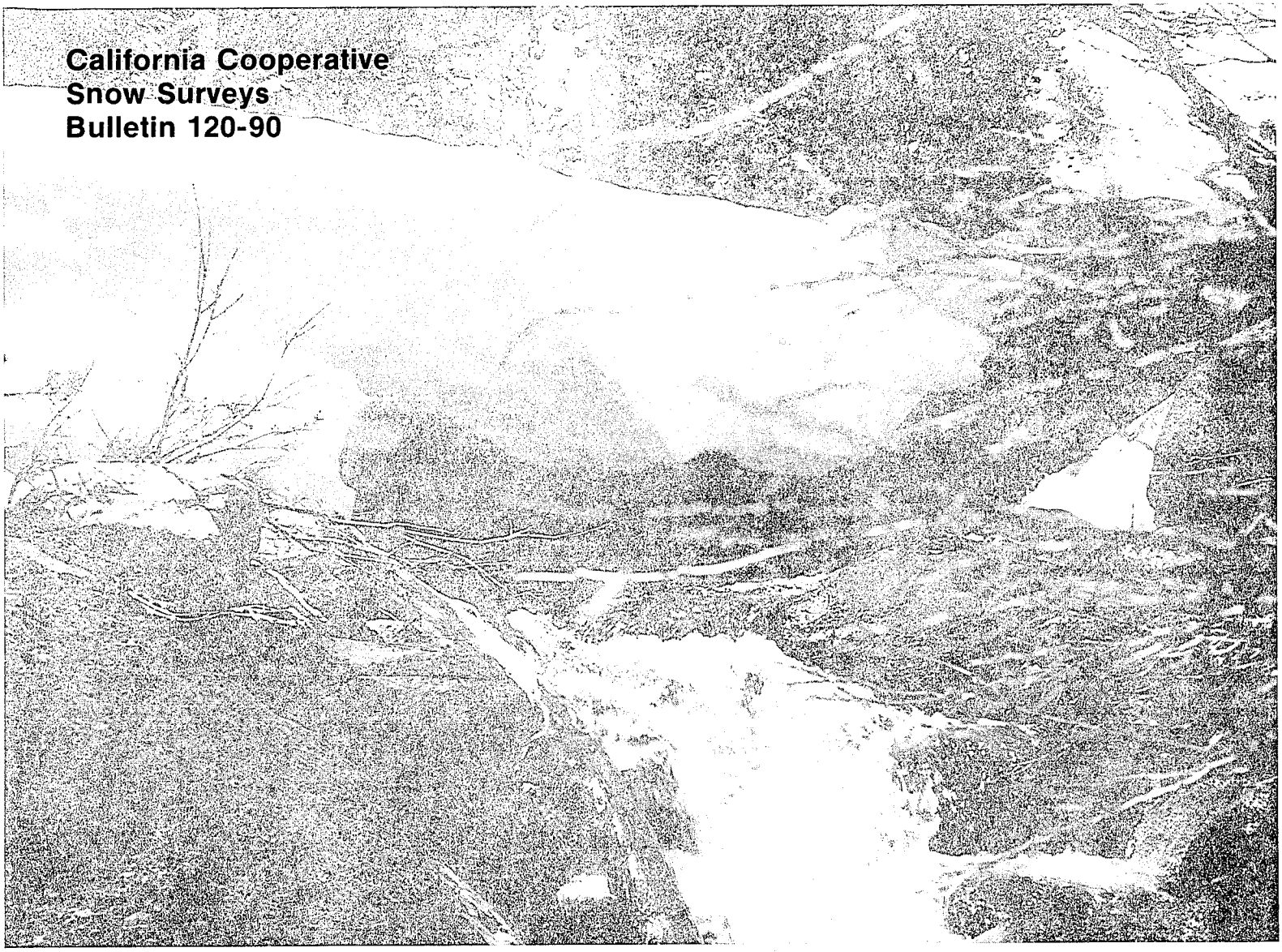
California Cooperative
Snow Surveys
Bulletin 120-90



State of California
The Resources Agency

Department of
Water Resources

Water Conditions in California

Report 4 May 1, 1990

Gordon K. Van Vleck
Secretary for Resources
The Resources Agency

George Deukmejian
Governor
State of California

David N. Kennedy
Director
Department of Water Resources

STATE OF CALIFORNIA
GEORGE DEUKMEJIAN, Governor

The Resources Agency
GORDON K. VAN VLECK, Secretary for Resources

Department of Water Resources
DAVID N. KENNEDY, Director

LAWRENCE A. MULLNIX
Deputy Director

ROBERT G. POTTER
Deputy Director

JAMES U. MCDANIEL
Deputy Director

L. LUCINDA CHIPPONERI
Assistant Director for Legislation

SUSAN N. WEBER
Chief Counsel

Division of Flood Management

George Qualley ..... Chief
Maurice Roos ..... Chief, Flood Hydrology and Water Supply 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.
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

Public Utilities

Pacific Gas and Electric Company
Southern California Edison 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

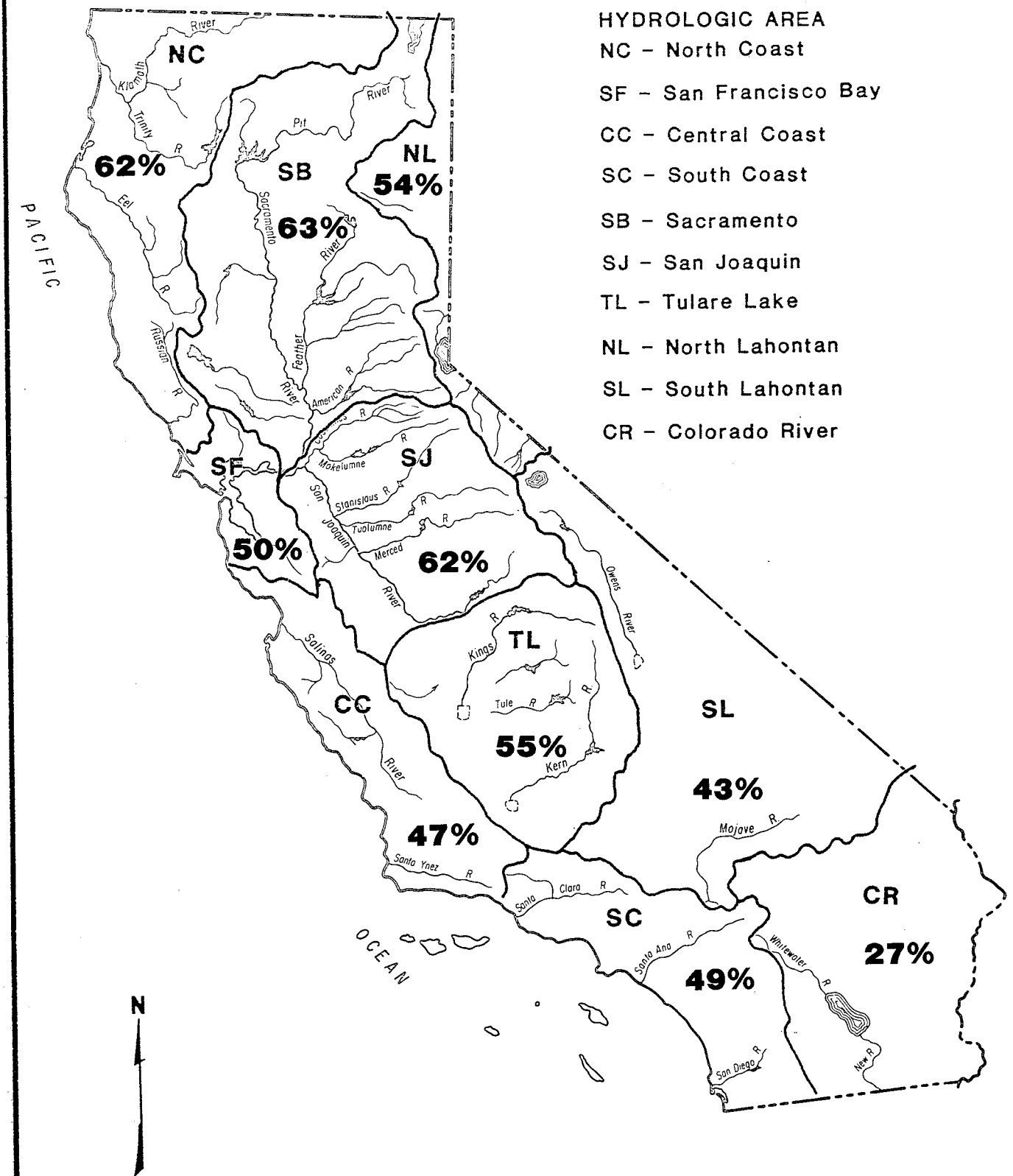
Federal Agencies

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

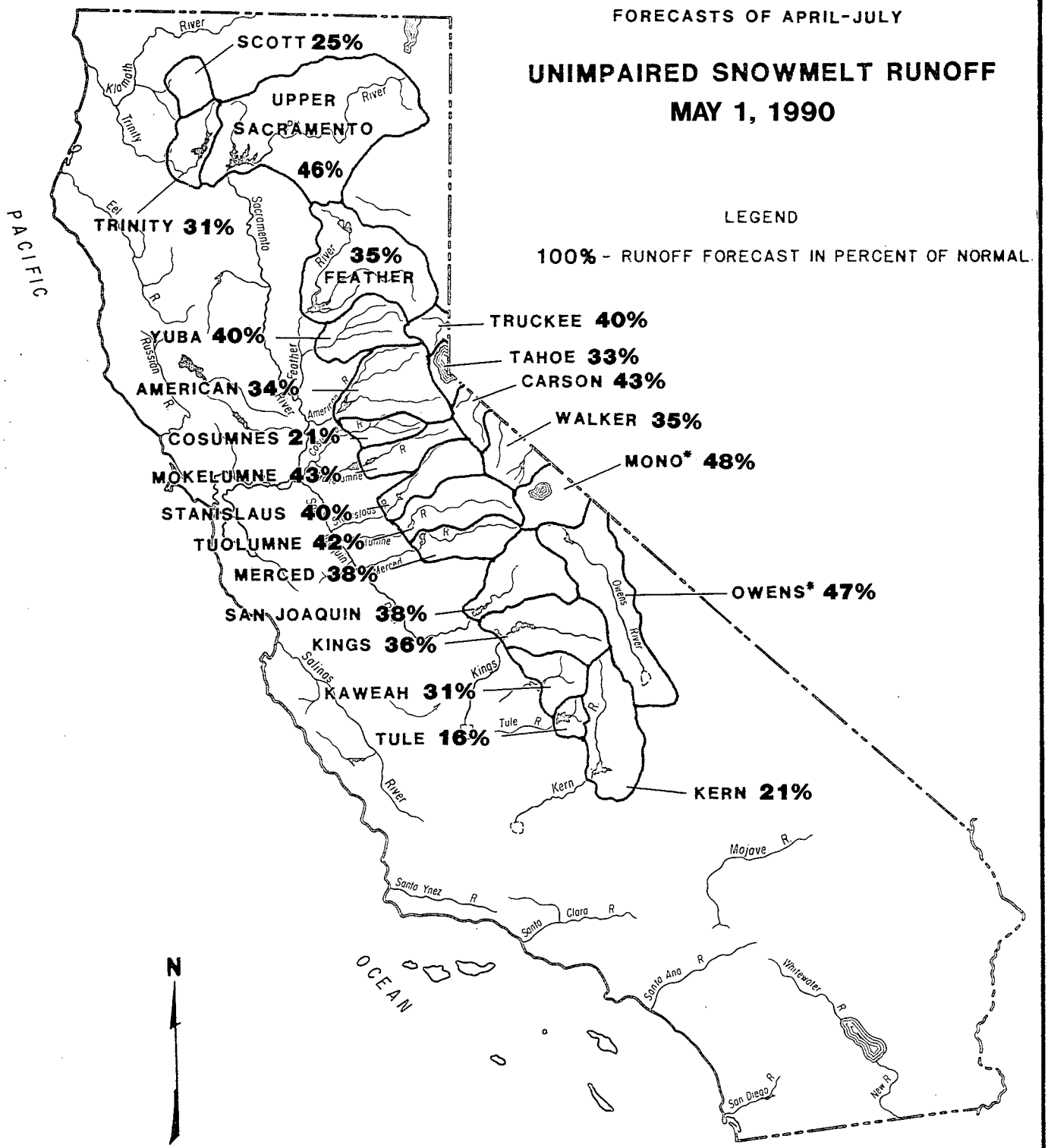
Nevada Cooperative Snow Surveys
Oregon Cooperative Snow Surveys

SEASONAL PRECIPITATION IN PERCENT OF AVERAGE TO DATE
OCTOBER 1, 1989 TO APRIL 30, 1990



FORECASTS OF APRIL-JULY

UNIMPAIRED SNOWMELT RUNOFF
MAY 1, 1990



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

SUMMARY OF WATER CONDITIONS

May 1, 1990

As the reality of the fourth consecutive dry year becomes ever more certain, communities throughout the State are implementing special water saving efforts ranging from education campaigns to strict rationing. Although some areas will feel the effects of the drought more than others, no region in California will completely escape its physical and economic impacts. By mid April, agencies in six counties, primarily coastal, had declared drought emergencies. The Central Coast is by far the hardest hit region in the State. The SACRAMENTO RIVER INDEX is forecasted to be 8.2 million acre-feet, well into the "Critical" category.

FORECASTS of snowmelt runoff were generally lowered several percent under those of a month ago. Streams on the North Coast and in Tulare Lake Basin are expected to have particularly low flows - only about 30 percent of average. Runoff in Central Sierra rivers is forecast to be a little better, but still less than half average.

SNOWPACK water content is estimated to be only about 10 percent of average for May 1. Much of the pack has already melted, and the snowpack on the North Coast mountains is almost completely gone. The early melt was probably an advantage in that losses to the atmosphere were less than would be expected under cooler weather.

PRECIPITATION continues to be below normal in all areas of California. For the State as a whole, precipitation is a little more than half normal. The wettest area, the Sacramento Basin is only about two thirds of average.

RUNOFF to date is less than half of average statewide. The driest region continues to be the Central Coast with less than a tenth of normal runoff. Due to early snowmelt, April runoff in many snow-fed streams was higher than expected for the dryness of the season.

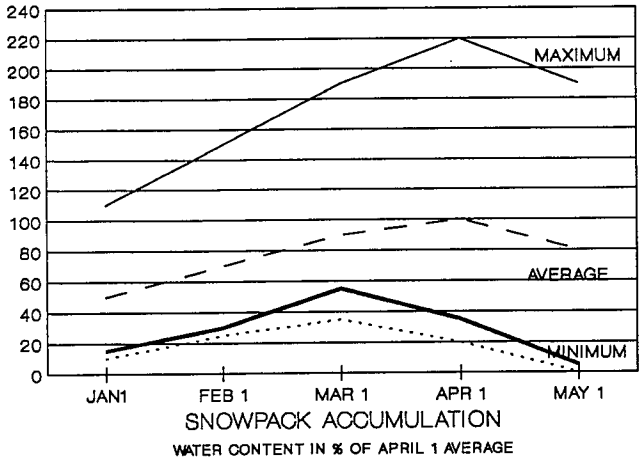
RESERVOIR STORAGE overall is about 70 percent of average for May first. South Coast reservoirs, which are mainly used to regulate imports, continue to hold near normal amounts. The most critical region for storage is the Central Coast whose reservoirs are holding only about 15 percent of average.

SUMMARY OF WATER CONDITIONS

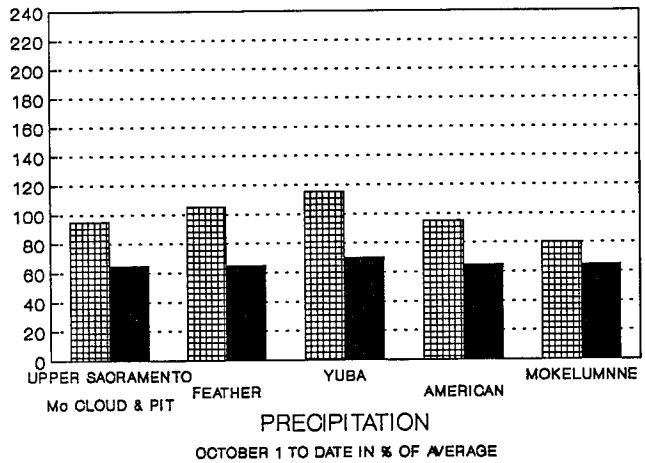
IN PERCENT OF AVERAGE

HYDROGRAPHIC AREA	PRECIPITATION OCTOBER 1 TO DATE	SNOW WATER CONTENT	RESERVOIR STORAGE	RUNOFF OCTOBER 1 TO DATE	RUNOFF APR-JULY FORECAST	WATER YEAR FORECAST
NORTH COAST	60	0	75	35	30	35
SAN FRANCISCO BAY	50	--	70	20	--	20
CENTRAL COAST	45	--	15	10	--	10
SOUTH COAST	50	--	100	20	--	15
SACRAMENTO BASIN	65	5	70	45	40	45
SAN JOAQUIN BASIN	60	15	80	50	40	40
TULARE LAKE BASIN	55	10	50	45	30	35
NORTH LAHONTAN	55	20	35	70	40	45
SOUTH LAHONTAN	45	25	75	55	45	45
COLORADO RIVER	25	--	--	--	--	--
STATEWIDE	55	10	70	40	35	40

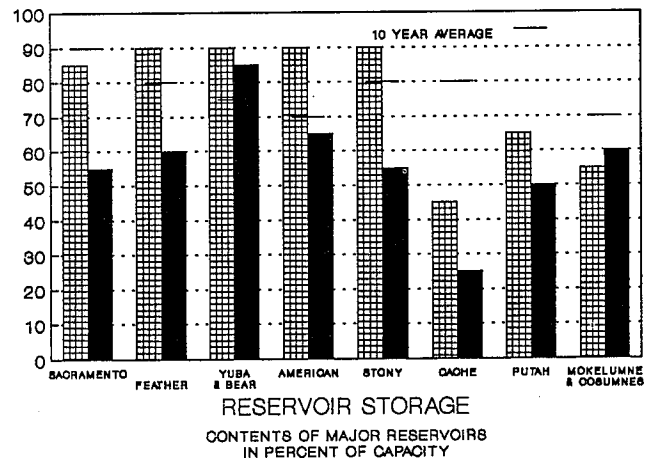
SACRAMENTO BASIN



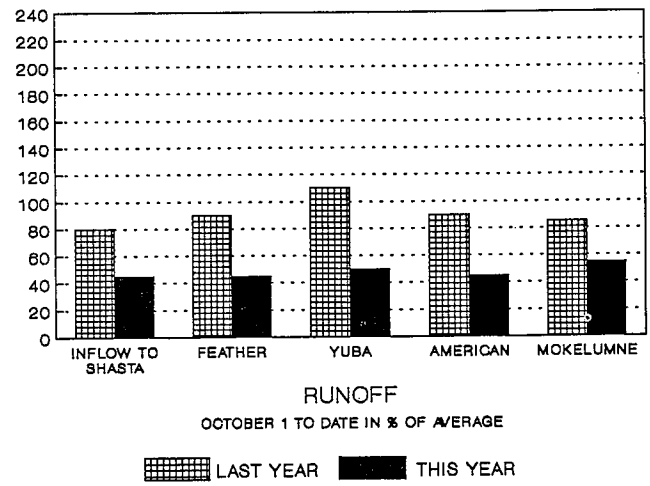
SNOWPACK - First of the month measurements made at 69 snow courses indicate a basin wide snow water equivalent of 2.5 inches. This is 6 percent of the average for this date and 4 percent of the seasonal (April 1) average. Last year at this time, the pack was holding 15.7 inches of water.



PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on the Sacramento Basin was 63 percent of normal. Precipitation last month was about 46 percent of the monthly average. Seasonal precipitation at this time last year stood at 95 percent of normal.

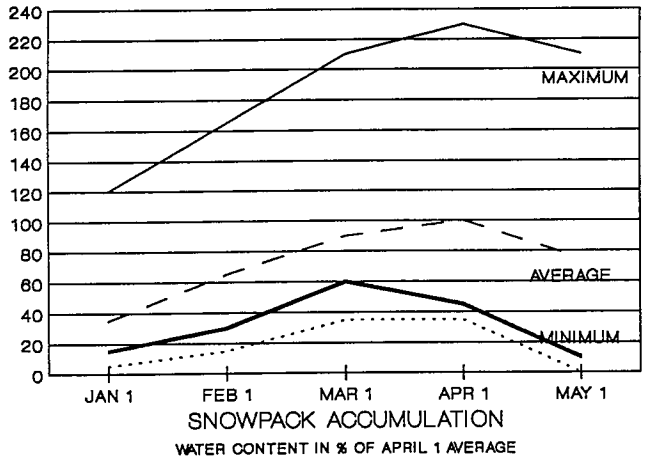


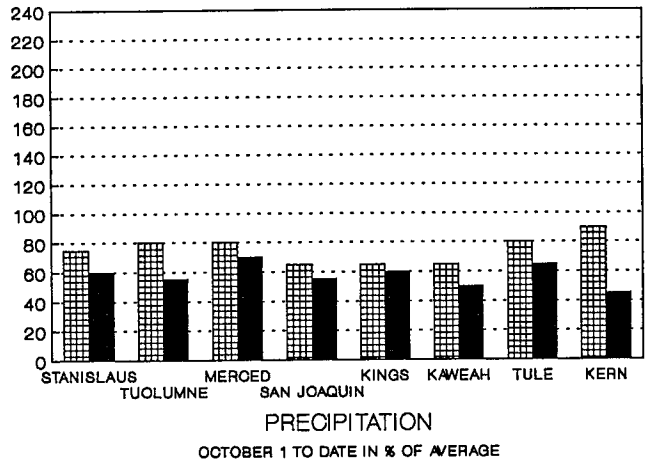
RESERVOIR STORAGE - First of the month storage in 43 reservoirs was 9.5 million acre-feet which is 72 percent of average. About 59 percent of available capacity was being used. Storage in these reservoirs was about 100 percent of average at this time last year.

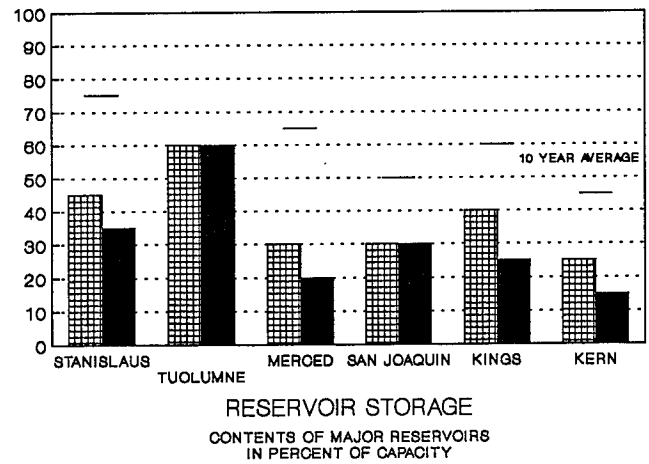


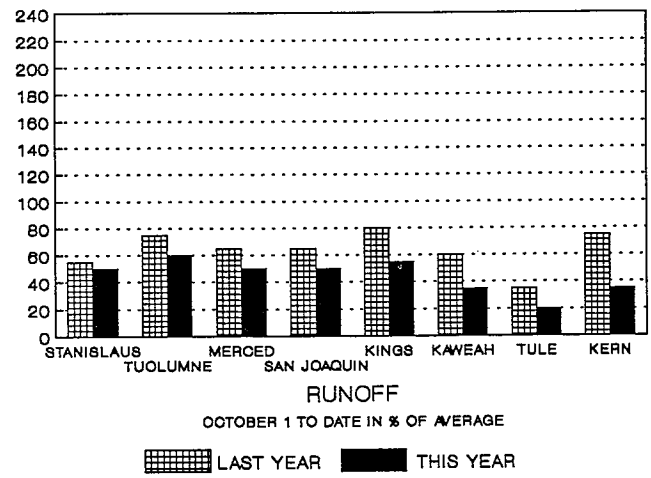
RUNOFF - Seasonal runoff from streams draining into the basin totaled 6.1 million acre-feet which is 45 percent of average for this period. Last year runoff for the same period was 85 percent of average.

The Sacramento River Index for the year is forecast at 8.2 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.









SAN JOAQUIN AND TULARE LAKE BASINS

SNOWPACK - First of the month measurements made at 56 San Joaquin Basin snow courses indicate a basin wide snow water equivalent of 5.1 inches which is 16 percent of the average for this date and 12 percent of the seasonal (April 1) average. Last year at this time, the pack was holding 13.7 inches of water.

At the same time, 40 Tulare Lake Basin snow courses indicated a basin wide snow water equivalent of 2.4 inches which is 9 percent of the average for this date and 7 percent of the seasonal average. Last year at this time, the Basin was holding 4.2 inches of water.

PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on the San Joaquin Basin was 62 percent of normal. Precipitation last month was 61 percent of the monthly average. Seasonal precipitation at this time last year stood at 75 percent of normal.

Seasonal precipitation on the Tulare Lake Basin was 55 percent of normal. Precipitation last month was 42 percent of the monthly average. Seasonal precipitation at this time last year stood at 75 percent of normal.

RESERVOIR STORAGE - First of the month storage in 33 San Joaquin Basin reservoirs was 6.1 million acre-feet which is 79 percent of average. About 53 percent of available capacity was being used. Storage in these reservoirs at this time last year was 80 percent of average.

First of the month storage in 6 Tulare Lake Basin reservoirs was 493 thousand acre-feet which is 51 percent of average. About 24 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 1.8 thousand acre-feet which is 51 percent of average for this period. Last year, runoff for this same period was 70 percent of average.

Seasonal runoff of streams draining into the Tulare Lake Basin totaled 548 thousand acre-feet which is 43 percent of average for this period. Last year, runoff for this same period was 70 percent of average.

DEPARTMENT OF WATER RESOURCES - CALIFORNIA DATA EXCHANGE CENTER
TELEMETERED SNOW WATER EQUIVALENTS - MAY 1, 1990

BASIN NAME STATION NAME	AGENCY	ELEV FEET	APR 1 AVG	TODAY	INCHES OF WATER EQUIVALENT PERCENT OF APR 1	24 HRS AGO	1 WEEK AGO
TRINITY RIVER							
PETERSON FLAT	USBR	6700	33.0	.0	0%	.0	22.3
RED ROCK MOUNTAIN	USBR	6700	44.0	.0	0%	.0	.0
BONANZA KING	USBR	6450	40.5	.0	0%	.0	.0
SHIMMY LAKE	USBR	6200	49.9	.0	0%	.0	1.0
MIDDLE BOULDER #3	USBR	6200	27.1	.0	0%	.0	2.3
HIGHLAND LAKES	USBR	6030	34.0	.0	0%	.0	.0
SCOTTS MOUNTAIN	USBR	5900	27.0	.0	0%	.0	.0
MUMBO BASIN	USBR	5700	25.8	.0	0%	.0	.0
BIG FLAT	USBR	5100	20.0	.0	0%	.0	.0
SACRAMENTO RIVER							
CEDAR PASS	SCS	7100	18.1	.0	0%	.2	.5
BLACKS MOUNTAIN	DWR	7286	8.6	.0	0%	.0	.0
SAND FLAT	USBR	6750	42.4	.0	0%	.0	.0
MEDICINE LAKE	USBR	6700	32.7	.0	0%	.0	1.4
ADIN MOUNTAIN	SCS	6350	13.6	----	----	----	.0
SNOW MOUNTAIN	USBR	5950	27.0	.0	0%	.0	.0
SLATE CREEK	USBR	5600	30.0	.0	0%	.0	.0
STOUTS MEADOW	USBR	5400	42.5	.0	0%	.0	.0
FEATHER RIVER							
KETTLEROCK	DWR	7300	25.5	.0	0%	.0	.0
GRIZZLY	DWR	6900	29.7	.0	0%	.0	.0
PILOT PEAK	DWR	6800	52.6	.0	0%	.0	.0
GOLD LAKE	DWR	6750	36.5	11.0	30%	11.9	16.3
HUMBUG	DWR	6500	28.0	.0	0%	.0	1.6
RATTLESNAKE	DWR	6100	14.0	.0	0%	.0	.0
BUCKS LAKE	DWR	5750	44.7	.0	0%	.0	3.0
FOUR TREES	DWR	5150	20.0	.0	0%	.0	.0
YUBA & AMERICAN RIV							
LAKE LOIS	DWR	8800	----	12.8	----	12.8	----
SCHNEIDERS	SMUD	8750	34.5	----	----	----	23.7
CAPLES LAKE COURSE	USBR	7800	30.9	.0	0%	1.3	9.0
ALPHA	SMUD	7600	35.9	----	----	----	8.4
FORNI RIDGE	USBR	7600	37.0	.0	0%	.0	2.6
SILVER LAKE	USBR	7100	22.7	.0	0%	.0	.0
CENT SIERRA SNOW LAB	USFS	6950	33.6	.0	0%	.0	1.4
HUYSINK	USBR	6600	42.6	3.8	9%	3.8	8.3
VAN VLECK	SMUD	6700	35.9	----	----	----	6.4
ROBBS SADDLE	SMUD	5900	21.4	----	----	----	.0
GREEK STORE	USBR	5600	21.0	.0	0%	.0	.0
BLUE CANYON	USBR	5280	9.0	.0	0%	.0	.0
ROBBS POWERHOUSE	SMUD	5150	5.2	----	----	----	.0
MOKEL. & STANIS. RIV							
DEADMAN CREEK	USBR	9250	37.2	11.4	31%	11.4	13.8
HIGHLAND MEADOW	USBR	8800	47.9	20.9	44%	20.9	24.0
GIANELLI MEADOW	USBR	8350	55.5	12.6	23%	12.8	16.3
LOWER RELIEF VALLEY	DWR	8100	41.2	1.4	3%	1.8	8.4
BLUE LAKES	SCS	8000	33.1	13.8	42%	13.7	15.3
MUD LAKE	SMUD	7900	44.9	----	----	----	23.6
STANISLAUS MEADOW	USBR	7750	47.5	7.4	16%	8.2	12.5
BLOODS CREEK	USBR	7200	35.5	.0	0%	1.2	5.7
BLACK SPRINGS	USBR	6500	32.0	.0	0%	.0	----
TUOLUMNE & MERCED R.							
DANA MEADOWS	DWR	9800	27.7	5.4	19%	5.4	8.8
SLIDE CANYON	DWR	9200	----	16.9	----	16.9	20.8
SNOW FLAT	DWR	8700	44.1	5.8	13%	6.5	11.1
TUOLUMNE MEADOWS	DWR	8600	22.6	.0	0%	.0	1.3
HORSE MEADOW	DWR	8400	48.6	18.0	37%	18.0	21.6
OSTRANDER LAKE	DWR	8200	34.8	.0	0%	1.3	7.9
PARADISE	DWR	7650	----	3.5	----	4.6	11.0
GIN FLAT	DWR	7050	34.2	.0	0%	.0	2.6
LOWER KIBBIE	DWR	6600	27.4	.0	0%	.0	.0
SAN JOAQUIN RIVER							
VOLCANIC KNOB	USBR	10100	30.1	11.8	39%	13.1	13.7
AGNEW PASS	USBR	9450	32.3	10.4	32%	10.4	14.4
KAISER POINT	USBR	9300	37.8	.0	0%	.0	1.2
GREEN MOUNTAIN	USBR	7900	30.8	.0	0%	.0	.0
TAMARACK SUMMIT	USBR	7600	30.5	.0	0%	.0	1.6

DEPARTMENT OF WATER RESOURCES - CALIFORNIA DATA EXCHANGE CENTER
TELEMETERED SNOW WATER EQUIVALENTS - MAY 1, 1990

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	1.2	3%	1.2	3.4
HUNTINGTON LAKE	USBR	7000	20.1	.0	0%	.0	.0
GRAVEYARD MEADOW	USBR	6900	18.8	.0	0%	.0	.0
POISON RIDGE	USBR	6900	28.9	.0	0%	.0	.0
KINGS RIVER							
BISHOP PASS	DWR	11200	----	13.7	----	13.7	15.0
CHARLOTTE LAKE	DWR	10400	----	5.9	----	6.5	8.5
STATE LAKES	USCE	10300	29.0	5.3	18%	5.6	9.3
MITCHELL MEADOW	USCE	10375	32.9	12.4	38%	12.6	16.2
BLACKCAP BASIN	USBR	10300	34.3	13.7	40%	15.7	17.0
UPPER BURNT CORRAL	DWR	9700	34.6	12.4	36%	13.1	17.0
WEST WOODCHUCK MDW	USCE	9100	32.8	.0	0%	.0	4.5
BIG MEADOWS	DWR	7600	25.9	.0	0%	.0	.0
KAWEAH & TULE RIVERS							
QUAKING ASPEN	DWR	7200	21.0	.0	0%	.0	1.2
GIANT FOREST	USCE	6412	10.0	.0	0%	.0	2.7
KERN RIVER							
UPPER TYNDALL CREEK	USCE	11450	27.7	9.8	35%	9.3	11.7
CRABTREE	DWR	10700	19.8	.0	0%	.0	.0
CHAGOOPA PLATEAU	DWR	10300	21.8	.0	0%	.0	.0
PASCOES	USCE	9150	24.9	.0	0%	.0	4.5
TUNNEL	DWR	8950	15.6	.0	0%	.0	.0
WET MEADOW	USCE	8900	30.3	.0	0%	.0	.0
CASA VIEJA MDW	DWR	8400	20.9	.0	0%	.0	.0
BEACH MEADOW	DWR	7630	11.0	.0	0%	.0	.0
SURPRISE VALLEY AREA							
DISMAL SWAMP	SCS	7050	29.2	.8	3%	1.3	3.2
TRUCKEE RIVER							
MOUNT ROSE	SCS	9000	35.9	----	----	----	----
MOUNT ROSE SKI AREA	SCS	8850	38.5	11.4	30%	11.6	14.9
INDEPENDENCE LAKE	SCS	8450	41.4	21.6	52%	21.8	23.0
BIG MEADOWS	SCS	8700	25.7	----	----	.0	----
INDEPENDENCE CAMP	SCS	6500	21.8	.0	0%	.0	.2
INDEPENDENCE CREEK	SCS	6500	12.7	----	----	----	.0
LAKE TAHOE BASIN							
HEAVENLY VALLEY	SCS	8800	28.1	.4	1%	.5	----
HAGANS MEADOW	SCS	8000	16.5	.2	1%	.1	.3
MARLETTE LAKE	SCS	8000	21.1	.9	4%	1.0	2.0
ECHO PEAK	SCS	7800	39.5	----	----	----	1.0
RUBICON NO. 2	SCS	7500	29.1	.4	1%	.4	3.0
WARD CREEK NO. 3	SCS	6750	39.4	.9	2%	.8	5.7
FALLEN LEAF LAKE	SCS	6300	7.0	----	----	----	.0
CARSON RIVER							
EBBETTS PASS	SCS	8700	38.8	6.6	17%	6.6	10.3
WET MEADOWS	SCS	8050	38.8	9.6	25%	9.4	12.9
POISON FLAT	SCS	6900	16.2	----	----	----	----
WALKER RIVER							
VIRGINIA LAKES RIDGE	SCS	9200	20.3	3.8	19%	3.7	6.1
LOBDELL LAKE	SCS	9200	17.3	.7	4%	.7	1.2
SONORA PASS BRIDGE	SCS	8750	26.0	8.1	31%	7.4	10.3
LEAVITT MEADOWS	SCS	7200	8.0	.0	0%	.0	.0
OWENS RIVER/MONO LK.							
GEM PASS	LADWP	10750	31.7	16.8	53%	17.0	19.0
SAWMILL MEADOW	DWR	10300	19.4	1.8	9%	1.8	5.7
COTTONWOOD LAKES	LADWP	10200	11.6	8.4	72%	8.4	8.6
BIG PINE #3	LADWP	9800	17.9	.0	0%	.0	3.3
SOUTH LAKE	LADWP	9600	16.0	1.6	10%	1.3	4.6
MAMMOTH PASS (RP)	USBR	9500	42.4	17.5	41%	17.7	----

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

FORECASTS OF APRIL-JULY UNIMPAIRED RUNOFF FOR CENTRAL VALLEY STREAMS MAY 1, 1990

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	100	33	
McCloud River at Shasta Lake(2)	430	850	185	210	49	
Pit River at Shasta Lake(2)	1,075	1,796	480	600	56	
Total inflow to Shasta Lake(1)	1,880	3,189	726	860	46	780-1160
Sacramento River above Bend Bridge, near Red Bluff	2,569	4,674	943	1,100	43	980-1,500
Feather River						
Feather River at Lake Almanor near Pratville (2)	345	675	120	160	46	
North Fork at Pulga (2)	1,080	2,416	243	400	37	
Middle Fork near Clio (3)	86	518	4	10	12	
South Fork at Ponderosa Dam (2)	116	267	13	40	34	
Total inflow to Oroville Reservoir	1,971	4,676	392	680	35	560-960
Yuba River						
North Yuba below Goodyears Bar (2)	298	647	51	120	40	
Inflow to Jackson Mdws and Bowman Reservoirs (2)	115	236	25	40	35	
South Yuba at Langs Crossing (2)	232	481	57	110	47	
Yuba River at Smartville	1,107	2,424	200	440	40	370-600
American River						
North Fork at North Fork Dam (2)	274	716	43	90	33	
Middle Fork near Auburn (2)	548	1,406	100	200	36	
Silver Creek below Camino Diversion Dam (2)	178	386	37	70	39	
Total inflow to Folsom Reservoir	1,366	3,074	229	470	34	400-650
Sacramento River at Sacramento						
SAN JOAQUIN RIVER BASIN						
Cosumnes River at Michigan Bar	140	363	8	30	21	20-60
Mokelumne River						
North Fork near West Point (4)	437	829	104	200	46	
Total inflow to Pardee Reservoir	490	1,065	102	210	43	170-260
Stanislaus River						
North Fork inflow to McKay's Point Dam	224	503	34	90	40	
Middle Fork below Beardsley Dam (2)	352	702	64	150	43	
Total inflow to Melones Reservoir	753	1,710	116	300	40	240-380
Tuolumne River						
Cherry Creek and Eleanor Creek near Hetch Hetchy (2)	322	727	97	140	43	
Tuolumne River near Hetch Hetchy (2)	618	1,392	153	290	47	
Total inflow to Don Pedro Reservoir	1,254	2,682	301	530	42	450-660
Merced River						
Merced River at Pohono Bridge (2)	371	888	80	160	43	
Total inflow to Exchequer Reservoir	654	1,587	123	250	38	200-300
San Joaquin River						
San Joaquin River at Mammoth Pool (2)	1,014	2,279	235	420	41	
Big Creek below Huntington Lake (2)	95	264	11	30	32	
South Fork near Florence Lake (2)	202	511	58	90	45	
Total inflow to Millerton Lake	1,296	3,355	262	490	38	390-610
San Joaquin River near Vernalis						
TULARE LAKE BASIN						
Kings River						
North Fork Kings River near Cliff Camp (2)	243	565	50	90	37	
Total inflow to Pine Flat Reservoir	1,266	3,114	273	460	36	360-560
Kaweah River at Terminus Reservoir	303	814	61	95	31	75-130
Tule River at Success Reservoir	70	256	2	11	16	7-18
Kern River						
Kern River near Kernville (2)	389	1,203	83	100	26	
Total inflow to Isabella Reservoir	492	1,657	84	105	21	85-145 *

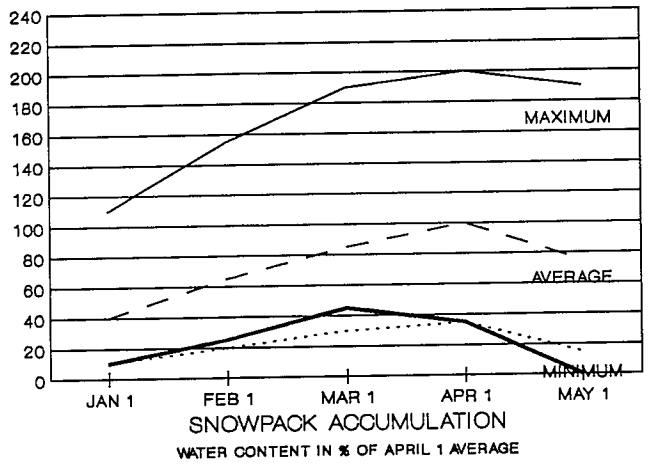
(1) All 50-year averages are based on data for water years 1936-1985 except:
(2) 45-year average based on years 1936-80. (4) 36-year average based on years 1936-71.
(3) 44-year average based on years 1936-79. (5) See inside back cover for definition of unimpaired runoff and 80 percent probability ranges.

FORECASTS OF WATER YEAR UNIMPAIRED RUNOFF FOR CENTRAL VALLEY STREAMS MAY 1, 1990

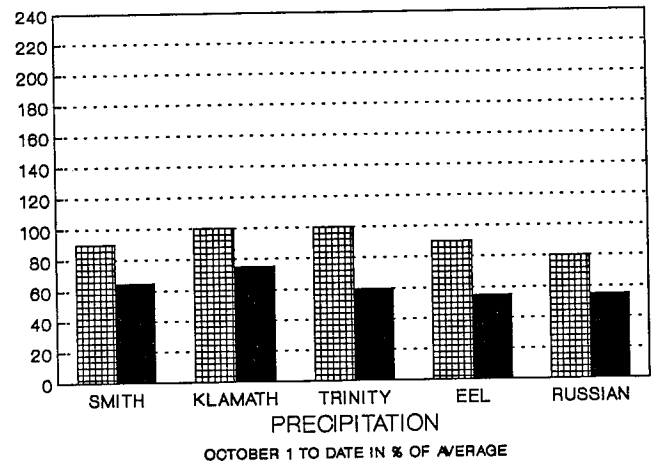
Water Year October through September Unimpaired Runoff in 1,000's Acre-Feet												
HISTORICAL			*	*	*	DISTRIBUTION					FORECASTS	
50 Year Average	Maximum of Record	Minimum of Record	October through January	February	March	April	May	June	July	August and September	Water Year Forecast	Percent of Average
859	1,964	165										
1,286	2,353	577										
3,169	5,150	1,484										
6,090	10,796	2,479	1,180	280	470	250	230	200	180	340	3,130 (3,020-3,650)	51
8,856	17,180	3,294	1,610	370	620	330	300	250	220	400	4,100 (3,950-4,700)	46
786	1,269	366										
2,446	4,400	666										
219	637	24										
292	562	32										
4,754	9,492	994	600	180	390	320	190	100	70	120	1,970 (1,840-2,300)	41
565	1,056	102										
174	292	30										
357	565	98										
2,460	4,926	369	290	100	230	240	150	40	10	20	1,080 (1,000-1,250)	44
612	1,234	66										
1,066	2,575	144										
314	705	59										
2,837	6,381	349	210	100	240	270	150	40	10	10	1,030 (960-1,220)	36
												43
407	1,253	20	20	12	33	20	7	2	1	0	95 (85-125)	23
626	1,009	197										
776	1,800	129	50	20	60	95	90	23	2	0	340 (300-390)	44
483	929	88										
1,198	2,952	155	80	25	80	135	120	40	5	5	490 (430-580)	41
461	1,147	123										
775	1,661	258										
1,951	4,430	383	130	50	145	235	210	75	10	5	860 (780-1,000)	44
460	1,020	92										
1,023	2,859	150	50	25	55	110	100	35	5	5	385 (330-440)	38
1,337	2,964	308										
112	298	14										
248	653	71										
1,861	4,642	362	90	35	85	175	170	110	35	20	720 (620-850)	39
												41
282	607	58										
1,745	4,294	383	70	30	70	170	165	100	25	20	650 (550-760)	37
468	1,402	92	18	7	20	30	40	20	5	5	145 (125-180)	31
159	615	16	6	4	8	5	5	1	0	0	29 (25-36)	18
575	1,577	163										
749	2,309	175	43	12	20	30	35	25	15	15	195 (170-240)	26

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

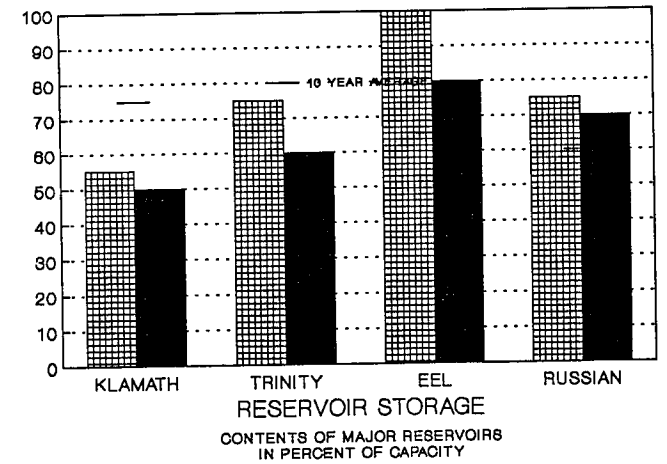
NORTH COAST AREA



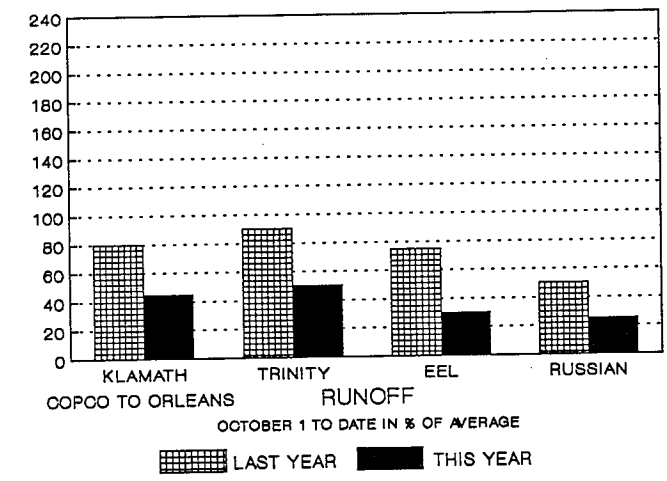
SNOWPACK - First of the month measurements made at 11 snow courses indicate an area wide snow water equivalent of 0.2 inches. This is 0 percent of the seasonal (April 1) average. Last year at this time the pack was holding 12.6 inches of water.



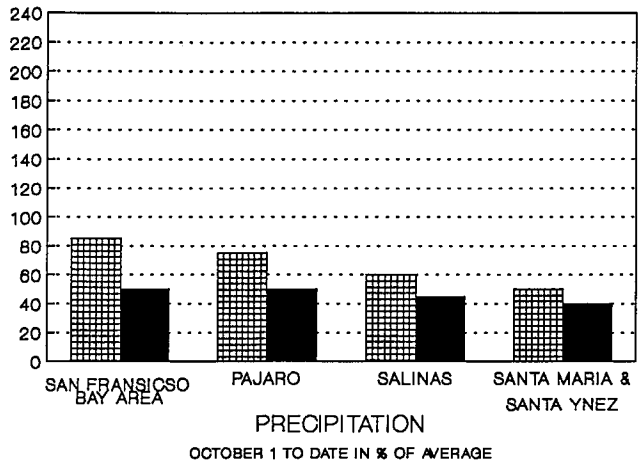
PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on this area was 62 percent of normal. Precipitation last month was about 50 percent of the monthly average. Seasonal precipitation at this time last year stood at 95 percent of normal.



RESERVOIR STORAGE - First of the month storage in 7 reservoirs was 1.9 million acre-feet which is 75 percent of average. About 60 percent of available capacity was being used. Storage in these reservoirs at this time last year was 90 percent of average.



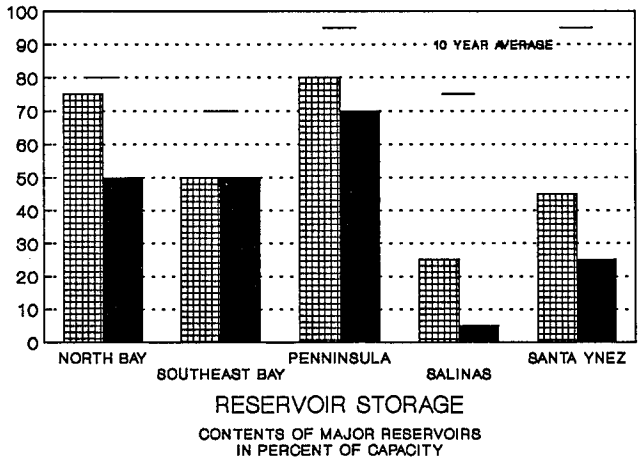
RUNOFF - Seasonal runoff of streams draining the area totaled 4.2 million acre-feet which is 37 percent of average for this period. Last year, runoff for the same period was 75 percent of average.



SAN FRANCISCO AND CENTRAL COAST AREAS

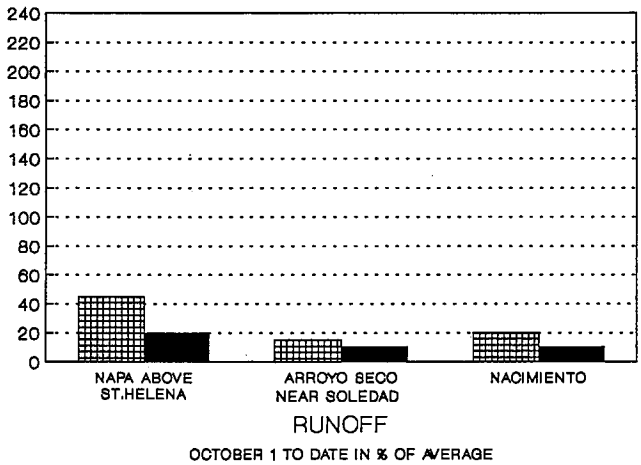
PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on the San Francisco Bay area was 50 percent of normal. Precipitation last month was 19 percent of the monthly average. Seasonal precipitation at this time last year stood at 85 percent of normal.

Seasonal precipitation on the Central Coast area averaged 47 percent of normal. Precipitation last month was 22 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 18 major Bay area reservoirs was 353 thousand acre-feet which is 68 percent of average. About 51 percent of available capacity was being used. Storage in these reservoirs at this time last year was 80 percent of average.

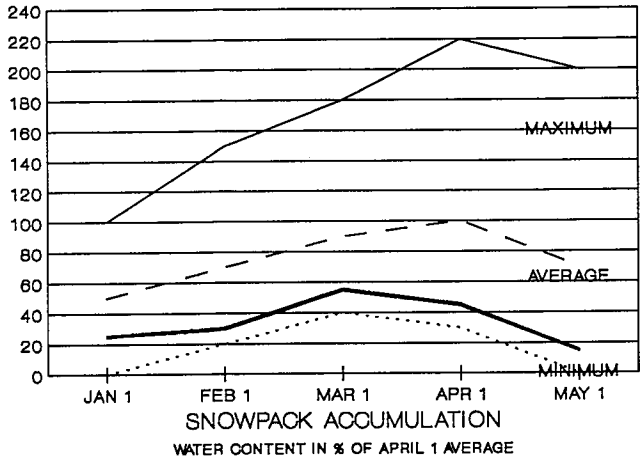
First of the month storage in 6 major Central Coast reservoirs was 125 thousand acre-feet which is 17 percent of average. About 13 percent of available capacity was being used. Storage in these reservoirs at this time last year was 40 percent of average.



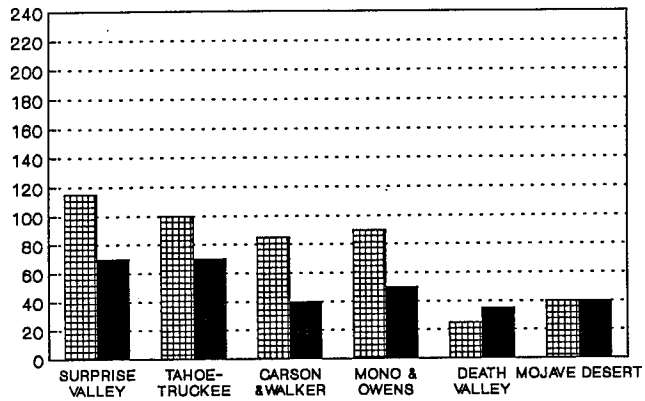
RUNOFF - Seasonal runoff of streams draining the San Francisco Bay area totaled 14 thousand acre-feet which is 20 percent of average for this period. Last year, runoff for this same period was 25 percent of average.

Seasonal runoff of selected Central Coast streams totaled 32 thousand acre-feet which is 9 percent of average for this period. Last year, runoff for this same period was 15 percent of average.

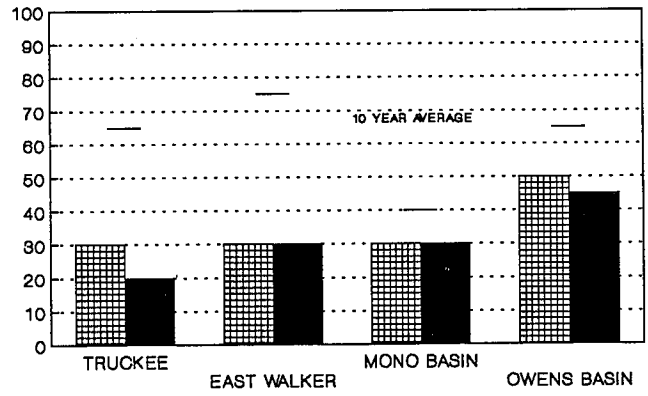
LAST YEAR THIS YEAR



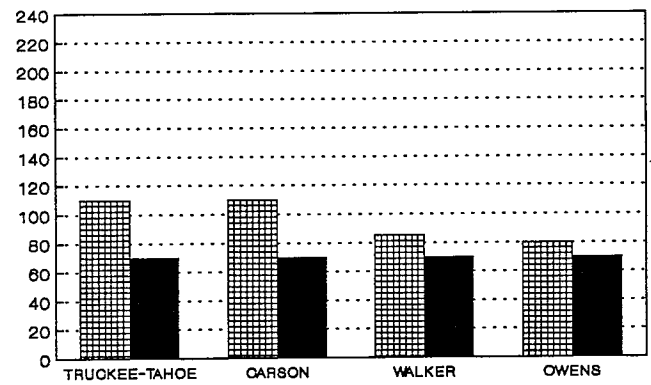
SNOWPACK ACCUMULATION
WATER CONTENT IN % OF APRIL 1 AVERAGE



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 2 North Lahontan snow courses indicate an area wide snow water equivalent of 6.0 inches which is 20 percent of normal for this date and 15 percent of the seasonal (April 1) average. Last year at this time, the pack was holding 31.6 inches of water.

At the same time, 5 South Lahontan courses indicated an area wide snow water equivalent of 4.4 inches which is 25 percent of the May 1 normal and 20 percent of the seasonal average.. Last year at this time, the basin was holding 2.9 inches of water.

PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) over the North Lahontan area averaged 54 percent of normal. Precipitation last month was 87 percent of the monthly average. Seasonal precipitation at this time last year stood at 100 percent of normal.

Seasonal precipitation over the South Lahontan area averaged 43 percent of normal. Last month's precipitation was 52 percent of the monthly average. Seasonal precipitation at this time last year stood at 50 percent of normal.

RESERVOIR STORAGE - First of the month storage in 5 North Lahontan reservoirs was 243 thousand acre-feet which is 36 percent of average. About 23 percent of available capacity was being used. Storage in these reservoirs at this time last year was 45 percent of average.

First of the month storage in 8 South Lahontan reservoirs was 208 thousand acre-feet which is 77 percent of average. About 52 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 the North Lahontan area totaled 293 thousand acre-feet which is 69 percent of average for this period. Last year, runoff for this same period was 100 percent of average.

Seasonal runoff of the Owens River in the South Lahontan area totaled 92 thousand acre-feet which is 68 percent of average for this period. Last year, runoff for this same period was 81 percent of average.

FORECASTS OF APRIL-JULY UNIMPAIRED RUNOFF FOR SELECTED CALIFORNIA STREAMS

MAY 1, 1990

DRAINAGE BASIN AND WATERSHED	April through July Unimpaired Runoff in 1,000 Acre-Feet				
	HISTORICAL			FORECASTS	
	50 Year Average(1)	Maximum of Record	Minimum of Record	April-July Forecast	Percent of Average
NORTH COAST AREA					
Trinity River at Lewiston	676	1,593	80	210	31
Scott River at Ft. Jones	200			50	25
Upper Klamath Lake(1)(2)(5)	521			140	41
LAHONTAN AREA					
Truckee River, Lake Tahoe to Farad accretion	278	713	58	110	40
Lake Tahoe Rise in feet (assuming gates closed)	1.5	3.75	0.23	0.5	33
East Carson River near Gardnerville	195	407	43	80	41
West Carson River at Woodfords	55	131	12	25	45
East Walker River near Bridgeport	68	209	7	16	24
West Walker River near Coleville	154	330	35	70	45
Owens River(1)(3)	310	728	131	145	47

(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

SOUTH COAST AND COLORADO RIVER AREAS

PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on the South Coast was 49 percent of normal. Precipitation last month was 61 percent of the monthly average. Seasonal precipitation at this time last year stood at 60 percent of normal.

Seasonal precipitation on the Colorado River area was 27percent of normal. Precipitation last month was 38 percent of the monthly average. Seasonal precipitation at this time last year was 50 percent of average.

RESERVOIR STORAGE - First of the month storage in 29 South Coast reservoirs was 1.3 million acre-feet which is 99 percent of average. About 67 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 41.0 million acre-feet which is 113 percent of average. About 77 percent of available capacity was being used.

RUNOFF - Seasonal runoff of selected South Coast streams totaled 11 thousand acre-feet which is 18 percent of average. Last year, runoff for the same period was 35 percent of average.

UPPER COLORADO - The May 1 snowpack in the Upper Colorado River Basin according to the U.S. Soil Conservation Service was 70 percent of average and ranges from 3 percent in the Colorado Plateau to 84 percent in the San Juan Basin.

3.1 on July 1 38%

The April through July inflow to Lake Powell is forecast to be 3.0 million acre-feet which is 37 percent of normal.

CENTRAL VALLEY PROJECT

CVP storage decreased from 6.4 to 6.3 million acre-feet in April. Total CVP storage is now 67 percent of normal. Last year on April 30, storage was 8.4 million acre-feet. U. S. Bureau of Reclamation forecasts of April through July runoff range from 33 percent of normal at Folsom to 48 percent of normal at Shasta. All previously announced water delivery deficiencies are still in effect: 25 percent to water rights contractors, 50 percent to most others. Reclamation forecasts show that by September 30, 1990, storage will be less than 3.0 million acre-feet. Not since 1977 have CVP reservoirs been that low.

STATE WATER PROJECT

SWP conservation storage (Oroville plus the State's share at San Luis) reached a maximum of 3.17 million acre-feet on April 1, 1990. This maximum storage is only an increase of 0.81 million acre-feet from the 1989 minimum of 2.36 million acre-feet. Other SWP reservoirs reached their maximum total storage of 679.0 thousand acre-feet, 99 percent full, in mid-April.

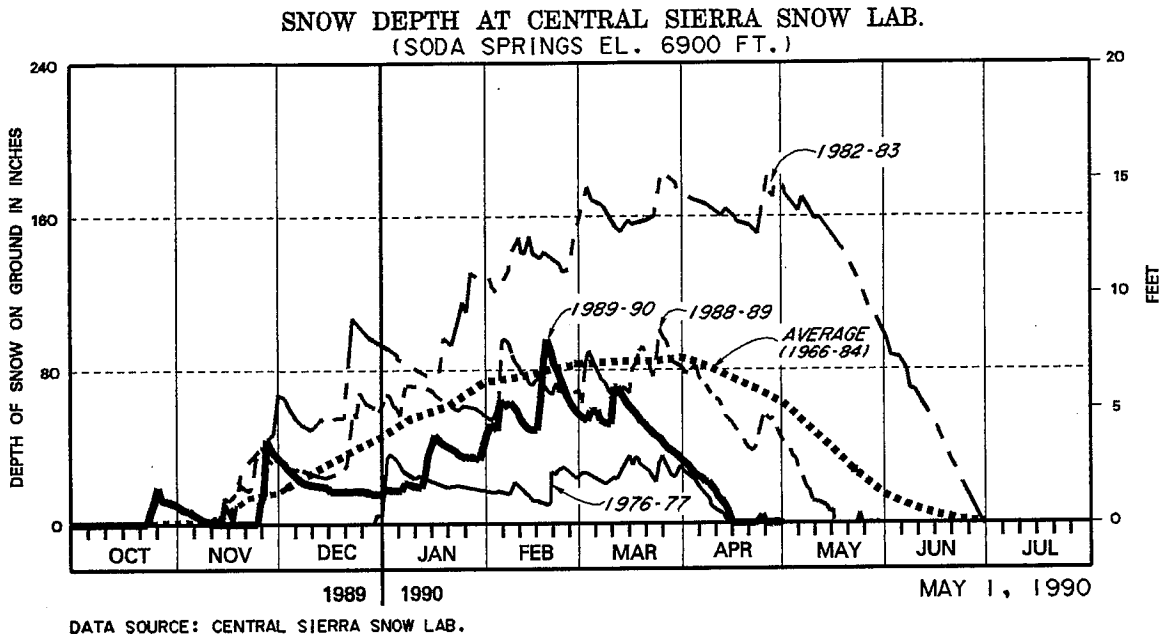
The May 1, 1990 forecasted water supply for the Feather River Basin is 1.97 million acre-feet, 41 percent of the historic average inflow. The SWP anticipates delivering 2.6 million acre-feet of entitlement water; the full urban entitlement of 2.0 million acre-feet and 50 percent of agricultural entitlement, 0.6 million acre-feet. The SWP conservation storage is expected to be 1.4 million acre-feet at the end of the 1990 water year.

MAJOR WATER DISTRIBUTION PROJECTS

RESERVOIR STORAGE

(AVERAGES BASED ON PERIOD RECORD)

RESERVOIR	CAPACITY 1,000 AF	AVERAGE STORAGE 1,000 AF	STORAGE AS OF APRIL 30 1989 1,000 AF	1990 1,000 AF	PERCENT AVERAGE
STATE WATER PROJECT					
Oroville	3,540	2,995	3,344	1,871	62
San Luis SWP	1,060	975	824	1,144	117
Lake Del Valle	77	39	36	37	95
Silverwood	73	67	72	68	102
Pyramid Lake	171	164	166	162	99
Castaic Lake	324	277	312	317	114
Perris Reservoir	132	116	96	126	108
CENTRAL VALLEY PROJECT					
Clair Engle Lake	2,450	2,110	1,842	1,498	71
Shasta Lake	4,552	4,153	3,743	2,484	60
Whiskeytown	241	231	230	217	94
Folsom	1,010	739	948	525	71
New Melones	2,420	1,750	975	715	41
Millerton Lake	521	315	355	305	97
San Luis CVP	980	850	706	820	96
COLORADO RIVER PROJECT					
Lake Mead	26,159	19,434	22,534	21,068	108
Lake Powell	25,002	14,756	21,309	17,775	120
Lake Mohave	1,810	1,637	1,540	1,620	99
Lake Havasu	619	578	594	598	103
EAST BAY MUNICIPAL UTILITY DISTRICT					
Pardee	210	180	190	194	108
Camanche	431	279	81	190	68
East Bay (4 reservoirs)	151	132	137	130	99
CITY & COUNTY OF SAN FRANCISCO					
Hetch Hetchy	360	149	230	162	109
Cherry Lake	268	133	183	158	119
Lake Eleanor	26	14	18	6	41
South Bay (4 reservoirs)	225	179	145	117	65
CITY OF LOS ANGELES(DWP)					
Crowley Lake(Long Valley)	183	121	97	97	80
Grant Lake	48	23	16	19	83
Other Aqueduct Storage(6 reservoirs)	95	69	57	50	72



********SNOW LINES**********

IMPACT OF DROUGHT - The year 1990 has been declared a critical year for the entire State of California by the Director of the Department of Water Resources because of poor runoff conditions and much below normal reservoir storage. The critical declaration gives the State Water Resources Control Board broad administrative powers in preventing illegal water diversions.

STATE DROUGHT CENTER - As it did during the 1976-77 drought, the Department of Water Resources has established a focal point for responding to the ongoing emergency. Information and assistance is currently available to communities and individuals. To more effectively carry out its mission, the Center will expand its staff and move into new quarters. The move should be completed about May 15.

WINTER - It seems to have bypassed California and many other western States this year but it certainly did not bypass Alaska. Alaska's March Snow Surveys Bulletin states that the snowpacks in some areas "...are not only maximum of record for the last 30 years, but are 20 or more percent greater than the former maximum. February snowfall in one area, the Susitna Basin, was 300 percent of normal.

DRY YEARS COMPARED - Here is another comparison of current conditions with past dry years. The figures are for statewide conditions on May 1 and they are in percent of average.

	1990	1989	1988	1977	1976
Precipitation	55	80	80	30	60
Water Content of Snowpack	10	40	20	5	35
Storage	70	90	85	50	85
Runoff to date	40	80	50	20	50
A-J Forecast	35	70	35	20	35
W.Y. Forecast	40	70	45	20	50

SNOWPACK—Snow data is a major index of spring and summer runoff from Sierra Nevada watersheds. April 1 data historically reflects the magnitude of the snowpack at or near the maximum seasonal accumulation. Averages are based on April 1 date for the period 1936-1985 (50 years, except for data sites estabilshed after 1936).

PRECIPITATION—Averages are based on the period 1931-1980 (50 years)

RUNOFF AND FORECASTS—Runoff data and runoff forecasts are shown as unimpaired values. Unimpaired runoff represents the natural water production of a river basin, unaltered by upstream diversions, storage, or by export or import of water to or from other watersheds. Forecast of runoff assume median conditions subsequent to the date of forecast.

Runoff probability ranges are statistically derived from historical data. The 80 percent probability range is comprised of the 90 percent exceedence level value and the 10 percent exceedence level value. This means that actual runoff should fall within the state limits eight times out of ten.

Runoff averages for most streams are based on the 50 year period (1936-1985). For more details, contact California Cooperative Snow Surveys, P.O. Box 943836, Sacramento, CA 94236-0001, (916) 445-2196.

On Front Cover

Summer's water supply starts its way to California's reservoirs

Photo by DWR

State of California—Resources Agency
Department of Water Resources
P.O. Box 942836
Sacramento, CA 94236-0001

FIRST CLASS