Water Supply Outlook

California and Northern Nevada

February 2010

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

February 1, 2010

The much hoped for series of storms finally arrived over California during January with about a week of more or less continuous precipitation starting around the 17th of the month. Snowpacks in the Sierra Nevada are holding over 100 percent of a February 1st average and improved storage conditions are being seen in many, if not all of California's major reservoirs. However, while wetter than average January precipitation is welcome news for California's water supply situation, weather conditions during the remainder of the wet season could still modify the outlook considerably.

The water supply outlook at this time remains dismal for northern and central Nevada. Basins in this region did not receive sufficient amounts of precipitation during January to greatly improve the mountain snowpack or storage in major reservoirs such as Rye Patch.

January precipitation ranged from below average for the Upper Klamath Lake basin to much above average for the Trinity and upper Sacramento, while the Sierra Nevada received above average precipitation. Seasonal precipitation (October 1st to January 31st) is below average in the upper and lower Klamath, and ranges from below to above average from the Trinity basin to the Kern. Seasonal precipitation remains below average for eastern and northern Nevada watersheds.

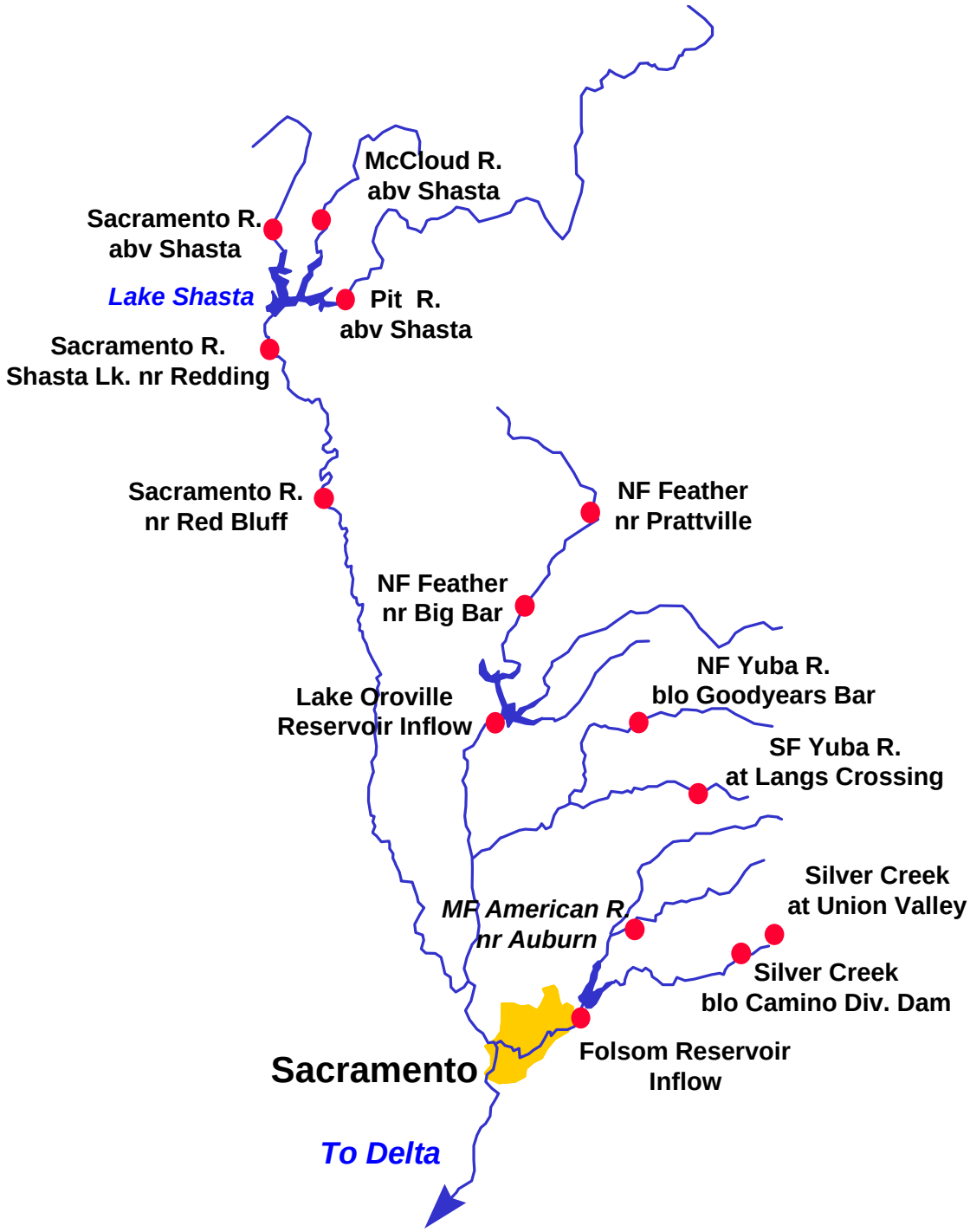
The January storms added an estimated 35 to 55 percentage points to the April 1st snowpack average from last December 31st for the upper Sacramento-Sierra Nevada region. As of February 1, the April 1st average stands at approximately 75 percent for the Shasta-northern Sierra, 74 percent for the San Joaquin Valley and 78 percent for the Tulare Lake region. Snow packs in the Tahoe-Truckee are about 95 percent of the percent of the average-to-date, the Carson-Walker at 105 percent and the Humboldt basin at 73 percent. The pack stands at about 75 percent of the average-to-date for the Upper Klamath Lake basin. It was 80 percent in the Humboldt and 87 percent for the Upper Klamath Lake basin at this time last year.

Runoff was generally below to much below average for the region during January with the exception of the inflow to Shasta Lake and the Trinity River at Lewiston where it was 115 and 97 percent of average, respectively. It was 47 percent from the Feather to the American, 56 percent for the San Joaquin drainage, and 66 percent for the Tulare Lake watershed. East side Sierra basins received 44 percent of a January average while the Humboldt River at Palisade recorded approximately 43 percent. The Upper Klamath Lake inflow was 61 percent of a January average.

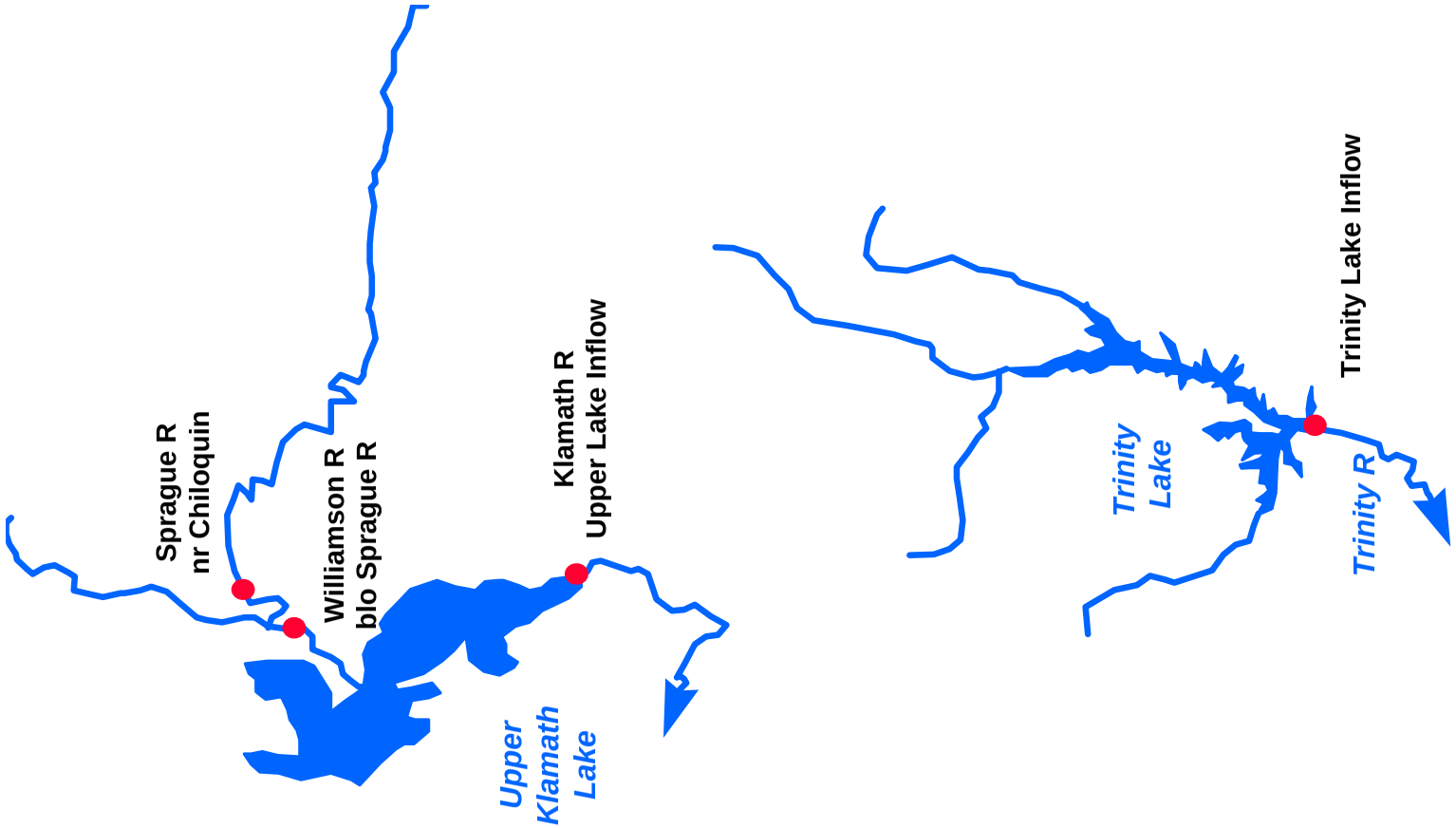
Last January's storm systems brought good gain in storage at Shasta Lake. However, storage in major reservoirs such as Lake Oroville and Folsom still remain much below average. Storage at Shasta Lake now stands at 85 percent of average (as opposed to 64 percent on December 31, 2009) and Lake Oroville at 49 percent (45 percent on December 31). Stored water in the Sacramento region as of January 31st was at 79 percent of average for the date (61 percent for the date last year), the San Joaquin at 95 percent (75 percent last year), and the Tulare Lake watershed at 82 percent (62 percent last year). East-side Sierra reservoirs stand at 76 percent of average. The lake level at Lake Tahoe stood at 6223.04 feet as of January 31st with usable storage of 4,800 acre-feet. Usable storage was 32,800 acre-feet at this time last year. Storage at Lahontan Reservoir in Nevada stands at 28 percent of average as of January 31st while Rye Patch Reservoir is at 13 percent. Storage at Upper Klamath Lake is about 58 percent of average.

April through July runoff forecasts varies from 82 percent for the Pit River basin to 108 percent of average for the Kings. Most are in the 90-105 percent range in California's Central Valley. Forecasts range from 76 to 87 percent of average for the east side Sierra Nevada basins and 37 to 58 percent for forecast points on the main stem Humboldt River. The April through September forecast for the Upper Klamath Lake inflow is 70 percent.

Sacramento River Basin



Upper Klamath and Trinity River Basins



Water Supply Forecasts

COASTAL BASINS

		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
Williamson River						
Sprague, blo	Apr-Sep	285	74	390	181	385
Sprague River						
Chiloquin, nr	Apr-Sep	170	74	255	85	230
Upper Klamath Falls River						
Inflow	Apr-Sep	360	70	535	186	515
Lost River						
Gerber Reservoir Inflow	Feb-Jul	24	51	52	2.4	47
Clear Lake Reservoir Inflow	Feb-Jul	70	67	133	7.0	105
Scott River						
Fort Jones, nr	Apr-Jul	140	77	295	117	181
Trinity River						
Trinity Lake Inflow	Apr-Jul	660	104	1060	440	635

Trinity River – Inflow at Lewiston Lake Distribution (kAF) Exceedence

Probability	Oct-Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Apr-Jul	Water Yr
90%	223	100	120	150	180	80	27	9	5	440	900
50%	223	150	180	230	270	120	40	13	8	660	1230
10%	223	240	290	370	435	190	65	21	13	1060	1850

SACRAMENTO RIVER BASIN

		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
SACRAMENTO RIVER ABOVE BEND BRIDGE						
Pit River						
Montgomery Ck, nr	Apr-Jul	775	82	1180	575	940**
Mccloud River						
Shasta Lk, abv	Apr-Jul	380	103	530	285	370
Sacramento River						
Delta	Apr-Jul	315	109	475	215	290
Shasta Dam	Apr-Jul	1660	93	2530	1210	1790
Bend Bridge, abv, Red Bluff, nr	Apr-Jul	2200	90	3480	1480	2440

Water Supply Forecasts

		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
FEATHER RIVER ABOVE OROVILLE RESERVOIR						
North Fork Feather River						
Prattville, nr	Apr-Jul	300	90	445	210	333*
Big Bar	Apr-Jul	885	92	1380	590	962*
Feather River						
Oroville Dam	Apr-Jul	1580	90	2720	990	1760
YUBA RIVER ABOVE SMARTVILLE						
North Yuba River						
Goodyears Bar, blo	Apr-Jul	280	103	420	170	273*
South Yuba River						
Langs Crossing	Apr-Jul	230	102	355	140	225*
Yuba River						
Englebright Reservoir	Apr-Jul	950	95	1550	515	995
AMERICAN RIVER ABOVE FOLSOM RESERVOIR						
Middle Fork American River						
Auburn, nr	Apr-Jul	450	92	990	240	490*
Silver Creek						
Union Valley	Apr-Jul	105	107	150	45	98*
Camino Dam, blo	Apr-Jul	135	85	270	70	158*
American River						
Folsom Reservoir	Apr-Jul	1180	96	2300	550	1230

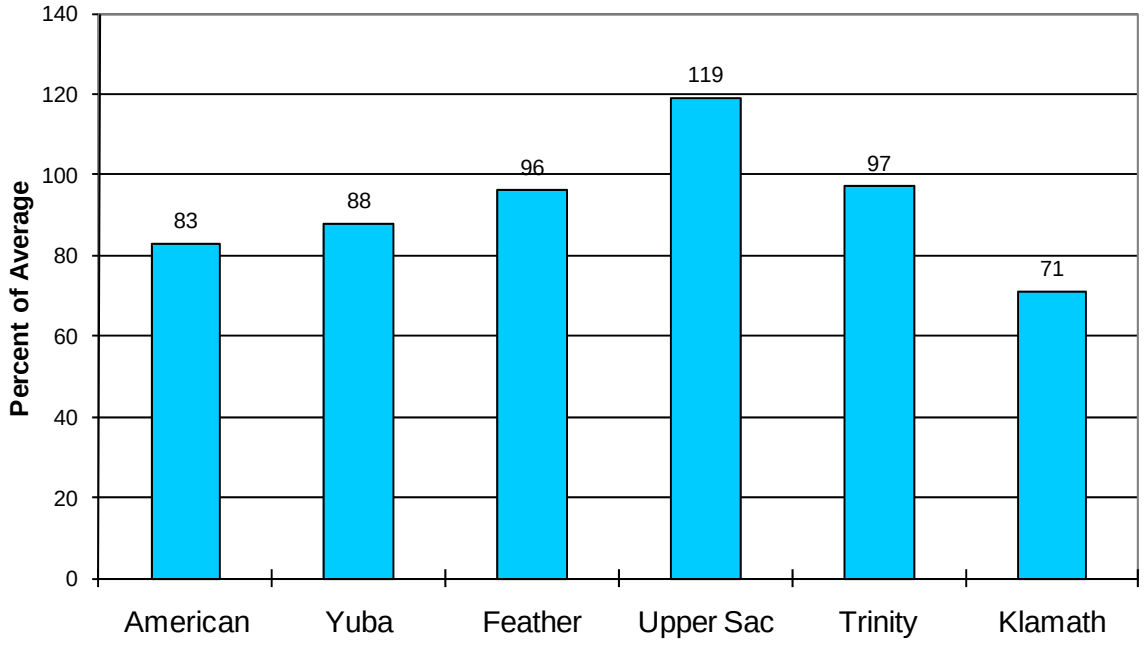
***30 Year Averages for 1971-2000 are incomplete. Those forecast points with an asterisk have incomplete averages, so 1961-1990 averages are listed. The new averages will be incorporated into this report when the complete data sets become available.**

**** Pit River 30-year average is full natural flow.**

Sacramento/Trinity/Klamath River Basins

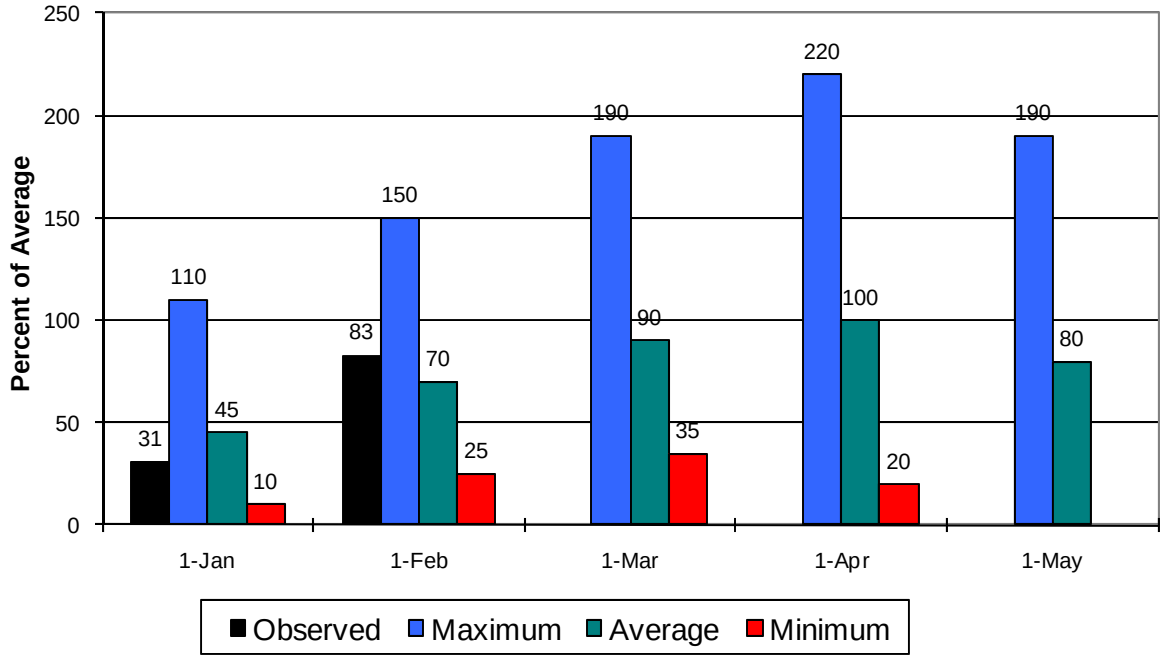
Seasonal Basin Precipitation

October 1 to Date



Seasonal Basin Snowpack

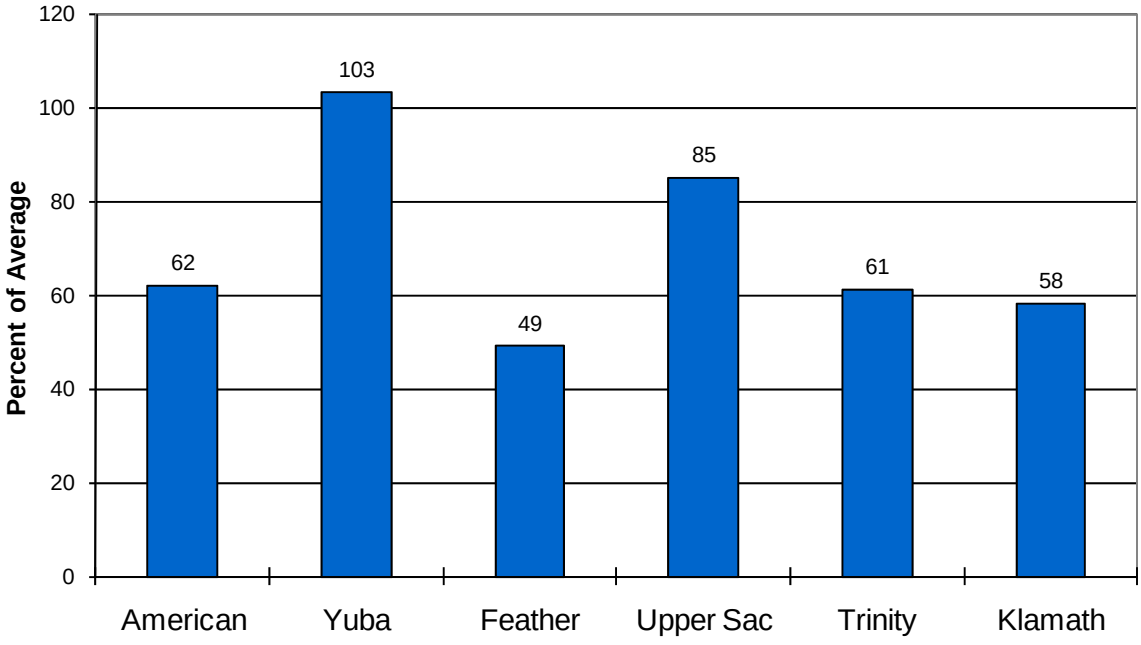
Water Content in % of April 1 Average



Sacramento/Trinity/Klamath River Basins

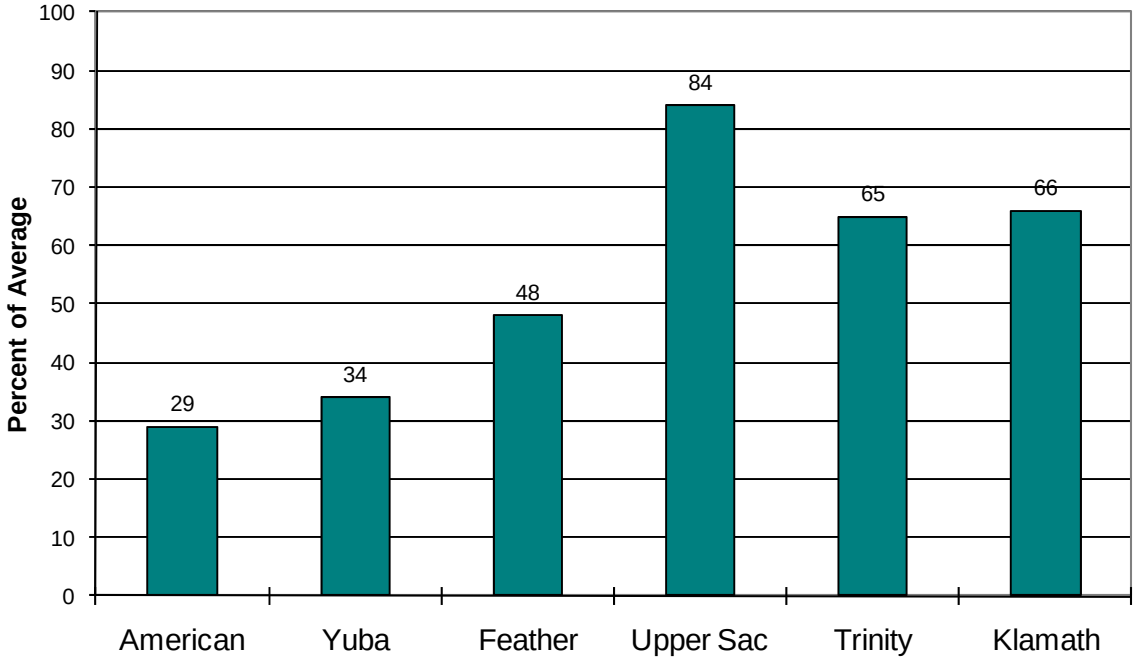
Basin Reservoir Storage

Contents of Major Reservoirs in % of Average



Seasonal Basin Runoff

October 1 to Date



San Joaquin Basin

Water Supply Forecasts

SAN JOAQUIN BASIN

		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
South Fork San Joaquin River						
Hooper Ck, blo, Florence Lk, nr	Apr-Jul	205	107	300	100	192*
San Joaquin River						
Millerton Lake	Apr-Jul	1350	106	1850	775	1270
Merced River						
Pohono Bridge, at, Yosemite, nr	Apr-Jul	390	108	575	225	360*
Merced Falls, blo	Apr-Jul	650	101	1030	375	645
Tuolumne River						
Hetch Hetchy, nr	Apr-Jul	610	102	850	400	596*
La Grange, nr	Apr-Jul	1230	100	1830	775	1230
Middle Fork Stanislaus River						
Beardsley Dam, blo	Apr-Jul	295	92	440	148	320*
Stanislaus River						
New Melones Dam	Apr-Jul	625	90	1080	400	695
North Fork Mokelumne River						
West Point	Apr-Jul	375	90	590	205	416*
Mokelumne River						
Pardee Reservoir	Apr-Jul	415	90	655	245	460
Cosumnes River						
Michigan Bar	Apr-Jul	110	89	235	54	123

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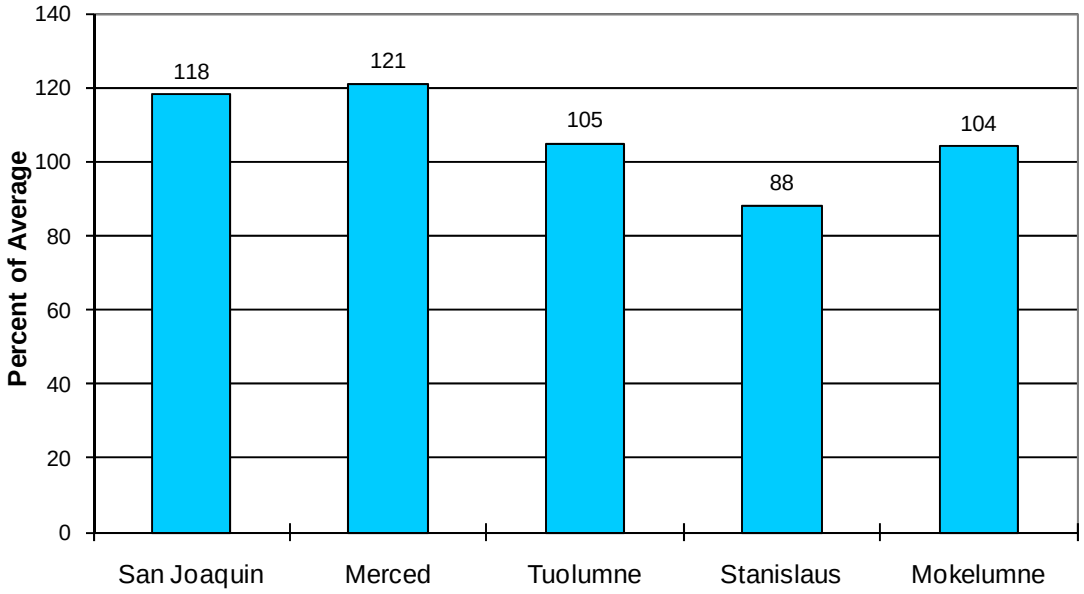
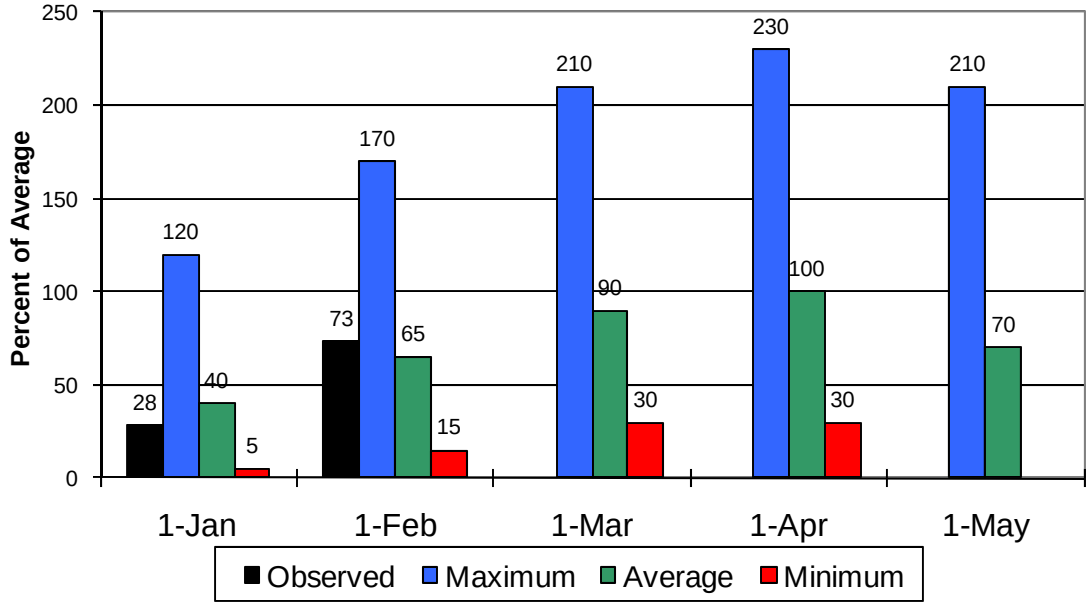
San Joaquin Basin

Seasonal Basin Precipitation
October 1 to Date

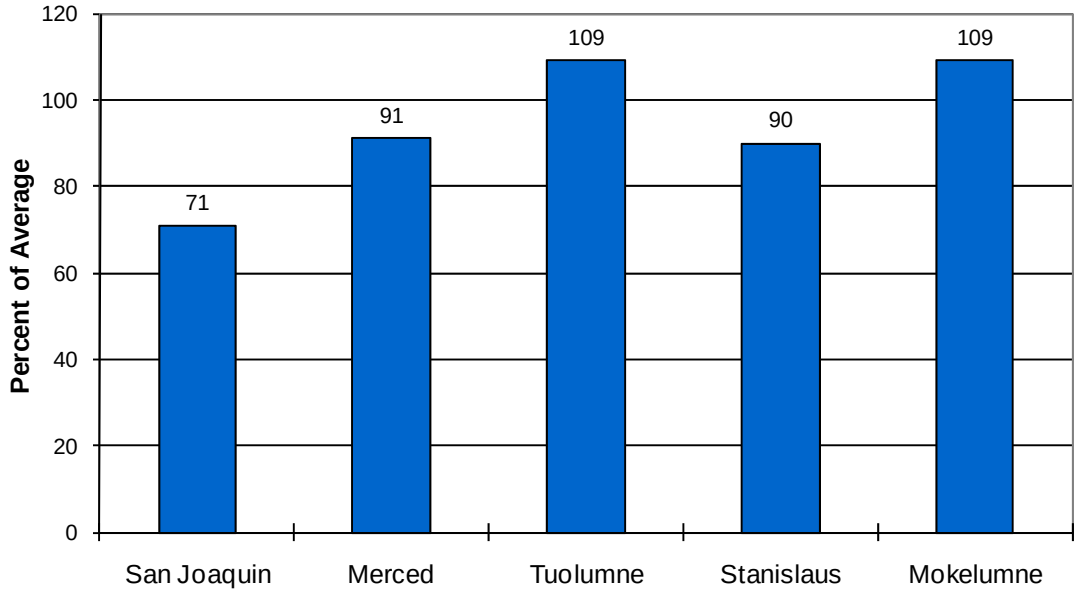


Seasonal Basin Snowpack
Water Content in % of April 1 Average

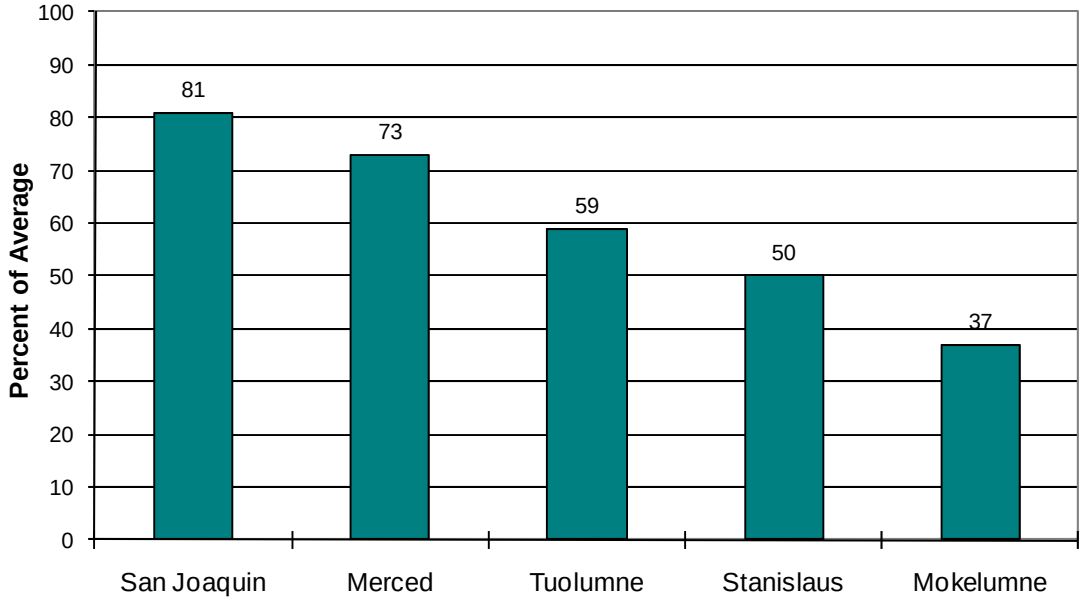


San Joaquin Basin

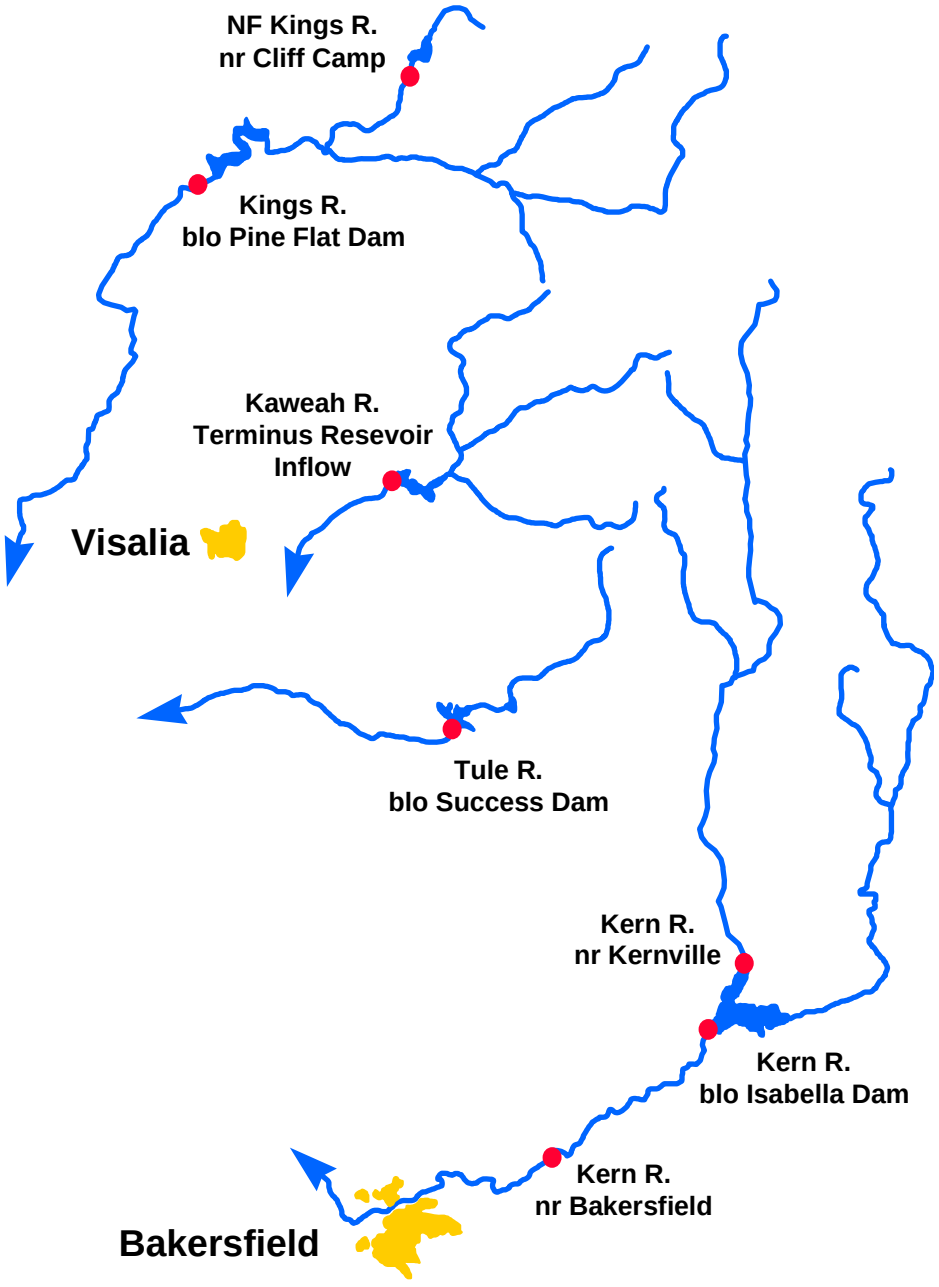
Basin Reservoir Storage
Contents of Major Reservoirs in % of Average



Season Basin Runoff
October 1 to Date



Tulare Basin



Water Supply Forecasts

TULARE LAKE BASIN

		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	385	97	650	225	398*
Isabella Dam, blo	Apr-Jul	475	99	800	275	480
Bakersfield, nr	Apr-Jul	490	100	825	300	490
Tule River						
Success Dam	Apr-Jul	60	91	125	25	66
Kaweah River						
Terminus Dam	Apr-Jul	310	107	475	165	290
North Fork Kings River						
Cliff Camp, nr	Apr-Jul	265	110	375	150	240*
Kings River						
Pine Flat Dam, blo	Apr-Jul	1350	108	1900	850	1250

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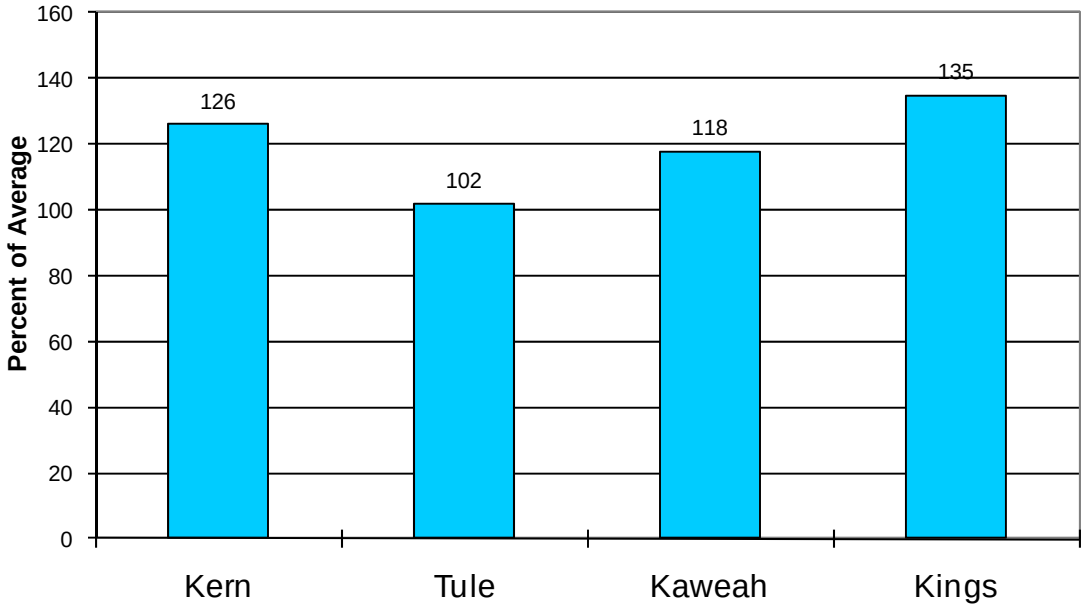
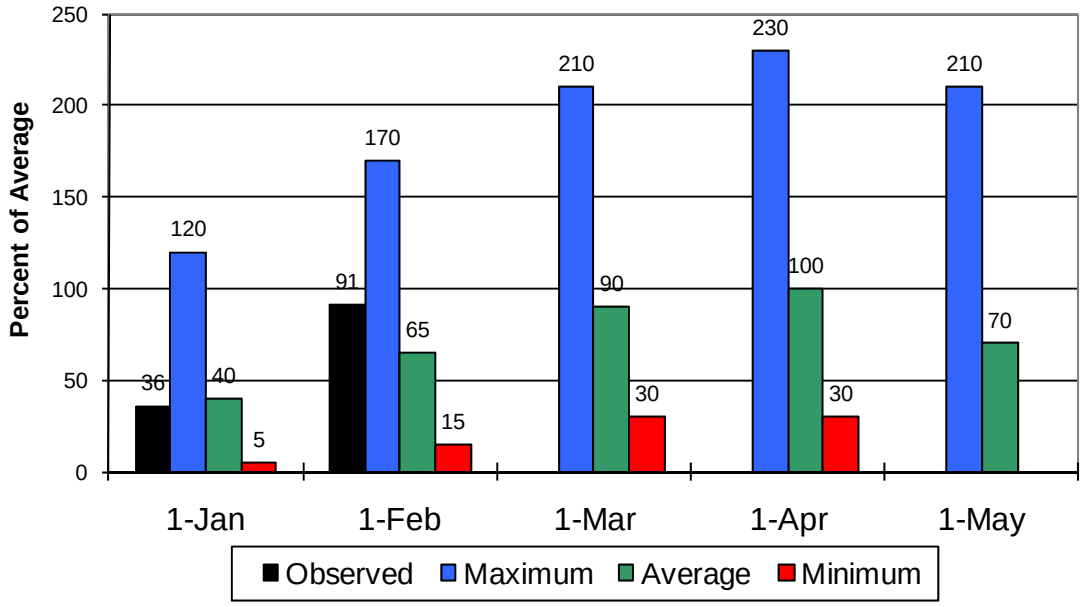
Tulare Lake Basin

Seasonal Precipitation
October 1 to Date



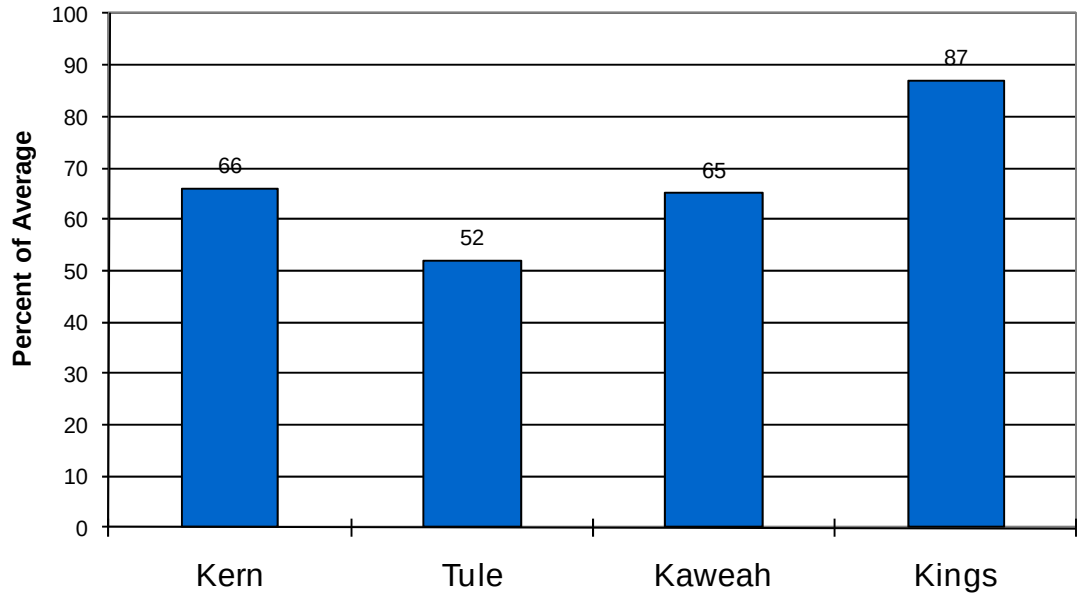
Seasonal Basin Snowpack
Water Content in % of April 1 Average



Tulare Lake Basin

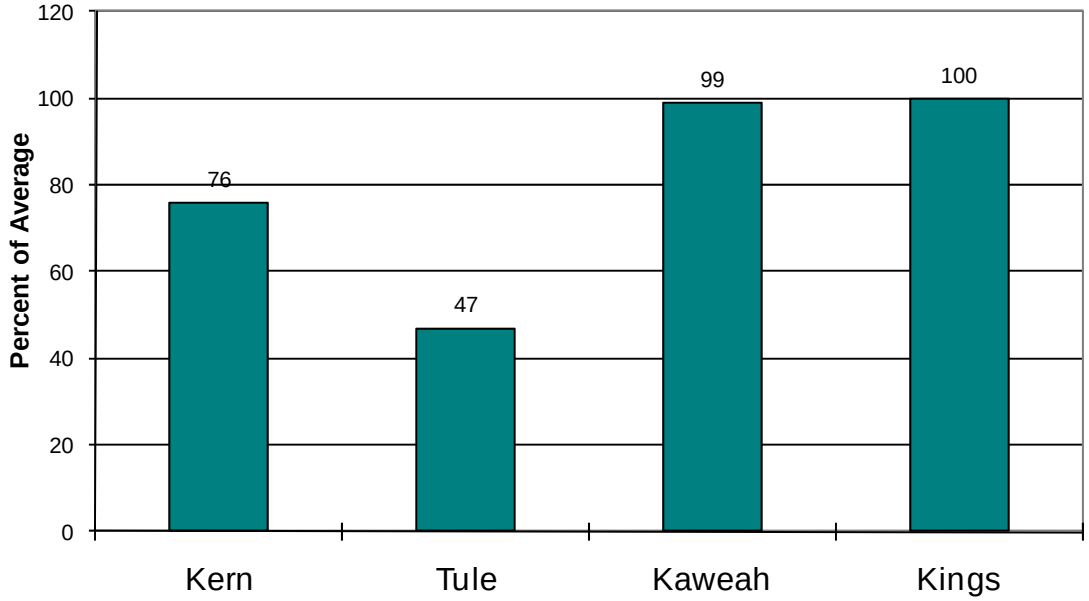
Basin Reservoir Storage

Contents of Major Reservoirs in % of Average

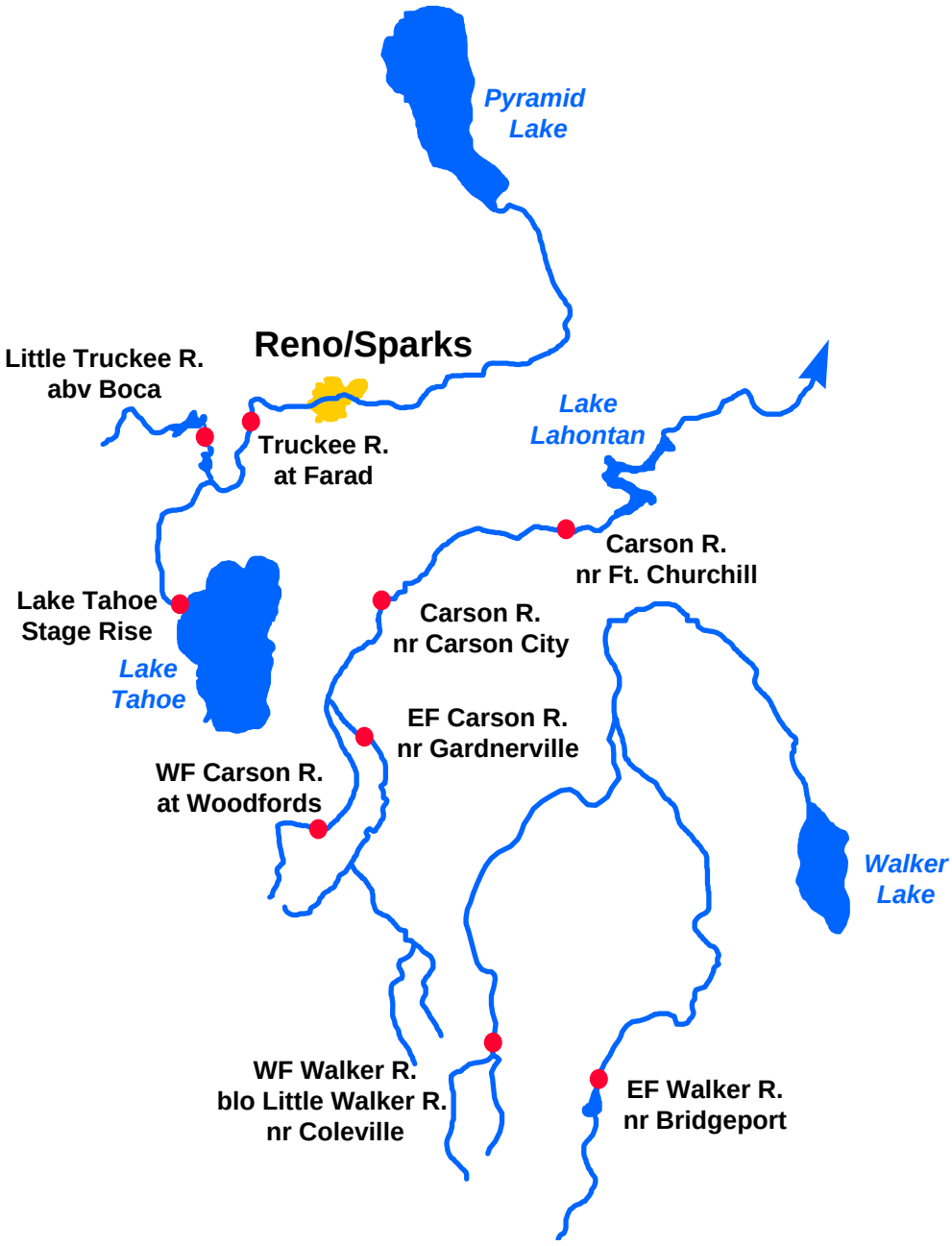


Seasonal Basin Runoff

October 1 to Date



East Side Sierra Nevada Basins



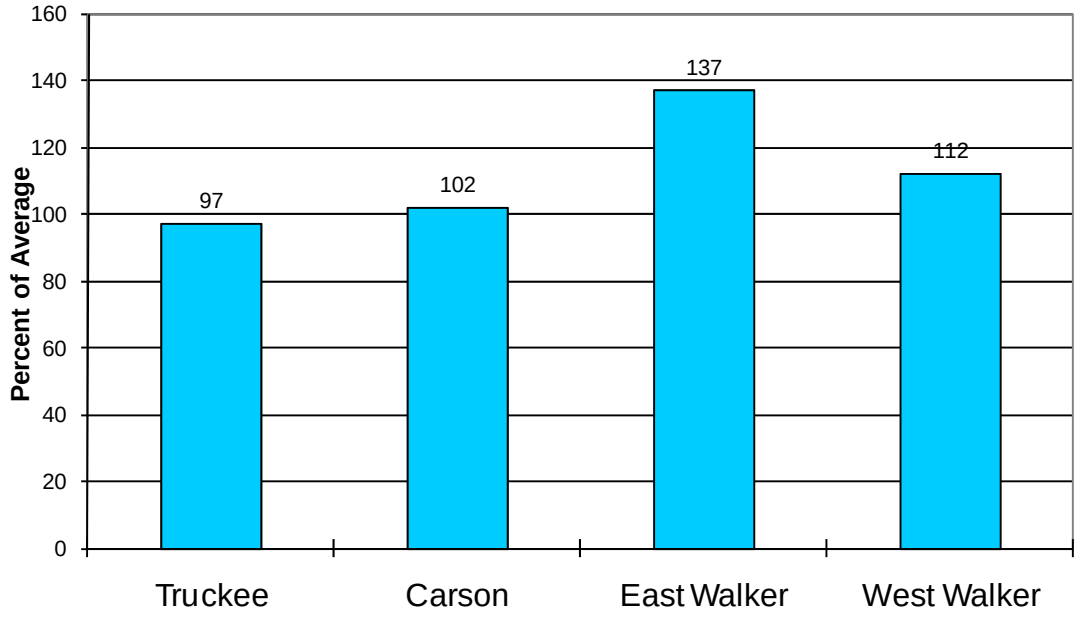
Water Supply Forecasts

EAST SIDE SIERRA NEVADA BASINS

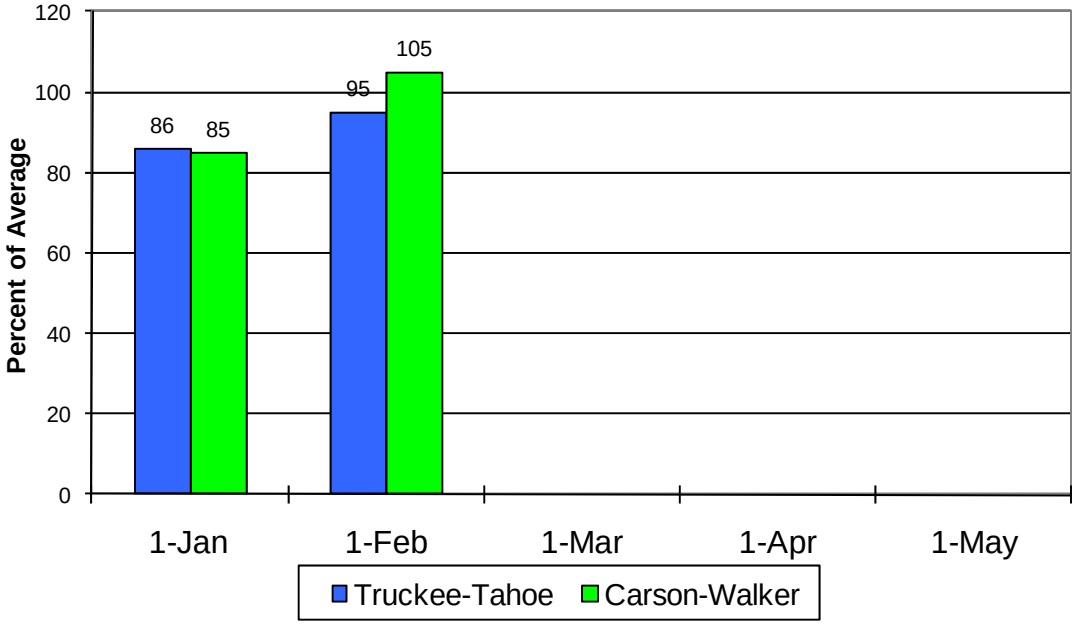
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
Truckee River						
Truckee River						
Lake Tahoe Stage Rise	Apr-High	1.10	80	2.0	0.38	1.38
Little Truckee River						
Stampede Dam	Apr-Jul	68	85	143	32	80
Truckee River						
Farad	Apr-Jul	220	85	335	103	260
Carson River						
East Fork Carson River						
Gardnerville, nr	Apr-Jul	165	87	260	71	189
West Fork Carson River						
Woodfords	Apr-Jul	48	86	74	22	56
Carson River						
Carson City, nr	Apr-Jul	145	77	255	66	188
Fort Churchill, nr	Apr-Jul	135	76	200	75	178
Walker River						
East Walker River						
Bridgeport, nr	Apr-Aug	60	90	101	19.1	67
West Walker River						
Coleville, nr	Apr-Jul	135	87	210	65	156

East Side Sierra Nevada Basins

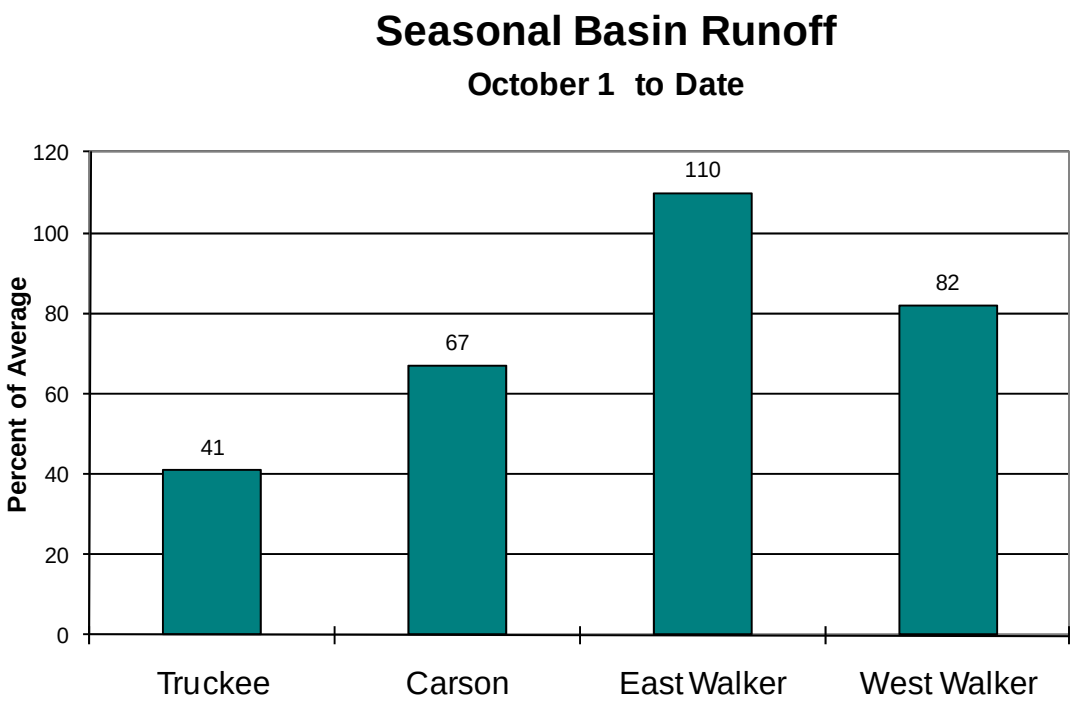
Seasonal Basin Precipitation
October 1 to Date



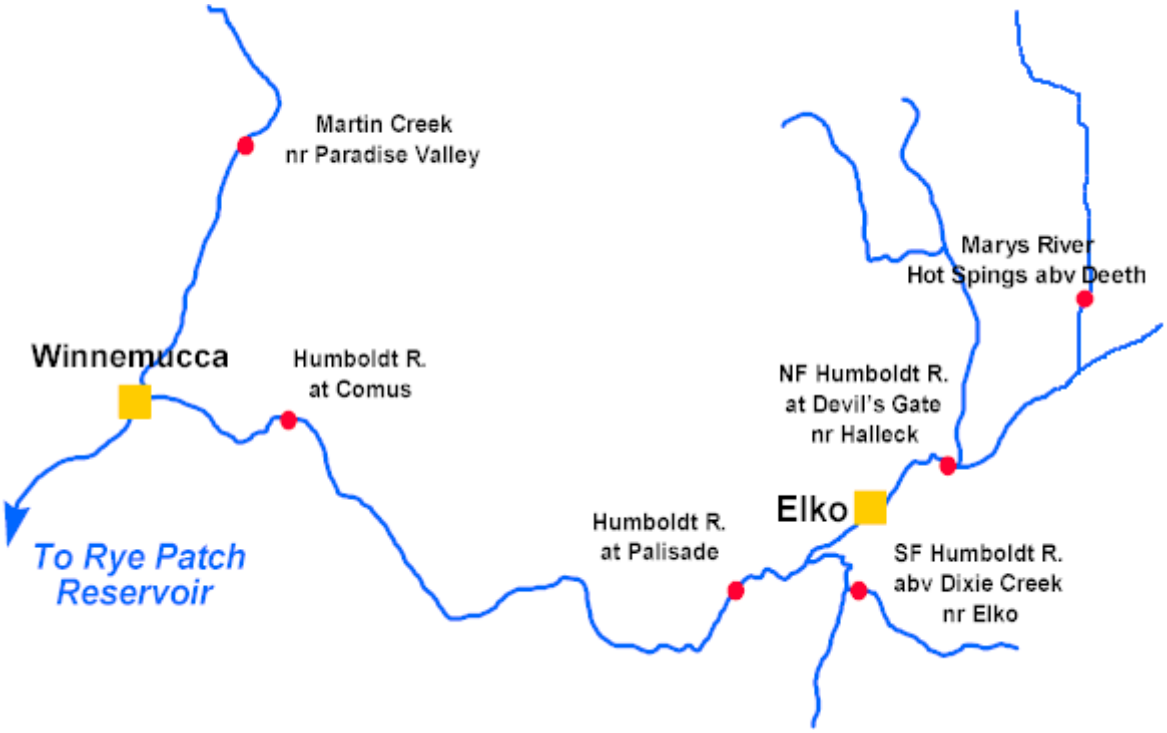
Basin Snowpack
% of Average SWE to Date



East Side Sierra Nevada Basins



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
North Fork Humboldt River						
Devils Gate, at, Halleck, nr	Apr-Jul	21	62	38	4.1	34*
South Fork Humboldt River						
Dixie Ck, abv, Elko, nr	Apr-Jul	54	71	125	2.6	76
Marys River						
Hot Springs, abv, Deeth, nr	Apr-Jul	24	62	42	5.8	39
Humboldt River						
Elko, nr	Apr-Jul	90	58	181	19.0	154
Palisade	Apr-Jul	140	56	245	35	250
Comus	Apr-Jul	105	47	230	7.0	225
Imlay, nr	Apr-Jul	70	37	177	4.0	188
Martin Ck						
Paradise Vly, nr	Apr-Jul	9.0	48	22	1.10	18.7

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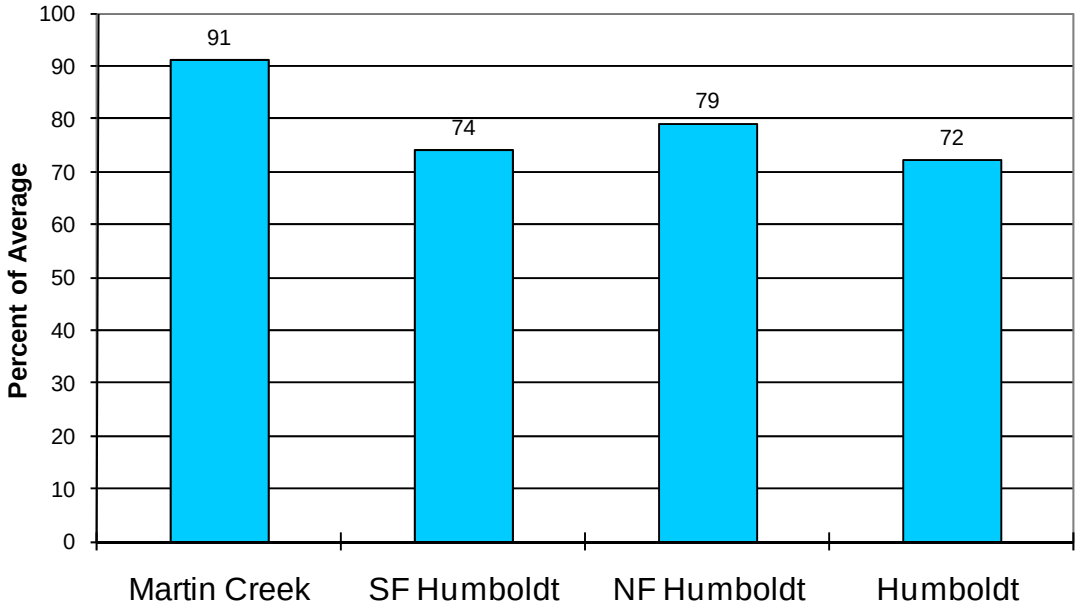
Humboldt River Basin

Seasonal Basin Precipitation
October 1 to Date



Basin Snowpack
% of Average SWE to Date