110	220	0.20	1.9	700	1100	55
8/26	1015	58.92		63			140					210			670	1200	51
9/23	1420			68			150					240			730	1200	54
10/26	1140			55			320					510			1500	2400	58
11/23	1030			55	91	53	280	4.6	0	220	230	480	0.36	2.6	1400	2300	57
12/27	1445	53.36		40			260					390			1200	2000	57
					*SAN JOAQUIN RIVER ABOVE MERCED RIVER							T7S, R9E, Sec. 3G					
1/29	1210			48			88					88				700	55
2/24	1245			57			97					120			530	800	53
3/24	1125			55			47					53			280	440	46
4/29	1045			65			100					130			470	1000	44
5/27	1210			68			78					95			410	890	38
6/29	1150			78			200					280			910	1500	13
7/29	1110			80			160					230			770	1300	54
8/26	1315			73			150					210			720	1200	54
9/30	1110			65			250					390			1200	2000	54
10/25	1210			55			340					520			1600	2500	59
11/29	1225			48			310					470			1400	2400	56
12/30	1215			43			300					510			1600	2700	48
					*SAN JOAQUIN RIVER AT CROWS LANDING BRIDGE							T6S, R9E, Sec. 7B					
1/29	1240			50			70					70				590	52
2/24	1305	45.05		58			85					99			430	700	53
3/24	1145	47.5		55			26					27			170	250	45
4/29	1120	44.6		65			56					67			280	610	40
5/27	1225	46.0		67			32					41			170	340	41
6/29	1200	43.5		74			110					130			500	840	40
7/29	1120	42.7		80			120					160			570	960	54
8/26	1330	43.0		73			100					130			480	810	54
9/30	1130			66			150					220			700	1200	54
10/25	1240	42.2		56			140					180			660	1100	55
11/29	1245			50			150					190			660	1200	54
12/30	1230	42.6		46			160					210			680	1300	54
					*SAN JOAQUIN RIVER AT PATTERSON WATER CO.							T5S, R8E, Sec. 15M					
1/29	1310			50			73					72				600	53
2/24	1325	35.5		59			88					100			460	710	54
3/24	1205	41.0		55			29					33			190	290	43
4/29	1145	37.4		66			68					84			330	730	41
5/27	1240	39.2		68			35					42			190	400	38
6/29	1215	36.5		77			110					140			500	850	41
7/29	1135	36.9		80			150					200			670	1100	59
8/26	1345	37.2		73			120					160			560	960	54
9/30	1150			67			140					190			640	1100	55
10/25	1300	36.3		57			180					230			820	1300	60
11/29	1300			50			170					220			770	1400	53
12/30	1245	36.4		47			170					240			760	1300	57
					SAN JOAQUIN RIVER AT GRAYSON							T4S, R7E, Sec. 24					
1/11	1530	27.18	370	53	60	32	187	2.9	0	202		255	0.32			1440	59
2/18	1510	32.15	810	53	25	12	60	3.4	0	97		70	0.52			517	53
3/18	1615	31.85	2020	54	34	16	89	2.9	0	130		114	0.20			749	56
4/9	1100	30.95	1640	63	19	8.7	38	1.6	0	65		46	0.15			344	49
5/13	1215	34.00	2940	64	10	3.8	14	1.2	0	48	11	14	0.04	0.8	90	151	42
6/17	1545	28.09	650	75	39	18	91	3.1	0	144	59	115				762	53
7/15	1300	26.88	280	80	54	26	136	3.4	0	168		185	0.27			1120	55
8/13	1045	26.85	280	73	51	25	135	3.6	0	192		171	0.32			1080	56
9/17	0830	27.24	370	66	52	22	131	3.2	0	184	108	170	0.12	4.4	607	1050	56
10/15	1200	27.08	340	69	60	26	168	3.6	0	201		216	0.29			1270	58
11/12	1030	26.92	300	59	57	33	162	3.4	6	188		212	0.37			1290	56
12/7	1300	27.03	330	58	55	32	154	3.6	0	184		207	0.35			1250	55

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TABLE 221

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1954 (contd.)

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 LAIRD SLOUGH BRIDGE							T4S, R7E, Sec. 25D					
1/29	1420			48			82					83				640	56
2/24	1420	29.5		58			87					100			440	710	53
3/24	1310	32.7		56			30					34			190	300	43
4/29	1245	29.4		68			130					160			590	1000	56
5/27	1340	30.5		69			35					42			180	410	37
6/29	1305	27.4		76			84					110			430	700	26
7/29	1215	6.6		80			140					190			690	1200	51
8/26	1420	27.05		74			130					160			600	1000	56
9/30	1310			68			150					210			690	1200	54
10/25	1350	26.8		58			180					240			880	1400	56
11/29	1335			51			170					230			810	1400	53
12/30	1310	27.2		46			160					220			770	1300	54
					*SAN JOAQUIN RIVER AT EL SOLYO RANCH							T3S, R7E, Sec. 29F					
1/29				50			54					69				490	48
2/24	1445			58			72					99			370	620	50
3/24	1330			54			22					31			140	230	42
4/29	1310			69			52					120			280	610	37
5/27	1355			69			38					54			210	410	40
6/29	1325			80			110					180			590	960	46
7/29	1245			80			120					210			610	1100	47
8/26	1440			74			120					180			610	1000	52
9/30	1420			69			130					210			620	1100	51
10/25	1410			59			95					140			470	790	52
11/29	1400			53			100					160			510	920	47
12/30	1325			47			91					140			450	810	49
					SAN JOAQUIN RIVER AT MAZE ROAD BRIDGE							T3S, R7E, Sec. 33					
1/11	1430	19.6	1190	52	33	16	83	3.3	0	102		128	0.13			696	54
2/18	1420	22.15	2840	53	30	13	68	3.4	0	115		81	0.28			577	53
3/18	1400	25.78	5670	50	8.4	3.2	15	1.2	0	34		22	0.00			154	48
4/9	1140	23.16	3530	58	18	5.9	25	1.4	0	63		36	0.13			258	43
5/13	1330	26.30	6250	67	8.3	2.7	10	1.2	0	34	5.3	16	0.07	0.0	70	125	39
6/17	1630	4.13		74	46	18	100	4.2	0	150	79	157				869	53
7/15	1400	18.0		80	37	21	124	5.4	19	73		217	0.51			932	59
8/13	1200	18.0		76	57	23	124	5.4	0	178		206	0.27			1070	53
9/17	0900	18.4		68	56	22	128	4.6	0	185	77	194	0.20	4.5	608	1050	54
10/15	1225			70	56	19	120	5.0	0	178		192	0.25			1050	54
11/12	1130			60	35	15	79	3.6	0	115		126	0.15			706	53
12/7	1200			58	41	19	93	5.1	0	128		130	0.20			835	52
					SAN JOAQUIN RIVER AT VERNALIS							T3S, R6E, Sec. 13					
1/11	1350	7.16	1440	53	33	14	69	3.0	0	108		112	0.10			638	51
2/19	1020	10.10	3520	52	20	9.2	41	2.8	0	82		54	0.30			377	49
3/18	1530	13.73	7120	50	8.8	3.2	13	1.2	0	36		18	0.05			143	44
4/9	1200	11.49	5380	59	15	5.2	21	1.2	0	60		28	0.24			212	43
5/13	1415	14.71	9060	66	7.5	3.0	8.7	1.1	0	34	6.0	12	0.02	0.4	66	107	37
6/17	1700	7.03	1200	74	42	19	86	4.0	0	144	66	132				800	50
7/16	0730	5.88	496	74	54	19	98	4.4	7	158		178	0.21			936	49
8/13	1300	5.71	500	78	51	21	104	4.4	0	168		168	0.28			923	51
9/17	0930	6.08	622	68	54	21	117	4.6	0	180	66	183	0.24	4.5	570	966	53
10/15	1330	6.40	893	70	53	20	110	5.2	0	180		178	0.56			991	52
11/12	1200	7.16	1420	60	34	15	69	3.6	0	123		109	0.15			647	50
12/7	1030	7.40	1540	55	34	13	65	4.5	0	112	47	104	0.14	2.8	350	617	49
					*SAN JOAQUIN RIVER NEAR VERNALIS							T3S, R6E, Sec. 13B					
1/5	1115			48	26	13	67	2.3	0	100	46	100		1.9	350	600	54
2/8	1315			50	32	15	73	2.9	0	110	56	110		2.8	370	650	52
2/24	1540			59	27	12	53	2.5	0	100	36	75		0.35	300	500	49
3/29	0900				13	5.4	18	1.3	0	57	11	24		0.7	120	200	41
5/4	1000			65	15	5.8	22	1.8	0	66	14	28		0.88	140	290	43
5/24	1010	14.2		64	8.0	2.5	10	1.0	0	32	5.6	15		0.44	77	150	42
6/28	1100			72	47	20	98	3.9	0	160	58	150		1.2	500	870	51
8/9	0915			73	51	20	97	5.4	0	160	43	180		1.9	5.30	910	49
8/30	0930			74	46	20	99	3.9	0	170	58	150		1.4	510	870	52
9/27	1010			72													
10/26	1010			57	40	18	87	3.7	0	140	57	140		1.0	460	730	51
12/2	1430			58	32	14	68	2.9	0	110	43	110		2.6	350	630	51
					KERN RIVER AT BAKERSFIELD							T29S, R28E, Sec. 2					
1/13	1250	1.70		46	22	4.1	25	2.5	0	111		12	0.19			264	42
2/16	0810	2.20		45	15	2.8	13	1.8	0	75		5.8	0.46			153	36
3/15	0830	2.11		47	15	2.1	15	1.4	0	74		6.8	0.12			167	40
4/7	1230	2.13		57	15	2.8	15	1.4	0	78		6.2	0.30			165	39
5/19	0615	2.33		66	6.6	0.9	5.6	1.0	0	32	5.0	2.0	0.08	0.2	48	71.0	36
6/16	1300	2.20		70	7.6	1.3	6.1	1.1	0	38	4.0	2.0				81.2	34
7/14	0830	2.24		68	11	0.9	9.3	1.3	0	45		8.0	0.22			107	38
8/12	0900	2.05		74	13	2.0	12	2.2	0	65		5.2	0.12			138	38
9/14	1620	1.84		74	19	2.7	18	3.0	0	89	1.4	9.5	0.15	1.3	125	197	39
10/14	1030	1.60		64	22	3.7	24	3.1	0	106		12	0.19			248	41
11/11	0930	1.62		56	19	3.6	22	2.5	0	93		12	0.19			227	42
12/9	0845	1.62		47	19	3.3	20	2.2	0	92		12	0.30			222	41

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TABLE 221

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1954 (contd.)

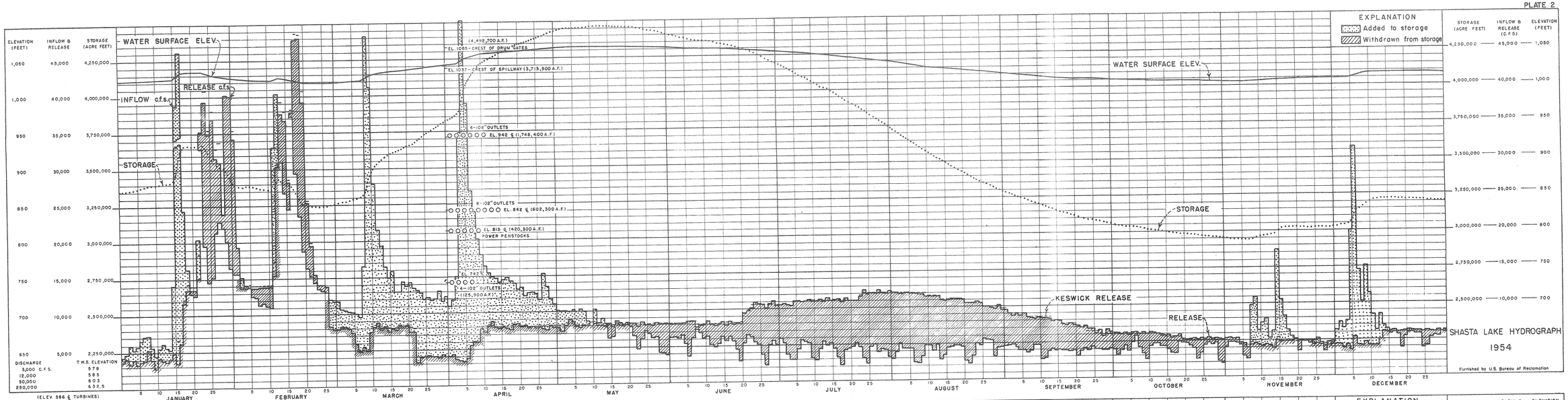
Date of Sample	Time of Sample	G. H.	c.f.s.	Temp. °F.	Parts per Million Ca	Mg	Na	K	CO_3	HCO_3	SO_4	Cl	B	NO_3	Total Solids	$Kx10^6$	% Na
					TULE RIVER NEAR PORTERVILLE							T21S, R28E, Sec. 25					
1/13	1515	1.83	36	48	52	7.6	22	4.1	0	225		9.2	0.12			392	22
2/16	0950	2.91	204	47	27	4.2	12	2.2	0	122		6.8	0.11			206	23
3/16	0920	2.49	116	50	28	4.3	12	1.8	0	128		6.0	0.08			227	23
4/7	0830	3.43	336	51	19	3.1	8.4	1.1	0	81		3.5	0.01			143	23
5/18	1330	3.05	234	68	19	2.0	6.1	1.3	0	78	2.6	2.0	0.00	0.0	91	139	19
6/16	1100	2.19	73	69	32	4.9	11	2.0	0	138	6.3	7.3				237	19
7/14	0600	1.48	15	75	41	9.4	18	3.2	0	178		10	0.00			342	21
8/11	1710	0.85	0.6	82	53	8.5	24	3.2	4	239		10	0.09			409	23
9/14	1450	0.95	0.7	77	56	7.1	24	2.8	5	234	4.1	14	0.00	0.4	262	397	23
10/13	1615	1.16	2.19	71	49	8.7	25	3.3	5	223		12	0.10			397	25
11/10	1600	1.51	14	59	54	9.8	25	3.7	7	237		14	0.14			423	23
12/9	0725	1.95	48	47	55	9.9	23	3.1	2	238		14	0.19			416	22
					KAWEAH RIVER AT THREE RIVERS							T17S, R28E, Sec. 33					
1/13	1650	3.50	60	46	19	2.6	8.2	1.8	0	74		8.2	0.02			154	23
2/16	1130	4.70	397	44	12	1.9	4.5	1.3	0	50		2.5	0.24			93.5	20
3/16	1200	4.67	362	46	9.3	1.4	3.4	0.8	0	39		2.2	0.06			73.7	20
4/6	1630	5.45	724	54	8.6	1.6	3.8	0.7	0	37		1.5	0.05			68.0	22
5/18	1200	6.79	1950	62	3.6	0.4	1.2	0.5	0	13	2.1	0.0	0.00	0.1	21	27.3	19
6/16	0830	5.49	793	63	5.2	0.6	1.9	0.6	0	22	1.6	1.7				38.0	20
7/13	1530	4.11	194	67	8.7	0.8	3.4	1.0	0	37		2.5	0.00			71.9	22
8/11	1530	3.40	50	81	14	2.9	5.8	1.4	0	51		6.8	0.00			104	21
9/14	1320	3.29	35	72	16	1.6	7.7	1.7	0	64	4.0	7.8	0.02	0.2	84	135	26
10/13	1415	3.21	28	70	19	2.1	9.5	1.9	0	76		11	0.00			161	26
11/10	1415	3.26	32	57	20	2.5	9.3	1.6	0	78		10	0.02			164	25
12/8	1630	3.79	109	51	15	1.5	5.9	1.3	0	58		4.5	0.02			114	22
					KINGS RIVER AT PEOPLES WEIR							T17S, R22E, Sec. 1					
1/13	1015			49	15	5.0	11	1.8	0	80		5.8	0.00			164	28
2/15	1600	4.11		51	11	3.1	6.0	1.5	0	54		4.2	0.31			106	24
3/15	1600	3.58		55	5.7	1.4	3.6	1.0	0	29		2.0	0.04			61.2	27
4/8	1000	2.64		66	18	4.6	13	1.6	0	92		6.5	0.14			183	30
5/19	0830	4.15		72	4.7	1.5	2.8	0.8	0	26	2.6	0.5	0.00	0.6	36	53.0	24
6/16	1630	6.14		68	3.3	0.4	2.1	0.6	0	17		2.0	0.09			39.1	30
7/14	1020	6.66	1380	72	3.5	0.8	2.1	0.5	0	8		0.8	0.19			38.8	26
8/12	1330	6.53		67	5.2	0.5	2.4	0.6	0	23		0.2	0.32			44.3	25
9/15	1420	2.20		73	9.2	2.2	4.9	1.2	0	46	3.6	2.5	0.01	0.8	60	88.6	24
10/14	1345	2.01		74	13	3.3	8.0	1.6	0	69		3.5	0.02			133	27
11/11	1215	2.55		62	24	4.4	18	2.8	0	128		10	0.08			260	32
12/9	1145	2.60		51	20	6.1	13	2.1	0	106		6.5	0.02			204	27
					KINGS RIVER AT PIEDRA							T13S, R24E, Sec. 8					
1/14	1650	1.39	183	40	7.5	1.8	5.2	1.2	0	34		4.0	0.00			78.8	29
2/16	1640	1.94	339	49	8.8	2.0	4.3	1.5	0	39		3.2	0.26			79.9	23
3/16	1435	3.70	1220	45	4.8	0.5	2.8	0.8	0	21		1.8				44.8	29
4/6	1445	3.59	1143	54	6.4	1.5	3.8	0.7	0	30		2.0	0.10			60.3	26
5/18	0645	4.75	2150	51	2.7	0.2	1.4	0.6	0	12	1.7	0.0	0.11	0.1	19	23.7	27
6/15	1640	7.58	6220	59	2.2	0.0	1.0	0.4	0	9.0	1.2	0.8				16.6	26
7/13	1230	6.33	4105	67	2.6	0.4	1.2	0.5	0	10		1.5	0.05			22.6	23
8/11	1230	5.00	2395	62	3.6	0.2	1.6	0.4	0	14		0.8	0.02			27.7	25
9/14	1050	1.85	309	70	6.7	0.8	2.8	1.0	0	26	2.6	1.8	0.00	1.2	41	54.8	22
10/13	0915	0.71	65	66	7.2	1.7	3.3	1.1	0	34		1.8	0.00			70.1	21
11/10	1215	0.69	49	60	7.5	1.3	3.8	1.3	0	32		2.2	0.04			65.0	24
12/8	1445	0.50	32	54	7.6	1.5	3.8	1.1	0	33		2.8	0.01			72.0	24
					KINGS RIVER ABOVE NORTH FORK							T12S, R26E. Sec. 27					
1/14	1430	0.87	125	40	7.7	0.8	4.5	1.0	0	28		3.0	0.02			73.4	29
2/16	1500	2.30	665	44	7.1	0.8	3.2	0.8	0	27		1.5	0.17			56.3	24
3/16	1630	2.49	754	43	4.8	0.5	3.0	0.8	0	23		2.0	0.05			47.9	30
4/6	1315	3.09	1200	54	6.0	0.7	3.1	0.5	0	24		1.5	0.05			49.2	27
5/18	0840	5.79	6400	54	1.8	0.1	1.5	0.2	0	9	0.7	0.0	0.00	0.1	12	16.6	39
6/15	1515	4.14	2500	63	2.2	0.3	1.2	0.4	0	10	0.9	0.0				19.6	26
7/13	1045	3.01	1190	63	3.5	0.3	2.1	0.9	0	13		1.8	0.00			29.8	29
8/11	1055	1.51	300	73	5.4	0.9	3.3	0.8	0	20		2.2	0.01			46.8	28
9/14	0900	0.93	138	63	6.9	0.4	3.6	0.8	0	26	4.6	2.0	0.01	0.2	41	62.1	28
10/13	1100	0.75	113	63	7.6	1.0	4.2	1.0	0	30		3.2	0.05			69.4	27
11/10	1045	0.75	113	52	7.9	0.6	4.2	1.1	0	30		3.0	0.02			68.9	28
12/8	1300	1.39	259	48	7.6	0.6	3.9	0.9	0	28		2.2	0.03			67.8	27
					BEAR CREEK NEAR STEVINSON							T7S, R10E, Sec. 36					
1/12	1415	1.79		50	28	12	46	4.3	0	210		22	0.04			426	45
2/17	1620	9.06		53	17	7.8	28	3.2	0	90		28	0.37			276	44
3/17	1500			54	39	15	81	3.4	0	194		92	0.14			701	52
4/9	0915	1.66		61	20	8.9	32	2.8	0	139		20	0.03			295	44
5/13	0920	2.38		68	21	6.8	20	2.6	0	102	14	19	0.08	1.1	153	255	34
6/17	1220	1.46		71	15	6.0	42	2.8	0	135	16	20				304	58
7/15	0900	0.46		80	35	15	255	2.5	0	238		297	0.49			1470	78
8/13	0830	0.34		68	62	30	602	3.0	8	302		785	0.28			3350	82
9/16	1530	0.62		74	31	15	110	2.4	0	284	36	80	0.09	1.3	451	749	63
10/15	1020			70	36	18	158	2.4	8	302		135	0.08			994	67
11/12	0830			55	24	9.8	37	4.8	2	154		27	0.05			365	43
12/7	1600			58	36	16	131	4.2	0	262		114	0.16			879	64

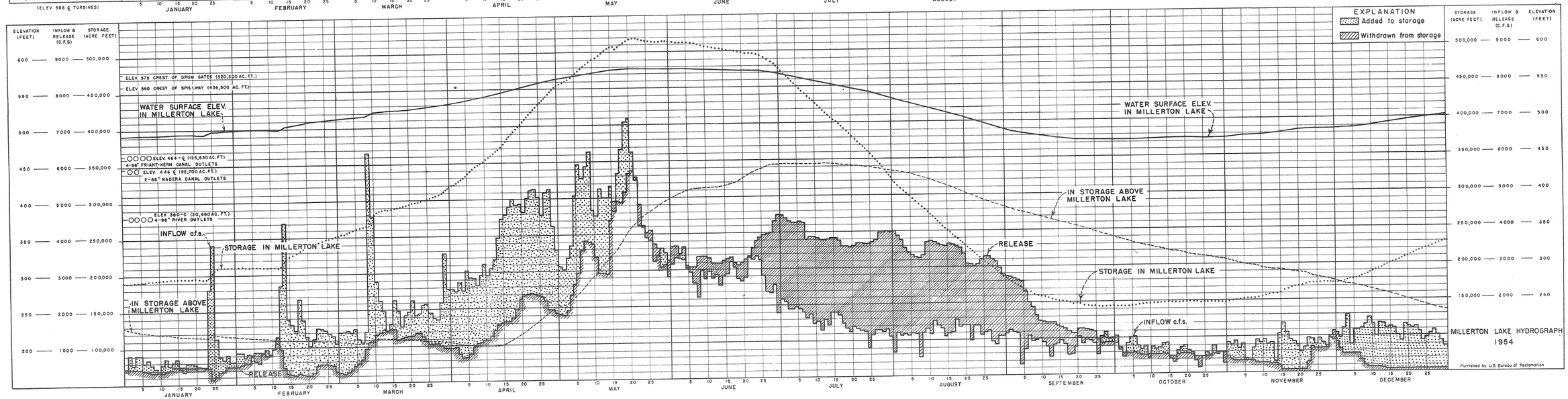
TABLE 221

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1954 (contd.)

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
					MERCED RIVER AT EXCHEQUER DAM							T4S, R15E, Sec. 23					
1/12	1130	0.23	45	50	15	2.4	3.4	2.5	0	54		3.5	0.00			112	13
2/18	1005	0.28	51	48	11	2.6	3.0	1.2	0	42		1.5	0.16			90.1	14
3/18	0930	0.12	39	46	6.6	2.1	2.8	0.8	0	31		1.8	0.05			65.0	19
4/5	1550	3.74	1170	49	8.1	3.8	3.1	0.6	0	37		2.0	0.21			78.9	16
5/20	0745	7.72	4880	56	4.0	1.2	1.2	0.4	0	18	2.2	0.2	0.01	0.6	25	38.7	14
6/14	1200	4.07	1700	59	3.7	0.7	1.4	0.5	0	16	1.6	1.4				29.2	19
7/12	1320	5.32	1890	61	2.6	0.6	1.4	0.2	0	14		0.5	0.00			24.7	25
8/10	1250	4.17	1780	68	4.0	0.7	1.8	0.4	0	18		1.5	0.01			33.4	23
9/13	1340	0.32	55	73	19	3.4	3.4	1.4	0	75	3.9	2.5	0.00	2.0	81	141	10
10/12	1200	0.48	80	73	20	3.1	3.7	1.3	0	74		3.8	0.24			140	11
11/9	1345	0.32	58	62	21	4.5	4.0	1.5	0	83		5.2	0.04			162	11
12/10	0830	0.25	49	49	17	3.3	4.1	1.6	0	60		3.5	0.00			130	13
					MERCED RIVER AT STEVINSON							T6S, R9E, Sec. 36					
1/12	1520	0.98	151	49	20	5.9	27	2.3	0	123		16	0.00			274	43
2/17	1415	1.87	289	56	12	6.3	12	2.8	0	78		6.5	0.31			161	31
3/17	1345	1.51	216	58	11	3.5	14	1.5	0	70		6.2	0.30			153	41
4/9	1015	4.66	933	58	9.9	3.3	5.8	0.8	0	48		3.2	0.11			99.6	24
5/13	1100	9.86	3200	62	7.0	1.7	2.0	0.8	0	30	4.8	1.0	0.06	0.0	40	61.1	15
6/17	1350	1.68	228	74	16	5.0	20	1.6	0	92	8.2	16				215	41
7/15	1100	0.87	120	78	15	5.6	26	1.9	0	98		23	0.10			249	47
8/13	0930	1.01	173	71	15	4.3	22	1.7	0	92		16	0.02			213	46
9/16	1615	0.78	135	72	22	6.2	33	2.3	0	130	9.7	23	0.00	2.7	197	301	46
10/15	1050	0.86	102	69	20	5.9	32	2.2	0	128		22	0.00			292	48
11/12	0915	0.80	125	59	22	6.1	33	2.6	0	136		20	0.03			304	46
12/7	1500	1.00	146	59	20	6.8	30	2.6	0	127		18	0.04			284	45
					TUOLUMNE RIVER AT LA GRANGE												
1/12	1015	168.67	592	50	3.3	0.6	1.9	1.2	0	14		0.0	0.00			30.0	25
2/18	1120	168.64	576	49	5.0	1.8	1.5	0.8	0	25		1.0	0.18			50.1	13
3/18	1050	172.93	4530	48	3.5	1.3	1.7	0.6	0	20		0.5	0.12			37.8	20
4/5	1445	173.99	1860	51	5.1	2.2	1.9	0.5	0	28		1.5	0.03			51.0	16
5/20	0830	171.23	2480	51	2.7	0.8	1.8	0.4	0	15	2.0	0.0	0.00	0.1	22	27.8	27
6/14	1020	166.93	7.9	68	3.5	1.3	1.5	0.4	0	18	1.4	0.6				32.5	18
7/12	1215	167.03	18	76	3.0	1.1	1.5	0.3	0	16		1.0	0.00			31.7	21
8/10	1100	166.99	9.7	75	3.4	0.6	1.8	0.4	0	17		1.0	0.01			31.1	25
9/13	1200	167.00	20	70	3.6	0.8	1.6	0.5	0	18	1.6	0.5	0.00	0.2	24	31.7	21
10/12	1100	166.66	149	69	5.0	1.6	1.9	0.7	0	26		0.8	0.00			48.6	17
11/9	1200	168.28	406	61	4.5	0.2	1.4	0.7	0	18		0.8	0.02			32.6	19
12/10	0945	168.62	551	52	4.9	0.8	1.8	0.6	0	21		1.5	0.15			41.0	19
					TUOLUMNE RIVER AT TUOLUMNE CITY							T4S, R8E, Sec. 12					
1/11	1610	29.14	817	53	21	5.4	34	3.0	0	59		70	0.04			348	49
2/18	1540	29.48	1010	54	19	6.1	30	2.8	0	61		63	0.35			317	46
3/18	1650	37.45	5950	49	5.7	1.4	5.6	0.9	0	24		10	0.04			76.8	37
4/9	1120	32.24	2130	57	11	3.7	15	1.3	0	42		28	0.03			162	42
5/13	1300	34.61	3620	64	6.6	1.6	6.5	1.0	0	22	2.3	130	0.09	0.0	48	86.8	38
6/17	1520	28.78	373	75	46	13	83	5.7	0	134	16	171				768	51
7/15	1330	29.40		84	48	12	80	5.8	3	155		148	0.00			749	50
8/13	1130	27.37	288	73	48	14	81	6.4	3	160		149	0.12			755	49
9/17	0755	27.36	315	65	47	14	85	5.9	0	164	10	154	0.10	2.7	439	780	50
10/15	1300	27.91	464	71	45	11	74	6.8	0	145		141	0.06			690	49
11/12	1100	27.75	692	60	24	6.8	38	4.0	0	73		78	0.08			397	47
12/7	1245	28.60	660	57	32	8.8	52	5.3	0	94		105	0.08			518	48
					TUOLUMNE RIVER AT HICKMAN							T3S, R11E, Sec. 34					
1/12	0915	74.67	685	50	7.5	2.7	8.7	1.2	0	32		16	0.00			108	38
2/18	1235	74.69	695	48	8.8	2.9	8.2	1.2	0	36		16	0.26			115	34
3/18	1200	79.74	5350	43	4.4	1.5	2.2	0.6	0	23		2.5	0.05			45.5	21
4/5	1405	77.05	1910	56	6.4	3.9	5.8	0.8	0	35		7.2	0.18			83.3	28
5/20	0930	77.38	2660	58	3.1	1.3	1.6	0.5	0	18	1.7	0.5	0.02	0.1	24	36.9	20
6/14	0930	74.06	2070	72	28	10	52	4.7	0	97	9.6	102				493	49
7/12	1100	73.06	110	78	28	9.6	54	5.3	0	98		106	0.26			501	50
8/10	1010	73.96	96	75	37	5.8	64	6.0	0	104		132	0.13			606	53
9/13	1100	73.00	104	72	30	9.3	54	5.3	0	103	3.5	106	0.08	0.5	304	522	49
10/12	1010	74.00	392	68	32	9.5	57	5.3	0	106		112	0.06			546	50
11/9	1100	74.47	590	60	8.4	2.2	8.7	1.4	0	34		16	0.00			111	37
12/10	1025	75.50	690	52	8.7	2.6	9.5	1.4	0	34		18	0.01			123	38
					STANISLAUS RIVER AT MOUTH							T3S, R7E, Sec. 11					
1/11	1300	15.65	191	54	26	10	15	2.3	0	140		12	0.04			279	23
2/19	1100	17.02	564	51	12	5.8	5.4	1.2	0	67		3.2	0.36			131	18
3/18	1450	20.45		48	7.5	3.0	3.4	1.3	0	36		1.0	0.04			85.3	18
4/9	1300	19.05		56	9.9	3.3	3.8	0.7	0	47		2.2	0.11			89.0	17
5/13	1500			68	5.5	1.7	1.5	0.7	0	28	2.0	0.6	0.06	0.0	35	49.8	13
6/17	1720	15.29	175	74	21	9.1	13	2.2	0	124	10	6.2				230	23
7/16	0830	14.92	97	73	23	9.1	14	2.0	3	128		9.0	0.00			246	24
8/13	1345	14.42	74	77	27	7.6	15	2.1	0	139		9.5	0.37			259	24
9/17	1005	14.50	74	67	28	9.8	17	2.3	0	151	9.1	8.0	0.00	2.0	188	281	25
10/15	1400		137	73	26	8.9	15	2.3	0	142		9.5	0.00			260	24
11/12	1230	15.23	213	60	23	8.7	13	2.6	0	125		7.0	0.01			238	23
12/7	1130	16.26		55	17	6.7	8.1	3.4	0	83		6.0	0.04			179	19

PLATE 2


ELEVATION (FEET)
INFLOW & RELEASE
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
3,000 C.F.S.
12,000
50,000
250,000
(ELEV. 586 ℄ TURBINES)
T.W.S. ELEVATION
578
585
603
632.5
WATER SURFACE ELEV.
RELEASE c.f.s.
INFLOW c.f.s.
STORAGE
(4,492,700 A.F.)
EL. 1065 - CREST OF DRUM GATES
EL. 1037 - CREST OF SPILLWAY (3,713,500 A.F.)
6-108" OUTLETS
EL. 942 ℄ (1,748,400 A.F.)
8-102" OUTLETS
EL. 842 ℄ (602,300 A.F.)
EL. 815 ℄ (420,300 A.F.)
POWER PENSTOCKS
4-102" OUTLETS
(1125,900 A.F.)
KESWICK RELEASE
RELEASE
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER
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
1954
Furnished by U.S. Bureau of Reclamation


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 (436,500 AC. FT.)
WATER SURFACE ELEV. IN MILLERTON LAKE
ELEV. 464 ℄ (125,630 AC. FT.)
4-96" FRIANT-KERN CANAL OUTLETS
ELEV. 446 ℄ (92,700 AC. FT.)
2-86" MADERA CANAL OUTLETS
ELEV. 380 ℄ (20,460 AC. FT.)
4-96" RIVER OUTLETS
INFLOW c.f.s.
STORAGE IN MILLERTON LAKE
IN STORAGE ABOVE MILLERTON LAKE
RELEASE
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER
EXPLANATION
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
1954
Furnished by U.S. Bureau of Reclamation

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES

SACRAMENTO-SAN JOAQUIN WATER SUPERVISION

1954

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

N