PW 5.8 :944

POMONA COLLEGE LIBRARY
CLAREMONT, CALIFORNIA

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES

EARL WARREN, Governor
C. H. PURCELL, Director of Public Works
EDWARD HYATT, State Engineer

Bull. 23-44

REPORT OF

SACRAMENTO-SAN JOAQUIN WATER SUPERVISION

FOR YEAR

1944

JUNE, 1945

46111-B

STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES

O

EARL WARREN, Governor

C. H. PURCELL, Director of Public Works

EDWARD HYATT, State Engineer

REPORT OF
SACRAMENTO-SAN JOAQUIN
WATER SUPERVISION
FOR
1944

June, 1945

TABLE OF CONTENTS

ALPHABETICAL INDEX TO TABLES iii

LIST OF PLATES x

ACKNOWLEDGMENT xi

ORGANIZATION xii

ADVISORY COMMITTEE xiii

SACRAMENTO-SAN JOAQUIN WATER SUPERVISION 1
- Objectives 1
- Scope of Work 2
- Water Supervision Activities 3
- Hydrographic Activities of Cooperating Agencies 4

SHASTA AND FRIANT RESERVOIR OPERATIONS 5
- Reservoir Data 5
- Shasta Reservoir Operation -- 1944 6
- Friant Reservoir Operation -- 1944 8

RUNOFF AND WATER SUPPLY 8
- 1944 Runoff Comparisons 9
- Primary Irrigation Supplies 10
- Return Water Irrigation Supplies 11
- Stream Flow Measurements 12
- Notes on Certain Gaging Stations 13
  - Sacramento River at Sacramento 14
  - Stations on Feather River 15
  - Merced River near Livingston 15
  - Merced River near Mouth 15
  - San Joaquin River at Maze Road Bridge 16
- Automatic Radio Stream Gage Transmission 16
- Precipitation 17

USE OF WATER FOR IRRIGATION 17
- Irrigation Diversions 18
- Irrigated Acreage 20
- Drainage and Return Waters 21
  - Sacramento River Return Waters 21
  - Relation of Sacramento River Return to Irrigation Diversions . 22
  - Relation of Return Water to Diversions for Certain Sacramento Valley Areas 23
  - San Joaquin River Return Waters 24
- Gross Duty of Water 25
- Use of Water in Delta 26

SALINITY INVESTIGATIONS 27
- Purpose 27
- Scope 28
- Station Maintenance and Records 29
- Salinity Bulletins. 29
- Area of Salinity Encroachment 29

TIDE GAGES 30

ALPHABETICAL
INDEX TO TABLES

(Pages numbered to correspond with table numbers)

Table Number

ACCRETIONS . . . . . See "Return Water Flows"

ACREAGE IRRIGATED
- From a specific stream . . . . . See specific stream name
- From each point of diversion . . . . . See "Diversions"
- Rice Acreage, Annual 141
- Seasonal, Comparative 140
  - American River 96
  - Feather River 94
  - Sacramento River 93
  - Yuba River 95
- Seasonal, Sacramento and San Joaquin Valley 140
- Summary by Sacramento River Sections 127

AMERICAN RIVER
- Acreage Irrigated 96, 107, 140
- Diversions 96, 97, 107, 118, 140
- Duty of Water 96, 140
- Stream Flow 50, 51

BACK BORROW PIT
- Acreage Irrigated 100, 140
- Diversions 100, 140
- Duty of Water 140
- Stream Flow 25, 28

BEAR CREEK NEAR WHEATLAND - Stream Flow 45

BUTTE CREEK AND BUTTE SLOUGH
- Acreage Irrigated 103, 140
- Diversions 103, 140
- Duty of Water 140
- Stream Flow 21, 30

CALAVERAS RIVER AT JENNY LIND - Stream Flow 56

COLUSA TROUGH
- Acreage Irrigated 99, 140
- Diversions 99, 140
- Duty of Water 140
- Return Water 133
- Stream Flow 25, 28

COSUMNES RIVER - Stream Flow at
- McConnell 54
- Michigan Bar 53

DEER CREEK NEAR SMARTVILLE - Stream Flow 43

ALPHABETICAL
INDEX TO TABLES (CONTINUED)

(Pages numbered to correspond with table numbers)

	Table Number
DIVERSIONS	
At each point of diversion on	
American River	107
Back Borrow Pit	100
Butte Creek, Lower, and Butte Slough	103
Colusa Trough	99
Feather River	105
Knights Landing Ridge Cut	101
Merced River	112
Old San Joaquin River (Delta Uplands)	108
Sacramento River	98
San Joaquin River, Lower (Delta Uplands)	110
San Joaquin River (Vernalis to Fremont Ford)	111
Stanislaus River	114
Sutter By-Pass and Sacramento Slough	104
Tom Paine Slough (Delta Uplands)	109
Tuolumne River	113
Yolo By-Pass	102
Yuba River	106
Average Monthly - Sacramento-San Joaquin Valley	97
Monthly, Comparative Seasonal	
American River	118
Feather River	116
Merced River	123
Old San Joaquin River	119
Sacramento River	115
San Joaquin River, Lower (Delta Uplands)	121
San Joaquin River (Vernalis to Fremont Ford)	122
Stanislaus River	125
Tom Paine Slough (Delta Uplands)	120
Tuolumne River	124
Yuba River	117
Return Flows, Relation to	See "Return Water Flows"
Seasonal, Comparative	
By months	See "Diversions, Monthly"
For Sacramento River Sections	126, 127
Summary, Monthly, Sacramento-San Joaquin Valley	140
DRAINAGE PLANT DISCHARGE	
Reclamation District No. 70 Drain to Sacramento River	23, 134
Reclamation District No. 108 Drain to Sacramento River	24, 135
Reclamation District No. 108 Drain to Back Borrow Pit	26, 135
Reclamation District No. 1000 (No. 3) Drain to Sacramento River	48, 137
Reclamation District No. 1000 (2nd Bannon) Drain to Sacramento River	49, 137
Reclamation District No. 1500 Drain to Sacramento Slough	34, 136
DRY CREEK NEAR MODESTO - Stream Flow	76

ALPHABETICAL
INDEX TO TABKES (CONTINUED)

(Pages numbered to correspond with table numbers)

Table Number

DUTY OF WATER
- Delta Consumptive Use 142, 143
- Seasonal by Rivers
  - American River 96
  - Feather River 94
  - Sacramento River 93
  - Sacramento-San Joaquin Valley 140
  - Yuba River 95

FEATHER RIVER
- Acreage Irrigated 94, 105, 140
- Diversions 94, 97, 105, 116, 140
- Duty of Water 94, 140
- Stream Flow . . . . . 37 to 41, incl.

FRIANT RESERVOIR, DAILY CONTENT IN ACRE-FEET 57

GROSS DUTY OF WATER . . . . . See "Duty of Water"

KNIGHTS LANDING RIDGE CUT
- Acreage Irrigated 101, 140
- Diversions 101, 140
- Duty of Water 140
- Stream Flow 27

MERCED RIVER
- Acreage Irrigated 112, 123, 140
- Diversions 97, 112, 123, 140
- Duty of Water 140
- Return Water Flows 128, 138, 139
- Stream Flow . . . . . 66 to 70, incl.

MERCED RIVER SLOUGH - Stream Flow 70

MOKELUMNE RIVER AT WOODBRIDGE - Stream Flow 55

MUD SLOUGH BRANCHES OF SAN JOAQUIN RIVER AT FREMONT FORD - Stream Flow . . 61

OLD SAN JOAQUIN RIVER (Delta Uplands)
- Acreage Irrigated 108, 140
- Diversions 108, 140
- Duty of Water 140

PRECIPITATION, Daily at
- Chico 81
- Chico Landing 82
- Colusa 84
- Everglade 87
- Karnak 90
- Knights Landing 91
- Llano Seco Ranch 83
- Marysville 85

ALPHABETICAL
INDEX TO TABLES (CONTINUED)

(Pages numbered to correspond with table numbers)

Table Number

PRECIPITATION, Daily at (Continued)
- Nicolaus 89
- Robbins 88
- Sacramento 92
- Wilkins Slough 86

RETURN WATER FLOWS
- Comparative Seasonal Percentage, Sacramento-San Joaquin Valley . . . 128
- Comparative Seasonal Total Flows to Sacramento River 132
- Definite Channels to Sacramento River 129
- Relation to Diversions
  - Colusa Trough 133
  - Definite Channels to Sacramento River 130
  - Reclamation District No. 70 134
  - Reclamation District No. 108 135
  - Reclamation District No. 1000 137
  - Reclamation District No. 1500 136
  - Sacramento River Sections 131
  - San Joaquin Valley Streams 138, 139

RIVER WATER SURFACE ELEVATIONS
- Sacramento River, Comparative for July 7
- Sacramento River, 1944 8
- San Joaquin Valley Streams 9

SACRAMENTO RIVER
- Acreage Irrigated 93, 98, 115, 127, 140
- Diversions 93, 98, 115, 126, 127, 140
- Duty of Water 93, 140
- Return Water Flows . . . . . 128 to 132, incl.
- Stream Flow . . . . . 11 to 18, incl.

SACRAMENTO SLOUGH . . . . . See "Sutter By-Pass"

SALINITY INVESTIGATIONS
- Description of Salinity Stations 145
- Maximum Recorded Salinity, 1934 to 1944 144
- Relation of 10-day Flow to Affected Area 147
- Salinity Observations in 1944 146

SAN JOAQUIN RIVER
- Acreage Irrigated 110, 111, 122, 140
- Diversions 110, 111, 122, 140
- Duty of Water 140
- Return Water Flows 128, 138, 139
- Stream Flow . . . . . 58 to 65, incl.

SHASTA RESERVOIR, Daily Content in Acre-Feet 10

ALPHABETICAL
INDEX TO TABLES (CONTINUED)

(Pages numbered to correspond with table numbers)

Table Number

STANISLAUS RIVER
Acreage Irrigated 114, 125, 140
Diversions 114, 125, 140
Duty of Water 140
Return Water Flows 128, 138, 139
Stream Flow . . . . . 77 to 80, incl.

STREAM FLOW
Average Minimum 10-day, 1924 to 1944, in
Sacramento Valley Streams 2
San Joaquin Valley Streams 4
Comparative Seasonal Water Supply, 1920 to 1944, in
Sacramento Valley Streams 1
San Joaquin Valley Streams 3
Daily Mean Second-feet and Monthly Acre-feet in
American River at Fairoaks 50
American River at Sacramento (H Street Bridge) 51
Bear Creek near Wheatland 45
Butte Slough to Sacramento River 21
Butte Slough to Sutter By-Pass 30
Calaveras River at Jenny Lind 56
Colusa Basin Drain at Knights Landing 28
Colusa Trough at Colusa-Williams Highway 25
Colusa Weir to Butte Basin 20
Cosumnes River at McConnell 54
Cosumnes River at Michigan Bar 53
Deer Creek near Smartville 43
Dry Creek near Modesto (Clauss Road) 76
Feather River at
Gridley (near) 38
Nicolaus 41
Oroville (above) 37
Shanghai Bend (below) 40
Yuba City 39
Knights Landing Ridge Cut 27
Merced River at
Cressey 67
Livingston 68
Mouth 69
Yosemite Valley Railroad Crossing 66
Merced River Slough 70
Mokelumne River at Woodbridge 55
Moulton Weir to Butte Basin 19
Reclamation District No. 70 Drain to Sacramento River 23
Reclamation District No. 108 Drain to Back Borrow Pit 26
Reclamation District No. 108 Drain to Sacramento River 24
Reclamation District No. 1000 (No. 3) Drain to Sacramento River . . 48
Reclamation District No. 1000 (2nd Bannon) Drain to Sacramento River 49
Reclamation District No. 1001 Drain to Cross Canal 46
Reclamation District No. 1500 Drain to Sacramento Slough 34

ALPHABETICAL
INDEX TO TABLES (CONTINUED)

(Pages numbered to correspond with table numbers)

Table Number

STREAM FLOW (Continued)
Daily Mean Second-Feet and Monthly Acre-Feet (Continued)
Sacramento River at
Butte City 13
Colusa 14
Keswick 11
Knights Landing 16
Red Bluff 12
Sacramento 18
Verona 17
Wilkins Slough 15
Sacramento Slough to Sacramento River 35
Sacramento Slough, Components of Flow 36
Sacramento Weir to Yolo By-Pass 47
San Joaquin River at
Delta Bridge (Turner Island Bridge) 59
Fremont Ford 60
Friant (below) 58
Grayson - Laird Slough 63
Hetch Hetchy Crossing 64
Mud Slough Branches at Fremont Ford 61
Newman (near) 62
Vernalis (near) 65
Stanislaus River 80
Sutter By-Pass, East Borrow Pit - Willow Slough 32
Sutter By-Pass, East Borrow Pit - 4 miles above R.D. 1500 pump . . . 33
Sycamore Slough at Knights Landing 29
Tisdale Weir to Sutter By-Pass 22
Tuolumne River at
Hickman Bridge 73
La Grange 71
Modesto 74
Roberts Ferry 72
Tuolumne City 75
Wadsworth Canal to Sutter By-Pass 31
Yolo By-Pass near Woodland 52
Yuba River at Marysville 44
Yuba River at Narrows Dam 42
Flow Rating Table, Sacramento River Gaging Stations 6
Full Natural, Major Streams to Central Valley 5

SUTTER BY-PASS AND SACRAMENTO SLOUGH
Acreage Irrigated 104, 140
Diversions 104, 140
Duty of Water 140
Stream Flow . . . . . 30 to 35, incl.

TIDE GAGES, Location and Date of Installation 148

ALPHABETICAL
INDEX TO TABLES (CONTINUED)

(Pages numbered to correspond with table numbers)

Table Number

TOM PAINE SLOUGH (Delta Upland)
- Acreage Irrigated 109, 140
- Diversions 109, 140
- Duty of Water 140

TUOLUMNE RIVER
- Acreage Irrigated 113, 124, 140
- Diversions 97, 113, 124, 140
- Duty of Water 140
- Return Water Flows 128, 138, 139
- Stream Flow . . . . . 71 to 75, incl.

USE OF WATER . . . . . See "Duty of Water"

WADSWORTH CANAL
- Acreage Irrigated 104
- Diversions 104
- Stream Flow 31

WEIRS, Daily Mean Flow Over, in Second-Feet
- Colusa Weir to Butte Basin 20
- Moulton Weir to Butte Basin 19
- Sacramento Weir to Yolo By-Pass 47

YOLO BY-PASS
- Acreage Irrigated 102, 140
- Diversions 102, 140
- Duty of Water 140
- Stream Flow 47, 52

YUBA RIVER
- Acreage Irrigated 95, 106, 140
- Diversions 95, 97, 106, 117, 140
- Duty of Water 95, 140
- Stream Flow 42, 43, 44

LIST OF PLATES

Plate Number		Opposite Page
1	Area Covered by Sacramento-San Joaquin Water Supervision.	2
2	Shasta Reservoir Operation - 1944 and Friant Reservoir Operation - 1944	6
3	Sacramento-San Joaquin Water Supervision (Showing location of Points of Diversion, Salinity Observation Stations and Stream Gaging Stations.)	In back pocket
4	Acreage Irrigated, Diversions, Return Flow, Stream Flow and Rainfall - Sacramento River, Red Bluff to Sacramento	24
5	Maximum Seasonal Salinity Encroachment - Sacramento-San Joaquin Delta	28
6	Location of Recording Tide Gage Stations	30

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 and varied data requested.

The Pacific Gas and Electric Company and the Merced, 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 assembling stream flow data.

The City of San Francisco Public Utilities Commission, Hetch Hetchy Water Supply in the San Joaquin Valley, and the United States Bureau of Reclamation have made available a large amount of stream flow data for both the Sacramento and San Joaquin valleys.

The Modesto, Oakdale, and Turlock irrigation districts and the United States Bureau of Reclamation have assisted in observing and maintaining recording gages in the San Joaquin Valley area.

The United States Bureau of Reclamation provided the funds necessary to reestablish and maintain the regular program of salinity observations in the Sacramento-San Joaquin Delta during 1944.

ORGANIZATION

C. H. Purcell . . . . . Director of Public Works

Edward Hyatt . . . . . State Engineer

-O-

A. D. Edmonston . . . . . Deputy State Engineer

T. B. Waddell . . . . . Supervising Hydraulic Engineer

-O-

The preparation of this report and
the collection and compilation of the supporting
data were under the direction
of
Irvin M. Ingerson
Associate Hydraulic Engineer
and
Arthur M. Baker
Watermaster

Field and Office Assistants

Earl D. Stafford . . . . . Associate Hydraulic Engineer
Donald S. Hays . . . . . Assistant Hydraulic Engineer
Marie Morris . . . . . Clerk
Marguerite Thomasson . . . . . Senior Engineering Aid
E. N. Sawtelle . . . . . Delineator
C. T. Jeffryes . . . . . Delineator
James H. Correll . . . . . Sub-Foreman F.C.C.& M.
C. H. Epperson . . . . . Sub-foreman F.C.C.& M.
L. A. Mullnix . . . . . Junior Engineering Aid

Harry Searancke
Acting Administrative Assistant

ADVISORY COMMITTEE

PERMANENT COMMITTEE OF THE SACRAMENTO-SAN JOAQUIN RIVER PROBLEMS CONFERENCE

This Committee, representing the water users and other interests involved, was appointed by the First Sacramento-San Joaquin River Problems Conference in January 1924. Its continued interest and cooperation and particular activity in the promulgation of effective conservation measures in the seasons of critical water supply have contributed in large measure to the successful prosecution of the Water Supervision work.

Herbert E. White, Chairman, Sacramento

E. L. Adams, Chico
William Durbrow, Grass Valley
Manley S. Harris, San Francisco
Wm. N.L. Hutchinson, Walnut Grove
Warren H. McBride, San Francisco
R. V. Meikle, Turlock
Jesse Poundstone, Grimes
F. T. Robson, Vina

REPORT OF SACRAMENTO-SAN JOAQUIN WATER SUPERVISION FOR 1944

SACRAMENTO-SAN JOAQUIN WATER SUPERVISION

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

Objectives

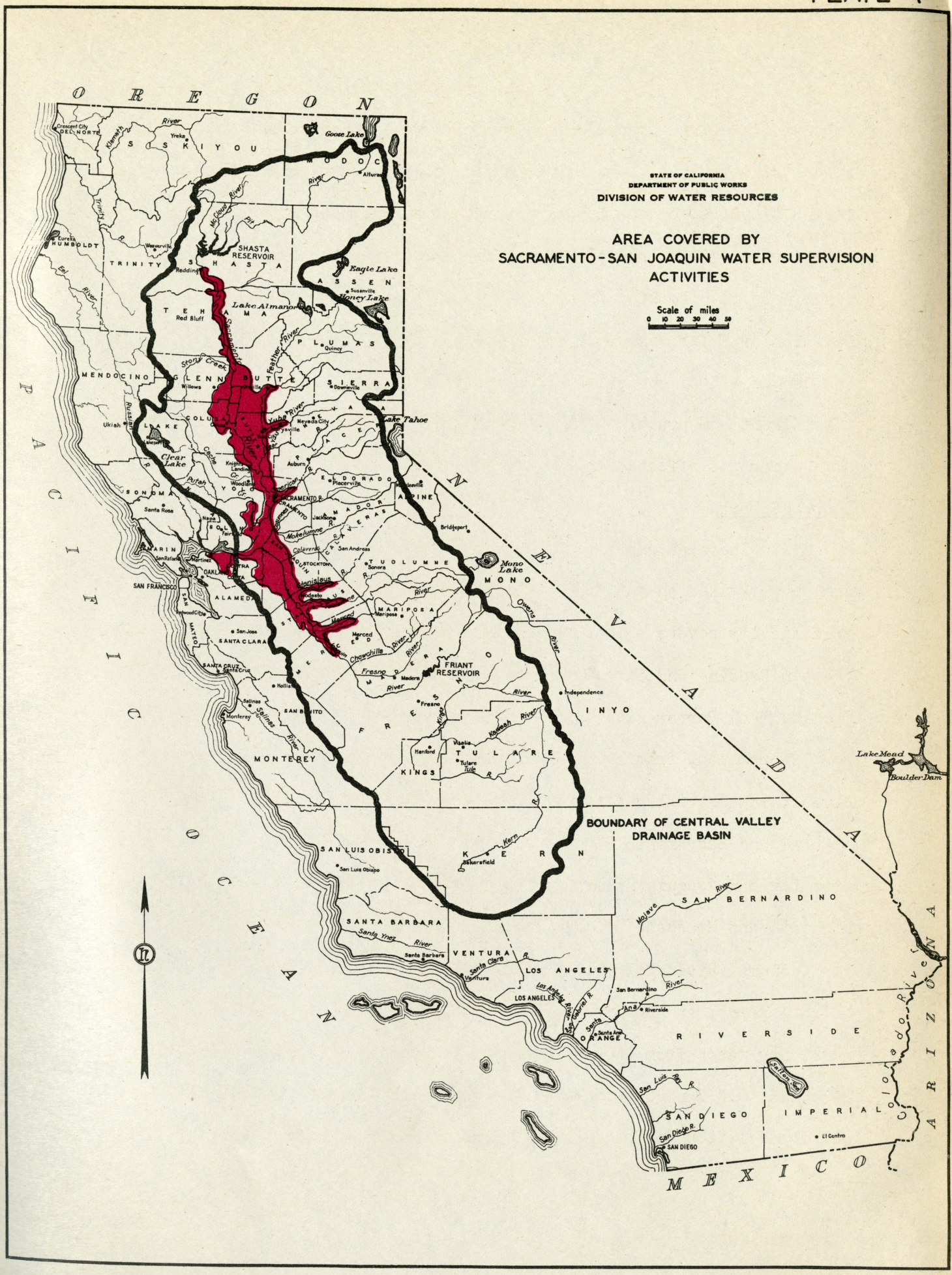
At the outset, the objective of the work of Water Supervision in the valley floor areas along the Sacramento and San Joaquin river system was to afford relief to water users from the difficulties of obtaining irrigation supplies occasioned by uncoordinated diversions during years of substantially subnormal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

There is no agreement between the water users under which a watermaster might distribute the natural water supply equitably to those

entitled to receive it, but it appears inevitable that such an agreement, embracing a definite schedule of relative water rights, will be developed. Its realization will require, however, reliable data, covering a long period of years, on the actual diversions and uses of water, stream flows, return water flows and salinity encroachment into the Sacramento-San Joaquin Delta. Looking toward that end, it has been the objective of the Division of Water Resources through its Water Supervision work, to collect and record all of the basic hydrographic data necessary to formulate an intelligent and practicable agreement defining the respective water rights of the parties affected in the area covered.

Scope of Work

The area embraced by the Sacramento-San Joaquin Water Supervision work lies on the Sacramento and San Joaquin valley floors. It specifically covers all of the lands irrigated from the Sacramento River between Redding and Sacramento, including those irrigated from the Colusa Trough, Back Borrow Pit, Knights Landing Ridge Cut, and Yolo By-pass above West Sacramento, from lower Butte Creek and Butte Slough, from the Feather River below Oroville, from the Yuba River below Smartsville, from Sutter By-pass and Sacramento Slough, from the American River below Fairoaks, from the San Joaquin River between Fremont Ford Bridge (Stevinson-Gustine Highway) and Mossdale Bridge, from the Merced River below Snelling, from the Tuolumne River below La Grange, and from the Stanislaus River below Knights Ferry, and the irrigated areas lying on the "upland" side of and receiving water from the San Joaquin River between Mossdale Bridge and Stockton, Old San Joaquin River and Tom Paine Slough. The area covered and its relation to the Central Valley Drainage Basin are shown on Plate 1.


STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES
AREA COVERED BY
SACRAMENTO-SAN JOAQUIN WATER SUPERVISION
ACTIVITIES
Scale of miles
0 10 20 30 40 50
BOUNDARY OF CENTRAL VALLEY
DRAINAGE BASIN
OREGON
NEVADA
ARIZONA
MEXICO
PACIFIC OCEAN
SHASTA RESERVOIR
FRIANT RESERVOIR
Goose Lake
Eagle Lake
Honey Lake
Lake Almanor
Lake Tahoe
Clear Lake
Mono Lake
Lake Mead
Boulder Dam
Salton Sea
SISKIYOU
MODOC
HUMBOLDT
TRINITY
SHASTA
LASSEN
TEHAMA
PLUMAS
MENDOCINO
GLENN
BUTTE
SIERRA
COLUSA
LAKE
YUBA
NEVADA
PLACER
SONOMA
YOLO
SACRAMENTO
EL DORADO
ALPINE
MARIN
CONTRA COSTA
ALAMEDA
SAN FRANCISCO
SAN MATEO
SANTA CLARA
SANTA CRUZ
MADERA
CALAVERAS
TUOLUMNE
MONO
MARIPOSA
MERCED
SAN JOAQUIN
STANISLAUS
FRESNO
INYO
SAN BENITO
MONTEREY
TULARE
KINGS
KERN
SAN LUIS OBISPO
SANTA BARBARA
VENTURA
LOS ANGELES
SAN BERNARDINO
ORANGE
RIVERSIDE
SAN DIEGO
IMPERIAL
Crescent City
Eureka
Yreka
Alturas
Weaverville
Redding
Susanville
Red Bluff
Quincy
Willows
Oroville
Downieville
Ukiah
Lakeport
Nevada City
Grass Valley
Auburn
Placerville
Knights Landing
Woodland
Sacramento
Jackson
Bridgeport
Napa
Fairfield
Santa Rosa
San Rafael
Martinez
Oakland
San Andreas
Sonora
Stockton
Modesto
Merced
Mariposa
Hanford
Visalia
Tulare
Madera
Fresno
Hollister
San Jose
Redwood City
Santa Cruz
Salinas
Monterey
San Luis Obispo
Bakersfield
Santa Barbara
Ventura
Los Angeles
San Bernardino
Riverside
Santa Ana
San Diego
El Centro
Independence
Klamath River
Trinity R.
Eel River
Russian R.
McCloud River
Pit R.
Sacramento R.
Stony Creek
Feather River
Yuba River
American R.
Cache Creek
Putah Cr.
Mokelumne R.
Calaveras R.
San Joaquin R.
Stanislaus R.
Tuolumne R.
Merced River
Chowchilla River
Fresno River
Kings River
Kaweah River
Tule R.
Kern R.
Salinas River
Santa Ynez River
Santa Clara R.
Los Angeles R.
San Gabriel R.
Santa Ana River
San Luis Rey R.
San Diego R.
Mojave River
Owens River
Colorado River

Water Supervision Activities

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

The field activities include:

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

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

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

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

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

(6) Assistance with hydrographic activities of co-operating public and private agencies.

The office work comprises mainly the assembly, computation and analysis of hydrographic and other data collected during the field season for presentation in the annual report of Water Supervision. This report contains the basic records of water supply available to and the use of water by each water user in the area. The computation of stream flow and return water involves the conversion of the daily records to figures showing the daily flows in second feet and monthly run-offs in acre feet. The

computation of the amounts of water diverted by each water user involves the reduction of data showing the operation of his diversion plant, its electric power consumption, and its efficiency. The results of the determinations are then compiled in comparison and summary tabulations 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.

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. The work is done by one of its engineers who works out of Sacramento, utilizing the office facilities of the Division of Water Resources. Stream flow rating measurements and the office work of compiling the records have been conducted cooperatively by the Federal engineer and the State Water Supervision engineers.

The Modesto Irrigation District, the Oakdale Irrigation District, the South San Joaquin Irrigation District, and the Turlock Irrigation District in the San Joaquin Valley have cooperated with the Water Supervision engineers by assisting in the installation of certain recorder equipped stream gaging stations and are continuing to cooperate by operating the recording instruments at those stations.

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, Tuolumne and Stanislaus rivers in the San Joaquin Valley.

The United States Bureau of Reclamation, through its offices at Sacramento, Colusa, and Modesto, has cooperated by operating certain recorder equipped stream gaging stations, by furnishing records of flow from certain stations, by making stream flow rating measurements and by measuring the quantities of water diverted by many of the pumping plants along the streams.

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

SHASTA AND FRIANT RESERVOIR OPERATIONS

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 reservoir during 1944 changed substantially the natural regimen of flow of the Sacramento River and in many respects greatly benefited conditions along that stream. However, it also has created added diversion problems.

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.

The operations of the Shasta and Friant reservoirs are directed by the United States Bureau of Reclamation.

Reservoir Data

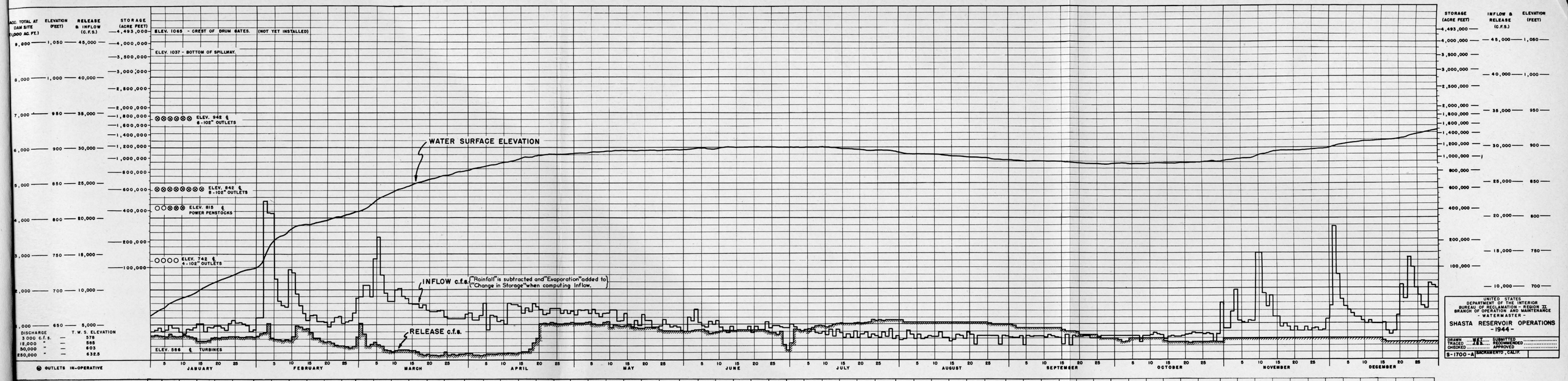
Shasta Reservoir is created by a gravity concrete dam, 500 feet high above low water level, located 13 miles upstream from Redding. The ultimate gross capacity of the reservoir with spillway gates installed is

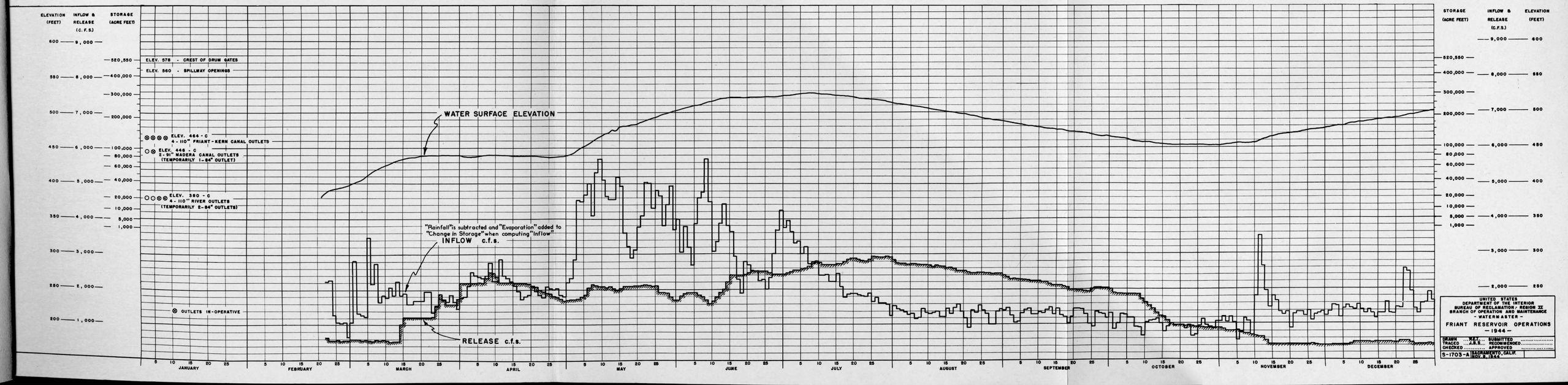
4,500,000 acre-feet, of which a space of 4,000,000 acre-feet will be available for the active storage of water and 500,000 acre-feet of space will be reserved for silt deposits and to create head for the generation of power. The steel spillway drum gates have not been installed and the present capacity of the reservoir to the fixed lip of the spillway is only 3,714,000 acre-feet. The ultimate storage capacity will be filled every year when the natural stream runoff from above the dam is equal to or exceeds the normal amount. Water from the reservoir is conveyed down the Sacramento Valley in the channel of the Sacramento River.

Friant Reservoir, on the San Joaquin River, is created by a gravity concrete dam, 274 feet high above low water level, located at the base of the foothills about 20 miles northeast of Fresno. The ultimate gross capacity of the reservoir with spillway gates installed, is 520,000 acre-feet, of which a space of 404,000 acre-feet between the top of the spillway gates at elevation 578 feet and the bottom of the Friant-Kern Canal outlet at elevation 459.4 feet will be available for the storage of water for flood control and to supply irrigation demands in the San Joaquin Valley. It is planned to ultimately convey the major portion of the water from Friant Reservoir 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. During 1944, however, the spillway gates on Friant Dam had not been installed and the Friant-Kern Canal had not been constructed, so the capacity of Friant Reservoir available for the storage of water for irrigation was the 350,000 acre-feet of space between the fixed crest of the spillway at elevation 560 feet and the bottom of the Madera Canal outlets at elevation 442.2 feet.

Shasta Reservoir Operation - 1944

The Shasta Reservoir has been constructed as a multi-purpose


ACC. TOTAL AT DAM SITE (1,000 AC. FT.)
ELEVATION (FEET)
RELEASE & INFLOW (C.F.S.)
STORAGE (ACRE FEET)
ELEV. 1065 - CREST OF DRUM GATES. (NOT YET INSTALLED)
ELEV. 1037 - BOTTOM OF SPILLWAY.
ELEV. 942 ℄ 6-102" OUTLETS
ELEV. 842 ℄ 8-102" OUTLETS
ELEV. 815 ℄ POWER PENSTOCKS
ELEV. 742 ℄ 4-102" OUTLETS
ELEV. 586 ℄ TURBINES
WATER SURFACE ELEVATION
INFLOW c.f.s. ("Rainfall" is subtracted and "Evaporation" added to "Change in Storage" when computing Inflow.)
RELEASE c.f.s.
DISCHARGE
T. W. S. ELEVATION
3 000 c.f.s. — 578
12,000 " — 585
50,000 " — 603
250,000 " — 632.5
OUTLETS IN-OPERATIVE
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION - REGION IV
BRANCH OF OPERATION AND MAINTENANCE
- WATERMASTER -
SHASTA RESERVOIR OPERATIONS
-1944-
DRAWN W.E.V.
TRACED J.B.S.
CHECKED
SUBMITTED
RECOMMENDED
APPROVED
S-1700-A
SACRAMENTO, CALIF.


ELEVATION (FEET)
INFLOW & RELEASE (C.F.S.)
STORAGE (ACRE FEET)
ELEV. 578 - CREST OF DRUM GATES
ELEV. 560 - SPILLWAY OPENINGS
ELEV. 464 - C 4-110" FRIANT-KERN CANAL OUTLETS
ELEV. 446 - C 2-91" MADERA CANAL OUTLETS (TEMPORARILY 1-84" OUTLET)
ELEV. 380 - C 4-110" RIVER OUTLETS (TEMPORARILY 2-84" OUTLETS)
WATER SURFACE ELEVATION
"Rainfall" is subtracted and "Evaporation" added to "Change in Storage" when computing "Inflow"
INFLOW c.f.s.
RELEASE c.f.s.
OUTLETS IN-OPERATIVE
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION - REGION IV
BRANCH OF OPERATION AND MAINTENANCE
- WATERMASTER -
FRIANT RESERVOIR OPERATIONS
-1944-
DRAWN W.E.V.
TRACED J.B.S.
CHECKED
SUBMITTED
RECOMMENDED
APPROVED
S-1703-A
SACRAMENTO, CALIF.
NOV. 8, 1944.

project. It is designed to furnish water for (1) irrigation in the Sacramento and San Joaquin valleys, including the Sacramento-San Joaquin Delta area; (2) 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) navigation on the Sacramento River above Sacramento to Chico Landing; and (4) the generation of hydro-electric power. The reservoir will also be used to control floods in the Sacramento River downstream from the dam.

Although the storage of water in the reservoir commenced in the early part of the winter of 1943-44, the ensuing season's subnormal runoff into it was not sufficient to completely fill the reservoir. However, the United States Bureau of Reclamation was able to release sufficient stored water throughout the irrigation season to supplement the natural stream flows to furnish the full amounts of irrigation water required by the diverters along the Sacramento River.

A tabulation of the daily amounts of water in storage in Shasta Reservoir during 1944 is given in Table 10. The daily mean-second-foot-flows as measured below Shasta Dam at the United States Geological Survey station near Keswick are given in Table 11. The flows at the Keswick station are the same as the releases from Shasta Reservoir except for the amounts of inflow between the station and Shasta Dam. The amounts of this inflow are small during the irrigation season, and can be ignored, so that the flows at the gaging station can be assumed the same as the releases from the reservoir during that period. A chart depicting the operation of Shasta Reservoir for 1944, as prepared by the U. S. Bureau of Reclamation, and giving the inflows to the reservoir, the amounts released, the water surface elevations and the amounts of water in storage, is shown on Plate 2.

Friant Reservoir Operation - 1944

The Friant Reservoir will be used only for the storage of water for flood control and irrigation purposes. A tabulation of the daily amounts of water in storage in the reservoir during 1944 is given in Table 57. The daily mean-second-foot-flows as measured at the United States Geological Survey gaging station below Friant are given in Table 58. These flows are the same as the releases from Friant Reservoir except for the amounts of inflow between the station and Friant Dam. The amounts of this inflow are small during the irrigation season so that the measured flows at the gaging station are practically the same as the releases from the reservoir during that period. A chart depicting the operation of Friant Reservoir for 1944, as prepared by the U. S. Bureau of Reclamation, and giving the same data as are shown by the chart for Shasta Reservoir, is also shown on Plate 2.

Since the Friant-Kern Canal was not constructed and the Madera Canal was only partially constructed during the 1944 season, much of the stored water from Friant Reservoir was available for use directly from the San Joaquin River. However, inasmuch as the area embraced by the present activities of the Sacramento-San Joaquin Water Supervision extends up the San Joaquin River only as far as the vicinity of Fremont Ford, 5.75 miles above the mouth of the Merced River, very little if any of the water released from Friant Reservoir reaches that point directly and the summer river flow at that point is made up mainly of return waters from upstream diversions.

RUNOFF AND WATER SUPPLY

The variable flows of the streams entering the Sacramento and San Joaquin valleys on the north and east sides result from the rain storm runoff occurring each winter and spring season from December to April, the snow melt runoff occurring during the spring and summer seasons from March

through June, and a combination of runoff from perennial springs and released stored water during the summer and fall seasons. Flood flows in the valley floor channels are caused by runoffs from rainfall and melting snow in the mountain areas in excess of mountain reservoir capacities, and by rain storm runoff from the vast area of minor foothill watersheds and valley floor lands. Some 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 1944 is given by the accompanying tabulations of daily stream flows.

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

1944 Runoff Comparisons

A comparison of the natural runoffs in per cent of normal into the Sacramento Valley past the foothill gaging stations of the major tributary streams is shown in Table 1, and a similar comparison is shown in Table 3 for the San Joaquin Valley tributary streams.

The 1944 natural runoff of the Sacramento River at Red Bluff is shown to have been 53 per cent of the mean annual for the 50-year period, 1889-1939.

The 1944 natural runoff for the San Joaquin Valley as measured at Vernalis, is shown to have been 62 per cent of the mean annual for the 50-year period 1889-1939.

The 1944 natural runoff of all major streams discharging into the Sacramento-San Joaquin Delta is shown to have been 56 per cent of the mean annual for the 50-year period 1889-1939.

The average minimum 10-day-flows which have occurred during the irrigation seasons of the past 21 years at a number of points on the Sacramento and San Joaquin valleys streams are shown in Tables 2 and 4. It is to be noted that in 1944 the date of minimum flow at the upper stations on the Sacramento River occurred not at the usual time during July to September but during March. This change in flow regimen was due to the operation of Shasta Reservoir whereby the naturally higher flows during the spring season were retained in storage and the lower flows in the summer season were augmented by releases from storage.

Comparisons of average water surface elevations and average flows at various points along the Sacramento River during the month of July for the subnormal year of 1939, and for the years 1943 and 1944, are given in Table 7. It is apparent from this comparison that the river water level elevations and flows during the 1944 season, a year of subnormal runoff nearly equal to 1939, would have been as low as occurred in 1939 had not releases of stored water from Shasta Reservoir augmented the flows.

Primary Irrigation Supplies

The flows entering the valley floor during the summer season through the major streams are considered to be the primary water supply for irrigation. Another source of supply is the flows available for irrigation in the lower reaches of the streams resulting from the return of a substantial amount of the flows diverted upstream. The amounts of primary supplies available for irrigation in the Sacramento Valley are given in the flow tabulations for those gaging stations located at the edges of the valley floor, to wit, tables numbered 11, 37, 42, 43, 50, 53.

In the San Joaquin Valley a different condition exists as regards the primary water supplies to the area covered by the recordation work of the

Sacramento-San Joaquin Water Supervision. The water supplies for the irrigated areas lying within the irrigation districts diverting from the Stanislaus, Tuolumne, and Merced rivers are primary water supplies but their points of diversion are above the upstream gaging stations, the flows past which are tabulated in this report. The amounts of the diversions for those districts are given in Table 139, and are practically equal to the primary water supplies of the streams from which they divert.

Return Water Irrigation Supplies

In the Sacramento Valley the water supplies available for irrigation from waters returning to natural channels or to artificial drains are of equal importance to the primary supplies. All of these return waters which are not diverted and consumed 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 flow, amounting to two or three hundred second feet, in Colusa Trough and its extension channels, and the Back Borrow Pit, Knights Landing Ridge Cut and Yolo By-Pass, is return water derived from diversions from the Sacramento River. A similar condition occurs for the flows in the borrow pits of Sutter By-Pass and in Sacramento Slough. Along the Feather River, during years of subnormal water supply, practically all of the primary water is diverted upstream from the Sutter-Butte diversion dam, yet return water flows accumulate below that point in amounts sufficient to afford a limited supply for all diversions.

In the portion of the San Joaquin Valley covered by the work of the Sacramento-San Joaquin Water Supervision; namely, the areas adjacent to the San Joaquin River below Fremont Ford, and the areas along the Merced, Tuolumne and Stanislaus rivers below the base of the foothills, the entire flow available for irrigation during much of the irrigation season is

derived from return water, except for some water available from certain irregular releases for power generation on the Tuolumne River. Thus, a flow approximating ten second feet in each stream at the head of the area embraced is continuously augmented until an average minimum summer flow in the San Joaquin River at Vernalis of 1,000 second feet, in addition to the amounts of intervening diversions, is accumulated.

The amounts of return water flows available for irrigation throughout the area are given in the stream flow tabulations in this report for the many return water gaging stations along the channels on the Sacramento and San Joaquin valley floors.

A detailed discussion of the specific amounts of return water flows and their relation to the amounts of diversion is presented in following paragraphs covering "Use of Water for Irrigation".

Stream Flow Measurements

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

Approximately one-half of the gaging stations on streams and drainage channels for which records are reported herein, are maintained, operated and rated, and the flows at them are computed, solely by the Division of Water Resources through the Water Supervisions and Flood Control organizations.

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

A stream flow rating is made for each gaging station. This rating gives the flow in second-feet for each gage height at the station. Normally this gage height - flow relation, or rating, is more or less permanent where there is a fixed channel and flow regimen at the station. 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 backwater effects from downstream conditions, the rating varies so that frequent measurements of flow have been taken to obtain accurate records of the flow passing the stations.

Average water surface elevations for 15-day periods during 1944 at various points along the Sacramento River are given in Table 8 and similar elevations along the San Joaquin River are given in Table 9. Stream flow ratings for the stations along the Sacramento River for 1944 are given in Table 6.

Notes on Certain Gaging Stations

Records are obtained and published in this report for 68 gaging stations in the Sacramento and San Joaquin valleys. A brief description

of each station is given at the bottom of the table showing the stream flows at that station and its location is shown on Plate 3 in the pocket at the back of this report. Notes on a few stations are believed desirable, however, for a better understanding of the records for those stations. These notes are as follows:

Sacramento River at Sacramento. The record of the flow of the Sacramento River at Sacramento for the periods of low flow as given in this report, and as shown in previous reports, does not represent actual measurements at a station below the City of Sacramento municipal water supply intake. Because of tidal action during periods of low flow, a gaging station at this point is not maintained. The daily flow record as given has been computed for the periods of low flow by using the Verona record and making due allowance for the measured inflow and diversions between that station and Sacramento. When the flow is above 25,000 cubic feet per second (staff gage reading of about 10.0 feet or elevation 13.1 feet U.S.E.D. datum) the effect of the tidal action is lost and a direct ratio between gage height and flow is used to determine the daily flow. In the computation of low flows it is not practicable, and no attempt has been made, to allow for the time required for the water to travel from Verona to Sacramento and to make the various deductions and additions enroute at the exact time that the water from Verona would have passed the respective points of inflow or diversion. During the summer period velocities between Verona and Sacramento are low and the water which passes Verona may require a day's time or more to travel the distance to Sacramento. Under these conditions the computed flow at Sacramento may differ somewhat from that which would have been found if the actual flow could have been measured, but the differences are small. Contributing to this difference also there are accretions or losses which

cannot be measured. In the upper sections of the river the net amounts of invisible accretions and losses between two points are susceptible of computation as the quantity required to complete the equation when the flows at the upper and lower points and all definite intermediate inflows and diversions are known. With no actual measurement of the flow at Sacramento, the invisible accretions or losses between Verona and Sacramento cannot be thus defined and hence they are unaccounted for in the computed flow at Sacramento. From the data presented subsequently, it appears that some return flow might be expected in the Verona-Sacramento section, but as indicated in the tabulation of return water (Table 131) no figure for it has been given (except for the measured drains - Table 130), because it could not be derived without a record of the actual flow at Sacramento.

Stations on Feather River. Three stream gaging stations on the Feather River, near Gridley, at Yuba City, and below Shanghai Bend, which were put into operation prior to 1944, were rated during the low water season of 1944 to afford a record of the low flows occurring from about June through October. The flows, reported in Tables 38, 39 and 40, are within the limits of the actual flows measured at the respective stations.

Merced River near Livingston. This station was operated by the United States States Geological Survey and the Merced Irrigation District. Because of serious channel changes due to shifting sand, the station was discontinued on February 29, 1944, and records have been obtained from the station downstream designated "Merced River below Stevinson Drain", recently installed and operated by the United States Bureau of Reclamation.

Merced River near Mouth. This station has been operated for many years by the Division of Water Resources but was discontinued in the

fall of 1944 due to unratable back-water conditions, and records from the station upstream (Merced River below Stevinson Drain), were used in this report for Table 69.

San Joaquin River at Maze Road Bridge. A record parallel to that at this new station has been obtained for the past three years at the station a short distance upstream designated "San Joaquin River at Hetch Hetchy Crossing" (Table 64). It is contemplated that the Hetch Hetchy Crossing location will be discontinued because of its inaccessibility when a satisfactory rating for the new station has been established. These stations are cooperatively operated by the City of San Francisco, Hetch Hetchy Water Supply.

Automatic Radio Stream Gage Transmission

For purposes of receiving immediate and current information on flood flows in the winter and spring, and the variations of summer water supplies, at critical stations, the Division of Water Resources has maintained for many years a system of automatic radio transmission of gage heights. The heights are received at Sacramento through a permanent receiver, or at desired points in the valley through portable receivers. The stream gaging stations which are equipped with automatic radio gage heights transmitters are, Sacramento River near Red Bluff, Sacramento River at Ord Ferry, Feather River near Oroville, South Fork American River at Coloma, North Fork American River at Rattlesnake Bridge and San Joaquin River near Vernalis. The instantaneous stream flow information thus received is not only of value to the Water Supervision and the Flood Control work of the Division but it is relayed immediately to interested agencies including the United States Bureau of Reclamation, United States Weather Bureau, and United States Corps of Engineers.

Precipitation

In the great central valley of California direct precipitation is a negligible source of water supply for growing crops during the late spring, summer and fall seasons. During the early irrigating season, however, the attendant cooler temperatures and higher humidities of rain storms substantially reduces the demand for irrigation diversions, and is one of the main factors affecting the variations in monthly demand between years. Daily precipitation at twelve rainfall stations on the Sacramento Valley floor is given in Tables 81 to 92, inclusive.

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 and clover, citrus and orchard fruits, nuts, grapes, hops, truck crops, and field crops; in the Delta area they include alfalfa, orchard fruits, corn and truck crops; and in the lower San Joaquin Valley and the Delta uplands they include grapes, orchard fruits, alfalfa and clover, truck crops and corn.

The demands for increased crop production by the current World War II conditions have been met by farmers in the Sacramento and San Joaquin valleys. In many instances crop rotation cycles for annual crops have been lengthened by planting lands three years out of four where normally such lands should lie fallow at least one year in three. In

consequence the increase in acreage irrigated and the amounts of water diverted are noticeable in the records of 1944 water utilization.

Irrigation Diversions

Measurements and records of diversions in 1944 have included all of the points of diversion on the valley floor along the Sacramento River and its tributaries; along the upland bank of the delta channels of Old San Joaquin River, Tom Paine Slough and San Joaquin River; and along the Stanislaus, Tuolumne and Merced rivers, below the major irrigation districts' upstream gravity diversions and along the San Joaquin River between Fremont Ford and Durham Ferry Bridge (Vernalis). This report contains records for a total of 696 points of diversion segregated as to various sources as follows: Sacramento 287, Colusa Trough (above Colusa-Williams Highway crossing) 19, Back Borrow Pit (extension of Colusa Trough along back levees of Reclamation Districts 108 and 787) 22, Knights Landing Ridge Cut 9, Yolo By-pass 10, Lower Butte Creek and Butte Slough 29, Sutter By-pass and Sacramento Slough 29, Feather River 40, Yuba River 11, American River 28, Old San Joaquin River 16, Tom Paine Slough 8, San Joaquin River (below Vernalis gaging station) 50, San Joaquin River (between Vernalis gaging station and Fremont Ford Bridge) 20, Merced River 62, Tuolumne River 20, and Stanislaus River 26. The locations of these points of diversion are shown on Plate 3 in the pocket at the back of this report.

All of the diversions, except 17 by gravity, are accomplished by pumping. The records of diversions by gravity are obtained by means of canal ratings established by flow measurements. In the case of the 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 pump

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

Prior to 1933 a daily diversion record for each plant was compiled. However, since that year, except for the larger plants, the monthly diversion records only are available. The diversions for 1944 have been computed on a monthly basis only and the breakdown into daily records was not made. The monthly amounts of water diverted at the individual points of diversion along all of the streams covered by the Water Supervision work are given in Tables 98 to 114, inclusive.

A summary of the 1944 diversions throughout the Sacramento-San Joaquin territory is shown in Table 140. A segregation is made to show the relative diversions from the various river sources. For each segregation the table shows also the acreage irrigated and the computed seasonal gross duty of water. Table 141 shows a comparison of the acreage of rice irrigated during the period 1924 to 1944 from the stream channels within the Sacramento-San Joaquin Valley 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. Table 127 summarizes the diversions and irrigated acreages between successive points on the Sacramento River. Table 93 shows a comparison of the Sacramento River irrigation diversions and gross duty of water for the years 1924 to 1944, inclusive. Tables 94, 95 and 96 show similar data for the Feather, Yuba and American rivers. In table 97 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 valley streams for the period of record prior to 1944 is given in Tables 115 to 118. All data available since 1924 regarding monthly diversions, acreage irrigated, and gross duty of water for the San Joaquin valley streams and Delta upland channels are given in Tables 119 to 125. Table 126 shows, for the Sacramento River only, the seasonal diversions and acreages irrigated for the period 1924-1944, segregated to the different river sections.

Irrigated Acreage

Toward the end of the irrigating season in 1944, 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 data so obtained were plotted on suitable maps and are retained on file in the office of the Division of Water Resources for record.

The area irrigated through each individual point of diversion along the streams covered in this work is given in Tables 98 to 114, inclusive. These tabulations and the associated summarizing tables do not include data on diversions and use of water in the Delta.

As shown in Table 140 the total acreage irrigated during 1944 in the area covered by the Water Supervision work, amounted to 346,819 acres

on the Sacramento Valley floor above Sacramento and to 126,852 acres on the San Joaquin Valley floor. These acreages combined give a grand total area of irrigated lands covered by the Water Supervision work of 473,671 acres. In view of the methods of farming which usually employ rotating crops with summer fallow, it is probable that the acreage of lands being irrigated, or under irrigation facilities, in the area exceeds 500,000 acres.

Drainage and Return Waters

Both in the Sacramento and San Joaquin valleys, the waters returning from irrigated lands to the various river and drainage channels are a source of water supply for the irrigation of other lands. This return water is of utmost importance along the San Joaquin River below Fremont Ford Bridge, and along its tributaries, since practically the entire stream flow in those reaches is made up of such return water.

In the Sacramento Valley, the flows of all well defined channels carrying irrigation waters returning to the Sacramento River are measured and recorded. Table 129 lists these channels in downstream order and gives the total flows as computed from measurements. The locations of the stations at which the return flows are measured and recorded are shown on Plate 3 in the pocket at the back of this report.

Sacramento River Return Waters. Between Colusa and Red Bluff there are no large well defined return flow channels. Records or estimates of natural inflow to the Sacramento River from streams in this stretch were, however, obtained. Above Red Bluff, from a point below Cottonwood Creek to Redding there is considerable return flow from the Anderson-Cottonwood Irrigation District, but it is not recorded.

Of the water returned to the Sacramento River as shown in Table 129, practically all of that entering the river through Butte Slough is

derived from Feather River diversions through the Western and Sutter-Butte canals. Of the return water entering the river through Sacramento Slough, that portion flowing down the East Borrow Pit of the Sutter By-pass is also practically all of Feather River origin. (See Table 36.)

Relation of Sacramento River Return Water to Irrigation Diversions. Tables 130 and 131 show the Sacramento River return water flows for the period June to December, inclusive, 1944, and indicate the relation between the return and the diversions from which it was derived. Since it is the purpose to show in Tables 130 and 131 the return water from Sacramento River diversions only, the inflows from Butte Slough, Feather River through Sacramento Slough (Table 36), Feather River at its mouth and the American River have been excluded. In Table 130 there is shown the relation to the diversions of that return water which was measured at the well defined channels only. With the records available of the flows of the Sacramento River at Red Bluff, Butte City, Colusa, Wilkins Slough, Knights Landing, and Verona, and all diversions between those points, it is possible to approximate the total water return to the river between adjacent points, including not only the flows in the definite channels which were measured, but also all seepage and ground water return, which can not be directly measured. The figures shown for the return water from the Verona-Sacramento section do not include all accretions but only those contributed by the measured drains since, as explained heretofore on page 14, the total return in this section, including all accretions, is not susceptible of computation in the manner outlined because of the fact that no record of low water flow actually measured at Sacramento is available.

The data in Tables 130 and 131 show that seepage and ground water return for the period July-September, inclusive, which could not be

directly measured amounted to 11 per cent, the direct return flows in definite channels 38 per cent and the total return flows 49 per cent of the diversions. The data in Table 131 show the return flows in the Sacramento River for the period June to September, inclusive, 1944. The return flow for the balance of the year has not been computed as the flows in the stream were large and there was much rainfall and local drainage so that it was not practicable with the data available to attempt to determine the return flows for the period not shown in the table.

In Table 132 the return flows and accretions for the entire Sacramento Valley have been determined for the period July through September for the years from 1933 to 1944, inclusive. In the computations for this table, only major inflows were taken into account and the inflows of all minor creeks were not included because, during the months July through September their flow is negligible.

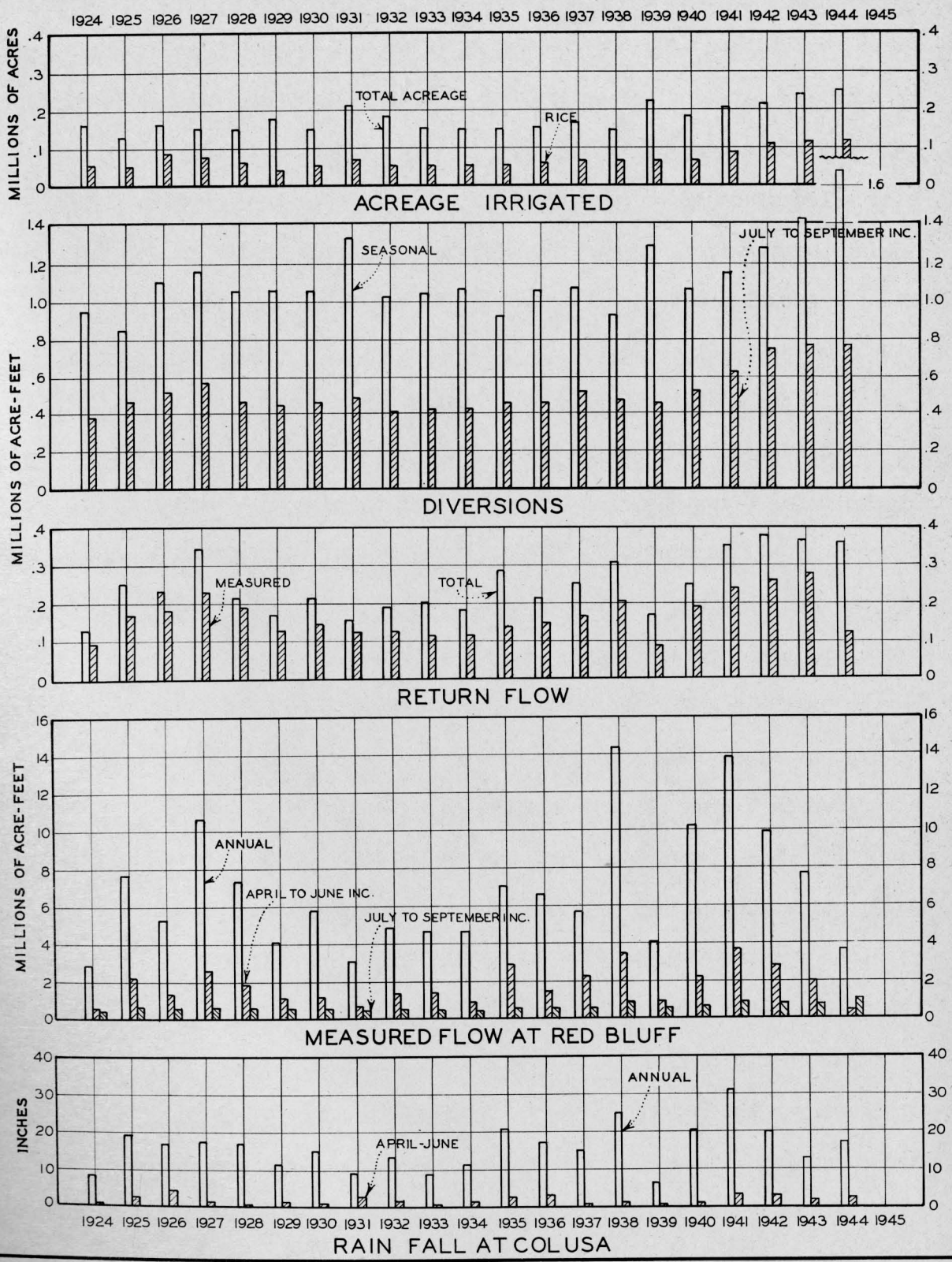
In order to show graphically for the Sacramento River the variation from year to year of the measured flows at Red Bluff, the return flows, and the acreages irrigated, the accompanying Plate 4 is presented.

Relation of Return Water to Diversions for Certain Sacramento Valley Areas. In the Sacramento Valley there are certain units or districts which are set apart physically by levees, or otherwise, so that the direct return water in each district may be readily segregated when the records of all diversions to and discharges from the units are available. Included in such units are the areas above the Colusa-Williams highway crossing of the Colusa Trough, and in Reclamation Districts 70, 108, 1500 and 1000. The relation between diversions and return water for the Colusa Trough area is shown in Table 133 and for Reclamation Districts 70, 108, 1500 and 1000 in Tables 134, 135, 136 and 137, respectively. As in the case of the return

water computations for the Sacramento River, no attempt has been made to present the data for the entire year, as there probably was much seepage into the districts due to high river stages. Should it be desired to make a detailed study of these return and seepage flows for the entire year the annual pumping from the various districts is given in the return flow tables and the annual precipitation records for rainfall stations in the valley are given in Tables 81 to 92.

San Joaquin River Return Waters. As pointed out, the stream flows in the San Joaquin River and its tributaries, on the valley floor, are mainly return water flows during the summer and fall seasons. Measurements and records of all pumping diversions between stream gaging stations on each stream were obtained in 1944 as usual, so that the data necessary for the computations of total return water are complete. The records for the stream gaging stations are given in Tables 60 to 80, inclusive. The records of diversions along the San Joaquin Valley streams above Durham Ferry Bridge are given in Tables 111 to 114, inclusive.

While it appears that some relation does exist between the seasonal water supply, the seasonal diversions and the return water from irrigation for the Sacramento Valley, in the case of the San Joaquin Valley the return water data apparently indicate no definite relation. This lack of relation may be due to the regulation which occurs in Lake McClure Reservoir on the Merced River, in Don Pedro Reservoir on the Tuolumne River and in Melones Reservoir on the Stanislaus River. It is to be noted that in some years the period used in the comparison of return flow and diversions makes considerable difference in the percentage figures, and further, that for the period August-September only, the percentage is nearly always greater than when the July-September period is used. As



SACRAMENTO-SAN JOAQUIN WATER SUPERVISION

SACRAMENTO RIVER

RED BLUFF TO SACRAMENTO

ACREAGE IRRIGATED, DIVERSIONS, RETURN FLOW, STREAM FLOW AND RAIN FALL

1924-1943

there may be considerable lag between diversions and corresponding return flows, the figures in the last column of Table 128 were compiled to show the August-September return flow in per cent of the July-August diversions. These percentages still seem to bear no definite relation to the seasonal runoff percentages, but their variation from year to year is somewhat reduced and a more or less constant percentage of return flow is indicated.

The average percentage of the diversions occurring as return water, for the San Joaquin River, is shown to be considerably smaller than that for the Sacramento River (Table 128). This difference may probably be attributed to the fact that, whereas, due to basin topography, practically all drainage from Sacramento River diversions is quickly returned to the river, considerable of the return water in the San Joaquin Valley may never reach the river because of its percolation to underground water and recovery by drainage pumps in low areas of many of the irrigation districts for re-use through irrigation canals.

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

Gross duty of water figures for the individual stream channels covered by Water Supervision work are given for the Sacramento Valley in Tables 93 to 96, inclusive, and for the San Joaquin Valley in Tables 119 to 125, inclusive.

Use of Water in Delta

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

Tables 142 and 143 in this report have been repeated from previous reports for ready reference. In Table 142 there is shown the unit consumptive use of water in the Sacramento-San Joaquin Delta. These unit figures are those developed from experimental data and with one exception are those which are used in the computation for Bulletin 27 of the Division of Water Resources. The exception is the use of water by weeds which has been increased to correspond with a total annual consumption of 2.15 acre-feet per acre. This change was based on later weed tank experiments. It is possible that a continuation of the experimental work, terminated in 1932, would indicate certain other changes in these unit figures with respect to aquatic growths, weeds and open water surfaces, but other than the above mentioned change for the item of idle land with weeds, the results of the work to date would apparently afford no justification for any material revision at this time of the figures previously used. Table 143 shows the

consumptive use of water in the Sacramento-San Joaquin Delta for the period 1924-1932, inclusive, and 1938.

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

SALINITY INVESTIGATIONS

The intrusion of salty sea water from San Francisco Bay into the channels of the Delta from which irrigation supplies are derived, is a matter of extreme importance, and the Water Supervision work has included observations during 1944 of the saline content of the water at several stations throughout the Delta and upper San Francisco and Suisun Bay areas, with cooperation from the U. S. Bureau of Reclamation.

Purpose

The purpose of the salinity investigation, as outlined in previous reports, has been to record the occurrence and extent of salinity encroachment from San Francisco Bay, and to establish the relation between movement of salinity, stream flow to the Delta, and tidal action. As reported in Bulletin 27 of the Division of Water Resources, this relation was established for the conditions which obtained during the period of the special investigation for that bulletin and upon the basis of all data available at that time. Subsequent investigations, therefore, have been directed to the maintenance of an unbroken record of the salinity, tidal and stream flow variations, essential not only in the corroboration of the relation presently established, but as the basis for a check of possible modifications in the relation due to changes in channel and tidal conditions which may have taken place or will occur in the future. Also, during

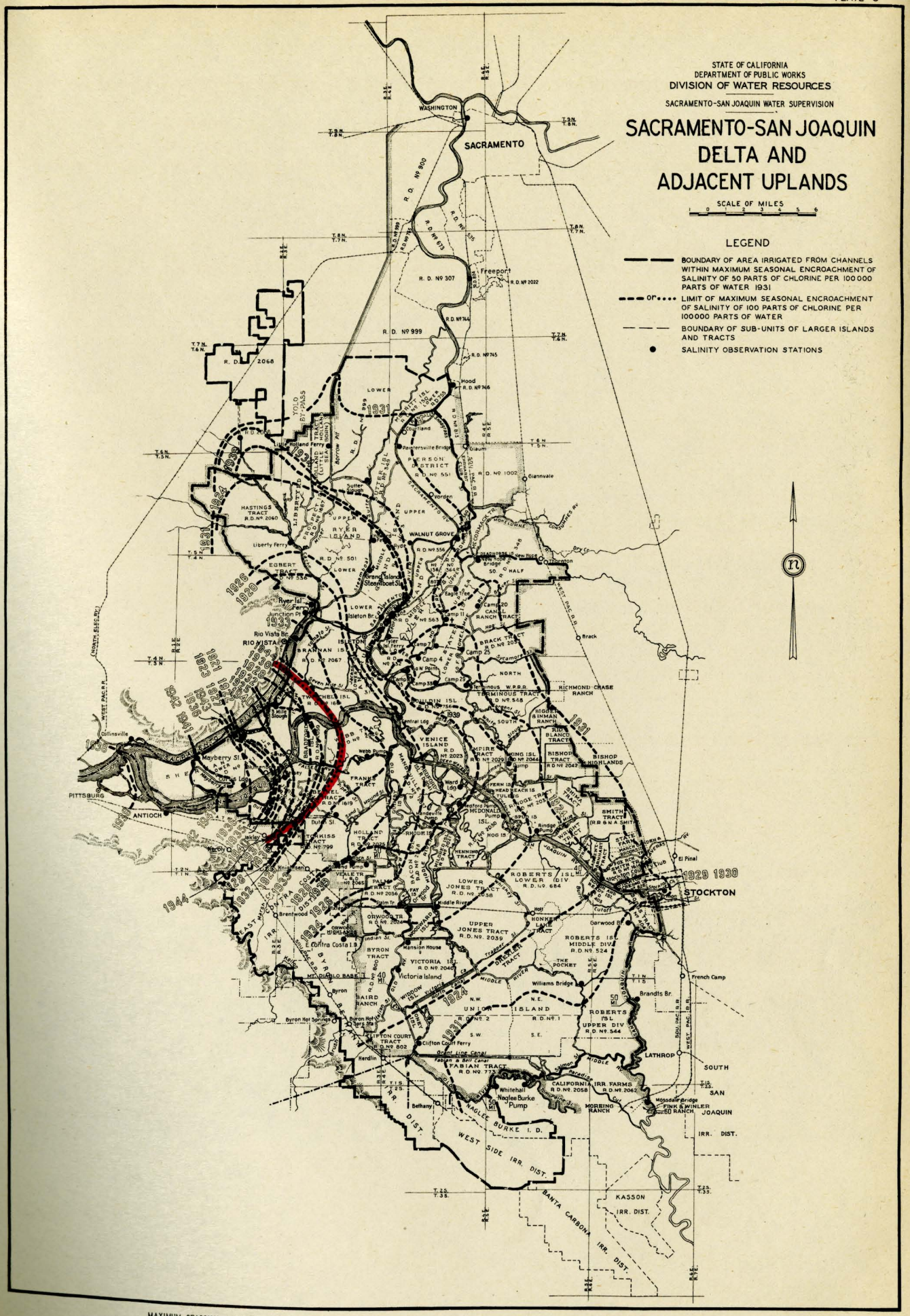
periods of low stream flow, the continuation of salinity sampling has been essential in keeping Delta irrigators advised of conditions through periodic bulletins so that damage from the use of water of too high salt content might be averted.

Scope

The general scope of this investigation each season has been such as to insure that samples of water to be tested for salinity would 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 5 shows the limit of encroachment into the Delta of water having 100 parts of chlorine per 100,000 parts of water for the years 1920 to 1944, inclusive.

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

A regular program of salinity sampling and testing was re-established early in 1944 as part of the activities of the Sacramento-San Joaquin Water Supervision, with the necessary funds therefor being provided by the U. S. Bureau of Reclamation. The records of water samples taken from nineteen sampling stations are given in Table 146.



MAXIMUM SEASONAL SALINITY ENCROACHMENT OF 100 PARTS OF CHLORINE PER 100,000 PARTS OF WATER, SACRAMENTO-SAN JOAQUIN DELTA 1920-1944

Station Maintenance and Records

The salinity sampling at all stations is done by local observers. Each observer is provided with a schedule showing the exact time for taking the samples, so that, throughout the Delta, all samples are taken at approximately one and one-half hours after the same high tide at four-day intervals. Table 145 gives the location and description of each station. The observers are furnished with stamped containers for the sample bottles so that the latter can be mailed as filled, to the laboratory at Sacramento. All analyses of the water were made at the Materials and Research Laboratory of the Division of Highways during the 1944 season.

The maximum salinity as recorded at the stations in 1944 is shown in Table 144. For comparative purposes, this table shows also the maximum salinity recorded at these stations in previous years beginning with 1933.

Salinity Bulletins

During 1943 the stream flow into the Sacramento-San Joaquin Delta did not reach a stage low enough to allow any appreciable encroachment of saline water into the Delta. Therefore, no salinity bulletins were mailed during that year.

During 1944 a salinity bulletin was mailed each month to the many interested agencies and individuals giving the results of samples taken and analyzed at four-day intervals at all of the stations. The figures given were the laboratory determination of the number of parts of chlorine per 100,000 parts of water.

Area of Salinity Encroachment

There is an apparent relation between the average stream flow to the Delta during the ten-day period of minimum flow and the area af-

fected by salinity encroachment. Data amassed in this regard indicate that when the flow to the Delta drops below a certain amount the rate of advance of salinity encroachment greatly accelerates. A comparison of the average stream flows during the ten-day period of minimum flow and the affected acreage in the Delta is presented in Table 147.

TIDE GAGES

In order to determine the behavior of the tides in the Sacramento-San Joaquin Delta and Upper San Francisco and Suisun bays, 27 recording tide gages are being operated, 17 by the Division of Water Resources, 4 by the U. S. Army Engineers, and 6 by the U. S. Bureau of Reclamation. These gages are strategically located throughout the area. The location and description of each station are given in Table 148 and the locations of the gages are shown on Plate 6. The table also shows the date the gage was installed. The gages have been operated continuously since their installation, with the exception of minor breaks in the record due to stoppages of gage clocks and other reasons. The gage at the San Joaquin River end of Three Mile Slough, however, was out of operation from September 1935 until July 1938.

The charts from the State-owned and operated gages are on file and the data from some of them have been tabulated.

During 1929, 1930 and 1931 gages were operated at many other points for short periods. Bulletin 27 of the Division of Water Resources gives the data obtained from these gage operations.

During the fall of 1939 the United States Coast and Geodetic Survey ran a line of first order levels across the Sacramento-San Joaquin Delta and tide gages have been tied in elevation to that datum.

SACRAMENTO – SAN JOAQUIN WATER SUPERVISION

LOCATIONS OF RECORDING TIDE GAGE STATIONS

SACRAMENTO–SAN JOAQUIN DELTA AND SUISUN BAY

SCALE OF MILES

2 0 2 4 6 8 10

TABLES

TABLE 1

COMPARATIVE SACRAMENTO VALLEY WATER SUPPLY 1920-1944

Year	Runoff in per cent of Normal*				Minimum Daily Mean Flow in Second Feet (1)									Rice Acreage Served By Sacramento River & Tributaries
	Sacto-San Joaquin to Delta		Sacramento at Red Bluff		Sacramento River at			Feather River at		Yuba River at		American River at		
					Red Bluff	Colusa	Sacramento	Oroville	Nicolaus	Smartsville	Mouth	Fairoaks	Sacramento	
	40 Yr.	50 Yr.	40 Yr.	50 Yr.										
1920	50	52	45	48	3240	660	(2)540	905	(3)19	106		100	(2)114	
1924	28	28	35	38	2810	1470	705	720	Zero	71		5	Zero	88500
1925	83	86	86	92	3240	1870	2760	1330	334	150		219	203	94700
1926	57	60	61	65	2980	1030	1330	1480	264	114		109	161	128600
1927	114	121	117	125	3580	1960	3420	1460	565	240		274	334	123300
1928	80	84	82	87	3400	1960	2510	1210	310	180		109	178	101100
1929	42	44	47	50	3060	1550	2300	1640	520	119		59	50	73700
1930	63	65	65	70	2980	1680	2350	1560	586	220		105	130	88000
1931	28	30	35	38	2480	820	-131	950	Zero	130	(2)22	30	28	126500
1932	74	78	54	58	2620	1530	1900	685	284	181		178	159	90700
1933	45	48	49	52	2620	1350	1340	1050	200	165		32	30	87400
1934	40	43	48	51	2400	1320	1050	1180	208	144	(2)45	77	75	91800
1935	86	91	80	86	2860	1780	2700	1470	690	250		178	185	78100
1936	91	96	76	81	2700	1540	2150	1560	603	266		356	415	104400
1937	75	80	64	68	2780	1370	1640	1420	230	219		234	230	109400
1938	160	170	157	168	3880	3000	4950	1690	772	295		455	439	94800
1939	41	43	47	50	2700	1320	556	1360	68	168	38	37	44	103800
1940	108	115	112	120	3220	2040	2430	1600	438	177	118	279	274	94200
1941	130	137	143	164	4180	2700	4020	1680	575	230	106	255	261	119800
1942	120	129	120	129	4010	2670	3560	1990	495	358	220	270	282	158100
1943	107	114	91	97	3610	2220	2460	1500	168	343	211	180	169	185400
1944	52	56	50	53	2010	2430	2650	1120	147	102	102	115	126	200000

(1) Minimum daily mean flow that occurred prior to September 30. For average minimum 10-day flow see Table 2.
(2) No continuous record. Lowest measured discharge.
(3) Lowest measured discharge at mouth of river, August 19.
* (40-year normal taken as 40-year mean (1889-1929) of natural runoff at foothill stations of major tributaries.
(50-year normal taken as 50-year mean (1889-1939) of natural runoff at foothill stations of major tributaries.

TABLE 2

AVERAGE MINIMUM 10-DAY FLOW FOR SACRAMENTO VALLEY STREAMS
FOR PERIOD MARCH 1 TO SEPTEMBER 30, 1924-1944

Year	SACRAMENTO RIVER															
	At Keswick		Near Red Bluff		At Butte City		At Colusa		At Wilkins Slu		At Knights Ldg.		At Verona		At Sacramento	
	Date	c.f.s.	Date	c.f.s.	Date	c.f.s.	Date	c.f.s.	Date	c.f.s.	Date	c.f.s.	Date	c.f.s.	Date	c.f.s.
1924	No record		8/8	2840	7/21	1580	7/23	1540	No record prior to 1931		7/20	1060	No record		7/14	858
1925	No record		8/9	3400	9/1	2150	8/7	2030			8/8	1990	No record		8/7	2860
1926	8/8	2710	9/20	3030	8/10	1350	8/11	1060			8/1	1120	8/1	1620	7/28	1460
1927	8/20	3240	9/9	3680	8/20	2330	8/22	1990			8/20	2220	8/13	3420	8/23	3560
1928	9/6	3120	9/7	3490	8/19	2150	8/14	2000			8/15	1920	8/14	2760	8/15	2660
1929	9/1	2820	9/11	3060	8/19	1680	8/19	1570			8/20	1400	7/18	2440	7/18	2460
1930	9/1	2800	8/27	2980	8/20	1880	8/19	1690			8/20	1460	8/22	2640	8/5	2500
1931	8/22	2510	8/10	2550	7/28	1080	7/26	860	7/27	797	7/21	279	7/21	327	7/20	-80
1932	9/25	2570	9/7	2680	9/30	1530	8/27	1550	8/8	958	8/11	1030	8/11	1890	8/11	1980
1933	9/1	2580	8/24	2640	8/19	1370	8/23	1360	8/20	714	8/15	964	8/6	1470	8/21	1450
1934	9/21	2430	9/13	2480	8/20	1320	8/22	1330	8/19	658	8/6	773	8/10	1300	7/20	1150
1935	9/6	2780	9/6	2940	9/28	1820	8/27	1820	8/29	1180	8/10	1610	8/30	2980	8/12	2920
1936	9/30	2580	9/26	2880	8/18	1630	8/19	1580	8/18	1100	8/8	1370	8/20	2420	8/20	2540
1937	9/26	2640	8/25	2900	8/25	1450	8/27	1410	8/28	870	8/16	1120	8/16	1810	8/16	1720
1938	9/22	3680	9/19	3940	9/5	3060	8/23	3130	8/22	2690	8/10	2980	8/12	4920	8/12	5190
1939	8/25	2830	8/25	2850	8/10	1400	8/8	1370	8/5	683	7/30	785	8/5	1030	8/5	630
1940	8/29	3200	8/23	3410	8/25	2040	8/18	2140	8/18	1370	8/18	1670	8/12	2510	8/12	2550
1941	9/25	3950	9/10	4380	8/22	2830	8/24	2980	8/23	2270	8/23	2680	8/25	4010	8/24	4190
1942	9/25	3870	9/17	4140	8/22	2730	8/23	2860	8/24	1840	8/24	2390	8/23	3540	8/22	3740
1943	9/3	3610	9/4	3770	8/21	2380	8/22	2300	8/21	1550	8/17	1710	8/17	2650	8/17	2600
1944	3/23	840	3/31	2060	9/5	2380	4/16	2720	7/11	1620	7/11	1630	7/12	2830	8/13	2790

NOTE: For minimum daily mean flow see Table 1.

TABLE 2 (CONTINUED)

AVERAGE MINIMUM 10-DAY FLOW FOR SACRAMENTO VALLEY STREAMS
FOR PERIOD MARCH 1 TO SEPTEMBER 30, 1924-1944

Year	FEATHER RIVER				YUBA RIVER				AMERICAN RIVER				MOKELUMNE RIVER		CALAVERAS RIVER	
	Near Oroville		At Nicolaus		At Smartville		Near Marysville		At Fairoaks		At Sacramento		At Woodbridge		At Jenny Lind	
	Date	c.f.s.	Date	c.f.s.	Date	c.f.s.	Date	c.f.s.	Date	c.f.s.	Date	c.f.s.	Date	c.f.s.	Date	c.f.s.
1924	7/8	823	8/10	0	7/31	84	No continuous		8/5	5	8/4	5	9/1	1	No record	
1925	9/3	1600	8/22	460	8/31	158	record prior		8/26	237	8/27	240	8/23	33	8/15	0
1926	7/1	1720	8/15	470	9/16	126	to		8/25	157	8/27	180	8/11	3	8/15	0
1927	9/20	1720	8/27	670	9/25	261	1939		9/21	309	8/27	370	9/20	2	9/15	0
1928	9/20	1330	8/13	330	9/25	212			8/23	188	8/22	230	8/30	2	9/15	0
1929	7/8	1770	7/16	583	9/25	124			9/25	94	9/30	69	7/17	33	9/10	0
1930	7/16	1840	7/18	694	9/22	235			8/20	166	8/21	162	7/1	4	9/10	1
1931	9/23	1060	7/15	0	8/31	133	8/9*	22	8/15	53	8/17	43	9/25	3	9/10	0
1932	9/23	820	9/5	293	9/10	186			9/10	202	9/14	193	8/11	249	9/10	0
1933	9/20	1120	9/5	222	9/20	169			9/9	72	9/9	70	6/23	140	8/15	0
1934	9/12	1300	9/7	308	9/7	150	8/23	45	9/1	93	9/6	110	6/25	8	8/15	0
1935	9/12	1500	9/17	975	9/16	266			9/6	204	9/6	199	8/16	206	9/10	0
1936	9/9	1880	8/30	835	9/22	278			8/28	410	8/30	438	7/17	162	9/15	0
1937	9/9	1440	8/11	265	8/20	230			9/17	264	9/16	287	7/31	140	9/15	0
1938	9/7	2070	9/7	1020	9/8	324			9/20	462	9/16	448	9/10	212	9/15	2
1939	8/5	1380	8/6	87	9/25	182	8/15	42	9/9	47	8/8	49	4/25	44	9/10	0
1940	8/7	1650	8/10	490	8/17	280	9/1	120	8/26	340	8/26	330	8/16	122	9/15	0
1941	9/17	1820	8/23	640	9/12	260	9/14	120	9/17	320	9/19	340	7/20	146	9/25	1
1942	8/20	2090	8/21	562	9/23	399	9/23	235	9/25	270	9/25	302	7/29	139	8/27	1
1943	9/22	1530	9/8	198	9/6	1	9/10	223	9/25	209	9/25	201	8/27	210	8/20	0
1944	9/26	1525	8/22	163	9/22	267	8/24	116	9/4	151	9/4	149	7/28	40	7/18	0

NOTE: For minimum daily mean flow see Table 1. * Single measurements only.

TABLE 3

COMPARATIVE SAN JOAQUIN VALLEY WATER SUPPLY 1920-1944

Year	Runoff in per cent of normal*				Minimum Daily Mean Flow in Second-Feet (1)										
	Sacramento and San Joaquin to Delta		San Joaquin at Vernalis		San Joaquin River			Merced River		Tuolumne River		Stanislaus River		Calaveras River at Jenny Lind	Mokelumne River at Woodbridge	Cosumnes River at Michigan Bar
					near Vernalis	near Newman	at (3) Fremont Ford Br.	at Yosemite Val. R.R.	near Mouth	at La Grange Br.(4)	at Tuolumne City	at Orange Blossom Bridge	at Hatmark Ranch (5)			
	40Yr.	50Yr	40Yr.	50Yr												
1920	50	52	63	66	(2)450	62								0		1
1924	20	28	24	24	391	15	0	0	(2) 2	(2) 29	(2)245	(2) 14	(2) 95	0	1	0
1925	83	86	86	88	660	114	0	(2) 4	(2) 73	(2) 35	(2)299	(2) 19	(2)161	0	3	6
1926	57	60	55	56	565	62	0	(2) 5	(2) 53	(2) 32	(2)286	(2) 15	(2)116	0	3	0
1927	114	121	100	104	1290	305	0	(2) 12	(2) 204	(2)204	(2)391	(2) 29	(2)275	0	1	6
1928	80	84	67	70	840	205	0	6	53	38	292	31	194	0	2	2
1929	42	44	44	46	565	105	0	4	65	32	287	30	205	0	3	1
1930	63	65	50	53	645	170	0	7	92	60	344	32	216	0	3	1
1931	28	30	26	27	200	22	0	1	17	25	243	25	81	0	3	0
1932	74	78	101	106	965	251	0	27	165	37	348	35	223	0	150	1
1933	45	48	51	54	569	187	0	7	127	36	280	19	185	0	81	0
1934	40	43	35	37	315	62	(2) 5	7	36	26	270	20	104	0	6	0
1935	86	91	98	103	850	306	(2) 97	46	206	34	345	28	199	0	84	2
1936	91	96	100	104	980	360	150	25	190	33	375	28	194	0	65	4
1937	75	80	100	105	950	333	115	12	211	3	355	17	212	0	106	2
1938	160	170	172	180	2030	702	280	66	335	8	460	22	270	1	143	14
1939	41	43	44	46	545	202	32	2	155	3	310	13	140	0	36	0
1940	108	115	101	105	996	340	99	7	200	3	365	17	217	0	71	1
1941	130	137	121	127	1300	412	187	18	238	19	300	13	252	0	55	5
1942	120	129	113	118	1450	472	200	16	242	14	520	20	210	1	64	17
1943	107	114	112	117	1420	405	157	18	207	22	490	18	205	0	133	12
1944	52	56	59	62	1091	331	104	10	(6) 211	31	350	17	135	0	54	2

* 40-year normal taken as 40-year mean (1889-1929) of natural runoff at foothill stations of major tributaries.
* 50-year normal taken as 50-year mean (1889-1939) of natural runoff at foothill stations of major tributaries.
(1) Minimum daily mean flow that occurred prior to September 30. For average minimum 10-day flow see Table 4.
(2) No continuous record. Lowest discharge measured.
(3) Prior to 1934 station maintained at Delta Bridge.
(4) Prior to 1937 station maintained at Roberts Ferry Bridge. Minimum flow at Roberts Ferry for 1937, 1938 and 1939 was 18, 20 and 34 cubic feet per second, respectively.
(5) Station at Hatmark abandoned September 30, 1940. New station established at Bret Harte pump September 30, 1940.
(6) Station Merced River near Mouth abandoned in 1944, and superseded by new station Merced River below Stevinson Drain maintained by U. S. Bureau of Reclamation and U. S. Geological Survey.

AVERAGE MINIMUM 10-DAY FLOW FOR SAN JOAQUIN VALLEY STREAMS
FOR PERIOD MARCH 1 TO SEPTEMBER 30, 1924-1944

Year	SAN JOAQUIN RIVER											
	Near Friant		At Fremont Ford Br.		Near Newman		At Grayson		At Hetch Hetchy Cross.		Near Vernalis	
	Date	c.f.s.	Date	c.f.s.	Date	c.f.s.	Date	c.f.s.	Date	c.f.s.	Date	c.f.s.
1924	9/17	185	No continuous record prior to 1937		8/9	17	No continuous record prior to 1930		No continuous record prior to 1936		9/2	410
1925	9/23	596			9/25	122					9/29	740
1926	9/16	578			9/19	77					8/21	590
1927	9/25	787			9/2	326					8/23	1300
1928	9/25	813			8/20	234					8/22	870
1929	9/25	477			7/21	116					8/13	591
1930	9/25	678			7/20	184	8/8	230			8/4	740
1931	9/22	111			8/23	33	8/26	24			7/20	211
1932	9/21	1040			9/5	267	9/7	410			9/6	1020
1933	9/21	1090			8/15	196	8/15	270			8/14	607
1934	9/14	360			9/3	706	8/12	123			8/14	347
1935	9/25	1210			8/27	333	9/11	449			8/13	922
1936	9/24	1200	8/18	161	8/12	387	8/17	557	8/16	835	8/11	1040
1937	9/22	1130	8/21	122	8/23	364	9/24	517	8/23	744	8/23	1022
1938	9/21	1200	9/25	306	9/24	725	9/14	941	8/26	1800	8/27	2130
1939	*9/20	727	8/10	36	8/20	219	7/25	235	7/26	443	7/25	610
1940	9/23	896	8/23	101	8/20	345	8/24	520	8/13	875	8/10	1070
1941	9/11	1220	9/12	220	9/25	470	9/15	720	9/15	1360	9/14	1480
1942	9/23	1260	9/22	211	8/30	481	9/19	688	9/14	1245	8/20	1520
1943	9/24	1000	9/3	168	9/1	422	8/16	605	8/4	1216	8/4	1480
1944	3/6	584	8/10	115	9/12	377	8/9	515	8/9	702	8/9	1033

* New station started "Below Friant".
NOTE: For minimum daily mean flow see Table 3.

TABLE 4 (CONTINUED)

AVERAGE MINIMUM 10-DAY FLOW FOR SAN JOAQUIN VALLEY STREAMS
FOR PERIOD MARCH 1 TO SEPTEMBER 30, 1924-1944

Year	STANISLAUS RIVER										MERCED RIVER							
	At Orange Blossom Br.		At Burneville Br.		At Ripon		At Bret Harte		At * Hatmark Ranch		At Yosemite Valley R. R.		At Cressey Br.		Near Livingston		Near Mouth	
	Date	c.f.s.	Date	c.f.s.	Date	c.f.s.	Date	c.f.s.	Date	c.f.s.	Date	c.f.s.	Date	c.f.s.	Date	c.f.s.	Date	c.f.s.
1924															8/1	26		
1925	No record		No record		No record		No record		No record		No record		No record		No record		No record	
1926	prior		prior		prior		prior		prior		prior		prior		9/24	53	prior	
1927	to 1930		to 1940		to 1940		to 1941		to 1930		to 1930		to 1941		8/28	121	to 1930	
1928															8/15	118		
1929															9/25	89		
1930	9/15	32							8/11	241	9/25	3			6/9	97	8/16	126
1931	9/15	25							8/17	96	9/18	1			9/20	55	8/23	258
1932	9/25	35							8/11	241	8/6	18			8/7	140	8/8	190
1933	9/22	19							9/5	215	9/25	11			8/21	121	8/13	141
1934	9/20	20							8/15	137	9/25	2			9/3	82	8/18	68
1935	9/1	28							9/22	230	9/9	48			9/22	159	9/16	220
1936	8/25	28							9/26	230	8/8	37			8/10	178	9/24	216
1937	9/21	17							9/10	226	9/25	21			9/20	199	8/16	228
1938	9/11	20					Station established 10/1/40		9/16	280	8/10	76			9/12	258	9/18	342
1939	9/11	14							8/20	144	9/21	7			8/8	124	8/8	174
1940	9/24	19	9/25	98	9/24	212			8/13	248	9/14	7			9/16	160	9/17	218
1941	9/15	18	9/25	86	9/15	209	9/22	262	Station discontinued 9/30/40		7/21	24	9/15	108	9/10	164	9/14	257
1942	9/26	22	9/21	99	8/15	207	8/20	232			9/24	18	9/18	104	9/18	175	9/19	250
1943	9/20	23	9/25	76	9/18	217	9/8	228			9/15	21	8/10	67	8/10	164	8/30	237
1944	9/26	4	8/15	0	9/17	179	8/14	158	8/14	158	9/26	18	8/26	2	Station discontinued in 1944		*9/10	220

TABLE 4 (CONTINUED)

AVERAGE MINIMUM 10-DAY FLOW FOR SAN JOAQUIN VALLEY STREAMS
FOR PERIOD MARCH 1 TO SEPTEMBER 30, 1924-1944

Year	TUOLUMNE RIVER										DRY CREEK	
	At La Grange Br.		At Roberts Ferry Br.		At Hickman Br.		At Modesto Br.		At Tuolumne City		Near Modesto	
	Date	c.f.s.	Date	c.f.s.	Date	c.f.s.	Date	c.f.s.	Date	c.f.s.	Date	c.f.s.
1924	No record prior to 1937		No record prior to 1930		No record prior to 1932		No record prior to 1940		No record prior to 1930		No record prior to 1930	
1925												
1926												
1927												
1928												
1929												
1930			8/1	78					8/3	366	7/7	41
1931			9/25	25					7/28	249	9/16	19
1932			8/27	40	8/26	105			8/28	358	8/18	50
1933			8/19	37	8/11	102			8/3	310	7/18	41
1934			9/7	28	7/1	94			9/17	284	9/25	38
1935			8/31	35	9/6	100			8/10	370	8/15	48
1936			8/28	36	8/14	123			9/13	385	9/30	62
1937	8/15	3	8/17	19	8/21	123			8/15	363	9/18	51
1938	8/21	10	8/20	29	8/24	155			8/25	468	7/31	69
1939	6/10	3	6/15	36	4/20	138			6/18	326	9/4	38
1940	8/3	4	7/21	40	7/25	110	8/14	290	8/7	380	9/9	45
1941	8/5	137	8/6	190	8/6	211	9/13	480	9/13	595	7/25	55
1942	8/5	76	8/5	127	8/6	240	8/7	577	8/6	565	8/28	58
1943	7/1	55	7/13	65	7/15	230	7/15	392	7/15	538	9/20	44
1944	7/7	26	7/8	43	9/22	114	8/12	293	8/12	345	8/18	49

NOTE: For minimum daily mean flow see Table 3.

TABLE 5

COMPARISONS BETWEEN 40 AND 50 YEAR MEAN FULL NATURAL FLOWS*

River and Station	40-Year Mean Full Natural Flow 1889-90 to 1928-29 (Acre-feet)	50-year Mean Full Natural Flow 1889-90 to 1938-39 (Acre-feet)	Changes in Mean
Sacramento at Red Bluff	9,354,000	8,747,000	-7%
Feather at Oroville	5,201,000	4,853,000	-7%
Yuba at Smartville	2,653,000	2,490,000	-6%
Bear at Wheatland	402,000	373,000	-7%
American at Fairoaks	3,069,000	2,879,000	-6%
Sacramento at Sacramento	20,679,000	19,342,000	-6%
Cosumnes at Michigan Bar	407,000	382,000	-6%
Mokelumne at Mokelumne Hill	853,000	802,000	-6%
Calaveras at Jenny Lind	227,000	210,000	-7%
Stanislaus below Melones	1,350,000	1,273,000	-6%
Tuolumne at La Grange	2,070,000	1,985,000	-4%
Merced at Exchequer	1,115,000	1,069,000	-4%
San Joaquin at Friant	1,995,000	1,914,000	-4%
San Joaquin at Vernalis	6,530,000	6,241,000	-4%
Combined flow to Delta	28,695,000	26,977,000	-6%
Kings at Piedra	1,889,000	1,818,000	-4%
Kaweah at Three Rivers	443,000	433,000	-2%
Kern at Bakersfield	725,000	710,000	-2%

(40-year normal taken as 40-year mean (1889-1929) of natural runoff (at foothill stations of major tributaries.

* (50-year normal taken as 50-year mean (1889-1939) of natural runoff (at foothill stations of major tributaries.

TABLE 6

SACRAMENTO RIVER STREAM GAGING STATIONS
RELATION OF GAGE HEIGHTS TO FLOW FOR 1944 SEASON

Station	*Gage Height, U.S.E.D. Elevation of Water Surface for Rated Flows of:									
	1000 c.f.s.	2000 c.f.s.	3000 c.f.s.	4000 c.f.s.	5000 c.f.s.	6000 c.f.s.	7000 c.f.s.	8000 c.f.s.	9000 c.f.s.	10000 c.f.s.
Sacramento	Flows under 10,000 c.f.s. have no appreciable effect on average gage heights due to tidal action. Tidal effect lost at elevation 13.0 for flows of 25,000 c.f.s.									
Verona		8.6	9.4	10.2	10.8	11.6	12.3	12.9	13.5	14.1
Knights Landing (1)		12.2	13.6	15.1	16.0					
Wilkins Slough	18.7	21.3	23.1	24.7	26.1	27.5	28.9	30.2	31.6	33.0
Colusa		36.7	38.1	39.3	40.3	41.3	42.3	43.2	44.1	45.1
Butte City		69.2	69.8	70.4	70.9	71.4	71.8	72.3	72.7	73.1
Red Bluff (Iron Canyon)		251.15	252.85	253.45	254.0	254.4	254.8	255.2	255.5	255.9
Keswick (2)	499.4	500.9	502.1	503.3	504.3	505.2	506.0	506.8	507.5	508.2

* Elevations may vary on account of channel changes due to scour or fill.

(1) Affected by backwater from Feather River flows. Relation as given is for average backwater conditions applicable only from June 15 to October 31.

(2) When flashboards in place in Anderson-Cottonwood Irrigation District dam, subtract 0.8 feet from observed gage height before applying rating.

TABLE 7

SACRAMENTO RIVER STREAM GAGING STATIONS
COMPARATIVE WATER SURFACE ELEVATIONS AND FLOWS FOR MONTH OF JULY

Station	Elevation of Zero of Staff Gage U.S.E.D.	July 1939		July 1943		*July 1944	
		Av. W.L. U.S.E.D.	Av. Flow c.f.s.	Av. W.L. U.S.E.D.	Av. Flow c.f.s.	Av. W.L. U.S.E.D.	Av. Flow c.f.s.
Sacramento	3.1	5.3	980	6.7	4860	6.2	3100
Verona	0.0	7.6	1280	9.8	4130	9.5	2977
Knights Landing	(1) 0.0	9.4	997	13.0	2540	12.1	1898
Wilkins Slough	0.0	19.0	920	22.3	2510	21.4	1797
Colusa	(2) 0.0	36.5	1660	38.8	3300	38.6	2982
Butte City	0.0	68.9	1620	70.6	3450	70.1	3449
Red Bluff (Iron Canyon)	(4) 252.6	253.0	(3)3150	253.8	4600	254.0	4969
Keswick	(4)495.0	No record		503.6	4300	504.3	5003

* Controlled releases from Shasta Reservoir in operation in 1944.

(1) Weather Bureau gage 0° = 7.6 U.S.E.D.
(2) Weather Bureau gage 0° = 40.4 U.S.E.D.
(3) Average flow during August - 2926 c.f.s.
(4) Elevations are given to U.S.G.S. datum.

TABLE 8

AVERAGE WATER SURFACE ELEVATIONS AT VARIOUS POINTS ON SACRAMENTO RIVER
FOR SEMI-MONTHLY PERIODS - MARCH TO OCTOBER - 1944
ELEVATIONS ARE U.S.E.D. DATUM

Station	Miles above Sacramento	Month and Period																0° Staff Gage U.S.E.D. datum
		March		April		May		June		July		August		September		October		
		1-15	16-31	1-15	16-30	1-15	16-31	1-15	16-30	1-15	16-31	1-15	16-31	1-15	16-30	1-15	16-31	
Sacramento	0	15.2	9.5	9.5	9.0	12.6	10.9	9.7	6.5	6.3	6.1	5.8	5.6	5.8	6.1	5.6	5.4	3.10
Conaway Ranch	12.0	NR	NR	NR	NR	15.9	13.4	11.4	8.3	7.4	7.4	7.4	7.3	8.1	9.0	NR	NR	0.0
Central M.W. Co.	16.0	NR	NR	NR	NR	NR	15.4	13.3	10.0	8.9	8.9	8.9	9.0	9.6	11.0	NR	NR	-0.5
Verona	19.6	22.8	16.1	15.8	15.3	18.5	15.8	13.8	10.7	9.5	9.5	9.6	9.8	10.1	11.8	10.9	11.0	-0.06
Knights Landing	34.0	26.0	19.1	18.0	17.8	20.5	18.2	16.4	13.6	11.9	12.2	12.6	12.8	13.8	15.7	14.1	14.1	0.0
State Ranch Bend	40.6	NR	NR	NR	18.2	21.2	19.0	17.1	14.3	12.5	12.9	13.3	13.6	14.5	16.6	NR	NR	0.0
Rough and Ready	44.0	28.8	21.5	18.8	18.8	21.5	19.5	17.9	15.3	13.2	13.3	13.7	14.1	14.8	NR	NR	NR	0.0
Wilkins Slough	62.9	34.6	26.9	23.4	23.9	26.3	24.5	23.4	22.0	21.1	20.6	21.3	21.5	21.8	25.0	22.9	22.8	0.0
R.D. 70 Drain	68.8	36.2	29.0	NR	NR	28.4	26.9	25.8	24.7	23.8	24.2	24.4	24.5	24.4	NR	NR	NR	0.0
Meridian	79.8	40.7	34.5	32.7	33.8	34.8	33.8	33.1	32.4	31.7	32.0	32.1	32.1	NR	NR	NR	NR	0.0
Colusa	89.4	45.4	39.7	38.5	39.8	40.8	39.6	38.9	38.5	38.9	38.3	38.3	38.3	38.1	38.4	37.9	37.8	0.0
Butte City	115.8	73.2	70.5	69.9	70.1	71.3	70.7	70.1	70.2	69.9	70.0	70.1	69.9	69.7	69.8	69.6	69.6	0.0
Ord Ferry	130.8	99.5	97.2	96.5	97.4	97.9	97.2	97.0	96.8	96.6	96.9	96.8	96.8	96.7	96.7	98.3	96.3	0.0
Gianella Br.	150.0	129.3	127.5	126.8	127.6	128.3	127.7	127.4	127.2	127.0	127.3	127.3	127.2	127.1	127.0	126.6	126.7	127.9
Glenn Colusa I.D.	154.8	NR	NR	140.5	142.4	142.7	141.8	142.0	141.8	141.4	141.8	141.8	141.7	141.6	141.9	141.6	141.6	3.1
Red Bluff	193.4	244.7	242.2	241.8	243.8	244.5	244.1	243.9	243.7	243.8	244.1	244.1	243.9	243.5	243.1	242.6	242.5	240.6
Iron Canyon	198.6	253.6	251.9	252.3	253.4	253.8	253.4	253.3	253.2	253.2	253.5	253.4	253.4	252.1	252.6	252.2	252.2	252.0

TABLE 9

AVERAGE WATER SURFACE ELEVATIONS AT VARIOUS POINTS ON SAN JOAQUIN VALLEY STREAMS
FOR SEMI-MONTHLY PERIODS - MARCH TO OCTOBER - 1944
ELEVATIONS ARE U.S.E.D. DATUM

Station	Miles above Mouth	Month and Period																Datum of 0° of Staff Gage
		March		April		May		June		July		August		September		October		
		1-15	16-31	1-15	16-30	1-15	16-31	1-15	16-30	1-15	16-31	1-15	16-31	1-15	16-30	1-15	16-31	
San Joaquin River																		
at Mossdale	58.9	10.7	7.8	7.1	8.1	8.3	9.7	8.3	7.1	6.6	6.2	6.2	5.8	6.0	5.6	6.0	5.8	5.4 U.S.E.D.
at Vernalis	76.7	20.6	18.3	16.2	17.1	17.1	19.4	19.5	16.6	15.4	15.0	14.8	15.0	15.0	15.3	15.9	16.1	8.4 U.S.E.D.
at Maze Road	81.8	23.9	21.5	19.5	20.4	20.3	22.1	22.4	19.8	18.8	18.3	18.1	18.2	18.3	18.6	19.4	19.6	0.0 U.S.E.D.
at Grayson	96.1	33.1	30.7	28.6	29.7	28.5	29.7	31.9	29.2	28.1	27.5	27.4	27.5	27.4	27.7	28.0	27.7	0.0 U.S.E.D.
at Patterson	104.4	42.0	40.0	38.4	39.3	39.2	39.3	41.1	38.8	37.9	37.3	37.1	37.2	37.1	37.5	37.4	37.3	0.0 U.S.E.D.
at Crows Ldg.Br.	113.0	48.5	46.8	45.1	45.7	45.0	45.9	47.7	45.5	44.7	44.2	44.1	44.1	43.9	44.2	44.9	44.7	42.2 U.S.E.D.
at Newman	123.7	57.5	55.6	53.7	54.5	53.7	54.8	56.6	54.1	53.3	52.8	52.6	52.7	52.5	52.9	52.9	53.0	51.0 U.S.E.D.
at Fremont Ford	129.5	64.5	61.6	60.3	61.0	60.4	60.9	60.7	60.6	60.4	59.5	59.4	59.5	59.5	59.9	60.0	60.4	0.0 U.S.E.D.
Merced River																		
near Mouth	1.1	59.9	59.9	58.2	58.8	58.0	59.2	61.4	51.6	57.6	57.5	57.3	57.3	57.0	57.2	57.2	57.0	3.6 U.S.E.D.
at Livingston	17.1	88.7	89.0	87.1	87.8	86.9	88.8	91.8	87.3	86.3	86.3	86.2	86.1	86.0	86.1	86.3	86.1	83.0 U.S.E.D.
at Cressey Br.	27.7	NR	3.7	2.1	2.7	1.9	NR	NR	1.9	1.1	1.2	1.1	1.1	1.1	1.1	1.3	1.1	?
at Yos.Val.R.R.	42.1	3.6	3.8	3.0	3.4	2.8	4.0	5.1	2.8	2.5	2.6	2.5	2.4	2.4	2.4	2.4	2.3	?
Tuolumne River																		
at Tuolumne City	3.4	31.7	29.3	28.7	29.2	29.8	29.7	29.8	28.4	28.3	28.2	28.2	28.2	28.1	28.3	28.9	29.6	0.0 U.S.E.D.
at Modesto	15.8	41.4	38.5	37.8	38.3	39.2	39.8	39.1	37.6	37.3	37.3	37.2	37.2	37.2	38.0	38.3	39.4	0.0 U.S.G.S.
at Hickman Br.	31.7	76.3	74.6	74.1	74.5	75.3	75.5	75.1	74.1	74.1	74.1	74.0	74.0	74.0	74.0	74.3	75.3	0.0 U.S.G.S.
at Roberts Ferry Br.	39.9	113.6	112.2	111.5	111.9	112.7	112.8	112.5	111.4	111.1	111.4	111.5	111.4	111.1	111.6	112.2	112.7	3.6 U.S.E.D.
at La Grange Br.	50.4	169.5	173.5	166.3	167.0	168.5	168.8	168.1	166.4	166.3	166.3	166.4	166.3	166.3	166.7	167.6	168.4	0.0f U.S.G.S.
Stanislaus River																		
at Bret Harte	5.9	25.5	24.8	22.9	23.5	23.8	27.1	25.2	22.9	22.4	22.0	21.7	21.7	21.8	21.8	21.9	22.1	0.0 U.S.G.S.
at Ripon	16.0	43.8	42.3	39.4	40.4	41.7	46.4	43.1	39.4	38.4	38.2	38.0	38.0	38.0	38.1	38.2	38.2	0.0 U.S.G.S.
at Riverbank	35.6	79.2	77.8	NR	76.8	76.9	80.6	78.2	NR	NR	NR	NR	NR	NR	NR	NR	74.0	0.0f U.S.G.S.
At Orange Blossom Br.	44.7	5.2	3.8	2.1	2.5	4.2	6.6	4.3	2.0	1.8	1.8	1.8	1.8	1.8	1.5	1.5	1.8	125.0* U.S.G.S.

* Assumed
f Assumed to be U.S.G.S. Datum.
NOTE: 3.6 feet has been added to elevations on U.S.G.S. Datum to convert to U.S.E.D. Datum.

TABLE 10

DAILY CONTENT OF SHASTA RESERVOIR IN ACRE-FEET - 1944

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1		108700	411000	846600	1080000	1144000	1175000	1089000	968100	918700	977400	1205000
2	21100	132900	427400	856300	1084000	1148000	1175000	1086000	964900	920200	981200	1223000
3	22900	174800	443000	866000	1088000	1154000	1174000	1083000	962800	922000	991000	1234000
4	24600	200600	473000	876900	1092000	1156000	1174000	1078000	957500	923500	1005900	1243000
5	26600	214100	499200	887800	1095000	1157000	1174000	1075000	955400	924200	1011000	1251000
6	29800	224100	518800	898900	1098000	1158000	1173000	1070000	953300	925000	1017000	1258000
7	32700	232200	534100	910000	1101000	1161000	1172000	1066000	951200	925700	1022000	1264000
8	34400	246400	547600	921300	1103000	1163000	1170000	1062000	949100	924800	1028000	1270000
9	35900	265500	562700	930500	1107000	1166000	1168000	1058000	947000	925500	1052000	1275000
10	37000	280300	579600	939800	1110000	1167000	1167000	1054000	943900	926400	1076000	1279000
11	38800	288400	596200	951200	1114000	1167000	1164000	1051000	939800	927400	1089000	1284000
12	40900	293300	611500	967000	1116000	1166000	1162000	1048000	937700	929000	1098000	1288000
13	43600	296900	626300	978700	1117000	1167000	1158000	1044000	934600	930400	1108000	1292000
14	47600	299700	638200	992700	1119000	1168000	1156000	1039000	932600	931500	1114000	1296000
15	52100	304300	651800	1005000	1119000	1169000	1151000	1034000	928400	932000	1120000	1301000
16	55400	309900	664800	1016000	1120000	1169000	1148000	1030000	927400	933700	1123000	1304000
17	58300	315700	678000	1027000	1121000	1169000	1144000	1026000	923300	935600	1127000	1306000
18	61500	320900	693000	1036000	1123000	1169000	1142000	1022000	922300	937300	1130000	1310000
19	64600	326300	704800	1042000	1127000	1169000	1138000	1019000	921300	939000	1132000	1319000
20	67600	330700	716000	1048000	1129000	1170000	1135000	1015000	920200	940800	1135000	1335000
21	70200	335600	728200	1051000	1130000	1170000	1132000	1009000	920200	942900	1137000	1348000
22	73000	343100	740400	1053000	1130000	1170000	1129000	1006000	919200	943700	1139000	1372000
23	74800	351800	753700	1055000	1130000	1172000	1124000	1001000	918200	946400	1142000	1393000
24	79200	359000	763600	1059000	1132000	1172000	1120000	998100	917200	949000	1144000	1408000
25	83800	365200	773600	1062000	1135000	1173000	1116000	993800	916200	951300	1147000	1421000
26	87400	372700	782600	1066000	1137000	1172000	1113000	990500	916200	953500	1150000	1431000
27	91100	379200	792700	1069000	1137000	1173000	1109000	987300	917200	955600	1152000	1442000
28	94200	388000	802900	1073000	1138000	1174000	1107000	980800	917200	957500	1155000	1459000
29	96500	397400	813200	1075000	1138000	1175000	1102000	977600	918200	957500	1161000	1475000
30	98200		823600	1078000	1139000	1175000	1098000	974400	919200	963500	1173000	1490000
31	100200		835000		1141000		1093000	971300		974400		1502000
Monthly Change Ac. Ft.	+83100	+297200	+437600	+243000	+63000	+34000	-82000	-121700	-52100	+55400	+198600	+329000

NOTE: Figure given is amount in storage at end of day. Reservoir water level recorder maintained by U. S. Bureau of Reclamation.

TABLE 11

FLOW OF SACRAMENTO RIVER AT KESWICK - 1944

Day	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3860	3720	3650	811	5080	4340	4460	5210	4870	2870	2890	3940
2	3780	3740	1920	811	5090	4460	4300	5200	4520	2580	3030	3240
3	3700	5150	2280	806	5160	4310	4220	5180	4530	2580	3400	3130
4	3680	3220	2500	820	5160	4300	4280	5210	4520	2580	3330	3070
5	3980	2900	2180	834	5070	4290	4400	5210	4480	2950	3070	3050
6	3940	2740	1900	834	5050	4170	4540	5160	4510	2900	3110	3040
7	3790	2730	1480	834	5040	3940	4750	5180	4530	2900	3070	3030
8	3640	2800	1330	842	5070	3960	4850	5210	4520	2930	3030	3020
9	3480	2750	1310	852	5080	4030	4800	5200	4430	2900	3220	3020
10	3540	3360	1370	852	4520	4090	4780	5200	4480	2900	3110	3020
11	3560	4720	1380	987	5000	4220	4850	5200	4430	2900	3040	3020
12	3430	4620	1380	875	4990	4220	5120	5170	4490	2910	3070	2980
13	3300	4440	1380	865	4980	4230	5190	5180	4490	2980	2990	2990
14	3060	4460	1370	950	4990	4270	5280	5160	4480	2940	2940	2990
15	2680	3800	1370	1110	5000	4270	5210	5190	4310	2750	2940	2630
16	2660	3060	1310	1110	4790	4260	5180	5200	4010	2530	2950	2530
17	2780	3020	865	1530	4560	4270	5070	5210	3980	2530	2950	2530
18	3160	2780	730	2450	4510	4270	5200	5200	4000	2540	2980	2520
19	3220	2590	865	3130	4510	4310	5230	5200	3860	2540	2990	2680
20	3220	2590	820	5080	4540	4390	5220	5200	3540	2540	2980	2700
21	3220	2400	788	5150	4540	4430	5360	5190	3510	2590	2930	2660
22	3200	2080	784	5110	4530	4510	5390	5210	3510	2610	3010	2780
23	3220	2050	784	5100	4540	4390	5540	5220	3510	2580	2990	2700
24	3220	2030	1250	5140	4440	4320	5240	5210	3510	2600	3030	2620
25	3260	1900	775	5110	4240	4400	5240	5210	3500	2590	3040	2500
26	3260	1740	788	5040	4250	4330	5230	5140	3370	2620	3060	2570
27	3290	2000	781	5070	4260	4330	5240	4950	3030	2620	3080	2720
28	3300	3230	793	5070	4260	4170	5240	4940	3020	2610	3050	2900
29	3270	5170	793	5090	4260	4020	5240	4940	3020	2580	3110	2740
30	3270		802	5080	4260	4480	5220	4950	3020	2670	3200	2660
31	3340		811		4360		5210	4940		2990		2580
Mean	3365	3165	1308	2582	4714	4266	5003	5154	4001	2721	3054	2857
Runoff in Ac. Ft.	206900	182100	80410	153600	289800	253800	307600	316900	238100	167300	181700	175700

NOTE: This is a permanent station maintained throughout the year under Federal-State cooperation by the Water Resources Branch of the U. S. Geological Survey.

TABLE 12

FLOW OF SACRAMENTO RIVER NEAR RED BLUFF - 1944

Day	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	4720	5910	11000	2030	5980	5410	4700	5210	4890	3070	3970	10100
2	5750	11100	6620	2070	5890	5520	4520	5210	4580	2780	3760	10500
3	5750	28300	5190	2100	5960	5570	4360	5210	4500	2640	4230	6620
4	4830	13900	13200	2160	5890	5230	4330	5190	4480	2650	5860	5450
5	7410	7750	9130	2270	5930	5040	4330	5170	4440	2780	5590	5000
6	9270	5930	6300	2180	6000	5020	4440	5170	4420	3060	4520	4680
7	5910	5340	5150	2070	6050	4540	4580	5120	4440	3040	5480	4500
8	5300	5820	4210	2090	6050	4310	4830	5120	4460	3040	4330	4360
9	4720	7830	3900	2140	6050	4380	4810	5150	4420	3090	15200	4290
10	5000	5320	4310	2030	5610	4420	4790	5120	4420	3070	16300	4190
11	4930	6570	4350	2100	5660	4600	4790	5150	4420	3070	8000	4120
12	4740	6670	4040	2580	5750	4560	4930	5120	4400	3070	6570	4060
13	4420	6170	3790	2330	5680	4520	5020	5120	4420	3150	5680	3990
14	4660	6000	3570	2250	5660	4660	5170	5100	4360	3200	5000	3950
15	4040	5840	3370	2360	5860	4700	5190	5100	4360	3170	4480	3830
16	3810	4520	3230	2390	5800	4660	5080	5150	4080	2800	4330	3490
17	3760	4360	3070	2330	5430	4660	5040	5150	3990	2720	4160	3450
18	3990	4210	2530	3010	5680	4680	4980	5150	4010	2720	4030	3440
19	4180	4230	2600	3520	5410	4700	5080	5120	4030	2700	3990	5420
20	4140	4160	2590	5370	5280	4720	5080	5120	3700	2700	3900	11900
21	4140	4420	2440	6200	5230	4810	5120	5100	3580	2770	3850	6770
22	4140	6800	2330	6120	5150	4950	5210	5120	3570	2770	3810	12200
23	4230	5980	2290	6080	5120	4830	5260	5170	3550	2740	3810	11100
24	4700	4740	2590	6120	5080	4810	5480	5170	3530	2720	3770	7670
25	4560	4180	2620	5980	4740	4850	5280	5150	3530	2720	3860	6120
26	4360	3670	2140	5890	4660	4700	5280	5170	3530	2740	3880	5300
27	4270	3410	2100	6200	4640	4760	5280	4980	5230	2760	3940	5570
28	4250	4080	2050	6300	4660	4700	5280	4890	3070	2770	3970	8650
29	4230	9780	2010	6100	4680	4480	5280	4870	3060	2830	5800	10700
30	4540		2010	6080	4680	4230	5280	4890	3060	2830	8370	9010
31	5170		2020		4720		5230	4890		4030		6600
Mean	4836	6793	4089	3682	5451	4767	4969	5108	4018	2910	5481	6356
Runoff in Ac. Ft.	297400	390700	251400	219100	335200	283700	305500	314100	239100	178900	326200	390800

NOTE: This is a permanent station maintained throughout the year under Federal-State cooperation by the Water Resources Branch of the U. S. Geological Survey. It is located near the Iron Canyon damsite, Mile 198.6 above Sacramento.

TABLE 13

FLOW OF SACRAMENTO RIVER AT BUTTE CITY - 1944

Day	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	6030	7920	12500	3390	6650	3700	2940	3330	3110	2560	3550	9720
2	5810	8880	13800	3250	6520	4100	3160	3320	3110	2640	4030	13600
3	6980	21800	9780	3110	6340	4600	3180	3480	3080	2580	3820	12000
4	7760	38500	12300	3110	6170	4700	2890	3770	2890	2420	4370	8760
5	6320	17800	20100	3180	5960	4500	2800	3350	2890	2380	5940	7320
6	10200	11600	13200	3420	5850	4160	2780	3320	2860	2380	5940	6560
7	10400	9380	10200	3440	5900	3950	2840	3280	2810	2580	5340	6130
8	7580	8440	8610	3010	5870	3600	2880	3230	2810	2670	6150	5810
9	6670	11100	7480	2910	5830	3410	3040	3230	2810	2670	5380	5580
10	6100	11100	7320	2810	5750	3390	3110	3230	2840	2760	17500	5380
11	6120	8540	8030	2540	5360	3420	3080	3260	2860	2750	15600	5240
12	5920	8850	7760	2880	5080	3460	3010	3250	3020	2760	10600	5160
13	5720	8590	7200	3210	5020	3390	3090	3250	3040	2780	9480	5020
14	5440	8110	6740	3060	4920	3330	3200	3250	3160	2840	7640	4940
15	5500	7780	6190	2720	5040	3320	3250	3200	3250	2890	6610	4840
16	5070	7510	5770	2620	5240	3410	3260	3200	3500	2880	5850	4740
17	4750	6400	5480	2600	5260	3410	3280	3210	3390	2720	5480	4390
18	4560	6030	5300	2520	5040	3420	3260	3250	3210	2580	5220	4280
19	4730	5770	5040	2680	5120	3410	3230	3250	3210	2540	5020	4330
20	4940	5680	4900	3210	4980	3370	3220	3320	3260	2500	4900	10100
21	4940	5680	4700	4470	4800	3410	3320	3260	3200	2540	4760	13500
22	4940	7140	4480	5480	4640	3390	3330	3260	3040	2590	4700	10700
23	4980	10200	4260	5920	4540	3440	3350	3260	3020	2620	4620	21400
24	5110	8760	4070	5620	4480	3660	3370	3320	3090	2600	4560	16700
25	5740	7210	4120	5730	4350	3440	3390	3320	3110	2590	4520	11900
26	5630	6270	4280	5580	4120	3440	3390	3350	3090	2670	4560	9500
27	5370	5520	3800	5750	3900	3480	3350	3390	3090	2620	4580	8150
28	5220	5240	3640	6690	3800	3280	3370	3250	2940	2590	4680	9550
29	5150	7390	3510	6720	3600	3130	3390	3090	2700	2600	4860	13600
30	5300		3420	6630	3600	2960	3330	3090	2600	2730	5560	13000
31	7550		3370		3600		3390	3080		2830		11600
Mean	6017	9765	7140	3932	5075	3589	3180	3279	3033	2641	6194	8823
Runoff in Ac. Ft.	370000	561700	439000	234000	312100	213600	195500	201600	180500	162400	368500	542500

NOTE: Station is maintained jointly by the Division of Water Resources (Water Supervision) and the Water Resources Branch of the U. S. Geological Survey. Records above 100,000 c.f.s. are from extended rating curve. Station is near Butte City Ferry

TABLE 14

FLOW OF SACRAMENTO RIVER AT COLUSA - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	5990	7840	10000	3380	6260	3550	2800	3170	3000	2740	3070	8960
2	5890	7830	13400	3310	6220	3940	3000	3140	3000	2750	4000	11400
3	6670	13700	12000	3100	6010	4440	2970	3180	2980	2800	3820	12800
4	7750	28200	9770	3000	5890	4580	2800	3500	2870	2670	4010	10000
5	6590	25900	17300	3000	5740	4400	2720	3260	2870	2670	5090	7970
6	8230	17000	17000	3240	5530	4070	2710	3150	2860	2670	5940	6980
7	10900	12200	12700	3460	5590	3860	2710	3130	2860	2700	5360	6480
8	8600	9780	9980	3290	5580	3710	2750	3090	2890	2810	5700	6170
9	7070	10100	8300	2900	5540	3400	2810	3090	2870	2800	5560	5730
10	6450	12300	7470	2900	5490	3240	2920	3090	2890	2830	10100	5720
11	6170	10300	7790	2650	5360	3320	2910	3110	2890	2880	17300	5530
12	6220	8980	7920	2660	4770	3350	2860	3120	3020	2880	13000	5410
13	5990	9090	7420	3040	4620	3230	2860	3150	3070	2890	10400	5290
14	5780	8550	6920	3180	4710	3150	2940	3140	3120	2910	8700	5190
15	5660	8150	6440	2800	4750	3100	2990	3120	3230	2970	7230	5110
16	5550	7670	5980	2590	4790	3230	3080	3110	3370	2980	6390	5030
17	5150	6990	5640	2590	5060	3290	3080	3120	3520	2940	5900	4810
18	4950	6300	5400	2460	4950	3290	3030	3160	3310	2760	5580	4630
19	4890	6020	5240	2430	4930	3310	2940	3180	3290	2730	5380	4640
20	5050	5820	4940	2840	4830	3250	2950	3190	3310	2710	5210	6240
21	5110	5830	4860	3420	4700	3230	3010	3190	3310	2700	5090	13600
22	5080	6020	4600	4800	4480	3270	3000	3190	3180	2730	4960	10900
23	5120	9010	4390	5070	4310	3290	3080	3200	3110	2760	4900	14800
24	5150	9320	4220	5150	4250	3500	3110	3190	3120	2750	4850	19600
25	5470	7740	4090	5170	4070	3420	3240	3230	3170	2730	4790	15100
26	5750	6700	4350	5210	3920	3300	3230	3240	3160	2750	4800	10900
27	5500	5990	3980	5200	3700	3340	3210	3280	3150	2780	4820	8600
28	5330	5490	3750	5710	3620	3240	3150	3210	3110	2720	4860	8010
29	5270	5980	3610	6390	3480	3080	3220	3070	2890	2710	5040	11300
30	5350		3500	6250	3460	2970	3190	3070	2780	2730	5590	13500
31	6300		3400		3490		3180	2980		2860		12000
Mean	6096	9820	7302	3704	4844	3478	2982	3163	3073	2784	6248	8787
Runoff in Ac. Ft.	374800	564900	449000	220400	297800	207000	183400	194500	182900	171200	371800	540300

NOTE: Station is maintained jointly by the Division of Water Resources (Water Supervision) and the Water Resources Branch of the U. S. Geological Survey. Station is at Colusa Bridge and is at Mile 89.4 above Sacramento.

TABLE 15

FLOW OF SACRAMENTO RIVER BELOW WILKINS SLOUGH - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	6470	7620	9020	3800	5550	2720	1870	2000	2030	2070	2830	7100
2	6480	8070	12400	3690	5620	2940	1860	1980	2120	2040	3310	9310
3	6620	10100	13100	3490	5610	3590	1960	2000	2140	2920	3970	11900
4	7800	18800	11200	3400	5350	3950	1830	2130	2060	2910	4060	11100
5	7580	20400	14400	3410	5100	4020	1720	2350	2050	2800	4420	9040
6	7500	17900	17400	3360	4870	3720	1620	2100	2110	2700	5340	7820
7	10100	14400	15100	3540	4800	3380	1590	2020	2100	2640	5750	7130
8	9900	11900	12600	3570	4890	3060	1580	1950	2140	2710	5580	6700
9	8400	10900	10600	3330	4910	3130	1570	1900	2200	2830	5880	6400
10	7580	12400	9410	3150	4910	2780	1650	1890	2260	2870	7060	6140
11	7060	11900	9020	3060	4860	2660	1690	1920	2260	2850	14200	5960
12	6910	10400	9080	2720	4420	2640	1630	1940	2370	2880	13900	5810
13	6770	10000	8810	2960	4090	2550	1600	1960	2640	2890	11500	5680
14	6550	9600	8300	3080	3970	2420	1640	1950	2800	2900	9930	5560
15	6260	9130	7820	3040	3960	2280	1700	1950	3030	2960	8540	5470
16	6260	8720	7320	2510	4020	2260	1780	1930	3060	3000	7420	5360
17	5900	8240	6830	2240	4300	2360	1850	1920	3550	3020	6360	5250
18	5540	7530	6420	1960	4500	2360	1810	1980	3650	2940	6190	5010
19	5400	6990	6160	1830	4340	2400	1780	2050	3560	2820	5880	4940
20	5400	6690	5830	1960	4450	2380	1690	2070	3590	2740	5630	5110
21	5540	6580	5630	2420	4360	2350	1750	2130	3620	2700	5470	10000
22	5470	6660	5390	3440	4200	2360	1810	2140	3600	2700	5280	11600
23	5470	8320	5140	4120	4180	2390	1840	2150	3590	2740	5140	11900
24	5470	10000	4860	4340	3720	2510	1930	2170	3620	2800	5050	17700
25	5680	9430	4590	4400	3560	2590	1940	2190	3590	2800	4990	16200
26	6060	8370	4720	4490	3430	2410	2040	2210	3570	2760	4970	13100
27	6020	7550	4720	4530	3090	2360	2020	2220	3560	2790	4980	10500
28	5830	6910	4340	4730	2910	2340	1980	2240	3560	2800	4990	9270
29	5700	6750	4140	5760	2700	2180	1930	2160	3490	2760	5110	10500
30	5750		3940	5670	2590	2020	2010	2020	3260	2740	5290	13000
31	6070		3860		2580		1980	2020		2790		12800
Mean	6566	10078	8134	3460	4260	2724	1797	2053	2913	2830	6313	8825
Runoff in Ac. Ft.	403700	579700	500100	205900	261900	162100	110500	126200	173300	174000	375600	542600

NOTE: Station is maintained jointly by the Division of Water Resources (Water Supervision) and the Water Resources Branch of the U. S. Geological Survey. Station is located at Mile 62.9 above Sacramento, a short distance below Wilkins Slough pumping plant of Reclamation District 108.

TABLE 16

FLOW OF SACRAMENTO RIVER AT KNIGHTS LANDING - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	6800	7630	8360	3110	5460	2780	2140	2270	2650	3630	3160	6040
2	6850	8840	11900	3410	5360	3110	2070	2290	2790	3470	3510	8960
3	6720	9090	13700	3410	5300	3760	2080	2280	2950	3460	4240	11400
4	7820	17500	13800	3660	4980	4420	2010	2340	2910	3420	4360	12400
5	8240	22400	12700	4190	4610	4300	1920	2620	2810	3210	4630	10800
6	7750	20600	17000	4440	4310	3910	1690	2540	2870	3100	6040	8920
7	9810	16300	15900	4280	4730	3550	1580	2420	2800	3140	6640	7860
8	11000	13900	13500	3990	5050	3550	1490	2310	2920	3110	6310	7280
9	10100	12200	11700	3990	5130	3530	1550	2300	3250	3200	6620	6900
10	8670	12600	10500	3690	5300	3150	1590	2250	3320	3160	6390	6530
11	7790	13000	9770	3200	5190	2960	1640	2280	3250	3210	12500	6190
12	7480	12100	9800	2920	5160	2680	1680	2270	3360	3240	15100	6130
13	7260	11400	9670	3390	4870	2460	1690	2360	3710	3220	13000	6040
14	7000	11000	9220	3780	4870	2340	1660	2390	4250	3270	11700	5830
15	6690	10400	8870	3490	4840	2280	1690	2340	4490	3280	9860	5560
16	6700	9730	8400	2840	4890	2320	1790	2300	4650	3440	8460	5400
17	6280	9210	7710	2260	5030	2420	1920	2270	4940	3350	7420	5290
18	5870	8190	7070	1560	5300	2580	1900	2330	5070	3230	6790	5120
19	5590	7730	6700	1430	5360	2680	1880	2380	4890	3120	6470	5010
20	5530	7410	6480	1630	5520	2830	1850	2420	4970	3040	6130	5000
21	5610	7080	6210	2240	5720	2800	1820	2510	5000	3000	5860	8280
22	5580	6990	6040	3310	5320	2750	1890	2570	4990	3000	5700	11900
23	5660	7630	5600	4060	4920	2710	1920	2560	4990	3050	5520	11400
24	5610	10600	5160	4300	4550	2820	2050	2570	4900	3100	5250	16800
25	5670	10900	4850	4500	3740	2990	2060	2610	4740	3100	5210	17100
26	6080	9800	4860	4580	3500	2840	2140	2650	4590	3090	5090	14100
27	6190	8780	4990	4490	3190	2650	2160	2750	4480	3130	5130	12000
28	5970	7820	4310	4720	2970	2700	2200	2760	4500	3080	5180	10500
29	5800	7070	3890	5630	2850	2560	2200	2680	4240	3100	5350	10500
30	5920		3320	5640	2740	2350	2270	2580	3870	3040	5350	12800
31	6090		3130		2690		2300	2620		3070		13900
Mean	6907	10960	8552	3605	4627	2959	1898	2446	3972	3195	6758	9095
Runoff in Ac. Ft.	424700	630500	525800	214500	284500	176100	116700	150400	236300	196500	402100	559200

NOTE: Station is maintained jointly by the Division of Water Resources (Water Supervision) and the Water Resources Branch of the U. S. Geological Survey. It is located at the Knights Landing Railroad Bridge, Mile 34.0 above Sacramento, below the point of discharge of the river of Colusa Basin drainage via the Back Borrow Pit of Reclamation Districts 108 and 787.

TABLE 17

FLOW OF SACRAMENTO RIVER AT VERONA - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	9570	11600	28300	12500	17500	9700	3510	3090	3650	7080	8200	8370
2	9640	13600	30400	13200	18500	11900	3360	3140	3670	7400	8040	8370
3	10500	22600	28800	13700	19500	12800	3300	3130	4180	7720	7880	8370
4	12200	37400	29600	14600	19600	13400	3280	3170	4120	7400	7720	8540
5	12600	40900	41700	15800	19400	12200	3140	3370	3890	7240	7720	8540
6	12200	39500	46600	16300	19400	10700	2970	3380	3920	6920	7880	8540
7	14800	34000	42900	15400	20400	9770	2870	3230	3910	6760	7880	8540
8	15500	28900	35600	14500	21200	9270	2800	3050	3910	6760	8040	8370
9	14000	29400	29200	14500	21600	9200	2740	3050	4380	7080	7720	8040
10	12400	29500	25700	14200	21600	8350	2740	3020	4540	7080	7720	8200
11	11200	27200	24000	13200	21000	7460	2790	3030	4320	7080	7400	8370
12	10900	23500	23300	13200	19300	6340	2850	3060	4510	6920	7560	8710
13	10700	20300	22700	14300	17400	5430	2820	3190	4880	6760	7560	8710
14	10200	18100	22000	14500	16500	5080	2820	3250	5320	6900	7720	8370
15	9930	16300	20500	13900	16300	4880	2890	3220	5540	6450	7720	8200
16	9710	15500	18900	13000	16400	4970	2930	3190	5730	6760	7560	7880
17	9360	14900	17300	12200	15100	4690	3030	3140	6420	6920	7400	7720
18	8680	13800	16400	11400	14400	4670	3110	3160	6330	6920	7240	7720
19	8640	12900	16700	10800	14400	4640	2940	3210	6340	6760	7400	7880
20	8460	12600	16500	11300	14200	4620	2900	3310	6460	6760	7720	8200
21	8560	12400	16000	12900	14500	4450	2790	3380	6680	6600	8370	9220
22	8730	15100	15500	12900	14600	4330	2860	3400	6570	6760	9390	10300
23	8810	23400	14700	13400	14600	4270	2880	3460	6650	7240	9930	10100
24	8860	23900	14100	13500	14000	4360	2870	3460	6700	7720	9930	9930
25	9430	21000	14000	13900	12700	4510	2910	3510	6450	7720	9570	9930
26	10000	18000	14100	14100	11800	4510	3000	3510	6330	7560	9050	9930
27	10000	15700	14200	13800	11100	4170	3010	3920	6220	7400	8880	9390
28	9660	13800	13500	13700	10400	4130	3020	3700	6460	7400	8710	9050
29	9440	19200	13000	14600	10000	4000	2950	3700	6360	7560	8540	9390
30	9530		12500	16000	9680	3770	3100	3690	6000	7880	8370	9390
31	9790		12400		9550		3100	3660		7880		9390
Mean	10450	21550	22290	13710	16020	6752	2977	3315	5348	7122	8161	8763
Runoff in Ac. Ft.	642600	1240000	1371000	815800	985100	401800	183000	203900	318200	437900	485600	538800

NOTE: Station is maintained jointly by the Division of Water Resources (Water Supervision) and the Water Resources Branch of the U. S. Geological Survey. It is located at Mile 19.6 above Sacramento at the mouth of "Cross Canal" main drain of Reclamation District 1001, and below the mouth of the Feather River.

TABLE 18

FLOW OF SACRAMENTO RIVER AT SACRAMENTO - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	10500	13500	37100	15700	24100	15000	4460	2850	3350	5730	7060	12200
2	10800	15400	36000	17100	26500	18100	4220	2860	3400	5560	8540	18000
3	12600	28400	32800	18400	28100	18800	4010	2820	3970	5260	8050	22100
4	13800	44400	41000	19900	28000	18400	3880	2850	3840	5320	8200	21100
5	13800	44600	53100	20800	28600	17500	3650	3010	3660	5280	13200	18300
6	15000	42100	52600	20200	29300	14800	3370	3090	3700	5080	12800	16000
7	17200	36100	47300	19100	30800	13800	3200	2880	3680	5030	11300	14600
8	17100	31400	39200	18300	32400	13400	3090	2690	3660	5070	11800	13700
9	15300	34600	32600	18800	32300	13000	3000	2660	4270	5100	11800	13000
10	13700	33200	29500	17400	31500	11600	2930	2650	4390	5240	21600	12400
11	12400	30000	28400	16200	29700	10300	2930	2700	4190	5190	31600	12000
12	12000	25800	27700	17400	27300	8900	2960	2730	4260	5180	29900	11500
13	11800	22300	27200	17900	25200	8100	2880	2890	4760	5190	25700	11300
14	11300	19900	26100	17700	24500	7610	2850	2950	5240	5140	21500	11100
15	11000	18100	23800	16900	25500	7060	2900	2890	5530	5160	18500	10800
16	10700	17200	21700	16100	23200	6700	2950	2870	5700	5070	16000	10800
17	10400	16500	20000	15300	20200	6230	3060	2830	6420	5320	14100	10800
18	9600	15300	19200	14200	19400	6000	3100	2840	6410	5300	12900	10400
19	9600	14400	20100	13500	19300	5770	2980	2910	6390	5360	12100	10200
20	9400	14000	20100	15400	19000	5760	2850	3020	6510	5360	11500	11800
21	9500	13900	19300	16500	20000	5570	2700	3110	6790	5370	11000	19000
22	9700	18600	18400	16000	21500	5410	2770	3110	6640	5450	10600	23700
23	9800	27300	17400	16700	22100	5270	2770	3180	6780	5440	10400	31500
24	10000	26500	17000	17600	20100	5410	2790	3170	6810	5320	10400	36500
25	11100	23200	17000	18000	18200	5580	2750	3210	6590	5470	10300	36400
26	11400	19900	17200	17700	17100	5580	2840	3230	6450	5530	10100	31000
27	11200	17500	17100	17300	16400	5270	2830	3670	6380	5500	10000	25800
28	10800	15700	16300	17000	15900	5250	2850	3470	6660	5510	9890	21800
29	10500	30900	15600	18400	15400	5050	2770	3470	6540	5310	10200	22400
30	10600		15100	21200	14800	4740	2930	3380	6260	5310	10800	24500
31	11300		15200		14400		2950	3460		5550		24900
Mean	11700	24500	26500	17600	23300	9330	3100	3010	5310	5320	13730	18370
Runoff in Ac. Ft.	721600	1409700	1628600	1046700	1429700	555400	190810	185300	315800	327300	816800	1129800

NOTE: 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 the East Borrow Pit of Yolo By-Pass. (See Tables 47 and 52.) The flows of this table are based on flows at Verona, making due allowance for draft and measured return flow. A gaging station is not maintained at Sacramento during periods of low flow because of tidal action.

TABLE 19

FLOW OVER MOULTON WEIR TO BUTTE BASIN - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
Mean												
Runoff in Ac. Ft.												

NO FLOW OVER WEIR DURING 1944

NOTE: Elevation of crest is 76.75 U.S.E.D. datum; length of crest is 500 feet.

TABLE 20

FLOW OVER COLUSA WEIR TO BUTTE BASIN - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1												
2												
3		0										
4		350										
5		25										
6		0										
7												
8												
9												
10												
11												
12												
13	NO FLOW OVER WEIR DURING 1944 EXCEPT DURING											
14												
15	2 DAYS IN FEBRUARY AS SHOWN											
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
Mean	0	13	0	0	0	0	0	0	0	0	0	0
Runoff in Ac. Ft.	0	740	0	0	0	0	0	0	0	0	0	0

NOTE: Elevation of crest is 61.80 U.S.E.D. datum; length of crest is 1650 feet.

TABLE 21

FLOW OF BUTTE SLOUGH TO SACRAMENTO RIVER - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	693	693	847	784	584	525	405	260	382	259	70	202
2	756	847	609	749*	538	549	408	260	363	209	68	176
3	714	140	966	570	502	590	381	240	351	164	200	0
4	784	0	1351	682	381	646	335	243	379	164	225	300*
5	868	0	0	711	452	670	290	250	377	146	238	500*
6	805	1309	0	327	462	650	224	229	340	164	225	641
7	665	2205	1442	279	446	668	223	231	339	164	389	536
8	959	2100*	1813	422	384	636	199	230	343	0	442	576
9	1141	1900*	1911	426	384	577	201	208	354	0	423	558
10	1120	1700*	1869	425	387	581	215	231	322	0	566	459
11	1064	1687	1729	437	390	558	204	250	313	0	0	466
12	1050	1722	1547	400	401	564	164	250	314	0	0	460*
13	966	1631	1491	387	345	515	165	232	329	0	0	450*
14	910	1540	1456	378	347	404	165	232	353	0	203	440*
15	868	1484	1365	419	347	380	182	230	386	93	0	426
16	805	1330	1295	450	387	346	214	253	471	46	829	430*
17	693	1274	1204	453	562	342	214	271	502	62	722	440*
18	735	1316	1099	421	611	250	212	271	510	47	660	460*
19	665	987	1022	416	638	376	103	296	486	48	674	500*
20	693	931	910	384	680	400	192	281	432	49	628	300*
21	693	966	931	413	809	428	192	303	431	49	549	0
22	693	987	931	397	881	424	214	284	479	50	499	284
23	665	714	784	362	839	509	199	302	517	95	444	0
24	693	910	910	408	802	426	246	310	532	80	432	0
25	714	763	850*	344	816	407	214	319	532	67	432	0
26	637	1288	780*	343	812	431	214	317	532	85	432	434
27	637	1295	720*	397	547	464	199	308	579	90	432	620
28	637	1302	609	456	572	465	219	308	598	89	424	1680
29	637	1211	609	518	527	432	237	308	411	73	357	1050
30	714		434	515	510	415	237	311	319	64	270	819
31	693		637		502		238	311		64		978
Mean	786	1180	1036	456	543	488	229	269	419	78	361	458
Runoff in Ac. Ft.	48330	67900	63710	27120	33410	29010	14090	16520	24940	4800	21490	28140

* Estimated.

NOTE: This is the discharge to the Sacramento River at Mile 84 Left and is measured at and regulated by the gravity culverts at the mouth of the Slough. This flow, together with that shown in Tables 30 and 31 is, during the summer months, made up almost entirely of return water from lands irrigated by Feather River diversions. Discharge from the Sacramento River to Butte Basin over Moulton and Colusa weirs is shown in Tables 19 and 20, respectively.

TABLE 22

FLOW OVER TISDALE WEIR TO SUTTER BY-PASS - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1												
2												
3		0										
4		3720										
5		5000										
6		330										
7		0										
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
Mean	0	312	0	0	0	0	0	0	0	0	0	0
Runoff in Ac. Ft.	0	17900	0	0	0	0	0	0	0	0	0	0

NO FLOW OVER WEIR DURING 1944 EXCEPT DURING 3 DAYS IN FEBRUARY AS SHOWN

NOTE: Elevation of crest is 45.45 U.S.E.D. datum; length of crest is 1155 feet.

TABLE 23

FLOW OF RECLAMATION DISTRICT 70 DRAIN - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	32	36							56	52	0
2	4	64	29							56	41	0
3	4	58	0							56	39	0
4	0	39	36							57	38	0
5	0	36	36							59	26	0
6	0	23	36							59	0	0
7	0	36	22							59	7	0
8	0	26	0							57	0	0
9	0	33	0							57	0	0
10	0	22	51							57	0	0
11	8	0	0							56	0	0
12	8	47	0							56	0	0
13	8	40	0							55	0	0
14	9	33	51							54	0	0
15	9	0	0							53	0	0
16	9	0	23							53	0	0
17	11	0	28							53	0	0
18	10	5	31							56	15	0
19	7	6	34							57	14	0
20	6	12	33							57	17	0
21	5	14	34							58	26	0
22	5	33	66							57	24	0
23	4	26	65							59	20	0
24	4	33	66							56	22	0
25	3	0	73							57	7	18
26	0	29	31							57	10	18
27	4	36	55							56	10	8
28	3	29	33							57	10	0
29	5	0	12							57	0	16
30	5		0							57	0	0
31	4		0							55		0
Mean	4	24	28	0	0	0	0	0	0	56	13	2
Runoff in Ac. Ft.	268	1412	1747	0	0	0	0	0	0	3463	750	119

ALL AVAILABLE DRAINAGE WATER REDIVERTED INTO IRRIGATION CANAL FROM APRIL 1 TO OCTOBER 1

NOTE: This is the drainage from Reclamation District 70 returned to the Sacramento River at Mile 68.8 Left. Discharge to Sacramento River both by pumping and controlled gravity flow. This is a combination irrigation and drainage plant and discharges both to the Sacramento River and to an irrigation canal.

TABLE 24

FLOW OF RECLAMATION DISTRICT 108 DRAIN AT ROUGH AND READY BEND - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	154	0	286	0	231	385	279	286	382	121	66	44
2	150	286	286	220	264	374	392	342	462	55	0	44
3	0	396	231	0	77	341	286	418	554	88	0	77
4	0	396	253	0	308	990	349	415	613	88	0	44
5	0	440	297	0	242	363	238	395	352	0	77	55
6	0	1023	165	0	297	418	253	485	438	152	66	55
7	0	286	154	0	198	407	303	359	434	102	66	0
8	0	275	132	0	242	374	369	355	458	0	66	77
9	330	231	121	231	286	407	342	430	788	148	66	55
10	0	209	0	0	286	319	268	393	683	0	66	33
11	0	0	0	0	319	616	294	375	404	100	66	0
12	0	231	209	0	363	209	165	395	492	77	77	77
13	0	143	0	0	396	242	369	436	470	0	66	0
14	0	0	0	0	495	242	357	395	682	77	66	55
15	0	0	209	64	385	220	341	378	616	0	55	0
16	330	0	0	367	396	301	341	371	550	77	55	77
17	0	0	0	60	432	345	350	371	528	77	0	0
18	0	0	0	129	468	502	220	405	528	0	88	0
19	0	0	220	345	574	326	329	416	385	55	44	110
20	0	341	0	0	742	209	340	427	539	0	44	44
21	0	0	0	234	1484	333	365	421	429	33	44	0
22	0	396	0	154	605	348	361	411	330	55	55	110
23	299	209	0	0	638	326	372	297	407	0	33	66
24	0	220	0	0	418	306	242	404	308	0	44	154
25	0	198	0	0	451	477	361	407	264	0	0	0
26	0	0	299	0	429	242	350	403	231	0	55	143
27	0	231	0	36	407	242	359	561	77	66	0	77
28	0	132	0	280	407	242	242	382	154	44	77	121
29	0	231	0	286	407	302	371	388	187	183	44	0
30	290		0	504	407	291	470	407	132	77	55	176
31	0		0		462		326	425		0		0
Mean	50	202	92	97	423	357	323	398	429	54	48	55
Runoff in Ac. Ft.	3080	11650	5680	5770	26010	21220	19840	24500	25540	3320	2860	3360

NOTE: This is the drainage from Reclamation District 108 discharged to the Sacramento River at Mile 44.0 Right. Discharge through siphon and by pumping. Additional drainage from Reclamation District 108 is sometimes discharged to Back Borrow Pit at Mile 20.2 Left. See Table 26.

TABLE 25

FLOW OF COLUSA TROUGH AT COLUSA-WILLIAMS HIGHWAY - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	232	624	251	100	527	860	476	593	699	392	217	128
2	295	545	255	98	482	985	454	584	718	431	218	134
3	332	1199	242	96	443	958	436	570	733	349	220	127
4	295	1857	326	100	385	877	399	643	756	302	222	121
5	332	1913	566	109	679	879	389	612	805	292	223	116
6	459	1834	418	129	1076	809	379	538	815	286	226	110
7	406	1705	311	152	1090	666	379	516	833	269	243	106
8	325	1340	252	137	1054	660	377	523	884	256	262	106
9	291	806	223	128	1070	749	424	554	933	239	308	104
10	273	562	208	149	1063	447	443	588	957	236	381	100
11	253	452	195	165	1059	364	459	654	970	225	419	99
12	228	383	180	234	1065	346	465	671	1051	207	553	98
13	209	329	162	200	1121	332	476	674	1139	207	526	97
14	195	286	154	147	1181	362	488	633	1191	193	461	99
15	179	263	139	138	1244	417	466	614	1165	194	354	103
16	171	236	132	152	1286	507	463	590	1015	192	305	104
17	166	222	131	201	1174	571	471	607	953	185	236	114
18	162	208	126	237	1152	656	486	627	927	169	167	119
19	150	195	124	228	1254	656	486	646	957	156	145	123
20	145	187	123	246	1262	639	492	662	1005	196	128	200
21	139	193	120	374	1162	658	485	650	1027	240	126	238
22	134	294	118	380	946	649	490	662	950	256	120	270
23	140	558	116	756	765	667	499	642	856	247	119	512
24	142	741	116	1208	697	684	507	640	780	225	115	600
25	135	551	117	1204	687	655	535	666	652	225	117	476
26	130	401	114	1210	622	633	559	692	588	209	117	367
27	130	322	112	996	570	601	556	704	515	188	113	317
28	129	274	110	667	570	559	563	678	504	171	108	361
29	129	260	102	576	588	534	570	675	386	167	109	503
30	239		101	538	601	514	579	697	435	162	123	457
31	610		102		645		568	697		197		397
Mean	231	646	185	368	888	630	478	629	840	234	233	220
Runoff in Ac. Ft.	14192	37171	11397	21928	54586	37476	29393	38682	49982	14406	13847	13500

NOTE: This station is maintained and operated by State Division of Water Resources and U. S. Bureau of Reclamation. This 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 and Maxwell Irrigation Districts. Flow reaches Sacramento River via Back Borrow Pit (Table 28).

TABLE 26

FLOW OF RECLAMATION DISTRICT 108 DRAIN ON BACK BORROW PIT - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12			NO FLOW THROUGH THIS DRAIN EXCEPT DURING OCTOBER 1944 WHEN FLOW WAS NEGLIGIBLE									
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
Mean												
Runoff in Ac. Ft.												

NOTE: This drain at Mile 20.2 Left supplements the main drainage plant of R. D. 108 on the Sacramento River at Rough and Ready Bend (See Table 24).

TABLE 27

FLOW OF KNIGHTS LANDING RIDGE CUT - 1944

Mean	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1												
2												
3												
4												
5												
6					17.8							
7												
8												
9												
10												
11												
12												
13											Est. 15	
14												
15												
16												
17												
18			1.2									
19												
20				Est. 0.3								
21												
22												
23					39.0							
24										0.0		
25		138										
26								80.3				
27	0.0					60.8						
28							83.0					
29									3.6			
30												
31												
Mean												
Runoff in Ac. Ft.												

FIGURES ARE RESULTS OF CURRENT METER MEASUREMENTS MADE ON DATES SHOWN. UNRECORDED OPERATION OF THREE NEWLY CONSTRUCTED CHECK-GATES IN CHANNELS AT YOLO-BY-PASS JUNCTION HAS RENDERED A DETERMINATION OF DAILY MEAN FLOWS IN THIS CHANNEL IMPRACTICABLE.

NOTE: Knights Landing Ridge Cut diverts from Colusa Basin Drainage flowing in Back Borrow Pit of Reclamation District 108, at a point west of and above the Knights Landing Outfall Gates, into the Yolo By-Pass above Elkhorn. Winter flows are uncontrolled. Summer flows for irrigation are afforded by checking the outfall gates. Station has been operated cooperatively since 1941, by the Division of Water Resources and U. S. Geological Survey (Water Resources Branch).

TABLE 28

FLOW OF COLUSA BASIN DRAINAGE TO SACRAMENTO RIVER AT KNIGHTS LANDING - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	234	201	0	25	485	630	223	350	570	520	250	455
2	247	96	0	25	420	850	211	360	650	490	264	0
3	249	0	0	26	213	1050	189	363	545	490	276	0
4	104	0	0	26	167	1010	153	350	520	455	298	0
5	68	0	0	26	210	940	408	383	570	395	303	460
6	136	0	0	27	215	860	20	383	610	340	290	790
7	40	0	0	27	283	730	37	327	635	340	300	500
8	51	134	0	27	400	600	46	442	665	333	303	370
9	49	74	0	28	343	585	71	390	805	330	318	300
10	76	0	41	28	308	535	94	370	760	333	370	256
11	116	18	30	28	270	348	118	355	780	322	0	233
12	124	57	13	29	262	208	143	295	835	318	0	225
13	130	61	22	29	264	190	152	390	1120	303	86	223
14	160	60	23	29	380	202	152	425	985	303	138	212
15	186	57	23	30	425	87	172	390	975	290	141	212
16	178	44	32	30	453	153	256	365	935	285	167	215
17	180	46	31	30	520	253	240	355	900	275	225	214
18	162	63	34	34	715	370	217	360	900	268	259	225
19	157	66	20	97	920	460	212	365	870	250	260	254
20	152	66	23	150	1070	413	200	385	910	236	278	285
21	145	76	19	170	1120	380	196	405	940	252	228	490
22	143	56	19	228	1060	365	242	430	960	280	238	0
23	135	64	36	270	840	358	250	450	970	280	350	0
24	157	0	61	220	580	412	260	450	900	280	420	0
25	150	102	76	216	625	412	274	450	865	248	395	0
26	133	116	69	267	628	405	303	460	790	254	460	0
27	133	94	64	300	540	400	327	480	1000	252	490	1160
28	125	124	99	510	520	358	340	515	735	248	485	855
29	123	22	101	505	500	280	360	515	615	228	480	715
30	145		50	525	520	228	342	535	520	223	495	0
31	197		25		540		338	545		510		745
Mean	141	59	29	132	510	469	211	408	794	320	286	303
Runoff in Ac. Ft.	8700	3370	1810	7860	31330	27910	12980	25070	47280	19700	16990	18630

NOTE: 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. It does not include any drainage from Reclamation District 787 entering the Back Borrow Pit via Sycamore Slough outlet (See Table 29 for Sycamore Slough contribution). Irregularities in the flow are due to checking operations at the Knights Landing Outfall Gates whereby a portion of the flow of the Back Borrow Pit is diverted to the Knights Landing Ridge Cut. This diversion is shown in Table 27. Total flow to Sacramento River is sum of Tables 28 and 29.

TABLE 29

FLOW OF SYCAMORE SLOUGH INTO COLUSA BASIN DRAIN - 1944

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

OUTFLOW HERE DURING 1944 WAS NEGLIGIBLE AND CAN BE IGNORED IN COMPUTING TOTAL FLOW INTO SACRAMENTO RIVER AT MILE 34.15R (TABLE 28)

NOTE: This water is discharged below outfall gates and is not included in the flow shown in Table 28.

TABLE 30

FLOW OF BUTTE SLOUGH TO SUTTER BY-PASS - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	40	52	205	17	73	64	87	109	90	6	35	47
2	40	73	610	17	73	78	88	108	77	5	41	48
3	46	320	730	17	68	81	84	111	79	4	42	184
4	60	1440	610	15	68	85	90	111	79	3	34	173
5	56	4100	1440	15	73	87	83	114	67	3	41	105
6	68	5350	2400	43	68	93	94	114	66	2	47	96
7	182	4300	2400	102	64	85	99	116	64	2	46	88
8	155	3320	2030	108	68	84	102	111	59	1	48	66
9	146	2560	2030	90	73	87	102	119	49	0	51	54
10	122	2240	900	90	73	87	96	119	43	0	78	49
11	49	1560	670	84	73	88	84	113	46	0	408	46
12	84	1070	500	84	68	85	100	118	49	0	538	43
13	73	790	380	90	68	71	103	117	49	0	297	37
14	64	580	232	90	68	67	108	122	52	0	172	32
15	49	440	155	102	73	66	108	120	56	0	121	31
16	46	266	114	96	78	65	108	123	58	4	90	33
17	40	164	96	96	84	70	105	117	59	9	81	29
18	34	102	78	90	64	82	102	122	60	13	67	26
19	31	73	64	78	73	82	98	121	49	15	104	29
20	25	60	49	84	96	86	96	113	47	17	45	30
21	23	52	46	84	96	88	99	101	52	19	34	169
22	21	56	43	84	90	87	99	110	60	25	28	318
23	19	102	40	102	84	86	100	114	64	24	21	128
24	19	182	34	102	73	83	90	112	64	20	17	742
25	21	182	31	78	73	82	100	114	64	33	18	1020
26	21	155	25	73	64	86	104	108	62	37	19	984
27	19	138	25	73	60	86	102	113	47	31	15	992
28	19	122	23	90	64	87	108	113	60	24	13	784
29	19	114	21	90	64	86	107	111	16	21	14	613
30	19		21	73	56	88	107	111	10	22	20	888
31	28		19		60		112	113		25		805
Mean	53	1033	517	75	72	82	99	114	57	12	86	280
Runoff in Ac. Ft.	3250	59430	31780	4480	4420	4860	6080	7020	3370	724	5130	17230

NOTE: This is discharge from Butte Slough to the Sutter By-Pass. During low flow periods gates at mouth of slough are regulated (Table 21) which forces water under Long Bridge as shown in this table. Normal and 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).

TABLE 31

FLOW OF WADSWORTH CANAL TO SUTTER BY-PASS - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	35	47	231	32	158	219	159	177	224	185	393	38*
2	37	359	161	32	162	219	157	177	204	169	393	38*
3	37	937	109	32	139	214	156	180	195	164		36*
4	37	628	285	32	153	216	159	195	200	164		35*
5	39	394	233	30	160	196	151	169	204	160		40*
6	42	NO	137	30	170	190	156	163	211	152		40*
7	41	RECORD	106	30	176	182	177	166	210	135		35
8	41		87	29	191	213	164	158	200	186	N	34
9	40		75	43	210	213	172	170	213	165	O	33
10	40		67	46	170	213	172	187	216	79		32
11	40	74	61	50	175	213	183	169	216	79	R	32
12	39		58	49	197	213	181	174	215	86	E	31
13	39		56	42	217	213	167	169	213	76	C	31
14	39	N	53	39	202	213	164	174	213	90	O	31
15	39	O	50	39	243	213	161	177	212	87	R	31
16	37		48	43	233	213	174	169	204	88	D	30
17	37	R	47	41	267	213	177	177	209	84		30
18	37	E	47	47	320	213	177	188	198	90		29
19	37	C	45	42	275	213	172	198	207	81		29
20	36	O	43	42	211	213	159	195	211	68		32
21	36	R	41	46	167	213	164	210	219	83		32
22	36	D	39	46	142	213	148	216	248	101		35
23	35	262	37	37	150	213	148	191	263	94		62
24	35	123	35	70	198	213	164	208	288	90		50
25	35	74	34	84	183	174	172	201	287	366		46
26	35	62	33	55	171	163	164	204	252	1290		41
27	35	54	33	84	168	156	174	206	210	965		40
28	35	57	33	133	171	151	178	213	210	576		49
29	35	233	33	120	183	148	178	224	300	324		54
30	45		32	114	212	154	178	213	213	409	38*	46
31	60		32		213		175	208		426		43
Mean	38		77	52	193	200	167	188	222	229		38
Runoff in Ac. Ft.	2360		4720	3090	11880	11910	10280	11560	13220	14110		2310

* Estimated.

NOTE: This is the discharge (measured at Weir #4) to the East Borrow Pit of the Sutter By-Pass at Mile 16.0 (north from Chandler). This flow is made up entirely of Feather River drainage or return flows. This flow and the flow from Butte Slough (Table 30) make up the entire Feather River contribution to the Sutter By-Pass. See footnote Table 30.

TABLE 32

FLOW OF SUTTER BY-PASS - EAST BORROW PIT (WILLOW SLOUGH AT CHANDLER) - 1944

Day	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	108	100	220	100	11	243	202	156	248	128	73	83
2	112	104	196	98	12	238	156	158	248	125	128	86
3	112	181	214	98	12	238	158	160	236	122	110	94
4	116	112	206	98	12	236	178	161	220	118	97	108
5	116	51	86	98	12	230	195	175	208	117	86	122
6	118	55	0	98	12	228	194	184	222	117	86	113
7	126	86	0	94	12	222	191	184	122	115	97	105
8	147	135	98	94	12	222	191	186	104	112	105	103
9	165	153	167	94	12	206	191	186	181	108	108	100
10	171	169	216	94	12	206	191	186	181	103	152	95
11	171	192	288	96	12	220	191	187	181	98	169	92
12	173	236	283	96	41	220	191	193	179	94	206	88
13	141	291	279	100	56	218	194	207	177	92	232	83
14	126	289	279	108	56	218	194	207	173	92	228	83
15	118	289	263	112	85	224	197	207	173	92	226	83
16	116	281	245	104	128	224	195	207	173	92	214	83
17	116	273	228	108	172	224	195	207	173	92	203	83
18	112	283	206	104	226	226	195	204	175	90	193	83
19	112	255	169	104	261	228	195	202	209	90	149	83
20	112	239	145	86	261	230	194	204	222	90	121	88
21	112	224	116	31	255	224	194	207	216	90	100	88
22	108	224	112	8	243	226	194	207	216	90	97	103
23	104	226	112	9	181	232	194	207	222	90	94	142
24	100	253	108	10	155	239	194	207	228	99	86	51
25	100	269	108	10	155	236	187	210	238	107	86	96
26	100	269	104	11	158	236	183	222	238	99	83	147
27	98	261	104	11	159	236	178	224	224	40	80	248
28	98	255	104	12	160	228	172	224	197	0	80	248
29	98	257	104	12	145	226	150	224	163	0	80	242
30	100		102	11	194	249	153	231	147	0	77	242
31	100		100		244		155	248		0		244
Mean	120	207	160	70	112	228	185	199	196	87	128	120
Runoff in Ac. Ft.	7350	11920	9840	4180	6870	13550	11390	12240	11690	5360	7630	7360

NOTE: This station normally records return water originating primarily from Feather River diversions and it is the net flow of Wadsworth Canal (Table 31) and a portion of the flow from Butte Basin shown in Table 21 after the diversions shown in Table 104 (East Borrow Pit of Sutter By-Pass) have been served.

TABLE 33

FLOW OF SUTTER BY-PASS - EAST BORROW PIT 0.4 MILE ABOVE RECLAMATION DISTRICT 1500 DRAIN PLANT - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1												
2												
3												
4												
5												
6												
7												
8				STATION DISCONTINUED AND FLOW RE-DIVERTED TO SACRAMENTO SLOUGH								
9												
10					VIA WILLOW SLOUGH							
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
Mean												
Runoff in Ac. Ft.												

TABLE 34

FLOW OF RECLAMATION DISTRICT 1500 DRAIN - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	114	284	51	818	491	423	495	653	151	0	90
2	0	248	251	70	467	542	542	495	642	98	0	76
3	0	563	235	0	306	472	360	495	655	108	0	53
4	215	501	202	37	459	862	555	495	598	110	118	50
5	226	507	297	56	306	508	424	422	568	98	249	26
6	51	370	149	0	397	552	425	598	619	98	0	18
7	0	217	171	62	475	544	431	495	576	98	0	93
8	55	310	173	75	285	553	360	495	576	95	0	87
9	126	272	167	67	444	550	553	492	656	92	174	0
10	0	168	165	63	437	477	422	492	568	42	97	55
11		167	161	79	444	506	479	496	520	94	38	92
12		167	136	118	463	357	484	422	571	43	45	58
13		164	101	115	479	360	422	611	605	69	65	0
14	N	98	122	114	676	360	495	494	646	67	84	0
15	O	95	0	116	468	494	422	495	646	33	94	0
16		271	174	118	587	424	541	492	643	61	101	62
17	F	91	88	119	605	360	466	495	757	53	98	119
18	L	85	91	120	679	546	430	496	543	23	99	50
19	O	90	90	203	683	485	494	423	549	74	98	85
20	W	91	14	240	202	447	422	613	527	36	93	21
21		152	80	233	937	477	494	491	489	27	42	60
22		221	97	238	608	360	422	556	425	66	0	42
23		208	43	238	585	475	501	494	419	43	60	47
24		292	60	238	593	411	422	557	271	12	102	29
25		149	32	275	598	540	494	497	273	61	93	29
26		182	7	297	542	422	422	632	236	0	13	82
27		118	84	332	487	495	494	821	218	0	0	105
28		161	38	357	636	422	425	550	178	0	60	120
29		357	57	427	411	422	422	557	182	0	92	114
30			71	525	690	422	542	569	143	0	94	55
31			19		532		425	575		0		108
Mean	22	222	118	166	526	478	458	526	496	57	67	59
Runoff in Ac. Ft.	1330	12750	7260	9880	32330	28440	28190	32350	29520	3480	3980	3620

NOTE: 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. (Table 35.)

TABLE 35

FLOW OF SACRAMENTO SLOUGH TO SACRAMENTO RIVER - 1944

Day	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	290	368	0*	548	866	810	721	672	940	492	290	25*
2	290	368	100*	534	772	1001	828	754	1001	450	301	438
3	311	300*	127	590	478	847	672	738	1210	403	333	250*
4	506	0*	100*	705	427	1022	738	754	1042	392	356	50*
5	450	200*	0*	754	534	810	705	688	903	345	562	450
6	427	2902	300*	562	279	884	738	828	940	345	492	415
7	548	3600	1001	656	548	810	754	721	921	345	380	427
8	492	3450	2970	656	380	810	738	847	884	322	464	380
9	478	3100	2732	738	166	810	810	772	1103	301	450	311
10	333	2732	2115	672	333	828	754	810	921	279	257	268
11	403	2543	1062	672	217	754	705	791	772	290	100*	279
12	380	2190	415	688	548	562	810	772	884	268	415	257
13	392	1481	345	791	606	590	810	884	903	290	772	191
14	333	1001	392	810	656	562	772	772	921	257	828	166
15	290	940	268	772	576	590	810	772	847	257	791	133
16	301	705	191	754	520	688	847	791	847	290	656	149
17	225	672	290	791	791	639	721	810	1124	247	1254	191
18	200	548	311	810	866	688	754	810	721	257	1062	127
19	217	478	157	772	921	656	772	791	810	268	427	140
20	217	438	247	828	903	721	828	884	810	225	415	140
21	191	427	356	921	1042	688	772	791	772	257	345	520
22	191	492	380	981	810	738	828	791	738	257	268	311
23	157	600*	464	981	810	672	847	884	772	247	225	225
24	208	400*	534	866	656	772	791	772	791	247	247	100*
25	268	300*	450	866	705	847	772	884	672	333	225	150*
26	257	200*	438	940	738	738	810	810	623	322	174	100*
27	174	225	492	791	672	772	754	1210	623	268	174	1297
28	174	345	403	884	738	810	791	772	623	200	166	1062
29	191	120	438	903	590	772	738	847	639	174	183	721
30	225		464	1062	754	772	828	884	576	208	183	590
31	268		415		810		672	903		217		576
Mean	303	1073	579	777	636	755	771	813	844	292	426	337
Runoff in Ac. Ft.	18620	61740	35620	46210	39100	44950	47390	50000	50250	17960	25380	20700

* Estimated.

NOTE: This is the discharge to the Sacramento River via Sacramento Slough at Mile 21.2L. Discharge in this table from measurements made in slough and rating curve developed. This is the entire outflow of the Sutter By-Pass area and R.D. #1500. In former years flow of Sacramento Slough was determined by combining outflow of R.D. 1500 with Sutter By-Pass flows. During high water periods the slough is entirely submerged as it lies within the By-Pass area. See Tables 30, 31, 22 and 34, which, when combined, will give the measured flow entering the By-Pass area.

periods, the [illegible] will give the measured flow entering the By-Pass area.

TABLE 36

COMPONENTS OF FLOW OF SACRAMENTO SLOUGH - 1944

	Acre-Feet												
	From Table No.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
From Feather River via Butte Slough	30				4480	4420	4860	6080	7020	3370	724	5130	17230
From Sacramento R. via Moulton Weir	19				0	0	0	0	0	0	0	0	0
From Sacramento R. via Colusa Weir	20				0	0	0	0	0	0	0	0	0
From Sacramento R. via Butte Slough	30				0	0	0	0	0	0	0	0	0
From Feather R. via Wadsworth Canal	31				3090	11880	11910	10280	11560	13220	14110	NR	2310
From Sacramento R. via Tisdale Weir	22				0	0	0	0	0	0	0	0	0
From Sacramento R. via R.D.1500 (1)	34				10870	35560	28440	31010	35600	32470	3830	4380	3980
Sacramento Slough (2)	35				46210	39100	44950	47390	50000	50250	17960	25380	20700
Sacramento River water					10870	35560	28440	31010	35600	32470	3830	4380	3980
Feather River water					35340	3540	16510	16380	14400	17780	14130	21000	16720
Diversions East Borrow Pit					150	4470	5550	6770	6610	3480	231	0	0
Diversions West Borrow Pit					2570	3720	3880	4780	5270	1750	0	0	0
Total Diversions E. & W. B. P.					2720	8190	9430	11550	11880	5230	231	0	0

(1) 10% added to Reclamation District 1500 measured drainage as an estimate of Sacramento River water entering By-Pass and thence Sacramento Slough as seepage from Reclamation District 1500.
(2) See footnote Table 35.

TABLE 37

FLOW OF FEATHER RIVER NEAR OROVILLE - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1690	3040	5620	6540	10300	6740	2140	2220	1980	1290	2340	5480
2	2780	5610	4840	7020	10700	5720	2160	2200	1950	1380	1760	5820
3	2770	11200	5070	7980	11000	5600	2260	2190	1950	1600	2720	4400
4	2040	6640	18100	9260	10600	4610	2380	2160	1950	1560	6840	3760
5	2980	4900	9260	9030	11500	4310	2330	2140	1940	1570	3600	3370
6	3560	3300	6600	8180	12400	4220	2290	2120	1910	1560	2500	3130
7	2540	3290	5660	7700	12800	4180	2280	2120	1800	1560	2930	3030
8	1920	4660	5380	8300	12400	3770	2310	2110	1780	1440	2390	2920
9	1650	5340	5610	7860	12600	3470	2270	2130	1660	1570	5610	2690
10	1900	4560	6180	7180	11700	3220	2260	2090	1640	1570	10900	2570
11	1820	3720	6660	8020	10300	2930	2250	2090	1600	1600	6080	2520
12	1860	3760	6820	8420	9260	2980	2250	2030	1600	1590	4250	2670
13	1650	3240	7180	7940	8460	2880	2250	2010	1600	1610	3380	2610
14	1950	2870	6500	7700	8670	2910	2280	2000	1570	1670	3340	2530
15	1680	3060	5760	7420	8380	2870	2250	2030	1610	1500	2620	2530
16	1400	2980	5340	7180	7000	2690	2250	2090	1560	1120	2240	2400
17	1710	3040	5440	6820	6420	2540	2230	2090	1420	1640	2100	2390
18	1910	3000	6060	6580	6290	2180	2200	2100	1580	1610	1950	2360
19	2000	3150	6210	6780	5960	2100	2210	2090	1620	1600	1960	2980
20	2080	2780	6150	7140	6040	2210	2220	2080	1570	1570	2080	9070
21	1990	3030	6010	6660	6540	2400	2190	2070	1600	1540	2160	5990
22	2010	4000	5820	6500	6700	2290	2180	2070	1600	1360	2260	10300
23	2180	3680	5870	6540	6530	2420	2160	2070	1510	1380	2220	10800
24	2580	3530	6100	7060	5620	2400	2160	2070	1420	1540	2290	7260
25	2600	3410	6380	7220	5310	2310	2200	2060	1410	1560	2250	5560
26	2250	3100	6340	7060	5290	2310	2180	2040	1520	1620	2280	4730
27	2390	2460	6100	6940	5430	2330	2240	2020	1550	1510	2250	4400
28	2360	4020	5860	7300	5570	2400	2260	2010	1570	1530	2320	4780
29	2320	5950	5720	8180	5200	2300	2250	2010	1570	1480	2600	4730
30	2500		5790	9120	5040	2170	2240	2030	1500	1600	3040	4450
31	2750		6040		5010		2230	2040		3640		3780
Mean	2188	4046	6467	7521	8226	3182	2237	2083	1651	1593	3175	4387
Runoff in Ac. Ft.	134500	232700	397600	447500	505800	189300	137600	128100	98260	97920	188900	269800

NOTE: This is a permanent station maintained throughout the year under Federal-State cooperation by the Water Resources Branch of the U. S. Geological Survey. It is located at highway crossing about 4.5 miles above Oroville.

TABLE 38

FLOW OF FEATHER RIVER NEAR GRIDLEY - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1915	1510	4900	5180	6520	3190	129	68	53	745	3190	3300
2	1660	3890	4130	5610	7170	2992	117	68	53	500	2275	5180
3	2090	10020	3650	6210	7340	2786	110	68	53	745	1300	3540
4	1510	6680	14000	7170	7170	2237	113	68	53	745	4500	2755
5	1740	4370	10560	7680	7510	1825	135	68	53	690	2755	2465
6	2655	2970	6210	7000	8040	1645	137	68	53	690	1585	2275
7	2010	2465	5180	6360	8580	1540	141	68	53	690	1915	2180
8	1585	3190	4630	6360	8580	1405	121	68	53	690	1510	2090
9	1370	4500	4500	6520	8400	1258	121	53	53	640	2860	1915
10	1300	3770	4900	5760	8040	1102	121	53	53	745	9480	1740
11	1370	2970	5320	5910	7000	910	121	53	53	745	5910	1740
12	1370	2860	5610	6680	6060	701	121	53	53	745	3540	1825
13	1270	2560	5760	6360	5460	604	102	53	68	800	2560	1825
14	1370	2010	5610	6060	5320	665	102	53	188	800	2465	1740
15	1300	2180	5040	5910	5320	866	102	53	245	800	2010	1740
16	1160	2180	4500	5610	4370	595	102	53	460	595	1660	1660
17	1095	2180	4250	5180	3650	460	102	41	545	545	1510	1660
18	1370	2180	4630	4900	3540	380	102	53	460	800	1440	1585
19	1370	2180	5040	4760	3190	254	102	53	595	855	1440	1825
20	1440	2275	4900	5180	3080	199	85	53	545	800	1440	6360
21	1510	1915	4900	5040	3300	173	85	53	595	910	1510	5460
22	1440	2970	4760	4760	3540	199	85	53	595	855	1585	6520
23	1440	2860	4630	4630	3540	188	85	53	640	745	1510	10380
24	1660	2655	4900	4760	2970	215	85	53	640	745	1585	6840
25	1825	2465	5040	5180	2655	210	85	53	595	800	1585	4630
26	1660	2465	5320	4630	2465	180	68	53	690	800	1585	3650
27	1660	1915	5040	4500	2465	188	68	53	745	800	1585	3430
28	1660	2465	4900	4630	2655	163	68	53	800	745	1585	3430
29	1585	4760	4630	5040	2370	207	68	53	745	745	1660	3770
30	1740		4630	5760	2275	163	85	53	745	745	2090	3300
31	2010		4760		2090		85	53		690		2860
Mean	1585	3152	5382	5644	4989	917	102	56	351	740	2387	3344
Runoff in Acre-Feet	97500	181300	330900	335900	306800	54500	6250	3470	2090	45550	142100	205600

NOTE: Station is maintained by the Division of Water Resources. It is located at Gridley Bridge, Mile 49.7 above mouth.

TABLE 39

FLOW OF FEATHER RIVER AT YUBA CITY - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1												
2							529	229	98	985		
3							524	217	96	832		
4							524	205	98	826		
5							524	177	108	985		
6							524	163	103	914		
7							524	163	103	927		
8							518	167	103	940		
9							513	150	107	946		
10							513	137	113	888		
11							513	115	108	1090		
12							509	118	127	984		
13							509	118	127	1044		
14							509	107	143	1053		
15							507	103	157	1063		
16							497	107	167	1137		
17							497	107	534	1037		
18							497	107	747	844		
19							497	113	735	1124		
20							328	113	795	1220		
21							267	113	876	1151		
22							209	113	826	1246		
23							194	115	845	1207		
24							191	153	908	1024		
25							194	113	876	1004		
26							194	103	857	1124		
27							187	103	826	1144		
28							180	108	985	1144		
29							180	113	1017	1090		
30							180	115	1017	1083		
31							177	118	1004	1077		
Mean							206	118		1665		
Runoff in Ac. Ft.							384	132	487	1058		
							23630	8134	28970	65050		

FLOWS IN EXCESS OF 2,000 C.F.S. ARE NOT SHOWN BECAUSE THE FLOW GAGE HEIGHT RELATION FOR SUCH EXCESS FLOWS HAS NOT BEEN ESTABLISHED BY CURRENT METER MEASUREMENTS.

NOTE: This station is maintained by the Division of Water Resources. It is located at Yuba City-Marysville Bridge, Mile 28.0 above mouth.

TABLE 40

FLOW OF FEATHER RIVER BELOW SHANGHAI BEND - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct	Nov.	Dec.
1							861	407	229	1000		
2							817	412	226	914		
3							817	384	238	817		
4							776	356	244	1095		
5							751	331	241	960		
6							768	318	238	990		
7							735	304	241	1000		
8							713	274	244	904		
9							720	296	244	914		
10							728	296	238	1171		
11							728	296	253	1138		
12							728	257	250	1105		
13							692	244	253	1127		
14							677	235	261	1127		
15							684	226	257	1345		
16						2910	684	229	460	1475		
17						2287	643	220	649	1215		
18						1951	588	220	663	1630		
19						1646	540	226	670	1857		
20						1371	527	217	808	1770		
21						1204	527	215	776	1902		
22						1182	521	215	809	1935		
23						1171	509	212	895	1601		
24						1052	477	207	852	1587		
25						1138	513	199	861	1739		
26						1105	433	199	834	1724		
27						952	438	205	990	1770		
28						952	433	207	1094	1587		
29						904	392	207	1105	1615		
30						843	384	212	962	1615		
31							403	207		2675		
Mean							620	259	536	1397		
Runoff in Ac. Ft.							38100	15930	31890	85890		

FLOWS IN EXCESS OF 2910 C.F.S. ARE NOT SHOWN BECAUSE THE FLOW-GAGE HEIGHT RELATION FOR SUCH EXCESS FLOWS HAS NOT BEEN ESTABLISHED BY CURRENT-METER MEASUREMENTS

NOTE: This station is maintained by the Division of Water Resources. It is located on the right bank at Mile 23.0 above mouth.

TABLE 41

FLOW OF FEATHER RIVER AT NICOLAUS - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2530	4210	17900	8810	11400	6440	792	370	180	1030	3370	4640
2	2400	4500	15500	9400	12600	8570	736	375	185	1060	3120	8760
3	3910	14200	11400	10100	13300	7850	722	375	240	876	2390	9060
4	4370	22300	16700	11200	13600	7420	694	353	225	1040	2860	6970
5	3690	16800	29100	12500	13500	5960	666	309	220	1070	6400	5710
6	4510	12400	25300	12300	14000	5080	680	282	205	1010	4470	5140
7	5280	9130	17100	11300	15000	4740	645	276	205	1030	3570	4800
8	4300	7770	12600	10500	15600	4560	631	255	215	1080	4290	4600
9	3400	11500	10900	10800	15600	4380	631	230	230	1070	3800	4520
10	2700	11200	10800	10300	15500	4020	631	230	265	1090	8710	4300
11	2800	8920	11500	9580	14600	3470	631	215	245	1200	12300	4120
12	2900	7340	11800	10500	13100	2790	624	200	245	1200	10300	4040
13	2700	6640	11900	11400	11500	2410	624	205	240	1200	7560	4060
14	2600	5770	11900	11000	10600	2280	586	195	276	1240	5940	3970
15	2600	5190	10800	10500	10900	2310	580	185	276	1280	5320	3910
16	2500	5150	9740	10100	10500	2240	580	175	314	1440	4550	4070
17	2400	5040	8970	9770	8760	1860	562	165	673	1300	4070	3870
18	2500	4980	8900	9260	7990	1640	538	160	757	1400	3790	3800
19	2500	4900	9670	8840	7700	1460	478	165	694	1610	3610	3830
20	2500	5040	9900	9670	7180	1250	454	165	841	1630	3510	4860
21	2600	4910	9740	10400	7210	1100	430	160	869	1660	3510	9580
22	2600	8340	9350	9540	7750	1070	442	156	859	1740	3560	9320
23	2600	13400	8860	9080	8170	1060	436	147	911	1580	3670	15600
24	2820	10400	8780	9000	7990	981	408	156	939	1460	3590	19600
25	3720	7900	8950	9430	7260	1040	419	190	918	1580	3610	15000
26	3650	6640	9160	9290	6790	1040	408	170	904	1640	3580	10600
27	3370	5780	9080	8840	6550	960	375	170	960	1680	3560	8470
28	3270	5220	8710	8700	6220	918	348	170	1040	1620	3470	7610
29	3240	13200	8410	9080	6220	890	331	156	1040	1620	3750	8730
30	3260		8330	10100	5960	862	336	170	1050	1600	4070	8680
31	3600		8460		6070		364	165		1940		8600
Mean	3155	8578	11940	10040	10290	3022	541	216	541	1354	4677	7123
Runoff in Ac. Ft.	194000	493400	734300	597600	633000	179800	33300	13280	32190	83300	278300	438000
Diversions (1)	0	0	0	0	2671	3246	3615	4022	2181	22	0	0
Flow to Sacramento River Acre-Feet	194000	493400	734300	597600	630300	176600	29690	9258	30010	83280	278300	438000

NOTE: Station maintained jointly by Division of Water Resources (Water Supervision) and the Water Resources Branch of the U.S. Geological Survey. Record from May 1 to December 31 compiled by U.S.G.S. Balance of year by Water Supervisor.

NOTE: Station maintained jointly by Division [illegible] U.S. Geological Survey. Record from May 1 to December 31 compiled by [illegible]

TABLE 42

FLOW OF YUBA RIVER AT NARROWS DAM - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	182	607	2390	2190	3950	4270	846	439	358	264	626	1490
2	485	615	1990	2490	4370	4200	830	384	360	265	622	1790
3	582	639	1810	2920	4570	3840	806	384	358	265	620	1280
4	562	667	8970	3210	4600	3240	735	347	357	265	621	1120
5	556	1950	5490	2920	4940	2670	729	326	357	265	557	1080
6	567	1730	3090	2550	5610	2420	751	327	370	265	622	1050
7	596	1470	2350	2430	5720	2430	721	331	366	235	625	1020
8	596	2060	2170	2590	5940	2450	721	331	362	176	626	1000
9	606	2550	2320	2550	5890	2400	721	333	360	180	627	975
10	590	1910	2880	2170	5640	1980	724	324	361	190	643	952
11	600	1550	3160	2400	4940	1800	711	310	358	202	664	940
12	600	1310	3090	2920	4400	1690	711	310	326	240	674	921
13	611	1170	2940	2620	4240	1610	707	309	331	267	690	904
14	596	1100	2510	2430	4410	1520	699	308	309	480	698	895
15	603	1080	2080	2310	4700	1420	691	307	307	656	702	885
16	605	1040	1910	2350	3640	1350	688	307	276	653	702	875
17	605	1020	1910	2230	3240	1270	703	307	261	652	703	868
18	600	970	2330	2060	3270	1200	545	309	264	650	707	859
19	399	998	2490	2170	3050	1130	547	310	264	650	706	890
20	410	977	2380	2740	3110	1070	547	299	264	647	709	1220
21	408	1120	2210	2380	3180	1020	542	305	264	644	708	2070
22	403	1950	2010	2210	3730	1030	520	305	266	640	708	3890
23	197	1550	1970	2260	3790	1020	460	308	270	637	711	6790
24	431	1260	2010	2620	3710	935	563	308	274	634	712	4070
25	534	1200	2080	2500	3620	966	563	309	274	631	713	2890
26	602	1150	2030	2350	3460	944	475	309	270	631	711	2250
27	602	1110	1920	2310	3080	934	427	310	264	629	766	1890
28	597	1590	1840	2380	2950	894	433	310	266	627	831	1870
29	613	2780	1730	2740	2920	878	433	332	267	626	872	1940
30	613		1860	3380	3180	866	436	359	269	622	953	1880
31	617		1980		3610		436	357		622		1600
Mean	534	1349	2577	2513	4112	1782	626	326	308	465	694	1680
Runoff in Ac. Ft.	32860	77600	158500	149500	252800	106000	38520	20060	18350	28580	41310	103450

NOTE: This is a permanent station maintained throughout the year under Federal-State cooperation by the Water Resources Branch of the U. S. Geological Survey. For total flow of Yuba River near Smartville combine with flows in Table 43.

TABLE 43

FLOW OF DEER CREEK NEAR SMARTVILLE - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	73	124	619	147	149	86	4.2	2.6	1.8	2.4	26	389
2	260	1280	396	149	145	74	3.4	2.9	1.7	1.8	17	292
3	169	1700	618	170	137	79	3.5	3.0	2.6	2.1	26	175
4	67	438	2840	168	129	68	3.9	2.3	2.3	2.3	172	149
5	208	194	606	177	119	65	3.9	2.0	2.0	2.3	65	130
6	165	130	391	168	110	59	3.0	1.7	2.0	2.2	36	125
7	106	100	289	159	98	51	2.0	1.3	2.2	2.2	277	119
8	68	527	254	181	101	50	1.4	1.3	2.2	3.6	53	116
9	57	308	257	166	102	55	1.7	1.4	1.9	7.1	666	113
10	65	166	284	149	101	58	1.6	1.3	1.8	7.1	876	110
11	57	119	282	230	92	49	1.9	2.9	2.1	5.6	591	107
12	44	94	268	241	85	52	3.2	2.5	1.8	5.6	352	104
13	42	79	268	220	94	48	3.5	2.3	2.2	6.1	218	101
14	36	70	230	212	85	28	2.5	1.5	2.3	5.8	168	100
15	34	61	222	175	96	21	3.0	.9	2.2	5.3	135	98
16	29	52	212	161	79	21	2.2	.6	2.4	6.1	118	96
17	28	50	206	157	86	20	1.7	.9	2.5	6.1	116	95
18	28	43	210	163	101	20	1.5	1.0	4.2	6.8	108	96
19	23	53	210	216	88	17	1.8	1.3	3.0	7.5	107	113
20	22	42	208	286	83	12	1.8	2.2	3.2	7.8	107	157
21	22	193	192	216	78	10	1.7	1.8	5	9.6	101	124
22	20	868	184	194	75	8	1.8	2.1	5.5	9.6	102	374
23	47	349	181	177	70	8.5	1.4	1.9	5	9.6	101	711
24	191	183	175	179	66	11	1.2	2.8	2.0	10	98	248
25	82	119	172	177	59	9.5	1.2	1.8	1.9	9.6	98	177
26	52	90	156	172	58	10	1.3	1.6	1.4	7.8	94	156
27	41	75	159	172	56	13	1.2	1.6	2.3	3.9	92	147
28	42	705	157	166	55	15	1.2	1.7	1.9	2.8	94	278
29	32	1150	154	159	54	8	1.2	1.6	3.2	3.4	118	248
30	93		157	152	54	5.5	1.8	3.1	2.9	6.8	125	228
31	230		154		63		2.0	3.0		143		165
Mean	78.5	323	346	182	89.3	34.4	2.2	1.9	2.6	10.1	175	182
Runoff in Ac. Ft.	4830	18570	21240	10830	5490	2050	134	115	155	619	10430	11190

NOTE: This is a permanent station maintained throughout the year under Federal-State cooperation by the U. S. Geological Survey. For total flow of Yuba River near Smartville combine with flows in Table 42.

TABLE 44

FLOW OF YUBA RIVER AT MARYSVILLE (SIMPSON LANE BRIDGE) - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	380	908	4210	2460	3920	3620	600	237	146	126	722	1570
2	834	2070	3100	2670	4350	3980	595	233	154	126	600	2680
3	1240	6090	2360	3140	4590	3660	580	206	159	130	600	1760
4	848	3330	11300	3480	4680	3220	550	193	151	128	550	1410
5	938	2620	8500	3440	4800	2660	535	174	148	130	550	1270
6	1260	1900	5690	2980	5310	2320	515	168	154	128	600	1190
7	885	1700	4020	2760	5570	2240	510	157	162	130	900	1130
8	860	2000	3290	2770	5770	2190	515	154	162	133	766	1090
9	830	2500	3160	2930	5830	2230	525	151	157	126	1080	1060
10	810	2300	3520	2520	5620	1940	515	143	168	114	2420	1020
11	780	2000	3840	2540	5130	1710	506	143	168	106	1590	989
12	750	1700	3760	3260	4560	1570	525	140	168	106	1530	975
13	730	1400	3730	3060	4240	1480	491	140	162	108	1120	947
14	700	1220	3380	2790	4210	1380	496	143	154	102	975	926
15	670	1140	2910	2630	4470	1280	496	140	148	244	870	912
16	646	1000	2570	2620	3920	1200	477	140	143	408	805	891
17	640	1060	2440	2590	3280	1130	472	138	140	486	779	877
18	633	960	2670	2410	3240	1050	378	133	135	515	760	870
19	472	990	2980	2320	2990	961	357	126	135	525	740	912
20	441	968	2990	3090	2900	877	357	121	133	535	740	1150
21	412	1180	2790	2810	2970	831	357	114	130	540	734	1900
22	417	3850	2520	2540	3300	824	340	110	126	545	740	2840
23	398	2850	2410	2500	3540	786	320	106	128	545	734	7370
24	848	1900	2440	2760	3460	734	304	102	133	545	728	5420
25	819	1490	2480	2800	3430	772	332	117	140	560	728	3600
26	666	1260	2460	2630	3310	716	308	119	135	540	734	2650
27	666	1120	2390	2560	3020	710	270	128	130	530	746	2140
28	653	2000	2250	2560	2760	686	244	119	124	520	805	2020
29	653	5530	2170	2780	2700	632	233	126	124	520	884	2330
30	686		2180	3350	2820	615	240	126	119	525	1040	2160
31	968		2220		2970		248	130		772		1900
Mean	727	2036	3443	2792	3989	1600	426	144	145	339	886	1870
Runoff in Ac. Ft.	44690	117100	211700	166100	245300	95210	26160	8880	8600	20920	52700	115000

NOTE: Station is maintained jointly by the Division of Water Resources (Water Supervision) and the Water Resources Branch of the U. S. Geological Survey. Station is at 7th Street Bridge.

TABLE 45

FLOW OF BEAR RIVER NEAR WHEATLAND - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	180	28	1620	296	242	142	7.5	5.5	5	1.6	14	579
2	195	93	1300	268	181	151	7.5	5	5.5	1.4	18	732
3	255	3250	957	250	228	118	9	4.1	5.5	1.6	21	555
4	329	1390	6550	292	232	122	9	3.7	3.8	1.6	24	354
5	329	720	3250	455	199	118	9	4.1	3.4	2.1	25	210
6	545	595	1460	415	178	173	10	4.6	3.7	4.1	32	207
7	456	525	1050	260	163	181	7	7.5	4.2	2.3	251	156
8	356	804	894	22	165	165	8	7.5	4.2	6.7	410	166
9	295	962	832	18	127	154	9	8.5	3.0	6.7	694	210
10	295	645	793	21	142	142	10	10	1.3	6.7	1560	186
11	295	525	766	35	118	156	8	8.5	1.2	6.7	1230	146
12	285	456	760	63	124	103	7.5	8	1.1	6.7	1140	156
13	275	278	744	381	107	92	8	6.5	.8	6.7	825	91
14	268	169	722	345	103	101	7.5	4.6	1.2	6.7	620	84
15	255	148	694	309	187	56	6.5	4.6	1.3	6.7	555	126
16	236	136	672	272	184	31	7.5	4.6	1.6	6.7	515	336
17	207	131	584	268	156	17	6.5	5	2.1	6.3	492	156
18	148	124	480	253	184	17	4.6	5	2.1	6.3	465	141
19	78	120	465	212	165	16	5.5	5	2.3	5.8	424	175
20	60	102	455	798	122	13	7.5	6	2.8	5.8	404	325
21	86	145	450	540	120	10	7	6	2.8	6.7	388	258
22	116	1780	425	435	142	8.5	7.5	7.5	1.9	5.8	360	355
23	78	1220	236	386	131	8.5	8	6	2.3	5.8	340	1160
24	151	600	222	354	87	8.5	9	4.8	5.5	5.4	313	754
25	186	336	218	332	135	9	8	1.9	6	5.4	275	570
26	189	233	184	300	181	10	7.5	3.6	4.1	5.4	271	226
27	161	171	184	268	142	12	10	4.2	1.3	5.4	220	226
28	143	423	184	260	144	12	7	2.8	1.4	5.4	110	349
29	108	2800	192	292	163	9	7.5	4.2	1.3	5.4	444	640
30	90		350	272	160	7.5	6.5	4.0	1.4	7.1	299	545
31	122		309		151		6	5		15		420
Mean	218	652	903	289	157	72.1	7.7	5.4	2.8	5.6	425	342
Runoff in Ac. Ft.	13430	37510	55540	17200	9650	4290	474	334	167	341	25270	21010

NOTE: This is a permanent station maintained throughout the year under Federal-State cooperation by the Water Resources Branch of the U. S. Geological Survey.

TABLE 46

FLOW OF RECLAMATION DISTRICT 1001 DRAIN INTO CROSS CANAL* - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0	0	97	0			10		0	0
2	0	31	0	0	0	0			10		0	0
3	0	73	300	0	0	0			10		0	0
4	0	147	237	0	0	0			10		0	0
5	0	52	300	0	0	61		N	10		0	0
6	28	21	289	12	97	0		0	10		0	0
7	0	31	289	12	0				10		0	0
8		52	237	12	0			F	10		0	0
9		0	300	12	0		N	L	10		0	0
10		0	112	12	0		0	O	10	N	62	0
11		31	50	12	0			W	10	O	0	0
12		0	100	12	0		F		10	F	0	0
13	N	0	0	0	98		L		10	L	0	4
14	O	0	100		0	N	O	0	10	O	25	0
15		21	0		0	0	W	10	10	W	37	0
16	F	0	0		0			10	0		25	0
17	L	0	0		0	F		10			0	0
18	O	0	75	N	0	L		10			0	0
19	W	0	0	O	0	O		10	N		13	4
20		0	0		0	W		10	O		0	0
21		94	0	F	0			10	F		N	16
22		94	0	L	0			10	L		O	32
23		240	125	O	0			10	O			28
24		230	0	W	0			10	W		F	0
25		252	0		109			10			L	32
26		262	0		0			10			O	20
27		125	0		0			10			W	0
28		105	0		0			10				12
29		240	0		0			10				32
30		0	0		0			10				37
31		0	0		0			10				0
Mean	0.9	72.4	81.1	2.8	12.9	2.0	0	5.5	5.0	0	5.4	7.0
Runoff in Ac. Ft.	56	4167	4986	167	795	121	0	337	298	0	321	430

* Cross canal, the main drain between Reclamation Districts 1000 and 1001, joins the Sacramento River at Mile 19.6L.

TABLE 47

FLOW OVER SACRAMENTO WEIR TO YOLO BY-PASS - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13					NO FLOW OVER WEIR DURING 1944							
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
Mean												
Runoff in Ac. Ft.												

NOTE: Elevation — Fixed crest 25.0 U.S.E.D. - Movable crest (top of needles) 31.0 U.S.E.D. Weir has 48 bays or gates, each 38 feet in length.

NOTE: Elevation ... each 38 feet in length.

TABLE 48

FLOW OF RECLAMATION DISTRICT 1000 DRAIN (#3 PLANT) - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1		97	73	73	46	46	6	26	4	68		
2		97	73	73	46	46	5	26	4	68		
3		97	73	73	46	46	5	5	5	68		
4	N	97	73	73	46	46	5	5	5	0		
5	O	97	73	73	46	46	0	5	122	44		
6		97	73	73	46	46		5	122	52		
7	F	97	73	73	46	46		5	108	24		
8	L	97	73	73	46	46		5	96	0		
9	O	97	73	73	46	46		5	92			
10	W	97	73	73	46	46		5	84			
11		97	73	73	46	46		5	82			
12		97	73	73	46	46		5	82			
13		97	73	73	46	46		5	88	N	N	N
14		97	73	73	46	46	N	5	92	O	O	O
15		97	73	73	46	46	O	5	94			
16		97	73	73	46	46		5	94	F	F	F
17		97	73	73	46	46	F	5	96	L	L	L
18		97	73	73	46	46	L	5	110	O	O	O
19		97	73	73	46	51	O	5	96	W	W	W
20		97	73	73	46	51	W	5	84			
21		106	73	62	46	51		5	78			
22	97	73	73	46	46	54		5	96			
23	97	73	73	46	46	0		5	80			
24	97	73	73	46	46	0		5	70			
25	97	73	73	46	46	0		5	74			
26	97	73	73	46	46	13		5	56			
27	97	73	73	46	46	6		5	64			
28	97	73	73	46	46	6		5	68			
29	97	73	73	46	46	6		5	68			
30	97		73	46	46	6		5	68			
31	97		73		46		6	5				
Mean	31	91	73	65	46	36	1	6	76	10	0	0
Runoff in Ac. Ft.	1920	5220	4490	3840	2830	2130	54	391	4530	643	0	0

NOTE: This drainage from Reclamation District 1000 returning to Sacramento River by pumping and gravity at Mile 6.85L. Additional water returned to Sacramento from same district at Mile 2.1L. (See Table 49.)

TABLE 49

FLOW OF RECLAMATION DISTRICT 1000 DRAIN (2ND BANNON SLOUGH) - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1			160									
2		0	150							0	0	0
3		628	130							88	0	75
4		230	420							0	0	0
5		160	530							0	0	0
6		110	170							0	0	88
7		0	130							0	63	0
8		170	0	N	N	N	N	N	N	50	0	75
9		0		O	O	O	O	O	O	0	0	0
10											88	25
11				F	F	F	F	F	F		75	75
12				L	L	L	L	L	L	N	63	0
13	N		N	O	O	O	O	O	O	O	0	0
14	O		O	W	W	W	W	W	W		88	75
15										F	0	0
16	F		F							L	75	0
17	L		L						0	O	0	0
18	O		O						160	W	63	105
19	W		W	0					160		0	0
20				110					140		75	0
21		0		0					150		0	75
22		130							0		0	0
23		589							115		0	88
24		170							0		88	0
25		130							104		0	0
26		0							0		0	111
27		0									75	75
28		130									0	0
29		170									0	75
30											50	0
31												0
Mean	0	90	55	4	0	0	0	0	28	5	27	30
Runoff in Ac. Ft.	0	5190	3350	218	0	0	0	0	1640	270	1590	1860

NOTE: This is drainage from Reclamation District 1000 returned to the Sacramento River by pumping at Mile 2.1L. Additional water returned to Sacramento River at Mile 6.85L (See Table 48.)

TABLE 50

FLOW OF AMERICAN RIVER AT FAIR OAKS - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	902	1820	7280	3480	6770	6180	1520	280	115	335	1720	1610
2	1450	1920	4960	4080	8020	6520	1450	276	228	308	1650	3050
3	1950	6600	3740	4750	8610	6470	1320	262	195	287	1030	2340
4	1450	5910	12400	5150	8370	5300	1190	256	144	420	1360	1890
5	1250	3270	9920	4590	9190	4700	1060	259	126	396	3830	1710
6	3050	2280	5360	3710	9950	4800	952	245	135	435	1790	1670
7	2000	2060	4070	3610	10200	4670	888	242	123	445	1370	1640
8	1520	2630	3440	3820	10900	4770	802	224	165	415	1660	1570
9	1280	4940	3460	3980	10500	4220	780	220	273	382	1560	1490
10	1260	3300	3880	3190	9740	3860	720	224	210	440	9430	1420
11	1190	2520	4300	3120	8560	3390	658	217	238	410	7420	1410
12	1070	2160	4250	4120	8130	3220	601	210	177	450	4280	1390
13	1000	1910	4230	3470	7950	3340	577	210	186	466	3430	1330
14	1040	1740	3750	3220	8320	3090	535	217	245	420	2460	1260
15	1010	1740	3160	3090	9450	2720	517	192	256	415	2050	1240
16	955	1620	2830	3260	6810	2290	505	192	270	405	1750	1240
17	915	1510	2740	3230	5430	2080	488	186	242	461	1580	1200
18	895	1460	2970	2980	5690	1840	466	180	168	488	1480	1150
19	940	1400	3420	2970	5370	1700	456	186	168	435	1410	1190
20	880	1280	3500	4380	5490	1770	415	201	204	456	1350	3110
21	880	1450	3220	3650	6100	1730	382	198	259	461	1310	4410
22	870	3610	2880	3360	7470	1640	364	192	234	483	1270	4040
23	955	3120	2780	3670	8090	1560	360	192	299	456	1260	7330
24	1190	2230	2970	4350	6540	1640	355	192	266	488	1360	4540
25	1600	1860	3090	4240	6100	1660	331	198	287	541	1360	3430
26	1280	1700	3110	3860	5970	1660	312	214	252	523	1230	2720
27	1100	1580	2950	3750	5910	1740	327	248	331	517	1190	2400
28	1060	2150	2820	3690	6010	1720	319	270	298	511	1200	2340
29	986	11300	2690	4240	5930	1660	323	214	312	511	1230	2680
30	955		2740	5570	5610	1580	308	144	308	494	1330	2580
31	1770		3010		5230		298	135		644		2450
Mean	1247	2796	4062	3819	7497	3117	632	215	224	448	2178	2317
Runoff in Ac. Ft.	76670	160800	249800	227300	461000	185500	38830	13240	13300	27570	129600	142500

NOTE: This is a permanent station maintained throughout the year under Federal-State cooperation by the Water Resources Branch of the U. S. Geological Survey.

TABLE 51

FLOW OF AMERICAN RIVER AT SACRAMENTO - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	932	1850	8560	3190	6730	5630	1430	290	132	360	1160	1690
2	1140	1800	5370	3880	8220	6580	1350	295	170	332	1630	2890
3	2100	5470	3760	4720	8920	6350	1260	275	224	338	1100	2520
4	1560	6800	11000	5290	8770	5310	1140	270	149	384	1090	2070
5	1240	3620	11000	4970	9600	5590	1040	265	135	426	3210	1870
6	2860	2540	5800	3880	10200	4560	960	265	129	474	1860	1830
7	2410	2110	4200	3720	10700	4500	885	255	126	480	1260	1800
8	1660	2350	3550	3860	11500	4520	825	242	126	480	1510	1750
9	1340	5200	3400	4290	11100	4180	782	232	237	414	1390	1670
10	1300	3640	3820	3340	10300	3740	740	232	224	468	8320	1600
11	1260	2770	4370	3140	9080	3270	698	224	246	462	9240	1580
12	1150	2280	4420	4320	8400	3060	650	224	190	462	4470	1570
13	1080	2020	4450	3700	8090	3150	618	228	182	498	3520	1500
14	1100	1820	4060	3330	8350	3010	579	219	224	456	2640	1440
15	1070	1800	3270	3150	9600	2650	553	202	290	456	2230	1400
16	1040	1710	2830	3290	7160	2200	540	194	275	444	1940	1400
17	1020	1610	2650	3370	5390	1990	528	182	237	450	1770	1380
18	994	1520	2790	3060	5250	1790	498	178	210	516	1660	1350
19	1020	1500	3380	2900	5180	1610	522	186	170	492	1590	1350
20	973	1420	3570	4290	5140	1620	462	198	198	492	1540	2640
21	959	1440	3340	3780	5800	1600	420	198	270	498	1490	4690
22	959	3400	2900	3330	7280	1540	402	194	270	498	1460	3440
23	994	3450	2680	3500	7930	1460	384	194	285	498	1440	8000
24	1120	2390	2880	4310	6530	1500	396	194	300	486	1510	4820
25	1610	1990	3020	4360	5840	1540	360	198	295	540	1540	3480
26	1340	1800	3090	3890	5710	1540	354	202	275	546	1440	2800
27	1140	1690	2880	3770	5710	1580	349	246	327	540	1380	2470
28	1110	1740	2770	3650	5860	1580	344	270	354	534	1380	2340
29	1040	11500	2590	4000	5730	1540	349	255	305	540	1400	2700
30	1040		2580	5330	5430	1460	338	156	378	546	1470	2520
31	1450		2830		5080		316	142		631		2480
Mean	1291	2870	4123	3854	7567	3022	647	223	231	476	2255	2421
Runoff in Ac. Ft.	79360	165100	253500	229300	465300	179800	39810	13700	13750	29240	134200	148800

NOTE: Station is maintained jointly by Division of Water Resources (Water Supervision) and the Water Resources Branch of the U. S. Geological Survey. Station is located at the "H" Street Bridge and is 6.0 miles above mouth of river.

TABLE 52

FLOW OF YOLO BY-PASS* - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	11	29	474	134	33	44	40	44	60	52	7	13
2	12	31	739	127	32	48	36	45	64	60	7	13
3	14	63	828	125	32	58	34	44	60	84	6	13
4	15	2150	1080	127	33	75	33	42	58	81	6	14
5	15	2380	5140	126	33	81	31	42	56	68	6	20
6	17	2570	4210	117	33	72	30	45	56	47	5	22
7	19	2570	2730	111	32	62	30	46	56	32	6	20
8	25	2440	1980	107	31	57	30	46	59	22	5	18
9	40	1750	1350	105	30	63	29	44	56	19	6	15
10	52	1220	975	89	29	64	30	45	56	23	7	14
11	54	1000	718	74	29	56	31	47	56	21	8	13
12	56	739	628	66	30	46	32	43	59	18	11	12
13	54	540	586	61	31	32	33	40	56	14	26	12
14	53	396	532	55	33	30	36	38	57	11	46	12
15	52	347	456	52	38	29	36	36	60	9	45	12
16	50	294	420	54	44	28	37	36	62	8	34	19
17	50	263	381	49	47	27	37	37	62	7	26	38
18	46	228	356	39	56	27	37	43	61	9	21	40
19	44	198	325	33	69	36	38	43	66	10	18	31
20	44	177	300	30	79	36	39	41	67	9	16	26
21	44	189	280	28	85	35	44	41	68	9	14	24
22	42	288	253	25	78	35	44	40	65	8	13	24
23	40	336	241	23	73	34	44	40	65	8	16	32
24	40	423	234	21	64	35	45	40	65	8	18	54
25	37	605	220	21	55	38	44	44	68	7	16	113
26	32	536	201	22	50	40	43	41	72	7	15	300
27	30	408	187	22	49	42	42	40	68	7	14	570
28	28	362	170	23	46	43	42	40	66	7	13	520
29	27	383	152	25	44	44	44	42	62	6	12	396
30	27		146	31	43	44	44	45	52	6	13	336
31	28		144		43		45	52		7		374
Mean	35	790	853	64	45	45	37	42	61	22	15	101
Runoff in Ac. Ft.	2180	45450	52440	3810	2780	2700	2300	2600	3640	1360	907	6190

NOTE: The flow at this station is referred to the recorder at the end of the Sacramento By-Pass except during the periods February 4-13 and March 2-13 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 Table 47 and the flows of Putah Creek. The flow in this table includes the flows of Cache Creek, Knights Landing Ridge Cut and Fremont Weir. To get flows into Delta combine Tables 18, 54, 55, 56, 65, 52, 47 and Putah Creek flows.
Station has been operated cooperatively since 1941 by Division of Water Resources and U.S.Geological Survey (Water Resources Br.)

TABLE 53

FLOW OF COSUMNES RIVER AT MICHIGAN BAR - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	97	259	1770	406	645	390	76	14	1.8	2.6	176	254
2	210	398	923	434	720	411	71	12	1.8	2.4	144	686
3	417	999	618	476	770	411	66	11	1.6	2.2	80	375
4	226	960	4660	539	790	364	63	10	1.6	2.2	74	284
5	169	456	2530	539	840	324	59	9.5	1.6	2.2	234	249
6	471	332	1210	470	850	305	56	9	1.6	2.4	141	227
7	320	281	830	445	830	287	52	8.5	1.5	2.8	99	210
8	214	756	654	470	860	265	47	7	1.5	4.0	105	198
9	171	1730	592	510	850	249	44	6.5	1.4	4.7	133	191
10	182	730	577	422	810	234	43	6	1.3	5.0	3280	179
11	164	476	618	532	730	224	40	5.5	1.3	4.7	1600	170
12	143	380	636	760	681	220	38	5	1.2	5.8	1230	161
13	124	318	636	570	654	194	36	5	1.0	7.2	990	153
14	115	289	577	532	636	179	34	4.7	1.0	10	513	144
15	110	281	483	517	860	170	32	4.4	1.0	9.2	345	141
16	106	246	439	510	710	164	30	4.0	1.0	8.0	268	136
17	99	229	411	490	600	158	29	3.8	.9	7.5	220	130
18	93	217	417	463	636	148	29	3.6	.8	7.2	194	127
19	87	199	445	504	570	136	26	3.6	.9	6.8	173	134
20	87	202	470	967	532	127	24	3.4	.9	6.8	158	223
21	85	274	445	710	510	123	22	3.4	1.2	7.2	146	309
22	87	739	417	592	517	119	21	3.6	1.6	7.2	136	309
23	99	687	406	577	539	116	18	3.0	1.8	6.8	132	646
24	207	380	411	592	483	127	18	2.6	2.2	6.8	130	562
25	242	296	417	600	456	130	17	2.6	2.8	6.8	127	444
26	177	259	417	585	434	116	18	2.4	3.2	7.5	125	385
27	148	235	406	585	411	107	17	2.4	2.8	8.6	121	350
28	138	700	384	577	406	99	16	2.2	2.4	7.5	121	392
29	126	3870	374	570	400	90	15	1.9	3.0	7.2	121	520
30	179		374	592	374	83	15	1.9	2.8	7.5	141	576
31	277		384		353		14	1.8		18		420
Mean	173	592	772	551	628	202	35	5.3	1.6	6.3	382	300
Runoff in Ac. Ft.	10650	34070	47470	32800	38590	12040	2150	326	98	386	22720	18420

NOTE: This is a permanent station maintained throughout the year under Federal-State cooperation by the Water Resources Branch of the U. S. Geological Survey.

NOTE: This is a p... the U. S. Geological Surv...

TABLE 54

FLOW OF COSUMNES RIVER AT McCONNELL - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	118	283	4455	380	571	327	65	6			0	160
2	163	298	1990	395	604	359	58	6			164	544
3	292	1280	1025	425	657	365	51	6			138	734
4	284	2555	1830	462	738	365	47	6			108	392
5	215	1085	5670	488	755	336	45	5			136	272
6	184	558	2645	490	783	311	43	4			210	216
7	423	392	1390	470	785	275	40	3			141	194
8	234	276	996	445	768	258	38	2			119	181
9	177	1930	787	435	786	240	36	1			127	174
10	160	1295	695	422	768	225	35	0			883	164
11	162	668	683	382	729	213	28				2305	162
12	150	492	683	534	675	198	22				1598	160
13	132	400	672	542	635	190	18	N	N	N	1694	166
14	121	332	659	488	609	174	14	O	O	O	1064	162
15	112	315	615	465	634	158	11				613	156
16	108	292	565	465	774	142	9				404	154
17	101	259	510	475	671	131	8	F	F	F	299	146
18	95	235	485	455	617	135	6	L	L	L	246	142
19	86	218	480	429	590	130	7	O	O	O	209	141
20	83	203	475	692	545	114	6	N	W	W	186	157
21	83	215	465	696	495	107	6				173	265
22	83	1175	450	626	475	101	6				160	250
23	86	2330	425	570	470	99	6				156	490
24	98	1220	415	555	468	99	6				151	746
25	182	521	410	555	450	103	6				148	526
26	200	368	410	555	422	105	6				142	414
27	166	288	405	555	410	97	6				141	353
28	140	268	395	550	388	89	6				139	338
29	128	2810	380	560	390	80	6				137	621
30	124		370	560	365	71	6				140	696
31	185		370		347		6					594
Mean	157	778	1026	504	593	186	21	1	0	0	404	319
Runoff in Ac. Ft.	9670	44750	63085	29992	36445	11102	1295	77	0	0	24062	19593

NOTE: This station is maintained by the U. S. Bureau of Reclamation. When flow in main channel reaches 4600 c.f.s. water starts to by-pass station. Figures here given include all overflow.

TABLE 55

FLOW OF MOKELUMNE RIVER AT WOODBRIDGE - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	621	300	703	90	331	232	67	36	44	227	224	621
2	660	475	606	342	316	283	127	48	90	151	419	685
3	621	598	592	131	257	316	190	60	155	217	254	661
4	653	625	713	251	183	349	196	58	60	177	236	536
5	640	558	853	318	227	176	174	65	31	168	300	536
6	628	533	420	290	254	162	192	41	106	171	505	560
7	636	354	541	285	263	250	67	28	196	200	541	601
8	669	577	548	304	209	180	46	28	177	199	442	610
9	669	678	531	412	131	208	44	30	203	70	536	586
10	562	510	541	349	203	203	38	44	273	74	743	560
11	554	647	537	363	167	181	37	66	57	194	656	352
12	619	615	539	361	180	52	40	64	65	228	574	558
13	634	577	351	342	239	72	66	52	126	246	615	612
14	647	360	499	342	275	181	119	29	127	225	570	632
15	625	497	533	363	166	244	125	33	189	122	586	650
16	628	558	535	389	200	250	57	57	174	45	634	652
17	449	564	544	380	327	234	42	65	143	40	637	448
18	569	567	546	370	268	197	39	70	44	110	639	343
19	651	537	544	382	254	50	37	71	123	162	641	608
20	649	537	273	412	220	92	40	95	217	169	643	619
21	451	378	489	416	294	232	130	34	242	188	630	576
22	304	611	527	416	122	252	145	34	242	150	621	595
23	273	651	533	427	278	250	44	51	230	46	641	597
24	208	579	541	399	322	263	36	69	188	130	641	554
25	266	602	518	382	294	269	35	81	59	187	582	522
26	276	596	518	406	266	184	36	95	119	192	524	314
27	282	535	141	414	266	173	36	113	151	204	285	546
28	282	423	40	399	216	224	38	35	146	203	481	637
29	302	915	303	374	47	96	44	29	177	226	560	700
30	297		222	369	74	41	57	39	225	104	564	648
31	220		139		203		38	42		280		554
Mean	501	550	481	349	227	197	77	54	146	165	531	570
Runoff in Ac. Ft.	30830	31650	29590	20780	13990	11690	4720	3300	8690	5105	15924	17673

NOTE: This is a permanent station maintained throughout the year under Federal-State cooperation by the Water Resources Branch of the U. S. Geological Survey. It is located just below dam of Woodbridge Irrigation District.

TABLE 56

FLOW OF CALAVERAS RIVER AT JENNY LIND - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	83	320	3140	86	103	31	11				0	67
2	80	182	1960	86	96	32	9				0	600
3	147	152	700	85	92	34	5				0	386
4	158	240	2000	85	85	33	3				0	201
5	109	230	3170	85	77	32	1				0	137
6	113	150	2110	85	72	30	.1	N	N	N	59	111
7	188	118	832	85	66	27	0	O	O	O	54	98
8	128	225	470	83	62	23	0				44	87
9	94	1040	364	86	59	20	0	F	F	F	46	81
10	80	610	320	90	54	19	0	L	L	L	1220	76
11	74	301	290	90	54	18	0	O	O	O	1350	70
12	68	191	268	182	53	16	0	W	W	W	860	67
13	60	145	240	161	52	16	0				620	64
14	55	120	216	122	50	16	0				336	62
15	52	122	191	105	52	15	0				176	61
16	49	118	167	96	61	16	0				118	61
17	48	101	155	90	64	20	0				88	58
18	47	90	147	85	62	23	0				74	55
19	45	83	140	85	62	23	0				65	54
20	44	80	135	105	61	23	0				58	57
21	44	88	128	161	55	22	0				52	67
22	42	585	124	158	52	20	0				48	71
23	44	1110	115	128	48	19	0				45	135
24	57	565	111	115	44	19	0				43	296
25	167	309	107	107	41	20	0				41	204
26	142	212	103	98	40	20	0				40	147
27	103	167	101	98	37	19	0				38	119
28	83	176	98	103	35	18	0				37	124
29	71	2600	90	109	34	16	0				37	296
30	73		85	111	33	13	0				38	282
31	174		85		31		0					256
Mean	88	360	586	106	58	22	1	0	0	0	186	144
Runoff in Ac. Ft.	5400	20690	36020	6280	3540	1300	58	0	0	0	11080	8830

NOTE: This is a permanent station maintained throughout the year under Federal-State cooperation by the Water Resources Branch of the U. S. Geological Survey.

TABLE 57

DAILY CONTENT OF FRIANT RESERVOIR IN ACRE-FEET - 1944

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	21370	21790	37900	80830	81420	227000	295800	257600	177400	124900	107200	158300
2	21020	21860	40070	79960	84550	229400	297900	255000	175300	123100	107700	160500
3	21020	22080	41510	79820	88850	233100	299300	252100	172700	121900	108500	162700
4	21440	22510	42780	80390	94280	235600	300800	249200	170200	120700	109000	164200
5	22440	22580	48590	80830	99610	237200	301500	246300	168200	119300	108500	166200
6	22940	22440	51820	81130	105200	240900	302600	243200	166400	117900	108500	168400
7	23160	21720	54040	81280	111000	246300	302600	240000	164700	116000	109400	170400
8	23230	22000	56080	81420	114800	252100	302600	237500	162700	114100	110100	172200
9	22510	23230	58180	81860	121100	259900	302600	234600	160700	112000	110800	174300
10	22800	23600	60680	81420	128300	265500	301800	231900	158800	110800	113100	176100
11	23010	23160	63110	81130	134200	268200	301100	229100	156900	109900	118900	177700
12	22080	22870	66240	82460	139300	271200	300400	226400	155200	109200	122900	179500
13	22360	22720	68690	82750	144200	275000	299300	223400	153800	108600	125700	181100
14	22360	22720	72000	83040	149300	279700	298300	220400	152100	108100	127800	182400
15	22360	22800	73630	83040	155500	282800	297600	218000	150700	107200	130500	184000
16	22360	22800	74860	82750	161200	285300	296100	215300	149000	106800	132900	185600
17	21930	21860	75560	82310	164200	286300	294000	213000	147200	106800	134700	187800
18	21860	21860	76260	81280	166400	286000	291900	211000	145200	106700	136400	189400
19	22080	21860	77240	80540	168000	284900	289800	208700	143800	106700	138200	191000
20	22000	21860	77810	79820	170000	285600	287700	205800	142400	106700	139100	192900
21	21720	21510	78960	79820	173300	286000	285600	202700	141300	106500	140800	194800
22	21860	24710	80390	79530	177200	286000	283500	200400	140200	106500	142600	199000
23	21720	28200	81570	79100	182900	286000	281500	198100	138800	105900	144400	202900
24	21720	29420	82160	78670	188600	285600	279400	196200	136900	105400	146000	205800
25	22150	30420	81860	78960	192900	284900	276700	194000	134700	105400	147900	207800
26	22440	31430	81570	79240	198400	283900	274300	191600	133400	105800	149200	209500
27	22360	32370	81570	79530	203800	283500	271600	188600	131800	105900	150900	211800
28	21860	32540	81720	79960	207500	284600	268900	185600	130300	105900	152600	214200
29	21860	33490	82160	80250	212400	287000	266100	183400	128700	105800	154500	217100
30	21720		82310	80390	218600	293000	262800	181300	127200	106100	156200	219500
31	21440		81720		222500		260200	179200		106500		221000
Monthly Change Ac. Ft.	+70	+12050	+48230	-1330	+142110	+70500	-32800	-81000	-52000	-20700	+49700	+64800

NOTE: Figure given is amount in storage at end of day. Reservoir water level recorder maintained by U.S. Bureau of Reclamation.

TABLE 58

FLOW OF SAN JOAQUIN RIVER BELOW FRIANT - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	582	718	610	2210	1720	1830	2410	2430	2110	1890	848	410
2	505	742	598	2210	1730	1920	2420	2430	2100	1890	810	410
3	510	803	576	2210	1750	1920	2420	2430	2100	1880	810	410
4	545	911	588	2210	1800	1920	2430	2420	2090	1880	810	410
5	637	932	576	2220	1850	1930	2430	2440	2090	1880	810	410
6	1060	869	560	2220	2070	1850	2430	2440	2080	1870	748	414
7	1130	700	582	2350	2160	1800	2480	2440	2070	1860	688	414
8	1060	803	582	2520	2120	1710	2520	2440	2060	1850	688	414
9	939	1170	588	2510	2090	1610	2530	2440	2060	1730	659	414
10	981	1270	576	2390	2080	1690	2530	2440	2060	1630	620	414
11	974	1090	626	2220	2060	1790	2460	2410	2050	1530	626	414
12	803	981	560	2220	2080	1910	2420	2380	2050	1460	632	419
13	848	946	566	2220	2020	2010	2420	2390	1980	1350	520	419
14	862	796	1030	2220	1980	2190	2410	2350	1940	1260	423	419
15	869	796	1240	2210	2030	2410	2410	2320	1960	1220	423	419
16	862	772	1240	2210	2100	2410	2410	2320	1950	1110	428	419
17	754	760	1240	2210	2100	2410	2460	2320	1940	1010	428	419
18	748	748	1240	2210	2100	2410	2510	2310	1910	988	428	419
19	784	736	1240	2200	2110	2420	2500	2320	1840	967	432	419
20	748	730	1240	2150	2110	2480	2480	2320	1840	967	432	423
21	712	559	1240	2110	2120	2510	2480	2280	1830	960	432	423
22	712	659	1240	2030	2130	2510	2480	2260	1830	953	432	428
23	700	582	1250	1980	2120	2510	2470	2250	1820	953	437	432
24	724	576	1580	1940	2110	2510	2510	2240	1820	925	437	428
25	822	593	1910	1920	2010	2510	2520	2240	1870	911	437	428
26	883	571	1730	1850	1920	2460	2520	2240	1910	911	442	432
27	869	576	1610	1810	1920	2430	2520	2230	1910	890	423	432
28	736	576	1610	1750	1910	2430	2530	2220	1900	890	401	437
29	742	598	1610	1700	1790	2430	2530	2220	1900	890	401	446
30	700		1770	1710	1700	2420	2520	2220	1890	890	405	442
31	637		2230		1710		2470	2170		897		442
Mean	788	778	1092	2131	1984	2178	2472	2334	1965	1300	550	422
Runoff in Ac. Ft.	48470	44750	67120	126800	122000	129600	152000	143500	116900	79920	32750	25940

NOTE: This is a permanent station maintained throughout the year under Federal-State cooperation by the Water Resources Branch of the U. S. Geological Survey.

TABLE 59

FLOW OF SAN JOAQUIN RIVER AT DELTA BRIDGE* - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	215	412	307	11	23	135	100			0	2	10
2	360	408	301	10	17	122	99			0	1	7
3	369	404	414	9	12	113	100			0	1	4
4	364	408	565	9	8	109	102			0	1	4
5	326	412	690	9	7	111	100			0	1	3
6	299	421	685	5	6	115	102			0	1	3
7	265	439	720	2	7	118	97	N	N	0	1	3
8	258	466	850	1	5	118	82	O	O	0	1	3
9	336	475	945	0	4	118	82			0	1	3
10	439	391	870	0	7	117	82	F	F	0	1	3
11	496	258	610	0	13	124	82	L	L	0	1	3
12	470	375	457	0	13	127	79	O	O	0	1	3
13	306	555	421	0	11	126	79	W	W	0	1	12
14	237	580	391	0	4	120	54			0	1	31
15	308	550	342	0	3	111	20			0	1	34
16	417	510	304	0	3	104	13			0	1	34
17	407	466	300	0	5	104	8			0	1	34
18	407	425	342	0	9	100	5			0	1	34
19	407	412	360	0	9	102	7			0	1	35
20	393	412	291	0	9	104	7			0	1	35
21	388	404	294	0	41	106	3			0	2	37
22	383	439	251	0	73	108	1			33	98	41
23	383	430	190	0	77	106	6			7	74	50
24	388	459	125	0	82	109	3			4	79	66
25	364	605	75	0	90	109	1			3	79	157
26	364	610	29	0	104	111	1			3	53	197
27	378	550	21	0	117	113	0			2	32	239
28	388	361	15	0	127	111	0			2	27	515
29	423	404	13	0	131	106	0			2	23	409
30	450		12	0	135	102	0			1	14	304
31	450		11		138		0			2		315
Mean	369	453	361	2	42	113	42	0	0	2	17	85
Runoff in Ac. Ft.	22690	26100	22200	111	2560	6700	2610	0	0	117	996	5210

* Also called Turner Island Bridge.

NOTE: Station maintained by U. S. Bureau of Reclamation. Station is located at county road bridge eight miles east and six miles north of Los Banos, Mile 158.7 above mouth of San Joaquin River. An undetermined amount of water by-passes this station through Pick Anderson Slough and other channels.

TABLE 60

FLOW OF SAN JOAQUIN RIVER AT FREMONT FORD BRIDGE - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	525	930	1230	211	575	462	364	167	172	243	175	269
2	590	880	1480	194	515	462	366	165	169	258	175	251
3	765	870	2010	185	459	464	361	142	160	262	173	238
4	835	900	2070	183	398	446	354	130	152	269	186	284
5	845	995	1960	175	350	433	345	119	151	266	188	298
6	825	1130	2060	182	310	430	328	113	151	253	198	284
7	775	1100	2340	190	260	415	316	119	145	234	198	280
8	755	1070	2330	200	235	390	307	123	138	238	162	282
9	715	1040	2140	203	231	371	300	121	128	236	162	278
10	800	1090	2050	229	229	366	300	109	118	224	192	260
11	915	1150	1910	258	226	349	305	104	104	218	214	243
12	985	985	1560	316	203	347	307	106	106	234	218	251
13	985	1010	1270	354	195	355	305	118	123	220	258	240
14	945	1160	1130	377	213	364	298	121	124	208	315	253
15	910	1160	1030	354	255	361	275	123	121	234	410	243
16	950	1080	935	357	289	354	242	124	126	238	415	269
17	975	1010	850	377	330	347	221	124	140	258	378	278
18	910	930	825	367	347	354	189	116	151	273	320	271
19	895	865	855	367	415	369	161	141	165	298	296	278
20	885	830	825	321	560	390	143	158	185	296	278	280
21	865	845	735	323	590	410	142	158	215	271	249	289
22	845	915	700	354	580	376	135	158	228	322	243	294
23	845	1100	620	515	525	391	113	151	286	422	280	298
24	855	1610	530	565	467	361	107	136	335	410	345	301
25	870	2030	434	535	449	383	116	138	347	352	325	338
26	950	1930	356	497	423	400	116	142	298	301	330	410
27	975	1660	290	471	410	400	123	147	286	253	322	479
28	935	1430	262	491	430	393	123	145	279	226	291	563
29	905	1280	254	565	454	383	113	154	255	198	282	883
30	930		264	590	454	373	118	156	230	162	287	894
31	970		247		462		124	163		167		799
Mean	862	1137	1147	344	382	389	230	135	186	259	262	351
Runoff in Ac. Ft.	53019	65426	70517	20442	23483	23145	14117	8313	11024	15960	15600	21580

NOTE: This is a recording gage station at the county bridge on the road between Gustine and Stevinson, Mile 129.5 above mouth of San Joaquin River and 5.7 miles above the mouth of the Merced River. Recorder operated by U. S. Bureau of Reclamation. Measurements of flow made by Bureau of Reclamation and Division of Water Resources. Additional water during high flow periods passes this station via Mud Slough. See Table 61.

TABLE 61

FLOW OF MUD SLOUGH (BRANCHES COMBINED) AT GUSTINE-STEVINSON HIGHWAY - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	190	110	78	13	3	2	1			0	20	130
2	190	113	77	10	3	2	1				20	140
3	190	112	188	8	3	2	1				20	140
4	191	111	214	4	3	2	1				20	140
5	191	110	169	4	3	2	1				20	160
6	192	109	204	4	3	2	1				10	180
7	186	108	346	4	3	2	1				20	180
8	180	107	337	4	3	2	1	N	N	N	30	180
9	174	106	235	4	3	1	1	O	O	O	20	190
10	167	104	193	4	2	1	1				0	200
11	161	103	142	4	2	1	1	F	F	F	0	190
12	154	102	66	4	2	1	1	L	L	L	0	180
13	149	101	58	4	2	1	0	O	O	O	50	170
14	143	100	56	4	2	1		W	W	W	100	160
15	138	99	55	4	2	1					130	150
16	132	98	53	4	2	1					130	130
17	127	97	52	4	2	1					130	130
18	122	96	50	4	2	1	N				100	130
19	116	95	48	4	2	1	O				90	120
20	111	94	47	4	2	1					100	120
21	105	93	45	4	1	1	F				100	130
22	100	92	42	4	1	1	L				90	140
23	94	90	38	4	1	1	O				80	150
24	89	101	36	4	1	1	W				80	150
25	83	205	33	4	2	1				0	90	140
26	88	170	31	4	2	1				10	90	140
27	92	105	28	4	2	1				20	100	140
28	95	81	24	4	2	1				20	120	110
29	99	80	22	4	2	1				30	120	60
30	103		19	3	2	1				40	130	110
31	106		16		2					30		150
Mean	137	107	97	5	2	1	0	0	0	5	67	146
Runoff in Ac. Ft.	8450	6130	5950	274	133	75	24	0	0	298	3990	9000

NOTE: Station maintained jointly by Division of Water Resources (Water Supervision) and U. S. Bureau of Reclamation. To determine total flow passing the Gustine-Stevinson highway (Fremont Ford Bridge road) combine the flow in this table with that shown in Table 60.

TABLE 62

FLOW OF SAN JOAQUIN RIVER NEAR NEWMAN - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1000	1250	1840	636	1260	2930	618	452	432	477	429	630
2	1040	1210	2480	611	1220	2610	640	450	430	457	434	623
3	1180	1220	2550	583	1110	2180	640	419	437	474	432	626
4	1260	1270	2740	569	990	2140	634	417	430	480	437	679
5	1260	1350	2640	558	855	2130	614	388	417	494	439	718
6	1250	1520	2870	534	771	2000	582	388	402	494	439	711
7	1200	1500	3030	530	704	2060	560	390	398	477	450	704
8	1160	1460	3160	589	650	2220	554	380	392	494	427	700
9	1120	1420	2880	646	611	2330	557	402	374	515	415	700
10	1160	1470	2720	646	570	2460	579	404	374	506	437	697
11	1250	1560	3110	728	527	2280	557	390	362	488	471	668
12	1310	1410	2940	836	508	1800	560	398	358	491	528	661
13	1320	1320	2620	1020	508	1420	545	408	360	494	682	643
14	1280	1430	2420	1060	539	1350	530	423	378	480	796	643
15	1240	1440	2310	1060	576	1390	519	398	386	506	897	623
16	1250	1380	2210	1050	614	1380	513	402	388	524	872	630
17	1300	1300	2150	1050	666	1280	510	410	410	531	808	636
18	1220	1230	2110	1010	746	1190	469	402	434	528	711	630
19	1200	1160	2120	935	828	1070	452	406	439	531	664	633
20	1180	1120	2110	901	1040	931	437	443	454	540	647	636
21	1160	1140	2020	904	1170	855	421	450	469	528	609	650
22	1130	1240	1960	931	1190	779	426	415	479	579	576	672
23	1120	1670	1860	1040	1130	738	430	417	502	654	596	679
24	1150	2130	1720	1150	1040	756	439	415	536	650	654	679
25	1160	2470	1460	1100	990	775	423	410	570	579	647	711
26	1220	2520	1060	1040	935	775	419	410	510	528	647	788
27	1290	2170	940	1040	866	721	428	437	481	485	650	852
28	1250	1870	835	1040	874	693	437	439	471	460	640	905
29	1200	1710	763	1130	1780	680	437	443	479	437	626	1160
30	1220		707	1220	2480	637	458	450	469	412	643	1250
31	1280		684		3040		464	432		412		1220
Mean	1205	1515	2097	872	993	1485	511	416	434	507	590	734
Runoff in Ac. Ft.	74100	87150	129000	51860	61050	88380	31430	25560	25830	31150	35110	45140

NOTE: This is a permanent station maintained throughout the year under Federal-State cooperation by the Water Resources Branch of the U. S. Geological Survey. It is located at Hills Ferry Bridge, Mile 123.7 above mouth of San Joaquin River and just below the mouth of the Merced River.

TABLE 63

FLOW OF SAN JOAQUIN RIVER AT GRAYSON - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1130	1420	2300	780	1610	2930	815	625	580	725	560	830
2	1145	1415	2380	710	1550	2890	840	555	635	750	565	820
3	1160	1420	2460	670	1400	2590	865	590	635	730	570	800
4	1270	1455	2530	660	1190	2440	825	555	650	700	575	800
5	1300	1460	2750	690	1040	2400	810	575	605	700	575	850
6	1320	1520	2820	700	880	2290	780	550	550	765	580	880
7	1310	1580	2810	680	820	2180	755	510	530	765	595	890
8	1290	1575	2900	750	755	2200	755	460	505	780	600	900
9	1270	1570	2920	860	700	2340	780	470	525	810	580	920
10	1255	1550	2780	960	655	2480	825	510	540	810	610	920
11	1280	1600	2840	1050	610	2540	810	510	525	805	640	900
12	1325	1600	2980	1220	570	2360	780	470	495	795	700	900
13	1365	1530	2830	1350	565	1940	745	545	490	795	760	900
14	1365	1515	2590	1490	590	1640	750	605	505	765	830	890
15	1330	1560	2480	1520	745	1610	690	610	540	780	940	880
16	1310	1560	2390	1460	830	1660	660	580	600	775	1000	870
17	1325	1515	2310	1430	930	1660	660	585	640	745	990	870
18	1330	1470	2190	1280	1160	1590	610	560	690	695	940	860
19	1320	1425	2130	1210	1230	1480	590	530	660	675	870	860
20	1315	1390	2120	1250	1270	1300	600	540	620	675	820	880
21	1310	1380	2100	1280	1430	1170	590	640	620	690	800	890
22	1305	1430	2050	1310	1510	1090	560	610	670	690	805	910
23	1300	1620	1980	1300	1440	1040	590	560	730	715	790	940
24	1300	1930	1900	1400	1350	990	595	550	765	730	805	940
25	1300	2100	1750	1370	1320	1070	555	545	750	695	815	910
26	1310	2300	1480	1270	1270	1100	525	550	740	660	830	940
27	1375	2290	1240	1320	1250	1010	510	570	690	650	830	1000
28	1400	2090	1100	1410	1200	980	530	590	630	620	840	1120
29	1390	2040	990	1480	1320	910	550	610	640	600	830	1200
30	1380		880	1560	2120	850	590	600	700	570	830	1400
31	1390		830		2550		660	570		565		1490
Mean	1306	1631	2187	1147	1157	1758	684	559	615	717	749	941
Runoff in Ac. Ft.	80280	93840	134500	68270	71130	104590	42050	34370	36600	44080	44580	57840

NOTE: Recording gage station maintained jointly by Division of Water Resources, City of San Francisco, Modesto Irrigation District and Turlock Irrigation District. Station is at Laird Slough Bridge, Mile 96.05 above mouth of San Joaquin River.

TABLE 64

FLOW OF SAN JOAQUIN RIVER AT HETCH HETCHY AQUEDUCT CROSSING - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2100	2190	3580	1120	2680	3820	1255	860	850	1360	1580	2270
2	2100	2310	4980	1200	2580	4020	1255	745	940	1440	1560	2300
3	2070	2390	4680	1120	2330	3820	1300	745	1005	1440	1560	2380
4	2100	2440	4480	1010	2060	3500	1240	775	1045	1360	1560	2320
5	2260	2520	4880	1100	1900	3510	1195	735	995	1380	1640	2400
6	2330	2630	5660	1100	1740	3290	1135	745	890	1445	1580	2460
7	2320	2540	4980	980	1640	3030	1030	745	805	1540	1560	2570
8	2270	2400	4900	1030	1560	3050	990	685	750	1570	1580	2700
9	2210	2500	4920	1310	1480	3210	1020	650	770	1600	1570	2900
10	2180	2500	4760	1490	1320	3400	1090	650	830	1600	1600	2920
11	2120	2680	4600	1600	1340	3460	1125	675	850	1580	1800	2680
12	2220	2640	4540	2000	1590	3290	1090	660	825	1545	2180	2640
13	2300	2480	4280	2080	1540	2840	990	700	795	1560	2210	2800
14	2300	2360	3920	2200	1480	2300	980	840	805	1540	2230	2810
15	2310	2340	3770	2160	1640	2150	940	865	875	1480	2360	2810
16	2280	2420	3630	2030	1740	2140	905	815	935	1670	2440	2810
17	2230	2410	3530	1930	2000	2120	915	850	1025	1730	2400	2780
18	2180	2370	3420	1780	2580	2050	910	840	1060	1680	2340	2700
19	2220	2320	3320	1600	2680	1920	855	785	1060	1660	2240	2700
20	2190	2300	3250	1830	2640	1780	820	805	1030	1650	2060	2900
21	2190	2180	3160	1870	2700	1660	810	940	1080	1650	2020	2920
22	2180	1960	2980	1900	2620	1590	785	940	1095	1660	2110	2620
23	2180	2390	2800	1860	2540	1530	765	850	1115	1670	2100	2960
24	2190	3250	2710	1890	3180	1450	800	785	1165	1680	2060	2880
25	2110	3020	2460	1850	3490	1560	735	785	1165	1670	2000	2720
26	2140	2940	2200	1680	3310	1590	685	810	1115	1630	2080	2620
27	2180	2920	1900	1740	3030	1520	630	895	1050	1620	2100	2800
28	2250	2720	1720	2220	2660	1425	685	915	1055	1580	2080	3030
29	2260	2600	1520	2400	2360	1370	705	945	1175	1540	2190	3140
30	2260		1380	2580	2940	1330	785	900	1270	1530	2240	3320
31	2240		1310		3320		875	880		1560		3460
Mean	2209	2508	3555	1689	2280	2458	945	800	981	1568	1968	2752
Runoff in Ac. Ft.	135800	144200	218600	100500	140200	146200	58120	49220	58360	96440	117100	169200

NOTE: Recording gage station maintained by City of San Francisco Public Utilities Commission (Hetch Hetchy Water Supply) and Division of Water Resources. Station is at Mile 82.65 above mouth of San Joaquin River

TABLE 65

FLOW OF SAN JOAQUIN RIVER NEAR VERNALIS - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2390	2650	4420	1700	3370	4990	1480	1150	1100	1500	1720	2920
2	2410	2790	6170	1630	3200	5200	1500	1090	1140	1570	1710	2980
3	2370	2790	5860	1570	2840	5000	1590	1060	1200	1530	1700	3100
4	2380	2870	5510	1540	2440	5130	1500	1080	1220	1490	1730	2850
5	2790	3030	6090	1540	2180	5250	1420	1060	1180	1490	1820	2760
6	3020	3070	7210	1530	2050	4940	1370	1080	1140	1530	1800	3220
7	2980	2930	6240	1470	1990	4700	1300	1080	1090	1560	1780	3740
8	2790	2800	6300	1460	1980	4840	1260	1020	1040	1610	1800	3950
9	2750	2820	6370	1760	1910	5030	1290	1000	1060	1670	1810	4210
10	2700	2840	6250	1940	1850	5140	1360	1000	1090	1670	1850	4170
11	2510	3110	6050	2040	2520	5130	1380	1020	1120	1650	2430	3640
12	2740	2980	6120	2470	3520	4780	1340	984	1100	1650	3280	3400
13	2930	2810	5750	2720	3550	4000	1290	1010	1080	1620	3140	3700
14	2920	2630	5380	2890	3450	3230	1260	1100	1060	1590	2880	3770
15	3040	2580	5260	2840	3790	3070	1250	1120	1100	1680	3100	3780
16	2960	2690	5150	2600	3820	3060	1260	1090	1160	1720	3220	3760
17	2680	2670	5050	2380	4330	2940	1240	1100	1200	1800	3170	3690
18	2580	2590	4950	2170	4820	2780	1210	1120	1260	1720	3090	3460
19	2580	2550	4810	2030	4950	2570	1160	1080	1280	1670	2970	3570
20	2540	2500	4720	2300	4850	2240	1120	1100	1240	1670	2680	4100
21	2620	2380	4610	2540	4840	2000	1140	1170	1260	1690	2480	4200
22	2690	2180	4400	2890	4320	1870	1110	1190	1300	1680	2610	4250
23	2730	2580	4200	2920	4230	1770	1100	1140	1320	1730	2730	4290
24	2610	3910	4050	2970	5580	1700	1110	1080	1340	1760	2720	4140
25	2470	3530	3480	2840	6100	1790	1100	1060	1360	1740	2630	3520
26	2570	3350	3130	2540	5820	1830	1070	1080	1310	1710	2750	3220
27	2620	3300	2690	2420	5400	1770	1030	1130	1260	1710	2610	3810
28	2780	3100	2420	2880	4960	1650	1050	1190	1240	1690	2490	4390
29	2710	2950	2140	3110	4480	1590	1060	1180	1330	1670	2650	4560
30	2750		1950	3310	4850	1530	1100	1140	1390	1650	2840	4850
31	2760		1860		4640		1150	1110		1680		4880
Mean	2689	2861	4793	2300	3827	3384	1245	1091	1199	1650	2470	3770
Runoff in Ac. Ft.	165400	164600	294700	136900	235300	201400	76560	67070	71350	101400	147200	231800

NOTE: This is a permanent station maintained throughout the year under Federal-State cooperation by the Water Resources Branch of the U. S. Geological Survey. It is located at Durham Ferry Bridge below the mouth of the Stanislaus River and is at Mile 76.7 above mouth of the San Joaquin River.

TABLE 66

FLOW OF MERCED RIVER AT YOSEMITE VALLEY RAILROAD CROSSING - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	6	7	120	86	390	2040	40	38	29	12	11	12
2	6	17	61	86	290	1740	48	36	21	12	8	18
3	6	8	61	86	240	1830	46	36	17	12	6	18
4	7	50	158	86	198	1740	36	32	17	17	6	15
5	8	25	158	86	198	1740	32	32	17	21	6	11
6	8	18	86	86	158	1920	34	34	17	25	6	11
7	8	16	86	61	86	2160	34	34	21	40	6	11
8	8	18	61	40	86	2280	36	36	21	61	6	8
9	7	61	700	120	61	2280	36	36	20	61	18	8
10	7	27	1340	120	50	1830	34	34	18	42	16	8
11	7	18	1340	340	30	1050	30	30	18	29	13	8
12	7	21	1340	500	27	770	27	27	21	20	29	8
13	6	20	1340	500	32	910	29	29	20	18	27	9
14	6	18	1340	500	34	1050	29	29	21	17	18	15
15	6	17	1340	500	38	910	29	29	21	18	12	16
16	6	16	1340	440	40	700	29	29	21	20	11	16
17	6	16	1340	390	120	440	29	29	21	25	11	16
18	6	15	1340	340	390	240	29	29	21	27	8	15
19	6	16	1340	340	390	158	23	23	21	36	8	15
20	6	18	1340	290	390	120	34	34	20	38	8	15
21	6	30	1190	340	390	120	16	16	20	30	8	15
22	8	8	1120	390	390	120	18	18	23	11	8	12
23	15	153	1050	390	390	158	21	21	18	7	8	17
24	46	78	500	390	340	46	21	21	17	6	8	15
25	34	66	240	340	290	11	23	23	17	6	8	11
26	15	57	198	290	240	11	25	25	17	6	8	11
27	12	55	120	340	840	25	25	25	17	6	9	11
28	8	44	120	340	2520	36	27	27	17	7	9	13
29	7	150	120	390	2970	40	25	25	16	8	13	12
30	8		120	440	3130	38	23	23	13	8	11	21
31	8		120		2520		23	23		9		18
Mean	9.7	36.7	682	288	557	884	29.4	28.5	19.3	21.1	10.8	13.2
Runoff in Ac. Ft.	595	2110	41910	17150	34250	52590	1810	1750	1146	1300	643	811

NOTE: Station maintained jointly by Division of Water Resources (Water Supervision) and Merced Irrigation District. Station is at Mile 43.1 above mouth.

TABLE 67

FLOW OF MERCED RIVER AT CRESSEY BRIDGE - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	145			185	504		113	95	95	95	108	109
2	131			167	480		113	95	95	113	104	115
3				167	456		113	95	95	113	97	158
4			N	167	364	N	113	77	95	113	77	144
5			O	167	320	O	113	77	95	113	77	126
6				167	260		95	77	95	131	93	118
7			R	167	222	R	95	77	95	149	95	109
8			E	149	185	E	95	77	95	167	100	106
9	N		C	167	167	C	95	95	95	149	91	106
10	O		O	222	131	O	95	95	95	149	122	106
11			R	241	131	R	95	95	77	149	222	104
12	R		D	580	113	D	95	95	77	131	310	104
13	E	N		606	113		95	95	77	113	284	102
14	C	O		580	113	1012	95	95	95	113	256	99
15	O			554	113	978	95	95	95	113	190	100
16	R	R		529		846	95	95	95	113	158	100
17	D	E	1263	456		661	95	95	95	113	144	104
18		C	1263	409	N	456	113	95	95	113	135	104
19		O	1263	386	O	320	113	95	95	113	126	104
20		R	1263	386		222	95	95	95	131	118	104
21		D	1263	364		185	95	95	95	149	113	104
22			1225	409	R	167	95	77	95	131	113	108
23			1046	432	E	185	95	77	95	113	106	108
24			879	432	C	203	95	77	95	95	104	113
25			364	432	O	131	113	77	95	77	104	140
26			320	386	R	113	131	77	95	77	104	126
27			280	342	D	113	131	95	95	77	106	117
28			203	386		113	131	95	95	77	104	113
29			203	456		113	113	95	95	77	108	149
30			185	504		113	113	95	95	77	108	213
31			185				95	95		95		158
Mean				353			104	89	93	114	133	122
Runoff in Ac. Ft.				21010			6410	5480	5740	7020	7890	7280

NOTE: Station maintained by Division of Water Resources (Water Supervision). Station is at Cressey Bridge-Mile 27.6 above mouth.

TABLE 68

FLOW OF MERCED RIVER NEAR LIVINGSTON - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	133	158										
2	135	156										
3	140	158										
4	140	167										
5	145	264										
6	150	225										
7	153	194										
8	151	183										
9	150	193										
10	148	336										
11	147	240										
12	145	203	STATION DISCONTINUED FEBRUARY 29, 1944									
13	144	188										
14	142	178										
15	138	174										
16	137	170										
17	137	169										
18	137	169										
19	134	174										
20	134	172										
21	131	182										
22	130	415										
23	135	920										
24	150	529										
25	169	342										
26	194	274										
27	188	248										
28	170	230										
29	161	228										
30	162											
31	166											
Mean	148	250										
Runoff in Ac. Ft.	9120	14360										

NOTE: Station was discontinued owing to unratable conditions resulting from shifting channel sands.

TABLE 69

FLOW OF MERCED RIVER BELOW STEVINSON DRAIN (NEAR MOUTH) - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	167	192	595	372	675	2680	287	279	232	255	198	196
2	167	189	895	353	670	2260	300	265	238	244	205	198
3	168	197	467	343	600	1870	317	250	251	258	202	201
4	167	201	374	337	496	1950	307	266	240	246	201	228
5	164	246	457	328	416	1880	299	243	230	255	202	223
6	168	272	675	303	378	1770	281	250	217	256	202	212
7	168	243	447	297	358	1920	268	249	225	247	202	205
8	168	230	378	323	333	2140	267	240	221	279	202	200
9	168	222	332	373	304	2310	286	268	216	285	206	196
10	167	300	482	368	262	2410	307	269	218	277	210	192
11	164	298	1060	431	241	2090	291	261	211	261	241	192
12	162	251	1190	510	240	1450	287	272	216	253	303	190
13	162	227	1210	640	260	1080	273	276	215	263	342	189
14	161	209	1210	685	286	1070	264	285	226	263	342	188
15	158	200	1220	670	295	1110	257	263	238	276	324	186
16	157	194	1220	655	308	1070	275	265	243	285	290	185
17	155	186	1220	630	355	955	283	269	266	274	268	186
18	154	180	1220	570	404	840	256	260	276	242	252	186
19	154	176	1210	520	488	680	266	264	269	234	244	186
20	153	174	1210	510	575	525	257	290	274	232	236	186
21	153	170	1190	530	650	463	251	277	263	241	224	188
22	151	204	1160	555	660	406	254	238	267	268	209	189
23	154	635	1100	585	615	382	282	257	264	258	205	190
24	165	545	1050	560	575	402	296	261	263	226	201	186
25	180	366	810	525	550	385	264	254	262	197	200	190
26	200	289	550	500	505	366	269	257	241	186	197	201
27	212	257	550	530	458	313	276	278	228	181	196	196
28	198	244	489	530	550	303	283	275	223	179	194	192
29	191	244	427	580	1910	308	295	270	246	175	193	192
30	191		382	640	2600	279	312	267	247	176	196	213
31	198		378		3070		317	242		184		246
Mean	169	253	812	492	648	1189	282	263	241	241	230	197
Runoff in Ac. Ft.	10400	14560	49900	29260	39840	70750	17310	16190	14330	14800	13660	12120

NOTE: Station is maintained by U. S. Bureau of Reclamation and is located about 4 miles above mouth. The recording gage operated by the Division of Water Resources at a point 1.1 miles above mouth was discontinued in 1944.

TABLE 70

FLOW OF MERCED RIVER SLOUGH NEAR HILLS FERRY ROAD BRIDGE - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1			10			350						
2			29			259						
3			0			160						
4			0			172						
5			0			162						
6			1			137						
7			0			163						
8	N	N	0	N	N	213						
9	O	O	0	O	O	250						
10			0			273						
11			23			211						
12	F	F	48	F	F	89		THERE WAS NO FLOW DURING THE PERIOD				
13	L	L	55	L	L	30						
14	O	O	59	O	O	23		JUNE 20 TO DECEMBER 31, 1944				
15	W	W	61	W	W	28						
16			61			26						
17			62			14						
18			64			6						
19			64			1						
20			64			0						
21			62									
22			57									
23			45									
24			31									
25			11									
26			0									
27												
28					0							
29					142							
30					303							
31					426							
Mean	0	0	26	0	28	86	0	0	0	0	0	0
Runoff in Ac. Ft.	0	0	1601	0	1728	5092	0	0	0	0	0	0

NOTE: 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 below the U.S.G.S. station "near Newman". Table 69 records the entire flow of the Merced River and the flow in Table 70 is included in Table 69. Station is maintained by U. S. Bureau of Reclamation.

TABLE 71

FLOW OF TUOLUMNE RIVER AT LA GRANGE BRIDGE - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	586	603	770	30	607	670	26	39	32	268	645	1301
2	528	578	1480	29	607	670	26	39	32	265	645	1192
3	620	630	1480	28	612	670	26	39	32	258	645	1012
4	685	612	1550	29	685	670	26	39	32	245	670	1211
5	675	570	1339	29	630	660	26	39	32	245	586	1179
6	645	439	1416	29	620	630	26	40	32	245	578	1160
7	620	620	1371	29	612	660	26	41	32	245	620	1550
8	620	612	1416	29	607	670	26	41	32	245	620	1550
9	540	620	1416	29	612	685	26	41	32	287	620	1550
10	595	620	1352	30	612	690	26	39	28	287	1012	1480
11	635	586	994	30	612	690	26	37	25	281	1076	1585
12	620	557	620	30	612	268	26	37	24	294	920	1725
13	650	460	855	30	612	78	26	37	24	294	1070	1690
14	630	599	820	30	612	39	26	35	24	268	1100	1725
15	625	612	820	30	603	39	26	31	24	268	1076	1725
16	494	612	820	30	655	39	28	32	24	536	1052	1690
17	650	607	795	30	625	39	29	32	25	586	1029	1490
18	630	603	770	30	603	39	31	32	25	591	1012	1620
19	630	578	630	30	599	39	32	32	25	599	820	1704
20	630	42	620	30	591	41	32	32	25	565	1029	1662
21	630	35	173	30	620	41	36	32	25	591	1040	1662
22	612	41	137	30	915	41	39	32	25	599	1040	1662
23	511	33	48	30	1237	41	39	32	25	578	830	1585
24	620	30	35	30	1267	42	39	32	30	612	935	1416
25	650	31	36	32	1172	42	39	32	32	607	935	1416
26	630	32	37	578	855	41	39	32	122	612	892	1620
27	620	33	37	603	655	39	39	32	278	616	1029	1620
28	620	287	37	603	655	36	39	32	275	616	1118	1662
29	620	1040	103	607	660	26	39	32	271	616	1100	1620
30	502		33	607	670	26	39	32	268	645	1082	1585
31	603		36	[illegible]	670		39	32		620		1480
Mean	611	439	711	125	700	279	31	35	64	438	894	1520
Runoff in Ac. Ft.	37540	25230	43720	7420	43050	16580	1920	2150	3790	26940	53210	93480

NOTE: Station maintained jointly by Division of Water Resources (Water Supervision) and Turlock Irrigation District.

TABLE 72

FLOW OF TUOLUMNE RIVER AT ROBERTS FERRY BRIDGE - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	700	725	1380	74	641	628	43	63	43	300	661	1460
2	628	686	1460	68	641	628	43	63	43	300	654	1260
3	608	713	1440	66	635	628	43	63	43	300	648	1190
4	732	732	1680	66	680	635	43	63	43	300	713	1360
5	751	661	1450	68	680	635	43	63	43	300	602	1471
6	732	570	1430	68	635	589	43	64	43	300	635	1493
7	700	599	1430	68	641	596	43	64	43	300	635	1779
8	680	686	1440	68	628	615	43	64	43	300	635	2056
9	713	693	1440	66	622	622	43	64	43	300	635	2236
10	615	683	1972	64	608	622	43	64	41	300	852	1889
11	732	654	1160	68	602	622	43	64	39	300	1140	1912
12	725	635	1160	68	596	502	43	63	38	300	1030	1996
13	732	608	810	64	615	90	43	61	37	300	1150	2020
14	732	576	880	63	602	61	43	55	37	300	1160	1984
15	738	686	880	59	589	57	43	50	37	305	1160	1972
16	686	686	880	66	628	55	43	45	37	508	1160	1856
17	667	700	880	66	628	54	45	44	37	615	1060	1878
18	758	680	880	108	596	54	49	43	38	615	1068	1984
19	758	667	745	145	583	55	54	43	38	615	944	2140
20	758	130	732	77	583	57	57	43	39	589	1040	2140
21	758	110	280	66	615	59	61	43	39	615	1090	2140
22	758	188	200	63	803	61	64	43	41	628	1110	2140
23	738	127	188	64	1180	63	64	43	43	615	960	1960
24	680	118	105	64	1210	63	64	43	45	628	920	1845
25	745	81	100	68	1130	63	64	43	45	635	1040	1691
26	745	83	98	280	960	59	63	43	64	635	1010	1889
27	745	79	95	615	654	54	63	43	235	635	1110	2080
28	732	110	92	628	635	50	63	43	300	635	1220	2140
29	725	1140	130	641	635	45	63	43	300	635	1230	2176
30	725		163	641	635	44	63	43	295	641	1260	2032
31	615		86		628		63	43		667		1960
Mean	713	510	828	153	694	279	51	52	74	465	951	1875
Runoff in Ac. Ft.	43860	29360	50910	9100	42680	16590	3150	3210	4390	28590	56590	115300

NOTE: Station maintained jointly by Division of Water Resources (Water Supervision) and Modesto Irrigation District. Station is at Mile 39.9 above mouth.

TABLE 73

FLOW OF TUOLUMNE RIVER AT HICKMAN-WATERFORD BRIDGE - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	798	738	1420	155	776	706	127	111	119	220	738	1399
2	760	711	1580	135	727	700	147	111	119	228	738	1640
3	706	733	1520	135	722	700	155	127	127	232	749	1323
4	819	776	1715	127	749	706	143	123	119	228	798	1330
5	842	727	1603	127	776	706	143	123	119	228	738	1475
6	830	641	1461	127	711	684	131	127	119	228	754	1454
7	803	587	1528	127	706	673	127	127	119	228	765	1625
8	733	727	1520	123	690	711	123	123	115	220	765	1914
9	733	738	1542	143	685	706	147	123	115	220	776	1745
10	636	727	1490	143	679	711	143	123	115	220	878	1752
11	749	695	1344	163	673	722	139	123	115	220	1240	1790
12	733	690	890	203	673	690	135	115	115	220	1171	1790
13	727	652	860	155	695	269	135	111	123	220	1151	1850
14	738	560	986	151	706	167	135	111	119	220	1296	1954
15	722	722	980	147	700	143	131	111	119	265	1296	1994
16	711	722	962	143	733	143	143	119	115	482	1268	2314
17	625	727	938	131	771	139	143	119	111	727	1220	1832
18	749	722	872	115	744	123	135	119	119	727	1397	1832
19	760	711	798	285	717	123	139	119	115	722	1112	1994
20	749	571	765	171	695	123	135	123	111	722	1058	2010
21	738	228	265	151	695	119	135	119	111	722	1213	1946
22	744	252	285	159	765	119	135	123	115	754	1199	1978
23	738	248	269	155	1199	123	127	119	115	732	1130	1722
24	700	228	179	147	1302	115	131	115	115	744	944	1775
25	744	167	151	135	1240	119	127	115	115	738	1296	1663
26	733	155	147	309	1158	127	123	115	115	732	1130	1752
27	738	155	147	771	749	115	131	119	119	732	1118	1970
28	733	147	143	792	711	115	123	123	123	722	1296	2050
29	733	950	143	786	706	119	123	123	131	679	1302	1946
30	760		285	798	711	119	123	119	139	695	1302	1760
31	614		175		711		123	115		760		1835
Mean	739	566	870	240	783	361	134	119	118	476	1061	1787
Runoff in Ac. Ft.	45420	32540	53480	14300	48150	21490	8250	7320	7030	29330	63150	109900

NOTE: Station maintained jointly by Division of Water Resources (Water Supervision) and Modesto Irrigation District. Station is at Mile 31.7 above mouth.

TABLE 74

FLOW OF TUOLUMNE RIVER AT MODESTO - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	932	872	2620	420*	1170	1060	279**	320*	300*	611	915	1310
2	912	896	2480	420*	1090	1030	300*	300*	300**	611	889	1350
3	849	932	1830	410*	965	1020	330*	300*	300*	608	879	1450
4	905	988	1760	410*	909	1010	330*	300*	290*	604	919	1450
5	965	1210	2770	420*	935	998	330*	297**	270*	601	922	1350
6	968	971	2370	420*	905	955	330*	310*	270*	598	846	1500
7	938	811	1850	380*	866	889	330*	320*	270*	629	869	1500
8	919	902	1750	380*	862	889	330**	310*	270*	670	862	1700
9	909	919	1730	480*	849	925	340*	300*	267**	664	879	1900
10	849	1130	1680	480*	859	938	350*	290*	270*	657	948	1850
11	896	1040	1640	518	853	948	340*	290*	270*	642	1310	1680
12	920	919	1250	626	846	965	330*	285**	270*	617	1430	1800
13	905	866	1000	542	886	708	330*	280*	270*	623	1310	1900
14	909	772	1130	505	892	502	321**	280*	280*	654	1440	1900
15	905	876	1140	595	925	468	330 **	280*	280*	667	1460	1850
16	896	889	1130	550*	902	462	330*	290*	282**	849	1400	1900
17	801	892	1120	510*	1050	440	330*	320*	280*	882	1330	1900
18	899	905	1080	480*	1160	397	330*	310*	280*	862	1270	1770
19	905	948	1050	450*	1150	384	330*	300**	290*	872	1240	1980
20	905	886	928	617	1130	370*	320*	310*	290*	859	1080	2040
21	905	586	945	604	1090	360*	310*	310*	300*	853	1240	2020
22	905	586	696	595	1040	360*	303**	310*	300*	872	1240	2050
23	912	1600	680	589	1220	380*	300*	310*	312**	853	1240	2040
24	843	1040	549	561	1440	418 **	300*	300*	320*	843	1060	1890
25	896	614	480*	500*	1480	400*	300*	310*	320*	856	1150	1710
26	896	471	470*	450*	1410	380*	300*	312**	320*	859	1200	1650
27	932	450*	460*	935	1120	350*	320*	310*	325*	859	1200	1960
28	988	450*	430*	1170	1020	340*	320*	310*	484	853	1250	2020
29	889	700*	420*	1190	998	320*	330**	310*	552	856	1300	2060
30	912		440*	1200	1000	300*	340*	309**	583	853	1310	2120
31	804		520*		1020		340*	300*		928		2180
Mean	902	866	1239	580	1034	630	323	303	314	750	1146	1799
Runoff in Ac. Ft.	55480	49830	76160	34530	63550	37510	19840	18610	18670	46140	68210	110600

* Estimated from flow at Tuolumne City.
** Estimated from one daily gage height observation.
NOTE: Station is maintained jointly by Division of Water Resources (Water Supervision) and Modesto Irrigation District. Located at old U.S. 99 Highway bridge and is at Mile 15.75 above mouth.

TABLE 75

FLOW OF TUOLUMNE RIVER AT TUOLUMNE CITY - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	930	805	1800	420	1200	1100	330	350	330	610	960	1410
2	955	880	2330	425	1130	1070	355	325	360	610	920	1560
3	870	920	1910	405	970	1050	380	340	365	605	900	1540
4	880	950	1770	410	905	1010	380	325	360	605	930	1420
5	970	1125	2180	415	880	1000	380	330	320	605	990	1560
6	980	1040	2610	415	880	970	360	355	320	605	870	1560
7	950	845	1960	380	825	875	370	380	325	605	890	1560
8	935	840	1810	380	815	845	350	360	325	605	900*	1900
9	925	880	1760	485	800	900	370	355	320	610	970*	2030
10	920	1050	1740	480	800	910	400	350	320	620	960*	1990
11	850	1080	1700	520	800	910	395	325	320	635	1100*	1760
12	910	920	1470	670	800	960	380	340	320	630	1200*	1990
13	900	840	1120	640	830	850	370	330	320	620	1350*	2050
14	890	800	1100	600	850	590	370	325	340	645	1520	2100
15	900	775	1125	530	880	530	370	325	330	660	1520	2080
16	900	850	1100	530	870	530	390	355	340	790	1470	2070
17	840	855	1080	515	925	505	370	390	330	900	1430	2010
18	840	860	1055	480	1120	460	370	380	325	870	1370	1850
19	905	900	1020	450	1150	455	370	355	330	880	1330	2050
20	900	900	930	620	1130	440	370	360	340	870	1140	2160
21	900	690	930	580	1120	400	360	360	325	870	1300	2160
22	880	520	710	560	1050	410	340	355	325	880	1320	2180
23	900	1100	710	570	1100	375	330	340	330	880	1560	2150
24	875	1325	560	510	1380	440	330	330	390	855	1160	2040
25	850	735	480	500	1480	440	325	360	430*	875	1160	1880
26	890	560	470	430	1410	430	330	360	430*	875	1250	1800
27	875	470	460	640	1240	410	355	370	450*	870	1190	1980
28	880	435	430	1100	1050	370	340	370	480*	870	1300	2120
29	880	500	415	1200	1010	380	330	340	500	870	1400	2150
30	900		440	1000	1020	360	360	355	530	870	1410	2170
31	860		520		1030		380	340		930		2260
Mean	898	843	1216	562	1015	666	362	350	361	749	1192*	1921
Runoff in Ac. Ft.	55220	48496	74767	33441	62380	39620	22235	21491	21480*	46066	70950*	118096
Diversions below Station Ac. Ft.	0	0	80	101	133	156	148	210	308	132	0	0
M.I.D. Spill below Station Ac. Ft.	0	0	149	1907	1329	1476	1063	763	661	614	0	0
**Ac. Ft. to San Joauin R.	55220	48496	74836	35247	63576	40940	23150	22044	21833	46548	70950	118096

NOTE: Recording gaging station maintained jointly by Division of Water Resources, City of San Francisco, Modesto Irrigation District and Turlock Irrigation District. Station is 3.35 miles above the mouth. * Estimated. ** Neglecting seepage return below station.

TABLE 76

FLOW OF DRY CREEK NEAR MODESTO (CLAUSS ROAD BRIDGE) - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	46	60	1139	129	71	105	55	62	53	58	78	40
2	51	97	768	135	75	140	55	61	59	58	72	41
3	52	124	416	140	69	167	59	62	62	60	68	48
4	52	264	219	140	69	174	65	57	60	61	59	135
5	54	500	*	157	69	162	69	56	56	57	61	96
6	63	241	*	157	67	122	66	57	52	55	58	69
7	64	150	*	134	57	87	66	58	51	58	54	56
8	62	112	*	131	61	95	72	56	50	57	50	50
9	60	100	*	219	60	80	62	53	50	58	48	51
10	62	498	*	188	60	80	61	50	48	61	77	45
11	60	245	160	216	63	83	63	50	54	58	131	42
12	56	151	151	239	63	92	69	53	54	63	268	40
13	52	104	142	282	86	110	72	54	56	63	307	39
14	50	84	132	132	101	132	65	53	57	63	251	38
15	48	71	124	114	105	135	64	56	62	62	197	38
16	44	64	119	109	103	143	64	53	63	124	48	35
17	42	60	114	110	114	142	71	52	63	63	81	33
18	41	90	107	117	241	118	77	50	63	51	62	33
19	40	152	99	114	253	108	76	47	63	48	52	34
20	38	98	97	129	236	94	70	44	61	48	48	33
21	38	79	196	142	194	78	65	43	57	54	44	33
22	38	344	181	131	192	77	59	43	69	63	41	34
23	40	971	103	119	186	85	54	50	69	59	40	42
24	46	578	93	113	191	89	57	63	63	54	40	44
25	55	273	104	101	183	86	65	60	55	48	41	43
26	52	178	111	100	179	86	76	58	66	46	41	48
27	57	134	129	124	168	76	79	62	60	47	40	56
28	63	111	132	163	177	69	66	59	58	44	40	54
29	56	166	121	178	159	67	65	54	53	45	40	56
30	56		134	83	124	59	67	53	52	45	40	352
31	57		124		108		63	53		53		223
Mean	51	210	209**	145	125	105	66	54	58	58	83	64
Runoff in Ac. Ft.	3164	12097	10344**	8620	7704	6230	4040	3336	3449	3538	4913	3929
M.I.D. Spill Below Station Ac.Ft.	0	0	27	682	590	819	231	326	237	133	0	0
Discharge to Tuolumne River Ac. Ft.	3164	12097	NR	9302	8294	7049	4271	3662	3686	3671	4913	3929

* No record.

** Based on 25 days as record for month is incomplete.

NOTE: Station maintained jointly by Division of Water Resources (Water Supervision) and Modesto Irrigation District. Station moved to this location, 5.4 miles above Modesto in 1941 from previous location at Mile 2.9.

TABLE 77

FLOW OF STANISLAUS RIVER AT ORANGE BLOSSOM BRIDGE - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	157	221	1349	54	208	521	256	27	27	19	106	539
2	173	151	1213	45	130	524	130	27	25	17	127	438
3	461	225	1143	45	90	1745	39	27	24	16	180	114
4	909	48	2491	51	54	1530	30	27	24	17	198	330
5	685	45	1319	51	189	1335	30	27	24	18	308	1635
6	483	30	1107	45	269	1510	28	25	24	16	312	19
7	399	25	1720	39	287	1830	27	25	24	15	254	18
8	486	39	1675	39	287	1745	27	25	24	16	254	1630
9	273	196	1645	130	543	1570	27	25	24	16	293	976
10	353	60	1625	90	3252	1112	27	25	24	15	1968	293
11	707	36	1620	208	2992	696	27	25	25	14	1107	555
12	534	27	1625	498	2460	522	27	25	25	15	310	819
13	732	27	1620	410	2355	652	27	25	25	15	464	806
14	726	25	1610	221	2327	894	27	25	25	15	570	773
15	256	24	1595	60	2460	718	27	25	25	16	571	731
16	201	22	1570	25	2915	265	27	25	25	22	549	522
17	142	20	1570	81	2530	325	27	27	25	22	535	441
18	142	19	1560	60	2040	130	27	28	25	21	318	1150
19	262	17	1560	45	2076	93	27	27	25	17	89	1416
20	445	22	1535	476	1710	90	27	27	10	18	116	1320
21	444	30	1460	661	705	54	27	27	11	46	507	1310
22	267	573	1445	674	2053	48	28	27	3	104	517	1320
23	98	274	1185	674	4609	39	28	27	3	79	526	758
24	7	90	656	599	3860	30	28	27	3	71	526	110
25	3	45	432	405	3230	30	27	27	3	89	332	641
26	45	51	485	151	2894	28	25	27	3	93	573	1525
27	138	200	344	208	2439	27	25	27	3	99	152	1535
28	91	260	212	366	1890	25	25	27	3	114	519	1656
29	45	2592	130	278	1505	24	25	27	3	96	542	1872
30	193		81	243	322	30	27	27	3	79	540	1505
31	269		54		449		27	27		106		180
Mean	327	186	1214	231	1714	605	38	26	17	43	445	869
Runoff in Ac. Ft.	20080	10680	74650	13750	105400	35980	2350	1620	1030	2610	26510	53430

NOTE: Station maintained jointly by Division of Water Resources (Water Supervision) and Oakdale Irrigation District. Station is at Mile 44.7 above mouth or 5.7 miles above Oakdale.

TABLE 78

FLOW OF STANISLAUS RIVER AT RIVERBANK (BURNEYVILLE BRIDGE) - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	161	134	1620		263							
2	161	297	1232		171						130	514
3	161	218	1110								132	620
4	711		1579		NO	1472					164	170
5	790		2040		RECORD	1287					201	112
6	799		939			1295					207	1041
7	326		1594		223	1225					202	1440
8	482		1608		247	1648					205	1452
9	443	N	1580	N		1516	N	N	N	N	257	1448
10	179	O	1560	O		1260	O	O	O	O	230	1284
11	499		1528		NO	836					1090	394
12	604	R	1512	R	RECORD	614	R	R	R	R	1345	365
13	482	E	1500	E		569	E	E	E	E	739	757
14	768	C	1500	C	2310	812	C	C	C	C	296	757
15	610	O	1488	O	1938	788	O	O	O	O	561	744
16	560*	R	1464	R	2560	529	R	R	R	R	532	701
17	560*	D	1468	D	2460	375	D	D	D	D	559	646
18	560*		1472		2205	203					537	464
19	560*		1472		1809	139					535	759
20	365		1480		1883						164	1312
21	455		1400	695	985						115	1260*
22	441		1383	764	1139	N					321	1190*
23	343	544	1355	768	3535	O				113	511	1120*
24	259	136	826	704	3685					117	489	1091
25	250		627		3047	R				102	508	267
26	294	NO	457	NO	2670	E				109	493	157
27	358	RECORD	1060	RECORD	2460	C				115	149	1238
28	330	121	250		1780	O				115	109	1365
29	294	1438	171		1915	R				118	340	1386
30	355			320	584	D				117	485	1558
31	255									115	503	1235
										125		269
Mean	433		1285								404	875
Runoff in Ac. Ft.	26610		73930								24020	53780

NOTE: Station maintained jointly by Division of Water Resources (Water Supervision), Oakdale and South San Joaquin Irrigation Districts. Station is at Mile 32.0 above mouth.
During invervals of "no record" river water level was below inlet to recorder well. Repaired October 22.

TABLE 79

FLOW OF STANISLAUS RIVER AT RIPON BRIDGE - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	346	438	1900	364	570	1010	230	200	196	210	276	638
2	332	413	1420	350	474	982	362	192	204	226	276	641
3	330	346	1240	326	392	1160	316	192	202	216	282	566
4	471	476	1200	328	294	1750	264	200	206	240	316	344
5	814	415	2100	322	254	1570	244	194	188	226	360	408
6	754	300	1330	286	300	1440	216	208	184	200	376	1190
7	610	260	1350	256	388	1630	208	180	182	194	364	1350
8	564	242	1640	258	440	1810	222	174	178	204	378	1380
9	592	242	1630	284	446	1720	232	190	190	206	388	1400
10	494	336	1620	340	686	1560	220	206	192	210	722	966
11	463	272	1610	378	2320	1260	238	186	206	226	1390	597
12	691	236	1590	478	2390	1020	232	168	192	202	1100	698
13	649	220	1580	689	2110	884	200	194	166	218	643	872
14	724	212	1570	682	2170	939	208	178	192	224	610	877
15	786	204	1560	560	2070	1030	244	164	190	200	665	867
16	543	196	1540	415	2270	930	224	170	162	200	663	853
17	427	194	1530	308	2590	768	236	188	176	192	665	745
18	372	188	1520	316	2540	682	232	206	184	176	665	685
19	346	186	1510	342	2340	516	218	220	178	172	553	1090
20	400	184	1500	461	2280	427	214	222	168	178	368	1050
21	536	194	1460	807	1860	388	224	220	184	180	346	1040
22	575	232	1420	994	1250	356	208	214	234	204	570	1050
23	488	698	1430	1030	2320	320	204	188	238	246	623	1070
24	404	522	1230	992	3550	310	228	194	266	244	625	1020
25	384	326	963	870	3410	306	222	198	238	228	625	532
26	459	260	835	685	3010	282	218	210	202	244	518	745
27	509	230	835	601	2770	284	208	216	204	250	302	1350
28	488	306	658	614	2400	262	220	210	194	256	280	1430
29	440	457	526	676	2150	242	216	188	196	256	518	1530
30	494		467	623	1600	232	204	182	200	260	605	1580
31	446		406		968		204	184		266		987
Mean	514	303	1328	521	1697	869	230	195	196	218	536	953
Runoff in Ac. Ft.	31600	17420	81660	31010	104400	51710	14110	11970	11690	13400	31880	58610

NOTE: Station maintained jointly by Division of Water Resources (Water Supervison), Water Resources Branch of the U. S. Geological Survey, City of San Francisco, U. S. Bureau of Reclamation and the South San Joaquin and Modesto Irrigation Districts. Station is at Highway 99 and is 16 miles above mouth of river.

TABLE 80

FLOW OF STANISLAUS RIVER AT BRET HARTE PUMP - 1944

Day	Daily Mean Flow in Second-Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	330	365	1510	370	555	1030	295	190	180	260	260	660
2	320	385	1440	400	475	1000	360	170	190	265	275	665
3	310	315	1210	375	385	1060	365	160	190	245	275	695
4	330	365	1175	335	310	1770	310	165	170	235	295	395
5	645	390	1910	350	255	1730	275	180	155	235	315	325
6	710	295	1630	305	280	1500	250	205	145	165	350	940
7	620	240	1250	275	325	1660	215	180	135	135	355	1360
8	510	215	1740	255	385	1920	240	165	170	225	360	1440
9	530	200	1770	345	360	1920	270	155	185	190	380	1450
10	515	240	1700	340	400	1790	275	170	190	200	390	1280
11	390	255	1690	440	1770	1510	265	150	205	230	1700	770
12	495	200	1670	470	2500	1140	240	135	175	215	1220	680
13	615	190	1670	670	2330	870	265	170	150	185	850	885
14	590	170	1660	735	2240	885	210	170	160	210	665	900
15	725	160	1660	615	2320	1030	250	150	180	235	700	895
16	585	155	1660	495	2280	990	280	165	175	205	675	870
17	405	150	1620	375	2675	810	260	155	180	200	655	800
18	350	150	1630	325	2710	735	220	160	195	180	940	635
19	310	145	1620	360	2585	585	220	170	170	150	615	940
20	315	145	1590	460	2445	455	205	210	150	140	770	1240
21	400	150	1560	675	2210	410	215	200	165	160	315	1250
22	475	160	1510	1040	1410	380	220	190	205	180	445	1250
23	475	375	1520	1070	1955	330	205	170	200	230	560	1270
24	365	515	1420	1020	3320	310	225	140	205	240	590	1060
25	320	330	1050	860	3365	310	220	140	225	210	590	565
26	385	255	905	720	3085	315	190	150	200	200	570	490
27	390	210	810	570	2890	300	165	195	170	220	375	1180
28	460	240	700	540	2650	295	200	170	150	235	290	1340
29	370	255	580	590	2235	310	190	185	170	220	400	1420
30	410		480	575	1970	295	225	180	180	225	520	1570
31	415		420		1080		190	155		235		1180
Mean	454	249	1379	532	1734	922	242	169	177	208	547	980
Runoff in Ac. Ft.	27900	14320	84810	31650	106620	54830	14910	10410	10550	12810	32530	60300
Diversion below Station, Ac. Ft.	0	0	0	1	207	126	140	135	70	69	0	0
*Ac. Ft. to San Joaquin R.	27900	14320	84810	31649	106827	54956	15050	10545	10620	12879	32530	60300

NOTE: Recording gage station maintained jointly by Division of Water Resources, U. S. Bureau of Reclamation, City of San Francisco and Modesto Irrigation District. Station is 5.9 miles above mouth of river.
* Neglecting seepage return below station.

TABLE 81

DAILY RECORD OF PRECIPITATION (IN INCHES) AT CHICO - 1944*

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	.38	.22	.32			T					T	.58
2	.81	1.54	T			.08					.11	
3	T	2.00	.41								.16	
4	T	.01	.49	.11							.62	
5	.62			.27							.05	
6	.02										.79	
7												
8		.56		.42						.13	T	
9	.25	.09									1.15	
10											.11	
11				.67								
12										.03	.74	
13	.02		.08	T						T	.06	
14	T			T	.35	.09						
15												
16												
17					.46							
18					.15							
19		.06		.12								.19
20				.27					T	.18		1.05
21		1.06		T						.18		.25
22		.56										.59
23	.55	.21			.03	T						.62
24	.05					.04						
25		.06										
26				.38							.20	.03
27				.29								.48
28		.64		.03							.01	.35
29	.02	.70									1.08	
30	.63									.62	T	.01
31	.17				.16					1.08		
Total for month	4.52	7.71	1.30	2.56	1.15	.21	0	0	T	2.22	5.08	4.15
Total for year	28.90											

* United States Weather Bureau records.

TABLE 82

DAILY RECORD OF PRECIPITATION (IN INCHES) AT M. & T. INC. - CHICO LANDING - 1944*

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	.15	.13	.09			.13						.62
2	.57	.45	.10			.02						
3	.43	2.00										
4		.15	.50	.64							.35	
5	.50										.17	
6	.10											
7											.75	
8		.20		.14						.19		
9		T									.64	
10	.22											
11				.35							.03	
12											1.00	
13											T	
14					.36	.02						
15					.35							
16					.05							
17												
18												T
19				T								.40
20		.10		.37								1.00
21		.10								.15		
22		1.12										.64
23		.28										.80
24	.15											T
25	.15											
26											.34	
27				.90							.04	
28		.35										.43
29		.27									.46	.30
30	.86										.10	.04
31	.75									.75		
Total for Month	3.88	5.15	.69	2.40	.76	.17	0	0	0	1.09	3.88	4.23
Total for Year					22.25							

* Record kept by M. & T. Inc., at pumping plant at junction of Chico Creek and Sacramento River.

TABLE 83

DAILY RECORD OF PRECIPITATION (IN INCHES) AT LLANO SECO RANCHO - 1944*

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	.30	.15	.06									
2	.35	1.23				.04					.04	.40
3		1.21	.14								.13	.01
4			.31	.27							.26	
5	.47										.01	
6											.43	
7										.20	.21	
8		.20		.24							.29	
9	.21	.06									.11	
10												
11				.30							.39	
12										.03		
13			.29								.33	
14					.34							
15												
16												
17					.43							
18					.03							.08
19		.03		.19								1.04
20										.12		.03
21		.97										.22
22	.25	.63										.58
23	.09	.20										1.01
24												
25												
26		.02									.08	.03
27				.98								.32
28		.28									.01	.28
29		.27									.72	
30	1.00									.37	.01	
31	.41				.13					.34		
Total for Month	3.08	5.25	.80	1.98	.93	.04	0	0	0	1.06	3.02	4.00
Total for Season	20.16											

* Record kept at ranch headquarters six miles below Chico Landing.

TABLE 84

DAILY RECORD OF PRECIPITATION (IN INCHES) AT COLUSA - 1944*

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	.03	.02	.10			.24						.04
2	.40	.31	.01			.01					.02	
3	.20	2.14									.08	
4		.16	.29	.01							.31	
5	.33										.23	
6	.12											
7											.43	
8		.22		.05						.21		
9		T		.07							.45	
10	.16										.51	
11				.29							.29	
12				.02							.34	
13				.02						.02	.01	
14	.01											
15					.15	.03						
16												
17		.02			.25	.03						
18					.62							.02
19		T										.20
20		.03		.08								.62
21		.12		.05						.08		.01
22		1.40										.35
23	.28	.41										.19
24	.01	T				.02						
25												
26		.04		T								
27				.61							.13	
28		.13										.03
29		.15									.66	.32
30	.92										.12	
31	.43				.02					.23		
Total for Month	2.89	5.15	.40	1.20	1.04	.33	0	0	0	.54	3.58	1.78
Total for Year	16.91											

* United States Weather Bureau records.

TABLE 85

DAILY RECORD OF PRECIPITATION (IN INCHES) AT MARYSVILLE - 1944*

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	.05	.05	.43			.09						.24
2	.70	.71	.01			.01					.01	
3	.45	2.30				.03					.09	
4		.19	.89	.13							.42	
5	.23			.12							.29	
6	.04											
7											.56	
8				.02						.12		
9	.25	.50									.39	
10		.01				.04					.60	
11				.59							.02	
12				.01							.85	
13	.03									.03	.06	
14												
15					.27							
16		T										
17					.50							
18					.16							
19		.03										
20		T		1.40								.49
21		.22		.01								.42
22		1.64								.29		T
23	.43	.61										.46
24	.39											.73
25												
26		.01									.11	.01
27				.41							.02	
28		.40		T							T	.40
29		.74									.46	.26
30	.74									T	.25	
31	.28				.01					1.40		
Total for Month	3.59	7.41	1.33	2.69	.94	.17	0	0	0	1.84	4.13	3.01
Total for Year					25.11							

* U. S. Weather Bureau records.

TABLE 86

DAILY RECORD OF PRECIPITATION (IN INCHES) AT WILKINS SLOUGH - 1944*

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	.54	.38										
2	.25	2.21										.07
3		.34									.12	
4	.21										.52	
5	.06			.08							.10	
6			.05									
7		.24									.49	
8												
9	.12										.11	
10				.31							.38	
11				.07						.10		
12											.61	
13	.03											
14					.19							
15												
16					.25							
17					.16							
18		.02										
19		.11		.08								.32
20				.08								.44
21										.11		.03
22	.22	1.27										.47
23	.12											.43
24												
25												
26				.55							.11	
27		.35										
28		.70										.23
29	.69	.50									.45	.25
30	.45				.28					.34	.26	.07
31											.25	
Total for Month	2.69	6.12	.05	1.17	.88	0	0	0	0	.55	3.40	2.31
Total for Year					17.17							

* Near Grimes, at Reclamation District 108 pumping plant. Record kept by District.

TABLE 87
DAILY RECORD OF PRECIPITATION (IN INCHES) - RECLAMATION DISTRICT 1500
AT EVERGLADE - 1944*

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	.50	.23	.36									.02
2	.22	2.32									.05	
3		.26	.55	.03							.45	
4	.12			.08							.16	
5	.08											
6	.07										.66	
7		.22		.02						.07		
8		.05									.25	
9	.14										.32	
10				.42							.10	
11											.52	
12										.02	.02	
13	.04											
14					.19							
15												
16		.03			.21							
17					.10							
18		.03										.27
19		.03		.16								.30
20		.10		.13						.06		.02
21		.74										.40
22	.25	1.18										.49
23	.12											.08
24												
25											.09	
26				.43							.02	
27		.29										.22
28		.73									.42	.21
29	.62	.40									.16	
30	.52									.28	.20	
31					.28							
Total for Month	2.68	6.61	.91	1.27	.78	0	0	0	0	.43	3.42	2.01
Total for Year					18.11							

* North end of Reclamation District 1500 - at Everglade (Camp 2) 3 miles south of Hinsdale. Record kept by Reclamation District 1500.

TABLE 88

DAILY RECORD OF PRECIPITATION (IN INCHES) RECLAMATION DISTRICT 1500
AT ROBBINS - 1944*

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	.28	.54	T			.01						.08
2	.02	2.44	T								.04	
3		.21	.53	.07							.40	
4	.22			.09							.07	
5	.05											
6											.72	
7		.57	.02	.05						.13		
8		.01									.31	
9	.16										.69	
10				.49							.20	
11				.01							.63	
12											.03	
13	.02			T								
14					.23							
15												
16		.05			.38							
17					.05							
18		.06										.36
19				.21								.26
20		.23		.17						.03		.02
21		1.30										.48
22	.23	.61				T						.53
23	.10					T						.08
24												.03
25											.08	
26				.44								T
27		.42										.23
28		.67									.48	.23
29	.87	.18									.34	.01
30	.26				.13					.78	.14	
31	.01				.21							
Total for Month	2.22	7.29	.55	1.53	1.00	.01	0	0	0	.94	4.13	2.31
Total for Year						19.98						

* South central portion of Reclamation District 1500. Record kept by Reclamation District 1500.

TABLE 89

DAILY RECORD OF PRECIPITATION (IN INCHES) AT NICOLAUS - 1944*

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	.08	.04	.25			.18						.18
2	.35	.42	.02			.03					.03	.16
3	.32	1.96									.04	
4		.23	.68	.04							.30	
5	.19		.02	.14							.04	
6	.09											
7											.68	
8		.40		.02						.22		
9		.04		T							.28	
10	.16										.75	
11				.60							.03	
12				.03							.91	
13											.03	
14	.03			T								
15					.22							
16												
17		.03			.43							
18					.01							
19		.06		T								.45
20		.03		.19								.30
21		.32		.01						.27		.01
22		.80										.26
23	.29	.72				T						.58
24	.04											.02
25		.06										
26											.03	
27				.32							.07	
28		.34										.33
29		.83									.36	.26
30	.75										.28	T
31	.21				.02					1.36		
Total for Month	2.51	6.28	.97	1.35	.68	.21	0	0	0	1.85	3.83	2.55
Total for Year						20.23						

* U. S. Weather Bureau Records

TABLE 90

DAILY RECORD OF PRECIPITATION (IN INCHES) RECLAMATION DISTRICT 1500
AT KARNAK - 1944*

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	.46	.32										
2	.37	2.20										.36
3		.41	.64								.04	
4	.25		.02	.07							.38	
5	.19										.15	
6												
7		.31		.03								
8		.04								.04		
9	.22										.28	
10				.56							.85	
11											.30	
12											.59	
13	.02										.01	
14												
15					.20							
16		.06										
17					.31							
18		.04			.04							
19		.05		.63								.43
20		.25		.12								.26
21		1.18								.03		.02
22	.26	.60										.33
23	.06					.05						.61
24												
25												
26				.52							.10	
27		.30										
28		.75										.22
29	.46	.18									.35	.24
30	.13										.36	.01
31					.26					.89	.20	
Total for Month	2.42	6.69	.66	1.93	.81	.05	0	0	0	.96	3.61	2.48
Total for Year					19.61							

* Southeast corner of Reclamation District 1500. Record kept by Reclamation District 1500.

TABLE 91

DAILY RECORD OF PRECIPITATION (IN INCHES) AT KNIGHTS LANDING - 1944*

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	.04		.13			.14						.20
2	.44	.35				T					T	
3	.32	2.12				.02					.02	
4		.37	.51	.04							.40	
5	.21			.28							.11	
6	.07											
7											.36	
8		.28		.06						.09		
9		.02									.29	
10	.18										.57	
11				.47							.16	
12				T							.58	
13										T		
14	.01											
15					.25							
16												
17		.06			.34							
18					.05							
19		.04		.03								.40
20		.05		.32								.24
21		.25		.14						.02		.02
22		1.22										.49
23	.19	.56				T						.48
24	.04					T						
25												
26											.08	
27				.50							.02	
28		.33										.22
29		.53									.43	.20
30	.82										.22	.04
31	.23				.13					.92		
Total for Month	2.55	6.18	.64	1.84	.77	.16	0	0	0	1.03	3.24	2.29
Total for Year						18.70						

* U. S. Weather Bureau records.

TABLE 92

DAILY RECORD OF PRECIPITATION (IN INCHES) AT SACRAMENTO - 1944*

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	.50	.04	.03			T						.34
2	.29	2.40				T						
3		1.16	.91								.35	
4	T	.01	.47	.06							.50	
5	.52											
6											.23	
7			T	.05						.05		
8		.43		.14							.01	
9	.35										.87	
10				.02							.19	
11			T	.55							.61	
12											.18	
13	.02		.01	.02								
14					.25							
15						.24						
16		.29										
17					.36							
18		.01										.15
19		.04		.52								.31
20		.05		.09					T	.18		
21		1.10										.15
22	T	.71										.54
23	.45					.09						.02
24	T					.19						
25												
26				.20							.04	T
27				.01								.37
28		.97									.01	.43
29	.35	.06		T							.49	T
30	.60									.53	.06	
31					.22					.63		
Total for Month	3.08	7.27	1.42	1.66	.83	.52	0	0	T	1.39	3.54	2.31
Total for Year	22.02											

* U. S. Weather Bureau records.

TABLE 93

SACRAMENTO RIVER - REDDING TO SACRAMENTO

STREAM FLOW - IRRIGATION DRAFT - ACREAGE IRRIGATED - GROSS DUTY OF WATER 1924 - 1944

Year	Seasonal Runoff at Red Bluff in Per Cent of Normal *	Flow of Sacramento River at Kennett c.f.s.		Irrigation Draft			Acreage Irrigated			Gross Duty of Water				
										Acre-Feet per Acre			Acres per Sec. Ft.	
		Average July-Sep. Incl.	Average July	Average c.f.s. July	Aver. cfs July-Sep. Incl.	Acre-Feet Mar.-Oct. Incl.	General	Rice	Total	July-Sep. Incl.	July	Mar.-Oct. Incl.	Mar.-Oct. Incl.	July-Sep. Incl.
1924	38	2920**	2890**	3075	2470**	953000	104300	59700	164000	2.75	1.15	5.81	84	66
1925	92	3630**	3640**	3444	2960**	843000f	76200	58000	134200	4.03	1.57	6.28	77	45
1926	65	2780	2880	4225	3210	1108000f	76600	87500	164100	3.57	1.58	6.75	72	51
1927	125	3550	3950	4229	3510	1159000f	77900	79800	157700	4.07	1.60	7.35	66	45
1928	87	3320	3580	3693	2920	1055000f	88200	63500	151700	3.52	1.49	6.95	70	52
1929	50	2920	3060	3379	2770	1066000f	136900	43900	180800	2.80	1.15	5.90	83	65
1930	70	2970	3070	3541	2880	1056000f	96600	56200	152800	3.44	1.42	6.91	70	53
1931	38	2570	2600	3937	3030	1335000	141500	73900	215400	2.57	1.13	6.20	78	71
1932	58	2730	2940	3218	2570	1020000	130700	53800	184500	2.54	1.07	5.53	88	72
1933	52	2770	3010	3211	2680	1042000	101100	53000	154100	3.17	1.28	6.76	72	57
1934	51	2540	2650	3299	2750	1057000	93800	56500	150300	3.34	1.35	7.03	69	54
1935	86	3010	3330	3364	2820	926000	98500	51100	149600	3.44	1.38	6.19	78	53
1936	81	2910	3280	3516	2890	1055000	93100	62700	155800	3.38	1.39	6.77	72	54
1937	68	2950	3380	3827	3210	1070000	101000	66500	167500	3.50	1.41	6.39	76	52
1938	168	4220	4870	3555	2990	932000	85600	62600	148200	3.68	1.47	6.29	77	49
1939	50	3000	3100	3746	2910	1301000	158800	63900	222700	2.38	1.03	5.84	83	77
1940	120	3425	3625	4050	3275	1063000	119700	64400	184100	3.25	1.35	5.77	84	56
1941	164	4500	5180	4314	3850	1150000	118600	85200	203800	3.44	1.31	5.64	86	53
1942	129	4340	4905	4662	4100	1279000	111200	107600	218800	3.42	1.31	5.84	83	53
1943	97	3950	4305	4699	4205	1417000	126300	115600	241900	3.17	1.19	5.86	83	58
1944	44	4720	5003	5502	4573	1678000	111800	122300	234100	3.58	1.43	7.17	68	51
Average 1924-1944		3320	3583	3833	3170	1122000	107000	70800	177900	3.29	1.34	6.34	77	57

f Kennett station abandoned in 1943 in favor of Keswick.
* 50 year mean (1889-1939) of natural runoff. See Tables 1, 3 and 5 for comparison of 40 and 50 year means.
** Flow near Red Bluff. Station at Kennett established in 1926.
f Diversions for March estimated.

TABLE 94

FEATHER RIVER - OROVILLE TO MOUTH

STREAM FLOW - IRRIGATION DRAFT - ACREAGE IRRIGATED - GROSS DUTY OF WATER 1924 - 1944

Year	Seasonal Runoff at Oroville in Per Cent of Normal *	Flow of Feather River at Oroville c.f.s.		Irrigation Draft			Acreage Irrigated			Gross Duty of Water				
										Acre-Feet per Acre			Acres per Sec. Ft.	
		Average July-Sep. Incl.	Average July	Average c.f.s. July	Aver. cfs July-Sep. Incl.	Acre-feet Mar.-Oct Incl.	General	Rice	Total	July-Sep. Incl.	July	Mar.-Oct. Incl.	Mar.-Oct. Incl.	July-Sep. Incl.
1924(1)	27	933	852	950	917	355346	22402	22541	44943	3.72	1.30	7.92	61	49
1925	65	1719	1770	1464	1287	417150	25560	26734	52294	4.49	1.72	7.98	61	41
1926	65	1839	1840	1712	1432	474025	23545	34694	58239	4.49	1.81	8.14	60	41
1927	121	1920	2110	1857	1578	533615	24944	38513	63457	4.54	1.80	8.41	58	40
1928	88	1689	1980	1697	1363	497201	23383	33145	55528	4.40	1.85	8.80	55	41
1929	38	2080	1920	1416	1134	453464	29011	23917	52928	3.91	1.64	8.57	57	47
1930	80	1986	1890	1517	1225	450020	25604	24258	49862	4.48	1.87	9.03	54	41
1931	30	1177	1230	1333	1059	464138	24683	27079	51762	3.73	1.58	8.97	54	49
1932	68	1570	1990	1621	1327	496713	24115	28108	52223	4.64	1.91	9.51	51	39
1933	39	1389	1590	1533	1286	478326	21897	26541	48438	4.84	1.95	9.88	49	38
1934	42	1445	1530	1325	1085	428008	23984	24918	48902	4.05	1.67	8.75	56	45
1935	88	1937	2067	1502	1258	390873	25162	20849	46011	4.99	2.01	8.50	57	37
1936	88	2171	2242	1612	1349	479093	23990	26546	50536	4.87	1.96	9.48	51	37
1937	65	1760	2138	1787	1529	507765	26705	30203	56908	4.90	1.93	8.92	54	37
1938	175	2674	3334	1757	1594	512600	26938	27144	54082	5.38	2.00	9.48	51	34
1939	39	1516	1460	1497	1168	501357	29234	26303	55537	3.84	1.66	9.03	54	48
1940	116	1966	1913	1713	1414	473974	30117	23526	53643	4.81	1.96	8.84	55	34
1941	133	2229	2754	1681	1547	475240	27658	26640	54298	5.20	1.90	8.75	56	35
1942	136	2558	3169	2042	1833	539693	25177	38477	63654	5.25	1.97	8.48	57	35
1943	115	1957	2236	2134	1906	623641	24089	46566	70235	4.95	1.87	8.88	55	37
1944	66	1990	2237	2312	1974	712911	25235	49843	75078	4.81	1.89	9.50	51	38
Average 1924-1944		1833	2012	1641	1394	488817	25402	29835	55217	4.59	1.82	8.85	55	40

* 50 year mean (1889-1939) of natural runoff. See tables 1, 3 and 5 for comparison of 40 and 50 year means.

(1) Some of the smaller plants were omitted in 1924.

TABLE 95

YUBA RIVER - SMARTVILLE TO MOUTH

STREAM FLOW - IRRIGATION DRAFT - ACREAGE IRRIGATED - GROSS DUTY OF WATER - 1925 - 1944

Year	Seasonal Runoff at Smartville in Per Cent of Normal *	Flow of Yuba River at Smartville c.f.s.		Irrigation Draft			Acreage Irrigated			Gross Duty of Water				
										Acre-feet per Acre			Acres per Sec. Ft.	
		Average July-Sep. Incl.	Average July	Average c.f.s. July	Aver. cfs July-Sep. Incl.	Acre-feet Mar.-Oct. Incl.	General	Rice	Total	July-Sep. Incl.	July	Mar.-Oct. Incl.	Mar.-Oct. Incl.	July-Sep. Incl.
1925(1)	85	417	637	16	10	4045	1796	0	1796	1.01	0.55	2.25	217	180
1926	65	226	280	145	133	35908	3234	3279	6513	3.73	1.37	5.51	88	49
1927	142	495	868	160	125	39750	4003	1930	5933	3.84	1.66	6.71	73	47
1928	98	374	546	157	114	36800	4935	1875	6810	3.04	1.42	5.40	90	60
1929	41	252	340	152	139	53254	5180	2450	7630	3.33	1.23	6.99	69	55
1930	73	296	347	191	163	58521	4680	2875	7555	3.93	1.56	7.74	63	46
1931	26	146	152	146	134	63320	4823	2950	7773	3.14	1.16	8.14	60	58
1932	85	359	603	155	137	58201	4950	2615	7565	3.32	1.26	7.70	63	55
1933	43	293	420	178	162	63369	5935	2645	8580	3.46	1.27	7.38	66	53
1934	40	185	222	183	127	52651	6305	1667	7972	2.91	1.40	6.51	74	63
1935	90	383	602	184	153	48850	6535	1552	8887	3.46	1.40	6.05	80	53
1936	104	394	584	168	155	64058	5202	2665	7867	3.58	1.31	8.14	60	51
1937	75	360	541	159	156	59163	6699	2598	9297	3.06	1.05	6.37	76	60
1938	162	748	1410	162	152	43257	5772	1605	7377	3.75	1.35	5.88	83	49
1939	36	213	238	210	186	73113	6642	1898	8540	3.97	1.51	8.56	57	46
1940	115	342	390	247	207	69968	7220	1270	8490	4.45	1.79	8.24	59	41
1941	129	787	1565	221	206	73539	7472	1345	8817	4.27	1.54	8.34	58	43
1942	137	792	1386	243	235	74706	6661	1125	7786	5.50	1.92	9.59	51	33
1943	126	576	743	280	278	93799	6280	2310	8590	5.91	2.00	10.92	45	31
1944	51	420	626	273	250	93264	7009	2401	9410	4.85	1.78	9.91	49	38
Average	1925-1944	403	623	182	161	57976	5567	2053	7659	3.73	1.43	7.32	74	56

* 50 year mean (1889-1939) of natural runoff. See Tables 1, 3 and 5 for comparison of 40 and 50 year means.

(1) Record obtained for Lower Yuba River only

TABLE 96

AMERICAN RIVER - FAIROAKS TO MOUTH

STREAM FLOW - IRRIGATION DRAFT - ACREAGE IRRIGATED - GROSS DUTY OF WATER 1925 - 1944

Year	Seasonal Runoff at Fairoaks in Per Cent of Normal *	Flow of American River at Fairoaks c.f.s.		Irrigation Draft			Acreage Irrigated			Gross Duty of Water				
										Acre-feet per Acre			Acres per Sec. Ft.	
		Average July-Sep. Incl.	Average July	Average c.f.s. July	Aver. cfs July-Sep. Incl.	Acre-feet Mar.-Oct. Incl.	General	Rice	Total	July-Sep. Incl.	July	Mar.-Oct. Incl.	Mar.-Oct. Incl.	July-Sep. Incl.
1925	94	565	1080	20	16	4353	3510		3510	0.82	0.35	1.24	392	219
1926	48	207	247	25	16	4606	3073		3073	0.94	0.50	1.50	324	192
1927	127	653	1240	29	21	5636	3343		3343	1.16	0.52	1.68	288	159
1928	88	286	414	21	17	5635	3071		3071	1.00	0.41	1.83	264	181
1929	40	262	482	25	20	6324	3077		3077	1.20	0.50	2.04	239	154
1930	57	276	414	21	15	4955	2639		2639	1.06	0.49	1.87	262	176
1931	25	98	136	20	15	5620	2694		2694	1.03	0.46	2.09	232	179
1932	90	679	1500	21	17	5481	3165		3165	0.96	0.42	1.73	281	187
1933	44	344	633	21	15	4651	2848		2848	0.94	0.46	1.62	300	190
1934	39	179	192	21	15	5505	2770		2770	0.98	0.46	1.99	245	185
1935	90	504	1009	21	15	4815	2808		2808	0.97	0.46	1.71	284	187
1936	118	753	1364	20	16	4727	2492		2492	1.16	0.49	1.90	256	156
1937	81	497	873	25	20	5381	3353		3353	1.07	0.45	1.61	302	168
1938	157	1060	2101	20	16	4287	2923		(1)2923	1.03	0.43	1.47	331	182
1939	36	127	165	28	19	6654	3064		(1)3064	1.11	0.55	2.17	224	161
1940	118	511	734	29	19	6052	3061		(1)3061	1.15	0.58	1.98	245	159
1941	109	715	1319	25	19	5309	3046		(1)3046	1.12	0.50	1.74	279	160
1942	136	1115	2402	23	18	4167	3132		(1)3132	1.08	0.44	1.33	364	174
1943	135	628	1273	25	19	4581	3112		3112	1.12	0.49	1.47	346	164
1944	60	357	632	25	19	4819	3205		3205	1.11	0.49	1.50	323	169
Average 1925-1944		491	911	23	17	5178	3019	0	3019	1.05	0.47	1.72	289	175

* 50 year mean (1889-1939) of natural runoff. See Tables 1, 3 and 5 for comparison of 40 and 50 year means.
(1) An estimated 2200 acres have been added for Carmichael Irrigation District.

TABLE 97

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

	Period of Record	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
SACRAMENTO VALLEY	Per Cent of Seasonal Diversion								
Sacramento River - Redding to Sacramento	1924 to 1944	0.2	9.3	18.5	18.2	20.2	19.0	10.8	3.8
Feather River - Oroville to mouth	1924 to 1944	0.3	5.7	18.1	18.5	20.8	19.6	12.3	5.2
Yuba River - Smartville to mouth	1925 to 1944	0.9	7.1	15.7	18.5	19.0	18.1	13.2	7.5
American River - Fairoaks to mouth	1925 to 1944	0.6	4.1	9.2	20.1	27.5	21.3	12.3	4.9
DELTA UPLANDS									
Old San Joaquin River	1924 to 1944	2.4	8.9	17.1	18.0	20.5	17.3	11.3	4.5
Tom Paine Slough	1924 to 1944	1.4	7.5	15.2	17.3	18.9	18.2	14.3	7.2
San Joaquin River below Vernalis	1924 to 1944	2.6	12.1	16.1	13.9	23.8	18.8	9.0	3.7
SAN JOAQUIN VALLEY									
San Joaquin River - Delta Bridge to Vernalis	1931 to 1944	2.8	9.4	14.9	15.7	22.8	19.2	11.5	3.7
Merced River-Yosemite Valley Railroad Crossing to mouth	1931 to 1944	1.4	6.9	14.6	18.6	22.3	19.1	12.8	4.3
Tuolumne River - La Grange to mouth	1931 to 1944	2.0	7.0	16.3	17.8	20.4	19.1	12.0	5.4
Stanislaus River - Orange Blossom Bridge to mouth	1931 to 1944	0.9	7.2	14.1	19.2	21.2	19.1	12.5	5.8

TABLE 98

DIVERSIONS AND ACREAGE IRRIGATED - SACRAMENTO RIVER - 1944

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.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
--"M" STREET BRIDGE - SACRAMENTO - MILE 0.0--													
City of Sacramento	0.8L	1-18"	2044	1970	2959	3434	4137	4062	3479	2406	24491	Municipal	
		3-20"											
--AMERICAN RIVER - MILE 1.1L--													
--BACK BORROW PIT RECLAMATION DISTRICT 1000 - MILE 1.3L--													
E. Fourness	1.45R	1-8"				5					5	6	
M. Zubiri	2.05L	(1)1-8"				NO DIVERSION							
--RECLAMATION DISTRICT 1000 DRAIN - MILE 2.1L--													
Elmer F. Christophel	2.15L	1-8"		2	13	23	18		11		67	38	
Elmer F. Christophel	2.4L	(1)1-5"				NO DIVERSION							
H. M. Swalley	2.45L	1-5"			1	20	4	1			26	38	
D. D. Parr	2.9L	1-6"				20	28				48	26	
Rose Orchard (2)	3.55R	1-16"			40	225	154	204			623	172	
W.E.M. Beardslee Estate	3.75R	1-5"	4	9	6	20	20	26	25	12	122	56	
M.C.C. Van Loben Sells	4.0R	1-10"				94	117	91			302	140	
Reese & Greer	4.65R	1-7"				25	37				62	58	
A. M. Harbinson	5.05L	1-14"			30		43				73	21	
R. A. Westbrook (3)	5.25R	1-8"				78	25	99	95	7	304	174	
A. R. Merkley	5.3R	1-8"				44	32	38	62		176	59	
Lucy Casselman	5.5R	1-6"				20	11	13			44	37	
A. A. Casselman	5.55R	1-6"				17	19				36	40	
K. L. Lovdal	5.7R	1-10"				NO DIVERSION							
J. E. Bandy	6.0R	1-6"				NO DIVERSION							
Natomas Riverside Mut. Water Co. (4)	6.1L	2-18"		219	520	1687	2100	2337	1261		8124	(5)1768	280
O. A. and F. L. White	6.6R	1-6"				NO DIVERSION							
E. S. Fisk	7.0R	1-4"				NO DIVERSION							
Fred C. Jones	7.5L	1-8"				12	58	28		23	121	97	
M. R. Williamson	7.8L	1-10"				47	61	8			116	100	
A. Marty	7.9R	1-8"					89	9			98	124	
E. D. Willey (6)	7.9L	1-10"		30	67	51	56	47	35	32	318	146	
M. Marty	8.3R	(7)1-8"				52					52	30	
		1-10"											
Blauth Estate	8.5R	1-7"				68	92				160	83	
H. Waldeck	8.7R	1-6"		4		18	67	64			153	43	

(1) No diversion from river in 1944. Pump has been moved to R.D. 1000 drain canal.
(2) Formerly listed as A. I., Lidia, and B. K. Diepenbrock, and Marion Shoor.
(3) Formerly listed as R. S. Seydel.
(4) Formerly listed as Riverside Mutual Water Company.
(5) Includes 460 acres irrigated from re-used drain water.
(6) Formerly listed as Willey & Winter.
(7) 8" pump only operated in 1944.

TABLE 98 (CONTINUED)

DIVERSIONS AND ACREAGE IRRIGATED - SACRAMENTO RIVER - 1944

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.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
Mullin & Plato	8.95R	1-6"					40	23	20		83	30	
Capital Company	9.35R	1-14"			240	161	150	537	100	21	1209	335	
Nesbit, Driver, & Fong Yen Co. (1)	9.8L	1-14"				184	300	407	140		1031	495	
Carl Casselman	9.9R	1-12"				42	94	74	60	44	314	124	
Lloyd M. Robbins	10.25L	1-14"			10	101	120	161	41		433	514	
Ray Hughes (2)	(3)10.65R	1-12"							55		55	85	
Fiddyment & John Sing, Jr.	10.75L	1-12"			13	30	15	69	22		149	78	
William A. Ten Eyck (4)	11.1R	1-10"				97	232	259	90		678	(5) 310	
		1-12"											
Federal Farm Mortgage Co. (6)	11.6L	1-10"					8	5			13	18	
--ELKHORN FERRY - MILE 11.9--													
Conaway Ranch	12.0R	4-36"		775	6300	8090	9858	9050	5372		39445	345	(7)5951
Thomas O'Conner Estate (8)	12.5R	1-12"				69	78	107	65		319	130	
Gertrude Brown	12.7R	1-6"				NO DIVERSION							
Frank F. Newman (9)	13.1R	1-12"			64	33	74	30	39		240	65	
J. Corey	13.2R	1-8"				36	19	40	4		99	30	
J. DeNigris	13.25R	1-8"				77	69	47	87		280	67	
Elkhorn Mutual Water Company	14.1L	1-20"			1689	2190	2422	2106	1988		10395	(10)2032	(10)2869
		1-24"											
Joseph Veress	14.25R	1-10"				59	110	77			246	180	
M. E. Dole	14.4R	1-6"				NO DIVERSION							
Capital Company	15.15R	1-10"				NO DIVERSION							
Central Mutual Water Company	16.0L	1-30"		2556	3755	3811	4473	5070	2895		(11)22560	(12)	(12)
		2-38"											
Henry Rich (Hershey Plant)	16.27R	1-20"		150	450	291	324	332	100		1647	28	250
H. T. Silvius	16.4R	1-6"				NO DIVERSION							
Henry Rich & A. R. Gallaway, Jr.(13)	16.62R	(14)1-14"						31			31	37	
California Trust & Savings Bank	16.7R	1-12"				NO DIVERSION							

(1) Formerly listed as R. G. Pearson and P. S. Driver.
(2) Formerly listed as Reese Estate.
(3) Mileage correction.
(4) Formerly listed as McKeehan & Harris.
(5) Includes 30 acres irrigated on adjoining lands.
(6) Reinstallation at old point of diversion.
(7) Includes 1060 acres irrigated on outside lands, 180 acres of which were irrigated from re-used drain water.
(8) Formerly listed as Thomas O'Conner.
(9) Formerly listed as Julius Hauser.
(10) Combined acreage for this plant and that at Mile 16.0L.
(11) Additional water received from drainage as follows: (in acre-feet) Apr. 64, May 1072, June 759, July 357, Aug. 732, Sept. 336.
(12) See plant at Mile 14.1L.
(13) Formerly listed as Henry Rich.
(14) Replaces 10" pump.

(12) See plant at Mile [illegible]
(13) Formerly listed as Henry Rich.
(14) Replaces 10" pump.

TABLE 98 (CONTINUED)

DIVERSIONS AND ACREAGE IRRIGATED - SACRAMENTO RIVER - 1944

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.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
Henry Rich	17.4R	(1) 1-16"		305	700	932	745	664	371		3717	(2) 260	(2) 500
Calif. Western States Life Ins. Co.	17.75R	1-20"		416	300		105	444	390		1655	(3)	(3)
M. & J. Scheiber	18.45L	1-12"			48	66	97	80	58		349	103	
Harms Bros. (4)	18.5R	1-16"			196	500	147	328			1171	(3)	(3)
G. H. Lyall	18.7L	1-8"				10	135	122			267	91	
Natomas Central Mutual Water Co. (Bennett Subd. Plant)	(5) (1.0S)	(6) 1-10" 1-20"		1000	1729	1442	1535	1668	805		8179	168	(7) 1837
Natomas Central M.W. Co. (Central)	(5) (2.0S)	2-24"		2900	2812	2700	3543	3155	1500	155	16765	(8)	(8)
Natomas Ben May Plant	(5) (3.35N)	1-10"				REMOVED							
--VERONA GAGING STATION - MILE 19.6--													
SACRAMENTO TO VERONA Totals			2048	10400	23014	27640	32218	32645	19506	2700	150171	8781	11687
Average cubic feet per second			33	174	374	466	524	533	327	44	308		
Monthly use in percent of seasonal			1.4	6.9	15.3	18.4	21.5	21.7	13.0	1.8			
--FEATHER RIVER - MILE 20.9L--													
--SACRAMENTO SLOUGH - MILE 21.2L--													
West Coast Life Insurance Company	21.7R	1-15"				NO DIVERSION							
Henry Rich (Keller Plant)	22.5R	1-22"				NO DIVERSION							
A. F. Johnston	26.8L	1-8"				NO DIVERSION							
Frank B. Edson	28.2L	1-4"				NO DIVERSION							
Gustaf Inglin	28.2R	1-6"		3	14	12	18	5	10	5	67	32	
Russell Bros.	29.2R	1-12"			9	9	34	9	20	3	84	49	
M. R. Richardson	29.7R	1-8"			2				8	31	41	66	
Kate Russell & P. L. Traganza	29.75R	1-8"				NO DIVERSION							
Sebastine Yturralde (9)	29.9L	1-12"				89	22	5			116	105	
Leo Giovanetti	30.2L	1-8"				2	9	16	12		39	32	
M. R. Richardson	30.6R	1-12"		42	80	80	54	12	39		307	44	70
Floyd Anderson	30.7R	1-6"				NO DIVERSION							
George Senf	30.9L	1-8"				NO DIVERSION							
A. C. Huston	31.5R	1-12"				NO DIVERSION							
M. Alonzo	31.8L	1-6"				5		4	2		11	20	

(1) Replaces 18" pump.
(2) Combined acreage - 17.4R, 17.75R and 18.5R.
(3) See plant at 17.4R.
(4) New installation 1944.
(5) Cross canal, the main drain between R.D. 1000 and 1001, joins the Sacramento River at Mile 19.6L. Distance of plant from Sacramento River and bank are shown in ( ).
(6) This 10" pump was installed in 1944.
(7) Combined acreage of this plant and plant at 2.0S.
(8) See plant at Mile 1.0S.
(9) Formerly listed as Sebastine Ytwurraldi.

TABLE 98 (CONTINUED)

DIVERSIONS AND ACREAGE IRRIGATED - SACRAMENTO RIVER - 1944

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.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
Mary Anna Richardson (1)	32.0R	1-12"			21	100	115	95			331	178	
Sutter Mutual Water Co. (Portuguese Bend)	32.0L	2-24"		3340	4300	4313	4709	4800	2250	387	24099	924	1103
Collier Bros.	32.5R	1-10"			19	16	16	50	34		135	60	
Walter H. Ziegler (H. T. Carlson)	33.2L	2-10"			370	451	700	800	534		2855	297	160
J. G. Knox	33.35L	1-8"				18	38	53	23		132	50	
Sidney Epperson	33.5R	1-12"				NO DIVERSION							
Leiser Bros.	33.75L	1-12"											
		(2) 1-14"			600	709	705	754	580		3348	140	240
Sidney Epperson	33.8R	1-3"				NO DIVERSION							
Sidney Epperson	33.85R	1-6"				NO DIVERSION							
--KNIGHTS LANDING GAGING STATION - MILE 34.0--													
VERONA TO KNIGHTS LANDING													
Totals			0	3385	5415	5804	6420	6603	3512	426	31565	1997	1573
Average cubic feet per second			0	57	88	98	104	107	59	7	65		
Monthly use in per cent of seasonal			0	10.7	17.1	18.4	20.3	20.9	11.1	1.5			
COLUSA BASIN DRAINAGE - MILE 34.15--													
Earl Wallace	34.2R	1-10"				NO DIVERSION							
		2-16"				NO DIVERSION							
River Farms Company (Townsite Plant)	34.25R	1-20"				NO DIVERSION							
		1-24"											
		1-26"											
Commercial Investment Company	34.85L	1-12"				NO DIVERSION							
Walter Raymond	35.2L	1-12"			33	119	137	54			343	145	
Walter Raymond	35.62L	1-7"				NO DIVERSION							
Susie M. Donnelly (3)	35.8L	1-10"				NO DIVERSION							
J. Goffitzer (4)	35.85L	1-6"				28	22	12	21		83	18	
F. L. Burrell (J. L. Sills)	36.2L	1-14"		157	474	330	247	359	191		1758		220
R. H. Bailey	36.45L	1-8"				NO DIVERSION							
Amedio Maroni	36.7L	1-5"				NO DIVERSION							
Robert Bottimore	37.2L	1-14"				NO DIVERSION							
Maybelle J. Bundock (5)	37.75L	1-8"			12		25				37	64	
Addie Reel	38.4L	1-10"				NO DIVERSION							
Capital Company	38.8L	1-10"					50	12			62	100	
F. O. Eastman (Ivan Shuey)	39.4L	1-12"				71	44				115	80	

(1) Formerly listed as M. R. Richardson.
(2) Only 14" pump operated in 1944.
(3) Formerly listed as J. H. Donnelly Ranch (Bundock Bros.)
(4) New installation 1944.
(5) Formerly listed as Bundock Bros.

(5) Formerly listed as Bundock Bros.

TABLE 98 (CONTINUED)

DIVERSIONS AND ACREAGE IRRIGATED - SACRAMENTO RIVER - 1944

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.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
Commercial Investment Co. (C. L. Reel)	39.8L	1-10"				NO DIVERSION							
William Duffy, Jr.	39.9L	1-6"				NO DIVERSION							
Sutter Mutual Water Co. (State Ranch Bend)	40.6L	2-24"											
		1-36"		3702	5896	5690	6028	5727	2586	83	29712	2503	2740
Buell Ranch (M. K. Dean)	41.8L	1-4"				NO DIVERSION							
El Dorado Ranch (Lohse) (1)	42.0R	1-14"											
		1-16"			1150	1471	1116	1147	1083		5967	307	500
Buell Ranch (M. K. Dean)	42.2L	1-6"				NO DIVERSION							
Matteoli & Fracchia (2)	42.3L	1-8"				10	39	52			101	45	
El Dorado Ranch	43.1R	1-18"				NO DIVERSION							
Reclamation District #2047 (3)	43.1R	2-50"		5581	11354	9862	11362	11439	4022		53620	(4)2068	(5)5765
Kramer Ranch	43.1L	1-12"					5	3			8	8	
--RECLAMATION DISTRICT 108 DRAINAGE PLANT - MILE 44.0R--													
John Clauss	44.2L	1-14"		149	247	157					553	(6) 95	(6) 150
John Clauss	(7) 45.6L	1-14"		195	65	206	516	700	619		2301	(6)	(6)
P. J. Hiatt	48.7L	2-20"	338	1500	1620	1380	1534	1204	986		8562	220	740
G. J. Hiatt	49.7L	1-14"		134	289	282	281	228	164		1378		175
Reclamation District 108(Tyndall Mound)	51.1R	2-24"											
		1-36"		1674	3500	3450	3178	3411	1415		16628		2144
Holmes & Westover Co. (8)	51.2L	2-16"		927	1854	1458	1993	1292	862		8386	450	(9) 536
J. F. White	51.5L	1-8"				NO DIVERSION							
B. M. Chaplin (10)	52.0L	1-16"				210		105			315	200	
River Farms Company (11)	52.35R	1-12"				12	15	16	15		58	54	
George Van Ruiten	52.9L	1-10"					51	42	54	18	165	150	
George Van Ruiten	53.9L	1-12"				90	180		165		435	250	
Jacob Miller (1)	54.0R	1-8"						43	27	19	89	116	
Broomieside Farm	55.1L	1-20"			16	58	21	26			121	(12)130	
Reclamation District 108(Boyer Bend Plant)	56.4R	1-18"											
		1-30"				NO DIVERSION							
C. M. Miller	56.42R	1-6"				NO DIVERSION							
C. M. Miller (Asa Morris)	56.65R	1-12"				NO DIVERSION							
Broomieside Farm(Spencer C. Crawford)	56.95L	1-20"		12	68	601	663	524	484		2352		(13)389

(1) New installation 1944.
(2) Formerly listed as Matteoli & Fratchia.
(3) Formerly listed as River Farms Co. (Reclamation District 2047 Plant).
(4) Includes 128 acres of general crops on R.D. 108 lands.
(5) Includes 4288 acres of rice on R.D. 108 lands.
(6) Irrigated jointly by 44.2L and 45.6L
(7) Mileage correction.
(8) Formerly listed as Holmes & Noble (G. J. Hiatt).
(9) Includes 236 acres on R. D. 1500 and 300 acres on Stam Ranch.
(10) Formerly listed as T. J. Cummins Ranch Company.
(11) Installed in fall of 1943 but not reported until 1944.
(12) Includes 70 acres on Sacramento Investment Company lands.
(13) Includes 224 acres on R. D. 1500 lands.

TABLE 98 (CONTINUED)

DIVERSIONS AND ACREAGE IRRIGATED - SACRAMENTO RIVER - 1944

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.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
L. M. Miller	57.0R	1-10"				3	4		3		10	15	
Lamb Bros.	57.5L	1-16"				NO DIVERSION							
James A. Nielson & W. H. Saylor (1)	58.2L	1-15"					26	43	40		109	54	
Alex Grant	58.9L	1-16"				NO DIVERSION							
I. G. Zumwalt	59.1R	1-12"				70	100				170	55	
Lamb Bros.	59.8L	1-8"											
		1-12"											
		1-14"		56	163	1311	1460	1115	1000		5105	(2) 480	(2) 800
Reclamation Dist. 108 (Steiner Bend)	59.85R	1-16"				NO DIVERSION							
F. L. Burrell	60.4L	1-10"				NO DIVERSION							
A. Earl Lane	60.5L	1-12"		220	220	393	430	446	232		1941	100	150
Sutter Basin Corp. (Coles Landing)	61.3L	1-12"		50	265	200	247	336	110		1208	50	150
I. G. Zumwalt	61.5R	1-12"				100	240	152			492	180	
Samuel Hines (3)	62.3R	1-10"				6	23	24	16		69	82	
Blanche Coulter Brown	62.3L	1-8"				NO DIVERSION							
Jake Locovitch	62.6R	1-8"				NO DIVERSION							
R. L. Young	62.8L	1-8"			9	11	22	26	20		88	67	
KNIGHTS LANDING TO WILKINS SLOUGH													
Totals			338	14357	27235	27579	30059	28538	14115	120	142341	8086	14459
Average cubic feet per second			6	241	444	463	488	463	238	2	291		
Monthly use in percent of seasonal			0.3	10.1	19.1	19.4	21.1	20.0	9.9	0.1			
--WILKINS SLOUGH GAGING STATION - MILE 62.9--													
Reclamation District 108 (Wilkins Sl.)	63.2R	5-42"		15391	25787	20926	27620	17878	6000		113602	(4)1112	12374
B. W. Meister	63.65L	1-8"					24	23			47	15	
Sutter Mut. W. Co. (Tisdale Plant)	63.75L	6-42"											
		2-48"		24135	44160	40116	43649	44285	20980		217325	18759	15396
Ornbaum, Nobles Land & Livestock Co.	64.3R	1-12"					39	14			53	52	
Tisdale Irrigation & Drainage Co.	64.4L	1-12"		120	632	490	608	618	400		2868	(5)1148	(5) 416
Van Horn Ranch	64.9R	1-14"					38	44			82	140	
Robert S. Unsueta	65.1R	1-8"				NO DIVERSION							
Capital Company	65.7L	1-10"				NO DIVERSION							
M. P. Schohr	65.8R	1-16"				NO DIVERSION							
J. L. Browning	66.4R	1-18"				NO DIVERSION							
Tisdale Irrigation & Drainage Co.	67.1L	1-12"											
		1-20"	689	1403	1203	1546	1664	828			7333	(6)	(6)

(1) Formerly listed as James A. Nielson.
(2) This acreage located on Reclamation District 1500 lands.
(3) Formerly listed as S. Hines Ranch.
(4) Includes 850 acres served by drain water.
(5) This is combined acreage of this plant and one at Mile 67.1L.
(6) See plant at Mile 64.4L.

TABLE 98 (CONTINUED)

DIVERSIONS AND ACREAGE IRRIGATED - SACRAMENTO RIVER - 1944

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.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
Desmond A. Winship	67.2L	1-10"				NO DIVERSION							
A. C. Middleton Estate (1)	67.5L	2-24"		680	1240	1509	1506	2700	372		8007	(2)2760	(3) 40
--RECLAMATION DISTRICT 70 DRAIN - MILE 68.80L--													
J. L. Browning	69.0R	1-24"				NO DIVERSION							
Faxon & Andreotti (4)	69.2R	1-18"			60	431	200	205	23		919	280	
--EDDYS FERRY (GRIMES) - MILE 69.45--													
Wilber Jensen & Mary Cecil, et al.	70.35R	1-24"				NO DIVERSION							
H. F. Daly	70.4L	1-10"				35	40	20	13		108	82	
Hoffman, Beckley, Ritchie, Poundstone & Denny (5)	70.4R	1-20"											
		1-24"		508	1600	1026	1000	669	250		5053		(6) 560
Meridian Farms Water Co. #4	71.1L	1-24"		920	2000	1558	1600	1500	905		(8) 8483	(7)1147	(7) 560
A. B. Armstrong	71.9R	1-12"					200	141	51		392	145	
Antone Steidlmayer	71.9R	1-12"				NO DIVERSION							
H. & A. Andreotti	72.3L	1-7"						28			28	50	
E. B. Vann (Froh)	73.6R	1-10"				NO DIVERSION							
Meridian Farms Water Co. #3	74.8L	1-18"		990	1150	901	1112	966	600		5719	519	335
L. B. Westfall	75.3R	1-10"			40	77	60	30	14		221	60	
J. H. Yates	76.1L	1-10"				41	66	74			181	(9) 95	
Joseph Miller (Sanborn)	76.2L	1-8"			38	60		26			124	40	
Steidlmayer Bros.	76.5R	1-16"				NO DIVERSION							
E. V. Jacobs	77.9L	1-12"		30	340	187	100	100	166	21	944	220	
Sebia Davis Estate	78.2R	1-16"				NO DIVERSION							
Sebia Davis Estate	78.8R	1-14"											
		(10)1-24"		1000	2089	2000	1856	1635	416		8996	600	1000
C. E. Reische	79.0L	1-10"		30	80	74	72	62	11		329	171	
Steidlmayer Bros.	79.0R	1-12"			60	109	52	60	30	22	333	200	
Henry Schmidt	79.3R	1-10"				60	43				103	77	
E. V. Jacobs	79.5L	1-8"				5	16				21	40	
Steve M. Burtis (11)	79.7L	1-10"				20	28	28			76	38	
--MERIDIAN BRIDGE - MILE 79.85--													
Meridian Farms Water Co. #1 and #2	80.0L	1-20"											
		1-24"		2488	3100	2753	3109	2609	1549	550	16158	(12)2228	(12)1480
Roger C. Wilbur	80.3R	1-8"			11	66	47	24	16	13	177	40	

(1) Formerly listed as Newhall Land & Farming Co.
(2) Includes 290 acres on Meridian Farms Water Co. lands.
(3) This acreage on Meridian Farms Water Co. lands.
(4) Formerly listed as Faxon & Morton.
(5) Formerly listed as Houchins, Hoffman, Beckley & Ritchie.
(6) Includes 400 acres on District 108 lands.
(7) An additional 40 acres of rice and 290 acres of general crops served by plant at Mile 67.5L.
(8) Additional water from Reclamation District 70 drain canal.
(9) Includes 30 acres on adjoining lands to the north.
(10) Only 24" pump operated in 1944.
(11) Formerly listed as G. W. Wood.
(12) Also received some water from R. D. 70 drainage.

TABLE 98 (CONTINUED)

DIVERSIONS AND ACREAGE IRRIGATED - SACRAMENTO RIVER - 1944

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.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
B. P. Lilienthal, Trustee (1)	81.5L	1-16"			88		88	77	60		313	125	
Steidlmayer Bros.	81.9L	1-20"		24	770	442	276	224	247		1983	650	
F. T. Reische and L. F. Wood	82.5L	1-12"				10	16	8	6	11	51	71	
J. L. Pinkard	83.05L	1-7"					5	6			11	20	
J. E. Clark (2)	83.3L	1-14"				NO DIVERSION							
J. E. Clark	83.5L	1-8"				10		21			31	(3) 45	
--BUTTE SLOUGH OUTFALL GATES - MILE 84.0L--													
Clifford Reichel	85.8L	1-8"				58	35				93	30	
W. H. Halsey	86.1R	1-12"				139	112	171			422	126	
Lydell Peck	86.1L	1-8"				30	67	16	15	27	155	65	
Lydell Peck	86.6L	1-18"				NO DIVERSION							
Lloyd Scoggins	86.8L	1-8"				43	43				86	45	
Capital Company (Wilbur)	86.9R	1-10"		29	81	86	83	70	52		401	130	
Capital Company (Wilbur)	87.4R	1-10"			50	86	61		58		255	60	
Jacobsen & O'Rourke	87.6L	1-10"				NO DIVERSION							
Swinford Tract Irrigation Co.	87.7R	1-12"		131	100	55	122		89		497	147	
Edward K. Lang	88.0R	1-6"			8	8	8			9	33	18	
Nagel & Locovitch	88.2L	1-10"				22	46	13			81	45	
W. D. DeJarnett (4)	88.7L	1-14"		206	157	196	256	188	88	80	1171	171	
Colusa Irrigation Co.	89.2R	1-20"		14	472	763	184	170	101		1704	650	
Phil B. Arnold	89.25L	1-8"				97	85	68			250	75	
G. A. Berkey	89.26L	1-12"				220	226				446	100	
WILKINS SLOUGH TO COLUSA													
Totals			689	48187	85228	76255	86462	75599	32512	733	405665	32591	32161
Average cubic feet per second			11	810	1386	1280	1406	1230	546	12	828		
Monthly use in per cent of seasonal			0.2	11.9	21.0	18.8	21.3	18.6	8.0	0.2			
--COLUSA BRIDGE & GAGING STATION - MILE 89.4--													
Lillian & Hattie Boggs	89.7L	1-6"				NO DIVERSION							
Roberts Ditch Company	90.7R	2-20"		249	300	450	479	450	209	140	2277	900	
Paul R. Westfall	91.1L	1-8"					27	20			47	(5) 120	
I. G. Zumwalt	91.6R	1-12"				168					168	125	
George P. Ahlf	92.5L	1-8"				51	106	25			182	155	
Paul R. Westfall	93.0L	1-8"				40					40	(6)	
Brown Ranch	93.0R	1-12"				57		68			125	25	
Paul R. Westfall	93.4L	1-8"							64	39	103	(6)	

(1) Formerly listed as Wonderly and Lilienthal.
(2) Formerly listed as George W. Kirkpatrick Estate.
(3) Includes 23 acres of orchard on Kirkpatrick lands.
(4) Formerly W. D. DeJarnett Estate.
(5) Includes Mile 91.1L, Mile 93.0L and Mile 93.4L.
(6) See plant at Mile 91.1L.

(4) Formerly W. D. DeJarnett Estate.
(5) Includes Mile 91.1L, Mile 93.0L and Mile 93.4L.

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.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
Tuttle Land Co.	94.3R	1-15"											
		1-20"		50	230	266	194	180	145	59	1124	(1) 257	
W. D. DeJarnett (2)	94.6R	1-12"				NO DIVERSION							
Capital Company	94.8R	1-12"				NO DIVERSION							
George W. Lewis (3)	95.6L	1-16"											
		1-20"		392	1702	1280	1216	1149	405		6144		576
Bridget Graham Estate	95.8L	1-16"				NO DIVERSION							
I. G. Zumwalt	96.8L	1-15"				340	320			360	1020	300	
H. Heitman	97.7R	1-12"					29	15	5		49	20	
Frank N. Beckley	98.0L	1-10"			10	34	48	65	66		223	89	
J. L. Erisey	98.3R	1-10"				35	65	24			124	96	
R. A. Sperry & Colusa Dev. Co.	98.6L	1-15"		60	819	594	672	613	347		3105	(4) 52	(5) 385
D. Boggs	98.8L	1-18"				27	55	10			92	55	
B. H. Mitchel Estate (6)	99.0R	1-14"			64	46	25				135	80	
Cheney Slough Irrig. Co.	99.0R	2-26"											
		1-36"				NO DIVERSION							
J. P. Boggs	99.1L	1-10"		250	347	298	384	346	267		1892	35	120
Terrill & Sartain	99.2L	1-20"		800	1106	1059	1142	1034	629		5770	22	600
L. W. Seavers (6)	99.3R	1-10"											
		1-14"		300	391	176	151	95	70	25	1208	152	
Helen Forry (7)	99.8L	1-16"			26	23	30	20			99	39	
R. C. Wolfrom (Gillenwater)	101.1R	1-20"			66	95	132	128	99		520	140	
Clara C. Packer	102.8R	2-18"											
		2-30"			57	114	121	110	81		483	600	
		1-36"											
Charles W. Welch	103.7R	1-16"		250	739	743	803	715	396		3646	60	400
Compton-Delevan Irrigation Dist.	103.8R	2-24"											
		1-36"				NO DIVERSION							
C. W. Tuttle	103.9R	1-16"											
		1-20"		270	852	622	744	815	568	33	3904		550
I. G. Zumwalt	104.8L	1-12"				155	54	106			315	147	
Thousand Acre Ranch (H. W. Keller)	106.0R	1-14"			84	92	61	31			268	175	
Capital Company	110.0R	1-12"				23	80			58	161	175	
Capital Company (8)	111.2R	1-6"				15	15			10	40	27	
--PRINCETON FERRY - MILE 112.0--													

(1) Includes 25 acres on DeJarnett lands and 6 acres on Brown Ranch.
(2) Formerly listed as W. D. DeJarnett Estate.
(3) Formerly listed as A. N. Lewis.
(4) Also received water from pump at Mile 98.8L.
(5) This acreage is on adjoining easterly lands.
(6) New installation 1944.
(7) Formerly listed as Dave George.
(8) Reinstallation at old point of diversion.

TABLE 98 (CONTINUED)

DIVERSIONS AND ACREAGE IRRIGATED - SACRAMENTO RIVER - 1944

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.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
Reclamation District #1004	112.1L	2-30"											
		1-50"		4100	8000	9693	9356	9088	3100	453	43790	384	(1)3112
Princeton-Codora-Glenn Irr. Dist.	112.4R	3-24"				NO DIVERSION							
I. G. Zumwalt	112.6L	1-10"				103	35				138	213	
Edward L. Steele Estate	115.5L	1-12"			24	12	10	17			63	35	
COLUSA TO BUTTE CITY													
Totals			0	6721	14817	16611	16354	15124	6451	1177	77255	4478	5743
Average cubic feet per second			0	113	241	279	266	246	108	19	159		
Monthly use in per cent of seasonal			0	8.7	19.2	21.5	21.2	19.6	8.3	1.5			
--BUTTE CITY GAGING STATION - MILE 115.8--													
R. H. Gebicke	115.85L	1-14"						43		9	52	100	
--BUTTE CITY FERRY - MILE 115.9--													
Butte City Ranch (Linville)	115.9R	1-10"				NO DIVERSION							
Butte City Ranch	116.7R	1-10"				NO DIVERSION							
R. H. Gebicke	116.9L	1-12"				NO DIVERSION							
Robert T. Miller (2)	122.3R	1-10"				30	30				60	35	
C. T. White (C. Reed)	123.7R	1-6"				NO DIVERSION							
Howard Leach (3)	123.8R	(4)1-3"											
		1-5"					1	1			2	5	
Princeton-Codora-Glenn Irr. Dist.	123.9R	3-24"		270	939	1636	1040	321			4206	(5)	(5)
Provident Irrigation District	124.2R	1-36"											
		(6)4-42"		150	1576	724	3770	1198			7418	(5)	(5)
Capital Company (Shelloe Ranch)	124.4R	1-16"				NO DIVERSION					(7)	(7)	
Capital Company (Leonard Ranch)	126.3R	1-12"				NO DIVERSION					(7)	(7)	
F. S. Reager	130.75R	1-6"				NO DIVERSION							
--ORD FERRY - MILE 130.8--													
M. & T. Inc., & Parrott Inv. Co.	141.5L	5-24"			358	938	2350	2374	1300	1240	(8) 8560	(9)4315	(9)1725
--OLD CHICO LANDING RAILROAD BRIDGE SITE - MILE 142.1--													
Alemeda Putney	143.8L	1-6"				NO DIVERSION							
Edward Fiero	146.9L	1-6"				NO DIVERSION							
C. C. Dunning	148.9R	1-10"				65	51	48	46		210	70	

(1) Drain water from rice also used to supplement water diverted from Butte Creek for lands served from Butte Creek.
(2) New installation 1944.
(3) Formerly listed as S. Taylor.
(4) Only 3" pump operated in 1944.
(5) This diversion is used to supplement diversion of District at Mile 154.8R.
(6) One 42" pump only operated in 1944.
(7) See plant at Mile 154.8R.
(8) This diversion is supplemented by water from Butte Creek.
(9) Acreage divided as follows: M. & T. Inc., Rice 775, General Crops 1315. Parrott Investment Company, Rice 950, General Crops 3000.

TABLE 98 (CONTINUED)

DIVERSIONS AND ACREAGE IRRIGATED - SACRAMENTO RIVER - 1944

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.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
--GIANELLA BRIDGE - MILE 149.5--													
Capital Company	150.0L	1-10"				30	32	39	10		111	60	
V. G. Strain (1)	150.8R	1-12"											
		1-16"		132	120	381	435	270	280	97	1715	465	
A. Holecek	152.2R	1-6"			3	13	29	38	16		99	46	
Maas Bros.	154.6R	1-5"				10	12	12	11	5	50	9	
Glenn-Colusa Irrigation District	(2)154.8R	2-30"											
		1-42"											
		2-50"											
		2-66"											
		4-72"											
		1-100"		49081	89238	88385	94734	94203	58425	33628	(3)507694 (5)	(4)24335	36227
Jacinto Irrigation District	154.8R	(6)		1934	3838	4374	5256	4612	4017	704	24735	7079	
Compton-Delevan Irrigation District	154.8R	(6)		2023	5940	6476	6764	6764	2102		30069		5117
Provident Irrigation District	154.8R	(6)		9880	10038	8136	8392	7581	4276	313	(7)48616	(8)1107	(8)7582
Princeton-Codora-Glenn Irr. District	154.8R	(6)		3001	15929	13218	15059	14610	8834	1989	(9)72640	2243	4618
Maxwell Irrigation District	154.8R	(6)		813	1220	1785	2152	2152	714		8836		744
Capital Company (Shelloe Ranch)	154.8R	(6)									(10)	90	
Capital Company (Leonard Ranch)	154.8R	(6)									(10)	235	
Parrott Investment Company (11)	154.8R	(6)									(10)	150	607
I. G. Zumwalt	154.8R	(6)				NO DIVERSION							
Johathan Garst	161.7L	(12)1-12"				27	147	58			232	160	
--CORNING-VINA BRIDGE - MILE 166.5--													
E. L. Dietz (13)	166.7R	1-3"					5	7	6		18	8	
Guy Whitnack (Mrs.)	166.8R	1-2"				1	2	2	2		7	4	
--TEHAMA BRIDGE - MILE 177.5--													
E. B. Noble	184.5R	1-14"				NO DIVERSION							

(1) Formerly listed as Holly Sugar Corporation.
(2) This is common point of diversion for Glenn-Colusa, Jacinto, Compton-Delevan, Provident, Princeton-Codora-Glenn and Maxwell Irrigation Districts; and the Capital Company and Parrott Investment Company.
(3) Includes water from Stony Creek (acre-feet): April 3174, May 1785, and includes water to the following: Capital Company (124.4R) - 154.8R, 90 acres general crops; Capital Company (126.3R) - 154.8R, 235 acres of general crops. Parrott Investment Co., 154.8R--607 acres of rice, 150 acres of general crops.
(4) Includes 1930 acres of duck lakes.
(5) An additional 3100 acre-feet pumped in November.
(6) Same plant as that of Glenn-Colusa Irrigation District.
(7) District operates plants on Colusa Trough and Sacramento River (Mile 124.3R) to supplement this diversion.
(8) Includes lands outside of district--Rice 1275 acres, General Crops 33 acres.
(9) Supplementary water received from plant on Sacramento River at Mile 123.9R.
(10) Diversion included in figures reported for Glenn-Colusa Irrigation District, Mile 154.8R.
(11) Formerly listed as Mills Orchards.
(12) This 12" unit replaces 2-16" units installed at this point of diversion in 1943.
(13) Formerly listed as A. F. Landis.

TABLE 98 (CONTINUED)

DIVERSIONS AND ACREAGE IRRIGATED - SACRAMENTO RIVER - 1944

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.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
Coneland Water Company	187.6L	1-12"				NO DIVERSION							
L. C. Brooks	188.6L	1-8"				NO DIVERSION							
--RED BLUFF BRIDGE - MILE 193.45--													
G. E. Sutton	196.2R	1-3"				NO DIVERSION							
J. Keithdriber	196.5L	1-2½"				1	1	1	1	1	5	2	
S. & E. Erickson	196.6L	1-5"	4	20	18	20	53	5	35	5	160	32	
A. M. Alemeida (1)	197.0L	1-8"		10	65	65	116	72	27		355	64	
C. Droz	197.65L	1-3"				PLANT REMOVED							
BUTTE CITY TO RED BLUFF													
Totals			4	67314	129282	126315	140431	134411	80102	37991	715850	40614	56620
Average cubic feet per second			--	1130	2100	2120	2280	2186	1350	618	1473		
Monthly use in per cent of seasonal			--	9.4	18.1	17.6	19.6	18.8	11.2	5.3			
--RED BLUFF GAGING STATION (IRON CANYON) - MILE 198.6--													
C. C. Budd	206.75L	1-10"				NO DIVERSION							
--BEND FERRY BRIDGE - MILE 207.0--													
James Drennon	209.0L	1-2½"				NO DIVERSION							
J. F. Nunes	213.0R	1-7"					44	36	60	10	150	42	
F. L. Jelly	213.5L	1-3"				NO DIVERSION							
J. F. Nunes	216.0R	1-3"									(2)	(2)	
W. A. Hunaeus	216.4L	1-3"					3	2	2	1	8	6	
Haakonson Bros.	217.5L	1-3½"			47	36	34	1	2		120	74	
J. L. Haskins	218.0L	1-5"				57	52	27	18	12	166	50	
Rio Alto Rancho	221.0R	1-10"	50		66	127	141	195	90	35	704	415	
--BALLS FERRY BRIDGE - MILE 224.5--													
--ANDERSON BRIDGE - MILE 232.9--													
L. C. Smith	233.0L	1-6"				NO DIVERSION							
Menzel Estate	240.2L	1-12"			163	170	425	280	277		1315	200	
Anderson-Cottonwood Irr. District	(3)240.5L	(4)3-16"											
		1-24"			1968	2378	2460	3010	3359	1550	(5) 14725	(6)	

(1) Formerly listed as C. Droz.
(2) Domestic use only.
(3) Mileage correction.
(4) Two 16" pumps were added in 1944.
(5) Supplementary water to plant at Mile 246.0R.
(6) See plant at 246.0R.

DIVERSIONS AND ACREAGE IRRIGATED - SACRAMENTO RIVER - 1944

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.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
Jack Graf	241.5L	1-8"				NO DIVERSION							
--REDDING-ALTURAS FREE BRIDGE - MILE 242.0--													
-- REDDING-YREKA BRIDGE - MILE 245.9--													
Anderson-Cottonwood Irrigation District	246.0R	Gravity		5216	22774	22452	22954	21372	20596	21012	136376	(1)14513	
--SOUTHERN PACIFIC RAILROAD CROSSING - MILE 246.25--													
Isabell & Maybell Diestelhorst (2)	246.3R	1-10"			28	37	47	40	7		159	24	
--OLD REDDING-YREKA BRIDGE - MILE 246.4--													
City of Redding	246.7R	2-6"	107	86	190	172	325	301	249	150	1580	Municipal	
RED BLUFF TO REDDING													
Totals			157	5302	25236	25429	26485	25264	24660	22770	155303	15324	0
Average cubic feet per second			3	89	410	428	430	412	414	370	320		
Monthly use in per cent of seasonal			0.1	3.3	16.3	16.5	17.0	16.3	15.9	14.6			
TOTAL DIVERSIONS - SACRAMENTO TO REDDING													
Totals			3236	155666	310227	305633	338429	318184	180858	65917	1678150	111871	122243
Average cubic feet per second			57	2615	5044	5133	5502	5174	3043	1072	3452		
Monthly use in per cent of seasonal			0.2	9.3	18.5	18.2	20.2	19.0	10.8	3.8			

(1) Includes acreage at Mile 240.5L.
(2) Formerly listed as John Diestelhorst.

T-98-13

TABLE 99

DIVERSIONS AND ACREAGE IRRIGATED -*COLUSA TROUGH - 1944

Water User	**Mile and Bank	Number and size of pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated		
			Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice	Gun Club
--COLUSA TROUGH GAGING STATION - MILE 0--														
I. G. Zumwalt	2.2L	1-12"												
		(1)1-15"												
		1-20"		1106	1530	1460	1643	1650	160		7549		1300	
I. G. Zumwalt (2)	2.3L	1-12"			127	130	296	193	49		795	300		
J. H. Cave	(3) 2.7R	(4)1-12"					237	140	214	53	644			320
Capital Gun Club (Frank Ford)(2)	(5) 2.7R	2-12"				293	184	196	396	154	1223			320
Colusa Outing Club (2)	(5) 2.7R	1-16"						167	270	123	560			600
Buffem & Seaver	3.0L	(6)2-16"		216	872	865	1062	1095	314		4424		570	
Wierdsma Bros.	4.5L	1-12"				NO DIVERSION								
Maxwell Irr. Dist. (Plant 2A)	(7) 7.0R	1-15"												
		1-26"				NO DIVERSION								
Maxwell Irr. Dist. (Plant 3A)	(8)Opp.7.0R	(9)1-15"			351	577	495	540	476	346	2785	(7)	(7)	
S. Ashe	7.65R	1-10"				NO DIVERSION						(7)	(7)	

* Main drain of Reclamation District #2047.
** Mileage along Colusa Trough above Colusa-Williams Highway.
(1) The 15" pump was the only one operated in 1944.
(2) New installation in 1944.
(3) The location of this plant has been changed from 2.95R to 2.7R.
(4) One 12" pump was removed in 1944.
(5) Located on drain opposite Mile 2.7R.
(6) Replaces 2-14" pumps installed at this location in 1943.
(7) See Maxwell Irrigation District diversion at Sacramento River Mile 154.8R.
(8) Plant is on Lateral E (Stone Corral Creek) and is 3/4 mile west of Plant 2A (Mile 7.0R).
(9) Replaces 20" pump installed at this location in 1943.

TABLE 99 (CONTINUED)

DIVERSIONS AND ACREAGE IRRIGATED - *COLUSA TROUGH - 1944

Water User	**Mile and Bank	Number and size of pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated		
			Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice	Gun Club
S. Ashe	8.0L	1-20"			543	592	680	715	264		2794		190	
J. B. Hower and Sadie Ashe (1)	8.0R	1-15"			693	218	554	670	317		2452		480	
El Dorado Sportsman's Club	9.5R	1-15"				NO DIVERSION								
M. A. Rourke Estate	10.5L	1-20"		120	498	580	618	480			2296		300	
Provident I.D. (Delevan Pump)	(2)Opp.13.5R	1-20"		289	755	1250	1173	1400	295		5162	(3)	(3)	
--LATERAL HIGHWAY - BUTTE CITY TO WEST SIDE - MILE 20.5--														
Provident I.D. (Willow Creek Plant)	(4)Opp.20.5R	1-24"												
		1-36"			969	1300	1847	2312	737		7165		(3)1487	
Henry Jameson Estate	22.0R	1-18"			246	200	199	170	172		987		(5)160	
Provident I.D. (Drain 55)	(6)Opp.24.2R	Gravity		288	1838	1845	2594	2666	2380	350	11961	(3)	(3)	
Provident I.D. (Drain 13)	(7)Opp.27.0R	(8)1-24"		208	590	585	620	620	293		(3) 2916	(3)	(3)	
Totals			0	2227	9012	9895	12202	13014	6337	1026	53713	300	4487	1240
Average cubic feet per second			0	37	146	166	198	212	106	17	110			
Monthly use in per cent of seasonal			0	4.1	16.8	18.5	22.7	24.2	11.8	1.9				

* Main drain of Reclamation District #2047.
** Mileage along Colusa Trough above Colusa-Williams Highway.
(1) Formerly listed as Chas. W. Welch.
(2) Plant is on Hunter Creek at SW corner Section 36, T. 18 N., R. 3 W.
(3) See Provident Irrigation District diversion at Mile 154.8 on Sacramento River.
(4) Plant is on Willow Creek at SW corner NE¼ Section 33, T. 19 N., R. 2 W.
(5) Acreage estimated.
(6) Works are on Drain #55 and are in SW¼ NW¼ Section 86, Glenn Ranch survey.
(7) Works are on Drain #13 and are in SW¼ SW¼ Section 51, Glenn Ranch survey.
(8) Replaces 15" pump installed at this location in 1943.

TABLE 100

DIVERSIONS AND ACREAGE IRRIGATED -*BACK BORROW PIT - 1944

Water User	**Mile and Bank	Number and size of pump	Monthly Diversions in Acre-Feet Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Total Diversion March to October Acre-Feet	Acreage Irrigated General	Rice
River Farms Company (1)	0.3L	(2)1-10" 1-16"			1600	2823	2183	2217	657		9480		1430
--KNIGHTS LANDING RIDGE CUT JUNCTION - MILE 0.4R--													
River Farms Company (1)	1.45R	1-16"				NO DIVERSION							
W. Crawford	4.35R	1-20"			825	1055	1045	1100	666		(3) 4691		
George E. Youngmark	8.8R	1-14"			808	657	707	473	305		2950		490
Hershey Estate	11.15R	(4)2-14"			618	550	602	381	234		2385		500
Hershey Estate	13.75R	(5)1-16"			577	732	769	558	251		2887		400
C. M. Mumma	14.75R	1-10"			114	88	88	87	39		416	120	440
--COUNTY LINE BRIDGE - MILE 15.25--													80
M. T. Emmert (Hughes & McCullough)	15.75R	1-15"				NO DIVERSION							
Kate West (Hughes & McCullough)	18.1R	2-15"			606	441	549	463	180		2239		300
C. R. Suggett(H.B. and D.L. West)	20.0R	1-15"				NO DIVERSION							
--RECLAMATION DISTRICT 108 GRAVITY DRAIN - MILE 20.2L--													
Gregory Estate (G. W. Knox, Jr.)	21.35R	1-16"				NO DIVERSION							
Bean and Brandenburg	22.15R	1-14"				NO DIVERSION							
A. B. Armstrong	22.65L	1-24"				NO DIVERSION							
--HANNUM BRIDGE - MILE 22.8--													
--SOUTHERN PACIFIC RAILROAD CROSSING - MILE 23.0--													
H. H. Balsdon	24.6L	(6)1-16" 1-20"			869	1185	1263	1271	185		4773	725	460
A. M. Dobrowsky (Moore)	24.7L	1-8"					69	105	14		188	120	

* Carries return water from Colusa Basin along west border of Reclamation Districts 108 and 787 and thence to discharge to Sacramento River at Knights Landing or partial diversion via Knights Landing Ridge Cut.

** Mileage along Borrow Pit from outfall gate just above junction of Borrow Pit with Sacramento River at Knights Landing.

(1) This plant serves some of the land formerly served by Sacramento River plant Mile 34.25R.

(2) This unit installed in 1944.

(3) An additional 70 acre-feet in September and 383 acre-feet in October and November diverted for gun clubs.

(4) The 12" pump listed at this location in 1943 has been replaced by new 14" pump in 1944.

(5) Reinstallation at old point of diversion.

(6) New installation in 1944.

TABLE 100 (CONTINUED)

DIVERSIONS AND ACREAGE IRRIGATED -* BACK BORROW PIT - 1944

Water User	**Mile and Bank	Number and size of pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
--GRIMES-COLLEGE CITY CAUSEWAY -(SOUTH LINE OF RECLAMATION DISTRICT 2047) - MILE 25.5--													
Fred Schutz	25.9L	1-16"			3408	1695	1836	1901	327		9167		1100
		1-20"											
C. W. and M.F. Struckmeyer (Scarlett)	27.25L	1-16"		1372	1672	1560	1375	1242	520		7741		(1)1132
		1-20"											
Wallace Ranch (Geo. Knox, Jr.)	28.0R	2-12"			701	840	1045	897	406		3889		(2) 610
--WALLACE CROSSING - (OLD MERIDIAN-WILLIAMS BRIDGE) - MILE 29.2--													
A. Davis Estate (Wilkins & Hornell)	33.0R	1-20"		483	967	933	920	950	298		4551		(3) 600
Mrs. Belle Moore (Olvey)	33.9L	(4)1-10"			264	660	680	680	637		2921		(5) 300
		(4)1-18"											
W. H. O'Hair	36.65R	(6)1-15"			606	1600	995	892	500		(7)4593		775
		1-20"											
W. H. O'Hair	37.0L	1-15"			470	667	611	634	504		2886		400
--COLUSA-WILLIAMS HIGHWAY - GAGING STATION - MILE 37.0--													
Totals			0	1855	14105	15486	14737	13851	5723		65757	965	9017
Average cubic feet per second			0	31	229	260	240	225	96		135		
Monthly use in per cent of seasonal			0	2.8	21.4	23.6	22.4	21.1	8.7				

* Carries return water from Colusa Basin along West Border of Reclamation Districts 108 and 787 and thence to discharge to Sacramento River at Knights Landing or partial diversion via Knights Landing Ridge Cut.

** Mileage along Borrow Pit from outfall gate just above junction of Borrow Pit with Sacramento River at Knights Landing.

(1) Includes 160 acres on Sackreider lands and 295 acres on Brown lands.
(2) Includes 200 acres on Davis lands.
(3) Includes 300 acres on Jacobson lands.
(4) Replaces 12" unit installed at this location in 1943.
(5) Includes 100 acres on Davis lands.
(6) New unit installed in 1944.
(7) An additional 235 acre-feet in October for duck club lands.

TABLE 101

DIVERSIONS AND ACREAGE IRRIGATED - KNIGHTS LANDING RIDGE CUT - 1944

Water User	*Mile and Bank	Number and size of pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
Lawrence Raymond	0.1R	1-5"	NO DIVERSION								7157		850
Meek Estate (E. L. Wallace)	0.8R	1-20"		678	1345	1434	1846	1570	284		4170	215	230
M. R. Richardson (Dettling Bros.)	0.82L	1-14"		210	930	900	930	930	270		4551		350
--RECLAMATION DISTRICT 730 DRAIN PLANT #2 - MILE 3.8--													
Kenneth Lowe (Dettling Bros.)(1)	4.5R	1-20"		987	465	450	977	1140	532		2047	60	200
Ralph W. Pollock (Dettling Bros.)	4.55L	1-12"			731	330	363	384	239				
Hershey Estate (Darneille)	4.7L	1-15"	NO DIVERSION										
Sieber Bros.	4.7R	1-6"					16		15	15	46	30	
--WEST LEVEE YOLO BY-PASS - MILE 6.3--													
Henry Rich (2)	6.3R	Gravity			900	1100	1300	1300	900		5500		950
E. L. Wallace (2)	6.3R	Gravity			600	750	870	870	610		3700		650
Totals			0	1875	4971	4964	6302	6194	2850	15	27171	305	3230
Average cubic feet per second			0	31	81	83	102	101	48	0.2	56		
Monthly use in per cent of seasonal			0	6.9	18.3	18.3	23.2	22.8	10.5	--			

* Mileage is given downstream from head of Colusa Trough. Flow is principally Colusa Basin drainage diverted to the Ridge Cut by checking at the Knights Landing outfall gates on the Back Borrow Pit of Reclamation District 787. See Table 27.

(1) New installation 1944.

(2) Formerly listed as Frank Fisher, Henry Rich and E. L. Wallace.

DIVERSIONS AND ACREAGE IRRIGATED - YOLO BY-PASS (EAST BORROW PIT OR TULE CANAL) - 1944 (1)

Water User	Mile and Bank	Number and size of pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-feet	Acreage Irrigated		
			Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.		General	Rice	Gun Club
	(1)													
Robert Swanston	1.8S	1-16"				NO DIVERSION								
Robert Swanston (2)	0.7S	1-12"					39	52	39		130	100		
--NORTH LEVEE SACRAMENTO BY-PASS - RECORDING GAGE - MILE 0.0--														
Robert Swanston	1.8N*	1-20"		284	496	1181	1407	1285	875		(3)5528		1000	
California Packing Corporation	2.4N	1-20"						192	210	21	423	715		
California Packing Corporation	3.4N	1-8"						56	56		112	420		
Smith and Roberts	5.9N	1-14"				NO DIVERSION								
--SACRAMENTO-WOODLAND HIGHWAY - MILE 6.18--														
--SACRAMENTO-WOODLAND RAILROAD CROSSING - MILE 6.2--														
Julius Hauser (Newman)	7.0N*	1-14"				NO DIVERSION								
--RECLAMATION DISTRICT 1600 DRAINAGE PLANT - MILE 10.0--														
Frank Fisher & Henry Rich	10.0N*	1-18"				NO DIVERSION								
Frank Fisher & Henry Rich	10.1N*	Gravity				NO DIVERSION								
E. L. Wallace (C. A. Hershey)	10.1N*	Gravity				NO DIVERSION								
Totals				284	496	1181	1446	1585	1180	21	6193	1235	1000	
Average cubic feet per second				4.8	8.1	19.8	23.5	25.8	19.8	.3				
Monthly use in per cent of seasonal				4.6	8.0	19.1	23.4	25.6	19.1	.2				

* Asterisk indicates land irrigated is in By-Pass area.
(1) 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 (Table 27).
(2) Reinstallation at old point of diversion.
(3) Additional water from Conaway drainage canal.

TABLE 103

DIVERSIONS AND ACREAGE IRRIGATED -- LOWER BUTTE CREEK AND BUTTE SLOUGH - 1944

Water User	*Mile and Bank	Number and size of pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated		
			Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice	** Gun Club
Lower Butte Creek														
--SACRAMENTO RIVER JUNCTION - MILE 0--														
Reclamation District #833	1.5L	1-8"				NO DIVERSION								
Reclamation District #833	2.9L	1-36" box				100	670	652			1422	600		
West Butte Farms Co.	3.85L	(1) 1-20"				20	134	137			291	450		
Reclamation District #1004	3.9R	1-24"				NO DIVERSION								
Butte Lodge Outing Club	4.0R	1-22"				NO DIVERSION								
El Anzar Duck Club	5.35L	1-12"				7	62				69	85		
Reclamation District #1004	9.3R	Gravity			1300	1100	930	1284	1500	1970	8084	600	900	
Butte Basin Gun Clubs	10.0L	Gravity							6000	9000	15000			5000
White Mallard Duck Club	(2) 10.2R	1-36" box				NO DIVERSION (2)								
White Mallard Duck Club	(3) 13.1R	1-12" box			44	22	19				85	50		
White Mallard Duck Club	(3) 13.2R	1-24" box			552	337	452	480	215		2036		300	
Murdock Land Company	14.4R	1-12"				NO DIVERSION								
--GRIDLEY ROAD - MILE 15.4--														
Murdock Land Company	19.3R	1-14"		49	94	48	117	126	105	42	581	125		
--BIGGS-AFTON ROAD - MILE 19.4--														
Glenn Rice Farms	20.4L	1-24"				NO DIVERSION								
Harry McGowan (4)	20.9R	1-16"		144	173	204	240	244	117		1122		130	
Harry McGowan (4)	21.0R	1-16"		128	368	680	414	656	350		2596		300	
Glenn Harris	Opp. 21.4R	(5) 1-14"		32	217	210	217	217	91		984		130	
--RICHVALE-BUTTE CITY ROAD - MILE 22.5--														
McGowan Ranch (4)	23.0R	1-20"				NO DIVERSION								

* Approximate mileage from junction with Sacramento River.

** Only diversions which occurred prior to November 1 are given for gun club acreage. In most instances diversions for this purpose extended into November and December.

(1) New installation at old point of diversion.

(2) No diversion at this point in 1944. See Miles 13.1R and 13.2R.

(3) New installation in 1944.

(4) Formerly listed as Elefante and McGowan.

(5) Previously listed as 16" pump.

DIVERSIONS AND ACREAGE IRRIGATED - LOWER BUTTE CREEK AND BUTTE SLOUGH - 1944

Water User	*Mile and Bank	Number and size of pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated		
			Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice	**Gun Club
Butte Slough														
Butte Slough Irrigation Co. Ltd. (Diversion to Sutter By-Pass)	0.3W	Gravity									(1)	(2)		
M. Marty	0.3W	1-12"			38	97	44	60	45	20	304	114		
G. S. and D. C. Smith	1.4E	1-8"				20	108	99	20		247	140		
--MAWSON BRIDGE - MILE 2.1--														
J. E. Smith	3.0W	1-10"				30	32	41	30		133	122		
I. E. Nall	3.5W	1-10"				10	20	32	40	5	107	55		
P. A. Reische	3.7W	1-10"					21	8			29	47		
Granniman & Feiths (3)	4.08W	1-6"					3	1			4	6		
P. A. Reische	4.1W	1-10"				10	95	70	50		225	154		
E. V. Jacobs	4.8W	1-10"					43	20	3		66	70		
Hensen, Jacobs and Locovitch (4)	5.1W	1-12"				49	90	80	50		269	111		
T. J. Hageman	6.8W	3-8"					9		6		15	25		
--OLD LONG BRIDGE - MILE 7.5 WEST--														
Totals (Lower Butte Creek and Butte Slough)			0	353	2786	2944	3720	4207	8622	11037	33669	2754	1760	5000
Average cubic feet per second			0	6	45	49	60	68	145	180	69			
Monthly use in per cent of seasonal			0	1.0	8.3	8.8	11.0	12.5	25.6	32.8				

* Approximate mileage from junction with Sacramento River.

** Only diversions which occurred prior to November 1 are given for gun club acreage. In most instances diversions for this purpose extended into November and December.

(1) Butte Slough Irrigation Company maintains a dam on Butte Slough just above its junction with Sacramento River and thereby diverts water via Butte Slough to East and West Borrow Pits of Sutter By-Pass near "Long Bridge". The total water so diverted is shown in Table 30. See Sutter By-Pass Diversions, Table 104.

(2) See acreages under rediversions - West Borrow Pit Sutter By-Pass. A considerable additional but indefinite acreage was served by sub-irrigation and direct diversions from flow diverted to East Borrow Pit of Sutter By-Pass which is joined by Feather River return flow entering via Wadsworth Canal, Table 31. See East Borrow Pit Sutter By-Pass Diversions, Table 104.

(3) New installation 1944.

(4) Formerly listed as Armstrong, Hensen, Locovitch.

TABLE 104

DIVERSIONS AND ACREAGE IRRIGATED - SUTTER BY-PASS AND SACRAMENTO SLOUGH - 1944

Water User	Mile and Bank	Number and size of pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-feet	Acreage Irrigated		
			Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice	Gun Club
West Borrow Pit of Sutter By-Pass														
	(1)													
--SOUTHERN PACIFIC RAILROAD CROSSING - MILE 2.5--														
--KNIGHTS LANDING-MARYSVILLE CAUSEWAY - MILE 12.7--														
--SOUTH LEVEE TISDALE BY-PASS - MILE 18.9--														
--RECLAMATION DISTRICT 1660 GRAVITY RETURN - MILE 19.3--														
Sutter Basin Imp. Co. (Guisti)	23.7R	1-16"		727	1073	1038	1073	1073	346		5330		(2)627	
Butte Slough Irrig. Co., Ltd.	25.0R	Gravity		156	443	847	1370	1345	137		4298	(3)4492	(3)361	
Butte Slough Irrig. Co., Ltd.	28.4R	Gravity		1667	2153	1869	2055	2577	1253		11574	(3)	(3)	
Fred Tarke	(4)28.6R	1-12"				27	121	121			269	74		
Frye Brothers	(4)29.0R	1-7"					8				8	26		
--NEW COLUSA-MARYSVILLE HIGHWAY - MILE 29.1--														
--NORTHERN ELECTRIC RAILROAD CROSSING - MILE 29.15--														
East Borrow Pit of Sutter By-Pass														
	(5)													
R. E. Hughes	0.4S*	1-14"				NO DIVERSION								
--GAGING STATION "WILLOW SLOUGH AT CHANDLER" - MILE 0--														
R. E. Hughes	0.5N*	1-16"			200	234	110	106			650	350		
--RECLAMATION BOARD DRAINAGE PLANT #1 - MILE 1.4N--														
G. Guisti and Sons	(6)1.4N(0.3)	1-14"				NO DIVERSION								
G. Guisti and Sons	(6)1.4N(1.3)	1-10"				NO DIVERSION								
E. H. Christenson (Hale Ranch)	(6)1.4N(1.75)	1-15"		18	512	407	424	516	262		2139		400	
A. W. Kimerer	(6)1.4N(3.3)	1-14"				NO DIVERSION								
E. H. Christenson	(6)1.4N(3.3)	1-15"			184	451	1066	821	670		3192		200	
E. H. Christenson	(6)1.4N(4.0)	1-24"				NO DIVERSION								
R. E. Hughes #6	1.5N*	1-14"		28	465	473	663	697	257		2583		400	
R. E. Hughes	2.9N*	1-14"		33	391	411	410	410	117		1772	280	243	
R. E. Hughes	4.0N*	1-14"		48	617	666	573	602	224		2730		225	
--KNIGHTS LANDING-MARYSVILLE CAUSEWAY - MILE 4.4N--														

* Asterisk indicates area irrigated is within By-Pass area.
(1) Mileage is given northerly from drainage plant of Reclamation District 1500. Mile 9.15 West Borrow Pit is opposite Chandler
(2) Includes 427 acres on Guisti lands and 200 acres of land adjoining on the south.
(3) Combined acreage for plants at Mile 25.0R and Mile 28.4R.
(4) Reinstallation at old point of diversion.
(5) Mileage is given northerly or southerly from Chandler.
(6) Plant is on drain canal which enters By-Pass at this point. Figure in () indicates distance along drain from By-Pass.

DIVERSIONS AND ACREAGE IRRIGATED - SUTTER BY-PASS AND SACRAMENTO SLOUGH - 1944

Water User	Mile and Bank	Number and size of pump	Monthly Diversions in Acre-Feet: Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Total Diversion March to October Acre-Feet	Acreage Irrigated: General	Rice	Gun Club
East Borrow Pit of Sutter By-Pass (Continued)														
	(1)													
R. E. Hughes	4.5N*	1-14"		24	755	750	955	1023	440		3947		275	
Ira Mulligan	5.7N	1-16"				NO DIVERSION								
R. E. Hughes	5.9N*	1-14"			377	466	429	537	284		2093		400	
Ira Mulligan	7.1N	1-16"				NO DIVERSION								
O. O. Orrick (2)	7.1N	1-6"			298	538	624	503	202		2165		412	
		1-14"												
--RECLAMATION BOARD DRAINAGE PLANT #2 - MILE 10.0N--														
Spurgeon Gun Club	10.0N*	1-12"							196	231	(3) 427			250
--EAST LEVEE OF WADSWORTH CANAL - MILE 16.5N--														
--RECLAMATION BOARD DRAINAGE PLANT #3 - MILE 16.5N--														
F. A. Becker (2)	(4)16.5N(1.0R)	1-10"			187	276	276	267	187		1193		(5)120	
C. C. Epperson (Becker) (6)	(4)16.5N(1.1L)	1-10"			134	210	217	217	12		790		70	
Fred Betty (7)	(8) 16.5N	1-16" box					5	16	8		29	25		
Claire H. and H.C. Epperson	(8) 16.5N*	1-8" box			351	574	521	521	624		2591		300	
		1-26" box												
Meyer, Platter, Moorehead, DeWitt Bros., Epperson and Middleton	19.1N	1-14"				97	500	375			972	392		
--NEW COLUSA-MARYSVILLE HIGHWAY - MILE 19.98N--														
--NORTHERN ELECTRIC RAILROAD CROSSING - MILE 20.0N														
Sacramento Slough														
	(9)													
C. Fred Holmes	0.5R	1-8"			98		131	92	18		339		(10)270	
		1-12"												
C. Fred Holmes	1.4R	1-12"			277	443	457	479	358		2014		(10)	
Totals			0	2701	8515	9777	11988	12298	5595	231	51105	5639	4303	250
Average cubic feet per second			0	45	138	164	195	200	94	4	105			
Monthly use in per cent of seasonal			0	5.3	16.7	19.1	23.5	24.1	10.9	.4				

* Asterisk indicates area irrigated is within By-Pass area.
(1) Mileage is given northerly or southerly from Chandler. Chandler is opposite Mile 9.15 West Borrow Pit.
(2) New installation 1944.
(3) An additional 208 acre-feet diverted in November.
(4) Plant is on Wadsworth Canal which enters By-Pass at this point. Figure in () indicates distance up canal from By-Pass.
(5) Estimated acreage.
(6) Old installation newly listed.
(7) Old installation not previously listed.
(8) Plant is on Poodle Creek which enters By-Pass at this point. Mileage up Poodle Creek not established in 1944.
(9) Mileage is given easterly from drainage plant of Reclamation District 1500 which is at head of slough.
(10) This is combined acreage of plants at Miles 0.5R and 1.4R.

TABLE 105

DIVERSIONS AND ACREAGE IRRIGATED - FEATHER RIVER - 1944

Water User	Mile and bank above Mouth	Number and size of pump	Monthly Diversion in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
Sutter Basin Corporation (1)	0.6R	1-15"				211					211		(2)
Henry Rutz	1.55L	1-8"				24	44	24	12		104	59	
Sutter Basin Corporation	2.60R	1-20"			2487	2731	3416	3852	2055		14541		(3) 1324
		1-26"											
Johnston Bros. (1)	3.0L	1-8"			10	26	17	2	3		58		(4) 80
Ralph Taylor (5)	5.6L	1-10"			70	118	13	12			213	160	
Capital Company	6.44L	1-10"				40					40	35	
M. Scheibel	7.7L	1-10"			104	96	125	132	111	22	590	156	
--NICOLAUS GAGING STATION - MILE 9.3--													
--NICOLAUS BRIDGE - MILE 9.4--													
Bercut Richards Co.	9.75R	1-20"			3	360	360	251	40		1014	310	
Garden Highway Mutual Water Co.	13.1R	1-20"		90	3000	1890	2500	1810	1650	280	11220	(6) 1202	582
		1-24"											
Feather River Water Co.	16.35R	1-14"	49	74	9	158	175	58	61		584	153	
Plumas Mutual Water Co.	17.5L	1-22"		637	2540	2120	2500	2370	1831		11998	455	500
G. C. Shannon	18.75R	1-6"				66	67	47	5		185	85	
Oswald Water District	21.4R	1-16"		547	322	775	1000	903	612	450	4609	609	
Reclamation District #784	24.0L	1-20"				NO DIVERSION							
Nevada-California Lands Inc.	25.2R	1-10"				NO DIVERSION							
--MOUTH OF YUBA RIVER - MILE 27.3L--													
--YUBA RIVER - MARYSVILLE BRIDGE - MILE 28.0--													
J. L. Sullivan, Jr.	33.9R	1-10"		67	50	143	230	43			533	145	
Sutter Butte Canal Co. (Sunset Plant)	38.1R	1-26"			1216	2660	3753	3000	2268	2000	14897	(7)	(7)
		2-42"											
Matthew, Sullivan & Prindiville (8)	(9)43.7L(0.4L)	1-18"	156			330	136	79			701	301	
Thomas Matthew	(9)43.7L(0.7L)	1-5"				NO DIVERSION							
Moznett & Wetmore Sub. No. 1	(9)43.7L(1.2L)	1-10"		40	62	110	120	63			395	218	
Manuel A. Barba (Borges)	(9)43.7L(1.25L)	1-8"				NO DIVERSION							

(1) New installation 1944.
(2) See plant at Mile 2.60R.
(3) Acreage of this plant and one at Mile 0.6 combined.
(4) Also served from wells.
(5) Formerly listed as Frank Guastalli.
(6) An additional 245 acres on northerly Brown and Perrington lands.
(7) See plant at Mile 38.1R.
(8) Formerly J. L. Sullivan and J. Matthew.
(9) Plant diverts Feather River water backed into Honcut Slough. Slough is tributary to Feather River at Mile 43.7L.

DIVERSIONS AND ACREAGE IRRIGATED - FEATHER RIVER - 1944

Water User	Mile and bank above Mouth	Number and size of pump	Monthly Diversion in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
A. P. Barba	47.9L	1-12"				150	94	100	28		372	155	
E. F. Biggs	48.3L	1-10"			7	70	72				149	290	
Edward Dunning	49.0L	1-8"			10	60	60	50			180	(1) 115	
Clyne Ranch	51.0R	1-6"				16	53	25	2		96	(2) 43	
John Bettencourt & Son (3)	51.1L	1-7"			10	30	90	90	90		310	80	
Edward Steadman Orchards (4)	51.4R	1-10"				51	107	210	60		428	(5) 107	
J. F. Fratus	52.1L	1-10"			14	15	41	37	29	13	149	35	
Pfeister & Ingram (6)	52.5L	1-6"						22	10		32	40	
F. L. Morris	52.7L	1-8"			21	19	27	6	14		87	41	
Frank Dutra	52.9R	1-6"				NO DIVERSION							
Ruby Chambers	53.1R	1-6"				17	8	13	5		43	35	
Budh Singh Banes	54.7R	(7) 1-8"				PLANT REMOVED							
Hearst Estate	55.1L	1-14"			79	106	191	190	70		636	248	
Lena Phillips (8)	57.0L	1-7"					21	10			31	30	
Henry Hazelbusch	57.9R	1-9"			25	23	37	16			101	48	
Sutter Butte Canal Co.	(9) 58.1R	Gravity		16414	43359	40794	44906	41745	29922	17568	(10) 234708	(11) 14808	(11) 9751
Richvale Irrigation District	(9) 58.1R	Gravity		9646	25480	23973	26389	24532	17584	10323	137927	859	12511
Biggs-West Gridley Water Dist.	(9) 58.1R	Gravity		10134	26770	25187	27726	25774	18474	10846	144911	4138	6858
Western Canal Company	59.7R	Gravity		6143	25131	23837	27850	27664	10988	(12) 9245	(12) 130858	275	18237
--OROVILLE BRIDGE - MILE 65--													
--U.S.G.S. GAGING STATION - MILE 71--													
Totals			205	43792	130779	126206	142128	133130	85924	50747	712911	25235	49843
Average cubic feet per second			3.3	736	2127	2121	2312	2165	1444	825	1467		
Monthly use in per cent of seasonal			—	6.2	18.4	17.7	19.9	18.7	12.0	7.1			

(1) Also served by wells.
(2) Includes 13 acres served by this plant on Steadman lands - Mile 51.4R.
(3) Formerly listed as G. E. Porter.
(4) Formerly listed as Edward Steadman.
(5) An additional 13 acres served by plant at Mile 51.0R.
(6) Formerly listed as Capital Company.
(7) This unit now diverts from dredger cut that is not directly connected with river.
(8) Formerly listed as Mrs. Alvin Kister.
(9) This is a common point of diversion for the Sutter Butte Canal Company, Richvale Irrigation District and Biggs-West Gridley Water Districts. Diversions are reported separately. The Sutter-Butte Canal Company also operated a pumping plant at Mile 38.1R.
(10) In 1944 Sutter Butte Canal Company purchased 43,751 acre-feet of water from Pacific Gas & Electric Company which is included in this total.
(11) Also served from plant at Mile 38.1R.
(12) Includes 8805 acre-feet of water diverted for gun clubs in October.

TABLE 106

DIVERSIONS AND ACREAGE IRRIGATED - YUBA RIVER - 1944

Water User	*Mile and Bank	Number and size of pump	Monthly Diversion in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
--GAGING STATION "YUBA RIVER AT MARYSVILLE" (SEVENTH STREET BRIDGE) - MILE 0.9--													
Davis Bros.	1.6L	(1)1-10"				12	10	18			40	30	
Charles Schinkel (2)	1.8R	1-5"				2	6				8	12	
Marysville River Farms Co.	3.0L	1-10"						116			116	90	
Marysville River Farms Co.	3.0R	1-6"				NO DIVERSION							
Scott Hendricks (3)	4.1L	(4)1-12"				199	254	214	10		677	165	
Di Giorgio Fruit Corporation	4.75L	1-10"				NO DIVERSION							
Di Giorgio Fruit Corporation	5.3L	(5)1-8"				40	16	18			74	30	
Marysville River Farms Co.(Rubke)	5.9L	1-10"			9	4	78	29	28	16	164	130	
Hallwood Irrigation Company	11.0R	Gravity	532	3992	9854	11306	10522	9444	6377	5329	(6)57356	4084	900
Cordua Irrigation District	11.0R	Gravity	1133	3335	3994	4038	5900	5693	6896	3840	(7)34829	(8) 2468	1501
--DAGUERRE POINT DAM - MILE 11.0--													
Yuba Consolidated Gold Field Co.	14.5L	Gravity			NO AGRICULTURAL USE								
--GAGING STATION "YUBA RIVER BELOW NARROWS DAM" - MILE 20--													
Totals			1665	7327	13857	15601	16786	15532	13311	9185	93264	7009	2401
Average cubic feet per second			27	123	225	262	273	253	224	149	192		
Monthly use in per cent of seasonal			1.8	7.8	14.8	16.7	18.0	16.7	14.4	9.8			

* Approximate mileage along river above Highway "99" crossing at Marysville.
(1) Formerly listed as 12" pump.
(2) Formerly listed as Charles Shinkle.
(3) Formerly listed as Capital Company.
(4) Replaces 8" unit installed here in 1943.
(5) Formerly listed as 7" pump.
(6) An additional 3384 acre-feet in November and 1588 acre-feet in December for duck club lands.
(7) An additional 1500 acre-feet in November and 1512 acre-feet in December for duck club lands.
(8) Includes 1421 acres outside district.

TABLE 107

DIVERSIONS AND ACREAGE IRRIGATED - AMERICAN RIVER - 1944

Water User	Mile and Bank Above Mouth	Number and size of pump	Monthly Diversion in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
--GARDEN HIGHWAY BRIDGE - MILE 0.2--													
--AUBURN BOULEVARD BRIDGE (16TH STREET) - MILE 1.9--													
--SACRAMENTO-NORTHERN RAILROAD BRIDGE - MILE 2.0--													
--WESTERN PACIFIC RAILROAD BRIDGE - MILE 2.1--													
North Sacramento Lands Co.	2.4R	1-6"				NO DIVERSION							
North Sacramento Lands Co.	2.55R	1-5"						5			5	(1) 45	
North Sacramento Lands Co.	2.65R	1-7"				NO DIVERSION							
North Sacramento Lands Co. (2)	2.75R	1-5"				9	38	38	19	15	119	(1)	
G. A. Meister	3.1L	1-10"				PLANT REMOVED							
--SOUTHERN PACIFIC RAILROAD BRIDGE - MILE 3.5--													
G. A. Meister	3.7L	1-4"				PLANT REMOVED							
		1-6"											
G. A. Meister	4.1L	1-10"				PLANT REMOVED							
C. Swanston & Sons	4.2R	1-10"						27	34	18	79	40	
C. Swanston & Sons	5.3R	1-10"				NO DIVERSION							
C. Swanston & Sons	5.5R	1-6"				NO DIVERSION							
Carlson & Sanberg (3)	5.7L	1-10"				19	133	8			160	170	
--GAGING STATION - AMERICAN RIVER AT SACRAMENTO - MILE 6.1--													
E. Clemens Horst Co.	6.5R	1-6"				63	49				112	50	
S. H. Cowell	7.1L	1-7"				NO DIVERSION							
E. Clemens Horst Co.	7.5R	1-8"				77	58				135	100	
Haggin Hop Farm	7.8R	1-4"				21	28				49	50	
Hagginbottom Land Co.	8.05R	1-10"				NO DIVERSION							
J. H. Kerby	9.0L	1-6"				43	45	36			124	40	
Hagginbottom Land Co.	9.2R	1-12"				NO DIVERSION							
Collins Ranch	9.2L	1-8"				86	62	36	30		214	103	
Ruth Coleman (Mrs.)	9.35L	1-5"				NO DIVERSION							
Ruth Coleman (Mrs.)	9.5L	1-5"				NO DIVERSION							
Ruth Coleman (Mrs.)	9.55L	1-5"			42	42	41				125	63	
Henry Cowell	9.6L	1-6"				NO DIVERSION							

(1) Combined acreage that is served by plants at Miles 2.55R and 2.75R.
(2) Reinstallation at old point of diversion.
(3) Formerly listed as L. D. Carlson and J. Sanburg.

TABLE 107 (CONTINUED)

DIVERSIONS AND ACREAGE IRRIGATED - AMERICAN RIVER - 1944

Water User	Mile and Bank Above Mouth	Number and size of pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
Dr. J. E. Knauss & Dr. Reiner (1)	10.2R	1-5"				22	10				32	35	
Guy H. Roddan	10.3L	1-10"				NO DIVERSION							
Gold Nugget Orchard Co.	10.4R	1-5"				11	5				16	17	
Mucke Sand & Gravel Co.	11.2L	1-5"				NO DIVERSION							
J. T. Gore	11.5L	1-8"		6	10	30	92	83			221	55	
William A. Meyer	11.7L	1-4"				26	7				33	27	
A. Teichert & Sons	11.7L	1-5"				11	20	14			45	40	
A. Teichert & Sons	12.0L	1-4"				NO DIVERSION							
H. T. Danielson	13.1R	1-5"			1	2	5	4	3		15	11	
P. Osterli	13.2R	1-4"				18	30	44	4		96	49	
		1-6"											
Chas. Deterding, Jr., J.R. Deterding and M. McDonald	13.9R	1-6"					15	16			31	80	
Chas. Deterding, Jr., J. R. Deterding and M. McDonald	14.7R	1-4"				NO DIVERSION							
Chas. Deterding, Jr., J. R. Deterding and M. McDonald	15.1R	1-6"					28				28	30	
Carmichael Irrigation District	16.0R	1-6"			60	500	900	900	700	120	3180	(2)2200	
		2-12"											
Al. Goddard (3)	17.1R	1-6"				NO DIVERSION							
--GAGING STATION "AMERICAN RIVER AT FAIROAKS" - MILE 19.2--													
Totals			0	6	113	980	1566	1211	790	153	4819	3205	
Average cubic feet per second			0	—	1.8	16	25	20	13	2.5	9.9		
Monthly use in per cent of seasonal			0	—	2.4	20.4	32.5	25.1	16.4	3.2			

(1) Formerly listed as Dr. J. Kenarse.
(2) Classed as suburban lands. No details of irrigated acreages available.
(3) Formerly listed as William H. Devlin.

TABLE 108

DIVERSIONS AND ACREAGE IRRIGATED - OLD SAN JOAQUIN RIVER DELTA UPLANDS - 1944

Water User	*Mile and Bank	Number and size of pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-feet	Acreage Irrigated	
			Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
Contra Costa Canal	(1) 30.5L		624	633	697	1500	1970	1620	1350	1160	(2) 9554	(3)	(3)
Leo Foreman (4)	35.4L	1-16"		152	153	200	154	140	113	65	977	320	
East Contra Costa Irr. District	(5) 36.5L	2-18" 2-24" 2-30"	780	4450	5340	4630	5590	4780	2875	760	(6) 29205	13711	
Byron-Bethany Irr. District	(7) 40.9L	1-26" 1-30"	429	2223	2943	2077	2984	3257	2642	970	17525	5400	
Federal Land Bank	(8) 44.6L	1-7"				NO DIVERSION							
George Ray (9)	45.3L	1-12"				NO DIVERSION							
H. Lindeman & Son	(10) 47.2L	1-12"		61	61	120	200	94	82	55	673	(11) 321	
Gus Lindeman	47.2L	1-10"				NO DIVERSION							
West Side Irrigation District	(12) 47.65L	7-15"	654	3615	3252	3187	4077	3814	2270	842	(13) 21711	8934	
Vance Brown	(14) 48.7L	1-8" 1-12"			15	13	19	37			84	65	
Naglee-Burke Irrigation District	50.4L	1-16" 1-18"	434	548	1140	1147	1513	1508	1143	759	8192	(15) 2696	
Freemont Irrigation Association	50.9L	1-14"		140	267	249	321	334	217	68	1596	(16) 640	
Joe Freitas	51.0L	1-8"				15		6	6		27	38	
Attilio Casserini	51.2L	1-8"				6		5	8		19	36	
Excelsior Ranch #2	52.4L	1-10"		5	50	44	40	57	36	15	247	120	
A. L. Galli	53.0L	1-8"				36	43	15	11		105	50	
--TOM PAINE SLOUGH - MILE 54.3--													
Totals			2921	11827	13918	13224	16911	15667	10753	4694	89915	32331	
Average cubic feet per second			48	199	226	222	275	255	181	76	185		
Monthly use in per cent of seasonal			3.2	13.2	15.5	14.7	18.8	17.4	12.0	5.2			

* Distance from mouth of San Joaquin River 4½ miles below Antioch. (Mileage as established by War Department Survey of 1913-1915.)
(1) This is the point of diversion of the U. S. Bureau of Reclamation Contra Costa Canal at head of Rock Slough.
(2) Additional water diverted: Jan. 1470 ac.ft., Feb. 1280 ac.ft., November 1040 ac.ft. and December 960 ac. ft.
(3) Water was used for industrial, municipal and small agricultural diversions - no segregation was made.
(4) New installation 1944.
(5) To junction of Old River and Indian Slough. Pumping plant is located two and one-half miles west along Indian Slough.
(6) Additional water from drains.
(7) To junction of Old River and Italian Slough. Pumping plant is located 2 3/4 miles southwest along Italian Slough and extension cut.
(8) Plant is on cut which joins river at Mile 44.6 Left.
(9) Formerly listed as E. H. Stevenson Estate.
(10) Formerly listed as H. Lindeman.
(11) Includes 40 acres on G. Lindeman lands.
(12) To junction of Old River with intake cut. Pumping plant is located one mile south along intake cut.
(13) Includes 608 acre-feet furnished to Tracy-Clover Irrigation District - Tom Paine Slough Mile 2.1S.
(14) Listed in 1943 report at Mile 48.8L.
(15) Includes 4 acres on Freemont Irrigation District.
(16) An additional 4 acres irrigated from Mile 50.4L.

TABLE 109

DIVERSIONS AND ACREAGE IRRIGATED - TOM PAINE SLOUGH DELTA UPLANDS - 1944

Water User	*Mile and Bank	Number and size of pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	General	Rice
			Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.			
Independent Mutual Water Corporation and Company	0.7S	2-18"	24	254	162	222	369	339	309	78	1757	(1) 1104	
Independent Mutual Water Corporation and Company	(2) 1.5S	1-18"			18	88	45	90	18		259	(1)	
Holly Sugar Corporation	(3) 2.1S	1-10" box 1-12"	60	101	124	160	160	140	75	40	860	(4) 661 (5) 600	
Tracy Clover Irrigation District	(3) 2.1S	1-16"			NO DIVERSION (5)								
Pescadero R.D. #2058, Plant #1	2.9S	1-12"		96	100	101	134	137	109	38	715	(6) 12311	(6) 235
Pescadero R.D. #2058, Plant #3	6.3S	1-12" (7) 1-20" 1-24"		917	1448	1594	1960	1819	1650	755	10143	(6)	(6)
Pescadero R.D. #2058, Plant #5	8.3S	1-12"		166	234	208	231	234	198	59	1330	(6)	(6)
Pescadero R.D. #2058, Plant #5a	9.0S	1-12"		96	100	93	147	93	128	49	706	(6)	(6)
--SOUTHERN PACIFIC RAILROAD CROSSING - MILE 9.1S--													
--LINCOLN HIGHWAY - MILE 9.9S--													
Totals			84	1630	2186	2466	3046	2852	2487	1019	15770	14676	235
Average cubic feet per second			1	27	36	41	50	46	42	17	32		
Monthly use in per cent of seasonal			0.5	10.3	13.9	15.6	19.3	18.1	15.8	6.5			

* Distance along Tom Paine Slough from its mouth which is at Mile 54.3 on Old San Joaquin River (War Department Survey of 1913-15).
(1) Acreage combined for plants at Miles 0.7S and 1.2S.
(2) Plant moved from Mile 1.2S to Mile 1.5S.
(3) To junction of Tom Paine Slough and dredger cut. Pumping plant is located $1\frac{1}{2}$ miles south along dredger cut.
(4) Also served from wells.
(5) Acreage estimated--served through West Side Irrigation District--Old San Joaquin River Mile 47.65L.
(6) Acreage combined for plants at Miles 2.9S, 6.3S, 8.3S and 9.0S.
(7) New unit installed 1944.

TABLE 118

DIVERSIONS AND ACREAGE IRRIGATED - SAN JOAQUIN RIVER DELTA UPLANDS - 1944

Water User	*Mile and Bank	Number and size of pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
--GARWOOD BRIDGE - MILE 45.3--													
Katten and Morengo Ranch	45.45R	1-8"			34	50	69	71	45		269	90	
A. Jury	45.5R	1-6"				4	4	2			10	20	
C. R. Van Buskirk	45.6R	1-5"		7	17	56	58	60	39		237	63	
Carolyn Weston (1)	46.3R	1-8" 1-6" (2) 1-10"				16	61	133	97		307	52	
Ivy Rainey	46.65R	(3) 1-4" 1-6"				4	4	2			10	25	
Wilhoit and Hammill	46.85R	1-10"		67	74	75	129	130	125	50	650	160	
L. F. Grimsley	47.2R	1-6"				23	35	25	9		92	35	
Wolfinger Bros.	47.3R	1-10"				NO DIVERSION							
Alma A. Haack	48.0R	1-12"			65	89	110	113	120		497	165	
H. G. Learned (Lee Young)	48.3R	1-4"			5	8	11	9			33	(4) 30	
H. G. Learned	48.5R	1-3½"			5	14	11	12	8		50	(4)	
Joe Calcagno	48.5R	1-6"		21		26	16	24	53	21	161	100	
F. Piccardo, Dr. Carr and J. Calcagno	48.55R	1-6"		18	51	54	30	52	30	15	250	(5) 145	
G. B. Figari	48.6R	1-5"		11							11	(5)	
M. O. Cooper	49.0R	1-10"		13	13	30	46	42	19		163	48	
Mettler, Cross & Drury (Chapman)	49.5R	1-14"		25	30	55	50	35	48		243	93	
A. A. Rodgers	50.1R	1-10"		16	37	44	34	34	57		222	65	
--BRANDT BRIDGE - MILE 50.2--													
A. Hirata (Converse)	50.4R	1-8"		4	20	32	38	44	12	6	156	42	
B. & K. Watanabe (Toscano)	50.6R	1-8"				9	10	10	10		39	50	
D. Toscano	50.8R	1-6"		4	10	15	14	10	3	1	57	42	
Pastorino Bros. (6)	51.0R	1-12"			10	17	20	24			71	43	
L. & D. Ranch (7)	(8) 51.2R	1-12"				NO DIVERSION							
Andrew C. Meyer (9)	51.9R	1-6"				51	45				96	35	
D. Santini (9)	52.4R	1-6"				3	23	20	21		67	25	
A. Giraldi	52.5R	1-5"				PLANT REMOVED							

* Distance along San Joaquin River from its mouth 4½ miles below Antioch. (Mileage as established by War Department Survey of 1913-15.)

(1) Formerly listed as Mrs. John McDougall.
(2) Replaces 6" unit.
(3) Temporary installation. Operated 4" pump only in 1944.
(4) Acreage combined for plants at Miles 48.3R and 48.5R.
(5) Acreage combined for plants at Miles 48.55R and 48.6R.
(6) Formerly listed as Joseph Pastorino.
(7) Formerly listed as Capital Company.
(8) Mileage correction.
(9) New installation 1944.

TABLE 110 (CONTINUED)

DIVERSIONS AND ACREAGE IRRIGATED - SAN JOAQUIN RIVER DELTA UPLANDS - 1944

Water User	*Mile and Bank	Number and size of pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
Silvia Ranch (1)	(2)52.65R	(3)1-6"				NO DIVERSION							
Silvia Ranch (1)	52.8R	1-8"				6	14	28	20		68	50	
Joe Widner (4)	53.2R	1-12"			30	54	73	96	30		283	170	
William Nishimura	53.4R	1-8"		3	7	22	23	18	9	6	88	30	
Bekins Van & Storage Co. and John Domingo (5)	53.7R	1-12"		55	46	50	105	119	110		485	287	
R. E. Albertson	54.9R	1-10"				PLANT REMOVED							
Oakwood Stock Farm	56.0R	1-10"				NO DIVERSION							
--JUNCTION WITH MIDDLE RIVER - MILE 56.2L--													
Oakwood Stock Farm	57.0R	1-14"		180	219	290	240	416	263		1608	351	
James Tobin	57.15R	1-7"				NO DIVERSION							
A. J. Thompson	57.3R					PLANT REMOVED							
Frank DeWar (6)	57.38R	1-6"				2	3	2			7	14	
G. Gardella	57.5R	1-4"	10	13	4	6	9	7	3	1	53	20	
V. Sanguenetti	(2)57.65R	1-2½"			1	1	1	1			4	1	
G. B. Figari	58.6R	1-3"			1	1	1	1			4	3	
R. Mauro	58.7R	1-4"				NO DIVERSION							
--MOSSDALE BRIDGE - RECORDING GAGE - MILE 58.9--													
C. C. Abersold	59.25R	1-6"			2	22	15	15	5		59	45	
H. A. Neistrath	59.3R	1-14"		119	121	178	240	220	175	62	1115	160	
H. A. Neistrath	(7)60.1R	1-6"		9	15	10	30	40	10		114	40	
--PARADISE DAM - (HEAD OF PARADISE CUT) - MILE 62.2L--													
Banta-Carbona Irrigation District	67.5L	2-20" 3-24" 1-36"	900	9374	7141	6182	9122	9012	4576	1898	(8)48205	(9)16695	
J. Y. Matsumoto	70.0R	1-8"				PLANT REMOVED							
J. Y. Matsumoto	70.5R	1-10"											
Reclamation District #2075	71.0R	1-16"			19	20	69	96	51	15	270	(10)	
Mortensen, Borges and Whitman	73.2R	1-12"	200	407	462	520	506	486	278	200	3059	(10)1270	
Ralph Martin	75.7R	1-7"					80	80	35		195	265	
Ralph Martin	76.2R	1-6"				PLANT REMOVED							
--U.S.G.S. GAGING STATION - SAN JOAQUIN RIVER NEAR VERNALIS - MILE 76.7--						PLANT REMOVED							
Totals			1110	10346	8439	8039	11349	11489	6261	2275	59308	20729	
Average cubic feet per second			18	174	137	135	185	187	105	37	122		
Monthly use in per cent of seasonal			1.9	17.4	14.2	13.6	19.1	19.4	10.6	3.8			

* Distance along San Joaquin River from its mouth 4½ miles below Antioch. (Mileage as established by War Dept. Survey of 1913-1915.)

(1) Formerly listed as F. C. Roberts.
(2) Mileage correction.
(3) Replaces 5" pump installed at this location in 1943.
(4) Formerly listed as Capital Company.
(5) Formerly listed as M. Dos Reis Estate.
(6) New installation 1944.
(7) Up Walthal Slough 0.2 mile and opposite this mileage on river.
(8) This is total amount of water diverted and includes water delivered outside of district.
(9) This figure consists of the following: 14,645 acres inside Banta-Carbona Irrigation District, 1868 acres inside Kasson District lands irrigated by contract, and 182 acres not in either district irrigated by contract.
(10) Acreage combined for plants at Miles 70.5R and 71.0R.

TABLE 111

DIVERSIONS AND ACREAGE IRRIGATED - SAN JOAQUIN RIVER - 1944

Water User	*Mile and Bank	Number and size of pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
--U.S.G.S. GAGING STATION - "SAN JOAQUIN RIVER NEAR VERNALIS" - MILE 76.7--													
--STANISLAUS RIVER - MILE 79.7R--													
--MAZE ROAD BRIDGE - MILE 81.85--													
W. C. Blewett Estate	81.95L	3-12"	90	183	481	435	421	445	140	122	(1) 2317	700	
El Solyo Ranch Company (2)	82.0L	1-12"	444	1683	2325	2145	2164	1900	1511	548	12720	(3) 2958	368
		3-18"											
--GAGING STATION - "SAN JOAQUIN RIVER AT HETCH HETCHY WATER SUPPLY CROSSING" - MILE 82.65--													
--TUOLUMNE RIVER - MILE 91.0R--													
West Stanislaus Irrigation District	91.8L	3-26"	2033	11369	9937	6928	14016	12820	4886	1966	63955	(4) 21989	
El Pescadero Ranch #1	(5) 91.8L	1-12"		25	25	21	32	21	7		131	(6) 205	
El Pescadero Ranch #2	(5) 91.8L	1-14"		87	89	100	109	135	80	26	626	(7) 277	
El Pescadero Ranch #3	(5) 91.8L	1-12"		54	54	18	31	72	8		237	(6)	
Frank Sarmento & Co. (8)	(5) 91.8L	1-14"	170	200	237	227	200	210	160	73	1477	(7)	
--LAIRD SLOUGH BRIDGE - GAGING STATION -"SAN JOAQUIN RIVER NEAR GRAYSON" - MILE 96.05--													
Rancho El Pescadero (Houk Bros.)	98.9L	1-16"	80	263	300	336	526	559	376	120	2560	725	
--PATTERSON BRIDGE - MILE 104.4--													
Patterson Water Company	104.4L	1-14"	1676	5705	6792	8123	7806	6481	5678	746	43007	(9) 13178	586
		1-18"											
		4-26"											
Turlock Garden Land Co.	104.5R	1-10"		60	84	136	81	64	64	40	529	168	
Mortgage Guarantee Co.	106.5R	1-6"				NO DIVERSION							
		1-10"											

* Mileage along San Joaquin River from its mouth 4½ miles below Antioch. (Mileage as established by War Dept. Survey of 1913-15.)

(1) Received some water from 82.0L—77 acres in March and 254 acres in October.
(2) Formerly listed as El Solyo Ranch.
(3) Also furnished some water to 150 acres of grain at Mile 81.95L.
(4) Includes 1820 acres irrigated on Burkhard Investment Company lands - Mile 91.8L.
(5) Pump is on cut leading to West Stanislaus Irrigation District plant.
(6) Combined acreage for this plant and El Pescadero Ranch #3.
(7) This is combined acreage of this plant and that of Frank Sarmento & Co. at Mile 91.8L.
(8) Formerly listed as Burkhard Investment Co.
(9) An additional 636 acres of double crop irrigated by this plant.

TABLE 111 (CONTINUED)

DIVERSIONS AND ACREAGE IRRIGATED - SAN JOAQUIN RIVER - 1944

Water User	*Mile and Bank	Number and size of pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
Patterson Ranch Co.	109.8L	1-12"	187	1400	1450	1400	1450	1450	1400	387	9124	(1)1235	510
		2-16"											
Roy Ustick	112.55R	1-16"	30	94	120	120	103	150	132	46	795	249	
--CROWS LANDING BRIDGE - MILE 113.4--													
Laura C. Johnson	113.5R	1-10"				NO DIVERSION							
A. J. Silveria	113.85R	1-6"				NO DIVERSION							
A. J. Silveria	114.35R	1-8"		8	15	15	13	8	8		67	40	
F. Dutcher	114.95R	1-10"				NO DIVERSION							
L. B. Crow	116.05L	1-14"		36	94	87	107	90	92	54	560	200	
Oscar Hogan	116.4R	1-12"				NO DIVERSION							
Howard Bell (2)	116.95R	1-12"	80	10	10	11	7	25	12		155	90	
--U.S.G.S. GAGING STATION "SAN JOAQUIN RIVER NEAR NEWMAN" - MILE 123.7--													
--MERCED RIVER - MILE 123.75R--													
--FREMONT FORD BRIDGE - GAGING STATION - 129.5--													
--DELTA BRIDGE (TURNER ISLAND) - GAGING STATION - MILE 158.7--													
Totals			4790	21177	22013	20102	27066	24430	14554	4128	138260	42186	1464
Average cubic feet per second			78	356	358	338	440	397	245	67	285		
Monthly use in per cent of seasonal			3.5	15.3	15.9	14.5	19.6	17.7	10.5	3.0			

* Mileage along San Joaquin River from its mouth 4½ miles below Antioch. (Mileage as established by War Dept. Survey of 1913-15.)
(1) Includes 51 acres outside of district on adjacent lands.
(2) Formerly listed as C. L. Olinger.

TABLE 112

DIVERSIONS AND ACREAGE IRRIGATED - MERCED RIVER - 1944

Water User	Mile and Bank above Mouth	Number and size of pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
--GAGING STATION - "MERCED RIVER NEAR MOUTH" - MILE 1.1--													
Stevinson Water District (1)	1.4R	1-10"			16	52	54				122	80	
Stevinson Water District	3.8R	1-15"			380	585	392	463	409		2229	475	
Floyd Anderson	4.0L	1-8"				PLANT REMOVED							
F. R. Stevinson(2)	4.0L	1-10"				36	28	22	20	12	118	58	
Salvador De Angeles	4.3L	1-12"			9	11	16	12	10		58	40	
Maria De Angeles (3)	5.8L	1-10"			52	110	62	49	34		307	85	
J. F. Peck	6.1L	1-18"				NO DIVERSION							
Stevinson Water District	6.55L	1-18"				NO DIVERSION							
Francis Hartman	8.5L	1-12"			12	25	22	2	17		78	30	
Manuel Clemintino (4)	(5) 8.85L	1-12"			23	27	12	20	10		92	68	
Samuel B. McCullagh	9.4L	(6) 1-12"		50	66	126	155	137	75	39	648	250	
Joe R. Jacinto (1)	9.6L	1-12"		39	44	45	43	45	35	14	265	82	
R. W. Adams and J. B. Silva	10.35L	1-8"		252	266	269	278	287	261	140	1753	420	
		1-10"											
L. A. Brown	10.6R	1-3"				PLANT REMOVED							
W. D. Adams	10.8R	1-6"						4	4		8	(7) 10	
W. D. Adams	10.85L	1-5"		195	284	255	284	320	214	10	1562	403	
		1-12"											
C. G. McLaughlin	11.4L	1-8"				PLANT REMOVED							
C. G. McLaughlin	11.55L	1-4"				PLANT REMOVED							
L. E. Milliken and Edna McKinley	11.6L	1-10"		56	44	62	61	54	62	13	352	80	
J. Regello	11.6L	1-12"				NO DIVERSION							
--NEW MILLIKEN BRIDGE - MILE 11.65--													
A. J. Azevedo	12.35L	1-10"		99	50	73	86	98	104	41	551	100	
Pacific Coast Joint Stock Land Bank	12.85L	1-10"				19	27	27	12		85	(8) 50	

(1) New installation 1944.
(2) New installation at old point of diversion.
(3) Formerly listed as H. De Angeles.
(4) Formerly listed as Mary Collier Estate.
(5) Replaces 6" unit installed at this mile in 1943.
(6) Replaces 10" unit installed at this mile in 1943.
(7) This acreage is on adjoining Brown lands.
(8) Estimated acreage in 1944.

TABLE 112 (CONTINUED)

DIVERSIONS AND ACREAGE IRRIGATED - MERCED RIVER - 1944

Water User	Mile and Bank above Mouth	Number and size of pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
Archie DeMant (1)	16.5L	1-12"		75	78	89	3	96	101	18	460	80	
Merced River Farms Co.	17.05L	1-6"				8	16	9	5		38	37	
--U.S.G.S. GAGING STATION "MERCED RIVER NEAR LIVINGSTON" - MILE 17.1--													
L. A. Chase	17.3L	1-4"				NO DIVERSION							
J. Clark	17.7L	1-3"				NO DIVERSION							
		1-6"											
O. B. Daniels	17.7L	1-5"	2	2	2	3	4	2	1		16	9	
J. H. Thomas	18.4L	1-6"		12	9	14	17	15	13	4	84	(2) 34	
John Reininghaus	20.4L	1-6"		12	9	16	18	15	14	4	88	110	
W. J. Hoskins (3)	20.65R	1-3½"		1	2	2	2	2	2	2	13	6	
--SOUTHERN PACIFIC RAILROAD (MAIN LINE) - MILE 21.05--													
A. C. Jorgensen #1	(4) 21.05R	1-6"			26	19	15	22	10		92	30	
A. C. Jorgensen #2	22.2R	(5) 1-16"		70	137	137	168	156	114	87	869	350	
A. C. Jorgensen #3	23.3R	1-12"	82	47	19	18	81	73	53	90	463	200	
		(6) 1-15"											
M. McConnell	23.4L	1-5"				NO DIVERSION							
A. C. Jorgensen #4 (7)	23.6	1-6"			4	4	5	4			17	30	
Manuel A. Bettencourt	23.8R	1-6"					10	8	8		26	30	
T. Nishihara	24.0R	1-4"		2	3	5	5	7	7		29	(8) 95	
W. F. McConnell	24.2L	1-5"				PLANT REMOVED							
W. F. McConnell	24.5L	1-6"			2		4	3	2		11	15	
T. Nishihara	24.6R	1-6"				5	30	11	10		56	(8)	
W. F. McConnell	(9) 25.0L	1-5"		3	3	3	3	3			15	8	
T. Nishihara	25.0R	1-5"				4	10	10	9	6	39	(8)	
T. Nishihara	25.5R	1-6"			5	12	2	6	8	7	40	(8)	
Merced River Farms Association	26.3R	1-8"		96	96	98	145	68	152	188	843	120	

(1) Formerly listed as Capital Company.
(2) Includes 8 acres on adjoining lands.
(3) Formerly listed as W. J. Haskins.
(4) This plant moved to Mile 21.05R from Mile 21.1R.
(5) Replaces 12" pump installed at this mile in 1943.
(6) Replaces 6" pump installed at this mile in 1943.
(7) New installation in 1944.
(8) This is combined acreage for plants at Miles 24.0R, 24.6R, 25.0R and 25.5R.
(9) This plant moved to this mile from Mile 24.2L.

TABLE 112 (CONTINUED)

DIVERSIONS AND ACREAGE IRRIGATED - MERCED RIVER - 1944

Water User	Mile and Bank above Mouth	Number and size of pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
W. C. Magneson	26.55R	1-5"			12	18	13	19	13	4	79	(1) 38	
W. C. Magneson	27.0R	1-6"						2	2		4	(1)	
--SANTA FE RAILROAD CROSSING - MILE 27.05--													
W. C. Magneson	27.6R	1-10"		3	6	47	80	73	69	25	303	170	
T. Nishihara	27.8R	1-4"		10	17	19	30	23	17	6	122	30	
Y. Tanabe	28.1R	1-6"		3	4	10	14	12	11	4	58	16	
John Farie	28.4R	1-4"		11	18	13	10	10	9	3	74	20	
J. Campadonica	28.6R	1-6"				NO DIVERSION							
Oliver Alves	28.6R	1-5"		10	26	40	36	17			129	75	
		(2) 1-8"											
Anthony Demchilli	29.1R	1-7"				70	63	41	28	25	227	70	
Anthony Demchilli	29.75R	1-5"		17	28	27	22	19	15	5	133	35	
Manuel Silva	29.9R	(3) 2-6"		38	65	59	62	98	92	48	462	220	
Rose and Schaefer (4)	30.2L	1-5"			5	1	2	1			9	30	
Manuel Silva	30.95R	1-12"		4	6	13	48	28	15	10	124	150	
Rose and Schaefer (4)	31.1L	1-8"		10	16	41	27	16	17	11	138	40	
T. H. Carlon	31.5R	1-6"				PLANT REMOVED							
		1-8"											
--SOUTHERN PACIFIC RAILROAD (OAKDALE BRANCH) - MILE 32.52--													
B. H. Arkellian (5)	32.9R	1-8"				20	7	10			37	(6) 230	
B. H. Arkellian	33.55R	1-7"				25	92	47	7	4	175	(6)	
P. and A. Rnenero	39.2L	1-24" box				NO DIVERSION							
--GAGING STATION "MERCED RIVER AT YOSEMITE VALLEY RAILROAD CROSSING" - MILE 42.1--													
Totals			84	1117	1844	2535	2564	2466	2071	820	13501	4509	
Average cubic feet per second			1	19	30	43	42	40	35	13	28		
Monthly use in per cent of seasonal			0.6	8.3	13.7	18.8	19.0	18.3	15.3	6.0			

(1) This is combined acreage for plants at Miles 26.55R and 27.0R.
(2) Used 8" pump only in 1944.
(3) An additional 6" pump installed in 1944.
(4) Formerly listed as Tony Rose.
(5) Reinstallation at old point of diversion.
(6) This is combined acreage of this plant and one at Mile 33.55R.

TABLE 113

DIVERSIONS AND ACREAGE IRRIGATED - TUOLUMNE RIVER - 1944

Water User	Mile and Bank above Mouth	Number and size of pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
E. T. Mapes Ranch	1.9R	1-14"	80	91	118	130	122	174	300	119	1134	2080	
J. de Souza and J. B. Silva	2.2R	1-6"				15	23	24			62	26	
E. B. Henry	3.1R	1-16" box		10	15	11	4	12	8	13	73	30	
--GAGING STATION "TUOLUMNE RIVER AT TUOLUMNE CITY" - MILE 3.35--													
Bancroft Fruit Farms	4.1R	1-10"		54	52	50	66	62	39	29	352	90	
Bancroft Fruit Farms	5.0R	1-10"		87	100	114	129	126	65	22	643	170	
J. R. Rude	7.1R	1-10"				38	41	16	5		100	25	
W. F. Duffy	7.2R	1-5"			5	31	52	46	3		137	21	
R. E. Rahilly (1)	7.8L	1-10"				NO DIVERSION							
W. F. Duffy	8.4R	1-10"			65	75	66	76	90	24	396	100	
Dr. Benson (2)	10.2R	(3)1-10"		21	27	60	77	50	36	20	291	55	
A. M. Deslauriers (4)	15.25R	1-6"					10				10	20	
G.B. and L. D. Podesto	15.75R	1-3"			3	4	3	3	2		15	20	
--GAGING STATION "TUOLUMNE RIVER AT MODESTO" - MILE 15.75--													
--SOUTHERN PACIFIC RAILROAD (MAIN LINE) - MILE 15.8--													
--DRY CREEK - MILE 16.5R--													
L. R. Hughson (Mrs.)	20.3R	1-8"		6	12	15	18	24	23		98	35	
W. J. Leckron	20.5R	1-10"			17	17	21	17	9	23	104	51	
--SANTA FE RAILROAD - MILE 21.6--													
L. DeMartini Ranch #3	25.0L					PLANT REMOVED							
L. DeMartini Ranch #4	25.7L					PLANT REMOVED							
Alexander Ranch (5)	26.0L	(6)1-6"		20	35	30	27	46	11	10	179	65	
Alexander Ranch (L. DeMartini)(5)	26.2L	(7)1-8"				NO DIVERSION							
L. Firpo	27.1L	1-10"		15	20	20	20	20	15	10	120	100	
--SOUTHERN PACIFIC R.R. (OAKDALE BRANCH) - MILE 31.5--													
--GAGING STATION "TUOLUMNE RIVER AT HICKMAN BRIDGE" - 31.7--													
George H. Sawyer	39.8L	1-6"			48	55	99	105	50	30	387	273	
--GAGING STATION "TUOLUMNE RIVER AT ROBERTS FERRY BRIDGE" - MILE 39.9--													
Totals			80	304	517	665	778	801	656	300	4101	3161	
Average cubic feet per second			1.3	5.1	8.4	11.2	12.6	13.0	11.0	4.9	8.4		
Monthly use in per cent of seasonal			2.0	7.4	12.6	16.2	19.0	19.5	16.0	7.3			

(1) Formerly listed as J. J. and E. J. Shivo.
(2) Formerly listed as A. Holmes.
(3) Formerly listedas 11" pump.
(4) Formerly listed as F. Strangio.
(5) Formerly listed as L. DeMartini Co.
(6) Replaces 8" pump installed in 1943.
(7) Replaces 6" pump.

TABLE 114

DIVERSIONS AND ACREAGE IRRIGATED - STANISLAUS RIVER - 1944

Water User	Mile and Bank above Mouth	Number and size of pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
Frank Coker	1.1R	1-6"			12		12	12			36	27	
E. W. Hawkins (Mrs.)	(1)2.0R	1-4"		1	1						2	4	
J. Chisholm	2.9R	1-8"				NO DIVERSION							
Joe Costa (2)	3.1R	1-6"			4	6	6				16	17	
Will Hawkins	3.2R	1-4"				PLANT REMOVED							
D. G. Beale (3)	4.0R	1-5"					5	2			7	10	
Winfield S. Overton (Koetitz)	5.25L	(4)1-14"			190	120	117	121	70	69	687	225	
--GAGING STATION "STANISLAUS RIVER AT BRET HARTE PUMP" - MILE 5.9--													
Reclamation District #2064 (Bret Harte)	5.9R	1-16"		326	805	538	805	731	271	439	3915	1268	
McMullin R. D. #2075	5.95R	2-16"		809	1154	1150	1366	1322	782	582	7165	(5)1690	
Henry Pelucca	6.7L	1-15"		57	93	82	128	99	72	31	562	(6) 78	
J. W. Updike	7.4L	1-8"				PLANT REMOVED							
C. C. Updike (Mrs.)	8.2L	1-12"				8	9	33	20	13	83	100	
Caswell Brothers	9.8R	1-14"	94	199	284	348	447	429	285	77	2163	308	
Pacific States Savings & Loan Co.	10.0R	1-10"	62	167	174	312	250	329	183	28	1505	200	
D. F. Koetitz	10.1L	1-10"	30	59	111	122	141	266	215	177	1121	308	
Joseph Hertle	10.5L	1-10"		8	9	9	16	10	20	5	77	63	
--SOUTHERN PACIFIC RAILROAD BRIDGE (MAIN LINE) - MILE 15.9--													
--GAGING STATION "STANISLAUS RIVER NEAR RIPON" - MILE 16.0--													

(1) Location changed from Mile 1.6R.
(2) Formerly listed as J. C. Smith.
(3) New installation 1944.
(4) One 14" pump removed.
(5) Includes 160 acres on Bret Harte lands.
(6) Includes 20 acres on Overton lands (Mile 5.25L).

TABLE 114 (CONTINUED)

DIVERSIONS AND ACREAGE IRRIGATED - STANISLAUS RIVER - 1944

Water User	Mile and Bank above Mouth	Number and size of pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
A. Girardi	17.0L	1-12"			7	71	70	107	11		266	100	
American Trust Company	18.5R	1-10"		20	20	21	91	76	16		244	158	
Dr. Rollin Reeves	20.75R	1-14"		156	254	230	273	251	232	78	1474	300	
Heath Ranch	20.9L	1-5"				13	36		33		82	20	
B. Bonora (1)	21.75R	1-10"		56		155	39	91	84		425	75	
Cornelius de Boer	22.0L	1-5"				PLANT REMOVED							
Riverside Ranch	22.3R	1-6"					39	20	8		67	36	
		(2) 1-8"											
		1-10"											
--MODESTO-ESCALON BRIDGE - MILE 28.15--													
--SANTA FE RAILROAD CROSSING - MILE 31.85--													
--GAGING STATION - "STANISLAUS RIVER AT RIVERBANK" (BURNEYVILLE BRIDGE) - MILE 32.0--													
Oakdale Irr. Dist. (Riverbank Pump)(3)	32.9L	1-10"		54	97	120	52	140	145	62	670	(3) 1700	
Oakdale Irr. Dist. (Crawford Pump)(3)	35.9L	1-14"		61	34	159	215	146	116	23	754	(3) 536	
Oakdale Irr. Dist. (Brady Pump)	37.0L	1-14"		40	17	101	129	107	96	19	509	(3) 692	
--SOUTHERN PACIFIC RAILROAD (OAKDALE BRANCH) - MILE 39.0--													
--GAGING STATION "STANISLAUS RIVER AT ORANGE BLOSSOM BRIDGE" - MILE 44.7--													
Totals			186	2013	3266	3565	4246	4292	2659	1603	21830	7915	
Average cubic feet per second			3	34	53	60	69	70	45	26	45		
Monthly use in per cent of seasonal			0.9	9.2	15.0	16.3	19.4	19.7	12.2	7.3			

(1) Formerly listed as Di Giorgio Fruit Corporation.
(2) Replaces 5" unit installed in 1943.
(3) Oakdale Irrigation District maintains river plants at Miles 32.9L, 35.9L, 37.0L, and 45.4L to supplement District gravity supply.

TABLE 115
COMPARATIVE MONTHLY DIVERSIONS IN ACRE FEET - 1924 to 1944
SACRAMENTO RIVER - SACRAMENTO TO REDDING

Year	March	April	May	June	July	August	September	October	Seasonal Diversions
1924	7324	102511	184043	186073	189081	163677	97976	22088	952773
1925	1200*	11177	87709	184151	211788	194888	134442	18108	843463
1926	4000*	34326	195052	258889	259777	226874	98632	30220	1107770
1927	600*	31327	206864	234116	260018	241876	139469	44993	1159263
1928	1900*	52335	207747	229261	227058	214549	92114	29574	1054538
1929	5600*	138283	204300	167378	207785	191346	107103	43954	1065809
1930	3100*	74236	198836	221852	217698	199875	107577	32681	1055855
1931	30199	222932	257156	227158	242076	209351	101822	44572	1335266
1932	4661	123973	176667	194500	197849	171122	99657	51571	1020000
1933	4452	118677	188004	189852	197452	185945	105071	52267	1041720
1934	2599	109638	204710	193469	202843	191488	107885	44331	1056963
1935	1524	18598	157817	203562	206813	195215	112498	30137	926194
1936	7320	76534	203802	194110	216217	206858	104203	45925	1054999
1937	3459	32727	210339	210927	235304	217924	133271	26510	1070461
1938	5285	29942	121847	199745	218572	208414	118177	30248	932230
1939	63636	202428	227491	233319	230319	209735	90708	43412	1301048
1940	1802	18073	182534	218505	249012	228765	119951	43988	1062630
1941	1883	5274	157567	228387	265229	259557	177189	55029	1150115
1942	1991	11727	187657	268091	286655	278848	186708	61298	1278975
1943	1769	61409	257673	276759	288930	288024	190456	51915	1416935
1944	3236	155666	310227	305633	338429	318184	130858	65917	1678150
Average Acre Feet	7500	77700	196580	220270	235660	219170	124080	41370	1122150
Average c.f.s.	122	1306	3197	3702	3833	3564	2085	673	2310
Monthly Diversion in per cent of seasonal	0.7	6.9	17.5	19.6	21.0	19.5	11.1	3.7	

* Estimated

TABLE 116
COMPARATIVE MONTHLY DIVERSIONS IN ACRE FEET - 1924 to 1944
FEATHER RIVER - OROVILLE TO MOUTH

Year	March	April	May	June	July	August	September	October	Seasonal Diversions
1924	2652	36440	75741	60132	58418	67365	41618	12980	355346
1925	0*	9506	70947	88956	90047	81340	63395	8829	413020
1926	0*	16528	83297	104100	105255	101623	54446	4083	469332
1927	0*	17522	96458	107706	114211	102251	71514	18669	528331
1928	0*	19912	101655	109875	104359	97452	46986	12040	492279
1929	1500*	48450	97295	83570	87061	82177	37711	12711	450475
1930	0*	31719	78154	91418	93250	89300	40912	20811	445564
1931	5887	67203	98054	85024	81941	71953	39288	14788	464138
1932	2158	50002	85950	94140	99640	93180	49359	22284	496713
1933	5388	31219	91529	91635	94231	85891	54515	23918	478326
1934	2245	34217	92225	82379	81467	72334	44121	19020	428008
1935	214	1538	51974	89713	92372	85835	51342	17885	390873
1936	768	14136	92975	92002	99147	90575	50374	33410	479093
1937	620	5647	92614	99882	109050	103248	62946	29958	507765
1938	0	3512	76975	98534	108039	104846	77969	42725	512600
1939	3583	71539	99567	90960	92044	83292	37752	22620	501357
1940	188	2207	84408	95502	105337	93454	59182	33695	473973
1941	0	2448	70513	72971	103334	100433	78451	47090	475240
1942	0	0	61352	113416	125530	122146	86814	30435	539693
1943	0	13290	101599	125318	131210	123282	93309	35495	623641
1944	205	43792	130779	126206	142128	133130	85924	50747	712911
Average Acre-Feet	1210	24800	87320	95400	100900	94530	58900	24490	487600
Average c.f.s.	20	417	1420	1600	1640	1540	990	398	1000
Monthly diversion in per cent of seasonal	0.2	5.1	17.9	19.6	20.7	19.4	12.1	5.0	

* Estimated

TABLE 117
COMPARATIVE MONTHLY DIVERSIONS IN ACRE FEET - 1925 to 1944
YUBA RIVER - SMARTVILLE TO MOUTH

Year	March	April	May	June	July	August	September	October	Seasonal Diversions
1925	-	-	617	1594	985	586	249	14	4045
1926	0	0	4681	6825	8893	10785	4604	120	35908
1927	-	304	6492	9761	9808	8733	4220	432	39750
1928	0	0	7329	8759	9651	8816	2245	0	36800
1929	0	3972	10808	8843	9376	8710	7308	4237	53254
1930	0	4803	9234	10293	11752	10825	7137	4477	58521
1931	0	10471	12111	10427	8991	8986	6468	5866	63320
1932	0	8778	10151	9373	9525	9188	6371	4215	58201
1933	0	7617	11048	10516	10917	10920	7724	4627	63369
1934	0	7112	11137	10985	11235	8454	3496	232	52651
1935	0	525	9034	11008	11313	10013	6674	283	48850
1936	0	9709	11579	10513	10330	10009	7908	4010	64058
1937	0	8093	9913	10055	9749	9815	8835	2703	59163
1938	0	360	4807	9371	9982	9433	8284	1020	43257
1939	176	8986	13174	12890	12889	12739	8304	3955	73113
1940	0	1326	9377	14114	15190	11798	10780	7383	69968
1941	0	2624	10589	13076	13574	13419	10672	9576	73530
1942	0	36	5703	14736	14955	14841	13086	11349	74706
1943	0	1903	10622	15237	17203	16972	16610	15252	93799
1944	1665	7327	13857	15601	16786	15532	13311	9185	93264
Average Acre-feet	92	4200	9110	10730	11160	10530	7710	4450	57980
Average c.f.s.	1	70	148	180	181	171	130	72	119
Monthly diversion in per cent of seasonal	0.2	7.2	15.8	18.5	19.2	18.1	13.3	7.7	

TABLE 118
COMPARATIVE MONTHLY DIVERSIONS IN ACRE FEET - 1925 to 1944
AMERICAN RIVER - FAIROAKS TO MOUTH

Year	March	April	May	June	July	August	September	October	Seasonal Diversions
1925	10*	66	261	985	1233	1198	458	142	4353
1926	0*	5	390	1162	1519	894	480	156	4606
1927	5*	16	317	1028	1754	1577	529	410	5636
1928	10*	121	580	1406	1203	905	832	458	5635
1929	50*	482	812	936	1539	1280	864	361	6324
1930	30*	317	436	1250	1302	976	504	140	4955
1931	46	469	1127	916	1237	1027	510	288	5620
1932	39	390	598	1116	1317	1164	556	301	5481
1933	0	106	471	1070	1317	924	424	303	4615
1934	63	431	896	1078	1281	806	624	326	5505
1935	5	338	663	893	1289	824	603	200	4815
1936	44	312	355	786	1208	1005	667	350	4727
1937	3	119	329	1082	1518	1252	797	281	5381
1938	0	100	267	824	1256	1117	635	88	4287
1939	73	380	932	1616	1699	1151	557	246	6654
1940	44	339	488	1216	1785	1038	686	456	6052
1941	150	253	379	836	1531	1202	673	285	5309
1942	0	0	13	678	1395	1187	789	104	4167
1943	0	0	54	941	1513	1226	753	94	4581
1944	0	6	113	980	1566	1211	790	153	4819
Average Acre-feet	29	213	474	1040	1426	1101	637	257	5180
Average c.f.s.	0.5	4	8	17	23	18	11	4	11
Monthly diversion in per cent of seasonal	0.6	4.1	9.2	20.0	27.5	21.3	12.3	5.0	

* Estimated.

TABLE 119

COMPARATIVE MONTHLY DIVERSIONS IN ACRE FEET
AND GROSS SEASONAL DUTY OF WATER 1924 to 1944
OLD SAN JOAQUIN RIVER - DELTA UPLANDS

Year	March	April	May	June	July	August	September	October	Seasonal Diversion	Acreage Irrigated: General	Acreage Irrigated: Rice	Gross Seasonal Duty, Acre-Feet per Acre
1924	10320	10311	12600	12434	12460	10845	8277	3633	80880	29190	0	2.8
1925	100*	1737	7330	13233	16264	13962	9404	2347	64377	34677	0	1.9
1926	500*	4440	15526	17420	16090	15283	12376	2151	84386	37480	0	2.3
1927	80	1815	16312	14758	14252	12651	9398	2504	71770	35351	0	2.0
1928	500*	3430	16895	15037	14526	13701	9185	2679	75953	39924	0	1.9
1929	2000*	12977	13170	8894	14735	13143	9465	3389	77773	37359	0	2.1
1930	400*	5624	15152	14488	15289	12958	8535	3019	75465	36480	0	2.1
1931	5735	17099	10400	9245	14125	10854	3522	389	71369	34232	0	2.1
1932	296	5460	9318	9343	9803	8379	5718	2636	50953	27942	0	1.8
1933	488	10114	10351	10092	10938	10414	6082	3463	61942	27851	0	2.2
1934	3204	14687	10321	8708	12827	9946	5817	3019	68529	29792	0	2.3
1935	10	30	11027	13473	12973	10171	9933	2082	56699	28307	0	2.0
1936	420	5310	12235	8621	14492	9994	6958	5239	63269	30232	0	2.1
1937	3	2621	13418	11093	13590	11934	7100	4853	64012	31913	0	2.0
1938	0	1313	8628	11989	9806	8841	6250	3566	50393	29658	0	1.7
1939	7728	12880	8746	12055	13453	9855	4977	1069	71363	34956	0	2.0
1940	0	1015	9527	10943	14091	10217	6148	3306	55247	29009	0	1.9
1941	0	447	5492	11541	13087	10009	7382	2909	50867	28842	0	1.8
1942	0	516	7175	11077	13143	11425	6740	2878	52954	28749	0	1.8
1943	0	2048	11293	12463	13745	11945	7568	3104	62166	40007	0	1.5
1944	2921	11827	13918	13224	16911	15667	10753	4694	89915	32331	0	2.0
Average	1650	5990	11373	11910	13680	11530	7550	3030	56709	32010	0	2.0
Average c.f.s.	27	101	185	200	222	138	127	49	137			
Monthly Diversion in per cent of seasonal	2.5	9.0	17.0	17.9	20.5	17.3	11.3	4.5				

* Estimated

TABLE 120

COMPARATIVE MONTHLY DIVERSIONS IN ACRE FEET
AND GROSS SEASONAL DUTY OF WATER 1924 to 1944
TOM PAINE SLOUGH - DELTA UPLANDS

Year	March	April	May	June	July	August	September	October	Seasonal Diversion	Acreage Irrigated: General	Acreage Irrigated: Rice	Gross Seasonal Duty, Acre Feet per Acre
1924	1126	1926	2529	2696	2238	2419	1474	1242	15650	2810	0	5.6
1925	0*	500*	1672	3491	3027	3058	2205	933	14886	7441	0	2.0
1926	100*	926	3676	3095	3238	2903	2507	693	17138	4973	0	3.4
1927	0*	94	3700	2911	3099	3166	2630	1055	17255	6157	0	2.8
1928	200*	785	2111	2589	2456	2353	2497	1649	14640	4906	0	3.0
1929	500*	1554	2376	1642	3028	2814	2100	1154	15168	5195	0	2.9
1930	100*	764	2081	2132	2326	2124	1752	960	12239	4987	0	2.5
1931	530	2109	1324	1602	2325	2286	1981	523	12680	5322	0	2.4
1932	67	1809	926	1883	1952	2068	1894	775	11374	5040	0	2.3
1933	0	1306	1608	1775	1715	1898	1543	1351	11196	4450	0	2.5
1934	70	2069	1272	1433	1936	1616	1578	972	10946	4549	0	2.4
1935	0	0	1593	1917	1797	1826	1241	556	8930	3226	0	2.8
1936	38	990	1680	1870	2409	2373	1709	1308	12237	4450	0	2.7
1937	0	112	1545	1864	2173	2041	1426	503	9664	3302	0	2.9
1938	0	432	1219	1364	1296	1497	1002	427	7297	2887	0	2.5
1939	763	1620	1218	1703	1414	1789	1015	645	10167	3911	0	2.6
1940	0	159	1509	1974	2129	1612	1133	873	9389	4007	0	2.3
1941	0	0	1406	1972	2163	1788	1704	529	9562	3963	0	2.4
1942	0	0	1292	1852	2434	1930	1158	278	8944	4357	0	2.0
1943	0	891	2526	2728	2629	2578	2041	589	13982	5058	150	2.7
1944	84	1630	2186	2466	3046	2852	2 87	1019	15770	14676	235	1.1
Average	170*	937	1879	2131	2328	2238	1768	887	12338	5030	18	2.4
Average c.f.s.	3	16	31	36	38	36	30	14	25			
Monthly Diversion in per cent of seasonal	1.4	7.6	15.2	17.3	18.8	18.2	14.3	7.2				

* Estimated

TABLE 121

COMPARATIVE MONTHLY DIVERSIONS IN ACRE FEET
AND GROSS SEASONAL DUTY OF WATER 1924 to 1944
SAN JOAQUIN RIVER - DELTA UPLANDS

Year	March	April	May	June	July	August	September	October	Seasonal Diversion	Acreage Irrigated: General	Acreage Irrigated: Rice	Gross Seasonal Duty: Acre Feet per Acre
1924	614	1126	1760	1889	2175	1819	1385	206	10974	4335	0	2.5
1925	0*	6	276	1149	1530	1694	1040	39	5734	3224	0	1.8
1926	2000*	5657	8800	7696	8251	7693	6308	1577	47982	11196	0	4.3
1927	0*	713	8530	8224	8927	9378	4317	746	40835	12870	0	3.2
1928	1000*	3075	7915	7523	9141	8159	4604	1849	43266	17579	0	2.5
1929	2000*	6747	9600	5497	10594	7624	4498	2586	49146	16941	0	2.9
1930	2000*	6823	11848	7555	12899	11800	4227	1357	58409	18486	0	3.2
1931	3009	9378	8007	5475	12617	11759	4141	2126	56512	17021	0	3.3
1932	1452	8519	5767	5133	9972	7349	4365	1704	44261	19088	0	2.3
1933	767	9174	6089	5799	10703	7581	3165	2099	45377	18025	0	2.5
1934	3744	10633	7861	5411	12805	8682	4068	1965	55169	19372	0	2.8
1935	12	1691	6790	8950	10353	7785	3637	1714	40932	16571	0	2.5
1936	1483	7467	6838	4166	11651	8629	3575	1865	45674	18993	0	2.4
1937	3	5355	6512	4285	12542	7737	2824	1970	41228	19648	0	2.1
1938	1	3062	6753	4154	9943	6622	3004	991	34530	17582	0	2.0
1939	4012	9394	5398	6901	11721	8744	3862	1178	51210	18672	0	2.7
1940	4	4638	6974	7011	12805	7978	3300	1932	44642	18457	0	2.4
1941	4	1086	6162	5944	12007	8735	4384	1762	40084	19298	0	2.1
1942	188	2232	5210	6602	12203	9651	4014	2085	42185	17932	0	2.4
1943	0	3169	10172	8940	11617	10886	5142	1793	51719	19685	0	2.6
1944	1110	10346	8439	8039	11349	11489	6261	2275	59308	20547	0	2.7
Average	1110	5250	6940	6020	10280	8180	3910	1610	43294	16450	0	2.7
Average c.f.s.	18	88	113	101	167	133	66	26	89			
Monthly Diversion in per cent of seasonal	2.6	12.1	16.1	13.9	23.7	18.9	9.0	3.7				

* Estimated

TABLE 122
COMPARATIVE MONTHLY DIVERSIONS IN ACRE FEET
AND GROSS SEASONAL DUTY OF WATER 1928 to 1944
SAN JOAQUIN RIVER - FREMONT FORD BRIDGE TO VERNALIS

Year	March	April	May	June	July	August	September	October	Seasonal Diversion	Acreage Irrigated: General	Acreage Irrigated: Rice	Gross Seasonal Duty, Acre Feet Per Acre
1928	*	*	*	*	11854	10574	8925	*	*	*	*	*
1929	*	*	*	*	12814	11021	10790	*	*	*	*	*
1930	*	12970	15632	15951	16472	16921	10860	1654	90460	*	*	*
1931	8084	18145	14765	14752	19847	15593	9607	5203	105996	34894	500	3.0
1932	3510	16745	11018	11802	15571	14886	11562	5010	901 4	39813	80	2.3
1933	5496	14431	11244	11762	19043	18373	11437	3795	95581	35036	0	2.7
1934	5935	21809	17152	12615	24787	22392	12880	3123	120693	41696	290	2.9
1935	595	1228	14156	18502	23647	22541	13284	5211	99164	37320	155	2.9
1936	4511	12744	15608	21854	23594	15879	10614	3729	108533	41862	160	2.6
1937	212	3100	17198	16112	25933	21963	12183	3295	99996	41542	230	2.4
1938	69	4378	17054	15089	21991	17576	10842	2767	89766	42226	200	2.1
1939	7044	17485	17212	18955	25161	21288	10366	2505	120016	42379	420	2.8
1940	555	4547	15524	18950	26396	17707	10769	3365	97813	39373	470	2.5
1941	0	302	13633	15486	26484	20840	12725	3947	93417	39866	484	2.3
1942	573	2044	14158	17059	28352	25384	12575	4235	104380	41934	580	2.5
1943	0	4417	20849	20115	29913	25046	16595	4789	121724	41143	342	2.9
1944	4790	21177	22013	20102	27066	24430	14554	4128	138260	42196	1464	3.2
Average **	2955	10182	15827	16654	24128	20278	12142	3935	106103	40090	384	2.6
Average ** c.f.s.	48	171	257	280	392	330	204	64	218			
Monthly Diversion in per cent of seasonal **	2.8	9.6	14.9	15.7	22.7	19.1	11.5	3.7				

* No Record
** 1931 to 1943
NOTE: No records prior to 1928.

TABLE 123
COMPARATIVE MONTHLY DIVERSIONS IN ACRE FEET
AND GROSS SEASONAL DUTY OF WATER 1928 to 1944
MERCED RIVER - YOSEMITE VALLEY RAILROAD CROSSING TO MOUTH

Year	March	April	May	June	July	August	September	October	Seasonal Diversion	Acreage Irrigated		Gross Seasonal Duty, Acre Feet Per Acre
										General	Rice	
1928	*	*	*	*	3451	3027	2343	*	*	*	*	*
1929	*	*	*	*	3420	2965	1942	*	*	*	*	*
1930	*	1062	2319	2750	2716	2253	1242	474	12816	*	*	*
1931	778	2836	3298	2902	3553	3232	2128	765	19492	3623	0	5.4
1932	524	1334	1808	2261	2539	2292	1787	711	13256	3299	0	4.0
1933	320	1406	1757	1990	2372	1900	1600	645	11990	3229	0	3.7
1934	627	2627	2989	2637	3202	2673	2018	826	17599	5091	0	3.5
1935	0	70	1612	2684	2764	2472	1607	632	11841	3305	0	3.6
1936	26	486	2192	2149	2426	2705	1623	411	12018	3662	0	3.3
1937	0	108	1341	2514	3114	2876	1671	387	12011	4155	0	2.9
1938	0	123	858	1523	2213	1933	1018	458	8126	3072	0	2.6
1939	38	951	1791	2162	2520	1803	808	236	10309	3478	0	3.0
1940	2	220	1541	2275	2206	1597	949	317	9107	3123	0	2.9
1941	0	0	870	1644	1995	1537	1306	236	7588	3570	0	2.1
1942	0	14	475	1619	2716	2005	1207	353	8399	3302	0	2.5
1943	0	198	1782	2249	3077	2258	1680	474	11718	3680	0	3.2
1944	84	1117	1845	2535	2564	2466	2071	820	13501	4509	0	
Average **	171	821	1726	2224	2662	2268	1534	520	11926	3650	0	3.1
Average ** c.f.s.	3	14	28	37	43	37	26	8	24			
Monthly ** Diversion in per cent of seasonal	1.4	6.9	14.5	18.6	22.3	19.0	12.9	4.4				

* No record
** 1931 to 1943.
NOTE: No records prior to 1928.

TABLE 124
COMPARATIVE MONTHLY DIVERSIONS IN ACRE FEET
AND GROSS SEASONAL DUTY OF WATER 1928 to 1944
TUOLUMNE RIVER - LA GRANGE BRIDGE TO MOUTH

Year	March	April	May	June	July	August	September	October	Seasonal Diversion	Acreage Irrigated		Gross Seasonal Duty, Acre Feet Per Acre
										General	Rice	
1928	*	*	*	*	327	277	79	*	*	*	*	*
1929	*	*	*	*	477	338	189	*	*	*	*	*
1930	*	173	388	480	523	473	224	59	2320	*	*	*
1931	128	585	560	585	673	585	363	88	3567	894	0	4.0
1932	37	234	260	281	438	331	181	95	1857	653	0	2.8
1933	72	222	213	300	451	411	266	205	2220	855	0	2.6
1934	108	334	396	368	325	349	219	150	2249	845	0	2.7
1935	7	47	326	422	438	375	257	120	1992	770	0	2.6
1936	41	125	387	345	422	442	295	121	2178	736	0	3.0
1937	41	120	540	339	451	409	255	57	2212	752	0	2.9
1938	0	12	135	222	245	201	127	38	980	594	0	1.7
1939	160	149	414	501	455	558	193	104	2534	864	0	2.9
1940	3	19	577	415	642	436	335	151	2578	1072	0	2.4
1941	0	122	519	685	603	607	438	173	3147	1295	0	2.4
1942	7	75	443	462	645	683	343	112	2770	1619	0	1.7
1943	0	116	354	541	542	520	360	183	2616	1826	0	1.4
1944	80	304	517	605	778	801	656	300	4101	3161	0	1.3
Average *	49	176	403	438	508	479	306	136	2500	1138	0	2.2
Average ** c.f.s.	1	3	6	7	8	8	5	2	5			
Monthly ** Diversion in per cent of seasonal	2.0	7.0	16.2	17.5	20.4	19.2	12.3	5.4				

* No records
** 1931 to 1943
NOTE: No records prior to 1928

TABLE 125
COMPARATIVE MONTHLY DIVERSIONS IN ACRE FEET
AND GROSS SEASONAL DUTY OF WATER 1928 to 1944
STANISLAUS RIVER - ORANGE BLOSSOM BRIDGE TO MOUTH

Year	March	April	May	June	July	August	September	October	Seasonal Diversion	Acreage Irrigated: General	Acreage Irrigated: Rice	Gross Seasonal Duty, Acre Feet Per Acre
1928	*	*	*	*	1248	1277	1089	*	*	*	*	*
1929	*	*	*	*	1059	807	605	*	*	*	*	*
1930	*	625	1057	1495	1336	1167	730	115	6525	*	*	*
1931	108	2023	1692	2773	2855	2449	1308	706	13914	2261	0	6.2
1932	431	1142	1529	1994	1780	1678	1216	471	10241	2522	0	4.1
1933	103	1046	1158	1355	1350	1176	684	316	7188	2021	0	3.6
1934	240	1620	1274	1687	1697	1683	780	402	9383	2122	0	4.4
1935	0	250	1177	1702	1855	1745	759	304	7792	2076	0	3.8
1936	0	727	838	1256	1952	1407	943	429	7552	2313	0	3.3
1937	0	508	1816	2248	2530	2429	1756	650	11937	3849	75	3.0
1938	0	327	735	1239	1690	1748	997	309	7045	3198	0	2.2
1939	198	1848	2201	2873	3222	3310	1752	827	16231	6331	0	2.6
1940	217	682	2143	3330	3858	2924	1741	851	15746	6902	0	2.3
1941	12	392	2696	3173	3413	3228	2466	1280	16660	6940	110	2.4
1942	240	356	2533	4242	4590	3972	2721	1360	20014	7095	130	2.9
1943	3	873	3439	4241	4458	3935	3518	1598	22065	7360	0	3.0
1944	186	2013	3266	3565	4246	4292	2659	1603	21830	7915	0	2.8
Average **	124	986	1893	2548	2821	2570	1664	793	13400	4493	23	3.0
Average ** c.f.s.	2	16	31	43	46	42	28	13	28			
Monthly Diversion in per cent of seasonal	0.9	7.4	14.1	19.0	21.1	19.2	12.4	5.9				

* No record.
** 1931 to 1944.
NOTE: No records prior to 1928.

TABLE 126

COMPARATIVE SEASONAL DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER 1924-1944
(SEGREGATED TO RIVER SECTIONS)

Year		River Sections							Redding to Sacramento
		Redding to Red Bluff	Red Bluff to Butte City	Butte City to Colusa	Colusa to Wilkins Slu	Wilkins Slu to Knights Ldg	Knights Ldg to Verona	Verona to Sacramento	
1924	Seasonal diversion acre-feet	99835	407427	67152	167217	99573	18422	93147	952773
	Average cubic feet per second	205	838	138	344	205	38	192	1960
	Acreage irrigated - rice	0	25875	6950	10130	11000	770	4963	59688
	Acreage irrigated - general	20020	32488	12991	19401	6093	854	12422	104269
1925	Seasonal diversion acre-feet	105593	369570	69511	179953	33822	6731	78283	843463
	Average cubic feet per second	217	761	143	370	70	14	161	1736
	Acreage irrigated - rice	0	30467	8761	9156	3054	0	6587	58025
	Acreage irrigated - general	15714	12979	7065	25408	3472	922	10662	76222
1926	Seasonal diversion acre-feet	107160	525287	134027	189515	41796	19700	90285	1107770
	Average cubic feet per second	220	1081	276	390	86	41	186	2280
	Acreage irrigated - rice	0	47827	14117	13214	1781	1537	9025	87501
	Acreage irrigated - general	19890	13580	7534	18778	4440	1803	10600	76625
1927	Seasonal diversion acre-feet	103240	502946	95815	233466	113750	24786	85252	1159263
	Average cubic feet per second	212	1036	197	481	234	51	175	2386
	Acreage irrigated - rice	0	37718	9110	16864	7574	2569	5926	79761
	Acreage irrigated - general	17823	17565	6445	18609	5371	1597	10451	77861
1928	Seasonal diversion acre-feet	113321	446674	68244	224477	77851	22153	101818	1054538
	Average cubic feet per second	234	919	140	461	160	46	210	2170
	Acreage irrigated - rice	0	29911	5751	14024	4865	1642	7353	63546
	Acreage irrigated - general	20789	19996	7452	21875	5889	513	11704	88218
1929	Seasonal diversion acre-feet	120150	478947	70608	205659	76003	18246	96196	1065809
	Average cubic feet per second	247	986	146	423	156	37	198	2193
	Acreage irrigated - rice	0	21680	4557	7979	4404	0	5274	43894
	Acreage irrigated - general	19105	39985	9168	45826	10859	464	11507	136914
1930	Seasonal diversion acre-feet	126760	440617	72341	229715	68169	21528	96725	1055855
	Average cubic feet per second	261	907	149	473	140	44	199	2173
	Acreage irrigated - rice	0	29199	4963	11717	3155	1130	6020	56184
	Acreage irrigated - general	14571	24068	9461	30003	7659	491	10324	96577
1931	Seasonal diversion acre-feet	143543	553663	93184	313237	70966	21506	139167	1335266
	Average cubic feet per second	295	1139	192	645	146	44	286	2747
	Acreage irrigated - rice	0	39532	5462	19067	780	200	8853	73894
	Acreage irrigated - general	14538	33254	10216	54487	9706	2417	16887	141505

TABLE 126 (CONTINUED)

COMPARATIVE SEASONAL DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER 1924-1944
(SEGREGATED TO RIVER SECTIONS)

Year		River Sections							
		Redding to Red Bluff	Red Bluff to Butte City	Butte City to Colusa	Colusa to Wilkins Slu	Wilkins Slu to Knights Ldg	Knights Ldg to Verona	Verona to Sacramento	Redding to Sacramento
1932	Seasonal diversion acre-feet	132035	460462	31846	249723	37791	18573	89570	1020000
	Average cubic feet per second	272	947	66	514	78	38	184	2099
	Acreage irrigated - rice	0	29673	3086	15529	0	567	4968	53823
	Acreage irrigated - general	12745	52084	7387	34883	9159	4707	9782	130747
1933	Seasonal diversion acre-feet	135323	474372	33281	250149	59381	17837	71377	1041720
	Average cubic feet per second	278	975	69	515	122	37	147	2143
	Acreage irrigated - rice	0	31663	1640	15578	2126	270	2017	53294
	Acreage irrigated - general	12809	30479	4436	34925	6468	1847	10057	101021
1934	Seasonal diversion acre-feet	133625	448806	23531	243463	90826	20877	95835	1056963
	Average cubic feet per second	275	924	48	501	187	43	197	2175
	Acreage irrigated - rice	0	29153	587	15853	4497	892	5534	56516
	Acreage irrigated - general	13620	27858	4591	28934	7035	1461	10284	93783
1935	Seasonal diversion acre-feet	121974	385508	19703	225702	74382	20989	77906	926164
	Average cubic feet per second	251	794	41	464	153	43	160	1906
	Acreage irrigated - rice	0	26884	380	14462	4168	650	4546	51090
	Acreage irrigated - general	13405	28589	5142	30663	6804	1313	12577	98493
1936	Seasonal diversion acre-feet	149313	455981	36371	215313	80901	17072	100018	1054969
	Average cubic feet per second	307	937	75	443	167	36	206	2171
	Acreage irrigated - rice	0	30087	2028	14409	7042	400	8696	62662
	Acreage irrigated - general	13254	27579	5423	27832	5884	1542	11579	93093
1937	Seasonal diversion acre-feet	114609	482048	42570	247130	72526	12949	98629	1070461
	Average cubic feet per second	236	992	88	508	149	27	203	2203
	Acreage irrigated - rice	0	34214	2040	19235	3739	0	7318	66546
	Acreage irrigated - general	13324	30634	5843	29888	6710	2631	11806	100836
1938	Seasonal diversion acre-feet	120301	351901	31684	267085	66219	12447	82593	932230
	Average cubic feet per second	248	723	65	550	136	26	170	1918
	Acreage irrigated - rice	0	29522	1790	19616	4264	0	7396	62588
	Acreage irrigated - general	9309	27193	5137	27788	6476	1757	7935	85595
1939	Seasonal diversion acre-feet	141403	587358	29668	292226	89153	21496	139744	1301048
	Average cubic feet per second	291	1209	61	601	183	44	288	2677
	Acreage irrigated - rice	0	32917	750	17360	3667	0	9159	63853
	Acreage irrigated - general	13423	58185	6802	51711	13120	2727	12800	158768

TABLE 126 (CONTINUED)

COMPARATIVE SEASONAL DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER 1924-1944
(SEGREGATED TO RIVER SECTIONS)

Year		River Sections: Redding to Red Bluff	Red Bluff to Butte City	Butte City to Colusa	Colusa to Wilkins Slu	Wilkins Slu to Knights Ldg	Knights Ldg to Verona	Verona to Sacramento	Redding to Sacramento
1940	Seasonal diversion acre-feet	116052	479028	15683	249532	70974	34057	97304	1062630
	Average cubic feet per second	239	986	32	513	146	70	200	2187
	Acreage irrigated - rice	0	31754	463	19475	4024	1541	7134	64391
	Acreage irrigated - general	9696	43885	6354	41548	7318	1318	9611	119730
1941	Seasonal diversion acre-feet	135305	493667	16903	305187	95969	25970	77114	1150115
	Average cubic feet per second	278	1016	35	628	197	53	159	2367
	Acreage irrigated - rice	0	40183	530	30716	6786	1013	5968	85196
	Acreage irrigated - general	12205	45217	6772	37039	7923	980	8445	118581
1942	Seasonal diversion acre-feet	119216	553834	37714	335431	116200	26820	89760	1278975
	Average cubic feet per second	245	1140	78	690	239	55	185	2632
	Acreage irrigated - rice	0	49299	2668	39415	8957	660	6664	107663
	Acreage irrigated - general	13513	47696	5123	30095	5425	1476	7898	111226
1943	Seasonal diversion acre-feet	139086	594046	60963	333715	136688	35934	116503	1416935
	Average cubic feet per second	286	1222	125	687	281	74	240	2916
	Acreage irrigated - rice	0	55316	4275	35777	9299	1115	9817	115599
	Acreage irrigated - general	14362	62663	4765	29580	4594	1250	9052	126266
1944	Seasonal diversion acre-feet	155303	715850	77255	405665	142341	31565	150171	1678150
	Average cubic feet per second	320	1473	159	835	293	65	309	3453
	Acreage irrigated - rice	0	56620	5743	32161	14459	1573	11686	122242
	Acreage irrigated - general	15324	40614	4475	32591	8086	1997	8781	111868
	Average 1924 - 1944								
	Seasonal diversion acre-feet	125395	486088	53717	255413	81683	21417	98446	1121817
	Average cubic feet per second	258	1000	111	526	168	44	203	2308
	Per cent of seasonal draft	11.2	43.2	4.8	22.8	7.3	1.9	8.8	
	Acreage irrigated - rice	0	35210	4078	18655	5221	787	6900	77202
	Acreage irrigated - general	14739	34124	6789	31990	7071	1623	10723	107041

TABLE 127

MONTHLY DIVERSIONS, DIVERSION PERCENTAGES AND ACREAGES IRRIGATED - SACRAMENTO RIVER SECTIONS - 1944

River Section	Acre-feet diverted and monthly use in per cent of seasonal									Per cent of seasonal Draft	Acreage Irrigated		Acre-feet per Acre
	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Seasonal Draft		General	Rice	
Redding to Red Bluff (Ac. Ft.)	157	5302	25236	25429	26485	25264	24660	22770	155303	9.3	14324	0	10.8
Per cent of seasonal	0.1	3.3	16.3	16.5	17.0	16.3	15.9	14.6					
Red Bluff to Butte City	4	67314	129282	126315	140431	134411	80102	37991	715850	42.7	40579	56620	7.4
Per cent of seasonal	0	9.4	18.1	17.6	19.6	18.8	11.2	5.3					
Butte City to Colusa	0	6721	14817	16611	16354	15124	6451	1177	77255	4.6	4475	5743	7.6
Per cent of seasonal	0	8.7	19.2	21.5	21.2	19.6	8.3	1.5					
Colusa to Wilkins Slough	689	48187	85228	76255	86462	75599	32512	733	405665	24.2	32591	32161	6.3
Per cent of seasonal	.2	11.9	21.0	18.8	21.3	18.6	8.0	.2					
Wilkins Slough to Knights Ldg.	338	14357	27235	27579	30059	28538	14115	120	142341	8.5	8086	14459	6.3
Per cent of seasonal	.3	10.1	19.1	19.4	21.1	20.0	9.9	0.1					
Knights Landing to Verona	0	3385	5415	5804	6420	6603	3512	426	31565	1.9	1997	1573	8.8
Per cent of seasonal	0	10.7	17.1	18.4	20.3	20.9	11.1	1.5					
Verona to Sacramento	2048	10400	23014	27640	32218	32645	19506	2700	150171	8.5	8781	11686	7.3
Per cent of seasonal	1.4	6.9	15.3	18.4	21.5	21.7	13.0	1.8					
Total . . .	3236	155666	310227	305633	338429	318184	180858	65917	1678150		110833	122242	7.2
Average cubic feet per second	52	2594	5004	5093	5459	5132	3014	1063	3420				
Monthly diversion in per cent of seasonal	0.2	9.3	18.5	18.2	20.2	19.0	10.7	3.9					

(1) The principal diversion on this section of river is the Portuguese Bend plant of Sutter Mutual Water Company. Area irrigated is included in section between Colusa and Wilkins Slough.

TABLE 128

COMPARATIVE SEASONAL RETURN WATER PERCENTAGES 1924-1944
SACRAMENTO AND SAN JOAQUIN RIVER AREA.

Year	Sacramento River: Seasonal Run-off at Red Bluff in per cent of normal*	Sacramento River: Return Water in per cent of Diversions: June-Sept. inc.	Sacramento River: Return Water in per cent of Diversions: July-Sept inc.	San Joaquin River and Tributaries: Seasonal Run-off in per cent of normal S.J. River and tributaries**	San Joaquin River and Tributaries: Return Water in per cent of Diversions: June Sep. inc.	July Sep. inc.	Aug. Sep. inc.	July Oct. inc.	Aug. Oct. inc.	Aug.-Sep. Return in per cent of July-Aug. Diversions
1924	38	33	33	24		35	41			29
1925	92		55(1)	86			38			23
1926	65	49	45	56		28	32			22
1927	125	66	59	104			32			23
1928	87	49	46	70		28	28			23
1929	50	42	39	46		19	21			16
1930	70	55	47	53	20	21	22			17
1931	38	33(2)	32	27	23(3)	27	40			18
1932	58	56	47	106			26		29	21
1933	52	56	48	54		22	20	25	25	17
1934	51	45	41	37	20(4)	21	28	25(5)	33	16
1935	86		62	103		30	24	34	31	19
1936	81	56	47	104		31	25	35	32	20
1937	68		48	105		35	28	38	35	22
1938	168		64	180			41		47	29
1939	50	38	36	46	20	20	23	24	29	17
1940	120	55	48	105		25	25	27	29	19
1941	164	69	56	127	27	32	28	35	33	21
1942	129	74	56	118	22	28	26	31	31	20
1943	97	55	53	117	30	28	28	31	32	23
1944	44	39	41	38	20	19	20	21	22	17

*50-year mean (1889-1939) of natural run-off. For comparison of 40 and 50 year means see Tables 1, 3 and 5.

**50-year mean (1889-1939) of natural run-off at foothill stations of San Joaquin, Merced, Tuolumne and Stanislaus Rivers. For comparison of 40 and 50 year means, see Tables 1, 3 and 5.

(1) July-October, inclusive, 59.
(2) May-September, inclusive, 34.
(3) May-September, inclusive, 19.
(4) May-September, inclusive, 20.
(5) June-October, inclusive, 23; May-October, inclusive, 21.

TABLE 129

MONTHLY RETURN WATER FLOW TO THE SACRAMENTO RIVER ABOVE SACRAMENTO
AS MEASURED AT DEFINITE RETURN FLOW CHANNELS - 1944

Return Flow Channel	Table No.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	June to Sept.	July to Sept.
		Acre-Feet													
Butte Slough (1)	21	48330	67900	63710	27120	33410	29010	14090	16520	24940	4800	21490	28140	84560	55550
R. D. 70 Drain	23	268	1410	1750	0	0	0	0	0	0	3460	750	119	0	0
R. D. 108 Drain	24	3080	11650	5680	5770	26010	21220	19840	24500	25540	3320	2860	3360	91100	69880
Colusa Basin Drainage (2)	28	8700	3370	1810	7860	31330	27910	12980	25070	47280	19700	16990	18630	113240	85330
Sycamore Slough	29	Flow negligible during 1944													
Sacramento Slough (3)	35	18620	61740	35620	46210	39100	44950	47390	50000	50250	17960	25380	20700	192590	147640
R. D. 1001 Drain (4)	46	56	4170	4990	167	795	121	0	337	298	0	321	430	756	635
R. D. 1000 Drain #3	48	1920	5220	4490	3840	2830	2130	54	390	4530	642	0	0	7100	4970
R. D. 1000 Drain	49	0	5190	3350	218	0	0	0	0	1640	274	1590	1860	1640	1640
Totals		80970	160650	121400	91180	133475	125340	94350	116820	154480	50160	69380	73240	490990	365650

(1) This flow except during high water periods is practically all of Feather River origin.
(2) A portion of the water which normally would return to the Sacramento River at this point is diverted to the Knights Landing Ridge Cut and is not included. (See Table 27.)
(3) This is the measured flow and includes return flow from Feather River diversions. (See Table 36 for segregation of waters.)
(4) Discharged to main drain between Reclamation Districts 1000 and 1001, thence to Sacramento River at Mile 19.6L.

TABLE 130

RELATION OF MONTHLY MEASURED RETURN WATER FLOW TO DIVERSIONS - SACRAMENTO RIVER, RED BLUFF TO SACRAMENTO
(USING ONLY RETURN WATER WHICH ENTERED THROUGH DEFINITE RETURN CHANNELS*) - 1944

Return Flow Channel	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	January to December	June to Sept.	July to Sept.
	Acre-Feet														
R. D. 70 Drain	268	1410	1750	0	0	0	0	0	0	3460	750	119	7760	0	0
R. D. 108 Drain	3080	11650	5680	5770	26010	21220	19840	24500	25540	3320	2860	3360	152830	91100	69880
Colusa Basin Drainage (1)	8700	3370	1810	(2)9760	(2)38050	(2)36470	(2)24080	(2)36070	(2)51680	(2)19715	16990	18630	265325	148300	111830
Sacramento Slough	11270	49820	25780	39080	27950	26940	30500	31710	36550	12300	17750	13340	322990	125700	98760
R. D. 1000 Drain	1920	10410	7840	4060	2830	2130	54	390	6170	916	1590	1860	40170	8740	6610
Total Return	25240	76660	42860	58670	94840	86760	74470	92670	119940	39710	39940	37309	789070	373840	287080
Diversions (Red Bluff to Sacramento)	0	0	3080	150360	284990	280200	311940	292920	156200	43150	0	0	1522840	1041260	761060
Return in per cent of diversions	—	—	—	39	33	36	24	32	77	92	—	—	—	31	38

NOTE: In order to show return water from Sacramento River irrigation only, the discharge to the river of Butte Slough and the discharge from Reclamation District 1001 are excluded, as are also the portion of the return through Sacramento Slough derived from Feather River diversions (Table 36) and the surplus water diverted to Sutter By-Pass from Butte Slough.

* As distinguished from use of all accretions as indicated in Table 131.

(1) No account taken of negligible flow from Sycamore Slough.
(2) Includes estimated flow into Knights Landing Ridge Cut.

TABLE 131

RELATION OF MONTHLY TOTAL RETURN WATER FLOWS TO DIVERSIONS - SACRAMENTO RIVER SECTIONS - 1944
(INCLUDING ALL ACCRETIONS)*

River Section	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan-Dec
	Acre-Feet												
Return Flow													
Red Bluff to Butte City					85700	48100	29600	21700	21100	17000			
Butte City to Colusa					500	10000	4300	8000	8800	10000			
Colusa to Wilkins Slough					15900	2400	-500	-9200	-2000	-1300			
Wilkins Slough to Knights Ldg.					56500	50200	47400	63700	81500	22600			
Knights Landing to Verona		- - - -	(1)	- - - -	56200	35600	23400	28500	36900	144500			
Verona to Sacramento					2800	2100	0	400	6100	900			
Total Return					217600	148400	104200	113100	152400	193700			
Total Diversion. Red Bluff to Sacramento					285000	280200	311900	292900	156200	43100			
Return in per cent of draft.					16	11	8	8	11	14			
Monthly return in per cent of seasonal					76	53	33	39	97	—			

River Section	Return Flow Acre-Feet		Red Bluff to Lower End of Section-Accumulative: Return Flow Acre-Feet		Diversions Acre-Feet		Return Flow in % of Diversion		In River Section January to December			Red Bluff to Lower End of Section January to December		
	June to Sept.	July to Sept.	June to Sept.	July to Sept.	June to Sept.	July to Sept.	June to Sept.	July to Sept.	Return	Diversion	Return in % of Diver.	Return	Diversion	Return in % of Diver.
Red Bluff to Butte City	120500	72400	120500	72400	481200	354900	25	20						
Butte City to Colusa	31100	21100	151600	93500	535700	392800	28	24						
Colusa to Wilkins Slough	-9300	-11700	142300	81800	806600	587400	18	14						
Wilkins Sl. to Knights Ldg	242800	192600	385100	274400	906900	660100	42	42		- - - - - - -		(1)	- - - - - - -	
Knights Ldg. to Verona	124400	88800	509500	363200	929200	676600	55	54						
Verona to Sacramento **	8600	6500	518100	369700	1041100	760900	50	49						
Total	518100	369700												
Diversions (Red Bluff to Sacramento)	1041100	760900												
Return in % of diversion	50	49												

NOTE: In the return water here shown, the discharge to the Sacramento River of the Feather and American rivers is excluded as is also the discharge of following return water channels, Butte Slough and that portion of the discharge of Sacramento Slough derived from Feather River waters. Also inflow from Mill, Antelope and Deer Creeks between Red Bluff and Butte City has been excluded. The diversion to the Ridge cut from Colusa Basin drainage has been credited as return flow. See Table 27.

(1) Due to high water in spring of 1944 no attempt was made to determine return flows and percentages for that period. *As the return water in this table between any two stations is computed as the difference in discharge between the upper and lower station, making due allowance for the intervening diversions, the results include both those accretions entering from definite return channels which have been measured and accretions due to seepage, groundwater return, etc., which cannot be directly measured.

** See discussion in text, pages 22 and 23.

TABLE 132

COMPARATIVE SEASONAL TOTAL RETURN WATER FLOWS FOR PERIOD JULY-SEPTEMBER 1934 TO 1944
SACRAMENTO VALLEY, RED BLUFF TO SACRAMENTO

(ACRE-FEET)

	1944												
	July	Aug.	Sept.	1944	1943	1942	1941	1940	1939	1938	1937	1936	1935	1934
1 - Inflow (1)														
Sacramento River at Red Bluff	305500	314100	239100	858700	756100	877500	933000	675400	557500	855800	595400	590600	579700	482000
Feather River at Oroville	137600	128100	98260	364000	357200	466800	406800	358800	276600	487900	321200	396100	353400	263600
Yuba River at Smartville	38520	20060	18350	76930	105080	144600	143600	62400	38900	136500	65700	71900	69900	33600
American River at Fairoaks	38830	13240	13300	65370	114530	203470	130400	93300	23100	193500	90600	137400	92000	32600
1 - Total inflow (1)	520500	475500	369000	1365000	1332910	1692370	1613800	1189900	896100	1673700	1072900	1196000	1095000	811800
2 - Outflow														
Sacramento River at Sacramento	96200	93400	159200	348800	753500	1155600	1135000	713700	376100	1371200	588400	743700	741600	338400
Yolo By-Pass opp. Sacramento	2300	2600	3640	8540	9340	13170	13400	5900	3800	800	3700	8300	2000	3900
2 - Total outflow	98500	96000	162800	357300	762840	1168800	1148400	719600	379900	1372000	592100	752000	743600	342300
3 - Diversions														
Sacramento River	338430	318180	180860	837500	767410	680130	630500	533000	467500	482900	523800	462700	456000	438100
Colusa Trough	12200	13010	6337	31550	27130	18760	19600	21300	16300	3100	14200	15500	2300	3500
Back Borrow Pit	14740	13850	5723	34310	41630	25100	14500	11300	16000	9600	13100	9700	10200	13600
Lower Butte Creek and Slough	3720	4207	8622	16550	20020	17410	14400	18100	16500	23300	15000	13600	9600	4400
By-Pass and Drainage Channels	19890	20230	9640	49760	33470	20310	28200	21100	30400	9300	92200	29900	20100	29600
Feather River	142130	133130	85920	361200	347800	334490	282100	258000	213100	290900	279000	246100	229500	197900
Yuba River	16790	15530	13310	45630	50780	42890	37700	37800	33900	27700	28400	28200	28000	23200
American River	1566	1211	790	3567	3490	3380	3100	3500	3400	3000	3600	2900	2700	2700
3 - Total Diversions	549500	519400	311200	1380100	1291730	1142470	1030100	904100	797100	849800	899300	808600	758400	713000
Return flow & accretion (2+3-1)	127500	139900	105000	372400	721660	618900	564700	433800	280900	548100	418500	364600	407000	243500
Total gain in % of diversions	23	27	34	27	56	54	55	48	35	64	47	45	54	34

(1) Only major flows considered. Flows of tributary creeks negligible during late summer months.

TABLE 133

RELATION OF MONTHLY MEASURED RETURN WATER FLOWS TO DIVERSIONS IN COLUSA TROUGH AT COLUSA-WILLIAMS HIGHWAY
AND
THE PRINCIPAL DIVERSIONS FROM WHICH THE RETURN WATER WAS DERIVED - 1944

Diversion	Mile and Bank	Apr.	May	June	July	Aug.	Sept.	Oct.	June to Sept. (inc.)	July to Sept. (inc.)	Acreage Irrigated		
											General	Rice	Gun Club
Sacramento River (Table 98)													
Glenn Colusa Irrigation District	154.8R	49081	89238	88385	94734	94203	58425	33628	335747	247362	22405	36227	1930
Jacinto Irrigation District	154.8R	1934	3838	4374	5256	4612	4017	704	18259	13885	7090		
Compton Delevan Irrigation District	154.8R	2023	5940	6476	6764	6764	2102		22106	15630		5117	
Provident Irrigation District	154.8R	9880	10038	8136	8392	7581	4276	313	28385	20249	1107	7582	
Princeton-Codora-Glenn Irrigation Dist.	154.8R	3001	15929	13218	15059	14610	8834	1989	51721	38503	2243	4618	
Maxwell Irrigation District	154.8R	813	1220	1785	2152	2152	714		6803	5018		744	
Colusa Trough Plants (Table 99)	—	2227	9012	9895	12202	13014	6337	1026	41448	31553	300	4487	1240
Totals		68959	135215	132269	144559	142936	84705	37660	504469	372200	33145	58775	3170
Return Flow													
Colusa Trough at Colusa-Williams Highway (Table 25)		21928	54586	37476	29393	38682	49982	14406	155533	118057			
Colusa Trough diversions (Table 99)		2227	9012	9895	12202	13014	6337	1026	41448	31553			
Total return (Acre-feet)		24155	63598	47371	41595	51696	56319	15432	196981	149610			
Total return (Average cubic feet per second)		406	1034	796	676	841	946	251	814	820			
Return in per cent of diversions		35	47	36	29	36	66	41	39	40			

TABLE 134

RELATION OF MONTHLY MEASURED RETURN WATER FLOWS TO DIVERSIONS - RECLAMATION DISTRICT #70 FOR 1944

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.-Dec inc.	Mar.-Oct. inc.	July-Sept. inc.	Acreage Irrigated	
	Acre-Feet															Gen.	Rice
Diversions (1)				5162	8844	7821	8499	8860	4173	607			43966	43966	21532	9145	2415
Return Water (2)	268	1412	1747							3463	750	119	7759	5210			
Return in % of diversion																	
Return in % of annual diversions																	
Drainage rediverted (3)							NO COMPUTATION MADE OF REDIVERSION										
Rainfall (4)																	

(1) The diversions comprise those from the Sacramento River, left bank, Mile 67.5 to Mile 83.5 (Table 98) and those from Butte Slough Mile 0.3W to 7.5W (Table 103).
(2) The return water is the discharge to the Sacramento River through the drainage plant of Reclamation District #70 at Mile 68.8L (Table 23). This is a combined drainage and irrigation plant which also discharges into an irrigation canal at the plant.
(3) No computation of rediversion of drainage water.
(4) Rainfall not taken into account in percentage figures. See Tables 81 to 92 for daily rainfall records.

TABLE 135

RELATION OF MONTHLY MEASURED RETURN WATER FLOWS TO DIVERSIONS - RECLAMATION DISTRICT #108 FOR 1944

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.-Dec. inc.	Mar.-Oct. inc.	July-Sept. inc.	Acreage Irrigated	
	Acre-Feet															Gen.	Rice
Diversions (1)				22646	40641	34429	42542	32963	11498	19			184738	184738	87003	3682	20283
Return Water (2)	3080	11650	5680	5770	26010	21220	19840	24500	25540	3320	2860	3360	152830	131880	69880		
Return in % of diversion				25	64	62	47	75									
Return in % of annual diversions				3.1	14.1	11.5	10.8	13.3	13.8								
Drainage rediverted (3)							NO COMPUTATION MADE OF REDIVERSION										
Rainfall (4)																	

NOTE: Flood stages prevailed in spring and winter.
(1) The diversions comprise those from the Sacramento River, right bank, from Mile 43.1 to Mile 63.2 (Table 98).
(2) The return water is the discharge to Sacramento River of Reclamation District 108 drain at Rough and Ready Bend (Table 24) and on Back Borrow Pit (Table 26).
(3) No computation of rediversion of drainage water.
(4) Rainfall not taken into account in percentage figures. See Tables 81 to 92 for daily rainfall records.

TABLE 136

RELATION OF MONTHLY MEASURED RETURN WATER FLOWS TO DIVERSIONS - RECLAMATION DISTRICT #1500 FOR 1944

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.-Dec. inc.	Mar.-Oct. inc.	July-Sept. inc.	Acreage Irrigated	
	Acre-Feet															Gen.	Rice
Diversions (1)			338	34577	60661	58308	63877	63046	31915	488			313210	313210	158838	25541	22949
Return Water (2)	1330	12750	7260	9880	32330	28440	28190	32350	29520	3480	3980	3620	193130	171450	90060		
Return in % of diversion				29	53	48	44	51	91						57		
Return in % of annual diversions			2.3	3.2	10.3	9.1	9.0	10.3	9.4	1.1					29		
Drainage rediverted (3)																	
Rainfall (4)																	

(1) The diversions comprise those from the Sacramento River, left bank, from Mile 29.9 to Mile 63.75 (Table 98). The principal ones are the Sutter Mutual Water Company's plant at Tisdale, State Ranch Bend and Portuguese Bend. Diversions through Tisdale plant to R. D. 1660 have been excluded.
(2) The return water is the discharge through the drainage plant of Reclamation District #1500 on the West Borrow Pit of the Sutter By-Pass (Table 34). This water reaches Sacramento River via Sacramento Slough (Table 35).
(3) No computation of rediversion of drainage water.
(4) Rainfall not taken into account in percentage figures. See Tables 81 to 92 for daily rainfall records.

TABLE 137

RELATION OF MONTHLY MEASURED RETURN WATER FLOWS TO DIVERSIONS - RECLAMATION DISTRICT #1000 FOR 1944

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.-Dec. inc.	Mar.-Oct. inc.	July-Sept. inc.	Acreage Irrigated	
	Acre-Feet															Gen.	Rice
Diversions (1)				6705	10674	12371	14998	15263	8748	55			68814	68814	39009	5695	4986
Return Water (2)	1924	10408	7840	4058	2828	2126	54	391	6171	889	1592	1859	40140	24357	6616		
Return in % of diversion				60	26	17	0.4	3	70						17		
Return in % of annual diversions				5.9	4.1	3.1	0.1	0.6	9.0	1.3	2.3	2.7			10		
Drainage rediverted (3)															3320		
Rainfall (4)																	

(1) The diversions comprise those from the Sacramento River, left bank, Mile 2.4 to Mile 19.6 (Table 98).
(2) The return water is the discharge through the drainage plant of Reclamation District #1000, Plant #3 (Table 48) and 2nd Bannon Slough (Table 49).
(3) This is the water pumped from the drains within the district and at Central Mutual Water Company plant (Mile 16.0L).
(4) Rainfall is not taken into account in percentage figures. See Tables 81 to 92 for daily rainfall records.

TABLE 138

MONTHLY RETURN WATER FLOWS IN SAN JOAQUIN VALLEY STREAMS - 1944
BY RIVER SECTIONS
(ACRE-FEET)

River Section	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
SAN JOAQUIN RIVER												
Fremont Ford Bridge to Vernalis												
Fremont Ford Bridge to Newman	12631	15594	54133	31144	39658	70925	17763	17732	15235	14904	15523	14560
Newman to Grayson	6181	6688	5952	23987	17214	21344	20713	17641	18537	14326	9469	12698
Grayson to Hetch Hetchy Crossing	307	1904	11486	8700	15811	7997	7304	6060	5067	7870	1555	-6704
Hetch Hetchy Crossing to Vernalis	1694	6041	-8197	6636	-8894	2790	5983	9647	4015	-7248	-2413	2272
Total return flow*	20813	30227	63374	70467	63789	103056	51763	51080	42854	29852	24134	22826
Total diversions	0	0	4790	21177	22013	20102	27066	24430	14554	4128	0	0
STANISLAUS RIVER												
Orange Blossom Bridge to Bret Harte Pump												
Orange Blossom to Riverbank	6530	NR	-720	NR	NR	-6700	NR	NR	NR	NR	-2490	350
Riverbank to Ripon Bridge	4990	NR	7730	NR	NR	23299	NR	NR	NR	NR	7860	4830
Orange Blossom to Ripon Bridge	11520	6740	7010	17647	-571	16599	12704	11288	11401	10972	5370	5180
Ripon Bridge to Bret Harte Pump	-3702	-3099	3339	2261	4851	5692	3958	1662	710	810	649	1688
Total Return Flow**	7818	3641	10349	19908	4280	22291	16662	12950	12111	11782	6019	6868
Total diversions (1)	0	0	186	2012	3059	3438	4106	4154	2589	1579	0	0
TUOLUMNE RIVER												
La Grange Bridge to Tuolumne City												
La Grange Br. to Roberts Ferry Br.	6320	4130	7190	1680	-370	10	1230	1060	600	1650	3380	21820
Roberts Ferry Br. to Hickman Br.	1560	3180	2570	5200	5518	4955	5199	4215	2690	770	6560	-5390
Hickman Br. to Modesto	10060	17290	22680	20271	15484	16102	11673	11397	11698	16853	5060	690
Modesto to Tuolumne City	-260	-1334	-1393	-927	-918	2482	2839	3260	3050	-21	2740	7496
Total return flow**	17680	23266	31047	26224	19714	23549	20941	19932	18038	19252	17740	24616
Total diversions (1)	0	0	0	203	384	509	626	591	348	171	0	0
MERCED RIVER												
Yosemite Valley Railroad to Mouth												
Yosemite Valley Railroad to Cressey	NR	NR	NR	3966	NR	NR	5093	4125	4874	5861	7247	6469
Cressey to mouth	NR	NR	NR	9264	NR	NR	12971	12776	10384	8459	5770	4840
Total return flow**	--	--	--	13230	--	--	18064	16901	15258	14320	13017	11309
Total diversions (1)	0	0	84	1117	1844	2535	2564	2466	2071	820	0	0

* The return flow figure is obtained by making due allowance for diversions and deducting all measured inflow from tributaries, but it is apparent that there is a large unmeasurable accretion from lands irrigated from the tributaries. Inflow of Dry Creek treated as Tuolumne River return water. During periods of high flow a large portion of the water passing Fremont Ford Bridge is in the Mud Slough channels and spreads over a large area.

** The excessive return flow in relation to diversions here shown is due to large irrigation district diversions which are made above upper station shown for each stream. This return flow enters the channels below the initial gaging stations on each.

(1) Total diversions in river reach.

TABLE 139

RELATION OF COMBINED MONTHLY RETURN WATER FLOWS TO DIVERSIONS SAN JOAQUIN VALLEY 1944

(Quantities in acre-feet except as noted)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan-Dec
San Joaquin River below Friant	48470	44750	67120	126800	122000	129600	152000	143500	116900	79920	32750	25940	1089750
DIVERSIONS													
Gravelly Ford to Fremont Ford (1)	4295	4966	41210	119440	142110	144100	144970	130310	120130	72330	29648	7209	960718
Merced Irrigation District	0	0	14005	65017	76331	81962	93098	81216	64635	34495	0	0	510759
Turlock Irrigation District Canal	3560	1820	32740	83350	99650	91560	88730	87110	66700	35950	20320	6790	613280
Modesto Irrigation District Canal	127	14280	15490	53580	67970	54490	52680	58300	38620	34340	254	246	390377
So. San Joaquin & Oakdale I.D. Canal	39	13950	10930	43220	52460	52020	49440	44350	26500	9260	1480	773	304422
Oakdale Irrigation District Canal	0	0	4490	12320	22540	22220	21890	19720	12870	5430	0	0	121480
Pumping diversions - Tables 111, 112, 113, 114	0	0	5140	24611	27640	26867	34654	31989	19940	6851	0	0	177692
Total diversions - acre-feet	8021	35016	124005	401538	488701	473219	485462	452995	349395	198656	51702	15018	3083728
Total Diversions - average c.f.s.	130	609	2017	6748	7948	7953	7895	7367	5872	3231	869	244	4240
Monthly diversion in % of annual	0.3	1.1	4.0	13.0	15.8	15.3	15.7	14.7	11.4	6.5	1.7	0.5	
RETURN FLOW													
San Joaquin River near Vernalis	165400	164600	294700	136900	235300	201400	76560	67070	71350	101400	147200	231800	1893680
Pumping Diversions - Tables 111, 112, 113, 114	0	0	5140	24611	27640	26867	34654	31989	19940	6851	0	0	177692
Undiverted Flow													
at Fremont Ford Br. (San Joaquin R.)	61469	71556	76467	20716	23616	23220	14141	8313	11024	16258	19587	30580	375947
at La Grange Br. (Tuolumne R)	37540	25230	43720	7420	43050	16580	1920	2150	3799	26940	53210	93480	355030
at Yosemite V.R.R. Cross. (Merced R.)	595	2110	41910	17150	34250	52590	1810	1750	1146	1300	643	811	156065
at Orange Blossom Br. (Stanislaus R.)	20080	10680	74650	13750	105400	35980	2350	1620	1030	2610	26510	53430	348090
Power release and spill	0	0	0	0	0	0	0	0	0	0	0	0	0
Net return - acre-feet	45716	55024	63093	102475	56624	99897	90993	85226	74300	61143	47250	53499	835240
Net return - acre-feet	743	957	1026	1722	921	1679	1480	1386	1249	994	794	870	1151
Return in % of diversions	—	—	51	26	12	21	19	19	21	31	91	—	
Monthly return in % of annual	5.5	6.6	7.6	12.3	6.8	11.9	10.9	10.2	8.9	7.3	5.6	6.4	

(1) Comprises diversions between head of Gravelly Ford Canal and Fremont Ford Bridge by Ray Flannigan, Miller & Lux and associated canal companies, James Irrigation District, Tranquillity Irrigation District, Traction Ranch, E. P. Jennings, Borland Ranch, Grass Lands Water Association, Breakwater Duck Club, and Aliso Canal.

(2) U.S.G.S. station.

(3) It is assumed that the stations which are above the valley diversions and below the foothill diversions represent all undiverted flow and include all spill or power release.

(4) Includes any valley floor runoff and all accretions.

TABLE 140

SEASONAL DIVERSIONS, ACREAGE IRRIGATED, AND GROSS SEASONAL DUTY OF WATER (MARCH TO OCTOBER, INCLUSIVE) IN THE SACRAMENTO-SAN JOAQUIN AREA - 1944

Source	Table Number	Seasonal diversions Acre-feet (1)	Acreage Irrigated			Gross Seasonal Duty of Water Acre-feet per acre
			General	Rice	Total	
Sacramento River - Redding to Sacramento	98	1,678,150	111,871	122,242	234,113	7.2
Feather River below Oroville	105	712,911	25,235	49,843	75,078	9.5
Yuba River on Valley floor	106	93,264	7,009	2,401	9,410	9.9
American River below Fairoaks	107	4,819	3,205	0	3,205	1.5
By-Pass and Drainage Channels	101-102-104	84,952	7,179	8,533	15,712	5.4
Lower Butte Creek and Slough	103	33,669	2,754	1,760	4,514	7.4
Colusa Trough and Back Borrow Pit	99 & 100	53,713	300	4,487	4,787	11.2
Total above Sacramento		2,661,478	157,553	189,266	346,819	(1 & 2) 7.7
Delta Uplands from:						
Old San Joaquin River	108	89,915	32,331	0	32,331	2.8
Tom Paine Slough	109	15,770	14,676	235	14,911	1.0
San Joaquin River (below Durham Ferry Bridge)	110	59,308	20,547	0	20,547	2.9
San Joaquin River from Fremont Bridge to Durham Ferry Bridge	111	138,260	42,196	1,464	43,660	3.2
Merced River below Snelling	112	13,501	4,509	0	4,509	3.0
Tuolumne River below Roberts Ferry Bridge	113	4,101	3,161	0	3,161	1.3
Stanislaus River below Orange Blossom Bridge	114	21,830	7,915	0	7,915	2.8
Total Delta Uplands and pumping diversions of San Joaquin River and Tributaries*		342,685	125,335	1,699	127,034	2.7
Sacramento-San Joaquin Delta**		(See Table 143)				

* Note that major gravity diversions by canals of Oakdale, South San Joaquin, Modesto, Turlock, Waterford and Merced Irrigation Districts and Miller and Lux are not included within the scope of these measurements.

** Delta crop census not taken in 1944. See 1938 report and reports prior to 1933 for detailed data.

(1) Diversions after November 1st not included.

(2) A large portion of this diversion was used to supply acreages reported under Sacramento River Diversions (Provident Irrigation District). See footnote Table 98, Provident Irrigation District diversions at Mile 154.8R.

TABLE 141

RICE ACREAGE IN CALIFORNIA

A comparison of rice acreage served from stream channels in Sacramento-San Joaquin Valleys with rice acreages in California from all sources.

Year	Rice Acreage: Served from all Sources*	Rice Acreage: Served from stream channels in Sacramento-San Joaquin Valleys**	Rice acreage in Sacramento-San Joaquin Valley in per cent of total rice acreage
1924	90000	89000	99
25	103000	95000	92
26	149000	129000	87
27	160000	123000	77
28	132000	101000	76
29	95000	74000	78
30	110000	88000	80
31	125000	126000	100
32	110000	91000	83
33	108000	87000	80
34	108000	92000	85
35	100000	78000	78
36	138000	104000	75
37	132000	109000	82
38	125000	95000	76
39	120000	104000	87
40	118000	94000	80
41	153000	120000	78
42	(1) 207000	159000	77
43	237000	186000	77
44	246000	200000	81
Average 1924-1944	136400	111600	82

*As reported by Federal-State crop reporting service.
**From reports of Sacramento-San Joaquin Water Supervision
(1) During 1942 there was a large increase in acreages served from sources other than Sacramento, San Joaquin rivers and tributaries.

TABLE 142

UNIT CONSUMPTIVE USE OF WATER IN SACRAMENTO-SAN JOAQUIN DELTA**
Acre-feet per Acre

Crop or Classification	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total Seasonal Use	Total Annual Use
Alfalfa	(.06)	(.08)	.10	.30	.40	.50	.65	.55	.50	.20	(.10)	(.07)	3.20	3.51
Asparagus	.05	.05	.05	.05	.08	.14	.40	.68	.55	.42	.12	.10	2.69	2.69
Beans	(.06)	(.08)	(.08)	(.16)	(.20)	.14	.24	.58	.37	(.09)	(.07)	(.05)	1.33	2.12
Beets	(.06)	(.08)	(.08)	.13	.32	.51	.61*	.53*	.20*	(.13)	(.10)	(.07)	2.30	2.82
Celery	(.04)	(.04)	(.04)	(.08)	(.10)	.10	.10	.20	.25	.30	.20	.05	1.20	1.50
Corn	(.04)	(.04)	(.04)	(.08)	(.10)	.24	.85	.84*	.40*	.10	(.10)	(.07)	2.43	2.90
Fruit	(.04)	(.04)	(.04)	.18	.32	.50	.57	.40	.23	.07	(.07)	(.05)	2.27	2.51
Grain and Hay	(.04)	(.04)	.07	.60	.83	.20	(.14)	(.23)	(.21)	(.14)	(.07)	(.05)	1.70	2.62
Onions	(.04)	(.04)	.08	.13	.27	.49	.43	.20	(.16)	(.13)	(.10)	(.07)	1.60	2.14
Pasture	.08	.10	.20	.25	.25	.25	.25	.25	.20	.15	.10	.08	2.16	2.16
Potatoes	(.06)	(.08)	(.08)	(.16)	.15	.38	.52	.30	.15	(.09)	(.07)	(.05)	1.50	2.09
Seed	(.06)	(.08)	(.08)	.10	.25	.50	.50	.50	.35	.10	(.10)	(.07)	2.30	2.69
Truck	(.06)	(.08)	.10	.10	.25	.50	.45	.45	.30	.15	.10	(.07)	2.40	2.61
Tules	.16	.09	.30	.74	1.10	1.28	1.53	1.32	1.18	.98	.59	.36	9.63	9.63
Willows	.05	.03	.09	.22	.33	.38	.46	.40	.35	.29	.18	.10	2.88	2.88
Bare Land	.04	.04	.04	.08	.10	.13	.14	.13	.11	.09	.07	.05	1.02	1.02
Idle Land with Weeds***	.07	.09	.10	.19	.24	.31	.33	.28	.19	.15	.12	.08	2.15	2.15
Open Water Surfaces	.08	.13	.23	.34	.60	.76	.84	.78	.60	.33	.14	.08	4.91	4.91

NOTE: Figures shown in () represents estimated consumptive use on cropped areas before planting and after harvest. (Evaporation from bare land, use by weeds, etc.)

* Includes estimated additional use by weeds during these months.

** These are the data as determined for and published in Bulletin No. 27 - "Variation and Control of Salinity in Sacramento-San Joaquin Delta and Upper San Francisco Bay" - Table 1, except that the figure for "Idle land with weeds" have been increased somewhat based upon later experimental work on the use of water by weeds.

*** Average for land below elevation 5.0 U.S.G.S. datum. Use on unirrigated lands above elevation 5.0 is considered zero.

TABLE 143

CONSUMPTIVE USE OF WATER IN THE SACRAMENTO-SAN JOAQUIN DELTA
1924 TO 1932 AND 1938

Year*	Water Consuming Area in Acres		Seasonal (2) Use of Water in Acre-Feet		Seasonal Unit Consumption in Acre Feet per Acre		Annual (3) Use of Water in Acre-Feet		Annual Unit Consumption in Acre-feet per Acre	
	Total (1)	Irri. Crops	Total	Irri. Crops	Total	Irri. Crops	Total	Irri. Crops	Total	Irri. Crops
1924		319800		674840		2.11				
1925		315600		660900		2.10				
1926		316200		649560		2.06				
1927		315600		649090		2.06				
1928		321500		674920		2.10				
1929	420900	321800	1100140	689550	2.62	2.14	1250180	839590	2.97	2.61
1930	446800	338000	1161000	744000	2.60	2.20	1322000	895000	2.96	2.65
1931	446310	339300	1167390	756010	2.61	2.23	1319250	907870	2.96	2.68
1932	447430	336440	1181030	746800	2.64	2.22	1334060	899830	2.98	2.67
1938	448750	335670	1226850	760850	2.73	2.27	1380120	914120	3.08	2.72

*Annual census omitted for years 1933 to 1937, inclusive.

(1) Total includes interior and exterior water surface, bare and weed lands which consume seepage water, willow and tule areas, etc.

(2) Includes water used by crops and vegetation during the composite growing season and by evaporation for the entire year.

(3) Includes in addition to seasonal use, the use of water on the cropped area during the non-growing or dormant season.

NOTE: Prior to 1929 the annual census was not complete with respect to water consuming areas other than irrigated crop lands.

TABLE 144

MAXIMUM RECORDED SALINITY AT BAY AND DELTA STATIONS
1934-1944 INCLUSIVE*

Year	1934	1935	1936	1937	1938	1939	1940	(3)1941	1942	1943	1944
Sacramento-San Joaquin Runoff in per cent of Normal**	43	91	96	80	170	43	115	137	129	114	56
Station (1)	Maximum Recorded Salinity in parts of Chlorine per 100,000										
	San Francisco, San Pablo and Suisun Bays										
Point Orient	1840	1720	1740	1700	1700	1920	1840				1730
Point Davis	1800	1500	1440	1460	(2)1460	1840	1760				1520
Benicia											1390
Bullshead Point	1640	1260	1340	1270	1160	1640	1340				
Bay Point	1460	720	960	920	580	1480	990				
O & A Ferry	1200	540	580	660	256	1180	720				730
Innisfail Ferry	1260	720	580	700	330	1360	790				790
	North San Pablo Bay										
Grandview											1530
	Sacramento River Delta										
Collinsville	1080	390	300	490	86	1040	450	195	190	340	470
Emmaton	760	88	54	102	7	580	140				
Three Mile Slough Bridge	660	77	57	120		590					161
Rio Vista Bridge	520	12	8	33		405					55
Junction Point	410										
Ryer Island Ferry						375					
Liberty Ferry	230					241					
Grand Island (Steamboat Slu)	350					271					
Isleton Bridge	310					250					5
Reclamation District 2068	176					82					
Howard Ferry	232					158					
Sutter Slough	50										
Little Holland Ferry	14					43					
Ryde	11					38					
Walnut Grove	10					18					
Paintersville Bridge	8										
Lisbon						8					
Sacramento	7	4	4	13	6	7	6				

* For maximum salinities recorded 1924-1933, see previous reports.
** Normal taken as 50-year mean (1889-1939) of natural runoff at foothill stations of major tributaries.
(1) For location and description see Table 145.
(2) Estimated. Samples not taken during period of maximum salinity.
(3) Sampling by State discontinued in 1941 and resumed in January, 1944, in cooperation with the U. S. Bureau of Reclamation.

TABLE 144 (CONTINUED)

MAXIMUM RECORDED SALINITY AT BAY AND DELTA STATIONS
1934 - 1944 INCLUSIVE *

Year	1934	1935	1936	1937	1938	1939	1940	(5) 1941	1942	1943	1944
Sacramento-San Joaquin Runoff in per cent of Normal**	43	91	96	80	170	43	115	137	129	114	56
Station (1)	Maximum Recorded Salinity in parts of Chlorine per 100,000										
				Mokelumne River Delta							
Southwest Point	107					86					
Tyler Island Ferry	10					16					
Camp 11, Staten Island	25					13					
Camp 29, Staten Island	52					32					
Camp 25, Staten Island						31					
Camp 20, Staten Island	18					22					
				San Joaquin River Delta							
Antioch	960	290	270	350	51	620	440	158	140	312	400
Curtis Landing	810	180									
Jersey	(2)620	86	78	102	9	500					164
Opposite Jersey				136							
Webb Pump	(3)340	16	16	25	8	265	27				52
Central Landing	(4) 90	8	7								
Opposite Central Landing				11	10	138	15				20
Dutch Slough	280	21	21	28	11	225	42				69
Rock Slough West of Dam		8	11	13	9	94	15				21
Camp 2, Medford Island						121					
Ward Landing	190										
Bacon Pump	160	11									
Mandeville Pump	166					104					
King Island Pump	104					79					
Rock Slough East of Dam		8	11	12	11	71	18				15
Rindge Pump	94	18	20	20	15	62	29				8
Orwood Bridge	107					54					
East Contra Costa I.D.	73					32					14
Middle River	108	11	12	16	13	60	55				10
Mansion House	90										
Victoria Island						35					11
Stockton Country Club	44										
Clifton Court Ferry	40					19					
Stockton	76					32					
Garwood Bridge	38										
Brants Bridge	21										
Williams Bridge	43										
Naglee Burke Pump						14					
Whitehall	12										
Mossdale Bridge	25	12	14	12	12	16	14				13

*For maximum salinities recorded 1924-1933 see previous reports.
** Normal taken as 50-year mean (1889-1939) of natural runoff at foothill stations of major tributaries.
(1) For location and description see Table 145.
(2) Estimated maximum of 670 in period not covered by sampling
(3) Estimated maximum of 350 in period not covered by samplint
(4) Estimated maximum of 125 in period not covered by sampling.
(5) Sampling by State discontinued in 1941 and resumed in January, 1944, in cooperation with the U. S. Bureau of Reclamation.

TABLE 145

DESCRIPTION OF SALINITY STATIONS AT WHICH OBSERVATIONS ARE OR HAVE BEEN TAKEN

STATION	Miles from Golden Gate (1)	Time Interval between high tide at Golden Gate and time for taking samples at Station		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 Davis*	25.2	3	15	East End San Pablo Bay, South Shore, Oleum Wharf of Union Oil Company
Bullshead Point*	34.0	3	50	West End Suisun Bay, South Shore, Wharf of Mountain Copper Company
Bay Point*	39.9	4	15	Suisun Bay, South Shore, Bay Point Wharf of Coos Bay Lumber Company
O & A Ferry*	46.5	4	40	Upper End Suisun Bay between Mallard Station and Chipps Island at Sacramento Northern Railroad Ferry Crossing
Innisfail Ferry*	47.3	4	50	Montezuma Slough, about one mile east of Junction with Cutoff Slough, near North End of Grizzly Island
				SACRAMENTO RIVER DELTA
Collinsville*	50.8	5	25	Sacramento River, North Bank, at Junction with San Joaquin River
Emmaton*	57.7	5	45	Sacramento River, South Bank, Lower end of Horseshoe Bend
Three Mile 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
Junction Point	65.2	6	10	Sacramento River, Right Bank, just below the Junction with Steamboat Slough
Ryer Island Ferry	66.5	6	20	Lower end of Cache Slough, just above Steamboat Slough Junction
Liberty Island	67.6	6	25	Cache Slough at Junction with Prospect Slough
Grand Island (Steamboat)	68.2	6	30	Steamboat Slough at Grand Island Drainage Pumping Plant, three miles from Junction Point
Isleton Bridge	68.7	6	30	Sacramento River, one mile upstream from Isleton
Reclamation District 2068	70.7	6	45	Haas Slough, at Reclamation District 2068 pumping plant
Howard Ferry	71.4	6	55	Steamboat Slough, 1-1/2 miles below junction with Sutter Slough
Sutter Slough	72.8	7	00	At junction with Miner Slough

* Permanent station maintained throughout the year (prior to July 1941).

(1) Mileage measured to station along main channel. For stations off the main channel, the mileage shown is the 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.

TABLE 145 (CONTINUED)

DESCRIPTION OF SALINITY STATIONS AT WHICH OBSERVATIONS ARE OR HAVE BEEN TAKEN

STATION	Miles from Golden Gate (1)	Time Interval between high tide at Golden Gate and time for taking samples at Station		LOCATION
		Hours	Mins.	
				SACRAMENTO RIVER DELTA (CONTINUED)
Little Holland Ferry	73.2	7	05	Back Borrow Pit of Reclamation District 999, two miles above junction with Miner Slough
Ryde	74.4	7	15	Sacramento River, Right Bank, at town of Ryde
Walnut Grove	77.4	7	25	Sacramento River, Highway Bridge, at Walnut Grove
Paintersville Bridge	77.6	7	25	Sacramento River one mile below Courtland
Lisbon	85.0	8	20	East Borrow Pit of Yolo By-pass at Lisbon
Sacramento*	103.5	9	30	Sacramento River at Southern Pacific Railroad Bridge
				MOKELUMNE RIVER DELTA
Southwest Point	78.8	7	25	Staten Island, North Fork Mokelumne River, South Bank, just above junction with South Fork
Camp 33, Staten Island	80.2	7	30	South Fork, Mokelumne River, North Bank, two miles above North Fork Junction
Tyler Island Ferry	81.9	7	40	On Georgiana Slough, about due east of Isleton
Camp 11, Staten Island	83.1	7	45	North Fork, Mokelumne River, East Bank, four miles above South Fork Junction
Camp 29, Staten Island	83.4	7	50	South Fork, Mokelumne River, North Bank, opposite Terminus
Camp 25, Staten Island	86.4	8	05	South Fork, Mokelumne River, West Bank, one mile above Sycamore Slough Junction
Camp 20, Staten Island	88.9	8	30	South Fork, Mokelumne River, West Bank, one-half miles below Beaver Slu Junction
				SAN JOAQUIN DELTA
Antioch*	54.9	5	55	San Joaquin River, at City Water Works pumping plant
Curtis Landing	58.9	6	10	San Joaquin River, Right Bank, about three-fourths miles above Antioch Toll Bridge
Jersey	61.4	6	20	San Joaquin River, Left Bank, one mile below mouth of False River
Opposite Jersey	61.4	6	20	San Joaquin River, Right Bank, opposite Jersey
Webb Pump*	72.0	7	00	False River, two miles below Old River Junction
Central Landing	72.0	7	00	Mokelumne River at Central Landing, Bouldin Island (Prior to 1937)

* Permanent station maintained throughout the year. (Prior to July 1941)

(1) Mileage measured to station along main channel. For stations off the main channel, the mileage shown is the 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.

TABLE 145 (CONTINUED)

DESCRIPTION OF SALINITY STATIONS AT WHICH OBSERVATIONS ARE OR HAVE BEEN TAKEN

STATION	Miles from Golden Gate (1)	Time Interval between high tide at Golden Gate and time for taking samples at Station		LOCATION
		Hours	Mins.	
				SAN JOAQUIN DELTA (CONTINUED)
Opposite Central Landing*	72.0	7	00	Mokelumne River, on Andrus Island directly opposite Central Landing on Bouldin Is.
Dutch Slough*	73.0	7	05	At Bethel Island Bridge
Rock Slough West of Dam*	77.0	7	20	In Rock Slough, West of Dam at Jct. of Sand Mound Slough and Rock Sl.
Camp 2, Medford Island	78.0	7	25	San Joaquin River (Stockton Channel) at north end of Medford Island
Ward Landing	79.6	7	35	San Joaquin River near jct. with Little Connection Sl. on Southwest side of Empire Tract.
Holland Pump	80.6	7	40	Rock Slough, North Bank, 1-1/2 miles west of Old River junction
Bacon Pump	82.9	7	50	Old River at Bacon Is. Drainage Pumping Plant, near jct. with Rock Sl.
Mandeville Pump	83.0	7	50	Connection Slough, North Bank, one mile west of Middle River on South end of Mandeville Island.
King Island Pump	84.2	8	00	Honker Cut at Empire Tract - King Island Ferry
Rock Slough East of Dam*	85.4	8	05	In Rock Slough, three-fourths of a mile East of Jct. with Sand Mound Sl.
Rindge Pump*	86.1	8	10	San Joaquin River, North Bank, one mile below Fourteen Mile Sl. Jct.
Orwood Bridge	86.3	8	10	Old River, at Santa Fe Railroad Crossing, Orwood
East Contra Costa I.D.	86.7	8	20	Indian Slough, at East Contra Costa Irrigation District Pumping Plant
Middle River P.O.	87.7	8	20	Middle River, East Bank, at Santa Fe Railroad Crossing
Mansion House	88.4	8	30	Victoria Island, Old River, East Bank, at Junction with North Victoria Canal
Victoria Island	89.6	8	35	Old River at Borden Highway Crossing
Stockton Country Club	90.8	8	45	Old Lindley Cutoff (San Joaquin R.), North Bank, 3/4 mile above Burns Cutoff Jct.
Clifton Court Ferry	94.2	9	10	Old River just below Junction with Grant Line Canal.
Stockton	94.8	9	15	Near head of Stockton Channel at wharf of California Transportation Co.
Port Stockton*	94.0	9	15	At lower end of Port Stockton wharves.
Garwood Bridge	95.3	9	15	San Joaquin River. At drawbridge one mile above Santa Fe R.R. Crossing
Brandt Bridge	100.6	9	50	San Joaquin River. At drawbridge six miles above Santa Fe R.R. Crossing
Williams Bridge	101.6	9	55	Middle River, about four miles below Salmon Slough Junction
Naglee Burke Pump	102.5	10	00	Old River at Naglee Burke Pumping Plant
Whitehall	104.8	10	20	Old River West of Junction of Salmon Slu and Paradise Cut. Due north of Tracy
Mossdale Bridge*	108.5	10	50	San Joaquin River at Lincoln Highway Crossing about 3 miles southwest of Lathrop

*Permanent station maintained throughout the year. (Prior to July 1941.)

(1) Mileage measured to station along main channel. For stations off the main channel, the mileage shown is the 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.

TABLE 146

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 chlorine per 100,000 parts of water.

Station	JANUARY 1944							
	2	6	10	14	18	22	26	30
	San Francisco, San Pablo and Suisun Bays							
Point Davis			920			1160	1220	1140
O & A Ferry							127	92
Innisfail Ferry			b 210	220	220	280	272	254
Grand View			1030	1010	1000	990	1040	960
	Sacramento River Delta							
Collinsville	30	32	11	a 5	7	58		22
Three Mile Slough Bridge	3		4	3	4	4	5	5
Rio Vista Bridge	2	4	3	3	4		4	3
	San Joaquin River Delta							
Antioch	29	15	10	10	8	41	27	19
Opposite Central Landing							a 4	3
Dutch Slough	9	8	a 8	a 8	7	9	7	8
Rock Slough West			8	ab 9	10	9	9	9
Rock Slough East			10	9	9	8	10	8
Middle River					9	8	8	8
Victoria	10	9	8	a 8	8	8	a 8	7

Station	FEBRUARY 1944						
	2	6	10	14	18	22	26
	San Francisco, San Pablo and Suisun Bays						
Point Orient	1520			1120	1320	1520	1200
Point Davis	1000			740		1140	
O & A Ferry		10	6	5	25	75	
Innisfail Ferry	244	104	b 121	a 130	88	120	128
Grand View	960	780	720	650	690	620	580
	Sacramento River Delta						
Collinsville	17	2	4	3	4	7	3
Three Mile Slough Bridge	4	2	3	2	3	3	3
Rio Vista Bridge	2	1		3	4	4	4
	San Joaquin River Delta						
Antioch	18	6	5	5	4	10	7
Opposite Central Landing	4	ab 2	5	3	3	4	13
Dutch Slough	8	8	a 8	8	9	8	8
Rock Slough West	8	ab 7	9	9	10	9	10
Rock Slough East	9	8	10	11	11	9	9
Rindge Pump		6	a 7	7	8		
East Contra Costa I.D.				12	12	12	12
Middle River	8	8	9	9	9	9	9
Victoria	ab 6	ab 9	a 7	8	7	9	10

a, b, see footnotes last page of this table.

TABLE 146 (CONTINUED)

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 chlorine per 100,000 parts of water.

Station	MARCH 1944							
	2	6	10	14	18	22	26	30
	San Francisco, San Pablo and Suisun Bays							
Point Orient	1140	a 1160	920	1030	1100	1360	1300	1240
Point Davis	520	360	610	620			880	
Benicia					260	466	360	500
O & A Ferry	7	5	5	5	8	5	11	22
Innisfail Ferry	85	115	79		58	59	57	b 48
Grand View	420	410	420	400	500	620	700	690
	Sacramento River Delta							
Collinsville	4		4	3	3	3	3	4
Three Mile Slough Bridge	3	3	3	3	4	3	a 3	3
Rio Vista Bridge	2	2	3	2	2	3	3	2
	San Joaquin River Delta							
Antioch	6	6	5	5	4	4	5	3
Opposite Central Landing	2	1	a 3	a 4	3	a 2	2	2
Dutch Slough	9	9	a 8	7	6	6	5	5
Rock Slough West	a 9	10	8	8	6	6	4	4
Rock Slough East	11	11	9	7	7		4	5
E.C.C. Irr. Dist.	14	12	8	b 7		7	7	7
Middle River	10	7	6	5	5	8	5	3
Victoria	8	6	a 6	5	5	4	a 5	5

Station	APRIL 1944							
	2	6	10	14	18	22	26	30
	San Francisco, San Pablo and Suisun Bays							
Point Orient		b 1320	1250		b 1360	b 1300	1360	1350
Point Davis						b 980	820	750
Benicia	640	b 540	510	450	b 390	b 500	a 400	a 310
O & A Ferry	7	a 14	a 7	17	a 13	a 14	32	8
Innisfail Ferry	52		a 67	51	a 53	54	50	a 58
Grand View	ab 700	b 790	910	960	b 950	b 860	990	
	Sacramento River Delta							
Collinsville	2	a 1		1	a 1	1		2
Three Mile Slough Bridge	2	b 1	1		b 1		1	b 1
Rio Vista Bridge	1	b 1	1	1	b 1	b 1	1	b 1
	San Joaquin River Delta							
Antioch	4	a 3	2	2	a 2	a 3	4	2
Webb Pump		b 2	3	2	a 3		2	a 4
Opposite Central Landing	2	a 1	1	1	a 1	b 2	2	1
Dutch Slough	4	a 3	3	4	a 3	a 4	3	a 5
Rock Slough West	4	b 4	4	4	b 6	b 4	ab 8	
Rock Slough East	4	b 5	3	5		b 8	9	
E.C.C. Irr. Dist.		5	7	8	b 9	b 8	7	
Middle River	4	ab 3	3	a 4	b 6	9	9	
Victoria	ab 7	b 7	8	11	a 8	a 6	8	a 5

a, b, see footnotes last page of this table.

TABLE 146 (CONTINUED)

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 chlorine per 100,000 parts of water

Station	MAY 1944								
	2	6	10	14	18	22	26	30	
	San Francisco, San Pablo and Suisun Bays								
Point Orient	1110:b	1240:b	1240:	1160:	1400:b	1200:	1180:	1140:	
Point Davis	:b 710:	:b	640:	:	:b	720:	560:	700:	
Benicia	:b 570:b	540:b	410:b	240:b	310:b	490:	510:b	440:	
O & A Ferry	:a 5:a	6:a	4:	2:a	2:b	6:	7:a	4:	
Innisfail Ferry	:a 54:a	51:ab	43:	42:	:	42:	28:b	34:	
Grand View	980:	880:a	880:	860:b	860:b	880:	880:	860:	
	Sacramento River Delta								
Collinsville	:a 2:a	1:b	2:	1:a	3:b	2:	2:a	1:	
Three Mile Slough Bridge	:b 1:b	1:b	1:	1:b	2:b	3:	1:b	1:	
Rio Vista Bridge	:b 1:b	1:b	1:	1:b	1:b	1:	1:b	1:	
	San Joaquin River Delta								
Antioch	:ab 4:	2:b	2:	2:a	3:f	3:	3:a	2:	
Webb Pump	:	4:a	3:	3:	:	:	:a	4:	
Opposite Central Landing	:a 1:a	1:b	2:	2:b	2:b	1:a	2:a	1:	
Dutch Slough	:b 6:b	5:b	4:	5:a	5:ab	4:	4:a	4:	
Rock Slough West	:b 6:b	6:	6:	:	:	:	:	:	
Rock Slough East	:a 9:b	7:b	7:	7:	:	:	:	:	
E.C.C. Irr. Dist.	6:b	7:b	5:	:b	6:b	4:	4:	3:	
Middle River	:b 7:b	6:b	8:	5:b	5:b	6:	5:	:	
Victoria	:ac 5:b	9:b	4:ab	6:b	4:b	2:af	3:b	2:	
Mossdale Bridge	3:a	5:	7:	4:	3:	3:	2:a	3:	

Station	JUNE 1944								
	2	6	10	14	18	22	26	30	
	San Francisco, San Pablo and Suisun Bays								
Point Orient	:b 1360:b	1480:	1450:	1330:	1420:b	1310:	1270:	1490:	
Point Davis	:	:	:	940:	:	:	:	:	
Benicia	:b 690:	630:	670:	510:b	770:b	770:	580:a	700:	
O & A Ferry	:a 8:a	9:	:a	4:	49:a	96:a	90:a	75:	
Innisfail Ferry	:a 42:	44:	41:b	43:a	54:a	85:a	115:a	103:	
Grand View	:b 890:b	950:	960:	950:b	930:b	1020:b	1040:	1030:	
	Sacramento River Delta								
Collinsville	:a 2:	:	3:a	2:a	6:b	35:a	31:ab	27:	
Three Mile Slough Bridge	:b 1:b	1:	2:b	2:b	2:b	2:	3:b	2:	
Rio Vista Bridge	:b 1:b	1:	2:ab	1:b	2:b	2:b	2:b	1:	
	San Joaquin River Delta								
Antioch	:a 2:a	3:	4:a	5:a	5:a	9:	16:a	10:	
Webb Pump	:	:	:	3:	:a	2:	2:a	4:	
Opposite Central Landing	:a 2:b	2:	3:	:a	2:b	3:a	2:a	3:	
Dutch Slough	:a 5:a	3:	4:a	3:a	3:b	4:	3:a	3:	
Rock Slough West	:b 3:a	2:	3:	:a	3:a	5:b	5:	:	
Rock Slough East	:a 3:b	2:	:	:	:	:	:	:	
E.C.C. Irr. Dist.	:b	3:	3:b	2:b	2:b	3:	:	:	
Victoria	:b 2:b	2:	2:b	1:b	3:b	4:b	4:a	7:	
Mossdale Bridge	:b 2:b	2:ab	2:ab	4:b	5:ab	8:b	7:ab	9:	

a, b, c, f, see footnote last page of this table.

TABLE 146 (CONTINUED)

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 chlorine per 100,000 parts of water

Station	JULY 1944							
	2	6	10	14	18	22	26	30
	San Francisco, San Pablo and Suisun Bays							
Point Orient		b 1570	1490	1550		1560	1580	1620
Point Davis							1380	
Benicia	b 910	b 1110	a 830	1140 b	1050	1070	1030 b	1230
O & A Ferry	a 173	192	285 a	320 a	345 a	440 a	450 a	370
Innisfail Ferry	a 138	b 268	310 a	306 a	395 a	435 a	455	475
Grand View	ab 1050	b 1040	1050	1050 b	1070	1100	1130	1220
	Sacramento River Delta							
Collinsville	a 37	b 178	158 a	158		254 a	215 a	195
Three Mile Slough Bridge	b 3	b 7	6 b	25 b	19	21	32 b	38
Rio Vista Bridge	b 2	b 5	2 ab	4 b	3	4	3	3
	San Joaquin River Delta							
Antioch	a 10	a 24	96 a	74 a	81	192	180	
Webb Pump	b 4		a	5	a	7 a	7	
Opposite Central Landing	a 2	b 3	a	3 a	3	4 a	6 a	4
Dutch Slough	a 4	a 3	5 a	5 a	7	11	12 a	10
Rock Slough West	b 6		a	4 a	6	7 b	6	
Rock Slough East	3	b 5 ab	4 a	5 b	6	6 b	8 b	8
E.C.C. Irr. Dist.		b 6	7	b	9	8 b	8	
Victoria	b 5	b 6 ab	8 b	7 b	6	4 a	9 a	10
Mossdale Bridge	e 9	e 9 e	10 ae	8 e	9 e	10 af	6 e	12

Station	AUGUST 1944							
	2	6	10	14	18	22	26	30
	San Francisco, San Pablo and Suisun Bays							
Point Orient	b 1660	1720	1700	1730	1690	1720 f	1590	1700
Point Davis			b	1520	1430	1490	1420	
Benicia	b 1240	1360	1230 b	1320	1350	1200	1250 b	1390
O & A Ferry	a 460	a	470 a	600 a	590	580 a	510 a	670
Innisfail Ferry	a 505	b 590	b 650	a	700	710	700 ab	720
Grand View	a 1220	1250	1250	1330	1350	1340	1370 a	1410
	Sacramento River Delta							
Collinsville	a 255	ab 345	a 345 a	420 a	380 a	470 ab	300 a	400
Three Mile Slough Bridge		78	81		128	106	98 b	147
Rio Vista Bridge	b 4	6	10 b	6	10	10	10 b	42
Isleton Bridge							a	4
	San Joaquin River Delta							
Antioch	a 155	240	320 a	250	400	360	320 a	300
Jersey						a	85 a	132
Webb Pump	10	19 a	17		24	28		52
Opposite Central Landing	a 5	8 a	6 a	10	14 a	11 a	9 a	11
Dutch Slough	b 27	21 a	25 a	33	36 a	41 a	31 a	51
E. C. C. Irr. Dist.	b 8	9	9 b	11	10	10 b	11 b	9
Victoria	b 8	a	10 a	9	8 a	9 a	11 a	9
Mossdale Bridge	a 10	12 a	12 f	12	10 a	12 a	10	9

a, b, e, f, see footnote last page of this table.

TABLE 146 (CONTINUED)

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 chlorine per 100,000 parts of water

Station	SEPTEMBER 1944							
	2	6	10	14	18	22	26	30
San Francisco, San Pablo and Suisun Bays								
Point Orient	b 1680	1710	1660 b	1690		1660	1670	
Benicia	b 1300	1330	b	1260	1220	1170	1240	1140
O & A Ferry	a 610	a 620	a 630	a 620	a 730	510	460	a 470
Innisfail Ferry	a 730	780	ab 790	780	790	770	680	a 700
Grand View	b 1400	1410	b 1470	b 1460	1460	1460	1480	1490
Sacramento River Delta								
Collinsville	a 420	a 470	470	370	a 440	a 320	a 300	a 340
Three Mile Slough Bridge	b 161	134	b	98	102	62		
Rio Vista Bridge	b 54	b 42	b 55	b 46	20	b 8	5	
Isleton Bridge	e 4	b 5	5		4	b 3	a 4	3
San Joaquin River Delta								
Antioch	a 310	a 390	300	280	310	274	210	180
Jersey	a 120	164		b 126	134		74	56
Webb Pump		37	b 46	42		38		29
Opposite Central Landing	b 20	a 17	a 12	13	a 13	a 10	a 11	14
Dutch Slough	b 69	a 68	a 63	ab 62	a 65	a 50	a 45	49
Rock Slough East	a 11	a 12		b	b 15	b 15	14	15
Rock Slough West		a	a 18	19	a 18	18	19	
E.C.C. Irr. Dist.	b 11	b 11	b 11	12	14	b 11	11	
Victoria	b 10	b 11	ab 11	b 10	ab 10	a 11	b 11	
Mossdale Bridge	b 10	ab 10	b 12	b 11	ab 13	ab 8	ab	8

Station	OCTOBER 1944							
	2	6	10	14	18	22	26	30
San Francisco, San Pablo and Suisun Bays								
Point Orient	1680		1630	1670	1720	1650	1570	1670
Point Davis		1480	1270					
Benicia	1180	1240	960	1060	1110	1090	1040	1110
Bay Point						1540		
O & A Ferry	450	640	410	370	460	350	360	450
Innisfail Ferry	670	650		620	580	600	580 b	580
Grand View	1480	1500	1510	1510	1490		1530	1480
Sacramento River Delta								
Collinsville	a	260	250	220 a	200 a	180	158	182
Three Mile Slough Bridge		52	34	21		22	12	
Rio Vista Bridge	4	7	4		3	2	4	3
Isleton Bridge	3	3	3	2	2	2		
San Joaquin River Delta								
Antioch	190	230	200	140	160	148	140	162
Jersey	b 62	a 56		30	43	a 24		
Webb Pump	ab 26			ab 19				
Opposite Central Landing	11	a 6	11	8	8	a 5	4	8
Dutch Slough	ab 42	a 36	31	28	a 25	a 22	19	17
Rock Slough East	b 15		10	13		a 10	10	10
Rock Slough West		a 17	ab 21					
E.C.C. Irr. Dist.	12	11		11	10	9	9	9
Victoria	10	9	11	8	a 7	a 6	6	5
Mossdale Bridge	ab 8	ae 7	ae 7	ae 7	e 7	ae 8	ae 4	ae 9

a, b, e, see footnote last page of this table.

TABLE 146 (CONTINUED)

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 chlorine per 100,000 parts of water.

Station	NOVEMBER - 1944							
	2	6	10	14	18	22	26	30
	San Francisco, San Pablo and Suisun Bays							
Point Orient	1730	1620	1590	1440	1550	1240	1520	1530
Benicia	1170	1000	890	620	630	470	790	910
O & A Ferry	450 a	290	290	36	61 a	34	86	
Innisfail Ferry	b 560	540	450	280	160		200	215
Grand View	1500	1450 b	1400	1340	1320	1270	1250	1180
	Sacramento River Delta							
Collinsville	a 170 a	194	72	10 a	13 a	5	3	10
Three Mile Slough Bridge	15	6	6	2		4	3	
Rio Vista Bridge	3	2	2	1		2	5	2
Isleton Bridge	1	1	2			2	2	1
	San Joaquin River Delta							
Antioch	178	208	49	14	10	16	9	17
Jersey	ab 20							
Webb Pump			11					
Opposite Central Landing	a 6 a	3 a	6 a	4	6 a	3	3	3
Dutch Slough	18 a	15	4	16	11 a	11	10	9
Rock Slough West	9 b	10	8	10				6
E.C.C. Irr. Dist.	a	7	8					
Victoria	a 11	a	8	8	4	4	5	6
Mossdale Bridge	a 7 a	8	5	5 a	5	5	6 a	5

Station	DECEMBER - 1944							
	2	6	10	14	18	22	26	30
	San Francisco, San Pablo and Suisun Bays							
Point Orient	1480	1370	1530	1500	1560	1520	b	1280
Point Davis				1140				
Benicia	880	510	650	930	700	760	560	410
O & A Ferry	147	28	64	133	133	70	13	22
Innisfail Ferry	220	180	200		232		300 b	110
Grand View		1100	1050		1040	1000	970	950
	Sacramento River Delta							
Collinsville	a 15	3		25	10	5		2
Three Mile Slough Bridge	b 3	2	3	4	3		2	1
Rio Vista Bridge	3	1	2	2	1	2	1	2
Isleton Bridge	3	1	2	2		2 a	1	4
	San Joaquin River Delta							
Antioch	21	8	7	11	18	14	4	4
Opposite Central Landing	2	1	2	3 a	1	3	1 a	1
Dutch Slough	9	8	7	7	6	9	4 a	7
Rock Slough East	7	8	6	7	4	7	7	6
Victoria								5
Mossdale Bridge	11 a	7 b	4	4 a	6	5	5 a	4

a Low high tide.
b Taken on following day.
c Taken two days later
e Taken on preceding day.
f Taken two days earlier.

TABLE 147

COMPARATIVE ANNUAL MINIMUM 10-DAY STREAM FLOW TO DELTAS OF SACRAMENTO AND SAN JOAQUIN RIVERS AND AREA OF EACH AFFECTED BY SALINITY ENCROACHMENT GREATER THAN 100 PARTS OF CHLORINE PER 100,000 PARTS OF WATER

Year	Flow for Minimum 10-day period (1)					Runoff in % of Normal*			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 (2)	% of Total	Acres (3)	% of Total	Acres
1920		(4) 540		(4) 450		52	48	66	15.1	65800	7.7	33500	7.4	32300
1921						118	126	95	2.1	9150	2.0	8715	0.1	435
1922						103	95	123	2.9	12600	2.4	10420	0.5	2180
1923						76	70	88	2.1	9150	2.0	8715	0.1	435
1924	7/14	858	7/26	407	1280	28	30	24	50.0	217500	18.4	80100	31.6	137400
1925	8/7	2860	8/29	743	3730	86	84	88	3.6	15630	3.1	13450	0.5	2180
1926	7/28	1460	8/21	586	2080	60	63	56	18.5	80500	8.5	37000	10.0	43500
1927	8/23	3560	8/23	1300	4850	121	127	104	2.9	12600	2.4	10420	0.5	2180
1928	8/15	2660	8/22	866	3550	84	89	70	5.7	24800	3.7	16100	2.0	8700
1929	7/18	2460	8/12	590	3090	44	44	46	7.1	30900	4.2	18300	2.9	12600
1930	8/5	2500	8/9	735	3230	65	71	53	5.4	23500	3.8	16500	1.6	7000
1931	7/20	-79	7/21	211	131	30	32	27	73.8	321000	30.2	131000	43.6	190000
1932	8/11	1980	9/10	1030	3030	78	69	106	5.7	24800	3.4	14800	2.3	10000
1933	8/21	1450	8/14	607	2070	48	46	54	9.8	42600	5.2	22600	4.6	20000
1934	7/20	1150	8/14	346	1530	43	45	37	37.5	163000	17.8	77500	19.7	85500
1935	8/12	2920	8/12	922	3940	91	87	103	2.9	12600	2.4	10420	0.5	2180
1936	8/20	2540	8/17	1040	3600	96	92	104	2.6	11600	2.2	9840	0.4	1760
1937	8/16	1720	8/24	1020	2820	80	70	105	3.5	15200	2.6	11280	0.9	3920
1938	8/12	5190	8/27	2130	7365	170	167	180	0	0	0	0	0	0
1939	8/5	630	7/25	610	1315	43	43	46	29.0	126000	17.0	74000	12.0	52000
1940	8/12	2550	8/9	1080	3620	115	118	105	4.2	18300	3.0	13000	1.2	5300
1941	8/24	4190	9/14	1480	5800	137	143	127	1.2	5100	1.2	5100	0	0
1942	8/22	3740	8/20	1520	5300	129	133	118	1.2	5100	1.2	5100	0	0
1943	8/17	2600	8/4	1480	4140	114	111	117	2.8	12200	2.2	9600	0.6	2600
1944	8/13	2790	8/9	1033	3830	56	50	62	7.2	31300	4.8	20800	2.4	10500

* Normal = 50 year mean (1889-1939). For comparison of 40 and 50 year means, see Tables 1, 3 and 5.
(1) For minimum daily flow see Tables 1 and 3. For minimum 10-day flow see Tables 2 and 4.
(2) Delta area taken at 435,000 acres which includes all lands, levees, water surfaces, etc., within Delta boundary.
(3) Sacramento and Mokelumne deltas combined as the Sacramento River contributes a large flow to Mokelumne River Delta through Georgiana and Three Mile Sloughs.
(4) No continuous record. Lowest discharge measured.

TABLE 148

LOCATION AND DATE OF INSTALLATION OF RECORDING TIDE GAGES IN SACRAMENTO-SAN JOAQUIN DELTA AND SUISUN BAY

Name of Station	Operated by*	Location	Date Installed
		SACRAMENTO DELTA	
Sacramento	D.W.R.	Left bank of Sacramento River at Southern Pacific Railroad Bridge	1920
Clarksburg	D.W.R.	Right bank of Sacramento River at American Crystal Sugar Company dock	1936
Snodgrass Slough	D.W.R.	Left Bank, Sacramento River; about 0.1 mile above Hollister landing about 1/4 mile above head of Snodgrass Slough (now leveed off).	Aug. 1939
Walnut Grove	D.W.R.	Left bank of Sacramento River at head of Georgiana Slough; lower end of town of Walnut Grove.	Feb. 1929
Rio Vista	U.S.E.D.	Right bank of Sacramento River at U. S. Engineers depot below Rio Vista; about 1½ miles below Rio Vista Bridge.	Apr. 1908
Three Mile Slough (Sac.)	D.W.R.	OnBrannon Island side of Slough. Pile dolphin about 0.1 mile from Three Mile Slough Bridge.	Apr. 1929
Mayberry Slough	U.S.E.D.	Right bank of Sacramento River about four miles above Collinsville.	Prior to 1929
Collinsville	D.W.R.	Right bank of Sacramento River. On pile dolphin about 0.1 mile upstream from junction of mainstreet and river.	June 1929
		MOKELUMNE DELTA	
New Hope Bridge	D.W.R.	Right bank of the south fork of Mokelumne River; just below New Hope Bridge.	Aug. 1920
Terminous	U.S.B.R.	On highway bridge over Potato Slough between Terminous Tract and Bouldin Island	July 1940
Georgiana Slough	D.W.R.	On Andrus Island near junction of Georgiana Slough and Mokelumne River. At former location of Golden State Asparagus Company plant.	June 1929
		SAN JOAQUIN DELTA	
Mossdale Bridge	D.W.R.	Right bank of San Joaquin River just below U.S.40 crossing.	1920
Grant Line	U.S.B.R.	Right bank of Grant Line canal at Tracy road crossing	Oct. 1940
Brandts Bridge	U.S.B.R.	Right bank of San Joaquin River at Brandts Bridge between Roberts Island and and mainland	July 1940
Stockton	U.S.E.D.	At head of McLeod Lake; El Dorado Street	Dec. 1927

* D.W.R. - Division of Water Resources; U.S.E.D. - United States Army Engineers; U.S.B.R. - United States Bureau of Reclamation.

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES

SACRAMENTO-SAN JOAQUIN WATER SUPERVISION

1944

SCALE

LEGEND

POINTS OF DIVERSION
SALINITY OBSERVATION STATIONS
STREAM GAGING STATIONS
DRAINAGE PUMPING PLANTS
SACRAMENTO-SAN JOAQUIN DELTA AREA

RED BLUFF
ORDINO
CHICO
WILLOWS
ORO VILLE
COLUSA
YUBA CITY
MARYSVILLE
NEVADA CITY
AUBURN
PLACERVILLE
WOODLAND
SACRAMENTO
NAPA
FAIRFIELD
JACKSON
SAN ANDREAS
MARTINEZ
STOCKTON
SONORA
SAN RAFAEL
OAKLAND
SAN FRANCISCO
MODESTO
REDWOOD CITY
SAN JOSE
MARIPOSA
MERCED
MADERA
FRESNO
HANFORD
PACIFIC OCEAN

LEGEND
SALINITY OBSERVATION STATIONS
SACRAMENTO-SAN JOAQUIN DELTA AREA

SACRAMENTO-SAN JOAQUIN DELTA