State of California
The Resources Agency

Department of
Water Resources

Water Conditions in California

Report 3 April 1, 1998

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

THE RESOURCES AGENCY
Douglas P. Wheeler, Secretary for Resources

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COOPERATING AGENCIES

Public Agencies
Buena Vista Water Storage District
San Joaquin Exchange Contractors Water Association
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 and St. Johns River Association
Kings River Water 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
University of California, Central Sierra Snow Laboratory
California Department of Forestry & Fire Protection
California Department of Water Resources

Public Utilities
Pacific Gas and Electric Company
Southern California Edison Company

Federal Agencies
U.S. Department of Agriculture
  Forest Service (14 National Forests)
  Natural 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

APRIL 1, 1998

Although precipitation in March was above average in California, the month was much less wet than the preceding two months. Runoff forecasts are not greatly different from those of a month ago and the water supply outlook for 1998 continues to be excellent.

Forecasts of April through July runoff are about one and one half times average statewide. Highest percentages are in the North Coast and Tulare Lake regions. Water year runoff percentages are slightly higher at 160 percent.

Snowpack water content is about 160 percent of average statewide, compared to only 75 percent one year ago. The snowpack is higher in the Trinity River basin and in the southern Sierra and lower, but still well above average, in the central Sierra. Some melting of the lower elevation pack occurred in March, but late month storms added to the snowpack again.

Precipitation during March was estimated to be 135 percent of average statewide, heavier in the southern portion of the State. The first half of the month was drier than normal, but storms during the last 10 days raised precipitation amounts. The seasonal total since October 1 is about 165 percent of average; it was 125 percent one year ago.

Runoff so far this season has been about 160 percent of average, still less than the 195 percent measured at this time last year. March runoff was approximately 170 percent of average for the month. Estimated runoff of the 8 major rivers of the Sacramento and San Joaquin River regions during March was 5.2 million acre-feet.

Reservoir storage is 115 percent of average overall for this date, the same as last year. The gain in volume during March was limited by flood control requirements in many of the major reservoirs.

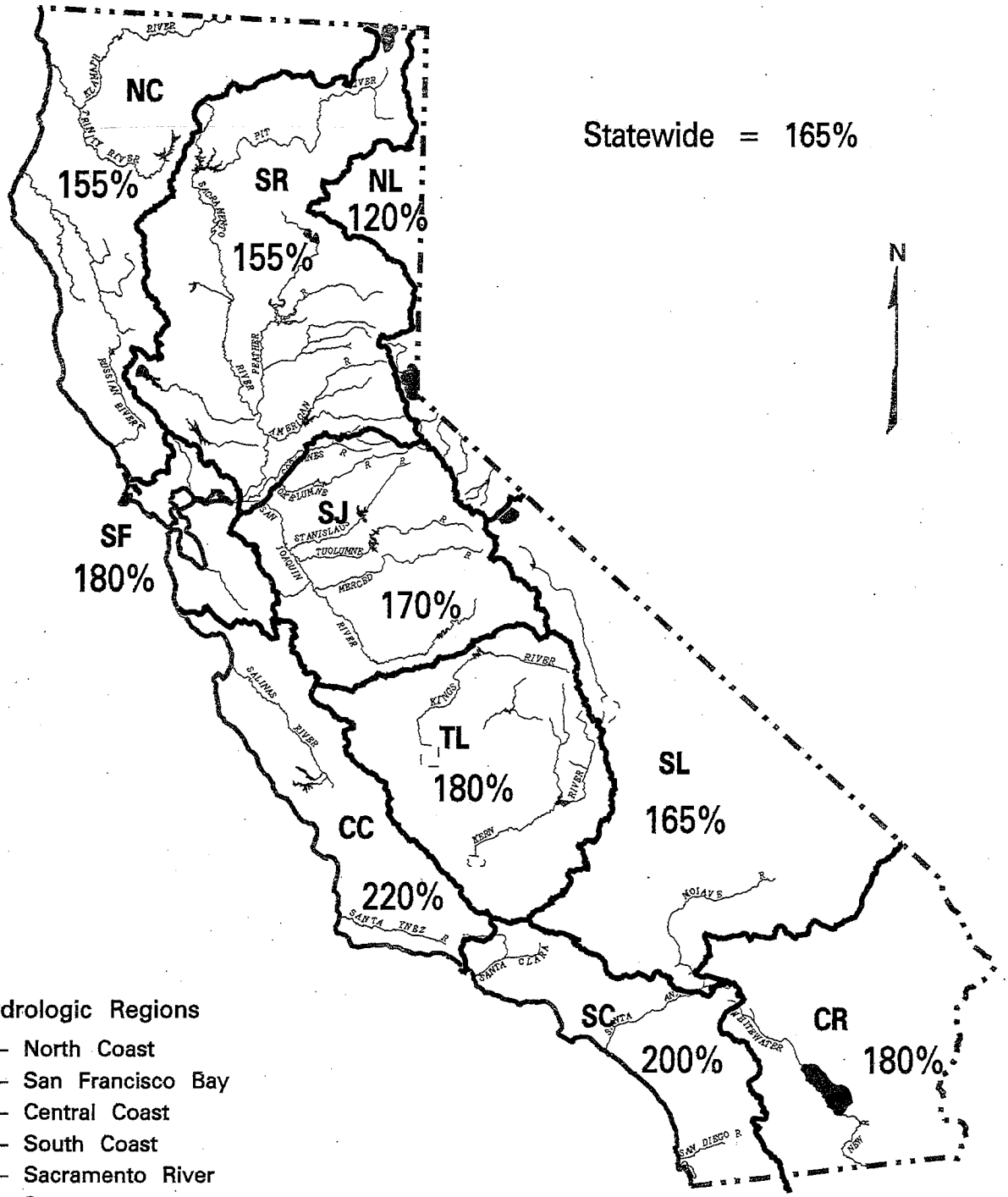
SUMMARY OF WATER CONDITIONS
IN PERCENT OF AVERAGE

HYDROLOGIC REGION	PRECIPITATION OCTOBER 1 TO DATE	APRIL 1 SNOW WATER CONTENT	APRIL 1 RESERVOIR STORAGE	RUNOFF OCTOBER 1 TO DATE	APR-JULY RUNOFF FORECAST	WATER YEAR RUNOFF FORECAST
NORTH COAST	155	180	110	160	185	170
SAN FRANCISCO BAY	180	--	125	200	--	--
CENTRAL COAST	220	--	130	240	--	--
SOUTH COAST	200	--	130	150	--	--
SACRAMENTO RIVER	155	150	105	165	145	155
SAN JOAQUIN RIVER	170	160	120	155	155	155
TULARE LAKE	180	185	160	155	180	170
NORTH LAHONTAN	120	130	155	110	145	135
SOUTH LAHONTAN	165	160	100	110	160	140
COLORADO RIVER-DESERT	180	---	---	---	---	---
STATEWIDE	165	160	115	160	155	160

SEASONAL PRECIPITATION

IN PERCENT OF AVERAGE TO DATE

October 1, 1997 through March 31, 1998



Statewide = 165%

Hydrologic Regions

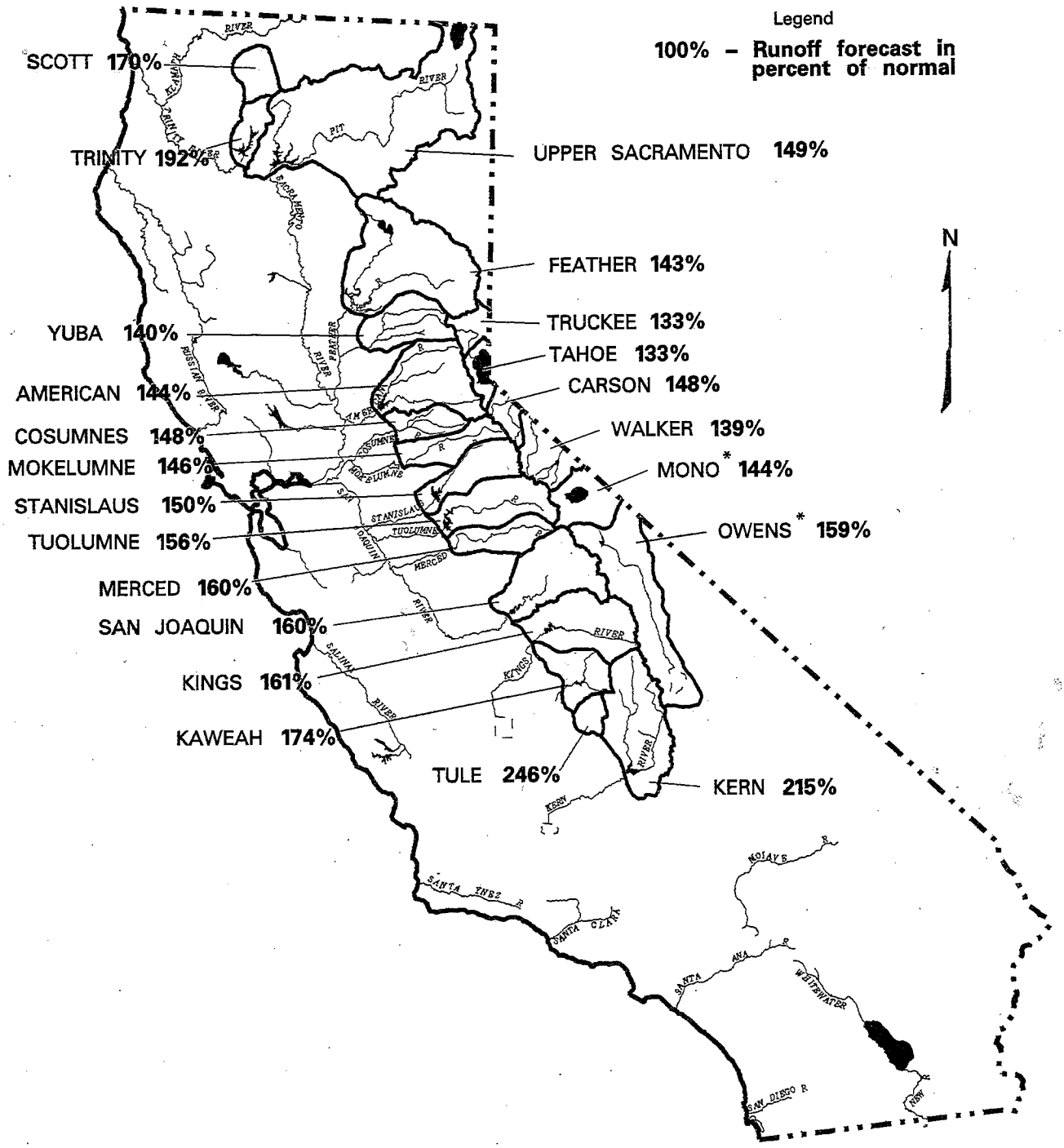
NC – North Coast
SF – San Francisco Bay
CC – Central Coast
SC – South Coast
SR – Sacramento River
SJ – San Joaquin
TL – Tulare Lake
NL – North Lahontan
SL – South Lahontan
CR – Colorado River–Desert

WATER YEAR IS OCTOBER 1 THROUGH SEPTEMBER 30

FORECAST OF APRIL – JULY

UNIMPAIRED SNOWMELT RUNOFF

April 1, 1998



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

APRIL 1, 1998 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)
SACRAMENTO RIVER						
Upper Sacramento River						
Sacramento River at Shasta Lake (3)	297	702	39	520	175%	
McCloud River at Shasta Lake	392	850	185	580	148%	
Pit River at Shasta Lake	1,056	1,796	480	1,420	134%	
Total Inflow to Shasta Lake	1,801	3,189	726	**2,680**	149%	2,300 - 3,360
Sacramento River above Bend Bridge, near Red Bluff	2,451	4,674	943	**3,600**	147%	3,080 - 4,520
Feather River						
Feather River at Lake Almanor near Prattville (3)	333	675	120	450	135%	
North Fork at Pulga (3)	1,028	2,416	243	1,400	136%	
Middle Fork near Clio (4)	86	518	4	120	140%	
South Fork at Ponderosa Dam (3)	110	267	13	150	136%	
Total Inflow to Oroville Reservoir	1,831	4,676	392	**2,620**	143%	2,270 - 3,340
Yuba River						
North Yuba below Goodyears Bar (3)	286	647	51	390	136%	
Inflow to Jackson Mdws and Bowman Reservoirs (3)	112	236	25	150	134%	
South Yuba at Langs Crossing (3)	233	481	57	290	124%	
Yuba River at Smartville	1,029	2,424	200	**1,440**	140%	1,270 - 1,830
American River						
North Fork at North Fork Dam (3)	262	716	43	370	141%	
Middle Fork near Auburn (3)	522	1,406	100	750	144%	
Silver Creek Below Camino Diversion Dam (3)	173	386	37	240	139%	
Total Inflow to Folsom Reservoir	1,261	3,074	229	**1,820**	144%	1,640 - 2,340
SAN JOAQUIN RIVER						
Cosumnes River at Michigan Bar	128	363	8	**190**	148%	150 - 260
Mokelumne River						
North Fork near West Point (5)	437	829	104	590	135%	
Total Inflow to Pardee Reservoir	459	1,065	102	**670**	146%	600 - 810
Stanislaus River						
Middle Fork below Beardsley Dam (3)	334	702	64	490	147%	
North Fork Inflow to McKays Point Dam (3)	224	503	34	330	147%	
Total Inflow to New Melones Reservoir	699	1,710	116	**1,050**	150%	940 - 1,270
Tuolumne River						
Cherry Creek & Eleanor Creek near Hetch Hetchy (3)	322	727	97	460	143%	
Tuolumme River near Hetch Hetchy (3)	606	1,392	153	900	149%	
Total Inflow to Don Pedro Reservoir	1,184	2,682	301	**1,850**	156%	1,700 - 2,160
Merced River						
Merced River at Pohono Bridge (3)	362	888	80	560	155%	
Total Inflow to Lake McClure	611	1,587	123	**980**	160%	900 - 1,180
San Joaquin River						
San Joaquin River at Mammoth Pool (6)	1,014	2,279	235	1,520	150%	
Big Creek below Huntington Lake (6)	95	264	11	150	158%	
South Fork near Florence Lake (6)	202	511	58	290	144%	
Total Inflow to Millerton Lake	1,212	3,355	262	**1,940**	160%	1,770 - 2,240
TULARE LAKE						
Kings River						
North Fork Kings River near Cliff Camp (3)	239	565	50	380	159%	
Total Inflow to Pine Flat Reservoir	1,183	3,114	273	**1,910**	161%	1,740 - 2,180
Kaweah River at Terminus Reservoir	276	814	61	**480**	174%	430 - 550
Tule River at Success Reservoir	59	256	2	**145**	246%	125 - 170
Kern River						
Kern River near Kernville (3)	373	1,203	83	750	201%	
Total Inflow to Isabella Reservoir	442	1,657	84	**950**	215%	880 - 1,080

(1) See inside back cover for definition
(2) All 50 year averages are based on years 1946-1995 unless otherwise noted
(3) 50 year average based on years 1941-90
(4) 44 year average based on years 1936-79
(5) 36 year average based on years 1936-72
(6) 45 year average based on years 1936-81

APRIL 1, 1998 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											
1,184	2,353	577											
3,078	5,150	1,484											
5,896	10,796	2,479	2,710	2,140	1,305	1,150	790	450	290	495	**9,330**	158%	8,850 - 10,150
8,518	17,180	3,294	4,280	3,960	2,100	1,590	1,030	600	380	640	**14,580**	171%	13,950 - 15,660
780	1,269	366											
2,417	4,400	666											
219	637	24											
291	562	32											
4,526	9,492	994	1,630	1,120	980	980	930	500	210	230	**6,580**	145%	6,180 - 7,360
564	1,056	102											
181	292	30											
379	565	98											
2,337	4,926	369	685	645	520	500	550	310	80	60	**3,350**	143%	3,170 - 3,760
616	1,234	66											
1,070	2,575	144											
318	705	59											
2,674	6,381	349	690	730	590	620	690	400	110	50	**3,880**	145%	3,680 - 4,420
378	1,253	20	120	217	145	100	65	20	5	3	**675**	179%	620 - 760
626	1,009	197											
736	1,800	129	105	135	150	170	260	200	40	10	**1,070**	145%	990 - 1,220
471	929	88											
1,131	2,952	155	200	250	230	270	410	280	90	30	**1,760**	156%	1,640 - 2,000
461	1,147	123											
770	1,661	258											
1,857	4,430	383	265	355	355	390	640	590	230	75	**2,900**	156%	2,730 - 3,240
461	1,020	92											
952	2,859	150	130	255	165	220	360	300	100	40	**1,570**	165%	1,480 - 1,780
1,337	2,964	308											
112	298	14											
248	653	71											
1,753	4,642	362	180	210	230	360	670	620	290	130	**2,690**	153%	2,500 - 3,020
284	607	58											
1,647	4,294	383	165	175	185	310	660	670	270	125	**2,560**	155%	2,370 - 2,850
431	1,402	92	55	80	80	110	180	140	50	25	**720**	167%	660 - 800
135	615	16	40	80	65	60	50	27	8	5	**335**	248%	300 - 370
558	1,577	163											
694	2,309	175	110	100	130	190	340	290	130	90	**1,380**	199%	1,280 - 1,540

* Indicates observed runoff

APRIL 1, 1998 FORECASTS
APRIL-JULY UNIMPAIRED RUNOFF

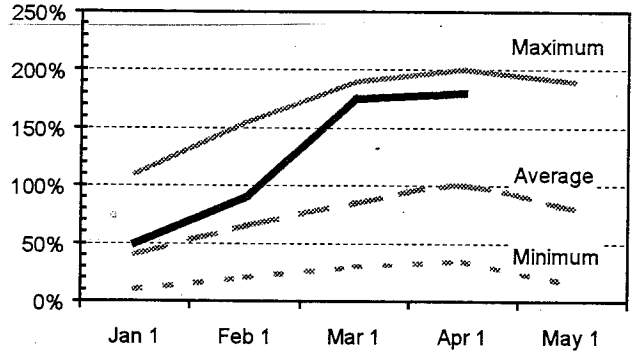
HYDROLOGIC REGION and Watershed	Unimpaired Runoff in 1,000 Acre-Feet (1)				
	HISTORICAL			FORECASTS	
	50 Yr Avg (2)	Max of Record	Min of Record	Apr-Jul Forecasts	Pct of Avg
NORTH COAST					
Trinity River					
Total Inflow to Lewiston Lake	642	1,593	80	**1,230**	192%
Scott River					
Near Fort Jones	200	N/A	N/A	**340**	170%
Klamath River					
Total inflow to Upper Klamath Lake (3)	509	758	280	**585**	115%
NORTH LAHONTAN					
Truckee River					
Lake Tahoe to Farad accretions	264	713	58	**350**	133%
Lake Tahoe Rise (assuming gates closed, in feet) (4)	1.5	3.8	0.2	**2.0**	133%
Carson River					
West Fork at Woodfords	54	135	12	**80**	148%
East Fork near Gardnerville	183	407	43	**270**	148%
Walker River					
West Fork near Coleville	143	330	35	**215**	150%
East Fork near Bridgeport	61	209	7	**110**	180%
SOUTH LAHONTAN					
Owens River					
Total tributary flow to Owens River (5)	226	579	96	**359**	159%

(1) See inside back cover for definition
(2) All 50 year averages are based on years 1946-1995 unless otherwise noted
(3) Forecast by U.S. Natural Resources Conservation Service, Portland Oregon, 30 year average based on years 1961-1990. April through September forecast.
(4) 50 year average based on years 1941-1990
(5) Forecast by Department of Water and Power, City of Los Angeles

NORTH COAST REGION

Snowpack Accumulation

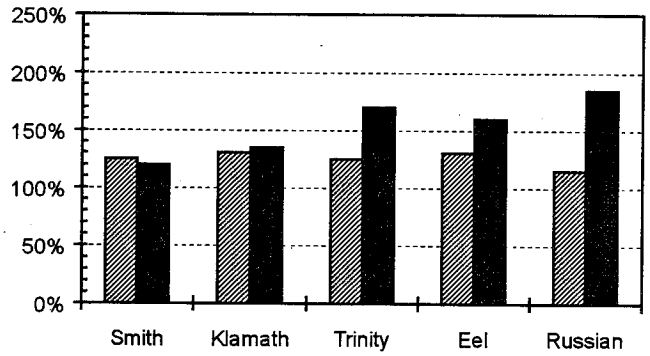
Water Content in % of April 1 average



SNOWPACK - First of the month measurements made at 17 snow courses indicate an area wide snow water equivalent of 56.0 inches. This is 180 percent of the April 1 average. Last year at this time the pack was holding 13.6 inches of water.

Precipitation

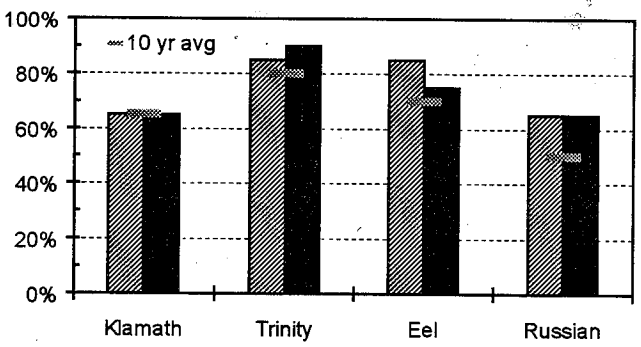
October 1 to date in % of average



PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on this area was 155 percent of normal. Precipitation last month was about 145 percent of the monthly average. Seasonal precipitation at this time last year stood at 125 percent of normal.

Reservoir Storage

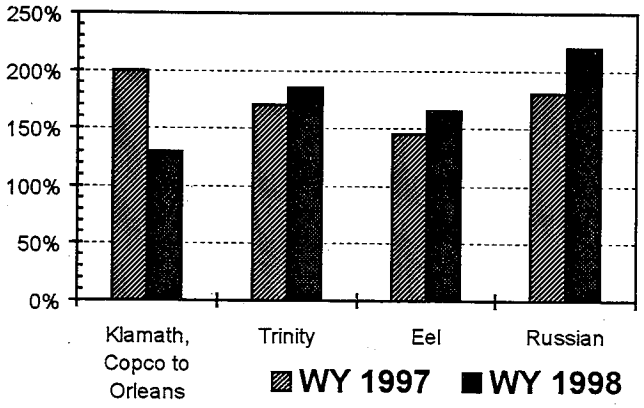
Contents of major reservoirs in % of capacity



RESERVOIR STORAGE - First of the month storage in 7 reservoirs was 2.7 million acre-feet which is 110 percent of average. About 85 percent of available capacity was being used. Storage in these reservoirs at this time last year was 105 percent of average.

Runoff

October 1 to date in % of average

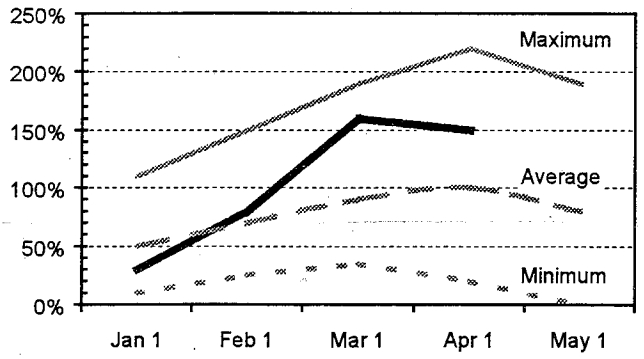


RUNOFF - Seasonal runoff of streams draining the area totaled 15.5 million acre-feet which is 160 percent of average for this period. Last year, runoff for the same period was 165 percent of average.

SACRAMENTO RIVER REGION

Snowpack Accumulation

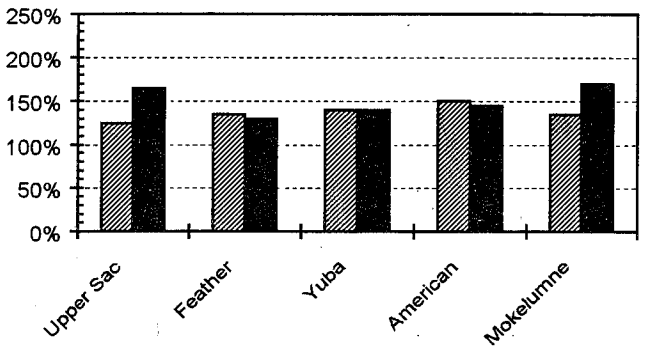
Water Content in % of April 1 average



SNOWPACK - First of the month measurements made at 81 snow courses indicate an area wide snow water equivalent of 42.7 inches. This is 150 percent of the April 1 average. Last year at this time the pack was holding 16.5 inches of water.

Precipitation

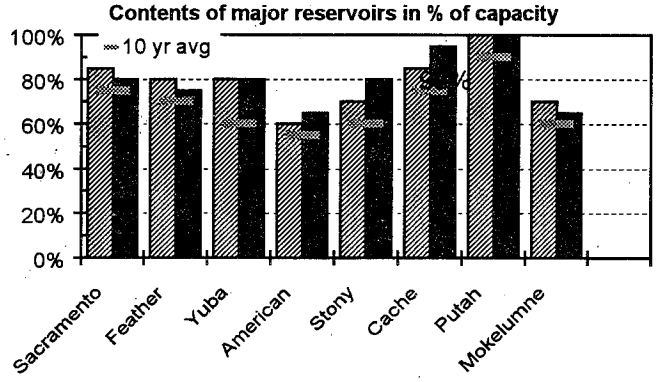
October 1 to date in % of average



PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on this area was 155 percent of normal. Precipitation last month was about 110 percent of the monthly average. Seasonal precipitation at this time last year stood at 130 percent of normal.

Reservoir Storage

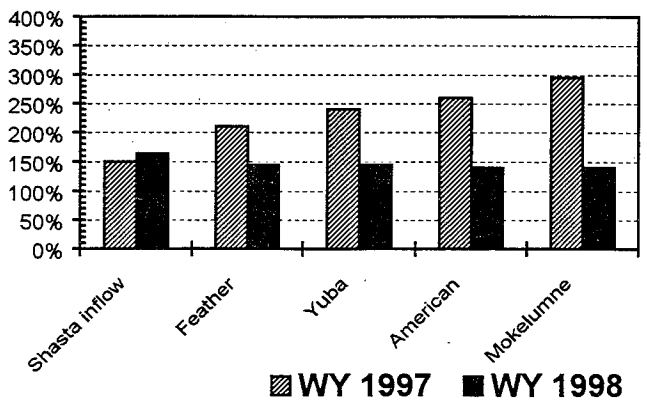
Contents of major reservoirs in % of capacity



RESERVOIR STORAGE - First of the month storage in 43 reservoirs was 12.7 million acre-feet which is 105 percent of average. About 80 percent of available capacity was being used. Storage in these reservoirs at this time last year was 105 percent of average.

Runoff

October 1 to date in % of average

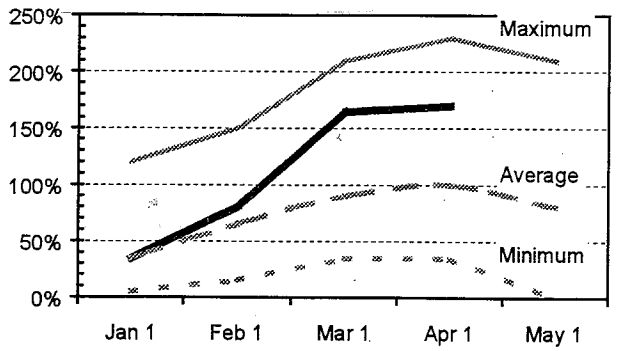


RUNOFF - Seasonal runoff of streams draining the area totaled 17.9 million acre-feet which is 165 percent of average for this period. Last year, runoff for the same period was 185 percent of average.

The Sacramento River Region **40-30-30 Water Supply Index** is forecast to be 12.2 million acre feet assuming median meteorological conditions for the remainder of the year. This classifies the year as "wet" in the Sacramento Valley according to the State Water Resources Control Board.

SAN JOAQUIN RIVER and TULARE LAKE REGIONS

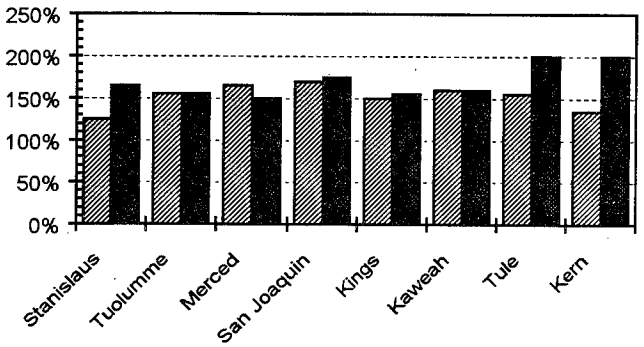
Snowpack Accumulation
Water Content in % of April 1 average



SNOWPACK - First of the month measurements made at 59 **San Joaquin Region** snow courses indicate an area wide snow water equivalent of 48.3 inches. This is 160 percent of average. Last year at this time the pack was holding 33.6 inches of water.

At the same time, 33 **Tulare Lake Region** snow courses indicated a basin-wide snow water equivalent of 40.7 inches which is 185 percent of average. Last year at this time the basin was holding 21.7 inches of water.

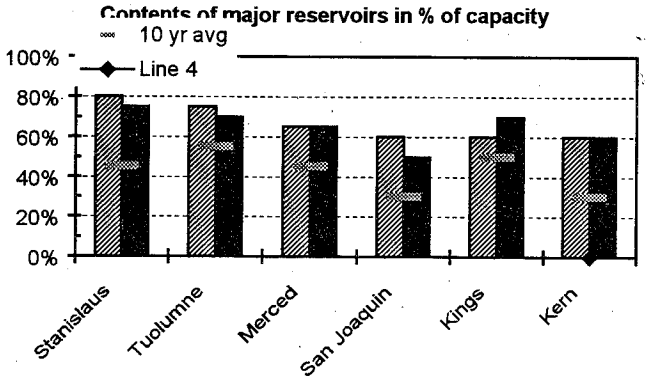
Precipitation
October 1 to date in % of average



PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on the **San Joaquin River Region** was 170 percent of normal. Precipitation last month was about 145 percent of the monthly average. Seasonal precipitation at this time last year stood at 150 percent of normal.

Seasonal precipitation on the **Tulare Lake Region** was 180 percent of normal. Precipitation last month was 175 percent of the monthly average. Seasonal precipitation at this time last year stood at 145 percent of normal.

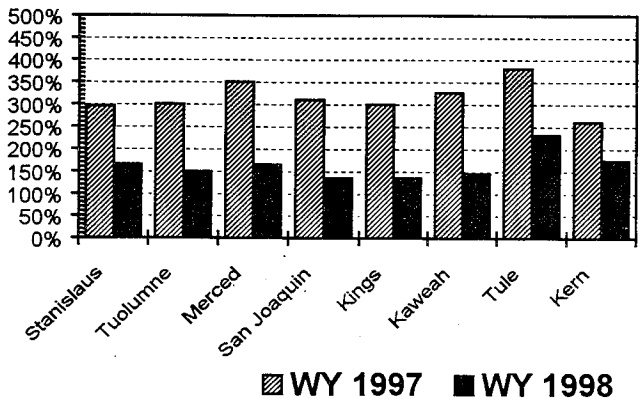
Reservoir Storage
Contents of major reservoirs in % of capacity



RESERVOIR STORAGE - First of the month storage in 33 **San Joaquin River Region** reservoirs was 8.5 million acre-feet which is 120 percent of average and about 75 percent of available capacity. Storage in these reservoirs at this time last year was 125 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 and about 65 percent of available capacity. Storage in these reservoirs at this time last year was 145 percent of average.

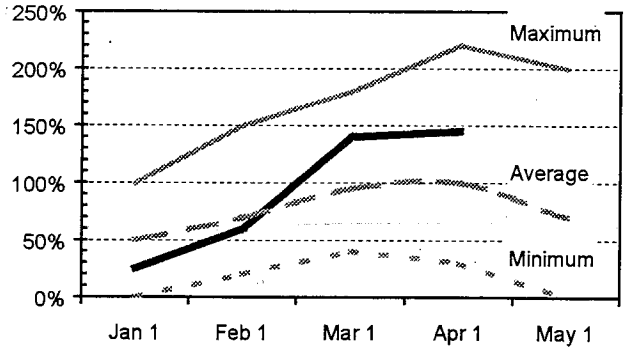
Runoff
October 1 to date in % of average



RUNOFF - Seasonal runoff of streams draining the **San Joaquin River Region** totaled 3.7 million acre-feet which is 155 percent of average for this period. Last year, runoff for the same period was 305 percent of average.
Stream runoff draining into the **Tulare Lake Region** totaled 1.3 million acre-feet which is 155 percent of average for this period. Last year, runoff for the same period was 300 percent of average.
The San Joaquin River Region **60-20-20 Water Supply Index** is forecasted to be 4.9 million acre feet assuming median meteorological conditions for the remainder of the year. This classifies the year as "wet" in the San Joaquin Valley according to the State Water Resources Control Board.

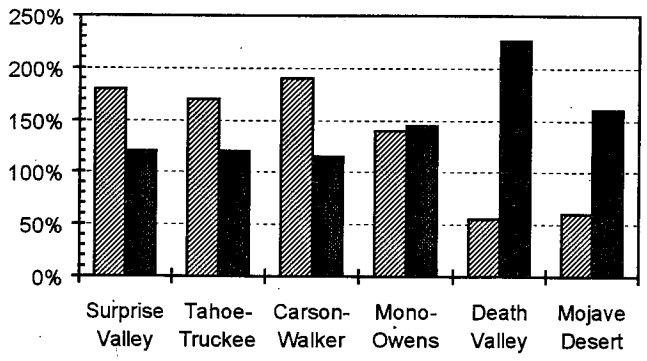
Snowpack Accumulation

Water Content in % of April 1 average



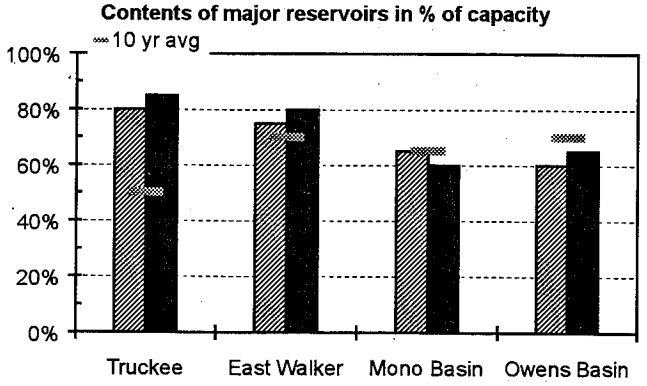
Precipitation

October 1 to date in % of average



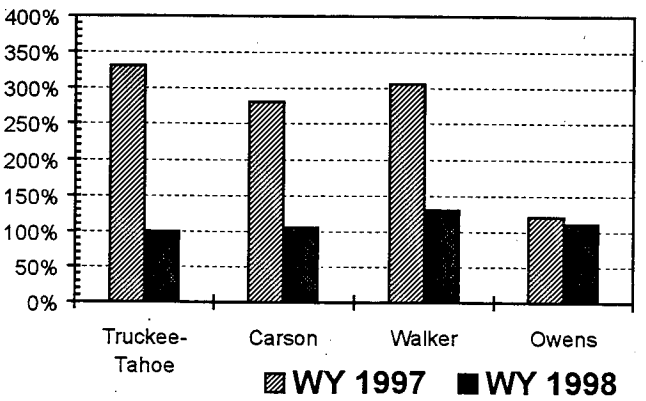
Reservoir Storage

Contents of major reservoirs in % of capacity



Runoff

October 1 to date in % of average



NORTH and SOUTH LAHONTAN REGIONS

SNOWPACK - First of the month measurements made at 16 **North Lahontan** snow courses indicate an area wide snow water equivalent of 34.8 inches. This is 130 percent of average. Last year at this time the pack was holding 33.5 inches of water.

At the same time, 20 **South Lahontan** snow courses indicated a basin-wide snow water equivalent of 31.4 inches, which is 160 percent of average. Last year at this time the pack was holding 25.7 inches of water.

PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on the **North Lahontan** Region was 120 percent of normal. Precipitation last month was about 140 percent of the monthly average. Seasonal precipitation at this time last year stood at 180 percent of normal.

Seasonal precipitation on the **South Lahontan** Region was 165 percent of normal. Precipitation last month was 150 percent of the monthly average. Seasonal precipitation at this time last year stood at 90 percent of normal.

RESERVOIR STORAGE - First of the month storage in 5 **North Lahontan** Region reservoirs was 923 thousand acre-feet which is 155 percent of average. About 85 percent of available capacity was being used. Storage in these reservoirs at this time last year was 145 percent of average. Lake Tahoe was 5.3 feet above its natural rim on April 1.

First of the month storage in 8 **South Lahontan** Region reservoirs was 272 thousand acre-feet which is average. About 65 percent of available capacity was being used. Storage in these reservoirs at this time last year was 85 percent of average.

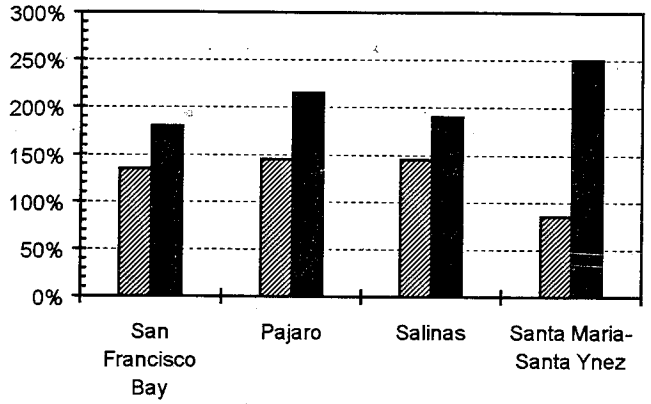
RUNOFF - Seasonal runoff of streams draining the **North Lahontan** area totaled 304 thousand acre-feet which is 110 percent of average for this period. Last year, runoff for the same period was 310 percent of average.

Seasonal runoff of the Owens River in the **South Lahontan** Region totaled 76 thousand acre-feet which is 110 percent of average for this period. Last year, runoff for this same period was 125 percent of average.

SAN FRANCISCO BAY and CENTRAL COAST REGIONS

Precipitation

October 1 to date in % of average

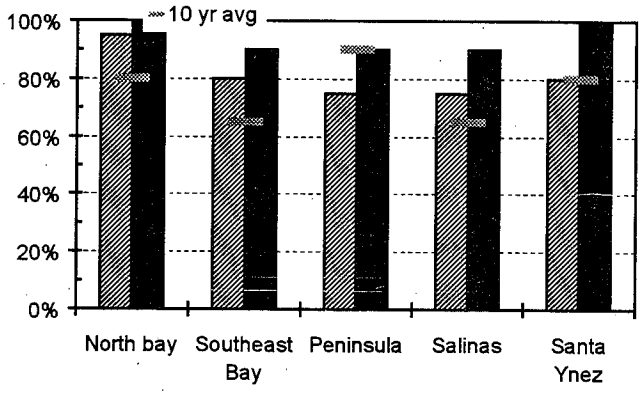


PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on the San Francisco Bay area was 180 percent of normal. Precipitation last month was about 80 percent of the monthly average. Seasonal precipitation at this time last year stood at 135 percent of normal.

Seasonal precipitation on the Central Coast area was 220 percent of normal. Precipitation last month was about 130 percent of the monthly average. Seasonal precipitation at this time last year stood at 130 percent of normal.

Reservoir Storage

Contents of major reservoirs in % of capacity

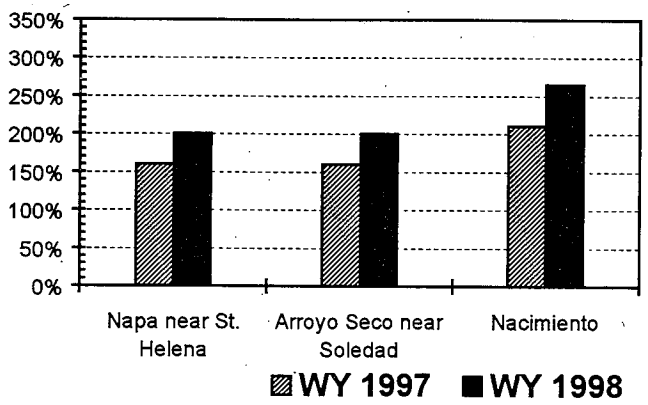


RESERVOIR STORAGE - First of the month storage in 18 major Bay area reservoirs was 634 thousand acre-feet which is 125 percent of average. About 90 percent of available capacity was being used. Storage in these reservoirs at this time last year was 110 percent of average.

First of the month storage in 6 major Central Coast reservoirs was 873 thousand acre-feet which is 130 percent of average. About 95 percent of available capacity was being used. Storage in these reservoirs at this time last year was 110 percent of average.

Runoff

October 1 to date in % of average



RUNOFF - Seasonal runoff of the Napa River in the San Francisco Bay area totaled 125 thousand acre-feet which is 200 percent of average for this period. Last year, runoff for the same period was 165 percent of average.

Seasonal runoff of selected Central Coast streams totaled 674 thousand acre-feet which is 240 percent of average for this period. Last year, runoff for the same period was 195 percent of average.

SOUTH COAST

PRECIPITATION - October through March (seasonal) precipitation on the South Coast area was 200 percent of normal. March precipitation was about 150 percent of the monthly average. Seasonal precipitation at this time last year was 90 percent of normal. Seasonal precipitation in the Colorado Desert area was 180 percent of normal. Precipitation in March was 245 percent of average. Seasonal precipitation at this time last year stood at 55 percent of average.

RESERVOIR STORAGE - April 1 storage in 29 major South Coast area reservoirs was 1.7 million acre-feet or 130 percent of average. About 85 percent of available capacity was being used. Storage in these reservoirs at this time last year was 115 percent of average.
On April 1 combined storage in Lakes Powell, Mead, Mohave and Havasu was about 48 million acre-feet or 130 percent of average. About 90 percent of available capacity was in use. Last year at this time, these reservoirs were storing 120 percent of average.

RUNOFF - Seasonal runoff from selected South Coast streams totaled 50 thousand acre-feet which is 150 percent of average. Seasonal runoff from these streams last year was 95 percent of average.

COLORADO RIVER

The April 1 snowpack in the Upper Colorado River basin according to U. S. Natural Resources Conservation Service reports was 95 percent of average, highest in the Duschesne at 105 percent and lowest in the Animas at 85 percent.

The April through July inflow to Lake Powell is forecast to be 6.8 million acre-feet, which is 88 percent of average.

CENTRAL VALLEY PROJECT

Based on April 1 conditions, Bureau of Reclamation Water Year forecasts for unimpaired runoff to CVP reservoirs are: Trinity--2.54 MAF (209% of average), Shasta--9.3 MAF (167% of average), American--3.86 MAF (146% of average), Stanislaus--1.79 MAF (156% of average), and San Joaquin above Friant--2.70 MAF (152% of average).

April-July forecasts for unimpaired runoff are: Trinity--1.25 MAF (207% of average), Shasta--2.65 MAF (152% of average), American--1.78 MAF (140% of average), Stanislaus--1.11 MAF (158% of average), and San Joaquin above Friant--1.94 MAF (154% of average).

As of March 31, 1998 CVP storage was 9.4 million acre feet which is an increase of 0.1 million acre feet compared to one year ago, and is approximately 117% of normal for that date.

The Bureau of Reclamation announced updated water allocations for the CVP in March 1998. Agricultural contractors north of the Delta are allocated 100% of their contract supply, agricultural contractors south of the Delta are allocated 85% of their contract supply, urban contractors received 100% of contractual supply. Wildlife refuges received 100% of level II supplies. Sacramento River water rights settlement contractors and San Joaquin Exchange contractors remain at 100% supplies. A water allocation update will be announced during April.

Friant Division allocations are currently at 100% Class I, with a sliding scale allocation for Class II supplies, beginning at 100%, and declining depending on timing of scheduled deliveries. Stanislaus River contractors received an allocation of 50,000 acre feet.

STATE WATER PROJECT

Due to continued wet conditions, the SWP announced on March 13 that 100% of contractor requests (3.19 MAF) for the year would be supplied. SWP delivery approvals are based on the amount of water presently stored in SWP reservoirs, a conservative projection of runoff for the remainder of 1998, contractor requests and SWP opertion constraints.

Since the end of the six year drought in 1992, the SWP has delivered 100% of the water requested by contractors in all years except 1994.

MAJOR WATER DISTRIBUTION PROJECTS
RESERVOIR STORAGE

(AVERAGES BASED ON PERIOD RECORD)

RESERVOIR	CAPACITY 1,000 AF	AVERAGE STORAGE 1,000 AF	STORAGE AT END OF MARCH 1997 1,000 AF	1998 1,000 AF	PERCENT AVERAGE	PERCENT CAPACITY
STATE WATER PROJECT						
Lake Oroville	3,538	2,817	2,962	2,812	100%	79%
San Luis Reservoir (SWP)	1,062	972	1,085	1,063	109%	100%
Lake Del Valle	77	37	39	40	107%	51%
Lake Silverwood	73	67	34	64	97%	88%
Pyramid Lake	171	159	161	164	103%	96%
Castaic Lake	324	283	291	320	113%	99%
Perris Lake	132	116	117	111	95%	84%
CENTRAL VALLEY PROJECT						
Trinity Lake	2,448	1,993	2,112	2,231	112%	91%
Lake Shasta	4,552	3,774	3,800	3,553	94%	78%
Whiskeytown Lake	241	213	204	207	97%	86%
Folsom Lake	977	636	470	680	107%	70%
New Melones Reservoir	2,420	1,538	2,022	1,999	130%	83%
Millerton Lake	520	307	275	426	139%	82%
San Luis Reservoir (CVP)	971	827	924	965	117%	99%
COLORADO RIVER PROJECT						
Lake Mead	26,159	19,651	22,786	25,046	127%	96%
Lake Powell	25,002	14,946	18,918	20,273	136%	81%
Lake Mohave	1,810	1,639	1,727	1,656	101%	91%
Lake Havasu	619	548	550	542	99%	88%
EAST BAY MUNICIPAL UTILITY DISTRICT						
Pardee Reservoir	198	179	176	199	111%	101%
Camanche Reservoir	417	260	230	239	92%	57%
East Bay (4 reservoirs)	151	132	118	143	109%	95%
CITY AND COUNTY OF SAN FRANCISCO						
Hetch-Hetchy Reservoir	360	123	226	136	110%	38%
Cherry Lake	268	109	187	138	126%	51%
Lake Eleanor	26	10	25	16	156%	62%
South Bay/Peninsula (4 reservoirs)	225	175	188	213	121%	95%
CITY OF LOS ANGELES (D.W.P.)						
Lake Crowley	183	130	121	130	100%	71%
Grant Lake	48	29	46	40	138%	85%
Other Aqueduct Storage (6 res.)	83	77	57	62	81%	75%

TELEMETERED SNOW WATER EQUIVALENTS

APRIL 1, 1998

(AVERAGES BASED ON PERIOD RECORD)

BASIN NAME STATION NAME	ELEV	APRIL 1 AVERAGE	INCHES OF WATER EQUIVALENT APR 1	PERCENT OF AVERAGE	24 HRS PREVIOUS	1 WEEK PREVIOUS
TRINITY RIVER						
Peterson Flat	7150'	29.2	47.9	164%	47.6	47.2
Red Rock Mountain	6700'	39.6	73.2	185%	73.2	74.2
Bonanza King	6450'	40.5	—	—	—	—
Shimmy Lake	6200'	40.3	—	—	—	—
Middle Boulder 3	6200'	28.3	—	—	—	—
Highland Lakes	6030'	29.9	77.8	260%	77.8	78.4
Scott Mountain	5900'	16.0	36.8	230%	36.7	38.9
Mumbo Basin	5700'	22.4	53.2	237%	52.7	55.1
Big Flat	5100'	15.8	38.3	242%	37.9	36.6
SACRAMENTO RIVER						
Cedar Pass	7100'	18.1	26.5	146%	26.5	25.3
Blacks Mountain	7100'	12.7	16.8	132%	16.6	15.1
Sand Flat	6750'	42.4	65.0	153%	65.0	—
Medicine Lake	6700'	32.6	—	—	—	—
Adin Mountain	6350'	13.6	20.4	150%	20.3	20.0
Snow Mountain	5950'	27.0	49.0	182%	48.8	53.8
Slate Creek	5600'	29.0	86.6	299%	86.0	86.0
Stouts Meadow	5400'	36.0	63.8	177%	63.4	67.5
FEATHER RIVER						
Kettle Rock	7300'	25.5	—	—	—	—
Grizzly Ridge	6900'	29.7	—	—	—	—
Pilot Peak (DWR)	6800'	52.6	72.0	137%	72.4	70.6
Gold Lake	6750'	36.5	—	—	—	—
Humbug	6500'	28.0	—	—	—	—
Rattlesnake	6100'	14.0	—	—	—	—
Bucks Lake	5750'	44.7	65.0	146%	64.2	68.0
Four Trees	5150'	20.0	43.2	216%	42.8	43.6
EEL RIVER						
Noel Spring	5100'	—	14.4	—	14.0	15.5
Plaskett Meadows	6000'	—	—	—	—	—
YUBA & AMERICAN RIVERS						
Lake Lois	8800'	39.5	—	—	—	—
Schneiders	8750'	34.5	56.1	163%	55.6	48.8
Caples Lake (DWR)	7800'	30.9	46.1	149%	46.0	42.6
Alpha (Smud)	7600'	35.9	54.8	153%	54.8	52.8
Beta	7600'	35.9	52.2	145%	52.0	49.0
Meadow Lake	7200'	55.5	75.8	137%	75.1	71.2
Silver Lake (DWR)	7100'	22.7	41.5	183%	41.1	40.4
Central Sierra Snow Lab	6950'	33.6	47.1	140%	47.2	45.0
Huysink	6600'	42.6	48.6	114%	48.2	47.4
Van Vleck	6700'	35.9	49.9	139%	50.0	49.0
Robbs Saddle	5900'	21.4	38.6	180%	38.3	36.9
Greek Store	5600'	21.0	32.7	156%	32.3	32.2
Blue Canyon	5280'	9.0	8.3	92%	8.3	10.6
Robbs Powerhouse	5150'	5.2	13.1	251%	13.1	12.8
MOKELUMNE & STANISLAUS RIVERS						
Deadman Creek	9250'	37.2	43.6	117%	43.0	37.8
Highland Meadow	8800'	47.9	57.2	119%	56.6	53.4
Gianelli Meadow	8350'	55.5	64.0	115%	64.0	58.5
Lower Relief Valley	8100'	41.2	59.2	144%	58.6	54.0
Blue Lakes	8000'	33.1	39.4	119%	39.3	35.0
Mud Lake	7900'	44.9	73.2	163%	73.2	68.4
Stanislaus Meadow	7750'	47.5	64.3	135%	64.3	59.9
Bloods Creek	7200'	35.5	40.1	113%	39.9	38.2
Black Springs	6500'	32.0	45.6	142%	44.4	39.6
TUOLUMNE & MERCED RIVERS						
Dana Meadows	9800'	27.7	39.9	144%	39.9	34.0
Slide Canyon	9200'	41.1	52.3	127%	52.3	47.8
Snow Flat	8700'	44.1	56.0	127%	56.0	51.0
Tuolumne Meadows	8600'	22.6	34.6	153%	34.4	31.0
Horse Meadow	8400'	48.6	58.9	121%	58.9	57.6
Ostrander Lake	8200'	34.8	51.9	149%	51.9	46.1
Paradise Meadow	7650'	41.3	—	—	—	—
Gin Flat	7050'	34.2	39.6	116%	39.6	37.7
Lower Kibbie Ridge	6600'	27.4	37.8	138%	37.8	35.2

TELEMETERED SNOW WATER EQUIVALENTS

APRIL 1, 1998

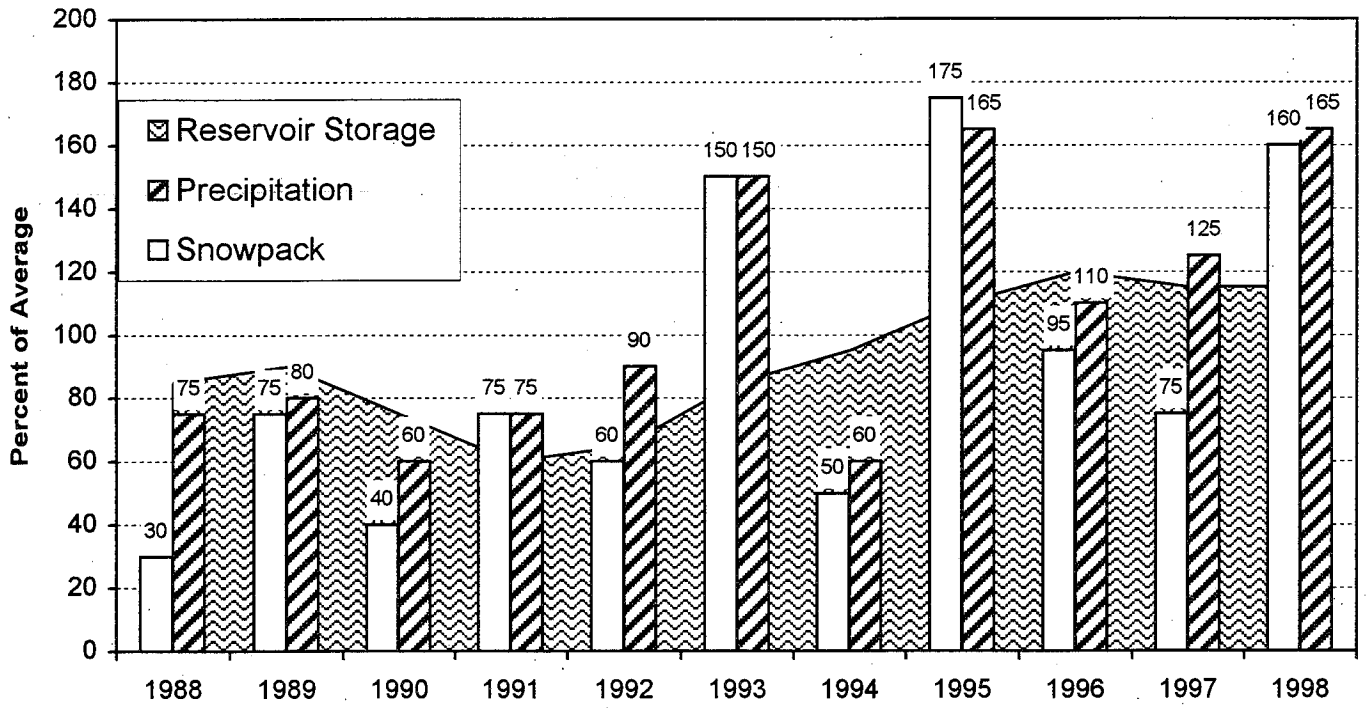
(AVERAGES BASED ON PERIOD RECORD)

BASIN NAME / STATION NAME	ELEV	APRIL 1 AVERAGE	INCHES OF WATER EQUIVALENT APR 1	PERCENT OF AVERAGE	24 HRS PREVIOUS	1 WEEK PREVIOUS
SAN JOAQUIN RIVER						
Volcanic Knob	10100'	30.1	43.8	145%	43.1	37.2
Agnew Pass	9450'	32.3	—	—	—	—
Kaiser Point	9200'	37.8	—	—	—	—
Green Mountain	7900'	30.8	45.0	146%	45.0	41.5
Tamarack Summit	7600'	30.5	45.3	148%	44.9	40.8
Chilkoot Meadow	7150'	38.0	—	—	—	48.0
Huntington Lake (USBR)	7000'	20.1	36.6	182%	36.2	32.5
Graveyard Meadow	6900'	18.8	35.6	190%	35.2	32.1
Poison Ridge	6900'	28.9	—	—	—	—
KINGS RIVER						
Bishop Pass	11200'	34.0	42.9	126%	42.2	37.0
Charlotte Lake	10400'	27.5	43.6	158%	43.1	38.3
State Lakes	10400'	29.0	58.4	201%	58.4	53.9
Mitchell Meadow	10375'	32.9	54.0	164%	54.0	48.9
Blackcap Basin	10300'	34.3	51.6	151%	51.6	46.4
Upper Burnt Corral	9700'	34.6	56.2	162%	55.5	51.0
West Woodchuck Meadow	9100'	32.8	50.4	154%	50.4	45.0
Big Meadows (DWR)	7600'	25.9	35.4	137%	35.4	32.5
KAWEAH & TULE RIVERS						
Quaking Aspen	7200'	21.0	40.1	191%	40.0	37.9
Giant Forest (Corps)	6400'	10.0	27.5	275%	27.2	24.1
KERN RIVER						
Upper Tyndall Creek	11500'	27.7	45.6	165%	45.0	42.5
Crabtree Meadow	10700'	19.8	—	—	—	—
Chagoopa Plateau	10300'	21.8	34.4	158%	34.4	32.5
Pascoes	9150'	24.9	55.0	221%	54.5	49.6
Tunnel Guard Station	8950'	15.6	26.5	170%	26.5	26.5
Wet Meadows	8900'	30.3	44.1	146%	44.1	43.2
Casa Vieja Meadows	8400'	20.9	34.6	166%	34.6	31.4
Beach Meadows	7650'	11.0	24.1	219%	24.1	24.4
SURPRISE VALLEY AREA						
Dismal Swamp	7050'	29.2	39.9	137%	40.1	37.8
TRUCKEE RIVER						
Mount Rose Ski Area	8850'	38.5	45.4	118%	45.3	43.7
Independence Lake (NRCS)	8450'	41.4	53.4	129%	53.4	50.6
Big Meadows (NRCS)	8700'	25.7	25.6	100%	25.7	22.9
Independence Camp	7000'	21.8	29.2	134%	29.2	27.3
Independence Creek	6500'	12.7	19.6	154%	19.6	19.2
LAKE TAHOE BASIN						
Heavenly Valley	8800'	28.1	35.0	125%	34.9	29.5
Hagans Meadow	8000'	16.5	24.0	145%	24.0	20.0
Marlette Lake	8000'	21.1	31.6	150%	31.6	27.7
Echo Peak 5	7800'	39.5	50.0	127%	49.9	49.2
Rubicon Peak 2	7500'	29.1	39.0	134%	38.9	35.7
Ward Creek 3	6750'	39.4	44.9	114%	45.0	40.7
Fallen Leaf Lake	6300'	7.0	7.2	103%	8.0	7.7
CARSON RIVER						
Ebbetts Pass	8700'	38.8	50.6	130%	50.5	43.9
Poison Flat	7900'	16.2	23.8	147%	23.8	20.2
WALKER RIVER						
Virginia Lakes	9200'	20.3	26.2	129%	26.2	23.7
Lobdell Lake	9200'	17.3	23.4	135%	23.3	18.8
Sonora Pass Bridge	8750'	26.0	34.7	133%	34.7	30.3
Leavitt Meadows	7200'	8.0	17.0	212%	17.2	15.3
OWENS RIVER/MONO LAKE						
Gem Pass	10750'	31.7	42.5	134%	42.5	36.6
Sawmill	10300'	19.4	28.8	148%	28.8	24.8
Cottonwood Lakes	10200'	11.6	22.7	196%	22.3	20.4
Big Pine Creek	9800'	17.9	24.2	135%	24.2	22.2
South Lake	9600'	16.0	21.1	132%	21.1	18.7
Mammoth Pass (USBR)	9500'	42.4	52.8	124%	52.5	47.2
Rock Creek Lakes	10000'	14.0	20.3	145%	20.2	18.1

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%

April 1 Statewide Conditions



❄❄❄ SNOWLINES ❄❄❄

PICTURED on this months cover is Dudley McFadden starting to dig down through over 12 feet of snow at the snow sensor at Lake Lois, in the American River watershed. Last January, he and Pierre Stephens were rescuing the electronics package from a leaking instrument box. Photo by Pierre Stephens.

PROTOTYPES of the passive cosmic gamma detectors should be available this fall. These detectors have been installed at the Central Sierra Snow Laboratory for the past 3 years and the system has been yielding very good total snowpack water equivalent results.

EACH YEAR in April the Western Snow Conference holds its annual meeting. It may be getting a little late for this year's meeting, to be held April 20-23 at Snowbird, Utah. But, definitely mark your calendars for the 1999 meeting to be held April 18-22 at the Embassy Suites Resort at South Lake Tahoe, CA.

In the book **SNOW IN AMERICA** by Bernard Mergen, 1997, Smithsonian Institution; New Englanders emphasized their moral superiority based on living with snow as a test of character. We've not observed any correlation with that here in the West but perhaps the snow is different on the East Coast. The book goes on to provide a very interesting history of snow, including snow surveys and their importance in Western development.

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 1946-1995 (50 years, except for data sites established after 1946).

PRECIPITATION - Averages are based on April 1 data for the period 1946-1995 (50 years, except for data sites established after 1946).

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 1946-1995. 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.

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

First Class