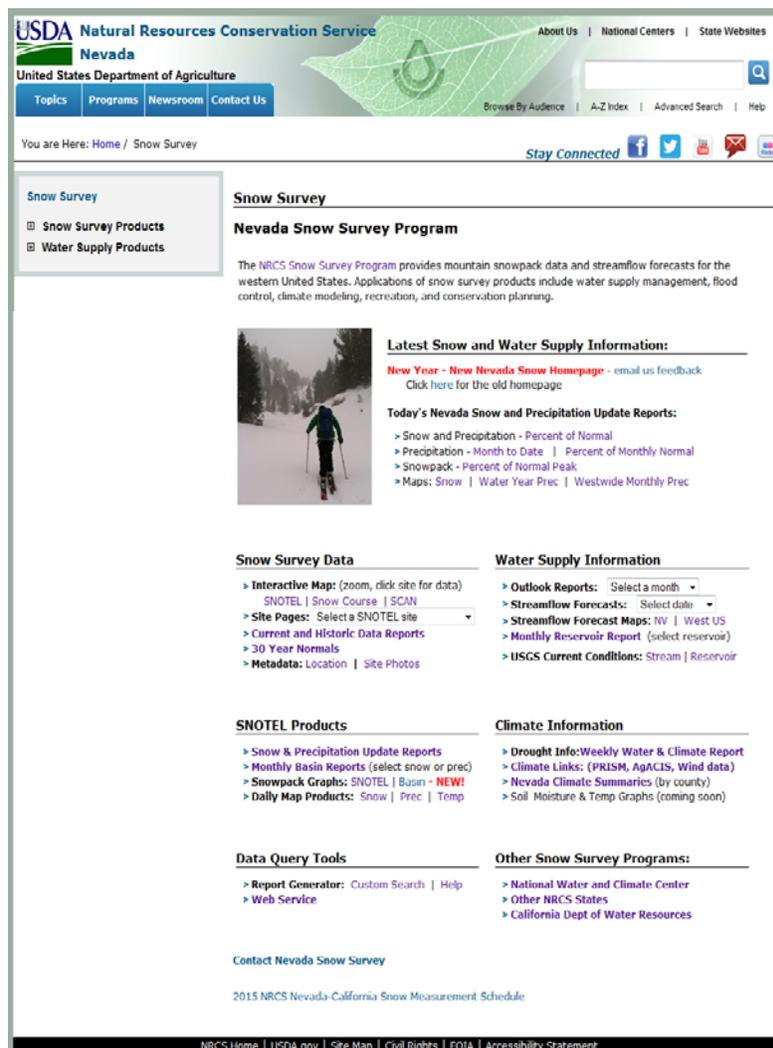


## Natural Resources Conservation Service

# Nevada Water Supply Outlook Report January 1, 2015



**USDA Natural Resources Conservation Service**  
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**Snow Survey**

- Snow Survey Products
- Water Supply Products

**Snow Survey**  
**Nevada Snow Survey Program**

The NRCS Snow Survey Program provides mountain snowpack data and streamflow forecasts for the western United States. Applications of snow survey products include water supply management, flood control, climate modeling, recreation, and conservation planning.

**Latest Snow and Water Supply Information:**  
 New Year - New Nevada Snow Homepage - email us feedback  
 Click here for the old homepage

**Today's Nevada Snow and Precipitation Update Reports:**

- Snow and Precipitation - Percent of Normal
- Precipitation - Month to Date | Percent of Monthly Normal
- Snowpack - Percent of Normal Peak
- Maps: Snow | Water Year Prec | Westwide Monthly Prec

**Snow Survey Data**

- Interactive Map: (zoom, click site for data)  
 SNOTEL | Snow Course | SCAN
- Site Pages: Select a SNOTEL site
- Current and Historic Data Reports
- 30 Year Normals
- Metadata: Location | Site Photos

**Water Supply Information**

- Outlook Reports: Select a month
- Streamflow Forecasts: Select data
- Streamflow Forecast Maps: NV | West US
- Monthly Reservoir Report (select reservoir)
- USGS Current Conditions: Stream | Reservoir

**SNOTEL Products**

- Snow & Precipitation Update Reports
- Monthly Basin Reports (select snow or prec)
- Snowpack Graphs: SNOTEL | Basin - NEW!
- Daily Map Products: Snow | Prec | Temp

**Climate Information**

- Drought Info: Weekly Water & Climate Report
- Climate Links: (PRISM, AgACIS, Wind data)
- Nevada Climate Summaries (by county)
- Soil Moisture & Temp Graphs (coming soon)

**Data Query Tools**

- Report Generator: Custom Search | Help
- Web Service

**Other Snow Survey Programs:**

- National Water and Climate Center
- Other NRCS States
- California Dept of Water Resources

Contact Nevada Snow Survey

2015 NRCS Nevada-California Snow Measurement Schedule

NRCS Home | USDA.gov | Site Map | Civil Rights | FOIA | Accessibility Statement

## New Year – New Nevada Snow Survey Homepage

[www.nv.nrcs.usda.gov/snow/](http://www.nv.nrcs.usda.gov/snow/)

This month marks the debut of a new Nevada Snow Survey Program homepage. The page provides links to snow survey data and products, as well as, water supply and climate information. Use the links to *Today's Update Reports* to find information about "percent of normal" conditions for snow and precipitation. Dropdown links access current and past *Water Supply Outlook Reports* and the most recent *Streamflow Forecast* tables. Be sure to check out the *Interactive Map* to access SNOTEL and other snow survey data. The *Snowpack Graphs* will help you track basin snowpack conditions compared to recent years. Read more about these snow graphs inside this report. Please get in touch with Jeff Anderson using the *Contact Nevada Snow Survey* link if you have questions or need help finding specific information.

# Water Supply Outlook Reports

## Federal - State – Private Cooperative Snow Surveys

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For more water supply and resource management information:

Internet: [www.nv.nrcs.usda.gov/snow/](http://www.nv.nrcs.usda.gov/snow/)

Contact: Jeff Anderson, Water Supply Specialist, [jeff.anderson@nv.usda.gov](mailto:jeff.anderson@nv.usda.gov) or 775-857-8500 x152  
Natural Resources Conservation Service, Nevada Snow Survey, 1365 Corporate Blvd, Reno, NV 89502

To join a free email subscription list please email: [jeff.anderson@nv.usda.gov](mailto:jeff.anderson@nv.usda.gov)

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### *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 the snow melts. Measurements of snow water equivalent at selected manual snow courses 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 produce runoff forecasts. 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 uncertainty is in 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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Or call toll free at (866) 632-9992 (voice) to obtain additional information, the appropriate office or to request documents. Individuals who are deaf, hard of hearing, or have speech disabilities may contact USDA through the Federal Relay service at (800) 877-8339 or (800) 845-6136 (in Spanish). USDA is an equal opportunity provider, employer, and lender. Persons with disabilities who require alternative means for communication of program information (e.g. Braille, large print, audiotope, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

# ***Nevada Water Supply Outlook Report***

***January 1, 2015***

## **SUMMARY**

Will three years of drought stretch into four? Or, will Nevada's water supply rebound in 2015? The answer to those questions will depend on what the future brings and may depend on what portion of the state you are interested in. As of January 1, snowpack and water year precipitation totals vary widely across Nevada from above normal to well below. The good news is that, without exception, the snowpack is much better than last year at this time. The Northern Great Basin, Upper Humboldt, Owyhee, Snake and Clover Valley basins have seen better than normal precipitation since October and have normal, or above normal snow amounts. The bad news is the Sierra basins and Eastern Nevada lag well below normal both in terms of snow and precipitation. Storms in November to mid-December brought more rain than snow at all but the highest elevations. Much of the rain infiltrated into the ground leaving January 1 soil moisture near normal or better across most of Nevada. The excess rain ran off and was caught in reservoirs. In most cases, reservoir storage at the end of December was better than at the end of November. This reverse in the downward storage trend is one of the only bright spots about current reservoir storage. Rye Patch and Lahontan reservoirs are both near empty at 5% of capacity, up slightly from last month. Lake Tahoe's water level, however, continues to decline further below its natural rim due to evaporation and is lower now than any time since February 1995. Above normal streamflow is needed to increase water storage and help water users get through next summer. Streamflow forecasts in the Truckee, Carson and Walker basins are generally in the 40-70% of average range for the March - July period; similar forecast percentages are also found in Northern Great Basin, Lower Humboldt, Franklin River basins and Eastern Nevada. Streamflow forecasts for Lake Powell inflow and those for the Upper Humboldt, Owyhee, and Snake basins range from 70-106% of normal. Weather forecasts for the first three weeks in January look dry, however the most recent [climate outlook](#) provided by the National Weather Service on December 31st indicated varying chances for precipitation across Nevada, from below normal in the north to above normal in the south, for January, along with greater than normal chances for above normal precipitation in February and March. An entrenched high pressure ridge off the coast of California has busted that forecast so far into January, but hopefully it will break down, allowing the stormy weather back into our area for February and March. At this point, sage advice is to hope for the best and prepare for the worst.

## **PRECIPITATION**

Nevada has a significant moisture deficit caused by three consecutive dry winters. At SNOTEL stations in the Sierra, the equivalent of about one year's precipitation has been missed since 2012 in the Truckee Basin right down the crest to the Walker Basin. That adds up to between 30 and 40 inches of missed precipitation at many of these Sierra SNOTEL sites and up to as much as 70 inches at Squaw Valley G.C. SNOTEL in the Truckee Basin. Elsewhere in the state, missed precipitation is closer to half a year's worth at SNOTELs in Eastern Nevada and the Humboldt, Owyhee, Snake basins. This water year that trend may be reversing in the Northern Great Basin, Lower and Upper Humboldt, Owyhee, Snake and Clover Valley basins; all have received 100-120% or more of their normal precipitation since the start of October. Unfortunately, the downward spiral continues in the Sierra and in Eastern Nevada where precipitation since October 1 has only been about 60-70% average.

## **SNOWPACK**

2015 is off to a better start than in 2014 in terms of snow. The January 1 snowpack in the Upper Humboldt, Owyhee, Snake and Clover Valley basins is the most promising at 120% of normal or better. Snow water content in these basins nearly doubled between December 19<sup>th</sup> and the end of the month. Elsewhere, first of the year snow is near normal in the Northern Great Basin, 80% of normal in Eastern Nevada and 71% in the Lower Humboldt. In the Sierra, the Tahoe basin is 43% of normal while the Truckee, Carson and Walker basins are 63-68% of normal. This disparity is due to warm storms in November and early December which had high elevation snowlines. These storms left near normal snow amounts perched above 8,000 feet and little to no snow at middle to low elevations. The Tahoe basin has a greater percentage of SNOTEL sites below 8,000 feet than the other three Sierra basins and that helps explain the difference. Since January 1, dry conditions have caused snowpack percentages to slide slightly. This is mainly due to the lack of new snow, while normal values increase a little each day, rather than the melting of existing snow. See page 6 for the most recent snowpack conditions at publication.

## **SOIL MOISTURE**

Soil moisture has rebounded to average or better conditions across most of the state thanks to November and early December rains. Last year at this time, soil moisture was at near record low levels based on a SNOTEL dataset that goes back about 10 years. Statewide soil moisture at SNOTEL sites is 44% this year compared to 25% last year. Values this year are two to three times better than last year in the Lake Tahoe, Truckee, Carson, Walker, Northern Great Basin, Snake, and Owyhee basins. Only Eastern Nevada has low soil moisture. Good soil moisture should produce a more efficient runoff, meaning that less snowmelt soaks into the soil and a greater fraction of meltwater reaches streams.

## **RESERVOIRS**

Storage in Nevada's key irrigation reservoirs is very low. Lake Tahoe is below its rim and will need to gain half a foot before any outflow will occur; this represents a storage deficit of over 59,000 acre-feet. Lahontan and Rye Patch reservoirs are both 5% of capacity. Most other reservoirs are 8% to 50% full. Storage is highest in Independence Lake at 78% full and Lake Mohave at 86% full.

## **STREAMFLOW FORECASTS**

Streamflow forecasts in Truckee, Carson and Walker basins are generally in the 40-70% of average range for the March – July period; similar forecast percentages are also found in Northern Great Basin, Lower Humboldt, Franklin River basins and Eastern Nevada. Streamflow forecasts for Lake Powell inflow and those for the Upper Humboldt, Owyhee, and Snake basins range from 70-106% of normal.

## **UPCOMING EVENTS**

NRCS West-wide Snow Surveyors School, January 12-16, 2015, Tahoe City, CA

Nevada Water Resources Association, Annual Conference, January 26-29, 2015, Reno, NV

<http://www.nwwra.org/2015-annual-conference>

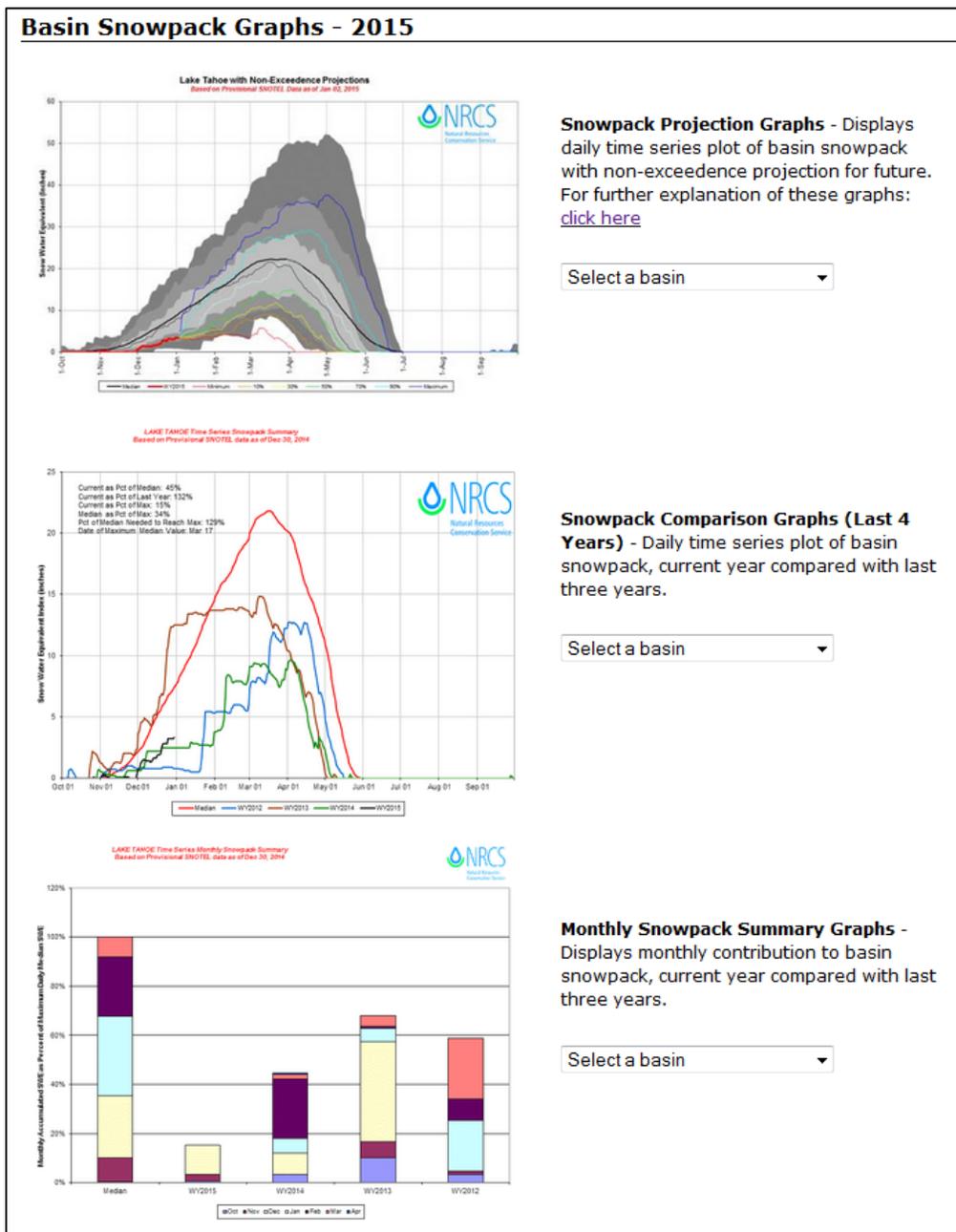
Western Snow Conference, April 20-23, 2015, Grass Valley, CA

<http://www.westernsnowconference.org/>

## NEW SNOW SURVEY PRODUCTS

This section highlights new products that are linked from the Nevada Snow Program website. This month the [Basin Snowpack Graphs](#) are the focus. Three new basin snowpack graphs are available which show snowpack conditions across the major basins in our region.

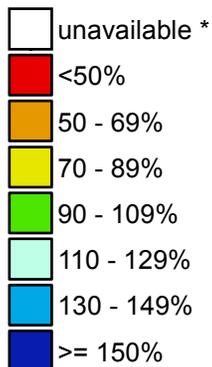
- **Projection Graphs:** provide future snowpack projections which indicate how likely the current snowpack is to recover or decline based on historic “non-exceedances”.
- **Comparison Graphs:** daily comparison of this year’s snowpack to the last three years.
- **Monthly Summary Graphs:** compare the relative monthly contribution to the total snowpack for the current year, as well as the previous three. The median bar demonstrates which months are historically the most important snow accumulation months.



# Nevada/California SNOTEL Current Snow Water Equivalent (SWE) % of Normal

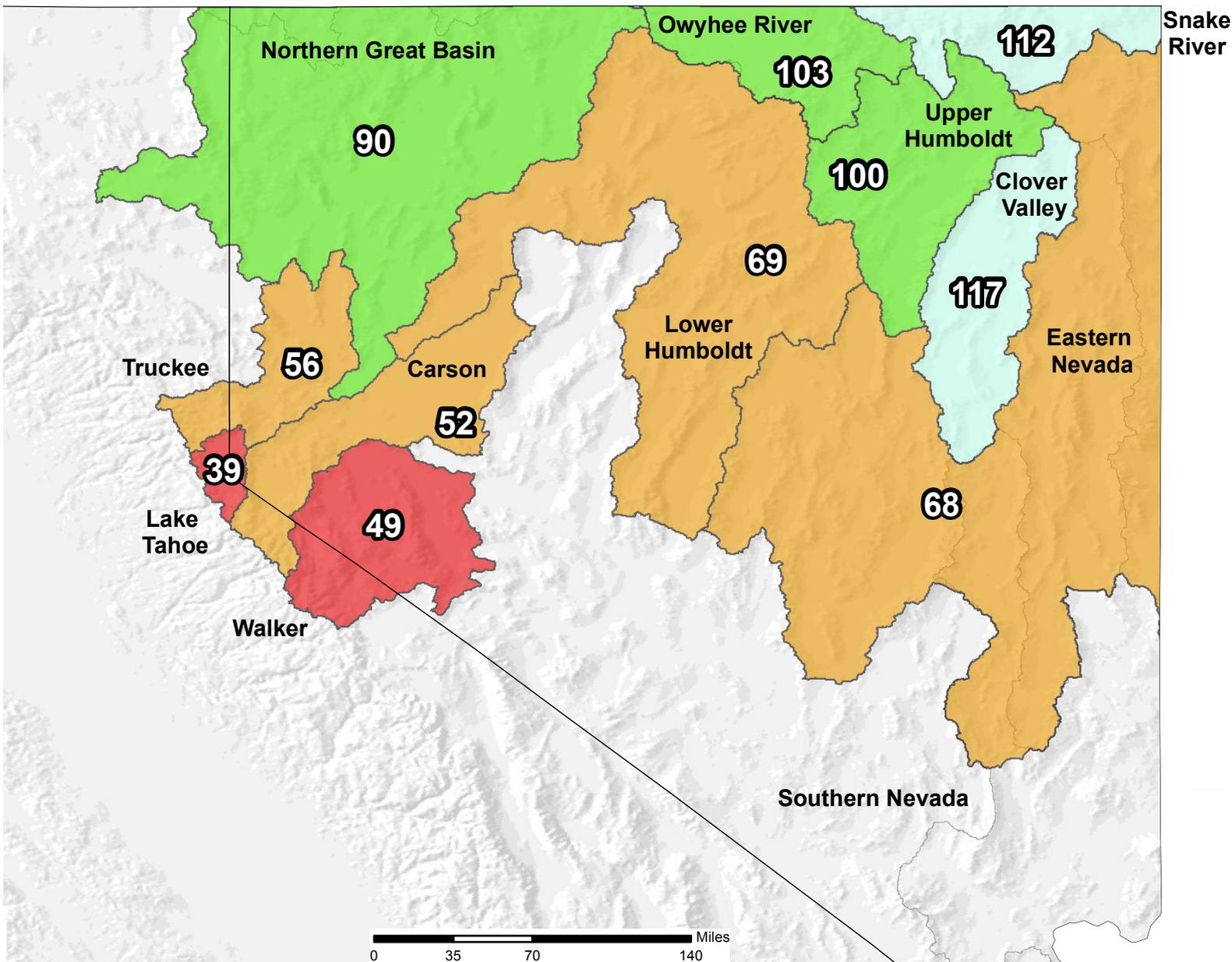
Jan 08, 2015

Current Snow Water Equivalent Basin-wide Percent of 1981-2010 Median



\* Data unavailable at time of posting or measurement is not representative at this time of year

Provisional data subject to revision



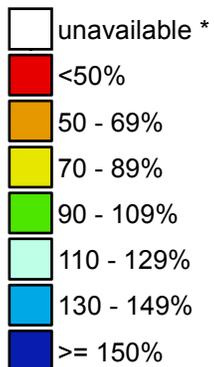
The current snow water equivalent percent of normal represents the snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

Prepared by:  
 USDA/NRCS National Water and Climate Center  
 Portland, Oregon  
<http://www.wcc.nrcs.usda.gov>

# Nevada/California SNOTEL Water Year (Oct 1) to Date Precipitation % of Normal

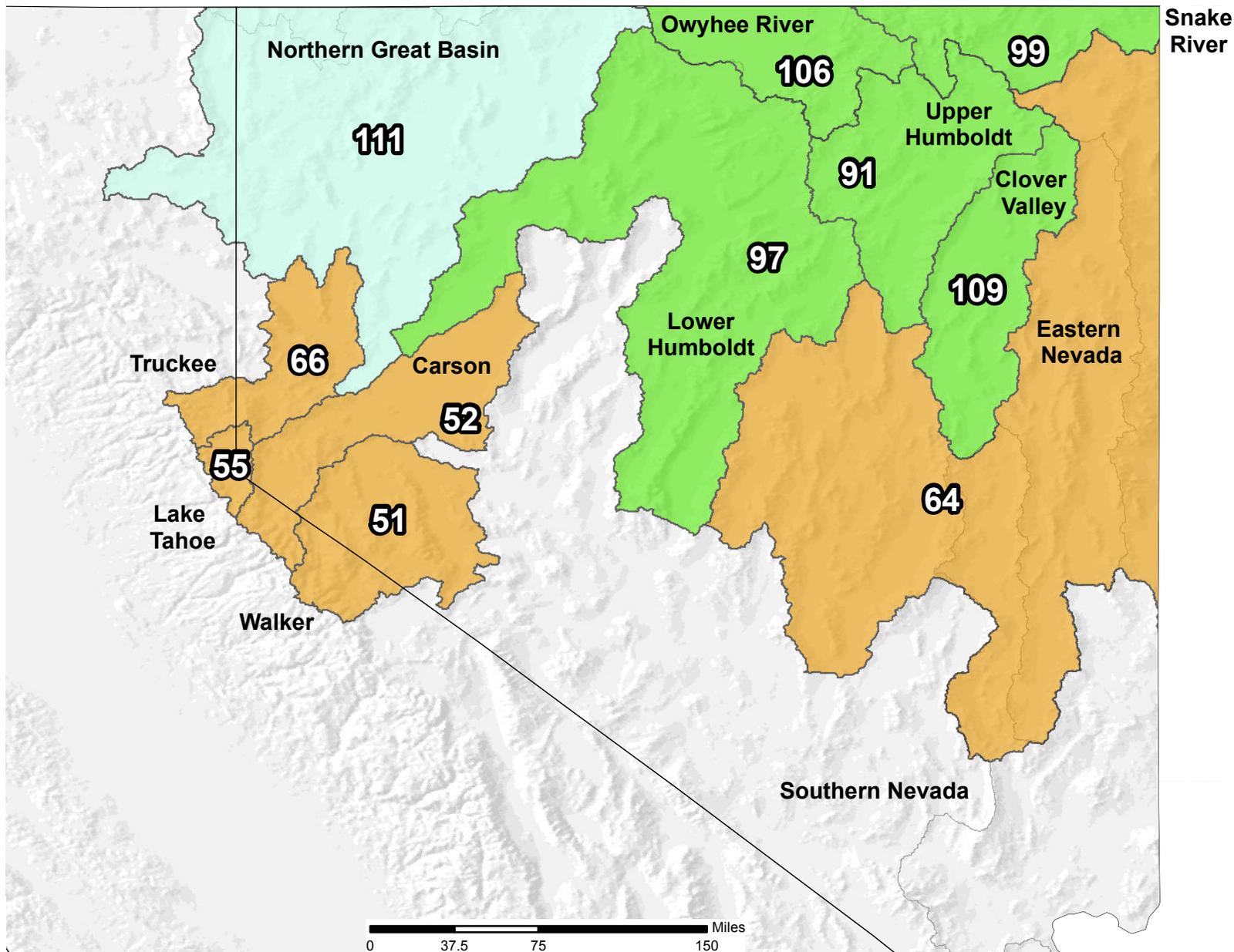
Jan 08, 2015

Water Year (Oct 1) to Date Precipitation Basin-wide Percent of 1981-2010 Average



\* Data unavailable at time of posting or measurement is not representative at this time of year

*Provisional data subject to revision*



The water year to date precipitation percent of normal represents the accumulated precipitation found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

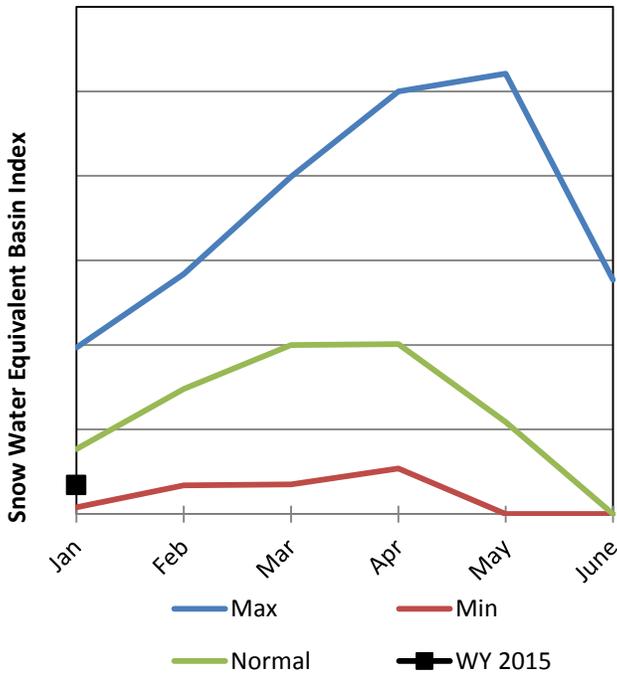
Prepared by:  
 USDA/NRCS National Water and Climate Center  
 Portland, Oregon  
<http://www.wcc.nrcs.usda.gov>

# Lake Tahoe Basin

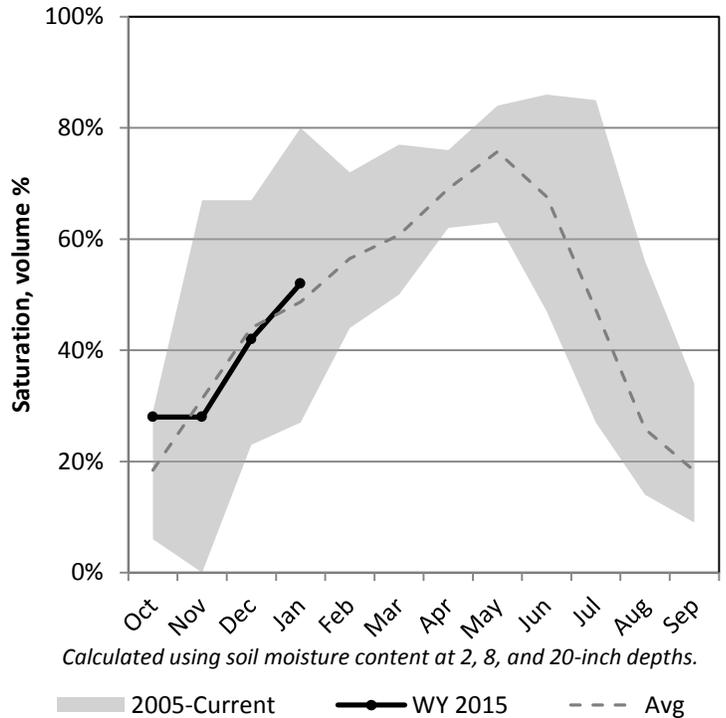
1/1/2015

Snowpack in the Lake Tahoe Basin is much below average at 43% of normal, compared to 33% last year. Precipitation in December was below average at 76%, which brings the seasonal accumulation (Oct-Dec) to 65% of average. Soil moisture is at 52% compared to 27% last year. Lake Tahoe's water elevation is 6222.51 ft, which is 0.49 feet below the lake's natural rim and equals a storage deficit of about 59,490 acre-feet. Last year the elevation was 6223.59 ft and the useable storage equaled 71,590 acre-feet. Lake Tahoe is forecast to rise 0.8 feet from March to its high elevation.

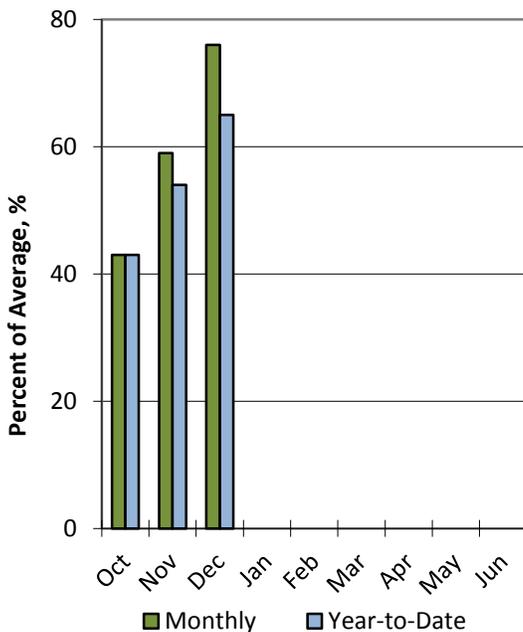
## Snowpack



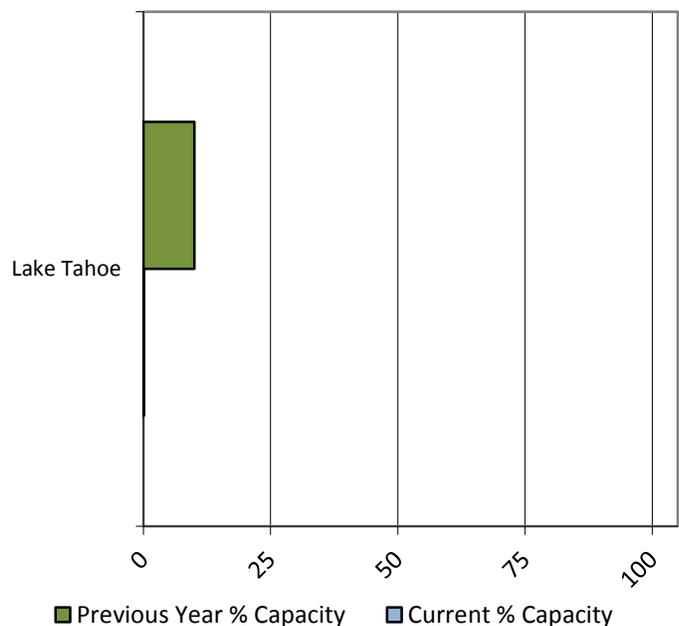
## Soil Moisture



## Precipitation



## Reservoir Storage



### Lake Tahoe Streamflow Forecasts - January 1, 2015

Lake Tahoe	Forecast Period	Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast						30yr Avg (KAF)
		90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	
<b>Marlette Lake Inflow</b>								
	MAR-JUL	-653	63	550	45%	1037	1753	1213
	APR-JUL	-706	-71	360	40%	791	1426	911
<b>Lake Tahoe Rise Gates Closed<sup>1</sup></b>								
	OCT-HIGH	0.040	0.29	1.10	49%	1.91	3.70	2.20
	MAR-HIGH	0.060	0.44	0.80	46%	1.24	1.94	1.73
	APR-HIGH	0.200	0.60	0.70	53%	1.20	1.84	1.31

1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of December, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Lake Tahoe	0.0	71.6	262.1	744.6
Basin-wide Total		71.6	262.1	744.6
# of reservoirs	1	1	1	1

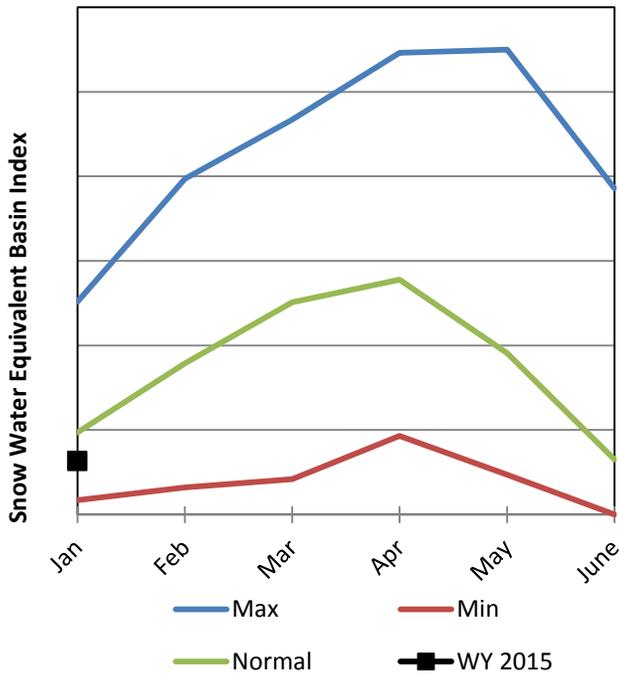
Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Lake Tahoe Basin	8	43%	33%

# Truckee River Basin

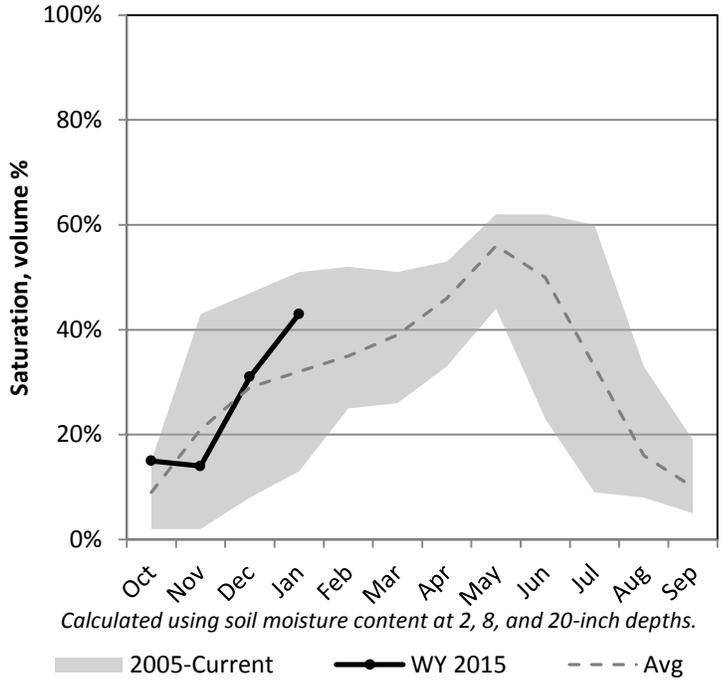
1/1/2015

Snowpack in the Truckee River Basin is much below average at 65% of normal, compared to 22% last year. Precipitation in December was near average at 90%, which brings the seasonal accumulation (Oct-Dec) to 74% of average. Soil moisture is at 43% compared to 13% last year. Reservoir storage is at 28% of capacity, compared to 45% last year. Forecast streamflow volumes range from 25% to 65% of average.

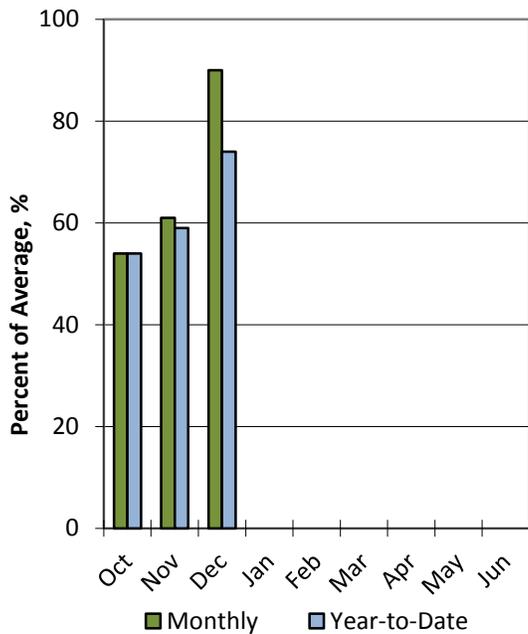
## Snowpack



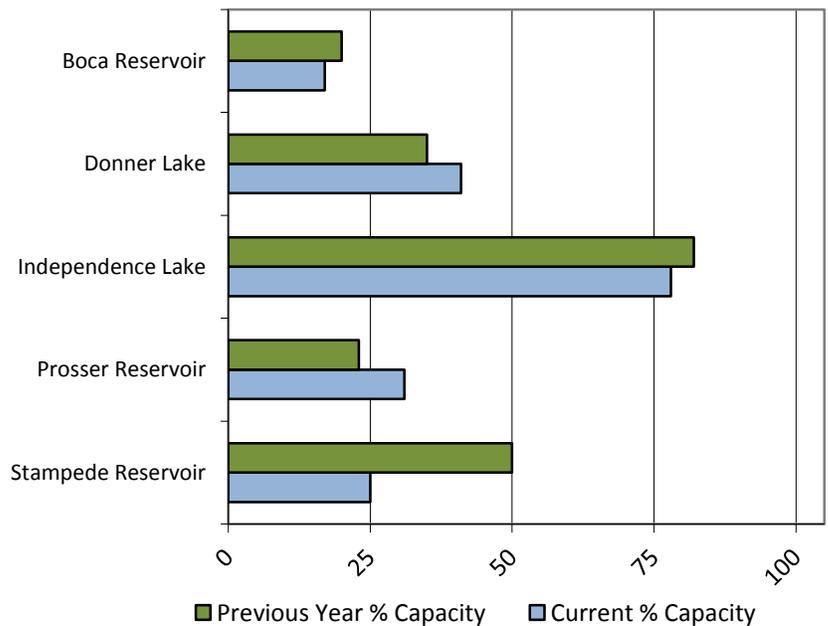
## Soil Moisture



## Precipitation



## Reservoir Storage



## Truckee River Streamflow Forecasts - January 1, 2015

Forecast Exceedance Probabilities for Risk Assessment  
Chance that actual volume will exceed forecast

Truckee River	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Sagehen Ck nr Truckee	MAR-JUL	0.93	1.42	1.9	30%	2.5	3.9	6.4
	APR-JUL	0.71	1.11	1.5	27%	2	3.2	5.6
L Truckee R ab Boca Reservoir	MAR-JUL	1.8	16.6	57	58%	73	115	99
	APR-JUL	28	42	50	60%	80	110	84
Truckee R at Farad	MAR-JUL	6.1	115	199	65%	283	406	307
	APR-JUL	94	130	155	61%	229	339	255
Steamboat Ck at Steamboat	APR-JUL	0.079	0.57	2	25%	4.8	12.5	7.9
Galena Ck at Galena Ck State Pk	MAR-JUL	0.097	1.2	2.2	45%	3.2	4.7	4.85
	APR-JUL	0.087	0.62	1.6	37%	2.6	4	4.37
Pyramid Lake Elevation Change <sup>1</sup>	LOW-HIGH	-2.5	-0.73	0.6	35%	3.3	3.7	1.7

1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of December, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Boca Reservoir,ca	6.8	8.4	14.7	40.9
Prosser Reservoir,ca	8.9	6.6	9.7	28.6
Stampede Reservoir,ca	57.2	114.3	144.6	226.5
Donner Lake	3.9	3.3	3.7	9.5
Independence Lake	13.5	14.1	13.4	17.3
Basin-wide Total	90.2	146.7	186.1	322.8
# of reservoirs	5	5	5	5

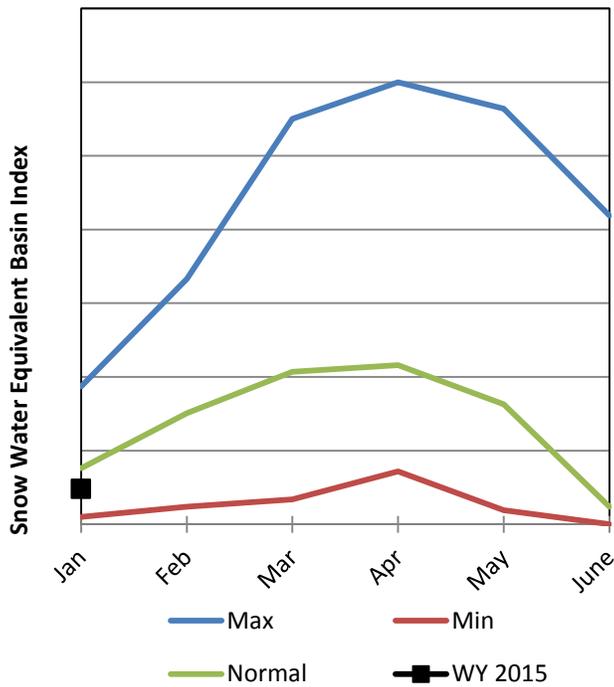
Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Truckee River Basin	8	65%	22%
Little Truckee River	3	62%	18%
Sage Hen Creek	3	62%	18%
Galena Creek	1	61%	17%
Steamboat Drainage	1	61%	17%
Pyramid Lake	16	55%	26%

# Carson River Basin

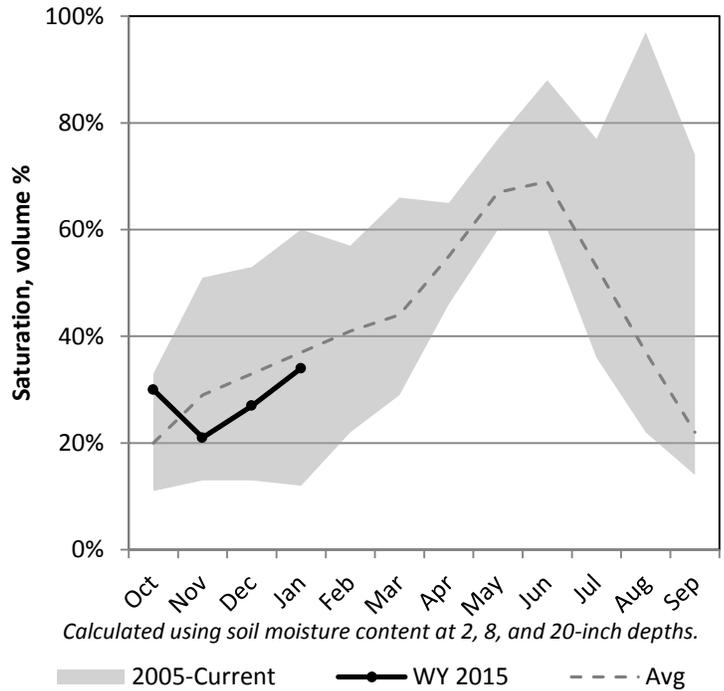
1/1/2015

Snowpack in the Carson River Basin is much below average at 63% of normal, compared to 36% last year. Precipitation in December was much below average at 68%, which brings the seasonal accumulation (Oct-Dec) to 59% of average. Soil moisture is at 34% compared to 12% last year. Reservoir storage is at 5% of capacity, compared to 14% last year. Forecast streamflow volumes range from 40% to 64% of average.

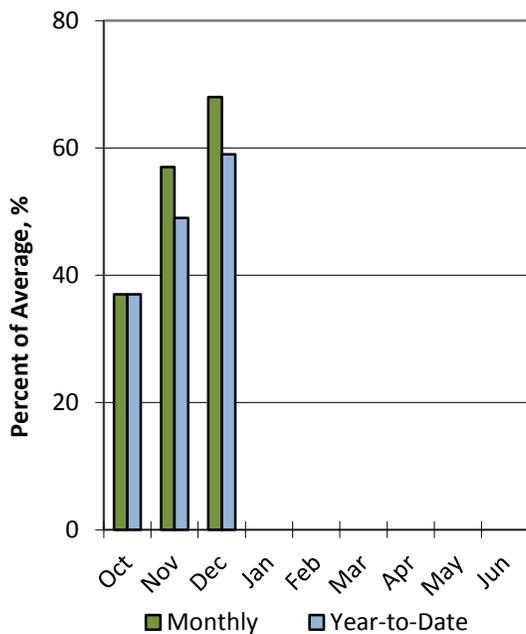
## Snowpack



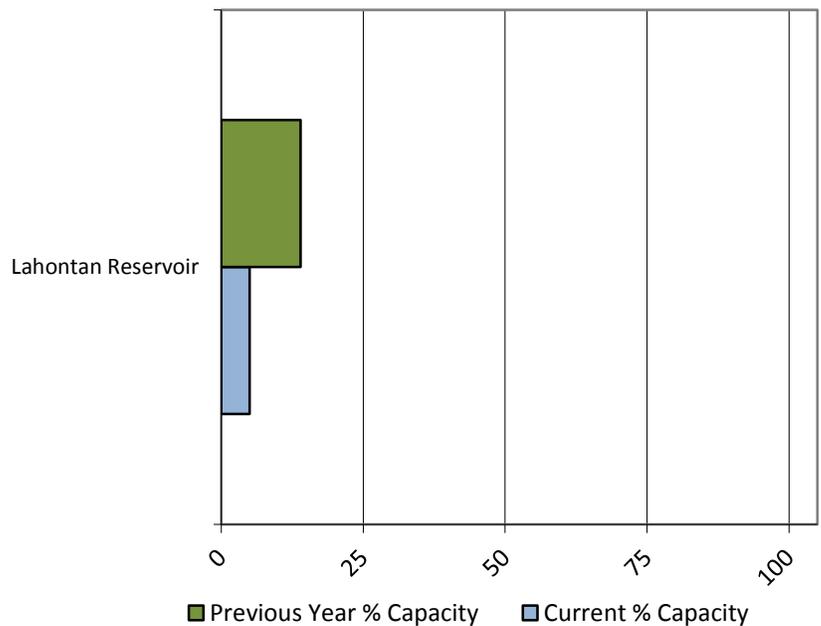
## Soil Moisture



## Precipitation



## Reservoir Storage



## Carson River Streamflow Forecasts - January 1, 2015

Forecast Exceedance Probabilities for Risk Assessment  
Chance that actual volume will exceed forecast

Carson River	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
EF Carson R nr Gardnerville	MAR-JUL	4.1	66	120	59%	174	254	205
	APR-JUL	55	82	100	54%	118	145	186
	200 cfs	24 May	14 Jun	28 Jun		12 Jul	02 Aug	25 Jul
	500 cfs	09 May	28 May	10 Jun		23 Jun	12 Jul	01 Jul
WF Carson R nr Woodfords	MAR-JUL	2.4	20	38	64%	56	81	59
	APR-JUL	1.08	15.4	32	59%	49	73	54
Carson R nr Carson City	MAR-JUL	6.3	28	105	50%	182	296	210
	APR-JUL	9	29	70	39%	136	232	179
Marlette Lake Inflow	MAR-JUL	-653	63	550	45%	1037	1753	1213
	APR-JUL	-706	-71	360	40%	791	1426	911
King Canyon Ck nr Carson City	MAR-JUL	0.004	0.049	0.21	55%	0.41	0.7	0.38
	APR-JUL	0.008	0.046	0.14	37%	0.32	0.46	0.38
Carson R at Ft Churchill	MAR-JUL	12.4	43	80	40%	134	250	200
	APR-JUL	13	36	60	35%	104	218	171
Ash Canyon Ck nr Carson City	MAR-JUL	0.014	0.29	0.65	46%	1.01	1.53	1.41
	APR-JUL	0.011	0.09	0.4	36%	0.71	1.17	1.12

- 1) 90% and 10% exceedance probabilities are actually 95% and 5%
- 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
- 3) Median value used in place of average

Reservoir Storage End of December, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Lahontan Reservoir, NV	14.5	40.5	123.3	295.1
Basin-wide Total	14.5	40.5	123.3	295.1
# of reservoirs	1	1	1	1

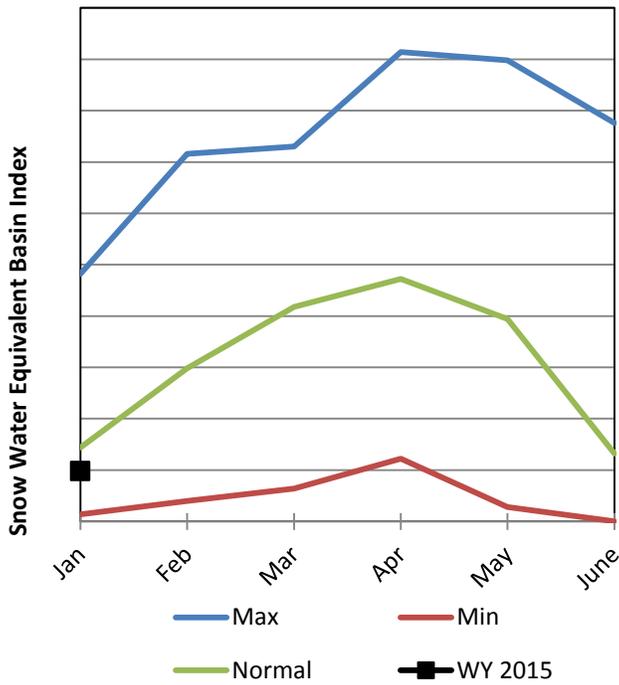
Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Carson River Basin	7	60%	36%
E.F. Carson River	4	55%	32%
W.F. Carson River	7	60%	36%

# Walker River Basin

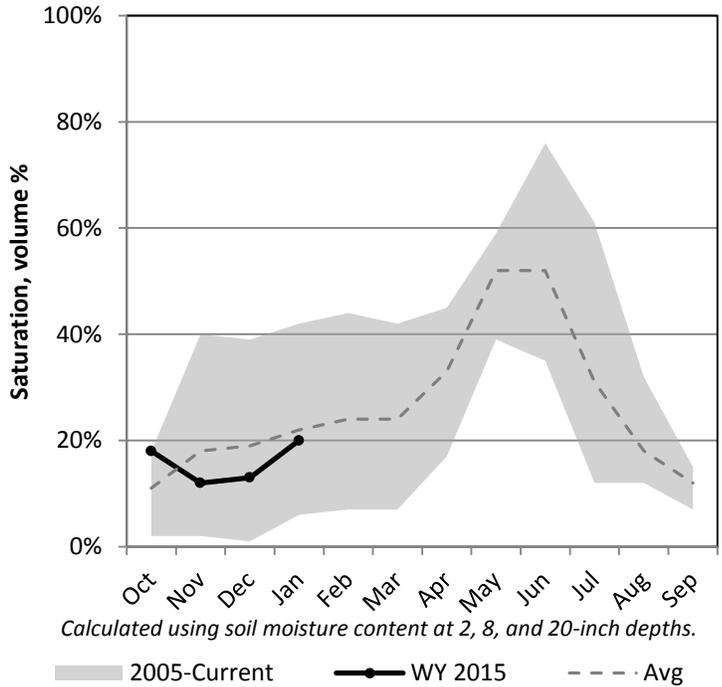
1/1/2015

Snowpack in the Walker River Basin is much below average at 68% of normal, compared to 30% last year. Precipitation in December was much below average at 65%, which brings the seasonal accumulation (Oct-Dec) to 57% of average. Soil moisture is at 20% compared to 6% last year. Reservoir storage is at 10% of capacity, compared to 12% last year. Forecast streamflow volumes range from 63% to 67% of average.

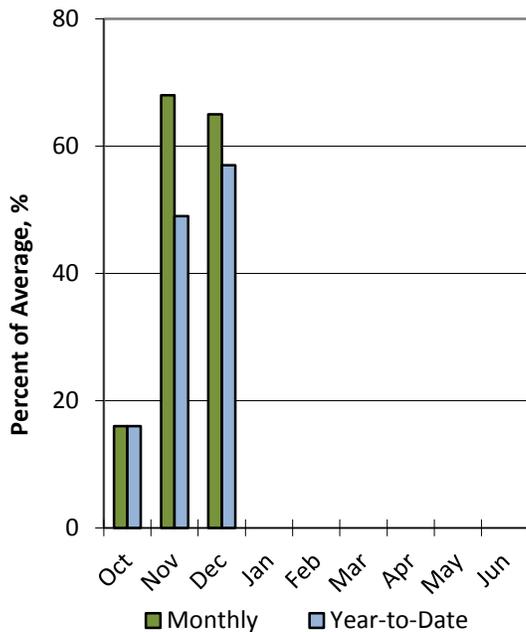
## Snowpack



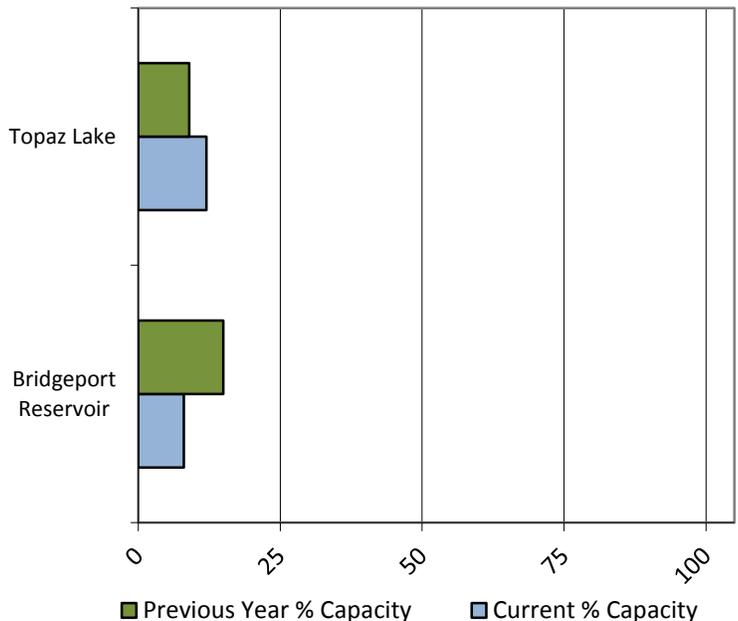
## Soil Moisture



## Precipitation



## Reservoir Storage



## Walker River Streamflow Forecasts - January 1, 2015

Forecast Exceedance Probabilities for Risk Assessment  
Chance that actual volume will exceed forecast

Walker River	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
E Walker R nr Bridgeport	MAR-AUG	1.52	24	48	63%	72	107	76
	APR-AUG	0.67	19.1	40	60%	61	92	67
W Walker R bl L Walker nr Coalville	MAR-JUL	3.4	67	110	65%	153	217	170
	APR-JUL	4.9	62	104	64%	146	208	162
W Walker R nr Coalville	MAR-JUL	106	112	115	67%	118	124	172
	APR-JUL	93	98	101	62%	104	109	163
Walker Lake Elevation Change <sup>1</sup>	LOW-HIGH	-4.6	-2.8	-2.2	-156%	-0.85	2	1.41

- 1) 90% and 10% exceedance probabilities are actually 95% and 5%
- 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
- 3) Median value used in place of average

Reservoir Storage End of December, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Bridgeport Reservoir,ca	3.4	6.5	17.3	42.5
Topaz Lk nr Topaz, CA	7.1	5.4	18.9	59.4
Basin-wide Total	10.6	11.9	36.2	101.9
# of reservoirs	2	2	2	2

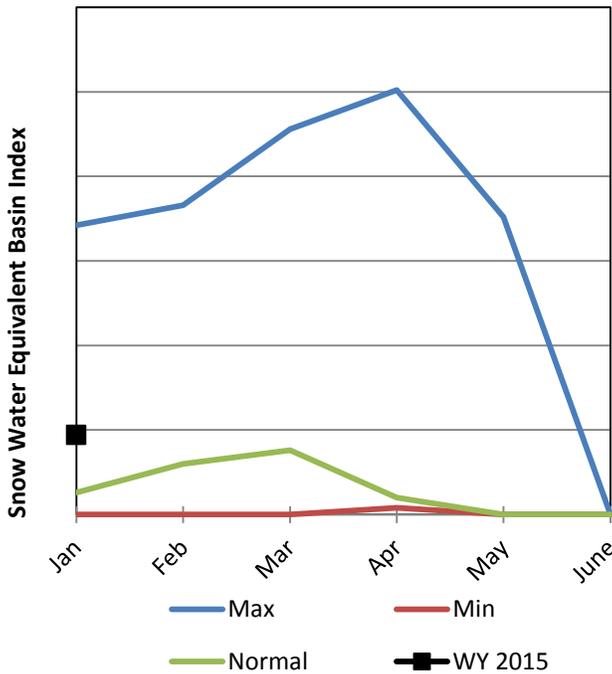
Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Walker Lake Rise	5	68%	29%
E. Walker Rv. Nr Bridgeport	2	39%	19%
W. Walker Rv. Nr Coleville	4	73%	30%

# Northern Great Basin

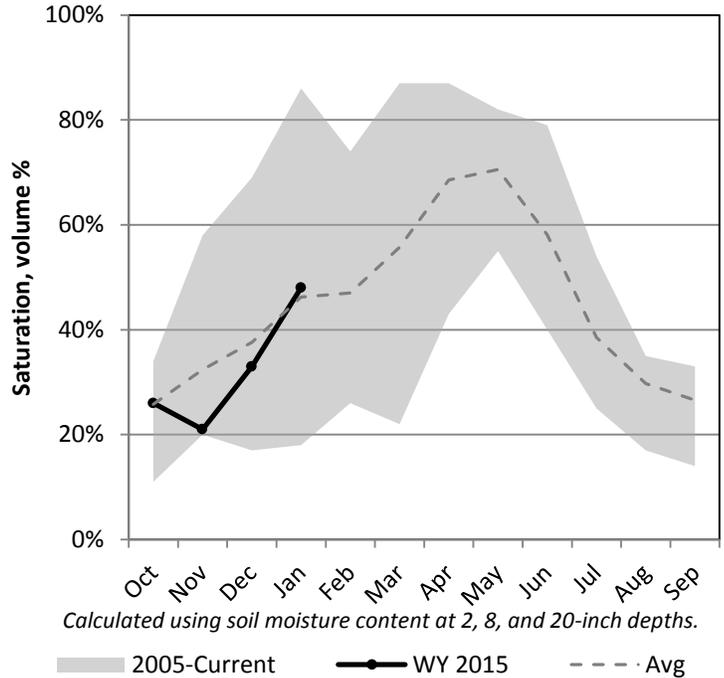
1/1/2015

Snowpack in the Northern Great Basin is near average at 102% of normal, compared to 34% last year. Precipitation in December was much above average at 132%, which brings the seasonal accumulation (Oct-Dec) to 117% of average. Soil moisture is at 48% compared to 13% last year. Forecast streamflow volumes range from 48% to 70% of average.

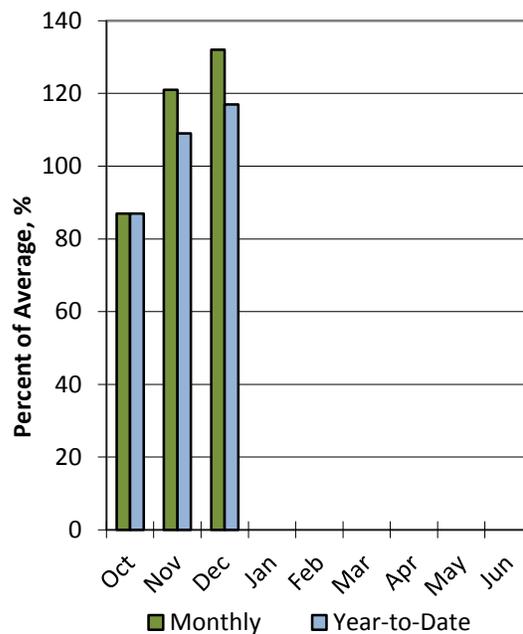
## Snowpack



## Soil Moisture



## Precipitation



## Northern Great Basin Streamflow Forecasts - January 1, 2015

Forecast Exceedance Probabilities for Risk Assessment  
Chance that actual volume will exceed forecast

Northern Great Basin	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Eagle Ck nr Eagleville	APR-JUL	0.086	0.45	2.2	51%	4	6.5	4.3
Bidwell Ck nr Fort Bidwell	APR-JUL	0.92	3.8	5.8	48%	7.8	10.7	12
McDermitt Ck nr McDermitt	MAR-JUN	0.52	2.2	8.5	49%	14.8	24	17.5
	APR-JUL	0.28	0.84	5.9	42%	9.7	16.5	14
Davis Ck	APR-JUL	1850	3040	5060	70%	5990	9860	7233
	APR-SEP	2050	3260	5430	68%	6140	9780	7991

- 1) 90% and 10% exceedance probabilities are actually 95% and 5%
- 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
- 3) Median value used in place of average

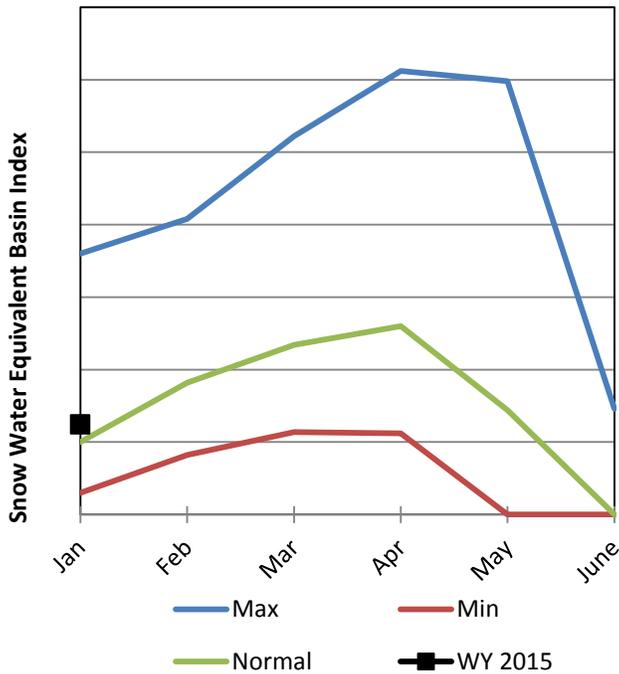
Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
N Great Basin	4	102%	34%
Quinn River	1	88%	35%
McDermitt Creek	1	88%	35%

# Upper Humboldt River Basin

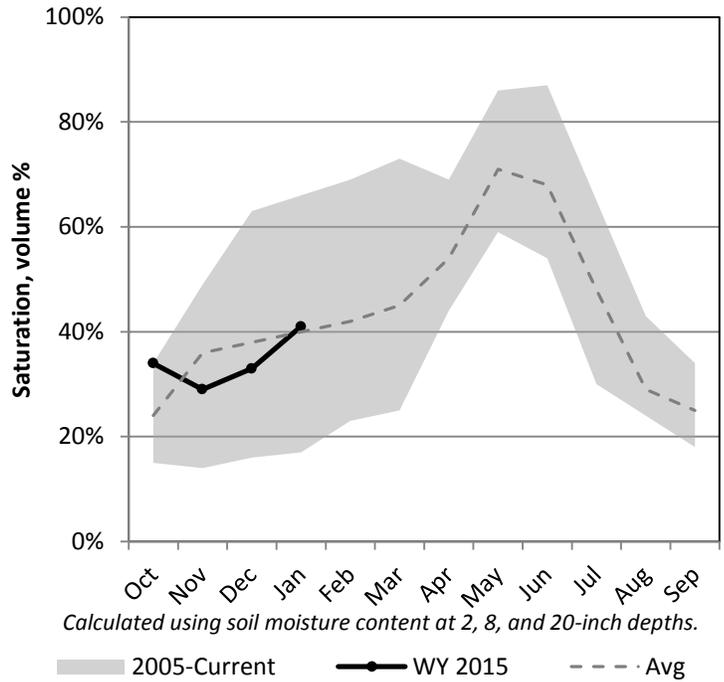
1/1/2015

Snowpack in the Upper Humboldt River Basin is above average at 124% of normal, compared to 75% last year. Precipitation in December was much above average at 148%, which brings the seasonal accumulation (Oct-Dec) to 98% of average. Soil moisture is at 41% compared to 26% last year. Forecast streamflow volumes range from 73% to 102% of average.

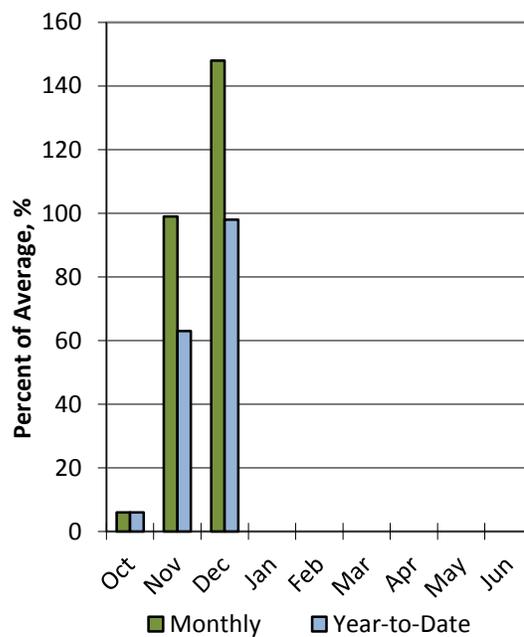
## Snowpack



## Soil Moisture



## Precipitation



## Upper Humboldt River Streamflow Forecasts - January 1, 2015

Forecast Exceedance Probabilities for Risk Assessment  
Chance that actual volume will exceed forecast

Upper Humboldt River	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Marys R nr Deeth	MAR-JUL	19.5	33	42	102%	51	65	41
	APR-JUL	12.3	26	35	97%	44	58	36
Lamoille Ck nr Lamoille	MAR-JUL	14.7	24	30	100%	36	45	30
	APR-JUL	12.8	22	28	97%	34	43	29
NF Humboldt R at Devils Gate	MAR-JUL	18	34	45	102%	56	72	44
	APR-JUL	5.2	22	33	97%	44	61	34
Humboldt R nr Elko	MAR-JUL	48	110	152	84%	195	257	182
	APR-JUL	41	100	125	81%	180	239	154
SF Humboldt R at Dixie	MAR-JUL	11.4	45	67	93%	89	123	72
	APR-JUL	9.9	39	59	89%	79	108	66
Humboldt R nr Carlin	MAR-JUL	101	160	200	73%	240	299	274
	APR-JUL	66	125	165	69%	205	264	238
Humboldt R at Palisades	MAR-JUL	74	134	230	85%	216	276	270
	APR-JUL	85	148	190	84%	232	295	225

- 1) 90% and 10% exceedance probabilities are actually 95% and 5%
- 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
- 3) Median value used in place of average

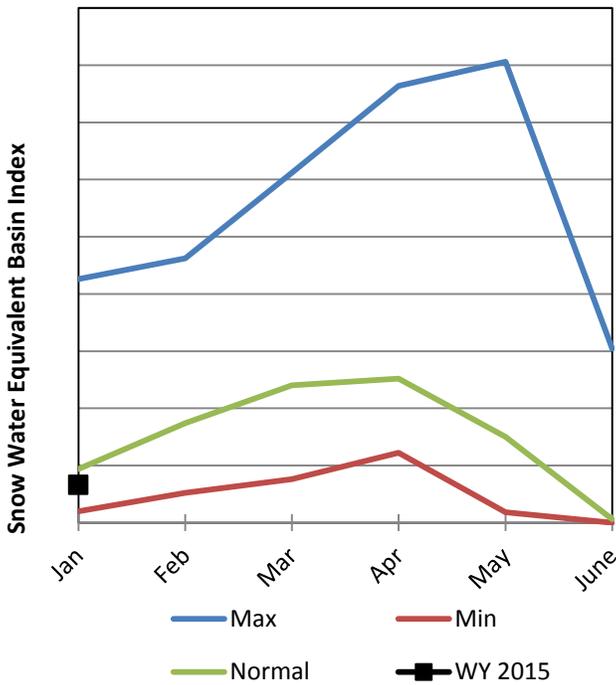
Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Humboldt Rv. At Palisades	5	124%	75%
Lamoille Creek	1	96%	63%
S. Fork Humboldt	2	123%	86%
Mary's River	1	142%	53%
N. Fork Humboldt	0		

# Lower Humboldt River Basin

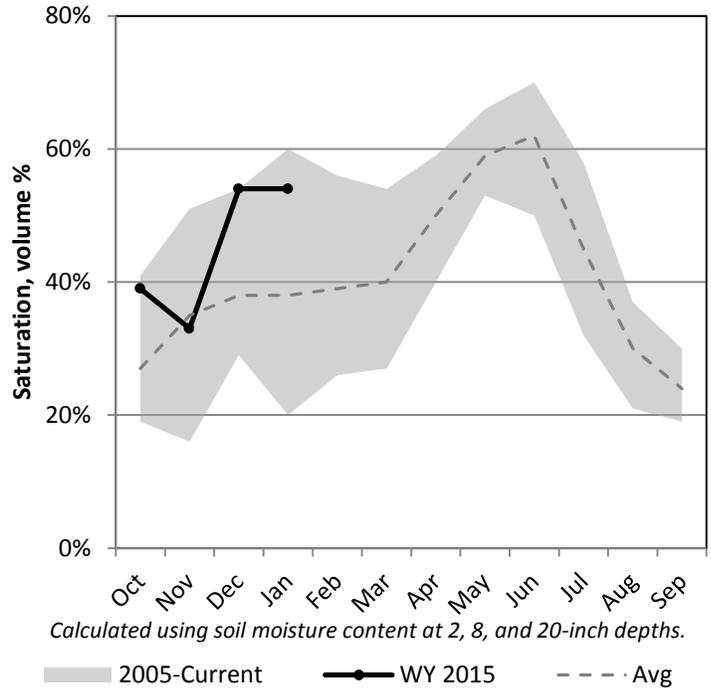
1/1/2015

Snowpack in the Lower Humboldt River Basin is below average at 71% of normal, compared to 54% last year. Precipitation in December was above average at 113%, which brings the seasonal accumulation (Oct-Dec) to 104% of average. Soil moisture is at 54% compared to 30% last year. Reservoir storage is at 5% of capacity, compared to 4% last year. Forecast streamflow volumes range from 57% to 73% of average.

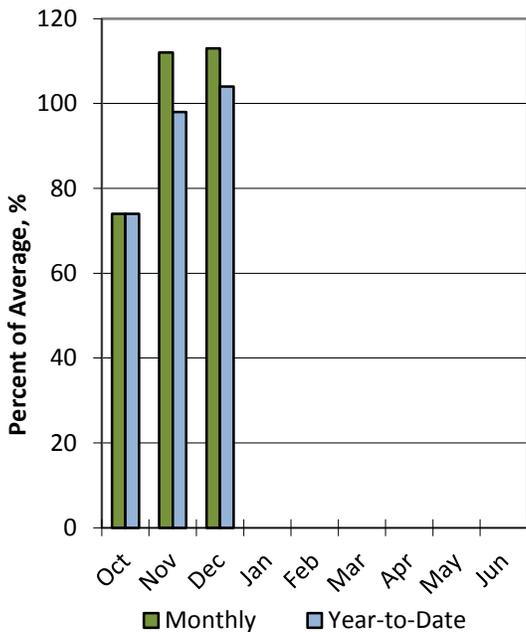
## Snowpack



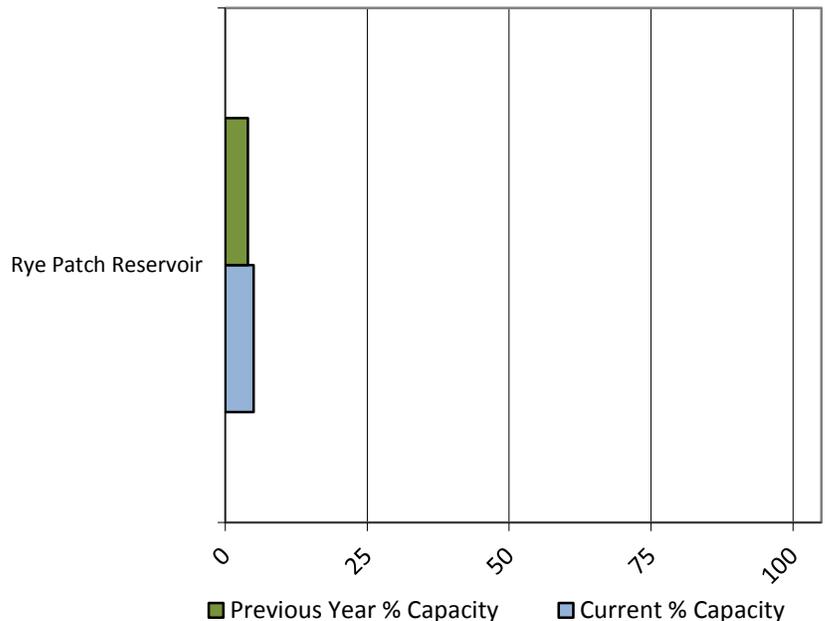
## Soil Moisture



## Precipitation



## Reservoir Storage



## Lower Humboldt River Streamflow Forecasts - January 1, 2015

Forecast Exceedance Probabilities for Risk Assessment  
Chance that actual volume will exceed forecast

Lower Humboldt River	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Rock Ck nr Battle Mtn	MAR-JUL	5.2	12.2	17	63%	22	29	27
	APR-JUL	4.5	8.3	10.9	60%	13.5	17.3	18.2
Humboldt R at Comus	MAR-JUL	60	135	185	73%	235	310	255
	APR-JUL	6.4	50	150	70%	150	224	215
L Humboldt R nr Paradise	MAR-JUL	0.21	2.7	6	57%	9.3	14.2	10.5
	APR-JUL	0.194	1.94	5.2	54%	8.5	13.3	9.7
Martin Ck nr Paradise	MAR-JUL	0.66	8.2	16	73%	24	35	22
	APR-JUL	0.35	4.9	11.6	66%	18.3	28	17.5
Humboldt R nr Imlay	MAR-JUL	4.4	19.3	140	63%	131	213	222
	APR-JUL	5.6	51	110	59%	169	255	188

- 1) 90% and 10% exceedance probabilities are actually 95% and 5%
- 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
- 3) Median value used in place of average

Reservoir Storage End of December, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Rye Patch Re nr Rye Patch, NV	9.2	7.4	69.2	194.3
Basin-wide Total	9.2	7.4	69.2	194.3
# of reservoirs	1	1	1	1

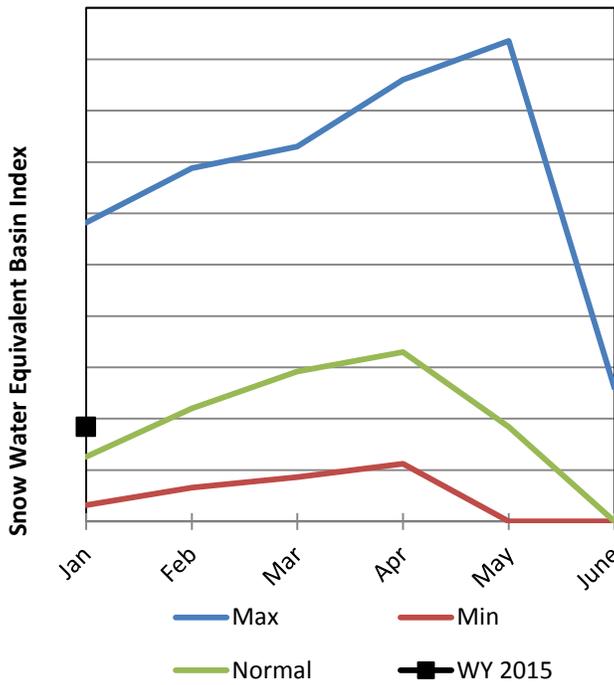
Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Lower Humboldt River Basin	5	71%	54%
Little Humboldt River	3	75%	42%
Martin Creek	3	75%	42%
Reese River	2	65%	71%
Rock Creek	0		

# Clover Valley & Franklin River Basin

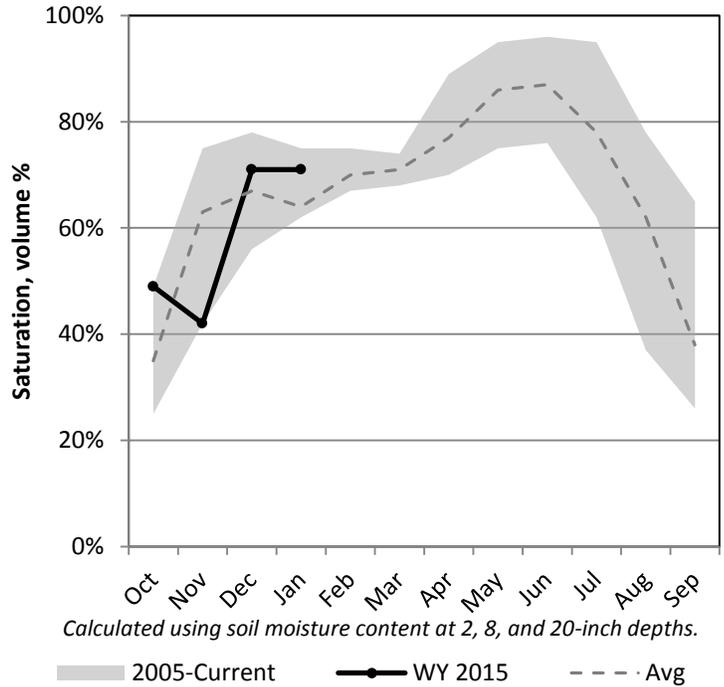
1/1/2015

Snowpack in the Clover Valley & Franklin River Basin is much above average at 146% of normal, compared to 60% last year. Precipitation in December was much above average at 135%, which brings the seasonal accumulation (Oct-Dec) to 118% of average. Soil moisture is at 71% compared to 62% last year. The forecast streamflow volume for the Franklin River is 72% of average.

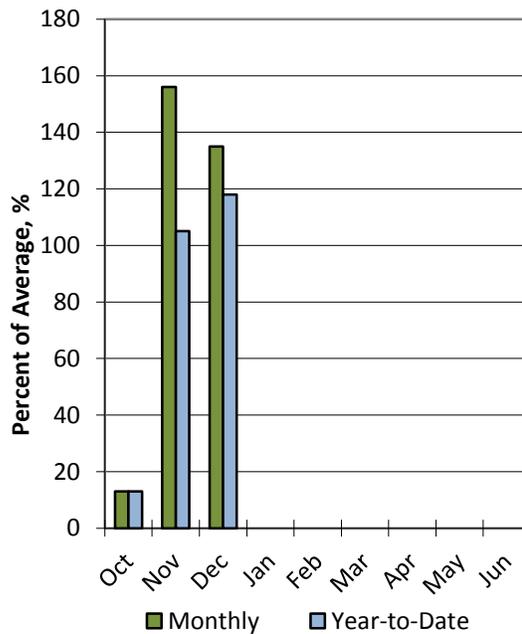
## Snowpack



## Soil Moisture



## Precipitation



## Clover Valley & Franklin River Streamflow Forecasts - January 1, 2015

Forecast Exceedance Probabilities for Risk Assessment  
Chance that actual volume will exceed forecast

Clover Valley & Franklin River	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Franklin Ck nr Arthur	APR-JUL	2.2	3.9	5	72%	6.1	7.8	6.9

- 1) 90% and 10% exceedance probabilities are actually 95% and 5%
- 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
- 3) Median value used in place of average

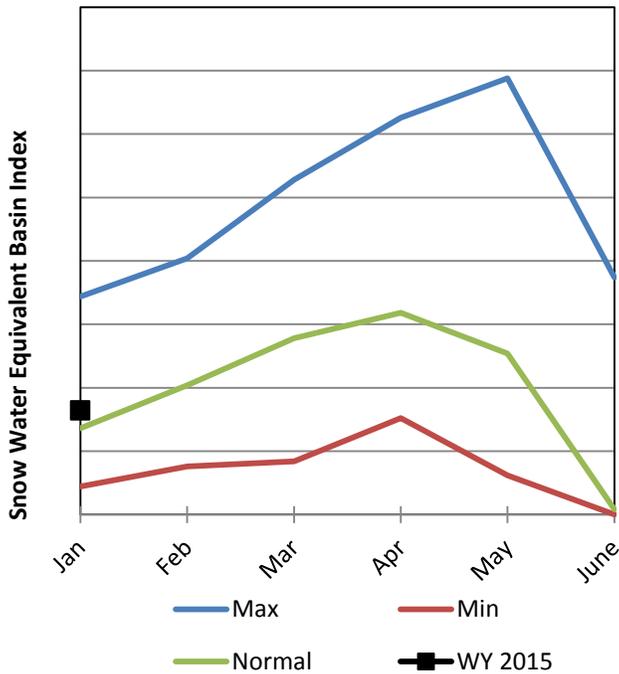
<b>Watershed Snowpack Analysis January 1, 2015</b>	# of Sites	% Median	Last Year % Median
Clover Valley & Franklin River	1	146%	60%
Franklin River	1	146%	60%
Clover Valley	1	146%	60%

# Snake River Basin

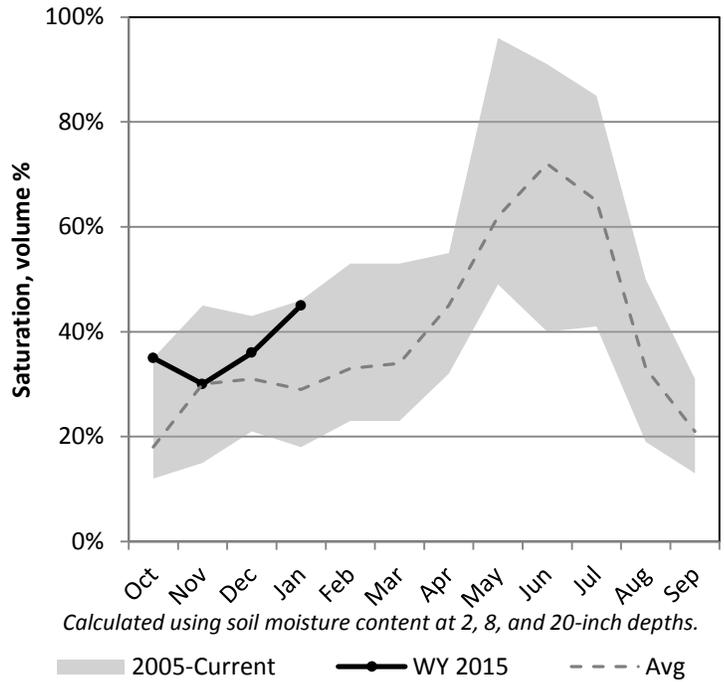
1/1/2015

Snowpack in the Snake River Basin is above average at 121% of normal, compared to 52% last year. Precipitation in December was much above average at 140%, which brings the seasonal accumulation (Oct-Dec) to 106% of average. Soil moisture is at 45% compared to 21% last year. The forecast streamflow volume for Salmon Falls is 106% of average.

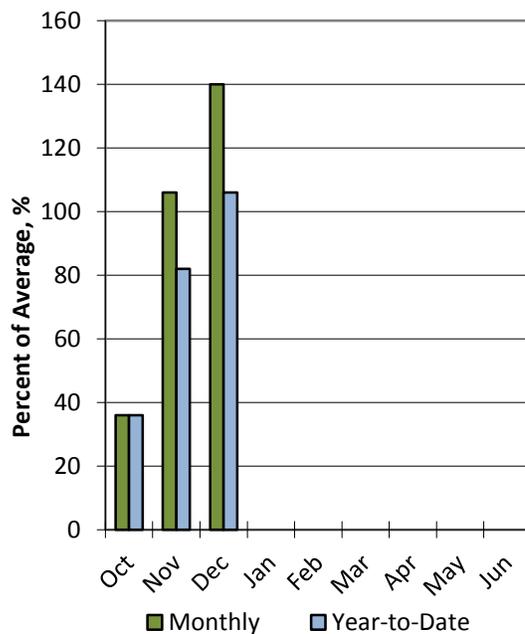
## Snowpack



## Soil Moisture



## Precipitation



## Snake River Basin Streamflow Forecasts - January 1, 2015

Forecast Exceedance Probabilities for Risk Assessment  
Chance that actual volume will exceed forecast

Snake River Basin	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Salmon Falls Ck nr San Jacinto	MAR-JUL	51	70	86	106%	102	129	81
	MAR-SEP	54	75	90	106%	107	134	85

- 1) 90% and 10% exceedance probabilities are actually 95% and 5%
- 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
- 3) Median value used in place of average

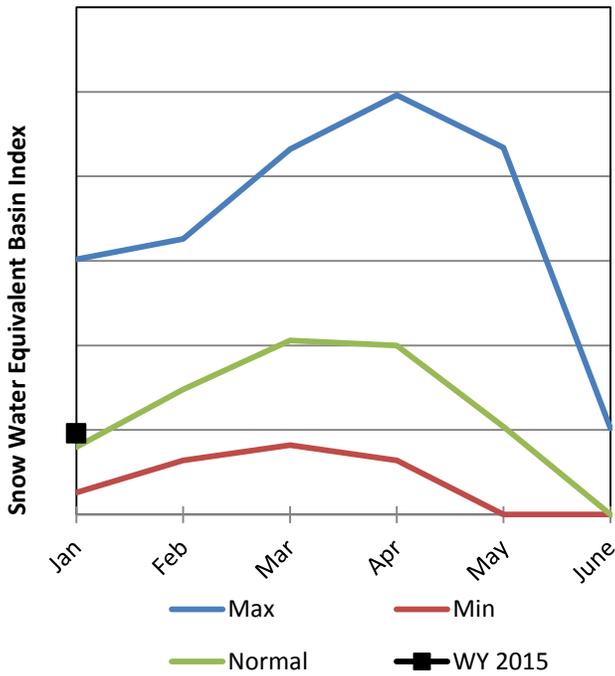
Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Snake River Basin	3	121%	52%
Salmon Falls Creek	6	133%	56%

# Owyhee River Basin

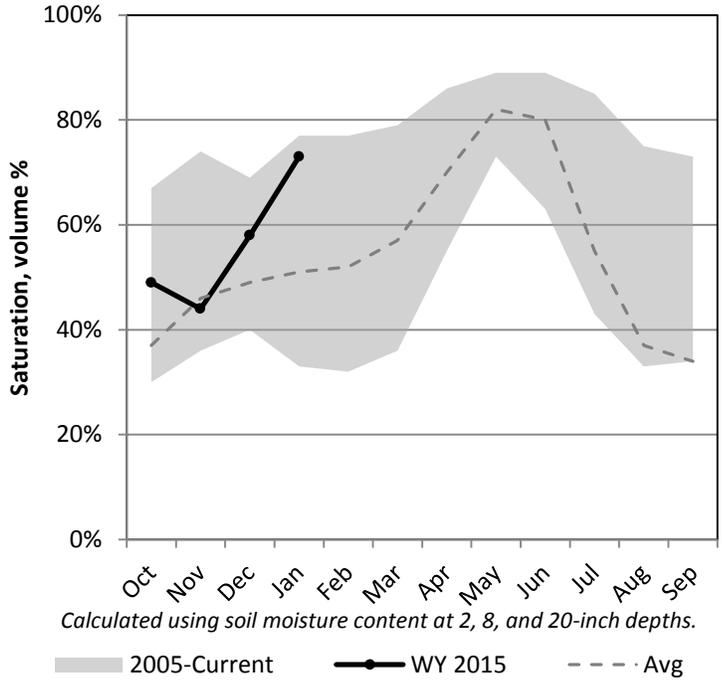
1/1/2015

Snowpack in the Owyhee River Basin is above average at 122% of normal, compared to 63% last year. Precipitation in December was much above average at 160%, which brings the seasonal accumulation (Oct-Dec) to 113% of average. Soil moisture is at 73% compared to 36% last year. Reservoir storage is at 16% of capacity, compared to 18% last year. The forecast streamflow volume for the Owyhee River near Gold Creek is 89% of average.

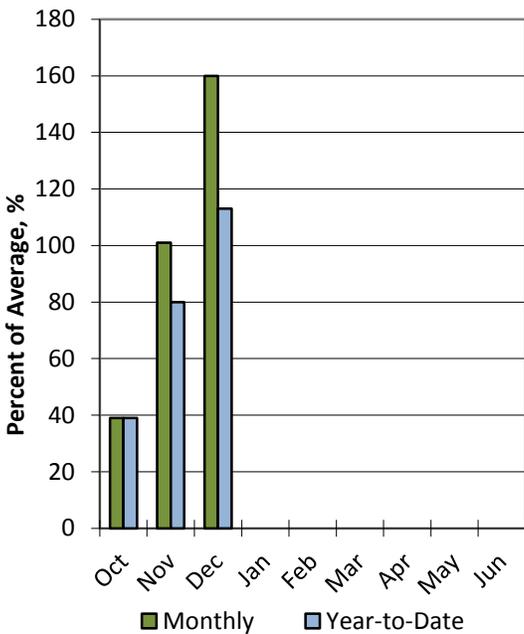
## Snowpack



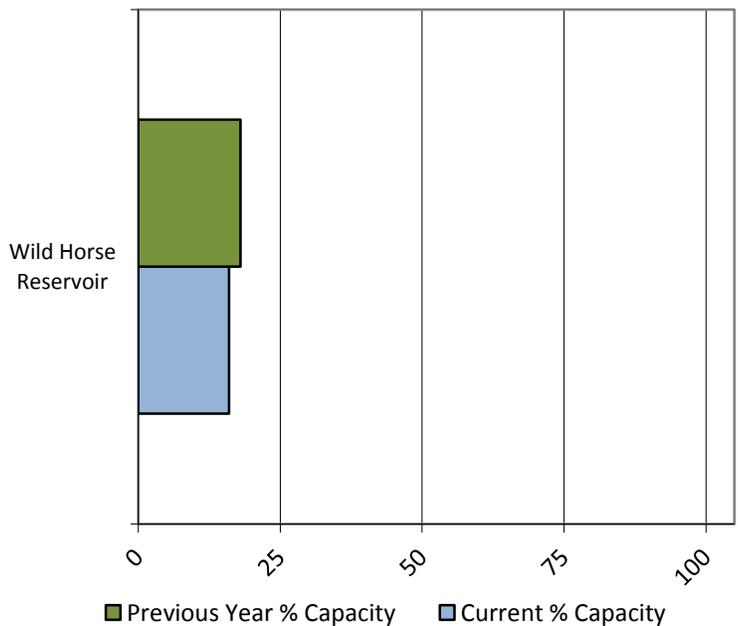
## Soil Moisture



## Precipitation



## Reservoir Storage



## Owyhee River Basin Streamflow Forecasts - January 1, 2015

Forecast Exceedance Probabilities for Risk Assessment  
Chance that actual volume will exceed forecast

Owyhee River Basin	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Owyhee R nr Gold Ck <sup>2</sup>	MAR-JUL	9.8	17.7	25	89%	34	51	28
	MAR-SEP	9.2	16.7	24	89%	32	48	27
	APR-JUL	4.6	11.3	18.4	84%	28	47	22

- 1) 90% and 10% exceedance probabilities are actually 95% and 5%
- 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
- 3) Median value used in place of average

Reservoir Storage End of December, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Wild Horse Reservoir	11.2	12.9	32.4	71.5
Basin-wide Total	11.2	12.9	32.4	71.5
# of reservoirs	1	1	1	1

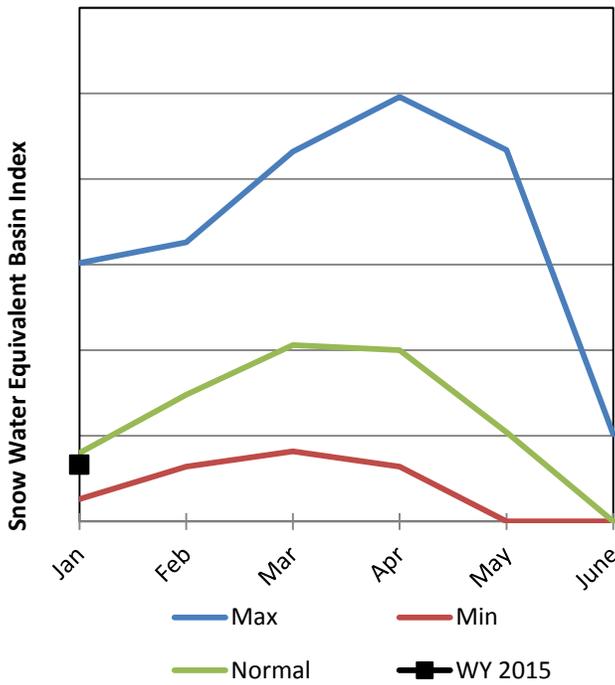
Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Owyhee River Basin	5	122%	63%
Owyhee River nr Owyhee	3	121%	57%
Owyhee R. nr Gold Creek	1	120%	60%
S. Fork Owyhee River	1	152%	72%

# Eastern Nevada

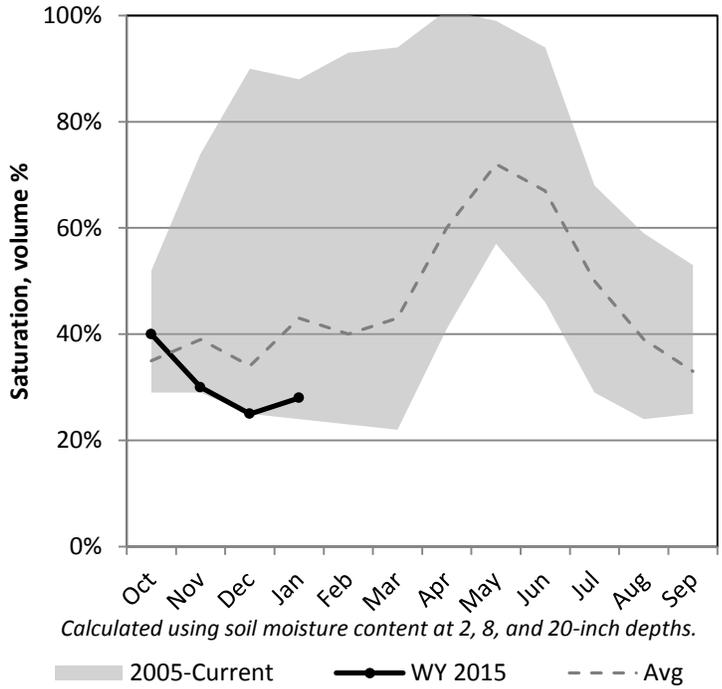
1/1/2015

Snowpack in the Eastern Nevada is below average at 80% of normal, compared to 78% last year. Precipitation in December was much above average at 136%, which brings the seasonal accumulation (Oct-Dec) to 71% of average. Soil moisture is at 28% compared to 32% last year. Forecast streamflow volumes range from 52% to 63% of average.

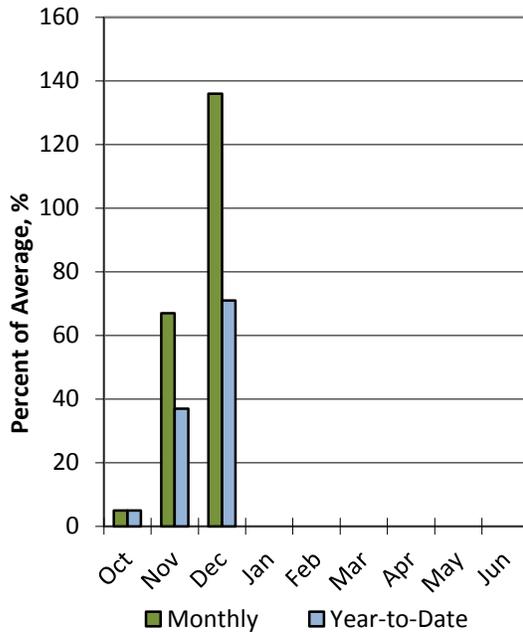
## Snowpack



## Soil Moisture



## Precipitation



**Eastern Nevada  
Streamflow Forecasts - January 1, 2015**

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast
---

<b>Eastern Nevada</b>	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Kingston Ck nr Austin	APR-JUL	0.036	0.17	2.2	61%	3.5	6.8	3.6
Lehman Ck nr Baker	APR-JUL	0.109	0.92	1.7	63%	2.5	3.6	2.72
Cleve Ck nr Ely	APR-JUL	0.176	1.52	2.8	63%	4.1	6	4.41
Steptoe Ck nr Ely	APR-JUL	0.081	0.74	1.4	52%	2.1	3	2.7

- 1) 90% and 10% exceedance probabilities are actually 95% and 5%
- 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
- 3) Median value used in place of average

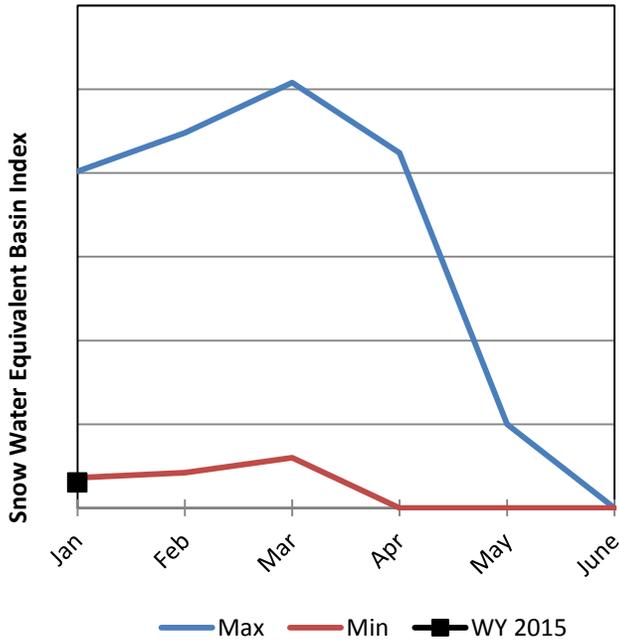
<b>Watershed Snowpack Analysis January 1, 2015</b>	# of Sites	% Median	Last Year % Median
Eastern Nevada	3	80%	78%
Kingston Creek	1	79%	91%
Steptoe Valley	2	75%	69%

# Lower Colorado River Basin

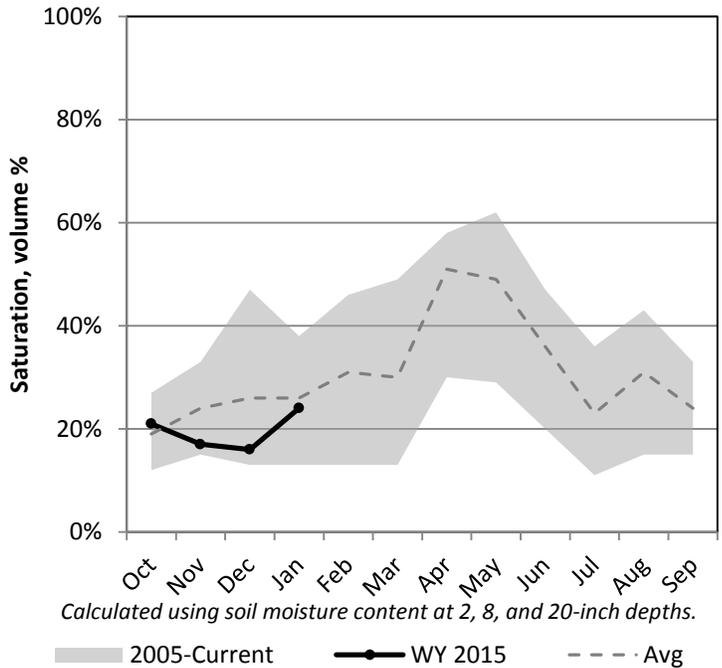
1/1/2015

Precipitation at SNOTEL stations within the Lower Colorado River Basin in December averaged 3.7 inches, which brings the average SNOTEL seasonal accumulation within the basin (Oct-Dec) to 4.3 inches. Soil moisture is at 24% compared to 20% last year. Reservoir storage is at 44% of capacity, compared to 50% last year. Forecast streamflow volumes range from 35% to 89% of average.

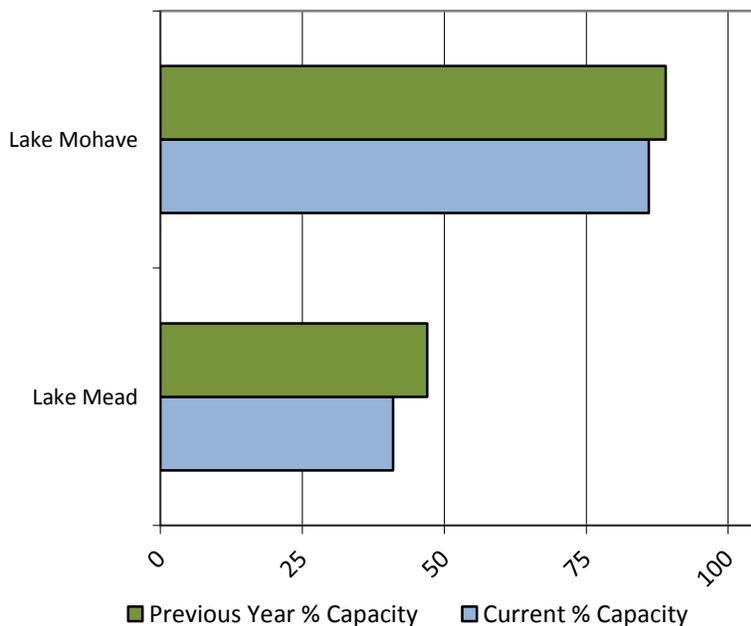
## Snowpack



## Soil Moisture



## Reservoir Storage



## Lower Colorado River Basin Streamflow Forecasts - January 1, 2015

Forecast Exceedance Probabilities for Risk Assessment  
Chance that actual volume will exceed forecast

Lower Colorado River Basin	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Virgin R at Littlefield	APR-JUL	15	16	23	35%	41	74	65
Lake Powell Inflow <sup>2</sup>	APR-JUL	3130	4940	6400	89%	8050	10800	7160
Virgin R nr Hurricane	APR-JUL	14	15	23	37%	39	70	63

- 1) 90% and 10% exceedance probabilities are actually 95% and 5%
- 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
- 3) Median value used in place of average

Reservoir Storage End of December, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Lake Mead	10676.0	12349.0	20297.0	26159.0
Lake Mohave	1559.7	1604.9	1602.0	1810.0
Basin-wide Total	12235.7	13953.9	21899.0	27969.0
# of reservoirs	2	2	2	2

Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Lower Colorado River Basin	0		
Spring Mountains	0		



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