STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES

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REPORT OF

SACRAMENTO-SAN JOAQUIN

WATER SUPERVISION

FOR

1950

OCTOBER, 1951

TABLE OF CONTENTS

	Page
ALPHABETICAL INDES TO TABLES	5
LIST OF PLATES	11
ACKNOWLEDGMENT	12
ORGANIZATION	13
FOREWORD	14
SACRAMENTO-SAN JOAQUIN WATER SUPERVISION	15
Objectives	15
Scope of Work	15
Water Supervision Activities	16
Hydrographic Activities of Cooperating Agencies	19
SHASTA AND FRIANT RESERVOIR OPERATIONS	20
Reservoir Data	20
Shasta Reservoir Operation - 1950	21
Friant Reservoir Operation - 1950	22
RUNOFF AND WATER SUPPLY	22
1950 Inventory of Runoff	24
1950 Runoff Comparisons	24
Primary Irrigation Supplies	25
Accretions to Stream Flow	25
Sacramento Valley Accretions	26
San Joaquin Valley Accretions	27
Stream Flow Measurements	29
Preliminary Data from Cooperating Agencies	30
Stream Flow Bulletins	30
Notes on Certain Gaging Stations	30
Sacramento River at Sacramento	30
Minor Tributaries to Sacramento River	31
Additional Stations Reported in 1949	31
Precipitation	32
USE OF WATER FOR IRRIGATION	33
Irrigation Diversions	33
Irrigated Acreage	35
1950 Sacramento-San Joaquin Delta Crop Survey	36
Use of Water in Delta	36
Gross Duty of Water	37
SALINITY INVESTIGATIONS	37
Purpose	37
Scope	38
Complete or Partial Analyses of Surface Flows	38
Sacramento River Water Moves Southward	41
Station Maintenance and Records	41
Daily Salinity Observations	41
Salinity Bulletins	41
Area of Salinity Encroachment	42
TIDE GAGES	42
TABLES	45 through 187
Summary - Runoff Percentage, Stream Flow, Accretions and Acreage	45 through 50
Daily Stream Flows	50 through 122
Diversions and Irrigated Acreage	123 through 171
Salinity Observations	172 through 187
POCKET	Inside Back Cover
Map Showing Location of Gaging Stations and of Points of Diversion, and Tabulation of Delta Irrigated and Nonirrigated Acreages - 1950	

ALPHABETICAL INDEX TO TABLES

Page

ACCRETIONS 25
- Sacramento River and Tributaries 46
- San Joaquin River and Tributaries 48
- Tule River 49

ACREAGE IRRIGATED
- Annual - Sacramento-San Joaquin River System, 1941 through 1950 50
- Delta Crop Survey . . . . . In Back Pocket
- From each point of diversion . . . . . See "Diversions"
- Rice Acreage, Annual 171
- Seasonal Comparative - Each Stream System 50
- Seasonal, Sacramento and San Joaquin Valley 50, 123
- Summary by Sacramento River Sections 123, 171
- Water Utilization Summary - Sacramento and San Joaquin Rivers and Tributaries 123

AMERICAN RIVER
- Accretions 46
- Acreage Irrigated 50, 123, 145
- Diversions 46, 123, 145, 167
- Duty of Water 123
- Stream Flow 45, 46, 86

ANALYSIS OF WATER 181

ANNUAL RUNOFF IN PERCENT OF 60-YEAR NORMAL 45

ANTELOPE CREEK - Stream Flow
- near Red Bluff 46, 60
- near Mouth 46, 61

AUBURN RAVINE AT HIGHWAY 99E - Stream Flow 46, 82

BACK BORROW PIT
- Accretions 46
- Acreage Irrigated 50, 123, 129
- Diversions 123, 129
- Duty of Water 123
- Stream Flow 46, 71

BATTLE CREEK NEAR COTTONWOOD - Stream Flow 46, 59

BEAR CREEK ABOVE SAN JOAQUIN RIVER (NEAR STEVINSON) - Stream Flow 107

BEAR CREEK NEAR LOCKEFORD - Stream Flow 47, 93

BEAR RIVER
- Acreage Irrigated 50, 145
- Diversions 145
- Stream Flow 47, 81

BUTTE CREEK AND BUTTE SLOUGH
- Accretions 46, 47
- Acreage Irrigated 50, 123, 140
- Diversions 123, 140
- Duty of Water 123
- Stream Flow 46, 47, 66, 68, 73

CACHE CREEK - Stream Flow
- at Capay 47, 88
- at Yolo 47, 88

CACHE SLOUGH
- Acreage Irrigated 139
- Diversions 139

CALAVERAS RIVER
- Accretions 47
- Acreage Irrigated 50, 147
- Diversions 147
- Stream Flow 47, 93, 94

CHICO CREEK - Stream Flow
- near Chico 46, 65
- near Mouth 46, 65

CHOWCHILLA RIVER - Stream Flow 48, 106

CLEAR CREEK NEAR IGO - Stream Flow 46, 58

COLUSA TROUGH
- Accretions 47
- Acreage Irrigated 50, 123, 136
- Diversions 123, 136
- Duty of Water 123
- Stream Flow 47, 71, 72

COON CREEK AT HIGHWAY 99E - Stream Flow 46, 81

COSUMNES RIVER
- Accretions 47
- Acreage Irrigated 50, 146
- Diversions 146
- Stream Flow 47, 90

ALPHABETICAL
INDEX TO TABLES (CONTINUED)

Page

COTTONWOOD CREEK NEAR COTTONWOOD - Stream Flow 46, 59

COTTONWOOD CREEK NEAR FRIANT - Stream Flow 48, 104

CREST FLOOD FLOWS - 1950 23

CROSS CREEK BELOW LAKELANDS CANAL #2 - Stream Flow 49, 121

DEER CREEK - Stream Flow
- near Vina 46, 64
- near Mouth 46, 64

DEER CREEK NEAR SMARTVILLE - Stream Flow 46, 79

DELTA - Sacramento-San Joaquin River
- Acreage Irrigated . . . . . 35, In Back Pocket
- Analysis of Water 181
- Runoff to Delta 45, 47
- Salinity 174, 181

DELTA UPLANDS FROM CACHE SLOUGH - Diversions 139

DISCHARGE - Flow of Streams . . . . . See "Stream Flow"

DIVERSIONS
- Accretions, Relation to 46, 48, 49
- At each point of diversion on
  - American River 145
  - Back Borrow Pit 137
  - Bear River 145
  - Butte Creek, Lower, and Butte Slough 140
  - Cache Slough (Delta Uplands) 139
  - Calaveras River 147
  - Colusa Trough 136
  - Cosumnes River 146
  - Dry Creek (Tributary to Tuolumne River) 161
  - Feather River 143
  - Fresno Slough and Fresno Slough By-Pass 157
  - Knights Landing Ridge Cut 138
  - Merced River 158
  - Mokelumne River 147
  - Old San Joaquin River (Delta Uplands) 149
  - Sacramento River 127
  - San Joaquin River (Stockton to Vernalis, Delta Uplands) 150
  - San Joaquin River (Vernalis to Fremont Ford) 153
  - San Joaquin River (Fremont Ford to Gravelly Ford) 154
  - San Joaquin River (Gravelly Ford to Friant) 155
  - Stanislaus River 162
  - Sutter By-Pass and Sacramento Slough 141
  - Tom Paine Slough (Delta Uplands) 150
  - Tule River 164
  - Tuolumne River 160
  - Yolo By-Pass 139
  - Yuba River 144
- Average Monthly, in percent of seasonal - Sacramento-San Joaquin Valley 165
- Irrigation Districts
  - Merced Irrigation District 159
  - Modesto Irrigation District 161
  - Oakdale Irrigation District 163
  - South San Joaquin Irrigation District 163
  - Turlock Irrigation District 161
- Monthly, Comparative Seasonal - 1940 through 1950
  - American River 167
  - Feather River 166
  - Merced River 169
  - Old San Joaquin River 167
  - Sacramento River 165
  - San Joaquin River (Stockton to Vernalis, Delta Uplands) 168
  - San Joaquin River (Vernalis to Fremont Ford) 169
  - Stanislaus River 170
  - Tom Paine Slough (Delta Uplands) 168
  - Tuolumne River 170
  - Yuba River 166
- Return Flows, Relation to 27, 46, 48, 49
- Seasonal, Comparative - 1940 through 1950
  - By months for Sacramento and San Joaquin River System . . . . . See "Diversions, Monthly"
  - For Sacramento River Sections 123, 171
- Summary, Monthly, Sacramento-San Joaquin Valley 46, 48

DRAINAGE PLANT DISCHARGE
- Recl. Dist. No. 70 Drain to Sacramento River 46, 68
- Recl. Dist. No. 108 Drain to Sacramento River 46, 69
- Recl. Dist No. 787 Drain to Sacramento River 46, 70
- Recl. Dist. No. 1000 (#3) Drain to Sacramento River 46, 84
- Recl. Dist. No. 1000 (2nd Bannon) Drain to Sacramento River 46, 85
- Recl. Dist. No. 1001 Drain to Cross Canal 46, 83
- Recl. Dist. No. 1500 Drain to Sacramento Slough 46, 74

DRY CREEK NEAR GALT (Tributary to Mokelumne River) - Stream Flow 47, 91

DRY CREEK (Tributary to Tuolumne River)
- Acreage Irrigated 161
- Diversions 161
- Stream Flow 113

DRY CREEK NEAR WHEATLAND (Tributary to Bear River) - Stream Flow 80

ALPHABETICAL
INDEX TO TABLES (CONTINUED)

Page

DUCK CREEK - Stream Flow
near Farmington 96
near Stockton 96

DUTY OF WATER
Seasonal by Rivers - 1940 through 1950
Sacramento River and Tributaries 123
San Joaquin River and Tributaries 123
Water Utilization Summary 123

ELDER CREEK NEAR PASKENTA - Stream Flow 46, 61

ELK BAYOU ABOVE ELK BAYOU AVENUE - Stream Flow 49, 120

FEATHER RIVER
Accretions 46
Acreage Irrigated 50, 123, 143
Diversions 46, 123, 143, 166
Duty of Water 123
Stream Flow 46, 75, 76, 77, 78

FLOOD CREST FLOWS - 1950 23

FRENCH CAMP SLOUGH NEAR FRENCH CAMP - Stream Flow 98

FRESNO RIVER NEAR DAULTON - Stream Flow 106

FRESNO SLOUGH BY-PASS
Acreage Irrigated 157
Diversions 157
Stream Flow 105

FRIANT RESERVOIR
Daily Content in Acre-Feet 99
Inflow in Daily Second-Feet 48, 99

GROSS DUTY OF WATER 123

INVENTORY OF MONTHLY STREAM FLOW
Sacramento Valley Streams 46
San Joaquin Valley Streams 48
Tule River and Tulare Lake Area 49

KAWEAH RIVER NEAR THREE RIVERS - Stream Flow 116

KERN RIVER NEAR BAKERSFIELD - Stream Flow 120

KINGS RIVER - Stream Flow
at Piedra 116
below Empire Weir #2 (below) 121

KNIGHTS LANDING RIDGE CUT
Acreage Irrigated 50, 123, 138
Diversions 123, 138
Duty of Water 123
Stream Flow 46, 71

LAIRD SLOUGH - SAN JOAQUIN RIVER NEAR GRAYSON - Stream Flow 48, 103

LINDA CREEK NEAR ROSEVILLE - Stream Flow 46, 86

LITTLE DRY CREEK NEAR FRIANT - Stream Flow 48, 105

LONE TREE CREEK - Stream Flow
near Valley Home 97
near Manteca 97

MERCED RIVER
Accretions 48
Acreage Irrigated 50, 123, 158
Diversions 50, 158, 169
Duty of Water 123
Stream Flow 48, 107, 108, 109

MERCED RIVER SLOUGH - Stream Flow 48, 109

MILL CREEK - Stream Flow
near Los Molinos 46, 62
near Mouth 46, 62

MOKELUMNE RIVER
Acreage Irrigated 50, 147
Diversions 147
Stream Flow 48, 91, 92

MORMON SLOUGH
Accretions 49
Acreage Irrigated (Included with Calaveras River) 50, 147
Diversions (Included with Calaveras River) 147
Stream Flow 49, 95

NORMAL
Precipitation 32
Runoff 45

NORTH FORK OF MILL CREEK NEAR MOUTH - Stream Flow 46, 62

ALPHABETICAL
INDEX TO TABLES (CONTINUED)

Page

OLD SAN JOAQUIN RIVER (Delta Uplands)
- Acreage Irrigated . . . 50, 123, 149
- Diversions . . . 123, 149, 167
- Duty of Water . . . 123

PRECIPITATION, Monthly at
- Colusa . . . 32
- Fresno . . . 32
- Marysville . . . 32
- Merced . . . 32
- Modesto . . . 32
- Red Bluff . . . 32
- Sacramento . . . 32

PLEASANT GROVE CREEK - Stream Flow
- at Lincoln Road . . . 83
- at Junction of R.D. 1000 Drain . . . 84

PUTAH CREEK - Stream Flow
- near Davis . . . 47, 88
- near Winters . . . 47, 89

RATING TABLES, Major River Gaging Stations . . . 50

RECLAMATION DISTRICT 1001 DRAIN AT HEAD OF CROSS CANAL - Stream Flow . . . 82

REDBANK CREEK AT FOOTHILLS - Stream Flow . . . 46, 60

RELATION OF GAGE HEIGHT TO STREAM FLOW - 1950 . . . 50

RETURN WATER . . . See "Accretions"

RICE ACREAGE IN CALIFORNIA, 1924 through 1950 . . . 171

RUNOFF . . . See "Stream Flow"

SACRAMENTO RIVER
- Accretions . . . 27, 46
- Acreage Irrigated . . . 50, 123, 127
- Diversions . . . 123, 127, 165, 171
- Duty of Water . . . 123
- Stream Flow . . . 45, 46, 50 through 58

SACRAMENTO SLOUGH
- Diversions . . . See "Sutter By-Pass"
- Stream Flow . . . 46, 75

SALINITY INVESTIGATIONS
- Analyses, Complete or Partial by U. S. Bureau of Reclamation . . . 181
- Delta Salinity . . . 174
- Description of Salinity Stations . . . 173
- Maximum Recorded Salinity . . . 172
- Relation of 10-day Flow to Affected Area . . . 180
- Salinity Observations in 1950 . . . 174

SAN JOAQUIN RIVER
- Accretions . . . 48
- Acreage Irrigated . . . 50, 123, 149, 150, 153, 154, 155
- Diversions . . . 123, 149, 150, 154, 155, 167, 168
- Duty of Water . . . 123
- Stream Flow . . . 45, 48, 99 through 104

SHASTA RESERVOIR
- Daily Content in Acre-Feet . . . 51
- Inflow in Daily Second-Feet . . . 51

SOUTH FORK TULE RIVER NEAR SUCCESS - Stream Flow . . . 49, 117

SOUTH HONCUT CREEK AT BANGOR ROAD - Stream Flow . . . 46, 78

STANISLAUS RIVER
- Accretions . . . 48
- Acreage Irrigated . . . 50, 123, 162
- Diversions . . . 123, 162, 170
- Duty of Water . . . 123
- Stream Flow . . . 45, 48, 113, 114, 115

STONY CREEK NEAR HAMILTON CITY - Stream Flow . . . 46, 66

STOCKTON DIVERTING CANAL AT STOCKTON - Stream Flow . . . 48, 95

STREAM FLOW
- Monthly Summary for all Streams . . . 46, 48, 49
- Average Minimum 10-day Flow to Delta . . . 180
- Comparative Monthly Water Supply . . . 46, 48, 49
- Daily Mean Second-Feet and Monthly Acre-Feet in
  - American River at Fair Oaks . . . 86
  - American River at Sacramento (H Street Bridge) . . . 87
  - Antelope Creek near Mouth . . . 61
  - Antelope Creek near Red Bluff . . . 60
  - Auburn Ravine at Highway 99E . . . 82
  - Battle Creek near Cottonwood . . . 59
  - Bear River near Wheatland . . . 81
  - Bear Creek near Lockeford . . . 93
  - Bear Creek above San Joaquin River (near Stevinson) . . . 107

ALPHABETICAL
INDEX TO TABLES (CONTINUED)

Page

STREAM FLOW (Continued)
Daily Mean Second-Feet and Monthly Acre-Feet (Continued)
Butte Creek near Chico . . . 66
Butte Slough to Sacramento River . . . 68
Butte Slough to Sutter By-Pass . . . 73
Cache Creek near Capay . . . 87
Cache Creek at Yolo . . . 88
Calaveras River at
Bellota . . . 94
Jenny Lind . . . 93
Stockton (near) . . . 94
Chico Creek near Mouth . . . 65
Chico Creek near Chico . . . 65
Chowchilla River at Buchanan Dam Site . . . 106
Clear Creek near Igo . . . 58
Colusa Basin Drain at Knights Landing . . . 72
Colusa Trough at Colusa-Williams Highway . . . 70
Colusa Trough (Back Borrow Pit) near College City . . . 71
Colusa Weir to Butte Basin . . . 67
Coon Creek at Highway 99E . . . 81
Cosumnes River at McConnell . . . 90
Cosumnes River at Michigan Bar . . . 90
Cottonwood Creek near Friant . . . 104
Cottonwood Creek near Cottonwood . . . 59
Cross Creek below Lakelands Canal #2 . . . 121
Deer Creek near
Mouth . . . 64
Vina . . . 64
Smartville . . . 79
Dry Creek near
Galt . . . 91
Modesto (Clauss Road) . . . 113
Wheatland . . . 80
Duck Creek near
Farmington . . . 96
Stockton (Mariposa Road) . . . 96
Elder Creek near Paskento . . . 61
Elk Bayou above Elk Bayou Avenue . . . 120
Feather River at
Gridley (near) . . . 76
Nicolaus . . . 78
Oroville (near) . . . 75
Shanghai Bend (below) . . . 77
Yuba City . . . 76
Yuba River (below) . . . 77
Fremont Weir to Yolo By-Pass . . . 73
French Camp Slough near French Camp . . . 98
Fresno River near Daulton . . . 106
Fresno Slough By-Pass . . . 105
Friant Reservoir Inflow . . . 99
Kaweah River near Three Rivers . . . 116
Kern River near Bakersfield . . . 120
Kings River at
Piedra . . . 116
Empire Weir #2 (below) . . . 121
Knights Landing Ridge Cut . . . 71
Linda Creek near Roseville . . . 86
Little Dry Creek near Friant . . . 105
Lone Tree Creek near
Valley Home . . . 97
Manteca (Austin Road) . . . 97
Merced River at
Cressey . . . 108
Exchequer (near) . . . 107
Snelling (below) . . . 108
Stevinson (near) . . . 109
Merced River Slough . . . 109
Mill Creek near Mouth . . . 63
Mill Creek near Los Molinos . . . 62
Mokelumne River at
Clements (near) . . . 92
Lancha Plana . . . 91
Woodbridge . . . 92
Mormon Slough at Bellota . . . 95
Moulton Weir to Butte Basin . . . 67
North Fork of Mill Creek near Mouth . . . 62
Pleasant Grove Creek at
Lincoln Road . . . 83
Junction of Recl. Dist. 1000 Drain . . . 84
Putah Creek near Davis . . . 89
Putah Creek near Winters . . . 88
Recl. Dist. No. 70 Drain to Sacramento River . . . 68
Recl. Dist. No. 108 Drain to Sacramento River . . . 69
Recl. Dist. No. 787 Drain to Sacramento River . . . 70
Recl. Dist. No. 1000 (#3) Drain to Sacramento River . . . 84
Recl. Dist. No. 1000 (2nd Bannon) Drain to Sacramento River . . . 85
Recl. Dist. No. 1001 Drain at Head of Cross Canal . . . 82
Recl. Dist. No. 1001 Drain to Cross Canal . . . 83
Recl. Dist No. 1500 Drain to Sacramento Slough . . . 74
Redbank Creek at Foothills . . . 60
Sacramento River at
Balls Ferry . . . 53
Butte City . . . 55
Colusa . . . 56
Hamilton City . . . 54
Keswick . . . 52

ALPHABETICAL
INDEX TO TABLES (CONTINUED)

Page

STREAM FLOW (Continued)
Daily Mean Second-Feet and Monthly Acre-Feet (Continued)
Sacramento River at (Continued)
Knights Landing . . . 57
Ord Ferry . . . 55
Red Bluff (near) . . . 53
Redding . . . 52
Sacramento . . . 58
Verona . . . 57
Vina Bridge . . . 54
Wilkins Slough (below) . . . 56
Sacramento Slough to Sacramento River . . . 75
Sacramento Weir to Yolo By-Pass . . . 85
San Joaquin River at
Dos Palos (near) . . . 101
Fremont Ford . . . 102
Friant (below) . . . 100
Grayson (Laird Slough) . . . 103
Hetch Hetchy Crossing . . . 103
Mendota (near) . . . 101
Newman (near) . . . 102
Vernalis (near) . . . 104
Whitehouse . . . 100
Shasta Reservoir Inflow . . . 51
South Fork Tule River near Success . . . 117
South Honcut Creek at Bangor Road . . . 78
Stanislaus River at
Melones Power House (below) . . . 113
Mouth (near) . . . 115
Orange Blossom Bridge . . . 114
Ripon Bridge . . . 115
Riverbank . . . 114
Stockton Diverting Canal at Stockton . . . 95
Stony Creek near Hamilton City . . . 66
Sycamore Slough at Knights Landing . . . 72
Tempo Creek near Manteca (Jacktone Road) . . . 98
Thomes Creek at Paskenta . . . 63
Tisdale Weir to Sutter By-Pass . . . 69
Tule River at
Little Pioneer Ditch (above) . . . 118
Porterville (near) . . . 117
Turnbull Station . . . 119
Worth Bridge . . . 118
Tuolumne River at
Hickman Bridge . . . 111
La Grange . . . 110
La Grange Dam (above) . . . 110
Modesto . . . 112
Roberts Ferry Bridge . . . 111
Tuolumne City . . . 112
Wadsworth Canal to Sutter By-Pass . . . 74
West-Side Canal near Lost Hills (Main Drain at Hart's Station) . . . 122
White River near Ducor . . . 120
Yolo By-Pass near Woodland . . . 89
Yuba River at Marysville . . . 80
Yuba River at Narrows Dam . . . 79
Flow Rating Table, Major River Gaging Stations . . . 50
Full Natural, Major streams to Central Valley . . . 45
Inventory of Monthly Flow . . . 46, 48, 49
Monthly Flow, Summary . . . 46, 48, 49

SUMMARY AND INVENTORY OF MONTHLY STREAM FLOW
Sacramento Valley Streams . . . 46
San Joaquin Valley Streams . . . 48
Tule River and Tulare Lake Area . . . 49

SUTTER BY-PASS AND SACRAMENTO SLOUGH
Accretions . . . 46
Acreage Irrigated . . . 50, 123, 141
Diversions . . . 123, 141
Duty of Water . . . 123
Stream Flow . . . 46, 73, 75

THOMES CREEK AT PASKENTA - Stream Flow

TOM PAINE SLOUGH (Delta Uplands)
Acreage Irrigated . . . 50, 123, 150
Diversions . . . 123, 150
Duty of Water . . . 123

TULARE LAKE
Monthly Inflow . . . 49
Water Elevations . . . 122

TULE RIVER
Accretions . . . 49
Acreage Irrigated . . . 164
Diversions . . . 164
Stream Flow . . . 49, 117, 118, 119

TUOLUMNE RIVER
Accretions . . . 48
Acreage Irrigated . . . 123, 160
Diversions . . . 48, 123, 160, 165, 170
Duty of Water . . . 123
Stream Flow . . . 45, 48, 110, 111, 112

ALPHABETICAL
INDEX TO TABLES (CONTINUED)

Page

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

WADSWORTH CANAL
Acreage Irrigated (Included with Sutter By-Pass) 50, 123, 141
Diversions (Included with Sutter By-Pass) 123, 141
Stream Flow 46, 74

WATER ANALYSES 181

WATER UTILIZATION, SUMMARY 123

WEIRS, Daily Mean Flow Over, in Second-Feet
Colusa Weir to Butte Basin 67
Fremont Weir to Yolo By-Pass 73
Moulton Weir to Butte Basin 67
Sacramento Weir to Yolo By-Pass 85
Tisdale Weir to Sutter By-Pass 69

WEST-SIDE CANAL NEAR LOST HILLS - Stream Flow 49, 122

YOLO BY-PASS
Acreage Irrigated 50, 123, 139
Diversions 47, 123, 139
Duty of Water 123
Stream Flow 47, 71, 73, 89

YUBA RIVER
Accretions 46
Acreage Irrigated 50, 123, 144
Diversions 46, 123, 144, 166
Duty of Water 123
Stream Flow 45, 46, 79, 80

LIST OF PLATES

Plate | Page

1 Area Covered by Sacramento-San Joaquin Water Supervision 17

2 Shasta Reservoir Operation - 1950 and Friant Reservoir Operation 1950 . . . . . Opposite 22

3 Sacramento-San Joaquin Water Supervision (Showing location of Diversion and Stream Gaging Stations) . . . . . In Back Pocket

4 Maximum Seasonal Salinity Encroachment and Salinity Observation Stations, Sacramento-San Joaquin Delta 39

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13/37

FOREWORD

A contract was entered into between the United States and the Department of Public Works which provides for the performance by the Division of Water Resources of certain hydrographic work which has been formerly performed by the U. S. Bureau of Reclamation and the continuation of the Sacramento-San Joaquin Water Supervision activities of the Division of Water Resources. This contract, designated as U. S. Bureau of Reclamation Contract No. 175r-1596 and Division of Water Resources Contract No. 3-170, was executed on December 30, 1948 and became effective October 1, 1948.

The work performed during 1950 by the Division of Water Resources under this contract includes the collection of data on stream flows and diversions for the Sacramento and San Joaquin rivers and their tributaries formerly obtained by both agencies and in addition data formerly obtained by the Bureau of Reclamation on flows and diversions for the Tule River, measurements of inflows to Tulare Lake and quality and temperatures of water. In accordance with the terms of this contract, the Division transmitted to the Bureau of Reclamation periodic hydrographic reports for the latter's use in the operation of the Central Valley Project.

REPORT OF SACRAMENTO-SAN JOAQUIN WATER SUPERVISION FOR 1950

SACRAMENTO-SAN JOAQUIN WATER SUPERVISION

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

Objectives

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

There is no agreement between the water users under which a watermaster might distribute the natural water supply equitably to those entitled to receive it, but it appears inevitable that such an agreement, embracing a definite schedule of relative water rights, will be developed. Its realization will require, however, reliable data, covering a long period of years, on the actual diversions and uses of water, stream flows, stream accretions and salinity encroachment into the Sacramento-San Joaquin Delta. Looking toward that end, it has been the objective of the Division of Water Resources through its Water Supervision work, to collect and record all of the basic hydrographic data necessary to formulate an intelligent and practicable agreement 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 Smartville, from the Bear River below Wheatland from the Sutter By-Pass and Sacramento Slough, from the American River below Fair Oaks, from the Cosumnes River below Michigan Bar, from the Mokelumne River below Woodbridge, from the Calaveras River below Jenny Lind, from the San Joaquin River between Friant Dam and Mossdale Bridge, from the Merced River below Snelling, from the Tuolumne River below La Grange, from Dry Creek (tributary to Tuolumne River) below Oakdale-Waterford road, from the Stanislaus River below Knights Ferry, and from the Tule River below South Fork, and the irrigated areas lying on the "uplands" side of and receiving water from the San Joaquin River between Mossdale Bridge and Stockton, Old San Joaquin River and Tom Paine Slough. The area covered and its geographical relation to the Central Valley Drainage Basin are shown on Plate 1.

Water Supervision Activities

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

The field activities include:

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

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

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

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

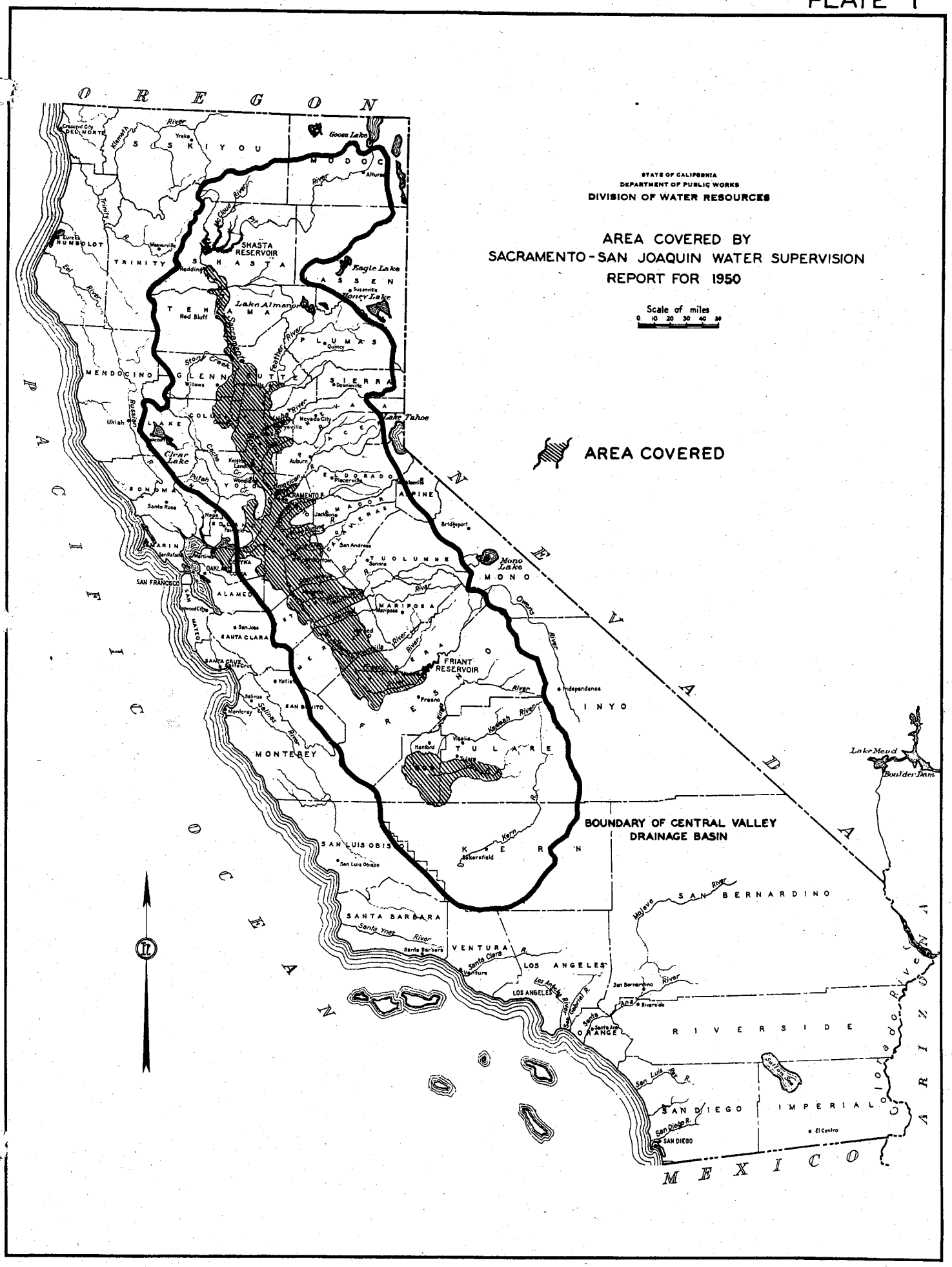
(5) Maintaining the Delta salinity observation program;

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

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

The office work comprises mainly the assembly, computation and analysis of hydrographic and other data collected during the field season for presentation in the annual report of Water Supervision. This report contains the basic records of water supply available to, and the water utilization by, each user of water from the streams covered in the area. The computation of stream flow, drainage and accretions involves the conversion of the recorded daily gage records to figures showing the daily flows in second-feet and monthly runoffs in acre-feet. The computation of the amounts of water diverted by each water user involves the reduction of data showing the operation of his diversion plant, its electric power consumption, and its efficiency. The results of these computations are

PLATE 1


STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES
AREA COVERED BY
SACRAMENTO-SAN JOAQUIN WATER SUPERVISION
REPORT FOR 1950
Scale of miles
0 10 20 30 40 50
AREA COVERED
BOUNDARY OF CENTRAL VALLEY
DRAINAGE BASIN
OREGON
NEVADA
ARIZONA
MEXICO
PACIFIC OCEAN
SHASTA RESERVOIR
FRIANT RESERVOIR
Goose Lake
Eagle Lake
Honey Lake
Lake Almanor
Lake Tahoe
Clear Lake
Mono Lake
Lake Mead
Boulder Dam
Salton Sea
DEL NORTE
SISKIYOU
MODOC
HUMBOLDT
TRINITY
SHASTA
LASSEN
TEHAMA
PLUMAS
MENDOCINO
GLENN
BUTTE
SIERRA
LAKE
COLUSA
NEVADA
SONOMA
YUBA
EL DORADO
ALPINE
MARIN
SACRAMENTO
AMADOR
CALAVERAS
TUOLUMNE
MONO
ALAMEDA
MARIPOSA
SAN MATEO
SANTA CLARA
SANTA CRUZ
MADERA
INYO
SAN BENITO
FRESNO
MONTEREY
TULARE
SAN LUIS OBISPO
KERN
SANTA BARBARA
VENTURA
LOS ANGELES
SAN BERNARDINO
ORANGE
RIVERSIDE
SAN DIEGO
IMPERIAL

then compiled in the tabulations in this report for the purpose of giving basic records that are readily usable by all interested parties. The office work also includes the preparation of certain hydrographic data in form to be used as a guide in the ensuing season's field work.

In accordance with the provisions of Contract No. 3-170 between the Division of Water Resources and the U. S. Bureau of Reclamation, the Division has computed, on a preliminary basis, the daily mean flows at 36 stream-flow stations, and the diversions, by reaches, from the main streams and tributaries in the Sacramento and San Joaquin valleys and has transmitted the results of these computations monthly to the Regional headquarters of the Bureau of Reclamation.

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

Hydrographic Activities of Cooperating Agencies

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

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 and Tuolumne rivers in the San Joaquin Valley.

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

The final computations of the diversion quantities, as shown in this report, are the result of giving full consideration to all measurements and records of operation during the entire season for each individual diversion.

The 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 since 1944 has substantially changed 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 (Millerton Lake) 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. Releases were made during 1950 for regulating and supplementing the irrigation supplies along the San Joaquin River.

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, 528 feet high above streambed, located 13 miles upstream from Redding. The gross capacity of the reservoir with spillway gates closed is 4,500,000 acre-feet, of which a space of 4,000,000 acre-feet will be available for the active storage of water and 500,000 acre-feet of space will be reserved for silt deposits and to create head for the generation of power. The spillway steel drum gates were installed in 1948, thus providing a storage of 786,000 acre-feet above the 3,714,000 acre-feet at the fixed crest of the spillway. 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 through the Sacramento Valley in the channel of the Sacramento River.

Friant Reservoir, on the San Joaquin River, is created by a gravity concrete dam about 275 feet high above streambed, and is located at the base of the foothills about 20 miles northeast of Fresno. The gross capacity of the reservoir with spillway gates closed, is 520,000 acre-feet, of which a space of 404,000 acre-feet between the top of the spillway gates at elevation 578 and the bottom of the Friant-Kern Canal outlet at elevation 459.4 feet 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. The spillway gates on Friant Dam were completely installed in 1948, thus providing a storage of 84,000 acre-feet above the 350,000 acre-feet of space between the fixed crest of the

spillway at elevation 560 feet and the bottom of the Madera Canal outlets at elevation 442.2 feet. Construction on the Friant-Kern Canal was essentially completed during 1950 except for bridges, turnouts, etc. Water reached the end of the canal in the vicinity of Bakersfield; however, the most southernly point of delivery was to the Southern San Joaquin Municipal Utility District in the vicinity of the City of Delano. The quantity of diversions into the Friant-Kern Canal is shown in Table 172.

Shasta Reservoir Operation - 1950

The Shasta Reservoir has been constructed for multiple uses. 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 hydroelectric power. The reservoir will also be used to control floods in the Sacramento River originating above Shasta 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 fill the reservoir to the spillway lip. However, the United States Bureau of Reclamation was able to release sufficient stored water throughout the irrigation season of 1944 to augment the natural stream flows and thereby facilitate diversions of those natural flows by the diverters along the Sacramento River.

Since 1944, including 1950, the quantity of water in storage in Shasta Reservoir was sufficient to afford releases (1) to facilitate irrigation diversions by maintaining higher river levels along the Sacramento River, (2) to sustain minimum flow for navigation of approximately 5,000 second-feet upstream from Knights Landing, (3) to supplement irrigation supplies in the Delta area below Sacramento, and (4) to control salinity. During 1950, a year of 77 percent of normal runoff to the Delta, releases from the reservoir were regulated to maintain a stream flow out of the Delta into Suisun Bay sufficient to hold back the line of excess saline concentration to an arc embracing 5,000 acres of the lower Delta area.

The daily total mean-second-foot-flows into Shasta Reservoir during 1950 are given in Table 7. These inflows to the reservoir, as shown by the daily figures, represent the amounts of water that would have been flowing in the Sacramento River at the dam site if the dam had not been built. The inflow figures are computed by combining the effects of daily change in storage, reservoir evaporation, releases and spill.

A tabulation of the daily amounts of water in storage in Shasta Reservoir during 1950 is given in Table 8. The daily mean-second-foot-flows as measured below Shasta Dam at the United States Geological Survey station near Keswick are given in Table 9. The flows at the Keswick station are the same as the releases from Shasta 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 1950, as prepared by the U. S. Bureau of Reclamation, 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 - 1950

The Friant Reservoir will be used only for the storage of water for flood control and irrigation purposes. The daily total mean-second-foot inflows to Friant Reservoir during 1950 are given in Table 103. A tabulation of the daily amounts of water in storage in the reservoir during 1950 is given in Table 104. The daily mean-second-foot-flows, as measured at the United States Geological Survey gaging station below Friant, are given in Table 105. 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 intermediate inflow are small during the irrigation season so that the measured flows at the gaging station are practically the same as the releases from the reservoir during that period. A chart depicting the operation of Friant Reservoir for 1950, as prepared by the U. S. Bureau of Reclamation, giving the same data as are shown by the chart for Shasta Reservoir, is also shown on Plate 2.

During the 1950 irrigation season, water stored in Friant Reservoir (Millerton Lake) was released into the Madera Canal, the Friant-Kern Canal, and into the channel of the San Joaquin River. Diversions by the Madera Canal served largely to aid in the replenishment of ground water supplies in the Madera area. The regulated releases flowing down the San Joaquin River served not only the irrigation requirements of the lands along that stream above the head of the gravelly Ford Canal, but also the requirements of the numerous diversions below that point to Temple Slough.

RUNOFF AND WATER SUPPLY

The variable flows of the streams entering the Sacramento and San Joaquin valleys on the north and east sides result from the rainfall runoff occuring each winter and spring season principally 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 incidental flood control is accomplished by reservoirs in many of the tributary watersheds including those of the Sacramento, Feather, Yuba, Stanislaus, Tuolumne, Merced and San Joaquin rivers.

The flood flows during November and December, 1950, were the highest flows of record on the American, Cosumnes, Mokelumne, Stanislaus, Tuolumne, Merced, Kings, Kaweah, Tule, and Kern rivers. As established by the U. S. Geological Survey, the magnitudes of these flood crests are given in the following tabulation:

Stream and Station	Date and Crest in Second-Feet of Previous Flood		Date and Crest in Second-Feet of 1950 Flood	
American River at Fair Oaks	3/26/28	150000	11/21/50	180000
Cosumnes River at Michigan Bar	3/31/40	26200	11/18/50	27600
Mokelumne River at Woodbridge	3/25/28	25600	11/21/50	27100
Stanislaus River below Melones	3/31/40	22800	11/21/50	49500
Tuolumne River at La Grange	1/31/11	60300	12/8/50	65000
Merced River below Exchequer	1/17/16	22000	11/19/50	46200
Kings River at Piedra	12/11/37	80000	11/19/50	91000
Kaweah River at Three Rivers	12/11/37	33300	11/19/50	52000
Tule River near Porterville (above South Fork)	3/9/43	15500	11/19/50	25500
Kern River near Bakersfield	3/9/43	21700	11/19/50	36000

Levee breaks and consequent flooding of low lands occurred in the lower reaches on all of the above mentioned streams. Where flooding in the vicinity of some gaging stations occurred, it was necessary to establish the crest flows by slope-area extrapolation of the rating curves and by log-log plottings of flow and stage relations. Many current meter flow measurements were made by Water Supervision and cooperating agencies at these and at other stations along the valley floor streams at or near the flood crests to give a more definite determination of the crest flow values shown above.

A detailed description of the storms and a summarization of the flood conditions occurring during the November 13 to December 15 storm period are contained in a special report of the Division of Water Resources entitled, "Floods of 1950 in California," dated December 18, 1950.

The extent of the flood flows in 1950 is given by the tabulations of daily stream flows, Tables 9 through 149.

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

1950 Inventory of Runoff

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

1950 Runoff Comparisons

A comparison of the unimpaired flows for the period 1920-1950, in the major streams tributary to the Sacramento and San Joaquin valleys in percent of a 60-year normal is given in Table 1. This table was re-computed this year from original data furnished by the Snow-Survey section of this Division which were based on a 60-year (1889-1949) normal runoff. The annual runoff figures given in Table 1 have been modified by as much as 5 percent from the corresponding figures given in Table 1 of the previous Water Supervision reports. These changes were the result of the change from a 50-year normal to a 60-year normal and of the ommission of the runoff from the Calaveras, Cosumnes and Bear rivers in the computations of the new 60-year normal runoff of Sacramento-San Joaquin rivers to Delta. As shown in Table 1, the 1950 unimpaired runoff may be summarized as follows:

Stream and Station	Percentage of 60-year normal
Sacramento River at Red Bluff	66 percent
Sacramento River at Sacramento	77 percent
San Joaquin River at Friant	70 percent
San Joaquin River at Vernalis	76 percent
Sacramento and San Joaquin rivers flow to the Delta	77 percent

A comparison of the season's actual minimum flows is given in Table 196. The minimum 10-day-flows during 1950 are shown to have been:

Stream and Station	Average minimum 10-day flow
Sacramento River at Sacramento	7,080 second-feet
San Joaquin River at Vernalis	502 second-feet
Combined Sacramento and San Joaquin rivers flow to the Delta	7,670 second-feet

These comparisons indicate that the water supply available during the 1950 season was subnormal. However, the water supply for the calendar year of 1950 was above normal because of the excessive precipitation which occurred in November and December as

shown in the precipitation data presented on page 32 of this report. Observations of water utilization and the amounts of residual flows in the streams reaching the Delta in the 1950 growing season indicated that the demands for irrigation and salinity control in the Delta exceeded the natural flow supplies, and the releases of stored water from Shasta Reservoir were of primary importance in maintaining satisfactory river flows and fresh water conditions in the Delta.

Primary Irrigation Supplies

The flows onto the valley floor during the summer season through the major streams are considered to be the primary water supplies for irrigation. This primary water is differentiated from the flows available for irrigation in the lower reaches of the streams resulting from large accretions including the return of a substantial amount, through drainage, from the flows diverted for irrigation upstream. The amounts of primary water available for irrigation in the Sacramento Valley are given in the flow tabulations for those gaging stations located at the edge of the valley floor, to wit, tables numbered 9, 56, 63, 64, 78, 86 and 92.

In the San Joaquin River service area, primary water supplies are almost entirely diverted from the upper reaches of the Stanislaus, Tuolumne and Merced rivers by the large irrigation districts, and from the San Joaquin River in the vicinity of Mendota by the large canal companies. These upper diversions from the Stanislaus, Tuolumne and Merced rivers are included in Tables 177, 175 and 174, respectively. Primary water supplies in the San Joaquin River for irrigation below Friant are measured at the San Joaquin River gaging station below Friant, Table 105.

Accretions to Stream Flow

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

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

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

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

Sacramento Valley Accretions. In the Sacramento Valley all of the accretions to natural and regulated flows which are not diverted on lands north and west of the Sacramento Delta flow into the Delta and are available for use in that area. Practically all of the summer accrete flows in Colusa Trough, Back Borrow Pit, Knights Landing Ridge Cut, and Yolo By-Pass are mainly return waters derived from diversions from the Sacramento River. Since the Sacramento River is the main stream through the Sacramento Valley the accretions to that stream include substantial amounts of return water from irrigated areas served by water from other sources, particularly the Feather River. A large part of the summer return water flows reaching the Sacramento River through the Butte Slough Outfall Gates (Mile 84.0L) and from Sutter By-Pass through Sacramento Slough (Mile 21.2L) are of Feather River origin. However, the measured flows in Sacramento Slough, Table 55, include not only return water from Feather River diversions but also return water from Sacramento River diversions into Reclamation District No. 1500, Table 54. In Water Supervision reports prior to 1947 estimates are given showing that bank seepage into the West Borrow Pit of the Sutter By-Pass from R.D. 1500 amounts to 10 percent of that district's diversions from the Sacramento River.

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

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

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

In order to compare 1950 season conditions along the Sacramento River with those of previous years, the following tabulation gives the seasonal accretions, July through September, in percent of simultaneous diversions. This tabulation, in part, is excerpted from Table 147 in the 1946 Water Supervision Report. The figures for 1947, 1948, 1949 and 1950 were derived from the summation data in Table 2 in each report, but under the same provisions detailed in the "note" under the 1946 Table 150.

Comparative Seasonal Accretion Percentages - 1938 - 1950

Sacramento River - Red Bluff to Sacramento

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

*Excludes City of Sacramento municipal.

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

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

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

The channel of the San Joaquin River between Friant and the valley trough near Mendota passes through the plains area in a deeply degraded canyon 10 feet to 100 feet deep between relatively sheer bluffs. The plains area along the south side of this reach is intensively irrigated with Kings River water through the Fresno Irrigation District distribution system. On the plains along the north side of this reach in Madera County irrigation water is derived mainly from ground water, except where occasional parcels are served with pumped river water. Because of the fact that the elevation of the ground water plane on the south side is above the riverbed and along the north side it is below the bed, there are accretions from the south and losses to the north along this reach of the San Joaquin River. The losses during the 1950 season exceed the accretions as shown in Table 3.

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

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

The ratio of accretion (including return water from irrigation) to diversions along the lower San Joaquin River and its tributaries, Stanislaus, Tuolumne and Merced rivers, is considerably smaller than that for the Sacramento River. Analysis of pertinent data in Table 3 and comparison with the data contained in Table 147 of the 1946 Water Supervision report indicate this San Joaquin Valley ratio to vary between 19 and 35 percent while the foregoing table on page 27 shows the Sacramento Valley ratio to vary between 36 and 64 percent. This difference may be attributed to the fact that, whereas, due to basin topography and geology, practically all drainage from the Sacramento River diversions is

quickly returned to the river, considerable of the return water in the San Joaquin Valley may never reach the surface streams because of its percolation to ground water and its immediate recovery by drainage and deep well pumps in the areas of many of the irrigation districts for re-use through the irrigation canals.

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 co-operating with the work of the Sacramento-San Joaquin Water Supervision. The methods used by all cooperating parties are standardized and the results obtained are equally good. In order to obtain uniformity, however, the Water Supervision engineers cooperate with the other agencies in obtaining and correlating the records for each of the cooperative stations.

During the 1950 season, 65 of the total of 145 gaging stations on streams and drainage channels for which records are reported herein were maintained, operated and rated, and the flows at them were computed, solely by the Division of Water Resources through the Water Supervision 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., passing the station.

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

Water surface elevations at any time at certain gaging stations may be derived by the reader by using Table 6 coupled with the appropriate stream-flow data in Tables 9 through 149. From the stream flow table the flow on any desired day is interpolated into the specific station's rating table in Table 6 to give a gage height (or elevation) of the stream's water surface for that day.

Preliminary Data from Cooperating Agencies

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

Stream Flow Bulletins

During 1950, stream-flow bulletins were compiled from time to time and mailed to interested agencies and persons. The bulletins listed the results of stream-flow current meter measurements made along the Sacramento and San Joaquin river system on the valley floor by Division of Water Resources (Sacramento-San Joaquin Water Supervision) and U. S. Geological Survey engineers.

Notes on Certain Gaging Stations

Records are obtained and published in this report for 145 gaging stations in the Sacramento and San Joaquin valleys, including 16 stations not heretofore published in this series of reports. A brief description of each station is given at the bottom of the stream-flow data table. The location of each station is shown on Plate 3 in the pocket on the back cover of this report. Notes on the newly included stations, together with a repetition of notes on the Sacramento River at Sacramento, are believed desirable, however, for a better understanding of the records. These notes are as follows:

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

The procedure employed in 1947 through 1950 involves the computation of daily mean Sacramento River flows passing Sacramento by the usual and standard practice of rating the stream, at the I Street Bridge station by means of the slope-velocity method. This method requires a consideration of the gage heights recorded at the river gaging station at Snodgrass Slough (20 miles downstream from Sacramento) as well as the recorded gage heights at Sacramento. The adaptation of this method in 1947 as a means of direct rating, was accepted after Water Supervision engineers had measured and studied the problem with this method in mind for the previous three years.

The final relation for tidal influenced flow conditions at Sacramento involves the construction of a rating curve having as the ordinate the difference between the gage heights at Sacramento and at Snodgrass Slough and as the abscissa a function of velocity (fV) equalling the discharge (Q) divided by the gage height at Sacramento. Flows, in

second-feet, passing Sacramento are obtained from this relation by multiplying the scale value of fV for any differential gage height, by the corresponding gage height at the I Street recorder. This relation is used for gage heights at Sacramento below 10.5 feet (a flow of 33,000 second-feet) below which tidal fluctuations are effective.

The flows for gage heights below 10.5 feet follow the exponential relation

$$Q = 1612\ (\text{I Street recorder G.H.} + 3.10)(\text{Differential} - 0.50)^{0.25}$$

where "Differential" =(I Street recorder G.H. + 3.10) minus (Snodgrass Slough G.H.).

The flows for gage heights above 10.5 feet follow the exponential relation

$$Q = 288\ (\text{I Street recorder G.H.} + 8.50)^{1.61}.$$

Tidal fluctuations cease above the 10.5-foot stage and this latter flow-stage relation exists.

Frequent current meter flow measurements, including tidal cycle measurements, were made during the past four years to delimit the above relationships, and to evaluate any shifts that may occur in the flow-stage relationship due to dredging activities in the channel.

Minor Tributaries to Sacramento River. Five stream-flow stations, which were operated under Contract No. 3-170, were discontinued during 1950. The short records for these discontinued stations demonstrated that their flows were so small as to not warrant recordation. The five stations are located on: Craig Creek, Butler Slough, Irrigation Drain into Antelope Creek, Champlin Slough and Toomes Creek.

Additional Stations Reported in 1950. The following stream-flow stations, and including Tulare Lake water elevations, for which data have not been heretofore published in the reports of the Sacramento-San Joaquin Water Supervision, are included in the 1950 report. These stations, numbering 17 in total, were included to provide runoff data for the minor stream systems. Nine of these stations are maintained and operated by the Division of Water Resources.

Dry Creek near Wheatland
Reclamation District 1001 Drain at head of Cross Canal
Pleasant Grove Creek at Lincoln Road
Pleasant Grove Creek at Reclamation District 1000 Drain
Duck Creek at Farmington
Duck Creek near Stockton
Lone Tree Creek near Valley Home
Lone Tree Creek near Manteca
Tempo Creek near French Camp
French Camp Slough near French Camp
Fresno River near Daulton
Chowchilla River near Buchanan Dam Site
Kings River at Piedra

(Tabulation continued on next page)

Kaweah River near Three Rivers

White River near Ducor

Kern River near Bakersfield

Tulare Lake Elevations

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

Precipitation

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

The following tabulation gives the 1950 monthly total precipitation at representative valley floor rainfall stations and the monthly normals. Records are from U. S. Weather Bureau.

Station		Inches of Precipitation - 1950												
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Red Bluff	- 1950	5.48	4.33	2.05	.33	.60	.21	.00	.05	.17	3.53	2.20	4.56	23.51
	- normal	4.76	3.92	3.25	1.70	1.13	.47	.03	.05	.80	1.33	2.97	4.40	24.81
Colusa	- 1950	2.68	3.25	.72	.68	.37	.07	.00	.00	.05	1.67	2.46	4.93	16.88
	- normal	3.24	2.96	2.14	1.08	.53	.27	.01	.01	.30	.66	1.65	3.25	16.10
*Marysville	- 1950	4.92	4.31	2.60	1.31	0.47	.12	.00	.00	.06	2.82	5.21	5.97	27.79
	- normal													19.97
Sacramento	- 1950	4.41	3.27	2.00	1.03	.37	.05	T	.00	.62	2.35	5.50	4.72	24.32
	- normal	3.72	3.02	2.57	1.51	.77	.15	T	.00	.38	.92	1.88	3.03	17.95
Modesto	- 1950	4.03	.96	1.67	.95	.39	.00	.00	.00	.74	1.71	2.92	3.19	16.56
	- normal	2.18	1.80	1.74	.91	.46	.12	.01	.01	.16	.52	1.19	1.97	11.07
Merced	- 1950	3.58	1.65	1.17	.76	.14	.00	T	.00	.40	1.49	3.82	2.57	15.58
	- normal	2.30	1.91	1.87	1.01	.48	.11	.01	.02	.18	.49	1.17	1.80	11.35
Fresno	- 1950	3.01	1.84	1.84	.82	.05	.00	.02	T	.13	1.19	1.85	1.60	12.35
	- normal	1.73	1.43	1.58	.95	.44	.08	.01	.01	.21	.57	.93	1.45	9.39

*New station at D Street Bridge. Normal shown is for 1948 at old station.

It can be seen from these data that Central Valley floor precipitation averaged 124 percent of normal for the 1950 calendar year. During the months of October, November, and December, rainfall in excess of normal occurred at all Central Valley stations.

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 wide variety of marketable crops in large quantities. The availability of irrigation water during the dry summer season affords continuous growing conditions necessary for the many crops.

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

Irrigation Diversions

Measurements and records of diversions in 1950 have included all of the points of diversion on the valley floor along the Sacramento River and its tributaries; along the Cosumnes, Mokelumne, and Calaveras rivers; along the upland banks of the delta channels of Old San Joaquin River, Tom Paine Slough and San Joaquin River; along the Stanislaus, Tuolumne and Merced rivers and Dry Creek tributary to Tuolumne River; along the San Joaquin River between Friant Dam and Durham Ferry Bridge (Vernalis); along Fresno Slough and Fresno Slough By-Pass; and along Tule River.

This report contains records of a total of 1040 points of diversion segregated to various sources as follows: Sacramento River 305, Colusa Trough (above Colusa-Williams Highway Crossing) 24, Back Borrow Pit (extension of Colusa Trough along back levees of Reclamation Districts 108 and 787) 37, Knights Landing Ridge Cut 9, Yolo By-Pass 12, Cache Slough 1, Lower Butte Creek and Butte Slough 30, Sutter By-Pass and Sacramento Slough 58, Feather River 43, Yuba River 13, Bear River 5, American River 24, Cosumnes River 17, Mokelumne River 7, Calaveras River (including Mormon Slough) 52, Tom Paine Slough 8, Old San Joaquin River 17, San Joaquin River (below Vernalis gaging station) 58, San Joaquin River (between Vernalis gaging station and Fremont Ford Bridge) 34, San Joaquin River (between Fremont Ford Bridge and Friant Dam) 99, Fresno Slough and Fresno Slough by-Pass 14, Merced River 77, Tuolumne River 35, Dry Creek (tributary to Tuolumne River) 11, Stanislaus River 36, and Tule River 14. 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 47 by gravity, are accomplished by pumping. The records of diversion by gravity are obtained by means of canal ratings established by flow measurements. In the case of 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 plant efficiency. This is made possible by the fact that nearly all of the pumping plants are electrically operated. The relation between water pumped and power input is determined

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

Prior to 1933 a daily diversion record for each plant was compiled. However, since that year, except for some of the larger plants, the monthly diversion records only are available. The diversions for 1950 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 152 through 178.

Prior to 1947 the monthly amounts of diversions in acre-feet by the large eastside irrigation districts from the Stanislaus, Tuolumne and Merced rivers were published annually in this series of Water Supervision reports and are found in the 1946 Table 154. The amounts of these diversions during 1950 are shown in Tables 174, 175 and 177. The amounts of these diversions during the 1947 season were omitted from the 1947 annual Water Supervision report but are included in the 1948 report in Table 139, specially prepared to supplement the 1947 report.

Fresno Slough and Fresno Slough By-Pass normally convey excess Kings River water flood flows into the San Joaquin River at a point above Mendota Dam, but during the irrigation season San Joaquin River water is backed up through those channels by the Mendota Dam to afford irrigation supplies to the James and Tranquillity irrigation districts and to certain other diverters. The diversion and irrigated acreage data for these streams shown in Tables 172 and 173 were furnished by the U. S. Bureau of Reclamation.

Table 157, diversions and irrigated acreage by Reclamation District No. 2068 from Cache Slough, is included in this report to continue a similar record commenced in 1948. The irrigated area in the District lies outside of the established boundary of the Delta shown on Plates 3 and 4 and can be classed as a "Delta Uplands" area. The purpose of including Table 157 in this 1950 report is to present as full a record as is available of the use of water in and from the Delta, in conjunction with the Delta crop survey data in Table 198 of this report.

A seasonal summary of water utilization during the past ten years, 1940 through 1950 from the Sacramento River and its tributaries and the San Joaquin River and its

tributaries is shown in Table 151. This table presents an overall picture of the water utilization in these areas.

In Table 179 there are shown the average monthly diversions in percent of the seasonal for the streams in the Sacramento and San Joaquin valleys. A summary of the monthly diversions from the Sacramento and San Joaquin valley streams for the ten-year period, 1941 through 1950, is given in Tables 180 through 190. Table 190 shows, for the Sacramento River only, the seasonal diversions and acreages irrigated for the period 1940 through 1950, segregated to the different river sections.

Irrigated Acreage

Toward the end of the irrigating season in 1948, as was done in previous years, a complete canvass was made of acreages irrigated from each of the points of diversion covered by the Water Supervision work. The irrigated acreages for all of the points of diversion on the streams on the Sacramento and San Joaquin valley floors were plotted on suitable maps and are retained on file in the office of the Division of Water Resources for record.

The area irrigated through each individual point of diversion along the streams covered in this work is given in Tables 152 to 178 inclusive. These tabulations and the associated summarizing tables do not include data on diversions and use of water in the Delta.

The following is a summary of the total acreage irrigated during 1950 in the area covered by the Water Supervision work as shown in Table 5. This tabulation, as noted in the footnotes of Table 5, does not include the acreage of the large east-side irrigation districts in the lower San Joaquin Valley. Detailed acreage tabulations of the totals shown below, as well as those of the large irrigation districts mentioned, may be found in Tables 151 through 178 and in Table 198 (Delta Crop Survey) of this report.

Area	1950 Irrigated Acreage	
Sacramento Valley Floor above Sacramento	401,659	
San Joaquin Valley Floor above Delta	483,105	
Total area served by measured diversions		884,764
Sacramento-San Joaquin Delta		
Cropped	365,800	
Water Consuming--not cropped	82,500	
Total Delta		448,300
Grand Total		1,333,064

Table 192 shows a comparison of the acreage of rice irrigated during the period 1924 through 1950 from the stream channels within the Sacramento and San Joaquin valleys which are covered by Water Supervision work, and the total acreage of rice in California irrigated from all sources as reported by the Federal-State Crop Reporting Service.

In view of the methods of farming, which usually employ rotation of crops with summer-fallow, it is probable that the acreage of land under irrigation facilities in the area covered by the Water Supervision activities exceeds 1,400,000 acres.

1950 Sacramento-San Joaquin Delta Crop Survey

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

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

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

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

Use of Water in Delta

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

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

Gross Duty of Water

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

Gross duty of water figures for the individual stream channels covered by Water Supervision work are given for the Sacramento and San Joaquin valleys in Table 141.

SALINITY INVESTIGATIONS

The intrusion of salty water from San Francisco Bay into the channels of the Delta from which irrigation supplies are derived, is a matter of extreme importance and the Water Supervision work has included observations during 1950 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 the Delta irrigators advised of conditions through periodic bulletins so that damage from the use of water of too high salt content might be averted. (Saline concentrations exceeding 100 parts of chlorine per 100,000 parts

of water are toxic to the average plant and are objectionable for human consumption.)

During 1950 the continuous observations of salinity served as an important factor in determining the amounts of release from Shasta Reservoir as controlled by the U. S. Bureau of Reclamation.

Scope

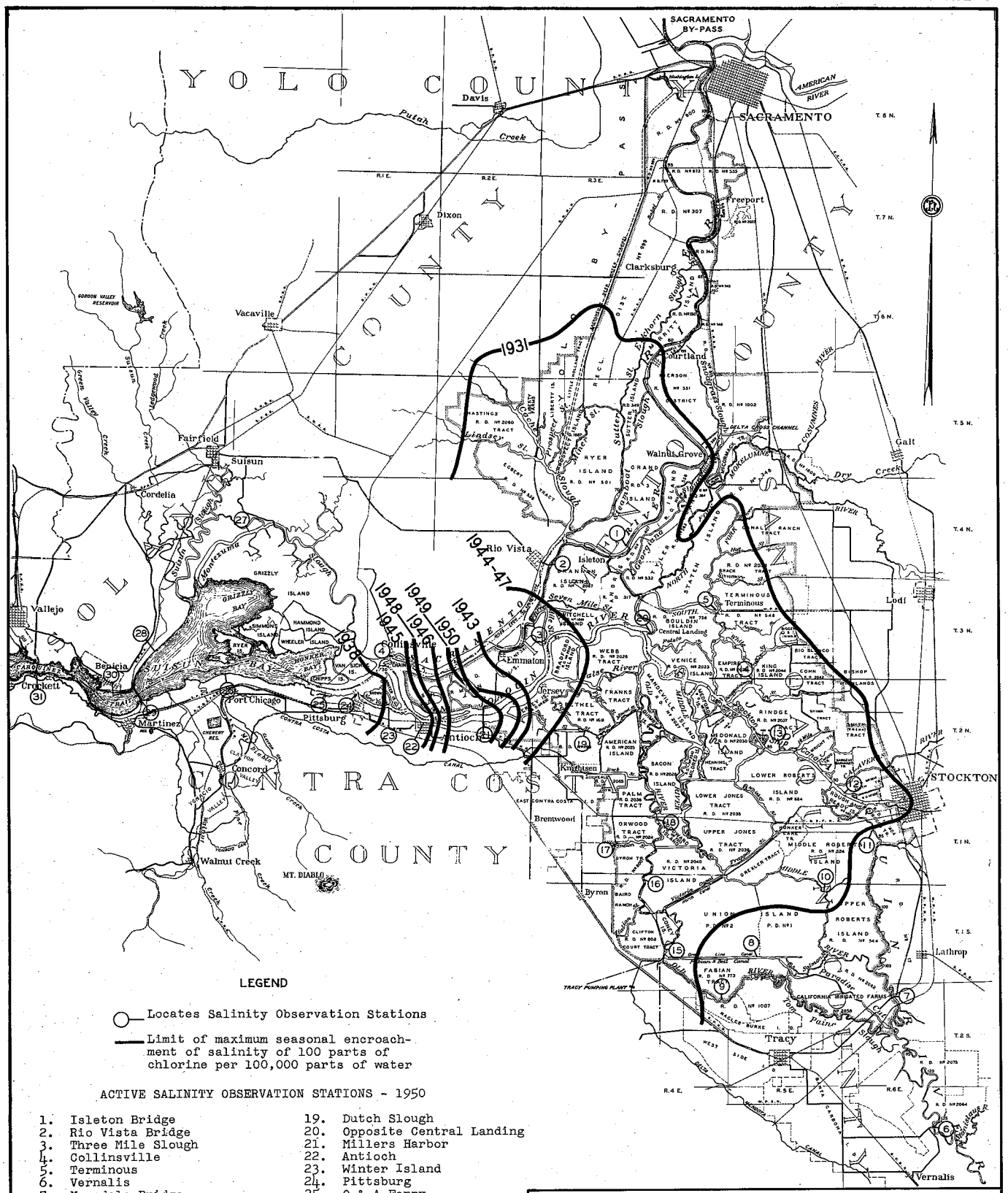
The general scope of this investigation each season has been such as to insure that samples of water to be tested for salinity could be taken at regular intervals at a sufficient number of stations throughout the Delta and upper Bay region so that the advance and retreat of the salinity from early summer to late fall would be completely recorded. Plate 4 shows the limit of encroachment into the Delta of water having 100 parts of chlorine per 100,000 parts of water for the years 1931, 1938, 1943, 1944, 1945, 1946, 1947, 1948, 1949 and 1950. These certain years are chosen, first, to represent a range of runoff conditions prior to the commencement of releases from Shasta Reservoir, to wit, 30 percent of normal runoff during 1931, 170 percent of normal runoff during 1938, 114 percent of normal runoff during 1943, and second, to represent the consecutive years concurrent with those releases. The salinity encroachment lines for each of the years 1920 to 1944, inclusive, may be found on the Delta map in the 1944 annual Water Supervision report.

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 water from the channels of the Sacramento and San Joaquin valleys and the Delta as prepared by the U. S. Bureau of Reclamation.

A regular program of salinity sampling and testing was re-established early in 1944 as part of the activities of the Sacramento-San Joaquin Water Supervision, with the necessary funds therefor being provided by the U. S. Bureau of Reclamation. This regular program was continued throughout 1950. The records of water samples taken during 1950 from 35 active sampling stations are given in Table 195. A description of the location of each of these stations is contained in Table 194.

Complete or Partial Analyses of Surface Flows

As a matter of record there is included in this report a tabulation of the results of complete or partial chemical analyses of samples of water taken at many points along the Sacramento and San Joaquin rivers and in the Delta during 1950. These results are contained in Table 197 and are furnished entirely by the U. S. Bureau of Reclamation. The methods of collecting the samples and of analysis are definitely different from the



LEGEND

Locates Salinity Observation Stations

Limit of maximum seasonal encroachment of salinity of 100 parts of chlorine per 100,000 parts of water

ACTIVE SALINITY OBSERVATION STATIONS - 1950

1. Isleton Bridge
2. Rio Vista Bridge
3. Three Mile Slough
4. Collinsville
5. Terminous
6. Vernalis
7. Mossdale Bridge
8. Grant Line Bridge
9. South Fabian
10. Williams Bridge
11. Garwood Bridge
12. Stockton Country Club
13. Rindge Pump
14. Empire Bridge
15. Clifton Court Ferry
16. Victoria
17. East Contra Costa I.D.
18. Orwood Bridge
19. Dutch Slough
20. Opposite Central Landing
21. Millers Harbor
22. Antioch
23. Winter Island
24. Pittsburg
25. O & A Ferry
26. Port Chicago
27. Innisfail Ferry
28. West Suisun
29. Martinez
30. Benicia
31. Crockett

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

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

LINES OF SALINITY ENCROACHMENT

SACRAMENTO-SAN JOAQUIN DELTA AND UPPER BAYS
1950

Scale of miles
0 2 4 6 8 10

methods employed in determining the chlorine component as part of the regular salinity observation activities in the Sacramento-San Joaquin Delta.

Sacramento River Water Moves Southward

With reference to Table 195, a study of the salinity concentrations in progressive months points out clearly that the freshening effect of Sacramento River water reaches far southward into the branching channels of the San Joaquin River. This condition may be expected when consideration is given to the relatively small amounts of inflow from the San Joaquin River. The more than 100,000 acres of upland and delta lands lying south of the latitude of Stockton require irrigation flows in excess of 1,000 second-feet during months of maximum use. During the months March through June in 1949, the inflows to this southern Delta area from the San Joaquin River were sufficient to meet this demand, and in consequence created a state of stagnation in the vicinity of Stockton. However, during the months of July, August and September, when the average inflow from the San Joaquin River dropped to approximately 600 second-feet, the point of stagnation in the main San Joaquin River channel moved southward, resulting in an upstream flow past Stockton of water derived from the Sacramento River with an estimated maximum daily flow of approximately 400 second-feet. Concurrent with this latter condition Sacramento River water transfused southward into the San Joaquin River portion of the Delta through Old River, Middle River and Whiskey Slough.

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 and upper bays all samples are taken at approximately one and one-half hours after the same high tide at four-day intervals. Table 194 gives the location and description of each active station from which samples were received during 1950. Location description of inactive stations are deleted in this report but can be found in previous reports.

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 in Sacramento during the 1950 season.

The maximum salinity as recorded at the stations in 1950 is shown in Table 193. For comparative pruposes, this table shows also the maximum salinity recorded at these stations in representative years before and after Shasta Reservoir operation. Only presently indicative and active stations are included in this comparison.

Salinity Bulletins

During 1950 a salinity bulletin was mailed each month to many cooperating agencies and individuals giving the results of samples taken and analyzed at four-day intervals at all stations. The figures given were the laboratory determination of the number of parts

of 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 affected by salinity encroachment. Data amassed in this regard indicate that when the flow to the Delta drops below a certain amount the rate of advance of salinity encroachment greatly accelerates. A comparison of the average stream flows during the ten-day period of minimum flow and the affected acreage in the Delta is presented in Table 196. The area affected by salinity encroachment of 100 parts of chlorine per 100,000 parts of water amounted to approximately 5,000 acres in 1950.

TIDE GAGES

The 28 recording tide gages located on the Delta channels and on the upper bays were continued during 1950. Previous Water Supervision reports contained detailed descriptions and locations of the gages. The Flood Control branch of the Division of Water Resources operates and maintains 18 of these tide gages. The remaining 10 are operated by Federal agencies.

TABLES

TABLE 1

ANNUAL RUNOFF IN PERCENT OF 60 YEAR NORMAL(1)

SACRAMENTO-SAN JOAQUIN RIVER SYSTEM

Water Year Ending September 30	Sacramento and San Joaquin Rivers to Delta	Sacramento River at Red Bluff	Sacramento River at Sacramento	Feather River near Oroville	Yuba River at Smartville	American River at Fair Oaks	Mokelumne River at Mokelumne Hill	Stanislaus River below Melones	Tuolumne River near La Grange	Merced River at Exchequer	San Joaquin River Friant	San Joaquin River Vernalis
Mean Annual Runoff (1) Thous. Ac. Ft.	(2) 25701	8667	(2) 18753	4778	2464	2844	789	1248	1972	1053	1885	(2) 6159
1920	53	49	49	46	53	52	59	59	68	65	70	66
1921	119	132	127	126	129	113	111	101	102	96	85	96
1922	104	77	96	106	121	115	117	115	125	135	125	125
1923	76	62	71	64	84	97	90	91	91	89	88	90
1924	29	38	31	27	24	19	24	21	28	24	24	24
1925	87	93	86	66	86	96	106	98	98	86	77	89
1926	61	65	63	66	65	49	48	49	57	58	62	57
1927	122	127	128	122	144	128	114	109	104	103	107	106
1928	85	88	90	89	99	89	81	76	77	70	62	71
1929	45	51	45	38	41	40	43	41	50	46	46	46
1930	67	70	72	82	74	58	58	59	59	49	47	53
1931	31	38	33	31	26	25	27	25	31	25	26	27
1932	80	59	70	69	86	91	94	108	107	106	109	108
1933	49	53	47	40	44	45	54	49	57	49	59	55
1934	44	52	46	42	40	40	38	34	41	34	37	37
1935	92	86	88	89	91	91	89	97	107	111	103	104
1936	96	82	92	90	105	119	114	106	110	109	99	106
1937	80	69	71	66	75	82	88	89	101	115	117	106
1938	172	169	169	178	164	159	157	164	174	197	196	183
1939	44	50	44	39	37	37	43	42	46	45	49	46
1940	116	121	119	118	116	120	109	112	113	104	100	107
1941	140	165	145	136	130	111	107	107	127	138	141	129
1942	131	130	134	139	138	138	125	119	120	122	119	120
1943	114	98	113	117	127	136	127	125	120	122	109	118
1944	57	54	55	58	57	51	57	54	67	65	64	63
1945	87	77	80	78	86	88	98	102	106	104	113	107
1946	93	93	93	87	97	101	95	94	96	89	92	93
1947	55	59	55	53	55	50	50	52	56	54	59	56
1948	80	88	84	81	82	79	80	72	72	65	64	68
1949	63	70	64	54	60	65	66	60	63	60	62	62
1950	77	66	77	80	90	94	95	86	79	68	70	76

(1) 60-year normal taken as 60-year (1889-1949) mean annual unimpaired flow (Oct.-Sept.,incl.).

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

TABLE 2

SUMMARY AND INVENTORY OF MONTHLY STREAM FLOW - SACRAMENTO RIVER AND TRIBUTARIES - 1950

Item	Mileage	Record in Table No.	Quantities in Acre-Feet Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual Total
							SACRAMENTO RIVER								
INFLOW TO SHASTA RESERVOIR (Computed		7	477340	576660	651830	616260	408260	239720	195170	185510	179210	529170	593670	954470	5607270
Change in Storage		8	+259200	+414400	+491700	+454600	+48600	-202200	-368400	-357100	-213200	+230400	+270800	-61800	+967000
Unmeasured Accretions			+21260	+7640	-3530	+6740	-19560	-10120	-15870	-13610	-3710	+13230	+13030	-8270	-12770
AT KESWICK	250.5	9	239400	169900	156600	168400	340100	431800	547700	529000	388700	312000	335900	1030000	4649500
Diversions			184	155	166	16299	25253	25498	25294	25347	22801	18692	161	156	160006
Unmeasured Accretions			-4516	-4745	-5234	+3499	+18553	+8198	+7794	+6947	+10601	+14392	+1961	-56244	+1206
AT REDDING	240.7L	10	234700	165000	151200	155600	333400	414500	530200	510600	376500	307700	337700	973600	4490700
CLEAR CREEK nr. IGO	237.1	22	16040	26430	24200	24970	8940	3960	1490	881	1010	22740	24410	57440	212511
Diversions			0	0	0	2065	3152	3300	3851	3721	2678	1392	0	0	20159
Unmeasured Accretions			+121660	+174070	+103500	+67595	+36712	+10140	+3161	+8640	+1768	+29352	+65490	+223960	+846048
AT BALLS FERRY	224.5	11	372400	365500	278900	246100	375900	425300	531000	516400	376600	358400	427600	1255000	5529100
COTTONWOOD CR. nr. COTTONWOOD	222.2R	23	38450	72640	57600	35350	19110	9090	3700	3340	4270	24030	32180	152000	451760
BATTLE CREEK nr. COTTONWOOD	221.5L	24	31420	44520	30140	35220	31060	20410	13310	10540	10280	14890	28080	52680	322550
Diversions			0	0	0	27	47	141	119	182	180	59	2	0	757
Unmeasured Accretions			+41530	+558840	+15160	+857	-5023	+6241	+4109	+402	+4230	-3361	+6042	+114320	+240347
NEAR RED BLUFF	198.6	12	483800	538500	381800	317500	421000	460900	552000	530500	395200	393900	493900	1574000	6543000
REDBANK CREEK nr. FOOTHILLS	191.2R	25	NR	NR	NR	NR	28	4	0	0	0	480	730	NR	
*ANTELOPE CREEK nr. RED BLUFF	180.7L	26	11000	19920	7860	9990	7750	3360	2010	1830	1720	3280	10720	19100	98540
ANTELOPE CREEK nr. MOUTH	180.7L	27	17340	21260	2693	1797	1008	114	26	21	90	1511	7550	26580	79990
NORTH FORK MILL CREEK nr. MOUTH	179.3L	30	451	663	433	749	784	413	118	136	138	340	822	1253	6300
ELDER CREEK nr. PASKENTA	178.5R	28	4520	6240	5300	4280	1470	440	49	2	17	2820	3370	11290	39798
*MILL CREEK nr. LOS MOLINOS	178.0L	29	18080	27680	19060	29540	29020	18460	10570	6490	5690	9840	26490	39460	240380
MILL CREEK nr. MOUTH	178.0L	31	19170	22600	17680	22230	19960	11000	3255	112	137	5544	24310	35090	181088
THOMES CREEK at PASKENTA	173.2R	32	16190	26600	37740	33610	15810	3940	467	98	65	11700	16880	38800	201900
*DEER CREEK nr. VINA	168.5L	33	18830	36500	27520	42030	24620	10600	6500	5360	5100	9780	30520	47540	264900
DEER CREEK nr. MOUTH	168.5L	34	18650	35830	23970	33320	17910	4264	482	448	409	5597	25760	39390	206030
Diversions			0	0	0	31	49	235	399	163	236	27	0	0	1140
Unmeasured Accretions			-18521	+78607	+18384	+25145	+14879	+11160	-10998	-22154	-17420	-27465	+13878	+89597	+155092
AT VINA BRIDGE	166.5	13	541600	730300	488000	438600	492800	492000	545000	509000	378400	394400	587200	1816000	7413300
Diversions			0	0	100	73772	129642	118623	130249	117990	68027	39354	11841	0	689598
Unmeasured Accretions			+40200	+11900	+9000	+11672	+12442	+3423	+13049	+17690	+18527	+15154	-859	-50000	+102198
AT HAMILTON CITY	149.5	14	581800	742200	496900	376500	375600	376800	427800	408700	328900	370200	574500	1766000	6825900
*CHICO CREEK nr. CHICO	141.5L	35	8700	24870	12490	13570	4010	2040	1530	1310	1230	4280	13980	22240	110250
CHICO CREEK nr. MOUTH	141.5L	36	4321	30300	10230	11340	2396	502	0	0	0	1657	14750	22000	97496
STONEY CREEK nr. HAMILTON CITY	136.3R	37	8430	23600	21930	8300	791	0	0	0	0	69	3970	69380	136470
[a]Diversions			9	0	19	8677	1599	1583	6288	6858	3178	465	174	0	28850
Unmeasured Accretions			+14058	+78800	-541	+11937	+3212	+481	+5388	+7258	+5678	+11739	+12754	+109620	+260384
AT ORD FERRY	130.8	15	608600	874900	528500	399400	380400	376200	426900	409100	331400	383200	605800	1967000	7291400
Diversions			1905	8	23	7094	10448	9098	10525	10694	5304	1097	512	0	56708
Unmeasured Accretions			-3395	-38492	+11623	+9594	-652	+3898	+3425	+6694	+15004	-4203	+16212	-60000	-40292
AT BUTTE CITY	115.8L	16	603300	836400	540100	401900	369300	371000	419800	405100	341100	377900	621500	1907000	7194400
MOULTON WEIR	104.0L	39	0	0	0	0	0	0	0	0	0	0	0	-5887	-5887
COLUSA WEIR	92.4L	40	0	0	0	0	0	0	0	0	0	0	0	-329700	-329700
Diversions			20	1	20	9918	17671	16248	19876	15048	7018	1447	113	74	87454
Unmeasured Accretions			+17720	-96199	-7380	+10918	+11371	-7952	+4276	-652	-5882	-12053	+23413	+36661	-25759
AT COLUSA	89.4	17	621000	740200	532700	402900	363000	346800	404200	389400	328200	364400	644800	1608000	6745600
*BUTTE CREEK nr. CHICO	84.0L	38	18240	44270	31640	43600	30010	13800	7740	7170	6890	12350	33990	56680	306380
BUTTE SLOUGH TO SACRAMENTO RIVER	84.0L	41	20670	52040	20390	34660	13480	19890	3426	6357	18450	8757	26520	3636	228276
R.D. 70 DRAIN	68.8L	42	74	775	344	726	1717	1554	2408	2701	2043	456	484	2906	16188
TISDALE WEIR	64.2L	43	0	0	0	0	0	0	0	0	0	0	-10650	-521400	-532050
Diversions			14	1	125	41644	75080	69878	78645	72810	26654	5298	116	0	370265
Unmeasured Accretions			-62870	-125984	-16349	-43242	-28127	-6366	-9929	-1818	+7671	-25665	-21728	+43178	-291229
BELOW WILKINS SLOUGH	62.9	18	597100	711300	568600	397000	305000	305800	329200	331000	336600	-355000	673300	1193000	6102900
R.D. 108 DRAIN	44.0R	44	1519	4397	1097	4673	20780	17430	18390	22540	16370	1620	2765	9062	120643
R.D. 787 DRAIN	37.0R	45	90	525	90	235	1121	651	362	507	326	0	217	1954	6078
COLUSA BASIN DRAIN	34.15R	49	10700	11430	6363	7910	29460	28160	20090	37150	69600	26720	10380	3082	261045
SYCAMORE SLOUGH	34.15R	50	54	229	50	545	1429	1463	1099	1059	521	63	320	831	7663
Diversions			0	0	381	21792	36088	37341	41332	36729	11746	820	0	0	186229
Unmeasured Accretions			+1037	-7581	+381	+34629	-1502	+9737	+1191	-8327	-14871	-10883	-32882	+17071	-12000
AT KNIGHTS LANDING	34.0	48	610500	720300	576200	423200	320200	325900	329000	347200	396800	371700	654100	1225000	6300100
SACRAMENTO SLOUGH	21.2L	55	NR	NR	29960	50460	63860	51240	36690	41340	46590	17430	NR	NR	
FEATHER RIVER AT NICOLAUS	20.9L	61	524900	1011000	853500	1098000	836200	325900	40290	18630	68870	162200	1429000	2301000	8669490
COON CREEK AT HIGHWAY 99E	19.6L	68	8672	13840	7170	2598	2005	736	649	686	922	2186	24150	22940	86554
AUBURN RAVINE AT HIGHWAY 99E	19.6L	69	4841	5365	3031	1766	3455	3118	4483	3911	2111	1197	11110	13810	58198
R.D. 1001 DRAIN AT HEAD CROSS CANAL	19.6L	70	11760	21160	8955	3977	2362	572	188	196	1521	3132	29450	88260	171533
R.D. 1001 DRAIN	19.6L	71	60	809	276	139	333	87	0	0	230	78	5092	4732	11836
PLEASANT GROVE CR. at LINCOLN ROAD	19.6L	72	2070	2399	343	106	0	0	0	0	0	0	2942	3655	11515
PLEASANT GROVE CR. at R.D. 1000 DRAIN	19.6L	73	3438	8345	883	NR	NR	NR	NR	NR	NR	NR	9398	24260	
FREMONT WEIR	23.0R	51	0	0	0	0	0	0	0	0	0	0	-837200	-2789000	-3626200
[b]Diversions			0	3	0	4213	12148	10707	15003	13742	7148	256	1	0	63221
Unmeasured Accretions			+37342	-11611	-36774	-23563	-1807	+10708	+7935	+8976	+7937	-10984	+288161	+2143748	+2420068
AT VERONA	19.6L	20	1188000	1750000	1433000	1548000	1209000	703700	399100	402600	514800	543300	1578000	2998000	14267500
R.D. 100 (#3) DRAIN	6.85L	74	2158	616	1321	347	2767	1547	2287	3459	2507	1261	1505	1684	21459
R.D. 1000 (2nd BANNON SL.) DRAIN	2.1L	76	1360	2287	482	0	1424	202	0	0	4438	811	2061	8493	21558
LINDA CREEK nr. ROSEVILLE	1.3L	77	6157	9892	5468	3874	1838	659	405	506	1087	1991	11990	18360	62227
AMERICAN RIVER AT SACRAMENTO	1.1L	79	312800	345000	354000	597700	596400	325500	73270	17240	21220	56560	752700	966000	4418390
SACRAMENTO WEIR	4.2R	75	0	0	0	0	0	0	0	0	0	0	-417400	-160300	-577700
[c]Diversions			1996	1852	2238	10885	27974	29154	35115	30472	18152	5049	2177	2118	167182
Unmeasured Accretions			+37521	+135057	+148967	+137964	+94545	+94556	+82753	+53267	+34100	+36526	+275321	+278881	+1409448
AT SACRAMENTO	0.4	21	1546000	2241000	1941000	2277000	1878000	1097000	522700	446600	560000	635400	2202000	4109000	19455700
SHASTA RESERVOIR TO SACRAMENTO															
Total Unmeasured Accretions			+243026	+257302	+237207	+253745	+135043	+134094	+96284	+63313	+63633	+25779	+660703	+2882522	+5052741
Total Diversions			4128	2020	3072	196417	339151	321806	366696	333756	173122	73956	15097	2348	1831569

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

TABLE 2 (CONT'D)

SUMMARY AND INVENTORY OF MONTHLY STREAM FLOW - SACRAMENTO RIVER AND TRIBUTARIES - 1950

Item	Mileage	Record in Table No.	Quantities in Acre-Feet Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual Total
FEATHER RIVER															
NEAR OROVILLE	71.0	56	292900	535200	520000	731500	586100	246200	128100	111400	113400	188300	710700	1063000	5226800
Diversions			2529	0	0	33788	132833	127762	124105	107541	61325	36258	0	0	626141
Unmeasured Accretions			-24371	-50500	-31300	-32612	-17867	-938	+3820	-342	-1185	+358	-24900	+31000	-148837
NEAR GRIDLEY	49.7	57	266000	484700	488700	665100	435400	117500	7815	3517	50890	152400	685800	1094000	4451822
SOUTH HONCUT CREEK at BANGOR ROAD	43.7L	62	NR	NR	NR	NR	NR	NR	NR	NR	NR	116	8230	11090	
Diversions			0	0	101	75	386	1279	4823	2799	1238	217	0	0	10918
Unmeasured Accretions			+20800	+95200	+6801	+2975	+21186	+29879	+14238	+12602	+10948	+6901	+17970	-50090	+189410
AT YUBA CITY	28.0	58	286800	579900	495400	668000	456200	146100	17230	13320	60600	159200	712000	1055000	4649750
YUBA RIVER at MARYSVILLE	27.3L	65	190800	329900	275000	408200	397400	174900	29940	11150	13210	17660	510900	872400	3231460
BELOW YUBA RIVER	27.0	59	494100	909000	798700	1049000	810600	318400	45030	23220	82570	183100	1269000	2097000	8079720
Diversions			0	0	0	0	0	59	55	20	0	0	0	0	134
Unmeasured Accretions			-16100	-30200	-2200	+4000	+36800	+18459	+5885	-1010	-7730	-12200	-52000	-103000	-159296
BELOW SHANGHAI BEND	23.0	60	478000	878800	796500	1053000	847400	336800	50860	22190	74840	170900	1217000	1994000	7920290
BEAR RIVER nr. WHEATLAND	12.0L	67	52290	74740	60270	41060	12250	2810	895	712	990	3140	117600	146900	513657
*DRY CREEK nr. WHEATLAND	12.0L	66	10760	16110	6740	2850	718	40	0	0	0	300	19110	29330	85958
[a]Diversions			0	0	63	1332	4989	4749	7114	3132	2464	1515	0	0	25358
Unmeasured Accretions			-16150	+41350	-9947	+2422	-19179	-9001	-4351	-1140	-4496	-10625	+75290	+130770	+179943
AT NICOLAUS	9.3	61	524900	1011000	853500	1098000	836200	325900	40290	18630	68870	162200	1429000	2301000	8669490
OROVILLE TO NICOLAUS															
Total Unmeasured Accretions			-35821	+55850	-36646	-23215	+20940	+38399	+19592	+10110	-2463	-15566	+16360	+8680	+56220
Total Diversions			2529	0	164	35195	138208	133849	136097	113492	65027	37990	0	0	662551
AMERICAN RIVER															
AT FAIR OAKS	19.2	78	316600	348600	346500	586300	588400	318700	73420	17230	20170	56700	978700	1067000	4718320
Diversions			0	1	9	128	541	1083	1088	806	579	307	82	0	4624
Unmeasured Accretions			-3800	-3599	+7509	+11528	+8541	+7883	+938	+816	+1629	+167	-225918	-101000	-295306
AT SACRAMENTO	6.1	79	312800	345000	354000	597700	596400	325500	73270	17240	21220	56560	752700	966000	4418390
SUTTER BY-PASS															
BUTTE SLOUGH TO SUTTER BY-PASS	29.4	52	27390	159500	16290	10580	9965	10880	12460	9066	4574	2343	36280	398100	697428
WADSWORTH CANAL	25.7L	53	2998	10260	2646	2448	6601	8067	5482	6887	7563	5254	4864	17720	80790
TISDALE WEIR	18.9R	43	0	0	0	0	0	0	0	0	0	0	10650	521400	532050
R. D. 1500 DRAIN	0.0R	54	2854	10880	3251	5377	20290	20070	21750	23070	21469	6548	6865	22661	165085
Diversions			0	0	0	5086	17015	15244	20219	17979	12907	696	83	0	89229
Unmeasured Accretions			-33242	-180640	+7773	+37141	+44019	+27467	+17217	+20296	+25891	+3981	-58576	-959881	-1048554
SACRAMENTO SLOUGH	-1.0	55	NR	NR	29960	50460	63860	51240	36690	41340	46590	17430	NR	NR	
BACK BORROW PIT															
COLUSA TROUGH AT COLUSA-WILLIAMS HWY.	37.0	46	18930	43630	6849	15260	43410	34260	29600	42580	55700	18480	17540	54900	381139
Diversions			16	0	0	2605	7518	4551	6903	7910	3596	1686	35	0	34820
Unmeasured Accretions			+706	-10220	+1283	+4275	+10508	+9311	+6493	+9990	+15946	+9576	+5235	-2560	+60543
COLUSA TROUGH AT COLLEGE CITY	22.7	47	19620	33410	8132	16930	46400	39020	29190	44660	68050	26370	22740	52340	406862
KNIGHTS LANDING RIDGE CUT	0.4R	48	3168	22040	0	2394	1366	1369	1257	1386	513	0	10100	54060	97653
Diversions			23	0	0	5445	7032	3557	5583	6252	1657	103	0	0	29652
Unmeasured Accretions			-5729	+60	-1769	-1181	-8542	-5934	-2260	+128	+3720	+453	-2260	+4802	-18512
COLUSA BASIN DRAIN	0.0	49	10700	11430	6363	7910	29460	28160	20090	37150	69600	26720	10380	3082	261045
HIGHWAY 20 TO OUTFALL GATES															
Total Unmeasured Accretions			-5023	-10160	-486	+3094	+1966	+3377	+4233	+10118	+19666	+10029	+2975	+2242	+42031
Total Diversions			39	0	0	8050	14550	8108	12486	14162	5253	1789	35	0	64472
YUBA RIVER															
AT NARROWS DAM		63	160600	263700	233200	355400	386400	181200	46510	27620	27820	26090	533400	712000	2953940
DEER CREEK nr. SMARTSVILLE		64	18010	17000	16760	13310	3520	261	192	172	188	911	23110	39690	133124
Diversions			0	0	0	7306	22080	20741	21023	20372	19401	16461	8076	4158	139618
Unmeasured Accretions			+12190	+49200	+25040	+46796	+29560	+14180	+4261	+3730	+4603	+7120	-37534	+124868	+284014
AT MARYSVILLE	0.9	65	190800	329900	275000	408200	397400	174900	29940	11150	13210	17660	510900	872400	3231460
DELTA TRIBUTARIES															
*PUTAH CREEK nr. WINTERS		82	48840	91310	20380	14660	3860	559	170	174	114	2790	48040	138500	369397
PUTAH CREEK nr. DAVIS		83	41630	87400	18470	13270	1660	0	0	0	0	1210	41580	129500	334720
COSUMNES RIVER at McCONNELL		86	48840	79370	60170	97570	48550	14530	1430	0	0	2290	157600	219500	729850
DRY CREEK nr. GALT		87	12140	28320	9280	9870	1160	0	0	1	0	0	49330	60690	170791
*MOKELUMNE RIVER at LANCHA PLANA		88	10180	35760	40560	92260	140100	117500	33650	26050	26260	26920	173100	267600	989940
*MOKELUMNE RIVER at CLEMENTS		89	11950	39030	41560	91790	137400	117100	33390	26170	25990	26510	189700	279400	1020000
MOKELUMNE RIVER at WOODBRIDGE		90	12110	35490	29150	69740	106800	94110	6110	1690	6430	12820	155800	265500	795750
BEAR CREEK nr. LOCKEFORD		91	1560	3350	193	59	0	2	0	0	0	0	1650	5190	12004
CALAVERAS RIVER nr. STOCKTON		94	NR	4520	NR	NR	NR	329	178	NR	NR	0	NR	1612	
STOCKTON DIVERTING CANAL AT STOCKTON		96	33240	44010	384	7440	1630	16	106	258	0	0	70000	101000	258084
SACRAMENTO RIVER AT SACRAMENTO		21	1546000	2241000	1941000	2277000	1878000	1097000	522700	446600	560000	635400	2202000	4109000	19455700
YOLO BY-PASS nr. WOODLAND		84	11160	286800	7160	10130	3720	2340	1950	3380	4230	908	647800	1482000	2461578
SACRAMENTO WEIR		75	0	0	0	0	0	0	0	0	0	0	417400	160300	577700
SAN JOAQUIN RIVER near VERNALIS		113	122900	196700	135600	319300	308200	298300	42260	38160	56280	81110	482100	1545000	3626210
*CACHE CREEK nr. CAPAY		80	19770	41930	16230	11480	20040	19350	19770	17550	5470	2100	19250	65590	261530
*CACHE CREEK nr. YOLO		81	12410	37600	9840	5510	0	0	0	0	0	85	13290	60900	139635
*LONE TREE CREEK nr. VALLEY HOME	46.1R	99	862	164	251	500	NR	NR	NR	NR	NR	NR	368	666	
*LONE TREE CREEK nr. MANTECA	46.1R	100	2730	2070	923	1120	NR	NR	NR	NR	NR	NR	2171	4634	
*TEMPO CREEK nr. MANTECA	46.1R	101	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	1880	3970	
*DUCK CREEK nr. FARMINGTON	46.1R	97	NR	1959	8	NR	NR	NR	NR	NR	NR	NR	1837	3409	
DUCK CREEK nr. STOCKTON (MARIPOSA ROAD)	46.1R	98	NR	1057	NR	NR	NR	NR	NR	NR	NR	NR	1594	4166	
FRENCH CAMP SLOUGH nr. FRENCH CAMP	46.1R	102	NR	13850	4118	4383	NR	NR	NR	NR	NR	NR	NR	37460	
Total Measured Flow to Delta			1829580	3021867	2205525	2808762	2349720	1506627	574734	490089	626940	734038	4226854	8120918	28497907
REVISED FIGURES FOR 1949 SACRAMENTO-SAN JOAQUIN WATER SUPERVISION REPORT - TABLE 2															
SACRAMENTO RIVER															
BELOW WILKINS SLOUGH - 1949			445200	393700	1106000	474800	344300	304200	342700	364500	350900	319300	339100	321000	5105700
R.D. 108 DRAIN - 1949			2017	1260	6430	3239	22170	15600	16840	23520	16570	1180	756	692	110274
R.D. 787 DRAIN - 1949			NR	NR	NR	NR	1049	1085	1483	1520	959	36	0	18	
JOLUSA BASIN DRAIN - 1949			14520	5768	1726	18680	48530	21030	23330	46880	67120	32680	27240	5425	312939
SYCAMORE SLOUGH - 1949			33	23	448	317	567	1333	1148	1174	323	74	25	17	5482
Diversions - 1949			0	0	0	22899	35496	36418	42218	37881	13007	1685	124	0	189728
Unmeasured Accretions			+5120	+5849	+53396	+28563	+5280	+17770	+2517	-4013	+5235	+6515	+6303	+13748	+146283

NR No record.
* Not included in inventory or totals.
a Includes diversions from the Bear River below Wheatland.

TABLE 3

SUMMARY AND INVENTORY OF MONTHLY STREAM FLOW - SAN JOAQUIN RIVER AND TRIBUTARIES - 1950

Item	Mileage	Record in Table No.	Quantities in Acre-Feet												Annual Total
			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
							SAN JOAQUIN RIVER								
[a]INFLOW TO FRIANT RESERVOIR (Computed)		103	57912	105929	108333	220925	268181	196333	97930	78422	68240	61870	205406	273010	1742491
Change in Storage		104	+53400	+83400	+1700	+82000	+116100	-22400	-143000	-117400	-42800	+500	+188700	+126700	+326900
COTTONWOOD CREEK nr. FRIANT	269.53R	114	18	441	160	115	0	0	0	0	0	0	153	1090	1977
[b]MADERA CANAL			0	0	190	3134	12290	23820	36645	25307	16935	0	0	0	118321
FRIANT-KERN CANAL			0	0	15231	22378	17766	52877	45584	41534	79	0	0	0	195449
Diversions			0	0	33	0	11	33	60	2	0	0	39	0	178
Unmeasured Accretions			-90	-390	-649	-1428	-2914	-4103	-4141	-2379	-1006	-570	+160	-400	-17910
BELOW FRIANT	268.13	105	4440	22580	90690	112100	119100	137900	154500	126600	93020	60800	16980	147000	1085710
LITTLE DRY CREEK nr. FRIANT	264.0L		25	831	170	63	1	0	0	0	0	0	469	1470	3029
Diversions			4	25	305	723	1698	3214	4375	3748	2116	822	62	0	17092
Unmeasured Accretions			+1446	-4993	+1034	-7714	-2421	-11731	-10667	-8624	-5079	+490	-851	-6122	-55232
AT WHITEHOUSE	219.83	106	5907	18393	91589	103726	114982	122955	139458	114228	85825	60468	16536	142348	1016415
FRESNO SLOUGH BY-PASS	208.9L	116	0	0	0	0	1850	169	0	0	0	0	27710	43020	72749
[c]Diversions			3823	9212	70930	87425	96053	102130	114643	94918	64684	50215	11969	17805	723807
Unmeasured Accretions			+1726	-6251	-7589	-1991	-6829	-1604	-4185	-410	-7661	+47	+743	-10863	-44867
NEAR MENDOTA	206.2	107	3810	2930	13070	14310	13950	19390	20630	18900	13480	10300	33020	156700	320490
Diversions			77	490	13050	14837	15119	18953	21186	19011	14286	11201	6680	5818	140708
Unmeasured Accretions			+427	-120	+159	+660	+1302	-216	+838	+226	+827	+936	-2720	-7182	-4863
NEAR DOS PALOS	186.0	108	4160	2320	179	133	133	221	282	115	21	35	23620	143700	174919
FRESNO RIVER nr. DAULTON	184.0R	117	3080	8310	4180	6590	7070	3210	550	39	0	75	14330	22970	70404
CHOWCHILLA RIVER at BUCHANAN DAM SITE	151.0R	118	4540	12430	3270	5200	1320	158	3	0	0	0	26100	28920	81941
Diversions			0	0	0	68	26	60	56	5	34	0	0	0	249
Unmeasured Accretions			+120	+1580	+881	+3755	+333	+3741	+2801	+2651	+5713	+2640	-28160	-45090	-49035
AT FREMONT FORD	129.5	109	11900	24640	8510	15610	8830	7270	3580	2800	5700	2750	35890	150500	277980
MERCED RIVER nr. STEVINSON	123.75R	123	12570	31790	23070	17630	29410	59950	9730	10860	11800	8980	28500	290100	534390
[d]Diversions			1	0	125	423	552	548	456	495	364	76	2	0	3042
Unmeasured Accretions			+4901	+4130	+2565	+1053	-3548	-5812	+846	+1005	+1244	+976	-3278	-31900	-27818
NEAR NEWMAN	123.7	110	29370	60560	34020	33870	34140	60860	13700	14170	18380	12630	61110	408700	781510
MERCED RIVER SLOUGH	122.2	124	0	0	0	0	2070	4700	0	0	0	0	627	86360	93757
Diversions			11	0	5086	10330	9349	10336	11943	8730	6116	1385	49	0	63335
Unmeasured Accretions			+6843	+10389	+13899	+17135	+7638	+26257	+15523	+12931	+14021	+15843	+5425	-4905	+140999
NEAR GRAYSON	96.05	111	36202	70949	42833	40675	34499	81481	17280	18371	26285	27088	67113	490155	952931
TUOLUMNE RIVER at TUOLUMNE CITY	91.0R	130	51769	79706	51253	148681	69144	113405	23980	21919	21295	41774	250036	522208	1395170
[e]Diversions			141	3	8136	13470	13657	13158	17324	15738	7866	2575	104	0	92172
Unmeasured Accretions			+1109	-5016	+4643	-737	+11322	-285	+9059	+6017	+6287	+7141	+24350	-9292	+54598
[f]AT HETCH HETCHY CROSSING	82.65	112	88939	145636	90593	175149	101308	181443	32995	30569	46001	73428	341395	1003071	2310527
STANISLAUS RIVER nr. MOUTH	79.7R	136	37060	56340	45980	149800	221000	132900	13540	8842	10260	13710	NR	NR	
[g]Diversions			0	0	2038	2791	2607	2915	4020	4064	1932	1053	105	30	21555
Unmeasured Accretions			-3099	-5276	+1065	-2858	-11501	-13128	-255	+2813	+1951	-4675			
NEAR VERNALIS	76.7	113	122900	196700	135600	319300	308200	298300	42260	38160	56280	81410	482100	1545000	3626210
FRIANT RESERVOIR TO VERNALIS															
Total Unmeasured Accretions			+13383	-5947	+16008	+7875	-6618	-6881	+9819	+14230	+16297	+22828			
Total Diversions			4057	9730	115124	155579	169128	228044	256292	213552	114412	67327	19010	23653	1375908
							MERCED RIVER								
AT EXCHEQUER		120	2210	24880	37470	77430	146400	144800	114100	95330	57320	3030	23010	288900	1014880
MERCED IRRIGATION DISTRICT CANAL			0	0	22861	64069	96637	99700	106355	86920	51702	0	0	0	528244
Unmeasured Accretions			+388	+330	-2479	-4826	-12673	-440	-7034	-7684	-5176	-2809	+680	+4300	-37423
BELOW SNELLING	42.1	121	2598	25210	12130	8535	37090	44660	711	726	442	221	23690	293200	449213
Diversions			0	1	24	111	1195	1350	1239	1369	1060	78	0	0	6427
Unmeasured Accretions			+7552	+7851	+4884	+3656	-2595	+6470	+4933	+5479	+5823	+3532	+7660	+179900	+235145
AT CRESSEY	27.6	122	10150	33060	16990	12080	33300	49780	4405	4836	5205	3675	31350	473100	677931
Diversions			0	4	548	1562	2307	2895	3114	2472	1249	301	520	0	14972
Unmeasured Accretions			+2420	-1266	+6628	+7112	-1583	+13065	+8439	+8496	+7844	+5606	-2330	-183000	-128569
NEAR STEVINSON	4.6	123	12570	31790	23070	17630	29410	59950	9730	10860	11800	8980	28500	290100	534390
EXCHEQUER TO STEVINSON															
Total Unmeasured Accretions			+10360	+6915	+9033	+5942	-16851	+19095	+6338	+6291	+8491	+6329	+6010	+1200	+69153
Total Diversions			0	5	23433	65742	100139	103945	110708	90761	54011	379	520	0	549643
							TUOLUMNE RIVER								
ABOVE LA GRANGE DAM		125	27560	70280	107600	234600	222700	233200	129100	120300	106300	59610	255100	525200	2091550
MODESTO IRRIGATION DISTRICT CANAL	53.5R		5699	8884	25393	48236	70842	62039	47528	44096	36345	14858	10841	114	374875
TURLOCK IRRIGATION DISTRICT	53.5L		2171	2592	56426	62842	102763	98063	81560	76185	70034	21246	612	171	574665
Unmeasured Accretions			+4560	+2306	-371	+378	-3335	+1902	+787	+856	+916	+984	+2853	-12115	-279
AT LA GRANGE	50.5	126	24250	61110	25410	123900	45760	75000	799	875	837	24490	246500	512800	1141731
Diversions			0	0	0	0	0	0	0	0	7	6	0	0	13
Unmeasured Accretions			-1210	-3760	+3110	+400	+4720	+12750	+1992	+1277	+1439	+4006	+7400	-14700	+17424
AT ROBERTS FERRY BRIDGE	39.9	127	23040	57350	28520	124300	50480	87750	2791	2152	2269	28490	253900	498100	1159142
Diversions			0	0	13	30	74	92	88	93	52	64	0	0	506
Unmeasured Accretions			+3510	-2310	+1983	-2670	+174	-7478	+4096	+4998	+4646	-2486	+8900	+67300	+80663
AT HICKMAN BRIDGE	31.7	128	26550	55040	30490	121600	50580	80180	6799	7057	6863	25940	262800	565400	1239299
DRY CREEK nr. MODESTO	16.5R	131	12550	7067	4401	4578	5139	4748	3304	2967	2668	2930	7265	27740	85357
[h]Diversions			0	0	48	75	271	299	315	345	154	122	0	0	1629
Unmeasured Accretions			+11670	+10303	+10817	+23197	+5042	+15771	+8602	+6971	+6363	+10922	-24665	-59640	+25353
AT MODESTO	15.92	129	50770	72410	45660	149300	60490	100400	18390	16650	15740	39670	245400	533500	1348380
Diversions			5	4	91	271	541	609	523	466	255	51	1	0	2817
Unmeasured Accretions			+1004	+7300	+5684	-348	+9195	+13614	+6113	+5735	+5810	+2155	+4637	-11292	+49607
AT TUOLUMNE CITY	3.35	130	51769	79706	51253	148681	69144	113405	23980	21919	21295	41774	250036	522208	1395170
ABOVE LA GRANGE TO TUOLUMNE CITY															
Total Unmeasured Accretions			+19534	+13839	+21223	+20957	+15796	+36559	+21590	+19837	+19174	+15581	-875	-30447	+172768
Total Diversions			7875	11480	81971	111454	174491	161102	130014	121185	106847	36347	11454	285	954505

NR No record.
* Not included in inventory or totals.
a Flow of Cottonwood Creek has been omitted and diversions between the dam and Friant gaging station have been added to the computed inflow to Friant Reservoir as received from the U. S. Bureau of Reclamation.
b Figures from U. S. Bureau of Reclamation giving the flow at Mile 8.8 below the head of Madera Canal.
c Includes diversions from Fresno Slough.
d Includes diversions from Merced River below Stevinson.
e Includes diversions from Tuolumne River below Tuolumne City.
f Flow at Hetch Hetchy Crossing was computed for the periods, January 1 to June 30, and November 21 to December 31, by addition of the flow at Maze Road and the diversions between Hetch Hetchy Crossing and Maze Road.
g Includes diversions from Stanislaus River below Mile 4.3.
h Includes diversions from Dry Creek below Modesto.

TABLE 3 (CONT'D)

SUMMARY AND INVENTORY OF MONTHLY STREAM FLOW - SAN JOAQUIN RIVER AND TRIBUTARIES - 1950

Item	Mileage	Record in Table No.	Quantities in Acre-Feet Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual Total
							STANISLAUS RIVER								
BELOW MELONES POWER HOUSE		132	32270	53320	60390	224000	316500	171600	76400	62440	30300	9460	262300	435300	1734280
OAKDALE CANAL			0	0	12858	31626	47151	46328	37452	30867	15404	4404	0	0	226090
SOUTH SAN JOAQUIN CANAL			9528	11713	20011	32181	45611	47357	37162	30407	13561	0	0	0	247531
Diversions			0	0	0	6	33	51	53	32	16	14	0	0	205
Unmeasured Accretions			+16748	+7013	+1059	+13213	-2505	-3134	-17	+814	+398	-1588	+20900	+46600	+99501
AT ORANGE BLOSSOM BRIDGE	44.7	133	39490	48620	28580	173400	221200	74730	1716	1948	1717	3454	283200	481900	1359955
Diversions			0	11	8	5	95	186	436	403	157	19	0	0	1320
Unmeasured Accretions			-7580	+3801	+6478	-13795	+3195	+10806	+4484	+3645	+3171	+4047	+32200	-73500	-23048
AT RIVERBANK	32.0	134	31910	52410	35050	159600	224300	85350	5764	5190	4731	7482	315400	408400	1335587
Diversions			0	6	239	224	387	462	822	686	289	185	0	0	3300
Unmeasured Accretions			+5640	+1366	+7889	-6976	+11587	+27412	+8418	+6856	+5938	+4093	-46500	+59000	+84723
AT RIPON BRIDGE	16.0	135	37550	53770	42700	152400	235500	112300	13360	11360	10380	11390	268900	467400	1417010
Diversions			0	23	1056	2958	4765	4739	4904	5099	3546	1130	11	0	28231
Unmeasured Accretions			-490	+2593	+4336	+358	-9735	+25339	+5084	+2581	+3426	+3450			
NEAR MOUTH	4.3	136	37060	56340	45980	149800	221000	132900	13540	8842	10260	13710	NR	NR	
MELONES POWER HOUSE TO MOUTH															
Total Unmeasured Accretions			+14318	+14773	+19762	-7200	+2542	+60423	+17969	+26829	+10002	+6600			
Total Diversions			0	40	1303	3193	5280	5438	6215	6220	4008	1348	11	0	33056
							MORMON SLOUGH								
AT BELLOTA	0.2	95	28050	43120	1222	8242	3261	1835	2041	1878	180	0	67670	85970	243469
Diversions			0	0	0	22	206	455	449	356	137	0	0	0	1625
Unmeasured Accretions			+5190	+890	-838	-780	-1425	-1364	-1466	-1264	-43	0	+2330	+15030	+16240
STOCKTON DIVERTING CANAL AT STOCKTON	17.9	96	33240	44010	384	7440	1630	16	106	258	0	0	70000	101000	258084
							CALAVERAS RIVER								
AT JENNY LIND	35.6	92	32730	41550	1600	13140	8320	6980	6920	6770	514	445	63840	84100	266909
MORMON SLOUGH at BELLOTA		95	28050	43120	1222	8242	3261	1835	2041	1878	180	0	67670	85970	243469
Diversions			0	7	86	158	639	902	801	895	240	0	0	0	3728
Unmeasured Accretions			+928	+7859	+541	-1144	-810	-875	-440	+1398	+558	-445	+5616		
AT BELLOTA	24.15	93	5608	6282	833	3596	3610	3368	3638	5395	652	0	1786	NR	
Diversions			0	0	0	15	648	705	993	959	61	0	0	0	3381
Unmeasured Accretions				-1762				-2334	-2467			0			
NEAR STOCKTON	8.0	94	NR	4520	NR	NR	NR	329	178	NR	NR	0	NR	1612	
JENNY LIND TO STOCKTON															
Total Unmeasured Accretions				+6097				-3209	-2907			-445			
Total Diversions			0	7	86	173	1287	1607	1794	1854	301	0	0	0	7109
							COSUMNES RIVER								
AT MICHIGAN BAR	34.3	85	40450	69200	56850	92000	47430	15020	2810	653	554	3560	148400	181100	658027
Diversions			0	0	0	156	585	900	1141	661	117	31	0	0	3591
Unmeasured Accretions			+8390	+10170	+3320	+5726	+1705	+410	-239	+8	-437	-1239	+9200	+38400	+75414
AT McCONNELL	11.8	86	48840	79370	60170	97570	48550	14530	1430	0	0	2290	157600	219500	729850

TABLE 4

SUMMARY AND INVENTORY OF MONTHLY STREAM FLOW - TULE RIVER AND TULARE LAKE AREA - 1950

Item	Mileage	Record in Table No.	Quantities in Acre-Feet Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual Total
								TULE RIVER							
NEAR PORTERVILLE	-1.0	139	4150	11290	6460	11860	7690	2500	95	13	5	375	33170	24200	101828
SOUTH FORK TULE RIVER	0.0	140	1060	3120	1900	2430	1140	261	0	0	0	41	8220	4800	22972
Diversions			395	476	709	1025	1793	1373	136	49	0	120	249	0	6325
Unmeasured Accretions			+1383	+3766	+553	+1185	+107	+134	+75	+36	-5	+1055			
AT WORTH BRIDGE	2.2	141	6198	17700	8204	14470	7144	1522	34	0	0	1351	NR	NR	
[a]Diversions			1733	7473	3765	7616	6826	2872	1167	1041	0	0	172	3310	35975
Unmeasured Accretions			-4465	-7766	-3201	-3990	+6814	+25010	+14883	+12521	0	-1351			
ABOVE LITTLE PIONEER DITCH	14.4	142	0	2461	1238	2864	7132	23660	13750	11480	0	0	NR	NR	
ELK BAYOU ABOVE ELK BAYOU AVE.		146	0	0	0	0	60	0	0	0	0	0	3259	3187	6506
[b]Diversions			0	2461	1238	2864	7132	23660	13750	11480	0	0	0	0	62585
Unmeasured Accretions			0	0	0	0	-60	0	0	0	0	0			
AT TURNBULL STATION	39.0	143	0	0	0	0	0	0	0	0	0	0	6990	6341	13331
PORTERVILLE TO TURNBULL STATION															
Total Unmeasured Accretions			-3082	-4000	-2648	-2805	+6861	+25144	+14958	+12557	-5	-296			
Total Diversions			2128	10410	5712	11505	15751	27905	15053	12570	0	120	421	3310	104885
								INFLOW TO TULARE LAKE BASIN							
*KINGS RIVER AT PIEDRA		137	32520	74120	75500	279600	389900	279300	79540	18560	12640	14000	225500	210300	1691480
KINGS RIVER BELOW EMPIRE WEIR #2		147	0	0	0	0	691	2239	0	0	0	0	22926	15672	41528
CROSS CREEK BELOW LAKELAND CANAL #2		148	0	0	0	0	0	0	0	0	0	0	4730	9461	14191
KAWEAH RIVER AT THREE RIVERS		138	10020	28460	25270	73420	86660	51020	10550	2660	2080	3250	79820	76080	449290
TULE RIVER AT TURNBULL STATION		143	0	0	0	0	0	0	0	0	0	0	6990	6341	13331
*WHITE RIVER NEAR DUCOR		144	32	442	240	295	114	0	0	0	0	0	416	431	1970
*KERN RIVER nr. BAKERSFIELD		145	17120	39760	37090	76160	98480	90370	34900	12180	10390	9960	96970	77990	601370
WEST-SIDE CANAL nr. LOST HILLS		149	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL INFLOW TO TULARE LAKE BED			0	0	0	0	691	2239	0	0	0	0	34646	31474	69050

NR No record.
* Not included in inventory or totals.
a Includes acre-feet derived from Friant-Kern Canal as follows: May 483, June 1527, July 1167, and August 1041.
b Includes acre-feet derived from Friant-Kern Canal as follows: May 6029, June 23070, July 13647, and August 11192.

TABLE 5
ANNUAL IRRIGATED ACREAGE 1941 - 1950

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

Stream	Year	1941		1942		1943		1944		1945		1946		1947		1948		1949		1950	
	Crop	General	Rice	General	Rice	General	Rice	General	Rice	General	Rice	General	Rice	General	Rice	General	Rice	General	Rice	General	Rice
Sacramento River Redding to Sacramento		118581	85196	111226	107663	126266	115599	111868	122242	106395	115015	117556	124135	121590	123981	149734	124811	143495	137269	152817	108479
Colusa Trough (a)		270	1280	270	1520	600	2766	1540	4487	200	3882	3030	3694	1735	6474	3249	4745	3140	5561	4933	5150
Back Borrow Pit		3890	1969	2755	5647	2811	11684	965	9017	1585	5175	2062	7880	2295	9044	2455	7079	1272	9003	3227	5925
Knights Landing Ridge Cut		317	803	430	875	400	1005	305	3230	230	3320	1170	2795	1975	1087	685	1265	880	1220	996	757
Yolo By-Pass above Highway 40		1526	88	1300	0	1460	404	1235	1000	1594	500	620	200	1241	1895	1023	1000	860	930	650	1168
Lower Butte Creek and Butte Slough (a)		9621	0	8717	1045	8729	2024	7754	1760	7824	2110	8247	1846	4524	1115	4647	660	7136	1875	7195	1537
Sutter By-Pass and Sacramento Slough (a)		7827	1600	5551	1792	5384	3037	5889	4303	4712	6996	9380	4925	8835	3210	7918	2635	8303	6184	11651	4479
Feather River Oroville to Mouth		27658	26640	38477	25177	24089	46566	25235	49843	25106	47865	27189	51052	28264	49749	29534	43258	31022	51131	34013	41331
Yuba River Smartville to Mouth		7472	1345	6661	1125	6280	2310	7009	2401	8815	1085	8872	1956	8282	3630	8716	3115	8838	3300	10005	2641
Bear River Wheatland to Mouth							NOT COVERED PRIOR TO 1949											974	0	705	0
American River Fairoaks to Mouth		3046	0	3132	0	3112	0	3205	0	2935	.0	2983	0	3670	0	3628	0	3865	0	4000	0
San Joaquin River Friant to Fremont Ford (b)							NOT COVERED PRIOR TO 1946					265888	9727	296245	10563	285919	8670	288751	14638	295874	11705
San Joaquin River Fremont Ford to Vernalis		39866	484	41934	580	41143	342	42196	1464	41601	849	43094	1396	43076	1355	47300	535	45781	625	48114	390
Fresno Slough Fresno Slough By-Pass							NOT COVERED PRIOR TO 1946					19145	1866	17421	2698	19706	1579	22671	4081	19184	2815
Merced River Snelling to Mouth (c)		3570	0	3302	0	3680	0	4509	0	4403	0	4484	0	5883	0	6494	0	7941	0	7912	0
Tuolumne River La Grange to Mouth (c)		1295	0	1619	0	1826	0	3161	0	3259	0	3564	0	3761	0	3745	0	4406	0	4690	0
Dry Creek Waterford-Oakdale Highway							NOT COVERED PRIOR TO 1949											421	0	435	0
Stanislaus River Melones to Mouth (c)		6940	110	7095	130	7360	0	7915	0	6872	0	6343	0	6598	0	7916	0	8548	0	8445	0
San Joaquin River-Delta Vernalis to Stockton		19298	0	17932	0	19685	0	20547	0	19935	0	24545	0	25122	0	25551	0	26946	0	26584	0
Old San Joaquin River Delta Uplands		28842	0	28749	0	40607	0	32331	0	32139	0	34263	0	37859	0	40301	0	46101	0	45013	0
Tom Paine Slough Delta Uplands		3963	0	4357	0	5058	150	14676	235	5165	221	5733	317	5278	546	5077	468	5207	383	5221	364
Cosumnes River Michigan Bar to Mouth							NOT COVERED PRIOR TO 1949											1791	0	1608	0
Mokelumne River Woodbridge to New Hope Bridge							NOT COVERED PRIOR TO 1949											344	0	331	0
Calaveras River Jenny Lind to Mouth							NOT COVERED PRIOR TO 1949											3571	0	4420	0
Total above Delta																					
Sacramento River System		180208	118921	176519	144844	179131	185395	165005	198283	159396	185948	181019	198483	182411	200185	211589	188568	209785	216473	230192	171467
San Joaquin River System		51671	594	53950	710	54009	342	57761	1464	56135	849	342518	12991	372984	14616	371080	10784	378519	19344	384654	14910
Delta Uplands		52103	0	51038	0	65350	150	67554	235	57239	221	64541	317	68259	546	70929	468	83960	383	83177	364
Grand Totals		283982	119515	283507	145554	298490	185887	290340	199982	272770	187018	588078	211791	623654	215347	653598	199820	672264	236200	698023	186741

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

TABLE 6

RELATION OF GAGE HEIGHT TO STREAM FLOW - 1950 SEASON

SACRAMENTO-SAN JOAQUIN VALLEY STREAM GAGING STATIONS

STATION	Gage height, U.S.E.D. elevation, for rated flows of:								
	2000 cfs	3000 cfs	4000 cfs	5000 cfs	6000 cfs	7000 cfs	8000 cfs	9000 cfs	10000 cfs
Sacramento River									
at Sacramento	Flows under 30000 cfs are affected by tidal action and are rated by slope-velocity methods not applicable to this table.								
at Verona					11.7	12.4	13.0	13.6	14.1
at Wilkins Slough			24.9	26.4	27.9	29.2	30.5	31.8	33.1
at Colusa				39.8	40.9	41.9	42.9	43.9	44.8
at Butte City			69.5	70.1	70.6	71.0	71.5	71.9	72.3
near Red Bluff (1)	252.2	252.9	253.5	254.0	254.4	254.8	255.2	255.6	255.9
	200 cfs	500 cfs	1000 cfs	2000 cfs	3000 cfs	4000 cfs	5000 cfs	6000 cfs	7000 cfs
Feather River									
near Oroville (1)			187.3	189.5	191.3	192.9	194.4	195.9	197.2
at Nicolaus	20.0	20.6	21.4	22.6	23.6	24.5	25.2	25.9	26.6
American River									
at Fair Oaks (1)	64.9	65.5	66.2	67.2	68.0	68.7	69.3	69.9	70.4
San Joaquin River									
near Vernalis		14.4	15.4	16.7	17.8	18.8	19.8	20.6	21.4
at Maze Road	16.6	17.6	18.8	20.5	21.9	23.2	24.4	25.4	26.4
near Grayson	26.0	27.3	29.0						
near Newman	53.2	54.0	55.2	56.9	58.5	59.8	60.9	62.0	63.0
at Fremont Ford	59.3	60.8	62.5	65.0	66.8	68.5			
Merced River									
at Cressey Bridge (2)	2.1	3.4	5.0	7.3	9.1	10.6	11.5	12.3	13.0
Tuolumne River									
at Modesto (1)	36.5	37.8	39.3	41.6	43.6	45.5	47.4	49.1	50.7
Stanislaus River									
near Mouth	21.4	22.7	24.3	26.6	28.4	30.0	31.3	32.6	33.8

(1) U.S.G.S. Datum. (2) Assumed Datum.

TABLE 7

INFLOW TO SHASTA RESERVOIR - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1970	5130	9610	10430	10120	5060	3740	3460	3540	1710	12190	7860
2	1950	4400	9650	10570	7170	5170	2340	3540	2950	3630	9030	9550
3	3150	6130	9330	9980	6480	5180	4090	4830	1920	2840	8180	15560
4	3750	6350	7930	9700	8160	4400	3680	1900	2020	3410	7690	15570
5	3440	14440	9030	10680	6350	4270	3780	2080	3370	4060	6500	13940
6	3440	24570	9410	11850	5960	4760	3750	1460	3310	3530	6290	15360
7	3200	15110	9660	13710	7310	4530	3390	3200	3150	2390	5790	19370
8	3000	12680	9160	14550	6460	4270	2000	3560	2870	2650	5790	25880
9	4950	11420	8940	13380	6880	3450	2280	3760	2330	2910	5080	27900
10	7230	11020	8460	12210	7240	3750	3560	2930	2000	3440	4390	21820
11	4350	9760	7570	11260	7260	4340	3600	3660	3960	3600	6530	20140
12	3870	8900	6180	11350	6970	4250	3690	2690	3370	3650	3600	18420
13	6350	8690	6480	10940	7140	4430	4120	1530	3200	3960	4980	16120
14	2780	8790	6950	10540	7740	5080	3720	3260	3350	3800	4690	27550
15	2570	9430	7150	10180	7200	3400	2140	3630	2930	2770	9170	37510
16	5170	10060	6590	10010	7290	3140	2500	3450	2080	4800	27390	26650
17	10600	11970	8220	9890	7000	2950	3620	3160	2450	8600	22330	20430
18	14630	11010	9550	9550	6600	2580	3370	2970	3460	4500	22780	17300
19	11240	10640	12010	10450	6100	3760	3510	1970	3380	3520	18000	14990
20	8910	11150	10470	10660	6090	4220	3420	2310	3910	3800	12180	12780
21	15110	10090	12160	10700	6320	3840	3670	3200	3440	2970	14370	11550
22	17870	9710	16610	9490	6300	3800	2490	3330	3210	2090	11830	10660
23	29420	9380	17250	8970	5940	3890	1760	3240	2450	3230	10590	9590
24	16120	9620	17270	8830	5690	4620	3070	3460	2210	4540	9890	8890
25	11410	10100	15270	8730	6030	2700	3900	2990	2970	7810	8860	8830
26	9000	10220	15330	8460	5600	3640	3230	2680	3530	10740	8070	9160
27	9290	9740	14650	9170	5980	3090	3410	2080	3390	13690	9470	7990
28	7540	10220	13700	8320	5030	4320	3340	3620	3570	41250	7590	8300
29	6820	—	12000	8370	5940	4190	1840	3020	3520	52000	7920	7170
30	6200	—	11120	7770	6220	3780	1980	3090	2510	38890	8140	7390
31	5330	—	10920	—	5260	—	3410	3470	—	16010	—	6980
Mean	7763	10383	10601	10357	6640	4029	3174	3017	3012	8606	9977	15523
Runoff in Ac.Ft.	477340	576660	651830	616260	408260	239720	195170	185510	179210	529170	593670	954470
	Water Year Total 4133470								Calendar Year Total 5607270			

This is the total mean second-feet flow inflowing to Shasta Reservoir as computed by the U. S. Bureau of Reclamation, taking into account change in storage, release, spill and evaporation; and represents the natural flow passing the dam site if the dam had not been constructed. Drainage area is 6665 square miles.

TABLE 8

DAILY CONTENT OF SHASTA RESERVOIR IN ACRE-FEET - 1950

Date	Figure given is amount in storage at end of day in thousands of acre-feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2297.4	2564.4	2988.1	3482.7	3931.4	3966.4	3757.4	3387.5	3032.1	2821.6	3075.2	3333.3
2	2293.8	2567.3	3001.6	3503.2	3936.3	3962.1	3745.0	3376.2	3021.4	2817.9	3085.3	3341.3
3	2292.5	2573.2	3014.8	3516.3	3939.8	3959.1	3735.8	3367.7	3008.7	2813.1	3093.9	3361.6
4	2291.4	2579.9	3024.8	3529.2	3947.7	3955.5	3725.6	3353.3	2996.4	2809.7	3102.7	3379.2
5	2290.2	2602.6	3039.4	3544.1	3950.1	3949.8	3714.8	3339.4	2986.7	2807.3	3109.7	3393.9
6	2289.3	2645.4	3052.7	3561.6	3951.7	3944.1	3703.9	3324.4	2977.2	2804.2	3114.1	3311.4
7	2288.1	2669.6	3066.7	3583.0	3960.4	3938.4	3692.4	3312.5	2967.3	2799.1	3117.1	3436.4
8	2286.6	2688.9	3079.8	3609.4	3962.3	3932.5	3678.3	3301.4	2958.4	2794.3	3120.1	3473.7
9	2288.0	2705.7	3091.8	3635.6	3965.1	3924.9	3664.8	3291.0	2948.5	2790.0	3121.7	3505.3
10	2292.9	2721.8	3103.2	3653.2	3968.1	3918.4	3653.9	3279.0	2938.7	2786.7	3121.5	3524.7
11	2294.0	2735.4	3113.1	3669.2	3970.8	3914.1	3643.4	3268.6	2932.7	2783.5	3127.8	3534.5
12	2294.2	2747.3	3122.0	3685.3	3972.1	3908.7	3633.0	3256.4	2926.2	2780.5	3127.8	3527.9
13	2299.1	2758.6	3127.1	3700.5	3973.8	3903.6	3623.5	3241.8	2919.5	2778.1	3129.4	3509.3
14	2297.9	2770.2	3134.8	3715.4	3981.7	3899.8	3612.4	3230.6	2912.9	2775.4	3130.4	3512.0
15	2296.4	2783.1	3143.0	3732.9	3979.2	3892.5	3598.1	3220.1	2906.4	2770.6	3139.9	3515.1
16	2296.8	2797.3	3150.0	3752.1	3979.8	3884.7	3585.1	3209.2	2898.3	2770.0	3182.7	3490.7
17	2311.2	2815.3	3162.7	3765.3	3980.6	3876.2	3573.8	3197.8	2891.0	2777.1	3213.2	3453.7
18	2333.6	2831.4	3174.9	3777.8	3980.0	3866.8	3562.1	3186.0	2885.7	2776.2	3242.5	3413.8
19	2349.3	2846.6	3198.5	3791.8	3978.7	3860.1	3550.7	3172.5	2880.4	2773.2	3263.1	3379.7
20	2360.8	2862.8	3213.0	3806.1	3979.0	3852.9	3538.8	3159.6	2876.9	2770.8	3272.0	3352.0
21	2384.5	2876.9	3231.1	3820.7	3982.0	3844.9	3527.2	3148.8	2872.5	2768.1	3284.8	3336.0
22	2413.9	3891.0	3258.1	3835.8	3980.9	3837.4	3513.6	3138.3	2867.6	2763.5	3291.5	3329.2
23	2466.1	2903.6	3286.9	3853.1	3979.0	3829.7	3498.7	3127.3	2861.3	2760.6	3297.5	3323.6
24	2491.9	2916.9	3315.9	3863.3	3977.1	3822.8	3486.2	3116.9	2854.5	2759.5	3301.1	3316.6
25	2508.7	2932.0	3343.0	3872.4	3976.2	3813.0	3475.4	3105.9	2849.2	2764.2	3306.4	3309.6
26	2520.6	2947.4	3373.3	3881.3	3974.6	3804.0	3463.5	3094.8	2845.5	2775.6	3311.5	3302.8
27	2532.4	2959.7	3396.6	3890.4	3974.6	3793.9	3451.8	3083.0	2841.6	2792.8	3318.5	3294.9
28	2541.3	2974.5	3418.0	3897.9	3974.1	3785.4	3439.8	3072.7	2837.9	2868.3	3321.7	3288.1
29	2549.0	—	3435.9	3909.0	3971.6	3776.7	3424.7	3061.6	2834.2	2966.4	3325.3	3279.0
30	2555.5	—	3451.5	3920.8	3972.1	3767.2	3410.1	3051.3	2828.5	3035.5	3329.7	3273.7
31	2560.1	—	3466.2	—	3969.4	—	3398.8	3041.7	—	3058.9	—	3267.9
Monthly Change	+259.2	+414.4	+491.7	+454.6	+48.6	-202.2	-368.4	-357.1	-213.2	+230.4	+270.8	-61.8

Annual Gain or Loss in Storage: Calendar Year +967000; Water year +243300 Acre-Feet.
Differences in Storage 1949 to 1950: Maximums +174100; Minimums + 112500 Acre-Feet.

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

TABLE 9

FLOW OF SACRAMENTO RIVER AT KESWICK - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3970	3150	2500	2700	3910	6300	8140	9080	8300	5170	4090	6150
2	3960	3170	2460	2670	4100	6440	8830	9080	8080	5200	4050	6160
3	4010	3330	2420	2660	4520	6530	8810	9060	8110	5180	4070	6460
4	4570	3640	2480	2770	4680	6600	8910	9060	8110	5180	4050	6270
5	4250	4150	2490	2750	4670	6680	8830	9110	8180	5180	4050	7950
6	4120	3910	2480	2700	4540	7440	8760	9090	8170	5220	4090	8150
7	4000	3390	2460	2660	4550	7060	8730	9080	7990	5170	4110	8390
8	4020	3320	2480	2620	4920	7020	8660	8950	7430	5170	4100	7470
9	4600	3180	2420	2730	5300	6980	8640	8600	7120	5180	4090	13200
10	5410	3210	2440	2700	5260	7030	8600	8570	7060	5180	4090	12600
11	4030	3180	2460	2700	5420	6970	8590	8570	7020	5180	4110	15600
12	3990	3100	2510	2700	5760	7030	8570	8530	6600	5200	4100	21900
13	4160	3120	2470	2650	5930	6930	8800	8560	6630	5100	4130	26200
14	3590	3100	2400	2600	5560	7260	9110	8560	6660	5030	4130	27300
15	3540	3100	2360	2600	5750	7520	9020	8600	6160	5020	4140	35700
16	5260	3150	2450	2680	6010	7330	9050	8590	6150	5080	6550	37500
17	4310	3120	2500	2800	6210	7100	9050	8560	6120	5080	6690	37300
18	4210	3100	2510	2720	6200	6970	9050	8570	6140	5080	8390	36100
19	4000	3120	2500	2650	6110	6940	9080	8590	6110	5100	8390	31700
20	3590	2640	2650	2630	6150	6960	9060	8550	5660	5050	8590	26800
21	3840	2580	2610	2600	6040	7160	9060	8630	5640	5060	8360	20000
22	3590	2620	2590	2540	6040	7520	9050	8600	5640	5010	8060	13600
23	3560	2580	2670	2650	6110	7730	9050	8610	5640	5000	8280	12600
24	3370	2560	2940	2950	6250	8200	9050	8610	5640	5020	7860	12600
25	3210	2580	2550	3160	5920	7960	9090	8390	5620	4990	6030	12700
26	3280	2580	2520	3180	5880	7970	9090	8070	5240	5010	6110	12400
27	3450	2530	2700	3420	5970	8000	9060	8060	5140	5030	6180	12100
28	3280	2460	2620	3570	5940	8000	9110	8080	5230	5420	6110	12100
29	3210	—	2730	3540	5900	8030	9050	8080	5180	5280	6140	12200
30	3160	—	2810	3610	5930	8060	9080	8120	5220	4620	6190	10200
31	3170	—	2750	—	5940	—	9080	8100	—	4110	—	10100
Mean	3894	3060	2546	2830	5531	7257	8907	8604	6533	5074	5644	16760
Runoff in Ac.Ft.	239400	169900	156600	168400	340100	431800	54770	529000	388700	312000	335900	1030000
	Water Year Total 3883200								Calendar Year Total 4649500			

U. S. Geological Survey and Division of Water Resources cooperative station located at Mile 250.5 above Sacramento. These flows include releases from Shasta Reservoir. Drainage area is 6,710 square miles. Period of record 1938 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 10

FLOW OF SACRAMENTO RIVER NEAR REDDING* - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3800	2980	2400	2700	3800	6100	7700	8800	7870	5010	4260	6280
2	3800	3000	2380	2670	4020	6220	8520	8740	7780	5070	4180	6300
3	3860	3010	2320	2620	4490	6250	8520	8770	7780	5070	4160	7400
4	4360	3800	2330	2720	4670	6320	8630	8770	7780	5070	4180	6620
5	4080	4600	2380	2760	4670	6320	8570	8770	7870	5120	4180	7200
6	3980	4280	2350	2700	4580	7120	8520	8770	7810	5140	4180	7460
7	3800	3410	2320	2700	4470	6750	8440	8770	7780	5120	4200	7510
8	3840	3190	2350	2620	4750	6750	8380	8740	7080	5100	4200	6980
9	4260	3090	2280	2730	5180	6700	8380	8330	6850	5100	4180	13400
10	5400	3100	2270	2760	5180	6750	8300	8300	6820	5070	4180	12700
11	e4250	3100	2300	2540	5230	6800	8300	8330	6850	4990	4180	15000
12	3800	2940	2360	2380	5540	6750	8280	8250	6420	4990	4180	20800
13	4060	3000	2330	2270	5770	6700	8440	8280	6380	4860	4220	24900
14	3460	2940	2250	2240	5470	6900	8830	8330	6420	4820	4200	25400
15	3300	2870	2220	2140	5580	7200	8770	8300	6010	4820	4200	31600
16	5050	2890	2270	2200	5820	7100	8800	8300	6010	4920	6220	32800
17	4590	2960	2380	2400	6030	6820	8800	8300	6010	4970	6880	32700
18	4580	2910	2430	2270	5980	6680	8830	8300	6010	4970	8170	32200
19	4200	2910	2440	2300	5940	6650	8830	8190	5960	4970	8170	28800
20	3640	2620	2560	2250	5960	6700	8800	8220	5540	4880	8410	25500
21	4020	2380	2520	2170	5910	6820	8770	8360	5470	4880	8250	19800
22	3600	2480	2540	2120	5890	7200	8830	8250	5470	4860	7780	13900
23	3560	2460	2750	2220	6010	7320	8770	8250	5470	4790	8080	12400
24	3270	2430	3070	2570	6200	7890	8800	8250	5510	4860	8000	12400
25	3050	2480	2560	2940	5820	7680	8800	8140	5510	4920	6150	12500
26	3160	2490	2480	2940	5790	7680	8800	7650	5160	4990	6180	12400
27	3210	2490	2640	3210	5910	7680	8770	7730	5050	5070	6280	11900
28	3190	2360	2600	3430	5890	7700	8830	7760	5050	5720	6250	11900
29	3070	—	2670	3370	5840	7700	8770	7810	5050	5630	6220	11900
30	3050	—	2760	3500	5820	7730	8770	7810	5050	5050	6320	10200
31	3030	—	2730	—	5860	—	8770	7840	—	4280	—	10000
Mean	3817	2970	2459	2615	5422	6966	8623	8304	6327	5004	5675	15830
Runoff in Ac.Ft.	234700	165000	151200	155600	333400	414500	530200	510600	376500	307700	337700	973600
	Water Year Total 3728900								Calendar Year Total 4490700			

Division of Water Resources and U. S. Bureau of Reclamation cooperative station located at Mile 240.7 above Sacramento. Station is located below the diversion dam of Anderson-Cottonwood Irrigation District. Period of record 1945 to date. Records for 1950 computed by Division of Water Resources.

* Also known as Sacramento River above Churn Creek Pumps.

TABLE 11

FLOW OF SACRAMENTO RIVER AT BALLS FERRY - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3750	3900	3560	4280	4720	6640	7680	8840	7770	4990	5510	7680
2	3920	3840	3520	4210	5120	6610	e8570	8810	7880	5070	5190	9220
3	3900	4100	3420	4120	5560	6590	e8570	8870	7790	5040	4990	22900
4	4350	19000	3390	4050	5610	6670	e8690	8870	7790	5090	4880	15700
5	4140	22800	3520	4100	5610	6590	e8630	8870	7850	5170	4790	11200
6	4100	22600	3560	4720	5390	7400	e8570	8930	7880	5310	4790	11900
7	3940	9810	3350	4600	5290	7010	e8480	8930	7850	5260	4740	15700
8	4030	6900	3290	4900	5440	7010	e8400	8930	7230	5190	4690	14800
9	4400	5880	3290	4830	5880	6880	e8370	8450	6880	5190	4650	21300
10	6240	6670	3440	4580	5880	6930	e8280	8400	6820	5170	4620	17800
11	5020	5980	3290	4330	5900	6960	e8280	8420	6820	5170	4650	20300
12	4210	5070	3230	4160	6080	7070	e8250	8370	6430	5120	4650	24500
13	4280	4830	3150	4330	6370	6980	8310	8340	6370	5040	4720	28300
14	4600	4690	3070	4030	6220	7180	8810	8370	6430	4920	4790	40000
15	3880	4690	3020	3790	6220	7400	8750	8340	6060	4990	4810	39000
16	5280	4950	3020	3680	6450	7370	8840	8340	5980	5120	10700	39500
17	13100	4970	3660	3810	6720	6980	8780	8310	5980	5340	11600	38700
18	16400	4720	3770	3750	6720	6850	8780	8400	6000	5310	16200	37500
19	10000	4580	8320	3730	6610	6800	8840	8310	5930	5240	11100	32300
20	7570	4420	5560	3750	6640	6770	8810	8310	5610	5190	10900	28300
21	11500	3860	4670	3730	6590	6800	8810	8450	5480	5190	11900	22100
22	9660	3790	6000	3710	6560	7260	8780	8370	5480	5190	9690	16500
23	11400	3730	5440	3660	6670	7320	8780	8370	5460	5140	9530	14100
24	7040	3640	11400	3790	6820	7820	8780	8370	5480	5190	9280	13900
25	5220	3730	8100	4100	6450	7770	8810	8310	5480	5480	7320	13900
26	4510	3750	5950	4030	6370	7770	8840	7990	5170	6140	6930	13700
27	4420	3750	5850	4210	6400	7770	8780	7790	5020	6800	6980	13200
28	4440	3620	5090	4400	6370	7740	8870	7820	4990	9020	6930	13100
29	4210	—	4670	4300	6290	7710	8840	7790	4990	10100	6820	13200
30	4190	—	4560	4420	6270	7770	8870	7820	4990	13200	7230	11300
31	4030	—	4440	—	6290	—	8870	7880	—	6320	—	10900
Mean	6056	6581	4535	4137	6113	7147	8636	8399	6330	5829	7186	20400
Runoff in Ac.Ft.	372400	365500	278900	246100	375900	425300	531000	516400	376600	358400	427600	1255000
	Water Year Total 4343400								Calendar Year Total 5529100			

Division of Water Resources and U. S. Bureau of Reclamation cooperative station located at Mile 224.5 above Sacramento. Period of record 1945 to date. Records for 1950 computed by Division of Water Resources.
e Estimated.

TABLE 12

FLOW OF SACRAMENTO RIVER NEAR RED BLUFF (IRON CANYON) - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	4360	4780	4760	5800	5370	7060	8210	9090	8100	5280	6900	8950
2	4380	4570	4700	5730	6050	7320	8760	9070	8370	5300	6300	8530
3	4380	5140	4540	5610	6370	7290	8980	9090	8050	5280	5840	28100
4	4450	28300	4460	5410	6400	7290	9070	9120	8080	5340	5590	32100
5	4850	36000	4600	5430	6340	7210	9040	9150	8080	5480	5410	16400
6	4500	38400	4830	6080	6150	8000	8950	9150	8100	5590	5280	15400
7	4510	17300	4540	6240	5960	7700	8900	9150	8130	5570	5210	21200
8	4710	10700	4330	6470	6000	7670	8810	9180	7730	5500	5120	21900
9	4670	8670	4270	6340	6420	7540	8790	8730	7210	5480	5020	26300
10	7210	9530	4360	5930	6470	7560	8650	8590	7110	5370	4950	22000
11	7740	9530	4180	5540	6440	7620	8620	8650	7110	5340	4910	23300
12	5400	7410	4010	5370	6640	7750	8590	8590	6900	5300	4890	28800
13	5170	6660	3940	5610	6950	7670	8670	8540	6640	5210	5000	31900
14	6910	6310	3860	5390	6950	7700	9070	8590	6700	5150	6120	54600
15	4780	6250	3760	5020	6880	7970	9150	8560	6470	5150	5450	51000
16	4660	6430	3700	4790	7240	8130	9120	8560	6220	5260	12000	49600
17	12200	6950	4080	4850	7510	7700	9150	8540	6220	5450	14400	47500
18	26900	6490	5700	4830	7540	7480	9120	8590	6270	5570	18200	45800
19	14300	6170	9780	4790	7400	7400	9180	8540	6320	5450	13400	40900
20	11500	5940	10400	4830	7350	7380	9150	8510	6030	5430	12700	36000
21	13800	5210	7460	4870	7290	7320	9180	8560	5800	5390	15200	28100
22	15100	5040	8130	4910	7290	7730	9090	8630	5770	5390	12000	20700
23	14600	4910	7350	4810	7460	7830	9120	8630	5750	5370	10900	16500
24	11600	4760	14900	4760	7700	8400	9120	8620	5770	5370	10400	16100
25	7580	4950	13400	5040	7350	8400	9090	8560	5770	5520	8700	16000
26	6020	5080	8870	4980	7270	8290	9150	8120	5540	6850	7860	15700
27	5530	5040	8130	5020	7240	8240	9150	8040	5300	8050	7830	14900
28	6150	4950	7110	5260	7190	8240	9150	8050	5210	8840	7860	14700
29	5540	—	6340	5170	7030	8210	9120	8100	5230	13200	7640	14700
30	5320	—	6080	5170	7030	8270	9040	8080	5280	18100	7920	13500
31	5080	—	5930	—	6980	—	9090	8090	—	9010	—	12500
Mean	7868	9695	6210	5335	6847	7746	8977	8628	6642	6406	8300	25600
Runoff in Ac.Ft.	483800	538500	381800	317500	421000	460900	552000	530500	395200	393900	493900	1574000
	Water Year Total 5047800								Calendar Year Total 6543000			

U. S. Geological Survey station located near the Iron Canyon dam site at Mile 198.6 above Sacramento. Drainage area is 9,300 square miles. Period of record 1902 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 13

FLOW OF SACRAMENTO RIVER AT VINA BRIDGE - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	4320	5230	6380	7990	6640	7970	8480	8750	7580	4980	8050	10100
2	4340	4880	6200	7810	7290	8180	8640	8750	7860	5000	7240	9520
3	4270	5060	5980	7760	7600	8130	9100	8800	7600	5000	6540	27500
4	4270	36800	5880	7420	7710	8080	9160	8780	7630	5030	6160	51700
5	4730	56700	6000	7290	7550	8050	9130	8800	7650	5160	5860	22400
6	4440	58200	6300	7890	7370	8100	9050	8800	7760	5360	5630	19000
7	4390	25200	5980	9240	7080	8700	8940	8800	7760	5360	5500	25000
8	4610	15000	5630	9240	6950	8320	8940	8780	7630	5280	5400	28400
9	4530	11500	5480	8880	7190	8210	8860	8530	7110	5180	5200	32000
10	5580	12300	5430	8160	7390	8130	8800	8260	6870	5160	5180	27200
11	9410	13400	5300	7580	7320	8180	8640	8320	6800	5100	5160	25100
12	5700	9890	4980	7240	7580	8240	8640	8260	6690	5000	5130	31900
13	5380	8450	4860	7500	8020	8260	8590	8240	6330	4980	5260	33500
14	7420	7890	4680	7680	8240	8180	8800	8260	6300	4880	6410	63600
15	5500	7650	4530	7000	8180	8450	9050	8320	6300	4830	6160	65900
16	4880	7730	4410	6610	8480	8620	8970	8260	5960	4930	14100	58500
17	12800	8400	4880	6560	8750	8370	8990	8290	5980	5160	17900	54000
18	26400	8080	7760	6670	8860	8160	8940	8290	6030	5360	19000	50600
19	17800	7600	9360	6690	8670	7990	8970	8290	6080	5280	17800	45600
20	13800	7260	15500	6900	8510	7840	8910	8160	5980	5230	16900	38700
21	15200	6590	10900	7190	8530	7810	8910	8130	5560	5180	22600	30200
22	20300	6230	10400	7390	8510	7970	8860	8210	5500	5180	16200	22500
23	16700	6100	11000	7190	8640	8210	8860	8210	5480	5200	13500	18000
24	16300	6000	14200	6800	8800	8530	8860	8130	5480	5200	12400	16900
25	10100	6200	17800	6770	9020	8800	8860	8130	5530	5380	11100	16600
26	7390	6540	12300	6770	8560	8640	8860	7860	5480	6230	9410	16400
27	6460	6590	10500	6770	8400	8510	8830	7630	5030	9270	9100	15700
28	7210	6560	9470	6820	8370	8480	8800	7630	4930	8160	9190	15400
29	6980	—	8290	6740	8160	8450	8830	7650	4930	14500	8860	15200
30	6030	—	7890	6560	8050	8480	8720	7630	4960	19200	9100	14800
31	5730	—	7760	—	8050	—	8780	7650	—	13100	—	13500
Mean	8805	13140	7936	7370	8015	8268	8864	8277	6359	6415	9868	29530
Runoff in Ac.Ft.	541600	730300	488000	438600	492800	492000	545000	509000	378400	394400	587200	1816000
	Water Year Total 5599800								Calendar Year Total 7413300			

Division of Water Resources and U. S. Bureau of Reclamation cooperative station located at Mile 166.5 above Sacramento. Period of record 1945 to date. Records for 1950 computed by Division of Water Resources.

TABLE 14

FLOW OF SACRAMENTO RIVER AT HAMILTON CITY (GIANELLA BRIDGE) - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	4800	5930	6590	7880	4950	6050	6540	6950	6220	4490	8490	9280
2	4800	5600	6390	7640	5380	6200	6540	7010	6320	4510	7370	9060
3	4780	5500	6220	7240	5740	6170	7110	6950	6170	4560	6640	22300
4	4780	33200	6080	7160	5880	6100	7140	7030	6120	4410	6220	49700
5	5220	54700	6100	6820	5790	6080	7210	7080	6170	4600	5930	26300
6	5060	51800	6320	6880	5600	6000	7110	7080	6290	4730	5320	19300
7	4950	33100	6200	8080	5320	6560	6980	7110	6360	4800	5270	24800
8	5160	16600	5840	8600	5090	6360	6880	7110	6320	4730	5270	28400
9	5130	12400	5690	8350	5200	6270	6820	7030	5930	4670	5160	30800
10	5670	12200	5600	7610	5480	6150	6800	6670	5790	4620	5040	29800
11	9510	14400	5550	6880	5450	6240	6670	6620	5760	4580	4890	25800
12	6540	10700	5270	6490	5600	6410	6640	6640	5790	4540	4710	31300
13	5980	9030	5130	6510	5910	6460	6640	6590	5500	4490	4780	32100
14	7370	8320	5000	6930	6270	6240	6690	6620	5430	4380	5550	46800
15	6410	7940	4840	6290	6270	6490	7080	6670	5550	4340	5720	61400
16	5480	7940	4730	5810	6440	6770	7030	6670	5290	4470	10900	52300
17	10400	8440	4910	5620	6690	6620	7030	6620	5340	4860	18600	49300
18	30900	8350	7320	5520	6850	6360	7060	6590	5410	5040	18000	46700
19	20900	7880	8050	5500	6770	6150	7030	6540	5690	4910	19000	44100
20	14700	7560	15800	5450	6590	5980	7060	6440	5670	4730	15800	44100
21	14000	7030	11400	5520	6620	5910	7060	6460	5250	4640	23900	32800
22	21800	6590	9980	5720	6620	5980	7110	6640	5090	4750	17200	25800
23	16800	6410	11300	5570	6720	6270	7110	6640	5000	4750	13300	19600
24	17500	6270	12500	5220	6880	6410	7110	6620	5130	5000	12000	17900
25	11300	6320	19200	5110	7030	6820	7110	6590	5110	5180	11000	17300
26	8350	6590	13100	5160	6690	6670	7110	6440	5000	6080	9140	17000
27	7210	6720	10800	5110	6540	6560	7030	6150	4690	8770	8770	16200
28	7450	6690	9920	5130	6410	6540	7030	6100	4510	7800	8710	15700
29	7500	—	8690	5110	6340	6620	7030	6120	4450	13700	8490	15500
30	6620	—	8130	4930	6170	6540	6950	6120	4450	18800	8490	15200
31	6270	—	7880	—	6080	—	6950	6150	—	14700	—	13500
Mean	9462	13360	8082	6328	6109	6333	6957	6647	5527	6020	9655	28710
Runoff in Ac.Ft.	581800	742200	496900	376500	375600	376800	427800	408700	328900	370200	574500	1766000
	Water Year Total 5096700								Calendar Year Total 6825900			

Division of Water Resources and U. S. Bureau of Reclamation cooperative station located at Mile 149.5 above Sacramento. Period of record 1945 to date. Records for 1950 computed by Division of Water Resources.

TABLE 15

FLOW OF SACRAMENTO RIVER AT ORD FERRY - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	4730	6590	7320	8160	5220	6120	6570	7020	6150	4750	9380	9350
2	4690	6190	7140	7930	5500	6170	6530	7090	6100	4750	7740	9460
3	4620	6040	6950	7410	5870	6190	6930	7020	6150	4850	6950	20100
4	4770	26700	6700	7510	e5960	6120	7040	7040	6000	4710	6460	58900
5	5020	69500	6700	7140	e5960	6080	7180	7160	6060	4850	6150	35500
6	5060	63400	6930	7110	5770	6020	7140	7140	6100	4930	5680	22900
7	4930	45900	6900	8060	5580	6480	7040	7160	6150	5020	5470	27000
8	5100	21200	6480	9270	e5350	6250	6880	7110	6250	5000	5490	31800
9	5140	15200	6290	9040	e5250	6230	6830	7090	5910	4940	5350	34600
10	5250	14200	6190	8310	e5660	6100	6790	6760	5700	4930	5250	34500
11	8260	17100	6080	7550	e5640	6230	6670	6650	5700	4910	5160	29000
12	6670	13100	5810	7040	5700	6340	6700	6650	5700	4850	4940	33400
13	5810	10900	5600	6950	5940	6420	6610	6630	5540	4830	4980	34200
14	6900	9840	5470	7370	e6190	6250	6650	6630	5490	4770	5390	48100
15	6880	9240	5310	6790	e6340	6380	7000	6630	5540	4710	6040	76100
16	5870	9190	5180	6360	6420	6670	7020	6610	5450	4770	8750	62600
17	9760	9620	5180	6080	6610	6670	7020	6610	5330	5080	19700	56600
18	28500	9570	7000	5940	6830	6360	7020	6590	5500	5250	17400	52800
19	24000	9010	8010	5910	6810	6250	7020	6530	5700	5290	21100	49000
20	16000	8730	15100	5830	6630	6150	7090	6480	5700	5000	17200	42700
21	14400	8230	12500	5830	6630	6020	7040	6480	5470	4940	25700	36900
22	23500	7580	10400	6000	6630	6000	7090	6610	5290	5080	20300	28700
23	18300	7340	12100	5870	6700	6250	7040	6590	5200	5100	14500	22200
24	19900	7200	12000	5600	6860	6380	7090	6500	5270	5200	12900	19300
25	13400	7180	19400	5410	7040	6720	7110	6550	5330	5390	11800	18400
26	9760	7410	14500	5410	e6740	6700	7110	6500	5140	6100	9870	18000
27	8210	7480	11800	5410	e6610	6570	7090	6190	4940	8360	9140	17100
28	8410	7440	10800	5410	e6480	6480	7020	6060	4790	8130	9060	16400
29	8560	—	9540	5410	6420	6590	7020	6040	4730	12400	8860	16000
30	7460	—	8680	5250	6250	6480	6970	6060	4710	17400	8710	15900
31	7000	—	8410	—	6190	—	6930	6080	—	16900	—	14300
Mean	9899	15750	8596	6712	6186	6322	6943	6654	5570	6232	10180	31990
Runoff in Ac.Ft.	608600	874900	528500	399400	380400	376200	426900	409100	331400	383200	605800	1967000
	Water Year Total 5277500								Calendar Year Total 7291400			

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

TABLE 16

FLOW OF SACRAMENTO RIVER AT BUTTE CITY - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	4670	6500	7500	8460	4980	6000	6450	6850	6190	4780	10900	9300
2	4640	6060	7300	8320	5110	6020	6320	6870	6150	4690	8460	9860
3	4820	5830	7090	7640	5560	6080	6740	6850	6320	4730	7520	14900
4	4780	15600	6850	7760	5660	6060	6960	6920	6080	4690	6920	42000
5	4920	50500	6760	7360	5660	6020	7030	7000	6120	4710	6590	40800
6	5220	57200	6960	7270	5560	5870	7000	6980	6280	4880	6080	26100
7	5010	51400	7070	7980	5420	6410	6940	7000	6370	4980	5740	25800
8	5130	25700	6670	9370	5160	6300	6780	6960	6480	4980	5740	31900
9	5220	16500	6370	9400	5090	6230	6740	7000	6190	4980	5600	34400
10	5260	14100	6260	8700	5360	6060	6630	6740	5910	4960	5560	37700
11	7730	17300	6100	7870	5380	6120	6520	6590	5930	4880	5360	30300
12	7590	14200	5870	7300	5360	6260	6520	6650	5890	4820	5150	31200
13	6060	11700	5640	7030	5600	6410	6520	6560	5830	4780	5110	32400
14	6650	10500	5480	7410	5950	6190	6520	6540	5660	4750	5340	36300
15	7390	9760	5360	6980	6100	6300	6830	6590	5680	4670	6170	62400
16	5910	9520	5200	6430	6190	6560	6870	6540	5680	4690	7180	62000
17	8520	9830	5160	6060	6410	6720	6890	6540	5500	4980	18700	56200
18	23100	10100	6500	5870	6630	6340	6920	6520	5620	5150	17200	51800
19	26100	9440	8170	5760	6630	6150	6960	6480	5830	5300	21200	47900
20	16700	8960	13700	5660	6520	6040	6960	6480	5850	5010	17500	40100
21	14100	8580	13900	5660	6590	5870	6980	6410	5680	4940	24100	34600
22	21800	7820	11100	5760	6590	5850	6940	6520	5460	4980	21800	31000
23	18700	7520	12300	5700	6630	6020	7000	6590	5320	5050	15800	25200
24	19400	7320	11700	5480	6740	6080	7050	6560	5260	5130	13600	21100
25	14700	7180	18100	5260	6920	6590	7000	6540	5560	5260	12600	19900
26	10400	7460	16400	5300	6740	6630	6960	6500	5280	5870	10600	19200
27	8510	7570	12800	5240	6540	6520	6960	6170	5160	7640	9540	18600
28	8080	7550	11600	5220	6370	6410	6960	6080	4980	8460	9300	17800
29	8560	—	10300	5300	6320	6520	6960	6060	4860	10800	9110	17400
30	7550	—	9300	5090	6260	6410	6870	6060	4860	16000	8870	17100
31	6960	—	8800	—	6170	—	6870	6080	—	19000	—	16100
Mean	9812	15060	8784	6537	6006	6235	6827	6588	5733	6146	10440	31010
Runoff in Ac.Ft.	603300	836400	540100	401900	369300	371000	419800	405100	341100	377900	621500	1907000
	Water Year Total 5244500								Calendar Year Total 7194400			

Station is maintained jointly by the Division of Water Resources and the U. S. Geological Survey. Station is above Butte City Bridge and is at Mile 115.8 above Sacramento. Period of record 1921 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 17

FLOW OF SACRAMENTO RIVER AT COLUSA - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	5160	7290	7390	8920	4960	5720	6310	6660	5830	4850	13800	9870
2	5150	6910	7250	8700	4980	5660	6270	6660	5930	4830	9590	10600
3	5140	6590	7070	8270	5380	5690	6270	6680	5970	4820	8100	11300
4	5110	8410	6890	7950	5490	5690	6630	6670	5820	4850	7330	24100
5	5130	27700	6730	7680	5610	5660	6720	6710	5760	4780	6890	32900
6	5480	33700	6720	7370	5590	5580	6770	6670	5860	4900	6480	29000
7	5410	34000	6890	7500	5530	5530	6720	6780	5970	5020	5980	24700
8	5420	29800	6800	8570	5340	5960	6640	6750	6050	5090	5860	27100
9	5550	21700	6490	9140	5150	5820	6520	6720	6050	5100	5860	29900
10	5550	17300	6300	8910	5160	5690	6470	6670	5840	5050	5750	30900
11	6430	17000	6210	8170	5370	5660	6380	6450	5700	5030	5640	30000
12	8700	16700	6090	7470	5380	5760	6280	6370	5670	4980	5500	29100
13	6720	14100	5870	7040	5450	5830	6240	6360	5670	4940	5340	30500
14	6440	11900	5740	7050	5790	5860	6270	6350	5540	4890	5300	31300
15	7710	10600	5640	7080	6050	5710	6370	6330	5470	4830	6000	34400
16	6630	9890	5540	6590	6170	5890	6620	6330	5520	4770	6070	36100
17	6900	9490	5490	6160	6330	6090	6630	6290	5390	4860	13000	35600
18	14500	9930	5810	5950	6460	6060	6620	6250	5330	5110	16500	35100
19	24300	9800	7600	5810	6620	5810	6590	6200	5470	5270	18300	34700
20	21000	9070	9810	5660	6620	5630	6610	6130	5650	5270	18900	34100
21	16300	8680	13700	5570	6490	5530	6660	6100	5600	5080	19500	33000
22	17600	8130	11600	5580	6470	5470	6680	6050	5340	5020	23200	31400
23	20800	7680	11200	5640	6430	5550	6700	6160	5210	5110	19700	27900
24	19300	7440	11500	5520	6410	5790	6770	6170	5120	5160	16200	23200
25	18200	7260	14200	5270	6570	5990	6750	6190	5200	5300	14600	21200
26	13600	7270	17000	5150	6680	6290	6760	6190	5150	5520	13300	21600
27	10400	7410	14300	5120	6420	6270	6750	6060	5040	6550	11500	19700
28	8950	7440	12300	5090	6250	6210	6710	5880	4810	8530	10700	18800
29	9150	—	11100	5110	6100	6210	6700	5890	4760	8700	10300	18100
30	8640	—	10000	5070	5970	6250	6720	5810	4760	12800	9900	17600
31	7730	—	9360	—	5820	—	6660	5790	—	16700	—	17100
Mean	10100	13330	8664	6770	5904	5829	6574	6333	5516	5926	10840	26160
Runoff in Ac.Ft.	621000	740200	532700	402900	363000	346800	404200	389400	328200	364400	644800	1608000
	Water Year Total 5140400								Calendar Year Total 6745600			

Station is maintained jointly by the Division of Water Resources and the U. S. Geological Survey. Station is at the Colusa Bridge below Colusa Weir and is at Mile 89.4 above Sacramento. Period of record 1921 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 18

FLOW OF SACRAMENTO RIVER BELOW WILKINS SLOUGH - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	4820	8110	8200	9260	3900	5100	5200	5550	5010	4900	15400	9820
2	4810	7680	8100	8820	3860	5050	5280	5520	5030	4870	11800	9910
3	4810	7280	7980	8500	4190	5040	5190	5520	5070	4780	9530	10300
4	4820	7350	7780	8100	4550	5010	5380	5460	5220	4800	8340	16400
5	4860	17900	7640	7910	4760	4960	5490	5570	5110	4760	7630	21600
6	5150	22400	7570	7540	4830	4870	5480	5710	5220	4860	7200	21300
7	5270	22700	7720	7390	4970	4830	5410	5680	5460	4980	6620	20500
8	5280	22200	7760	8260	4780	5120	5360	5640	5690	5100	6330	20700
9	5520	20800	7500	9280	4440	5170	5220	5620	5840	5080	6280	21200
10	5740	19100	7220	9470	4170	5130	5180	5560	5820	4960	6180	21400
11	5940	18000	7130	8930	4180	5130	5130	5320	5780	4940	6090	21300
12	7740	18100	7010	8020	4100	5250	4990	5270	5810	4870	6040	21100
13	7410	16200	6840	7380	4080	5330	4860	5340	5920	4800	5860	21300
14	6560	14000	6600	7150	4350	5440	4850	5310	5970	4790	5770	21400
15	7080	12500	6380	7220	4730	5330	4930	5310	5920	4730	6120	21800
16	7280	11400	6180	6960	4860	5380	5230	5320	5970	4680	6680	22400
17	6670	11000	6000	6400	5060	5570	5320	5290	6130	4710	10800	22400
18	10000	10900	5980	5910	5380	5690	5270	5220	6040	5020	15600	22300
19	18800	10800	7310	5640	5660	5480	5280	5240	6060	5220	17300	22200
20	19900	10400	8660	5320	5760	5180	5370	5180	6200	5270	19200	22000
21	16900	9970	12900	5100	5630	5010	5480	5220	6270	5080	19200	21800
22	15200	9500	12800	5060	5550	4820	5540	5310	6080	5040	21000	21600
23	18300	8920	11700	5230	5520	4750	5590	5420	5860	5150	19800	21200
24	18100	8490	12200	5200	5570	4900	5640	5490	5740	5250	17500	20400
25	18000	8280	13100	4820	5690	5020	5670	5460	5660	5370	16000	19800
26	15400	8160	16500	4470	5900	5220	5630	5500	5730	5710	14900	19200
27	12300	8220	15500	4230	5780	5180	5560	5440	5570	6420	13200	18600
28	10300	8230	13500	4210	5610	5110	5590	5200	5400	8120	11900	17800
29	9780	—	12200	4230	5420	5010	5590	5160	5150	8820	10900	17000
30	9550	—	10900	4130	5310	5110	5620	5060	4980	11200	10300	16500
31	8730	—	9820	—	5180	—	5630	5010	—	14700	—	16000
Mean	9710	12810	9248	6671	4960	5140	5354	5384	5657	5774	11320	19390
Runoff in Ac.Ft.	597100	711300	568600	397000	305000	305800	329200	331000	336600	355000	673300	1193000
	Water Year Total 4861000								Calendar Year Total 6102900			

Station is maintained jointly by the Division of Water Resources and the U. S. Geological Survey. Station is located at Mile 62.9 above Sacramento, 0.3 of a mile below Wilkins Slough pumping plant of Reclamation District 108, and 1.3 miles below Tisdale Weir. Period of record 1931 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 19

FLOW OF SACRAMENTO RIVER AT KNIGHTS LANDING - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	5250	9000	8640	10200	3900	5010	5310	5450	5550	5410	16100	10900
2	5230	8490	8480	9710	3560	5030	5290	5430	5620	5380	12800	10900
3	5260	7940	8500	9390	3580	5090	4980	5450	5830	5300	10600	11000
4	5210	7660	8240	9050	4340	5210	5260	5480	5940	5300	9170	13100
5	5250	13600	8130	9000	4770	5190	5440	5560	5760	5290	8170	21800
6	5410	20800	7820	8820	4930	5140	5520	5960	6050	5310	7520	22400
7	5690	21900	7900	7830	5320	4960	5460	5840	6650	5400	6900	21000
8	5710	22000	8160	8540	5370	5240	5360	5830	7050	5560	6490	20900
9	5900	20900	8070	9410	5160	5470	5260	5960	7310	5570	6470	21300
10	6230	19100	7730	9940	4410	5460	5130	5880	7560	5510	6380	22000
11	6220	17300	7550	9930	4240	5560	5080	5750	7360	5510	6250	22200
12	7580	17900	7300	9350	4050	5730	5020	5620	7490	5440	6270	21800
13	8480	16600	7140	8970	3840	5940	4900	5730	7580	5350	6030	22100
14	7370	14600	6890	8100	4650	6110	4870	5590	7540	5270	5930	21900
15	7460	12900	6640	7830	5110	5890	4870	5570	7450	5260	6070	22200
16	8180	11800	6490	7860	5140	5860	5260	5620	7360	5230	6750	23100
17	6980	11400	6260	7290	5170	6200	5400	5650	7460	5230	7490	23300
18	7780	11300	5840	6400	5720	6470	5370	5570	7220	5460	12400	22900
19	17200	11500	6840	5810	6240	6120	5290	5590	7170	5640	12200	23000
20	21200	11100	7570	5370	6500	5780	5370	5600	7300	5710	17300	22500
21	18300	10900	11400	4930	6470	5540	5430	5380	7220	5560	17200	22400
22	14900	10300	12900	4750	6060	5080	5500	5480	6920	5470	19800	22000
23	17400	9790	11500	4710	6020	5000	5640	5620	6480	5490	19800	21700
24	17400	9260	11600	4750	5870	5330	5620	5730	6290	5660	17500	20900
25	17500	9050	11500	4530	5940	5450	5720	5750	6240	5780	15400	20200
26	15600	8710	15700	4350	6160	5320	5660	5720	6360	6060	14500	19800
27	12700	8700	15900	4170	6170	5270	5550	5860	6150	6300	13300	19700
28	10700	8630	14200	4190	6100	5320	5580	5530	5980	7360	12200	19000
29	9810	—	12900	4010	5590	5250	5570	5630	5700	8690	11600	18000
30	10200	—	11800	4170	5730	5310	5640	5660	5470	9790	11200	17000
31	9670	—	10900	—	5320	—	5500	5580	—	13100	—	16800
Mean	9928	12970	9371	7112	5207	5478	5350	5647	6669	6045	10990	19930
Runoff in Ac.Ft.	610500	720300	576200	423200	320200	325900	329000	347200	396800	371700	654100	1225000
	Water Year Total 5121600								Calendar Year Total 6300100			

Station is maintained jointly by the Division of Water Resources and the U. S. Geological Survey. It is located at the Knights Landing Railroad Bridge, Mile 34.0 above Sacramento, below the point of discharge to the river of Colusa Basin drainage via the Back Borrow Pit of Reclamation Districts 108 and 787. Period of record 1921 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 20

FLOW OF SACRAMENTO RIVER AT VERONA - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	6200	16500	19400	26500	18800	21300	7430	6480	6520	7580	24100	26000
2	6180	15000	19400	25600	18500	20600	7420	6430	6490	7500	20600	24400
3	6040	13700	19000	25400	19200	19100	7100	6370	6600	7340	17000	24300
4	6180	15800	18500	25500	18600	18100	6970	6360	6760	7510	14700	17000
5	6900	37500	18300	25300	17400	16600	7080	6320	6620	7430	13300	51600
6	7300	53500	18600	25100	16900	15100	6920	6640	6760	7240	11800	56900
7	7590	58300	18900	26800	17000	14100	6700	6680	7290	7430	10700	51100
8	7800	58600	18600	29900	16200	12700	6500	6640	7910	7690	10300	52400
9	8070	56500	17600	33100	14800	12200	6440	6760	8400	7560	10300	56400
10	8410	53700	16800	33600	13300	11300	6300	6740	8960	7320	10100	60800
11	9180	51500	16000	31500	12900	10800	6160	6600	9280	7400	9710	58800
12	10900	49200	15500	29100	13300	10700	6020	6490	9470	7240	10000	57600
13	11600	44600	14800	27100	14600	11100	5860	6580	9970	7060	9860	56900
14	10700	38200	13700	27100	16800	11200	5720	6540	10300	7140	9860	56700
15	10900	32700	13600	27400	18900	10900	5800	6480	10300	7060	10200	54700
16	11500	28900	13200	26400	20300	10700	6140	6520	10300	6920	11000	58800
17	13800	27100	12600	25000	21300	10800	6380	6580	10400	6810	14300	59900
18	25800	25800	14000	24200	23200	11000	6260	6490	10300	7140	25100	58900
19	34800	24500	17200	24000	23500	10600	6040	6480	10100	7240	25600	58000
20	36900	23100	23400	23800	23500	10200	6010	6480	10200	7340	52200	57300
21	33300	22000	30100	24300	23300	10100	6220	6430	10100	7290	52600	56400
22	31400	21400	32100	25200	23200	9730	6240	6420	9640	7290	63200	55600
23	36600	20400	32100	26100	23500	9210	6440	6490	9060	7400	59700	54500
24	39200	19400	34100	26300	23800	9250	6540	6610	8840	7480	56200	53000
25	44600	18600	38600	25300	24200	8870	6680	6610	8450	7980	53100	50900
26	40900	18500	42200	23600	24200	8230	6730	6640	8410	8600	49300	48100
27	32800	18500	42000	22400	23200	7690	6680	6740	8360	10400	43500	45000
28	27200	18600	38400	22000	22000	7690	6640	6560	8210	15000	37000	41600
29	25900	—	34500	21900	21300	7480	6500	6540	7880	16500	32000	38400
30	22000	—	31100	20800	20900	7430	6640	6680	7640	18300	28400	35800
31	18500	—	28300	—	20800	—	6640	6610	—	21700	—	33900
Mean	19330	31500	23310	26010	19660	11830	6490	6550	8650	8835	26520	48760
Runoff in Ac.Ft.	1188000	1750000	1433000	1548000	1209000	703700	399100	402600	514800	543300	1578000	2998000
	Water Year Total 10449100								Calendar Year Total 14267500			

Station is maintained jointly by the Division of Water Resources and the U. S. Geological Survey. It is located at Mile 19.6 above Sacramento at the mouth of "Cross Canal", main drain between Reclamation Districts 1000 and 1001, and below the mouth of the Feather River. Flows are measured below the mouth of Cross Canal. Drainage area is 21400 square miles. Period of record 1926 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 21

FLOW OF SACRAMENTO RIVER AT SACRAMENTO - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	7750	22600	26200	35900	30300	34400	11500	8260	7010	8720	27500	33200
2	7870	20500	26500	35000	29800	33700	11300	7610	6780	8340	24500	31300
3	7700	18900	26000	35300	29000	31700	10800	7350	6590	7930	20300	35300
4	7890	21300	25400	35900	27500	29600	10500	7620	6810	8260	18300	89400
5	8390	51100	25400	36200	25900	26200	10300	6570	6900	8560	17300	86900
6	8570	70100	26500	36500	24700	24500	9690	6690	7040	7990	15400	79200
7	9140	78800	26500	38900	24600	22700	9120	7080	7850	8290	13600	86200
8	10100	73800	25600	42700	23600	19100	8860	7240	8710	8960	12600	88900
9	9940	69300	24700	45900	21900	17600	8740	7000	9170	9040	12300	88400
10	10800	65700	23400	45500	20500	16500	8130	7190	9750	8780	12400	78600
11	11000	62900	22500	42800	20000	16100	8020	7430	10000	8830	12100	74300
12	12300	59700	21900	40100	21500	16400	8120	7260	10300	8890	12200	73800
13	14000	54600	21000	38300	21100	18200	8040	7390	10700	8670	12300	72900
14	13900	47400	e20700	38700	27200	16400	7710	7450	11000	8900	12300	74200
15	12800	40800	e20500	38100	32000	16300	7810	7190	10900	8830	12800	84500
16	14300	36200	e20200	37200	33300	16500	8440	7220	11000	8510	13900	81400
17	20200	33900	e20000	36900	34900	16600	8760	7170	11100	8110	16200	77400
18	36300	32400	19700	36800	35700	16600	8590	6970	10900	8160	36100	74200
19	44200	30800	23300	36900	35500	16200	7760	6920	10800	8380	90000	72100
20	44100	29600	34100	37600	35200	16100	7450	6810	10800	8500	86200	70400
21	40100	28400	39800	39000	35500	16300	7280	7460	10900	8580	99400	68700
22	41800	27600	40900	40700	36300	16000	7100	6810	10600	8490	82700	67300
23	53400	26900	42700	41000	37000	15000	7370	6980	10400	8570	73900	65800
24	61800	25800	44100	40300	36500	14200	7370	7260	10200	8690	69500	63800
25	56400	24800	52800	38900	36600	13100	7500	7300	10000	9350	66200	61000
26	50000	24800	54000	37300	36700	12000	8000	7550	9590	10800	62000	58200
27	40700	25300	53100	36400	35900	11400	8130	7470	9500	12000	55200	54300
28	34800	25800	49200	35800	34700	11300	8010	7450	9240	18300	47200	50100
29	33900	—	44200	34600	33500	11200	7620	7440	9070	18800	40200	46200
30	29900	—	40300	32700	33100	11300	7500	7670	8710	20300	35800	42800
31	25500	—	37400	—	33700	—	8020	7360	—	25800	—	40700
Mean	25150	40350	31570	38260	30540	18440	8501	7264	9411	10330	37010	66820
Runoff in Ac.Ft.	1546000	2241000	1941000	2277000	1878000	1097000	522700	446600	560000	635400	2202000	4109000
	Water Year Total 13933700								Calendar Year Total 19455700			

Division of Water Resources station located at Mile 0.4 above M Street Bridge. This represents the flow of the Sacramento River past Sacramento (below the City of Sacramento intake) to the Delta. Additional water flows to the Delta via East Borrow Pit of Yolo By-Pass. (See Tables 75 and 84) Daily mean flows are computed from newly derived curves which take into account tidal fluctuations during low stages. Period of record 1904, 1905, 1921, 1924 to date.
e Estimated.

TABLE 22

FLOW OF CLEAR CREEK NEAR IGO - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	44	127	415	410	244	76	40	16	11	18	620	256
2	43	127	390	410	241	73	38	16	9.8	18	450	295
3	42	132	370	395	227	69	35	16	9.4	20	356	1480
4	42	333	370	356	210	68	33	16	9.0	26	299	1520
5	43	923	385	351	197	68	33	19	9.0	38	259	1090
6	44	1470	370	488	188	66	32	19	9.0	39	227	1070
7	48	829	324	595	181	71	30	19	9.0	35	200	1250
8	54	563	290	864	178	74	29	18	11	31	181	1330
9	62	450	270	752	169	74	27	17	14	27	166	1570
10	240	466	252	654	166	74	29	17	15	25	155	1330
11	109	430	230	601	163	87	29	16	17	25	146	1310
12	69	385	213	563	158	93	27	16	16	24	143	1140
13	70	370	203	551	155	84	26	15	16	23	149	1080
14	78	380	194	493	149	82	24	14	17	24	146	2110
15	69	435	188	445	146	80	23	14	16	25	321	1970
16	78	533	191	420	140	80	22	14	16	31	2440	1420
17	349	601	294	400	135	82	22	14	26	108	1060	1160
18	668	533	351	380	130	74	20	14	30	56	808	976
19	504	493	582	365	127	66	20	13	29	45	608	864
20	440	455	569	351	122	59	20	12	27	40	510	745
21	931	410	488	342	117	56	20	12	22	38	445	661
22	794	370	539	328	113	52	20	12	22	35	390	588
23	948	360	653	307	108	49	19	12	20	35	346	533
24	696	375	738	290	106	51	20	11	19	35	315	493
25	410	425	614	270	106	52	17	12	19	76	286	460
26	286	450	539	263	97	52	17	12	19	388	267	430
27	240	460	493	252	91	51	17	12	19	477	270	405
28	209	440	450	241	89	48	16	12	18	2730	248	380
29	180	—	425	230	87	43	16	12	18	3390	237	360
30	161	—	405	223	86	41	16	11	18	2670	259	351
31	137	—	405	—	80	—	16	11	—	913	—	333
Mean	261	476	394	420	145	66.5	24.3	14.3	17.0	370	410	934
Runoff in Ac.Ft.	16040	26430	24200	24970	8940	3960	1490	881	1010	22740	24410	57440
	Water Year Total 114991								Calendar Year Total 212511			

U. S. Geological Survey and U. S. Army Corps of Engineers cooperative station located 9 miles upstream from the mouth. Clear Creek is a west-side tributary to the Sacramento River at Mile 237.1R. Drainage area is 231 square miles. Period of record 1940 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 23

FLOW OF COTTONWOOD CREEK NEAR COTTONWOOD - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	57	325	790	805	369	231	78	53	66	85	1020	374
2	55	306	738	828	395	227	78	51	63	76	860	385
3	52	316	685	805	400	214	75	53	54	70	685	6460
4	47	2610	678	752	390	210	75	66	53	72	586	8770
5	44	3470	685	621	359	194	75	67	52	99	510	3140
6	45	6910	738	738	344	171	75	59	52	110	447	2410
7	54	2780	649	730	340	156	70	58	53	121	405	3430
8	53	1520	586	708	330	156	63	65	53	130	359	3400
9	69	1200	530	656	320	153	59	57	52	118	325	3360
10	110	1530	491	607	311	156	55	57	65	76	275	2390
11	194	1420	453	579	297	164	53	58	72	55	244	2540
12	139	1010	423	572	297	171	53	53	76	51	222	2280
13	115	884	395	642	297	178	52	55	80	53	222	1800
14	127	828	385	635	306	164	52	51	75	58	231	10800
15	118	844	364	586	320	153	51	46	70	63	218	5890
16	124	924	359	544	330	156	52	51	65	87	1010	3160
17	190	1060	555	537	325	164	55	66	62	130	1230	2240
18	708	956	1190	544	316	167	52	59	69	130	876	1790
19	1470	852	2060	558	302	164	58	58	82	103	844	1520
20	1450	798	2500	579	288	149	55	55	78	108	708	1330
21	1650	730	1610	628	280	146	59	53	75	108	798	1170
22	2300	678	1410	621	280	133	66	49	80	101	722	1050
23	2200	663	1330	565	284	115	62	44	88	94	600	962
24	2450	678	2280	510	288	110	65	43	101	99	510	902
25	1500	798	1570	453	284	110	55	48	108	127	447	842
26	1100	844	1220	435	284	105	58	49	105	182	405	794
27	800	844	1070	423	284	103	55	48	85	240	385	752
28	700	844	916	405	275	97	52	49	62	1410	374	710
29	600	—	828	385	258	87	52	51	75	2610	354	686
30	480	—	775	369	244	80	52	55	80	3860	354	665
31	385	—	775	—	236	—	54	59	—	1490	—	650
Mean	625	1308	937	594	311	153	60.2	54.4	71.7	391	541	2473
Runoff in Ac.Ft.	38450	72640	57600	35350	19110	9090	3700	3340	4270	24030	32180	152000
	Water Year Total 253500								Calendar Year Total 451760			

U. S. Geological Survey and U. S. Army Corps of Engineers cooperative station located 2 miles upstream from the mouth. Cottonwood Creek is a west-side tributary to Sacramento River at Mile 222.2R. Drainage area is 945 square miles. Period of record 1940 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 24

FLOW OF BATTLE CREEK NEAR COTTONWOOD - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	228	292	366	517	537	497	276	178	165	180	282	400
2	220	286	366	533	554	494	267	180	165	186	261	540
3	234	528	360	541	517	463	279	175	153	188	237	3100
4	228	5600	370	533	478	414	264	178	170	188	237	1190
5	234	2920	387	554	467	421	270	175	170	197	231	646
6	223	2790	414	784	475	407	255	172	162	234	237	973
7	223	878	363	720	438	397	246	183	168	211	225	1420
8	248	620	340	680	445	373	249	170	168	188	222	1470
9	245	509	337	610	435	350	234	180	170	197	214	1370
10	769	706	337	568	417	340	246	175	162	186	208	852
11	388	550	324	541	428	330	225	175	178	183	194	1080
12	315	456	308	545	438	356	220	175	170	188	202	852
13	305	431	308	685	456	340	217	168	165	183	214	719
14	512	407	301	600	475	320	220	172	175	175	773	3030
15	274	390	295	563	505	333	225	170	165	172	356	1130
16	271	417	298	568	513	346	202	170	168	183	1380	834
17	1910	417	346	563	537	324	217	170	160	183	501	693
18	2080	414	435	576	537	308	200	168	194	186	735	626
19	678	407	794	590	509	301	197	153	183	183	657	578
20	527	404	695	600	509	292	194	178	180	180	1310	532
21	990	383	529	650	529	304	194	188	180	180	1720	488
22	746	380	605	670	554	308	183	168	175	172	655	466
23	765	380	554	650	568	301	178	162	172	188	460	441
24	591	377	1640	605	586	314	191	170	170	183	404	416
25	441	387	850	572	600	292	178	165	186	191	360	404
26	374	383	650	568	568	289	180	162	183	411	346	400
27	364	360	586	572	545	276	180	160	186	442	356	381
28	385	373	537	563	533	267	186	175	180	486	333	385
29	396	—	505	533	505	267	183	168	180	501	317	381
30	357	—	490	501	490	267	170	168	180	634	529	381
31	321	—	505	—	509	—	186	165	—	346	—	381
Mean	511	802	490	592	505	343	217	171	173	242	472	857
Runoff in Ac.Ft.	31420	44520	30140	35220	31060	20410	13310	10540	10280	14890	28080	52680
	Water Year Total 265100								Calendar Year Total 322550			

U. S. Geological Survey and U. S. Army Corps of Engineers cooperative station located 3 miles upstream from the mouth. Battle Creek is an east-side tributary to Sacramento River opposite Mile 221.5L. Drainage area is 362 square miles. Period of record 1940 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 25

FLOW OF REDBANK CREEK AT FOOTHILLS - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1					.8	e.2				0	3.0	5.6
2					.9	e.2				0	e.4	NR
3					1.1	e.1				0	e.2	NR
4					1.1	e.1				0	e.2	NR
5					.9	e.1				0	e.2	72
6					.7	e.1				0	e.1	83
7					.6	e.1				0	e.1	107
8				8.6	.6	e.1				0	e.1	152
9				6.9	.5	e.1				0	e.2	174
10				6.0	e.5	e.1				0	e.2	74
11				5.6	e.5	e.1				0	e.2	109
12				5.3	e.5	e.1	N	N	N	0	e.2	67
13				4.7	e.5	e.1	O	O	O	0	e.2	72
14				4.4	e.4	e.1				0	e.2	636
15				3.8	e.4	e.1				0	e.2	154
16				3.5	e.4	e.1				0	163	89
17				3.2	e.4	e.1	F	F	F	0	52	66
18				2.7	e.3	e.1	L	L	L	0	28	51
19				2.7	e.3	0	O	O	O	0	17	42
20				2.5	e.3	0	W	W	W	0	13	34
21				2.1	e.3	0				0	12	29
22				2.0	e.3	0				0	12	26
23				1.8	e.3	0				0	11	23
24				1.5	e.3	0				0	10	20
25				1.5	e.2	0				0	8.6	19
26				1.1	e.2	0				0	7.8	17
27				.9	e.2	0				0	7.8	15
28				.9	e.2	0				0	6.9	14
29		—		.8	e.2	0				147	6.5	13
30		—		.8	e.2	0				85	6.5	13
31		—		—	e.2	—			—	10	—	11
Mean					0.5	0.1	0	0	0	7.8	12.3	
Runoff in Ac.Ft.					28	4	0	0	0	480	730	
		Water Year Total							Calendar Year Total			

Division of Water Resources and U. S. Bureau of Reclamation cooperative station located approximately 15 miles above the mouth. Station operated only during irrigation season. Redbank Creek is a west-side tributary to the Sacramento River at Mile 191.2R. Recorder installed March 20 but inoperative until April 7. Period of record 1948 to date. Records for 1950 computed by Division of Water Resources.
e Estimated.

TABLE 26

FLOW OF ANTELOPE CREEK NEAR RED BLUFF - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	37	56	73	120	163	100	37	30	28	29	59	90
2	38	50	72	117	160	90	36	30	28	27	54	124
3	36	164	72	117	155	83	34	31	27	28	46	1160
4	36	3610	72	112	134	78	35	31	28	29	44	579
5	36	1360	78	112	124	70	35	31	27	31	43	304
6	34	1600	90	177	112	69	35	31	27	37	42	350
7	38	455	78	208	106	67	34	31	27	33	41	459
8	55	267	73	263	100	65	34	31	30	31	40	556
9	45	189	70	246	96	62	34	31	30	31	40	679
10	170	314	70	195	98	60	34	31	30	30	40	402
11	112	273	66	169	98	57	34	30	30	31	39	470
12	49	183	62	157	106	58	34	30	30	31	39	373
13	44	144	60	183	112	57	33	30	29	30	52	280
14	92	122	59	174	120	57	33	30	29	30	156	1070
15	52	108	58	155	139	58	33	30	28	30	85	508
16	58	112	56	147	147	54	33	30	28	27	1110	354
17	1520	128	70	144	150	52	32	30	28	36	284	273
18	652	108	90	147	147	50	32	30	31	33	410	220
19	273	98	189	152	139	48	32	29	33	31	322	186
20	174	92	223	162	137	45	32	29	31	31	529	166
21	562	87	163	180	139	44	31	29	30	31	770	142
22	358	80	180	198	142	42	31	29	30	31	298	127
23	256	76	177	202	144	41	31	30	29	31	177	108
24	177	73	273	186	142	44	31	30	28	33	129	100
25	109	73	358	177	137	44	30	30	28	36	106	92
26	68	73	312	174	127	42	30	29	28	117	94	87
27	66	73	220	177	117	40	30	29	29	122	90	80
28	147	73	177	174	110	39	30	29	29	76	90	75
29	114	—	155	160	104	38	31	28	28	203	82	72
30	77	—	139	152	102	38	31	28	28	276	94	73
31	62	—	127	—	98	—	30	28	—	80	—	73
Mean	179	359	128	168	126	56.4	32.6	29.8	28.9	53.3	180	311
Runoff in Ac.Ft.	11000	19920	7860	9990	7750	3360	2010	1830	1720	3280	10720	19100
		Water Year Total		71820					Calendar Year Total		98540	

U. S. Geological Survey and U. S. Army Corps of Engineers cooperative station located 6 miles upstream from the mouth. Antelope Creek is an east-side tributary to the Sacramento River at Mile 180.7L. Drainage area is 124 square miles. Period of record 1940 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 27

FLOW OF ANTELOPE CREEK NEAR MOUTH - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.6	13	13	23	24	3.6	1.4	0.3	0.3	4.9	21	35
2	3.6	8.5	12	21	35	3.2	0.9	0.2	0.4	4.3	13	53
3	3.6	315	12	20	40	3.3	0.5	0.2	0.4	3.9	9.0	1710
4	2.6	5350	11	19	32	2.5	0.4	0.2	0.6	5.7	7.0	595
5	2.9	1910	12	17	26	3.1	1.0	0.2	0.5	4.9	5.6	176
6	2.5	2070	15	26	21	1.7	0.5	0.3	0.5	10	4.7	185
7	3.2	194	14	39	17	1.5	0.4	0.3	0.6	14	4.1	348
8	16	94	12	69	13	2.3	0.4	0.3	0.7	14	3.6	454
9	24	60	12	66	12	1.6	0.7	0.3	0.7	11	3.1	513
10	47	180	12	49	12	2.3	0.5	0.3	0.9	2.2	2.5	190
11	113	126	12	36	12	2.5	0.6	0.7	0.8	4.3	2.3	327
12	25	67	9.5	30	13	2.0	0.5	0.6	1.1	3.6	2.4	270
13	16	45	9.5	32	12	2.0	0.6	0.5	1.0	3.1	4.0	276
14	159	33	9.0	35	15	2.1	0.6	0.6	1.5	3.7	151	2490
15	78	26	7.4	29	20	1.5	0.3	0.4	1.0	3.9	45	1510
16	53	25	9.5	28	20	1.6	0.4	0.3	1.6	4.1	1100	1220
17	4730	30	13	26	19	2.9	0.5	0.4	2.4	9.2	194	953
18	2150	24	22	22	21	1.6	0.5	0.5	2.3	14	267	781
19	127	20	37	22	17	1.7	0.2	0.3	1.2	12	216	519
20	164	18	83	22	13	1.3	0.2	0.3	2.1	13	513	451
21	380	16	47	26	12	0.7	0.2	0.3	3.9	13	791	151
22	198	14	40	30	12	0.6	0.2	0.4	2.0	12	166	36
23	151	14	43	31	13	0.5	0.2	0.3	1.3	12	70	24
24	48	13	143	30	12	0.4	0	0.3	2.0	10	43	22
25	25	13	286	30	12	1.3	0	0.5	2.9	5.6	30	20
26	14	13	192	30	11	2.2	0.2	0.2	2.1	8.3	23	18
27	12	13	104	27	13	1.6	0.2	0.2	3.0	113	21	16
28	101	13	63	26	11	2.8	0.2	0.2	1.6	19	31	14
29	49	—	43	24	8.5	2.3	0.3	0.3	2.9	32	23	14
30	25	—	33	21	6.1	0.9	0.2	0.3	3.3	343	40	14
31	19	—	27	—	3.7	—	0.2	0.3	—	48	—	15
Mean	282	383	43.8	30.2	16.4	1.9	0.4	0.3	1.5	24.6	127	432
Runoff in Ac.Ft.	17340	21260	2693	1797	1008	114	26	21	90	1511	7550	26580
	Water Year Total 44551								Calendar Year Total 79990			

Division of Water Resources and U. S. Bureau of Reclamation cooperative station located approximately 2.3 miles above the mouth. Antelope Creek is an east-side tributary to the Sacramento River at Mile 180.7L. Period of record 1948 to date. Records for 1950 computed by Division of Water Resources.

TABLE 28

FLOW OF ELDER CREEK NEAR PASKENTA - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.5	29	77	96	43	8.9	2.5	.1	0	0.2	67	20
2	5.7	26	71	104	42	8.2	2.2	.1	0	.4	46	124
3	5	38	66	99	38	8.0	1.9	.1	0	.5	32	1060
4	5	287	68	88	36	7.6	1.9	.1	0	.7	26	449
5	5	462	73	86	32	7.4	1.8	.1	0	1.1	21	215
6	6	399	66	90	30	7.1	1.6	0	0	1.3	19	246
7	7	143	56	88	29	7.8	1.5	.1	0	1.1	17	281
8	7.1	95	51	79	28	8.2	1.3	.1	0	1.1	15	270
9	8.8	77	49	71	26	8.0	1.2	.1	0	1.0	14	258
10	135	146	45	66	25	8.2	1.2	.1	0	.8	13	171
11	34	104	39	61	24	9.4	1.3	.1	0	.8	13	196
12	15	82	35	61	25	12	1.1	.1	0	.8	13	144
13	22	73	33	66	26	10	.8	.1	0	.8	13	150
14	71	72	31	61	26	11	.6	0	0	.8	13	539
15	32	88	29	59	27	10	.6	0	0	.8	22	278
16	26	99	29	60	26	11	.5	0	0	.9	724	195
17	69	97	109	64	26	9.2	.3	0	.5	1.7	116	153
18	223	81	110	71	23	8.5	.3	0	2.0	1.9	79	124
19	248	75	230	73	21	7.1	.3	0	1.3	1.9	65	107
20	162	71	179	84	20	6.3	.3	0	.8	1.7	57	91
21	256	63	129	92	20	6.0	.3	0	.6	1.6	56	80
22	187	60	126	86	19	5.4	.2	0	.5	1.6	46	72
23	271	61	166	73	19	5.3	.2	0	.4	1.7	37	67
24	126	72	164	66	17	5.4	.1	0	.3	2.4	32	63
25	73	84	121	59	17	5.4	.1	0	.4	4.6	28	58
26	54	87	103	58	15	5.1	.1	0	.5	77	25	53
27	49	88	91	56	14	4.5	.1	0	.5	45	24	51
28	50	86	84	52	13	4.1	.1	0	.4	358	22	48
29	46	—	78	46	12	3.5	.1	0	.2	588	20	44
30	40	—	78	43	11	3.0	.1	0	.2	249	22	44
31	33	—	86	—	9.7	—	.1	0	—	72	—	40
Mean	73.5	112	86.2	71.9	23.9	7.39	.80	.04	.29	45.8	56.6	184
Runoff in Ac.Ft.	4520	6240	5300	4280	1470	440	49	2.4	17	2820	3370	11290
	Water Year Total 23104								Calendar Year Total 39798			

U. S. Geological Survey and U. S. Bureau of Reclamation cooperative station located approximately 23 miles above the mouth. Elder Creek is a west-side tributary to the Sacramento River at Mile 178.5R. Period of record 1948 to date. (Prior records are available at a site 2½ miles downstream.) Records for 1950 computed by U. S. Geological Survey.

TABLE 29

FLOW OF MILL CREEK NEAR LOS MOLINOS - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	97	137	258	337	485	513	248	123	91	93	199	286
2	99	128	254	378	445	497	248	123	89	94	174	296
3	90	256	248	397	405	453	242	121	89	94	174	1570
4	94	3210	251	371	356	405	232	123	89	98	177	1110
5	97	1850	290	375	345	409	220	119	89	120	160	650
6	94	2020	280	585	348	409	208	117	89	150	150	748
7	101	684	248	695	323	345	205	115	91	120	145	1000
8	125	421	229	663	313	299	196	112	97	105	140	1390
9	112	323	217	529	313	286	191	112	97	100	137	1520
10	188	476	211	437	330	283	185	112	95	97	128	870
11	134	394	194	405	363	280	182	110	97	95	130	951
12	114	296	180	397	417	274	177	110	95	93	128	758
13	114	258	171	509	461	258	174	108	98	91	145	585
14	145	232	166	461	517	310	171	108	96	91	177	1510
15	112	226	160	417	565	277	166	106	94	91	155	1000
16	164	258	160	425	573	280	160	102	94	93	1290	730
17	1240	261	259	445	589	267	158	100	100	102	549	581
18	905	242	310	489	549	264	155	100	110	108	1090	497
19	398	235	518	509	485	280	152	100	108	100	872	445
20	280	232	557	549	493	296	150	98	104	95	1770	394
21	1180	220	413	633	525	306	147	98	100	93	1980	356
22	698	208	543	672	565	299	145	98	98	93	780	330
23	661	205	505	629	585	283	142	98	98	93	513	306
24	444	205	477	557	573	290	140	98	96	100	405	290
25	283	226	477	517	585	248	137	98	96	122	348	277
26	217	242	429	529	545	238	137	97	94	302	313	264
27	196	248	371	553	529	235	135	95	94	332	293	248
28	232	261	327	533	525	232	133	93	94	454	290	238
29	188	—	303	465	473	242	133	93	94	498	254	232
30	166	—	290	433	517	248	130	93	93	586	290	232
31	145	—	313	—	533	—	128	91	—	258	—	229
Mean	294	498	310	496	472	310	172	106	95.6	160	445	642
Runoff in Ac.Ft.	18080	27680	19060	29540	29020	18460	10570	6490	5690	9840	26490	39460
	Water Year Total 182070								Calendar Year Total 240380			

U. S. Geological Survey and Division of Water Resources cooperative station located 5 miles upstream from the mouth. Mill Creek is an east-side tributary to the Sacramento River at Mile 178.0L. Drainage area 134 square miles. Period of record 1909 to 1913; 1928 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 30

FLOW OF NORTH FORK OF MILL CREEK NEAR MOUTH - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.4	1.4	5.4	8.6	13	15	2.8	2.6	3.8	0.7	8.2	7.6
2	0.4	1.1	5.1	10	11	14	3.0	4.0	3.5	0.9	6.2	8.9
3	0.3	3.0	5.1	10	12	12	3.5	3.0	2.3	0.7	5.6	51
4	0.3	81	5.4	7.9	9.5	10	3.3	4.0	1.6	0.7	6.2	38
5	0.1	52	5.9	7.6	8.2	11	1.8	4.3	1.0	1.4	5.1	24
6	0.0	56	6.2	18	7.6	11	1.2	3.5	1.2	0.6	4.5	24
7	0.0	22	4.5	19	6.7	8.9	1.1	1.8	0.4	0.9	3.8	35
8	0.6	12	4.0	19	5.1	6.7	1.4	2.6	0.4	2.3	3.0	44
9	0.4	7.9	3.3	14	4.8	6.4	1.8	1.8	0.7	4.0	2.8	50
10	0.6	13	3.3	10	5.4	5.6	1.6	0.7	1.8	4.8	2.1	30
11	1.4	10	2.1	8.9	7.3	5.6	1.5	1.6	1.8	3.8	2.3	32
12	0.6	6.4	1.6	8.9	8.9	4.5	1.8	1.5	1.6	3.3	2.6	27
13	0.7	5.4	1.5	12	13	3.5	2.1	1.8	2.6	3.0	4.0	20
14	2.3	4.5	1.4	11	14	6.2	1.2	2.1	3.0	3.3	5.4	47
15	0.7	4.0	1.2	8.9	16	4.0	1.0	1.8	4.8	4.3	4.8	34
16	0.7	4.8	1.4	8.2	16	3.8	1.4	2.3	3.0	4.8	35	26
17	38	5.1	3.8	9.5	17	4.0	2.6	3.3	2.8	5.6	21	20
18	35	4.3	7.0	11	16	4.8	2.3	2.3	5.9	4.8	41	16
19	13	4.0	13	12	13	5.4	1.2	2.1	4.3	2.6	35	14
20	7.3	3.8	18	13	14	6.4	2.1	2.3	4.5	2.6	48	11
21	33	3.5	11	16	14	7.6	2.6	2.6	3.8	3.3	60	10
22	25	3.3	15	18	16	9.5	2.3	3.5	0.9	3.0	28	8.9
23	22	3.3	15	20	17	8.6	1.6	2.3	0.6	2.3	18	7.9
24	15	3.3	15	17	17	8.2	1.4	0.8	2.3	3.0	13	7.0
25	7.3	4.0	14	14	18	5.4	2.3	0.7	4.3	0.5	10	7.0
26	4.8	4.5	12	14	17	5.6	2.8	1.2	3.0	7.0	8.9	6.4
27	4.0	5.1	9.2	16	16	5.1	1.8	1.5	1.1	16	7.9	5.6
28	5.6	5.4	7.6	14	16	4.0	1.5	1.2	0.6	18	7.9	5.1
29	3.5	—	6.7	10	14	2.8	1.4	1.5	0.7	22	6.4	5.1
30	2.6	—	6.7	11	16	2.6	1.6	1.8	1.2	29	7.6	4.8
31	1.6	—	7.0	—	16	—	1.4	2.3	—	12	—	4.5
Mean	7.3	11.9	7.0	12.6	12.8	6.9	1.9	2.2	2.3	5.5	13.8	20.4
Runoff in Ac.Ft.	451	663	433	749	784	413	118	136	138	340	822	1253
	Water Year Total 4277								Calendar Year Total 6300			

Division of Water Resources and U. S. Bureau of Reclamation cooperative station located approximately 0.5 mile above the mouth. This creek is an east-side tributary to the Sacramento River at Mile 179.3L. Period of record 1948 to date. Records for 1950 computed by Division of Water Resources.

TABLE 31

FLOW OF MILL CREEK NEAR MOUTH - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	96	195	235	317	324	374	114	2.8	2.8	2.4	197	301
2	97	183	230	355	298	357	115	2.6	1.4	2.3	170	287
3	93	237	226	342	271	320	108	2.6	1.0	2.3	170	1180
4	97	2140	228	296	230	280	97	2.4	0.9	2.4	172	1010
5	105	1400	257	296	218	280	89	2.4	0.9	4.8	159	641
6	102	1480	259	468	218	280	82	2.4	0.9	40	147	684
7	111	637	228	546	197	220	75	2.3	0.9	16	138	884
8	149	397	212	540	183	183	66	2.1	1.2	18	134	1140
9	133	298	201	433	177	174	65	2.1	1.4	17	130	1260
10	201	419	197	350	185	165	72	1.9	1.2	17	141	807
11	172	368	179	308	214	159	77	1.5	1.0	15	125	829
12	141	271	168	296	255	156	77	1.5	1.4	15	136	718
13	138	233	161	384	292	146	71	1.4	1.5	15	156	578
14	179	210	158	355	352	179	60	1.0	1.9	13	187	1060
15	141	203	158	308	397	165	55	1.0	2.8	11	175	884
16	197	228	156	298	410	165	64	1.2	1.9	12	1040	677
17	1080	235	222	312	425	156	64	1.4	2.1	29	531	553
18	936	216	292	347	390	149	55	1.4	4.8	44	973	474
19	471	207	433	357	337	153	50	1.4	12	35	856	430
20	339	205	525	384	342	163	45	1.4	4.4	34	1290	384
21	900	195	390	454	368	170	37	1.5	2.6	36	1660	344
22	729	187	491	486	410	163	e29	1.5	2.6	37	758	320
23	673	183	471	462	428	147	e22	1.5	1.9	37	528	298
24	525	185	451	400	425	154	e17	1.5	1.9	48	416	282
25	352	205	460	374	433	126	e12	1.7	1.7	93	363	266
26	280	218	407	368	402	117	e7.0	1.9	2.3	235	324	255
27	255	224	350	390	387	111	4.1	1.9	2.3	329	303	241
28	296	235	310	374	387	106	3.5	1.7	2.8	371	305	233
29	250	—	289	315	347	111	3.1	2.3	2.3	425	271	226
30	224	—	278	292	379	117	2.8	2.3	2.4	575	301	224
31	205	—	294	—	382	—	2.8	1.7	—	264	—	220
Mean	312	407	288	374	325	185	52.9	1.8	2.3	90.2	408	571
Runoff in Ac.Ft.	19170	22600	17680	22230	19960	11000	3255	112	137	5544	24310	35090
	Water Year Total 129249								Calendar Year Total 181088			

Division of Water Resources and U. S. Bureau of Reclamation cooperative station located approximately 0.8 mile above the mouth. Mill Creek is an east-side tributary to the Sacramento River at Mile 178.0L. Period of record 1948 to date. Records for 1950 computed by Division of Water Resources.
e Estimated.

TABLE 32

FLOW OF THOMES CREEK AT PASKENTA - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	13	180	550	735	332	157	21	2.8	0	0.8	540	160
2	14	150	499	780	300	137	19	2.8	0	.8	417	700
3	10	200	440	735	267	120	17	2.8	0	.7	327	2000
4	11	1000	472	645	244	107	15	2.8	0	.7	268	3000
5	12	1700	527	645	236	100	13	3.1	0	.8	202	900
6	12	1500	426	698	240	93	12	2.6	0	1.8	160	600
7	15	800	344	615	215	88	11	2.6	0	15	135	650
8	20	500	305	541	207	78	9.8	2.3	0	10	115	700
9	50	350	271	478	207	72	9.1	2.3	0	6.1	100	650
10	200	500	232	452	219	69	9.1	2.3	0	5.5	85	600
11	80	400	207	446	236	72	8.5	2.2	0	5.2	78	500
12	50	350	177	472	257	74	7.9	2.0	0	4.9	71	450
13	60	300	163	600	291	69	7.3	2.2	0	4.1	69	800
14	100	300	150	506	332	66	6.8	2.3	0	3.7	65	1700
15	70	350	137	466	360	66	5.8	2.2	.4	3.5	66	1100
16	60	400	143	499	349	66	5.5	1.8	.4	3.7	698	700
17	164	400	1280	541	349	59	5.5	1.4	.6	4.6	423	550
18	423	350	980	608	281	55	5.5	1.2	2.8	4.6	658	450
19	500	300	2130	645	249	51	5.1	1.1	2.6	5.5	561	400
20	350	250	1410	728	249	49	4.3	.9	3.7	8.3	628	370
21	700	230	1000	765	262	47	4.3	.8	3.9	7.2	682	330
22	600	200	1320	712	286	43	3.8	.8	3.9	6.1	435	310
23	1500	200	996	585	286	40	3.8	.8	3.2	5.8	322	280
24	800	250	844	520	262	38	3.8	.7	2.5	6.8	268	260
25	500	400	698	478	257	36	3.4	.6	2.1	8.7	227	240
26	400	600	600	472	236	34	3.4	.6	1.9	65	210	230
27	350	650	548	466	223	30	3.1	.5	1.6	258	190	210
28	350	600	513	420	196	25	3.1	.4	1.3	1890	180	200
29	300	—	492	360	188	24	2.8	.2	1.0	1620	170	190
30	250	—	527	332	181	22	2.8	.1	.9	1430	160	170
31	200	—	645	—	174	—	2.8	0	—	512	—	160
Mean	263	479	614	565	257	66.2	7.59	1.59	1.09	190	284	631
Runoff in Ac.Ft.	16190	26600	37740	33610	15810	3940	467	98	65	11700	16880	38800
	Water Year Total 136720								Calendar Year Total 201900			

U. S. Geological Survey and Division of Water Resources cooperative station located 0.5 mile upstream from Paskenta. Thomes Creek is a west-side tributary to the Sacramento River at Mile 173.2R. Drainage area is 188 square miles. Period of record 1920 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 33

FLOW OF DEER CREEK NEAR VINA - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	81	153	313	490	534	273	120	92	81	84	194	310
2	84	142	309	539	514	258	118	92	81	84	172	307
3	76	190	299	564	467	246	118	92	81	84	147	1540
4	83	3950	309	529	424	232	118	92	81	86	132	1650
5	78	2640	353	534	415	220	116	94	81	101	126	914
6	80	3010	353	905	411	212	116	92	81	124	118	907
7	87	1080	306	1170	368	212	114	91	83	94	116	1140
8	103	628	280	1130	349	202	112	91	84	91	112	1720
9	96	458	258	914	345	194	112	89	87	89	107	1690
10	167	580	252	770	349	186	112	89	84	87	105	1070
11	129	481	234	688	364	181	110	89	87	87	105	1020
12	99	375	209	660	387	184	110	89	86	86	107	820
13	104	324	204	794	407	181	109	89	87	86	114	694
14	124	289	194	715	436	204	107	89	86	84	132	1530
15	92	286	186	649	467	186	107	87	84	84	128	1230
16	183	320	186	649	472	176	105	87	84	89	1620	924
17	867	334	316	649	476	169	105	86	98	98	684	760
18	806	313	445	682	449	162	105	84	99	92	1210	663
19	442	306	762	693	419	153	103	84	99	89	1130	603
20	331	292	938	726	407	149	103	84	92	87	2120	532
21	1140	276	660	806	407	144	101	84	87	87	2600	479
22	907	261	905	848	407	140	99	84	86	86	970	446
23	955	258	818	800	407	136	98	84	84	87	637	412
24	681	255	806	715	403	153	98	84	84	92	486	384
25	371	279	824	660	387	147	96	84	84	116	415	364
26	270	299	693	633	368	136	96	84	84	403	364	345
27	240	309	585	633	345	132	94	84	84	416	329	326
28	258	316	514	606	334	128	94	84	84	512	307	310
29	207	—	467	534	313	126	94	84	83	395	285	300
30	186	—	441	504	296	122	94	83	83	672	316	290
31	164	—	458	—	286	—	92	83	—	258	—	290
Mean	306	657	448	706	400	178	106	87.2	85.6	159	513	773
Runoff in Ac.Ft.	18830	36500	27520	42030	24620	10600	6500	5360	5100	9780	30520	47540
	Water Year Total 192400								Calendar Year Total 264900			

U. S. Geological Survey and Division of Water Resources cooperative station located 9 miles northeast of Vina and 0.8 mile upstream from a diversion dam. Deer Creek is an east-side tributary to the Sacramento River at Mile 168.5L. Drainage area is 200 square miles. Period of record 1911 to 1915; 1920 to 1937; 1939 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 34

FLOW OF DEER CREEK NEAR MOUTH - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	84	134	288	397	400	164	14	5.7	5.7	13	153	239
2	89	121	283	432	416	149	13	6.2	6.6	15	136	249
3	95	134	280	466	384	138	12	6.2	6.6	14	110	e1250
4	97	e3220	272	445	334	126	11	6.2	5.7	12	100	e1340
5	105	e2150	254	442	313	121	12	7.0	5.7	17	94	e752
6	105	e2450	283	595	328	112	13	7.0	5.7	47	90	e738
7	126	e880	252	840	316	107	13	7.5	6.2	34	87	e928
8	168	e510	239	988	269	104	13	8.4	6.2	39	84	e1400
9	155	e370	242	800	319	97	8.4	8.4	6.6	37	80	e1380
10	201	e470	239	680	246	89	8.0	9.6	6.2	39	78	e872
11	222	e390	246	584	242	86	8.0	10	6.2	39	80	e831
12	170	486	249	543	259	80	8.0	10	4.8	36	80	e668
13	179	595	252	599	272	77	7.5	9.6	5.2	34	90	e565
14	264	543	256	610	299	75	7.5	9.0	5.2	20	102	e1160
15	199	518	252	540	328	74	7.5	8.4	5.2	21	100	e1000
16	278	515	246	515	331	74	7.0	8.0	5.2	26	1090	e752
17	e707	536	262	511	331	71	6.2	7.5	5.2	49	558	e619
18	e656	500	336	543	313	67	6.2	7.5	12	56	957	e540
19	e360	462	480	551	291	52	6.2	7.0	12	50	1000	e492
20	e270	435	476	562	283	44	6.2	7.0	9.0	50	1710	e434
21	e930	400	632	602	286	40	5.7	6.6	7.0	48	2640	e496
22	e740	375	729	636	280	35	5.2	6.6	6.6	49	957	558
23	e780	348	759	629	280	29	4.8	6.6	6.2	52	610	387
24	e555	331	696	573	286	27	4.8	6.6	7.0	58	439	339
25	e302	313	759	508	275	26	4.8	6.6	7.0	70	342	313
26	357	294	659	486	259	25	4.8	6.6	7.0	192	286	294
27	297	294	529	476	244	22	4.8	6.2	8.4	275	254	275
28	331	291	449	452	237	13	4.8	6.2	8.0	308	237	254
29	234	—	409	412	222	13	4.8	5.7	8.0	313	213	249
30	185	—	394	384	204	13	5.2	5.7	10	577	232	214
31	162	—	384	—	183	—	5.7	6.2	—	232	—	242
Mean	303	645	390	560	291	71.7	7.8	7.3	6.9	91.0	433	641
Runoff in Ac.Ft.	18650	35830	23970	33320	17910	4264	482	448	409	5597	25760	39390
	Water Year Total								Calendar Year Total 206030			

Division of Water Resources and U. S. Bureau of Reclamation cooperative station located approximately 0.7 mile above the mouth. Deer Creek is an east-side tributary to the Sacramento River at Mile 168.5L. Period of record 1948 to date. Records for 1950 computed by Division of Water Resources.
e Estimated.

TABLE 35

FLOW OF CHICO CREEK NEAR CHICO - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	25	56	158	204	99	38	28	22	21	22	77	75
2	26	54	143	195	116	37	28	23	21	22	57	72
3	23	57	132	182	113	36	27	23	21	23	49	978
4	21	1950	125	165	105	35	26	23	20	23	44	891
5	26	2160	158	157	98	35	25	24	20	29	44	459
6	23	2080	182	252	92	35	25	24	19	38	39	378
7	28	825	146	464	83	36	26	24	20	28	36	495
8	41	492	130	724	78	36	26	22	21	25	34	651
9	33	358	113	546	76	35	26	22	21	25	33	892
10	54	377	111	423	70	35	26	21	20	25	31	561
11	47	352	100	345	69	36	27	21	20	26	31	474
12	34	318	92	300	68	39	27	22	21	26	31	339
13	42	260	85	300	66	37	27	22	19	26	33	269
14	52	230	81	268	64	39	27	21	19	25	42	914
15	28	230	77	235	61	40	26	21	19	26	40	798
16	79	266	74	211	58	38	24	20	19	28	916	558
17	378	297	110	197	57	36	24	21	20	34	711	405
18	497	272	139	180	55	35	24	20	25	32	813	299
19	248	248	251	169	53	33	24	20	24	28	508	246
20	181	230	303	159	51	30	23	20	22	28	969	204
21	601	206	242	155	49	31	23	20	20	27	1020	176
22	513	188	326	147	48	32	23	21	20	27	465	158
23	415	170	318	138	47	33	24	21	20	28	255	139
24	295	164	402	125	46	32	24	21	20	29	180	127
25	156	176	477	118	45	31	23	20	20	33	140	115
26	105	176	384	110	44	31	23	20	21	207	114	108
27	87	176	360	102	48	30	22	21	22	180	98	98
28	102	170	327	98	43	30	23	21	22	384	85	90
29	85	—	280	90	42	29	23	20	22	191	76	84
30	74	—	218	85	40	28	23	20	22	399	76	82
31	65	—	225	—	39	—	22	20	—	116	—	80
Mean	141	448	203	228	65.3	34.3	24.8	21.3	20.7	69.7	235	362
Runoff in Ac.Ft.	8700	24870	12490	13570	4010	2040	1530	1310	1230	4280	13980	22240
	Water Year Total 74330								Calendar Year Total 110250			

U. S. Geological Survey and Division of Water Resources cooperative station located 6 miles northeast of Chico. Chico Creek is an east-side tributary to the Sacramento River at Mile 141.5L. Drainage area is 68.3 square miles. Period of record 1930 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 36

FLOW OF CHICO CREEK NEAR MOUTH - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.0	30	104	181	57	14				0	44	54
2	1.1	26	98	168	80	11				0	27	49
3	1.1	27	90	152	83	11				0	17	964
4	1.1	1790	88	140	73	10				0	10	1540
5	1.1	4680	90	128	66	10				0	5.9	480
6	1.2	3960	122	200	60	10				0	6.4	321
7	1.1	1030	103	329	56	11				0	3.6	429
8	4.8	469	93	766	53	11				0	3.0	502
9	10	303	83	545	50	11				0	3.0	1030
10	10	285	82	393	45	10				0	3.0	548
11	16	261	73	306	41	12				0	3.0	414
12	7.0	213	67	259	38	14	N	N	N	0	2.8	290
13	7.0	175	62	252	34	12	0	0	0	0	3.0	219
14	17	150	59	225	40	11				0	4.2	952
15	5.0	143	56	194	39	13				0	5.9	956
16	11	159	53	168	36	11				0	1240	527
17	120	181	71	148	35	10	F	F	F	0	690	342
18	303	172	111	138	32	9.4	L	L	L	0	994	247
19	124	155	166	125	31	8.0	O	O	O	0	487	194
20	84	145	278	117	28	5.9	W	W	W	0	1050	155
21	266	133	221	110	27	4.8				0	1540	125
22	402	121	264	104	25	5.9				0	487	111
23	232	114	285	94	24	3.0				0	238	96
24	177	108	339	87	24	5.2				0	150	87
25	94	111	438	78	22	4.2				0	106	81
26	60	113	357	73	20	4.4				7.4	82	73
27	47	111	321	66	24	3.6				115	68	69
28	54	110	298	62	18	3.1				181	59	63
29	46	—	256	57	17	3.6				168	53	60
30	39	—	227	54	16	0				278	52	58
31	35	—	202	—	14	—			—	86	—	55
Mean	70.3	546	166	191	39.0	8.4	0	0	0	26.9	248	358
Runoff in Ac.Ft.	4321	30300	10230	11340	2396	502	0	0	0	1657	14750	22000
	Water Year Total 59149								Calendar Year Total 97496			

Division of Water Resources and U. S. Bureau of Reclamation cooperative station located approximately 1.5 miles above the mouth. Chico Creek is an east-side tributary to the Sacramento River at Mile 141.5L. Period of record 1948 to date. Records for 1950 computed by Division of Water Resources.

TABLE 37

FLOW OF STONY CREEK NEAR HAMILTON CITY - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	103	345	212	64					0	38	37
2	0	81	325	184	50					0	27	35
3	0	70	305	153	45					0	27	848
4	0	736	290	88	38					0	22	4120
5	0	1020	285	74	35					0	18	2800
6	0	1370	310	55	34					0	14	2020
7	0	888	295	70	28					0	11	2190
8	0	552	270	99	31					0	7.2	2150
9	0	415	252	103	20					0	4.0	1840
10	0	421	234	95	16					0	2.3	1480
11	0	524	216	111	18					0	.9	1240
12	0	395	198	127	14	N	N	N	N	0	.3	1160
13	0	330	180	234	5.6	0	0	0	0	0	0	966
14	0	300	166	295	0					0	0	2010
15	0	295	166	252	0					0	0	2570
16	0	330	103	189	0					0	0	1770
17	0	390	88	189	0	F	F	F	F	0	218	1300
18	0	395	408	171	0	L	L	L	L	0	157	1000
19	295	360	406	111	0	0	0	0	0	0	149	826
20	207	335	881	95	0	W	W	W	W	0	180	710
21	148	320	646	135	0					0	200	617
22	520	295	546	176	0					0	237	551
23	592	285	602	198	0					0	176	465
24	851	290	618	166	0					0	130	405
25	486	330	607	111	0					0	98	375
26	300	355	514	92	0					0	78	345
27	230	355	458	95	0					0	64	308
28	194	360	453	119	0					0	54	242
29	166	—	370	107	0					0	50	221
30	140	—	290	78	0					0	41	200
31	119	—	230	—	0	—			—	35	—	180
Mean	137	425	357	139	12.9	0	0	0	0	1.13	66.8	1128
Runoff in Ac.Ft.	8430	23600	21930	8300	791	0	0	0	0	69	3970	69380
	Water Year Total 63051								Calendar Year Total 136470			

U. S. Geological Survey and U. S. Army Corps of Engineers cooperative station located about 5 miles above the mouth and above the Glenn-Colusa Irrigation District canal crossing. The flow to the Sacramento River is cut off during irrigation season by an earth fill installed by Glenn-Colusa Irrigation District to transport water from their main canal across Stony Creek. Stony Creek is a west-side tributary to the Sacramento River at Mile 136.3R. Water diverted from Stony Creek by G.C.I.D. in acre-feet amounted to: April 8300, May 791, October 69, November 341. Drainage area is 761 square miles. Period of record 1941 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 38

FLOW OF BUTTE CREEK NEAR CHICO - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	105	158	390	566	668	337	162	111	111	103	221	330
2	122	155	380	579	689	318	156	127	113	116	182	312
3	87	175	360	566	612	304	159	124	108	113	156	2020
4	97	2810	350	522	560	277	156	144	113	116	150	1880
5	100	3750	400	540	546	277	147	127	116	116	135	1050
6	92	3800	450	865	534	269	147	116	108	189	127	1000
7	102	1400	400	969	498	269	141	130	113	130	124	1280
8	122	872	380	1140	469	256	135	127	116	122	122	1570
9	119	668	360	962	469	252	122	119	116	113	113	1840
10	155	710	340	812	463	236	153	122	98	122	119	1220
11	116	619	320	752	446	252	122	119	132	122	103	1160
12	116	522	310	745	469	244	132	124	119	124	108	1000
13	127	463	310	858	480	244	141	103	122	119	127	877
14	158	435	300	752	504	265	127	130	116	122	153	1820
15	119	435	300	717	522	248	119	119	116	122	147	1650
16	223	486	300	710	516	248	113	116	116	122	1130	1230
17	747	469	350	696	516	218	119	116	122	156	1360	1000
18	986	435	446	717	504	206	122	106	132	138	1800	895
19	435	419	829	731	480	206	122	111	138	135	1250	769
20	326	424	812	760	480	199	119	98	116	130	2330	682
21	859	376	626	798	469	192	124	116	111	127	2490	609
22	827	366	943	820	480	189	106	106	108	124	1070	549
23	828	392	805	775	480	189	89	111	116	127	742	515
24	578	366	858	724	474	189	124	113	113	132	586	482
25	349	413	858	689	463	189	94	113	119	162	482	452
26	266	400	724	682	435	185	106	113	113	446	428	428
27	239	400	689	689	413	179	113	113	116	430	386	402
28	274	400	640	654	403	179	108	113	111	626	345	391
29	231	—	592	605	376	172	103	108	108	474	312	423
30	206	—	560	586	361	168	103	108	116	745	340	370
31	185	—	572	—	351	—	116	113	—	304	—	370
Mean	297	797	515	733	488	232	126	117	116	201	571	922
Runoff in Ac.Ft.	18240	44270	31640	43600	30010	13800	7740	7170	6890	12350	33990	56680
	Water Year Total 222990								Calendar Year Total 306380			

U. S. Geological Survey and Division of Water Resources cooperative station located 0.8 mile downstream from Little Butte Creek and 7.5 miles east of Chico. Butte Creek is a tributary to the Sacramento River, via Butte Slough, at Mile 84.0L. (See notes on Tables 41 and 52. Drainage area of Butte Creek near Chico is 148 square miles and period of record 1930 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 39

FLOW OVER MOULTON WEIR FROM SACRAMENTO RIVER TO BUTTE BASIN - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1												0
2												0
3												0
4												0
5												0
6												0
7												0
8												0
9												0
10												0
11												0
12	N	N	N	N	N	N	N	N	N	N	N	0
13	O	O	O	O	O	O	O	O	O	O	O	0
14												0
15												1130
16												1500
17	F	F	F	F	F	F	F	F	F	F	F	338
18	L	L	L	L	L	L	L	L	L	L	L	0
19	O	O	O	O	O	O	O	O	O	O	O	0
20	W	W	W	W	W	W	W	W	W	W	W	0
21												0
22												0
23												0
24												0
25												0
26												0
27												0
28												0
29		—										0
30		—										0
31		—		—		—			—		—	0
Mean	0	0	0	0	0	0	0	0	0	0	0	95.7
Runoff in Ac.Ft.	0	0	0	0	0	0	0	0	0	0	0	5887
	Water Year Total 0								Calendar Year Total 5887			

Elevation of crest is 76.75 U.S.E.D. datum; length of crest is 500 feet. Weir is on left bank at Mile 104.0. Period of record 1940 to date. Records for 1950 computed by Division of Water Resources.

TABLE 40

FLOW OVER COLUSA WEIR FROM SACRAMENTO RIVER TO BUTTE BASIN - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1												0
2												0
3												0
4												2120
5												10900
6												771
7												0
8												0
9												882
10												2300
11												748
12	N	N	N	N	N	N	N	N	N	N	N	125
13	O	O	O	O	O	O	O	O	O	O	O	1240
14												2640
15												20200
16												35100
17	F	F	F	F	F	F	F	F	F	F	F	28000
18	L	L	L	L	L	L	L	L	L	L	L	22100
19	O	O	O	O	O	O	O	O	O	O	O	17100
20	W	W	W	W	W	W	W	W	W	W	W	12700
21												6880
22												2040
23												354
24												0
25												0
26												0
27												0
28												0
29		—										0
30		—										0
31		—		—		—			—		—	0
Mean	0	0	0	0	0	0	0	0	0	0	0	5361
Runoff in Ac.Ft.	0	0	0	0	0	0	0	0	0	0	0	329700
	Water Year Total 0								Calendar Year Total 329700			

Elevation of crest is 61.80 U.S.E.D. datum; length of crest is 1650 feet. Weir is on left bank at Mile 92.4. Period of record 1940 to date. Records for 1950 computed by Division of Water Resources.

TABLE 41

FLOW OF BUTTE SLOUGH TO SACRAMENTO RIVER - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	e144	955	527	615	109	306	215	26	176	326	0	843
2	e146	925	e519	572	121	257	217	19	146	309	444	484
3	147	955	e506	532	117	290	220	0	181	240	471	506
4	149	e800	e492	552	149	294	201	0	150	226	426	0
5	852	e549	e484	580	229	292	190	33	150	254	336	0
6	309	e309	471	569	272	283	120	59	160	279	416	0
7	589	0	e471	514	291	287	117	26	178	188	379	0
8	e627	0	e467	426	314	269	110	0	233	203	321	0
9	e698	462	e462	467	316	306	52	0	240	153	259	0
10	733	1200	e462	597	260	318	23	0	245	101	279	0
11	0	e1220	e457	740	148	320	16	0	266	111	359	0
12	0	e1250	e452	810	67	e329	0	15	300	101	401	0
13	0	e1270	e452	837	32	e368	0	44	375	0	449	0
14	e70	1320	e449	797	23	e422	0	47	380	46	e434	0
15	e364	1370	449	800	51	e425	0	56	382	23	e420	0
16	506	1340	401	715	49	421	0	44	857	121	406	0
17	549	1270	406	773	69	437	0	46	580	153	e375	0
18	0	e1270	353	767	78	453	0	44	549	111	e345	0
19	0	e1300	121	733	111	481	0	44	497	80	e315	0
20	0	1320	0	960	232	456	0	70	389	0	e284	0
21	0	e1200	0	808	298	443	10	169	379	70	e254	0
22	0	e1120	0	622	322	396	9.1	272	439	188	e224	0
23	0	e1010	0	511	331	384	22	296	426	233	e193	0
24	0	925	0	510	309	317	22	285	401	e279	163	0
25	0	e833	0	456	268	307	36	e285	401	240	634	0
26	248	e733	0	394	274	256	37	259	331	279	750	0
27	895	664	0	294	333	240	22	204	233	101	1080	0
28	e865	e664	326	286	382	239	22	215	210	0	1060	0
29	e865	—	476	148	409	215	22	223	46	0	983	0
30	833	—	639	89	417	215	22	216	0	0	910	0
31	e833	—	439	—	416	—	22	208	—	0	—	0
Mean	336	937	332	582	219	334	55.7	103	310	142	446	59.1
Runoff in Ac.Ft.	20670	52040	20390	34660	13480	19890	3426	6357	18450	8757	26520	3636
	Water Year Total 206019								Calendar Year Total 228276			

This is the discharge to the Sacramento River at Mile 84.0L and is measured at and regulated by the gravity culverts at the mouth of the slough. These flows, together with those shown in Tables 52 and 53 are, during the summer months, made up almost entirely of return water from lands irrigated by Feather River diversions. Discharge from the Sacramento to Butte Basin over Moulton and Colusa weirs is shown in Tables 39 and 40. This is a Division of Water Resources station. Period of record 1924 to date.

e Estimated.

TABLE 42

FLOW OF RECLAMATION DISTRICT 70 DRAIN - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	9.4	0	5.5	0	50	40	39	43	41	10	0	0
2	9.4	0	6.8	0	33	36	44	43	42	10	0	17
3	9.4	0	10	0	21	38	40	40	41	10	0	67
4	9.4	0	30	0	12	34	40	40	39	10	0	51
5	0	0	6.4	0	8.4	34	36	44	40	10	0	48
6	0	20	5.6	0	14	22	28	52	39	10	0	56
7	0	25	9.3	8.2	9.5	24	36	48	38	0	0	50
8	0	26	26	4.8	9.5	19	37	49	39	13	53	50
9	0	28	39	0	9.5	19	40	48	51	66	53	50
10	0	29	14	5.1	50	19	36	47	54	13	0	42
11	0	28	0	12	43	18	38	34	50	13	0	48
12	0	27	0	5.1	30	19	38	45	48	13	0	48
13	0	30	0	14	14	18	38	47	48	13	0	48
14	0	20	0	0	26	49	38	47	55	13	0	94
15	0	8.8	0	0	22	47	37	46	78	13	0	106
16	0	10	0	0	30	40	36	46	50	13	0	87
17	0	15	0	0	34	39	36	46	44	0	0	73
18	0	14	0	0	38	37	36	45	32	0	0	48
19	0	14	0	0	34	25	34	43	26	0	0	48
20	0	17	0	0	32	30	34	43	21	0	0	38
21	0	10	0	0	33	28	38	43	23	0	40	41
22	0	12	0	0	32	8.7	42	43	26	0	25	42
23	0	12	0	0	28	9.8	46	44	21	0	38	42
24	0	11	0	0	36	15	47	44	18	0	11	46
25	0	7.7	0	16	36	11	43	36	10	0	19	36
26	0	6.7	0	34	31	9.2	41	45	13	0	5.0	26
27	0	10	0	106	30	14	41	47	16	0	0	39
28	0	9.7	5.1	78	32	19	41	39	10	0	0	34
29	0	—	9.3	49	34	29	44	40	7	0	0	31
30	0	—	6.8	34	27	33	45	42	10	0	0	29
31	0	—	0	—	27	—	45	43	—	0	—	30
Mean	1.2	14	5.6	12.2	27.9	26.1	39.2	43.9	34.3	7.4	8.1	47.2
Runoff in Ac.Ft.	74	775	344	726	1717	1554	2408	2701	2043	456	484	2906
	Water Year Total 13857								Calendar Year Total 16188			

This is the drainage from Reclamation District 70 returned to the Sacramento River at Mile 68.8L. This is a combination irrigation and drainage plant and discharges both to the Sacramento River and to an irrigation canal. The above flow includes gravity as well as pumped drainage. Period of record 1924 to date. Records for 1950 computed by Division of Water Resources.

TABLE 43

FLOW OVER TISDALE WEIR FROM SACRAMENTO RIVER TO SUTTER BY-PASS - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1											0	0
2											0	0
3											0	0
4											0	2140
5											0	17300
6											0	11700
7											0	5300
8											0	6500
9											0	9200
10											0	12100
11											0	11700
12	N	N	N	N	N	N	N	N	N	N	0	9000
13	O	O	O	O	O	O	O	O	O	O	0	10400
14											0	11300
15											0	17300
16											0	19600
17	F	F	F	F	F	F	F	F	F	F	0	19700
18	L	L	L	L	L	L	L	L	L	L	0	19300
19	O	O	O	O	O	O	O	O	O	O	0	18900
20	W	W	W	W	W	W	W	W	W	W	0	18400
21											230	17200
22											3840	13200
23											1300	8000
24											0	3590
25											0	990
26											0	30
27											0	0
28											0	0
29		—									0	0
30		—									0	0
31		—		—		—			—		—	0
Mean	0	0	0	0	0	0	0	0	0	0	179	8479
Runoff in Ac.Ft.	0	0	0	0	0	0	0	0	0	0	10650	521400
	Water Year Total 0								Calendar Year Total 532050			

Elevation of crest is 45.45 U.S.E.D. datum; length of crest is 1155 feet. Weir is on left bank at Mile 64.2L. Period of record 1940 to date. Records for 1950 computed by Division of Water Resources.

TABLE 44

FLOW OF RECLAMATION DISTRICT 108 DRAIN AT ROUGH AND READY BEND - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	109	0	0	148	262	275	300	377	37	41	49
2	0	0	84	0	254	263	352	316	396	46	0	0
3	0	0	0	0	261	267	275	317	523	0	44	300
4	0	153	0	0	265	351	327	320	381	61	0	263
5	0	246	70	55	329	246	254	319	339	0	65	226
6	0	141	0	0	366	264	269	447	377	65	0	197
7	0	130	86	69	535	271	266	311	378	0	0	199
8	69	105	0	0	313	324	271	316	383	58	37	199
9	0	99	0	0	325	314	326	338	637	0	0	191
10	0	123	94	68	330	271	254	359	566	0	0	173
11	0	86	0	0	310	377	265	360	377	65	0	134
12	56	177	0	0	318	267	272	355	377	0	90	125
13	0	13	0	82	271	296	267	483	370	0	0	55
14	0	80	0	0	399	307	275	321	353	62	0	239
15	97	0	0	0	299	313	275	339	295	0	0	264
16	0	127	0	124	320	317	373	359	247	0	67	228
17	102	0	0	0	350	314	268	360	219	0	0	245
18	70	116	0	90	366	305	275	346	254	69	58	138
19	0	0	0	0	372	292	296	364	195	0	170	118
20	70	118	0	146	369	285	302	502	187	0	208	120
21	0	0	24	72	563	289	316	318	156	0	99	134
22	56	106	0	0	323	287	310	355	156	79	55	118
23	0	0	86	326	340	284	372	369	82	0	103	23
24	80	100	0	0	352	271	290	385	62	0	53	155
25	0	0	0	127	337	326	303	377	67	56	32	110
26	0	98	109	187	344	271	312	377	134	0	92	150
27	92	0	0	186	331	271	316	558	156	67	0	61
28	0	90	0	219	452	275	316	360	63	0	65	132
29	74	—	0	212	304	275	313	373	82	82	52	66
30	0	—	0	393	348	275	394	376	65	25	63	60
31	0	—	0	—	281	—	292	383	—	45	—	97
Mean	24.7	79.2	17.8	78.5	338	293	299	366	275	26.4	46.5	147
Runoff in Ac.Ft.	1519	4397	1097	4673	20780	17430	18390	22540	16370	1620	2765	9062
	Water Year Total 109824								Calendar Year Total 120643			

This is the drainage from Reclamation District 108 discharged to the Sacramento River at Mile 44.0R. Additional drainage from Reclamation District 108 is sometimes discharged to Back Borrow Pit at Mile 20.2L. Period of record 1924 to date. Records for 1950 computed by Division of Water Resources.

TABLE 45

FLOW OF RECLAMATION DISTRICT 787 DRAIN - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12	Records sufficient to compute only monthly flows.											
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29		—										
30		—										
31		—		—		—			—		—	
Mean	1.5	9.4	1.5	4.0	18.2	10.9	5.9	8.2	5.5	0	3.6	31.8
Runoff in Ac.Ft.	90	525	90	235	1121	651	362	507	326	0	217	1954
	Water Year Total 3961								Calendar Year Total 6078			

This is the drainage from Reclamation District 787 discharged by pumping to the Sacramento River at Mile 37.0R. Additional drainage from Reclamation District 787 via Sycamore Slough, (See Table 50). Period of record 1949 to date. Records for 1950 computed by Division of Water Resources. An error was made in the figures of this table for 1949. For revised figures see Table 2 of this report.

TABLE 46

FLOW OF COLUSA TROUGH AT COLUSA-WILLIAMS HIGHWAY* - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	102	232	165	63	266	431	475	459	843	391	230	167
2	123	209	163	46	389	435	475	521	885	353	218	158
3	128	188	158	30	497	383	483	555	847	308	211	735
4	123	e1010	156	165	521	395	435	565	891	296	203	1800
5	121	e1650	152	146	563	409	433	626	981	315	197	1830
6	126	e1900	144	163	652	393	399	635	1070	391	192	1730
7	188	e2000	139	287	1100	415	367	673	1180	407	180	1780
8	252	e2000	137	527	986	483	353	668	1300	321	235	1720
9	232	e1400	137	491	652	503	361	687	1430	275	277	1580
10	216	e1370	126	465	591	605	383	698	1520	251	252	1320
11	287	e1480	119	415	467	689	405	765	1530	270	262	1020
12	323	e1430	123	465	505	796	421	694	1480	268	228	1020
13	304	e1200	107	455	553	830	447	692	1460	207	230	824
14	439	e900	112	383	631	752	455	719	1360	245	256	1280
15	461	e910	107	373	708	769	463	744	1290	254	306	1840
16	349	885	107	334	763	826	491	717	1190	285	395	1750
17	593	493	105	273	845	786	497	677	1110	306	503	1500
18	603	395	105	235	933	759	473	664	1060	218	415	966
19	491	330	95	252	1030	742	511	662	1060	182	511	668
20	387	292	85	184	1020	664	531	675	862	186	479	567
21	351	268	83	134	988	551	533	679	639	199	601	487
22	487	247	81	114	959	541	547	717	547	281	559	433
23	449	230	88	130	910	549	583	689	509	308	389	373
24	361	216	107	232	836	505	589	721	541	361	308	325
25	294	205	102	176	769	507	565	719	533	346	249	304
26	268	197	93	92	729	517	565	715	457	371	213	285
27	252	186	93	100	647	507	513	734	425	485	205	264
28	340	175	78	272	677	527	535	849	383	369	184	243
29	349	—	66	447	683	521	555	878	379	319	184	239
30	294	—	61	247	557	481	561	824	323	298	171	241
31	252	—	59	—	457	—	519	847	—	254	—	228
Mean	308	786	111	256	706	576	481	692	936	301	295	893
Runoff in Ac.Ft.	18930	43630	6849	15260	43410	34260	29600	42580	55700	18480	17540	54900
	Water Year Total 329484								Calendar Year Total 381139			

Division of Water Resources station located 37.0 miles above the mouth of Back Borrow Pit of Reclamation District 108. This is return wa er flowing in the main drain of Reclamation District 2047; it is drainage chiefly from lands irrigated by Glenn-Colusa, Provident, Princeton-Codora-Glenn, Compton-Delevan, Maxwell and Jacinto Irrigation Districts. Flow reaches Sacramento River, at Mile 34.15R, through the Knights Landing outfall gates via Back Borrow Pit, (See Table 49). Period of record 1924 to date.

* Also known as Colusa Trough at Highway 20 and Colusa Trough at Tahoe-Ukiah Highway.

e Estimated.

TABLE 47

FLOW OF COLUSA TROUGH (BACK BORROW PIT) NEAR COLLETE CITY - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	112	266	199	88	172	479	479	476	922	499	266	234
2	102	252	192	88	310	496	462	490	953	535	256	305
3	143	212	189	65	459	496	482	586	953	482	242	739
4	126	682	179	143	496	462	523	598	1000	482	219	1450
5	116	1730	172	352	562	465	490	643	1110	440	219	1450
6	114	1640	163	236	640	511	434	669	1280	508	212	1450
7	159	1400	159	323	1100	465	347	726	1400	559	194	1560
8	262	1270	150	622	1220	517	321	730	1480	505	219	1510
9	266	963	148	529	749	571	331	746	1260	445	357	1330
10	246	831	145	468	592	669	398	720	1770	426	206	1190
11	292	1060	134	456	456	736	362	778	1810	423	284	1150
12	334	1040	128	559	476	865	420	742	1800	431	269	1080
13	316	675	120	710	565	902	412	723	1780	384	249	905
14	386	499	114	565	691	851	445	742	1710	389	290	1200
15	502	423	116	482	758	797	434	778	1650	420	362	1420
16	370	400	116	482	807	905	487	762	1550	414	448	1430
17	535	352	124	365	892	902	468	710	1450	468	592	1370
18	643	386	128	295	1000	895	456	685	1370	417	559	1140
19	547	386	122	252	1140	871	451	698	1350	347	698	902
20	468	368	110	202	1140	797	499	704	1220	297	556	723
21	365	305	104	126	1110	827	520	698	943	272	476	568
22	403	279	102	52	1060	598	550	717	762	342	e565	487
23	428	266	106	49	1000	659	574	717	662	428	e742	412
24	321	254	126	94	929	580	592	736	672	490	e871	e368
25	292	239	134	161	837	499	577	758	688	468	598	e339
26	256	229	124	17	824	517	583	781	610	451	423	e316
27	290	222	116	0	726	541	514	774	577	511	308	e300
28	344	214	116	113	688	604	514	882	553	465	259	277
29	487	—	86	389	749	622	520	946	544	355	246	284
30	368	—	92	254	675	574	544	892	482	334	282	290
31	300	—	86	—	568	—	526	912	—	308	—	209
Mean	319	602	132	284	754	658	475	726	1144	429	382	851
Runoff in Ac.Ft.	19620	33410	8132	16930	46400	39020	29190	44660	68050	26370	22740	52340
	Water Year Total 355800								Calendar Year Total 406862			

Division of Water Resources and U. S. Bureau of Reclamation cooperative station located on Back Borrow Pit of Reclamation District 108 at Mile 22.7. This is return water derived chiefly from lands irrigated by Glenn- Colusa, Provident, Princeton-Codora-Glenn, Compton-Delevan, Maxwell and Jacinto Irrigation Districts. Period of record 1946 to date. Records for 1950 computed by Division of Water Resources.

TABLE 48

FLOW OF KNIGHTS LANDING RIDGE CUT - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0		.3	0	5.4	9.4	17	15		0	e100
2	0	0		.9	0	16	5.8	13	16		0	e30
3	0	0		2.5	4.4	36	15	18	21		0	e50
4	0	0		1.2	13	54	32	24	23		0	e700
5	0	34		5.6	16	57	36	39	32		0	e1580
6	0	823		2.2	24	26	18	43	58		0	e1600
7	0	1620		3.7	42	12	6.8	34	36		0	e1700
8	0	2090		60	81	12	4.9	32	5.1		0	e1650
9	0	1670		241	18	16	5.8	31	9.0		0	e1420
10	0	1170		317	10	25	10	23	12		0	e1300
11	0	898		307	16	32	20	23	16		0	e1200
12	0	823	N	168	18	35	28	26	9.4	N	0	e1150
13	0	644	0	47	46	19	23	22	3.9	0	0	e1000
14	0	413		20	51	13	24	22	1.9		0	e1320
15	0	304		22	25	8.7	28	24	.4		0	e1560
16	0	260		8.4	22	24	26	28	0		0	e1600
17	0	179	F	0	44	29	19	24	0	F	0	e1650
18	0	100	L	0	40	21	14	18	0	L	0	e1250
19	3.3	60	0	0	31	16	13	14	0	0	e40	e1000
20	47	17	W	0	26	12	24	12	0	W	e80	e850
21	104	2.2		0	23	6.3	32	11	0		e0	e780
22	172	0		0	16	9.0	31	16	0		e800	e740
23	254	0		0	17	46	36	20	0		e820	e580
24	269	0		0	13	12	39	17	0		e960	e460
25	224	0		0	13	.8	36	18	0		e700	e390
26	191	0		0	12	1.2	24	20	0		e460	e340
27	166	0		0	8.1	24	16	22	0		e440	e300
28	122	0		0	5.4	47	12	24	0		e320	285
29	43	—		0	20	44	12	28	0		e260	254
30	1.9	—		0	22	31	15	22	0		e210	219
31	0	—		—	12	—	18	14	—		—	198
Mean	51.5	397	0	40.2	22.2	23.0	20.4	22.5	8.6	0	170	879
Runoff in Ac.Ft.	3168	22040	0	2394	1366	1369	1257	1386	513	0	10100	54060
	Water Year Total 33493								Calendar Year Total 97653			

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

e Estimated.

TABLE 49

FLOW OF COLUSA BASIN DRAINAGE TO SACRAMENTO RIVER AT KNIGHTS LANDING - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	82	324	232	0	0	292	487	378	812	510	0	544
2	86	246	256	0	0	152	312	374	813	532	0	534
3	97	220	259	0	62	170	184	378	823	532	612	476
4	94	217	242	0	205	181	255	383	827	506	415	0
5	95	0	214	223	276	354	348	426	866	490	300	0
6	97	0	190	354	428	443	363	528	998	545	285	0
7	92	0	170	85	617	372	274	567	1410	536	268	0
8	124	0	190	0	1030	341	186	590	1480	516	237	0
9	179	0	192	0	859	346	160	638	1520	503	283	0
10	188	0	190	0	425	399	163	614	1660	466	306	0
11	237	0	174	0	311	485	166	620	1750	436	315	0
12	264	0	145	468	196	715	224	648	1810	428	300	0
13	190	0	137	546	206	806	257	648	1810	421	279	0
14	361	0	137	466	497	794	257	648	1770	383	271	0
15	431	0	117	406	601	640	260	651	e1720	402	268	0
16	409	0	122	476	467	613	321	657	1660	417	372	0
17	390	427	122	484	489	729	368	651	1540	454	469	0
18	0	476	119	290	614	741	366	642	1440	503	0	0
19	0	495	0	100	738	733	312	639	1380	444	0	0
20	0	554	0	45	797	673	286	630	1330	372	0	0
21	0	544	0	6.0	811	614	346	587	1160	322	0	0
22	0	515	0	0	766	277	380	572	983	313	0	0
23	0	385	0	0	711	399	398	611	845	385	0	0
24	0	358	0	0	610	675	434	627	760	495	0	0
25	0	288	0	39	522	559	470	628	753	570	0	0
26	0	253	0	0	469	249	476	631	738	527	0	0
27	0	227	0	0	485	163	443	634	668	617	0	0
28	359	235	0	0	398	343	422	698	621	444	0	0
29	515	—	0	0	389	436	422	794	599	274	0	0
30	641	—	0	0	438	505	412	825	546	128	252	0
31	462	—	0	—	436	—	378	811	—	0	—	0
Mean	174	206	103	133	479	473	327	604	1170	434	174	50.1
Runoff in Ac.Ft.	10700	11430	6363	7910	29460	28160	20090	37150	69600	26720	10380	3082
	Water Year Total 286208								Calendar Year Total 261045			

This is the drainage from Colusa Basin passing down the Back Borrow Pit of Reclamation Districts 108 and 787 and entering the Sacramento River at Mile 34.15R, just above the Knights Landing gaging station. Flows are controlled at the Knights Landing outfall gates and a portion of the flow of the Back Borrow Pit is diverted to the Knights Landing Ridge Cut. This diversion is shown in Table 48. Total flow to Sacramento River is sum of Tables 49 and 50. This is a Division of Water Resources station. Period of record 1924 to date.
e Estimated.

TABLE 50

FLOW OF SYCAMORE SLOUGH NEAR KNIGHTS LANDING - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13					Records sufficient to compute only monthly flows.							
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29		—										
30		—										
31		—		—		—			—		—	
Mean	.9	4.1	.8	9.2	23.2	24.6	17.9	17.2	8.8	1.0	5.4	13.5
Runoff in Ac.Ft.	54	229	50	545	1429	1463	1099	1059	521	63	320	831
	Water Year Total 6565								Calendar Year Total 7663			

This water is discharged from Reclamation District 787 by pumping into Colusa Basin Drain below the outfall gates and is not included in the flow shown in Table 49. Daily distribution of flows are not available since the plant operates on an automatic float switch. A small amount of additional drainage by gravity is not included in the above flows. See Table 45 for additional drainage from Reclamation District 787. Period of record 1940 to date. Records for 1950 computed by Division of Water Resources.

TABLE 51

FLOW OVER FREMONT WEIR FROM SACRAMENTO RIVER TO YOLO BY-PASS - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1											0	0
2											0	0
3											0	0
4											0	11900
5											0	74300
6											0	71000
7											0	65000
8											0	77300
9											0	98800
10											0	95400
11											0	72600
12	N	N	N	N	N	N	N	N	N	N	0	61200
13	O	O	O	O	O	O	O	O	O	O	0	54000
14											0	51100
15											0	69800
16											0	90300
17	F	F	F	F	F	F	F	F	F	F	0	86100
18	L	L	L	L	L	L	L	L	L	L	0	76400
19	O	O	O	O	O	O	O	O	O	O	8200	69000
20	W	W	W	W	W	W	W	W	W	W	56000	62300
21											65000	54400
22											134000	48400
23											86500	39200
24											50000	62000
25											22400	10700
26											0	5100
27											0	0
28											0	0
29		—									0	0
30		—									0	0
31		—		—		—			—		—	0
Mean	0	0	0	0	0	0	0	0	0	0	14070	45360
Runoff in Ac.Ft.	0	0	0	0	0	0	0	0	0	0	837200	2789000
	Water Year Total 0								Calendar Year Total 3626200			

Station is located on Sacramento River at Mile 23.OR. Elevation of crest is 33.5 U.S.E.D. datum; length is 9120 feet. Period of record 1947 to date. Records for 1950 computed by Division of Water Resources.

TABLE 52

FLOW OF BUTTE SLOUGH TO SUTTER BY-PASS - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	116	350	167	260	152	173	200	201	76	0	664	500
2	107	320	155	231	143	187	200	189	100	0	402	488
3	110	280	134	200	158	175	203	190	132	0	315	559
4	117	336	124	171	179	176	200	199	132	0	99	1040
5	82	1050	112	155	187	169	194	197	113	0	50	1850
6	19	3190	106	131	153	169	195	187	108	0	35	5830
7	19	12800	110	128	144	170	199	182	115	0	11	6010
8	33	15800	109	189	157	180	197	192	118	0	7.8	5700
9	116	12100	101	273	149	188	200	190	107	0	7.4	5420
10	158	7860	99	289	131	179	201	183	117	0	5.7	5260
11	129	5580	95	271	132	178	199	191	131	0	12	5460
12	203	4590	96	239	140	186	211	194	142	0	23	5360
13	135	3560	89	217	147	187	210	182	135	0	13	4970
14	88	2610	77	213	145	183	198	177	124	0	6.7	4910
15	134	1870	68	220	147	187	194	169	123	0	12	5930
16	146	1400	56	196	159	194	206	175	112	0	28	11800
17	129	1130	48	170	160	191	214	181	72	0	137	19000
18	484	976	48	153	169	191	211	171	59	0	531	20100
19	952	875	99	138	183	180	208	171	53	0	849	19200
20	1080	704	182	137	171	185	208	170	46	0	1160	17200
21	1130	628	501	129	177	178	198	150	43	0	1360	14300
22	1090	544	508	127	177	192	206	99	37	0	1580	10900
23	1230	442	416	123	165	185	209	70	32	0	1950	7300
24	1260	360	484	137	167	179	213	60	26	0	2220	5380
25	1290	291	601	145	183	172	203	55	24	0	1910	4220
26	1010	386	833	143	187	185	199	53	19	0	1540	3180
27	675	209	857	145	183	182	203	68	8.5	2.4	1140	2560
28	500	174	679	134	171	187	205	82	1.8	71	901	2020
29	454	—	534	122	173	198	203	96	0	125	728	1660
30	437	—	410	148	167	202	199	80	0	384	593	1360
31	376	—	316	—	168	—	197	67	—	599	—	1220
Mean	445	2872	265	178	162	183	203	147	76.9	38.1	610	6474
Runoff in Ac.Ft.	27390	159500	16290	10580	9965	10880	12460	9066	4574	2343	36280	398100
	Water Year Total 269733								Calendar Year Total 697428			

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

TABLE 53

FLOW OF WADSWORTH CANAL TO SUTTER BY-PASS - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.4	49	61	28	86	131	115	73	114	88	47	52
2	4.2	46	59	28	98	105	130	76	111	109	38	50
3	8.4	43	56	27	67	101	147	82	122	92	31	402
4	7.8	568	52	11	66	96	130	84	109	70	30	468
5	7.8	760	52	38	79	115	133	84	98	90	29	265
6	7.8	623	51	39	79	138	109	106	99	122	28	230
7	7.2	343	51	41	115	168	95	106	118	92	25	325
8	7.8	195	51	40	86	148	74	108	136	89	24	361
9	22	170	51	40	81	126	74	114	133	101	22	326
10	10	284	50	41	104	138	81	109	155	81	23	220
11	29	278	50	34	105	151	74	131	138	60	24	379
12	20	194	50	37	108	156	67	120	133	83	23	e450
13	16	163	50	37	92	166	71	125	133	76	34	e500
14	66	147	e48	37	70	184	84	129	153	75	24	e550
15	60	134	e45	65	79	140	84	128	168	73	20	e600
16	71	126	e43	55	71	143	76	122	163	73	100	e550
17	186	123	e40	49	79	155	81	120	126	86	181	e500
18	123	111	e38	24	123	174	98	122	133	95	218	e450
19	83	104	e35	13	140	159	114	125	135	94	355	e400
20	71	98	e33	8.0	120	148	105	106	175	90	260	e350
21	71	91	31	12	123	125	94	111	168	79	201	e300
22	76	88	30	26	123	133	79	112	142	90	134	e250
23	67	82	31	45	140	123	88	133	120	86	100	e200
24	56	78	46	47	133	112	76	153	131	95	89	e150
25	50	74	44	49	123	108	75	140	128	101	79	e125
26	46	71	36	57	122	122	67	115	142	95	72	92
27	44	66	34	62	133	135	67	112	102	89	66	87
28	104	64	30	76	174	126	67	112	74	73	62	83
29	75	—	30	84	165	123	69	108	81	62	58	78
30	58	—	28	84	133	118	64	101	73	67	55	74
31	51	—	28	—	111	—	76	105	—	73	—	69
Mean	48.8	185	43.0	41.1	107	136	89.2	112	127	85.4	81.7	288
Runoff in Ac.Ft.	2998	10260	2646	2448	6601	8067	5482	6887	7563	5254	4864	17720
	Water Year Total 61421								Calendar Year Total 80790			

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 primarily of Feather River drainage or return flows. This flow and flow from Butte Slough (Table 52) makes up the entire Feather River contribution to the Sutter By-Pass. This is a Division of Water Resources station. Period of record 1939 to date.
e Estimated.

TABLE 54

FLOW OF RECLAMATION DISTRICT 1500 DRAIN - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	43	80	91	52	476	308	334	368	386	162	78	150
2	0	64	73	26	268	338	311	358	390	113	89	0
3	0	0	58	54	354	298	322	358	390	111	93	155
4	0	97	67	53	312	120	322	365	348	113	95	603
5	0	221	71	0	383	473	301	365	357	156	86	355
6	0	587	66	54	384	309	318	350	357	106	0	336
7	0	342	70	0	360	383	333	352	326	111	0	370
8	0	343	65	67	585	54	335	374	220	113	0	417
9	0	343	66	58	290	257	338	362	392	111	0	643
10	0	342	60	59	299	364	343	367	445	106	49	556
11	98	355	67	0	285	364	350	376	445	108	57	494
12	96	300	61	0	240	364	372	384	445	150	57	442
13	0	396	64	40	262	364	386	376	445	104	121	404
14	96	237	32	40	209	364	397	376	513	104	40	463
15	0	160	57	40	505	364	396	376	445	102	64	704
16	154	164	33	0	260	364	383	376	445	265	48	737
17	91	165	49	101	323	364	375	367	513	112	54	629
18	66	176	37	86	363	364	375	376	513	28	114	522
19	42	78	40	42	347	364	362	384	364	75	10	388
20	91	231	93	62	343	364	360	376	364	77	412	384
21	79	88	0	123	227	364	370	376	364	53	245	366
22	44	175	0	32	443	364	360	384	257	77	250	308
23	59	244	0	55	242	574	404	384	364	77	227	304
24	93	113	99	246	24	340	360	384	257	54	357	310
25	90	0	59	264	419	278	360	384	256	59	177	210
26	56	31	0	105	334	313	343	376	256	87	184	292
27	0	93	161	156	355	322	350	376	251	0	146	170
28	147	58	0	160	118	357	350	409	248	0	0	176
29	46	—	50	415	544	329	358	393	239	120	204	182
30	48	—	0	321	144	336	350	385	229	346	204	178
31	0	—	50	—	530	—	348	394	—	101	—	177
Mean	46.4	196	52.9	90.4	330	337	354	375	361	106	115	369
Runoff in Ac.Ft.	2854	10880	3251	5377	20290	20070	21750	23070	21469	6548	6865	22661
	Water Year Total 137026								Calendar Year Total 165085			

This is the drainage from Reclamation District 1500 discharged to West Borrow Pit of Sutter By-Pass and thence via Sacramento Slough (in the By-Pass) to Sacramento River, (See Table 55). Drainage is by pumping and gravity. Period of record 1930 to date. Records for 1950 computed by Division of Water Resources.

TABLE 55

FLOW OF SACRAMENTO SLOUGH TO SACRAMENTO RIVER - 1950

Date	17	28			Daily Mean Flow in Second Feet						30	31
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	*	0	1400	906	955	651	596	586	431	*	*
2	0		0	983	926	1100	805	574	578	371		
3	0		509	660	1160	973	816	603	567	388		
4	186		420	559	1060	932	667	614	613	358		
5	296		542	0	1000	896	592	618	649	352		
6	165		0	0	932	861	535	651	691	302		
7	0		338	0	1120	988	542	676	711	312		
8	0		500	0	929	911	571	670	848	351		
9	0		581	0	974	994	581	720	895	343		
10	0		385	1620	915	949	656	752	950	306		
11	465	F	291	1990	744	926	660	738	1010	292	F	F
12	347	L	285	1800	665	878	614	734	1060	284	L	L
13	221	O	0	1410	741	827	587	706	1130	230	O	O
14	303	O	255	736	687	903	583	720	1160	200	O	O
15	*	D	0	913	813	927	556	808	1150	196	D	D
16		E	0	1020	719	925	534	787	1040	175	E	E
17		D	0	1010	954	886	521	765	945	187	D	D
18			0	1090	1040	855	510	737	950	163		
19			0	762	1090	918	485	681	973	166		
20			0	709	1260	902	578	664	858	206		
21	F		0	722	1230	876	632	674	791	235		
22	L		0	642	1110	882	648	673	769	236		
23	O		0	878	1090	764	606	661	720	257		
24	O		0	1020	1240	697	550	642	620	292		
25	D		0	1150	1220	749	536	665	618	281		
26	E D		0	1090	1290	784	581	656	570	357		
27			1120	776	1410	716	586	609	541	216		
28		*	2380	721	1340	628	580	637	530	204		
29		—	2840	721	1270	626	582	613	506	636		
30		—	2580	1060	1250	605	574	602	461	463	*	
31	*	—	2080	—	1110	—	580	594	—	0	—	*
Mean			487	848	1038	861	597	672	783	284		
Runoff in Ac.Ft.			29960	50460	63860	51240	36690	41340	46590	17430		
			Water Year Total						Calendar Year Total			

This is the discharge to the Sacramento River at Mile 21.2L via Sacramento Slough. This is the entire outflow of the Sutter By-Pass area and R. D. 1500. During high water periods the slough is entirely submerged as it lies within the By-Pass area. Sharp rises in river elevation will cause zero or negative flow. See Tables 52, 53, 54 and 43, which, when combined, will give the measured flow entering the By-Pass area. This is a Division of Water Resources station. Period of record 1924 to date.

* By-Pass flooded - flow not confined to slough channel.

TABLE 56

FLOW OF FEATHER RIVER NEAR OROVILLE - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	906	3470	7230	8940	10700	8280	2230	1890	1710	1860	4290	6930
2	994	3160	6600	9780	10700	7840	2180	1890	1690	2130	3910	6350
3	1260	2820	6660	10500	9970	7240	2160	1930	1690	2270	3620	23500
4	1420	20400	6850	10100	8920	6380	2120	1920	1660	1930	3090	39400
5	1350	30200	7500	10000	8670	5940	2140	1920	1760	1970	2060	24100
6	1370	39100	7480	14400	8540	5650	2190	1920	1680	2400	2120	21200
7	1270	21300	6980	14400	8120	5110	2170	1900	1660	1920	2540	26400
8	1360	14200	6240	14300	7320	4930	2120	1900	1700	1720	2550	32900
9	1180	11100	6080	12300	7240	4360	2120	1880	2070	2080	2290	33500
10	2040	10200	5560	11700	7660	4400	2140	1880	1770	2010	2550	22400
11	1830	9010	5650	11100	8100	4000	2170	1890	2000	1670	2640	20700
12	1340	7020	5000	10600	8910	4240	2170	1860	2170	2030	2750	18700
13	1530	6770	4610	13000	9660	4090	2180	1850	2060	2000	3030	15600
14	1510	6180	5000	12600	10100	4080	2140	1840	2160	1950	2950	26000
15	1410	6020	4450	11500	10300	3730	2100	1810	2100	1700	3300	28000
16	2800	6340	4120	11000	11000	3690	2080	1780	2170	2000	8080	23600
17	7750	6380	6240	11400	11000	3050	2080	1820	1840	1970	13400	19300
18	11400	5990	7690	12500	11000	3200	2090	1780	2020	1870	30000	17800
19	7180	5960	11400	13100	10300	3520	2080	1760	2150	2010	32500	15600
20	4820	5780	14300	13900	9750	3400	2060	1760	2120	1970	51600	14200
21	8550	6180	11200	14900	10300	3280	2030	1720	1780	1920	67100	13000
22	15100	5900	14300	15500	9920	3140	2000	1730	2000	1700	30500	11700
23	16300	5670	13800	15400	10500	3200	1980	1700	1670	1890	19300	10500
24	14400	5620	14600	14100	10700	2480	1980	1780	1760	2230	13700	9570
25	8800	5700	13700	13000	10500	2390	1980	1800	1810	2060	10700	8840
26	6810	6020	11600	12600	9980	2750	1980	1780	2020	4880	9320	9190
27	5680	6350	10700	12600	9510	2420	1980	1740	1860	8950	7350	7820
28	5890	6990	9810	12300	10100	2560	2000	1700	1860	7320	7470	7580
29	3980	—	9240	11000	8650	2480	1980	1690	2040	7780	6740	7500
30	3840	—	8830	10300	8810	2310	1960	1670	2180	10300	6880	7380
31	3610	—	8740	—	8580	—	1980	1680	—	6420	—	6840
Mean	4764	9637	8457	12290	9533	4138	2083	1812	1905	3062	11940	17290
Runoff in Ac.Ft.	292900	535200	520000	731500	586100	246200	128100	111400	113400	188300	710700	1063000
			Water Year Total 3464890						Calendar Year Total 5226800			

U. S. Geological Survey and Division of Water Resources cooperative station located at highway crossing about 4.5 miles above Oroville on right bank, at Mile 71.0. Drainage area is 3611 square miles. Period of record 1902 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 57

FLOW OF FEATHER RIVER NEAR GRIDLEY - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	818	3010	6640	8600	8050	5870	372	86	73	1280	4770	7780
2	689	2730	6080	9170	8580	5440	293	52	88	1370	4010	7210
3	922	2440	6130	9870	8160	4840	255	42	75	1660	3680	16800
4	1090	11600	6280	9850	7170	4250	185	29	73	1400	3550	37800
5	1090	28200	6670	9520	6760	3460	150	20	59	1390	2360	26900
6	1080	34300	6990	12300	6560	3560	171	20	157	1700	2090	21700
7	1250	24000	6620	13400	6300	2750	230	26	226	1510	2450	26600
8	1480	14800	5870	14100	5280	2640	200	22	372	1300	2500	28300
9	1130	11200	5670	12500	4990	2200	137	23	562	1330	2610	35300
10	1560	9560	5150	11200	5200	2030	113	24	708	1460	2270	25300
11	2020	8710	5310	10800	5420	1940	104	26	574	1220	2690	21600
12	1440	7000	5100	10200	5910	1830	150	66	1040	1390	2640	20500
13	1370	5910	4040	11400	6680	1800	147	68	1050	1440	2750	17400
14	1820	5850	4680	12200	7340	1750	131	73	1200	1340	3060	22000
15	1400	5310	4470	11000	7430	1690	104	70	1170	1290	3000	28400
16	1850	5390	3960	10400	8210	1300	70	50	1170	1330	5360	25000
17	6160	5670	4830	10300	8300	1270	50	91	1110	1500	10800	21100
18	10100	5530	7460	11200	8300	1040	42	127	1050	1310	23400	18800
19	7330	5230	8560	11600	7940	1050	48	66	1280	1510	33000	16700
20	4790	5080	13800	12200	7550	1230	61	66	1350	1440	33100	15000
21	5360	5260	11200	12900	7750	1110	83	63	1140	1410	59300	e14300
22	14000	5350	12000	13500	7410	1040	124	50	1270	1380	37300	e12600
23	13000	5150	13700	13500	7840	1050	116	42	1200	1270	23600	e11200
24	15200	4770	13600	12700	8240	852	99	33	1030	1690	17000	e10800
25	9110	5220	13600	11600	8000	495	80	35	1060	1510	13200	e10100
26	6700	5230	11700	10900	7620	479	66	140	1280	3470	11600	e10300
27	5320	5590	10400	10500	7050	664	66	121	1210	7890	9170	e9400
28	5450	6300	9770	10300	6830	591	50	88	1250	6000	8820	e8600
29	3940	—	9080	9320	6240	580	80	57	1330	8210	7940	e8400
30	3400	—	8640	8280	6280	442	83	38	1500	8850	7750	e8280
31	3250	—	8400	—	6110	—	80	59	—	6990	—	e7500
Mean	4326	8728	7948	11180	7081	1975	127	57.2	855	2479	11530	17800
Runoff in Ac.Ft.	266000	484700	488700	665100	435400	117500	7815	3517	50890	152400	685800	1094000
	Water Year Total 2650992								Calendar Year Total 4451822			

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

TABLE 58

FLOW OF FEATHER RIVER AT YUBA CITY (5TH ST. BRIDGE) - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	790	3860	6620	8360	8600	5950	527	221	164	1660	6370	6990
2	723	3520	6500	8520	8820	6280	516	242	163	1450	4730	6850
3	691	3200	6520	9220	8820	5700	502	245	183	1760	4180	11200
4	976	6280	6350	9390	8140	5300	411	237	174	1720	3750	30900
5	1070	27600	6520	9310	7440	4560	349	217	149	1460	2870	36800
6	1080	41200	6930	10300	7140	4480	324	227	136	1710	2160	22300
7	1210	41500	6650	12800	7100	3750	272	226	177	1860	2290	e24000
8	1310	23300	6240	12900	6450	3490	300	187	337	1550	2500	e27000
9	1250	14500	5860	13000	5860	3170	283	209	472	1320	2570	35200
10	1300	11700	5350	11600	5730	2640	246	219	899	1650	2250	31800
11	2150	10800	5510	10700	5760	2440	220	227	846	1490	2620	21000
12	1690	9190	5270	10500	6100	2050	228	229	1050	1280	2470	18600
13	1410	7110	4250	11000	6710	2150	255	229	1330	1540	2610	15700
14	1770	6990	4680	12300	7220	1860	266	247	1300	1430	2880	e19000
15	1560	6250	4860	13000	7260	1980	252	239	1530	1420	2730	e26500
16	1710	6010	4130	10600	7670	1540	241	241	1450	1250	3410	27300
17	5700	6480	4140	10300	7870	1850	270	204	1540	1530	9770	21400
18	10500	6390	6600	11300	8200	1320	261	211	1290	1420	16700	17100
19	9360	5800	7160	11900	7920	1440	218	233	1540	1430	24600	14800
20	5720	5690	11100	12400	7760	1630	218	213	1710	1470	34800	13400
21	4790	5540	12700	12800	7650	1610	216	200	1660	1500	50900	12300
22	11100	5890	10900	13300	7530	1500	237	197	1400	1480	61200	11800
23	12900	5490	13400	13600	7870	1430	285	163	1570	1300	36900	10800
24	14500	5140	13600	13500	8350	1260	284	171	1260	1580	20000	10200
25	13500	5540	14400	12600	8090	794	264	180	1240	1760	12700	9830
26	8410	5380	14300	11800	8090	622	238	186	1270	2210	10000	9020
27	6400	5790	12100	11200	7850	826	220	235	1450	6630	8690	9830
28	6580	6200	10600	10500	7490	644	191	254	1360	6880	7940	7840
29	6090	—	9590	9310	6860	702	180	240	1370	8740	7350	7450
30	4250	—	8660	8770	6970	688	191	207	1530	8250	7030	7710
31	4090	—	8270	—	6660	—	221	182	—	9560	—	7130
Mean	4664	10440	8057	11230	7419	2455	280	217	1018	2590	11970	17150
Runoff in Ac.Ft.	286800	579900	495400	668000	456200	146100	17230	13320	60600	159200	712000	1055000
	Water Year Total 2895850								Calendar Year Total 4649750			

Division of Water Resources station located at Yuba City-Marysville (5th Street) Bridge, Mile 28.0 above mouth. Backwater from the Yuba River at times affects the stage-discharge relationship of this station. Period of record 1944 to date.
e Estimated.

TABLE 59

FLOW OF FEATHER RIVER BELOW YUBA RIVER - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1020	5380	10300	13300	13000	14500	1680	659	358	1940	6620	10900
2	957	4870	10200	13800	14600	13000	1520	583	349	1810	5070	10400
3	970	4600	9690	14800	13800	11900	1460	479	362	2070	4730	19500
4	1500	14600	9670	15200	11700	10800	1360	431	340	2070	4450	70100
5	1720	48000	10000	14700	10400	9070	1260	393	287	1980	3740	65300
6	1790	59400	11000	16400	10000	8210	1140	380	279	2030	3130	46600
7	1960	55850	10500	21200	9630	7050	1040	358	318	2220	3220	55300
8	2120	36500	9630	23700	8840	6110	970	306	503	1930	3460	66100
9	2070	23600	8980	23300	7850	5280	842	327	805	1750	3560	78600
10	2090	18100	8360	19400	7710	4660	781	349	1190	2030	3270	62900
11	2990	17900	8130	17400	8100	4730	714	358	1360	1900	3670	46200
12	2630	14700	7980	15800	9030	4760	647	362	1570	1690	3590	41300
13	2280	11600	6810	16400	10600	4800	578	349	1940	1910	3680	34600
14	2670	11000	6870	19100	12200	4610	551	340	1920	1870	4000	35300
15	2530	9900	6860	17200	13500	4420	519	336	2110	1790	3890	58600
16	2580	9770	6140	16200	15200	4220	488	323	2050	1640	4450	55300
17	10300	10300	6440	15800	16500	4080	469	318	2150	1900	10200	43700
18	19100	10100	10200	16600	16400	3790	436	323	1990	1880	28900	34600
19	18700	9500	11900	17500	16000	3690	398	340	2030	1780	70900	29900
20	11200	9330	22300	18400	15500	3670	384	344	2070	1830	72000	25900
21	8490	9220	20300	19800	15300	3750	384	310	2030	2000	112000	22800
22	20100	9420	17600	21000	16400	3670	389	306	1760	2120	94400	20600
23	24200	9050	21500	21300	16700	3430	402	318	1920	2020	57200	18200
24	28500	8560	24500	20400	17000	3220	469	294	1690	2310	35000	16300
25	21100	8860	27800	18600	17200	2770	509	314	1620	2520	24500	15100
26	12800	8830	23000	17300	15900	2420	530	323	1620	3030	18700	14100
27	9440	9350	18400	17000	14200	2170	540	371	1780	6890	15100	13400
28	10600	10000	16200	17000	13700	2060	535	398	1700	7380	13300	11900
29	10000	—	14600	16200	13800	1900	535	535	1700	8320	12100	11500
30	6710	—	13600	13900	13400	1810	563	498	1830	8280	11000	11200
31	6010	—	13200	—	14500	—	610	384	—	9440	—	11000
Mean	8036	16370	12990	17620	13180	5352	732	378	1388	2978	21330	34100
Runoff in Ac.Ft.	494100	909000	798700	1049000	810600	318400	45030	23220	82570	183100	1269000	2097000
	Water Year Total								Calendar Year Total 8079720			

Station is maintained jointly by the Division of Water Resources and the U. S. Geological Survey. It is located on the right bank of the Feather River just below the mouth of the Yuba River at Mile 27.0R. Station was installed December 6, 1949. Station is rated at high stages by simultaneously measuring the flows of the Feather River at 5th Street Bridge and the Yuba River at Simpson Lane Bridge. Period of record 1949 to date. Records for 1950 computed by Division of Water Resources.

TABLE 60

FLOW OF FEATHER RIVER BELOW SHANGHAI BEND - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1000	5540	10200	13500	13600	14900	1790	684	299	1790	6740	10300
2	934	5100	10100	13900	14900	13500	1660	633	288	1630	5140	10000
3	909	4540	9800	14800	14400	14500	1600	492	293	1910	4680	15800
4	1380	11400	9780	15300	12400	11400	1450	433	250	1930	4530	63300
5	1640	41500	10000	14800	11200	9660	1310	382	190	1710	3720	64000
6	1660	52100	11000	16200	10800	8800	1150	363	176	1810	3050	45300
7	1840	52300	10600	20800	10400	7730	1070	345	185	2020	3040	50100
8	1960	36800	9740	23100	9700	6720	1040	266	339	1730	3260	61100
9	2000	24400	9040	23200	8780	5950	950	282	684	1540	3310	75700
10	1970	18600	8540	19700	8560	5210	851	316	1130	1800	3100	61500
11	2760	18000	8170	17500	8880	4970	779	328	1280	1720	3410	45000
12	2510	15100	7980	16100	9820	4800	700	333	1420	1470	3380	39200
13	2130	12100	6920	16300	11300	4920	640	316	1820	1710	3460	32800
14	2410	11300	6930	19200	13000	4520	633	310	1810	1680	3760	32200
15	2350	10300	6980	17900	14200	4380	640	305	1970	1610	3720	52900
16	2320	10100	6280	16300	15800	4180	604	293	1930	1450	4220	53200
17	8970	10600	6430	15900	17000	4190	554	299	2010	1700	9120	42200
18	18200	10400	9960	16500	17000	3860	473	299	1870	1690	22100	33100
19	18500	9780	11500	17500	16800	3770	492	322	1860	1600	65100	27900
20	11500	9560	21100	18200	16200	3770	420	322	1920	1680	70400	24300
21	8290	9330	20200	19400	15900	3890	388	299	1890	1800	109000	21600
22	17800	9520	17500	20700	16900	3860	426	293	1620	1950	93300	19700
23	23200	9120	21000	21100	17000	3600	633	266	1770	1910	57700	17800
24	27200	8650	23600	20600	17400	3360	731	271	1530	2090	34700	16100
25	21500	8840	27100	18900	17500	2780	723	293	1460	2410	23400	15000
26	13100	8880	23300	17500	16500	2380	692	299	1450	2760	17600	14100
27	9520	9330	18900	17300	14800	2220	684	328	1610	6240	14300	13600
28	10200	9860	16600	17500	14000	2070	633	382	1510	7260	12400	12300
29	10200	—	15000	16700	14200	1980	618	546	1520	7880	11400	11900
30	6930	—	13900	14600	13700	1930	633	525	1650	8000	10500	11700
31	6120	—	13400	—	14600	—	676	363	—	9680	—	11500
Mean	7774	15820	12950	17700	13780	5660	827	361	1258	2779	20450	32430
Runoff in Ac.Ft.	478000	878800	796500	1053000	847400	336800	50860	22190	74840	170900	1217000	1994000
	Water Year Total 4741910								Calendar Year Total 7920290			

Division of Water Resources station located on the right bank at Mile 23.0 above mouth. Station is rated above 25000 c.f.s. by means of simultaneous measurements of Yuba River and Feather River at Marysville with appropriate time lag between Marysville and Shanghai Bend. Period of record 1944 to date.

TABLE 61

FLOW OF FEATHER RIVER AT NICOLAUS - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1090	6800	10900	15300	14200	14700	1570	429	300	1750	7640	13900
2	1050	6180	11000	15400	15000	13700	1430	409	281	1620	5410	13600
3	928	5710	10400	16000	15000	12500	1340	409	281	1680	4710	16500
4	1200	10000	10400	16700	13400	11600	1220	359	272	1930	4430	57400
5	1690	36700	10500	16500	11900	9980	1080	339	233	1660	4420	79600
6	1750	63800	11300	16800	11500	8790	973	329	200	1640	3790	54300
7	1920	72400	11300	20700	11000	7890	875	315	200	1930	3520	52000
8	2100	48000	10600	23000	10300	6710	827	262	262	1750	3740	69600
9	2290	29900	9720	24300	9040	5840	775	238	454	1560	3790	90600
10	2080	21000	9240	21900	8500	4940	723	267	730	1580	3570	77800
11	2690	20000	8740	19500	8740	4600	650	281	1070	1660	3420	53300
12	3120	17300	8710	17900	9380	4430	590	286	1080	1460	3610	43100
13	2540	13900	7880	17200	10800	4690	530	291	1470	1500	3610	36600
14	2590	12700	7380	19400	12300	4280	504	286	1570	1580	3930	34800
15	3000	11500	7560	19300	13500	4140	489	272	1750	1490	4140	56400
16	2610	11000	7160	17800	14800	4010	489	272	1780	1400	4330	68000
17	8620	11400	6980	16900	15900	3900	474	276	1860	1430	8620	50800
18	19700	11300	9830	17000	16300	3790	464	272	1850	1580	17600	39700
19	21200	10800	11900	17600	16000	3560	414	272	1720	1460	54200	33000
20	14900	10400	19400	18100	15500	3530	384	291	1800	1540	79400	29000
21	10100	10200	20900	19000	15200	3690	364	276	1840	1550	129000	26000
22	15500	10300	18800	20100	15800	3740	359	262	1580	1750	116000	23000
23	22600	9960	20500	20600	16100	3510	349	252	1630	1780	76900	21000
24	26000	9520	23000	20800	16400	3260	374	233	1580	1790	47000	19000
25	24200	9400	28300	19600	16700	2770	419	252	1390	2180	31400	17500
26	17100	9520	26600	18200	16200	2280	449	267	1380	2320	24600	16000
27	11900	9860	22500	17600	14900	1980	449	272	1540	4960	20500	15500
28	11600	10300	19600	17600	13900	1990	444	315	1480	8050	17100	14000
29	12000	—	17600	17100	15800	1770	439	344	1520	7350	15700	13000
30	9010	—	16200	15500	13500	1740	434	414	1620	8160	14400	12500
31	7570	—	15400	—	14000	—	434	349	—	9710	—	12500
Mean	8537	18209	13881	18447	13599	5477	655	303	1157	2639	24020	37420
Runoff in Ac.Ft.	524900	1011000	853500	1098000	836200	325900	40290	18630	68870	162200	1429000	2301000
	Water Year Total 4984890								Calendar Year Total 8669490			

Station is maintained jointly by Division of Water Resources and U. S. Geological Survey. It is located on left bank at Mile 9.3L above mouth. Period of record 1921 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 62

FLOW OF SOUTH HONCUT CREEK NEAR BANGOR - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1										*.1	3.2	14
2										.1	2.5	16
3										.1	1.8	1230
4										.1	1.4	276
5										.1	1.2	107
6										.1	1.2	254
7										.1	1.0	400
8										.1	.9	634
9										.1	.8	286
10										.1	.6	135
11										.1	.6	294
12										.1	.6	147
13										.1	.9	106
14										.1	2.9	510
15										.1	3.6	324
16										.1	39	155
17										.1	67	110
18										.1	905	88
19										.1	266	74
20										.1	1800	61
21										.1	731	54
22										.1	112	47
23										.1	62	41
24										.2	40	36
25										.8	26	32
26										12	20	29
27										11	17	26
28										4.4	14	26
29		—								4.6	13	24
30		—								18	15	28
31		—		—		—			—	5.1	—	25
Mean										1.88	138	180
Runoff in Ac.Ft.										116	8230	11090
	Water Year Total								Calendar Year Total			

U. S. Geological Survey and Division of Water Resources station located approximately 2.5 miles southeast of Bangor and 16 miles above the mouth. Honcut Creek is an east-side tributary to the Feather River at Mile 43.7L. Drainage area is 68.6 square miles. Prior records available at a site 8 miles downstream. Records for 1950 computed by the U. S. Geological Survey.

* Beginning of record.

TABLE 63

FLOW OF YUBA RIVER AT NARROWS DAM - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	205	1450	2980	4510	5800	7940	1260	615	462	300	725	3160
2	205	1320	2900	4840	5880	6880	1160	480	300	300	725	3040
3	550	1280	2790	5020	4780	6760	1100	456	300	300	725	23300
4	670	13000	2820	4850	3960	5570	1040	453	300	300	725	35400
5	710	18200	3080	4810	3760	5020	965	300	447	300	725	15600
6	720	20200	3240	7070	3640	4400	915	300	447	258	725	12300
7	725	9980	2850	7380	3420	3770	861	437	594	215	725	26800
8	730	6130	2590	7540	3170	3060	799	452	740	215	725	37200
9	725	4530	2430	6150	3060	2660	746	452	740	215	725	30200
10	725	4080	2280	5300	3140	2320	720	452	725	215	725	16300
11	725	3980	2230	4780	3420	2340	690	450	725	215	730	12000
12	725	3350	2040	4580	4220	2760	655	310	720	215	730	10200
13	720	2980	1900	6200	5300	2440	640	310	720	215	730	8600
14	725	2770	1790	5940	5980	2320	665	455	720	215	730	16100
15	700	2740	1750	5160	7140	2300	655	440	720	215	730	22700
16	725	2920	1710	5040	8260	2480	470	450	720	215	730	15000
17	912	3000	2310	5440	8500	2560	390	450	720	215	916	10700
18	6660	2900	3180	5720	8140	2400	560	460	440	215	32500	8540
19	5180	2870	5550	6120	7820	2420	490	470	300	442	39400	7140
20	3070	2950	7840	6660	7820	2480	430	300	300	710	61700	6020
21	3820	2820	5220	7300	8220	2700	750	450	300	710	65400	5300
22	10600	2690	6010	7620	9160	2580	750	450	300	690	18000	4700
23	11500	2620	6160	7420	8980	2340	750	450	300	690	9750	4220
24	8720	2590	8250	6620	8800	1990	750	450	300	690	6740	3800
25	4280	2690	6880	5940	8700	1740	750	460	300	690	5140	3560
26	2830	2840	5180	6080	7380	1530	750	360	207	632	4240	3360
27	2960	3000	4680	6800	6420	1420	750	575	300	700	3760	3080
28	4280	3080	4360	6960	7040	1370	750	740	300	700	3540	2830
29	2320	—	4180	6020	7040	1340	750	595	290	710	3110	2680
30	1890	—	4020	5300	7140	1340	740	450	290	720	3080	2600
31	1680	—	4380	—	8740	—	750	455	—	730	—	2530
Mean	2612	4749	3793	5972	6285	3044	756	449	468	424	8964	11580
Runoff in Ac.Ft.	160600	263700	233200	355400	386400	181200	46510	27620	27820	26090	533400	712000
	Water Year Total 1736110								Calendar Year Total 2953940			

U. S. Geological Survey and Division of Water Resources cooperative station located above spillway of Narrows Dam. For total flow of Yuba River near Smartville combine with flows in Table 64. Drainage area is 1110 square miles. Period of record 1941 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 64

FLOW OF DEER CREEK NEAR SMARTVILLE - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	8.5	56	35	80	65	4.0	3.4	2.6	2.7	3.4	21	45
2	9.1	48	32	210	177	4.4	3.2	2.7	2.7	3.4	14	40
3	8.5	58	30	265	186	3.7	3.1	2.6	2.3	3.2	12	2320
4	9.1	3470	30	263	111	4.6	3.2	2.6	2.1	3.2	10	626
5	11	1240	36	265	88	4.0	3.0	2.8	1.7	3.6	9.5	209
6	14	1440	35	325	68	4.4	2.8	3.0	1.7	5.0	9.5	599
7	12	344	29	450	49	5.6	3.0	3.0	2.0	4.0	9.5	923
8	25	222	27	773	37	5.6	3.2	2.8	2.3	3.9	9.2	1960
9	24	179	26	502	33	4.8	3.1	3.0	2.7	3.7	8.4	769
10	74	250	25	413	26	4.8	3.1	3.0	2.7	3.6	8.1	508
11	77	170	30	373	34	5.6	3.1	2.7	2.7	3.6	7.8	660
12	51	130	24	334	123	5.4	3.1	2.8	2.8	3.6	8.1	521
13	40	102	22	267	102	5.2	3.1	2.8	3.1	3.5	8.8	455
14	77	91	30	248	72	5.2	3.1	2.8	3.0	3.5	13	1930
15	42	81	144	238	69	5.0	3.2	2.3	3.0	3.5	14	1850
16	1010	85	147	236	85	4.8	3.2	2.2	3.4	5.5	184	678
17	3430	77	214	244	97	4.5	3.1	2.5	3.9	8.1	131	574
18	979	68	179	228	56	5.8	2.7	2.6	4.2	7.8	3650	510
19	239	61	830	181	66	5.6	3.1	2.7	5.4	7.4	784	467
20	136	56	460	143	40	4.2	3.2	2.7	5.0	5.6	3780	422
21	332	56	395	203	36	4.2	3.1	2.8	4.0	4.6	2010	398
22	412	47	447	124	8.4	3.9	3.2	3.0	3.9	4.4	304	382
23	486	44	404	36	14	3.5	3.4	3.0	3.4	4.6	181	372
24	206	41	2000	28	41	3.2	3.1	3.0	2.8	5.0	134	365
25	184	40	795	28	49	3.0	3.4	2.8	2.6	6.6	76	358
26	142	39	526	126	15	3.0	3.5	3.0	3.7	66	61	352
27	140	38	447	65	8.1	3.1	3.0	2.8	4.0	84	53	348
28	586	38	413	30	5.6	3.7	3.2	3.0	3.6	35	48	342
29	150	—	352	19	5.0	3.4	3.1	3.0	3.6	27	45	340
30	92	—	199	13	4.6	3.4	3.0	3.2	3.6	97	46	348
31	73	—	85	—	4.4	—	2.7	3.1	—	36	—	340
Mean	293	306	273	224	57.3	4.39	3.12	2.80	3.15	14.8	388	646
Runoff in Ac.Ft.	18010	17000	16760	13310	3520	261	192	172	188	911	23110	39690
	Water Year Total 71440								Calendar Year Total 133124			

U. S. Geological Survey and Division of Water Resources cooperative station located 1 mile upstream from the mouth. Deer Creek is tributary to the Yuba River 1 mile below Narrows Dam. For total flow of Yuba River near Smartville combine with flows in Table 63. Drainage area is 83.5 square miles. Period of record 1935 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 65

FLOW OF YUBA RIVER AT MARYSVILLE (SIMPSON LANE BRIDGE) - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	128	1880	2980	4890	6110	7940	1060	405	168	105	948	4000
2	126	1690	2860	5420	7030	6950	982	302	163	105	764	3910
3	133	1580	2790	5730	5910	6600	921	233	161	100	728	14100
4	457	10800	2740	5510	4370	5840	835	206	141	100	702	39700
5	524	25600	2880	5300	4090	5090	760	196	135	100	679	19100
6	598	24900	3200	7400	3800	4440	710	186	135	98	666	15100
7	681	16400	2890	8540	3540	3850	670	170	140	92	661	30100
8	704	10400	2620	10500	3300	3160	643	161	145	86	666	36700
9	717	6840	2440	8650	3110	2670	597	163	241	80	666	36300
10	736	6100	2330	6630	3030	2320	545	168	298	76	702	19200
11	865	5680	2280	5670	3170	2200	521	163	341	76	742	17400
12	815	4450	2160	5400	3810	2450	449	166	405	67	715	15800
13	785	3830	2220	6760	4970	2360	389	161	409	65	724	12900
14	850	3310	2070	7230	6060	2200	366	150	409	63	733	19700
15	820	3180	2070	6380	6900	2150	374	143	409	65	746	29000
16	850	3250	2150	5820	8090	2240	363	143	401	63	866	19500
17	5610	3430	2290	6100	8730	2350	275	150	413	63	1310	14900
18	8990	3240	3250	6370	8500	2240	214	154	409	65	22400	13000
19	7940	3160	4720	6690	8220	2200	214	156	256	65	49600	11300
20	3680	3230	11000	7280	8020	2230	219	156	183	65	47000	9980
21	3130	3160	6670	8100	8110	2380	203	156	163	190	55300	8900
22	10900	2900	6440	8470	8980	2390	236	147	154	323	17400	7820
23	11000	2840	7310	8310	9070	2200	363	145	140	385	10500	6640
24	13100	2780	11900	7370	9000	1910	393	150	135	425	8540	5830
25	6040	2710	11200	6470	9000	1670	393	159	130	453	7900	5190
26	3080	2900	7270	6470	8000	1440	401	154	125	666	6440	4820
27	2340	3020	6080	7250	7660	1270	409	156	120	1040	5570	4340
28	3600	3080	5460	7770	7660	1200	389	161	115	980	5270	3950
29	2700	—	5100	7220	7100	1140	397	256	110	872	4450	3680
30	2320	—	4550	6090	6950	1100	401	225	105	987	4190	3510
31	1980	—	4720	—	8070	—	401	178	—	982	—	3470
Mean	3103	5941	4472	6860	6463	2939	487	181	222	287	8586	14188
Runoff in Ac.Ft.	190800	329900	275000	408200	397400	174900	29940	11150	13210	17660	510900	872400
	Water Year Total 1862080								Calendar Year Total 3231460			

Station is maintained jointly by the Division of Water Resources and the U. S. Geological Survey. Station is at 7th Street Bridge at Mile 0.9L above mouth. Stage-discharge relationship is affected at times by variable backwater from the Feather River. Period of record 1939 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 66

FLOW OF DRY CREEK NEAR WHEATLAND - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	60	25	52	7.1	0				0	38	72
2	0	44	22	44	55	.2				0	18	67
3	0	35	20	35	103	.2				0	8.4	1780
4	0	2550	19	29	49	.2				0	3.0	862
5	0	1410	20	25	29	.2				0	1.1	299
6	0	1310	25	44	22	2.0				0	0.2	534
7	0	401	14	67	17	2.0				0	0	1020
8	0	230	13	207	12	2.0				0	0	1540
9	0	168	14	245	11	2.0				0	0	723
10	4.9	377	15	121	7.1	2.0				0	0	338
11	22	293	15	84	5.3	2.0				0	0	480
12	61	170	13	67	4.8	2.0	N	N	N	0	0	403
13	40	125	11	70	3.0	2.0	0	0	0	0	0	265
14	54	103	11	64	3.0	1.6				0	0	1610
15	76	87	10	45	3.4	1.1				0	0	2180
16	50	83	9.8	36	2.6	.6				0	0	521
17	1800	98	19	31	3.0	.3	F	F	F	0	37	335
18	966	89	73	24	3.4	0	L	L	L	0	1730	250
19	255	76	129	20	3.0	0	0	0	0	0	937	220
20	114	68	193	15	2.2	0	W	W	W	0	3170	179
21	94	60	83	13	1.8	0				0	2300	153
22	352	54	66	12	1.6	0				0	445	135
23	160	48	81	20	1.4	0				0	230	119
24	177	45	925	15	1.6	0				0	159	108
25	86	40	698	11	1.4	0				0	126	101
26	50	38	314	10	4.8	0				0	106	91
27	60	32	190	10	2.2	0				0	92	83
28	552	29	131	8.4	.8	0				30	83	76
29	245	—	98	7.1	.6	0				32	76	73
30	123	—	79	6.5	0	0				27	73	76
31	81	—	62	—	0	—			—	62	—	92
Mean	175	290	110	47.9	11.7	0.68	0	0	0	4.87	321	477
Runoff in Ac.Ft.	10760	16110	6740	2850	718	40	0	0	0	300	19110	29330
	Water Year Total 37331								Calendar Year Total 85958			

U. S. Geological Survey and Division of Water Resources cooperative station located 2300 feet upstream from Highway 99E bridge and 1.3 miles northwest of Wheatland. Dry Creek is an east-side tributary to the Feather River above Nicolaus at Mile 120.0L via Bear River. Period of record October 1946 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 67

FLOW OF BEAR RIVER NEAR WHEATLAND - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	49	520	500	1170	327	90	18	13	13	12	130	710
2	45	500	496	1010	369	60	16	13	13	11	103	706
3	50	496	480	958	351	60	14	12	13	12	98	4100
4	45	5450	472	982	248	65	14	11	13	12	286	7210
5	45	6210	468	958	465	80	13	12	12	11	592	2450
6	48	6780	460	1110	510	50	13	12	14	11	576	2400
7	54	2670	453	1250	340	60	14	12	13	13	556	5390
8	78	1630	442	1870	294	60	14	13	13	14	540	6350
9	100	1210	442	1500	127	55	14	11	13	13	482	4980
10	103	1220	436	1090	82	50	14	11	12	12	306	2930
11	244	1240	439	922	78	70	14	13	11	11	184	2570
12	230	946	422	780	141	50	15	12	10	11	182	2020
13	183	668	400	833	218	50	18	11	10	10	207	1470
14	226	635	390	844	222	55	22	11	10	10	328	4850
15	178	590	380	690	211	50	18	12	9.7	10	320	7480
16	318	572	369	564	200	60	15	10	9.7	11	472	3440
17	4450	572	397	496	222	50	15	10	10	11	631	2200
18	4960	554	432	288	209	45	13	10	10	13	5930	1680
19	1620	516	1160	119	174	45	14	10	9.7	13	6760	1370
20	838	520	1040	35	178	40	14	11	10	12	11700	1200
21	778	554	850	50	126	35	14	11	9.7	13	17700	1020
22	1780	540	1410	102	97	30	14	11	9.7	11	3550	905
23	2130	532	1380	256	50	25	14	11	9.7	12	1740	826
24	2220	520	4340	510	82	25	14	11	10	13	1190	767
25	994	520	3640	474	176	25	14	11	13	52	969	749
26	640	508	2110	395	140	25	14	12	21	180	812	731
27	603	504	1580	383	120	25	13	13	50	293	762	718
28	1390	504	1400	387	150	30	13	12	66	178	740	708
29	794	—	1290	358	100	30	13	13	54	147	726	700
30	615	—	1170	316	90	20	13	12	27	262	722	695
31	554	—	1140	—	80	—	13	12	—	187	—	718
Mean	850	1346	980	690	199	47.2	14.5	11.6	16.6	51.0	1976	2388
Runoff in Ac.Ft.	52290	74740	60270	41060	12250	2810	895	712	990	3140	117600	146900
	Water Year Total 255165								Calendar Year Total 513657			

U. S. Geological Survey and Division of Water Resources cooperative station located on Highway 99E bridge. The Bear River flows into the Feather River above Nicolaus at Mile 12.0L. Drainage area is 295 square miles. Period of record 1928 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 68

FLOW OF COON CREEK AT HIGHWAY 99E - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	10	48	35	58	44	13	11	9.0	9.0	19	41	66
2	10	41	34	51	78	10	10	11	10	17	30	64
3	10	39	33	48	86	11	6.4	12	9.0	19	27	1510
4	10	1780	36	42	66	13	5.2	10	9.0	21	28	494
5	10	1430	35	41	e64	10	5.2	11	7.1	25	29	209
6	10	1440	35	63	e50	9.7	6.4	15	9.0	26	28	415
7	9.7	337	34	58	e44	14	10	13	9.0	27	27	913
8	17	168	34	153	e37	16	13	12	9.7	26	24	1280
9	37	149	35	118	e31	16	13	12	10	24	23	490
10	30	245	35	76	e27	16	14	13	11	28	23	243
11	124	200	35	58	30	16	16	13	12	29	21	349
12	72	122	35	53	28	17	14	11	13	28	22	266
13	42	100	33	45	25	18	13	12	14	27	e30	173
14	153	91	31	46	22	17	13	12	14	24	e57	1390
15	79	79	31	41	28	15	14	13	15	23	e57	1580
16	232	78	29	34	29	14	12	11	13	27	e232	395
17	1560	74	46	34	26	13	13	12	18	30	e373	248
18	525	68	56	29	30	15	14	11	29	30	e2330	195
19	139	64	68	27	24	14	10	12	27	28	1160	171
20	90	57	141	23	22	12	12	9.7	24	25	3420	147
21	78	54	69	21	28	10	10	12	23	25	2700	128
22	126	50	74	19	26	9.0	9.7	9.7	22	25	432	114
23	145	48	66	17	22	8.4	8.4	8.4	19	27	256	102
24	147	45	1350	17	19	8.4	5.2	9.7	20	33	180	95
25	72	46	548	17	20	11	9.7	12	19	34	151	91
26	45	44	195	19	18	10	12	10	20	64	130	84
27	60	40	130	31	17	11	9.7	12	19	143	108	69
28	280	40	106	31	21	8.4	9.7	9.7	17	62	91	68
29	120	—	84	22	18	6.4	8.4	9.7	17	46	76	64
30	72	—	76	18	18	9.0	9.7	8.4	17	83	71	71
31	58	—	66	—	13	—	9.7	9.7	—	57	—	83
Mean	141	249	117	43.7	32.6	12.4	10.6	11.2	15.5	35.5	406	374
Runoff in Ac.Ft.	8672	13840	7170	2598	2005	736	649	686	922	2186	24150	22940
	Water Year Total 39489								Calendar Year Total 86554			

Division of Water Resources station located at the Highway 99E bridge. Coon Creek is an east-side tributary to the Sacramento River at Mile 19.6L, via "Cross Canal", the main drain between Reclamation Districts 1000 and 1001. Drainage area is 82.5 square miles. Period of record 1947 to date. Records for 1950 computed by Division of Water Resources.
e Estimated.

TABLE 69

FLOW OF AUBURN RAVINE AT HIGHWAY 99E - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	8.7	38	28	19	67	34	56	71	59	8.7	42	81
2	9.0	32	28	16	76	35	55	75	62	9.0	39	78
3	14	34	28	14	72	44	56	73	64	8.7	45	562
4	14	518	25	13	61	38	56	75	60	9.4	36	369
5	11	460	21	12	47	40	63	78	62	12	40	179
6	18	490	21	35	49	50	66	77	68	16	33	305
7	19	179	26	44	51	54	71	75	66	15	34	442
8	47	102	23	64	51	55	70	67	65	14	31	e651
9	34	81	22	40	42	55	74	61	63	13	34	e333
10	31	104	23	34	42	53	72	61	66	14	38	e229
11	79	81	23	38	38	61	67	61	67	12	40	e261
12	39	57	20	28	35	59	76	63	59	11	39	211
13	29	49	19	29	37	53	91	62	34	e9.8	43	156
14	123	47	19	31	44	53	89	62	29	e10	44	646
15	55	39	16	32	42	50	90	61	26	e11	42	e422
16	109	40	14	41	56	49	91	56	26	e9.4	76	e274
17	576	36	38	49	56	52	87	57	29	e7.7	67	e206
18	310	34	22	35	75	53	70	58	36	e2.5	834	e171
19	88	34	84	18	86	50	70	66	30	2.0	534	163
20	60	32	42	5.5	81	49	70	66	14	2.2	1030	139
21	61	28	24	5.0	64	50	77	66	11	2.2	1150	125
22	80	28	31	6.1	56	47	89	65	8.7	2.2	e367	118
23	96	28	27	2.7	61	48	89	59	7.7	2.2	e216	110
24	90	23	418	3.9	66	53	82	59	7.7	5.5	e151	102
25	55	29	214	26	56	60	67	58	7.4	19	e124	98
26	44	26	80	43	55	66	70	58	8.0	85	e110	92
27	42	28	57	38	59	71	69	57	7.4	111	e101	87
28	144	28	43	47	62	69	69	58	7.1	34	e91	85
29	66	—	39	58	e63	62	69	58	7.1	30	85	83
30	47	—	28	63	e50	59	70	57	7.4	74	86	96
31	42	—	25	—	e42	—	69	52	—	41	—	89
Mean	78.7	96.6	49.3	29.7	56.2	52.4	72.9	63.6	35.5	19.5	187	225
Runoff in Ac.Ft.	4841	5365	3031	1766	3455	3118	4483	3911	2111	1197	11110	13810
	Water Year Total 34621								Calendar Year Total 58198			

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

TABLE 70

FLOW OF RECLAMATION DISTRICT 1001 DRAIN AT HEAD OF CROSS CANAL - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	29	130	66	94	38	15	e1.5	e2.0	e2.0	50	129	180
2	26	112	65	84	47	12	e1.5	e2.0	e2.0	41	104	172
3	24	99	62	68	73	12	e1.2	e2.0	e2.0	34	88	678
4	25	222	61	62	91	12	e1.0	e2.0	e2.0	37	83	2560
5	27	1620	58	58	67	12	e1.0	e2.0	e2.0	36	73	2240
6	27	1700	57	56	56	12	e1.0	e2.0	e2.0	38	76	1840
7	30	1770	54	77	53	12	e1.0	11	e2.0	43	76	2420
8	41	1150	55	102	47	11	e1.0	11	e2.0	47	73	2630
9	43	774	54	167	45	17	e1.0	e2.0	e2.0	47	65	3190
10	56	520	54	151	41	9.7	e1.0	e2.0	e2.0	47	62	2330
11	66	607	53	115	35	9.7	e1.0	e2.0	e2.0	44	62	1800
12	129	330	53	96	31	9.7	e1.0	e2.0	20	44	63	1790
13	122	162	52	82	33	9.7	e1.0	11	34	42	64	1490
14	96	144	49	73	31	14	e1.0	12	33	39	64	1860
15	167	134	49	75	29	13	e1.0	e2.0	28	34	66	3600
16	176	119	47	73	22	17	e1.0	e2.0	20	34	74	3100
17	366	118	47	72	31	13	e1.0	e2.0	36	39	94	2160
18	1140	113	62	71	30	9.7	e1.0	e2.0	35	42	234	1850
19	661	108	75	62	30	13	e1.0	e2.0	37	39	1120	1620
20	296	102	136	50	39	13	13	e2.0	47	43	1520	1450
21	184	96	174	44	42	12	13	e2.0	39	35	3730	1270
22	213	88	98	39	34	3.7	e2.0	e2.0	40	28	2600	1110
23	232	83	86	34	32	3.7	e2.0	e2.0	42	28	1780	916
24	253	78	106	24	31	3.7	13	e2.0	47	28	871	712
25	242	74	1230	18	18	3.7	12	e2.0	42	31	547	221
26	154	74	751	22	23	3.7	9.7	e2.0	44	53	344	298
27	118	72	301	24	27	3.7	e2.0	e2.0	47	68	184	221
28	172	67	197	36	24	3.7	e2.0	e2.0	50	143	209	201
29	420	—	146	40	20	e2.0	e2.0	e2.0	52	130	205	193
30	230	—	113	36	49	e2.0	e2.0	e2.0	52	99	187	187
31	162	—	104	—	22	—	e2.0	e2.0	—	116	—	209
Mean	191	381	146	66.8	38.4	9.6	3.1	3.2	25.6	50.9	495	1435
Runoff in Ac.Ft.	11760	21160	8955	3977	2362	572	188	196	1521	3132	29450	88260
	Water Year Total								Calendar Year Total 171533			

Division of Water Resources station located approximately 5 miles northeast of Verona on Pacific Avenue Highway bridge. R.D. 1001 Drain is an east-side tributary to the Sacramento River at Mile 19.6L. Period of Record December 1949 to date.
e Estimated.

TABLE 71

FLOW OF RECLAMATION DISTRICT 1001 DRAIN INTO CROSS CANAL* - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0	38	0	0			0	0	0	40
2	0	0	0	0	0	0			0	0	0	27
3	0	0	0	0	0	0			0	0	0	142
4	0	37	49	0	0	0			0	0	0	110
5	0	38	0	0	0	0			0	0	0	77
6	0	80	0	0	0	0			0	0	0	57
7	0	26	0	0	0	0			0	0	42	81
8	0	15	0	32	54	0			0	0	11	128
9	0	16	0	0	0	0			0	8.4	0	107
10	0	15	0	0	36	0			0	0	0	53
11	0	46	0	0	0	0			0	0	0	75
12	0	19	0	0	0	0	N	N	0	0	0	78
13	0	22	44	0	74	0	0	0	0	14	0	66
14	0	15	0	0	0	0			0	0	0	125
15	0	0	0	0	0	0			0	0	0	257
16	0	29	0	0	0	0			0	0	0	284
17	0	0	0	0	0	0	F	F	20	0	0	153
18	0	0	0	0	0	0	L	L	32	0	8	80
19	0	0	0	0	0	16	0	0	16	0	25	81
20	0	27	9	0	0	0	W	W	16	0	42	37
21	0	0	0	0	0	16			16	0	124	40
22	12	0	36	0	0	0			16	0	183	38
23	0	0	0	0	0	0			0	0	388	45
24	0	0	0	0	0	12			0	0	439	35
25	0	0	0	0	0	0			0	0	467	28
26	0	23	0	0	0	0			0	17	0	31
27	0	0	0	0	0	0			0	0	463	30
28	18	0	0	0	0	0			0	0	238	26
29	0	—	0	0	0	0			0	0	99	8
30	0	—	0	0	3.8	0			0	0	38	47
31	0	—	10	—	0	—			—	0	—	0
Mean	1.0	14.6	4.5	2.3	5.4	1.5	0	0	3.9	1.3	85.6	77
Runoff in Ac.Ft.	60	809	276	139	333	87	0	0	230	78	5092	4732
	Water Year Total 1934								Calendar Year Total 11836			

This is drainage return to the Sacramento River via the cross canal by pumping and gravity. Period of record 1940 to date. Records for 1950 computed by Division of Water Resources.
* Cross Canal, the main drain between Reclamation Districts 1000 and 1001, joins the Sacramento River at Mile 19.6L.

TABLE 72

FLOW OF PLEASANT GROVE CREEK AT LINCOLN ROAD - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	e4.4	e0.7	1.3							0	e3.0
2	0	e4.4	e0.7	1.0							0	e3.0
3	0	e4.4	e0.5	0.7							0	395
4	0	e244	e0.5	e0.5							0	41
5	0	e504	e0.4	e0.5							0	8.2
6	0	e136	e0.4	e0.5							0	239
7	0	e75	e0.3	e0							0	109
8	0	e42	e0.2	e39							0	328
9	0	e32	e0.2	e9.3							0	29
10	0	e24	e0.1	e0.8							0	9.7
11	e8.4	e71	e0.1	0							0	43
12	e6.5	e19	e0	0	N	N	N	N	N	N	0	8.5
13	e5.9	e8.5	e0	0	0	0	0	0	0	0	0	3.9
14	e5.2	e7.2	e0	0							0	381
15	e4.7	e5.9	e0	0							0	179
16	e150	e5.2	e0	0							0	11
17	e217	e4.2	e0	0	F	F	F	F	F	F	0	4.4
18	e358	e3.6	e1.2	0	L	L	L	L	L	L	392	4.4
19	e62	e2.6	e1.0	0	0	0	0	0	0	0	40	5.9
20	e3.4	e1.9	1.3	0	W	W	W	W	W	W	689	3.9
21	e3.1	e1.9	1.3	0							301	e3.0
22	e20	e1.5	1.3	0							20	e3.0
23	e5.2	e1.5	1.3	0							8.9	e3.0
24	e3.4	e1.3	130	0							5.9	e3.0
25	e2.6	e1.3	18	0							5.9	e3.0
26	e2.2	e1.0	3.4	0							5.9	e3.0
27	e2.2	e1.0	2.4	0							5.9	e3.0
28	e125	e0.8	2.2	0							e3.0	e3.0
29	e48	—	2.1	0							e3.0	e3.0
30	e6.5	—	1.9	0							e3.0	e3.0
31	e4.4	—	1.5	—		—			—		—	e3.0
Mean	e33.7	e43.2	5.6	1.7	0	0	0	0	0	0	49.4	59.4
Runoff in Ac.Ft.	e2070	e2399	343	106	0	0	0	0	0	0	2942	3655
	Water Year Total								Calendar Year Total			

Division of Water Resources station located on Lincoln Road bridge three miles northwest of Roseville. Pleasant Grove Creek is an east-side tributary to the Sacramento River at Mile 19.6L, via "Cross Canal", the main drain between Reclamation Districts 1000 and 1001. Period of record January 1950 to date.
e Estimated.

TABLE 73

FLOW OF PLEASANT GROVE CREEK AT JUNCTION OF RECLAMATION DISTRICT 1000 DRAINAGE CANAL - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	30	e1.3	6.7							0	11
2	0	22	e.8	4.4							0	8.7
3	0	17	e.5	2.6							0	349
4	0	352	e.3	1.3							0	559
5	0	683	e.1	.5							0	602
6	0	613	e0	.1							0	540
7	0	604	0	0							0	755
8	0	500	0	0							0	840
9	0	363	0	0							0	838
10	0	272	0	.9							0	683
11	0	339	0	4.9							0	530
12	0	132	0	4.2							0	486
13	7.4	58	0	2.3							0	399
14	9.8	38	e0	.8							0	626
15	89	30	e0	.2							0	877
16	50	25	e0	0							0	765
17	251	23	e0	0							0	613
18	351	22	e0								113	530
19	134	19	e0								446	469
20	63	15	0								643	416
21	41	12	0								1200	360
22	79	10	0								1020	308
23	93	7.9	0								606	255
24	57	6.4	4.2								360	183
25	41	5.2	245								193	104
26	28	4.0	87								72	41
27	20	3.1	40								29	23
28	121	e1.8	26								24	18
29	177	—	18								18	15
30	77	—	13								14	13
31	44	—	9.0	—		—			—		—	12
Mean	55.9	150	14.4	1.0							158	394
Runoff in Ac.Ft.	3438	8345	883	57.3							9398	24260
	Water Year Total								Calendar Year Total			

Division of Water Resources station located 6 miles east of Verona on R.D. 1000 Drainage Canal at Fifield Road. Pleasant Grove Creek is an east-side tributary to the Sacramento River at Mile 19.6L, via "Cross Canal", the main drain between Reclamation District 1000 and 1001. Recorder installed January 10, removed April 17, reinstalled November 17. Period of record 1950.
e Estimated.

TABLE 74

FLOW OF RECLAMATION DISTRICT 1000 DRAIN (#3 PLANT) - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13					Records sufficient to compute only monthly flows.							
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29		—										
30		—										
31		—		—		—			—		—	
Mean	35.1	11.1	21.5	9.7	45.0	26.0	37.2	56.2	42.1	20.5	25.3	27.4
Runoff in Ac.Ft.	2158	616	1321	347	2767	1547	2287	3459	2507	1261	1505	1684
	Water Year Total			23500					Calendar Year Total		21459	

This is drainage from Reclamation District 1000 returned to Sacramento River by pumping and gravity at Mile 6.85L. Daily distribution of flows are not available since the plant operates automatically on float switch. Additional water returned to Sacramento River from same district at Mile 2.1L, (See Table 76). Water returned to the Sacramento River from the Pritchard Lake Plant at Mile 16.0L was negligible during 1950. Period of record 1940 to date. Records for 1950 computed by Division of Water Resources.

TABLE 75

FLOW OVER SACRAMENTO WEIR FROM SACRAMENTO RIVER TO YOLO BY-PASS - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1											0	0
2											0	0
3											0	0
4											0	3000
5											0	432
6											0	0
7											0	7310
8											0	19700
9											0	27300
10											0	12400
11											0	6850
12	N	N	N	N	N	N	N	N	N	N	0	3260
13	O	O	O	O	O	O	O	O	O	O	0	550
14											0	0
15											0	0
16											0	0
17	F	F	F	F	F	F	F	F	F	F	0	0
18	L	L	L	L	L	L	L	L	L	L	0	0
19	O	O	O	O	O	O	O	O	O	O	24200	0
20	W	W	W	W	W	W	W	W	W	W	29600	0
21											95900	0
22											39300	0
23											14000	0
24											5800	0
25											1600	0
26											32	0
27											0	0
28											0	0
29		—									0	0
30		—									0	0
31		—		—		—			—		—	0
Mean	0	0	0	0	0	0	0	0	0	0	7014	2606
Runoff in Ac.Ft.	0	0	0	0	0	0	0	0	0	0	417400	160300
	Water Year Total 0								Calendar Year Total 577700			

Elevation--fixed crest 25.0 U.S.E.D.--Movable crest (top of needles) 31.0 U.S.E.D. Weir has 48 gates, each 38 feet in length. Weir is on right bank at Mile 4.2R above Sacramento. Period of record 1940 to date.

TABLE 76

FLOW OF RECLAMATION DISTRICT 1000 DRAIN (2ND BANNON SLOUGH) - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0		0	0			0	52	38	0
2	0	0	0		0	0			0	105	0	46
3	0	0	0		0	0			0	25	0	108
4	0	159	0		0	0			0	20	30	233
5	0	141	0		0	0			0	0	0	135
6	0	313	0		0	0			8.7	34	0	138
7	0	179	0		35	0			62	27	0	245
8	0	73	0		0	0			38	0	0	272
9	0	51	0		0	0			0	0	0	278
10	0	141	0		0	0			35	32	0	150
11	0	74	0		0	0			0	0	0	150
12	0	0	0	N	0	23	N	N	80	0	0	148
13	0	22	0	0	0	35	0	0	0	0	0	146
14	0	0	0		16	12			54	0	0	268
15	0	0	0		0	32			68	0	0	295
16	229	0	52		0	0			88	0	0	303
17	181	0	0	F	0	0	F	F	135	0	0	197
18	157	0	43	L	0	0	L	L	142	0	170	149
19	0	0	0	O	67	0	O	O	161	0	131	149
20	65	0	0	W	89	0	W	W	162	0	137	149
21	29	0	24		54	0			173	0	214	0
22	0	0	45		78	0			151	0	58	99
23	25	0	0		82	0			164	0	0	84
24	0	0	79		99	0			150	0	105	68
25	0	0	0		0	0			151	0	60	73
26	0	0	0		56	0			114	0	0	91
27	0	0	0		95	0			134	0	0	64
28	0	0	0		0	0			102	0	49	71
29	0	—	0		47	0			65	0	0	64
30	0	—	0		0	0			0	74	47	59
31	0	—	0	—	0	—			—	40	—	50
Mean	22.1	41.1	7.8	0	23.2	3.4	0	0	74.6	13.2	34.6	138
Runoff in Ac.Ft.	1360	2287	482	0	1424	202	0	0	4438	811	2061	8493
	Water Year Total 10306								Calendar Year Total 21558			

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 74). Water returned to the Sacramento River from the Pritchard Lake Plant at Mile 16.0L was negligible during 1950. Period of record 1925 to date. Records for 1950 computed by Division of Water Resources.

TABLE 77

FLOW OF LINDA CREEK NEAR ROSEVILLE - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	30	62	62	76	38	9.2	6.8	8.1	7.4	19	52	128
2	32	56	59	68	70	9.2	7.4	9.0	7.4	19	39	121
3	34	55	55	64	84	9.2	6.5	9.4	7.4	23	34	688
4	40	854	53	62	75	9.2	6.0	8.8	7.5	18	33	390
5	34	1030	54	55	64	9.2	5.6	9.8	7.7	18	31	228
6	34	651	58	77	56	9.2	6.0	10	7.7	18	30	341
7	32	201	59	116	50	9.8	6.2	10	7.5	18	32	564
8	43	153	57	173	42	11	6.5	8.8	8.1	18	31	950
9	62	134	52	129	34	11	6.7	8.1	9.4	18	26	425
10	57	195	53	102	27	11	5.9	7.7	9.8	18	25	280
11	140	160	57	83	23	14	6.4	8.1	10	17	24	368
12	84	121	54	68	22	18	5.4	8.6	11	17	26	284
13	65	111	47	78	20	16	5.9	9.4	12	17	29	254
14	148	109	47	78	22	13	5.9	10	14	17	36	894
15	97	105	47	70	27	12	5.7	9.8	15	17	36	547
16	156	94	47	66	28	12	5.7	8.4	19	17	78	302
17	431	92	74	64	24	14	5.7	7.4	26	17	113	244
18	277	90	109	62	e23	14	6.7	6.5	37	16	906	216
19	115	81	105	55	e22	12	6.5	6.5	40	16	536	206
20	81	79	128	47	e21	13	6.5	6.8	39	16	1350	193
21	75	81	97	48	e20	9.8	6.5	6.0	33	16	1120	174
22	166	75	87	45	e19	12	6.5	6.4	28	16	316	164
23	107	71	83	41	e18	13	6.5	7.5	26	16	172	158
24	107	66	280	40	18	8.8	6.5	7.5	22	27	144	154
25	73	66	270	40	16	9.8	7.2	8.4	23	44	144	147
26	58	65	152	36	12	8.8	7.2	8.1	24	81	144	140
27	63	65	125	30	12	11	7.2	7.9	25	164	144	136
28	191	65	110	28	12	8.3	8.1	8.8	25	72	136	131
29	117	—	101	26	10	7.4	8.1	8.1	21	56	127	127
30	83	—	92	26	9.2	7.4	8.1	7.5	18	83	133	141
31	72	—	83	—	8.4	—	8.1	7.7	—	75	—	163
Mean	100	178	88.9	65.1	29.9	11.1	6.6	8.2	18.3	32.4	202	299
Runoff in Ac.Ft.	6157	9892	5468	3874	1838	659	405	506	1087	1991	11990	18360
	Water Year Total 34894								Calendar Year Total 62227			

Division of Water Resources station located at Antelope Road bridge 0.5 mile downstream from Highway 99E. Linda Creek is an east-side tributary to the Sacramento River at Mile 1.34 via the Back Borrow Pit of Reclamation District 1000. Recorder installed July 22, 1949. Period of record 1949 to date.

TABLE 78

FLOW OF AMERICAN RIVER AT FAIR OAKS - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	468	3130	4490	6400	9200	11600	3080	393	193	410	2230	4820
2	468	2740	4340	6820	9710	10400	2810	383	301	461	1640	4310
3	510	2570	4250	7380	7720	9760	2540	366	277	456	1820	35200
4	531	10900	4250	7480	6660	8180	2340	356	259	444	2500	76400
5	517	20400	4660	7830	6240	7740	2140	361	176	473	2180	24500
6	601	22800	5250	8740	6130	7880	2230	351	301	473	1690	16500
7	608	14500	4580	10000	5900	6260	1720	351	341	497	1460	45000
8	744	8620	4120	11500	5530	5020	1600	310	320	522	1290	60300
9	824	6500	3870	9370	5320	4530	1470	315	263	504	1170	43800
10	784	5540	3630	8400	5540	4420	1340	320	341	473	1120	22500
11	1080	5480	3490	7400	6310	4730	1350	310	277	461	1070	16800
12	1030	5100	3350	7440	7540	4900	1230	305	330	479	997	14900
13	934	4580	3120	8840	8650	4260	1150	305	356	450	953	11800
14	1110	4280	3000	8460	10000	4350	1080	305	272	473	1050	20700
15	1110	4130	2950	7620	11400	4390	1020	272	233	491	1390	24000
16	1150	4280	2810	8270	12000	4850	988	277	263	491	1340	16600
17	11400	4310	3010	9870	12100	4760	882	272	277	485	3360	12400
18	17000	4070	4340	10300	11500	4660	858	268	320	473	46600	10200
19	9570	4060	5390	11300	10500	4760	780	263	315	540	109000	9030
20	5750	4220	13700	12700	10700	5170	742	254	432	572	81500	7980
21	4940	4190	7920	14200	11400	5630	693	233	432	566	132000	7200
22	19600	4040	7300	14600	12200	5320	632	216	467	553	35600	6620
23	20700	3970	8530	12800	12200	4760	585	216	467	572	17000	6140
24	19900	3950	10700	11800	12100	4230	540	237	491	611	10600	5750
25	8400	4000	13200	11100	11900	3540	516	220	388	658	7970	5500
26	5530	4220	8320	11800	11800	3090	491	224	503	930	6600	5230
27	4460	4520	6760	12300	11300	2910	461	212	356	3590	5580	5020
28	6280	4670	6120	12000	11800	2770	461	209	421	3090	4960	4850
29	5680	—	5670	9840	10500	2770	438	205	383	1680	4460	4700
30	4300	—	5540	9010	11300	3030	427	190	415	2210	4320	4660
31	3650	—	6040	—	11500	—	421	190	—	4500	—	4660
Mean	5149	6278	5635	9852	9569	5356	1194	280	339	922	16450	17360
Runoff in Ac.Ft.	316600	348600	346500	586300	588400	318700	73420	17230	20170	56700	978700	1067000
	Water Year Total 2704950								Calendar Year Total 4718320			

U. S. Geological Survey station located on right bank at Mile 19.2 above mouth. Drainage area is 1921 square miles. Period of record 1904 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 79

FLOW OF AMERICAN RIVER AT SACRAMENTO (H ST. BRIDGE) - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	544	3150	4600	6620	9600	11600	3100	378	210	458	2460	4840
2	457	2610	4440	7080	9830	10700	2930	364	300	451	1650	4360
3	465	2430	4340	7740	8250	10200	2640	350	306	505	1730	*15200
4	552	6850	4280	7940	7130	8800	2420	331	276	474	2310	*62500
5	488	20600	4640	8180	6530	8230	1880	331	215	482	2300	24600
6	569	21600	5540	8870	6420	8230	2060	350	287	505	1700	16300
7	603	15900	4780	10300	6210	6800	1790	331	331	497	1440	*38000
8	674	8870	4210	11300	5730	5290	1650	325	350	538	1270	*48600
9	805	6890	3940	10700	5480	4500	1490	300	312	530	1160	44800
10	767	5410	3710	8910	5670	4420	1390	325	344	489	1060	24000
11	968	5220	3510	7960	6400	4680	1360	293	306	482	1010	17300
12	989	5050	3450	7850	7880	4940	1260	287	357	482	928	15800
13	916	4570	3200	8520	9030	4300	1140	293	364	466	880	12500
14	1010	4860	3070	9440	10100	4260	1090	306	331	466	892	19000
15	1110	4340	3020	8210	11400	4380	1030	276	264	489	1290	23400
16	1040	4420	2880	8380	11900	4760	990	264	253	489	1270	15400
17	8500	4480	3020	9740	12100	4760	880	276	287	482	2880	12100
18	15400	4210	4380	10500	11600	4700	836	270	306	474	20500	9790
19	10700	4150	4150	11100	10800	4660	781	264	331	538	*77000	8880
20	6500	4300	12500	12200	10900	5140	720	264	392	555	*54700	8100
21	4980	4260	8520	13600	11300	5690	652	247	505	563	*94300	7300
22	15000	4130	7240	14100	12000	5480	598	236	435	555	*39800	6700
23	18200	4000	9070	12300	12000	4820	572	230	505	580	18800	6300
24	23100	3980	9760	12800	12000	4300	538	236	489	616	11400	5900
25	11000	4020	14000	11300	11900	3670	505	241	458	680	9230	5700
26	6940	4240	9720	11700	11900	3150	482	236	466	858	7260	5400
27	4730	4540	7960	12100	11400	2960	466	225	435	2870	5930	5200
28	6190	4840	6730	12000	11700	2860	435	225	420	3540	5320	4900
29	6320	—	5940	10400	10800	2800	435	225	406	1900	4700	4800
30	4530	—	5730	9490	11200	3050	420	210	458	1700	4340	4680
31	3650	—	6130	—	11500	—	399	205	—	4800	—	4660
Mean	5087	6211	5757	10040	9699	5471	1192	280	357	920	12650	15710
Runoff in Ac.Ft.	312800	345000	354000	597700	596400	325500	73270	17240	21220	56560	752700	966000
	Water Year Total 2732110								Calendar Year Total 4418390			

Station is maintained jointly by Division of Water Resources and the U. S. Geological Survey. Station is located at the "H" Street Bridge and is 6.0 miles above mouth of river. The American River flows into the Sacramento River at Mile 1.1L. Period of record 1921, 1926 to date. Record for 1950 computed by U. S. Geological Survey.

* An unmeasured amount of water by-passed the gaging station on the right bank November 19, 20, 21, 22 and December 3, 4, 7, and 8. The maximum unmeasured flow was estimated as 70,000 second-feet on November 21.

TABLE 80

FLOW OF CACHE CREEK NEAR CAPAY - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	23	187	169	257	319	375	309	364	276	4.8	153	123
2	23	164	162	234	299	382	309	364	264	4.8	105	117
3	23	156	153	215	286	382	315	346	264	4.5	88	5460
4	22	3250	146	197	276	375	319	329	260	4.5	71	5460
5	20	2900	140	182	242	375	315	319	264	4.5	60	1700
6	20	3570	144	176	240	393	305	296	237	4.5	51	1090
7	20	1840	148	204	257	397	286	279	204	4.2	46	1570
8	24	1080	136	356	270	360	276	276	179	4.2	40	1250
9	35	765	129	456	292	339	276	276	146	4.0	36	1110
10	56	826	125	371	319	322	273	296	125	4.0	34	870
11	272	925	121	319	326	315	273	302	113	4.0	31	885
12	174	657	119	289	339	292	296	286	84	3.8	29	860
13	112	545	115	267	364	299	322	260	64	3.8	29	666
14	748	472	109	248	368	257	322	251	46	3.5	27	2290
15	419	416	107	228	357	267	326	248	37	3.8	28	2040
16	227	386	103	212	326	282	326	245	31	3.8	1070	1250
17	927	375	101	194	329	282	329	251	27	4.0	1330	950
18	1270	343	119	182	346	276	339	242	26	4.0	871	765
19	800	312	151	169	350	276	371	251	20	4.0	1190	648
20	458	282	238	158	336	289	378	251	16	4.0	952	554
21	346	254	248	148	319	315	364	245	13	4.0	1050	480
22	805	240	215	140	332	326	357	242	11	4.0	635	420
23	600	226	299	138	346	326	336	242	9.8	4.5	416	332
24	561	212	865	155	353	326	326	257	8.0	5.0	322	332
25	405	202	1120	202	350	326	322	289	7.1	5.3	242	305
26	301	194	710	305	346	326	264	315	6.8	7.1	202	279
27	242	186	549	319	371	315	305	315	5.9	11	174	254
28	266	176	448	339	378	326	350	312	5.3	57	155	240
29	294	—	375	326	353	322	364	305	5.0	196	140	248
30	254	—	329	312	353	315	360	296	5.0	388	129	242
31	218	—	292	—	364	—	353	296	—	296	—	240
Mean	321	755	264	243	326	325	321	285	92.0	34.2	324	1067
Runoff in Ac.Ft.	19770	41930	16230	14480	20040	19350	19770	17550	5470	2100	19250	65590
	Water Year Total 178403								Calendar Year Total 261530			

U. S. Geological Survey and U. S. Bureau of Reclamation cooperative station located 3 miles northwest of Capay and 2 miles upstream from Clear Lake Water Company diversion dam. Cache Creek is a west-side tributary to Yolo By-Pass opposite Mile 7.0 north of Sacramento By-Pass. Drainage area is 1052 square miles. Period of record 1944 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 81

FLOW OF CACHE CREEK AT YOLO - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	122	112	178						0	138	50
2	0	94	100	152						0	33	48
3	0	70	87	130						0	0	828
4	0	1360	77	112						0	0	7480
5	0	3670	70	97						0	0	2030
6	0	3390	60	80						0	0	1060
7	0	2310	64	100						0	0	1340
8	0	1040	50	200						0	0	1210
9	0	715	49	300						0	0	1050
10	0	610	48	300						0	0	830
11	0	815	47	250						0	0	718
12	0	630	46	200	N	N	N	N	N	0	0	835
13	0	516	44	170	0	0	0	0	0	0	0	661
14	0	453	42	140						0	0	1720
15	427	399	37	124						0	0	2430
16	376	354	27	87						0	0	1380
17	129	328	25	70	F	F	F	F	F	0	1450	954
18	924	306	20	50	L	L	L	L	L	0	692	772
19	730	278	47	32	O	O	O	O	O	0	967	680
20	426	242	67	7	W	W	W	W	W	0	646	605
21	286	215	140	0						0	874	542
22	372	194	127	0						0	600	492
23	561	175	142	0						0	370	450
24	440	160	246	0						0	263	400
25	376	144	886	0						0	191	370
26	274	132	640	0						0	138	340
27	201	122	476	0						0	110	310
28	172	112	390	0						0	89	280
29	204	—	319	0						0	75	270
30	201	—	266	0						0	66	290
31	160	—	212	—		—			—	43	—	280
Mean	202	677	160	92.6	0	0	0	0	0	1.4	223	990
Runoff in Ac.Ft.	12410	37600	9840	5510	0	0	0	0	0	85	13290	60900
	Water Year Total 65360								Calendar Year Total 139635			

U. S. Geological Survey and Division of Water Resources cooperative station located 0.5 mile south of Yolo. Cache Creek is a west-side tributary to Yolo By-Pass opposite Mile 7.0 north of Sacramento By-Pass. Drainage area is 1150 square miles. Period of record 1903 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 82

FLOW OF PUTAH CREEK NEAR WINTERS - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	26	327	197	274	99	14	5.0	1.8	1.9	3.4	170	197
2	27	282	187	250	107	12	6.1	1.6	1.2	3.3	102	179
3	27	258	177	227	143	11	6.6	1.6	.7	3.2	69	13300
4	27	12800	172	211	153	10	6.6	6.4	.3	3.1	51	9260
5	27	7640	167	197	127	10	6.6	6.9	.1	3.3	39	2400
6	27	8560	165	199	110	8.8	5.9	5.2	0	3.1	33	1670
7	27	2940	165	298	101	8.2	4.6	4.6	0	3.0	28	3290
8	33	1660	156	695	94	9.7	3.8	6.6	0	2.6	24	2280
9	34	1200	148	688	88	10	3.4	5.0	0	2.0	21	2520
10	259	1470	144	489	84	7.7	3.1	3.9	0	1.6	19	1610
11	1850	1550	141	388	78	7.9	2.2	2.9	0	1.8	18	1650
12	546	1020	136	334	73	7.4	1.9	2.3	0	2.3	18	1680
13	304	822	134	302	66	8.5	1.6	1.6	0	2.4	19	1160
14	4060	685	130	278	62	8.5	1.6	1.1	0	2.2	19	6130
15	1180	588	125	254	60	8.5	1.5	1.1	.3	1.9	19	7040
16	956	524	120	235	54	9.4	1.6	.9	1.9	1.9	2630	3360
17	3500	498	120	218	54	9.1	1.4	.4	3.0	2.7	2360	2040
18	2830	436	132	204	49	10	1.6	.2	3.3	3.3	4680	1500
19	1400	386	159	189	41	12	1.5	.1	3.2	3.6	3910	1210
20	814	348	301	175	38	11	1.3	1.2	4.6	3.5	2080	1020
21	738	318	268	165	33	9.4	1.2	3.1	5.6	3.8	3280	867
22	919	294	218	154	30	9.7	1.5	4.0	4.4	3.9	1520	748
23	688	276	244	146	29	9.7	1.6	4.1	4.2	4.4	853	657
24	575	260	1790	137	27	9.4	1.8	4.1	3.8	5.4	570	583
25	433	242	1540	129	25	9.7	2.0	3.3	3.4	9.4	420	533
26	344	229	862	123	25	9.1	2.0	2.6	3.2	19	328	488
27	298	218	616	118	25	8.8	1.8	2.3	3.0	27	272	443
28	984	206	503	108	22	7.4	1.4	2.2	2.9	24	242	432
29	786	—	404	104	18	7.7	1.4	2.0	3.0	163	217	381
30	506	—	348	100	17	7.1	1.4	2.3	3.4	673	208	360
31	396	—	307	—	14	—	1.7	2.4	—	419	—	333
Mean	794	1644	331	246	62.8	9.39	2.76	2.83	1.91	45.4	807	2252
Runoff in Ac.Ft.	48840	91310	20380	14660	3860	559	170	174	114	2790	48040	138500
	Water Year Total 182125								Calendar Year Total 369397			

U. S. Geological Survey and Division of Water Resources cooperative station located 6 miles west of Winters. Putah Creek is a west-side tributary to Yolo By-Pass below Sacramento By-Pass. Drainage area is 614 square miles. Period of record 1930 to date. (Records 6 miles downstream available 1905 to 1931). Records for 1950 computed by U. S. Geological Survey.

TABLE 83

FLOW OF PUTAH CREEK NEAR DAVIS - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	327	192	256	76					0	215	174
2	0	283	178	234	76					0	111	166
3	0	252	172	209	90					0	64	7430
4	0	7650	166	192	118					0	40	12800
5	0	10200	156	178	112					0	22	2880
6	0	7910	153	175	90					0	13	1710
7	0	3310	153	212	78					0	11	3070
8	0	1950	150	466	68					0	8.4	2260
9	0	1370	142	672	61					0	2.4	2370
10	0	1320	136	490	53					0	0	1740
11	1280	1700	134	381	11					0	0	1390
12	692	1110	128	332	4.2	N	N	N	N	0	0	1820
13	364	885	125	292	.5	0	0	0	0	0	0	1230
14	2790	740	123	268	0					0	0	3920
15	1640	642	118	245	0					0	0	5660
16	668	572	110	223	0					0	240	3960
17	2640	528	110	209	0	F	F	F	F	0	2690	2310
18	2890	485	110	195	0	L	L	L	L	0	3330	1710
19	1560	420	131	178	0	O	O	O	O	0	4330	1320
20	838	368	178	166	0	W	W	W	W	0	1690	1090
21	540	336	280	153	0					0	3140	933
22	620	296	212	142	0					0	1730	807
23	650	276	202	134	0					0	970	713
24	516	256	1030	120	0					0	628	636
25	426	238	1700	115	0					0	450	570
26	343	227	899	105	0					0	349	525
27	295	212	606	100	0					0	282	475
28	544	202	496	90	0					0	241	440
29	810	—	395	80	0					0	214	411
30	498	—	336	78	0					0	191	392
31	385	—	292	—	0	—			—	612	—	365
Mean	677	1574	300	223	27.0	0	0	0	0	19.7	699	2106
Runoff in Ac.Ft.	41630	87400	18470	13270	1660	0	0	0	0	1210	41580	129500
	Water Year Total 162430								Calendar Year Total 334720			

U. S. Geological Survey, U. S. Bureau of Reclamation and Division of Water Resources cooperative station located about 1 mile upstream from Highway 40. Putah Creek is a west-side tributary to Yolo By-Pass below Sacramento By-Pass. Period of record 1948 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 84

FLOW OF YOLO BY-PASS NEAR WOODLAND* - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	12	266	149	271	17	52	31	37	61	21	13	600
2	9.4	210	128	246	26	42	31	37	61	18	13	428
3	9.2	171	115	220	34	42	31	37	59	16	14	439
4	8.1	160	104	187	35	43	31	37	61	16	16	4120
5	8.4	328	95	175	37	43	31	39	66	16	19	36600
6	8.4	4360	90	174	41	45	31	39	72	16	20	42500
7	37	39200	83	165	64	47	30	40	75	16	18	34300
8	99	42600	80	146	96	41	30	40	88	15	16	44200
9	89	26300	79	154	65	41	30	41	100	15	14	62900
10	73	11200	76	195	44	46	30	42	107	15	13	65800
11	68	5340	72	333	47	51	29	44	106	15	12	44600
12	59	3680	66	620	34	56	29	48	102	15	12	32200
13	49	2480	62	508	34	56	29	52	95	15	11	26800
14	49	1670	60	366	38	51	29	55	79	15	12	22900
15	54	1120	56	284	37	42	29	55	64	15	12	34900
16	50	906	54	237	36	34	28	58	56	15	16	55100
17	60	735	53	164	35	33	28	63	50	14	18	51400
18	66	670	53	108	42	34	28	70	55	14	120	42800
19	85	532	53	81	59	33	28	74	160	14	1000	35400
20	158	457	53	65	108	33	31	70	144	14	13300	29700
21	206	378	54	73	144	33	34	65	85	14	74500	24700
22	290	338	68	70	139	33	34	64	85	14	119000	19900
23	350	307	82	66	137	32	34	67	68	14	65700	14300
24	406	276	99	58	100	31	35	64	50	14	29700	8830
25	504	241	115	59	90	31	35	67	40	14	12100	5200
26	565	224	132	25	70	31	35	68	35	13	5420	2430
27	532	207	184	12	61	31	35	68	32	13	2670	1140
28	524	177	310	18	55	31	36	68	28	13	1260	866
29	464	—	351	15	51	31	36	67	25	13	874	740
30	396	—	333	13	46	31	36	66	24	13	727	728
31	339	—	300	—	51	—	37	63	—	13	—	682
Mean	182	5164	116	170	60.4	39.3	31.6	55.0	71.1	14.8	10890	24100
Runoff in Ac.Ft.	11160	286800	7160	10130	3720	2340	1950	3380	4230	908	647800	1482000
	Water Year Total 332705								Calendar Year Total 2461578			

Station is maintained jointly by the Division of Water Resources and the U. S. Geological Survey. The flow of this station is referred to the recorder at the end of the Sacramento By-Pass except during periods of high water when it is referred to the recorder at the Woodland-Elkhorn highway crossing. To get total flow through Yolo By-Pass below Sacramento, combine this flow with the flow in Tables 75 and 83. The flow in this table includes the flows of Cache Creek (Table 81), Knights Landing Ridge Cut (Table 48), and Fremont Weir (Table 51). Period of record 1930 to date. Records for 1950 computed by U. S. Geological Survey.

* Also known as Yolo By-Pass at Elkhorn.

TABLE 85

FLOW OF COSUMNES RIVER AT MICHIGAN BAR - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	41	419	665	1070	1010	548	96	19	5.7	11	206	736
2	42	350	635	1130	1130	520	86	19	4.5	12	133	644
3	47	330	612	1170	1060	474	78	18	4.5	12	103	6850
4	41	3790	605	1170	890	431	73	17	3.9	11	86	10800
5	29	4160	635	1190	822	395	67	16	3.9	12	81	4600
6	39	5410	716	1330	786	375	66	16	3.6	13	75	4180
7	41	2980	642	1740	759	345	61	15	4.2	19	70	7440
8	55	1840	605	3090	716	312	56	14	5.7	15	64	11400
9	76	1370	569	2600	682	286	55	13	6.0	15	58	7020
10	70	1180	527	2040	658	272	52	11	6.4	16	55	4240
11	107	1190	555	1770	658	265	52	5.7	6.8	15	51	3090
12	105	962	514	1630	682	276	55	11	8.0	13	50	2460
13	86	831	462	1730	724	252	54	12	8.4	13	51	2040
14	154	759	431	1690	742	238	48	12	7.2	12	99	3750
15	126	724	413	1560	813	222	45	13	8.8	12	203	3130
16	282	716	401	1510	860	216	42	13	9.2	12	145	2440
17	2740	699	475	1550	860	212	39	11	9.6	11	293	2070
18	1940	674	658	1580	831	200	38	10	10	11	8410	1810
19	1100	665	782	1630	795	191	35	8.8	11	11	15900	1590
20	650	674	1690	1670	777	179	34	8.4	16	11	14800	1400
21	534	658	1260	1720	768	171	33	7.6	17	12	16700	1260
22	1610	642	1280	1720	777	168	31	6.0	18	13	5750	1140
23	2020	628	1350	1550	768	158	30	5.7	17	14	3100	1030
24	2140	620	2260	1420	759	148	28	5.1	14	17	2080	951
25	1080	620	2330	1330	742	140	28	5.7	13	21	1590	870
26	674	642	1770	1280	724	131	25	6.0	12	48	1260	804
27	632	674	1420	1250	699	122	24	6.8	12	399	1030	750
28	1650	682	1230	1190	665	116	23	6.4	11	320	870	699
29	1080	—	1090	1080	605	107	22	6.0	11	155	762	665
30	674	—	1030	995	583	103	21	5.7	11	172	725	674
31	527	—	1050	—	569	—	19	5.4	—	365	—	795
Mean	658	1246	925	1546	771	252	45.7	10.6	9.31	57.8	2493	2946
Runoff in Ac.Ft.	40450	69200	56850	92000	47430	15020	2810	653	554	3560	148400	181100
	Water Year Total 331365								Calendar Year Total 658027			

U. S. Geological Survey and Division of Water Resources cooperative station located at the highway bridge at Michigan Bar. Drainage area is 537 square miles. Period of record 1907 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 86

FLOW OF COSUMNES RIVER AT McCONNELL - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	34	594	696	1040	1020	543	83			0	281	803
2	34	476	668	1080	1160	518	81			0	166	726
3	34	429	640	1140	1140	477	69			0	119	1890
4	37	1380	616	1160	995	435	46			0	97	13100
5	32	5500	616	1160	872	393	40			0	81	11100
6	25	5090	712	1200	828	362	35			0	73	5270
7	32	5580	700	1500	800	352	37			0	67	7110
8	36	2790	652	2500	751	318	36			0	60	10100
9	47	1790	612	3800	702	293	32			0	51	13500
10	66	1450	574	2700	670	281	33			0	47	7470
11	79	1580	549	2100	666	253	32			0	42	4450
12	98	1280	591	1800	684	251	30			0	38	3060
13	92	1040	497	1800	697	258	30	N	N	0	36	2380
14	101	926	473	2000	764	234	29	0	0	0	39	2900
15	144	849	446	1800	800	218	24			0	117	5380
16	129	812	432	1600	854	200	21			0	160	3370
17	1780	796	434	1600	872	193	22	F	F	0	146	2420
18	3600	760	619	1620	859	187	19	L	L	0	1030	2050
19	1790	736	608	1650	818	182	16	O	O	0	9990	1790
20	900	732	1540	1720	792	173	6.0	W	W	0	14500	1560
21	700	720	1410	1780	764	168	0			0	21200	1380
22	1100	696	1240	1790	778	150	0			0	14400	1240
23	2500	672	1480	1680	782	145	0			0	6150	1120
24	2300	660	1770	1510	764	137	0			0	3040	1010
25	1600	640	3240	1390	760	124	0			0	1990	937
26	950	656	2220	1320	738	111	0			0	1530	861
27	696	680	1710	1280	702	99	0			69	1240	797
28	1770	704	1360	1240	679	94	0			432	1050	745
29	2120	—	1180	1160	630	90	0			227	904	694
30	1060	—	1040	1070	570	86	0			139	807	663
31	740	—	1010	—	566	—	0		—	288	—	793
Mean	794	1429	979	1640	790	244	23.3	0	0	37.3	2648	3570
Runoff in Ac.Ft.	48840	79370	60170	97570	48550	14530	1430	0	0	2290	157600	219500
	Water Year Total 355040								Calendar Year Total 729850			

U. S. Geological Survey, U. S. Bureau of Reclamation and Division of Water Resources cooperative station located on Highway 99 bridge. When flow in main channel reaches 4600 c.f.s. water starts to by-pass station. Figures here given include all overflow. Drainage area is 730 square miles. Period of record 1942 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 87

FLOW OF DRY CREEK NEAR GALT* - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	158	54	148	40			0			0	125
2	0	129	49	134	54			0			0	110
3	0	108	45	123	66			0			0	1000
4	0	756	42	117	67			0			0	5200
5	0	3850	40	98	57			0			0	1600
6	0	3340	39	91	48			0			0	1300
7	0	1740	39	112	42			0			0	2500
8	0	676	37	284	40			0			0	5350
9	0	480	35	828	36			0			0	3850
10	0	441	33	601	32			0			0	1200
11	0	475	37	414	28			0			0	716
12	0	276	45	271	22	N	N	0	N	N	0	573
13	0	206	38	222	15	0	0	0	0	0	0	458
14	0	179	34	197	11			0			0	1010
15	26	170	30	166	9.4			0			0	1330
16	79	158	28	148	7.6			0			0	632
17	802	145	32	132	2.8	F	F	0	F	F	0	506
18	944	134	50	116	1.7	L	L	0	L	L	263	388
19	400	122	46	102	1.7	O	O	0	O	O	6610	312
20	205	113	180	89	1.6	W	W	0	W	W	5860	273
21	153	101	138	81	1.0			0			7040	248
22	217	94	108	74	1.1			.1			2720	234
23	304	86	137	68	1.0			.1			894	222
24	517	76	377	63	.6			.1			467	212
25	253	70	1060	58	0			0			260	205
26	154	66	622	54	0			.1			205	194
27	114	70	425	50	0			0			165	181
28	841	61	296	47	0			0			139	167
29	608	—	227	44	0			.1			127	157
30	304	—	192	42	0			.1			120	151
31	200	—	166	—	0	—		0	—		—	194
Mean	197	510	151	166	18.9	0	0	.02	0	0	829	987
Runoff in Ac.Ft.	12140	28320	9280	9870	1160	0	0	1.2	0	0	49330	60690
	Water Year Total 60771								Calendar Year Total 170791			

U. S. Geological Survey, U. S. Bureau of Reclamation and Division of Water Resources cooperative station located at Dustin Road bridge. Drainage area is 325 square miles. Period of record 1926 to 1933; 1944 to date. Records for 1950 computed by U. S. Geological Survey.
* Also known as Dry Creek at Dustin Road.

TABLE 88

FLOW OF MOKELUMNE RIVER AT LANCHA PLANA - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	107	655	674	554	1950	4020	471	469	476	279	489	4400
2	50	690	695	541	1500	4360	510	379	466	497	503	4390
3	166	690	695	524	1500	4350	631	450	202	497	511	4470
4	92	780	695	964	1500	3770	644	665	405	509	510	5360
5	159	580	369	990	1500	3400	571	294	496	514	573	5980
6	124	619	700	990	1720	3410	645	169	526	522	695	4610
7	146	580	700	983	1970	3110	655	517	634	200	634	11600
8	55	581	700	1000	1930	2290	635	524	402	226	706	18200
9	202	686	700	1000	1890	1680	167	534	458	471	706	11700
10	79	700	700	1110	1640	1220	494	530	202	497	706	6160
11	76	700	700	1760	1500	1000	660	516	467	474	550	4730
12	194	700	700	1770	1500	990	650	481	514	500	379	4490
13	234	700	695	1770	1510	928	655	306	520	507	459	4480
14	243	700	700	1760	1510	660	655	486	546	508	536	4540
15	242	690	700	1740	1700	869	600	475	594	273	594	4500
16	251	685	700	1740	2300	1460	243	424	319	497	711	4510
17	235	599	700	1760	2490	1870	585	394	220	528	551	4500
18	226	604	700	1740	2490	1930	572	346	458	506	736	4490
19	218	443	700	1750	2490	1930	575	319	458	472	3660	4480
20	208	562	700	1750	2490	2390	571	220	513	502	12800	4470
21	142	589	700	1750	2470	2870	655	466	469	366	22000	1890
22	124	690	700	1760	2500	2580	443	488	470	247	7150	1850
23	207	625	700	1780	2500	1860	178	466	391	511	4870	1850
24	211	646	726	1960	2790	1510	472	440	269	500	4590	1440
25	169	652	571	2170	2930	1320	660	443	439	510	4530	800
26	187	695	560	2170	3170	843	660	376	472	465	4510	773
27	186	606	565	2170	3440	650	660	265	491	503	4500	794
28	129	582	566	2180	3460	650	660	408	478	286	4240	794
29	96	—	578	2190	3430	650	480	432	488	245	1420	773
30	161	—	590	2190	3450	650	238	429	396	486	2450	912
31	215	—	571	—	3430	—	670	424	—	473	—	1000
Mean	166	644	660	1551	2279	1974	547	424	441	438	2909	4353
Runoff in Ac.Ft.	10180	35760	40560	92260	140100	117500	33650	26050	26260	26920	173100	267600
	Water Year Total 605790								Calendar Year Total 989940			

U. S. Geological Survey and Division of Water Resources cooperative station located 3 miles downstream from Pardee Dam. Drainage area is 584 square miles. Period of record 1926 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 89

FLOW OF MOKELUMNE RIVER NEAR CLEMENTS - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	308	528	671	565	2080	3760	503	488	417	320	476	4120
2	71	695	716	552	1500	4480	493	448	484	486	493	4190
3	60	704	712	526	1490	4460	617	351	294	464	518	4650
4	158	1220	712	904	1500	4060	659	643	312	420	515	4840
5	94	784	537	1010	1500	3350	596	380	468	510	596	6530
6	150	1050	555	1020	1640	3330	632	249	497	517	692	4720
7	123	660	708	1010	1940	3170	640	372	636	366	643	11100
8	154	619	716	1030	1900	2500	640	519	458	171	700	18100
9	103	712	716	1040	1880	1750	323	521	401	365	707	15500
10	159	762	716	1020	1740	1320	403	520	313	479	707	6760
11	93	753	716	1660	1500	1030	636	509	372	481	568	4970
12	103	732	716	1780	1500	1000	636	489	446	469	436	4580
13	226	724	716	1780	1520	980	636	333	504	491	471	4550
14	272	720	712	1770	1520	677	636	471	535	499	549	4760
15	252	716	716	1760	1620	754	593	485	583	377	603	4590
16	323	712	712	1750	2120	1300	356	470	463	399	715	4560
17	435	618	720	1760	2420	1700	500	389	192	520	577	4570
18	263	628	712	1750	2420	1860	558	403	383	522	1030	4530
19	227	501	720	1750	2420	1860	558	340	477	464	2370	4510
20	236	560	720	1760	2420	2100	556	192	456	476	14500	4480
21	163	611	716	1760	2410	2720	636	404	508	483	26900	2560
22	147	708	716	1780	2420	2560	445	481	466	242	10600	2000
23	172	653	716	1780	2420	1980	330	471	382	427	4970	1970
24	226	671	783	1860	2600	1450	313	451	345	546	4460	1740
25	211	671	621	2150	2860	1340	636	429	381	470	4340	915
26	176	699	547	2150	2970	931	640	428	478	484	4320	703
27	187	622	575	2140	3390	658	643	287	462	482	4280	806
28	458	643	580	2160	3420	647	640	368	487	377	4270	822
29	134	—	594	2140	3390	647	610	430	461	232	1900	802
30	137	—	608	2160	3400	647	192	437	443	375	1720	866
31	205	—	582	—	3380	—	580	438	—	467	—	1050
Mean	194	703	676	1543	2235	1967	543	426	437	431	3188	4543
Runoff in Ac.Ft.	11950	39030	41570	91790	137400	117100	33390	26170	25990	26510	189700	279400
	Water Year Total 607340								Calendar Year Total 1020000			

U. S. Geological Survey and Division of Water Resources cooperative station located 1 mile north of Clements, 700 feet upstream from the highway bridge. Drainage area is 630 square miles. Period of record 1904 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 90

FLOW OF MOKELUMNE RIVER AT WOODBRIDGE - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	462	226	562	369	1780	2890	182	32	23	145	308	2380
2	202	568	639	360	1420	3300	115	34	23	83	324	3390
3	95	622	650	273	1110	3640	131	31	25	173	341	4140
4	124	745	653	349	1080	3450	206	29	22	200	336	4510
5	123	1080	655	554	1080	3430	188	53	22	220	371	4830
6	120	890	444	593	1140	3030	128	30	23	234	438	5320
7	129	751	626	642	1440	2970	130	25	31	283	505	5060
8	138	602	642	706	1560	2750	142	25	221	98	510	9150
9	110	615	281	742	1520	1960	126	28	45	38	527	20700
10	145	678	320	853	1510	1230	45	30	34	104	530	7980
11	125	718	513	1010	1160	815	40	35	27	188	503	5460
12	90	685	516	1470	1080	628	71	41	28	265	414	4890
13	143	673	497	1490	1070	598	91	40	225	283	276	4560
14	228	668	457	1510	1110	499	137	28	188	271	339	4480
15	255	666	446	1520	1090	348	146	28	216	254	393	4550
16	243	661	430	1520	1330	648	111	28	250	86	474	4500
17	352	620	434	1460	1700	959	43	26	125	164	510	4450
18	350	580	450	1370	1810	1270	42	25	50	268	633	4430
19	252	593	468	1340	1850	1390	53	24	86	231	1160	4410
20	228	437	450	1330	1920	1430	59	22	163	199	2310	4390
21	219	538	425	1340	1870	1660	61	21	191	215	9680	4300
22	160	587	425	1340	1910	2020	100	21	186	159	21500	3080
23	140	622	419	1350	1920	2050	44	22	164	74	6220	2340
24	209	611	488	1370	1910	1450	33	22	99	294	5090	2180
25	209	615	506	1610	2100	1150	32	22	38	331	4700	1720
26	180	633	407	1680	2300	809	53	22	111	344	4490	1280
27	186	620	369	1740	2500	365	102	22	152	318	4450	1020
28	334	591	376	1750	2900	244	116	21	148	331	4410	1110
29	252	—	380	1750	2900	236	198	21	150	205	4230	1080
30	140	—	383	1770	2900	226	124	22	174	134	2580	1040
31	162	—	387	—	2900	—	29	23	—	269	—	1150
Mean	197	639	474	1172	1738	1582	99.3	27.5	108	208	2618	4319
Runoff in Ac.Ft.	12110	35490	29150	69740	106800	94110	6110	1690	6430	12820	155800	265500
	Water Year Total 423160								Calendar Year Total 795750			

U. S. Geological Survey and Division of Water Resources cooperative station located 0.4 mile below diversion dam of Woodbridge Irrigation District. Drainage area is 644 square miles. Period of record 1924 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 91

FLOW OF BEAR CREEK NEAR LOCKEFORD - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	7.0	1.6	1.1	0	0	0	0			0	1.1
2	0	5.0	1.5	.9	0	0	0	0			0	1.1
3	0	3.8	1.1	.6	0	0	0	0			0	321
4	0	546	1.0	.5	0	0	0	0			0	193
5	0	311	.9	.4	0	0	0	0			0	62
6	0	494	.8	.4	0	0	0	.1			0	108
7	0	69	.7	.7	0	0	0	0			0	553
8	0	36	.6	.9	0	0	0	0			0	514
9	0	23	.6	6.8	0	0	0	0			0	85
10	0	43	.6	5.9	0	0	0	0			0	50
11	0	55	.5	2.8	.1	0	0	0			0	32
12	0	20	.4	1.8	.1	0	0	0	N	N	0	26
13	0	13	.2	1.2	0	0	0	0	0	0	0	21
14	2.5	9.4	.1	1.1	0	0	0	0			0	299
15	5.6	7.8	.1	.9	0	0	0	0			0	86
16	179	7.0	.1	.7	0	0	0	0			0	56
17	44	5.9	.1	.4	0	.1	0	0	F	F	0	38
18	48	5.3	0	.4	0	.2	0	0	L	L	152	28
19	13	4.4	0	.6	0	.4	0	0	O	O	307	23
20	5.9	3.8	0	.4	0	.1	0	0	W	W	238	21
21	3.3	3.3	0	.2	0	0	0	0			81	17
22	2.3	3.0	0	.1	0	0	.1	0			26	14
23	11	2.8	.2	.3	0	0	0	0			10	12
24	32	2.6	18	.2	0	0	0	0			6.3	9.6
25	7.8	2.3	39	.2	0	0	0	0			4.1	8.9
26	3.3	2.3	12	.1	0	0	0	0			3.0	7.8
27	4.4	2.3	6.6	.1	0	0	0	0			2.2	6.9
28	346	1.8	4.4	0	0	0	0	0			1.6	6.3
29	49	—	2.8	0	0	0	0	0			1.4	6.0
30	20	—	2.1	0	0	0	0	0			1.1	6.0
31	10	—	1.5	—	0	—	0	0	—		—	6.3
Mean	25.4	60.4	3.15	0.99	0.01	0.03	0.003	0.003	0	0	27.8	84.5
Runoff in Ac.Ft.	1560	3350	193	59	0.4	1.6	.2	.2	0	0	1650	5190
	Water Year Total 5164								Calendar Year Total 12004			

U. S. Geological Survey station located at County Road bridge 0.8 mile southeast of Lockeford. Drainage area is 48.4 square miles. Period of record 1930 to 1933; 1943 to date. (Prior records available at a site 3 miles downstream.) Records for 1950 computed by U. S. Geological Survey.

TABLE 92

FLOW OF CALAVERAS RIVER AT JENNY LIND - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	8.8	248	114	3.7	183	134	126	100	94	0	88	160
2	.2	198	109	2.5	180	107	126	100	90	0	56	169
3	0	166	100	1.0	180	68	134	100	69	0	38	1850
4	0	1440	73	.8	174	92	129	114	5.6	0	31	4280
5	0	3480	10	.7	171	107	124	112	.5	0	24	3430
6	0	3610	7.6	.7	166	107	121	112	0	0	21	2690
7	14	3280	7.6	.8	157	104	116	109	0	0	18	3390
8	80	2700	7.6	33	166	102	116	109	0	0	18	4710
9	77	1610	7.6	195	163	124	116	109	0	0	17	4570
10	77	623	7.6	285	160	112	116	107	0	18	16	3350
11	147	465	7.6	295	154	82	163	107	0	3.2	15	2500
12	252	371	7.6	386	148	98	163	107	0	0	15	1230
13	183	298	8.6	413	146	102	137	92	0	0	15	665
14	255	258	8.0	409	143	129	102	66	0	0	27	1300
15	337	229	7.6	409	140	126	102	64	0	0	47	1660
16	331	213	7.2	406	134	124	102	69	0	0	71	994
17	2630	198	7.2	394	132	119	104	92	0	0	117	710
18	2810	133	7.6	373	126	121	116	107	0	0	2280	589
19	1860	168	7.6	363	121	129	116	132	0	0	7070	513
20	637	160	8.6	337	114	132	112	171	0	0	6690	453
21	344	151	9.2	316	107	132	112	168	0	0	6030	402
22	309	146	7.6	292	98	137	26	166	0	0	3990	367
23	330	137	7.6	252	92	137	92	160	0	0	2770	337
24	738	132	104	232	92	137	104	88	0	0	1200	309
25	521	126	78	223	100	132	104	84	0	0	429	288
26	302	121	27	216	124	129	102	121	0	0	302	275
27	204	119	18	210	154	126	102	119	0	0	245	255
28	1500	116	12	198	54	124	102	116	0	14	207	239
29	1560	—	9.2	189	66	124	102	112	0	64	178	229
30	653	—	7.2	183	109	121	102	104	0	52	163	223
31	341	—	6.0	—	140	—	102	98	—	73	—	262
Mean	532	748	26.0	221	135	117	113	110	8.64	7.23	1073	1368
Runoff in Ac.Ft.	32730	41550	1600	13140	8320	6930	6920	6770	514	445	63840	84100
	Water Year Total 120490								Calendar Year Total 266909			

U. S. Geological Survey and Division of Water Resources cooperative station located 0.2 mile south of Jenny Lind at Milton Road bridge. Drainage area is 395 square miles. Period of record 1907 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 93

FLOW OF CALAVERAS RIVER AT BELLOTA - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	16	93	68	0	73	e54	60	62	97		19	53
2	4.6	83	66	0	72	e61	61	62	85		36	53
3	0	76	65	0	72	e57	61	e63	81		28	43
4	0	145	64	0	71	e46	60	e65	47		19	36
5	0	154	e40	0	70	e42	60	e69	15		14	34
6	0	285	e15	0	70	e48	59	e72	3.7		11	34
7	0	278	e3.4	0	70	e55	59	e76	0.1		8.2	23
8	0	263	e0	0	70	57	59	e80	0		7.4	35
9	0	206	0	30	69	53	60	e89	0		6.6	11
10	22	135	0	79	68	57	58	88	0		5.4	3.4
11	56	115	0	84	67	54	61	92	0		4.9	2.0
12	104	104	0	89	67	47	61	92	0	N	4.8	1.5
13	106	94	0	94	66	51	65	95	0	O	6.4	1.0
14	105	89	0	95	65	58	60	80	0		13	31
15	114	86	0	95	e64	61	58	67	0		22	12
16	118	83	0	94	e64	60	60	63	0		36	3.6
17	e233	81	0	93	e62	61	59	73	0	F	17	1.7
18	e256	79	0	92	61	62	60	85	0	L	1.5	1.1
19	e208	78	0	91	e61	60	59	90	0	O	e194	1.0
20	132	75	1.8	90	e57	61	58	100	0	W	e113	0.8
21	101	73	0	87	e51	61	58	102	0		13	0.6
22	94	72	0	86	e46	60	52	e111	0		2.0	0.4
23	93	72	0	82	e41	59	39	e118	0		6.2	0.3
24	119	71	0	78	e36	59	59	111	0		30	0.2
25	119	70	37	77	e31	61	59	88	0		24	0.1
26	98	70	36	76	e28	59	59	88	0		35	NR
27	90	69	16	76	e35	58	60	106	0		60	NR
28	194	68	7.7	76	e51	59	61	108	0		56	NR
29	200	—	0	75	e61	59	63	112	0		54	NR
30	140	—	0	74	e54	58	64	109	0		53	NR
31	105	—	0	—	e47	—	62	104	—		—	NR
Mean	91.2	113	13.5	60.4	58.7	56.6	59.2	87.7	11.0	0	30.0	
Runoff in Ac.Ft.	5608	6282	833	3596	3610	3368	3638	5395	652	0	1786	
	Water Year Total 32992								Calendar Year Total			

Division of Water Resources station located just below the highway bridge at site of the Old Linden Irrigation District station. Flows in the Calaveras River and in Mormon Slough are regulated by headgates near Bellota. For 10 years prior to December 1948, all except flood flows passed through Mormon Slough. Period of record 1948 to date.
e Estimated.
NR No record.

TABLE 94

FLOW OF CALAVERAS RIVER NEAR STOCKTON - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1		e67	21	N	NR	e4.4	4.0	0	NR		0	44
2		e57	31	O	NR	9.6	7.2	0.1	NR		0	43
3		e52	30		NR	10	8.6	0	NR		0	50
4		97	30	R	e35	e5.5	6.0	1.3	NR		0	102
5		220	28	E	e32	e3.5	11	6.3	NR		0	64
6		228	9.6	C	e30	e6.9	3.5	7.1	NR		0	32
7		e243	5.4	O	e28	e6.3	9.2	6.2	0.2		0	69
8		e241	5.4	R	e25	e2.0	4.0	2.0	0.1		0	107
9	N	e189	5.4	D	e23	e1.7	6.2	1.1	0		0	123
10	O	e132	4.4	e19	e22	e1.3	6.6	0.5	0		0	22
11	R	e87	4.4	e39	22	e6.4	2.4	0.6	0		0	5.3
12	E	e52	4.4	e42	26	e5.4	4.0	6.5	0	N	0	1.6
13	C	e26	4.4	e45	21	e1.0	2.9	5.2	0	O	0	0.5
14	O	e12	4.4	e45	e27	e0.3	2.9	6.5	0		0	1.6
15	R	54	4.4	e45	e21	e0.8	e2.1	2.4	0		0	114
16	D	55	4.4	e45	e13	e1.6	e1.4	0	0		0	26
17		52	4.4	e45	e17	e2.5	e0.3	1.2	0	F	0	6.0
18		50	4.4	e45	e29	e3.8	e1.4	0.1	0	L	0	1.5
19		47	4.4	e45	e46	e5.3	e1.0	0	0	O	0	0.2
20		45	4.4	e45	e41	e7.0	0	0	0	W	125	0
21		43		e45	e28	e9.0	0	0	0		97	0
22		42	N		e16	10	0	0	0		NR	0
23		26	O	N	e8.5	8.2	3.0	0.2	0		NR	0
24		34		O	e3.5	6.9	0.3	2.6	0		NR	0
25	91	33	R		e4.1	5.4	0.9	2.4	0		NR	0
26	78	33	E	R	e4.7	8.0	0.1	0.9	0		NR	0
27	66	32	C	E	e5.4	11	0.5	0.5	0		NR	0
28	124	30	O	C	e8.9	7.6	0	NR	0		NR	0
29	178	—	R	O	e6.6	6.2	0	NR	0		45	0
30	128	—	D	R	e1.0	8.2	0	NR	0		44	0
31	83	—		D	0	—	0	NR	—		—	0
Mean		81.4				5.5	2.9			0		26.2
Runoff in Ac.Ft.		4520				329	178			0		1612
		Water Year Total							Calendar Year Total			

Division of Water Resources station located at McAllen Road bridge 1.0 mile above the mouth of Stockton Diverting Canal. Station was moved on June 15, 1949 to a location approximately 2 miles upstream. Flows in the Calaveras River are regulated by headgates near Bellota. For 10 years prior to December 1948, all but flood flows of the Calaveras River by-passed this station via Mormon Slough and the Stockton Diverting Canal. Period of record 1948 to date.
NR No record.
e Estimated.

TABLE 95

FLOW OF MORMON SLOUGH AT BELLOTA - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	25	239	60	18	110	47	33	36	24		0	76
2	2.2	188	51	16	105	45	38	37	24		0	80
3	0	163	43	12	101	20	38	24	24		0	1680
4	0	1720	34	10	97	17	40	21	13		0	4210
5	0	3940	11	7.7	92	26	33	26	e5.8		0	3360
6	0	4280	6.1	7.1	87	26	32	26	e0.4		0	2970
7	0	3470	4.5	7.1	80	25	31	25	0		0	3970
8	0	2600	12	9.2	82	25	32	24	0		0	5400
9	65	1610	13	57	79	37	37	26	0		0	4660
10	33	644	12	155	74	43	28	25	0		0	3390
11	25	434	12	181	69	24	41	28	0		0	2640
12	105	340	13	221	66	24	62	28	0		0	1380
13	71	277	13	258	60	26	66	34	0	N	0	678
14	94	221	13	262	56	32	29	24	0	O	0	1410
15	163	201	13	265	45	36	26	19	0		0	1720
16	192	177	13	262	43	33	28	19	0		0.6	1020
17	2150	163	14	258	38	37	27	22	0	F	25	693
18	2720	149	11	244	28	41	28	26	0	L	1610	567
19	1790	135	11	237	26	33	28	27	0	O	e7610	468
20	656	122	6.8	219	23	31	26	69	0	W	e7710	407
21	317	110	5.1	206	24	31	27	69	0		e6290	353
22	260	101	7.7	195	19	31	20	54	0		4140	314
23	256	90	10	167	14	29	13	51	0		2980	287
24	454	84	22	145	23	28	28	33	0		1550	258
25	465	79	90	133	24	37	28	22	0		e902	237
26	280	72	16	131	22	29	27	26	0		e603	217
27	201	66	19	128	66	28	28	33	0		e351	199
28	1330	64	14	124	28	28	29	27	0		151	186
29	1480	—	24	112	14	29	41	22	0		103	173
30	662	—	22	108	18	27	48	20	0		90	163
31	346	—	20	—	31	—	37	24	—		—	179
Mean	456	776	19.9	138	53.0	30.8	33.2	30.5	3.0	0	1137	1398
Runoff in Ac.Ft.	28050	43120	1222	8242	3261	1835	2041	1878	180	0	67670	85970
	Water Year Total 89839								Calendar Year Total 243469			

Division of Water Resources station located just below the Bellota-Escalon Road bridge. Flows in Mormon Slough and Calaveras River are regulated by headgates near Bellota. For 10 years prior to December 1948, all except flood flows of the Calaveras River passed through Mormon Slough. Period of record 1948 to date.
e Estimated.

TABLE 96

FLOW OF STOCKTON DIVERTING CANAL AT STOCKTON* - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	237	36	0	77	0	0	5			0	90
2	0	164	33	0	79	0	0	0			0	100
3	0	116	26	0	74	1.8	0	0			0	2500
4	0	1230	19	0	70	1.0	0	0			0	5000
5	0	5040	12	0	65	0	0	0			0	4000
6	0	4320	1.6	0	58	0	0	0			0	3500
7	0	3590	0	0	54	0	0	0			0	4500
8	0	2510	0	0	54	0	0	0			0	6000
9	0	1720	0	0	50	0	0	0			0	5000
10	0	755	0	69	42	0	0	0			0	4000
11	0	570	0	164	38	0	0	0			0	3000
12	37	367	0	192	33	0	5.0	0	N	N	0	1600
13	111	258	0	258	30	0	18	0	0	0	0	916
14	92	198	0	265	30	0	18	0			0	1600
15	284	164	0	272	26	0	1.3	0			0	2480
16	251	138	0	272	15	0	0	0			0	1400
17	2210	120	0	265	14	0	0	0	F	F	0	920
18	3480	107	0	251	8.5	0	0	0	L	L	534	709
19	2020	92	0	240	3.7	4.1	0	0	0	0	6810	558
20	896	79	0	224	.1	1.0	0	0	W	W	7450	452
21	371	72	0	204	0	0	0	20			7000	374
22	251	63	0	192	0	0	0	40			5000	323
23	227	57	0	164	0	0	0	30			3500	293
24	412	51	0	135	0	0	0	20			2000	258
25	539	47	37	116	0	0	0	10			1200	233
26	307	44	22	107	0	0	0	5			800	220
27	183	40	3.6	100	0	0	0	0			500	204
28	1880	38	3.6	94	0	0	0	0			250	189
29	1970	—	0	85	0	0	0	0			150	177
30	840	—	0	81	0	0	0	0			100	166
31	395	—	0	—	0	—	11	0	—		—	174
Mean	541	792	6.25	125	26.5	0.26	1.72	4.19	0	0	1176	1643
Runoff in Ac.Ft.	33240	44010	384	7440	1630	16	106	258	0	0	70000	101000
	Water Year Total 87084								Calendar Year Total 258084			

U. S. Geological Survey, U. S. Bureau of Reclamation and Division of Water Resources cooperative station located at Sanguinetti Lane bridge near the mouth of the canal. For 10 years prior to December 1948, flows of Calaveras River were diverted to the Stockton Canal via Mormon Slough. Period of record 1944 to date. Records for 1950 computed by U. S. Geological Survey.
* Also known as Calaveras River at Stockton.

TABLE 97

FLOW OF DUCK CREEK NEAR FARMINGTON - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1		2.6	0	0							.1	.6
2		1.5	0	0							.1	.4
3		1.0	0	0							.1	216
4		156	0	0							0	225
5		255	0	0							0	21
6		423	0	0							0	35
7		38	0	0							0	480
8		8.3	0	0							0	439
9		3.7	0	0							0	44
10	0	22	0	0							0	10
11	.5	61	0	0							0	5.2
12	2.6	8.3	0	0							0	3.2
13	2.8	3.0	0								0	2.5
14	45	1.7	0								0	182
15	14	1.0	0								0	34
16	307	.6	0								0	7.2
17	e653	.4	0								0	3.6
18	e97	.2	0							0	42	2.3
19	e17	.2	0							0	521	1.6
20	6.7	.1	0							0	262	1.4
21	4.0	e0	0							0	62	1.0
22	2.8	e0	0							0	18	.8
23	2.0	e0	0							0	7.0	.7
24	17	e0	0							0	4.2	.5
25	4.9	e0	2.0							.8	2.9	.4
26	1.9	0	1.7							.6	2.3	.3
27	1.1	0	.1							2.2	1.7	.3
28	506	0	0							1.1	1.1	.2
29	51	—	0							.6	.9	.2
30	9.3	—	0							.3	.8	.2
31	4.4	—	0	—	—				—	.1	—	.1
Mean		35.3	0.1								30.9	55.4
Runoff in Ac.Ft.		1959	8.0								1837	3409
		Water Year Total							Calendar Year Total			

Division of Water Resources station located 1/2 mile northwest of Farmington, 300 feet west of Bellota-Escalon Road. Duck Creek is an east-side tributary to the San Joaquin River at Mile 46.1R, via French Camp Slough. Recorder installed January 10, removed April 12, reinstalled October 17.
e Estimated.

TABLE 98

FLOW OF DUCK CREEK NEAR STOCKTON (MARIPOSA ROAD) - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1		.5	0	0							0	0
2		0	0	0							0	0
3		0	0	0							0	1.3
4		4.9	0	0							0	289
5		249	0	0							0	186
6		164	0	0							0	38
7		89	0	0							0	218
8		8.5	0	0							0	350
9		1.2	0	0							0	358
10		e.4	0	0							0	330
11		e11	0	0							0	106
12		e4.1	0	0							0	19
13		e.1	0	0							0	9.5
14		e0	0	0							0	38
15		e0	0	0							0	106
16		e0	0	0							0	23
17	3.6	e0	0							0	0	12
18	217	e0	0							0	0.1	6.5
19	26	0	0							0	133	4.6
20	4.7	0	0							0	295	3.2
21	1.2	0	0							0	250	1.7
22	0.1	0	0							0	68	.7
23	0	0	0							0	26	0
24	0	0	0							0	14	0
25	.4	0	0							0	8.2	0
26	.1	0	0							0	5.0	0
27	e0	0	0							0	3.2	0
28	e0	0	0							0	1.3	0
29	e147	—	0							0	.1	0
30	e26	—	0							0	0	0
31	3.5	—	0	—	—				—	0	—	0
Mean		19.0	0								26.8	67.8
Runoff in Ac.Ft.		1057	0								1594	4166
		Water Year Total							Calendar Year Total			

Division of Water Resources station located 1/4 mile east of Highway 99, 150 feet downstream from Mariposa Road bridge. Duck Creek is an east-side tributary to the San Joaquin River at Mile 46.1R. Recorder was installed January 17, removed April 16, reinstalled October 16. During high-flow periods Duck Creek water enters Mormon Slough at a point approximately 2 miles east of the head of the Stockton Diverting Canal.
e Estimated.

TABLE 99

FLOW OF LONE TREE CREEK NEAR VALLEY HOME - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.4	.9	0	.2	e37						5.4	.6
2	.6	.6	0	1.2	e43						3.5	.6
3	.9	.6	0	.3	e51						2.5	21
4	.8	6.3	0	.6	e48						1.7	43
5	.6	16	0	.7	e44						1.4	14
6	.4	18	0	.5	e41						1.2	11
7	.2	4.2	0	2.0	e38						1.2	74
8	.3	1.4	0	11	e36						1.3	75
9	.4	.8	0	13	e33						1.7	24
10	1.0	10	0	1.4	e31						2.5	11
11	18	15	0	.7	e28						2.8	7.5
12	4.8	2.6	0	.8	e26						3.1	4.4
13	2.0	.9	0	e.6	e24						3.3	2.6
14	9.9	.5	0	e1.5	e22						3.6	15
15	5.4	.5	.1	e4.1	e20						3.4	9.9
16	15	.5	.9	e7.2	e18						2.1	5.1
17	162	.5	3.2	e8.5	e16						1.7	3.4
18	34	.6	5.2	e9.2	e15						17	2.4
19	11	.6	7.2	e9.4	e18						67	1.7
20	4.8	.6	9.4	e10	e22						26	1.3
21	1.7	.5	2.3	e11	e27						15	1.0
22	1.3	.5	4.6	e12	e31						7.9	.8
23	.6	e.3	4.2	e12	e37						3.4	.8
24	.5	e.2	66	e13	e43					10	1.6	.7
25	.4	e.1	16	e14						15	1.1	.7
26	.3	e0	5.1	e15						14	1.0	.7
27	.4	e0	1.3	e16						55	.8	.7
28	126	0	.6	e20						30	.6	.7
29	22	—	.2	e25						12	.6	.7
30	6.6	—	.1	e31						7.0	.6	.7
31	2.2	—	.2	—		—			—	7.7	—	.7
Mean	14.0	3.0	4.1	8.4							6.2	10.8
Runoff in Ac.Ft.	862	164	251	500							368	666
	Water Year Total								Calendar Year Total			

Division of Water Resources station located 1.5 miles west of Valley Home 300 feet north of Lone Tree Road. Lone Tree Creek is an east-side tributary to the San Joaquin River at Mile 46.1R, via French Camp Slough. Recorder installed December 1949, removed April 12, reinstalled October 23.
e Estimated from field observations.

TABLE 100

FLOW OF LONE TREE CREEK NEAR MANTECA (AUSTIN ROAD) - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.6	64	1.3	2.9	e32						12	4.8
2	0.5	36	1.2	4.0	e34						8.0	3.6
3	0.4	18	1.0	4.7	e36						5.5	9.8
4	e0.3	e20	0.9	5.6	e34						3.5	92
5	e0.2	e95	0.8	5.9	e32						2.0	193
6	e0.2	175	0.7	6.9	e31						1.3	177
7	e0.2	178	0.7	6.8	e29						1.0	174
8	e0.1	106	0.7	9.5	e28						0.7	227
9	e0	58	0.7	42	e26						0.6	244
10	e0	44	0.7	68	e25						0.5	249
11	1.4	63	0.7	25	e24						0.3	233
12	5.9	76	0.8	6.3	e23						0.2	156
13	16	39	1.2	4.9	e23						0	93
14	18	20	1.3	11	e22						2.2	79
15	28	13	5.3	13	e21						7.5	89
16	36	8.9	12	16	e20						16	99
17	72	6.5	9.6	18	e20						13	68
18	158	4.5	6.8	23	e20					1.9	18	45
19	202	3.4	8.9	14	e19					1.7	86	31
20	103	2.3	11	12	e19					3.0	157	19
21	82	1.8	25	14	e19					7.3	191	11
22	e50	1.6	17	14	e18					e4.7	190	7.1
23	e26	1.8	20	30	e18					e3.2	144	5.6
24	16	1.7	46	37	e18					e4.5	89	4.6
25	9.2	1.6	96	31	e17					e6.4	61	4.0
26	6.0	1.6	96	e25						10	40	3.4
27	4.3	1.5	54	e26						10	21	3.2
28	40	1.4	25	e28						17	11	3.0
29	189	—	10	e29						15	6.8	2.9
30	202	—	6.0	e31						17	5.3	2.7
31	109	—	4.0	—		—			—	24	—	2.6
Mean	44.4	37.3	15.0	18.8							36.5	75.4
Runoff in Ac.Ft.	2730	2070	923	1120							2171	4634
	Water Year Total								Calendar Year Total			

Division of Water Resources station located 4 miles north and 2 miles east of Manteca at Austin Road bridge. Lone Tree Creek is an east-side tributary to the San Joaquin River, via French Camp Slough, at Mile 46.1R. Recorder installed December 1949, removed May 26, reinstalled October 17.

TABLE 101

FLOW OF TEMPO CREEK NEAR MANTECA (JACK TONE ROAD) - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1											5.4	1.6
2											3.5	1.3
3											2.2	52
4											1.4	166
5											0.9	170
6											0.5	116
7											0.3	160
8											0.3	228
9											0.3	256
10											0.3	256
11											0.3	184
12											0.3	105
13											0.3	58
14											0.6	46
15											1.8	78
16											8.5	52
17											5.4	26
18											20	18
19											129	11
20											164	6.7
21											176	3.0
22											165	1.9
23											113	1.3
24											68	0.9
25										*2.0	40	0.6
26										2.6	23	0.6
27										4.4	9.6	0.5
28										12	3.8	0.4
29		—								26	2.3	0.4
30		—								19	1.8	0.3
31		—		—		—			—	10	—	0.3
Mean											31.6	64.6
Runoff in Ac.Ft.											1880	3970
		Water Year Total							Calendar Year Total			

Division of Water Resources station located 5.5 miles northeast of Manteca at Jack Tone Road bridge. Tempo Creek is an east-side tributary to the San Joaquin River via French Camp Slough at Mile 46.1R.
* Beginning of record October 24, 1950.

TABLE 102

FLOW OF FRENCH CAMP SLOUGH NEAR FRENCH CAMP (SHARPS LANE)*- 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1		301	12	134	115							46
2		207	9.8	103	98							37
3		148	e8.2	57	109							e34
4		153	e6.6	42	111							e34
5		1040	e5.7	41	109							e113
6		1050	e4.1	39	105							e959
7		1010	3.3	e31	98							1390
8		631	e2.6	e18	56							2510
9		380	e1.9	e66	94							2930
10		275	e1.5	e146	97							e2870
11		352	e0.6	e192	77							e1880
12	**3.3	334	e0.4	e134	67							836
13	18	218	e0.1	e82	56							498
14	28	157	e0	e56	57							498
15	84	127	e0.6	e56	56							1320
16	208	102	e9.7	e61	54							905
17	526	85	e25	e62	52							472
18	1110	71	e18	e70	51							312
19	817	62	e25	e35	50						1410	238
20	503	52	e21	e38	48						2120	190
21	324	46	e38	49	46						1980	150
22	226	39	33	44							1380	122
23	170	34	31	61							660	101
24	136	29	77	102							369	85
25	163	25	166	84							245	73
26	140	21	437	74							178	64
27	100	18	361	93							134	55
28	412	16	267	74							106	48
29	e1180	—	200	72							69	43
30	e796	—	164	94							54	38
31	469	—	146	—		—			—		—	35
Mean		249	67.0	73.7								609
Runoff in Ac.Ft.		13850	4118	4383								37460
		Water Year Total							Calendar Year Total			

Division of Water Resources station located 1.5 miles southeast of French Camp at Sharps Lane Bridge. French Camp Slough is an east-side tributary to the San Joaquin River at Mile 46.1R. For the period May 22 through November 18, the stream was not rated because of a variable backwater condition created by an earth fill dam which was constructed downstream from the recorder.
* Sometimes referred to as Littlejohns Creek near French Camp.
** Beginning of record.
e Estimated.

TABLE 103

INFLOW TO FRIANT RESERVOIR (MILLERTON LAKE) - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	567	798	1967	2537	4398	6075	2268	1501	1288	907	1084	2437
2	556	1134	1843	2597	3767	5972	1982	1338	1288	1053	990	2136
3	734	924	1760	2741	3109	5723	2040	1341	921	1181	1027	12285
4	900	1609	1815	3338	2863	4870	1974	1414	992	1226	903	21257
5	856	4039	2069	3584	3067	4681	2069	1462	1197	1175	823	6536
6	774	5121	1865	3201	2789	4729	2148	757	1211	1016	907	4639
7	679	3121	1790	2713	2657	3519	1792	1299	1270	987	953	8314
8	671	2366	1729	3076	2727	3059	2035	1440	1219	859	1154	11882
9	619	2219	1653	2886	2617	2996	1908	1391	1296	979	922	6729
10	693	2064	1555	2852	2755	2930	2133	1385	938	1086	796	4467
11	780	2046	1474	2823	2793	2699	1804	1341	1173	1116	742	3833
12	737	1759	1374	2760	2839	2648	1904	1398	1256	1049	378	3708
13	571	1664	1623	2819	3266	2682	1809	1007	1251	1025	721	3301
14	558	1682	1370	2733	3302	2777	1662	1265	1250	951	808	4163
15	434	1773	1364	2689	4135	2890	1456	999	1279	760	588	4785
16	665	1689	1388	2566	4936	2803	1345	1310	893	997	649	3457
17	1421	1403	1372	2798	5773	2968	1345	1297	1105	1063	662	3110
18	1306	1557	1474	3329	5748	2895	1424	1306	1124	1076	4598	4854
19	1355	1576	1534	3916	5335	2903	1349	1251	1194	966	33317	661
20	1116	1407	1436	4472	5821	3085	1483	808	1213	918	13415	2744
21	787	1729	1755	5077	5488	3401	1341	1219	1194	873	11033	2604
22	935	1622	1653	5273	5741	3069	1236	1382	1132	595	6243	2601
23	1223	1525	1939	5053	5295	3008	978	1264	880	817	3965	2344
24	1657	1691	2419	5009	4455	2782	1240	1401	822	944	3108	2095
25	1602	1699	2303	5173	4463	2462	1298	1391	1138	926	2913	1821
26	1201	1855	2052	5443	5473	2241	1411	1313	1203	1168	2565	1760
27	1322	1673	1803	5622	5681	2167	1375	1046	1214	1533	2050	2132
28	1214	1882	1787	5405	6084	2263	1301	1271	1185	1163	1834	2232
29	1070	—	1853	4670	5672	2300	1198	1426	1193	777	2112	2122
30	1185	—	2193	4287	4817	2370	887	1204	1088	910	2355	1613
31	1018	—	2468	—	7335	—	1149	1311	—	1095	—	1569
Mean	942	1915	1764	3715	4361	3299	1592	1275	1147	1006	3454	4458
Runoff in Ac.Ft.	57930	106370	108460	221040	268170	196300	97870	78420	68240	61870	205520	274100
	Water Year Total 1305903								Calendar Year Total 1744290			

This is the total mean second-feet flow inflowing to Friant Reservoir as computed by the U. S. Bureau of Reclamation, taking into account change in storage, release, spill and evaporation; and represents the natural flow passing the dam site if the dam had not been constructed. Flows shown also include Cottonwood Creek (Table 114). Drainage area is 1671 square miles.

TABLE 104

DAILY CONTENT OF FRIANT RESERVOIR (MILLERTON LAKE) IN ACRE-FEET - 1950

Date	Figure given is amount in storage at end of day in thousands of acre-feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	67.5	121.3	205.2	206.7	289.3	410.0	376.6	233.2	117.8	76.2	79.5	270.7
2	68.4	123.4	206.9	208.5	290.7	416.9	372.0	228.4	114.4	75.2	80.9	274.0
3	69.6	125.1	208.2	210.3	291.7	423.3	367.5	223.5	112.2	74.4	82.3	297.5
4	71.2	128.2	209.5	212.2	292.8	428.0	363.0	218.8	109.3	73.8	83.4	338.6
5	72.7	136.0	211.3	214.2	294.3	432.0	358.7	214.2	106.7	73.4	84.4	350.6
6	74.1	145.9	212.1	215.3	295.2	435.4	354.6	208.2	104.2	72.7	85.6	358.9
7	75.2	152.0	212.3	215.4	295.8	436.3	349.8	203.3	102.0	72.2	86.8	374.3
8	76.4	156.5	212.3	216.8	296.6	436.2	345.4	198.8	100.1	71.5	88.3	396.9
9	77.4	160.7	212.1	219.0	297.3	435.4	340.8	194.6	98.9	71.0	89.3	409.3
10	78.6	164.7	211.6	222.0	298.3	434.2	337.1	190.6	97.1	70.8	90.0	417.2
11	79.9	168.6	210.6	225.1	299.6	432.5	333.2	186.5	95.9	70.6	90.6	422.1
12	81.3	171.9	209.5	227.2	301.0	430.6	329.6	182.4	95.0	70.2	90.4	424.5
13	82.3	175.1	209.0	228.9	303.2	428.5	325.8	177.7	94.2	69.6	91.0	424.2
14	83.3	178.1	208.0	230.5	305.3	426.1	321.8	173.4	93.5	68.8	91.9	423.7
15	84.0	180.5	206.5	232.2	309.1	424.0	317.2	169.0	92.8	67.7	92.4	423.3
16	85.2	182.8	204.7	233.6	314.5	421.6	312.3	165.6	91.1	67.4	93.1	420.2
17	87.9	184.2	203.1	235.3	321.2	419.3	307.5	162.1	89.9	67.8	93.8	416.6
18	90.4	186.0	201.9	237.4	327.6	417.0	302.6	158.6	89.1	68.3	102.3	416.4
19	93.0	187.8	200.8	240.4	333.2	414.8	297.3	155.0	88.8	68.7	168.2	407.7
20	95.1	189.3	199.6	244.4	339.6	412.8	292.4	150.6	88.6	69.1	194.7	404.1
21	96.5	191.6	198.8	249.4	345.3	411.2	287.5	147.0	88.3	69.4	216.5	401.3
22	98.3	193.6	197.7	254.2	351.6	408.8	282.4	143.4	87.4	69.1	228.8	399.5
23	100.6	195.4	197.3	258.6	357.3	406.3	276.9	140.2	85.6	69.3	236.5	398.1
24	103.7	197.2	198.1	262.9	361.3	403.3	271.9	137.6	83.7	69.7	242.5	396.3
25	106.8	198.6	199.7	267.4	365.2	399.8	267.1	135.4	82.5	70.1	248.1	393.9
26	109.1	200.2	201.1	272.1	370.9	395.9	262.5	133.2	81.4	71.2	252.9	391.4
27	111.5	201.6	202.0	277.2	376.9	392.0	257.9	130.4	80.3	73.3	256.3	389.7
28	113.8	203.3	202.4	281.8	383.7	388.2	253.2	127.9	79.3	74.7	259.5	389.3
29	115.8	—	202.4	284.9	389.6	384.4	248.3	125.6	78.5	75.4	262.8	390.9
30	118.0	—	203.3	287.0	393.8	380.7	242.8	122.9	77.5	76.4	266.7	392.2
31	119.9	—	205.0	—	403.1	—	237.7	120.3	—	78.0	—	393.4
Monthly Change	+53.4	+83.4	+1.7	+82.0	+116.1	-22.4	-143.0	-117.4	-42.8	+0.5	+188.7	+126.7

Annual Gain or Loss in Storage: Calendar Year +326,900 Acre-Feet; Water Year +1,900 Acre-Feet.
Difference in Storage 1949 to 1950; Maximums -9,500 Acre-Feet; Minimums +25,100 Acre-Feet.

Reservoir water level recorder maintained by U. S. Bureau of Reclamation and U. S. Geological Survey. Period of record 1941 to date. Records for 1950 computed by U. S. Bureau of Reclamation.

TABLE 105

FLOW OF SAN JOAQUIN RIVER BELOW FRIANT - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	96	64	1000	1070	2700	1850	2570	2490	1780	1570	311	422
2	96	66	1000	1070	2530	1780	2560	2490	1770	1550	311	422
3	96	61	1070	1230	2160	1790	2550	2480	1760	1540	311	465
4	96	79	1150	1700	1930	1790	2540	2470	1740	1520	311	528
5	96	93	1150	1940	1950	1930	2540	2460	1780	1400	311	475
6	96	108	1440	1940	1990	2240	2530	2450	1680	1340	314	470
7	98	78	1720	1960	1990	2240	2520	2440	1580	1210	349	512
8	99	72	1720	1770	1990	2240	2520	2370	1490	1210	409	485
9	98	70	1720	1200	1970	2280	2520	2220	1360	1210	422	480
10	98	75	1820	897	1900	2340	2500	2130	1350	1210	460	480
11	76	72	1930	914	1770	2340	2500	2110	1350	1200	465	1360
12	56	69	1930	1330	1780	2350	2490	2100	1350	1240	465	2500
13	56	67	1870	1590	1790	2370	2490	2090	1350	1320	440	3430
14	57	183	1710	1570	1800	2430	2500	2080	1340	1310	366	4420
15	56	534	1690	1500	1810	2420	2550	2050	1430	1310	338	4980
16	56	538	1800	1500	1820	2470	2550	2050	1590	1160	338	4980
17	57	660	1710	1580	1820	2530	2570	2030	1580	819	341	4960
18	56	660	1610	1900	1840	2520	2620	2030	1500	819	333	4960
19	56	660	1610	2040	1880	2520	2700	2020	1330	762	76	5020
20	56	638	1640	2060	1950	2500	2620	2010	1330	720	52	4540
21	56	578	1720	2230	1960	2500	2540	2000	1330	714	43	4030
22	57	578	1720	2480	1900	2500	2530	1980	1530	714	39	3510
23	58	627	1730	2480	1790	2500	2520	1930	1770	720	39	3020
24	58	786	1560	2480	1790	2500	2480	1880	1760	720	72	3020
25	59	987	1080	2550	1800	2490	2440	1730	1750	720	120	3020
26	59	994	904	2680	1860	2470	2430	1630	1750	638	113	3000
27	68	994	897	2690	1900	2400	2420	1620	1740	470	348	2990
28	70	994	1100	2720	1910	2400	2400	1620	1680	418	232	2460
29	69	—	1400	2720	1920	2390	2400	1610	1580	422	414	1320
30	67	—	1270	2720	1920	2460	2390	1600	1570	387	418	933
31	66	—	1050	—	1930	—	2420	1670	—	311	—	933
Mean	72.2	407	1475	1884	1937	2318	2513	2059	1563	989	285	2391
Runoff in Ac.Ft.	4440	22580	90690	112100	119100	137900	154500	126600	93020	60800	16980	147000
	Water Year Total 973600								Calendar Year Total 1085710			

U. S. Geological Survey station located at Mile 268.13L and 1.5 miles downstream from Cottonwood Creek. Daily mean release from Friant Reservoir into San Joaquin River is obtainable from this table by subtracting flows of Cottonwood Creek (Table 114). Drainage area is 1675 square miles. Period of record 1938 to date. (Prior records available at sites 2.5 and 4.5 miles upstream.) Records for 1950 computed by U. S. Geological Survey.

TABLE 106

FLOW OF SAN JOAQUIN RIVER AT WHITEHOUSE - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	162	72	980	1150	2540	1770	2200	2130	1450	1460	317	390
2	142	72	986	1110	2530	1720	2310	2190	1590	1480	294	410
3	134	68	1000	1100	2430	1630	2320	2180	1590	1450	281	425
4	128	77	1030	1160	2140	1640	2300	2180	1590	1450	272	445
5	123	89	1140	1560	1910	1640	2300	2180	1570	1460	264	612
6	120	99	1160	1830	1890	1690	2290	2190	1580	1360	259	611
7	115	155	1280	1850	1920	1950	2270	2190	1560	1310	259	550
8	115	212	1630	1870	1930	2000	2260	2160	1550	1170	264	550
9	115	162	1680	1800	1920	2010	2280	2120	1420	1160	308	550
10	115	128	1710	1410	1910	2020	2280	2010	1310	1140	350	535
11	115	108	1780	1080	1850	2080	2270	1910	1290	1140	380	555
12	113	99	1900	955	1750	2070	2260	1880	1270	1130	410	804
13	108	93	1920	1290	1740	2080	2250	1880	1250	1140	430	2090
14	106	87	1890	1550	1740	2090	2250	1870	1250	1230	460	3030
15	95	79	1780	1560	1750	2150	2250	1850	1250	1230	430	4010
16	89	134	1710	1500	1750	2150	2290	1820	1290	1230	360	4640
17	85	380	1800	1500	1730	2170	2310	1810	1460	1200	331	4700
18	81	510	1760	1530	1730	2240	2310	1800	1490	876	331	4700
19	75	550	1650	1760	1730	2270	2350	1790	1420	778	355	4710
20	70	565	1650	1910	1760	2280	2410	1790	1260	736	301	4790
21	70	590	1660	1890	1810	2270	2370	1780	1250	670	212	4440
22	65	550	1730	2000	1900	2270	2310	1760	1240	646	155	4010
23	64	530	1730	2230	1800	2270	2290	1760	1320	646	120	3540
24	65	540	1780	2260	1690	2270	2290	1750	1590	646	104	3110
25	65	610	1740	2260	1680	2250	2260	1680	1610	634	122	3070
26	67	820	1290	2310	1680	2270	2210	1610	1590	652	148	3050
27	65	934	1050	2420	1710	2250	2190	1500	1590	682	148	3030
28	74	960	1010	2440	1760	2170	2170	1480	1610	535	124	3000
29	77	—	1050	2490	1760	2160	2160	1460	1570	435	269	2610
30	83	—	1360	2520	1770	2160	2160	1450	1460	405	279	1600
31	77	—	1340	—	1760	—	2140	1430	—	405	—	1200
Mean	96.0	331	1490	1740	1870	2070	2270	1860	1440	983	278	2310
Runoff in Ac.Ft.	5907	18393	91589	103726	114982	122955	139458	114228	85825	60468	16536	142348
	Water Year Total 904298								Calendar Year Total 1016415			

San Joaquin Canal Company station located at Mile 219.83R, below the head of Gravelly Ford Canal. Period of Record 1909 to date. Records for 1950 computed by San Joaquin Canal Company.

TABLE 107

FLOW OF SAN JOAQUIN RIVER NEAR MENDOTA - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	20	13	99	250	268	212	342	321	282	185	130	216
2	20	13	105	245	268	276	333	321	282	182	132	129
3	19	13	103	265	252	300	333	327	279	180	130	95
4	61	13	103	255	258	300	333	354	273	180	128	98
5	141	14	139	252	262	288	333	357	273	180	128	144
6	141	14	163	245	252	265	330	360	270	182	125	1060
7	139	34	185	240	252	260	327	363	270	180	121	3070
8	134	91	188	228	248	262	330	357	260	178	119	3840
9	128	141	178	195	240	270	333	336	255	175	103	3430
10	137	156	175	175	228	279	333	306	248	172	95	2910
11	146	137	180	156	228	285	351	300	252	182	95	2950
12	144	108	198	156	230	294	351	297	248	195	114	2470
13	120	54	215	208	230	306	351	303	248	198	130	2130
14	60	8.8	220	225	225	318	348	306	242	198	134	2490
15	49	6.0	222	220	212	339	351	306	235	198	134	3070
16	55	5.2	230	218	192	378	351	306	222	192	132	3650
17	64	7.4	225	215	182	384	351	300	218	188	128	4110
18	81	21	190	212	195	396	357	294	208	180	125	4360
19	58	24	178	218	202	387	354	294	180	165	446	4270
20	37	37	218	225	200	369	354	288	178	163	571	4200
21	27	49	297	252	200	372	342	288	180	158	230	4190
22	19	57	303	288	222	375	330	282	185	153	731	3840
23	17	64	309	285	230	360	321	279	190	151	2090	3540
24	16	68	324	288	228	354	324	282	188	151	3090	2960
25	14	72	279	294	218	354	321	288	195	151	2930	2660
26	13	75	252	282	215	360	318	288	192	139	2180	2600
27	12	85	252	285	220	360	318	282	190	123	1270	2520
28	13	95	265	288	222	360	321	282	185	128	486	2530
29	12	—	273	279	225	360	318	288	188	130	195	2510
30	12	—	265	270	222	354	321	285	182	130	228	1820
31	13	—	258	—	208	—	321	288	—	128	—	1120
Mean	62.0	52.7	213	240	227	326	336	307	227	168	555	2548
Runoff in Ac.Ft.	3810	2930	13070	14310	13950	19390	20630	18900	13480	10300	33020	156700
	Water Year Total 135950								Calendar Year Total 320490			

U. S. Geological Survey and U. S. Bureau of Reclamation cooperative station located 2.5 miles below Mendota Dam at Mile 206.2L. Drainage area is 4310 square miles. Period of record 1939 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 108

FLOW OF SAN JOAQUIN RIVER NEAR DOS PALOS - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	16	24	.8	3.9	.6	1.8	4.1	4.1	0	.5	.3	146
2	28	23	1.0	3.6	3.6	2.0	4.1	4.3	0	.5	.3	133
3	44	22	1.0	3.4	3.4	3.0	2.6	4.1	0	.5	.3	104
4	43	24	1.1	2.8	3.1	3.6	3.5	4.3	.1	.5	.2	77
5	56	24	1.4	2.0	2.8	3.7	6.0	4.3	.2	.5	.2	71
6	115	24	1.7	1.7	2.6	3.7	5.0	4.5	.3	.5	.2	140
7	125	22	2.0	1.8	2.4	2.8	4.5	5.2	.3	.5	.2	1090
8	128	24	2.3	1.8	2.1	2.8	4.3	5.2	.2	.6	.2	2940
9	122	55	2.6	1.7	1.7	2.8	4.8	5.0	.2	.6	.2	2810
10	124	101	2.8	1.4	1.6	3.2	5.2	4.5	.2	.6	.2	2810
11	139	117	2.8	1.3	1.4	3.4	5.5	3.1	.3	.6	.2	2500
12	150	108	2.6	1.2	1.4	3.6	5.4	1.2	.4	.5	.2	2450
13	148	96	2.6	1.1	1.6	3.7	5.3	.7	.4	.6	.2	2050
14	118	71	2.6	1.1	1.7	4.1	5.3	.7	.3	.6	.2	2010
15	74	42	3.4	1.2	2.0	4.5	5.2	1.0	.4	.6	.2	2360
16	60	33	3.2	1.2	2.0	5.0	5.1	1.2	.5	.6	.2	2960
17	59	27	3.4	1.2	2.0	5.0	5.0	1.2	.5	.6	.2	3460
18	62	24	3.0	1.7	2.0	2.1	5.0	1.2	.6	.6	.2	3920
19	74	29	2.8	2.0	2.2	3.2	4.9	.6	.5	.6	4.2	4120
20	63	32	2.6	2.2	2.3	4.3	4.8	.4	.5	.6	226	4050
21	52	38	3.0	2.3	2.6	4.3	4.7	.2	.5	.6	343	4070
22	44	47	4.1	2.8	2.0	4.8	4.7	.2	.4	.6	221	3960
23	37	55	4.3	3.2	2.3	4.8	4.6	.1	.4	.7	759	3630
24	32	62	4.8	3.6	2.6	4.5	4.5	.1	.5	.7	2050	3200
25	29	45	5.0	3.7	2.6	4.1	4.3	.1	.5	.7	2800	2730
26	25	1.6	4.3	3.9	2.3	4.3	4.1	.1	.5	.7	2410	2600
27	26	.6	4.1	3.7	2.3	4.1	3.9	.1	.5	.6	1720	2520
28	30	.7	3.6	3.6	2.1	3.9	3.9	.1	.5	.5	910	2480
29	26	—	3.7	2.0	2.0	4.1	3.9	0	.5	.5	322	2520
30	24	—	3.9	0	2.0	4.3	3.9	0	.5	.4	140	2320
31	23	—	3.7	—	1.8	—	3.9	0	—	.4	—	1620
Mean	67.6	41.9	2.91	2.24	2.16	3.72	4.58	1.86	0.36	0.57	397	2337
Runoff in Ac.Ft.	4160	2320	179	133	133	221	282	115	21	35	23620	143700
	Water Year Total 7764								Calendar Year Total 174919			

U. S. Geological Survey and U. S. Bureau of Reclamation cooperative station located 800 feet downstream from the head of Temple Slough at Mile 186.0L. Drainage area is 5630 square miles. Period of record 1940 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 109

FLOW OF SAN JOAQUIN RIVER AT FREMONT FORD BRIDGE - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	63	410	135	184	110	197	82	28	35	58	68	1000
2	69	356	125	165	111	221	83	28	30	53	73	652
3	70	299	120	158	117	228	86	26	26	50	68	525
4	68	260	113	150	127	228	78	24	25	46	63	497
5	60	256	108	141	135	179	66	24	27	41	68	612
6	57	391	107	135	162	124	69	24	27	40	66	1460
7	59	834	104	135	178	111	68	24	28	41	60	2140
8	84	1390	115	140	197	117	50	23	41	46	55	2230
9	152	1500	106	160	206	122	47	23	46	45	54	2400
10	159	1130	100	247	191	118	50	24	50	43	56	2690
11	170	862	97	385	175	127	47	28	50	37	62	2980
12	183	683	97	529	164	136	45	37	56	36	68	3120
13	207	553	98	634	156	140	45	70	60	39	70	3120
14	212	462	98	632	147	138	45	83	58	45	68	2960
15	211	398	122	532	159	107	43	72	64	48	66	2720
16	211	344	121	470	154	88	44	66	72	52	64	2720
17	200	297	129	470	153	88	51	86	98	50	66	2830
18	192	260	129	438	153	83	68	90	118	45	71	2980
19	301	228	128	367	153	84	74	76	146	32	84	3050
20	412	206	147	276	147	103	75	63	178	30	188	3310
21	400	189	158	189	134	103	72	67	219	30	479	3270
22	352	175	125	159	127	90	78	56	307	30	1150	3260
23	288	165	99	146	113	80	83	50	269	32	1540	3230
24	229	158	102	167	100	84	68	46	197	33	1510	3210
25	200	158	100	183	100	98	55	42	167	41	1530	3180
26	175	156	158	170	94	113	50	39	132	45	1900	3050
27	158	156	216	150	90	102	45	37	108	48	2220	2810
28	160	148	275	127	98	87	40	36	98	52	2410	2610
29	171	—	296	120	120	83	36	40	79	57	2250	2480
30	309	—	249	113	186	84	34	40	63	69	1670	2410
31	417	—	211	—	197	—	30	40	—	74	—	2380
Mean	194	444	138	262	144	122	58.3	45.5	95.8	44.8	603	2448
Runoff in Ac.Ft.	11900	24640	8510	15610	8830	7270	3580	2800	5700	2750	35890	150500
	Water Year Total 96180								Calendar Year Total 277980			

U. S. Geological Survey, U. S. Bureau of Reclamation and Division of Water Resources cooperative station located at highway bridge on road between Gustine and Stevinson, Mile 129.5 above mouth of San Joaquin River and 5.7 miles above the confluence of the Merced River. An undetermined amount of water during high flow periods of November and December passed this station via Mud Slough. Drainage area is 8090 square miles. Period of record 1937 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 110

FLOW OF SAN JOAQUIN RIVER NEAR NEWMAN - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	200	748	797	384	283	3010	276	197	211	238	244	2620
2	209	684	788	354	301	3070	276	192	226	229	247	2410
3	213	615	774	342	312	3100	273	175	208	229	223	2490
4	213	573	770	354	312	2990	238	194	208	226	208	2750
5	206	569	766	339	308	2510	229	192	200	214	208	5320
6	200	1020	766	305	350	1860	229	200	197	208	203	8200
7	203	1380	756	301	384	1980	206	226	208	211	197	8550
8	230	1940	707	331	412	1880	200	211	211	197	197	8510
9	287	2140	707	404	408	1210	217	211	211	208	200	9210
10	301	1970	577	565	373	758	263	217	226	211	197	10900
11	327	1730	535	774	388	678	235	197	247	200	203	11600
12	358	1560	514	990	392	650	226	183	266	200	208	11000
13	412	1400	481	1140	361	578	197	229	279	192	214	10100
14	440	1260	456	1160	342	562	186	289	282	192	211	9450
15	444	1160	472	1090	358	482	186	286	289	197	208	8820
16	468	1100	452	1060	331	414	208	257	305	206	214	7910
17	481	1040	452	1040	308	410	250	247	356	203	214	7760
18	510	985	444	960	323	414	247	263	410	192	223	8020
19	860	955	436	838	323	422	241	254	422	175	240	8110
20	895	920	424	707	320	403	232	257	463	161	1330	7040
21	842	890	424	552	323	378	203	295	486	164	1240	6040
22	779	875	373	456	361	349	200	279	538	166	1550	5580
23	694	860	335	400	339	315	220	270	510	180	1870	5040
24	615	846	358	388	312	326	250	254	441	197	1900	5250
25	565	838	481	384	312	338	232	226	396	200	2440	5540
26	527	833	535	350	287	349	200	208	353	208	2910	5400
27	497	824	560	312	262	360	186	217	311	220	3240	5020
28	497	815	556	272	416	308	206	226	289	229	3520	4660
29	577	—	544	258	2000	292	186	232	260	238	3570	4380
30	890	—	485	265	2800	286	200	229	257	232	3180	4210
31	865	—	428	—	2910	—	211	232	—	247	—	4150
Mean	478	1090	553	569	555	1023	223	230	309	205	1027	6646
Runoff in Ac.Ft.	29370	60560	34020	33870	34140	60860	13700	14170	18380	12630	61110	408700
	Water Year Total 333080								Calendar Year Total 781510			

Station is maintained jointly by the Division of Water Resources and 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. Combine flow with Merced River Slough (Table 124) to give total flow passing this point. Drainage area is 9990 square miles. Period of record 1912 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 111

FLOW OF SAN JOAQUIN RIVER AT GRAYSON (LAIRD SLOUGH) - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	330	910	950	715	365	3190	318	230	310	380	540	1200
2	333	875	940	705	350	3290	325	225	305	440	480	3320
3	335	815	970	640	360	3660	332	225	295	435	470	3060
4	337	760	905	530	370	3500	300	225	290	425	450	3590
5	340	720	890	460	380	3500	300	265	272	410	430	5150
6	340	775	870	420	380	2780	295	295	300	425	420	5500
7	342	1085	860	445	420	2740	303	310	310	460	410	9100
8	360	1580	845	455	460	2370	285	290	320	380	392	11750
9	390	2030	805	660	500	1740	295	280	315	450	383	11600
10	430	2200	770	795	468	1590	330	260	350	415	390	12700
11	460	2115	670	885	465	1190	320	255	380	400	412	16600
12	480	1980	620	1000	468	1040	285	285	340	413	420	18900
13	500	1810	600	1070	440	910	300	290	335	413	435	16200
14	545	1650	510	1130	430	800	295	340	350	382	437	13900
15	580	1510	470	1210	438	735	250	360	385	410	432	12300
16	590	1390	420	1210	415	650	270	320	420	413	435	10950
17	625	1315	400	1190	380	645	293	295	500	418	440	9600
18	710	1260	460	1080	377	690	300	303	585	370	460	9100
19	800	1195	430	910	400	695	280	310	595	340	550	9200
20	895	1140	440	725	450	620	290	320	600	338	1350	9200
21	915	1125	435	570	500	510	293	345	665	360	3050	8000
22	880	1140	420	530	492	460	270	353	675	370	3700	6400
23	830	1120	405	490	490	440	263	350	710	410	5600	5300
24	775	1075	490	360	465	560	285	335	680	495	2000	4750
25	720	1065	735	310	425	620	283	325	620	560	1550	5000
26	675	1055	855	480	425	525	250	318	560	545	1350	5300
27	645	1045	905	420	410	480	225	325	480	550	1550	5050
28	650	1030	940	360	380	420	210	330	445	570	1700	4300
29	700	—	925	362	740	375	220	310	445	545	1900	3750
30	815	—	860	390	1930	355	215	285	415	510	1700	3250
31	925	—	800	—	2820	—	232	303	—	525	—	3100
Mean	589	1278	697	684	561	1369	281	299	442	441	1127	7972
Runoff in Ac.Ft.	36202	70949	42833	40675	34499	81481	17280	18371	26285	27088	67113	490155
	Water Year Total 427551								Calendar Year Total 952931			

Station is maintained jointly by City of San Francisco (Hetch Hetchy Water Supply), Division of Water Resources, Modesto Irrigation District and Turlock Irrigation District. Station is at Laird Slough Bridge, Mile 96.05 above mouth of San Joaquin River and 5 miles above the confluence of the Tuolumne River. High flows by-passing this station through old channel of San Joaquin River are included in this table. Period of record 1931 to date. Records for 1950 computed by the City of San Francisco.

TABLE 112

FLOW OF SAN JOAQUIN RIVER AT HETCH HETCHY AQUEDUCT CROSSING* - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1300	1670	2410	2120	2190	5890	715	418	520	780	1600	8500
2	1200	1600	2370	2540	1900	6920	665	400	550	890	1610	6800
3	980	1580	2410	2550	1790	8100	660	410	585	890	1700	6800
4	965	1520	2370	2530	1650	8600	640	395	580	850	1710	7000
5	1060	1550	2290	2440	1410	8550	620	425	560	820	1680	14500
6	1075	2225	2130	2220	1220	7600	600	445	565	810	1590	15700
7	1055	2340	2060	2650	1170	5300	610	550	565	865	1500	15800
8	1055	2700	1890	2280	1060	4350	560	530	565	875	1570	28300
9	990	3010	1700	2500	910	3910	550	490	560	880	1530	52200
10	965	3500	1640	3940	800	2970	620	440	630	830	1510	45900
11	1110	3510	1500	4000	740	2360	625	420	710	810	1560	33300
12	1170	3670	1290	4320	710	2140	575	442	600	950	1580	26800
13	1200	3430	1040	4270	580	1990	585	465	707	1170	1520	20600
14	1230	3190	930	3980	660	1770	610	530	740	1240	1500	16100
15	1260	3040	895	3720	820	1440	515	565	750	1300	1550	15500
16	1260	2700	855	3220	1000	1150	505	520	780	1300	1580	15300
17	1265	2550	730	3120	1340	1030	570	450	840	1310	1600	15100
18	1790	2500	695	2850	1580	1040	500	465	970	1300	1750	14800
19	2970	2420	700	2680	1730	980	480	520	1030	1260	2000	14600
20	2010	2300	695	2230	1770	995	475	520	1020	1250	4280	14500
21	1740	2490	690	2290	1760	1030	465	580	1020	1320	8700	14400
22	1670	2980	670	3200	1770	1030	450	620	1040	1360	14200	13800
23	1545	2920	640	3460	1970	1150	460	640	1070	1360	28100	13200
24	1470	2890	770	3400	2100	2310	495	620	1080	1400	16200	11800
25	1460	2850	1310	3010	2080	2770	480	550	1000	1560	13200	10400
26	1430	2830	1770	2460	1900	1530	490	520	900	1570	12900	9900
27	1420	2800	1850	2150	1740	970	420	522	840	1650	11600	9500
28	1465	2660	1590	2100	1760	830	425	530	790	1650	11200	9200
29	2150	—	1450	2150	1910	710	430	520	825	1640	10900	8800
30	2700	—	1450	2570	3040	700	420	460	820	1570	10200	8400
31	1880	—	1920	—	4330	—	420	450	—	1560	—	8200
Mean	1446	2622	1442	2898	1609	3004	537	497	773	1194	5737	16313
Runoff in Ac.Ft.	88939	145636	88681	172463	98955	178740	32995	30569	46001	73428	341395	1003041
	Water Year Total 1116086								Calendar Year Total 2300843			

Station is maintained jointly by City of San Francisco (Hetch Hetchy Water Supply) and Division of Water Resources. Station is at Mile 82.65 above mouth of San Joaquin River and 2.9 miles above the confluence of the Stanislaus River. Period of record 1936 to date. Records for 1950 computed by the City of San Francisco.

* Maze Road (January 1 - June 30) and (November 21 - December 31).

TABLE 113

FLOW OF SAN JOAQUIN RIVER NEAR VERNALIS - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1470	2710	3430	2790	5740	10800	1030	507	646	944	1670	13100
2	1410	2570	3370	3120	5230	12300	993	532	665	1020	1700	10800
3	1240	2500	3390	3170	4990	13700	986	528	720	1080	1770	9980
4	1210	2420	3380	3330	4500	14500	937	510	710	1010	1810	10300
5	1260	2500	3330	4100	3920	14500	828	521	642	968	1790	19900
6	1290	3540	3180	4060	3260	12600	799	549	650	908	1680	25000
7	1270	3510	3100	4570	3040	8530	810	606	650	974	1560	25300
8	1270	3670	2890	4040	2940	6590	735	610	655	1030	1610	40000
9	1230	3750	2600	4500	2680	5800	710	614	642	1020	1610	70000
10	1190	4100	2460	6000	2380	4180	755	594	685	950	1660	70000
11	1270	4140	2300	7140	2310	3360	772	614	840	902	1840	56000
12	1320	4310	2080	7360	2340	3080	735	637	810	1030	1930	46900
13	1340	4190	1840	7200	2500	2920	730	675	810	1290	1890	39900
14	1380	3930	1710	6900	2780	2720	750	685	852	1370	1820	32000
15	1440	3850	1580	6200	3200	2350	725	675	894	1410	1850	26800
16	1460	3640	1450	5530	4000	2110	670	665	1000	1400	1870	25500
17	1450	3550	1250	4940	4600	2020	705	610	1060	1410	1870	24100
18	2560	3510	1150	4740	5300	2000	642	624	1270	1420	2020	22200
19	4080	3460	1140	4880	6100	1900	582	665	1370	1400	2350	21100
20	3160	3370	1110	4710	6400	2020	586	632	1320	1430	5260	20600
21	2750	3410	1090	5030	6500	2170	556	690	1310	1510	14800	20200
22	2650	3830	1090	6080	6520	2220	574	650	1320	1530	23000	19500
23	2530	3880	1060	6920	6650	2300	574	680	1320	1520	30000	18800
24	2380	3820	1190	7160	7070	3490	610	685	1340	1540	27200	17600
25	2310	3820	1940	6800	7180	3950	566	665	1210	1650	23000	15600
26	2260	3790	2830	6200	6840	2570	504	646	1080	1660	19900	14400
27	2240	3760	2980	5730	6520	1860	497	670	1020	1750	18000	13800
28	2320	3650	2500	5730	6380	1480	466	665	951	1790	16800	13200
29	3180	—	2220	5920	6440	1210	463	637	972	1780	15900	12600
30	3970	—	2150	6100	7480	1180	532	610	958	1700	14900	12100
31	3060	—	2580	—	9590	—	486	590	—	1650	—	11700
Mean	1998	3542	2205	5367	5012	5014	687	621	946	1324	8102	25130
Runoff in Ac.Ft.	122900	196700	135600	319300	308200	298300	42260	38160	56280	81410	482100	1545000
	Water Year Total 1786340								Calendar Year Total 3626210			

This station is maintained jointly by the Division of Water Resources and the U. S. Geological Survey. It is located at Durham Ferry Bridge, 3 miles below the confluence of the Stanislaus River and is at Mile 76.7 above the mouth of the San Joaquin River. Drainage area is 14010 square miles. Period of record 1922 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 114

FLOW OF COTTONWOOD CREEK NEAR FRIANT - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0.6	1.9	1.2							0	1.9
2	0	.4	1.7	1.0							0	1.1
3	0	.4	1.6	.8							0	49
4	0	20	1.3	.6							0	90
5	0	27	1.3	.5							0	26
6	0	38	1.1	.4							0	23
7	0	18	1.0	.4							0	57
8	0	14	1.1	8.1							0	25
9	0	12	1.1	26							0	18
10	0	16	.9	7.9							0	16
11	.1	11	.9	3.7							0	14
12	0	7.9	.9	2.2	N	N	N	N	N	N	0	12
13	0	6.7	.7	1.6	0	0	0	0	0	0	0	11
14	.2	6.1	.7	1.0							.1	30
15	0	5.8	.6	.7							0	19
16	0	5.2	.5	.6							0	15
17	.9	4.4	.6	.4	F	F	F	F	F	F	0	13
18	.1	4.0	.8	.2	L	L	L	L	L	L	1.0	12
19	0	3.5	.7	.1	0	0	0	0	0	0	48	11
20	0	3.3	.6	.1	W	W	W	W	W	W	14	9.8
21	0	3.1	.5	.1							4.7	10
22	0	2.9	.4	.1							2.1	9.8
23	.4	2.7	.4	.1							1.5	9.4
24	.1	2.0	21	0							1.0	8.6
25	0	2.0	18	0							.9	9.0
26	0	1.7	7.9	0							.7	8.2
27	0	1.7	4.0	0							.7	7.6
28	2.7	1.9	2.9	0							.6	7.6
29	2.2	—	2.2	0							.6	7.6
30	1.6	—	1.9	0							1.3	7.6
31	1.0	—	1.4	—		—			—		—	8.2
Mean	.30	7.94	2.60	1.93	0	0	0	0	0	0	2.57	17.7
Runoff in Ac.Ft.	18	441	160	115	0	0	0	0	0	0	153	1090
	Water Year Total 735								Calendar Year Total 1977			

U. S. Geological Survey and U. S. Bureau of Reclamation cooperative station located 1 mile above the mouth. Cottonwood Creek enters the San Joaquin River at Mile 269.53R. Drainage area is 38 square miles. Period of record 1941 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 115

FLOW OF LITTLE DRY CREEK NEAR FRIANT - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	1.1	1.8	1.8	0.1						0	0.6
2	0	.8	1.7	1.6	.1						.0	.4
3	0	.8	1.7	1.4	.1						0	141
4	0	38	1.5	1.3	.1						0	156
5	0	104	1.4	1.2	0						0	42
6	0	114	1.4	.9	0						0	26
7	0	40	1.3	.9	0						0	63
8	0	22	1.3	1.8	0						0	33
9	0	15	1.3	5.2	0						0	22
10	0	13	1.1	3.6	0						0	17
11	0	11	1.0	2.2	0						0	14
12	0	8.2	.9	1.8	0	N	N	N	N	N	0	12
13	0	6.1	.9	1.6	0	0	0	0	0	0	0	10
14	0	5.0	.8	1.3	0						0	33
15	0	4.6	.8	1.0	0						0	30
16	0	4.2	.8	.8	0	F	F	F	F	F	0	18
17	0	3.6	.8	.8	0	L	L	L	L	L	0	15
18	0	3.4	.8	.7	0	O	O	O	O	O	.2	13
19	0	3.1	.9	.5	0	W	W	W	W	W	192	11
20	0	2.9	.9	.4	0						29	8.6
21	0	2.9	.8	.3	0						7.9	8.6
22	0	2.6	.8	.2	0						3.0	8.2
23	0	2.4	.8	.1	0						1.6	7.8
24	0	2.2	8.9	.1	0						.9	7.4
25	0	2.2	27	.1	0						.6	7.4
26	0	2.1	8.6	0	0						.4	6.5
27	0	1.9	4.8	0	0						.3	6.1
28	2.6	1.8	3.6	.1	0						.2	5.6
29	6.1	—	2.9	.1	0						.2	5.6
30	2.5	—	2.5	.1	0						.4	5.2
31	1.4	—	2.1	—	0	—			—		—	5.6
Mean	0.41	15.0	2.77	1.06	0.01	0	0	0	0	0	7.89	23.9
Runoff in Ac.Ft.	25	831	170	63	.8	0	0	0	0	0	469	1470
	Water Year Total 1090								Calendar Year Total 3029			

U. S. Geological Survey and U. S. Bureau of Reclamation cooperative station located 4 miles above the mouth. Little Dry Creek enters the San Joaquin River at Mile 264.0L. Drainage area is 58 square miles. Period of record 1937 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 116

FLOW OF FRESNO SLOUGH BY-PASS* - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1					0	1.2					0	8.7
2					0	0					0	5.5
3					0	34					0	4.6
4					0	18					0	4.9
5					0	3.6					0	348
6					0	.2					0	2570
7					0	7.6					0	4330
8					0	9.7					0	3260
9					0	8.9					0	2490
10					0	2.0					0	2860
11					0	.1					0	2500
12	N	N	N	N	0	0	N	N	N	N	0	1370
13	0	0	0	0	0	0	0	0	0	0	0	661
14					0	0					0	230
15					0	0					0	63
16					0	0					0	79
17	F	F	F	F	0	0	F	F	F	F	0	530
18	L	L	L	L	0	0	L	L	L	L	0	191
19	O	O	O	O	0	0	O	O	O	O	0	43
20	W	W	W	W	0	0	W	W	W	W	0	20
21					0	0					523	15
22					228	0					1960	26
23					237	0					3520	27
24					95	0					3280	14
25					96	0					2330	8.5
26					41	0					1470	6.6
27					49	0					661	5.5
28					75	0					188	4.3
29		—			46	0					23	4.2
30		—			52	0					14	5.0
31		—		—	13	—			—		—	5.0
Mean	0	0	0	0	30.1	2.84	0	0	0	0	466	700
Runoff in Ac.Ft.	0	0	0	0	1850	169	0	0	0	0	27710	43020
	Water Year Total 2019								Calendar Year Total 72749			

U. S. Geological Survey and U. S. Bureau of Reclamation cooperative station located a short distance below the station presently operated by the King's River Water Association. Station is located below Kerman-San Joaquin highway crossing on Fresno Slough By-Pass 5.8 miles above its confluence with Fresno Slough. Fresno Slough By-Pass enters Fresno Slough at Mile 11.8R above mouth of Fresno Slough. Period of record 1927 to 1932; 1935 to date. Records for 1950 computed by U. S. Geological Survey.
* Also known as James By-Pass and Fresno Slough Cut-off.

TABLE 117

FLOW OF FRESNO RIVER NEAR DAULTON - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	9.5	47	55	97	126	100	14	2.5		0	8.0	64
2	10	37	53	96	132	98	18	2.7		0	13	54
3	11	33	48	95	137	96	18	2.5		0	8.0	1290
4	6.9	57	48	89	134	93	17	2.5		0	6.0	3490
5	7.6	729	48	86	124	88	15	2.2		0	5.0	595
6	9.0	807	48	75	122	86	14	2.0		0	4.0	324
7	8.5	518	45	77	115	80	14	1.5		0	4.0	842
8	14	237	44	130	109	77	12	1.1		0	4.0	556
9	20	170	41	290	104	68	12	.7		0	4.0	430
10	17	154	39	210	100	62	12	.4		0	5.0	295
11	20	150	37	178	101	57	12	.3		0	5.0	235
12	28	132	38	163	102	55	12	.1	N	0	5.0	194
13	24	113	34	150	104	53	11	.1	O	0	5.0	172
14	32	101	33	142	105	51	9.5	.1		0	10	312
15	32	92	32	126	109	48	8.0	.1		0	25	474
16	23	86	30	116	112	45	7.3	.3		0	20	265
17	101	80	32	108	115	43	6.5	.1	F	0	25	221
18	192	75	35	102	113	42	5.4	.1	L	0	300	196
19	113	69	37	96	112	41	6.2	.1	O	0	5130	179
20	84	67	46	84	115	39	6.5	.1	W	0	616	156
21	75	62	52	79	119	39	6.5	0		0	302	142
22	71	57	42	77	119	35	6.2	0		0	162	129
23	65	52	72	75	122	33	5.8	0		0	118	122
24	95	51	98	74	126	32	5.4	0		0	90	114
25	84	50	296	73	124	30	3.8	0		0	76	114
26	48	54	184	73	116	28	3.8	0		0	66	110
27	35	55	136	88	116	26	3.3	0		0	58	100
28	62	55	109	66	113	25	3.3	0		18	53	98
29	118	—	98	83	109	25	3.0	0		6.2	48	102
30	80	—	98	124	106	21	3.0	0		5.6	49	102
31	59	—	97	—	104	—	2.7	0	—	8.0	—	102
Mean	50.1	150	67.9	111	115	53.9	8.94	.63	0	1.22	241	374
Runoff in Ac.Ft.	3080	8310	4180	6590	7070	3210	550	39	0	75	14330	22970
	Water Year Total 34236								Calendar Year Total 70404			

U. S. Geological Survey and U. S. Bureau of Reclamation cooperative station located 5 miles southeast of Daulton. Drainage area 270 square miles. Fresno River is an east-side tributary to the San Joaquin River at Mile 184.0R. Period of record October 1941 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 118

FLOW OF CHOWCHILLA RIVER AT BUCHANAN DAMSITE - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	6.2	51	38	53	32	1.2	.2				0	50
2	6.9	44	37	49	35	3.4	.1				0	45
3	7.6	39	36	44	45	5.6	.1				0	2760
4	7.0	518	35	44	53	5.0	.1				0	4240
5	6.2	1500	34	40	42	4.8	.1				0	616
6	5.6	1720	33	36	37	4.7	.1				0	375
7	5.8	580	33	40	34	3.8	.1				0	1000
8	9.3	272	32	150	32	3.9	.1				0	650
9	16	181	31	520	30	4.2	.1				0	526
10	16	155	29	280	27	3.8	.1				0	407
11	19	158	30	168	26	1.3	.1				0	335
12	26	115	31	133	24	4.6	.1	N	N	N	0	284
13	20	97	28	111	22	6.0	.1	O	O	O	0	251
14	22	86	28	110	22	1.5	.1				0	383
15	32	78	27	92	20	1.1	0				7.9	441
16	20	72	24	83	18	1.5	0				20	265
17	499	66	26	76	18	3.0	0	F	F	F	14	219
18	362	62	30	70	16	3.2	0	L	L	L	5300	191
19	149	58	30	64	15	2.6	0	O	O	O	6000	168
20	115	55	35	58	14	2.3	0	W	W	W	750	152
21	95	52	37	52	14	2.6	0				350	141
22	91	46	31	49	12	1.4	0				180	134
23	77	47	30	42	11	1.1	0				126	125
24	103	45	43	42	9.6	.8	0				94	119
25	72	44	355	40	5.6	1.0	0				74	115
26	51	43	158	39	11	3.1	0				59	107
27	39	42	102	36	10	.8	0				50	101
28	82	39	78	34	9.9	.6	0				46	97
29	168	—	67	34	8.9	.4	0				42	96
30	96	—	62	33	7.0	.3	0				44	94
31	66	—	58	—	3.2	—	0		—		—	95
Mean	73.9	224	53.2	87.4	21.4	2.65	.05	0	0	0	439	470
Runoff in Ac.Ft.	4540	12430	3270	5200	1320	158	3	0	0	0	26100	28920
	Water Year Total 27358								Calendar Year Total 81941			

U. S. Geological Survey station located 5 miles west of Raymond. Drainage area 238 square miles. Chowchilla River is an east-side tributary to the San Joaquin River at mile 151.0R. Period of record October 1921 to September 1923, October 1930 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 119

FLOW OF BEAR CREEK ABOVE SAN JOAQUIN RIVER - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16	Records not available at the time of publication of this report.											
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29		—										
30		—										
31		—		—		—			—		—	
Mean												
Runoff in Ac.Ft.												
		Water Year Total							Calendar Year Total			

U. S. Bureau of Reclamation station located about one mile above the mouth. Bear Creek is an east-side tributary to the San Joaquin River at Mile 140.5R. Period of record 1940 to date. Records for 1950 to be computed by U. S. Bureau of Reclamation.

TABLE 120

FLOW OF MERCED RIVER AT EXCHEQUER - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	36	36	539	684	1720	5700	1840	1760	1430	51	51	1810
2	36	36	542	684	1740	5520	1830	1710	1450	51	52	1840
3	36	35	539	684	1710	4840	1850	1670	1460	51	52	4300
4	36	42	536	898	1690	3520	1880	1660	1460	50	52	24000
5	36	42	538	1130	1640	3780	1890	1590	1460	50	52	11000
6	36	394	544	1230	1600	3990	1920	1550	1450	50	52	6430
7	36	615	546	1280	1600	3180	1930	1590	1440	48	52	7940
8	37	638	546	1320	1590	2090	1920	1620	1420	48	52	12600
9	37	533	546	1300	1610	2010	1880	1610	1410	48	52	14200
10	37	532	652	1290	1690	1960	1870	1590	1390	48	52	9890
11	36	532	542	1290	1780	1900	1860	1560	1360	47	52	4960
12	35	533	550	1310	1790	1850	1870	1540	1330	47	52	4960
13	34	531	652	1310	1740	1820	1890	1530	1290	47	52	4800
14	36	535	769	1280	1740	1810	1890	1510	1280	47	53	3530
15	36	534	936	1310	1740	1810	1870	1540	1270	47	53	4220
16	34	538	1110	1310	1750	1810	1870	1550	1280	47	53	5000
17	41	538	1230	1300	1780	1780	1840	1550	1250	47	53	5000
18	36	537	1260	1340	1820	1770	1820	1550	1230	47	104	3800
19	34	537	1260	1380	1890	1770	1810	1550	1170	47	65	1560
20	34	534	1100	1410	1890	1780	1820	1550	1120	52	55	1260
21	34	532	958	1410	1920	1820	1840	1550	804	52	55	26
22	34	533	931	1450	1930	1850	1830	1550	735	51	53	497
23	34	535	970	1460	1930	1870	1830	1540	74	51	1190	1490
24	34	536	409	1510	1910	1870	1850	1520	51	50	1540	1490
25	34	537	55	1530	1880	1850	1850	1510	48	50	1440	1490
26	34	539	55	1540	2060	1800	1850	1460	45	51	1240	1220
27	33	540	44	1540	4810	1780	1850	1450	48	50	1230	1220
28	42	538	38	1570	5910	1810	1850	1440	48	50	1240	1490
29	41	—	38	1620	5580	1830	1820	1430	47	51	1230	1210
30	40	—	52	1670	5610	1830	1810	1410	48	52	1270	1210
31	37	—	405	—	5740	—	1790	1420	—	51	—	1210
Mean	36.0	448	609	1301	2380	2433	1855	1550	963	49.3	387	4698
Runoff in Ac.Ft.	2210	24880	37470	77430	146400	144800	114100	95330	57320	3030	23010	288900
		Water Year Total	707680						Calendar Year Total	1014880		

U. S. Geological Survey and Merced Irrigation District cooperative station located 0.5 mile downstream from Lake McClure. Drainage area is 1035 square miles. Period of record 1922 to date. (Prior records available at a site 1 mile upstream.) Records for 1950 computed by U. S. Geological Survey.

TABLE 121

FLOW OF MERCED RIVER BELOW SNELLING (YOSEMITE VALLEY RAILROAD CROSSING)*- 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	7.4	40	531	40	12	e4180	9.4	11	6.5	3.1	7.4	1830
2	7.7	44	525	54	16	e4150	9.4	13	6.2	2.9	8.3	2110
3	8.0	42	531	61	19	e3900	9.0	11	6.2	2.9	7.7	3370
4	8.6	143	525	61	25	e3490	9.8	9.8	6.2	2.8	8.3	22200
5	8.3	304	531	47	27	e2100	11	9.0	6.2	2.7	9.4	12500
6	8.6	359	484	40	42	e1800	11	9.0	5.9	2.6	10	7010
7	9.0	508	452	42	22	e1000	14	8.6	6.2	2.6	9.0	8100
8	14	508	320	72	16	e350	14	8.3	6.8	2.4	8.0	11400
9	14	519	214	299	14	248	14	9.0	6.2	2.6	8.0	15200
10	11	549	208	379	12	220	11	11	8.6	2.6	8.3	12600
11	11	578	155	363	11	182	10	11	9.4	2.6	8.3	5920
12	11	566	128	367	10	171	10	10	9.8	2.6	8.6	5520
13	11	555	88	363	9.0	137	11	10	11	2.4	9.0	5350
14	12	549	83	363	6.5	108	14	11	11	2.6	9.8	4410
15	12	543	110	379	5.9	108	11	14	9.4	2.6	9.8	3880
16	14	543	103	367	5.9	97	11	15	10	2.7	11	5400
17	268	543	103	337	5.9	72	11	12	14	2.8	11	5350
18	132	537	86	227	12	47	12	15	12	3.1	258	4280
19	72	537	88	148	16	20	12	18	9.4	3.2	1220	1350
20	53	531	99	88	16	19	12	21	9.4	3.2	192	915
21	46	537	99	60	16	19	14	23	8.0	3.2	128	330
22	47	537	137	30	14	16	14	18	6.2	3.7	83	78
23	44	531	116	24	17	12	12	12	6.8	4.4	641	1130
24	40	531	90	14	18	11	11	11	6.5	5.9	1580	1200
25	34	519	74	14	21	12	11	10	5.1	5.1	1460	1090
26	32	519	56	14	21	11	12	9.0	4.6	4.6	1270	892
27	28	513	47	14	1920	9.4	12	9.8	4.2	5.6	1240	885
28	141	525	40	11	4250	8.3	12	11	4.2	5.1	1230	885
29	105	—	34	12	4220	9.0	12	9.8	3.7	4.9	1240	885
30	56	—	32	13	3880	9.4	11	8.6	3.2	6.8	1250	885
31	44	—	29	—	4020	—	11	7.1	—	7.1	—	877
Mean	42.2	454	197	143	603	750	11.6	11.8	7.4	3.6	398	4769
Runoff in Ac.Ft.	2598	25210	12130	8535	37090	44660	711	726	442	221	23690	293200
	Water Year Total 133713								Calendar Year Total 449213			

Division of Water Resources station located at Merced-Snelling highway bridge, Mile 42.1 above mouth. Period of record 1930 to date.
* Formerly listed as Merced River at Yosemite Valley Railroad Crossing. Railroad bridge was removed during 1948.
e Estimated.

TABLE 122

FLOW OF MERCED RIVER AT CRESSEY BRIDGE - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	81	172	587	106	81	4010	82	70	63	71	74	1670
2	82	160	592	104	81	3930	77	81	64	70	72	2080
3	82	153	590	111	77	3660	75	102	68	67	69	2080
4	81	155	590	112	82	2910	69	88	70	66	68	20000
5	81	926	590	110	95	1660	68	72	66	64	70	27800
6	80	737	581	102	93	2120	69	64	64	59	71	18400
7	82	857	484	97	107	2120	76	74	64	58	78	16700
8	86	718	542	103	90	1150	72	75	65	57	78	18900
9	89	691	294	208	72	448	84	77	66	54	74	25100
10	93	700	268	348	70	329	87	75	80	53	71	24000
11	98	734	246	416	68	286	82	75	88	53	70	14900
12	97	728	202	428	61	248	68	86	89	52	69	8230
13	97	676	180	424	64	216	66	83	83	54	70	7370
14	100	658	158	428	63	185	76	88	93	55	75	7240
15	104	652	147	434	61	166	80	92	98	55	78	4500
16	110	637	158	438	62	166	80	82	116	56	76	7050
17	141	631	156	438	58	155	69	78	110	57	78	7200
18	715	622	153	362	57	138	65	72	124	53	89	6810
19	288	619	141	260	59	116	68	71	130	57	2270	2950
20	196	619	150	185	65	99	74	78	119	56	833	1590
21	163	616	153	144	67	104	72	84	106	56	613	1430
22	146	616	160	119	64	103	70	90	108	57	374	464
23	140	607	174	98	62	104	75	93	100	58	274	843
24	134	604	171	87	59	100	70	86	104	59	1330	1630
25	126	598	211	77	59	110	59	71	100	61	1650	1570
26	122	595	237	72	61	111	53	66	90	62	1500	1400
27	120	595	168	71	182	104	58	62	82	65	1420	1350
28	228	592	140	66	3070	90	62	72	72	64	1370	1330
29	676	—	122	69	4050	82	65	74	70	65	1420	1290
30	282	—	115	75	3760	78	72	81	72	68	1420	1330
31	199	—	107	—	3890	—	78	76	—	71	—	1330
Mean	165	595	276	203	542	837	71.6	78.6	87.5	59.8	528	7695
Runoff in Ac.Ft.	10150	33060	16990	12080	33300	49780	4405	4836	5205	3675	31350	473100
	Water Year Total 181612								Calendar Year Total 677931			

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

TABLE 123

FLOW OF MERCED RIVER NEAR STEVINSON* - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	139	211	616	184	162	3390	186	171	160	154	175	1300
2	139	182	616	172	181	3420	186	165	176	147	172	1640
3	140	167	612	174	188	3420	176	162	169	153	148	1910
4	140	160	612	222	175	3170	153	182	174	153	143	2820
5	138	220	610	198	172	2380	165	181	151	148	140	11200
6	139	703	610	186	192	1910	149	192	157	143	140	11500
7	139	703	598	187	199	2150	131	210	158	153	142	9130
8	142	732	538	212	216	1850	158	184	147	143	145	9800
9	144	686	542	293	200	1020	188	194	142	148	148	10800
10	147	673	353	387	176	710	194	188	169	144	144	12000
11	152	675	358	472	208	660	176	160	186	144	142	11000
12	156	719	346	540	218	588	162	149	194	143	143	7770
13	154	692	310	534	198	520	143	171	198	132	143	6160
14	154	664	292	522	196	504	130	198	205	134	143	5700
15	158	654	295	550	195	406	148	188	211	132	145	5260
16	162	648	275	552	154	375	169	167	223	145	148	4500
17	168	637	267	532	156	368	188	152	265	138	149	5150
18	269	635	270	472	158	362	169	154	297	127	156	5320
19	510	631	272	417	161	364	152	156	286	123	208	4840
20	338	627	241	355	156	315	138	136	290	120	1570	2580
21	272	627	226	286	190	279	125	214	277	120	746	1910
22	238	633	226	230	218	250	128	200	228	123	566	1340
23	217	631	211	194	187	230	149	199	212	143	430	818
24	206	631	263	182	182	235	178	198	226	149	452	1440
25	199	629	388	157	194	240	158	172	204	151	1210	1690
26	190	622	400	148	162	246	131	161	194	160	1400	1630
27	184	620	350	131	153	239	139	162	172	171	1280	1470
28	186	616	270	126	650	218	147	164	158	176	1270	1430
29	322	—	244	130	2740	206	144	174	153	175	1280	1390
30	428	—	218	144	3260	199	172	161	168	161	1290	1390
31	265	—	202	—	3230	—	176	161	—	176	—	1370
Mean	204	572	375	296	478	1007	158	177	198	146	479	4718
Runoff in Ac.Ft.	12570	31790	23070	17630	29410	59950	9730	10860	11800	8980	28500	290100
	Water Year Total 231940								Calendar Year Total 534390			

U. S. Geological Survey, U. S. Bureau of Reclamation and Division of Water Resources cooperative station located at Mile 4.6R above mouth. Drainage area is 1274 square miles. Period of record 1944 to date. (Prior records available at a site 3.5 miles downstream.) Records for 1950 computed by U. S. Geological Survey.
* Also known as Merced River below Stevinson Drain.

TABLE 124

FLOW OF MERCED RIVER SLOUGH NEAR NEWMAN* - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1					0	423					0	39
2					0	430					0	72
3					0	430					0	117
4					0	386					0	253
5					0	243					0	4120
6					0	128					0	4940
7					0	176					0	2990
8					0	131					0	3120
9					0	24					0	3990
10					0	.4					0	5680
11					0	.1					0	4710
12	N	N	N	N	0	.1	N	N	N	N	0	2610
13	O	O	O	O	0	0	O	O	O	O	0	1800
14					0	0					0	1490
15					0	0					0	1220
16					0	0					0	838
17	F	F	F	F	0	0	F	F	F	F	0	1030
18	L	L	L	L	0	0	L	L	L	L	0	1110
19	O	O	O	O	0	0	O	O	O	O	0	980
20	W	W	W	W	0	0	W	W	W	W	70	435
21					0	0					5	296
22					0	0					0	192
23					0	0					0	68
24					0	0					0	180
25					0	0					23	252
26					0	0					48	234
27					0	0					42	186
28					1.5	0					43	163
29		—			246	0					44	147
30		—			397	0					41	141
31		—		—	397	—			—		—	137
Mean	0	0	0	0	33.6	79.1	0	0	0	0	10.5	1404
Runoff in Ac.Ft.	0	0	0	0	2070	4700	0	0	0	0	627	86360
	Water Year Total 6770								Calendar Year Total 93757			

U. S. Geological Survey, U. S. Bureau of Reclamation and Division of Water Resources cooperative station located 500 feet downstream from the head of the slough between Merced River and San Joaquin River. This station records the flow which at high stages in the Merced River by-passes the Hills Ferry Road bridge and reaches the San Joaquin River at Mile 122.2 at a point below the Newman gaging station. Period of record 1941 to date. Records for 1950 computed by the U. S. Geological Survey.
* Also known as Merced River Slough near Hills Ferry Road Bridge.

TABLE 125

FLOW OF TUOLUMNE RIVER ABOVE LA GRANGE DAM - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	179	645	1690	3280	4040	8290	2200	1970	2080	1200	833	3120
2	339	592	1710	3240	3990	9550	2200	1980	1890	1570	805	2880
3	595	676	1730	3320	3900	9520	2200	1990	1630	1640	801	4460
4	644	630	1690	2860	3760	9200	2200	1960	1690	1640	701	8760
5	557	336	1650	3310	3780	5360	2200	1990	1920	1290	552	8860
6	450	546	1660	3280	3310	2680	2210	1910	1890	1230	794	8850
7	474	596	1360	2950	2960	2880	2380	2010	1880	1070	818	15400
8	254	1190	1340	3480	3130	3210	2540	2020	1880	944	825	46800
9	450	1220	1340	4130	3240	3210	2200	2010	1800	1230	828	27400
10	606	1460	1320	4480	3270	3210	2180	2010	1670	1020	797	14900
11	493	1500	1280	4520	2830	3200	2200	1950	1960	975	676	10700
12	580	1280	1120	4530	2540	3200	2200	1850	1950	953	570	9410
13	634	1500	1350	4070	2540	3200	2200	1730	1960	996	842	8780
14	399	1580	1360	3310	2510	3130	2200	1910	1950	895	841	8710
15	242	1560	1620	3000	2960	3120	2210	1950	1890	704	864	8740
16	660	1560	1830	2940	3260	2580	2200	1960	1790	901	944	8660
17	489	1570	1830	2990	3750	2250	2210	1920	1690	899	823	8590
18	417	1460	1570	3050	4080	2260	2080	1940	1790	880	764	8480
19	471	1280	1780	3000	4070	2630	2010	1870	1870	932	3970	8420
20	457	1670	1770	3810	3860	2560	1920	1760	1610	912	8450	7840
21	332	1720	1870	4980	3520	2230	1930	1860	1660	805	23500	7190
22	138	1580	2190	5140	4070	3860	1900	1900	1690	683	16400	6020
23	495	1570	2510	5140	4080	6570	1840	1930	1630	900	9820	3310
24	465	1560	2220	4820	3800	4310	1930	2010	1300	826	8720	2310
25	438	1510	1750	4570	3240	3120	1910	2060	1700	836	8700	2280
26	453	1500	1660	4530	3220	3130	1940	1980	1800	717	8530	2270
27	575	1560	1690	4510	3220	2530	1960	1880	1810	705	8380	2320
28	421	1580	1770	4990	2980	2200	1960	2080	1830	650	7690	2330
29	244	—	2170	5290	4380	2200	1930	2070	1760	598	6250	2330
30	461	—	2490	4780	5360	2200	1890	2080	1640	741	4150	2330
31	483	—	2950	—	6630	—	1960	2100	—	660	—	2320
Mean	448	1265	1751	3943	3622	3920	2100	1956	1787	968	4288	8541
Runoff in Ac.Ft.	27560	70280	107600	234600	222700	233200	129100	120300	106300	59610	255100	525200
	Water Year Total 1416320								Calendar Year Total 2091550			

U. S. Geological Survey station located 0.5 mile downstream from Don Pedro Dam and 3.5 miles upstream from La Grange Dam. Drainage area is 1540 square miles. Period of record 1915 to date. (Prior records available at a site 3.5 miles downstream.) Records for 1950 computed by U. S. Geological Survey.

TABLE 126

FLOW OF TUOLUMNE RIVER AT LA GRANGE BRIDGE - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	228	478	1170	2060	838	5560	11	14	14	17	783	3100
2	299	442	1220	2090	660	6930	12	14	14	11	801	2880
3	407	469	1260	2150	597	6860	12	14	13	16	728	4420
4	407	535	1060	1500	416	6600	12	14	12	30	701	8940
5	399	411	893	1660	428	3040	12	14	12	41	566	9040
6	403	446	936	1830	126	587	13	14	13	20	795	9090
7	310	545	597	e1390	14	500	13	14	15	19	691	14600
8	247	1150	496	e1610	91	505	13	14	13	18	665	e40000
9	348	1260	545	e2680	273	510	14	14	13	19	649	e28200
10	395	1360	310	e3100	318	510	14	14	13	402	618	e14800
11	433	1590	91	e3390	131	500	14	14	13	582	561	9540
12	438	1330	21	e3220	12	500	12	15	14	566	478	9110
13	487	1550	112	e2680	11	241	13	14	16	618	587	8530
14	510	1140	136	e2210	10	17	12	15	14	566	680	8590
15	407	987	21	e1800	180	14	12	15	14	550	623	8590
16	357	942	14	e1690	618	13	13	15	14	510	746	8610
17	545	960	14	e923	980	11	14	15	17	597	670	8490
18	487	789	13	e1500	1420	11	14	15	14	592	654	8360
19	e556	814	14	1270	1410	12	14	16	14	644	3990	8220
20	e492	1460	14	1820	1210	14	14	14	20	623	8940	7770
21	e556	1790	15	3120	862	14	14	14	20	556	21100	8780
22	e492	1610	16	3180	1330	671	14	14	12	545	15700	6130
23	e353	1740	18	2930	1240	3250	14	14	11	524	9640	3760
24	e416	1680	e23	2450	1010	868	13	14	11	582	8300	2410
25	353	1540	e20	1790	390	15	13	14	17	602	8720	2370
26	318	1530	e18	1540	361	14	13	14	14	550	8820	2360
27	348	1180	e16	1410	208	14	13	14	13	530	8670	2370
28	318	1080	e14	1730	58	11	13	13	13	505	7920	2360
29	253	—	e1300	2140	1500	11	13	14	13	442	6310	2390
30	e333	—	e706	1590	2600	11	13	14	16	482	4180	2380
31	e333	—	e1730	—	3770	—	12	14	—	587	—	2360
Mean	394	1100	413	2082	744	1260	13.0	14.2	14.1	410	4142	8340
Runoff in Ac.Ft.	24250	61110	25410	123900	45760	75000	799	875	837	24490	246500	512800
	Water Year Total 484061								Calendar Year Total 1141731			

Station is maintained jointly by Division of Water Resources and Turlock Irrigation District. Station is at Mile 50.5 above mouth. Period of record 1937 to date. Records for 1950 computed by Division of Water Resources.
e Estimated.

TABLE 127

FLOW OF TUOLUMNE RIVER AT ROBERTS FERRY BRIDGE - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	385	464	1110	1980	992	5420	78	31	34	45	762	2960
2	258	496	1190	1980	783	7320	73	31	36	49	881	2780
3	381	526	1200	2020	709	7360	71	31	38	39	911	3330
4	422	579	1100	1700	561	7260	66	31	38	38	860	9020
5	416	573	940	1440	561	4210	61	34	36	e71	803	9120
6	411	520	962	2120	496	925	59	34	36	e71	762	9160
7	366	537	689	1250	136	735	57	33	38	e51	867	12400
8	288	933	651	1620	88	716	55	33	38	e47	769	e35500
9	315	1140	639	2740	371	716	55	33	39	e49	790	29100
10	357	e1240	596	3090	438	702	53	34	39	271	776	14700
11	401	1450	315	3360	422	696	55	34	41	626	762	10500
12	406	1270	198	3390	130	696	51	36	38	608	670	9430
13	416	1330	98	3100	88	596	51	34	34	645	651	8660
14	422	1210	217	2320	73	187	47	34	36	664	790	8680
15	329	838	246	1790	101	124	43	34	36	626	790	8540
16	385	853	90	1710	742	112	39	34	36	596	817	8580
17	567	846	75	1710	911	109	38	33	41	639	874	8500
18	443	762	73	1620	1390	106	36	34	41	664	860	8380
19	376	769	71	1290	1390	104	28	36	38	670	2280	8310
20	390	1150	71	1610	1270	106	39	38	36	716	9330	7940
21	343	1720	68	2810	1090	98	34	38	39	702	19800	5970
22	242	1450	64	3130	1260	178	34	38	47	657	17000	6180
23	283	1490	64	2280	1300	2880	33	38	39	626	10900	4070
24	348	1540	93	2480	1240	2160	33	38	36	683	8830	2520
25	343	1470	127	1890	633	221	28	38	36	683	8640	2440
26	334	1450	98	1510	526	127	31	36	36	689	8850	2400
27	366	1250	78	1450	443	106	31	36	e39	651	8730	2400
28	549	1060	68	1570	221	93	31	36	e39	620	8170	2380
29	376	—	567	2030	925	88	31	39	e41	590	6580	2400
30	343	—	1200	1700	2440	88	33	38	43	596	4520	2380
31	357	—	1420	—	3720	—	33	38	—	683	—	2380
Mean	375	1033	464	2090	821	1475	45.4	35.0	38.1	463	4268	8100
Runoff in Ac.Ft.	23040	57350	28520	124300	50480	87750	2791	2152	2269	28490	253900	498100
	Water Year Total 502182								Calendar Year Total 1159142			

Station is maintained jointly by Division of Water Resources and Modesto Irrigation District. Station is at Mile 39.9 above mouth. Period of record 1930 to date. Records for 1950 computed by Division of Water Resources.
e Estimated.

TABLE 128

FLOW OF TUOLUMNE RIVER AT HICKMAN-WATERFORD BRIDGE - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	514	449	1020	1900	1130	4480	121	109	112	121	e666	2950
2	367	495	1100	1890	857	6720	123	108	110	124	e738	2890
3	443	522	1130	1910	779	6820	123	109	110	123	e766	2880
4	502	549	1060	1800	604	6700	118	109	110	120	766	8850
5	502	588	884	1140	648	4510	118	112	110	121	712	9340
6	491	506	873	2080	644	831	116	114	110	126	680	9490
7	472	530	694	1220	342	616	114	110	112	126	756	12700
8	390	774	608	1430	272	600	115	110	114	123	702	41800
9	367	1010	596	2500	403	596	114	109	115	120	676	39700
10	416	1180	604	2800	522	584	114	109	116	145	627	19200
11	462	1390	397	3260	541	580	112	112	120	487	635	11900
12	459	1270	272	3190	331	565	110	115	120	491	588	10300
13	462	1250	208	2970	272	530	109	115	120	534	569	9200
14	469	1250	264	2260	261	234	110	118	120	565	658	9320
15	423	852	290	1740	256	175	109	118	120	538	662	9280
16	406	826	203	1670	623	157	108	116	120	502	662	9320
17	588	847	188	1680	774	150	108	116	126	538	761	9200
18	502	806	190	1650	1670	146	106	114	121	565	752	9160
19	430	774	188	1330	1340	145	106	116	118	573	1580	9070
20	426	1000	188	1420	1200	143	106	118	115	612	8390	8880
21	423	1620	186	2660	1080	136	104	120	112	623	20600	7690
22	331	1420	186	3040	1130	135	106	120	116	569	23900	7260
23	308	1400	184	2900	1220	1950	106	120	115	549	11700	4790
24	373	1470	236	2480	1150	1980	106	120	114	600	8500	2620
25	377	1380	225	1960	658	246	108	121	112	604	8550	2520
26	377	1360	217	1580	495	162	104	123	112	600	8940	2460
27	390	1220	199	1510	456	143	106	121	112	e588	8700	2480
28	522	1010	197	1480	274	133	106	118	115	e569	8190	2460
29	462	—	406	2010	649	130	108	116	115	e549	6450	2440
30	364	—	1120	1830	1970	126	108	112	118	e557	4630	2440
31	370	—	1260	—	2950	—	106	110	—	e616	—	2470
Mean	432	991	496	2043	823	1347	110	115	115	422	4417	9195
Runoff in Ac.Ft.	26550	55040	30490	121600	50580	80180	6799	7057	6863	25940	262800	565400
	Water Year Total 512519								Calendar Year Total 1239299			

Station is maintained jointly by Division of Water Resources and Modesto Irrigation District. Station is at Mile 31.7 above mouth. Period of record 1932 to date. Records for 1950 computed by Division of Water Resources.
e Estimated.

TABLE 129

FLOW OF TUOLUMNE RIVER AT MODESTO - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	864	634	1210	2250	1600	4320	324	295	249	262	946	3940
2	601	715	1310	2520	1140	5960	339	295	262	275	1040	3600
3	543	700	1340	2400	1020	6690	352	286	244	259	1120	3310
4	658	709	1330	2470	990	6690	295	295	240	255	1130	6990
5	670	942	1160	1650	854	5920	300	298	259	251	1050	9880
6	667	1350	1040	2380	836	2320	314	314	249	262	922	9260
7	661	1340	1050	1890	649	1270	293	300	249	257	1020	9770
8	607	1070	784	1920	520	1110	291	286	251	257	1010	21500
9	526	1360	769	2940	468	1010	298	275	255	242	942	43800
10	586	1450	769	3280	583	990	295	277	262	238	922	20700
11	646	1690	640	3770	604	978	282	275	275	403	892	13300
12	661	1960	427	3790	534	950	295	266	284	718	836	10700
13	655	1570	369	3640	408	903	298	286	282	754	775	9210
14	685	1720	389	3160	395	670	300	293	275	812	826	8700
15	685	1290	476	2490	374	451	291	270	279	822	910	8790
16	583	1040	405	2220	520	411	305	259	275	819	903	8860
17	787	1000	324	2080	769	430	298	257	277	799	1040	8640
18	2580	998	336	2120	1290	390	295	262	288	844	1040	8460
19	1540	882	342	1760	1520	372	279	262	275	858	1110	8330
20	872	906	377	1630	1480	366	282	268	282	900	5600	8220
21	787	1660	392	2540	1400	356	291	262	284	896	9450	7430
22	646	1860	390	3420	1200	356	288	264	273	858	13900	6890
23	540	1710	384	3340	1520	1400	310	259	275	826	15300	5680
24	604	1720	655	3120	1440	3140	314	262	266	833	9890	3150
25	628	1710	802	2640	1140	1230	298	244	251	878	8240	2850
26	625	1650	812	2010	739	501	298	253	257	930	8400	2770
27	631	1600	655	1840	661	411	298	253	244	930	8340	2770
28	760	1270	575	1650	569	356	300	257	251	896	8170	2770
29	2450	—	589	2120	476	339	284	236	257	878	7210	2760
30	1120	—	1250	2240	1840	324	275	242	264	864	5780	2730
31	727	—	1670	—	2960	—	291	242	—	922	—	2720
Mean	826	1304	743	2509	984	1687	299	271	264	645	4124	8677
Runoff in Ac.Ft.	50770	72410	45660	149300	60490	100400	18390	16650	15740	39670	245400	533500
	Water Year Total 696140								Calendar Year Total 1348380			

Station is maintained jointly by Division of Water Resources, U. S. Geological Survey and Modesto Irrigation District. Station is located at the Tidewater Southern Railroad bridge at Mile 15.92 above the mouth of the Tuolumne River and 0.6 mile downstream from the confluence of Dry Creek. Period of record 1940 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 130

FLOW OF TUOLUMNE RIVER AT TUOLUMNE CITY - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	940	700	1360	1930	1980	4010	435	360	342	360	930	4200
2	735	790	1420	2350	1430	5400	440	365	364	365	980	3100
3	600	805	1480	2330	1240	6640	460	362	362	352	1080	2900
4	670	820	1490	2320	1200	6950	425	365	352	352	1120	5400
5	710	900	1360	1950	1040	6930	410	366	358	340	1090	11300
6	705	1450	1230	1980	1000	3700	415	380	352	348	1000	9100
7	690	1340	1220	2220	875	1760	400	380	354	352	950	8500
8	660	1270	1030	1820	685	1370	395	365	348	344	1005	e13200
9	585	1410	955	2470	570	1320	400	362	340	338	980	e38000
10	600	1590	950	3140	660	1250	402	360	360	330	950	e21000
11	670	1750	850	3560	720	1230	392	362	360	335	930	18000
12	690	2050	630	3760	710	1220	390	350	360	630	935	11600
13	690	1790	495	3650	555	1170	392	365	365	720	840	10500
14	720	1810	450	3350	520	990	390	365	356	810	800	9700
15	700	1590	545	2710	500	940	380	362	362	860	910	9700
16	645	1275	520	2360	520	605	382	342	368	840	920	9900
17	790	1235	415	2200	950	590	385	342	375	830	980	9600
18	2080	1220	400	2150	1300	555	388	348	390	850	1090	9300
19	1570	1150	400	1980	1720	520	372	342	393	870	1080	9000
20	950	1140	415	1790	1740	510	365	356	372	900	2190	8900
21	830	1560	435	2170	1600	490	366	356	368	910	5700	8000
22	690	1960	430	3070	1390	495	368	354	372	910	13000	7000
23	580	1830	415	3350	1650	640	382	362	368	870	24000	5400
24	615	1830	540	3070	1640	2950	390	358	365	850	10800	3100
25	640	1840	860	2760	1530	2140	372	350	342	880	9400	2500
26	620	1790	900	2240	980	790	372	348	342	910	9100	2420
27	625	1760	785	1990	835	590	365	348	338	980	9400	2410
28	725	1530	655	1850	750	510	372	356	330	915	9300	2400
29	2260	—	605	2080	600	460	363	340	338	910	8300	2390
30	1280	—	1010	2360	1250	450	360	340	340	890	6300	2380
31	835	—	1590	—	2720	—	362	340	—	910	—	2380
Mean	842	1435	834	2498	1125	1906	390	356	358	679	4202	8493
Runoff in Ac.Ft.	51769	79706	51253	148681	69144	113405	23980	21919	21295	41774	250036	522208
	Water Year Total 754305								Calendar Year Total 1395170			

Station is maintained jointly by Division of Water Resources, City of San Francisco (Hetch Hetchy Water Supply), and Turlock Irrigation District. Station is at highway bridge, 3.35 miles above the mouth. Period of record 1930 to date. Records for 1950 computed by City of San Francisco.

e Estimated.

TABLE 131

FLOW OF DRY CREEK NEAR MODESTO (CLAUSS ROAD BRIDGE) - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	37	96	26	39	78	74	71	54	44	34	47	57
2	41	66	26	36	98	75	75	52	44	35	43	47
3	34	52	25	33	109	64	67	55	39	38	40	53
4	30	44	25	40	132	69	63	58	38	38	38	1160
5	29	378	25	46	116	64	71	54	40	40	38	1390
6	28	602	25	52	106	73	67	53	37	42	38	495
7	27	699	25	63	103	82	53	65	35	38	36	1010
8	29	259	24	78	99	75	52	54	34	38	36	2960
9	29	128	23	214	78	72	51	46	40	35	36	2590
10	29	85	23	133	76	85	48	53	43	33	38	775
11	32	201	23	107	69	90	49	46	56	44	38	422
12	37	274	24	98	76	90	57	52	60	50	38	279
13	37	115	27	97	99	82	56	58	55	44	41	211
14	42	72	35	98	85	73	51	63	55	46	42	177
15	51	58	41	96	81	81	47	58	60	49	43	512
16	51	50	35	73	73	e89	46	48	51	58	44	404
17	207	44	35	59	70	e116	46	51	49	70	46	234
18	1930	40	48	70	65	e116	47	48	54	54	62	177
19	597	37	55	63	60	e98	46	45	57	46	159	149
20	205	35	64	59	68	e80	54	42	58	44	909	59
21	107	32	79	66	76	e78	58	44	51	41	619	49
22	69	31	67	66	80	e82	61	43	46	37	453	77
23	53	29	71	70	82	e88	51	38	40	35	237	98
24	42	28	192	82	78	77	43	42	36	38	137	89
25	34	28	411	90	67	77	42	39	35	43	100	84
26	30	27	340	78	73	79	52	36	42	54	77	81
27	29	27	156	66	72	72	55	37	42	67	66	75
28	289	26	101	75	81	63	48	39	38	81	59	72
29	1560	—	69	82	86	63	46	42	34	83	52	69
30	439	—	55	79	79	67	46	41	32	68	51	67
31	172	—	44	—	76	—	47	40	—	54	—	64
Mean	204	127	71.6	76.9	83.6	79.8	53.7	48.2	44.8	47.6	122	451
Runoff in Ac.Ft.	12550	7067	4401	4578	5139	4748	3304	2967	2668	2930	7265	27740
	Water Year Total 53404								Calendar Year Total 85357			

Station is maintained jointly by Division of Water Resources and Modesto Irrigation District. Station was moved to this location, 5.4 miles above Modesto, in 1941 from previous location at Mile 2.9. Dry Creek enters the Tuolumne River above the Modesto gaging station at Mile 16.5R. Period of record 1930 to date. Records for 1950 computed by Division of Water Resources.
e Estimated.

TABLE 132

FLOW OF STANISLAUS RIVER BELOW MELONES POWERHOUSE - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.8	902	950	476	4980	7120	1620	1100	922	128	137	2600
2	214	896	980	1110	4480	6810	1620	1110	922	142	148	2230
3	231	912	980	2370	3650	6090	1620	1100	914	143	132	15800
4	231	933	987	2770	3050	4690	1620	1100	914	138	16	24800
5	229	918	980	3100	2820	4670	1490	1110	906	194	16	9400
6	213	960	980	3020	2740	4000	1400	1110	898	173	143	7560
7	3.1	979	956	3200	2600	3790	1280	1110	890	194	397	20000
8	4.2	979	956	3770	2410	2760	1210	1100	882	185	462	31000
9	222	979	987	3590	2240	1670	1210	1100	882	194	781	13900
10	230	954	993	2930	2310	1670	1210	1100	882	197	845	9230
11	231	954	993	2640	2440	1920	1210	1100	874	188	845	7030
12	231	985	1180	2610	2940	2030	1210	1090	866	190	845	5610
13	230	992	1160	2810	3760	2030	1200	1090	866	190	845	5700
14	5.5	993	1000	2830	4610	2030	1210	1080	695	272	832	6760
15	5.0	992	1190	2540	5670	2040	1210	1070	308	16	873	6720
16	400	999	1270	2600	6440	2050	1220	970	325	274	846	4890
17	819	968	1270	3120	6740	2050	1220	946	380	275	846	4110
18	906	968	1270	3640	6570	2320	1220	946	390	185	907	3620
19	912	962	1260	4190	6260	2630	1220	946	283	159	17900	3280
20	912	962	1270	4850	6540	2540	1150	938	14	150	28000	2980
21	912	962	1260	5450	6950	3120	1120	938	14	18	36900	3450
22	906	955	1260	5930	7420	3020	1110	938	16	18	11700	3100
23	906	955	1320	5450	6840	2630	1110	930	16	149	5400	2910
24	863	961	1370	5240	6910	2420	1110	930	16	154	5200	2890
25	925	961	1380	5340	6810	2020	1110	938	312	153	4400	2890
26	931	986	475	5590	6740	1770	1110	938	222	150	3600	2890
27	872	961	357	6020	6960	1690	1100	938	200	147	2720	2880
28	932	955	353	5810	7300	1670	1100	930	178	18	2400	2820
29	932	—	355	5080	6740	1620	1100	922	146	87	2290	2820
30	932	—	347	4850	6750	1620	1100	930	145	148	1820	2800
31	925	—	358	—	6920	—	1100	930	—	139	—	2800
Mean	525	960	982	3764	5148	2883	1243	1015	509	154	4408	7080
Runoff in Ac.Ft.	32270	53320	60390	224000	316500	171600	76400	62440	30300	9460	262300	435300
	Water Year Total 1044750								Calendar Year Total 1734280			

U. S. Geological Survey station located 1 mile downstream from Melones Dam. Drainage area is 898 square miles. Period of record 1931 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 133

FLOW OF STANISLAUS RIVER AT ORANGE BLOSSOM BRIDGE - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	79	514	951	105	3420	5980	38	30	35	13	127	2400
2	77	488	956	256	3240	5820	35	33	39	12	132	2570
3	81	533	951	1650	2270	5030	35	33	42	12	136	9160
4	92	1860	907	2820	1590	3500	33	30	40	9.3	88	32700
5	90	1790	902	2960	1120	2940	32	30	43	12	63	10900
6	88	1290	829	2390	1020	2580	32	30	46	11	56	8640
7	85	728	660	1860	956	2140	30	30	45	8.6	74	20200
8	75	618	651	2900	738	1590	30	31	39	7.3	221	33100
9	74	545	613	3950	556	68	26	31	39	10	337	18900
10	66	626	507	3230	462	48	26	31	38	17	533	10400
11	96	585	507	2660	597	60	26	35	38	18	473	8330
12	125	548	466	2350	829	184	26	36	36	17	381	6680
13	111	503	609	2170	1690	187	26	35	35	11	321	6280
14	125	605	235	2130	2620	189	27	32	33	11	324	7220
15	111	951	109	1440	3780	192	25	30	32	13	318	8220
16	102	956	161	1300	4790	197	27	30	30	74	318	5840
17	e2370	971	94	1780	5340	205	30	28	26	77	363	4760
18	e2210	986	98	2350	5200	295	25	30	28	107	2320	4180
19	e1590	941	107	2850	4830	738	24	31	22	109	16900	3770
20	e685	932	118	3570	4910	746	26	31	21	109	26900	e3640
21	932	922	145	4270	5470	1140	24	31	22	102	e45000	e3500
22	946	927	90	4840	6010	1380	22	35	28	61	16100	e3360
23	932	917	74	4520	5740	936	24	33	24	58	7410	3260
24	927	932	556	4080	5550	698	28	32	13	66	5550	3180
25	961	966	1570	4060	5570	360	26	32	9.3	111	4510	3140
26	961	966	733	4230	5380	152	25	31	8.6	120	3710	3160
27	946	956	197	4820	5570	83	27	33	11	157	3040	3150
28	2520	956	179	4660	5550	127	25	35	16	129	2630	3150
29	1230	—	148	3870	5640	70	26	31	13	72	2440	3150
30	664	—	143	3370	5430	42	28	31	14	75	2000	3050
31	560	—	145	—	5680	—	31	31	—	132	—	2970
Mean	642	875	465	2915	3598	1256	27.9	31.7	28.9	56.2	4759	7837
Runoff in Ac.Ft.	39490	48620	28580	173400	221200	74730	1716	1948	1717	3454	283200	481900
	Water Year Total 610729								Calendar Year Total 1359955			

Station is maintained jointly by Division of Water Resources and Oakdale Irrigation District. Station is at highway bridge, Mile 44.7 above mouth or 5.7 miles above Oakdale. Period of record 1930 to date. Records for 1950 computed by Division of Water Resources.
e Estimated.

TABLE 134

FLOW OF STANISLAUS RIVER AT RIVERBANK (BURNEYVILLE BRIDGE) - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	46	549	994	185	3230	5670	141	83	79	74	192	2000
2	37	514	1000	238	3360	5640	127	81	83	73	198	2400
3	37	484	960	921	2590	5040	112	85	81	74	214	e2890
4	43	539	977	2360	2010	3840	104	e84	78	74	161	e24600
5	47	2170	956	2460	1590	2530	95	e85	79	74	117	10300
6	49	1090	956	2480	1400	2510	95	e86	77	76	89	7610
7	45	977	871	1820	1630	1780	100	e87	79	74	81	12500
8	45	722	818	2120	1340	1620	98	e89	80	74	256	25900
9	45	647	812	3360	1260	758	94	e90	79	74	363	24100
10	43	638	743	3140	1100	396	91	e92	79	76	566	8730
11	48	e1060	722	2620	1160	251	88	91	79	76	652	7460
12	56	e1060	624	2260	1220	402	90	92	82	73	584	6210
13	65	e1060	749	2140	1590	514	89	88	83	74	512	5370
14	64	e1060	437	2130	2270	532	94	85	85	73	480	5780
15	84	e1070	280	1700	3210	526	91	86	89	72	468	6850
16	60	e1070	181	1410	4310	524	88	83	88	91	462	5560
17	1400	e966	155	1560	5040	542	87	82	85	116	471	4590
18	1750	970	120	2020	5170	572	87	81	84	236	717	4090
19	933	970	137	2350	4890	930	88	83	85	225	e17300	3670
20	689	973	144	2930	4650	1080	87	84	80	208	e28900	3380
21	776	977	193	3630	5050	1130	88	84	81	188	52100	3230
22	877	977	178	4280	5510	1470	86	83	81	145	21400	3380
23	883	980	141	4530	5810	1300	86	84	81	102	7460	3060
24	874	983	334	3910	5360	1110	88	80	76	100	5100	2950
25	858	973	1450	3770	5500	910	90	84	74	102	4230	2870
26	890	970	1230	3900	5290	514	89	83	71	204	5640	2810
27	874	987	496	4320	5340	285	87	83	70	273	2870	2780
28	1560	987	309	4520	5680	228	86	80	70	244	2500	2740
29	1420	—	254	4050	5830	257	85	80	73	161	2280	2680
30	837	—	232	3340	5260	169	88	78	74	109	2160	2710
31	652	—	216	—	5420	—	87	79	—	157	—	2690
Mean	519	944	570	2682	3647	1434	93.7	84.4	79.5	122	5301	6642
Runoff in Ac.Ft.	31910	52410	35050	159600	224300	85350	5764	5190	4731	7482	315400	408400
	Water Year Total 629864								Calendar Year Total 1335587			

Station is maintained jointly by Division of Water Resources, Oakdale and South San Joaquin Irrigation districts. Station is at Mile 32.0 above mouth. Period of record 1940 to date. Records for 1950 computed by Division of Water Resources.
e Estimated.

TABLE 135

FLOW OF STANISLAUS RIVER AT RIPON - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	166	750	1060	348	3460	5800	328	221	164	164	224	2270
2	157	689	1060	317	3490	5990	315	226	164	166	238	2550
3	144	667	1060	480	3330	5970	285	196	163	162	245	2630
4	139	658	1060	1540	2720	5470	265	187	168	158	251	14500
5	142	1550	1060	2150	2190	4350	263	187	156	142	206	23500
6	146	1430	1060	2350	1830	3560	240	196	151	151	172	11900
7	145	1260	992	2010	1770	3030	211	228	144	146	152	9770
8	142	927	920	1850	1700	2650	209	203	150	146	151	23300
9	142	821	865	2650	1490	2000	226	193	140	139	315	31800
10	136	777	865	3130	1310	1120	229	208	162	126	450	16300
11	142	823	821	2850	1290	858	221	198	170	130	617	10500
12	146	775	773	2480	1300	768	204	184	164	129	619	7820
13	154	731	713	2290	1570	766	209	192	171	136	579	6160
14	172	709	786	2190	2170	745	203	179	179	145	548	5670
15	182	821	556	2020	2880	696	208	171	209	146	534	6260
16	187	1010	385	1630	3590	667	204	195	196	139	524	6800
17	295	1050	342	1570	4320	676	222	195	208	171	534	5590
18	2040	1050	285	1840	4930	685	200	174	255	190	558	4730
19	1200	1050	265	2210	5210	773	208	158	229	262	1960	4240
20	939	1060	272	2580	5050	1040	228	148	208	260	10600	3810
21	867	1060	274	3100	5050	1050	196	156	192	251	33400	3480
22	975	1060	297	3560	5410	1400	200	146	174	243	35000	3620
23	992	1060	265	3960	5830	1500	188	152	172	206	16300	3510
24	997	1060	351	4030	5970	1270	208	169	169	196	8270	3290
25	990	1060	996	3750	5810	1080	192	198	160	182	5610	3200
26	1000	1060	1440	3710	5820	819	177	190	157	228	4720	3150
27	1010	1070	920	3850	5700	579	179	174	151	258	3880	3120
28	1160	1070	548	4200	5730	454	172	179	163	301	3260	3090
29	1960	—	452	4320	6080	474	177	169	166	279	2930	3060
30	1170	—	401	3850	6010	395	193	177	172	216	2700	3030
31	884	—	385	—	5740	—	176	176	—	185	—	3010
Mean	611	968	694	2560	3831	1888	217	185	174	185	4518	7602
Runoff in Ac.Ft.	37550	53770	42700	152400	235500	112300	13360	11360	10380	11390	268900	467400
	Water Year Total 706080								Calendar Year Total 1417010			

Station maintained jointly by Division of Water Resources, U. S. Geological Survey, and Modesto Irrigation District. Station is at Highway 99 and is 16 miles above mouth of river. Period of record 1940 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 136

FLOW OF STANISLAUS RIVER NEAR MOUTH* - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	183	868	1090	414	3490	5720	404	143	119	193		
2	179	776	1090	380	3420	6170	385	173	127	171		
3	168	731	1100	365	3480	6570	332	151	162	190		
4	159	716	1080	921	2980	6620	329	137	143	179		
5	157	1040	1080	1920	2460	6050	322	124	120	166		
6	159	1710	1090	2210	2020	4730	267	149	114	141		
7	157	1350	1060	2150	1830	3760	248	166	114	154		
8	156	1100	962	1900	1820	3170	225	164	130	191		
9	153	950	902	2450	1600	2680	235	140	127	171		
10	151	885	878	3160	1380	1460	225	149	133	157		
11	149	892	851	3110	1270	1120	233	164	171	146		
12	149	902	841	2810	1310	1000	233	176	154	151		
13	157	837	766	2570	1440	1020	208	178	156	201	N	N
14	169	786	841	2410	2020	954	216	143	161	208	O	O
15	168	803	660	2290	2620	939	223	129	191	197		
16	184	991	524	1920	3220	932	222	124	239	184	R	R
17	193	1070	434	1670	3800	885	214	154	206	184	E	E
18	e1100	1100	551	1750	4260	868	176	141	296	212	C	C
19	1420	1100	346	2080	4500	854	153	156	302	233	O	O
20	1030	1080	313	2350	4600	1100	168	107	254	281	R	R
											D	D
21	892	1090	288	2800	4650	1220	173	130	229	300		
22	954	1100	304	3310	4760	1380	178	100	206	296		
23	1010	1100	281	3730	4940	1640	183	106	186	279		
24	1010	1090	346	3940	5330	1480	190	116	210	252		
25	1020	1090	682	3780	5400	1320	171	141	146	242		
26	1010	1090	1410	3650	5410	1030	148	168	145	254		
27	1030	1080	1200	3690	5350	762	137	181	145	304		
28	1080	1080	731	3870	5340	566	141	157	156	358		
29	1860	—	554	4040	5430	510	146	127	154	346		
30	1440	—	505	3910	5650	510	188	140	178	311		
31	1040	—	424	—	5640	—	154	124	—	262	—	
Mean	603	1014	748	2518	3594	2234	220	144	172	223		
Runoff in Ac.Ft.	37060	56340	45980	149800	221000	132900	13540	8842	10260	13710		
	Water Year Total 714552								Calendar Year Total ---			

Division of Water Resources station located 4.3 miles above the mouth. Period of record 1946 to date. (Prior records available at other sites for 1930 to 1946.) Station washed out by flood of November 19, 1950.
* Also known as Stanislaus River at Mile 4.3.
e Estimated.

TABLE 137

FLOW OF KINGS RIVER AT PIEDRA - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	251	533	1320	2160	6940	10200	2310	537	189	178	550	2060
2	262	499	1280	2630	4980	9290	2270	521	186	178	458	1580
3	259	475	1280	3020	4340	8500	2190	517	182	171	409	13200
4	222	558	1320	3340	3710	7980	2100	489	182	168	406	18400
5	213	3420	1420	3680	3480	7680	1960	451	182	164	420	5970
6	222	4800	1400	3420	3350	7910	1790	420	189	166	406	4140
7	211	3000	1280	2960	2990	5430	1710	395	197	164	378	7050
8	244	1750	1220	2960	2690	4290	1680	370	243	161	353	6180
9	284	1380	1210	3220	2750	4280	1670	353	327	157	330	4500
10	259	1190	1050	2810	3010	4210	1940	330	297	154	321	3450
11	287	1340	990	2710	3520	4030	1920	315	276	154	300	2980
12	317	1130	930	2720	3310	3750	1650	303	254	151	282	2720
13	332	1010	894	2980	3530	3800	1500	291	238	148	267	2390
14	329	966	859	2550	4320	3840	1380	279	228	148	303	3380
15	368	948	837	2390	5350	3900	1260	267	216	148	384	3570
16	320	978	815	2660	7190	4120	1140	262	210	146	321	2590
17	726	996	870	3400	7770	4180	1050	248	212	146	378	2250
18	1200	984	936	3900	7930	4100	989	240	212	148	13400	2060
19	948	1020	876	4600	8260	4060	940	233	226	148	51800	1900
20	826	1100	984	5710	9080	4210	879	228	221	148	10700	1710
21	804	1050	984	7040	9370	4370	818	228	214	146	7930	1600
22	804	1050	1040	7660	9110	4150	775	226	201	146	5300	1500
23	771	1060	1190	7660	8500	3820	745	223	191	146	3750	1430
24	1110	1080	1390	7570	7300	3550	715	221	191	146	2900	1360
25	760	1160	2350	7930	7610	2890	690	216	187	157	2490	1310
26	615	1270	1490	8400	8090	2560	700	210	187	168	2210	1260
27	570	1330	1400	8770	8470	2410	730	206	189	1060	1930	1180
28	720	1290	1360	8000	9390	2400	730	201	186	700	1730	1090
29	859	—	1500	7130	9340	2430	671	195	184	416	1580	1080
30	700	—	1640	6960	10400	2450	626	193	178	378	1680	1060
31	600	—	1950	—	10500	—	572	191	—	450	—	1060
Mean	529	1335	1228	4698	6341	4693	1294	302	212	228	3789	3420
Runoff in Ac.Ft.	32520	74120	75500	279600	389900	279300	79540	18560	12640	14000	225500	210300
	Water Year Total 1281050								Calendar Year Total 1691480			

U. S. Geological Survey station located 0.5 mile downstream from highway bridge at Piedra. The Kings River flows into the Tulare Lake area. Drainage area 1694 square miles. Period of record 1895 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 138

FLOW OF KAWEAH RIVER NEAR THREE RIVERS - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	85	154	466	695	1550	1990	339	65	30	28	160	700
2	85	159	438	785	1220	1840	339	72	28	28	140	600
3	67	152	434	855	1200	1650	318	60	28	29	120	3000
4	68	186	450	934	1020	1440	295	65	28	28	110	8000
5	72	1180	495	1000	939	1440	270	58	29	27	100	2700
6	72	2410	454	939	922	1340	242	56	30	28	90	1900
7	75	1140	430	855	825	1000	233	53	33	27	80	2300
8	85	654	414	917	755	850	227	50	45	28	70	1600
9	105	499	364	994	765	912	219	49	45	26	72	1400
10	85	454	339	855	840	880	251	47	43	26	78	1200
11	103	588	332	855	912	830	245	46	41	26	75	1120
12	109	430	305	885	840	770	222	45	39	24	69	1010
13	94	379	299	928	875	770	199	44	38	22	68	932
14	115	353	289	785	988	682	176	44	37	22	98	1080
15	109	353	270	740	1240	695	162	43	36	21	102	1200
16	109	371	266	845	1600	690	148	41	36	21	100	932
17	204	379	292	1000	1690	690	137	38	39	21	109	824
18	308	379	295	1140	1730	715	129	37	47	21	7900	757
19	266	390	282	1300	1840	710	125	36	45	22	16000	696
20	263	390	299	1530	1960	720	115	34	42	22	4200	667
21	266	375	305	1790	1990	735	107	33	39	22	2500	641
22	270	375	353	1990	1860	650	100	33	35	22	1700	592
23	257	379	350	1830	1690	610	94	36	31	24	1200	560
24	318	398	673	1850	1490	571	90	36	31	26	1000	540
25	222	434	739	1890	1650	482	85	35	30	26	900	530
26	176	470	512	1960	1750	446	85	34	30	30	750	514
27	176	470	458	1970	1690	422	82	32	29	400	700	479
28	239	450	438	1770	1870	410	77	30	29	200	600	462
29	260	—	520	1620	1910	406	74	29	28	120	550	462
30	213	—	549	1610	2020	379	71	29	28	100	600	470
31	174	—	628	—	2060	—	65	30	—	170	—	490
Mean	163	513	411	1234	1409	858	172	43.2	35.0	52.8	1341	1237
Runoff in Ac.Ft.	10020	28460	25270	73420	86660	51020	10550	2660	2080	3250	79820	76080
	Water Year Total 300960								Calendar Year Total 449290			

U. S. Geological Survey station located 3 miles southwest of Three Rivers post office. Kaweah River is a tributary of the Tulare Lake area. Period of record 1936 to date. Prior records available at a site 2 miles upstream. Records for 1950 were computed by the U. S. Geological Survey.

TABLE 139

FLOW OF TULE RIVER NEAR PORTERVILLE - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	30	72	128	166	168	98	5.9	.5	.1	.1	26	232
2	31	70	122	173	156	93	4.5	.5	.1	.2	18	183
3	31	66	118	181	171	89	3.9	.5	.1	.2	16	909
4	30	69	118	193	154	80	2.7	.5	.1	.2	14	3020
5	28	347	118	197	140	72	2.1	.5	.1	.2	14	988
6	30	1190	111	191	145	65	1.9	.5	.1	.2	12	656
7	30	566	105	175	133	62	1.5	.2	.1	.1	12	582
8	32	285	99	208	123	59	1.8	.2	.1	.1	12	484
9	47	208	92	256	117	53	1.4	.2	.1	.1	12	404
10	37	185	86	199	111	51	1.6	.2	.1	.1	14	358
11	47	258	83	199	106	47	1.8	.2	.1	.1	15	322
12	70	195	78	199	100	44	1.8	.2	.1	.2	16	297
13	51	169	75	216	104	42	2.1	.2	.1	.2	19	272
14	56	153	73	189	104	39	1.9	.2	.1	.2	43	310
15	59	145	64	173	104	38	1.8	.2	.1	.2	53	346
16	50	144	62	171	116	35	1.3	.1	.1	.2	41	273
17	89	144	62	183	123	34	1.2	.1	.1	.2	37	246
18	106	138	63	191	135	32	.8	.1	.1	.2	1710	230
19	89	140	63	199	135	30	.8	.1	.1	.2	10000	218
20	82	135	76	212	135	26	.8	.1	.1	.2	1390	200
21	86	130	82	229	135	25	.8	.1	0	.2	758	186
22	90	126	85	240	133	22	.6	.1	0	.2	522	177
23	90	125	86	229	130	20	.6	.1	0	.2	395	168
24	144	125	154	220	122	21	.6	.1	0	.3	318	162
25	99	126	236	216	116	20	.6	.1	0	.3	268	153
26	76	130	145	212	117	17	.5	.1	0	.3	233	149
27	70	126	125	212	111	14	.5	.1	.1	91	205	141
28	118	126	118	201	112	12	.5	.1	.1	38	188	135
29	117	—	132	185	112	11	.5	.1	.1	19	170	131
30	96	—	142	173	106	7.9	.5	.1	.1	13	190	130
31	80	—	154	—	104	—	.5	.1	—	23	—	137
Mean	67.5	203	105	200	125	42.0	1.54	.21	.08	6.09	557	394
Runoff in Ac.Ft.	4150	11290	6460	11880	7690	2500	95	13	4.8	375	33170	24200
	Water Year Total 47208								Calendar Year Total 101828			

U. S. Geological Survey and Division of Water Resources cooperative station located at highway bridge 1 mile upstream from the South Fork. Drainage area is 266 square miles. Period of record 1901 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 140

FLOW OF SOUTH FORK TULE RIVER NEAR SUCCESS - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.6	16	36	43	26	8.8				0	4.2	59
2	5.6	17	36	43	26	7.8				0	2.5	54
3	5.6	16	35	43	32	8.3				0	1.7	106
4	5.0	17	34	43	30	7.8				0	1.1	454
5	4.7	88	34	41	27	6.8				0	.8	183
6	5.2	318	33	40	30	6.4				0	.4	120
7	5.2	128	30	38	26	6.4				0	.4	99
8	6.0	71	29	47	23	7.3				0	.5	82
9	11	52	27	58	22	6.8				0	1.2	72
10	6.4	49	26	46	21	6.4				0	.6	66
11	11	109	28	51	20	5.2				0	.6	62
12	15	65	23	49	18	5.0	N	N	N	0	.5	59
13	12	52	22	50	17	4.5	O	O	O	0	.9	56
14	13	45	21	45	17	4.2				0	12	62
15	13	43	20	42	18	4.2				0	13	64
16	12	42	19	41	17	4.0				0	7.8	56
17	22	40	19	40	16	3.8	F	F	F	0	7.3	54
18	33	39	19	40	16	4.0	L	L	L	0	424	53
19	25	40	20	38	16	3.8	O	O	O	0	2470	52
20	24	39	22	38	16	3.2	W	W	W	0	349	52
21	29	38	22	38	15	2.8				0	204	52
22	26	36	22	39	13	2.2				0	128	51
23	25	35	22	39	13	2.1				0	94	51
24	50	34	45	38	14	2.0				0	75	51
25	28	35	66	35	14	2.0				0	64	51
26	19	37	42	34	14	2.0				0	59	50
27	19	37	38	33	13	1.8				8.0	57	50
28	28	37	38	32	12	1.5				4.7	55	50
29	30	—	42	30	12	.4				2.4	54	50
30	23	—	44	29	10	.1				1.6	57	49
31	19	—	42	—	9.2	—			—	4.0	—	49
Mean	17.3	56.2	30.8	40.8	18.5	4.39	0	0	0	0.67	138	78.0
Runoff in Ac.Ft.	1060	3120	1900	2430	1140	261	0	0	0	41	8220	4800
	Water Year Total 10477								Calendar Year Total 22972			

U. S. Geological Survey and U. S. Bureau of Reclamation cooperative station located 5 miles upstream from the mouth. Drainage area is 106 square miles. Period of record 1930 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 141

FLOW OF TULE RIVER AT WORTH BRIDGE - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	48	102	160	219	182	66	4.6			0	148	
2	48	97	156	229	171	63	3.3			0	127	
3	50	94	149	239	189	58	2.1			0	114	N
4	49	96	145	252	176	52	1.2			0	108	O
5	49	414	145	252	156	46	1.2			0	91	
6	50	e1600	138	246	156	38	1.4			0	92	R
7	51	e992	131	229	143	38	.7			0	100	E
8	53	e691	122	265	133	38	.7			0	97	C
9	75	e593	112	363	124	34	.7			0	103	O
10	63	e532	98	265	112	33	.7			0	110	R
11	64	471	96	252	105	28	.7			0	113	D
12	100	308	91	244	92	26	0	N	N	0	114	
13	81	252	85	265	96	23	0	0	0	0	121	
14	77	224	78	239	92	20	0			0	163	
15	90	202	70	210	91	20	0			0	182	430
16	74	202	66	210	98	18	0			0	169	347
17	112	193	61	219	106	15	0	F	F	0	160	313
18	158	191	60	226	117	14	0	L	L	0	e747	289
19	147	189	72	232	118	13	0	0	0	0		271
20	127	185	100	244	118	13	0	W	W	0		256
21	134	171	106	260	117	13	0			0	N	241
22	136	163	108	276	112	12	0			0	0	227
23	134	158	110	265	108	12	0			0		216
24	207	154	140	254	102	14	0			0	R	205
25	152	158	404	249	92	14	0			0	E	197
26	115	167	207	239	90	14	0			0	C	188
27	105	163	176	239	87	11	0			138	O	180
28	143	163	167	224	85	7.6	0			184	R	173
29	176	—	182	202	84	7.0	0			134	D	169
30	140	—	196	189	77	6.5	0			105		165
31	117	—	205	—	73	—	0		—	120	—	179
Mean	101	319	133	243	115	25.6	.6	0	0	22.0		
Runoff in Ac.Ft.	6198	17700	8204	14470	7144	1522	34	0	0	1351		
	Water Year Total 58412								Calendar Year Total			

Division of Water Resources and U. S. Bureau of Reclamation cooperative station located 1 mile above the head of Porter Slough and 2.2 miles downstream from the junction of South Fork. Period of record 1944 to date. Records for 1950 computed by Division of Water Resources.
e Estimated.

TABLE 142

FLOW OF TULE RIVER ABOVE LITTLE PIONEER DITCH - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1		0	0	110	0	340	380	171			0	NR
2		0	0	126	0	344	406	184			0	NR
3		0	0	135	0	340	402	318			0	NR
4		0	0	139	0	353	307	216			0	e1940
5		3.8	0	142	0	353	228	265			0	e1220
6		358	0	146	0	340	239	269			0	e736
7		745	0	137	0	371	291	257			0	e596
8		56	0	146	0	388	284	265			0	
9		2.8	0	226	0	388	288	257			0	N
10		0	0	137	0	393	299	250			0	O
11		30	0	0	0	393	280	235			0	R
12	N	45	0	0	0	393	235	242	N	N	0	E
13	O	0	0	0	0	406	201	246	O	O	0	C
14		0	0	0	0	425	198	250			0	O
15		0	0	0	0	416	188	257			0	R
16		0	0	0	0	406	171	250			0	D
17	F	0	0	0	0	435	177	265	F	F	0	
18	L	0	0	0	0	430	181	261	L	L	78	
19	O	0	0	0	109	416	168	257	O	O	3520	e473
20	W	0	0	0	269	420	162	250	W	W	1180	e375
21		0	0	0	265	430	165	211			e963	e327
22		0	0	0	253	420	159	216			554	e288
23		0	0	0	269	425	162	257				e250
24		0	0	0	253	416	171	127			N	e215
25		0	128	0	276	425	177	1.3			0	e198
26		0	112	0	314	425	168	0			R	e147
27		0	79	0	299	420	168	0			E	e133
28		0	64	0	303	406	168	24			C	e116
29		—	72	0	310	406	171	29			O	e111
30		—	79	0	336	406	174	0			R	e109
31		—	90	—	340	—	165	0	—		D	e109
Mean	0	44.3	20.1	48.1	116	398	224	187	0	0		
Runoff in Ac.Ft.	0	2461	1238	2864	7132	23660	13750	11480	0	0		
	Water Year Total 62585								Calendar Year Total			

Division of Water Resources and U. S. Bureau of Reclamation cooperative station located 0.8 mile upstream from Ottle Bridge and 14.4 miles downstream from junction of South Fork. Period of record 1942 to date. Records for 1950 computed by Division of Water Resources.
e Estimated.
NR No record.

TABLE 143

FLOW OF TULE RIVER AT TURNBULL STATION - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1											0	0
2											0	0
3											0	0
4											0	140
5											0	958
6											0	869
7											0	526
8											0	438
9											0	201
10											0	26
11											0	24
12	N	N	N	N	N	N	N	N	N	N	0	8.6
13	0	0	0	0	0	0	0	0	0	0	0	4.2
14											0	1.8
15											0	.2
16											0	0
17	F	F	F	F	F	F	F	F	F	F	0	0
18	L	L	L	L	L	L	L	L	L	L	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0
20	W	W	W	W	W	W	W	W	W	W	809	0
21											1340	0
22											886	0
23											384	0
24											76	0
25											16	0
26											7.1	0
27											3.7	0
28											1.5	0
29		—									.6	0
30		—									.1	0
31		—		—		—			—		—	0
Mean	0	0	0	0	0	0	0	0	0	0	117	103
Runoff in Ac.Ft.	0	0	0	0	0	0	0	0	0	0	6990	6341
	Water Year Total 0								Calendar Year Total 13331			

Division of Water Resources and U. S. Bureau of Reclamation cooperative station located just above the Corcoran-Angiola Highway bridge, 39.0 miles downstream from the junction of South Fork. This station measures inflow to Tulare Lake area and at times the flows are a combination of direct Tule River water, Kaweah River water via Elk Bayou (See Table 146), and Kings River water via Homeland Canal, and waste water from Tulare Irrigation District. Period of record 1942 to date. Records for 1950 computed by Division of Water Resources.

TABLE 144

FLOW OF WHITE RIVER NEAR DUCOR - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	2.5	4.1	4.6	3.0						0	3.6
2	0	1.9	4.1	4.6	3.2						0	3.0
3	0	2.1	4.1	4.8	3.4						0	4.8
4	0	2.1	4.1	5.1	3.8						0	41
5	0	5.5	4.1	4.8	3.4						0	22
6	0	24	3.8	4.3	3.6						0	14
7	0	24	3.8	4.3	3.8						0	11
8	0	9.8	3.8	4.8	3.6						0	8.5
9	0	7.5	3.6	9.4	4.1						0	7.4
10	0	6.1	3.4	7.5	3.6						0	6.4
11	0	34	3.4	6.4	3.2						0	6.0
12	0	20	3.4	6.1	2.8	N	N	N	N	N	0	5.7
13	0	9.8	3.2	5.9	2.5	0	0	0	0	0	0	5.4
14	0	7.5	2.8	5.9	2.1						0	5.0
15	0	6.4	2.7	5.1	1.9						0	6.4
16	0	5.6	2.7	4.8	1.7						0	6.0
17	0	5.4	2.8	4.6	1.6	F	F	F	F	F	0	5.4
18	0	5.1	2.8	4.8	1.6	L	L	L	L	L	0	5.0
19	0	5.1	2.5	4.8	1.1	0	0	0	0	0	112	4.5
20	0	4.8	2.3	4.8	.8	W	W	W	W	W	48	4.2
21	0	4.8	2.3	5.1	.5						24	4.5
22	0	4.6	2.3	4.8	.1						10	4.2
23	0	4.3	2.5	4.8	0						4.5	4.0
24	0	4.1	3.4	4.6	.5						2.4	3.8
25	.3	3.8	10	4.3	.9						1.9	3.8
26	.3	3.8	6.8	3.8	.7						1.5	3.5
27	.3	4.1	5.9	3.6	.1						1.2	3.5
28	1.1	4.1	5.1	3.6	0						1.3	3.5
29	6.4	—	5.1	3.4	0						1.2	3.5
30	4.6	—	5.1	3.2	0						1.8	3.5
31	3.2	—	4.8	—	0	—			—		—	4.2
Mean	0.52	7.96	3.90	4.95	1.86	0	0	0	0	0	6.99	7.01
Runoff in Ac.Ft.	32	442	240	295	114	0	0	0	0	0	416	431
	Water Year Total 1123								Calendar Year Total 1970			

U. S. Geological Survey and U. S. Bureau of Reclamation cooperative station located 500 feet downstream from bridge at Gilliam Ranch and 8 miles southeast of Ducor. White River is a tributary of the Tulare Lake area. Period of record 1944 to date. Records for 1950 computed by U. S. Geological Survey.

TABLE 145

FLOW OF KERN RIVER NEAR BAKERSFIELD - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	193	289	672	677	1733	2790	850	282	141	157	257	1165
2	209	269	721	695	1692	2723	830	306	138	155	257	1166
3	210	300	716	779	1561	2495	799	303	136	147	247	1129
4	173	323	713	899	1478	2404	788	296	149	152	227	4439
5	168	389	712	1010	1378	2213	745	271	149	151	229	3061
6	177	1469	717	1098	1320	2113	728	257	153	151	229	2175
7	177	2879	741	1129	1226	2120	766	252	166	150	232	1831
8	188	1381	711	1092	1120	1779	718	232	193	150	231	1817
9	238	889	682	1083	1045	1542	696	217	239	145	220	1683
10	229	762	625	1034	1002	1452	763	212	237	146	209	1514
11	214	780	595	977	999	1434	801	198	217	142	207	1420
12	238	812	552	940	1022	1382	796	201	200	142	202	1314
13	241	684	484	929	1002	1264	730	190	191	138	205	1224
14	227	621	523	915	998	1203	680	193	182	135	223	1168
15	254	576	494	878	1014	1218	635	191	175	133	242	1182
16	213	551	475	842	1088	1235	592	193	179	131	226	1148
17	227	566	463	843	1408	1255	533	180	196	138	221	1060
18	324	571	479	962	1618	1293	488	173	193	147	254	992
19	382	553	482	1106	1687	1259	443	167	199	139	15400	921
20	364	568	508	1292	1755	1268	419	166	193	136	9200	888
21	357	575	517	1558	2011	1331	393	166	179	143	4100	861
22	357	581	518	1833	2122	1423	374	163	177	147	3000	847
23	365	569	529	1989	2048	1377	359	157	170	144	2290	827
24	391	580	530	2028	1984	1274	346	153	163	151	1890	803
25	445	592	651	1996	1846	1198	331	145	160	159	1710	792
26	381	618	703	1972	1921	1030	324	150	160	167	1600	760
27	305	648	627	1995	2080	901	359	147	160	167	1510	671
28	312	651	631	2076	2113	868	356	150	152	305	1450	645
29	395	—	626	1955	2294	847	332	148	144	279	1380	613
30	357	—	638	1813	2412	869	322	141	147	239	1240	608
31	320	—	662	—	2675	—	300	140	—	233	—	597
Mean	278	716	603	1280	1602	1519	568	198	175	162	1630	1268
Runoff in Ac.Ft.	17120	39760	37090	76160	98480	90370	34900	12180	10390	9960	96970	77990
	Water Year Total 448070								Calendar Year Total 601370			

Kern County Land Company station located 5 miles northeast of Bakersfield. Drainage area 2420 square miles. Kern River is a tributary of the Tulare Lake Basin. Period of record 1893 to date. Records for 1950 computed by Kern County Land Company.

TABLE 146

FLOW OF ELK BAYOU ABOVE ELK BAYOU AVENUE - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1					0						0	0
2					0						0	0
3					0						0	0
4					0						0	192
5					0						0	346
6					0						0	192
7					0						0	127
8					0						0	159
9					0						0	120
10					0						0	90
11					0						0	66
12	N	N	N	N	0	N	N	N	N	N	0	51
13	O	O	O	O	0	O	O	O	O	O	0	41
14					0						0	31
15					0						0	32
16					0						0	53
17	F	F	F	F	0	F	F	F	F	F	0	31
18	L	L	L	L	0	L	L	L	L	L	0	21
19	O	O	O	O	0	O	O	O	O	O	190	15.7
20	W	W	W	W	0	W	W	W	W	W	700	10.7
21					0						435	8.3
22					0						225	7.0
23					0						66	5.7
24					0						8.1	3.6
25					0						2.5	2.4
26					0						5.6	1.3
27					0						7.2	.35
28					0						2.9	.02
29		—			0						1.1	0
30		—			23						.08	0
31		—		—	7.1	—			—		—	0
Mean	0	0	0	0	1.0	0	0	0	0	0	54.8	51.8
Runoff in Ac.Ft.	0	0	0	0	60	0	0	0	0	0	3259	3187
	Water Year Total 60								Calendar Year Total 6506			

U. S. Bureau of Reclamation station located 1 mile east of Elk Bayou Avenue and 3.6 miles downstream from Highway 99. The flows passing this station, mainly of Kaweah River origin, can enter Tule River above the Turnbull gaging station. At times Tule River water enters Elk Bayou above this station via Porter Slough. Period of record 1942 to date. Records for 1950 computed by U. S. Bureau of Reclamation.

TABLE 147

FLOW OF SOUTH FORK KINGS RIVER BELOW EMPIRE WEIR #2 - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1					0	146					0	20
2					0	212					0	20
3					0	232					0	25
4					0	92					0	376
5					0	34					0	996
6					0	155					0	3618
7					0	123					0	2248
8					0	137					0	242
9					0	0					0	20
10					0	0					0	30
11					0	0					0	130
12	N	N	N	N	0	0	N	N	N	N	0	120
13	O	O	O	O	0	0	O	O	O	O	0	50
14					0	0					0	20
15					0	0					0	0
16					0	0					0	0
17	F	F	F	F	0	0	F	F	F	F	0	0
18	L	L	L	L	0	0	L	L	L	L	0	0
19	O	O	O	O	0	0	O	O	O	O	0	0
20	W	W	W	W	0	0	W	W	W	W	108	0
21					0	0					2340	0
22					0	0					4009	0
23					89	0					3262	0
24					111	0					1375	0
25					0	0					385	0
26					0	0					20	0
27					0	0					20	0
28					0	0					20	0
29		—			3	0					20	0
30		—			37	0					20	0
31		—		—	109	—			—		—	0
Mean	0	0	0	0	11	38	0	0	0	0	386	255
Runoff in Ac.Ft.	0	0	0	0	691	2239	0	0	0	0	22926	15672
	Water Year Total 2930								Calendar Year Total 41528			

Kings River Water Association station located 1 mile southwest of Stratford. This station measures inflow of Kings River water to the Tulare Lake area. Period of record 1937 to date. Records for 1950 computed by Kings River Water Association.

TABLE 148

FLOW OF CROSS CREEK BELOW LAKELAND CANAL #2 - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1											0	0
2											0	0
3											0	35
4											0	240
5											0	595
6											0	1315
7											0	930
8											0	535
9											0	440
10											0	240
11											0	70
12	N	N	N	N	N	N	N	N	N	N	0	110
13	O	O	O	O	O	O	O	O	O	O	0	80
14											0	90
15											0	60
16											0	30
17	F	F	F	F	F	F	F	F	F	F	0	0
18	L	L	L	L	L	L	L	L	L	L	0	0
19	O	O	O	O	O	O	O	O	O	O	0	0
20	W	W	W	W	W	W	W	W	W	W	175	0
21											960	0
22											790	0
23											390	0
24											70	0
25											0	0
26											0	0
27											0	0
28											0	0
29		—									0	0
30		—									0	0
31		—		—		—			—		—	0
Mean	0	0	0	0	0	0	0	0	0	0	79.5	154
Runoff in Ac.Ft.	0	0	0	0	0	0	0	0	0	0	4730	9461
	Water Year Total 0								Calendar Year Total 14191			

Corcoran Irrigation District station located below the Cross Creek weir, 4 miles east of Guernsey. Cross Creek is a tributary of Tulare Lake area. At times the flow is a combination of Kaweah River water, Kings River water, and Cottonwood Creek water. Period of record 1921 to date. Records for 1950 computed by Corcoran Irrigation District.

TABLE 149

FLOW OF WEST-SIDE CANAL NEAR LOST HILLS* - 1950

Date	Daily Mean Flow in Second Feet											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13					NO FLOW DURING 1950							
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29		—										
30		—										
31		—		—		—			—		—	
Mean	0	0	0	0	0	0	0	0	0	0	0	0
Runoff in Ac.Ft.	0	0	0	0	0	0	0	0	0	0	0	0
		Water Year Total		0					Calendar Year Total		0	

Division of Water Resources and U. S. Bureau of Reclamation cooperative station located at bridge on State Highway between Wasco and Lost Hills. This station measures inflow of Kern River water to the Tulare Lake area. Period of record 1944 to date. Records for 1950 computed by Division of Water Resources.
* Also known as Main Drain at Hart's Station.

TABLE 150

TULARE LAKE (IN KINGS COUNTY) - 1950

Date	Daily Elevation in Feet*											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1												182.85
2												182.75
3												182.65
4												182.80
5												183.45
6												184.30
7												185.15
8												185.90
9												186.30
10												186.50
11												185.83
12												185.78
13												185.73
14												185.68
15											179.00	185.63
16											179.00	185.58
17											179.00	185.53
18				Lake dry January 1,1950 to November 15, 1950							179.00	185.48
19											179.00	185.43
20											179.20	185.38
21											181.00	185.33
22											182.50	185.28
23											183.00	185.23
24											183.20	185.18
25											183.30	185.13
26											183.35	185.08
27											183.25	185.03
28											183.15	184.98
29		—									183.05	184.93
30		—									182.95	184.88
31		—		—		—			—		—	184.83

Station is maintained and operated by Tulare Lake Water Storage Basin District. Station is located approximately 6 miles southwest of Corcoran on the south end of El Rico Bridge. Prior records are available at other sites 1937 to date.
* U.S.G.S. Datum.

TABLE 151

SUMMARY OF WATER UTILIZATION OF SACRAMENTO-SAN JOAQUIN VALLEYS

	Year	Acreage			Diversion Acre-Feet	Irrigation Draft Average c.f.s. July	Gross Duty of Water		Runoff in % of Normal Sacto. R. at Red Bluff
		General	Rice	Total			Ac.Ft. per Acre	Acres per Sec.Ft.	
							(1)	(1)	
Sacramento River Redding to Sacramento	1940	119700	64390	184100	1063000	4050	5.65	86	121
	1941	118600	85200	203800	1150000	4314	5.53	88	165
	1942	111200	107700	218900	1279000	4662	5.74	85	130
	1943	107400	115600	223000	1417000	4699	6.24	78	98
	1944	111900	122200	234100	1678000	5502	7.06	69	54
	1945	106500	115100	221600	1676000	5766	7.44	65	77
	1946	117600	124100	241700	1778000	5560	7.24	67	93
	1947	121600	124000	245600	1707000	5600	6.82	71	59
	1948	149700	124800	273800	1593000	5947	5.71	85	88
	1949	143500	137300	280800	1873000	6344	6.55	74	70
	Av. 1940 to 1949	120800	112000	232800	1521000	5244	6.40	77	96
	1950	152800	108500	261300	1794000	5944	6.74	72	66
									Sacto. R. at Red Bluff
Back Borrow Pit Knights Landing Outfall Gates to Highway 20 Bridge	1940	3130	3260	6390	20640	89	3.23	150	121
	1941	3890	1970	5860	19550	103	3.34	146	165
	1942	2760	5650	8410	37790	179	4.49	108	130
	1943	2810	11680	14490	74550	279	5.15	94	98
	1944	960	9020	9980	65760	240	6.59	74	54
	1945	1580	5180	6760	38520	161	5.70	85	77
	1946	2060	7880	9940	70920	256	7.13	68	93
	1947	2300	9040	11340	73940	254	6.52	75	59
	1948	2460	7080	9540	82500	332	8.65	56	88
	1949	1270	9000	10280	69500	230	6.76	72	70
	Av. 1940 to 1949	2320	6980	9300	55400	212	5.76	93	96
	1950	3230	5920	9150	64400	203	7.04	69	66
									Sacto. R. at Red Bluff
					(2)		(2)	(2)	
Colusa Trough above Highway 20 Bridge	1940	220	700	920	39430	136	43.78	11	121
	1941	270	1280	1550	30300	106	19.55	25	165
	1942	270	1520	1790	28260	104	15.79	31	130
	1943	600	2770	3370	40730	160	12.09	40	98
	1944	1540	4490	6030	53710	198	8.91	55	54
	1945	200	3880	4080	48490	171	11.88	41	77
	1946	3030	3690	6720	71220	256	10.60	46	93
	1947	1040	6570	7610	80480	281	10.58	46	59
	1948	3250	4740	7990	67470	275	8.44	58	88
	1949	3140	5560	8700	90200	310	10.37	47	70
	Av. 1940 to 1949	1360	3520	4880	55000	200	15.20	40	96
	1950	4930	5150	10080	108100	353	10.72	45	66
									Sacto. R. at Red Bluff
Yolo By-Pass and Knights Landing Ridge Cut	1940	2500		2500	3840	32	1.54	316	121
	1941	1840	890	2730	9860	44	3.61	135	165
	1942	1730	880	2610	12370	52	4.74	103	130
	1943	1860	1410	3270	18670	84	5.72	85	98
	1944	1540	4230	5770	33360	126	5.78	84	54
	1945	1820	3820	5640	35800	141	6.35	77	77
	1946	1790	3000	4790	30260	112	6.32	77	93
	1947	3220	2980	6200	27180	110	4.38	111	59
	1948	1710	2260	3990	27800	93	7.00	69	88
	1949	1740	2150	3890	34500	40	8.87	55	70
	Av. 1940 to 1949	1980	2160	4140	23400	83	5.43	111	96
	1950	1650	1920	3570	29300	84	8.21	59	66
									Feather R. near Oroville
Lower Butte Creek and Butte Slough	1940	9650	410	10060	28120	74	2.80	174	118
	1941	9620		9620	27020	40	2.81	173	136
	1942	8720	1050	9770	31880	65	3.26	149	139
	1943	8730	2020	10700	35890	77	3.35	145	117
	1944	7750	1760	9600	33670	60	3.51	139	58
	1945	7820	2110	9900	39580	88	4.00	122	78
	1946	8250	1850	10000	45670	123	4.56	107	87
	1947	4520	1120	5600	19800	58	3.54	137	53
	1948	4650	660	5310	27620	106	5.20	93	81
	1949	7140	1870	9010	65200	205	7.24	67	54
	Av. 1940 to 1949	7680	1280	8960	35400	90	4.03	131	92
	1950	7200	1540	8740	50500	187	5.78	84	80

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

TABLE 151 (CONT'D)

SUMMARY OF WATER UTILIZATION OF SACRAMENTO-SAN JOAQUIN VALLEYS

	Year	Acreage			Diversion Acre-Feet	Irrigation Draft Average c.f.s. July	Gross Duty of Water		Runoff in % of Normal Feather R. near Oroville
		General	Rice	Total			Ac. Ft. per Acre	Acres per Sec. Ft.	
East and West Borrow Pits of Sutter By-Pass and Sacramento Slough	1940	8090	650	8740	24260	118	2.78	178	118
	1941	7830	2440	10270	31260	141	3.04	160	136
	1942	5550	1790	7340	22680	88	3.09	157	139
	1943	5380	3040	8420	33140	133	3.94	123	117
	1944	5890	4300	10190	51100	195	5.01	97	58
	1945	4710	7000	11710	54720	199	4.67	104	78
	1946	9380	4920	14300	59160	217	4.14	117	87
	1947	8840	3210	12050	48440	180	4.02	121	53
	1948	7920	2640	10560	36240	149	3.43	142	81
	1949	8300	6180	14480	77600	252	5.35	91	54
	Av. 1940 to 1949	7190	3620	10810	43900	167	3.95	129	92
	1950	11650	4480	16130	89100	329	5.52	88	80
									Feather R. near Oroville
Feather River Mouth to Oroville Bridge	1940	30120	23530	53650	474000	1713	8.84	55	118
	1941	27660	26640	54300	475200	1681	8.75	56	136
	1942	38480	25180	63660	539700	2042	8.48	57	139
	1943	24090	46570	70660	623600	2134	8.82	55	117
	1944	25240	49840	75080	712900	2312	9.50	51	58
	1945	25110	47860	72970	698400	2313	9.57	51	78
	1946	27190	51080	78270	744800	2362	9.52	51	87
	1947	28260	49750	78010	674400	2245	8.65	56	53
	1948	29530	43260	72790	[illegible]	2292	8.05	60	81
	1949	31000	51100	82200	716300	2241	8.71	56	54
	Av. 1940 to 1949	28700	41500	70200	624600	2134	8.89	55	92
	1950	34000	41300	75300	662100	2229	8.79	55	80
									Yuba R. at Smartville
Yuba River	1940	7220	1270	8490	69970	247	8.24	49	116
	1941	7470	1350	8820	73530	221	8.34	58	130
	1942	6660	1120	7780	74710	243	9.60	51	138
	1943	6280	2310	8590	93800	280	10.92	45	127
	1944	7010	2400	9410	93260	273	9.91	49	57
	1945	8820	1050	9900	84230	229	8.51	57	89
	1946	8870	1960	10830	98690	278	9.11	53	97
	1947	8280	3630	11910	100100	282	8.40	58	55
	1948	8720	3120	11840	92760	281	7.75	62	82
	1949	8840	3300	12140	106800	316	8.80	55	60
	Av. 1940 to 1949	7820	2150	9970	88800	265	8.96	55	95
	1950	10000	2640	12640	127400	342	10.08	48	90
							(1)	(1)	American R. at Fairoaks
American River Mouth to Fairoaks	1940	3060		3060	6050	29	2.26	215	120
	1941	3050		3050	5310	25	1.75	277	111
	1942	3130		3130	4170	23	1.30	374	138
	1943	3110		3110	4580	25	1.89	258	136
	1944	3200		3200	4820	25	1.63	298	51
	1945	2940		2940	3860	16	1.30	374	88
	1946	2890		2890	4120	18	1.77	275	101
	1947	3670		3670	5910	19	1.68	290	50
	1948	3630		3630	5880	28	1.92	254	79
	1949	3860		3860	5510	24	2.60	187	65
	Av. 1940 to 1949	3250		3250	5020	23	1.81	280	94
	1950	4000		4000	4600	18	2.52	192	90
							(2)	(2)	Sacto. R. at Red Bluff
Sacramento River System: Sacramento River and Tributaries	1940	183700	94200	277900	1729000	6488	6.17	79	121
	1941	180200	119800	300000	1822000	6675	6.03	81	165
	1942	178500	144900	323400	2031000	7458	6.24	78	130
	1943	160300	185400	345700	2342000	7871	6.73	72	98
	1944	165000	198200	363200	2726000	8931	7.47	65	54
	1945	159500	186000	345500	2680000	9084	7.72	63	77
	1946	181100	198500	379600	2903000	9182	7.61	64	93
	1947	181700	200300	382000	2737000	9029	7.12	68	59
	1948	211600	187900	399500	2520000	9503	6.27	78	88
	1949	208800	216500	425300	3039000	9962	7.11	68	70
	Av. 1940 to 1949	181000	173200	354200	2453000	8418	6.85	71	96
	1950	229500	171500	401000	2929000	9689	7.27	67	66

(1) Excluding diversion and acreage of the Carmichael Irrigation District.
(2) Excluding Municipal diversions on Sacramento River, the City of Sacramento and the City of Redding. Also excluding diversion and acreage of the Carmichael Irrigation District on American River.

TABLE 151 (CONT'D)

SUMMARY OF WATER UTILIZATION OF SACRAMENTO-SAN JOAQUIN VALLEYS

	Year	Acreage General	Acreage Rice	Acreage Total	Diversion Acre-Feet	Irrigation Draft Average c.f.s. July	Gross Duty of Water Ac. Ft. per Acre	Gross Duty of Water Acres per Sec. Ft.	Runoff in % of Normal San Joaquin R. near Vernalis
Old San Joaquin River and Tom Paine Slough	1940	33020		33020	64640	264	1.96	248	107
	1941	32810		32810	60430	248	1.84	264	129
	1942	33110		33110	61900	254	1.87	260	120
	1943	45660	150	45810	76150	267	1.66	292	118
	1944	47000	240	47240	105700	325	2.24	217	63
	1945	37300	220	37520	106400	369	2.84	171	107
	1946	40000	320	40320	126100	374	3.13	155	93
	1947	43140	550	43690	136800	423	3.13	155	56
	1948	45380	470	45850	135600	427	2.96	164	68
	1949	51310	380	51690	157700	480	3.05	159	62
	Av. 1940 to 1949	40870	230	41100	103100	343	2.47	208	92
	1950	50230	360	50590	161200	491	3.19	153	76
									San Joaquin R. near Vernalis
San Joaquin River Stockton to Vernalis	1940	18460		18460	44640	208	2.42	201	107
	1941	19300		19300	40080	195	2.08	234	129
	1942	17930		17930	42180	198	2.35	206	120
	1943	19500		19500	51720	189	2.65	183	118
	1944	20730		20730	59310	185	2.86	170	63
	1945	19940		19940	62330	213	3.12	155	107
	1946	24500		24500	77150	250	3.15	154	93
	1947	25120		25120	84480	251	3.36	144	56
	1948	25550		25550	66600	226	2.61	186	68
	1949	26900		26900	78600	243	2.92	166	62
	Av. 1940 to 1949	21800		21800	60700	216	2.75	180	92
	1950	26600		26600	84600	277	3.18	153	76
									San Joaquin R. near Vernalis
San Joaquin River Vernalis to Fremont Ford	1940	39370	470	39840	97810	429	2.45	198	107
	1941	39870	480	40350	93420	431	2.32	210	129
	1942	41930	580	42510	104400	461	2.46	198	120
	1943	41140	340	41480	121700	486	2.93	166	118
	1944	42190	1460	43650	138300	440	3.17	153	63
	1945	41600	850	42450	131400	495	3.10	157	107
	1946	43090	1400	44490	160000	520	3.60	135	93
	1947	43080	1360	44440	181400	554	4.08	119	56
	1948	46380	540	46920	144800	471	3.09	157	68
	1949	45780	620	46400	166800	551	3.59	135	62
	Av. 1940 to 1949	42440	810	43250	134000	484	3.08	163	92
	1950	48110	390	48500	175100	537	3.61	135	76
									San Joaquin R. near Vernalis
San Joaquin River Fremont Ford to Friant Dam Including Fresno Slough and Fresno Slough By-Pass (1)	1946	285000	11600	296600	991800	2485	3.34	145	93
	1947	313600	13260	326900	843300	2292	2.58	188	56
	1948	305600	10250	315900	833200	2660	2.64	184	68
	1949	311400	18720	330100	953700	2276	2.89	168	62
	Av. 1946 to 1949	303900	13500	317400	906000	2428	2.86	171	70
	1950	315100	14500	329600	882000	2282	2.68	182	76
									Merced R. at Exchequer
Merced River Mouth to Yosemite Valley Railroad Crossing (2)	1940	3120		3120	9110	36	2.92	166	104
	1941	3570		3570	7590	32	2.13	229	138
	1942	3300		3300	8400	44	2.55	191	122
	1943	3680		3680	11720	50	3.18	153	122
	1944	4510		4510	13500	42	2.99	162	65
	1945	4400		4400	11820	50	2.69	181	104
	1946	4480		4480	14400	59	3.21	151	89
	1947	5910		5910	21080	71	3.57	136	54
	1948	6490		6490	17760	80	2.74	178	65
	1949	7940		7940	25640	92	3.23	150	60
	Av. 1940 to 1949	4740		4740	14100	56	2.92	170	92
	1950	7910		7910	23900	78	3.02	161	68

(1) Excluding diversions and acreages of Friant-Kern and Madera Canals.
(2) Excluding diversion and acreage of Merced Irrigation District.

TABLE 151 (CONT'D)

SUMMARY OF WATER UTILIZATION OF SACRAMENTO-SAN JOAQUIN VALLEYS

	Year	Acreage			Diversion Acre-Feet	Irrigation Draft Average c.f.s. July	Gross Duty of Water		Runoff in % of Normal Tuolumne R. near La Grange
		General	Rice	Total			Ac. Ft. per Acre	Acres per Sec. Ft.	
Tuolumne River Mouth Roberts Ferry Bridge (1)	1940	1070		1070	2580	10	2.41	202	113
	1941	1300		1300	3150	10	2.42	201	127
	1942	1620		1620	2770	10	1.71	284	120
	1943	1830		1830	2620	9	1.43	339	120
	1944	3160		3160	4100	13	1.30	375	67
	1945	3260		3260	3560	12	1.09	445	106
	1946	3560		3560	4920	15	1.38	352	96
	1947	3760		3760	7470	20	1.99	245	56
	1948	3750		3750	6230	21	1.66	293	72
	1949	4400		4400	6440	18	1.46	332	63
	Av. 1940 to 1949	2770		2770	4380	14	1.68	307	94
	1950	4690		4690	6100	18	1.30	374	79
									Stanislaus R. below Melones
Stanislaus River Mouth to Orange Blossom Bridge (2)	1940	6900		6900	15750	63	2.28	213	112
	1941	6940	110	7050	16660	56	2.37	206	107
	1942	7100	130	7230	20010	75	2.77	176	119
	1943	7360		7360	22060	73	3.00	162	125
	1944	7920		7920	21830	69	2.76	176	54
	1945	6870		6870	21660	72	3.15	154	102
	1946	6340		6340	26810	82	4.23	115	94
	1947	6600		6600	30080	88	4.56	107	52
	1948	7920		7920	29700	99	3.75	130	72
	1949	8550		8550	23160	76	2.71	179	60
	Av. 1940 to 1949	7250	24	7270	22800	75	3.16	162	90
	1950	8450		8450	33400	102	3.95	123	86
San Joaquin River System									San Joaquin at Vernalis
San Joaquin River Stockton-Fremont Ford and Tributaries (3)	1940	101900	470	102400	234500	1010	2.29	212	107
	1941	103800	590	104400	221300	972	2.12	229	129
	1942	105000	710	105700	239700	1042	2.27	214	120
	1943	119200	490	119700	286000	1074	2.39	203	118
	1944	125500	1700	127200	342700	1074	2.69	180	63
	1945	113400	1070	114500	337200	1211	2.94	165	107
	1946	122000	1720	123700	409400	1300	3.31	147	93
	1947	127600	1910	129500	461300	1407	3.56	136	56
	1948	135500	1010	136500	400700	1324	2.94	166	68
	1949	144900	1000	145900	458300	1460	3.14	155	62
	Av. 1940 to 1949	119900	1100	121000	339100	1187	2.76	181	92
	1950	146000	800	146800	484300	1503	3.30	147	76
Combined above Delta							(4)	(4)	
Sacramento River and Tributaries and San Joaquin River Stockton-Fremont Ford and Tributaries (3)	1940	285600	94670	380300	1964000	7498	5.12	95	
	1941	284000	120400	404400	2043000	7647	5.01	97	
	1942	283500	145600	429100	2271000	8500	5.26	92	
	1943	279500	185900	465400	2628000	8945	5.61	87	
	1944	290500	199900	490400	3069000	10005	6.23	78	
	1945	272900	187100	460000	3017000	10295	6.52	74	
	1946	303100	200200	503300	3312000	10482	6.55	74	
	1947	309300	202200	511500	3198000	10436	6.22	78	
	1948	347100	188900	536000	2921000	10827	5.42	90	
	1949	353800	217500	571200	3497000	11422	6.09	80	
	Av. 1940 to 1949	300900	174200	475100	2792000	9606	5.80	84	
	1950	375500	172300	547800	3413000	11192	6.20	78	
San Joaquin River System									San Joaquin at Vernalis
San Joaquin River Stockton to Friant Dam and Tributaries (3,5)	1946	407000	13310	420300	1401000	3785	3.33	146	93
	1947	441200	15160	456300	1305000	3699	2.86	170	56
	1948	441100	11250	452300	1234000	3984	2.73	178	68
	1949	456300	19730	476000	1412000	3936	2.97	164	62
	Av. 1946 to 1949	436400	14900	451300	1338000	3851	2.97	164	70
	1950	461100	15300	476400	1366000	3785	2.87	169	76
Combined above Delta							(4)	(4)	
Sacramento River and Tributaries and San Joaquin River Stockton to Friant Dam and Tributaries (3,5)	1946	588100	211800	799900	4304000	12967	5.36	91	
	1947	622900	215500	838400	4042000	12728	4.79	101	
	1948	652700	199100	851800	3754000	13487	4.38	111	
	1949	665100	236200	901300	4451000	13898	4.91	99	
	Av. 1946 to 1949	632200	215700	847900	4138000	13270	4.86	100	
	1950	690600	186800	877400	4295000	13474	4.87	100	

(1) Excluding diversions and acreages of Modesto Irrigation District and Turlock Irrigation District
(2) Excluding diversions and acreages of South San Joaquin Irrigation District and Oakdale Irrigation District
(3) Excluding diversions and acreages of Merced I.D. on Merced River, Modesto I.D. and Turlock I.D. on Tuolumne River, South San Joaquin I.D. and Oakdale I.D. on Stanislaus River.
(4) Excluding municipal diversions on Sacramento River, the City of Sacramento and the City of Redding. Also excluding diversion and acreage of the Carmichael Irrigation District on American River.
(5) Excluding diversions and acreages of Friant-Kern and Madera Canals.

TABLE 152

DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER - 1950

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--	0.0												
--GAGING STATION AT SACRAMENTO--	0.4												
City of Sacramento	0.8L	1-18" 3-20"	2214	2931	3858	4382	5191	5010	3914	3070	(a)30570	Municipal	
--AMERICAN RIVER--	1.1L												
--BACK BORROW PIT RECLAMATION DISTRICT 1000--	1.3L												
E. Fourness	1.45R	1-8"			43	43	93	60	101		340	160	
--RECLAMATION DISTRICT 1000 DRAIN--	2.1L												
Elmer F. Christophel	2.15L	1-8"		23	24	56	20	6	2	20	151	38	
D. D. Parr	3.15L	1-6"			2	25	28		1	1	57	26	
Rose Orchard	3.55R	1-16"			165	489	268	165			1087	165	
M. C. C. Van Loben Sells	4.0R	1-10"			135	57	51	67	75	3	388	150	
--SACRAMENTO WEIR--	4.2												
Reese and Greer	4.65R	1-7"			67	89	36				(b)192	58	
Jack R. Damron (c)	5.05R	1-14"				56	26				82	25	
R. S. Seydel	5.25R	1-8"			14	11	23	22	3	11	84	37	
A. R. Merkley	5.3R	1-6"			4	51	22				77	59	
Lucy Casselman	5.5R	1-6"				27	19				(b)46	31	
A. A. Casselman	5.55R	1-6"			1	44	45	6			96	37	
J. E. Bandy	6.0R	1-6"				NO DIVERSION							
Riverside Mutual Water Co.	6.1L	2-18"	21	171	836	1086	1038	903	485	57	(d)4597	1767	
W. W. White	6.6R	1-6"				NO DIVERSION							
--RECLAMATION DISTRICT 1000 DRAIN #3--	6.85L												
Fred C. Jones	7.5L	1-8"				20	35	8	18		81	55	
M. R. Williamson	7.8L	1-10"			24	4	86	11	36		161	93	
A. Marty	7.9R	1-8"			33	60	111	108	36	46	394	(e)460	
E. D. Willey	7.9L	1-10"			77	64	73		50		264	143	
M. Marty	8.3R	1-8"			79	86	121	69		18	(f)373	(g)	
Blauth Estate	8.5R	1-7"				45	41				86	83	
H. Waldeck	8.7R	1-6"			18	80	76	40	30	64	308	40	
Fong Yen, et al	9.3L	1-10"		22	194	102	374	104	167	2	965	273	
Henry Amen	9.35R	1-14"			192	209	214	86	137		838	285	
F. C. Jones	9.8L	(h)1-8" (i)1-14"				18	25	10	22		75	27	
Carl Casselman	9.9R	1-12"			55	106	74	32	30		297	124	
Lloyd M. Robbins	10.25L	1-14"	3	35	89	51	124	190	82	25	599	510	
Ray Hughes	10.65R	1-12"			56	177	191	91	10		525	216	
Edward Russell (j)	10.75L	1-12"			26	28	71				125	60	
W. A. Ten Eyck	11.1R	1-12"		5	67	68	90	1			231	200	
--ELKHORN FERRY--	11.9												
Conaway Ranch	12.0R	4-36"		4402	10801	11877	13634	12608	4133	1165	(d)58620	2920	(k)5763
Thomas O'Connor Estate	12.5R	1-12"				NO DIVERSION							
William Plumb, Jr. (l)	12.7R	1-6"			11	11	9	20	1		52	21	
Frank F. Newman	13.1R	1-12"			129	228	151	183	58		749	184	
J. Corey	13.2R	1-8"				NO DIVERSION							
J. De Nigris	13.25R	1-8"			37	44	28	54	22	4	189	75	
Elkhorn Mutual Water Co. (Natomas)	14.1L	1-20" 1-24"		476	2573	1980	3268	1806	1355	440	(m)11898	2422	
Joseph Veress	14.25R	1-14"				53	99	161	83		396	110	

(a) Additional acre-feet diverted: January 1996, February 1852, November 2177 and December 2118.
(b) An undetermined amount of water received from wells.
(c) Formerly listed as A. M. Harbinson.
(d) An undetermined amount of water received from controlled drainage.
(e) Combined acreage this plant and one at Mile 8.3R.
(f) Additional acre-feet diverted: November 1.
(g) See plant at Mile 7.9R.
(h) The 8" unit installed in 1950.
(i) The 14" unit did not operate in 1950.
(j) Formerly listed as John Schachtilli.
(k) Includes 1265 acres outside Conway Ranch.
(l) Formerly listed as Gertrude Brown.
(m) An additional 414 acre-feet diverted in April by gravity through Elkhorn #3 drain plant at Mile 6.85L and then re-diverted to Elkhorn Mutual Water Company lands.

TABLE 152

DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER - 1950
(Continued)

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. E. Dole	14.4R	1-6"				NO DIVERSION							
J. A. Damron	15.1R	1-10"			66	183	168	192			609	200	
Central Mutual Water Co. (Natomas)	16.0L	1-24" 2-32" (a)2-38"		2355	8016	6160	7707	7306	6950	25	38519	(b)2705	5094
Henry Rich (Hershey Plant)	(c)16.27R	1-20"			9	3	8	5			25	28	
Henry Rich	16.62R	1-14"				18	44	45		1	108	130	
Henry Rich	17.0R	1-14"				37	3	49			89	38	
Frank and Ruth Lang	17.4R	1-16"			138	73	114	277	91		693	140	
Calif. W. States Life Ins.Co.	17.75R	1-16"				NO DIVERSION							
Jose Alves and Sons	18.0R	1-20"				517	1011	363	136		2027	812	
H. C. Lauppe	18.2L	2-10"		51	130	247	197	249	119		993	166	40
M. and J. Scheiber	18.45L	1-12"				163	21	146		97	427	141	
J. R. Brannely	18.7L	1-8"				13	65	6			84	70	
SACRAMENTO TO VERONA Totals Average cubic feet per second Monthly use in per cent of seasonal			2238 36 1.4	10471 176 6.6	27969 455 17.6	29141 490 18.4	35093 571 22.1	30459 495 19.2	18147 305 11.5	5049 82 3.2	158557 326	15284	10897
--VERONA GAGING STATION--	19.6L												
--CROSS CANAL RECLAMATION DISTRICTS 1000 AND 1001--	19.6L												
Arthur Drown	(d)*(0.05S)	1-20"			48	27	61	43	33	9	221	90	
Natomas Central Mutual Water Co.(Bennett Subd. Plant)	*(1.0S)	1-24"		1075	1853	1647	1953	1932	1058		9518	226	1125
Natomas Northern Mut. W.Co.	*(2.0S)	1-20" 2-24"		1189	4927	3784	5075	5067	3039		(e)23081	355	2377
Natomas Company (Ben May Plant)	*(3.35N)	1-16"		171	364	278	638	518	433	24	2426	240	370
Roy C. Osterli	*(3.35N)	1-14"						266			266	170	
--FEATHER RIVER--	20.9L												
--SACRAMENTO SLOUGH--	21.2L												
West Coast Life Ins. Co.	21.7R	1-15"		5	69	223	257	289	136		979	150	
Henry Rich (Keller Plant)	22.5R	1-22"		336	709	496	751	338			(f)2630	330	560
A. F. Johnston	26.8L	1-16"				57	47	5			109	185	
Anthony Furlan	26.8L	1-16"					39	31		14	84	65	
--FREMONT WEIR GAGING STATION (WEST END WEIR)--	28.0												
Gustaf Inglin	28.2R	1-6"		6	21	19	22	21	1	11	101	27	
Hershey Estate (g)	29.0R	1-12" 1-16"			217	119	617	231		1	1185	320	
Russell Bros.	29.2R	1-12"				25	126	69	41	16	277	142	
M. R. Richardson	29.7R	1-8"					5	109			114	(h)224	(h)195
Sebastine Yturralde	29.9L	1-12"				1	104	22	3		130	110	
Leo Giovanetti	30.2L	1-5"			7	7	22	18	1		55	36	
Anthony Furlan	30.5L	1-14"					14	23			37	20	
M. R. Richardson	30.7R	1-10"				NO DIVERSION							
Albert Nuez	30.75R	1-6"		4	4	4	11	1	5		29	23	
Alice E. West	30.9L	1-6"				NO DIVERSION							
A. C. Huston	31.5R	1-12"			81	76	52	95	40		344	150	
M. R. Richardson	31.75R	(i)1-20"		123	609	728	637	892	430		3419	(j)	(j)
M. Alonso	31.8L	1-6"				5	4	7	2		18	36	
Sutter Mutual Water Co. (Portuguese)	32.0L	1-20" 2-24"		975	1900	1694	2438	1857	949	57	9870	1432	407

* Cross Canal - The main drain between R.D.1000 and 1001 joins the Sacramento River at Mile 19.6L. Distance from Sacramento River and the bank is shown in ().
(a) Listed as 2-28" units in 1949.
(b) An additional 793 acres irrigated from controlled drainage.
(c) Formerly listed as Mile 16.2R.
(d) Formerly listed as Mile *(0.5S).
(e) An undetermined amount of water received from controlled drainage.
(f) Also receives water from plant on Yolo By-Pass at Mile 10.0N and plant on Knights Landing Ridge Cut at Mile 6.3R.
(g) New installation in 1950.
(h) Combined acreage for this plant and one at Mile 31.75R.
(i) 10" unit removed in 1950.
(j) See plant at Mile 29.7R.

TABLE 152

DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER - 1950
(Continued)

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
Collier Bros.	32.5R	1-10"			36	42	43	18	13	3	155	109	
Walter H. Zeigler	33.2L	2-10"		87	279	352	272	626	431		2047	270	130
J. G. Knox	33.35L	1-10" (a)1-12"		242	487	482	557	608	296		2672	75	110
Clarence Du Bois (b)	33.5R	1-12"			104	83	67	93	21		368	119	
Fred Leiser (c)	33.75L	1-14"				NO	DIVERSION						
Neil Wilson	33.85R	1-6"			29	18	20	14	1		82	32	
VERONA TO KNIGHTS LANDING Totals Average cubic feet per second Monthly use in per cent of seasonal			0 0 0	4213 71 7.0	11744 191 19.5	10167 171 16.9	13832 225 23.0	13193 215 21.9	6933 117 11.5	135 2 0.2	60217 145	4936	5274
--KNIGHTS LANDING GAGING STATION--	34.0												
--COLUSA BASIN DRAIN--	34.15												
River Farms Company	(d)34.5R	1-16" 1-20" 1-24"		3089	4085	4835	5090	4463	1165		(e)22727	(f)339	(f)2154
Commercial Investment Company	34.85L	1-8" 1-12"				NO	DIVERSION						
Walter Raymond	35.2L	1-12"			26	68	41				135	160	
Knox and Anderson	35.8L	1-10"					19				19	76	
J. Goffitzer	35.85L	1-6"			7	5	18	1	2	2	35	17	
Kilgore and Rossi	36.2L	1-12" 1-14"			418	313	262	310	169		1472	161	110
Earl H. Gray (g)	36.45L	1-8"			41	33	5	32	18		129	53	
Amedio Moroni	36.7L	1-5"				NO	DIVERSION						
Albert Nuttall (h)	37.2L	1-14"				72	31	32			135	90	
Maybelle J. Bundock	37.75L	1-8"				6	16	13			35	132	
Addie Reel	38.4L	1-10"				71	51	40			162	92	
C. L. Reel	38.8L	1-10"				NO	DIVERSION						
Ivan Shuey (i)	39.4L	1-12"				27					27	80	
C. L. Reel	39.8L	1-10"					63	13			76	95	
William Duffy, Jr.	39.9L	1-6"				NO	DIVERSION						
Sutter Mutual Water Company (State Ranch Bend)	40.6L	2-24" 1-36"		3298	5363	4773	5733	5866	2566	245	27844	2775	2195
River Farms Company	41.0R	1-14" 1-16"			314	70	115	154			(j)653	884	
El Dorado Ranch	42.0R	1-14" 1-16"		309	633	665	393	157		51	2208	(k)526	(k)150
Buell Ranch (M. K. Dean)	42.2L	1-6"				NO	DIVERSION						
Matteoli and Fracchia	42.3L	1-8"			29	52	19	11			111	50	
Kramer Ranch	43.1L	1-12"					15				15	(l)65	
El Dorado Ranch	43.1R	1-18"				NO	DIVERSION						
Reclamation District #2047	43.1R	2-50"		4880	8181	9282	9446	9275	2426		43490	(m)1139	(m)4015
--RECLAMATION DISTRICT #108 DRAINAGE PLANT--	44.0R												
John Clauss	44.2L	1-18"		180	572	422	567	815	309		2865	(n)500	(n)134
John Clauss (Fuchlin)	45.6L	1-14"			300	63	334	65	48		810	(o)	(o)
Geo.J.,Jr. and J.H.Henle (p)	46.5L	1-14" 1-20"		245	540	582	734	576	254		2931	(q)270	82
P. J. Hiatt	48.7L	2-20"	98	1072	1347	1320	1452	1130	497		6926	409	225
G. J. Hiatt	49.7L	1-14"		152	248	312	296	360	122		1490	50	75
Reclamation District #108	51.1R	2-24" 1-36"		5651	7262	7272	8605	6546	1605		36941	392	2379
Holmes and Westover Company	51.2L	2-16"		615	970	1080	1049	1123	402		5239	565	265

(a) The 12" unit installed 1950.
(b) Formerly listed as Clarence de Boyce.
(c) Formerly listed as Mrs. Fred Leiser.
(d) Formerly listed as 34.5L.
(e) Additional acre-feet diverted: January 40.
(f) Combined acreage this plant and one on Back Borrow Pit at Mile 0.3L.
(g) Formerly listed as R. H. Bailey.
(h) Formerly listed as Albert Nuttal.
(i) Formerly listed as F. O. Eastman.
(j) Additional acre-feet diverted: January 208, which was used for duck lakes.
(k) An undetermined amount of water received from controlled drainage.
(l) Pre-irrigated only.
(m) Includes acreages irrigated as follows: Reclamation District 108, Rice 4015, General Crops 351. River Farms Company General Crops 788.
(n) Combined acreage this plant and one at Mile 45.6L.
(o) See plant at Mile 44.2L.
(p) New installation in 1950.
(q) Includes 150 acres at P. J. Hiatt lands.

TABLE 152

DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER - 1950
(Continued)

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. M. Chaplin	52.0L	1-16"			46	62	43	59			210	120	
George Van Ruiten	52.9L	1-10"				NO DIVERSION							
River Farms Company	53.8R	1-12"		88	427	257	382	395	164	104	1817	570	
George Van Ruiten	53.9L	1-12"					242	87	69		398	180	
Broomieside Farm	55.1L	1-20"			7	18	186	121			332	310	
Broomieside Farm (a)	56.3L	1-16"			114		113				227	135	
Reclamation District #108	56.4R	1-12" 1-18" (b)1-22"		627	2028	2004	2309	1380	322	35	8705	1009	570
C. M. Miller	56.42R	1-6"				NO DIVERSION							
Jacob Miller	56.65R	1-12"				NO DIVERSION							
Broomieside Farm (S. C. Crawford)	56.95L	1-20"		1058	1281	962	1053	1203	433		(c)5990	215	400
L. M. Miller	57.0R	1-10"			92	74	161	104			431	98	
Lamb Brothers	57.5L	1-16"	283								(d)283		
J. A. Neilsen	58.2L	1-15"		69	111	232	180	76		41	709	(e)253	
Alex Grant	58.9L	1-16"				7	38	38	10		93	48	
I. G. Zumwalt	59.1R	1-12"				NO DIVERSION							
Lamb Brothers	59.8L	1-12" (f)1-14"			226	574	533	373			1706	250	
W. A. Larner (g)	60.4L	1-14" 1-16"		288	989	1378	1287	1526	878		6346	86	605
A. Earl Lane	60.5L	1-12"		15	10		121	13	31	18	208	110	
Robert Lane	61.35L	1-12"				NO DIVERSION							
Richard Moore (h)	61.5R	1-12"				NO DIVERSION							
Samuel Hines	62.3R	1-10"			11	16	17	6	13		63	27	
Jake Broyles	62.3L	1-14"		156	410	416	256	344	243	324	2149	345	
Jake Locovitch	62.6R	1-8"				18	47	22			87	30	
KNIGHTS LANDING TO WILKINS SLOUGH Totals Average cubic feet per second Monthly use in per cent of seasonal			381 6 0.2	21792 366 11.7	36088 587 19.4	37341 628 20.1	41332 672 22.2	36729 597 19.7	11746 197 6.3	820 13 0.4	186229 383	12706	13359
--WILKINS SLOUGH GAGING STATION--	62.9												
Reclamation District #108 (Wilkins Slough)	63.2R	5-42"		12767	22727	18711	21453	20206	2763		98627	(i)1644	(i)10899
R. L. Young	(j)63.3L	1-12"		4	4	56	68	37	9	2	180	119	
Luelthа Meister	63.65L	1-8"		4	56	122	103	84	57	42	468	103	
Sutter Mutual Water Company (Tisdale Plants #1 and #2)	63.75L	6-42" 2-48"		19397	35799	33404	37597	35422	17259	4506	183384	18439	11298
Edmund Seaman (k)	63.9	2-14"		302	645	422	465	461	171		2466	247	130
--TISDALE WEIR--	64.2L												
Ornbaum Livestock Company (l)	64.3R	1-12"			30	26	16	40	28		140	38	
Tisdale Irrigation and Drainage Company	64.4L	1-12"			468	496	460	493	4		1921	(m)370	
Van Horn Ranch	64.9R	1-14"				84	80	116			280	150	
Juan Valsyvez	65.1R	1-4"			3	19	26	13	1		62	25	
Walter Ettl (n)	65.7L	1-8"			45	109	135	126			415	135	
Fred Schohr	65.8R	1-16"				NO DIVERSION							
J. L. Browning	66.4R	1-18"				496	466	392	150		1504	675	
Tisdale Irrigation and Drainage Company	67.1L	1-12" 1-20"		1010	1401	1542	1852	1408	660		7873	(o)552	233
Newhall Land and Farming Co.	67.5L	1-12" 2-24"		1652	2739	2007	2267	2044	764		11473	2543	419

(a) Formerly listed as Phillip J. Enright.
(b) Formerly listed as 18" unit.
(c) An additional 283 acre-feet received from plant at Mile 57.5L.
(d) See plant at Mile 56.95L.
(e) An undetermined amount of water received from wells.
(f) Operated 14" unit only in 1950.
(g) Formerly listed as F. L. Burrell.
(h) Formerly listed as I. G. Zumwalt.
(i) Combined acreage this plant and one on Back Borrow Pit at Mile 20.2L. Includes 1711 acres irrigated by controlled drainage.
(j) Formerly listed at Mile 62.8L.
(k) Formerly listed as Edmund Seaman Estate.
(l) Formerly listed as Ornbaum, Nobles Land and Livestock Company.
(m) Includes 120 acres on Chesini Brothers land.
(n) Formerly listed as Walter Ettyl.
(o) Includes 214 acres on Winship lands.

TABLE 152

DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER - 1950
(Continued)

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 #70 DRAIN PLANT--	68.8L												
J. L. Browning	69.0R	1-24"				NO DIVERSION							
Faxon, Morton and P. Andreotti	69.2R	1-18"		38	140	175	147	24	28	89	641	214	
--EDDY'S FERRY SITE (GRIMES)--	69.45												
J. E. Hollenbeck	69.8R	1-4"				NO DIVERSION							
H. F. Daly	70.4L	1-10"		18	22	36	52	51	3	15	197	(a)140	
Hoffman, Beckley, Ritchie, Poundstone and Andreotti	70.4R	1-6" (b)1-20" 1-24"		16	115	112	84	66	15	6	414	98	
Meridian Farms Water Co.#4	71.1L	1-24"		876	1396	1454	1657	1663	691		7737	1903	461
A. B. Armstrong	71.9R	1-14"		37	99	198	296	152	92	8	882	440	
H. and A. Andreotti	72.1L	2-14"			9	365	452	498			1324	500	
C. T. Froh (c)	73.6R	1-10"				11	57				68	13	
Meridian Farms Water Co.#3	74.8L	(d)1-18"		212	718	1039	1035	1028	592		4624	758	
L. B. Westfall	75.3R	1-10"			22			23	32		77	62	
J. H. Yates Estate	76.1L	1-10"		107	4	160	226	334	164		(e)995	(f)115	70
Robert Chesney	76.15L	1-10"		139	276	173	49	16	1		(g)654	40	90
M. S. Davis and C. K. Anderson	76.2L	1-8"				32	16	6			54	(h)68	
Steidlmayer Brothers	76.5R	1-16"				NO DIVERSION							
J. J. Hankins (i)	77.9L	1-16"			291	136	164				591	294	
Sebia Davis Estate	78.2R	1-16"			386		140	139			665	208	
Sebia Davis Estate	78.75R	(j)2-12" 1-16"			256	230	259	93	14	3	855	480	
Sebia Davis Estate	78.8R	1-24"		1125	2199	2324	2418	2253	300		10619		(k)1444
C. E. Reische	79.0L	1-10"			121	57	86	60			324	(l)169	
Steidlmayer Brothers	79.0R	1-12"				112	116	40			268	80	
Mayfair Packing Company	79.3R	1-10"		38	16	36	39			9	(m)138	80	
J. J. Hankins (i)	79.5L	1-8"			20	3	20				43	39	
Steve M. Burtis and G. Wood	79.7L	1-10"			39	25	26	22			112	(n)116	
--MERIDIAN BRIDGE--	79.85												
Meridian Farms Water Co. #1 and #2	80.0L	1-20" 1-24"		2536	2564	3408	3266	3266	1480		16520	(o)3407	795
Roger C. Wilbur	80.3R	1-8"		86		64	56	65	11	11	293	77	
Wayne Hall and L. Burrows	81.5L	1-16"			1	2	22	1	43		69	67	
Wayne Hall	81.8L	1-16"				82	125	92	82		(p)381	163	
F. T. Reische and L. F. Wood	82.5L	1-12"			47	57	42	90		15	251	67	
Steidlmayer Brothers	83.0R	1-20"		664	557	368	550	290	511	238	(q)3178	850	
J. E. Clark	83.3L	1-14"				NO DIVERSION							
J. E. Clark	83.5L	1-10"			13	57	53	49	38		210	(r)115	
--BUTTE SLOUGH OUTFALL GATES--	84.0L												
Steidlmayer Brothers	85.6R	1-12"		158	71	1	88		2	1	321	130	
Clifford Reichel	85.8L	1-8"			27	28		34			89	27	
W. H. Halsey	86.1R	1-12"		39	96	135	94	46	81	36	527	224	
Lydell Peck	86.1L	1-8"		55	23	27	39			48	192	70	
Howell Davis	86.2R	1-18"		61	41	73	189	131	13		508	157	
Lloyd Scoggins	86.8L	1-8"		54		46	76				176	45	
Roger Wilbur	86.9R	1-10"	125	6	74	103	96	112	119	135	(s)770	(t)290	
Roger Wilbur	87.4R	1-10"		28	13	52	38	29	31		191	(u)	
Jacobsen and O'Rourke	87.6L	1-8"			12	1	27	11			51	(v)42	
Swinford Tract Irrigation Co.	87.7R	1-12"		48	88	53	60	73	9		331	136	

(a) Includes 40 acres of Rohleter lands.
(b) Operated 20" unit only in 1950.
(c) Formerly listed as E. B. Vann.
(d) 10" unit removed 1950.
(e) Furnished an undetermined amount of water to plant at Mile 76.15L.
(f) Includes 50 acres of Coffman and Moore lands.
(g) Received an undetermined amount of water from pump at Mile 76.1L.
(h) Includes 19 acres on Albertson lands.
(i) Formerly listed as Hankins Brothers.
(j) Operated 12" units only in 1950.
(k) Combined acreage this plant and one on Back Borrow Pit at Mile 31.5L.
(l) Includes 104 acres of Goddnow, Rockholt, Stass and Lemos lands.
(m) Additional acre-feet diverted: November 11.
(n) Includes 64 acres of Burtis lands and 52 acres of Wood lands.
(o) Includes 1063 acres irrigated from controlled drainage.
(p) Additional acre-feet diverted: February 1.
(q) Additional acre-feet diverted: January 14 for sheep.
(r) Includes 35 acres of Pearl Clark lands.
(s) Additional acre-feet diverted: November 18.
(t) Combined acreage this plant and one at Mile 87.4R.
(u) See plant at Mile 86.9R.
(v) Includes 2 acres of Locovitch lands.

TABLE 152

DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER - 1950
(Continued)

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
Frank and Thelma Azevedo (a)	88.0R	1-6"			6	7	7				20	18	
Nagel and Locovitch	88.2L	1-10"			13	41	39	18		31	(b)142	44	
Ross Wilbur (c)	88.4L	1-20"				NO DIVERSION							
Mayfair Packing Company	88.7L	1-14"		100	35	78	108			103	(d)424	116	
Colusa Irrigation Company	89.2R	1-20"		67	415	173	400	134	118		1307	382	
Grace S. Arnold	89.25L	1-8"			78	49	64				191	75	
Reclamation District #1004	89.25L	1-12" (e)1-18"			690	801	768	1059	318		(f)3636	1640	918
W. H. Halsey and M. Yerxa (g)	89.26L	1-12"			170		111				281	100	
WILKINS SLOUGH TO COLUSA													
Totals			125	41644	75080	69878	78645	72810	26654	5298	370134	39099	26757
Average cubic feet per second			2	700	1221	1174	1279	1184	448	86	762		
Monthly use in per cent of seasonal			0	11.3	20.3	18.9	21.2	19.7	7.2	1.4			
--COLUSA BRIDGE AND GAGING STATION 89.4													
Lillian and Hattie Boggs	89.7L	1-10"		30	114		1				145	59	
Roberts Ditch Company	90.7R	(h)1-18" 1-20"	20	417	665	749	857	627	403	159	(i)3897	1008	
I. G. Zumwalt	91.0R	1-6"			4		5			5	14	14	
Paul R. Westfall	91.1L	1-8"				10	7	4			21	19	
I. G. Zumwalt	91.6R	1-12"			84		60	23		73	240	104	
George P. Ahlf	92.5L	1-6" 1-10"				NO DIVERSION							
W. H. Halsey and M. Yerxa	93.0R	1-8"				17	15				32	32	
Paul R. Westfall	93.4L	1-10"		30	35	41	59	77	21		263	130	
Tuttle Land Company	94.3R	1-20"		61	140	164	187	136	215	52	955	(j)204	
Roger Wilbur	95.25L	1-12" 1-18"		15	168	282	194	77	191	243	(k)1170	630	
Erza N. Lewis (l)	95.6L	1-20"			254	682	1160	790	326		3212		400
Bridget Graham Ranch	95.8L	1-18"					58	24	7	10	99	30	
I. G. Zumwalt	96.8R	1-15"		58	89	187	173		22	179	708	378	
H. Heitman	97.7R	1-12"		8	140	109	167	103	120	43	690	126	
Frank N. Beckley	98.0L	1-10"			15	52	71				138	(m)80	
J. L. Erisey	98.3R	1-10"			14	62					76	55	
Otterson and Boggs	98.6L	1-15"				NO DIVERSION							
D. Boggs	98.8L	1-18"		17	18	18	103	46	20	13	235	80	
B. H. Mitchell Estate	99.0R	1-14"				NO DIVERSION							
J. E. Boggs	99.1L	1-10"		9	27	59	89				184	(n)139	
Hollis Sartain (o)	99.2L	1-20"				NO DIVERSION							
L. W. Seaver (p)	99.3R	1-10" 1-12"		102	269	342	234	100	94	94	1235	(q)404	
Dave George (r)	99.8L	1-16"			33	15	59	15			122	30	
St. Patrick Home Ranch	101.1R	1-20"		99	52	115	101	20	296	124	807	375	
Nettie, George and Ella Packer	102.8R	1-20"		224	230	114	563	289	447	251	(s)2118	(t)869	
Charles W. Welch	103.7R	1-16"		492	465	456	739	784	197		3133		(u)410
Charles W. Welch	103.8R	1-14"			110	7					117		(v)
C. W. Tuttle	103.9R	1-12" 1-18"		626	676	708	722	654	77		3463	140	400
I. G. Zumwalt	104.8L	1-12"		37	25	50	7			56	(w)175	90	
Lawrence Boyd	105.5L	1-10"			4			3			7	9	
Thousand Acre Ranch (H. W. Keller)	106.0R	1-14"		8	58	51	78				195	135	
Howell Davis	106.5R	1-16"		215	169		215				599	228	

(a) Formerly listed as E.K. Lange.
(b) Furnished an undetermined amount of water to plant at Mile 88.7L.
(c) Plant removed 1950.
(d) Received an undetermined amount of water from plant at Mile 88.2L. Additional acre-feet diverted: November 87.
(e) Operated the 18" unit only during 1950.
(f) Received an undetermined amount of water from plant on Butte Creek at Mile 4.3R.
(g) Formerly listed as G.A. Berkey.
(h) Replaced one of the 20" units formerly listed at this location.
(i) Additional acre-feet diverted: January 20.
(j) Includes 6 acres on W.H.Halsey and M.Yerxa lands.
(k) Additional acre-feet diverted: February 1, November 38 and December 2.
(l) Formerly listed as George W. Lewis.
(m) Includes 30 acres on O'Sullivan lands.
(n) Includes 20 acres of Hollis Sartain lands.
(o) Formerly listed as Terrill and Sartain.
(p) Formerly listed as L.W. Seavers.
(q) Includes 80 acres on Reimer lands and 24 acres of Middlecamp lands.
(r) Formerly listed as H.M. Forry.
(s) Additional acre-feet diverted: November 75 and December 72.
(t) Includes 200 acres of Gun Club.
(u) Combined acreage this plant and one at Mile 103.8R and one on Colusa Trough Mile 11.7L (0.3E).
(v) See plant at Mile 103.7R.
(w) An undetermined amount of water received from wells.

TABLE 152

DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER - 1950
(Continued)

	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
Princeton Ranch Company	110.0R	1-12"		4	188	83	140			54	469	182	
I. G. Zumwalt	110.7L	(a)1-12"		48	196	155	136				535	155	
Princeton Ranch Company	111.2R	1-6"			9	12					21	50	
--PRINCETON FERRY	112.0												
I. G. Zumwalt	112.05L	1-12"				32			32		64	65	
Reclamation District #1004	112.1L	2-30" 1-50"		4490	9566	8217	9317	7646	3524		42760	(b)2465	(b)5052
Princeton-Codora Glenn I.D.	112.4R	3-24"		2912	3696	3444	4188	3630	984		18854	(c)2636	(c)2845
I. G. Zumwalt	112.6L	1-10"			145		150		42	91	428	210	
Edward L. Steele Estate	115.5L	1-12"		16	13	15	21				65	32	
COLUSA TO BUTTE CITY Totals Average cubic feet per second Monthly use in per cent of seasonal			20 0	9918 167 11.4	17671 287 20.3	16248 273 18.6	19876 323 22.8	15048 244 17.2	7018 118 8.0	1447 24 1.7	87246 180	11163	9107
--BUTTE CITY GAGING STATION	115.8												
R. H. Gebicke	115.85L	1-14"			57	70	106	38			271	110	
W. F. Wright, Jr.	116.7R	(d)1-6"			51	56	26	41	31	3	(e)208	148	
Cronin Estate (f)	116.9L	1-16"		225	296	225	364	133	214	98	1555	130	
W. H. Stewart (g)	120.3R	1-10"				17	38				55	60	
Robert T. Millar	122.3R	1-10"			40	9	36	50			135	25	
Clarence Reed	123.7R	1-6"	1	6	14	14	11	1	30	3	(h)80	35	
Howard Leach	123.8R	1-4"			1	1					2	2	
Princeton-Codora Glenn I.D.	123.9R	3-24"		4088	5943	5326	6016	6224	4027	936	32560	(i)	(i)
Provident Irrigation District	124.2R	(j)2-24" 1-36" (k)2-42"		2515	3521	3186	3546	3953	782		(l,m)17503	(n)6473	(n)6086
J. Bartapelle (o)	124.3R	1-12"	22	181	442	118	252	74	166	57	(p)1312	425	
Joe Thomas (o)	125.1R	1-6"			5	4	4	7			20	23	
Duart Geise	129.35R	1-6"				8	44	30	14		96	90	
F. S. Reager	130.75R	1-8"		79	78	64	82	143	40		486	151	
--ORD FERRY	130.8												
Ed Cramer	131.22L	1-6"				NO DIVERSION							
E. S. Ballard	133.4L	1-6"				PLANT REMOVED							
E. S. Ballard	133.45L	(q)2-6"				44	48	111			203	(r)117	
E. S. Ballard (o)	133.5L	1-5"				49	64	128	32		273	(s)	
M.& T.Inc.& Parrott Inv.Co.	141.5L	1-20" 4-24"	19	333	655	1284	5934	6275	2963	381	17844	(t)2580	(t)2476
--OLD CHICO LANDING RAILROAD BRIDGE SITE	142.1												
J. O. Bentz (u)	143.8L	1-6"		7	13	16	32	19	7		94	43	
Leanard Horning (v)	146.1R	1-10"			26	13	47	65	34	15	(w)200	70	
Holly Sugar Corporation	148.9R	1-10"			10	54	68	157	123		412	56	
Wallace E.Ferrin & George A. Zundel	149.5L	1-12"		37	104	123	95	103	19		481	220	
J.A. & A.E. Lewis (o)	149.7L	1-14"					78	67	32	12	189	(x)210	
James A. Lewis	150.0L	1-10"		10	81	92	23	33	6		245	(y)	
V. G. Strain	150.8R	1-12" 1-16"	99	352	299	334	579	428	144	206	2441	585	

(a) Replaced 16" unit formerly listed at this location.
(b) Combined acreage this plant and plants on Butte Creek at Miles 11.8R and 14.4R.
(c) Includes 772 acres of duck club lands of which 567 is re-used rice lands. Includes 330 acres rice and 75 acre general crop lands outside district. Combine acreage for this plant and one at Mile 123.9R. Received an undetermined amount of water on 99 acres general crops from Glenn-Colusa I.D. plant at Mile 154.8R.
(d) Replaced 10" unit formerly listed at this location.
(e) Additional acre-feet diverted: February 8.
(f) Formerly listed as R.H. Gebicke.
(g) Installed prior to 1950, not previously listed.
(h) Additional acre-feet diverted: November 2.
(i) See plant at Mile 112.4R.
(j) Replaced two of the 42" units formerly listed at this location.
(k) No operation of 42" units in 1950.
(l) Additional acre-feet diverted: January 1905 and November 485.
(m) Furnished an undetermined amount of water to 860 acres of Glenn Colusa I.D. lands.
(n) Combined acreage this plant and one on Sacramento River at Mile 154.8R and plants on Colusa Trough at Miles 20.5R, 24.2R, 27.2R and Opp. 27.2R. Includes the following acreage that received an undetermined amount of water from Glenn Colusa I.D. plant on Sacramento River at Mile 154.8R; Rice 249, Clover 268 and Flooded lands 89. Includes 5000 acres duck club lands listed in general crops.
(o) New installation 1950.
(p) Additional acre-feet diverted; November 25.
(q) One 6" unit moved from Mile 133.4L to this location.
(r) Combined acreage this plant and one at Mile 133.5L.
(s) See plant at Mile 133.45L.
(t) Acreage segregated as follows: M. & T.Inc.,876 rice and 1312 general crops; Parrott Investment Co.,1600 rice and 1268 general crops.
(u) Formerly listed as Alameda Putney.
(v) Formerly listed as Lloyd & D.A. Hazelton.
(w) Additional acre-feet diverted: January 9 and November 2.
(x) Combined acreage this plant and one at Mile 150.0L.
(y) See plant at Mile 149.7L.

TABLE 152

DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER - 1950
(Continued)

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
A. Holecek	152.2R	1-6"		6	16	12	19	15	4		72	48	
W. M. Edwards & Son	152.4R	1-10"			11		15	9	4	5	44	(a)45	
R. E. Jessie	154.6R	1-5"					9	3			12	12	
G. G. Maas	154.7R	1-4"			3	4	3	2			12	9	
Jacinto Irrigation District (b)	154.75R	1-36" 1-48"		10237	8712	4741	5798	6212	10449	5979	(c)52128	9035	
Glenn-Colusa Irrigation District	*154.8R	2-30" 1-42" 2-50" (d)1-54" 2-66" 4-72" 1-108"		60497	113389	109029	120096	107604	56218	32825	(e,f)599658	(g)28566	(g)32021
Compton-Delevan I. D.	*154.8R	*		2430	4540	3240	2430	2430	810	320	16200		2158
Provident I. D.	*154.8R	*		218	520	560	615	615			2528	(h)	(h)
Princeton-Codora Glenn I.D.	*154.8R	*				NO DIVERSION							
Maxwell I. D.	*154.8R	*			820	435	435	435	290		2415		(i)344
J. Ewert	155.6R	1-2½"				1	1	1	1		4	3	
R. Pheiffer	155.7R	1-2½"	1	4	6	5	8	7	5	2	38	7	
F. Williams	156.0R	(j)1-6"		8	7	8	6	13	9	4	55	14	
O. L. Shearman	156.8R	1-2½"		1	1	1	1	1	1	1	7	4	
Henry Bear (k)	158.8R	1-10"		9	13	3	11				36	(a) 65	
Jonathan Garst	161.7L	(l)1-8"			40	158	122	115	54		489	160	
--CORNING-VINA BRIDGE--	166.5												
E. L. Dietz	166.7R	1-3"			4	1	5	1	3	1	15	6	
Russell L. Deckman (m)	166.8R	1-2"		1	1	1	1	1	1	1	7	9	
Ernest Peterson	166.9R	1-6"		1	16	14	14	7	1	3	56	69	
--TEHAMA BRIDGE--	177.5												
Los Molinas Mutual Water Co.(n)	187.6L	1-12"				163	312	107	184		766	(a)855	
Henry Tieden (o)	188.5L	1-1½"					18	12	3	1	34	10	
Henry Tieden	188.6L	1-8"		1	3	4	4	1			13	14	
--RED BLUFF BRIDGE--	193.45												
Dave Singletary	196.5L	1-2½"				NO DIVERSION							
S. & E. Erickson	196.6L	1-5"		13	11	22	25	18	11		100	33	
S. J. Williams (o)	197.0L	1-8"		15	14	30	20	16	33	21	149	25	
BUTTE CITY TO RED BLUFF Totals Average cubic feet per second Monthly use in per cent of seasonal			142 2 0	81274 1366 10.8	139763 2273 18.6	129539 2177 17.2	147461 2398 19.6	135705 2207 18.1	76745 1290 10.2	40874 665 5.5	751503 1546	50542	43085
--RED BLUFF GAGING STATION-- (IRON CANYON)	198.6												
--BEND FERRY BRIDGE--	207.0												
C. C. Budd (J.E.Breeden)	208.75L	1-8"		2	1	14	15	13			45	90	
Emil E. Johnson	209.0L	1-3"			6	3	15	21	7		52	10	
Table Mountain Gun Club (o)	210.0R	1-2½"					1	11	9	2	(p)23	(q)15	
J. F. Nunes	213.0R	1-7"						8	42	14	64	20	

* This is a common point of diversion for Glenn-Colusa, Compton-Delevan, Provident, Princeton-Codora-Glenn and Maxwell I.D. See Glenn-Colusa I.D. plant at Mile 154.8R.
(a) An undetermined amount of water received from wells.
(b) Installation in 1950 at old point of diversion.
(c) An undetermined amount of water exchanged between this plant and Glenn-Colusa I.D. plant at Mile 154.8R.
(d) New 54" unit installed in 1950.
(e) Additional acre-feet diverted: November 11841. Diverted by gravity from Stony Creek in acre-feet: April 8300, May 791, October 69 and November 341. Furnished an undetermined amount of water to 99 acres general crops on lands of the Princeton-Codora-Glenn I.D. and 606 acres on lands of Provident I.D.
(f) An undetermined amount of water exchanged between this plant and Jacinto I.D. plant on Sacramento River at Mile 154.75R. Furnished an undetermined amount of water to plant on Back Borrow Pit at Mile 26.4R.
(g) Includes the following acreages outside the district: Rice 710, duck clubs 450, Sudan 165, Alfalfa 45 and Clover 15. Includes 860 acres which received an undetermined amount of water from Provident I.D. plants on Sacramento River at Mile 124.2R.
(h) See plant at Mile 124.2R.
(i) An undetermined amount of water received from controlled drainage.
(j) Formerly listed as an 8" unit.
(k) Installed in 1949, not previously listed.
(l) Previously listed as 12" unit.
(m) Formerly listed as G.C. Kelber.
(n) Formerly listed as Coneland Water Company.
(o) New installation in 1950.
(p) Additional acre-feet diverted: November 2.
(q) All gun club lands.

TABLE 152

DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER - 1950
(Continued)

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
F. L. Jelly	213.5L	1-3"			1	3	4	2	1		11	15	
J. F. Nunes	216.0R	1-3"		3	22	20	25	58	36	19	183	25	
W.A. Hunaeus	216.4L	1-3"					15	9	10		34	10	
Haakonson Brothers	217.5L	1-3½"		3	2	29	32				66	57	
J. L. Haskins	217.9L	1-6"		19	15	66	7	60	75	24	266	(a)62	
J. L. Haskins.	218.0L	1-5"				6	5				11	(b)	
Rio Alto Rancho	221.0R	1-10"				NO DIVERSION							
--BATTLE CREEK NEAR COTTONWOOD--	221.5L												
--COTTONWOOD CREEK NEAR COTTONWOOD--	222.2R												
--BALLS FERRY BRIDGE--	224.5												
--ANDERSON BRIDGE--	232.9												
William Menzel Co.,Inc.(c)	240.2L	1-12"		36	128	61	201	164	175	52	817	149	
W. A. and Lucy Keagy	240.4L	1-4"			3	1	4	3	1		12	7	
Anderson-Cottonwood I. D.	240.5L	(d)4-16"		2029	3021	3238	3646	3554	2502	1340	19330	(e)18610	
--GAGING STATION NEAR REDDING--	240.7												
--REDDING-ALTURAS FREE BRIDGE--	242.0												
--REDDING-YREKA BRIDGE--	245.9												
--SOUTHERN PACIFIC RAILROAD CROSSING--	246.25												
Anderson-Cottonwood I. D.	246.0R	Gravity		16042	24815	25030	24621	24743	22403	18485	156139	(f)	
I. and M. Diestelhorst.	246.3R	1-8"			14	4	50	52	12	3	135	17	
--OLD REDDING-YREKA BRIDGE--	246.4												
City of Redding	246.7R	3-8"	166	257	424	464	623	552	386	204	(g)3076	Municipal	
--GAGING STATION AT KESWICK--	250.5												
--RED BLUFF TO REDDING													
Totals			166	18391	28452	28939	29264	29250	25659	20143	180264	19087	0
Average cubic feet per second			3	309	463	486	476	476	431	328	371		
Monthly use in per cent of seasonal			.1	10.2	15.8	16.1	16.2	16.2	14.2	11.2			
SACRAMENTO TO REDDING													
Totals			3072	187703	336767	321253	365503	333194	172902	73766	1794160	152817	108479
Average cubic feet per second			50	3154	5477	5399	5944	5419	2906	1200	3692		
Monthly use in per cent of seasonal			.2	10.4	18.8	17.9	20.4	18.6	9.6	4.1			

(a) Combined acreage this plant and one at Mile 218.0L.
(b) See plant at Mile 217.9L.
(c) Formerly listed as Menzel Estate.
(d) One 16" unit installed in 1950.
(e) Combined acreage this plant and gravity diversion at Mile 246.0R.
(f) See plant at Mile 240.5L.
(g) Additional acre-feet diverted: January 184, Feburary 155, November 161 and December 156.

2600 1800 1560 2400

TABLE 153

DIVERSIONS AND ACREAGES IRRIGATED - COLUSA TROUGH* - 1950

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
--COLUSA-WILLIAMS HIGHWAY GAGING STATION--	0.0												
I. G. Zumwalt	2.2L	4-20"		1233	2569	1618	2038	2289	363	1005	11115	(a)3650	(b)650
F. Buffum and L. W. Seavers	3.0L	2-16"	187	431	495	432	640	464	410	327	(c)3386	555	
Lloyd W.Seavers & F.J.Byington	4.5L	3-16"		416	1153	921	1352	2215	296		(d)6353	32	640
Coffman and Camel	5.6L	1-16"		150	478	433	531	356	6		1954		229
Watt Brothers (e)	6.4R	1-12"		92	158	115	166	209	45		785		104
S. Ash	8.0L	1-16"		356	565	525	653	810	72		2981		(f)366
Charles Welch	8.0R	1-15" 1-16"				NO DIVERSION							
El Dorado Sportsmans Club	9.5R	1-15"		24	795	811	752	977	351		(g)3710	40	(h)180
I. G. Zumwalt	9.75L	1-24"		621	440	475	622	780	132		3070		300
Lloyd Kahn	10.5L	(i)2-16"		411	93	717	426	490	6		2143	(h)15	236
Charles Welch	(j)11.7L(0.3E)	1-12"		307	328	192	468	538	81		1914	(k)	(k)
Charles Welch	(l)11.7R(0.8W)	1-14" 1-16" 2-20"		1689	1714	1462	1795	2242	378		(m)9280	480	1360
Del Valley Farms Company	12.1R	1-10"								49	49	(h)25	
Lynn and Bohne (n)	12.58L(0.9E)	1-10" 1-12"		436	243	212	419	375	24		1709		280
Lynn and Bohne (e)	12.59R	1-10"		2	101	92	183	103	54		(o)535		47
Helphstine Rice Lands (p)	12.69L	1-16"		137	225	135	417	476	132		1522		140
E.Butler, E.Meyer and J.Jones	12.7L	1-14"			410	316	456	405	110		(q)1697	62	(r)118
Manuel Barrett	16.6R	1-12"				NO DIVERSION							
--LATERAL HIGHWAY BUTTE CITY TO WEST SIDE --	20.5												
Provident Irrigation District (Willow Creek Plant)	(s)20.5R	1-24" (t)1-36"		152		53	30				235	(u)	(u)
Walter McGowan	(s)Opp.21.4R	2-16"		380	540	458	588	656	140		2762		250
Joe Navarro	22.0R	1-18"		42	52	38	47	38	20	35	272	74	
Provident Irrigation District (Drain #55)	(v)Opp.24.2R	Gravity		802	3278	4910	5360	5360	4812	2278	(w)26800	(u)	(u)
J. Azevedo (x)	(y)27.1L(1.0E)	1-12" 1-14"	5	262	524	476	501	495	115		2378		250
Provident Irrigation Co. (Colusa Drain) (e)	(y)27.2R(1.0E)	1-20" 1-24"		2244	3527	3148	3488	2879	1417	58	16761	(u)	(u)
Provident Irrigation District (Drain #13)	Opp.27.2R	1-20" 1-24"		822	1511	856	796	1814	797	44	(z)6640	(u)	(u)
Totals			192	11009	19199	18395	21728	23971	9761	3796	108051	4933	5150
Average cubic feet per second			3	185	312	309	353	390	164	62	222		
Monthly use in per cent of seasonal			0.2	10.2	17.8	17.0	20.1	22.2	9.0	3.5			

* Main Drain of Reclamation District #2047.
** Mileage along Colusa Trough above Colusa-Williams Highway.
(a) 130 acres re-used for duck club lands.
(b) Includes 300 acres of Fletcher lands and 110 acres of Bower lands.
(c) Additional water diverted: January 6, November 7 and December 2.
(d) Additional acre-feet diverted: November 41.
(e) New installation 1950.
(f) An undetermined amount of water received from wells.
(g) Additional acre-feet diverted: January 18 and November 145.
(h) All duck club lands.
(i) Formerly listed as 2-20" units.
(j) Formerly listed as 11.7L.
(k) See plant on Sacramento River Mile 103.7R.
(l) Formerly listed as 11.7R.
(m) Additional acre-feet diverted: November 363.
(n) Installed 1949, not previously listed.
(o) Additional acre-feet diverted: December 195.
(p) Formerly listed as R.T. and W. Dillard and Mr. Helpstine.
(q) Additional acre-feet diverted: December 70.
(r) An undetermined amount of water received from Princeton Codora Glenn Irrigation District.
(s) Plant is on Willow Creek S.W. corner Section 33 T. 19 N R 2 W.
(t) Listed as 26" unit in 1949 report.
(u) See plant, Sacramento River, Mile 124.2R.
(v) Works on Drain #55 and are in SW¼ NW¼ Section 86, Glenn Ranch Survey.
(w) Additional acre-feet diverted: November 1100 and December 600.
(x) Installed prior to 1950, not previously listed.
(y) Works on Drain #13 and are in SW¼ SW¼ Section 51, Glenn Ranch Survey.
(z) Additional acre-feet diverted: November 33, and by gravity November 700 and December 500.

TABLE 154

DIVERSIONS AND ACREAGES IRRIGATED - BACK BORROW PIT* - 1950

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
E. E. Nuttal (a)	0.2L	1-6"			14	28	16				58	20	
River Farms Company	0.3L	1-10" 1-20"		506							506	(b)	(b)
--KNIGHTS LANDING RIDGE CUT JUNCTION--	0.4R												
John J. Anderson	1.45R	(c)2-16"			183	30		60			273	215	
B.C. and T.D.Tolson (d)	3.4R	1-16"		317	552	316	487	540	349		2561		(e)325 (f)
John C. Cooling	3.8R	1-16"			197		252	53			502	300	
W. Crawford	4.35R	1-20"				NO DIVERSION							
Cornelia Walker(Heidrick Bros.)	7.2R	1-8" 2-16"				NO DIVERSION							
George E. Youngmark	8.8R	1-14" 1-16"		484	1004	414	622	674	91		3289		(g)390
Hershey Estate	11.15R	1-14" 1-16"		899	2301	1045	1660	1855	403		(h)8163		852
Hershey Estate	13.75R	1-16"				NO DIVERSION							
C. M. Mumma	14.75R	1-10"				NO DIVERSION							
--COUNTY LINE BRIDGE--	15.25												
M. T. Emmert	15.75R	1-12"				NO DIVERSION							
Kate West(H.B.West and Son)	18.1R	1-15" (i)1-20"			187						187	343	
William West	20.0R	1-15"				NO DIVERSION							
--RECLAMATION DISTRICT 108 GRAVITY DRAIN--	20.2L												
Reclamation District 108	20.2L	1-16" 1-24" 1-30"		1376							1376	(j)	(j)
B.W.Whitmire & D.S.Adams (k)	21.35R	(l)2-16"		660	674	325	496	599	76	103	2933		(m)320
Bean and Brandenburg	22.15R	1-12"		134	390	262	359	413	180		1738	66	226
Aileen B.Armstrong	22.65L	1-16" 1-20"		1069	1530	1137	1691	2058	558		8043		575
--GAGING STATION NEAR COLLEGE CITY--	22.7												
Aileen Browning Armstrong (n)(.10W)	22.75R	1-16"		93	302	188	262	309	114		1268		110
--SOUTHERN PACIFIC RAILROAD CROSSING--	23.0												
H. H. Balsdon	24.6L	2-16" 1-20"		880	1332	877	1512	1809	457	10	6877	(o)703	778
Yates, Traynham, Balsdon	24.61R	2-16"									(p)	265	
A.M. Dobrosky & Henry Olin	24.7L	1-12"				NO DIVERSION							
Alya King (q)	25.1R	1-10"		56	278	206	173	107	125		945		100
Gertrude M. Sherer (Mrs.)	25.3L	1-16"			16		15	19			50	45	
Gertrude M. Sherer (Mrs.)	25.5R	1-10"			5	2	4	5			16	40	
--GRIMES-COLLEGE CITY CAUSEWAY (SOUTH LINE OF R.D. 2047)--	25.5												
Fred Schutz	25.9L	1-16" 1-20"		1128	1846	1163	1697	2000	402		8236	(r)245	800
Roy E. Kittz (a)	26.4R	1-18"			76	190	197	197	64		724		(s)164
C.W. & M.E. Struckmeyer	27.25L	(t)1-16" 1-20"			244	126	286	312	12	18	998	435	
William P. Wallace Ranch	28.0R	1-12" 1-14" 1-16"				NO DIVERSION							

* 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 Gates just above junction of Borrow Pit with Sacramento River at Knights Landing.
(a) New installation 1950.
(b) See plant Sacramento River Mile 34.5R.
(c) Operated one 16" unit only in 1950.
(d) Formerly listed as Earl L. Wallace and Cecil Hulse.
(e) An undetermined amount of water received from wells.
(f) Includes 75 acres of Taylor lands.
(g) Includes 40 acres of Hermle lands, 40 acres of Hershey lands and 120 acres of Morris lands.
(h) Additional acre-feet diverted: January 23.
(i) Operated 20" unit only in 1950.
(j) See plant Sacramento River, Mile 63.2R.
(k) Formerly listed as Gregory Estate.
(l) Replaces 15" unit formerly listed at this location.
(m) Includes 93 acres of George Knox Estate lands.
(n) Formerly listed as Herman Kalfsbeek.
(o) Includes 80 acres of Olin lands and 60 acres of Dorbrosky lands.
(p) Additional acre-feet diverted: January 16 and November 31.
(q) Formerly listed as Fred Kleeman.
(r) Includes 107 acres of Greive lands and 53 acres of Christian lands.
(s) An undetermined amount of water received from wells and from Glenn Colusa Irrigation District Plant on Sacramento River at Mile 154.8R.
(t) Operated 16" unit only in 1950.

TABLE 154

DIVERSIONS AND ACREAGES IRRIGATED - BACK BORROW PIT* - 1950
(Continued)

	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
--WALLACE CROSSING (OLD MERIDIAN-WILLIAMS BRIDGE)--	29.2												
Sebia Davis Estate	29.8R	1-16"				NO DIVERSION							
A. Davis Estate	31.5L	1-24"		142	355						497		(a)
A. Davis Estate	32.1R	(b)1-18"				NO DIVERSION							
Federal Fish & Wild Life	32.6R	1-16"		178	616	291	456	595	434	743	3313	(c)500	150
J. G. Olvey	32.7L	1-14"		106	401	249	409	405	138		1708		(d)120
Andrew Arata & Fred Wilkins	33.5L	1-16" (e)1-18"		4	710	386	601	651	350		(f)2702		(g)295
Federal Fish & Wildlife	36.65R	1-15" 1-20"			795	590	909	992	1057	669	5012	50	(c)520
Federal Fish & Wildlife Service	37.0L	1-15"		18	542	283	382	509	443	246	2423		(c)200
--COLUSA-WILLIAMS HIGHWAY GAGING STATION--	37.0												
Totals			0	8050	14550	8108	12486	14162	5253	1789	64398	3227	5925
Average cubic feet per second			0	135	237	136	203	230	88	29	132		
Monthly use in per cent of seasonal			0	12.5	22.6	12.6	19.4	22.0	8.2	2.8			

* 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 Gates just above junction of Borrow Pit with Sacramento River at Knights Landing.
(a) See plant on Sacramento River at Mile 78.8R.
(b) One 18" unit removed in 1950.
(c) All duck refuge lands.
(d) Includes 10 acres of Davis lands at Mile 32.1R.
(e) Replaces 12" unit formerly listed at this location.
(f) Additional acre-feet diverted: November 4.
(g) This acreage re-used duck club lands.

TABLE 155

DIVERSIONS AND ACREAGES IRRIGATED - KNIGHTS LANDING RIDGE CUT - 1950

	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
E. L. Wallace	0.8R	1-16" 1-20"		1713	1823	2029	1433	1650	604		9252	330	500
M. R. Richardson	0.82L	1-14"				NO DIVERSION							
Ralph W. Pollock	3.5L	(a)1-12"				90	137	142	31		400	110	
--RECLAMATION DISTRICT 730 DRAIN PLANT #2--	3.8												
Ralph W. Pollock	4.55L	1-12"				NO DIVERSION							
Hershey Estate	4.7L	1-15"				NO DIVERSION							
Albert Bacchini (b)	4.7R	1-6"			16	9	5	3			33	20	
Layton D. Knaggs	5.25R	1-16"				NO DIVERSION							
Henry Rich	6.3R	Gravity		698	1969	1905	1969	1968	952		(c)9461	536	257
--WEST LEVEE YOLO BY-PASS--	6.3												
E. L. Wallace	6.3R	Gravity				NO DIVERSION							
Totals			0	2411	3808	4033	3544	3763	1587	0	19146	996	757
Average cubic feet per second			0	41	62	68	58	61	27	0	53		
Monthly use in per cent of seasonal			0	12.6	19.9	21.1	18.5	19.6	8.3	0			

* Mileage downstream from head on Back Borrow Pit near Knights Landing. Flow is principally Colusa Basin drainage diverted to the Ridge Cut by checking at the Knights Landing Outfall Gates on the Back Borrow Pit of Reclamation District 787. See Table 48
(a) Operation by gravity only.
(b) Formerly listed as John Sieber.
(c) Partially estimated from previous years use.

TABLE 156

DIVERSIONS AND ACREAGES IRRIGATED - YOLO BY-PASS (EAST BORROW PIT OR TULE CANAL) - 1950

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
T. S. Glide	**2.0S	1-20"				PLANT REMOVED							
Robert Swanston	**1.8S	1-16" (a)1-18"		353	540	475	456	462	507		2793		724
Robert Swanston	**1.1S	(a)1-18" 1-20"		109	683	577	460	484	369		2682		254
Robert Swanston	**0.7S	1-16"				NO DIVERSION							
Robert Swanston	**0.1S	1-16"				NO DIVERSION							
--NORTH LEVEE SACRAMENTO BY-PASS RECORDING GAGE--	0.0												
Robert Swanston	**1.8N	2-20"				NO DIVERSION							
Ensher, Alexander, & Barsoom	2.4N	1-20"		459	629	539	350	250	11		2238	(b)650	
Ensher, Alexander, & Barsoom	3.4N	1-8"				PLANT REMOVED							
Ralph Aitken	5.9N	1-12"				PLANT REMOVED							
--SACRAMENTO-WOODLAND HIGHWAY--	6.18												
--SACRAMENTO-WOODLAND RAILROAD CROSSING--	6.2												
--CACHE CREEK--	7.0N												
Frank Newman	**7.0N	1-16"				NO DIVERSION							
--RECLAMATION DISTRICT 1600 DRAINAGE PLANT--	10.0												
Fisher and Rich	10.0N	1-14" (c)1-16"		407	440	586	361	408	193		2395		190
--KNIGHTS LANDING RIDGE CUT--	10.1R												
Henry Rich	10.3N	2-12"				NO DIVERSION							
Totals			0	1328	2292	2177	1627	1604	1080	0	10108	650	1168
Average cubic feet per second			0	22	37	37	26	26	18	0	21		
Monthly use in per cent of seasonal			0	13.1	22.7	21.5	16.1	15.9	10.7	0			

* Mileage is given northerly or southerly from North Levee of Sacramento By-Pass. Diversions from East Borrow Pit of Yolo By-Pass are primarily from water diverted through Knights Landing Ridge Cut. See Table

** Asterisk indicates that land irrigated is within By-Pass area.

(a) The 18" unit installed in 1950.

(b) An undetermined amount of water received from wells.

(c) The 16" unit installed in 1950.

TABLE 157

DIVERSIONS AND ACREAGES IRRIGATED - DELTA UPLANDS FROM CACHE SLOUGH - 1950

Water User	Location	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 #2068	SW¼ NE¼ Sec. 34 T6N, R1E.	2-30" 1-36"	1482	6491	8373	7409	7460	7206	5222	1508	(a)45151	8967	200
Totals			1482	6491	8373	7409	7460	7206	5222	1508	45151	8967	200
Average cubic feet per second			24	109	136	125	121	117	88	25	93		
Monthly use in per cent of seasonal			3.3	14.4	18.5	16.4	16.5	16.0	11.6	3.3			

(a) Additional acre-feet diverted: February 204.

TABLE 158

DIVERSIONS AND ACREAGES IRRIGATED - LOWER BUTTE CREEK AND BUTTE SLOUGH - 1950

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
					Lower Butte Creek								
--SACRAMENTO RIVER JUNCTION--	0.0												
--BUTTE SLOUGH	0.1												
Reclamation District #833	3.3L	(a)1-16"			118	398	774	554			1844	640	
West Butte Farms Company	4.25L	1-18"		148	344	217	535	529	125		1898	410	190
Reclamation District #1004	4.3R	1-20" (b)1-24"		245	1495	746	1959	1861	238		6544	(c)	(c)
Butte Lodge Outing Club	4.4R	1-22"				PLANT REMOVED							
El Anzar Duck Club	5.7L	1-12"			58		32	31			121	115	
Field and Tule	(d)7.5L	(e)1-8" 1-16"		93	553	399	754	622	242		2663		325
Butte Basin Gun Clubs	11.7L	Gravity							2200	3900	(f)6100	(g,h)4000	
Reclamation District #1004	11.8R	Gravity		800	1800	2700	3081	2600	2184		(i)13165	(j)	(j)
White Mallard Duck Club	11.8R	Gravity					59	15			(k)74	(l)155	
White Mallard Duck Club	11.8R	1-12" 1-16"		176	173	124	401	395	87		1356		(m)125
Reclamation District #1004	14.4R	Gravity		800	900						1700	(j)	(j)
Murdock Land Company	(n)14.4R	1-14"			28		35	30	35	36	164	80	
--GRIDLEY ROAD--	15.4												
Murdock Land Company	19.3R	1-14" (e)1-16"		98	88	31	236	94	75	86	708	125	
--BIGGS-AFTON ROAD--	19.4												
Glenn Rice Farms	20.7R	1-18"			212	41	49	216	38	146	(o)702	238	
McGowan Brothers (p)	20.9R	1-16"		33	373	142	337	373	194		1452		120
McGowan Brothers (p)	21.0R	(q)1-20"			1077	558	1345	568	556		4104		300
R. H. Hulen Estate (r)	21.4R	1-16"		352	450	290	472	463	136		2163		177
--RICHVALE BUTTE CITY ROAD--	22.5												
McGowan Brothers (s)	23.0R	(t)1-16"		73	605	353	582	650	345		2608		300
						Butte Slough							
Butte Slough Irrigation Co.	0.3W	Gravity									(u)	(v)	(v)
M. Marty	0.3W	1-12"			155	51	103	177	65	77	628	255	
George Smith	0.9E	1-7"					123	59			192	(w,x)251	
George Smith	1.4E	1-8"				69	116	78			263	(y)	
--MAWSON BRIDGE--	2.1												
C. W. Rawley	2.5W	1-14"		1	110	32	85	143	102		473	185	
J. E. Smith	3.0W	1-10"				50	170	77	58		355	121	
Pearl Clark and Alice Brewer	3.5W	1-10"			28	34	23	24	33	2	144	85	
P. A. Reische	3.7W	1-10"			11	14	4				29	(z,aa)199	
Granniman and Fieth (bb)	4.08W	1-6"		1		1	1	1			4	3	
P. A. Reische	4.1W	1-10"			31	86	95	51	28		291	(cc)	
W. J. Hankins (dd)	4.8W	1-10"			14	111	22	74	9		230	120	
P. B. Hensen (ee)	5.1W	1-12"		20	121	102	98	91	40	6	478	(ff)213	
Totals (Lower Butte Creek and Butte Slough			0	2840	8744	6559	11491	9776	6790	4253	50453	7195	1537
Average cubic feet per second			0	48	142	110	187	159	114	69	104		
Monthly use in per cent of seasonal			0	5.6	17.3	13.0	22.8	19.4	13.5	8.4			

* Approximate mileage from junction with Sacramento River.
(a) Removed one 36" unit in 1950.
(b) Operated 24" only in 1950.
(c) See plant Sacramento River, Mile 89.25L.
(d) Formerly listed as 8.2L.
(e) This unit added in 1950.
(f) Additional acre-feet diverted: November 3500 & December 3500.
(g) All Gun Club lands.
(h) Partially estimated from previous years.
(i) Additional acre-feet diverted: November 600 and December 600.
(j) See plant Sacramento River, Mile 112.1L.
(k) Additional acre-feet diverted: November 30.
(l) Includes 50 acres of gun club lands.
(m) Re-used for gun clubs.
(n) Formerly listed as 14.4L.
(o) Additional acre-feet diverted: December 49.
(p) Formerly listed as H.W. McGowan.
(q) 16" unit removed in 1950.
(r) Formerly listed as A.H. Hulen.
(s) Formerly listed as McGowan Ranch.
(t) One 16" unit removed in 1950.
(u) Flow in Butte Slough, derived from Butte Creek, is controlled by Outfall Gates at its junction with Sacramento River and is thereby retained in Butte Slough to discharge into East and West Borrow Pits of Sutter By-Pass near "Long Bridge". The Outfall Gates are maintained by the Division of Water Resources and are cooperatively operated with the Butte Slough Irrigation Company. See Sutter By-Pass Diversions, Table 159.
(v) See acreages under rediversion--West Borrow Pit Sutter By-Pass. A considerable additional but undetermined amount of acreage was served by subirrigation 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
(w) Combined acreage for plants at this mile and Mile 1.4E.
(x) Includes 7 acres on Browning lands.
(y) See plant at Mile .9E.
(z) Combined acreage for plants at this mile and Mile 4.1W.
(aa) Includes 74 acres on C.P. Reische lands.
(bb) Formerly listed as Granniman and Feiths.
(cc) See plant at Mile 3.7W.
(dd) Formerly listed as E.V. Jacobs Estate.
(ee) Formerly listed as P.B. Hensen and Hankins.
(ff) Includes 25 acres on Jacob Lovovitch lands.

TABLE 159

DIVERSIONS AND ACREAGES IRRIGATED - SUTTER BY-PASS AND SACRAMENTO SLOUGH - 1950

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)			West Borrow Pit of Sutter By-Pass									
--SOUTHERN PACIFIC RAILROAD CROSSING--	2.5												
C. Fred Holmes	8.0R	1-18"				NO DIVERSION							
--KNIGHTS LANDING-MARYSVILLE CAUSEWAY--	12.7												
Sutter Basin Corp., Ltd.	(b)18.5R	1-18"			357		644	595	596		2192	292	
--SOUTH LEVEE TISDALE BY-PASS--	18.9												
--RECLAMATION DISTRICT 1660 GRAVITY--	19.3												
G. Guisti and Sons (c)	23.7R	1-24"			314	902	1084	1078	1109	7	4494	(d)1423	
Butte Slough Irrigation Co.,Ltd.	25.0R	Gravity		517	607	549	461	450	259		2843	(e)4712	
Butte Slough Irrigation Co.,Ltd.	28.4R	Gravity		1131	987	1177	1666	1639	890		7490	(f)	
Fred Tarke	28.6R	1-12"				64		6	14		84	53	
Frye Brothers	29.0R	1-7"			17	12					29	23	
--NEW COLUSA-MARYSVILLE HIGHWAY--	29.1												
--NORTHERN ELECTRIC RAILROAD CROSSING--	29.15												
Fred Tarke (g)	29.2R	1-10"				9	60	1			70	32	
	(h)			East Borrow Pit of Sutter By-Pass									
R. E. Hughes #8	(i)*0.9S	2-16"		234	572	349	355	307	250		2067		225
R. E. Hughes #7	*0.5N	1-16"			142	113	264	89	101		709	230	
Cliff P. Childers	(j)(0.3)	1-16"		155	738	623	688	667	311		3182		261
Cliff P. Childers	(j)(1.3)	1-16"				NO DIVERSION							
E. H. Christensen and Sons	(j)(1.3)	1-16"		238	373	383	395	451	335		2175		320
E. H. Christensen and Sons	(j)(1.75)	1-16"				NO DIVERSION							
E. H. Christensen	(j)(3.3)	1-16"			2	175	557	401	259		1394	316	
E. H. Christensen	(j)(3.3)	1-12"				NO DIVERSION							
E. H. Christensen	(j)(4.0)	1-18"		356	582	623	685	699	640		3585		320
R. E. Hughes #6	*1.5N	1-14"			66			51			117	210	
R. E. Hughes #5	*2.9N	1-14"			118	211	237	220	112		898	(k)620	
R. E. Hughes #4	*4.0N	1-14"			237	266	326	277	66		1172	(l)	
R. E. Hughes #3	*4.5N	1-14"			505	422	507	443	259		2136		175
Ira Mulligan	*4.7N	1-16"			683	429	594	449	386		2541		(m)247
R. J. Hughes #2 (n)	*5.9N	1-14"			265	328	720	231			1544	383	
O. O. Orrick	*7.1N	1-16" (o)1-16"		77	1578	1038	1269	1077	644		5683		412
Ira Mulligan	7.1N	1-16"		227	252	518	988	493	338		2816	200	118
R. E. Hughes	*8.0N	1-6"				NO DIVERSION							
Crepps and Middleton	*8.4N	1-12" 1-16"				NO DIVERSION							
--RECLAMATION BOARD DRAINAGE PLANT #2--	10.0N												
Crepps and Middleton	10.0N	1-18"				PLANT REMOVED							
Crepps and Middleton	*10.0N	1-15"				80	141	30	1		252	230	
Crepps and Middleton (p)	*10.0N	1-16"						143	453	102	(q)698	(r)740	
Crepps and Middleton (g)	(s)(0.5)	1-12"			307	52	172	175	158		864		69
Dettling Brothers (t)	(s)(0.9)	1-20"		345	1229	1229	1271	1270	427		5771		464
Bridge Investment Company (u)	(s)(2.6)	(v)1-16" 1-20"			38						38	4	
Bridge Investment Company (u)	(s)(2.65)	1-14" 1-20"		197	540	241	205	214	267	381	2045	282	
Bridge Investment Company (u)	(s)(3.0)	1-12"			91	60	82	60	48		341	111	

* Asterisk indicates area irrigated is within By-Pass area.
(a) Mileages of West Borrow Pit are given northerly from drainage plant of Reclamation District 1500. Mile 9.15 West Borrow Pit is opposite Chandler.
(b) Listed as Mile 8.5R in 1949.
(c) Formerly listed as G. Guisti.
(d) Includes 17 acres of Ugo Serieri lands, also 697 acres flooded after cropped for cover crop.
(e) Combined acreage for plants at this mile and Mile 28.4R.
(f) See plant at Mile 25.0R.
(g) New Installation 1950.
(h) Mileage of East Borrow Pit are given northerly or southerly from Chandler.
(i) Listed as 0.9S in 1949 report.
(j) Plant is on drain canal that joins East Borrow Pit at Mile 1.4N. Figure in () indicates miles along drain from By-Pass.
(k) Combine acreage this plant and one at Mile 4.0N.
(l) See plant at Mile 2.9N.
(m) Includes 160 acres of Ham and Johnson lands.
(n) Formerly listed as R.E. Hughes #2.
(o) Replaces 6" unit formerly listed at this location.
(p) Formerly listed as Martin Gun Club.
(q) Additional acre-feet diverted: November 33.
(r) All Gun Club lands.
(s) Plant is on main drain of Plant #2 of East Borrow Pit-Sutter By-Pass that joins East Borrow Pit at Mile 10.0N. Figure in () is distance along drain from East Borrow Pit.
(t) Installed 1949, not previously listed.
(u) Installed prior to 1950, not previously listed.
(v) Operated 16" unit only in 1950.

TABLE 159

DIVERSIONS AND ACREAGES IRRIGATED - SUTTER BY-PASS AND SACRAMENTO SLOUGH - 1950
(Continued)

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)		East Borrow Pit of Sutter By-Pass (Continued)										
Sutter Home Investment Co. (b)	*11.5N	1-15"				20	246	258	172		696	(c)270	
Sutter Home Investment Co.	*12.0N	(d)1-15"					115	127			242	(e)	
Federal Fish & Wildlife Service	*16.3N	1-20"		629	1149	1135	1486	1117	1027	141	6684	470	(f)390
Fred S. Betty	(g)(1.0R)	1-10"		102	23	91	75	90	43		424	80	
F. H. Ziegenmeyer	(g)(1.35R)	1-12"				PLANT REMOVED							
H. T. Brown (h)	(g)(1.35R)	1-12"			222	248	206	310	277		(i)1263		70
A. H. Muns	(g)(1.36R)	1-12"		298	262	422	128	139	5		1254	(j)7	(j,k)187
Vesper Kellogg (h)	(g)(1.5L)	1-14"			376	374	397	374	287		1808		(l)106
Epperson, Kennedy & Joaquin (m)	(g)(2.5R)	(n)2-10" 1-14"		382	744	878	1192	1136	720		5052		265
Youill Joaquin	(g)(3.0L)	(o)1-14"			297	225	216	248	154		(p)1140		97
Gilbert Williamson	(g)(3.6R)	(q)1-16"		77	43	98	99	102	124	19	562	140	
Fred S. Betty	(r)(0.9)	1-8"						71	2		73	40	
Phillip Niesen (s)	(r)(1.5)	1-20"			364		422	578	401		1765		(t)527
H.C. and C.H. Epperson	(r)(1.5)	1-16"		92	922	78			532		1624		(u)
Myers, Niesen, Stohlman & Epperson (v)	(r)(1.6)	1-16"		3	1116	850	925	901	752		4547		(u)
Elden Tarke (h)	(r)(3.0)	1-14"		26	180	256	288	377	127		1254		126
Edward Dean (h)	*16.7N	1-12"				13	64	45	42	46	(w)210	76	
Edward Dean (h)	*16.75N	1-12"			128	218	456	399	319		1520	100	100
Epperson, Myers, DeWitt, & Middleton (x)	19.1N	1-14"			589	485	533	191			1798	607	
--NEW COLUSA MARYSVILLE HIGHWAY--	19.98N												
--NORTHERN ELECTRIC RAILROAD CROSSING--	20.0W												
	(y)		Sacramento Slough										
C. F. Holmes	0.5R	1-12"				PLANT REMOVED							
C. Fred Holmes	1.4R	1-12"				NO DIVERSION							
Totals			0	5086	17015	15244	20219	17979	12907	696	89146	11651	4479
Average cubic feet per second			0	85	277	256	329	292	217	11	183		
Monthly use in per cent of seasonal			0	5.7	19.1	17.1	22.7	20.2	14.5	.8			

* Asterisk indicates area irrigated is within By-Pass area.
(a) Mileages of East Borrow Pit are given northerly or southerly from Chandler.
(b) Formerly listed as Mrs. E.P. Reddington.
(c) Combined acreage plants at this mile and Mile 12.0N.
(d) Replaces 12" unit formerly listed at this location.
(e) See plant at Mile 11.5N.
(f) All duck refuge lands.
(g) Plant is on Wadsworth Canal which joins East Borrow Pit-Sutter By-Pass at Mile 16.5N. Figure in () is distance along Wadsworth Canal from By-Pass.
(h) New installation in 1950.
(i) Furnished an undetermined amount of water to plant at Mile (g)(1.36R).
(j) Received an undetermined amount of water from plant at Mile 16.5N (1.35R). Also received an undetermined amount of water from wells.
(k) Includes 17 acres of Kellogg lands and 80 acres of Stohlman lands.
(l) Acreage partially estimated.
(m) Formerly listed as C.C. Epperson et al.
(n) One 10" unit installed in 1950.
(o) Replaces 10" unit formerly listed at this location.
(p) Additional acre-feet diverted: November 1.
(q) Formerly listed as a 10" unit.
(r) Plant is on Poodle Creek which joins By-Pass at Mile 16.5N. Figure in () indicates distance along Poodle Creek from By-Pass.
(s) Formerly listed as Mrs. H.C. and C.H. Epperson.
(t) Combined acreage this plant and plants at Mile (r)(1.5) H.C. and C.H. Epperson and Mile (r)(1.6).
(u) See plant at Mile (r)(1.5) Phillip Niesen.
(v) Formerly listed as D.Meyers, et al.
(w) Additional acre-feet diverted: November 49.
(x) Formerly listed as Meyer, Platter, Moorehead, DeWitt Bros., Middleton and Epperson.
(y) Mileages of Sacramento Slough are given easterly from drainage plant of Reclamation District 1500 which is at head of Slough.

TABLE 160

DIVERSIONS AND ACREAGES IRRIGATED - FEATHER RIVER - 1950

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
Walter Raymond	0.6R	1-20"				NO DIVERSION							
Walter Raymond	2.60R	2-20"			100	219	839	350			1508	2055	
Johnston Brothers	3.0L	1-10"				PLANT REMOVED							
Marie Van Antwerp	5.6L	1-14"			30	40	60	30	34		194	55	
A. L. Haymore	6.44L	1-10"			137	83	77	94	49	27	467	101	
M. Scheiber	7.7L	1-10"			137	198	195	75	132	94	(a)831	235	
--GAGING STATION FEATHER RIVER AT NICOLAUS--	9.3												
--NICOLAUS BRIDGE--	9.4												
T. H. Richards	9.75R	1-20"			96	95					191	(b)260	
--MOUTH OF BEAR RIVER--	12.0L												
Garden Highway Mutual Water Co.	13.1R	1-20" (c)2-24"		685	2446	2173	3484	1413	1034	57	11292	1521	880
Farm Lands Company	17.5L	1-15" 1-20"		562	1472	1466	2122	1096	887	683	8288	1152	220
Oswald Water District	21.4R	2-16"	63	60	731	714	1274	536	498	740	4616	(d)651	
--GAGING STATION FEATHER RIVER BELOW SHANGHAI BEND--	23.0												
Broberg and Stewart (e)	25.2R	1-10"				59	55	20			134	114	
--MOUTH OF YUBA RIVER--	27.3L												
--5TH STREET HIGHWAY BRIDGE--	28.0												
--10TH STREET HIGHWAY BRIDGE--	28.2												
A. C. Rackerby	32.3R	1-10"				31	50	18	21		120	70	
G. D. Prindiville	33.3R	1-10"			36	132	162	41			371	138	
Francis Hall Ranch (f)	33.5L	1-3"					5				5	65	
J. L. Sullivan, Jr.	33.9R	1-10"	48		32	148	283	46	31		588	202	
Sutter Extension Water Dist.(g)	38.1R	1-26" (h)2-42"					1424	981	716		3121	(i)3640	(i)4937
W. R. Madsen (f)	43.5R	1-7"				17	20				37	37	
Mathews, Sullivan & Prindiville	*(0.4L)	1-18"	53	75	98	267	336	98		98	1025	292	
W. J. Fairey (j)	*(1.2L)	1-8"			17	39	76	8			140	70	
Ray Washburn	*(1.25L)	1-8"			24	56	101	35	14		230	71	
W. Earl Willey	44.5R	1-7"				13	12	13			38	19	
Arnold Christenson	46.3L	(k)1-20" 1-24"			60	322	1725	992	216	119	3434	(d)1150	
A. P. Barba	47.4L	1-7"				19	25	31			75	(l)230	
A. P. Barba	47.9L	1-12"			11	11	99	77	17		215	(m)	
Robert S. Biggs (n)	48.0L	1-7"				97	218	251	118		684	(o)411	
Robert S. Biggs	48.3L	1-10"			93	97	223	192	105		710	(p)	
Edward Dunning	49.0L	1-8"			15	30	64	16			125	112	
--GRIDLEY BRIDGE--	49.7												
--GAGING STATION FEATHER RIVER NEAR GRIDLEY--	49.7												
Frank E. Norton	51.0R	1-6"			18	49	99	8	4	1	179	34	
M. A. Pedroza and Sons	51.1L	1-6"				104	103	77	30	29	(q)343	86	
Steadman Orchards	51.4R	1-10"			1		306	173			480	100	
A. E. Bettencourt (r)	51.6L	1-6"				14	23	12	2	1	52	(d)86	
Chester L. Hoar (s)	51.6R	1-6"				23	28				51	60	
S.J. and J.R. Fratus (t)	52.1L	1-10"				NO DIVERSION							
Arthur Starr	52.5L	1-10"				45	64	29	4	2	144	55	
F. L. Morris	52.7L	1-8"				35	33		14		82	44	
Ruby Chambers	53.1R	1-6"				PLANT REMOVED							
Hearst Magazines, Inc. (u)	55.1L	1-14"		20	205	505	125	219	93	101	1268	193	

* Honcut Slough - Plant diverts Feather River water backed into Slough. Mouth of Slough at Mile 43.7L. Distance from Feather River and bank is shown in ().
(a) Additional acre-feet diverted: February 3 and November 1.
(b) An undetermined amount of water received from controlled drainage.
(c) Formerly listed as one 24" unit.
(d) An undetermined amount of water received from wells.
(e) Formerly listed as Hamilton, Broberg and Stuart.
(f) New installation in 1950.
(g) Formerly listed as Sutter Butte Canal Company (Sunset Plant).
(h) Operated 2-42" units only in 1950.
(i) An undetermined amount of water received from plant at Mile 58.1R.
(j) Formerly listed as Mat. Thomes.
(k) The 20" unit installed in 1950.
(l) Combined acreage this plant and one at Mile 47.9L.
(m) See plant at Mile 47.4L.
(n) Installed prior to 1950, not previously listed.
(o) Combined acreage this plant and plant at Mile 48.3L.
(p) See plant at Mile 48.0L.
(q) Additional acre-feet diverted: November 1.
(r) Formerly listed as Tony Bettencourt.
(s) Formerly listed as Capital Company.
(t) Formerly listed as J. F. Fratus.
(u) Formerly listed as Hearst Estate.

TABLE 160

DIVERSIONS AND ACREAGES IRRIGATED - FEATHER RIVER - 1950
(Continued)

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
Henry Haselbusch (a)	57.9R	1-9"			21	27	44		11		103	56	
Sutter Butte Canal Company	(b)58.1R	Gravity		14486	49629	46488	43007	36570	23681	13715	(c,d)227576	13894	1635
Biggs-West Gridley Water Dist.	(b)58.1R	Gravity		8944	30642	28703	26553	22579	14621	8468	(c)140510	(e)4021	(e)5537
Richvale Irrigation District	(b)58.1R	Gravity		8513	29164	27319	25273	21490	13916	8060	(c)133735	889	.11380
Western Canal Company	59.7R	Gravity		1825	23153	24450	28447	26384	8949	5881	(f)119089	1844	15742
--OROVILLE BRIDGE--	65.0												
--U.S.G.S. GAGING STATION--	71.0												
Totals			164	35170	138368	134088	137034	113954	65197	38076	662051	34013	41331
Average cubic feet per second			3	591	2250	2253	2229	1853	1096	619	1362		
Monthly use in per cent of seasonal			0	5.3	20.9	20.3	20.7	17.2	9.8	5.8			

(a) Formerly listed as Henry Hazelbusch.
(b) This is a common point of diversion for Sutter-Butte Canal Company, Richvale Irrigation District and Biggs-West Gridley water districts. Diversions are reported separately.
(c) There is included in these totals 23909 acre-feet purchased from P.G.& E. Company, however, no segregation was made between districts or companies in this table.
(d) Furnished an undetermined amount of water to plant at Mile 38.1R.
(e) An undetermined amount of water received from controlled drainage.
(f) Additional acre-feet diverted: January 2529, used for gun club. Includes 5367 acre-feet in October for gun club.

TABLE 161

DIVERSIONS AND ACREAGES IRRIGATED - YUBA RIVER - 1950

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
--HIGHWAY 99E BRIDGE (D STREET BRIDGE)--	0.0												
--GAGING STATION - YUBA RIVER AT MARYSVILLE (SIMPSON LANE BRIDGE)-	0.9												
C. Wesley Reed	0.9L	1-10"			27	29	25	22	28	13	144	60	
Ben Williams	1.4R	1-4"					4		2	1	7	2	
M. Lively	1.6L	1-10"											
W. B. Harrington	1.8R	1-6"					16		33		49	48	
W. B. Harrington	2.6L	1-4" 1-5"				14	17	1	12		44	(a) 17	
Bill Wolfe	3.0L	1-10"				NO DIVERSION							
E. O. Rubke	4.1L	1-14"				130	124	154	127	15	550	(b,c)235	
E. O. Rubke	4.3L	1-10"				95	96	115	72		378	(d)	
Di Giorgio Fruit Corporation	4.75L	1-6"		11	136	43					190	145	
Scott Hendricks	6.2L	(e)1-16"		69	26	11	91	92	71		360	(f)740	
Hallwood Irrigation District	11.0R	Gravity		5086	13342	13068	13480	13275	12365	10253	(g)80869	5114	1585
Cordua Irrigation District	11.0R	Gravity		2140	8549	7351	7170	6713	6691	6179	(h)44793	3644	1056
Yuba Consolidated Gold Field Co.	14.5L	Gravity				NO AGRICULTURAL USE							
Totals			0	7306	22080	20741	21023	20372	19401	16461	127384	10005	2641
Average cubic feet per second			0	123	359	348	342	331	326	267	262		
Monthly use in per cent of seasonal			0	5.8	17.3	16.3	16.5	16.0	15.2	12.9			

* Mileages listed are miles above Highway 99E (D Street Bridge).
(a) Includes 10 acres of Marysville Levee Commission lands.
(b) Includes 150 acres of George Hendricks lands and 25 acres of Chiem Estate.
(c) Combined acreage this plant and one at Mile 4.3L.
(d) See plant at Mile 4.1L.
(e) 16" unit replaces 10" unit formerly listed at this location.
(f) An undetermined amount of water received from wells.
(g) Additional acre-feet diverted: November 2532.
(h) Additional acre-feet diverted: November 5544 & December 4158.

TABLE 162

DIVERSIONS AND ACREAGES IRRIGATED - BEAR RIVER - 1950

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
--MARYSVILLE-NICOLAUS COUNTY ROAD BRIDGE--	5.5												
--TROW BRIDGE TO WHEATLAND COUNTY ROAD BRIDGE--	8.4												
Whitney Warren	9.2R	(a)1-6"			32	28					60	(b)74	
W. H. Gilbert	10.0R	1-6"			26	12	5				43	(b)150	
California Packing Corporation	11.1L	1-10"		14	39	80	105	24		35	297	(b,c)396	
C. W. Stineman	11.4R	1-6"			68	99	40	34			241	(b)85	
California Packing Corporation	12.4L	1-10"		11	79	82	84	29	45		330	(d)	
--HIGHWAY 99E BRIDGE--	13.0												
--GAGING STATION - BEAR RIVER NEAR WHEATLAND--	13.0												
--S. P. RAILROAD BRIDGE--	13.05												
Totals			0	25	244	301	234	87	45	35	971	705	0
Average cubic feet per second			0	0	4	5	4	1	1	1	2		
Monthly use in per cent of seasonal			0	2.6	25.1	31.0	24.1	9.0	4.6	3.6			

(a) Formerly listed as an 8" unit.
(b) An undetermined amount of water received from wells.
(c) Combined acreage this plant and one at Mile 12.4L.
(d) See plant at Mile 11.1L.

TABLE 163

DIVERSIONS AND ACREAGES IRRIGATED - AMERICAN RIVER - 1950

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
--GARDEN HIGHWAY BRIDGE--	0.2												
--AUBURN BOULEVARD BRIDGE (16th Street)--	1.9												
--SACRAMENTO-NORTHERN RAILROAD BRIDGE--	2.0												
--WESTERN PACIFIC RAILROAD BRIDGE--	2.1												
Joe Gomez (a)	2.4L	1-5"			3	8	10	10	4		35	5	
North Sacramento Lands Co.	2.55R	1-6"				PLANT REMOVED							
North Sacramento Lands Co.	2.65R	1-7"				2	10				12	100	
North Sacramento Lands Co.	2.75R	1-5"			2	3	2	3	1		11	14	
--SOUTHERN PACIFIC RAILROAD BRIDGE--	3.5												
C. Swanston and Sons	4.2R	1-10"				NO DIVERSION							
C. Swanston and Sons	5.3R	1-10"				NO DIVERSION							
--GAGING STATION (H Street) AMERICAN RIVER AT SACRAMENTO--	6.1												
E. Clemens Horst Company	6.5R	1-6"			22	40	30				92	(b)50	
E. Clemens Horst Company	7.5R	1-8"			31	116	59				206	(b)100	
J. I. Haas, Inc.	7.8R	1-4"			1	38	21	6			66	50	
T. A. Farrell	8.95R	1-4"	1	1	6	22	21	8	6	5	(c)70	15	
J. H. Kerby	9.0L	1-6"				48	26	79			153	40	
G. L. Browning	9.05R	1-6"			70	26	44	18	14	17	189	15	
J. G. and F. F. Dauenhauer	9.2L	1-8"		9	8	52	25	5			99	40	
Ruth Coleman	9.35L	1-5"				PLANT REMOVED							
Ruth Coleman	9.5L	1-5"				PLANT REMOVED							
Ruth Coleman	9.55L	1-5"				PLANT REMOVED							
Sweem Brothers	10.2R	1-8"		4	36	52	68	54	16		230	70	
Gold Nugget Orchard Company	10.4R	1-5"				5	6		3	2	16	17	
Mucke Sand and Gravel Company	11.2L	1-6"		9	12	19	16	15	16	6	93	35	
J. T. Gore	11.5L	1-4"				NO DIVERSION							

(a) Formerly listed as Sacramento Stucco Company.
(b) An undetermined amount of water received from wells.
(c) Additional acre-feet diverted: February 1.

TABLE 163

DIVERSIONS AND ACREAGES IRRIGATED - AMERICAN RIVER - 1950
(Continued)

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
William A. Meyer	11.7L	1-4"			5	44	27	30	3		109	27	
Knapp Corporation	13.3R	1-4"			6	52	49		45		152	60	
C.W.Deterding & Mrs. May McDonnell	13.9R	1-6"				NO DIVERSION							
J. R. Deterding	15.1R	1-4"				91	41	45		7	184	42	
Carmichael Irrigation District	16.0R	1-8" 2-12"	8	105	344	478	655	546	476	270	(a)2882	(b)3320	
--GAGING STATION-AMERICAN RIVER AT FAIR OAKS--	19.2												
Totals			9	128	546	1096	1110	819	584	307	4599	4000	0
Average cubic feet per second			0	2	9	18	18	13	10	5	11		
Monthly use in per cent of seasonal			2.8	11.9	24.0	24.1	17.8	12.7	6.7				

(a) Additional acre-feet diverted: November 82.

(b) Suburban lands, No segregation of irrigated acreage available.

TABLE 164

DIVERSIONS AND ACREAGES IRRIGATED - COSUMNES RIVER - 1950

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
--U.S. 50 & 99 HIGHWAY BRIDGE--	11.8												
--GAGING STATION - COSUMNES RIVER AT McCONNELL--	11.8												
Alvin Bartholamew	14.3R	1-6"				NO DIVERSION							
Oliver A. Roden	14.9R	1-6"				NO DIVERSION							
J. C. Carli	15.1R	1-10"				28	21				49	20	
J. C. Carli (a)	15.3R	1-12"				25	15				40	32	
D. M. Doyle	15.5R	1-6" 1-8"				NO DIVERSION							
William R. Saxon	16.0R	1-10"				NO DIVERSION							
Harvey Blodgett	16.4R	1-8" (b)1-12"				12	15				27	28	
--CENTRAL CALIFORNIA TRACTION CO. RAILROAD BRIDGE--	17.8												
Joseph Audisio	20.5R	1-12"				NO DIVERSION							
Bright Estate (Mike Marinelli)	21.1R	1-15"			172	173	154	18			517	(c)327	
J. I. Haas	22.0R	1-12"				68	73				141	(c)72	
Rooney Brothers	24.6R	1-12"				75	58				133	90	
W. Jared Sheldon	25.1R	1-8"			16	118	116	58	52	31	391	(c) 175	
F. Morse Grimshaw	26.9R	1-8"				NO DIVERSION							
A. V. Signorotti	27.1R	1-6"		6	4	7	10				27	13	
F. Morse Grimshaw	27.5R	1-6"				NO DIVERSION							
G. C. Johnson	29.4L	1-6"				NO DIVERSION							
G. C. Johnson	29.9L	1-6" 1-8"			81	104	192	145			522	220	
--STATE HIGHWAY SIXTEEN BRIDGE--	32.2												
Cosumnes River Water District	33.5	Gravity		150	312	290	487	440	65		1744	(d)631	
--GAGING STATION - COSUMNES RIVER AT MICHIGAN BAR--	34.3												
Totals			0	156	585	900	1141	661	117	31	3591	1608	
Average cubic feet per second			0	3	10	15	19	11	2	1	7		
Monthly use in per cent of seasonal			0	4.3	16.3	25.1	31.8	18.4	3.2	0.9			

(a) Formerly listed as Thornton Colton.
(b) The 12" unit not formerly listed.

(c) An undetermined amount of water received from wells.
(d) Of this figure 150 acres was double cropped, however, acres irrigated listed only once.

TABLE 165

DIVERSIONS AND ACREAGES IRRIGATED - MOKELUMNE RIVER - 1950

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
--GALT-THORNTON HIGHWAY BRIDGE--	7.0												
S. and J. Frandy	10.4L	1-12"			14	8	17	18	12		69	(a)30	
Carolyn M. Brovelli	10.6R	1-12"		34	86	101	117	90	50	8	486	110	
A. Taddei	15.6R	1-6"		6	5		17	5	7		40	18	
R. J. Lange	16.8R	1-6"		49	39	32	36	10			166	106	
W. and E. Selles	18.2R	1-6"		7		24	28	25			84	67	
B. M. Durrell	19.0R	1-6"				NO DIVERSION							
--GAGING STATION - MOKELUMNE RIVER AT WOODBRIDGE--	19.2												
B. M. Durrell	19.4R	1-6"				NO DIVERSION							
--SACRAMENTO ROAD BRIDGE--	19.8												
--WOODBRIDGE IRRIGATION DISTRICT DAM--	19.9												
Totals			0	96	144	165	215	148	69	8	845	331	
Average cubic feet per second			0	2	2	3	3	2	1	0	2		
Monthly use in per cent of seasonal			0	11.4	17.0	19.5	25.4	17.5	8.2	1.0			

* Mileage listed is approximate mileage above New Hope Bridge landing. (a) An undetermined amount of water received from wells.

TABLE 166

DIVERSIONS AND ACREAGES IRRIGATED - CALAVERAS RIVER - 1950

	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
--WESTERN PACIFIC RAILROAD BRIDGE--	4.9												
--SOUTHERN PACIFIC RAILROAD BRIDGE--	5.3												
--U.S. 50 & 99 HIGHWAY BRIDGE--	6.8												
--CENTRAL CALIFORNIA TRACTION CO. RAILROAD BRIDGE--	7.9												
Pezzi Dam	11.8	Gravity			70	85	90	85			330	(a)150	
Murphy Dam (b)	(c)12.4	Gravity			150	70	90	130			440	(a)215	
--STATE HIGHWAY 88 BRIDGE--	12.7												
J. Tone (d)	15.6L	1-8"				10					10	(a)20	
T. Cademartori (d)	15.7L	1-6"			33	19	34	42			128	65	
Lawrence Zolezzi (e)	16.8L	1-8"			15	34	40	11			100	(a)45	
L. Vaccarezza (d)	20.1L	1-7"					14	5			19	23	
Frank G. Rossi (f)	(c)20.9L	1-5"				NO DIVERSION							
G. Arboco (d)	21.0L	1-4"			27	29	19	15			90	(a)38	
Clements Road Dam	(c)21.1	Gravity			30	40	45	40			155	70	
Frank Box (e)	21.3L	1-5"				10	8	17			35	20	
Domonick Figone (e)	21.4L	1-4"			14	7	16	20			57	(a)30	
Ralph Houston (e)	21.9R	1-8"			29	50	41	28			148	(a)80	
Andrew Cuneo	(c)21.9L	(g)1-12"			63	85	87	127	13		375	(a)180	
Nick Genetti	(c)22.1L	1-4"		3	6	6	7	7			29	(a)17	
Carroll and Anderson (d)	22.3L	1-8"			19	36	17	26	20		118	(a)102	
John Boggiano (e)	22.4R	1-5"			22	39	46				107	67	
C. De Martini (d)	22.6R	1-8"			40	60	50	65			215	(a)126	
Fine Ranch (d)	22.9R	1-6"			20	15	14	19			68	33	

(a) An undetermined amount of water received from wells.
(b) Formerly listed as Pastori-Formati (Dam).
(c) This is corrected mileage. See former listing by reference to 1949 report.
(d) New installation in 1950.
(e) Installed prior to 1950, not previously listed.
(f) Formerly listed as James Drunsfield.
(g) Formerly listed as a 10" unit.

TABLE 166

DIVERSIONS AND ACREAGES IRRIGATED - CALAVERAS RIVER - 1950
(Continued)

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
De Benedetti and Toscano	(a)23.1L	1-7"		12	40	48	49	50	28		227	(b)78	
Fred Podesta	(a)23.8L	1-10"					238	159			397	(b)300	
--GAGING STATION - CALAVERAS RIVER AT BELLOTA--	25.15												
--STATE HIGHWAY 8 BRIDGE--	25.2												
Armaninio Brothers (c)	25.3R	1-10"			70	62	88	113			333	(b)115	
--MORMON SLOUGH--	25.3L												
--CALAVERAS RIVER - MORMON SLOUGH CONTROL GATES--	*(0.0)												
--GAGING STATION - MORMON SLOUGH AT BELLOTA--	*(0.2)												
J. G. Watkins	*(0.3R)	1-8"				NO DIVERSION							
A. Solari	(a)*(0.5L)	1-8"			65	92	45	37			239	(b)100	
Fred Casella	*(0.9L)	1-6"		11	29	23	53	38	8		162	(b)89	
Linden Orchard	(a)*(1.4R)	1-12"			71	171	155	120	62		579	(b)319	
C. and F. Sanguinetti	*(1.5L)	1-8"		4	7	29	5	8			53	(b)80	
E. Maurigliano	*(1.8R)	1-10"			10	19	29	14	4		76	(b)42	
C. and F. Sanguinetti	(a)*(2.0L)	(d)1-8"				37	46	23	14		120	84	
V. Lagorio	(c)*(3.6R)	(e)1-6"						9	5		14	(b)41	
V. Lagorio	*(3.7R)	1-6"				PLANT REMOVED							
C. and F. Sanguinetti	(c)*(6.1L)	1-6"				NO DIVERSION							
A. and R. Lagorio (f)	*(6.9L)	1-8"			7	45	34	36	19		141	(g)172	
A. and R. Lagorio	(c)*(7.1L)	1-8"				18	47	33			98	(h)	
--END OF MORMON SLOUGH BEGINNING OF STOCKTON DIVERTING CANAL--	*(13.0)												
Homer D. Riddle	(a)*(13.3R)	1-6"		7	17	21	35	38	25		143	77	
--SOUTHERN PACIFIC RAILROAD BRIDGE--	*(14.3)												
--STATE HIGHWAY 8 BRIDGE--	*(14.9)												
--S.T. & E.RAILROAD BRIDGE--	*(15.7)												
--U.S. 50 & 99 HIGHWAY (FREEWAY) BRIDGE--	*(16.0)												
--STATE HIGHWAY 88 BRIDGE--	*(16.2)												
--CENTRAL CALIFORNIA TRACTION CO. RAILROAD BRIDGE--	*(16.9)												
--U.S. 50 & 99 HIGHWAY BRIDGE--	*(17.2)												
--GAGING STATION - STOCKTON DIVERTING CANAL AT STOCKTON--	*(17.6)												
Albert A. Anderson	(a)25.5L	1-12"			78	42	79	55			254	(b)115	
L. F. Grimsley	(a)25.9L	1-14"			93	15	99	170	12		389	(b)203	
Vignolo and Pallavicino	(a)26.3R	1-10"		11	110	115	67	105	20		428	(b)150	
Field Brothers	(a)26.8L	1-6"		55	21	64	29	41	5		215	120	
McGurk Ranch	(a)26.8R	1-8"		15	18	14	35	26	4		112	(b) 52	
E. E. Cady	(a)28.3L	1-6"			44	38	46	26	8		162	88	
L. and A. V. Lagorio	(a)28.9L	1-12"				37	74	36			147	50	
Garavano and Maffeo	(a)29.0L	1-6"				70	33	10	36		149	50	
O. R. Shelley	(a)29.3L	1-8"			21	42	31	40	28		(i)162	90	
O. R. Shelley	(a)29.3R	1-5"		8	17	18	30	28	14		115	65	
M. N. Yocum	(a)29.4L	1-8"				69	30	54	5		158	(b)90	
A. G. Watkins	(a)30.1R	1-10"			16	71	52	70	32		241	135	
L. and D. Hoag	(a)30.6R	1-14"		16	67	110	31	22			246	(b)158	
Lynn Barnett	(a)30.7R	1-7"			16	10	6	16			48	25	
Lois E. Hunt (j)	(a)31.1R	1-8"			39	52	34	47	10		182	68	
S. M. Gregory	(a)31.3R	1-10"	86	53	82	75	80	71	46		493	(k)128	

* Mormon Slough - Mormon Slough diverts from Calaveras River at Mile 25.3L, and rejoins the river through the Stockton Diverting Canal. Distance from Calaveras River and the bank is shown in ().
(a) This is corrected mileage. See former listing by reference to 1949 report.
(b) An undetermined amount of water received from wells.
(c) Installed prior to 1950, not previously listed.
(d) The 8" unit replaced the 6" unit in 1950.
(e) The 6" unit replaced the 10" unit in 1950.
(f) New installation in 1950.
(g) Combined acreage this plant and one at Mile *(7.1L).
(h) See plant at Mile *(6.9L).
(i) Additional acre-feet diverted: February 7.
(j) Formerly listed as Louise Hunt.
(k) Combined acreage this plant and one at Mile 31.6R.

TABLE 166

DIVERSIONS AND ACREAGES IRRIGATED - CALAVERAS RIVER - 1950
(Continued)

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
S. M. Gregory	(a)31.6R	1-6"				22	3	13	3		41	(b)	
Eva Hunt	(a)32.6L	1-6"			17	38	42	65	17		179	55	
--GAGING STATION - CALAVERAS RIVER AT JENNY LIND--	36.9												
Totals			86	195	1493	2062	2243	2210	438	0	8727	4420	
Average cubic feet per second			1	3	24	35	36	36	7	0	18		
Monthly use in per cent of seasonal			1.0	2.3	17.1	23.6	25.7	25.3	5.0	0			

(a) This is corrected mileage.

(b) See plant at Mile 31.3R.

TABLE 167

DIVERSIONS AND ACREAGES IRRIGATED - OLD SAN JOAQUIN RIVER DELTA UPLANDS - 1950

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	(a)30.5L	2-30" 2-42"	1649	1470	2651	3482	4016	4185	3765	3204	(b)24422	(c)4779	
Leo Fallman	(d,e)36.5	1-16"	14	79	162	145	238	252	194	153	(f)1237	469	
East Contra Costa I. D.	(e)36.5L	2-18" 2-24" 2-30"	1159	3743	6690	5995	7225	5462	2763	638	(g)33675	15911	
Augustus Sarija	(e)36.5L	2-6"	5	14	23	21	24	15	18	3	123	78	
Byron-Bethany I. D.	(h)40.9L	1-24" 1-30"	2070	4036	5485	5483	5831	5238	3989	1401	(i)33533	9418	
M. R. Furtado	44.8L	1-14"	77	146	137	157	170	242	118	45	1092	365	
H. Lindeman and Son	47.2L	1-12"	37	103	321	188	214	249	204	99	1415	370	
G. Lindeman	47.2L	1-10"	NO DIVERSION										
West Side Irrigation District	(j)47.65L	7-15"	2266	5398	4362	4614	6328	5552	3326	1173	33019	(k)10150	
Vance Brown	(l)48.4L	1-12"	41	18	30	33	44	61	7		234	140	
Salles Brothers (m)	49.5L	1-4"			1	2	2	2			7	4	
Naglee Burke Irrigation District	50.4L	1-16" 1-18"	300	1361	1302	1578	1718	1560	1121	719	9659	2428	
Freemont Irrigation Association	50.9L	1-16"	40	323	227	311	397	319	238	27	1882	667	
Joe M. Freitas	51.0L	1-8"		25	8	8	24	28	1		94	36	
Attilio Casserini	51.2L	(n)1-10"			25		8	13	6		52	29	
Excelsior Ranch #2	52.4L	1-10"		30	16	65	43	23	25		202	112	
A. L. Galli	53.0L	1-8"		39	43	26	8	5			121	57	
--MOUTH OF TOM PAINE SLOUGH--	54.3												
Totals			7658	16785	21483	22108	26290	23206	15775	7462	140767	45013	0
Average cubic feet per second			125	282	349	372	428	377	265	121	290		
Monthly use in per cent of seasonal			5.4	11.9	15.3	15.7	18.7	16.5	11.2	5.3			

* Distance from mouth of San Joaquin River 4½ miles below Antioch (mileage as established by War Department Survey of 1913-15).
(a) This is the point of diversion of the U.S. Bureau of Reclamation Contra Costa Canal at head of Rock Slough.
(b) Additional acre-feet diverted: January 1884, February 886, November 2038 and December 1247.
(c) In addition to this acreage, also served Industrial and Municipality.
(d) Formerly listed as Mile 36.4L.
(e) Indian Slough joins the Old River at this mile. Pumping plant is located on intake canal which joins Indian Slough.
(f) Additional acre-feet diverted: December 20.
(g) Additional water received from wells-3732 acre-feet.
(h) Italian Slough joins the Old River at this mile. Pumping plant is located on intake canal which joins Italian Slough.
(i) Additional acre-feet diverted: November 131.
(j) Pumping plant is located on intake canal which joins Old River at this mile.
(k) Of this figure 942 acres were double cropped.
(l) Plant moved to this location in 1950 from Mile 48.7L.
(m) New installation in 1950.
(n) Replaces 8" unit previously listed at this location.

TABLE 168

DIVERSIONS AND ACREAGES IRRIGATED - TOM PAINE SLOUGH DELTA UPLANDS - 1950

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
Independent Mutual Water Corporation and Company	0.7S	2-18"	28	368	421	433	444	376	391	210	2671	(a)1286	
Independent Mutual Water Corporation and Company	1.5S	1-18"		97	30	131	181	134	76		649	(b)	
--HOLLY SUGAR CORPORATION DREDGER CUT--	2.1S												
George J. Lake	**(c)0.5W	1-10"					178				178	170	
Holly Sugar Corporation	**(c)1.2W	1-12" 1-14"	213	191	325	294	382	338	327	338	(d)2408	808	
Pescadero Reclamation District #2058 #1	2.9S	1-12"	28	110	124	142	139	141	86	53	823	289	
Pescadero Reclamation District #2058 #3	6.3S	1-12" 1-20" 1-24"	337	1248	1912	1777	2120	2187	1417	467	11465	2148	364
Pescadero Reclamation District #2058 #5	8.3S	1-12"	81	148	184	208	275	183	164	64	1307	194	
Pescadero Reclamation District #2058 #5A	9.0S	1-12"	50	124	85	178	141	183	140	15	916	326	
Totals			737	2286	3081	3163	3860	3542	2601	1147	20417	5221	364
Average cubic feet per second			12	38	50	53	63	58	44	19	42		
Monthly use in per cent of seasonal			3.6	11.2	15.1	15.5	18.9	17.4	12.7	5.6			

* 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).
** Holly Sugar Corporation dredger cut joins Tom Paine Slough at Mile 2.1S. Distance along dredger cut and bank is shown in ().
(a) Combined acreage this plant and one at Mile 1.5S.
(b) See plant at 0.7S.
(c) Formerly listed as Mile 2.1S.
(d) Additional acre-feet diverted: November 327 and December 104. Includes an undetermined amount of water used for Industrial purposes.

TABLE 169

DIVERSIONS AND ACREAGES IRRIGATED - SAN JOAQUIN RIVER DELTA UPLANDS - 1950
(Stockton to Vernalis)

Water User	Mile and Bank *	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
--CARWOOD BRIDGE--	45.3												
Carolyn Weston	46.1R	1-4"				NO DIVERSION							
Carolyn Weston	46.2R	1-6"	2	1	23	14	26	20	6	1	93	35	
Carolyn Weston	46.3R	1-12"	1	16	190	100	109	110	90		616	225	
Ivy Ranney	46.65R	(a)1-10"		32	25	23	24	31	8		143	80	
Frank West	46.85R	1-10"	25	65	115	101	102	102	61	33	604	160	
F. Asano	47.2R	1-6"	3	6	12	10	10	13	17	4	(b)75	34	
Wolfinger Brothers	47.3R	1-10"			21	23	25	6	18		93	47	
C. C. Long	47.55R	1-10"						189			189	110	
Waldo C. Haack	48.0R	1-14"		140				50	61		251	365	
Lee Young	48.3R	1-4½"				NO DIVERSION							
Lee Young	48.5R	1-3"				NO DIVERSION							
Joe Calcagno	48.5R	1-6"	16	16	16	55	23	49	33	1	209	(c)240	
Dr. J. M. Carr	48.55R	1-6"		1	22	10	20	6	9	2	70	25	
Calcagno Brothers	48.66R	1-8"	101	4	117	25	42	77	80		446	(d)	
M. O. Cooper Estate (e)	49.0R	1-12"			31	58	28	55	7	30	209	75	
Herbert Spangenberg & S.B.Chapman	49.3R	1-14"	16	83	136	161	203	158	97	75	929	(f)272	
Herbert Spangenberg & S.B.Chapman	49.5R	1-12"	7	4	12	14	35	24	4	5	105	(g)	
A. A. Rodgers	50.1R	1-10"	33	1		10	22	35	1		102	80	
--BRANDT BRIDGE--	50.2												
A. Hirata	50.4R	(a)1-10"		15	37	31	29	38	19	14	183	40	
R. K. and F. Watanabe	50.6R	1-6"	3	29	34	38	34	28	24		190	53	

* Distance along San Joaquin River from its mouth 4½ miles below Antioch. (Mileage as established by War Department Survey 1913-15).
(a) Replaces 8" unit previously listed this location.
(b) Additional acre-feet diverted: November 1.
(c) Combined acreage this plant and one at Mile 48.66R.
(d) See plant at Mile 48.5R.
(e) New installation in 1950 at old point of diversion.
(f) Combined acreage this plant and one at Mile 49.5R.
(g) See plant at Mile 49.3R.

TABLE 169

DIVERSIONS AND ACREAGES IRRIGATED - SAN JOAQUIN RIVER DELTA UPLANDS - 1950
(Stockton to Vernalis)
(Continued)

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
D. Toscano	50.8R	1-6"	7	6	17	18	27	15	14	10	114	42	
Pastorino Brothers	51.0R	1-6" 1-10"	12	15	45	64	58	94	54		342	150	
Phillip Esteban	51.2R	1-12"	10	13	27	40	36	40	11	3	180	98	
J. Burchel	52.1R	1-10"				NO DIVERSION							
G. Santini	52.4R	1-5"	2	8	9	3	6	8	4	2	42	17	
D. J. Macedo	52.65R	1-10"		17	55	97	60	38	44		311	96	
J. Widmer	53.2R	1-12"	76	13	183	165	241	139	144	16	(a)977	365	
William Nishimura	53.4R	1-8"				NO DIVERSION							
I.N.Robinson, Jr. & John Domingo	53.7R	1-12"	45	204	244	242	297	330	122	16	1500	481	
R. E. Albertson	54.9R	1-10"	2	138	91	71	101	101	100	95	699	115	
--JUNCTION WITH MIDDLE RIVER--	56.2L												
Oakwood Stock Farm	57.0R	1-14"		222	239	282	348	247	195	44	(b)1577	282	
James Tobin	57.15R	1-7"		2	29		40	9	9		89	45	
Frank Dewar, et al	57.38R	1-4"	3	6	10	18	8	15	12		72	24	
G. Gardella and Company	57.5R	1-4"	5	2	3	3	4	2	1		20	20	
A. Queirolo	57.65R	1-3"		1		1		1			3	3	
A. Queirolo	58.6R	1-3"		1	1	1		1			4	5	
R. Mauro	58.7R	1-4"				1	2	1			4	10	
--SOUTHERN PACIFIC RAILROAD BRIDGE--	58.8												
--MOSSDALE BRIDGE (U.S.HIGHWAY 50) RECORDING GAGE--	58.9												
C. C. Abersold	59.25R	1-6"	5	30	19	36	40	36	17	6	(c)189	50	
H. A. Neistrath	59.3R	1-15"	62	88	98	146	209	132	124	27	886	239	
G. Giovacchini	59.5L	1-14"		135	68	148	105	89	158		703	135	
--WESTERN PACIFIC RAILROAD BRIDGE--	59.5												
H. A. Neistrath	60.1R	1-6"	5	5	4	20	33	6	9		82	42	
Stanley Shelton (d)	60.4L	1-4"	4	4	6	6	4	3		4	(e)31	7	
A. F. Wendler	60.5L	1-12"	35	35	18	40	72	9	6		216	188	
A. F. Wendler	61.5L	1-8"		13	36	30	41	35	15		170	50	
A. A. Jensen	62.0L	1-12"	100	68	22		33	16	18		257	130	
--PARADISE DAM (HEAD OF PARADISE CUT)--	62.2L												
Paradise Mutual Water Company	(f)62.2L	(g)1-14" 1-20"	162	469	412	683	555	528	263		3072	811	
Dethlefsen Brothers	62.75L	1-10"				NO DIVERSION							
Dethlefsen Brothers	63.0L	2-20"	397	592	528	768	1183	1058	836	201	5563	1900	
Dethlefsen Brothers (d)	64.5L	1-10"			42	28	38	29	25		162	56	
Manuel Brazil	66.7L	1-8"		110	68	138	161	90	75	38	680	164	
Banta-Carbona I. D.	67.5L	(h)2-10" (i)2-16" 2-20" 3-24" 1-36"	4349	9750	7909	6921	11300	7925	4089	2642	(j)54885	(k)16872	
Bradford S. Crittenden	70.0L	1-6"	74	90	91	65	112	82	51	44	(l)609	125	
Richard Burnley	70.5R	1-10"				NO DIVERSION							
Reclamation District #2075	71.0R	1-16"	12	435	662	766	733	739	534	79	3960	1356	
E. Filippini	71.0R	1-4"	2	2	10	6	8	7	7	5	47	11	
H. J. Mortensen, Borges & Barker	73.2R	1-8" 1-12"	116	109	303	234	194	271	214	47	1488	500	
San Joaquin River Club	74.7L	2-6"	54	53	110	104	158	127	99	94	(m)799	50	
E. A. Tassi	75.6R	1-16"		43	55	42	107	58	70	20	395	(n)324	
Totals			5746	13092	12205	11860	17047	13272	7855	3558	84635	26604	
Average cubic feet per second			93	220	198	199	277	216	132	58	174		
Monthly use in per cent of seasonal			6.8	15.5	14.4	14.0	20.1	15.7	9.3	4.2			

* Distance along San Joaquin River from its mouth 4½ miles below Antioch. (Mileage as established by War Department Survey 1913-15).
(a) Additional acre-feet diverted: January 30.
(b) Additional acre-feet diverted: January 19.
(c) Additional acre-feet diverted: February 1.
(d) New installation in 1950.
(e) Additional acre-feet diverted: February 5.
(f) Plant is located on the south side of Paradise Cut, 0.9 Mile from junction with San Joaquin River.
(g) The 14" installed in 1950.
(h) Formerly listed as two 10" units.
(i) Two 16" units installed in 1950.
(j) Additional acre-feet diverted: November 118.
(k) This figure includes following acreages outside district; Banta Farms 802, Kasson District 598 and outside contracts 1048. Of this figure, 485 acres were double cropped in the district. An undetermined amount of water received from controlled drainage.
(l) Additional acre-feet diverted: January 24.
(m) Additional acre-feet diverted: January 42, February 102 and November 50.
(n) An undetermined amount of water received from controlled drainage.

TABLE 170

DIVERSIONS AND ACREAGES IRRIGATED - SAN JOAQUIN RIVER - 1950
(Vernalis to Fremont Ford Bridge)

Water User	Mile and Bank *	Number and Size of Pump	Monthly Diversions in Acre-Feet								Total Diversion March to October Acre-Feet	Acreage Irrigated	
			Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		General	Rice
--DURHAM FERRY BRIDGE U.S.G.S. GAGING STATION SAN JOAQUIN RIVER NEAR VERNALIS--	76.7												
A. J. Chisholm	78.9R	1-10"		56		55	77	67	50		305	111	
Cruze, Kirby & Genova	79.4R	1-20"	116	2	149	102	129	105	31	23	657	135	
--STANISLAUS RIVER--	79.7R												
--MAZE ROAD BRIDGE - GAGING STATION - SAN JOAQUIN RIVER AT MAZE ROAD BRIDGE--	81.85												
W. C. Blewett Estate	81.95L	3-12"	408	441	716	551	806	757	247	383	(a)4309	1610	
El Solyo Water Company	82.0L	1-10" 3-18"	1504	2245	1637	2152	2957	3101	1557	613	(b)15766	3817	
--GAGING STATION - SAN JOAQUIN RIVER AT HETCH HETCHY WATER SUPPLY CROSSING--	82.65												
--TUOLUMNE RIVER--	91.0R												
--RECORDING GAGE--	91.8L												
--WEST STANISLAUS I. D. INTAKE CANAL--	91.8L												
West Stanislaus I. D.	91.8L	1-12" 1-24" 6-26"	7479	12337	11944	11403	15378	13663	6656	2131	(c)80991	(d)22570	
J. B. Erkenbrecher #1	**(0.6S)	1-14"	72	10							82	100	
Frank Sarmento #1 (e)	**(0.7N)	2-16"	432	367	362	484	369	399	312	136	2861	(f)883	
Frank Sarmento #2 (g)	**(1.1N)	1-14" 1-16"		36	458	344	301	290	196	33	1658	(h)	
J. B. Erkenbrecher #2 (i)	**(2.2S)	1-16"		39	71	67	54	68	55	23	377	75	
Frank Sarmento #3 (j)	**(2.3N)	2-16"		55	174	71	94	137	29		560	255	
Rancho Dos Rios (#3RB)	94.7R	1-12"		251	248	310	329	270	281	150	1839	295	
Rancho Dos Rios (#2LB)	95.2L	1-10"			104	110	118	306	44		682	(k)300	
Rancho Dos Rios (#2RB)	95.5R	1-10"		122	141	224	164	290	174	86	(l)1201	345	
Rancho Dos Rios (#1RB)	95.8R	1-10"		41	17	36	52	44			190	75	
Rancho Dos Rios (#1LB)	95.9L	1-10"			46		257				303	(m)	
--LAIRD SLOUGH BRIDGE - GAGING STATION - SAN JOAQUIN RIVER AT GRAYSON--	96.05												
Rancho El Pescadero	98.9L	1-18"	64	446	293	250	255	298	127		1733	(n)925	
--PATTERSON BRIDGE RECORDING GAGE--	104.4												
Patterson Water Company	104.4L	1-14" 1-18" 3-20" 1-36"	3781	7532	6411	7519	9203	5767	4560	657	(o)45430	(p)13875	
Chase Brothers	104.5R	1-10"	46	193	58	227	59	65	69	27	744	100	
M. L. Simmons	104.52L	1-5"			3	4	4	1	3		15	11	
Harry Black	104.7L	1-4"		1	2	2	2	2	1		10	3	
Chase Brothers	106.5R	1-10"		193	242	328	335	152	272	56	(q)1578	400	
Tony Spinelli (g)	109.1R	1-6"					11	45	24		80	38	
Twin Oaks Irrigation Co.	109.8L	1-12" 3-16"	868	1517	1757	1418	1337	1778	651	483	(r)9809	1089	390
Roy Ustick	112.55R	1-16"	114	183	211	268	173	262	163	33	1407	342	
Frank C. Mosier	113.4R	1-10"	10	12	26	35	36	37	33	10	199	60	
--CROWS LANDING BRIDGE RECORDING GAGE--	(s)113.5												
A. J. Silveria	113.85R	1-6"	5	9	8	8	11	6	5	4	56	15	

* Mileage along San Joaquin River from its mouth 4½ miles below Antioch. (Mileage established by War Department Survey of 1913-15).
** West Stanislaus I. D. Intake Canal - The Intake Canal joins the San Joaquin River at Mile 91.8L. Distance from the San Joaquin River and the bank is shown in ().
(a) Additional acre-feet diverted: November 66.
(b) Additional acre-feet diverted: November 39 & December 30. An undetermined amount of water received from controlled drainage.
(c) Additional acre-feet diverted: January 137 and November 78.
(d) Of this figure 1950 acres were double cropped. Includes 1810 acres irrigated outside of district.
(e) Formerly listed as Mr. and Mrs. Frank Sarmento #2.
(f) Combined acreage this plant and one at Mile ""(1.1N).
(g) New installation in 1950.
(h) See plant at Mile **(0.7N).
(i) Formerly listed as J.B. Erkenbrecher #3.
(j) Formerly listed as Mr. and Mrs. Frank Sarmento #4.
(k) Combined acreage this plant and one at Mile 95.9L.
(l) Additional acre-feet diverted: November 26. An undetermined amount of water received from Turlock Irrigation District.
(m) See plant at Mile 95.2L.
(n) An undetermined amount of water received from wells.
(o) Additional acre-feet diverted: January 11. An undetermined amount of water furnished to plant at Mile 109.8L in July.
(p) Of this figure 600 acres was double cropped.
(q) Additional acre-feet diverted: November 43.
(r) An undetermined amount of water received from plant at Mile 104.4L in July.
(s) Old Crows Landing Bridge removed in 1950, new bridge listed at Mile 113.5 in July.

TABLE 170

DIVERSIONS AND ACREAGES IRRIGATED - SAN JOAQUIN RIVER - 1950
(Vernalis to Fremont Ford Bridge)
(Continued)

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
A. J. Silveria	114.35R	1-7"	12	11	12	18	16	14	7	8	98	30	
Frank C. Mosier	114.63R	1-8"	34	38	54	42	54	44	44	33	(a)343	80	
G. L. Dutcher	114.9R	1-10"	21	31	44	37	33	38	21	7	232	50	
Glen H. Crow Estate	115.0L	1-10"		7	16	24	19	20	3	5	94	(b)45	
Roy F. Crow (c)	115.8L	1-10"					213				213	(b)115	
L. B. Crow	116.05L	1-14"	111	137	178	122	148	166	99	45	1006	210	
Howard Bell	116.95R	1-12"	20	20	34	34	34	35	34	17	228	(d)134	
--MERCED RIVER SLOUGH--	122.2R												
--HILLS FERRY BRIDGE - U.S.G.S. GAGING STATION - SAN JOAQUIN RIVER NEAR NEWMAN--	123.7												
--MERCED RIVER--	123.75R												
Emil Giovannoni (e)	123.9L		21	10	4						35	21	
--FREMONT FORD BRIDGE - GAGING STATION - SAN JOAQUIN RIVER AT FREMONT FORD BRIDGE--	129.5												
Totals			15118	26342	25420	26245	33028	28227	15748	4963	175091	48114	390
Average cubic feet per second			246	443	413	441	537	459	265	81	360		
Monthly use in per cent of seasonal			8.6	15.0	14.5	15.0	18.9	16.1	9.0	2.8			

* Mileage along San Joaquin River from its mouth 4½ miles below Antioch. (Mileage established by War Department Survey of 1913-15).
(a) Additional acre-feet diverted: November 6.
(b) An undetermined amount of water received from San Joaquin Canal Company.
(c) New installation in 1950.
(d) An undetermined amount of water received from controlled drainage.
(e) Not listed prior to 1950.

TABLE 171

DIVERSIONS AND ACREAGE IRRIGATED - UPPER SAN JOAQUIN RIVER - 1950
FREMONT FORD TO GRAVELLY FORD

Water User	Mile and Bank *	Number and Size of Pump	Monthly Diversions in Acre-Feet												Total Diversion January to December Acre-Feet	Acreage Irrigated	
			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		General	Rice
Arch Stevinson	133.76R	1-5"						NO DIVERSION									
Erreca Farms	161.9R	1-20"									34				34	90	
Erreca Farms	***(0.3)	Gravity						NO DIVERSION									
D. L. McNamara	***(1.4)	1-16"				68	26	60	56	5					215	100	
--GAGING STATION - SAN JOAQUIN RIVER NEAR DOS PALOS--	186.0																
San Luis Canal Company**	(a)186.6L	Gravity	77	490	13045	14822	15114	18950	21174	18996	14277	11201	6680	5818	140644	32893	
--FIREBAUGH BRIDGE--	198.4																
Ivan N. Zaninovich**	205.11L	1-7"						PLANT REMOVED									
Ivan N. Zaninovich (b)**	205.59L	1-6"			5	15	2	3	6	8	3				42	(c)59	
Antone Zaninovich	206.02R	(d)1-4"					3		6	7	6				22	15	
--GAGING STATION - SAN JOAQUIN RIVER NEAR MENDOTA--	206.2																
--MENDOTA DAM--	208.63																
San Joaquin Canal Company (e)**	(f)208.63	Gravity	3823	7069	52536	59626	68477	68314	73243	63938	41190	19082	8807	5156	471261	(g)126557	6117
Firebaugh Canal Company**	(f)208.63	2-24" 2-36" (h)2-42"		1363	4657	10629	11395	11574	11367	9370	4197	2886	837		68275	(c)18715 (i)	(c)3741
Grass Lands Water Assn.(b)**	(f)208.63	Gravity				2740	3498	4909	3882	254	5647	20546		9709	51185	55000	
Dr. E. L. Mott (b)**	(f,j)208.63	Gravity			85	230	648	810	692						(k)2465	492	526
Panoche Water Distribution Assn.(b)**	(f,l)208.63	Gravity			3148	2946	2158	3870	4945	3347	2956	2657		1718	(m)27745	29497	230
Sam Hamburg (b)**	(f,n)208.63	Gravity						765	1390	1152					(o)3307	3359	
--FRESNO SLOUGH--	208.9L																
Eugene Ham**	214.83L	1-4"						PLANT REMOVED									
W. B. Myers (b,p)**	(q)215.25L	1-8"			13	5		30	65	50					(r)163	(r)347	
W. B. Myers (p)**	(s)215.62L	1-6"													(t)	(t)	
W. B. Myers (u)**	215.63L	1-12"													(t)	(t)	
J. W. Jones (b,v)**	(w)217.03L	Gravity			129	26			15						170	235	
F. A. Yearout**	217.03L	Gravity						PLANT REMOVED									
Raymond Yearout (b,x)**	(q)218.40L	2-12"			66	12	84	200	180						542	331	
Z. R. Fultz (b)**	218.91L	Gravity				26		80	161	15	10				292	160	
A. R. Brown (b,u)**	219.01L	1-4"			15	32	5	76	19	11	152	101	5		(y)416	(y)1000	
--LONE WILLOW SLOUGH--	219.8R																
Columbia Canal Company**	219.8R	Gravity		682	4782	5605	5748	5863	6708	6411	4887	3860	2237	887	47670	12517	1057
Breakwater Duck Club (b)**	(z)219.8R	Gravity										199	61	313	573	100	
Ray Flanagan (b)**	(y,aa)219.8R	Gravity				2154		1409	2767	2239	901	544			10014	(bb)7294	
--GAGING STATION - SAN JOAQUIN RIVER AT WHITEHOUSE--	219.83																
George Frusetta**	220.27L	Gravity						NO DIVERSION									
A. R. Brown (b)**	(cc)221.35L	1-12"													(dd)	(dd)	
A. R. Brown**	221.63L	1-5"						NO DIVERSION									
A. R. Brown (b)**	227.86L	Gravity													(dd)	(dd)	

* Distance along San Joaquin River from its mouth 4½ miles below Antioch. (Mileage as established by War Department Survey 1913-15).
** Pertinent data furnished by U.S.B.R.
*** Plant is located on East Side Canal which leaves the San Joaquin River at Mile 163.6R. Distance from the river along East Side Canal is shown in ().
(a) Point of diversion is at head of Temple Slough.
(b) Diversion contracts with U.S.B.R. are limited to one year periods.
(c) An undetermined amount of water received from wells.
(d) The 4" unit replaced 3" unit in 1950.
(e) Includes Main Canal, Helm Canal, Outside Canal & Helm Ditch. Excludes diversions through Outside Canal to Dr.E.L.Mott & Panoche Water Distribution Assn. & also Sam Hamburg's diversions from June 15 through Sept. 15. Also excludes diversions through the various canals of the San Joaquin Canal Company to the Grass Lands Water Association.
(f) Point of diversion is considered to be Mendota Pool.
(g) Includes some double cropping and interplanting.
(h) One 42" unit installed in 1950.
(i) Of this total 1625 acres were double cropped.
(j) Re-diverted from Outside Canal by means of 2-12" pumps on intake channel at Mile 18.24L below head & 2-12" pumps at Mile 19.24L below head.
(k) Conveyance losses between head of Outside Canal & lift pumps amounted to approximately 128 acre-feet of this figure. Net of 2337 diverted through lift pumps.
(l) Re-diverted from Outside Canal by 3-30" & 2-24" pumps at Mile 23.58L below head.
(m) Conveyance and other losses amounted to 1110 acre-feet of this figure. Net of 26635 diverted through lift pumps.
(n) Re-diverted from Outside Canal by 2-16" & 1-24" pumps on intake channel located at Mile 25.75L below head. Except for the June 15, September 15 period, water was received from San Joaquin Canal Co.
(o) Conveyance losses amounted to 123 acre-feet of this figure. Net of 3184 diverted through lift pumps.
(p) Formerly listed as Eugene Ham.
(q) Pumps operated at various locations along river.
(r) Combined acreage and diversions of this plant and plants at Miles 215.62L and 215.63L.
(s) Pump operated at various locations along river and Mowry Canal. Formerly listed at Mile 214.63L.
(t) See plant at Mile 215.25L.
(u) New installation in 1950.
(v) Formerly listed as Webster Brothers.
(w) Point of diversion is at head of Mowry Canal.
(x) Formerly listed as F. A. Yearout.
(y) Combined acreage and diversion of this plant and plants at Miles 221.35L and 227.86L.
(z) Point of re-diversion is on Lone Willow Slough at Mile 2.2R.
(aa) Delivery is through Chowchilla Canal re-diverting from Lone Willow Slough 2.3 Miles below head.
(bb) Of this figure 737 acres were double cropped.
(cc) Formerly listed at Mile 222.36L.
(dd) See plant at Mile 219.01L.

TABLE 171

DIVERSIONS AND ACREAGE IRRIGATED - UPPER SAN JOAQUIN RIVER - 1950
FREMONT FORD TO GRAVELLY FORD
(Continued)

Water User	Mile and Bank *	Number and Size of Pump	Monthly Diversions in Acre-Feet												Total Diversion January to December Acre-Feet	Acreage Irrigated	
			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		General	Rice
Rose Campbell	232.55L	(a)1-4"					16	22	16	11	5	1			71	13	
R. E. Jones	232.65L	1-5"			3	6	7	8	11	10	5				50	15	
Gravelly Ford Water Assn.**(b)	232.8R	Gravity						1055	1432	1174	948	496			5105	3870	34
--HEAD OF GRAVELLY FORD CANAL--	232.8R																
Totals			3900	9604	78484	98942	107181	117998	128135	106998	75218	61573	18627	23601	830261	292659	11705
Average Cubic Feet per second			63	173	1276	1663	1743	1983	2084	1740	1264	1001	313	384	1147		
Monthly use in per cent of seasonal			.5	1.2	9.5	11.9	12.9	14.2	15.4	12.9	9.1	7.4	2.2	2.8			

* Distance along San Joaquin River from its mouth 4½ miles below Antioch. (Mileage as established by War Department Survey 1913-15).
** Pertinent data furnished by U.S.B.R.

(a) The 4" unit replaced 6" unit in 1950.
(b) Diversion contracts with U.S.B.R. are limited to one year periods.

TABLE 172

DIVERSIONS AND ACREAGE IRRIGATED - UPPER SAN JOAQUIN RIVER - 1950
GRAVELLY FORD TO FRIANT DAM

Water User	Mile and Bank *	Number and Size of Pump	Monthly Diversions in Acre-Feet												Total Diversion January to December Acre-Feet	Acreage Irrigated	
			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		General	Rice
Roland Betzer	233.66R	1-6"			23	39		15	29	16	7	16			145	(a)76	
W. A. Kochergen	234.00R	1-6"						NO DIVERSION									
M. Nazaroff	234.62L	1-5"							13			5			18	(b)30	
F. Arata	234.68L	1-14"						PLANT REMOVED									
Ernest D. Hart (c)	235.03L	1-3"			1	2	1	1	2	1	1	1			10	2	
E. F. Carlson	235.33R	1-5"	1	3	28	25	32	47	77	66	33		31		343	74	
William Tolmosoff	236.28R	1-6"						NO DIVERSION									
Morello Winery	237.33L	1-8"			41	46	64	49	206	213	64				683	255	
Lorraine Beatty	237.43L	1-6"				2	4	4	7	1					18	3	
J. Peterson	237.98R	1-6"				2	14	24	46	44	23				153	73	
--SKAGGS BRIDGE--	238.18																
Anderson and Thurman (d)	243.84R	1-5" 1-6"					37	50	69	71	34	21			282	135	
C. B. Hines (e)	244.03L	1-5"				1	2	1	3	2	1				(f)10	5	
Lionel Steinberg	244.86L	1-7"			31	63	5	40	6	50	21	4			220	(b)150	
C. L. Hammar	245.36R	1-6"				29	88	85	77	55	40				374	(g)217	
Lionel Steinberg	245.81L	1-6"			3	17	18	30	1	19	6	1			95	30	
Jasper Ranch	246.15L	1-5"						NO DIVERSION									
Jasper Ranch	246.34L	1-8"											7		7	(h)30	
H. W. Valentine	246.73L	1-5"				10	12	9	22	40	13	7			113	83	
Vincent Jura	246.98L	1-4"						NO DIVERSION									
--HERNDON BRIDGE U.S. 99 HIGHWAY--	247.38																
Sam Deanda	247.50R	1-5"						NO DIVERSION									
Frank, James and Adolph Oberti	247.64R	1-5"			20	34	32	46	39	67	50				288	(i)125	
Frank, James and Adolph Oberti	247.65R	1-4"			16	13	18	18	27	31	25				148	(j)	
San Joaquin Light and Power Co.	247.82R	1-3"			3	8	21	18	18	23	9	8			108	25	
--HERNDON RECORDER STATION--	248.31L																
Bud Bradburn	248.51L	1-3"					14	10	11	13	3				51	15	
John Danisi	248.72L	1-5"			6	21	25	19	24	23					118	65	
--SANTA FE RAILROAD BRIDGE--	249.23																
Moosios, Moosios and Vlahos	249.51R	1-4"					17	3	15	8					43	13	
Moosios, Moosios and Vlahos	250.56R	1-6"					51	32	59	62					204	37	
Moosios, Moosios and Vlahos	250.76R	1-7"						NO DIVERSION									

* Distance along San Joaquin River from its mouth 4½ miles below Antioch. (Mileage as established by War Department Survey 1913-15).
(a) Of this figure 76 acres were double cropped.
(b) An undetermined amount of water received from Fresno Irrigation District.
(c) Formerly listed as G. V. Hart.
(d) Formerly listed as P. J. Vincent.
(e) Reported in 1949 as No Diversion. Should have been 5 acres general crops and an estimated diversion of 10 acre-feet.
(f) This figure partially estimated.
(g) An undetermined amount of water received from wells.
(h) An undetermined amount of water received from Fresno I. D. and from wells.
(i) Combined acreage this plant and one at Mile 247.65R.
(j) See plant at Mile 247.64R.

TABLE 172

DIVERSIONS AND ACREAGE IRRIGATED - UPPER SAN JOAQUIN RIVER - 1950
GRAVELLY FORD TO FRIANT DAM
(Continued)

Water User	Mile and Bank *	Number and Size of Pump	Monthly Diversions in Acre-Feet												Total Diversion January to December Acre-Feet	Acreage Irrigated	
			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		General	Rice
Sandstone Land & Cattle Co.	251.46L	1-5"				7	36	38	29	28	2	17	15		172	60	
D. M. Folsom	253.10L	1-4"						7	5	3					15	9	
D. M. Folsom	253.38L	1-5"						NO DIVERSION									
Fred Russell	253.79R	1-6"			1	3	15	24	16	22	4	2			87	43	
Howard and Epperson	254.57R	1-5"						NO DIVERSION									
Howard and Epperson	254.82R	1-5" 1-6"					34	96	106	71					307	(a)70	
Howard and Epperson	254.93R	1-6"					1	71	77	25					174	(b)	
Mi-Key Ranches (c)	254.98L	1-7"				70	54	57	59	5					245	46	
Edwald A. Larson #6 (d)	**255.00	1-3"			2	6	14	10	1	15	4				52	30	
War Dads Memorial	255.05L	1-4"						NO DIVERSION									
Edwald A. Larson #5 (e)	255.34R	(f)1-6"				30	26	52	28	58	54	10			258	50	
Edwald A. Larson #4 (e)	**255.84	1-6"	3	11	28	10	5	25	40	34	33		1		190	13	
Edwald A. Larson #3 (e)	256.40R	(g)1-4"			10	20	41	43	34	17					165	48	
Edwald A. Larson #2 (e)	256.52R	1-6"				3	46	31	71	51	25				227	65	
Richard Holland	257.09L	1-7"						NO DIVERSION									
Richard Holland	257.70L	1-7"		1	6	18	17	28	40	46	16				172	13	
L. D. Cobb	258.08R	1-5" 1-7"			3	10	28	66	147	167	24				445	112	
--NEW LANES BRIDGE--	258.33																
R. J. Curtis	258.39L	1-7"				7	14	51	22	34	7				135	40	
W. E. Roberts	258.50L	1-4"						NO DIVERSION									
W. E. Roberts	258.80L	1-6"					53	21	72	55					201	(h)160	
W. E. Roberts	258.90L	(i)1-12"		2	10	17	173	134	175	183	145	112	8		959	(j)	
J. E. Cobb	259.30R	1-6"						NO DIVERSION									
J. E. Cobb	259.39R	(k)1-6" 1-7"				17	115	103	129	97	139				600	(l)107	
--SITE OF OLD LANES BRIDGE--	259.78																
Marjorie E. Simms (m)	259.80L	1-6"				4	60	33	32	30	30				189	20	
R. C. Arnold	261.53R	1-6"						NO DIVERSION									
E. G. Rank	**262.07	1-6"							97	48					145	29	
D. M. Folsom	262.27L	1-7"					51	52	186	96	32				417	86	
A. Brown	262.43L	1-5"				24	10	4	60	8					106	52	
E. G. Rank	262.48L	1-5"				2	12	29	21	18	8	10			100	30	
Richard Holland	262.66L	1-7"			24	15	51	144	88	105	49				476	109	
Isabel Burnham	263.40R	1-7"			26	60	160	222	230	174	79	47			998	83	
Andrew Jensen	263.76R	1-5"			13	42	69	70	83	83	51	28			439	90	
Pacific Coast Aggregate Co.(n)	264.00L	1-6" 1-8"						INDUSTRIAL USE ONLY									
H. W. Ball (d)	(o)264.00	1-6"						20	37	35	13				105	16	
H. W. Ball	(o,p)264.00L	1-5"					17	30	34	17	13				111	24	
H. W. Ball	264.08L	(q)1-6"					5	16	9	13	9	8			60	14	
W. F. Ball	264.83L	1-4"		8	1	14	4	4	17	11	6				65	68	
V. D. Roullard	265.40L	1-5"			2	3	27	53	53	54	15				207	28	
Durando and Bellin (r)	267.56L	1-6"			4	23	82	94	167	145	70	28			613	215	
--GAGING STATION - SAN JOAQUIN RIVER BELOW FRIANT--	268.13L																
--FRIANT BRIDGE--	268.88																

* Distance along San Joaquin River from its mouth 4½ miles below Antioch. (Mileage as established by War Department Survey 1913-15).
** Point of diversion and place of use is on island in midstream.
(a) Combined acreage this plant and one at Mile 254.93R.
(b) Combined acreage this plant and one at Mile 254.93R.
(c) Formerly listed as Bullard Ranch.
(d) New installation in 1950.
(e) Formerly listed as McEacherm and Larson.
(f) The 6" unit replaced 7" unit in 1950.
(g) The 4" unit replaced 5" unit in 1950.
(h) Combined acreage this plant and one at Mile 258.90L.
(i) Formerly listed as a 6" unit.
(j) See plant at Mile 258.80L.
(k) The 6" unit installed in 1950.
(l) Of this figure 62 acres were double cropped.
(m) Formerly listed as Marjorie E. Sims.
(n) Not listed prior to 1950.
(o) Pump is located on pond whose major source of water is from Pacific Coast Aggregate Company.
(p) Formerly listed as Mile 263.63L.
(q) The 6" unit replaced 10" unit in 1950.
(r) Formerly listed as B. B. Durando.

TABLE 172

DIVERSIONS AND ACREAGE IRRIGATED - UPPER SAN JOAQUIN RIVER - 1950
GRAVELLY FORD TO FRIANT DAM
(Continued)

Water User	Mile and Bank *	Number and Size of Pump	Monthly Diversions in Acre-Feet												Total Diversion January to December Acre-Feet	Acreage Irrigated	
			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		General	Rice
Wishon-Watson Company	269.18R	1-5"			33		11	33	60	2			39		178	42	
--COTTONWOOD CREEK--	269.53R																
--FRIANT DAM--	269.63																
GRAVELLY FORD TO FRIANT DAM																	
Totals			4	25	335	717	1686	2162	2976	2555	1158	325	101	0	12044	3215	0
Average Cubic Feet per second			0	0	5	12	27	36	48	42	19	5	2	0	17		
Monthly use in per cent of seasonal			0	0.2	2.8	6.0	14.0	18.0	24.7	21.2	9.6	2.7	0.8	0			
Friant Kern Canal**	269.63	Gravity			15231	22378	17766	52877	45584	41534	79				(a)195449		
Madera I. D.**(b)	(c)269.63	Gravity					137	13676	18955	10201	7559				(d)50528	22700	
Chowchilla Water Storage Association**(b)	(e)269.63	Gravity			16	2626	12004	9646	17086	14416	10213				(f)66007	12856	

* Distance along San Joaquin River from its mouth 4½ miles below Antioch. (Mileage as established by War Department Survey 1913-15).
** Pertinent data furnished by U.S.B.R.
(a) This is supplemental water for acreages as follows: Lindsay-Strathmore I. D. 10,000, Lindmore I. D. 1750, Tulare I. D. 25909, Orange Cove I.D. 5750, Delano-Earlimart 3910, Lower Tule I. D. 7654, Stone Corral I. D. 1000, Ivanhoe I. D. 8867, Exeter I. D. 1700, Porterville I. D. 2500, Terra Bella I. D. 2404, Saucelito I. D. 1500.
(b) Diversion contracts with U.S.B.R. are limited to one year periods.
(c) Point of delivery is considered to be "canal side". Points of diversion are at Hildreth Creek Turnout Mile 13.16; Fresno River Wasteway, Mile 18.8L; Dry Creek, Mile 24.2L; Berenda Creek, Mile 30.4L.
(d) Of this amount 22039 acre-feet were used for surface irrigation and 28489 acre-feet served to replenish ground water supply. An undetermined amount of water received from wells.
(e) Point of delivery is Madera Canal at Mile 35.6.
(f) Of this figure 24036 acre-feet were used for surface irrigation and 41971 acre-feet served to replenish the ground water supply.

TABLE 173

DIVERSIONS AND ACREAGE IRRIGATED - FRESNO SLOUGH AND FRESNO SLOUGH BY-PASS* - 1950
(The following table arranged from data furnished by U. S. Bureau of Reclamation)

Water User	Mile and Bank **	Number and Size of Pump	Monthly Diversions in Acre-Feet												Total Diversion January to December Acre-Feet	Acreage Irrigated	
			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		General	Rice
E. P. Jennings (a)	2.85L	1-14"						NO DIVERSION									
E. P. Jennings (a)	2.9L	1-12"				16	32	31	62	50	5				196	(b)355	(b)405
P. R. Engleman (a,c)	6.4R	1-24"										37			37	(d)100	
Charles Sachs (a,e)	6.45L	1-8"				273	89	135			2715				(f)3212	(f)4052	(f)320
Charles Sachs (a)	7.1L	1-24"													(g)	(g)	(g)
Charles Sachs (a)	8.2L	1-30" 1-36"													(g)	(g)	(g)
Traction Ranch (h)	9.6R	1-20"				415	1294	851	637	148					(i)3345	(i)483	(i)682
Traction Ranch	11.4R	1-12"						PLANT REMOVED									
--FRESNO SLOUGH BY-PASS--	11.8R																
Traction Ranch (h)	***(0.75)	1-20"													(j)	(j)	(j)
James I. D. "P" Booster (h)	***(4.4)	1-14" 1-16"		31	2027	1224	618	1081	2737	2324	856	187			(k)11085	(k)4073	(k)108
Kerman Cattle Company (a)	***(4.5)	1-12"			59		131	259	173		2	116	22	22	784	(l)3500	
James I. D. "N" Booster (h)	13.25R	1-14" 1-20" 1-24"													(m)	(m)	(m)
J. W. Wilson	13.5L	1-12"			83	5	36	77	122	97					420	208	
Tranquillity I.D. Lift #1 (h)	14.1L	2-24"		67	3330	1461	1840	1796	5478	5512	1166				(n)20650	(n)6413	(n)1300
Tranquillity I.D. Lift #2 (h)	15.9L	2-24" 2-30"													(o)	(o)	(o)
Totals			0	98	5499	3394	4040	4230	9209	8131	4744	340	22	22	39729	19184	2815
Average cubic feet per second			0	2	89	57	66	71	150	132	80	6	0	0	53		
Monthly use in per cent of seasonal			0	.2	13.8	8.5	10.2	10.6	23.2	20.5	11.9	.9	0	0			

* The water in Fresno Slough and Fresno Slough By-Pass is mainly derived from the San Joaquin River by the Mendota Pool backwater created by Mendota Dam, and is occasionally augmented by Kings River via Fresno Slough By-Pass.
** Mileages listed are miles above the mouth of Fresno Slough. Mouth of Fresno Slough is at Mile 208.93 above mouth of San Joaquin River.
*** Plant is located on Fresno Slough By-Pass which joins Fresno Slough at Mile 11.8R. Distance along Fresno Slough By-Pass from Fresno Slough is indicated in ().
(a) Diversion contracts with U.S.B.R. are limited to one year periods.
(b) An undetermined amount of water received from wells.
(c) Formerly listed as S.L. Heisinger and P.R. Engleman.
(d) Acreage estimated all gun club lands, flooded once.
(e) New installation in 1950.
(f) Combined diversion & acreage of this plant & plants at Miles 7.1L & 8.2L.
(g) See plant at Mile 6.45L.
(h) These diverters received supplemental water by temporary annual contracts with U.S.B.R.
(i) Combined diversion and acreage of this plant and plant at Mile ***(0.75). An undetermined amount of water received from wells.
(j) See plant at Mile 9.6R.
(k) Combined diversion and acreage of this plant and plant at Mile 13.25R. An undetermined amount of water received from Kings River via James Main Canal.
(l) Scattered flooding of grazing land and gun club.
(m) See plant at Mile ***(4.4).
(n) Combined acreage and diversion of this plant and plant at Mile 15.9L. An undetermined amount of water received from wells and from the Kings River through Beta Main Canal. Kings River water obtained from April 29 through May 8 and from May 21 through June 16, 1950.
(o) See plant at Mile 14.1L.

TABLE 174

DIVERSIONS AND ACREAGES IRRIGATED - MERCED RIVER - 1950

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
--HILLS FERRY BRIDGE--	1.1												
Stevinson Water District #1	1.8R	1-16"	1	44	44	44	22	112	12	3	282	200	
Stevinson Water District #2	3.8R	1-20"	103	348	436	443	376	338	324	60	(a)2428	600	
Milton Gordon	4.3L	1-10"		21	68	61	58	45	28	13	(a)294	92	
--GAGING STATION - MERCED RIVER NEAR STEVINSON--	4.6												
Salvador De Angelis	4.8L	1-12"	11	3	5	20	24	14	13		(b)90	33	
Maria De Angelis	5.8L	1-12"	50	26	59	82	63	37	50	7	(b)374	93	
Lydell Peck	6.1L	1-15"	96	243	170	324	269	149			1251	205	
Stevinson Water District	7.7L	1-20"	100		209	169	211	159	52	19	(c)919	1121	
Manuel Clemintino	8.5L	1-12"		13		14	15	9	17		68	20	
Manuel Clemintino	8.9L	1-12"	41	10	60	73	14	58	56	4	(d)316	114	
Samuel B. McCullagh	9.4L	1-12"	41	94	140	115	146	145	128	28	837	229	
J. R. Jacinto	9.6L	1-12"	29	59	70	71	92	76	46	45	488	113	
R. W. Adams and Mrs. J. B. Silva	10.35L	1-8" 1-10"	9	148	230	271	285	405	264	78	(e)1690	404	
R. E. Prusso	10.8R	1-6"			24	1	6	16	5	3	55	25	
Manuel Freitas	10.9L	1-12"		152	72	110	95	69	45		543	80	
R. E. Prusso and John Vierra	10.9L	1-5" 1-12"	12	73	41	89	245	112	70		642	(f)219	
Tony Vierra	11.6L	(g)1-6" 1-8"	28	92	91	125	104	97	75	18	630	122	
J. Regello	11.6L	1-12"		15	89	42	41	49	39		275	133	
--MILLIKEN BRIDGE--	11.65												
M. Turner	11.7R	(h)1-4"					1				1	4	
E. and J. Gallo Winery Ranch	12.35L	1-10"		1	28	93	75	21			(i)218	100	
Soren Husman	12.4L	1-6"		3	7	13	52	32	15		(j)122	26	
M. Turner	12.8R	(h)1-4"					4				4	10	
E. and J. Gallo Winery Ranch	12.85L	1-10"		53	154	213	215	107			(k)742	240	
M. Turner	13.4R	(h)1-4"				NO DIVERSION							
Leonard Sward	14.3R	(l)1-6"			11	4	9	7	9		40	45	
J. M. Souza	14.5L	1-10"	19	59	21	73	82	80	33	11	378	81	
Leonard Sward	14.8R	(m)2-6"				NO DIVERSION							
Conie Koehn	14.8L	1-5"				NO DIVERSION							
Leonard Sward	15.4R	(m)2-6"			4	2					6	18	
Frank Cole (n)	16.2R	1-7"			12	8	7	32	8	1	68	25	
E. and J. Gallo Winery Ranch	16.5L	1-10"	1	32	123	213	191	62			(o)622	150	
C. J. Carpenter	17.05L	1-7"		3	13	8	11	11	9	6	61	35	
--RECORDING GAGE--	17.1												
Ervey Schmidt	17.7L	1-5"					8	6	1		15	14	
J. H. Thomas	17.85L	1-6"	6	8	21	24	20	25	12	2	118	(p)27	
John Francis	18.1R	(q)1-5" 1-6"		6	7	7	8	15	6		49	22	
C. P. Hockett	18.5L	1-4"		5	3	5	4	7	1	2	27	16	
John Francis	18.6R	(q)1-5" 1-6"		10	4	5	9	4	6	1	39	14	
S. P. Magsalay	19.8L	1-6"	5	18	14	5	4	4	7	1	(b)58	19	
Howard A. Jones (r)	19.8L	1-6"		10	19	13	4	4	9		59	20	
John Francis	20.3R	(q)1-5" 1-6"		3	2	3	6	5	3	1	23	18	
Rudolph Reininghaus	20.4L	1-6"			7	18	20	7			52	(s)67	
G. L. Carlson	20.6R	1-6"		7	15	17	19	22	13	6	99	31	

(a) Additional acre-feet diverted: January 1.
(b) Additional acre-feet diverted: November 2.
(c) Additional acre-feet diverted: November 402. An undetermined amount of water received from East Side Canal.
(d) Additional acre-feet diverted: November 10. Total acre-feet diverted for years 1948 and 1949 were listed in the respective annual reports as: 1948 was 59 and 1949 was 91. These listings should have been as follows: 1948 acre-feet 159 and 1949 acre-feet 248.
(e) Additional acre-feet diverted: November 4.
(f) Of this figure 76 acres were double cropped.
(g) The 6" unit installed in 1950.
(h) Portable unit diverting water at plants at Miles 11.7R, 12.8R and 13.4R.
(i) Additional acre-feet diverted: November 17. An undetermined amount of water received from wells.
(j) Additional acre-feet diverted: November 1.
(k) Additional acre-feet diverted: November 61. An undetermined amount of water received from wells.
(l) The 6" unit replaces 2-6" portable units formerly listed at this location.
(m) Portable units diverting water at plants at Miles 14.8R and 15.4R.
(n) New installation in 1950.
(o) Additional acre-feet diverted: November 19.
(p) Of this figure 13 acres were double cropped.
(q) Portable units diverting water at plants at Miles 18.1R, 18.6R and 20.3R.
(r) Formerly listed as Frank P. Dutra.
(s) An undetermined amount of water received from wells.

TABLE 174

DIVERSIONS AND ACREAGES IRRIGATED - MERCED RIVER - 1950
(Continued)

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
G. L. Carlson	20.65R	1-4"				NO DIVERSION							
--HIGHWAY 99 BRIDGE--	21.04												
--SOUTHERN PACIFIC RAILROAD BRIDGE (MAIN LINE)--	21.05												
A. C. Jorgensen #1	21.05R	1-6"		8	6	5	9	8			36	27	
Ben Bartlett (a)	21.5L	1-6"	8	3	7	2	2	2	2		26	50	
A. C. Jorgensen #2	22.2R	1-16"	61	147	107	178	156	108	74		(b)831	(c)318	
A. C. Jorgensen #3	22.8R	(d)1-6" 1-12" 1-15"	21	81	89	69	115	102	28	2	(e)507	265	
A. C. Jorgensen #4	23.6R	1-8"	8	12	48	32	50	39	18		207	70	
Manuel A. Bettencourt	24.2R	1-6"		12	12	20	17	13	6		80	31	
Warren F. McConnell	24.2L	1-5"				NO DIVERSION							
T. Nishihara	24.3R	1-5"				NO DIVERSION							
Warren F. McConnell	24.5L	1-6"		8	11	8	16	18	6		67	42	
T. Nishihara	24.6R	1-6"				18		5			23	25	
T. Nishihara	25.0R	(f)1-5"					35				35	26	
T. Nishihara	25.5R	1-6"	1	5	10	4	11	11	7	3	52	67	
Merced River Farms Assn.	26.3R	1-8"		125	169	201	176	145	77	63	956	108	
W. C. Magneson	26.55R	1-5" 1-6"	1	15	15	30	33	23	7		124	41	
Carl Cunningham	26.8L	1-8"				NO DIVERSION							
--SANTA FE RAILROAD BRIDGE--	27.05												
W. C. Magneson	27.5R	1-10"			108	98	135	152	32		525	135	
--GAGING STATION - MERCED RIVER AT CRESSY BRIDGE--	27.6												
T. Nishihara	27.8R	1-4" 1-6"		6	10	9	9	8	9		(b)51	30	
M. Uyekubo	28.1R	1-5"	1	5	7	3	8	12	9	3	48	20	
John Farie	28.4R	1-5"	8	3	7	11	10	10	6		55	18	
J. Campadonica	28.6R	1-6"			8	6	6	10		4	34	12	
Oliver Alves	28.6R	1-8"			24	36	35	5	24		124	86	
Anthony Demchille	29.1R	1-7"				47	36	60	30		173	38	
Anthony Demchille	29.75R	1-6"				16	15	13	11		55	47	
Manuel Silva (High Lift)	29.9R	1-6"				7	13	7			27	20	
Manuel Silva (Low Lift)	29.9R	1-6"			27	31	31	36	20	10	155	70	
Rose and Shaffer	30.7L	1-6"	1	22	49	31	33	16	24		176	58	
Manuel Silva	30.95R	1-12"		30	142	129	89	106	48	13	557	185	
Rose and Shaffer	31.1L	1-8"	3		203	161	68	176	69	20	700	80	
Manuel Silva	31.5R	1-6"				NO DIVERSION							
--SOUTHERN PACIFIC RAILROAD BRIDGE (OAKDALE BRANCH)--	32.52												
Jack Pretzer (g)	33.1R	1-6"	9			21	76	103	50		259	45	
A. L. Felling (h)	33.2L	1-2" (i)1-4"	1	2	1						4	7	
Jack Pretzer (g)	33.55R	1-6"		41	50	127	72	70	93	28	481	190	
W.F.Bettencourt, P.Halaris and Cowel Land Cement Company (j)	36.9L	Gravity			665	712	736	736	665		3514	1009	
Reinero Brothers	39.2L	1-24"				NO DIVERSION							
E. M. Davis	40.2L	1-4"	1	2	2	3	2	1	2		13	7	
--GAGING STATION - MERCED RIVER BELOW SNELLING--	42.1												
Totals Average cubic feet per second Monthly use in per cent of seasonal			676 11 2.8	2086 35 8.7	4050 66 17.0	4793 81 20.1	4809 78 20.1	4336 71 18.2	2673 45 11.2	455 7 1.9	23878 49	7912	0
Merced Irrigation District (k)46.0L		Gravity											
Totals Average cubic feet per second Monthly use in per cent of seasonal			22861 372 4.3	64069 1077 12.1	96637 1572 18.3	99700 1676 18.9	106355 1730 20.1	86920 1414 16.5	51702 869 9.8	0 0 0	528244 1087	107190	3420

(a) Not listed prior to 1950.
(b) Additional acre-feet diverted: February 1.
(c) Of this figure 77 acres were double cropped.
(d) The 6" unit installed in 1950.
(e) Additional acre-feet diverted: February 3.
(f) One 5" unit removed in 1950.
(g) Formerly listed as Smith Brothers and Landers.
(h) Formerly listed as Clyde Jones.
(i) The 4" unit installed in 1950.
(j) Formerly listed as W. F. Bettencourt, Joe Gomez and Cowel Land Cement Company.
(k) Approximate mileage of the Crocker-Hoffman Diversion Dam.

TABLE 175

DIVERSIONS AND ACREAGES IRRIGATED - TUOLUMNE RIVER - 1950

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	1.9R	1-20"	129	210	71	84	194	263	104	16	(a)1071	2650	
J. DeSouza and J. B. Silva	2.2R	1-6"	24	2	21	25	14	8	15		109	50	
Katheiser Brothers	3.1R	1-16"				NO DIVERSION							
--GAGING STATION - TUOLUMNE RIVER AT TUOLUMNE CITY--	3.35												
Russel Murray (b)	3.4L	1-5"	5	2	28		37	39			111	20	
Bancroft Fruit Farms	4.1R	1-12"		26	24	38	26	55	25		194	81	
Bancroft Fruit Farms	5.0R	1-10"	12	65	123	122	117	128	51	9	(c)627	160	
R. L. Maxfield (b)	6.9R	1-7"	4	1	3	33	50	22	31		144	28	
Eugene Boone, Galen Hartwich and William Podesto	7.1R	1-10"		56	159	181	115	24			535	45	
W. F. Duffy	7.2R	1-7"	10	2	23	25	14	11	6		91	48	
Ella T. Rahilly	7.8L	1-10"				50	25	36	46		157	160	
Ella T. Rahilly (d)	7.9L	1-4"		44	14						58	(d)	
W. F. Duffy	8.4R	1-10"	25	56	61	65	59	35	44	31	(e)376	85	
A. C. Watkins	9.4L	1-12"				NO DIVERSION							
Tuolumne Cooperative Farms, Inc.	10.2R	1-10" 1-14"	35	18	103	92	77	113	50	10	498	88	
G.B. and L.D. Podesto	15.75R	1-3"		1	3	3	3	3	2	1	16	17	
--OLD HIGHWAY BRIDGE (SEVENTH STREET)--	15.75												
--SOUTHERN PACIFIC RAILROAD BRIDGE (MAIN LINE)--	15.8												
--GAGING STATION - TUOLUMNE RIVER AT MODESTO--	15.92												
--TIDEWATER SOUTHERN RAILROAD BRIDGE--	15.92												
--HIGHWAY 99 BRIDGE--	16.05												
--DRY CREEK CONFLUENCE--	16.5R												
Modesto Terminal Company	20.1R	1-8"						25	20		45	29	
James H. Wayland (f)	20.3R	(g)1-10"			10	7	1	1			19	70	
R. L. Heimann	20.5R	1-12"			52	27	39	26	31	26	201	83	
--SANTA FE RAILROAD BRIDGE--	21.6												
G. R. Trent (h)	23.5R	1-6"	2	8	12	24	26	23	2		97	38	
C. S. Blakesley (h)	23.6R	1-6"	5	4	7	10	8	7	4	2	47	16	
M. A. Goodman and Sons (b)	25.6R	1-2"		2	3	5	5	6	2		23	14	
H. W. Low (b)	27.0L	1-4"		9	22	24	30	32	26	10	153	40	
George H. Johnson	27.1R	1-8"			24	8	20	22			74	27	
Paul J. Ferguson (i)	27.3R	1-10"				26	17				43	10	
B. and L. Ranch (j)	27.9R	1-12"	27		38	37	15	62			179	40	
Ronald R. Painter	28.3R	1-7"				1	14	2	4		21	18	
J. W. and Lola May Short	28.7L	1-7"		3							3	(k)10	
Michel Investment Company	28.8R	1-12"	14	18	48	66	63	68	58	68	403	150	
J. W. and Lola May Short	29.4L	1-7"		23	20	23	11	15			92	55	
Firpo Ranch	30.2L	1-10"		8	27	39	53	51		16	194	100	
--SOUTHERN PACIFIC RAILROAD BRIDGE (OAKDALE BRANCH)--	31.5												
--GAGING STATION - TUOLUMNE RIVER AT HICKMAN BRIDGE--	31.7												
A. G. Laughlin	34.2R	1-6"			3	4		5	3		15	17	
Donald Ketcham (b)	38.4R	1-5"			3	1					4	14	
A. E. Ketcham	39.4R	1-8"	7	18	23	35	40	36	19	20	198	50	
George H. Sawyer	39.8L	1-6"	6	12	45	52	48	52	30	44	289	(l)437	
--GAGING STATION - TUOLUMNE RIVER AT ROBERTS FERRY BRIDGE--	39.9												

(a) Additional acre-feet diverted: January 4 and February 3. An undetermined amount of water received from controlled drainage of Modesto I.D.
(b) New installation in 1950.
(c) Additional acre-feet diverted: January 1, Fegruary 1 and November 1.
(d) Temporary installation in 1950 to supplement water from plant at Mile 7.8L.
(e) Additional acre-feet diverted: January 4 and February 3.
(f) Formerly listed as L. R. Hughson.
(g) The 10" unit replaced 8" unit formerly listed at this location.
(h) Not listed prior to 1950.
(i) Formerly listed as George H. Johnson #1.
(j) Formerly listed as Dr. A. N. Tonge.
(k) An undetermined amount of water received from Turlock I.D.
(l) An undetermined amount of water received from wells.

TABLE 175

DIVERSIONS AND ACREAGES IRRIGATED - TUOLUMNE RIVER - 1950
(Continued)

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
Dolling Brothers (a)	46.3R	1-8"							7	6	13	40	
--GAGING STATION - TUOLUMNE RIVER AT LA GRANGE--	50.5												
Totals			305	588	970	1107	1121	1170	580	259	6100	4690	0
Average cubic feet per second			5	10	16	19	18	19	10	4	13		
Monthly use in per cent of seasonal			5.0	9.6	15.9	18.1	18.4	19.2	9.6	4.2			
Turlock Irrigation District	(b)53.5L	Gravity											
Totals			56426	62842	102763	98063	81560	76185	70034	21246	(c)569119	159942	0
Average cubic feet per second			918	1056	1671	1648	1326	1239	1177	346	1171		
Monthly use in per cent of seasonal			9.9	11.1	18.1	17.2	14.3	13.4	12.3	3.7			
Modesto Irrigation District	(b)53.5R	Gravity											
Totals			25393	48236	70842	62039	47528	44096	36345	14858	(d)349337	(e)76273	447
Average cubic feet per second			413	811	1152	1043	773	717	611	242	719		
Monthly use in per cent of seasonal			7.3	13.8	20.3	17.8	13.6	12.6	10.4	4.2			

(a) New installation in 1950.
(b) Approximate mileage of La Grange Dam.
(c) Additional acre-feet diverted: January 2171, February 2592, November 612 and December 171.
(d) Additional acre-feet diverted: January 5699, February 8884, November 10841 and December 114. Includes diversion for Waterford Irrigation District.
(e) Includes 6466 acres irrigated lands of the Waterford I. D.

TABLE 176

DIVERSIONS AND ACREAGES IRRIGATED - DRY CREEK - 1950

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
Podesto and Arata	0.4R	1-6"			5	1	12	3	7		28	(a)125	
--MODESTO EMPIRE TRACTION COMPANY RAILROAD BRIDGE--	0.7												
--HIGHWAY 132 BRIDGE (YOSEMITE BOULEVARD)--	0.8												
--LA LOMA BOULEVARD BRIDGE--	1.2												
James L. Melrose #1	5.0L	1-3"			3	1	1	2			7	(b)7	
James L. Melrose #2	5.3L	1-6"				NO DIVERSION							
--GAGING STATION - DRY CREEK NEAR MODESTO (CLAUSS ROAD BRIDGE)--	5.4												
--SANTA FE RAILROAD BRIDGE--	6.4												
--CHURCH STREET BRIDGE--	7.2												
--WELLS FORD BRIDGE--	8.7												
Roy Brant	10.6R	1-5"		2	2	3					7	(b)23	
--ALBERS ROAD BRIDGE--	11.0												
--MODESTO I. D. CANAL CROSSING--	11.1												
Lucksinger Brothers	12.1R	1-6"				4	3	2			9	12	
John Lewis	12.6R	1-4"					8	15	6	13	42	(c)100	
Lucksinger Brothers	12.7R	1-6"				3	2	6	3	2	16	(c)34	
W. C. Hopper	12.9L	1-4"			4	2	4	2	4		16	6	
Harold D. Carver	14.4L	1-4"			1	2	3	1			7	(d)16	
Joe Fagundes	14.7R	1-10"		41	92	96	142	135	51	51	(e)608	(d)90	
H. H. French	17.2R	1-8"		8	8	16	10	6	7	3	58	22	
--SOUTHERN PACIFIC RAILROAD BRIDGE (OAKDALE BRANCH)--	17.3												
--OAKDALE WATERFORD HIGHWAY BRIDGE--	17.4												
Totals			0	51	115	128	185	172	78	69	798	435	0
Average cubic feet per second			0	1	2	2	3	3	1	1	2		
Monthly use in per cent of seasonal			0	6.4	14.4	16.0	30.1	21.6	9.8	8.6			

(a) An undetermined amount of water received from controlled drainage of Modesto Irrigation District.
(b) An undetermined amount of water received from Modesto Irrigation District.
(c) An undetermined amount of water received from Oakdale Irrigation District.
(d) An undetermined amount of water received from Waterford Irrigation District.
(e) Additional acre-feet diverted: February 1 and December 1.

TABLE 177

DIVERSIONS AND ACREAGES IRRIGATED - STANISLAUS RIVER - 1950

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. S. Machado	1.1R	1-6"	3	13	7	13	8	8	6	7	65	29	
E. W. Hawkins	1.8R	1-6"		1							1	4	
A. J. Chisholm (a)	2.9R	1-8"	3	18	54	25	10	11	17		138	40	
C. M. Carroll	3.0R	1-6"	4	15	44	17	33	15	24	27	179	35	
--GAGING STATION - STANISLAUS RIVER NEAR MOUTH--	4.3												
A. Bianchi (b)	4.4R	1-18"		137	39	247	98	160			(c)681	320	
N. Smallwood	4.7R	1-5"				NO DIVERSION							
Overton Ranch (D.F.Koetitz)	5.25L	2-12"	29	132	202	301	308	370	282	61	(d)1685	365	
Reclamation District #2064	5.9R	1-14" 1-16" 1-20"	367	711	1594	1425	1734	1394	1025	427	(e)8677	(f)1657	
Reclamation District #2075	5.95R	2-16" 1-20"	484	1419	2219	2104	2041	2262	1627	373	(g)12529	(h)2136	
Henry Pelucca	6.7L	1-15"			98	21	44	39	37	15	254	132	
C. C. Updike	8.2L	1-12"		7	55	26	64	49	35	24	260	125	
Caswell Brothers	9.8R	1-16"	65	196	190	254	214	321	203	62	1505	(i)380	
N. E. Cannon	10.0R	1-10"	111	256	279	202	242	250	204	96	(g)1640	255	
D. F. Koetitz	10.1L	1-10"		92	47	113	67	101	66	72	558	308	
--RECORDING GAGE--	10.2												
Joseph Hertle	10.5L	1-10"		8	12	22	21	57	50		170	100	
G. S. Tornell	(j)13.1R	(j)1-12"			18		23	45			86	40	
D. Selby	13.7L	1-4"				PLANT REMOVED							
R. V. Konenyburg	13.9R	1-8"			12	24	48	51	17		152	54	
--SOUTHERN PACIFIC RAILROAD BRIDGE (MAIN LINE)--	15.9												
--GAGING STATION - STANISLAUS RIVER NEAR RIPON--	16.0												
--HIGHWAY 99 BRIDGE--	16.0												
A. Girardi	17.0L	1-16"	40	53	127	77	178	144	107		726	(k)361	
Edward B. Regan	(l)18.8R	(l)1-14"			13	63	200	221		12	509	126	
Edward B. Regan	19.4R	1-6"						6	3		9	15	
Allen Ranch	20.75R	1-14"	180	144	158	182	316	162	111	153	1406	380	
Heath Ranch	20.9L	1-5"		8		5		17	7		37	16	
B. Bonora (m)	21.6R	1-6"					4	4	4		12	12	
B. Bonora	21.75R	1-10"				14	12				26	40	
John Birdwell (m)	22.5L	1-7"			45	50	35	26	14		170	30	
Ruth M. Ladd (m)	23.4L	1-4"	12								(n)12	50	
George Dahlgren	24.8R	1-5"	5		13	17	28	66	15		144	135	
George Dahlgren (m)	25.5R	1-5"	2	19	31	54	49	40	28	20	243	60	
--MODESTO ESCALON HIGHWAY BRIDGE--	28.15												
--SANTA FE RAILROAD BRIDGE--	31.85												
--GAGING STATION - STANISLAUS RIVER AT RIVERBANK (BURNEYVILLE BRIDGE)--	32.0												
O. B. Trette	32.1R	1-2" 1-4"			1	1		1			3	8	
R. P. Barton	34.6R	1-7"	1		2	29	44	13			89	142	
Oakdale I. D. (Crawford Pump)	(o)35.9L	1-14"			60	85	250	205	42	19	(p)661	(q)556	
Oakdale I. D. (Brady Pump)	(o)37.0L	1-12"	7	5	32	71	142	184	115		556	(r,s)462	
--OAKDALE STOCKTON HIGHWAY BRIDGE--	38.9												
--SOUTHERN PACIFIC RAILROAD BRIDGE (OAKDALE BRANCH)--	39.0												

(a) Formerly listed as C.M. Carroll.
(b) Formerly listed as A. Bianchi and Thomas Madson.
(c) Additional acre-feet diverted: February 7.
(d) Additional acre-feet diverted: November 2.
(e) Additional acre-feet diverted: February 16.
(f) Of this figure 25 acres were double cropped.
(g) Additional acre-feet diverted: November 7.
(h) Of this figure 27 acres were double cropped.
(i) Of this figure 53 acres were double cropped.
(j) The 12" unit at this location replaces the 6" unit formerly listed at Mile 13.3R.
(k) An undetermined amount of water received from Modesto I.D.
(l) The 14" unit at this location replaces the 10" unit formerly listed at Mile 18.5R.
(m) New installation in 1950.
(n) Additional acre-feet diverted: February 6.
(o) Oakdale I.D. for season of 1950 maintained plants at Miles 35.9L and 37.0L to supplement district gravity supply.
(p) Additional acre-feet diverted: February 11.
(q) Of this figure 200 acres were double cropped.
(r) An undetermined amount of water received from wells.
(s) Of this figure 40 acres were double cropped.

TABLE 177

DIVERSIONS AND ACREAGES IRRIGATED - STANISLAUS RIVER - 1950
(Continued)

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 - STANISLAUS RIVER AT ORANGE BLOSSOM BRIDGE--	44.7												
Harry Himes (a)	46.1L	1-6"		6	11	9	18	11	7	2	64	25	
William R. Williamson (b)	46.8L	1-6"			7	30	19	13	9	4	82	20	
Walter B. Wilms (b)	47.5L	1-10"			15	12	16	8		8	59	27	
Totals			1313	3240	5385	5493	6266	6254	4055	1382	33388	8445	
Average cubic feet per second			21	54	88	92	102	102	68	22	69		
Monthly use in per cent of seasonal			3.9	9.7	16.1	16.5	18.8	18.7	12.2	4.1			
South San Joaquin I. D.	(c)50.2	Gravity											
Totals			20011	32181	45611	47357	37162	30407	13561	0	(d)226290	(e)63973	
Average cubic feet per second			325	541	742	796	604	495	228	0	466		
Monthly use in per cent of seasonal			8.9	14.2	20.2	20.9	16.4	13.4	6.0	0			
Oakdale I. D.	(c)50.2	Gravity											
Totals - Northside			5258	11396	17273	16773	13363	10604	5739	1325	81731	(f)53581	(f)1941
Average cubic feet per second			86	192	281	282	217	172	96	22	168		
Monthly use in per cent of seasonal			6.4	14.0	21.1	20.5	16.4	13.0	7.0	1.6			
Totals - Southside			7600	20230	29878	29555	24089	20263	9665	3079	144359	(f)	(f)
Average cubic feet per second			124	340	486	497	392	330	162	50	297		
Monthly use in per cent of seasonal			5.3	14.0	20.7	20.5	16.7	14.0	6.7	2.1			

(a) Not listed prior to 1950.
(b) New installation in 1950.
(c) Approximate mileage of Goodwin Dam.
(d) Additional acre-feet diverted in 1949: December 2686. Additional acre-feet diverted in 1950: January 9528 and February 11713.
(e) Includes 5289 acres served by sub-irrigation. Received an undetermined amount of water from controlled drainage and deep wells.
(f) This is combined acreage for the Norhtside and Southside Canals. Additional acreages served from plants on Stanislaus River at Miles 35.9L and 37.0L.

TABLE 178

DIVERSIONS AND ACREAGES IRRIGATED - TULE RIVER - 1950

Water User	Mile and Bank *	Number and Size of Pump	Monthly Diversions in Acre-Feet												Total Diversion January to December (a)Acre-Feet	Acreage Irrigated	
			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		General (b)	Rice
S. W. Templeton (c)	0.2R	1-4"					6	7	8	4					25	15	
Pioneer Ditch	0.3R	Gravity	395	476	709	1025	1758	1331	69			100	229		(d)6092	1738	
S. W. Templeton (c)	(e)0.4L	1-4"							25	24			7		56	40	
Rosedale Water Company (c)	1.5L	2-4"					29	35	34	21		20	13		152	156	
--GAGING STATION - TULE RIVER AT WORTH BRIDGE--	2.2																
Campbell-Moreland Ditch	3.2L	Gravity	726	929	777	1245	1487	437					142		(d,f)5743	1205	
Porter Slough	3.2R	Gravity	246	2391	130	943	95							3255	(d)7060	(g)	
Porter Slough Ditch	(h)3.2R	Gravity		377	5	1081	294								1757	1081	
Vandalia Ditch	3.9L	Gravity	310	294	185	205	310	10					30		(i)1344	178	
--SANTA FE RAILROAD BRIDGE--	5.9																
Poplar Ditch	6.6L	Gravity	108	1992	1503	2410	2192	214						55	(d)8474	3359	
--HIGHWAY 65 BRIDGE--	6.7																
--SOUTHERN PACIFIC RAILROAD BRIDGE--	6.8																
Hubbs-Miner Ditch	7.2R	Gravity	220	956	823	893	1345	672							(d,j)4909	(k)1575	
Rhodes-Fine Ditch	9.2L	Gravity	123	281	191	766	720	12							(d)2093	950	
--OLIVE AVENUE BRIDGE--	10.7																
--FRIANT KERN CANAL CROSSING--	11.3																
Woods-Central Ditch	11.8L	Gravity		253	151	73	483	1527	1167	1041					(d,l)4695	1648	
--ROCKFORD AVENUE BRIDGE--	12.6																
--HUBBS-MINER SPILL--	12.9R																
--GAGING STATION - TULE RIVER ABOVE LITTLE PIONEER DITCH--	14.4																
Little Pioneer Ditch	15.0L	Gravity		20	148	63	303	590	103	288					(d,m)1515	1132	
--OTTLE BRIDGE--	15.2																
Riparian Users Below Ottle Bridge (n)	15.2			2441	1090	2801	6829	23070	13647	11192					(o,p)61070	(q)5909	
Totals			2128	10410	5712	11505	15851	27905	15053	12570	0	120	421	3310	104985	18986	
Average cubic feet per second			35	187	93	193	258	469	245	204	0	2	7	54	145		
Monthly use in per cent of seasonal			2.0	9.9	5.4	11.0	15.1	26.6	14.3	12.0	0	0.1	0.4	3.2			

* Mileage indicated in miles downstream from Junction with South Fork of Tule River.

(a) By agreement all the flow of the Tule River from March 19th to April 10th each year is for use by those diverters below Ottle Bridge. With a firm water supply, the diversion from the Tule River would extend throughout the entire twelve months of each year. Supplemental diversion from wells becomes total source of water as flows of the Tule River ceases to be available.

(b) The total service areas of the Ditch Companies are as follows: Pioneer Ditch Co., 2395 acres; Campbell-Moreland Ditch Co., 1300 acres; Porter Slough Ditch Co., 2720 acres; Vandalia Irrigation District, 178 acres; Poplar Ditch Co., 7440 acres; Hubbs-Miner Ditch Co., 1935 acres; Gilliam-McGee Ditch Co., 360 acres; Rhodes-Fine Ditch Co., 1180 acres; Woods Central Ditch Co., 2360 acres and Little Pioneer Ditch Co., 1020 acres.

(c) Installed prior to 1950, not previously listed.

(d) The flood flows during November and December were not recorded.

(e) This is a supplemental point of diversion for normal point of diversion from South fork of Tule River via Wilcox Ditch.

(f) An undetermined amount of water used to replenish ground water. Also served water to Vandalia Ditch at Mile 3.9L.

(g) Use other than for replenishing of ground water is negligible.

(h) Point of diversion is on Porter Slough, 4.5 Miles from head of Slough.

(i) An undetermined amount of water used to replenish ground water. An undetermined amount of water received from Campbell-Moreland Ditch at Mile 3.2L.

(j) This figure is measured diversion at head minus measured spill to river at Mile 12.9R. Hubbs-Miner Ditch Co. receives approximately 71.4 per cent of measured diversion at head while Gilliam-McGee Ditch Co. receives approximately 28.6 per cent.

(k) Includes 1225 acres in the Hubbs-Miner Ditch Co. and 350 acres in the Gilliam-McGee Ditch Co.

(l) Includes acre-feet derived from delivery from Friant-Kern Canal as follows: May 483, June 1527, July 1167 and August 1041.

(m) Includes acre-feet derived from delivery from Friant-Kern Canal as follows: May 303, June 590, July 103 and August 288.

(n) Diversion prior to 1950. Not previously listed.

(o) Diversion in acre-feet as shown is derived as follows: Total flow listed at Tule River above Little Pioneer Ditch minus Little Pioneer Ditch diversion.

(p) No record available for Riparian users below Ottle Bridge for months of November and December in 1950. Includes acre-feet derived from delivery from Friant-Kern Canal as follows: May 6829, June 23070, July 13647 and August 11192.

(q) No segregation is made to individual users.

TABLE 179

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									
Sacramento River - Redding to Sacramento	1940 to 1950	0.5	6.4	17.8	18.7	21.1	20.0	11.6	3.9
Feather River - Oroville to Mouth	1940 to 1950	0.1	3.9	17.9	19.4	21.0	19.2	12.5	6.0
Yuba River - Smartville to Mouth	1940 to 1950	0.2	4.4	14.4	17.0	18.1	17.5	15.4	13.0
American River - Fairoaks to Mouth	1940 to 1950	1.1	2.3	5.9	19.9	28.1	22.3	15.7	4.7
DELTA UPLANDS									
Old San Joaquin River	1940 to 1950	3.1	9.3	16.4	17.0	20.3	17.2	11.4	5.3
Tom Paine Slough	1940 to 1950	1.5	8.9	15.0	17.0	19.8	18.7	14.4	4.7
San Joaquin River - Vernalis to Stockton	1940 to 1950	3.6	12.5	15.6	14.5	21.6	18.5	9.9	3.8
SAN JOAQUIN VALLEY									
San Joaquin River - Fremont Ford Bridge to Vernalis	1940 to 1950	3.6	11.3	15.5	15.5	21.8	18.4	11.0	2.9
San Joaquin River - Friant to Fremont Ford Bridge	1946 to 1950	7.6	12.3	14.2	14.6	17.0	14.9	11.1	8.3
Merced River - Yosemite Valley Railroad Crossing to Mouth	1940 to 1950	1.4	6.8	14.0	18.9	23.6	19.0	12.5	3.8
Tuolumne River - La Grange to Mouth	1940 to 1950	2.5	8.2	15.2	17.0	19.4	19.1	13.4	5.2
Stanislaus River - Orange Blossom to Mouth	1940 to 1950	2.0	8.7	14.9	17.7	20.0	18.5	12.8	5.4

TABLE 180

ANNUAL COMPARATIVE MONTHLY DIVERSIONS IN ACRE-FEET 1940 to 1950

SACRAMENTO RIVER - SACRAMENTO TO REDDING

Year*	March	April	May	June	July	August	September	October	Seasonal Diversions
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	274848	186708	61298	1278975
1943	1769	61409	257673	276759	288930	288024	190456	51915	1416935
1944	3236	155666	310227	305633	338429	318184	180858	65917	1678150
1945	2134	117302	316912	305333	346868	326148	200601	60473	1675771
1946	7968	187267	333991	328508	341952	326956	179671	71666	1777979
1947	2743	167131	346326	313389	344334	326100	170785	36296	1707104
1948	53935	16451	251478	271737	365701	351666	217464	65042	1593474
1949	2389	167438	344764	349497	390112	359905	173205	85391	1872701
1950	3072	187703	336767	321253	365503	333194	172902	73766	1794160
Average Acre-Feet	7538	99586	275081	289736	325702	308486	179072	60980	1546181
Average c.f.s.	123	1674	4474	4869	5297	5017	3009	992	3182
Monthly Diversion in per cent of Seasonal	0.5	6.4	17.8	18.7	21.1	20.0	11.6	3.9	

* See 1946 Water Supervision Report for prior years.

TABLE 181

ANNUAL COMPARATIVE MONTHLY DIVERSIONS IN ACRE-FEET 1940 to 1950

FEATHER RIVER - OROVILLE TO MOUTH

Year*	March	April	May	June	July	August	September	October	Seasonal Diversions
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	623503
1944	205	43792	130779	126206	142128	133130	85924	50747	712911
1945	0	26056	130729	133918	142224	132832	92953	39682	698394
1946	47	53967	156398	140210	145235	132948	82010	33985	744800
1947	90	30240	152827	130731	138055	124426	77161	20873	674403
1948	3181	5717	66373	127596	140904	120658	85122	36722	586273
1949	0	57396	146342	141278	137822	126739	59327	47400	716304
1950	164	35170	138368	134088	137034	113954	65197	38076	662051
Average Acre-Feet	352	24571	112699	121930	131710	120364	78677	37655	627958
Average c.f.s.	6	413	1833	2049	2142	1957	1322	612	1292
Monthly Diversion in per cent of Seasonal	0.1	3.9	17.9	19.4	21.0	19.2	12.5	6.0	

* See 1946 Water Supervision Report for prior years.

TABLE 182

ANNUAL COMPARATIVE MONTHLY DIVERSIONS IN ACRE-FEET 1940 to 1950

YUBA RIVER - SMARTVILLE TO MOUTH

Year*	March	April	May	June	July	August	September	October	Seasonal Diversions
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
1945	0	4338	9815	15479	14112	13848	13046	13590	84228
1946	0	7222	15231	15845	17082	16356	13940	13010	98686
1947	0	3820	17316	16339	17364	19152	15577	10517	100085
1948	33	23	12350	13849	17305	17954	16994	14256	92764
1949	0	9062	18933	17288	19416	17890	13338	10920	106847
1950	0	7306	22080	20741	21023	20372	19401	16461	127384
Average Acre-Feet	154	4090	13262	15664	16728	16194	14250	11954	92296
Average c.f.s.	3	69	216	263	272	263	239	194	190
Monthly Diversion in per cent of Seasonal	0.2	4.4	14.4	17.0	18.1	17.5	15.4	13.0	

* See 1946 Water Supervision Report for prior years.

TABLE 183

ANNUAL COMPARATIVE MONTHLY DIVERSIONS IN ACRE-FEET 1940 to 1950

AMERICAN RIVER - FAIROAKS TO MOUTH

Year*	March	April	May	June	July	August	September	October	Seasonal Diversions
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	4166
1943	0	0	54	941	1513	1226	753	94	4581
1944	0	6	113	980	1566	1211	790	153	4819
1945	0	8	119	909	1017	894	760	149	3856
1946	0	10	228	1022	1104	889	766	105	4124
1947	308	422	483	1113	1193	1086	1071	237	5913
1948	92	34	209	866	1737	1420	1030	495	5883
1949	0	58	574	1269	1448	1239	724	200	5512
1950	9	128	546	1096	1110	819	584	307	4599
Average Acre-Feet	55	114	292	993	1400	1110	784	235	4983
Average c.f.s.	1	2	5	17	23	18	13	4	10
Monthly Diversion in per cent of Seasonal	1.1	2.3	5.9	19.9	28.1	22.3	15.7	4.7	

* See 1946 Water Supervision Report for prior years.

TABLE 184

ANNUAL COMPARATIVE MONTHLY DIVERSIONS IN ACRE-FEET 1940 to 1950

OLD SAN JOAQUIN RIVER - DELTA UPLANDS

Year*	March	April	May	June	July	August	September	October	Seasonal Diversions
1940	0	1015	9527	10943	14091	10217	6148	3306	55247
1941	0	447	5492	11541	13087	10009	7382	2909	50867
1942	0	516	7175	11077	13143	11425	6740	2878	52954
1943	0	2048	11293	12463	13745	11945	7568	3104	62166
1944	2921	11827	13918	13224	16911	15667	10753	4694	89915
1945	595	7544	16791	17092	19809	14818	10873	4433	91955
1946	4640	14371	17736	16948	19662	18238	9914	4927	106436
1947	1637	15687	18983	15788	19269	14525	9633	3105	98627
1948	11808	4765	18259	15460	21943	21547	14574	7029	115385
1949	1941	17522	22945	23207	25229	19779	14272	9521	134416
1950	7658	16785	21483	22108	26290	23206	15775	7462	140767
Average Acre-Feet	2836	8412	14873	15441	18471	15580	10330	4852	90795
Average c.f.s.	46	141	242	260	300	253	174	79	187
Monthly Diversion in per cent of Seasonal	3.1	9.3	16.4	17.0	20.3	17.2	11.4	5.3	

* See 1946 Water Supervision Report for prior years.

TABLE 185

ANNUAL COMPARATIVE MONTHLY DIVERSIONS IN ACRE-FEET 1940 to 1950

TOM PAINE SLOUGH - DELTA UPLANDS

Year*	March	April	May	June	July	August	September	October	Seasonal Diversions
1940	0	159	1509	1974	2129	1612	1133	873	9389
1941	0	0	1406	1972	2163	1788	1704	529	9562
1942	0	0	1292	1852	2434	1930	1158	278	8944
1943	0	891	2526	2728	2629	2578	2041	589	13982
1944	84	1630	2186	2466	3046	2852	2487	1019	15770
1945	34	539	2527	2792	2891	3153	2144	377	14427
1946	874	2588	2756	3145	3324	3732	2490	798	19707
1947	74	3064	3136	3319	3735	3487	2816	414	20045
1948	629	998	2795	2866	4327	4222	3422	953	20212
1949	155	3534	3114	3570	4324	4017	3226	1362	23302
1950	737	2286	3081	3163	3860	3542	2601	1147	20417
Average Acre-Feet	235	1426	2393	2713	3169	2992	2293	758	15979
Average c.f.s.	4	24	39	46	52	49	39	12	33
Monthly Diversion in per cent of Seasonal	1.5	8.9	15.0	17.0	19.8	18.7	14.4	4.7	

* See 1946 Water Supervision Report for prior years.

TABLE 186

ANNUAL COMPARATIVE MONTHLY DIVERSIONS IN ACRE-FEET 1940 to 1950

SAN JOAQUIN RIVER-DELTA UPLANDS - STOCKTON TO VERNALIS

Year*	March	April	May	June	July	August	September	October	Seasonal Diversions
1940	4	4638	6974	7011	12805	7978	3300	1932	44642
1941	4	1086	6162	5944	12007	8735	4384	1762	40084
1942	188	2232	5210	6602	12203	9651	4014	2085	42185
1943	0	3169	10172	8940	11617	10886	5142	1793	51719
1944	1110	10346	8439	8039	11349	11489	6261	2275	59308
1945	7	6476	12035	9658	13109	12537	7090	1793	62705
1946	5246	13974	10681	9238	15347	13071	6727	2875	77154
1947	5322	13337	14168	11615	15439	14676	7782	2052	84391
1948	6012	4564	9919	8251	13912	13356	7911	2682	66607
1949	1227	13434	11893	13141	14933	12382	7857	3768	78635
1950	5746	13092	12205	11860	17047	13272	7855	3558	84635
Average Acre-Feet	2261	7850	9805	9118	13615	11639	6211	2416	62915
Average c.f.s.	37	132	159	153	221	189	104	39	129
Monthly Diversion in per cent of Seasonal	3.6	12.5	15.6	14.5	21.6	18.5	9.9	3.8	

* See 1946 Water Supervision Report for prior years.

TABLE 187

ANNUAL COMPARATIVE MONTHLY DIVERSION IN ACRE-FEET 1940 to 1950

SAN JOAQUIN RIVER - VERNALIS TO FREMONT FORD BRIDGE

Year*	March	April	May	June	July	August	September	October	Seasonal Diversions
1940	555	4547	15524	18950	26396	17707	10769	3365	97813
1941	0	302	13633	15486	26484	20840	12725	3947	93417
1942	573	2044	14158	17059	28352	25384	12575	4235	104380
1943	0	4417	20849	20115	29913	25046	16595	4789	121724
1944	4790	21177	22013	20102	27066	24430	14554	4128	138260
1945	1327	14036	21325	21383	30463	25540	15202	2087	131363
1946	6967	21399	24961	23751	32002	28792	17026	5144	160042
1947	11658	31645	28072	27725	34079	27812	17318	3049	181358
1948	12902	18449	21647	15487	28830	27888	15926	3398	144527
1949	852	27448	26456	27787	33889	26998	18376	5054	166860
1950	15118	26342	25420	26245	33028	28227	15748	4963	175091
Average Acre-Feet	4977	15619	21278	21281	30046	25333	15165	4014	137713
Average c.f.s.	81	262	346	358	489	412	255	65	283
Monthly Diversion in per cent of Seasonal	3.6	11.3	15.5	15.5	21.8	18.4	11.0	2.9	

* See 1946 Water Supervision Report for prior years.

TABLE 188

ANNUAL COMPARATIVE MONTHLY DIVERSION IN ACRE-FEET 1940 to 1950

MERCED RIVER - YOSEMITE VALLEY RAILROAD CROSSING TO MOUTH

Year*	March	April	May	June	July	August	September	October	Seasonal Diversions
1940	2	220	1541	2275	2206	1597	949	317	9107
1941	0	0	870	1644	1995	1537	1306	236	7588
1942	0	14	475	1619	2716	2005	1207	363	8399
1943	0	198	1782	2249	3077	2258	1680	474	11718
1944	84	1117	1845	2535	2564	2466	2071	820	13501
1945	30	558	1696	2292	3058	2500	1552	132	11818
1946	231	1380	1595	2393	3608	2787	1720	684	14398
1947	228	2863	3128	3420	4322	4077	2499	529	21066
1948	931	328	2321	2634	4899	4162	1953	534	17762
1949	62	2479	3696	5296	5676	3652	2998	1778	25637
1950	676	2086	4050	4793	4809	4336	2673	455	23878
Average Acre-Feet	204	1022	2091	2832	3539	2852	1873	575	14988
Average c.f.s.	3	17	34	48	58	46	31	9	31
Monthly Diversion in per cent of Seasonal	1.4	6.8	14.0	18.9	23.6	19.0	12.5	3.8	

* See 1946 Water Supervision Report for prior years.

TABLE 189

ANNUAL COMPARATIVE MONTHLY DIVERSION IN ACRE-FEET 1940 to 1950

TUOLUMNE RIVER - LA GRANGE BRIDGE TO MOUTH

Year*	March	April	May	June	July	August	September	October	Seasonal Diversions
1940	3	19	577	415	642	436	335	151	2578
1941	0	122	519	685	603	607	438	173	3147
1942	7	75	443	462	645	683	343	112	2770
1943	0	116	354	541	542	520	360	183	2616
1944	80	304	517	665	778	801	656	300	4101
1945	33	463	535	630	748	723	376	47	3555
1946	216	565	765	734	940	889	559	254	4922
1947	283	893	1132	1112	1245	1135	1229	439	7468
1948	299	280	822	889	1275	1404	1032	233	6234
1949	39	645	962	1255	1137	1173	806	423	6440
1950	305	588	970	1107	1121	1170	580	259	6100
Average Acre-Feet	115	370	691	772	880	867	610	234	4539
Average c.f.s.	2	6	11	13	14	14	10	4	9
Monthly Diversion in per cent of Seasonal	2.5	8.2	15.2	17.0	19.4	19.1	13.4	5.2	

TABLE 190

ANNUAL COMPARATIVE MONTHLY DIVERSION IN ACRE-FEET 1940 to 1950

STANISLAUS RIVER - ORANGE BLOSSOM BRIDGE TO MOUTH

Year*	March	April	May	June	July	August	September	October	Seasonal Diversions
1940	217	682	2143	3330	3858	2924	1741	851	15746
1941	12	392	2696	3173	3413	3228	2466	1280	16660
1942	240	356	2533	4242	4590	3972	2721	1360	20014
1943	3	873	3439	4241	4458	3935	3518	1598	22065
1944	186	2013	3266	3565	4246	4292	2659	1603	21830
1945	0	2664	3013	3869	4431	4136	2866	681	21660
1946	862	3316	3780	4563	5046	4832	2754	1655	26808
1947	1206	4320	4933	4644	5417	5085	3462	1008	30075
1948	1261	1114	4631	4826	6089	6070	4259	1455	29705
1949	41	4747	4661	6152	6531	5648	4251	1940	33971
1950	1313	3240	5385	5493	6266	6254	4055	1382	33388
Average Acre-Feet	486	2156	3680	4373	4940	4580	3159	1347	24721
Average c.f.s.	8	36	60	73	80	74	53	22	51
Monthly Diversion in per cent of Seasonal	2.0	8.7	14.9	17.7	20.0	18.5	12.8	5.4	

* See 1946 Water Supervision Report for prior years.

TABLE 191

COMPARATIVE SEASONAL DIVERSIONS AND ACREAGES IRRIGATED - SACRAMENTO RIVER - 1940-1950

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	Total Reach 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	43763	4765	29580	4594	1250	9052	107366
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	11687	122242
Acreage irrigated - general	15324	40614	4478	32591	8086	1997	8781	111868
1945 Seasonal diversion acre-feet	143229	690859	85269	409202	162825	21776	162521	1675771
Average cubic feet per second	295	1432	175	842	335	45	334	3449
Acreage irrigated - rice	0	48715	5574	34461	13094	795	12476	115115
Acreage irrigated - general	15390	36103	4680	28843	9757	2506	9266	106545
1946 Seasonal diversion acre-feet	163925	727606	98953	402022	159077	38680	185716	1777979
Average cubic feet per second	337	1501	203	827	327	80	382	3659
Acreage irrigated - rice	0	53195	6445	30828	13995	2485	17187	124135
Acreage irrigated - general	15373	38934	8719	30861	10923	2024	10722	117556
Acre-feet per acre (a)	10.5	7.9	6.5	6.5	6.4	8.6	5.7	7.3
1947 Seasonal diversion acre-feet	138036	704544	103476	405829	140736	56993	157490	1707104
Average cubic feet per second	284	1450	213	835	290	117	324	3513
Acreage irrigated - rice	0	56080	7393	31584	12549	2688	13687	123981
Acreage irrigated - general	17517	38149	4361	33853	11070	2982	13658	121590
Acre-feet per acre (a)	7.7	7.5	8.8	6.2	6.0	10.1	4.7	6.8
1948 Seasonal diversion acre-feet	154758	632230	92661	387490	132701	56342	137292	1593474
Average cubic feet per second	318	1301	191	797	273	116	283	3279
Acreage irrigated - rice	0	53477	8299	33503	12125	1568	15145	124811
Acreage irrigated - general	18421	52944	7860	35760	12685	3947	18117	149734
Acre-feet per acre (a)	8.3	5.9	5.7	5.6	5.3	10.2	3.3	5.7
1949 Seasonal diversion acre-feet	179750	758697	96498	396587	189604	69658	181907	1872701
Average cubic feet per second	370	1561	199	816	390	143	374	3854
Acreage irrigated - rice	0	56207	8080	35148	14891	7337	14341	137269
Acreage irrigated - general	18375	48721	6532	37584	12431	5511	15606	143495
Acre-feet per acre (a)	9.6	7.2	6.6	5.5	6.9	5.4	5.1	6.6
1950 Seasonal diversion acre-feet	180264	751503	87246	370134	186229	60217	158567	1794160
Average cubic feet per second	371	1546	180	762	383	145	326	3692
Acreage irrigated - rice	0	43085	9107	26757	13359	5274	10897	108479
Acreage irrigated - general	19087	50542	11163	39099	12706	4936	15284	152817
Acre-feet per acre (a)	9.3	8.0	4.3	5.6	7.1	5.9	4.9	6.7
Average 1940 - 1950								
Seasonal diversion acre-feet	147720	645624	70238	363709	139379	41637	137668	1546181
Average cubic feet per second	304	1330	145	748	287	88	283	3182
Per cent of total reaches	9.6	41.8	4.5	23.5	9.0	2.7	8.9	
Acreage irrigated - rice	0	49448	5325	31802	11231	2368	11364	111716
Acreage irrigated - general	15388	44233	6477	34259	9356	2630	11495	123683

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

TABLE 192

RICE ACREAGE IN CALIFORNIA

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

Rice Acreage							
Year	Total in State	Irrigated from Sacramento & San Joaquin River Systems	Ratio in Per Cent (b)	Year	Total in State (a)	Irrigated from Sacramento & San Joaquin River Systems	Ratio in Per Cent (b)
1924	90000	89000	99	1937	149000	109000	73
1925	103000	95000	92	1938	125000	95000	76
1926	149000	129000	87	1939	120000	104000	87
1927	160000	123000	77	1940	118000	94000	80
1928	132000	101000	76	1941	153000	120000	78
1929	95000	74000	78	1942	212000	159000	75
1930	110000	88000	80	1943	237000	186000	77
1931	125000	126000	100	1944	246000	200000	81
1932	110000	91000	83	1945	239000	187000	78
1933	108000	87000	80	1946	255000	200000	78
1934	108000	92000	85	1947	250000	215000 (c)	86
1935	100000	78000	78	1948	248000	193000	81
1936	138000	104000	75	1949	298000	236000	79
				1950	240000	187000	78
				Average 1924-1950	164000	132000	80

(a) As reported by Federal-State Crop Reporting Service.
(b) Ratio of acreage on Sacramento and San Joaquin River systems to total State acreage.
(c) Prior to 1947 rice acreage on Upper San Joaquin River was not included.

TABLE 193

MAXIMUM RECORDED SALINITY AT PRESENTLY INDICATIVE BAY AND DELTA STATIONS

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

YEAR (a)	1931	1934	1938	1939	1944	1945	1946	1947	1948	1949	1950
Sacramento-San Joaquin Runoff in percent of Normal (b)	31	44	172	44	57	87	93	55	80	63	77
Station (c)	Maximum Recorded Salinity in Parts of Chlorine per 100,000										
			San Francisco, San Pablo and Suisun Bays								
Point Orient	1870	1840	1700	1920	1730	1800	1740	1880	1740	1770	1760
Point Pinole							1530	1680	1500	1570	1540
Point Davis	1810	1800	e1460	1840	1520	1340	1660	1650	e1420	1510	1440
Grand View	1870				1530	1430	1500	1800	1330	1460	1380
Crockett							1400	1790	1330	1460	1520
Benicia					1390	1230	1200	1510	1130	1240	1250
Martinez (Bulls Head Point)	1690	1640	1160	1640		e1000	1110	1340	1260	1160	1150
West Suisun							1020	1350	1180	1000	1030
Port Chicago							950	1240	930	1060	1010
O & A Ferry	1390	1200	256	1180	730	260	350	610	360	400	480
Innisfail Ferry	1400	1260	330	1360	790	440	450	820	440	530	470
Pittsburg						160	210	500	170	330	220
				Sacramento River Dalta							
Collinsville	1260	1080	86	1040	470	114	170	450	179	250	280
Three Mile Slough Bridge	860	660		590	161	7	8	125	13	20	15
Rio Vista Bridge	740	520		405	55	4	5	27	12	15	20
Isleton Bridge	635	310		250	5	3	5	5	7	5	5
				Mokelumne River Delta							
Terminous (Camp 29, Staten Island)	182	52		32					11	11	14
Southwest Point	390	107		86					6	d6	
				San Joaquin River Delta							
Winter Island						123	133	e490	127	228	230
Antioch	1240	960	51	920	400	96	109	470	150	192	133
Millers Harbor						64	93	300	44	160	139
Webb Pump	680	e350	8	265	52	5	8	45	10	14	d
Opposite Central Landing	425	e125	10	138	20	5	8	20	9	10	8
Dutch Slough	510	280	11	225	69	8	13	84	12	34	23
Orwood Bridge	277	107		54					18	16	18
East Contra Costa I. D.		73		32	14	11	20	19	32	21	20
Victoria (Victoria Island)				35			11	19	20	21	17
Clifton Court Ferry	130	40		19				16	23	18	17
Empire Bridge (King Island Pump)	261	104		79							23
Rindge Pump	198	94	15	62	8						17
Stockton Country Club	122	44		32					26	17	17
Garwood Bridge	92	38							15	18	21
South Fabian (Whitehall)	31	12						19	26	21	19
Williams Bridge	118	43							15	19	17
Grant Line Bridge								17	22	19	20
Mossdale	12	25	12	16	13	10	12	18	25	18	17
Vernalis (Durham Ferry Bridge)								e18	24	17	16

(a) For maximum salinities recorded and not shown in this table, see previous reports.
(b) Normal taken as 60-year (1889-1949) mean annual unimpaired flow (Oct.-Sept., incl.) at foothill stations of major tributaries.
(c) For location and description see Table 194.
(d) Record incomplete.
(e) Estimated.

TABLE 194

DESCRIPTION OF ACTIVE SALINITY OBSERVATION STATIONS - 1950

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

STATION	Miles from Golden Gate (a)	Time Interval (b) Hours	Mins.	LOCATION
				SAN FRANCISCO, SAN PABLO AND SUISUN BAYS
Point Orient	12.3	2	20	North end of San Francisco Bay, East Shore, one-half mile south of Point San Pablo Wharf of Standard Oil Company.
Point Pinole	19.0	2	50	South Shore of San Pablo Bay, at Point Pinole on wharf of Atlas Powder Company.
Point Davis	25.2	3	15	East end San Pablo Bay, South Shore, Oleum Wharf of Union Oil Company.
Grand View	25.2	3	15	Northwest shore of San Pablo Bay at mouth of Petaluma Creek.
Crockett	27.7	3	30	West end of Carquinez Strait, South Shore, 0.2 mile east of Carquinez Bridge on wharf of C. and H. Sugar Refining Corporation.
Benicia	32.5	3	50	East end of Carquinez Strait, North Shore, 1.1 mile west of Southern Pacific Company railroad bridge, at Benicia Arsenal.
Martinez	32.7	3	50	East end of Carquinez Strait, South Shore, 1.0 mile west of Southern Pacific Company railroad bridge, at Municipal Ferry Slip.
West Suisun	37.0	4	10	West end of Suisun Bay, North Shore, 2.5 miles northeast of Southern Pacific railroad bridge at service pier of U. S. Maritime Commission, Reserve Fleet Mooring area.
Port Chicago	41.0	4	20	South Shore of Suisun Bay at U. S. Naval ammunition loading wharf below Port Chicago.
O & A Ferry	46.5	4	40	Upper end Suisun Bay between Mallard Station and Chipps Island at Sacramento Northern Railroad Ferry Crossing.
Innisfail Ferry	47.3	4	50	Montezuma Slough, about one mile east of junction with Cutoff Slough near North end of Grizzly Island.
Pittsburg	48.0	5	00	East end of Suisun Bay, South Shore, at Pittsburg Yacht Harbor.
				SACRAMENTO RIVER DELTA
Collinsville	50.8	5	25	Sacramento River, North Bank at junction with San Joaquin River.
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.
Isleton Bridge	68.7	6	30	Sacramento River, one mile upstream from Isleton.
				MOKELUMNE RIVER DELTA
Terminous	83.4	7	50	South Fork Mokelumne River at Terminous.
				SAN JOAQUIN RIVER DELTA
Winter Island	53.1	5	50	Upper end of Winter Island, north shore New York Slough at junction of Broad and New York Sloughs.
Antioch	54.9	5	55	San Joaquin River, at City Water Works pumping plant.
Millers Harbor	58.2	6	10	South Shore San Joaquin River at Antioch Bridge.
Jersey Island	61.4	6	20	San Joaquin River, left bank, one mile below mouth of False River.
Opposite Central Landing	72.0	7	00	Mokelumne River, on Andrus Island directly opposite Central Landing on Bouldin Island.
Dutch Slough	73.0	7	05	At Bethel Island Bridge.
Empire Bridge	84.2	8	00	Honker Cut between Empire Tract and King Island at Empire Bridge.
Rindge Pump	86.1	8	10	San Joaquin River, north bank, one mile below Fourteen Mile Slough Junction.
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.
Victoria Island	89.6	8	35	Old River at Borden Highway Crossing.
Clifton Court Ferry	94.2	9	10	Old River just below junction with Grant Line Canal.
Stockton Country Club	94.8	9	15	Near Head of Stockton Channel at Wharf of California Transportation Company.
Garwood Bridge	95.3	9	15	San Joaquin River, at Drawbridge one mile above Santa Fe Railroad Crossing.
South Fabian	100.0	9	40	Old River, two miles East of Bethany.
Grant Line Bridge	101.0	9	50	Grant Line Canal, 5.5 miles above junction with Old River, at Tracy Road Crossing.
Williams Bridge	101.6	9	55	Middle River, about four miles below Salmon Slough Junction.
Mossdale Bridge	108.5	10	50	San Joaquin River at U. S. 50 Highway Crossing about three miles southwest of Lathrop.
Vernalis (Durham Ferry Bridge)	127.0	11	00	San Joaquin River at Durham Ferry Bridge, above tidal influence.

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

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

TABLE 195

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 - 1950							
	2	6	10	14	18	22	26	30
	San Francisco, San Pablo and Suisun Bays							
Point Orient	1610	1580	1630		1550	1140	1150	1410
Point Pinole		1400			1270			880
Point Davis	1340	1290	1360	1170	1070	850	230	670
Grand View	1160	1180	1150	1110	bkn	650	680	510
Crockett		1210	1240	1220			400	
Benicia	1160	990	*540	1070	780	230	180	380
Martinez	1010	940	880	910	630	50	180	500
West Suisun	b710	640	b500	670	450	60	24	b70
Innisfail Ferry	410	430	410	400	b270		127	120
Port Chicago		b910	a480	750				
O & A Ferry	480	320	270	320	130	6	3	10
Pittsburg	220	160	90	110	30	10	5	10
	Sacramento River Delta							
Collinsville	271	144	41	155	38	4	2	bkn
Three Mile Slough	4	5		3	3	a1	1	2
Rio Vista Bridge	3	1	3	1	3	2	2	1
Isleton	2	2	1	2	1	1	1	2
	Mokelumne River Delta							
Terminous	6	7	a6	a4	14	a9	a6	a8
	San Joaquin River Delta							
Winter Island	100	82	57	58	35	a5	6	4
Antioch	123	a44	53	61	21	*8	7	6
Millers Harbor	81	53	39	35	17	6	6	6
Opposite Central Landing	5	a4		6	a3	1	1	2
Dutch Slough	8	8	9	8	10	12	12	12
Orwood Bridge	11	13	ab13	13	15	16	11	10
East Contra Costa I. D.	a17	a16	18	b18	a20	19	18	15
Victoria	a12	13	ab13	b15	17	11	9	11
Clifton Court Ferry				a15	14	6	7	7
Empire Bridge		13	14	15	17	18	8	13
Rindge Pump		13	14	17	5	7	3	2
Stockton Country Club	a12	b11	b12	b13	a7		a4	ab4
Garwood Bridge	b11	a11	12	13	a2	5	6	5
Williams Bridge	16	14		b17	14	8	b9	10
South Fabian		ab13		15	a12	8		
Grant Line Bridge	11	a14	12	a15	a10	a5	6	a4
Mossdale	a10	a13	14	a10	a10	7	5	a3
Vernalis (Durham Ferry Bridge)	c14		c11		b6		c6	
	February - 1950							
	San Francisco, San Pablo and Suisun Bays							
Point Orient	1380	1310	900	1030	1060	1100	1200	
Point Pinole	920		430	590				
Point Davis	780	630	280	340	*440	450	520	
Grand View		310		270	250	300	360	
Crockett	630	a310	340	340	350	a380		
Benicia	330	330	140	110	260	330	400	
Martinez	410	280	90	100	38	250	290	
West Suisun	90	70	10	b10	10	21	80	
Innisfail Ferry	a110	a110	110	50	60	49	50	
Port Chicago				10	ab2	1	90	
O & A Ferry	10	b10	20	10	1	1	9	
Pittsburg	10	a20	10	10	10	1	4	
	Sacramento River Delta							
Collinsville	3	10	2			1	4	
Three Mile Slough	2	10	a2	1	1		2	
Rio Vista Bridge	2	2	1	1	2	2	2	
Isleton	1	1	2	1	1	1	1	
	Mokelumne River Delta							
Terminous	8	a8	a5	a6	4	a5	a5	
	San Joaquin River Delta							
Winter Island	6	7	5		c4	a4	4	
Antioch	*6	7	5	4	5	5	5	
Millers Harbor	6	6	5	3	4	4	4	
Opposite Central Landing	4	1	3	2	a1	2	2	
Dutch Slough	11	11	12	9	a9	8	9	
Orwood Bridge		10	10	8	6	6	6	
East Contra Costa I. D.	a14	16	14	11	a11	11	11	
Victoria	8	a10	9	5	6		6	
Clifton Court Ferry	5	6	6	4	6	4	a6	
Empire Bridge	11	14	5	5	5	7	8	
Rindge Pump	5	2	3	3	4	4	5	
Stockton Country Club	a4		4	3	a4	4	3	
Garwood Bridge	a5	1	4	3	b4	4	3	
Williams Bridge		b9	6	10	7		6	
South Fabian			ab5	a5	a5			
Grant Line Bridge	5	a6	5	a3	4	4	a4	
Mossdale	a7	4	3	a3	a4	5	3	
Vernalis (Durham Ferry Bridge)	c6			2				

(*) Presumed
(a) Taken at Low High Tide.
(b) Taken on following day.
(c) Taken two days later.
(e) Taken on preceding day.

TABLE 195 (CONT'D)

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 - 1950							
	2	6	10	14	18	22	26	30
	San Francisco, San Pablo and Suisun Bays							
Point Orient	1330	1340	1360	1310	1320		1003	1250
Point Pinole				940				800
Point Davis	790	770	610	820	890	730		670
Grand View		660	710	630	750	740		780
Crockett	770	720	650	650	710		180	680
Benicia	500	390	380	410	410	340	130	420
Martinez	360	140	310	360	a340	260	60	250
West Suisun	130	16		150		27	10	110
Innisfail Ferry	b50	a53	41	45	a51	a59	61	a54
Port Chicago	40	a23	147	176	178	181	4	
O & A Ferry	10	a6	7	7	a8	a3	2	3
Pittsburg	5	4	4	3	a4	a4	2	3
	Sacramento River Delta							
Collinsville	2	1	2	2		2	b1	2
Three Mile Slough	1	5	1		2	bkn	1	1
Rio Vista Bridge	1	1	1	2	1	1	1	1
Isleton	2	2	1	2	1	1	1	1
	Mokelumne River Delta							
Terminous	a3	a5	a3	a3	3	a3	4	a2
	San Joaquin River Delta							
Winter Island	4		4		a4	b3		
Antioch	5	4	4	3	a4	4	3	3
Millers Harbor	4	5	5	4	4	3	4	3
Opposite Central Landing	2	1	a3	3	a2	1	1	2
Dutch Slough	7	a7	5	6	6	6	6	a7
Orwood Bridge	7		6	6	7	7	8	12
East Contra Costa I. D.	10	8	9	10	8	9	10	b11
Victoria	6	7	5	7	7	8	9	11
Clifton Court Ferry	a5	5	6	6	9	9	12	7
Empire Bridge	7	6	6	7	7	4	3	4
Rindge Pump	6	5			6	7	7	9
Stockton Country Club	a4		6	b5	7		c8	a6
Garwood Bridge	4	*5	4	6	8	9	b8	b7
Williams Bridge	7	b7	6	9	10	13		b8
South Fabian	a8	b5						
Grant Line Bridge	4	a6						
Mossdale	a5	6	6	a8	11	13	7	a7
Vernalis (Durham Ferry Bridge)					c12			
	April - 1950							
	San Francisco, San Pablo and Suisun Bays							
Point Orient	1290	1330	1150	1130	1210	1060	930	e1310
Point Pinole			630	a690	a680		a950	
Point Davis	770	610	480	590	490	540	710	760
Grand View	760	730	720	720	700	700	690	710
Crockett	a570	650	260	520	a420	600	510	
Benicia		320	50	260	340	240	e340	270
Martinez	160	220	70	40	190	180	270	220
West Suisun	a30	18		b6	18	70	b40	13
Innisfail Ferry	41		39	a37	a30	b26		a16
Port Chicago		10	a1	3	124	150		a108
O & A Ferry	a3	3	2	a2	ab2	b2	a2	a3
Pittsburg	3	2	3	3	4	3	a2	a3
	Sacramento River Delta							
Collinsville		2	1				a1	
Three Mile Slough	1	1		3	2	1		2
Rio Vista Bridge	1	1	1	5	1	1	b1	1
Isleton	2	1	1	1	1	2	b1	1
	Mokelumne River Delta							
Terminous	a3	a2	a2	a3	2	a1	2	2
	San Joaquin River Delta							
Winter Island								
Antioch	3	3	3	a3	a4	3	a4	a3
Millers Harbor	5	3	2	3	3	f3	3	4
Opposite Central Landing	a1	1	2	2	1	1	a1	a1
Dutch Slough	6	5	7	a7	7	7	a4	5
Orwood Bridge	11	9		a2	4	3	a2	2
East Contra Costa I. D.	13	a12	9	6	5	4	b3	a3
Victoria	8	7	5	4	2	4	b3	2
Clifton Court Ferry	8	5	4	2	a3			4
Empire Bridge	a6	5	3	4	6	4	b5	4
Rindge Pump	3	3	ab3	4	3	3		
Stockton Country Club		5		ab1		3	bd2	2
Garwood Bridge	ab4	b3	4	a1	3		a2	a1
Williams Bridge					3	2	a2	
South Fabian							b3	3
Grant Line Bridge								
Mossdale	5	4	3	3	4	3	b1	2
Vernalis (Durham Ferry Bridge)	c4						c3	

(*) Presumed.
(a) Taken at Low High Tide.
(b) Taken on following day.
(c) Taken two days later.
(d) Taken over 1 hour off scheduled time.
(e) Taken on preceding day.
(f) Taken two days earlier.

TABLE 195 (CONT'D)

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 - 1950							
	2	6	10	14	18	22	26	30
	San Francisco, San Pablo and Suisun Bays							
Point Orient	1370	1320	e1250	e1370	1360	1210	e960	e1500
Point Pinole			a890				a880	
Point Davis	740	540	e510	920		740	e640	670
Grand View	820	840	e870	880	770	820	740	
Crockett		590			a470	a730	e510	710
Benicia	360	300	380	570	370	400	e340	530
Martinez	a130	270	e100	a170	a40	a320	e120	420
West Suisun	14	26	59	210	70	210	28	30
Innisfail Ferry	ab19	a22		a26		22	a21	ab30
Port Chicago	137	87	e129	340		26	e57	200
O & A Ferry	a2	5	a2	a4	a3	3	a1	a2
Pittsburg	a2	a3	a1	a2	a3	2	a2	a3
	Sacramento River Delta							
Collinsville	a1	1	a2	a2		1	a1	a1
Three Mile Slough	2	1		2	1	1	1	1
Rio Vista Bridge	1	1	2	1	1	1	1	1
Isleton	1	2	2	a1	1	1	1	1
	Mokelumne River Delta							
Terminous	a2	a2	2	ac1	a2	1	3	a1
	San Joaquin River Delta							
Winter Island							e2	a2
Antioch	a3	2	a2	a2	a2	2	a2	*a2
Millers Harbor	3	3	2	3	2	4	3	1
Opposite Central Landing	a1	3	a2	a3	1		a1	2
Dutch Slough	a5	4	a3	a3	2	2	a3	a4
Orwood Bridge	3	3	3	3	5	5	3	2
East Contra Costa I. D.	3	3	a5	3	6	5	a2	2
Victoria	a2	3	4	6	6	4	2	3
Clifton Court Ferry								
Empire Bridge	3	4	4	2	3	4	3	3
Rindge Pump	3	2	a3					
Stockton Country Club	3	2	a4	4	ab4	ab3	a2	2
Garwood Bridge	1	4	a4	ab4	b4	2	a1	ab2
Williams Bridge	b2			a6	3			
South Fabian	3	4	a4	10				3
Grant Line Bridge					3	2	1	4
Mossdale	2	4	6	4	4	1	a1	2
Vernalis (Durham Ferry Bridge)					b3		e3	
	June - 1950							
	San Francisco, San Pablo and Suisun Bays							
Point Orient	1400	1290	e1030	1380	1290	1360	e1480	1550
Point Pinole								
Point Davis	920	550	e650	980	740	970	e1130	1120
Grand View	720	750	e780	750		830		880
Crockett	a630	470	e590	890	880	830	e810	1000
Benicia	550	370	590	630	550	560	730	900
Martinez	340	150	e320	590	360	470	e710	660
West Suisun	390	23	308	320	280	120	360	530
Innisfail Ferry	a20	a20	a18		a20	30	a28	
Port Chicago	a38	12	e250	258	340			*b530
O & A Ferry	a4	a1	a7	a12	ab8	a8	a7	a40
Pittsburg	a2	a3	a8	a5	a8	4	6	
	Sacramento River Delta							
Collinsville	1	a1	a2		b3	4	a2	44
Three Mile Slough	1	b1	1	1	2		2	2
Rio Vista Bridge	2	b1	1	1	2	b2	2	2
Isleton	1	b1	1	1	ab2	1	2	3
	Mokelumne River Delta							
Terminous	a1	2	a2	2	a2	4	3	2
	San Joaquin River Delta							
Winter Island	a2	bkn	a5	a3	a5	a4	a4	ae9
Antioch	2	a2	a4	a2	4	a4	a3	12
Millers Harbor	2	3	4	3	4	e4	4	10
Opposite Central Landing	2		a2		2	a2	a2	2
Dutch Slough	2	a2	a2	3	2	a2	a2	3
Orwood Bridge		a1	1	2	3		5	a6
East Contra Costa I. D.	2	a3	a3	8	b4	a4	6	8
Victoria	3	b3	3	4	2	b6	7	a8
Clifton Court Ferry				a3	5	a8	a8	
Empire Bridge	4	b4	4	4	2	b8	4	5
Rindge Pump	1	b1	a3		4			
Stockton Country Club	2	ac1	a2	3	4	a5		6
Garwood Bridge	2	ab1	a2	a4	6	a8	a2	6
Williams Bridge								
South Fabian	b1			4	b6			
Grant Line Bridge	2	a1	2	4	5	a8	4	4
Mossdale	1	a1	2	5	6	a7	3	10
Vernalis (Durham Ferry Bridge)	1		e4		e6	c5		b12

(*) Presumed.
(a) Taken at Low High Tide.
(b) Taken on following day.
(c) Taken two days later.
(e) Taken on preceding day.

TABLE 195 (CONT'D)

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 - 1950							
	2	6	10	14	18	22	26	30
	San Francisco, San Pablo and Suisun Bays							
Point Orient	1570	1550	e1550	1560	1580	1570	1640	1680
Point Pinole			a1370				a1430	
Point Davis	1100	1310	e1220	1340	1280	1420	e1410	
Grand View	890	870	e900	950	1030		e1060	1180
Crockett	1010				1250		*e1490	
Benicia	a490	740	890	1000	1040	990	1130	1060
Martinez	690	580	e820	830	870	890	e900	930
West Suisun		710			890			
Innisfail Ferry	a52	a74		a84		242	a200	
Port Chicago			e690	490	680	*770	950	890
O & A Ferry	ab79	a64	a73	a127	a221	a173	a240	ab340
Pittsburg		a37	a29	a47	a74	a96	a97	a109
	Sacramento River Delta							
Collinsville	54	a31				a80	a106	258
Three Mile Slough	2	b2	2	ab4	6	4	6	8
Rio Vista Bridge				a2	2			3
Isleton	1	2	a3	2	2	*2	3	a3
	Mokelumne River Delta							
Terminous	a2	2	5	a3	a2	3	e3	3
	San Joaquin River Delta							
Winter Island	a25	a29	a28	ab56	133	a83	a106	a130
Antioch	16	a18	a12	*47	53	a37	a46	110
Millers Harbor	12	a7	22	27	50	41	83	88
Jersey Island	b5							
Opposite Central Landing	3	a3	a2	4	4	a6	a4	4
Dutch Slough	2	a4	a16	3	8	a8	a8	10
Orwood Bridge	5	a6	6	4	4	a5	5	4
East Contra Costa I. D.	7	8	a8	6	5	a5	7	7
Victoria	6	b6	6	5	5	b5	5	6
Clifton Court Ferry	6	7	a9	a10	7		a9	8
Empire Bridge	5	b4	5	5	5	b5	5	a5
Rindge Pump	6	b6	a5	6	5	a7	a7	
Stockton Country Club				6	8	10	9	10
Garwood Bridge	a6	a9	a9	9	10	a12	a11	11
Williams Bridge		a8	a9	*a11	10	8	a7	
South Fabian				15				15
Grant Line Bridge	8		12	16	14	14	14	14
Mossdale	12	a12	13	14	16	a16	16	17
Vernalis (Durham Ferry Bridge)		b15		15		16	bkn	

Station	August - 1950							
	San Francisco, San Pablo and Suisun Bays							
Point Orient	1610	1690	*e1670	1720	1710	1730	1760	1760
Point Pinole				a1540		a1520	a1540	
Point Davis	1230	1400	1380	1320	1330	1440	1370	1400
Grand View	1120	1210	1230	1300	1290	1300	1310	1350
Crockett	1250	1250	1390	a1270	1390	1520	1440	1470
Benicia	900	1050	1160	1180	950	1200	1210	1050
Martinez	740	930	1010	1000	870	1080	940	900
West Suisun			a650	840		950	770	960
Innisfail Ferry	350	a310	ab300	bkn	a340	a360	a430	450
Port Chicago	690	860	560	910		1010	910	770
O & A Ferry	270	ab250	a270	a280	320	a330	a330	bkn
Pittsburg	a108	a120	a130	a130	a150	a190	a190	a220
	Sacramento River Delta							
Collinsville	170	a120	a130	180	170	a190	a220	280
Three Mile Slough	9	b8			10		14	15
Rio Vista Bridge	2	b4	5	2	2	b2	3	2
Isleton	2	a3	3	3	4	b2	a4	a5
	Mokelumne River Delta							
Terminous	a4	4	4	5	5	5	*4	a4
	San Joaquin River Delta							
Winter Island		a96	a120	a130	160	a160	a170	ab230
Antioch	a68	a36	a51	118	79	a57	143	a133
Millers Harbor	b60	66	94	94	90	b134	139	ab110
Jersey Island			a18	52				
Opposite Central Landing		a4		5	a5	a5	8	a7
Dutch Slough	a12	a10	a12	a13	13	a11	a14	a18
Orwood Bridge	6	a4	5	4				6
East Contra Costa I. D.	a5	a8	5	6	a7	a7	7	a7
Victoria	5	b4	6	4	6	b6	5	6
Clifton Court Ferry	b7		a8	8	a11		10	9
Empire Bridge	a4	b5	a6	5	7	b6	7	7
Rindge Pump								
Stockton Country Club	a9	a11	a11	b5	a11	a12	12	13
Garwood Bridge	a11	a13	12	2	a13	ab14	a14	14
Williams Bridge	a6	a6	a5	a7	7	ab6		a8
South Fabian					a19		19	
Grant Line Bridge	a15	a16	16	20	*a15	a15	16	a16
Mossdale	a16	a17	15	15	a16	b16	14	a13
Vernalis (Durham Ferry Bridge)	c14		c13				c16	

(*) Presumed.
(a) Taken at Low High Tide.
(b) Taken on following day.
(c) Taken two days later.
(e) Taken on preceding day.

TABLE 195 (CONT'D)

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 - 1950							
	2	6	10	14	18	22	26	30
	San Francisco, San Pablo and Suisun Bays							
Point Orient	1560	1690	e1620		1550	e1510	b1490	
Point Pinole					a1340			
Point Davis	1260	1400	*1400	1280	1290	e1200	1230	1110
Grand View	1290		1280	1310	1310	e1310		1300
Crockett		1410	bkn	1270	1160		1160	1120
Benicia	1120	1250	1160	980	1020	850	810	660
Martinez	890	1110	960	840	920	e790	620	690
West Suisun	720	1030	800				460	
Innisfail Ferry	b460	420	440	470	430		390	360
Port Chicago	790	970	540	*e580	*650	e650		
O & A Ferry	a320	a350	a312	300	a210	a201	190	196
Pittsburg	a190		a174	140	a100	a81	70	a80
	Sacramento River Delta							
Collinsville		a198	a116	200	121	a118	54	83
Three Mile Slough		b15		9			9	5
Rio Vista Bridge	4	b4	4	4	4	20	3	2
Isleton	4	b5	4	3	4	3	1	2
	Mokelumne River Delta							
Terminous	6	a5	a5	a8	5	7	5	3
	San Joaquin River Delta							
Winter Island	a180	ab183	a170	147	a87	a87	74	a55
Antioch	a87	a117	a79	82		a37	35	39
Millers Harbor	bkn	b124	113	78	59	54	34	39
Opposite Central Landing	a4	a6	a3	6	a5		4	a4
Dutch Slough	a16	a18	a23	a19	a16	a15	14	a12
Orwood Bridge	bkn	b7	7	18	bkn	10	11	12
East Contra Costa I. D.	a7	b7	10	a10	a9	11	a14	a18
Victoria	*b7	c9	11		b7	14	14	14
Clifton Court Ferry		a12	15	13	a17	a14	12	
Empire Bridge	7	b8	7	9	8	9	8	10
Rindge Pump								a14
Stockton Country Club	a13	a13		a14	b16	a16	ab14	
Garwood Bridge	a13	*a10	a21	a15	a12	a12	b10	a11
Williams Bridge	ab9	a9	b9	8	a14		8	
South Fabian			19	19				
Grant Line Bridge	a15	a15	15	a15	a12	a10	a9	10
Mossdale	ab14	b17	14	a13	a12	11	a10	a12
Vernalis (Durham Ferry Bridge)		e14	ac14		11			
	October - 1950							
	San Francisco, San Pablo and Suisun Bays							
Point Orient	1580	1560	1620	1680	1600	1610	1640	1560
Point Pinole				1460				1350
Point Davis	1150	1190		1430	1270	1180	1400	1150
Grand View	1320	1380	1370		1360		1320	
Crockett		1150		1430	1160			1090
Benicia		910	1010	1150	950		1020	720
Martinez	710	800	870	970	850	760	1150	690
West Suisun		620	520	770	640	610		550
Innisfail Ferry	360	390		390	380		390	410
Port Chicago		310		640		400		540
O & A Ferry	a123	a190	260	276	a230	220	330	a100
Pittsburg	80	a60	80	170	a110	110	180	a90
	Sacramento River Delta							
Collinsville	49	a51	20	252	a104	70	90	a39
Three Mile Slough			5	6	6		6	4
Rio Vista Bridge	2	b3	5	4	2	3	3	5
Isleton	2	b3	2		2	2	3	3
	Mokelumne River Delta							
Terminous	6	5	a7	7	5	a4	6	6
	San Joaquin River Delta							
Winter Island		ab57	85	188	a86	98	85	a60
Antioch	42	a22	59	69	87	45	a65	45
Millers Harbor	12	b29			b37		59	17
Opposite Central Landing		a4	4	a5	a4	4	a3	a4
Dutch Slough	a11	a11	12	a11	a10	11	11	a10
Orwood Bridge	11	a12					14	a13
East Contra Costa I. D.	a16	b15	15	16	ab17	13	a15	a15
Victoria	12		14	15	b16	15	12	11
Clifton Court Ferry	12	a14	a14		a15		12	
Empire Bridge	10	b9	9	11	b9	10	13	14
Rindge Pump		ab14	13	13				
Stockton Country Club	bd13	a13	16	a15	17		a13	
Garwood Bridge	ab14	a14	a16	ab14	a12	b11	a9	a11
Williams Bridge	a14	ab15	16	b16	a14			
South Fabian								
Grant Line Bridge	a14	b14	17	a17	a11	a9	a10	a10
Mossdale	a14	b16	a15	a12	a11	a10	a9	a10
Vernalis (Durham Ferry Bridge)	13		e16		e11	c11		b11

(*) Presumed.
(a) Taken at Low High Tide.
(b) Taken on following day.
(c) Taken two days later.
(d) Taken over 1 hour off scheduled time.
(e) Taken on preceding day.

TABLE 195 (CONT'D)

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 - 1950							
	2	6	10	14	18	22	26	30
	San Francisco, San Pablo and Suisun Bays							
Point Orient	1570	1430	1570	1550	1430	1010	640	900
Point Pinole	a1060		1340			420		
Point Davis	930	1200	1270	1190	1130	130	350	470
Grand View		1230	1160	1160	1090	1020	680	370
Crockett	810	1060	1180		1170			
Benicia	bkn	860	890	960	750	70	70	120
Martinez	600	580	760	840	680	40	10	120
West Suisun	320	370	490	*750		30	*28	50
Innisfail Ferry	320	280	260	270	ab270	180	40	40
Port Chicago	a200	a550	600	650	590	4	10	30
O & A Ferry	a60	130	190	a150	110	20	10	a30
Pittsburg	a20	16	40	a33	20	7	5	a20
	Sacramento River Delta							
Collinsville	a4	7	42	17	22		2	a3
Three Mile Slough	2	4	a4		4	2	1	2
Rio Vista Bridge	4	4	3	4	1	1	1	3
Isleton	3	2	3	a2	2	1		3
	Mokelumne River Delta							
Terminous	3	4	7	4	1	a3	3	5
	San Joaquin River Delta							
Winter Island	ab15	12	b21	a36			a4	a2
Antioch	19	10	20	31	17	a6	a5	3
Millers Harbor	11	10	14	15	15	7	5	
Opposite Central Landing	a2	4	5	a5	3	1	a1	a2
Dutch Slough	a9	9	a8	a7	7	9	4	3
Orwood Bridge	a11	12	11	11	11	b1	1	2
East Contra Costa I.D.	a15	14	14	a14	13	9	a4	a4
Victoria	b10	11	10	11		5	2	1
Clifton Court Ferry								
Empire Bridge	13	23	12	12	ab11	5	5	10
Rindge Pump								
Stockton Country Club	a11		a10	bd11	ab9	2	d1	a2
Garwood Bridge	a9	9	ab9	a9	b5		4	a3
Williams Bridge			ab11	a10	9	3	a3	
South Fabian					b10			
Grant Line Bridge	a9	a9	a9	a8	9	2	a2	a4
Mossdale	a11	a12	a10	a8	8	a2	a2	a2
Vernalis (Durham Ferry Bridge)		10		10	c7		1	
	December - 1950							
	San Francisco, San Pablo and Suisun Bays							
Point Orient	1030	1110	1000	720	690	970	890	930
Point Pinole		370			260	370	500	
Point Davis	410	340	90	140	190	290	490	430
Grand View	390	390	210	180	120	90	110	120
Crockett	430	340		a20	150	170	310	
Benicia	270		30	30	20		60	150
Martinez	150	50		20	30	10	20	190
West Suisun		20	*7	20	20	14	7	
Innisfail Ferry		50	40	a20	30		24	a26
Port Chicago	170		2	20	a10	2		4
O & A Ferry	30	2	10	20	20	2	1	4
Pittsburg	20	3	bkn	10	10	2	3	2
	Sacramento River Delta							
Collinsville		3		a20	2		a3	4
Three Mile Slough	1	2	a2	2	1	2	1	3
Rio Vista Bridge	1	2	3	2	2	2	1	3
Isleton	1	1	1	2	2	2		a2
	Mokelumne River Delta							
Terminous	5	a7	7	a8	a7	6	4	4
	San Joaquin River Delta							
Winter Island	4	2	6	a2	2	2	a2	a3
Antioch	3	3	3	a3	2	a3	3	2
Millers Harbor	2	2	4	3	2	2	2	4
Opposite Central Landing	2	3	a3	1	1	2	a2	2
Dutch Slough	3	4	5	4	2	2	a3	3
Orwood Bridge	2	2		3	4	2	4	e4
East Contra Costa I. D.	b3	3	a2	3	2	a4	ae3	7
Victoria	2	1	3	a4	2	3	3	6
Clifton Court Ferry								
Empire Bridge	9	9	7	10	5	5	5	4
Turner Cut**								3
Stockton Country Club	1	2	a1		bd1	a2	bd4	3
Garwood Bridge	b2	b2	3		2	*a2	a2	*2
Williams Bridge		ab3		ab1	a1			
South Fabian								
Grant Line Bridge	3	a2		2	a1		a3	2
Mossdale	2	a1						
Vernalis (Durham Ferry Bridge)				b2		2	b2	

(*) Presumed.
(**) New station established 12/27/50 on Stockton Canal opposite Rindge Pump.
(a) Taken at Low High Tide.
(b) Taken on following day.
(c) Taken two days later.
(d) Taken over 1 hour off scheduled time.
(e) Taken on preceding day.

TABLE 196

COMPARATIVE ANNUAL MINIMUM 10-DAY 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		53	49	66	15.1	65800	7.7	33500	7.4	32300
1921						119	127	96	2.1	9150	2.0	8715	0.1	435
1922						104	96	125	2.9	12600	2.4	10420	0.5	2180
1923						76	71	90	2.1	9150	2.0	8715	0.1	435
1924	7/14	858	7/26	407	1280	29	31	24	50.0	217500	18.4	80100	31.6	137400
1925	8/7	2860	8/29	743	3730	87	86	89	3.6	15630	3.1	13450	0.5	2180
1926	7/28	1460	8/21	586	2080	61	63	57	18.5	80500	8.5	37000	10.0	43500
1927	8/23	3560	8/23	1300	4850	122	128	106	2.9	12600	2.4	10420	0.5	2180
1928	8/15	2660	8/22	866	3550	85	90	71	5.7	24800	3.7	16100	2.0	8700
1929	7/18	2460	8/12	590	3090	45	45	46	7.1	30900	4.2	18300	2.9	12600
1930	8/5	2500	8/9	735	3230	67	72	53	5.4	23500	3.8	16500	1.6	7000
1931	7/20	-79	7/21	211	131	31	33	27	73.8	321000	30.2	131000	43.6	190000
1932	8/11	1980	9/10	1030	3030	80	70	108	5.7	24800	3.4	14800	2.3	10000
1933	8/21	1450	8/14	607	2070	49	47	55	9.8	42600	5.2	22600	4.6	20000
1934	7/20	1150	8/14	346	1530	44	46	37	37.5	163000	17.8	77500	19.7	85500
1935	8/12	2920	8/12	922	3940	92	88	104	2.9	12600	2.4	10420	0.5	2180
1936	8/20	2540	8/17	1040	3600	96	92	106	2.6	11600	2.2	9840	0.4	1760
1937	8/16	1720	8/24	1020	2820	80	71	106	3.5	15200	2.6	11280	0.9	3920
1938	8/12	5190	8/27	2130	7365	172	169	183	0	0	0	0	0	0
1939	8/5	630	7/25	610	1315	44	44	46	29.0	126000	17.0	74000	12.0	52000
1940	8/12	2550	8/9	1080	3620	116	119	107	4.2	18300	3.0	13000	1.2	5300
1941	8/24	4190	9/14	1480	5800	140	145	129	1.2	5100	1.2	5100	0	0
1942	8/22	3740	8/20	1520	5300	131	134	120	1.2	5100	1.2	5100	0	0
1943	8/17	2600	8/4	1480	4140	114	113	118	2.8	12200	2.2	9600	0.6	2600
1944	8/13	2790	8/9	1033	3830	57	55	63	7.2	31300	4.8	20800	2.4	10500
1945	8/24	6560	8/1	1530	8180	87	80	107	0.2	1000	0.2	1000	0	0
1946	8/7	6460	8/5	1160	7640	93	93	93	0.6	2500	0.6	2500	0	0
1947	7/7	4700	7/21	477	5270	55	55	56	7.5	32400	5.0	21500	2.5	10900
1948	7/24	7550	8/9	(5)606	8260	80	84	68	0.3	1200	0.3	1200	0	0
1949	7/18	6460	8/1	452	6970	63	64	62	2.3	10100	2.0	8500	0.4	1600
1950	8/20	7080	7/31	502	7670	77	77	76	1.1	5000	1.1	4500	0.1	500

* Normal = 60-year (1889-1949)mean annual unimpaired flow (Oct.-Sept.,incl.).
(1) Does not include inflows from Mokelumne and Calaveras rivers, Yolo By-Pass and other minor tributaries.
(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.
(5) Figure shown is minimum 10-day flow during summer. Minimum 10-day flow for year occurred March 8 with average flow of 357.

TABLE 197

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1950

DATA COPIED FROM UNITED STATES BUREAU OF RECLAMATION COMPILATION
(Daylight Saving Time effective April 30 through September 23)

Date of Sample	Time of Sample	Draw Down or G. H.	Depth or c.f.s.	Temperature Degrees	Parts per Million										
					Ca	Mg	Na	K	CO_3	HCO_3	SO_4	Cl	B	NO_3	Total Solids
					SACRAMENTO RIVER BELOW SHASTA DAM						T33N,R5W,Sec.15				
1/9	1515	578.58	5220	48	10	5.5	8.7	1.0	0	74	3.3	4.1		0	94
2/13	1130	577.81	2460	44	12	5.2	8.4	0.9	0	76	6.6	2.8		0	95
3/13	1300	578.20	2606	43	12	5.0	12	0.3	0	77	7.8	3.5		0	90
4/10	1445	579.4	4240	45	11	4.8	7.9	1.0	0	70	4.6	3.5		0	93
5/8	1500	582.6	9047	44	11	4.9	7.8	1.2	0	68	5.2	3.8		0.1	91
6/12	1000	586.28	11722	45	11	4.8	7.8	1.0	0	67	4.7	3.8		0.4	90
7/10	1530	588.3	11620	48	11	4.4	7.2	0.9	0	66	4.6	3.5		0.3	91
8/14	1300	586.1	10364	48	11	4.6	7.2	1.0	0	65	4.8	2.8		0.2	87
9/11	1415	585.9	9743	50	12	4.5	7.0	1.1	0	66	3.7	2.8		0.3	89
10/9	1415	584.1	8449	52	11	4.9	7.2	1.2	0	64	5.1	3.5		0.2	83
11/13	0900	581.5	5769		10	4.5	5.9	1.0	0	59	3.5	3.1		0.3	87
12/11	0830	588.0	11877		11	4.6	7.6	1.1	0	66	4.2	3.1		0.3	86
					SACRAMENTO RIVER AT SACRAMENTO WEIR						T9N,R4E,Sec.29				
1/17	0900	9.42		43			14					10			147
2/20	1115	14.25		52			11					11			147
3/29	1120	17.25		52			4.5					2.4			69
4/21	1435	16.5		62			5.4					3.8			70
5/24	1115	15.90		64			8.4					5.5			84
6/26	1320	8.00		74			18					15			168
7/25	1155	6.92		72			21					17			182
8/21	1620	7.00		73			24					20			189
9/21	1140	7.94		69			19					14			168
10/23	1415	6.60		62			18					13			161
11/20	1155	29.4		55			2.5					3.1			51
12/20	1150	e26.8		51			2.6					3.1			77
					AMERICAN RIVER AT FAIR OAKS BRIDGE						T9N,R6E,Sec.13				
1/16	1245			41			3.3					3.5			64
4/24	1010			50			1.6					1.0			27
7/25	1100			78			2.9					2.4			48
10/23	1255			62			2.0					2.4			36
					SACRAMENTO RIVER AT SACRAMENTO (M STREET BRIDGE)						T9N,R4E,Sec.35				
1/16	1330	5.00		43			23					22			189
2/20	1055	9.7		50			10					11			126
3/21	1105	12.7		50			3.6					3.5			56
4/24	1125	12.7		56			3.3					2.1			48
5/24	1335	11.70		62			6.9					5.2			70
6/26	1340	4.80		73			14					14			147
7/25	1620			75			20					15			161
8/21	1645	2.70		74			24					20			196
9/21	1115	3.0		68			20					18			175
10/23	1350	2.6		62			10					9			126
11/20	1125	25.1		53			1.8					2.8			37
12/20	1130	21.5		51			2.2					3.8			66
					SACRAMENTO RIVER AT HEAD OF SNODGRASS SLOUGH						T6N,R4E,Sec.22				
2/20	1405	7.05		53	14	7.7	16	1.0	0	77	18	14		0	130
5/24	1430	8.40		62	6.7	30	5.7	0.7	0	39	4.6	45		0.3	61
8/22	1030	3.78		74	18	11	24	1.7	0	110	18	19		0.9	170
11/20	1505	17.5		52	6.3	2.1	2.2	1.0	0	27	3.7	2.4		0.4	46
					SACRAMENTO RIVER AT WALNUT GROVE						T5N,R4E,Sec.35				
1/16	1455	4.60		44	14	8.4	15	1.0	0	82	14	17		1.1	130
2/20	1500	4.9		53	16	4.0	13	0.7	0	73	10	9.7		0	120
3/21	1515	5.8		51	9.0	3.1	5.3	0.7	0	45	4.9	4.1		0	87
4/24	1535	6.2		59	6.9	2.9	3.3	2.2	0	38	3.6	4.8		0	59
5/24	1455	6.00		62	6.9	3.2	6.4	0.7	0	38	5.1	6.6		0.3	63
6/26	1435	5.20		72	11	5.8	12	0.8	0	68	9.5	10		0.1	99
7/25	1705	e5.2		76	16	9.2	20	1.4	0	100	20	13		0.9	150
8/22	1055	3.80		74	18	11	23	1.7	0	120	16	19		0.9	170
9/21	1000	e3.0		68	19	12	22	1.7	0	120	15	18		0.5	170
10/23	1525	5.80		63	13	6.9	11	1.3	0	82	8.0	8.0		0.7	110
11/20	1530	9.60		52	7.8	2.3	1.8	1.0	0	34	3.0	2.1		0.5	58
12/20	1000	7.9		51	8.7	3.7	5.1	0.9	0	49	4.7	2.4		0.4	75
					CACHE CREEK NEAR CAPAY						T10N,R2W,Sec.14				
1/17	1030			44			72					110	3.3		546
4/24	1245			69			51					60	2.1		411
7/25	1330			74			82					110	2.9		686
10/24	1250			66			76					100	2.5		602
					PUTAH CREEK NEAR WINTERS						T8N,R2W,Sec.28				
1/17	1300	13.34		48			5.0					3.5	0.1		126
2/20	1235	7.8		55			11					9.0	0.3		308
3/21	1235	7.5		58			10.3					9.0	0.2		367
4/24	1330	6.85		69			12					11	0.4		315
5/24	1240	6.00		70			20					15	0.7		378
6/26	1220	6.20		74			28					22	1.2		462
7/25	1110	6.10		76			36					33	1.4		504
8/22	0900	6.45		70			42					31	1.4		504
9/21	1246			71			44					36	1.5		518
10/24	1335			64			40					31	1.4		511
11/20	1315	e9.5		60			7.8					6.9	0.2		175
12/20	1300			54			8.0					9.7	0.2		266

e - Estimated

TABLE 197 (CONT'D)

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1950

DATA COPIED FROM UNITED STATES BUREAU OF RECLAMATION COMPILATION
(Daylight Saving Time effective April 30 through September 23)

Date of Sample	Time of Sample	Draw Down or G. H.	Depth or c.f.s.	Temperature Degrees	Parts per Million										
					Ca	Mg	Na	K	CO_3	HCO_3	SO_4	Cl	B	NO_3	Total Solids
					YOLO BY-PASS AT LITTLE HOLLAND FERRY						T6N,R3E,Sec.33				
1/16	1425			42			34					42			315
4/24	1505			72			57					49			455
7/25	1630			77			22					17			182
10/24	1700			63			11					10			147
					SACRAMENTO RIVER AT JUNCTION POINT (NEAR RIO VISTA)						T4N,R3E,Sec.17				
1/16	1330			43			19					19			182
4/25	1400			63			5.0					3.1			65
7/25	1130			76			20					17			161
10/24	1515			65			13					10			140
					SACRAMENTO RIVER AT COLLINSVILLE						T3N,R1E,Sec.27				
1/16	1210			44			240					410			1190
2/20	1210	2.60		52			12					12			161
3/21	1045	2.30		54			10					10			119
4/24	1605	1.90		60			5.0					4.8			63
5/22	1140			62			8.3					9.0			84
7/3	1405			74			59					95			315
8/2	1425	e2.5		70			430					750			1820
8/25	1435	5.28		74			540					980			2520
9/21	1430	5.35		68			340					640			1680
10/24	1435	5.99		64	36	70	510	20	0	110	140	900		0	1900
11/20	1330			55			19					26			147
12					No Sample Due to Flood										
					SAN JOAQUIN RIVER BELOW FRIANT DAM						T11S,R21E,Sec.7				
1/23	1000	1.89	59	46	4.3	0.8	4.8	0.5	0	19	2.1	4.8		0.7	37
2/17	1155	3.80	698	47	4.8	0.9	6.4	0.5	0	21	7.0	3.1		0	51
3/17	1500	5.08	1680	47	4.2	0.3	7.8	0.5	0	22	4.5	5.2		0	48
4/14	1110	5.07	1670	49	6.8	0.6	3.9	0.9	0	28	1.6	4.1		0.1	54
5/19	0835	5.31	1910	51	2.7	0.5	2.9	0.3	0	14	1.4	2.4		0.1	35
6/23	1250	5.95	2499	56	2.4	0.4	2.9	0.3	0	13	1.1	1.4		0.4	32
7/21	1015	5.96	2576	57	2.0	0.2	1.9	0	0	9.3	1.0	1.4		0.2	24
8/18	1040	5.51	2110	63	2.6	0.2	3.1	0.7	0	13	1.6	1.7		0.4	30
9/22	1135	4.78	1392	66	2.8	0.5	2.9	0.9	0	13	1.1	2.4		0.4	31
10/20	1630	3.90	730	65	3.0	0.4	3.2	0.9	0	14	1.5	3.1		0.9	30
11/20	1800	1.90	60	62	6.9	1.8	7.1	2.3	0	30	5.7	4.8		3.2	75
12/22	1630	6.28	2946	49	2.6	0.6	3.4	0.7	0	16	1.4	1.7		0.3	38
					SAN JOAQUIN RIVER AT MENDOTA POOL						T13S,R15E,Sec.19				
1/23	1130	7.63U 0.52L	16.9	58	6.7	1.5	11	0.5	0	40	3.3	4.5		0	65
2/20	1245	10.96U 0.89L	38.1	57	5.9	1.3	7.4	0.5	0	27	6.2	4.8		0	54
3/20	1020	13.33U 1.71L	178	56	8.1	0.1	5.9	0.3	0	31	2.9	4.5		0	47
4/17	0940	13.97U 1.92L	215	65	4.4	0.7	3.9	1.2	0	22	1.6	3.8		0	43
5/22	0745	13.52U 2.06L	210	68	3.2	0.5	3.5	0.5	0	17	1.3	2.4		0.2	41
6/26	1030	13.69U 2.51L	354	68	2.4	0.5	2.6	0.3	0	14	1.1	1.4		0.2	29
7/24	0950	13.52U 3.51L	331	72	2.0	0.2	2.2	0	0	9.9	1.1	1.4		0.2	24
8/21	0915	12.84U 2.32L	285	75	2.7	0.4	2.6	0.7	0	12	0.8	1.0		0.3	28
9/25	0930	13.79U 1.95L	195	70	3.0	0.8	2.8	0.9	0	14	1.3	2.4		0.3	29
10/23	1315	10.50U 1.82L	152	67	3.8	0.7	3.5	0.9	0	17	1.0	2.8		0.4	35
11/27	1010	7.15U 5.69L		55	6.4	1.4	4.9	1.9	0	31	3.3	2.4		0.3	55
12/26	1315	10.69U 7.24L	2600	49	3.2	0.6	3.5	0.7	0	22	1.5	1.0		0.2	39
					SAN JOAQUIN RIVER AT TEMPLE SLOUGH						T11S,R13E,Sec.12				
1/23	1540		35.2	59			11					12			91
2/20	1140		32.1	56			11					11			98
3/20	1410		188	68			5.8					3.8			46
4/17	1350		225	75			5.8					3.8			45
5/22	0600		227	68			5.6					3.5			40
6/26	0830		347	69			4.4					2.4			33
7/24	0705		328.47	73			3.8					1.7			29
8/21	0610		293.22	75			5.5					4.5			37
9/25	0630		194	66			5					3.5			34
10/23	0930		174	65			4.5					4.8			42
11/27	0910		1777	56			4.3					2.8			48
12/26	0905		2956	49			1.0					0.3			28
					POSO DRAIN ABOVE BELMONT DRAIN CROSSING						T9S,R12E,Sec.31				
1/23	1650		3.13	58			100					150	0.3		651
2/20	1530		1.77	65			98					150			644
3/20	1530		22.3	64			57					58			350
4/17	1500		22.6	73			77					64			497
5/22	1115		31.9	71			51					46			336
6/26	1430		50.3	72			41					37	0.3		266
7/24	1345		30.4	80			55					51			350
8/21	1055		29.5	75			54					49			315
9/25	1040		24.5	70			57					66			364
10/23	1415		13.5	66			51					64			343
11/27	1140		5.75	58			96					150			637
12/27	1400		5.80	50			92					140			623

e - Estimated

TABLE 197 (CONT'D)

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1950

DATA COPIED FROM UNITED STATES BUREAU OF RECLAMATION COMPILATION
(Daylight Saving Time effective April 30 through September 23)

Date of Sample	Time of Sample	Draw Down or G. H.	Depth or c.f.s.	Temperature Degrees	Parts per Million										
					Ca	Mg	Na	K	CO_3	HCO_3	SO_4	Cl	B	NO_3	Total Solids
					SALT SLOUGH AT SAN LUIS RANCH							T9S,R11E,Sec.7			
1/24	1020	2.16	48.7	52			210					280	0.6		1120
2/21	1005	1.89	28.8	54			320					490			2100
3/21	1005	2.16	47.5	62			154					230			840
4/18	0955	2.51	76.4	67			100					150			595
5/23	1325	2.38	64.8	73			96					140			574
6/27	0950	2.34	55.9	71			57					73	0.2		336
7/25	0810	2.11	39.7	71			79					110			462
8/21	1200	2.00	27.2	76			98					140			532
9/26	1145	2.70	77.1	71			80					110			490
10/24	1405	2.39	39.3	67			160					170			658
11/27	1350	4.67	274	59			27					34			189
12/27	1300	5.78	416	49			23					35			175
					BEAR CREEK NEAR MOUTH							T8S,R11E,Sec.6			
1/24	1515	3.18	159	49			35					14	0.1		217
2/21	1445	2.81	120	57			32					15			238
3/21	1440	2.31	88.4	64			17					7.6			154
4/18	1540	3.90	291	72			16					6.9			133
5/23	0930	1.22	18.0	60			53					2.9			273
6/27	1430	1.30	31.7	82			39					18	0.1		224
7/25	1230	1.16	24.1	74			42					22			238
8/22	1010	1.08	22.2	72			44					20			252
9/26	0915	1.62	47.0	69			39					15			252
10/24	0930	0.70	3.10	63			120					98			595
11/28	1005	9.61	1204	58			11					6.2			105
12/28	1040	8.79	875	48			8					3.8			84
					SAN JOAQUIN RIVER AT FREMONT FORD							T7S,R9E,Sec.24			
1/24	1130	59.61	229	51	30	17	82	2.4	0	140	68	98	0.2	2.5	400
2/23	1245	59.25	164	55	46	31	140	2.2	0	170	120	190		0	630
3/23	1100	58.65	99	61	71	35	210	2.2	0	140	160	320		0.4	1940
4/20	1120	59.80	282	72	29	14	63	1.9	0	120	55	85		0.5	340
5/23	1030	58.75	112	70	50	28	140	2.6	0	150	120	220		0.4	690
6/28	1010	58.42		76	53	28	140	3.8	0	140	110	230		1.1	700
7/20	1050	58.38	77.5	79	40	20	110	2.6	0	140	80	160			540
8/28	1500	58.02	36.5		74	37	200	2.8	0	320	150	320		1.3	970
9/26	1245	58.85	128	72	30	14	63	3.4	0	150	39	71		0.7	340
10/24	1215	57.94	31.5	65	86	47	260	3.9	0	180	210	440		0	1300
11/27	1140	65.43	2180	57	9.0	3.1	11	2.9	0	57	5.7	4.8		0.7	92
12/28	1500			49	7.2	2.4	11	1.0	0	37	6.3	9.7		0.7	84
					SAN JOAQUIN RIVER ABOVE MOUTH OF MERCED RIVER							T7S,R9E,Sec.3			
1/30	1210			46			110					120			581
2/27	1045			60			160					230			980
3/28	1110			61			75					95			420
4/26	1035			69			140					190			770
5/24	1025			70			210					330			1190
6/27	1200			73			130					170			686
7/25	1120			82			180					260			910
8/31	1145			82			270					400			1400
9/26	1100			71			58					68			378
10/26	1050			65			380					590			1890
11/30	1410			57			16					17			126
					MERCED RIVER AT STEVINSON DRAIN							T6S,R9E,Sec.36			
1/30	1040	3.73	437	46			9.1					4.8			84
2/27	0920	4.25	634	57			17					20			161
3/28	1000	2.42	297	60			22					19			161
4/26	0945		143	66			29					22			189
5/24	0930	1.78	196	56			25					24			161
6/27	1135	2.47	236	72			29					28			168
7/25	1100	1.98	169	74			24					20			154
8/31	1130	1.81		76			26					23			168
9/26	1045	2.05		71			28					21			175
10/26	1025	1.76		64			51					62			287
11/30	1100	6.44		53			3.0					2.1			53
12/26	0930	7.37		48			6.7					7.3			84
					SAN JOAQUIN RIVER BELOW MOUTH OF MERCED RIVER (AT HILLS FERRY BRIDGE)							T7S,R9E,Sec.3			
1/30	1335	3.62		46			96					100			525
2/27	1210	3.62	838	59			110					150			651
3/28	1215	3.00	561	61	29	12	75	1.2	0	110	63	84		0	340
4/26	1145	2.46	342	68			93					130			497
5/24	1100	2.27	320	69.7			120					180			637
6/27	1305	2.65	359	73			65					83			364
7/25	1200	2.30	227	78			66					89			371
8/31	1155	2.31		79			130					190			770
9/26	1110	2.75		71			55					61			343
10/26	1100	2.29		65	59	35	190	3.0	0	150	160	300		0.5	900
11/30	1400	7.42		56			17					17			133
12/28	0940	9.64		48			10					13			98

TABLE 197 (CONT'D)

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1950

DATA COPIED FROM UNITED STATES BUREAU OF RECLAMATION COMPILATION
(Daylight Saving Time effective April 30 through September 23)

Date of Sample	Time of Sample	Draw Down or G. H.	Depth or c.f.s.	Temperature Degrees	Parts per Million										
					Ca	Mg	Na	K	CO_3	HCO_3	SO_4	Cl	B	NO_3	Total Solids
VIVIAN SLOUGH AT NORTH LINE OF SECTION 16 (AT OLLINGERS PUMP) T6S,R9E,Sec.16															
1/25	0950			44			180					260			840
2/24	1045						180					300			910
3/28	1200			59			250					410			1190
4/26	1000			64			340					570			1610
5/25	1110			71			250					380			1120
6/28	1030			72			66					77			350
7/27	1000			75			52					56	0.1		280
8/29	1010			73			55					69			308
9/28	1010			67			68					84			364
10/26	1005			62			72					85			378
11/28	1355			60			35					35			196
12/27	1210			50			150					240			770
PATTERSON DRAIN AT SAN RAMON LAKE T5S,R8E,Sec.27															
1/31	1440			51			270					210			1820
2/27	1330			61			240					190			1820
3/28	1245			58			250					28			1540
4/25	1115			66			170					200			980
5/24	1150			64			200					220			1190
6/27	1335			68			170					180			980
7/26	0955			70			230					280	0.8		1330
8/31	1220			71			200					230			1120
9/26	1210			68			220					210			1330
10/26	1140			66			220					180			1400
11/30	1425			61			230					180			1540
12/28	1000			54			190					230			1540
SAN JOAQUIN RIVER AT PATTERSON WATER COMPANY INTAKE T5S,R8E,Sec.15															
1/31	1500	37.93		46			45					46			280
2/27	1320	38.06		60			57					79			392
3/28	1300	37.90		61	31	9.8	67	1.2	0	120	40	80		0	310
4/25	1130	36.15		68			130					180			700
5/24	1200	36.17		70			98					140			567
6/27	1345	36.30		76			86					110			434
7/26	1010	35.60		77			98					130			560
8/31	1230	36.85		79			110					150			602
9/26	1225	36.65		70			67					76			399
10/26	1155	36.65		65	36	16	94	2.5	0	150	63	120		2.6	460
11/30	1435	42.90		57			13					16			119
12/28	1015	45.40		49			10					12			105
SAN JOAQUIN RIVER NEAR LAIRD SLOUGH BRIDGE T4S,R7E,Sec.25															
1/31	1345	28.69		47			59					68			357
2/27	1415	29.01		61			58					80			420
3/28	1400	28.84		62			67					87			399
4/25	1025	27.77		69			130					170			700
5/24	1335	27.22		73			100					140			602
6/27	1500	27.25		78			100					130			581
7/26	1100	26.28		76			120					160			672
8/31	1350	26.59		80			120					160			679
9/26	1340	28.50		73			72					86			420
10/27	0910	27.58		64			120					170			665
11/30	1540	36.70		56			15					17			126
12/28	1130	37.62		49			10					13			119
SAN JOAQUIN RIVER AT WEST STANISLAUS I.D. DIVERSION T4S,R7E,Sec.10															
1/31	1400	25.32		47			180					260			1120
2/27	1400	26.65		62			61					94			434
3/28	1345	25.20		62			78					110			455
4/25	1045	27.30		66			120					160			700
5/24	1320	26.10		73			100					140			595
6/27	1450	24.20		78			100					140			602
7/26	1040	22.90		77			120					170			770
8/31	1335	23.40		79			110					170			700
9/26	1255	24.10		72			69					87			427
10/26	1250	25.00		65			120					160	0.3		679
11/30	1530	35.30		58			16					18			126
TUOLUMNE RIVER AT TUOLUMNE CITY T4S,R8E,Sec.7															
1/31	1330	29.21		48			30					53			217
2/28	1330	30.64		54			17					32			168
3/28	1415	27.71		63	31	7.4	40	0.9	0	99	8.2	75		0	250
4/25	1010	33.12		58			9.5					17			84
5/24	1350	30.91		65			14					29			133
6/27	1515	28.61		76			43					79			301
7/26	1115	27.92		75			74					140		0.2	497
8/31	1400	27.73		79			80					150			518
9/26	1355	28.76		74			74					140			511
10/27	0935	29.61		64	18	4.9	28	2.7	0	58	4.5	53		1.6	170
11/30	1550	38.63		54			4.7					8.7			50
12/28	1210	35.62		49			9.0					21			112

TABLE 197 (CONT'D)

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1950

DATA COPIED FROM UNITED STATES BUREAU OF RECLAMATION COMPILATION
(Daylight Saving Time effective April 30 through September 23)

Date of Sample	Time of Sample	Draw Down or G. H.	Depth or c.f.s.	Temperature Degrees	Parts per Million										
					Ca	Mg	Na	K	CO_3	HCO_3	SO_4	Cl	B	NO_3	Total Solids
					SAN JOAQUIN RIVER AT EL SOLYO PUMPS							T3S,R7E,Sec.29			
1/31	1015	20.82		47			54					74			343
2/28	1230	21.50	2535	57			32					51			259
3/29	1730	19.97		62			51					77			343
4/25	1540	23.70		63			15					25			126
5/25	1305	24.05		67			19					47			196
6/28	1200	19.30		76			74					130			441
7/27	1155	17.75	354	80			98					180	0.2		644
8/31	1425	17.85		80			100					170			616
9/26	1315	18.75		72			76					120			497
10/26	1340	19.8		65			55					84			343
11/30	1625	30.10		55			9.2					13			77
12/28	1145	38.20		49			9.0					15			119
					STANISLAUS RIVER AT BRET HARTE PUMP							T3S,R7E,Sec.9			
1/31	0920	24.37		44			4.5					4.1			77
2/28	0935	24.32	1260	51			3.9					4.8			77
3/29	1205	22.90	544	59			6.9					3.5			105
4/27	1400	29.65		57			2.4					0.7			35
5/25	1420	31.90		61			2.0					0.7			32
6/28	0700	23.34	575	69			10					6.2			112
7/26	1220	21.01		80			16					8.3			154
8/31	1520	20.58		78			11					9.7			175
9/26	1515	20.65		72			17					9.7			182
10/26	1510	21.22		64			15					7.6			168
11/29	1620	29.30		55			3.9					4.2			61
12/28	1400	29.35		49			2.0					0.3			64
					SAN JOAQUIN RIVER NEAR VERNALIS							T3S,R6E,Sec.13			
1/26	1245	8.25	2278	48			42					62			280
2/28	1000	9.82		55			25					37			203
3/29	1415	8.12	2193	62			40					63			294
4/27	1300	11.80		62			11					18			98
5/25	1640	13.05	7164	63			11					16			84
6/28	1130	7.74	1517	73			46					76			322
7/27	1140	6.04	535	81			77					140			532
8/31	1500	6.03		81			82					140			525
9/26	1445	6.87		72			70					110			469
10/26	1445	7.66		64			52					78			343
11/30	1615	18.50		56			7.6					10			77
					SAN JOAQUIN RIVER AT BANTA CARBONA I. D. DIVERSION							T2S,R6E,Sec.34			
1/31	1000	12.52		49			100					110			630
2/28	1015	13.35		55			27					39			238
3/29	1645	11.30		62	28	6.3	46	0.9	0	94	25	62		0	240
4/27	1320	15.40		61			10					14			84
5/25	1710	16.70		66			9.3					14			77
6/28	1145	10.9		74			46					77			322
7/26	1145	9.00		77			78					150			539
8/31	1445	9.00		80			88					150			553
9/26	1425	10.00		72			70					100			501
10/26	1420	10.7		65	31	13	65	2.7	0	120	40	94		2.1	340
11/29	1530	23.70		61			32					35			259
12/28	1315	21.95		52			11					17			168
					SAN JOAQUIN RIVER AT MOSSDALE BRIDGE							T2S,R6E,Sec.3			
1/16	1550	e2.70		47			59					86			371
2/20	1450	3.25		55			26					35			224
3/20	1615	0.6		61			69					120			469
4/24	0900	3.85		60			7.4					9.7			64
5/25	1300	3.90		66			9.0					12			77
6/23	1025	2.0		72			33					54			231
7/25	1600	1.40		82			78					140			490
8/22	0845	0.24		74			84					150			539
9/22	1905	2.65		73			56					84			385
10/24	1140	1.6		65			55					85			364
11/24	1230	16.5		55			2.9					4.2			38
12/20	0900	14.7		54			5.0					6.6			65
					SAN JOAQUIN RIVER AT BRANDT BRIDGE							T1S,R6E,Sec.9			
3/20	1440	3.70		60			65					120			434
6/23	1730	5.20		74			35					59			259
9/22	1835	6.47		73			55					82			378
12/20	1013	12.4		53			5.0					7.6			68
					SAN JOAQUIN RIVER AT GARWOOD BRIDGE							T1N,R6E,Sec.16			
1/16	1030	e2.6		44			47					66			329
2/20	1125	3.4		53			25					37			210
3/20	1400	e1.5		60			51					80			364
4/24	1250	4.20		61			8.0					11			70
5/25	1135	4.60		66			9.5					13			77
6/23	1630	3.00		74			40					64			280
7/25	1015	2.70		80			65					100			372
8/23	1010	2.50		78			75					120			455
9/22	1700	e4.3		73			74					120			469
10/24	1105	e1.5		66			48					74			322
11/24	0935	7.25		55			4.1					4.8			51
12/20	0945	6.65		54			6.0					7.3			77

e - Estimated

TABLE 197 (CONT'D)

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO,SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1950

DATA COPIED FROM UNITED STATES BUREAU OF RECLAMATION COMPILATION
(Daylight Saving Time effective April 30 through September 23)

Date of Sample	Time of Sample	Draw Down or G. H.	Depth or c.f.s.	Temperature Degrees	Parts per Million										
					Ca	Mg	Na	K	CO_3	HCO_3	SO_4	Cl	B	NO_3	Total Solids
					CALAVERAS RIVER NEAR STOCKTON						T2N,R6E,Sec.24				
6/27	0910	2.50		72			6.0					3.5			119
12/21	0925	4.31		53			3.3					5.5			112
					STOCKTON SHIP CHANNEL AT BURNS CUT-OFF						T1N,R5E,Sec.1				
1/16	1000	3.48		44			75					130			490
2/20	1105	4.37		54			24					36			224
3/20	1320	2.39		59			41					67			287
4/24	1320	4.20		67			11					18			112
5/25	1155	5.70		69			13					23			105
6/23	1650	3.80		73			32					49			238
7/25	0945	3.60		78			49					79			336
8/23	1040	2.95		77			63					100			399
9/22	1640	5.50		74			84					140			525
10/24	0855	3.55		66			78					120			497
11/24	1125	5.68		55			5.0					6.5			52
12/20	1600	7.08		54			5.7					8.0			77
					MIDDLE RIVER AT SANTA FE RAILROAD						T1N,R4E,Sec.15				
3/21				58			37					61			287
6/23	1415			74			25					21			119
9/22	1050			70			41					66			308
12/20	1450			54			9					18			126
					OLD RIVER AT CLIFTON COURT FERRY						T1S,R4E,Sec. 21				
1/16	1105	2.95		46			96					130			497
2/20	1315	3.49		55			30					45			259
3/20	1525	1.77		60			60					100			399
4/24	1025	5.40		62			9.8					15			91
5/23	1120	6.14		67			11					17			91
6/23	1155	4.10		71			46					73			301
7/25	1345	2.80		79			67					120			462
8/23	0930	3.25		74			63					110			385
9/22	1015	2.95		71			76					120			497
10/24	1330	3.70		66			57					87			378
11/20	1440	6.12		55			6.1					8.7			57
12/20	1145	5.35		55			8					13			91
					OLD RIVER AT VICTORIA ISLAND BRIDGE						T1N,R4E,Sec.16				
3/21	1245	3.25		59			53					90			357
6/23	1330	4.90		70			32					48			231
9/22	1200	e2.6		71			86					140			560
12/20	1350	6.85		56			8					14			91
					ROCK SLOUGH AT CONTRA COSTA CANAL INTAKE						T2N,R3E,Sec.34				
1/16	1230	1.78		46	47	24	85	2.2	0	94	130	130		5.3	500
2/20	1240	0.35		55	44	22	78	2.2	0	110	110	110		2.1	450
3/21	1115	0.38		59	25	14	49	1.5	0	86	51	68		0	290
4/24	1130	1.70		68	15	7.3	25	1.5	0	67	21	37		1.1	170
5/23	1020	3.20		70	16	7.3	29	1.0	0	61	23	44		0.5	170
6/23	1250	1.80		74	9.6	3.9	14	0.7	0	42	12	19		0.8	110
7/25	1300	0.40		77	16	7.4	24	1.4	0	57	26	33		0.7	160
8/22	1325	0.80		76	19	9.3	32	2.0	0	70	30	46		0.9	210
9/22	1245	-0.20		72	24	13	47	2.6	0	84	43	71		0.7	270
10/24	1825	1.83		65	37	18	73	3.5	0	120	58	110		1.2	400
11/24	1740	4.00		58	36	17	69	3.5	0	120	66	100		1.8	400
12/20	1315	3.35		56	16	8.4	33	1.9	0	55	43	37		2.3	200
					MOKELUMNE RIVER AT WOODBRIDGE						T4N,R6E,Sec.28				
2/20	0925	7.10		48			2.0					1.7			36
5/24	0925			56			2.3					1.7			41
8/21	1000	3.80		70			3.0					2.8			35
11/20	0945	15.75		58			2.1					2.4			33
					COSUMNES RIVER AT McCONNELL STATION						T6N,R6E,Sec.20				
2/20	0955	34.00		48			2.6					1.4			58
5/24	1000	34.40		62			2.0					0.5			27
8/21	1025	dry													
11/20	1040	e43.6		58			2.0					2.4			36
					MOKELUMNE RIVER AT NEW HOPE BRIDGE						T4N,R4E,Sec.15				
2/20	1510	0.5		51			3.8					4.1			70
5/24	1525	2.00		59			2.0					1.7			28
8/22	1150	0.45		76			25					53			231
11/20	1550	5.38		60			2.7					3.5			51

e - Estimated

TABLE 197 (CONT'D)

COMPLETE OR PARTIAL ANALYSIS OF THE WATERS OF THE SACRAMENTO, SAN JOAQUIN RIVERS, THEIR TRIBUTARIES AND THEIR DELTAS - 1950

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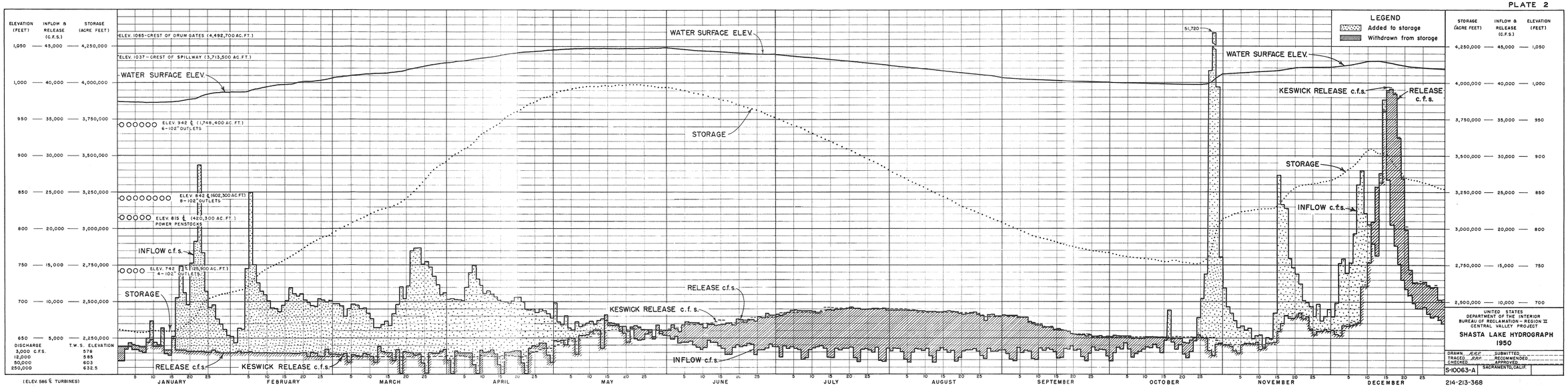
(Daylight Saving Time effective April 30 through September 23)

Date of Sample	Time of Sample	Draw Down or G. H.	Depth or c.f.s.	Temperature Degrees	Parts per Million										
					Ca	Mg	Na	K	CO_3	HCO_3	SO_4	Cl	B	NO_3	Total Solids
MOKELUMNE RIVER AT CENTRAL LANDING T3N,R4E,Sec.20															
1/16	1115			44			31					47			259
2/14	0945			48			8					10			119
3/22	1010			54			5.6					35			77
4/25	1350			60			4.1					3.8			55
5/22	1005			64			10					15			91
6/26	1810			72			10					9.7			91
7/26	1315			73			25					25			182
8/24	1220			75			24					22			196
9/22	1515			70			30					36			224
10/24	1730			64			33					47			252
11/22	0950			58			2.7					3.8			49
12/20	1235			54			3.3					6.9			77
SAN JOAQUIN RIVER NEAR WEBB POINT (OPPOSITE MOKELUMNE RIVER MOUTH) T3N,R4E,Sec.19															
1/16	1120			43			38					64			322
2/14	0955			50			25					46			252
3/22	1015			56			16					25			154
4/25	1400			66			13					21			126
5/22	1015			64			9.9					15			91
6/26	1800			70			11					15			98
7/26	1320			72			22					28			168
8/24	1230						39					60			266
9/22	1525			69			52					78			343
10/24	1720			65			42					61			294
11/22	1000			59			15					32			154
12/20	1250			54			6.6					13			98
SAN JOAQUIN RIVER AT ANTIOCH T2N,R2E,Sec.18															
1/16	1345			44			170					280			840
2/14	1050			50			24					42			238
3/20	1120	-0.90		57			22					35			196
4/24	0925	1.65		62			16					24			140
5/23	0930	2.56		64			10					14			98
7/5	1545	e-0.5		76			80					130			427
7/25	1215	1.98		72			140					240			693
8/25	1520	2.26		74			420					720			1890
9/21	1550	5.7		68			260					460			1260
10/24	1530	2.52		64			290					510			1400
11/15	0934	5.38		56			73					120			420
12/29	1200	0.90		50			8.0					18			126
KAWEAH RIVER AT McKAY POINT EAST QUARTER CORNER T18S,R27E,Sec.4															
2/8	1305		e500	46	10	1.4	5.7	0.3	0	40	6.2	3.1		1.4	83
12/12	1000		e815	48	8.6	1.3	3.8	1.5	0	36	3.0	1.4		0	58
TULE RIVER AT NORTH QUARTER CORNER (WORTH BRIDGE) T22S,R28E,Sec.3															
2/16	1445		179.0	53	26	4.4	14	0.5	0	120	9.0	6.2		0	140
12/12	1120			52	20	3.1	9.8	1.9	0	93	4.9	3.5		0	110

e - Estimated.

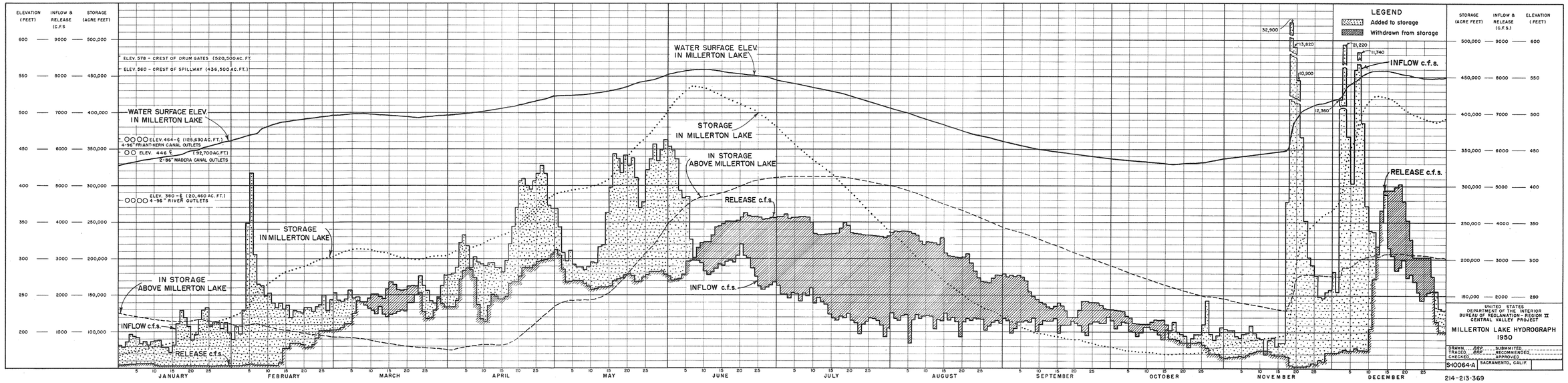


UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION-REGION II
CENTRAL VALLEY PROJECT

SHASTA LAKE HYDROGRAPH
1950

DRAWN RRP SUBMITTED
TRACED RRP RECOMMENDED
CHECKED APPROVED
S-10063-A SACRAMENTO, CALIF.

214-213-368

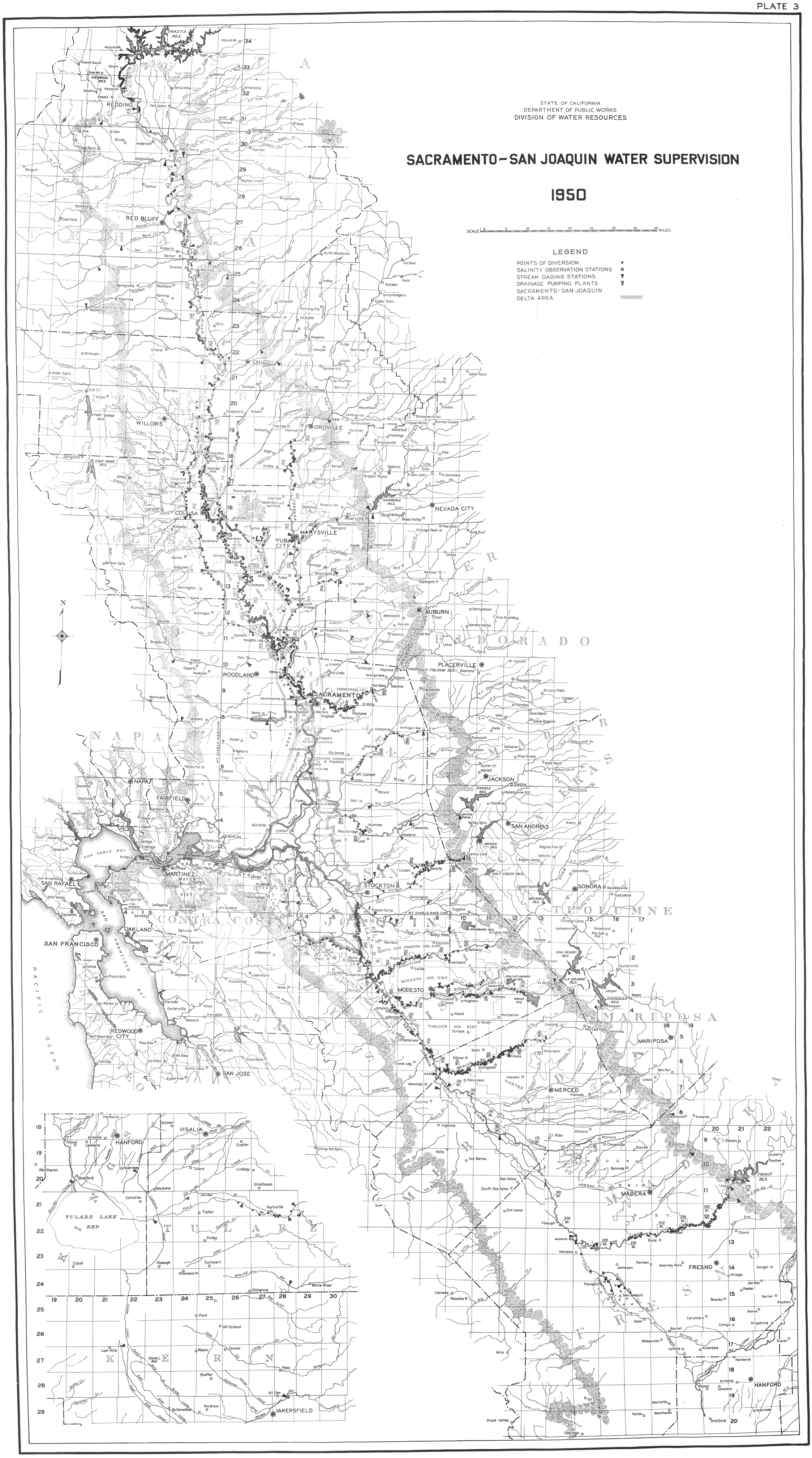


UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION-REGION II
CENTRAL VALLEY PROJECT

MILLERTON LAKE HYDROGRAPH
1950

DRAWN RRP SUBMITTED
TRACED RRP RECOMMENDED
CHECKED APPROVED
S-10064-A SACRAMENTO, CALIF.

214-213-369


STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES
SACRAMENTO-SAN JOAQUIN WATER SUPERVISION
1950
SCALE 0 5 10 15 20 25 30 35 40 MILES
LEGEND
POINTS OF DIVERSION
SALINITY OBSERVATION STATIONS
STREAM GAGING STATIONS
DRAINAGE PUMPING PLANTS
SACRAMENTO-SAN JOAQUIN DELTA AREA
N
SHASTA RES.
KESWICK RES.
REDDING
RED BLUFF
WILLOWS
OROVILLE
CHICO
COLUSA
MARYSVILLE
YUBA CITY
NEVADA CITY
AUBURN
PLACERVILLE
WOODLAND
SACRAMENTO
JACKSON
NAPA
FAIRFIELD
SAN ANDREAS
MARTINEZ
STOCKTON
SONORA
SAN RAFAEL
OAKLAND
SAN FRANCISCO
REDWOOD CITY
SAN JOSE
MODESTO
MERCED
MARIPOSA
MADERA
FRESNO
HANFORD
VISALIA
BAKERSFIELD
SAN PABLO BAY
SUISUN BAY
SAN FRANCISCO BAY
PACIFIC OCEAN
TULARE LAKE BED
STONY GORGE RES.
EAST PARK RES.
NARROWS RES.
HOGAN RES.
SALT CREEK RES.
MELONES RES.
DON PEDRO RES.
LA GRANGE RES.
EXCHEQUER RES.
FRIANT RES.
PROPOSED FOLSOM RES.
SHASTA
TEHAMA
BUTTE
GLENN
COLUSA
YUBA
NEVADA
PLACER
EL DORADO
NAPA
SOLANO
SACRAMENTO
YOLO
SUTTER
AMADOR
CONTRA COSTA
SAN JOAQUIN
ALAMEDA
STANISLAUS
TUOLUMNE
CALAVERAS
SANTA CLARA
MERCED
MARIPOSA
SAN BENITO
MADERA
FRESNO
KINGS
TULARE
KERN