California Cooperative
Snow Surveys
Bulletin 120-92

State of California
The Resources Agency

Department of
Water Resources

# Water Conditions in California

## Report 3 April 1, 1992


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

**Pete Wilson**
Governor
State of California

**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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Deputy Director

Robert G. Potter
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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
Omochumne-Hartnell Water District
Oroville-Wyandotte Irrigation District
Placer County Water Agency
Sacramento Municipal Utility District
South San Joaquin Irrigation District
Tri-Dam Project
Tulare Lake Basin Water Storage District
Turlock Irrigation District
Yuba County Water Agency

**Private Organizations**

J.G. Boswell Company
Kaweah River Association
Kings River Water Association
St. Johns River Association
Tule River Association
U.S. Tungsten Corporation
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
### April 1, 1992

Statewide precipitation was above average during March, primarily because of much above normal amounts in Southern California. But rain and snow amounts were less than average in the major water supply basins of the Sierra Nevada. As a result, the water supply outlook for Northern and Central California has slipped somewhat from a month ago. It is virtually certain that this will be the 6th consecutive year of drought for much of California.

**FORECASTS** of April through July runoff are now expected to be 55 percent of average overall. This is a 5 percent decrease from forecasted runoff a month ago. Water year forecasts are also down about 5 percent statewide.

**SNOWPACK** water content decreased from 70 to 60 percent of average during the month. This is about 15 percent less than last year. Amounts are greatest in the Trinity and Upper Sacramento River areas and least in the Central Sierra and the northeastern region. Melting of the pack began early this year with significant decreases in water content during the last week of March.

**PRECIPITATION** in March averaged 125 percent of the monthly average. It ranged from about half normal in the North Lahontan area to over 5 times normal in the Colorado Desert region. Seasonal accumulations are 90 percent of average statewide and are heaviest in the southern portion of California.

**RUNOFF** to date increased slightly to 45 percent of average overall. In coastal areas dependent on local supplies, enough runoff occurred to enable many local agencies to provide adequate supplies for this year.

**RESERVOIR STORAGE** increased from 60 to 70 percent of average statewide, with wide regional variations. This is 10 percent more than storage at this time last year. The large reservoirs of the Sacramento Basin are holding 70 percent of their usual supplies.

**SUMMARY OF WATER CONDITIONS**

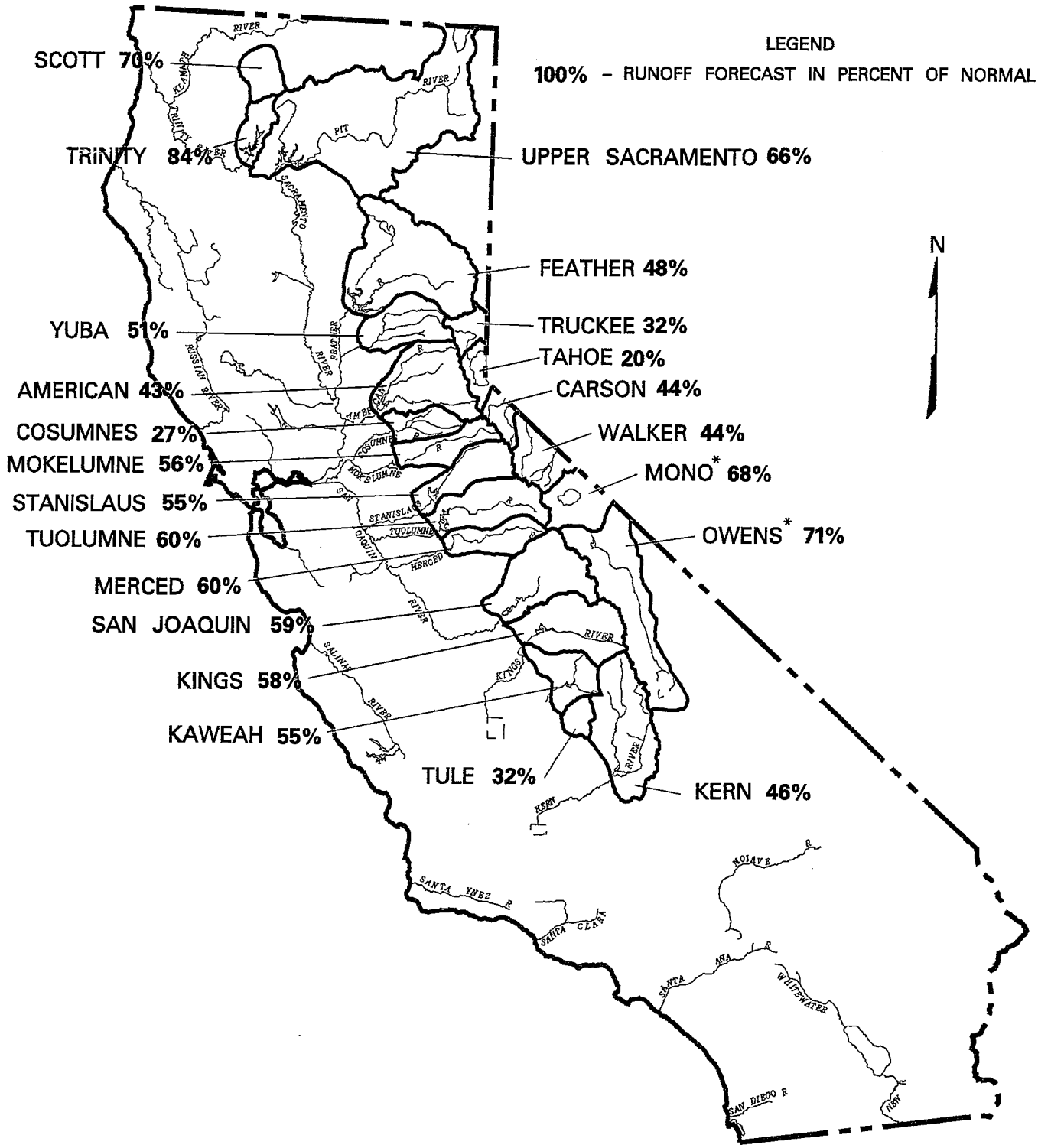
**IN PERCENT OF AVERAGE**

| HYDROGRAPHIC AREA | PRECIPITATION OCTOBER 1 TO DATE | SNOW WATER CONTENT | RESERVOIR STORAGE | OCTOBER 1 RUNOFF TO DATE | APRIL-JULY RUNOFF FORECAST | WATER YEAR RUNOFF FORECAST |
|---|---|---|---|---|---|---|
| NORTH COAST | 65 | 75 | 55 | 35 | 80 | 60 |
| SAN FRANCISCO BAY | 95 | -- | 85 | 35 | -- | -- |
| CENTRAL COAST | 125 | -- | 55 | 65 | -- | -- |
| SOUTH COAST | 150 | -- | 115 | 135 | -- | -- |
| SACRAMENTO BASIN | 75 | 55 | 70 | 50 | 55 | 50 |
| SAN JOAQUIN BASIN | 85 | 60 | 70 | 45 | 60 | 55 |
| TULARE LAKE BASIN | 90 | 55 | 50 | 40 | 55 | 50 |
| NORTH LAHONTAN | 55 | 35 | 15 | 50 | 40 | 40 |
| SOUTH LAHONTAN | 140 | 65 | 85 | 60 | 70 | 65 |
| COLORADO DESERT | 215 | -- | -- | -- | -- | -- |
| STATEWIDE | 90 | 60 | 70 | 45 | 55 | 50 |

FORECAST OF APRIL – JULY

# UNIMPAIRED SNOWMELT RUNOFF

## APRIL 1, 1992

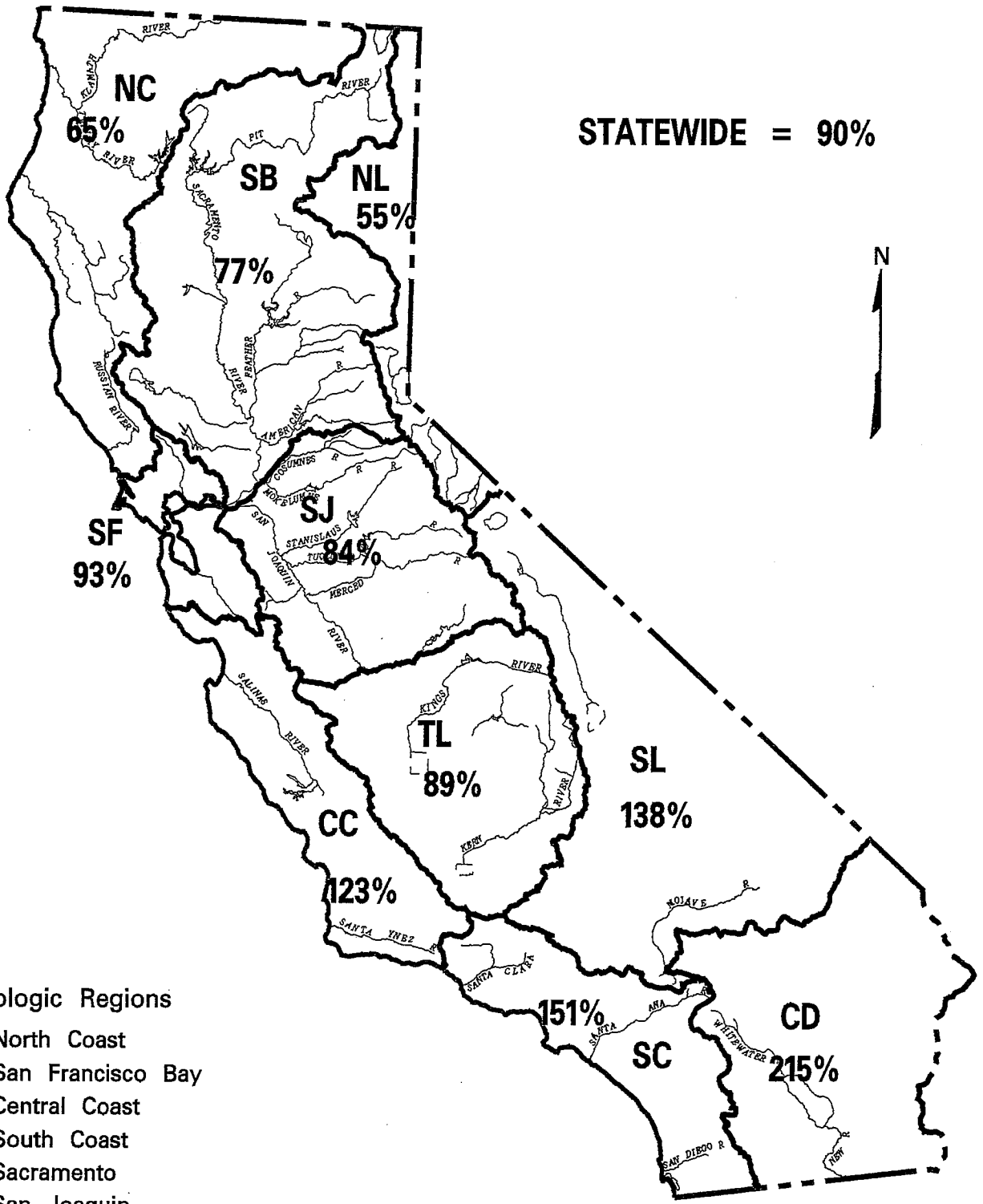



* FORECAST BY DEPARTMENT OF WATER AND POWER, CITY OF LOS ANGELES

# SEASONAL PRECIPITATION

IN PERCENT OF AVERAGE TO DATE

OCTOBER 1, 1991 THROUGH MARCH 31, 1992




Hydrologic Regions

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

WATER YEAR IS OCTOBER 1 THROUGH SEPTEMBER 30

# FORECASTS OF APRIL-JULY UNIMPAIRED RUNOFF FOR CENTRAL VALLEY STREAMS APRIL 1, 1992

| 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 | 230 | 77 | |
| McCloud River at Shasta Lake | 411 | 850 | 185 | 310 | 75 | |
| Pit River at Shasta Lake | 1,062 | 1,796 | 480 | 660 | 62 | |
| Total inflow to Shasta Lake | 1,824 | 3,189 | 726 | 1,200 | 66 | 1,000-1,800 |
| Sacramento River above Bend Bridge, near Red Bluff | 2,491 | 4,674 | 943 | 1,550 | 62 | 1,250-2,450 |
| Feather River | | | | | | |
| Feather River at Lake Almanor near Pratville | 333 | 675 | 120 | 190 | 57 | |
| North Fork at Pulga | 1,028 | 2,416 | 243 | 500 | 49 | |
| Middle Fork near Clio (3) | 86 | 518 | 4 | 20 | 23 | |
| South Fork at Ponderosa Dam | 110 | 267 | 13 | 50 | 45 | |
| Total inflow to Oroville Reservoir | 1,857 | 4,676 | 392 | 900 | 48 | 630-1,600 |
| Yuba River | | | | | | |
| North Yuba below Goodyears Bar | 286 | 647 | 51 | 140 | 49 | |
| Inflow to Jackson Mdws and Bowman Reservoirs | 112 | 236 | 25 | 60 | 54 | |
| South Yuba at Langs Crossing | 233 | 481 | 57 | 130 | 56 | |
| Yuba River at Smartville | 1,047 | 2,424 | 200 | 530 | 51 | 370-900 |
| American River | | | | | | |
| North Fork at North Fork Dam | 262 | 716 | 43 | 100 | 38 | |
| Middle Fork near Auburn | 522 | 1,406 | 100 | 230 | 44 | |
| Silver Creek below Camino Diversion Dam | 173 | 386 | 37 | 80 | 46 | |
| Total inflow to Folsom Reservoir | 1,284 | 3,074 | 229 | 550 | 43 | 380-1,050 |
| *Sacramento River at Sacramento* | | | | | | |
| **SAN JOAQUIN RIVER BASIN** | | | | | | |
| Cosumnes River at Michigan Bar | 129 | 363 | 8 | 35 | 27 | 20-90 |
| Mokelumne River | | | | | | |
| North Fork near West Point (4) | 437 | 829 | 104 | 240 | 55 | |
| Total inflow to Pardee Reservoir | 465 | 1,065 | 102 | 260 | 56 | 200-390 |
| 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 | 390 | 55 | 290-600 |
| Tuolumne River | | | | | | |
| Cherry Creek and Eleanor Creek near Hetch Hetchy | 322 | 727 | 97 | 180 | 56 | |
| Tuolumne River near Hetch Hetchy | 606 | 1,392 | 153 | 380 | 63 | |
| Total inflow to Don Pedro Reservoir | 1,200 | 2,682 | 301 | 720 | 60 | 590-1,000 |
| Merced River | | | | | | |
| Merced River at Pohono Bridge | 362 | 888 | 80 | 230 | 64 | |
| Total inflow to Exchequer Reservoir | 617 | 1,587 | 123 | 370 | 60 | 280-510 |
| San Joaquin River | | | | | | |
| San Joaquin River at Mammoth Pool (2) | 1,014 | 2,279 | 235 | 600 | 59 | |
| 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 | 730 | 59 | 560-980 |
| *San Joaquin River near Vernalis* | | | | | | |
| **TULARE LAKE BASIN** | | | | | | |
| Kings River | | | | | | |
| North Fork Kings River near Cliff Camp | 239 | 565 | 50 | 140 | 59 | |
| Total inflow to Pine Flat Reservoir | 1,203 | 3,114 | 273 | 700 | 58 | 550-920 |
| Kaweah River at Terminus Reservoir | 284 | 814 | 61 | 155 | 55 | 120-210 |
| Tule River at Success Reservoir | 63 | 256 | 2 | 20 | 32 | 15-35 |
| Kern River | | | | | | |
| Kern River near Kernville | 373 | 1,203 | 83 | 180 | 48 | |
| Total inflow to Isabella Reservoir | 461 | 1,657 | 84 | 210 | 46 | 160-300 |

(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 APRIL 1, 1992

| 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 | 810 | 760 | 590 | 450 | 330 | 230 | 190 | 340 | 3,700 (3,400-4,450) | 62 |
| 8,664 | 17,180 | 3,294 | 1,080 | 1,290 | 940 | 570 | 430 | 310 | 240 | 400 | 5,260 (4,900-6,400) | 61 |
| 780 | 1,269 | 366 | | | | | | | | | | |
| 2,417 | 4,400 | 666 | | | | | | | | | | |
| 219 | 637 | 24 | | | | | | | | | | |
| 291 | 562 | 32 | | | | | | | | | | |
| 4,617 | 9,492 | 994 | 310 | 385 | 345 | 400 | 260 | 150 | 90 | 130 | 2,070 (1,780-2,800) | 45 |
| 564 | 1,056 | 102 | | | | | | | | | | |
| 181 | 292 | 30 | | | | | | | | | | |
| 379 | 565 | 98 | | | | | | | | | | |
| 2,390 | 4,926 | 369 | 120 | 240 | 200 | 240 | 190 | 80 | 20 | 20 | 1,110 (940-1,500) | 46 |
| 616 | 1,234 | 66 | | | | | | | | | | |
| 1,070 | 2,575 | 144 | | | | | | | | | | |
| 318 | 705 | 59 | | | | | | | | | | |
| 2,736 | 6,381 | 349 | 100 | 230 | 210 | 250 | 200 | 80 | 20 | 10 | 1,100 (920-1,620) | 40 |
| | | | | | | | | | | | | 52 |
| 385 | 1,253 | 20 | 7 | 41 | 41 | 20 | 10 | 4 | 1 | 1 | 125 (100-180) | 32 |
| 626 | 1,009 | 197 | | | | | | | | | | |
| 748 | 1,800 | 129 | 32 | 40 | 50 | 110 | 125 | 20 | 5 | 3 | 385 (320-520) | 51 |
| 471 | 929 | 88 | | | | | | | | | | |
| 1,150 | 2,952 | 155 | 60 | 70 | 80 | 150 | 170 | 50 | 20 | 10 | 610 (500-830) | 53 |
| 461 | 1,147 | 123 | | | | | | | | | | |
| 770 | 1,661 | 258 | | | | | | | | | | |
| 1,882 | 4,430 | 383 | 80 | 95 | 115 | 240 | 330 | 130 | 20 | 10 | 1,020 (880-1,330) | 54 |
| 461 | 1,020 | 92 | | | | | | | | | | |
| 966 | 2,859 | 150 | 35 | 55 | 50 | 130 | 170 | 60 | 10 | 5 | 515 (420-660) | 53 |
| 1,337 | 2,964 | 308 | | | | | | | | | | |
| 112 | 298 | 14 | | | | | | | | | | |
| 248 | 653 | 71 | | | | | | | | | | |
| 1,776 | 4,642 | 362 | 70 | 70 | 75 | 190 | 310 | 180 | 50 | 35 | 980 (800-1,240) | 55 |
| | | | | | | | | | | | | 54 |
| 284 | 607 | 58 | | | | | | | | | | |
| 1,669 | 4,294 | 383 | 70 | 50 | 60 | 180 | 290 | 190 | 40 | 30 | 910 (750-1,140) | 55 |
| 444 | 1,402 | 92 | 19 | 13 | 18 | 50 | 70 | 30 | 5 | 5 | 210 (170-270) | 47 |
| 145 | 615 | 16 | 6 | 7 | 7 | 12 | 6 | 1 | 1 | 0 | 40 (35-60) | 28 |
| 558 | 1,577 | 163 | | | | | | | | | | |
| 717 | 2,309 | 175 | 45 | 20 | 25 | 70 | 80 | 40 | 20 | 20 | 320 (265-420) | 45 |

* Unimpaired runoff to date

## FORECASTS OF APRIL-JULY UNIMPAIRED RUNOFF FOR SELECTED CALIFORNIA STREAMS

## APRIL 1, 1992

| 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 | 550 | 84 |
| Scott River at Ft. Jones | 200 | * | * | 140 | 70 |
| Upper Klamath Lake(1)(2)(5) | 521 | 1,151 | 177 | 167 | 32 |
| LAHONTAN AREA | | | | | |
| Truckee River, Lake Tahoe to Farad accretion | 268 | 713 | 58 | 85 | 32 |
| Lake Tahoe Rise in feet (assuming gates closed) | 1.5 | 3.75 | 0.23 | 0.3 | 20 |
| East Carson River near Gardnerville | 186 | 407 | 43 | 85 | 46 |
| West Carson River at Woodfords | 54 | 131 | 12 | 22 | 41 |
| East Walker River near Bridgeport | 63 | 209 | 7 | 18 | 29 |
| West Walker River near Coleville | 148 | 330 | 35 | 75 | 51 |
| Owens River(3) | 233 | 579 | 96 | 166 | 71 |

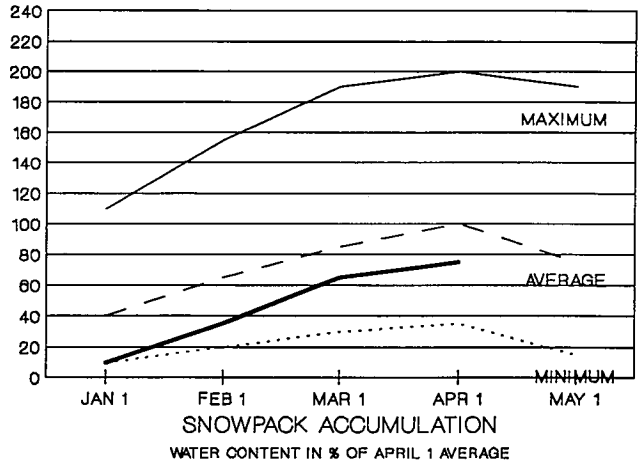
(1)Forecast period of April-September

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

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

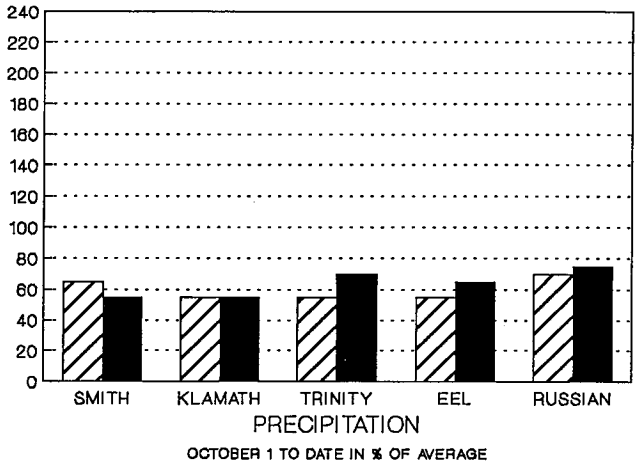
(4)Inside back cover for definition of unimpaired runoff.

(5)Average period of 25 years

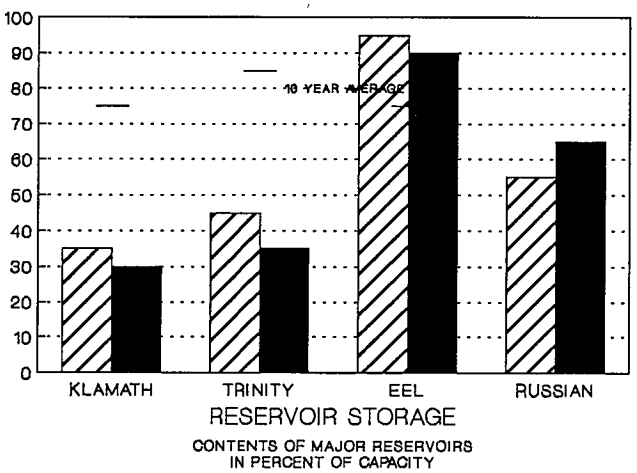



# NORTH COAST AREA

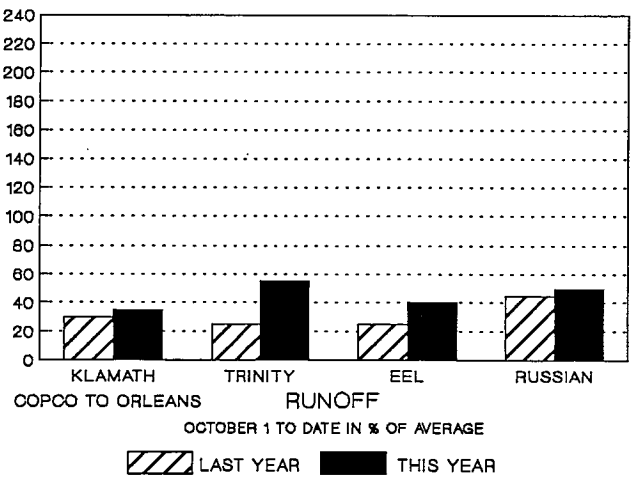
SNOWPACK - First of the month measurements made at 18 snow courses indicate an area wide snow water equivalent of 22.8 inches. This is 75 percent of the seasonal (April 1) average. Last year at this time the pack was holding 17.6 inches of water.



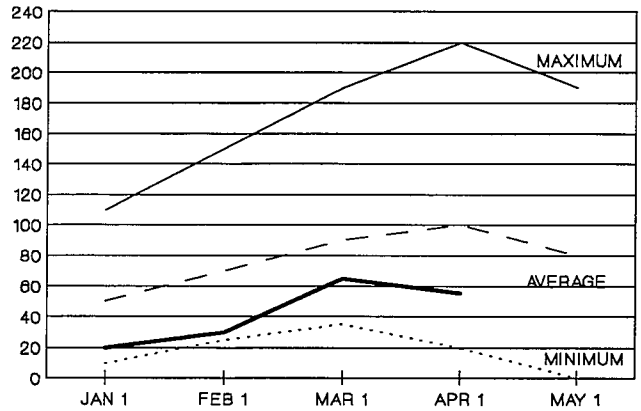

PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on this area was 65 percent of normal. Precipitation last month was about 85 percent of the monthly average. Seasonal precipitation at this time last year stood at 60 percent of normal.




RESERVOIR STORAGE - First of the month storage in 7 reservoirs was 1.3 million acre-feet which is 55 percent of average. About 40 percent of available capacity was being used. Storage in these reservoirs at this time last year was 60 percent of average.



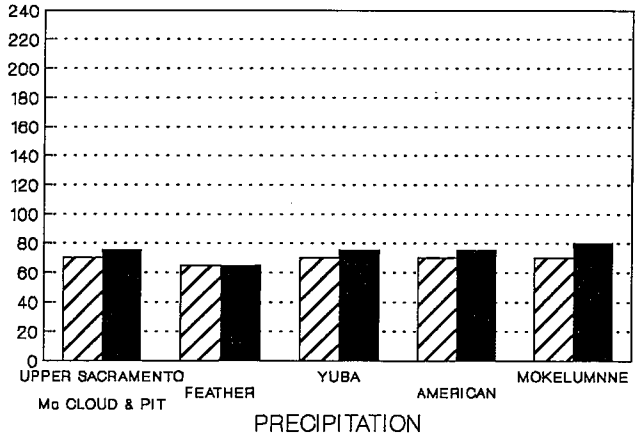

RUNOFF - Seasonal runoff of streams draining the area totaled 3.5 million acre-feet which is 35 percent of average for this period. Last year, runoff for the same period was 30 percent of average.



SNOWPACK ACCUMULATION
WATER CONTENT IN % OF APRIL 1 AVERAGE

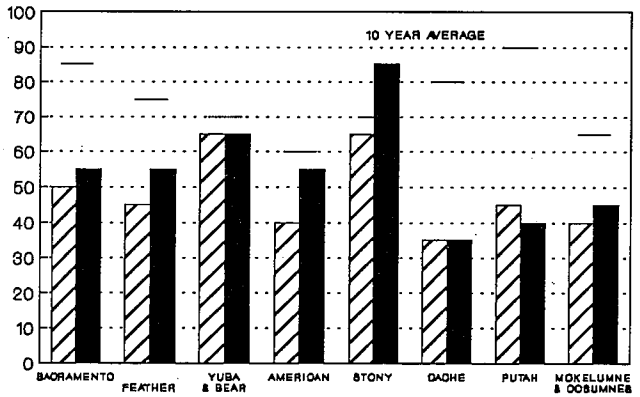
# SACRAMENTO BASIN

SNOWPACK - First of the month measurements made at 85 snow course indicate a basin-wide snow water equivalent of 20.0 inches. This is 55 percent of the average for this date. Last year at this time, the pack was holding 19.6 inches of water.



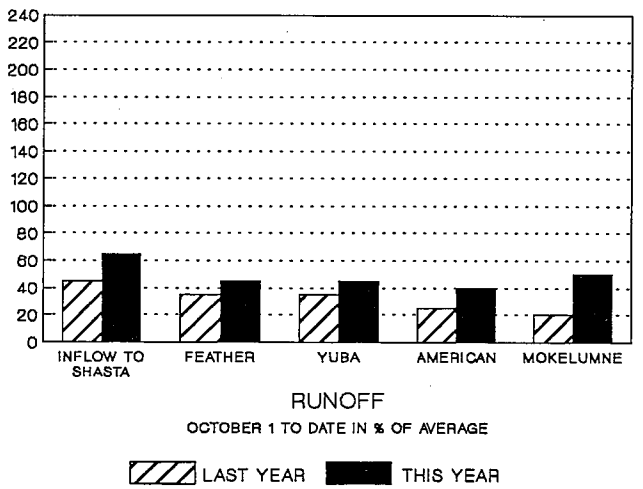
PRECIPITATION
OCTOBER 1 TO DATE IN % OF AVERAGE

PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on the Sacramento Basin was 75 percent of normal. Precipitation last month was about 90 percent of the monthly average. Seasonal precipitation at this time last year stood at 70 percent of average.



RESERVOIR STORAGE
CONTENTS OF MAJOR RESERVOIRS
IN PERCENT OF CAPACITY

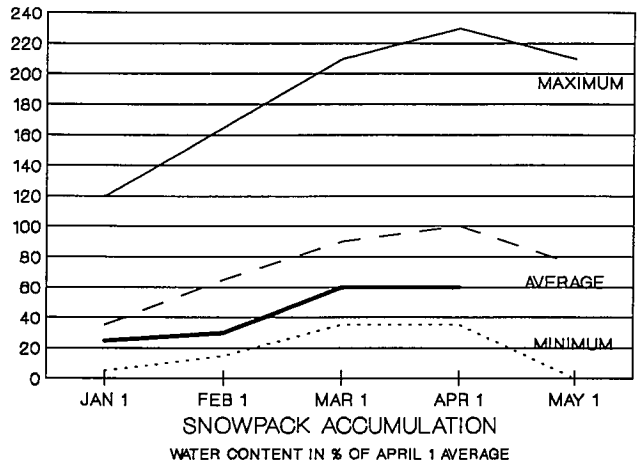
RESERVOIR STORAGE - First of the month storage in 43 reservoirs was 8.7 million acre-feet which is 70 percent of average. About 55 percent of available capacity was being used. Storage in these reservoirs was about 60 percent of average at this time last year.



RUNOFF
OCTOBER 1 TO DATE IN % OF AVERAGE

RUNOFF - Seasonal runoff from streams draining into the basin totaled 5.5 million acre-feet which is 50 percent of average for this period. Last year runoff for the same period was 35 percent of average.

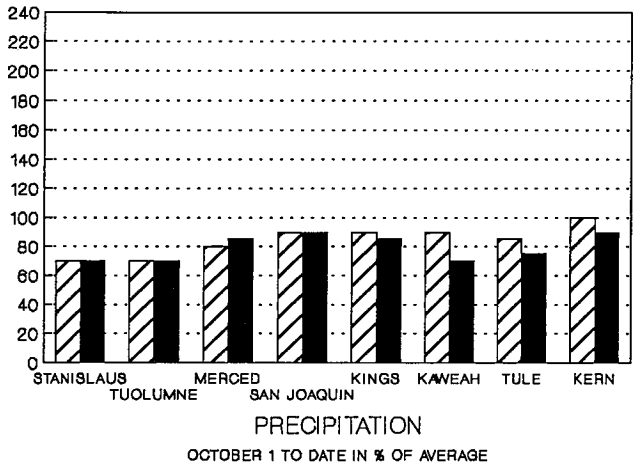
The Sacramento River Index for the year is forecast at 9.5 million acre-feet assuming median meteorological conditions for the remainder of the year. This classifies the year as "critical" in the Sacramento-San Joaquin Delta according to the State Water Resources Control Board's Decision 1485. The SRI at this time last year was forecasted to be 9.1 million acre-feet.




# SAN JOAQUIN AND TULARE LAKE BASINS

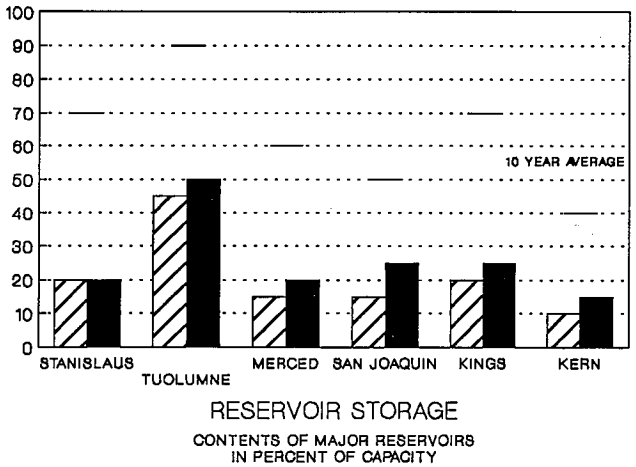
SNOWPACK - First of the month measurements made at 72 San Joaquin Basin snow courses indicate a basin wide snow water equivalent of 20.1 inches which is 60 percent of the seasonal (April 1) average. Last year at this time, the pack was holding 24.7 inches of water.

At the same time, 46 Tulare Lake Basin snow courses indicated a basin-wide snow water equivalent of 12.8 inches which is 55 percent of the seasonal average. Last year at this time, the Basin was holding 19.8 inches of water.



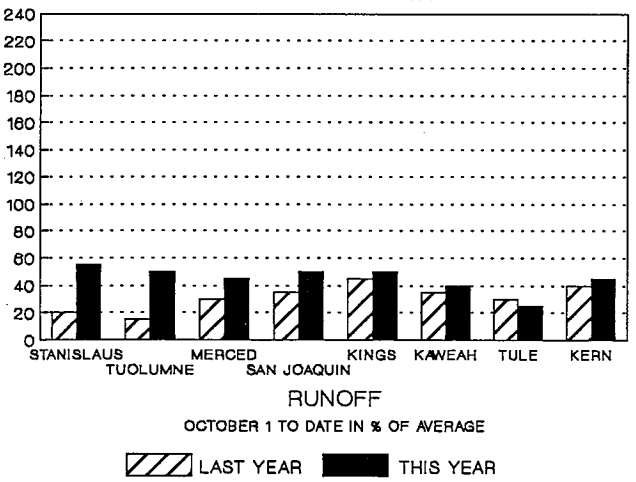

PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on the San Joaquin Basin was 85 percent of normal. Precipitation last month was 95 percent of the monthly average. Seasonal precipitation at this time last year stood at 75 percent of normal.

Seasonal precipitation on the Tulare Lake Basin was 90 percent of normal. Precipitation last month was 95 percent of the monthly average. Seasonal precipitation at this time last year stood at 95 percent of normal.



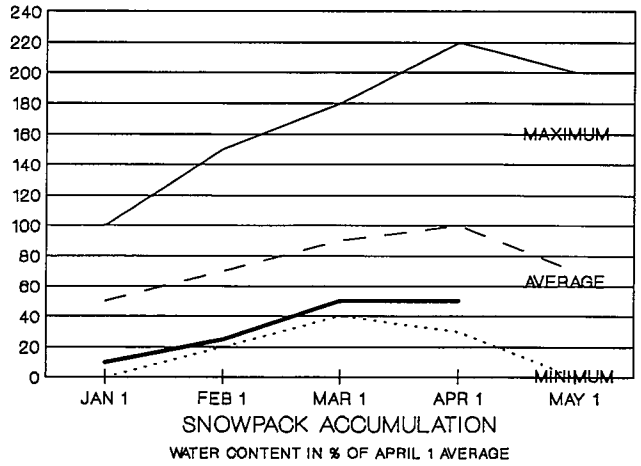

RESERVOIR STORAGE - First of the month storage in 33 San Joaquin Basin reservoirs was 5.3 million acre-feet which is 70 percent of average. About 45 percent of available capacity was being used. Storage in these reservoirs at this time last year was 55 percent of average.

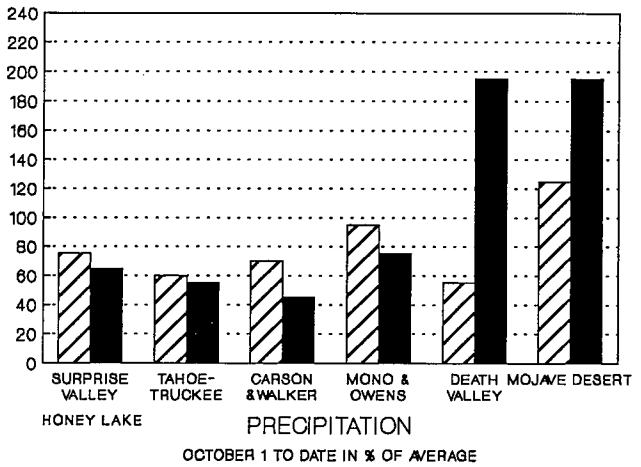
First of the month storage in 6 Tulare Lake Basin reservoirs was 433 thousand acre-feet which is 50 percent of average. About 20 percent of available capacity was being used. Storage in these reservoirs at this time last year was 45 percent of average.

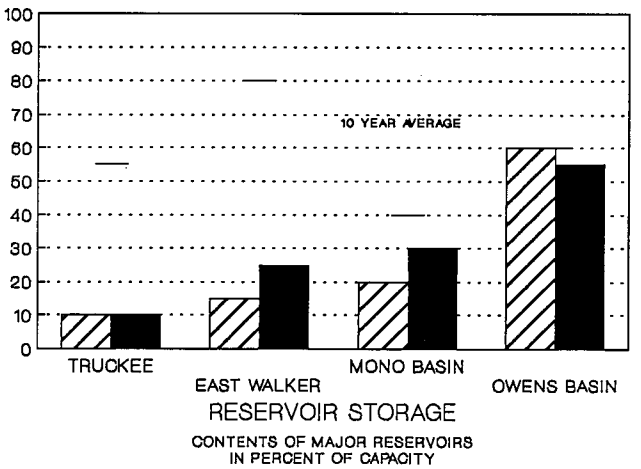


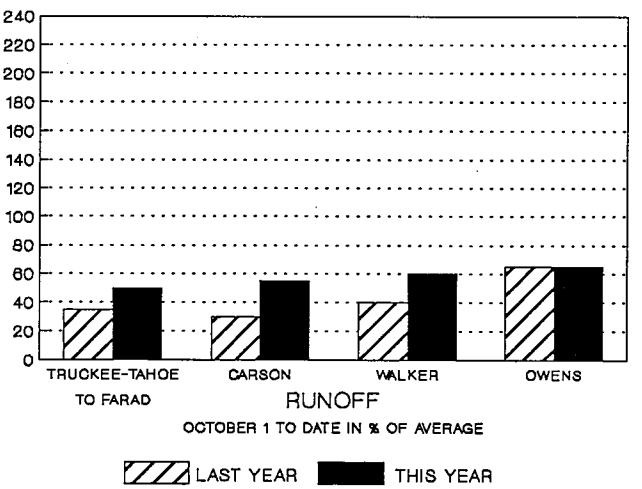

RUNOFF - Seasonal runoff of streams draining into the San Joaquin Basin totaled 1.1 million acre-feet which is 45 percent of average for this period. Last year, runoff for this same period was 25 percent of average.

Seasonal runoff of streams draining into the Tulare Lake Basin totaled 348 thousand acre-feet which is 40 percent of average for this period. Last year, runoff for this same period was 40 percent of average.




# NORTH AND SOUTH LAHONTAN AREA

SNOWPACK - First of the month measurements made at 23 North Lahontan snow courses indicate an area wide snow water equivalent of 11.4 inches which is 35 percent of the seasonal (April 1) average. Last year at this time, the pack was holding 15.7 inches of water.

At the same time, 21 South Lahontan courses indicated an area-wide snow water equivalent of 15.8 inches which is 65 percent of the average for this date. Last year at this time, the pack was holding 19.9 inches of water.

PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) over the North Lahontan area averaged 55 percent of normal. Precipitation last month was 55 percent of the monthly average. Seasonal precipitation at this time last year stood at 70 percent of normal.

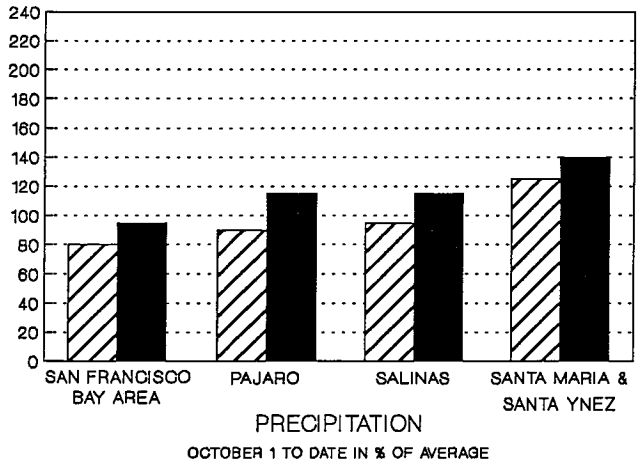
Seasonal precipitation over the South Lahontan area was 140 percent of normal. Last month's precipitation was 230 percent of the monthly average. Seasonal precipitation at this time last year stood at 95 percent of normal.

RESERVOIR STORAGE - First of the month storage in 5 North Lahontan reservoirs was 108 thousand acre-feet which is 15 of average. About 10 percent of available capacity was being used. Storage in these reservoirs at this time last year was 20 percent of average. Lake Tahoe was 1.3 feet below its natural rim.

First of the month storage in 8 South Lahontan reservoirs was 237 thousand acre-feet which is 85 percent of average. About 60 percent of available capacity was being used. Storage in these reservoirs at this time last year was also 85 percent of average.

RUNOFF - Seasonal runoff of streams draining the North Lahontan area totaled 140 thousand acre-feet which is 50 percent of average for this period. Last year, runoff for this same period was 35 percent of average.

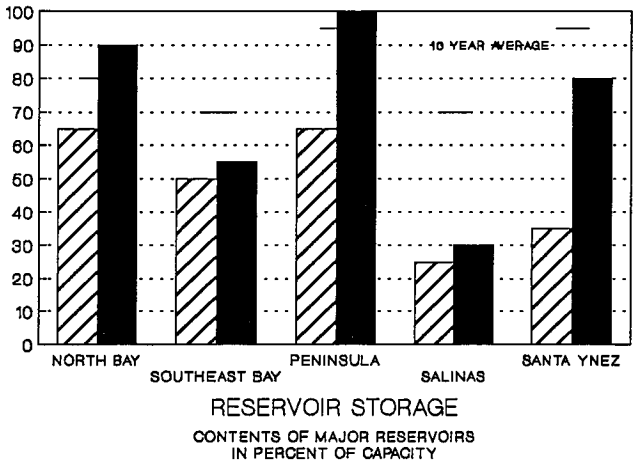
Seasonal runoff of the Owens River in the South Lahontan area totaled 44 thousand acre-feet which is 65 percent of average for this period. Last year, runoff for this same period was 60 percent of average.




# SAN FRANCISCO AND CENTRAL COAST AREAS

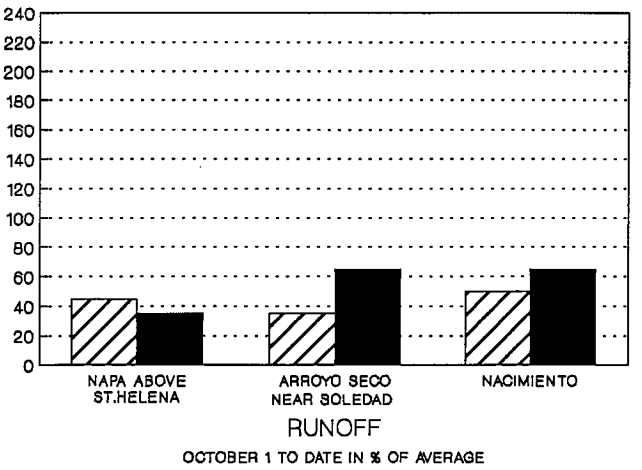
PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on the San Francisco Bay area was 95 percent of normal. Precipitation last month was 130 percent of the monthly average. Seasonal precipitation at this time last year stood at 80 percent of normal.

Seasonal precipitation on the Central Coast area averaged 125 percent of normal. Precipitation last month was 150 percent of the monthly average. Seasonal precipitation at this time last year stood at 105 percent of normal.




RESERVOIR STORAGE - First of the month storage in 18 major Bay area reservoirs was 452 thousand acre-feet which is 85 percent of average. About 65 percent of available capacity was being used. Storage in these reservoirs at this time last year was 75 percent of average.

First of the month storage in 6 major Central Coast reservoirs was 397 thousand acre-feet which is 55 percent of average. About 40 percent of available capacity was being used. Storage in these reservoirs at this time last year was 40 percent of average.




RUNOFF - Seasonal runoff of the Napa River in the San Francisco Bay area totaled 23 thousand acre-feet which is 35 percent of average for this period. Last year, runoff for this same period was 45 percent of average.

Seasonal runoff of selected Central Coast streams totaled 178 thousand acre-feet which is 65 percent of average for this period. Last year, runoff for this same period was less than 45 percent of average.

LAST YEAR THIS YEAR

## SOUTH COAST AND COLORADO RIVER AREAS

PRECIPITATION - Seasonal precipitation (October through the end of last month) on the South Coast was 150 percent of normal. Precipitation last month was 250 percent of the monthly average. Seasonal precipitation at this time last year was 105 percent of normal.

Seasonal precipitation in the Colorado River area was 215 percent of normal. Precipitation last month was over 500 percent of average. Seasonal precipitation at this time last year was 105 percent of the average.

RUNOFF - Seasonal runoff from selected South Coast streams totaled 58 thousand acre-feet which is 135 percent of average. Last year, runoff for the same period was 50 percent of average.

The April through July inflow to Lake Powell is forecasted to be 5.6 million acre-feet which will be 69 percent of normal.

RESERVOIR STORAGE - February 1 storage in 29 major South Coast area reservoirs was 1.5 million acre-feet or 115 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.

First of the month combined storage in Lakes Powell, Mead, Mohave and Havasu was about 36.1 million acre-feet which is 100 percent of average. About 65 percent of available capacity was being used. One year ago, these reservoirs were storing 105 percent of average.

UPPER COLORADO RIVER BASIN - The first of the month snowpack, according to the U.S. Soil Conservation Service reports was 80 percent of average and ranges from 58 percent in the Upper Green drainage to 92 percent in the San Juan and Animas Basins.

## CENTRAL VALLEY PROJECT

Water year forecasts for runoff into CVP reservoirs now range from 41 to 77 percent of average. As of March 31, 1992 CVP storage was 5.4 million acre-feet which is an increase of 0.4 million acre-feet over a year ago and is approximately 65 percent of normal for this date.

On the basis of the mid-March conditions, the CVP announced a revision in the declaration of available CVP water supplies. Agricultural contractors will now receive a 25 percent supply, Sacramento River water rights holders and San Joaquin exchange contractors will get 75 percent, and urban contractors will get 75 percent of historical use. The Friant Division water supply is increased to 82 percent Class 1, 0 percent Class II, which is 44 percent of historic average deliveries.

## STATE WATER PROJECT

On April 1, conservation storage (Oroville plus the State's share of San Luis) was 2.7 million acre-feet, compared to the historic average of 3.8 million acre-feet.

Initial delivery approvals to SWP contractors of 20 percent were made in December 1991. The water delivery allocations were increased to 45 percent in March 1992 due to the improved water supply.

## MAJOR WATER DISTRIBUTION PROJECTS

## RESERVOIR STORAGE

(AVERAGES BASED ON PERIOD RECORD)

| RESERVOIR | CAPACITY 1,000 AF | AVERAGE STORAGE 1,000 AF | STORAGE AS OF MARCH 31 1991 1,000 AF | 1992 1,000 AF | PERCENT AVERAGE |
|---|---|---|---|---|---|
| STATE WATER PROJECT | | | | | |
| Oroville | 3,540 | 2,849 | 1,320 | 1,775 | 62 |
| San Luis SWP | 1,060 | 984 | 374 | 992 | 101 |
| Lake Del Valle | 77 | 37 | 41 | 36 | 96 |
| Silverwood | 73 | 67 | 72 | 70 | 104 |
| Pyramid Lake | 171 | 159 | 165 | 161 | 101 |
| Castaic Lake | 324 | 279 | 179 | 313 | 112 |
| Perris Reservoir | 132 | 116 | 125 | 126 | 109 |
| CENTRAL VALLEY PROJECT | | | | | |
| Clair Engle Lake | 2,450 | 2,026 | 1,036 | 821 | 41 |
| Shasta Lake | 4,552 | 3,819 | 2,020 | 2,388 | 63 |
| Whiskeytown | 241 | 213 | 206 | 215 | 101 |
| Folsom | 975 | 637 | 422 | 606 | 95 |
| New Melones | 2,420 | 1,727 | 423 | 423 | 24 |
| Millerton Lake | 521 | 308 | 289 | 378 | 122 |
| San Luis CVP | 980 | 829 | 880 | 908 | 110 |
| COLORADO RIVER PROJECT | | | | | |
| Lake Mead | 26,159 | 19,490 | 20,050 | 20,182 | 104 |
| Lake Powell | 25,002 | 14,591 | 15,971 | 13,699 | 94 |
| Lake Mohave | 1,810 | 1,639 | 1,759 | 1,672 | 102 |
| Lake Havasu | 619 | 547 | 608 | 574 | 105 |
| EAST BAY MUNICIPAL UTILITY DISTRICT | | | | | |
| Pardee | 210 | 178 | 150 | 195 | 109 |
| Camanche | 431 | 272 | 140 | 148 | 54 |
| East Bay (4 reservoirs) | 151 | 132 | 135 | 125 | 95 |
| CITY & COUNTY OF SAN FRANCISCO | | | | | |
| Hetch Hetchy | 360 | 124 | 50 | 112 | 90 |
| Cherry Lake | 268 | 108 | 74 | 97 | 89 |
| Lake Eleanor | 26 | 11 | 3 | 3 | 30 |
| South Bay (4 reservoirs) | 225 | 179 | 106 | 158 | 88 |
| CITY OF LOS ANGELES(DWP) | | | | | |
| Crowley Lake(Long Valley) | 183 | 122 | 110 | 122 | 100 |
| Grant Lake | 48 | 21 | 12 | 18 | 86 |
| Other Aqueduct Storage(6 reservoirs) | 95 | 69 | 71 | 49 | 71 |

DEPARTMENT OF WATER RESOURCES - CALIFORNIA DATA EXCHANGE CENTER
TELEMETERED SNOW WATER EQUIVALENTS - MARCH 31, 1992

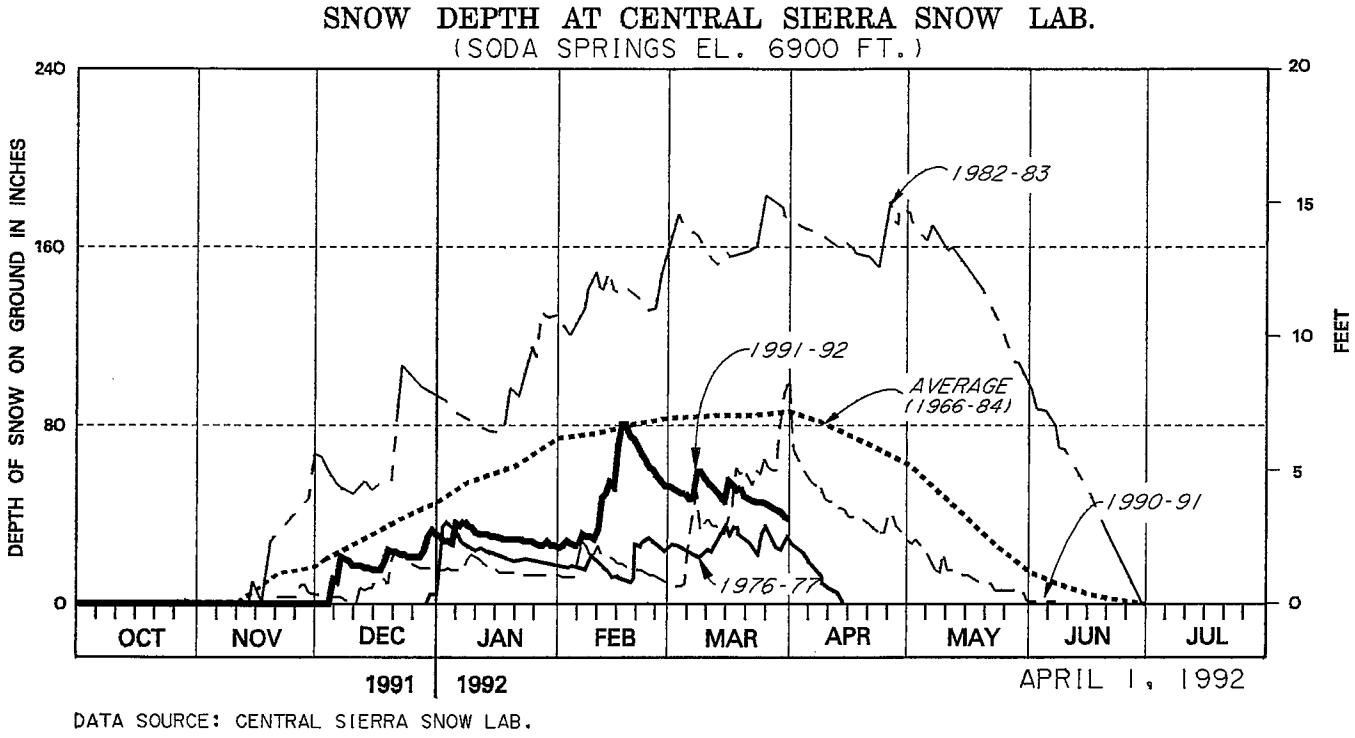
| BASIN NAME / STATION NAME | AGENCY | ELEV FEET | APR 1 AVG | TODAY | INCHES OF WATER EQUIVALENT PERCENT OF APR 1 | 24 HRS AGO | 1 WEEK AGO |
|---|---|---|---|---|---|---|---|
| STATION NAME | AGENCY | FEET | AVG | TODAY | OF APR 1 | AGO | AGO |
| TRINITY RIVER | | | | | | | |
| PETERSON FLAT | USBR | 7150 | ---- | 24.7 | ---- | 24.8 | 27.1 |
| RED ROCK MOUNTAIN | USBR | 6700 | 39.6 | 45.0 | 114% | 44.4 | 49.0 |
| BONANZA KING | USBR | 6450 | 40.5 | 33.1 | 82% | 32.9 | 35.8 |
| SHIMMY LAKE | USBR | 6200 | 40.3 | 54.9 | 136% | 54.3 | 56.9 |
| MIDDLE BOULDER #3 | USBR | 6200 | 28.3 | 26.1 | 92% | 26.1 | 28.7 |
| HIGHLAND LAKES | USBR | 6030 | 29.9 | 43.4 | 145% | 43.4 | 47.3 |
| SCOTTS MOUNTAIN | USBR | 5900 | ---- | 22.0 | ---- | 22.2 | 24.4 |
| MUMBO BASIN | USBR | 5700 | 22.4 | 20.0 | 89% | 20.4 | 23.0 |
| BIG FLAT | USBR | 5100 | ---- | 10.0 | ---- | 10.1 | 12.5 |
| SACRAMENTO RIVER | | | | | | | |
| CEDAR PASS | SCS | 7100 | 18.1 | 7.3 | 40% | 7.7 | 9.0 |
| BLACKS MOUNTAIN | DWR | 7100 | ---- | 4.6 | ---- | 4.8 | 7.1 |
| SAND FLAT | USBR | 6750 | 42.4 | ---- | ---- | ---- | ---- |
| MEDICINE LAKE | USBR | 6700 | ---- | 17.3 | ---- | 17.4 | 17.4 |
| ADIN MOUNTAIN | SCS | 6350 | 13.6 | 1.4 | 10% | 1.7 | 4.0 |
| SNOW MOUNTAIN | USBR | 5950 | 27.0 | 14.0 | 52% | 14.4 | 17.5 |
| SLATE CREEK | USBR | 5600 | 29.0 | 34.8 | 120% | 35.0 | 36.2 |
| STOUTS MEADOW | USBR | 5400 | 36.0 | 29.4 | 82% | 30.8 | 32.2 |
| FEATHER RIVER | | | | | | | |
| KETTLEROCK | DWR | 7300 | 25.5 | 9.8 | 39% | 9.7 | 11.9 |
| GRIZZLY | DWR | 6900 | 29.7 | 11.2 | 38% | 11.4 | 13.0 |
| PILOT PEAK | DWR | 6800 | 52.6 | 16.6 | 31% | 17.0 | 21.1 |
| GOLD LAKE | DWR | 6750 | 36.5 | 22.9 | 63% | 22.9 | 24.2 |
| HUMBUG | DWR | 6500 | 28.0 | 29.2 | 104% | 29.8 | 31.4 |
| RATTLESNAKE | DWR | 6100 | 14.0 | 9.0 | 64% | 9.1 | 11.8 |
| BUCKS LAKE | DWR | 5750 | 44.7 | 39.5 | 88% | 40.1 | 42.4 |
| FOUR TREES | DWR | 5150 | 20.0 | 19.2 | 96% | 19.8 | 22.7 |
| YUBA & AMERICAN RIV | | | | | | | |
| LAKE LOIS | DWR | 8800 | ---- | 34.0 | ---- | 33.3 | 31.4 |
| SCHNEIDERS | SMUD | 8750 | 34.5 | 26.6 | 77% | 26.1 | 24.0 |
| CAPLES LAKE COURSE | USBR | 7800 | 30.9 | 14.4 | 47% | 14.4 | 14.8 |
| ALPHA | SMUD | 7600 | 35.9 | 20.0 | 56% | 19.9 | 20.9 |
| BETA | DWR | 7600 | ---- | 16.6 | ---- | 16.7 | 16.9 |
| FORNI RIDGE | USBR | 7600 | 37.0 | ---- | ---- | ---- | ---- |
| SILVER LAKE | USBR | 7100 | 22.7 | 10.8 | 48% | 11.0 | 12.8 |
| CENT SIERRA SNOW LAB | USFS | 6950 | 33.6 | 15.4 | 46% | 15.6 | 17.5 |
| HUYSINK | USBR | 6600 | 42.6 | 19.9 | 47% | 19.9 | 19.7 |
| VAN VLECK | SMUD | 6700 | 35.9 | 19.5 | 54% | 19.0 | 21.2 |
| ROBBS SADDLE | SMUD | 5900 | 21.4 | 13.7 | 64% | 14.0 | 16.0 |
| GREEK STORE | USBR | 5600 | 21.0 | ---- | ---- | ---- | 28.6 |
| BLUE CANYON | USBR | 5280 | 9.0 | ---- | ---- | ---- | ---- |
| ROBBS POWERHOUSE | SMUD | 5150 | 5.2 | .7 | 13% | .8 | .8 |
| MOKEL. & STANIS. RIV | | | | | | | |
| DEADMAN CREEK | USBR | 9250 | 37.2 | 17.9 | 48% | 17.9 | 17.6 |
| HIGHLAND MEADOW | USBR | 8800 | 47.9 | 31.0 | 65% | 30.8 | 30.0 |
| GIANELLI MEADOW | USBR | 8350 | 55.5 | 31.3 | 56% | 31.3 | 29.7 |
| LOWER RELIEF VALLEY | DWR | 8100 | 41.2 | 24.6 | 60% | 25.2 | 25.6 |
| BLUE LAKES | SCS | 8000 | 33.1 | 20.8 | 63% | 20.7 | 20.3 |
| MUD LAKE | SMUD | 7900 | 44.9 | 33.8 | 75% | 25.8 | 31.9 |
| STANISLAUS MEADOW | USBR | 7750 | 47.5 | 25.4 | 54% | 25.7 | 26.4 |
| BLOODS CREEK | USBR | 7200 | 35.5 | 18.9 | 53% | 18.9 | 19.1 |
| BLACK SPRINGS | USBR | 6500 | 32.0 | 19.1 | 60% | 19.1 | 20.3 |
| TUOLUMNE & MERCED R. | | | | | | | |
| DANA MEADOWS | DWR | 9800 | 27.7 | 18.0 | 65% | 17.6 | 18.0 |
| SLIDE CANYON | DWR | 9200 | ---- | 21.8 | ---- | 22.0 | 22.4 |
| SNOW FLAT | DWR | 8700 | 44.1 | 22.9 | 52% | 22.9 | 22.2 |
| TUOLUMNE MEADOWS | DWR | 8600 | 22.6 | 10.3 | 46% | 10.3 | 10.3 |
| HORSE MEADOW | DWR | 8400 | 48.6 | 24.9 | 51% | 24.9 | 24.9 |
| OSTRANDER LAKE | DWR | 8200 | 34.8 | 24.2 | 70% | 23.5 | 23.5 |
| PARADISE | DWR | 7650 | ---- | 19.3 | ---- | 19.3 | 20.0 |
| GIN FLAT | DWR | 7050 | 34.2 | 19.1 | 56% | 18.7 | 18.7 |
| LOWER KIBBIE | DWR | 6600 | 27.4 | 11.3 | 41% | 11.3 | 13.9 |
| SAN JOAQUIN RIVER | | | | | | | |
| VOLCANIC KNOB | USBR | 10100 | 30.1 | 20.3 | 67% | 19.6 | 17.6 |

DEPARTMENT OF WATER RESOURCES - CALIFORNIA DATA EXCHANGE CENTER
TELEMETERED SNOW WATER EQUIVALENTS - MARCH 31, 1992

| 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 |
|---|---|---|---|---|---|---|---|
| AGNEW PASS | USBR | 9450 | 32.3 | 22.2 | 69% | 21.6 | 20.3 |
| KAISER POINT | USBR | 9200 | 37.8 | 19.1 | 51% | 19.1 | 19.1 |
| GREEN MOUNTAIN | USBR | 7900 | 30.8 | 16.7 | 54% | 16.7 | 17.5 |
| TAMARACK SUMMIT | USBR | 7600 | 30.5 | 21.9 | 72% | 21.9 | 22.6 |
| CHILKOOT MEADOW | USBR | 7150 | 38.0 | 27.4 | 72% | 27.4 | 27.6 |
| HUNTINGTON LAKE | USBR | 7000 | 20.1 | 16.5 | 82% | 16.5 | 17.1 |
| GRAVEYARD MEADOW | USBR | 6900 | 18.8 | 7.3 | 39% | 7.3 | 9.3 |
| POISON RIDGE | USBR | 6900 | 28.9 | 24.4 | 84% | 24.4 | 25.4 |
| KINGS RIVER | | | | | | | |
| BISHOP PASS | DWR | 11200 | ---- | 17.0 | ---- | 16.3 | 15.7 |
| CHARLOTTE LAKE | DWR | 10400 | ---- | 14.9 | ---- | 14.5 | 14.3 |
| STATE LAKES | USCE | 10400 | 29.0 | 13.0 | 45% | 12.8 | 12.3 |
| MITCHELL MEADOW | USCE | 10375 | 32.9 | 21.1 | 64% | 20.5 | 20.6 |
| BLACKCAP BASIN | USBR | 10300 | 34.3 | ---- | ---- | ---- | 5.9 |
| UPPER BURNT CORRAL | DWR | 9700 | 34.6 | 26.8 | 77% | 26.8 | 25.5 |
| WEST WOODCHUCK MDW | USCE | 9100 | 32.8 | 13.3 | 41% | 13.5 | 13.1 |
| BIG MEADOWS | DWR | 7600 | 25.9 | ---- | ---- | ---- | ---- |
| KAWEAH & TULE RIVERS | | | | | | | |
| QUAKING ASPEN | DWR | 7200 | 21.0 | 13.3 | 63% | 13.6 | 15.0 |
| GIANT FOREST | USCE | 6400 | 10.0 | .9 | 9% | 1.0 | 2.4 |
| KERN RIVER | | | | | | | |
| UPPER TYNDALL CREEK | USCE | 11500 | 27.7 | 15.7 | 57% | 12.5 | 12.2 |
| CRABTREE | DWR | 10700 | 19.8 | 7.7 | 39% | 7.7 | 7.4 |
| CHAGOOPA PLATEAU | DWR | 10300 | 21.8 | 16.3 | 75% | 15.7 | 15.7 |
| PASCOES | USCE | 9150 | 24.9 | 21.8 | 88% | 21.8 | 21.3 |
| TUNNEL | DWR | 8950 | 15.6 | 7.8 | 50% | 7.8 | 8.2 |
| WET MEADOW | USCE | 8900 | 30.3 | 15.7 | 52% | 15.7 | 15.7 |
| CASA VIEJA MDW | DWR | 8400 | 20.9 | 13.7 | 66% | 13.7 | 13.7 |
| BEACH MEADOW | DWR | 7650 | 11.0 | ---- | ---- | ---- | .0 |
| DISMAL SWAMP | SCS | 7050 | 29.2 | 11.3 | 39% | 11.3 | 12.9 |
| TRUCKEE RIVER | | | | | | | |
| MOUNT ROSE SKI AREA | SCS | 8850 | 38.5 | 21.4 | 56% | 20.5 | 20.5 |
| INDEPENDENCE LAKE | SCS | 8450 | 41.4 | 20.8 | 50% | 20.6 | 20.5 |
| BIG MEADOWS | SCS | 8700 | 25.7 | 9.0 | 35% | 8.2 | 7.9 |
| INDEPENDENCE CAMP | SCS | 6500 | 21.8 | 7.9 | 36% | 7.8 | 10.1 |
| INDEPENDENCE CREEK | SCS | 6500 | 12.7 | 5.1 | 40% | 5.4 | 8.5 |
| LAKE TAHOE BASIN | | | | | | | |
| HEAVENLY VALLEY | SCS | 8800 | 28.1 | 14.5 | 52% | 13.6 | 13.7 |
| HAGANS MEADOW | SCS | 8000 | 16.5 | 5.1 | 31% | 5.1 | 5.9 |
| MARLETTE LAKE | SCS | 8000 | 21.1 | 11.1 | 53% | 10.0 | 10.8 |
| ECHO PEAK | SCS | 7800 | 39.5 | 20.4 | 52% | 20.5 | 22.5 |
| RUBICON NO. 2 | SCS | 7500 | 29.1 | 12.9 | 44% | 12.8 | 12.3 |
| WARD CREEK NO. 3 | SCS | 6750 | 39.4 | 15.1 | 38% | 15.1 | 16.4 |
| FALLEN LEAF LAKE | SCS | 6300 | 7.0 | .0 | 0% | .0 | .0 |
| CARSON RIVER | | | | | | | |
| EBBETTS PASS | SCS | 8700 | 38.8 | 21.4 | 55% | 21.3 | 20.9 |
| POISON FLAT | SCS | 7900 | 16.2 | 5.9 | 36% | 6.3 | 8.7 |
| WALKER RIVER | | | | | | | |
| VIRGINIA LAKES RIDGE SCS | 9200 | 20.3 | 10.6 | 52% | 10.4 | 10.4 | |
| LOBDELL LAKE | SCS | 9200 | 17.3 | 9.9 | 57% | 9.9 | 10.2 |
| SONORA PASS BRIDGE | SCS | 8750 | 26.0 | 14.7 | 57% | 14.6 | 15.4 |
| LEAVITT MEADOWS | SCS | 7200 | 8.0 | .5 | 6% | .4 | 2.9 |
| OWENS RIVER/MONO LK. | | | | | | | |
| GEM PASS | LADWP | 10750 | 31.7 | 22.9 | 72% | 22.2 | 22.2 |
| SAWMILL MEADOW | DWR | 10300 | 19.4 | 13.7 | 71% | 13.1 | 13.1 |
| COTTONWOOD LAKES | LADWP | 10200 | 11.6 | 8.4 | 72% | 8.4 | 8.8 |
| BIG PINE #3 | LADWP | 9800 | 17.9 | 9.8 | 55% | 9.2 | 9.2 |
| SOUTH LAKE | LADWP | 9600 | 16.0 | 8.4 | 53% | 8.3 | 8.4 |
| MAMMOTH PASS (RP) | USBR | 9500 | 42.4 | 25.0 | 59% | 24.8 | 24.0 |
| MAMMOTH PASS-6 TANKS | USBR | 9500 | ---- | 21.5 | ---- | 21.1 | 20.7 |
| ROCK CREEK | LADWP | 8200 | ---- | 7.0 | ---- | 6.7 | 7.0 |

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 |




## ❄❄❄❄❄ SNOWLINES ❄❄❄❄

**Record Cold Temperatures Compared** - The coldest temperature ever recorded in California was 45 degrees Fahrenheit below zero (yes, 45 below) which occurred at Boca (near Truckee) on January 20, 1937. This is balmy compared with the minus 129 degrees Fahrenheit recorded at the then Soviet Vostok Station in the Antarctica on July 21, 1983.

**Fall Report Delayed** - We had hoped to mail the Fall report early this year, but the best laid plans of mice and men . . . . . All the data has been processed and, if we have not done so already, we expect to send it to the printer soon. Your patience is appreciated.

**Donner Summit Snow Depth** - The Snow Surveys office still gets occasional requests for the old Donner Summit snow chart. This chart was made using data provided by the Southern Pacific Railroad's Norden crew. When the railroad automated its Norden operation in the mid 1980s it meant the end of this popular indicator of Sierra snow conditions. The record was started by the then Central Pacific Railroad in 1878. The graph of snow depth at the Forest Service's Soda Springs Lab was substituted for the Norden graph in 1986. Norden and Soda Springs are about a mile apart.

**Good News** - As a result of improved conditions, both the CVP and the SWP were able to announce increased water deliveries. In mid-March, the CVP raised the amounts that will be available to agricultural contractors from 15 to 25 percent of supply. SWP water contractor amounts were increased from 35 to 45 percent of requests.

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 the period 1941-1990 (50 years, except for data sites established after 1931.)

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) 445-2196.

**On the Front Cover**

Overlooking Tyndall Creek in the Upper Kern River Basin

DWR photo

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# FIRST CLASS