

California Cooperative
Snow Surveys
Bulletin 120-2-03

State of California
The Resources Agency

Department of
Water Resources

Water Conditions in California

Report 2 March 1, 2003



Gray Davis
Governor
State of California

Mary D. Nichols
Secretary for Resources
The Resources Agency

Thomas M. Hannigan
Director
Department of Water Resources

STATE OF CALIFORNIA

Gray Davis, Governor

THE RESOURCES AGENCY

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Department of Water Resources

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COOPERATING AGENCIES

Public Agencies

Buena Vista Water Storage District
East Bay Municipal Utility District
Eldorado Irrigation 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
San Joaquin Exchange Contractors Water Association
South San Joaquin Irrigation District
Tri-Dam Project
Truckee River Basin Water Commission
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
Scripps Institution of Oceanography
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

March 1, 2003

February continued the pattern experienced last season with a good start to the water year fading as the season progressed. Precipitation in all areas of the state, except the South Coast Region was only about one half of a normal February increment. Snowpack water content increased slightly in most areas but has fallen below average in almost all basins.

Forecasts of April through July runoff have been lowered about 10 to 15 percent from one month ago for most basins in the State. The declining gradient from north to south moderated somewhat during February, due to the much better than average precipitation in the South. Median water year forecasts have also been reduced to about 85 percent.

Snowpack water content increased much less than normal during February. The pack is about 80 percent of average for this date, compared to 95 percent last year. The pack is about 70 percent of the April 1 average, which is the date of maximum accumulation.

Precipitation during February was about 70 percent of average statewide based on a very wet South Coast and Colorado Desert Regions. The precipitation since October 1 is now about average compared to 90 percent a year ago.

Runoff so far this season is about average, slightly better than the 85 percent recorded in 2002. February runoff was 55 percent of average for the month. Estimated runoff of the 8 major rivers of the Sacramento and San Joaquin River regions was 1.66 million acre-feet in February. The chance that water year runoff will exceed average has dropped to under 25% in the Sacramento region, 10% in the San Joaquin region and about 15% for the Tulare region.

Reservoir Storage increased by a modest 584 thousand acre-feet during the month as major reservoir operators stored all the runoff available. Storage is about 100 percent of average for the date overall, approximately the same as last year on March 1.

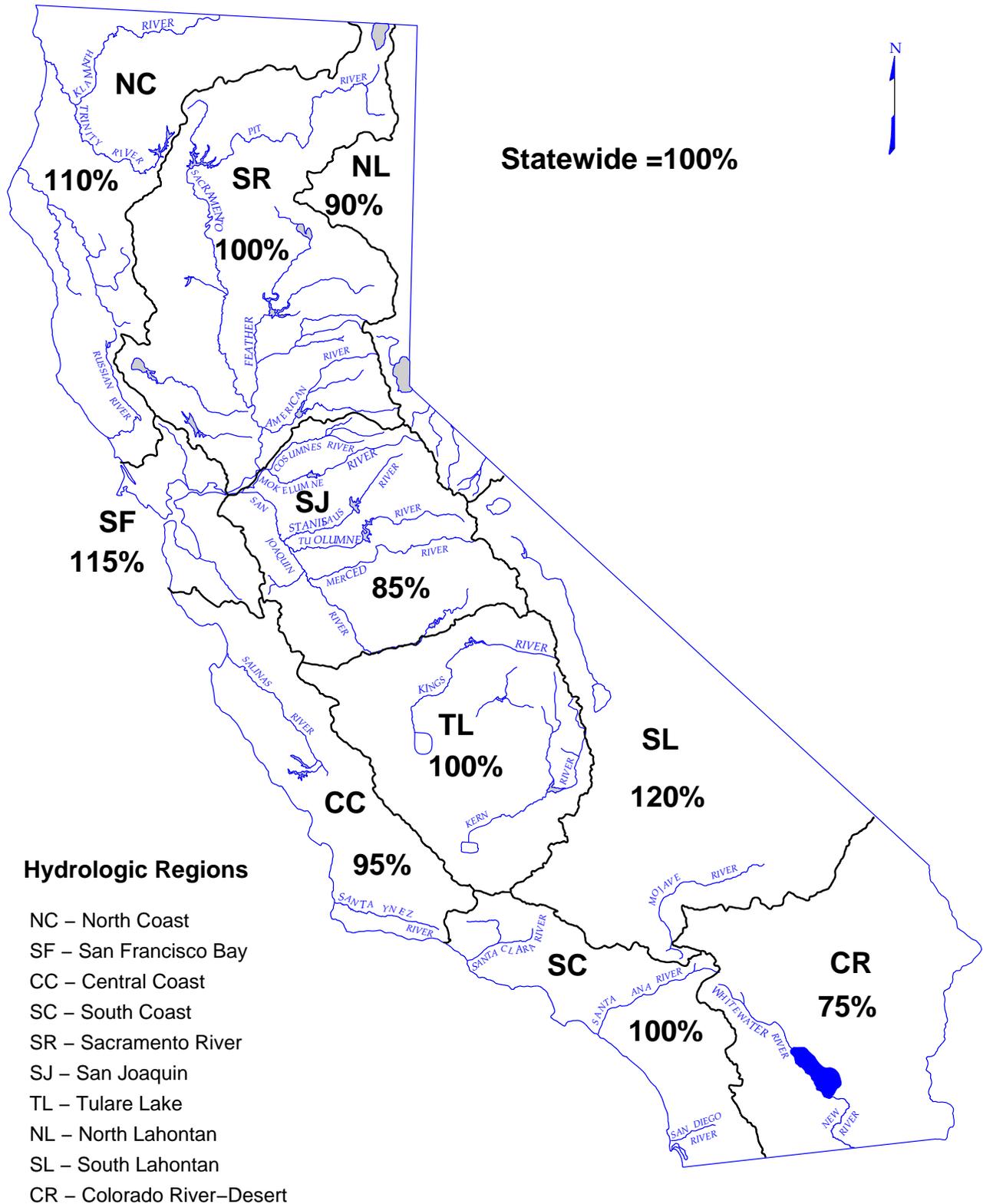
SUMMARY OF WATER CONDITIONS IN PERCENT OF AVERAGE

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	110	110	105	115	95	105
SAN FRANCISCO BAY	115	--	95	115	--	--
CENTRAL COAST	95	--	95	90	--	--
SOUTH COAST	100	--	75	35	--	--
SACRAMENTO RIVER	100	80	105	100	75	85
SAN JOAQUIN RIVER	85	75	100	60	70	65
TULARE LAKE	100	70	75	90	65	70
NORTH LAHONTAN	90	85	40	65	70	70
SOUTH LAHONTAN	120	90	95	70	85	75
COLORADO RIVER- DESERT	75	--	--	--	--	--
STATEWIDE	100	80	100	100	75	85

**DEPARTMENT OF WATER RESOURCES
CALIFORNIA COOPERATIVE SNOW SURVEYS
SEASONAL PRECIPITATION**

IN PERCENT OF AVERAGE TO DATE

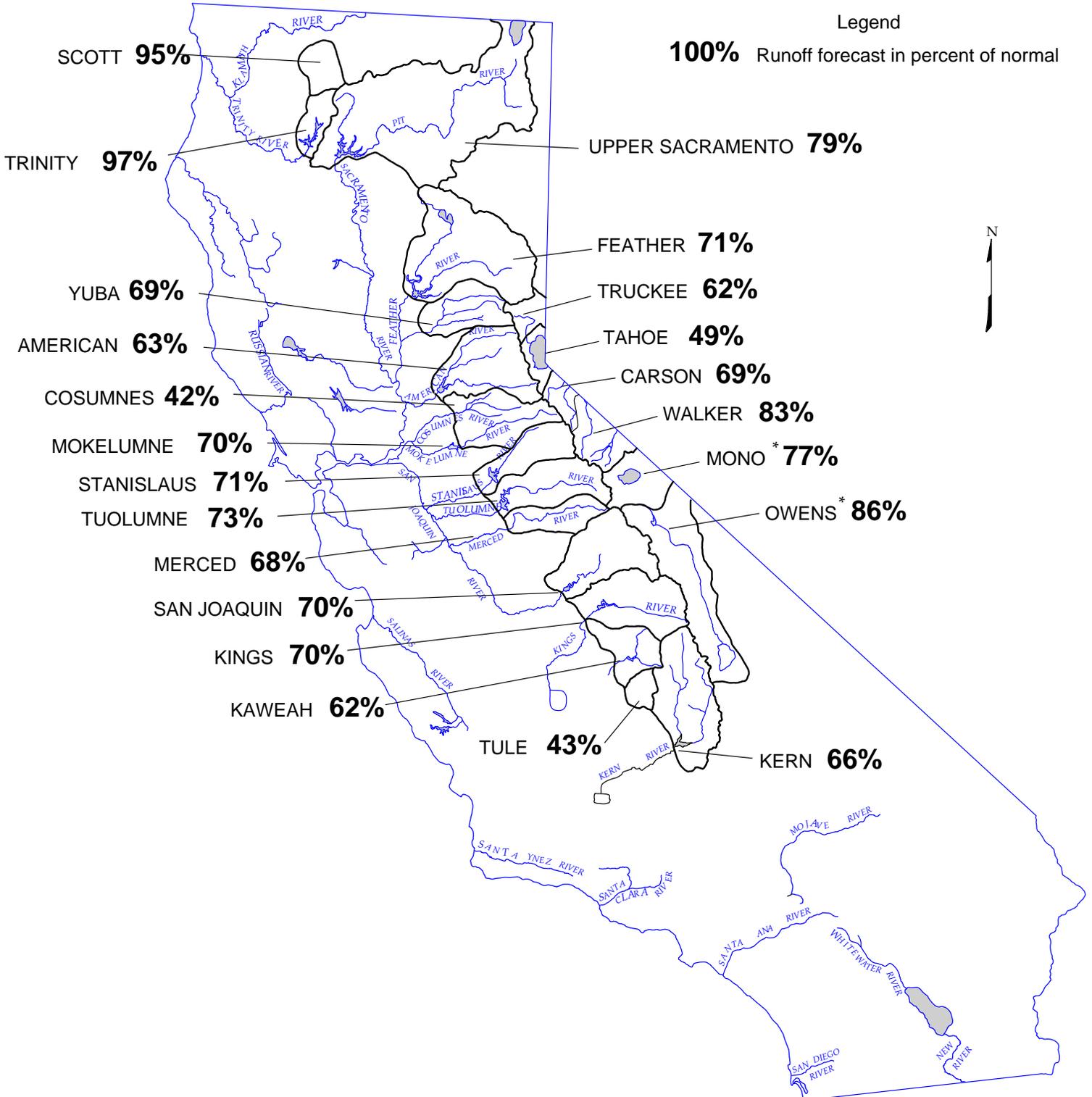
October 1, 2002 through February 28, 2003



WATER YEAR IS OCTOBER 1 THROUGH SEPTEMBER 30

**DEPARTMENT OF WATER RESOURCES
CALIFORNIA COOPERATIVE SNOW SURVEYS
FORECAST OF APRIL – JULY
UNIMPAIRED SNOWMELT RUNOFF**

March 1, 2003



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

MARCH 1, 2003 FORECASTS
APRIL-JULY UNIMPAIRED RUNOFF

HYDROLOGIC REGION and Watershed	Unimpaired Runoff in 1,000 Acre-Feet (1)					
	HISTORICAL			FORECAST		
	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 Delta above Shasta Lake (3)	299	711	39	250	84%	
McCloud River above Shasta Lake	400	850	185	340	85%	
Pit River near Montgomery Creek + Squaw Creek	1,090	2,098	480	830	76%	
Total Inflow to Shasta Lake	1,849	3,525	726	1,460	79%	990 - 2,260
Sacramento River above Bend Bridge, near Red Bluff	2,521	5,075	943	2,060	82%	1,340 - 3,270
Feather River						
Feather River at Lake Almanor near Prattville (3)	333	675	120	250	75%	
North Fork at Pulga (3)	1,028	2,416	243	740	72%	
Middle Fork near Clio (4)	86	518	4	60	70%	
South Fork at Ponderosa Dam (3)	110	267	13	75	68%	
Feather River at Oroville	1,870	4,676	392	1,320	71%	850 - 2,300
Yuba River						
North Yuba below Goodyears Bar (3)	286	647	51	190	66%	
Inflow to Jackson Mdws and Bowman Reservoirs (3)	112	236	25	80	71%	
South Yuba at Langs Crossing (3)	233	481	57	160	69%	
Yuba River near Smartville plus Deer Creek	1,044	2,424	200	720	69%	400 - 1,260
American River						
North Fork at North Fork Dam (3)	262	716	43	150	57%	
Middle Fork near Auburn (3)	522	1,406	100	330	63%	
Silver Creek Below Camino Diversion Dam (3)	173	386	37	110	64%	
American River below Folsom Lake	1,282	3,074	229	810	63%	390 - 1,510
SAN JOAQUIN RIVER						
Cosumnes River at Michigan Bar	130	363	8	55	42%	25 - 135
Mokelumne River						
North Fork near West Point (5)	437	829	104	300	69%	
Total Inflow to Pardee Reservoir	469	1,065	102	330	70%	200 - 550
Stanislaus River						
Middle Fork below Beardsley Dam (3)	334	702	64	240	72%	
North Fork Inflow to McKays Point Dam (3)	224	503	34	160	71%	
Stanislaus River below Goodwin Reservoir (7)	716	1,710	116	510	71%	310 - 830
Tuolumne River						
Cherry Creek & Eleanor Creek near Hetch Hetchy (3)	322	727	97	230	71%	
Tuolumne River near Hetch Hetchy (3)	606	1,392	153	460	76%	
Tuolumne River below La Grange Reservoir (7)	1,230	2,682	301	900	73%	620 - 1,400
Merced River						
Merced River at Pohono Bridge (3)	362	888	80	260	72%	
Merced River below Merced Falls (7)	633	1,587	123	430	68%	310 - 730
San Joaquin River						
San Joaquin River at Mammoth Pool (6)	1,014	2,279	235	720	71%	
Big Creek below Huntington Lake (6)	95	264	11	60	63%	
South Fork near Florence Lake (6)	202	511	58	150	74%	
San Joaquin River inflow to Millerton Lake	1,262	3,355	262	880	70%	580 - 1,410
TULARE LAKE						
Kings River						
North Fork Kings River near Cliff Camp (3)	239	565	50	170	71%	
Kings River below Pine Flat Reservoir	1,234	3,113	274	860	70%	560 - 1,350
Kaweah River below Terminus Reservoir	290	814	62	180	62%	100 - 320
Tule River below Lake Success	65	259	2	28	43%	12 - 70
Kern River						
Kern River near Kernville (3)	373	1,203	83	260	70%	
Kern River inflow to Lake Isabella	470	1,657	84	310	66%	200 - 550

(1) See inside back cover for definition

(2) All 50 year averages are based on years 1951-2000 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

MARCH 1, 2003 FORECASTS
WATER YEAR UNIMPAIRED RUNOFF

HISTORICAL			Unimpaired Runoff in 1,000 Acre-Feet (1)								FORECAST		
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)
888	1,965	165											
1,234	2,353	557											
3,217	5,150	1,484											
6,194	10,796	2,479	2,575	480	650	560	410	270	220	395	5,560	90%	4,770 - 6,960
8,990	17,180	3,294	4,385	750	950	780	610	370	300	535	8,680	97%	7,450 - 10,790
780	1,269	366											
2,417	4,400	666											
219	637	24											
291	562	32											
4,775	9,492	994	1,590	370	510	600	420	190	110	160	3,950	83%	3,250 - 5,430
564	1,056	102											
181	292	30											
379	565	98											
2,459	4,926	369	675	175	250	320	280	100	20	20	1,840	75%	1,410 - 2,570
616	1,234	66											
1,070	2,575	144											
318	705	59											
2,830	6,382	349	490	160	290	390	310	95	15	10	1,760	62%	1,200 - 2,700
409	1,253	20	43	17	40	30	18	5	2	5	160	39%	105 - 310
626	1,009	197											
774	1,800	129	80	35	60	120	150	50	10	5	510	66%	350 - 780
471	929	88											
1,196	2,952	155	140	55	100	200	205	90	15	5	810	68%	570 - 1,200
461	1,147	123											
770	1,661	258											
1,974	4,631	383	225	65	145	290	370	215	25	15	1,350	68%	1,030 - 1,950
461	1,020	92											
1,014	2,787	150	105	35	65	150	180	85	15	5	640	63%	500 - 1,010
1,337	2,964	308											
112	298	14											
248	653	71											
1,851	4,642	362	175	60	110	240	340	240	60	25	1,250	68%	900 - 1,890
284	607	58											
1,736	4,287	386	175	55	95	210	360	240	50	25	1,210	70%	880 - 1,800
460	1,402	94	87	20	32	60	70	40	10	6	325	71%	220 - 500
153	615	16	43	8	14	14	10	3	1	2	95	62%	65 - 165
558	1,577	163											
741	2,318	175	140	30	40	95	100	85	30	25	545	74%	410 - 840

* Unimpaired runoff in prior months based on measured flows

(7) Forecast point names based on USGS gage names. Stanislaus below Goodwin also known as inflow to New Melones, Tuolumne River below La Grange also known as inflow to Don Pedro, Merced River below Merced Falls also known as inflow to McClure.

**MARCH 1, 2003 FORECASTS
APRIL-JULY UNIMPAIRED RUNOFF**

HYDROLOGIC REGION and Watershed	Unimpaired Runoff in 1,000 Acre-Feet (1)				
	HISTORICAL			FORECAST	
	50 Yr Avg (2)	Max of Record	Min of Record	Apr-Jul Forecasts	Pct of Avg
NORTH COAST					
Trinity River Trinity River at Lewiston Lake	660	1,593	80	640	97%
Scott River Scott River near Fort Jones	200	400	30	190	95%
Klamath River Total inflow to Upper Klamath Lake (3)	515	939	149	280	54%
<hr/>					
NORTH LAHONTAN					
Truckee River Lake Tahoe to Farad accretions	272	713	52	170	62%
Lake Tahoe Rise (assuming gates closed, in feet)	1.4	5.4	0.2	0.7	49%
Carson River West Fork Carson River at Woodfords	55	135	12	38	69%
East Fork Carson River near Gardnerville	190	407	43	130	68%
Walker River West Walker River below Little Walker, near Coleville	153	330	35	130	85%
East Walker River near Bridgeport	65	209	7	50	77%
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SOUTH LAHONTAN					
Owens River Total tributary flow to Owens River (4)	235	579	96	202	86%

(1) See inside back cover for definition

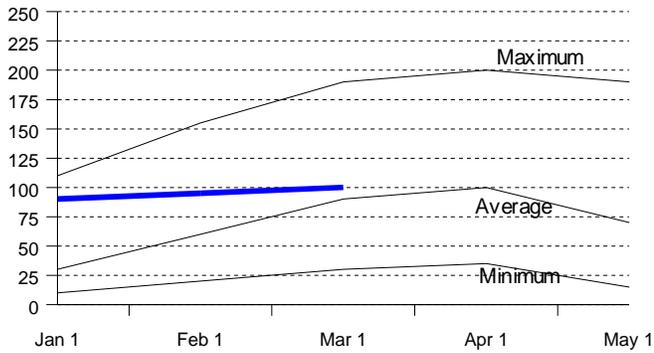
(2) All 50 year averages are based on years 1951-2000 unless otherwise noted

(3) Forecast by U.S. Natural Resources Conservation Service and National Weather Service California-Nevada River Forecast Center, April through September forecast, 30 year average based on years 1971-2000.

(4) Forecast by Department of Water and Power, City of Los Angeles, average based on years 1951-2000.

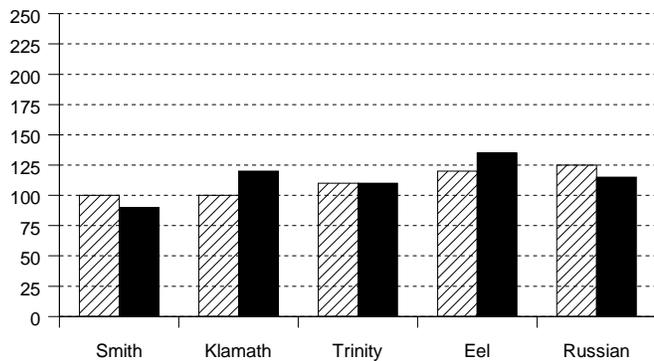
Snowpack Accumulation

Water Content in % of April 1 Average



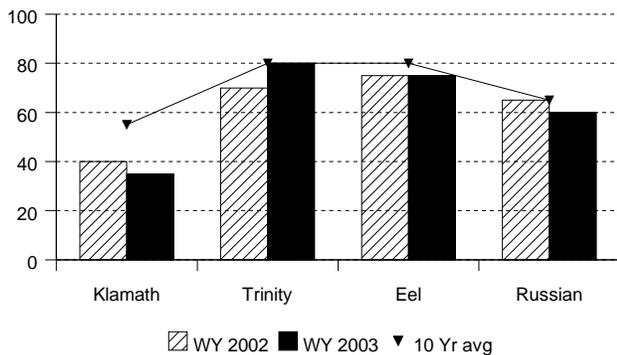
Precipitation

October 1 to date in % of Average



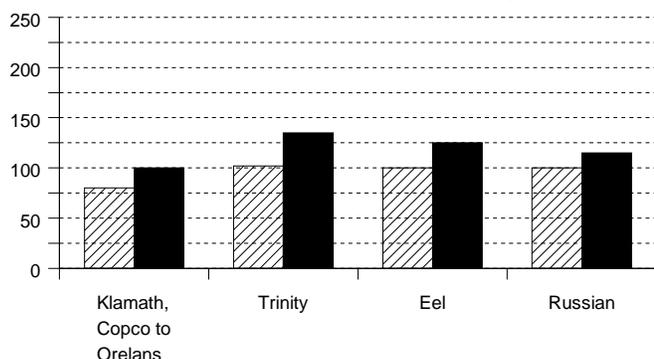
Reservoir Storage

Contents of major reservoirs in % of capacity



Runoff

October 1 to date in % of average



NORTH COAST REGION

SNOWPACK– First off the month measurements made at 12 snow courses indicate an area wide snow water equivalent of 32.2 inches. This is 110 percent of the March 1 average and 100 percent of the seasonal (April 1) average. Last year at this time the pack was holding 28.4 inches of water.

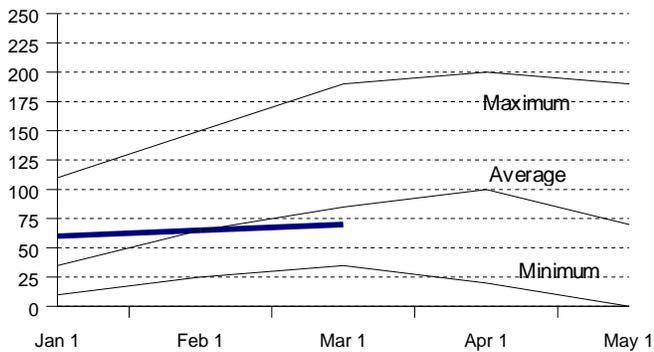
PRECIPITATION – Seasonal precipitation (October 1 through the end of last month) on this area was 115 percent of normal. Precipitation last month was about 50 percent of the monthly average. Seasonal precipitation at this time last year stood at 110 percent of normal.

RESERVOIR STORAGE– First of the month storage in 7 reservoirs was 2.4 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 95 percent of average.

RUNOFF –Seasonal runoff of streams draining the area totaled 9.1 million acre–feet which is 115 percent of the average for this period. Last year, runoff for the same period was 95 percent of average.

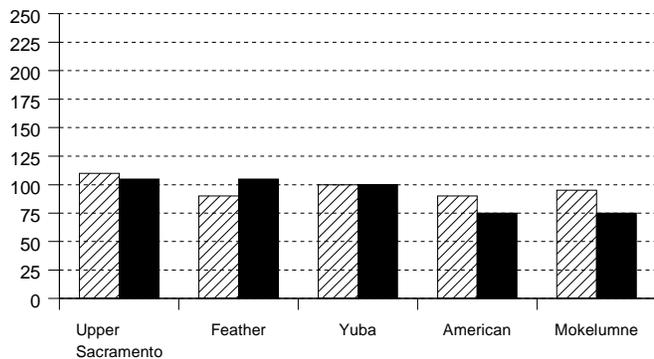
Snowpack Accumulation

Water Content in % of April 1 Average



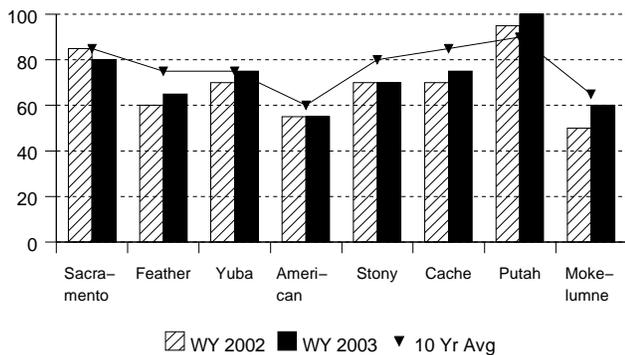
Precipitation

October 1 to date in % of Average



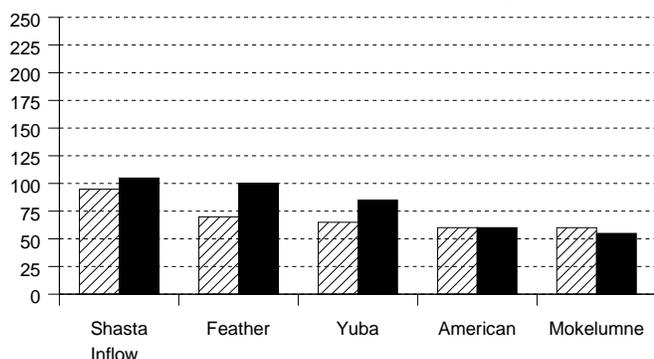
Reservoir Storage

Contents of major reservoirs in % of capacity



Runoff

October 1 to date in % of average



SACRAMENTO RIVER REGION

SNOWPACK— First of the month measurements made at 68 snow courses indicate an area wide snow water equivalent of 22.6 inches. This is 80 percent of the March 1 average and 70 percent of the seasonal (April 1) average. Last year at this time the pack was holding 26.8 inches of water.

PRECIPITATION – Seasonal precipitation (October 1 through the end of last month) on this area was 100 percent of normal. Precipitation last month was about 40 percent of the monthly average. Seasonal precipitation at this time last year stood at 100 percent of normal.

RESERVOIR STORAGE— First of the month storage in 43 reservoirs was 11.7 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 100 percent of average.

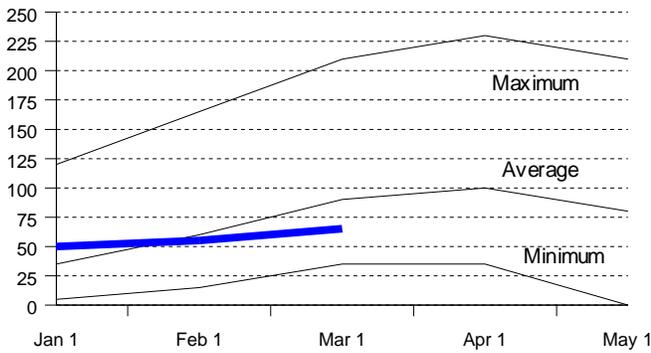
RUNOFF – Seasonal runoff of streams draining the area totaled 8.6 million acre–feet which is 100 percent of average for this period. Last year, runoff for the same period was 85 percent of average.

The **Sacramento Region 40–30–30 Water Supply Index** is forecast to be 7.0 assuming median meteorological conditions for the remainder of the year. This classifies the year as "below normal" in the Sacramento Valley according to the State Water Resources Control Board.

SAN JOAQUIN RIVER AND TULARE LAKE REGIONS

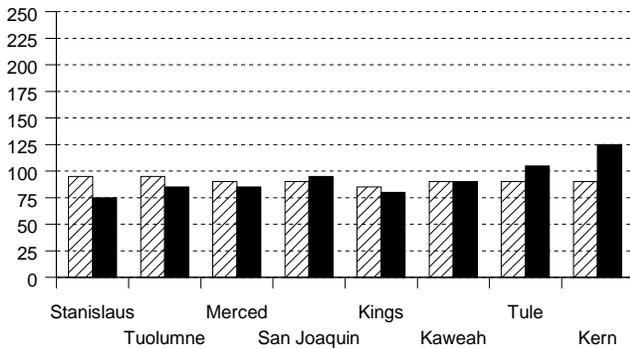
Snowpack Accumulation

Water Content in % of April 1 Average



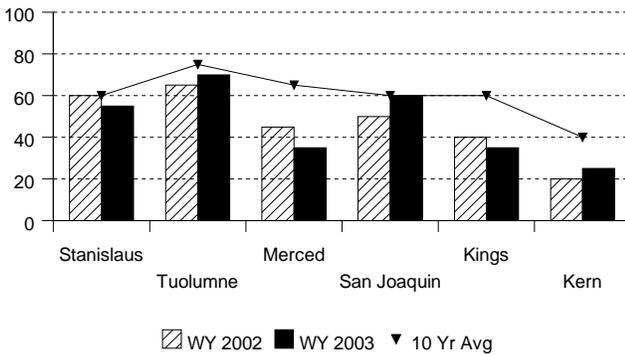
Precipitation

October 1 to date in % of Average



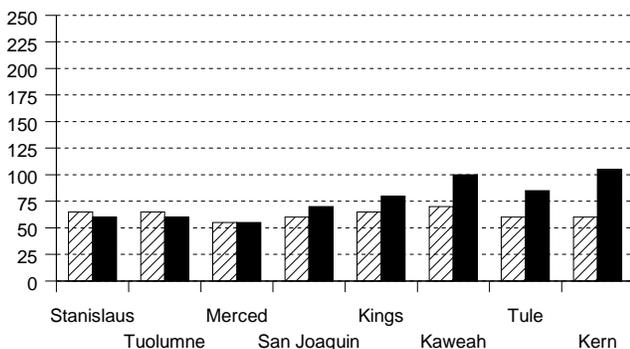
Reservoir Storage

Contents of major reservoirs in % of capacity



Runoff

October 1 to date in % of average



SNOWPACK– First of the month measurements made at 65 **San Joaquin Region** snow courses indicate an area wide snow water equivalent of 21.5 inches. This is 75 percent of the March 1 average and 70 percent of seasonal (April 1) average. Last year at this time the pack was holding 25.2 inches of water.

At the same time 33 **Tulare Lake Region** snow courses indicated a basin-wide snow water equivalent of 14.8 inches which is 70 percent of the average for March 1 and 60 percent of the seasonal average. Last year at this time the basin was holding 17.3 inches of water.

PRECIPITATION – Seasonal precipitation (October 1 through the end of last month) on the **San Joaquin Region** was 85 percent of normal. Precipitation last month was about 50 percent of the monthly average. Seasonal precipitation at this time last year stood at 90 percent of normal. Seasonal precipitation on the **Tulare Lake Region** was 100 percent of normal. Precipitation last month was about 85 percent of the monthly average. Seasonal precipitation at this time last year stood at 85 percent of normal.

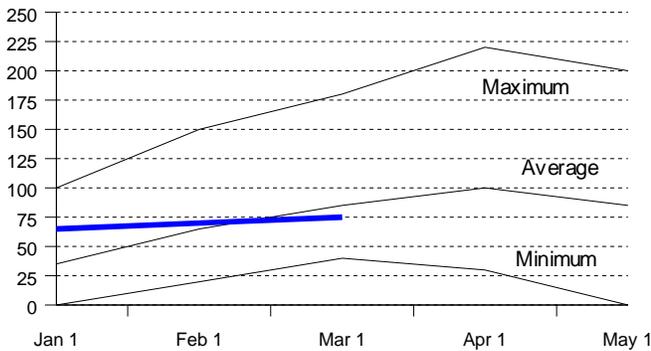
RESERVOIR STORAGE– First of the month storage in 34 **San Joaquin Region** reservoirs was 7.1 million acre-feet which is 100 percent of average. About 60 percent of available capacity was being used. Storage in these reservoirs at this time last year was 105 percent of average. First of the month storage in 6 **Tulare Lake Region** reservoirs was 621 thousand acre-feet which is 75 percent of average and about 30 percent of available capacity. Storage in these reservoirs at this time last year was 80 percent of average.

RUNOFF– Seasonal runoff of streams draining the **San Joaquin Region** totaled 1.0 million acre-feet which is 60 percent of average for this period. Last year, runoff for the same period was 60 percent of average. Seasonal runoff of streams draining the **Tulare Lake Basin** totaled 562 thousand acre-feet which is 90 percent of average for this period. Last year runoff for this same period was 65 percent of average.

The **San Joaquin Region 60–20–20 Water Supply Index** is forecast to be 2.4 assuming median meteorological conditions. This classifies the year as "dry" in the San Joaquin Region according to the State Water Resources Control Board.

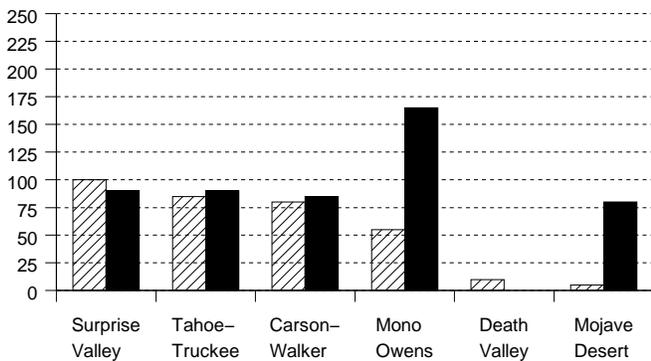
Snowpack Accumulation

Water Content in % of April 1 Average



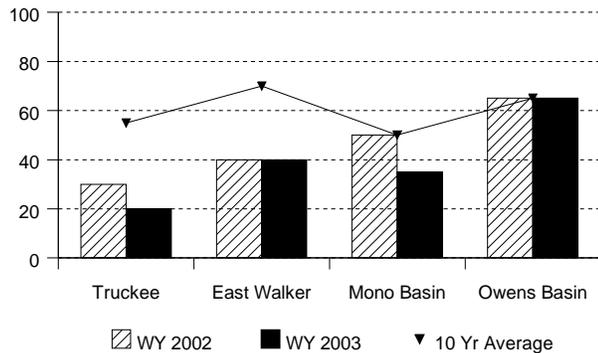
Precipitation

October 1 to date in % of Average



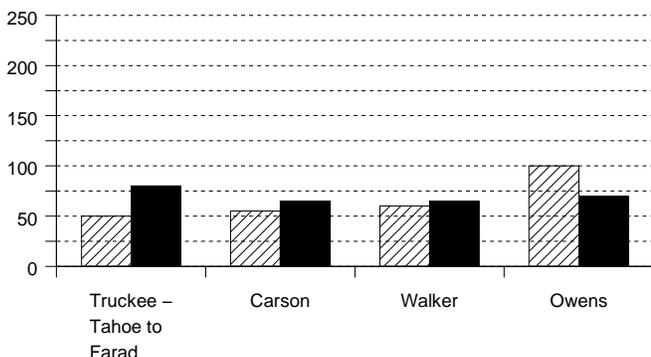
Reservoir Storage

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 14 **North Lahontan snow** courses indicate an area wide snow water equivalent of 21.3 inches. This is 85 percent of the March 1 average and 75 percent of seasonal (April 1) average. Last year at this time the pack was holding 22.6 inches of water. At the same time 19 **South Lahontan Region** snow courses indicated a basin-wide snow water equivalent of 15.5 inches which is 90 percent of the average for March 1 and 75 percent of the seasonal average. Last year at this time the basin was holding 14.7 inches of water.

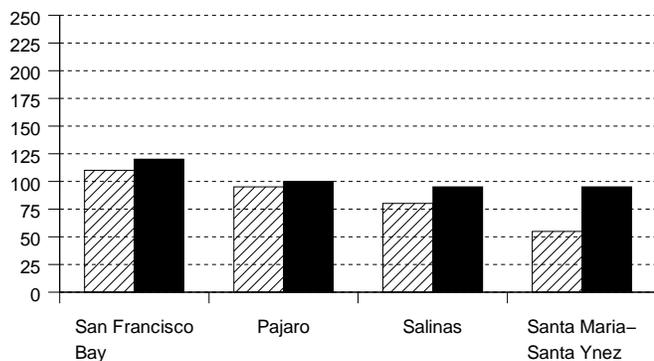
PRECIPITATION – Seasonal precipitation (October 1 through the end of last month) on the **North Lahontan** was 90 percent of normal. Precipitation last month was about 40 percent of the monthly average. Seasonal precipitation at this time last year stood at 85 percent of normal. Seasonal precipitation on the **South Lahontan** was 120 percent of normal. Precipitation last month was about 145 percent of the monthly average. Seasonal precipitation at this time last year stood at 40 percent of normal.

RESERVOIR STORAGE– First of the month storage in 5 **North Lahontan** reservoirs was 243 thousand acre-feet which is 40 percent of average. About 25 percent of available capacity was being used. Storage in these reservoirs at this time last year was 60 percent of average. Lake Tahoe was .7 feet above its natural rim on March 1. First of the month storage in 8 **South Lahontan** reservoirs was 259 thousand acre-feet which is 95 percent of average and about 65 percent of available capacity. Storage in these reservoirs at this time last year was 105 percent of average.

RUNOFF– Seasonal runoff of streams draining the **North Lahontan Region** totaled 156 thousand acre-feet which is 70 percent of average for this period. Last year, runoff for the same period was 55 percent of average. Seasonal runoff of the Owens River in the **South Lahontan Region** totaled 39 thousand acre-feet which is 70 percent of average for this period. Last year runoff for this same period was at 100 percent of average.

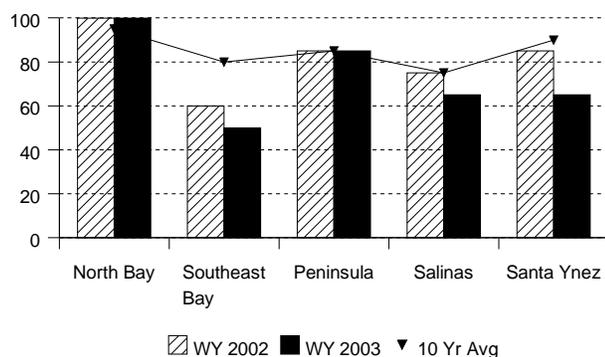
Precipitation

October 1 to date in % of Average



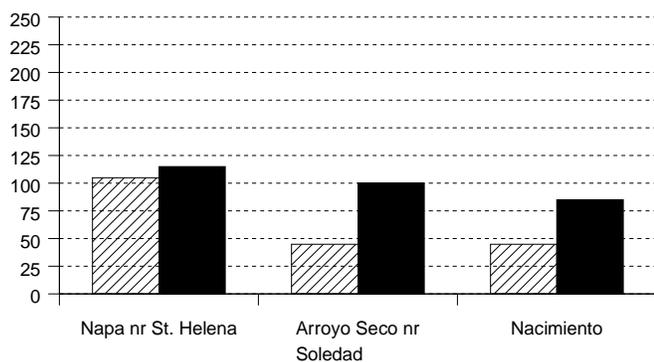
Reservoir Storage

Contents of major reservoirs in % of capacity



Runoff

October 1 to date in % of average



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 115 percent of normal. Precipitation last month was about 65 percent of the monthly average. Seasonal precipitation at this time last year stood at 110 percent of normal. Seasonal precipitation on the **Central Coast Region** was 95 percent of normal. Precipitation last month was about 60 percent of the monthly average. Seasonal precipitation at this time last year stood at 65 percent of normal.

RESERVOIR STORAGE– First of the month storage in 14 **San Francisco Bay Region** reservoirs was 359 thousand acre–feet which is 95 percent of average. About 65 percent of available capacity was being used. Storage in these reservoirs at this time last year was 95 percent of average. First of the month storage in 6 **Central Coast Region** reservoirs was 628 thousand acre–feet which is 95 percent of average and about 65 percent of available capacity. Storage in these reservoirs at this time last year was 115 percent of average.

RUNOFF– Seasonal runoff of the Napa River in the **San Francisco Bay Region** totaled 64 thousand acre–feet which is 115 percent of average for this period. Last year, runoff for the same period was 105 percent of average. Seasonal runoff of streams draining the **Central Coast Region** totaled 192 thousand acre–feet which is 90 percent of average for this period. Last year runoff for this same period was 45 percent of average.

SOUTH COAST AND COLORADO RIVER REGIONS

PRECIPITATION – October through February (seasonal) precipitation on the **South Coast Region** was 100 percent of normal. February precipitation was 180 percent of the monthly average. Seasonal precipitation at this time last year was 35 percent of normal. Seasonal precipitation on the **Colorado River–Desert Region** was 75 percent of normal and last year's seasonal precipitation on the **Colorado River–Desert Region** was 5 percent of normal. Precipitation in February was 325 percent of average.

RESERVOIR STORAGE – March 1 storage in 29 major **South Coast Region** reservoirs was 1.1 million acre–feet or 75 percent of average. About 55 percent of available capacity was being used. Storage in these reservoirs at this time last year was 90 percent of average. On March 1 combined storage in Lakes Powell, Mead, Mohave and Havasu was about 32 million acre–feet or about 75 percent of average. About 60 percent of available capacity was in use. Last year at this time, these reservoirs were storing about 39 million acre–feet.

RUNOFF – Seasonal runoff from selected **South Coast Region** streams totaled 10 thousand acre–feet which is 35 percent of average. Seasonal runoff from these streams last year was 10 percent of average.

COLORADO RIVER – The April –July inflow to Lake Powell is forecast to be 4.8 million acre–feet, which is 61 percent of average. The March 1 snowpack in the Upper Colorado River basin was 85 percent of average, lowest in the Duchesne at 65 percent and highest in the Colorado Headwaters at 95 percent.

STATE WATER PROJECT

Total storage in the major SWP reservoirs was about 3.81 MAF on February 28, 2003, compared with 3.8 MAF at this time in 2002. On February 28 storage at Lake Oroville was about 2.27 MAF as compared to about 2.14 MAF last year.

The State's share of San Luis Reservoir storage at the end of February was 847 TAF, as compared to about 1.03 MAF at this time last year.

The combined storage of SWP's southern reservoirs was about 604 TAF on January 31 as compared to 617 TAF at this time last year.

SWP water deliveries through February 2003 were about 278 TAF. This is a combination of project, transfer, and exchange waters. This was about 82 TAF less than at the same time last year.

Due to drier than average conditions in January the Department made no change to its 45% (1.86 MAF) allocation in February.

CENTRAL VALLEY PROJECT

As of February 28, 2003, CVP storage was 8.4 million acre–feet, which is a decrease of 0.3 million acre–feet compared to one year ago and is approximately 114% of normal for that date.

The Bureau of Reclamation announced the initial water year 2003 supply allocation for the CVP contractors on February 14, 2003. Based on a conservative water supply forecast prepared from information available February 1, 2003, and a water year inflow into Shasta Reservoir of 5.1 million acre–feet, CVP water supplies were: Agricultural contractors North of Delta 100% and South of Delta 60%; Urban contractors North of Delta 100% and South of Delta 85%; Sacramento River water rights and San Joaquin Exchange Contractors 100%; Wildlife Refuges 100%; Friant Contractors 70% of Class 1 and 0% of Class 2. Updated allocations will be announced in mid–March. The forecast of CVP operations is available on the Mid–Pacific Region's website at www.mp.usbr.gov.

**MAJOR WATER DISTRIBUTION PROJECTS
RESERVOIR STORAGE**

(AVERAGES BASED ON 1951-2000 OR PERIOD RECORD)

RESERVOIR	CAPACITY 1,000 AF	AVERAGE STORAGE 1,000 AF	2002 1,000 AF	STORAGE AT END OF February		
				2003 1,000 AF	PERCENT AVERAGE	PERCENT CAPACITY
<i>STATE WATER PROJECT</i>						
Lake Oroville	3,538	2,570	2,120	2,260	88%	64%
San Luis Reservoir (SWP)	1,062	944	1,031	837	89%	79%
Lake Del Valle	77	34	34	33	96%	43%
Lake Silverwood	73	65	72	70	107%	96%
Pyramid Lake	171	163	164	165	101%	96%
Castaic Lake	324	268	269	249	93%	77%
Perris Lake	132	117	115	114	97%	87%
<i>CENTRAL VALLEY PROJECT</i>						
Trinity Lake	2,448	1,853	1,757	1,940	105%	79%
Lake Shasta	4,552	3,342	3,840	3,584	107%	79%
Whiskeytown Lake	241	207	205	202	98%	84%
Folsom Lake	977	551	602	531	96%	54%
New Melones Reservoir	2,420	1,407	1,587	1,427	101%	59%
Millerton Lake	520	341	334	410	120%	79%
San Luis Reservoir (CVP)	971	798	894	902	113%	93%
<i>COLORADO RIVER PROJECT</i>						
Lake Mead	26,159	20,793	19,682	16,978	82%	65%
Lake Powell	25,002	19,028	17,200	12,833	67%	51%
Lake Mohave	1,810	1,679	1,643	1,728	103%	95%
Lake Havasu	619	547	560	573	105%	92%
<i>EAST BAY MUNICIPAL UTILITY DISTRICT</i>						
Pardee Res	198	180	183	167	93%	84%
Camanche Reservoir	417	246	234	306	124%	73%
East Bay (4 res.)	147	133	130	129	97%	87%
<i>CITY AND COUNTY OF SAN FRANCISCO</i>						
Hetch-Hetchy Reservoir	360	140	124	235	168%	65%
Cherry Lake	268	118	215	181	153%	67%
Lake Eleanor	26	11	6	3	32%	13%
Souty Bay/Peninsula (4 res.)	225	174	144	149	86%	66%
<i>CITY OF LOS ANGELES (D.W.P.)</i>						
Lake Crowley	183	126	130	123	97%	67%
Grant Lake	48	27	32	20	72%	41%
Other Aqueduct Storage (6 res.)	83	75	61	66	88%	80%

TELEMETERED SNOW WATER EQUIVALENTS

March 1, 2003

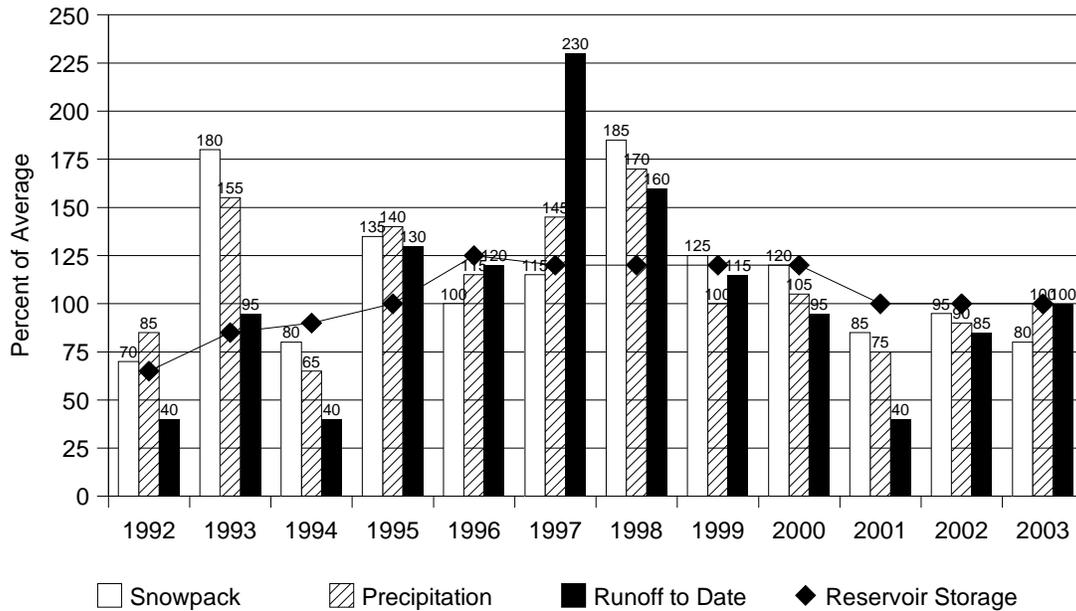
(AVERAGES BASED ON PERIOD RECORD)

BASIN NAME	STATION NAME	ELEV	INCHES OF WATER EQUIVALENT				
			APRIL 1 AVERAGE	PERCENT Mar 1 OF AVERAGE	24 HRS PREVIOUS	1 WEEK PREVIOUS	
TRINITY RIVER							
	Peterson Flat	7150'	29.2	32.8	112.4	32.6	31.5
	Red Rock Mountain	6700'	39.6	55.1	139.1	55.1	53.8
	Bonanza King	6450'	40.5	32.8	81.1	32.8	32.7
	Shimmy Lake	6400'	40.3	61.2	151.9	61.3	61.7
	Middle Boulder 3	6200'	28.3	—	—	—	—
	Highland Lakes	6030'	29.9	23.0	77.1	23.5	25.6
	Scott Mountain	5900'	16.0	18.5	115.5	18.5	18.5
	Mumbo Basin	5650'	22.4	26.8	119.5	26.8	26.5
	Big Flat	5100'	15.8	17.3	109.2	17.4	18.7
SACRAMENTO RIVER							
	Cedar Pass	7100'	18.1	9.1	50.3	8.5	8.2
	Blacks Mountain	7050'	12.7	—	—	—	—
	Sand Flat	6750'	42.4	45.2	106.7	45.2	45.3
	Medicine Lake	6700'	32.6	32.8	100.5	32.5	32.0
	Adin Mountain	6200'	13.6	—	—	—	—
	Snow Mountain	5950'	27.0	20.7	76.8	20.4	20.0
	Slate Creek	5700'	29.0	11.2	38.6	11.2	11.2
	Stouts Meadow	5400'	36.0	24.7	68.6	24.4	24.4
FEATHER RIVER							
	Kettle Rock	7300'	25.5	18.8	73.9	19.3	20.2
	Grizzly Ridge	6900'	29.7	23.3	78.4	23.2	22.6
	Pilot Peak	6800'	52.6	—	—	—	—
	Gold Lake	6750'	36.5	29.4	80.5	29.4	28.8
	Humbug	6500'	28.0	37.4	133.4	37.4	37.0
	Rattlesnake	6100'	14.0	17.2	122.6	17.2	16.9
	Bucks Lake	5750'	44.7	37.2	83.2	37.1	36.2
	Four Trees	5150'	20.0	15.6	78.0	15.6	15.7
EEL RIVER							
	Noel Spring	5100'	—	0.0	—	0.0	0.0
YUBA & AMERICAN RIVERS							
	Lake Lois	8600'	39.5	31.0	78.4	31.0	30.5
	Schneiders	8750'	34.5	31.1	90.1	31.1	30.7
	Caples Lake	8000'	30.9	17.6	57.0	17.6	16.1
	Alpha	7600'	35.9	23.5	65.5	23.4	22.9
	Meadow Lake	7200'	55.5	41.0	73.8	40.9	40.3
	Silver Lake	7100'	22.7	15.8	69.7	15.7	15.5
	Central Sierra Snow Lab	6900'	33.6	28.7	85.4	28.7	28.6
	Huysink	6600'	42.6	22.8	53.5	22.8	21.7
	Van Vleck	6700'	35.9	27.1	75.3	27.0	26.3
	Robbs Saddle	5900'	21.4	13.0	60.7	12.9	12.1
	Greek Store	5600'	21.0	16.9	80.6	16.7	16.2
	Blue Canyon	5280'	9.0	0.0	0.0	0.0	0.0
	Robbs Powerhouse	5150'	5.2	8.8	168.8	8.7	7.2
MOKELUMNE & STANISLAUS RIVERS							
	Deadman Creek	9250'	37.2	16.2	43.7	16.2	16.2
	Highland Meadow	8700'	47.9	37.5	78.2	37.5	36.6
	Gianelli Meadow	8400'	55.5	27.5	49.5	27.2	26.5
	Lower Relief Valley	8100'	41.2	36.4	88.4	35.8	33.1
	Blue Lakes	8000'	33.1	21.5	65.0	21.3	20.0
	Mud Lake	7900'	44.9	36.2	80.6	36.2	35.2
	Stanislaus Meadow	7750'	47.5	36.3	76.5	36.3	34.9
	Bloods Creek	7200'	35.5	18.6	52.4	18.5	18.1
	Black Springs	6500'	32.0	19.6	61.2	19.5	19.0
TUOLUMNE & MERCED RIVERS							
	Tioga Pass Entrance	9945'	—	—	—	—	—
	Dana Meadows	9800'	27.7	—	—	—	—
	Slide Canyon	9200'	41.1	27.5	66.9	27.5	26.2
	Lake Tenaya	8150'	33.1	23.0	69.6	23.0	21.8
	Tuolumne Meadows	8600'	22.6	13.4	59.5	13.4	12.7
	Horse Meadow	8400'	48.6	30.1	62.0	30.1	29.5
	Ostrander Lake	8200'	34.8	18.9	54.3	18.9	18.9
	Paradise Meadow	7650'	41.3	21.4	51.7	21.4	21.4
	Gin Flat	7050'	34.2	20.0	58.5	19.9	18.9
	Lower Kibbie Ridge	6700'	27.4	11.8	43.1	11.8	11.0

BASIN NAME	ELEV	APRIL 1 AVERAGE	INCHES OF WATER EQUIVALENT			
			PERCENT Mar 1 OF AVERAGE	24 HRS PREVIOUS	1 WEEK PREVIOUS	
SAN JOAQUIN RIVER						
Volcanic Knob	10050'	30.1	21.6	71.8	21.6	20.3
Agnew Pass	9450'	32.3	15.2	47.2	15.2	15.2
Kaiser Point	9200'	37.8	20.6	54.4	20.6	19.9
Green Mountain	7900'	30.8	15.6	50.6	15.5	13.8
Tamarack Summit	7550'	30.5	14.6	48.0	14.4	12.7
Chilkoot Meadow	7150'	38.0	19.4	51.1	19.2	18.0
Huntington Lake	7000'	20.1	12.0	59.7	11.8	10.4
Graveyard Meadow	6900'	18.8	11.3	60.0	11.2	11.0
Poison Ridge	6900'	28.9	9.6	33.1	9.6	9.4
KINGS RIVER						
Bishop Pass	11200'	34.0	15.4	45.4	15.4	14.8
Charlotte Lake	10400'	27.5	24.4	88.6	24.2	23.0
State Lakes	10300'	29.0	27.7	95.5	27.7	26.3
Mitchell Meadow	9900'	32.9	26.2	79.6	26.2	25.1
Blackcap Basin	10300'	34.3	20.1	58.6	20.1	18.8
Upper Burnt Corral	9700'	34.6	24.7	71.4	24.7	23.4
West Woodchuck Meadow	9100'	32.8	18.5	56.4	18.0	14.5
Big Meadows	7600'	25.9	7.0	26.9	7.0	7.4
KAWEAH & TULE RIVERS						
Farewell Gap	9500'	34.5	24.0	69.6	24.0	22.0
Quaking Aspen	7200'	21.0	10.4	49.7	10.4	9.6
Giant Forest	6650'	10.0	2.1	21.0	2.1	0.0
KERN RIVER						
Upper Tyndall Creek	11400'	27.7	18.9	68.2	18.8	18.5
Crabtree Meadow	10700'	19.8	13.4	67.8	13.4	13.3
Chagoopa Plateau	10300'	21.8	13.7	62.9	13.7	14.4
Pascoes	9150'	24.9	15.4	61.8	15.3	14.5
Tunnel Guard Station	8900'	15.6	7.4	47.5	7.4	6.8
Wet Meadows	8950'	30.3	—	—	—	—
Casa Vieja Meadows	8300'	20.9	15.1	72.2	15.1	14.4
Beach Meadows	7650'	11.0	0.0	0.0	0.0	0.0
SURPRISE VALLEY AREA						
Dismal Swamp	7050'	29.2	16.5	56.5	16.3	15.8
TRUCKEE RIVER						
Mount Rose Ski Area	8900'	38.5	32.3	83.9	32.1	32.1
Independence Lake	8450'	41.4	36.2	87.4	36.0	35.3
Big Meadows	8700'	25.7	17.6	68.5	17.5	17.4
Squaw Valley	8200'	46.5	46.4	99.8	46.4	46.0
Independence Camp	7000'	21.8	10.3	47.2	10.3	10.4
Independence Creek	6500'	12.7	10.3	81.1	10.3	10.7
Truckee 2	6400'	14.3	16.5	115.4	16.5	17.7
LAKE TAHOE BASIN						
Heavenly Valley	8800'	28.1	18.5	65.8	18.5	18.2
Hagans Meadow	8000'	16.5	16.5	100.0	16.1	14.6
Marlette Lake	8000'	21.1	15.5	73.5	14.8	14.6
Echo Peak 5	7800'	39.5	35.4	89.6	35.4	34.6
Rubicon Peak 2	7500'	29.1	17.1	58.8	17.1	15.6
Tahoe City Cross	6750'	16.0	7.1	44.4	7.1	7.1
Ward Creek 3	6750'	39.4	27.9	70.8	27.9	27.8
Fallen Leaf Lake	6250'	7.0	1.8	25.7	1.8	2.1
CARSON RIVER						
Ebbetts Pass	8700'	38.8	28.0	72.2	27.8	26.5
Poison Flat	7900'	16.2	15.0	92.6	14.9	14.0
Monitor Pass	8350'	—	14.5	—	14.3	13.8
Spratt Creek	6150'	4.5	4.1	91.1	4.1	3.7
WALKER RIVER						
Leavitt Lake	9600'	—	44.0	—	44.0	43.0
Virginia Lakes	9300'	20.3	13.7	67.5	13.7	12.5
Lobdell Lake	9200'	17.3	15.1	87.3	14.9	14.3
Sonora Pass Bridge	8750'	26.0	23.0	88.5	23.1	23.7
Leavitt Meadows	7200'	8.0	8.8	110.0	8.8	8.3
OWENS RIVER/MONO LAKE						
Gem Pass	10750'	31.7	27.6	87.1	27.6	27.3
Sawmill	10200'	19.4	12.7	65.6	12.7	13.4
Cottonwood Lakes	10150'	11.6	13.8	119.3	13.6	12.9
Big Pine Creek	9800'	17.9	12.3	68.7	12.3	11.7
South Lake	9600'	16.0	15.7	97.9	15.7	14.3
Mammoth Pass	9300'	42.4	24.2	57.2	24.1	23.5
Rock Creek Lakes	10000'	14.0	10.6	75.7	10.6	9.9

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%	

March 1 Statewide Conditions



SNOWLINES

The 71st Western Snow Conference (WSC) will be held in Scottsdale, Arizona, 21–24 April 2003. The conference will be held at the luxurious Old Town Hotel and Conference Center and hosted by the South Pacific Region. For further information regarding the Western Snow Conference contact Frank Gehrke at 916–574–2635 or gridley@water.ca.gov. Information is available on the web at <http://www.westernsnowconference.org>

DEPICTED on this month's cover is an intensive array of TidBit temperature data loggers installed by Mike Dettinger at the Dana Meadow snow sensor. The temperature histories along with other measurements will be used to examine heat flow in/out of the snowpack. Dana Meadow is part of an intensive network of sensors directed towards a hydroclimatic network in Yosemite National Park. (Photo by Frank Gehrke)

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 1951–2000 (50 years, except for data sites established after 1951).

PRECIPITATION – Averages are based on April 1 data for the period 1941–1990 (50 years, except for data sites established after 1941). These averages are in the process of being updated.

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(dry) and the 10 percent exceedence level value(wet). 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 1951–2000.

Reservoir storage averages are based on the period from 1951(or beginning of operation) to 2000.

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 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 Sacramento Valley Water Year Hydrologic Classification (40–30–30 Index). The values 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 San Joaquin Valley Water Year Hydrologic Classification (60–20–20 Index). In a similar manner, the values 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.

Runoff of the eight major rivers of the Sacramento and San Joaquin Regions 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
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First Class

