

WATER SUPPLY OUTLOOK



CALIFORNIA AND NORTHERN NEVADA

**FEBRUARY
2012**



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 TELelemetry. 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 01, 2012

California finally got some relief from the persistent dry conditions that plagued the region during December. A major storm arrived a little past mid-month in January, bringing much needed precipitation to snow basins in the state. However, seasonal precipitation remains much below average and snow pack water equivalent rank among the lowest in many years. On a positive note, storage remains near or above average for most of the State's major reservoirs. It will require much above average precipitation and snow accumulation during the remainder of this wet season to attain normal spring and summer runoff.

Significant amounts of precipitation fell during January with some basins (Trinity, Scott and Walker) recording above average precipitation during the month. Most of the basins in the upper Sacramento and west slope of the Sierra Nevada received below average January precipitation. Seasonal average precipitation (October 1, 2011 to January 31, 2012) remains much below average for the region.

<u>Basin</u>	<u>Jan % of Avg Pcpn</u>	<u>WY % of Avg Pcpn</u>
Trinity	110	73
Upper Sacramento	77	53
Central Sierra	74	53
Southern Sierra	72	63
Walker	121	62
Carson	87	49
Truckee	87	51
Klamath	114	70

High-altitude snowpack levels remain low as of February 1. According to the California Cooperative Snow Surveys, measurements taken at Lyons Creek located in the American River basin was 5.8 inches, compared with the record low of 0 inches in 1963. The water content taken at Tamarack Flat was 4.8 inches, the fourth lowest on record going back to 1946. December through February is traditionally the Sierra Nevada's wettest period; on average accounting for about half of the water year's precipitation. The Sierra Nevada went through 61 days of this period before any appreciable water content was added to the statewide snow pack.

<u>Basin</u>	<u>% of Avg Snowpack February 1, 2012</u>	<u>% of Avg Snowpack February 1, 2011</u>
Trinity/Upr Sac/Nrn Sierra	28	111
San Joaquin Valley	31	145
Tulare Lake	47	186
Tahoe-Truckee	35	125
Carson-Walker	36	130
Humboldt	42	122
Upper Klamath	64	89

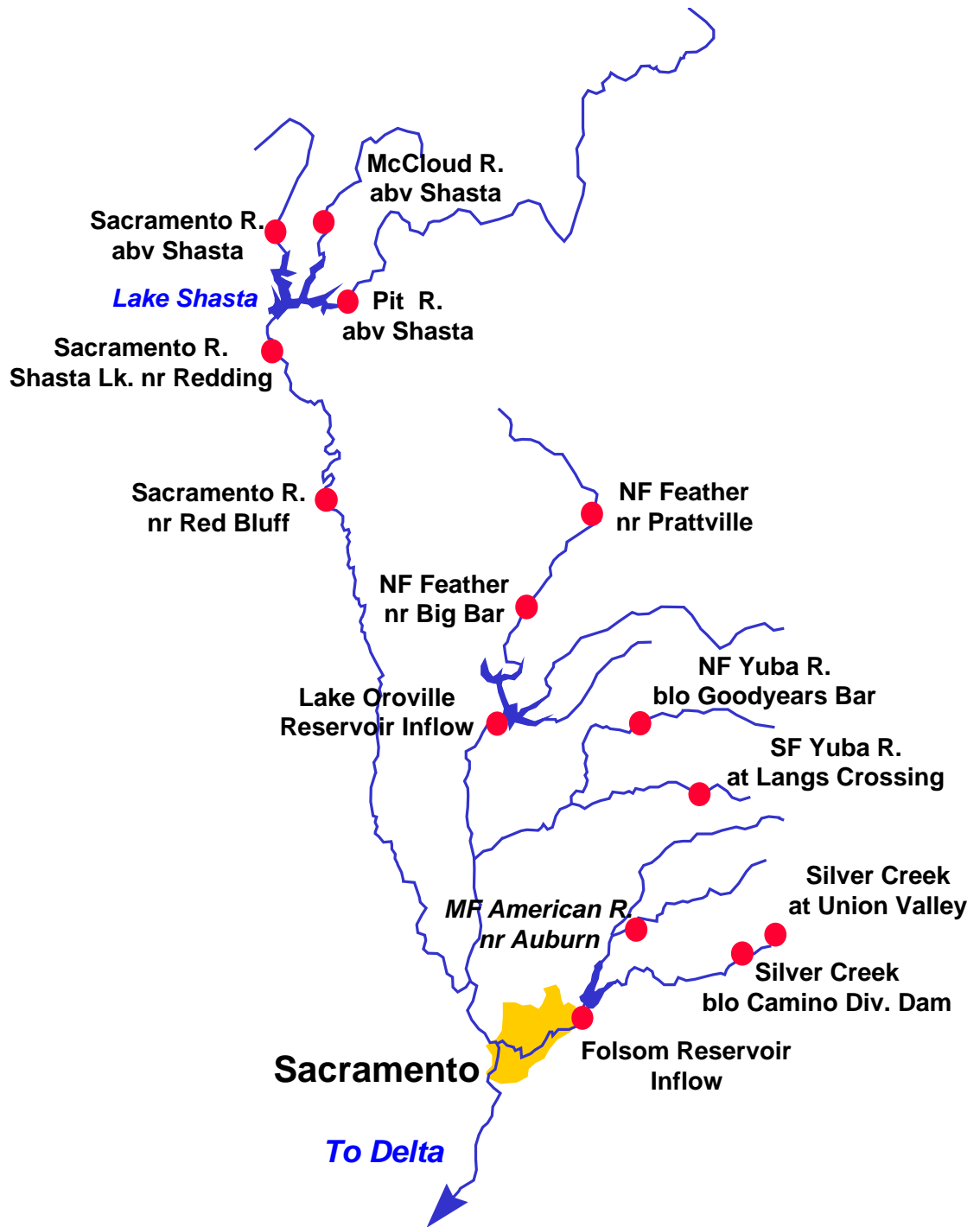
Much below average runoff was recorded in January as some runoff was being absorbed by the soil to satisfy moisture deficits:

<u>Basin</u>	<u>Jan % of Avg Runoff</u>	<u>WY % of Avg Runoff</u>
Trinity-Sacramento	31	39
San Joaquin	31	41
Tulare Lake	48	85
East Side Sierra	54	84
Humboldt	63	79
Upper Klamath	62	64

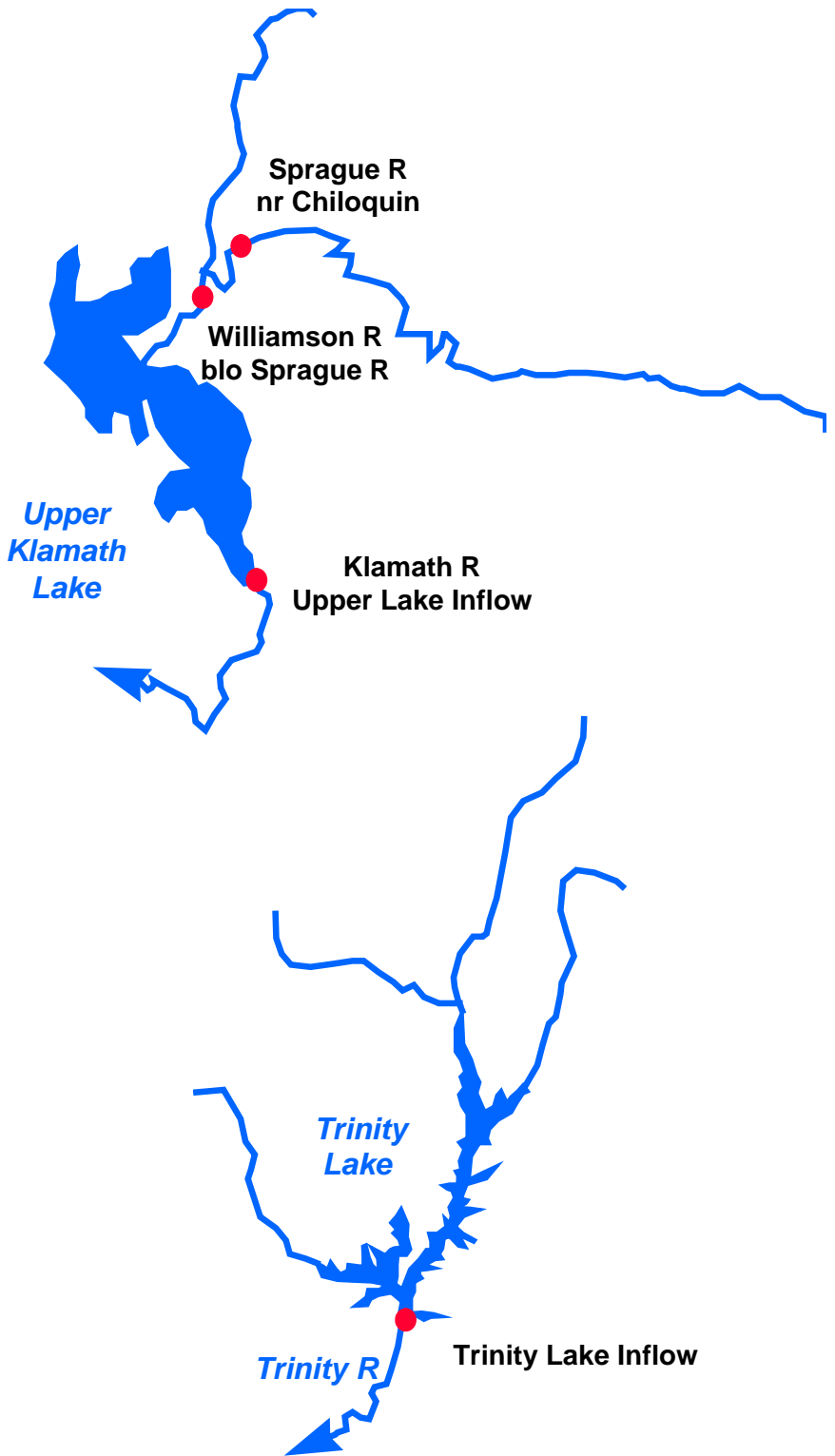
Major reservoirs in the Upper Sacramento/Sierra Nevada continue to benefit from good carryover storage from last year's large snow pack. Shasta Lake and Lake Oroville stand at 101 and 105 percent, respectively. Stored water in the Sacramento region as of January 31 was at 103 percent of average for the date, the San Joaquin at 124, and the Tulare Lake at about 118 percent. East-side Sierra reservoirs were at 138 percent of average. The lake level at Lake Tahoe stood at 6226.9 feet (or 3.9 feet above its natural rim altitude of 6223.0 feet) as of January 31. Usable storage was 474,600 acre-feet or 130 percent of average. It was 192,000 acre-feet (53 percent of average) at this time last year. Storage at Lahontan Reservoir in Nevada stands at 115 percent of average as of January 31 while Rye Patch Reservoir is at 136 percent. Storage at Upper Klamath Lake is about 93 percent of average.

April through July runoff forecasts vary from 37 to 73 percent of average (1971-2000) for Upper Sacramento/west slope Sierra Nevada basins. They range from 29 to 53 percent for the east side Sierra Nevada watersheds and 20 to 38 percent for forecast points on the main stem Humboldt River. The April through September forecast for the Upper Klamath Lake inflow is 59 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	240	62	345	135	385
Sprague River Chiloquin, nr	Apr-Sep	120	52	200	35	230
Upper Klamath Falls River Inflow	Apr-Sep	305	59	480	130	515
Lost River Gerber Reservoir Inflow	Feb-Jul	30	64	55	4.0	47
Clear Lake Reservoir Inflow	Feb-Jul	65	62	120	10.0	105
Scott River Fort Jones, nr	Apr-Jul	100	55	230	55	181
Trinity R River Trinity Lake	Apr-Jul	400	63	800	180	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%	116	42	80	65	75	30	10	5	2	180	425
50%	116	100	135	155	165	60	20	6	3	400	760
10%	116	140	200	305	325	120	50	11	8	800	1275

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	600	64	895	505	940
Mccloud River Shasta Lk, above	Apr-Jul	270	73	395	180	370
Sacramento River Delta	Apr-Jul	195	67	360	90	290
Shasta Dam	Apr-Jul	1170	65	1920	820	1790
Bend Bridge, abv, Red Bluff, nr	Apr-Jul	1550	64	2800	1000	2440

Water Supply Forecasts

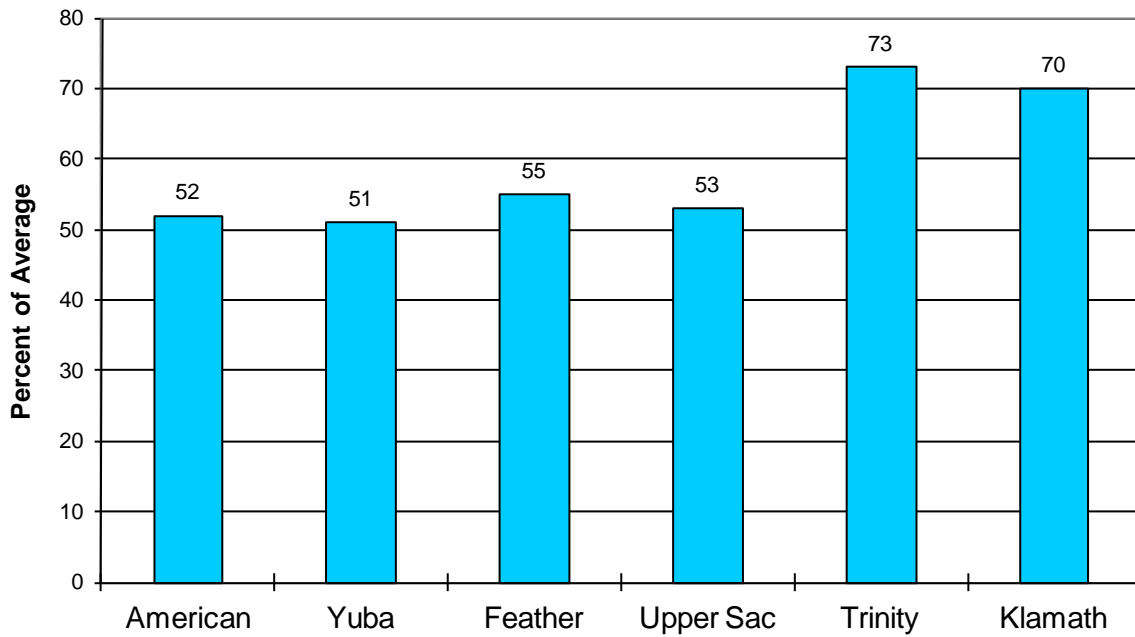
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
FEATHER RIVER ABOVE OROVILLE RESERVOIR						
North Fork Feather River						
Prattville, nr	Apr-Jul	180	54	350	110	333*
Big Bar	Apr-Jul	410	43	850	210	962*
Feather River						
Oroville Dam	Apr-Jul	740	42	1610	330	1760
YUBA RIVER ABOVE SMARTVILLE						
North Yuba River						
Goodyears Bar, blo	Apr-Jul	120	44	275	45	273*
South Yuba River						
Langs Crossing	Apr-Jul	100	44	200	55	225*
Yuba River						
Englebright Reservoir	Apr-Jul	430	43	960	175	995
AMERICAN RIVER ABOVE FOLSOM RESERVOIR						
Middle Fork American River						
Auburn, nr	Apr-Jul	220	45	475	100	490*
Silver Creek						
Union Valley	Apr-Jul	50	51	100	20	98*
Camino Dam, blo	Apr-Jul	75	47	160	30	158*
American River						
Folsom Reservoir	Apr-Jul	560	46	1280	230	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.

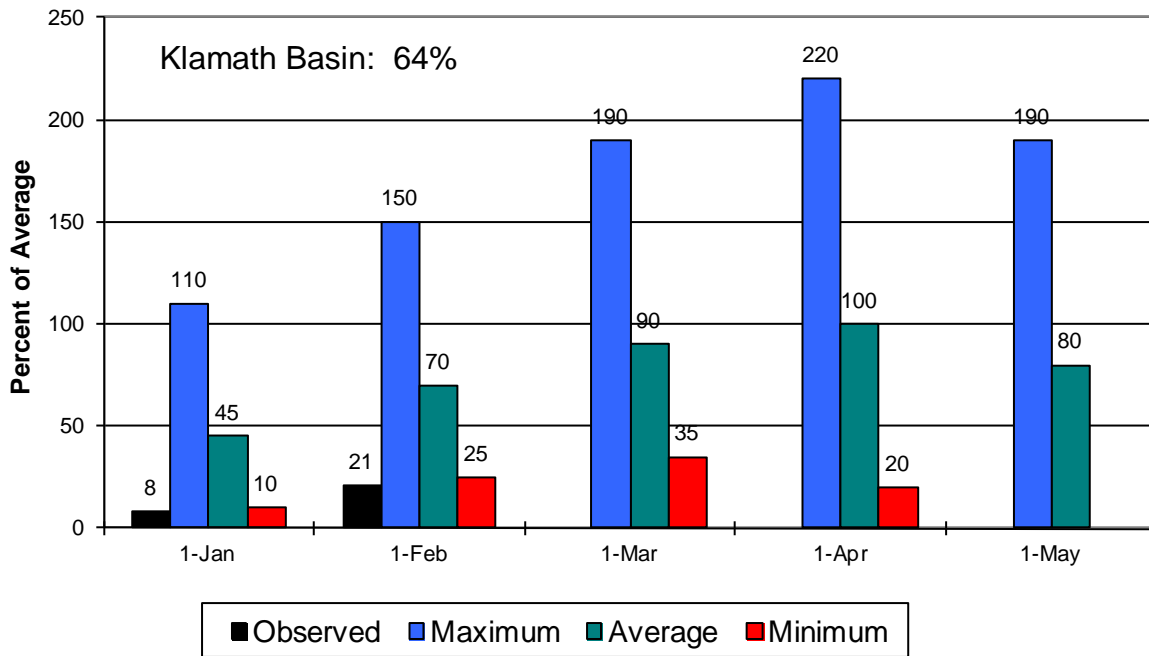
** Pit River 30-year average is full natural flow.

Sacramento/Trinity/Klamath River Basins

Seasonal Basin Precipitation October 1 to Date

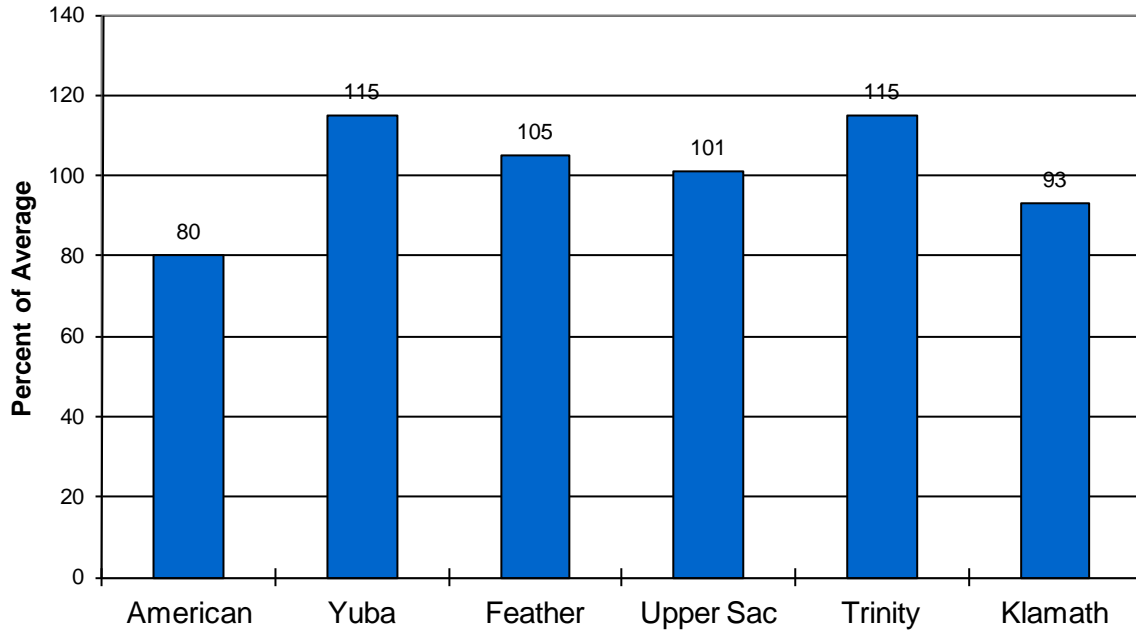


Seasonal Basin Snowpack Water Content in % of April 1 Average

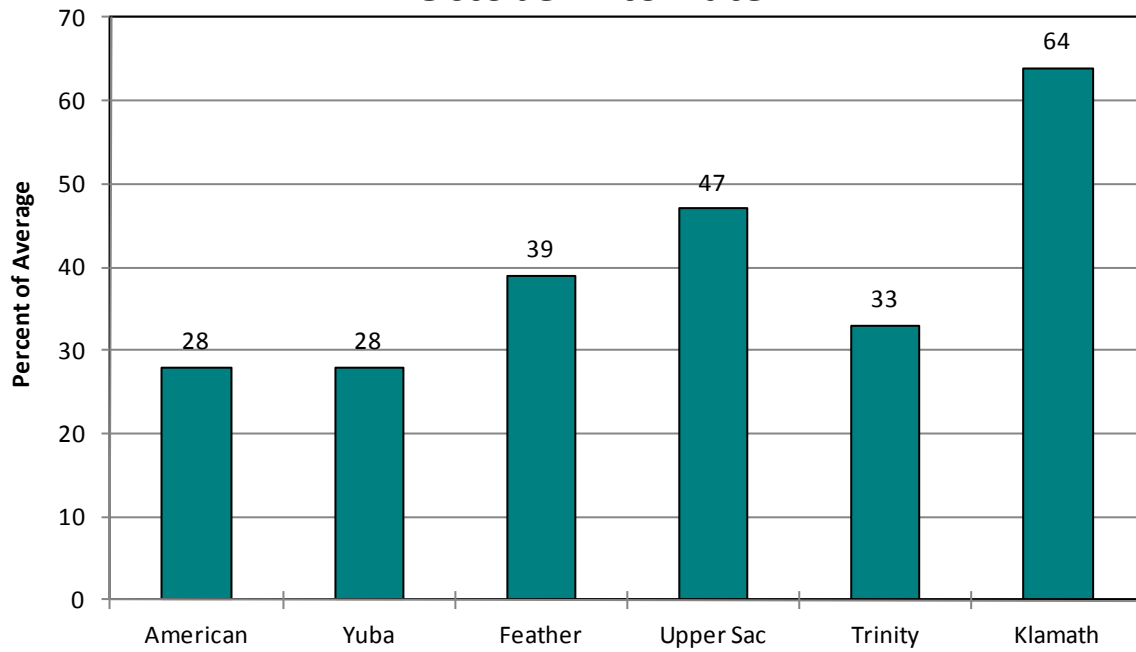


Sacramento/Trinity/Klamath River Basins

Basin Reservoir Storage Contents of Major Reservoirs in % of Average



Seasonal Basin Runoff October 1 to Date



San Joaquin Basin



Water Supply Forecasts

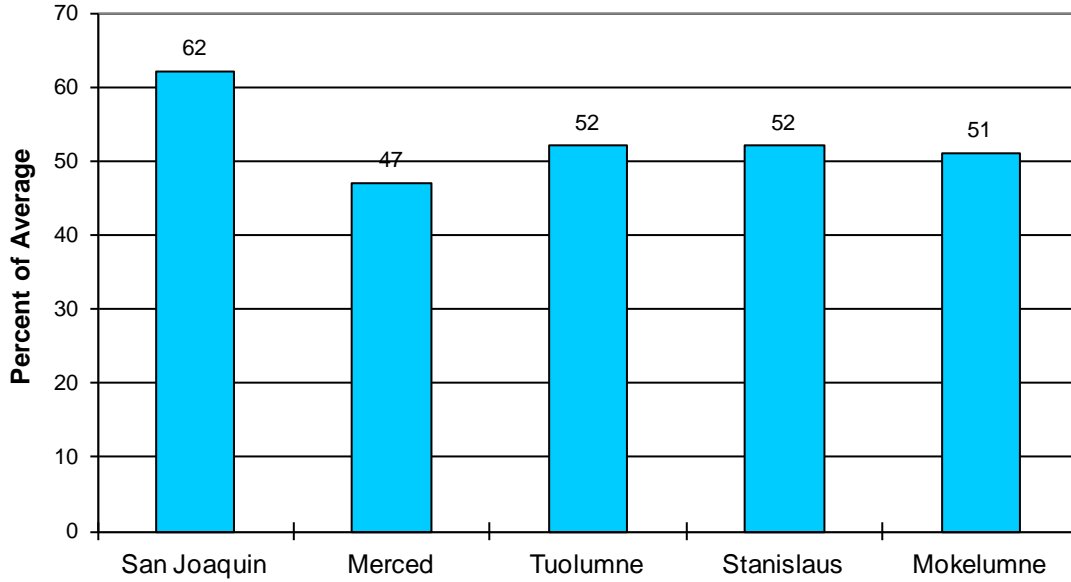
SAN JOAQUIN BASIN

		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
South Fork San Joaquin River						
Hooper Ck, blo, Florence Lk, nr	Apr-Jul	100	52	210	60	192*
San Joaquin River						
Millerton Lake	Apr-Jul	650	51	1360	360	1270
Merced River						
Pohono Bridge, at, Yosemite, nr	Apr-Jul	180	50	390	100	360*
Merced Falls, blo	Apr-Jul	280	43	690	180	645
Tuolumne River						
Hetch Hetchy, nr	Apr-Jul	310	52	640	170	596*
La Grange, nr	Apr-Jul	600	49	1320	350	1230
Middle Fork Stanislaus River						
Beardsley Dam, blo	Apr-Jul	160	50	340	90	320*
Stanislaus River						
New Melones Dam	Apr-Jul	330	47	750	190	695
North Fork Mokelumne River						
West Point	Apr-Jul	190	46	390	80	416*
Mokelumne River						
Pardee Reservoir	Apr-Jul	210	46	430	95	460
Cosumnes River						
Michigan Bar	Apr-Jul	45	37	135	10.0	123

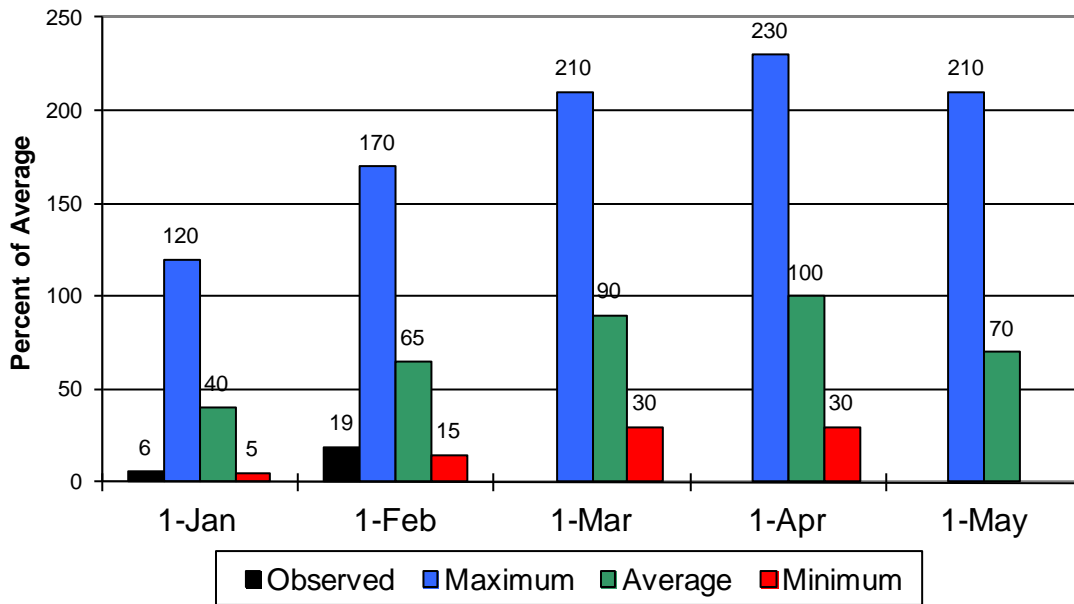
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San Joaquin Basin

Seasonal Basin Precipitation October 1 to Date

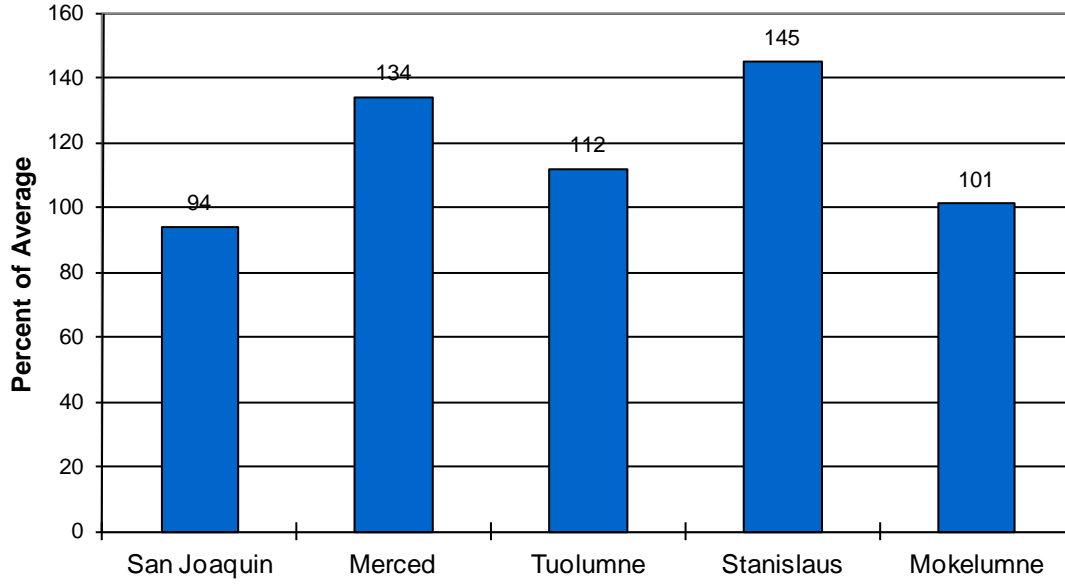


Seasonal Basin Snowpack Water Content in % of April 1 Average

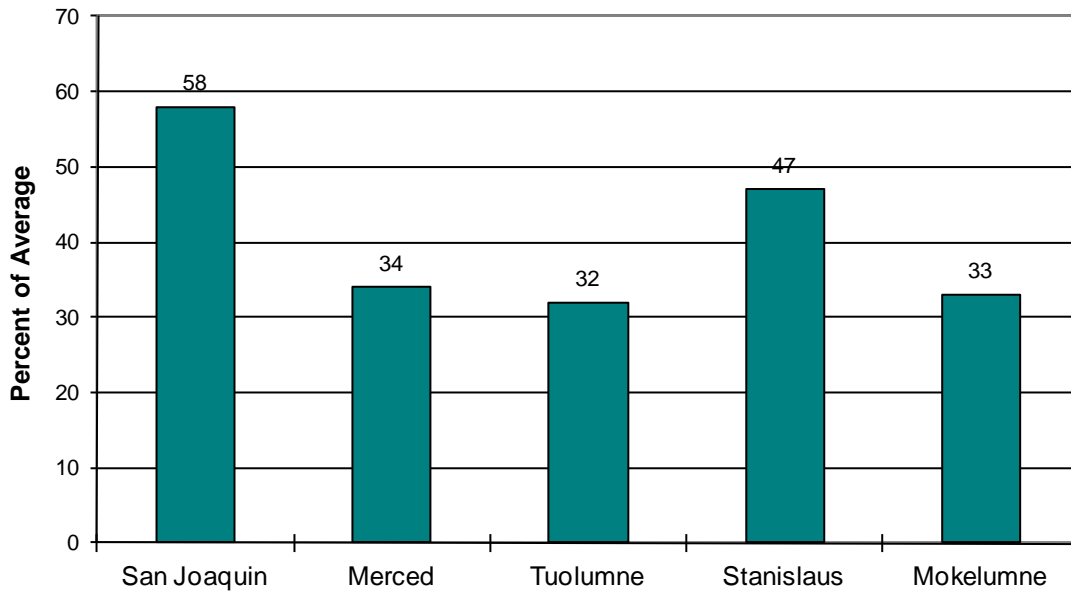


San Joaquin Basin

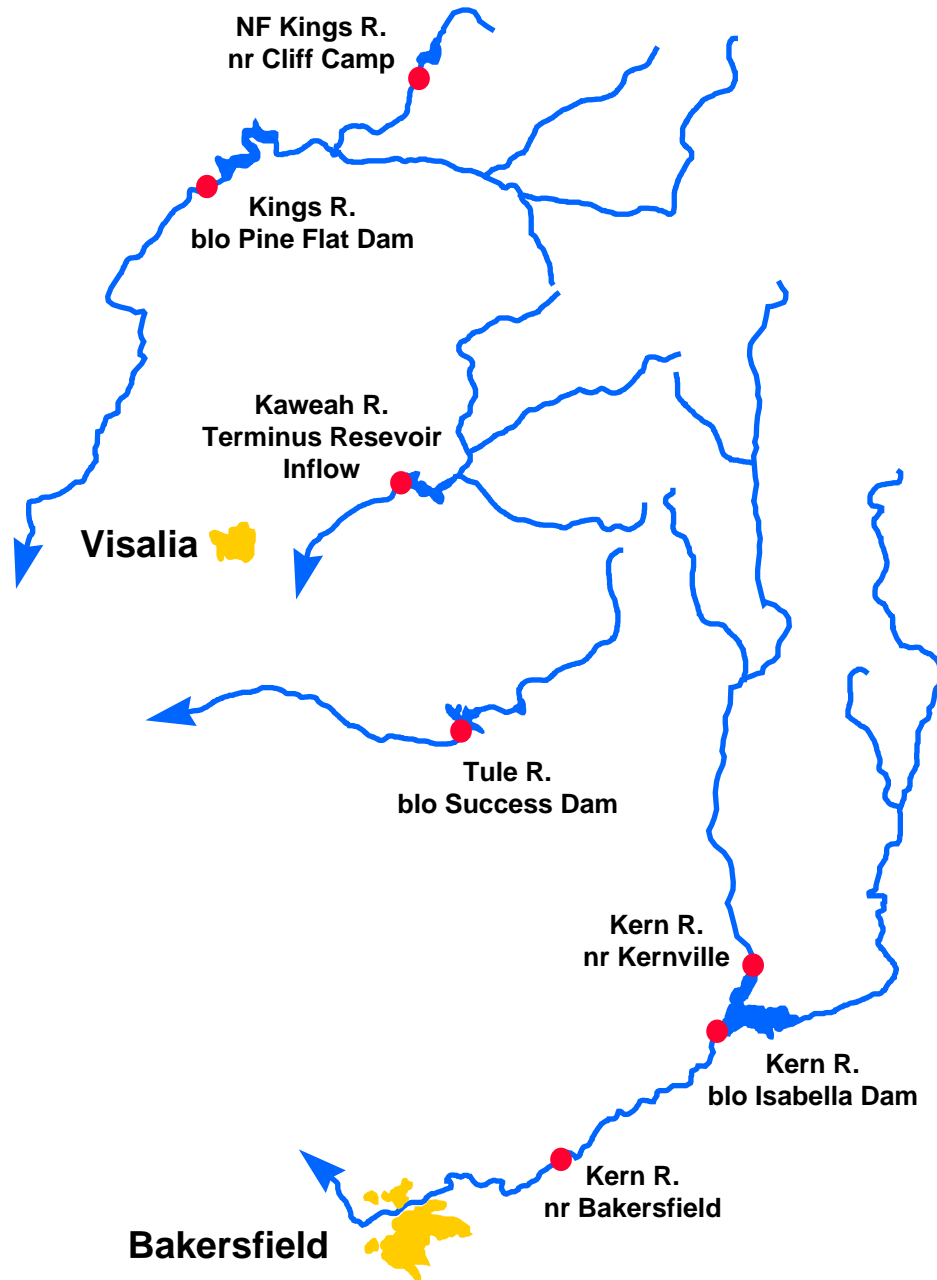
Basin Reservoir Storage Contents of Major Reservoirs in % of Average



Season Basin Runoff October 1 to Date



Tulare Basin



Water Supply Forecasts

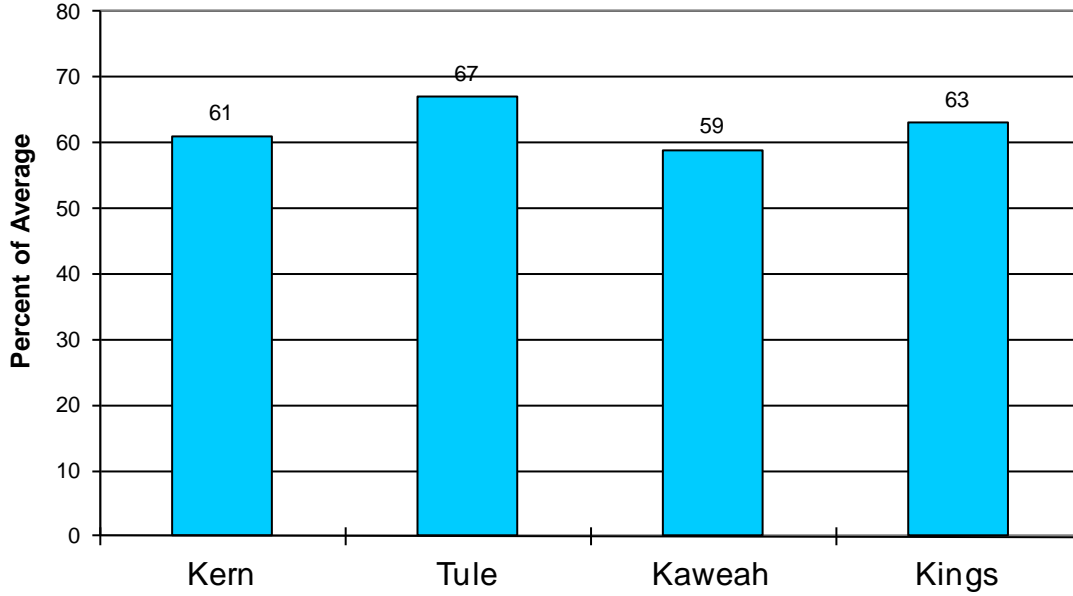
TULARE LAKE BASIN

		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	190	48	410	110	398*
Isabella Dam, blo	Apr-Jul	230	48	500	130	480
Bakersfield, nr	Apr-Jul	230	47	490	120	490
Tule River						
Success Dam	Apr-Jul	26	39	70	15.0	66
Kaweah River						
Terminus Dam	Apr-Jul	160	55	310	80	290
North Fork Kings River						
Cliff Camp, nr	Apr-Jul	120	50	260	60	240*
Kings River						
Pine Flat Dam, blo	Apr-Jul	640	51	1340	350	1250

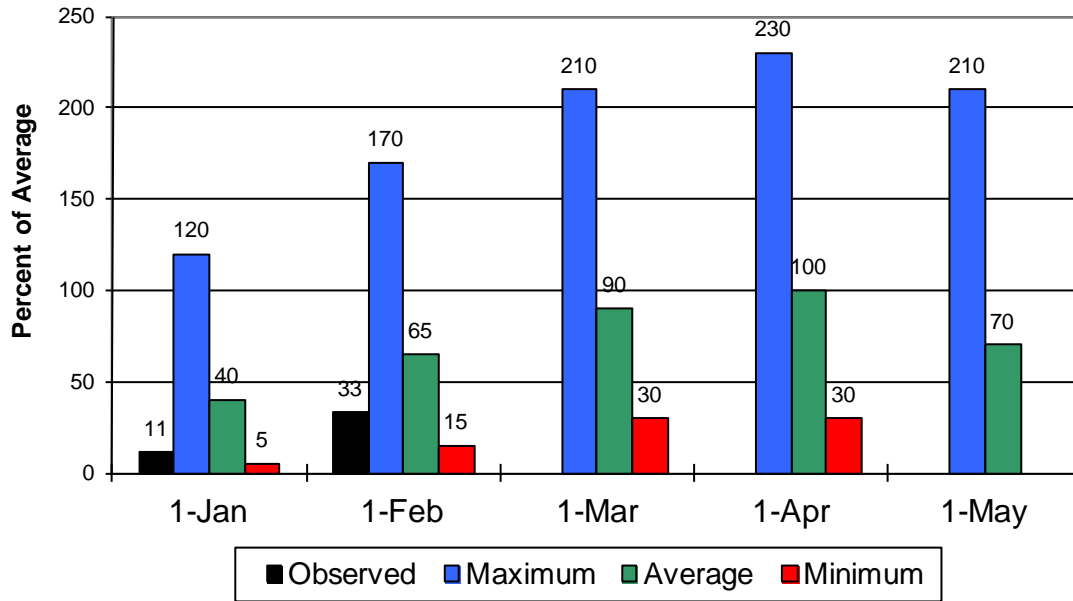
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Tulare Lake Basin

Seasonal Precipitation October 1 to Date



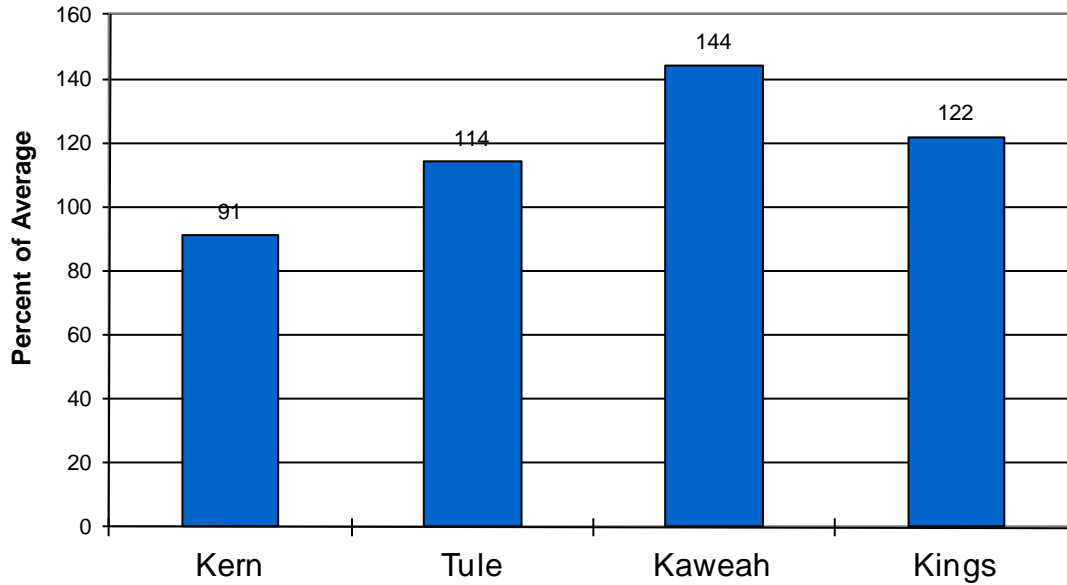
Seasonal Basin Snowpack Water Content in % of April 1 Average



Tulare Lake Basin

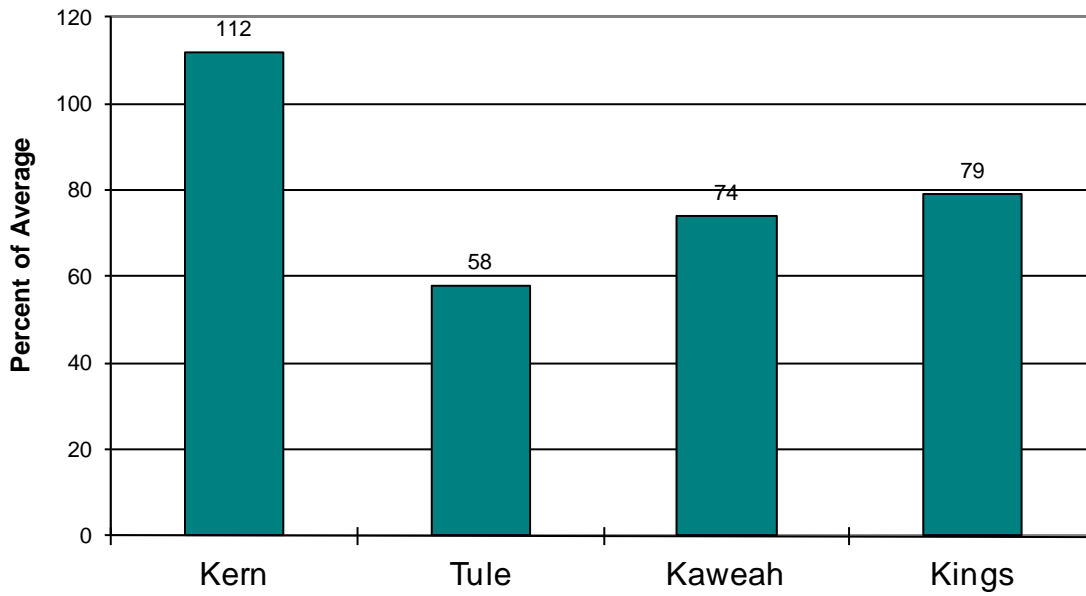
Basin Reservoir Storage

Contents of Major Reservoirs in % of Average

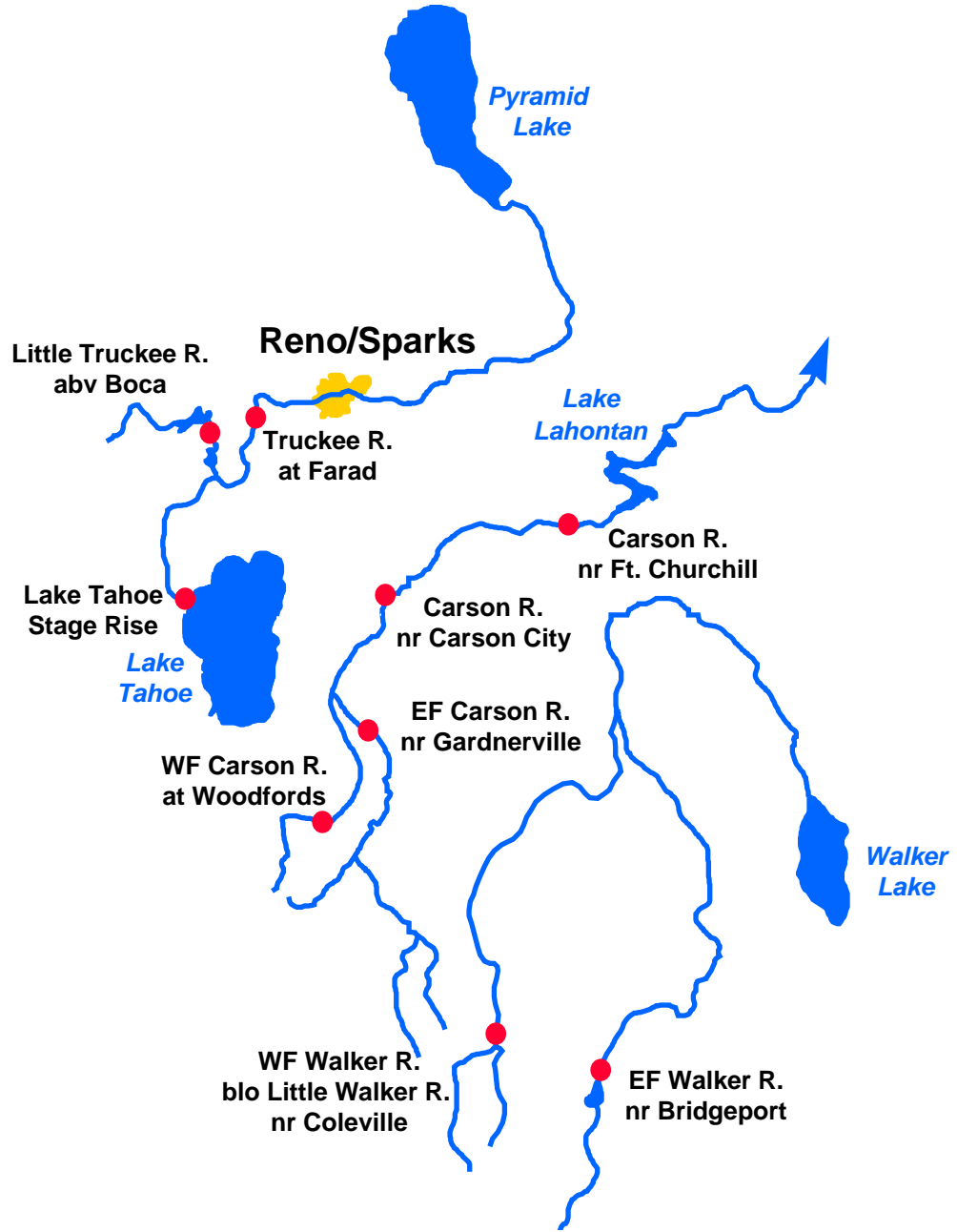


Seasonal Basin Runoff

October 1 to Date



East Side Sierra Nevada Basins



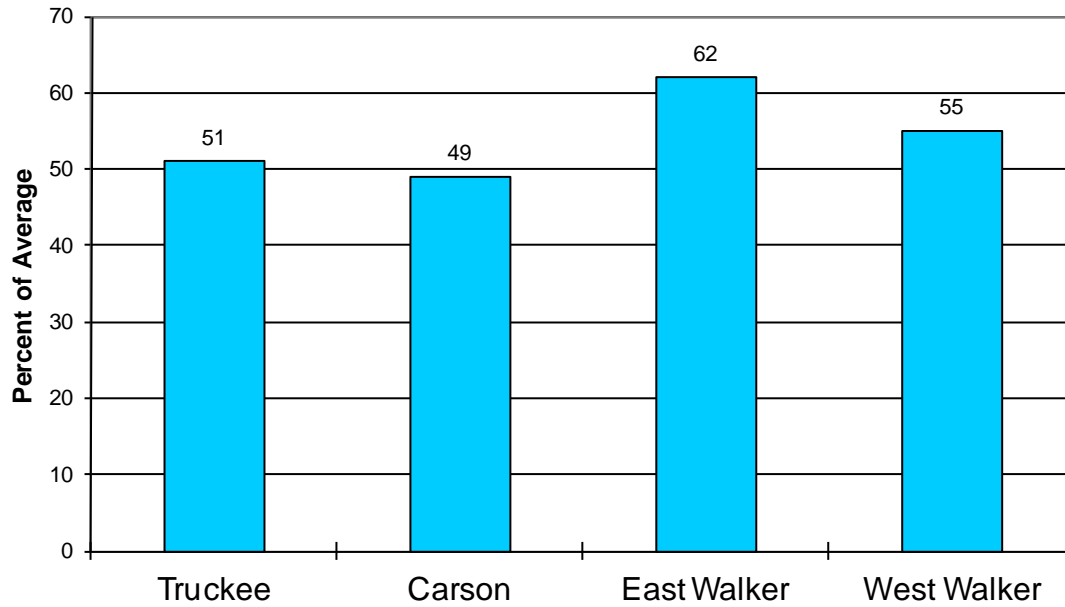
Water Supply Forecasts

EAST SIDE SIERRA NEVADA BASINS

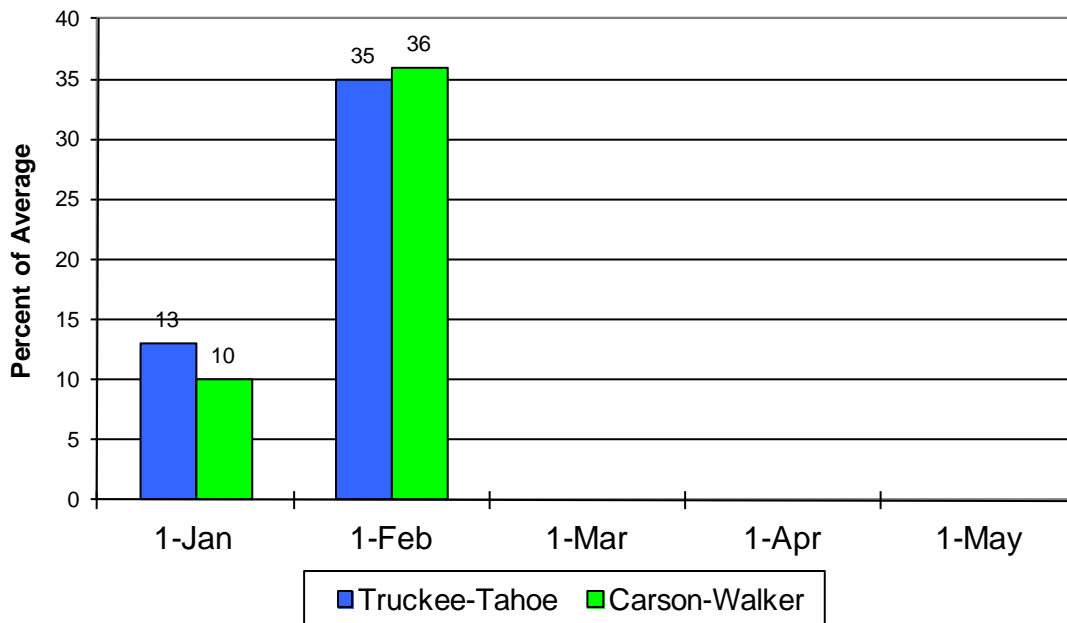
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
Truckee River						
Truckee River Lake Tahoe Stage Rise	Apr-High	0.70	51	1.84	0.04	1.38
Little Truckee River Stampede Dam	Apr-Jul	40	50	120	3.6	80
Truckee River Farad	Apr-Jul	125	48	305	8.0	260
Carson River						
East Fork Carson River Gardnerville, nr	Apr-Jul	95	50	210	11.0	189
West Fork Carson River Woodfords	Apr-Jul	27	48	66	4.0	56
Carson River Carson City, nr	Apr-Jul	67	36	200	7.0	188
Fort Churchill, nr	Apr-Jul	51	29	129	13.2	178
Walker River						
East Walker River Bridgeport, nr	Apr-Aug	34	51	79	4.0	67
West Walker River Ltl Walker, blo, Coleville, nr	Apr-Jul	83	53	182	12.0	156

East Side Sierra Nevada Basins

Seasonal Basin Precipitation October 1 to Date

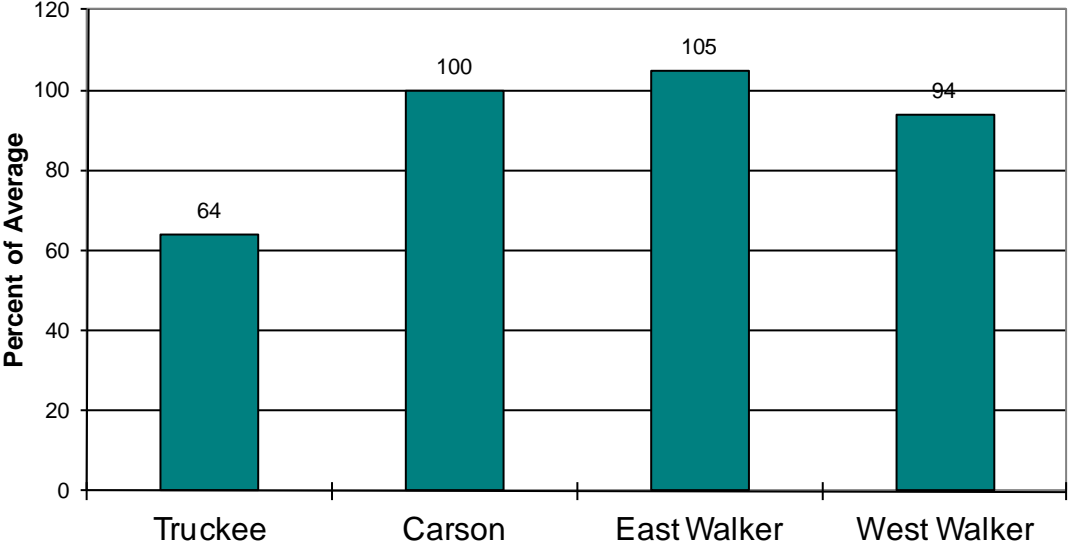


Basin Snowpack % of Average SWE to Date

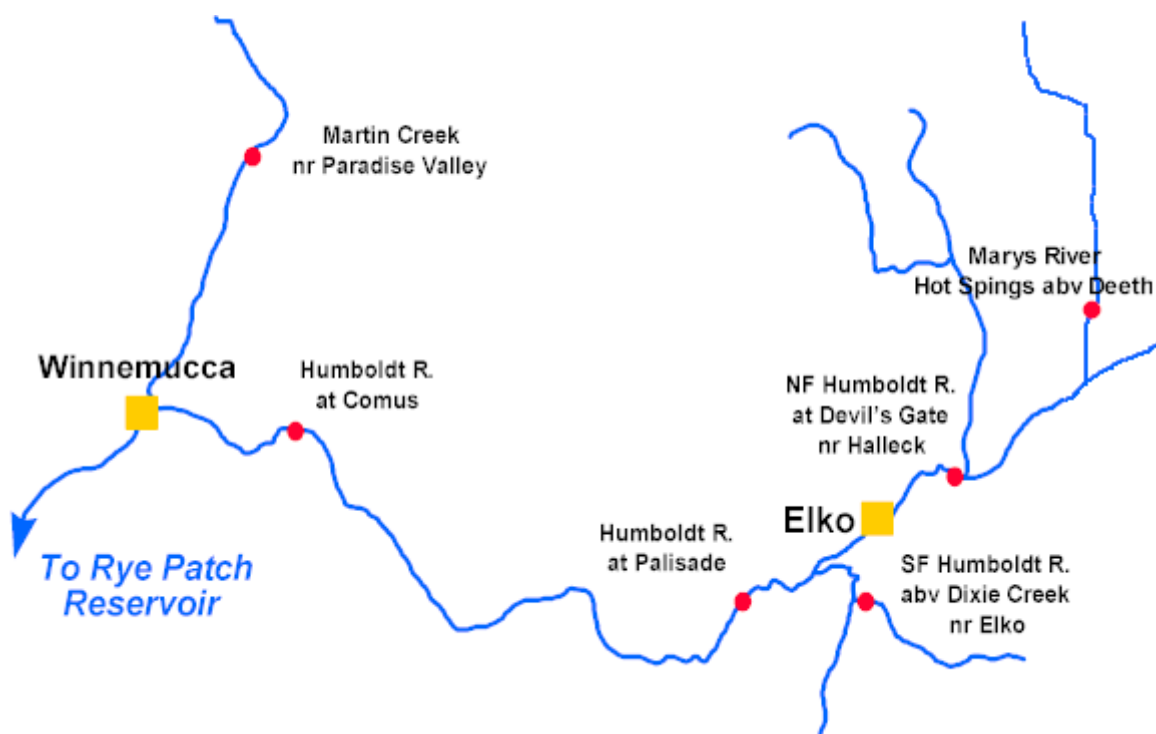


East Side Sierra Nevada Basins

Seasonal Basin Runoff October 1 to Date



Humboldt River Basin



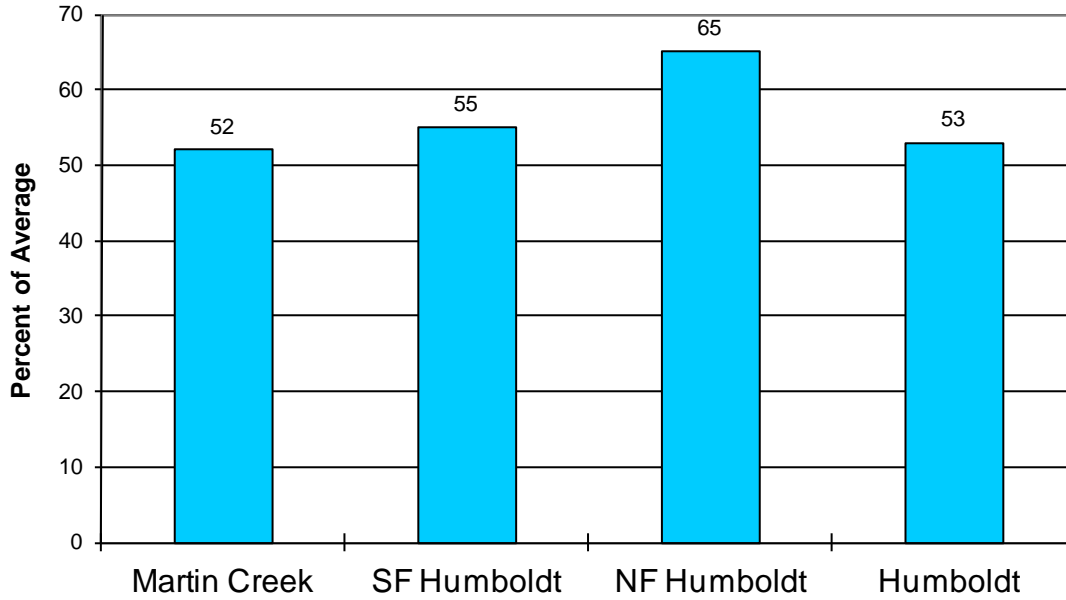
Water Supply Forecasts

		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	16.0	47	41	2.8	34*
South Fork Humboldt River						
Dixie Ck, abv, Elko, nr	Apr-Jul	36	47	90	4.0	76
Marys River						
Hot Springs, abv, Deeth, nr	Apr-Jul	17.0	44	41	3.2	39
Humboldt River						
Elko, nr	Apr-Jul	58	38	149	9.0	154
Palisade	Apr-Jul	90	36	195	7.5	250
Comus	Apr-Jul	60	27	184	4.5	225
Imlay, nr	Apr-Jul	38	20	183	3.8	188
Martin Ck						
Paradise Valley, nr	Apr-Jul	7.0	37	22	0.60	18.7

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Humboldt River Basin

Seasonal Basin Precipitation October 1 to Date



Basin Snowpack % of Average SWE to Date

