

# WATER SUPPLY OUTLOOK



## CALIFORNIA AND NORTHERN NEVADA

**FEBRUARY  
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

February 1, 2006

Storm systems were persistent enough during January to maintain near to above average precipitation over many of the watersheds in California's central valley and in Nevada. Based on current snowpack conditions, spring runoff forecasts range from below to slightly above average for watersheds in California's Central Valley. Forecasts are much above average in the Upper Klamath Lake, east side Sierra and northern Nevada basins. While much of the region has shifted to a drier weather regime early in February, two months of the wet season remain and events during this period should bring this year's water supply picture into sharper focus.

January rainfall was generally near to above average in northern California, and did not approach the copious amounts that fell in December. Much of the precipitation fell during the January 2<sup>nd</sup> through 3<sup>rd</sup> storm event. January amounts ranged from 180 percent in the Lower Klamath River basin to 97 percent for the American River basin. The Truckee River basin received 117 percent of the monthly average, the Carson 129, and the Walker 148 percent. In Nevada, the Humboldt River basin received about 167 percent of the January average.

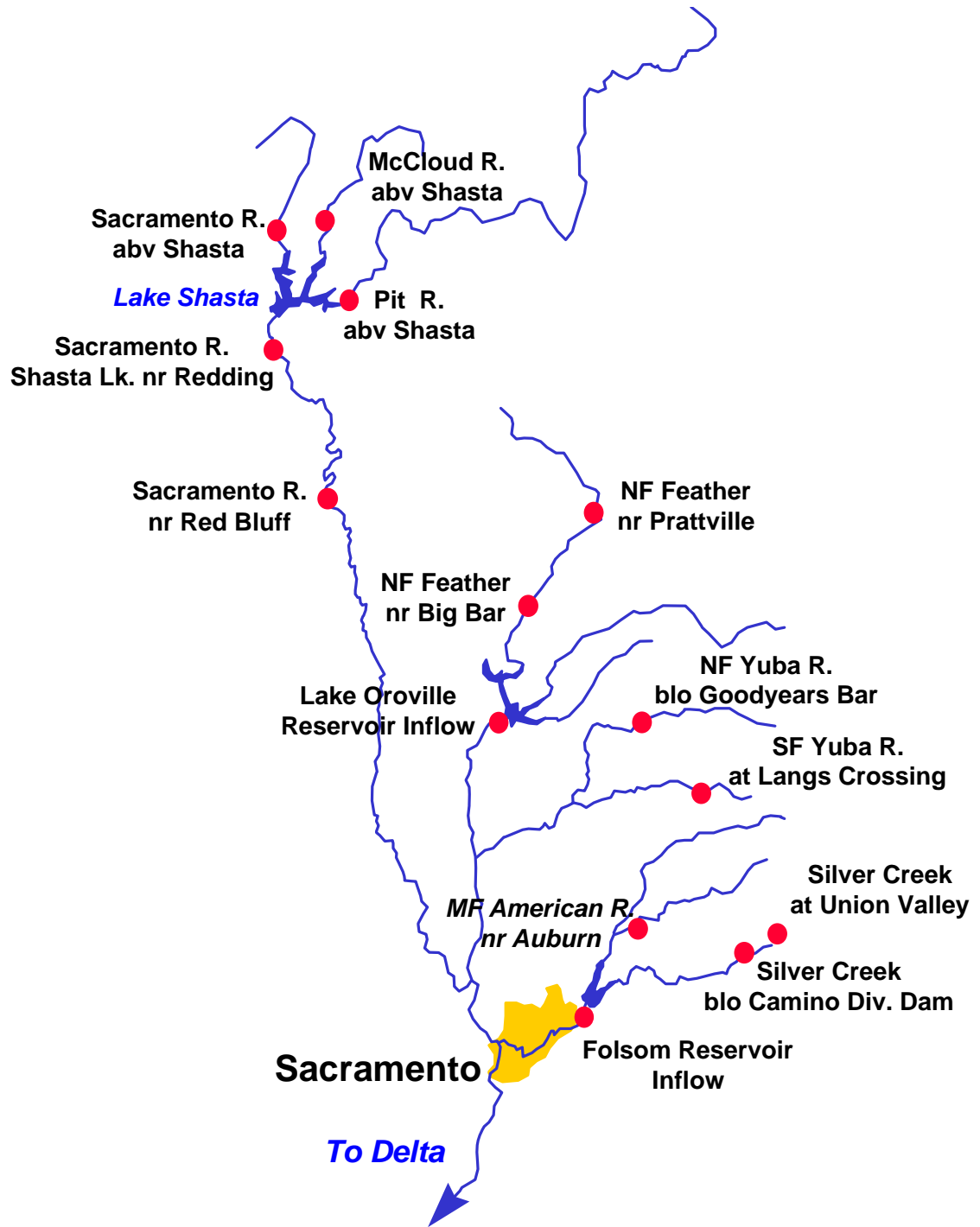
Snow pack accumulation at the lower elevations continue to lag behind that of the higher for most watersheds in California's central valley. The California Department of Water Resources reports that snow packs are about 80 percent of the February 1<sup>st</sup> average in the Sacramento River region, 120 percent in the San Joaquin and 130 percent in the Tulare Lake region. The April 1<sup>st</sup> average stands at 50, 75 and 80 percent, respectively. Snow packs in the Tahoe-Truckee are at 128 percent of the average-to-date, the Carson-Walker at 152 percent and the Humboldt basin at 118 percent. The upper Klamath basin snow pack stands at about 162 percent of the average-to-date; a welcome improvement to the much below average conditions that existed at this time last year.

Monthly runoff was abundant during the first five or six days of January for most basins because of the New Year's storm. Averages were greatest in the Trinity-Sacramento and San Joaquin regions ranging from 175 percent for the Trinity River basin to 137 percent for the Merced. January runoff was in the 110 to 151 percent range in the Tulare Lake watersheds. East side Sierra inflows varied from 150 percent for the West Walker basin to 333 percent for the Truckee River at Farad. The upper Klamath basin received 156 percent of the January average while the Humboldt River at Palisade recorded 254 percent.

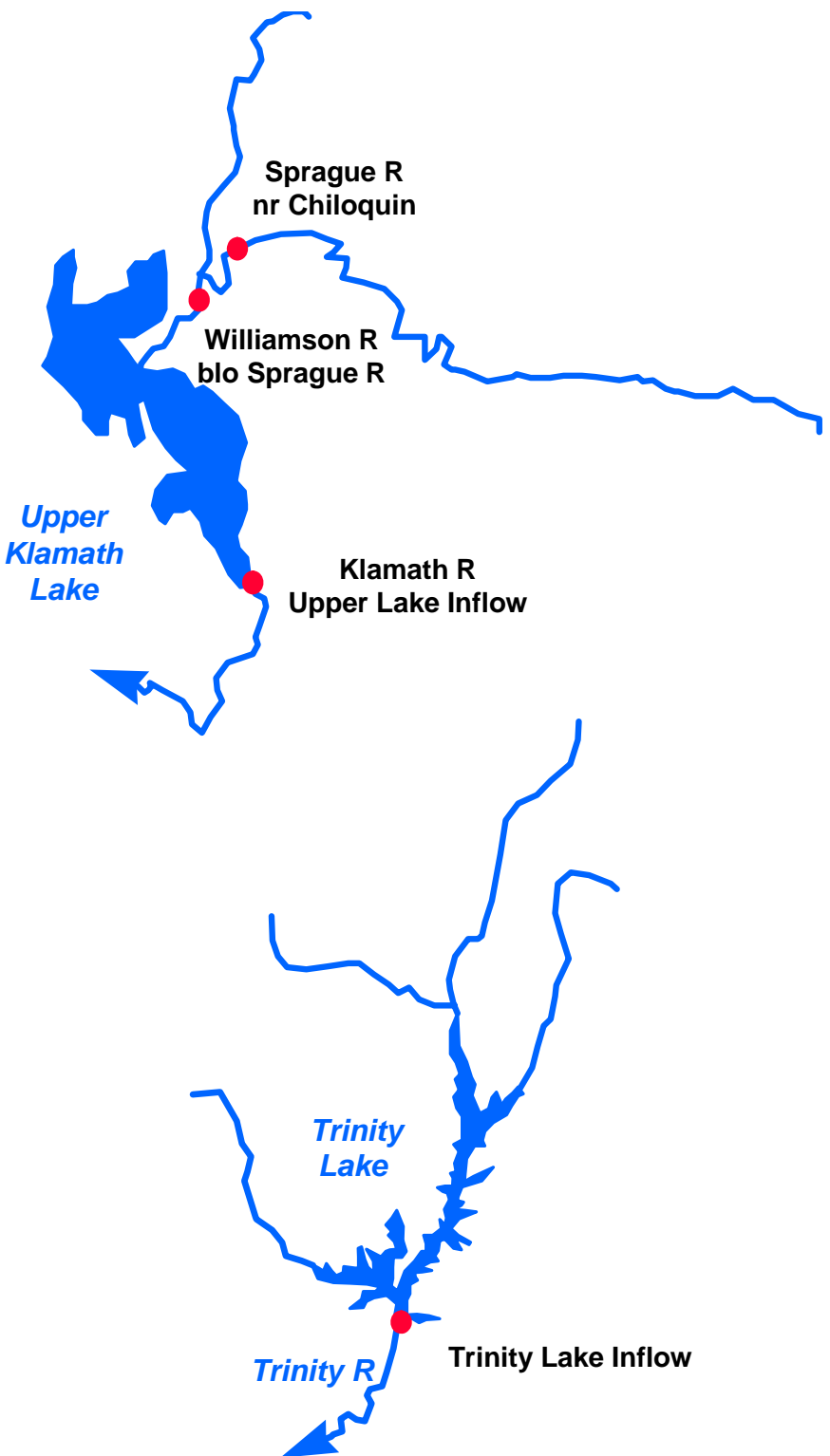
Controlled releases were high in January for many of the major reservoirs in the northern half of California to restore flood control space. The high runoff during the month continued to sustain greater than average storage overall for reservoirs in California and Nevada. Stored water in the Sacramento River region was at 120 percent of average for the date, the San Joaquin at 132 percent, and the Tulare Lake region at 131 percent. East-side Sierra reservoirs were at 157 percent of average. The lake level at Lake Tahoe stood at 6225.93 feet as of January 31<sup>st</sup> and usable storage was 356,300 acre feet or 98 percent of average. Storage at Lahontan Reservoir in Nevada stands at 127 percent while Rye Patch Reservoir is at 181 percent of the average-to-date. Storage at Upper Klamath Lake is about 109 percent of average.

The spring runoff projections show most basins near to much above average, the main exceptions being the Feather, Yuba and Tule River watersheds where forecasts are below average. The April through July runoff forecasts vary from 82 percent for the Feather River inflow to 112 percent for the upper San Joaquin basin. Forecasts range from 115 to 149 percent for east side Sierra forecast points and 136 to 147 percent for those on the mainstem Humboldt River. The March through September forecast for the Upper Klamath Lake inflow is 140 percent.

# Sacramento River Basin



# Upper Klamath and Trinity River Basins



# Water Supply Forecasts

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

Williamson River Sprague, blo	Mar-Sep	695	138	845	545	505
Sprague River Chiloquin, nr	Mar-Sep	430	141	555	305	305
Upper Klamath Falls River Inflow	Mar-Sep	1000	140	1210	795	715
Lost River Gerber Reservoir Inflow	Feb-Jul	65	138	90	40	47
Clear Lake Reservoir Inflow	Feb-Jul	150	143	210	89	105
Scott River Fort Jones, nr	Apr-Jul	200	110	295	120	181
Trinity River Trinity Lake Inflow	Apr-Jul	710	112	1060	440	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	95	120	155	175	90	20	15	10	440	1356
50%	12	36	349	279	155	200	240	280	150	40	20	15	710	1776
10%	12	36	349	279	225	290	350	410	240	60	25	20	1060	2296

## SACRAMENTO RIVER BASIN

### SACRAMENTO RIVER ABOVE BEND BRIDGE

Pit River Montgomery Ck, nr	Apr-Jul	950	89	1430	600	1070
Mccloud River Shasta Lk, abv	Apr-Jul	390	105	560	240	370
Sacramento River Delta	Apr-Jul	305	105	440	190	290
Shasta Lake, Redding, nr	Apr-Jul	1880	105	2700	1200	1790
Bend Bridge, abv, Red Bluff, nr	Apr-Jul	2540	104	3710	1600	2440

### FEATHER RIVER ABOVE OROVILLE RESERVOIR

NF Feather River Prattville, nr	Apr-Jul	275	83	440	185	333*
Big Bar	Apr-Jul	790	82	1270	540	962*
Feather River Oroville Reservoir Inflow	Apr-Jul	1450	82	2350	980	1760

# Water Supply Forecasts

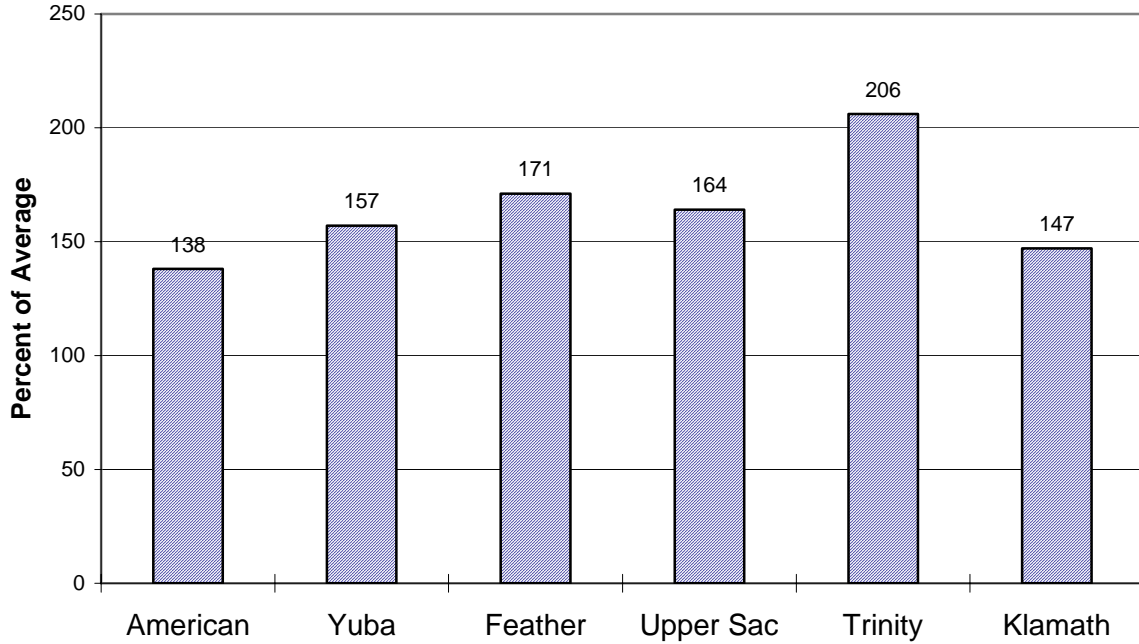
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
<b>YUBA RIVER ABOVE SMARTVILLE</b>						
North Yuba River						
Goodyears Bar, blo	Apr-Jul	230	84	370	155	273*
South Yuba River						
Langs Crossing	Apr-Jul	185	82	300	125	225*
Yuba River						
Smartville, nr	Apr-Jul	840	84	1350	570	995
<b>AMERICAN RIVER ABOVE FOLSOM RESERVOIR</b>						
MF American River						
Auburn, nr	Apr-Jul	440	90	700	270	490*
Silver Ck						
Union Valley	Apr-Jul	94	96	145	56	98*
Camino Dam, blo	Apr-Jul	150	95	230	90	158*
American River						
Folsom Reservoir Inflow	Apr-Jul	1170	95	1800	720	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

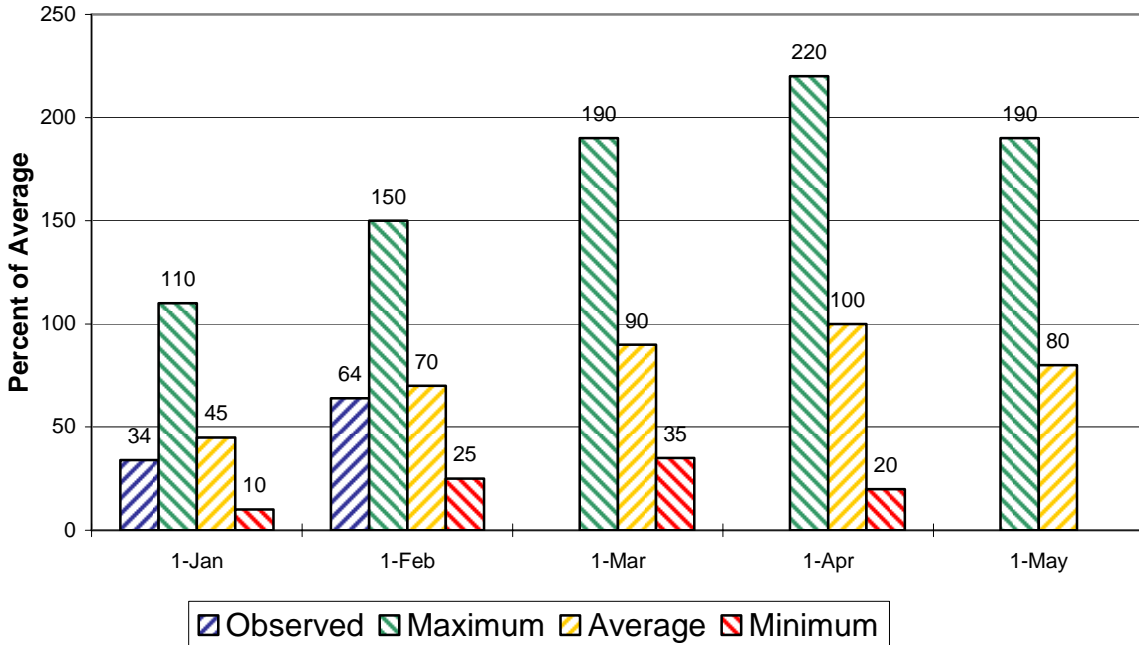
## Seasonal Basin Precipitation

October 1 to Date



## Seasonal Basin Snowpack

Water Content in % of April 1 Average

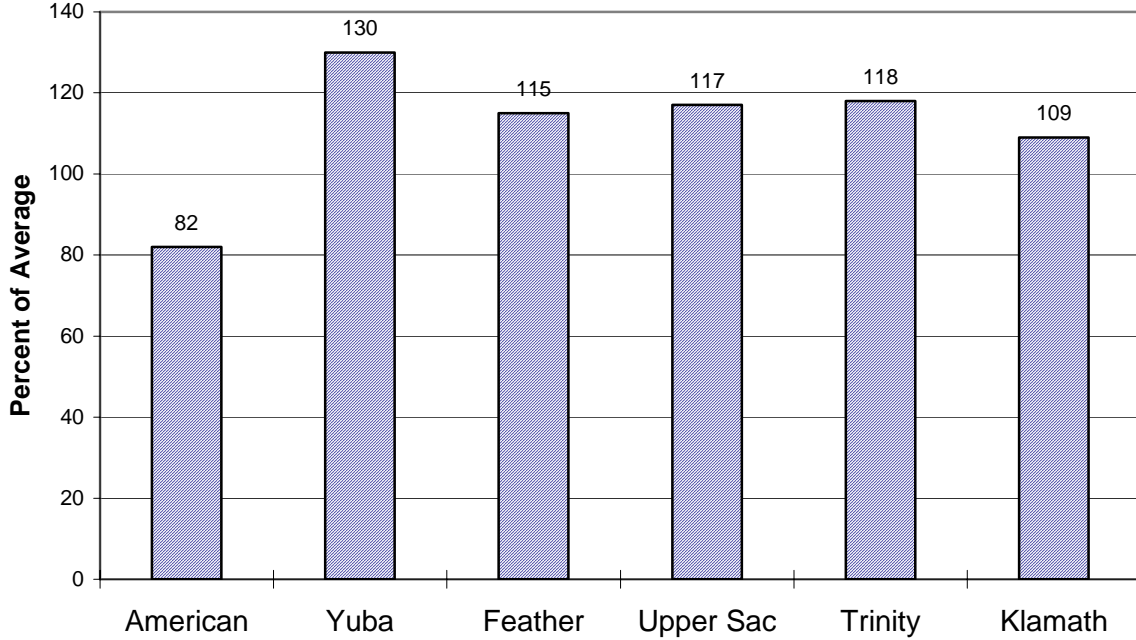




# Sacramento/Trinity/Klamath River Basins

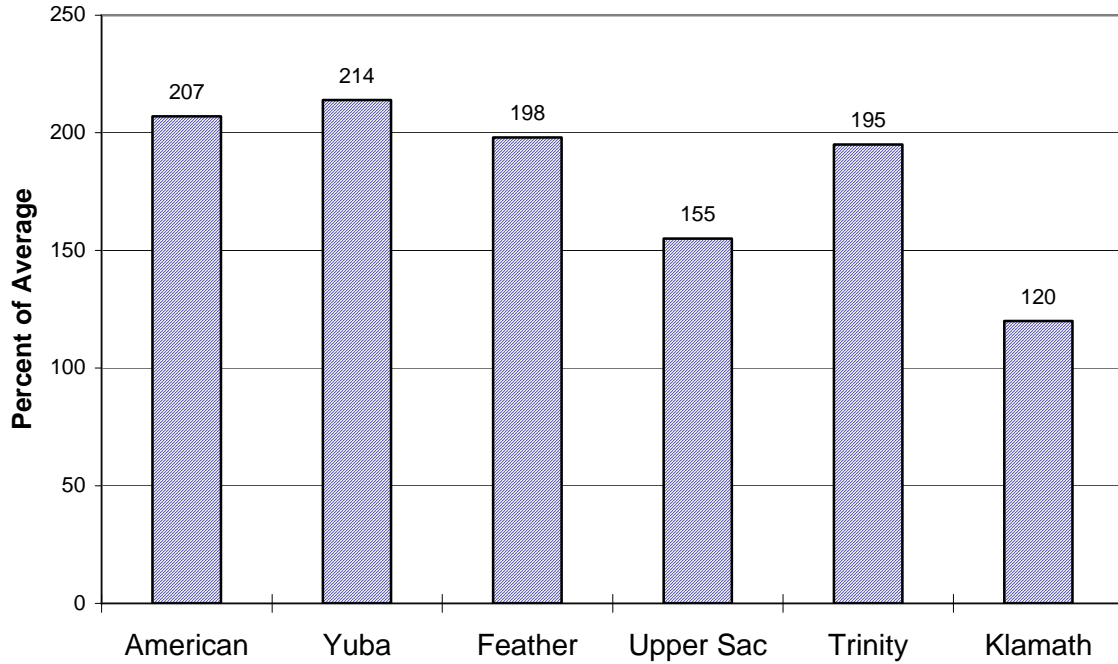
## Basin Reservoir Storage

Contents of Major Reservoirs in % of Average



## Seasonal Basin Runoff

October 1 to Date



# San Joaquin Basin



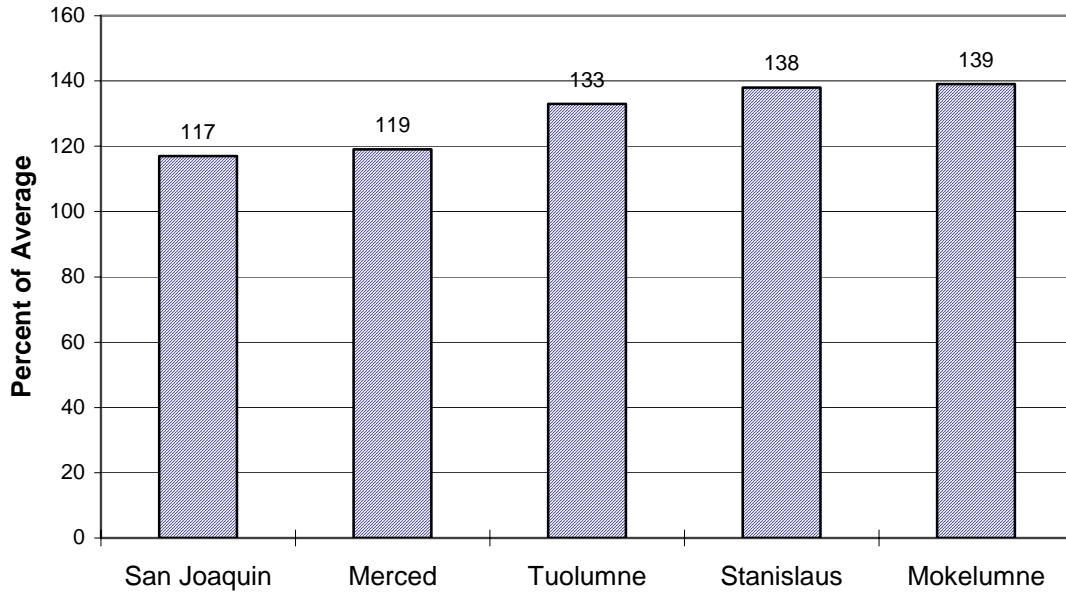
# Water Supply Forecasts

		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
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SF San Joaquin River						
Hooper Ck, blo, Florence Lk, nr	Apr-Jul	210	109	290	128	192*
San Joaquin River						
Millerton Lk	Apr-Jul	1420	112	1820	1020	1270
Merced River						
Pohono Bridge, at, Yosemite, nr	Apr-Jul	420	117	580	260	360*
Merced Falls, blo	Apr-Jul	700	109	1030	370	645
Tuolumne River						
Hetch Hetchy, nr	Apr-Jul	700	117	910	490	596*
La Grange, nr	Apr-Jul	1350	110	1820	880	1230
MF Stanislaus River						
Beardsley Dam, blo	Apr-Jul	340	106	485	193	320*
Stanislaus River						
Goodwin Dam, blo, Knights Ferry	Apr-Jul	750	108	980	530	695
NF Mokelumne River						
West Point	Apr-Jul	440	106	675	205	416*
Mokelumne River						
Mokelumne Hill	Apr-Jul	480	104	690	270	460
Cosumnes River						
Michigan Bar	Apr-Jul	125	102	205	45	123

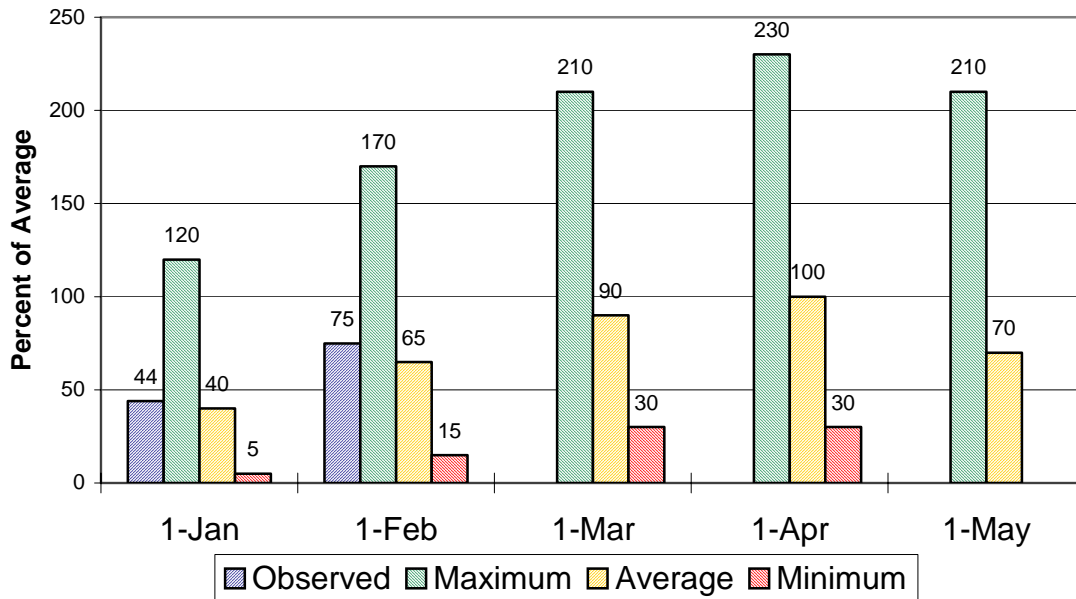
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# San Joaquin Basin

## Seasonal Basin Precipitation October 1 to Date

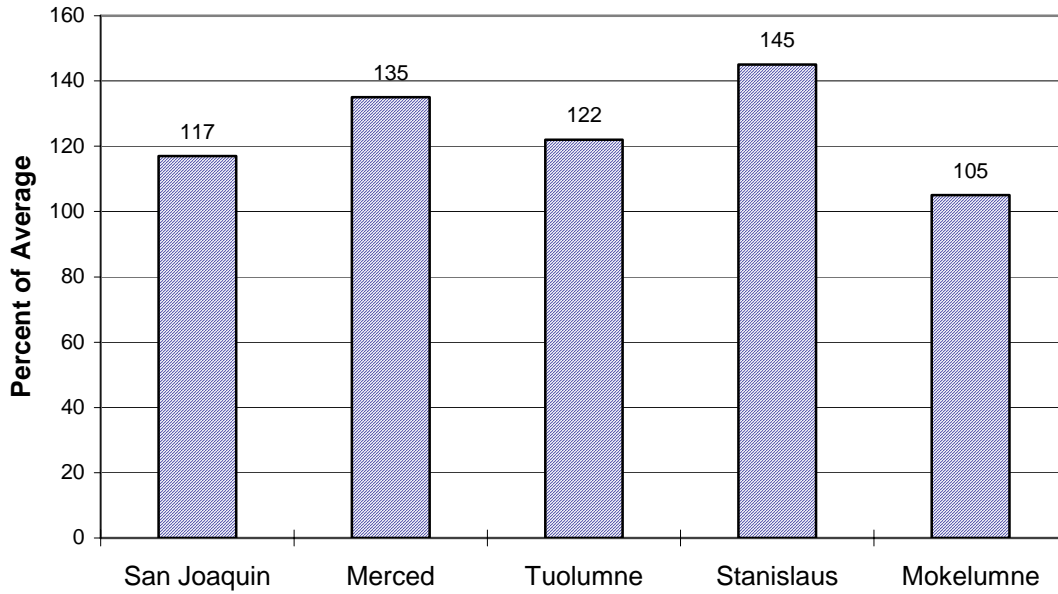


## Seasonal Basin Snowpack Water Content in % of April 1 Average

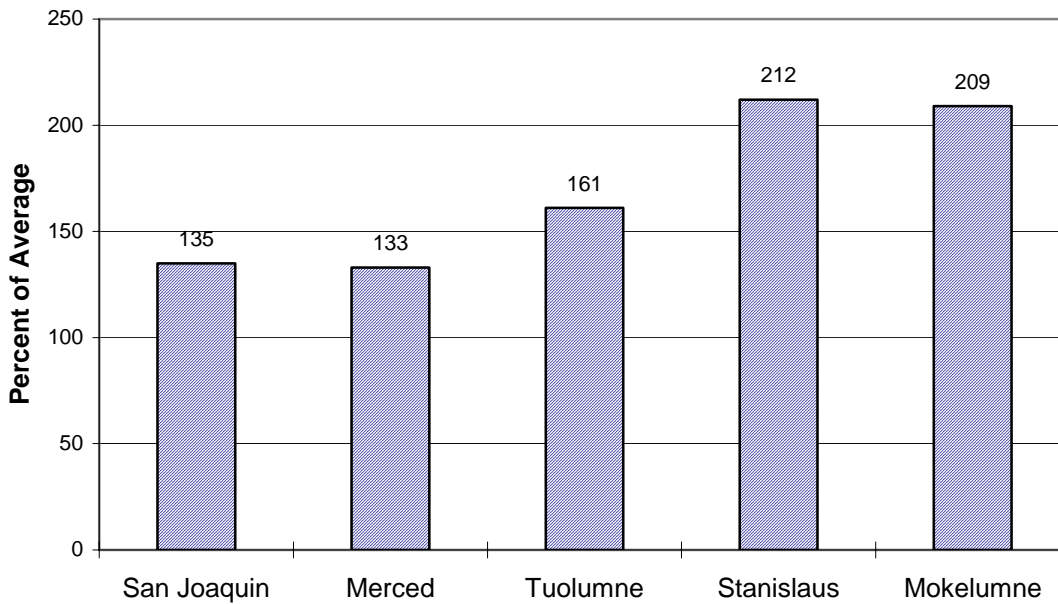


# San Joaquin Basin

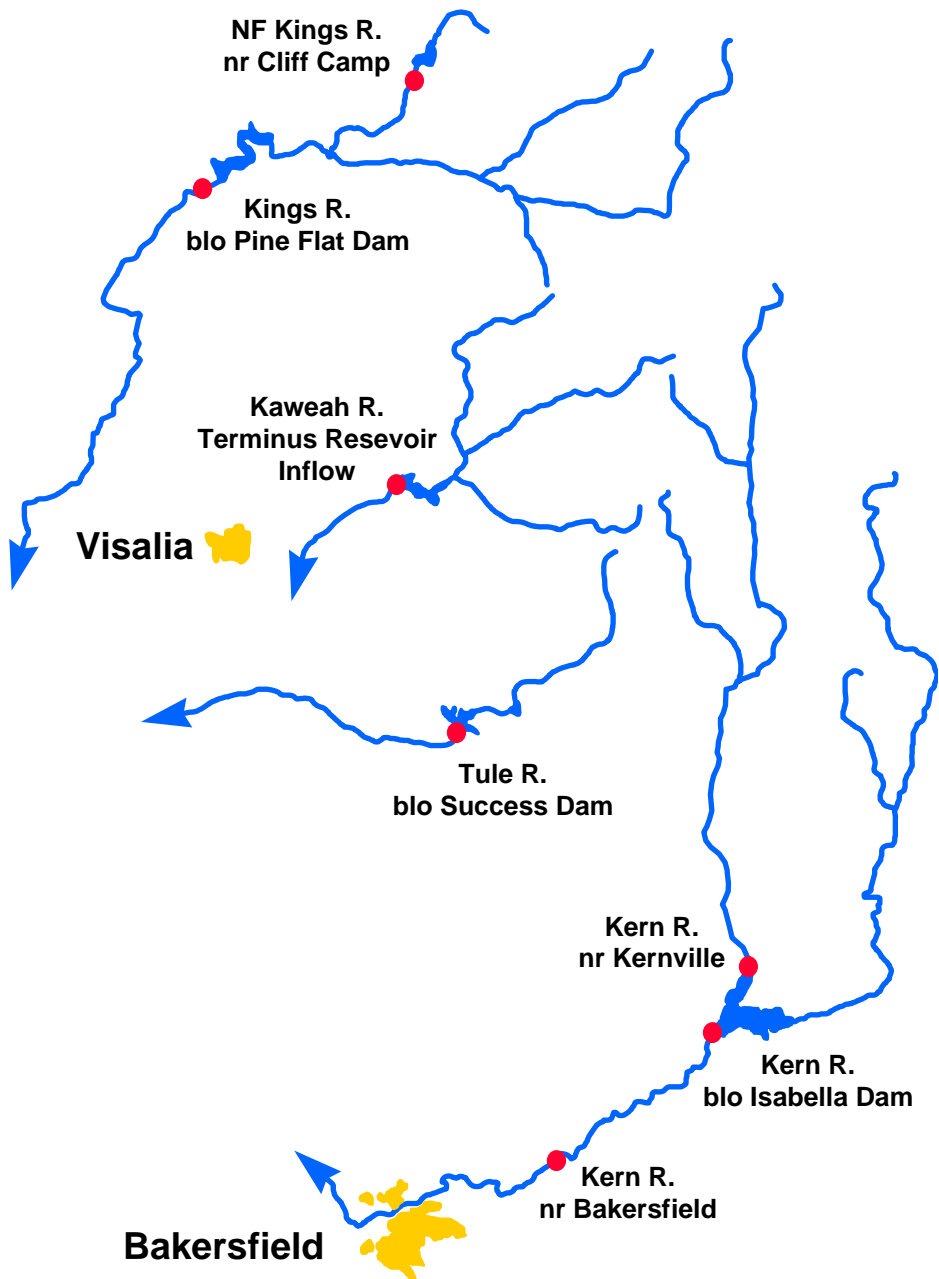
## Basin Reservoir Storage Contents of Major Reservoirs in % of Average



## Season Basin Runoff October 1 to Date



# Tulare Basin

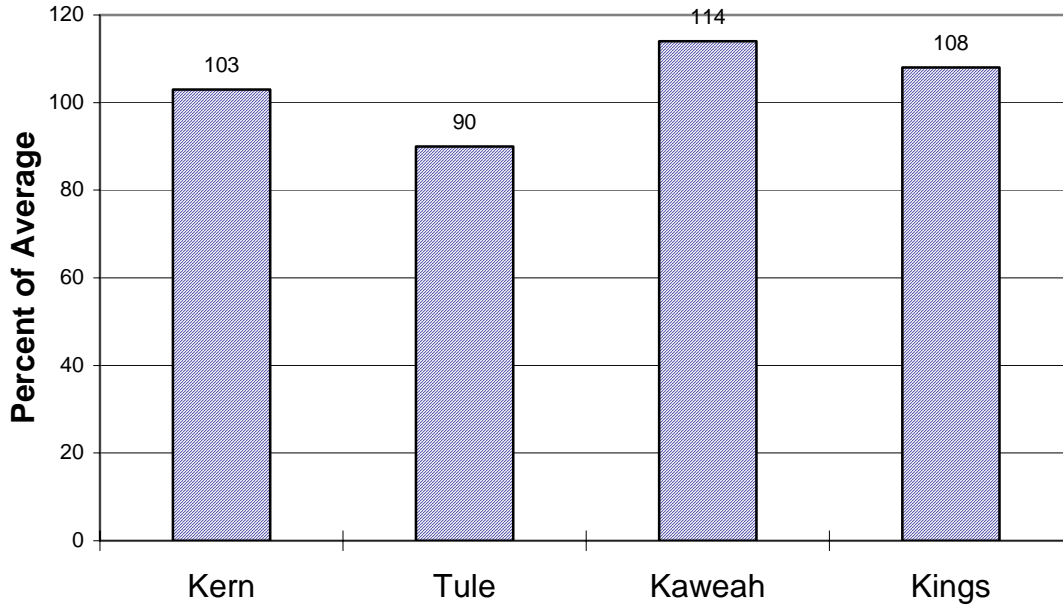


# Water Supply Forecasts

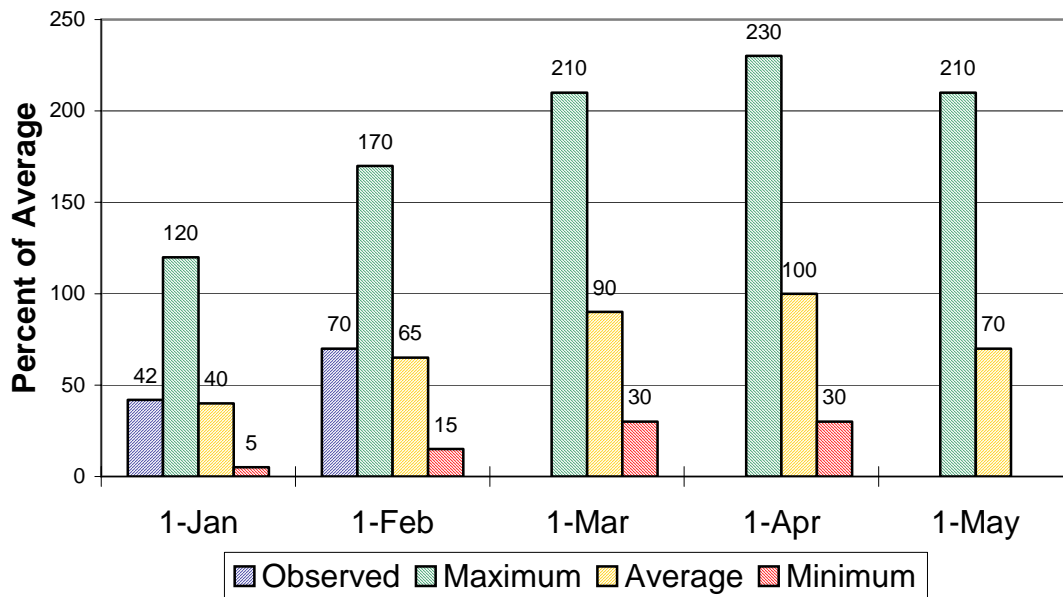
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
<b>Kern River</b>						
Kernville, nr	Apr-Jul	420	106	610	230	398*
Isabella Dam, blo	Apr-Jul	510	106	740	300	480
Bakersfield, nr	Apr-Jul	520	106	755	305	490
<b>Tule River</b>						
Success Dam	Apr-Jul	55	83	95	15.0	66
<b>Kaweah River</b>						
Terminus Dam	Apr-Jul	300	103	445	155	290
<b>NF Kings River</b>						
Cliff Camp, nr	Apr-Jul	260	108	375	145	240*
<b>Kings River</b>						
Pine Flat Dam, blo	Apr-Jul	1350	108	1800	900	1250

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## Tulare Lake Basin Seasonal Precipitation October 1 to Date



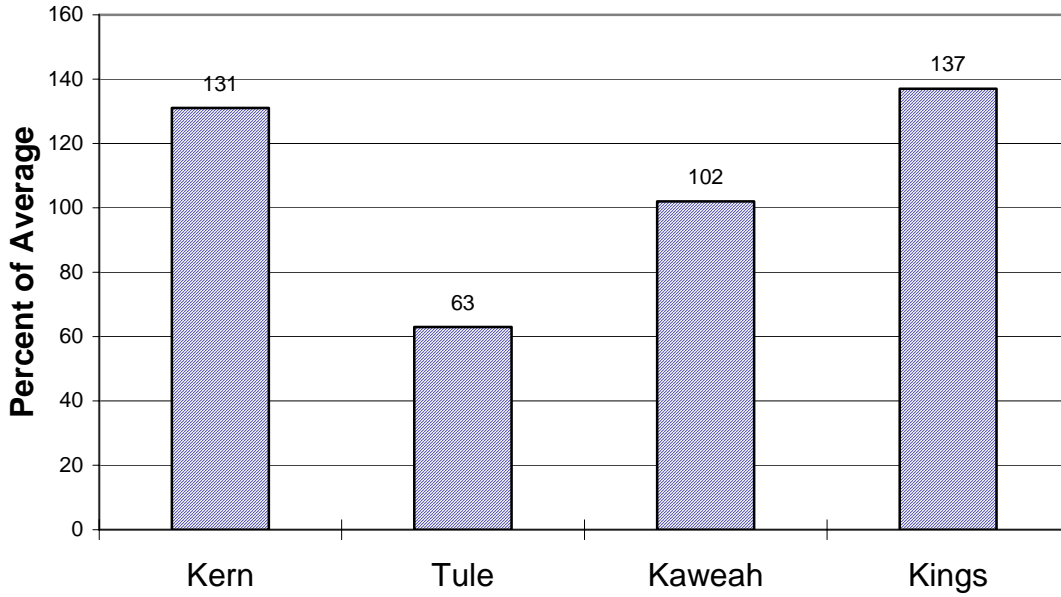
## Seasonal Basin Snowpack Water Content in % of April 1 Average



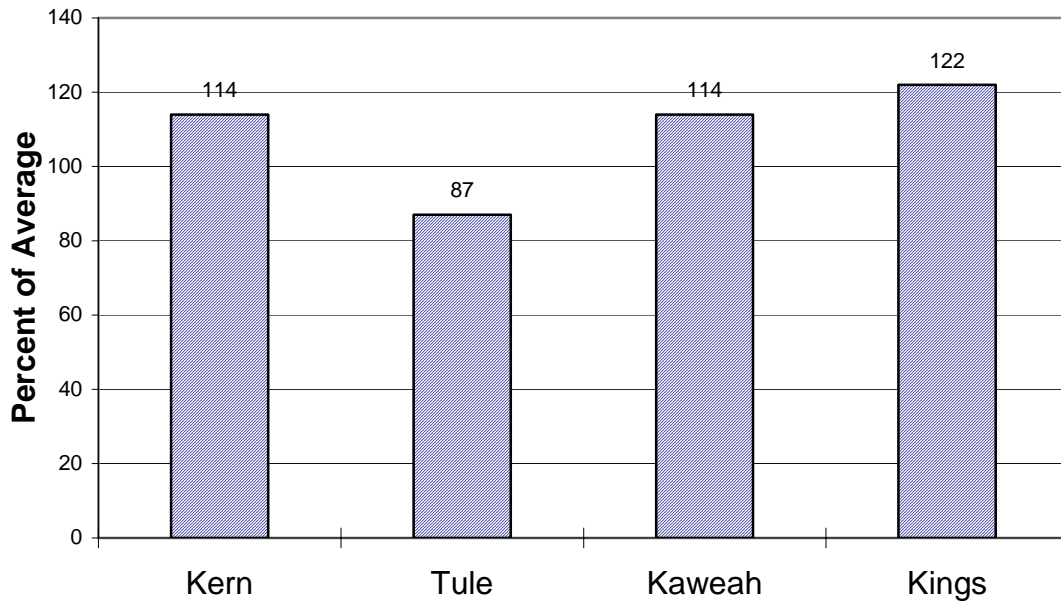


# Tulare Lake Basin

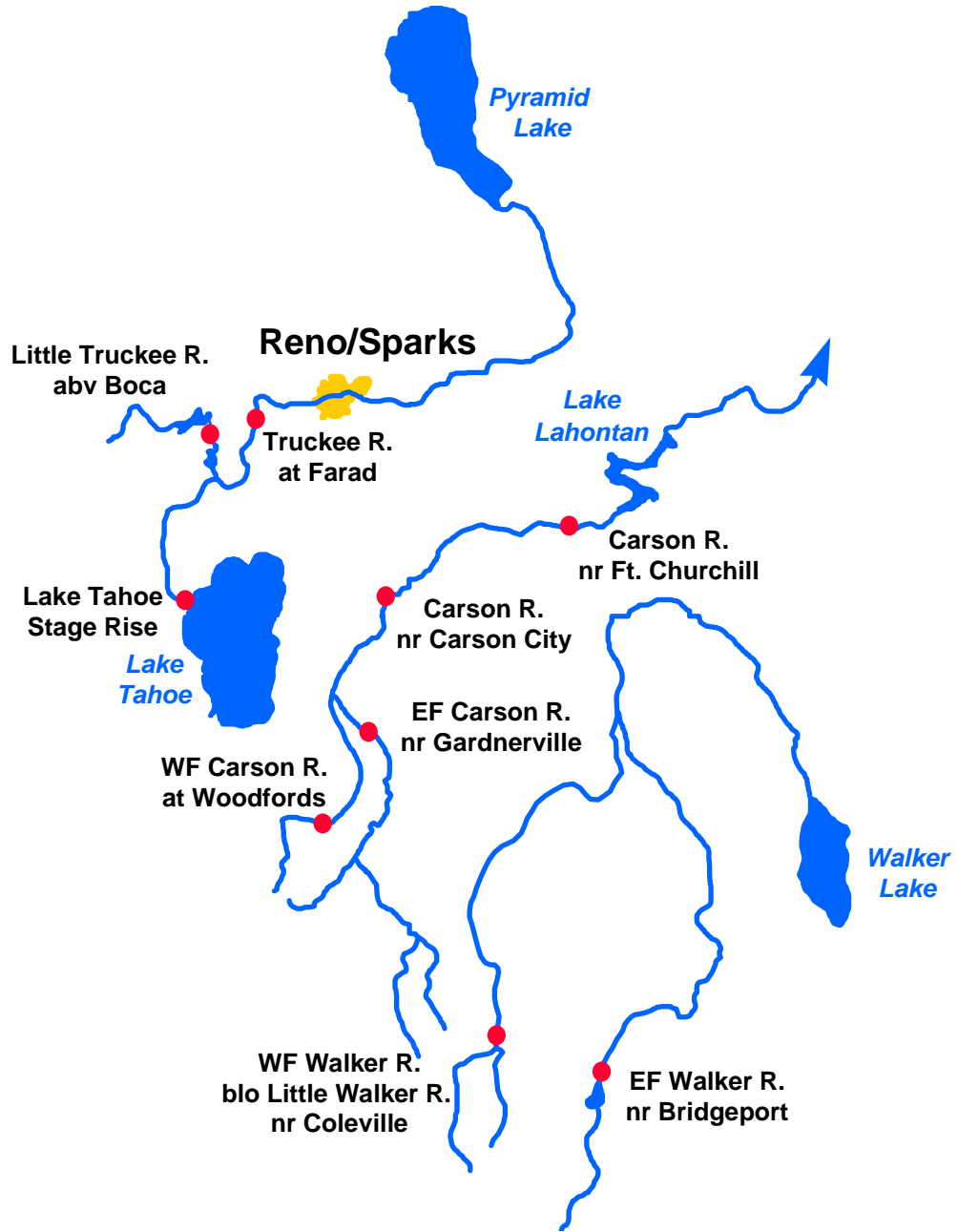
## Basin Reservoir Storage Contents of Major Reservoirs in % of Average



## Seasonal Basin Runoff October 1 to Date



# East Side Sierra Nevada Basins



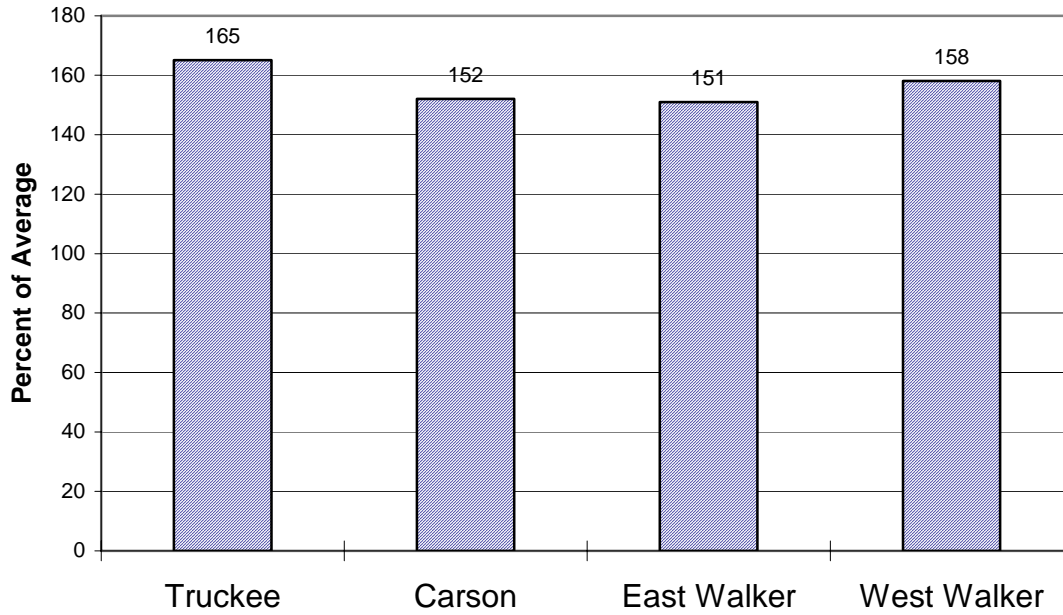
# Water Supply Forecasts

		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	1.70	123	2.6	0.80	1.38
Ltl Truckee River						
Boca Res, abv, Truckee, nr	Apr-Jul	92	115	139	45	80
Truckee River						
Farad	Apr-Jul	325	125	455	196	260
<b>Carson River</b>						
EF Carson River						
Gardnerville, nr	Apr-Jul	235	124	285	184	189
WF Carson River						
Woodfords	Apr-Jul	72	129	90	55	56
Carson River						
Carson City, nr	Apr-Jul	245	130	315	175	188
Fort Churchill, nr	Apr-Jul	250	140	330	170	178
<b>Walker River</b>						
East Walker River						
Bridgeport, nr	Apr-Aug	100	149	141	59	67
West Walker River						
Ltl Walker, blo, Coleville, nr	Apr-Jul	215	138	290	140	156

# East Side Sierra Nevada Basins

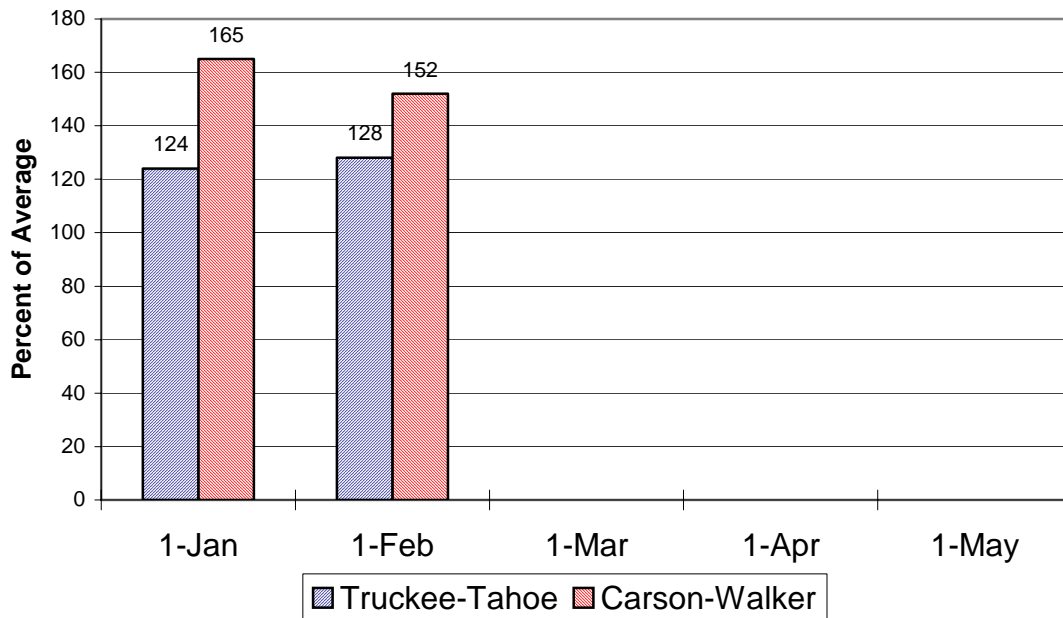
## Seasonal Basin Precipitation

October 1 to Date



## Basin Snowpack

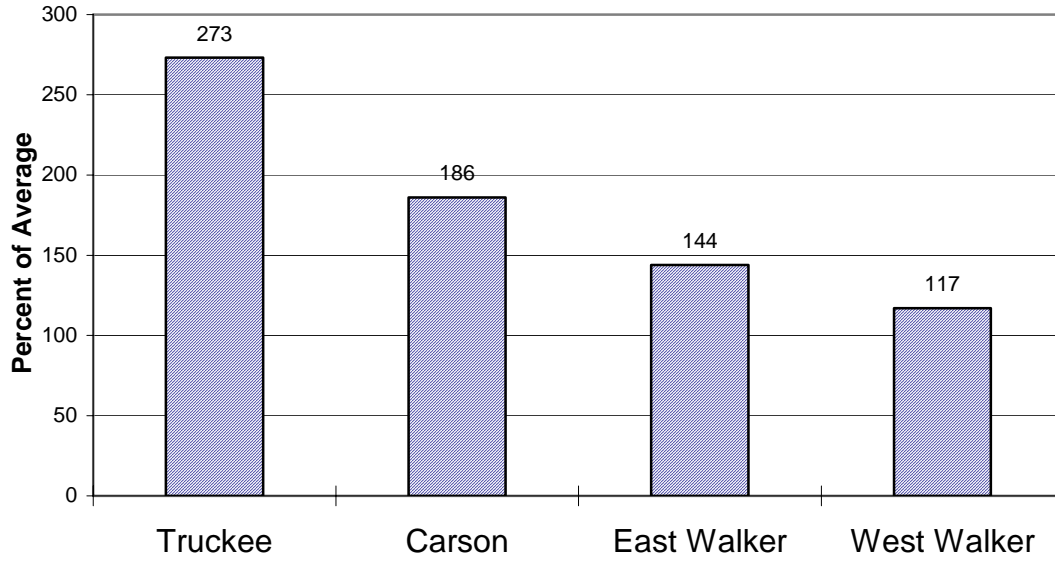
% of Average SWE to Date



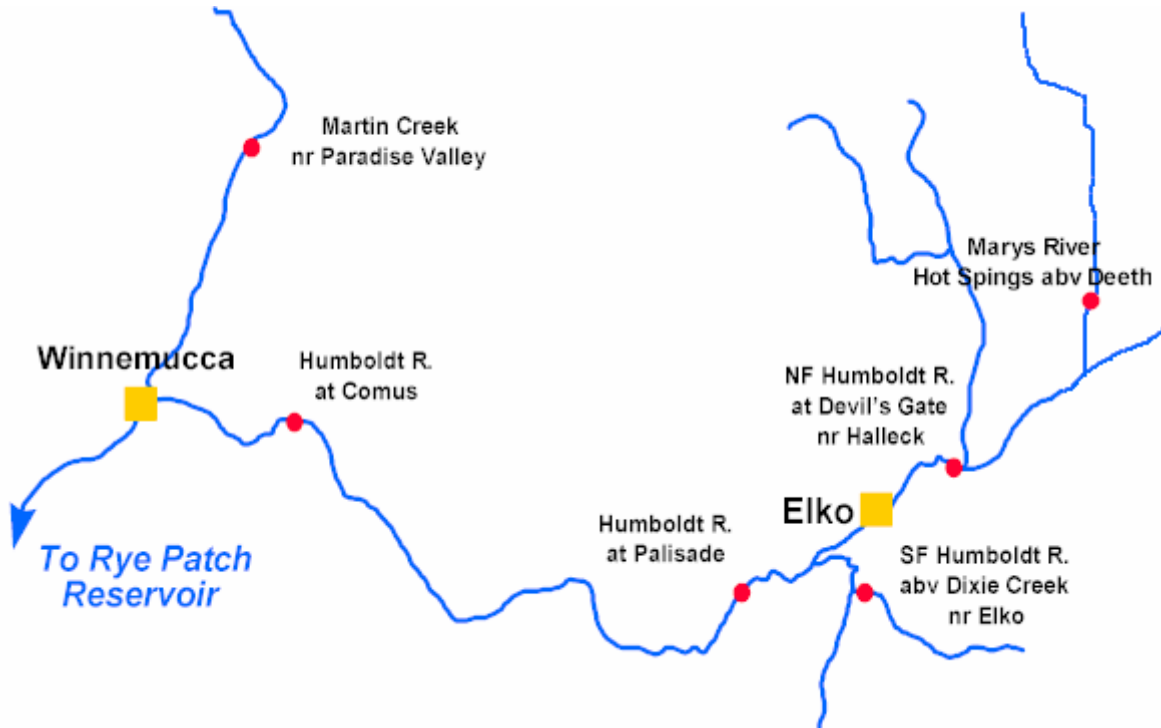
# East Side Sierra Nevada Basins

## Seasonal Basin Runoff

October 1 to Date



# Humboldt River Basin



## Water Supply Forecasts

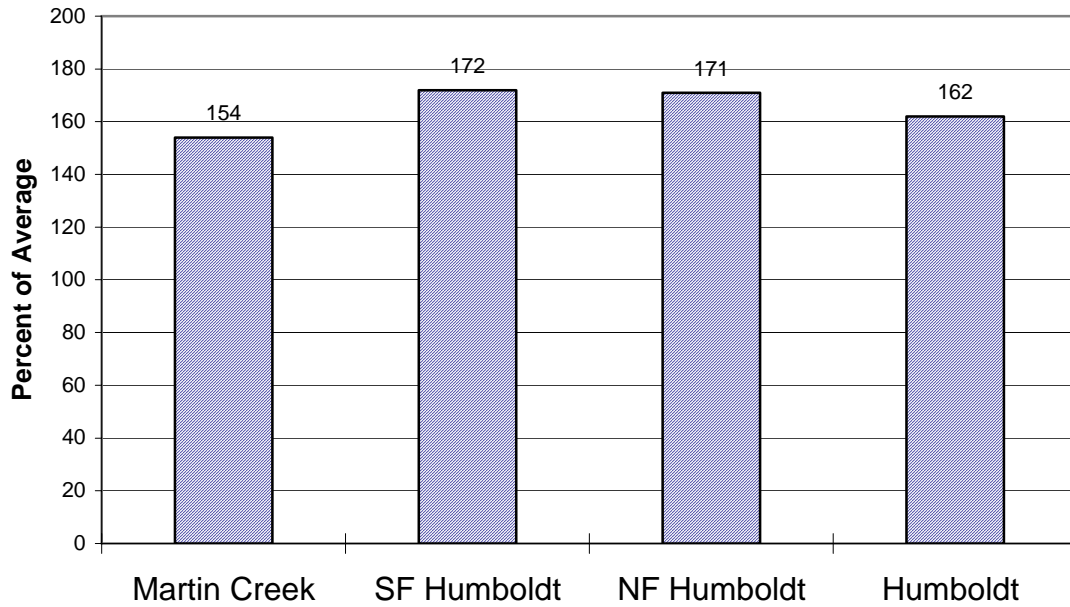
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
<hr/>						
NF Humboldt River						
Devlis Gate, at, Halleck, nr	Apr-Jul	45	132	65	25	34*
SF Humboldt River						
Dixie Ck, abv, Elko, nr	Apr-Jul	100	132	137	63	76
Marys River						
Hot Spings, abv, Deeth, nr	Apr-Jul	55	141	80	30	39
Humboldt River						
Elko, nr	Apr-Jul	215	140	305	125	154
Palisade	Apr-Jul	340	136	505	177	250
Comus	Apr-Jul	330	147	535	123	225
Martin Ck						
Paradise Vly, nr	Apr-Jul	23	123	34	12.0	18.7

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# Humboldt River Basin

## Seasonal Basin Precipitation

October 1 to Date



## Basin Snowpack

% of Average SWE to Date

