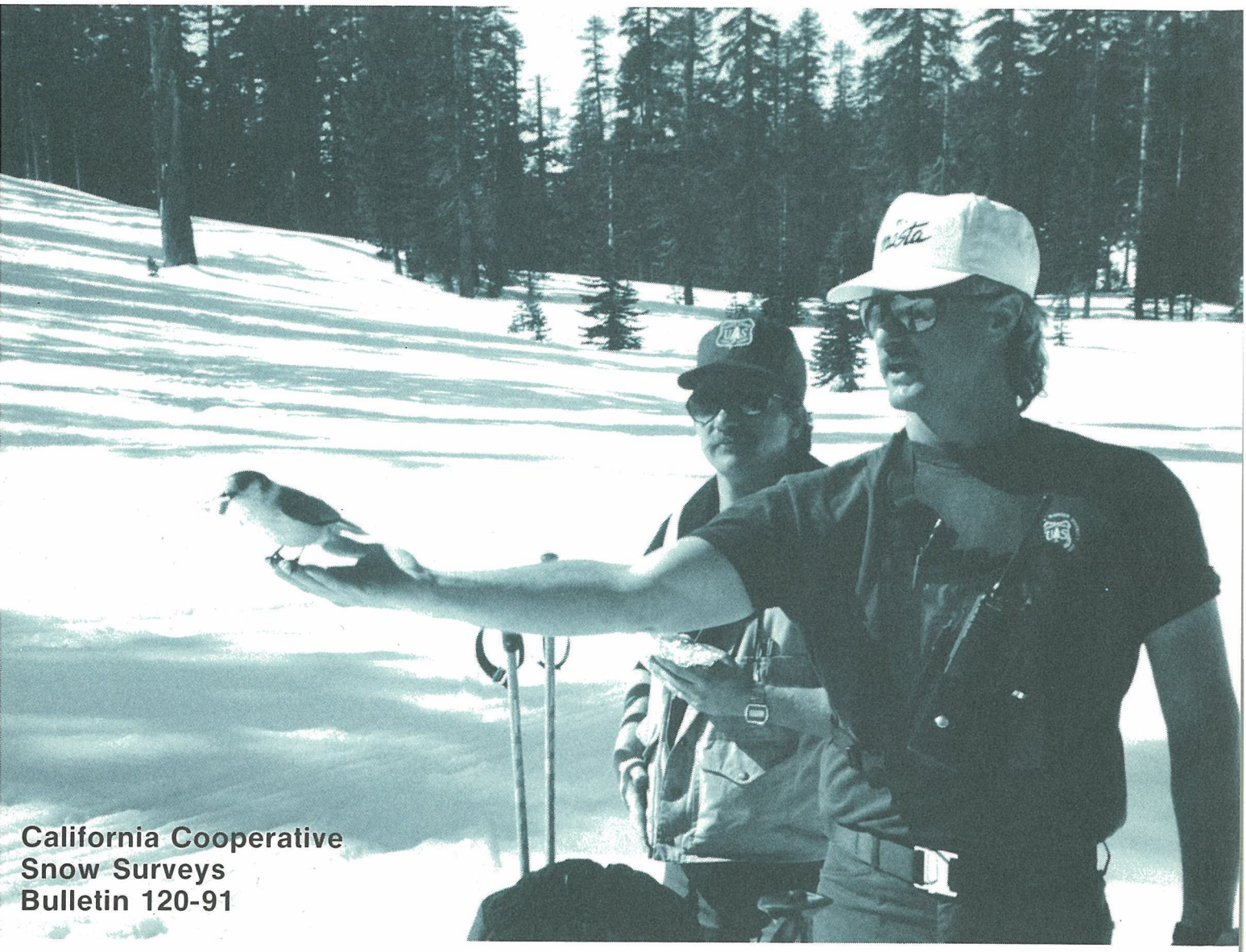


California Cooperative
Snow Surveys
Bulletin 120-91

Water Conditions in California

Report 4 May 1, 1991

DEPARTMENT OF WATER RESOURCES
STATE OF CALIFORNIA

STATE OF CALIFORNIA

Department of Water Resources

Division of Flood Management

George T. Qualley ..... Chief
Maurice Roos ..... Chief, Hydrology Branch

Prepared by

Jack G. Pardee ..... Senior Engineer, W.R.
Gary Hester ..... Senior Engineer, W.R.
Frank Gehrke ..... Associate Engineer, W.R.
Robert R. Newton ..... Associate Engineer, W.R.
David M. Hart ..... Water Resources Engineering Associate
Matthew S. Colwell ..... Assistant Engineer, W.R.
Armando L. Raimundo ..... Water Resoursces Engineering Associate
Robert Carbajal ..... Water Resources Technician II
Geno Young ..... Water Resources Technician II
Patrick M. Armstrong ..... Lead Snow Gauger
David D. Sharp ..... Lead Snow Gauger
Murton A. Stewart ..... Lead Snow Gauger
Susan A. Burak ..... Lead Snow Gauger
Mead Hargis ..... Snow Gauger
Nick Hartzell ..... Snow Gauger
K. Jay Jensen ..... Snow Gauger
James D. King ..... Snow Gauger
Susan S. King ..... Snow Gauger

COOPERATING AGENCIES

Public Agencies

Buena Vista Water Storage District
Central California Irrigation District
East Bay Municipal Utility District
Friant Water Users Association
Kaweah Delta Water Conservation District
Kern Delta Water District
Kings River Conservation District
Lower Tule River Irrigation District
Merced Irrigation District
Modesto Irrigation District
Nevada Irrigation District
North Kern Water Storage District
Northern California Power Agency
Oakdale Irrigation District
Omochumne-Hartnell Water District
Oroville-Wyandotte Irrigation District
Placer County Water Agency
Sacramento Municipal Utility District
South San Joaquin Irrigation District
Tri-Dam Project
Tulare Lake Basin Water Storage District
Turlock Irrigation District
Yuba County Water Agency

Private Organizations

J.G. Boswell Company
Kaweah River Association
Kings River Water Association
St. Johns River Association
Tule River Association
U.S. Tungsten Corporation
State Water Contractors

Public Utilities

Pacific Gas and Electric Company
Southern California Edison Company
Sierra Pacific Power Company

Municipalities

City of Bakersfield
Water Department
City of Los Angeles
Department of Water and Power
City and County of San Francisco
Hetch Hetchy Water and Power

State Agencies

California Department of Forestry
& Fire Protection
California Department of Water Resources

Federal Agencies

U.S. Department of Agriculture
Forest Service(14 National Forests)
Pacific Southwest Forest and Range
Experiment Station
Soil Conservation Service
U.S. Department of Commerce
National Weather Service
U.S. Department of Interior
Bureau of Reclamation
Geological Survey, Water Resources
Division
National Park Service(3 National Parks)
U.S. Department of Army
Corps of Engineers

Other Cooperative Programs

Nevada Cooperative Snow Surveys
Oregon Cooperative Snow Surveys

SUMMARY OF WATER CONDITIONS

May 1, 1991

In sharp contrast to March, April was far below normal in precipitation, causing seasonal figures to revert to their pre-March downward trend. April's dry weather emphasized that California is still in a prolonged drought. Both the Central Valley and State Water Project have reaffirmed previously announced delivery deficiencies. The Sacramento River Index is forecasted to be 8.7 million acre-feet, well into the "Critical" category.

FORECASTS of snowmelt runoff in all streams fell during the month by an average of 5 percent. Statewide April through July runoff is now expected to be about 60 percent of average and ranges from 50 to 70 percent. Statewide water year runoff is forecast to be about 45 percent of average.

SNOWPACK conditions generally declined slightly during April. Some regions showed a small increase in percent of May 1 normals due to slow melting. Snow melt of the lower elevation courses was increasingly evident as the month progressed.

PRECIPITATION statewide during April was slightly less than half of average. This was a return to the dry pre-March pattern. The North Lahontan area was the only region to receive above normal precipitation during the month. Seasonal (October through April) precipitation statewide now stands at about three quarters of average. The South and Central Coast and Colorado Desert regions have had near normal seasonal precipitation while the North Coast area has had only about 60 percent of average.

RUNOFF during April was slightly over half normal and enough to increase previously very dry seasonal levels by about 5 percent. Statewide, seasonal runoff now stands at a little more than one third of average.

RESERVOIR STORAGE , in percent of normal for the date, increased or remained constant in all areas except the North Lahontan which decreased slightly. Increases of 5 to 10 percent occurred in the Central Valley. For the State as whole, storage in 155 major reservoirs increased by about two million acre-feet during April. These same reservoirs are holding about 65 percent of average.

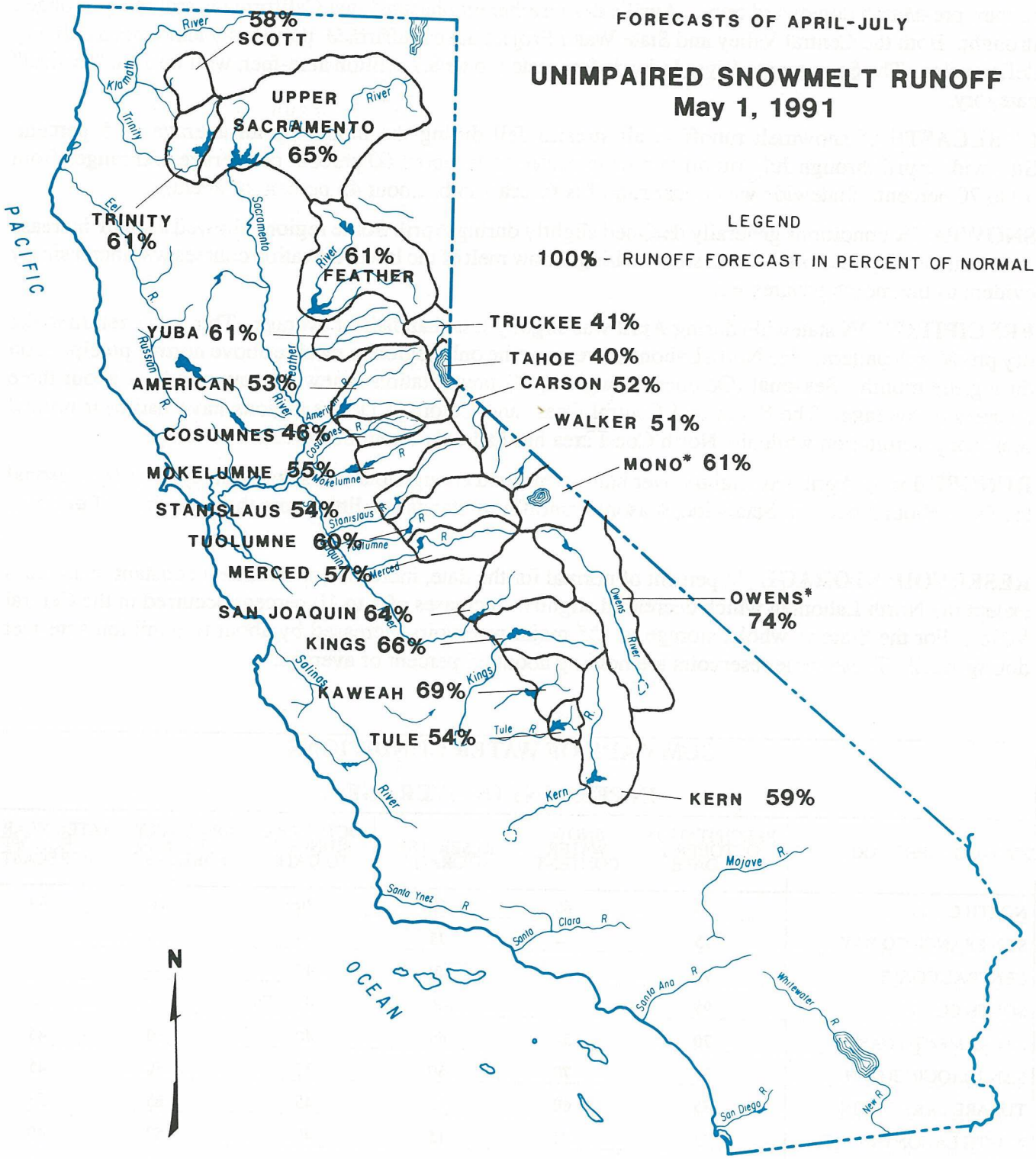
SUMMARY OF WATER CONDITIONS

IN PERCENT OF AVERAGE

HYDROGRAPHIC AREA	PRECIPITATION OCTOBER 1 TO DATE	SNOW WATER CONTENT	RESERVOIR STORAGE	OCTOBER 1 RUNOFF TO DATE	APRIL-JULY RUNOFF FORECAST	WATER YEAR RUNOFF FORECAST
NORTH COAST	60	65	60	30	60	40
SAN FRANCISCO BAY	75	--	75	45	--	--
CENTRAL COAST	95	--	40	45	--	--
SOUTH COAST	95	--	100	60	--	--
SACRAMENTO BASIN	70	50	65	40	60	45
SAN JOAQUIN BASIN	75	70	60	35	60	45
TULARE LAKE BASIN	85	60	55	45	65	55
NORTH LAHONTAN	75	75	15	40	50	40
SOUTH LAHONTAN	85	105	85	50	70	65
COLORADO DESERT	95	--	--	--	--	--
STATEWIDE	75	65	65	35	60	45

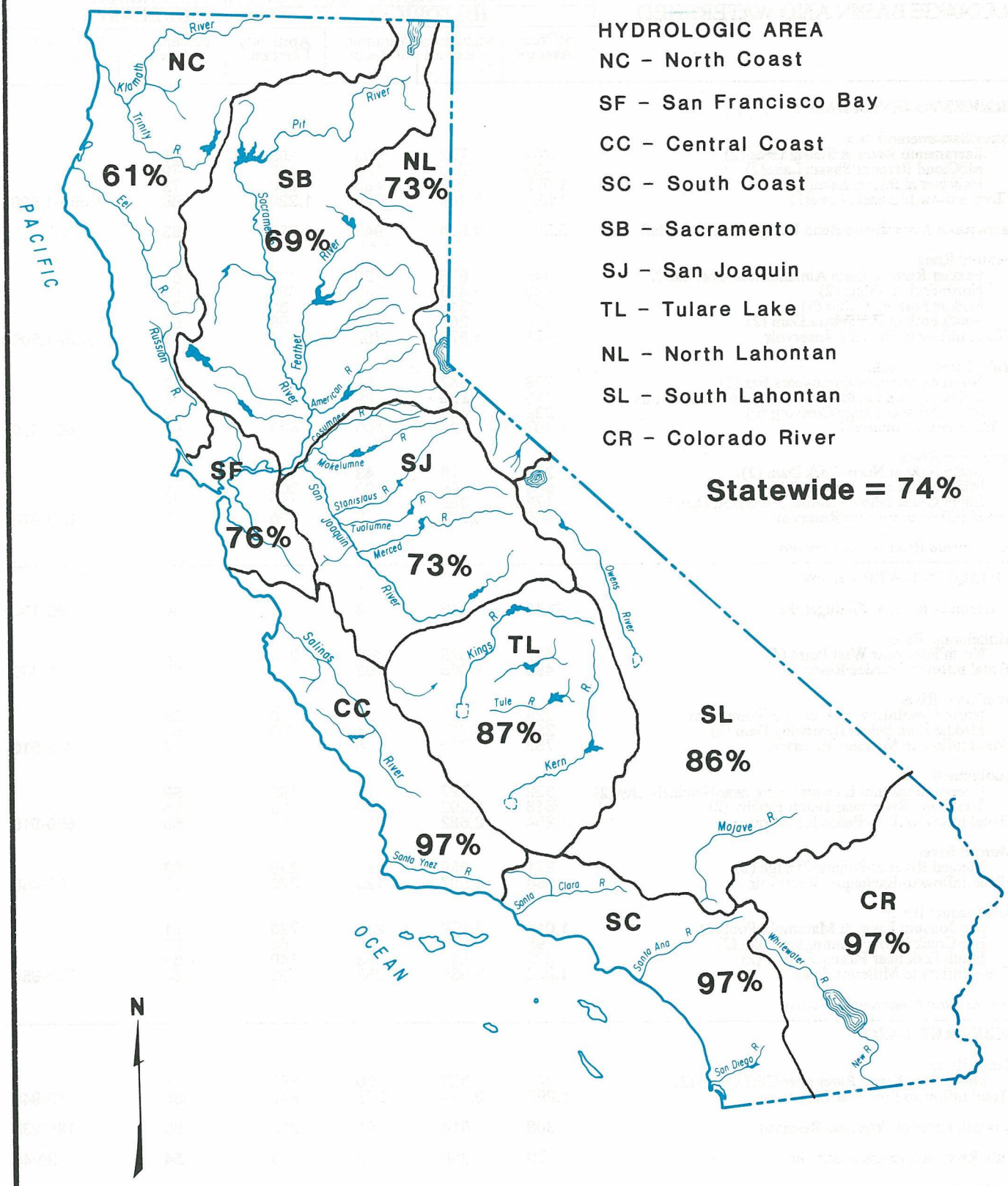
FORECASTS OF APRIL-JULY

UNIMPAIRED SNOWMELT RUNOFF
May 1, 1991



* FORECAST BY DEPARTMENT OF WATER AND POWER, CITY OF LOS ANGELES FOR THE PERIOD OF APRIL THROUGH SEPTEMBER

SEASONAL PRECIPITATION IN PERCENT OF AVERAGE TO DATE
October 1, 1990 to May 1, 1991



HYDROLOGIC AREA

NC – North Coast

SF – San Francisco Bay

CC – Central Coast

SC – South Coast

SB – Sacramento

SJ – San Joaquin

TL – Tulare Lake

NL – North Lahontan

SL – South Lahontan

CR – Colorado River

Statewide = 74%

FORECASTS OF APRIL-JULY UNIMPAIRED RUNOFF FOR CENTRAL VALLEY STREAMS MAY 1, 1991

DRAINAGE BASIN AND WATERSHED	April through July Unimpaired Runoff in 1,000 Acre-Feet					
	HISTORICAL			FORECASTS		
	50 Year Average	Maximum of Record	Minimum of Record	April-July Forecast	Percent of Average	80% Prob. Range
SACRAMENTO RIVER BASIN						
Upper Sacramento River						
Sacramento River at Shasta Lake (2)	304	702	39	185	61	
McCloud River at Shasta Lake(2)	430	850	185	300	70	
Pit River at Shasta Lake(2)	1,075	1,796	480	790	73	
Total inflow to Shasta Lake(1)	1,880	3,189	726	1,220	65	1,050-1,520
Sacramento River above Bend Bridge, near Red Bluff	2,569	4,674	943	1,620	63	1,330-2,020
Feather River						
Feather River at Lake Almanor near Pratville (2)	345	675	120	230	67	
North Fork at Pulga (2)	1,080	2,416	243	680	63	
Middle Fork near Clio (3)	86	518	4	30	35	
South Fork at Ponderosa Dam (2)	116	267	13	65	56	
Total inflow to Oroville Reservoir	1,971	4,676	392	1,200	61	1,000-1,500
Yuba River						
North Yuba below Goodyears Bar (2)	298	647	51	180	60	
Inflow to Jackson Mdws and Bowman Reservoirs (2)	115	236	25	75	65	
South Yuba at Langs Crossing (2)	232	481	57	160	69	
Yuba River at Smartville	1,107	2,424	200	680	61	600-820
American River						
North Fork at North Fork Dam (2)	274	716	43	140	51	
Middle Fork near Auburn (2)	548	1,406	100	300	55	
Silver Creek below Camino Diversion Dam (2)	178	386	37	110	62	
Total inflow to Folsom Reservoir	1,366	3,074	229	720	53	620-870
Sacramento River at Sacramento						
SAN JOAQUIN RIVER BASIN						
Cosumnes River at Michigan Bar	140	363	8	65	46	45-100
Mokelumne River						
North Fork near West Point (4)	437	829	104	260	59	
Total inflow to Pardee Reservoir	490	1,065	102	270	55	220-330
Stanislaus River						
North Fork inflow to McKay's Point Dam	224	503	34	120	54	
Middle Fork below Beardsley Dam (2)	352	702	64	200	57	
Total inflow to Melones Reservoir	753	1,710	116	410	54	340-510
Tuolumne River						
Cherry Creek and Eleanor Creek near Hetch Hetchy (2)	322	727	97	190	59	
Tuolumne River near Hetch Hetchy (2)	618	1,392	153	400	65	
Total inflow to Don Pedro Reservoir	1,254	2,682	301	750	60	650-910
Merced River						
Merced River at Pohono Bridge (2)	371	888	80	230	62	
Total inflow to Exchequer Reservoir	654	1,587	123	370	57	330-450
San Joaquin River						
San Joaquin River at Mammoth Pool (2)	1,014	2,279	235	720	71	
Big Creek below Huntington Lake (2)	95	264	11	60	63	
South Fork near Florence Lake (2)	202	511	58	140	69	
Total inflow to Millerton Lake	1,296	3,355	262	830	64	730-950
San Joaquin River near Vernalis						
TULARE LAKE BASIN						
Kings River						
North Fork Kings River near Cliff Camp (2)	243	565	50	160	66	
Total inflow to Pine Flat Reservoir	1,266	3,114	273	840	66	740-940
Kaweah River at Terminus Reservoir	303	814	61	210	69	185-235
Tule River at Success Reservoir	70	256	2	38	54	30-45
Kern River						
Kern River near Kernville (2)	389	1,203	83	240	62	
Total inflow to Isabella Reservoir	492	1,657	84	290	59	250-340

(1) All 50-year averages are based on data for water years 1936-1985 except:
(2) 45-year average based on years 1936-80. (4) 36-year average based on years 1936-71.
(3) 44-year average based on years 1936-79. (5) See inside back cover for definition of unimpaired runoff and 80 percent probability ranges.

FORECASTS OF WATER YEAR UNIMPAIRED RUNOFF FOR CENTRAL VALLEY STREAMS MAY 1, 1991

Water Year October through September Unimpaired Runoff in 1,000's Acre-Feet												
HISTORICAL			*	*	*	* DISTRIBUTION					FORECASTS	
50 Year Average	Maximum of Record	Minimum of Record	October through January	February	March	April	May	June	July	August and September	Water Year Forecast	Percent of Average
859	1,964	165										
1,286	2,353	577										
3,169	5,150	1,484										
6,090	10,796	2,479	790	210	610	360	420	250	190	340	3,170 (2,950-3,560)	52
8,856	17,180	3,294	950	270	980	515	535	340	230	420	4,240 (3,910-4,810)	48
786	1,269	366										
2,446	4,400	666										
219	637	24										
292	562	32										
4,754	9,492	994	260	100	540	420	450	220	110	150	2,250 (2,030-2,610)	47
565	1,056	102										
174	292	30										
357	565	98										
2,460	4,926	369	70	30	325	240	310	110	20	25	1,130 (1,040-1,300)	46
612	1,234	66										
1,066	2,575	144										
314	705	59										
2,837	6,381	349	30	25	330	275	325	100	20	15	1,120 (1,010-1,290)	39
												46
407	1,253	20	1	2	50	32	25	6	2	2	120 (100-155)	29
626	1,009	197										
776	1,800	129	7	3	48	65	150	50	5	2	330 (270-390)	43
483	929	88										
1,198	2,952	155	12	3	80	95	210	85	20	5	510 (430-610)	43
461	1,147	123										
775	1,661	258										
1,951	4,430	383	14	9	167	175	370	170	35	10	950 (840-1,110)	49
460	1,020	92										
1,023	2,859	150	10	3	95	80	200	70	20	2	480 (430-560)	47
1,337	2,964	308										
112	298	14										
248	653	71										
1,861	4,642	362	32	11	117	135	370	240	85	30	1,020 (910-1,140)	55
												48
282	607	58										
1,745	4,294	383	40	10	125	130	370	260	80	35	1,050 (930-1,130)	60
468	1,402	92	7	3	42	40	100	50	20	3	265 (235-290)	57
159	615	16	3	1	21	14	20	3	1	0	63 (55-70)	40
575	1,577	163										
749	2,309	175	32	10	48	55	130	80	25	25	405 (360-460)	54

* Unimpaired runoff to date Estimated Monthly distributions of runoff forecasts are estimated based on comparisons with previous

FORECASTS OF APRIL-JULY UNIMPAIRED RUNOFF FOR SELECTED CALIFORNIA STREAMS

MAY 1, 1991

DRAINAGE BASIN AND WATERSHED	April through July Unimpaired Runoff in 1,000 Acre-Feet				
	HISTORICAL			FORECASTS	
	50 Year Average	Maximum of Record	Minimum of Record	April-July Forecast	Percent of Average
NORTH COAST AREA					
Trinity River at Lewiston	676	1,593	80	410	61
Scott River at Ft. Jones	200	*	*	115	58
LAHONTAN AREA					
Truckee River, Lake Tahoe to Farad accretion	278	713	58	115	41
Lake Tahoe Rise in feet (assuming gates closed)	1.5	3.75	0.23	0.6	40
East Carson River near Gardnerville	195	407	43	100	51
West Carson River at Woodfords	55	131	12	29	53
East Walker River near Bridgeport	68	209	7	30	44
West Walker River near Coleville	154	330	35	90	58
Owens River(1)(3)	310	728	131	230	74

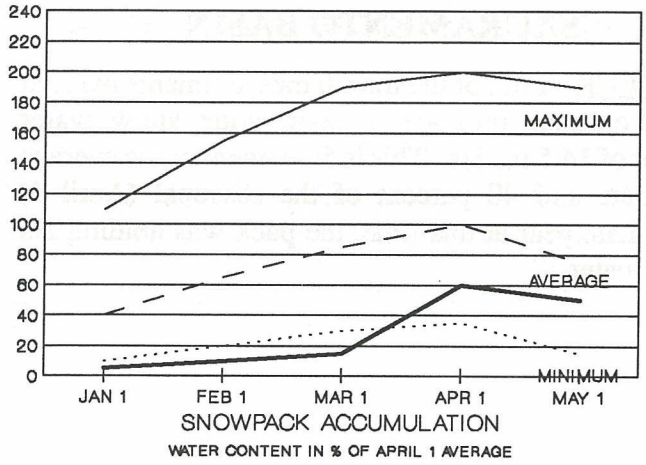
(1)Forecast period of April-September

(2)Forecast by U.S. Soil Conservation Service, Portland, Or.

(3)Forecast by Dept. of Water and Power, City of Los Angeles

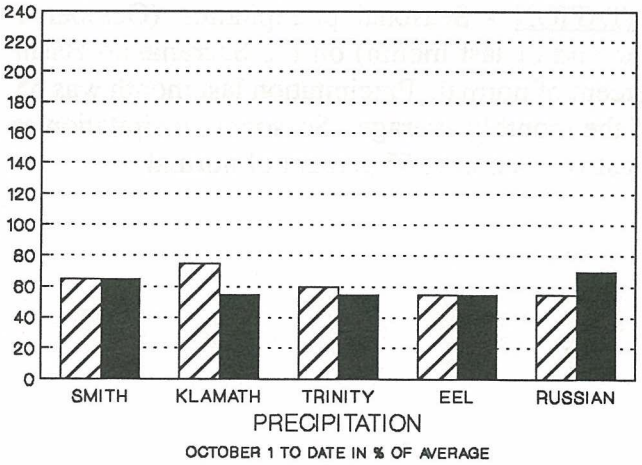
(4)Inside back cover for definition of unimpaired runoff.

(5)Average period of 25 years

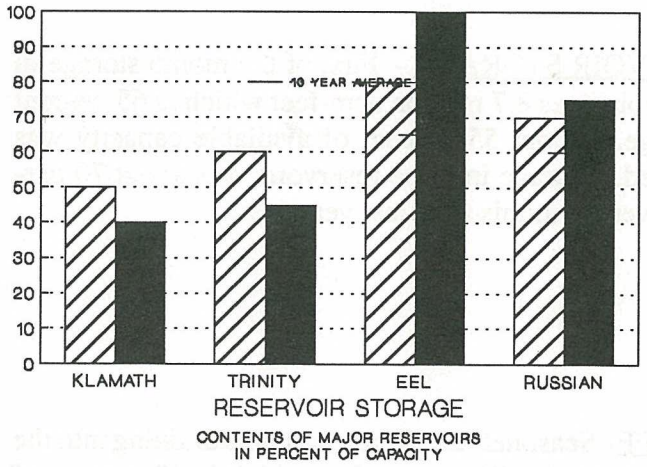


NORTH COAST AREA

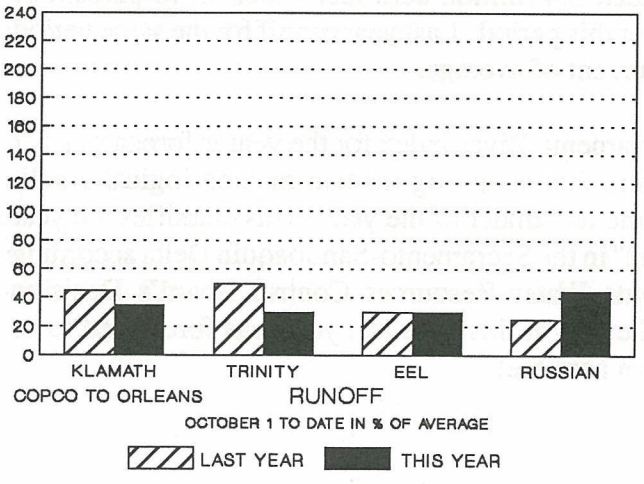
SNOWPACK - First of the month measurements made at 10 snow courses indicate an area wide snow water equivalent of 13.9 inches. This is 65 percent of average for this date and 50 percent of the seasonal (April 1) average. Last year at this time the pack was holding 0.2 inches of water.



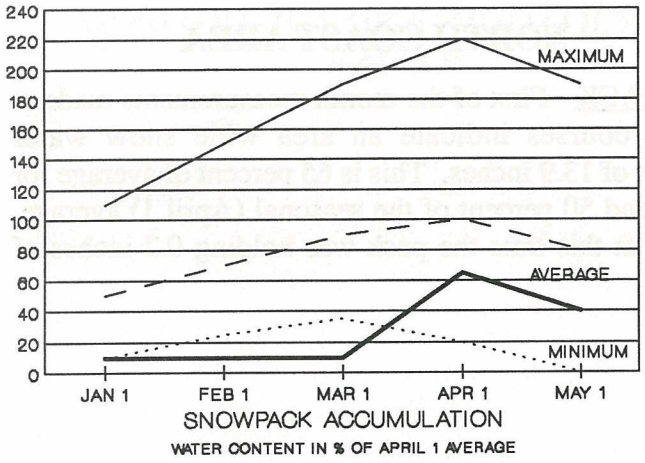
PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on this area was 60 percent of normal. Precipitation last month was about 65 percent of the monthly average. Seasonal precipitation at this time last year stood at 60 percent of normal.



RESERVOIR STORAGE - First of the month storage in 7 reservoirs was 1.6 million acre-feet which is 60 percent of average. About 50 percent of available capacity was being used. Storage in these reservoirs at this time last year was 75 percent of average.



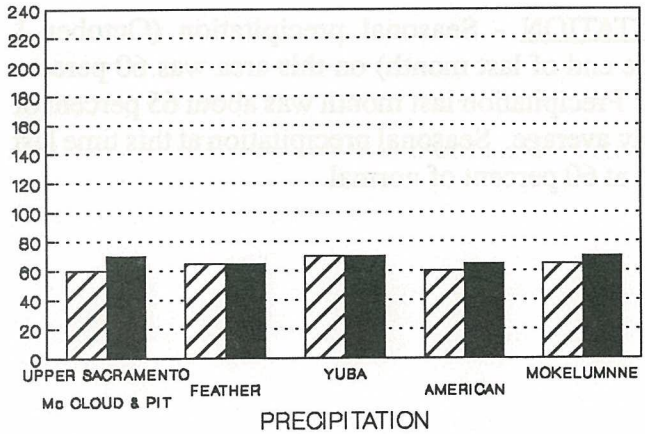
RUNOFF - Seasonal runoff of streams draining the area totaled 3.6 million acre-feet which is 30 percent of average for this period. Last year, runoff for the same period was 35 percent of average.



SNOWPACK ACCUMULATION
WATER CONTENT IN % OF APRIL 1 AVERAGE

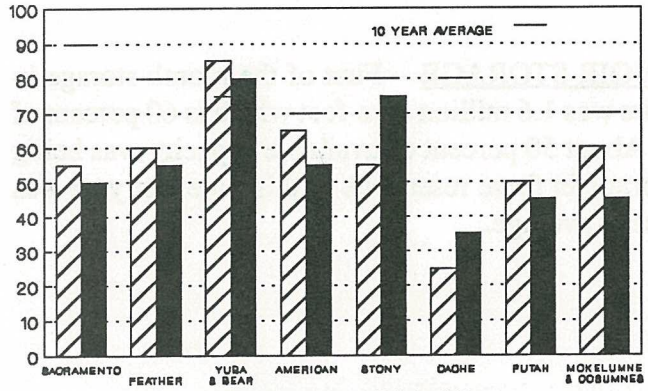
SACRAMENTO BASIN

SNOWPACK - First of the month measurements made at 70 snow courses indicate a basin wide snow water equivalent of 14.5 inches. This is 50 percent of the average for this date and 40 percent of the seasonal (April 1) average. Last year at this time, the pack was holding 2.5 inches of water.



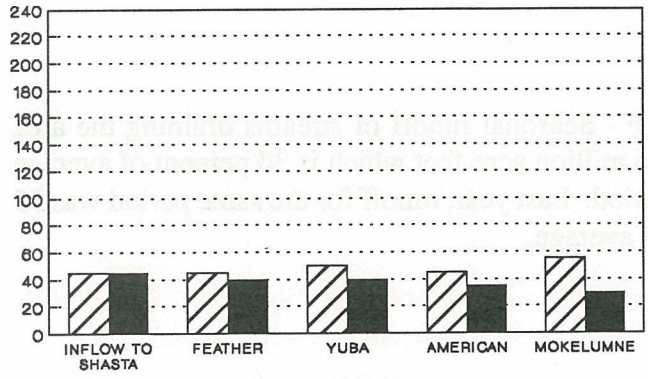
PRECIPITATION
OCTOBER 1 TO DATE IN % OF AVERAGE

PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on the Sacramento Basin was 70 percent of normal. Precipitation last month was 55 percent of the monthly average. Seasonal precipitation at this time last year stood at 65 percent of normal.



RESERVOIR STORAGE
CONTENTS OF MAJOR RESERVOIRS IN PERCENT OF CAPACITY

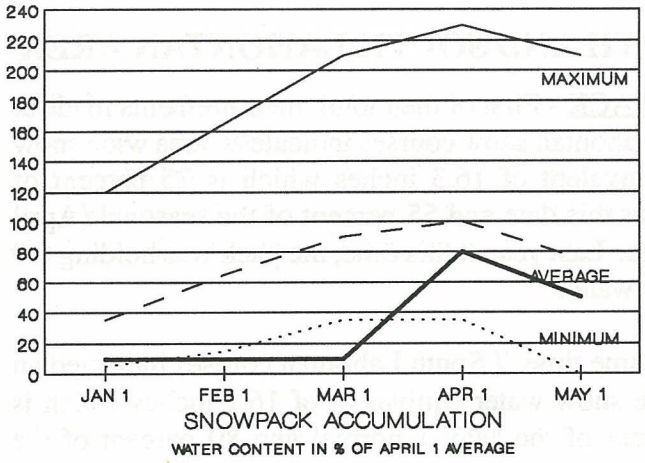
RESERVOIR STORAGE - First of the month storage in 40 reservoirs was 8.7 million acre-feet which is 65 percent of average. About 55 percent of available capacity was being used. Storage in these reservoirs was about 70 percent of average at this time last year.



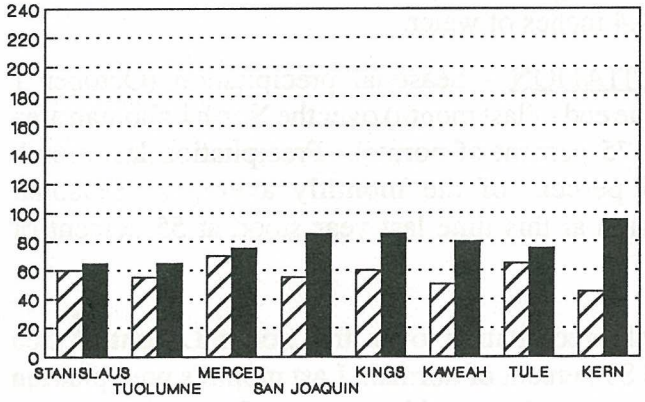
RUNOFF
OCTOBER 1 TO DATE IN % OF AVERAGE

RUNOFF - Seasonal runoff from streams draining into the basin totaled 5.4 million acre-feet which is 40 percent of average for this period. Last year runoff for the same period was 45 percent of average.

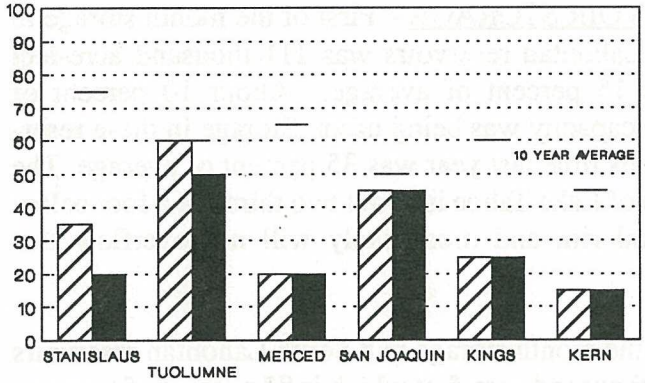
The Sacramento River Index for the year is forecast at 8.7 million acre-feet assuming median meteorological conditions for the remainder of the year. This classifies the year as "critical" in the Sacramento-San Joaquin Delta according to the State Water Resources Control Board's Decision 1485. The SRI at this time last year was forecasted to be 8.2 million acre-feet.



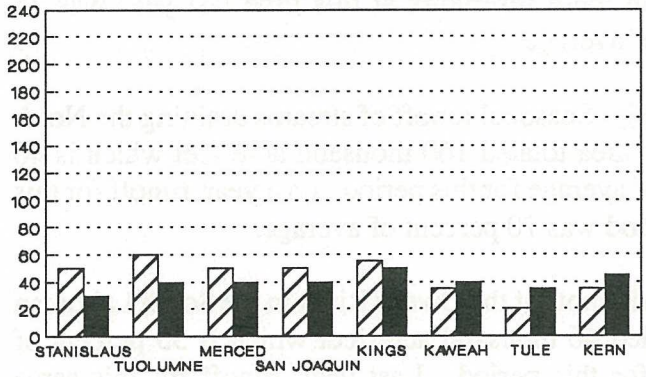
SNOWPACK ACCUMULATION
WATER CONTENT IN % OF APRIL 1 AVERAGE



PRECIPITATION
OCTOBER 1 TO DATE IN % OF AVERAGE



RESERVOIR STORAGE
CONTENTS OF MAJOR RESERVOIRS
IN PERCENT OF CAPACITY



RUNOFF
OCTOBER 1 TO DATE IN % OF AVERAGE
LAST YEAR THIS YEAR

SAN JOAQUIN AND TULARE LAKE BASINS

SNOWPACK - First of the month measurements made at 65 San Joaquin Basin snow courses indicate a basin wide snow water equivalent of 19.5 inches which is 70 percent of the average for this date and 55 percent of the seasonal (April 1) average. Last year at this time, the pack was holding 5.1 inches of water.

At the same time, 36 Tulare Lake Basin snow courses indicated a basin wide snow water equivalent of 12.0 inches which is 60 percent of the average for this date and 45 percent of the seasonal average. Last year at this time, the Basin was holding 2.4 inches of water.

PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on the San Joaquin Basin was 75 percent of normal. Precipitation last month was 30 percent of the monthly average. Seasonal precipitation at this time last year stood at 60 percent of normal.

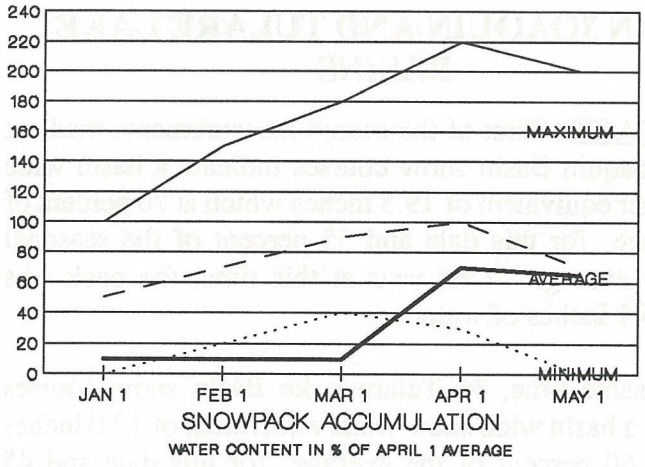
Seasonal precipitation on the Tulare Lake Basin was 85 percent of normal. Precipitation last month was 20 percent of the monthly average. Seasonal precipitation at this time last year stood at 55 percent of normal.

RESERVOIR STORAGE - First of the month storage in 33 San Joaquin Basin reservoirs was 4.8 million acre-feet which is 60 percent of average. About 40 percent of available capacity was being used. Storage in these reservoirs at this time last year was 50 percent of average.

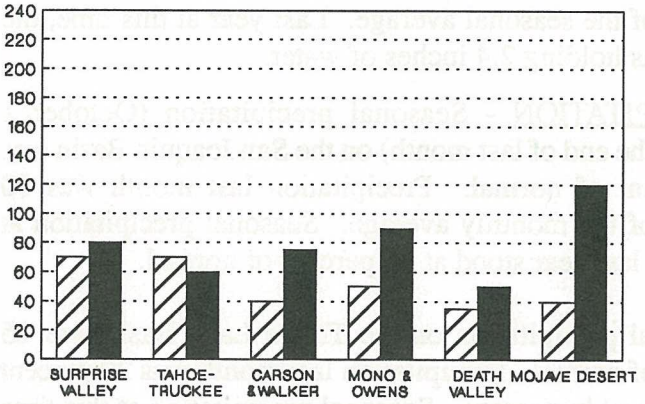
First of the month storage in 6 Tulare Lake Basin reservoirs was 537 thousand acre-feet which is 55 percent of average. About 25 percent of available capacity was being used. Storage in these reservoirs at this time last year was 80 percent of average.

RUNOFF - Seasonal runoff of streams draining into the San Joaquin Basin totaled 1.3 million acre-feet which is 35 percent of average for this period. Last year, runoff for this same period was 50 percent of average.

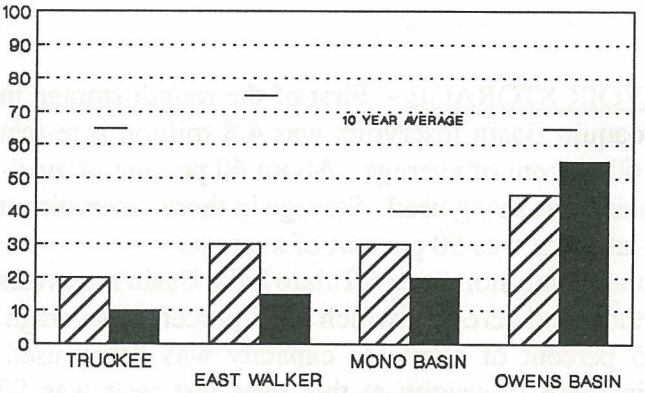
Seasonal runoff of streams draining into the Tulare Lake Basin totaled 586 thousand acre-feet which is 45 percent of average for this period. Last year, runoff for this same period was 45 percent of average.



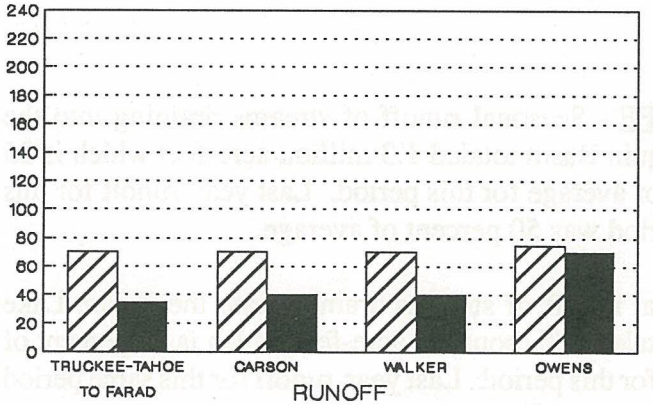
SNOWPACK ACCUMULATION
WATER CONTENT IN % OF APRIL 1 AVERAGE



PRECIPITATION
OCTOBER 1 TO DATE IN % OF AVERAGE



RESERVOIR STORAGE
CONTENTS OF MAJOR RESERVOIRS
IN PERCENT OF CAPACITY



RUNOFF
OCTOBER 1 TO DATE IN % OF AVERAGE

LAST YEAR THIS YEAR

NORTH AND SOUTH LAHONTAN AREA

SNOWPACK - First of the month measurements made at 3 North Lahontan snow courses indicate an area wide snow water equivalent of 16.3 inches which is 75 percent of normal for this date and 55 percent of the seasonal (April 1) average. Last year at this time, the pack was holding 6.0 inches of water.

At the same time, 7 South Lahontan courses indicated an area wide snow water equivalent of 16.1 inches which is 105 percent of the May 1 normal and 80 percent of the seasonal average. Last year at this time, the basin was holding 4.4 inches of water.

PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) over the North Lahontan area averaged 75 percent of normal. Precipitation last month was 125 percent of the monthly average. Seasonal precipitation at this time last year stood at 55 percent of normal.

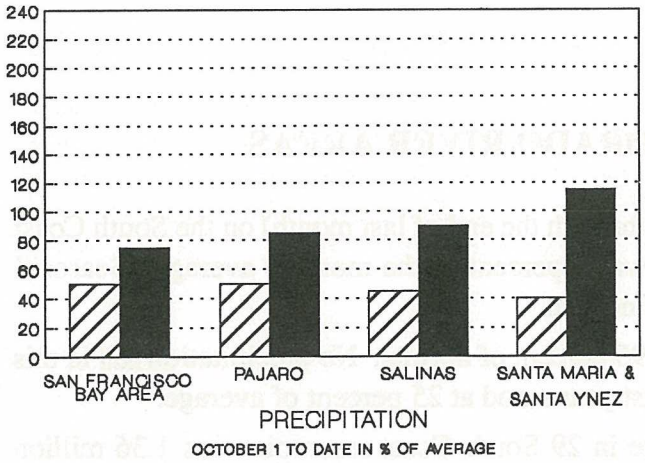
Seasonal precipitation over the South Lahontan area averaged 85 percent of normal. Last month's precipitation was 5 percent of the monthly average. Seasonal precipitation at this time last year stood at 45 percent of normal.

RESERVOIR STORAGE - First of the month storage in 5 North Lahontan reservoirs was 111 thousand acre-feet which is 15 percent of average. About 10 percent of available capacity was being used. Storage in these reservoirs at this time last year was 35 percent of average. The elevation of Lake Tahoe is about two thirds of a foot below the natural rim and most likely will not overflow this season.

First of the month storage in 8 South Lahontan reservoirs was 225 thousand acre-feet which is 85 percent of average. About 55 percent of available capacity was being used. Storage in these reservoirs at this time last year was 75 percent of average.

RUNOFF - Seasonal runoff of streams draining the North Lahontan area totaled 160 thousand acre-feet which is 40 percent of average for this period. Last year, runoff for this same period was 70 percent of average.

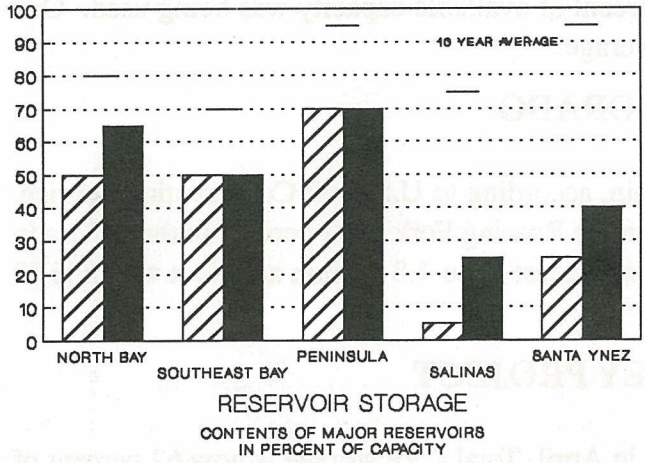
Seasonal runoff of the Owens River in the South Lahontan area totaled 46 thousand acre-feet which is 55 percent of average for this period. Last year, runoff for this same period was 60 percent of average.



SAN FRANCISCO AND CENTRAL COAST AREAS

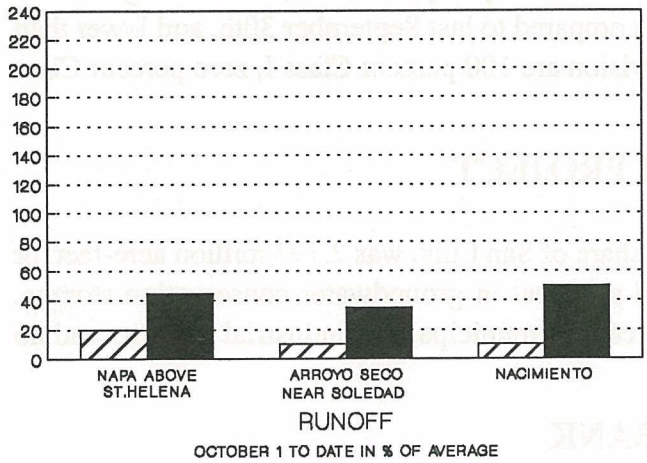
PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on the San Francisco Bay area was 75 percent of normal. Precipitation last month was 35 percent of the monthly average. Seasonal precipitation at this time last year stood at 50 percent of normal.

Seasonal precipitation on the Central Coast area averaged 95 percent of normal. Precipitation last month was 20 percent of the monthly average. Seasonal precipitation at this time last year stood at 45 percent of normal.



RESERVOIR STORAGE - First of the month storage in 18 major Bay area reservoirs was 391 thousand acre-feet which is 75 percent of average. About 55 percent of available capacity was being used. Storage in these reservoirs at this time last year was 70 percent of average.

First of the month storage in 6 major Central Coast reservoirs was 286 thousand acre-feet which is 40 percent of average. About 30 percent of available capacity was being used. Storage in these reservoirs at this time last year was 15 percent of average.



RUNOFF - Seasonal runoff of the Napa River in the San Francisco Bay area totaled 33 thousand acre-feet which is 45 percent of average for this period. Last year, runoff for this same period was 20 percent of average.

Seasonal runoff of selected Central Coast streams totaled 151 thousand acre-feet which is 45 percent of average for this period. Last year, runoff for this same period was 10 percent of average.

LAST YEAR THIS YEAR

SOUTH COAST AND COLORADO RIVER AREAS

PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on the South Coast was 95 percent of normal. Last month's precipitation was 5 percent of the monthly average. Seasonal precipitation at this time last year stood at 50 percent of normal.

Seasonal precipitation on the Colorado Desert area was 95 percent of normal. No precipitation fell in this region last month. Seasonal precipitation at this time last year stood at 25 percent of average.

RESERVOIR STORAGE - First of the month storage in 29 South Coast reservoirs was 1.36 million acre-feet which is 100 percent of average. About 70 percent of available capacity was being used. Storage in these reservoirs at this time last year was 100 percent of average.

First of the month combined storage in Lakes Powell, Mead, Mohave, and Havasu was 36.6 million acre-feet which is 101 percent of average. About 70 percent of available capacity was being used. One year ago, these reservoirs were storing 113 percent of average.

UPPER COLORADO

The April 1 snowpack in the Upper Colorado River Basin, according to U.S. Soil Conservation Service, was 97 percent of average and ranges from 120 percent in the Roaring Fork to 41 percent in the Colorado Plateau. The April through July inflow to Lake Powell is forecast to be 4.8 million acre-feet which is 59 percent of normal.

CENTRAL VALLEY PROJECT

CVP storage increased from 5.0 to 5.5 million acre-feet in April. Total CVP storage is now 62 percent of normal. Last year, on April 30, storage was 6.2 million acre-feet. The U.S. Bureau of Reclamation forecasts of April through July runoff range from 55 percent of normal at New Melones to 68 percent at Friant. All previously announced water delivery plans are still in effect: 75 percent supplies to water rights contractors, 25 to 50 percent for most others. Reclamation forecasts show that by September 30, 1991 storage will be only 2.1 million acre-feet, a loss of 0.9 million acre-feet compared to last September 30th, and lower than any year since 1977. Planned deliveries in the Friant Division are 100 percent Class I, zero percent Class II.

STATE WATER PROJECT

On May 1, conservation storage (Oroville plus the State share of San Luis) was 2.193 million acre-feet, or 48 percent full. The SWP also has about 250 thousand acre-feet in groundwater conservation storage. Delivery approvals to SWP contractors remain at 20 percent of municipal and industrial requests and no agricultural deliveries.

WATER BANK

A water bank was formed early in 1991 to purchase supplies to meet critical needs for agricultural and urban users. The water bank has currently allocated over 400 thousand acre-feet to meet those needs.

MAJOR WATER DISTRIBUTION PROJECTS

RESERVOIR STORAGE

(AVERAGES BASED ON PERIOD OF RECORD)

RESERVOIR	CAPACITY 1,000 AF	AVERAGE STORAGE 1,000 AF	STORAGE AS OF APRIL 30 1990 1,000 AF	1991 1,000 AF	PERCENT AVERAGE
STATE WATER PROJECT					
Oroville	3,540	2,995	1,871	1,600	53
San Luis SWP	1,060	975	1,144	590	61
Lake Del Valle	77	39	37	40	102
Silverwood	73	67	68	72	108
Pyramid Lake	171	164	162	166	101
Castaic Lake	324	277	317	187	67
Perris Reservoir	132	116	126	125	107
CENTRAL VALLEY PROJECT					
Clair Engle Lake	2,450	2,110	1,498	1,117	53
Shasta Lake	4,552	4,153	2,484	2,202	53
Whiskeytown	241	231	217	222	96
Folsom	1,010	739	525	596	81
New Melones	2,420	1,750	715	433	25
Millerton Lake	521	315	305	370	117
San Luis CVP	980	850	820	939	110
COLORADO RIVER PROJECT					
Lake Mead	26,159	19,434	21,068	19,852	102
Lake Powell	25,002	14,756	17,775	14,587	99
Lake Mohave	1,810	1,637	1,620	1,618	99
Lake Havasu	619	578	598	552	95
EAST BAY MUNICIPAL UTILITY DISTRICT					
Pardee	210	180	194	162	90
Camanche	431	279	190	131	47
East Bay (4 reservoirs)	151	132	130	134	102
CITY & COUNTY OF SAN FRANCISCO					
Hetch Hetchy	360	149	162	85	57
Cherry Lake	268	133	158	106	80
Lake Eleanor	26	14	6	4	32
South Bay (4 reservoirs)	225	179	117	112	63
CITY OF LOS ANGELES(DWP)					
Crowley Lake(Long Valley)	183	120	97	109	90
Grant Lake	48	24	19	11	47
Other Aqueduct Storage(6 reservoirs)	95	67	50	64	95

DEPARTMENT OF WATER RESOURCES - CALIFORNIA DATA EXCHANGE CENTER
TELEMETERED SNOW WATER EQUIVALENTS - MAY 1, 1991

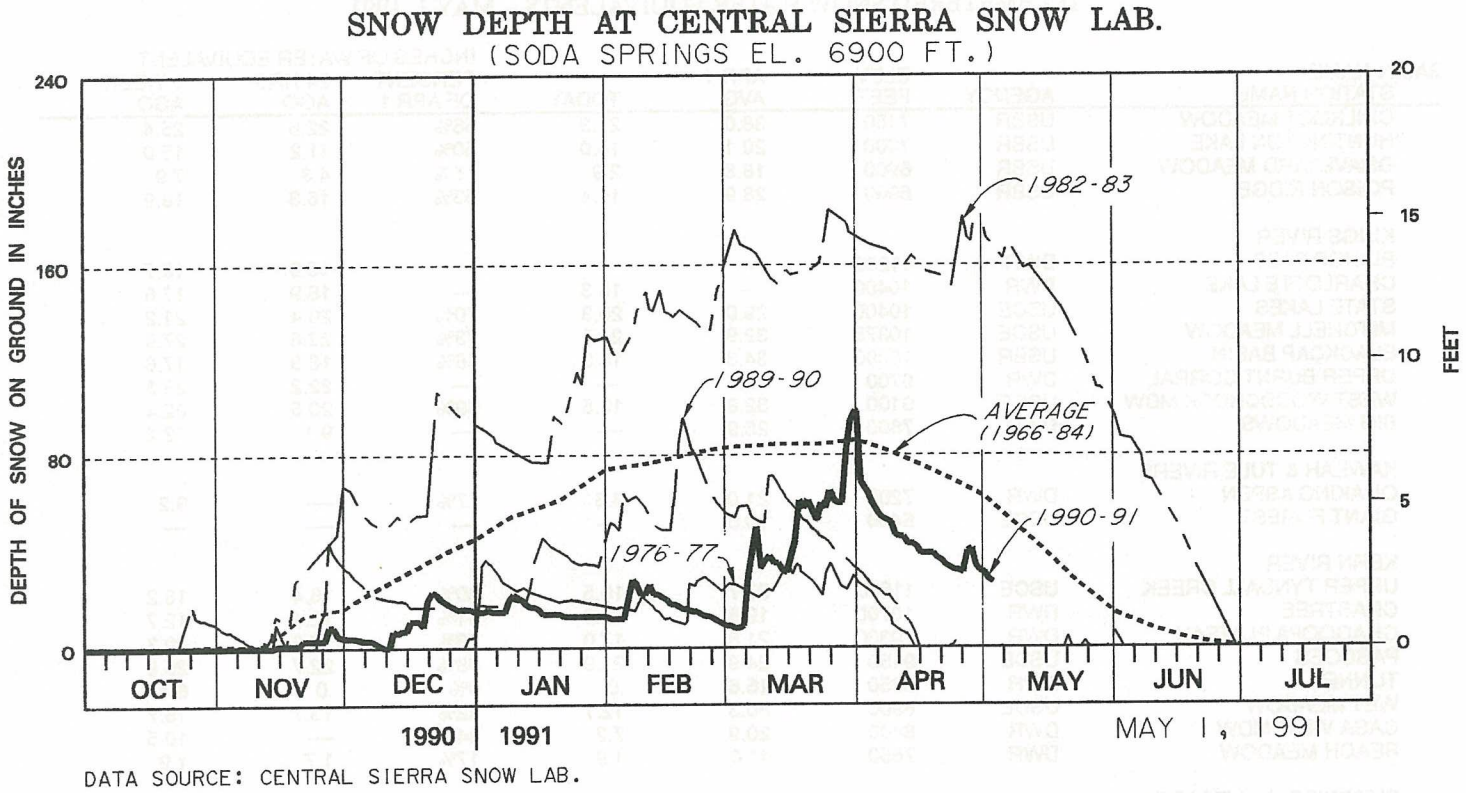
BASIN NAME / STATION NAME	AGENCY	ELEV FEET	APR 1 AVG	INCHES OF WATER EQUIVALENT TODAY	PERCENT OF APR 1	24 HRS AGO	1 WEEK AGO
TRINITY RIVER							
PETERSON FLAT	USBR	7150	----	13.7	----	13.7	13.7
RED ROCK MOUNTAIN	USBR	6700	39.6	25.8	65%	26.4	27.1
BONANZA KING	USBR	6450	40.5	17.1	42%	18.1	20.1
SHIMMY LAKE	USBR	6200	40.3	23.0e	57%	----	30.0
MIDDLE BOULDER #3	USBR	6200	28.3	13.1	46%	13.7	17.0
HIGHLAND LAKES	USBR	6030	29.9	11.7	39%	13.1	15.3
SCOTTS MOUNTAIN	USBR	5900	----	7.6	----	8.2	10.0
MUMBO BASIN	USBR	5700	22.4	3.6	16%	4.4	7.4
BIG FLAT	USBR	5100	----	3.2	----	3.6	5.6
SACRAMENTO RIVER							
CEDAR PASS	SCS	7100	18.1	16.2	90%	16.4	----
BLACKS MOUNTAIN	DWR	7100	----	6.2	----	6.6	8.2
SAND FLAT	USBR	6750	42.4	17.5	41%	17.1	----
MEDICINE LAKE	USBR	6700	----	16.8	----	16.7	16.7
ADIN MOUNTAIN	SCS	6350	13.6	2.0	15%	2.6	----
SNOW MOUNTAIN	USBR	5950	27.0	8.9	33%	9.6	12.0
SLATE CREEK	USBR	5600	29.0	8.7	30%	----	12.6
STOUTS MEADOW	USBR	5400	36.0	10.4	29%	11.3	13.2
FEATHER RIVER							
KETTLEROCK	DWR	7300	25.5	11.3	44%	----	11.4
GRIZZLY	DWR	6900	29.7	11.2	38%	----	12.5
PILOT PEAK	DWR	6800	52.6	11.4	22%	----	14.8
GOLD LAKE	DWR	6750	36.5	22.6	62%	----	23.8
HUMBUG	DWR	6500	28.0	18.1	65%	----	18.7
RATTLESNAKE	DWR	6100	14.0	2.2	15%	----	5.0
BUCKS LAKE	DWR	5750	44.7	31.4	70%	----	33.7
FOUR TREES	DWR	5150	20.0	12.0	60%	----	----
YUBA & AMERICAN RIV							
LAKE LOIS	DWR	8800	----	32.2	----	31.6	29.6
SCHNEIDERS	SMUD	8750	34.5	----	----	----	28.5
CAPLES LAKE COURSE	USBR	7800	30.9	15.5	50%	16.2	16.8
ALPHA	SMUD	7600	35.9	----	----	----	21.5
FORNI RIDGE	USBR	7600	37.0	15.9	43%	15.9	15.7
SILVER LAKE	USBR	7100	22.7	7.6	33%	9.2	10.7
CENT SIERRA SNOW LAB	USFS	6950	33.6	12.6	38%	13.6	14.3
HUYSINK	USBR	6600	42.6	17.7	42%	17.7	17.7
VAN VLECK	SMUD	6700	35.9	----	----	----	18.9
ROBBS SADDLE	SMUD	5900	21.4	----	----	----	10.6
GREEK STORE	USBR	5600	21.0	12.0	57%	12.8	14.4
BLUE CANYON	USBR	5280	9.0	.0	0%	----	.0
ROBBS POWERHOUSE	SMUD	5150	5.2	----	----	----	2.6
MOKEL. & STANIS. RIV							
DEADMAN CREEK	USBR	9250	37.2	19.6	53%	19.8	19.3
HIGHLAND MEADOW	USBR	8800	47.9	23.0	48%	23.2	22.8
GIANELLI MEADOW	USBR	8350	55.5	30.3	55%	31.1	31.3
LOWER RELIEF VALLEY	DWR	8100	41.2	21.2	51%	21.2	23.4
BLUE LAKES	SCS	8000	33.1	21.8	66%	22.1	----
MUD LAKE	SMUD	7900	44.9	----	----	----	34.5
STANISLAUS MEADOW	USBR	7750	47.5	25.7	54%	26.6	26.5
BLOODS CREEK	USBR	7200	35.5	16.7	47%	17.5	19.5
BLACK SPRINGS	USBR	6500	32.0	21.5	67%	22.2	23.6
TUOLUMNE & MERCED R.							
DANA MEADOWS	DWR	9800	27.7	19.6	71%	20.2	20.2
SLIDE CANYON	DWR	9200	----	30.2	----	30.2	30.1
SNOW FLAT	DWR	8700	44.1	30.7	70%	28.1	25.5
TUOLUMNE MEADOWS	DWR	8600	22.6	7.6	33%	8.4	11.0
HORSE MEADOW	DWR	8400	48.6	26.8	55%	27.0	25.9
OSTRANDER LAKE	DWR	8200	34.8	24.2	70%	24.8	26.1
PARADISE	DWR	7650	----	23.2	----	23.8	25.1
GIN FLAT	DWR	7050	34.2	17.9	52%	18.6	20.9
LOWER KIBBIE	DWR	6600	27.4	10.8	39%	11.7	14.0
SAN JOAQUIN RIVER							
VOLCANIC KNOB	USBR	10100	30.1	23.5	78%	22.9	22.9
AGNEW PASS	USBR	9450	32.3	20.3	63%	20.9	22.9
KAISER POINT	USBR	9200	37.8	22.4	59%	23.4	26.0
GREEN MOUNTAIN	USBR	7900	30.8	10.4	34%	11.6	15.2
TAMARACK SUMMIT	USBR	7600	30.5	13.2	43%	14.0	17.1

DEPARTMENT OF WATER RESOURCES - CALIFORNIA DATA EXCHANGE CENTER
TELEMETERED SNOW WATER EQUIVALENTS - MAY 1, 1991

BASIN NAME / STATION NAME	AGENCY	ELEV FEET	APR 1 AVG	INCHES OF WATER EQUIVALENT TODAY	PERCENT OF APR 1	24 HRS AGO	1 WEEK AGO
CHILKOOT MEADOW	USBR	7150	38.0	21.3	56%	22.6	25.4
HUNTINGTON LAKE	USBR	7000	20.1	10.0	50%	11.2	15.0
GRAVEYARD MEADOW	USBR	6900	18.8	2.9	16%	4.3	7.9
POISON RIDGE	USBR	6900	28.9	15.4	53%	16.3	18.9
KINGS RIVER							
BISHOP PASS	DWR	11200	----	----	----	15.0	15.7
CHARLOTTE LAKE	DWR	10400	----	16.3	----	16.9	17.6
STATE LAKES	USCE	10400	29.0	20.3	70%	20.4	21.2
MITCHELL MEADOW	USCE	10375	32.9	24.1	73%	23.6	27.9
BLACKCAP BASIN	USBR	10300	34.3	16.3	48%	16.3	17.6
UPPER BURNT CORRAL	DWR	9700	34.6	----	----	22.2	28.8
WEST WOODCHUCK MDW	USCE	9100	32.8	19.5	59%	20.5	22.4
BIG MEADOWS	DWR	7600	25.9	----	----	9.1	12.2
KAWEAH & TULE RIVERS							
QUAKING ASPEN	DWR	7200	21.0	3.6	17%	----	9.2
GIANT FOREST	USCE	6400	10.0	----	----	----	----
KERN RIVER							
UPPER TYNDALL CREEK	USCE	11500	27.7	16.5	60%	16.4	16.2
CRABTREE	DWR	10700	19.8	12.0	61%	12.4	12.7
CHAGOOPA PLATEAU	DWR	10300	21.8	17.0	78%	17.6	20.3
PASCOES	USCE	9150	24.9	21.9	88%	22.7	25.8
TUNNEL	DWR	8950	15.6	.0	0%	.0	6.4
WET MEADOW	USCE	8900	30.3	12.7	42%	13.7	16.7
CASA VIEJA MDW	DWR	8400	20.9	7.2	34%	----	10.5
BEACH MEADOW	DWR	7650	11.0	1.9	17%	1.7	1.9
SURPRISE VALLEY AREA							
DISMAL SWAMP	SCS	7050	29.2	21.9	75%	22.3	----
TRUCKEE RIVER							
MOUNT ROSE SKI AREA	SCS	8850	38.5	23.4	61%	24.7	----
INDEPENDENCE LAKE	SCS	8450	41.4	27.2	66%	27.2	----
BIG MEADOWS	SCS	8700	25.7	8.1	32%	8.6	----
INDEPENDENCE CAMP	SCS	6500	21.8	2.2	10%	3.2	----
INDEPENDENCE CREEK	SCS	6500	12.7	.0	0%	.0	----
LAKE TAHOE BASIN							
HEAVENLY VALLEY	SCS	8800	28.1	14.2	51%	15.3	----
HAGANS MEADOW	SCS	8000	16.5	4.3	26%	4.7	----
MARLETTE LAKE	SCS	8000	21.1	7.3	35%	8.0	----
ECHO PEAK	SCS	7800	39.5	19.8	50%	20.6	----
RUBICON NO. 2	SCS	7500	29.1	19.6	67%	20.1	----
WARD CREEK NO. 3	SCS	6750	39.4	14.2	36%	----	----
FALLEN LEAF LAKE	SCS	6300	7.0	----	----	----	----
CARSON RIVER							
EBBETTS PASS	SCS	8700	38.8	21.3	55%	21.9	----
POISON FLAT	SCS	7900	16.2	2.1	13%	3.5	----
WALKER RIVER							
VIRGINIA LAKES RIDGE	SCS	9200	20.3	11.5	57%	11.9	----
LOBDELL LAKE	SCS	9200	17.3	6.8	39%	7.2	----
SONORA PASS BRIDGE	SCS	8750	26.0	15.1	58%	15.6	----
LEAVITT MEADOWS	SCS	7200	8.0	----	----	----	----
OWENS RIVER/MONO LK.							
GEM PASS	LADWP	10750	31.7	27.4	87%	----	28.1
SAWMILL MEADOW	DWR	10300	19.4	5.9	30%	7.2	11.1
COTTONWOOD LAKES	LADWP	10200	11.6	8.1	70%	9.7	11.0
BIG PINE #3	LADWP	9800	17.9	9.8	55%	11.1	12.4
SOUTH LAKE	LADWP	9600	16.0	11.5	72%	11.9	12.7
MAMMOTH PASS (RP)	USBR	9500	42.4	28.1	66%	28.4	28.7
ROCK CREEK	LADWP	8200	----	8.2	----	----	10.3

NORMAL SNOWPACK ACCUMULATION EXPRESSED AS A PERCENT OF APRIL 1ST AVERAGE

AREA	JANUARY	FEBRUARY	MARCH	APRIL	MAY
CENTRAL VALLEY NORTH	45	70	90	100	75
CENTRAL VALLEY SOUTH	45	65	85	100	80
NORTH COAST	40	60	85	100	80
LAHONTAN	50	70	90	100	70



❄❄❄❄ SNOWLINES ❄❄❄❄

Drought Remains - For the second consecutive year, 1991 has been declared a critical year for the Sacramento/San Joaquin River Basin and the North Lahontan Hydrologic Area by the Director of Water Resources. This was necessitated by poor runoff and much below normal reservoir storage. Although water conditions in 1991 have improved slightly from last year in some areas, overall drought conditions remain. The critical designation gives the State Water Resources Control Board broad administrative power in preventing illegal water diversions in these regions.

Runoff Forecasts - Forecasts of both April through July and water year runoff are based on the assumption of average future hydrologic and climatic conditions. Since future weather will most likely not be "normal", probability figures are quoted with the forecasts.

The figures listed under "FORECASTS" on Page 4 of this Bulletin are sub-titled "April-July Forecast", "Percent of Average" and "80% Probability Range". The April-July Forecast is the one that will be exceeded half of the time. The 80 probability range give the 10 and 90 percent exceedence figures. There are nine chances out of ten that the runoff will exceed the lower figure and one chance in ten that it will exceed the upper figure. The three exceedence figures, 10, 50 and 90 percent allow water managers to evaluate risks when making operational decisions. As the season progresses, the forecasts become less influenced by future weather and the spread between the 10 and 90 percent figures grows smaller.