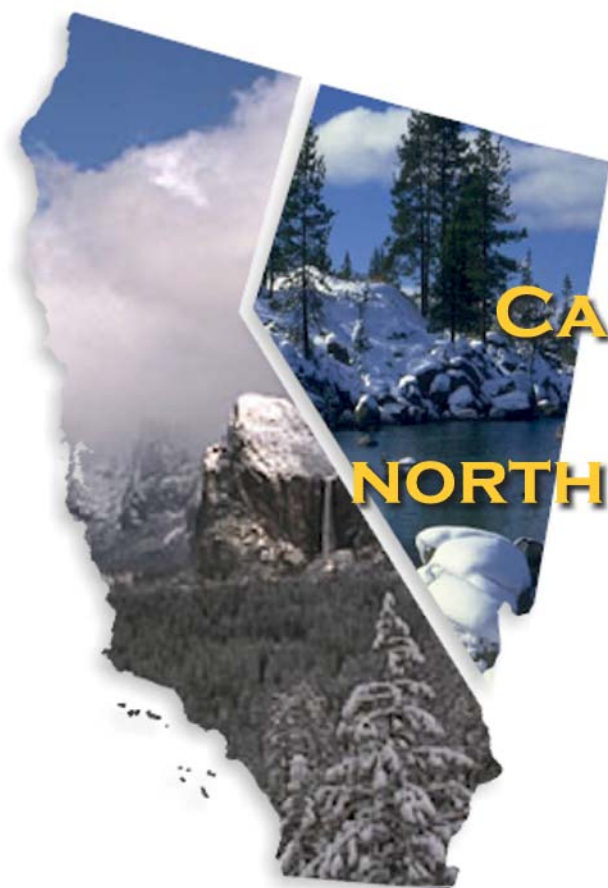


WATER SUPPLY OUTLOOK



CALIFORNIA AND NORTHERN NEVADA

**MARCH
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

March 1, 2006

While much of February was dry, a major weather system arrived at the end of the month to maintain hopes for good spring runoff this year. A series of smaller storms were continuing during the early portion of March. Snowpacks are generally better in the southern Sierra than in the north where rain extended up to the higher elevations during some of the storms. Reservoir storage is excellent for this time of the year.

February precipitation amounts were generally much below average with much of it falling during the last two days of the month. The best amounts fell in the Sacramento drainage with amounts ranging from 69 percent for the American basin to 89 percent for the Feather. Amounts were generally in the 45 to 65 percent range in the San Joaquin region and 45 to 65 percent in the Tulare. The upper Klamath basin recorded about 60 percent of the February average. The Truckee River basin received about 80 percent of the monthly average, the Walker 85 percent, and the Carson 90 percent. It was about 95 percent of the February average in the upper Humboldt basin; the lower Humboldt received 70 percent. Seasonal averages range from near to much above average except in the Tule and Kern basins where it is below average. Seasonal averages are generally slightly to much above average in the east side Sierra and Humboldt basins.

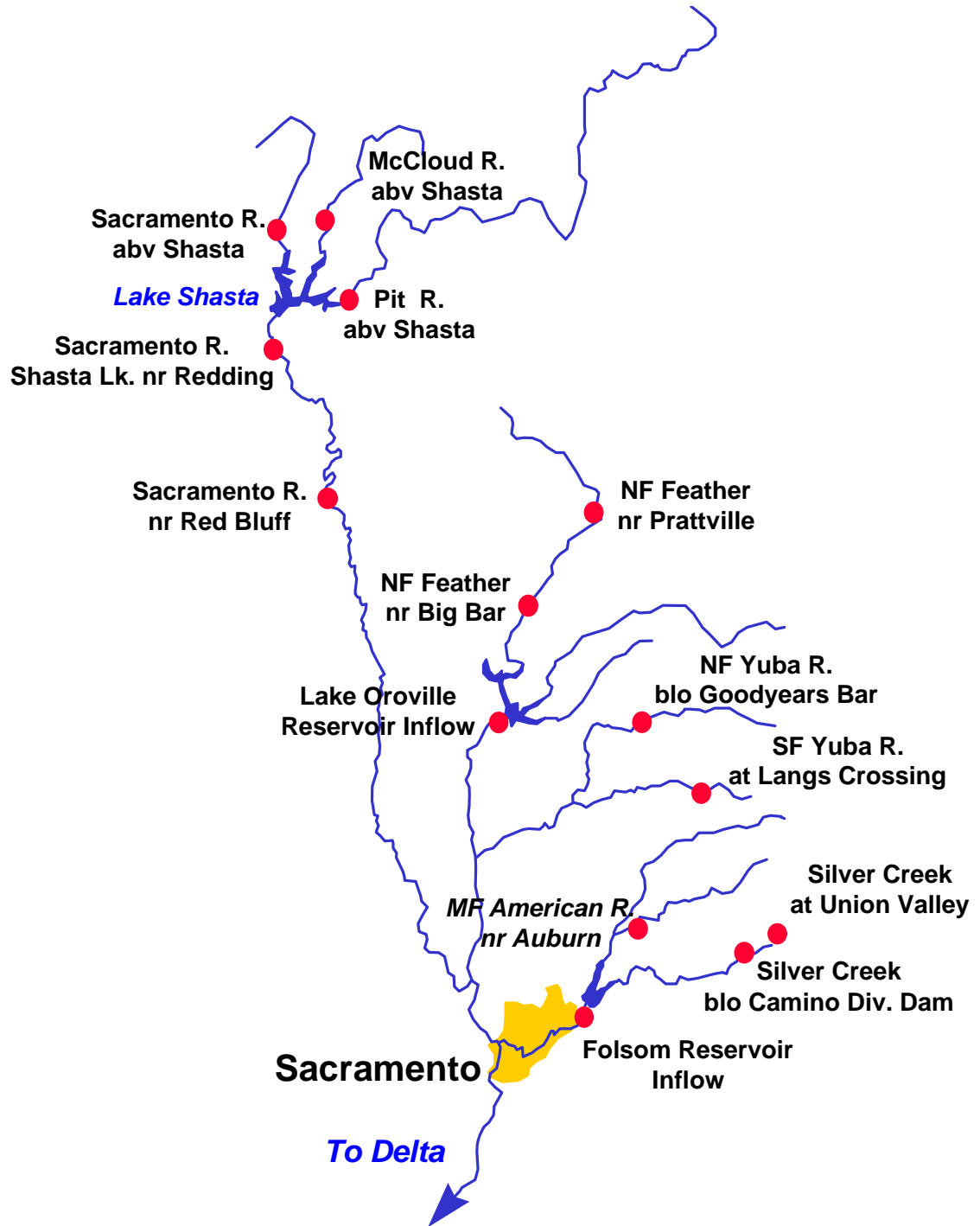
February saw increases to the high elevation snow pack as well as decreases to the lower elevation pack. The decreases to the lower elevation pack were most noticeable in the northern and east side Sierra where melt levels became much higher during some of the February storm events. The California Department of Water Resources reports that the March 1st average is about 60 percent in the Sacramento River region, 95 percent in the San Joaquin and 90 percent in the Tulare Lake region. The April 1st average stands at 55, 85 and 80 percent, respectively. Many of the snow courses were measured before the end of the month storm event so actual March 1st contents are actually a little greater, especially at the higher elevations. There was a noticeable drop in the overall snow pack percent of average in the Klamath, east side Sierra and Humboldt basins from February 1st. Snow packs in the Tahoe-Truckee are at 106 percent of the average-to-date and the Carson-Walker, 122 percent. The upper Humboldt basin stands at about 118 percent, the lower Humboldt 89 percent. Snowpack in the upper Klamath Lake basin is at 139 percent, much better than the 45 percent at this time last year.

Monthly runoff average was greatest in the Trinity-Sacramento drainage ranging from 96 percent for the inflow to Shasta to 126 percent for the Yuba and American. February runoff was in the 72 to 122 percent range for the San Joaquin region and varied from 34 to 82 percent in the Tulare Lake drainage. Runoff for the east side Sierra basins were higher, in the 150 percent range. The Humboldt River at Palisade received 162 percent of the February average while the upper Klamath Lake basin received 99 percent.

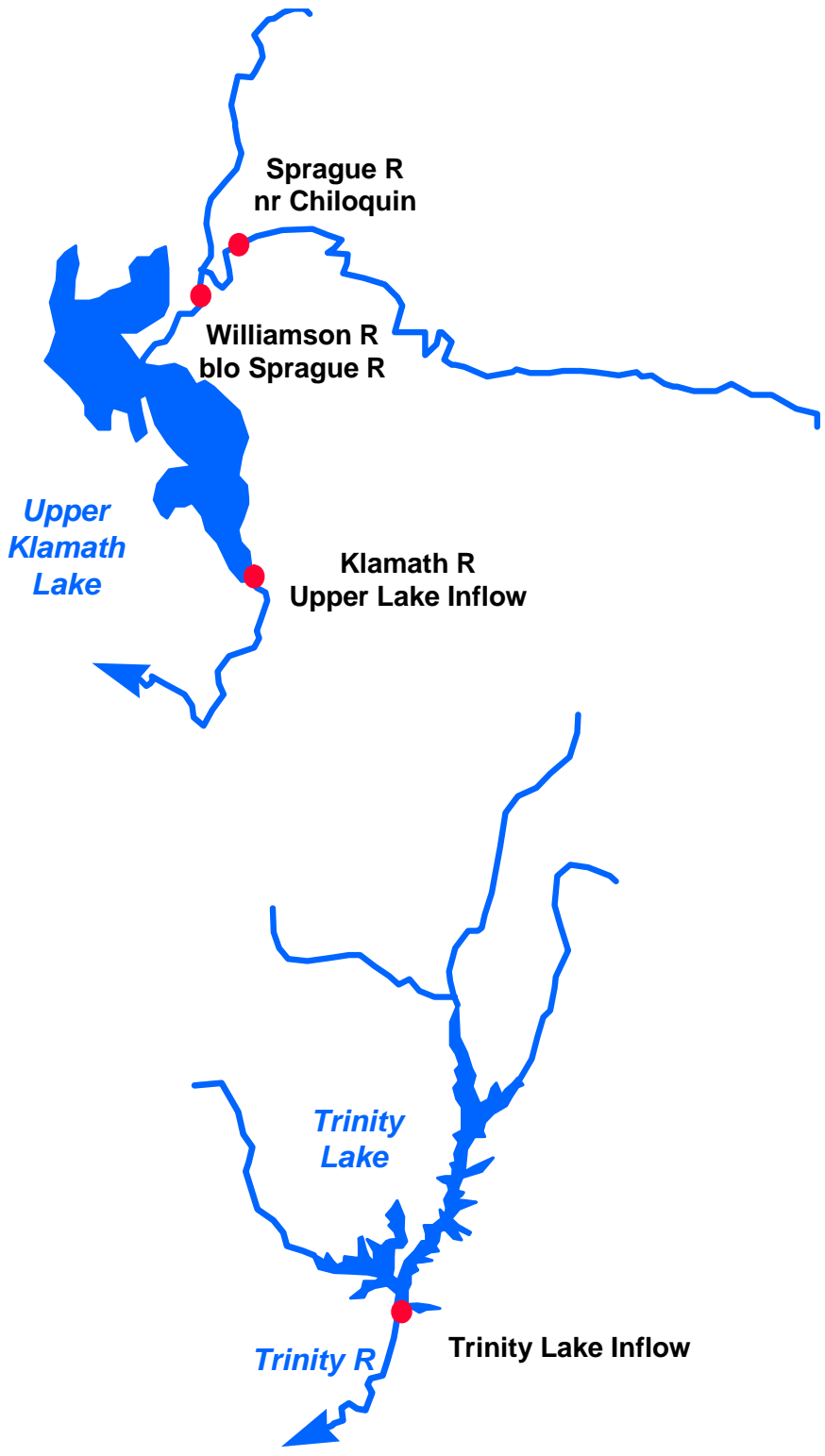
Overall reservoir storage remains high with many of the major reservoirs in California's central valley making releases for flood reservation space. Storage in the Sacramento River region was at 120 percent of average for the date, the San Joaquin at 128 percent and the Tulare Lake region at 126 percent. East side Sierra reservoirs are about 152 percent of average. The lake level at Lake Tahoe stood at 6226.36 on February 28 and usable storage was 408,700 acre feet or 107 percent of average. Storage at Lahontan Reservoir stands at 125 percent while Rye Patch Reservoir in Nevada is at 169 percent of the average-to-date. The upper Klamath Lake is at 102 percent of the average-to-date.

Spring runoff forecasts range from 85 percent to 110 percent in California's Central Valley. Forecasts are near average from the American River to the Kings and for basins in the McCloud and upper Sacramento River drainages. Projections are lower in the Feather, Yuba, Cosumnes and the far southern end of the Sierra Nevada. Streamflow forecasts for the east-side Sierra basins vary from 110 percent to 157 percent. Forecasts for the Humboldt basin range from 112 to 147 percent. The March through September forecast for the upper Klamath Lake inflow is 139 percent.

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	700	139	820	580	505
Sprague River Chiloquin, nr	Mar-Sep	430	141	540	320	305
Upper Klamath Falls River Inflow	Mar-Sep	1000	140	1200	800	715
Lost River Gerber Reservoir Inflow	Mar-Jul	48	130	69	27	37
Clear Lake Reservoir Inflow	Mar-Jul	115	144	152	78	80
Scott River Fort Jones, nr	Apr-Jul	200	110	285	135	181
Trinity River Trinity Lake Inflow	Apr-Jul	720	113	1010	490	635

Trinity River - Inflow at Lewiston Lake Distribution (kAF)

Exceedence

<u>Probability</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>	<u>Jan</u>	<u>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%	12	36	349	279	195	145	165	195	110	20	15	10	490	1531
50%	12	36	349	279	195	210	240	280	160	40	20	15	720	1836
10%	12	36	349	279	195	290	340	390	220	60	25	20	1010	2216

SACRAMENTO RIVER BASIN

SACRAMENTO RIVER ABOVE BEND BRIDGE

Pit River Montgomery Ck, nr	Apr-Jul	1015	95	1450	680	1070
Mccloud River Shasta Lk, abv	Apr-Jul	420	114	590	280	370
Sacramento River Delta	Apr-Jul	315	109	440	210	290
Shasta Lake, Redding, nr	Apr-Jul	1930	108	2650	1320	1790
Bend Bridge, abv, Red Bluff, nr	Apr-Jul	2600	107	3650	1690	2440

FEATHER RIVER ABOVE OROVILLE RESERVOIR

NF Feather River Prattville, nr	Apr-Jul	285	86	430	190	333*
Big Bar	Apr-Jul	825	86	1260	550	962*
Feather River Oroville Reservoir Inflow	Apr-Jul	1500	85	2310	1000	1760

Water Supply Forecasts

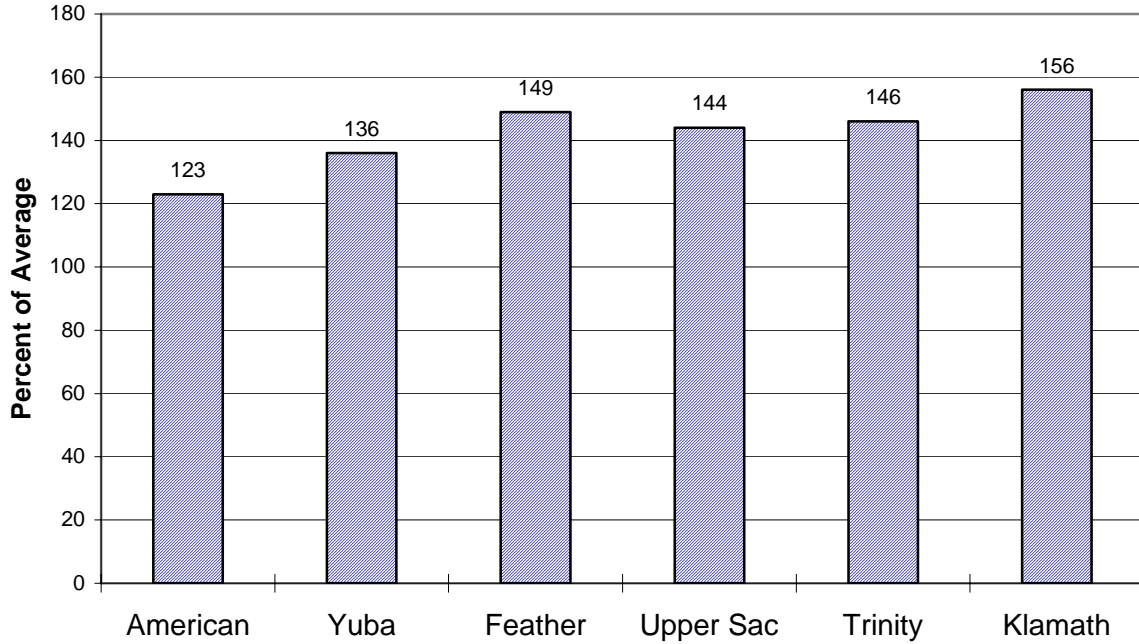
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
YUBA RIVER ABOVE SMARTVILLE						
N North Yuba River						
Goodyears Bar, blo	Apr-Jul	235	86	355	160	273*
South Yuba River						
Langs Crossing	Apr-Jul	195	87	290	130	225*
Yuba River						
Smartville, nr	Apr-Jul	870	87	1310	580	995
AMERICAN RIVER ABOVE FOLSOM RESERVOIR						
MF American River						
Auburn, nr	Apr-Jul	460	94	670	300	490*
Silver Ck						
Union Valley	Apr-Jul	97	99	140	64	98*
Camino Dam, blo	Apr-Jul	156	99	210	91	158*
American River						
Folsom Reservoir Inflow	Apr-Jul	1200	98	1760	750	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

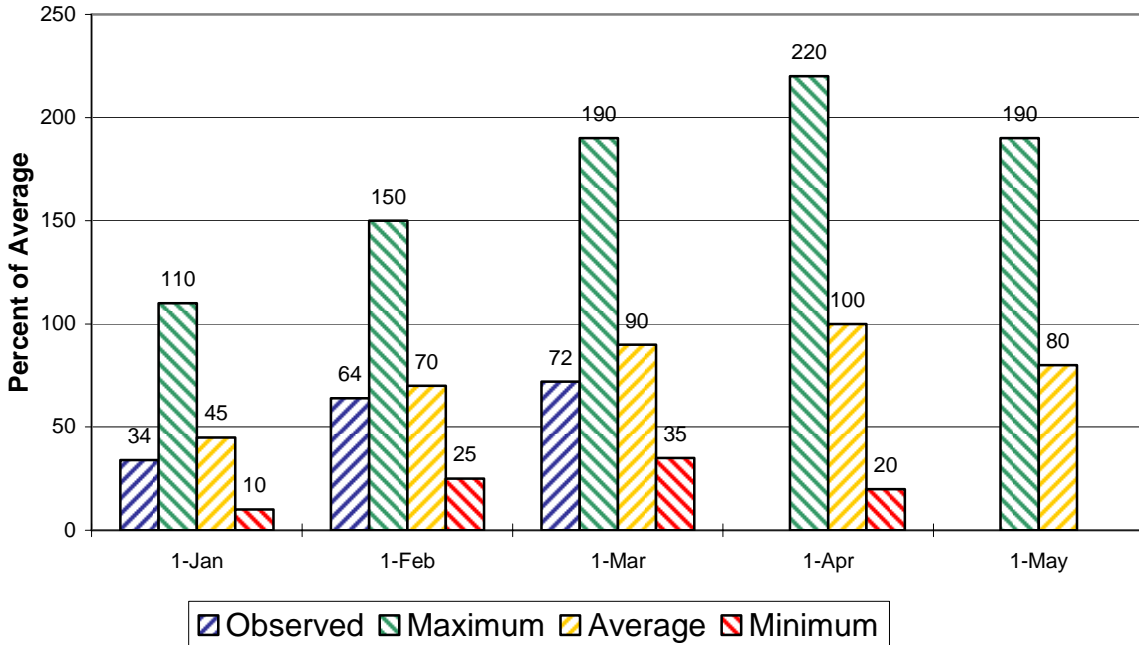
Seasonal Basin Precipitation

October 1 to Date



Seasonal Basin Snowpack

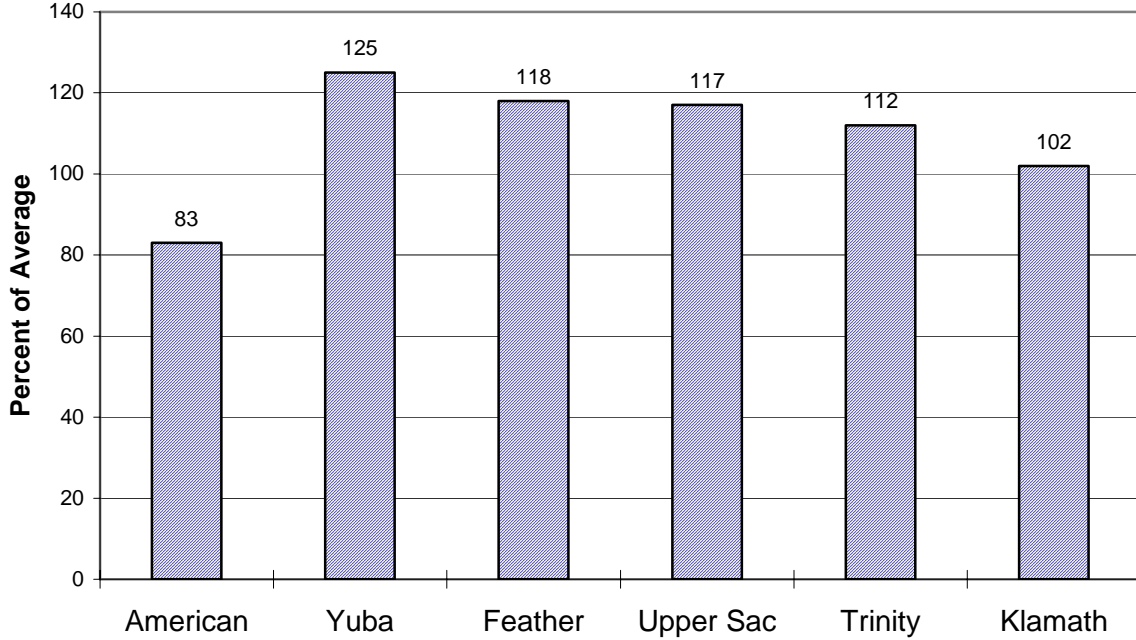
Water Content in % of April 1 Average



Sacramento/Trinity/Klamath River Basins

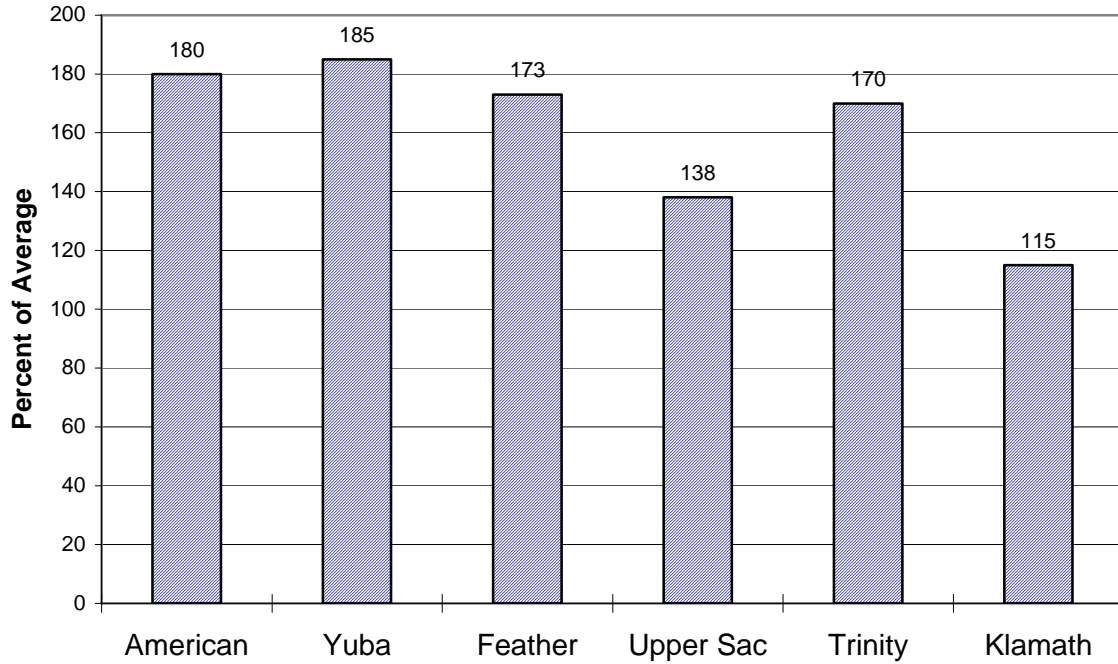
Basin Reservoir Storage

Contents of Major Reservoirs in % of Average



Seasonal Basin Runoff

October 1 to Date



San Joaquin Basin



Water Supply Forecasts

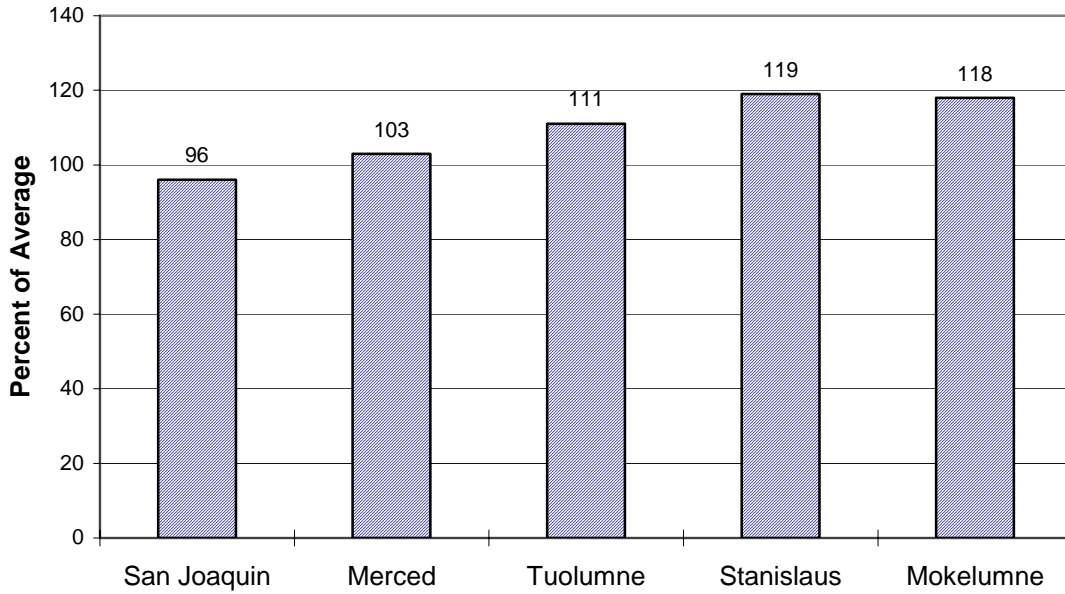
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
<hr/>						
SF San Joaquin River						
Hooper Ck, blo, Florence Lk, nr	Apr-Jul	195	102	280	110	192*
San Joaquin River						
Millerton Lk	Apr-Jul	1350	106	1720	980	1270
Merced River						
Pohono Bridge, at, Yosemite, nr	Apr-Jul	400	111	515	285	360*
Merced Falls, blo	Apr-Jul	650	101	850	450	645
Tuolumne River						
Hetch Hetchy, nr	Apr-Jul	690	116	830	550	596*
La Grange, nr	Apr-Jul	1350	110	1700	1000	1230
MF Stanislaus River						
Beardsley Dam, blo	Apr-Jul	390	122	500	280	320*
Stanislaus River						
Goodwin Dam, blo, Knights Ferry	Apr-Jul	760	109	980	550	695
NF Mokelumne River						
West Point	Apr-Jul	440	106	630	250	416*
Mokelumne River						
Mokelumne Hill	Apr-Jul	480	104	630	330	460
Cosumnes River						
Michigan Bar	Apr-Jul	100	81	160	40	123

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San Joaquin Basin

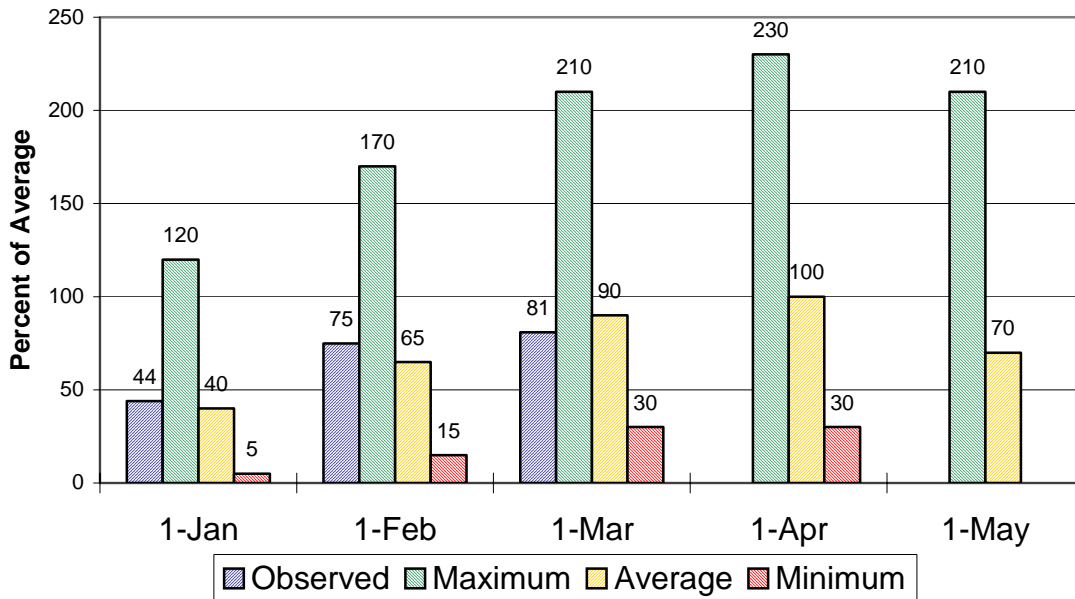
Seasonal Basin Precipitation

October 1 to Date



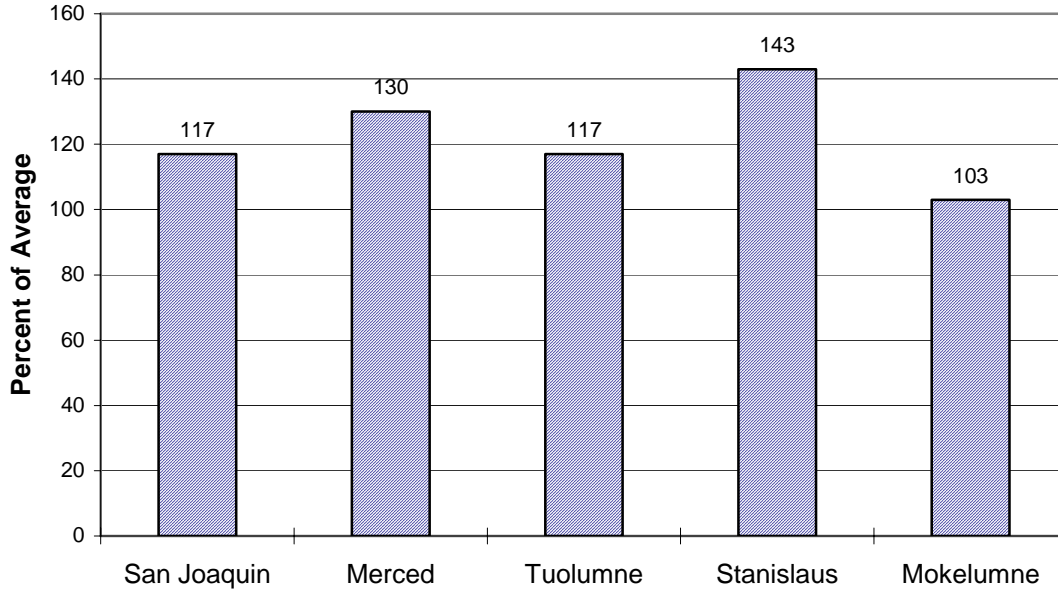
Seasonal Basin Snowpack

Water Content in % of April 1 Average

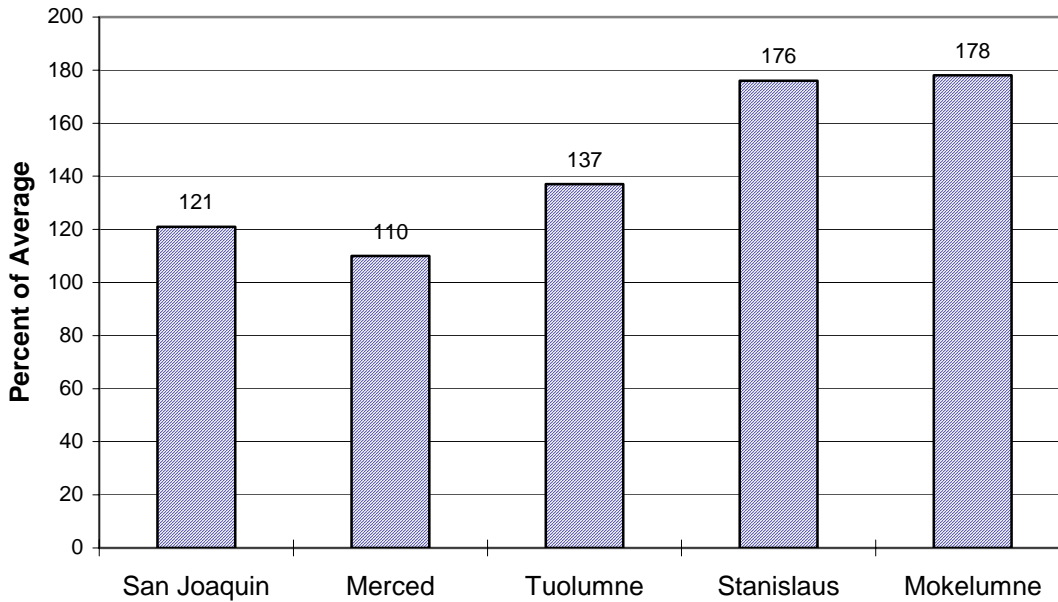


San Joaquin Basin

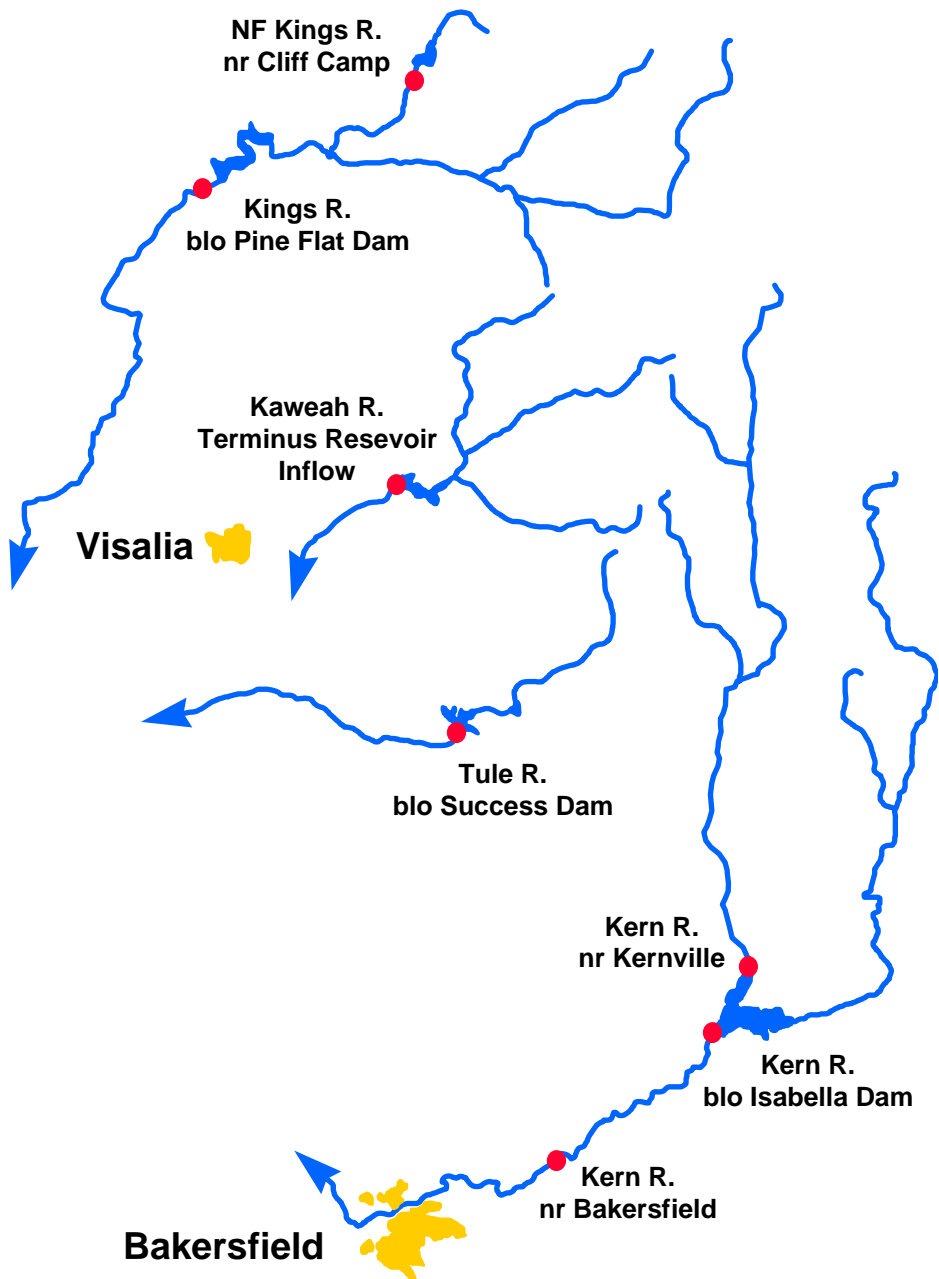
Basin Reservoir Storage Contents of Major Reservoirs in % of Average



Season Basin Runoff October 1 to Date



Tulare Basin

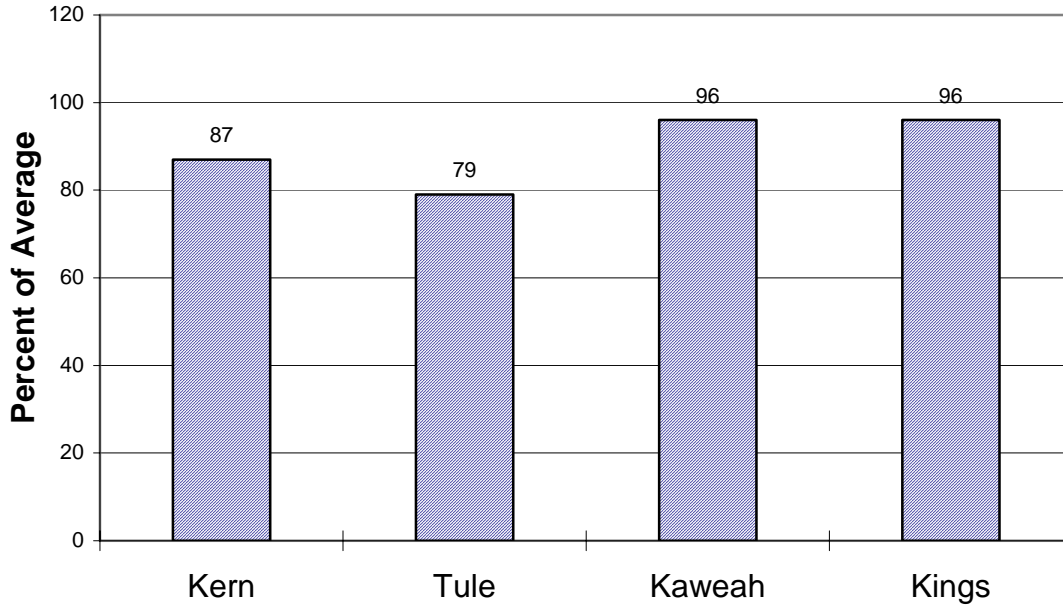


Water Supply Forecasts

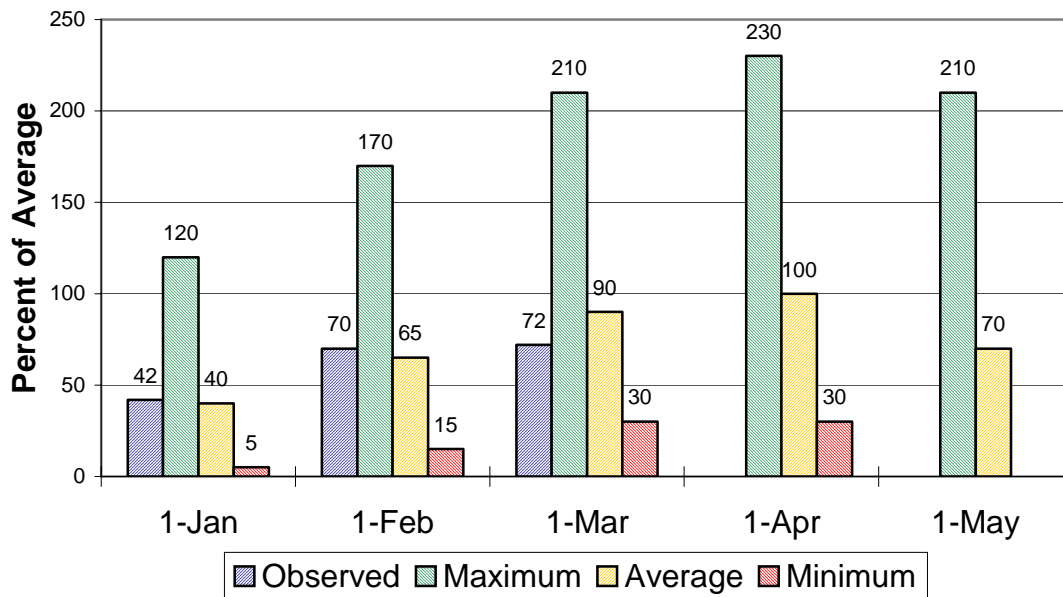
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
Kern River						
Kernville, nr	Apr-Jul	330	83	445	215	398*
Isabella Dam, blo	Apr-Jul	390	81	530	250	480
Bakersfield, nr	Apr-Jul	400	82	540	260	490
Tule River						
Success Dam	Apr-Jul	42	64	70	15.0	66
Kaweah River						
Terminus Dam	Apr-Jul	255	88	370	140	290
NF Kings River						
Cliff Camp, nr	Apr-Jul	230	96	310	150	240*
Kings River						
Pine Flat Dam, blo	Apr-Jul	1220	98	1570	875	1250

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Tulare Lake Basin Seasonal Precipitation October 1 to Date



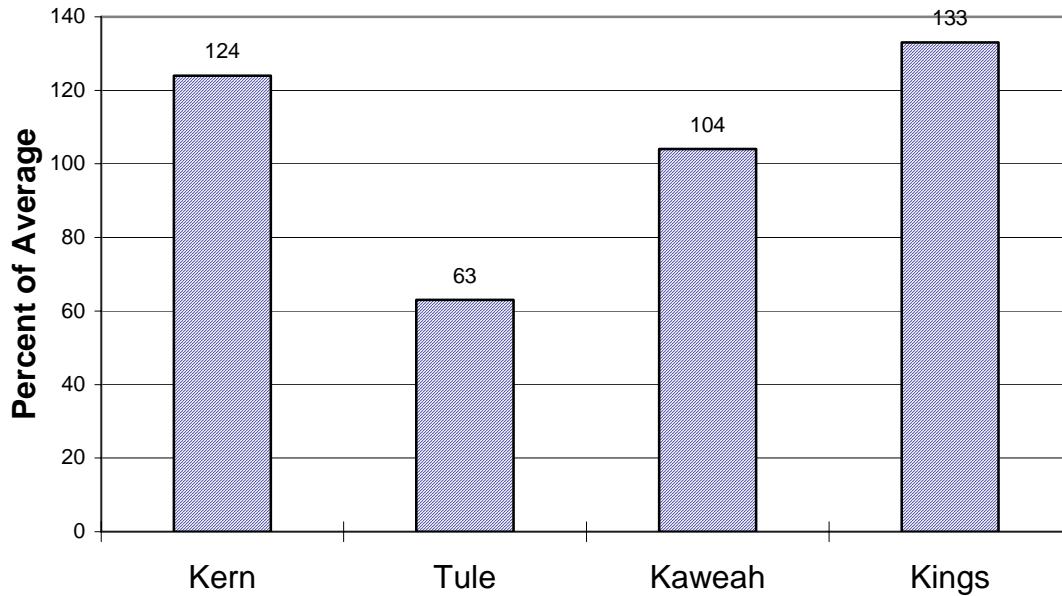
Seasonal Basin Snowpack Water Content in % of April 1 Average



Tulare Lake Basin

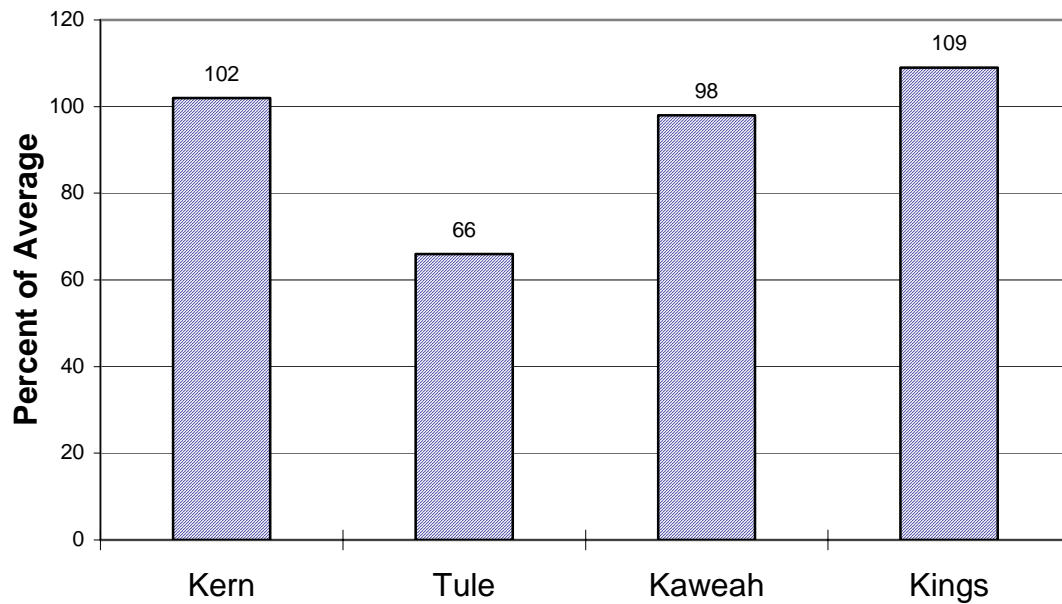
Basin Reservoir Storage

Contents of Major Reservoirs in % of Average

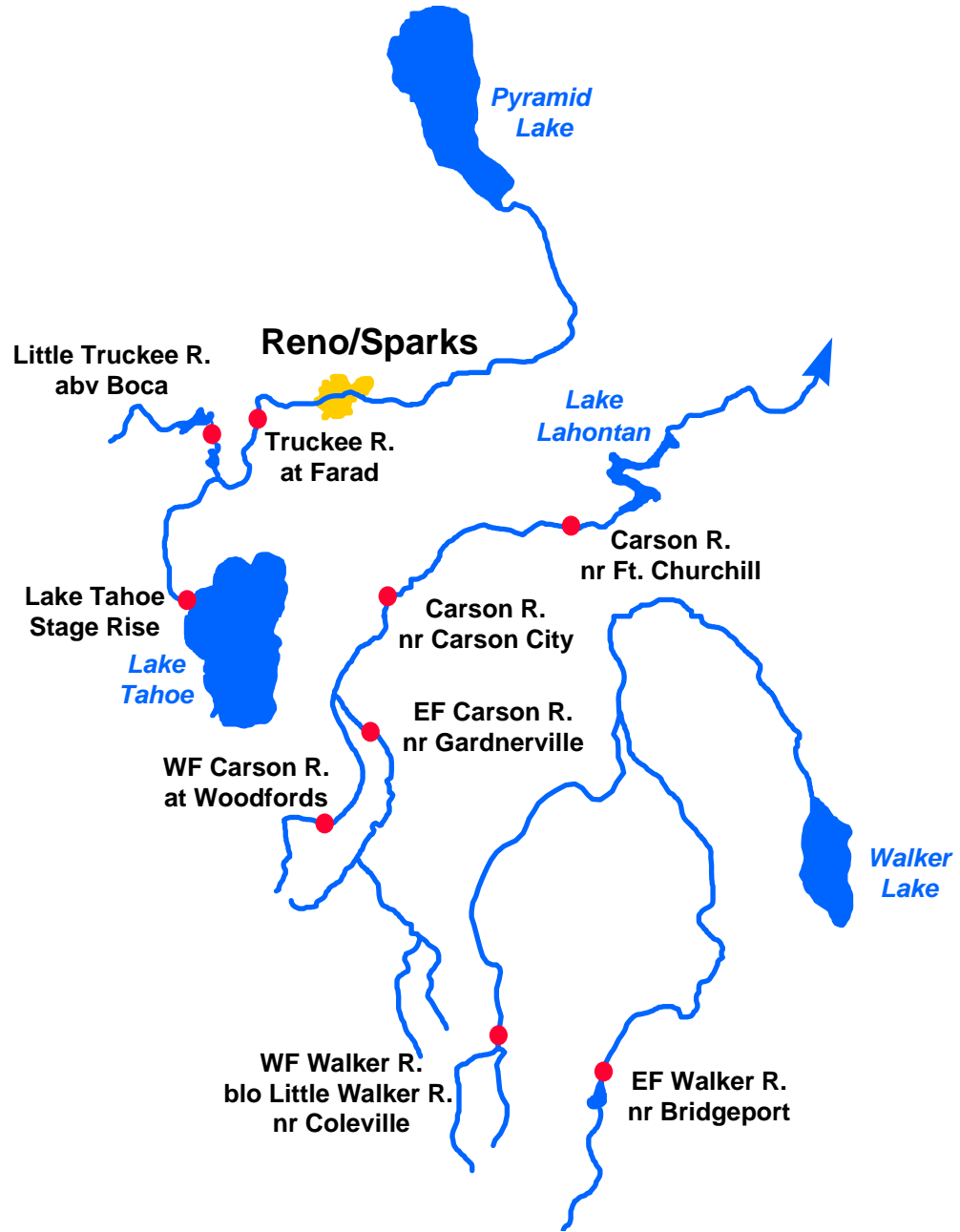


Seasonal Basin Runoff

October 1 to Date



East Side Sierra Nevada Basins



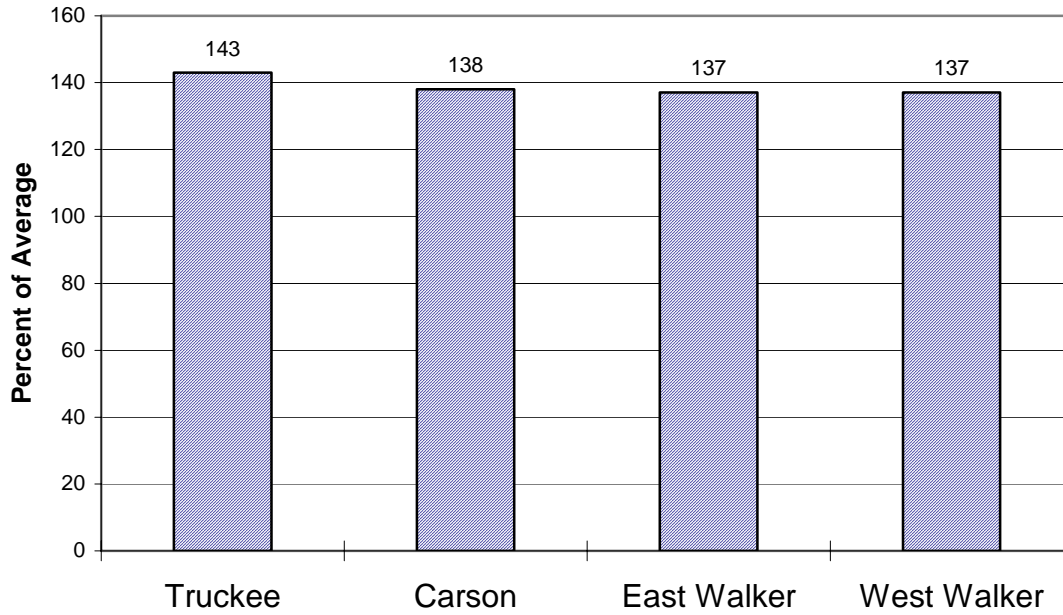
Water Supply Forecasts

		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	1.60	116	2.4	0.77	1.38
Ltl Truckee River						
Boca Res, abv, Truckee, nr	Apr-Jul	88	110	132	44	80
Truckee River						
Farad	Apr-Jul	315	121	435	195	260
Carson River						
EF Carson River						
Gardnerville, nr	Apr-Jul	225	119	270	180	189
WF Carson River						
Woodfords	Apr-Jul	70	125	85	55	56
Carson River						
Carson City, nr	Apr-Jul	240	128	305	173	188
Fort Churchill, nr	Apr-Jul	245	138	325	168	178
Walker River						
E East Walker River						
Bridgeport, nr	Apr-Aug	105	157	129	81	67
West Walker River						
Ltl Walker, blo, Coleville, nr	Apr-Jul	225	144	285	165	156

East Side Sierra Nevada Basins

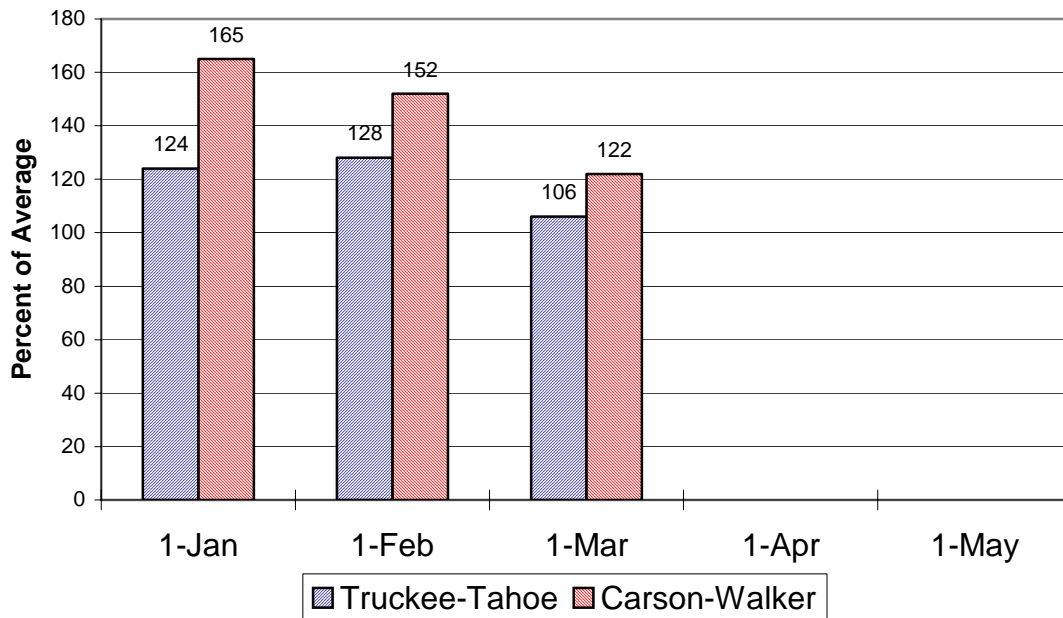
Seasonal Basin Precipitation

October 1 to Date



Basin Snowpack

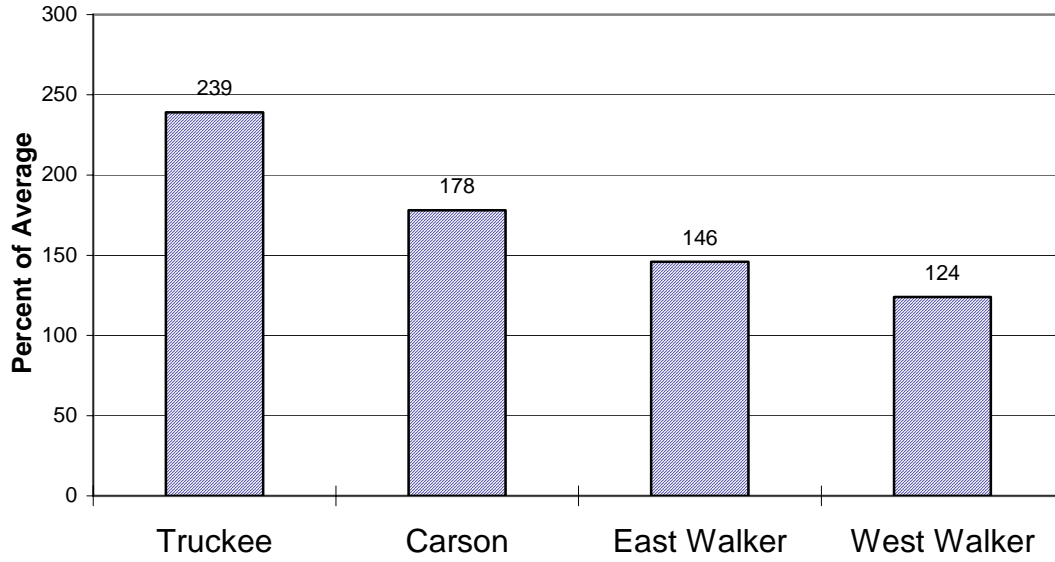
% of Average SWE to Date



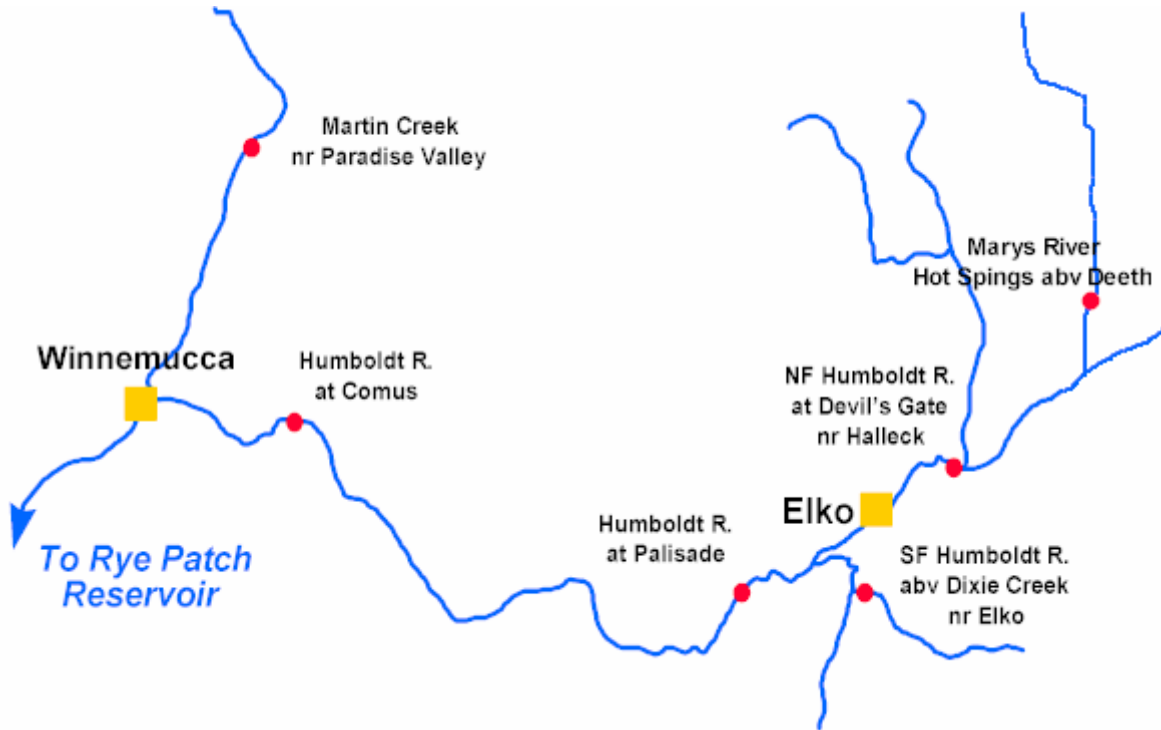
East Side Sierra Nevada Basins

Seasonal Basin Runoff

October 1 to Date



Humboldt River Basin



Water Supply Forecasts

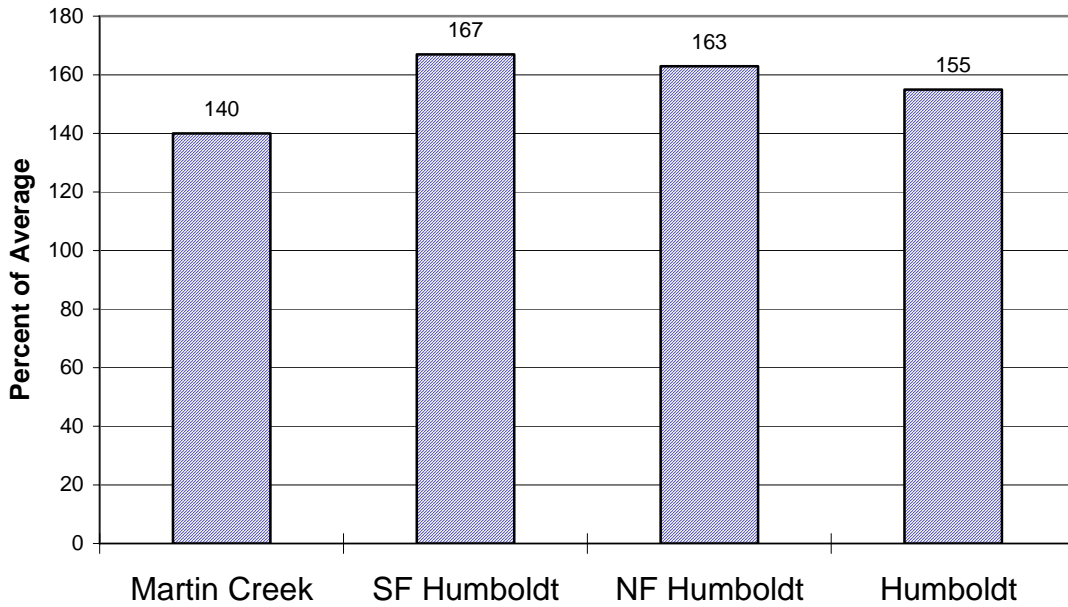
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
<hr/>						
NF Humboldt River						
Devels Gate, at, Halleck, nr	Apr-Jul	45	132	65	25	34*
SF Humboldt River						
Dixie Ck, abv, Elko, nr	Apr-Jul	100	132	130	70	76
Marys River						
Hot Springs, abv, Deeth, nr	Apr-Jul	55	141	70	40	39
Humboldt River						
Elko, nr	Apr-Jul	210	136	296	125	154
Palisade	Apr-Jul	340	136	490	190	250
Comus	Apr-Jul	330	147	500	160	225
Martin Ck						
Paradise Vly, nr	Apr-Jul	21	112	29	13.0	18.7

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Humboldt River Basin

Seasonal Basin Precipitation

October 1 to Date



Basin Snowpack

% of Average SWE to Date

