SECTION 8
SHELF
ITEM 110.2

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES

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

REPORTS OF DIVISION OF WATER RESOURCES PREPARED PURSUANT TO SECTION 228, ARTICLE 2, CHAPTER 2, DIVISION 1 OF WATER CODE

WATER CONDITIONS IN CALIFORNIA

May 1, 1954

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STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES

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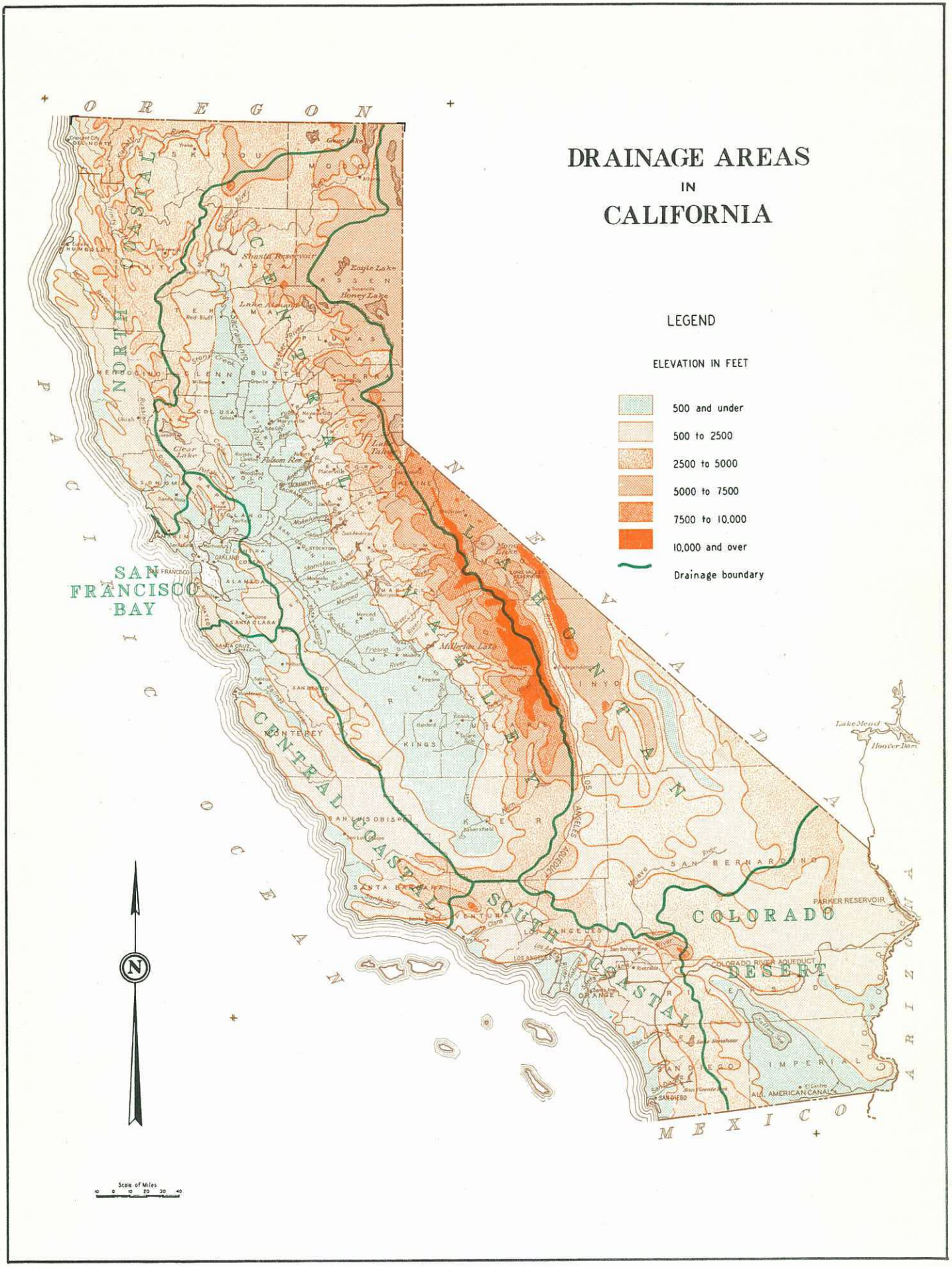
May 1, 1954


DRAINAGE AREAS
IN
CALIFORNIA
LEGEND
ELEVATION IN FEET
500 and under
500 to 2500
2500 to 5000
5000 to 7500
7500 to 10,000
10,000 and over
Drainage boundary
OREGON
NEVADA
ARIZONA
MEXICO
PACIFIC OCEAN
NORTH COASTAL
CENTRAL COASTAL
SOUTH COASTAL
LAHONTAN
COLORADO DESERT
SAN FRANCISCO BAY
Shasta Reservoir
Eagle Lake
Honey Lake
Lake Almanor
Clear Lake
Folsom Res.
Millerton Lake
Lake Mead
Hoover Dam
PARKER RESERVOIR
COLORADO RIVER AQUEDUCT
ALL AMERICAN CANAL
LOS ANGELES AQUEDUCT
Scale of Miles
10 0 10 20 30 40

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ORGANIZATION

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A. D. EDMONSTON . . . . . State Engineer
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AGENCIES COOPERATING WITH THE DIVISION OF WATER RESOURCES IN THE CALIFORNIA SNOW SURVEY PROGRAM

State and Federal Agencies

- Nevada Cooperative Snow Surveys
- Oregon Cooperative Snow Surveys
- Department of Agriculture
  - Forest Service (14 National Forests)
  - Soil Conservation Service
- Department of Commerce
  - Weather Bureau
- Department of the Interior
  - Bureau of Reclamation
  - Geological Survey, Water Resources Division
  - National Park Service (3 National Parks)
- Department of the Army
  - Corps of Engineers

Public Utilities

- Pacific Gas and Electric Company
- California Electric Power Company
- Sierra Pacific Power Company
- Southern California Edison Company
- The California Oregon Power Company

Municipalities

- City of Los Angeles
  - Department of Water and Power
- City of San Francisco
  - Public Utilities Commission
- City of Porterville

Organized Public Agencies

- Los Angeles County Flood Control District
- East Bay Municipal Utility District
- Tulare Lake Basin Water Storage District
- Buena Vista Water Storage District
- Kaweah Delta Water Conservation District
- Kaweah River Association
- St. Johns River Association
- Kings River Water Association
- Nevada Irrigation District
- Saucelito Irrigation District
- Truckee-Carson Irrigation District
- Turlock Irrigation District
- Modesto Irrigation District
- Merced Irrigation District
- Terra Bella Irrigation District
- Vandalia Irrigation District
- Washoe County Water Conservation District
- Lower Tule River Irrigation District

Private Organizations

- Kern County Land Company
- The San Joaquin Canal Company

SECTION 1 - INTRODUCTION

Reports entitled "Water Conditions in California" are prepared as of the first of each month from February through May of each year by the Department of Public Works, Division of Water Resources, pursuant to Section 228, Article 2, Section 2, Division 1, of the Water Code which provides that:

> "The department shall gather and correlate information and data pertinent to an annual forecast of seasonal water crop, including the making of snow surveys, either independently or in cooperation with any person or any county, State, Federal, or other agency."

In the preparation of this report, data and assistance were furnished by many public and private agencies cooperating in the California Snow Survey program; by the operators of storage reservoirs; and by agencies collecting and reporting on precipitation and runoff. Agencies cooperating in the collection of precipitation, runoff, and snow survey data are listed immediately following the table of organization. Agencies supplying data on precipitation, snow depth, reservoir storage and runoff, as set forth in Tables 10, 12, 13 and 14 are named therein. Agencies making independent forecasts of reservoir storage and runoff published in this report are named therewith in Sections 4 and 5 and Table 6.

This report is the fourth of the 1954 series and sets forth the summary of water conditions as of May 1, 1954, including the results of all snow measurements, available precipitation records, stream flow data for representative water courses and records of water in storage in major reservoirs. Data on ground water conditions in various geographical areas throughout the State, including changes in water levels during the past year, were presented in the April 1 report. The various phases of water supply are discussed herein with respect to the drainage areas delineated on the Frontispiece of the report.

Summary of Water Conditions

The water supply outlook for California on May 1 remains generally satisfactory in the North Coastal Area and Central Valley Area north of Sacramento. Water supply for the remainder of the State will be below normal as indicated one month ago. Precipitation during April on watersheds along the west slope of the Cascade Mountains and the Sierra Nevada indicates that forecasts of April-July runoff made on April 1 should be increased for streams north of the American River Basin and reduced slightly for all other streams in the Central Valley Area except on the American, Tuolumne and Tule River Basins where no revision appears necessary.

The distribution of seasonal precipitation as of May 1 in per cent of normal is shown on Plate 1, following page 3. Precipitation percentages of normal by drainage areas are set forth in Table 1, page 4. It will be noted that seasonal precipitation to date varies from an average of 110 per cent of normal in the North Coastal Area to an average of about 70 per cent in the San Francisco Bay Area.

General storms during early April brought snow to the higher elevations of the Sierra Nevada and Cascade Mountains. However, as a result of above normal temperatures which accelerated the snowmelt, the water content of the snowpack is considerably less than one month ago. The effective snow line has receded to about 5,000 feet elevation at Mt. Shasta, 7,000 feet on watersheds of streams tributary to the Sacramento and San Joaquin Rivers, and 7,500 feet in the southern Sierra Nevada. A tabulation of representative snow measurements is shown in Table 2, page 5.

Storage in intrastate reservoirs utilized for conservation aggregated 8,447,000 acre-feet, which represents about 75 per cent of their total capacity. Reservoirs in operation for 10 or more years have in storage

104 per cent of their 10-year average as of May 1. Storage in these reservoirs increased 1,465,000 acre-feet during April. A summary of the water in storage on May 1 is set forth in Table 3, page 6.

Runoff of California streams during the seven-month period, October 1, 1953, to May 1, 1954, has been below normal except for streams in the northern portions of the North Coastal Area and the upper Sacramento and Napa Rivers. Runoff during April in streams influenced by snowmelt was in excess of normal for the month. Runoff in coastal streams south of the latitude of San Francisco and in streams in the South Coastal Area was appreciably below normal for April. A summary of runoff in representative streams is shown in Table 4, page 7. Forecasts of April-July runoff made on April 1 and May 1, April-July normal, April normal, and measured April 1954 runoff are set forth in Table 5, page 8. Forecasts of runoff in California streams are tabulated in Tables 6, 7, 8 and 9 of Appendix A.

The U. S. Weather Bureau's 30-day outlook for the month of May calls for below normal precipitation and above normal temperatures. The Bureau points out that the outlook given here is not a specific forecast in the usual meteorological sense, but is an estimate of the average precipitation and temperature for the month based upon the best indications now available. For more specific predictions, reference should be made to the local forecasts published by the nearest Weather Bureau office.

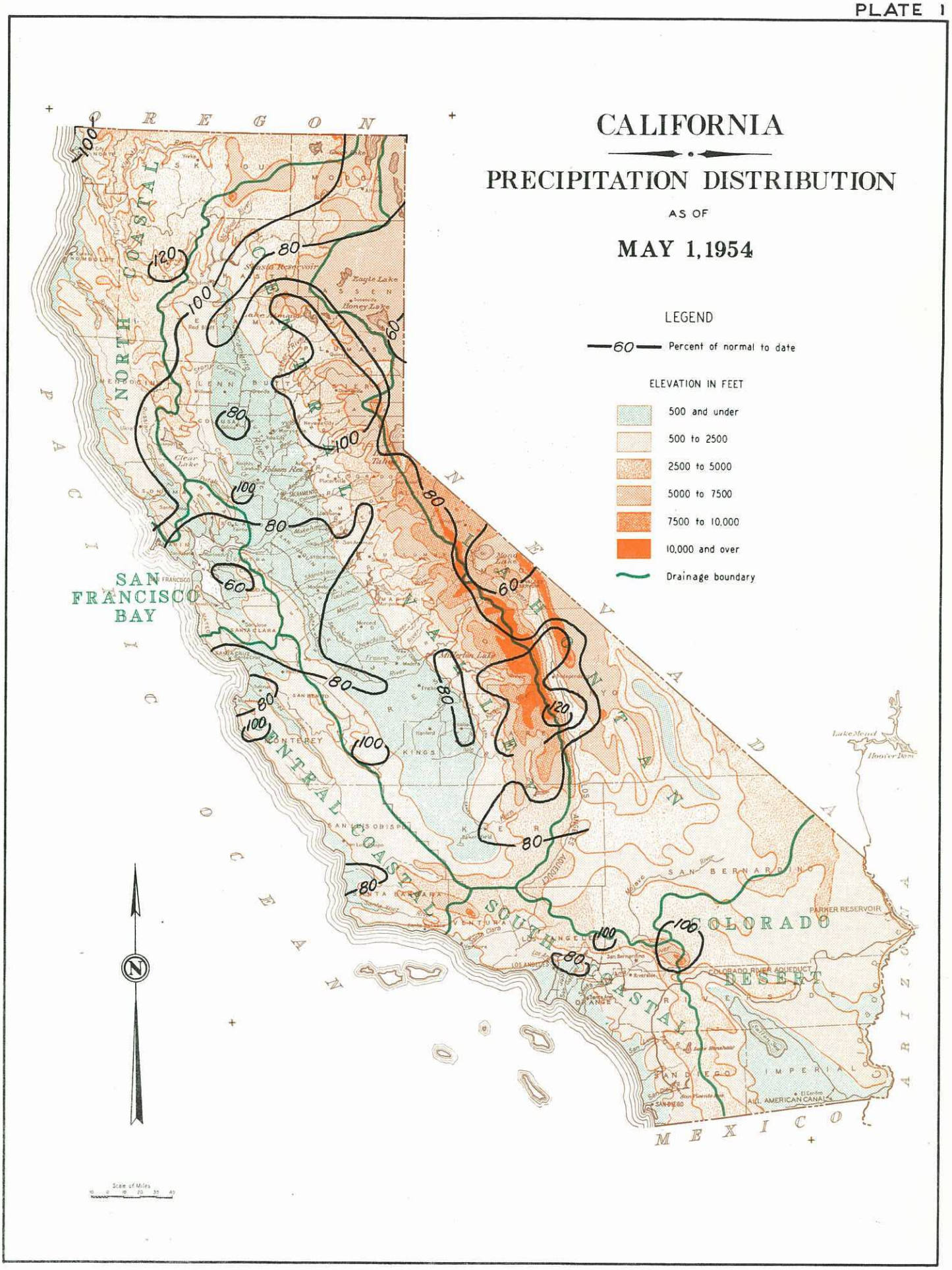
CALIFORNIA
PRECIPITATION DISTRIBUTION
AS OF
MAY 1, 1954
LEGEND
60 Percent of normal to date
ELEVATION IN FEET
500 and under
500 to 2500
2500 to 5000
5000 to 7500
7500 to 10,000
10,000 and over
Drainage boundary
OREGON
NEVADA
ARIZONA
MEXICO
PACIFIC OCEAN
NORTH COASTAL
CENTRAL COASTAL
SOUTH COASTAL
COLORADO DESERT
SAN FRANCISCO BAY
Lake Mead
Hoover Dam
PARKER RESERVOIR
COLORADO RIVER AQUEDUCT
ALL AMERICAN CANAL
Scale of Miles

TABLE 1

PRECIPITATION SUMMARY, PER CENT OF NORMAL

May 1, 1954

AREA	April, 1954		July 1, 1953 to April 30, 1954	
NORTH COASTAL	140%		110%	
SAN FRANCISCO BAY	95%		70%	
CENTRAL COASTAL	80%		80%	
SOUTH COASTAL	10%		90%	
Los Angeles River Basin		15%		80%
San Gabriel River Basin		10%		85%
Santa Ana River Basin		10%		95%
San Diego County		10%		90%
CENTRAL VALLEY	105%		90%	
Upper Sacramento-McCloud and Pit River Basins		105%		100%
Feather River Basin		140%		100%
Yuba River Basin		135%		100%
American River Basin		110%		95%
Mokelumne River Basin		90%		85%
Stanislaus River Basin		90%		85%
Tuolumne River Basin		90%		85%
Merced River Basin		90%		85%
Upper San Joaquin River Basin		90%		90%
Kings River Basin		75%		90%
Kaweah River Basin		80%		90%
Tule River Basin		110%		105%
Kern River Basin		60%		85%
LAHONTAN	45%		85%	
Susan River Basin		50%		75%
Truckee River Basin		100%		85%
Tahoe Lake Basin		70%		80%
Walker River Basin		0%		85%
Mono Lake Basin		20%		65%
Owen River Basin		25%		95%
COLORADO DESERT	No Reports Received			

TABLE 2

SNOWPACK DATA AT REPRESENTATIVE COURSES

As of May 1, 1954

Watershed and Snow Course	Elevation Feet	Date	Snow Depth Inches	Water Content Inches	Corresponding Water Content April 1, 1954	Corresponding Water Content May 1, 1953
Sacramento and Klamath						
Mt. Shasta	8,000	5/1/54	119.7	57.9	57.5	54.1
Pit						
Thousand Lakes	6,500	5/2/54	62.4	32.8	43.9	36.6
Feather						
Letterbox	5,600	4/30/54	61.6	36.0	53.1	60.2
Yuba and Truckee						
Donner Summit	7,020	4/28/53	50.7	24.1	34.6	29.8
American and Lake Tahoe						
Echo Summit	7,500	5/1/54	27.8	12.2	30.8	24.7
Mokelumne and Carson						
Carson Pass	8,600	5/2/54	45.0	22.8	32.0	31.3
Stanislaus and W. Walker						
Sonora Pass	8,800	5/3/54	21.1	10.2	22.0	N.S.M.
Tuolumne and Mono Lake						
Paradise	7,600	5/5/54	52.1	29.0	39.2	30.2
Merced						
Snow Flat	8,700	4/28/54	79.0	39.0	38.8	35.8
Upper San Joaquin						
Nellie Lake	8,250	4/28/54	60.7	23.1	35.1	N.S.M.
Kings						
Big Meadows	7,660	5/1/54	33.5	15.8	28.8	0
Kaweah						
Panther Meadow	8,650	5/1/54	74.1	33.2	35.6	N.S.M.
Kern						
Round Meadow	9,000	5/2/54	42.2	18.6	29.3	14.9

N.S.M. - No Survey Made.

TABLE 3

SUMMARY OF STORAGE
IN MAJOR RESERVOIRS

Area	Number of Reported Reservoirs	Total Capacity	Water in Storage: Acre-Feet: May 1 1953	Water in Storage: Acre-Feet: April 1 1954 2/	Water in Storage: Acre-Feet: May 1 1954	Water in Storage: Per Cent of Capacity: May 1 1954	Number of Reservoirs In Operation 10 Years	Water in Storage 1/: 10-Year May 1 Mean Per Cent of Capacity	Water in Storage 1/: May 1, 1954 Per Cent of 10-Year Mean
Intrastate									
North Coastal	2	126,720	120,630	104,260	118,470	98%	2	87%	107%
San Francisco Bay	11	432,380	369,310	311,940	319,450	74%	7	73%	99%
Central Coastal	3	247,000	47,010	46,200	64,070	26%	2	57%	174%
South Coastal	19	928,090	317,430	288,780	313,570	34%	17	46%	72%
Central Valley	30	9,151,840	6,624,400	5,992,750	7,397,770	81%	26	71%	110%
Lahontan Area	7	347,870	244,300	238,600	233,680	67%	7	64%	105%
Sub-total		11,233,900	7,723,080	6,982,530	8,447,010	75%	61	67%	104%
Interstate									
North Coastal	3	1,132,390	854,570	839,800	900,060	79%	3	64%	125%
Lahontan Area	3	815,500	692,350	629,190	690,850	85%	3	64%	132%
Colorado Desert 3/	1	27,207,000	17,299,000	15,701,000	15,289,000	56%	1	65%	87%
Sub-total		29,154,890	18,845,920	17,169,990	16,879,910	58%	7	65%	90%
Total	79	40,388,790	26,569,000	24,152,520	25,326,920	63%	68	65%	92%

1/ Computed for reservoirs in operation 10 years or longer.
2/ Basic data in Table 9 of February 1, 1954, Water Conditions Report.
3/ Data for Lake Mead which regulates flow of the Lower Colorado River, the major source of water for the Colorado Desert Area.

TABLE 4

UNIMPAIRED RUNOFF[1] OF REPRESENTATIVE STREAMS

1953-54 Season to Date

Area, Stream, and Station	April			October 1 - April 30		
	Acre-Feet		1954 In Per Cent of Normal	Acre-Feet		1953-54 In Per Cent of Normal
	1954	Normal[2]		1953-54	Normal[2]	
NORTH COASTAL AREA						
Klamath River at Somesbar	1,235,260	575,570	215%	6,505,380	3,647,230	178%
Russian River at Guerneville	218,600	169,820	129%	1,273,070	1,325,410	96%
SAN FRANCISCO BAY AREA						
Napa River near St. Helena	11,000	5,210	211%	59,720	48,740	123%
Coyote Creek near Madrone	1,430	7,520	19%	6,030	54,850	11%
CENTRAL COASTAL AREA						
Arroyo Seco near Soledad	0	14,860	0%	31,220	116,500	27%
Huasna River near Santa Maria	920	2,500	37%	4,010	19,740	20%
SOUTH COASTAL AREA						
Sespe Creek near Fillmore	5,020	9,950	50%	28,470	76,120	37%
Arroyo Seco near Pasadena	500	980	51%	2,660	6,660	40%
Santa Ana River near Mentone[3]	3,910	10,140	39%	28,130	56,530	50%
CENTRAL VALLEY AREA						
Sacramento River near Red Bluff	1,459,610	1,056,770	138%	7,283,870	6,215,570	117%
San Joaquin River below Friant	278,460	250,740	111%	546,900	662,370	83%
LAHONTAN AREA						
Truckee River at Farad	129,870	116,900	111%	340,230	402,900	84%
Owens River near Round Valley	14,950	13,530	110%	77,730	79,750	97%
COLORADO DESERT AREA						
Colorado River near Grand Canyon[4]	561,200	1,268,800[5]	44%	2,780,600	4,080,500[5]	68%

1/ Corrected for upstream regulation.

2/ Computed for the 50-year period 1900-01 - 1949-50, inclusive.

3/ Uncorrected for Bear Valley Reservoir Operation.

4/ Uncorrected for upstream regulation

5/ Based on the period 1922-23 - 1951-52, inclusive

TABLE 5

SUMMARY OF SNOWMELT RUNOFF[1] FORECASTS

MAJOR CENTRAL VALLEY STREAMS

As of May 1, 1954

River and Station	April 1 - July 31 Runoff: 50-Yr. Normal 1901-1950 Acre-Feet	April 1 - July 31 Runoff: Forecast April 1, 1954 Acre-Feet	Precipitation April, 1954 Per Cent of Normal	Forecast April 1-July 31 Runoff May 1, 1954 Acre-Feet	April, 1954 Runoff[2] Acre-Feet	Normal April Runoff Acre-Feet	Forecast May 1-July 31 Runoff May 1, 1954 Acre-Feet
Sacramento near Red Bluff	2,606,000	2,700,000	105%	2,800,000	1,460,000	1,056,770	1,340,000
Feather near Oroville	2,056,000	1,900,000	140%	2,000,000	1,010,000	838,610	990,000
Yuba at Smartville	1,169,000	1,000,000	135%	1,030,000	490,000	424,800	540,000
American at Fair Oaks	1,463,000	1,050,000	110%	1,050,000	550,000	505,880	500,000
Mokelumne near Mokelumne Hill	513,000	400,000	90%	380,000	160,000	137,580	220,000
Stanislaus below Melones Power House	785,000	620,000	90%	610,000	260,000	217,150	350,000
Tuolumne at La Grange	1,286,000	1,050,000	90%	1,050,000	350,000	294,800	700,000
Merced at Exchequer	667,000	550,000	90%	540,000	170,000	155,950	370,000
San Joaquin below Friant	1,300,000	1,130,000	90%	1,100,000	280,000	250,740	820,000
Kings at Piedra[3]	1,269,000	1,100,000	75%	1,050,000	270,000	225,610	780,000
Kaweah near Three Rivers[4]	282,000	250,000	80%	230,000	70,000	65,420	160,000
Tule near Porterville[4]	50,000	45,000	110%	45,000	20,000	19,310	25,000
Kern near Bakersfield[5]	468,000	400,000	60%	390,000	100,000	102,370	290,000

1/ Corrected for upstream regulation.

2/ Based on unpublished records, subject to revision, computed to nearest 10,000 acre-feet.

3/ Corrected for Pine Flat operation only.

4/ Uncorrected for upstream regulation.

5/ Corrected for Isabella operation only.

SECTION 2 - PRECIPITATION

Storms during the first few days of April brought near normal precipitation north of the latitude of Sacramento but only negligible amounts to areas south of Stockton. Precipitation during a storm on April 27-28 was locally heavy north of Fresno. Only negligible amounts of precipitation were reported in the South Coastal and southern Lahontan Areas during April. Precipitation data for the period July 1, 1953, to April 30, 1954, are presented in Table 10. Seasonal distribution of precipitation as of May 1 among the drainage areas delineated on the Frontispiece is as follows:

North Coastal Area

Seasonal precipitation in this area averaged about 110 per cent of normal, varying from 97 per cent at Ukiah to 134 per cent at Weaverville. Rainfall during the month of April ranged between 76 per cent of normal at Crescent City to 196 per cent at Weaverville.

San Francisco Bay Area

Seasonal precipitation in this area averaged about 70 per cent of normal, varying from 56 per cent at Oakland to 79 per cent at Napa State Hospital. Precipitation during the month of April varied widely throughout the area. San Jose reported only 41 per cent of normal while 161 per cent of normal was recorded at Napa State Hospital.

Central Coastal Area

Seasonal precipitation in this area averaged about 80 per cent of normal, varying from 71 per cent at Salinas to 93 per cent at King City and San Luis Obispo. During April the range of precipitation was from 24 per cent of normal recorded at Santa Maria to 154 per cent reported from Santa Cruz.

South Coastal Area

Seasonal precipitation in this area averaged about 90 per cent of normal, varying from 70 per cent of normal at Arroyo Seco Ranger Station on the Los Angeles River watershed to 118 per cent at Table Mountain Observatory in Eastern Los Angeles County. Precipitation during April was negligible throughout this area with less than 20 per cent of normal reported from most stations. Los Angeles reported 14 per cent of normal, San Bernardino 19 per cent and San Diego 13 per cent.

Central Valley Area

Seasonal precipitation in this area averaged about 90 per cent of normal, varying from 139 per cent of normal at Caribou in the Feather River Basin to 70 per cent at Hat Creek in the Pit River Basin. Average precipitation during April was considerably above normal on watersheds tributary to the Sacramento Valley and generally below normal on watersheds tributary to the San Joaquin River and Tulare Lake. The reported range of variation was from 221 per cent of normal at Lake Wilenor in the Feather River Basin to only 25 per cent at Kernville in the Kern River Basin.

Lahontan Area

Seasonal precipitation in this area averaged about 85 per cent of normal, varying from 54 per cent of normal at Gem Lake in the Mono Lake Basin to 131 per cent at Cottonwood Gates in Owens Valley southwest of Lone Pine. April precipitation varied widely with a maximum of 111 per cent of normal recorded at Truckee, zero at Bridgeport, and only a trace at Bishop and Independence.

Colorado Desert Area

No precipitation records were received from this area.

SECTION 3 - SNOWPACK

Measurements made at key snow courses on or about May 1 indicate that the water content of the snowpack in the Cascade Mountains and the Sierra Nevada was materially reduced during April by above normal temperatures which previled in most areas of the State. Some new snow was deposited in the higher mountain ranges during the April storms. These data are presented in Table 11 and snow depth information obtained by aerial photographic methods at selected locations is set forth in Table 12. Snowpack conditions among the drainage areas of the State delineated on the Frontispiece, are as follows:

North Coastal Area

Snowmelt runoff in this area is of importance only on the Klamath River and its tributaries, the Shasta, Scott, Salmon and Trinity Rivers. That system drains a large area in California and south-central Oregon. Snow surveys made at courses in California indicate about 40 per cent reduction in water content of the snowpack at 6,700-foot elevation during the month of April. Reduction in water content during that month averages about seven inches more than during the same period one year ago.

San Francisco Bay Area

Snow occurs infrequently in this area and has no bearing on distribution of runoff or general water conditions.

Central Coastal Area

Snow occurs infrequently in this area and has no bearing on distribution of runoff or general water conditions.

South Coastal Area

Snow which accumulated on the high elevations of the watershed of streams having their source in the San Gabriel and San Bernardino Mountains was largely dissipated by May 1.

Central Valley Area

Above normal temperatures during April resulted in the recession of the snow line to about the 5,000-foot elevation in the upper Sacramento River watershed; to the 7,000-foot elevation in the watersheds of streams tributary to the Sacramento and San Joaquin Rivers; and to the 7,500-foot elevation in watersheds tributary to the southern San Joaquin Valley. This snow line averages about 1,000 feet higher in elevation than one year ago. The reduction in water content of the snowpack during April of this year was generally greater than during the corresponding period of last year.

Lahontan Area

The average water content of the snowpack on May 1 was about 44 per cent less than one month ago at the 6,500-foot elevation near Silver Lake on the Susan River watershed and about 29 per cent less at the 8,600-foot elevation near Carson Pass at the upper limit of the West Carson River watershed. These represent reductions in water content during April which are about seven inches greater than the loss during April 1953.

Colorado River Desert Area

No measurements were received from this area.

SECTION 4 - SURFACE RESERVOIR STORAGE

There are about 220 conservation reservoirs with individual capacities in excess of 1,000 acre-feet and an aggregate usable storage capacity of 40,750,000 acre-feet which impound water for beneficial uses within California or jointly with adjacent states. Reports of the water in storage on May 1 received from the operators of 79 of these reservoirs representing 99 per cent of the total usable capacity are set forth in Table 13. It will be noted that these reservoirs had in storage about 63 per cent of their total capacity on May 1. Intrastate reservoirs in operation for 10 or more years have in storage 104 per cent of their 10-year average as of May 1.

North Coastal Area

Five storage reservoirs, including three on the Klamath River in the State of Oregon, located on streams tributary to this area, have in storage about 81 per cent of their total capacity of 1,259,000 acre-feet, which represents about 122 per cent of the 10-year mean as of May 1. Storage in these reservoirs has increased about 74,500 acre-feet since April 1. The reservoirs in California on Shasta and Eel Rivers have in storage about 107 per cent of their 10-year mean and will probably fill to capacity during the spring runoff period.

San Francisco Bay Area

Eleven storage reservoirs located on streams tributary to San Francisco Bay, for which reports have been received, have in storage about 74 per cent of their total capacity of 432,400 acre-feet. Seven of these reservoirs, in operation for more than 10 years, have in storage 99 per cent of their 10-year mean as of May 1. These reservoirs will not fill during the 1954 runoff season. A portion of the water in storage has been imported from Sierra Nevada streams. Storage in these reservoirs has increased by 7,500 acre-feet since April 1.

Central Coastal Area

Three reservoirs located in this area have in storage about 26 per cent of their total capacity of 247,000 acre-feet. Two of these reservoirs, in operation for more than 10 years, have in storage 99 per cent of their capacity which represents 174 per cent of their 10-year mean as of May 1. The remaining reservoir will not fill during the 1953-54 season. Storage in all reservoirs has increased by about 22,000 acre-feet since April 1.

South Coastal Area

Nineteen reservoirs in this area, for which reports have been received, have in storage about 34 per cent of their aggregate capacity of 928,000 acre-feet. Seventeen of these reservoirs, in operation for more than 10 years, have in storage about 72 per cent of their 10-year mean as of May 1. These reservoirs are not expected to fill to their 10-year mean storage. A portion of the water now in storage has been imported from Colorado River.

Central Valley Area

Thirty reservoirs in this area, for which reports are received, have in storage 81 per cent of their aggregate storage capacity of 9,152,000 acre-feet. Twenty-six of these reservoirs, in operation for more than 10 years, have in storage about 110 per cent of their 10-year mean as of May 1. Storage in all reservoirs in this area is expected to approach capacity during the snowmelt period. Storage in the 30 reservoirs increased by 1,405,000 acre-feet during April.

Lahontan Area

Ten reservoirs in this area, for which reports are received, have in storage about 79 per cent of their total capacity of 1,163,000 acre-feet, which represents about 124 per cent of their 10-year mean as of May 1. The

SECTION 5 - STREAM FLOW

Runoff of California streams during the first seven months of the 1953-54 season has been considerably below normal in all parts of the State except in the northern portion of the North Coastal Area and the upper Sacramento and Napa Rivers. Forecasts of runoff hereinafter set forth are predicated upon the assumption that normal precipitation will occur during May and June. If below normal conditions prevail, as indicated by the 30-day weather outlook, runoff less than that forecasted may be anticipated. Runoff data available for California streams are set forth in Table 14. A summary of stream flow in each of the drainage areas delineated on the Frontispiece is as follows:

North Coastal Area

Runoff of most streams in the northern portion of this area has been in excess of normal during the first seven months of the 1953-54 season. The computed natural runoff of the Klamath River at Somesbar during that period was 178 per cent of normal and for the Russian River at Guerneville 96 per cent of normal.

The Soil Conservation Service, Oregon Experiment Station and cooperators have forecast that April-July runoff into Upper Klamath Lake will total 565,000 acre-feet if average precipitation occurs during the remainder of the season. This estimated quantity of runoff is 145 per cent of the average for the 1942-51 period.

Data from snow surveys made on the watersheds of Klamath River tributaries in California indicate that snowmelt runoff will be in excess of normal if average precipitation occurs during the remainder of the season.

San Francisco Bay Area

During the first seven months of the 1953-54 season the runoff of Napa River near St. Helena was 123 per cent of normal. Runoff on streams tributary to the southern portion of San Francisco Bay has been negligible.

Central Coastal Area

Runoff of streams in this area was generally below normal during the first seven months of the 1953-54 season. Runoff during that period has been only 20 per cent of normal in Huasna River near Santa Maria and 27 per cent of normal in the Arroyo Seco near Soledad.

South Coastal Area

Runoff on streams in the northern portion of this area during the first seven months of the 1953-54 season varied from about 37 per cent of normal for Sespe Creek near Fillmore to 50 per cent for the Santa Ana River near Mentone. No reports were received on runoff in streams in San Diego County.

The quantities of runoff spread artificially for conservation purposes during the 1953-54 season at developed spreading grounds on streams in the area are set forth in the following tabulation:

Stream	Spread by	Amount in Acre-Feet	
		October 1, 1953-April 30, 1954	April 1954
Ventura River	Ventura County Flood Control District, Zone I	733	288
Piru Creek	United Water Conservation District	7,130	2,590
Santa Clara River	United Water Conservation District	16,340	6,520
Tujunga Creek	Los Angeles County Flood Control District	1,100	0
Pacoima Wash	Los Angeles County Flood Control District	1,800	1,800
Arroyo Seco	Los Angeles County Flood Control District	518	8
Eaton Creek	Los Angeles County Flood Control District	190	0
Santa Anita Creek	Los Angeles County Flood Control District and City of Sierra Madre	413	87
Santa Anita Creek	Los Angeles County Flood Control District	250	130
Santa Ana River	San Bernardino Valley Water Conservation District	5,785	2,980
Mill Creek	San Bernardino Valley Water Conservation District	2,271	1,035
San Jacinto River	Riverside County Flood Control District	713	0
(Unsoftened Metropolitan Water District Water) Santa Ana River	Orange County Water District Orange County Flood Control District, and Orange County Municipal Water District	18,740	4,370
TOTALS		55,983	19,808

Central Valley Area

Runoff from streams of this area during the first seven months of the 1953-54 season varied widely from 70 per cent of normal on the Tule River near Porterville to 117 per cent of normal on the Sacramento River above Red Bluff.

Forecasts of unimpaired snowmelt runoff during the months of April through July in streams in this area, adjusted to reflect the influence

of April precipitation and assuming conditions of normal precipitation during May and June, are set forth in the following tabulation:

RUNOFF FORECASTS

May 1, 1954

Watershed and Station	April 1 - July 31, 1954	
	50-Year Normal (1901-1950) Acre-Feet	Unimpaired Runoff Assuming Normal Precipitation for May—June 1954 Acre-Feet
Sacramento at Shasta Dam 1/	1,944,000	2,100,000
Feather at Oroville	2,056,000	2,000,000
Yuba at Smartville	1,169,000	1,030,000
American at Fair Oaks	1,463,000	1,050,000
Mokelumne at Mokelumne Hill	513,000	380,000
Stanislaus at Melones Dam	785,000	610,000
Tuolumne at La Grange	1,286,000	1,050,000
Merced at Exchequer	667,000	540,000
San Joaquin at Friant	1,300,000	1,100,000
Kings at Piedra	1,269,000	1,050,000
Kaweah at Three Rivers 1/	282,000	230,000
Tule at Porterville 1/	50,000	45,000
Kern at Bakersfield	468,000	390,000

1/ Not corrected for upstream impairments.

Lahontan Area

The runoff of streams in this area during the first seven months of the 1953-54 season was generally below normal. Runoffs for Truckee River at Farad and Owens River near Round Valley were 84 and 97 per cent of normal, respectively. Normal precipitation during the remainder of the season will produce near normal runoff only on the Owens River.

The snow survey committee for the Truckee River Basin with representatives from the Washoe County Water Conservation District, Truckee-Carson Irrigation District, and Sierra Pacific Power Company have forecast that the natural flow of the Truckee River at Farad, assuming normal precipitation for

the remainder of the season, will amount to about 205,000 acre-feet after April 1 exclusive of runoff originating above Lake Tahoe, as compared to an average flow of 281,000 acre-feet and the Little Truckee River at Boca will amount to about 69,000 acre-feet or 73 per cent of normal.

The Soil Conservation Service, Nevada State Engineer, and Nevada Experiment Station, cooperating, have forecast that, assuming normal precipitation for the remainder of the season, the runoff of Carson and Walker Rivers will be as follows:

Stream and Station	Forecast of Snowmelt Runoff in Acre-Feet	Per Cent of Normal Runoff
East Walker River near Bridgeport	55,000	79
West Walker River near Coleville	140,000	81
West Carson River at Woodfords	50,000	78
Carson River at Fort Churchill	145,000	76

The City of Los Angeles, Department of Water and Power, forecasts that, assuming normal precipitation conditions, the April-July runoff of the Owens River above Lake Crowley will be 67,900 acre-feet which is 95 per cent of normal.

Colorado Desert Area

The U. S. Bureau of Reclamation, Region 3, Boulder City, Nevada, advises that the runoff of Colorado River near Grand Canyon between October 1, 1953, and April 30, 1954, has been 2,780,600 acre-feet, which is 68 per cent of the mean flow for the 30-year period, 1923 through 1952. On May 1, that organization forecast that April-July runoff of the Colorado River near Grand

Canyon will be approximately 5,900,000 acre-feet and 67 per cent of the 30-year mean runoff, provided near normal climatic conditions occur during the remainder of the season.

A P P E N D I X A

RUNOFF FORECASTS

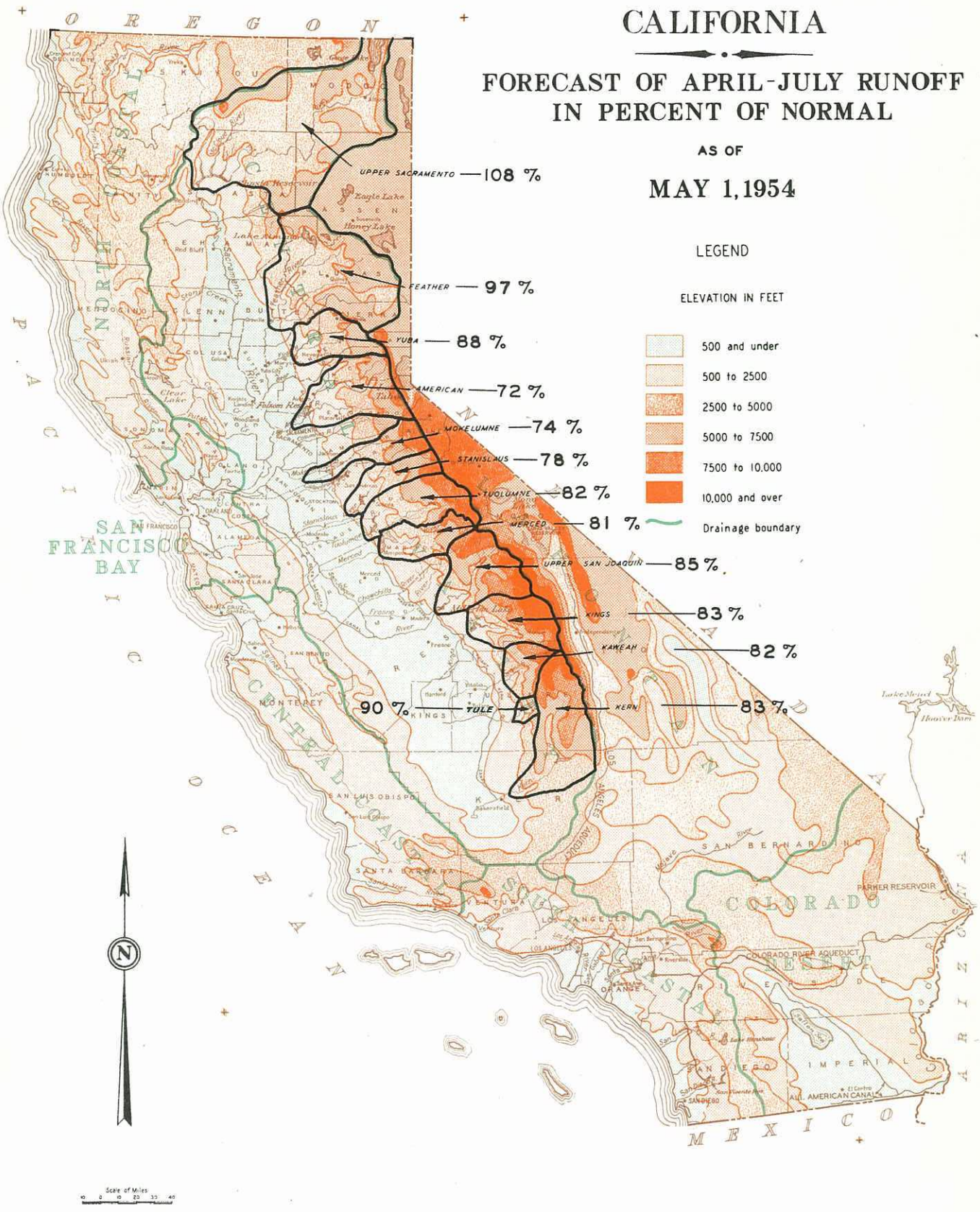
CALIFORNIA
FORECAST OF APRIL-JULY RUNOFF
IN PERCENT OF NORMAL
AS OF
MAY 1,1954
LEGEND
ELEVATION IN FEET
500 and under
500 to 2500
2500 to 5000
5000 to 7500
7500 to 10,000
10,000 and over
Drainage boundary
UPPER SACRAMENTO — 108 %
FEATHER — 97 %
YUBA — 88 %
AMERICAN — 72 %
MOKELUMNE — 74 %
STANISLAUS — 78 %
TUOLUMNE — 82 %
MERCED — 81 %
UPPER SAN JOAQUIN — 85 %
KINGS — 83 %
KAWEAH — 82 %
TULE — 90 %
KERN — 83 %
OREGON
PACIFIC OCEAN
MEXICO
SAN FRANCISCO BAY
NORTH COASTAL
CENTRAL COASTAL
SOUTH COASTAL
COLORADO
IMPERIAL
PARKER RESERVOIR
COLORADO RIVER AQUEDUCT
ALL AMERICAN CANAL
Lake Mead
Hoover Dam
Scale of Miles

TABLE 6

UNIMPAIRED RUNOFF[1] FORECASTS

May 1, 1954

Area, Stream, and Station	Source of Forecast[2]	April 1-July 31, Inc. 1954 Forecast Acre-Feet	50-Year Normal 1901-1950 Acre-Feet	1954 Forecast Per Cent of Normal
NORTH COASTAL				
Upper Klamath Lake, Net Inflow[3]	O.C.S.S.	565,000	388,800[8]	145%
Shasta Riv. above Yreka Ditch	D.W.R.	17,000	[9]	
Trinity Riv. at Lewiston[3]	D.W.R.	825,000	[9]	
CENTRAL VALLEY				
S. F. Pit Riv. nr. Likely	D.W.R.	35,000	38,000	92%
Sacramento Riv. at Shasta Dam[3]	D.W.R.	2,100,000	1,944,000	108%
N. F. Feather Riv. nr. Prattville	D.W.R.	280,000	278,000[6]	101%
M. F. Feather Riv. nr. Clio[3]	D.W.R.	90,000	95,000	95%
M. F. Feather Riv. at Bidwell Bar	D.W.R.	680,000	693,000	98%
S. F. Feather Riv. at Enterprise	D.W.R.	125,000	122,000	102%
Feather Riv. nr. Oroville	D.W.R.	2,000,000	2,056,000	97%
N. Yuba Riv. below Goodyears Bar	D.W.R.	280,000	305,000	92%
Bowman Area-M. Yuba Riv. & Canyon Cr.	D.W.R.	105,000	120,000	87%
S. F. Yuba Riv. at Langs Crossing	D.W.R.	230,000	236,000	97%
Yuba Riv. nr. Smartville	D.W.R.	1,030,000	1,169,000	88%
N. F. American Riv. at Colfax	D.W.R.	200,000	290,000	69%
M. F. American Riv. nr. Auburn	D.W.R.	440,000	610,000	72%
Silver Creek nr. Placerville	D.W.R.	150,000	205,000	73%
American Riv. at Fair Oaks	D.W.R.	1,050,000	1,463,000	72%
N. F. Mokelumne Riv. nr. West Point	D.W.R.	350,000	445,000	79%
Mokelumne Riv. nr. Mokelumne Hill	D.W.R.	380,000	513,000	74%
M. F. Stanislaus Riv. at Sand Bar Flat nr. Avery	D.W.R.	300,000	367,000	82%
Stanislaus Riv. below Melones P. H.	D.W.R.	610,000	785,000	78%
Tuolumne Riv. nr. Hetch Hetchy	D.W.R.	525,000	642,000	82%
Tuolumne Riv. above La Grange Dam	D.W.R.	1,050,000	1,286,000	82%
Merced Riv. at Pohono Bridge	D.W.R.	325,000	395,000	82%
Merced Riv. at Exchequer	D.W.R.	540,000	667,000	81%
S. F. San Joaquin Riv. nr. Florence Lake	D.W.R.	175,000	205,000	85%
Big Creek at Huntington Lake	D.W.R.	80,000	99,000	81%
San Joaquin Riv. above Big Creek	D.W.R.	930,000	1,105,000	84%
San Joaquin Riv. below Friant	D.W.R.	1,100,000	1,300,000	85%
N. F. Kings Riv. nr. Cliff Camp	D.W.R.	210,000	252,000	83%
Kings Riv. at Piedra[11]	D.W.R.	1,050,000	1,269,000	83%
Kaweah Riv. nr. Three Rivers[3]	D.W.R.	230,000	282,000	82%
Tule Riv. nr. Porterville[3]	D.W.R.	45,000	50,000	90%
Kern Riv. nr. Kernville[4]	D.W.R.	325,000	381,000	85%
Kern Riv. nr. Bakersfield[12]	D.W.R.	390,000	468,000	83%

TABLE 6 - UNIMPAIRED RUNOFF[1] FORECASTS, MAY 1, 1954 (Cont'd)

Area, Stream, and Station	Source of Forecast[2]	April 1-July 31, Inc. 1954 Forecast Acre-Feet	50-Year Normal 1901-1950 Acre-Feet	1954 Forecast Per Cent of Normal
LAHONTAN				
Little Truckee Riv. at Boca	T.B.W.C.	69,000	95,000	73%
Truckee Riv. at Farad[5]	T.B.W.C.	205,000	281,000	73%
Lake Tahoe[5]	T.B.W.C.	Rise 0.85'	Rise 1.5	57%
W. Carson at Woodfords	N.C.S.S.	50,000	64,000	78%
Carson Riv. at Fort Churchill	N.C.S.S.	145,000	190,000	76%
E. Walker nr. Bridgeport	N.C.S.S.	55,000[7]	70,000[7]	79%
W. Walker nr. Coleville	N.C.S.S.	140,000	172,000	81%
Owens Riv. nr. Round Valley	L.A.D.W.P.	67,900	71,560	95%
COLORADO DESERT				
Colorado Riv. at Grand Canyon[3]	U.S.B.R.	5,900,000	8,787,000[10]	67%

1/ Corrected for upstream regulation.

2/ O.C.S.S. - Soil Conservation Service, Oregon Experiment Station, and cooperators; D.W.R. - Division of Water Resources, State of California; T.B.W.C. - Truckee Basin Water Forecast Committee; N.C.S.S. - Soil Conservation Service, Nevada State Engineer and Nevada Experiment Station, cooperating; L.A.D.W.P. - Los Angeles Department of Water and Power; U.S.B.R. - United States Bureau of Reclamation.

3/ Uncorrected for upstream regulation.

4/ Includes Kern River #3 Canal.

5/ Assuming Lake Tahoe gates closed.

6/ April through June.

7/ April through September.

8/ 10-year normal (1942 through 1951).

9/ Normals not available.

10/ 30-year normal (1923 through 1952).

11/ Corrected for Pine Flat operation only.

12/ Corrected for Isabella operation only.

TABLE 7

UNIMPAIRED APRIL-JULY RUNOFF[1]
(Thousands of Acre-Feet)

May 1, 1954

RIVER AND STATION	YEAR							
	50-Year Normal (1901-1950)	1948	1949	1950	1951	1952	1953	1954 Forecast
Sacramento River at Shasta Dam[2]	1,944	2,697	1,506	1,460	1,474	2,830	2,128	2,100
Feather River near Oroville	2,056	2,497	1,416	1,988	1,505	4,638	2,381	2,000
Yuba River near Smartville	1,169	1,406	961	1,161	867	2,424	984	1,030
American River at Fair Oaks	1,463	1,699	1,243	1,593	1,100	2,864	1,631	1,050
Mokelumne River near Mokelumne Hill	513	520	434	571	346	959	493	380
Stanislaus River below Melones Power House	785	764	606	832	531	1,438	719	610
Tuolumne River above La Grange Dam	1,286	1,183	1,026	1,180	947	2,145	1,117	1,050
Merced River at Exchequer	667	598	509	552	439	1,073	451	540
San Joaquin River below Friant	1,300	1,036	976	1,010	921	2,199	874	1,100
Kings River at Piedra[3]	1,269	869	821	1,028	854	2,196	867	1,050
Kaweah River near Three Rivers[2]	282	226	181	222	172	588	213	230
Tule River near Porterville[2]	48	41	24	22	23	155	35	45
Kern River near Bakersfield[4]	468	240	210	300	263	1,119	329	390

1/ Corrected for upstream regulation.

2/ Uncorrected for upstream regulation.

3/ Corrected for Pine Flat operation only.

4/ Corrected for Isabella operation only.

TABLE 8

UNIMPAIRED SEASONAL RUNOFF[1] - 1953-54

May 1, 1954

River and Station	Acre-Feet				
	Computed[2]		Forecasts		Total
	Oct. 1-Mar. 31	Apr. 1-Apr. 30	May 1-July 31	Aug. 1-Sept. 30	Oct. 1-Sept. 30
Sacramento River nr. Red Bluff	5,820,000	1,460,000	1,340,000	500,000	9,120,000
Feather River nr. Oroville	2,060,000	1,010,000	990,000	180,000	4,240,000
Yuba River nr. Smartville	930,000	490,000	540,000	40,000	2,000,000
American River at Fair Oaks	920,000	550,000	500,000	20,000	1,990,000
Mokelumne River nr. Mokelumne Hill	170,000	160,000	220,000	3,000	553,000
Stanislaus River below Melones Power House	210,000	260,000	350,000	10,000	830,000
Tuolumne River above La Grange Dam	410,000	350,000	700,000	25,000	1,485,000
Merced River at Exchequer	180,000	170,000	370,000	13,000	733,000
San Joaquin River below Friant	270,000	280,000	820,000	60,000	1,430,000
Kings River at Piedra[3]	230,000	270,000	780,000	50,000	1,330,000
Kaweah River nr. Three Rivers[4]	70,000	70,000	160,000	6,000	306,000
Tule River nr. Porterville[4]	30,000	20,000	25,000	0	75,000
Kern River nr. Bakersfield[5]	140,000	100,000	290,000	40,000	570,000

1/ Corrected for upstream regulation.

2/ Based on unpublished records, subject to revision, computed to nearest 10,000 acre-feet.

3/ Corrected for Pine Flat operation only.

4/ Uncorrected for upstream regulation.

5/ Corrected for Isabella operation only.

TABLE 9

UNIMPAIRED SEASONAL RUNOFF[1] IN PER CENT OF NORMAL

October 1 to September 30

May 1, 1954

River	Station	Estimated Seasonal Runoff 1953-54 Acre-Feet	50-Year Normal (1901-1950) Acre-Feet	Seasonal Runoff in Per Cent of Normal: Actual 1949-50	1950-51	1951-52	1952-53	Estimated 1953-54
Sacramento	Red Bluff	9,120,000	8,288,000	69%	110%	139%	117%	110%
Feather	Oroville	4,240,000	4,496,000	85%	126%	176%	115%	94%
Yuba	Smartville	2,000,000	2,345,000	95%	151%	176%	109%	85%
American	Fair Oaks	1,990,000	2,718,000	98%	170%	183%	98%	73%
Sacramento	Sacramento[2]	-	-	81%	128%	160%	113%	97%
Mokelumne	Mokelumne Hill	553,000	756,000	100%	153%	175%	90%	73%
Stanislaus	Melones	830,000	1,174,000	92%	144%	164%	82%	71%
Tuolumne	La Grange	1,485,000	1,884,000	82%	132%	163%	77%	79%
Merced	Exchequer	733,000	994,000	72%	123%	157%	63%	74%
San Joaquin	Friant	1,430,000	1,787,000	73%	104%	171%	66%	80%
San Joaquin	Vernalis[2]	-	-	80%	124%	164%	74%	77%
Combined Sacramento and San Joaquin[2]		-	-	81%	128%	161%	103%	92%
Kings	Piedra[3]	1,330,000	1,690,000	76%	95%	169%	68%	79%
Kaweah	Three Rivers[4]	306,000	411,000	73%	102%	201%	75%	74%
Tule	Porterville[4]	75,000	102,000	46%	109%	207%	75%	74%
Kern	Bakersfield[5]	570,000	729,000	61%	78%	203%	94%	78%

1/ Corrected for upstream regulation.

2/ Actual runoff not computed. Percentages are based on runoff of the major tributaries listed above.

3/ Corrected for Pine Flat operation only.

4/ Uncorrected for upstream regulation.

5/ Corrected for Isabella operation only.

A P P E N D I X B

BASIC DATA

TABLE 10

PRECIPITATION DATA

JULY 1, 1953 TO APRIL 30, 1954

1 BASIN AND PRECIPITATION STATION	ELEVATION in FEET	2 SOURCE of DATA	PRECIPITATION DURING APRIL, 1954			PRECIPITATION FROM JULY 1, 1953 TO APRIL 30, 1954			3 Normal Seasonal Precipitation (July to June) Inches
			Total (Inches)	3 Normal (Inches)	In per cent of Normal	Total (Inches)	3 Normal (Inches)	In per cent of Normal	
NORTH COASTAL AREA									
Crescent City	35	U.S.W.B.	4.11	5.39	76%	63.94	64.88	99%	69.99
Yreka	2625	U.S.W.B.	1.24	0.94	132%	18.61	16.30	114%	17.87
Eureka	43	U.S.W.B.	2.78	2.82	99%	39.66	34.91	114%	37.32
Weaverville	2030	U.S.W.B.	4.32	2.20	196%	43.35	32.46	134%	33.63
Fort Bragg	74	U.S.W.B.	4.36	2.51	174%	38.47	35.56	108%	37.50
Ukiah	650	U.S.W.B.	3.31	2.18	152%	32.87	34.04	97%	35.45
Santa Rosa	167	U.S.W.B.	3.23	1.99	162%	27.84	27.85	100%	29.18
SAN FRANCISCO BAY AREA									
Napa State Hospital	60	U.S.W.B.	2.25	1.40	161%	17.87	22.67	79%	23.70
San Francisco	52	U.S.W.B.	0.82	1.18	69%	14.02	19.75	71%	20.53
Oakland	440	U.S.W.B.	1.67	1.35	124%	11.73	20.97	56%	21.95
Redwood City	31	U.S.W.B.	0.98	1.11	88%	13.92	19.99	70%	20.82
San Jose	95	U.S.W.B.	0.39	0.94	41%	9.84	13.14	75%	13.70
CENTRAL COASTAL AREA									
Santa Cruz	125	U.S.W.B.	2.56	1.66	154%	22.63	27.41	83%	28.57
Hollister	284	U.S.W.B.	0.92	0.94	98%	10.74	12.63	85%	13.13
Salinas	74	U.S.W.B.	0.65	0.97	67%	9.36	13.21	71%	13.73
Big Sur State Park	300	U.S.W.B.	4.01	2.62	153%	32.93	36.67	90%	37.99
King City	320	U.S.W.B.	0.20	0.67	30%	9.45	10.21	93%	10.49
Paso Robles	740	U.S.W.B.	0.64	0.95	67%	N.R.	15.44	-	15.91
San Luis Obispo	300	U.S.W.B.	1.28	1.42	90%	19.65	21.13	93%	21.81
Santa Maria	217	U.S.W.B.	0.25	1.04	24%	10.59	14.08	75%	14.56
Santa Barbara	120	U.S.W.B.	0.44	1.12	39%	15.37	18.00	85%	18.51
SOUTH COASTAL AREA									
Valley Stations									
Ventura	50	U.S.W.B.	0.38	0.83	46%	13.13	15.33	86%	15.63
Los Angeles	312	U.S.W.B.	0.13	0.96	14%	11.89	14.56	82%	14.90
San Bernardino	1094	U.S.W.B.	0.30	1.55	19%	16.11	16.81	96%	17.47
Escondido	750	U.S.W.B.	0.26	1.38	19%	14.17	16.38	87%	17.03
San Diego	19	U.S.W.B.	0.09	0.71	13%	9.09	10.30	88%	10.58
El Capitan Dam	610	U.S.W.B.	0.16	1.50	11%	15.53	16.59	94%	17.97
Los Angeles River									
Opids Camp	4480	L.A.C.F.C.D.	0.28	3.37	8%	33.78	39.93	85%	40.82
Loomis Ranch	4050	L.A.C.F.C.D.	0.10	1.41	7%	17.31	20.02	86%	20.76
Haines Canyon, Upper	3450	L.A.C.F.C.D.	0.35	2.37	15%	23.24	27.61	84%	29.62
Clear Creek	3300	L.A.C.F.C.D.	0.34	2.14	16%	27.13	30.34	89%	31.00
Sleepy Hollow Ranch	2950	L.A.C.F.C.D.	0.14	2.59	5%	22.78	30.37	75%	31.18

1, 2, 3, See footnotes last page of this table.

TABLE 10- PRECIPITATION DATA - JULY 1, 1953 TO APRIL 30, 1954 (Cont'd)

1 BASIN AND PRECIPITATION STATION	ELEVATION in FEET	2 SOURCE of DATA	PRECIPITATION DURING APRIL, 1954 Total (Inches)	3 Normal (Inches)	In per cent of Normal	PRECIPITATION FROM JULY 1, 1953 TO APRIL 30, 1954 Total (Inches)	3 Normal (Inches)	In per cent of Normal	3 Normal Seasonal Precipitation (July to June) Inches
SOUTH COASTAL AREA (Cont'd)									
Los Angeles River (Cont'd)									
Briggs Terrace	2310	L.A.C.F.C.D.	0.43	1.60	27%	22.88	26.28	87%	27.75
Haines Canyon, Lower	2250	L.A.C.F.C.D.	0.20	1.81	11%	18.09	24.55	74%	25.96
La Crescenta	2069	U.S.W.B.	N.R.	2.07	-	-	26.63	-	27.71
Big Tujunga Dam #1	2050	L.A.C.F.C.D.	0.29	2.22	13%	24.55	29.08	84%	30.11
Arroyo Seco Ranger Station	1530	L.A.C.F.C.D.	0.29	1.91	15%	17.87	25.58	70%	26.39
Little Tujunga Canyon	1440	L.A.C.F.C.D.	N.R.	1.20	-	-	18.30	-	19.28
San Gabriel River									
Table Mountain Observatory	7500	L.A.C.F.C.D.	0.03	1.04	3%	16.64	14.15	118%	14.58
Big Pines Camp	6860	L.A.C.F.C.D.	0.07	2.13	3%	22.40	26.49	85%	27.18
Mt. Wilson	5850	U.S.W.B.	0.38	2.59	15%	26.32	32.32	81%	33.34
Crystal Lake, East	5740	L.A.C.F.C.D.	0.40	2.48	16%	30.74	36.83	83%	39.75
Falling Springs	4650	L.A.C.F.C.D.	0.27	2.22	12%	27.01	31.96	85%	32.98
Opids Camp	4480	L.A.C.F.C.D.	0.28	3.37	8%	33.78	39.93	85%	40.82
Camp Baldy	4300	L.A.C.F.C.D.	0.20	2.92	7%	30.93	32.83	94%	34.09
Hoegee's	2850	L.A.C.F.C.D.	0.46	3.15	15%	32.00	42.66	75%	43.88
Tanbark Flats	2700	L.A.C.F.C.D.	0.22	2.54	9%	24.99	29.85	84%	30.57
Henninger Flats	2650	L.A.C.F.C.D.	0.40	1.95	21%	21.36	27.71	77%	28.97
Mouth San Antonio Canyon	2500	U.S.W.B.	0.08	2.27	4%	N.R.	26.47	-	27.32
San Dimas Guard Station	2400	L.A.C.F.C.D.	0.19	1.63	12%	22.14	23.83	93%	24.41
Sawpit Canyon	2000	L.A.C.F.C.D.	0.38	2.22	17%	21.27	29.36	72%	30.68
Santa Anita Fern Lodge	1950	L.A.C.F.C.D.	0.39	2.43	16%	25.61	32.67	78%	33.52
San Gabriel Dam #1 Camp	1600	L.A.C.F.C.D.	0.15	1.76	9%	25.23	30.00	84%	30.54
Big Santa Anita Dam	1400	L.A.C.F.C.D.	0.28	1.74	16%	20.35	24.43	83%	25.44
San Dimas Dam	1350	L.A.C.F.C.D.	0.18	1.60	11%	21.22	23.02	92%	23.45
Rogers Canyon	800	L.A.C.F.C.D.	0.24	1.66	14%	20.71	22.99	90%	23.66
Santa Ana River									
Table Mountain Observatory	7500	L.A.C.F.C.D.	0.03	1.04	3%	16.64	14.15	118%	14.58
Big Pines Camp	6860	L.A.C.F.C.D.	0.07	2.13	3%	22.40	26.49	85%	27.18
Big Bear Lake Dam	6800	U.S.W.B.	0.23	2.67	9%	39.39	34.86	113%	36.01
Running Springs	6230	D.W.R.	N.R.	3.74	-	N.R.	41.54	-	42.27
Squirrel Inn	5700	U.S.W.B.	0.35	3.72	9%	38.93	41.02	95%	42.70
Seven Oaks	5000	U.S.W.B.	N.R.	2.21	-	N.R.	27.04	-	28.02
Camp Baldy	4300	L.A.C.F.C.D.	0.20	2.92	7%	30.93	32.83	94%	34.09
Beaumont P. P.	3045	U.S.W.B.	0.17	2.13	8%	20.45	21.38	96%	22.59
Mill Creek #2	2950	U.S.W.B.	0.27	2.35	11%	20.48	21.80	94%	23.04
Santa Ana River	2850	U.S.W.B.	0.19	2.59	7%	26.34	25.38	104%	26.55
Beaumont	2589	U.S.W.B.	0.30	1.67	18%	16.49	18.35	90%	19.21
Mouth San Antonio Canyon	2500	U.S.W.B.	0.08	2.27	4%	N.R.	26.47	-	27.32
Lytle Creek	2250	U.S.W.B.	0.91	2.90	31%	31.40	33.71	93%	34.97

1, 2, 3, See footnotes last page of this table.

TABLE 10 - PRECIPITATION DATA - JULY 1, 1953 TO APRIL 30, 1954 (Cont'd)

[1] BASIN AND PRECIPITATION STATION	ELEVATION in FEET	[2] SOURCE of DATA	PRECIPITATION DURING APRIL, 1954 Total (Inches)	[3] Normal (Inches)	In per cent of Normal	PRECIPITATION FROM JULY 1, 1953 TO APRIL 30, 1954 Total (Inches)	[3] Normal (Inches)	In per cent of Normal	[3] Normal Seasonal Precipitation (July to June) Inches
SOUTH COASTAL AREA (Cont'd)									
San Diego County									
Cuyamaca	4680	U.S.W.B.	0.36	3.57	10%	34.76	37.66	92%	39.31
Julian	4220	U.S.W.B.	0.70	2.86	24%	28.17	30.08	94%	31.48
Warner Springs	3170	U.S.W.B.	N.R.	1.23	-	-	17.08	-	17.72
Campo	3000	U.S.W.B.	0.16	1.50	11%	15.36	18.24	84%	18.93
Barrett Dam	1750	U.S.W.B.	0.06	1.57	4%	16.46	18.12	91%	18.87
El Cajon	560	U.S.W.B.	0.11	1.13	10%	-	13.55	-	14.02
CENTRAL VALLEY AREA									
Valley Stations									
Redding	718	U.S.W.B.	2.28	2.89	79%	37.01	35.48	104%	37.94
Willows	136	U.S.W.B.	2.23	1.05	212%	16.19	16.31	99%	17.17
Winters	132	U.S.W.B.	2.32	1.23	189%	16.21	15.79	103%	16.27
Grass Valley	2690	U.S.W.B.	4.52	4.08	111%	42.21	49.24	86%	51.95
Nevada City	2570	U.S.W.B.	5.04	3.92	129%	49.55	46.56	106%	49.33
Sacramento	25	U.S.W.B.	1.88	1.15	163%	15.33	15.60	98%	16.31
Stockton	15	U.S.W.B.	1.41	0.96	147%	9.56	13.36	72%	14.00
Los Banos	125	U.S.W.B.	0.81	0.68	119%	6.58	8.25	80%	8.65
Merced	173	U.S.W.B.	0.85	0.97	88%	10.59	11.26	94%	11.77
Fresno	331	U.S.W.B.	0.48	0.81	59%	8.51	8.96	95%	9.39
Bakersfield	489	U.S.W.B.	0.06	0.67	9%	4.41	5.80	76%	6.26
Upper Sacramento - Pit and McCloud Rivers									
Jess Valley	5400	D.W.R.	N.R.	1.68	-	-	13.42	-	15.62
Alturas	4460	U.S.W.B.	1.12	1.16	97%	9.79	10.33	95%	12.00
Bieber	4200	D.W.R.	1.31	1.25	105%	13.12	14.40	91%	15.94
Mount Shasta	3555	U.S.W.B.	2.10	2.66	79%	35.76	31.94	112%	34.50
Hat Creek	3400	U.S.W.B.	1.03	1.28	80%	11.23	15.93	70%	17.78
McCloud	3270	U.S.W.B.	5.71	3.49	164%	57.84	45.39	127%	48.94
Fall River Mills	3340	U.S.W.B.	1.22	1.33	92%	13.39	16.27	82%	17.99
Dunsmuir	2285	U.S.W.B.	N.R.	1.08	-	-	53.62	-	54.36
Feather River									
Bucks Storage Dam	5100	P.G.&E.	8.58	5.11	168%	64.30	65.14	99%	68.76
Sierraville	5000	U.S.W.B.	1.03	1.60	64%	21.37	22.99	93%	24.59
Mineral	4935	U.S.W.B.	7.64	3.95	193%	50.80	47.40	107%	50.46
Portola	4832	U.S.W.B.	1.24	1.17	106%	15.81	16.42	96%	17.72
Canyon Dam	4570	U.S.W.B.	3.70	2.59	143%	36.49	33.94	108%	36.50
Chester	4550	U.S.W.B.	3.48	2.05	170%	31.40	28.61	110%	30.95
Doyle	4300	U.S.W.B.	0.03	0.54	6%	5.44	9.29	59%	10.30
Veramont	3500	P.G.&E.	2.55	2.00	127%	30.87	31.00	100%	33.10
Quincy	3409	U.S.W.B.	5.04	2.78	181%	43.18	36.60	118%	39.26
Caribou	3000	P.G.&E.	4.16	2.84	147%	38.57	37.68	139%	40.10

1, 2, 3, See footnotes last page of this table.

TABLE 10- PRECIPITATION DATA - JULY 1,1953 TO APRIL 30, 1954 (Cont'd)

1 BASIN AND PRECIPITATION STATION	ELEVATION in FEET	2 SOURCE of DATA	PRECIPITATION DURING APRIL, 1954 Total (Inches)	3 Normal (Inches)	In per cent of Normal	PRECIPITATION FROM JULY 1, 1953 TO APRIL 30, 1954 Total (Inches)	3 Normal (Inches)	In per cent of Normal	3 Normal Seasonal Precipitation (July to June) Inches
CENTRAL VALLEY AREA (Cont'd)									
Feather River (Cont'd)									
Lake Wilenor	2000	D.W.R.	8.28	3.74	221%	47.59	49.41	96%	52.99
Storrie	1760	P.G.&E.	7.37	4.75	155%	61.94	60.56	102%	63.65
Las Plumas	506	U.S.W.B.	7.25	3.44	211%	47.18	46.88	101%	49.11
Prattville	4600	P.G.&E.	N.R.	2.43	-	-	34.04	-	36.27
Yuba River									
Soda Springs	6870	U.S.W.B.	4.72	3.27	144%	46.91	43.42	108%	46.15
Bowman Dam	5346	U.S.W.B.	6.95	5.09	137%	58.56	53.25	110%	68.12
Lake Spaulding	4600	U.S.W.B.	6.93	5.24	132%	54.28	60.22	90%	64.60
Deer Creek	3700	U.S.W.B.	7.00	5.06	138%	56.05	62.71	89%	66.96
Downieville R. S.	2960	U.S.W.B.	6.58	5.34	123%	N.R.	61.42	-	65.43
Dobbins (Near)	1650	U.S.W.B.	4.95	3.05	162%	38.08	38.09	100%	40.64
American River									
Twin Lakes	7970	U.S.W.B.	2.22	3.24	69%	38.31	41.31	93%	44.28
Soda Springs	6870	U.S.W.B.	4.72	3.27	144%	46.91	43.42	108%	46.15
Blue Canyon A. S.	5272	U.S.W.B.	6.93	4.47	155%	58.57	54.34	108%	58.46
Colfax	2420	U.S.W.B.	4.10	3.59	114%	44.25	43.31	102%	45.85
Placerville	1924	U.S.W.B.	3.42	2.90	118%	33.90	36.70	92%	38.76
Mokelumne River									
Twin Lakes	7970	U.S.W.B.	2.22	3.24	69%	38.31	41.31	93%	44.28
Salt Springs Reservoir	3660	D.W.R.	3.93	3.68	107%	35.97	39.62	91%	42.93
Tiger Creek	2400	U.S.W.B.	3.22	3.58	90%	35.29	41.79	84%	44.28
West Point	2326	U.S.W.B.	2.75	3.09	89%	28.46	36.35	78%	38.57
Electra	699	U.S.W.B.	2.32	2.35	99%	25.18	28.89	87%	30.36
Stanislaus River									
Strawberry Lake	5620	P.G.&E.	N.R.	3.39	-	-	35.07	-	37.72
Calaveras Big Trees	4700	D.W.R.	4.22	4.45	95%	42.30	48.30	88%	51.41
Tuolumne River									
Strawberry Lake	5620	P.G.&E.	N.R.	3.39	-	-	35.07	-	37.72
Lake Eleanor	4650	U.S.W.B.	3.32	3.56	93%	40.13	39.91	101%	42.58
Hetch Hetchy	3530	U.S.W.B.	3.31	2.98	111%	30.16	31.67	95%	34.28
Groveland	2828	D.W.R.	2.43	3.05	80%	28.83	35.05	82%	36.47
Sonora	1825	U.S.W.B.	2.26	2.58	88%	24.90	30.36	82%	31.87
Merced River									
Yosemite	3960	U.S.W.B.	2.27	2.89	79%	30.93	32.54	95%	34.68
Mariposa	1932	U.S.W.B.	3.05	2.06	148%	25.85	28.39	91%	29.49
Upper San Joaquin River									
Huntington Lake	7000	S.C.E.C.	1.38	2.74	50%	25.45	28.53	89%	30.69

1, 2, 3, See footnotes last page of this table.

TABLE 10- PRECIPITATION DATA - JULY 1,1953 TO APRIL 30, 1954 (Cont'd)

[1] BASIN AND PRECIPITATION STATION	ELEVATION in FEET	[2] SOURCE of DATA	PRECIPITATION DURING APRIL, 1954 Total (Inches)	[3] Normal (Inches)	In per cent of Normal	PRECIPITATION FROM JULY 1, 1953 TO APRIL 30, 1954 Total (Inches)	[3] Normal (Inches)	In per cent of Normal	[3] Normal Seasonal Precipitation (July to June) Inches
CENTRAL VALLEY AREA (Cont'd)									
Upper San Joaquin River (Cont'd)									
Big Creek	4900	S.C.E.C.	1.59	3.03	52%	25.68	29.14	88%	31.27
Crane Valley	3500	P.G.&E.	4.35	3.29	132%	38.57	38.61	100%	40.54
North Fork	3000	U.S.W.B.	2.96	2.66	111%	29.69	31.88	93%	33.42
Auberry	2050	U.S.W.B.	1.66	1.99	83%	19.42	24.41	80%	25.52
Kings River									
Grant Grove	6775	U.S.W.B.	2.48	4.17	59%	39.73	38.08	104%	40.82
Balch Camp	1300	P.G.&E.	2.44	2.95	83%	25.70	26.36	97%	27.88
Piedra	500	U.S.W.B.	0.83	1.56	53%	13.62	17.10	80%	17.68
Kaweah River									
Grant Grove	6775	U.S.W.B.	2.48	4.17	59%	39.73	38.08	104%	40.82
Giant Forest	6360	U.S.W.B.	2.39	3.69	65%	37.69	39.38	96%	42.43
Ash Mountain	1600	U.S.W.B.	2.91	2.57	113%	23.20	23.98	97%	25.83
Three Rivers	870	U.S.W.B.	1.72	1.94	89%	17.62	18.99	93%	20.22
Kern River									
Springville (Near)	4050	U.S.W.B.	3.58	3.30	108%	34.24	33.40	103%	35.69
Kern River #3 Intake	3640	S.C.E.C.	0.48	1.11	43%	16.98	16.31	104%	16.91
Glennville	3300	U.S.W.B.	0.61	1.97	31%	14.07	18.73	75%	20.05
Kernville	2600	U.S.W.B.	0.15	0.61	25%	8.02	9.78	82%	10.08
LAHONTAN AREA									
Valley Stations									
Jess Valley	5400	D.W.R.	N.R.	1.68	-	-	13.48	-	15.62
Fort Bidwell	4735	U.S.W.B.	0.85	1.12	76%	10.36	12.58	82%	14.33
Susanville	4271	U.S.W.B.	0.52	1.04	50%	9.61	15.91	60%	17.36
Doyle	4300	U.S.W.B.	0.03	0.54	6%	5.44	9.29	59%	10.30
Truckee	6200	U.S.W.B.	1.84	1.65	111%	24.13	24.55	98%	25.82
Bridgeport	6473	U.S.W.B.	0.00	0.71	0%	7.72	9.95	78%	10.79
Bishop	4108	U.S.W.B.	Trace	0.28	0%	5.76	5.41	106%	5.73
Independence	3957	U.S.W.B.	Trace	0.21	0%	3.67	4.41	83%	4.65
Truckee & Tahoe Basins									
Twin Lakes	7970	U.S.W.B.	2.22	3.24	69%	38.31	41.31	93%	44.28
Soda Springs	6870	U.S.W.B.	4.72	3.27	144%	46.91	43.42	108%	46.15
Tahoe	6230	U.S.W.B.	1.48	2.05	72%	22.19	29.41	75%	31.27
Truckee	6200	U.S.W.B.	1.84	1.65	111%	24.13	24.55	98%	25.82
Carson River									
Twin Lakes	7970	U.S.W.B.	2.22	3.24	69%	38.31	41.31	93%	44.28
Walker River									
Bridgeport	6473	U.S.W.B.	0.00	0.71	0%	7.72	9.95	78%	10.79

1, 2, 3, See footnotes last page of this table.

TABLE 10 - PRECIPITATION DATA - JULY 1, 1953 TO APRIL 30, 1954 (Cont'd)

1 BASIN AND PRECIPITATION STATION	ELEVATION in FEET	2 SOURCE of DATA	PRECIPITATION DURING APRIL, 1954 Total (Inches)	3 Normal (Inches)	In per cent of Normal	PRECIPITATION FROM JULY 1, 1953 TO APRIL 30, 1954 Total (Inches)	3 Normal (Inches)	In per cent of Normal	3 Normal Seasonal Precipitation (July to June) Inches
LAHONTAN AREA (Cont'd)									
Mono Basin									
Ellery Lake	9600	C.E.P.C.	0.79	2.80	28%	15.54	27.33	56%	29.79
Gem Lake	9120	C.E.P.C.	0.19	2.17	9%	13.39	24.90	54%	26.58
Owens Basin									
South Lake	9620	C.E.P.C.	0.67	1.15	58%	15.43	16.52	93%	17.80
Lake Sabrina	9100	C.E.P.C.	0.38	0.97	39%	15.59	16.59	94%	17.88
Intake #2 Bishop Creek	8000	C.E.P.C.	0.12	0.86	14%	8.40	11.61	72%	12.60
Crooked Creek	6700	L.A.D.W.P.	0.04	0.46	9%	9.26	9.14	101%	9.94
Big Pines Power House #3	5400	L.A.D.W.P.	0.10	0.29	34%	9.01	7.81	115%	8.17
Bishop	4108	U.S.W.B.	Trace	0.28	0%	5.76	5.41	106%	5.73
Independence	3957	U.S.W.B.	Trace	0.21	0%	3.67	4.41	83%	4.65
L. A. Aqueduct at Intake	3880	L.A.D.W.P.	0.00	0.14	0%	4.67	4.18	112%	4.41
Haiwee	3800	U.S.W.B.	0.02	0.36	6%	3.63	5.80	63%	6.17
Cottonwood Gates	3600	L.A.D.W.P.	0.03	0.22	14%	6.55	5.00	131%	5.24

COLORADO DESERT AREA No Reports Received

1 Certain of the stations are not actually in the basin shown, but are closely adjacent. Stations representative of more than one basin are listed under each basin.

2 U.S.W.B. - United States Weather Bureau; L.A.C.F.C.D. - Los Angeles County Flood Control District; D.W.R. - Division of Water Resources; P.G.&E. - Pacific Gas and Electric Co.; S.C.E.C. - Southern California Edison Co.; C.E.P.C. - California Electric Power Co.; L.A.D.W.P. - Los Angeles Department of Water and Power.

3 Based upon the 50-year period 1900-01 - 1949-50, inclusive. When the period is less than 50 years, the normal has been computed by comparison with stations having complete records. Normals are therefore based upon the same period and are comparable.

R.N.C. - Record Not Complete.

N.R. - No Report.

TABLE 11 - SNOW SURVEY DATA AS OF MAY 1, 1954 (Cont'd)

1 AREAS, DRAINAGE BASINS, and SNOW COURSES	ELEVATION in FEET	DATE of SURVEY	DEPTH OF SNOW Inches	DENSITY Per Cent	WATER CONTENT Inches	CORRESPONDING WATER CONTENT APRIL 1 Inches	PER CENT CHANGE IN WATER CONTENT DURING APRIL 1953	1954
CENTRAL VALLEY AREA (Cont'd)								
Feather River (Cont'd)								
Gibsonville	5400		N.R.	-	-	30.7	-20%	-
Haskins Flat	5400	4/29/54	14.5	49.7%	7.2	33.2	N.S.M.	-78%
Yuba River								
Castle Creek #5	7200	5/2/54	72.4	49.3%	35.7	47.4	N.S.M.	-25%
Donner Summit	7020	4/28/54	50.7	47.5%	24.1	34.6	-24%	-30%
Soda Springs	6750	4/28/54	36.2	47.5%	17.2	33.6	-27%	-49%
Yuba Pass	6700	4/30/54	20.2	42.6%	8.6	28.3	-19%	-70%
Furnace Flat	6600	4/29/54	64.9	51.5%	33.4	43.2	N.S.M.	-23%
Lake Fordyce	6500	4/29/54	48.5	50.1%	24.3	34.8	-20%	-30%
Gibsonville	5400		N.R.	-	-	30.7	-20%	-
American River								
Carson Pass	8600	5/2/54	45.0	50.7%	22.8	32.0	- 3%	-29%
Lake Lucille	8400	5/2/54	92.2	48.3%	44.5	47.2	N.S.M.	-.6%
Emigrant Lake	8200	5/3/54	62.5	51.7%	32.3	39.7	- 3%	-19%
Twin Lakes	7900	4/29/54	34.4	46.8%	16.1	27.3	-27%	-41%
Echo Summit	7500	5/1/54	27.8	43.9%	12.2	30.8	-29%	-60%
Donner Summit	7020	4/28/54	50.7	47.5%	24.1	34.6	-24%	-30%
Ward Creek	7000	4/24/54	63.2	48.1%	30.4	36.8	N.S.M.	-17%
Philips	6800	5/3/54	No Snow on Course			26.1	-42%	-100%
Soda Springs	6750	4/28/54	36.2	47.5%	17.2	33.6	-27%	-49%
Tamarack Flat	6600	5/3/54	No Snow on Course			28.1	-24%	-100%
Huysink	6600	5/1/54	63.2	51.5%	32.5	42.5	-14%	-24%
Onion Creek	6100	5/1/54	1.6	50.0%	0.8	17.4	-47%	-95%
Strawberry	5700	5/3/54	No Snow on Course			7.6	-100%	-100%
Cosumnes River								
Lumberyard	6600		N.R.	-	-	31.6	N.S.M.	-
Hams Station	5600		N.R.	-	-	6.7	N.S.M.	-
Mokelumne River								
Highland Meadow	8800	5/4/54	75.6	52.5%	39.7	46.6	- 3%	-36%
Carson Pass	8600	5/2/54	45.0	50.7%	22.8	32.0	- 3%	-29%
Emigrant Lake	8200	5/3/54	62.5	51.7%	32.3	39.7	- 3%	-19%
Blue Lakes	8000	4/26/54	53.5	44.5%	23.8	31.9	-13%	-25%
Twin Lakes	7900	4/29/54	34.4	46.8%	16.1	27.3	-27%	-41%
Lake Alpine	7500	5/3/54	47.6	49.2%	23.4	35.2	-22%	-62%
Bear Valley Ridge	6700		N.R.	-	-	21.8	-27%	-
Lumberyard	6600		N.R.	-	-	6.7	N.S.M.	-
Big Meadow	6500	5/2/54	8.9	39.9%	3.6	26.1	-59%	-86%
Cottage Spring	5700	4/30/54	No Snow on Course			10.6	-96%	-100%
Hams Station	5600		N.R.	-	-	6.7	N.S.M.	-
Dorrington	4800	4/30/54	No Snow on Course			3.2	-100%	-100%
Antelope Springs	4350	5/1/54	No Snow on Course			0.0	N.S.M.	-

1, 2. See footnotes last page of this table.

TABLE 11 - SNOW SURVEY DATA AS OF MAY 1, 1954 (Cont'd)

1 AREAS, DRAINAGE BASINS, and SNOW COURSES	ELEVATION in FEET	DATE of SURVEY	DEPTH OF SNOW Inches	DENSITY Per Cent	WATER CONTENT Inches	CORRES-PONDING WATER CONTENT APRIL 1 Inches	PER CENT CHANGE IN WATER CONTENT DURING APRIL 1953	1954
CENTRAL VALLEY AREA (Cont'd)								
Stanislaus River								
Sonora Pass	8800	5/3/54	21.1	48.3%	10.2	22.0	N.S.M.	-54%
Highland Meadow	8800	5/4/54	75.6	52.5%	39.7	46.6	- 3%	-36%
Lake Alpine	7500	5/3/54	47.6	49.2%	23.4	35.2	-22%	-62%
Herring Creek	7400	4/29/54	39.1	40.2%	15.7	28.8	-48%	-45%
Big Meadow	6500	5/2/54	8.9	39.9%	3.6	26.1	-62%	-86%
Cottage Spring	5700	4/30/54	No Snow on Course			10.6	-96%	-100%
Dorrington	4800	4/30/54	No Snow on Course			3.2	-100%	-100%
Tuolumne River								
Snow Flat	8700	4/28/54	79.0	49.4%	39.0	38.8	+ 2%	+ 1%
Paradise	7600	5/5/54	52.1	55.7%	29.0	39.2	-19%	-26%
Gin Flat	7100	4/26/54	44.3	47.6%	21.1	33.2	-25%	-36%
Vernon Lake	6700	5/4/54	15.2	47.4%	7.2	27.8	-60%	-74%
Beehive Meadow	6500	5/4/54	23.2	50.4%	11.7	31.3	-52%	-63%
Merced River								
Snow Flat	8700	4/28/54	79.0	49.4%	39.0	38.8	+ 2%	+ 1%
Ostrander Lake	8200	4/30/54	52.7	41.0%	21.6	33.9	-42%	-36%
Gin Flat	7100	4/26/54	44.3	47.6%	21.1	33.2	-25%	-36%
Peregoy Meadows	7000	4/30/54	35.5	41.4%	14.7	27.0	-50%	-46%
Upper San Joaquin River								
Kaiser Pass	9200	4/29/54	76.1	-	Flooded	38.8	-16%	-
Dutch Lake	9100	4/29/54	50.9	56.8%	28.9	28.1	N.S.M.	+ 4%
Nellie Lake	8250	4/28/54	60.7	38.1%	23.1	35.1	N.S.M.	-34%
Vermilion Valley	7500	4/29/54	No Snow on Course			13.8	N.S.M.	-100%
Chilkoot Lake	7450	5/3/54	51.6	46.9%	24.2	39.4	-49%	-39%
Chilkoot Meadow	7250	5/3/54	42.3	47.3%	20.0	37.8	-37%	-47%
Florence Lake	7200	4/29/54	No Snow on Course			10.7	-100%	-100%
Huntington Lake	7000	4/28/54	11.4	30.7%	3.5	20.9	-100%	-83%
Poison Meadow	6650	5/3/54	21.1	46.4%	9.8	29.0	-84%	-66%
Kings River								
Sand Meadow	8050	5/4/54	30.6	50.3%	15.4	29.5	-70%	-48%
Big Meadows	7660	5/1/54	33.5	47.2%	15.8	28.8	-100%	-48%
Grant Grove	6660		N.R.	-	-	19.9	-100%	-
Cliff Camp	6500	5/5/54	No Snow on Course			13.7	-100%	-100%
Kaweah River								
Panther Meadow	8650	5/1/54	74.1	44.8%	33.2	35.6	N.S.M.	- 7%
Big Meadows	7660	5/1/54	33.5	47.2%	15.8	28.8	-100%	-48%
Giant Forest	6360		N.R.	-	-	19.0	-100%	-
Kern River								
Round Meadow	9000	5/2/54	42.2	44.1%	18.6	29.3	-13%	-37%

1, 2, See footnotes last page of this table.

TABLE 11 - SNOW SURVEY DATA AS OF MAY 1, 1954 (Contd)

AREAS, DRAINAGE BASINS, and SNOW COURSES [1]	ELEVATION in FEET	DATE of SURVEY	DEPTH OF SNOW Inches	DENSITY Per Cent	WATER CONTENT Inches	CORRESPONDING WATER CONTENT APRIL 1 Inches	PER CENT CHANGE IN WATER CONTENT DURING APRIL 1953	PER CENT CHANGE IN WATER CONTENT DURING APRIL 1954
LAHONTAN AREA								
Susan River								
Silver Lake	6500	4/30/54	41.4	50.3%	20.8	37.3	-39%	-44%
Norvell Flat	5700	4/29/54	4.5	57.8%	2.6	22.3	-100%	-88%
Truckee River								
Independence Lake	8400	5/2/54	74.3	45.8%	34.0	34.2	N.S.M.	- 1%
Donner Summit	7020	4/28/54	50.7	47.5%	24.1	34.6	-24%	-30%
Independence Camp	7000	5/1/54	10.4	40.4%	4.2	21.6	N.S.M.	-81%
Ward Creek	7000	4/24/54	63.2	48.1%	30.4	36.8	N.S.M.	-17%
Lake Tahoe								
Lake Lucille	8400	5/2/54	92.2	48.3%	44.5	47.2	N.S.M.	- 6%
Echo Summit	7500	5/1/54	27.8	43.9%	12.2	30.8	-29%	-60%
Dagetts Pass (In Nevada)	7350	5/1/54	No Snow on Course			10.0	N.S.M.	-100%
Ward Creek	7000	4/24/54	63.2	48.1%	30.4	36.8	N.S.M.	-17%
Glenbrook (In Nevada) #2	6900	5/1/54	7.7	44.1%	3.4	13.9	N.S.M.	-75%
Richardson #2	6500	5/1/54	No Snow on Course			16.0	N.S.M.	-100%
Upper Truckee	6400	5/1/54	No Snow on Course			8.4	N.S.M.	-100%
Carson River								
Carson Pass	8600	5/2/54	45.0	50.7%	22.8	32.0	- 3%	-29%
Blue Lakes	8000	4/26/54	53.5	44.5%	23.8	31.9	-13%	-25%
Walker River								
Virginia Lakes	9500	5/3/54	9.5	47.4%	4.5	16.8	N.S.M.	-73%
Sonora Pass	8800	5/3/54	21.1	48.3%	10.2	22.0	N.S.M.	-54%

1 Courses pertinent to more than one basin are listed under each basin.
2 Computed 50-year normals for the period 1901-1950, inclusive.
N.S.M. - No Survey Made.
N.R. - No Report.

TABLE 12

AERIAL PHOTOGRAPHIC SNOW DEPTH MEASUREMENTS

(FURNISHED BY SOUTHERN CALIFORNIA EDISON COMPANY)

1954 SEASON

Area, stream Basin and Name of Marker	Elevation in Feet	Depth of Snow in Feet on Indicated Date						
		12-3-53	1-14-54	2-1-54	3-1&2-54	4-1-54	4-5-54	5-2-54
CENTRAL VALLEY AREA								
San Joaquin River								
Humphreys Basin	11,700	1.5	1.5	4	5	-	6.5	5
Pioneer Basin	10,500	1.5	1	4.5	6	-	7	5.5
Emerald Lake	10,500	1.5	1	3	5.75	-	8.5	5.5
Island Pass	10,300	-	-	4	-	8.5	-	-
Bench Canyon	10,200	-	1	3	5	9	-	6
Volcanic Knob	10,100	1.5	1	3.5	5	-	7	4.5
Heart Lake	10,100	1.5	1	3.5	5.75	-	6.5	4.5
Rose Marie	10,000	1.5	1	3	3.75	-	6.5	4
Colby Meadow	10,000	1.5	1	2.5	3	-	5.5	2.5
Agnew Pass	9,800	-	-	4.25	-	7	-	-
Dutch Lake	9,100	1.75	1.5	3.5	4.5	-	6.5	3.5
Kaiser Pass	9,000	1.75	1.25	4.5	6	-	9	4.5
Coyote Lake	8,600	2	1.5	4	5.5	-	7.5	4.5
Twin Meadows	8,400	1	0.75	2.5	3.25	5	-	0
String Meadow	8,400	1.5	1.25	4.5	5	7	-	2.75
Cora Lakes	8,200	-	1	5	5.5	8.5	-	4.5
Mammoth Pass	9,200	-	2	6	7.5	11.5	-	6.5
Jackass Meadows	7,200	-	0.5	4.5	4.5	5.75	-	2
Kings River								
Blackcap Basin	10,800	-	-	-	5.25	-	8	4.5
Upper Burnt Corral	9,700	-	1.5	4.5	6	-	8.5	4.5

TABLE 13

WATER CONTENT OF MAJOR STORAGE RESERVOIRS

May 1

Watershed	Reservoir	Operator	10-year Mean 1944-53 (Acre-Feet)	Usable Capacity (Acre-Feet)	Water in Storage (Acre-Feet) 1953	Water in Storage (Acre-Feet) 1954	1954 Storage in Per Cent of 10-year Mean
NORTH COASTAL AREA							
Klamath River	Clear Lake 1/	U. S. Bureau of Reclamation	245,420	513,320	303,610	338,600	138%
	Gerber 1/	U. S. Bureau of Reclamation	58,940	94,270	81,350	80,260	136%
	Upper Klamath Lake 1/	U. S. Bureau of Reclamation	415,460	524,800	469,610	481,200	116%
Shasta River	Shasta R. (Dwinnell)	Montague Water Con. District	19,600	33,000	27,600	25,210	129%
South Eel River	Scott (Lake Pillsbury)	Pacific Gas & Electric Co.	91,230	93,720	93,030	93,260	102%
SAN FRANCISCO BAY AREA							
Conn Creek	Conn Creek Dam	City of Napa	2/	30,500	31,000	31,000	2/
San Pablo Creek	San Pablo Dam	East Bay M.U.D.	32,530	43,170	43,240	39,400	121%
San Leandro Creek	Upper San Leandro	East Bay M.U.D.	27,710	41,400	35,840	30,230	109%
	Chabot	East Bay M.U.D.	6,820	12,550	11,610	9,640	141%
Calaveras Creek	Calaveras	City & Co. of San Francisco	64,000	96,820	81,630	72,020	113%
Laguna Creek	Upper Crystal Springs	City & Co. of San Francisco)	54,530	58,380	56,310	53,060	97%
San Mateo Creek	Lower " ")	City & Co. of San Francisco)					
San Andreas Creek	San Andreas	City & Co. of San Francisco	15,770	19,000	17,880	16,330	104%
Coyote Creek	Coyote	Santa Clara Valley Water	14,290	24,560	19,180	5,190	36%
	Leroy Anderson	Conservation District	2/	75,000	61,540	48,850	2/
Los Gatos Creek	Austrian	San Jose Water Works	2/	6,000	6,150	6,150	2/
	Lexington	Santa Clara Valley Water Conservation District	2/	25,000	4,930	7,580	2/
CENTRAL COASTAL AREA							
Salinas River	Salinas	San Luis Obispo County Flood Control and Water Conservation District	15,930	26,000	22,600	25,400	159%
Santa Ynez River	Gibralter	City of Santa Barbara	7,040	14,500	14,500	14,500	206%
	Cachuma	U. S. Bureau of Reclamation	2/	206,500	9,910	24,170	2/
SOUTH COASTAL AREA							
Bear Creek	Bear Valley	Bear Valley Mutual Water Co.	35,740	72,170	21,880	21,880	61%
San Jacinto River	Lake Hemet	Lake Hemet Water Company	5,120	13,400	4,600	3,030	59%
Temecula Creek	Vail	Vail Company	2/	49,500	11,330	9,270	2/
San Gabriel River	Morris	Metropolitan Water District	28,820	35,170	23,210	35,220	122%
Tributary Cajalco Cr.	Lake Mathews	Metropolitan Water District	88,650	100,000	96,360	98,640	111%
San Luis Rey River	Henshaw	Vista Irrigation District	77,690	194,320	13,900	15,860	20%
Boulder Creek	Cuyamaca	LaMesa, Lemon Grove & Spring Valley Irrigation District	2,990	11,600	470	2,580	86%
Sweetwater River	Lake Loveland	California Water & Telep. Co.	2/	25,250	1,470	350	2/
	Sweetwater (Main)	California Water & Telep. Co.	12,010	27,150	15,660	14,490	121%
City of San Diego	Municipal Reservoirs (10)	City of San Diego	173,040	399,530	128,550	112,250	65%

1/ Interstate reservoir used jointly by California and adjacent states.
2/ Less than 10 years of complete operation.

TABLE 13 - WATER CONTENT OF MAJOR STORAGE RESERVOIRS AS OF MAY 1 (Cont'd)

Watershed	Reservoir	Operator	10-year Mean 1944-53 (Acre-Feet)	Usable Capacity (Acre-Feet)	Water in Storage (Acre-Feet) 1953	Water in Storage (Acre-Feet) 1954	1954 Storage in Per Cent of 10-year Mean
CENTRAL VALLEY AREA							
Sacramento	Shasta	U.S. Bureau of Reclamation	2/	4,500,000	4,121,600	4,431,000	2/
Feather	Mountain Meadows	Pacific Gas & Electric Co.	23,060	24,000	23,950	23,950	104%
	Lake Almanor	Pacific Gas & Electric Co.	574,910	649,800	532,730	586,150	102%
	Bucks Storage	Pacific Gas & Electric Co.	79,290	101,700	83,430	90,320	114%
	Butt Valley	Pacific Gas & Electric Co.	41,350	49,900	44,830	44,320	107%
Yuba	Bowman Lake	Nevada Irrigation District	40,550	69,400	61,000	39,300	97%
	Scotts Flat	Nevada Irrigation District	2/	26,800	27,780	27,780	2/
	Spaulding System	Pacific Gas & Electric Co.	101,350	137,400	111,810	128,170	126%
Bear	Combie	Nevada Irrigation District	6,460	7,200	5,700	5,600	87%
American	Twin Lakes	Pacific Gas & Electric Co.	10,620	21,580	8,250	7,910	74%
	Silver Lake	Pacific Gas & Electric Co.	4,680	8,590	3,800	6,170	132%
Stony Creek	East Park	U. S. Bureau of Reclamation	46,220	50,800	51,350	51,150	111%
	Stony Gorge	U. S. Bureau of Reclamation	49,410	50,050	52,080	51,420	104%
Mokelumne	Salt Springs	Pacific Gas & Electric Co.	62,530	140,000	51,830	82,620	132%
	Pardee	East Bay M.U.D.	177,310	210,000	198,530	206,790	117%
Stanislaus	Relief	Pacific Gas & Electric Co.	8,880	15,550	5,740	11,970	135%
	Strawberry	Pacific Gas & Electric Co.	12,850	18,270	10,080	16,920	132%
	Melones	Pacific Gas & Electric Co.	85,060	112,600	95,820	84,150	99%
Tuolumne	Lake Eleanor	City & Co. of San Francisco	24,690	26,100	24,560	24,470	99%
	Hetch Hetchy	City & Co. of San Francisco	157,810	360,400	179,860	174,850	111%
	Don Pedro	Turlock & Modesto I. D.	226,510	260,000	231,950	252,300	111%
	Owen	Turlock I. D.	35,730	49,000	42,650	39,760	111%
	Dallas Warner	Modesto Irrigation District	20,490	27,000	24,710	23,300	114%
Merced	Lake McClure	Merced Irrigation District	214,270	280,900	159,000	254,430	119%
San Joaquin	Crane Valley	Pacific Gas & Electric Co.	35,870	45,400	23,630	30,730	86%
	Florence Lake	Southern Calif. Edison Co.	3,510	64,400	2,700	800	23%
	Huntington Lake	Southern Calif. Edison Co.	43,710	89,200	65,130	41,910	96%
	Shaver Lake	Southern Calif. Edison Co.	33,390	135,300	34,120	51,300	154%
	Millerton Lake (Friant)	U. S. Bureau of Reclamation	2/	520,500	345,700	454,400	2/
Kings	Pine Flat	U. S. Corps of Engineers	2/	1,100,000	80	153,830	2/
LAHONTAN AREA							
Truckee River	Lake Tahoe 1/	U. S. Bureau of Reclamation	465,630	732,000	616,800	620,400	133%
Little Truckee	Boca 1/	U. S. Bureau of Reclamation	26,740	41,050	36,600	33,800	126%
E. Walker River	Bridgeport 1/	Walker River I. D.	31,310	42,450	38,950	36,650	117%
Leevining Creek	Saddlebag Lake	Calif. Electric Power Co.	3,690	11,140	730	910	25%
Rush Creek	Gem Lake	Calif. Electric Power Co.	3,390	17,600	3,760	1,910	56%
	Grant Lake	City of Los Angeles	33,270	47,530	40,690	44,210	133%
Owens River	Long Valley (Lake Crowley)	City of Los Angeles	133,580	183,470	150,760	147,520	110%
	Tinemaha	City of Los Angeles	2,540	16,410	6,250	90	4%
Bishop Creek	Hillside (South Lake)	Calif. Electric Power Co.	3,990	13,190	950	550	14%
Rose Valley	Haiwee (South)	City of Los Angeles	41,810	58,530	41,160	38,490	92%
COLORADO DESERT AREA							
Colorado River	Lake Mead 1/	U. S. Bureau of Reclamation	17,608,800	27,207,000	17,299,000	15,289,000	87%

1/ Interstate reservoir used jointly by California and adjacent states.
2/ Less than 10 years of complete operation.

TABLE 14

RUNOFF DATA[1]

October 1, 1953 to April 30, 1954

Area, Stream, and Station	Source of Data[2]	Measured Acre-Feet	Unimpaired Runoff[3]		
			Computed Acre-Feet	Normal[4] Acre-Feet	Computed Per Cent of Normal
NORTH COASTAL AREA					
Klamath River at Somesbar	USGS	6,175,000	6,505,380	3,647,230	178%
Russian River at Guerneville	USGS-PG&E	1,396,000	1,273,070	1,325,410	96%
SAN FRANCISCO BAY AREA					
Napa River near St. Helena	USGS	59,720	59,720	48,740	123%
Coyote Creek near Madrone	USGS	15,600	6,030	54,850	11%
CENTRAL COASTAL AREA					
Arroyo Seco near Soledad	USGS	39,660	31,220	116,500	27%
Huasna River near Santa Maria	USGS	4,010	4,010	19,740	20%
SOUTH COASTAL AREA					
Sespe Creek near Fillmore	USGS	27,230	28,470	76,120	37%
Arroyo Seco near Pasadena	USGS	2,660	2,660	6,660	40%
Santa Ana River near Mentone[5]	USGS	7,440	28,130	56,530	50%
CENTRAL VALLEY AREA					
Sacramento near Red Bluff	USGS	6,166,900	7,283,870	6,215,570	117%
Feather near Oroville	USGS	2,871,500	3,066,270	3,098,300	99%
Yuba at Smartville[6]	USGS-PG&E	1,126,350	1,426,360	1,555,300	92%
American at Fair Oaks	USGS-PG&E	1,577,700	1,475,070	1,726,370	85%
Mokelumne near Mokelumne Hill	USGS	319,300	330,870	373,590	89%
Stanislaus below Melones Power House	USGS	363,700	473,760	586,110	81%
Tuolumne at La Grange	USGS	664,400	756,750	857,830	88%
Merced at Exchequer	USGS	128,900	351,410	464,360	76%
San Joaquin below Friant	USGS-USBR	157,500	546,900	662,370	83%
Kings at Piedra[7]	USGS	351,100	504,930	575,210	88%
Kaweah near Three Rivers[8]	USGS	143,160	143,160	183,500	78%
Tule River near Porterville[8]	USGS	49,610	49,610	70,690	70%
Kern near Bakersfield[9]	KCLC	221,090	244,410	314,260	78%
LAHONTAN AREA					
Truckee River at Farad	FWT&CR	218,090	340,230	402,900	84%
Owens River near Round Valley	LADW&P	98,700	77,730	79,750	97%
COLORADO DESERT AREA					
Colorado River near Grand Canyon[8]	USGS-USBR	2,780,600	2,780,600	4,080,500[10]	68%

1/ All data preliminary, subject to revision.

2/ USGS - United States Geological Survey; PG&E - Pacific Gas & Electric Company; USBR - United States Bureau of Reclamation; KCLC - Kern County Land Company; FWT&CR - Federal Watermaster Truckee and Carson Rivers; LADW&P - Los Angeles Department of Water and Power.

3/ Corrected for upstream regulation.

4/ Computed for the 50-year period 1900-01 - 1949-50, inclusive.

5/ Uncorrected for Bear Valley Reservoir Operation.

6/ Total of Narrows Dam Spill, flow through Narrows Power House and Deer Creek near Smartville.

7/ Corrected for Pine Flat Operation Only.

8/ Uncorrected for upstream regulation.

9/ Corrected for Isabella operation only.

10/ Based on the 30-year period 1922-23 - 1951-52, inclusive.

TABLE 15

SUPPLEMENTAL SNOW SURVEY DATA - 1954 SEASON

AREAS, DRAINAGE BASINS, and SNOW COURSES	ELEVATION in FEET	DATE of SURVEY	DEPTH OF SNOW Inches	DENSITY Per Cent	WATER CONTENT Inches	NORMAL WATER CONTENT as of April 1 Inches
CENTRAL VALLEY AREA						
Mokelumne River Basin						
Bear Valley Ridge	6,700	5/5/54	9.0	45.5%	4.1	29.6
COLORADO DESERT AREA						
Little Rock Creek (Mojave Desert)						
Buckhorn	7,100	4/5/54	25.6	47.3%	12.1	—
Cedar Springs	6,500	4/5/54	27.8	45.7%	12.7	—
Squaw Camp	5,800	4/5/54		Patches only		—
Whitewater Basin						
Tahquitz Valley	7,800	4/16/54	38.1	51.9%	19.8	—