

WATER SUPPLY OUTLOOK



CALIFORNIA AND NORTHERN NEVADA

**MAY
2008**



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 TELelemetry. 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, 2008

The dry conditions experienced during March in California and western Nevada continued into April. With little precipitation during the past two months and dry antecedent conditions from last year, some of the snowmelt runoff is being absorbed into the ground to satisfy soil moisture deficits. Runoff so far this season has been below to much below average, much of it delayed due to the unseasonably cold conditions encountered during the last few months. However, based on May 1st snowpack conditions, it is becoming readily apparent that most of the snow basins in the region will experience below to much below average spring runoff this year. The notable exceptions are the Trinity and Scott River watersheds and the Upper Klamath Lake basin.

Snow basins in California generally received dismal amounts of precipitation during April. Conditions were best for the northernmost basins, with the Lower Klamath, Trinity and Upper Sacramento receiving about 40, 30 and 25 percent of the April average, respectively. Percentages then drop rapidly as one moves north to south along the west slope of the Sierra Nevada. Monthly percentages were in the 0 to 20 percent range from the Feather River basin to the Kern. East Side Sierra Nevada basins received 5 to 15 percent of the April average. Conditions were fairly better in the Humboldt and Upper Klamath Lake basins, but monthly averages were still well below average. The upper Humboldt basin in Nevada averaged 60 percent of the April average precipitation, the lower Humboldt, 50 percent. The Upper Klamath Lake basin received 65 percent of the April average. However, seasonal averages (October 1, 2007 to April 30, 2008) only fell 3 to 9 percent from last month and now range from 65 to 90 percent for basins on the west slope of the Sierra Nevada. East Side Sierra Nevada basins vary from 65 to 105 percent. The seasonal average stands at about 95 percent for the Humboldt and Upper Klamath Lake basins.

There were no extended periods of warm temperatures during April to accelerate the melt of the snowpack, but moderate temperatures did produce a gradual melt of the pack. Some loss of snowpack water equivalent was due to sublimation. Snow packs in the Sacramento region stand at approximately 45 percent of the April 1st average; the San Joaquin and Tulare Lake region are about 50 percent. The Tahoe-Truckee region is about 55 percent of the average-to-date and the Carson-Walker, 75 percent. The pack stands at about 95 percent of the average-to-date for the Humboldt basin. Snow packs remain excellent along the crest of the Cascade Range in the Upper Klamath Lake basin, but much of the lower elevation snowpack has melted in the east side of the basin. Overall, the pack is at about 145 percent of the average-to-date for the Upper Klamath Lake basin.

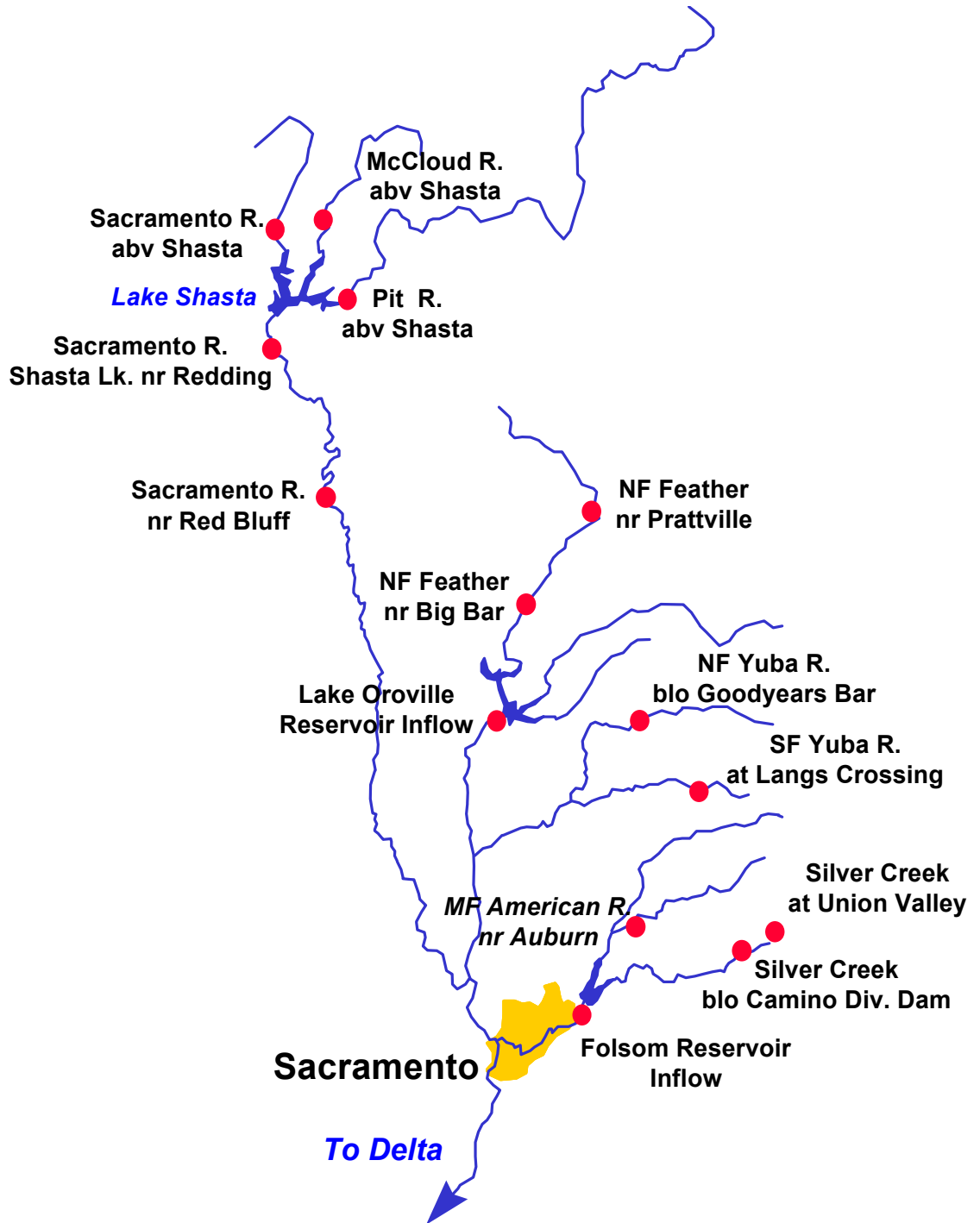
April runoff was below to much below average due in part to the dry month and that some of the snow melt runoff went to replenish soil moisture deficits. However, basin runoff percentages are about 8 to 19 percent higher than last month, except in the Humboldt, where it was actually 2 percent lower than in March at Palisade. April runoff ranged from 60 percent for the Sacramento region, 71 for the San Joaquin, and 84 percent for the Tulare Lake. East side Sierra basins received 58 percent of the monthly average while the Humboldt River at Palisade recorded only 35 percent. The Upper Klamath Lake basin received 87 percent of the April average. Seasonal averages improved slightly over last month but continue to remain much below average for basins in the Humboldt, Upper Sacramento and Sierra Nevada drainages.

Reservoir storage in the Sacramento-San Joaquin-Tulare Lake drainages is about 82 percent of average compared to 106 percent at this time last year. Stored water in the Sacramento region as of April 30 was at 80 percent of average, the San Joaquin, 87 percent; and the Tulare Lake region at 75 percent. East-side Sierra reservoirs were at 85 percent of average. Water loss due to evaporation as well as the dry conditions during the last two months has taken its toll at Lake Tahoe. The lake level at Lake Tahoe stood at 6225.08 feet as of April 30. This represents usable storage of 252,800 acre feet or 63 percent of average. It was 6225.12 feet, or 66 percent of average on March 31st. Storage at Lahontan Reservoir in Nevada stands at 48 percent as of April 30 while Rye Patch Reservoir is at 44 percent. Storage at Upper Klamath Lake is about 96 percent of average.

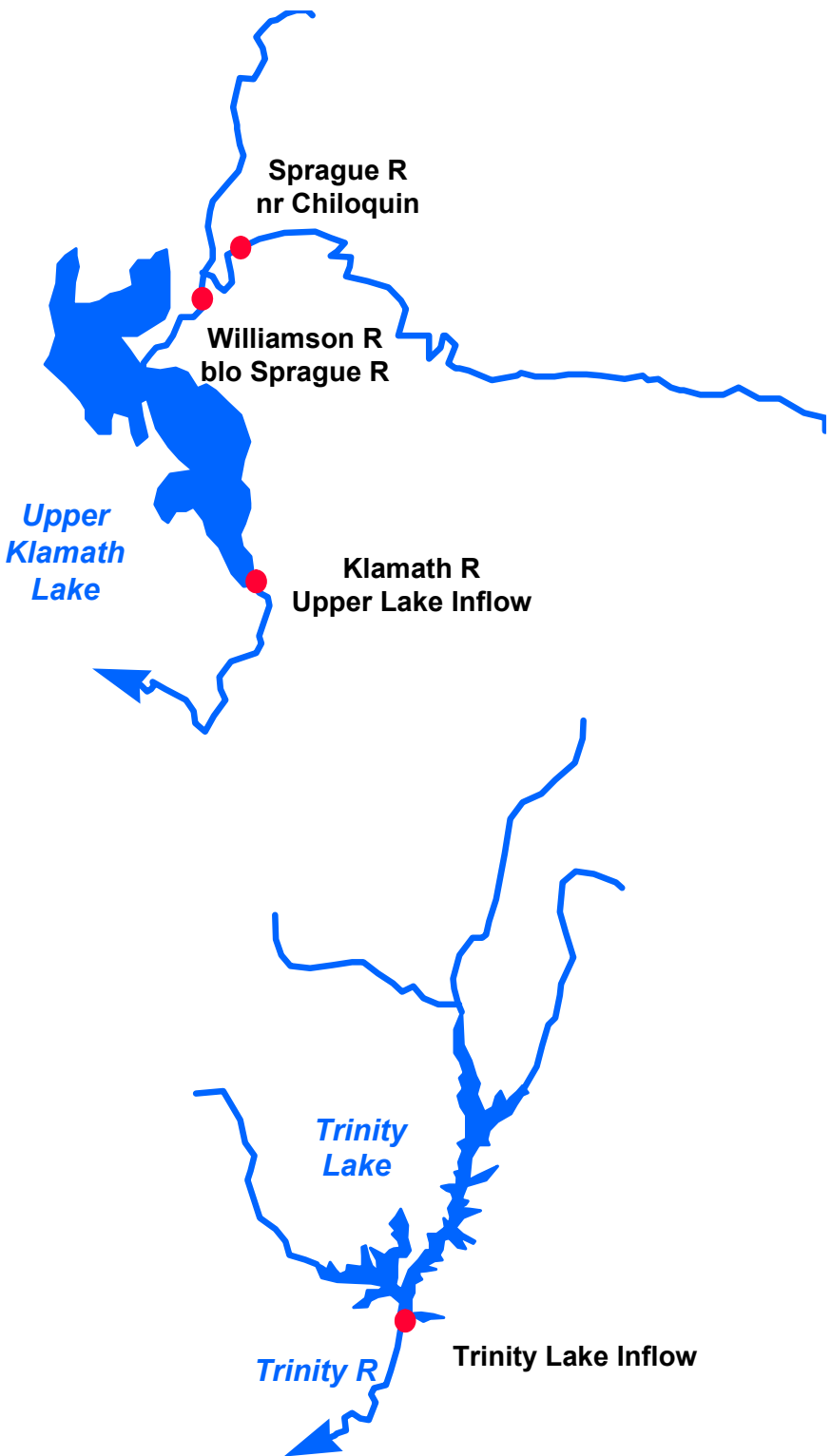
The dry conditions during April have prompted a further reduction in the spring runoff forecasts for basins in the Sierra Nevada and upper Sacramento and watersheds in the Humboldt. April through July forecasts now range from 60 to 82 percent for the Sacramento basin, 61 to 73 percent for the main stem forecast points in the San Joaquin and 61 to 78 percent for the Tulare Lake basin. Forecasts vary from 42 to 78 percent of average for the east side Sierra Nevada basins and 53 to 72 percent for forecast points on the main stem Humboldt River. The April through July volume forecast for the Scott and Trinity Rivers is 88 and 90 percent, respectively. The May through September forecast for the Upper Klamath Lake inflow is 97 percent.

Mid-month updates are scheduled for selected east side Sierra Nevada forecast points and the Upper Klamath Lake Inflow. These will be posted on the CNRFC web page. This will be the last Water Supply Outlook for Water Year 2008.

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	May-Sep	260	97	320	200	267
Sprague River Chiloquin, nr	May-Sep	145	94	192	98	155
Upper Klamath Falls River Inflow	May-Sep	330	97	425	235	340
Lost River Gerber Reservoir Inflow	May-Jul	6.1	95	16.2	0.50	6.4
Clear Lake Reservoir Inflow	May-Jul	19.0	98	36	2.4	19.3
Scott River Fort Jones, nr	Apr-Jul	160	88	200	130	181
Trinity River Trinity Lake Inflow	Apr-Jul	570	90	700	460	635

Trinity River - Inflow at Lewiston Lake Distribution (kAF)

Exceedence									
Probability	Oct-Mar	Apr	May	Jun	Jul	Aug	Sep	Apr-Jul	Water Yr
90%	380	145	175	110	30	19	12	460	871
50%	380	145	240	150	35	21	14	570	985
10%	380	145	305	205	45	24	18	700	1122

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

SACRAMENTO RIVER ABOVE BEND BRIDGE

Pit River Montgomery Ck, nr	Apr-Jul	750	70	970	620	1070
Mccloud River Shasta Lake, abv	Apr-Jul	305	82	380	250	370
Sacramento River Delta	Apr-Jul	200	69	260	165	290
Shasta Dam	Apr-Jul	1260	70	1600	1040	1790
Bend Bridge, abv, Red Bluff, nr	Apr-Jul	1680	69	2150	1390	2440

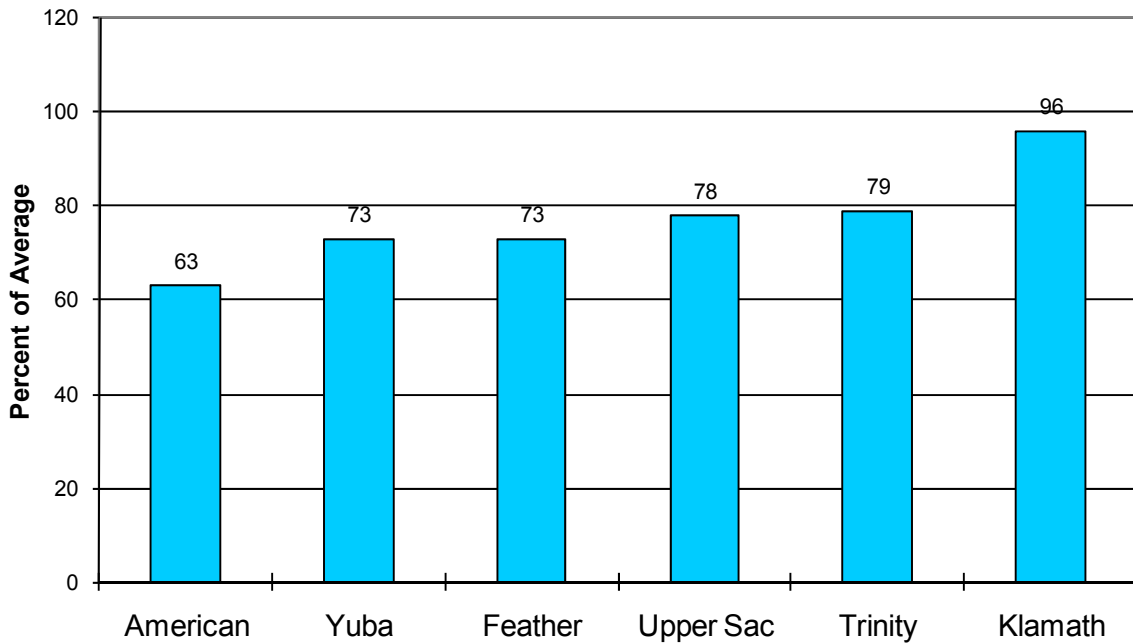
Water Supply Forecasts

		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						
NF Feather River						
Prattville, nr	Apr-Jul	210	63	280	165	333*
Big Bar	Apr-Jul	585	61	790	450	962*
Feather River						
Oroville	Apr-Jul	1060	60	1440	840	1760
YUBA RIVER ABOVE SMARTVILLE						
North Yuba River						
Goodyears Bar, blo	Apr-Jul	170	62	225	135	273*
South Yuba River						
Langs Crossing	Apr-Jul	145	64	190	115	225*
Yuba River						
Smartville, nr	Apr-Jul	645	65	830	510	995
AMERICAN RIVER ABOVE FOLSOM RESERVOIR						
MF American River						
Auburn, nr	Apr-Jul	310	63	410	255	490*
Silver Ck						
Union Valley	Apr-Jul	57	58	76	46	98*
Camino Dam, blo	Apr-Jul	94	59	125	77	158*
American River						
Folsom Reservoir Inflow	Apr-Jul	735	60	970	600	1230

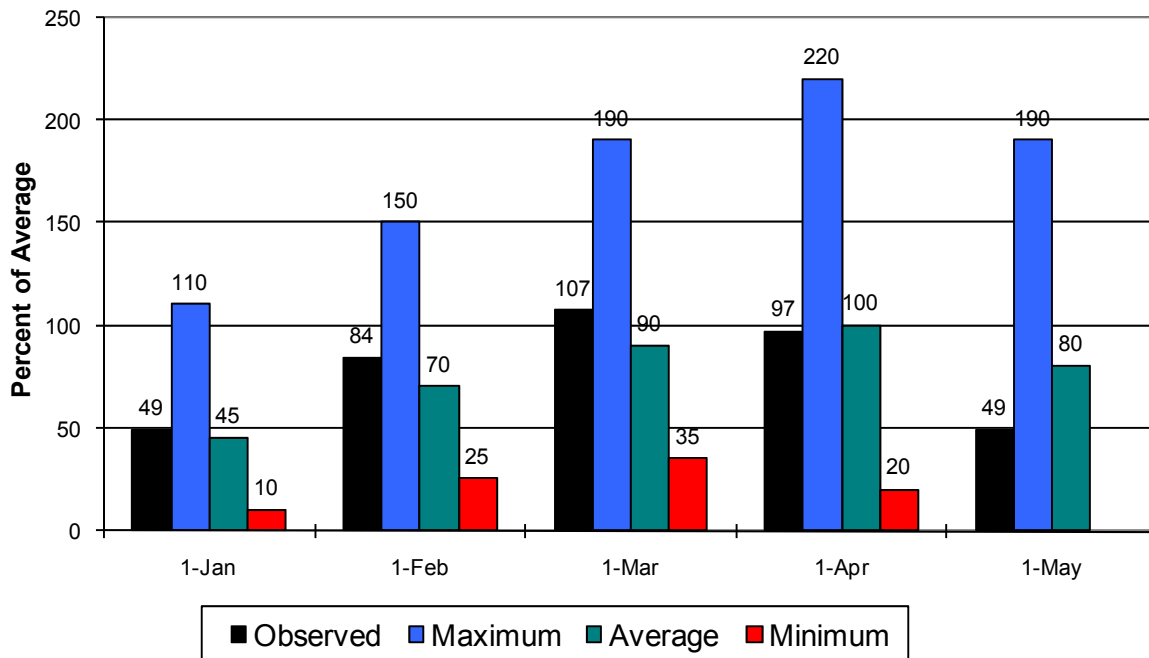
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Sacramento/Trinity/Klamath River Basins

Seasonal Basin Precipitation October 1 to Date

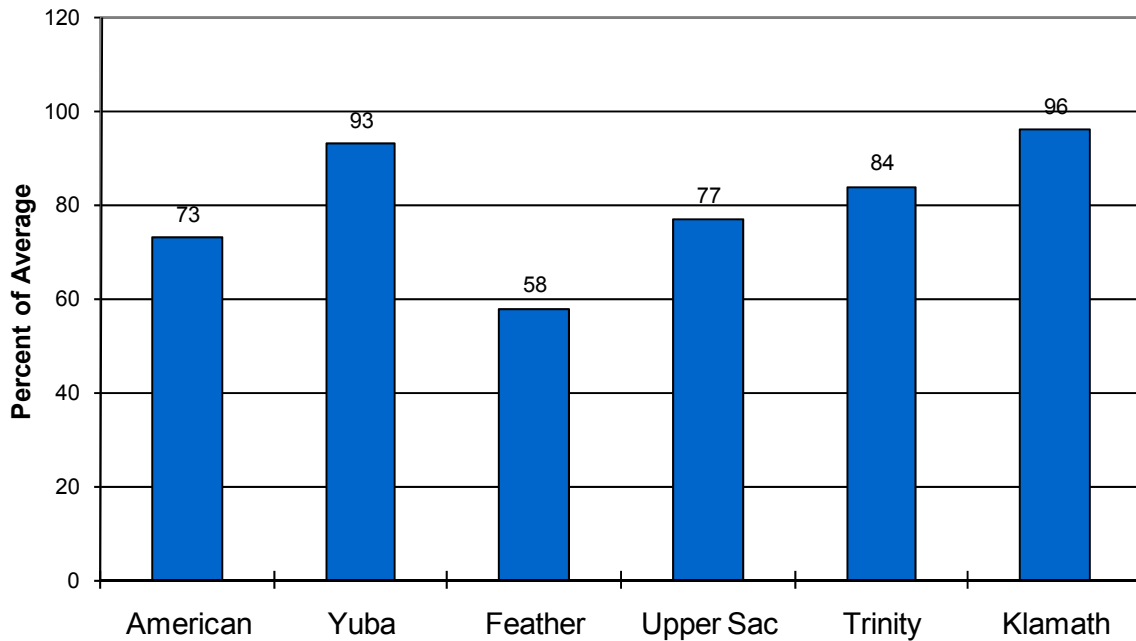


Seasonal Basin Snowpack Water Content in % of April 1 Average

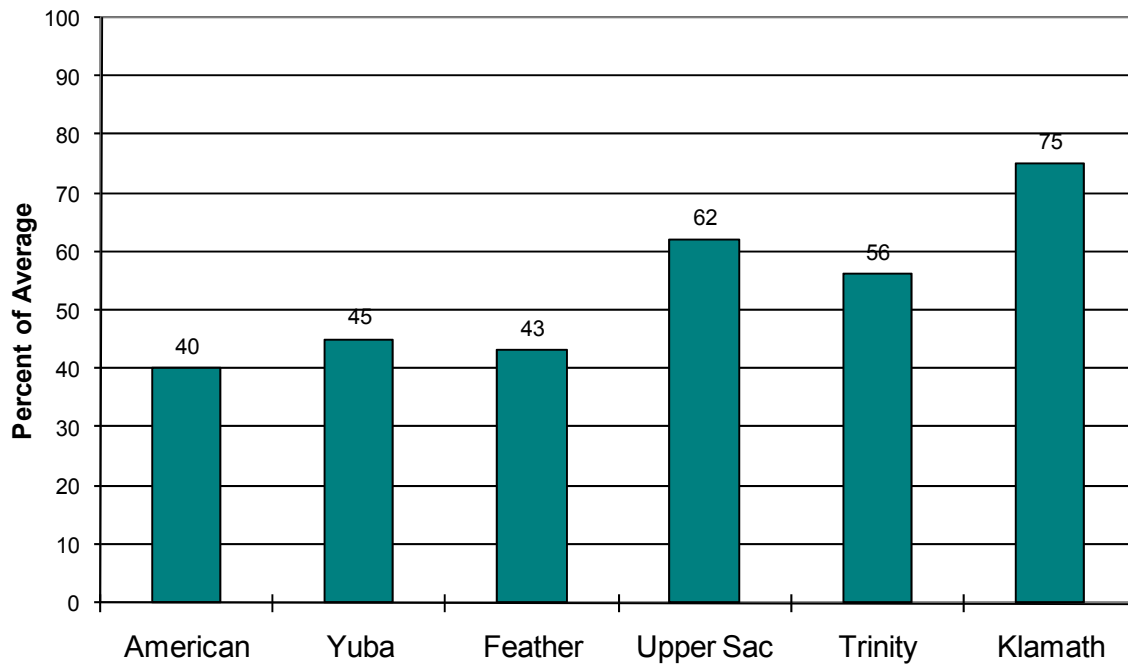


Sacramento/Trinity/Klamath River Basins

Basin Reservoir Storage Contents of Major Reservoirs in % of Average



Seasonal Basin Runoff October 1 to Date



San Joaquin Basin



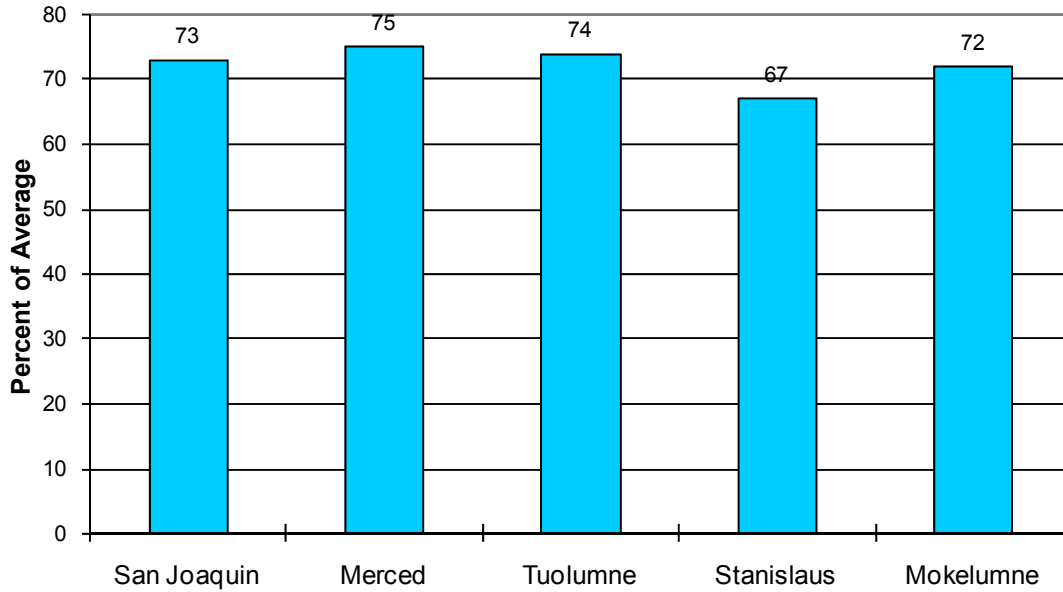
Water Supply Forecasts

		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
SAN JOAQUIN BASIN						
SF San Joaquin River						
Hooper Ck, blo, Florence Lk, nr	Apr-Jul	150	78	205	95	192*
San Joaquin River						
Millerton Lk	Apr-Jul	930	73	1080	780	1270
Merced River						
Pohono Bridge, at, Yosemite, nr	Apr-Jul	280	78	325	235	360*
Merced Falls, blo	Apr-Jul	420	65	500	340	645
Tuolumne River						
Hetch Hetchy, nr	Apr-Jul	460	77	530	405	596*
La Grange, nr	Apr-Jul	850	69	1000	750	1230
MF Stanislaus River						
Beardsley Dam, blo	Apr-Jul	220	69	280	160	320*
Stanislaus River						
New Melones Dam	Apr-Jul	460	66	560	360	695
NF Mokelumne River						
West Point	Apr-Jul	260	62	320	200	416*
Mokelumne River						
Mokelumne Hill	Apr-Jul	280	61	340	230	460
Cosumnes River						
Michigan Bar	Apr-Jul	60	49	95	25	123

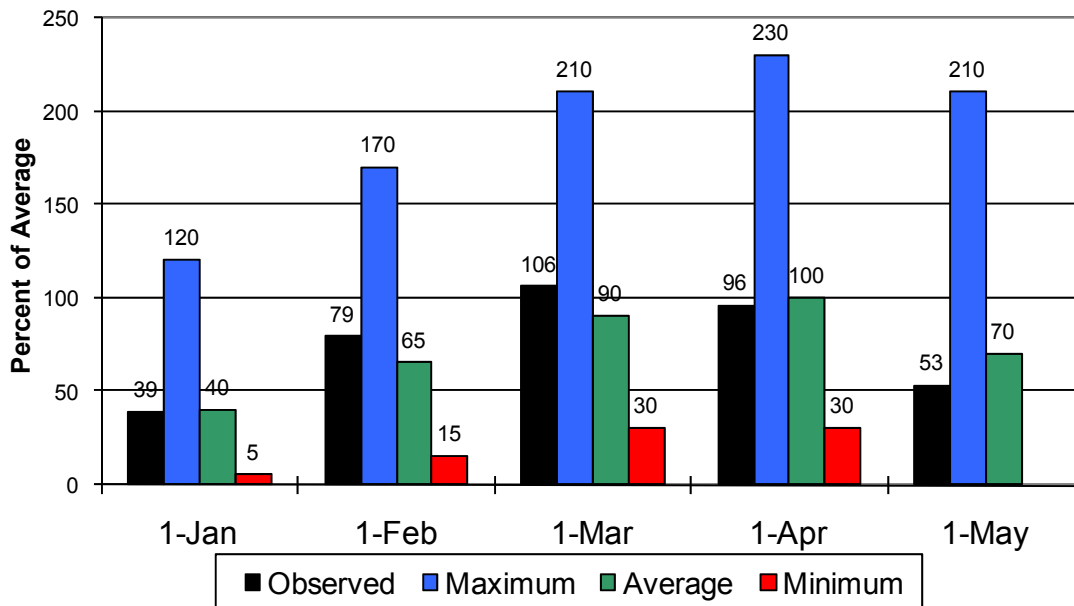
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San Joaquin Basin

Seasonal Basin Precipitation October 1 to Date

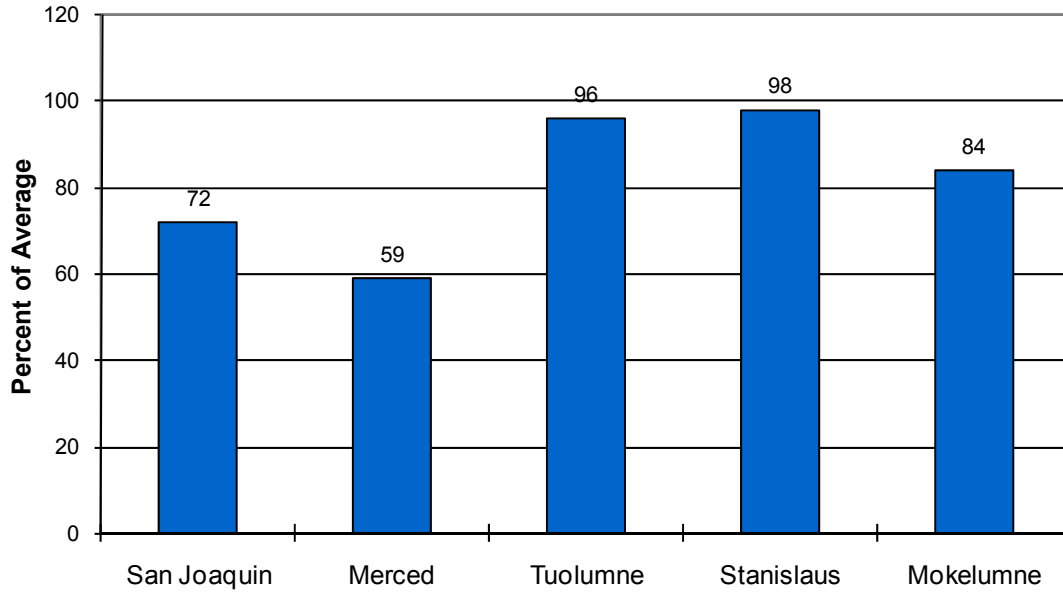


Seasonal Basin Snowpack Water Content in % of April 1 Average

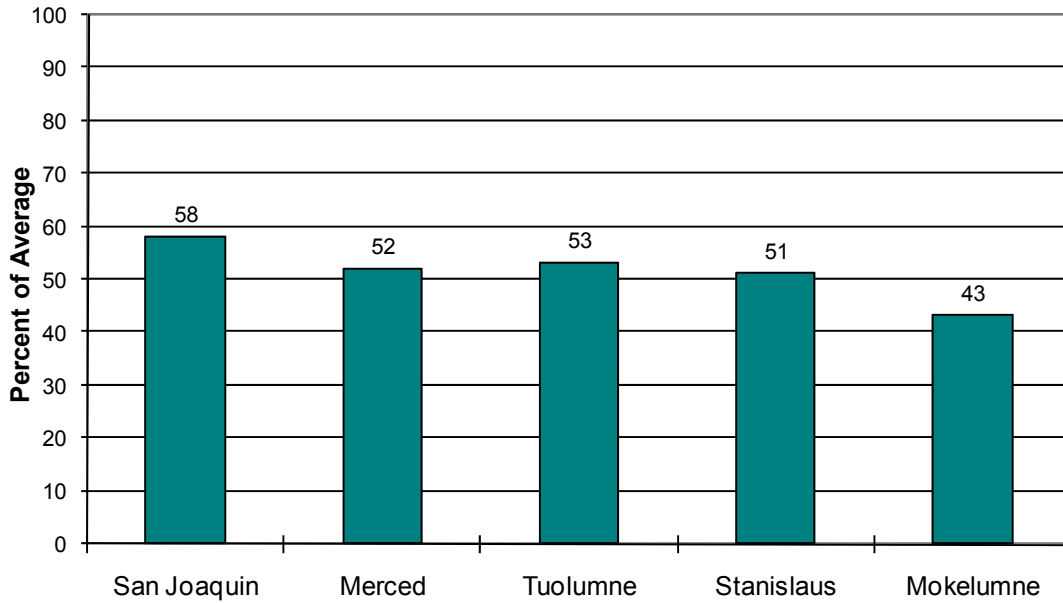


San Joaquin Basin

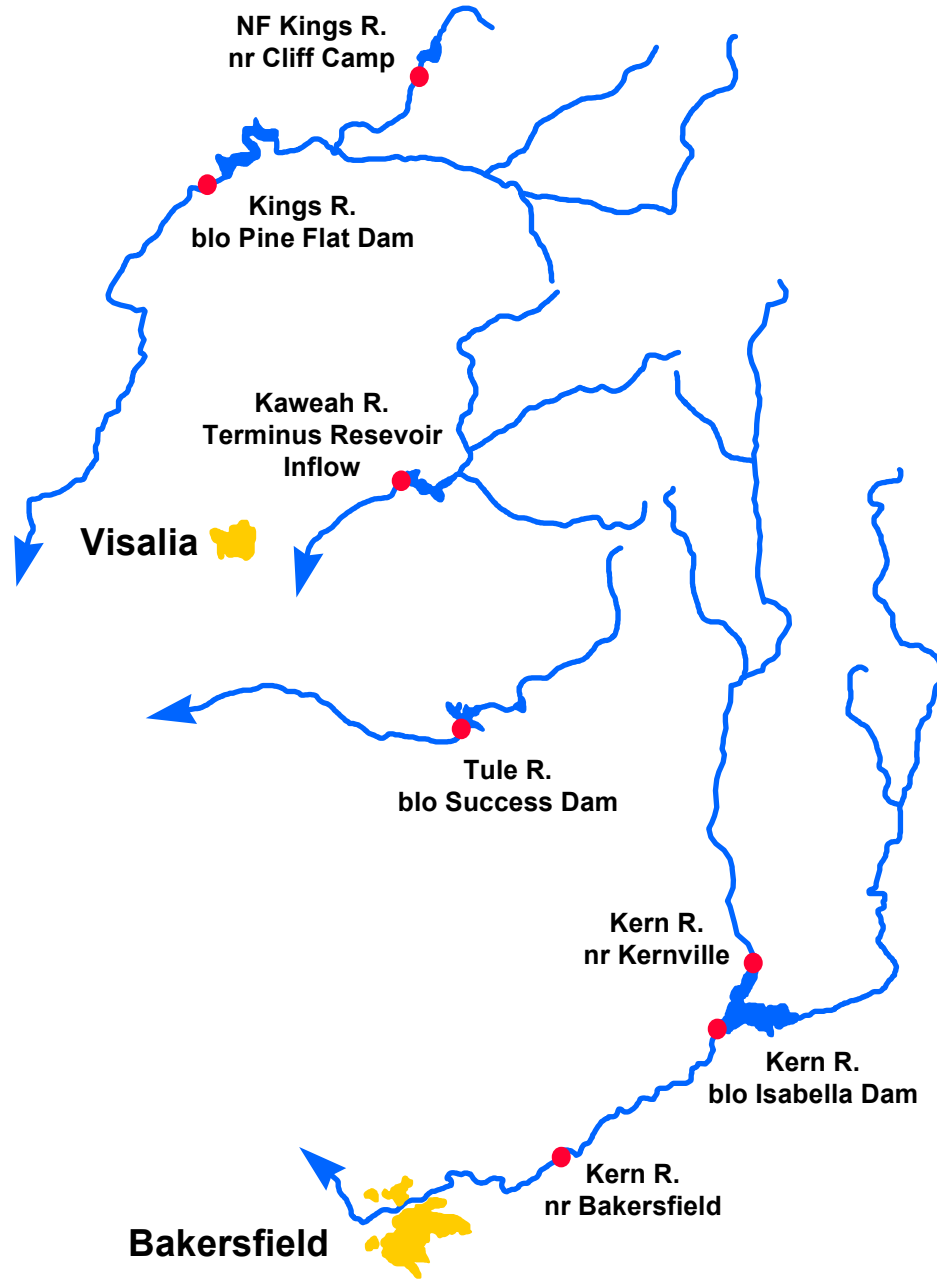
Basin Reservoir Storage Contents of Major Reservoirs in % of Average



Season Basin Runoff October 1 to Date



Tulare Basin



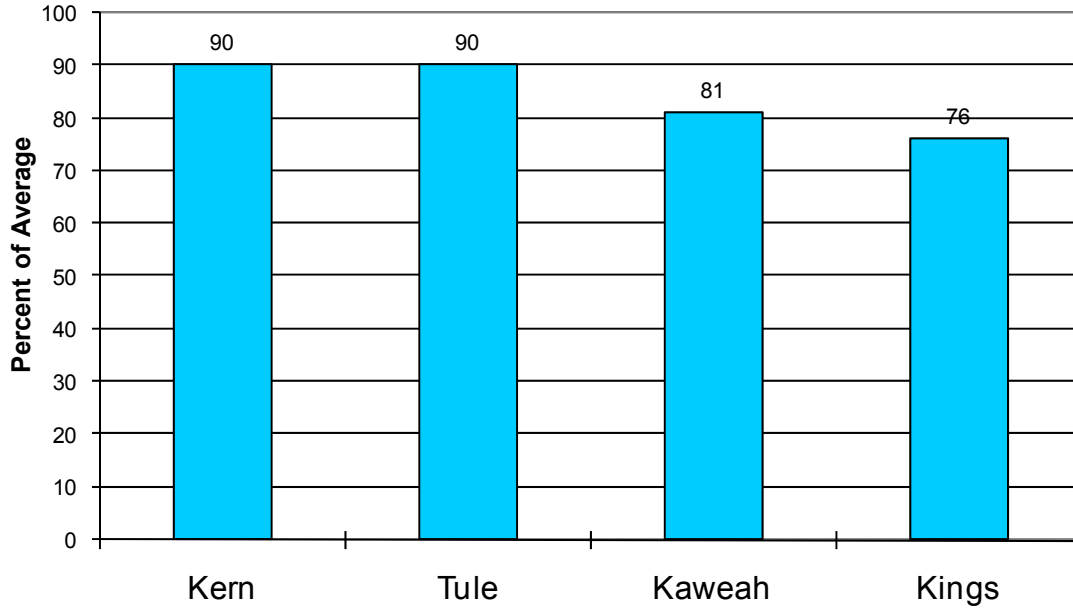
Water Supply Forecasts

		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
TULARE LAKE BASIN						
Kern River						
Kernville, nr	Apr-Jul	305	77	380	230	398*
Isabella Dam, blo	Apr-Jul	360	75	440	280	480
Bakersfield, nr	Apr-Jul	370	76	450	280	490
Tule River						
Success Dam	Apr-Jul	40	61	60	20	66
Kaweah River						
Terminus Dam	Apr-Jul	230	79	280	180	290
NF Kings River						
Cliff Camp, nr	Apr-Jul	200	83	240	160	240*
Kings River						
Pine Flat Dam, blo	Apr-Jul	970	78	1080	860	1250

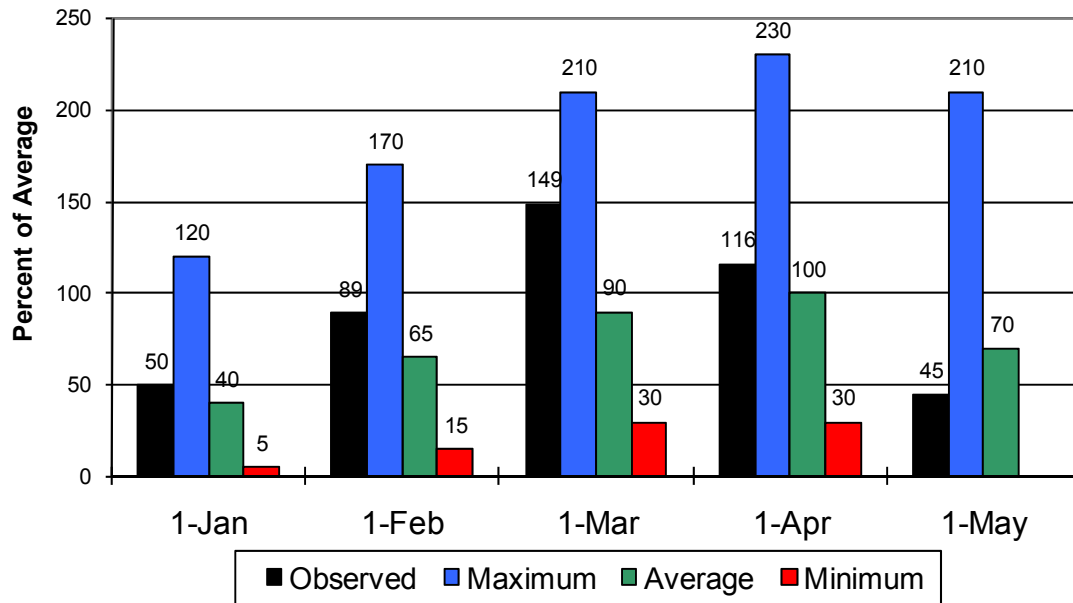
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Tulare Lake Basin

Seasonal Precipitation October 1 to Date



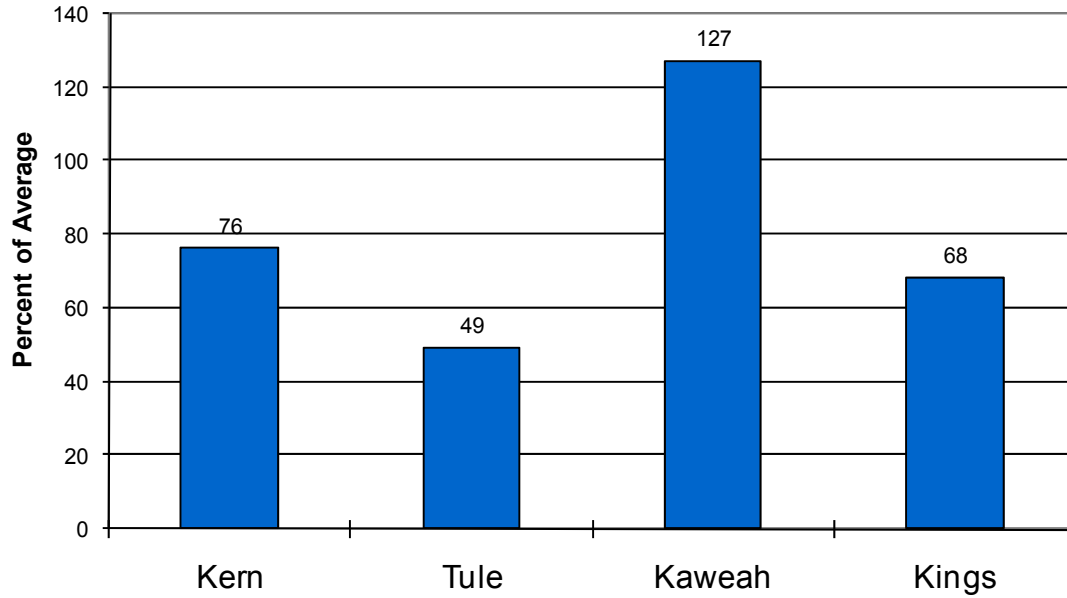
Seasonal Basin Snowpack Water Content in % of April 1 Average



Tulare Lake Basin

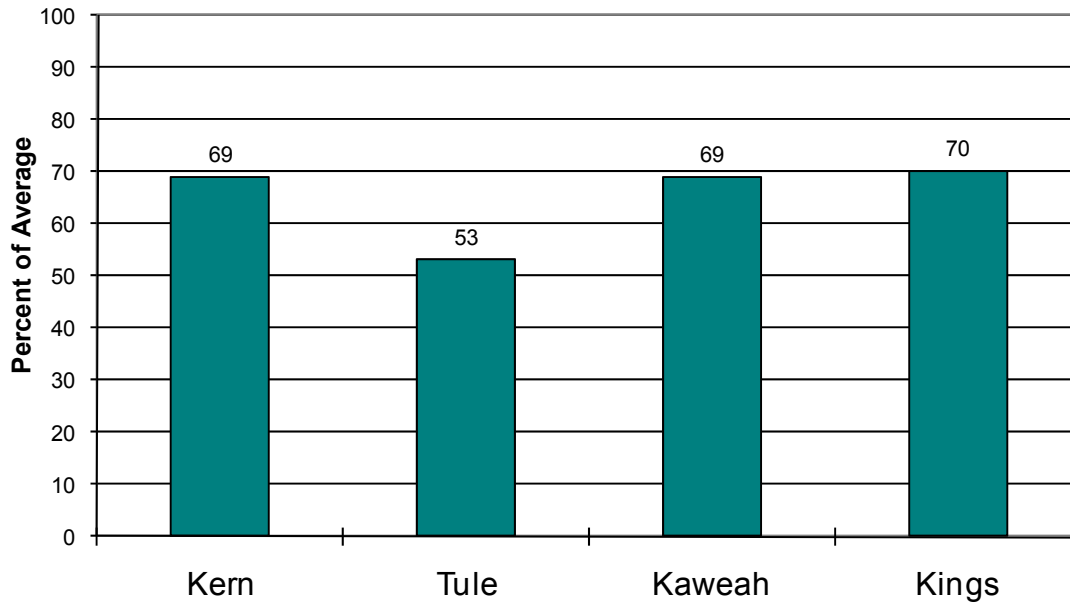
Basin Reservoir Storage

Contents of Major Reservoirs in % of Average

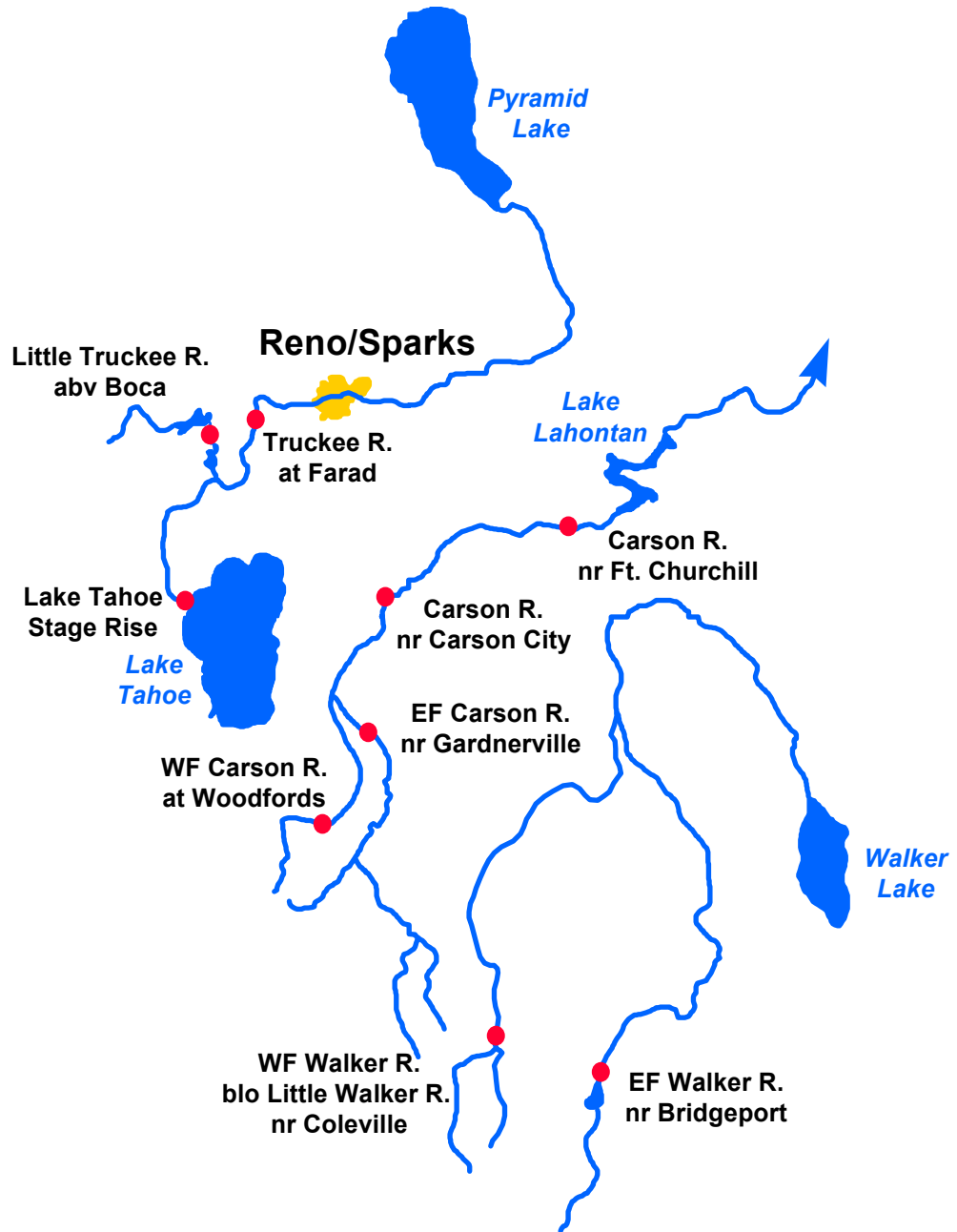


Seasonal Basin Runoff

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
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Truckee River

Truckee River Lake Tahoe Stage Rise	Apr-High	0.70	51	0.94	0.46	1.38
Ltl Truckee River Stampede Dam	Apr-Jul	52	65	66	37	80
Truckee River Farad	Apr-Jul	165	63	195	115	260

Carson River

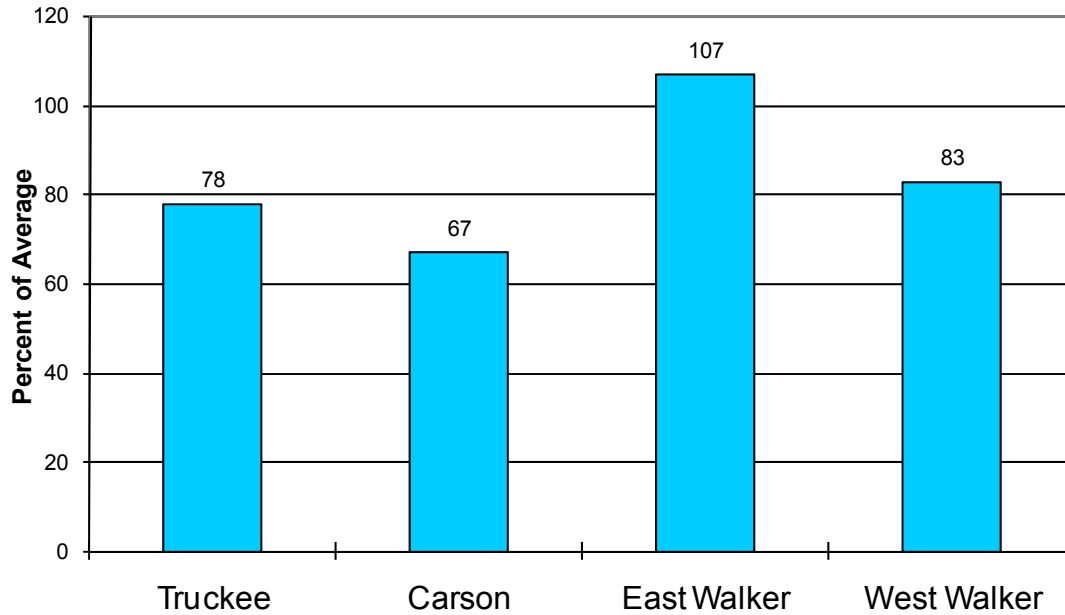
EF Carson River Gardnerville, nr	Apr-Jul	120	63	137	95	189
WF Carson River Woodfords	Apr-Jul	32	57	43	26	56
Carson River Carson City, nr	Apr-Jul	90	48	132	60	188
Fort Churchill, nr	Apr-Jul	75	42	109	41	178

Walker River

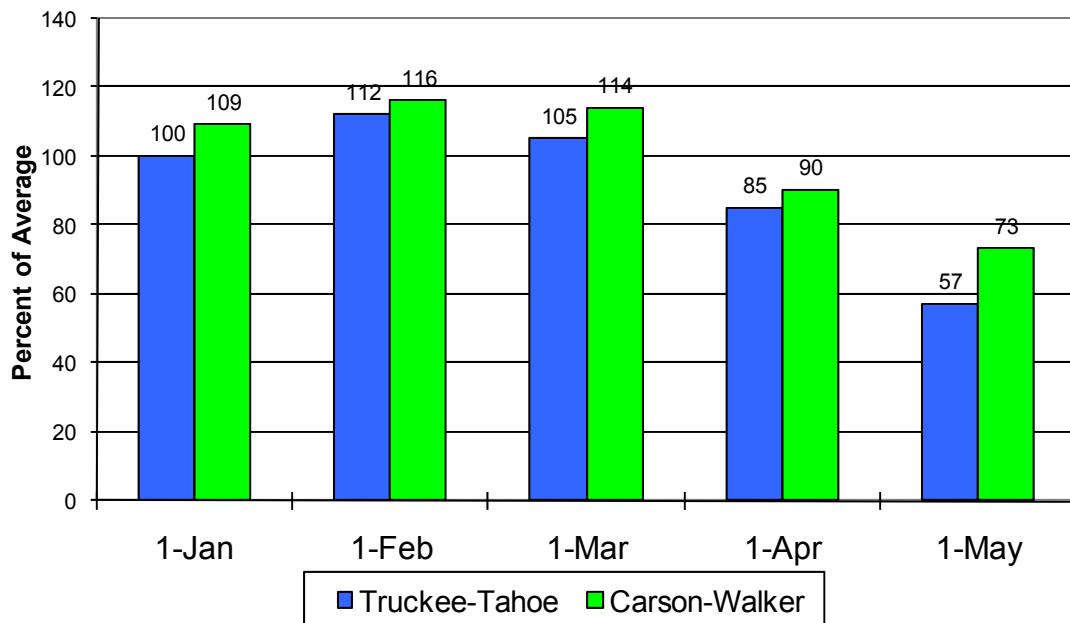
East Walker River Bridgeport, nr	Apr-Aug	52	78	68	36	67
West Walker River Ltl Walker, blo, Coleville, nr	Apr-Jul	115	74	145	95	156

East Side Sierra Nevada Basins

Seasonal Basin Precipitation October 1 to Date

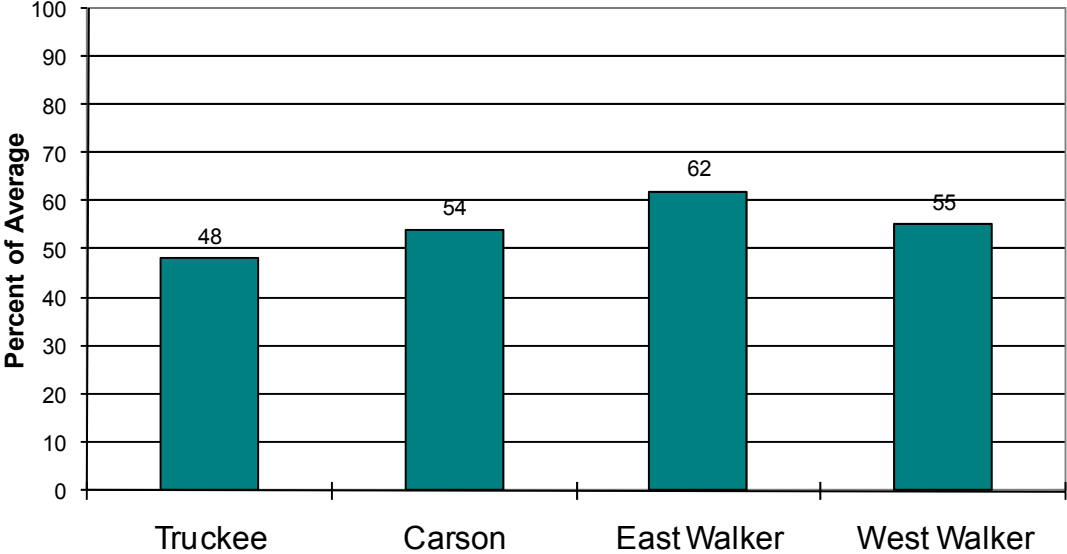


Basin Snowpack % of Average SWE to Date

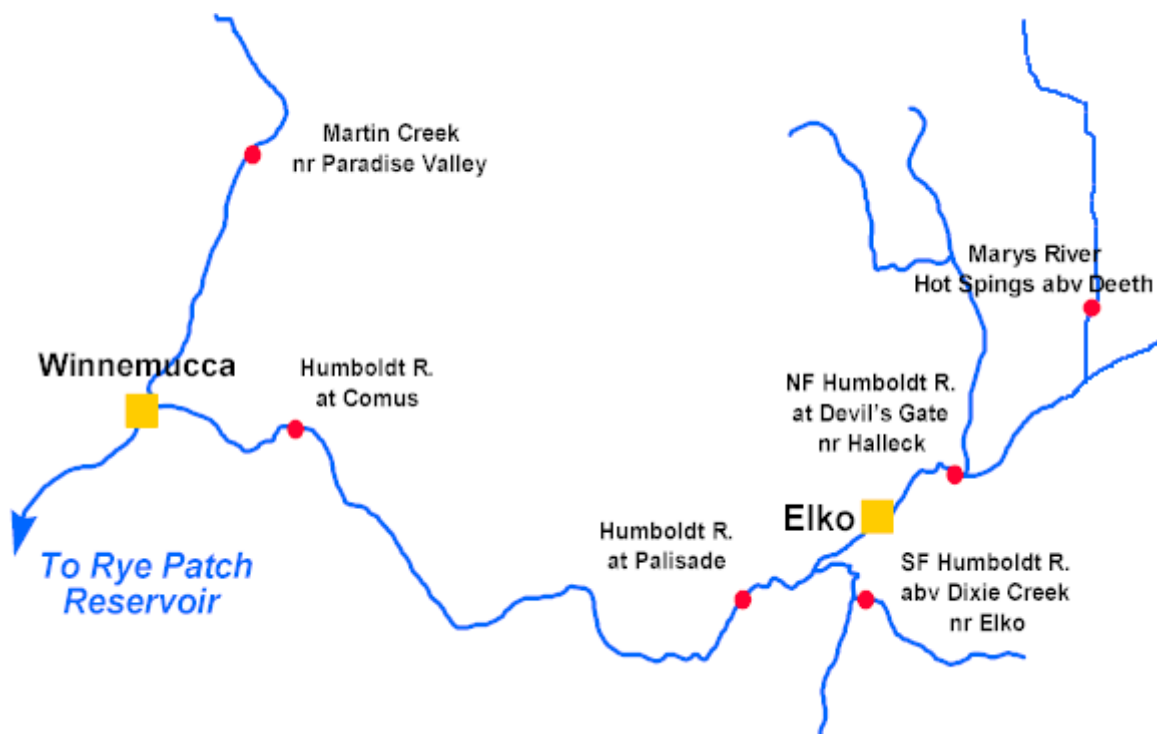


East Side Sierra Nevada Basins

Seasonal Basin Runoff October 1 to Date



Humboldt River Basin



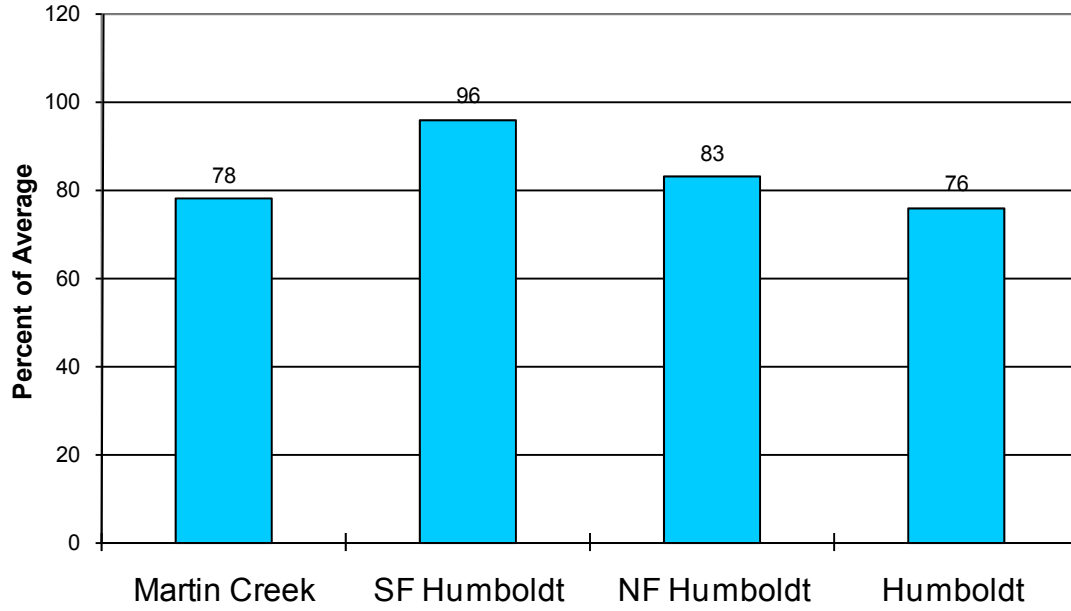
Water Supply Forecasts

		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
NF Humboldt River						
Devl's Gate, at, Halleck, nr	Apr-Jul	26	76	36	16.0	34*
SF Humboldt River						
Dixie Ck, abv, Elko, nr	Apr-Jul	60	79	105	15.0	76
Marys River						
Hot Springs, abv, Deeth, nr	Apr-Jul	30	77	40	20	39
Humboldt River						
Elko, nr	Apr-Jul	105	68	157	52	154
Palisade	Apr-Jul	180	72	270	90	250
Comus	Apr-Jul	160	71	250	70	225
Imlay, nr	Apr-Jul	100	53	220	20	188
Martin Ck						
Paradise Vly, nr	Apr-Jul	14.0	75	20	8.0	18.7

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Humboldt River Basin

Seasonal Basin Precipitation October 1 to Date



Basin Snowpack % of Average SWE to Date

