



United States  
Department of  
Agriculture



Natural Resources  
Conservation  
Service

# Oregon Basin Outlook Report

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## January 1, 2014



**Where is the snow? Unseasonable bare ground at Mt Hood Meadows Ski Resort on New Year's Day.**

*Photo courtesy of Julie Koeberle (NRCS Oregon)*

Oregon snowpack looks pretty grim as of January 1. Statewide, the snowpack is only 32% of normal. Record low snowpack levels were measured at five SNOTEL sites in Oregon as of New Year's Day, and about one quarter of Oregon SNOTEL sites are reporting record low precipitation for this point in the water year (Oct-Dec). History has shown that the snowpack can recover with a few potent storm cycles. However, if the snowpack remains scarce throughout the winter, that would likely mean low summertime streamflows and water supply concerns.

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# General Outlook

January 1, 2014

## SUMMARY

The snowpack in most of Oregon's mountains is well below normal as of New Year's Day. October, November and December were very dry months in Oregon. Weather stations across the state measured record low precipitation amounts for this period. Only the northeastern part of the state received near normal precipitation during December. Reservoir carryover storage is also very low—lower even than this time last year. As of January 1, summer streamflows are forecast to be below normal across most of Oregon.

At this point, a healthy concern about summer water supplies is advised, but there is still a chance of recovery. A few potent storm cycles could change the picture significantly. Historically, there have been similarly dismal starts to the winter snowpack accumulation (most notably: 1977, 1990, and 2005). Of these three, 1990 was the only year when some regions of the state reached near normal peak snowpack levels. In 2005 and 1977, the snowpacks remained scarce.

The majority of the snow accumulation season still lies ahead and hopefully a significant improvement in the water supply outlook is waiting in our future. Entering January with the current deficit in mountain snowpack means that significant and numerous storm cycles will be necessary in order to reach normal peak snowpack levels. Given that this past summer and fall were extremely dry, the need for more snowpack and/or spring rainfall is critical for water supply conditions to improve.

## SNOWPACK

Snow survey results from around the state are confirming what we know from SNOTEL and our own observations: Oregon's mountains have a bleak snowpack. Combining all Oregon SNOTEL sites, the statewide snowpack was 32% of normal on January 1. The western part of Oregon is experiencing some of the lowest snowpacks on record. Five SNOTEL sites and two manually measured snow courses in central and southern Oregon have broken their previous record low January 1 snowpack. These sites are mid-elevation sites (near the 5000 foot elevation band). Many lower elevation SNOTEL sites were snow-free as of January 1.

On the other hand, there is one area in Oregon where the snowpack is near normal. The northern Willowa Mountains and headwaters of the Grande Ronde River in the northeastern Oregon have the best snowpack in the state. Interestingly, while the northern Willowa's are in good shape, a SNOTEL site in the southern reaches of the Willowa Mountains is tied with its record low January 1, 1990 snowpack. Luckily, this December's long dry spell was accompanied by cold temperatures that helped preserve the limited snowpack.

The snowpack and summer water supply conditions are not written in stone as of the first of January. Other years with low January 1 snowpacks were 1977, 1981, 1990, 2005 and 1996. 1977 and 2005 continue to hold the record for the lowest snow season depending on the location in Oregon. However, 1990 turned completely around by mid-January when forceful storms brought welcome improvements to the snowpack. This February and March will need to have above average snow accumulation if the 2014 snowpack is to rise above the lowest snow levels on record.

## **PRECIPITATION**

The lack of precipitation is the reason for our paltry snowpack. Since October 1, when the new water year began, Oregon has seen many more dry days with sunshine than usual. Most of the state has received less than half of the usual amounts of fall and winter precipitation so far. About one quarter of Oregon SNOTEL sites have set new record lows for water year precipitation this year. There have been a few powerful moisture producing storms but none of them have been able to overcome the long dry spells in order to build the needed snowpack.

The northeastern part of the state is the only region in Oregon where there has been close to normal precipitation since October. Several northeastern Oregon weather stations even had above average precipitation in December, which bumped the total precipitation for the water year to 70-80% of normal for this corner of the state. While low, this is still the highest precipitation in the state.

The lowest December precipitation falling in the state was across the southern part of Oregon. Water year precipitation totals (Oct-Dec) in this region are hovering around 18% to 25% of average. Consequently, southern Oregon along with many areas in the Cascades have experienced the driest fall and early winter on record.

## **RESERVOIRS**

Most of the reservoirs in the state have minimal carry-over storage and are storing less water than this time last year. Last year's low snowpack, followed by a hot and dry summer created a high demand for water supplies. As a result, Governor Kitzhaber declared drought last year in Malheur, Baker, Gilliam, Klamath and Morrow Counties. Last spring, reservoirs in the southeastern part of the state were at record low levels. For locations such as the Owyhee and Malheur basins, low snowpacks this year would mean a third low snowpack in a row. The latest Drought Monitor update shows most of southeastern Oregon in a severe drought status. Water users can monitor current drought conditions at the Drought Monitor website: <http://droughtmonitor.unl.edu/>.

The January 1 storage at 26 major Oregon reservoirs analyzed in this publication was 60 percent of normal. As of January 1, water storage at these reservoirs totaled 911 thousand acre feet (kaf), representing 28 percent of useable capacity. Last year at this time these same reservoirs stored 1,367 kaf of water, or 42 percent of useable capacity.

## **STREAMFLOW**

After a long, dry summer and fall, December brought a continued lack of precipitation and cold temperatures. As you might expect, most Oregon streams were flowing at below normal levels last month. A few streams in northeastern Oregon had above normal streamflow volumes during December; coinciding with the only area that received near normal precipitation for the month.

Given the dry conditions and low snowpacks as of January 1, most of Oregon is currently expected to experience below normal streamflows this summer. While current snowpack values are consistently low across the state, readers will notice a wide range of predictions for water supplies this coming spring and summer. The reason for this lies in the underlying hydrology of different watersheds as well as the uncertainty around late winter and spring rain storms.

Watersheds that receive the majority of their annual precipitation in the form on snow (typically east of the Cascades) are seeing the lowest streamflow forecasts. These watersheds see the majority of runoff come from snowmelt and rarely receive spring precipitation sufficient to make up for a meager winter snowpack. However, in watersheds that are more influenced by spring rains (Willamette Valley, for example), a meager winter snowpack doesn't always mean low

runoff. The rivers in these areas may see significant volumes of water delivered later in the season due to rain rather than snowmelt. The influence of late winter and spring storms also reduces January 1 forecast model accuracy, and as a result, predictions tend to stay close to normal until more of the season has passed. If dry conditions continue to persist through the remainder of January, expect forecasts to decrease for all basins for the February 1 report.

A summary of January 1 summer streamflow forecasts for Oregon follows:

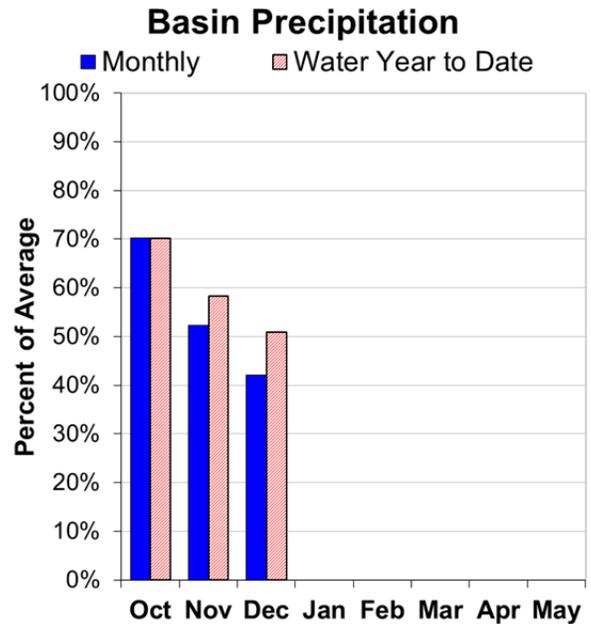
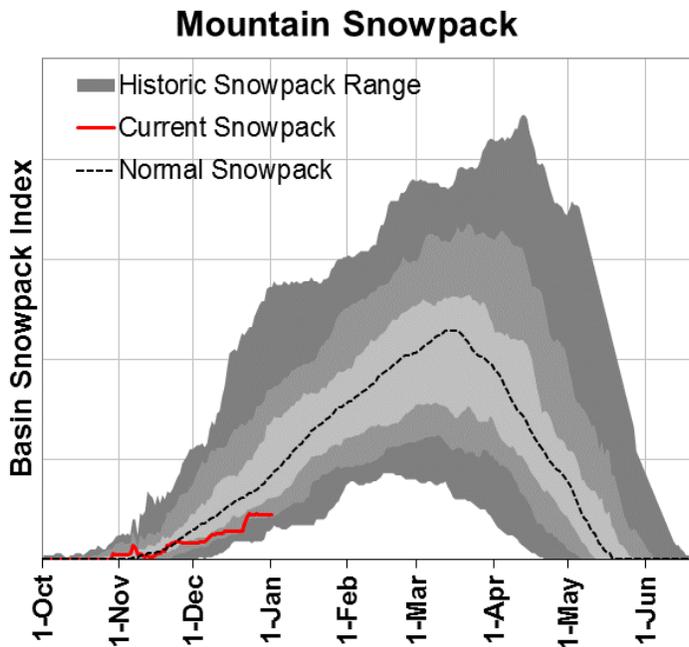
<b>STREAM</b>	<b>Median Forecast (April through September)</b>	
	<b>Volume (Acre-Feet)</b>	<b>Percent of Average</b>
Owyhee Reservoir Inflow	265,000	65
Grande Ronde R at Troy	1,090,000	83
Umatilla R at Pendleton	152,000	99
Deschutes R at Benham Falls	350,000	72
Willamette R at Salem	3,970,000	84
Rogue R at Raygold	510,000	63
Upper Klamath Lake Inflow	220,000	46
Silvies R nr Burns	23,000	25

Some of these forecasts assume that normal weather conditions will occur from now to the end of the forecast period. This report contains data furnished by the Oregon Department of Water Resources, U.S. Geological Survey, NOAA National Weather Service and other cooperators. This report will be updated monthly, January through June.



# Owyhee and Malheur Basins

January 1, 2014



## Summary of Water Supply Conditions

### SNOWPACK

As of January 1, the basin snowpack was 53% of normal. Last year at this time, the snowpack was 79% of normal. If this snow season remains below normal, this will mark the third year in a row with a low mountain snowpack.

### PRECIPITATION

December precipitation was 42% of average. Precipitation since the beginning of the water year (October 1 - January 1) has been 51% of average.

### RESERVOIR

Reservoir storage across the basin is currently well below average. As of January 1, storage at published reservoirs was 26% of average and 11% percent of capacity.

### STREAMFLOW FORECAST

April through September streamflow forecasts in the basin range from 34% to 65% of average.

For more information contact your local Natural Resources Conservation Service office:  
 Ontario - (541) 889-7637

Or visit: <http://www.or.nrcs.usda.gov/snow/watersupply/>

OWYHEE AND MALHEUR BASINS  
Streamflow Forecasts - January 1, 2014

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)		
		90%		70%		50%			30%	
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)		(1000AF)	(1000AF)
Malheur R nr Drewsey	FEB-JUL	13.1	30	46	36	65	99	128		
	APR-JUL	1.92	11.2	22	29	36	64	75		
	APR-SEP	5.2	15.2	25	34	37	60	74		
NF Malheur R at Beulah (2)	FEB-JUL	10.4	26	40	47	57	89	85		
Owyhee R nr Rome	FEB-JUL	35	189	345	59	500	730	580		
	FEB-SEP	36	200	360	61	520	755	595		
	APR-SEP	18.2	124	235	64	345	510	365		
Owyhee R bl Owyhee Dam (2)	FEB-JUL	127	260	380	60	520	770	635		
	FEB-SEP	145	285	405	61	545	795	665		
	APR-SEP	88	182	265	65	365	540	405		

OWYHEE AND MALHEUR BASINS Reservoir Storage (1000 AF) - End of December					OWYHEE AND MALHEUR BASINS Watershed Snowpack Analysis - January 1, 2014			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
Beulah Res (agency Valley Dam)	60.0	29.9	13.9	21.0	Owyhee	7	69	55
Bully Creek	30.0	4.4	0.6	10.8	Upper Malheur	3	67	47
Lake Owyhee Near Nyssa	715.0	59.9	263.9	312.7	Jordan Creek	2	48	36
Warm Springs	191.0	10.7	56.8	60.4				

\* 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.

For more information contact your local Natural Resources Conservation Service office:

Ontario - (541) 889-7637

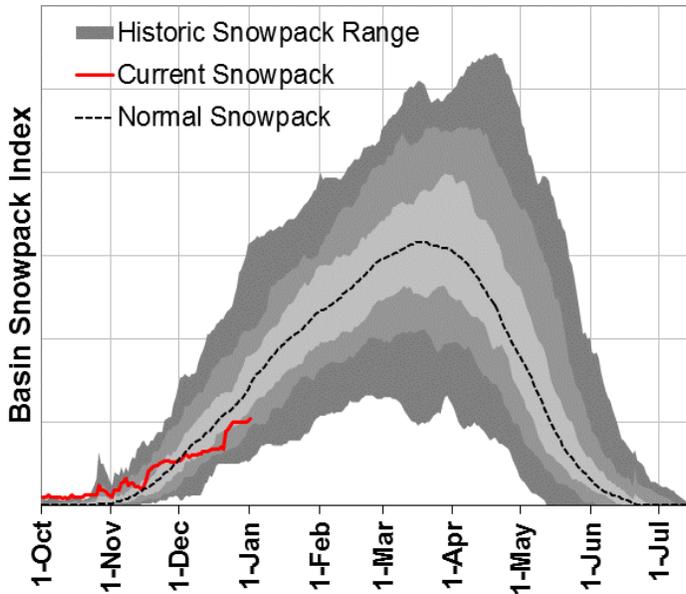
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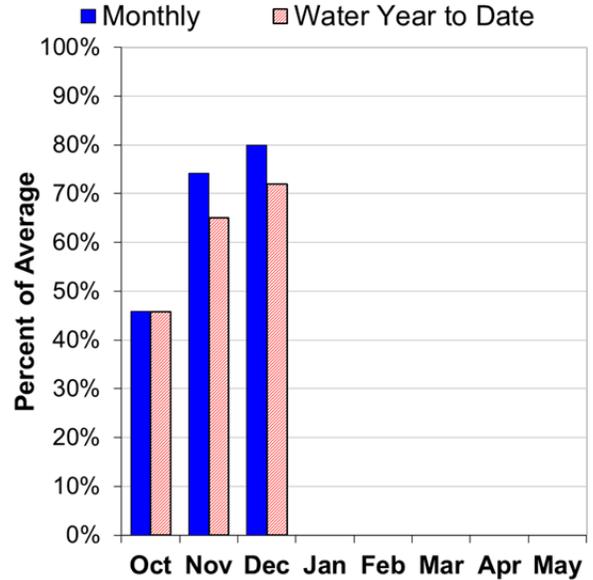
# Grande Ronde, Powder, Burnt and Innaha Basins

January 1, 2014

**Mountain Snowpack**



**Basin Precipitation**



## Summary of Water Supply Conditions

### SNOWPACK

As of January 1, the basin snowpack was 73% of normal. The snowpack in this region is the best in the state. The northern slopes of the Wallowa Mountains and the headwaters of the Grande Ronde River have the most snow and are responsible for driving the basin-wide snow percentages up. Other areas in the basin are as low as 22% of normal. Last year, the snowpack was 83% of normal on January 1.

### PRECIPITATION

December precipitation was 80% of average. Precipitation since the beginning of the water year (October 1 - January 1) has been 72% of average.

### RESERVOIR

Reservoir storage across the basin is currently well below average. As of January 1, storage at published reservoirs was 45% of average and 20% percent of capacity.

### STREAMFLOW FORECAST

April through September streamflow forecasts in the basin range from 37% to 94% of average.

For more information contact your local Natural Resources Conservation Service office:  
 Enterprise- (541) 426-4588; Baker City - (541) 523-7121; LaGrande - (541) 963-4178  
 Or visit: <http://www.or.nrcs.usda.gov/snow/watersupply/>

GRANDE RONDE, POWDER, BURNT AND IMNAHA BASINS  
Streamflow Forecasts - January 1, 2014

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)		
		90%		70%		50%			30%	
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)		(1000AF)	(1000AF)
Burnt Nr Hereford	FEB-JUL	3.6	11.5	22	43	31	48	51		
	APR-SEP	2.8	7.7	12.9	37	19.2	32	35		
Deer Ck nr Sumpter	FEB-JUL	3.4	7.5	10.3	52	13.1	17.2	19.7		
Powder R nr Sumpter	FEB-JUL	10.1	27	39	58	51	68	67		
	APR-JUL	5.1	19.9	30	57	40	55	53		
	APR-SEP	4.2	19.6	30	56	40	56	54		
Wolf Ck Reservoir Inflow (2)	MAR-JUN	3.1	7.7	10.9	60	14.1	18.7	18.1		
Pine Ck nr Oxbow	FEB-JUL	69	121	156	71	191	245	220		
	APR-JUL	41	78	104	66	130	167	157		
	APR-SEP	43	82	108	66	134	173	163		
Imnaha R at Imnaha	APR-JUL	114	171	210	82	250	305	255		
	APR-SEP	123	184	225	80	265	325	280		
Lostine R nr Lostine	APR-JUL	83	94	101	95	108	119	106		
	APR-SEP	88	100	108	94	116	128	115		
Bear Ck nr Wallowa	APR-SEP	45	53	59	91	65	73	65		
Catherine Ck nr Union	APR-JUL	32	43	50	83	57	68	60		
	APR-SEP	35	46	53	83	60	71	64		
Grande Ronde R at Troy (1)	MAR-JUL	730	1100	1270	84	1440	1810	1510		
	APR-SEP	575	930	1090	83	1250	1600	1310		

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GRANDE RONDE, POWDER, BURNT AND IMNAHA BASINS Reservoir Storage (1000 AF) - End of December					GRANDE RONDE, POWDER, BURNT AND IMNAHA BASINS Watershed Snowpack Analysis - January 1, 2014			
Reservoir	Usable Capacity	*** This Year	Usable Storage Last Year	*** Avg	Watershed	Number of Data Sites	This Year as % of Last Yr	% of Median
Phillips Lake	73.5	10.5	27.8	30.2	Upper Grande Ronde	7	108	77
Thief Valley	17.4	8.7	10.7	12.3	Wallowa	4	113	106
Unity	25.2	4.0	5.6	9.5	Imnaha	3	95	96
Wallowa Lake	37.5	16.7	14.2	14.7	Powder	7	71	54
Wolf Creek	10.4	2.3	2.6	2.6	Burnt	2	49	42

\* 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.

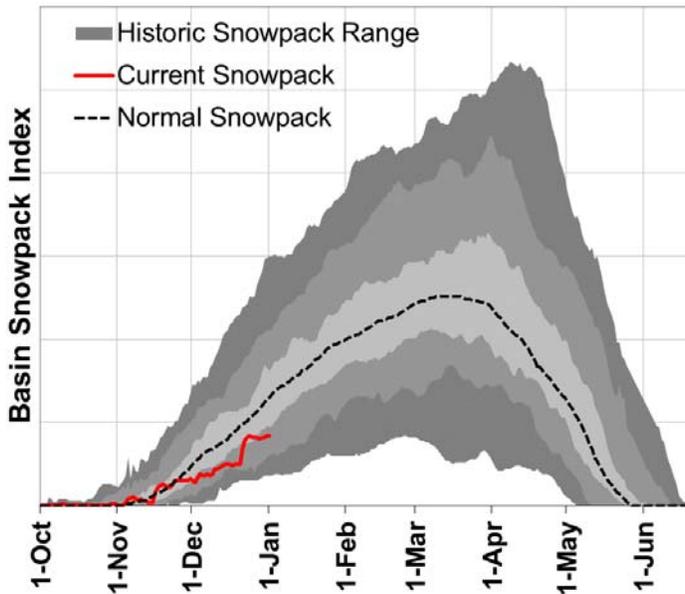
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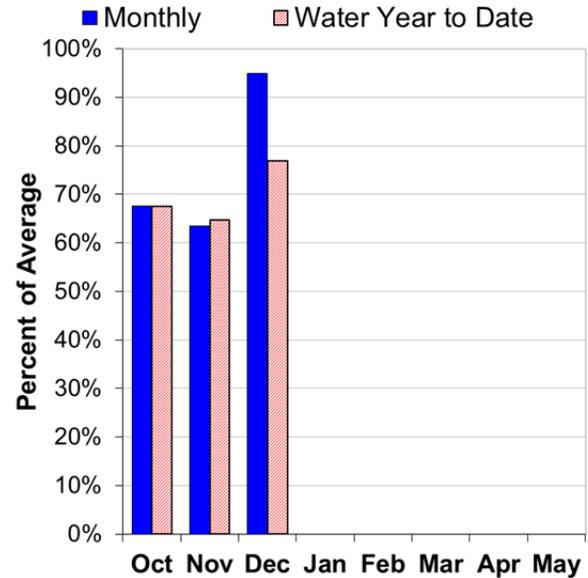
# Umatilla, Walla Walla, and Willow Basins

January 1, 2014

**Mountain Snowpack**



**Basin Precipitation**



## Summary of Water Supply Conditions

### SNOWPACK

As of January 1, the basin snowpack was 65% of normal. Last year, the snowpack was 92% of normal on January 1.

### PRECIPITATION

December precipitation was 95% of average – the highest in the state. Precipitation since the beginning of the water year (October 1 - January 1) has been 77% of average – also the highest in the state.

### RESERVOIR

Reservoir storage across the basin is currently well below average. As of January 1, storage at published reservoirs was 78% of average and 20% percent of capacity.

### STREAMFLOW FORECAST

April through September streamflow forecasts in the basin range from 68% to 99% of average.

For more information contact your local Natural Resources Conservation Service office:  
 Pendleton - (541) 278-8049; Heppner - (541) 676-5021; Condon - (541) 384-2671  
 Or visit: <http://www.or.nrcs.usda.gov/snow/watersupply/>

UMATILLA, WALLA WALLA AND WILLOW BASINS  
Streamflow Forecasts - January 1, 2014

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Butter Ck nr Pine City	MAR-JUL	2.2	6.6	9.6	64	12.6	17.0	14.9
	APR-SEP	1.84	4.7	6.7	68	8.7	11.6	9.8
McKay Ck nr Pilot Rock	APR-SEP	8.4	20	28	90	36	48	31
Rhea Ck nr Heppner	FEB-JUL	0.82	5.4	8.5	63	11.6	16.2	13.6
Umatilla R ab Meacham Ck nr Gibbon	MAR-SEP	77	93	104	98	115	131	106
	APR-JUL	48	62	71	96	80	94	74
	APR-SEP	54	68	77	96	86	100	80
Umatilla R at Pendleton	MAR-SEP	156	197	225	100	255	295	225
	APR-JUL	90	123	145	99	167	200	147
	APR-SEP	97	130	152	99	174	205	153
SF Walla Walla R nr Milton-Freewater	MAR-SEP	61	69	74	93	79	87	80
	APR-JUL	38	44	48	89	52	58	54
	APR-SEP	49	55	60	91	65	71	66
Willow Ck ab Willow Ck Lake nr Heppner	FEB-JUL	1.21	5.2	7.9	67	10.6	14.6	11.8
	APR-JUL	0.070	2.8	4.7	67	6.6	9.3	7.0

UMATILLA, WALLA WALLA AND WILLOW BASINS

Reservoir Storage (1000 AF) - End of December

UMATILLA, WALLA WALLA AND WILLOW BASINS

Watershed Snowpack Analysis - January 1, 2014

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
Cold Springs	44.6	5.6	8.9	9.5	Walla Walla	3	70	57
Mckay	73.8	17.5	22.4	20.0	Umatilla	5	82	66
Willow Creek	1.8	3.6	3.8	4.3	McKay Creek	3	131	86

\* 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.

For more information contact your local Natural Resources Conservation Service office:

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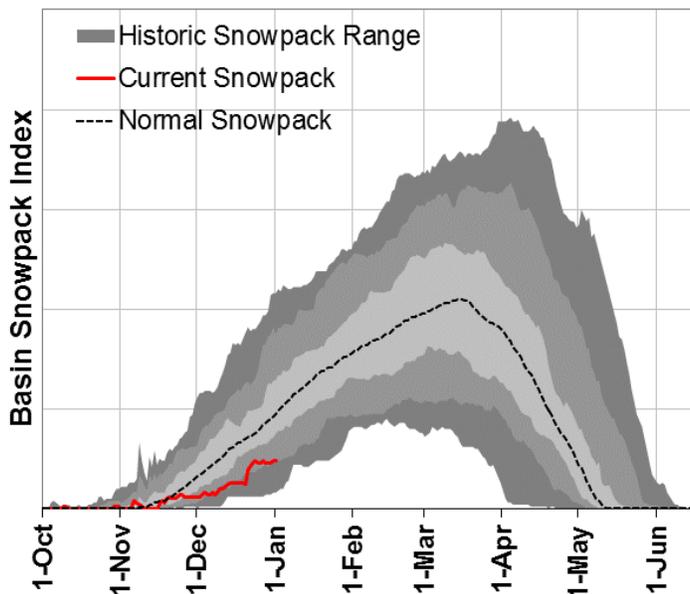
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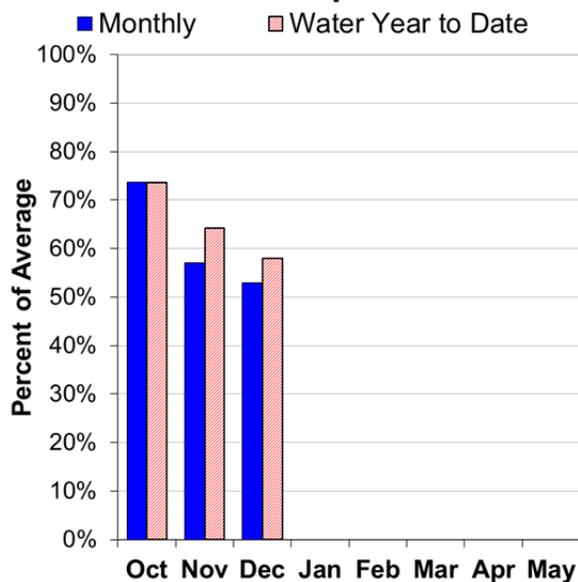
# John Day Basin

January 1, 2014

### Mountain Snowpack



### Basin Precipitation



## Summary of Water Supply Conditions

### SNOWPACK

As of January 1, the basin snowpack was 51% of normal. Last year, the snowpack was 95% of normal on January 1.

### PRECIPITATION

December precipitation was 53% of average. Precipitation since the beginning of the water year (October 1 - January 1) has been 58% of average.

### STREAMFLOW FORECAST

April through September streamflow forecasts in the basin range from 31% to 83% of average.

For more information contact your local Natural Resources Conservation Service office:  
John Day - (541) 575-0135

Or visit: <http://www.or.nrcs.usda.gov/snow/watersupply/>

JOHN DAY BASIN  
Streamflow Forecasts - January 1, 2014

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)		
		90%		70%		50%			30%	
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)		(1000AF)	(1000AF)
Strawberry Ck nr Prairie City	MAR-JUL	2.3	4.2	5.5	65	6.8	8.7	8.5		
	APR-SEP	2.3	4.2	5.5	63	6.8	8.7	8.8		
Mountain Ck nr Mitchell	FEB-JUL	0.56	1.40	2.3	33	3.5	6.0	7.0		
	APR-SEP	0.40	1.00	1.50	31	2.4	4.0	4.9		
Camas Ck nr Ukiah	MAR-JUL	24	34	41	84	48	58	49		
	APR-SEP	13.3	23	29	83	35	45	35		
MF John Day R at Ritter	MAR-JUL	38	75	101	65	127	164	156		
	APR-SEP	28	60	82	65	104	136	126		
NF John Day R at Monument	MAR-JUL	235	410	530	69	650	825	765		
	APR-SEP	175	320	415	69	510	655	600		

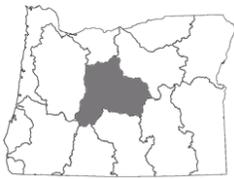
JOHN DAY BASIN		JOHN DAY BASIN				JOHN DAY BASIN		
Reservoir Storage (1000 AF) - End of December		*** Usable Storage ***				Watershed Snowpack Analysis - January 1, 2014		
Reservoir	Usable Capacity	This Year	Last Year	Avg	Watershed	Number of Data Sites	This Year as % of Last Yr	% of Median
					North Fork John Day	7	61	57
					John Day above Kimberly	5	50	44

\* 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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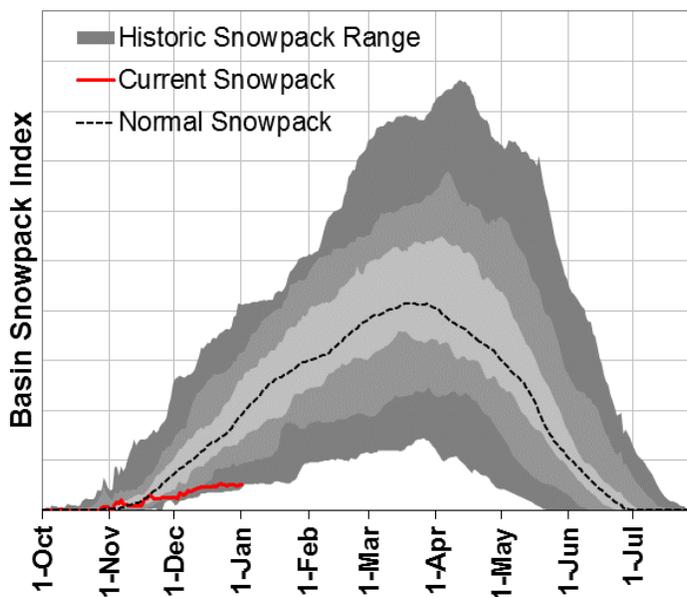
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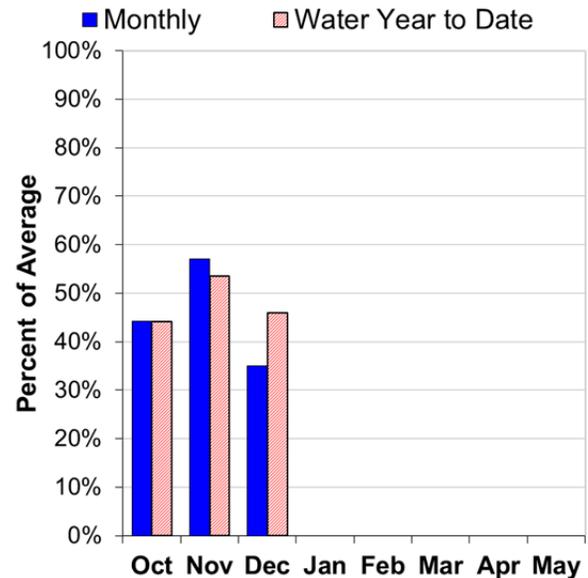
# Upper Deschutes and Crooked Basins

January 1, 2014

**Mountain Snowpack**



**Basin Precipitation**



## Summary of Water Supply Conditions

### SNOWPACK

As of January 1, the basin snowpack was 27% of normal. Three SNOTEL sites and Bald Peter snow course (measured since 1973) are going down in the history books with new record low snowpack measurements for January 1. Many other sites in the basin are near record low levels and the Hoodoo ski area hasn't opened yet. Last year, the January 1 snowpack was 110% of normal.

### PRECIPITATION

December precipitation was 35% of average. Precipitation since the beginning of the water year (October 1 - January 1) has been 46% of average.

### RESERVOIR

Reservoir storage across the basin is currently slightly above average. As of January 1, storage at published reservoirs was 102% of average and 60% percent of capacity.

### STREAMFLOW FORECAST

April through September streamflow forecasts in the basin range from 14% to 72% of average.

For more information contact your local Natural Resources Conservation Service office:  
Redmond (541) 923-4358

Or visit: <http://www.or.nrcs.usda.gov/snow/watersupply/>

UPPER DESCHUTES AND CROOKED BASINS  
Streamflow Forecasts - January 1, 2014

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)	
		90% (1000AF)		70% (1000AF)		Chance Of Exceeding * 50% (1000AF) (% AVG.)			30% (1000AF)
Deschutes R bl Snow Ck nr La Pine	FEB-JUL	4.8	13.8	20	49	26	35	41	
	FEB-SEP	6.9	18.3	26	41	34	45	63	
	APR-JUL	1.63	8.3	12.8	43	17.3	24	30	
	APR-SEP	2.8	12.3	18.8	36	25	35	52	
Crane Prairie Reservoir Inflow (2)	FEB-JUL	16.0	30	40	53	50	64	76	
	FEB-SEP	21	39	51	48	63	81	107	
	APR-JUL	8.0	19.3	27	48	35	46	56	
	APR-SEP	11.5	27	38	43	49	65	88	
Crescent Ck nr Crescent (2)	FEB-JUL	2.2	4.9	6.7	34	9.4	13.7	19.6	
	FEB-SEP	2.2	5.3	7.7	35	10.8	15.6	22	
	APR-JUL	1.50	3.4	5.0	33	7.2	10.6	15.0	
	APR-SEP	1.57	3.7	5.9	34	8.7	12.5	17.4	
Little Deschutes R nr La Pine (2)	FEB-JUL	8.0	17.8	28	31	44	67	89	
	FEB-SEP	8.5	15.0	31	33	47	71	94	
	APR-JUL	4.4	10.7	16.0	25	23	35	63	
	APR-SEP	4.1	9.7	18.0	26	30	47	69	
Whychus Ck nr Sisters	FEB-JUL	20	27	31	72	35	42	43	
	FEB-SEP	26	34	39	71	44	52	55	
	APR-JUL	17.8	22	25	71	28	32	35	
	APR-SEP	22	28	32	68	36	42	47	
Prineville Reservoir Inflow (2)	FEB-JUL	20	51	80	39	117	182	205	
	FEB-SEP	18.4	49	82	40	117	184	205	
	APR-JUL	0.60	8.0	18.0	18	32	59	102	
	APR-SEP	1.02	8.2	17.3	17	32	58	102	
Ochoco Reservoir Inflow (2)	FEB-JUL	0.80	4.0	10.4	26	19.1	32	40	
	FEB-SEP	0.40	3.6	9.6	24	18.6	32	40	
	APR-JUL	0.21	1.68	3.5	17	7.8	14.2	21	
	APR-SEP	0.20	1.80	2.7	14	7.3	14.0	20	

For more information contact your local Natural Resources Conservation Service office:  
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Or visit: <http://www.or.nrcs.usda.gov/snow/watersupply/>

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UPPER DESCHUTES AND CROOKED BASINS  
Streamflow Forecasts - January 1, 2014

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Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Deschutes R at Benham Falls nr Bend	2FEB-JUL	255	295	325	71	355	395	460
	FEB-SEP	365	415	450	72	485	535	625
	APR-JUL	177	205	225	70	245	275	320
	APR-SEP	285	325	350	72	375	415	485

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UPPER DESCHUTES AND CROOKED BASINS  
Reservoir Storage (1000 AF) - End of December

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Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
Crane Prairie	55.3	35.2	48.5	35.6	Crooked	3	34	38
Crescent Lake	86.9	59.7	77.3	44.0	Little Deschutes	4	25	28
Ochoco	47.5	10.0	18.7	17.1	Deschutes above Wickiup	4	29	32
Prineville	153.0	79.3	84.6	82.6	Tumalo and Squaw Creeks	2	29	29
Wickiup	200.0	143.2	174.0	140.8				

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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.

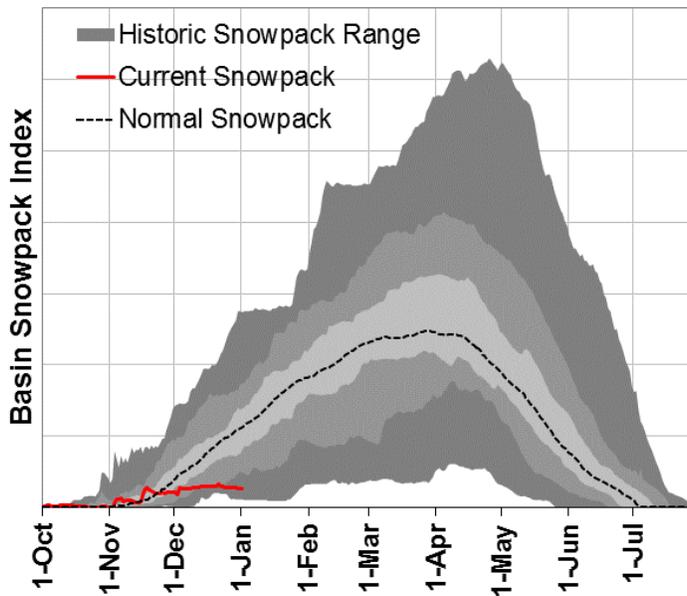
For more information contact your local Natural Resources Conservation Service office:  
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Or visit: <http://www.or.nrcs.usda.gov/snow/watersupply/>



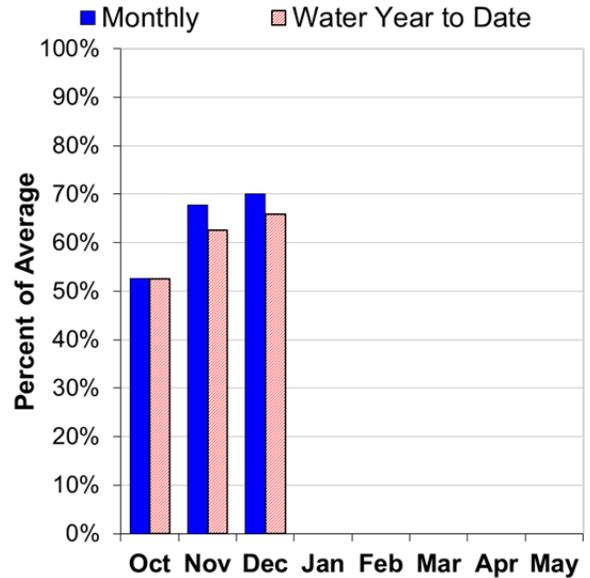
# Hood, Sandy, and Lower Deschutes Basins

January 1, 2014

**Mountain Snowpack**



**Basin Precipitation**



## Summary of Water Supply Conditions

### SNOWPACK

As of January 1, the basin snowpack was 22% of normal. Several sites are close to setting record lows for snowpack measurements. This time last year, the snowpack was 120% of normal.

### PRECIPITATION

December precipitation was 70% of average. Precipitation since the beginning of the water year (October 1 - January 1) has been 66% of average.

### STREAMFLOW FORECAST

April through September streamflow forecasts in the basin range from 73% to 86% of average.

For more information contact your local Natural Resources Conservation Service office:  
The Dalles (541) 296-6178

Or visit: <http://www.or.nrcs.usda.gov/snow/watersupply/>

HOOD, SANDY AND LOWER DESCHUTES BASINS  
Streamflow Forecasts - January 1, 2014

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)		
		90%		70%		50%			30%	
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)		(1000AF)	(1000AF)
WF Hood River nr Dee	APR-JUL	54	78	94	78	110	134	120		
Hood R At Tucker Bridge	APR-JUL	107	141	164	73	187	220	225		
	APR-SEP	132	169	194	73	220	255	265		
Sandy R nr Marmot	APR-JUL	196	240	270	87	300	345	310		
	APR-SEP	235	280	310	86	340	385	360		

HOOD, SANDY AND LOWER DESCHUTES BASINS  
Reservoir Storage (1000 AF) - End of December

HOOD, SANDY AND LOWER DESCHUTES BASINS  
Watershed Snowpack Analysis - January 1, 2014

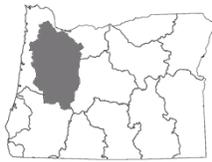
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
Clear Lake (Wasco)	11.9	3.3	6.2	2.8	Hood River	4	25	26
					White River	6	23	23

\* 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.

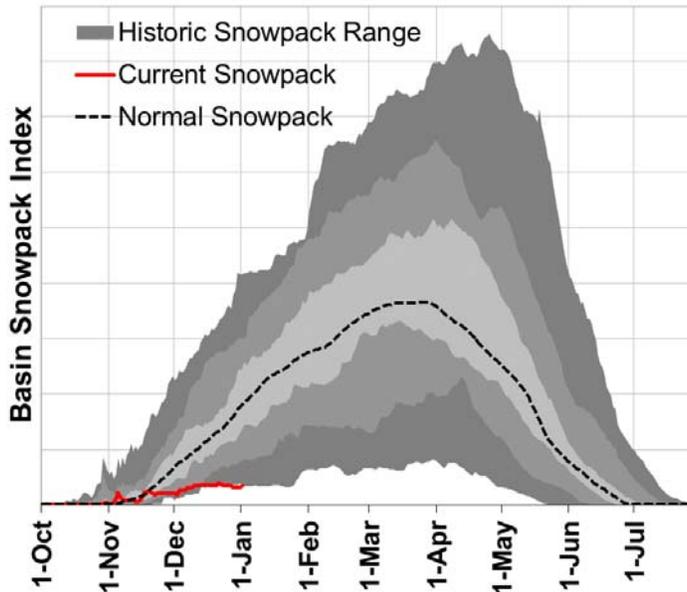
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The Dalles (541) 296-6178  
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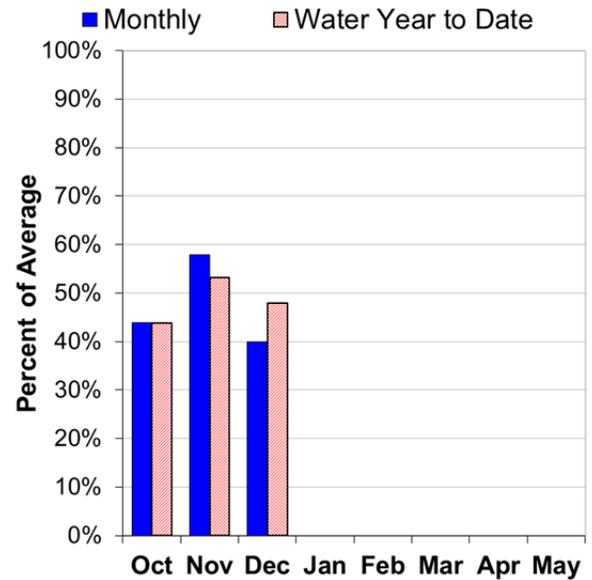
# Willamette Basin

January 1, 2014

**Mountain Snowpack**



**Basin Precipitation**



## Summary of Water Supply Conditions

### SNOWPACK

As of January 1, the basin snowpack was 18% of normal, the lowest in the state. Three SNOTEL sites in the basin have set new record lows for snowpack measurements, and others are near record lows. The basin is mostly snow-free below 4000 feet in elevation. Last January 1, the snowpack was 117% of normal.

### PRECIPITATION

December precipitation was 40% of average. Precipitation since the beginning of the water year (October 1 - January 1) has been 48% of average.

### RESERVOIR

Reservoir storage across the basin is currently near average. As of January 1, storage at published reservoirs was 101% of average and 72% percent of capacity.

### STREAMFLOW FORECAST

April through September streamflow forecasts in the basin range from 70% to 92% of average.

For more information contact your local Natural Resources Conservation Service office:  
 Eugene - (541) 465-6436; Portland - (503) 231-2270; Tangent - (541) 967-5925; Oregon City - (503) 656-3499;  
 Hillsboro - (503) 648-3174; McMinnville - (503) 472-1474  
 Salem - (503) 399-5746; Dallas - (503) 623-5534  
 Or visit: <http://www.or.nrcs.usda.gov/snow/watersupply/>

WILLAMETTE BASIN  
Streamflow Forecasts - January 1, 2014

Forecast Point	Forecast Period	Future Conditions				Wetter		30-Yr Avg. (1000AF)
		<<==== Drier =====>>		Chance Of Exceeding *		=====		
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Oak Grove Fork Of Clackamas	APR-JUL	59	79	92	80	105	125	115
	APR-SEP	81	105	121	78	137	161	155
Clackamas R ab Three Lynx	APR-JUL	215	295	350	78	405	485	450
	APR-SEP	285	370	430	80	490	575	535
Clackamas R at Estacada	APR-JUL	285	400	480	77	560	675	625
	APR-SEP	375	500	580	79	660	785	730
Detroit Lake Inflow (1,2)	FEB-MAY	375	520	585	80	650	795	730
	APR-JUL	225	355	415	78	475	605	530
	APR-SEP	270	410	470	77	530	670	610
Little North Santiam R nr Mehama (1)	APR-JUL	52	90	108	81	126	164	133
	APR-SEP	57	95	113	80	131	169	141
North Santiam R at Mehama (1,2)	FEB-MAY	515	755	865	79	975	1220	1090
	APR-JUL	335	505	580	78	655	825	740
	APR-SEP	425	595	675	80	755	925	840
Green Peter Lake Inflow (1,2)	FEB-MAY	240	390	460	96	530	680	480
	APR-JUL	107	200	245	88	290	385	280
	APR-SEP	132	225	270	92	315	410	295
Foster Lake Inflow (1,2)	FEB-MAY	480	690	785	86	880	1090	915
	APR-JUL	185	355	430	81	505	675	530
	APR-SEP	230	395	470	83	545	710	565
South Santiam River At Waterloo	FEB-MAY	535	715	840	85	965	1140	990
	APR-JUL	230	365	455	82	545	680	555
	APR-SEP	250	380	470	80	560	690	590
McKenzie R bl Trail Bridge (2)	FEB-MAY	205	235	255	89	275	305	285
	APR-JUL	165	195	215	83	235	265	260
	APR-SEP	240	275	300	87	325	360	345

For more information contact your local Natural Resources Conservation Service office:

Eugene - (541) 465-6436; Portland - (503) 231-2270; Tangent - (541) 967-5925; Oregon City - (503) 656-3499; Hillsboro - (503) 648-3174; McMinnville - (503) 472-1474  
Salem - (503) 399-5746; Dallas - (503) 623-5534

Or visit: <http://www.or.nrcs.usda.gov/snow/watersupply/>

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WILLAMETTE BASIN  
Streamflow Forecasts - January 1, 2014

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Forecast Point	Forecast Period	Future Conditions					30-Yr Avg.	
		<<===== Drier =====>>		Chance Of Exceeding *		===== Wetter =====>		
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	(1000AF)
Cougar Lake Inflow (1,2)	FEB-MAY	124	193	225	80	255	325	280
	APR-JUL	104	152	174	85	196	245	205
	APR-SEP	125	174	197	84	220	270	235
Blue Lake Inflow (1,2)	FEB-MAY	45	95	117	75	139	189	156
	APR-JUL	26	53	65	77	77	104	84
	APR-SEP	31	56	68	79	80	105	86
McKenzie R nr Vida (1,2)	FEB-MAY	750	1020	1140	90	1260	1530	1260
	APR-JUL	545	725	805	83	885	1060	970
	APR-SEP	715	910	1000	84	1090	1280	1190
Hills Creek Reservoir Inflow (1,2)	FEB-MAY	128	245	295	78	345	460	380
	APR-JUL	73	152	187	68	222	301	275
	APR-SEP	101	183	220	70	255	340	315
MF Willamette R bl NF (1,2)	FEB-MAY	445	715	840	88	965	1240	950
	APR-JUL	285	285	600	86	695	915	695
	APR-SEP	345	345	680	86	785	1010	790
Lookout Point Lake Inflow (1,2)	FEB-MAY	370	655	785	79	915	1200	1000
	APR-JUL	210	410	500	69	590	790	725
	APR-SEP	275	495	595	72	695	915	825
Fall Creek Lake Inflow (1,2)	FEB-MAY	82	137	162	85	187	240	190
	APR-JUL	27	68	87	80	106	147	109
	APR-SEP	32	74	93	82	112	154	113
Cottage Grove Lake Inflow (1,2)	FEB-MAY	30	55	67	81	79	104	83
	APR-JUL	4.0	21	29	71	37	54	41
	APR-SEP	5.7	23	31	72	39	56	43

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 Salem - (503) 399-5746; Dallas - (503) 623-5534  
 Or visit: <http://www.or.nrcs.usda.gov/snow/watersupply/>

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WILLAMETTE BASIN  
Streamflow Forecasts - January 1, 2014

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Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		===== Chance Of Exceeding * =====						
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Dorena Lake Inflow (1,2)	FEB-MAY	95	171	205	84	240	315	245
	APR-JUL	26	75	97	71	119	168	136
	APR-SEP	31	80	102	73	124	173	139
Scoggins Ck nr Gaston (2)	FEB-JUL	10.3	21	29	73	37	48	40
Willamette R at Salem (1,2)	FEB-MAY	3210	5430	6440	86	7450	9670	7490
	APR-JUL	1510	2880	3500	81	4120	5490	4310
	APR-SEP	1940	3340	3970	84	4600	6000	4730

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WILLAMETTE BASIN  
Reservoir Storage (1000 AF) - End of December

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Reservoir	Usable Capacity	*** Usable Storage ***		
		This Year	Last Year	Avg
Blue River	85.5	3.5	3.9	9.6
Cottage Grove	29.8	3.5	3.5	4.8
Cougar	155.2	37.6	22.7	53.5
Detroit	300.7	147.7	153.1	174.7
Dorena	70.5	8.3	7.4	13.9
Fall Creek	115.5	1.2	9.7	15.0
Fern Ridge	109.6	3.2	3.0	14.4
Foster	29.7	23.9	24.2	22.3
Green Peter	268.2	162.0	154.8	182.3
Hills Creek	200.2	84.7	85.3	104.8
Lookout Point	337.0	117.5	123.5	144.2
Timothy Lake	61.7	49.9	51.5	50.3
Henry Hagg Lake	53.0	32.9	39.9	31.9

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WILLAMETTE BASIN  
Watershed Snowpack Analysis - January 1, 2014

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Watershed	Number of Data Sites	This Year as % of	
		Last Yr	Median
Clackamas	6	7	7
McKenzie	7	18	21
Row River	1	0	0
Santiam	6	5	7
Middle Fork Willamette	6	23	25

\* 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.

For more information contact your local Natural Resources Conservation Service office:

Eugene - (541) 465-6436; Portland - (503) 231-2270; Tangent - (541) 967-5925; Oregon City - (503) 656-3499; Hillsboro - (503) 648-3174; McMinnville - (503) 472-1474  
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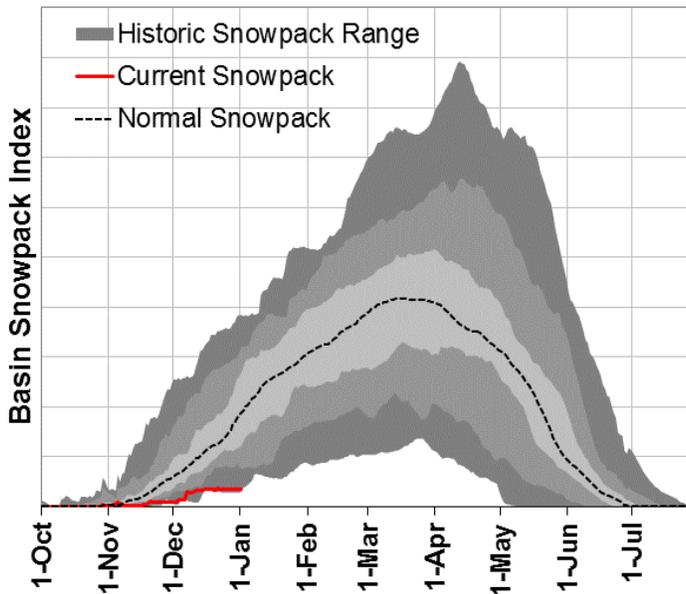
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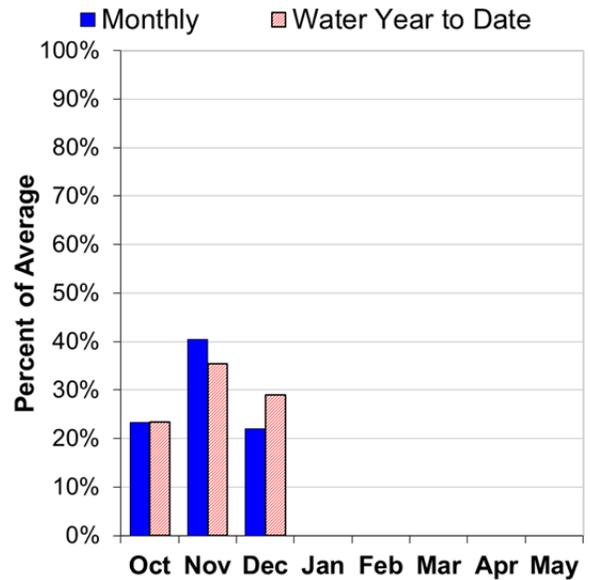
# Rogue and Umpqua Basins

January 1, 2014

**Mountain Snowpack**



**Basin Precipitation**



## Summary of Water Supply Conditions

### SNOWPACK

As of January 1, the basin snowpack was 19% of normal. Two SNOTEL sites in the basin have set new record lows for snowpack measurements, and others are near record lows. Last January 1, the snowpack was 136% of normal.

### PRECIPITATION

December precipitation was 22% of average. Precipitation since the beginning of the water year (October 1 - January 1) has been 29% of average.

### RESERVOIR

Reservoir storage across the basin is currently well below average. As of January 1, storage at published reservoirs was 80% of average and 42% percent of capacity.

### STREAMFLOW FORECAST

April through September streamflow forecasts in the basin range from 42% to 72% of average.

For more information contact your local Natural Resources Conservation Service office:

Roseburg - (541) 673-8316; Medford - (541) 776-4267

Or visit: <http://www.or.nrcs.usda.gov/snow/watersupply/>

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ROGUE AND UMPQUA BASINS  
Streamflow Forecasts - January 1, 2014

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Forecast Point	Forecast Period	Future Conditions				Wetter		30-Yr Avg. (1000AF)
		<<===== Drier =====>>		Chance Of Exceeding *		===== >>>>		
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Cow Ck nr Azalea (2)	FEB-JUL	3.6	13.4	25	69	37	54	36
	APR-JUL	1.47	5.5	10.2	69	14.9	22	14.7
	APR-SEP	1.59	5.8	10.8	68	15.8	23	15.9
North Umpqua R at Winchester	APR-JUL	275	430	535	69	640	795	775
	APR-SEP	355	515	625	70	735	895	890
South Umpqua R at Tiller	APR-JUL	46	100	136	70	172	225	193
	APR-SEP	52	106	143	72	180	235	200
South Umpqua R nr Brockway	APR-JUL	55	186	275	71	365	495	390
	APR-SEP	64	199	290	71	380	515	410
Hyatt Prairie Reservoir Inflow (2)	APR-JUL	0.110	0.37	1.49	41	2.6	4.3	3.6
Lost Creek Lake Inflow (2)	FEB-JUL	320	445	535	67	625	750	795
	FEB-SEP	390	535	630	68	725	870	920
	APR-JUL	205	290	345	66	400	485	520
	APR-SEP	280	375	440	68	505	600	645
Rogue R at Raygold (2)	APR-JUL	144	305	415	61	525	685	675
	APR-SEP	220	395	510	63	625	800	805
Rogue R at Grants Pass (2)	APR-JUL	120	305	430	59	555	740	725
	APR-SEP	179	375	510	60	645	840	845
Applegate Lake Inflow (2)	FEB-JUL	13.6	62	116	59	170	250	195
	FEB-SEP	16.0	64	119	60	174	255	200
	APR-JUL	8.7	28	56	51	84	125	109
	APR-SEP	8.0	31	60	52	89	131	115
Sucker Ck bl Ltl Grayback Ck nr Holla	APR-JUL	2.8	9.0	22	40	35	54	55
	APR-SEP	3.0	11.6	25	42	38	58	59
Illinois R at Kerby	APR-JUL	7.5	57	107	57	157	230	188
	APR-SEP	7.7	61	111	58	161	235	193

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For more information contact your local Natural Resources Conservation Service office:  
Roseburg - (541) 673-8316; Medford - (541) 776-4267  
Or visit: <http://www.or.nrcs.usda.gov/snow/watersupply/>

ROGUE AND UMPQUA BASINS Reservoir Storage (1000 AF) - End of December					ROGUE AND UMPQUA BASINS Watershed Snowpack Analysis - January 1, 2014			
Reservoir	Usable Capacity	*** This Year	Usable Storage Last Year	*** Avg	Watershed	Number of Data Sites	This Year as % of Last Yr	as % of Median
Applegate	75.2	1.2	6.7	10.2	Applegate	2	3	5
Emigrant Lake	39.0	8.7	18.8	17.2	Bear Creek	2	3	6
Fish Lake	8.0	3.4	4.9	4.7	Little Butte Creek	6	17	17
Fourmile Lake	16.1	2.6	7.7	6.7	Illinois	1	0	0
Howard Prairie	60.0	34.9	39.2	35.5	North Umpqua	6	15	27
Hyatt Prairie	16.1	9.4	12.1	9.6	Rogue River above Grant	16	12	17
Lost Creek	315.0	126.2	130.1	---				

\* 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.

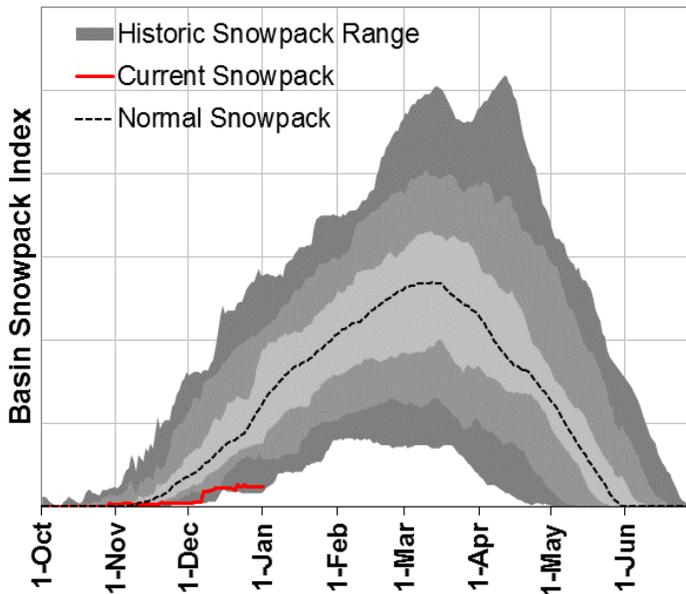
For more information contact your local Natural Resources Conservation Service office:  
 Roseburg - (541) 673-8316; Medford - (541) 776-4267  
 Or visit: <http://www.or.nrcs.usda.gov/snow/watersupply/>



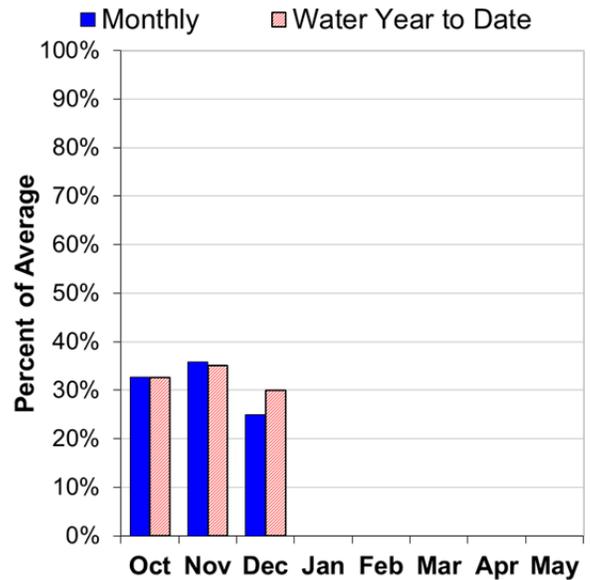
# Klamath Basin

January 1, 2014

**Mountain Snowpack**



**Basin Precipitation**



## Summary of Water Supply Conditions

### SNOWPACK

As of January 1, the basin snowpack was 19% of normal. Two SNOTEL sites in the basin have set new record lows for snowpack measurements, and others are near record lows. Park Headquarters Revised snow course (near Crater Lake) is the third lowest on record since measurements began in 1945. Last January 1, the snowpack was 108% of normal.

### PRECIPITATION

December precipitation was 25% of average. Precipitation since the beginning of the water year (October 1 - January 1) has been 30% of average.

### RESERVOIR

Reservoir storage across the basin is currently well below average. As of January 1, storage at published reservoirs was 54% of average and 25% percent of capacity.

### STREAMFLOW FORECAST

April through September streamflow forecasts in the basin range from 21% to 51% of average.

For more information contact your local Natural Resources Conservation Service office:  
 Klamath Falls - (541) 883-6932  
 Or visit: <http://www.or.nrcs.usda.gov/snow/watersupply/>

KLAMATH BASIN  
Streamflow Forecasts - January 1, 2014

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)		
		90%		70%		50%			30%	
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)		(1000AF)	(1000AF)
Clear Lk Inflow (2)	FEB-JUL	1.86	11.2	31	33	65	116	93		
	APR-SEP	0.35	3.8	9.6	27	23	42	35		
Gerber Res Inflow (2)	FEB-JUL	0.41	3.3	9.0	22	21	40	41		
	APR-SEP	0.140	1.01	3.0	21	8.6	15.3	14.4		
Sprague R nr Chiloquin	JAN-SEP	3.6	80	152	43	223	328	355		
	FEB-JUL	5.9	60	127	43	194	294	295		
	APR-SEP	4.2	41	86	41	131	197	210		
Williamson R bl Sprague R nr Chiloquin	JAN-SEP	110	235	320	54	405	530	595		
	FEB-JUL	43	161	240	51	320	440	475		
	APR-SEP	47	126	180	51	235	315	355		
Upper Klamath Lk Inflow (1)	JAN-SEP	60	360	495	53	630	930	935		
	FEB-JUL	14.3	245	365	51	480	740	715		
	MAR-SEP	51	275	378	58	480	705	655		
	APR-SEP	9.5	146	220	46	295	460	475		

KLAMATH BASIN Reservoir Storage (1000 AF) - End of December					KLAMATH BASIN Watershed Snowpack Analysis - January 1, 2014			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
Clear Lake (Calif)	513.3	45.7	76.4	189.3	Lost	3	9	14
Gerber Reservoir	94.3	10.1	31.6	39.6	Sprague	5	19	22
Upper Klamath Lake	523.7	223.5	241.4	291.7	Upper Klamath Lake	7	19	20
					Williamson River	5	17	21

\* 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.

For more information contact your local Natural Resources Conservation Service office:

Klamath Falls - (541) 883-6932

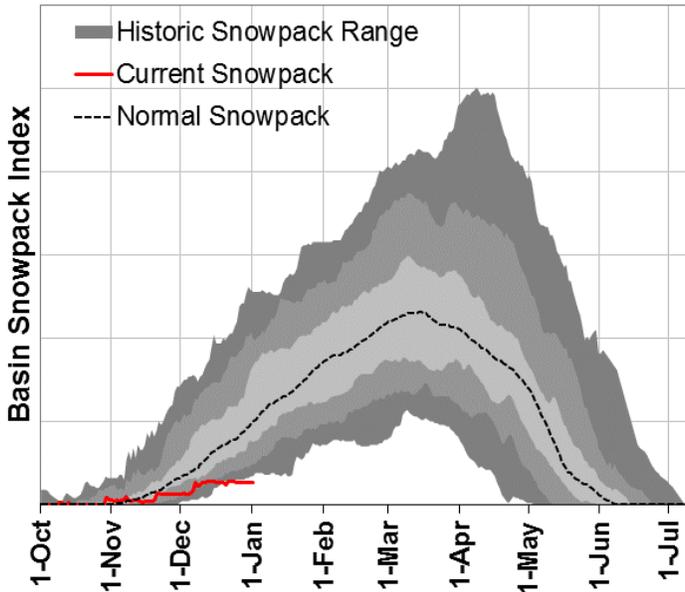
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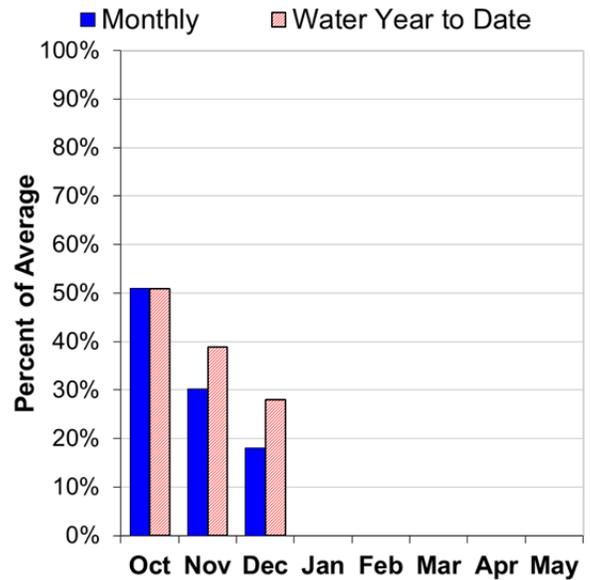
# Lake County and Goose Lake

## January 1, 2014

### Mountain Snowpack



### Basin Precipitation



## Summary of Water Supply Conditions

### SNOWPACK

As of January 1, the basin snowpack was 25% of normal. Camas Creek #3 snow course (measured since 1990) set a new record low for January 1 snowpack, and many of the other SNOTEL sites are near record low levels. Sites below 6000 feet are mostly snow-free. Last year on January 1, the basin-wide snowpack was 120% of normal.

### PRECIPITATION

December precipitation was 18% of average – the lowest in the state. Precipitation since the beginning of the water year (October 1 - January 1) has been 28% of average – also the lowest in the state.

### RESERVOIR

Reservoir storage across the basin is currently well below average. As of January 1, storage at published reservoirs was 40% of average and 16% percent of capacity.

### STREAMFLOW FORECAST

April through September streamflow forecasts in the basin range from 34% to 45% of average.

For more information contact your local Natural Resources Conservation Service office:  
Lakeview - (541) 947-2202

Or visit: <http://www.or.nrcs.usda.gov/snow/watersupply/>

LAKE COUNTY AND GOOSE LAKE BASINS  
Streamflow Forecasts - January 1, 2014

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)		
		90%		70%		50%			30%	
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)		(1000AF)	(1000AF)
Twentymile Ck nr Adel	MAR-JUL	1.35	4.0	11.3	42	18.9	27	27		
	APR-SEP	1.04	3.8	7.9	45	12.2	18.4	17.4		
Deep Ck ab Adel	MAR-JUL	2.4	13.2	31	39	49	75	79		
	APR-SEP	2.6	9.1	23	35	37	57	65		
Honey Ck nr Plush	MAR-JUL	0.86	3.1	6.3	37	8.7	15.0	17.1		
	APR-SEP	0.56	2.5	4.8	34	7.5	12.7	14.1		
Chewaucan R nr Paisley	MAR-JUL	4.2	19.3	37	44	55	81	84		
	APR-SEP	3.0	16.1	31	41	46	68	75		

LAKE COUNTY AND GOOSE LAKE BASINS  
Reservoir Storage (1000 AF) - End of December

LAKE COUNTY AND GOOSE LAKE BASINS  
Watershed Snowpack Analysis - January 1, 2014

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
Cottonwood	8.7	0.4	2.7	3.3	Chewaucan River	3	17	19
Drews	63.0	11.2	27.2	25.6	Deep Creek	2	20	27
					Drew Creek	3	5	9
					Honey Creek	1	9	10
					Silver Creek (Lake Co.)	4	20	22
					Twentymile Creek	2	20	27

\* 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.

For more information contact your local Natural Resources Conservation Service office:

Lakeview - (541) 947-2202

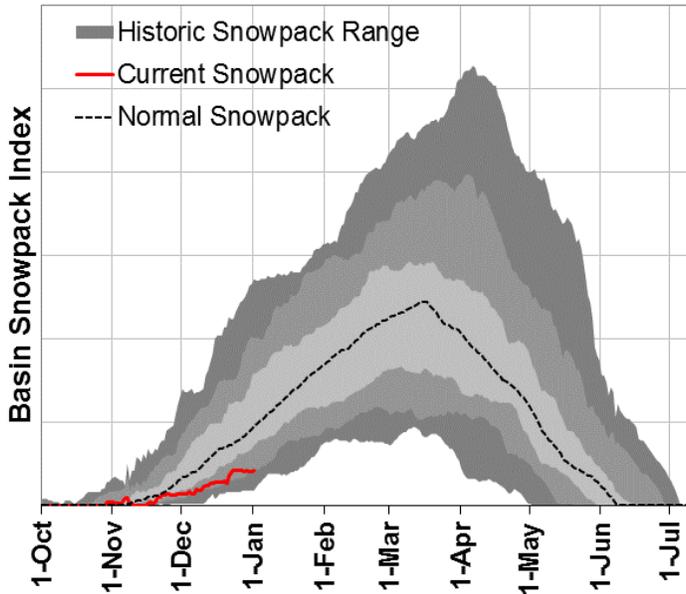
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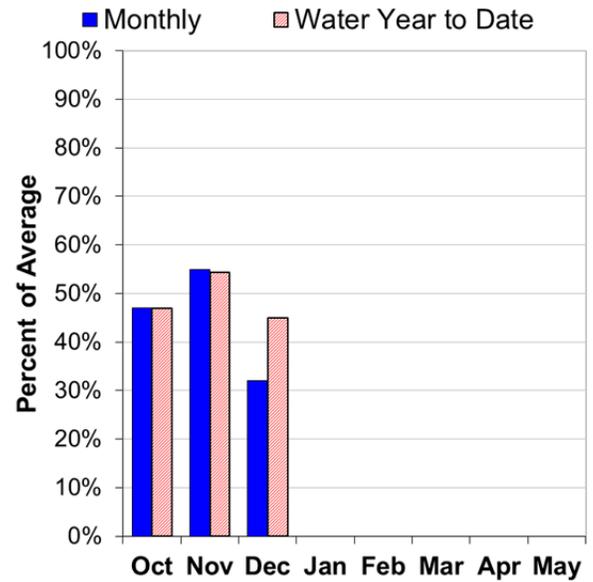
# Harney Basin

January 1, 2014

**Mountain Snowpack**



**Basin Precipitation**



## Summary of Water Supply Conditions

### SNOWPACK

As of January 1, the basin snowpack was 44% of normal. Last year on January 1, the basin-wide snowpack was 103% of normal.

### PRECIPITATION

December precipitation was 32% of average. Precipitation since the beginning of the water year (October 1 - January 1) has been 45% of average.

### STREAMFLOW FORECAST

April through September streamflow forecasts in the basin range from 25% to 60% of average.

For more information contact your local Natural Resources Conservation Service office:  
 Hines - (541) 573-6446  
 Or visit: <http://www.or.nrcs.usda.gov/snow/watersupply/>

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HARNEY BASIN  
Streamflow Forecasts - January 1, 2014

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Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)		
		90%		70%		50%			30%	
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)		(1000AF)	(1000AF)
Silvies R nr Burns	MAR-JUL	4.9	19.7	34	28	53	92	123		
	APR-SEP	2.8	12.9	23	25	38	64	92		
Donner Und Blitzen R nr Frenchglen	MAR-JUL	10.4	29	41	57	53	72	72		
	APR-SEP	10.9	29	41	60	53	71	68		
Trout Ck nr Denio	MAR-JUL	0.35	1.31	3.6	41	5.9	9.3	8.7		
	APR-SEP	0.32	0.93	3.1	39	5.3	8.5	8.0		

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HARNEY BASIN  
Reservoir Storage (1000 AF) - End of December

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HARNEY BASIN  
Watershed Snowpack Analysis - January 1, 2014

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Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
					Donner und Blitzen Rive	2	33	41
					Silver Creek (Harney Co	2	49	48
					Silvies River	5	60	47
					Trout Creek	2	25	37

\* 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.

For more information contact your local Natural Resources Conservation Service office:  
Hines - (541) 573-6446  
Or visit: <http://www.or.nrcs.usda.gov/snow/watersupply/>

# Recession Forecasts for Oregon

Recession flow forecasts are presented below for key streamflow sites where reliable daily streamflow data are available. The recession flow forecasts use exceedance probabilities in a format similar to the standard water supply forecasts presented in this document. Each forecast provides a range of possible outcomes representing the uncertainty of forecasting models.

The types of forecasts in the table below are:

- 1) Threshold flow -- Date that the daily streamflow rate falls below the given threshold flow
- 2) Peak flow -- Maximum daily flow
- 3) Date of peak flow -- Date of occurrence of maximum daily flow
- 4) Average daily flow on a given date

<b>OWYHEE AND MALHEUR BASINS</b>					
<i>FORECAST POINT</i>	<i>FORECAST THRESHOLD</i>	<i>FORECAST VALUE</i> ----- <i>CHANCE OF EXCEEDING</i> ----- -----			<i>LONG-TERM AVERAGE VALUE</i>
		90%	50%	10%	
Owyhee R nr Rome	2000 cfs	Feb 24	Apr 7	May 19	<b>May 6</b>
Owyhee R nr Rome	1000 cfs	Feb 20	Apr 8	May 25	<b>May 18</b>
Owyhee R nr Rome	500 cfs	Mar 8	Apr 23	Jun 8	<b>Jun 2</b>

<b>UPPER JOHN DAY BASIN</b>					
<i>FORECAST POINT</i>	<i>FORECAST THRESHOLD</i>	<i>FORECAST VALUE</i> ----- <i>CHANCE OF EXCEEDING</i> ----- -----			<i>LONG-TERM AVERAGE VALUE</i>
		90%	50%	10%	
John Day R at Service Creek	Average Daily Flow on Aug. 1st	10.8	150	350	<b>271</b>

<b>UPPER DESCHUTES AND CROOKED BASINS</b>					
<i>FORECAST POINT</i>	<i>FORECAST THRESHOLD</i>	<i>FORECAST VALUE</i> ----- <i>CHANCE OF EXCEEDING</i> ----- -----			<i>LONG-TERM AVERAGE VALUE</i>
		90%	50%	10%	
Crane Prairie Inflow *	Date of Peak	May 9	May 25	Jun 10	<b>May 25</b>
Crane Prairie Inflow	Peak Flow	86	250	415	<b>403</b>
Crane Prairie Inflow	Average Daily Flow on Oct. 1st	60	140	220	<b>269</b>
Prineville Reservoir Inflow	113 cfs	Apr 14	May 11	Jun 7	<b>June 3</b>
Prineville Reservoir Inflow	75 cfs	Apr 20	May 18	Jun 15	<b>June 11</b>
Prineville Reservoir Inflow	50 cfs	Apr 28	May 26	Jun 23	<b>June 19</b>
Whychus Creek nr Sisters	100 cfs	Jun 16	Jul 19	Aug 22	<b>August 16</b>

\*No prediction possible until April 1. Historic values are shown for reference prior to the April 1 report.

<b>ROGUE AND UMPQUA BASINS</b>					
<i>FORECAST POINT</i>	<i>FORECAST THRESHOLD</i>	<i>FORECAST VALUE</i> ----- <i>CHANCE OF EXCEEDING</i> ----- -----			<i>LONG-TERM AVERAGE VALUE</i>
		90%	50%	10%	
South Umpqua R nr Brockway *	90 cfs	Jul 3	Jul 23	Aug 12	<b>August 8</b>
South Umpqua R at Tiller	140 cfs	Jun 6	Jun 29	Jul 23	<b>July 11</b>
South Umpqua R at Tiller	90 cfs	Jun 25	Jul 19	Aug 12	<b>August 1</b>
South Umpqua R at Tiller	60 cfs	Jul 18	Aug 20	Sep 21	<b>August 28</b>

\*Dates are based on streamflow data adjusted for releases from Galesville Reservoir to reflect natural flow conditions and do not match observed gage data. There is an approximately 20% chance in any given year that the flow will not recede below 90 cfs; the dates given here are for the event that the flow does recede below 90 cfs.

<b>LAKE COUNTY AND GOOSE LAKE BASINS</b>					
<i>FORECAST POINT</i>	<i>FORECAST THRESHOLD</i>	<i>FORECAST VALUE</i> ----- <i>CHANCE OF EXCEEDING</i> ----- -----			<i>LONG-TERM AVERAGE VALUE</i>
		90%	50%	10%	
Deep Ck ab Adel	100 cfs	May 06	May 29	Jun 21	<b>June 17</b>
Honey Ck nr Plush	100 cfs	Mar 26	May 1	Jun 6	<b>May 16</b>
Honey Ck nr Plush	50 cfs	Apr 9	May 11	Jun 12	<b>June 4</b>
Twentymile Ck nr Adel	50 cfs	Mar 19	Apr 22	May 26	<b>May 30</b>
Twentymile Ck nr Adel	10 cfs	May 21	Jun 18	Jul 16	<b>July 7</b>

<b>HARNEY BASIN</b>					
<i>FORECAST POINT</i>	<i>FORECAST THRESHOLD</i>	<i>FORECAST VALUE</i> ----- <i>CHANCE OF EXCEEDING</i> ----- -----			<i>LONG-TERM AVERAGE VALUE</i>
		90%	50%	10%	
Silvies R nr Burns	400 cfs	Apr 1	Apr 26	May 21	<b>May 21</b>
Silvies R nr Burns	200 cfs	Apr 5	May 2	May 29	<b>June 2</b>
Silvies R nr Burns	100 cfs	Apr 9	May 9	Jun 8	<b>June 13</b>
Silvies R nr Burns	50 cfs	Apr 26	Jun 3	Jul 11	<b>July 3</b>
Donner Und Blitzen R nr Frenchglen	200 cfs	May 11	Jun 2	Jul 24	<b>June 20</b>
Donner Und Blitzen R nr Frenchglen	100 cfs	Jun 1	Jun 22	Jul 13	<b>July 9</b>

# Summary of Snowpack Data

January 2014

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	MEDIAN 81-10
<b>Oregon</b>						
ANEROID LAKE SNOTEL	7400	1/01/14	36	11.4	11.7	9.1
ANNIE SPRING SNOTEL	6010	1/01/14	9	2.2	19.7	17.3
ARBUCKLE MTN SNOTEL	5770	1/01/14	12	4.5	8.7	8.1
BALD PETER	5400	1/02/14	4	1.2	16.8	10.8
BEAR GRASS SNOTEL	4720	1/01/14	8	4.4	28.8	--
BEAVER CREEK #1	4250	12/31/13	0	.0	6.4	--
BEAVER CREEK #2	4250	12/31/13	0	.0	5.2	4.6
BEAVER DAM CREEK	5100	1/02/14	2	.5	7.0	6.3
BEAVER RES. SNOTEL	5150	1/01/14	---	4.2	2.9	4.2
BIG RED MTN SNOTEL	6050	1/01/14	2	.7	14.7	10.0
BIG SHEEP AM	6200	1/01/14	18	5.4	--	--
BIGELOW CAMP SNOTEL	5130	1/01/14	0	.0	11.4	5.1
BILLIE CK DVD SNOTEL	5280	1/01/14	5	1.5	7.7	10.4
BLAZED ALDER SNOTEL	3650	1/01/14	3	2.5	14.9	12.3
BLUE MTN SPGS SNOTEL	5870	1/01/14	11	4.4	5.1	6.9
BOURNE SNOTEL	5850	1/01/14	11	4.1	5.1	6.8
BOWMAN SPRNGS SNOTEL	4530	1/01/14	9	4.6	2.3	3.7
CAMAS CREEK #3	5850	1/02/14	3	.4	4.4	3.9
CASCADE SUM. SNOTEL	5100	1/01/14	12	4.2	17.1	14.1
CHEMULT ALT SNOTEL	4850	1/01/14	2	.8	4.5	4.6
CLACKAMAS LK. SNOTEL	3400	1/01/14	1	.2	5.0	5.4
CLEAR LAKE SNOTEL	3810	1/01/14	0	.0	5.1	6.3
COLD SPRINGS SNOTEL	5940	1/01/14	7	1.9	11.4	14.0
COUNTY LINE SNOTEL	4830	1/01/14	3	2.0	1.6	2.4
CRAZYMAN FLAT SNOTEL	6180	1/01/14	1	.4	8.4	8.4
DALY LAKE SNOTEL	3690	1/01/14	0	.0	9.0	6.8
DEADWOOD JUNCTION	4600	1/02/14	1	.3	5.9	4.2
DERR SNOTEL	5850	1/01/14	7	1.7	7.2	5.7
DIAMOND LAKE SNOTEL	5280	1/01/14	3	1.5	8.4	6.6
EAST EAGLE	4400	12/31/13	16	2.4	2.4	8.7
EILERTSON SNOTEL	5510	1/01/14	5	1.7	3.1	4.8
EMIGRANT SPGS SNOTEL	3800	1/01/14	4	1.8	1.9	3.3
FISH CREEK SNOTEL	7660	1/01/14	21	3.9	15.3	10.5
FISH LK. SNOTEL	4660	1/01/14	4	2.3	6.8	5.1
FOURMILE LAKE SNOTEL	5970	1/01/14	6	2.5	10.4	13.4
GERBER RES SNOTEL	4890	1/01/14	1	.3	1.8	1.2
GOLD CENTER SNOTEL	5410	1/01/14	10	3.0	4.7	4.7
GOVT CORRALS AM	7450	1/01/14	9	2.1	--	--
GREENPOINT SNOTEL	3310	1/01/14	0	.0	9.1	9.2
HART MOUNTAIN AM	6350	1/01/14	0	.0	--	--
HIGH RIDGE SNOTEL	4920	1/01/14	19	6.0	8.4	11.0
HOGG PASS SNOTEL	4790	1/01/14	4	1.8	16.4	11.6
HOLLAND MDWS SNOTEL	4930	1/01/14	0	.0	12.3	10.8
HOWARD PRAIRIE	4500	1/02/14	1	.1	5.1	3.1
IRISH-TAYLOR SNOTEL	5540	1/01/14	18	6.5	15.4	14.6
JUMP OFF JOE SNOTEL	3520	1/01/14	0	.0	7.7	5.2
KING MTN #1	4500	12/31/13	0	.0	14.3	2.2
KING MTN #2 SNOTEL	4340	1/01/14	0	.0	12.1	1.5
KING MTN #3	3650	12/31/13	0	.0	7.0	.0
KING MTN #4	3050	12/31/13	0	.0	3.7	.0
LAKE CK R.S. SNOTEL	5240	1/01/14	3	1.4	2.5	4.8
LITTLE MEADOW SNOTEL	4020	1/01/14	2	1.5	16.6	10.8
LUCKY STRIKE SNOTEL	4970	1/01/14	8	3.0	3.0	3.9
MADISON BUTTE SNOTEL	5150	1/01/14	5	1.5	4.6	2.7
MARION FORKS SNOTEL	2590	1/01/14	0	.0	6.7	3.8
MCKENZIE SNOTEL	4770	1/01/14	15	5.7	17.1	18.5
MILKSHAKES SNOTEL	5580	1/01/14	35	10.6	17.4	--
MILLER WOODS SNOTEL	420	1/01/14	0	.0	.0	--

SNOW COURSE		ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	MEDIAN 81-10
<b>Oregon (continued)</b>							
MOSS SPRINGS	SNOTEL	5760	1/01/14	37	10.6	6.6	10.2
MT HOOD		5370	12/31/13	28	12.4	29.8	25.0
MT HOOD TEST	SNOTEL	5370	1/01/14	24	10.4	24.3	25.3
MT HOWARD	SNOTEL	7910	1/01/14	34	11.4	8.3	7.5
MUD RIDGE	SNOTEL	4070	1/01/14	7	2.7	11.6	11.0
NEW CRESCENT	SNOTEL	4910	1/01/14	5	1.6	6.9	6.1
NORTH FK RES	SNOTEL	3060	1/01/14	2	1.2	15.7	6.8
OCHOCO MEADOW	SNOTEL	5430	1/01/14	5	1.9	4.6	4.4
PARK H.Q. REV		6550	1/03/14	21	6.4	29.4	20.6
PATTON MEADOWS	AM	6800	1/01/14	5	1.4	--	--
PEAVINE RIDGE	SNOTEL	3420	1/01/14	0	.0	7.1	6.3
QUARTZ MTN	SNOTEL	5720	1/01/14	0	.0	1.6	.9
RACING CREEK		4800	1/02/14	0	.0	6.8	6.0
R.R. OVERPASS	SNOTEL	2680	1/01/14	0	.0	1.5	.0
RED BUTTE #1		4560	12/30/13	2	.3	10.7	4.6
RED BUTTE #2		4000	12/30/13	0	.0	6.5	1.1
RED BUTTE #3		3500	12/30/13	0	.0	6.5	.4
RED BUTTE #4		3000	12/30/13	0	.0	1.0	.0
RED HILL	SNOTEL	4410	1/01/14	8	4.0	20.6	18.7
ROARING RIVER	SNOTEL	4950	1/01/14	6	2.5	14.4	12.6
ROCK SPRINGS	SNOTEL	5290	1/01/14	3	.6	1.9	1.9
ROGGER MEADOWS	AM	6500	1/01/14	5	1.4	--	--
SADDLE MTN	SNOTEL	3110	1/01/14	0	.0	14.8	--
SALT CK FALLS	SNOTEL	4220	1/01/14	4	1.5	8.4	8.6
SANTIAM JCT.	SNOTEL	3740	1/01/14	0	.0	10.8	9.0
SCHNEIDER MDW	SNOTEL	5400	1/01/14	19	4.8	9.2	12.3
SEINE CREEK	SNOTEL	2060	1/01/14	0	.0	3.3	.0
SEVENMILE MARSH SNTL		5700	1/01/14	6	1.9	10.8	12.5
SHERMAN VALLEY	AM	6600	1/01/14	4	1.1	--	--
SILVER BURN		3720	1/03/14	4	1.3	7.0	5.3
SILVER CREEK	SNOTEL	5740	1/01/14	5	1.6	5.0	4.0
SILVIES	SNOTEL	6990	1/01/14	11	2.5	4.0	5.3
SISKIYOU SUMMIT REV		4630	12/30/13	0	.0	7.1	2.3
SMITH RIDGE	SNOTEL	3330	1/01/14	0	.0	9.3	--
SNOW MTN	SNOTEL	6220	1/01/14	6	1.5	3.3	3.3
SF BULL RUN	SNOTEL	2690	1/01/14	0	.0	8.3	.5
STARR RIDGE	SNOTEL	5250	1/01/14	4	1.4	2.6	2.8
STRAWBERRY	SNOTEL	5770	1/01/14	0	.0	2.9	2.2
SUMMER RIM	SNOTEL	7080	1/01/14	11	2.8	6.9	7.2
SUMMIT LAKE	SNOTEL	5610	1/01/14	14	4.9	17.8	16.3
SUN PASS	SNOTEL	5400	1/01/14	3	1.3	7.7	--
TAYLOR BUTTE	SNOTEL	5030	1/01/14	2	.4	3.7	3.6
TAYLOR GREEN	SNOTEL	5740	1/01/14	22	3.2	5.8	7.7
THREE CK MEAD	SNOTEL	5690	1/01/14	3	1.7	8.4	6.9
TIPTON	SNOTEL	5150	1/01/14	4	1.1	3.6	5.1
TOKETEE AIRSTRIP SN		3240	1/01/14	3	1.4	3.9	1.3
TROUT CREEK	AM	7800	1/01/14	8	1.8	--	--
TV RIDGE #2	AM	7000	1/01/14	13	4.0	--	--
V LAKE	AM	6600	1/01/14	4	.9	--	--
WOLF CREEK	SNOTEL	5630	1/01/14	15	4.1	4.6	6.0
<b>California</b>							
ADIN MTN	SNOTEL	6190	1/01/14	1	.5	5.9	4.7
CEDAR PASS	SNOTEL	7030	1/01/14	8	2.2	6.3	6.5
CROWDER FLAT	SNOTEL	5170	1/01/14	1	.4	3.3	1.6
DISMAL SWAMP	SNOTEL	7360	1/01/14	12	3.2	13.3	9.3
<b>Idaho</b>							
MUD FLAT	SNOTEL	5730	1/01/14	7	.9	2.2	2.6
SOUTH MTN	SNOTEL	6500	1/01/14	6	2.3	4.5	6.2

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	MEDIAN 81-10
<b>Nevada</b>						
BEAR CREEK SNOTEL	7800	1/01/14	16	4.1	6.5	7.9
BIG BEND SNOTEL	6700	1/01/14	6	1.8	3.2	3.0
BUCKSKIN,L SNOTEL	6700	1/01/14	15	1.9	3.3	3.3
DISASTER PEAK SNOTEL	6500	1/01/14	4	.9	3.6	2.6
FAWN CREEK SNOTEL	7050	1/01/14	18	3.3	4.6	5.9
GRANITE PEAK SNOTEL	7800	1/01/14	17	2.6	8.4	7.0
JACK CREEK, U SNOTEL	7280	1/01/14	19	3.9	3.1	5.4
LAMANCE CREEK SNOTEL	6000	1/01/14	7	1.4	3.1	3.6
LAUREL DRAW SNOTEL	6700	1/01/14	10	2.3	3.2	4.1
SEVENTYSIX CK SNOTEL	7100	1/01/14	10	1.6	2.9	3.7
TAYLOR CANYON SNOTEL	6200	1/01/14	5	1.3	2.0	1.5

# Basin Outlook Reports: How Forecasts Are Made

## Federal – State – Private Cooperative Snow Surveys

*For more water supply and resource management information, contact:*

**USDA, Natural Resources Conservation Service  
Snow Survey Office  
1201 NE Lloyd Suite 900  
Portland, OR 97232**

**Phone: (503) 414-3270**

**Web site: <http://www.or.nrcs.usda.gov/snow/index.html>**

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 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 prepare 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.

# Interpreting Water Supply Forecasts

Each month, five forecasts are issued for each forecast point and each forecast period. Unless otherwise specified, all streamflow forecasts are for streamflow volumes that would occur naturally without any upstream influences. Water users need to know what the different forecasts represent if they are to use the information correctly when making operational decisions. The following is an explanation of each of the forecasts.

**90 Percent Chance of Exceedance Forecast.** There is a 90 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 10 percent chance that the actual streamflow volume will be less than this forecast value.

**70 Percent Chance of Exceedance Forecast.** There is a 70 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 30 percent chance that the actual streamflow volume will be less than this forecast value.

**50 Percent Chance of Exceedance Forecast.** There is a 50 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 50 percent chance that the actual streamflow volume will be less than this forecast value. Generally, this forecast is the middle of the range of possible streamflow volumes that can be produced given current conditions.

**30 Percent Chance of Exceedance Forecast.** There is a 30 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 70 percent chance that the actual streamflow volume will be less than this forecast value.

**10 Percent Chance of Exceedance Forecast.** There is a 10 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 90 percent chance that the actual streamflow volume will be less than this forecast value.

\*Note: There is still a 20 percent chance that actual streamflow volumes will fall either below the 90 percent exceedance forecast or above the 10 percent exceedance forecast.

These forecasts represent the uncertainty inherent in making streamflow predictions. This uncertainty may include sources such as: unknown future weather conditions, uncertainties associated with the various prediction methodologies, and the spatial coverage of the data network in a given basin.

**30-Year Average.** The 30-year average streamflow for each forecast period is provided for comparison. The average is based on data from 1981-2010. The % AVG. column compares the 50% chance of exceedance forecast to the 30-year average streamflow; values above 100% denote when the 50% chance of exceedance forecast would be greater than the 30-year average streamflow.

AF - Acre-feet, forecasted volume of water are typically in thousands of acre-feet.

These forecasts are given to users to help make risk-based decisions. Users can select the forecast corresponding to the level of risk they are willing to accept in order to minimize the negative impacts of having more or less water than planned for.

**To Decrease the Chance of Having Less Water than Planned for:** A user might determine that making decisions based on a 50 percent chance of exceedance forecast is too much risk to take (there is still a 50% chance that the user will receive less than this amount). To reduce the risk of having less water than planned for, users can base their operational decisions on one of the forecasts with a greater chance of being exceeded such as the 90 or 70 percent exceedance forecasts.

**To Decrease the Chance of Having More Water than Planned for:** A user might determine that making decisions based on a 50 percent chance of exceedance forecast is too much risk to take (there is still a 50% chance that the user will receive more than this amount). To reduce the risk of having more water than planned for, users can base their operational decisions on one of the forecasts with a lesser chance of being exceeded such as the 30 or 10 percent exceedance forecasts.

## Using the Forecasts - an Example

**Using the 50 Percent Exceedance Forecast.** Using the example forecasts shown on the next page, there is a 50% chance that actual streamflow volume at the Mountain Creek near Mitchell will be less than 4.4 KAF between April 1 and Sept 30. There is also a 50% chance that actual streamflow volume will be greater than 4.4 KAF.

**Using the 90 and 70 Percent Exceedance Forecasts.** If an unexpected shortage of water could cause problems (such as irrigated agriculture), users might want to plan on receiving 3.3 KAF (from the 70 percent exceedance forecast). There is a 30% chance of receiving *less* than 3.3 KAF.

Alternatively, if users determine the risk of using the 70 percent exceedance forecast is too great, then they might plan on receiving 1.7 KAF (from the **90** percent exceedance forecast). There is 10% chance of receiving less than 1.7 KAF.

**Using the 30 or 10 Percent Exceedance Forecasts.** If an unexpected excess of water could cause problems (such as operating a flood control reservoir), users might plan on receiving 5.5 KAF (from the 30 percent exceedance forecast). There is a 30% chance of receiving *more* than 5.5 KAF.

Alternatively, if users determine the risk of using the 30 percent exceedance forecast is too great, then they might plan on receiving 7.1 KAF (from the 10 percent exceedance forecast). There is a 10% chance of receiving more than 7.1 KAF.

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**JOHN DAY BASIN**  
**Streamflow Forecasts - February 1, 2013**

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Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>				30-Yr Avg. (1000AF)		
		Chance Of Exceeding *		Chance Of Exceeding *				
		90% (1000AF)	70% (1000AF)	50% (1000AF) (% AVG.)	30% (1000AF)	10% (1000AF)		
Strawberry Ck nr Prairie City	MAR-JUL	5.0	6.6	7.6	89	8.6	10.2	8.5
	APR-SEP	5.2	6.8	7.9	90	9.0	10.6	8.8
Mountain Ck nr Mitchell	FEB-JUL	3.2	5.4	6.9	99	8.4	10.6	7.0
	APR-SEP	1.7	3.3	4.4	90	5.5	7.1	4.9

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

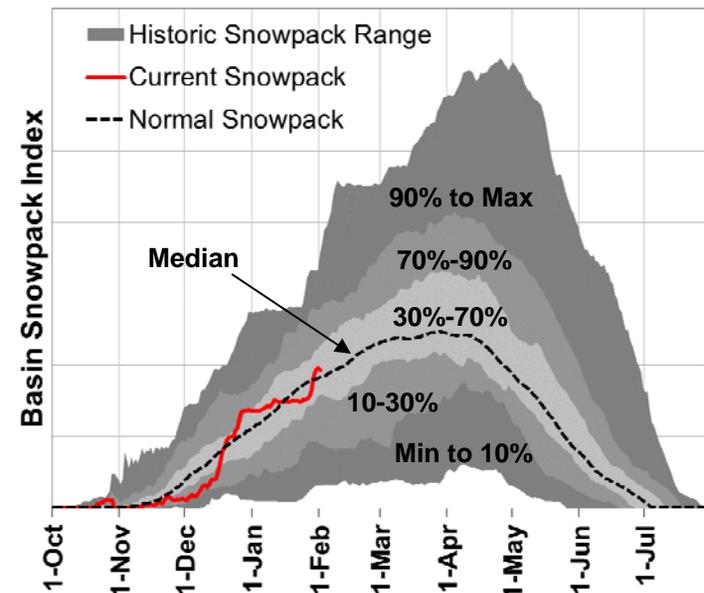
## Interpreting Snowpack Plots

The basin snowpack plots use daily SNOTEL data to show how the current year's snowpack data compares to historic snowpack data in the basin. The "Current Snowpack" line can be compared with the "Normal Snowpack" (median) line, as well as the historic range for the basin. This gives users important context about the current year and historic variability of snowpack in the basin.

The basin snowpack index is calculated using many sites in each basin. The dark gray shading indicates the historic range of the basin snowpack index, from minimum to maximum for the period of record. The medium gray shading indicates the 10% to 90% range of the basin snowpack index, while the light gray shading indicates the 30% to 70% range of the basin snowpack index. For instance, the 90% line indicates that the snowpack index has been below this line for 90% of the years of record.

\*\* Please note: These plots only use daily data from SNOTEL sites in the basin. Because snow course data is collected monthly, it cannot be included in these plots. The official snowpack percent of normal for the basin incorporates both SNOTEL and snow course data, so occasionally there might be slight discrepancies between the plot and official basin percent of normal (stated in basin summary below each plot).

### Mountain Snowpack



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Official Business



This publication may be found online at:  
<http://www.or.nrcs.usda.gov/snow/watersupply/>

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