SECTION 8
SHELF
ITEM .2

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES

EARL WARREN, Governor
C. H. PURCELL, 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

AS OF

MARCH 1, 1951

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39350

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DEPARTMENT OF PUBLIC WORKS
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ORGANIZATION

C. H. PURCELL . . . . . Director of Public Works
A. D. EDMONSTON . . . . . State Engineer
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WATER CONDITIONS

MONTHLY BULLETIN OF SNOW SURVEY, PRECIPITATION, AND RESERVOIR STORAGE DATA

MARCH, 1951

This is the second bulletin issued this winter by the Division of Water Resources through its Cooperative Snow Surveys Program.

It contains the results of all snow measurements made at the first of March, available precipitation data on the pertinent watersheds, and a report of water in storage in the major Sierra Nevada Reservoirs.

The Division of Water Resources acts as coordinator of this work. Many organizations contribute directly in the gathering of the snowpack data.

The participating agencies in the California Cooperative Snow Surveys Program are listed on the last page of this report.

March 9, 1951

WATER CONDITIONS

California's snowpack on March 1 was definitely deficient over the major part of the Sierra with the snowpack for the entire length of the Sierra averaging about 60 per cent of normal. The range of the individual watersheds was from a high of 95% of normal on the Upper Sacramento to a low of 40% on the Kern River.

Measurements at snow courses visited the first of March indicate that snowpack is below average for all areas in the Sierra excepting only very limited upper portions of the northern watersheds. Snowpack in the southernmost part of the Sierra on March 1 is less than that for any similar date since 1930, excepting the year 1948.

Deficiencies now existing in the Southern San Joaquin watersheds may be modified by heavy March storms; however, subnormal April-July stream flows in this area for the sixth consecutive year are presently indicated. Farther to the north, conditions are more favorable based upon present snowpack and current high reservoir storage stages, and with normal precipitation the Sacramento Basin should produce April-July stream flows adequate for foreseeable needs.

February's precipitation was subnormal over the entire snow area, especially in the Southern Sierra. Precipitation was largely in the form of snow above 3,000 feet elevation and at month end the snowline was at the lowest level of the winter.

A few of the figures at key points along the length of the Sierra are listed below.

WATERSHED	SNOW COURSE	DATE	SNOW DEPTH	WATER CONTENT
Sacramento	Mount Shasta	3- 2-51	129.8	52.5
Feather	Mount Lassen	2-28-51	198.3	84.0
Feather	Letterbox	2-28-51	82.9	30.3
Yuba	Donner Summit	2-28-51	68.1	23.7
American	Echo Summit	2-28-51	76.2	24.9
Mokelumne	Bear Valley Ridge	2-28-51	43.4	11.7
Stanislaus	Lake Alpine	2-28-51	64.2	20.6
Tuolumne	Bond Pass	3- 4-51	117.0	44.6
Merced	Snow Flat	2-28-51	82.6	26.2
San Joaquin	Kaiser Pass	2-28-51	74.4	22.8
Kings	Big Meadows	2-26-51	25.1	8.8
Kaweah	Panther Meadow	3- 1-51	66.5	15.3
Kern	Round Meadow	3- 7-51	31.4	8.0

The following summary of precipitation and snowpack shows the general situation, as of March 1st, in the Sierra and Southern California watersheds. The snowpack figures in the table are approximate as all snow courses were not visited at this time; only a few of the more representative snow courses being measured.

TABLE 1
PRECIPITATION AND SNOWPACK TO DATE

WATERSHED	PRECIPITATION* July 1, 1950 to March 1, 1951 (In percentage of normal to date)	SNOWPACK* on March 1st (In percentage of normal to date)
Sacramento - Pit	115%	95%
Feather	145%	85%
Yuba	170%	70%
American	170%	65%
Mokelumne	165%	55%
Stanislaus	160%	50%
Tuolumne	165%	60%
Merced	155%	55%
San Joaquin	145%	55%
Kings	140%	55%
Kaweah	140%	55%
Kern	110%	35%
Los Angeles	45%	-
San Gabriel	40%	-
Santa Ana	40%	-
San Diego County	50%	-

*Approximate figures only.

As the table above indicates, seasonal precipitation to date in most of the mountainous areas north of Tehachapi is well above normal. The area farther to the south however, has received less than half of seasonal expectancy.

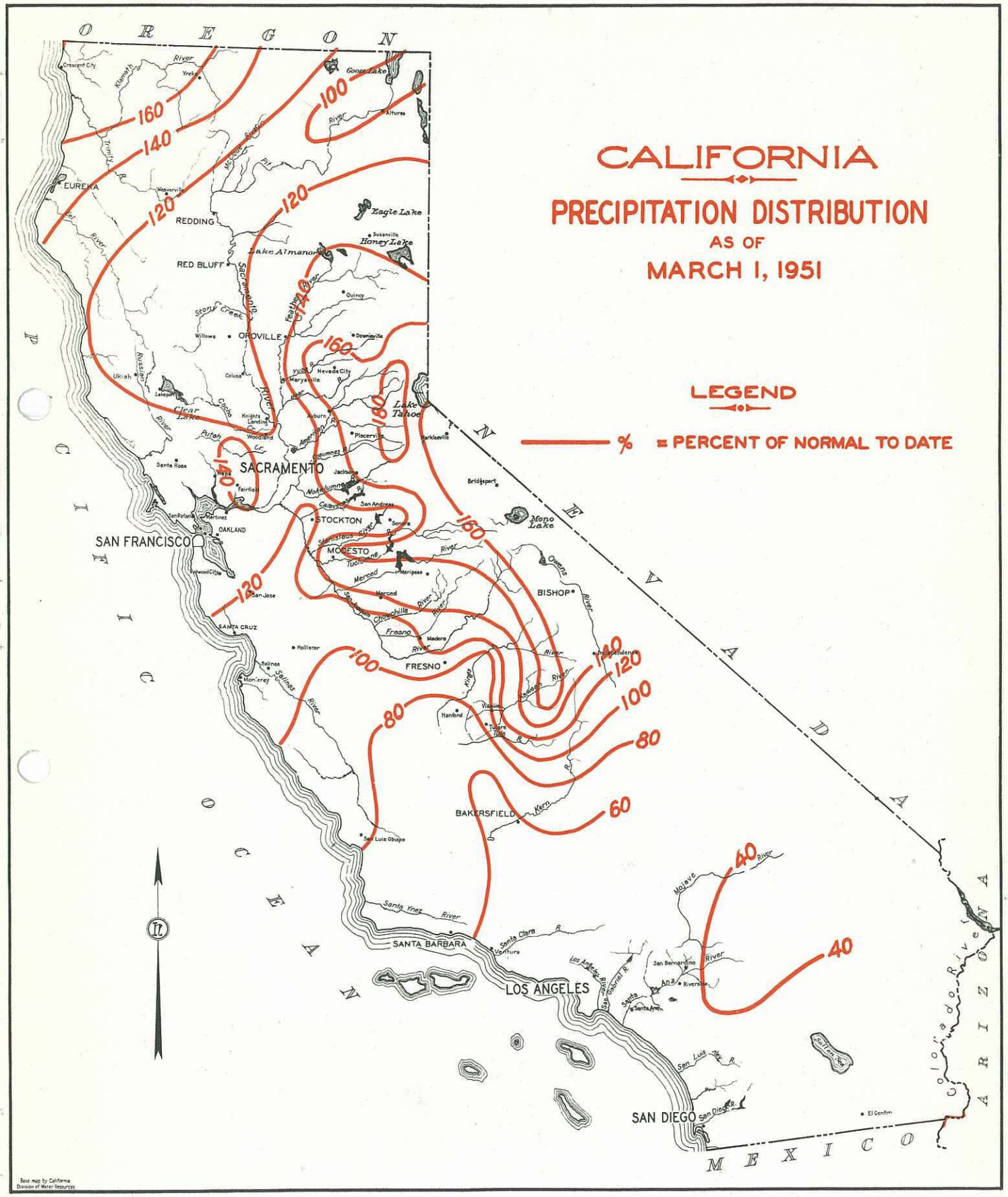
The precipitation situation as of the 1st of March is shown pictorially by the percentage isohyetals on the plate following.

Table 2 on page 4 shows the amount of water stored on March 1 in the main reservoirs of the Sierra. Shasta and Millerton now have 437,400 and 139,900 acre-feet, respectively, more water in storage than at the same time last year. Exclusive of Shasta and Millerton, the total stored in the remaining reservoirs listed is approximately 137% of the past ten year average for March 1st. This total amount in storage exceeds any March 1st record for the past 10 years.

Detailed figures for the reports received from the separate stations in all watersheds are shown on the sheets following. All snow

measurements are listed in Table 3, and all precipitation data in Table 4.

Next month the annual all-inclusive snow surveys will be made. The April 10 bulletin will contain measurements gathered at all snow courses in the State, together with forecasts of runoffs to be expected from the main Sierra watersheds during the April-July period.



Base map by California Division of Water Resources

TABLE 2

WATER STORED IN SIERRA NEVADA RESERVOIRS ON

MARCH 1, 1951

WATERSHED	RESERVOIR	CAPACITY Acre-Feet	WATER IN STORAGE (Acre-Feet) 1950	1951
Sacramento	Shasta	4,500,000	2,974,500	3,411,900
Feather	Mountain Meadows	24,000	11,300	15,230
	Lake Almanor	649,800	457,300	515,430
	Bucks Storage	103,000	64,300	87,800
	Butt Valley	50,000	40,900	32,780
Yuba	Bowman Lake	68,000	21,200	68,170
	Scotts Flat	26,800	22,200	20,910
	Spaulding System	150,000	71,900	106,430
Bear	Combie	7,200	1,900	7,000
American	Twin Lakes	21,300	5,300	20,050
	Silver Lake	8,900	0	2,560
Mokelumne	Salt Springs	139,000	19,200	95,020
	Pardee	210,000	163,700	187,030
Stanislaus	Relief	15,100	5,600	0
	Strawberry	17,900	3,400	16,130
	Melones	112,500	43,200	81,820
Tuolumne	Lake Eleanor	27,800	14,600	23,730
	Hetch Hetchy	360,000	70,500	315,260
	Don Pedro	289,000	166,200	189,200
	Owen	49,000	21,100	33,280
	Dallas Warner	27,000	16,200	15,880
Merced	Lake McClure	281,000	89,500	236,500
San Joaquin	Crane Valley	45,400	30,500	37,520
	Florence Lake	64,400	200	330
	Huntington Lake	88,800	33,500	70,000
	Shaver Lake	135,300	29,400	28,640
	Millerton Lake	520,500	203,200	343,100
TOTAL FOR 27 RESERVOIRS		7,991,700	4,580,800	5,961,700

PROGRESS REPORT OF SNOW SURVEY DATA
TO MARCH 10, 1951
TABLE 3 - SNOW SURVEY DATA FOR KEY COURSES

1 DRAINAGE BASINS and SNOW COURSES	ELEVATION in FEET	DATE of SURVEY	DEPTH of SNOW Inches	DENSITY per cent	WATER CONTENT Inches	2 Normal Water Content for entire season (to April 1st) Inches	Percentage of total normal seasonal water content on ground this date	Corresponding water content last year 1950 Inches
SCOTT RIVER								
Middle Boulder #1	6700	2-28-51	58.4	41.5%	24.2	37.4	65%	19.4
Middle Boulder #3	6400	2-28-51	51.8	38.8%	20.1	New Course 1948		16.3
SHASTA RIVER								
Parks Creek	6500	3- 3-51	93.6	32.9%	30.8	33.4	92%	25.6
Sweetwater	5500	3- 4-51	40.1	29.8%	12.0	24.4	49%	13.3
UPPER SACRAMENTO RIVER								
Mount Shasta	8000	3- 2-51	129.8	40.4%	52.5	56.1	93%	30.5
Sand Flats	7000	3- 2-51	102.2	36.6%	37.4	47.6	79%	29.3
Parks Creek	6500	3- 3-51	93.6	32.9%	30.8	33.4	92%	25.6
McCLOUD RIVER								
Mount Shasta	8000	3- 2-51	129.8	40.4%	52.5	56.1	93%	30.5
Stouts Meadow	5300	3- 3-51	71.5	41.4%	29.6	49.1	60%	31.0
PIT RIVER								
Mount Lassen	8400	2-28-51	198.3	42.4%	84.0	96.9	87%	62.3
Cedar Pass	7200	3- 1-51	43.0	25.7%	11.1	20.6	54%	9.7
Adin Mountain	6500	3- 2-51	31.6	29.1%	9.2	14.2	48%	6.0
Thousand Lakes	6500	3- 1-51	81.7	37.8%	30.9	47.3	65%	N.S.M.
Manzanita Lake	6000	2-27-51	32.9	29.2%	9.6	8.8	109%	7.1
Stouts Meadow	5300	3- 3-51	71.5	41.4%	29.6	49.1	60%	31.0
TRINITY RIVER								
Big Flat	5100	3- 6-51	40.6	36.6%	14.9	19.0	78%	14.0
STONY CREEK								
Anthony Peak	6200	2-26-51	44.6	45.1%	20.1	32.1	63%	31.4

1 Data for courses common to more than one basin are listed under each basin.
2 These are computed 61 year normals for the period 1890-1950, inclusive.
N.S.M. - No Survey Made.

TABLE 3 - SNOW SURVEY DATA FOR KEY COURSES - MARCH, 1951 - Continued

1 DRAINAGE BASINS and SNOW COURSES	ELEVATION in FEET	DATE of SURVEY	DEPTH of SNOW Inches	DENSITY per cent	WATER CONTENT Inches	2 Normal Water Content for entire season (to April 1st) Inches	Percentage of total normal seasonal water content on ground this date	Corresponding water content last year 1950 Inches
FEATHER RIVER								
Mount Lassen	8400	2-28-51	198.3	42.4%	84.0	96.9	87%	62.3
Yuba Pass	6700	3- 3-51	65.8	30.5%	20.0	41.0	49%	29.5
Eureka Bowl	6500					New Course 1948		46.4
Harkness Flat	6400	2-26-51	77.8	32.0%	24.9	31.0	80%	N.S.M.
Eureka Lake	6300					43.3		31.6
Letterbox	5600	2-28-51	82.9	36.5%	30.3	61.9	49%	45.8
Browns Camp	5400	3- 1-51	42.4	34.9%	14.8	25.4	58%	23.3
Gibsonville	5400	3- 3-51	59.9	33.5%	20.1	New Course 1950		34.3
Haskins Flat	5300	2-28-51	59.1	38.0%	22.5	35.3	64%	34.4
Feather River Md.	5000	2-27-51	55.8	30.6%	17.1	26.6	64%	N.S.M.
Chester Flats	4600	2-28-51	30.9	23.4%	7.2	8.0	90%	N.S.M.
YUBA RIVER								
Castle Creek #5	7370	2-28-51	104.0	36.5%	38.0	53.7	71%	43.0
Donner Summit	7020	2-28-51	68.1	34.7%	23.7	45.2	52%	39.9
Soda Springs	6750	2-28-51	59.4	34.1%	20.2	41.5	49%	38.3
Yuba Pass	6700	3- 3-51	65.8	30.5%	20.0	41.0	49%	29.5
Furnace Flat	6600					53.4		44.0
Lake Fordyce	6500					44.8		39.2
Gibsonville	5400	3- 3-51	59.9	33.5%	20.1	New Course 1950		34.3
TRUCKEE RIVER								
Independence Lake	8400	3 -3-51	97.8	35.3%	34.5	49.0	70%	N.S.M.
Donner Summit	7020	2-28-51	68.1	34.7%	23.7	45.2	52%	39.9
Independence Camp	7000	3- 2-51	46.8	29.7%	13.9	23.1	60%	25.4
Independence Creek	6300	3- 2-51	23.4	23.9%	5.6	15.4	36%	17.1
Sage Hen Creek	6500	3- 4-51	31.4	29.6%	9.3	20.8	45%	21.0
Tahoe City	6250	3- 1-51	19.7	30.0%	5.9	17.0	35%	15.1
Truckee Ranger Station	6000	3- 3-51	24.9	28.1%	7.0	9.4	74%	13.6
Boca	5900	3- 3-51	13.6	24.3%	3.3	5.1	65%	N.S.M.
LAKE TAHOE								
Lake Lucille	8400	3- 4-51	141.6	36.7%	52.0	65.5	79%	N.S.M.
Marlette Lake	8000	2- 1-51	44.9	26.9%	12.1	29.7	41%	19.0
Echo Summit	7500	2-28-51	76.2	32.7%	24.9	46.8	53%	36.8

1, 2 See footnotes first page of this table.

TABLE 3 - SNOW SURVEY DATA FOR KEY COURSES - MARCH, 1951 - Continued

1 DRAINAGE BASINS and SNOW COURSES	ELEVATION in FEET	DATE of SURVEY	DEPTH of SNOW Inches	DENSITY per cent	WATER CONTENT Inches	2 Normal Water Content for entire season (to April 1st) Inches	Percentage of total normal seasonal water content on ground this date	Corresponding water content last year 1950 Inches
LAKE TAHOE Cont'd.								
Dagetts Pass (In Nevada)	7350	3- 3-51	25.8	29.5%	7.6	14.4	53%	15.5
Ward Creek	7000	3- 2-51	87.0	32.9%	28.6	53.0	54%	44.8
Upper Truckee	6400	3-3 -51	17.1	35.1%	6.0	11.0	54%	13.4
Tahoe City	6250	3- 1-51	19.7	30.0%	5.9	17.0	35%	15.1
AMERICAN RIVER								
Carson Pass	8600	2-28-51	66.0	33.9%	22.4	44.0	51%	37.4
Twin Lakes	7900	2-27-51	49.2	30.6%	15.1	34.7	44%	30.0
Echo Summit	7500	2-28-51	76.2	32.7%	24.9	46.8	53%	36.8
Silver Lake	7300	3- 3-51	40.6	28.5%	11.6	26.4	44%	31.0
Donner Summit	7020	2-28-51	68.1	34.7%	23.7	45.2	52%	39.9
Phillips	6800	2-26-51	54.2	30.5%	16.6	33.2	50%	30.1
Soda Springs	6750	2-28-51	59.4	34.1%	20.2	41.5	49%	38.3
Huysink	6600					54.0		46.0
Tamarack Flats	6600	2-26-51	52.9	29.8%	15.8	34.0	46%	31.4
Onion Creek	6100	2-27-51	44.8	31.1%	13.9	26.7	52%	N.S.M.
Strawberry	5700	2-26-51	27.4	28.8%	7.9	10.1	78%	15.0
CARSON RIVER								
Carson Pass	8600	2-28-51	66.0	33.9%	22.4	44.0	51%	37.4
MOKELUMNE RIVER								
Carson Pass	8600	2-28-51	66.0	33.9%	22.4	44.0	51%	37.4
Twin Lakes	7900	2-27-51	49.2	30.6%	15.1	34.7	44%	30.0
Lake Alpine	7500	2-28-51	64.2	32.1%	20.6	45.5	45%	42.7
Silver Lake	7300	3- 3-51	40.6	28.5%	11.6	26.4	44%	31.0
Bear Valley Ridge	6700	2-28-51	43.4	26.9%	11.7	31.0	38%	24.4
Lumberyard	6600	2-28-51	59.6	28.6%	17.1	37.1	46%	31.4
Big Meadow	6500	2-27-51	49.5	25.0%	12.4	32.7	38%	N.S.M.
Dorrington	4800	3- 3-51	13.9	19.8%	2.8	6.3	44%	N.S.M.
STANISLAUS RIVER								
Lake Alpine	7500	2-28-51	64.2	32.1%	20.6	45.5	45%	42.7
Herring Creek	7400	2-25-51	37.0	31.8%	11.8	34.4	34%	27.5

1, 2 See footnotes first page of this table.

TABLE 3 - SNOW SURVEY DATA FOR KEY COURSES - MARCH, 1951 - Continued

1 DRAINAGE BASINS and SNOW COURSES	ELEVATION in FEET	DATE of SURVEY	DEPTH of SNOW Inches	DENSITY per cent	WATER CONTENT Inches	2 Normal Water Content for entire season (to April 1st) Inches	Percentage of total normal seasonal water content on ground this date	Corresponding water content last year 1950 Inches
STANISLAUS RIVER Cont'd.								
Big Meadow	6500	2-27-51	49.5	25.0%	12.4	32.7	38%	N.S.M.
Dorrington	4800	3- 3-51	13.9	19.8%	2.8	6.3	44%	N.S.M.
TUOLUMNE RIVER								
Bond Pass	9300	3- 4-51	117.9	38.1%	44.6	49.7	90%	38.6
Grace Meadow	8800	3- 3-51	67.9	34.8%	23.6	46.3	51%	31.9
Snow Flat	8700	2-28-51	82.6	31.7%	26.2	48.5	54%	35.5
Horse Meadow	8400	3- 4-51	94.4	34.4%	32.4	58.3	56%	38.5
Wilmer Lake	8000	3- 2-51	101.9	32.8%	33.5	51.5	65%	37.0
Spotted Fawn	8000	3- 6-51	99.5	30.6%	30.5	61.6	49%	39.3
Saches Springs	7900	3- 7-51	75.4	29.8%	22.5	52.1	43%	33.2
Huckleberry Lake	7800	3- 6-51	89.0	30.8%	27.4	53.5	51%	34.9
Paradise	7700	2-28-51	60.2	30.2%	18.2	49.2	37%	38.4
Gin Flat	7100	2-26-51	44.1	30.9%	13.6	39.1	35%	31.2
Vernon Lake	6700	2-28-51	43.5	30.8%	13.4	31.0	43%	25.7
Kibbey Ridge (Upper)	6700	3- 7-51	54.5	28.8%	15.7	24.4	64%	18.8
Beehive Meadow	6500	2-27-51	48.5	27.2%	13.2	29.5	45%	24.7
Kibbey Ridge (Lower)	6200	3- 7-51	63.5	31.2%	19.8	32.0	62%	25.6
MERCED RIVER								
Snow Flat	8700	2-28-51	82.6	31.7%	26.2	48.5	54%	35.5
Ostrander Lake	8200	2-26-51	58.1	28.1%	16.3	42.8	38%	30.7
Gin Flat	7100	2-26-51	44.1	30.9%	13.6	39.1	35%	31.2
Peregoy Meadow	7000	3- 2-51	54.1	25.3%	13.7	39.3	35%	26.8
UPPER SAN JOAQUIN RIVER								
Kaiser Pass	9200	2-28-51	74.4	30.6%	22.8	42.7	53%	31.8
Dutch Lake	9100	3- 3-51	54.0	31.9%	17.2	31.3	55%	23.8
Nellie Lake	8250	2-26-51	49.7	30.4%	15.1	39.2	38%	32.6
Vermilion Valley	7500	3- 1-51	30.4	30.9%	9.2	14.2	65%	11.8
Chilkoot Lake	7450	3- 2-51	55.4	28.3%	15.7	44.6	35%	30.8
Chilkoot Meadow	7250	3- 2-51	52.7	28.2%	14.8	43.0	34%	30.7
Florence Lake	7200	3- 2-51	10.6	19.8%	2.1	8.7	24%	8.2
Huntington Lake	7000	2-26-51	30.9	26.2%	8.1	23.6	34%	20.8
Poison Meadow	6650	3- 2-51	41.7	27.4%	11.4	27.0	42%	24.2

1, 2 See footnotes first page of this table.

TABLE 3 - SNOW SURVEY DATA FOR KEY COURSES - MARCH, 1951 - Continued

1 DRAINAGE BASINS and SNOW COURSES	ELEVATION in FEET	DATE of SURVEY	DEPTH of SNOW Inches	DENSITY per cent	WATER CONTENT Inches	2 Normal Water Content for entire season (to April 1st)	Percentage of total normal seasonal water content on ground this date	Corresponding water content last year 1950 Inches
KINGS RIVER								
Sand Meadow	8050	Report not	received.	-	-	32.2	-	24.1
Big Meadows	7660	2-26-51	25.1	31.0%	8.8	31.0	28%	24.3
Grant Grove	6660	3- 2-51	37.2	24.7%	9.2	15.5	59%	11.0
Cliff Camp	6300	Report not	received.	-	-	15.3	-	14.7
KAWEAH RIVER								
Panther Meadow	8650	3- 1-51	66.5	23.0%	15.3	40.0	38%	23.2
Mineral King	8000	3- 4-51	30.5	24.3%	7.4	New Course 1948		22.2
Giant Forest	6500	3- 2-51	55.1	24.6%	13.5	18.6	73%	13.9
TULE RIVER								
Quaking Aspen	7000	2-27-51	29.7	21.4%	6.3	16.3	39%	11.5
Old Enterprize Mill	6600	3- 5-51	42.9	30.0%	12.9	19.7	65%	14.9
DEER CREEK								
Dead Horse Meadow	7200	3- 1-51	37.8	24.8%	9.4	15.2	62%	11.7
KERN RIVER								
Round Meadow	9000	3- 7-51	31.4	25.5%	8.0	27.6	29%	25.8
COTTONWOOD CREEK								
Little Laguna Meadow	5200	3- 5-51	15.5	29.5%	4.6	-	-	No Snow

1, 2 See footnotes first page of this table.

PROGRESS REPORT ON PRECIPITATION DATA
TO MARCH 1, 1951
TABLE 4 - PRECIPITATION DATA

1 BASIN AND PRECIPITATION STATION	ELEVATION in FEET	PRECIPITATION DURING FEBRUARY 1951			PRECIPITATION FROM JULY 1, 1950 to MARCH 1, 1951			2 Normal Seasonal Precipitation (July to June) Inches
		Total (Inches)	2 Normal (Inches)	In per cent of Normal	Total (Inches)	2 Normal (Inches)	In per cent of Normal	
UPPER SACRAMENTO - PIT AND McCLOUD RIVERS								
Jess Valley	5400	1.59	1.76	90%	11.74	10.04	117%	15.72
Alturas	4460	1.23	1.26	98%	7.62	7.90	96%	12.08
Mount Shasta	3555	4.31	5.59	77%	30.94	24.70	125%	34.67
Hat Creek	3400	2.44	2.88	85%	14.81	12.62	117%	17.91
Fall River Mills	3340	2.02	2.85	71%	13.40	13.12	102%	18.85
McCloud	3270	5.38	8.24	65%	49.01	36.08	136%	49.28
FEATHER RIVER								
Bucks Storage Dam	5100	8.11	11.47	71%	74.43	50.05	149%	69.95
Sierraville	5000	2.61	4.29	61%	30.23	18.60	162%	25.35
Mineral	4935	7.15	7.45	96%	49.47	36.99	134%	51.62
Portola	4832	2.18	2.90	75%	22.64	12.78	177%	18.05
Prattville	4600	5.69	5.88	97%	38.51	26.71	144%	36.98
Canyon Dam	4570	5.97	6.63	90%	38.96	27.10	144%	37.94
Chester	4550	5.21	4.81	108%	29.50	22.54	131%	31.55
Doyle	4300	0.48	1.42	34%	10.69	7.71	139%	10.56
Veramont	3500	3.48	5.48	64%	38.50	24.80	155%	33.77
Quincy	3409	4.62	6.40	72%	43.69	28.54	153%	40.04
West Branch	3216	11.94	12.35	97%	63.29	52.68	120%	71.78
Caribou	3000	6.04	6.54	92%	40.42	29.24	138%	40.86
Storrie	1760	9.17	12.86	71%	66.99	46.48	144%	65.55
Las Plumas	506	7.17	9.43	68%	52.74	36.76	143%	49.36

1 Certain of the stations are not actually in the basin shown, but are closely adjacent. Stations common to more than one basin are listed under each basin.
2 These are computed 61 year normals for the period 1890-1950, inclusive. Where the periods of record are less than 61 years, the normals have been computed by comparison with the records of stations for which the actual 61 year data are complete. Thus all normals are based upon the same period of years and are comparable.
3 R.N.C. Record not complete.

TABLE 4 – PRECIPITATION DATA – MARCH 1, 1951 (Continued)

1 BASIN AND PRECIPITATION STATION	ELEVATION in FEET	PRECIPITATION DURING FEBRUARY 1951			PRECIPITATION FROM JULY 1, 1950 to MARCH 1, 1951			2 Normal Seasonal Precipitation (July to June) Inches
		Total (Inches)	2 Normal (Inches)	In per cent of Normal	Total (Inches)	2 Normal (Inches)	In per cent of Normal	
YUBA RIVER								
Soda Springs	6870	7.78	8.20	95%	65.94	33.35	198%	47.39
Bowman Dam	5346	7.26	11.89	61%	72.16	47.73	151%	69.40
Lake Spaulding	4600	6.27	11.30	56%	72.87	45.99	158%	67.03
Deer Creek	3700	10.26	12.12	85%	82.73	48.66	170%	68.38
Nevada City	2570	6.24	9.11	68%	60.12	35.67	169%	50.33
Dobbins (Near)	1650	5.92	7.18	82%	54.17	29.73	182%	41.53
TRUCKEE & TAHOE BASINS								
Twin Lakes	7970	4.22	7.57	56%	45.80	31.31	146%	45.58
Soda Springs	6870	7.78	8.20	95%	65.94	33.35	198%	47.39
Tahoe	6230	3.27	5.70	57%	39.75	23.45	170%	32.18
Truckee	6200	3.59	4.96	72%	35.76	19.13	175%	26.55
AMERICAN RIVER								
Twin Lakes	7970	4.22	7.57	56%	45.80	31.31	146%	45.58
Soda Springs	6870	7.78	8.20	95%	65.94	33.35	198%	47.39
Blue Canyon A. S.	5272	8.19	–	–	79.26	–	–	–
Colfax	2420	4.84	8.68	56%	55.50	33.40	166%	47.46
Placerville	1924	4.65	7.26	64%	45.84	28.24	162%	40.41
CARSON RIVER								
Twin Lakes	7970	4.22	7.57	56%	45.80	31.31	146%	45.58
MOKELUMNE RIVER								
Twin Lakes	7970	4.22	7.57	56%	45.80	31.31	146%	45.58
Salt Springs Reservoir	3660	4.09	7.52	54%	48.23	30.25	159%	44.32
Tiger Creek	2400	5.51	8.15	68%	57.42	31.61	182%	45.64
West Point	2326	4.61	7.00	66%	44.26	27.23	163%	39.74
Electra	699	4.36	5.66	77%	37.71	21.68	174%	31.28
STANISLAUS RIVER								
Strawberry Lake	5620	3.65	6.91	53%	43.68	26.65	164%	39.15
Calaveras Big Trees	4700	4.71	8.96	53%	55.57	35.90	155%	53.09

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

TABLE 4 - PRECIPITATION DATA - MARCH 1, 1951 (Continued)

1 BASIN AND PRECIPITATION STATION	ELEVATION in FEET	PRECIPITATION DURING FEBRUARY 1951			PRECIPITATION FROM JULY 1, 1950 to MARCH 1, 1951			2 Normal Seasonal Precipitation (July to June) Inches
		Total (Inches)	2 Normal (Inches)	In per cent of Normal	Total (Inches)	2 Normal (Inches)	In per cent of Normal	
WALKER RIVER								
Bridgeport	6473	0.08	1.65	5%	9.97	8.07	124%	10.63
TUOLUMNE RIVER								
Strawberry Lake	5620	3.65	6.91	53%	43.68	26.65	164%	39.15
Lake Eleanor	4650	3.93	7.93	50%	49.37	30.51	162%	44.20
Hetch Hetchy	3530	3.96	5.72	69%	40.41	23.51	171%	35.37
Groveland	2828	3.39	6.84	50%	31.87	26.43	121%	37.73
Sonora	1825	3.27	6.10	54%	30.58	22.75	134%	32.90
MERCED RIVER								
Yosemite	3960	3.58	6.31	57%	38.89	25.37	153%	36.23
Dudleys	3000	3.64	-	-	43.35	-	-	-
Mariposa	1932	2.62	5.82	45%	32.90	21.49	153%	30.30
MONO BASIN								
Ellery Lake	9600	0.58	5.39	11%	20.07	21.06	95%	31.07
Gem Lake	9120	0	4.99	0%	16.17	18.87	86%	26.55
UPPER SAN JOAQUIN								
Huntington Lake	7000	3.39	5.60	61%	34.10	21.94	155%	32.13
Big Creek	4900	3.23	5.55	58%	25.73	21.93	117%	32.65
North Fork	3000	2.83	6.62	44%	34.68	24.28	143%	34.60
Auberry	2050	2.26	4.91	46%	24.39	18.16	134%	26.34
OWENS BASIN								
South Lake	9620	0.32	2.76	12%	22.99	12.93	178%	17.55
Lake Sabrina	9100	0.53	2.97	18%	13.58	13.28	102%	17.67
Intake #2 Bishop Creek	8000	0.15	1.88	8%	10.65	8.66	123%	12.42
Crooked Creek	6700	0.05	1.78	3%	8.82	7.23	122%	9.81
Big Pines Power House #3	5400	0	1.47	0%	6.13	6.42	95%	8.08
Independence	3957	T	0.84	0%	7.25	3.70	196%	4.59
L. A. Aqueduct at Intake	3880	0	0.83	0%	5.01	3.53	142%	4.37

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

TABLE 4 - PRECIPITATION DATA - MARCH 1, 1951 (Continued)

1 BASIN AND PRECIPITATION STATION	ELEVATION in FEET	PRECIPITATION DURING FEBRUARY 1951			PRECIPITATION FROM JULY 1, 1950 to MARCH 1, 1951			2 Normal Seasonal Precipitation (July to June) Inches
		Total (Inches)	2 Normal (Inches)	In per cent of Normal	Total (Inches)	2 Normal (Inches)	In per cent of Normal	
OWENS BASIN Cont'd.								
Cottonwood Gates	3600	T	1.15	0%	4.72	4.15	114%	5.19
KINGS RIVER								
Grant Grove	6775	3.73	9.76	38%	36.61	28.05	130%	42.03
Balch Camp	1300	2.17	5.63	39%	28.26	19.47	145%	28.78
Piedra	500	1.73	3.44	50%	13.53	12.74	106%	18.21
KAWEAH RIVER								
Grant Grove	6775	3.73	9.76	38%	36.61	28.05	130%	42.03
Giant Forest	6360	5.17	8.84	58%	45.41	29.21	155%	43.92
Ash Mountain	1600	2.34	4.97	47%	23.78	16.72	142%	26.20
Three Rivers	870	1.78	4.26	42%	18.37	13.73	134%	20.52
KERN RIVER								
Springville (Near)	4050	3.64	6.89	53%	39.46	24.10	164%	36.24
Kern River #3 Intake	3640	0.62	3.65	17%	9.02	12.72	71%	17.18
Glennville	3300	2.56	3.67	70%	-	13.45	-	20.74
Kernville	2600	0.23	2.19	11%	6.68	7.70	87%	10.25
LOS ANGELES RIVER								
Opids Camp	4480	2.53	9.21	27%	11.52	28.92	40%	40.41
Loomis Ranch	4050	0.98	4.20	23%	5.84	14.78	40%	20.62
Haines Canyon, Upper	3450	1.60	6.81	23%	8.07	19.62	41%	29.51
Haines Canyon, Lower	2250	1.77	6.43	28%	8.26	18.52	45%	25.87
Arroyo Seco Ranger Sta.	1530	1.41	6.01	23%	8.40	18.99	44%	26.17
SAN GABRIEL RIVER								
Table Mountain Observ.	7500	0.51	2.86	18%	3.34	10.71	31%	14.29
Big Pines Camp	6860	1.13	5.28	21%	6.05	19.20	32%	26.80
Crystal Lake - East	5740	2.01	8.87	23%	9.59	29.23	33%	40.08
Opids Camp	4480	2.53	9.21	27%	11.52	28.92	40%	40.41
Camp Baldy	4300	1.54	7.42	21%	7.29	23.55	31%	33.81

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

TABLE 4 - PRECIPITATION DATA - MARCH 1, 1951 (Continued)

1 BASIN AND PRECIPITATION STATION	ELEVATION in FEET	PRECIPITATION DURING FEBRUARY 1951			PRECIPITATION FROM JULY 1, 1950 to MARCH 1, 1951			2 Normal Seasonal Precipitation (July to June) Inches
		Total (Inches)	2 Normal (Inches)	In per cent of Normal	Total (Inches)	2 Normal (Inches)	In per cent of Normal	
SAN GABRIEL RIVER Cont'd.								
Henninger Flats	2650	1.30	6.32	21%	8.92	20.34	44%	28.97
Mouth San Antonio Canyon	2500	1.35	6.02	22%	6.89	19.27	36%	27.11
San Dimas Guard Station	2400	1.32	5.23	25%	7.01	18.26	38%	24.85
Sawpit Canyon	2000	1.60	7.09	23%	10.52	21.98	48%	31.21
Santa Anita Fern Lodge	1950	2.01	7.31	27%	10.79	25.09	43%	34.05
San Gabriel Dam #1 Camp	1600	1.25	6.81	18%	6.56	22.25	29%	30.57
Big Santa Anita Dam	1400	1.52	5.70	28%	10.06	18.53	54%	25.81
San Dimas Dam	1350	1.45	5.02	29%	7.82	17.38	45%	23.77
SANTA ANA RIVER								
Table Mountain Obs.	7500	0.51	2.86	18%	3.34	10.71	31%	14.29
Big Pines Camp	6850	1.13	5.28	21%	6.05	19.20	32%	26.80
Big Bear Lake Dam	6800	3.29	7.43	44%	12.72	26.10	49%	36.55
Squirrel Inn	5700	2.98	9.52	31%	12.42	29.16	43%	42.42
Camp Baldy	4300	1.54	7.42	21%	7.29	23.55	31%	33.81
Beaumont	3045	1.48	4.52	33%	8.45	15.19	56%	22.48
Mill Creek #2	2950	1.08	4.31	25%	6.57	15.22	43%	22.89
Santa Ana River	2850	1.20	5.19	23%	6.94	18.25	38%	26.90
Beaumont W. B.	2589	0.63	3.73	17%	4.84	12.90	38%	18.97
Mouth San Antonio Canyon	2500	1.35	6.02	22%	6.89	19.27	36%	27.11
Lytle Creek	2250	1.69	7.27	23%	12.78	24.79	52%	34.75
SAN DIEGO COUNTY								
PACIFIC SLOPE BASINS								
Mt. Palomar Obs.	5600	3.25	-	-	11.41	-	-	-
Cuyamaca	4680	4.71	8.02	59%	17.87	26.97	66%	39.03
Warner Springs	3170	1.16	3.29	35%	6.08	13.02	47%	17.58
Campo	3000	1.39	3.91	36%	6.46	13.74	47%	18.76
Barrett Dam	1750	1.66	4.06	41%	6.72	13.15	51%	18.76
Escondido	750	0.97	3.40	29%	6.20	11.66	53%	16.31
El Capitan Dam	610	1.67	3.56	47%	6.50	11.80	55%	17.97
El Cajon	560	1.17	2.90	40%	4.88	10.05	49%	14.02

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

APPENDIX

The sheet following contains the results of several early snow surveys made during the period February 9, 1951 to February 25, 1951.

APPENDIX

RESULTS OF SNOW SURVEYS MADE DURING THE PERIOD

Feb. 9, 1951 to Feb. 25, 1951

DRAINAGE BASINS and SNOW COURSES	ELEVATION in FEET	DATE of SURVEY	DEPTH of SNOW Inches	DENSITY per cent	WATER CONTENT Inches	2 Normal Water Content for entire season (to April 1st) Inches	Percentage of total normal seasonal water content on ground at date of survey this year
UPPER SACRAMENTO RIVER							
Mount Shasta	8000	2-17-51	127.3	39.7%	50.5	56.1	90%
Sand Flats	7000	2-17-51	96.3	36.6%	35.2	47.6	74%
YUBA RIVER							
Castle Creek #5	7370	2-14-51	87.7	40.9%	35.9	53.7	67%

2 See footnotes first page Table 3.

CALIFORNIA COOPERATIVE SNOW SURVEYS

Agencies Cooperating in the Collection of Data Contained in this Bulletin

Governmental Agencies

State

- California State Department of Public Works
  - Division of Water Resources
- Nevada Cooperative Snow Surveys
- Oregon Cooperative Snow Surveys

Federal

- 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 Branch
  - National Park Service (3 National Parks)
- War Department
  - Corps of Engineers

Public Utilities

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

Municipalities

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

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
- Turlock Irrigation District
- Modesto Irrigation District
- Merced Irrigation District
- Terra Bella Irrigation District
- Vandalia Irrigation District

Private Organizations

- Kern County Land Company
- The San Joaquin Canal Company