

WATER SUPPLY OUTLOOK



CALIFORNIA AND NORTHERN NEVADA

**FEBRUARY
2009**



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

DEFINITIONS:

Acre-Foot: 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

February 1, 2009

The month of January turned out to be disappointing in terms of improving this year's spring runoff outlook. Two prolonged periods of dry weather during the month dashed any hopes of significant gain to the Sierra snowpack. Some precipitation fell during the first week of January, followed by about two weeks of mild, dry weather. A storm system arrived about January 22nd through the 26th, with good if not substantial amounts of precipitation being recorded in the San Joaquin and upper Tulare basins followed by about another 10 days of dry weather. Runoff forecasts continue to range from below to much below average for the region. A return to average streamflow this spring will depend on extremely wet conditions during the next two months.

The January 22nd storm event especially favored the Sierra Nevada from the Yuba to the Kaweah River basins. However, monthly averages only ranged from 35 to 78 percent for those basins. January averages were meager from the Trinity to the Feather basin, varying from 19 percent for the Trinity to 24 percent for the Feather River basin. Seasonal precipitation (October 1st to January 31st) is below average in California and western Nevada. The Trinity and upper Sacramento River basins are at 50 and 57 percent of average, respectively. Seasonal averages for the west slope Sierra Nevada range from 63 percent for the Feather to 96 percent for the Kern River basin. Seasonal averages for the east side Sierra Nevada range from 71 percent for the Truckee to 83 percent for the Walker River basin. Seasonal averages are about 112 percent for the upper Humboldt and 89 percent for the lower Humboldt basin. It is about 79 percent for the Upper Klamath Lake basin.

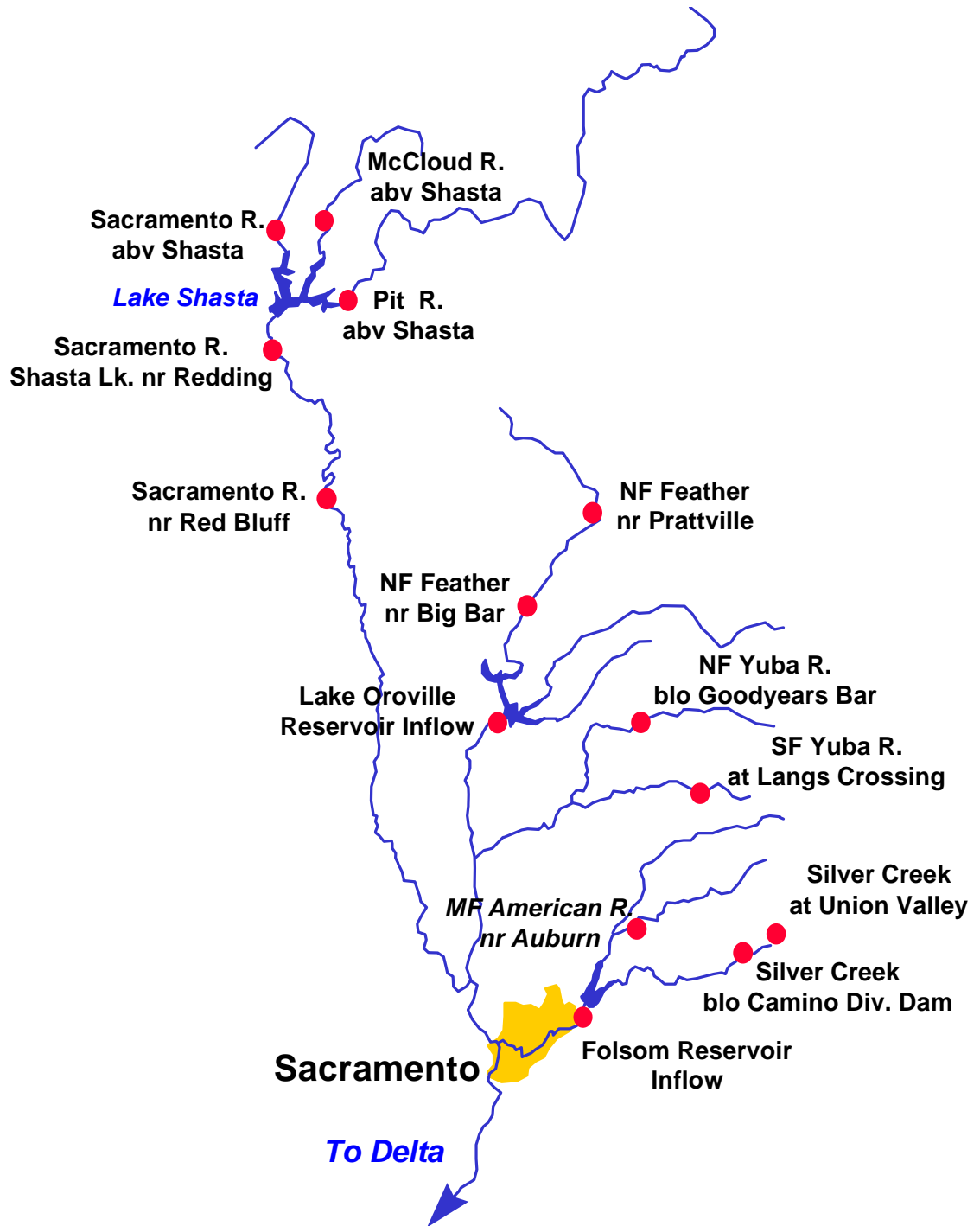
Beneficial accumulation to the snowpack occurred during the latter stages of the storm system that arrived on the third week of January, but it was not enough to substantially improve the seasonal average. According to the California Cooperative Snow Surveys, the April 1st average water content stands at approximately 37 percent for the Shasta-northern Sierra, 44 percent for the San Joaquin and 41 percent for the Tulare Lake basin as of February 1st. Snowpacks in the Tahoe-Truckee are about 61 percent of the average-to-date, the Carson-Walker at 68 percent and the Humboldt basin at 80 percent. The pack stands at about 87 percent of the average-to-date for the Upper Klamath Lake basin.

Runoff increased somewhat in the San Joaquin and Tulare Lake basins during January due to moderate precipitation during the third week of the month. Runoff was 29 percent of the monthly average for the Trinity-Sacramento, and 58 percent for the San Joaquin and Tulare Lake drainages. East side Sierra basins received 41 percent of the January average while the Humboldt River at Palisade recorded 55 percent. The Upper Klamath Lake basin received 69 percent of a January average.

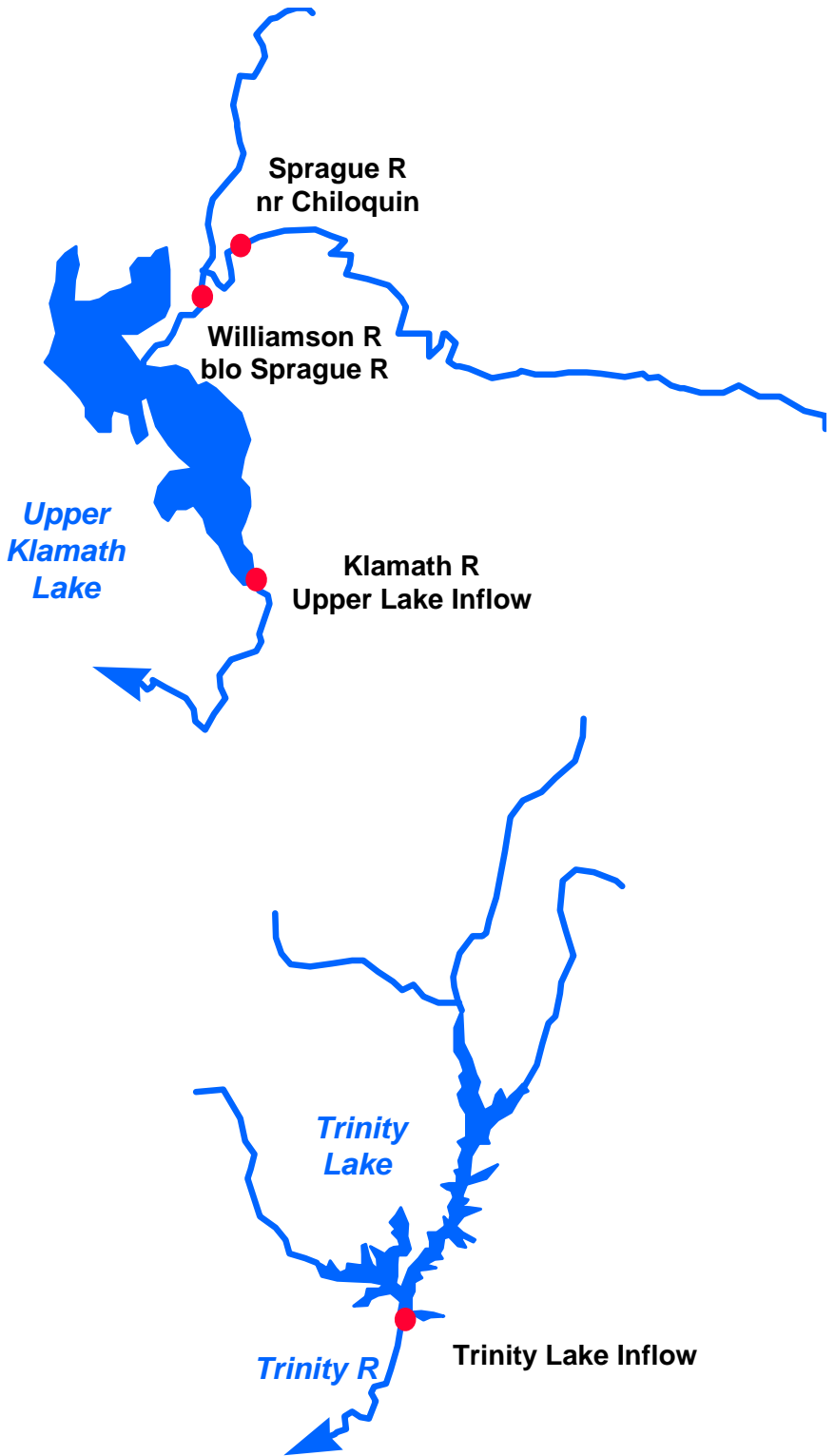
Storage conditions remain meager for two of the important large reservoirs in Northern California where stored water at Shasta Lake is at 46 percent of average and Lake Oroville is about 42 percent. Stored water in the Sacramento region as of January 31st was at 61 percent of average for the date, the San Joaquin at 75 percent, and the Tulare Lake watershed at 62 percent. East-side Sierra reservoirs were at 66 percent of average. The lake level at Lake Tahoe stood at 6223.27 feet or 9 percent of average as of January 31st. Storage at Lahontan Reservoir in Nevada stands at 32 percent while Rye Patch Reservoir is at 10 percent. Storage at Upper Klamath Lake is about 79 percent of average.

Most streamflow forecasts declined from 5 to 20 percent from those issued last month, reflecting the dry conditions during January. April through July runoff forecasts vary from 55 percent for the Trinity Lake basin to 69 percent for the American River basin. Further down the west side of the Sierra Nevada, forecasts range from 70 percent for the Mokelumne to 74 percent for the Kaweah River basin. Streamflow forecasts range from 40 to 61 percent of average for the east side Sierra Nevada basins and 59 to 68 percent for forecast points on the main stem Humboldt River. The April through September forecast for the Upper Klamath Lake inflow is 73 percent.

Sacramento River Basin



Upper Klamath and Trinity River Basins



Water Supply Forecasts

COASTAL BASINS

		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
Williamson River						
Sprague, blo	Apr-Sep	290	75	395	185	385
Sprague River						
Chiloquin, nr	Apr-Sep	145	63	230	60	230
Upper Klamath Falls River						
Inflow	Apr-Sep	375	73	545	205	515
Lost River						
Gerber Reservoir Inflow	Feb-Jul	29	62	57	1.35	47
Clear Lake Reservoir Inflow	Feb-Jul	66	63	129	3.4	105
Scott River						
Fort Jones, nr	Apr-Jul	90	50	185	42	181
Trinity River						
Trinity Lake Inflow	Apr-Jul	350	55	700	165	635

Trinity River - Inflow at Lewiston Lake Distribution (kAF)

Exceedence Probability	Oct-Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Apr-Jul	Water Yr
90%	113	31	60	65	60	25	15	10	7	165	386
50%	113	64	155	145	140	40	25	16	13	350	711
10%	113	144	330	290	280	85	45	24	17	700	1328

SACRAMENTO RIVER BASIN

		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
Pit River						
Montgomery Ck, nr	Apr-Jul	650	61	1260	350	1070
Mccloud River						
Shasta Lk, abv	Apr-Jul	230	62	410	120	370
Sacramento River						
Delta	Apr-Jul	165	57	320	70	290
Shasta Dam	Apr-Jul	1020	57	1850	670	1790
Bend Bridge, abv, Red Bluff, nr	Apr-Jul	1290	53	2360	840	2440

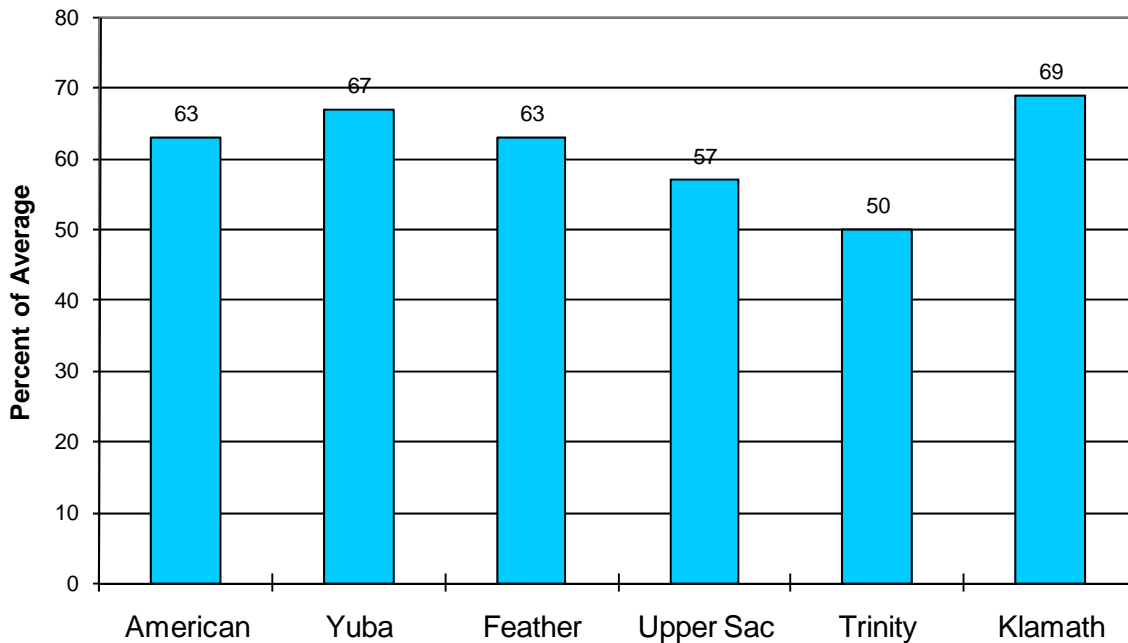
Water Supply Forecasts

		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
FEATHER RIVER ABOVE OROVILLE RESERVOIR						
North Fork Feather River						
Prattville, nr	Apr-Jul	190	57	370	105	333*
Big Bar	Apr-Jul	580	60	1120	320	962*
Feather River						
Oroville	Apr-Jul	960	55	1980	440	1760
YUBA RIVER ABOVE SMARTVILLE						
North Yuba River						
Goodyears Bar, blo	Apr-Jul	165	60	325	82	273*
South Yuba River						
Langs Crossing	Apr-Jul	145	64	280	68	225*
Yuba River						
Smartsville, nr	Apr-Jul	640	64	1240	290	995
AMERICAN RIVER ABOVE FOLSOM RESERVOIR						
Middle Fork American River						
Auburn, nr	Apr-Jul	330	67	630	165	490*
Silver Creek						
Union Valley	Apr-Jul	68	69	130	31	98*
Camino Dam, blo	Apr-Jul	110	70	215	50	158*
American River						
Folsom Reservoir Inflow	Apr-Jul	850	69	1670	370	1230

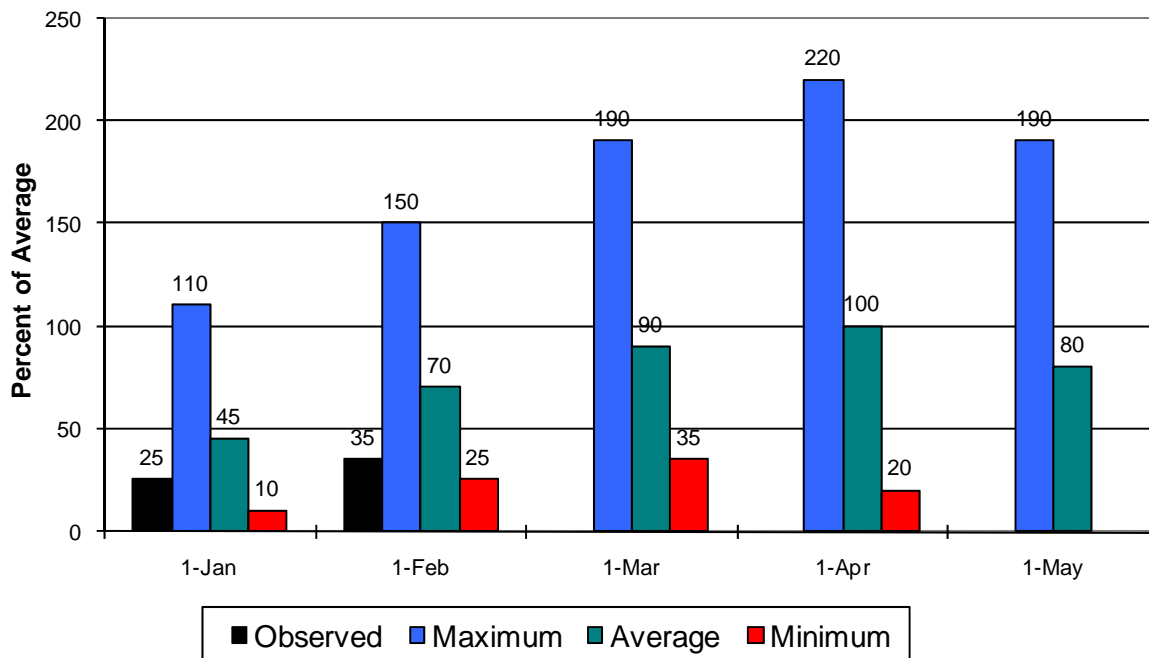
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Sacramento/Trinity/Klamath River Basins

Seasonal Basin Precipitation October 1 to Date

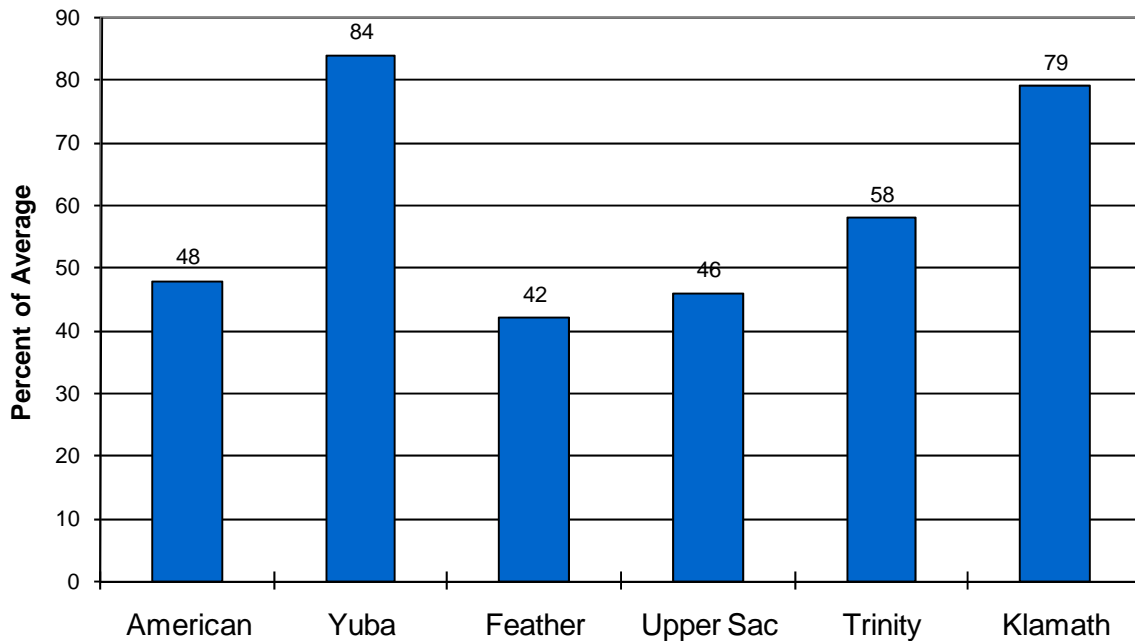


Seasonal Basin Snowpack Water Content in % of April 1 Average

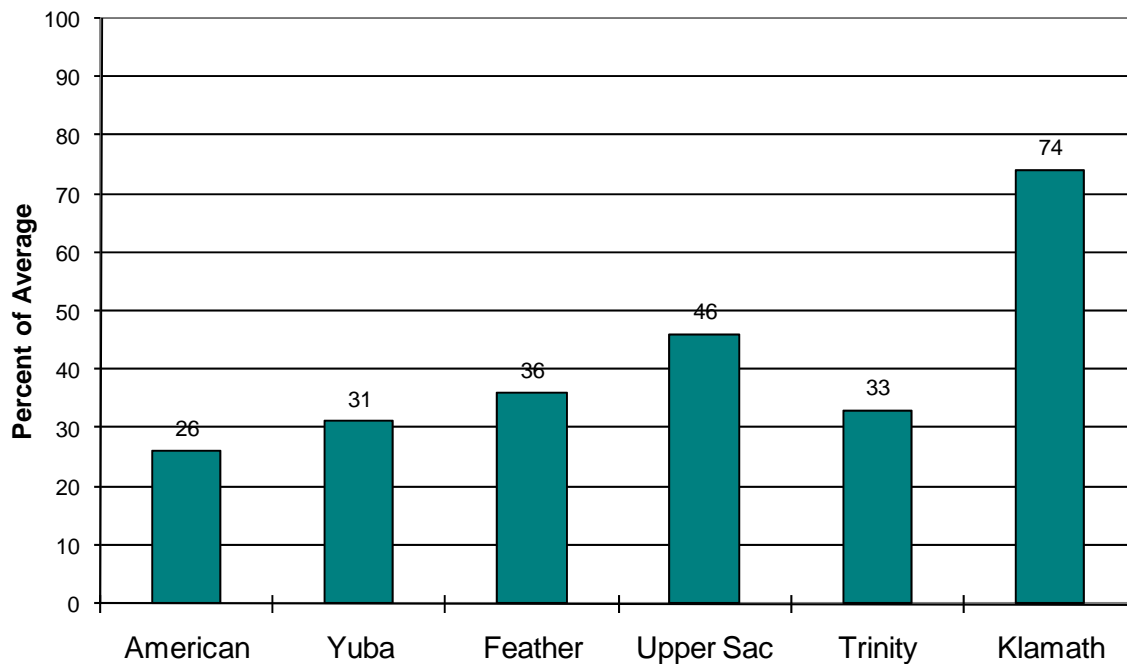


Sacramento/Trinity/Klamath River Basins

Basin Reservoir Storage Contents of Major Reservoirs in % of Average



Seasonal Basin Runoff October 1 to Date



San Joaquin Basin



Water Supply Forecasts

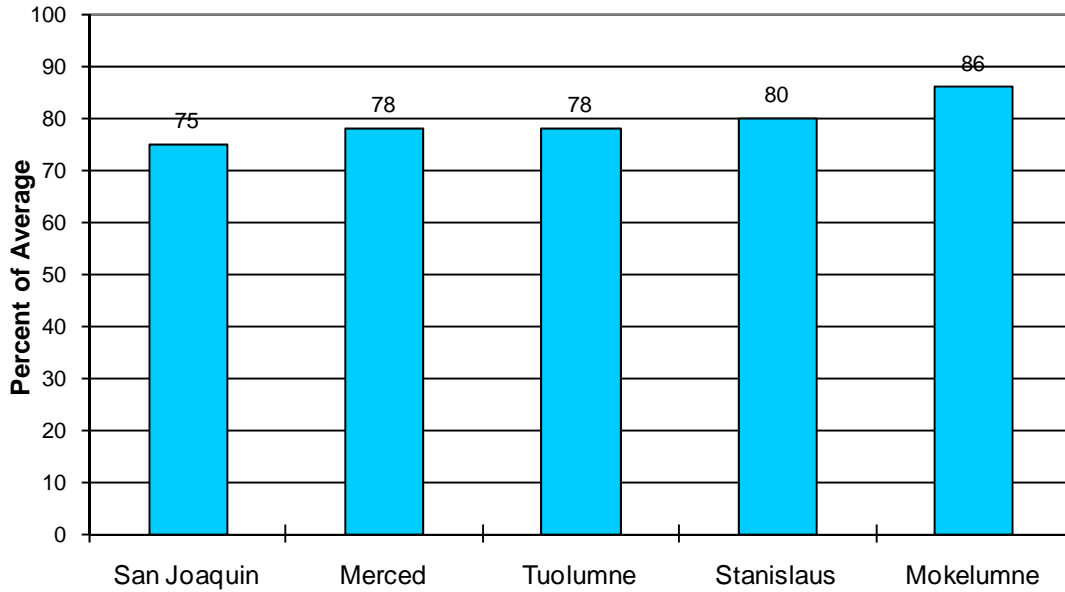
SAN JOAQUIN BASIN

		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
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South Fork San Joaquin River						
Hooper Ck, blo, Florence Lk, nr	Apr-Jul	145	76	225	60	192*
San Joaquin River						
Millerton Lk	Apr-Jul	940	74	1480	400	1270
Merced River						
Pohono Bridge, at, Yosemite, nr	Apr-Jul	290	81	450	100	360*
Merced Falls, blo	Apr-Jul	460	71	790	180	645
Tuolumne River						
Hetch Hetchy, nr	Apr-Jul	470	79	680	210	596*
La Grange, nr	Apr-Jul	900	73	1400	430	1230
Middle Fork Stanislaus River						
Beardsley Dam, blo	Apr-Jul	230	72	400	85	320*
Stanislaus River						
New Melones Dam	Apr-Jul	490	71	850	180	695
North Fork Mokelumne River						
West Point	Apr-Jul	300	72	510	110	416*
Mokelumne River						
Pardee Reservoir	Apr-Jul	320	70	520	120	460
Cosumnes River						
Michigan Bar	Apr-Jul	70	57	200	10.0	123

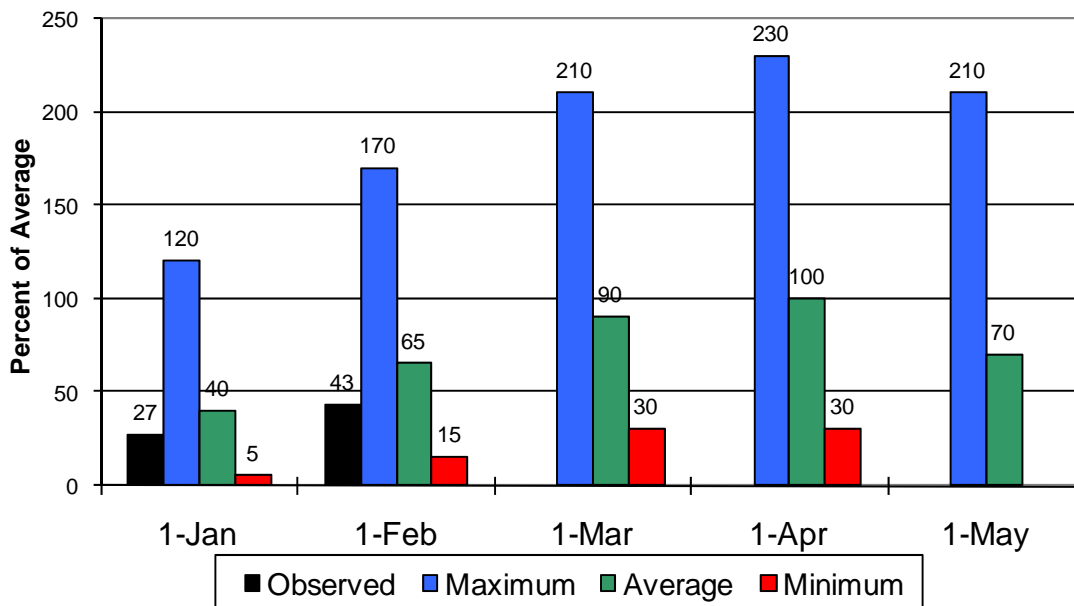
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San Joaquin Basin

Seasonal Basin Precipitation October 1 to Date

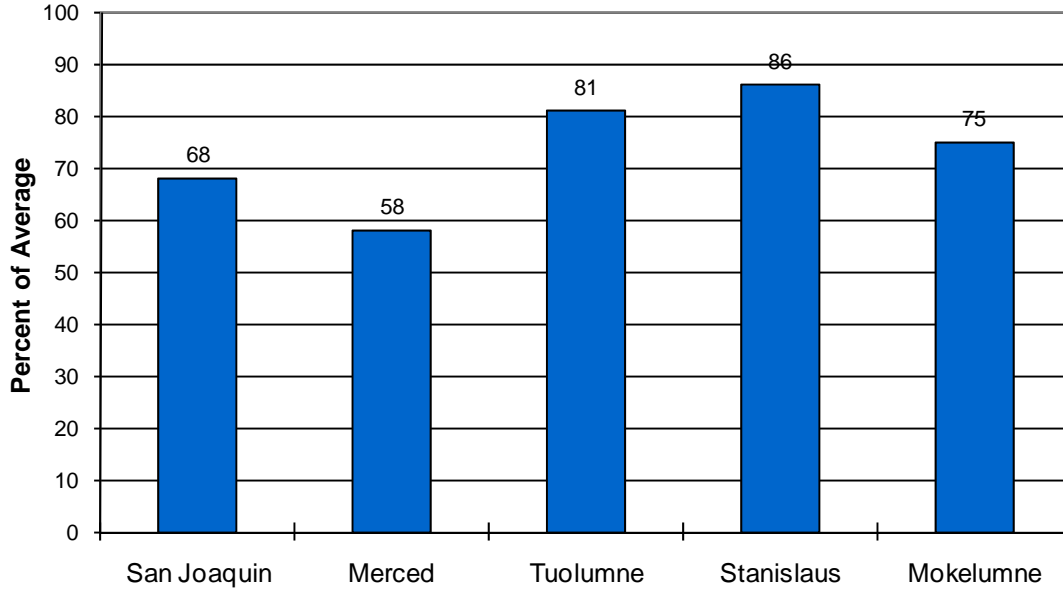


Seasonal Basin Snowpack Water Content in % of April 1 Average

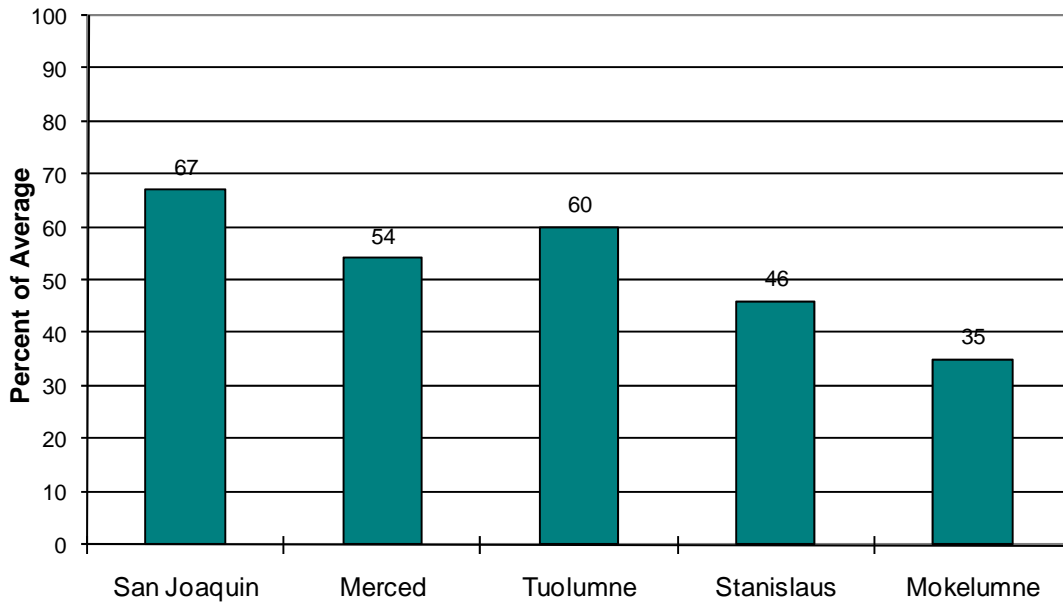


San Joaquin Basin

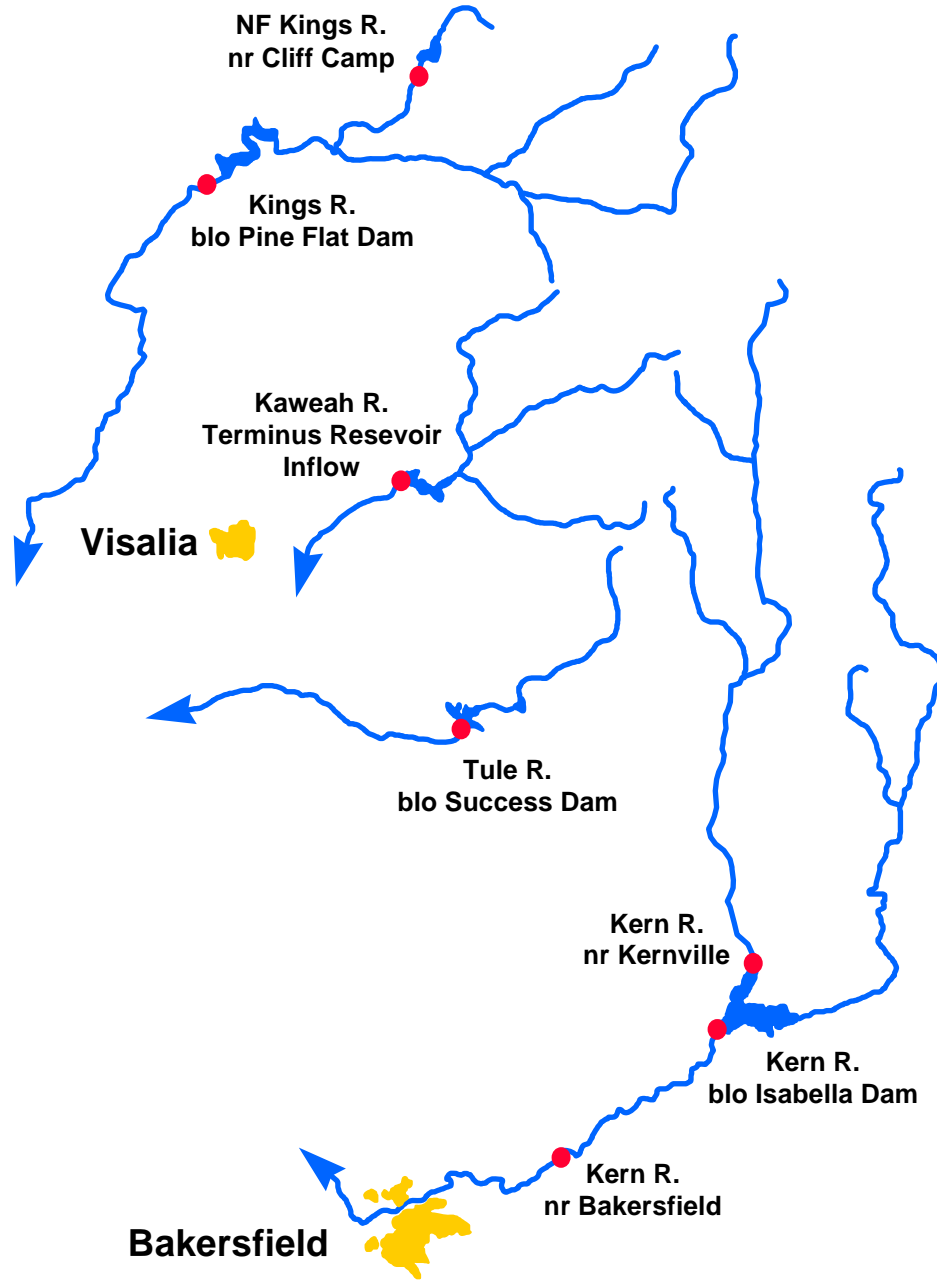
Basin Reservoir Storage Contents of Major Reservoirs in % of Average



Season Basin Runoff October 1 to Date



Tulare Basin



Water Supply Forecasts

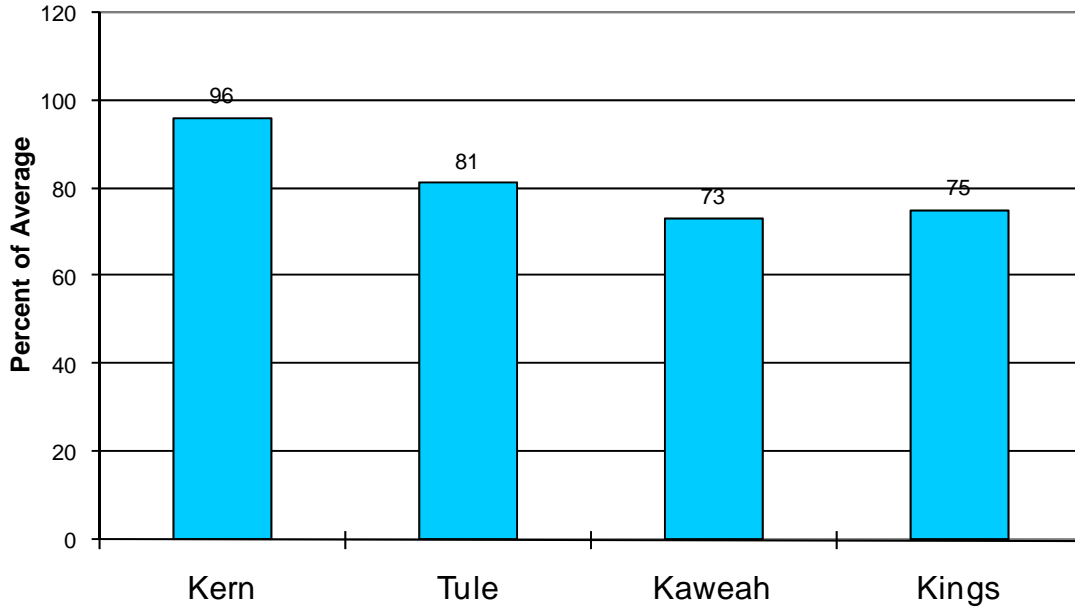
TULARE LAKE BASIN

		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
Kern River						
Kernville, nr	Apr-Jul	260	65	500	85	398*
Isabella Dam, blo	Apr-Jul	290	60	600	100	480
Bakersfield, nr	Apr-Jul	300	61	610	110	490
Tule River						
Success Dam	Apr-Jul	34	52	95	5.0	66
Kaweah River						
Terminus Dam	Apr-Jul	215	74	360	70	290
North Fork Kings River						
Cliff Camp, nr	Apr-Jul	180	75	295	65	240*
Kings River						
Pine Flat Dam, blo	Apr-Jul	910	73	1450	370	1250

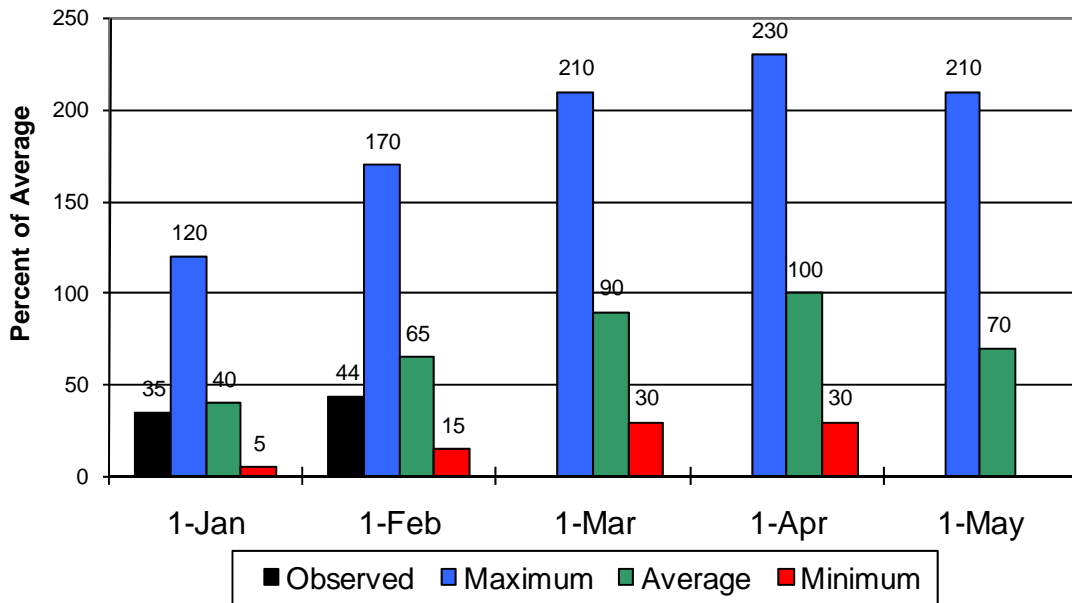
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Tulare Lake Basin

Seasonal Precipitation October 1 to Date



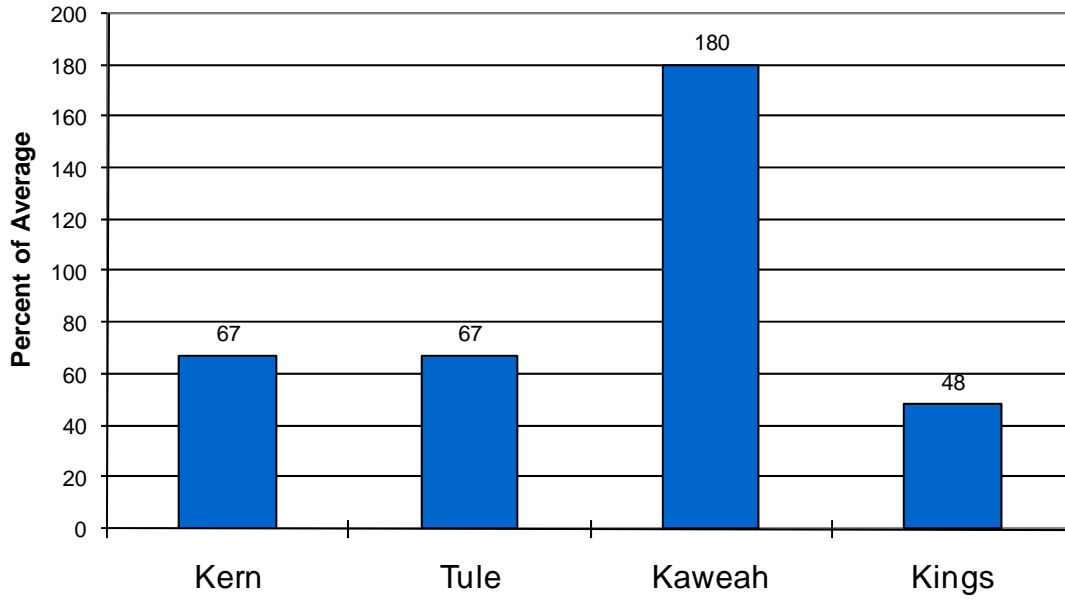
Seasonal Basin Snowpack Water Content in % of April 1 Average



Tulare Lake Basin

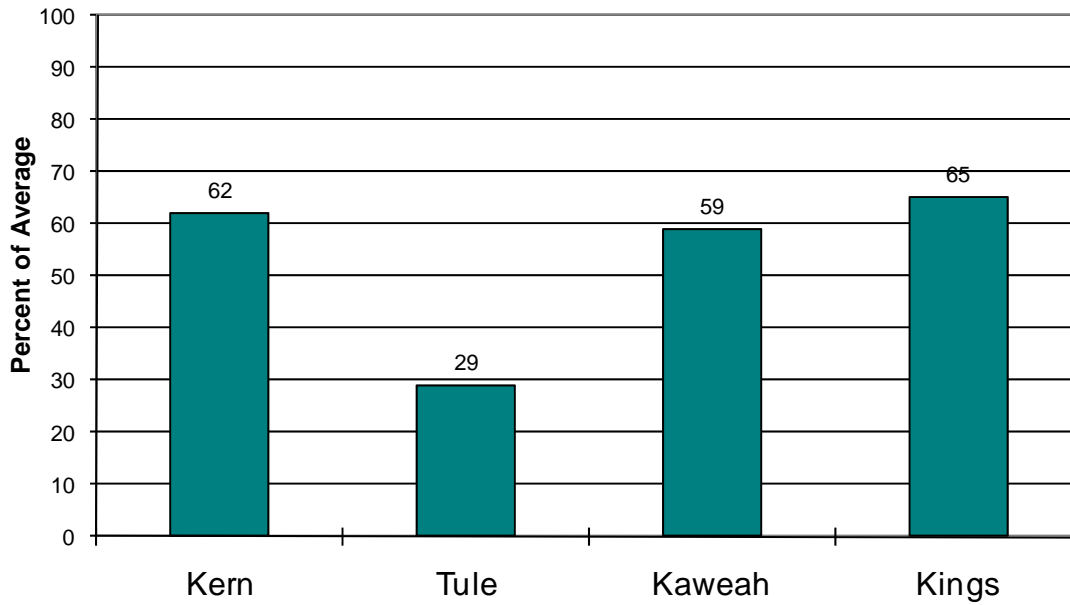
Basin Reservoir Storage

Contents of Major Reservoirs in % of Average

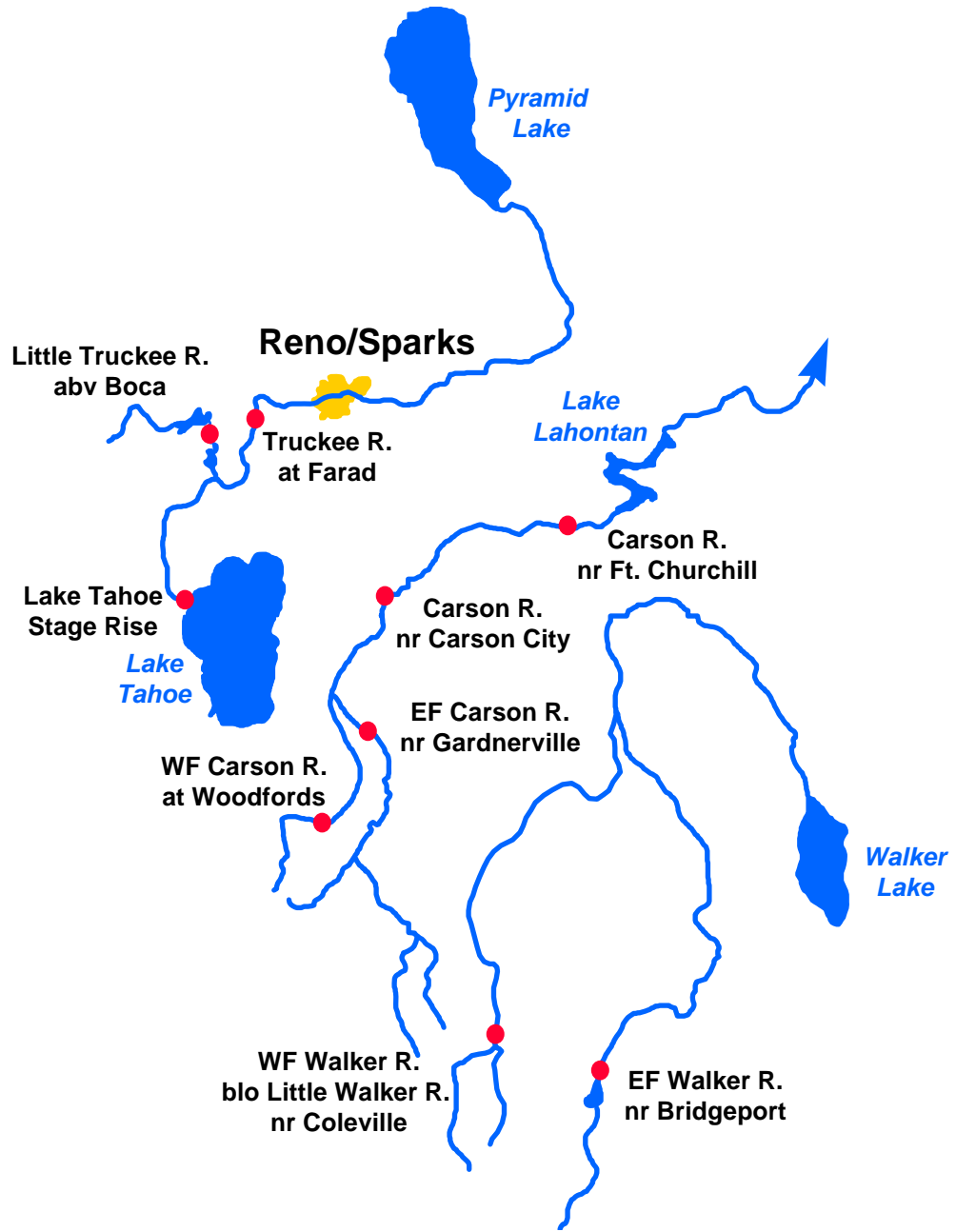


Seasonal Basin Runoff

October 1 to Date



East Side Sierra Nevada Basins



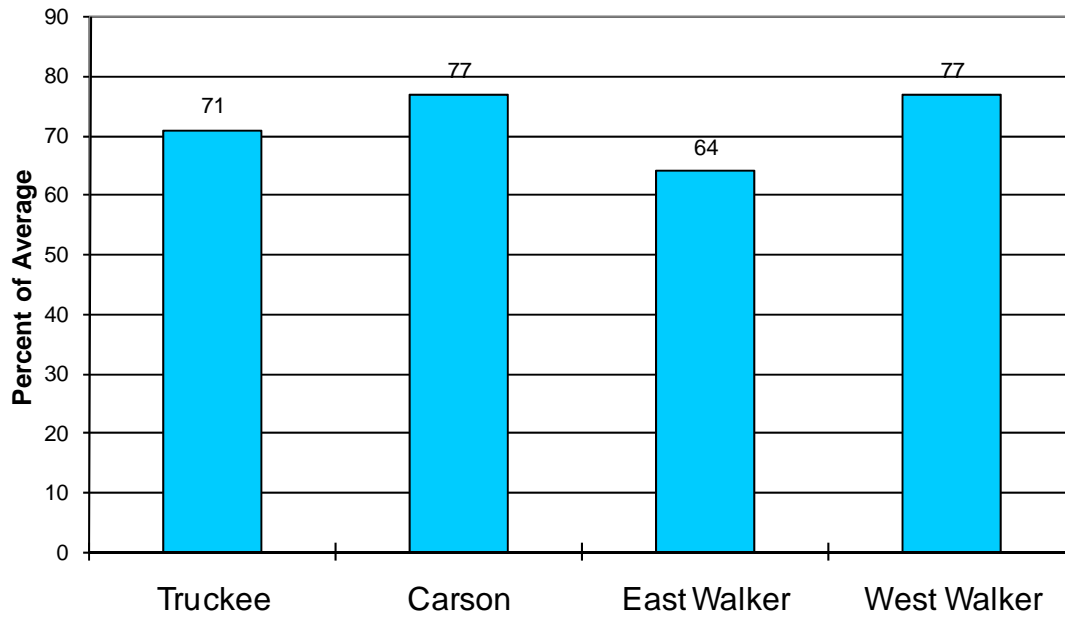
Water Supply Forecasts

EAST SIDE SIERRA NEVADA BASINS

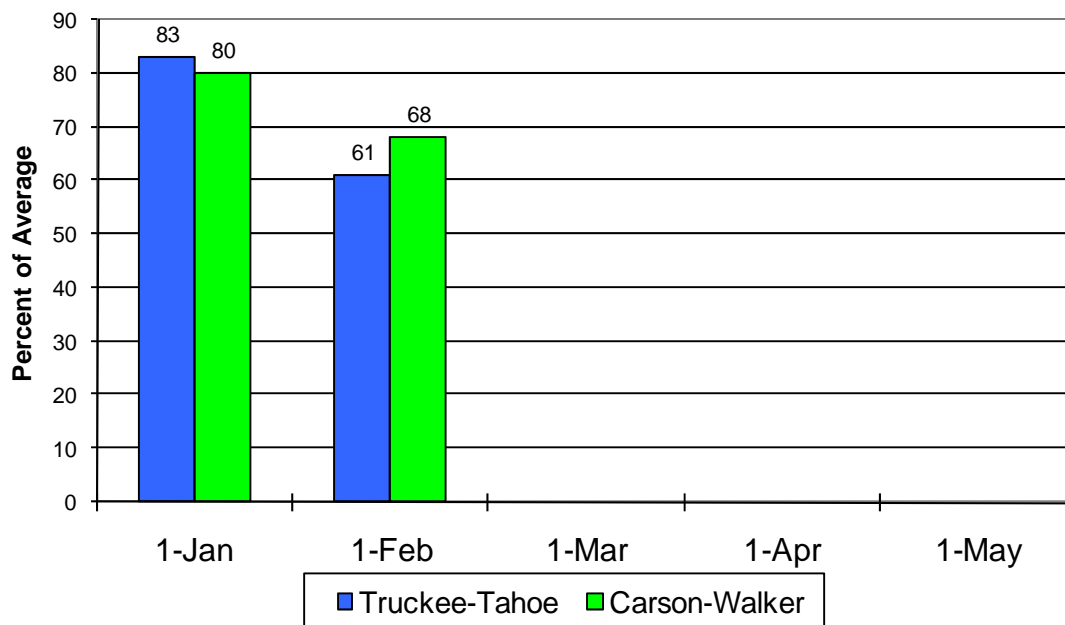
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
Truckee River						
Truckee River Lake Tahoe Stage Rise	Apr-High	0.80	58	1.90	0.03	1.38
Little Truckee River Stampede Dam	Apr-Jul	45	56	95	21	80
Truckee River Farad	Apr-Jul	150	58	265	33	260
Carson River						
East Fork Carson River Gardnerville, nr	Apr-Jul	115	61	210	21	189
West Fork Carson River Woodfords	Apr-Jul	30	54	56	3.6	56
Carson River Carson City, nr	Apr-Jul	84	45	172	27	188
Fort Churchill, nr	Apr-Jul	72	40	140	12.3	178
Walker River						
East Walker River Bridgeport, nr	Apr-Aug	38	57	61	5.4	67
West Walker River Ltl Walker, blo, Coleville, nr	Apr-Jul	95	61	127	63	156

East Side Sierra Nevada Basins

Seasonal Basin Precipitation October 1 to Date

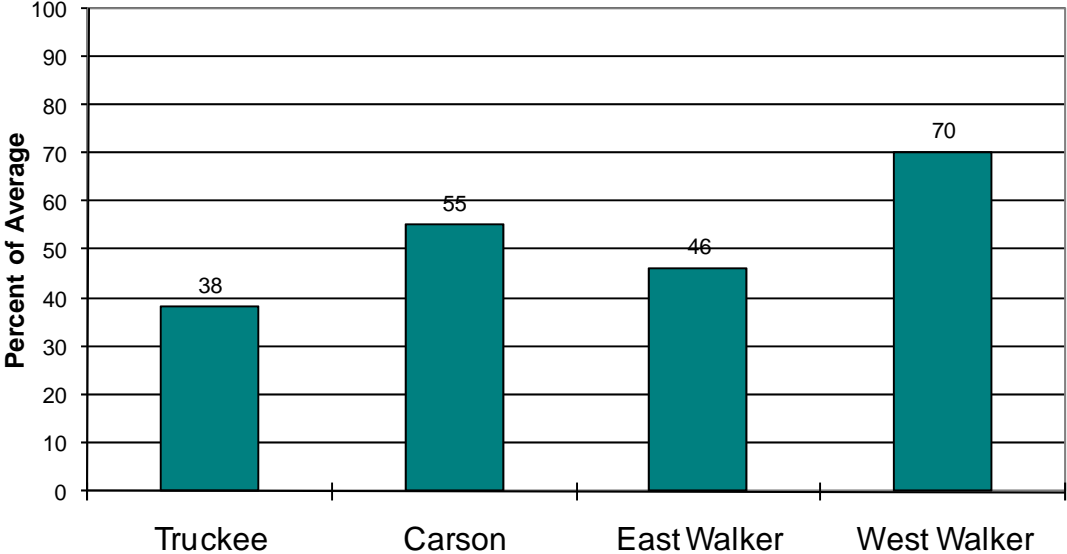


Basin Snowpack % of Average SWE to Date

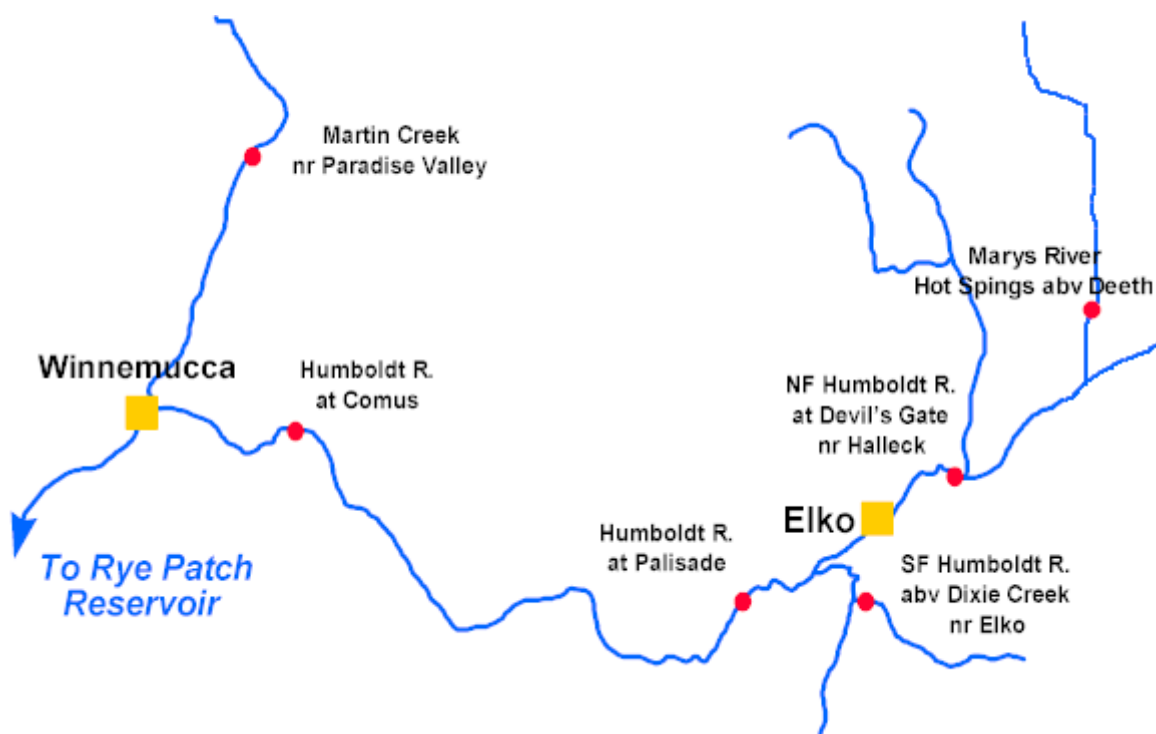


East Side Sierra Nevada Basins

Seasonal Basin Runoff October 1 to Date



Humboldt River Basin



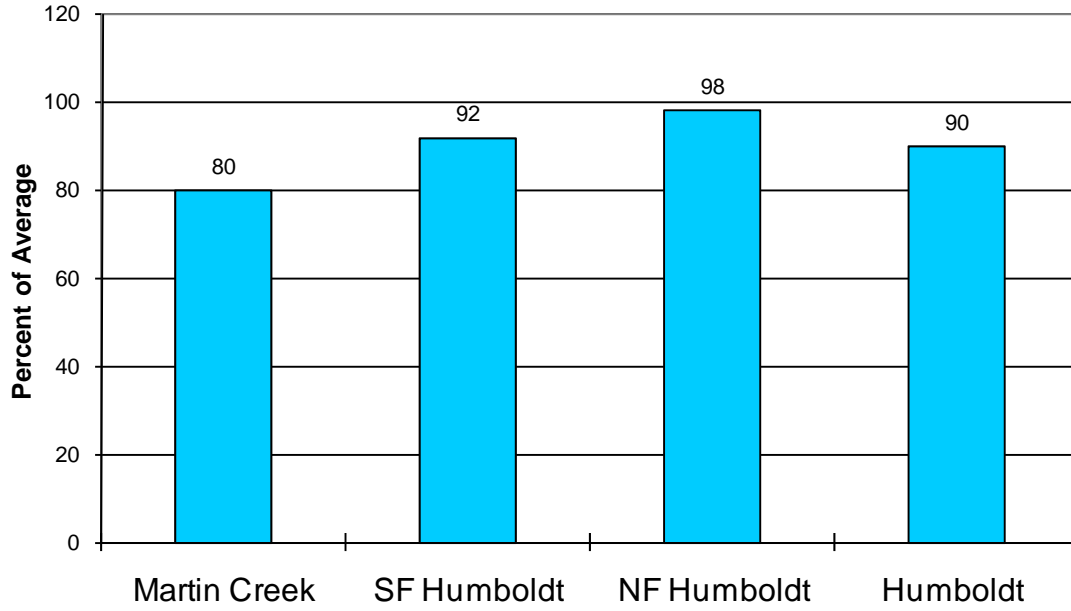
Water Supply Forecasts

		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
North Fork Humboldt River						
Devils Gate, at, Halleck, nr	Apr-Jul	28	82	45	11.0	34*
South Fork Humboldt River						
Dixie Creek, abv, Elko, nr	Apr-Jul	56	74	128	14.0	76
Marys River						
Hot Springs, abv, Deeth, nr	Apr-Jul	31	79	50	12.0	39
Humboldt River						
Elko, nr	Apr-Jul	105	68	200	14.0	154
Palisade	Apr-Jul	165	66	300	60	250
Comus	Apr-Jul	145	64	270	20	225
Imlay, nr	Apr-Jul	110	59	255	10.0	188
Martin Creek						
Paradise Valley, nr	Apr-Jul	14.0	75	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

