

WATER SUPPLY OUTLOOK



CALIFORNIA AND NORTHERN NEVADA

JANUARY
2006



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

January 1, 2006

A series of warm storm systems arrived over California during the latter half of December causing widespread flooding over much of the northern half of the state and parts of the east side Sierra Nevada. Many mainstem river forecast points associated with water supply reached flood stage, including those on the Sacramento, Truckee and Carson Rivers.

Storm tracks generally favored the northern half of California during the last two weeks of December, bringing copious precipitation amounts to that portion of the state although good totals can be found as far south as the upper San Joaquin River basin. Monthly amounts ranged from 177 percent in the Upper San Joaquin basin to 343 percent for the Feather River basin. The highest December percentages were recorded from the Trinity River basin down to the Stanislaus. Monthly percentages for the Tulare Lake drainage varied from 122 percent for the Tule River basin to 149 percent for the Kings. The weather systems continued the pace over the crest of the Sierra Nevada, where the Truckee basin received 339 percent of the monthly average, the Carson 309 percent, and the Walker 308 percent. In Nevada, the Humboldt basin received about 200 percent of the December average.

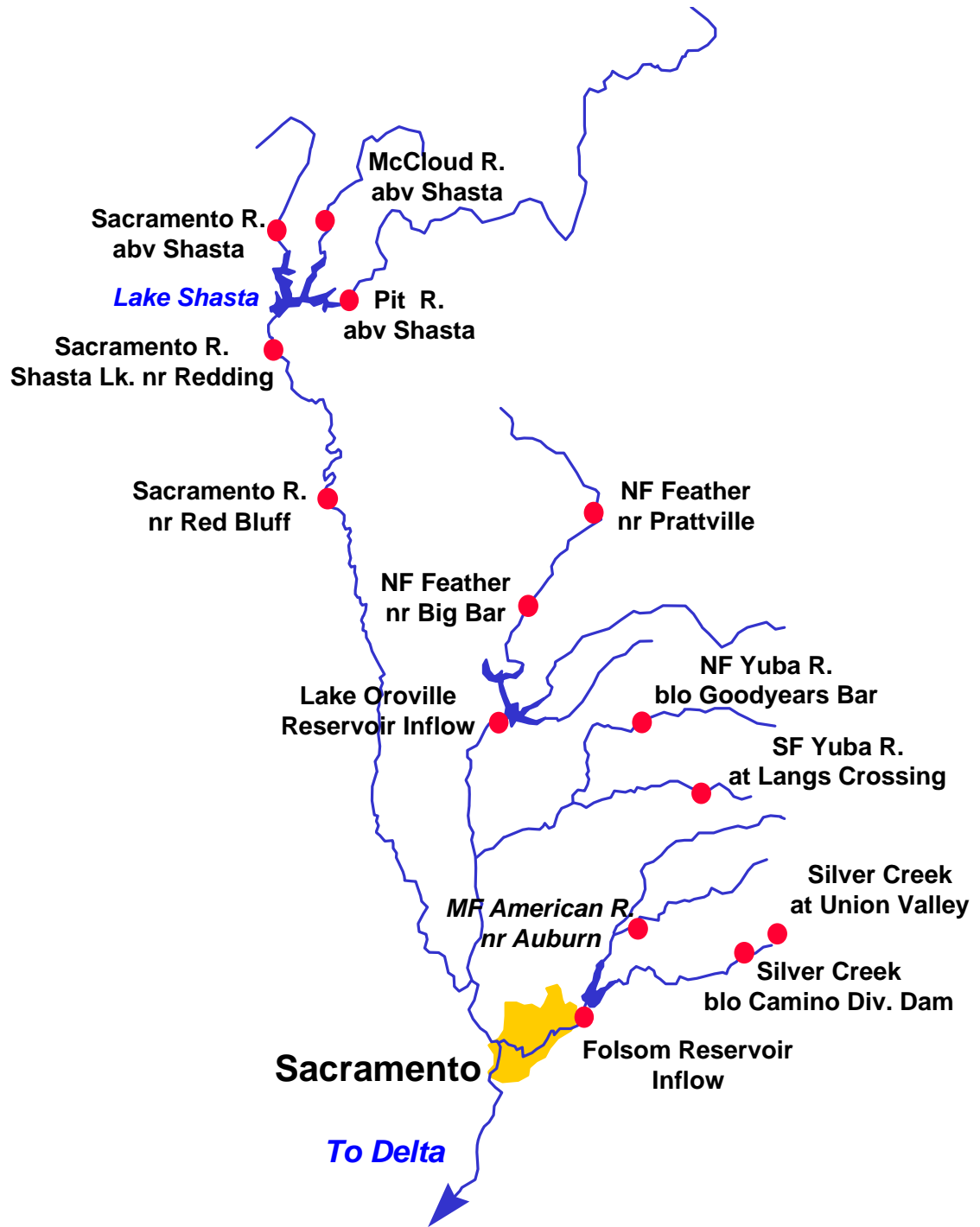
Good snowpack accumulation was limited to the higher altitudes due to the predominantly warm nature of the storms during December. A colder storm then arrived during the beginning of January resulting in some snow accumulation at the lower elevations. High-altitude snowpacks were best from the American River basin to the upper San Joaquin and the East Side Sierra watersheds; however, the lower elevation pack was much below average for most of the water supply basins in the Central Valley. The April 1st average stands at 32 percent for the northern Sierra, 46 percent for the central and 45 percent for the southern Sierra. Snow packs in the Tahoe-Truckee are at 124 percent of the average-to-date, the Carson-Walker at 165 percent and the Humboldt basin at 96 percent. The pack stands at about 141 percent of the average-to-date for the upper Klamath Lake basin.

The large December runoff amounts in the north and central portions of California reflected the flooding that occurred during the month. The monthly runoff average was greatest in the Upper Sacramento and lower San Joaquin basins, ranging from 281 percent for the Tuolumne River basin to 427 percent for the Yuba basin. Amounts varied from 71 percent for the Tule basin to 148 percent for the Kings in the Tulare Lake basin. East side Sierra basins received 174 to 427 percent of the monthly average while the upper Klamath basin recorded 121 percent of the December average. The Humboldt River at Palisade received 123 percent.

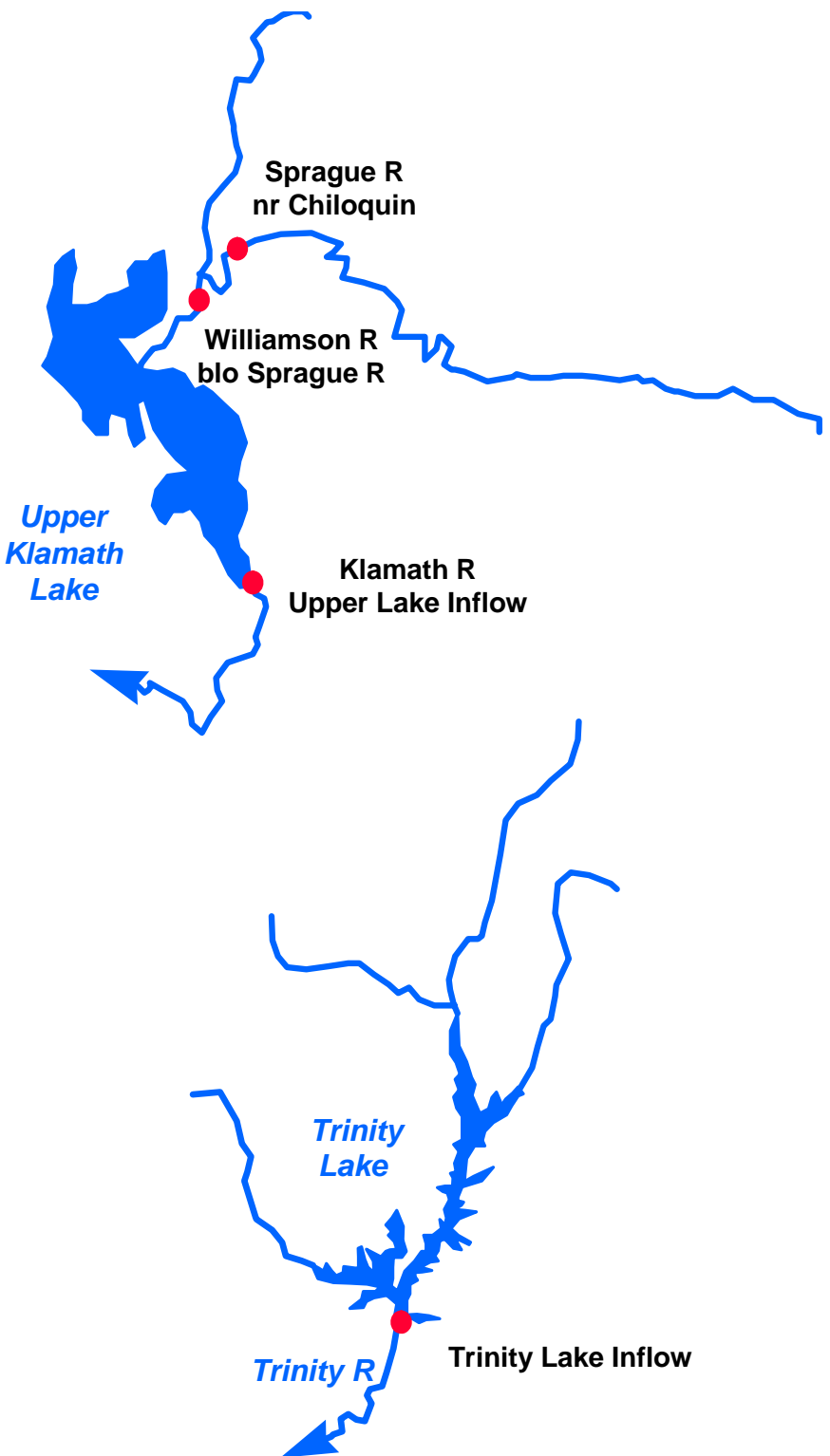
The water year began with excellent carryover storage for many of California's reservoirs due to the wet conditions of the previous year. End of month reservoir storage averages were robust due to healthy inflow amounts from the December storm event. Stored water in the Sacramento basin was at 137 percent of average for the date, the San Joaquin at 140 percent, and the Tulare Lake basin at 128 percent. East-side Sierra reservoirs were at 150 percent of average. The lake level at Lake Tahoe stood at 6225.00 feet as of January 1st. This represents 69 percent of the average-to-date. Storage at Lahontan Reservoir in Nevada stands at 93 percent while Rye Patch Reservoir is at 168 percent of the average-to-date. Storage at Upper Klamath Lake is about 118 percent of average.

This month's spring runoff projections reflect the fact that snowpack accumulation did not keep pace with the precipitation due to the warm, tropical nature of the December storms. Most forecasts in California's Central Valley are near to slightly above average. April through July runoff forecasts vary from 90 percent for the Pit River inflow to 115 percent for the American River basin. Forecasts range from 112 to 142 percent for the east side Sierra basins and 118 to 138 percent in the Humboldt basin. The March through September forecast for the Upper Klamath Lake inflow is 132 percent.

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	640	127	780	500	505
Sprague River Chiloquin, nr	Mar-Sep	395	130	505	285	305
Upper Klamath Falls River Inflow	Mar-Sep	945	132	1250	645	715
Lost River Gerber Reservoir Inflow	Feb-Jul	58	123	91	25	47
Clear Lake Reservoir Inflow	Feb-Jul	140	133	210	69	105
Scott River Fort Jones, nr	Apr-Jul	190	105	280	110	181
Trinity River Trinity Lake Inflow	Apr-Jul	690	109	1000	420	635
SACRAMENTO RIVER BASIN						
SACRAMENTO RIVER ABOVE BEND BRIDGE						
Pit River Montgomery Ck, nr	Apr-Jul	965	90	1470	650	1070
Mccloud River Shasta Lk, abv	Apr-Jul	370	100	540	235	370
Sacramento River Delta	Apr-Jul	310	107	450	190	290
Shasta Lake, Redding, nr	Apr-Jul	1720	96	2480	1110	1790
Bend Bridge, abv, Red Bluff, nr	Apr-Jul	2560	105	3880	1560	2440
FEATHER RIVER ABOVE OROVILLE RESERVOIR						
NF Feather River Prattville, nr	Apr-Jul	350	105	550	205	333*
Big Bar	Apr-Jul	1050	109	1605	615	962*
Feather River Oroville Reservoir Inflow	Apr-Jul	1950	111	2970	1140	1760

Water Supply Forecasts

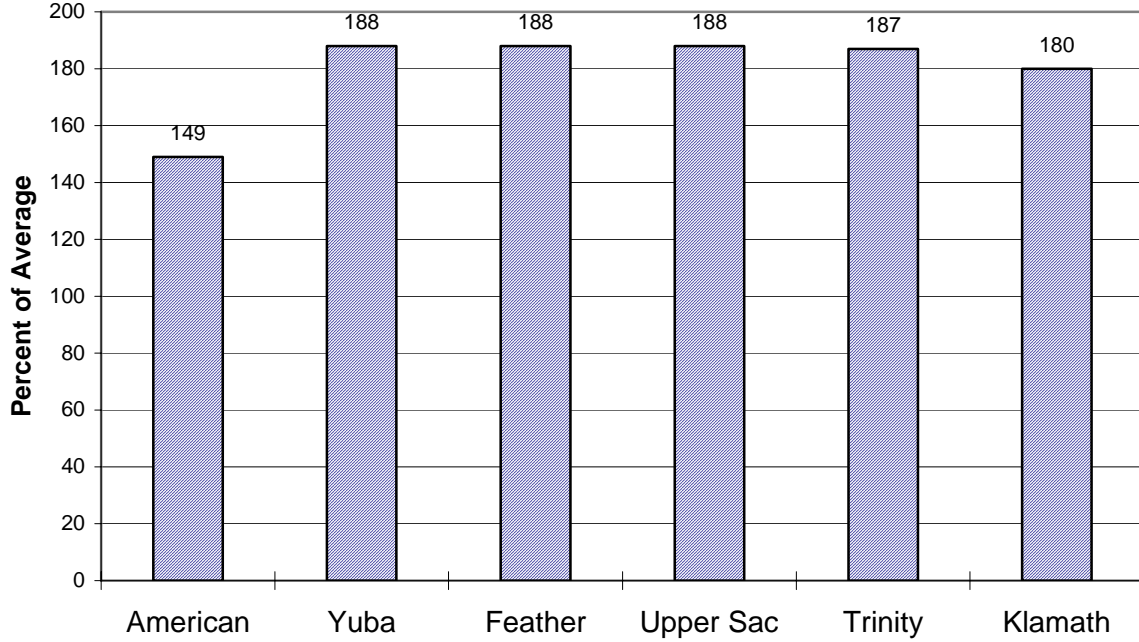
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
YUBA RIVER ABOVE SMARTVILLE						
North Yuba River						
Goodyears Bar, blo	Apr-Jul	305	112	460	175	273*
South Yuba River						
Langs Crossing	Apr-Jul	250	111	380	145	225*
Yuba River						
Smartville, nr	Apr-Jul	1110	112	1670	650	995
AMERICAN RIVER ABOVE FOLSOM RESERVOIR						
MF American River						
Auburn, nr	Apr-Jul	560	114	835	305	490*
Silver Ck						
Union Valley	Apr-Jul	115	117	170	62	98*
Camino Dam, blo	Apr-Jul	180	114	270	95	158*
American River						
Folsom Reservoir Inflow	Apr-Jul	1420	115	2170	730	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

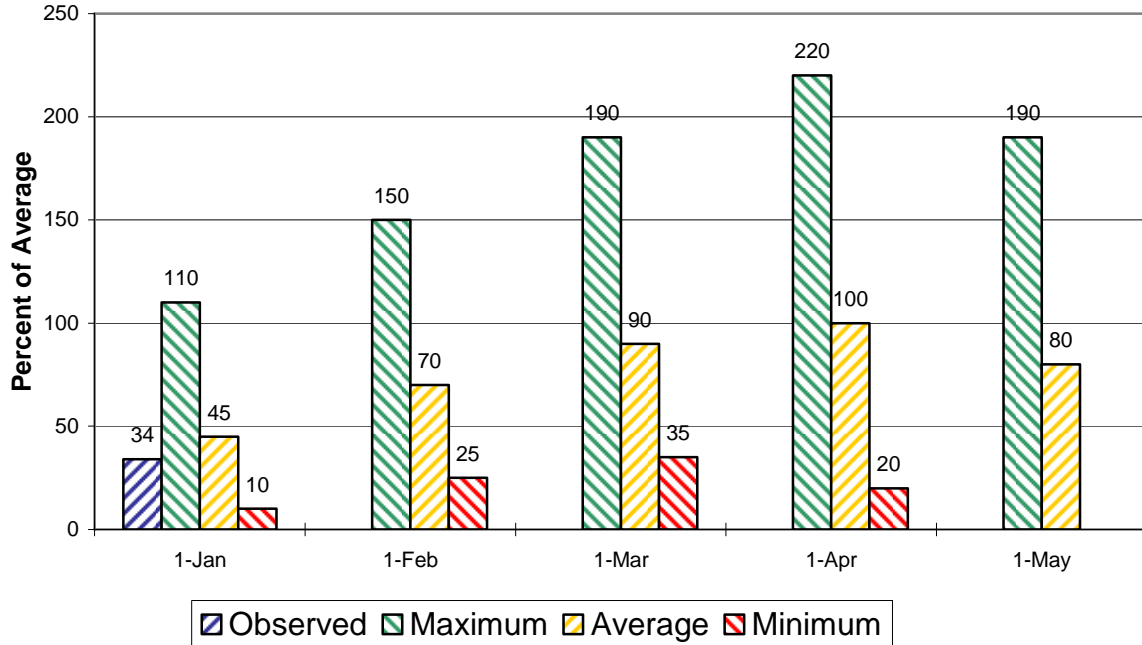
Seasonal Basin Precipitation

October 1 to Date



Seasonal Basin Snowpack

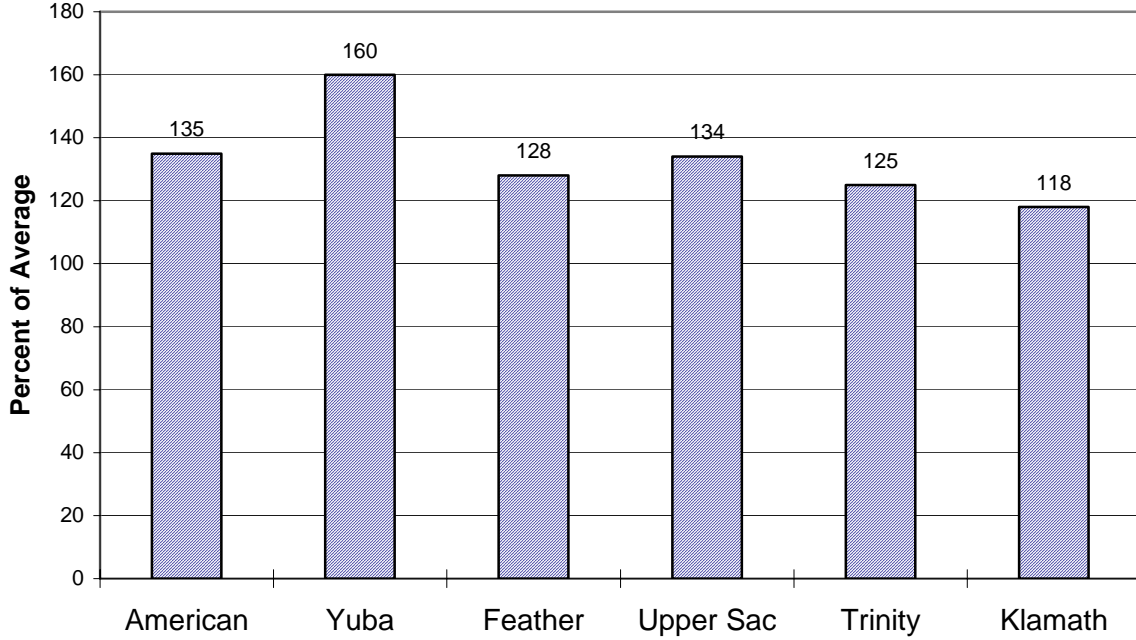
Water Content in % of April 1 Average



Sacramento/Trinity/Klamath River Basins

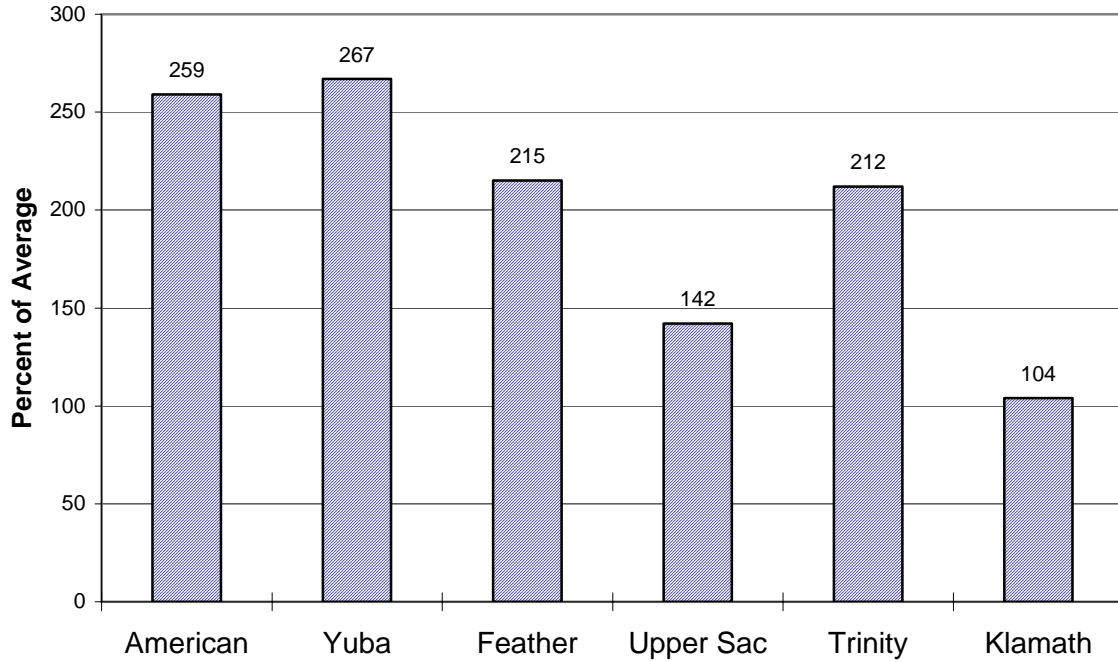
Basin Reservoir Storage

Contents of Major Reservoirs in % of Average



Seasonal Basin Runoff

October 1 to Date



San Joaquin Basin



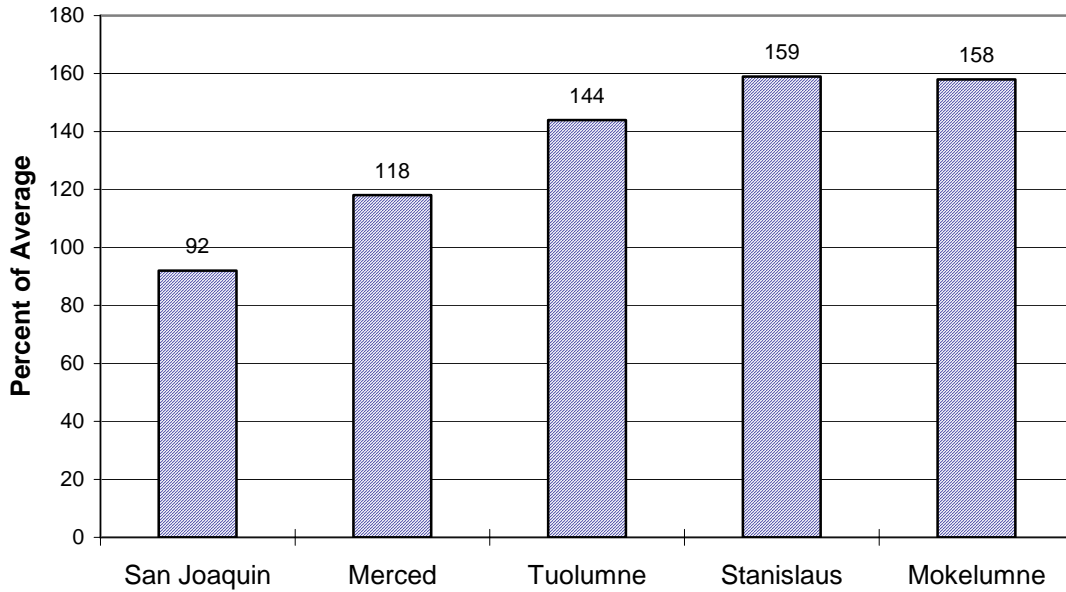
Water Supply Forecasts

		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	215	112	340	89	192*
San Joaquin River						
Millerton Lk	Apr-Jul	1400	110	2310	495	1270
Merced River						
Pohono Bridge, at, Yosemite, nr	Apr-Jul	370	103	610	131	360*
Merced Falls, blo	Apr-Jul	650	101	1130	173	645
Tuolumne River						
Hetch Hetchy, nr	Apr-Jul	640	107	965	315	596*
La Grange, nr	Apr-Jul	1300	106	2060	545	1230
MF Stanislaus River						
Beardsley Dam, blo	Apr-Jul	360	112	565	154	320*
Stanislaus River						
Goodwin Dam, blo, Knights Ferry	Apr-Jul	770	111	1230	310	695
NF Mokelumne River						
West Point	Apr-Jul	450	108	750	150	416*
Mokelumne River						
Mokelumne Hill	Apr-Jul	500	109	785	215	460
Cosumnes River						
Michigan Bar	Apr-Jul	125	102	210	40	123

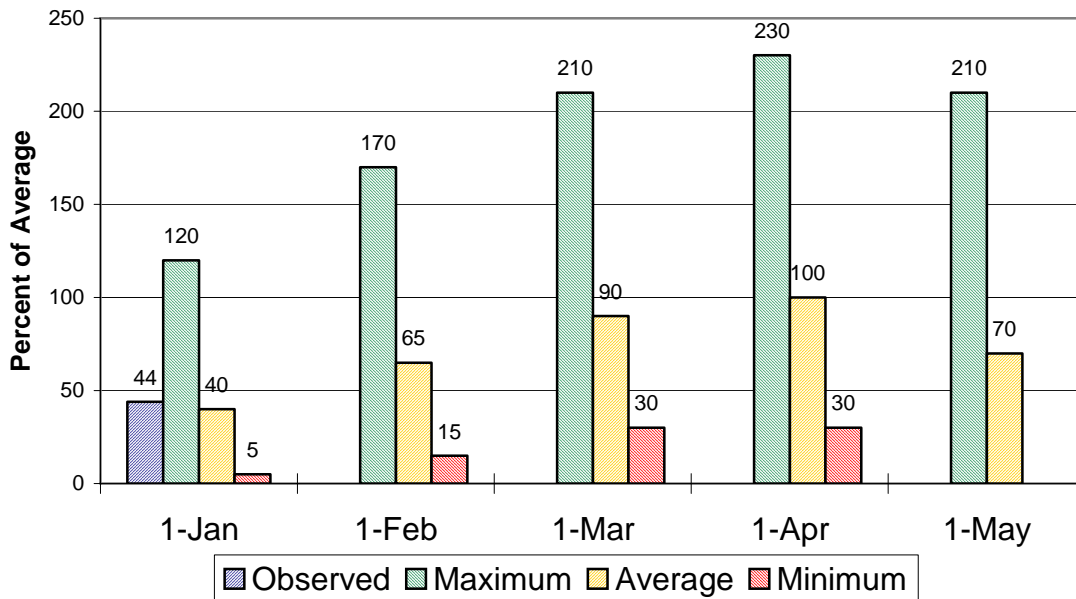
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San Joaquin Basin

Seasonal Basin Precipitation October 1 to Date

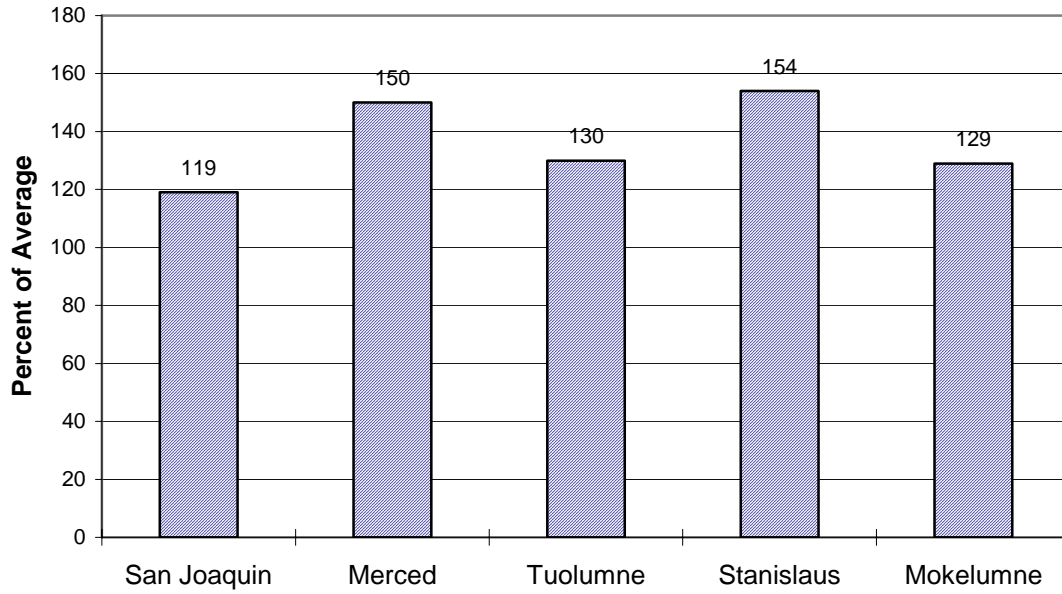


Seasonal Basin Snowpack Water Content in % of April 1 Average

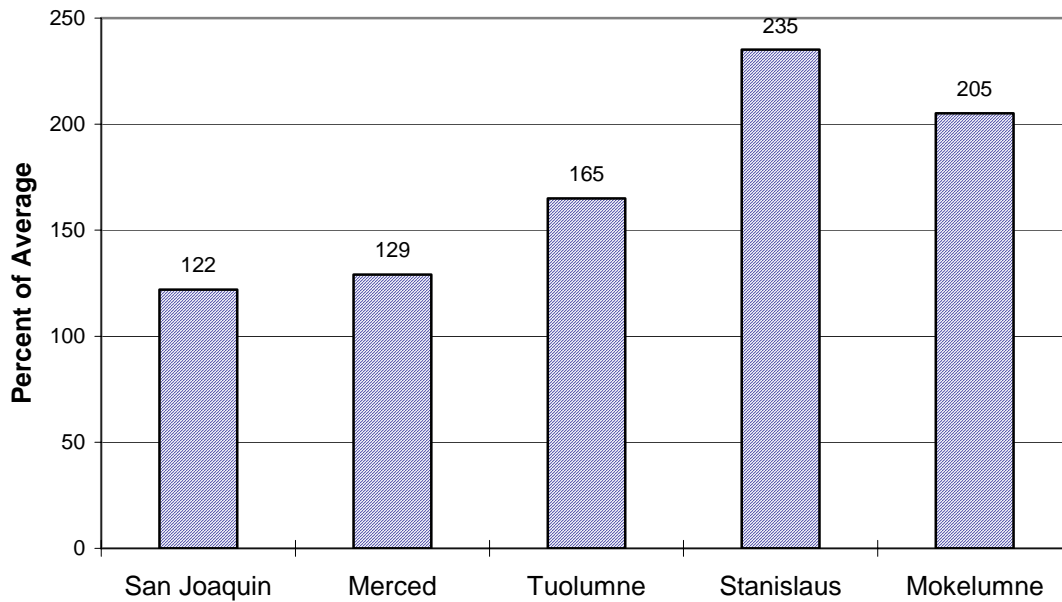


San Joaquin Basin

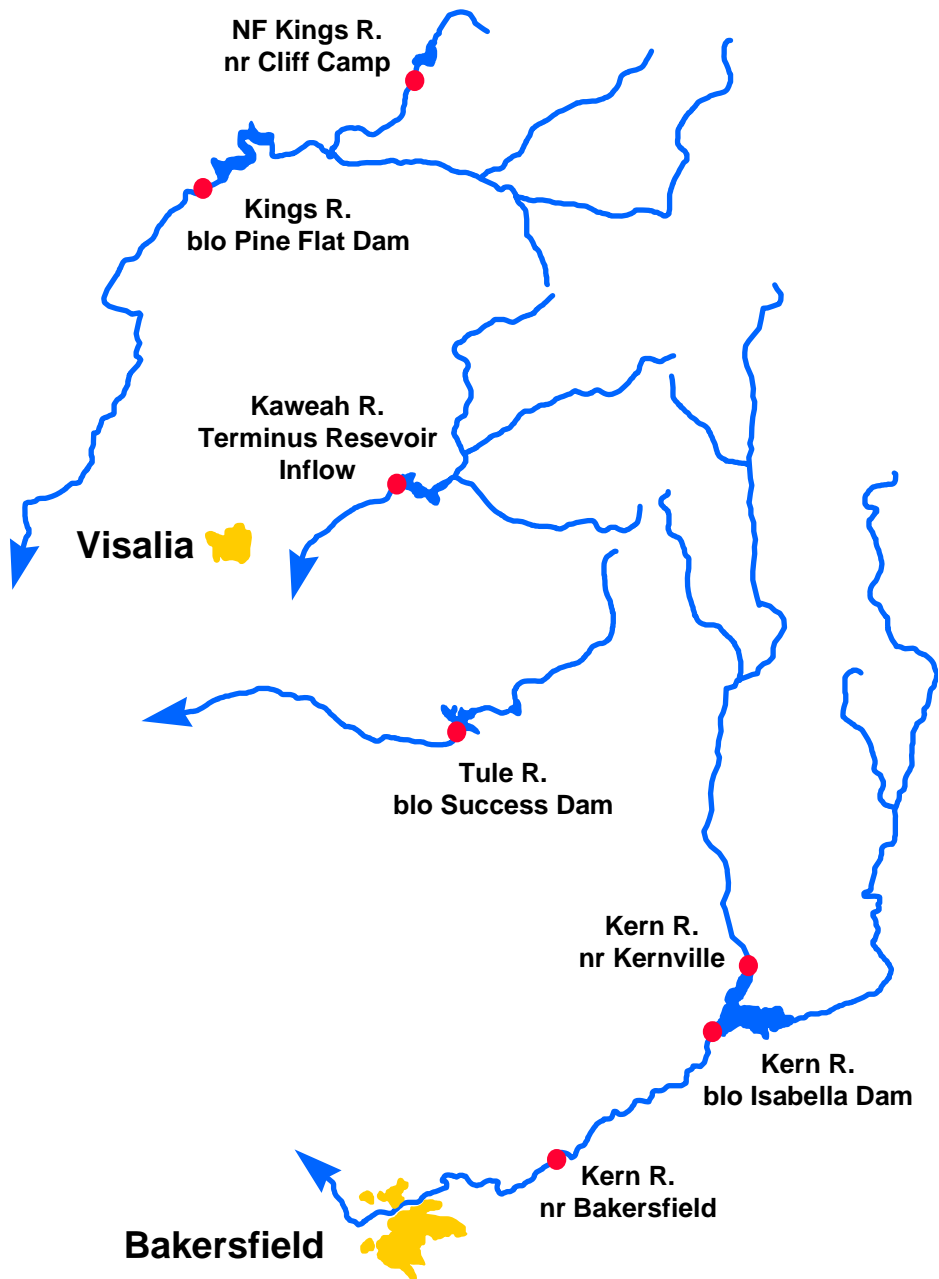
Basin Reservoir Storage Contents of Major Reservoirs in % of Average



Season Basin Runoff October 1 to Date



Tulare Basin

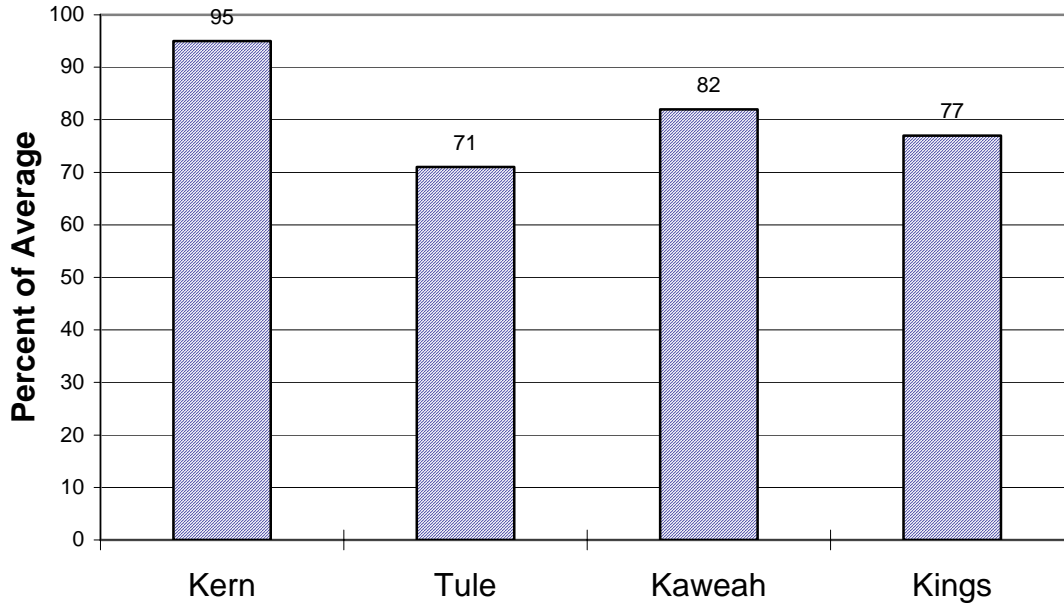


Water Supply Forecasts

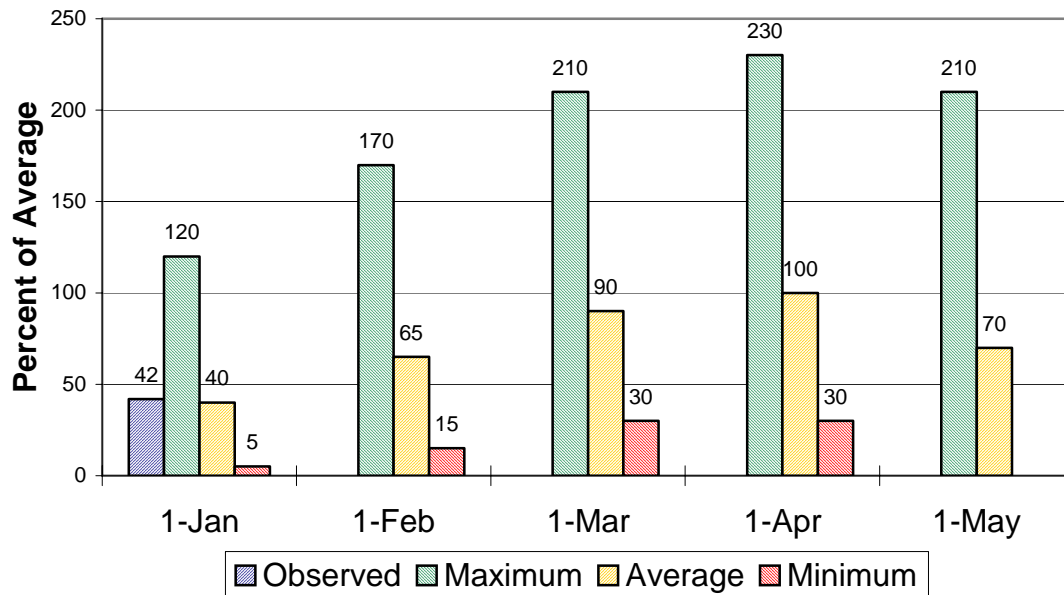
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
Kern River						
Kernville, nr	Apr-Jul	430	108	660	100	398*
Isabella Dam, blo	Apr-Jul	520	108	920	120	480
Bakersfield, nr	Apr-Jul	535	109	935	135	490
Tule River						
Success Dam	Apr-Jul	68	103	111	15.0	66
Kaweah River						
Terminus Dam	Apr-Jul	310	107	555	65	290
NF Kings River						
Cliff Camp, nr	Apr-Jul	270	112	445	95	240*
Kings River						
Pine Flat Dam, blo	Apr-Jul	1380	110	2310	450	1250

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Tulare Lake Basin Seasonal Precipitation October 1 to Date



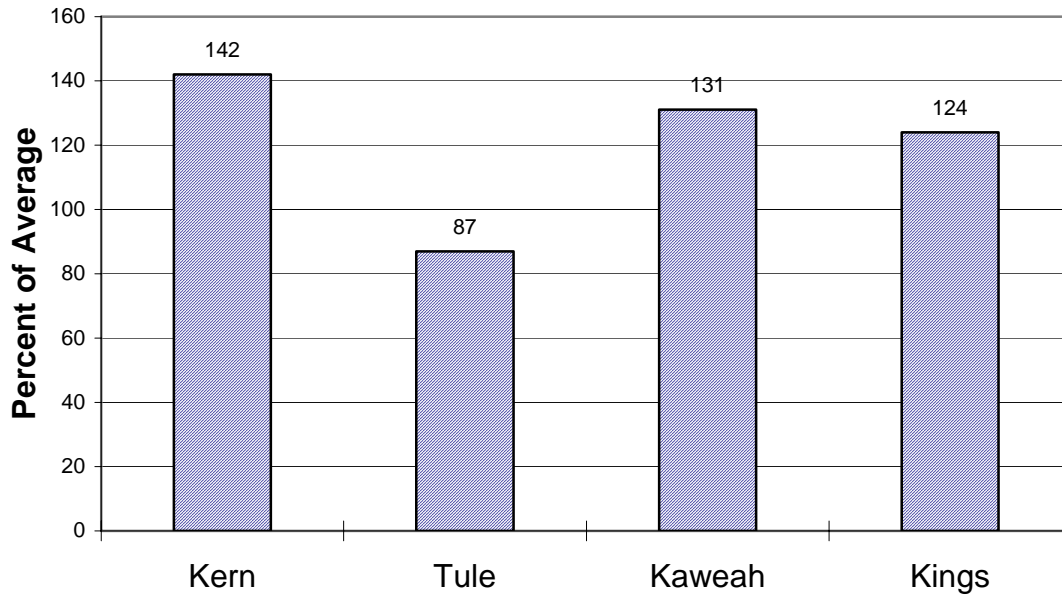
Seasonal Basin Snowpack Water Content in % of April 1 Average



Tulare Lake Basin

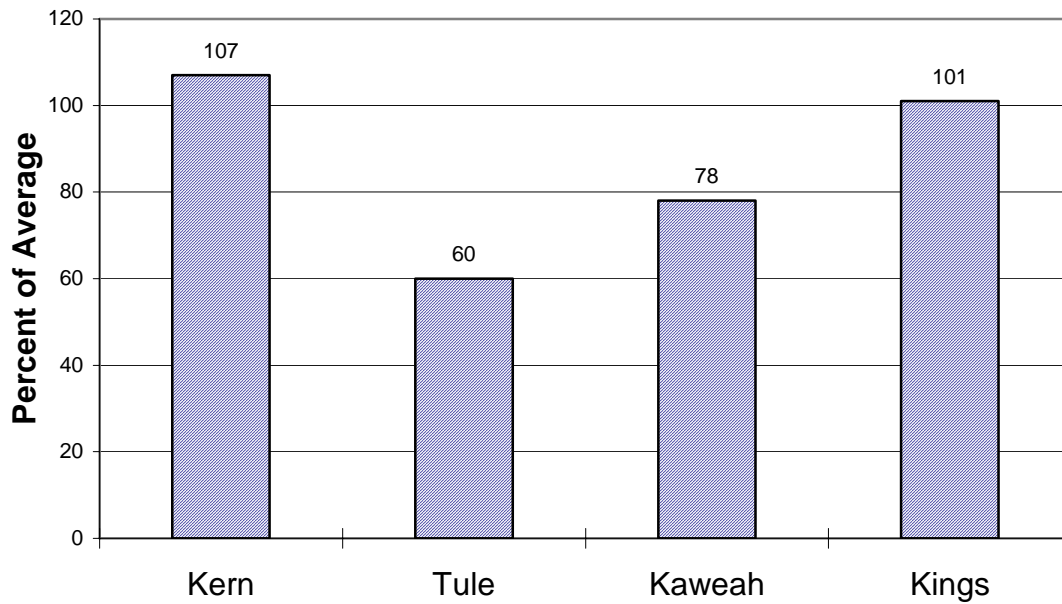
Basin Reservoir Storage

Contents of Major Reservoirs in % of Average

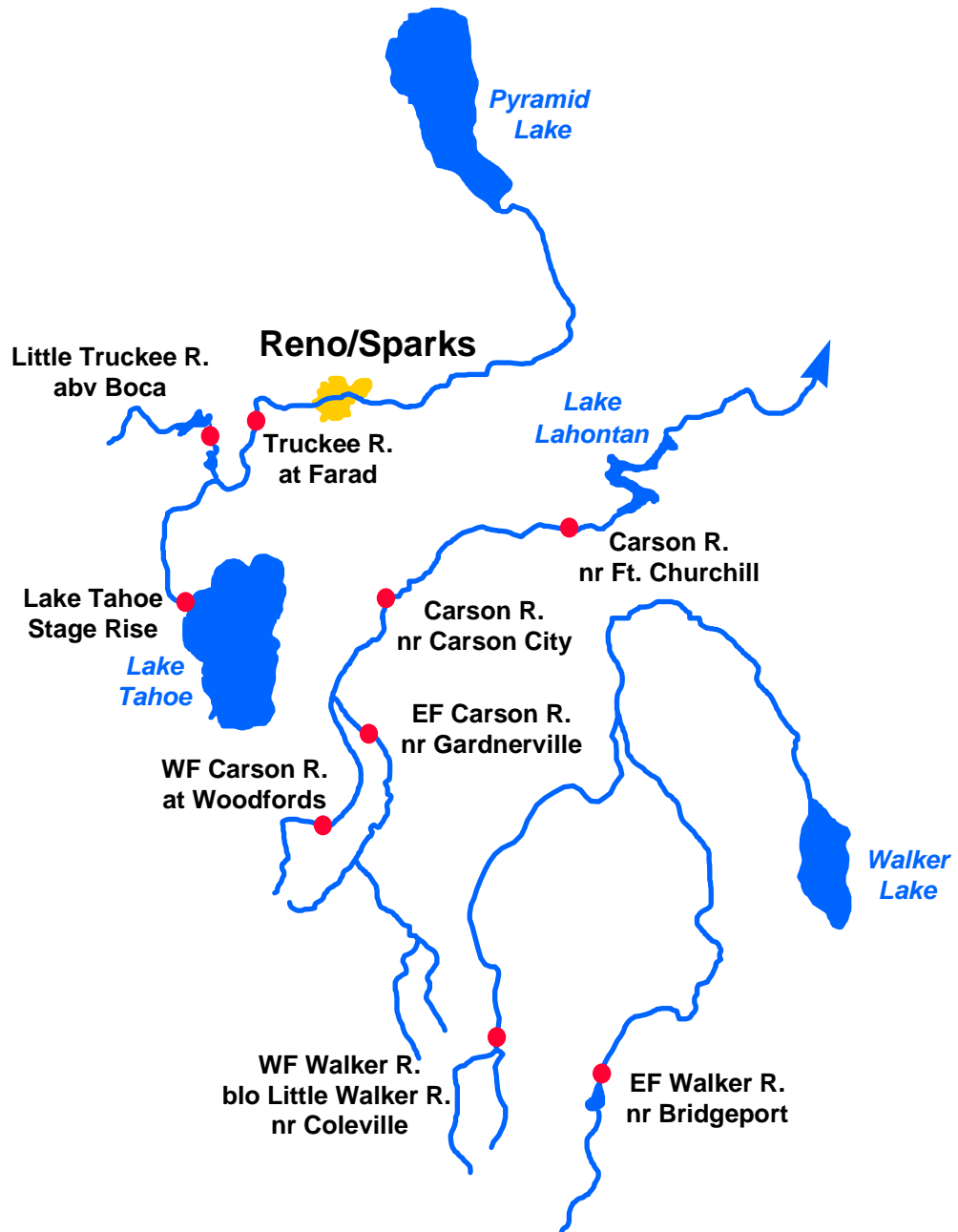


Seasonal Basin Runoff

October 1 to Date



East Side Sierra Nevada Basins



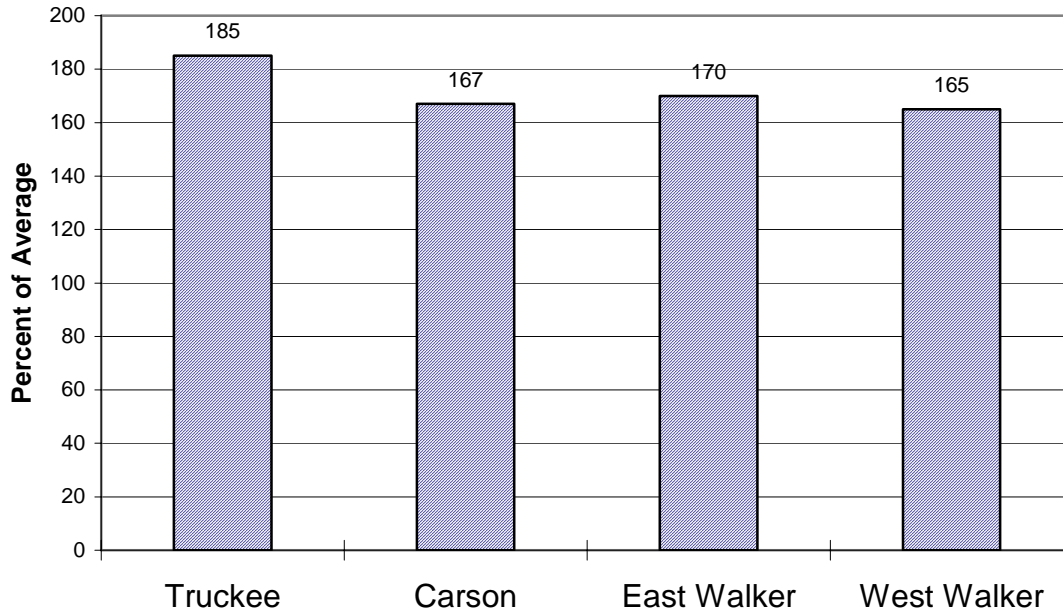
Water Supply Forecasts

		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	1.70	123	2.6	0.81	1.38
Little Truckee River						
Boca Res, abv, Truckee, nr	Apr-Jul	90	112	136	43	80
Truckee River						
Farad	Apr-Jul	320	123	495	144	260
Carson River						
EF Carson River						
Gardnerville, nr	Apr-Jul	230	122	340	122	189
WF Carson River						
Woodfords	Apr-Jul	70	125	107	33	56
Carson River						
Carson City, nr	Apr-Jul	240	128	370	113	188
Fort Churchill, nr	Apr-Jul	245	138	390	99	178
Walker River						
East Walker River						
Bridgeport, nr	Apr-Aug	95	142	156	34	67
West Walker River						
Ltl Walker, blo, Coleville, nr	Apr-Jul	210	135	295	127	156

East Side Sierra Nevada Basins

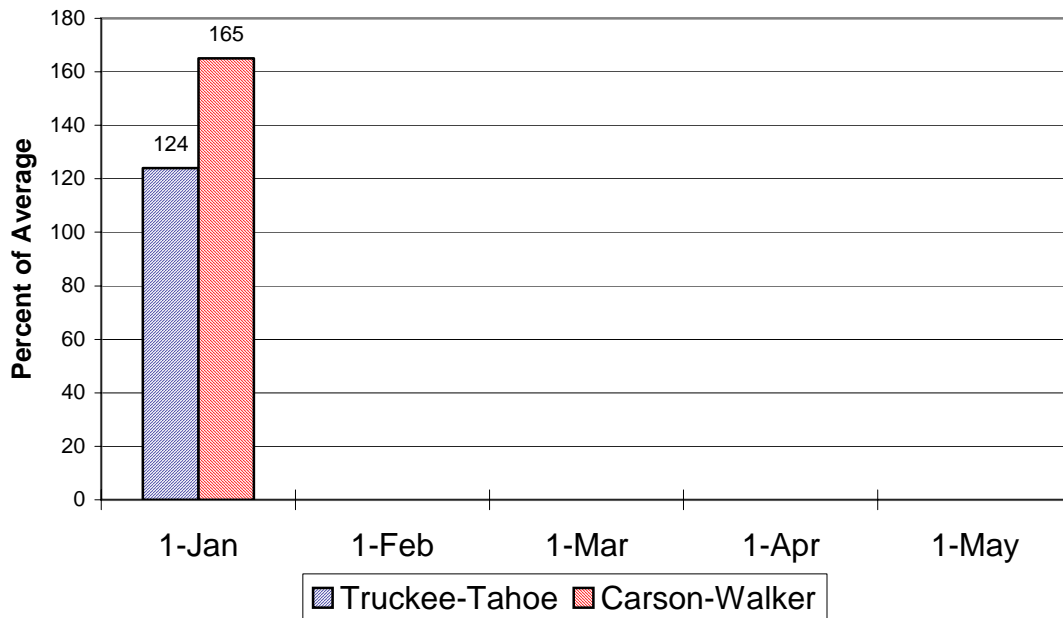
Seasonal Basin Precipitation

October 1 to Date



Basin Snowpack

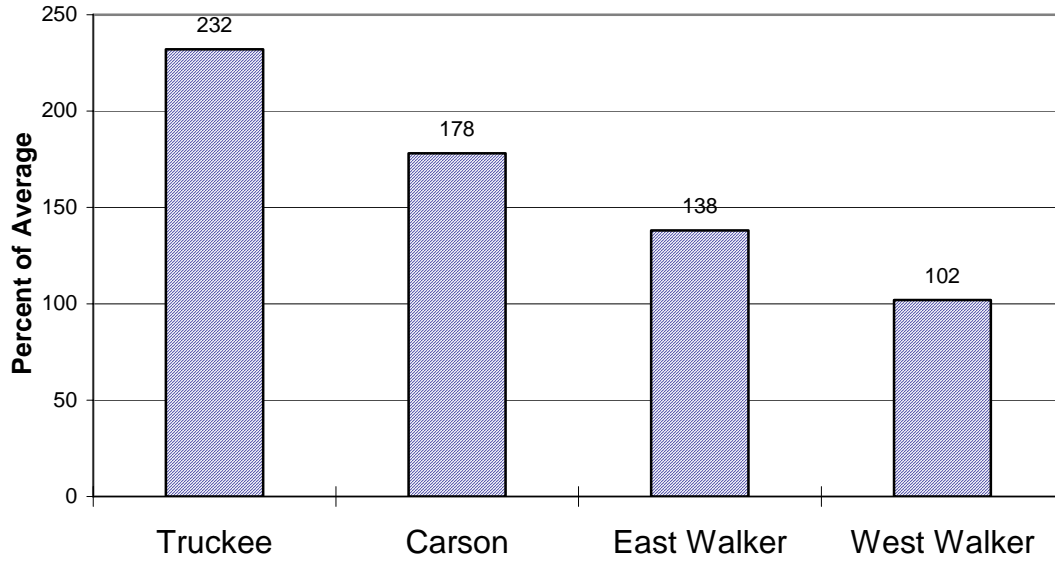
% of Average SWE to Date



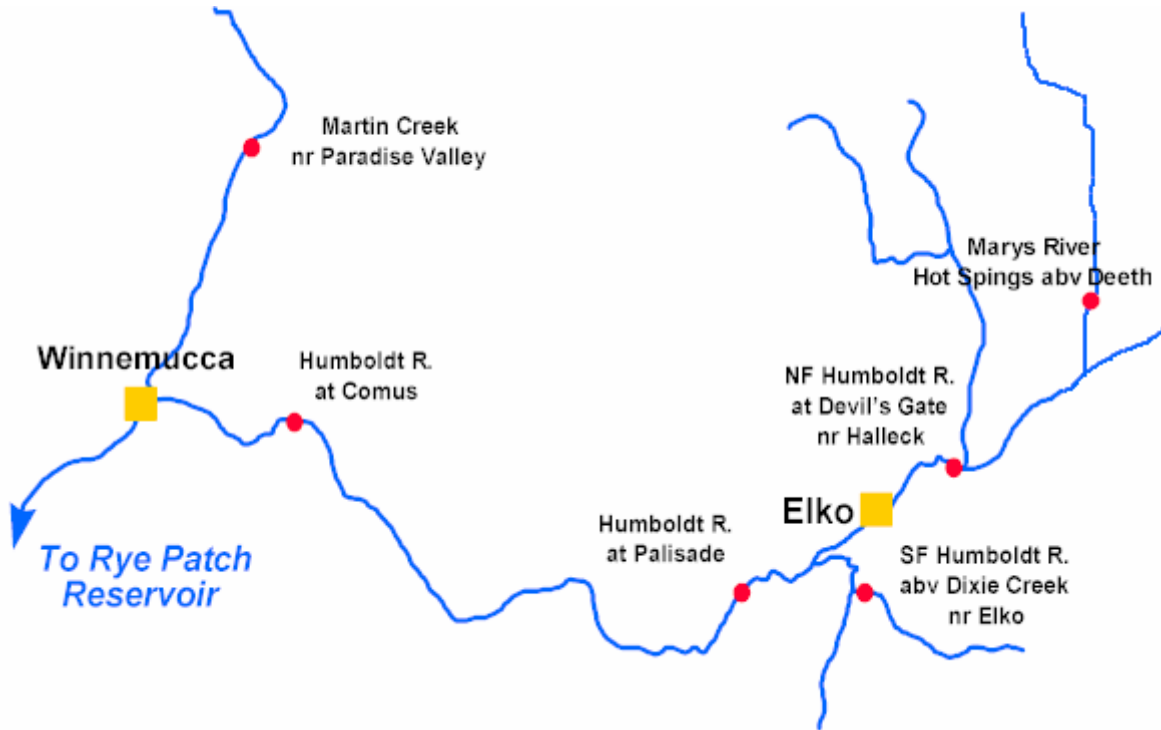
East Side Sierra Nevada Basins

Seasonal Basin Runoff

October 1 to Date



Humboldt River Basin



Water Supply Forecasts

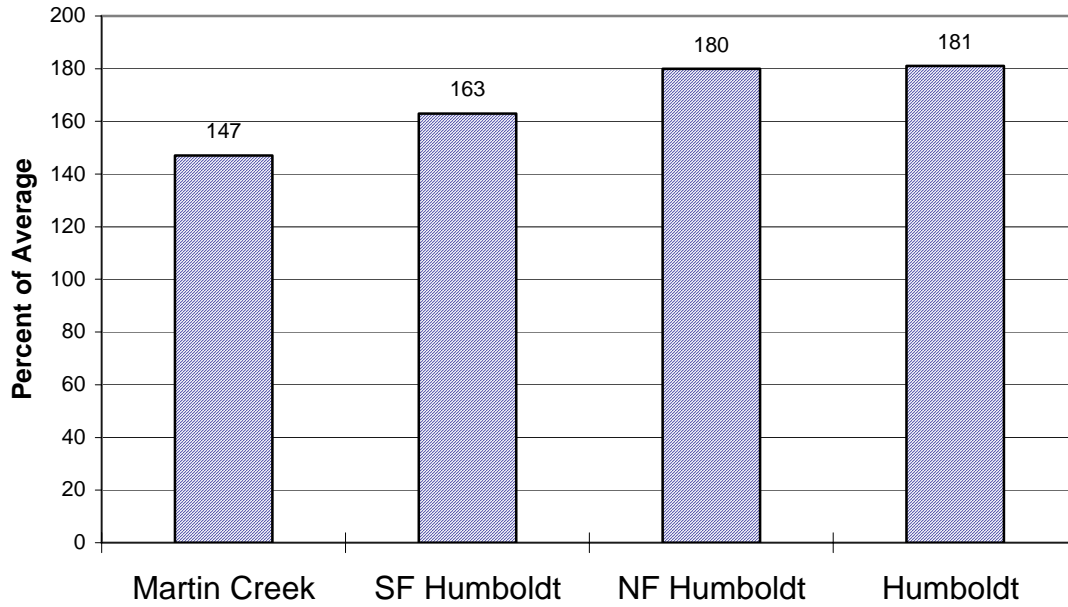
		Most Prob Vol KAF	Most Prob %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
NF Humboldt River						
Devlis Gate, at, Halleck, nr	Apr-Jul	40	118	62	18.0	34*
SF Humboldt River						
Dixie Ck, abv, Elko, nr	Apr-Jul	90	118	132	48	76
Marys River						
Hot Spings, abv, Deeth, nr	Apr-Jul	50	128	72	28	39
Humboldt River						
Elko	Apr-Jul	185	120	276	94	154
Palisade	Apr-Jul	320	128	490	150	250
Comus	Apr-Jul	310	138	490	132	225
Martin Ck						
Paradise Vly, nr	Apr-Jul	22	118	32	11.6	18.7

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Humboldt River Basin

Seasonal Basin Precipitation

October 1 to Date



Basin Snowpack

% of Average SWE to Date

