

WATER SUPPLY OUTLOOK



CALIFORNIA AND NORTHERN NEVADA

**JANUARY
2004**



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, 2004

Water year 2004 started off with a dry October and a generally below average to average November. However, significant rain and snow fell in December. Although blessed with another good start to the water supply season, the early outlook of the stream flow conditions this spring indicate average to below average runoff. This year's water supply picture should become much clearer during the next two months.

December rainfall amounts were 185 percent in the Sacramento basin, 205 percent in the San Joaquin, and 155 percent in the Tulare Lake basin. The Truckee basin received 190 percent, the Carson 175 percent and the Walker 195 percent. About 180 percent of the December average fell in the Humboldt basin and about 120 percent in the upper Klamath basin.

The December storms brought good accumulation to the Sierra snow pack. The monthly averages are 160 percent in the northern Sierra basin, 135 percent for the central Sierra, and 125 percent in the southern Sierra. The April 1st average stands at 59 percent in the northern Sierra, 50 percent for the central Sierra and 42 percent in the southern Sierra. Snow packs in the Carson-Walker and Tahoe-Truckee basins are at 145 percent of the average-to-date, the Humboldt at 135 percent and the upper Klamath basin at 125 percent.

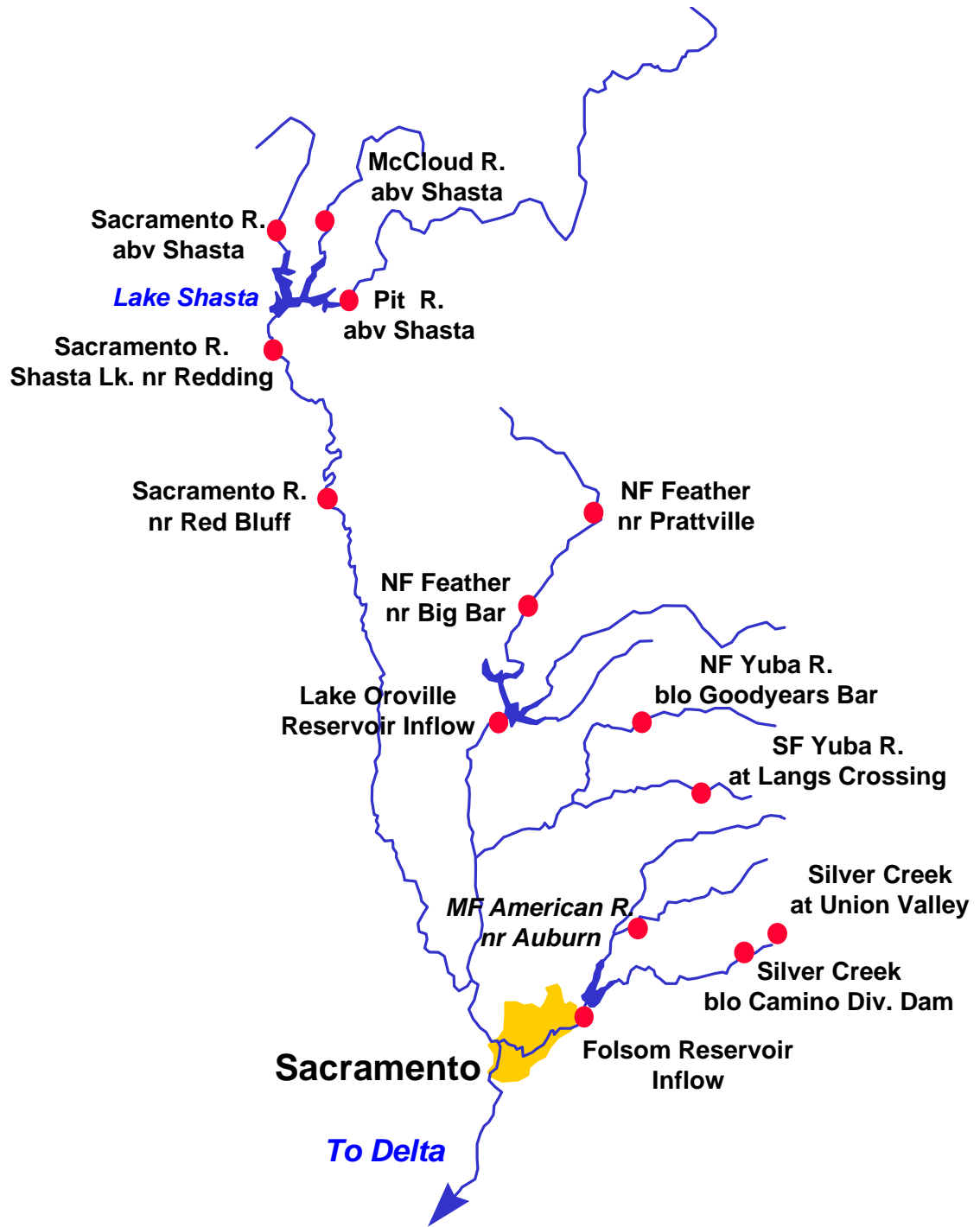
Runoff was 131 percent of the December average for the Trinity at Lewiston, followed by 119 percent for the Shasta Lake Inflow and 104 for the Feather Inflow to Oroville. Amounts then generally taper downward to a low of 61 percent for the Merced inflow to Exchequer. It was only 36 percent of the monthly average for the Humboldt River at Palisade while the upper Klamath Inflow received 80 percent.

December 31st storage conditions are near to slightly above average for most of the major reservoirs in California's central valley. The notable exceptions are Pine Flat Reservoir at 50 percent of average and Lake McClure at 84 percent. Reservoir storage in the Sacramento basin was at 100 percent of average, the San Joaquin at 102 percent, and the Tulare Lake basin at 69 percent. East-side reservoirs are at 39 percent of average. Storage at Rye Patch Reservoir in Nevada is at only 14 percent of the average-to-date while Lahontan Reservoir stands at 75 percent. The Upper Klamath Lake is about 67 percent of average. Most of the major reservoirs in California started the water year with good carryover storage.

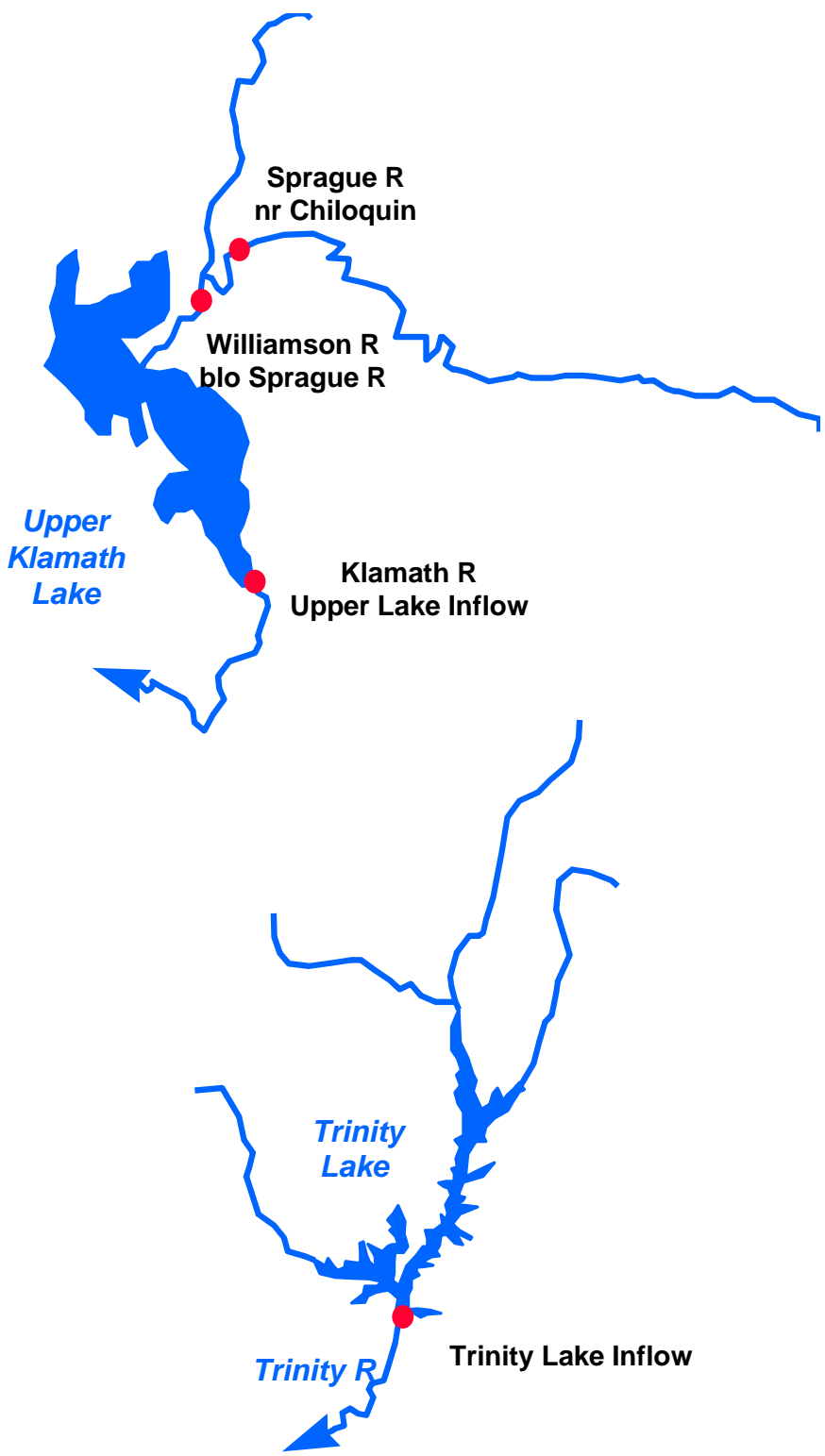
The April through July runoff forecasts range from 117 percent for the Trinity basin to 82 percent for the Kern. Forecasts vary from 81 to 99 percent for the east-side Sierra basins, and 71 to 90 percent for the Humboldt basin of northern Nevada. The March through September forecast for the upper Klamath basin is 78 percent.

The Water Supply Outlook is available 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
COASTAL BASINS						
Williamson River Sprague, blo	Mar-Sep	410	81	540	280	505
Sprague River Chiloquin, nr	Mar-Sep	230	75	305	153	305
Upper Klamath Falls River Inflow	Mar-Sep	560	78	720	395	715
Lost River Gerber Reservoir Inflow	Feb-Jul	33	70	47	14.1	47
Clear Lake Reservoir Inflow	Feb-Jul	85	81	106	30	105
Trinity River Trinity Lake Inflow	Apr-Jul	740	117	1100	375	635
SACRAMENTO RIVER BASIN						
SACRAMENTO RIVER ABOVE BEND BRIDGE						
Pit River Montgomery Ck, nr	Apr-Jul	1000	93	1290	705	1070
Mccloud River Shasta Lk, abv	Apr-Jul	370	100	505	235	370
Sacramento River Delta	Apr-Jul	300	103	470	132	290
Shasta Lake, Redding, nr	Apr-Jul	1750	98	2440	1060	1790
Bend Bridge, abv, Red Bluff, nr	Apr-Jul	2350	96	3390	1310	2440
FEATHER RIVER ABOVE OROVILLE RESERVOIR						
NF Feather River Prattville, nr	Apr-Jul	300	90	415	183	333*
Big Bar	Apr-Jul	910	95	1350	480	962*
Feather River Oroville Reservoir Inflow	Apr-Jul	1780	101	2680	880	1760

Water Supply Forecasts

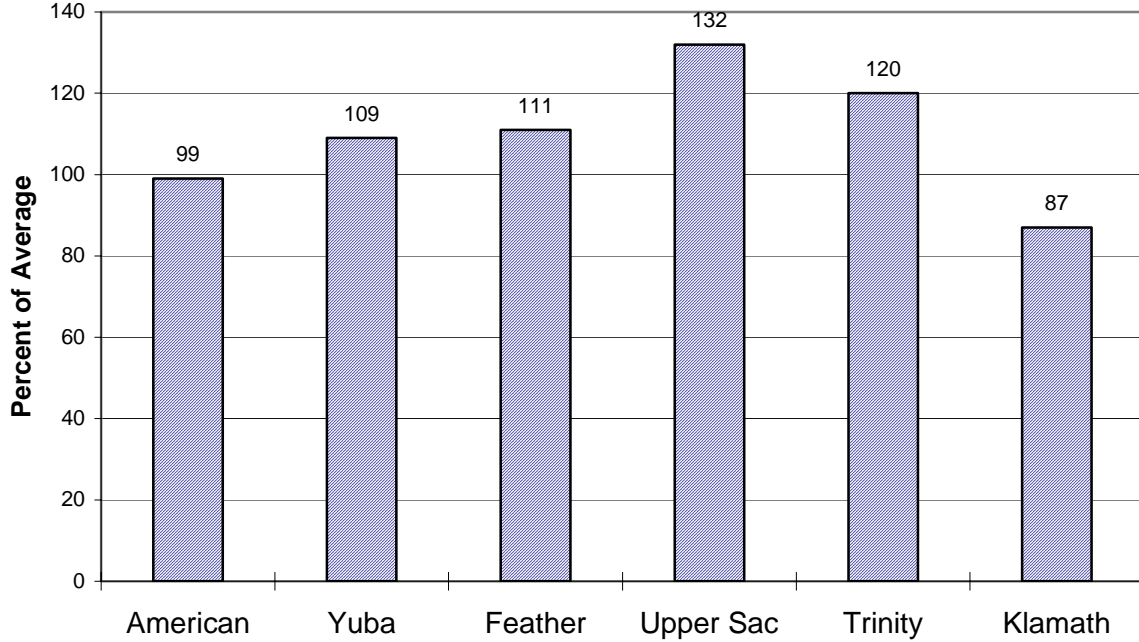
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
YUBA RIVER ABOVE SMARTVILLE						
North Yuba River						
Goodyears Bar, blo	Apr-Jul	265	97	415	113	273*
South Yuba River						
Langs Crossing	Apr-Jul	215	96	345	87	225*
Yuba River						
Smartville, nr	Apr-Jul	970	97	1530	415	995
AMERICAN RIVER ABOVE FOLSOM RESERVOIR						
MF American River						
Auburn, nr	Apr-Jul	480	98	755	205	490*
Silver Ck						
Union Valley	Apr-Jul	95	97	148	42	98*
Camino Dam, blo	Apr-Jul	155	98	240	71	158*
American River						
Folsom Reservoir Inflow	Apr-Jul	1200	98	1890	515	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

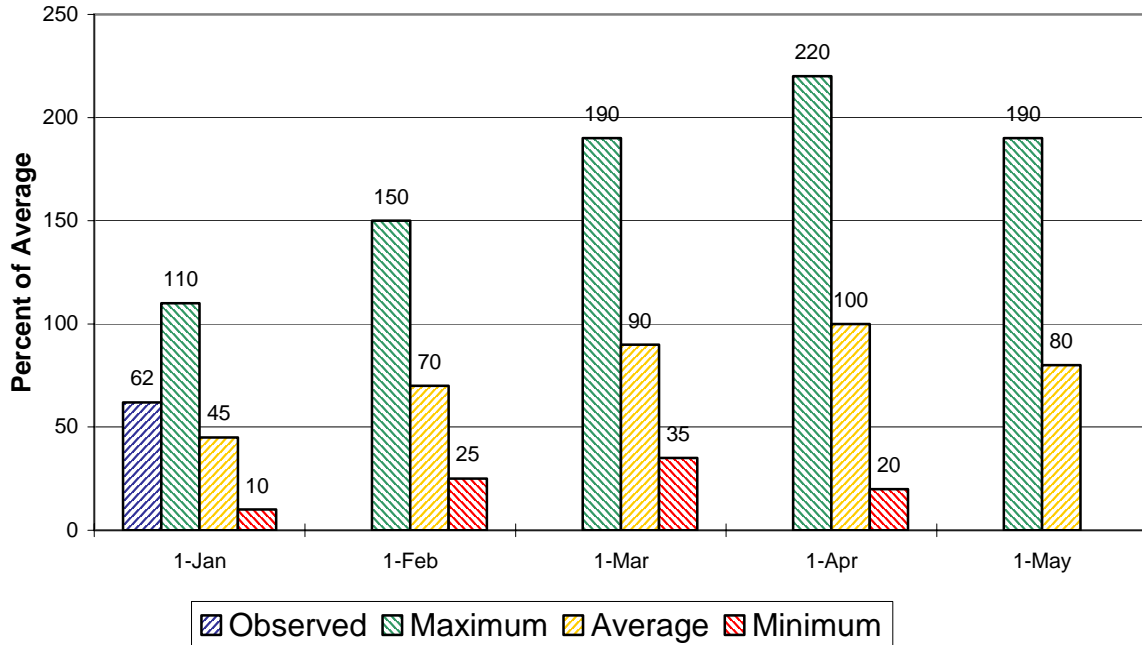
Seasonal Basin Precipitation

October 1 to Date



Seasonal Basin Snowpack

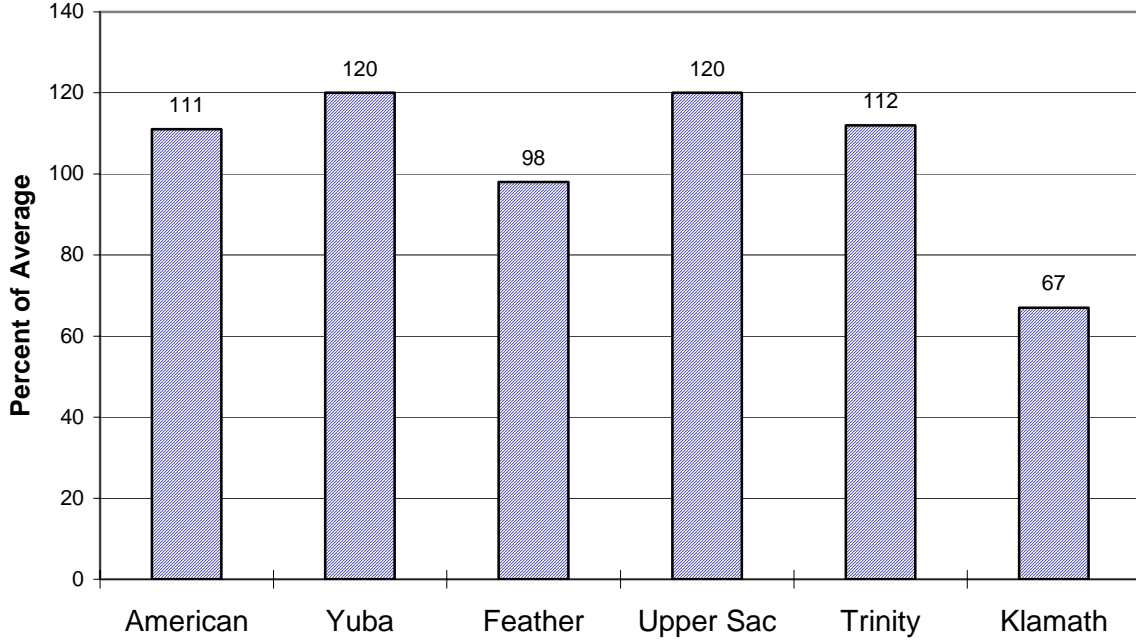
Water Content in % of April 1 Average



Sacramento/Trinity/Klamath River Basins

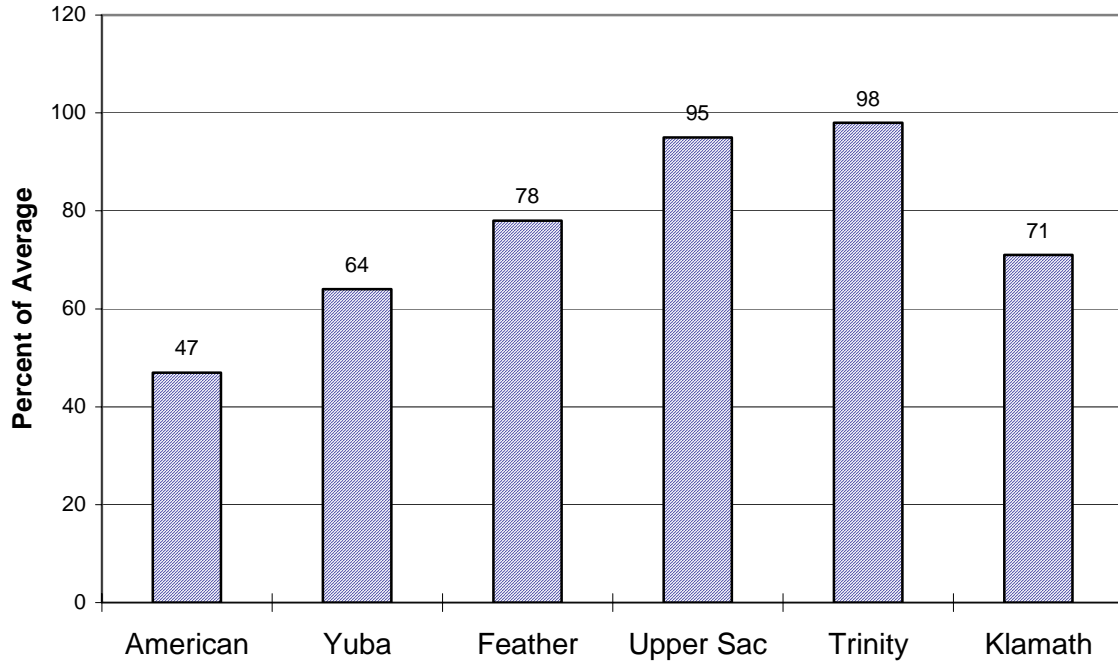
Basin Reservoir Storage

Contents of Major Reservoirs in % of Average



Seasonal Basin Runoff

October 1 to Date



San Joaquin Basin



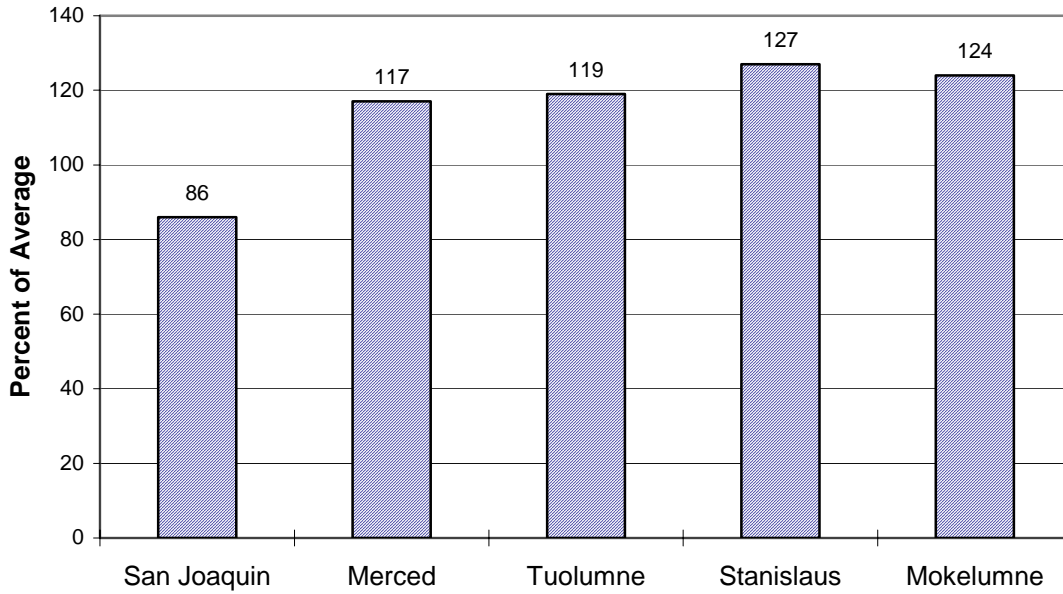
Water Supply Forecasts

		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
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SF San Joaquin River						
Hooper Ck, blo, Florence Lk, n	Apr-Jul	180	94	305	80	192*
San Joaquin River						
Millerton Lk	Apr-Jul	1170	92	2080	500	1270
Merced River						
Pohono Bridge, at, Yosemite, n	Apr-Jul	360	100	600	160	360*
Merced Falls, blo	Apr-Jul	600	93	1080	220	645
Tuolumne River						
Hetch Hetchy, nr	Apr-Jul	580	97	1000	255	596*
La Grange, nr	Apr-Jul	1170	95	2000	500	1230
MF Stanislaus River						
Beardsley Dam, blo	Apr-Jul	310	97	515	125	320*
Stanislaus River						
Goodwin Dam, blo, Knights Ferr	Apr-Jul	680	98	1140	250	695
NF Mokelumne River						
West Point	Apr-Jul	400	96	735	225	416*
Mokelumne River						
Mokelumne Hill	Apr-Jul	440	96	725	240	460
Cosumnes River						
Michigan Bar	Apr-Jul	120	98	245	40	123

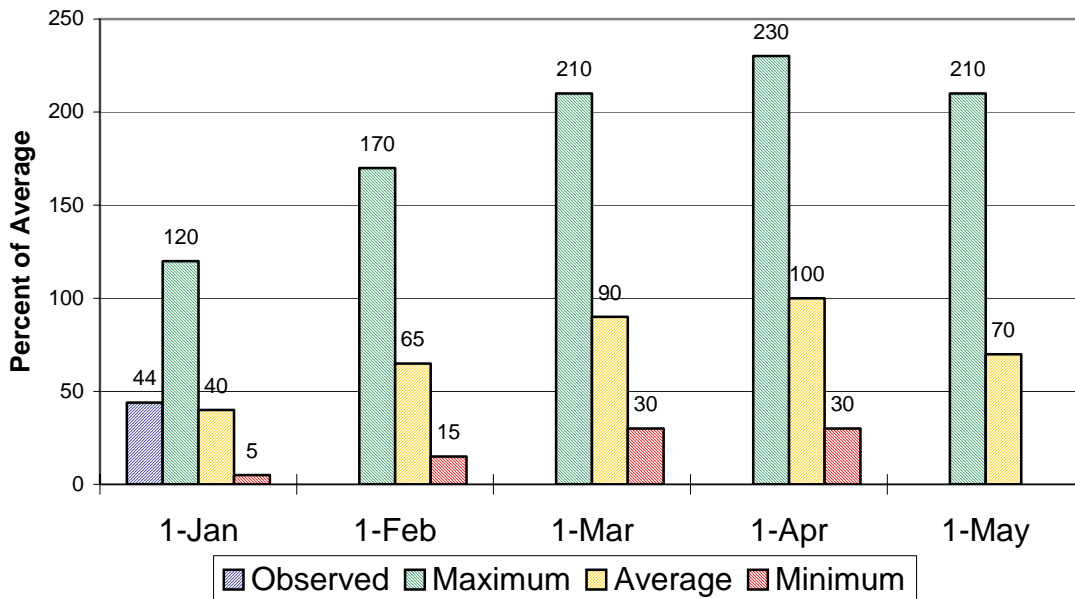
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San Joaquin Basin

Seasonal Basin Precipitation October 1 to Date

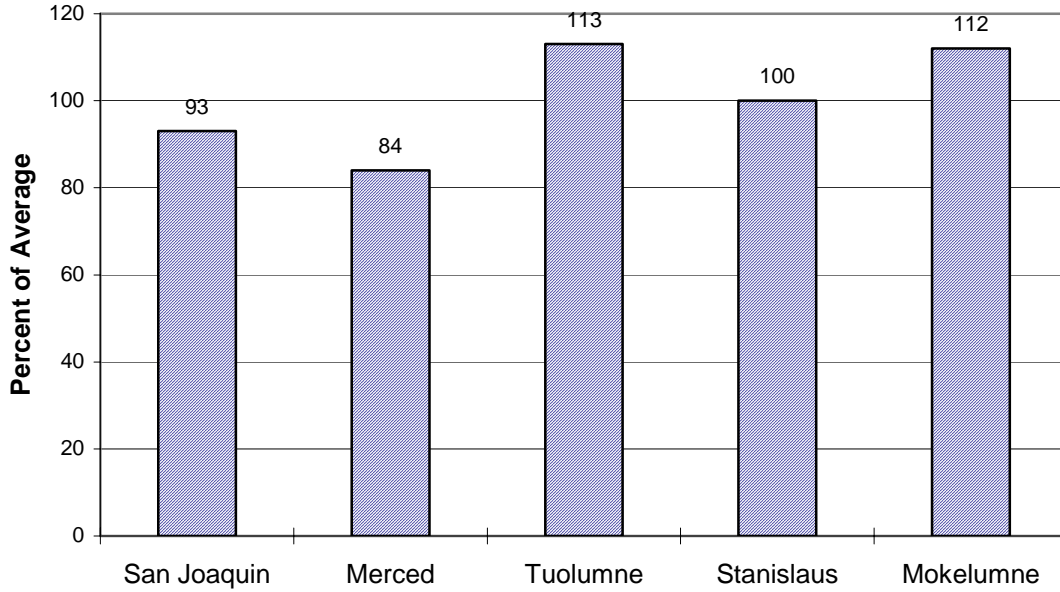


Seasonal Basin Snowpack Water Content in % of April 1 Average

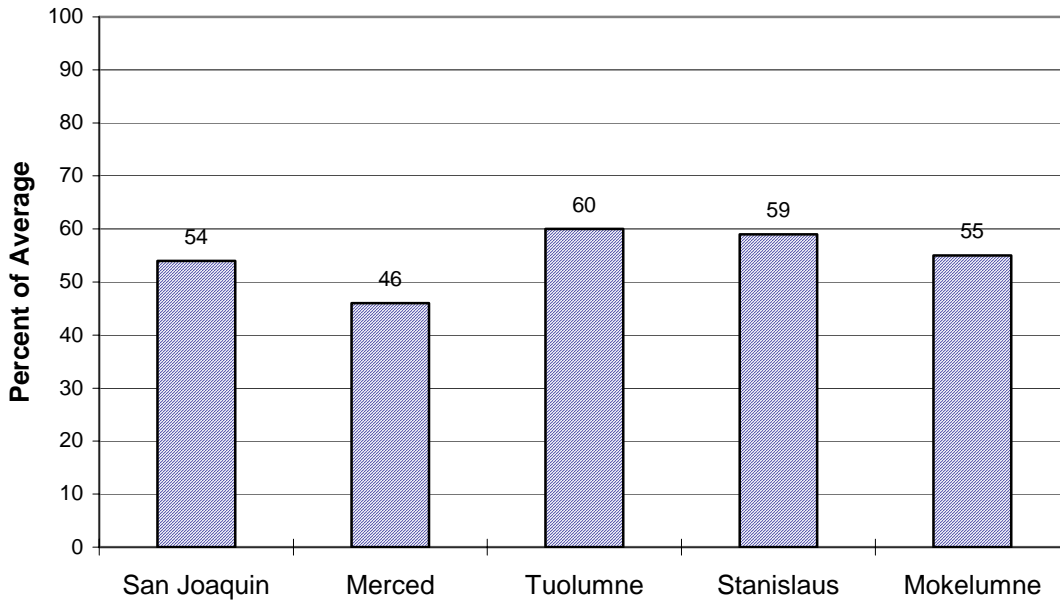


San Joaquin Basin

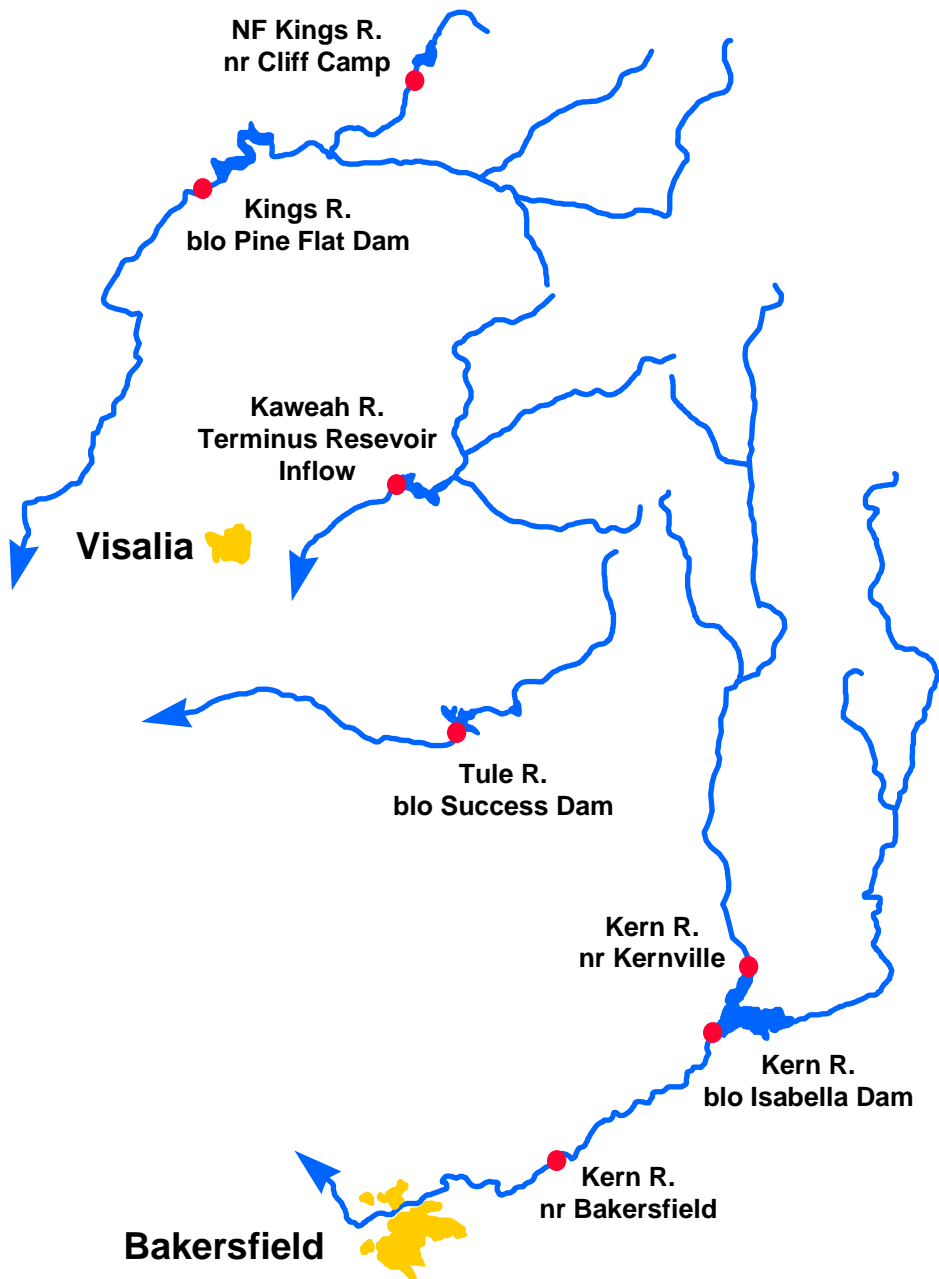
Basin Reservoir Storage Contents of Major Reservoirs in % of Average



Season Basin Runoff October 1 to Date



Tulare Basin

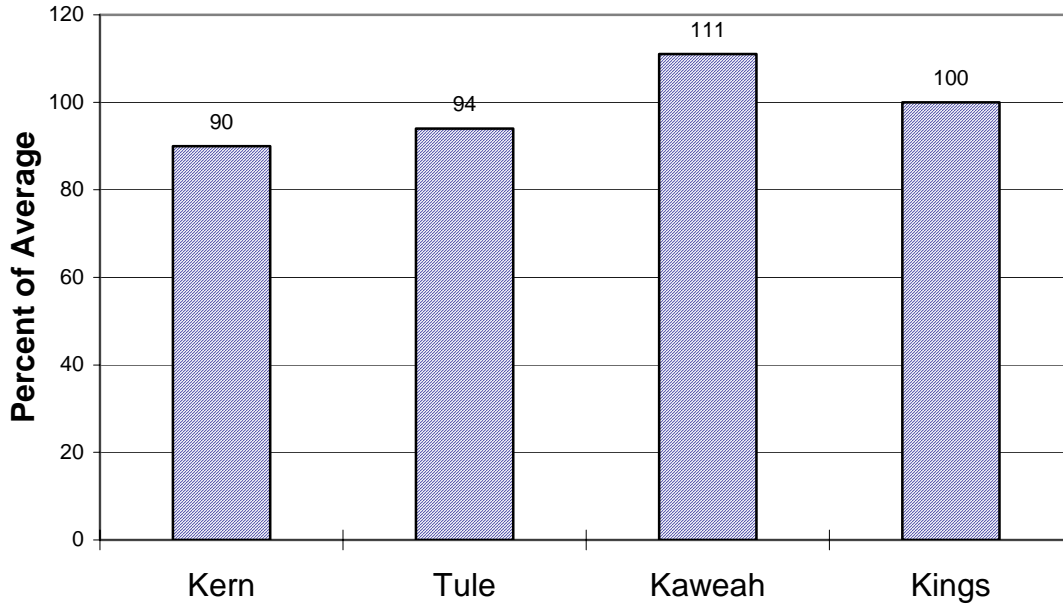


Water Supply Forecasts

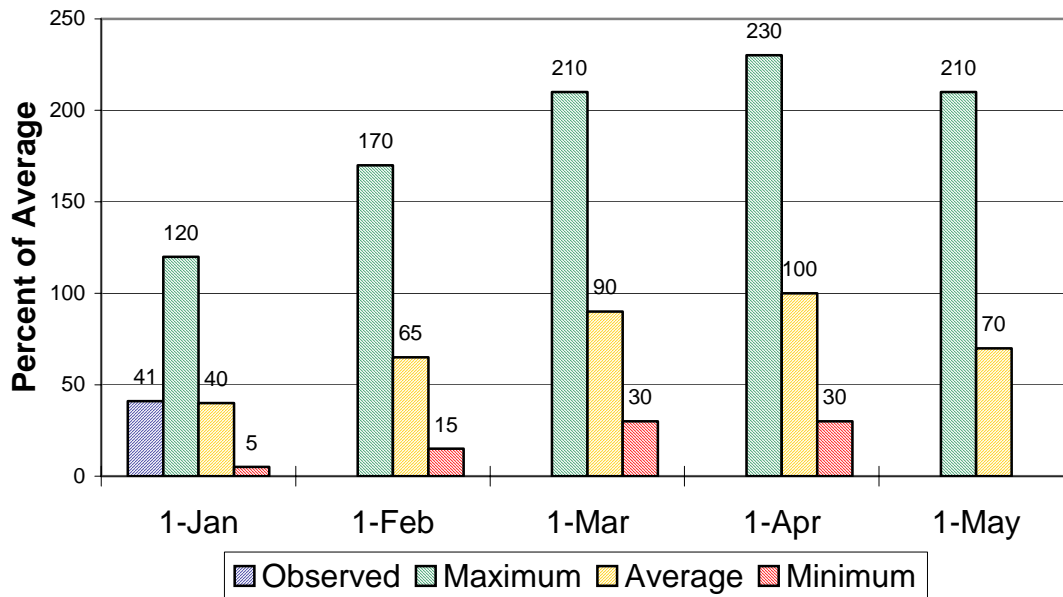
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
Kern River						
Kernville, nr	Apr-Jul	325	82	695	125	398*
Isabella Dam, blo	Apr-Jul	390	81	800	140	480
Bakersfield, nr	Apr-Jul	400	82	820	150	490
Tule River						
Success Dam	Apr-Jul	60	91	130	20	66
Kaweah River						
Terminus Dam	Apr-Jul	280	97	525	100	290
NF Kings River						
Cliff Camp, nr	Apr-Jul	210	88	385	100	240*
Kings River						
Pine Flat Dam, blo	Apr-Jul	1100	88	2030	500	1250

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Tulare Lake Basin Seasonal Precipitation October 1 to Date

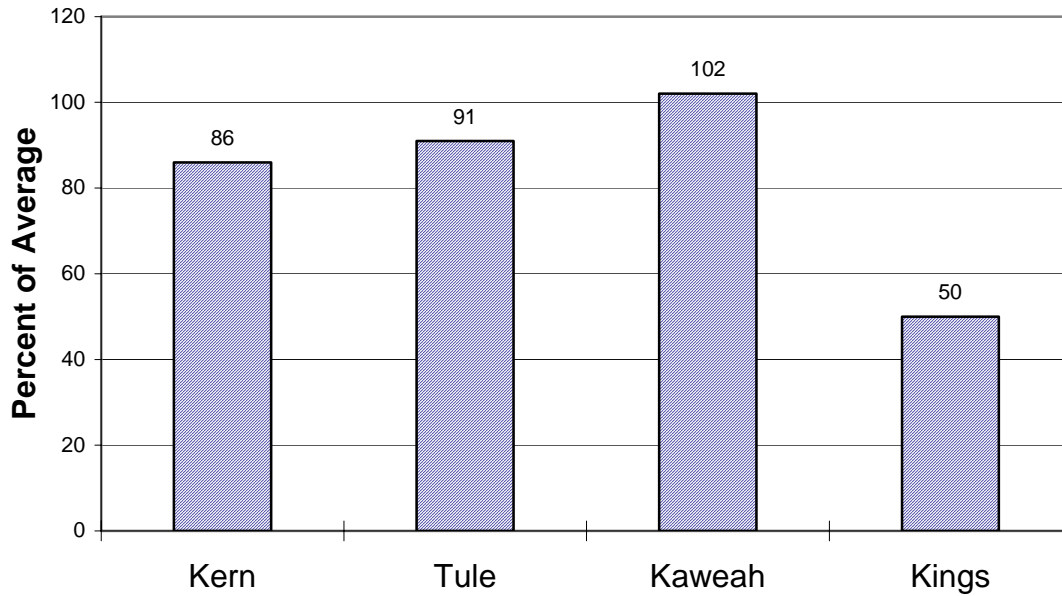


Seasonal Basin Snowpack Water Content in % of April 1 Average

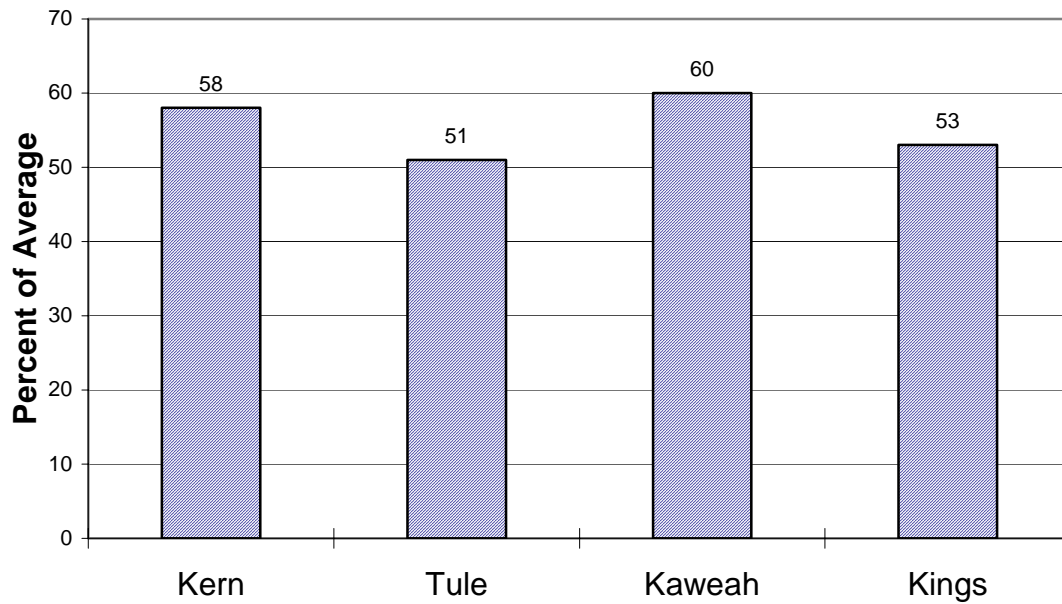


Tulare Lake Basin

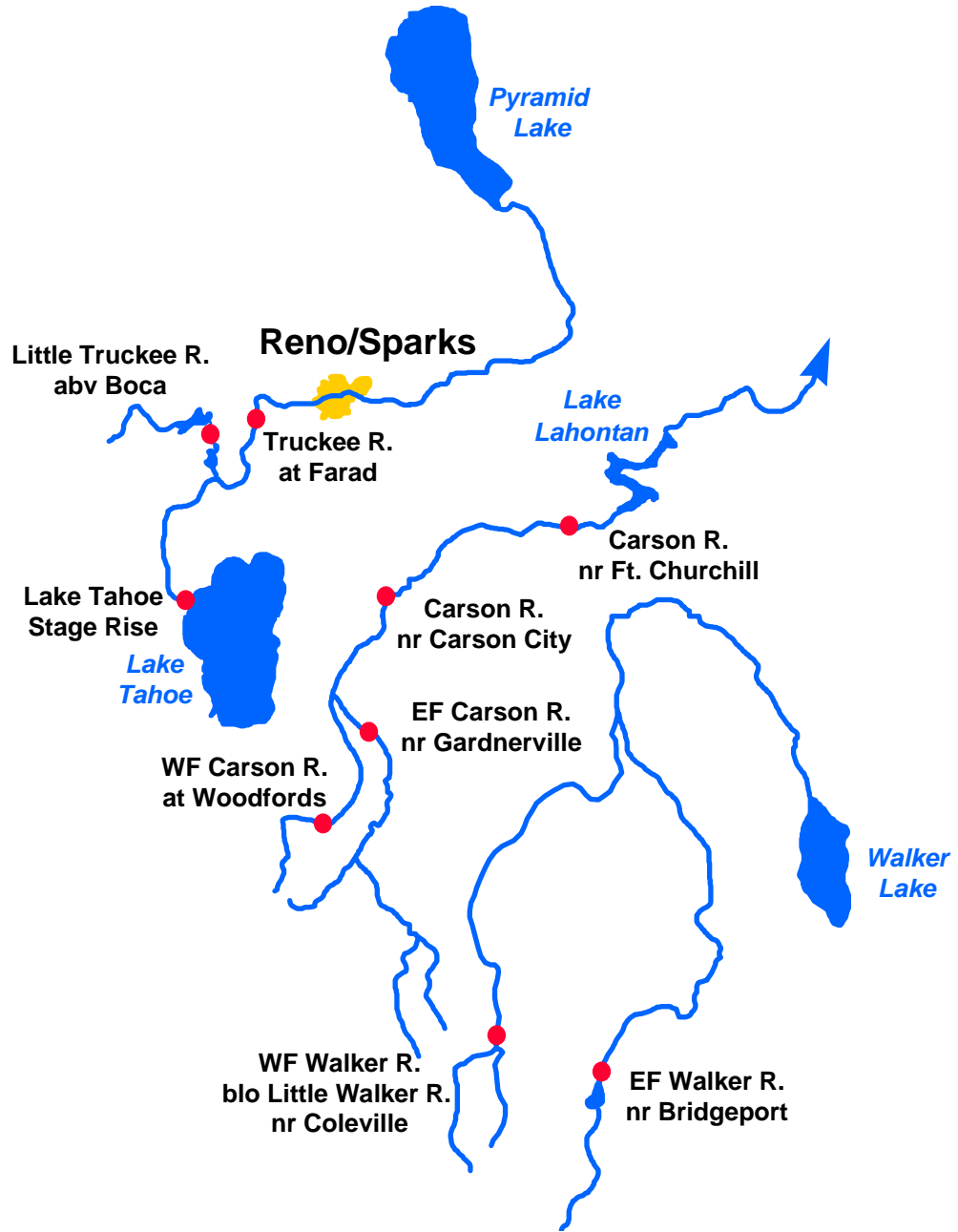
Basin Reservoir Storage Contents of Major Reservoirs in % of Average



Seasonal Basin Runoff October 1 to Date



East Side Sierra Nevada Basins



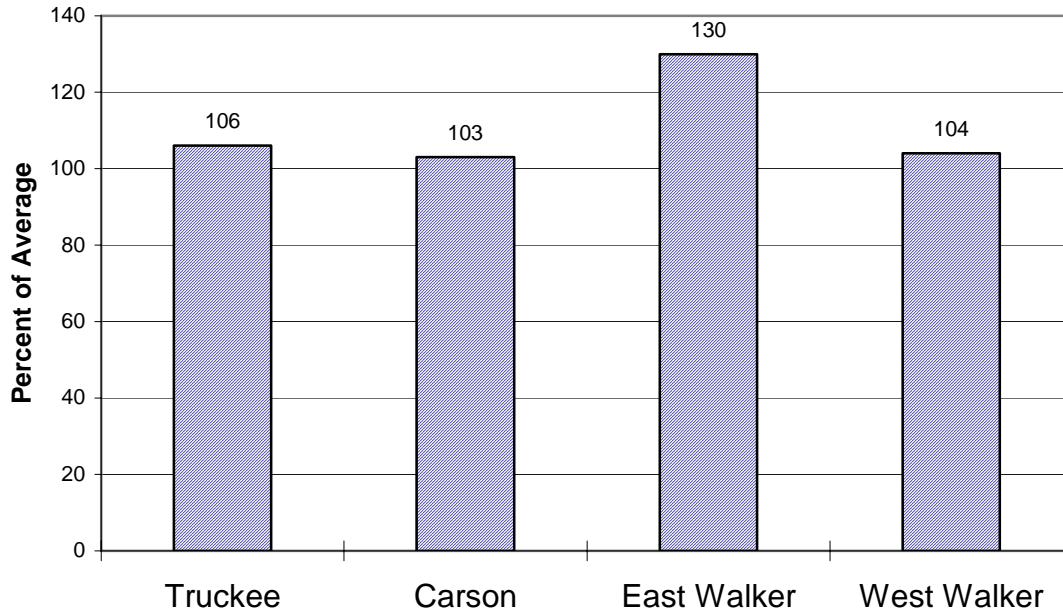
Water Supply Forecasts

		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	1.25	91	1.82	0.69	1.38
Ltl Truckee River						
Boca Res, abv, Truckee, nr	Apr-Jul	70	88	105	36	80
Truckee River						
Farad	Apr-Jul	225	87	350	104	260
Carson River						
EF Carson River						
Gardnerville, nr	Apr-Jul	160	85	225	95	189
WF Carson River						
Woodfords	Apr-Jul	50	89	74	25	56
Carson River						
Carson City, nr	Apr-Jul	155	82	245	66	188
Fort Churchill, nr	Apr-Jul	145	81	230	61	178
Walker River						
East Walker River						
Bridgeport, nr	Apr-Aug	57	85	84	30	67
West Walker River						
Ltl Walker, blo, Coleville, nr	Apr-Jul	155	99	225	83	156

East Side Sierra Nevada Basins

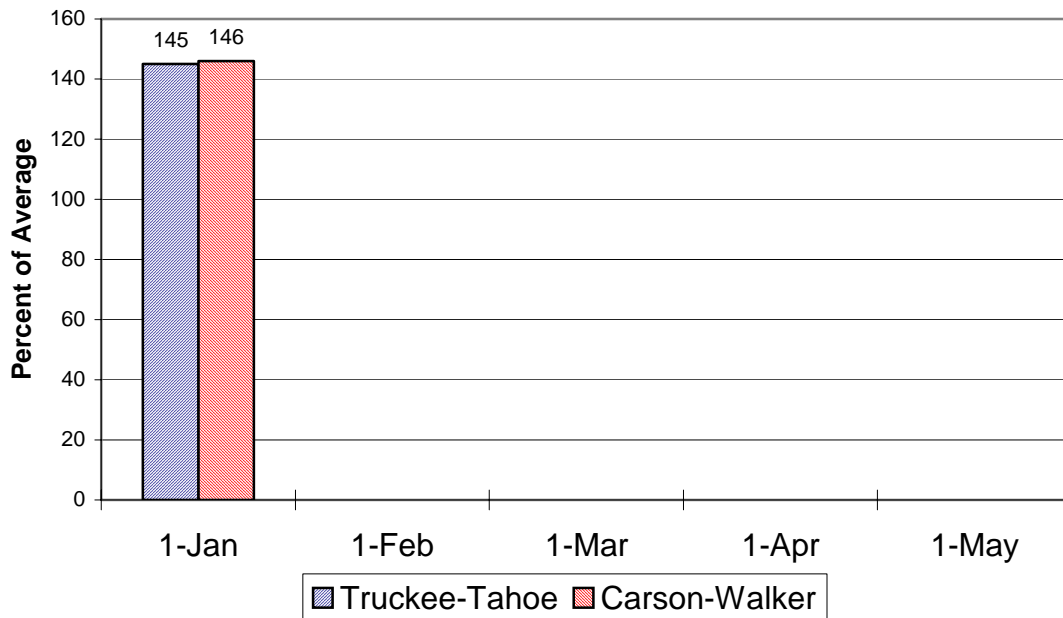
Seasonal Basin Precipitation

October 1 to Date



Basin Snowpack

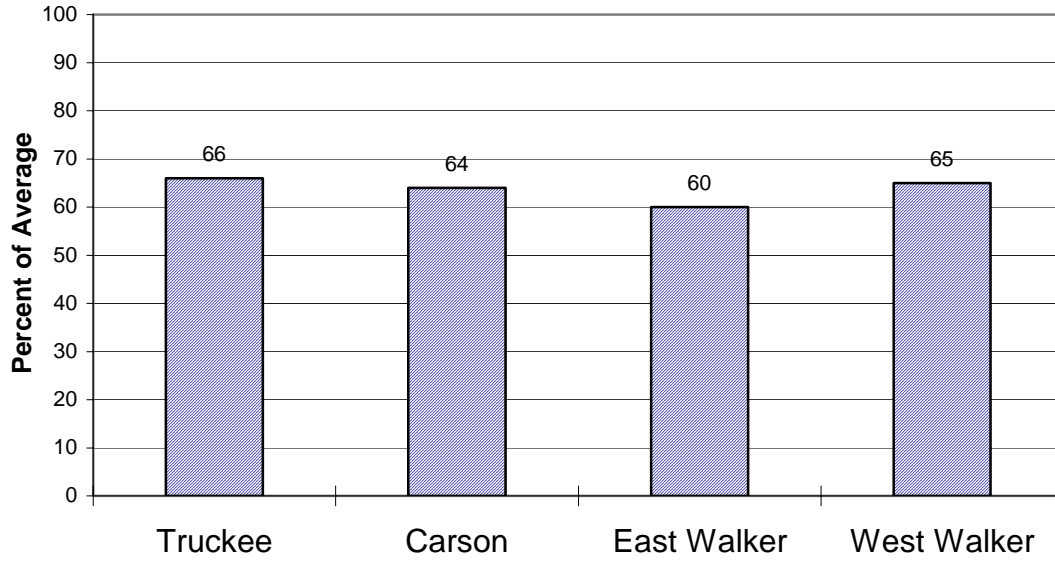
% of Average SWE to Date



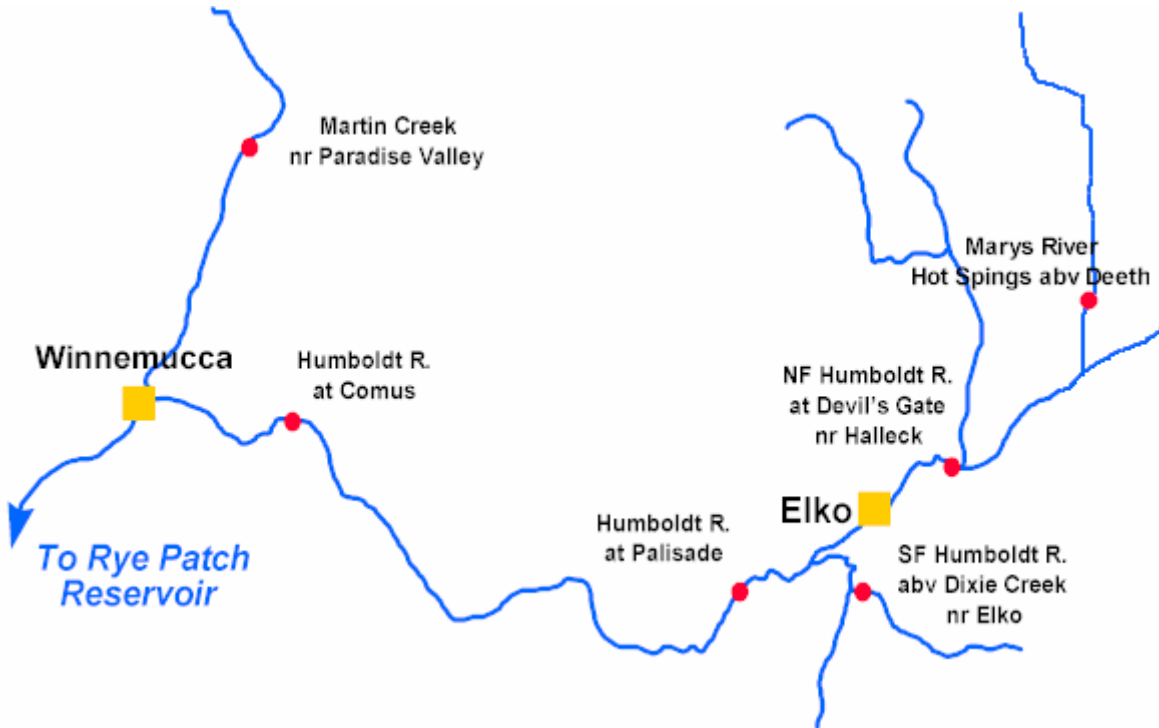
East Side Sierra Nevada Basins

Seasonal Basin Runoff

October 1 to Date



Humboldt River Basin



Water Supply Forecasts

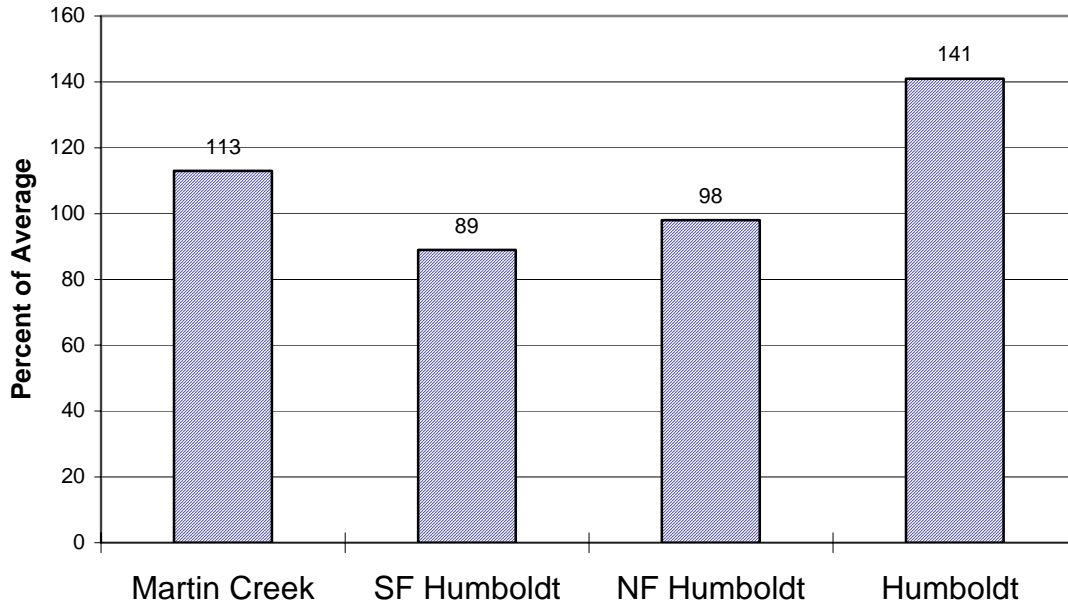
		Most Prob Vol KAF	Most Prob %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
<hr/>						
NF Humboldt River						
Devlis Gate, at, Halleck, nr	Apr-Jul	30	88	53	8.0	34*
SF Humboldt River						
Dixie Ck, abv, Elko, nr	Apr-Jul	60	79	120	20	76
Marys River						
Hot Springs, abv, Deeth, nr	Apr-Jul	35	90	70	12.0	39
Humboldt River						
Palisade	Apr-Jul	190	76	360	60	250
Comus	Apr-Jul	160	71	340	50	225
Martin Ck						
Paradise Vly, nr	Apr-Jul	15.0	80	25	5.0	18.7

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Humboldt River Basin

Seasonal Basin Precipitation

October 1 to Date



Basin Snowpack

% of Average SWE to Date

