

# WATER SUPPLY OUTLOOK



## CALIFORNIA AND NORTHERN NEVADA

JANUARY  
2008



California Nevada River Forecast Center  
NOAA - National Weather Service  
Sacramento, California

## DEFINITIONS:

**Acre-Feet:** The volume equal to one acre covered one foot deep (43,560 cubic feet).

**Forecast Period:** Generally, April 1<sup>st</sup> through July 31<sup>st</sup>, unless otherwise noted.

**April-High Forecast Period:** For the Lake Tahoe Stage Rise, the period from April 1<sup>st</sup> to the highest recorded lake stage level.

**April 1st Average:** The April 1<sup>st</sup> snowpack average is used as a reference point because it is normally the end of the winter snowfall season and the beginning of the spring runoff season.

**Residual Period:** The forecast period from the first of the current month through September 30<sup>th</sup>.

**Probability Forecasts:** Precipitation and snowfall accumulation of known probability as determined by analysis of past records are utilized in the preparation of probability runoff forecasts. The forecasts include an evaluation of the standard error of the prediction model. The forecasts are presented at three levels of probability as follows:

- **Most Probable Volume:** Given the current hydrometeorological conditions to date, this is the best estimate of what the actual runoff volume will be this season.
- **Most Probable Volume (% Normal):** Most probable volume in percent of the 1961-1990 average.
- **Reasonable Maximum Volume:** Given current hydrometeorological conditions, the seasonal runoff that has a 10 percent chance of being exceeded.
- **Reasonable Minimum Volume:** Given current hydrometeorological conditions, the seasonal runoff that has a 90 percent chance of being exceeded.

**SNOTEL:** Acronym for SNOW TELemetry. This is a automated snow measurement system operated by the USDA - Natural Resources Conservation Service. These sites use meteor burst communications technology to transmit hydrometeorological information such as snow water equivalent from snow pillows, accumulated precipitation and maximum, minimum and average air temperature.

**Water equivalent:** The depth of water that would result from melting the snowpack at a point.

**Water Year:** The period from October 1<sup>st</sup> through September 30<sup>th</sup>.

# General Outlook

January 1, 2008

NOTICE: Due to a series of cold and wet storms that produced significant amounts of precipitation and snow during early January, the water supply forecasts for this month will be as of **January 7, 2008**. The exceptions to this are forecasts for the Upper Klamath Lake, Williamson, Sprague and Lost River basins, where they will be as of January 1st, 2008.

The month of October was generally wet, with above average precipitation for watersheds from the Klamath to the American as well as portions of northern Nevada. November was exceptionally dry except for portions of the Upper Klamath Lake basin. Wetter conditions returned in December with many basins recording average to above average monthly precipitation. Seasonal precipitation (October 1<sup>st</sup> to December 31<sup>st</sup>) was generally near to above average for the Klamath basin and below average elsewhere in California and Nevada. The water supply situation did not look promising on January 1<sup>st</sup> with much of the region's snowpack below to much below average. However, there is cause for optimism as a series of cold and wet weather systems arrived around January 4 through the 6<sup>th</sup>, dropping a significant amount of snow water equivalent on the Sierra Nevada.

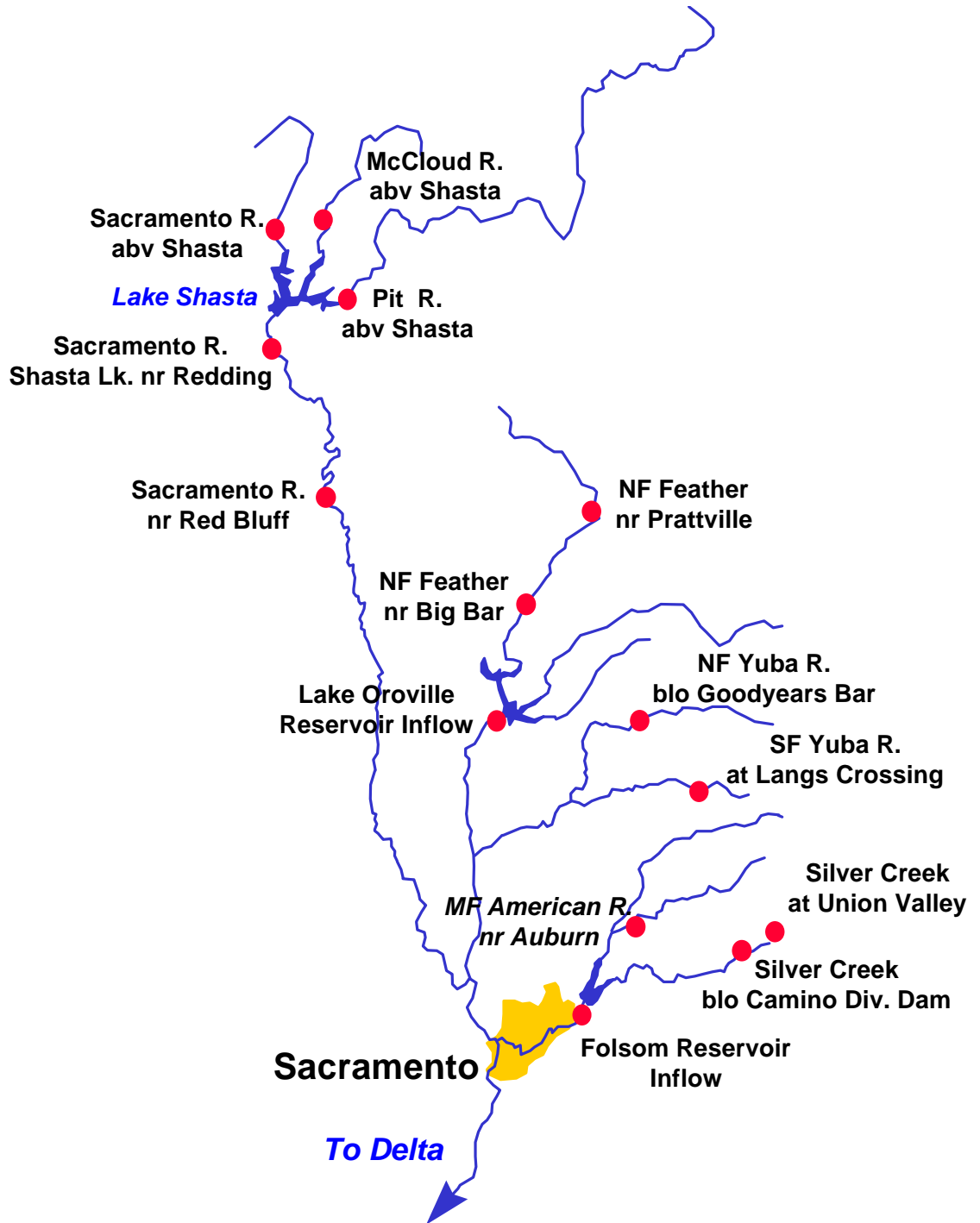
There was substantial improvement to the mountain snowpack by January 7 due to the cold nature of the January 4-6 storms. Most basins recorded about a 20 to 25 percent increase in the April 1<sup>st</sup> average from January 1<sup>st</sup>. As of January 7, the April 1<sup>st</sup> average stands at approximately 49 percent for the northern Sierra, 39 percent for the central and 50 percent for the southern Sierra. Snow packs in the Tahoe-Truckee are about 100 percent of the percent of average as of January 7<sup>th</sup>, the Carson-Walker at 110 percent and the Humboldt basin at 90 percent. The pack stands at about 95 percent of average for the Upper Klamath Lake basin as of January 7.

December runoff was much below average ranging from 11 percent for the San Joaquin drainage to 26 percent for the Upper Sacramento. East side Sierra basins received 25 percent of the monthly average while the Humboldt River at Palisade recorded 49 percent. The Upper Klamath Lake basin received 77 percent of the December average.

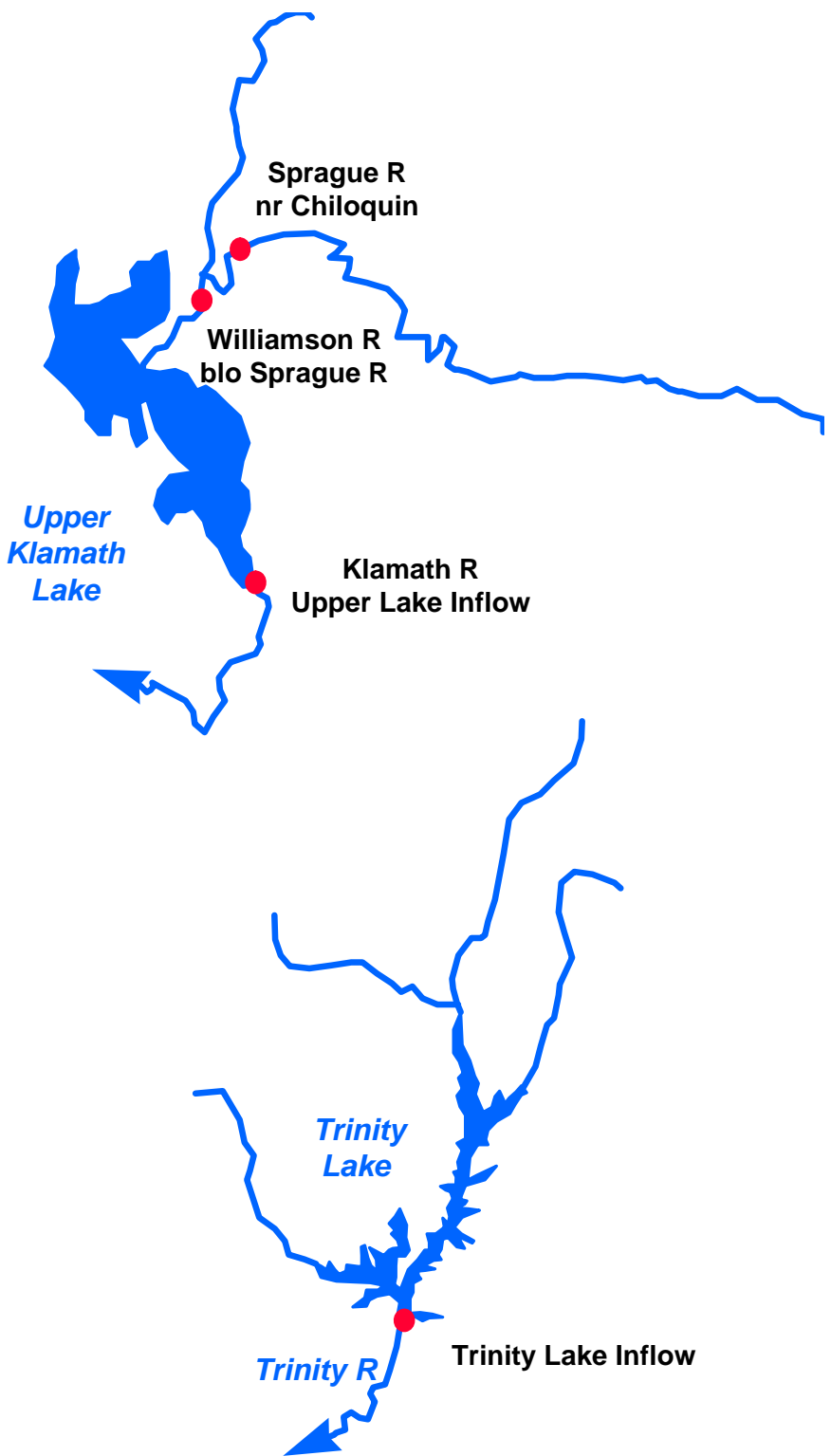
Spring runoff was dismal last year, resulting in increased drawdown of the region's reservoirs. Therefore, many of California's major reservoirs have below to much below average storage as of the end of December. All the large reservoirs received some inflow from the January storm event but amounts may have been muted due to much of the precipitation falling as snow. Stored water in the Sacramento region as of December 31<sup>st</sup> was at 60 percent of average for the date, the San Joaquin at 89 percent, and the Tulare Lake watershed at 63 percent. East-side Sierra reservoirs were at 87 percent of average. The lake level at Lake Tahoe stood at 6224.70 feet as of December 31<sup>st</sup>. This represents 59 percent of average. Storage at Lahontan Reservoir in Nevada stands at 60 percent as of December 31<sup>st</sup> while Rye Patch Reservoir is at 63 percent. Storage at Upper Klamath Lake is about 69 percent of average.

This early look into the water supply forecasts show that most watersheds in California's Sierra Nevada are expected to receive below average spring runoff. Let's hope that a cold and wet trend will continue during the next two months. April through July runoff forecasts--as of January 7--varies from 76 percent for the Mokelumne basin to 94 percent of average for the Trinity Lake Inflow. Most forecasts are in the 80 to 85 percent range. Forecasts range from 65 to 83 percent of average for the east side Sierra Nevada basins and 80 percent for forecast points on the main stem Humboldt River. The March through September forecast for the Upper Klamath Lake inflow-- as of January 1<sup>st</sup> --is 76 percent.

# Sacramento River Basin



# Upper Klamath and Trinity River Basins



# Water Supply Forecasts

|                                       |         | Most<br>Prob<br>Vol<br>KAF | Most<br>Prob<br>Vol<br>%Norm | Reas<br>Max<br>Vol<br>KAF | Reas<br>Min<br>Vol<br>KAF | 30<br>Year<br>Avg<br>KAF |
|---------------------------------------|---------|----------------------------|------------------------------|---------------------------|---------------------------|--------------------------|
| <b>COASTAL BASINS</b>                 |         |                            |                              |                           |                           |                          |
| Williamson River<br>Sprague, blo      | Mar-Sep | 395                        | 78                           | 550                       | 265                       | 505                      |
| Sprague River<br>Chiloquin, nr        | Mar-Sep | 225                        | 74                           | 340                       | 121                       | 305                      |
| Upper Klamath Falls River<br>Inflow   | Mar-Sep | 540                        | 76                           | 770                       | 360                       | 715                      |
| Lost River<br>Gerber Reservoir Inflow | Feb-Jul | 31                         | 66                           | 65                        | 18.0                      | 47                       |
| Clear Lake Reservoir Inflow           | Feb-Jul | 72                         | 69                           | 140                       | 39                        | 105                      |
| Scott River<br>Fort Jones, nr         | Apr-Jul | 170                        | 94                           | 305                       | 123                       | 181                      |
| Trinity River<br>Trinity Lake Inflow  | Apr-Jul | 570                        | 90                           | 935                       | 410                       | 635                      |

|  |  | Most<br>Prob<br>Vol<br>KAF | Most<br>Prob<br>Vol<br>%Norm | Reas<br>Max<br>Vol<br>KAF | Reas<br>Min<br>Vol<br>KAF | 30<br>Year<br>Avg<br>KAF |
|--|--|----------------------------|------------------------------|---------------------------|---------------------------|--------------------------|
|--|--|----------------------------|------------------------------|---------------------------|---------------------------|--------------------------|

## SACRAMENTO RIVER BASIN

### SACRAMENTO RIVER ABOVE BEND BRIDGE

|                                 |         |      |    |      |      |      |
|---------------------------------|---------|------|----|------|------|------|
| Pit River<br>Montgomery Ck, nr  | Apr-Jul | 830  | 78 | 1410 | 620  | 1070 |
| Mccloud River<br>Shasta Lk, abv | Apr-Jul | 290  | 78 | 480  | 215  | 370  |
| Sacramento River<br>Delta       | Apr-Jul | 245  | 84 | 415  | 174  | 290  |
| Shasta Dam                      | Apr-Jul | 1500 | 84 | 2190 | 1070 | 1790 |
| Bend Bridge, abv, Red Bluff, nr | Apr-Jul | 2000 | 82 | 3040 | 1420 | 2440 |

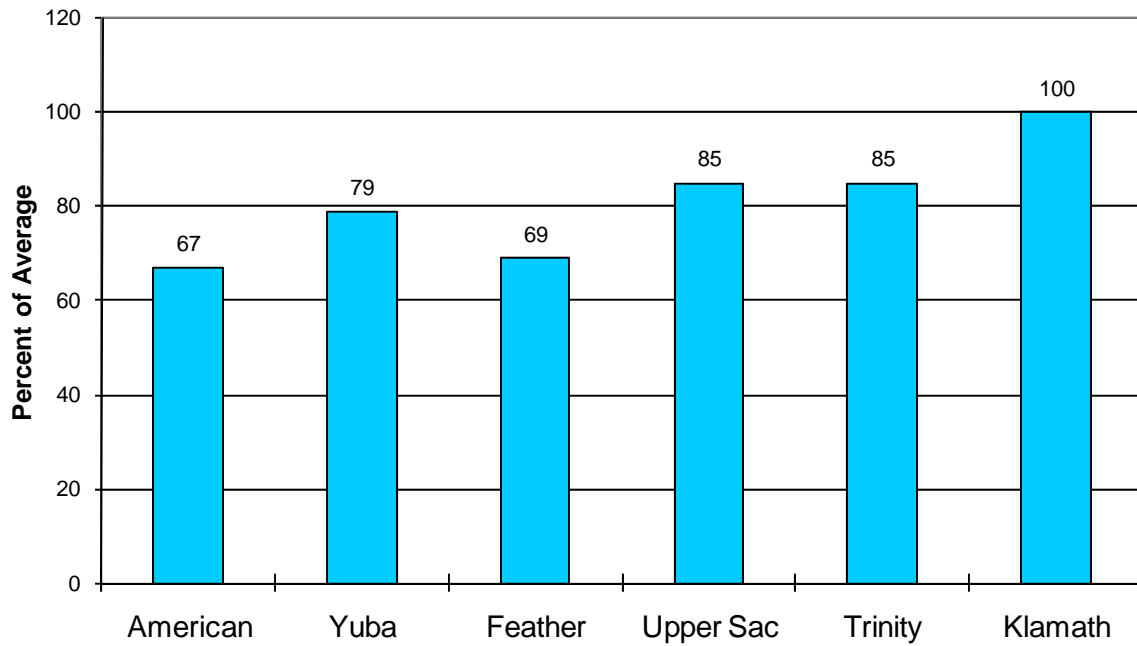
# Water Supply Forecasts

|   |         | Most<br>Prob<br>Vol<br>KAF | Most<br>Prob<br>Vol<br>%Norm | Reas<br>Max<br>Vol<br>KAF | Reas<br>Min<br>Vol<br>KAF | 30<br>Year<br>Avg<br>KAF |
|---|---------|----------------------------|------------------------------|---------------------------|---------------------------|--------------------------|
| <b>FEATHER RIVER ABOVE OROVILLE RESERVOIR</b> |         |                            |                              |                           |                           |                          |
| NF Feather River                              |         |                            |                              |                           |                           |                          |
| Prattville, nr                                | Apr-Jul | 265                        | 80                           | 455                       | 150                       | 333*                     |
| Big Bar                                       | Apr-Jul | 760                        | 79                           | 1310                      | 425                       | 962*                     |
| Feather River                                 |         |                            |                              |                           |                           |                          |
| Oroville                                      | Apr-Jul | 1400                       | 80                           | 2400                      | 790                       | 1760                     |
| <b>YUBA RIVER ABOVE SMARTVILLE</b>            |         |                            |                              |                           |                           |                          |
| North Yuba River                              |         |                            |                              |                           |                           |                          |
| Goodyears Bar, blo                            | Apr-Jul | 225                        | 82                           | 375                       | 125                       | 273*                     |
| South Yuba River                              |         |                            |                              |                           |                           |                          |
| Langs Crossing                                | Apr-Jul | 185                        | 82                           | 315                       | 103                       | 225*                     |
| Yuba River                                    |         |                            |                              |                           |                           |                          |
| Smartville, nr                                | Apr-Jul | 830                        | 83                           | 1460                      | 460                       | 995                      |
| <b>AMERICAN RIVER ABOVE FOLSOM RESERVOIR</b>  |         |                            |                              |                           |                           |                          |
| MF American River                             |         |                            |                              |                           |                           |                          |
| Auburn, nr                                    | Apr-Jul | 410                        | 84                           | 710                       | 220                       | 490*                     |
| Silver Ck                                     |         |                            |                              |                           |                           |                          |
| Union Valley                                  | Apr-Jul | 83                         | 85                           | 136                       | 46                        | 98*                      |
| Camino Dam, blo                               | Apr-Jul | 135                        | 85                           | 235                       | 74                        | 158*                     |
| American River                                |         |                            |                              |                           |                           |                          |
| Folsom Reservoir Inflow                       | Apr-Jul | 1030                       | 84                           | 1880                      | 590                       | 1230                     |

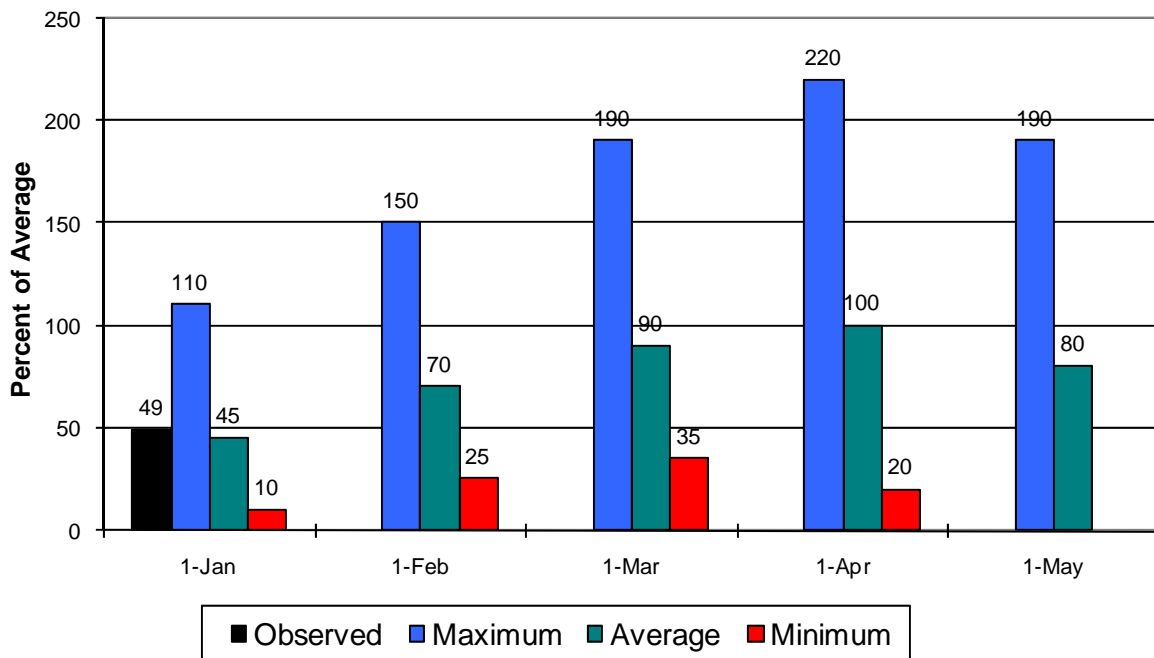
\*30 Year Averages for 1971-2000 are incomplete. Those forecast points with an asterisk have incomplete averages, so 1961-1990 averages are listed. The new averages will be incorporated into this report when the complete data sets become available.

# Sacramento/Trinity/Klamath River Basins

## Seasonal Basin Precipitation October 1 to Date



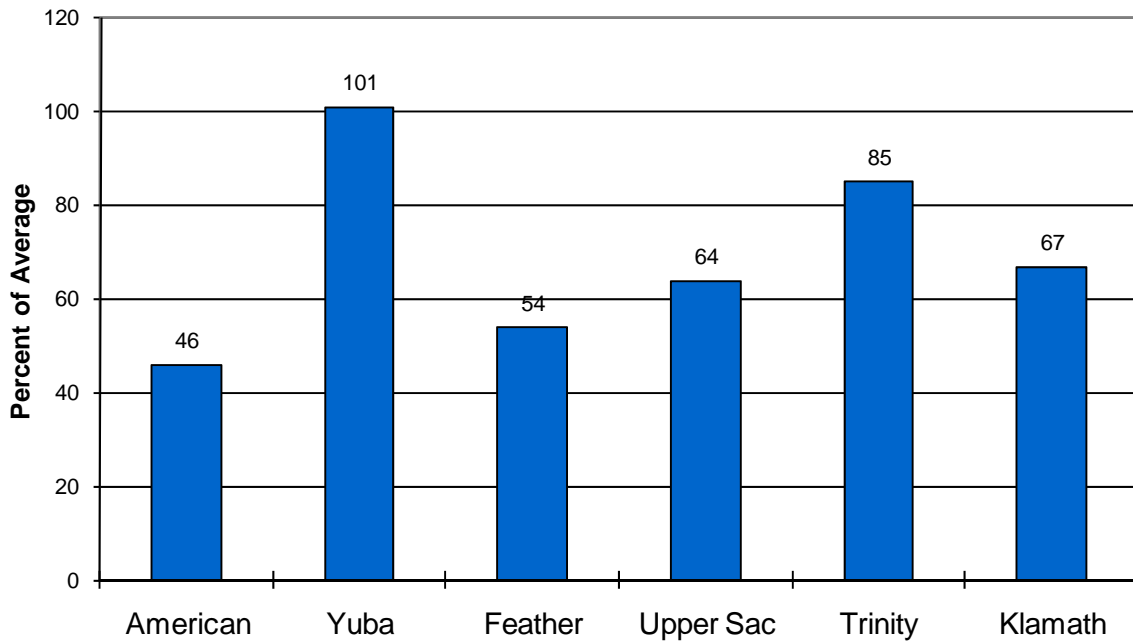
## Seasonal Basin Snowpack Water Content in % of April 1 Average



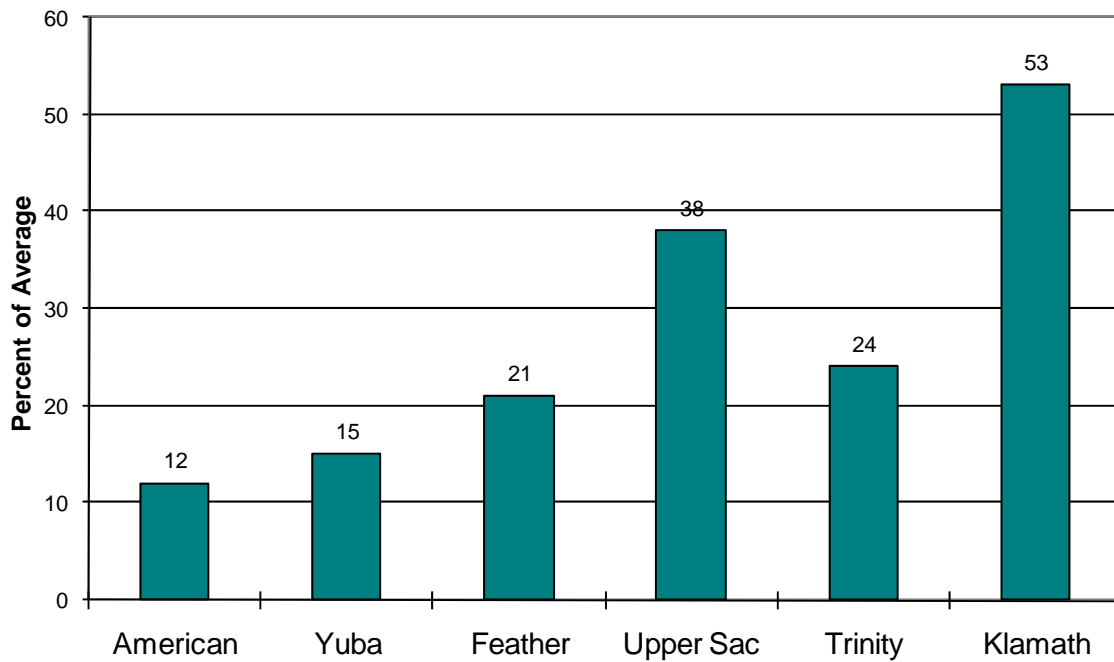


# Sacramento/Trinity/Klamath River Basins

## Basin Reservoir Storage Contents of Major Reservoirs in % of Average



## Seasonal Basin Runoff October 1 to Date



# San Joaquin Basin



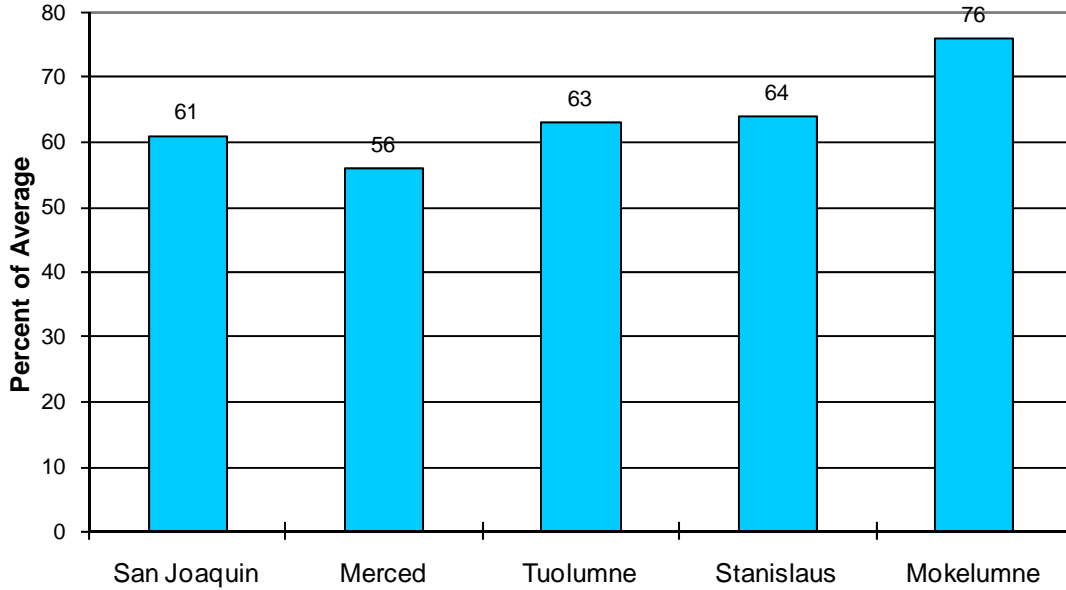
# Water Supply Forecasts

|                                 |         | Most<br>Prob<br>Vol<br>KAF | Most<br>Prob<br>Vol<br>%Norm | Reas<br>Max<br>Vol<br>KAF | Reas<br>Min<br>Vol<br>KAF | 30<br>Year<br>Avg<br>KAF |
|---------------------------------|---------|----------------------------|------------------------------|---------------------------|---------------------------|--------------------------|
| SF San Joaquin River            |         |                            |                              |                           |                           |                          |
| Hooper Ck, blo, Florence Lk, nr | Apr-Jul | 170                        | 89                           | 300                       | 60                        | 192*                     |
| San Joaquin River               |         |                            |                              |                           |                           |                          |
| Millerton Lk                    | Apr-Jul | 1080                       | 85                           | 1900                      | 280                       | 1270                     |
| Merced River                    |         |                            |                              |                           |                           |                          |
| Pohono Bridge, at, Yosemite, nr | Apr-Jul | 320                        | 89                           | 560                       | 80                        | 360*                     |
| Merced Falls, blo               | Apr-Jul | 540                        | 84                           | 1000                      | 130                       | 645                      |
| Tuolumne River                  |         |                            |                              |                           |                           |                          |
| Hetch Hetchy, nr                | Apr-Jul | 530                        | 89                           | 860                       | 200                       | 596*                     |
| La Grange, nr                   | Apr-Jul | 1050                       | 85                           | 1790                      | 310                       | 1230                     |
| MF Stanislaus River             |         |                            |                              |                           |                           |                          |
| Beardsley Dam, blo              | Apr-Jul | 250                        | 78                           | 430                       | 70                        | 320*                     |
| Stanislaus River                |         |                            |                              |                           |                           |                          |
| New Melones Dam                 | Apr-Jul | 550                        | 79                           | 980                       | 120                       | 695                      |
| NF Mokelumne River              |         |                            |                              |                           |                           |                          |
| West Point                      | Apr-Jul | 330                        | 79                           | 660                       | 150                       | 416*                     |
| Mokelumne River                 |         |                            |                              |                           |                           |                          |
| Mokelumne Hill                  | Apr-Jul | 350                        | 76                           | 680                       | 105                       | 460                      |
| Cosumnes River                  |         |                            |                              |                           |                           |                          |
| Michigan Bar                    | Apr-Jul | 100                        | 81                           | 225                       | 20                        | 123                      |

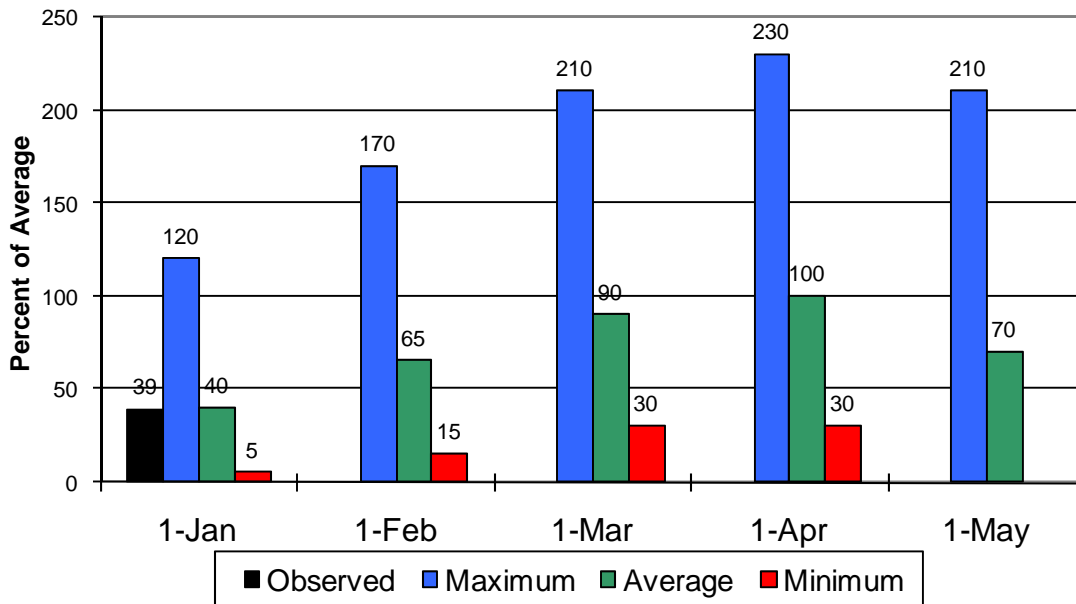
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# San Joaquin Basin

## Seasonal Basin Precipitation October 1 to Date

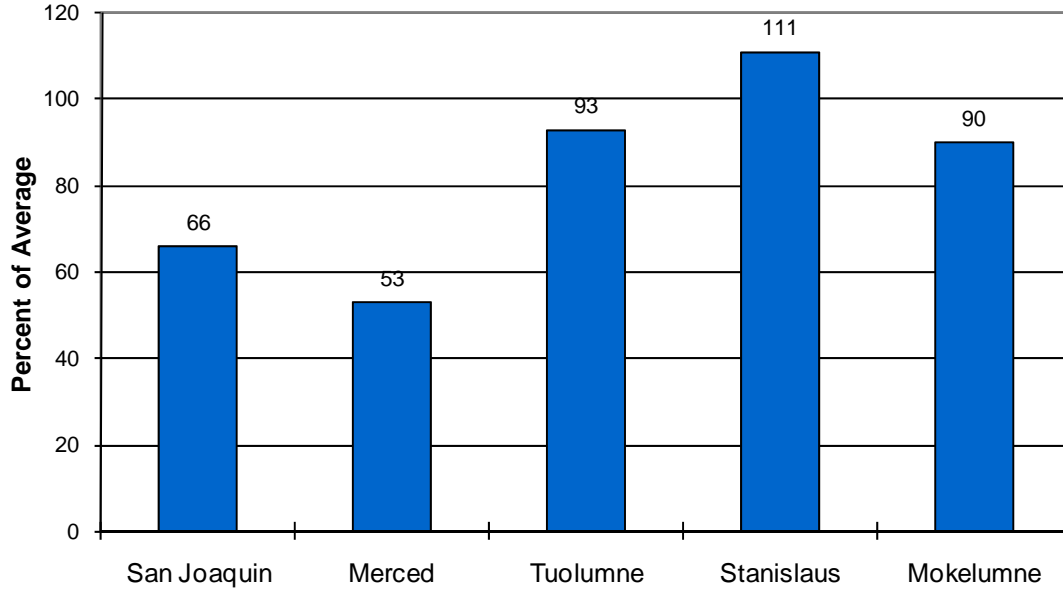


## Seasonal Basin Snowpack Water Content in % of April 1 Average

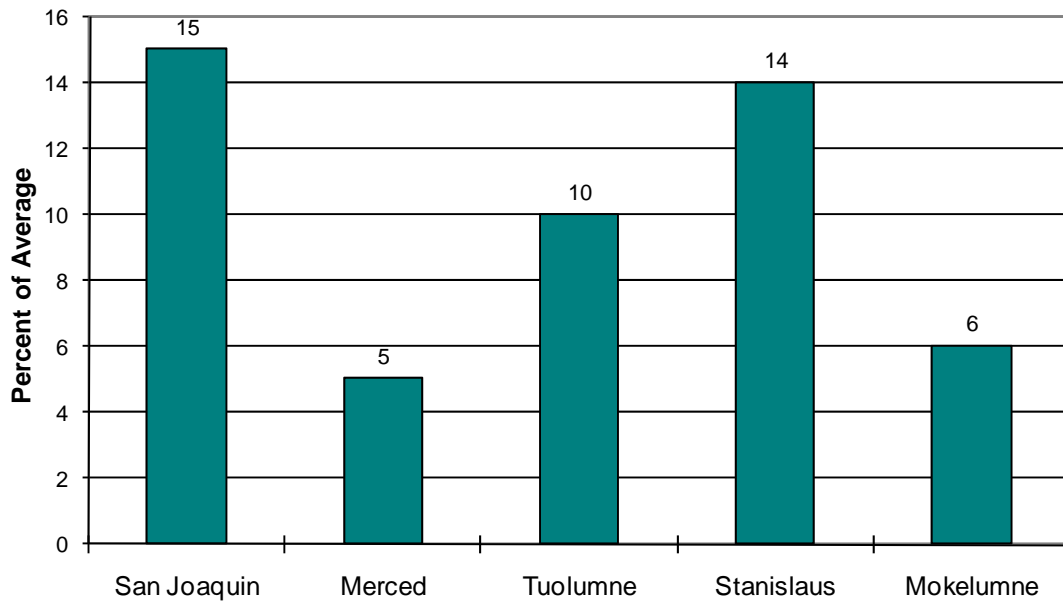


# San Joaquin Basin

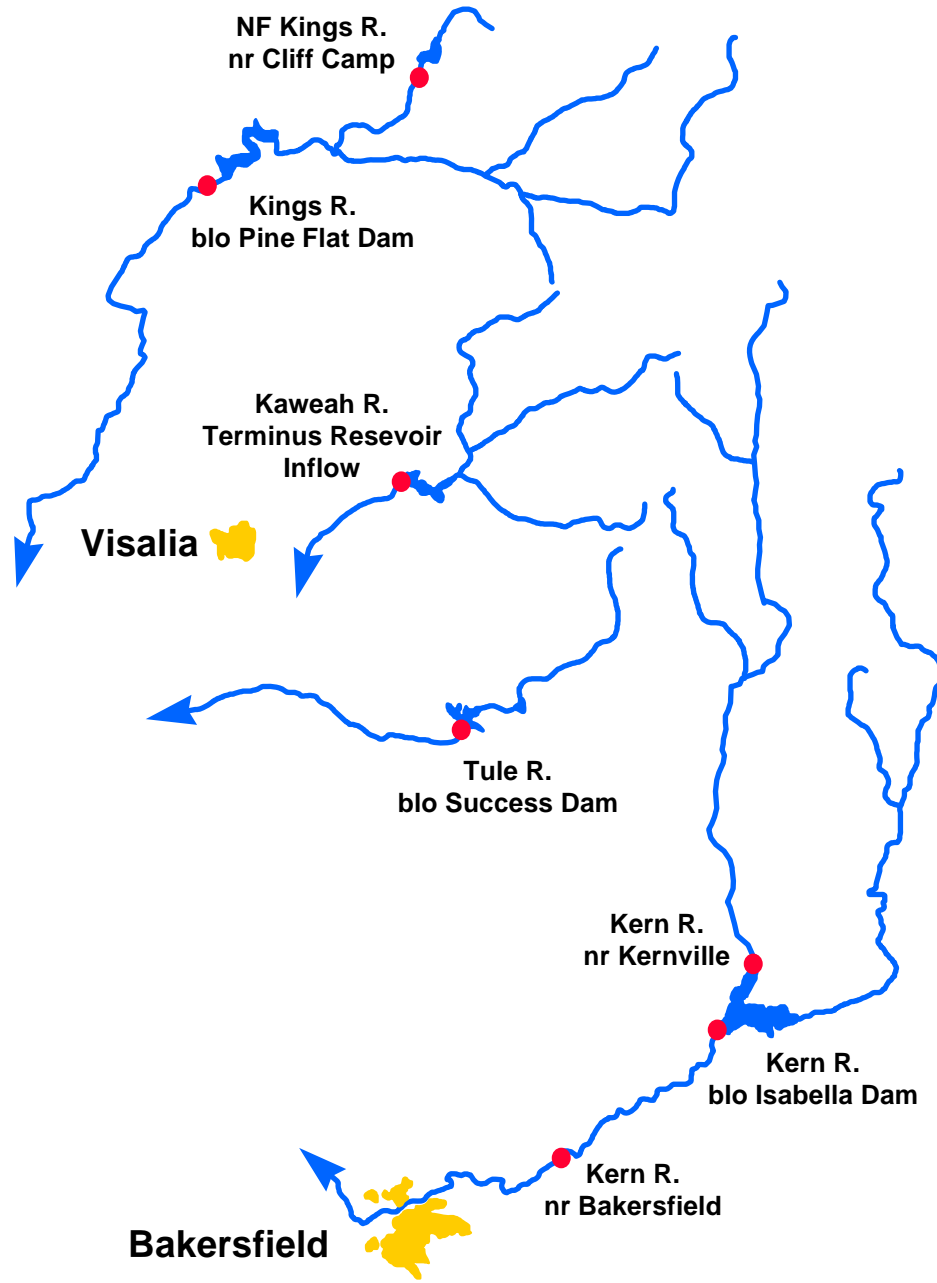
## Basin Reservoir Storage Contents of Major Reservoirs in % of Average



## Season Basin Runoff October 1 to Date



# Tulare Basin



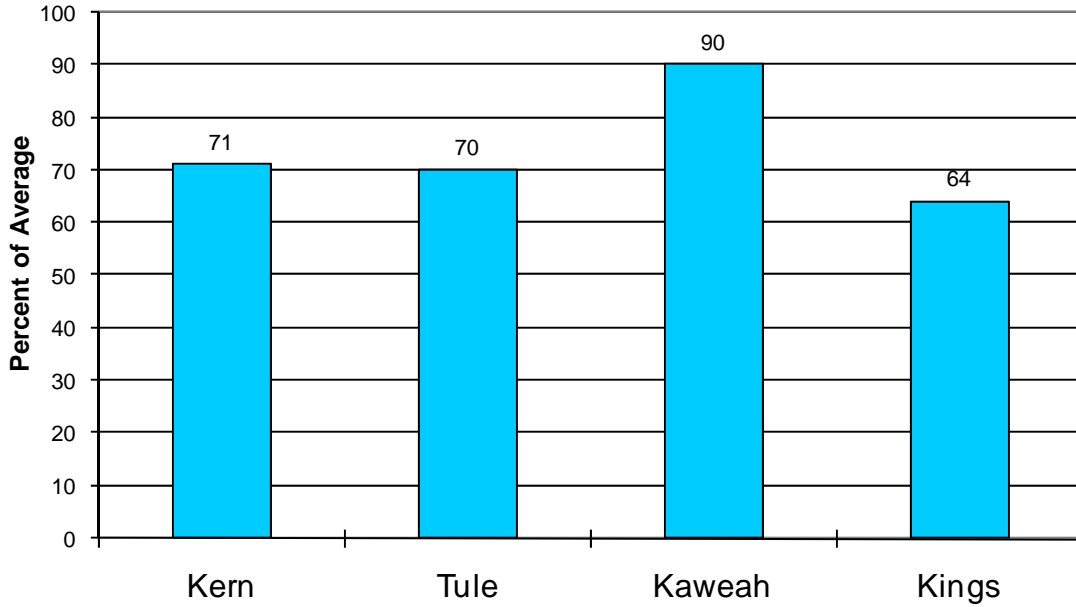
# Water Supply Forecasts

|                       |         | Most<br>Prob<br>Vol<br>KAF | Most<br>Prob<br>Vol<br>%Norm | Reas<br>Max<br>Vol<br>KAF | Reas<br>Min<br>Vol<br>KAF | 30<br>Year<br>Avg<br>KAF |
|-----------------------|---------|----------------------------|------------------------------|---------------------------|---------------------------|--------------------------|
| <b>Kern River</b>     |         |                            |                              |                           |                           |                          |
| Kernville, nr         | Apr-Jul | 340                        | 85                           | 710                       | 85                        | 398*                     |
| Isabella Dam, blo     | Apr-Jul | 410                        | 85                           | 915                       | 90                        | 480                      |
| Bakersfield, nr       | Apr-Jul | 420                        | 86                           | 930                       | 95                        | 490                      |
| <b>Tule River</b>     |         |                            |                              |                           |                           |                          |
| Success Dam           | Apr-Jul | 55                         | 83                           | 130                       | 10.0                      | 66                       |
| <b>Kaweah River</b>   |         |                            |                              |                           |                           |                          |
| Terminus Dam          | Apr-Jul | 250                        | 86                           | 500                       | 70                        | 290                      |
| <b>NF Kings River</b> |         |                            |                              |                           |                           |                          |
| Cliff Camp, nr        | Apr-Jul | 220                        | 92                           | 400                       | 50                        | 240*                     |
| <b>Kings River</b>    |         |                            |                              |                           |                           |                          |
| Pine Flat Dam, blo    | Apr-Jul | 1080                       | 86                           | 2000                      | 280                       | 1250                     |

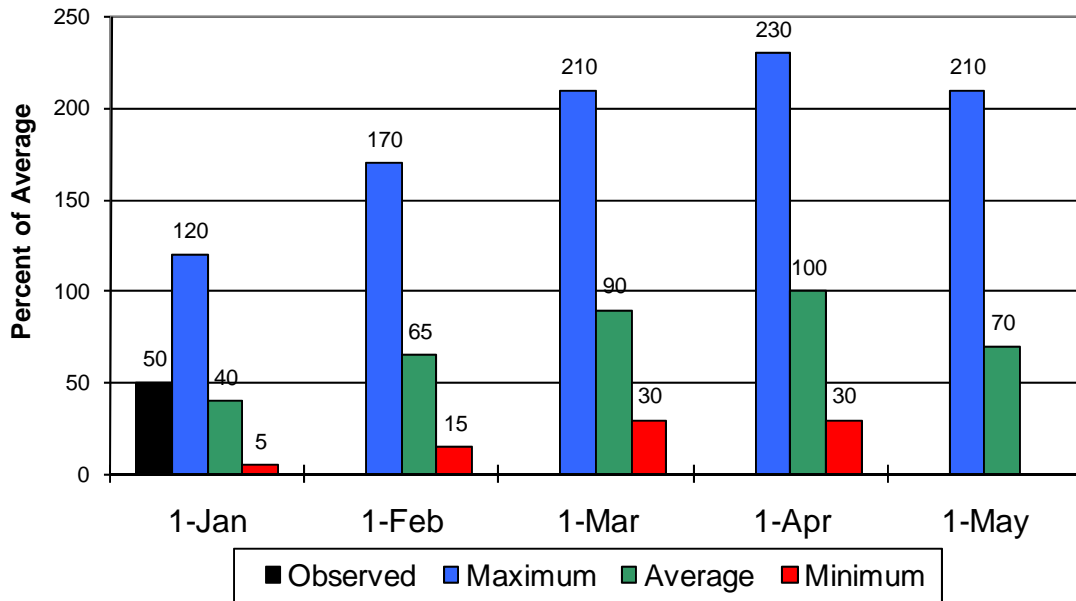
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# Tulare Lake Basin

## Seasonal Precipitation October 1 to Date



## Seasonal Basin Snowpack Water Content in % of April 1 Average

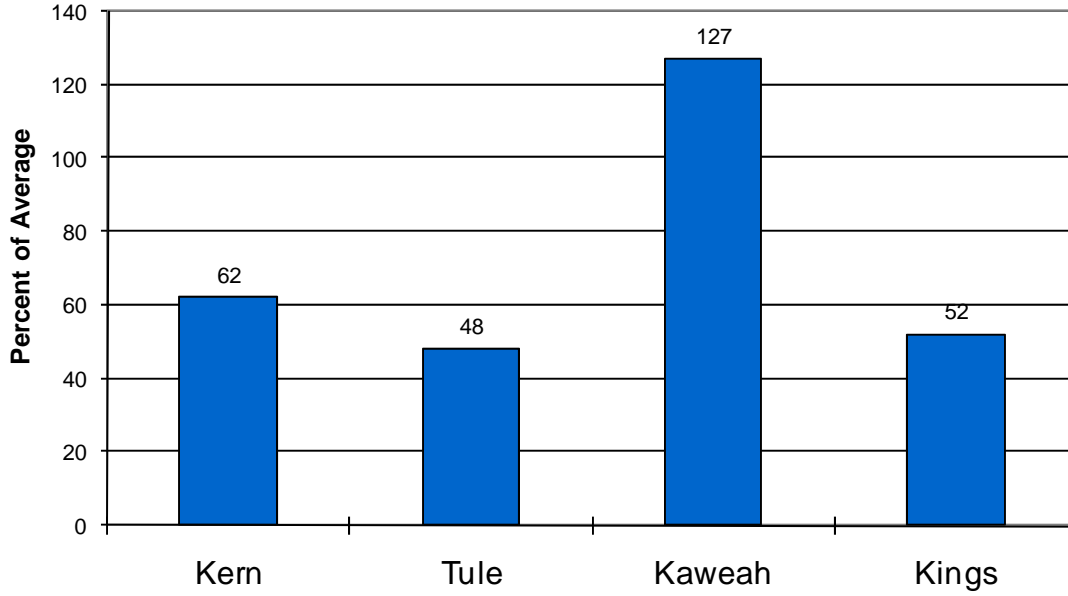




# Tulare Lake Basin

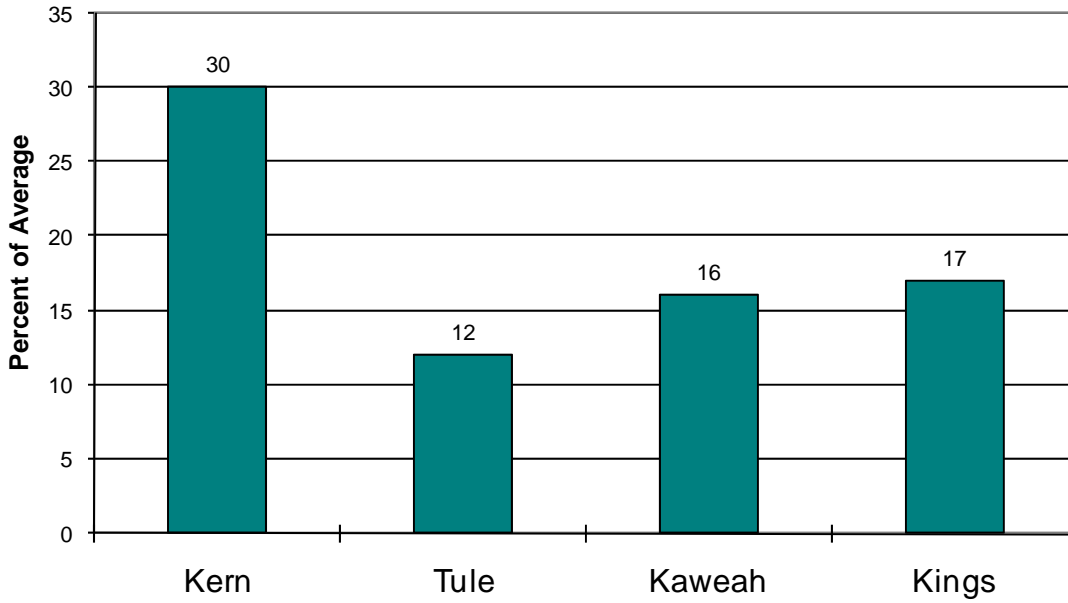
## Basin Reservoir Storage

Contents of Major Reservoirs in % of Average

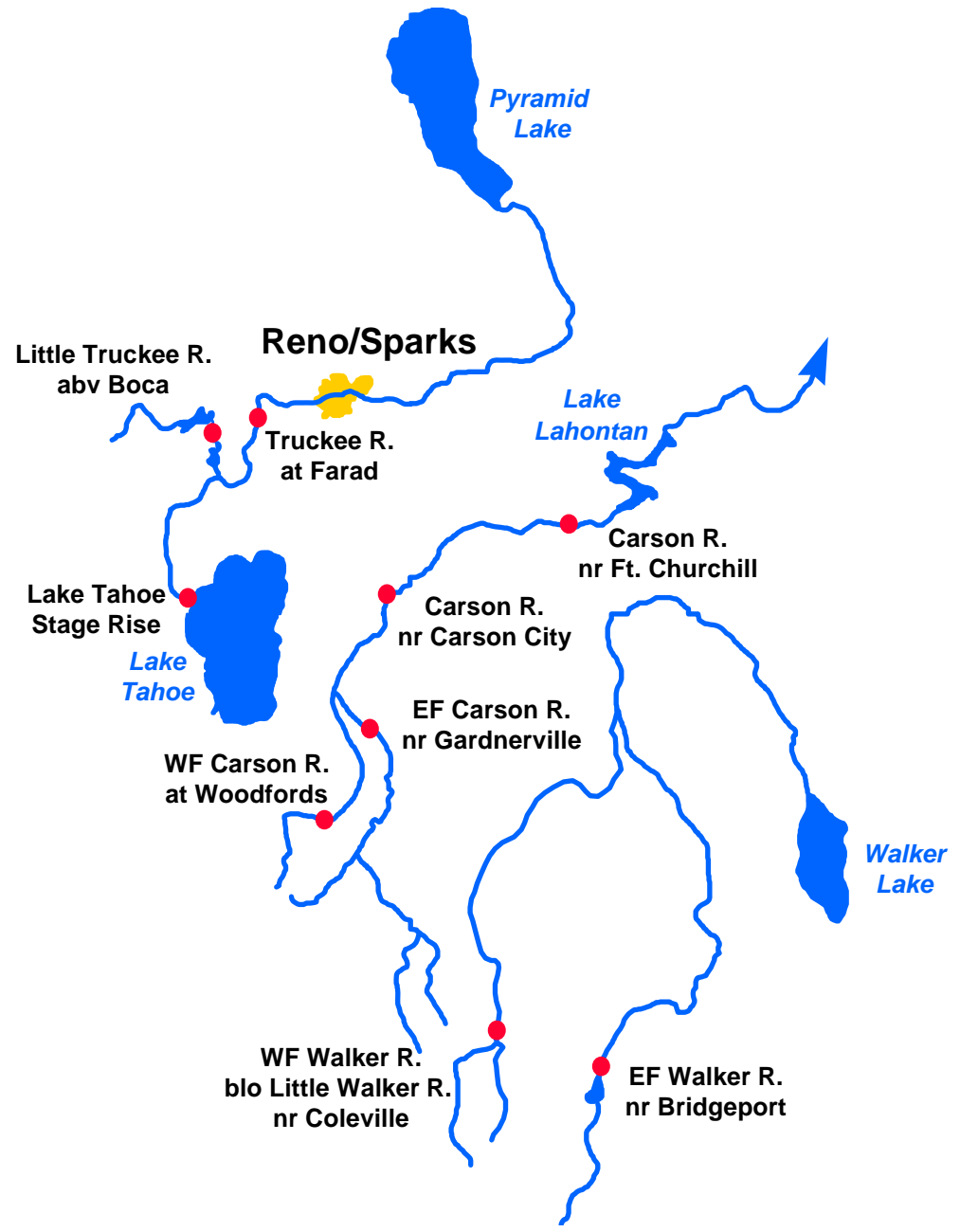


## Seasonal Basin Runoff

October 1 to Date



# East Side Sierra Nevada Basins



# Water Supply Forecasts

| Most<br>Prob<br>Vol<br>KAF | Most<br>Prob<br>Vol<br>%Norm | Reas<br>Max<br>Vol<br>KAF | Reas<br>Min<br>Vol<br>KAF | 30<br>Year<br>Avg<br>KAF |
|----------------------------|------------------------------|---------------------------|---------------------------|--------------------------|
|----------------------------|------------------------------|---------------------------|---------------------------|--------------------------|

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## Truckee River

|  |          |      |    |      |      |      |
|--|----------|------|----|------|------|------|
| Truckee River<br>Lake Tahoe Stage Rise | Apr-High | 1.10 | 80 | 1.99 | 0.48 | 1.38 |
| Ltl Truckee River<br>Stampede Dam      | Apr-Jul  | 65   | 81 | 129  | 36   | 80   |
| Truckee River<br>Farad                 | Apr-Jul  | 215  | 83 | 390  | 120  | 260  |

## Carson River

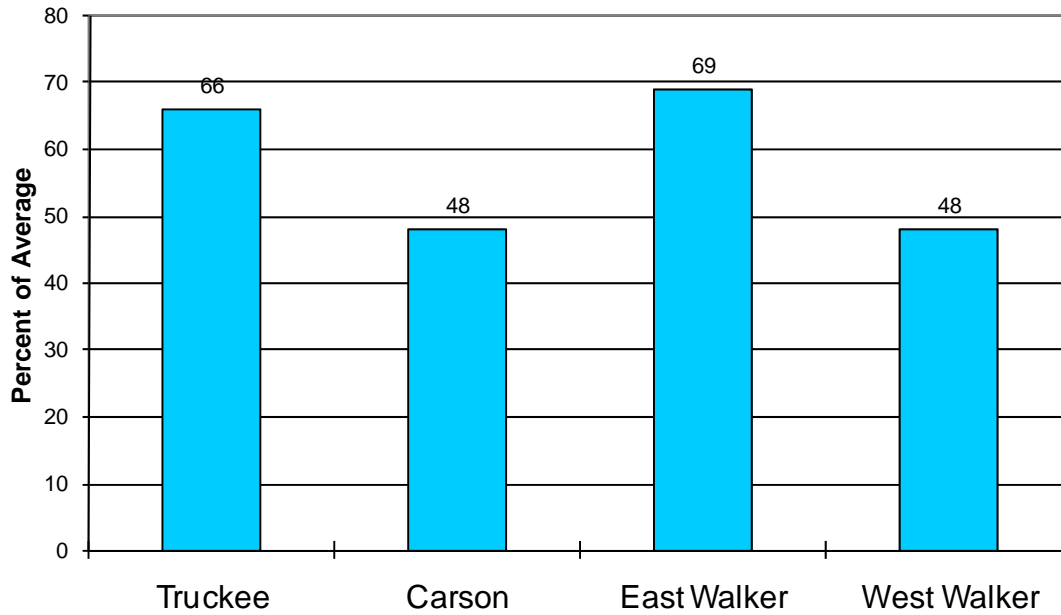
|                                     |         |     |    |     |    |     |
|-------------------------------------|---------|-----|----|-----|----|-----|
| EF Carson River<br>Gardnerville, nr | Apr-Jul | 150 | 79 | 260 | 88 | 189 |
| WF Carson River<br>Woodfords        | Apr-Jul | 45  | 80 | 74  | 25 | 56  |
| Carson River<br>Carson City, nr     | Apr-Jul | 130 | 69 | 275 | 65 | 188 |
| Fort Churchill, nr                  | Apr-Jul | 115 | 65 | 260 | 61 | 178 |

## Walker River

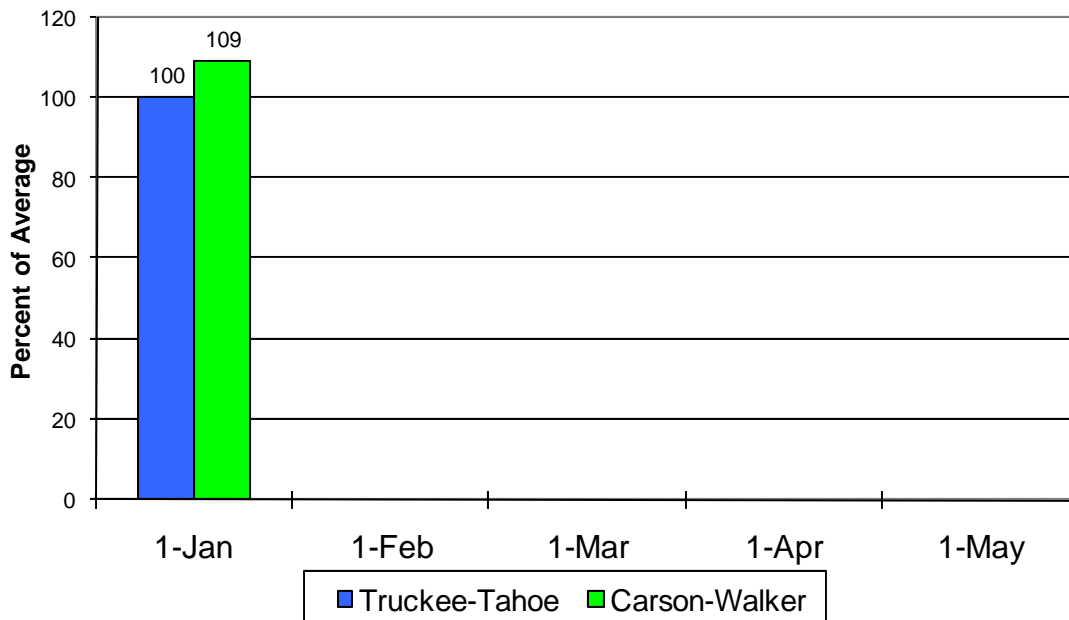
|   |         |     |    |     |    |     |
|---|---------|-----|----|-----|----|-----|
| East Walker River<br>Bridgeport, nr                 | Apr-Aug | 55  | 82 | 123 | 29 | 67  |
| West Walker River<br>Ltl Walker, blo, Coleville, nr | Apr-Jul | 130 | 83 | 215 | 69 | 156 |

# East Side Sierra Nevada Basins

## Seasonal Basin Precipitation October 1 to Date

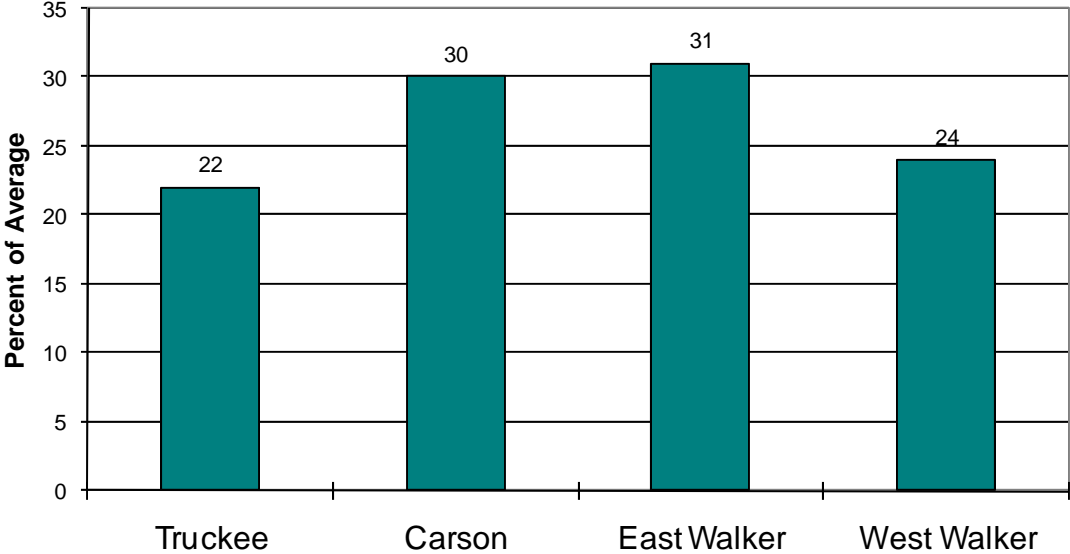


## Basin Snowpack % of Average SWE to Date

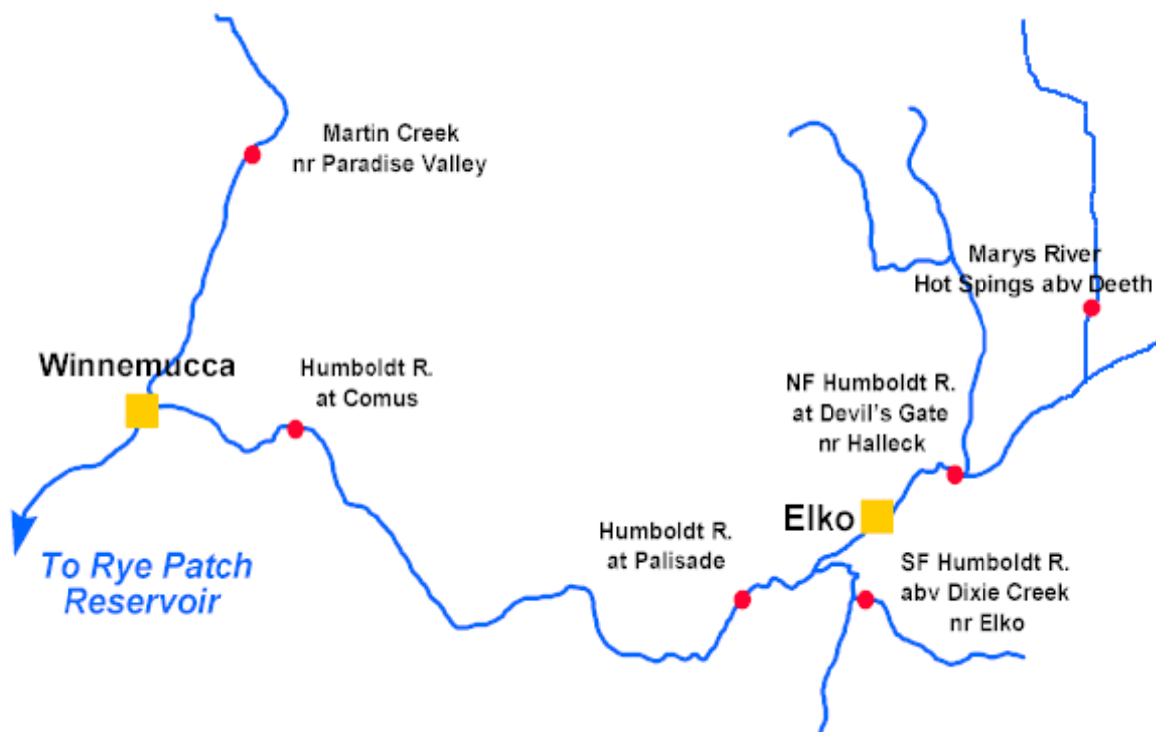


# East Side Sierra Nevada Basins

## Seasonal Basin Runoff October 1 to Date



# Humboldt River Basin



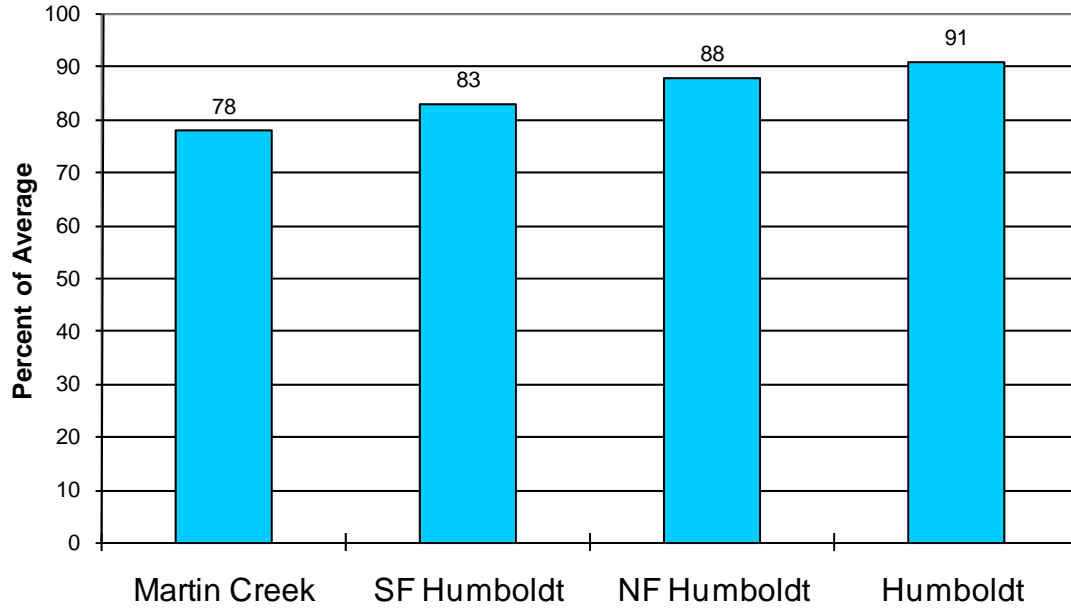
## Water Supply Forecasts

|                              |         | Most Prob Vol KAF | Most Prob Vol %Norm | Reas Max Vol KAF | Reas Min Vol KAF | 30 Year Avg KAF |
|------------------------------|---------|-------------------|---------------------|------------------|------------------|-----------------|
| <b>NF Humboldt River</b>     |         |                   |                     |                  |                  |                 |
| Devlis Gate, at, Halleck, nr | Apr-Jul | 30                | 88                  | 54               | 6.0              | 34*             |
| <b>SF Humboldt River</b>     |         |                   |                     |                  |                  |                 |
| Dixie Ck, abv, Elko, nr      | Apr-Jul | 65                | 86                  | 112              | 18.0             | 76              |
| <b>Marys River</b>           |         |                   |                     |                  |                  |                 |
| Hot Springs, abv, Deeth, nr  | Apr-Jul | 33                | 85                  | 50               | 14.0             | 39              |
| <b>Humboldt River</b>        |         |                   |                     |                  |                  |                 |
| Elko, nr                     | Apr-Jul | 125               | 81                  | 230              | 15.0             | 154             |
| Palisade                     | Apr-Jul | 200               | 80                  | 375              | 25               | 250             |
| Comus                        | Apr-Jul | 180               | 80                  | 350              | 10.0             | 225             |
| Imlay, nr                    | Apr-Jul | 150               | 80                  | 310              | 10.0             | 188             |
| <b>Martin Ck</b>             |         |                   |                     |                  |                  |                 |
| Paradise Vly, nr             | Apr-Jul | 15.0              | 80                  | 27               | 3.0              | 18.7            |

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# Humboldt River Basin

## Seasonal Basin Precipitation October 1 to Date



## Basin Snowpack % of Average SWE to Date

