SECTION 8
SHELF
ITEM 112.2

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES

GOODWIN J. KNIGHT, Governor
FRANK B. DURKEE, Director of Public Works
HARVEY O. BANKS, 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, 1956

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STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES

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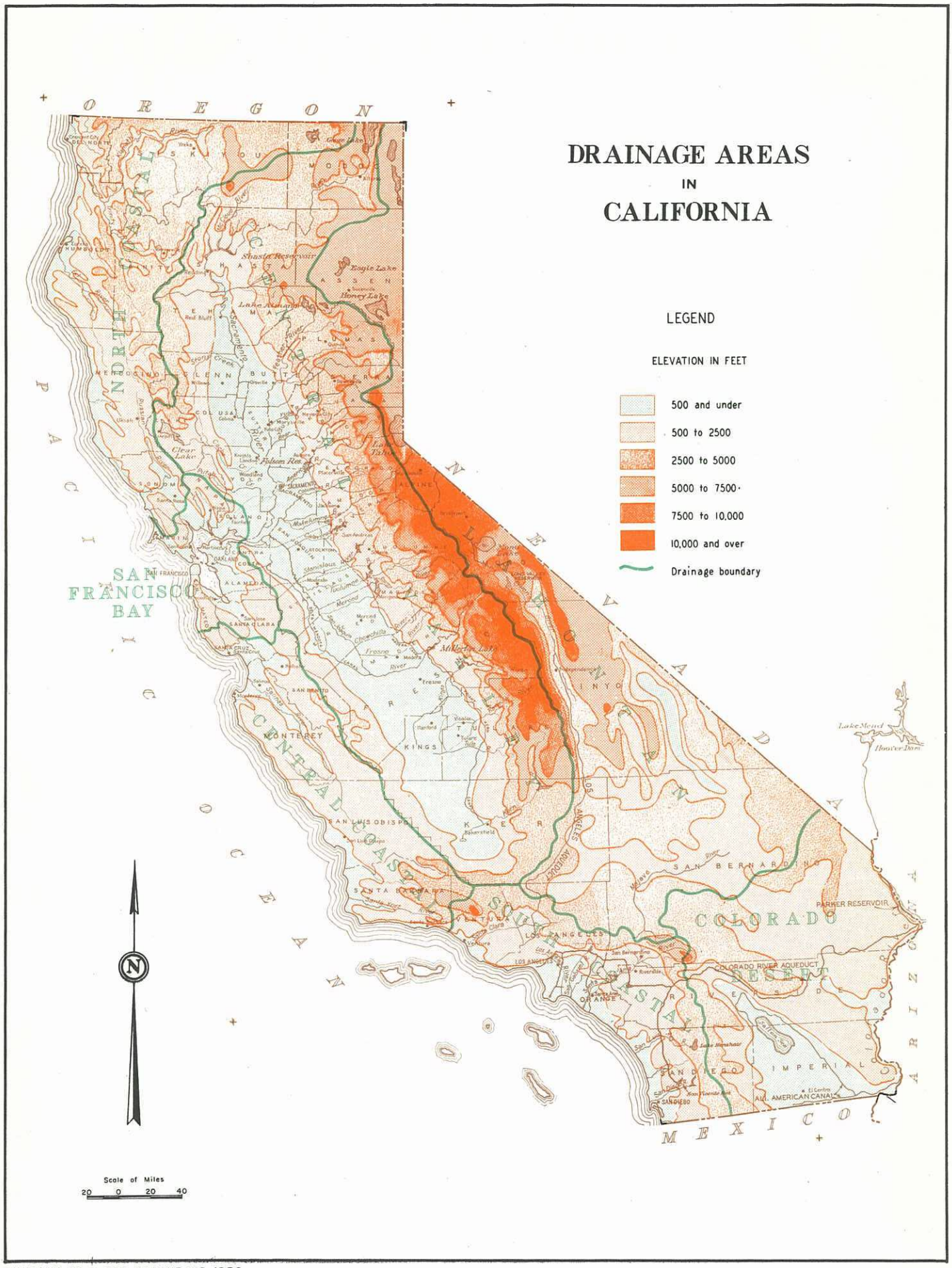

DIVISION OF WATER RESOURCES 1956

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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

- California Electric Power Company
- Pacific Gas and Electric 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 Porterville
- City of San Francisco
  - Public Utilities Commission

Organized Public Agencies

- Los Angeles County Flood Control District
- East Bay Municipal Utility District
- Sacramento Municipal Utility District
- Buena Vista Water Storage District
- Tulare Lake Basin Water Storage District
- Kaweah Delta Water Conservation District
- Washoe County Water Conservation District
- Kaweah River Association
- Kings River Water Association
- St. Johns River Association
- Banta-Carbona Irrigation District
- Modesto Irrigation District
- Merced Irrigation District
- Lower Tule River Irrigation District
- Central California Irrigation District
- Corcoran Irrigation District
- Nevada Irrigation District
- Saucelito Irrigation District
- Terra Bella Irrigation District
- Truckee-Carson Irrigation District
- Turlock Irrigation District
- Vandalia Irrigation District
- Chowchilla Water District
- Reclamation District No. 1007

Private Organizations

- Kern County Land Company
- Liberty Farms Company

SECTION 1 - SUMMARY OF WATER CONDITIONS

The water supply outlook for California as of May 1 remains generally satisfactory except for the South Coastal Area. Although the unsatisfactory conditions in the South Coastal Area were improved by heavy precipitation in that Area during April, near maximum importations of supplies conserved by facilities on the Colorado River will still be necessary to supplement shortages in local surface water supply in the South Coastal Area. Available supplies for agricultural areas in the vicinity of San Diego remain critically deficient.

Precipitation, snowpack, reservoir storage and runoff as related to their respective averages for May 1 and the forecasted runoff for the entire season in per cent of average in each of the seven drainage areas of the State are summarized in the following tabulation:

Drainage Area	Precipitation in Per Cent of 50-Year Average		Reservoir Storage in Per Cent of 10-Yr. Avg.	Runoff in Per Cent of 50-Year Average	
	April	Seasonal		Actual Oct. 1, 1955 to May 1, 1956	Estimated Oct. 1, 1955 to Sept. 30, 1956
North Coastal	40	145	138	200	180
San Francisco Bay	145	135	131	250	210
Central Coastal	155	115	161	133	125
South Coastal	220	70	73	33	30
Central Valley	160	130	110	185	169
Lahontan	-	140	109	100	100
Colorado Desert	-	-	66	73	81

There were two storms during April which in aggregate brought well above average amounts of precipitation for that month to the portion of the State south of the latitude of Marysville. Seasonal precipitation as of May 1 averages above normal in all of the major drainage Areas of California except the South Coastal and is generally greater than that for the same period last year.

SECTION 2 - PRECIPITATION

General storms during April brought well above normal precipitation amounts to that portion of the State south of the latitude of Sacramento and below normal amounts to the area north of that latitude. Seasonal precipitation as of May 1 still averages above normal in all major drainage areas of the State except the South Coastal. Precipitation distribution for the season to date is depicted on Plate 1 following page 6. 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 145 per cent of normal, varying from 172 per cent at Yreka, located in the interior portion of the Area, to 122 per cent at Crescent City on the Pacific Ocean Coast. Rainfall during the month of April varied from nine per cent of normal at Crescent City to 124 per cent at Santa Rosa.

Seasonal precipitation to date within major basins of the Area in per cent of May 1 normal as compared with that of one year ago is shown in the following tabulation:

Basin	Seasonal Precipitation in Per Cent of Normal	
	May 1, 1955	May 1, 1956
Klamath River	70	155
Eel River	85	130
Russian River	75	145

San Francisco Bay Area

Seasonal precipitation in this Area averaged about 135 per cent of normal, varying between 115 per cent at Oakland and 151 per cent at Napa State Hospital. At the same time last year the seasonal precipitation for this Area averaged 75 per cent of normal.

182 per cent of normal at Winters. Precipitation during April varied from a minimum of 20 per cent at Mt. Shasta City in the upper Sacramento River watershed to a maximum of 269 per cent of normal at Merced.

Seasonal precipitation within major drainage basins in per cent of the May 1 normal as compared with that of one year ago is set forth in the following tabulation:

Basin	Seasonal Precipitation in Per Cent of Normal May 1, 1955	May 1, 1956
Upper Sacramento-McCloud and Pit River	70	140
Feather River	70	155
Yuba River	75	150
American River	80	145
Mokelumne River	80	140
Stanislaus River	75	140
Tuolumne River	75	145
Merced River	75	145
Upper San Joaquin River	75	145
Kings River	80	140
Kaweah River	80	140
Tule River	75	115
Kern River	65	115

Lahontan Area

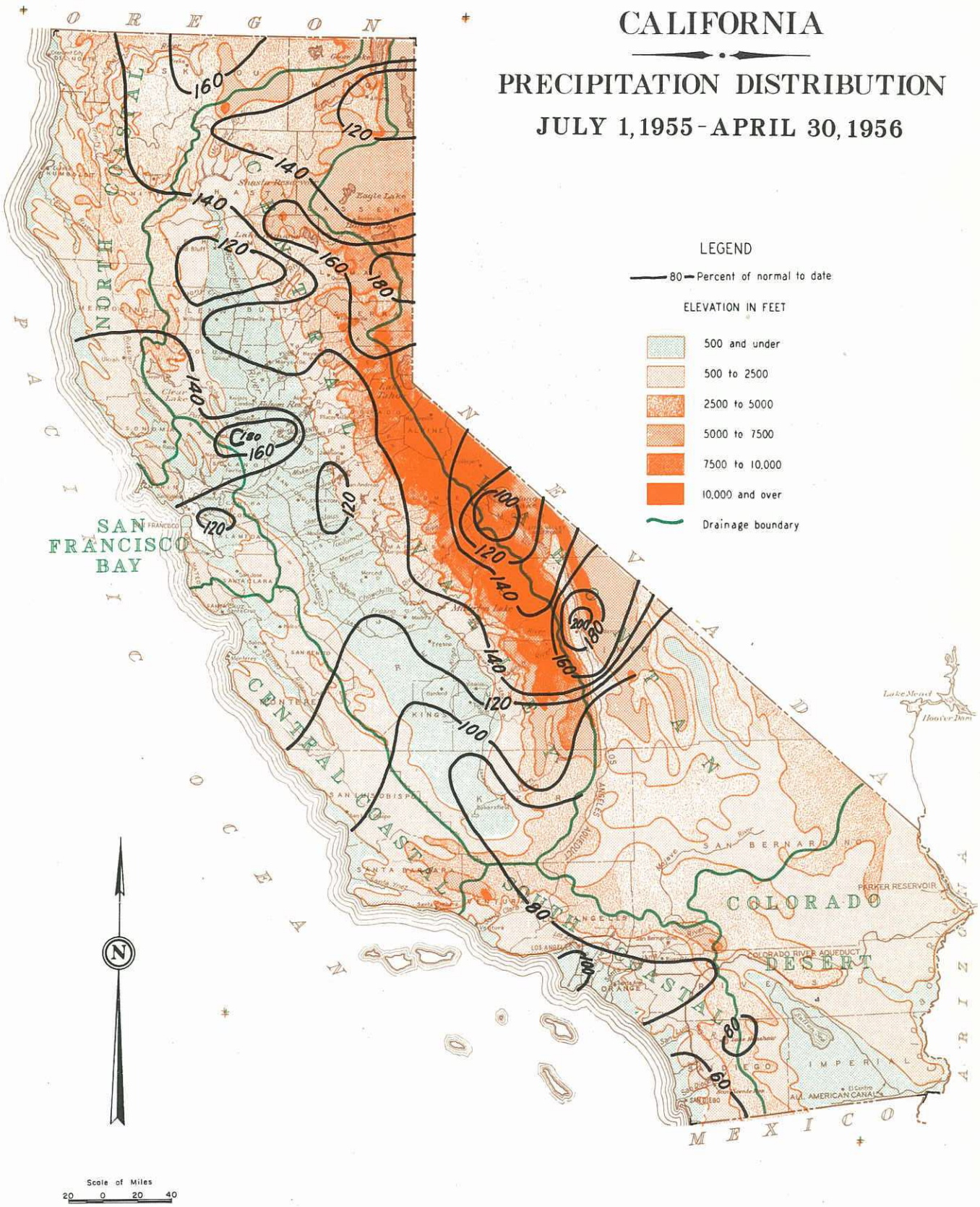
Seasonal precipitation in this Area averaged above normal, varying from 82 per cent at Gem Lake in Mono Basin to 247 per cent at the Los Angeles Aqueduct Intake in the Owens River Basin. Precipitation during April varied from below normal in the vicinity of Susanville to well above normal in the vicinity of Bishop.

Seasonal precipitation by major drainage basins in per cent of the May 1 normal as compared with that of one year ago is set forth in the following tabulation:

CALIFORNIA

PRECIPITATION DISTRIBUTION

JULY 1, 1955 - APRIL 30, 1956



SECTION 3 - SNOWPACK

Measurements made at key snow courses indicated that the snowpack water content at higher elevations of the Cascade Mountains and Sierra Nevada was generally less than that of one month ago. 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 a few courses in California indicate about 30 per cent decrease in water content of the snowpack above an elevation of 6,500 feet during the month of April as compared with a 15 per cent increase during April 1955.

San Francisco Bay Area

Snow occurs infrequently in this Area and has little bearing on distribution of runoff or general water conditions.

Central Coastal Area

Snow occurs infrequently in this Area and has little bearing on distribution of runoff or general water conditions.

South Coastal Area

During April snow fell in the San Gabriel and San Bernardino Mountains as low as the 2,500-foot elevation. About 12 inches was reported at Running Springs, and approximately seven inches were observed at Lake Arrowhead.

Central Valley Area

Storms during April brought additional snow to the mountain areas, although near normal conditions of snowmelt generally resulted in decreased snowpack water contents. The effective snowline as of May 1 was approximately 5,500 feet at Mt. Shasta, 6,000 feet in the American River Basin, and 9,000 feet in the Kern River Basin.

SECTION 4 - SURFACE RESERVOIR STORAGE

There are over 225 conservation reservoirs with individual capacities in excess of 1,000 acre-feet and an aggregate usable storage capacity exceeding 43,000,000 acre-feet which impound water for beneficial uses within California or jointly with adjacent states. Reports are received monthly from operators of 91 of these reservoirs representing over 99 per cent of the total usable capacity. Water in storage in these reservoirs on May 1 was about 52 per cent of their total capacity. Intrastate reservoirs in operation for 10 or more years had in storage about 109 per cent of their 10-year average as of May 1. Surface reservoir storage conditions in each of the major drainage areas of California delineated on the Frontispiece, are as follows:

North Coastal Area

Five storage reservoirs, including three on the Klamath River in the State of Oregon, located on streams tributary to this area, had in storage on May 1 about 93 per cent of the total capacity of 1,276,000 acre-feet, which represents about 138 per cent of the 10-year average as of May 1. Storage in these reservoirs has increased about 153,000 acre-feet since April 1, 1956. The reservoirs in California on Shasta and Eel Rivers had in storage about 114 per cent of their 10-year average. Storage on major streams of the Area on May 1 in per cent of the 10-year average compared with that of one year ago is shown in the following tabulation:

Stream	Storage in Per Cent of 1946-55 Average	
	May 1, 1955	May 1, 1956
Klamath River	105	141
Shasta River	64	205
Eel River	98	94

1,057,000 acre-feet. Eighteen of these reservoirs, in operation for more than 10 years, had in storage about 73 per cent of their 10-year average as of May 1. Total storage has increased by 11,000 acre-feet since April 1. A portion of the water in storage has been imported from Colorado River. Storage in reservoirs on major streams or of major reservoir systems on May 1 in per cent of the 10-year average compared with that of one year ago is set forth in the following tabulation:

Reservoir Systems	Storage in Per Cent of 1946-55 Average May 1, 1955	May 1, 1956
Bear Creek	66	43
San Jacinto River	45	39
Metropolitan Water District	98	103
San Luis Rey River	14	9
Boulder Creek	0	25
Sweetwater River	74	81
City of San Diego	80	77

Central Valley Area

Thirty-eight reservoirs in this Area, for which reports are received, have in storage 75 per cent of their aggregate storage capacity of 11,640,000 acre-feet. Thirty of these reservoirs, in operation for more than 10 years, had in storage about 110 per cent of their 10-year average as of May 1. Storage in the 38 reservoirs has increased by 1,215,000 acre-feet since April 1. Storage on major streams of the Area on May 1 in per cent of the 10-year average compared with that of one year ago is shown in the following tabulation:

Stream	Storage in Per Cent of 1946-55 Average May 1, 1955	May 1, 1956
Feather River	65	91
Yuba River	49	142
American River	38	106
Stony Creek	74	108
Mokelumne River	70	109
Stanislaus River	42	113
Tuolumne River	60	107
Merced River	42	137
San Joaquin River	93	82

SECTION 5 - STREAM FLOW

Runoff of California streams during the first seven months of the 1955-56 season has been above average expectancy in streams north of the Tehachapi Mountains. In the South Coastal Area, runoff has been generally less than 35 per cent of average. A summary of stream flow in each of the drainage areas delineated on the Frontispiece is as follows:

North Coastal Area

The flow of all streams in this Area has been above average during the first seven months of the 1955-56 season. Unimpaired runoff in representative major stream basins between October 1, 1955, and May 1, 1956, in per cent of average as compared with that for the same period one year ago is shown in the following tabulation:

Stream	Seasonal Runoff in Per Cent of Average	
	May 1, 1955	May 1, 1956
Trinity River at Lewiston	47	161
Russian River near Guerneville	44	221

San Francisco Bay Area

Flow in all streams of this Area during the first seven months of the 1955-56 season has been well above normal. Unimpaired runoff in representative stream basins between October 1, 1955, and May 1, 1956, in per cent of average compared with that for the same period one year ago is set forth in the following tabulation:

Stream	Seasonal Runoff in Per Cent of Average	
	May 1, 1955	May 1, 1956
Napa River near St. Helena	34	346
Coyote Creek near Madrone	22	159

Central Coastal Area

Flow in streams in this Area varied from well above average in the northern portion to considerably below average expectancy in the southern

Stream	Seasonal Runoff in Per Cent of Average May 1, 1955	May 1, 1956
Sacramento River (Red Bluff)	62	173
Feather River	46	193
Yuba River	44	186
American River	45	193
Mokelumne River	47	198
Stanislaus River	48	183
Tuolumne River	50	194
Merced River	39	197
San Joaquin River (below Friant)	52	202
Kings River	58	202
Kaweah River	60	220
Tule River	49	170
Kern River	50	130

Lahontan Area

The runoff of streams in this Area during the first seven months of the 1955-56 season was above average expectancy. The Truckee River gaging station at Farad was lost during the December flood. Unimpaired runoff on Owens River at Round Valley between October 1, 1955, and May 1, 1956, was 100 per cent of average compared with 93 per cent for the seven-month period ending May 1, 1955.

Colorado Desert Area

The Regional River Control Division, U. S. Bureau of Reclamation, Region 3, Boulder City, Nevada, advises that the runoff of Colorado River near Grand Canyon between October 1, 1955, and May 1, 1956, has been 2,972,000 acre-feet, which is 73 per cent of the 30-year average flow for the period 1922-23 to 1951-52, inclusive.

It is indicated that the runoff for the 1955-56 water year in this Area will be about 180 per cent of average expectancy.

The reservoirs in California on Shasta and Eel Rivers will fill to maximum historical levels during the spring runoff period and the carryover storage at the end of the irrigation season will exceed average expectancy.

San Francisco Bay Area

A large portion of the water used in this Area is for municipal purposes and is made available through extensive developments which import water from streams tributary to the Central Valley Area to augment local supplies. There is an adequate reserve supply available to meet the demand on these systems for several years.

In the Santa Clara Valley and adjacent areas it is indicated that runoff for the season 1955-56 will greatly exceed normal. It is anticipated that ground water levels will be higher at the end of the irrigation season than in the fall of 1955.

In the northern portion of the Area, the existing local and imported supplies will be sufficient to meet the demand for municipal and agricultural developments.

Central Coastal Area

The indicated runoff in this Area for the 1955-56 season is about 125 per cent average expectancy. Carryover storage in surface reservoirs is well above average and satisfactory conditions are indicated in areas dependent upon these reserves. Replenishment to ground water basins in the northern portion of this Area during the past winter should result in higher levels in the fall of 1956 than those at the same time last year.

South Coastal Area

It is indicated that the surface runoff during the 1955-56 season for the northern portion of this Area will be only about 30 per cent of normal.

during the period May through June in view of the U. S. Weather Bureau's 30-day outlook are set forth in the following tabulation:

Watershed and Station	Unimpaired April-July Runoff in Acre-Feet	
	50-Year Average (1901-1950)	Forecasts
Sacramento at Shasta Dam 1/	1,944,000	2,000,000
Sacramento nr. Red Bluff	2,606,000	2,650,000
Feather nr. Oroville	2,056,000	2,900,000
Yuba nr. Smartville	1,169,000	1,550,000
American at Fair Oaks	1,463,000	1,950,000
Mokelumne nr. Mokelumne Hill	513,000	675,000
Stanislaus below Melones Power House	785,000	1,080,000
Tuolumne above La Grange Dam	1,286,000	1,780,000
Merced at Exchequer	667,000	900,000
San Joaquin below Friant	1,300,000	1,850,000
Kings at Piedra	1,269,000	1,600,000
Kaweah nr. Three Rivers 1/	282,000	300,000
Tule nr. Porterville 1/	48,000	37,000
Kern nr. Bakersfield	468,000	440,000

1/ Not corrected for upstream impairments.

The forecasts of April-July runoff in per cent of normal for Central Valley streams are delineated on Plate 2 following page 22.

Most conservation reservoirs of the Area except Isabella on the Kern are full or will fill during the snowmelt runoff period. As a result of generally above average precipitation during April this overall supply will be greater than was anticipated one month ago. The aggregate storage of all conservation reservoirs of the Area will be considerably greater at the end of the irrigation season than in the fall of 1955.

"Truckee River. The water content of the snow in this basin is about 114 per cent of normal. Assuming normal spring precipitation and temperatures and considering the present super-saturated condition of the soil due to the December flood, the runoff at Farad gage exclusive of Tahoe releases and assuming no storage at Boca, Independence, and Donner Reservoirs, will be about 350,000 acre-feet. The actual runoff at this point will be about 40,000 acre-feet less than the above amount due to storage in these reservoirs. Subnormal or abnormal spring precipitation will cause these amounts to vary accordingly.

"Little Truckee River. April-July runoff of the Little Truckee River assuming normal spring precipitation and temperatures and assuming no reservoir storage will be about 120,000 acre-feet. Of this amount about 31,000 acre-feet will be stored in Boca and Independence Reservoirs.

"Water Supply for Irrigation and Power. Based on the foregoing forecast, Floriston Rates will be maintained through the 1956 irrigation season and also through 1956-57 winter season thus assuring full water supply for both irrigation and power generation.

"Summary - 1956 Forecast.

	Amount	Per Cent Normal	Elevation
Lake Tahoe rise assuming gates closed	1.9	125	6228.9
Truckee River at Farad exclusive of Tahoe releases and assuming no storage in other reservoirs (natural flow)	350,000	125	-
Little Truckee (natural flow)	120,000	125	-

Note: Subnormal or abnormal spring precipitation and temperatures will affect these estimates accordingly."

The Soil Conservation Service and Nevada State Engineer, cooperating, reported on April 1 that the Carson-Walker River watersheds had about 130 per cent of average snow water content as of this date. Considering the snow on each of the respective watersheds and in view of near normal April precipitation and assuming average weather conditions for the remainder of the season, their forecast of April-July runoff remains as follows:

TABLE 1

UNIMPAIRED RUNOFF FORECASTS[1]

May 1, 1956

Area, Stream, and Station	Source of Forecast[2]	April 1-July 31, Inc. 1956 Forecast in acre-feet	50-Year Average 1901-1950 in acre-feet	1956 Forecast Per Cent of Average
NORTH COASTAL				
Upper Klamath Lake, Net Inflow[3]	O.C.S.S.	850,000	424,000[8]	200
Shasta Riv. above Yreka Ditch	D.W.R.	17,000	[9]	
Trinity Riv. at Lewiston[3]	D.W.R.	780,000	725,000	107
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.	2,000,000	1,944,000	103
Sacramento Riv. nr. Red Bluff	D.W.R.	2,650,000	2,606,000	102
N. F. Feather Riv. nr. Prattville	D.W.R.	390,000[6]	278,000[6]	140
M. F. Feather Riv. nr. Clio[3]	D.W.R.	150,000	95,000	158
M. F. Feather Riv. at Bidwell Bar	D.W.R.	980,000	693,000	141
S. F. Feather Riv. at Enterprise	D.W.R.	185,000	122,000	152
Feather Riv. nr. Oroville	D.W.R.	2,900,000	2,056,000	141
N. Yuba Riv. below Goodyears Bar	D.W.R.	400,000	305,000	131
Bowman Area-M. Yuba Riv. & Canyon Creek	D.W.R.	155,000	120,000	129
S. F. Yuba Riv. at Langs Crossing	D.W.R.	320,000	236,000	135
Yuba Riv. nr. Smartville	D.W.R.	1,550,000	1,169,000	133
N. F. American Riv. at Colfax	D.W.R.	380,000	290,000	131
M. F. American Riv. nr. Auburn	D.W.R.	810,000	610,000	133
Silver Creek nr. Placerville	D.W.R.	280,000	205,000	136
American Riv. at Fair Oaks	D.W.R.	1,950,000	1,463,000	133
N. F. Mokelumne Riv. nr. West Point	D.W.R.	610,000	445,000	137
Mokelumne Riv. nr. Mokelumne Hill	D.W.R.	675,000	513,000	132
M. F. Stanislaus Riv. at Sand Bar Flat nr. Avery	D.W.R.	500,000	367,000	136
Stanislaus Riv. below Melones P. H.	D.W.R.	1,080,000	785,000	138
Cherry Creek nr. Hetch Hetchy	D.W.R.	300,000	220,000	136
Eleanor Creek nr. Hetch Hetchy	D.W.R.	155,000	114,000	136
Tuolumne Riv. nr. Hetch Hetchy	D.W.R.	880,000	642,000	137
Tuolumne Riv. above La Grange Dam	D.W.R.	1,780,000	1,286,000	137
Merced Riv. at Pohono Bridge	D.W.R.	540,000	395,000	136
Merced Riv. at Exchequer	D.W.R.	900,000	667,000	135
S. F. San Joaquin Riv. nr. Florence Lake	D.W.R.	275,000	205,000	134
Big Creek at Huntington Lake	D.W.R.	138,000	99,000	139
San Joaquin Riv. above Big Creek	D.W.R.	1,540,000	1,105,000	140
San Joaquin Riv. below Friant	D.W.R.	1,850,000	1,300,000	142
N. F. Kings Riv. nr. Cliff Camp	D.W.R.	320,000	252,000	127
Kings Riv. at Piedra[3]	D.W.R.	1,600,000	1,269,000	126
Kaweah Riv. nr. Three Rivers[3]	D.W.R.	300,000	282,000	107
Tule Riv. nr. Porterville[3]	D.W.R.	37,000	50,000	74
Kern Riv. nr. Kernville[3] [4]	D.W.R.	360,000	381,000	95
Kern Riv. nr. Bakersfield[3]	D.W.R.	440,000	468,000	94

TABLE 2

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

May 1, 1956

River and Station	50-year Average (1901-1950)	Year								
		1948	1949	1950	1951	1952	1953	1954	1955	1956 Forecast
Sacramento River near Red Bluff	2,606	3,955	1,961	1,935	1,953	3,712	2,895	2,851	2,083	2,650
Feather River near Oroville	2,056	2,497	1,416	1,988	1,505	4,638	2,381	1,956	1,234	2,900
Yuba River near Smartville	1,169	1,406	961	1,204	867	2,424	1,329	943	786	1,550
American River at Fair Oaks	1,463	1,699	1,243	1,593	1,087	2,864	1,631	1,054	988	1,950
Mokelumne River near Mokelumne Hill	513	520	434	571	346	959	493	372	330	675
Stanislaus River below Melones Power House	785	764	606	832	531	1,438	719	639	506	1,080
Tuolumne River above La Grange Dam	1,286	1,183	1,026	1,180	947	2,145	1,117	1,028	846	1,780
Merced River at Exchequer	667	598	509	552	439	1,073	451	484	418	900
San Joaquin River below Friant	1,300	1,036	976	1,010	921	2,199	874	989	900	1,850
Kings River at Piedra	1,269	869	821	1,028	854	2,196	867	1,077	857	1,600
Kaweah River near Three Rivers 2/	282	226	181	222	172	588	213	231	194	300
Tule River near Porterville 2/	50	41	24	22	23	155	35	38	22	37
Kern River near Bakersfield	468	240	210	300	263	1,119	329	354	225	440

1/ Corrected for upstream regulation.
2/ Uncorrected for upstream regulation.

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES

GOODWIN J. KNIGHT, Governor
FRANK B. DURKEE, Director of Public Works
HARVEY O. BANKS, 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, 1956

Basic Data

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FOREWORD

This appendix contains basic data for the May 1, 1956, report of "Water Conditions in California" prepared 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."

There are set forth herein in tabular form snow measurements, available precipitation records, stream flow data for representative water courses and reports of water in storage in major reservoirs.

This appendix is being forwarded to all cooperators in the water conditions program and will be made available to other interested parties upon specific request.

TABLE 1 - PRECIPITATION DATA - JULY 1, 1955 TO APRIL 30, 1956 (Cont'd)

1 Basin and Precipitation Station	Elevation in Feet	2 Source of Data	Precipitation During April, 1956			Precipitation from July 1, 1955 to April 30, 1956			3 Average Seasonal Precipitation (July to June) (Inches)
			Total (Inches)	3 Average (Inches)	In per cent of Average	Total (Inches)	3 Average (Inches)	In per cent of Average	
PACIFIC COAST BASINS (Cont'd)									
San Diego County (Cont'd)									
Julian	4220	U.S.W.B.	3.67	2.86	128	21.32	30.08	71	31.48
Warner Springs	3170	U.S.W.B.	2.56	1.23	208	14.07	17.08	82	17.72
Campo	3000	U.S.W.B.	2.36	1.50	164	10.97	18.24	60	18.93
Barrett Dam	1750	U.S.W.B.	3.14	1.57	200	10.59	18.12	58	18.87
CENTRAL VALLEY AREA									
Valley Stations									
Redding	718	U.S.W.B.	1.82	2.89	63	48.95	35.48	138	37.94
Willows	136	U.S.W.B.	1.26	1.05	120	25.19	16.31	154	17.17
Winters	132	U.S.W.B.	1.55	1.23	126	28.68	15.79	182	16.27
Sacramento	25	U.S.W.B.	1.86	1.15	162	26.78	15.60	160	16.31
Stockton	15	U.S.W.B.	1.75	0.96	183	17.57	13.36	131	14.00
Los Banos	125	U.S.W.B.	1.37	0.68	201	10.87	8.25	132	8.65
Merced	173	U.S.W.B.	2.61	0.97	269	14.90	11.26	132	11.77
Fresno	331	U.S.W.B.	1.38	0.81	170	12.59	8.96	141	9.39
Bakersfield	489	U.S.W.B.	0.94	0.67	140	3.50	5.80	60	6.26
Upper Sacramento - Pit and McCloud Rivers									
Jess Valley	5400	D.W.R.	1.75	1.68	104	13.77	13.42	102	15.62
Alturas	4460	U.S.W.B.	0.83	1.16	72	12.17	10.33	118	12.00
Bieber	4200	D.W.R.	0.97	1.25	77	23.05	14.40	160	15.94
Mount Shasta	3555	U.S.W.B.	0.54	2.66	20	47.07	31.94	148	34.50
Hat Creek	3400	U.S.W.B.	0.66	1.28	52	23.40	15.93	147	17.78
McCloud	3270	U.S.W.B.	0.87	3.49	25	63.59	45.39	140	48.94
Fall River Mills	3340	U.S.W.B.	0.82	1.33	62	20.03	16.27	125	17.99
Feather River									
Bucks Storage Dam	5100	P.G.&E.	2.90	5.11	57	87.13	65.14	134	68.76
Sierraville	5000	U.S.W.B.	1.81	1.60	113	39.78	22.99	173	24.59
Mineral	4935	U.S.W.B.	1.82	3.95	46	77.90	47.40	164	50.46
Canyon Dam	4570	U.S.W.B.	2.23	2.59	86	56.39	33.94	166	36.50
Chester	4550	U.S.W.B.	1.68	2.05	82	47.14	28.61	165	30.92
Quincy	3409	U.S.W.B.	2.81	2.78	101	55.66	36.60	152	39.26
Caribou	3000	P.G.&E.	2.55	2.84	90	55.91	37.68	148	40.10
Lake Wilenor	2000	D.W.R.	2.65	3.74	71	57.07	49.41	116	52.99
Storrie	1760	P.G.&E.	2.68	4.75	56	79.87	60.56	132	63.65
Las Plumas	506	U.S.W.B.	2.37	3.44	69	73.15	46.88	156	49.11
Yuba River									
Soda Springs	6870	U.S.W.B.	3.38	3.27	103	77.48	43.42	179	46.15

1, 2, 3 See footnotes on page 6

TABLE 1 - PRECIPITATION DATA - JULY 1, 1955 TO APRIL 30, 1956 (Cont'd)

1 Basin and Precipitation Station	Elevation in Feet	2 Source of Data	Precipitation During April, 1956			Precipitation from July 1, 1955 to April 30, 1956			3 Average Seasonal Precipitation (July to June) (Inches)
			Total (Inches)	3 Average (Inches)	In per cent of Average	Total (Inches)	3 Average (Inches)	In per cent of Average	
CENTRAL VALLEY AREA (Cont'd)									
Upper San Joaquin River (Cont'd)									
North Fork	3000	U.S.W.B.	5.37	2.66	202	46.46	31.88	145	33.42
Auberry	2050	U.S.W.B.	4.84	1.99	243	33.04	24.41	135	25.52
Kings River									
Grant Grove	6775	U.S.W.B.	6.09	4.17	146	54.75	38.08	144	40.82
Balch Camp	1300	P.G.&E.	4.32	2.95	147	38.20	26.36	145	27.88
Piedra	500	U.S.W.B.	2.18	1.56	140	20.51	17.10	120	17.68
Kaweah River									
Grant Grove	6775	U.S.W.B.	6.09	4.17	146	54.75	38.08	144	40.82
Giant Forest	6360	U.S.W.B.	6.52	3.69	177	56.21	39.38	143	42.43
Ash Mountain	1600	U.S.W.B.	3.98	2.57	155	33.54	23.98	136	25.83
Three Rivers	870	U.S.W.B.	3.93	1.94	202	28.76	18.99	152	20.22
Kern River									
Kern River #3 Intake	3640	S.C.E.C.	2.25	1.11	203	21.26	16.31	130	16.91
Glennville	3300	U.S.W.B.	3.55	1.97	180	20.68	18.73	110	20.05
Kernville	2600	U.S.W.B.	1.57	0.61	258	10.29	9.78	105	10.08
LAHONTAN AREA									
Surprise Valley									
Jess Valley	5400	D.W.R.	1.75	1.68	104	13.77	13.48	102	15.62
Fort Bidwell	4735	U.S.W.B.	0.57	1.12	51	17.82	12.58	142	14.33
Susan River									
Susanville	4271	U.S.W.B.	0.60	1.04	58	20.37	15.91	128	17.36
Doyle	4300	U.S.W.B.	1.25	0.54	231	19.15	9.29	206	10.30
Truckee & Tahoe Basins									
Twin Lakes	7970	U.S.W.B.	4.19	3.24	129	63.09	41.31	153	44.28
Soda Springs	6870	U.S.W.B.	3.38	3.27	103	77.48	43.42	179	46.15
Tahoe	6230	U.S.W.B.	1.29	2.05	63	46.18	29.41	157	31.27
Truckee	6200	U.S.W.B.	1.80	1.65	109	47.07	24.55	192	25.82
Carson River									
Twin Lakes	7970	U.S.W.B.	4.19	3.24	129	63.09	41.31	153	44.28
Walker River									
Bridgeport	6473	U.S.W.B.	1.45	0.71	204	13.10	9.95	132	10.79

1, 2, 3 See footnotes on page 6.

TABLE 2

SNOW SURVEY DATA

AS OF MAY 1, 1956

1/ Areas, Drainage Basins, and Snow Courses	Elevation in feet	Date of Survey	Depth of Snow in inches	Density in per cent	Water Content in inches	Water Content Apr. 1, 1956 in inches	Per Cent Change in Water Content During April 1955	Per Cent Change in Water Content During April 1956
NORTH COASTAL AREA								
Scott River								
Middle Boulder #1	6700	5-1-56	69.3	52.5	36.4	48.5	+ 19	- 25
Middle Boulder #3	6400	5-1-56	51.7	51.5	26.6	40.4	+ 12	- 34
Dynamite	5600	5-1-56	25.8	45.0	11.6	29.0	N.S.M.	- 60
Trinity River								
Big Flat	5100	4-30-56	18.6	51.6	9.6	27.0	- 50	- 64
SAN FRANCISCO BAY AREA)								
)	No Surveys Made							
CENTRAL COASTAL AREA)								
CENTRAL VALLEY AREA								
Upper Sacramento River								
Mount Shasta	8000	5-1-56	143.6	53.2	76.4	68.1	+ 25	+ 12
Sand Flats	7000	5-1-56	106.2	52.9	56.3	51.0	+ 18	+ 10
McCloud River								
Mount Shasta	8000	5-1-56	143.6	53.2	76.4	68.1	+ 25	+ 12
Stouts Meadow	5300	5-2-56	82.5	51.7	42.6	61.5	+ 50	- 31
Pit River								
Mount Lassen	8400	5-2-56	202.0	53.1	107.2	124.7	+ 22	- 14
Cedar Pass	7200	5-3-56	22.3	49.8	11.1	23.2	+ 47	- 52
Adin Mountain	6500	5-1-56	No snow on course			14.5	+ 35	-100
Manzanita Lake	6000	5-2-56	Patches only			15.0	+ 34	-100
Stouts Meadow	5300	5-2-56	82.5	51.7	42.6	61.5	+ 50	- 31
Feather River								
Mount Lassen	8400	5-2-56	202.0	53.1	107.2	124.7	+ 22	- 14
Yuba Pass	6700	4-27-56	74.2	51.8	38.4	49.7	+ 5	- 23
Silver Lake	6500	5-2-56	56.2	59.8	33.6	43.9	- 40	- 24
Eureka Bowl	6500	5-2-56	92.0	46.6	42.9	69.1	+ 29	- 38
Harkness Flat	6400	5-1-56	63.4	50.6	32.1	45.1	--	- 29
Eureka Lake	6300	4-30-56	64.9	53.2	34.5	51.2	+ 26	- 33
Letterbox	5600	5-1-56	110.1	58.1	64.0	71.7	+ 34	- 11
Gibsonville	5400	4-30-56	47.6	50.7	24.2	35.5	+ 17	- 29
Feather River Meadows	5000	5-2-56	32.7	48.0	15.7	32.9	N.S.M.	- 52

1/ See footnotes on page 10.

TABLE 3

WATER CONTENT OF MAJOR STORAGE RESERVOIRS

MAY 1, 1956

Watershed	Reservoir	Operator	10-year Average 1946-55 in acre-feet	Usable Capacity in acre-feet	Water in Storage in acre-feet 1955	Water in Storage in acre-feet 1956	1956 Storage in Per Cent of 10-year Average
NORTH COASTAL AREA							
Klamath River	Clear Lake 1/	U. S. Bureau of Reclamation	246,190	513,320	265,260	491,270	200
	Gerber 1/	U. S. Bureau of Reclamation	59,890	94,270	46,530	82,730	138
	Upper Klamath 1/	U. S. Bureau of Reclamation	439,580	524,800	474,060	479,400	109
Shasta River	Shasta R. (Dwinnell)	Montague Water Con. District	20,540	72,000	13,120	42,200	205
South Eel River	Scott (Lake Pillsbury)	Pacific Gas & Electric Co.	91,160	93,720	89,100	85,540	94
SAN FRANCISCO BAY AREA							
Conn Creek	Conn Creek Dam	City of Napa	26,670	30,500	28,200	31,000	116
Lagunitas Creek	Kent	Marin Muni. Water District	4/	16,500	16,680	16,700	---
San Pablo Creek	San Pablo Dam 2/	East Bay M.U.D.	33,780	43,170	33,410	40,990	121
San Leandro Creek	Upper San Leandro 2/	East Bay M.U.D.	27,040	41,400	28,060	40,400	149
	Chabot 2/	East Bay M.U.D.	7,240	12,550	7,380	12,430	172
Calaveras Creek	Calaveras 2/	City & Co. of San Francisco	59,340	96,820	65,920	96,940	163
Laguna Creek	Upper Crystal Springs) 2/	City & Co. of San Francisco)	54,640	58,380	52,320	51,480	94
San Mateo Creek	Lower Crystal Springs)	City & Co. of San Francisco)					
San Andreas Creek	San Andreas 2/	City & Co. of San Francisco	16,980	19,000	16,440	12,980	76
Coyote Creek	Coyote	Santa Clara Valley Water Conservation District	10,690	24,560	6,240	23,610	221
	Leroy Anderson		4/	75,000	25,260	63,370	---
Los Gatos Creek	Austrian	San Jose Water Works	4/	6,000	3,580	6,000	---
	Lexington	Santa Clara Valley Water Conservation District	4/	25,000	2,210	23,350	---
CENTRAL COASTAL AREA							
Salinas River	Salinas	San Luis Obispo Co. Flood Control & Water Conservation District	16,510	26,000	20,800	24,500	148
Santa Ynez River	Gibralter	City of Santa Barbara	8,390	15,600	13,990	15,600	186
	Cachuma	U. S. Bureau of Reclamation	4/	206,500	21,700	38,650	---
SOUTH COASTAL AREA							
Piru Creek	Santa Felicia	United Water Con. District	4/	100,000	---	7,600	---
Bear Creek	Bear Valley	Bear Valley Mutual Water Co.	27,840	72,170	18,290	11,910	43
San Jacinto River	Lake Hemet	Lake Hemet Water Co.	3,480	13,400	1,580	1,360	39
Temecula Creek	Vail	Vail Company	4/	49,500	4,670	1,940	---
San Gabriel River	Morris	Metropolitan Water District	27,650	35,170	23,060	22,740	82
Tributary Cajalco Cr.	Lake Mathews 2/	Metropolitan Water District	92,020	100,000	94,310	100,400	109
San Luis Rey River	Henshaw	Vista Irrigation District	47,330	194,320	6,770	4,090	9
Boulder Creek	Cuyamaca	LaMesa, Lemon Grove & Spring Valley Irrigation District	900	11,600	0	225	25

1/, 2/, 3/, 4/, 5/ See footnotes on page 13.

TABLE 3 - WATER CONTENT OF MAJOR STORAGE RESERVOIRS AS OF MAY 1, 1956 (Cont'd)

Watershed	Reservoir	Operator	10-year Average 1946-55 in acre-feet	Usable Capacity in acre-feet	Water in Storage in acre-feet		1956 Storage in Per Cent of 10-year Average
					1955	1956	
CENTRAL VALLEY AREA (Cont'd)							
Kern	Isabella	U. S. Corps of Engineers	4/	570,000	6,010	173,620	---
	Buena Vista	Buena Vista Associates	29,800	205,000	0	450	2
LAHONTAN AREA							
Truckee River	Lake Tahoe 1/	U. S. Bureau of Reclamation	480,860	732,000	375,000	543,600	113
Little Truckee	Boca 1/	U. S. Bureau of Reclamation	26,690	41,050	2,990	19,900	75
E. Walker River	Bridgeport 1/	Walker River I.D.	28,440	42,450	18,920	35,710	125
Leevining Creek	Saddlebag Lake	Calif. Electric Power Co.	3,300	11,140	1,730	1,070	32
Rush Creek	Gem Lake	Calif. Electric Power Co.	3,300	17,600	840	280	8
	Grant Lake 2/	City of Los Angeles	31,490	47,530	25,710	27,480	87
Owens River	Long Valley 2/ (Lake Crowley)	City of Los Angeles	130,220	183,470	107,950	154,980	119
	Tinemaha 2/	City of Los Angeles	2,560	16,410	80	890	35
Bishop Creek	Hillside (South Lake)	Calif. Electric Power Co.	3,720	13,190	460	0	0
Rose Valley	Haiwee (South) 2/	City of Los Angeles	40,630	58,530	41,310	36,760	90
COLORADO DESERT AREA							
Colorado River	Lake Mead 1/	U. S. Bureau of Reclamation	16,284,800	27,207,000	11,271,000	10,748,000	66

1/ Interstate Reservoir Used Jointly by California and Adjacent States.
2/ Includes Foreign Water.
3/ Combined Storage for 10 Reservoirs in Full Operation During 10-year Period.
4/ Not in Complete Operation for Full Period.

TABLE 5

RUNOFF DATA 1/

October 1, 1955 to April 30, 1956

Area, Stream, and Station	Source of Data 2/	Measured in acre-feet	Unimpaired Runoff 3/ Computed in acre-feet	Average 4/ in acre-feet	Per Cent of Average
NORTH COASTAL AREA					
Trinity River at Lewiston	USGS	1,378,000	1,378,000	858,750	161
Russian River near Guerneville	USGS-PG&E	3,023,000	2,921,000	1,325,410	221
SAN FRANCISCO BAY AREA					
Napa River near St. Helena	USGS	168,600	168,600	48,740	346
Coyote Creek near Madrone	USGS	8,470	87,120	54,850	159
CENTRAL COASTAL AREA					
Arroyo Seco near Soledad	USGS	169,000	169,000	116,500	145
Huasna River near Santa Maria	USGS	10,070	10,070	19,740	51
SOUTH COASTAL AREA					
Sespe Creek near Fillmore	USGS	22,350	25,540	74,820	32
Arroyo Seco near Pasadena	USGS	1,920	1,920	6,620	29
Santa Ana River near Mentone	USGS	2,950	16,820	51,830	32
CENTRAL VALLEY AREA					
Sacramento near Red Bluff	USGS	8,682,000	10,745,300	6,215,570	173
Feather near Oroville	USGS	5,628,680	5,969,000	3,098,300	193
Yuba at Smartville 5/	USGS-PG&E	2,491,460	2,894,700	1,555,300	186
American at Fair Oaks	USGS-PG&E	2,889,060	3,327,500	1,726,370	193
Mokelumne near Mokelumne Hill	USGS	696,200	740,800	373,590	198
Stanislaus below Melones Power House	PG&E	960,200	1,071,400	586,110	183
Tuolumne above La Grange	USGS	1,456,000	1,672,300	857,830	194
Merced at Exchequer	USGS	634,830	913,970	464,360	197
San Joaquin below Friant	USGS-USBR	398,380	1,339,300	662,370	202
Kings at Piedra	USGS	693,110	1,165,000	575,210	202
Kaweah near Three Rivers 6/	USGS	404,870	404,870	183,500	220
Tule River near Porterville 6/	USGS	119,910	119,910	70,690	170
Kern near Bakersfield 6/	KCLC	244,520	408,990	314,260	130
LAHONTAN AREA					
Owens River near Round Valley	LADW&P	107,500	79,500	79,750	100
COLORADO DESERT AREA					
Colorado River near Grand Canyon	USGS-USBR	2,972,000	2,972,000	4,080,500 7/	73

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

6/ Uncorrected for upstream regulation.

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

TABLE 7

ARTIFICIAL RECHARGE OF GROUND WATER BASINS - CENTRAL AND SOUTH COASTAL AREAS

Spreading Grounds	Source	Agency	Amount Spread (acre-feet) October 1, 1955 through April 30, 1956	Amount Spread (acre-feet) April, 1956
SAN FRANCISCO BAY AREA				
Penitencia Percolation Ponds	Penitencia Creek	Santa Clara Valley Water Conservation District	1,558	350
Upper Page Percolation Ponds	Los Gatos Creek	Santa Clara Valley Water Conservation District	3,112	900
SOUTH COASTAL AREA				
Ojai	Matilija Dam on Matilija Creek	Ventura County Flood Control District	775	237
Piru	Piru Creek	United Water Cons. District	1,183	103
Saticoy	Santa Clara River	United Water Cons. District	5,983	1,837
El Rio	Santa Clara River	United Water Cons. District	6,338	1,641
Pacoima	Pacoima Wash	Los Angeles County F.C.D.	661	110
Hansen	Tujunga Wash	Los Angeles County F.C.D.	2	0
Headworks	Los Angeles River	Los Angeles Dept. of Water and Power	1,000	0
West Coast Basin Barrier Project	Colorado River 1/	Los Angeles County F.C.D.	1,573	242
Arroyo Seco	Arroyo Seco	Los Angeles County F.C.D.	252	105
Eaton	Eaton Wash	Los Angeles County F.C.D.	182	0
Tujunga	Owens River-Mono Basin Water via L.A. Aqueduct	Los Angeles Dept. of Water and Power	1,152	1,002
Sierra Madre	Santa Anita Creek, Little Santa Anita Creek, and Street runoff	City of Sierra Madre	260	88
Santa Anita	Santa Anita Creek	Los Angeles County F.C.D.	97	0
Sawpit	Sawpit Creek	Los Angeles County F.C.D.	158	19
Santa Fe Reservoir	San Gabriel Canyon	Los Angeles County F.C.D.	0	0

1/ 2/ 3/ 4/ See footnotes on page 20.

TABLE 7 - ARTIFICIAL RECHARGE OF GROUND WATER BASINS - CENTRAL AND SOUTH COASTAL AREAS (Cont'd)

Spreading Grounds	Source	Agency	Amount Spread (acre-feet) October 1, 1955 through April 30, 1956	Amount Spread (acre-feet) April, 1956
Eighth Street	Cucamonga Creek and runoff from impervious surfaces	San Bernardino County F.C.D.	131	0
Day Canyon	Day Canyon	Etiwanda Water Company	218	0
East Avenue	Day Canyon via Etiwanda Water Company's conduit	Etiwanda Water Company	178	0
Lytle Creek	Lytle Creek	Fontana Union Water Co.	1,505	104
Waterman Canyon and Twin Creek	Waterman Creek and East Twin Creek Wash	San Bernardino County F.C.D.	1,285	235
Wilson Creek	Wilson Creek	San Bernardino County F.C.D.	20	0
Santa Ana River near Mentone	Santa Ana River	San Bernardino Valley Water Conservation District	1,152	22
Mill Creek, Lower	Mill Creek	San Bernardino Valley Water Conservation District	1,140	48
Mill Creek, Upper	Mill Creek	San Bernardino Valley Water Conservation District	8	0
San Jacinto	San Jacinto River	Riverside County Flood Control & Water Conservation District	61	0
Little San Gorgonio	Little San Gorgonio Creek	Riverside County Flood Control & Water Conservation District	30	0
Coldwater Creek	Coldwater Creek	Temescal Water Company	860	0
Coldwater Creek, Lower	Coldwater, Indian, and Horsethief Creeks	Temescal Water Company	0.4	0
Mayhew Wash	Mayhew Wash	Temescal Water Company	744	25
Indian Creek	Indian Creek	Temescal Water Company	585	19
Horsethief Creek	Horsethief Creek	Temescal Water Company	21	2
Santa Ana Canyon	Santa Ana River and Colorado River3/	Santa Ana Valley Irrigation Company	0	0

1/ 2/ 3/ 4/ See footnotes on page 20.

TABLE 8

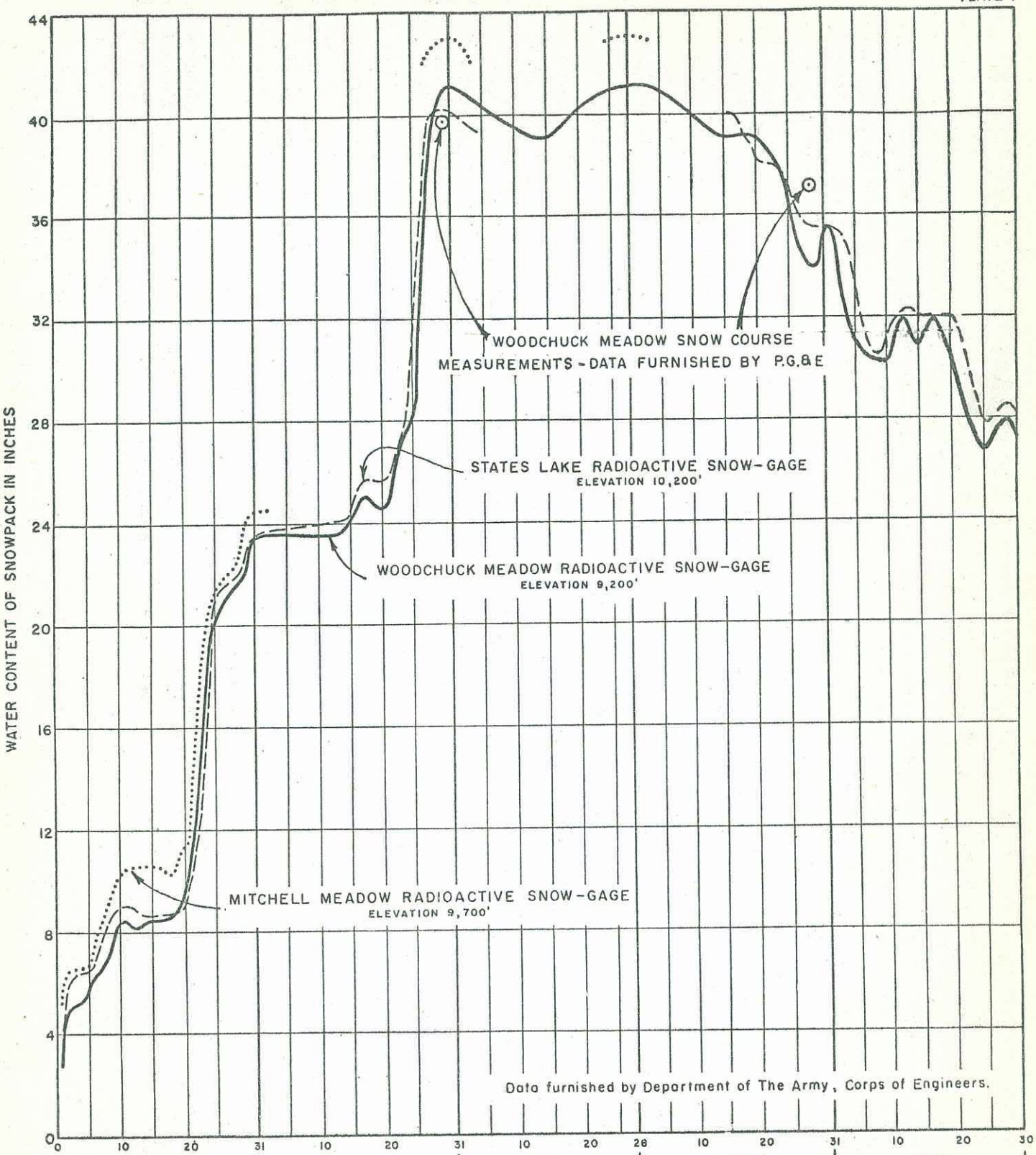
AERIAL PHOTOGRAPHIC SNOW DEPTH MEASUREMENTS

(FURNISHED BY SOUTHERN CALIFORNIA EDISON COMPANY)

1956 SEASON

Area, Stream Basin and Name of Marker	Elevation in Feet	Depth of Snow in Inches on Indicated Date					
		12-10-55	1-6 & 7-56	2-3-56	3-1-56	3-29&30-56	4-30-56
CENTRAL VALLEY AREA							
San Joaquin River							
Humphreys Basin	11,700	42	102	108	101	90	98
Pioneer Basin	10,500	54	108	138	132	108	102
Emerald Lake	10,500	42	86	126	124	112	100
Bench Canyon	10,200	48	108	126	126	112	110
Volcanic Knob	10,100	50	92	114	108	90	88
Heart Lake	10,100	50	86	104	96	90	88
Rose-Marie	10,000	38	70	94	90	76	72
Colby Meadow	10,000	38	---	84	72	56	42
Dutch Lake	9,100	38	62	90	86	72	58
Kaiser Pass	9,000	44	68	114	108	84	78
Coyote Lake	8,600	44	84	114	110	84	68
Twin Meadows	8,400	36	50	84	72	44	20
String Meadow	8,400	46	70	98	100	82	68
Mammoth Pass	9,200	64	138	168	168	144	136
Jackass Meadows	7,200	44	64	84	90	62	36
Kings River							
Blackcap Basin	10,800	46	90	118	112	92	90
Upper Burnt Corral	9,700	48	106	128	124	100	80

PLATE I



RADIO TRANSMITTED SNOWPACK MEASUREMENTS
KINGS RIVER WATERSHED
1955-1956 SEASON

DIVISION OF WATER RESOURCES 1956