

Water Supply Outlook



**CALIFORNIA
AND
NORTHERN NEVADA**

**April
2003**



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 1st through July 31st, unless otherwise noted.

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

April 1st Average: The April 1st 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 30th.

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 1st through September 30th.

General Outlook

April 1, 2003

Except for a modest rise of the upper Klamath basin forecasts, precipitation received in March did not improve the water supply picture for the region. Above average monthly rainfall was recorded in the north coastal basins with the upper Klamath basin receiving 135 percent of the monthly average, followed by the Trinity with 120 percent. Portions of the south coast and southeast desert basins also received above average monthly precipitation. Monthly amounts were below to much below average for the rest of California's water supply basins ranging from 90 percent for the upper Sacramento to 55 percent for the Kern basin. About 80 percent of the March average fell in the Humboldt basin in Nevada. The Truckee basin received 60 percent of the monthly average precipitation, the Walker 55 percent, and the Carson 50 percent.

There was no significant reduction of the high-altitude Sierra snow pack water equivalent during March. However, there was further melt of the low elevation pack. The April 1st average ranges from 81 percent for the northern Sierra, 66 percent in the central, and 62 percent in the southern Sierra. This gives the Sierra pack an overall April 1st average of 70 percent. It was 87 percent at this time last year. The Carson-Walker snow pack stands at 80 percent, the Tahoe-Truckee at 70, and the Humboldt at only 50 percent. The snow pack in the upper Klamath basin is at 60 percent of the average-to-date.

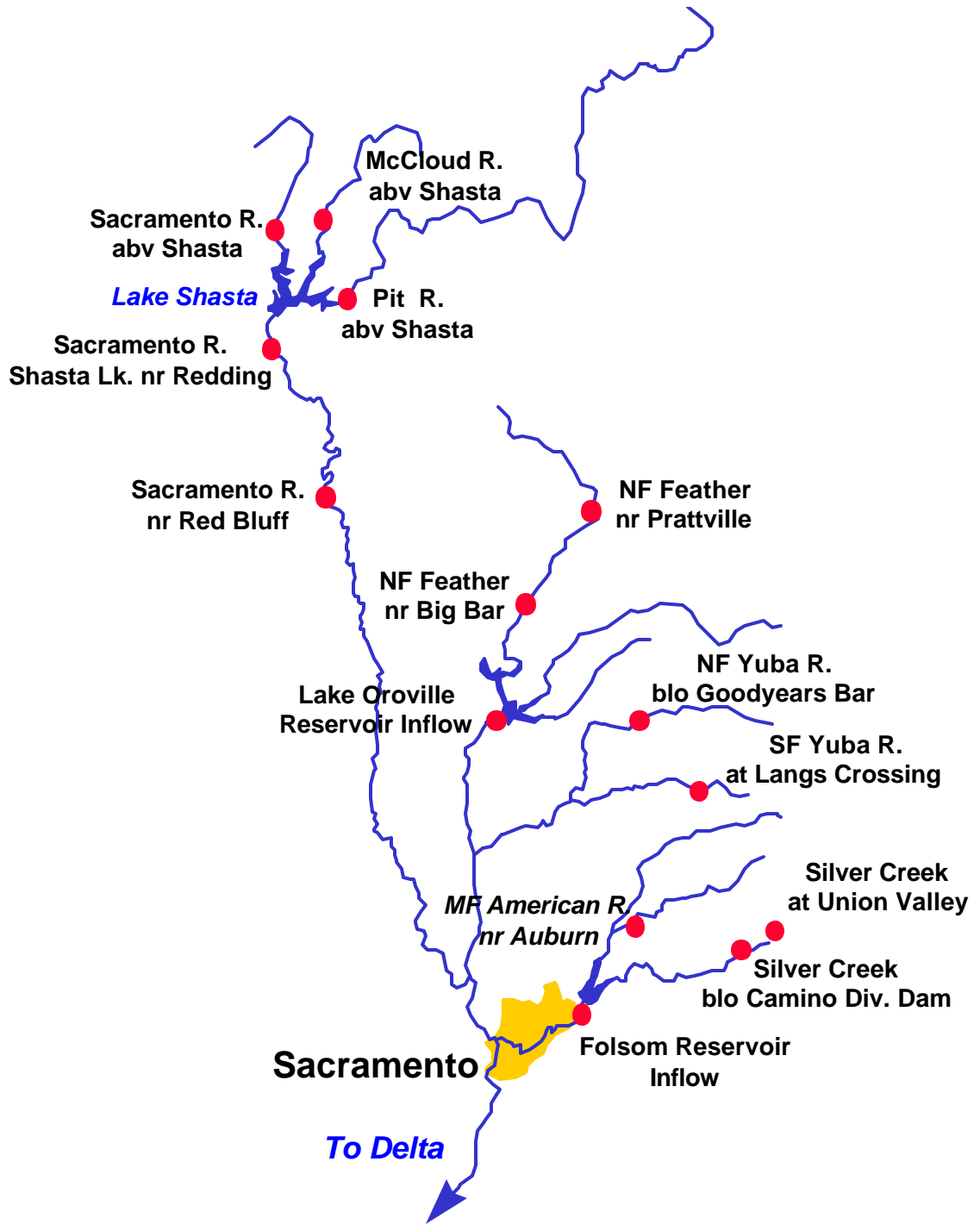
March runoff was below average in all water supply basins, ranging from 93 percent for the Trinity River basin to only 31 percent for the Cosumnes River basin. Runoff for the east-side Sierra was about 92 percent of the monthly average. It was only 15 percent of the March average for the Humboldt River at Palisade.

Reservoir storage in the Sacramento basin was at 96 percent of the average-to-date, the San Joaquin at 101 percent, and the Tulare Lake basin at 86 percent. East-side Sierra reservoirs were at 45 percent of average. Overall storage for reservoirs in California is about 96 percent of average; it was 99 percent at this time last year. Storage at Rye Patch Reservoir in Nevada is only 22 percent of the average-to-date; Lahontan Reservoir stands at 90 percent.

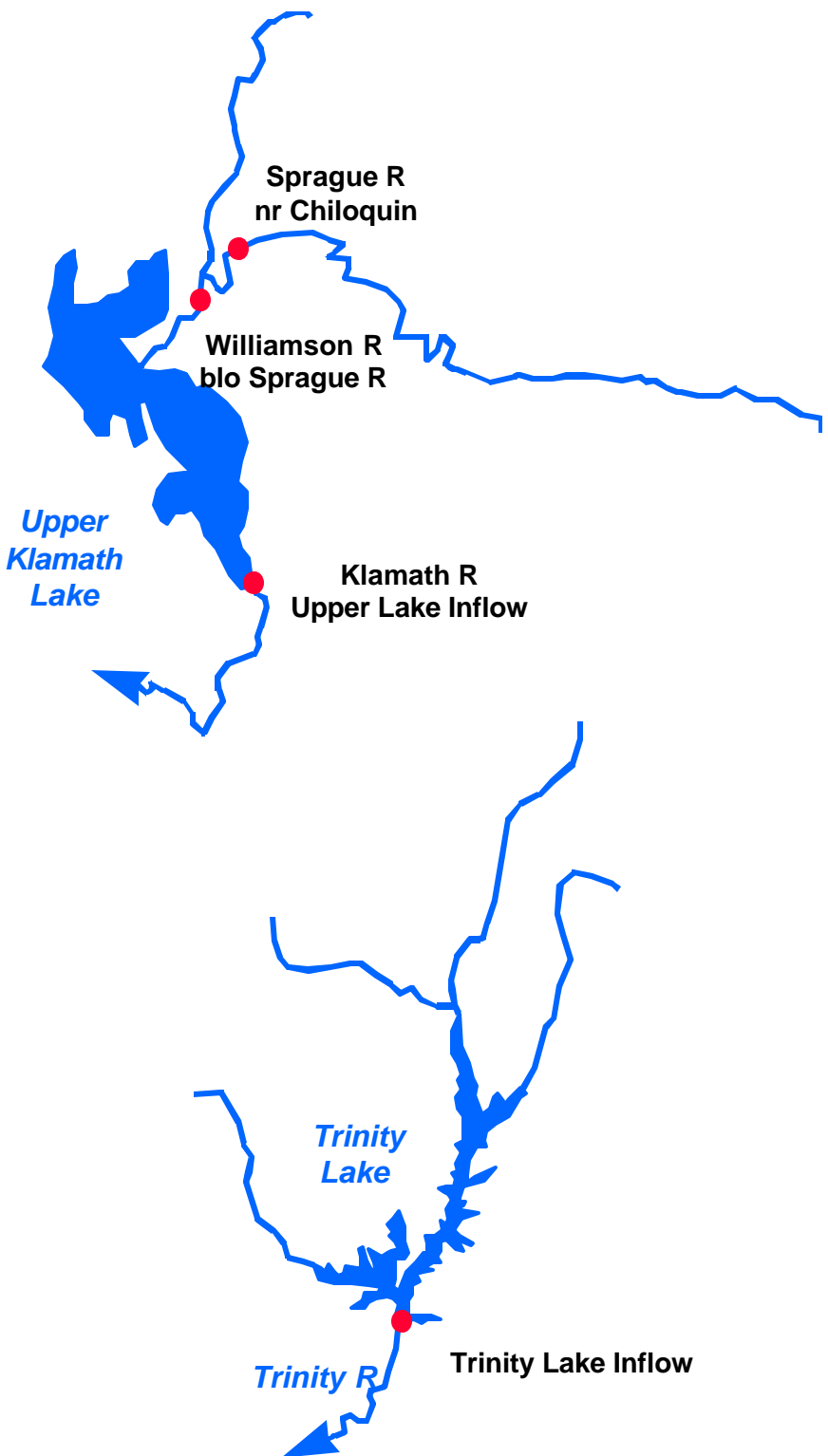
The April through July runoff forecasts range from 99 percent for the Trinity to 35 percent for the Tule River basin. Forecasts vary from 51 to 87 percent for the east-side Sierra basins. The outlook is rather dismal for the Humboldt basin of northern Nevada with forecasts ranging from 16 to 42 percent. The March through September forecast for the upper Klamath River inflow is 56 percent.

**The Water Supply Outlook is available on the World Wide Web at
<http://www.wrh.noaa.gov/cnrfc>.**

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
COASTAL BASINS						
Williamson River						
Sprague, blo	Mar-Sep	310	61	415	205	505
Sprague River						
Chiloquin, nr	Mar-Sep	155	51	220	92	305
Upper Klamath Falls River						
Inflow	Mar-Sep	400	56	555	245	715
Lost River						
Gerber Reservoir Inflow	Apr-Jul	4.8	28	8.6	0.9	16.9
Clear Lake Reservoir Inflow	Apr-Jul	12.0	29	18.9	5.0	41
Trinity River						
Trinity Lake Inflow	Apr-Jul	630	99	800	460	635
SACRAMENTO RIVER BASIN						
SACRAMENTO RIVER ABOVE BEND BRIDGE						
Pit River						
Montgomery Ck, nr	Apr-Jul	860	80	1080	635	1070
Mccloud River						
Shasta Lk, abv	Apr-Jul	340	92	450	230	370
Sacramento River						
Delta	Apr-Jul	250	86	380	119	290
Shasta Lake, Redding, nr	Apr-Jul	1500	84	1920	1100	1790
Bend Bridge, abv, Red Bluff, nr	Apr-Jul	2030	83	2860	1200	2440
FEATHER RIVER ABOVE OROVILLE RESERVOIR						
NF Feather River						
Prattville, nr	Apr-Jul	230	69	310	150	333*
Big Bar	Apr-Jul	710	74	980	440	962*
Feather River						
Oroville Reservoir Inflow	Apr-Jul	1300	74	1760	840	1760

Water Supply Forecasts

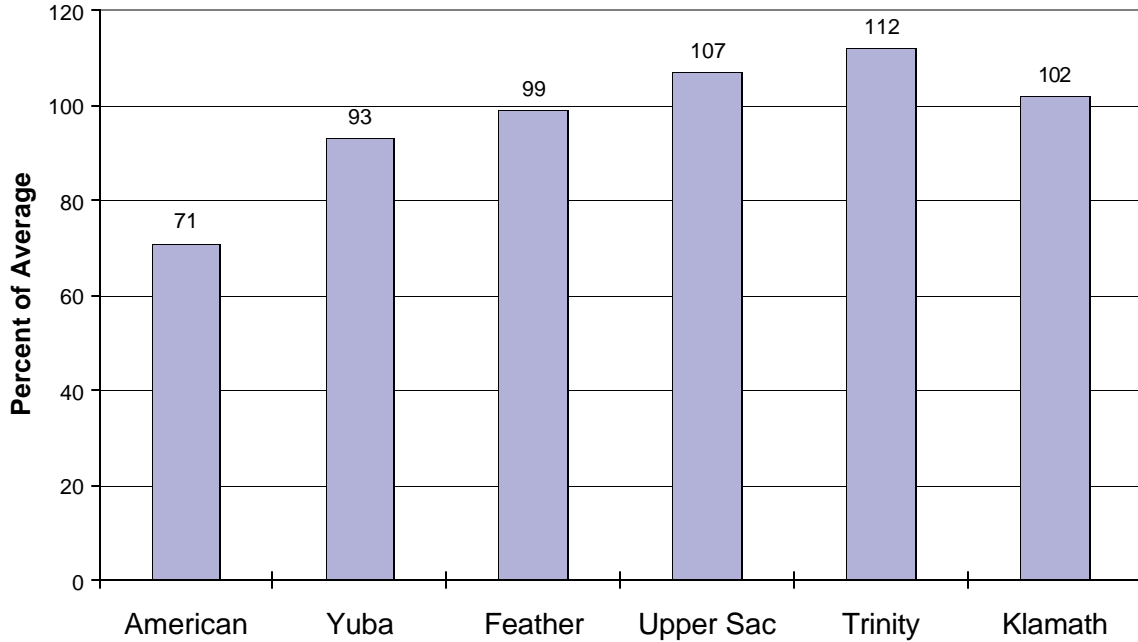
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
YUBA RIVER ABOVE SMARTVILLE						
North Yuba River						
Goodyears Bar, blo	Apr-Jul	180	66	250	112	273*
South Yuba River						
Langs Crossing	Apr-Jul	150	67	215	86	225*
Yuba River						
Smartville, nr	Apr-Jul	670	67	935	405	995
AMERICAN RIVER ABOVE FOLSOM RESERVOIR						
MF American River						
Auburn, nr	Apr-Jul	305	62	460	152	490*
Silver Ck						
Union Valley	Apr-Jul	60	61	86	34	98*
Camino Dam, blo	Apr-Jul	95	60	138	52	158*
American River						
Folsom Reservoir Inflow	Apr-Jul	740	60	1130	345	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

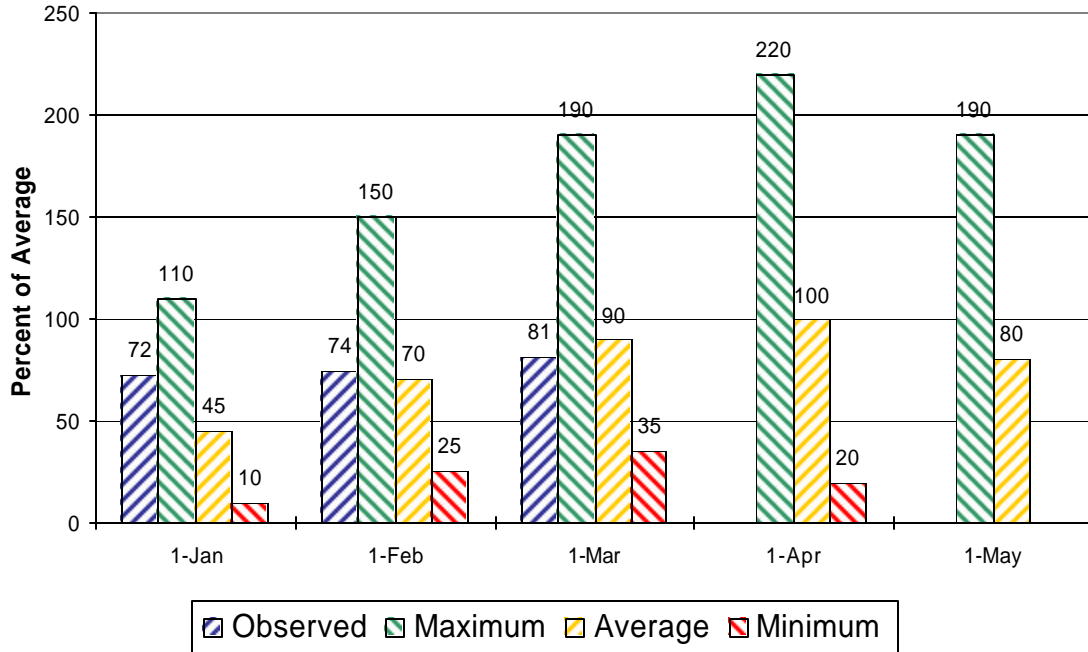
Seasonal Basin Precipitation

October 1 to Date



Seasonal Basin Snowpack

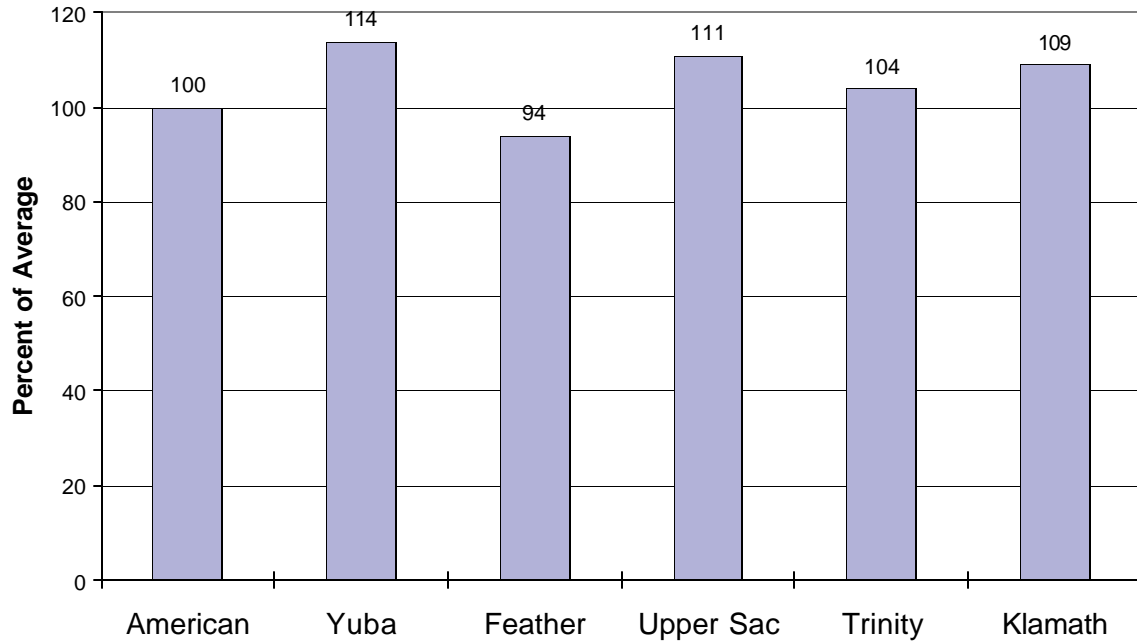
Water Content in % of April 1 Average



Sacramento/Trinity/Klamath River Basins

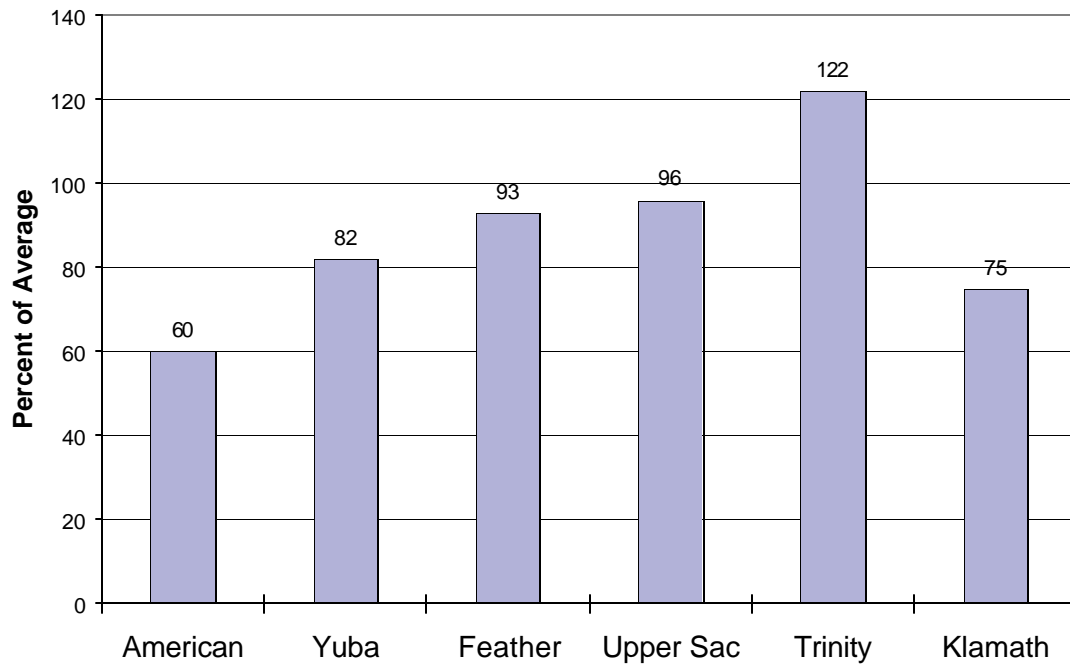
Basin Reservoir Storage

Contents of Major Reservoirs in % of Average



Seasonal Basin Runoff

October 1 to Date



San Joaquin Basin



Water Supply Forecasts

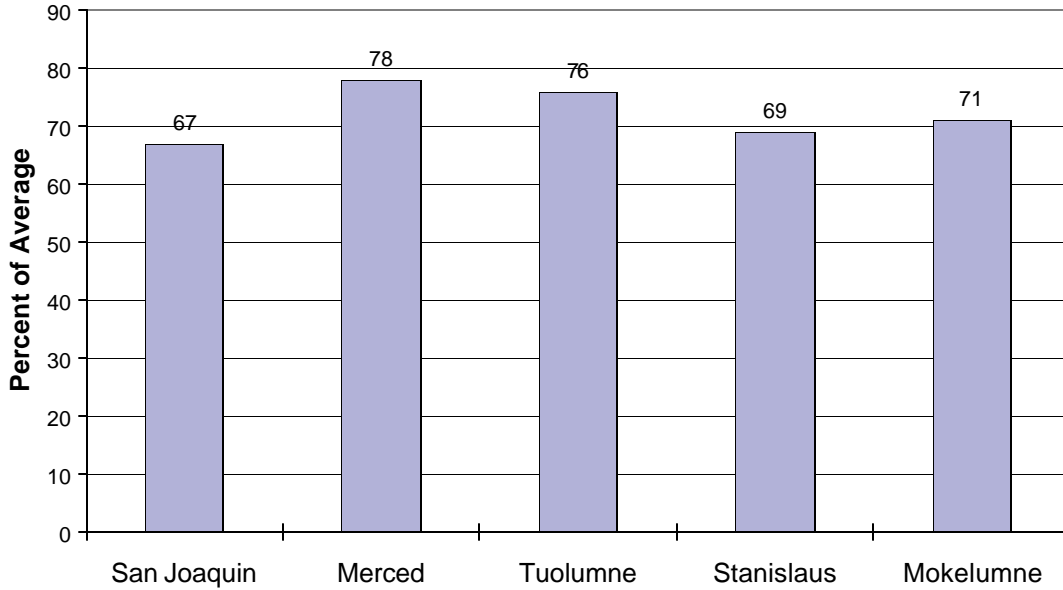
	Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF	
<hr/>						
SF San Joaquin River						
Hooper Ck, blo, Florence Lk, nr	Apr-Jul	140	73	200	70	192*
San Joaquin River						
Millerton Lk	Apr-Jul	760	60	1050	525	1270
Merced River						
Pohono Bridge, at, Yosemite, nr	Apr-Jul	260	72	345	175	360*
Merced Falls, blo	Apr-Jul	390	60	590	200	645
Tuolumne River						
Hetch Hetchy, nr	Apr-Jul	430	72	520	300	596*
La Grange, nr	Apr-Jul	830	67	1050	600	1230
MF Stanislaus River						
Beardsley Dam, blo	Apr-Jul	200	62	290	120	320*
Stanislaus River						
Goodwin Dam, blo, Knights Ferry	Apr-Jul	430	62	630	340	695
NF Mokelumne River						
West Point	Apr-Jul	280	67	400	200	416*
Mokelumne River						
Mokelumne Hill	Apr-Jul	300	65	450	230	460
Cosumnes River						
Michigan Bar	Apr-Jul	45	37	90	20	123

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San Joaquin Basin

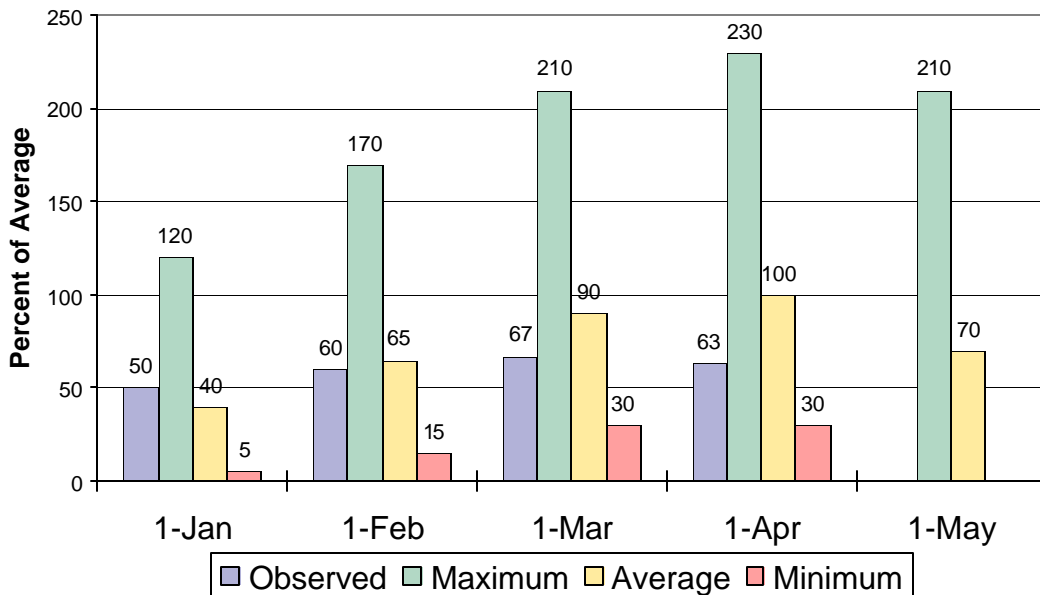
Seasonal Basin Precipitation

October 1 to Date



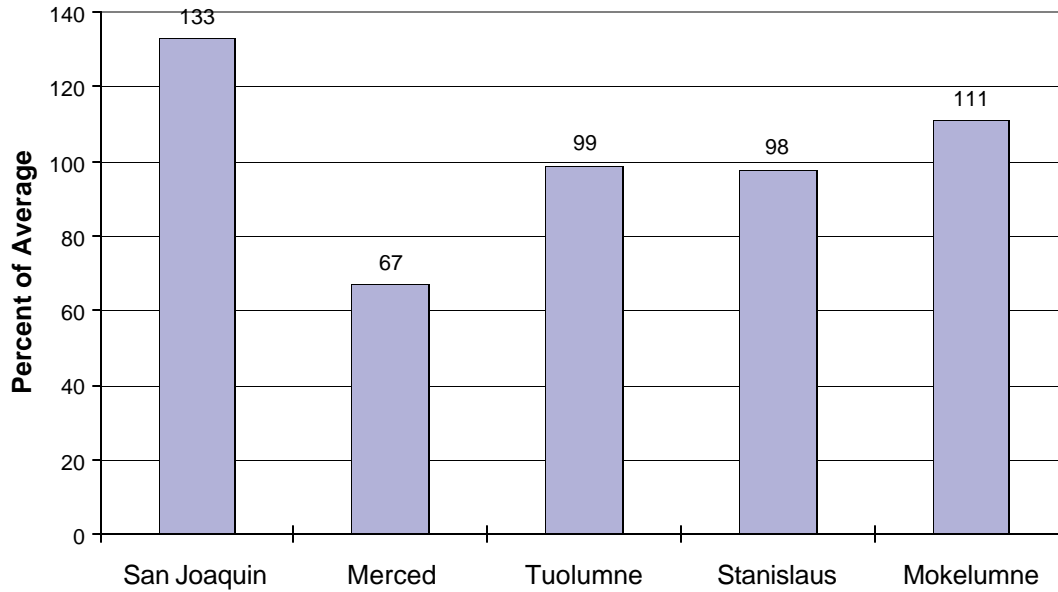
Seasonal Basin Snowpack

Water Content in % of April 1 Average

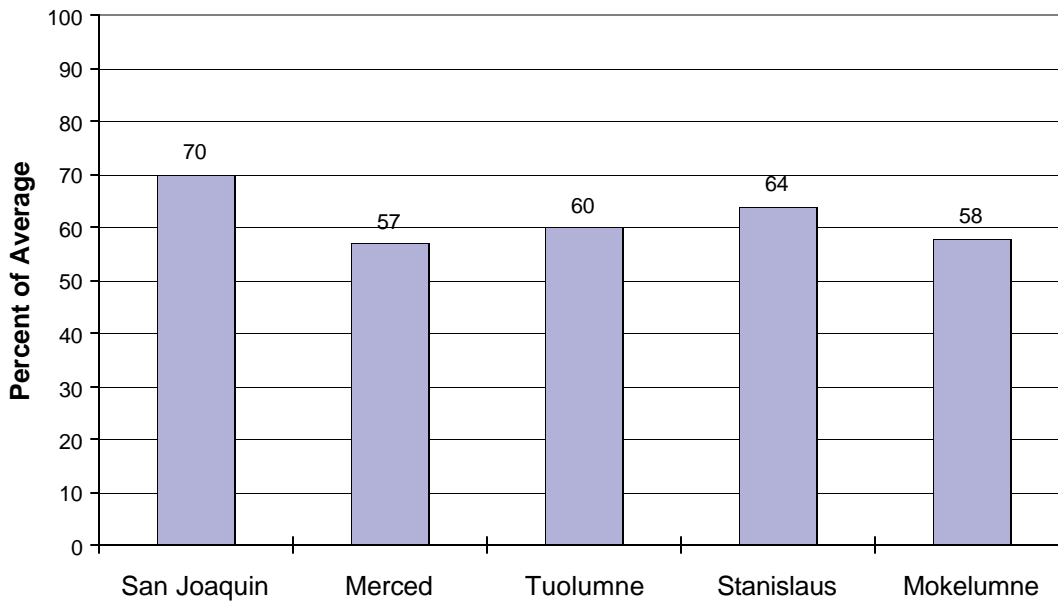


San Joaquin Basin

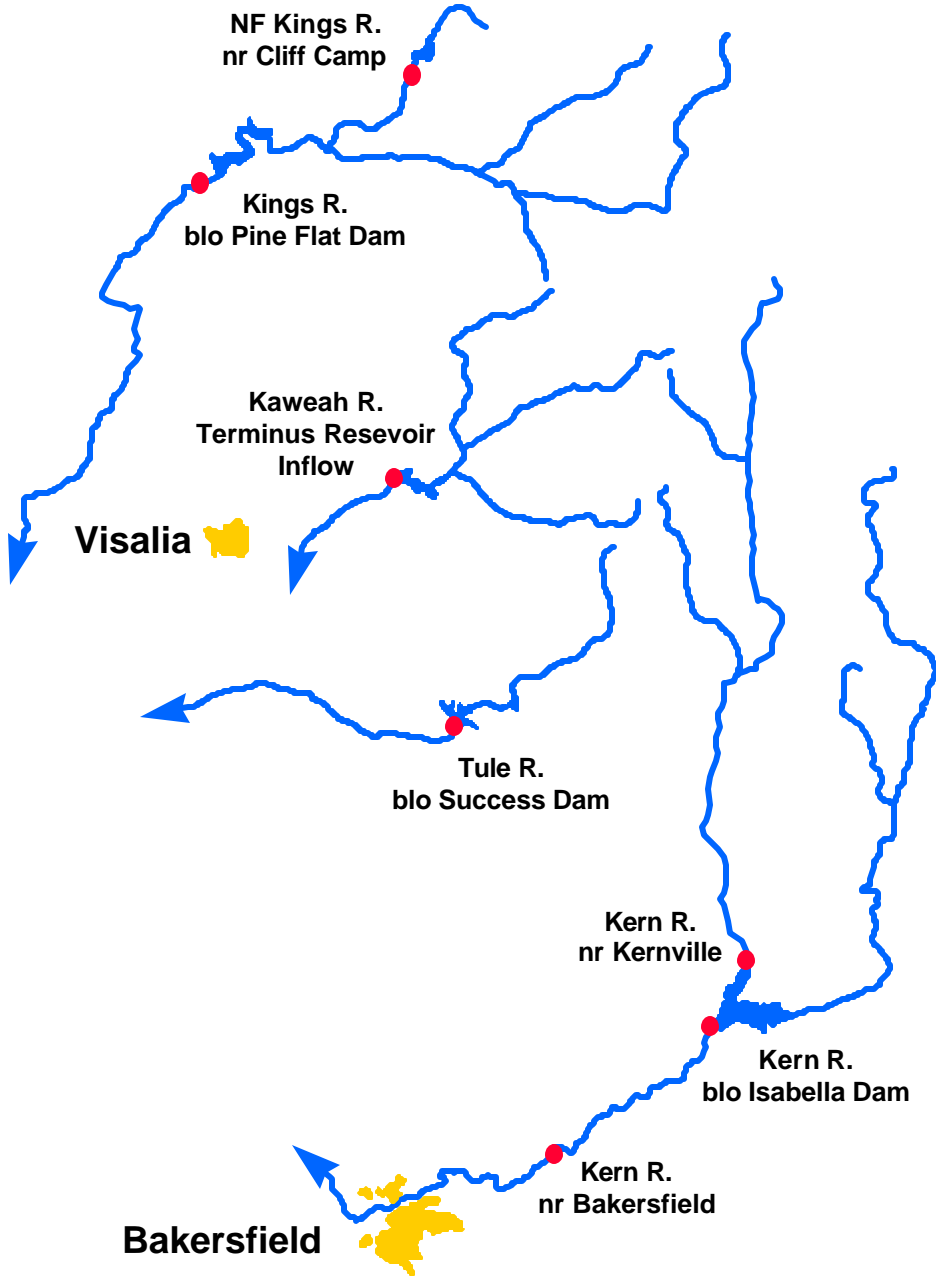
Basin Reservoir Storage Contents of Major Reservoirs in % of Average



Season Basin Runoff October 1 to Date



Tulare Basin

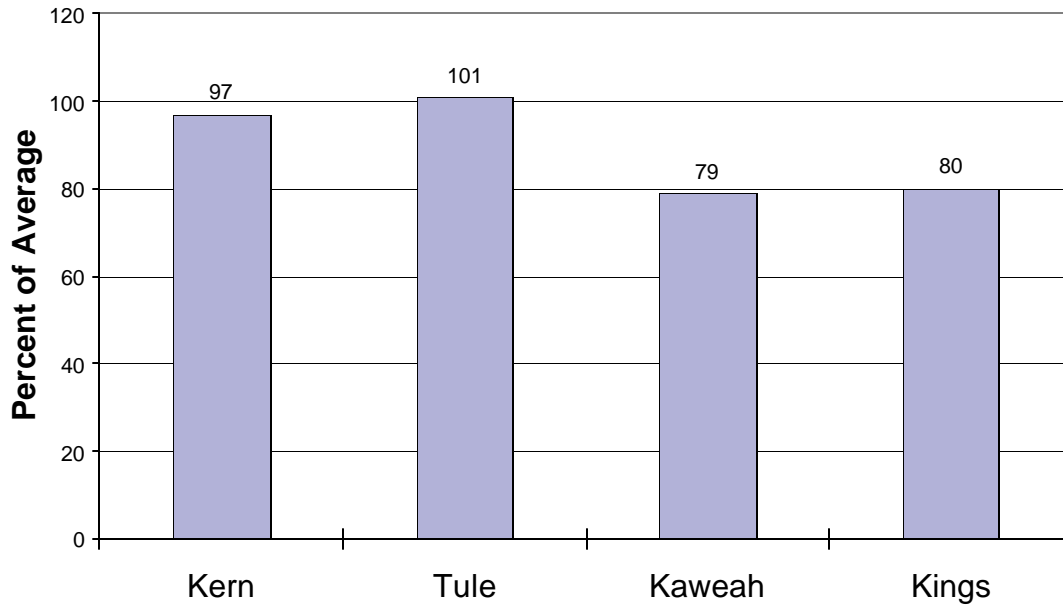


Water Supply Forecasts

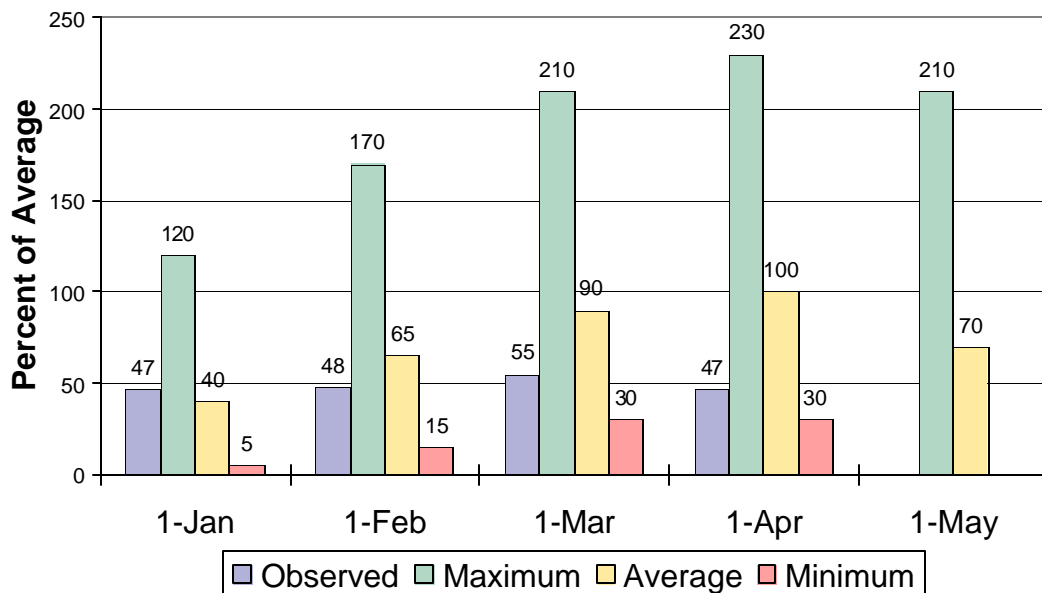
		Most	Most	Reas	Reas	30
		Prob	Prob	Max	Min	Year
		Vol	Vol	Vol	Vol	Avg
		KAF	%Norm	KAF	KAF	KAF
Kern River						
Kernville, nr	Apr-Jul	270	68	380	150	398*
Isabella Dam, blo	Apr-Jul	310	65	455	200	480
Bakersfield, nr	Apr-Jul	315	64	470	210	490
Tule River						
Success Dam	Apr-Jul	23	35	55	10	66
Kaweah River						
Terminus Dam	Apr-Jul	195	67	280	125	290
NF Kings River						
Cliff Camp, nr	Apr-Jul	160	67	240	100	240*
Kings River						
Pine Flat Dam, blo	Apr-Jul	800	64	1090	580	1250

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Tulare Lake Basin Seasonal Precipitation October 1 to Date



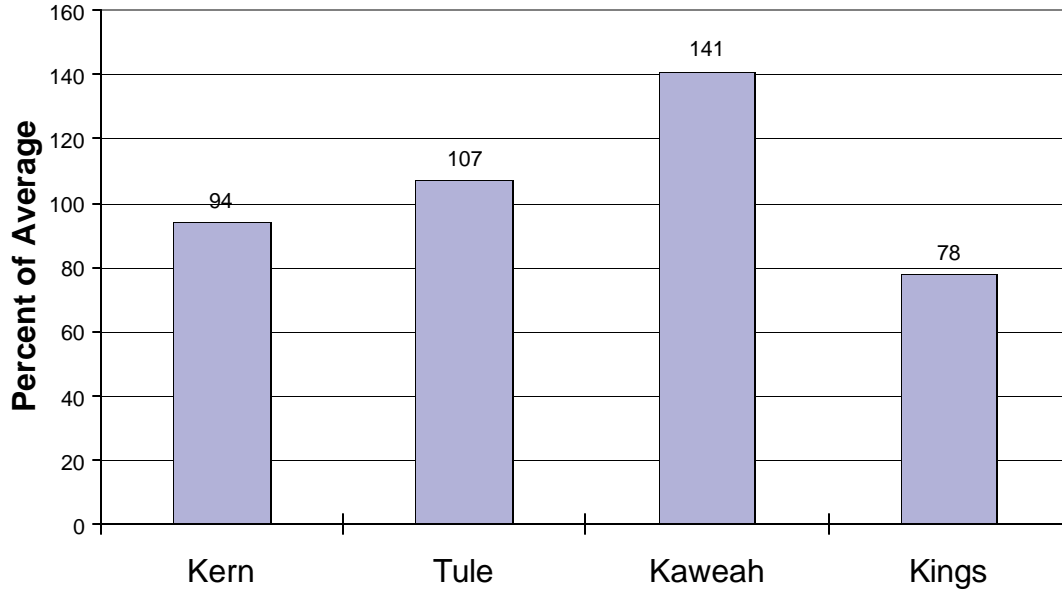
Seasonal Basin Snowpack Water Content in % of April 1 Average



Tulare Lake Basin

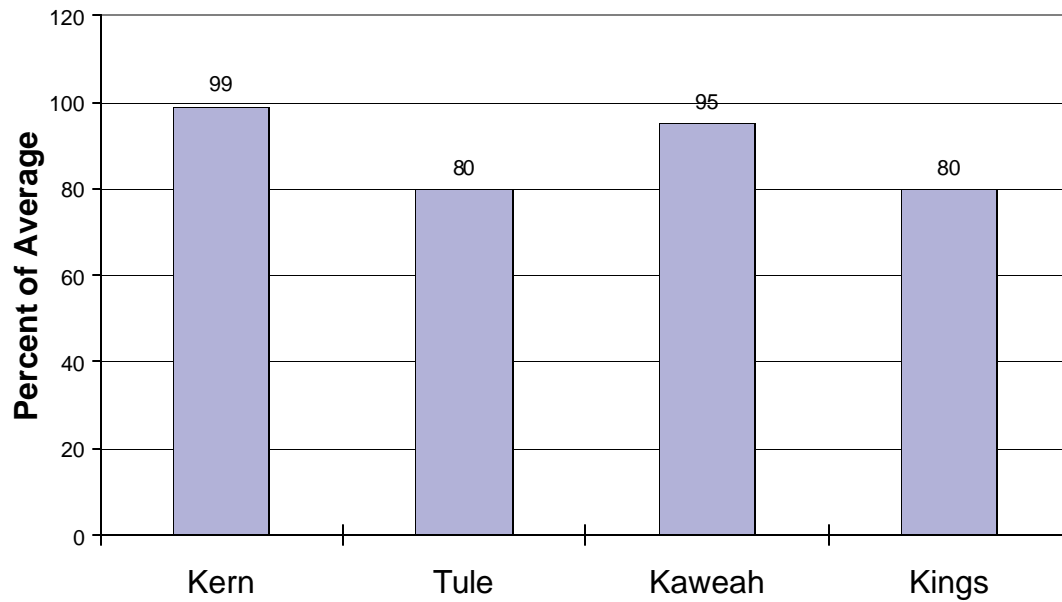
Basin Reservoir Storage

Contents of Major Reservoirs in % of Average

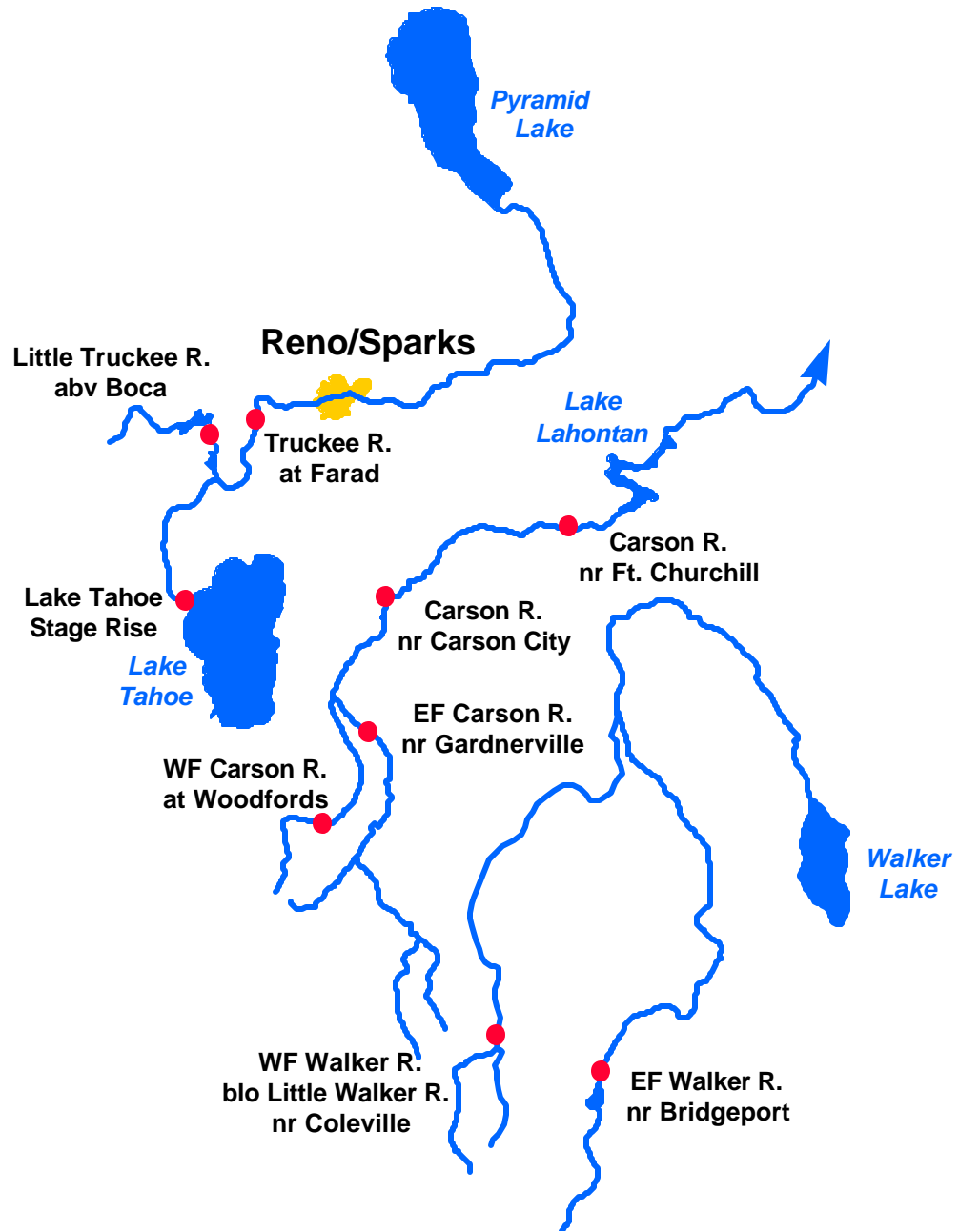


Seasonal Basin Runoff

October 1 to Date



East Side Sierra Nevada Basins



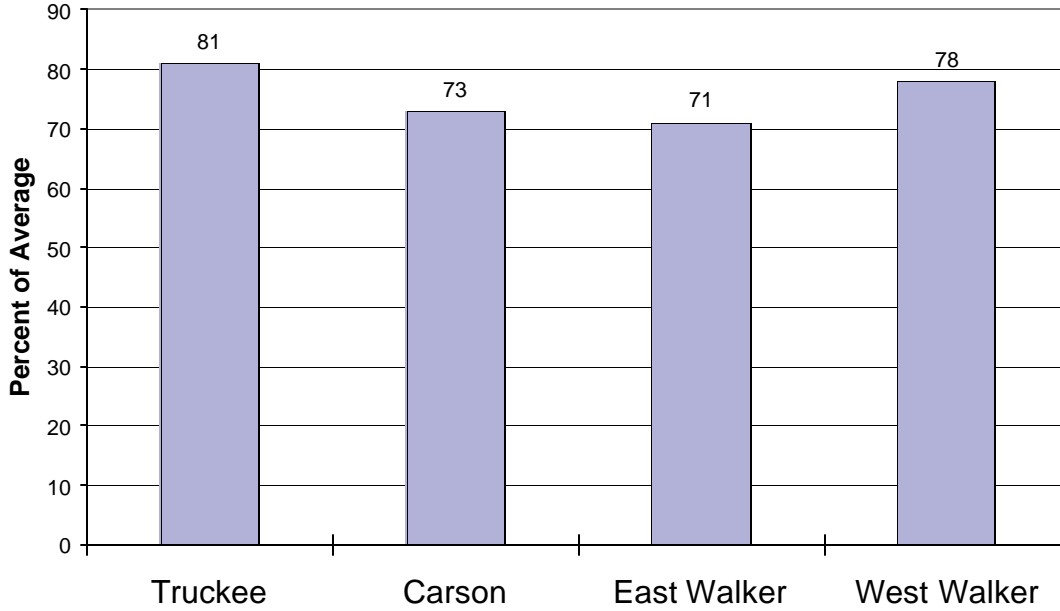
Water Supply Forecasts

		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
Truckee River						
Truckee River						
Lake Tahoe Stage Rise	Apr-High	0.8	58	1.2	0.4	1.4
Ltl Truckee River						
Boca Res, abv, Truckee, nr	Apr-Jul	48	60	66	30	80
Truckee River						
Farad	Apr-Jul	170	65	240	102	260
Carson River						
EF Carson River						
Gardnerville, nr	Apr-Jul	135	71	168	100	189
WF Carson River						
Woodfords	Apr-Jul	38	68	47	29	56
Carson River						
Carson City, nr	Apr-Jul	105	56	148	62	188
Fort Churchill, nr	Apr-Jul	90	51	137	43	178
Walker River						
East Walker River						
Bridgeport, nr	Apr-Aug	49	73	66	32	67
West Walker River						
Ltl Walker, blo, Coleville, nr	Apr-Jul	135	87	167	105	156

East Side Sierra Nevada Basins

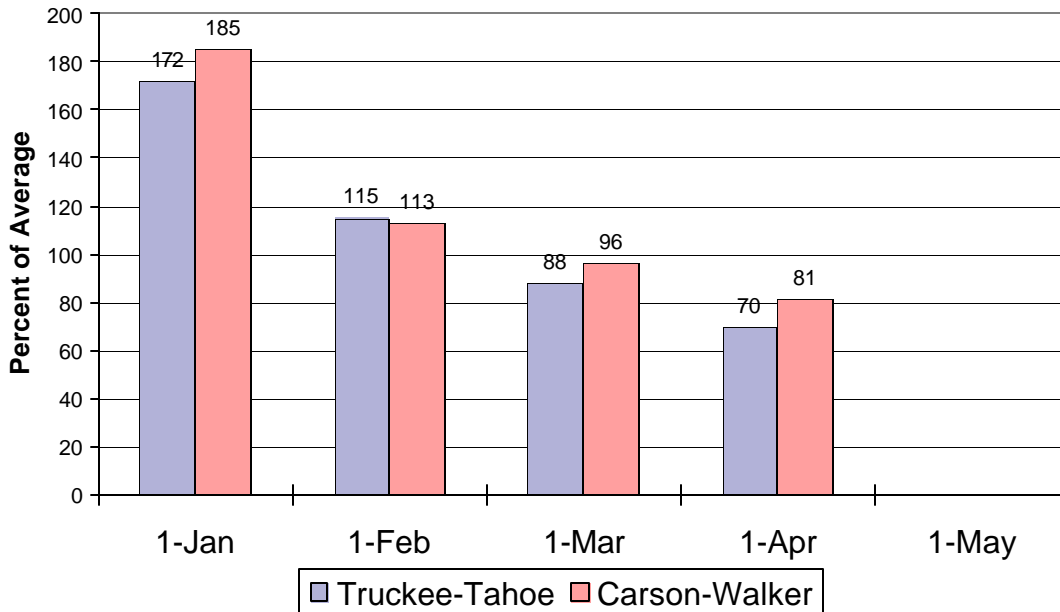
Seasonal Basin Precipitation

October 1 to Date



Basin Snowpack

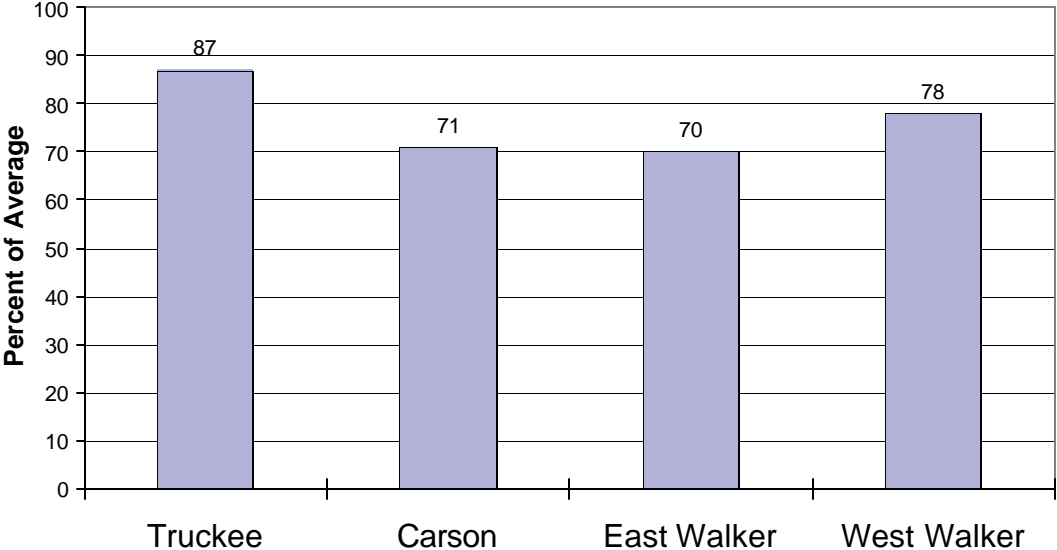
% of Average SWE to Date



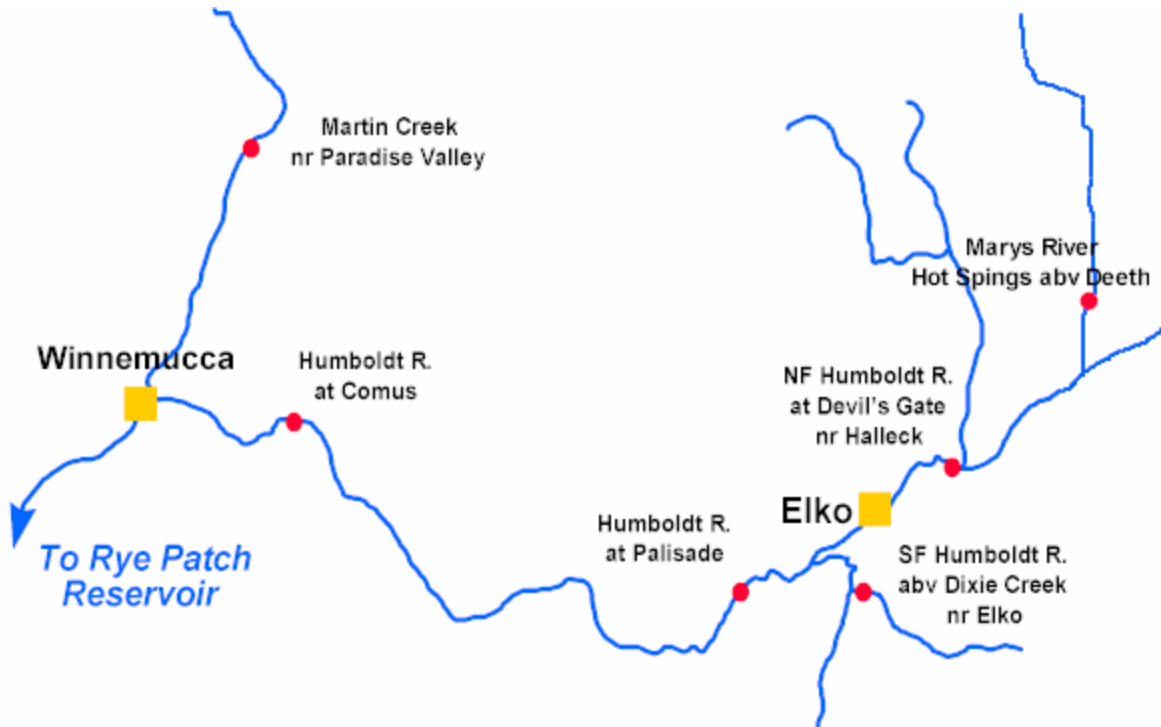
East Side Sierra Nevada Basins

Seasonal Basin Runoff

October 1 to Date



Humboldt River Basin



Water Supply Forecasts

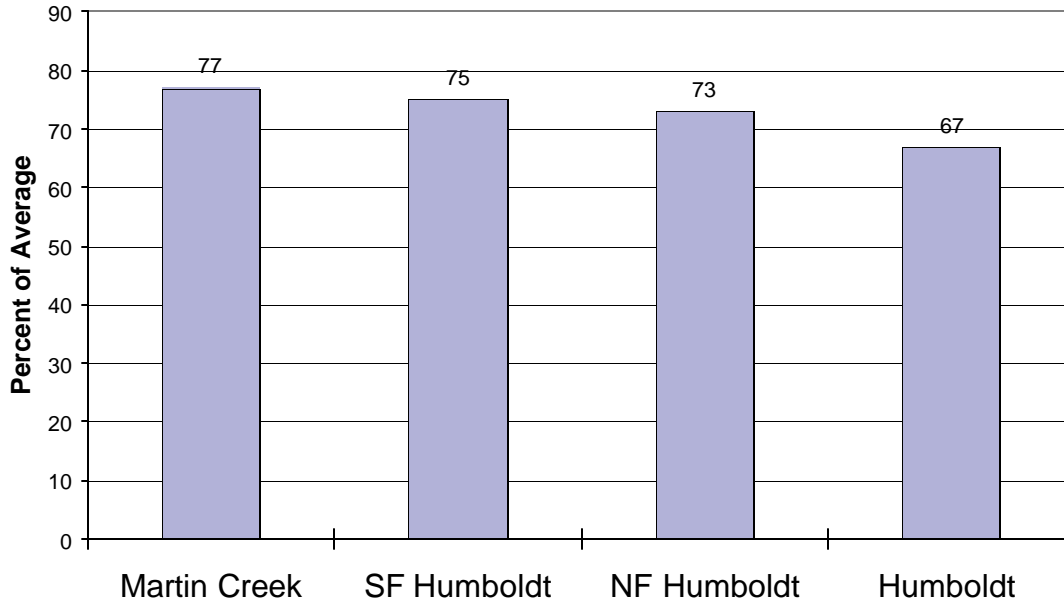
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
NF Humboldt River						
Devlis Gate, at, Halleck, nr	Apr-Jul	8	24	18	4	34*
SF Humboldt River						
Dixie Ck, abv, Elko, nr	Apr-Jul	32	42	63	16	76
Marys River						
Hot Springs, abv, Deeth, nr	Apr-Jul	12	31	25	8	39
Humboldt River						
Palisade	Apr-Jul	77	31	150	40	250
Comus	Apr-Jul	35	16	80	18	225
Martin Ck						
Paradise Vly, nr	Apr-Jul	4.8	26	11.0	2.5	18.7

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Humboldt River Basin

Seasonal Basin Precipitation

October 1 to Date



Basin Snowpack

% of Average SWE to Date

