Water Supply Outlook

May 2003

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

May 1, 2003

Cool and wet weather was predominant during April, improving the water supply picture and reducing some of the deficit that occurred during the preceding three months. As a result, the April-July stream flow forecasts have been increased from last month with near average to above average runoff now expected for the watersheds in the Sacramento region. However, flows are projected to be below to much below average for the Tulare, Klamath and Humboldt basins.

April rainfall was much above average in all water supply basins. Monthly amounts vary from 180 percent in the Kern basin to 375 percent in the Trinity. The Carson basin received 230 percent of the April average; it was 225 percent in the Truckee, 215 percent in the Walker and 180 percent in the Humboldt basin. Seasonal averages range from 80 percent in the upper San Joaquin basin to 125 percent in the Trinity.

Snow pack water equivalent increased in April, especially in the northern Sierra. The May 1st average ranges from 115 percent in the Sacramento region, 100 percent in the San Joaquin, and 70 percent in the Tulare. Overall, the Sierra snow pack is at 105 percent of the May 1st average and 80 percent of the April 1st average. The May 1st average was 60 percent at this time last year. Snow packs in the Tahoe-Truckee and the Carson-Walker basins are about 115 percent of the average-to-date, the upper Klamath at 100 percent and the Humboldt, 90 percent.

Runoff in April ranged from 106 percent in the Sacramento region, 79 percent in the San Joaquin and 67 percent for the Tulare. East side Sierra streams recorded 63 percent of the monthly average. It was only 18 percent of the April average for the Humboldt River at Palisade.

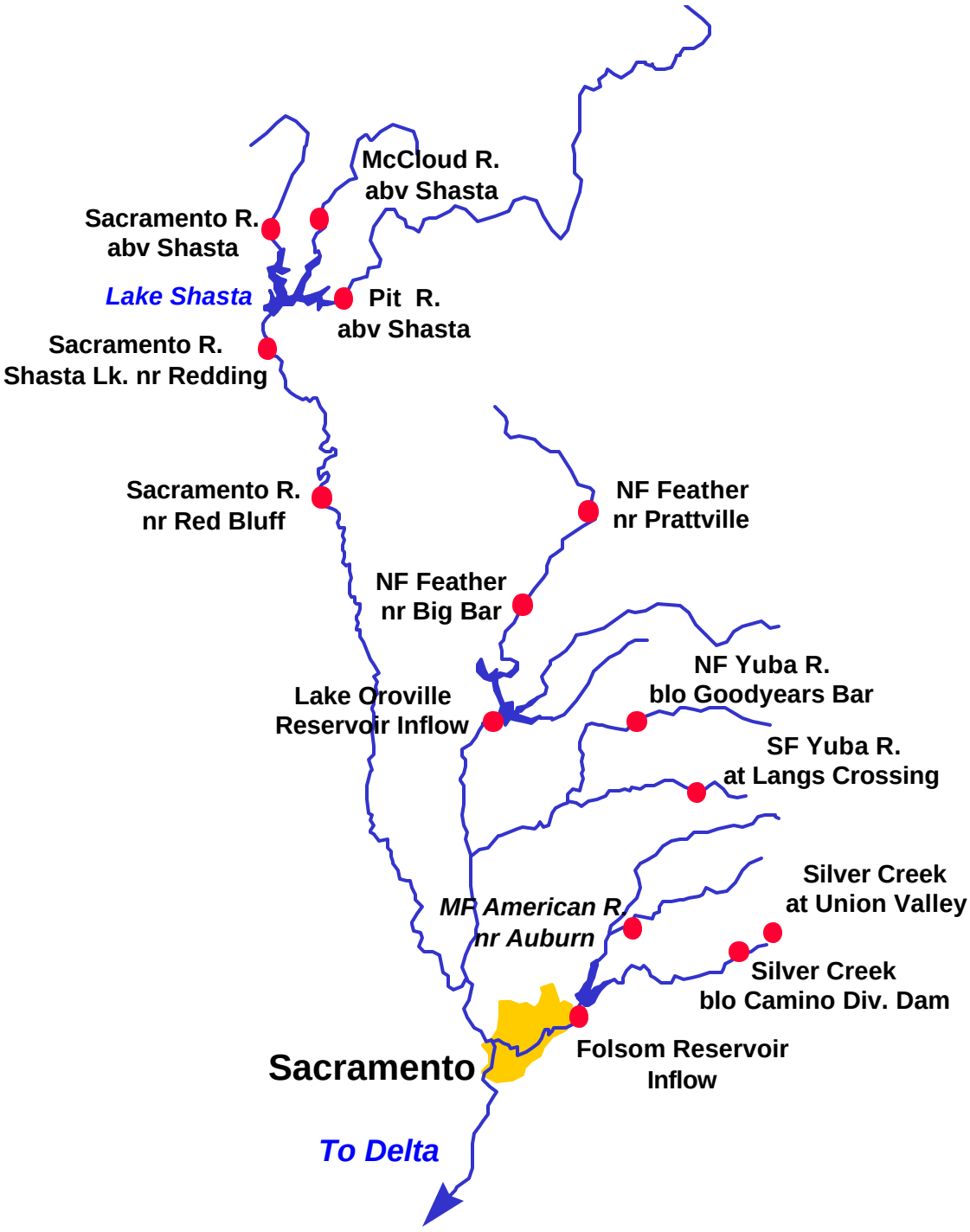
Storage is about 99 percent average for the date for reservoirs in California, with particularly good conditions for the large ones in the Sacramento drainage. Early estimates place the Sacramento region at 101 percent of average, the San Joaquin at 100 percent and the Tulare Lake at 94 percent. Storage in the east side Sierra reservoirs remain low at 51 percent of average. Storage at Lahontan Reservoir in Nevada stands at 98 percent while Rye Patch Reservoir in the Humboldt basin is at only 24 percent of the average-to-date.

The April through July runoff is expected to be better than last year for most forecast points in California and Nevada. For watersheds in California's central valley, they range from 67 percent for the Tule River basin to 140 percent for the Trinity basin. Forecasts vary from 67 to 93 percent for the east-side Sierra basins and 42 to 79 percent in the Humboldt basin in northern Nevada. The March through September forecast for the upper Klamath basin is 67 percent.

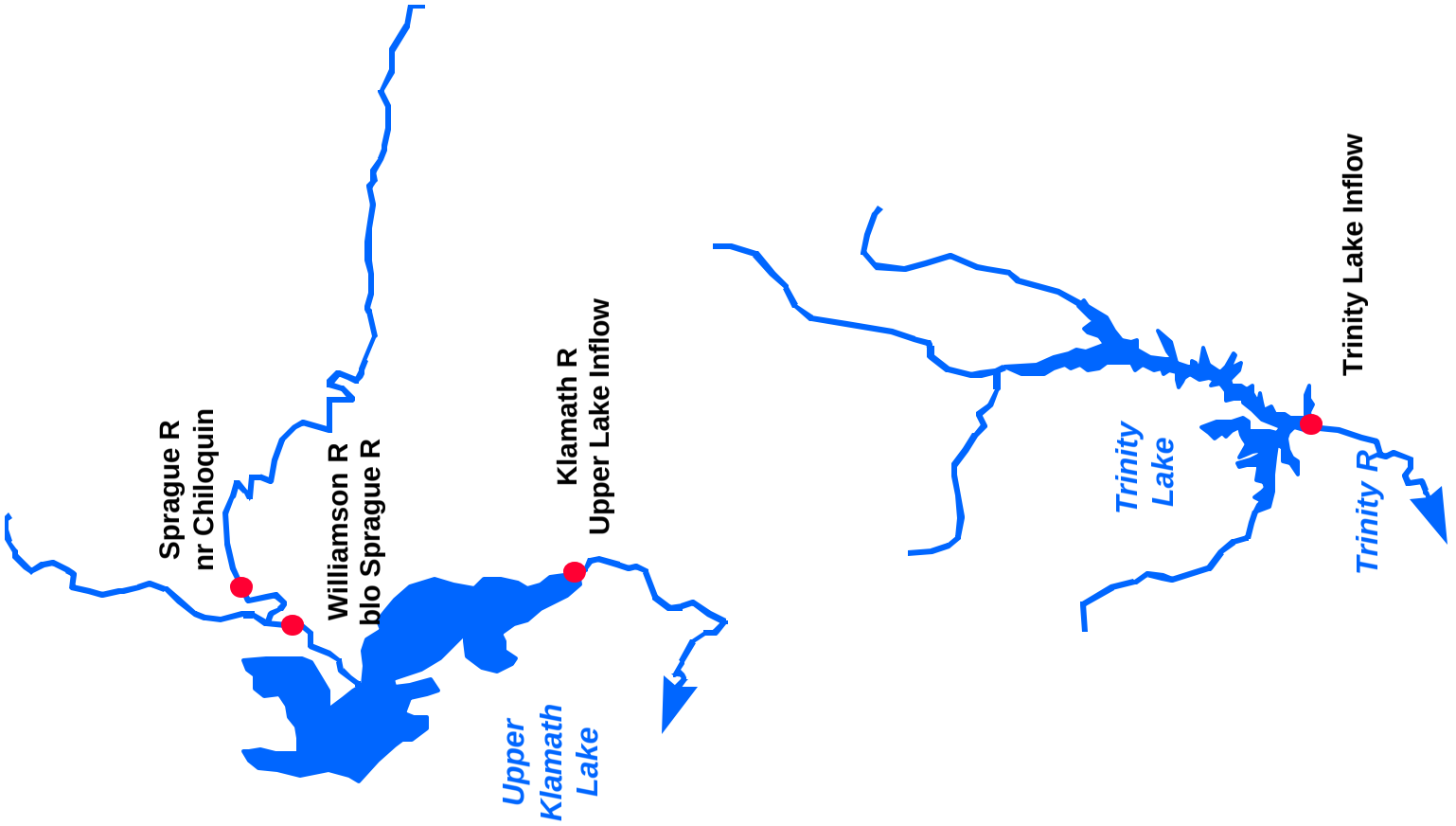
This will be the last Water Supply Outlook for Water Year 2003. Updates are scheduled for selected east side Sierra forecast points and the upper Klamath inflow. These will be posted on the CNRFC web page.

The Water Supply Outlook is available 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	340	67	435	245	505
Sprague River						
Chiloquin, nr	Mar-Sep	210	69	300	118	305
Upper Klamath Falls River						
Inflow	Mar-Sep	480	67	625	335	715
Lost River						
Gerber Reservoir Inflow	May-Jul	4.7	73	7.4	1.9	6.4
Clear Lake Reservoir Inflow	May-Jul	13.7	71	21	6.8	19.3
Trinity River						
Trinity Lake Inflow	Apr-Jul	890	140	985	795	635
SACRAMENTO RIVER BASIN						
SACRAMENTO RIVER ABOVE BEND BRIDGE						
Pit River						
Montgomery Ck, nr	Apr-Jul	1100	103	1250	950	1070
Mccloud River						
Shasta Lk, abv	Apr-Jul	465	126	545	390	370
Sacramento River						
Delta	Apr-Jul	360	124	450	270	290
Shasta Lake, Redding, nr	Apr-Jul	2200	123	2600	1800	1790
Bend Bridge, abv, Red Bluff, nr	Apr-Jul	2950	121	3270	2630	2440
FEATHER RIVER ABOVE OROVILLE RESERVOIR						
NF Feather River						
Prattville, nr	Apr-Jul	335	101	405	265	333*
Big Bar	Apr-Jul	1090	113	1320	860	962*
Feather River						
Oroville Reservoir Inflow	Apr-Jul	1900	108	2270	1530	1760

Water Supply Forecasts

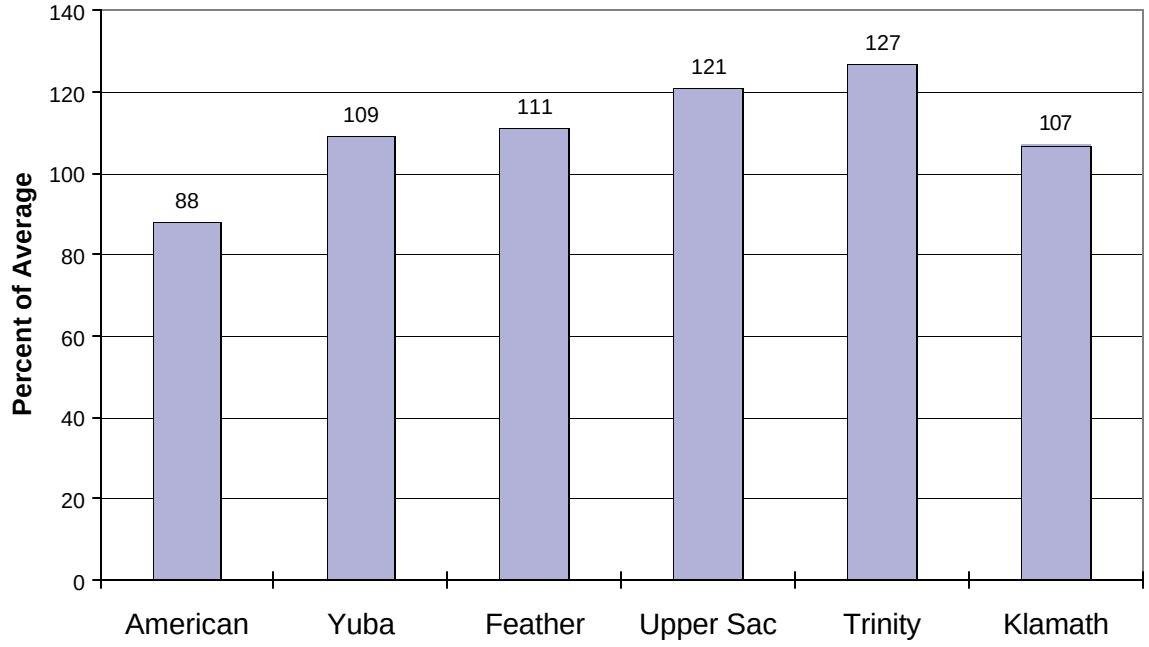
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
YUBA RIVER ABOVE SMARTVILLE						
North Yuba River						
Goodyears Bar, blo	Apr-Jul	305	112	345	265	273*
South Yuba River						
Langs Crossing	Apr-Jul	255	113	320	189	225*
Yuba River						
Smartville, nr	Apr-Jul	1100	111	1280	920	995
AMERICAN RIVER ABOVE FOLSOM RESERVOIR						
MF American River						
Auburn, nr	Apr-Jul	495	101	650	340	490*
Silver Ck						
Union Valley	Apr-Jul	92	94	116	69	98*
Camino Dam, blo	Apr-Jul	150	95	188	112	158*
American River						
Folsom Reservoir Inflow	Apr-Jul	1200	98	1420	980	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

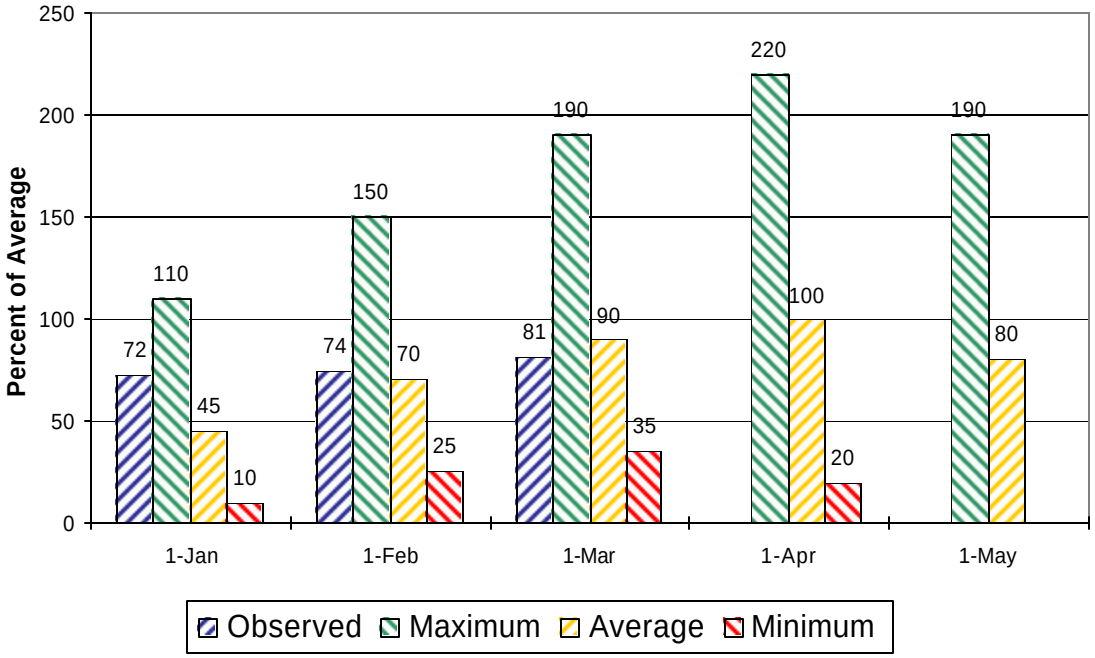
Seasonal Basin Precipitation

October 1 to Date



Seasonal Basin Snowpack

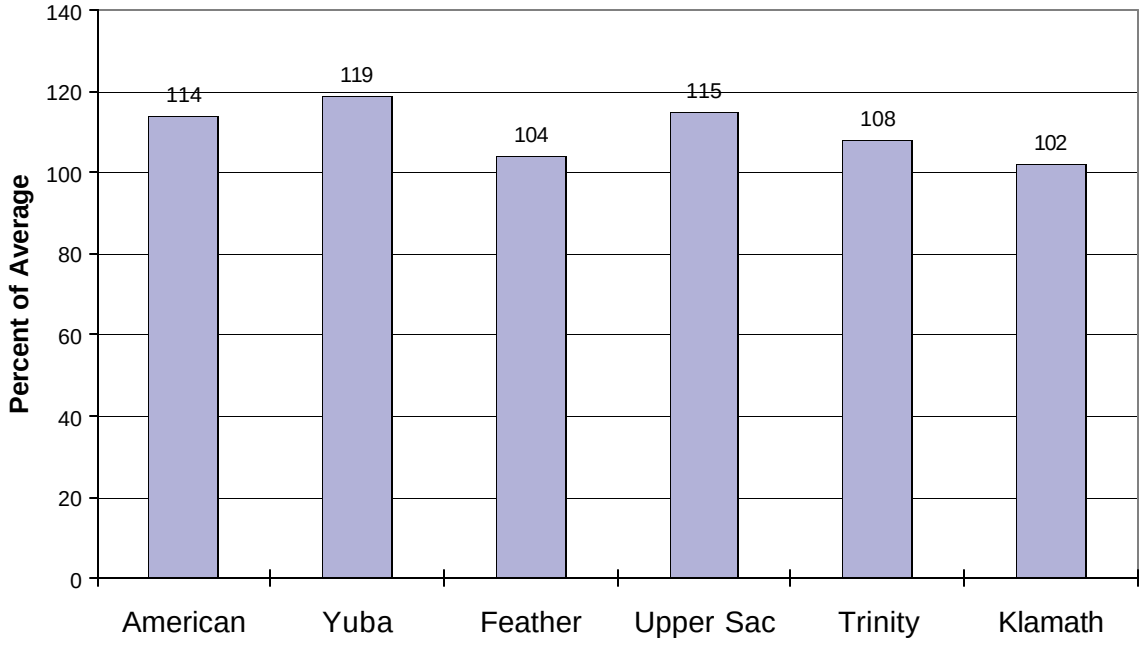
Water Content in % of April 1 Average



Sacramento/Trinity/Klamath River Basins

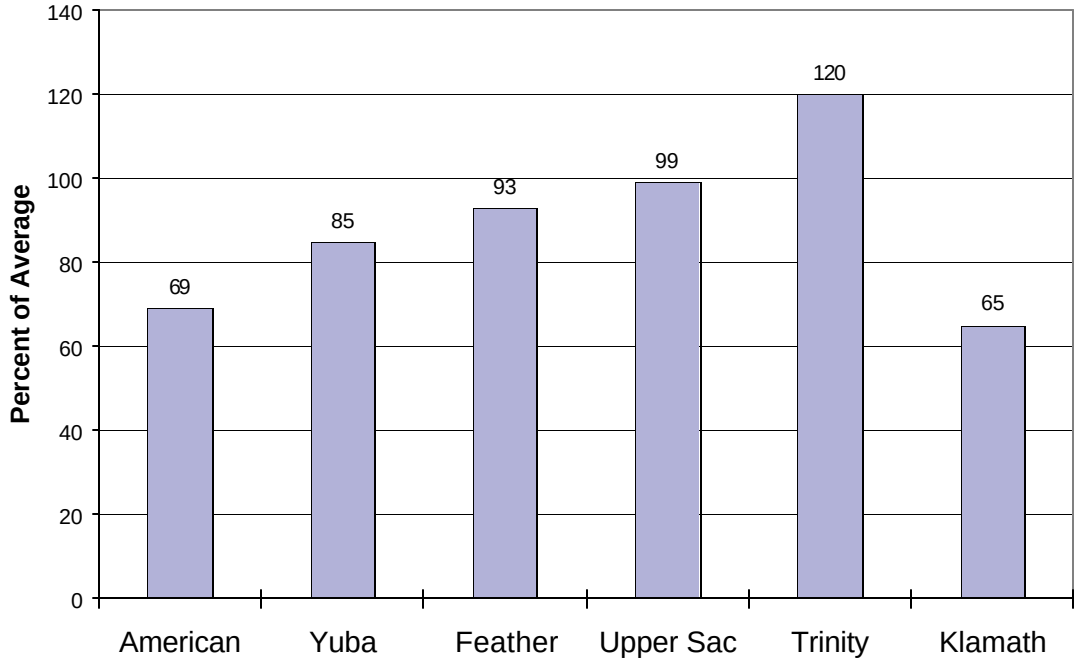
Basin Reservoir Storage

Contents of Major Reservoirs in % of Average



Seasonal Basin Runoff

October 1 to Date



San Joaquin Basin

Water Supply Forecasts

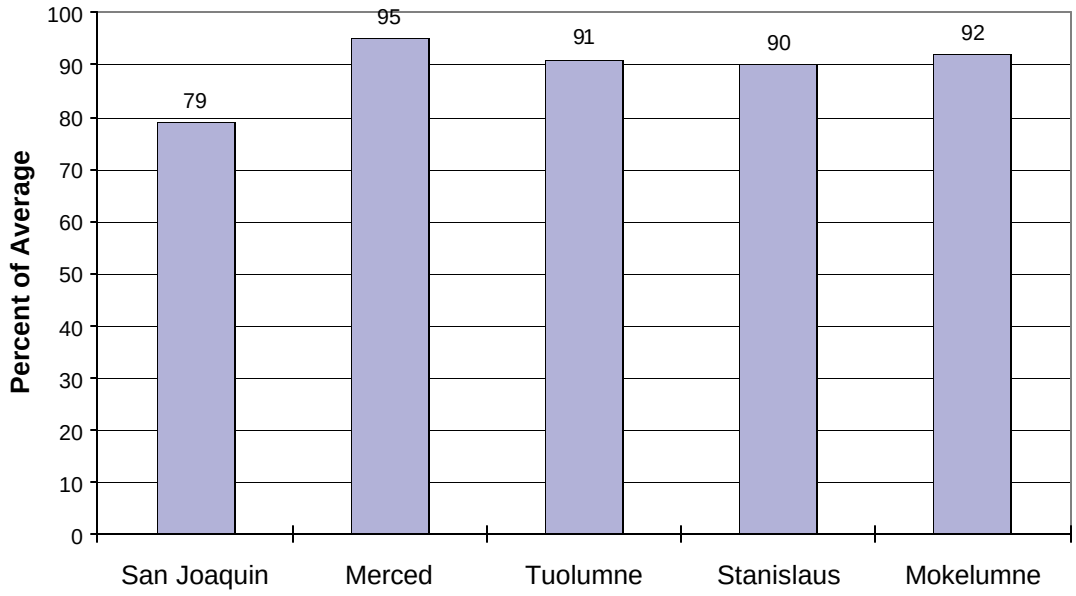
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
SF San Joaquin River						
Hooper Ck, blo, Florence Lk, n	Apr-Jul	160	83	200	120	192*
San Joaquin River						
Millerton Lk	Apr-Jul	1060	83	1270	840	1270
Merced River						
Pohono Bridge, at, Yosemite, n	Apr-Jul	320	89	390	250	360*
Merced Falls, blo	Apr-Jul	540	84	650	430	645
Tuolumne River						
Hetch Hetchy, nr	Apr-Jul	600	101	720	480	596*
La Grange, nr	Apr-Jul	1180	96	1400	940	1230
MF Stanislaus River						
Beardsley Dam, blo	Apr-Jul	320	100	380	250	320*
Stanislaus River						
Goodwin Dam, blo, Knights Ferr	Apr-Jul	680	98	820	540	695
NF Mokelumne River						
West Point	Apr-Jul	370	89	450	290	416*
Mokelumne River						
Mokelumne Hill	Apr-Jul	430	93	520	340	460
Cosumnes River						
Michigan Bar	Apr-Jul	140	114	200	80	123

***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.**

San Joaquin Basin

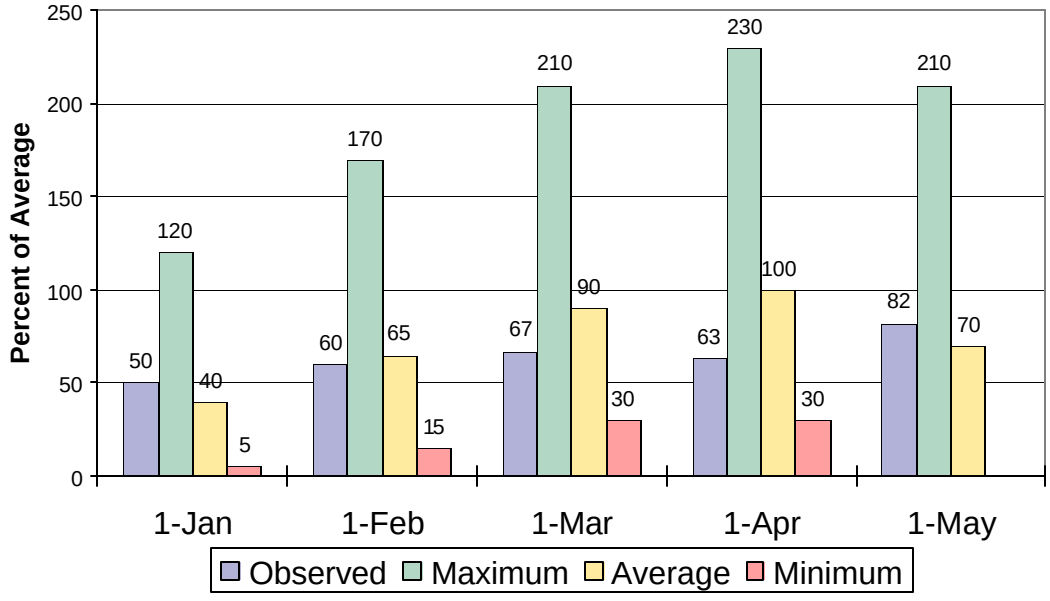
Seasonal Basin Precipitation

October 1 to Date



Seasonal Basin Snowpack

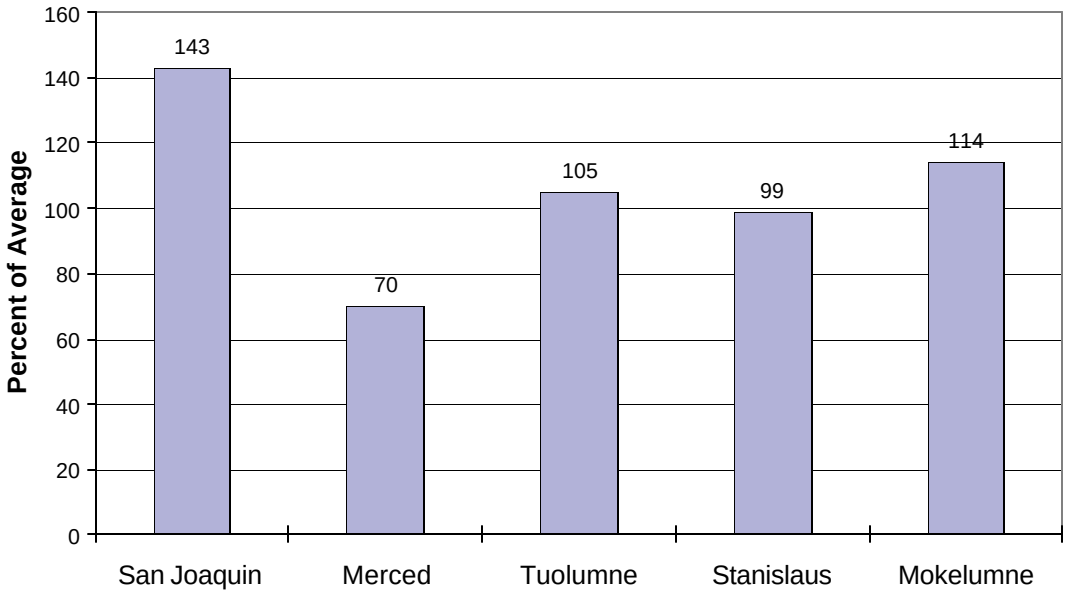
Water Content in % of April 1 Average



San Joaquin Basin

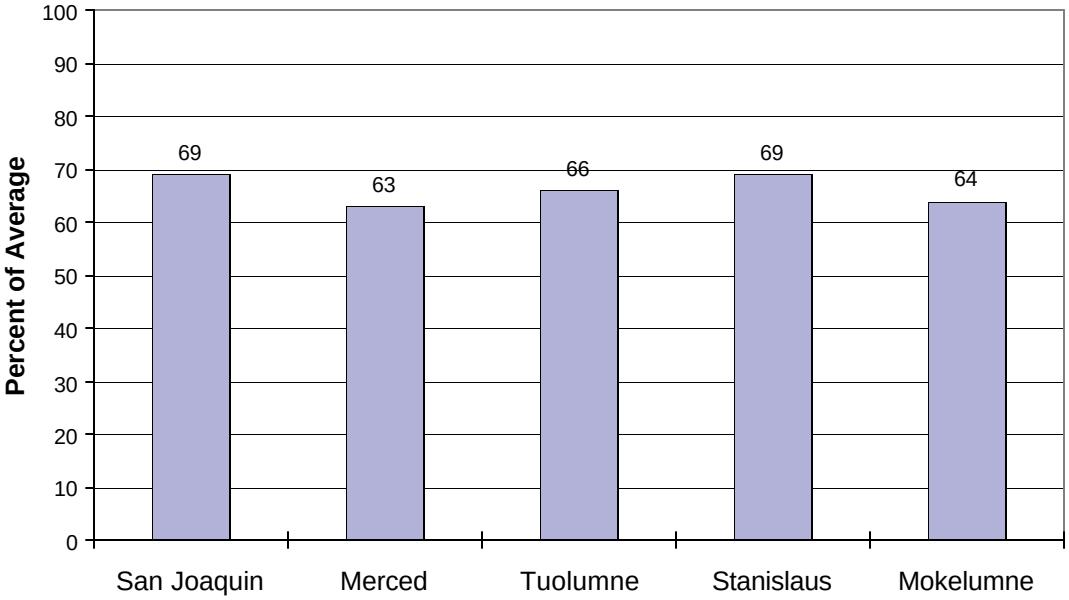
Basin Reservoir Storage

Contents of Major Reservoirs in % of Average

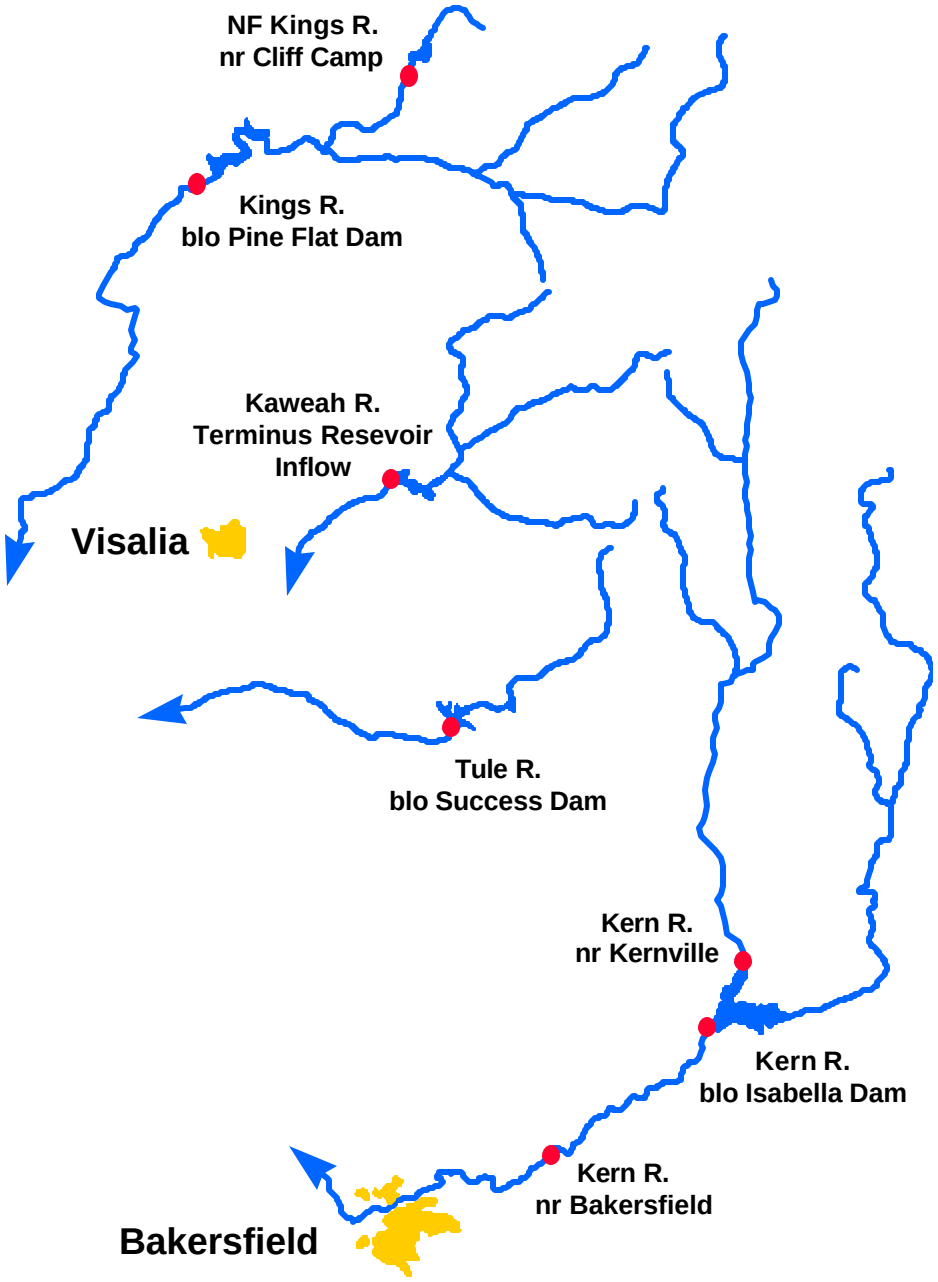


Season Basin Runoff

October 1 to Date



Tulare Basin



Water Supply Forecasts

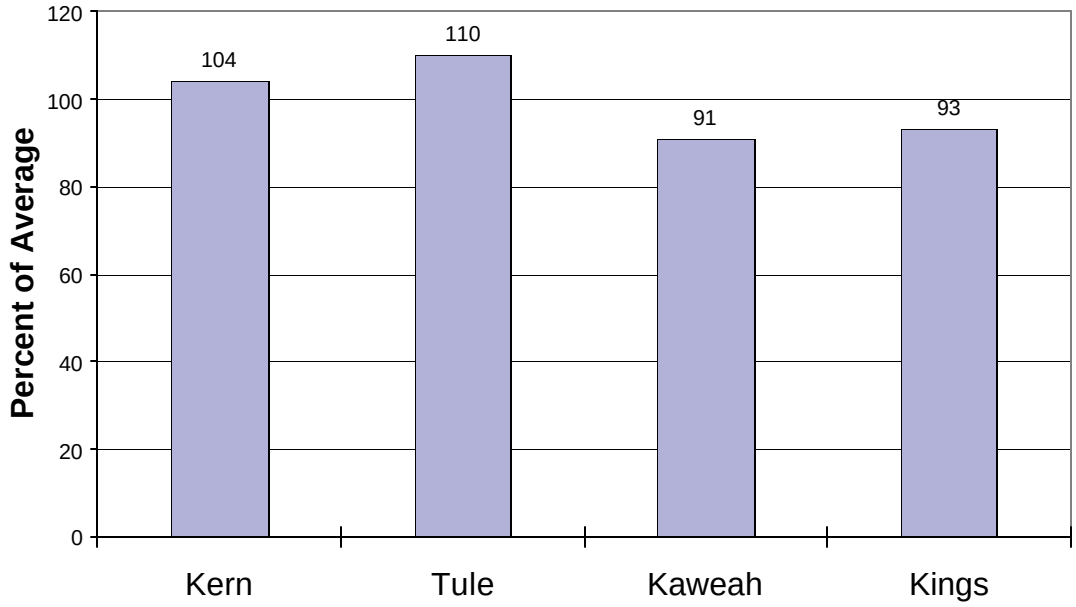
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
Kern River						
Kernville, nr	Apr-Jul	290	73	370	210	398*
Isabella Dam, blo	Apr-Jul	340	71	430	250	480
Bakersfield, nr	Apr-Jul	350	71	440	260	490
Tule River						
Success Dam	Apr-Jul	44	67	70	20	66
Kaweah River						
Terminus Dam	Apr-Jul	240	83	290	190	290
NF Kings River						
Cliff Camp, nr	Apr-Jul	190	79	230	150	240*
Kings River						
Pine Flat Dam, blo	Apr-Jul	990	79	1190	790	1250

***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.**

Tulare Lake Basin

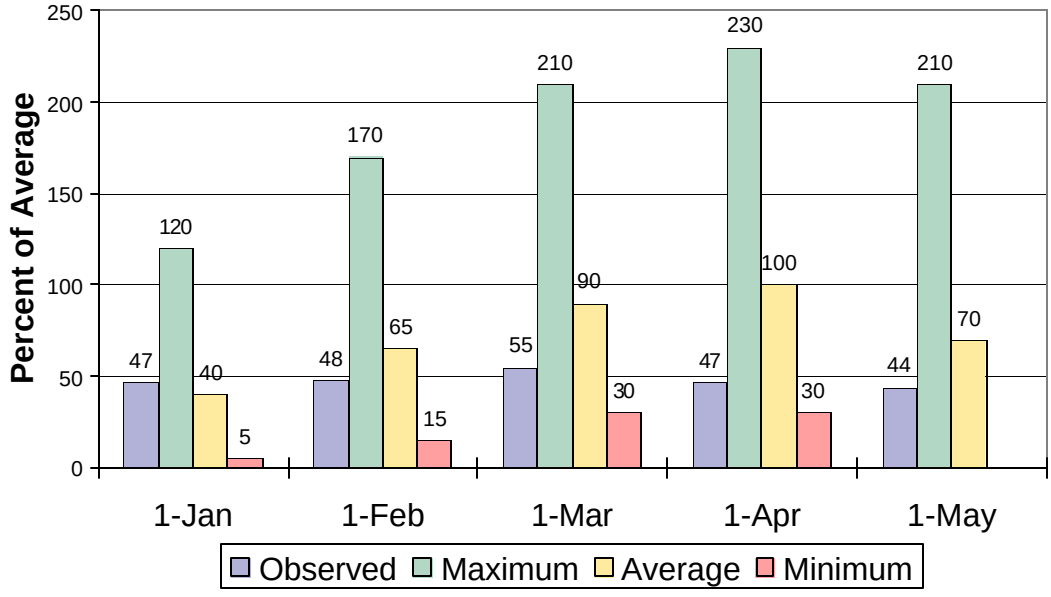
Seasonal Precipitation

October 1 to Date



Seasonal Basin Snowpack

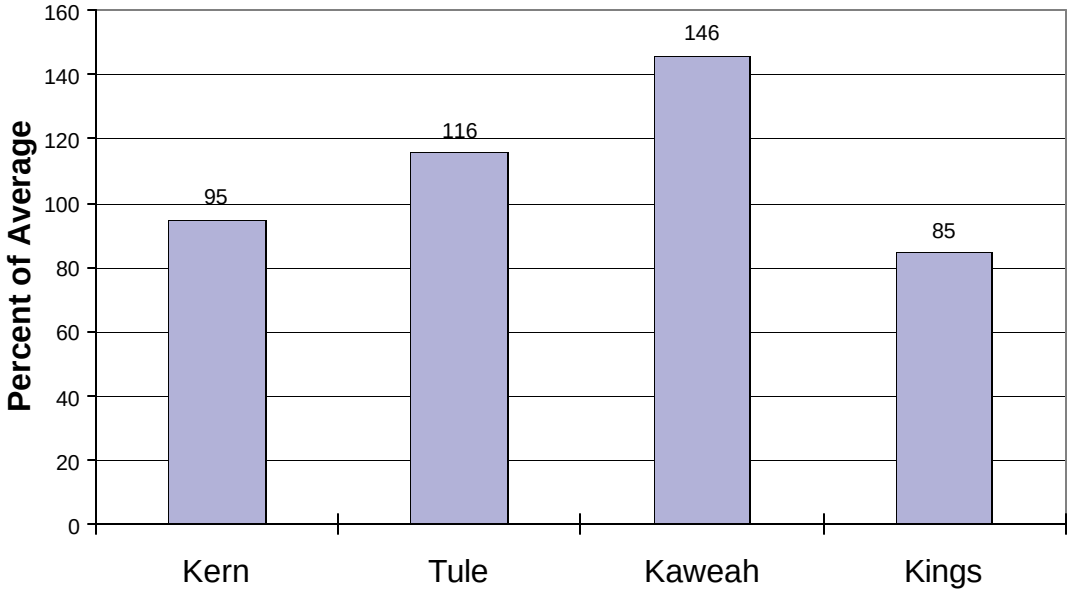
Water Content in % of April 1 Average



Tulare Lake Basin

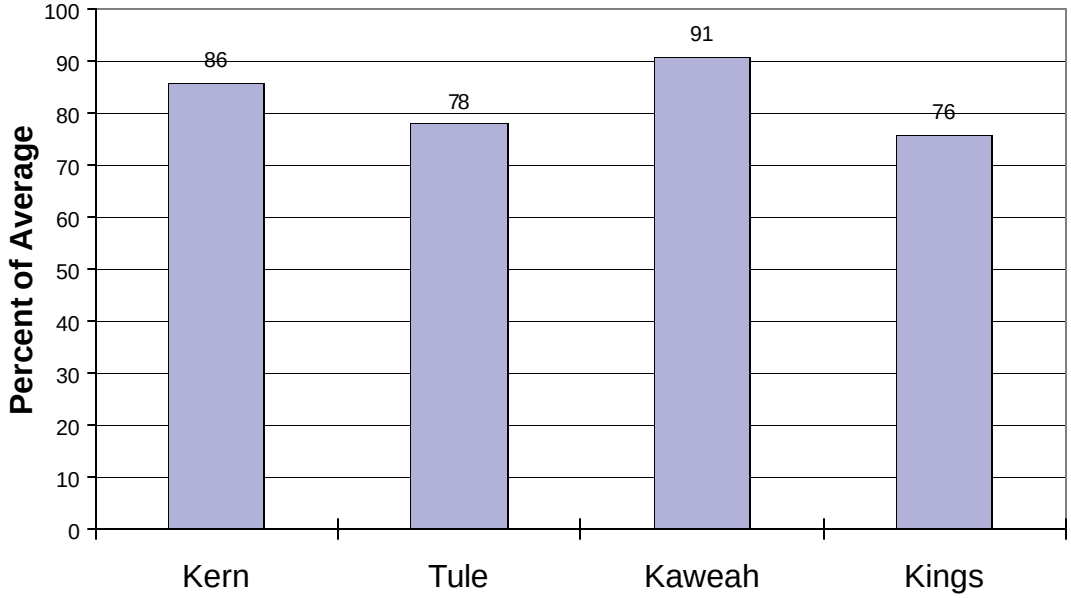
Basin Reservoir Storage

Contents of Major Reservoirs in % of Average

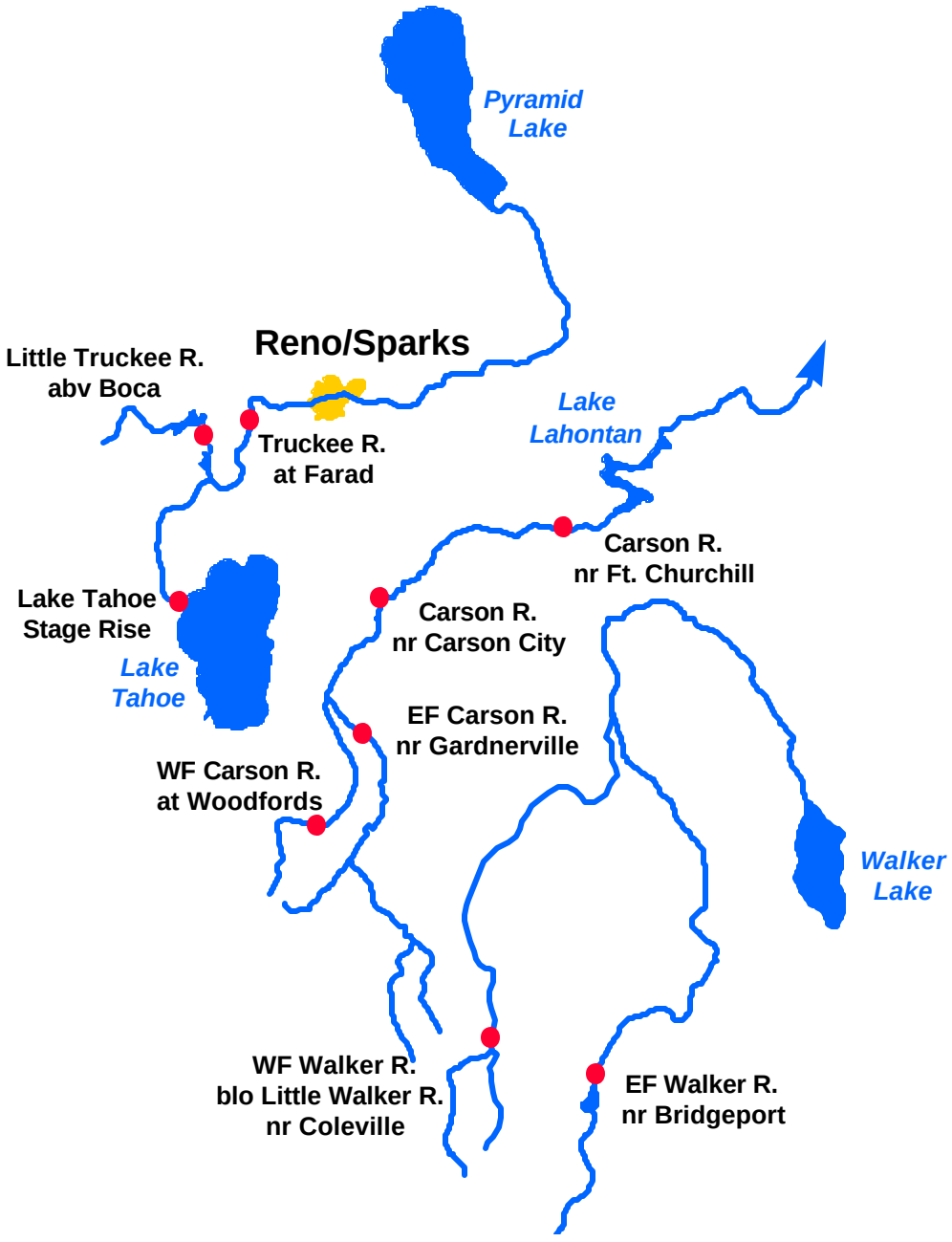


Seasonal Basin Runoff

October 1 to Date



East Side Sierra Nevada Basins



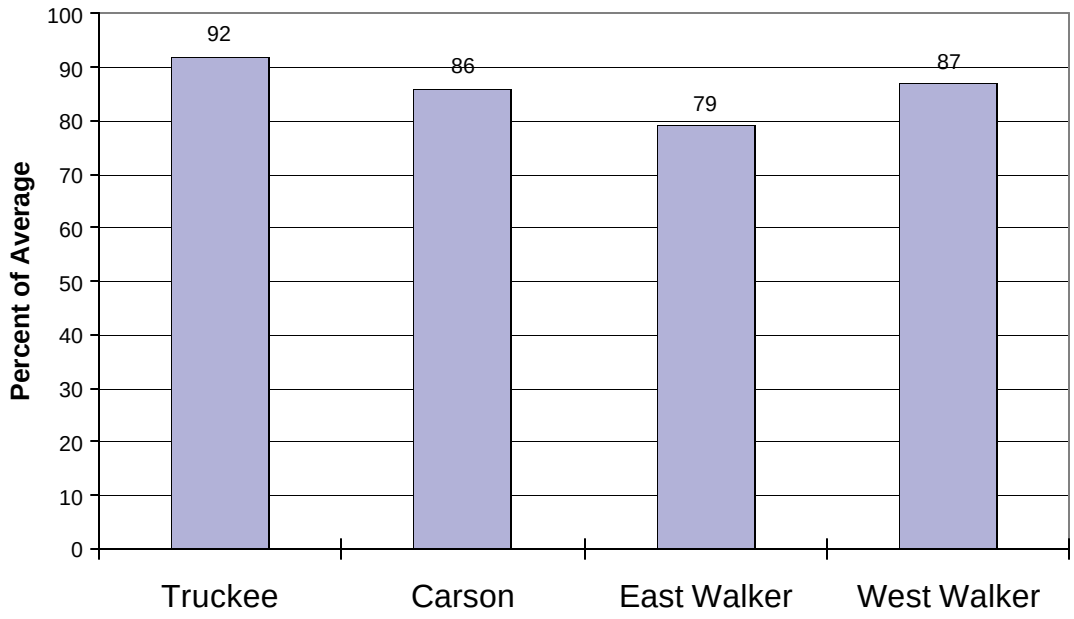
Water Supply Forecasts

		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	1.2	87	1.4	1.0	1.4
Ltl Truckee River						
Boca Res, abv, Truckee, nr	Apr-Jul	66	82	79	52	80
Truckee River						
Farad	Apr-Jul	210	81	240	180	260
Carson River						
EF Carson River						
Gardnerville, nr	Apr-Jul	150	79	167	133	189
WF Carson River						
Woodfords	Apr-Jul	42	75	48	36	56
Carson River						
Carson City, nr	Apr-Jul	135	72	183	88	188
Fort Churchill, nr	Apr-Jul	120	67	154	86	178
Walker River						
East Walker River						
Bridgeport, nr	Apr-Aug	57	85	73	41	67
West Walker River						
Ltl Walker, blo, Coleville, nr	Apr-Jul	145	93	179	109	156

East Side Sierra Nevada Basins

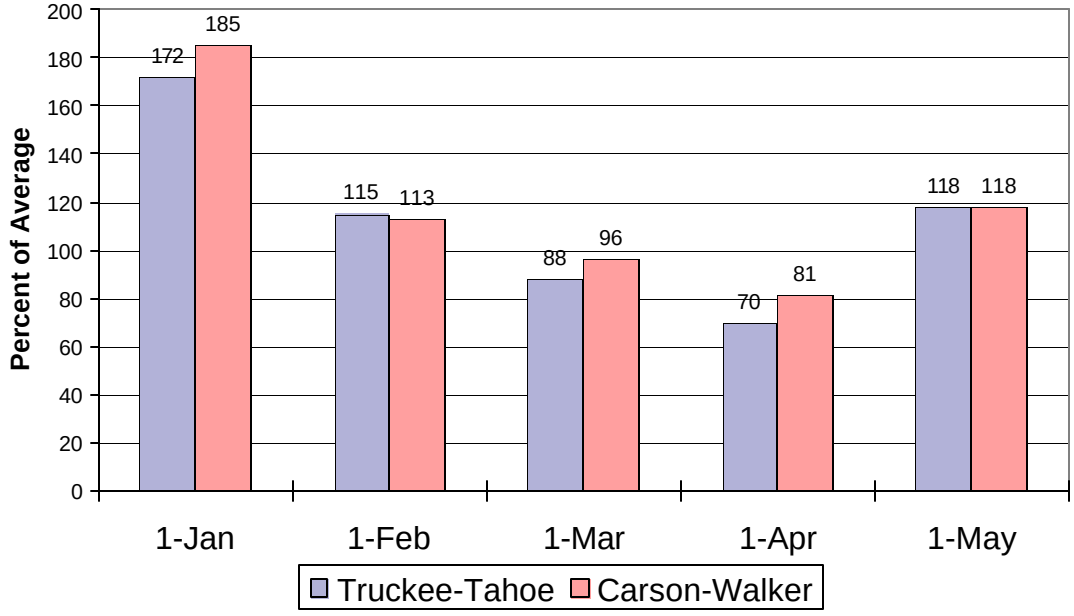
Seasonal Basin Precipitation

October 1 to Date



Basin Snowpack

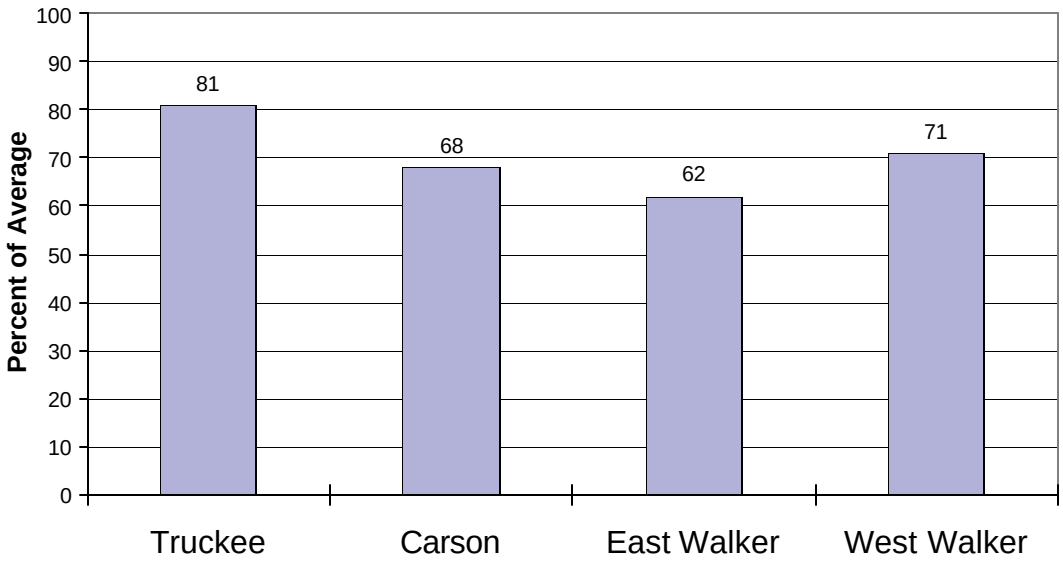
% of Average SWE to Date



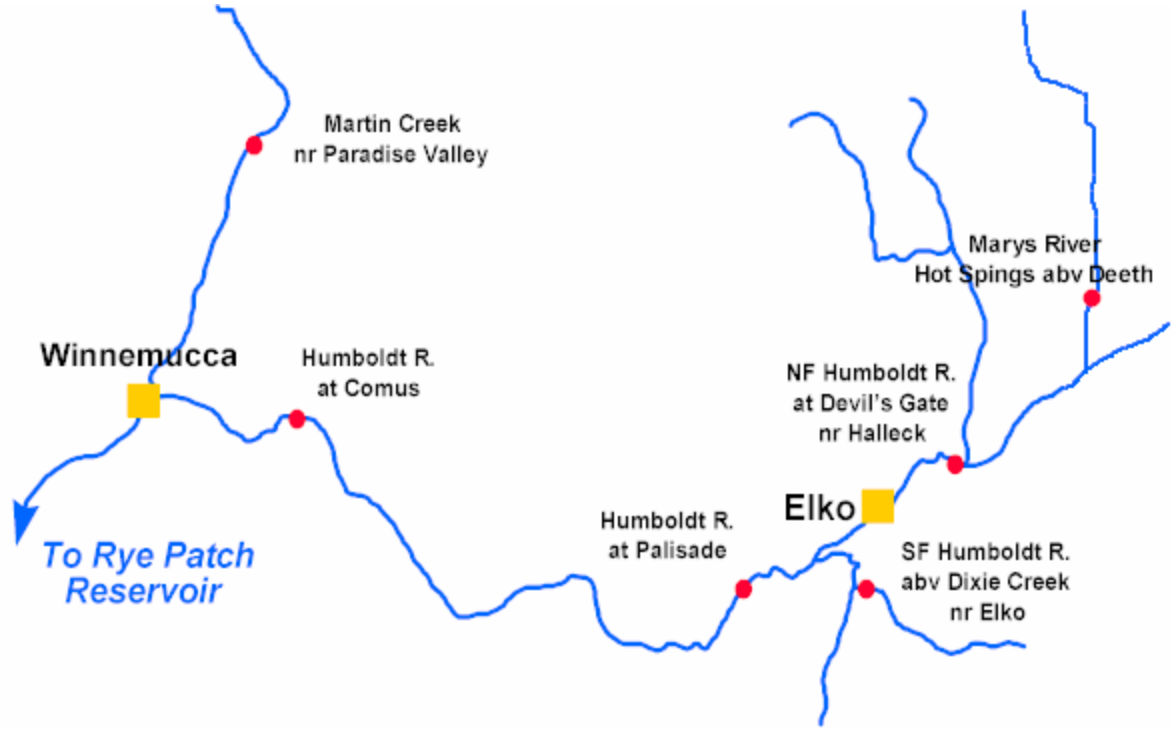
East Side Sierra Nevada Basins

Seasonal Basin Runoff

October 1 to Date



Humboldt River Basin



Water Supply Forecasts

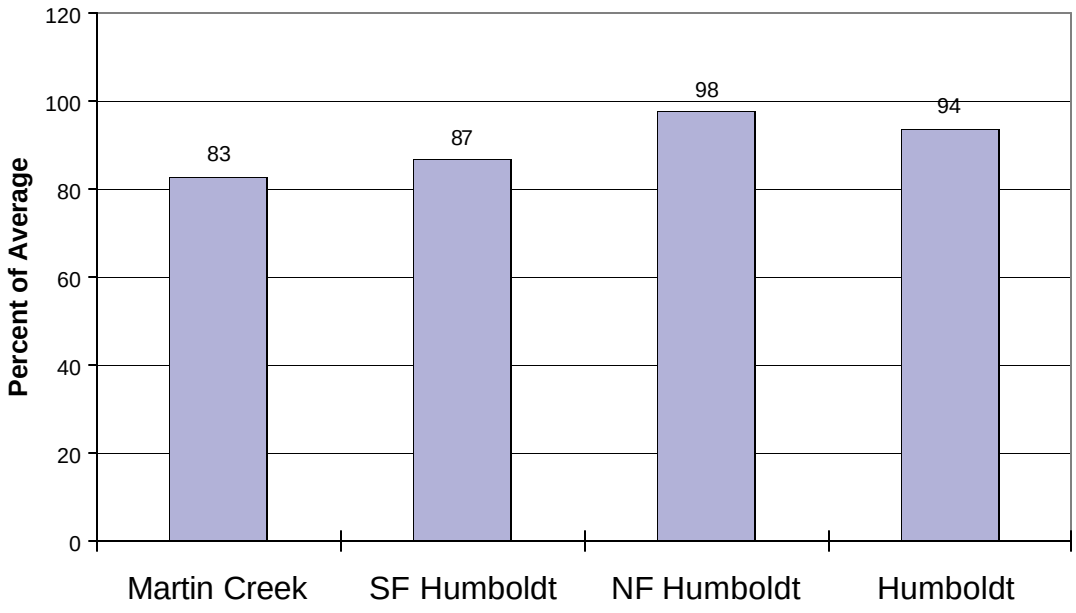
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
NF Humboldt River						
Devils Gate, at, Halleck, nr	Apr-Jul	15	44	25	8	34*
SF Humboldt River						
Dixie Ck, abv, Elko, nr	Apr-Jul	60	79	85	40	76
Marys River						
Hot Springs, abv, Deeth, nr	Apr-Jul	23	59	35	12	39
Humboldt River						
Palisade	Apr-Jul	145	58	200	75	250
Comus	Apr-Jul	95	42	150	45	225
Martin Ck						
Paradise Vly, nr	Apr-Jul	9.0	48	15.0	5.0	18.7

***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.**

Humboldt River Basin

Seasonal Basin Precipitation

October 1 to Date



Basin Snowpack

% of Average SWE to Date