

WATER SUPPLY OUTLOOK



CALIFORNIA AND NORTHERN NEVADA

**MARCH
2005**



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

March 1, 2005

Most water supply basins experienced much below average February precipitation except for some in the San Joaquin drainage. While most spring runoff forecasts showed a decrease from last month due to the dry conditions, the reduction was most evident in the upper Klamath, Scott, Truckee, and Humboldt basins. However, with one month of snow accumulation left, the snowpack in the central and southern Sierra Nevada remains healthy and the April through July forecasts for that region are above average.

February precipitation amounts were generally much below average. The best amounts fell in the San Joaquin drainage with amounts ranging from 74 percent for the Mokelumne basin to 110 percent for the upper San Joaquin. The upper Klamath Lake basin was the driest at only 20 percent. Amounts were generally in the 40 to 50 percent range in the Trinity and Sacramento basins. Monthly precipitation varied from 50 to 70 percent in the Tulare Lake drainage. The Walker River basin received 70 percent of the monthly average, the Carson 67, and the Truckee 38 percent. About 70 percent of the February average fell in the Humboldt basin.

The Sierra Nevada snowpack did not increase substantially during February although the April 1st average rose slightly from last month for most basins. The California Department of Water Resources reports that the March 1st average is about 112 percent in the northern Sierra basin, 124 percent in the central Sierra and 154 percent in the southern Sierras. The April 1st average stands at 101 percent for the northern Sierra, 109 percent for the central Sierra and 132 percent in the southern Sierra. Snow packs in the Tahoe-Truckee are at 124 percent of the average-to-date, the Carson-Walker, 145 percent and the Humboldt basin about 99 percent. The upper Klamath Lake basin stands at only 45 percent.

The monthly runoff average was greatest in the San Joaquin drainage ranging from 91 percent for the Mokelumne to 114 for the Tuolumne. February runoff was only in the 49 to 64 percent range for the Trinity and Sacramento basins and varied from 49 to 98 percent in the Tulare Lake drainage. Runoff for the east side Sierra basins varied from 38 percent for the Truckee at Farad to 109 percent for the West Walker basin. The Humboldt River at Palisade received 45 percent of the February average while the upper Klamath Lake basin received 44 percent.

Reservoir storage in the Sacramento basin was at 94 percent of average for the date, the San Joaquin at 114 percent and the Tulare Lake basin at 78 percent. East side Sierra reservoirs are at 66 percent of average. The lake level at Lake Tahoe stood at 6223.19 on February 28. This is 0.19 feet above the natural rim and represents only 6 percent of the average-to-date. Storage at Lahontan Reservoir stands at 69 percent while Rye Patch Reservoir in Nevada is at only 30 percent of the average-to-date. The upper Klamath Lake is at 87 percent of the average-to-date.

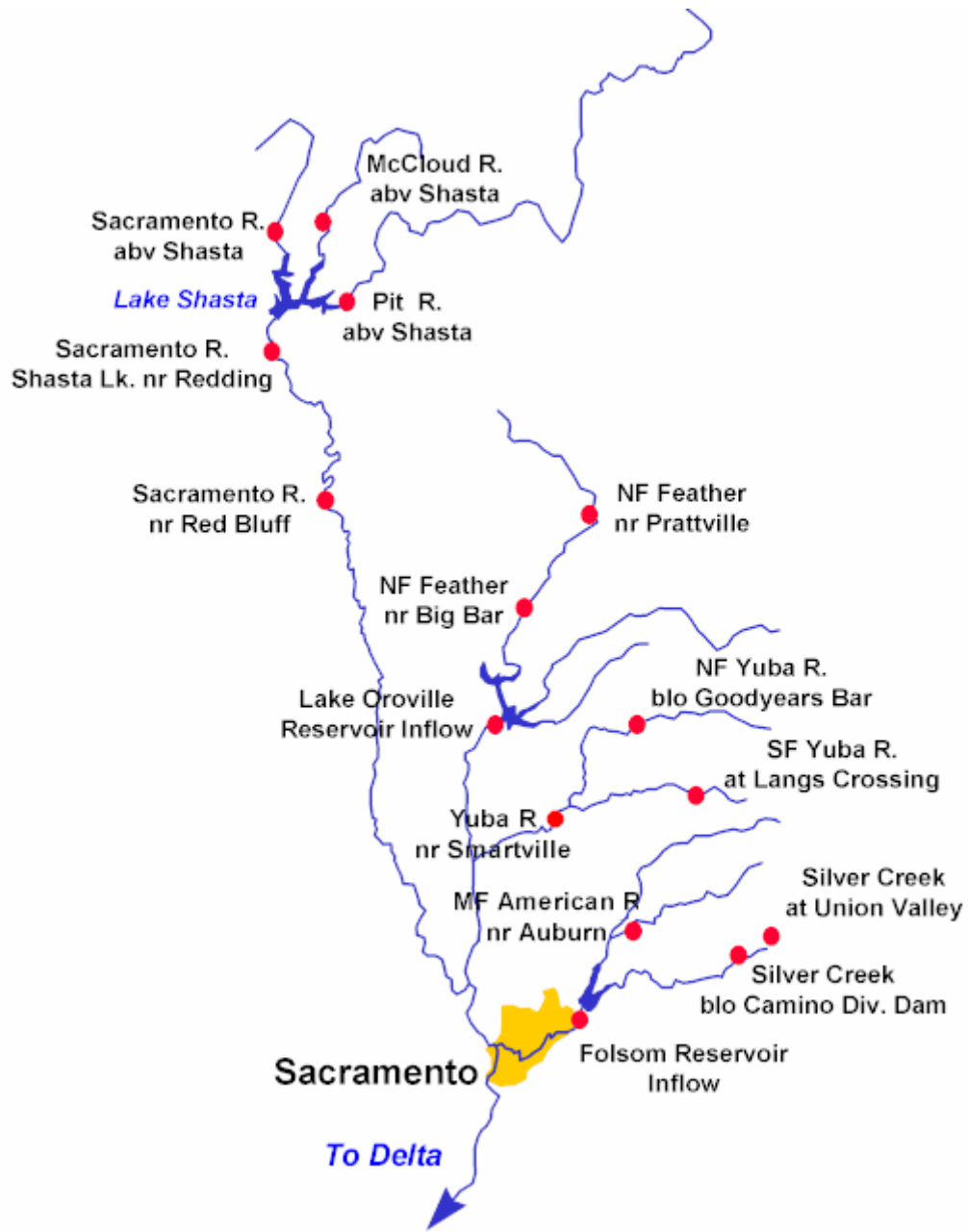
Runoff forecasts follow a pronounced gradient from north to south in California's central valley. They range from 78 percent for the Pit River nr Montgomery Creek to 138 percent for the San Joaquin River at Millerton Lake. Forecasts are above average from the American River to the Kern River basins. Streamflow forecasts for the east-side Sierra basins vary from 102 to 142 percent. Forecasts for the Humboldt basin range from 86 to 112 percent. The March through September forecast for the upper Klamath Lake inflow is 51 percent.

Mid-month updates are scheduled for selected east side Sierra forecast points and the upper Klamath inflow. These will be posted on the CNRFC web page.

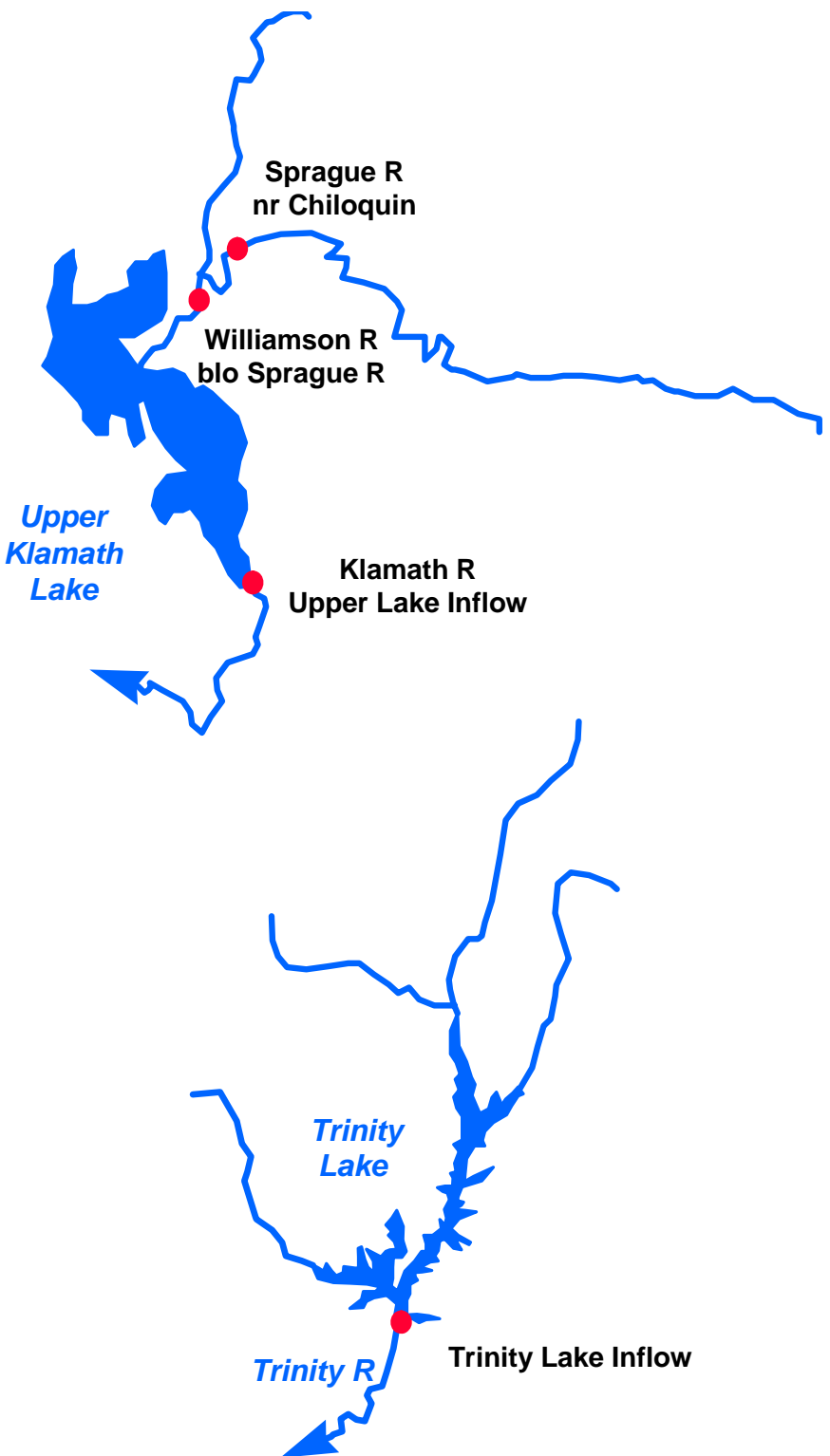
The Water Supply Outlook is available in pdf format on the World Wide Web at:

<http://www.wrh.noaa.gov/cnrfc>

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
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COASTAL BASINS

Williamson River Sprague, blo	Mar-Sep	270	53	385	150	505
Sprague River Chiloquin, nr	Mar-Sep	155	51	250	61	305
Upper Klamath Falls River Inflow	Mar-Sep	365	51	530	200	715
Lost River Gerber Reservoir Inflow	Mar-Jul	11.0	30	30	0.40	37
Clear Lake Reservoir Inflow	Mar-Jul	30	38	64	4.0	80
Scott River Fort Jones, nr	Apr-Jul	150	83	210	92	181
Trinity River Trinity Lake Inflow	Apr-Jul	590	93	855	425	635

Trinity River - Inflow at Lewiston Lake Distribution (kAF)

Exceedence	<u>Probability</u>	<u>Oct-Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Apr-Jul</u>	<u>Water Yr</u>
	90%	359	115	140	180	80	25	15	5	425	919
	50%	359	160	195	235	125	35	20	10	590	1139
	10%	359	230	285	320	200	50	30	15	855	1489

SACRAMENTO RIVER BASIN

SACRAMENTO RIVER ABOVE BEND BRIDGE

Pit River Montgomery Ck, nr	Apr-Jul	830	78	965	705	1070
Mccloud River Shasta Lk, abv	Apr-Jul	350	95	465	235	370
Sacramento River Delta	Apr-Jul	275	95	405	145	290
Shasta Lake, Redding, nr	Apr-Jul	1500	84	2010	1000	1790
Bend Bridge, abv, Red Bluff, nr	Apr-Jul	2000	82	2780	1220	2440

FEATHER RIVER ABOVE OROVILLE RESERVOIR

NF Feather River Prattville, nr	Apr-Jul	260	78	345	175	333*
Big Bar	Apr-Jul	820	85	1140	490	962*
Feather River Oroville Reservoir Inflow	Apr-Jul	1450	82	1920	970	1760

Water Supply Forecasts

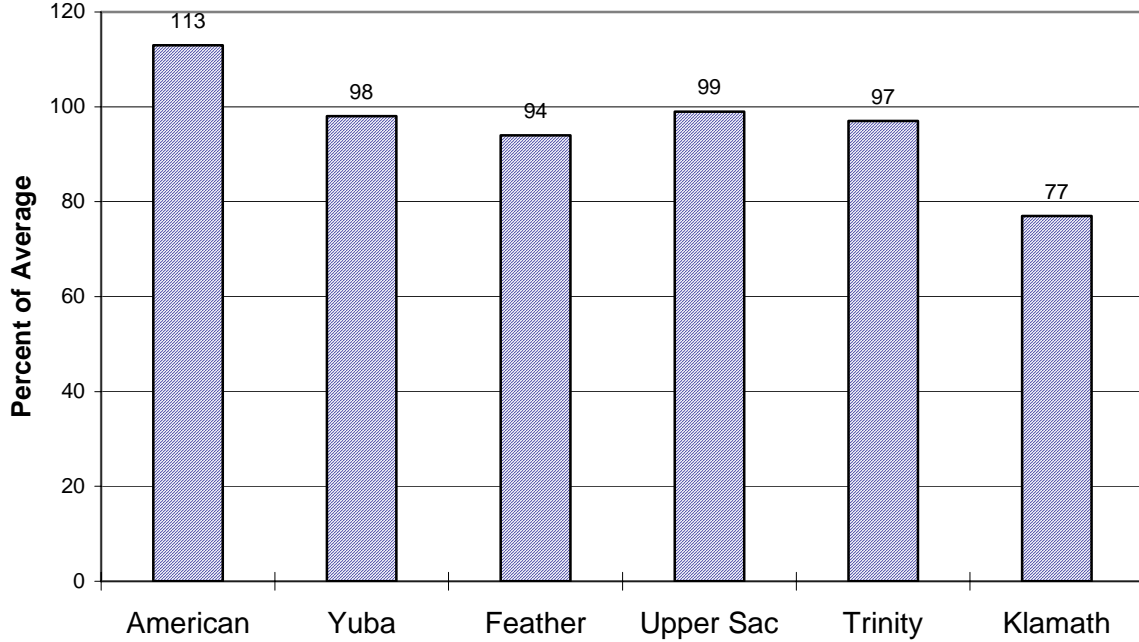
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
YUBA RIVER ABOVE SMARTVILLE						
North Yuba River						
Goodyears Bar, blo	Apr-Jul	245	90	340	150	273*
South Yuba River						
Langs Crossing	Apr-Jul	215	96	300	133	225*
Yuba River						
Smartville, nr	Apr-Jul	960	96	600	1310	995
AMERICAN RIVER ABOVE FOLSOM RESERVOIR						
MF American River						
Auburn, nr	Apr-Jul	540	110	770	310	490*
Silver Ck						
Union Valley	Apr-Jul	110	112	155	67	98*
Camino Dam, blo	Apr-Jul	180	114	255	105	158*
American River						
Folsom Reservoir Inflow	Apr-Jul	1400	114	1980	830	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

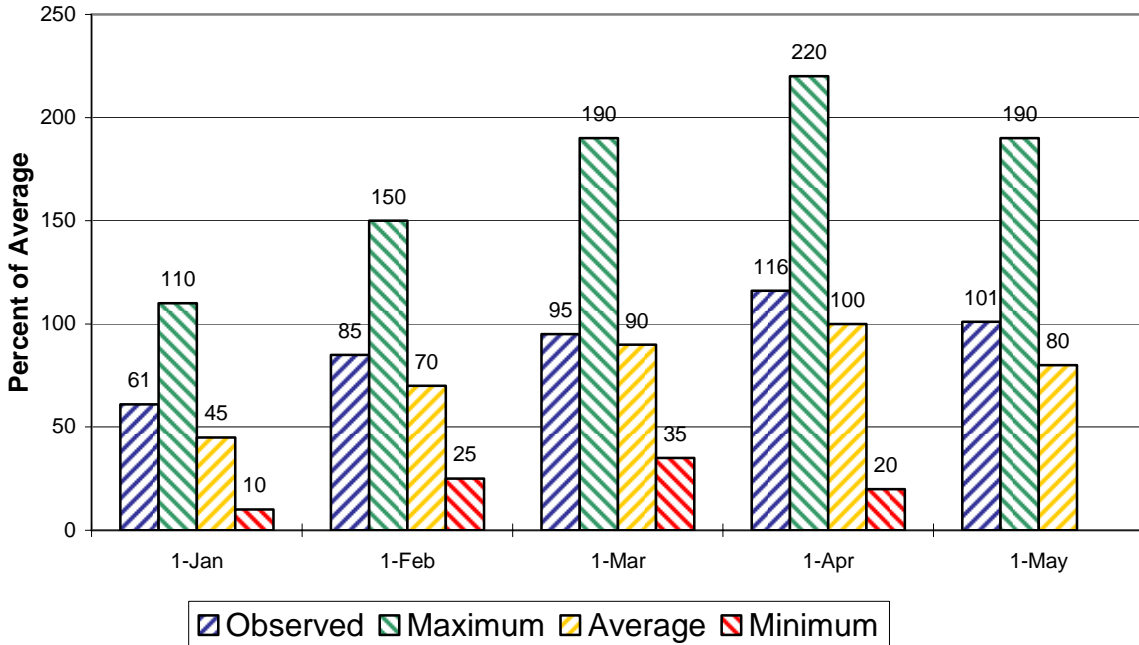
Seasonal Basin Precipitation

October 1 to Date



Seasonal Basin Snowpack

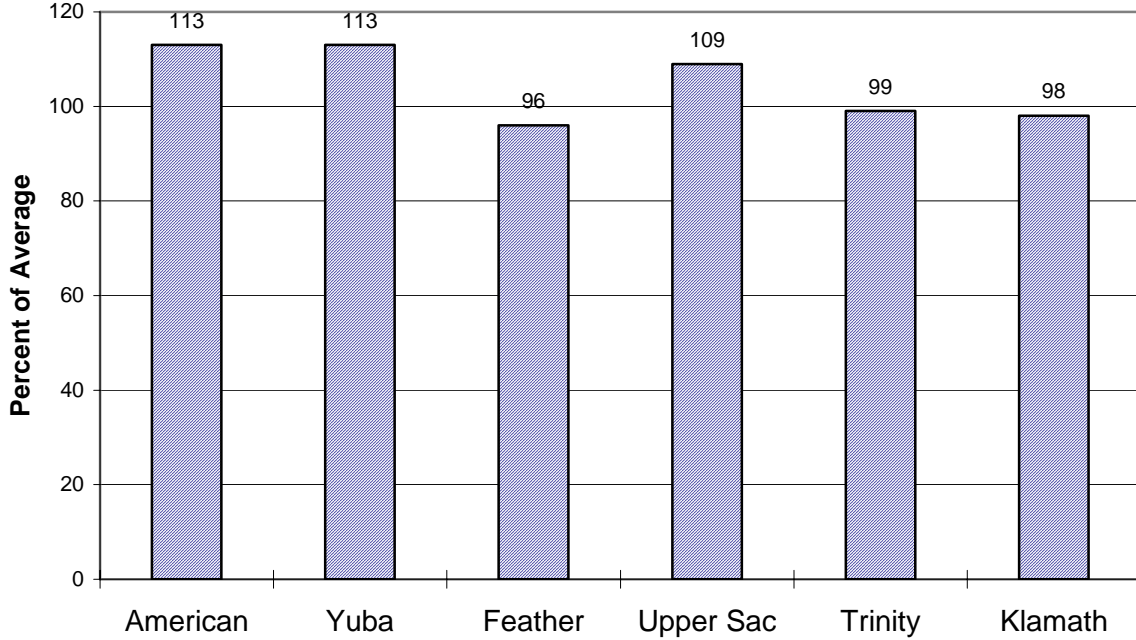
Water Content in % of April 1 Average



Sacramento/Trinity/Klamath River Basins

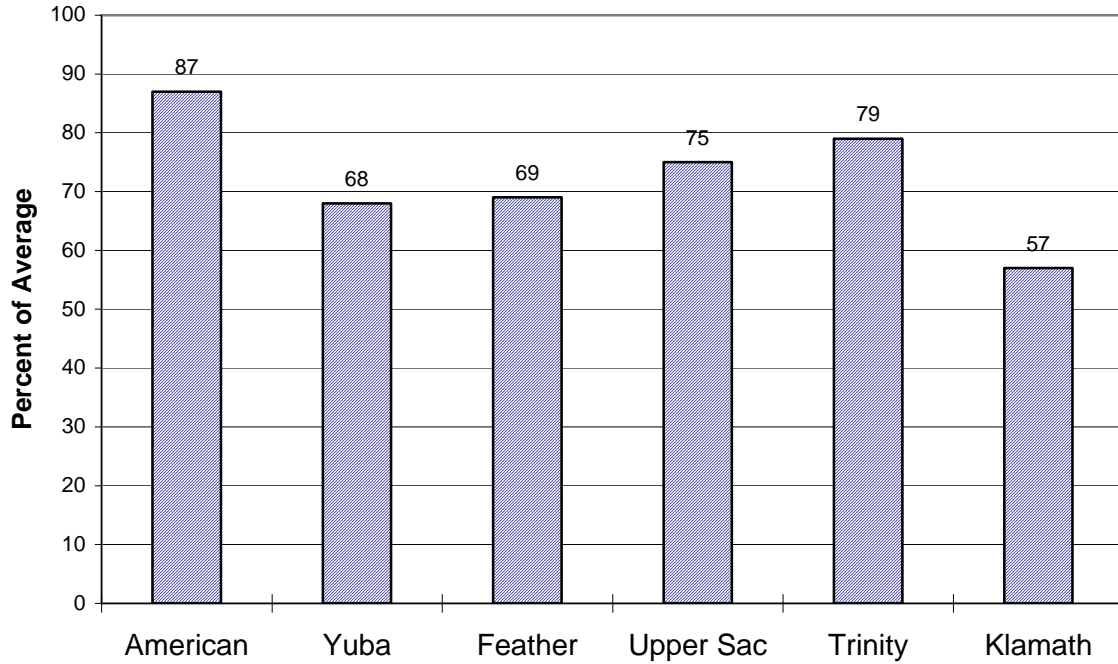
Basin Reservoir Storage

Contents of Major Reservoirs in % of Average



Seasonal Basin Runoff

October 1 to Date



San Joaquin Basin



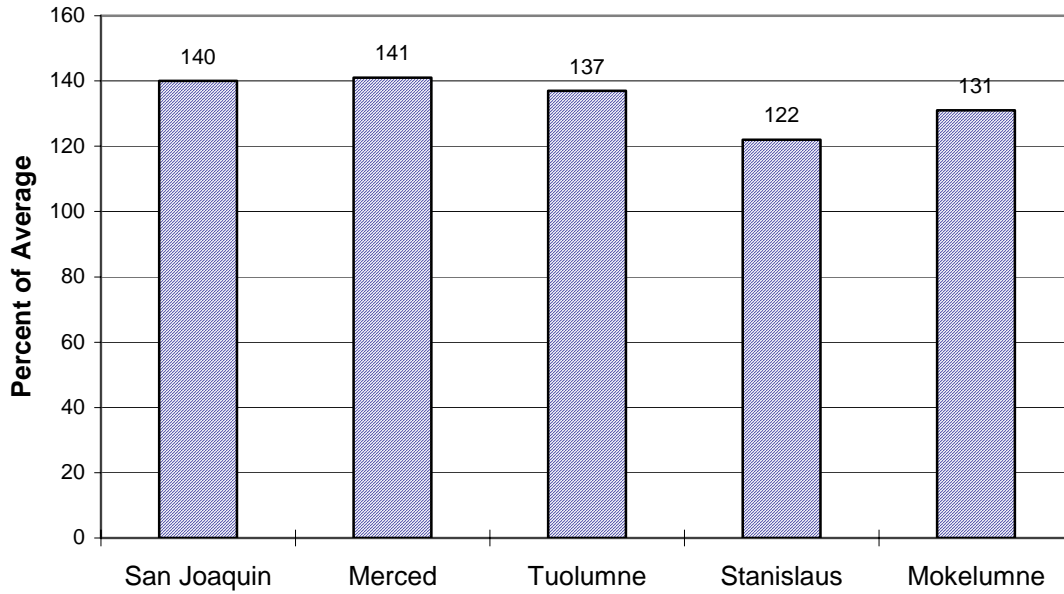
Water Supply Forecasts

		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
SF San Joaquin River						
Hooper Ck, blo, Florence Lk, nr	Apr-Jul	270	141	350	180	192*
San Joaquin River						
Millerton Lk	Apr-Jul	1750	138	2140	1400	1270
Merced River						
Pohono Bridge, at, Yosemite, nr	Apr-Jul	470	131	580	350	360*
Merced Falls, blo	Apr-Jul	840	130	1110	570	645
Tuolumne River						
Hetch Hetchy, nr	Apr-Jul	820	138	960	680	596*
La Grange, nr	Apr-Jul	1670	136	2050	1290	1230
MF Stanislaus River						
Beardsley Dam, blo	Apr-Jul	400	125	520	280	320*
Stanislaus River						
Goodwin Dam, blo, Knights Ferry	Apr-Jul	860	124	1110	650	695
NF Mokelumne River						
West Point	Apr-Jul	470	113	660	280	416*
Mokelumne River						
Mokelumne Hill	Apr-Jul	520	113	690	350	460
Cosumnes River						
Michigan Bar	Apr-Jul	120	98	200	40	123

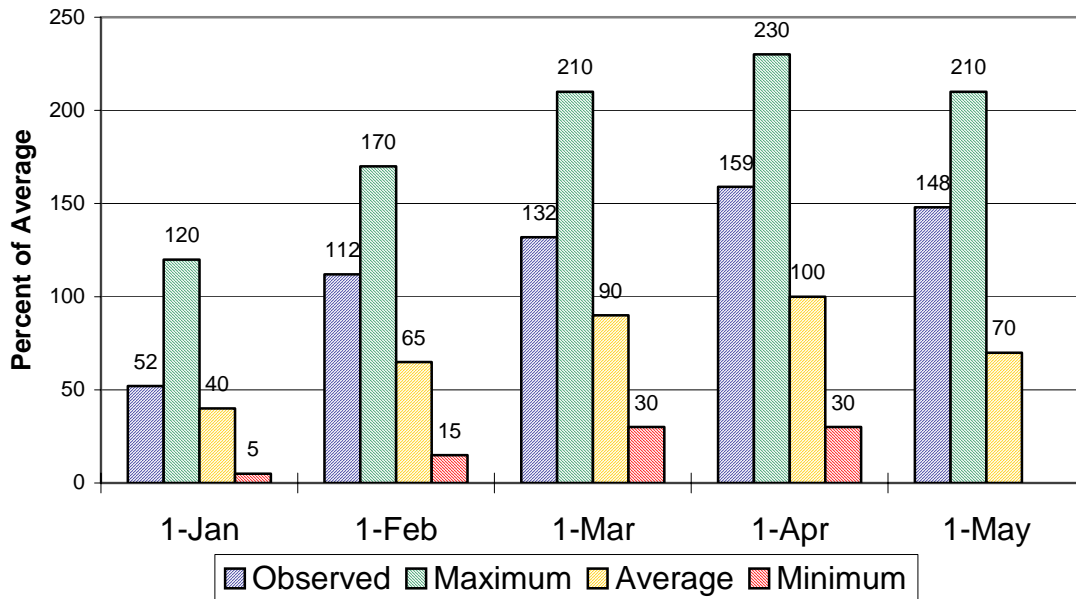
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San Joaquin Basin

Seasonal Basin Precipitation October 1 to Date

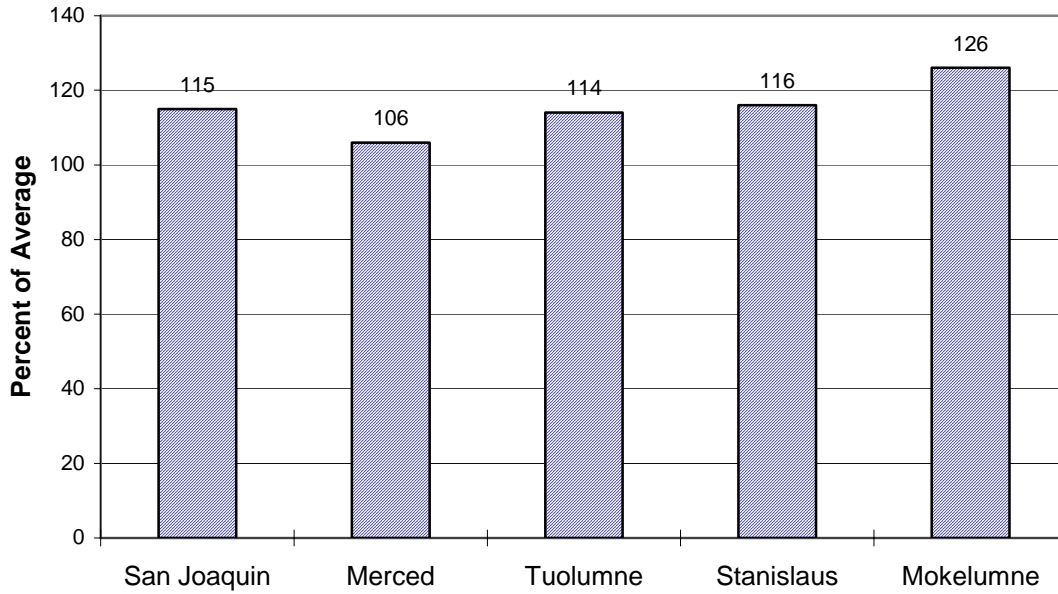


Seasonal Basin Snowpack Water Content in % of April 1 Average

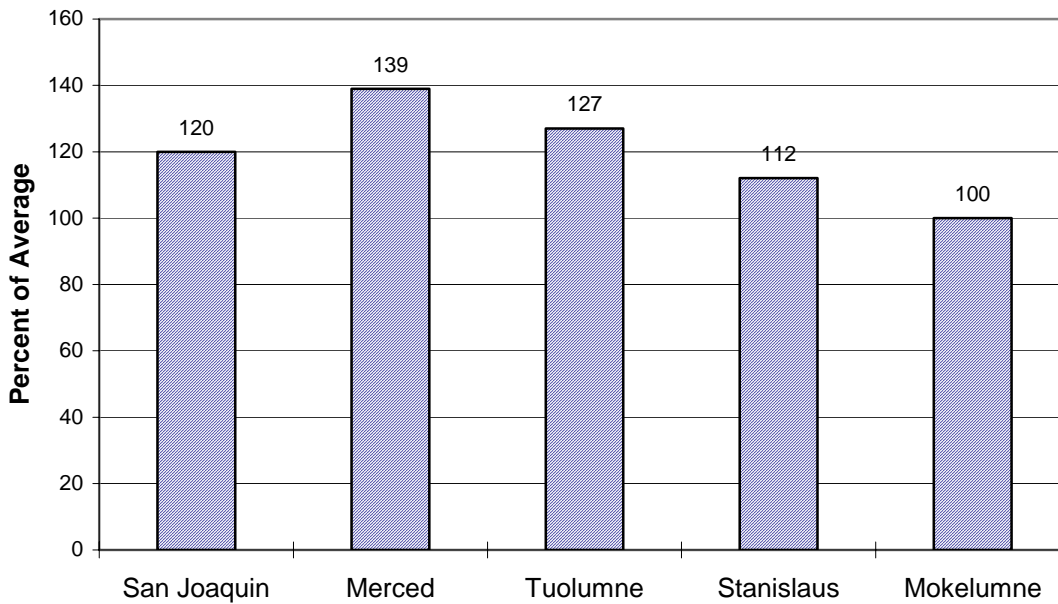


San Joaquin Basin

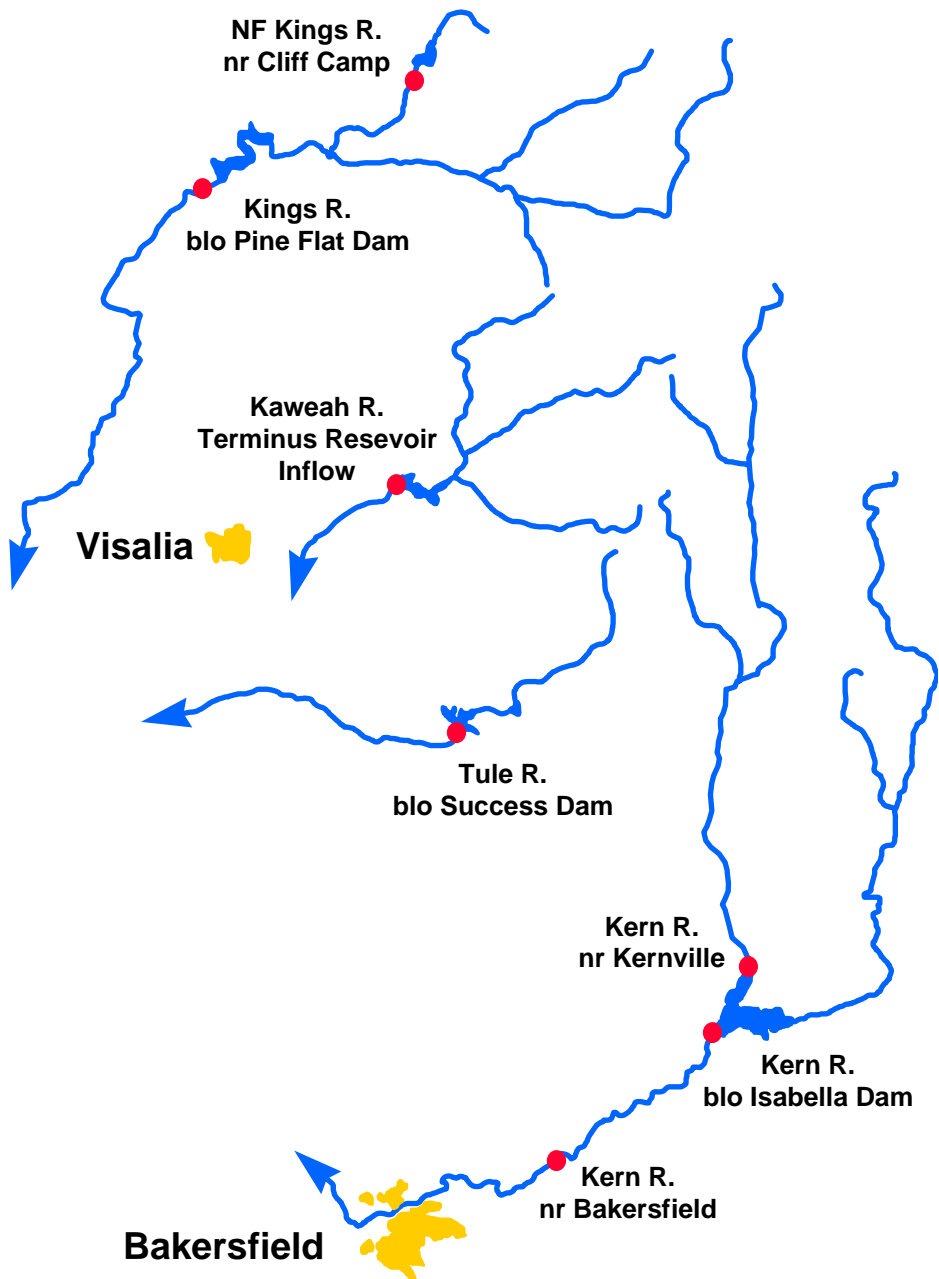
Basin Reservoir Storage Contents of Major Reservoirs in % of Average



Season Basin Runoff October 1 to Date



Tulare Basin

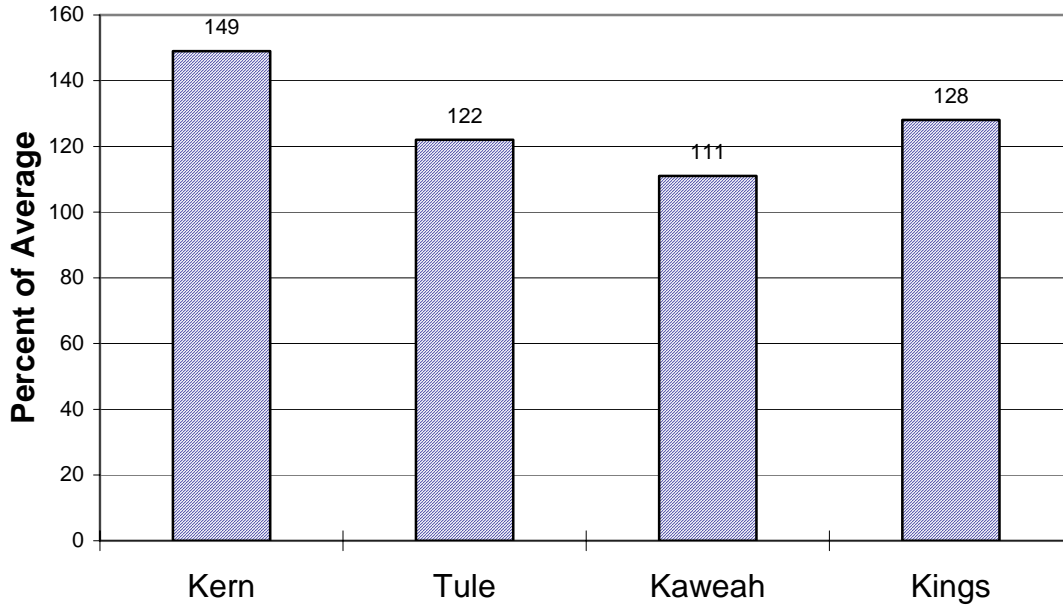


Water Supply Forecasts

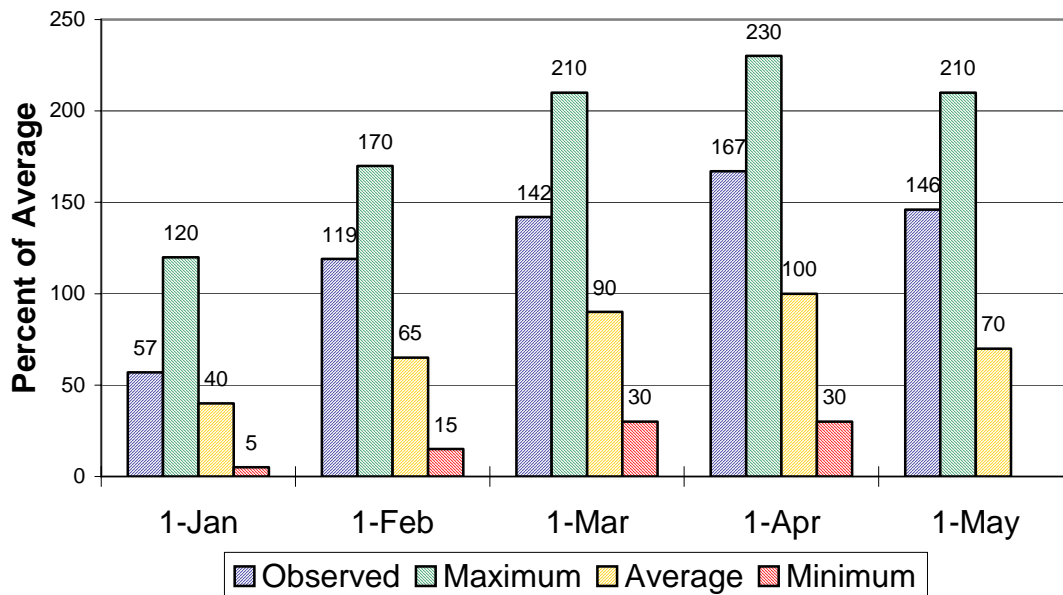
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
Kern River						
Kernville, nr	Apr-Jul	490	123	605	380	398*
Isabella Dam, blo	Apr-Jul	610	127	770	470	480
Bakersfield, nr	Apr-Jul	630	129	810	480	490
Tule River						
Success Dam	Apr-Jul	75	114	110	40	66
Kaweah River						
Terminus Dam	Apr-Jul	380	131	500	260	290
NF Kings River						
Cliff Camp, nr	Apr-Jul	310	129	390	230	240*
Kings River						
Pine Flat Dam, blo	Apr-Jul	1600	128	1950	1250	1250

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Tulare Lake Basin Seasonal Precipitation October 1 to Date



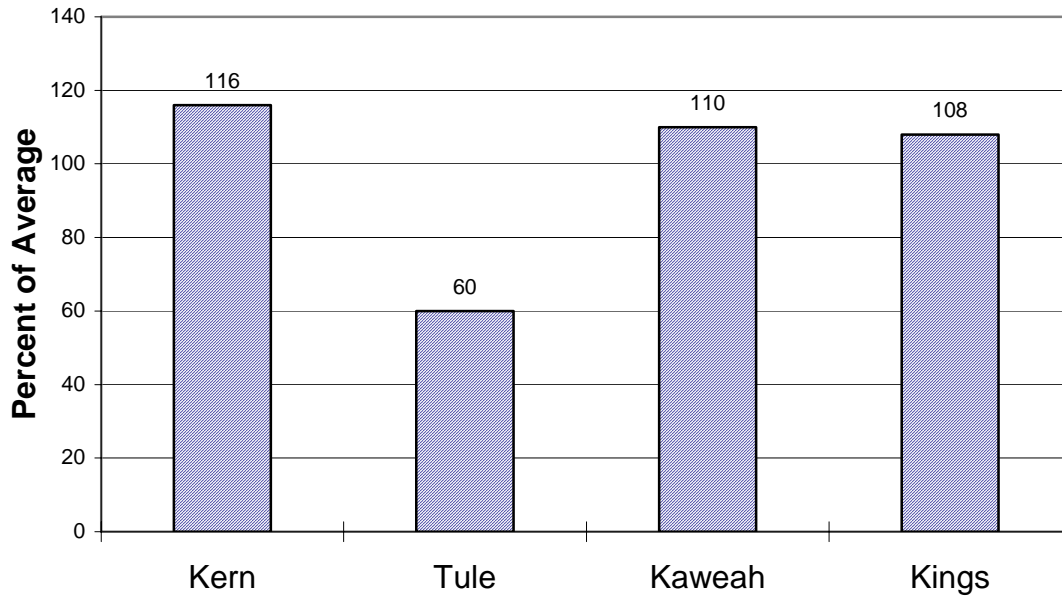
Seasonal Basin Snowpack Water Content in % of April 1 Average



Tulare Lake Basin

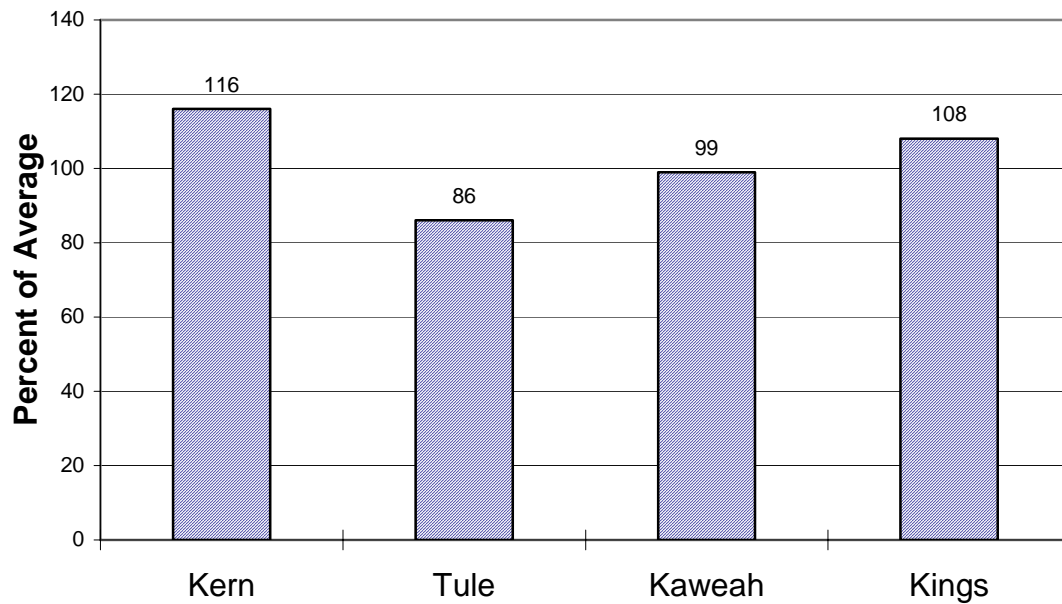
Basin Reservoir Storage

Contents of Major Reservoirs in % of Average

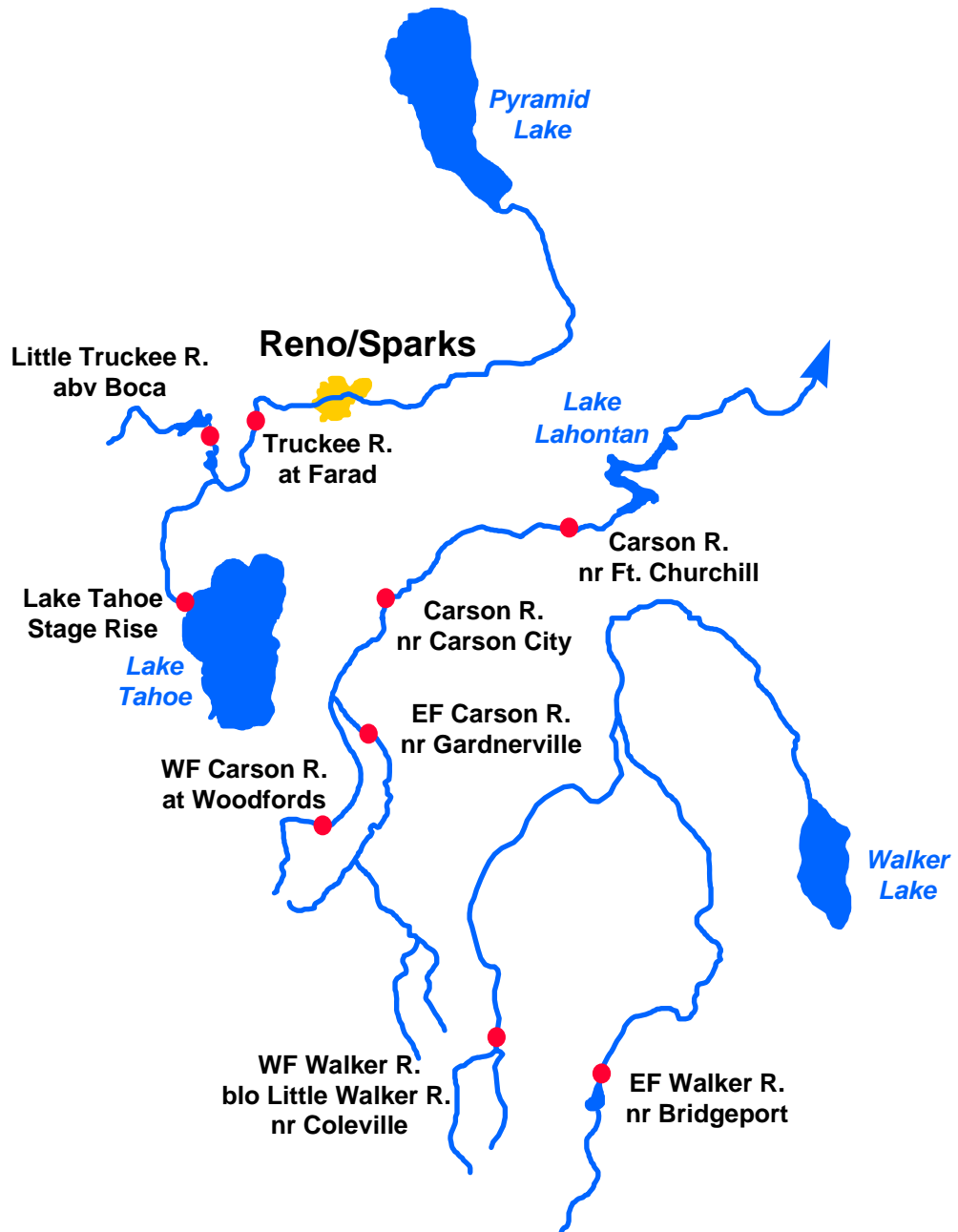


Seasonal Basin Runoff

October 1 to Date



East Side Sierra Nevada Basins



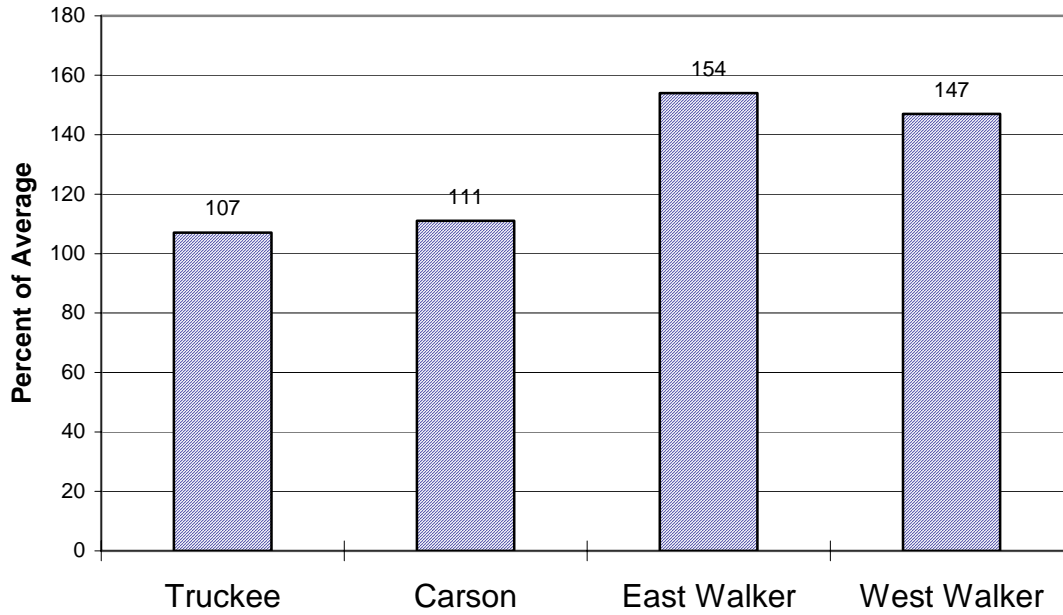
Water Supply Forecasts

		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	1.50	109	2.3	0.70	1.38
Ltl Truckee River						
Boca Res, abv, Truckee, nr	Apr-Jul	82	102	122	42	80
Truckee River						
Farad	Apr-Jul	270	104	375	164	260
Carson River						
EF Carson River						
Gardnerville, nr	Apr-Jul	230	122	285	177	189
WF Carson River						
Woodfords	Apr-Jul	68	121	83	53	56
Carson River						
Carson City, nr	Apr-Jul	235	125	305	167	188
Fort Churchill, nr	Apr-Jul	240	135	315	167	178
Walker River						
East Walker River						
Bridgeport, nr	Apr-Aug	95	142	111	79	67
West Walker River						
Ltl Walker, blo, Coleville, nr	Apr-Jul	215	138	275	158	156

East Side Sierra Nevada Basins

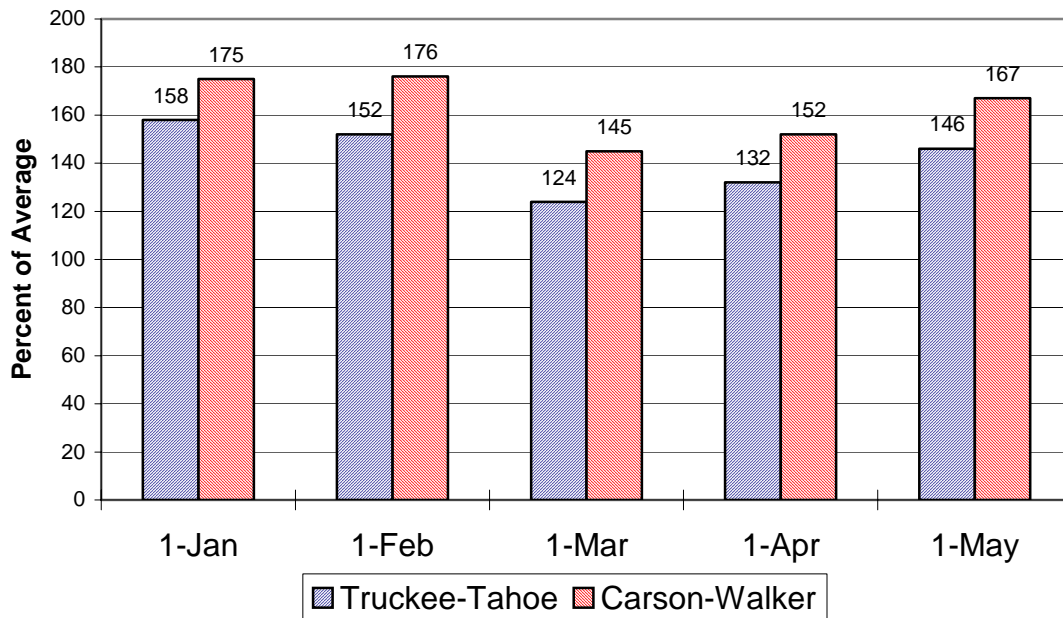
Seasonal Basin Precipitation

October 1 to Date



Basin Snowpack

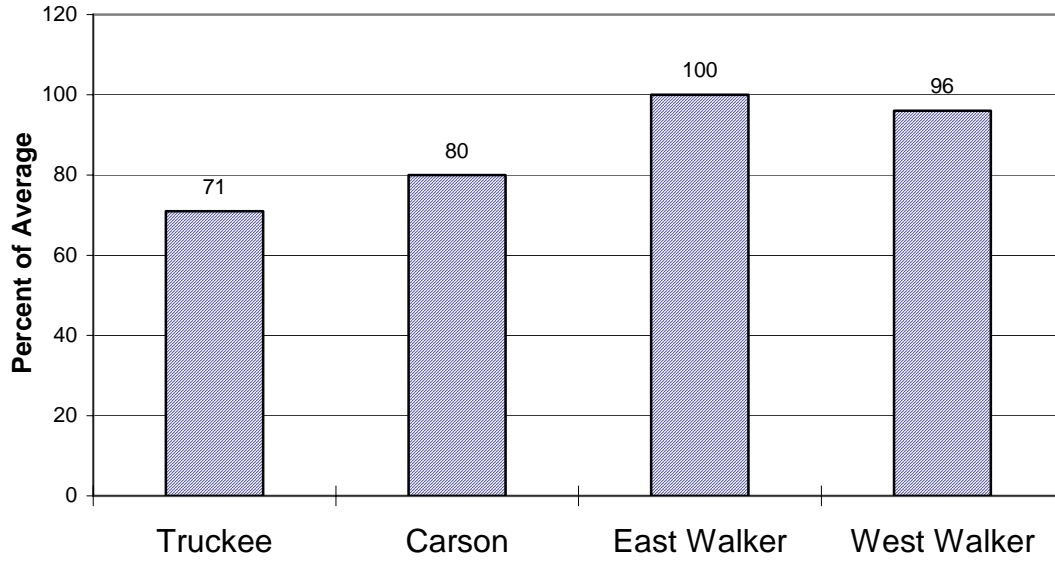
% of Average SWE to Date



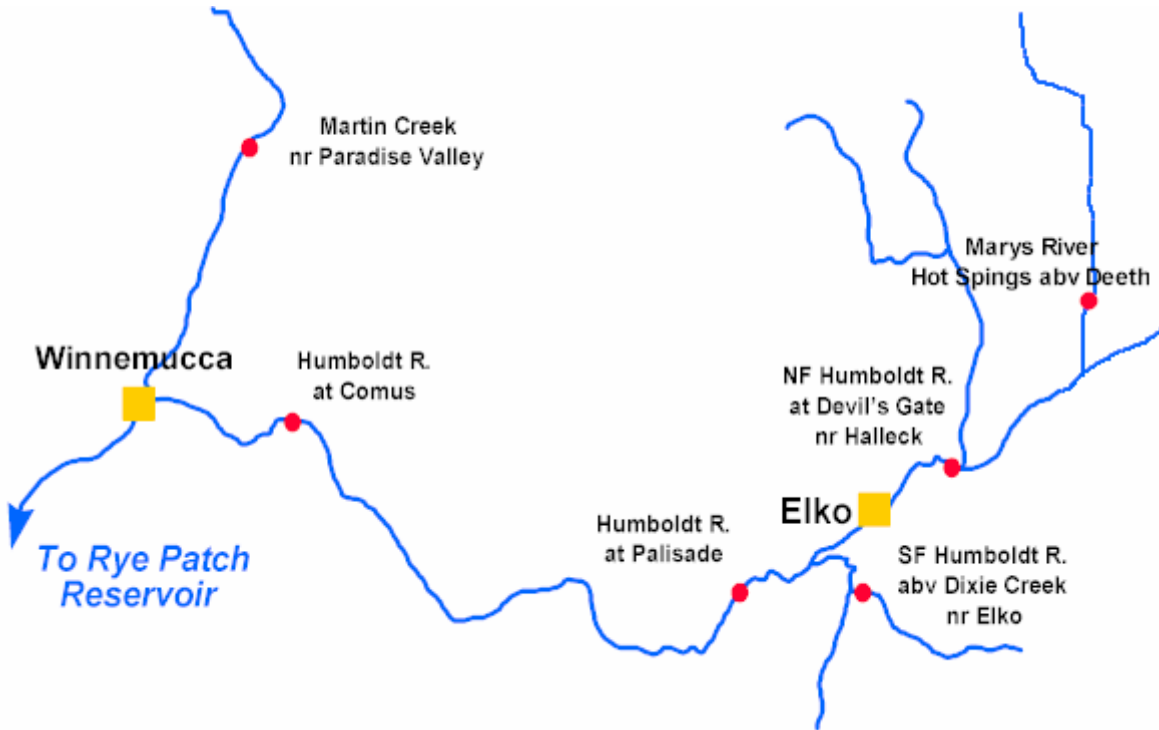
East Side Sierra Nevada Basins

Seasonal Basin Runoff

October 1 to Date



Humboldt River Basin



Water Supply Forecasts

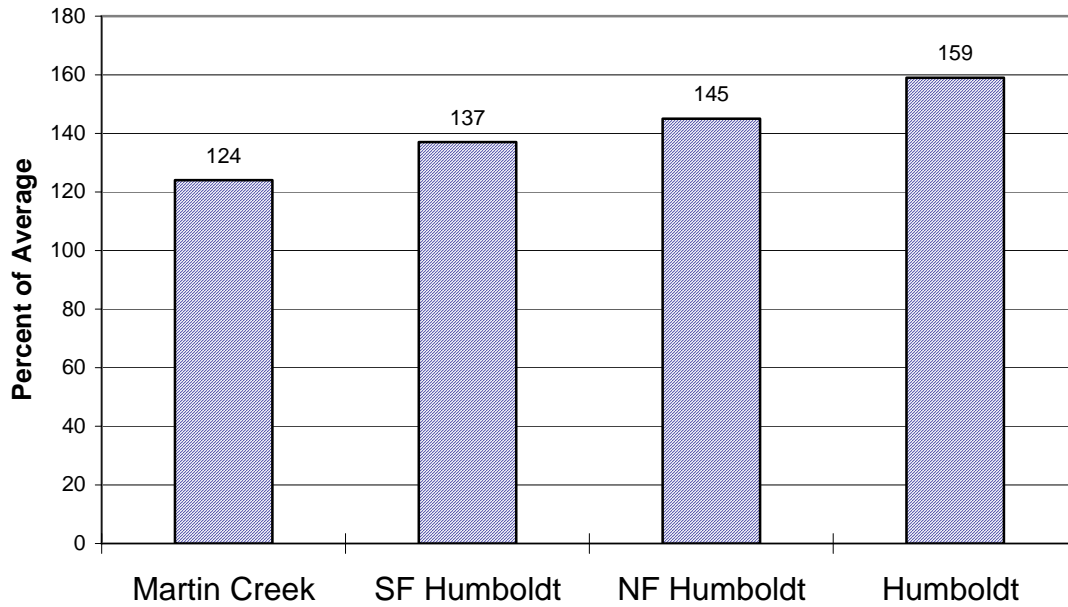
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
<hr/>						
NF Humboldt River						
Devl's Gate, at, Halleck, nr	Apr-Jul	37	109	55	20	34*
SF Humboldt River						
Dixie Ck, abv, Elko, nr	Apr-Jul	85	112	115	55	76
Marys River						
Hot Springs, abv, Deeth, nr	Apr-Jul	42	108	60	25	39
Humboldt River						
Palisade	Apr-Jul	260	104	410	110	250
Comus	Apr-Jul	235	104	370	100	225
Martin Ck						
Paradise Vly, nr	Apr-Jul	16.0	86	24	8.0	18.7

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Humboldt River Basin

Seasonal Basin Precipitation

October 1 to Date



Basin Snowpack

% of Average SWE to Date

