

**UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE**

California Water Supply Outlook Report

March, 2015

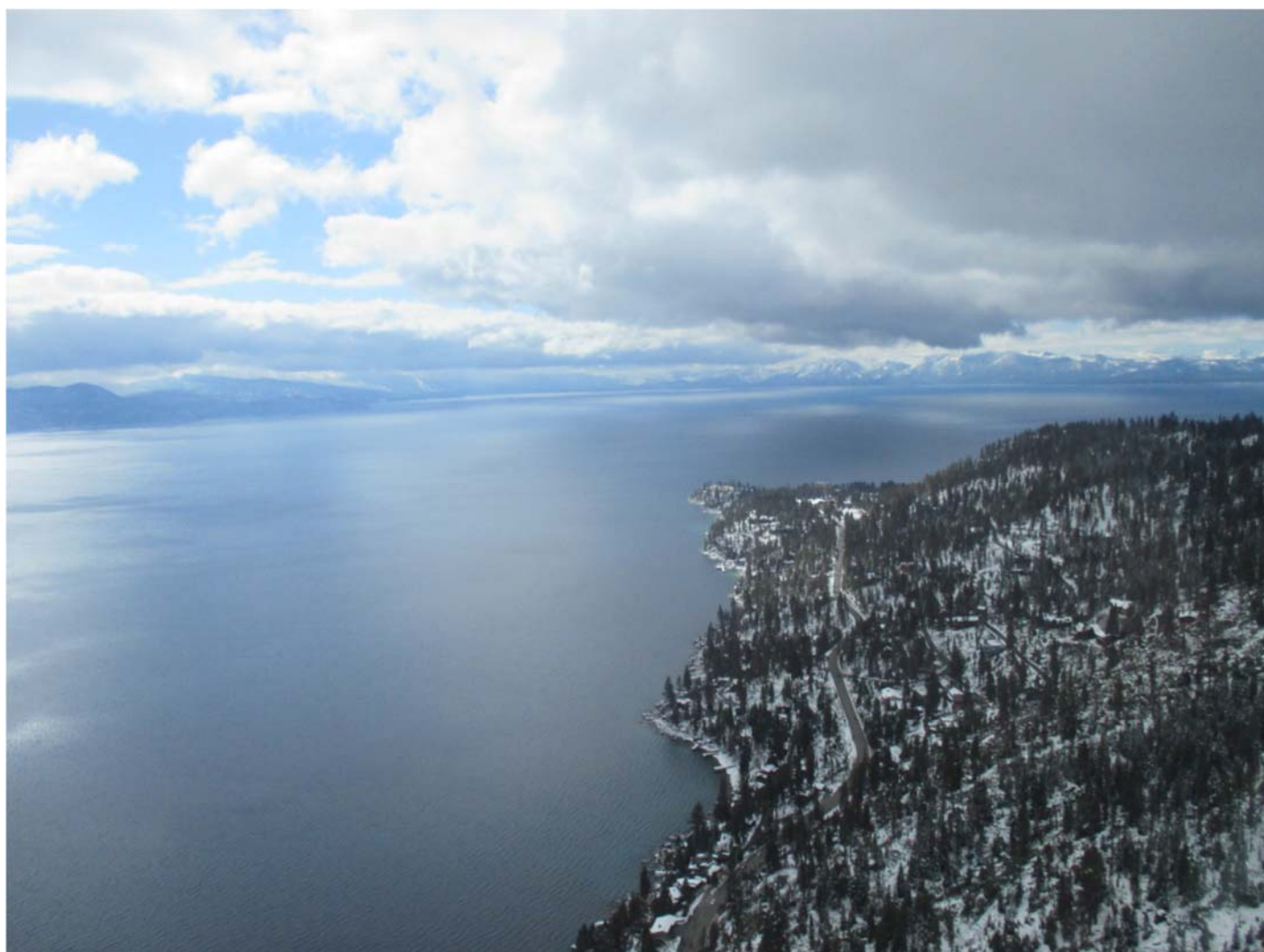


Photo taken over Crystal Bay, Nevada along the north shore of Lake Tahoe on March 3, 2015 by Jim Gifford

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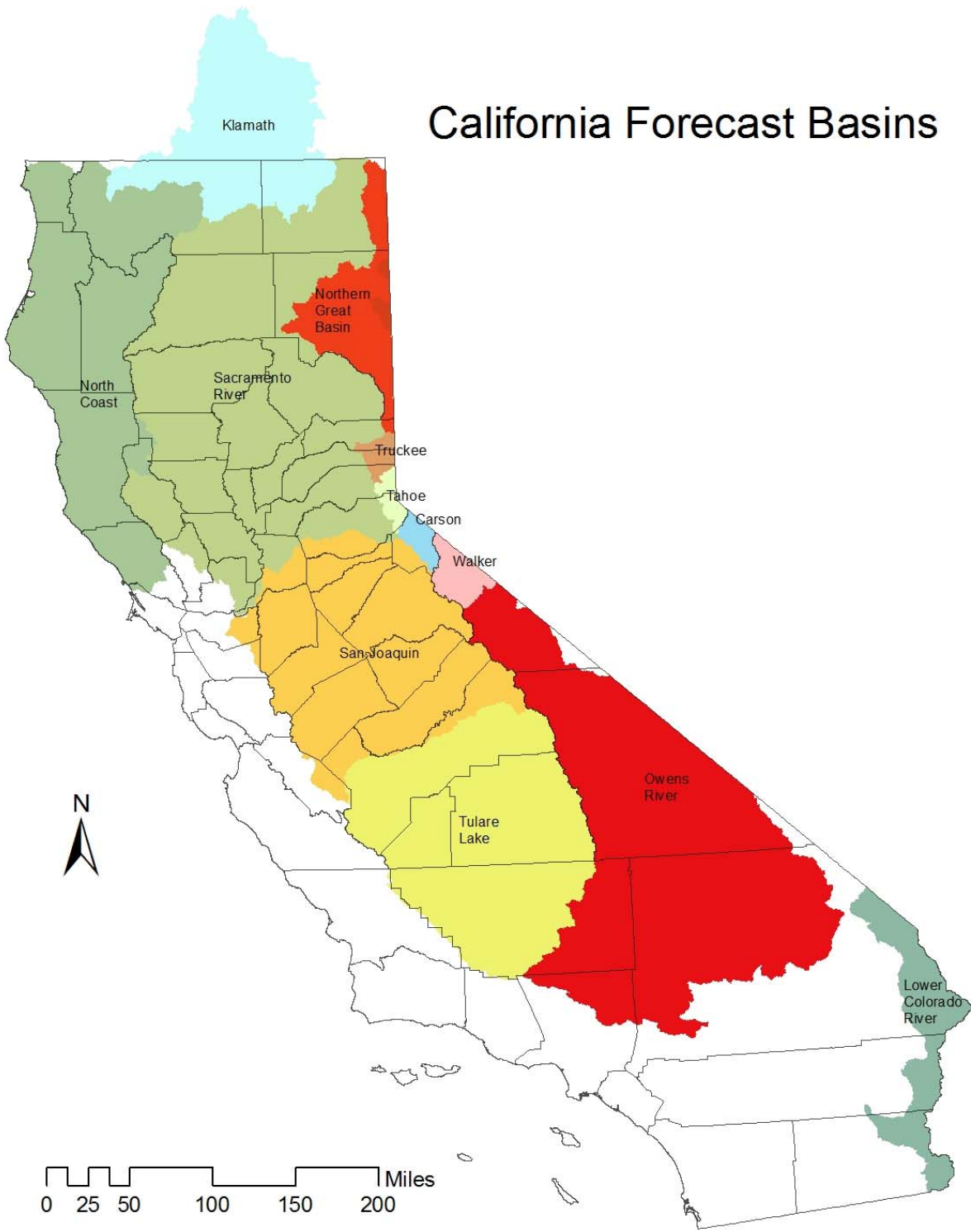
Forecast for the Owens River Basin

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How Forecasts are Made

California Forecast Basins



STATE OF CALIFORNIA GENERAL OUTLOOK

March, 2015

SUMMARY

California received some precipitation during the month of February, mostly in the form of rainfall, while the existing snowpack continued to dwindle due to warm temperatures. Fortunately though, water levels in the major storage reservoirs showed a slight increase due to runoff from the storms and the low water demand during this time of the year.

SNOWPACK

As of March 6 snowpack conditions for the Northern, Central, and Southern Sierras are below normal for this time of year. The snow water equivalents (SCE) decreased about 5 percent from last month and are currently in the range of 16%-21% of normal. The SWE continues to have a downward trend due to higher than normal day time temperatures and long durations between storms. The major storms that California received this year were warm in nature and did not provide significant amounts of snow to the snowpack. For more information please visit:

<http://cdec.water.ca.gov/cgi-progs/snow/DLYSWEQ>

PRECIPITATION

Mountain rainfall precipitation varies from the Northern end of the Sierras to the Southern end of the Sierras. As of March 6, rainfall gages in the Northern Sierra Region (8-Station index) show rainfall amounts to be slightly below normal while gages used to develop a Central Sierra Region (5-Station index) show rainfall amounts to be at 47% of normal for this time of year. The Southern Sierra region is also below average at 51% of normal for this time of year. The Northern and Central sections both trended downward compared to last month by about 10 percent, while the Southern section was able to maintain its percent of normal.

http://cdec.water.ca.gov/snow_rain.html

RESERVOIRS

Most major reservoirs in California, especially those fed by the Sierra Mountains and Foothills are still below average capacity for this time of year. The March 16 readings shows Lake Oroville is at 69% of normal storage, Lake Shasta is at 76% of normal storage, and New Hogan is at 41% of normal storage. Folsom Lake is one reservoir that seems to be recovering and is currently at 98% percent of normal storage.

<http://cdec.water.ca.gov/cgi-progs/reservoirs/RES>

STREAMFLOW

Forecasted flows from Sierra fed streams all show below normal due to the lack of snowpack to date. The streamflow forecasts for the major basins in California are shown as follows:

Sacramento River Basin

3/1/2015

Forecasted streamflow volumes for this April through July are below average, ranging from 36% to 78% of average.

SACRAMENTO RIVER BASIN							
Streamflow Forecasts - March 1, 2015							
Forecast Pt Forecast Period	<=== Drier === Future Conditions === Wetter ===>						30 Yr Avg (1000AF)
	Chance of Exceeding * 90% 70% 50% (Most Prob) 30% 10% (1000AF) (1000AF) (1000AF) (% AVG.) (1000AF) (1000AF)						
Sacramento R at Shasta (DWR)							
APR-JUL			160	53			302
Sacramento R at Shasta (NWS)							
APR-JUL	104	138	185	59	282	377	312
McCloud R ab Shasta (DWR)							
APR-JUL			260	69			379
McCloud R ab Shasta (NWS)							
APR-JUL	224	244	270	69	340	433	392
Pit R at Shasta Lk (DWR)							
APR-JUL			700	67			1046
Pit R at Shasta Lk (NWS)							
APR-JUL	476	507	568	56	769	887	1013
Inflow to Shasta Lk (DWR)							
APR-JUL	690		1150	64		2150	1806
OCT-SEP	3305		4450	74		7115	5979
Inflow to Shasta Lk (NWS)							
APR-JUL	952	1034	1224	68	1691	2197	1803
Sacramento R nr Red Bluff (DWR)							
APR-JUL	890		1550	62		3220	2485
OCT-SEP	4810		6760	78		10690	8727
Sacramento R nr Red Bluff (NWS)							
APR-JUL	1449	1569	1869	75	2592	3575	2479
Feather R at Lk Almanor (DWR)							
APR-JUL			150	45			333
NF Feather R at Pulga (DWR)							
APR-JUL			490	48			1028
NF Feather R nr Prattville (NWS)							
APR-JUL	75	91	120	36	162	203	333
MF Feather R nr Clio (DWR)							
APR-JUL			40	47			86
SF Feather R at Ponderosa Dam (DWR)							
APR-JUL			50	46			110
Inflow to Oroville Res (DWR)							
APR-JUL	380		860	49		2300	1758
OCT-SEP	1715		2815	62		5495	4523
Inflow to Oroville Res (NWS)							
APR-JUL	364	453	665	39	1018	1643	1701
N Yuba R bl Goodyears Bar (DWR)							
APR-JUL			140	50			279
N Yuba R bl Goodyears Bar (NWS)							
APR-JUL	63	87	134	49	199	264	273
Inflow Jackson Mdws & Bowman Res (DWR)							
APR-JUL			60	54			112
S Yuba R nr Langs Crossing (DWR)							
APR-JUL			120	52			233

Yuba R at Smartville (DWR)							
APR-JUL	190		510	51		1200	996
OCT-SEP	765		1450	62		2710	2329
Yuba R at Smartville (NWS)							
APR-JUL	221	313	465	47	711	986	981
NF American R at N FK Dam (DWR)							
APR-JUL			100	38			262
MF American R nr Auburn (DWR)							
APR-JUL			220	42			522
MF American R nr Auburn (NWS)							
APR-JUL	86	148	220	45	346	546	490
Inflow to Union Valley Res (NWS)							
APR-JUL	14.0	24	36	37	61	82	98
Silver Ck bl Camino Div. Dam (DWR)							
APR-JUL			80	46			173
Silver Ck bl Camino Div. Dam (NWS)							
APR-JUL	30	49	66	42	113	155	158
Inflow to Folsom Res (DWR)							
APR-JUL	190		540	44		1560	1231
OCT-SEP	690		1435	54		3130	2683
Inflow to Folsom Res (NWS)							
APR-JUL	173	318	480	39	841	1296	1232

=====

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1981-2010 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management

San Joaquin River Basin

3/1/2015

Forecasted streamflow volumes for this April through July are below average, ranging from 32% to 56% of average.

SAN JOAQUIN RIVER BASIN						
Streamflow Forecasts - March 1, 2015						
Forecast Pt Forecast Period	<=== Drier === Future Conditions === Wetter ===>					30 Yr Avg (1000AF)
	Chance of Exceeding * =====					
	90% (1000AF)	70% (1000AF)	50% (Most Prob) (1000AF) (% AVG.)	30% (1000AF)	10% (1000AF)	
Cosumnes R at Michigan Bar (DWR)						
APR-JUL	6.0		45	35		225
OCT-SEP	40		170	44		765
Cosumnes R at Michigan Bar (NWS)						
APR-JUL	23	34	55	43	99	189
NF Mokelumne R nr West Point (DWR)						
APR-JUL			210	48		437
Inflow to Pardee Res (DWR)						
APR-JUL	85		230	50		530
OCT-SEP	170		400	53		870
Inflow to Pardee Res (NWS)						
APR-JUL	93	131	188	40	316	449
MF Stanislaus R bl Beardsley (DWR)						
APR-JUL			160	48		334
N F Inflow to McKays Pt Dam (DWR)						
APR-JUL			100	45		224
Inflow to New Melones Res (DWR)						
APR-JUL	100		350	50		810
Inflow to New Melones Resr (DWR)						
OCT-SEP	200		560	48		1140
Inflow to New Melones Res (NWS)						
APR-JUL	146	204	271	39	448	640
Cherry & Eleanor Cks, Hetch Hetchy (DWR)						
APR-JUL			170	54		315
Tuolumne R nr Hetch Hetchy (DWR)						
APR-JUL			340	56		604
Tuolumne R nr Hetch Hetchy (NWS)						
APR-JUL	177	215	307	52	438	622
Inflow to New Don Pedro Res (DWR)						
APR-JUL	270		640	52		1430
OCT-SEP	470		980	50		1960
Inflow to New Don Pedro Res (NWS)						
APR-JUL	318	409	614	48	913	1324
Merced R, Pohono Bridge Yosemite(DWR)						
APR-JUL			170	46		372
Merced R, Pohono Bridge Yosemite (NWS)						
APR-JUL	71	100	147	38	246	356
Inflow to Lake McClure (DWR)						
APR-JUL	102		270	43		780
OCT-SEP	160		395	39		1050
Inflow to Lake McClure (NWS)						
APR-JUL	89	128	207	32	385	592
San Joaquin R at Mammoth Pool (DWR)						
APR-JUL			480	47		1026

Big Ck bl Huntington Lk (DWR)						
APR-JUL		45	50			91
SF San Joaquin R nr Florence Lk (DWR)						
APR-JUL		90	45			201
Inflow to Millerton Lk (DWR)						
APR-JUL	270	550	44		1370	1258
OCT-SEP	400	770	42		1750	1831
Inflow to Millerton Lk (NWS)						
APR-JUL	205	276	471	37	798	1302
						1258

=====

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- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.

SAN JOAQUIN RIVER BASIN

Tulare Lake Basin

3/1/2015

Forecasted streamflow volumes for this April through July are below average, ranging from 14% to 45% of average.

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                                TULARE LAKE BASIN
                                Streamflow Forecasts - March 1, 2015
=====
Forecast Pt | <=== Drier === Future Conditions === Wetter ===> |
Forecast | ===== Chance of Exceeding * ===== |
Period | (1000AF) (1000AF) | (1000AF) (% AVG.) | (1000AF) (1000AF) | (1000AF)
=====
NF Kings R nr Cliff Camp (DWR)
  APR-JUL | | 100 | 42 | | 239
Inflow to Pine Flat Res (DWR)
  APR-JUL | 260 | 540 | 44 | 1340 | 1236
  OCT-SEP | 370 | 720 | 42 | 1720 | 1729
Inflow to Pine Flat Res (NWS)
  APR-JUL | 231 | 276 | 466 | 38 | 800 | 1251 | 1231
Kaweah R at Terminus Res (DWR)
  APR-JUL | 58 | 130 | 45 | 370 | 290
  OCT-SEP | 90 | 190 | 42 | 520 | 456
Kaweah R at Terminus Res (NWS)
  APR-JUL | 24 | 44 | 76 | 26 | 153 | 312 | 288
Tule R at Success Res (DWR)
  APR-JUL | 2.0 | 9.0 | 14 | 99 | 64
  OCT-SEP | 5.0 | 26 | 18 | 250 | 147
Tule R at Success Res (NWS)
  APR-JUL | 4.0 | 5.0 | 12.0 | 19 | 28 | 70 | 63
Kern R nr Kernville (DWR)
  APR-JUL | 140 | 37 | 384
Inflow to Isabella Res (DWR)
  APR-JUL | 80 | 155 | 33 | 640 | 465
  OCT-SEP | 150 | 265 | 36 | 990 | 733
Inflow to Isabella Res (NWS)
  APR-JUL | 18.0 | 46 | 108 | 24 | 228 | 415 | 454
=====

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The average is computed for the 1981-2010 base period.

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North Coast Area Basin

3/1/2015

Forecasted streamflow volumes for this April through July are below average, ranging from 31% to 76% of average.

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=====
                                NORTH COASTAL AREA
                                Streamflow Forecasts - March 1, 2015
=====
Forecast Pt | <=== Drier === Future Conditions === Wetter ===> |
Forecast Pt | ===== Chance of Exceeding * ===== |
Forecast Pt | 90%      70%  | 50% (Most Prob) | 30%      10%  | 30 Yr Avg
Period      | (1000AF) (1000AF) | (1000AF) (% AVG.) | (1000AF) (1000AF) | (1000AF)
=====
Trinity R at Lewiston (DWR)
APR-JUL      90              310      48              710      651
OCT-SEP      600             1045     76              1855     1376

Inflow to Clair Engle Lk (NWS)
APR-JUL      176      222      317      48      472      629      666

Scott R nr Fort Jones (NWS)
APR-JUL      61              0
APR-JUL      28      41      53      31      81      126      173
=====

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The average is computed for the 1981-2010 base period.

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Klamath Basin

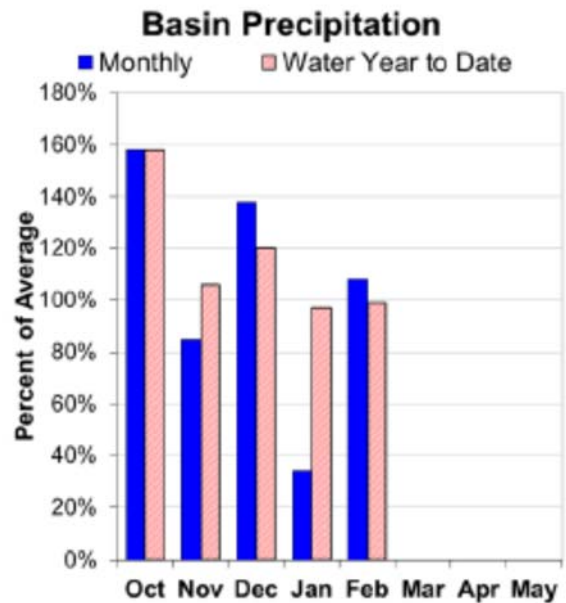
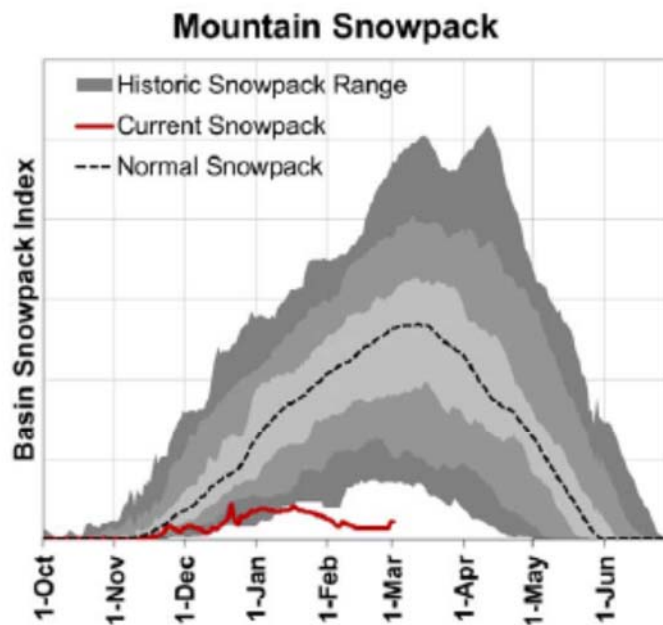
March 1, 2015

As of March 1, the basin snowpack was 17% of normal. This is slightly lower than last month which at that time the basin snowpack was 19% of normal. There are four long-term snow measuring sites in the basin that have set a new record low for March 1 snowpack. Out of 31 snow monitoring sites in the basin, there are 15 that are snow-free.

February precipitation was 108% of average. Precipitation since the beginning of the water year (October 1 - March 1) has been 99% of average.

As of March 1, storage at major reservoirs in the basin ranges from 21% of average at Clear Lake to 117% of average at Upper Klamath Lake.

As of March 1, summer streamflow forecasts in the basin range from 32% to 48% of average. Overall, forecasts decreased from last month's report. Water users in the basin should anticipate water shortages this coming summer and begin to prepare accordingly.



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KLAMATH BASIN
Streamflow Forecasts - March 1, 2015

=====

Forecast Pt Forecast Period	<=== Drier === Future Conditions === Wetter ===>					30 Yr Avg (1000AF)
	===== Chance of Exceeding * =====					
	90%	70%	50% (Most Prob)	30%	10%	
	(1000AF)	(1000AF)	(1000AF) (% AVG.)	(1000AF)	(1000AF)	(1000AF)
=====						
Clear Lk Inflow (2)						
FEB-JUL	1.9	12.7	38	41	63	101
APR-SEP	0.3	4.2	14.0	40	24	38
Gerber Res Inflow (2)						
FEB-JUL	0.4	4.8	16.0	39	27	44
APR-SEP	0.1	0.4	4.0	28	10.3	19.5
Sprague R nr Chiloquin						
FEB-JUL	27	100	150	51	200	273
Upper Klamath Lake Inflow						
FEB-JUL	89	285	375	52	465	660
Upper Klamath Lk Inflow (1)						
APR-SEP	76	196	250	52	305	425
Williamson R bl Sprague R						
FEB-JUL	97	188	250	53	310	405
Williamson R bl Sprague R nr Chiloquin						
APR-SEP	96	158	200	56	240	305

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* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1981-2010 base period.

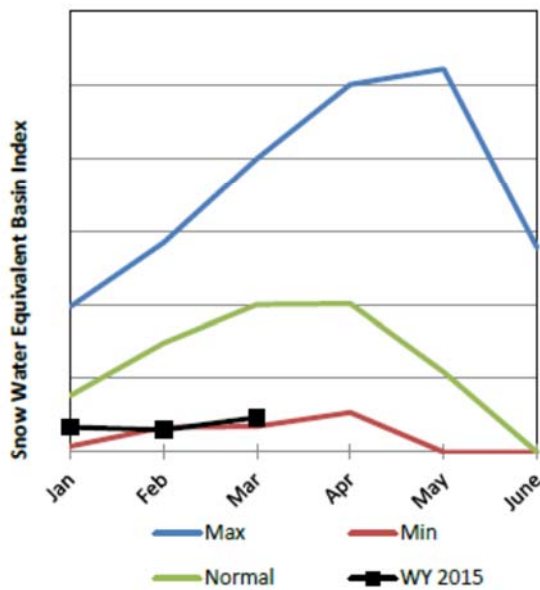
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.

Lake Tahoe Basin

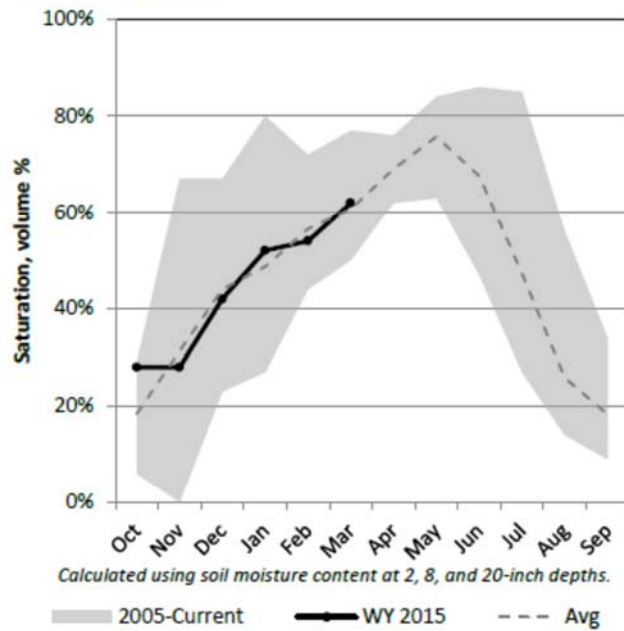
3/1/2015

Snowpack in the Lake Tahoe Basin is much below average at 23% of normal, compared to 41% last year. Precipitation in February was near average at 106%, which brings the seasonal accumulation (Oct-Feb) to 60% of average. Soil moisture is at 62% compared to 55% last year. Lake Tahoe's water elevation is 6222.85 feet, which is 0.15 feet below the lake's natural rim and equals a storage deficit of about 18,190 acre-feet. Last year the elevation was 6224.11 feet and the useable storage equaled 136,000 acre-feet. Lake Tahoe is forecast to rise 0.45 feet from March to its high elevation.

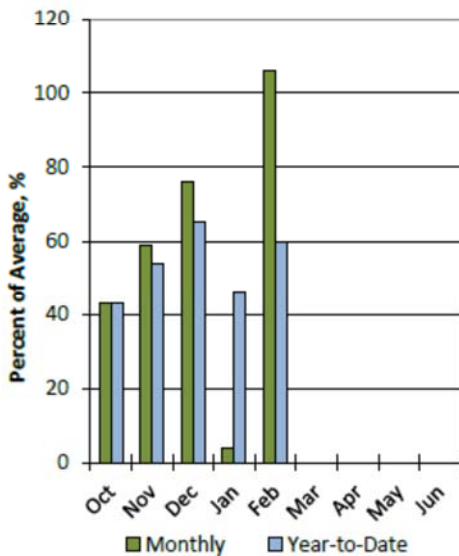
Snowpack



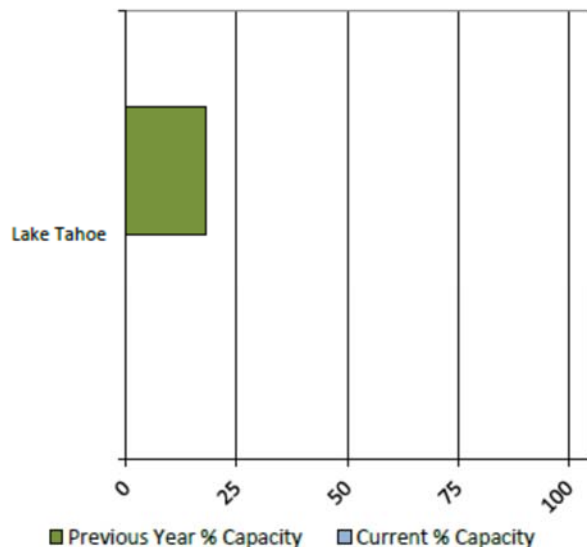
Soil Moisture



Precipitation



Reservoir Storage



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LAKE TAHOE BASIN
Streamflow Forecasts - March 1, 2015

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Forecast Pt Forecast Period	<=== Drier === Future Conditions === Wetter ===>					30 Yr Avg (1000AF)
	===== Chance of Exceeding * =====					
	90%	70%	50% (Most Prob)	30%	10%	
	(1000AF)	(1000AF)	(1000AF) (% AVG.)	(1000AF)	(1000AF)	(1000AF)
=====						
Marlette Lk Inflow (Acre-Ft)						
MAR-JUL	-829.0	-246.0	150	9999	546	1129
APR-JUL	-744.0	-241.0	100	9999	441	944
Lake Tahoe Rise (Gates Closed) (1)						
MAR-HIG	0.0	0.1	0.5	29	0.9	1.6
APR-HIG	0.1	0.3	0.5	34	0.8	1.4

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* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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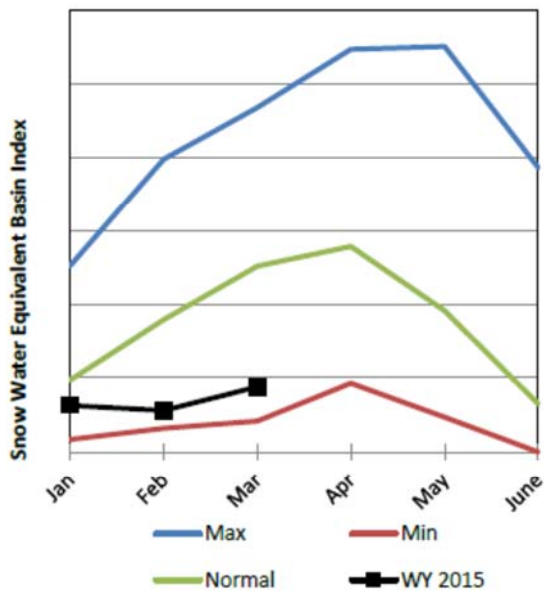
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Truckee River Basin

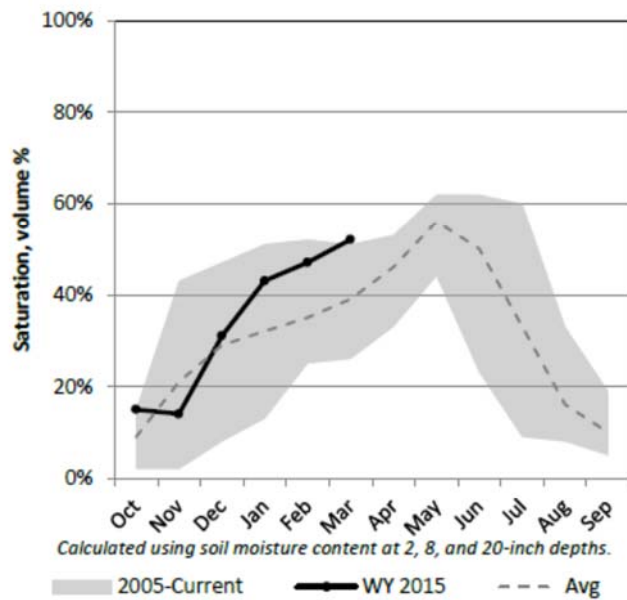
3/1/2015

Snowpack in the Truckee River Basin is much below average at 28% of normal, compared to 28% last year. Precipitation in February was near average at 90%, which brings the seasonal accumulation (Oct-Feb) to 61% of average. Soil moisture is at 52% compared to 39% last year. Reservoir storage is at 29% of capacity, compared to 45% last year. Forecast streamflows range from 13% to 37% of average.

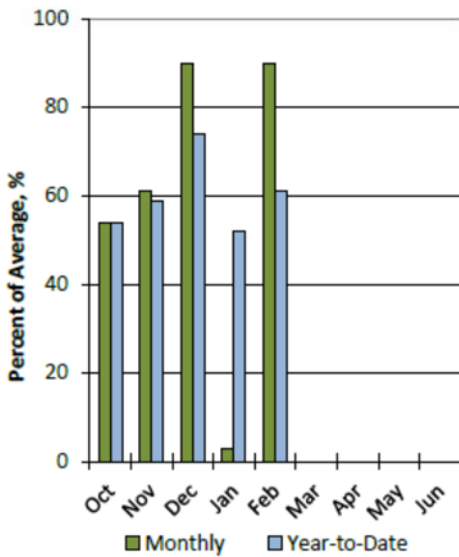
Snowpack



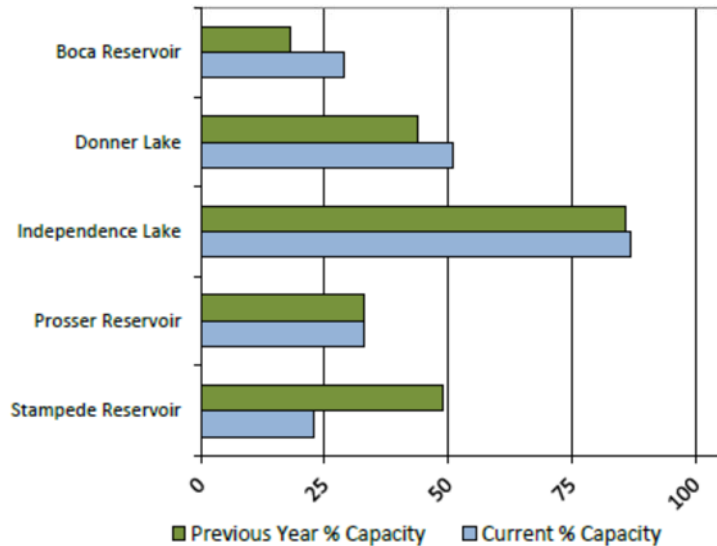
Soil Moisture



Precipitation



Reservoir Storage



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TRUCKEE RIVER BASIN
Streamflow Forecasts - March 1, 2015

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Forecast Pt Forecast Period	<=== Drier === Future Conditions === Wetter ===>					30 Yr Avg (1000AF)	
	===== Chance of Exceeding * =====						
	90% (1000AF)	70% (1000AF)	50% (Most Prob) (1000AF) (% AVG.)	30% (1000AF)	10% (1000AF)		
=====							
Sagehen Ck nr Truckee							
MAR-JUL	0.7	0.9	1.2	19	1.5	2.2	6.4
APR-JUL	0.1	0.2	1.0	18	1.3	2.0	5.6
L Truckee R ab Boca Resv							
MAR-JUL	3.0	15.1	36	36	57	88	99
APR-JUL	12.0	22	33	39	55	82	84
Truckee R at Farad							
MAR-JUL	9.0	66	125	41	184	270	307
APR-JUL	53	77	105	41	160	243	255

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* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1981-2010 base period.

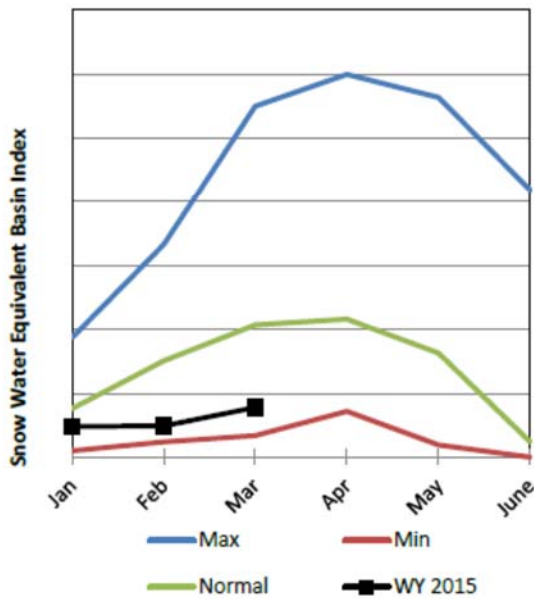
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- (2) - The value is natural volume - actual volume may be affected by upstream water management.

Carson River Basin

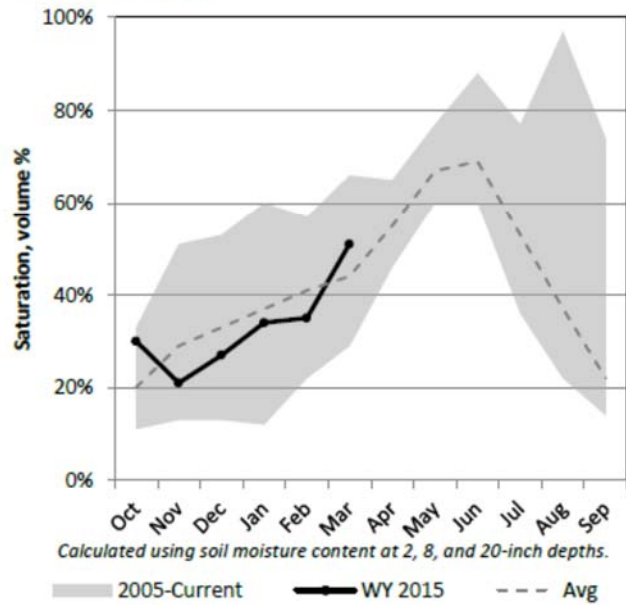
3/1/2015

Snowpack in the Carson River Basin is much below average at 36% of normal, compared to 55% last year. Precipitation in February was near average at 92%, which brings the seasonal accumulation (Oct-Feb) to 53% of average. Soil moisture is at 51% compared to 33% last year. Storage in Lahontan Reservoir is 14% of capacity, compared to 25% last year. Forecast streamflow volumes range from 12% to 33% of average.

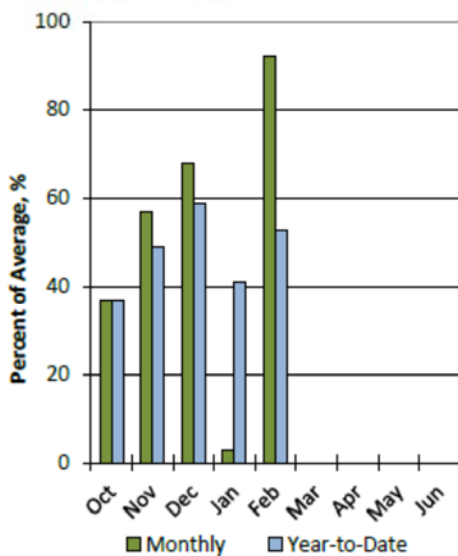
Snowpack



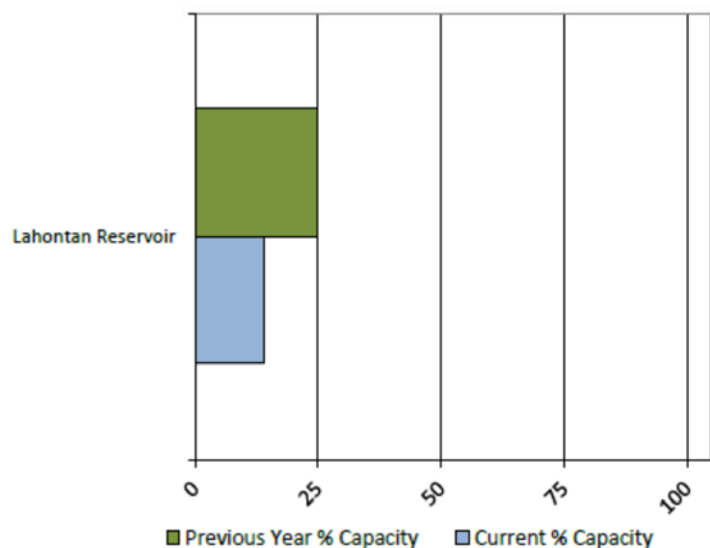
Soil Moisture



Precipitation



Reservoir Storage



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CARSON RIVER BASIN
Streamflow Forecasts - March 1, 2015

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Forecast Pt Forecast Period	<=== Drier === Future Conditions === Wetter ===>					30 Yr Avg (1000AF)
	Chance of Exceeding * =====					
	90%	70%	50% (Most Prob)	30%	10%	
	(1000AF)	(1000AF)	(1000AF) (% AVG.)	(1000AF)	(1000AF)	(1000AF)
=====						
EF Carson R nr Gardnerville						
MAR-JUL	4.0	29	80	39	131	206
APR-JUL	4.0	22	68	37	114	181
WF Carson R at Woodfords						
MAR-JUL	1.8	9.7	23	39	36	56
APR-JUL	1.1	9.3	20	37	31	46

=====

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1981-2010 base period.

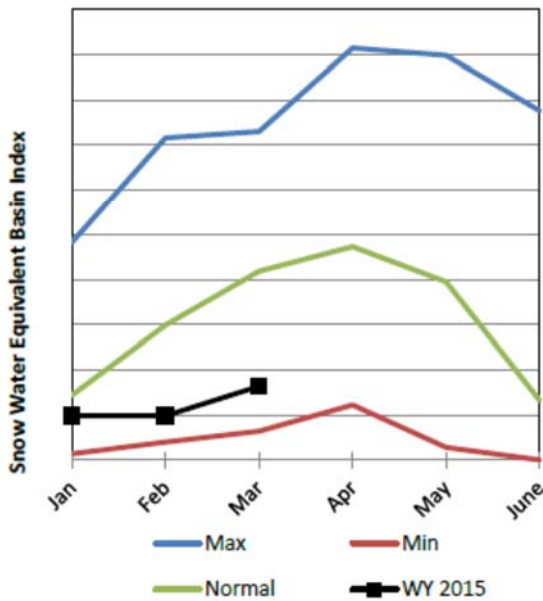
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.

Walker River Basin

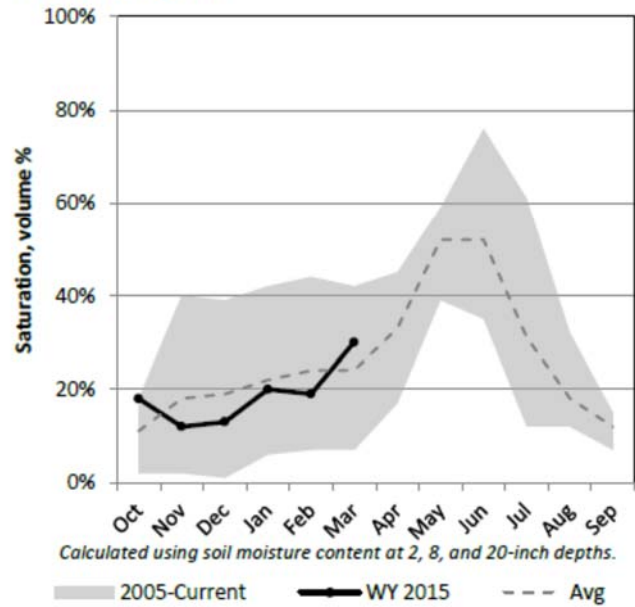
3/1/2015

Snowpack in the Walker River Basin is much below average at 39% of normal, compared to 45% last year. Precipitation in February was below average at 89%, which brings the seasonal accumulation (Oct-Feb) to 52% of average. Soil moisture is at 30% compared to 7% last year. Combined reservoir storage is at 16% of capacity, compared to 18% last year. Forecast streamflow volumes range from 30% to 38% of average.

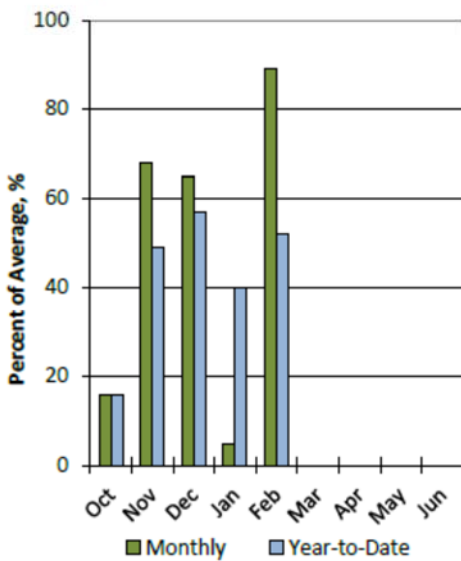
Snowpack



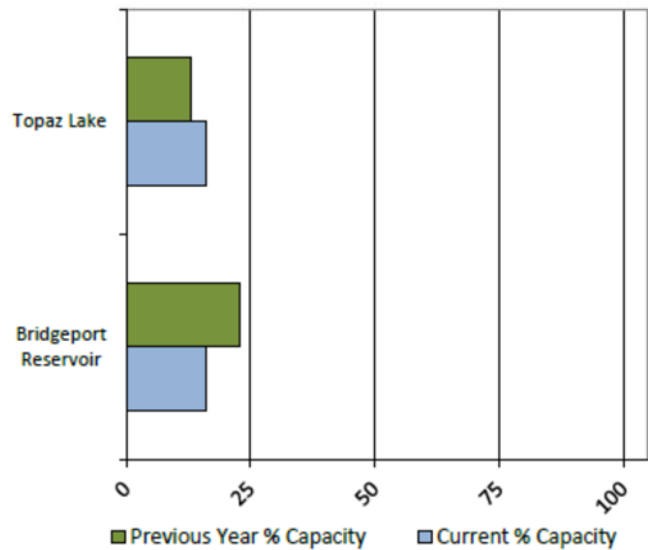
Soil Moisture



Precipitation



Reservoir Storage



=====

WALKER RIVER BASIN
Streamflow Forecasts - March 1, 2015

=====

Forecast Pt Forecast Period	<=== Drier === Future Conditions === Wetter ===>					30 Yr Avg (1000AF)	
	Chance of Exceeding * 90% 70% 50% (Most Prob) 30% 10% (1000AF) (1000AF) (1000AF) (% AVG.) (1000AF) (1000AF)						
=====							
E Walker R nr Bridgeport							
MAR-AUG	0.8	4.6	20	26	41	73	76
APR-AUG	0.7	4.7	16.0	24	34	61	67
W Walker R bl L Walker R nr Coleville							
MAR-JUL	5.0	41	75	44	109	159	170
APR-JUL	2.0	34	68	42	102	153	162
W Walker R nr Coleville							
MAR-JUL	67	73	76	44	79	85	172
APR-JUL	59	64	67	41	70	75	163

=====

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1981-2010 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.

Owens River Basin

3/1/2015

```

=====
                                OWENS RIVER BASIN
                                Streamflow Forecasts - March 1, 2015
=====
Forecast Pt | <=== Drier === Future Conditions === Wetter ===> |
Forecast    | ===== Chance of Exceeding * ===== |
Period      | 90%      70%   | 50% (Most Prob) | 30%      10%   | 30 Yr Avg
              |(1000AF) (1000AF)| (1000AF) (% AVG.)|(1000AF) (1000AF)| (1000AF)
=====
Owens R (DWR)
APR-SEP                    55      23                                235
=====

```

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1981-2010 base period.

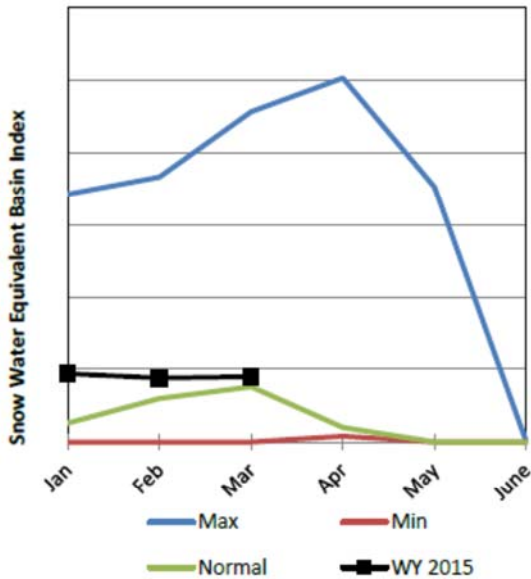
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.

Northern Great Basin

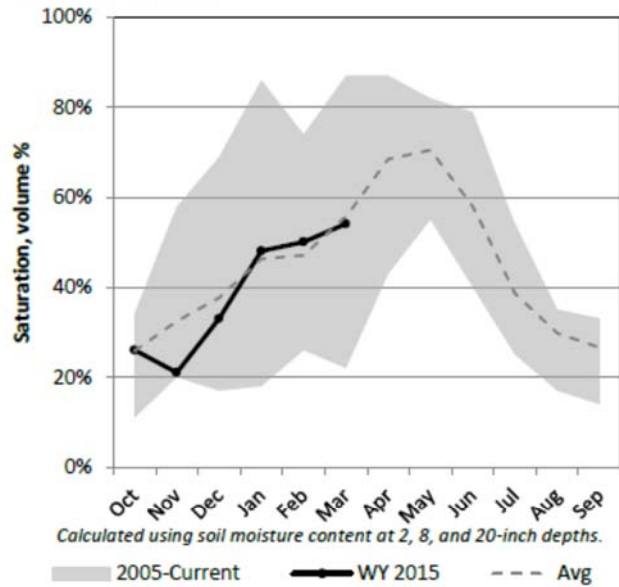
3/1/2015

Snowpack in the Northern Great Basin is much below average at 34% of normal, compared to 33% last year. Precipitation in February was much below average at 57%, which brings the seasonal accumulation (Oct-Feb) to 87% of average. Soil moisture is at 54% compared to 28% last year. Forecast streamflow volumes range from 30% to 44% of average.

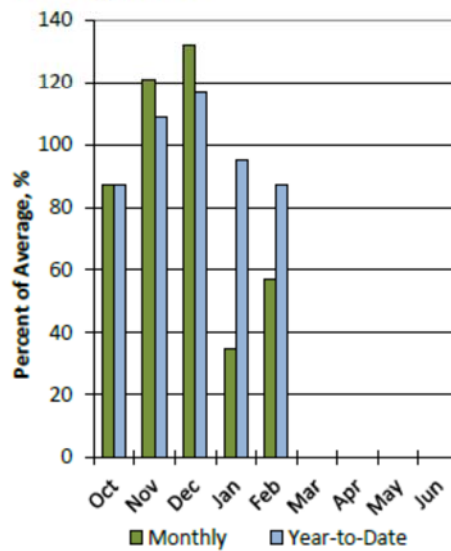
Snowpack



Soil Moisture



Precipitation



=====

NORTHERN GREAT BASIN
Streamflow Forecasts - March 1, 2015

=====

Forecast Pt Forecast Period	<=== Drier === Future Conditions === Wetter ===>					30 Yr Avg (1000AF)	
	===== Chance of Exceeding * =====						
	90% (1000AF)	70% (1000AF)	50% (Most Prob) (1000AF) (% AVG.)	30% (1000AF)	10% (1000AF)		
Eagle Ck nr Eagleville							
APR-JUL	0.1	0.5	2.0	47	3.5	5.7	4.3
Bidwell CK nr Ft. Bidwell							
APR-JUL	1.1	3.4	5.0	42	6.6	8.8	12.0

=====

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1981-2010 base period.

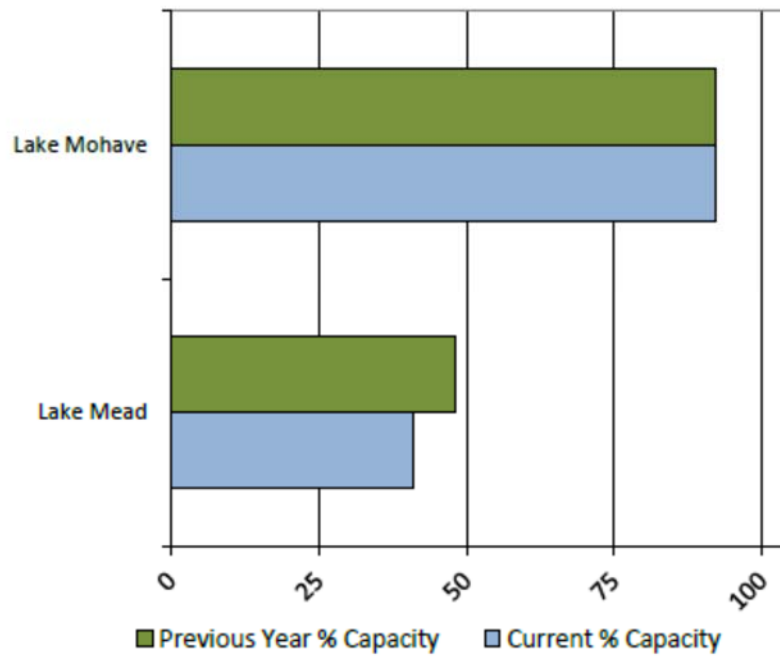
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.

Lower Colorado River Basin

3/1/2015

Snowpack in the Colorado River Basin is forecasted to produce 70% of normal runoff into Lake Powell during the April to July months. Lake Mead water levels have decreased as shown below since last year.

Reservoir Storage



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COLORADO RIVER BASIN
Streamflow Forecasts - March 1, 2015

=====

Forecast Pt	<=== Drier === Future Conditions === Wetter ===>					30 Yr Avg
	Chance of Exceeding *					
Forecast	90%	70%	50% (Most Prob)	30%	10%	(1000AF)
Period	(1000AF)	(1000AF)	(1000AF) (% AVG.)	(1000AF)	(1000AF)	
Lake Powell Inflow (2)						
APR-JUL	2750	3960	4900	68	5940	7160

=====

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1981-2010 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.

How forecasts are made

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snowcourses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

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California Water Supply Outlook Report

Natural Resources Conservation Service
Davis, CA

