

# WATER SUPPLY OUTLOOK



## CALIFORNIA AND NORTHERN NEVADA

**APRIL  
2006**



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

April 1, 2006

Hopes for good spring runoff have now been bolstered by much above average precipitation and healthy accumulations to the mountain snow pack during the past month. There was more or less persistent precipitation during the entire month of March. This rainfall brought moderate to significant flooding in the San Joaquin and Humboldt basins. Snow packs range from above to much above the April 1<sup>st</sup> average. A wet scenario has continued into early April. Although water supply prospects are excellent this year--the San Joaquin valley, portions of the east side Sierra and the Humboldt basin face the potential of local flooding should unusually rapid snowmelt occur in the spring.

March precipitation amounts were much above average from the Trinity River basin to the Kern. The Walker River basin received 185 percent, the Carson 160 percent and the Truckee 170 percent. About 160 percent of the monthly average fell in the upper Humboldt basin and 140 percent in the lower Humboldt basin. The Upper Klamath Lake basin received 95 percent of the March average.

There was substantial accumulation to the snow pack since March 1<sup>st</sup>. The pack increased 40 to 55 percent in most watersheds and most snowpacks are now well above average. The lower elevation pack now has good accumulation. The April 1<sup>st</sup> average ranges from 110 percent for the Sacramento region, 135 percent for the San Joaquin, and 135 percent for the Tulare Lake region. The Tahoe-Truckee and Carson-Walker basins are at 145 percent of the average-to-date; the Humboldt basin about 130 percent. The snow pack in the Upper Klamath Lake basin stands at 165 percent of the average-to-date, it was only 45 percent at this time last year.

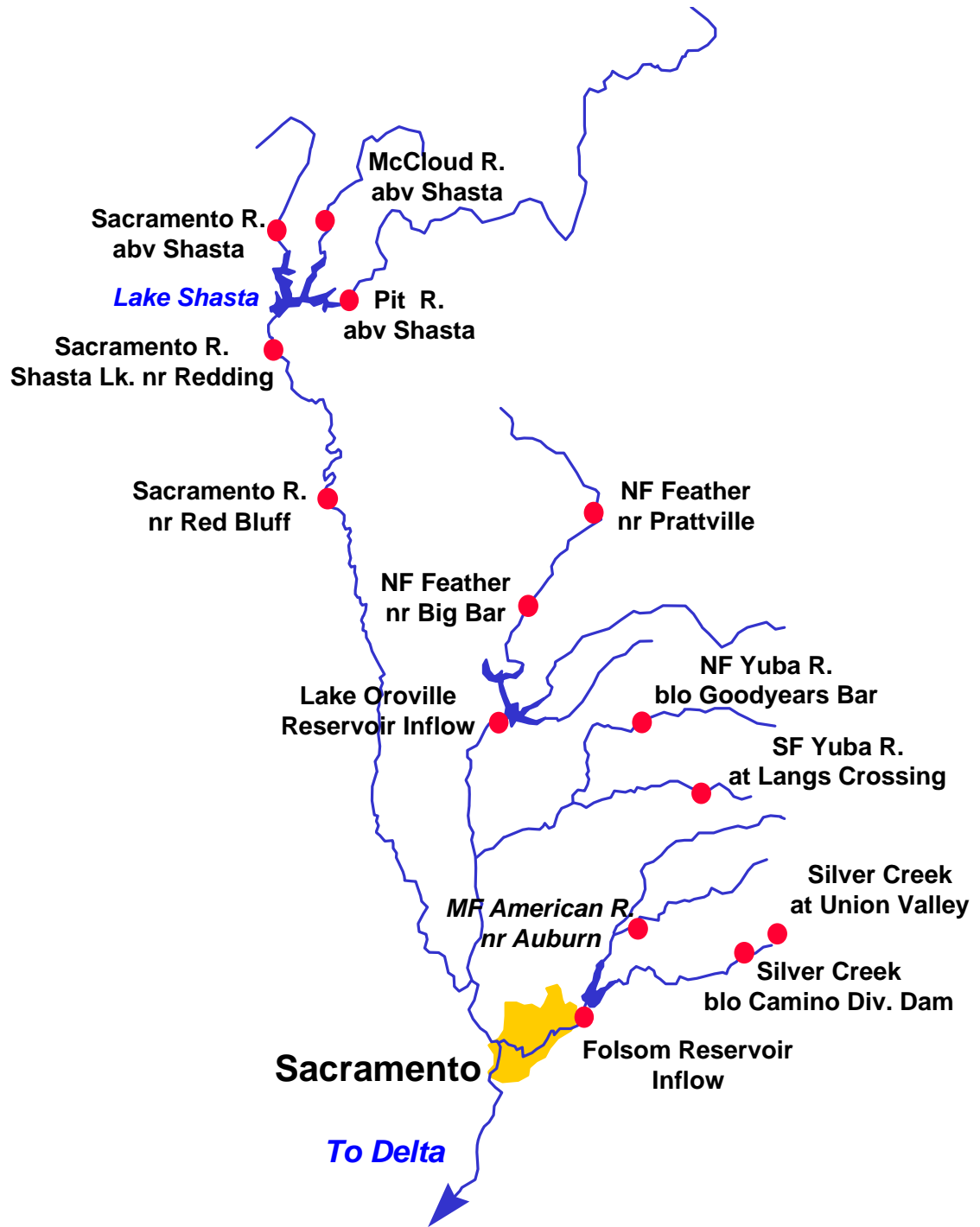
March runoff ranged from 88 to 142 percent in the Trinity-Sacramento drainage, 129 to 151 percent in the San Joaquin, and 84 to 113 percent in the Tulare Lake drainage. Runoff for the east-side Sierra varies from 108 to 148 percent. The Humboldt River at Palisade received 128 percent of the March average while the Upper Klamath Lake basin recorded 75 percent.

Flood control releases continued through March for many of the major reservoirs in the Sierra Nevada. Reservoir storage in the Sacramento drainage was at 112 percent of average for the date, the San Joaquin at 126 percent and the Tulare Lake drainage at 135 percent. East-side Sierra reservoirs are at 138 percent of average. The lake level at Lake Tahoe stood at 6226.80 on March 31<sup>st</sup> and usable storage was 462,400 acre feet or 119 percent of the average-to-date. It was only 19 percent at this time last year. Storage at Lahontan Reservoir in Nevada is at 124 percent while Rye Patch Reservoir stands at 148 percent of the average-to-date. The Upper Klamath Lake is at 97 percent of the average-to-date.

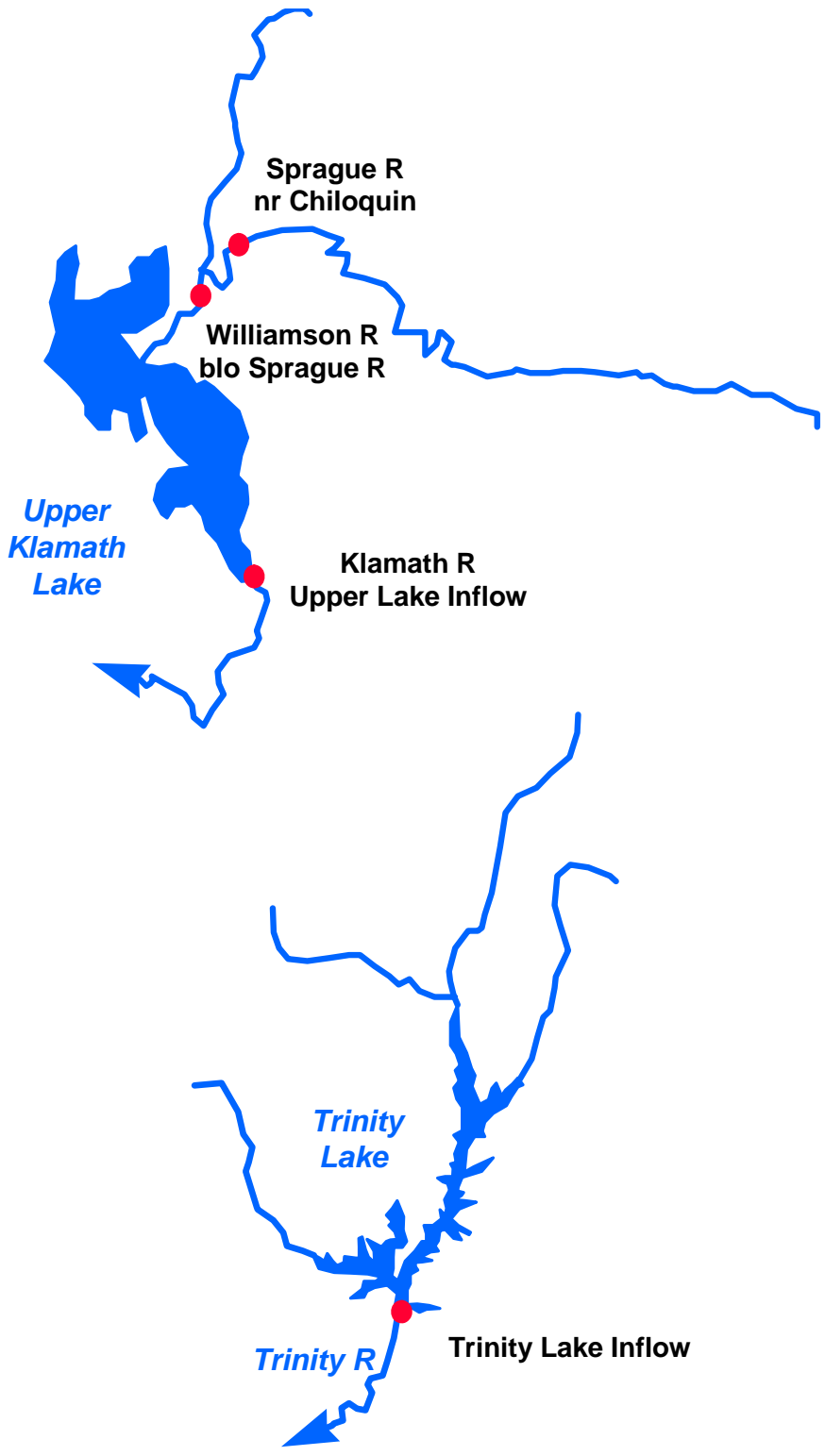
Spring runoff forecasts for the major watersheds in California's central valley range from 130 percent for the Pit River near Montgomery Creek to 173 percent for the Stanislaus River below Goodwin Dam. Streamflow forecasts for the east side Sierra basins vary from 138 to 173 percent of the April through July average. Forecasts for the Humboldt basin range from 144 to 222 percent. The March through September forecast for the Upper Klamath Lake inflow is 136 percent.

Mid-month updates are scheduled for selected east side Sierra forecast points and the Upper Klamath Lake inflow. These will be posted on the CNRFC web page.

# Sacramento River Basin



# Upper Klamath and Trinity River Basins



# Water Supply Forecasts

Most	Most	Reas	Reas	30
Prob	Prob	Max	Min	Year
Vol	Vol	Vol	Vol	Avg
KAF	%Norm	KAF	KAF	KAF

## COASTAL BASINS

Williamson River Sprague, blo	Mar-Sep	710	141	825	600	505
Sprague River Chiloquin, nr	Mar-Sep	450	148	505	400	305
Upper Klamath Falls River Inflow	Mar-Sep	970	136	1130	815	715
Lost River Gerber Reservoir Inflow	Apr-Jul	28	166	37	19.5	16.9
Clear Lake Reservoir Inflow	Apr-Jul	67	163	83	51	41
Scott River Fort Jones, nr	Apr-Jul	245	135	295	205	181
Trinity River Trinity Lake Inflow	Apr-Jul	1000	157	1160	850	635

Trinity River - Inflow at Lewiston Lake Distribution (kAF)

### Exceedence

<u>Probability</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Apr-Jul</u>	<u>Water Yr</u>
90%	12	36	349	279	195	199	245	330	215	60	15	10	850	1945
50%	12	36	349	279	195	199	290	390	250	70	20	15	1000	2105
10%	12	36	349	279	195	199	335	455	290	80	25	20	1160	2275

## SACRAMENTO RIVER BASIN

### SACRAMENTO RIVER ABOVE BEND BRIDGE

Pit River Montgomery Ck, nr	Apr-Jul	1390	130	1710	1170	1070
Mccloud River Shasta Lk, abv	Apr-Jul	560	151	685	470	370
Sacramento River Delta	Apr-Jul	415	143	510	345	290
Shasta Dam	Apr-Jul	2540	142	3100	2170	1790
Bend Bridge, abv, Red Bluff, nr	Apr-Jul	3600	148	4370	3090	2440

### FEATHER RIVER ABOVE OROVILLE RESERVOIR

NF Feather River						
Prattville, nr	Apr-Jul	435	131	550	370	333*
Big Bar	Apr-Jul	1260	131	1620	1050	962*
Feather River						
Oroville Reservoir Inflow	Apr-Jul	2300	131	2940	1930	1760

# Water Supply Forecasts

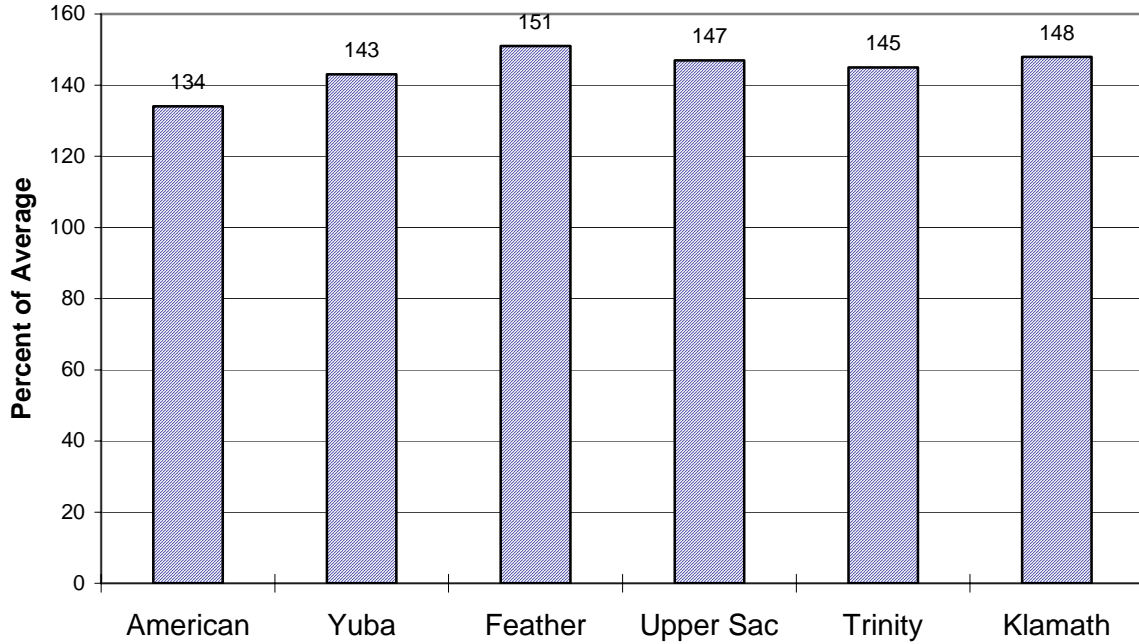
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
<b>YUBA RIVER ABOVE SMARTVILLE</b>						
North Yuba River						
Goodyears Bar, blo	Apr-Jul	370	136	455	305	273*
South Yuba River						
Langs Crossing	Apr-Jul	305	136	375	250	225*
Yuba River						
Smartville, nr	Apr-Jul	1350	136	1650	1090	995
<b>AMERICAN RIVER ABOVE FOLSOM RESERVOIR</b>						
MF American River						
Auburn, nr	Apr-Jul	675	138	835	555	490*
Silver Ck						
Union Valley	Apr-Jul	140	143	175	115	98*
Camino Dam, blo	Apr-Jul	225	142	280	185	158*
American River						
Folsom Reservoir Inflow	Apr-Jul	1730	141	2150	1410	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

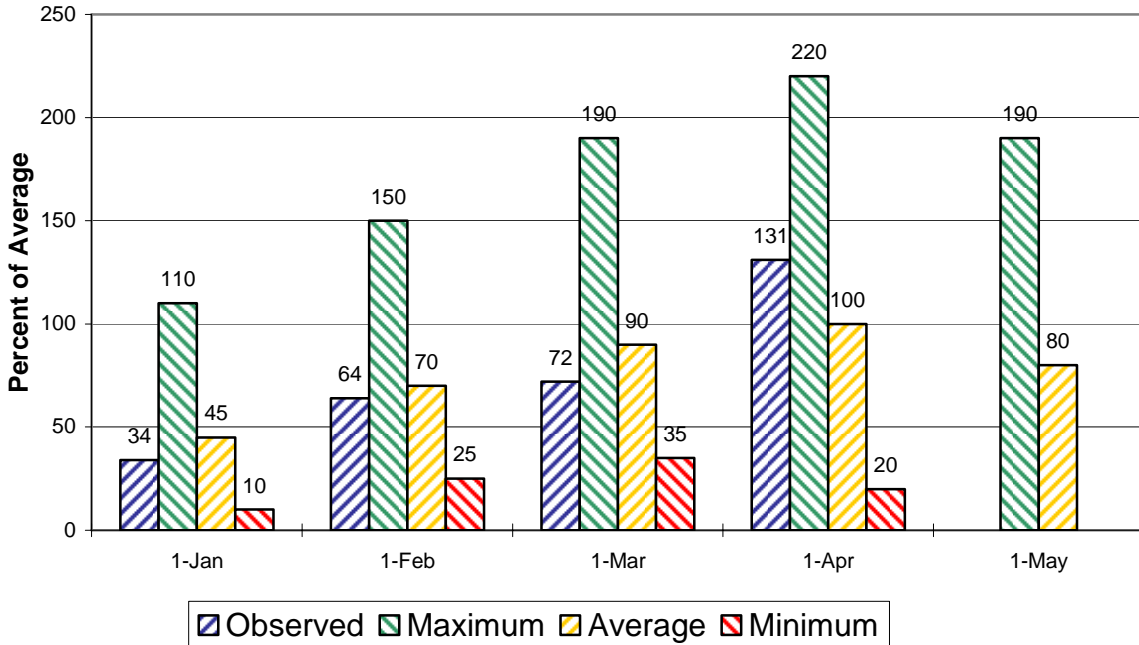
## Seasonal Basin Precipitation

October 1 to Date



## Seasonal Basin Snowpack

Water Content in % of April 1 Average

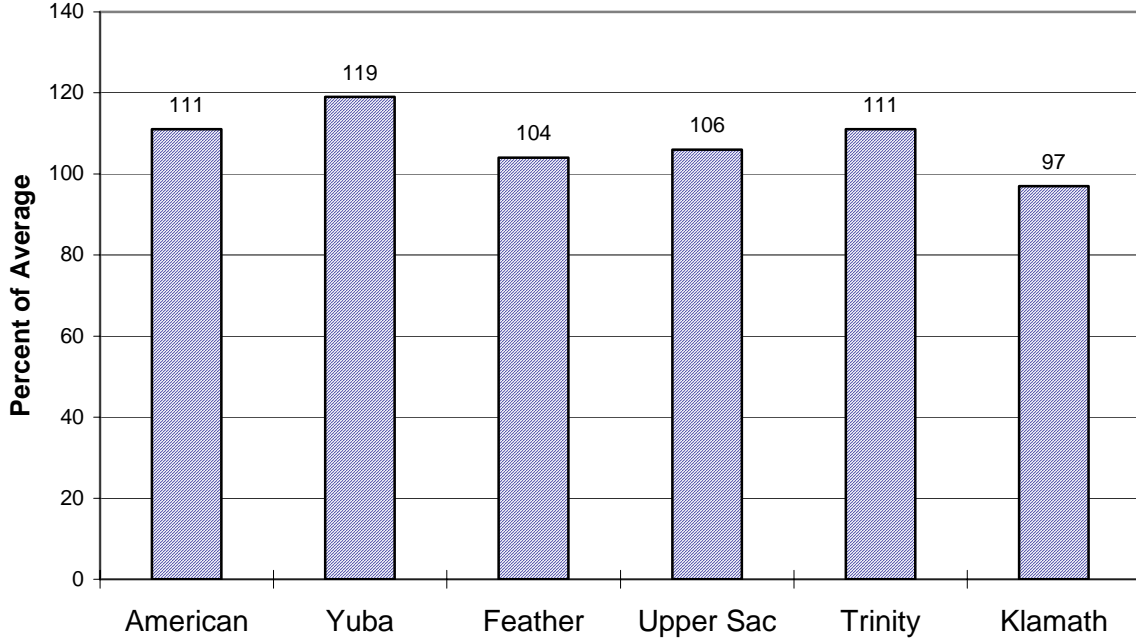




# Sacramento/Trinity/Klamath River Basins

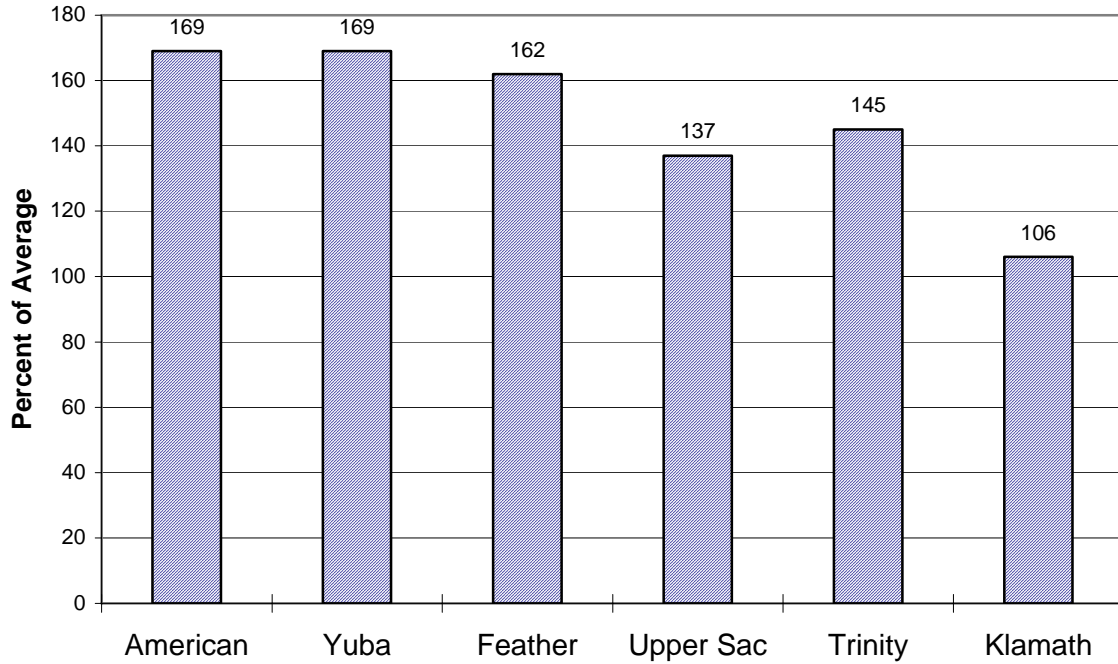
## Basin Reservoir Storage

Contents of Major Reservoirs in % of Average



## Seasonal Basin Runoff

October 1 to Date



# San Joaquin Basin



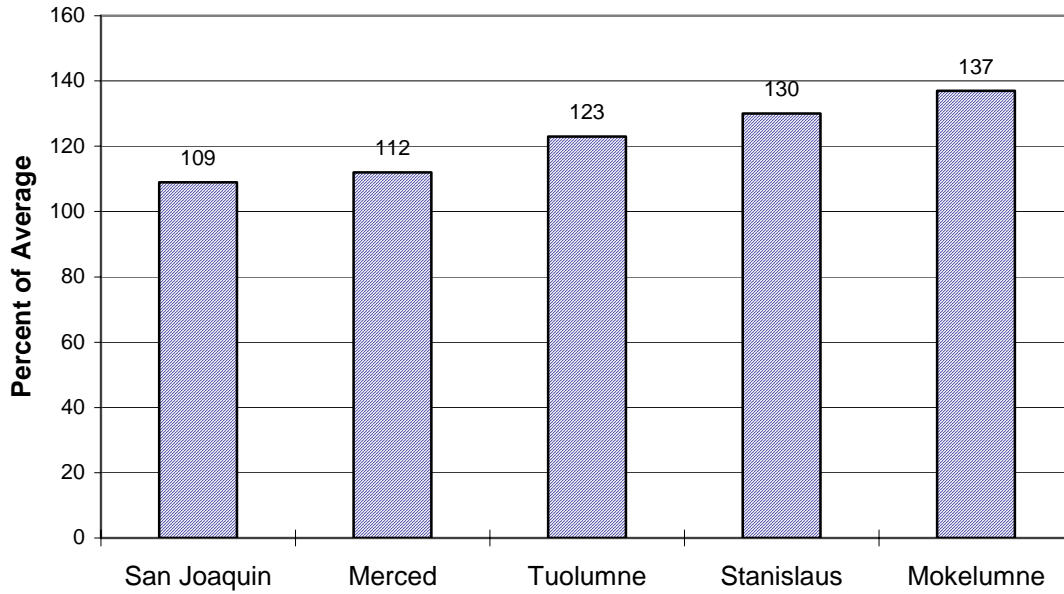
# Water Supply Forecasts

		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
<hr/>						
SF San Joaquin River						
Hooper Ck, blo, Florence Lk, nr	Apr-Jul	320	167	395	245	192*
San Joaquin River						
Millerton Lk	Apr-Jul	2100	165	2320	1900	1270
Merced River						
Pohono Bridge, at, Yosemite, nr	Apr-Jul	550	153	635	465	360*
Merced Falls, blo	Apr-Jul	1030	160	1230	880	645
Tuolumne River						
Hetch Hetchy, nr	Apr-Jul	970	163	1060	880	596*
La Grange, nr	Apr-Jul	2100	171	2390	1810	1230
MF Stanislaus River						
Beardsley Dam, blo	Apr-Jul	550	172	630	470	320*
Stanislaus River						
Goodwin Dam, blo, Knights Ferry	Apr-Jul	1200	173	1470	930	695
NF Mokelumne River						
West Point	Apr-Jul	630	151	750	510	416*
Mokelumne River						
Mokelumne Hill	Apr-Jul	700	152	805	595	460
Cosumnes River						
Michigan Bar	Apr-Jul	300	244	390	210	123

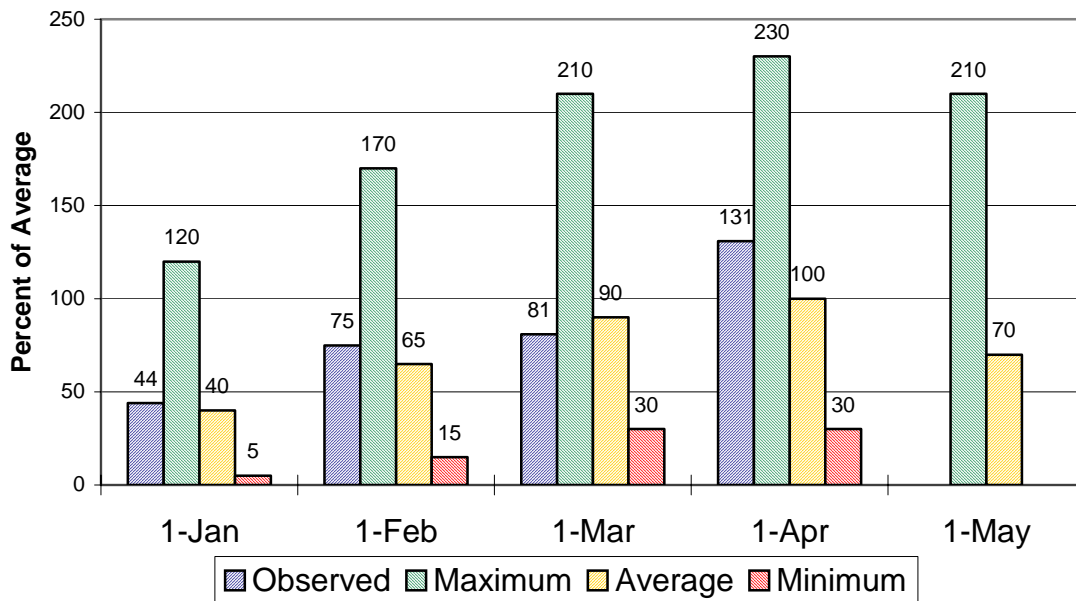
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# San Joaquin Basin

## Seasonal Basin Precipitation October 1 to Date

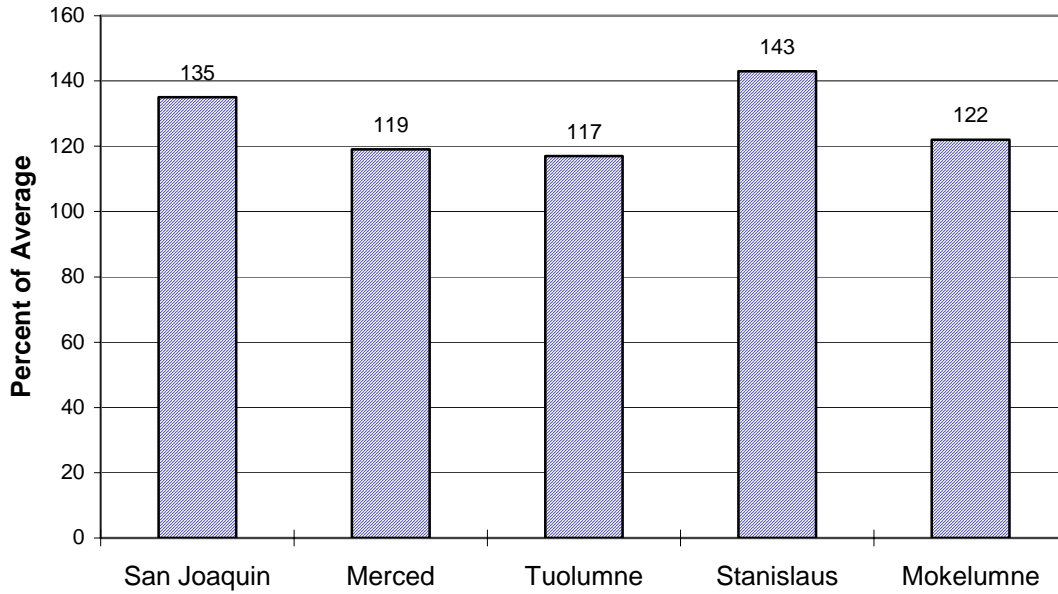


## Seasonal Basin Snowpack Water Content in % of April 1 Average

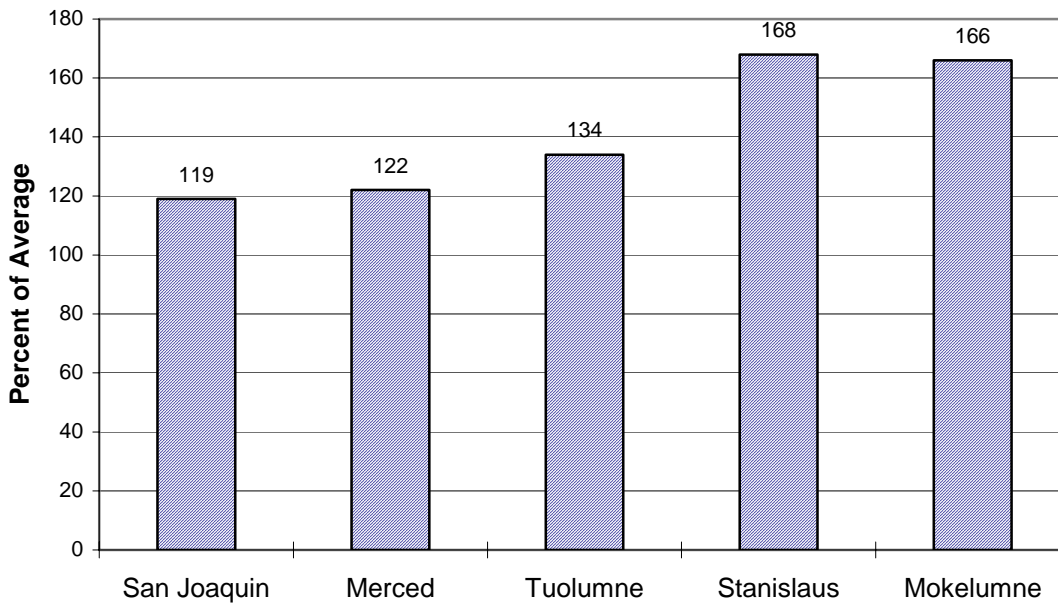


# San Joaquin Basin

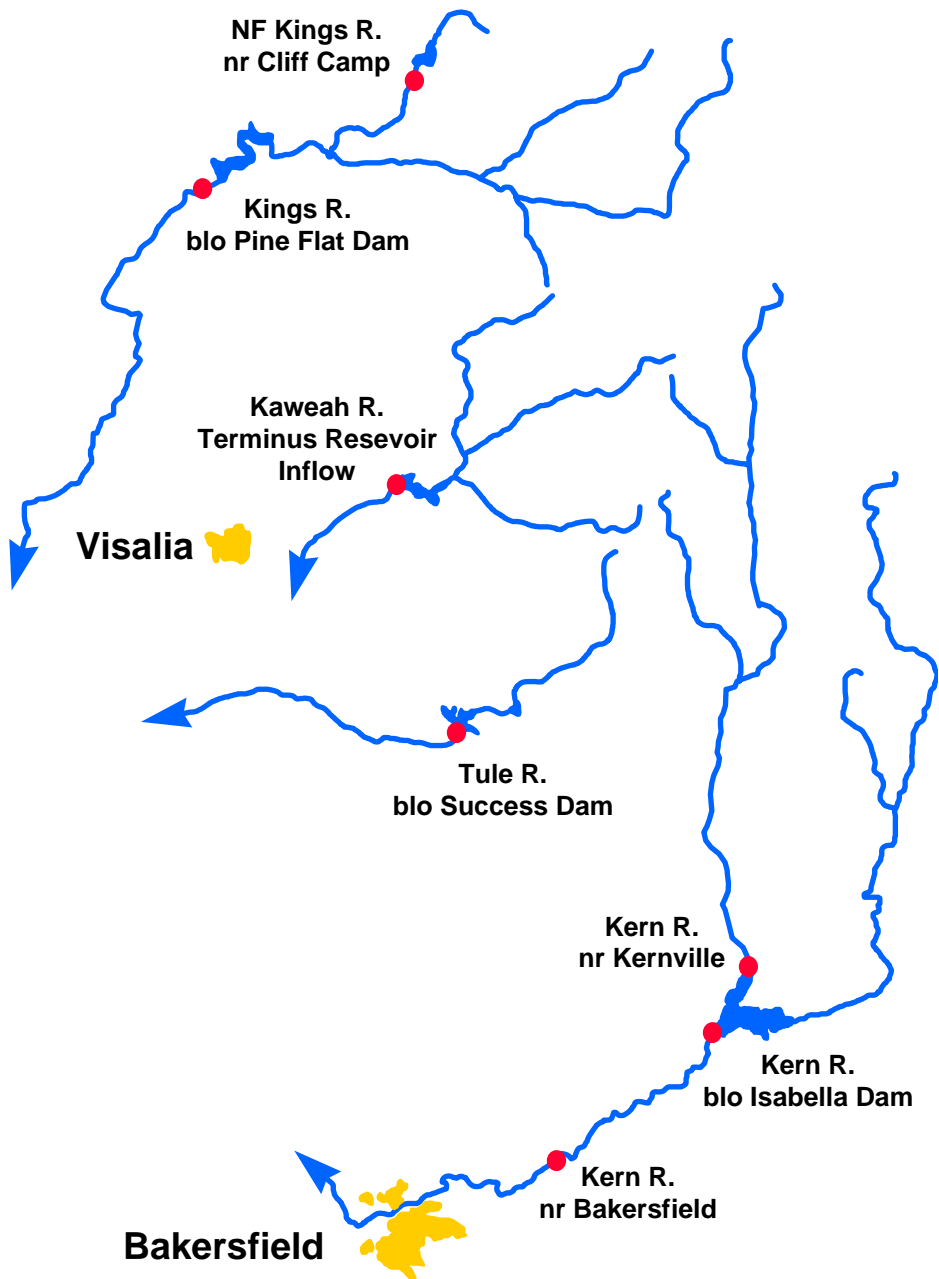
## Basin Reservoir Storage Contents of Major Reservoirs in % of Average



## Season Basin Runoff October 1 to Date



# Tulare Basin

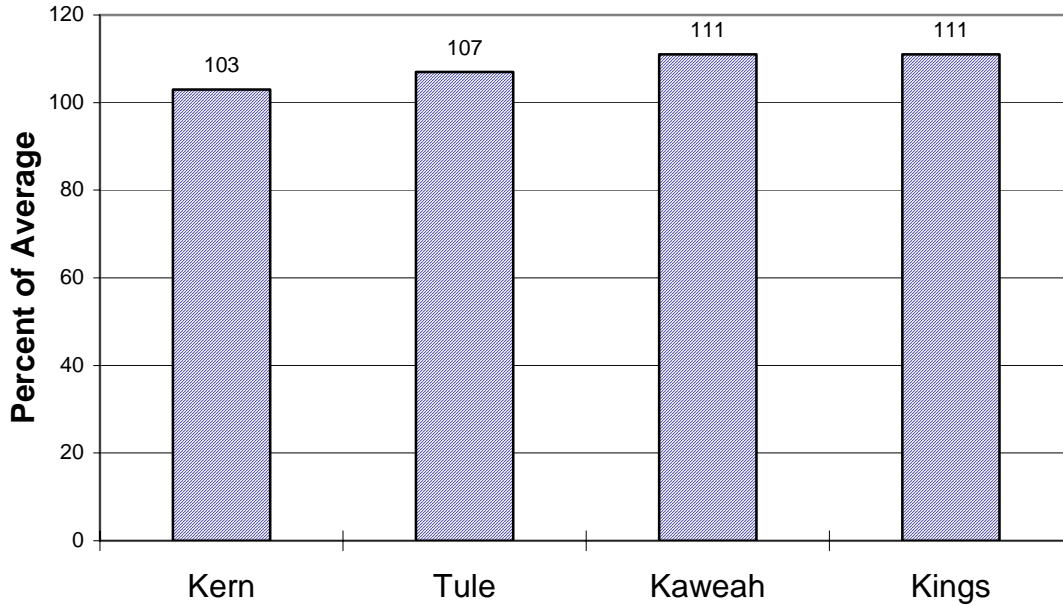


# Water Supply Forecasts

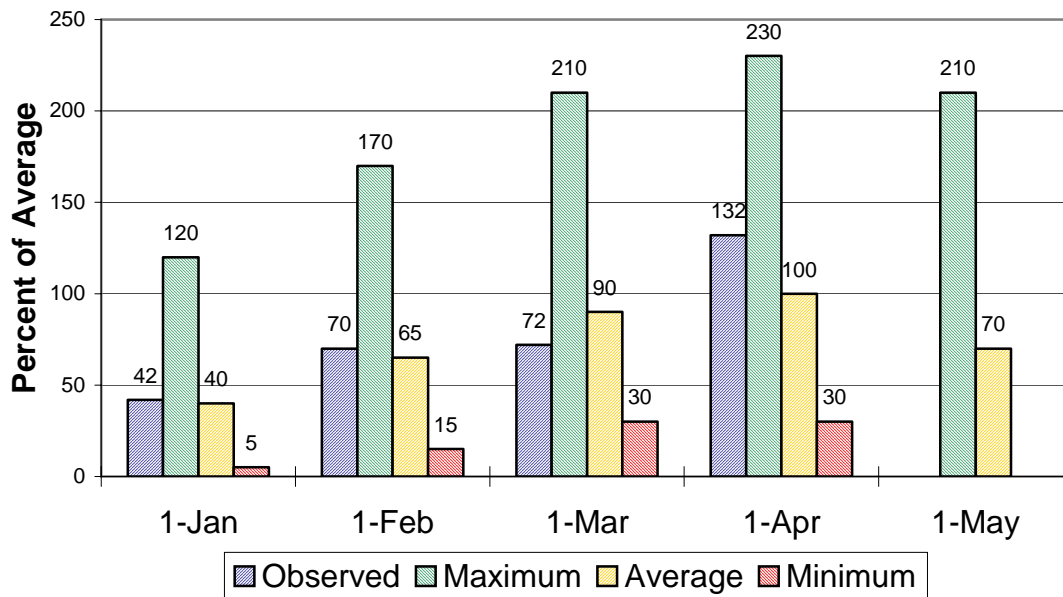
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
<b>Kern River</b>						
Kernville, nr	Apr-Jul	520	131	610	430	398*
Isabella Dam, blo	Apr-Jul	650	135	795	505	480
Bakersfield, nr	Apr-Jul	670	137	825	515	490
<b>Tule River</b>						
Success Dam	Apr-Jul	110	167	150	70	66
<b>Kaweah River</b>						
Terminus Dam	Apr-Jul	450	155	535	365	290
<b>NF Kings River</b>						
Cliff Camp, nr	Apr-Jul	360	150	405	315	240*
<b>Kings River</b>						
Pine Flat Dam, blo	Apr-Jul	1950	156	2140	1760	1250

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## Tulare Lake Basin Seasonal Precipitation October 1 to Date



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

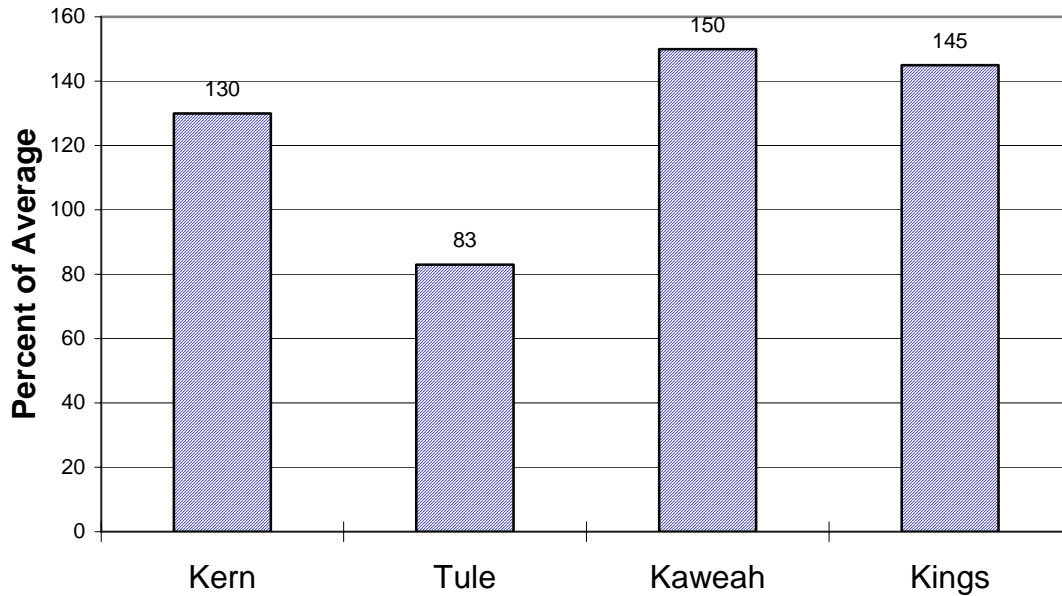




# Tulare Lake Basin

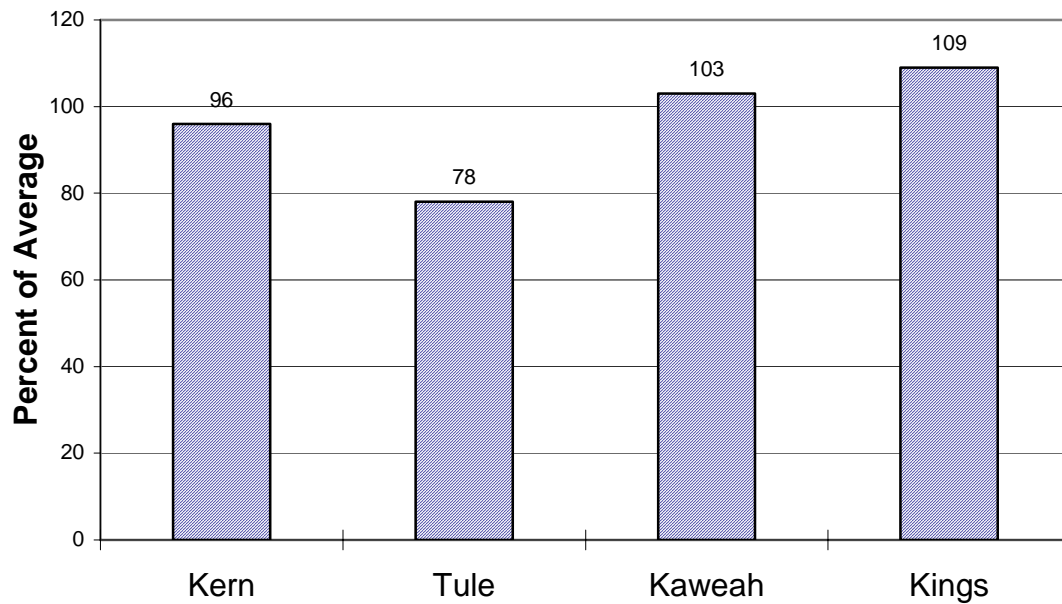
## Basin Reservoir Storage

Contents of Major Reservoirs in % of Average

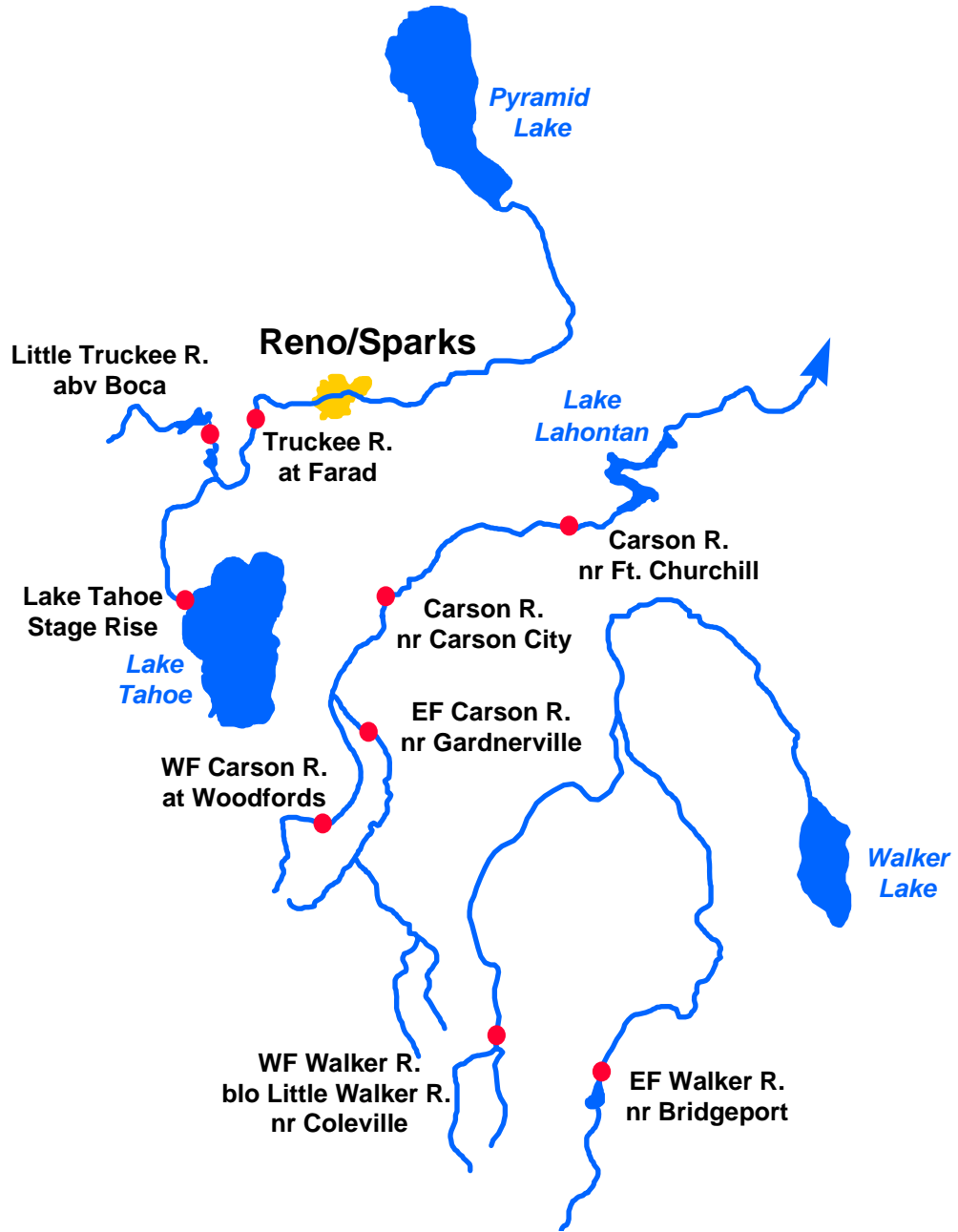


## Seasonal Basin Runoff

October 1 to Date



# East Side Sierra Nevada Basins



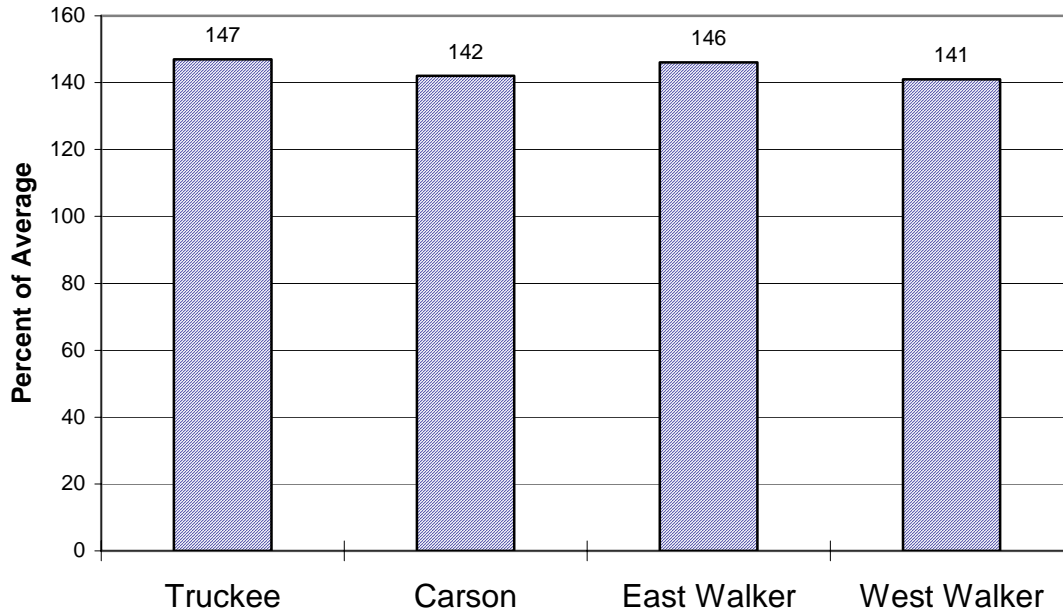
# Water Supply Forecasts

		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
<b>Truckee River</b>						
Truckee River						
Lake Tahoe Stage Rise	Apr-High	2.0	145	2.5	1.50	1.38
Ltl Truckee River						
Boca Res, abv, Truckee, nr	Apr-Jul	110	138	167	53	80
Truckee River						
Farad	Apr-Jul	360	138	430	290	260
<b>Carson River</b>						
EF Carson River						
Gardnerville, nr	Apr-Jul	275	146	300	250	189
WF Carson River						
Woodfords	Apr-Jul	84	150	93	75	56
Carson River						
Carson City, nr	Apr-Jul	305	162	350	260	188
Fort Churchill, nr	Apr-Jul	330	185	375	285	178
<b>Walker River</b>						
East Walker River						
Bridgeport, nr	Apr-Aug	135	201	152	118	67
West Walker River						
Ltl Walker, blo, Coleville, nr	Apr-Jul	270	173	285	255	156

# East Side Sierra Nevada Basins

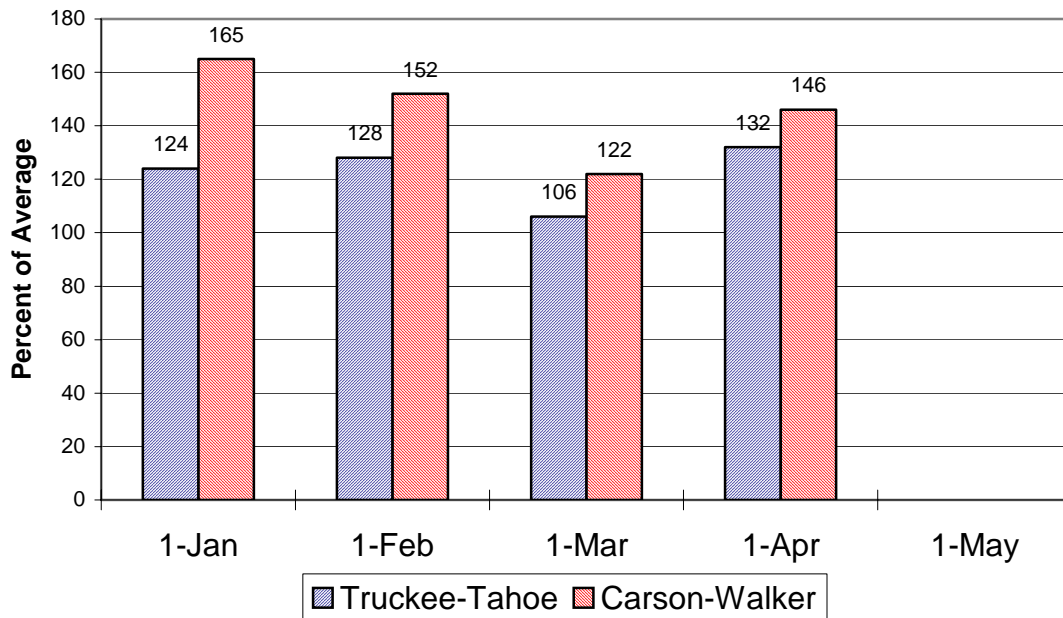
## Seasonal Basin Precipitation

October 1 to Date



## Basin Snowpack

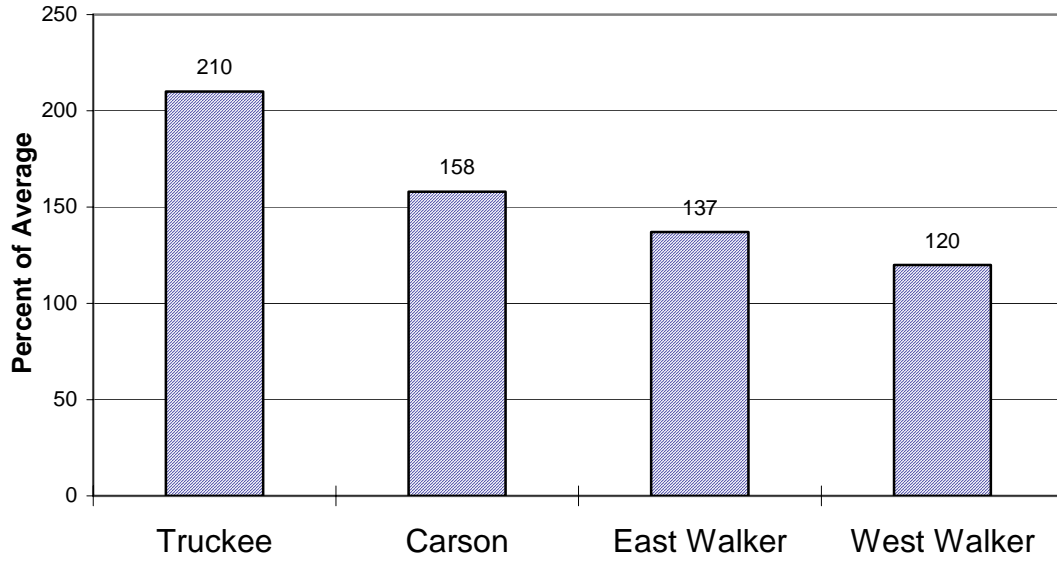
% of Average SWE to Date



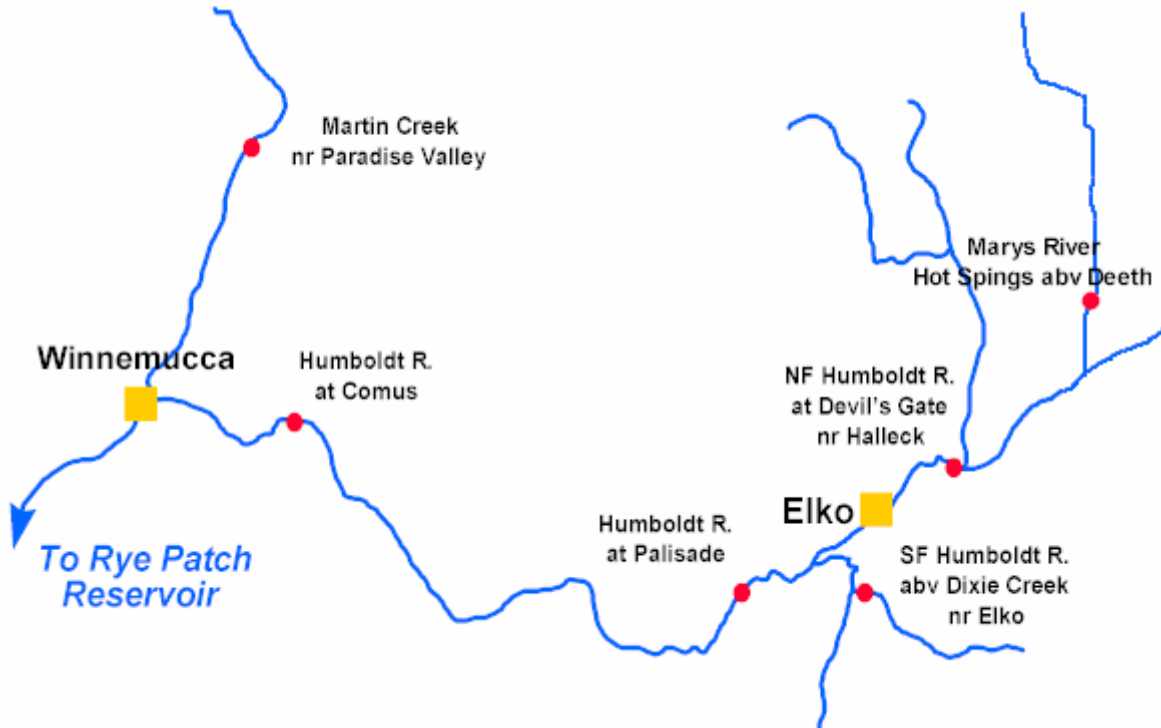
# East Side Sierra Nevada Basins

## Seasonal Basin Runoff

October 1 to Date



# Humboldt River Basin



## Water Supply Forecasts

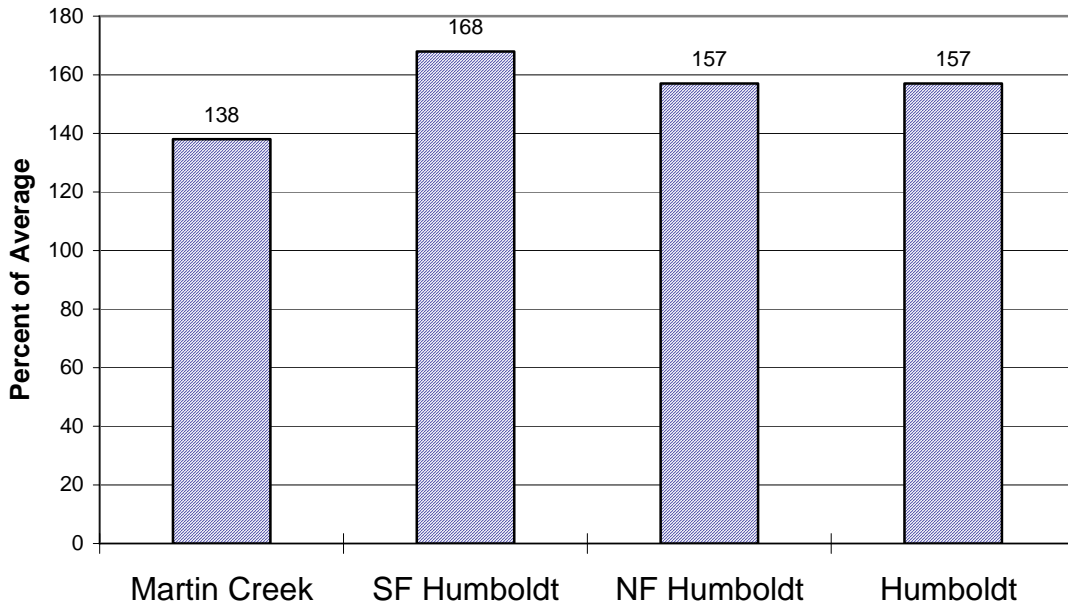
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
<hr/>						
NF Humboldt River						
Devlis Gate, at, Halleck, nr	Apr-Jul	60	176	80	40	34*
SF Humboldt River						
Dixie Ck, abv, Elko, nr	Apr-Jul	135	178	170	100	76
Marys River						
Hot Spings, abv, Deeth, nr	Apr-Jul	65	167	85	45	39
Humboldt River						
Elko, nr	Apr-Jul	300	195	400	200	154
Palisade	Apr-Jul	490	196	635	345	250
Comus	Apr-Jul	500	222	665	335	225
Martin Ck						
Paradise Vly, nr	Apr-Jul	27	144	35	19.0	18.7

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# Humboldt River Basin

## Seasonal Basin Precipitation

October 1 to Date



## Basin Snowpack

% of Average SWE to Date

