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Snow Surveys  
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State of California  
The Resources Agency

Department of  
Water Resources

# Water Conditions in California

Report 2 March 1, 1996



**Pete Wilson**  
Governor  
State of California

**Douglas P. Wheeler**  
Secretary for Resources  
The Resources Agency

**David N. Kennedy**  
Director  
Department of Water Resources

**STATE OF CALIFORNIA**

Pete Wilson, Governor

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**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
- 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
- South San Joaquin Irrigation District
- Tri-Dam Project
- Tulare Lake Basin Water Storage District
- Turlock Irrigation District
- Yuba County Water Agency
- West Basin Municipal Water District

**Private Organizations**

- J.G. Boswell Company
- Kaweah River Association
- Kings River Water Association
- St. Johns River Association

- Tule River Association
- State Water Contractors

**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  
Resource Conservation Service
- U.S. Department of Commerce  
National Weather Service
- U.S. Department of Interior  
Bureau of Reclamation  
Geological Survey, Water Resources  
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

March 1, 1996

Precipitation was much above normal during February for the third consecutive wet month this season. Warmer than average conditions caused the snowpack to lag behind precipitation. However, after mid-month, a series of cooler storms began to increase snowpack again, bringing the pack to near average by the end of the month. The water supply outlook for the 1996 season is good.

Forecasts of April through July runoff are near normal for all snowmelt hydrologic regions of the State. Water year forecasts are slightly higher because of heavy February runoff.

Snowpack water content is 100 percent of average for this date and about 90 percent of the April 1 average, which is usually the date of maximum accumulation. Snowpack percentages are slightly greater in the higher elevation Central and Southern Sierra. Last year's March 1 pack was 135 percent of average.

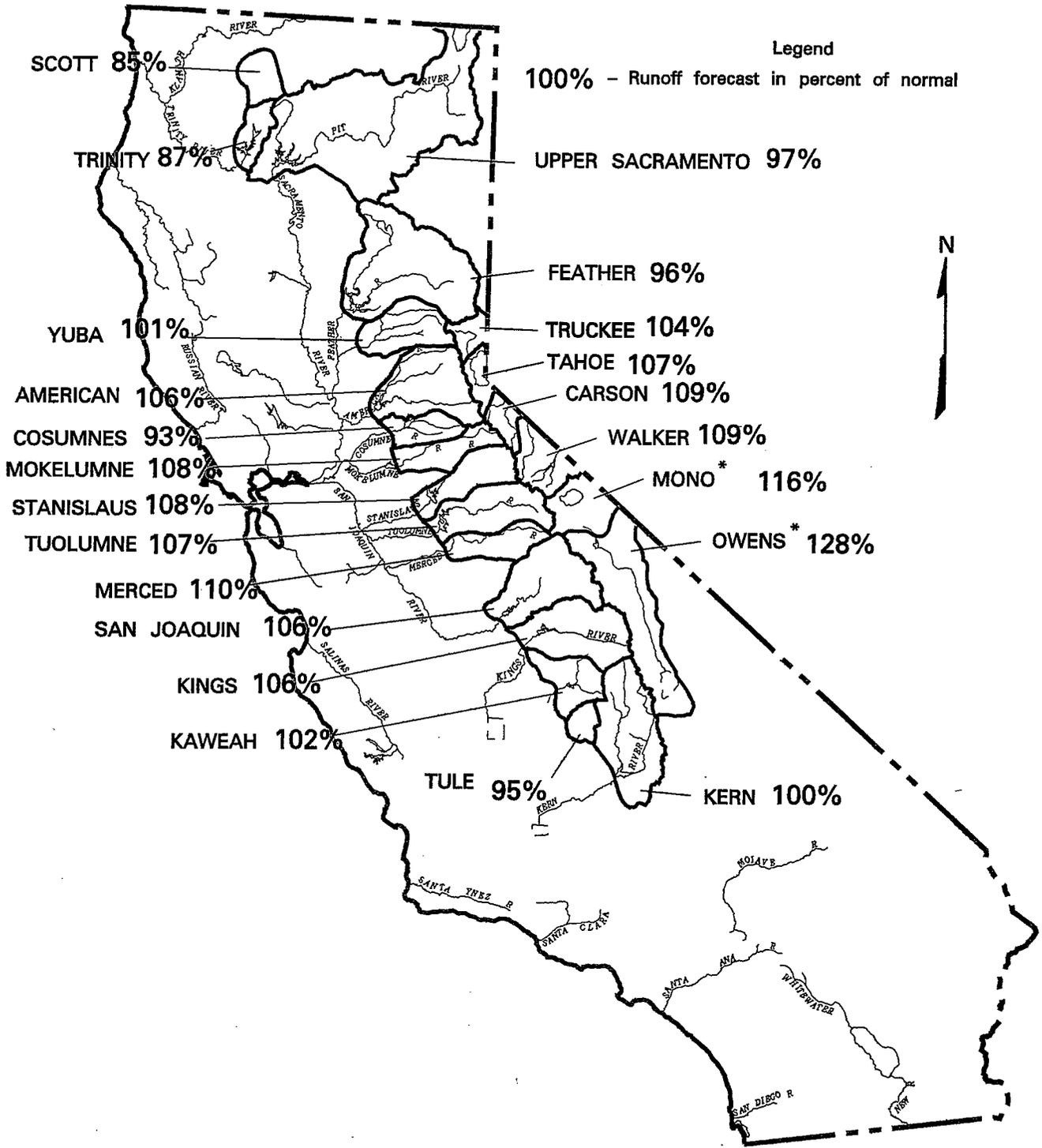
Precipitation during February was about 175 percent of average statewide. Precipitation since October 1 is 115 percent of average. Only the southern end of California shows less than average rainfall. Last year seasonal precipitation stood at 140 percent.

Runoff so far this season is estimated at 120 percent of average, nearly as much as the 130 percent last year at this time. February runoff was twice normal. Estimated runoff during February of the 8 major rivers of the Sacramento and San Joaquin river hydrologic regions was 6.2 million acre-feet.

Reservoir storage increased during the past month at a pace slightly ahead of the normal gain and is now about 125 percent of average. Total storage last year was 100 percent of average. Most major foothill reservoirs in the Central Valley made substantial extra releases for flood control during February.

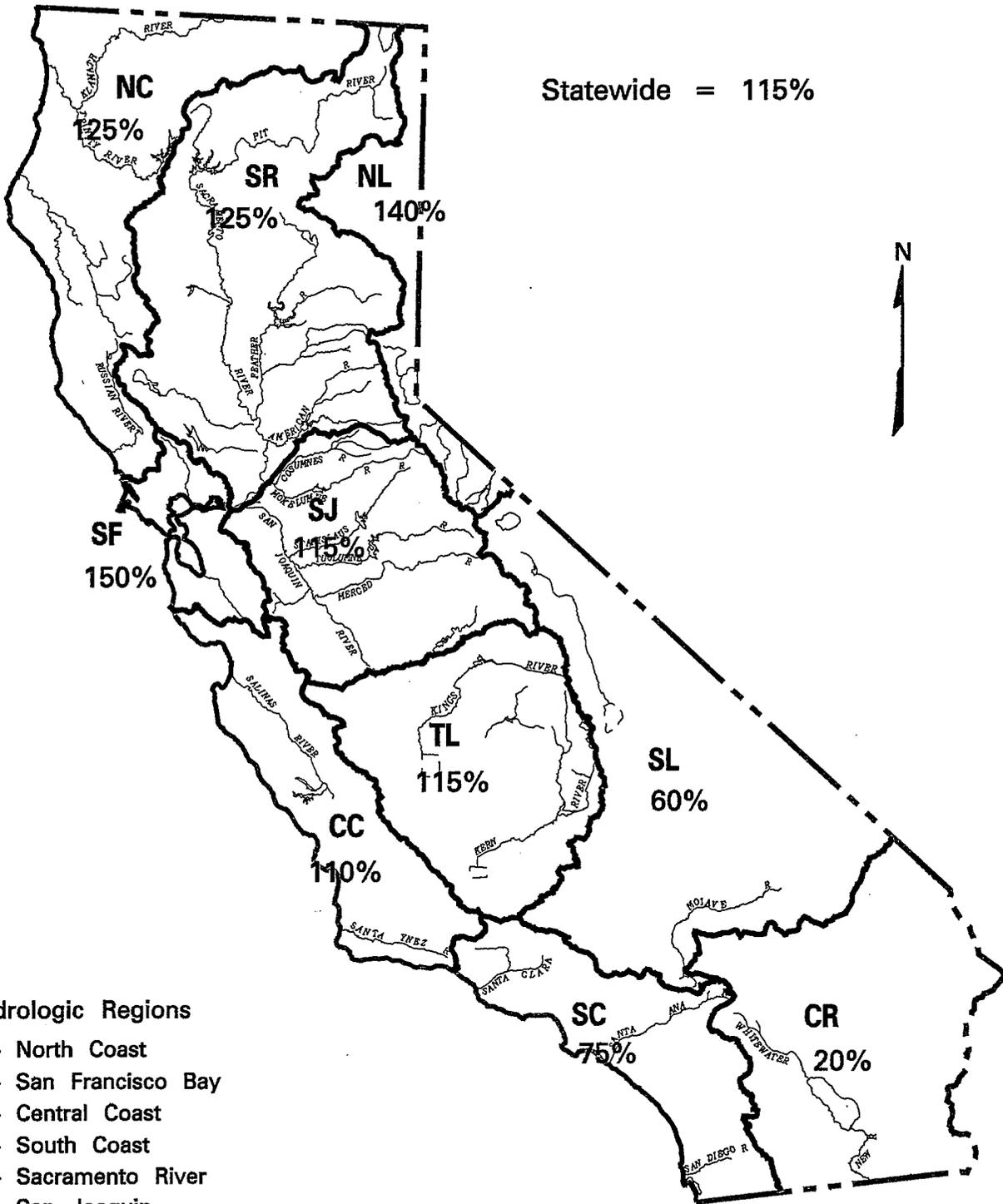
SUMMARY OF WATER CONDITIONS						
IN PERCENT OF AVERAGE						
HYDROLOGIC REGION	PRECIPITATION OCTOBER 1 TO DATE	MARCH 1 SNOW WATER CONTENT	MARCH 1 RESERVOIR STORAGE	RUNOFF OCTOBER 1 TO DATE	APR-JULY RUNOFF FORECAST	WATER YEAR RUNOFF FORECAST
NORTH COAST	125	90	110	120	85	105
SAN FRANCISCO BAY	150	--	130	160	--	--
CENTRAL COAST	110	--	115	110	--	--
SOUTH COAST	75	--	125	115	--	--
SACRAMENTO REGION	125	95	115	115	100	110
SAN JOAQUIN REGION	115	105	135	125	105	110
TULARE LAKE REGION	115	110	160	120	105	105
NORTH LAHONTAN	140	105	145	140	105	110
SOUTH LAHONTAN	60	125	95	120	125	120
COLORADO RIVER-DESERT	20	--	--	--	--	--
STATEWIDE	115	100	125	120	100	110

**FORECAST OF APRIL - JULY  
UNIMPAIRED SNOWMELT RUNOFF**  
March 1, 1996



\* FORECAST BY DEPARTMENT OF WATER AND POWER, CITY OF LOS ANGELES

**SEASONAL PRECIPITATION**  
 IN PERCENT OF AVERAGE TO DATE  
 October 1, 1995 through February 29, 1996



Statewide = 115%

**Hydrologic Regions**

- NC - North Coast
- SF - San Francisco Bay
- CC - Central Coast
- SC - South Coast
- SR - Sacramento River
- SJ - San Joaquin
- TL - Tulare Lake
- NL - North Lahontan
- SL - South Lahontan
- CR - Colorado River-Desert

WATER YEAR IS OCTOBER 1 THROUGH SEPTEMBER 30

**MARCH 1, 1996 FORECASTS  
APRIL-JULY UNIMPAIRED RUNOFF**

HYDROLOGIC REGION and Watershed	Unimpaired Runoff in 1,000 Acre-Feet (1)					
	HISTORICAL			FORECASTS		
	50 Yr Avg (2)	Max of Record	Min of Record	Apr-Jul Forecasts	Pct of Avg	80 % Probability Range (1)
<b>SACRAMENTO RIVER</b>						
<b>Upper Sacramento River</b>						
Sacramento River at Shasta Lake	297	702	39	250	84	
McCloud River at Shasta Lake	411	850	185	380	92	
Pit River at Shasta Lake	1,062	1,796	480	1,050	99	
Total Inflow to Shasta Lake	1,824	3,189	726	1,770	97	1,190 - 2,570
<b>Sacramento River above Bend Bridge, near Red Bluff</b>	2,491	4,674	943	2,360	95	1,650 - 3,550
<b>Feather River</b>						
Feather River at Lake Almanor near Prattville	333	675	120	320	96	
North Fork at Pulga	1,028	2,416	243	980	95	
Middle Fork near Clio (3)	86	518	4	70	81	
South Fork at Ponderosa Dam	110	267	13	100	91	
Total Inflow to Oroville Reservoir	1,857	4,676	392	1,790	96	1,320 - 2,650
<b>Yuba River</b>						
North Yuba below Goodyears Bar	286	647	51	290	101	
Inflow to Jackson Mdws and Bowman Reservoirs	112	236	25	110	98	
South Yuba at Langs Crossing	233	481	57	230	99	
Yuba River at Smartville	1,047	2,424	200	1,060	101	750 - 1,610
<b>American River</b>						
North Fork at North Fork Dam	262	716	43	270	103	
Middle Fork near Auburn	522	1,406	100	550	105	
Silver Creek Below Camino Diversion Dam	173	386	37	180	104	
Total Inflow to Folsom Reservoir	1,284	3,074	229	1,360	106	920 - 2,020
<b>SAN JOAQUIN RIVER</b>						
<b>Cosumnes River at Michigan Bar</b>	129	363	8	120	93	80 - 190
<b>Mokelumne River</b>						
North Fork near West Point (4)	437	829	104	460	105	
Total Inflow to Pardee Reservoir	465	1,065	102	500	108	370 - 700
<b>Stanislaus River</b>						
Middle Fork below Beardsley Dam	334	702	64	360	108	
North Fork Inflow to McKays Point Dam	224	503	34	240	107	
Total Inflow to New Melones Reservoir	713	1,710	116	770	108	570 - 1,060
<b>Tuolumne River</b>						
Cherry Creek and Eleanor Creek near Hetch Hetchy	322	727	97	340	106	
Tuolumne River near Hetch Hetchy	606	1,392	153	640	106	
Total Inflow to New Don Pedro Reservoir	1,200	2,682	301	1,280	107	1,000 - 1,700
<b>Merced River</b>						
Merced River at Pohono Bridge	362	888	80	400	110	
Total Inflow to Lake McClure	617	1,587	123	680	110	540 - 930
<b>San Joaquin River</b>						
San Joaquin River at Mammoth Pool (5)	1,014	2,279	235	1,040	103	
Big Creek below Huntington Lake (5)	95	264	11	100	105	
South Fork near Florence Lake (5)	202	511	58	210	104	
Total Inflow to Millerton Lake	1,228	3,355	262	1,300	106	950 - 1,750
<b>TULARE LAKE</b>						
<b>Kings River</b>						
North Fork Kings River near Cliff Camp	239	565	50	250	105	
Total Inflow to Pine Flat Reservoir	1,203	3,114	273	1,280	106	930 - 1,680
<b>Kaweah River at Terminus Reservoir</b>	284	814	61	290	102	210 - 400
<b>Tule River at Success Reservoir</b>	63	256	2	60	95	40 - 90
<b>Kern River</b>						
Kern River near Kernville	373	1,203	83	380	102	
Total Inflow to Isabella Reservoir	461	1,657	84	460	100	340 - 680

(1) See inside back cover for definition

(2) All 50 year averages are based on years 1941-1990 unless otherwise noted

(3) 44 year average based on years 1936-79

(4) 36 year average based on years 1936-71

(5) 45 year average based on years 1936-80

**MARCH 1, 1996 FORECASTS  
WATER YEAR UNIMPAIRED RUNOFF**

Unimpaired Runoff in 1,000 Acre-Feet (1)													
HISTORICAL			DISTRIBUTION								FORECASTS		
50 Yr Avg (2)	Max of Record	Min of Record	Oct Thru Jan*	Feb *	Mar	Apr	May	Jun	Jul	Aug & Sep	Water Year Forecasts	Pct of Avg	80 % Probability Range (1)
856	1,964	165											
1,244	2,353	577											
3,145	5,150	1,484											
5,987	10,796	2,479	1,530	1,630	920	710	500	320	240	440	6,290	105	5,250 - 7,700
8,664	17,180	3,294	2,360	2,260	1,420	930	680	440	310	560	8,960	103	7,700 - 11,150
780	1,269	366											
2,417	4,400	666											
219	637	24											
291	562	32											
4,617	9,492	994	1,015	1,300	680	720	640	290	140	185	4,970	108	4,250 - 6,250
564	1,056	102											
181	292	30											
379	565	98											
2,390	4,926	369	520	785	340	410	420	190	40	45	2,750	115	2,300 - 3,500
616	1,234	66											
1,070	2,575	144											
318	705	59											
2,736	6,381	349	560	840	410	470	550	280	60	30	3,200	117	2,600 - 4,100
385	1,253	20	64	135	70	60	40	15	5	1	390	101	320 - 500
626	1,009	197											
748	1,800	129	95	160	90	130	210	140	20	5	850	114	690 - 1,100
471	929	88											
1,150	2,952	155	150	275	120	210	320	190	50	15	1,330	116	1,090 - 1,680
461	1,147	123											
770	1,661	258											
1,882	4,430	383	220	350	200	290	480	410	100	30	2,080	111	1,750 - 2,580
461	1,020	92											
966	2,859	150	110	190	90	160	280	200	40	20	1,090	113	930 - 1,400
1,337	2,964	308											
112	298	14											
248	653	71											
1,776	4,642	362	160	230	130	250	480	410	160	70	1,890	106	1,480 - 2,400
284	607	58											
1,669	4,294	383	140	180	110	230	470	440	140	60	1,770	106	1,370 - 2,230
444	1,402	92	40	70	40	70	120	80	20	10	450	101	350 - 570
145	615	16	20	40	20	20	25	10	5	1	141	97	110 - 180
558	1,577	163											
716	2,309	175	110	90	70	100	160	140	60	40	770	108	620 - 1,050

\* Indicates observed runoff

**MARCH 1, 1996 FORECASTS  
APRIL-JULY UNIMPAIRED RUNOFF**

HYDROLOGIC REGION and Watershed	Unimpaired Runoff in 1,000 Acre-Feet (1)				
	HISTORICAL			FORECASTS	
	50 Yr Avg (2)	Max of Record	Min of Record	Apr-Jul Forecasts	Pct of Avg
<b>NORTH COAST</b>					
<b>Trinity River</b>					
Total Inflow to Lewiston Lake	653	1,593	80	570	87
<b>Scott River</b>					
Near Fort Jones	200	NA	NA	170	85
<b>Klamath River</b>					
Total inflow to Upper Klamath Lake (3)				NA	
<hr/>					
<b>NORTH LAHONTAN</b>					
<b>Truckee River</b>					
Lake Tahoe to Farad accretions	268	713	58	280	104
Lake Tahoe Rise (assuming gates closed, in feet)	1.5	3.75	0.23	1.6	107
<b>Carson River</b>					
West Fork at Woodfords	54	131	12	60	111
East Fork near Gardnerville	186	407	43	200	108
<b>Walker River</b>					
West Fork near Coleville	148	330	35	160	108
East Fork near Bridgeport	63	209	7	70	111
<hr/>					
<b>SOUTH LAHONTAN</b>					
<b>Owens River</b>					
Total tributary flow to Owens River (4)	233	579	96	297	128

(1) See inside back cover for definition

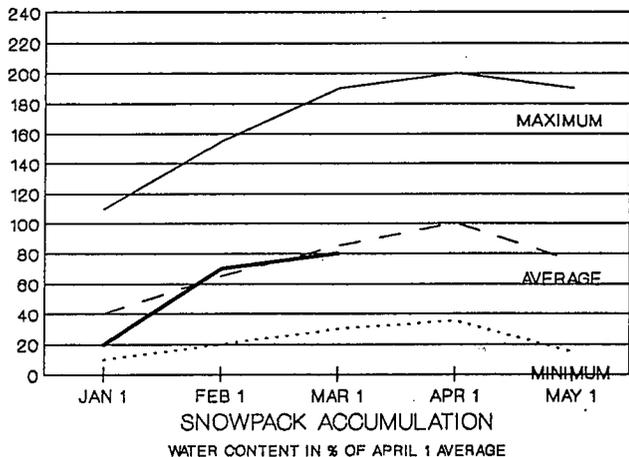
(2) All 50 year averages are based on years 1941-1990 unless otherwise noted

(3) Forecast by U.S. Natural Resources Conservation Service, Portland Oregon, for May through September.

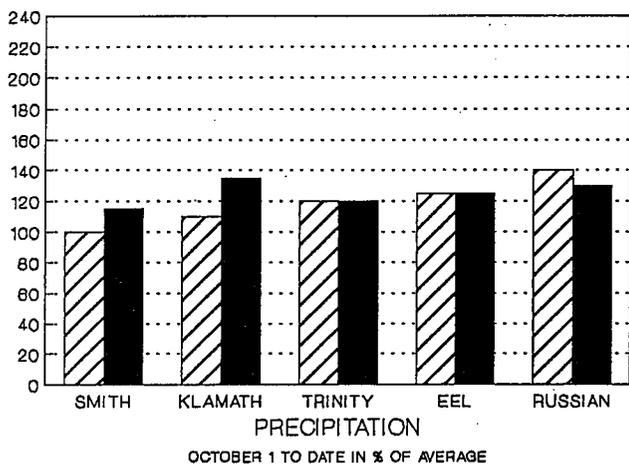
(4) Forecast by Department of Water and Power, City of Los Angeles

## NORTH COAST REGION

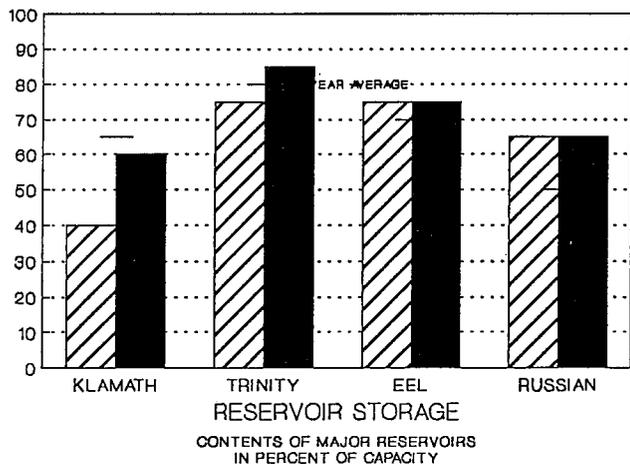
**SNOWPACK** - First of the month measurements made at 12 snow courses indicate an area wide snow water equivalent of 23.3 inches. This is 90 percent of the March 1 average and 80 percent of the seasonal (April 1) average. Last year at this time the pack was holding 33.3 inches of water.



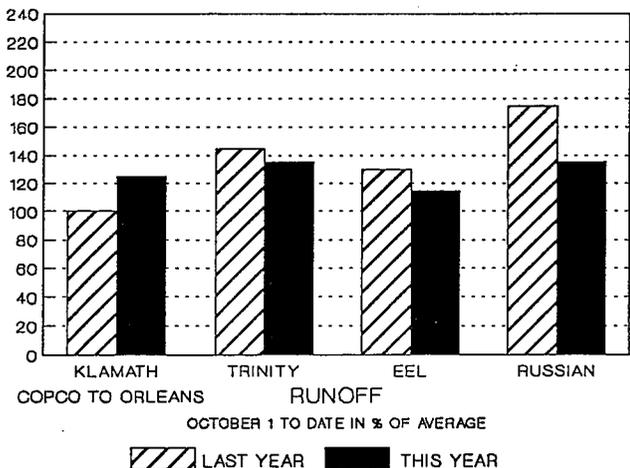
**PRECIPITATION** - Seasonal precipitation (October 1 through the end of last month) on this area was 125 percent of normal. Precipitation last month was about 155 percent of the monthly average. Seasonal precipitation at this time last year stood at 120 percent of normal.



**RESERVOIR STORAGE** - First of the month storage in 7 reservoirs was 2.6 million acre-feet which is 110 percent of average. About 80 percent of available capacity was being used. Storage in these reservoirs at this time last year was 100 percent of average.

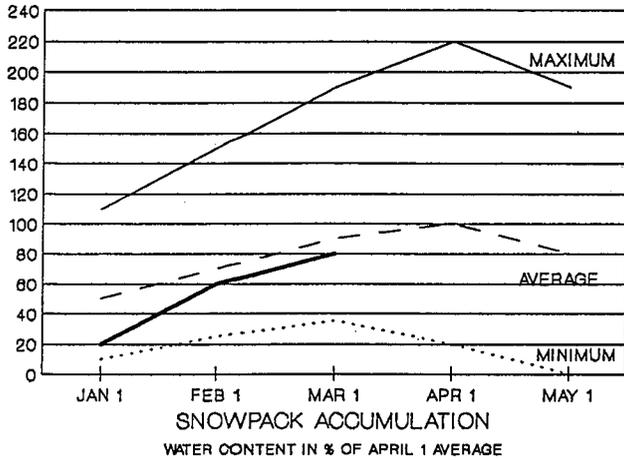


**RUNOFF** - Seasonal runoff of streams draining the area totaled 9.4 million acre-feet which is 120 percent of average for this period. Last year, runoff for the same period was 125 percent of average.

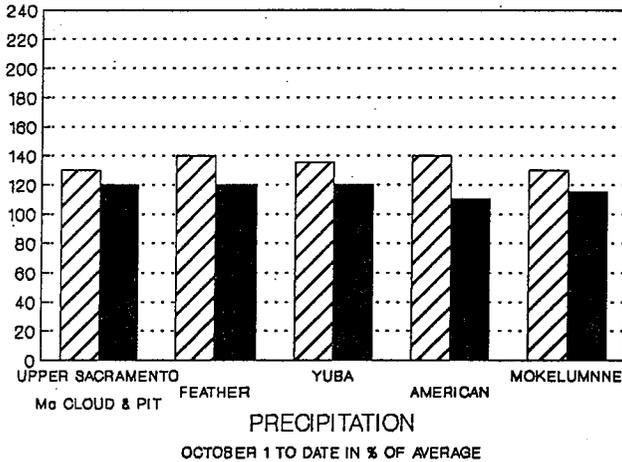


## SACRAMENTO RIVER REGION

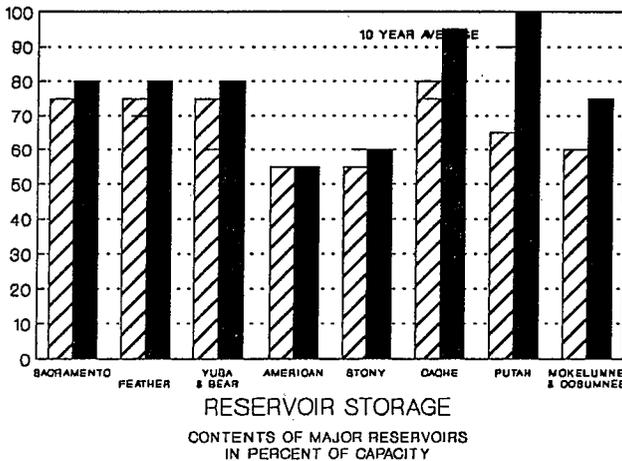
**SNOWPACK** - First of the month measurements made at 66 snow course indicate a basin-wide snow water equivalent of 25.0 inches. This is 95 percent of the average for this date and 80 percent for April 1. Last year at this time, the pack was holding 41.2 inches of water.



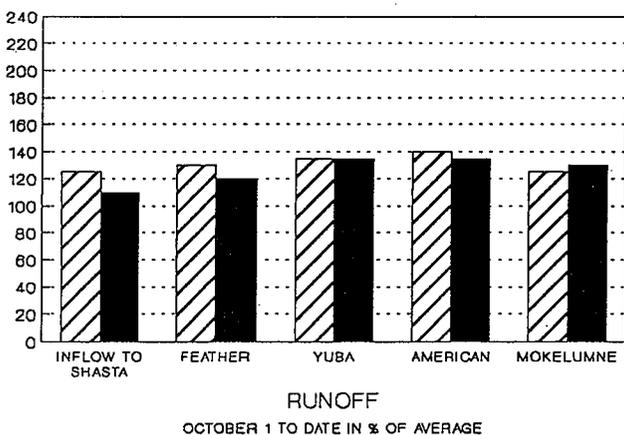
**PRECIPITATION** - Seasonal precipitation (October 1 through the end of last month) on the Sacramento River Region was 125 percent of normal. Precipitation last month was about 200 percent of the monthly average. Seasonal precipitation at this time last year stood at 140 percent of average.



**RESERVOIR STORAGE** - First of the month storage in 43 reservoirs was 12.9 million acre-feet which is 115 percent of average. About 80 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 9.6 million acre-feet which is 115 percent of average for this period. Last year runoff for the same period was 135 percent of average.



The Sacramento River Region 40-30-30 Water Supply Index is forecasted to be 9.4 million acre-feet assuming median meteorological conditions for the remainder of the year. This classifies the year as "wet" in the Sacramento-San Joaquin Delta according to the State Water Resources Control Board.

▨ LAST YEAR    ■ THIS YEAR

## SAN JOAQUIN RIVER AND TULARE LAKE REGIONS

**SNOWPACK** - First of the month measurements made at 63 San Joaquin River Region snow courses indicate a basin wide snow water equivalent of 29.4 inches which is 90 percent of the seasonal (April 1) average and 105 percent of average for this date. Last year at this time, the pack was holding 37.0 inches of water.

At the same time, 34 Tulare Lake Region snow courses indicated a basin-wide snow water equivalent of 20.3 inches which is 105 percent of the average for this date and 95 percent of the seasonal average. Last year at this time, the Basin was holding 27.8 inches of water.

**PRECIPITATION** - Seasonal precipitation (October 1 through the end of last month) on the San Joaquin River Region was 115 percent of normal. Precipitation last month was 170 percent of the monthly average. Seasonal precipitation at this time last year stood at 135 percent of normal.

Seasonal precipitation on the Tulare Lake Region was 115 percent of normal. Precipitation last month was 195 percent of the monthly average. Seasonal precipitation at this time last year stood at 130 percent of normal.

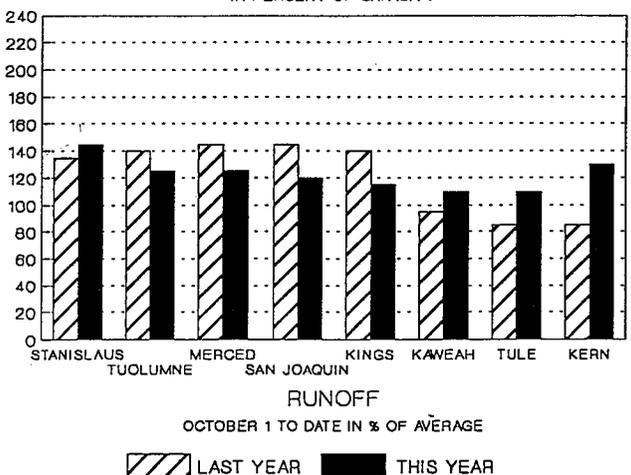
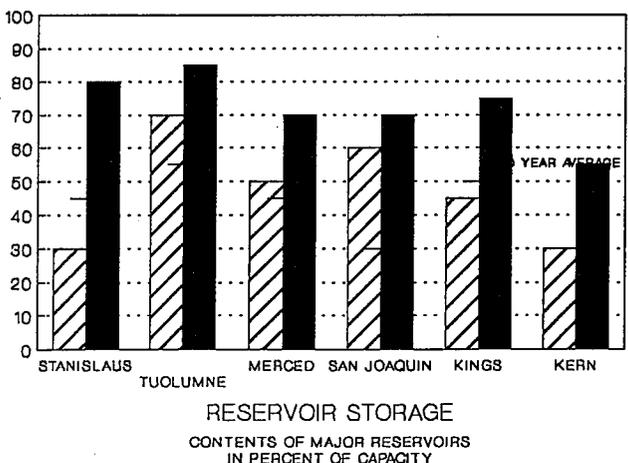
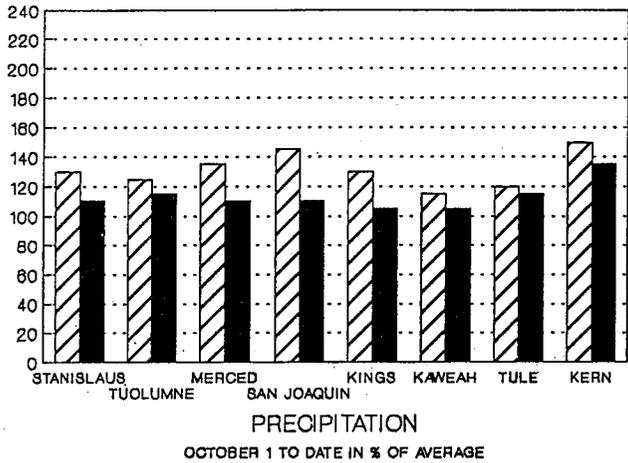
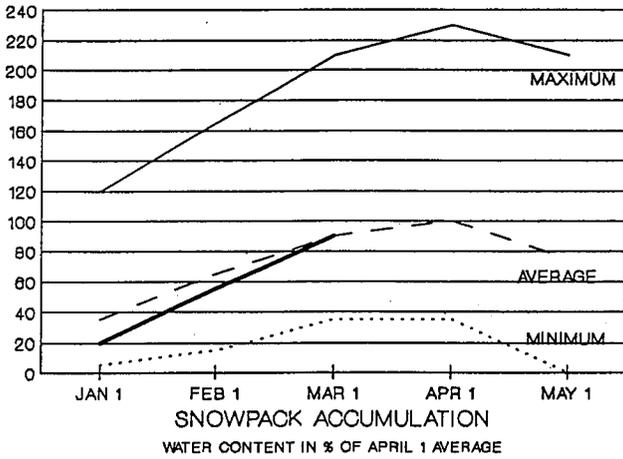
**RESERVOIR STORAGE** - First of the month storage in 33 San Joaquin River Region reservoirs was 9.3 million acre-feet which is 135 percent of average. About 80 percent of available capacity was being used. Storage in these reservoirs at this time last year was 100 percent of average.

First of the month storage in 6 Tulare Lake Region reservoirs was 1.3 million acre-feet which is 160 percent of average. About 65 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 into the San Joaquin River Region totaled 2.1 million acre-feet which is 125 percent of average for this period. Last year, runoff for this same period was 140 percent of average.

Seasonal runoff of streams draining into the Tulare Lake Region totaled 704 thousand acre-feet which is 120 percent of average for this period. Last year, runoff for this same period was 110 percent of average.

The San Joaquin River Region 60-20-20 Water Supply Index is forecasted to be 3.7 MAF which classifies the year as "above normal".



▨ LAST YEAR    ■ THIS YEAR

## NORTH AND SOUTH LAHONTAN REGIONS

**SNOWPACK** - First of the month measurements made at 14 North Lahontan snow courses indicate an area wide snow water equivalent of 26.6 inches which is 105 percent of average for this date and 95 percent of the seasonal (April 1) average. Last year at this time, the pack was holding 30.5 inches of water.

At the same time, 20 South Lahontan courses indicated an area-wide snow water equivalent of 25.6 inches which is 125 percent of the average for this date and 110 percent of the April 1 average. Last year at this time, the pack was holding 27.9 inches of water.

**PRECIPITATION** - Seasonal precipitation (October 1 through the end of last month) over the North Lahontan Region was 140 percent of normal. Precipitation last month was 235 percent of the monthly average. Seasonal precipitation at this time last year stood at 130 percent of normal.

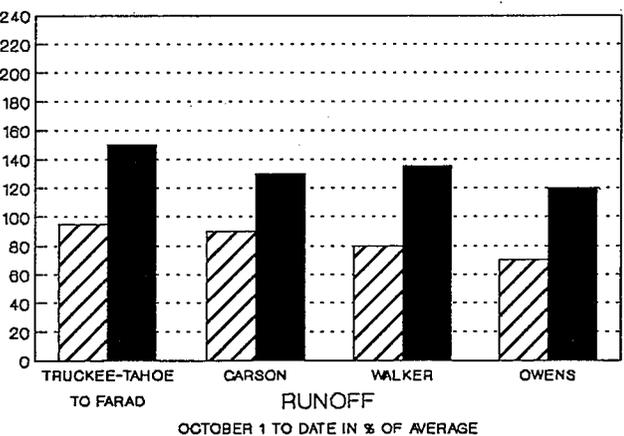
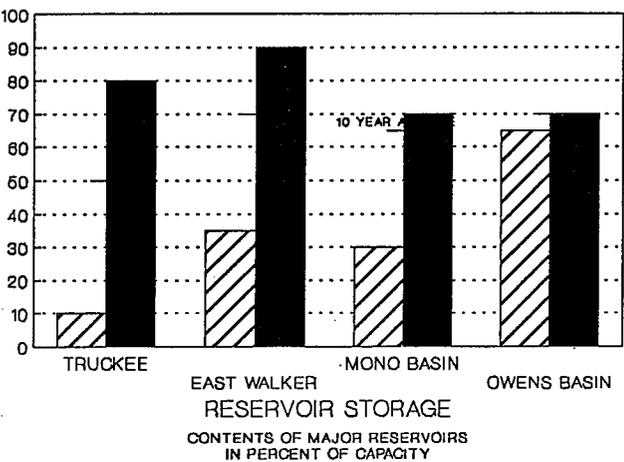
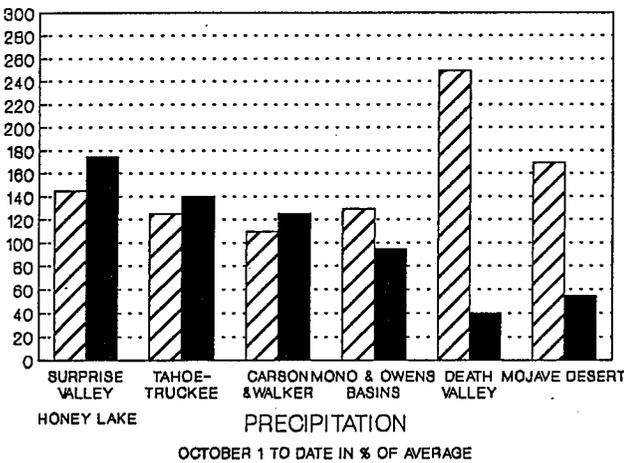
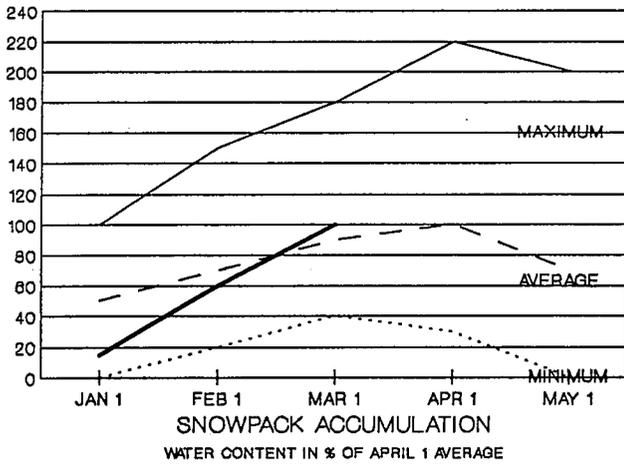
Seasonal precipitation over the South Lahontan Region was 60 percent of normal. Last month's precipitation was 135 percent of the monthly average. Seasonal precipitation at this time last year stood at 170 percent of normal.

**RESERVOIR STORAGE** - First of the month storage in 5 North Lahontan reservoirs was 846 thousand acre-feet which is 145 percent of average. About 80 percent of available capacity was being used. Storage in these reservoirs at this time last year was 20 percent of average. Lake Tahoe was 4.6 feet above its natural rim on March 1.

First of the month storage in 8 South Lahontan reservoirs was 272 thousand acre-feet which is 95 percent of average. About 70 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 North Lahontan Region totaled 288 thousand acre-feet which is 140 percent of average for this period. Last year, runoff for this same period was 90 percent of average.

Seasonal runoff of the Owens River in the South Lahontan Region totaled 68 thousand acre-feet which is 120 percent of average for this period. Last year, runoff for this same period was 70 percent of average.

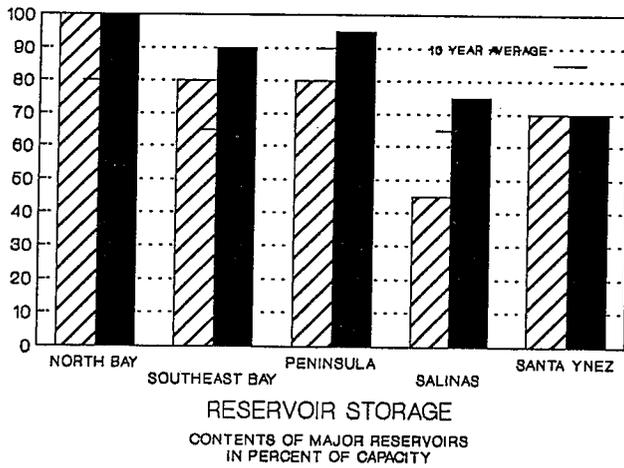
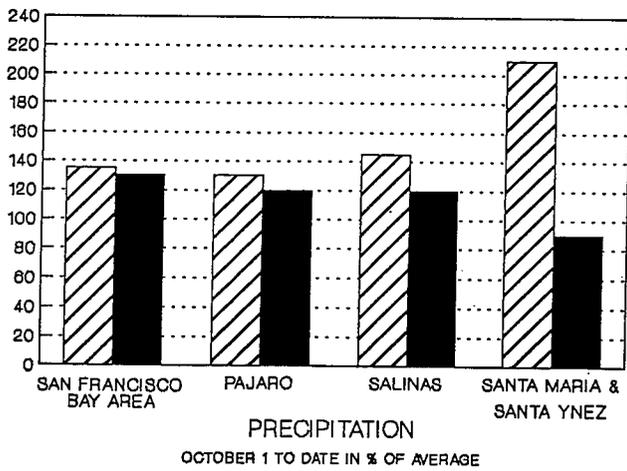


▨ LAST YEAR    ■ THIS YEAR

## SAN FRANCISCO BAY AND CENTRAL COAST REGIONS

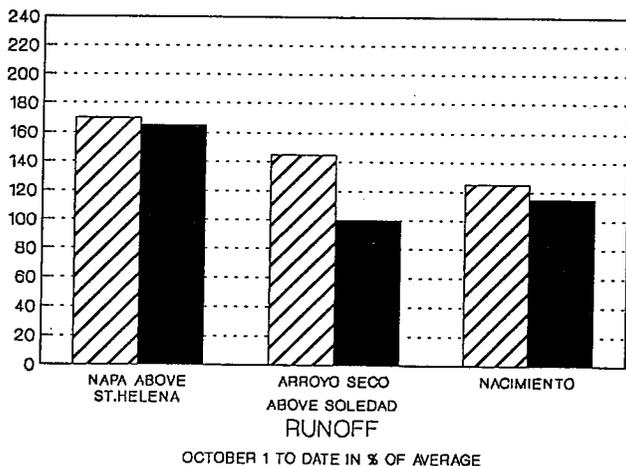
**PRECIPITATION** - Seasonal precipitation (October 1 through the end of last month) on the San Francisco Bay Region was 150 percent of normal. Precipitation last month was 205 percent of the monthly average. Seasonal precipitation at this time last year stood at 135 percent of normal.

Seasonal precipitation on the Central Coast Region averaged 110 percent of normal. Precipitation last month was 205 percent of the monthly average. Seasonal precipitation at this time last year stood at 160 percent of normal.



**RESERVOIR STORAGE** - First of the month storage in 18 major Bay area reservoirs was 638 thousand acre-feet which is 130 percent of average. About 90 percent of available capacity was being used. Storage in these reservoirs at this time last year was 120 percent of average.

First of the month storage in 6 major Central Coast reservoirs was 723 thousand acre-feet which is 115 percent of average. About 75 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 the Napa River in the San Francisco Bay Region totaled around 80 thousand acre-feet which is 160 percent of average for this period. Last year, runoff for this same period was 170 percent of average.

Seasonal runoff of selected Central Coast streams totaled 233 thousand acre-feet which is 110 percent of average for this period. Last year, runoff for this same period was 130 percent of average.

▨ LAST YEAR    ■ THIS YEAR

## **SOUTH COAST AND COLORADO RIVER REGIONS**

**PRECIPITATION** - Seasonal precipitation (October through the end of February) on the South Coast was 75 percent of normal. February precipitation was 160 percent of the monthly average. Seasonal precipitation at this time last year stood at 160 percent of normal.

Seasonal precipitation in the Colorado Desert region was 20 percent of normal. Seasonal precipitation at this time last year was 195 percent of the average. February precipitation was 75 percent of average.

**RUNOFF** - Seasonal runoff from selected South Coast streams totaled 35 thousand acre-feet which is 115 percent of average. Last year, runoff for the same period was 180 percent of average.

**RESERVOIR STORAGE** - March 1 storage in 29 major South Coast Region reservoirs was 1.6 million acre-feet or 125 percent of average. About 80 percent of available capacity was being used. Storage in these reservoirs at this time last year was 120 percent of average.

First of the month combined storage in Lakes Powell, Mead, Mohave and Havasu was about 45 million acre-feet which is 120 percent of average. About 85 percent of available capacity was being used. One year ago, these reservoirs were storing 39.2 million acre-feet. The April through July inflow to Lake Powell is forecasted to be 9.1 million acre-feet which will be 118 percent of average.

**UPPER COLORADO RIVER BASIN** - The first of the month snowpack, according to the U.S. Soil Conservation Service reports was 125 percent of average and ranges from 130 percent in the Green River Basin above Flaming Gorge to 75 percent in the San Juan.

### **CENTRAL VALLEY PROJECT**

Based on March 1 conditions, Bureau of Reclamation water year forecasts for runoff into CVP reservoirs are: Trinity--106 percent of average, Shasta--122 percent of average, American--126 percent of average, Stanislaus--111 percent of average, San Joaquin above Friant--104 percent of average. As of February 29, 1995 CVP storage was 9.1 million acre feet which is an increase of approximately 1.7 million acre feet compared to one year ago, and is approximately 126% of the average for that date.

The Bureau of Reclamation announced water allocations for the CVP on February 15, 1995. Agricultural contractors received 60% of their contract supply; urban contractors received 75 to 100% supplies. Wildlife refuges received 75 to 100% percent of level II supplies. Sacramento River water rights settlement contractors received 100% supplies, and San Joaquin Exchange contractors were allocated 100% supplies. Friant Division allocations were increased to 100% Class I, and 25% Class II supplies. Updated water allocations will be announced in mid-March.1

### **STATE WATER PROJECT**

The wet conditions during February have improved expectations for full SWP storage facilities and allowed increased approvals for water delivery in 1996 to SWP contractors. The approval for 1996 has been increased to 90% of entitlement, or 1996 requests, whichever is less. This approved allocation will be reviewed each month as the season progresses and Bulletin 120 forecasts are prepared.

## MAJOR WATER DISTRIBUTION PROJECTS

### RESERVOIR STORAGE

(AVERAGES BASED ON PERIOD RECORD)

RESERVOIR	CAPACITY 1,000 AF	AVERAGE STORAGE 1,000 AF	STORAGE AS OF FEBRUARY 29		
			1995 1,000 AF	1996 1,000 AF	PERCENT AVERAGE
<u>STATE WATER PROJECT</u>					
Oroville	3,540	2,588	2,641	2,730	105
San Luis SWP	1,062	935	1,157	1,077	115
Lake Del Valle	77	33	37	39	118
Silverwood	73	66	69	39	59
Pyramid Lake	171	162	164	165	102
Castaic Lake	324	268	190	277	103
Perris Reservoir	132	115	117	120	104
<u>CENTRAL VALLEY PROJECT</u>					
Clair Engle Lake	2,450	1,897	1,821	2,074	109
Shasta Lake	4,550	3,377	3,449	3,694	109
Whiskeytown	241	208	206	220	106
Folsom	975	579	574	362	63
New Melones	2,420	1,492	701	2,037	137
Millerton Lake	521	306	437	456	149
San Luis CVP	971	764	867	948	124
<u>COLORADO RIVER PROJECT</u>					
Lake Mead	26,300	20,023	20,485	22,031	110
Lake Powell	25,000	15,410	16,570	20,693	134
Lake Mohave	1,810	1,641	1,608	1,666	102
Lake Havasu	619	537	570	570	106
<u>EAST BAY MUNICIPAL UTILITY DISTRICT</u>					
Pardee	210	177	207	200	113
Camanche	432	251	246	278	111
East Bay (4 reservoirs)	151	129	134	142	110
<u>CITY &amp; COUNTY OF SAN FRANCISCO</u>					
Hetch Hetchy	360	131	140	271	207
Cherry Lake	269	103	152	245	238
Lake Eleanor	28	10	6	21	217
South Bay (4 reservoirs)	225	169	204	216	128
<u>CITY OF LOS ANGELES(DWP)</u>					
Crowley Lake(Long Valley)	183	130	130	139	107
Grant Lake	48	30	17	43	143
Other Aqueduct Storage(6 reservoirs)	95	75	63	59	79

DEPARTMENT OF WATER RESOURCES - CALIFORNIA DATA EXCHANGE CENTER  
TELEMETERED SNOW WATER EQUIVALENTS - March 1, 1996

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
<b>TRINITY RIVER</b>							
Peterson Flat	DWR	7150	29.2	22.0	75%	21.4	19.4
Red Rock Mountain	DWR	6700	39.6	37.9	96%	35.9	30.1
Bonanza King	USBR	6450	40.5	40.0e	99%	38.9	34.7
Shimmy Lake	DWR	6200	40.3	----	----	----	----
Middle Boulder #3	DWR	6200	28.3	19.0	67%	18.3	13.7
Highland Lakes	DWR	6030	29.9	11.6	39%	10.8	9.2
Scotts Mountain	DWR	5900	16.0	12.2	76%	10.9	7.0
Mumbo Basin	DWR	5700	22.4	17.0	76%	16.1	12.7
Big Flat	DWR	5100	15.8	21.5	136%	21.1	19.3
<b>SACRAMENTO RIVER</b>							
Cedar Pass	NRCS	7100	18.1	19.4	107%	19.4	17.8
Blacks Mountain	DWR	7100	12.7	----	----	----	----
Sand Flat	USBR	6750	42.4	----	----	----	----
Medicine Lake	DWR	6700	32.6	20.8	64%	20.8	19.9
Adin Mountain	NRCS	6350	13.6	13.8	101%	13.8	12.1
Snow Mountain	USBR	5950	27.0	18.8	70%	18.4	14.5
Slate Creek	USBR	5600	29.0	15.5	53%	13.3	8.0
Stouts Meadow	DWR	5400	36.0	24.8	69%	23.8	18.0
<b>FEATHER RIVER</b>							
Kettlerock	DWR	7300	25.5	28.1e	110%	28.1e	23.0e
Grizzly	DWR	6900	29.7	23.9	80%	23.6	21.5
Pilot Peak	DWR	6800	52.6	31.1	59%	30.6	27.4
Gold Lake	DWR	6750	36.5	35.2	96%	35.0	32.8
Humbug	DWR	6500	28.0	29.2	104%	28.2	25.6
Rattlesnake	DWR	6100	14.0	15.1	108%	14.9	13.8
Bucks Lake	DWR	5750	44.7	30.4	68%	29.8	26.0
Four Trees	DWR	5150	20.0	14.4	72%	14.0	10.4
<b>YUBA &amp; AMERICAN RIV</b>							
Lake Lois	DWR	8800	39.5	54.2	137%	54.2	53.6
Schneiders	SMUD	8750	34.5	----	----	41.7	40.2
Caples Lake Course	DWR	7800	30.9	28.8	93%	28.7	27.4
Alpha	SMUD	7600	35.9	----	----	28.9	27.1
Beta	DWR	7600	35.9	30.6	85%	30.4	29.2
Fomi Ridge	USBR	7600	37.0	29.2	79%	29.2	28.1
Silver Lake	DWR	7100	22.7	24.8	109%	24.8	23.5
Cent Sierra Snow Lab	NRCS	6950	33.6	29.1	87%	29.1	30.4
Huysink	USBR	6600	42.6	27.7	65%	27.5	24.9
Van Vleck	SMUD	6700	35.9	----	----	34.8	32.7
Robbs Saddle	SMUD	5900	21.4	----	----	23.8	21.8
Greek Store	USBR	5600	21.0	22.7	108%	22.7	20.4
Blue Canyon	USBR	5280	9.0	3.2	36%	3.1	0.0e
Robbs Powerhouse	SMUD	5150	5.2	----	----	----	9.5e
<b>MOKEL. &amp; STANIS. RIV</b>							
Deadman Creek	DWR	9250	37.2	28.1	75%	28.1	26.3
Highland Meadow	DWR	8800	47.9	39.8	83%	39.7	36.2
Gianelli Meadow	USBR	8350	55.5	37.9	68%	37.7	36.3
Lower Relief Valley	DWR	8100	41.2	35.7	87%	35.1	32.5
Blue Lakes	NRCS	8000	33.1	26.3	79%	26.2	25.0
Mud Lake	SMUD	7900	44.9	----	----	42.3	40.6
Stanislaus Meadow	DWR	7750	47.5	36.7	77%	36.7	35.0
Bloods Creek	USBR	7200	35.5	----	----	----	----
Black Springs	USBR	6500	32.0	23.0	72%	23.0e	21.5
<b>TUOLUMNE &amp; MERCED R.</b>							
Dana Meadows	DWR	9800	27.7	30.7	111%	30.7	30.1
Slide Canyon	DWR	9200	41.1	39.9	97%	39.9	38.6
Snow Flat	DWR	8700	44.1	----	----	----	----
Tuolumne Meadows	DWR	8600	22.6	21.2	94%	21.1	20.5
Horse Meadow	DWR	8400	48.6	36.5e	75%	36.2e	35.7e
Ostrander Lake	DWR	8200	34.8	30.7	88%	30.7	28.1
Paradise	DWR	7650	41.3	36.6	89%	36.6	35.3
Gin Flat	DWR	7050	34.2	18.5	54%	18.1	16.0
Lower Kibbie	DWR	6600	27.4	19.8	72%	19.1	17.8
<b>SAN JOAQUIN RIVER</b>							
Volcanic Knob	USBR	10100	30.1	28.8	96%	28.8	27.5
Agnew Pass	DWR	9450	32.3	30.7	95%	30.7	28.8
Kaiser Point	USBR	9200	37.8	33.0	87%	32.8	31.0
Green Mountain	USBR	7900	30.8	----	----	----	----

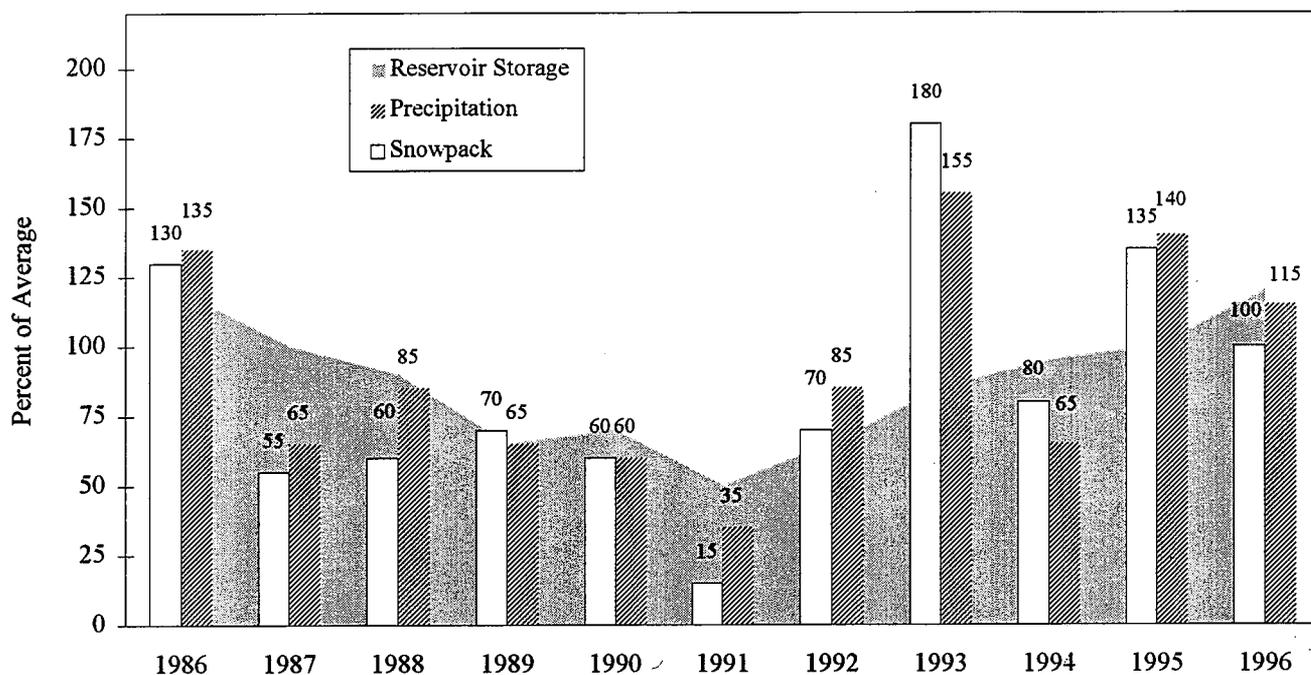
DEPARTMENT OF WATER RESOURCES - CALIFORNIA DATA EXCHANGE CENTER  
TELEMETERED SNOW WATER EQUIVALENTS - March 1, 1996

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
Tamarack Summit	USBR	7600	30.5	23.9	78%	23.9	21.9
Chilkoot Meadow	USBR	7150	38.0	28.4	75%	28.4	26.9
Huntington Lake	USBR	7000	20.1	20.0	99%	19.8	17.6
Graveyard Meadow	USBR	6900	18.8	----	----	----	----
Poison Ridge	USBR	6900	28.9	18.0	62%	18.0	15.6
KINGS RIVER							
Bishop Pass	DWR	11200	34.0	26.8	79%	25.5	24.2
Charlotte Lake	DWR	10400	27.5	27.4	99%	27.0	25.6
State Lakes	DWR	10400	29.0	----	----	----	----
Mitchell Meadow	DWR	10375	32.9	33.2	101%	33.1	31.1
Blackcap Basin	DWR	10300	34.3	31.1	91%	29.8	27.8
Upper Burnt Corral	DWR	9700	34.6	32.0	93%	32.0	30.7
West Woodchuck Mdw	COE	9100	32.8	30.2	92%	30.0	27.7
Big Meadows	DWR	7600	25.9	19.9	77%	19.9	18.5
KAWEAH & TULE RIVERS							
Quaking Aspen	DWR	7200	21.0	18.6	89%	18.4	16.9
Giant Forest	COE	6400	10.0	----	----	----	----
KERN RIVER							
Upper Tyndall Creek	COE	11500	27.7	23.5	85%	23.4	22.9
Crabtree	DWR	10700	19.8	15.7	79%	15.4	15.3
Chagoopa Plateau	DWR	10300	21.8	22.2	102%	22.2	21.6
Pascoes	DWR	9150	24.9	30.2	121%	29.9	27.4
Tunnel	DWR	8950	15.6	14.6	94%	14.6	13.3
Wet Meadow	COE	8900	30.3	22.1	73%	22.1	20.8
Casa Vieja Mdw	DWR	8400	20.9	9.1	44%	9.1	11.1
Beach Meadow	DWR	7650	11.0	9.2	84%	9.0	7.8
SURPRISE VALLEY AREA							
Dismal Swamp	NRCS	7050	29.2	20.3	70%	20.8	20.8
TRUCKEE RIVER							
Mount Rose Ski Area	NRCS	8850	38.5	43.0	112%	42.9	40.4
Independence Lake	NRCS	8450	41.4	34.6	84%	34.5	32.9
Big Meadows	NRCS	8700	25.7	22.7	88%	22.7	21.4
Independence Camp	NRCS	7000	21.8	14.9	68%	15.0	14.2
Independence Creek	NRCS	6500	12.7	13.9	109%	14.0	13.3
LAKE TAHOE BASIN							
Heavenly Valley	NRCS	8800	28.1	26.0	93%	26.0	24.6
Hagans Meadow	NRCS	8000	16.5	18.2	110%	19.0	17.5
Marlette Lake	NRCS	8000	21.1	23.3	110%	23.3	20.9
Echo Peak	NRCS	7800	39.5	39.9	101%	39.8	38.0
Rubicon No. 2	NRCS	7500	29.1	23.9	82%	23.9	22.0
Ward Creek No. 3	NRCS	6750	39.4	31.3	79%	31.3	30.3
Fallen Leaf Lake	NRCS	6300	7.0	7.2	103%	7.4	6.6
CARSON RIVER							
Ebbetts Pass	NRCS	8700	38.8	36.5	94%	36.4	34.4
Poison Flat	NRCS	7900	16.2	23.0	142%	22.9	21.0
WALKER RIVER							
Virginia Lakes Ridge	NRCS	9200	20.3	16.9	83%	16.9	16.2
Lobdell Lake	NRCS	9200	17.3	15.2	88%	15.2	14.7
Sonora Pass Bridge	NRCS	8750	26.0	20.8	80%	20.6	17.9
Leavitt Meadows	NRCS	7200	8.0	10.3	129%	10.4	10.2
OWENS RIVER/MONO LK.							
Gem Pass	LADW	10750	31.7	32.7	103%	32.0	30.7
Sawmill Meadow	DWR	10300	19.4	18.3	94%	18.3	17.6
Cottonwood Lakes	LADW	10200	11.6	10.7	92%	10.6	10.0
Big Pine #3	DWR	9800	17.9	14.4	81%	14.4	13.8
South Lake	LADW	9600	16.0	17.0	107%	17.0	16.6
Mammoth Pass (rp)	USBR	9500	42.4	35.5	84%	35.3	33.8
Rock Creek	LADW	9600	14.0	14.7	105%	14.7	14.2

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

## March 1 Statewide Conditions



### \*\*\*\*\* SNOWLINES \*\*\*\*\*

**WESTERN SNOW CONFERENCE** The 64th annual meeting of the Western Snow Conference is being held April 15-18 in Bend, OR. The conference theme is "Snow Hydrology in Western Watersheds". The gathering will be at the Inn of the Seventh Mountain. The meeting promises many interesting papers and is a chance to meet people from other states and countries involved in the snow business. Contact Frank Gehrke at (916) 574-2635 or [gridley@water.ca.gov](mailto:gridley@water.ca.gov) if you need more information

**THE PACIFIC SOUTHWEST STATION** of the US Forest service has embarked on a collaborative project with the California Cooperative Snow Surveys to test the U.S.G.S. Modular Modeling System on the Feather River Basin. The model methodology will be modified to incorporate measured snow water content gridded on the watershed. Of particular interest is how well this model would work for operational forecasting.

**FIELD TESTS** of a new type of snow water content sensor began this year at the snow lab up at Soda Springs. The sensor, developed by Sandia National Laboratory, is based on the attenuation by the water in the snow of naturally occurring high energy particles. If this technology proves suitable for the snow environment it will significantly improve reliability of telemetered snow water content measurements.

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 data for the period 1941-1990 (50 years, except for data sites established after 1941).

PRECIPITATION - Averages are based on April 1 data for the period 1941-1990 (50 years, except for data sites established after 1941).

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 assumes 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 stated limits eight times out of ten.

Runoff averages for most streams are based on the period 1941-1990. For more details contact California Cooperative Snow Surveys, P.O. Box 942836, Sacramento, CA 94236-0001, (916) 574-2635 or gridley@water.ca.gov.

#### INDICES OF WATER AVAILABILITY

The Sacramento River Hydrologic Region 40-30-30 Water Supply Index. The 40-30-30 represent the percentage weight given to the three variables in the formula for the index. The first variable is the forecasted unimpaired runoff from April through July (40 Percent). The second variable is the forecasted unimpaired runoff from October through March (30 Percent). The third variable is the previous year's index with a cap to account for required flood control releases during wet years. The basins used in this computation are those used in the Sacramento River water year unimpaired runoff.

The Sacramento River water year unimpaired runoff is the sum of: Sacramento River above Bend Bridge, Feather River Inflow to Lake Oroville, Yuba River near Smartville and American River Inflow to Folsom Lake.

The San Joaquin River Hydrologic Region 60-20-20 Water Supply Index. In a similar manner, the 60-20-20 represents the percentage weights on April through July runoff, October through March runoff and previous year's index. The San Joaquin River unimpaired runoff is the sum of: Stanislaus River Inflow to New Melones Lake, Tuolumne River Inflow to New Don Pedro Reservoir, Merced River Inflow to Lake McClure and San Joaquin River Inflow to Millerton Lake.

Prior month unimpaired runoff is the sum of the runoff in the eight major rivers used in the two above indices.

Department of Water Resources snow surveyors Dave Hart (holding scale) and Frank Gehrke had to bulk sample the snow courses along Highway 50 in April of 1994 due to low snow conditions.

State of California – The Resources Agency  
DEPARTMENT OF WATER RESOURCES  
P.O. Box 942836  
Sacramento, CA 94236-0001

# First Class

