

WATER SUPPLY OUTLOOK



CALIFORNIA AND NORTHERN NEVADA

**FEBRUARY
2011**



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 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

February 1, 2011

After an exceptionally wet start to the water year, January turned out to be very dry. Spring runoff forecasts have dropped below average from the Trinity River basin to the Feather. However, near average to much above average water supplies are forecast from the Yuba River to the Tulare Lake basin--fueled primarily by accumulated stored water in the snow pack from the early season storms. Although there was a significant drop in percent of average snow pack during January, reservoir storage is generally good. Whether the current runoff forecasts will hold is based on the assumption that precipitation is normal during the next two months.

Most snow basins in California received only 15 to 45 percent of a January average precipitation. However, seasonal precipitation (October 1st, 2010 to January 31st, 2011) remains above average to much above average. Seasonal averages range from 106 percent for the Upper Sacramento River basin to approximately 208 percent for the Kern. It is just above average in the Klamath basin and much above average in the eastern and northern Nevada watersheds.

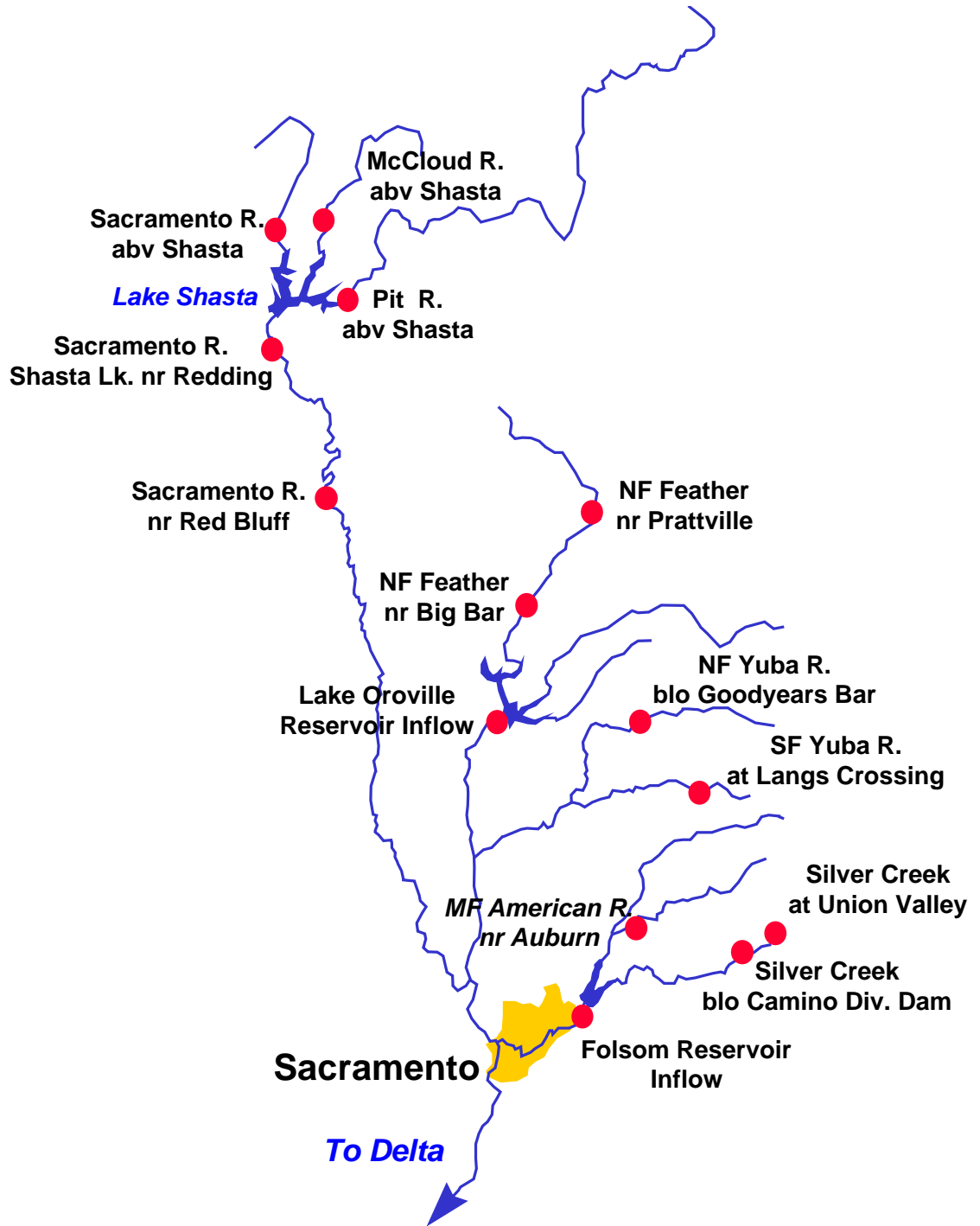
Examination of electronic snow sensor data has shown some melt of the lower elevation pack and a substantial decrease in the percent of average snowpack since January 1st. Based on sensor readings, snow packs have dropped 73 to 107 percent of average over the past month. Measurements taken by the California Cooperative Snow Surveys show that February 1st averages now stand at approximately 111 percent for the northern Sierra, 145 percent for the central and 186 percent for the southern Sierra. Snow packs in the Tahoe-Truckee are about 125 percent of the percent of the average-to-date, the Carson-Walker at 130 percent and the Humboldt basin at 122 percent. The pack stands at about 89 percent of the average-to-date for the Upper Klamath Lake basin.

Runoff during January decreased substantially from the heavy amounts recorded last December. The Trinity-Sacramento region recorded much below January runoff while the Tulare Lake watershed was much above average. Amounts range from 64 percent for the Trinity-Sacramento, 116 percent for the San Joaquin drainage, and 169 percent for the Tulare Lake watershed. East side Sierra basins received 97 percent of a January average while the Humboldt River at Palisade received about 171 percent. The Upper Klamath Lake inflow recorded 90 percent of a January average.

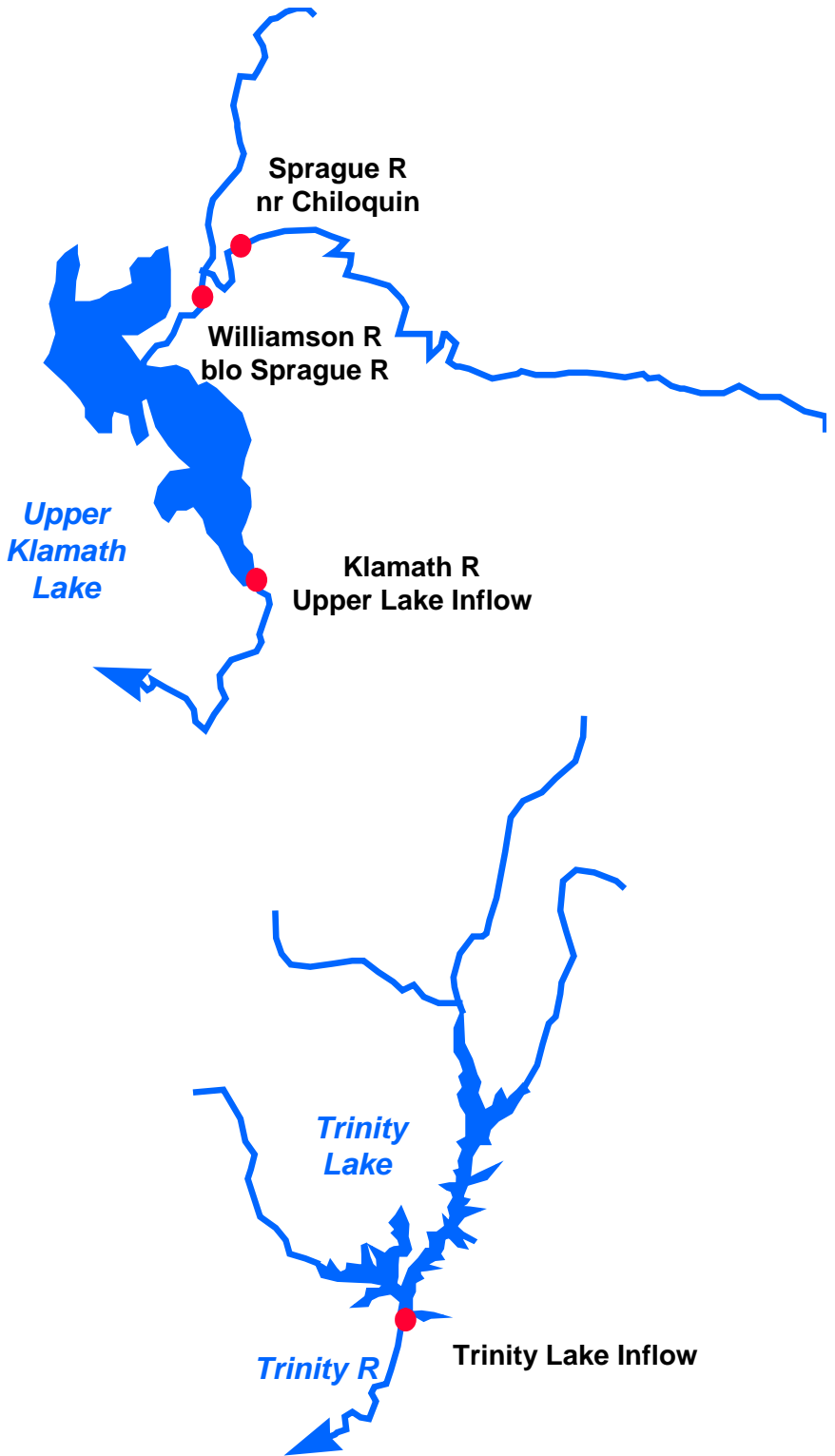
Most of California's major reservoirs continue to maintain near to above average storage levels as of the end of January. Stored water in the Sacramento region as of January 31st was at 106 percent of average for the date (as opposed to 79 percent for the date last year), the San Joaquin at 125 percent (95 percent last year), and the Tulare Lake watershed at about 128 percent (82 percent last year). East-side Sierra reservoirs were at 122 percent of average. The lake level at Lake Tahoe stood at 6224.58 feet (or 1.58 feet above its natural rim altitude of 6223.0 feet) as of January 31st. Usable storage was 192,000 acre-feet or 53 percent of average. It was 4,840 acre-feet (1 percent of average) at this time last year. Storage at Lahontan Reservoir in Nevada stands at 67 percent of average as of January 31st while Rye Patch Reservoir is at 27 percent. Storage at Upper Klamath Lake is about 113 percent of average.

The dry January has prompted a downward revision of the water supply outlook. Most forecasts are down from 15 to 35 percent over those issued on January 1st. April through July runoff forecasts now varies from 77 percent for the Pit River basin to about 146 percent of average for the Kern. Projections are greatest in the Tulare Lake basin, ranging from 121 to 146 percent from the Kings River basin to the Kern. Forecasts range from 109 to 138 percent of average for the east side Sierra Nevada basins and 122 to 132 percent for forecast points on the main stem Humboldt River. The April through September forecast for the Upper Klamath Lake inflow is 100 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	390	101	495	285	385
Sprague River Chiloquin, nr	Apr-Sep	240	104	325	155	230
Upper Klamath Falls River Inflow	Apr-Sep	515	100	690	340	515
Lost River Gerber Reservoir Inflow	Feb-Jul	50	106	78	22	47
Clear Lake Reservoir Inflow	Feb-Jul	110	105	173	47	105
Scott River Fort Jones, nr	Apr-Jul	160	88	265	95	181
Trinity River Trinity Lake Inflow	Apr-Jul	550	87	800	360	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%	439	105	125	131	144	65	20	8	6	360	1040
50%	439	150	175	200	220	100	30	12	8	550	1334
10%	439	230	265	291	320	145	44	20	15	800	1770

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 Creek, nr	Apr-Jul	820	77	1110	525	1070
Mccloud River Shasta Lake, abv	Apr-Jul	355	96	490	220	370
Sacramento River Delta	Apr-Jul	270	93	440	160	290
Shasta Dam	Apr-Jul	1630	91	2340	1030	1790
Bend Bridge, abv, Red Bluff, nr	Apr-Jul	2100	86	3400	1300	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	290	87	400	180	333*
Big Bar	Apr-Jul	880	91	1380	480	962*
Feather River						
Oroville Dam	Apr-Jul	1600	91	2550	960	1760
YUBA RIVER ABOVE SMARTVILLE						
North Yuba River						
Goodyears Bar, blo	Apr-Jul	280	103	425	180	273*
South Yuba River						
Langs Crossing	Apr-Jul	230	102	350	140	225*
Yuba River						
Englebright Reservoir	Apr-Jul	1000	101	1550	580	995
AMERICAN RIVER ABOVE FOLSOM RESERVOIR						
Middle Fork American River						
Auburn, nr	Apr-Jul	500	102	805	320	490*
Silver Creek						
Union Valley	Apr-Jul	118	120	167	75	98*
Camino Dam, blo	Apr-Jul	190	120	275	111	158*
American River						
Folsom Reservoir	Apr-Jul	1290	105	2130	800	1230

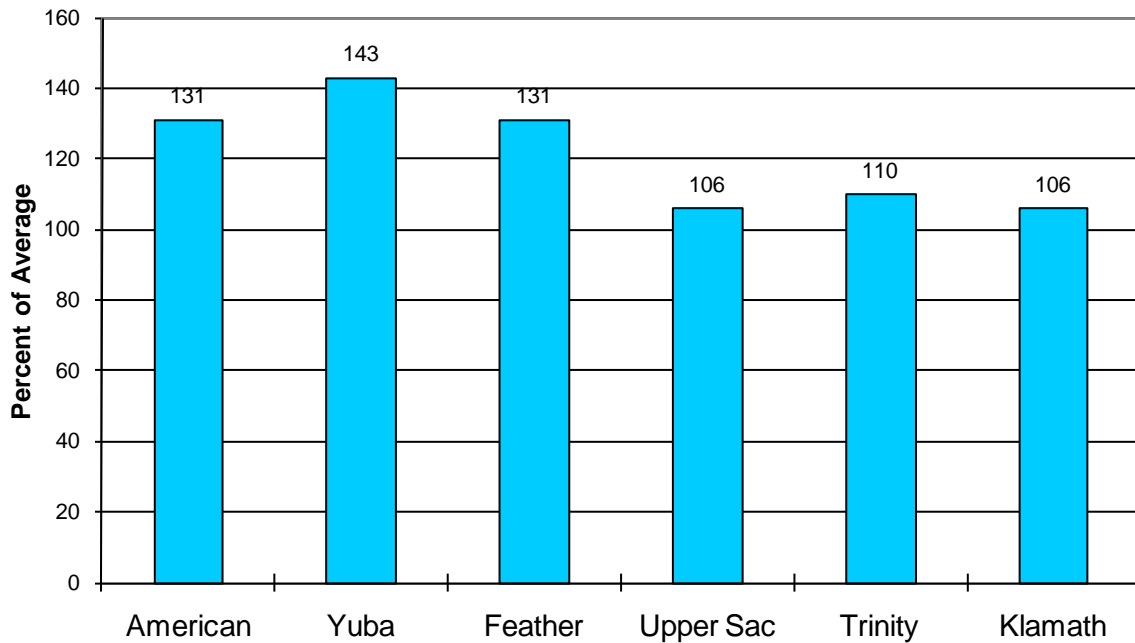
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** Pit River 30-year average is full natural flow.

Sacramento/Trinity/Klamath River Basins

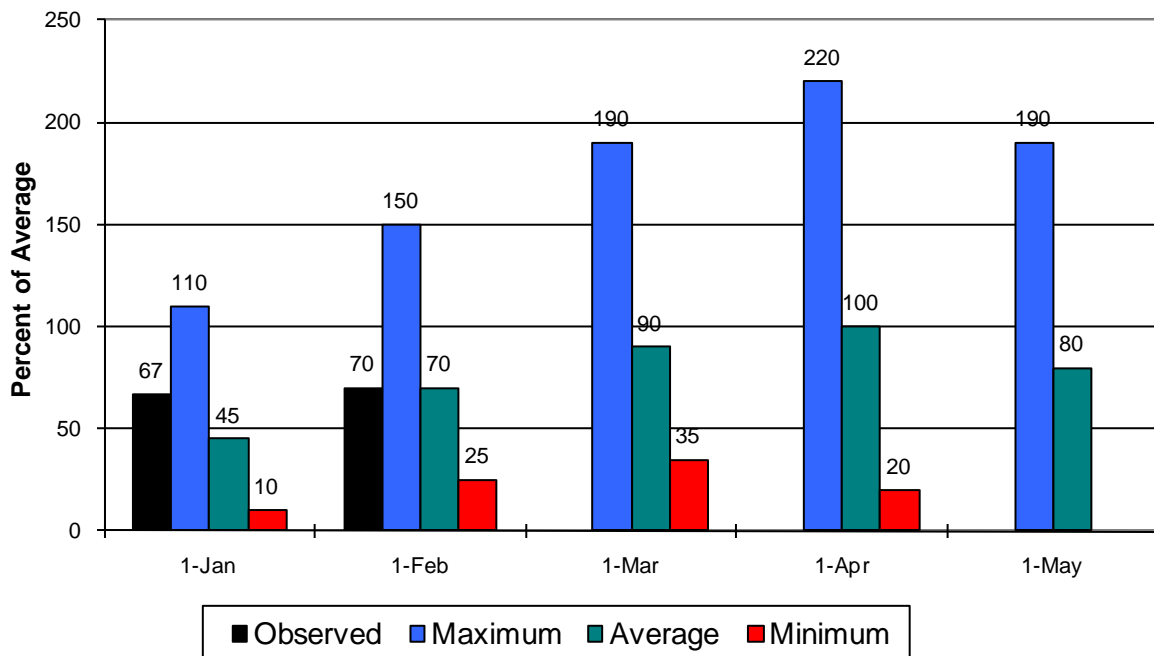
Seasonal Basin Precipitation

October 1 to Date



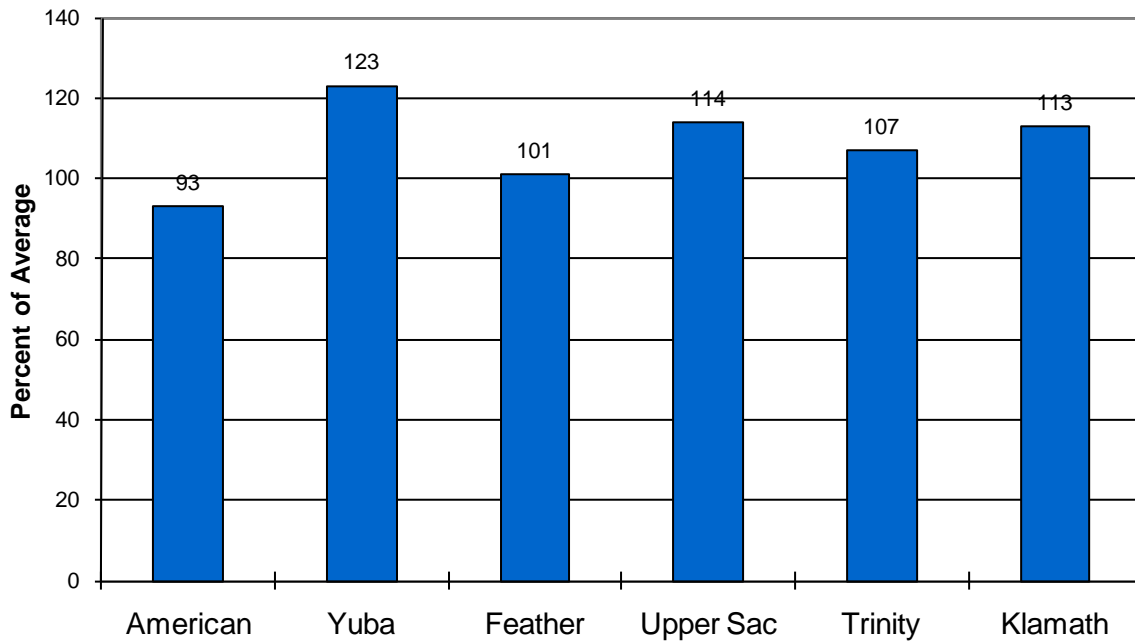
Seasonal Basin Snowpack

Water Content in % of April 1 Average

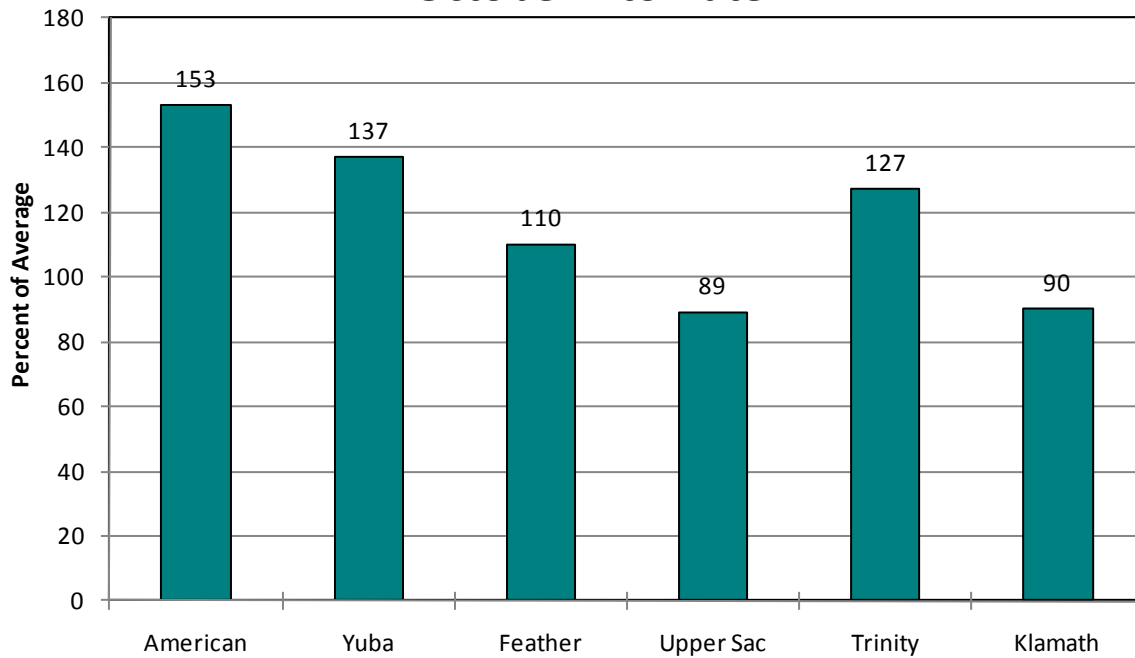


Sacramento/Trinity/Klamath River Basins

Basin Reservoir Storage Contents of Major Reservoirs in % of Average



Seasonal Basin Runoff October 1 to Date



San Joaquin Basin



Water Supply Forecasts

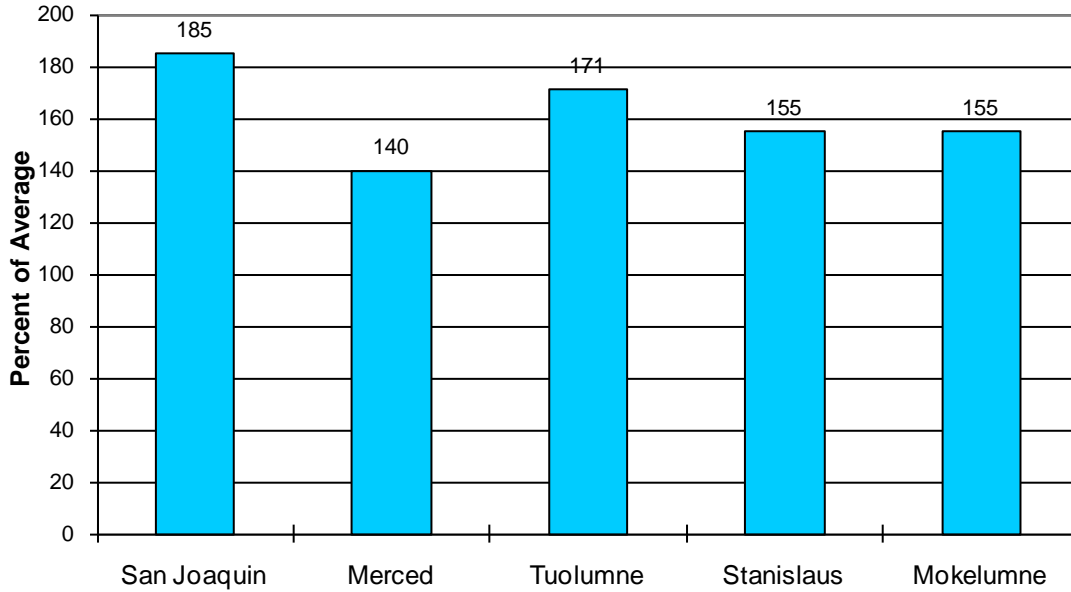
SAN JOAQUIN BASIN

		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
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South Fork San Joaquin River						
Hooper Ck, blo, Florence Lk, nr	Apr-Jul	260	135	350	150	192*
San Joaquin River						
Millerton Lake	Apr-Jul	1700	134	2250	1150	1270
Merced River						
Pohono Bridge, at, Yosemite, nr	Apr-Jul	475	132	700	250	360*
Merced Falls, blo	Apr-Jul	800	124	1150	450	645
Tuolumne River						
Hetch Hetchy, nr	Apr-Jul	750	126	1000	450	596*
La Grange, nr	Apr-Jul	1450	118	2000	900	1230
Middle Fork Stanislaus River						
Beardsley Dam, blo	Apr-Jul	350	109	550	200	320*
Stanislaus River						
New Melones Dam	Apr-Jul	750	108	1100	350	695
North Fork Mokelumne River						
West Point	Apr-Jul	415	100	610	270	416*
Mokelumne River						
Pardee Reservoir	Apr-Jul	460	100	700	320	460
Cosumnes River						
Michigan Bar	Apr-Jul	121	98	235	66	123

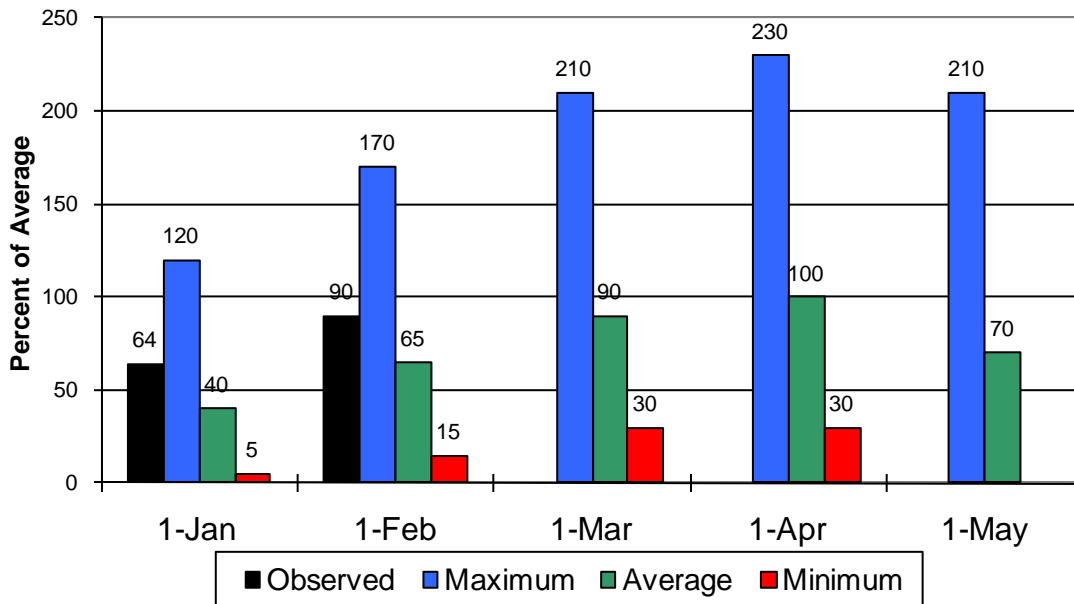
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San Joaquin Basin

Seasonal Basin Precipitation October 1 to Date

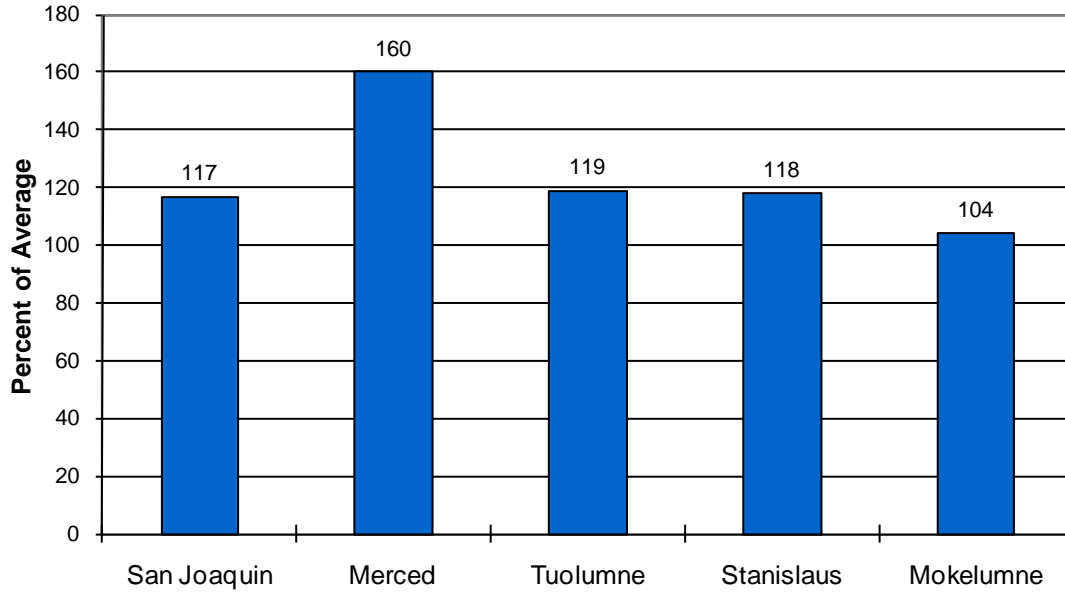


Seasonal Basin Snowpack Water Content in % of April 1 Average

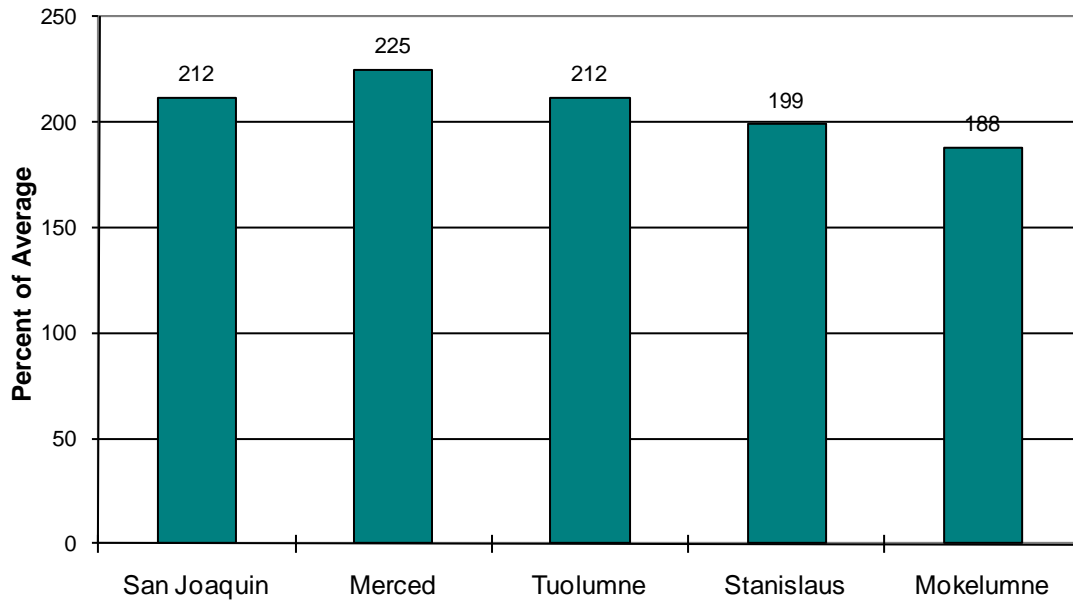


San Joaquin Basin

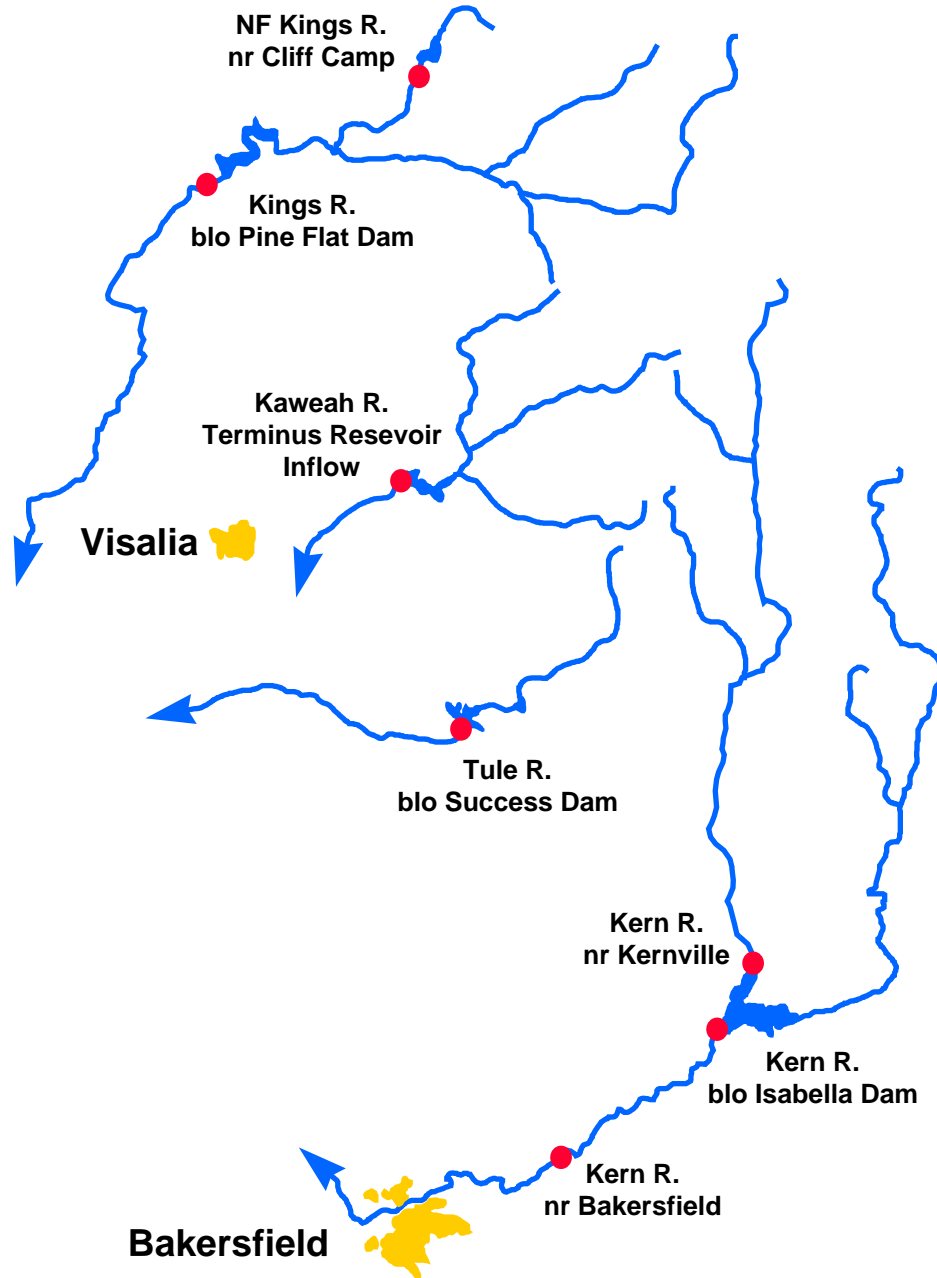
Basin Reservoir Storage Contents of Major Reservoirs in % of Average



Season Basin Runoff October 1 to Date



Tulare Basin



Water Supply Forecasts

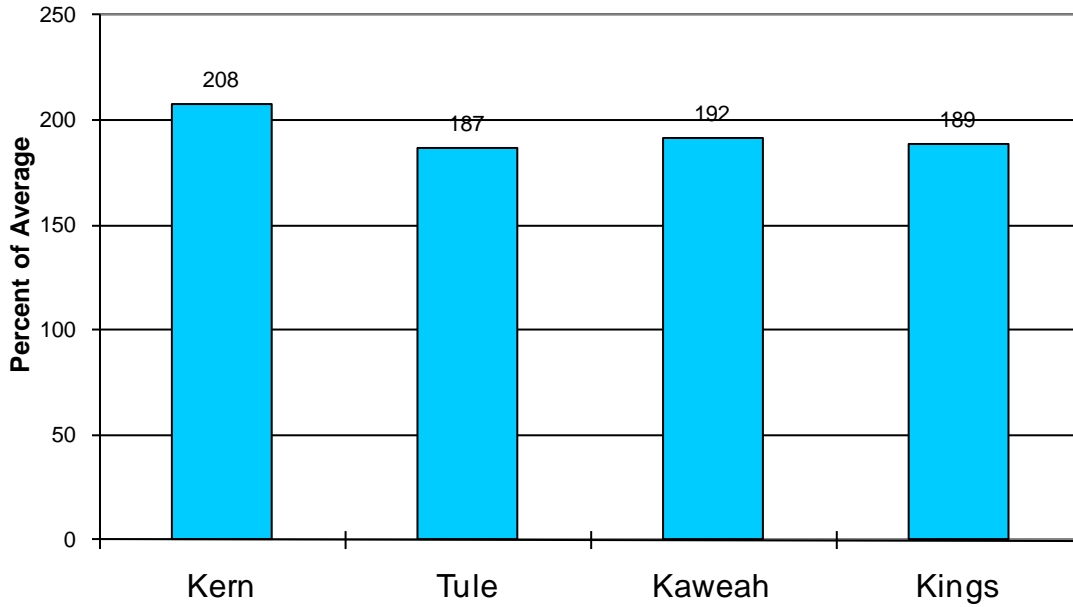
TULARE LAKE BASIN

		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	575	144	800	350	398*
Isabella Dam, blo	Apr-Jul	700	146	1050	400	480
Bakersfield, nr	Apr-Jul	720	147	1050	425	490
Tule River						
Success Dam	Apr-Jul	80	121	125	40	66
Kaweah River						
Terminus Dam	Apr-Jul	400	138	625	200	290
North Fork Kings River						
Cliff Camp, nr	Apr-Jul	320	133	500	200	240*
Kings River						
Pine Flat Dam, blo	Apr-Jul	1680	134	2200	1100	1250

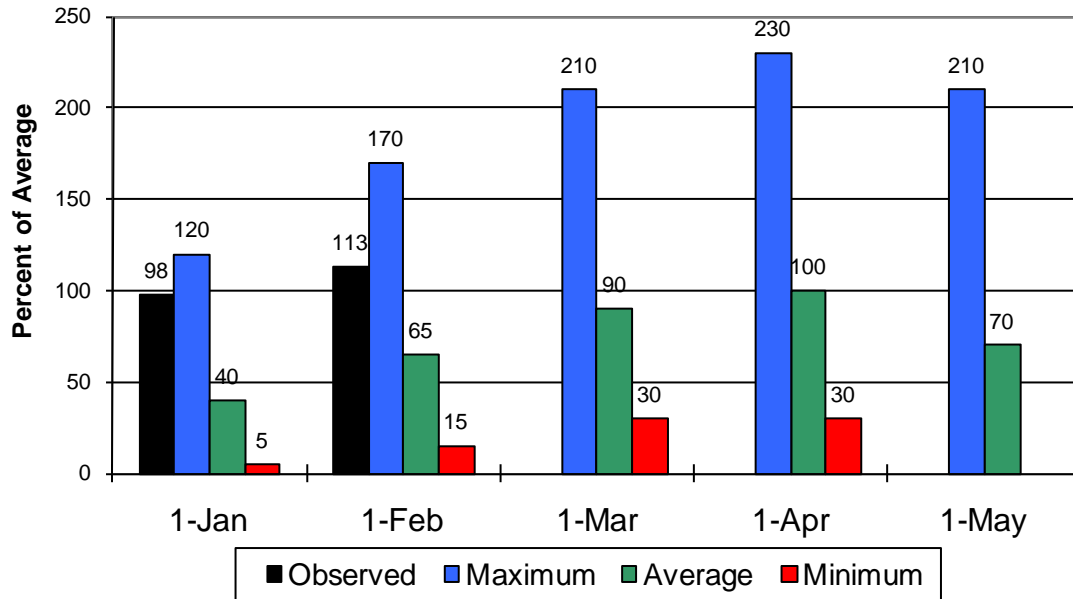
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Tulare Lake Basin

Seasonal Precipitation October 1 to Date



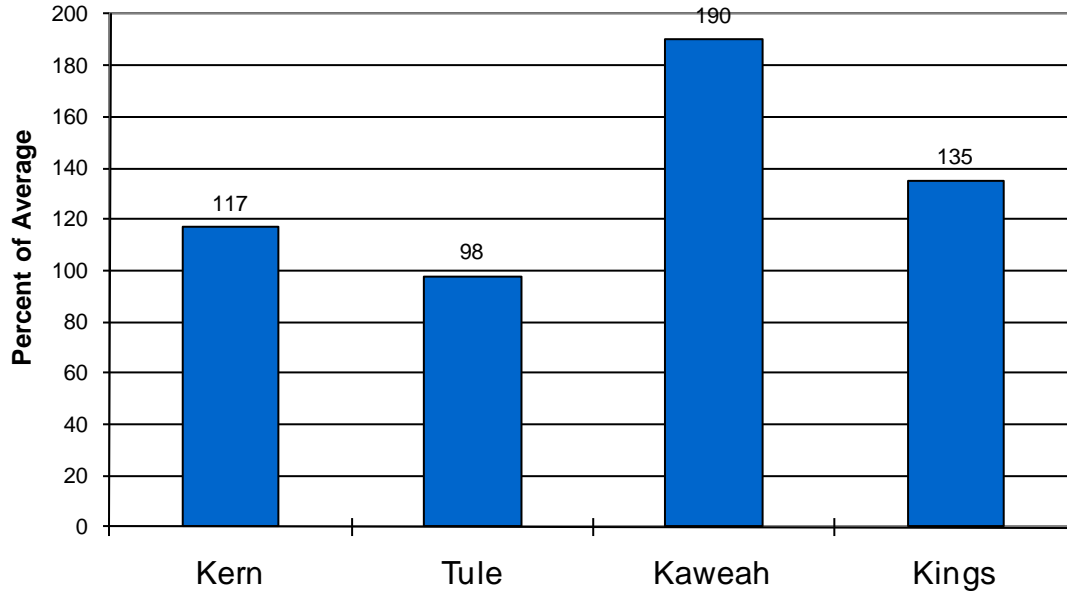
Seasonal Basin Snowpack Water Content in % of April 1 Average



Tulare Lake Basin

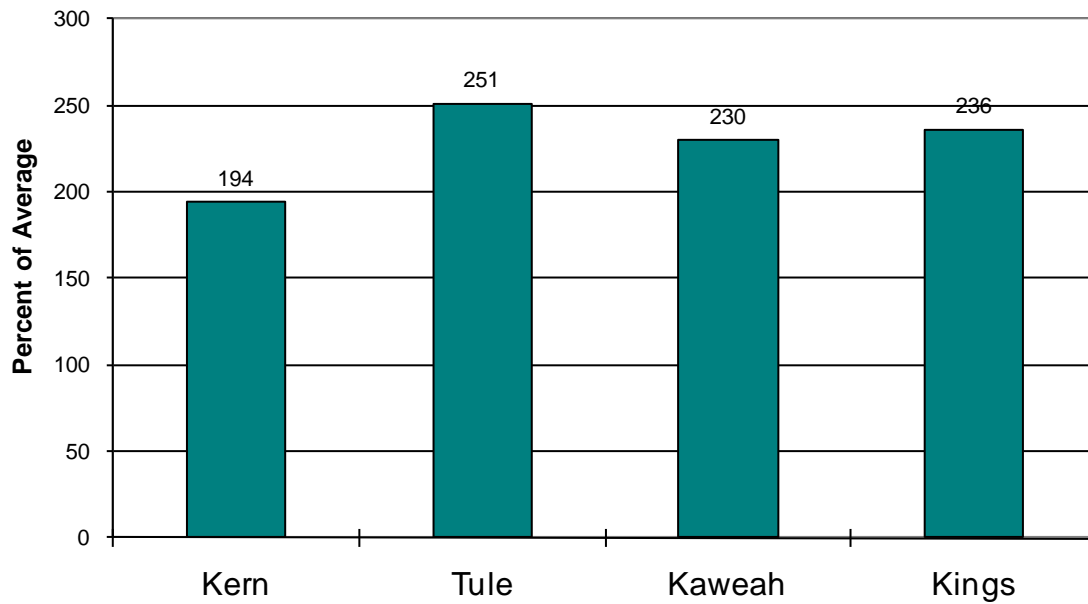
Basin Reservoir Storage

Contents of Major Reservoirs in % of Average

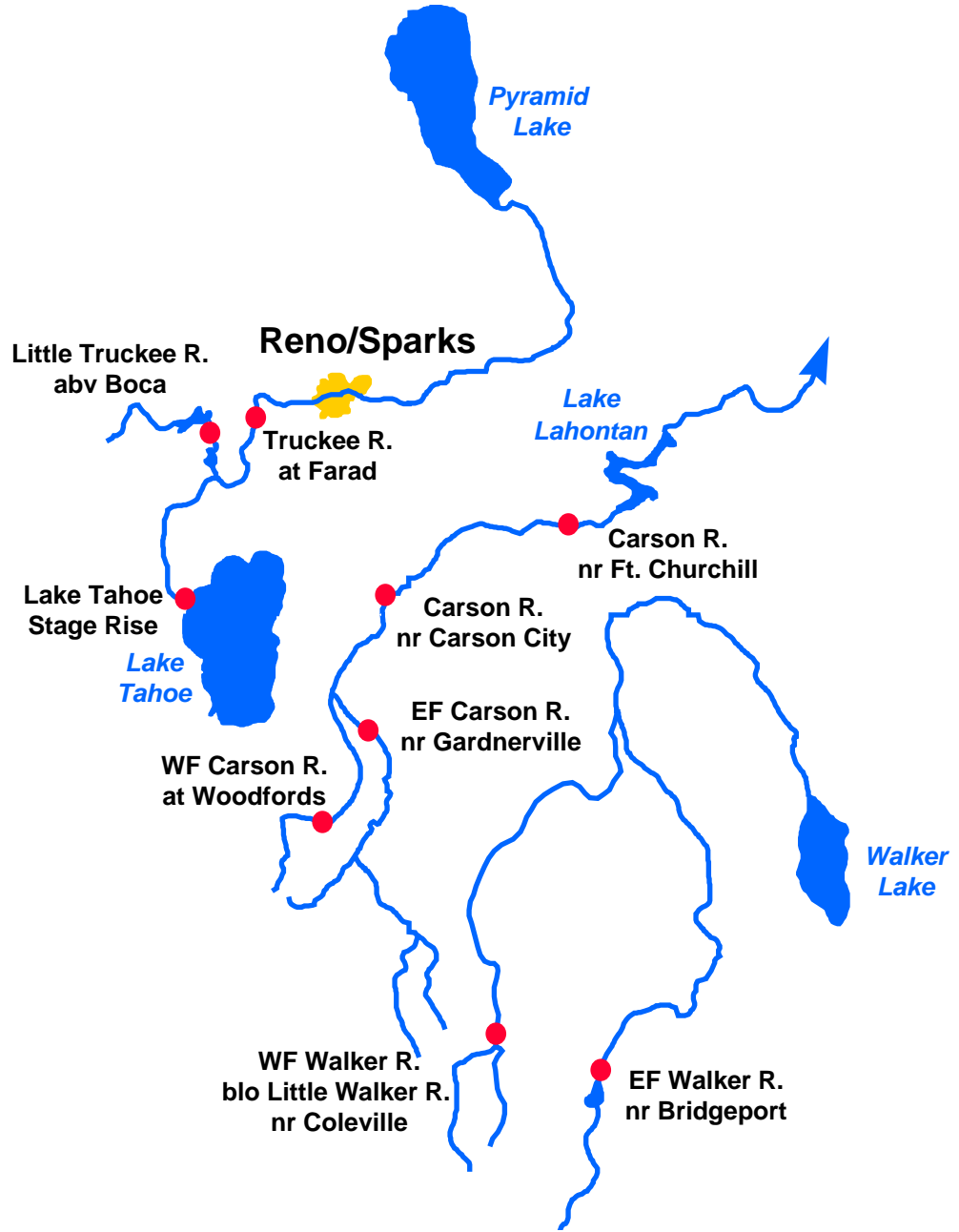


Seasonal Basin Runoff

October 1 to Date



East Side Sierra Nevada Basins



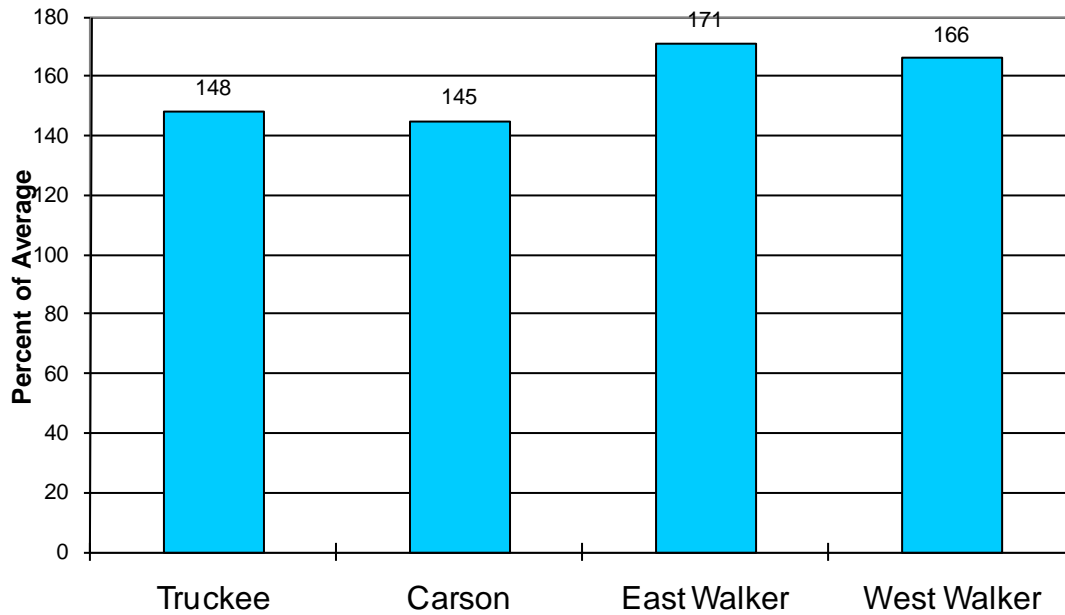
Water Supply Forecasts

EAST SIDE SIERRA NEVADA BASINS

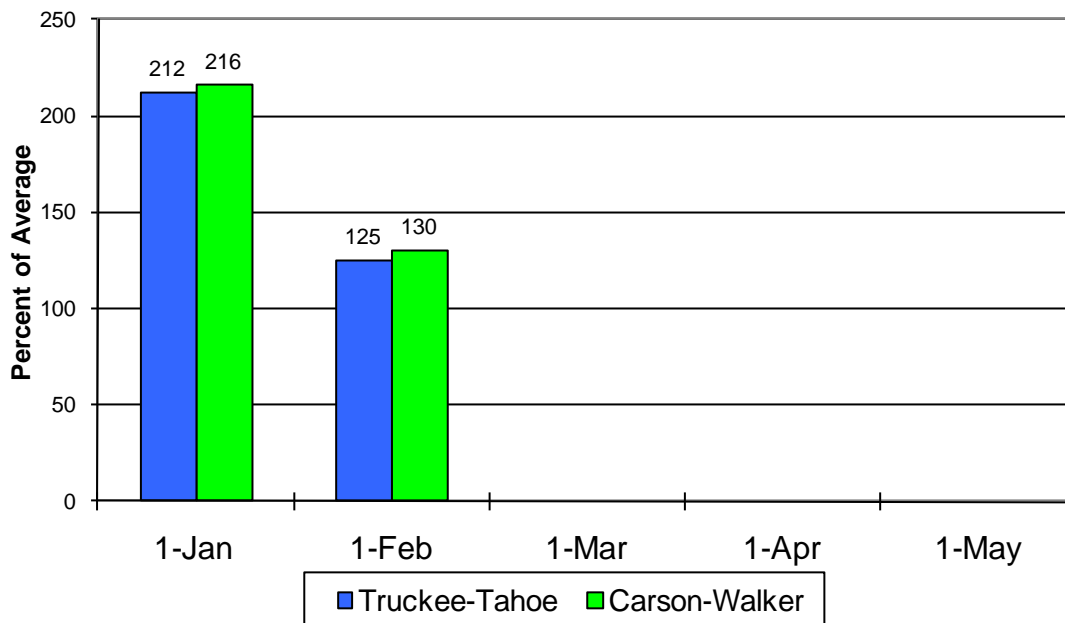
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
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Truckee River						
Truckee River Lake Tahoe Stage Rise	Apr-High	1.50	109	2.6	0.36	1.38
Little Truckee River Stampede Dam	Apr-Jul	92	115	160	24	80
Truckee River Farad	Apr-Jul	300	115	480	122	260
Carson River						
East Fork Carson River Gardnerville, nr	Apr-Jul	230	122	345	117	189
West Fork Carson River Woodfords	Apr-Jul	68	121	94	42	56
Carson River Carson City, nr	Apr-Jul	245	130	380	112	188
Fort Churchill, nr	Apr-Jul	245	138	440	119	178
Walker River						
East Walker River Bridgeport, nr	Apr-Aug	89	133	134	44	67
West Walker River Ltl Walker, blo, Coleville, nr	Apr-Jul	205	131	290	120	156

East Side Sierra Nevada Basins

Seasonal Basin Precipitation October 1 to Date

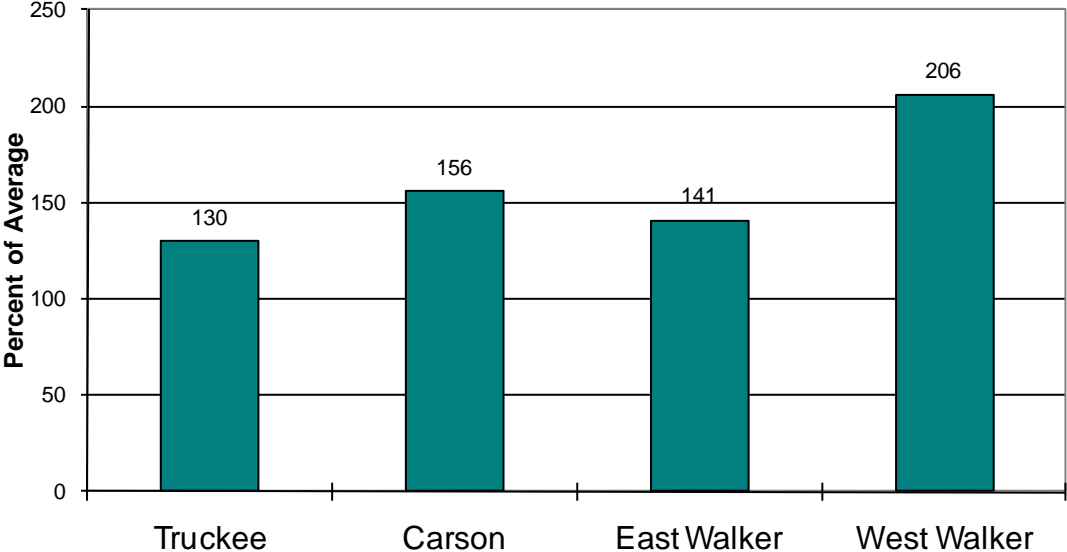


Basin Snowpack % of Average SWE to Date

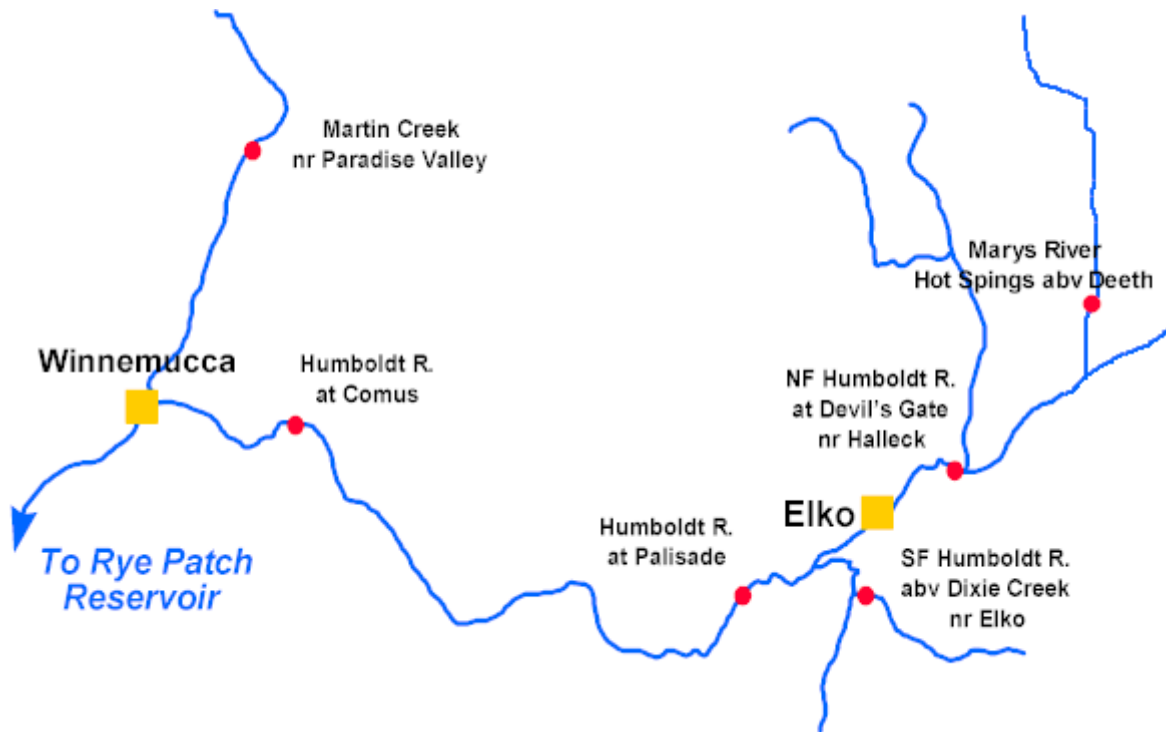


East Side Sierra Nevada Basins

Seasonal Basin Runoff October 1 to Date



Humboldt River Basin



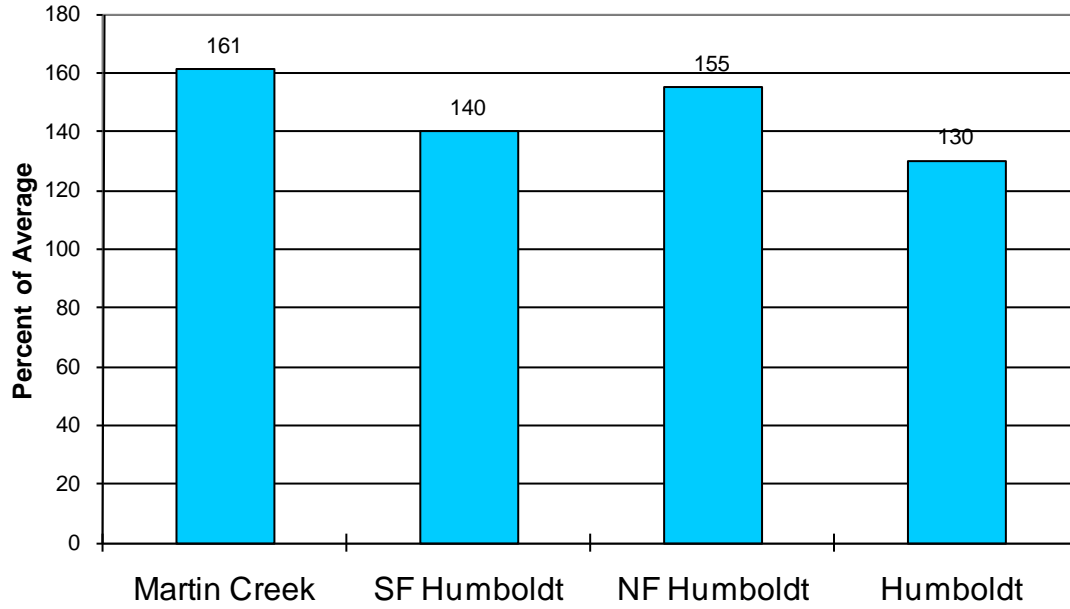
Water Supply Forecasts

		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	43	126	68	17.8	34*
South Fork Humboldt River						
Dixie Ck, abv, Elko, nr	Apr-Jul	106	139	177	35	76
Marys River						
Hot Springs, abv, Deeth, nr	Apr-Jul	49	126	72	26	39
Humboldt River						
Elko, nr	Apr-Jul	200	130	290	109	154
Palisade	Apr-Jul	330	132	435	225	250
Comus	Apr-Jul	290	129	415	166	225
Imlay, nr	Apr-Jul	230	122	375	85	188
Martin Creek						
Paradise Valley, nr	Apr-Jul	23	123	38	8.1	18.7

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Humboldt River Basin

Seasonal Basin Precipitation October 1 to Date



Basin Snowpack % of Average SWE to Date

