

WATER SUPPLY OUTLOOK



CALIFORNIA AND NORTHERN NEVADA

**JANUARY
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

January 1, 2009

The California-Nevada region endured its second consecutive year of below average spring runoff during 2008 with a result that much above average precipitation will be needed this year in order to ensure normal runoff. Snowpack conditions are below average for this time of year and some runoff will be needed to satisfy soil moisture deficits. As of January 9th, an extended period of dry weather is predicted for about the next 10 days in California and Nevada. However, much of the water supply season remains, so let's hope for a turnaround from the dry conditions during the past two years.

Water Year 2009 began with somewhat below average precipitation in October for the region, however, some average to above average amounts were recorded in the Upper Sacramento drainage. November precipitation was essentially below average except for some above average amounts received in portions of the San Joaquin, Tulare and Humboldt basins. Wetter conditions returned in December with many snow basins recording near to above average monthly precipitation. The exceptions were the Trinity and Shasta basins which received about 65 percent of the December average. Seasonal precipitation (October 1st to December 31st) was generally below average in California and Nevada with the best percentages in the San Joaquin, Tulare, Humboldt and the upper portion of the Upper Klamath Lake basin.

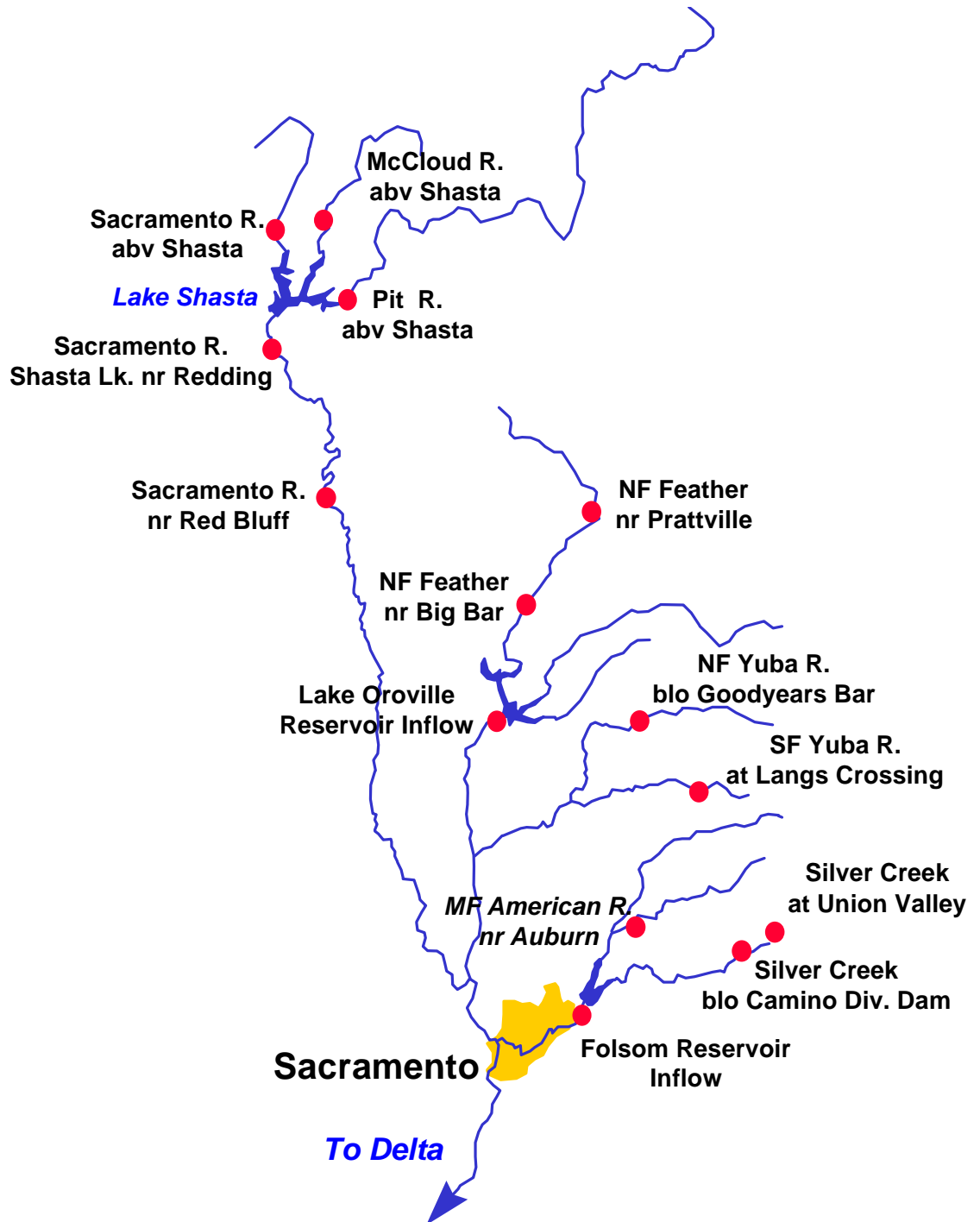
Snow accumulation thus far has been greater than January 1st of last year, especially in the central and southern Sierra Nevada. The exception is in the important snow watersheds in the Shasta-Trinity basins, where water equivalents are lagging compared to other watersheds in California. As of January 1, the April 1st average stands at approximately 26 percent for the Shasta-northern Sierra Nevada, 27 percent for the central and 35 percent for the southern Sierra Nevada. Snow packs in the Tahoe-Truckee are about 83 percent of the percent of the average-to-date, the Carson-Walker at 80 percent and the Humboldt basin at 72 percent. The pack stands at about 98 percent of the average-to-date for the Upper Klamath Lake basin.

Predominantly cold temperatures limited runoff for the region during December. Runoff was much below average during the month ranging from 16 percent for the San Joaquin drainage, 20 percent for the Trinity-Sacramento and 28 percent for the Tulare Lake basin. East side Sierra Nevada basins received 25 percent of a December average while the Humboldt River at Palisade recorded 60 percent. The Upper Klamath Lake basin received 67 percent of a December average.

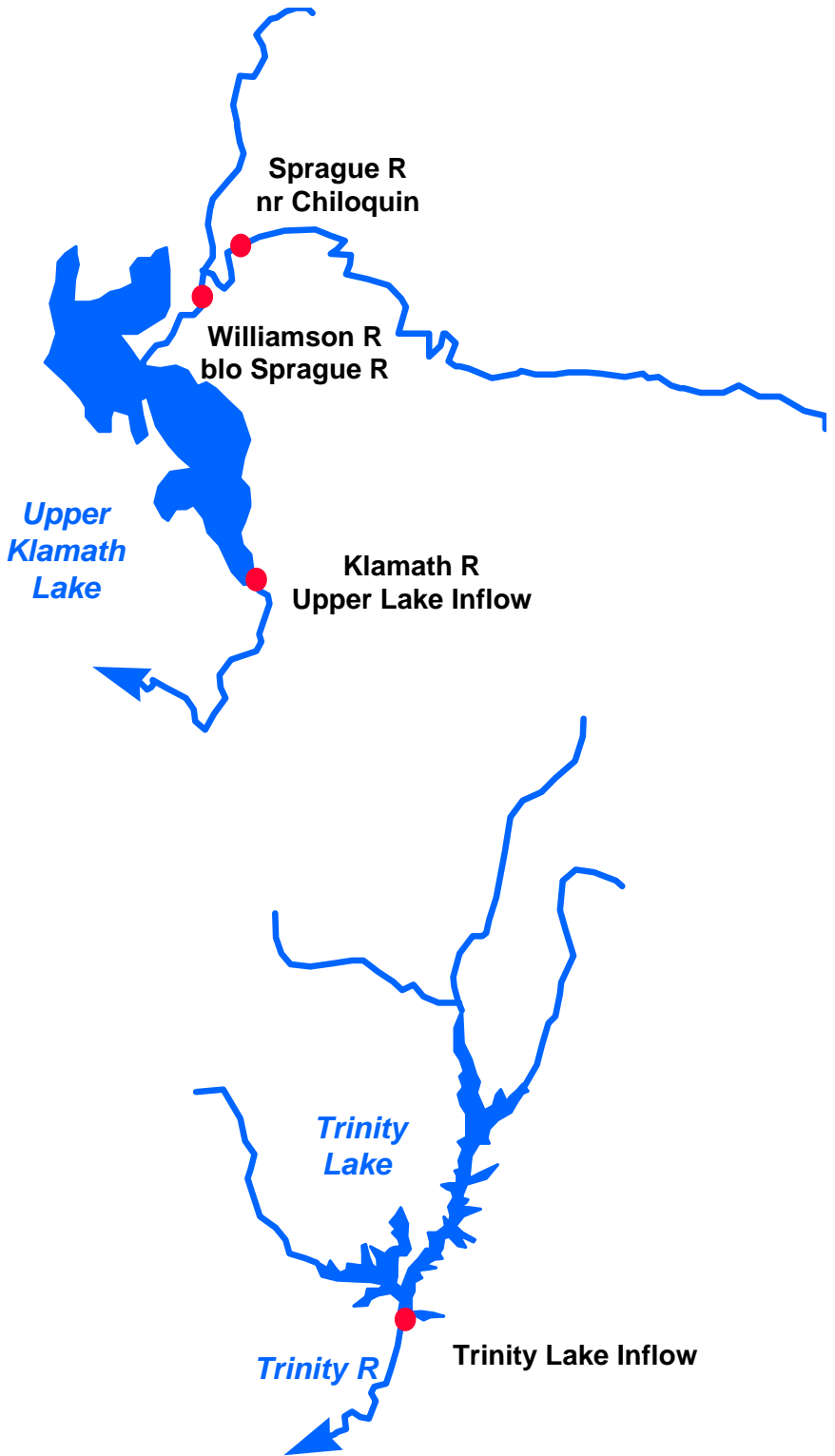
Carryover storage remains well below average for California's major reservoirs. This is readily apparent for the large reservoirs in Northern California where storage at Shasta Lake is at 49 percent of average and Lake Oroville is about 43 percent. Stored water in the Sacramento region as of December 31st was at 64 percent of average for the date, the San Joaquin at 73 percent, and the Tulare Lake watershed at 57 percent. East-side Sierra Nevada reservoirs were at 56 percent of average. The lake level at Lake Tahoe stood at 6223.21 feet as of December 31st. This represents only 6 percent of average! Storage at Lahontan Reservoir in Nevada stands at 26 percent as of December 31st while Rye Patch Reservoir is at 9 percent. Storage at Upper Klamath Lake is about 73 percent of average.

This month's spring runoff forecasts are influenced primarily by the below average snowpack so far and somewhat low antecedent soil moisture conditions. April through July runoff forecasts varies from 63 percent for the Pit River basin to 84 percent of average for the Mokelumne. Most forecasts are in the 75 to 80 percent range from the Yuba River basin to the Kern. Forecasts range from 51 to 70 percent of average for the east side Sierra Nevada basins and 59 to 72 percent for forecast points on the main stem Humboldt River. The April through September forecast for the Upper Klamath Lake inflow is 85 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	340	88	475	205	385
Sprague River Chiloquin, nr	Apr-Sep	188	82	300	76	230
Upper Klamath Falls River Inflow	Apr-Sep	440	85	680	199	515
Lost River Gerber Reservoir Inflow	Feb-Jul	40	85	78	2.4	47
Clear Lake Reservoir Inflow	Feb-Jul	90	86	175	5.1	105
Scott River Fort Jones, nr	Apr-Jul	115	64	225	50	181
Trinity River Trinity Lake Inflow	Apr-Jul	415	65	770	200	635

SACRAMENTO RIVER BASIN

		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
SACRAMENTO RIVER ABOVE BEND BRIDGE						
Pit River Montgomery Ck, nr	Apr-Jul	670	63	1320	330	1070
Mccloud River Shasta Lk, abv	Apr-Jul	270	73	465	140	370
Sacramento River Delta	Apr-Jul	210	72	380	100	290
Shasta Dam	Apr-Jul	1250	70	2150	800	1790
Bend Bridge, abv, Red Bluff, nr	Apr-Jul	1780	73	3060	1150	2440

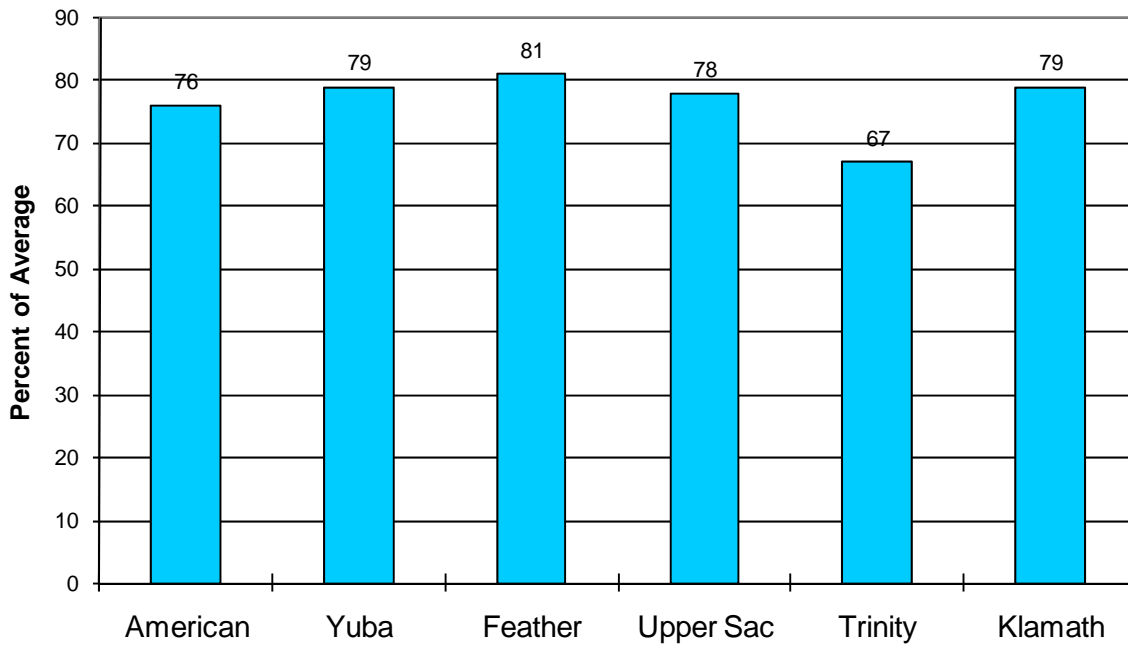
Water Supply Forecasts

		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	215	65	415	115	333*
Big Bar	Apr-Jul	660	69	1230	360	962*
Feather River						
Oroville	Apr-Jul	1210	69	2250	670	1760
YUBA RIVER ABOVE SMARTVILLE						
North Yuba River						
Goodyears Bar, blo	Apr-Jul	205	75	380	110	273*
South Yuba River						
Langs Crossing	Apr-Jul	180	80	330	90	225*
Yuba River						
Smartsville, nr	Apr-Jul	800	80	1450	400	995
AMERICAN RIVER ABOVE FOLSOM RESERVOIR						
Middle Fork American River						
Auburn, nr	Apr-Jul	390	80	715	195	490*
Silver Ck						
Union Valley	Apr-Jul	78	80	145	39	98*
Camino Dam, blo	Apr-Jul	126	80	235	63	158*
American River						
Folsom Reservoir Inflow	Apr-Jul	980	80	1820	490	1230

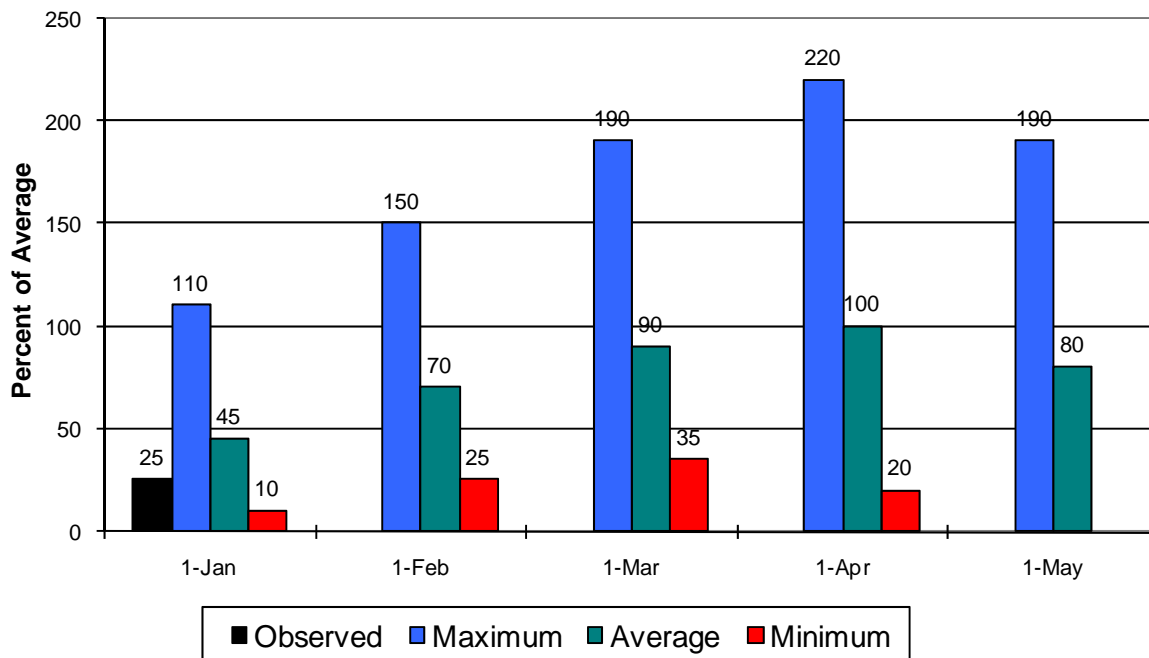
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Sacramento/Trinity/Klamath River Basins

Seasonal Basin Precipitation October 1 to Date

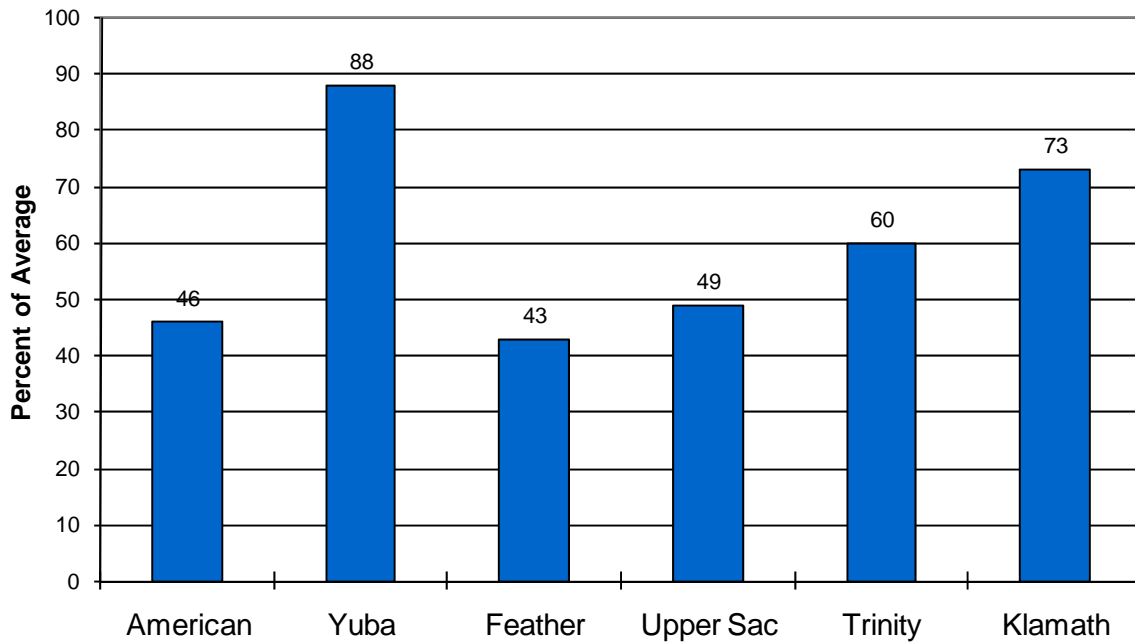


Seasonal Basin Snowpack Water Content in % of April 1 Average

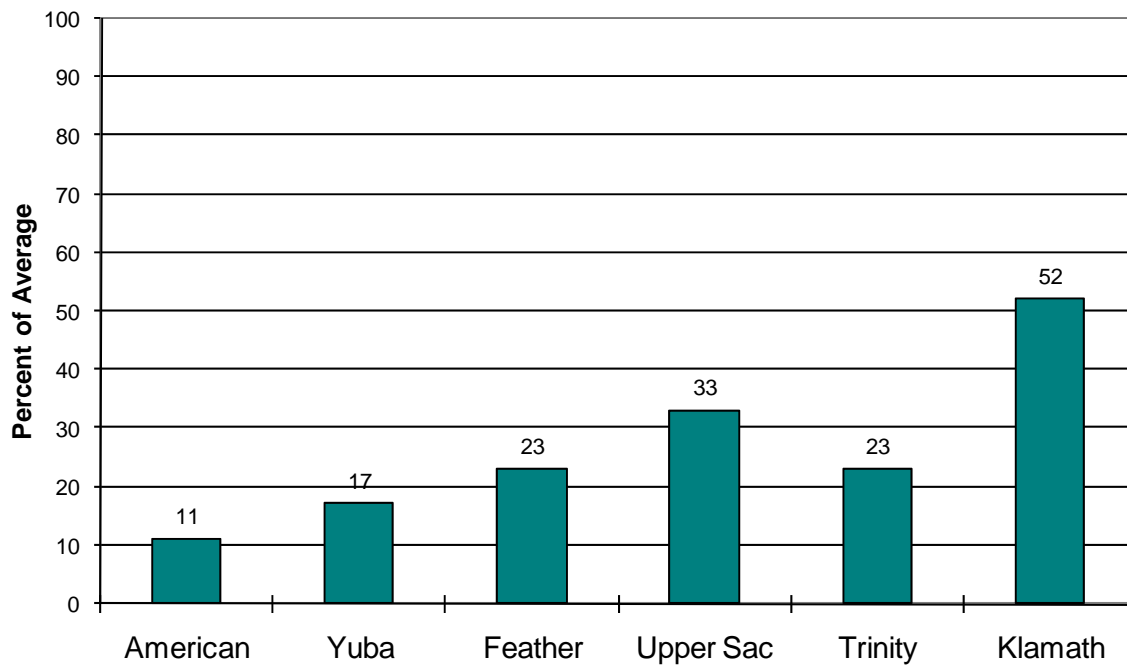


Sacramento/Trinity/Klamath River Basins

Basin Reservoir Storage Contents of Major Reservoirs in % of Average



Seasonal Basin Runoff October 1 to Date



San Joaquin Basin



Water Supply Forecasts

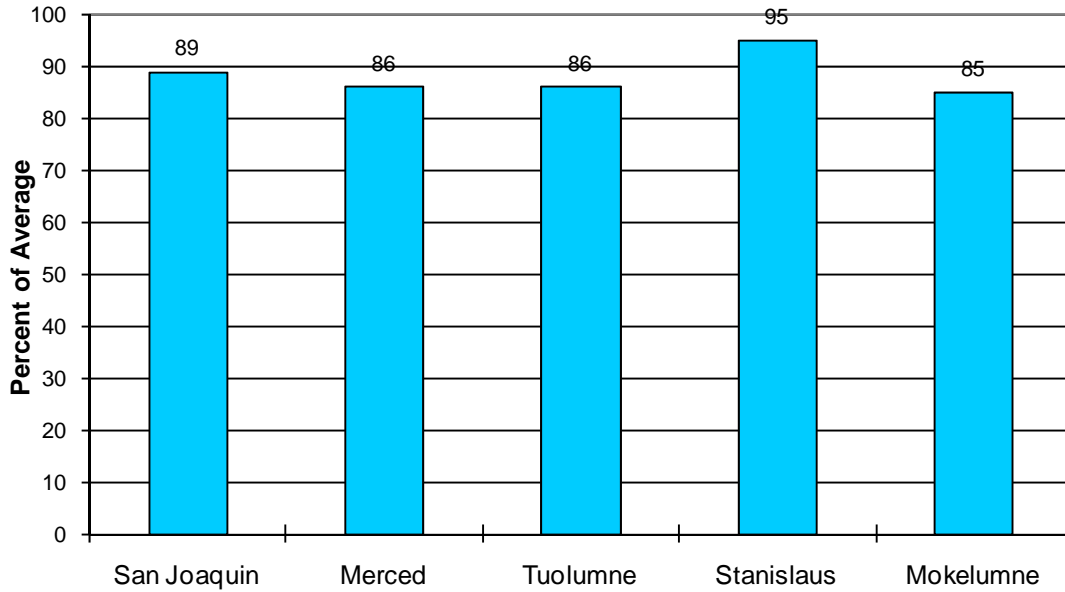
SAN JOAQUIN BASIN

		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
<hr/>						
South Fork San Joaquin River						
Hooper Ck, blo, Florence Lk, nr	Apr-Jul	150	78	240	60	192*
San Joaquin River						
Millerton Lk	Apr-Jul	970	76	1800	300	1270
Merced River						
Pohono Bridge, at, Yosemite, nr	Apr-Jul	300	83	540	120	360*
Merced Falls, blo	Apr-Jul	490	76	920	220	645
Tuolumne River						
Hetch Hetchy, nr	Apr-Jul	490	82	820	160	596*
La Grange, nr	Apr-Jul	980	80	1650	310	1230
Middle Fork Stanislaus River						
Beardsley Dam, blo	Apr-Jul	260	81	455	100	320*
Stanislaus River						
New Melones Dam	Apr-Jul	560	81	980	280	695
North Fork Mokelumne River						
West Point	Apr-Jul	350	84	555	100	416*
Mokelumne River						
Pardee Reservoir	Apr-Jul	370	80	630	110	460
Cosumnes River						
Michigan Bar	Apr-Jul	95	77	200	15.0	123

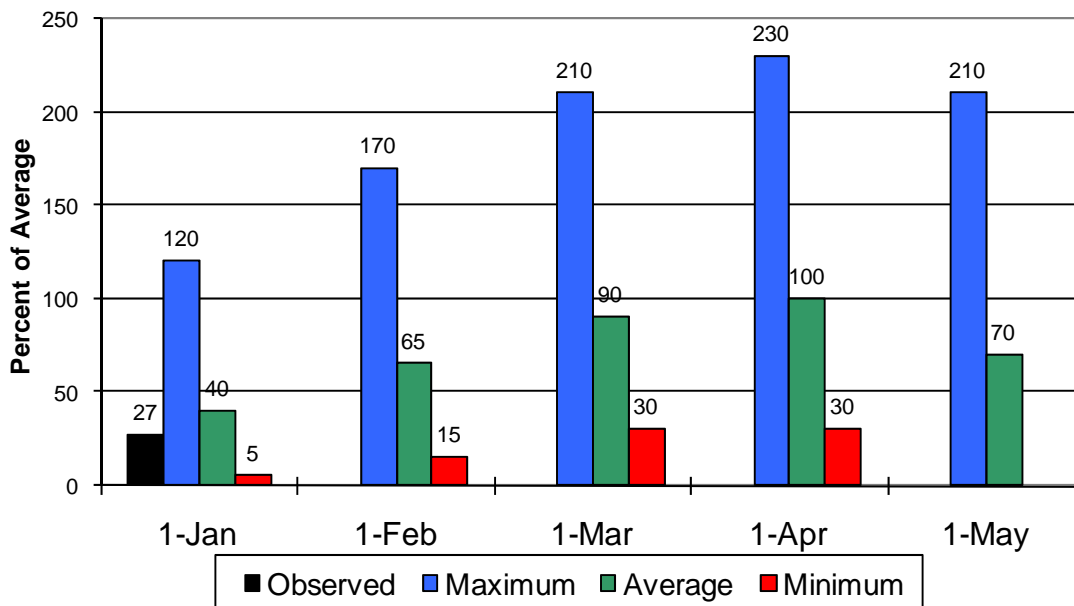
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San Joaquin Basin

Seasonal Basin Precipitation October 1 to Date

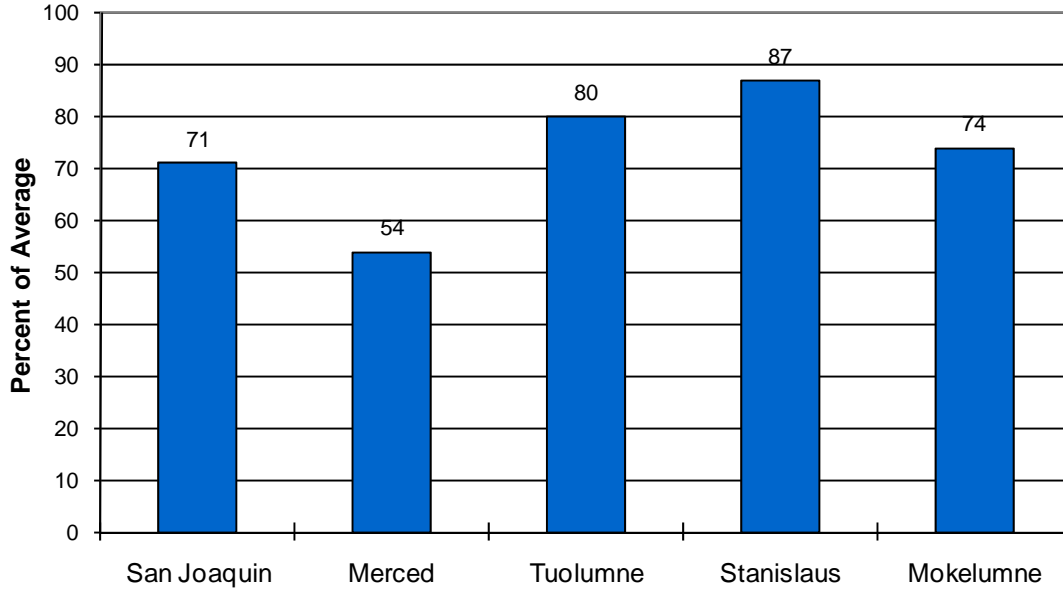


Seasonal Basin Snowpack Water Content in % of April 1 Average

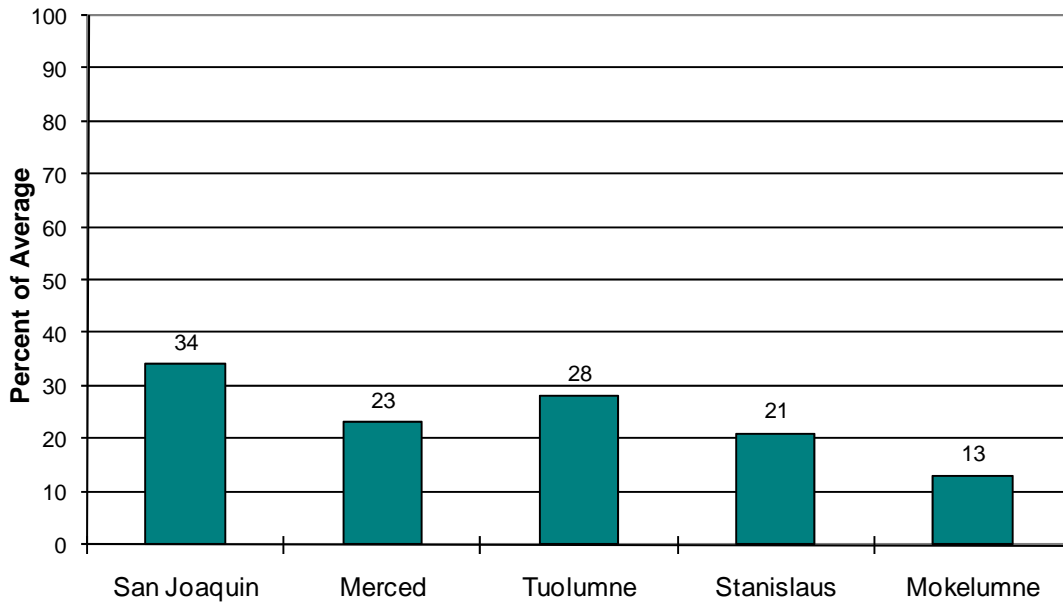


San Joaquin Basin

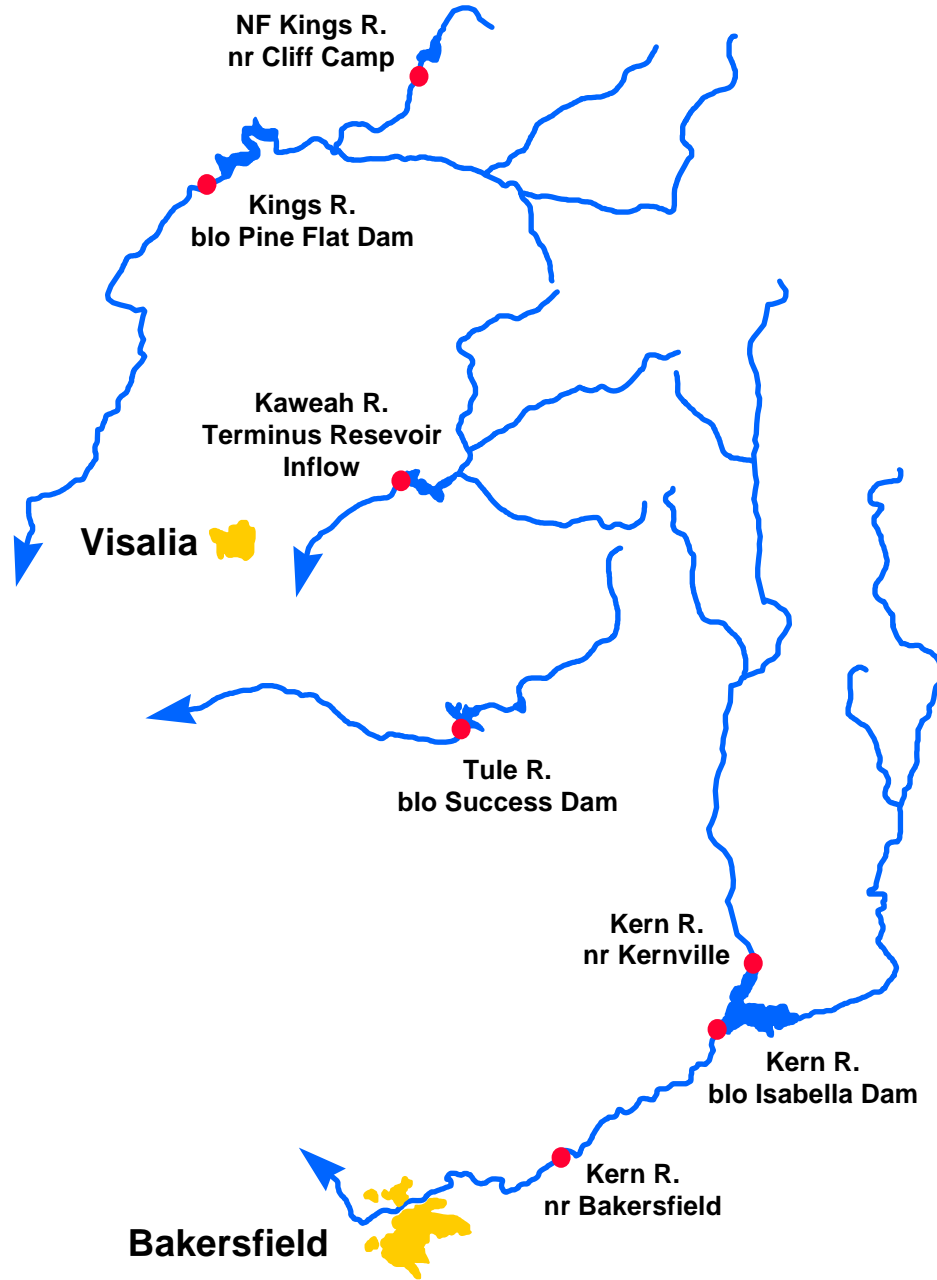
Basin Reservoir Storage Contents of Major Reservoirs in % of Average



Season Basin Runoff October 1 to Date



Tulare Basin



Water Supply Forecasts

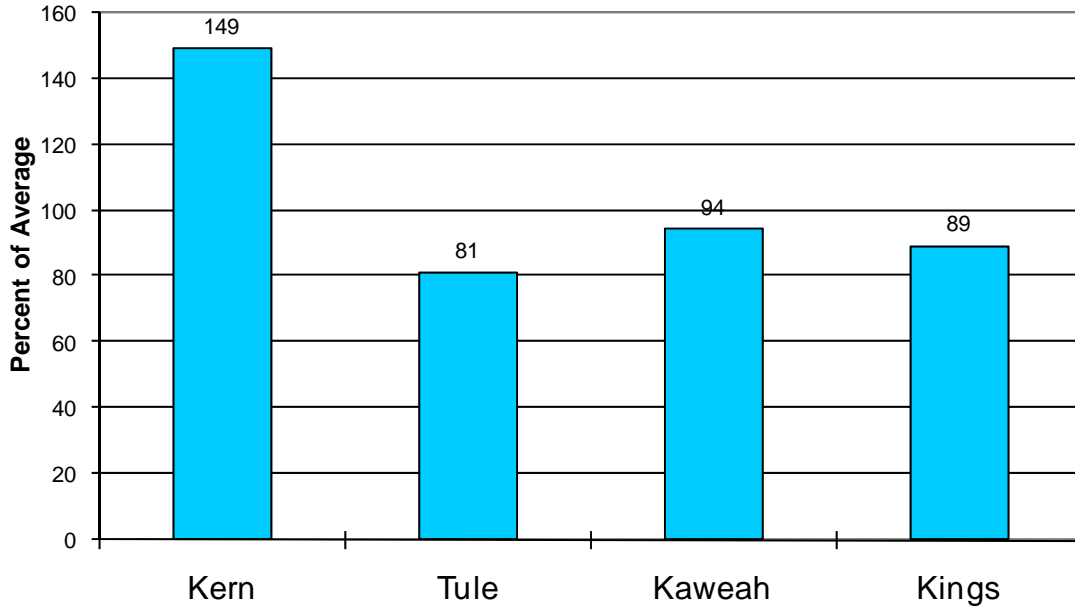
TULARE LAKE BASIN

		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	320	80	640	85	398*
Isabella Dam, blo	Apr-Jul	380	79	750	100	480
Bakersfield, nr	Apr-Jul	390	80	760	110	490
Tule River						
Success Dam	Apr-Jul	50	76	110	10.0	66
Kaweah River						
Terminus Dam	Apr-Jul	230	79	450	70	290
NF Kings River						
Cliff Camp, nr	Apr-Jul	190	79	340	60	240*
Kings River						
Pine Flat Dam, blo	Apr-Jul	960	77	1720	300	1250

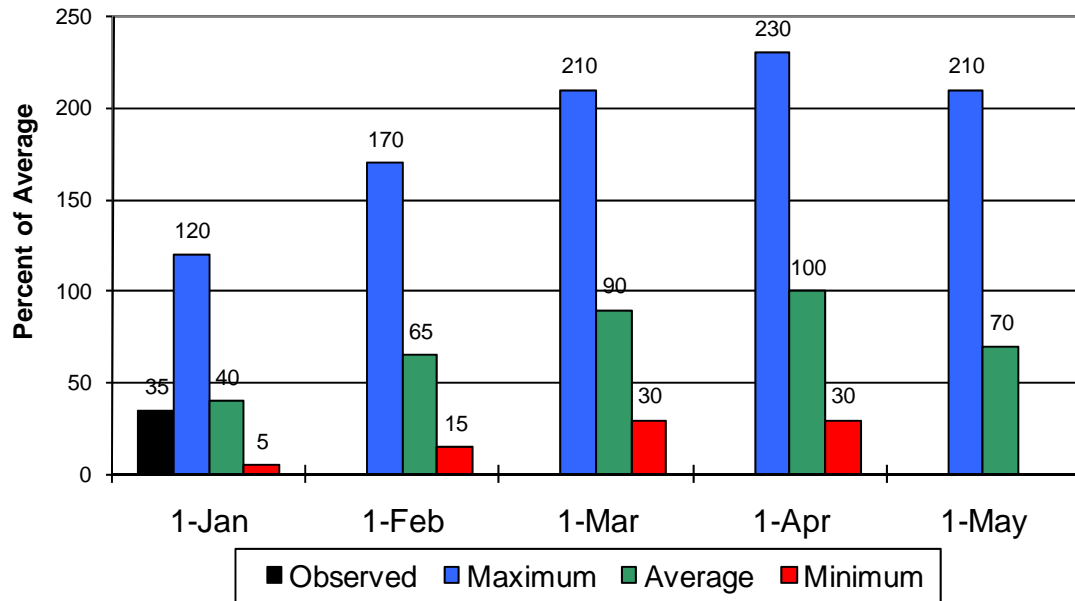
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Tulare Lake Basin

Seasonal Precipitation October 1 to Date

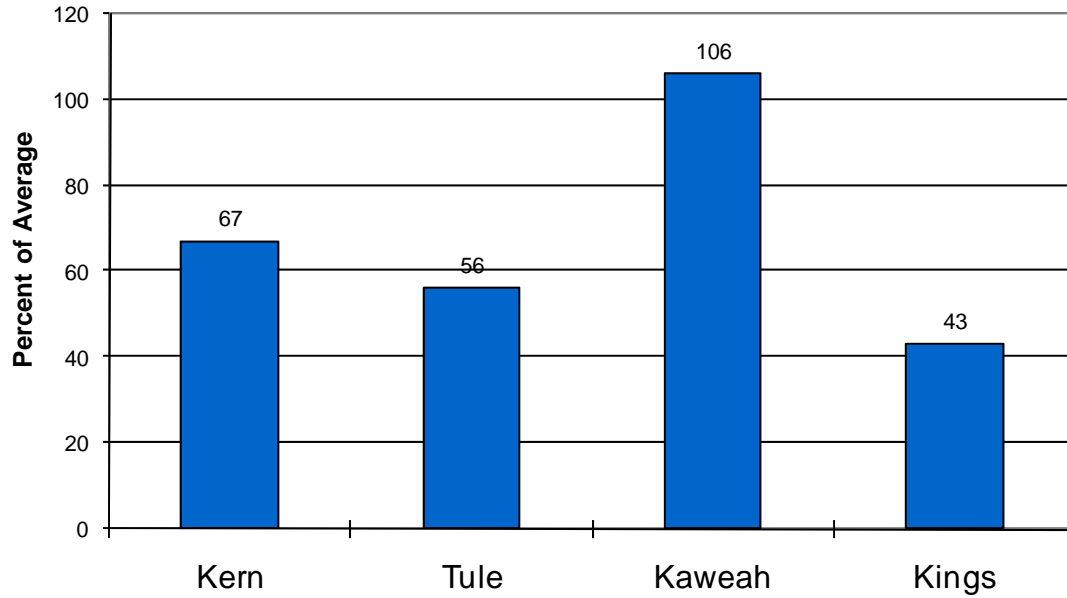


Seasonal Basin Snowpack Water Content in % of April 1 Average

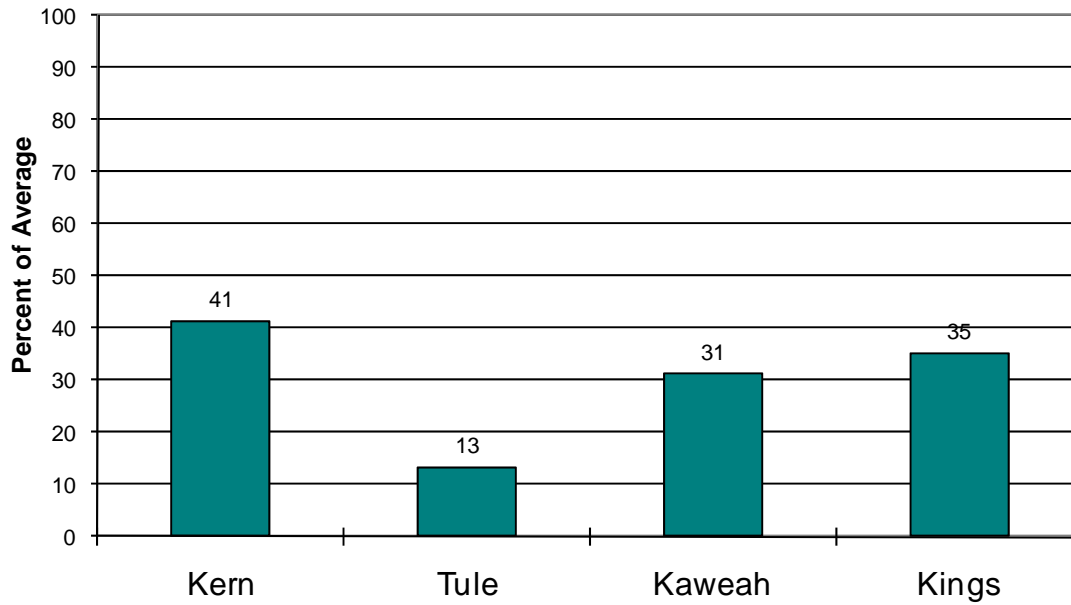


Tulare Lake Basin

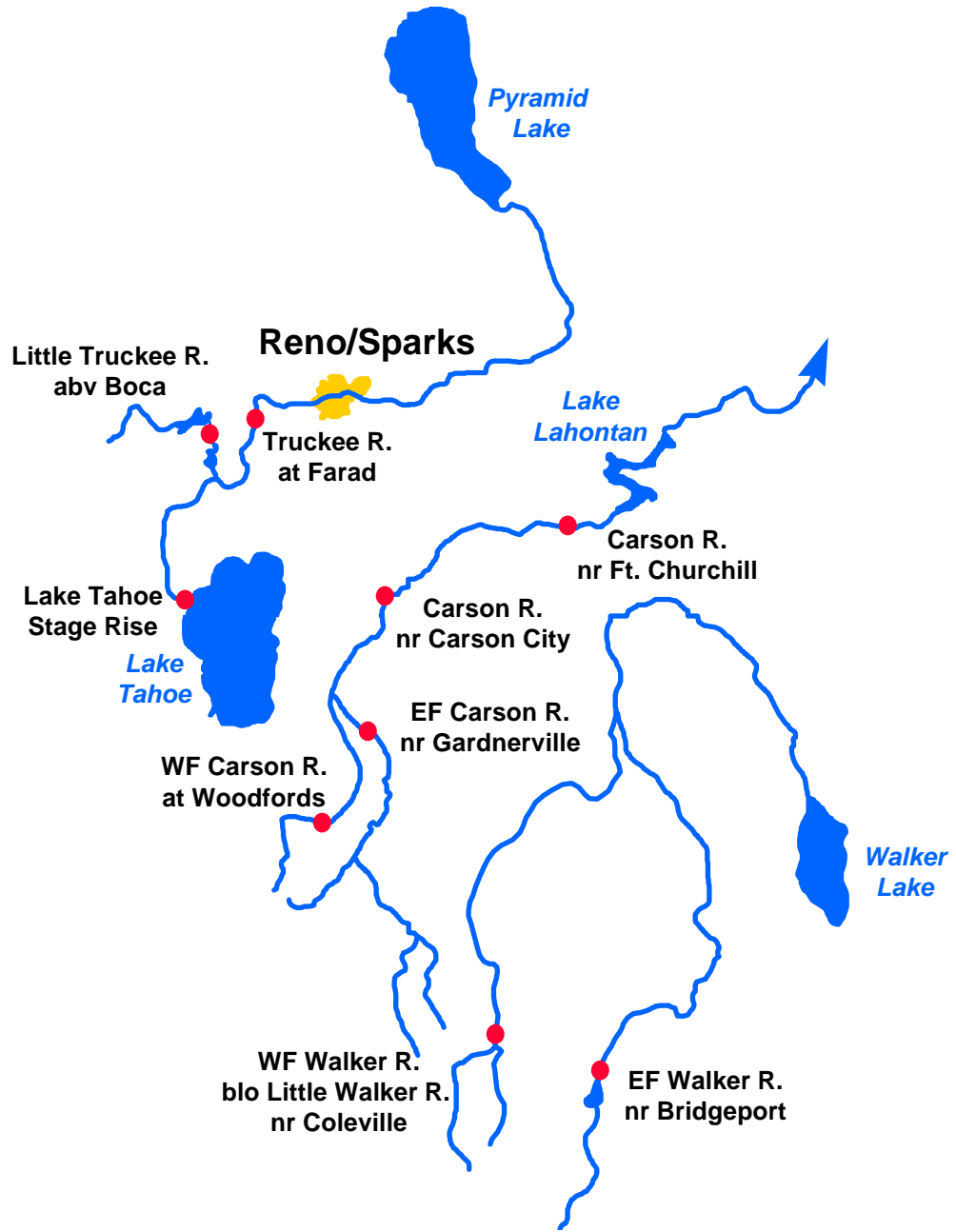
Basin Reservoir Storage Contents of Major Reservoirs in % of Average



Seasonal Basin Runoff October 1 to Date



East Side Sierra Nevada Basins



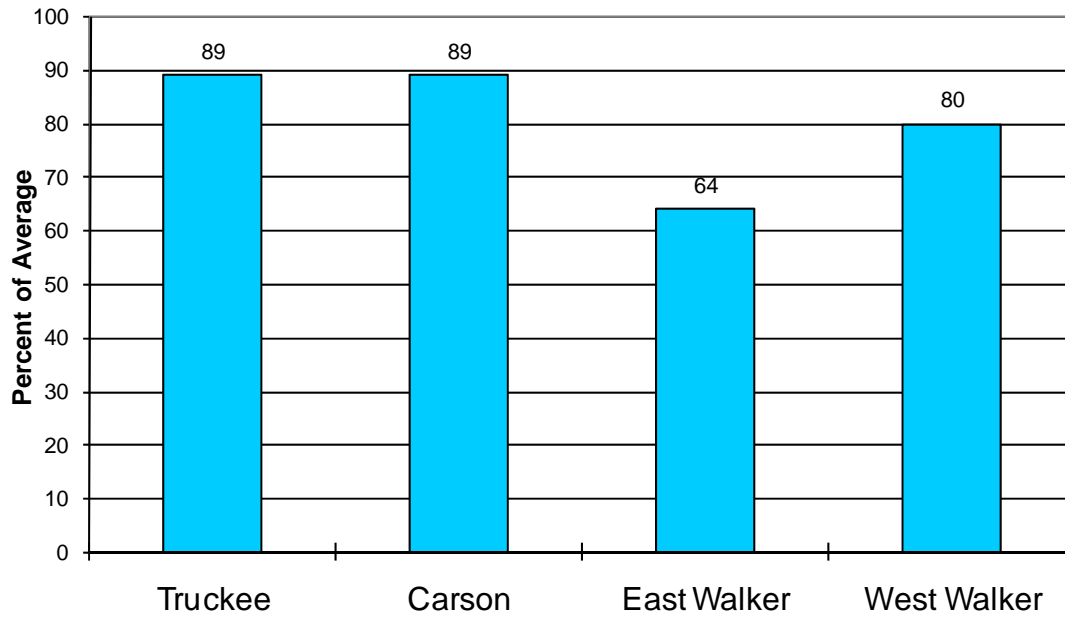
Water Supply Forecasts

EAST SIDE SIERRA NEVADA BASINS

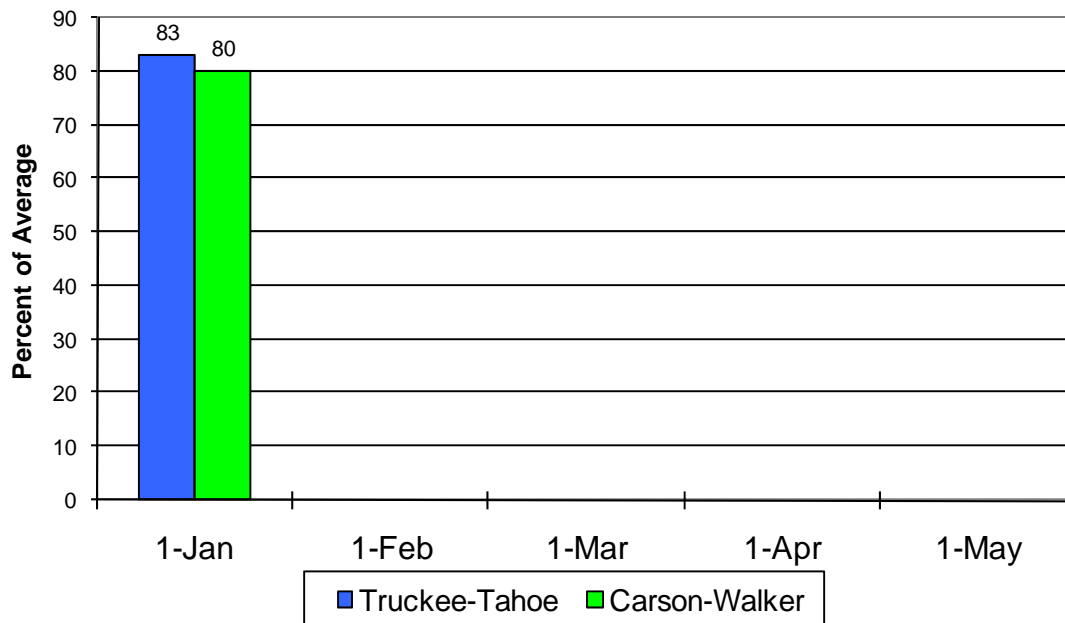
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
Truckee River						
Truckee River Lake Tahoe Stage Rise	Apr-High	0.90	65	2.0	0.21	1.38
Little Truckee River Stampede Dam	Apr-Jul	56	70	126	25	80
Truckee River Farad	Apr-Jul	180	69	295	62	260
Carson River						
East Fork Carson River Gardnerville, nr	Apr-Jul	130	69	245	24	189
West Fork Carson River Woodfords	Apr-Jul	35	62	69	4.5	56
Carson River Carson City, nr	Apr-Jul	100	53	255	15.0	188
Fort Churchill, nr	Apr-Jul	90	51	235	30	178
Walker River						
East Walker River Bridgeport, nr	Apr-Aug	45	67	86	9.0	67
West Walker River Ltl Walker, blo, Coleville, nr	Apr-Jul	110	71	190	18.0	156

East Side Sierra Nevada Basins

Seasonal Basin Precipitation October 1 to Date

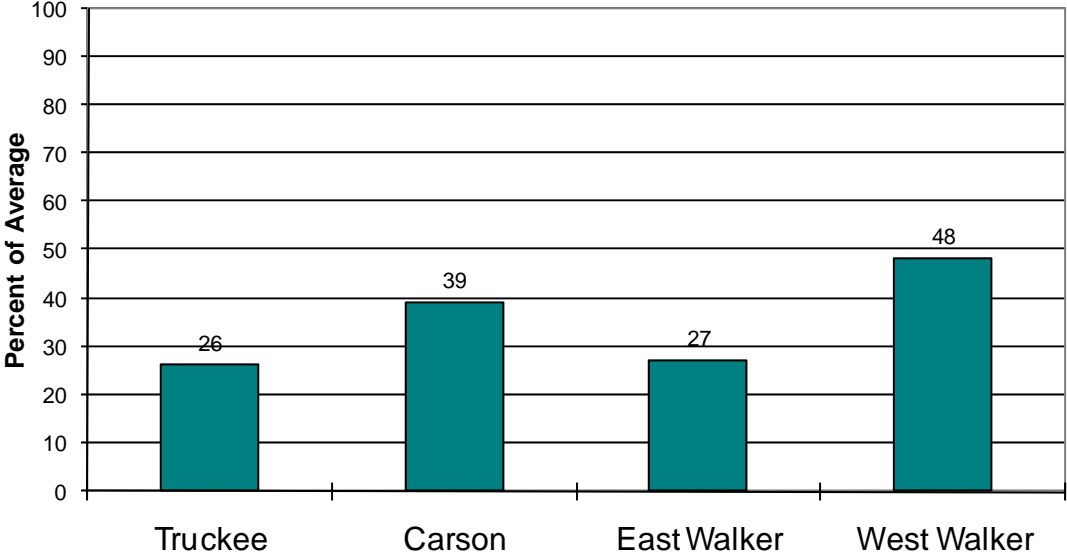


Basin Snowpack % of Average SWE to Date

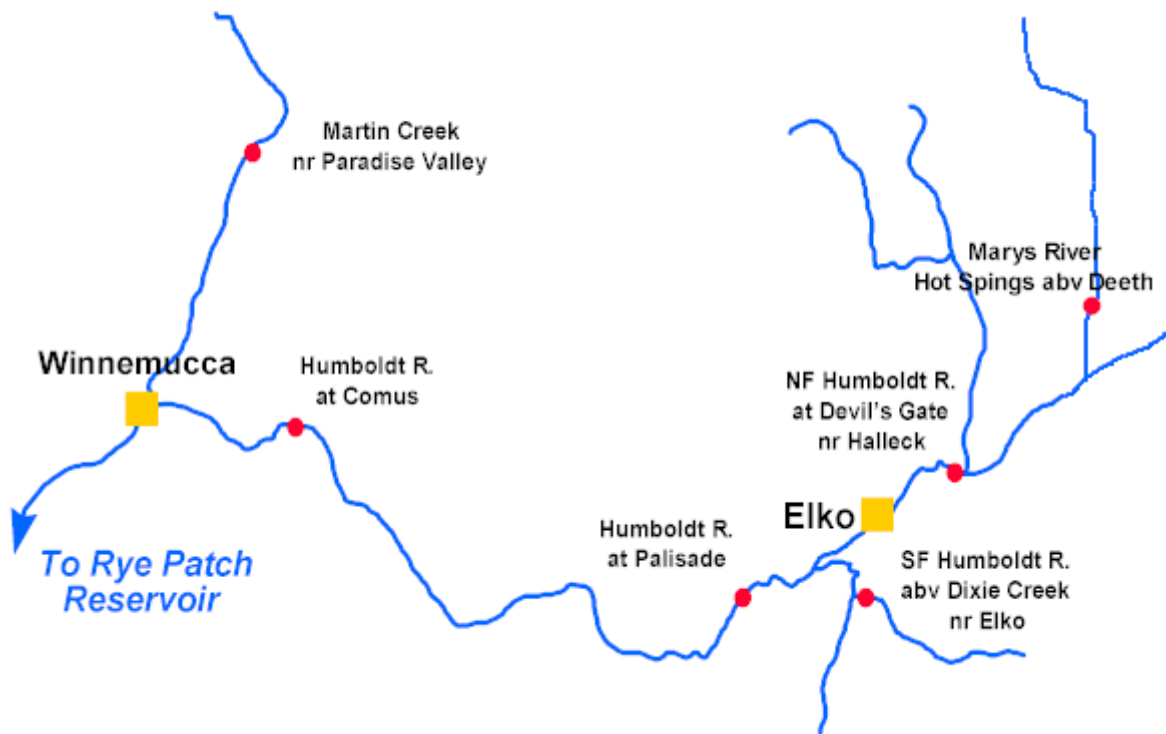


East Side Sierra Nevada Basins

Seasonal Basin Runoff October 1 to Date



Humboldt River Basin



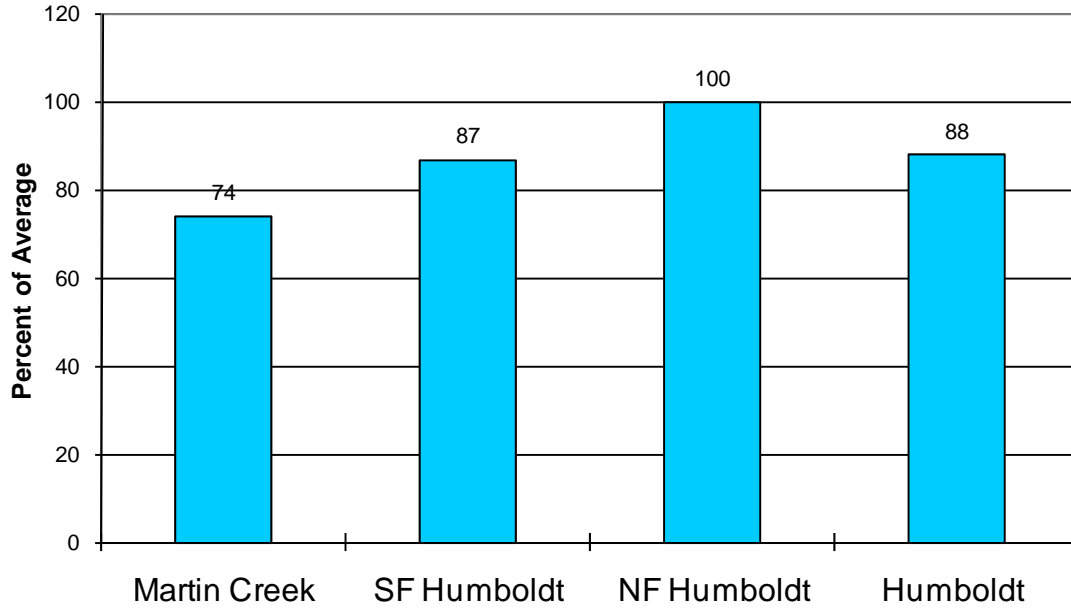
Water Supply Forecasts

		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	27	79	50	4.0	34*
South Fork Humboldt River						
Dixie Ck, abv, Elko, nr	Apr-Jul	58	76	100	15.0	76
Marys River						
Hot Springs, abv, Deeth, nr	Apr-Jul	30	77	50	10.0	39
Humboldt River						
Elko, nr	Apr-Jul	110	71	210	10.0	154
Palisade	Apr-Jul	180	72	350	10.0	250
Comus	Apr-Jul	155	69	300	15.0	225
Imlay, nr	Apr-Jul	110	59	210	10.0	188
Martin Ck						
Paradise Vly, nr	Apr-Jul	14.0	75	25	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

