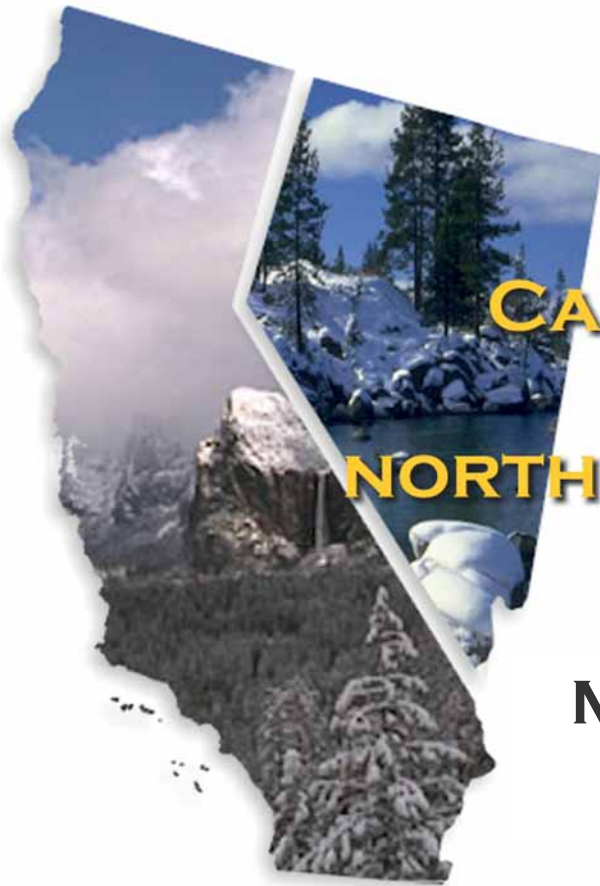


WATER SUPPLY OUTLOOK



CALIFORNIA AND NORTHERN NEVADA

MAY 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

May 1, 2004

Although this year's water supply season had an excellent start with a wet December and February, this was more than offset by the relatively dry conditions that occurred during March and April. As a result, spring runoff is expected to be much below average for many watersheds in California and Nevada. The April through July forecasts range from near median for the Trinity basin to 24 percent of average for the Tule.

All water supply forecast basins received well below average precipitation for the second consecutive month except the upper Humboldt. April rainfall amounts varied from 6 percent in the Kern basin to 65 percent in the Trinity and upper Klamath. The Carson basin received only 20 percent of the monthly average; the Walker, 30 percent and the Truckee, 35 percent. The upper Humboldt basin received 139 percent of the April average, the lower Humboldt, about 68 percent. Seasonal averages range from 66 percent for the Kings River basin to 106 percent for the Trinity.

Episodes of warm, sunny weather continued into April causing further substantial melt of the snow pack. The May 1st average ranges from 80 percent in the Sacramento region, 50 percent in the San Joaquin, and 37 percent in the Tulare. Snow packs in the Carson-Walker basin are about 60 percent of the average-to-date, the Tahoe-Truckee, 47 percent, the upper Klamath, 85 percent and the Humboldt, 47 percent.

April runoff ranged from 119 percent in the Trinity basin to 30 percent for the Tulare. East side Sierra streams recorded 63 percent of the monthly average. It was 59 percent of the April average for the Humboldt River at Palisade and 57 percent for the upper Klamath Lake inflow.

Reservoirs in the Sacramento region are at 106 percent of average, the San Joaquin at 108 percent and the Tulare Lake at 92 percent. Storage in the east side Sierra reservoirs is about 87 percent of average and Lake Tahoe stands at 30 percent. Stored water at Lahontan Reservoir in Nevada is about 99 percent of the average-to-date while Rye Patch Reservoir in the Humboldt basin remains low at 26 percent.

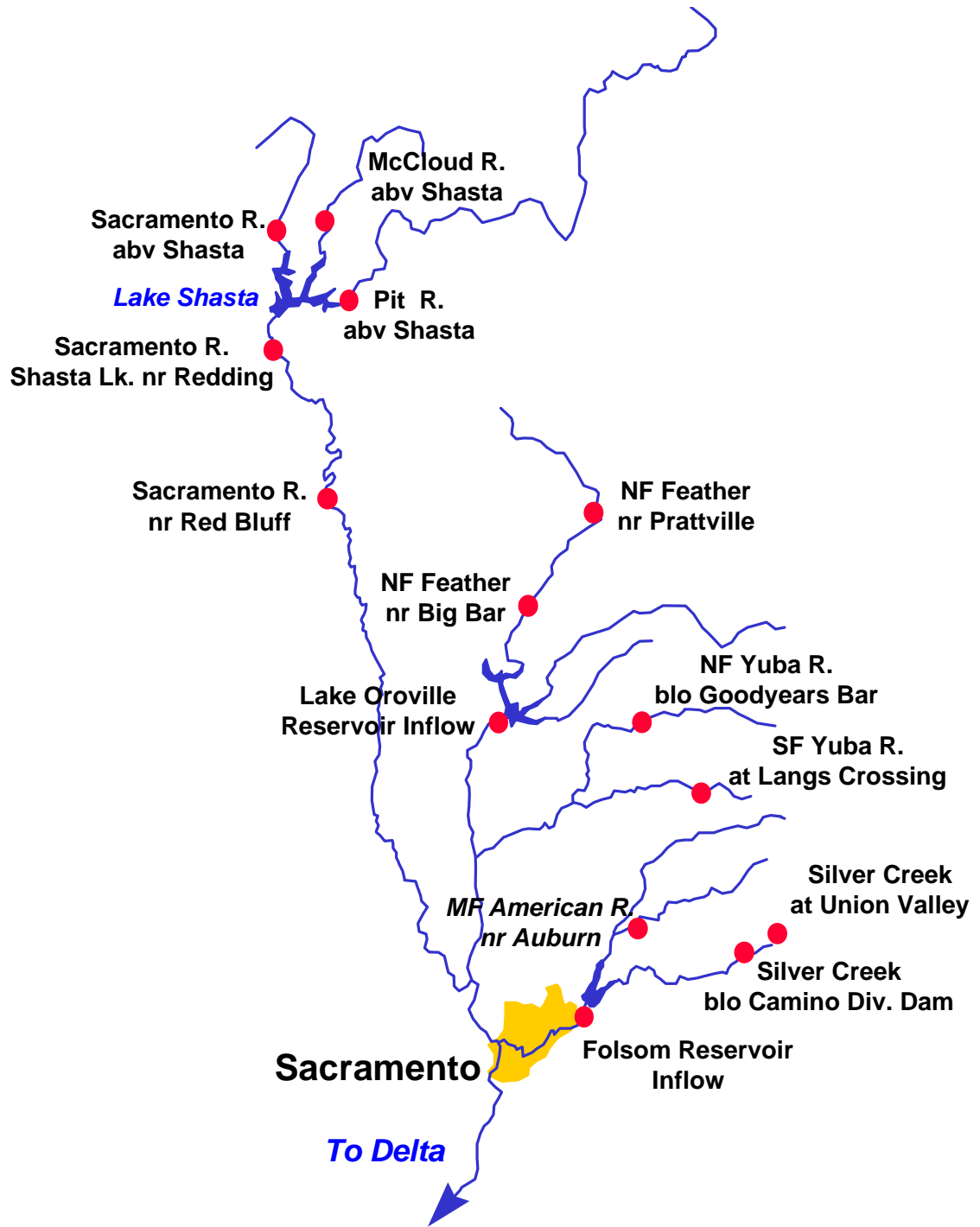
The April through July runoff forecasts range from 24 percent for the Tule River basin to 101 percent for the Trinity. Forecasts are generally in the 60 to 70 percent range from the Feather basin down to the Kings. Spring runoff forecasts vary from 47 to 77 percent for the east-side Sierra basins and 47 to 59 percent for the Humboldt basin. The March through September forecast for the upper Klamath basin is 66 percent.

This will be the last Water Supply Outlook for Water Year 2004. Updates are scheduled for selected east side Sierra forecast points and the upper Klamath inflow. These will be posted on the CNRFC web page.

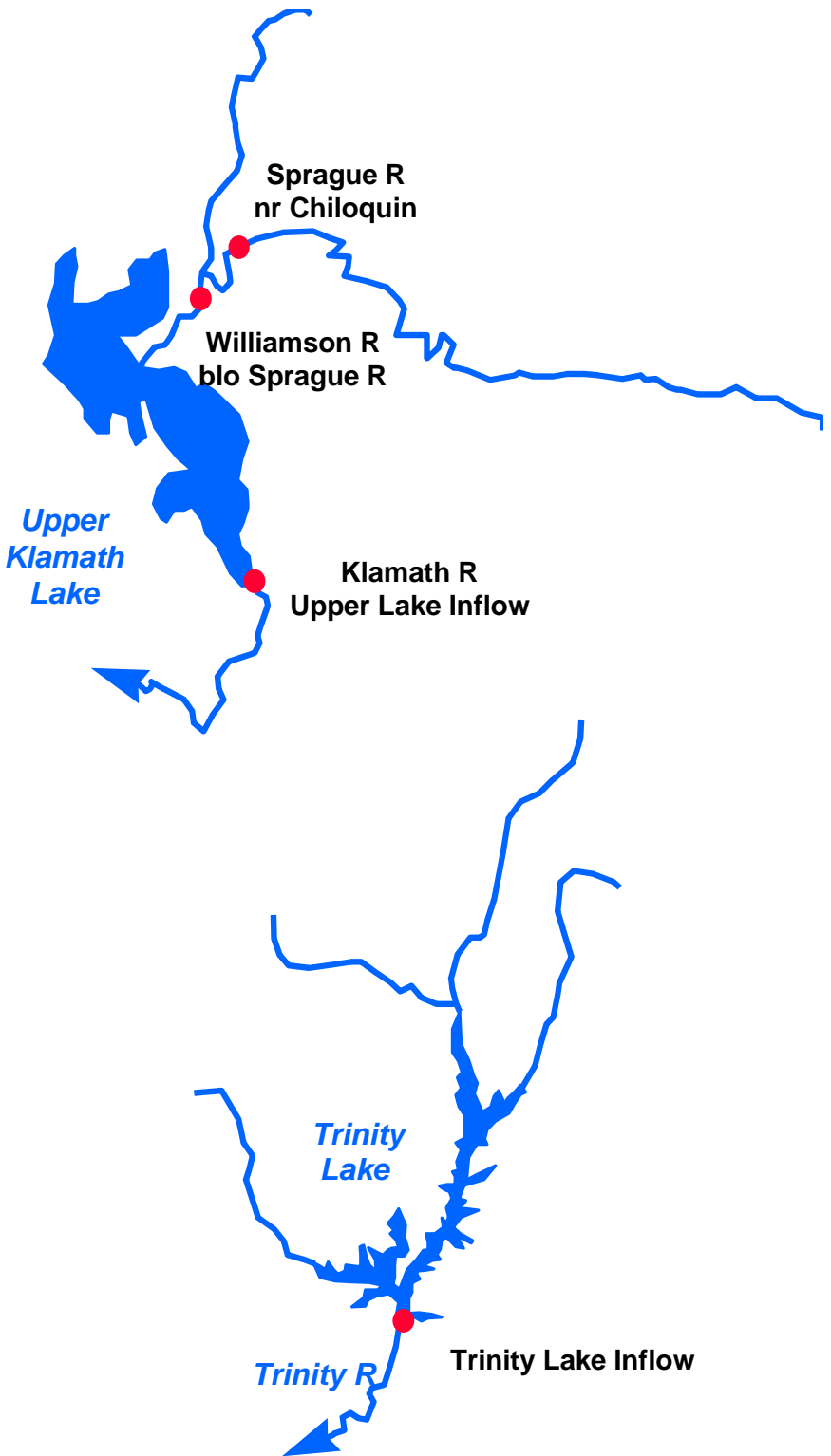
The Water Supply Outlook is available in pdf format on the World Wide Web at:

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

Sacramento River Basin



Upper Klamath and Trinity River Basins



Water Supply Forecasts

Most	Most	Reas	Reas	30
Prob	Prob	Max	Min	Year
Vol	Vol	Vol	Vol	Avg
KAF	%Norm	KAF	KAF	KAF

COASTAL BASINS

Williamson River Sprague, blo	Mar-Sep	350	69	445	255	505
Sprague River Chiloquin, nr	Mar-Sep	190	62	280	98	305
Upper Klamath Falls River Inflow	Mar-Sep	475	66	620	330	715
Lost River Gerber Reservoir Inflow	May-Jul	2.2	34	3.2	1.17	6.4
Clear Lake Reservoir Inflow	May-Jul	9.5	49	14.3	4.7	19.3
Trinity River Trinity Lake Inflow	Apr-Jul	640	101	740	540	635

Trinity River - Inflow at Lewiston Lake Distribution (kAF)

Exceedence Probability	<u>Oct-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>
50%	855	235	260	115	30	15	10	640	1520
90%	855	235	200	80	25	10	5	540	1410
10%	855	235	320	150	35	20	15	740	1630

SACRAMENTO RIVER BASIN

SACRAMENTO RIVER ABOVE BEND BRIDGE

Pit River Montgomery Ck, nr	Apr-Jul	880	82	965	795	1070
Mccloud River Shasta Lk, abv	Apr-Jul	340	92	380	300	370
Sacramento River Delta	Apr-Jul	260	90	335	185	290
Shasta Lake, Redding, nr	Apr-Jul	1550	87	1850	1270	1790
Bend Bridge, abv, Red Bluff, nr	Apr-Jul	2080	85	2390	1760	2440

FEATHER RIVER ABOVE OROVILLE RESERVOIR

NF Feather River Prattville, nr	Apr-Jul	255	77	315	200	333*
Big Bar	Apr-Jul	690	72	810	580	962*
Feather River Oroville Reservoir Inflow	Apr-Jul	1300	74	1570	1030	1760

Water Supply Forecasts

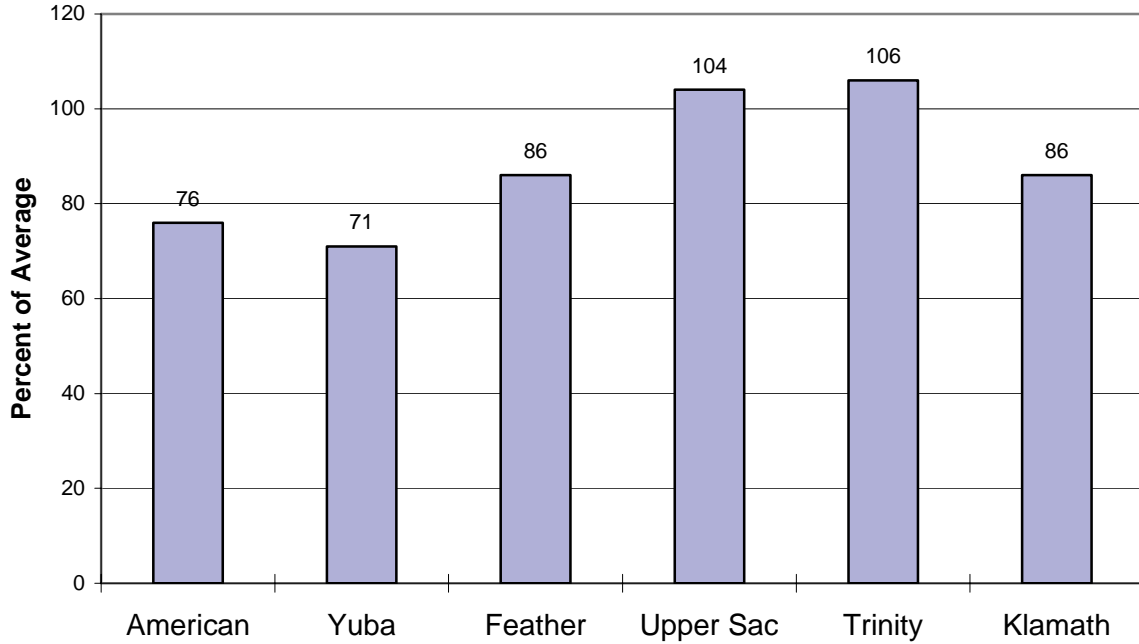
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
YUBA RIVER ABOVE SMARTVILLE						
North Yuba River						
Goodyears Bar, blo	Apr-Jul	180	66	220	139	273*
South Yuba River						
Langs Crossing	Apr-Jul	140	62	170	110	225*
Yuba River						
Smartville, nr	Apr-Jul	650	65	805	490	995
AMERICAN RIVER ABOVE FOLSOM RESERVOIR						
MF American River						
Auburn, nr	Apr-Jul	310	63	375	240	490*
Silver Ck						
Union Valley	Apr-Jul	61	62	78	43	98*
Camino Dam, blo	Apr-Jul	98	62	125	72	158*
American River						
Folsom Reservoir Inflow	Apr-Jul	750	61	945	550	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

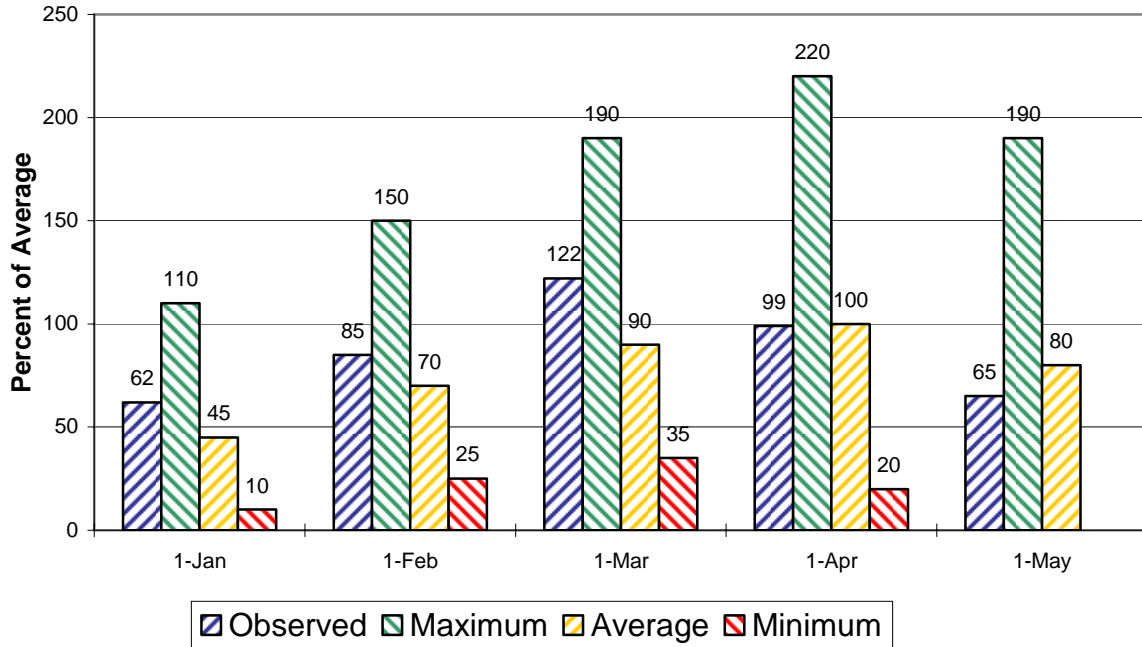
Seasonal Basin Precipitation

October 1 to Date



Seasonal Basin Snowpack

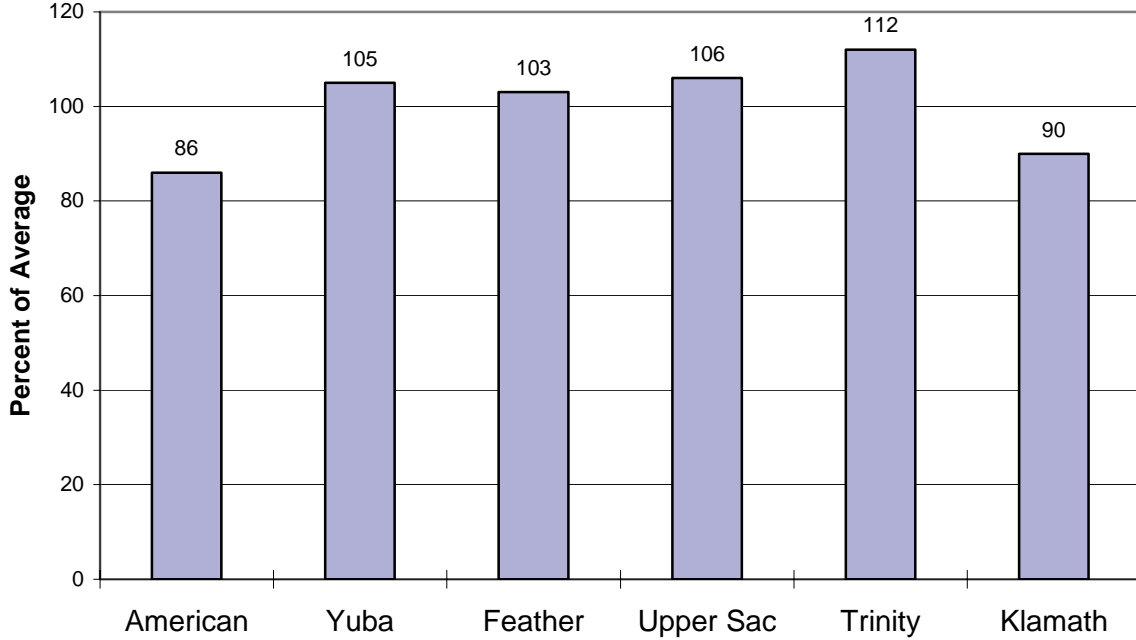
Water Content in % of April 1 Average



Sacramento/Trinity/Klamath River Basins

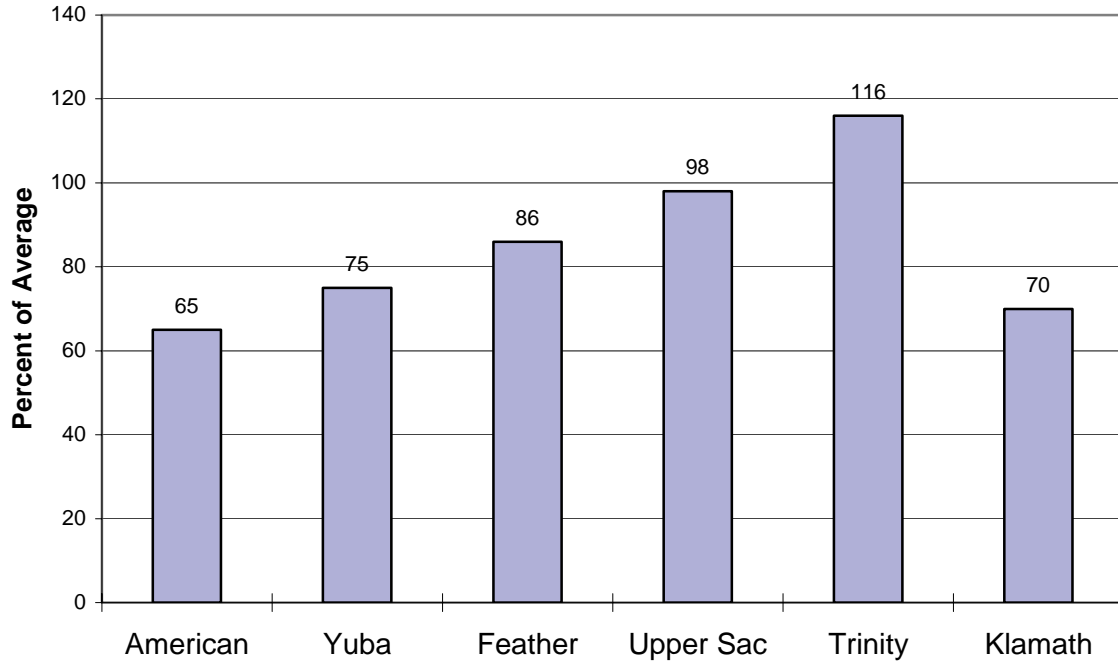
Basin Reservoir Storage

Contents of Major Reservoirs in % of Average



Seasonal Basin Runoff

October 1 to Date



San Joaquin Basin



Water Supply Forecasts

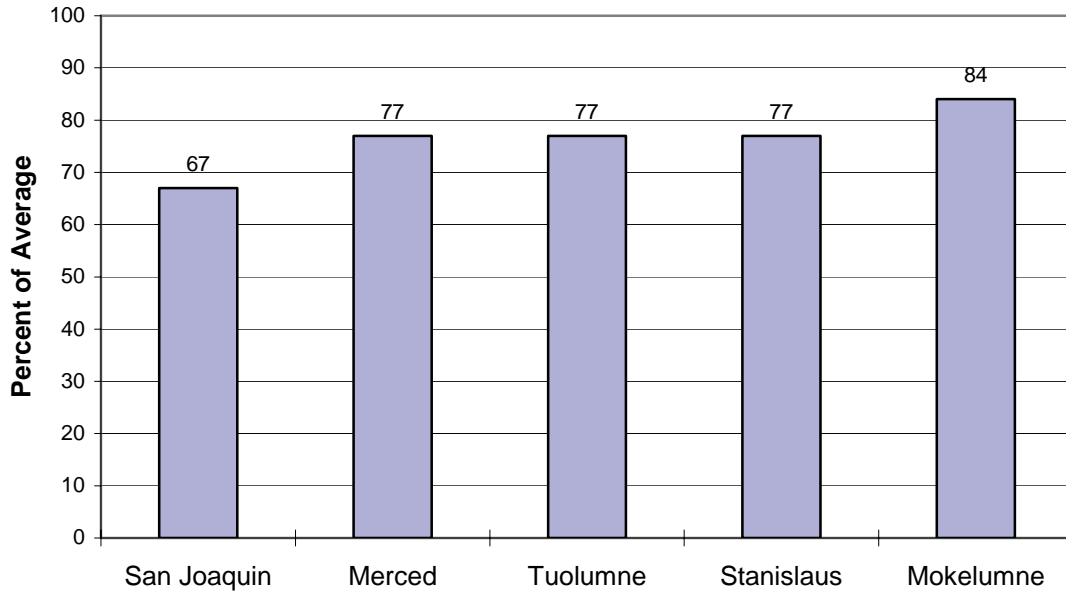
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
<hr/>						
SF San Joaquin River						
Hooper Ck, blo, Florence Lk, nr	Apr-Jul	140	73	195	85	192*
San Joaquin River						
Millerton Lk	Apr-Jul	810	64	980	640	1270
Merced River						
Pohono Bridge, at, Yosemite, nr	Apr-Jul	220	61	265	176	360*
Merced Falls, blo	Apr-Jul	370	57	465	275	645
Tuolumne River						
Hetch Hetchy, nr	Apr-Jul	420	70	475	350	596*
La Grange, nr	Apr-Jul	780	63	910	650	1230
MF Stanislaus River						
Beardsley Dam, blo	Apr-Jul	185	58	240	132	320*
Stanislaus River						
Goodwin Dam, blo, Knights Ferry	Apr-Jul	410	59	515	310	695
NF Mokelumne River						
West Point	Apr-Jul	270	65	330	210	416*
Mokelumne River						
Mokelumne Hill	Apr-Jul	290	63	350	230	460
Cosumnes River						
Michigan Bar	Apr-Jul	45	37	75	20	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

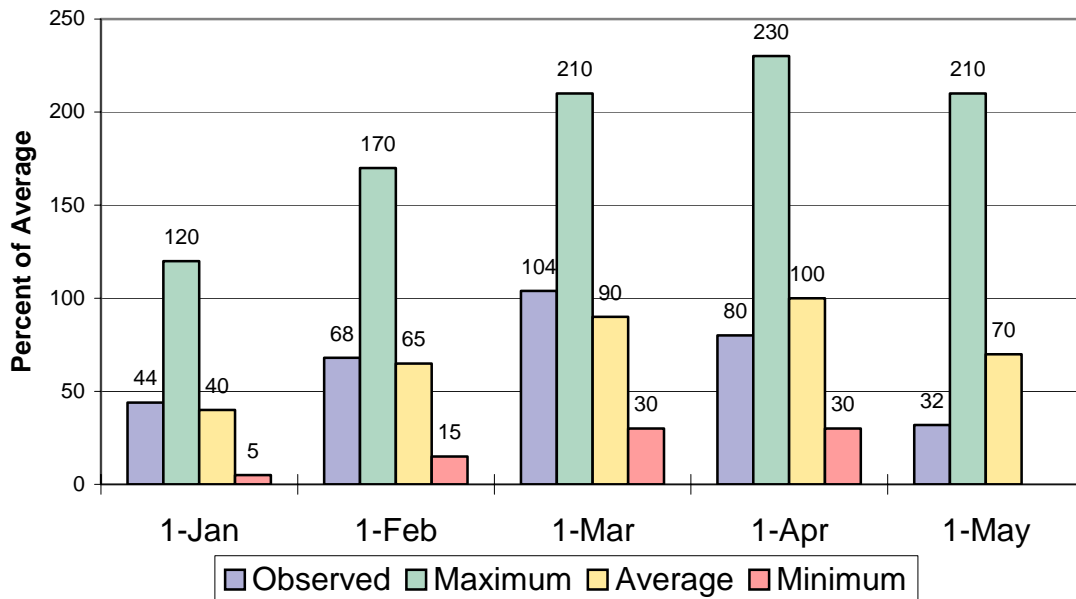
Seasonal Basin Precipitation

October 1 to Date



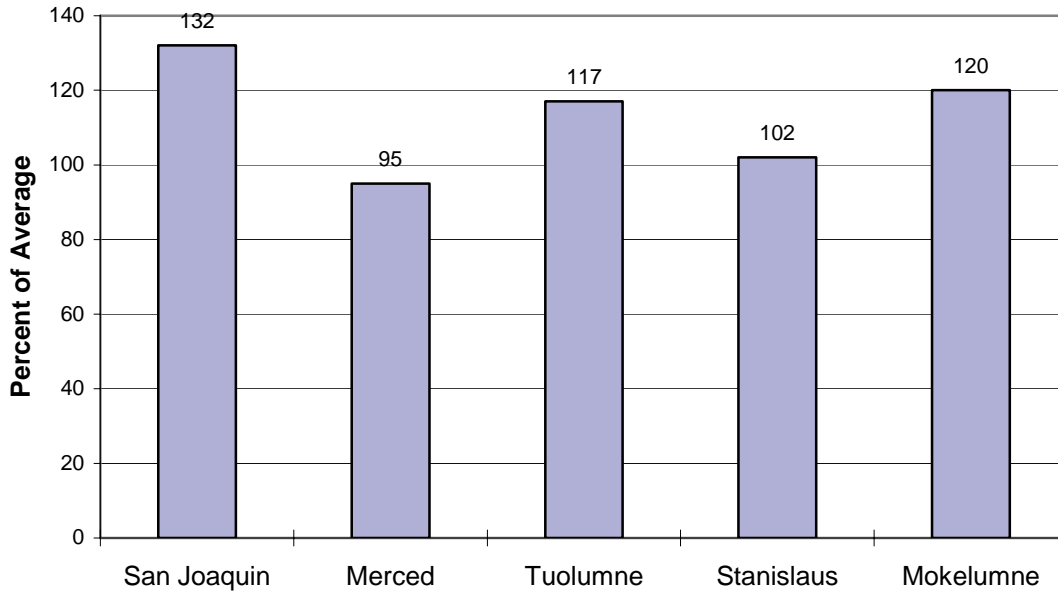
Seasonal Basin Snowpack

Water Content in % of April 1 Average

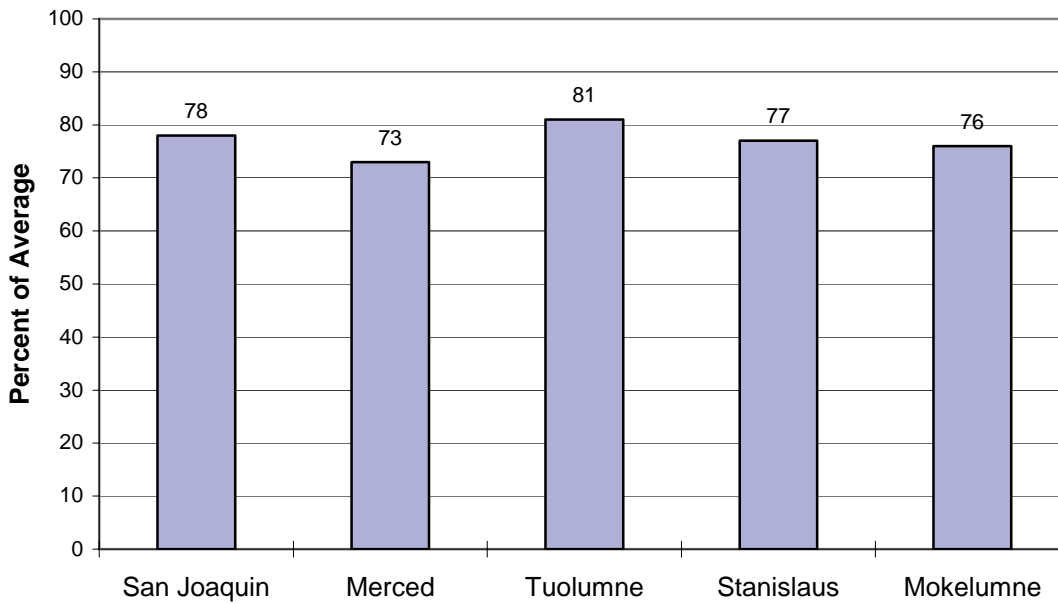


San Joaquin Basin

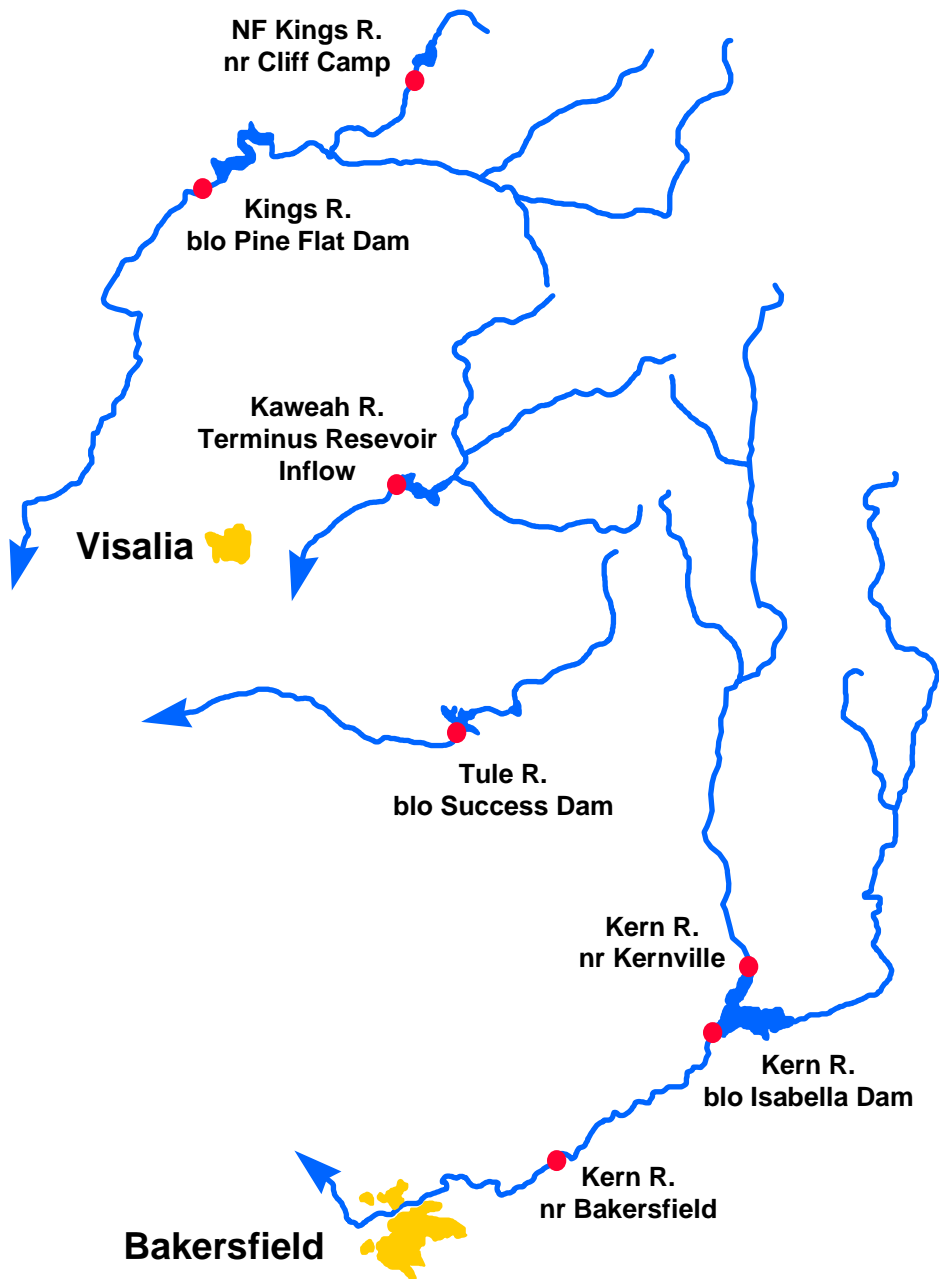
Basin Reservoir Storage Contents of Major Reservoirs in % of Average



Season Basin Runoff October 1 to Date



Tulare Basin

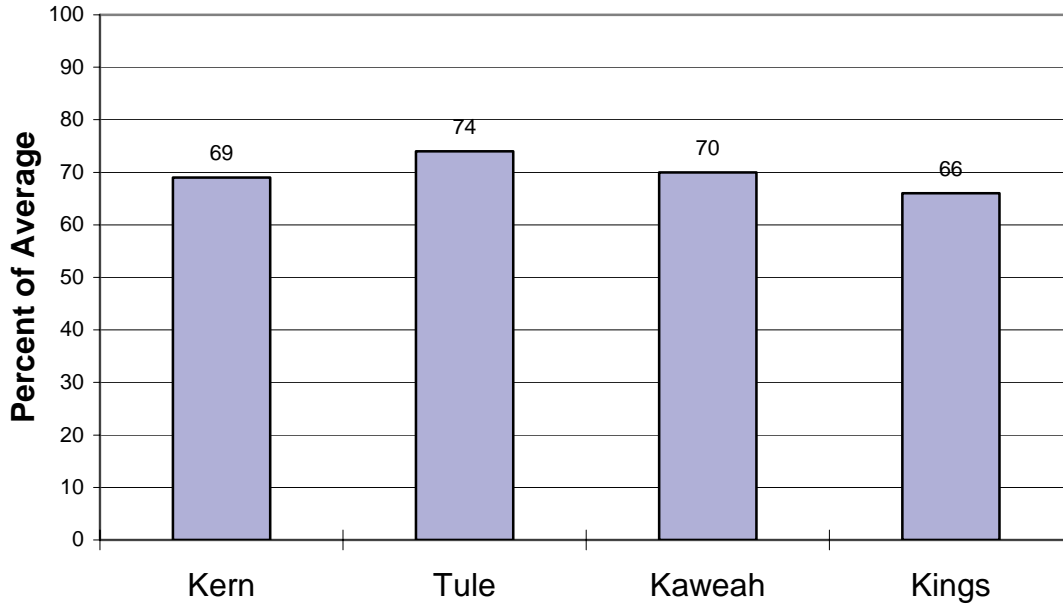


Water Supply Forecasts

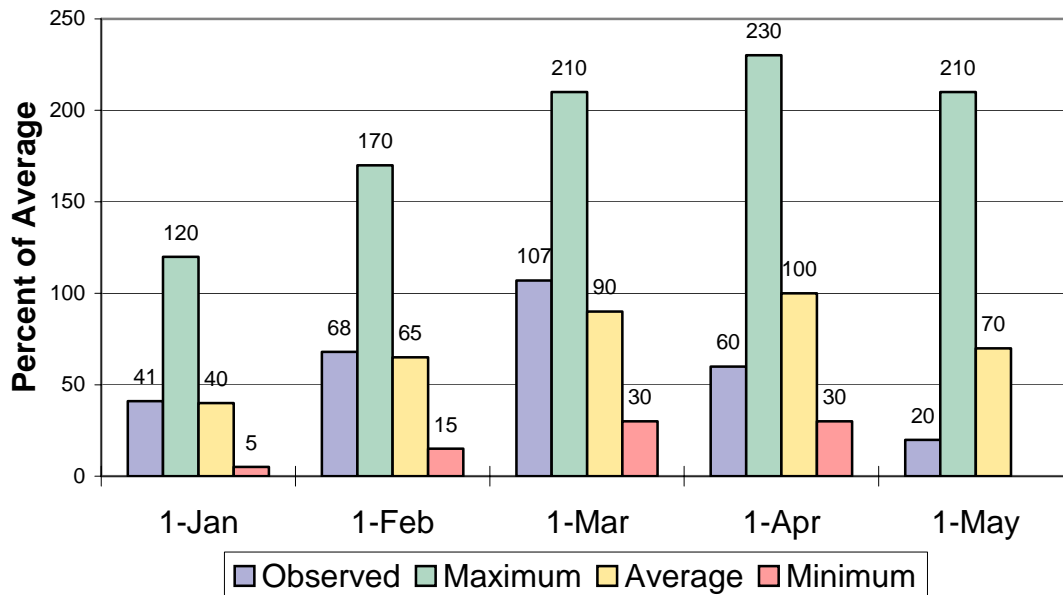
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
Kern River						
Kernville, nr	Apr-Jul	200	50	275	124	398*
Isabella Dam, blo	Apr-Jul	230	48	310	160	480
Bakersfield, nr	Apr-Jul	240	49	320	170	490
Tule River						
Success Dam	Apr-Jul	16.0	24	32	11.0	66
Kaweah River						
Terminus Dam	Apr-Jul	160	55	210	110	290
NF Kings River						
Cliff Camp, nr	Apr-Jul	140	58	180	100	240*
Kings River						
Pine Flat Dam, blo	Apr-Jul	760	61	870	650	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



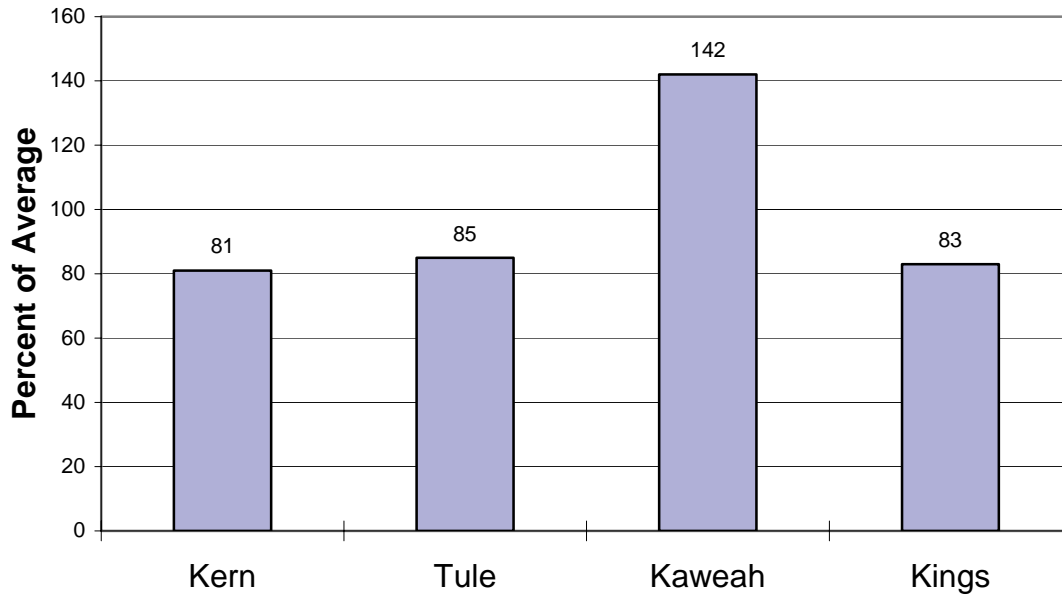
Seasonal Basin Snowpack Water Content in % of April 1 Average



Tulare Lake Basin

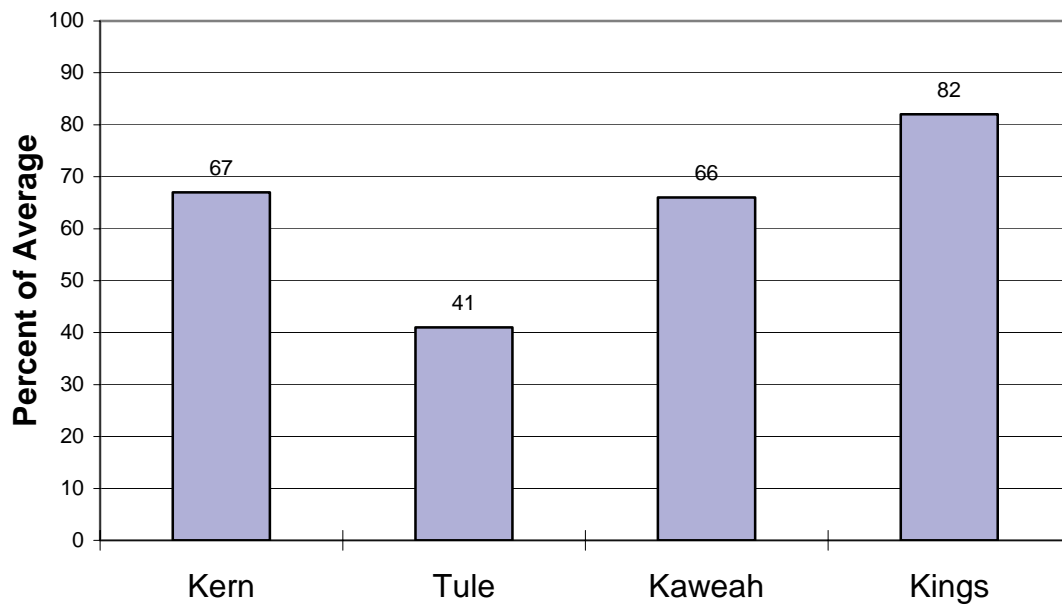
Basin Reservoir Storage

Contents of Major Reservoirs in % of Average

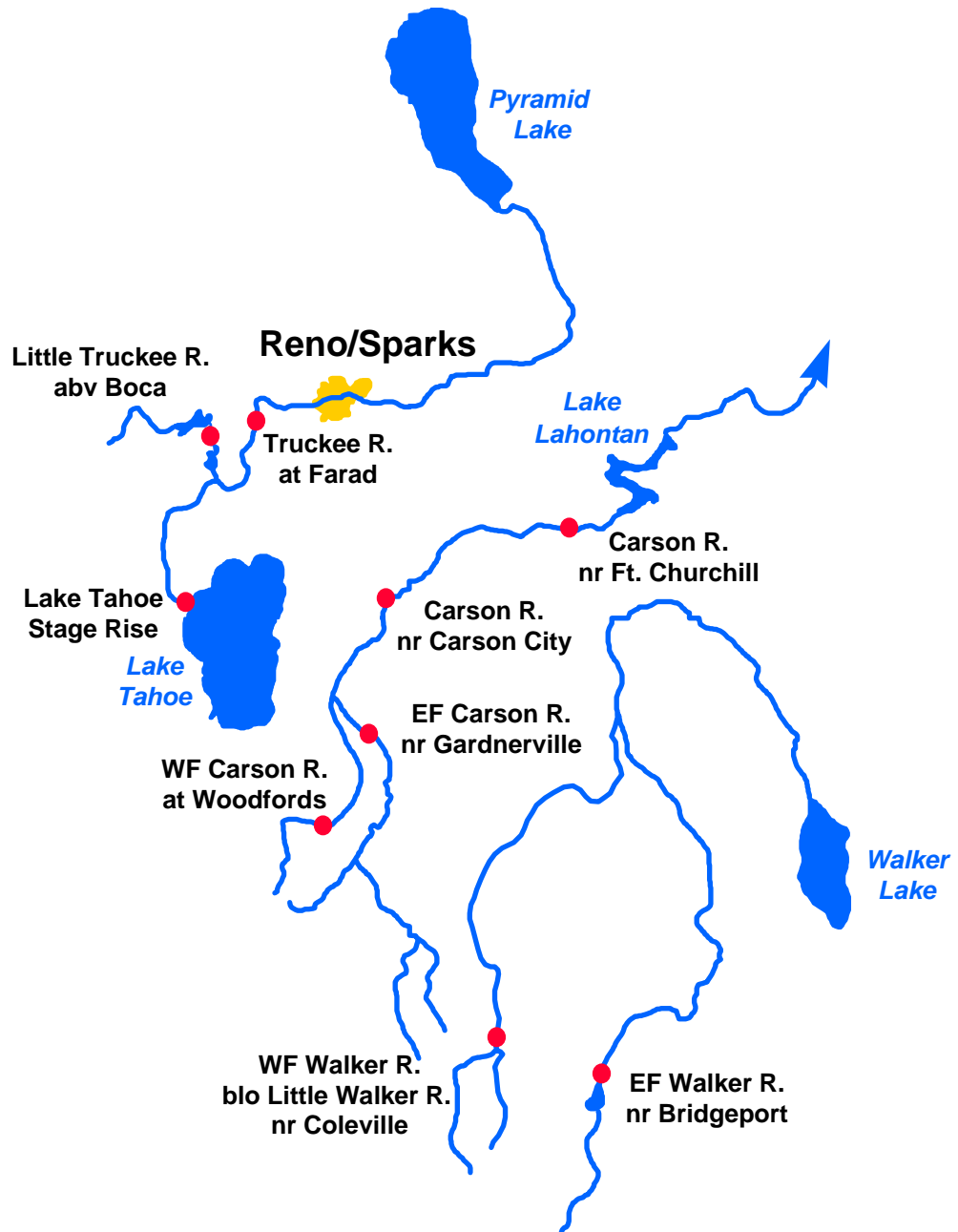


Seasonal Basin Runoff

October 1 to Date



East Side Sierra Nevada Basins



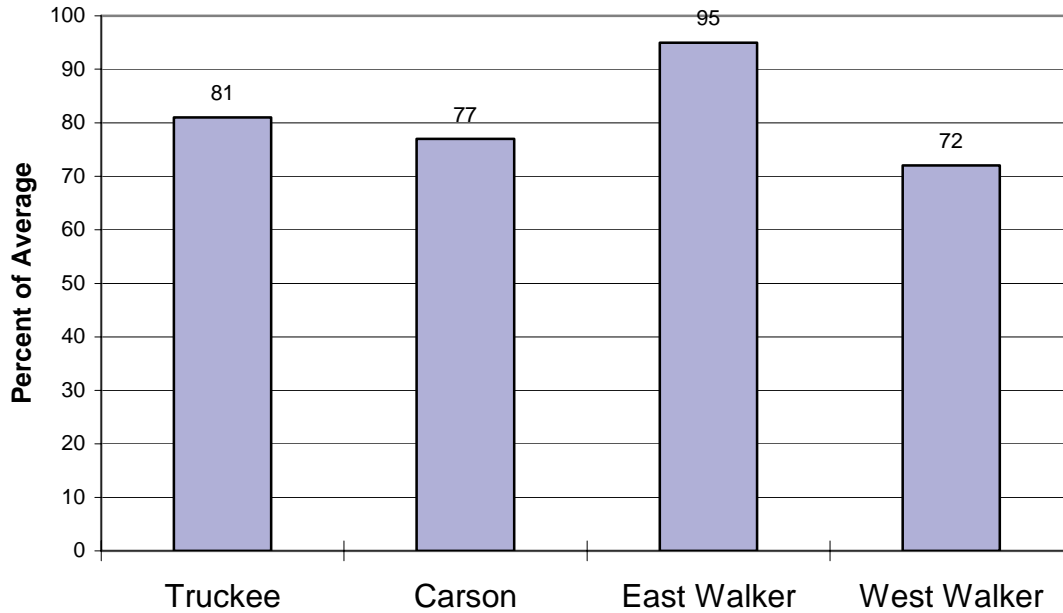
Water Supply Forecasts

		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	0.65	47	0.89	0.41	1.38
Ltl Truckee River						
Boca Res, abv, Truckee, nr	Apr-Jul	43	54	54	33	80
Truckee River						
Farad	Apr-Jul	150	58	180	120	260
Carson River						
EF Carson River						
Gardnerville, nr	Apr-Jul	115	61	132	98	189
WF Carson River						
Woodfords	Apr-Jul	35	62	41	29	56
Carson River						
Carson City, nr	Apr-Jul	100	53	130	70	188
Fort Churchill, nr	Apr-Jul	90	51	124	56	178
Walker River						
East Walker River						
Bridgeport, nr	Apr-Aug	39	58	55	23	67
West Walker River						
Ltl Walker, blo, Coleville, nr	Apr-Jul	120	77	147	93	156

East Side Sierra Nevada Basins

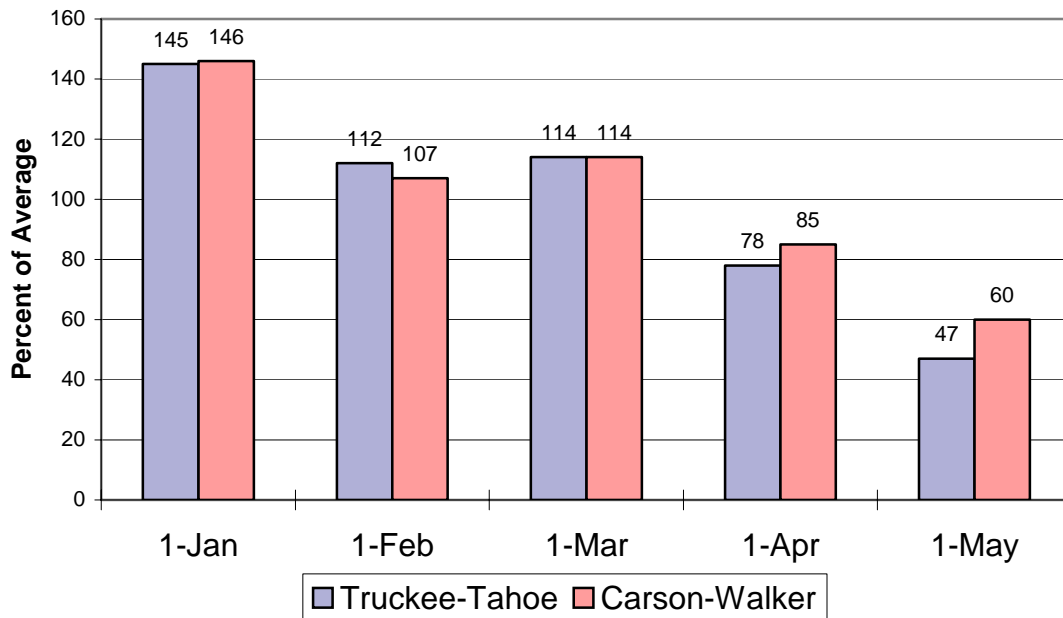
Seasonal Basin Precipitation

October 1 to Date



Basin Snowpack

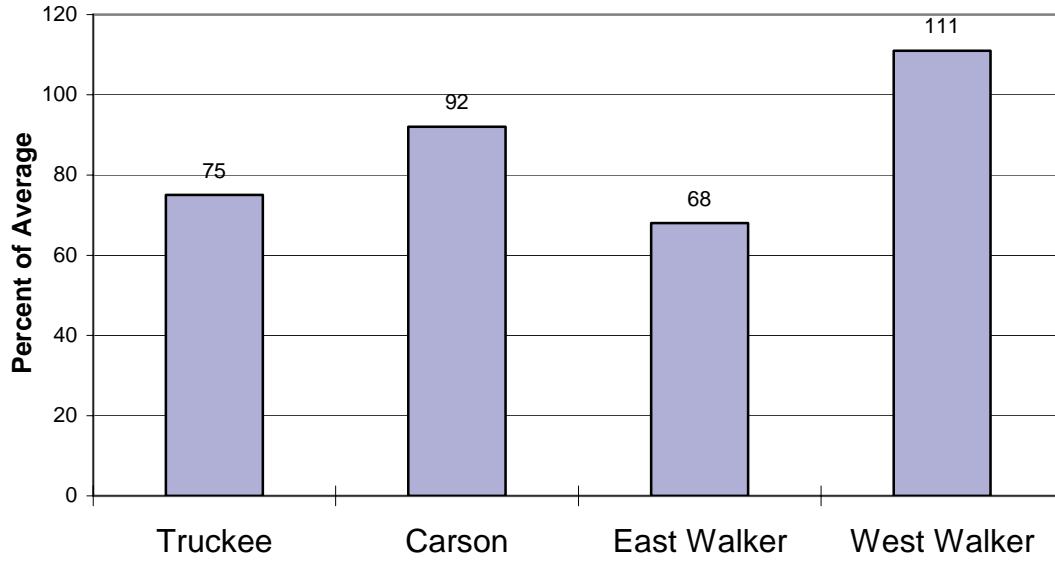
% of Average SWE to Date



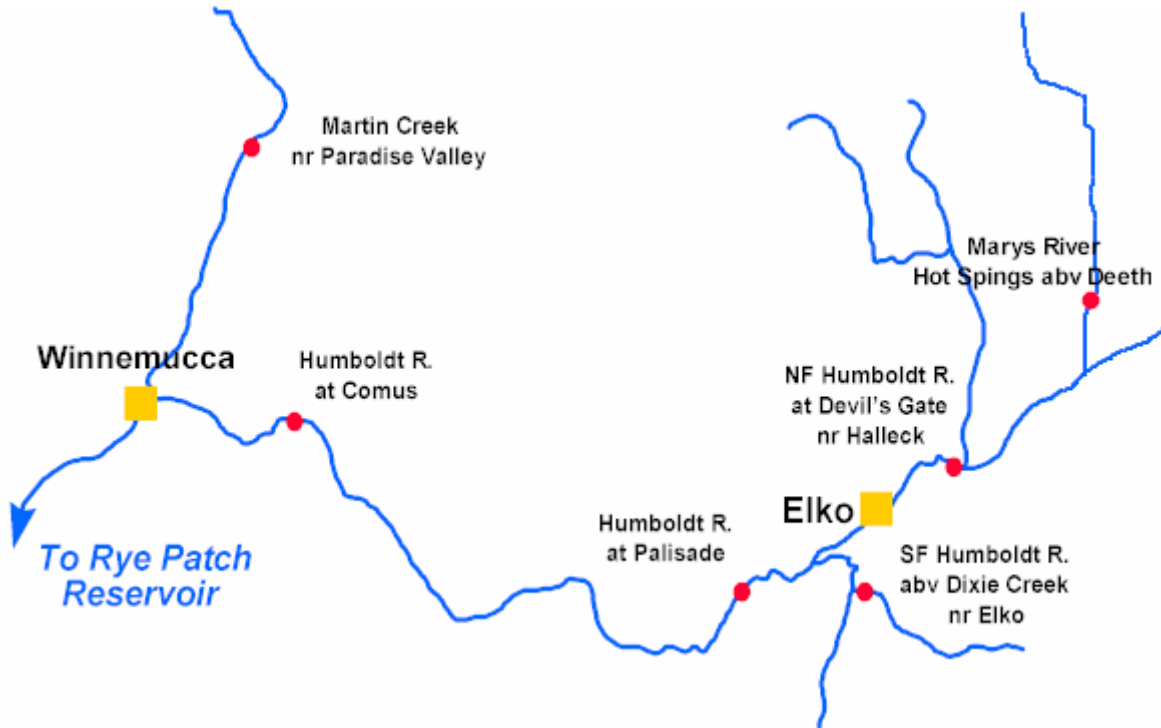
East Side Sierra Nevada Basins

Seasonal Basin Runoff

October 1 to Date



Humboldt River Basin



Water Supply Forecasts

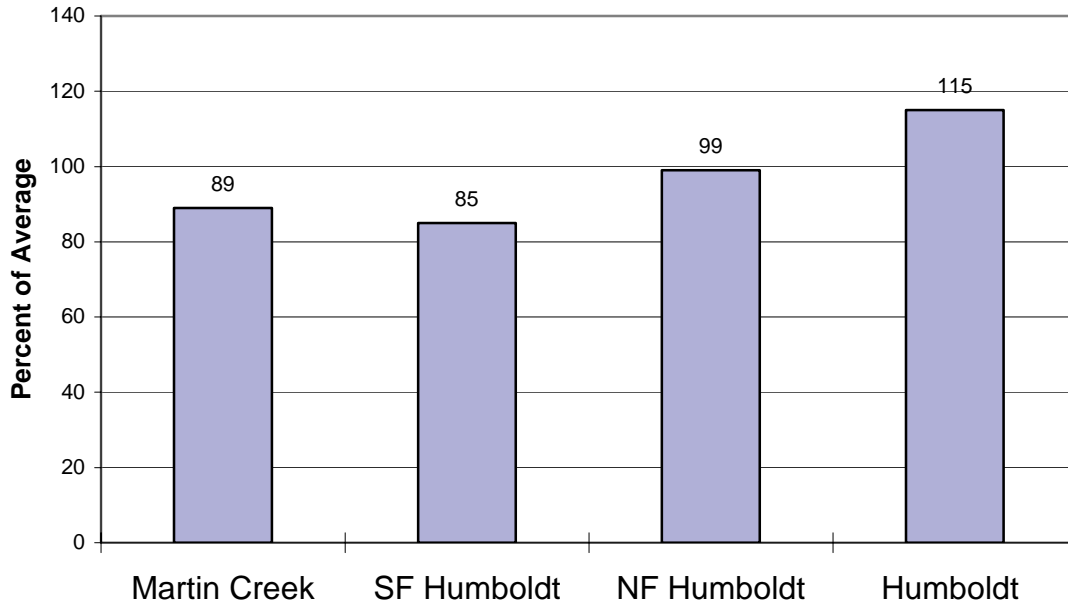
		Most Prob Vol KAF	Most Prob %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
<hr/>						
NF Humboldt River						
Devlis Gate, at, Halleck, nr	Apr-Jul	20	59	34	6.0	34*
SF Humboldt River						
Dixie Ck, abv, Elko, nr	Apr-Jul	42	55	69	15.0	76
Marys River						
Hot Springs, abv, Deeth, nr	Apr-Jul	20	51	32	15.0	39
Humboldt River						
Palisade	Apr-Jul	120	48	200	45	250
Comus	Apr-Jul	105	47	190	30	225
Martin Ck						
Paradise Vly, nr	Apr-Jul	9.0	48	16.0	5.5	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

