

California Cooperative
Snow Surveys
Bulletin 120-94-1



State of California
The Resources Agency

Department of
Water Resources

Water Conditions in California

Report 1 February 1, 1994



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Secretary for Resources
The Resources Agency

Pete Wilson
Governor
State of California

David N. Kennedy
Director
Department of Water Resources

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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
- Modesto Irrigation District
- Nevada Irrigation District
- North Kern Water Storage District
- Northern California Power Agency
- Oakdale Irrigation District
- Omochochumne-Hartnell Water District
- Oroville-Wyandotte Irrigation District
- Placer County Water Agency
- Sacramento Municipal Utility District
- San Bernardino County Flood Control District
- 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
- 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

February 1, 1994

Rain and snow amounts so far this season are similar to those of the recent six-year drought. There is still hope that the remaining 40 percent of the season will bring improvement but the historical odds indicate that water year 1994 will be dry. Carryover reservoir storage from last year will help to ease the impact.

Forecasts of April through July runoff are much below average. The same is true for the water year runoff. Both sets of forecasts assume normal weather for the rest of the season.

Snowpack water content for this date is about half average, and about 35 percent of April 1, the date of maximum average accumulation. The snowpack in the northern mountains is somewhat heavier than in the central and southern Sierra. Last year, the pack stood at a whopping 175 percent of average at this time.

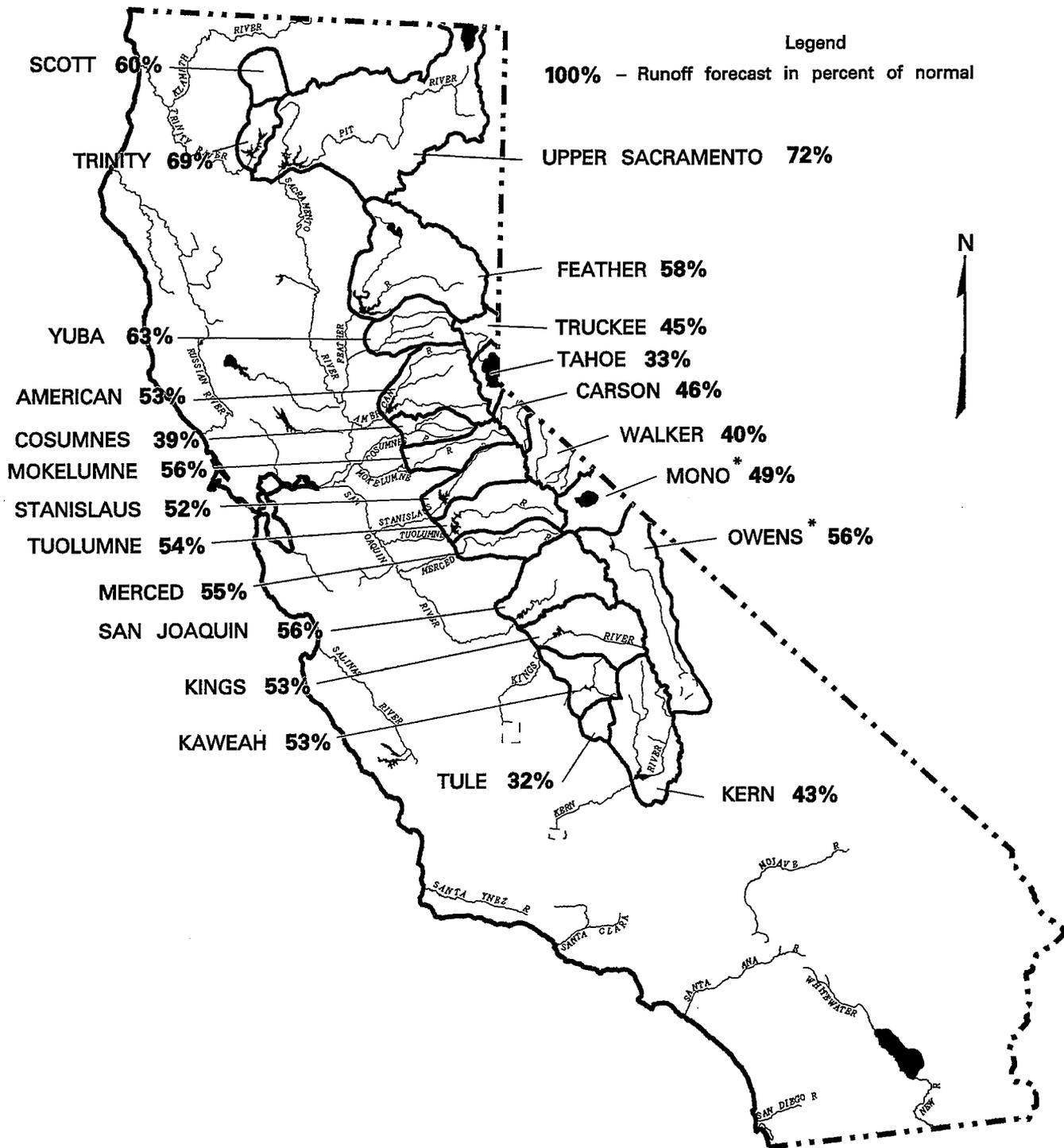
Precipitation statewide this season is slightly over 50 percent of average and only about one third of last year. Rainfall percentages are better in the north than in the south. January precipitation was 45 percent of average overall, but quite light in the south.

Runoff so far this season is about 35 percent of average compared to 95 percent one year ago. Stream runoff during January was only about 30 percent of average for the month.

Reservoir storage overall is near normal for the date due to good carryover from last year. The low North Lahontan value is because Lake Tahoe, the area's major reservoir, is below its natural rim. Last year statewide storage was about 75 percent of average at the beginning of February and was increasing rapidly. This season, total storage has changed little since fall.

SUMMARY OF WATER CONDITIONS						
IN PERCENT OF AVERAGE						
HYDROGRAPHIC AREA	PRECIPITATION OCTOBER 1 TO DATE	FEBRUARY 1 SNOW WATER CONTENT	FEBRUARY 1 RESERVOIR STORAGE	RUNOFF OCTOBER 1 TO DATE	APR-JULY RUNOFF FORECAST	WATER YEAR RUNOFF FORECAST
NORTH COAST	60	65	105	30	65	60
SAN FRANCISCO BAY	60	--	105	15	--	--
CENTRAL COAST	60	--	80	10	--	--
SOUTH COAST	35	--	125	70	--	--
SACRAMENTO BASIN	60	60	90	40	60	55
SAN JOAQUIN BASIN	50	40	110	25	55	50
TULARE LAKE BASIN	60	45	100	40	50	50
NORTH LAHONTAN	45	40	35	45	45	45
SOUTH LAHONTAN	20	30	90	70	55	60
COLORADO DESERT	45	--	--	--	--	--
STATEWIDE	55	50	100	35	55	50

**FORECAST OF APRIL - JULY
UNIMPAIRED SNOWMELT RUNOFF
FEBRUARY 1, 1994**



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

**FORECASTS OF APRIL-JULY UNIMPAIRED RUNOFF
FOR CENTRAL VALLEY STREAMS
FEBRUARY 1, 1994**

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	297	702	39	210	71	
McCloud River at Shasta Lake	411	850	185	310	75	
Pit River at Shasta Lake	1,062	1,796	480	770	73	
Total inflow to Shasta Lake	1,824	3,189	726	1,320	72	1,000-2,200
Sacramento River above Bend Bridge, near Red Bluff	2,491	4,674	943	1,730	69	1,130-3,100
Feather River						
Feather River at Lake Almanor near Pratville	333	675	120	210	63	
North Fork at Pulga	1,028	2,416	243	600	58	
Middle Fork near Clio (3)	86	518	4	30	35	
South Fork at Ponderosa Dam	110	267	13	60	55	
Total inflow to Oroville Reservoir	1,857	4,676	392	1,070	58	470-2,100
Yuba River						
North Yuba below Goodyears Bar	286	647	51	180	63	
Inflow to Jackson Mdws and Bowman Reservoirs	112	236	25	70	63	
South Yuba at Langs Crossing	233	481	57	150	64	
Yuba River at Smartville	1,047	2,424	200	660	63	310-1,300
American River						
North Fork at North Fork Dam	262	716	43	130	50	
Middle Fork near Auburn	522	1,406	100	280	54	
Silver Creek below Camino Diversion Dam	173	386	37	100	58	
Total inflow to Folsom Reservoir	1,284	3,074	229	680	53	330-1,580
<i>Sacramento River at Sacramento</i>						
SAN JOAQUIN RIVER BASIN						
Cosumnes River at Michigan Bar	129	363	8	50	39	15-160
Mokelumne River						
North Fork near West Point (4)	437	829	104	240	55	
Total inflow to Pardee Reservoir	465	1,065	102	260	56	130-500
Stanislaus River						
Middle Fork below Beardsley Dam	334	702	64	190	57	
North Fork inflow to McKay's Point Dam	224	503	34	120	54	
Total inflow to Melones Reservoir	713	1,710	116	370	52	180-750
Tuolumne River						
Cherry Creek and Eleanor Creek near Hetch Hetchy	322	727	97	180	56	
Tuolumne River near Hetch Hetchy	606	1,392	153	350	58	
Total inflow to Don Pedro Reservoir	1,200	2,682	301	650	54	380-1,250
Merced River						
Merced River at Pohono Bridge	362	888	80	220	61	
Total inflow to Exchequer Reservoir	617	1,587	123	340	55	180-620
San Joaquin River						
San Joaquin River at Mammoth Pool (2)	1,014	2,279	235	550	54	
Big Creek below Huntington Lake (2)	95	264	11	50	53	
South Fork near Florence Lake (2)	202	511	58	130	64	
Total inflow to Millerton Lake	1,228	3,355	262	690	56	340-1,300
<i>San Joaquin River near Vernalis</i>						
TULARE LAKE BASIN						
Kings River						
North Fork Kings River near Cliff Camp	239	565	50	130	54	
Total inflow to Pine Flat Reservoir	1,203	3,114	273	640	53	310-1,170
Kaweah River at Terminus Reservoir	284	814	61	150	53	70-290
Tule River at Success Reservoir	63	256	2	20	32	5-65
Kern River						
Kern River near Kernville	373	1,203	83	180	48	
Total inflow to Isabella Reservoir	462	1,657	84	200	43	110-520

(1) All 50-year averages are based on data for water years 1941-1990 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
FEBRUARY 1, 1994**

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
856	1,964	165										
1,244	2,353	577										
3,145	5,150	1,484										
5,987	10,796	2,479	1,070	480	620	510	370	250	190	340	3,830 (3,180-5,670)	64
8,664	17,180	3,294	1,470	700	900	650	500	330	250	400	5,200 (4,100-8,300)	60
780	1,269	366										
2,417	4,400	666										
219	637	24										
291	562	32										
4,617	9,492	994	470	240	420	460	350	160	100	130	2,330 (1,500-3,950)	50
564	1,056	102										
181	292	30										
379	565	98										
2,390	4,926	369	170	130	220	280	270	90	20	20	1,200 (700-2,150)	50
616	1,234	66										
1,070	2,575	144										
318	705	59										
2,736	6,381	349	120	140	250	300	280	90	10	10	1,200 (680-2,500)	44
												54
385	1,253	20	10	20	40	30	15	4	1	0	120 (40-360)	31
626	1,009	197										
748	1,800	129	19	25	55	100	125	30	5	1	360 (190-670)	48
471	929	88										
1,150	2,952	155	50	45	90	150	160	50	10	5	560 (300-1,080)	49
461	1,147	123										
770	1,661	258										
1,882	4,430	383	70	65	130	220	290	120	20	5	920 (570-1,700)	49
461	1,020	92										
966	2,859	150	30	30	65	115	150	60	15	5	470 (260-830)	49
1,337	2,964	308										
112	298	14										
248	653	71										
1,776	4,642	362	80	50	110	190	290	160	50	30	960 (510-1,740)	54
												50
284	607	58										
1,669	4,294	383	75	40	80	180	270	150	40	25	860 (450-1,500)	52
444	1,402	92	20	15	30	50	65	30	5	5	220 (110-400)	50
145	615	16	8	10	15	10	5	4	1	2	55 (20-160)	38
558	1,577	163										
717	2,309	175	65	25	40	60	70	50	20	20	350 (220-800)	49

* Unimpaired runoff to date e Estimated

**FORECASTS OF APRIL-JULY UNIMPAIRED RUNOFF FOR SELECTED CALIFORNIA
STREAMS
FEBRUARY 1, 1994**

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	653	1,593	80	450	69
Scott River at Ft. Jones	200	*	*	120	60
Upper Klamath Lake ⁽¹⁾⁽²⁾⁽⁵⁾	521	1,151	177	315	62
LAHONTAN AREA					
Truckee River, Lake Tahoe to Farad accretion	268	713	58	120	45
Lake Tahoe Rise in feet (assuming gates closed)	1.5	3.75	0.23	0.5	33
East Carson River near Gardnerville	186	407	43	85	46
West Carson River at Woodfords	54	131	12	25	46
East Walker River near Bridgeport	63	209	7	11	17
West Walker River near Coleville	148	330	35	70	47
Owens River ⁽³⁾	233	579	96	131	56

(1)Forecast period of April-September

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

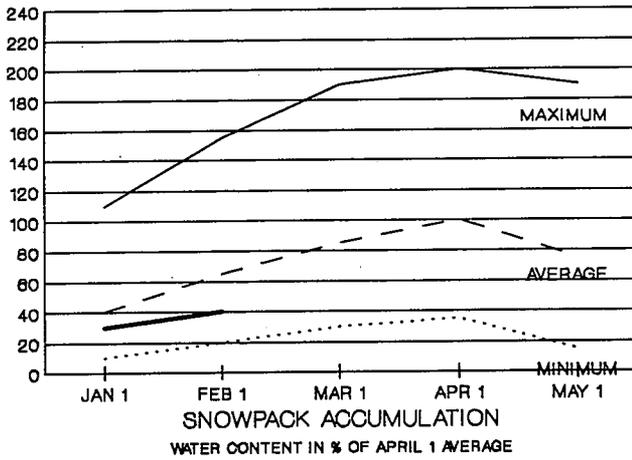
(3)Forecast by Dept. of Water and Power, City of Los Angeles

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

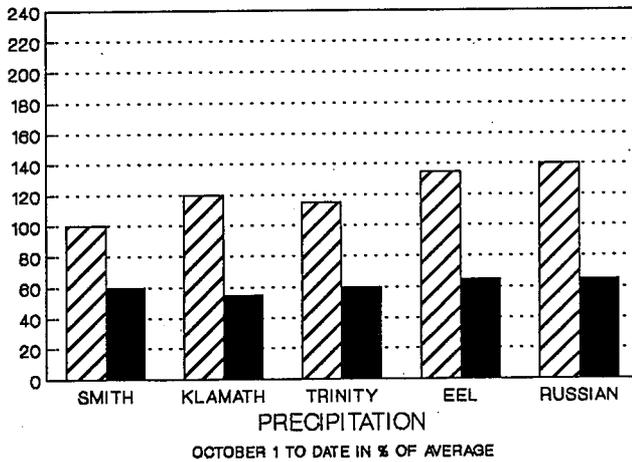
(5)Average period of 25 years

NORTH COAST AREA

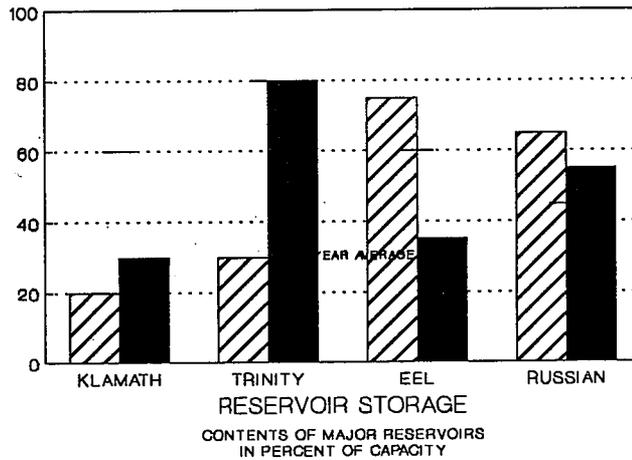
SNOWPACK - First of the month measurements made at 12 snow courses indicate an area wide snow water equivalent of 13.2 inches. This is 65 percent of the average for this date and about 40 percent of the seasonal (April 1) average. Last year at this time the pack was holding 29.9 inches of water.



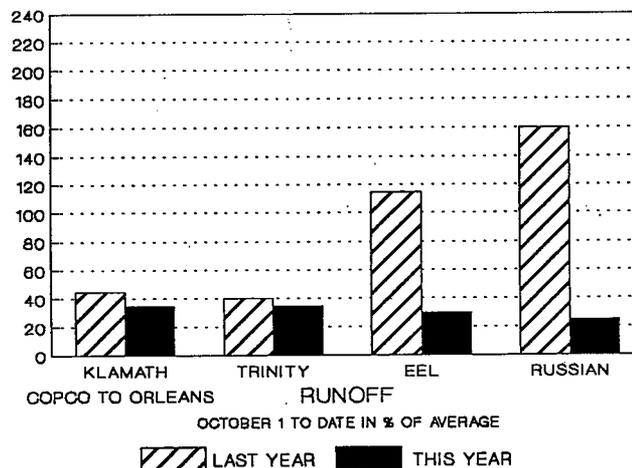
PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on this area was 60 percent of normal. Precipitation last month was about 65 percent of the monthly average. Seasonal precipitation at this time last year stood at 120 percent of normal.



RESERVOIR STORAGE - First of the month storage in 7 reservoirs was 2.3 million acre-feet which is 105 percent of average. About 75 percent of available capacity was being used. Storage in these reservoirs at this time last year was 55 percent of average.

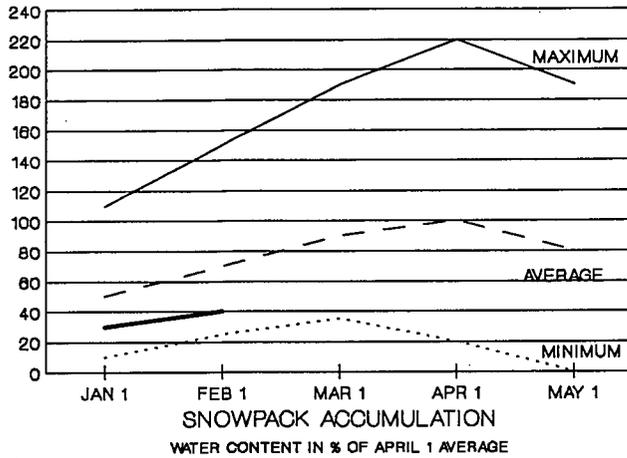


RUNOFF - Seasonal runoff of streams draining the area totaled 1.6 million acre-feet which is 30 percent of average for this period. Last year, runoff for the same period was 95 percent of average.

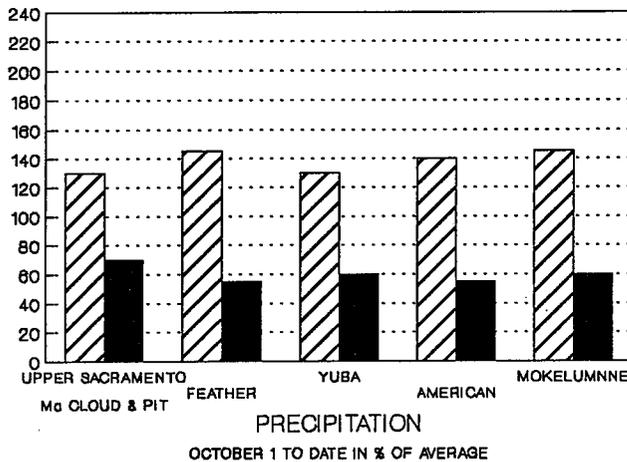


SACRAMENTO BASIN

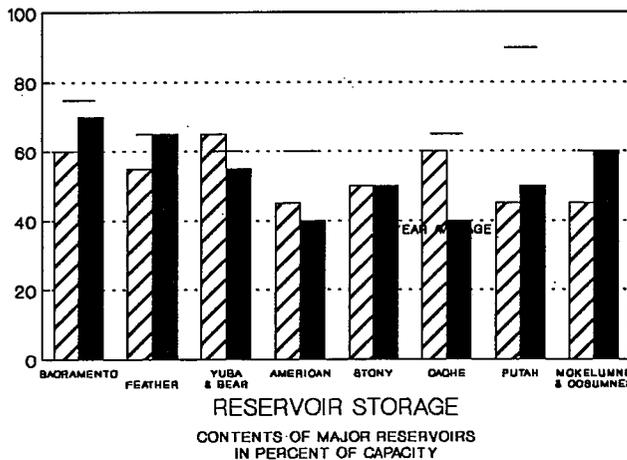
SNOWPACK - First of the month measurements made at 74 snow course indicate a basin wide snow water equivalent of 12.8 inches. This is 60 percent of the average for this date and about 40 percent of the April 1 seasonal average. Last year at this time, the pack was holding 36.0 inches of water.



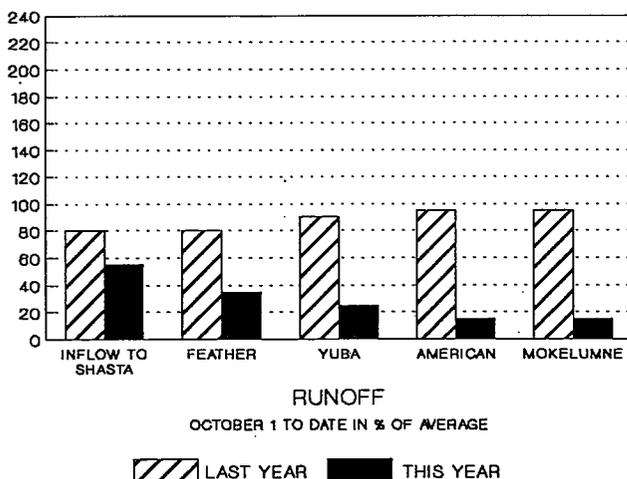
PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on the Sacramento Basin was 60 percent of normal. Precipitation last month was 40 percent of the monthly average. Seasonal precipitation at this time last year stood at 140 percent of average.



RESERVOIR STORAGE - First of the month storage in 43 reservoirs was 9.5 million acre-feet which is 90 percent of average. About 60 percent of available capacity was being used. Storage in these reservoirs was about 85 percent of average at this time last year.



RUNOFF - Seasonal runoff from streams draining into the basin totaled 2.2 million acre-feet which is about 40 percent of average for this period. Last year runoff for the same period was 90 percent of average.



The Sacramento River Index for the year is forecast at 9.9 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 18.6 million acre-feet.

SAN JOAQUIN AND TULARE LAKE BASINS

SNOWPACK - First of the month measurements made at 63 San Joaquin Basin snow courses indicate a basin wide snow water equivalent of 8.3 inches which is 40 percent of the average for this date and 25 percent of the seasonal (April 1) average. Last year at this time, the pack was holding 38.9 inches of water.

At the same time, 43 Tulare Lake Basin snow courses indicated a basin-wide snow water equivalent of 6.2 inches which is 45 percent of the average for this date and 30 percent of the seasonal average. Last year at this time, the Basin was holding 25.2 inches of water.

PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on the San Joaquin Basin was 50 percent of normal. Precipitation last month was 40 percent of the monthly average. Seasonal precipitation at this time last year stood at 160 percent of normal.

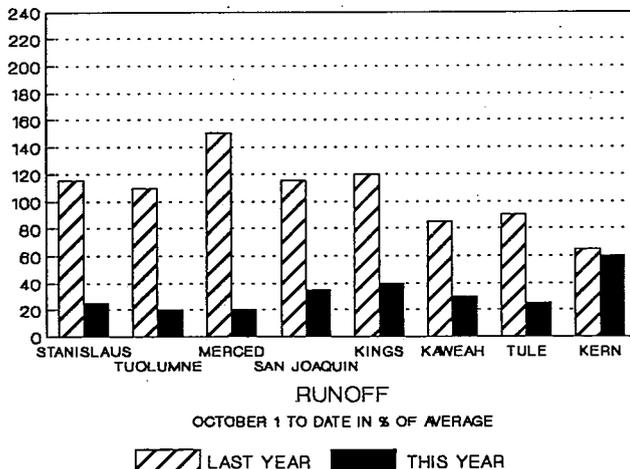
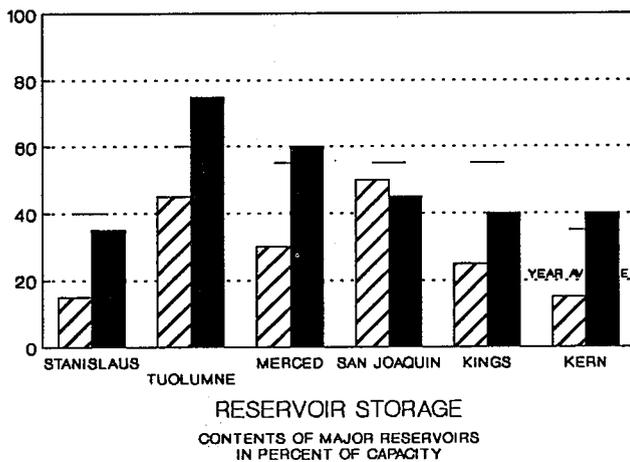
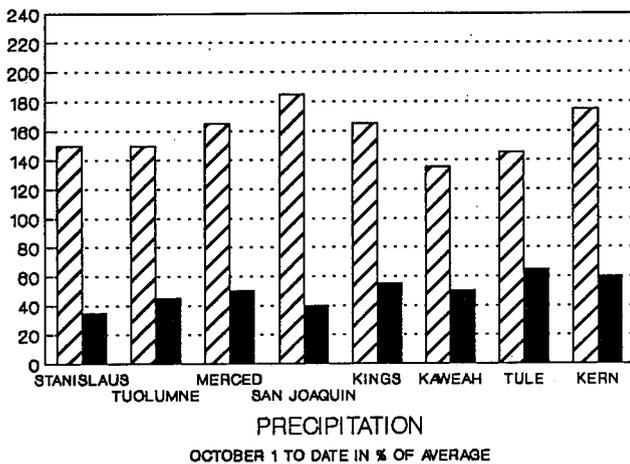
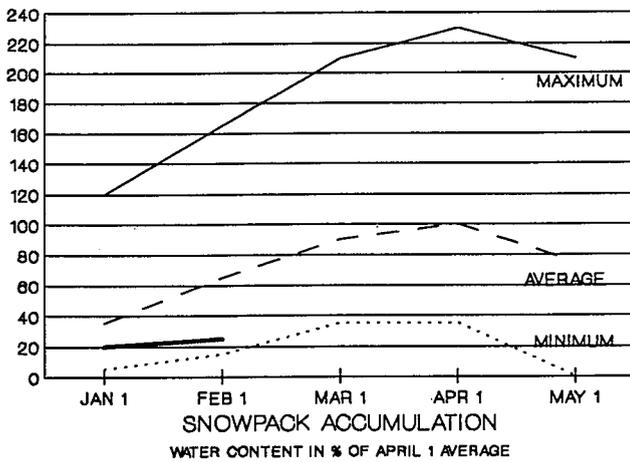
Seasonal precipitation on the Tulare Lake Basin was 60 percent of normal. Precipitation last month was 40 percent of the monthly average. Seasonal precipitation at this time last year stood at 160 percent of normal.

RESERVOIR STORAGE - First of the month storage in 33 San Joaquin Basin reservoirs was 7.1 million acre-feet which is 110 percent of average. About 60 percent of available capacity was being used. Storage in these reservoirs at this time last year was 65 percent of average.

First of the month storage in 6 Tulare Lake Basin reservoirs was 758 thousand acre-feet which is 100 percent of average. About 35 percent of available capacity was being used. Storage in these reservoirs at this time last year was 55 percent of average.

RUNOFF - Seasonal runoff of streams draining into the San Joaquin Basin totaled 250 thousand acre-feet which is 25 percent of average for this period. Last year, runoff for this same period was 115 percent of average.

Seasonal runoff of streams draining into the Tulare Lake Basin totaled 170 thousand acre-feet which is 40 percent of average for this period. Last year, runoff for this same period was 95 percent of average.



NORTH AND SOUTH LAHONTAN AREA

SNOWPACK - First of the month measurements made at 17 North Lahontan snow courses indicate an area wide snow water equivalent of 6.2 inches which is 40 percent of the average for this date and 25 percent of the seasonal (April 1) average. Last year at this time, the pack was holding 31.2 inches of water.

At the same time, 22 South Lahontan courses indicated an area-wide snow water equivalent of 5.2 inches which is 30 percent of the average for this date and 20 percent of the seasonal average. Last year at this time, the pack was holding 25.3 inches of water.

PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) over the North Lahontan area averaged 45 percent of normal. Precipitation last month was 20 percent of the monthly average. Seasonal precipitation at this time last year stood at 145 percent of normal.

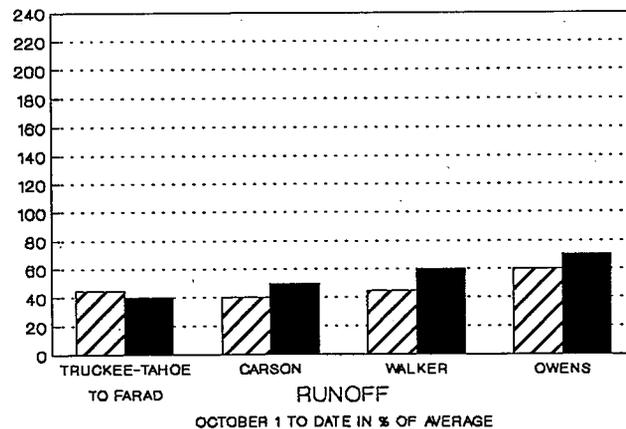
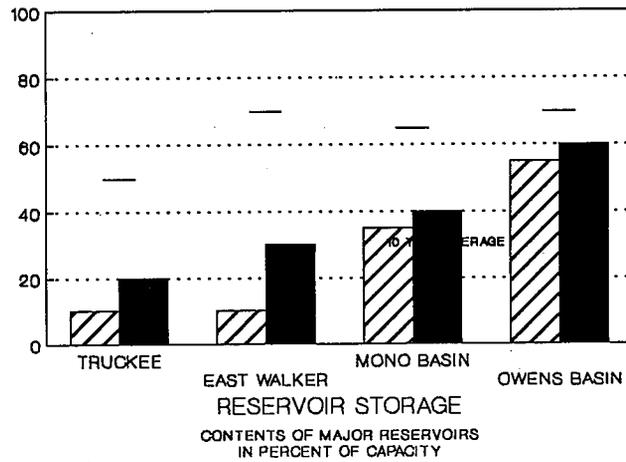
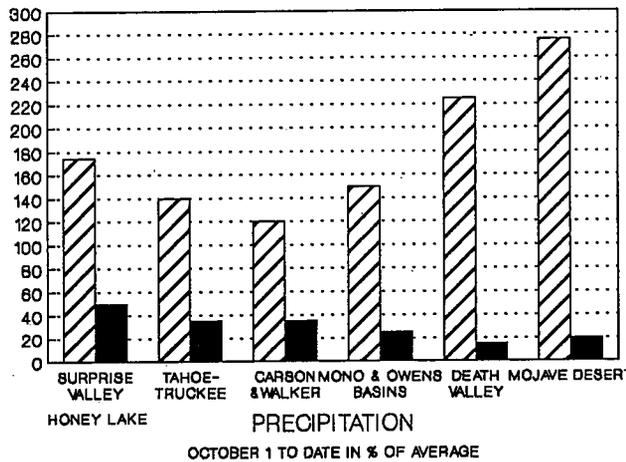
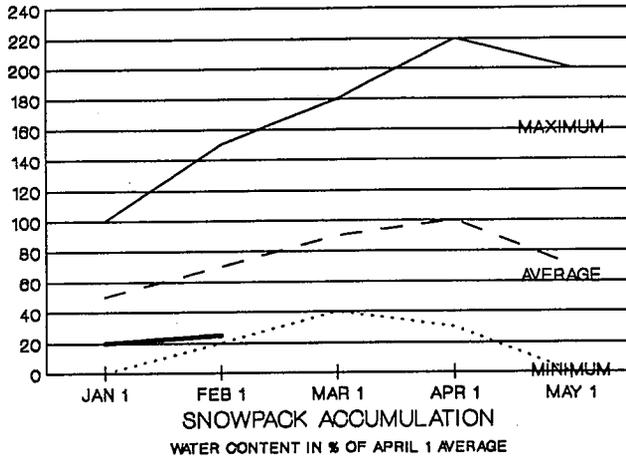
Seasonal precipitation over the South Lahontan area was 20 percent of normal. Last month's precipitation was 15 percent of the monthly average. Seasonal precipitation at this time last year stood at 200 percent of normal.

RESERVOIR STORAGE - First of the month storage in 5 North Lahontan reservoirs was 210 thousand acre-feet which is 35 percent of average. About 20 percent of available capacity was being used. Storage in these reservoirs at this time last year was 15 percent of average. Lake Tahoe was .9 feet below its natural rim on February 1.

First of the month storage in 8 South Lahontan reservoirs was 251 thousand acre-feet which is 90 percent of average. About 60 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 72 thousand acre-feet which is 45 percent of average for this period. Last year, runoff for this same period was 45 percent of average.

Seasonal runoff of the Owens River in the South Lahontan area totaled 32 thousand acre-feet which is 70 percent of average for this period. Last year, runoff for this same period was 60 percent of average.

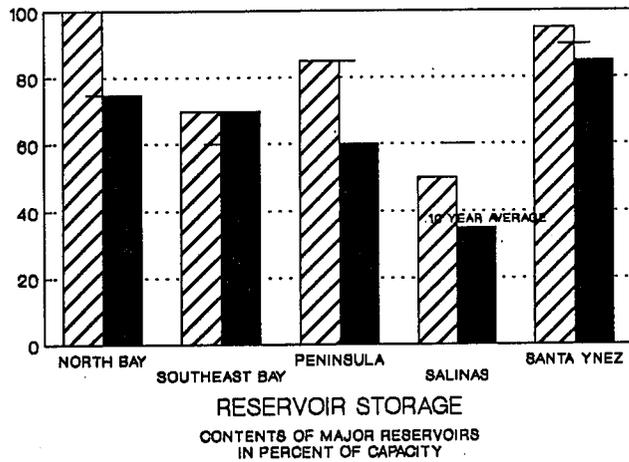
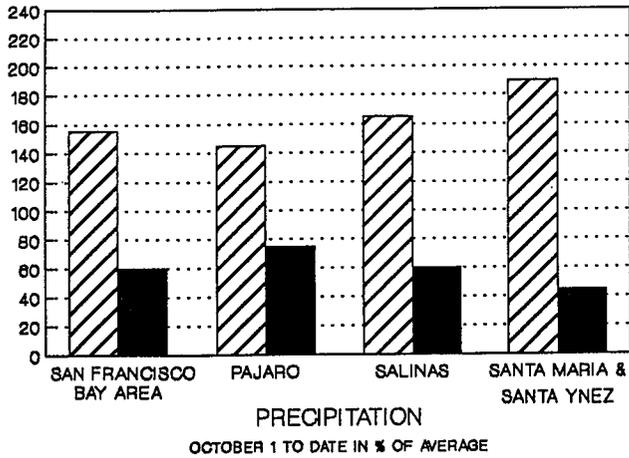


▨ LAST YEAR ■ THIS YEAR

SAN FRANCISCO AND CENTRAL COAST AREAS

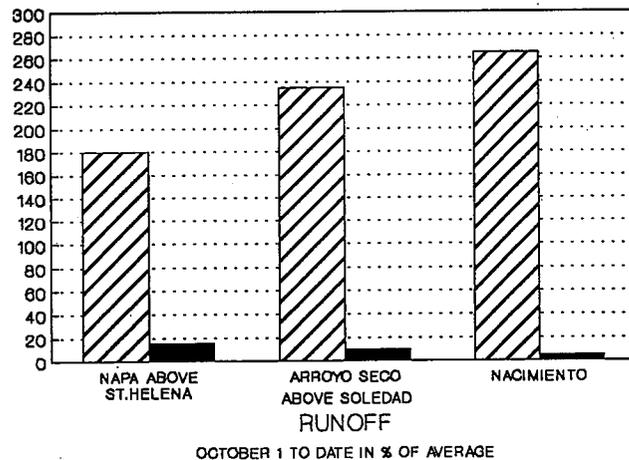
PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on the San Francisco Bay area was 60 percent of normal. Precipitation last month was 40 percent of the monthly average. Seasonal precipitation at this time last year stood at 155 percent of normal.

Seasonal precipitation on the Central Coast area averaged 60 percent of normal. Precipitation last month was 55 percent of the monthly average. Seasonal precipitation at this time last year stood at 165 percent of normal.



RESERVOIR STORAGE - First of the month storage in 18 major Bay area reservoirs was 480 thousand acre-feet which is 105 percent of average. About 70 percent of available capacity was being used. Storage in these reservoirs at this time last year was 115 percent of average.

First of the month storage in 6 major Central Coast reservoirs was 460 thousand acre-feet which is 80 percent of average. About 50 percent of available capacity was being used. Storage in these reservoirs at this time last year was 95 percent of average.



RUNOFF - Seasonal runoff of the Napa River in the San Francisco Bay area totaled 5 thousand acre-feet which is 15 percent of average for this period. Last year, runoff for this same period was 180 percent of average.

Seasonal runoff of selected Central Coast streams totaled 11 thousand acre-feet which is 10 percent of average for this period. Last year, runoff for this same period was about 255 percent of average.

▨ LAST YEAR ■ THIS YEAR

SOUTH COAST AND COLORADO RIVER AREAS

PRECIPITATION - October through January (seasonal) precipitation on the South Coast area was 35 percent of normal. January precipitation was 20 percent of the monthly average. Seasonal precipitation at this time last year was an incredible 240 percent of normal.

Seasonal precipitation on the Colorado Desert area was 45 percent of normal. Precipitation in January was 20 percent of average. Seasonal precipitation at this time last year stood at 320 percent of average.

RESERVOIR STORAGE - February 1 storage in 29 major South Coast area reservoirs was 1.5 million acre-feet or 125 percent of average. About 75 percent of available capacity was being used. Storage in these reservoirs at this time last year was 145 percent of average.

On February 1 combined storage in Lakes Powell, Mead, Mohave and Havasu was about 42 million acre-feet or 110 percent of average. About 80 percent of available capacity was in use. Last year at this time, these reservoirs were storing 65 percent of capacity.

RUNOFF - Seasonal runoff from selected South Coast streams totaled 13 thousand acre-feet which is 70 percent of average. Runoff from these streams during January totaled 3 thousand acre-feet or 40 percent of average. Seasonal runoff from these streams last year was 465 percent of average.

COLORADO - The February 1 snowpack in the Upper Colorado River basin according to the U.S. Soil Conservation Service reports was 65 percent of average and ranges from 45 percent in the Green Basin to 90 percent in the Eagle Basin.

The April through July inflow to Lake Powell is forecast to be 5.2 million acre-feet which is 67 percent of normal.

CENTRAL VALLEY PROJECT

Based on February 1 conditions, Bureau of Reclamation water year forecasts for runoff into CVP reservoirs are: Trinity--67% of average, Shasta--67% of average, American--37% of average, Stanislaus--51% of average, San Joaquin above Friant--56% of average. As of January 31, 1994 CVP storage was 7.3 million acre feet which is an increase of 2.4 million acre feet compared to one year ago, and is approximately 105% of normal for that date.

The Bureau of Reclamation will announce preliminary water allocations for the CVP contractors on February 15, 1994.

STATE WATER PROJECT

As of February 1, State Water Project (SWP) conservation storage (Lake Oroville plus the State share of San Luis Reservoir) held 3.49 million acre-feet of water. This is approximately 670,000 acre-feet more than at the same time last year. In December 1993, the SWP announced a delivery allocation of 1.56 million acre-feet of 1994 entitlement water which was 50 percent for most contractors. The SWP has just revised that delivery allocation to a full 50 percent of each contractor's 1994 water supply entitlement.

MAJOR WATER DISTRIBUTION PROJECTS

RESERVOIR STORAGE

(AVERAGES BASED ON PERIOD THROUGH 1990)

RESERVOIR	CAPACITY 1,000 AF	AVERAGE STORAGE 1,000 AF	STORAGE AS OF JANUARY 31		PERCENT AVERAGE
			1993 1,000 AF	1994 1,000 AF	
<u>STATE WATER PROJECT</u>					
Oroville	3,538	2,427	2,002	2,410	99
San Luis SWP	1,062	870	798	1,068	123
Lake Del Valle	77	30	40	25	85
Silverwood	73	64	66	73	114
Pyramid Lake	171	162	167	165	102
Castaic Lake	324	248	267	244	99
Perris Reservoir	132	110	122	120	109
<u>CENTRAL VALLEY PROJECT</u>					
Clair Engle Lake	2,448	1,815	751	1,935	107
Shasta Lake	4,552	3,182	2,765	3,058	96
Whiskeytown	241	208	182	206	99
Folsom	974	534	478	355	67
New Melones	2,420	1,402	264	774	55
Millerton Lake	520	305	344	252	83
San Luis CVP	977	710	392	963	136
<u>COLORADO RIVER PROJECT</u>					
Lake Mead	26,159	19,864	20,627	21,510	108
Lake Powell	25,002	16,600	13,104	18,122	109
Lake Mohave	1,810	1,595	1,735	1,629	102
Lake Havasu	619	539	570	554	103
<u>EAST BAY MUNICIPAL UTILITY DISTRICT</u>					
Pardee	210	176	184	185	105
Camanche	417	241	134	279	116
East Bay (4 reservoirs)	151	122	130	118	96
<u>CITY & COUNTY OF SAN FRANCISCO</u>					
Hetch Hetchy	360	144	105	248	172
Cherry Lake	268	103	96	264	256
Lake Eleanor	26	9	3	22	252
South Bay (4 reservoirs)	225	163	176	170	105
<u>CITY OF LOS ANGELES (DWP)</u>					
Crowley Lake (Long Valley Reservoir)	183	129	116	111	86
Grant Lake	48	28	18	20	72
Other Aqueduct Storage (6 reservoirs)	95	62	45	60	97

DEPARTMENT OF WATER RESOURCES - CALIFORNIA DATA EXCHANGE CENTER
TELEMETERED SNOW WATER EQUIVALENTS - FEBRUARY 1, 1994

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	7150	----	7.0	----	7.0	6.5
RED ROCK MOUNTAIN	USBR	6700	39.6	19.6	49%	19.6	18.9
BONANZA KING	USBR	6450	40.5	14.0	35%	14.0	12.8
SHIMMY LAKE	USBR	6200	40.3	23.0	57%	23.6	21.0
MIDDLE BOULDER #3	USBR	6200	28.3	11.1	39%	11.8	11.8
HIGHLAND LAKES	USBR	6030	29.9	15.0	50%	15.0	13.8
SCOTTS MOUNTAIN	USBR	5900	----	9.9	----	9.7	9.5
MUMBO BASIN	USBR	5700	22.4	----	----	----	.0
BIG FLAT	USBR	5100	----	7.8	----	7.9	7.7
SACRAMENTO RIVER							
CEDAR PASS	SCS	7100	18.1	6.7	37%	6.7	6.2
BLACKS MOUNTAIN	DWR	7100	----	5.8	----	5.8	4.8
SAND FLAT	USBR	6750	42.4	18.3	43%	18.3	17.7
MEDICINE LAKE	USBR	6700	----	10.1	----	10.2	9.7
ADIN MOUNTAIN	SCS	6350	13.6	6.0	44%	5.9	5.7
SNOW MOUNTAIN	USBR	5950	27.0	10.2	38%	10.2	10.2r
SLATE CREEK	USBR	5600	29.0	12.8	44%	12.8	11.8
STOUTS MEADOW	USBR	5400	36.0	14.8	41%	14.8	13.8
FEATHER RIVER							
KETTLEROCK	DWR	7300	25.5	7.8	31%	7.9	8.0
GRIZZLY	DWR	6900	29.7	8.3	28%	8.2	6.8
PILOT PEAK	DWR	6800	52.6	9.0	17%	9.1	8.2
GOLD LAKE	DWR	6750	36.5	13.8	38%	13.9	13.8
HUMBUG	DWR	6500	28.0	15.7	56%	15.7	15.5
RATTLESNAKE	DWR	6100	14.0	10.2	73%	10.3	10.4
BUCKS LAKE	DWR	5750	44.7	18.6	42%	18.6	17.0
FOUR TREES	DWR	5150	20.0	7.7	38%	7.7	6.7
YUBA & AMERICAN RIV							
LAKE LOIS	DWR	8800	----	15.0	----	15.0	13.7
SCHNEIDERS	SMUD	8750	34.5	----	----	9.5	9.1
CAPLES LAKE COURSE	USBR	7800	30.9	9.3	30%	9.3	8.3
ALPHA	SMUD	7600	35.9	----	----	10.2	9.9
BETA	DWR	7600	----	9.0	----	9.0	8.8
FORNI RIDGE	USBR	7600	37.0	7.1	19%	7.1	7.1
SILVER LAKE	USBR	7100	22.7	6.3	28%	6.3	5.9
CENT SIERRA SNOW LAB	USFS	6950	33.6	12.5	37%	12.5	12.0
HUYSINK	USBR	6600	42.6	10.8	25%	10.8	10.0
VAN VLECK	SMUD	6700	35.9	----	----	13.6	13.5
ROBBS SADDLE	SMUD	5900	21.4	----	----	9.5	9.3
GREEK STORE	USBR	5600	21.0	9.1	43%	9.1	7.9
BLUE CANYON	USBR	5280	9.0	1.0	11%	1.0	1.0
ROBBS POWERHOUSE	SMUD	5150	5.2	----	----	4.0	4.2
MOKEL. & STANIS. RIV							
DEADMAN CREEK	USBR	9250	37.2	6.4	17%	6.4	5.9
HIGHLAND MEADOW	USBR	8800	47.9	7.7	16%	7.7	7.2
GIANELLI MEADOW	USBR	8350	55.5	10.6	19%	10.6	9.8
LOWER RELIEF VALLEY	DWR	8100	41.2	8.9	22%	8.9	8.9
BLUE LAKES	SCS	8000	33.1	7.3	22%	7.1	6.4
MUD LAKE	SMUD	7900	44.9	----	----	15.0	14.0
STANISLAUS MEADOW	USBR	7750	47.5	9.7	20%	9.7	9.1
BLOODS CREEK	USBR	7200	35.5	9.5	27%	9.5	9.1
BLACK SPRINGS	USBR	6500	32.0	7.6	24%	7.6	6.6
TUOLUMNE & MERCED R.							
DANA MEADOWS	DWR	9800	27.7	7.4	27%	7.4	6.6
SLIDE CANYON	DWR	9200	----	8.6	----	9.2	9.2
SNOW FLAT	DWR	8700	44.1	10.4	24%	10.4	9.8
TUOLUMNE MEADOWS	DWR	8600	22.6	4.4	20%	4.4	4.1
HORSE MEADOW	DWR	8400	48.6	10.5	22%	10.5	9.8
OSTRANDER LAKE	DWR	8200	34.8	7.5	22%	7.5	7.5
PARADISE	DWR	7650	----	11.8	----	11.8	11.1
GIN FLAT	DWR	7050	34.2	7.0	20%	7.0	6.3
LOWER KIBBIE	DWR	6600	27.4	6.7	25%	6.7r	5.4
SAN JOAQUIN RIVER							
VOLCANIC KNOB	USBR	10100	30.1	5.9	20%	5.9	5.9
AGNEW PASS	USBR	9450	32.3	6.9	21%	6.9	6.9
KAISER POINT	USBR	9200	37.8	6.7	18%	6.7	6.1
GREEN MOUNTAIN	USBR	7900	30.8	7.3	24%	7.3	6.5

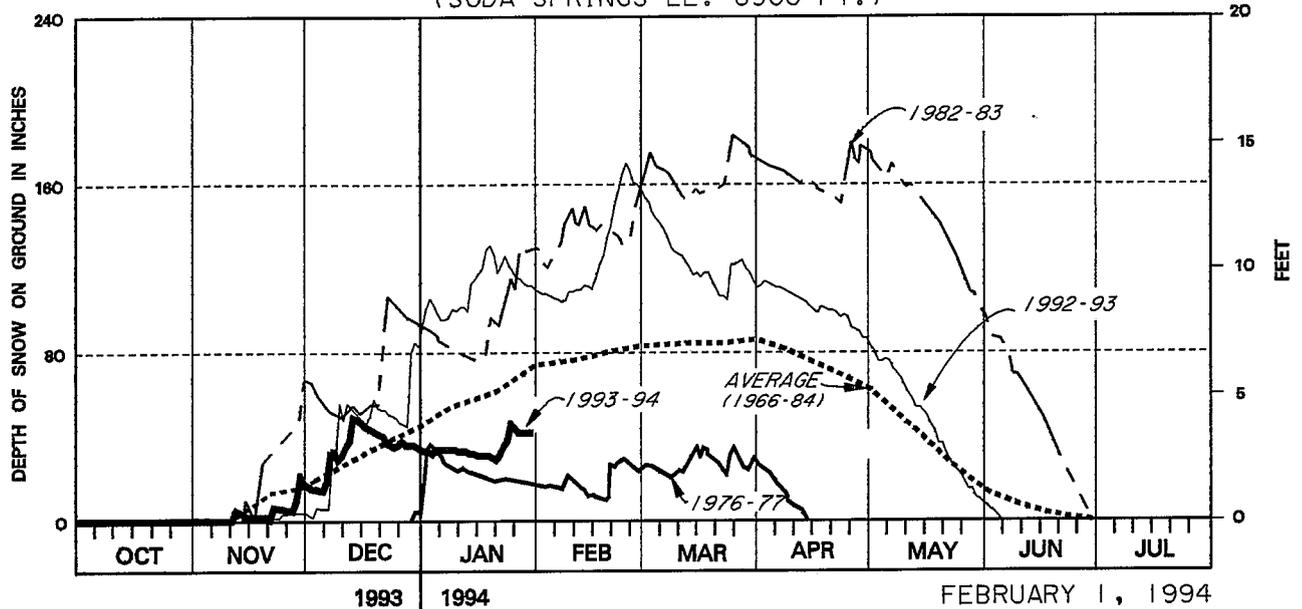
DEPARTMENT OF WATER RESOURCES - CALIFORNIA DATA EXCHANGE CENTER
TELEMETERED SNOW WATER EQUIVALENTS - FEBRUARY 1, 1994

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	9.9	32%	9.9	8.7
CHILKOOT MEADOW	USBR	7150	38.0	9.4	25%	8.7	6.5
HUNTINGTON LAKE	USBR	7000	20.1	7.7	38%	7.7	6.5
GRAVEYARD MEADOW	USBR	6900	18.8	3.3	18%	3.3	2.6
POISON RIDGE	USBR	6900	28.9	6.1	21%	6.1	4.7
KINGS RIVER							
BISHOP PASS	DWR	11200	----	7.9	----	7.9	7.9
CHARLOTTE LAKE	DWR	10400	----	7.8	----	7.6	7.2
STATE LAKES	USCE	10400	29.0	6.2	21%	6.1	6.0
MITCHELL MEADOW	USCE	10375	32.9	8.7	26%	8.7	8.4
BLACKCAP BASIN	USBR	10300	34.3	15.0	44%	14.4	14.4
UPPER BURNT CORRAL	DWR	9700	34.6	9.8	28%	9.8	9.8
WEST WOODCHUCK MDW	USCE	9100	32.8	.0	0%	.0	.0
BIG MEADOWS	DWR	7600	25.9	.1	1%	.1	.1
KAWEAH & TULE RIVERS							
QUAKING ASPEN	DWR	7200	21.0	8.9	42%	9.0	8.4
GIANT FOREST	USCE	6400	10.0	1.8	18%	1.8	1.2
KERN RIVER							
UPPER TYNDALL CREEK	USCE	11500	27.7	5.0	18%	5.0	4.7
CRABTREE	DWR	10700	19.8	3.5	18%	3.5	3.5
CHAGOOPA PLATEAU	DWR	10300	21.8	6.5	30%	6.5	6.5
PASCOES	USCE	9150	24.9	7.2	29%	7.1	6.4
TUNNEL	DWR	8950	15.6	4.0	26%	3.2	2.6
WET MEADOW	USCE	8900	30.3	6.4	21%	6.4	6.0
CASA VIEJA MDW	DWR	8400	20.9	5.2	25%	5.2	5.2
BEACH MEADOW	DWR	7650	11.0	1.6	14%	1.6	1.4
SURPRISE VALLEY AREA							
DISMAL SWAMP	SCS	7050	29.2	8.4	29%	8.4	8.3
TRUCKEE RIVER							
MOUNT ROSE SKI AREA	SCS	8850	38.5	9.0	23%	9.0	8.3
INDEPENDENCE LAKE	SCS	8450	41.4	12.2	29%	12.2	12.1
BIG MEADOWS	SCS	8700	25.7	1.8	7%	----	1.6
INDEPENDENCE CAMP	SCS	7000	21.8	----	----	5.6	----
INDEPENDENCE CREEK	SCS	6500	12.7	4.7	37%	4.7	4.6
LAKE TAHOE BASIN							
HEAVENLY VALLEY	SCS	8800	28.1	5.7	20%	----	4.9
HAGANS MEADOW	SCS	8000	16.5	4.3	26%	3.6	4.3
MARLETTE LAKE	SCS	8000	21.1	6.5	31%	6.5	5.4
ECHO PEAK	SCS	7800	39.5	----	----	11.2	10.5
RUBICON NO. 2	SCS	7500	29.1	5.3	18%	5.3	5.0
WARD CREEK NO. 3	SCS	6750	39.4	8.7	22%	----	9.5
FALLEN LEAF LAKE	SCS	6300	7.0	1.6	23%	1.7	1.5
CARSON RIVER							
EBBETTS PASS	SCS	8700	38.8	----	----	----	----
POISON FLAT	SCS	7900	16.2	----	----	----	----
WALKER RIVER							
VIRGINIA LAKES RIDGE	SCS	9200	20.3	2.3	11%	2.2	2.2
LOBDELL LAKE	SCS	9200	17.3	----	----	2.9	2.6
SONORA PASS BRIDGE	SCS	8750	26.0	6.2	24%	6.0	5.2
LEAVITT MEADOWS	SCS	7200	8.0	----	----	2.3	2.2
OWENS RIVER/MONO LK.							
GEM PASS	LADWP	10750	31.7	1.3	4%	1.3	1.3
SAWMILL MEADOW	DWR	10300	19.4	3.9	20%	3.9	3.9
COTTONWOOD LAKES	LADWP	10200	11.6	1.7	14%	1.7	1.4
BIG PINE #3	LADWP	9800	17.9	1.3	7%	1.3	1.3
SOUTH LAKE	LADWP	9600	16.0	.0	0%	.0	.0
MAMMOTH PASS (RP)	USBR	9500	42.4	9.4	22%	9.4	8.9
MAMMOTH PASS-6 TANKS	USBR	9500	----	----	----	----	----
ROCK CREEK	LADWP	8200	----	3.4	----	3.4	2.9

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

SNOW DEPTH AT CENTRAL SIERRA SNOW LAB.
(SODA SPRINGS EL. 6900 FT.)



DATA SOURCE: CENTRAL SIERRA SNOW LAB.

***** SNOWLINES *****

SNOW SURVEYS is back up to full staff with the hiring this past season of Dudley McFadden and Shawn Perkins. We're pleased to have them on board. And contrary to what the inside front cover says Gary Hester has been promoted to supervising engineer.

SNOW SURVEYS DATALINE is (916) 653-8292. If your normal method of reporting data is by telephone please leave your message by course number first, the course name, the date, the average depth and average water content. Remember, the date of measurement is important. For sensor data, the information is in the same order followed by snow manometer, precipitation manometer, if appropriate. For all other business please call the appropriate individual for the quickest response:

Frank Gehrke, Chief	916-653-8255
Dave Hart, Field Activities Coordinator	916-653-4541
Matt Colwell, Water Supply Forecasts	916-653-8273
Dudley McFadden, Water Supply Forecasts	916-653-0881
Bob Newton, Full Natural Flow	916-653-9485
Shawn Perkins, Sensor Data	916-653-8239
Jueneata Nossett, Precipitation	916-653-0767

1993 SNOWFLAKE AWARD recipient was Chuck Williams of the North Kern Water Storage District awarded at the 39th Annual Meeting of the Cooperators. This award is given to individuals who have a long standing commitment to the snow surveys program and activities in California.

RESERVOIR STORAGE averages have been updated based on period of record through 1990. This puts the storage averages on a comparable basis to runoff averages. The new averages are generally slightly lower than previous figures and the percentages are 2 or 3 percent higher overall.

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 50 year period 1941-1990. For more details contact California Cooperative Snow Surveys, P. O. Box 942836, Sacramento, CA 94236-0001, (916) 653-8292.

On the front cover:

Don Hand and Conrad Lahr measure Eureka Lake snow course in their own inimitable style in the Feather River watershed out of their office in Beckwourth.

Photo by Dave Hart

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

First Class

