



United States
Department of
Agriculture



Natural Resources
Conservation
Service

Oregon Basin Outlook Report

February 1st, 2016



Measuring the snow at East Eagle snow course

Photo courtesy of Brandi Sangster (Snow Surveyor, Halfway, OR)

Six-year-old Bailey, the youngest member of Oregon's cooperative snow surveyor team, helped measure the February 1st snowpack at East Eagle snow course in the Wallowa Mountains. She measured 21 inches of snow water content stored in the 69 inch deep snowpack. She is 44 inches tall, which means that the snowpack would tower over her by nearly two feet. Currently, East Eagle snow course is at 144% of normal, while the snowpack of the Grande Ronde, Powder, Burnt and Imnaha basins sits at 115% of normal. All of Oregon's mountains are holding onto a near normal to well above normal snowpack as of February 1st.

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General Outlook

February 1st, 2016

SUMMARY

Despite one of the strongest El Niño events on record, 2016 started off with a 2nd consecutive month of abundant mountain snowpack across Oregon. In a typical El Niño year, warmer temperatures prevail and the northern half of Oregon is cut-off from Pacific storms, but this is not always the case as this winter has proven so far. While the snowpack is in good shape for the moment, we are only about halfway through the typical snow accumulation period. Additional cold storm cycles are needed to ensure that the snowpack remains normal to above normal as we approach the typical winter peak in March and April.

The summer streamflow forecasts look very promising as of February 1st, calling for normal to well above normal streamflows for the summer water supply season. This is a very welcome change after the state was dealt record low snowpacks and well below normal streamflows last year. Many of the major irrigation reservoirs are still reporting well below normal storage levels, which is one factor that is continuing the drought status demarcated in parts of southern and eastern Oregon by the US Drought Monitor: <http://droughtmonitor.unl.edu/>. NOAA's Climate Prediction Center (CPC) calls for the general weather conditions to bring above normal temperatures for the next three months: <http://www.cpc.ncep.noaa.gov/>. Even amidst the predicted overall warm weather pattern, there is room for individual, cold storms to bring more snow to the mountains.

SNOWPACK

Storms continued to blanket Oregon's mountains with snow in January, including a cold system that brought snow all the way down to valley floor levels early in the month. All but a handful of measurement sites in the state are reporting normal to above normal snowpack levels as of February 1st. Looking at more than 30 years of SNOTEL records, there have been 16 years where February 1st yielded a normal to above normal state-wide snowpack. Out of those 16 years, there have only been three years when the snowpack ended up below normal by April 1st. That means that the grand majority of those years with a good February 1st snowpack resulted in a normal to above normal snowpack by the peak of the season. In summary, water managers should be cautiously optimistic about the current state-wide snowpack and water supply outlook. The mountain temperatures for February and March will determine whether mountain precipitation continues to fall as snow or turns to rain, which will have a large impact on the summer water supply picture.

Parts of southern and eastern Oregon have experienced a challenging multi-year drought and it is refreshing to see that the snowpack in these regions is the highest in the state. In this region, the snowpack ranges from 141% of normal in the John Day to 149% of normal in the mountains of the Harney basin. Additionally, the current snowpack at many sites in this area is close to or has already surpassed the normal peak snow levels that are typically not met until springtime. While the current snowpack in these parts of the state does not erase the cumulative effects of drought, it certainly does offer significant relief for the water supply outlook.

PRECIPITATION

Since the water year began on October 1st, the state has been wet and all of Oregon's mountains have experienced above average amounts of precipitation. As of February 1st, water year to date precipitation ranges from 103% of average in the Umatilla, Walla Walla and Willow basins to 131% of average in the Rogue and Umpqua basins, the most consistently wet region this winter.

As for the month of January, the northern half of Oregon received below average amounts while the rest of the state experienced another month of above average precipitation. January's lighter contribution in northern Oregon was still enough to keep the overall water year precipitation at above average amounts. The lowest amount of January precipitation fell in the Umatilla, Walla Walla and Willow basins at 83% of average and the wettest basins were Lake County and Goose Lake, where 143% of average precipitation fell during the month.

RESERVOIRS

Most of Oregon's major irrigation reservoirs are storing below average amounts as of the end of January. The southeast corner of the state has been hit the hardest with a multi-year drought, resulting in current reservoir storage volumes of less than 30% of average. Lake Owyhee and Warm Springs Reservoirs in the Owyhee and Malheur basins as well as Cottonwood Reservoir in Lake County are among the lowest in the state. Reservoir operators are watching the current conditions closely and planning to capture the spring snowmelt as efficiently as possible.

Other reservoirs in western Oregon are being managed appropriately to balance flood control operations with summer time water supply needs. Some of the reservoirs in this part of the state are storing near average to above average amounts as of the end of January.

STREAMFLOW

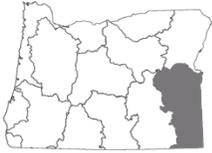
Streams and rivers in southwestern Oregon had a second month in a row of well above average streamflow. The Rogue and Umpqua basins had above average January precipitation and lower elevation snowmelt which contributed to the higher streamflows. Elsewhere in the state, January streamflow was near average in most basins.

The February 1st streamflow forecasts call for near average to well above average volumes for the summer water supply season. Some of the highest forecasts are in southeastern Oregon, where the snowpack is the highest with respect to the normal amounts. If water users prefer to plan conservatively, then it is advised to use the 70% chance of exceedance forecasts provided in the individual basin tables in this report.

A summary of streamflow forecasts for Oregon follows:

| STREAM | Median Forecast (April through September) | |
|-----------------------------|--|-------------------------------|
| | Volume (Acre-Feet) | Percent of Average |
| Owyhee Reservoir Inflow | 555,000 | 137 |
| Grande Ronde R at Troy | 1,380,000 | 105 |
| Umatilla R at Pendleton | 175,000 | 114 |
| Deschutes R at Benham Falls | 545,000 | 112 |
| Willamette R at Salem | 5,280,000 | 112 |
| Rogue R at Raygold | 1,000,000 | 124 |
| Upper Klamath Lake Inflow | 485,000 | 101 |
| Silvies R nr Burns | 170,000 | 185 |

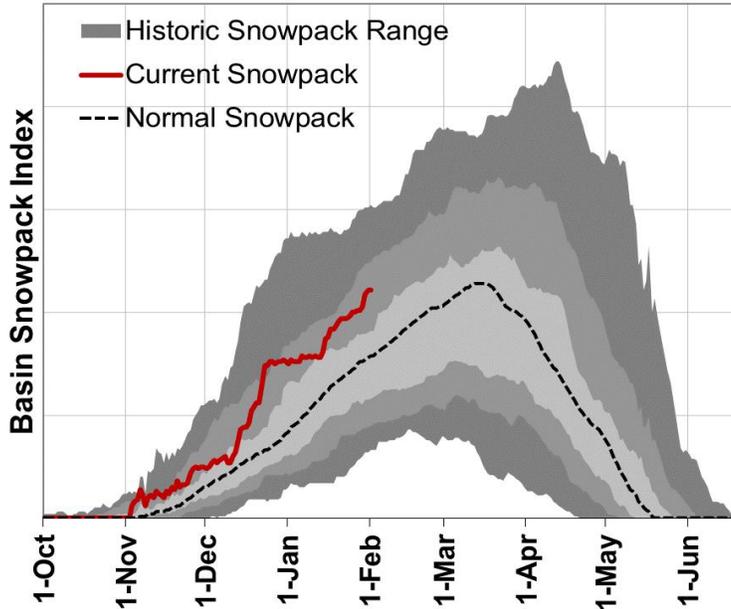
Some of these forecasts assume that normal weather conditions will occur from now to the end of the forecast period. This report contains data furnished by the Oregon Department of Water Resources, U.S. Geological Survey, NOAA National Weather Service and other cooperators. This report will be updated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



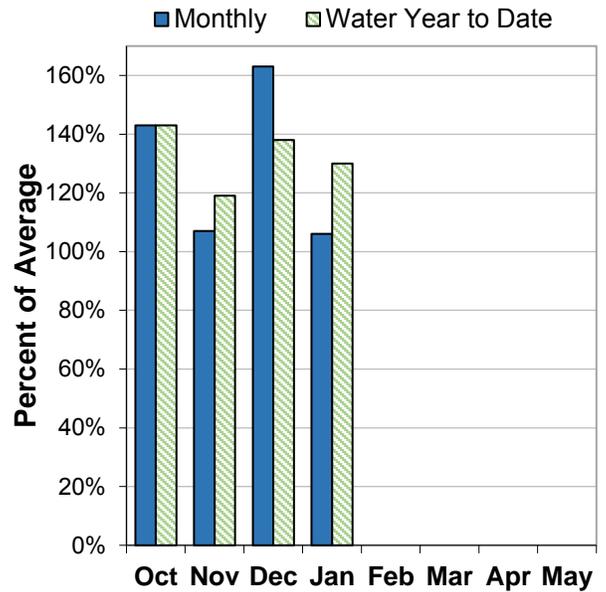
Owyhee and Malheur Basins

February 1, 2016

Mountain Snowpack



Basin Precipitation



Summary of Water Supply Conditions

SNOWPACK

As of February 1, the basin snowpack was 143% of normal. The snowpack in this basin has already reached its normal peak amount for the season. Rock Springs SNOTEL recorded the second highest February 1 snowpack since records began in 1981. The site had 7.2 inches of snow water content, 26 inches of snow depth and was 153% of normal.

PRECIPITATION

January precipitation was 106% of average. Precipitation since the beginning of the water year (October 1 - February 1) has been 130% of average.

RESERVOIR

Reservoir storage across the basin is currently well below average. As of February 1, storage at major reservoirs in the basin ranges from 23% of average at Warm Springs Reservoir to 66% of average at Bully Creek Reservoir.

STREAMFLOW FORECAST

As of February 1, summer streamflow forecasts in the basin range from 137% to 144% of average. Overall, forecasts increased significantly from last month's report. If conditions remain similar, streamflows in the basin are likely to be well above normal this summer.

Owyhee And Malheur Basins Summary for February 1, 2016

| Forecast Exceedance Probabilities for Risk Assessment * | | | | | | | | |
|--|----------------------------|--|----------------------|----------------------|--------------|----------------------|----------------------|--------------------------|
| Streamflow Forecasts February 1, 2016 | Forecast Period | ←-----Drier-----Future Conditions-----Wetter-----→ | | | | | | Average (KAF) |
| | | 90% (KAF) | 70% (KAF) | 50% (KAF) | % Avg | 30% (KAF) | 10% (KAF) | |
| Owyhee R nr Rome | FEB-JUL | 580 | 770 | 905 | 156% | 1040 | 1230 | 580 |
| | FEB-SEP | 595 | 790 | 925 | 155% | 1060 | 1260 | 595 |
| | APR-SEP | 285 | 430 | 525 | 144% | 620 | 765 | 365 |
| Owyhee R bl Owyhee Dam ² | FEB-JUL | 585 | 795 | 955 | 150% | 1130 | 1420 | 635 |
| | FEB-SEP | 615 | 825 | 990 | 149% | 1160 | 1450 | 665 |
| | APR-SEP | 315 | 450 | 555 | 137% | 675 | 870 | 405 |
| Malheur R nr Drewsey | FEB-JUL | 107 | 142 | 169 | 132% | 199 | 245 | 128 |
| | APR-JUL | 50 | 77 | 99 | 132% | 124 | 165 | 75 |
| | APR-SEP | 62 | 86 | 104 | 141% | 125 | 158 | 74 |
| NF Malheur R at Beulah | FEB-JUL | 79 | 107 | 129 | 152% | 153 | 191 | 85 |

* 90%, 70%, 50%, 30% & 10% exceedance probabilities are the chance that observed streamflow volume will exceed the forecasted volume
 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

| Reservoir Storage | Useable Capacity | | | | |
|--------------------------|--------------------------|----------------------------|--------------------------|-------------------------|--------------|
| | Current (KAF) | Last Year (KAF) | Average (KAF) | % of Average | (KAF) |
| Beulah | 14.2 | 17.4 | 26.0 | 55% | 59.2 |
| Bully Creek | 8.3 | 6.7 | 12.5 | 66% | 23.7 |
| Lake Owyhee | 98.1 | 119.7 | 345.3 | 28% | 715.0 |
| Warm Springs | 15.8 | 18.7 | 68.5 | 23% | 169.6 |

| Snowpack Summary by Basin | Basin Snowpack % of Median | | |
|----------------------------------|---------------------------------------|-------------------|----------------|
| | # of Sites | Current Yr | Last Yr |
| East Little Owyhee Basin | 7 | 166% | 33% |
| South Fork Owyhee Basin | 6 | 151% | 74% |
| Upper Malheur Basin | 4 | 136% | 63% |
| Upper Owyhee Basin | 5 | 151% | 82% |

Owyhee And Malheur Basins Summary for February 1, 2016

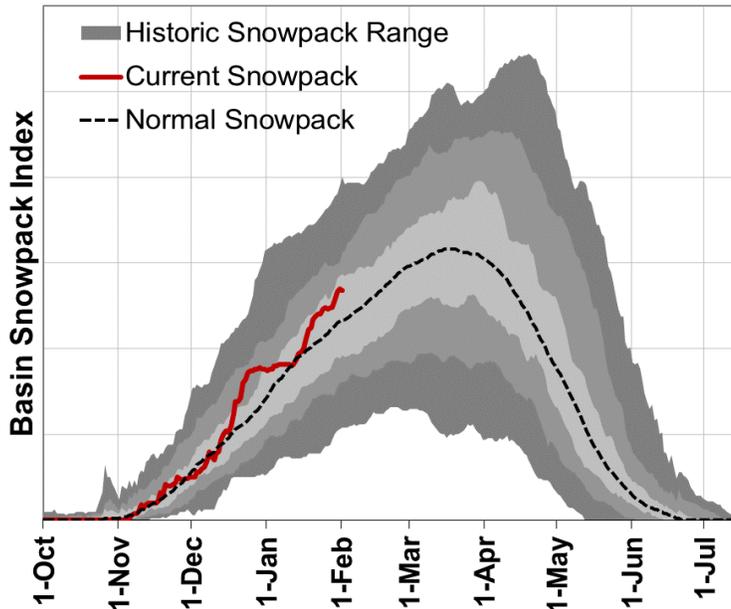
| Basin Snowpack Measurement Sites | Elevation (ft) | Date Measured | Depth (in) | Snow Water Equivalent (in) | | | |
|------------------------------------|----------------|---------------|------------|----------------------------|-------------|--------|-------------|
| | | | | Current SWE | Last Yr SWE | Median | % of Median |
| Granite Peak SNOTEL | 8543 | 1-Feb | 60 | 17.3 | 8.3 | 12.1 | 143% |
| Trout Creek AM | 7890 | 1-Feb | 31 | 9.0 | 7.6 | 8.2 | 110% |
| Toe Jam SNOTEL | 7700 | 1-Feb | 51 | 15.3 | 8.7 | | |
| Govt Corrals AM | 7400 | 1-Feb | 36 | 10.4 | 7.4 | 7.5 | 139% |
| Jack Creek Upper SNOTEL | 7250 | 1-Feb | 53 | 15.4 | 10.0 | 9.4 | 164% |
| Dobson Creek Snow Course | 7084 | 2-Feb | 64 | 21.0 | 13.6 | 17.0 | 124% |
| Reynolds-Dobson Divide Snow Course | 7064 | 2-Feb | 63 | 19.9 | 12.9 | 15.0 | 133% |
| Fawn Creek SNOTEL | 7000 | 1-Feb | 56 | 15.9 | 10.2 | 10.2 | 156% |
| Merritt Mountain AM | 7000 | 27-Jan | 20 | 5.4 | 1.0 | 4.7 | 115% |
| Buckskin Lower SNOTEL | 6915 | 1-Feb | 38 | 11.4 | 1.8 | 6.5 | 175% |
| Reynolds West Fork #2 Snow Course | 6798 | 2-Feb | 63 | 19.2 | 14.1 | 15.2 | 126% |
| Gold Creek Snow Course | 6707 | 27-Jan | 25 | 6.8 | 2.0 | 4.2 | 162% |
| Big Bend SNOTEL | 6700 | 1-Feb | 32 | 10.7 | 4.8 | 5.5 | 195% |
| Fry Canyon SNOTEL | 6700 | 1-Feb | 25 | 5.8 | 0.0 | | |
| Fry Canyon Snow Course | 6700 | 27-Jan | 26 | 7.0 | 1.6 | 6.2 | 113% |
| Laurel Draw SNOTEL | 6697 | 1-Feb | 34 | 9.5 | 5.5 | 7.7 | 123% |
| Columbia Basin AM | 6650 | 27-Jan | 35 | 9.5 | 3.3 | 7.8 | 122% |
| Red Canyon AM | 6600 | 2-Feb | 27 | 8.1 | 0.8 | 6.3 | 129% |
| Louse Canyon AM | 6530 | 2-Feb | 29 | 8.1 | 0.0 | 4.2 | 193% |
| South Mtn. SNOTEL | 6500 | 1-Feb | 40 | 12.7 | 6.3 | 11.5 | 110% |
| Succor Creek AM | 6310 | 2-Feb | 27 | 8.6 | 2.0 | 7.4 | 116% |
| Quinn Ridge AM | 6270 | 2-Feb | 20 | 5.6 | 0.0 | 2.0 | 280% |
| Taylor Canyon SNOTEL | 6200 | 1-Feb | 29 | 7.6 | 0.0 | 4.0 | 190% |
| Blue Mountain Spring SNOTEL | 5870 | 1-Feb | 53 | 14.8 | 8.0 | 11.2 | 132% |
| Vaught Ranch AM | 5850 | 2-Feb | 16 | 4.0 | 0.0 | 4.0 | 100% |
| Barney Creek (New) Snow Course | 5830 | 1-Feb | 36 | 8.8 | 3.7 | | |
| Lookout Butte AM | 5740 | 2-Feb | 6 | 1.5 | 0.0 | 0.2 | 750% |
| Mud Flat SNOTEL | 5730 | 1-Feb | 22 | 5.6 | 0.7 | 5.1 | 110% |
| Battle Creek AM | 5710 | 2-Feb | 13 | 3.3 | 0.0 | 3.2 | 103% |
| Boulder Creek AM | 5710 | 1-Feb | 15 | 3.9 | | 2.9 | 134% |
| Democrat Creek Snow Course | 5686 | 2-Feb | 36 | 10.8 | 3.6 | 7.8 | 138% |
| Reynolds Creek SNOTEL | 5600 | 1-Feb | | 9.0 | 0.6 | 2.8 | 321% |
| Bull Basin AM | 5460 | 2-Feb | 13 | 3.3 | 0.0 | 2.1 | 157% |
| Dooley Mountain Snow Course | 5440 | 2-Feb | 35 | 9.0 | 3.2 | 6.6 | 136% |
| Call Meadows AM | 5380 | 1-Feb | 34 | 8.8 | | 3.6 | 244% |
| Bully Creek AM | 5300 | 1-Feb | 16 | 4.2 | | 2.9 | 145% |
| Rock Springs SNOTEL | 5290 | 1-Feb | 26 | 7.2 | 1.9 | 4.7 | 153% |
| Lake Creek R.S. SNOTEL | 5240 | 1-Feb | 39 | 11.5 | 6.4 | 9.4 | 122% |
| Flag Prairie AM | 4720 | 1-Feb | 32 | 8.3 | | 4.8 | 173% |
| Eldorado Pass Snow Course | 4630 | 2-Feb | 25 | 4.6 | 1.5 | 2.8 | 164% |



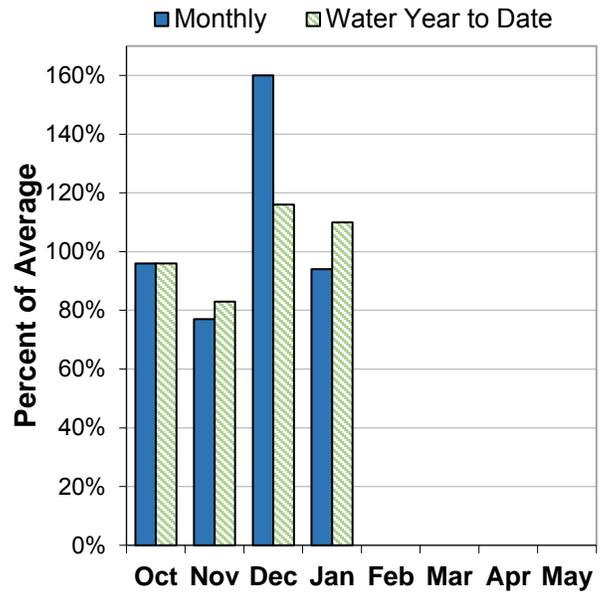
Grande Ronde, Powder, Burnt and Imnaha Basins

February 1, 2016

Mountain Snowpack



Basin Precipitation



Summary of Water Supply Conditions

SNOWPACK

As of February 1, the basin snowpack was 114% of normal. The snowpack in this basin has reached approximately 75% of its normal peak amount for the season.

PRECIPITATION

January precipitation was 94% of average. Precipitation since the beginning of the water year (October 1 - February 1) has been 110% of average.

RESERVOIR

As of February 1, storage at major reservoirs in the basin ranges from 14% of average at Phillips Lake to 122% of average at Wallowa Lake.

STREAMFLOW FORECAST

As of February 1, summer streamflow forecasts in the basin range from 94% to 130% of average. If conditions remain similar, water supplies in the basin are likely to be near normal to well above normal this summer.

Grande Ronde, Powder, Burnt And Imnaha Basins Summary for February 1, 2016

| Forecast Exceedance Probabilities for Risk Assessment * | | | | | | | | |
|--|----------------------------|--|----------------------|----------------------|--------------|----------------------|----------------------|--------------------------|
| Streamflow Forecasts February 1, 2016 | Forecast Period | ←-----Drier-----Future Conditions-----Wetter-----→ | | | | | | Average (KAF) |
| | | 90% (KAF) | 70% (KAF) | 50% (KAF) | % Avg | 30% (KAF) | 10% (KAF) | |
| Burnt R nr Hereford | FEB-JUL | 42 | 55 | 65 | 127% | 76 | 93 | 51 |
| | APR-SEP | 25 | 36 | 45 | 129% | 55 | 71 | 35 |
| Deer Ck nr Sumpter | FEB-JUL | 16.8 | 20 | 22 | 112% | 25 | 28 | 19.7 |
| Powder R nr Sumpter | FEB-JUL | 63 | 77 | 86 | 128% | 95 | 109 | 67 |
| | APR-JUL | 48 | 60 | 68 | 128% | 76 | 88 | 53 |
| | APR-SEP | 49 | 61 | 70 | 130% | 78 | 91 | 54 |
| Wolf Ck Reservoir Inflow ² | MAR-JUN | 14.6 | 18.0 | 20 | 110% | 23 | 26 | 18.1 |
| Pine Ck nr Oxbow | FEB-JUL | 163 | 205 | 230 | 105% | 260 | 300 | 220 |
| | APR-JUL | 114 | 142 | 162 | 103% | 181 | 210 | 157 |
| | APR-SEP | 119 | 148 | 168 | 103% | 188 | 215 | 163 |
| Imnaha R at Imnaha | APR-JUL | 199 | 245 | 275 | 108% | 310 | 355 | 255 |
| | APR-SEP | 215 | 265 | 300 | 107% | 335 | 380 | 280 |
| Catherine Ck nr Union | APR-JUL | 52 | 60 | 65 | 108% | 71 | 79 | 60 |
| | APR-SEP | 55 | 64 | 69 | 108% | 75 | 84 | 64 |
| Lostine R nr Lostine | APR-JUL | 94 | 102 | 107 | 101% | 113 | 121 | 106 |
| | APR-SEP | 100 | 109 | 115 | 100% | 122 | 131 | 115 |
| Bear Ck nr Wallowa | APR-SEP | 48 | 56 | 61 | 94% | 66 | 74 | 65 |
| Grande Ronde R at Troy ¹ | MAR-JUL | 1280 | 1470 | 1600 | 106% | 1730 | 1920 | 1510 |
| | APR-SEP | 1060 | 1250 | 1380 | 105% | 1510 | 1700 | 1310 |

* 90%, 70%, 50%, 30% & 10% exceedance probabilities are the chance that observed streamflow volume will exceed the forecasted volume

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

| Reservoir Storage | Useable Capacity | | | | |
|--------------------------|--------------------------|----------------------------|--------------------------|-------------------------|--------------|
| | Current (KAF) | Last Year (KAF) | Average (KAF) | % of Average | (KAF) |
| Phillips Lake | 4.6 | 16.5 | 32.0 | 14% | 73.5 |
| Thief Valley | 9.7 | 13.9 | 12.4 | 78% | 13.3 |
| Unity | 8.2 | 9.8 | 11.7 | 70% | 25.5 |
| Wallowa Lake | 18.5 | 25.6 | 15.1 | 122% | 37.5 |
| Wolf Creek | 1.7 | 2.8 | 2.8 | 62% | 11.1 |

Grande Ronde, Powder, Burnt And Innaha Basins Summary for February 1, 2016

| Snowpack Summary by Basin | Basin Snowpack % of Median | | |
|---------------------------|-------------------------------|------------|---------|
| | # of Sites | Current Yr | Last Yr |
| Burnt Basin | 4 | 153% | 66% |
| Innaha Basin | 5 | 114% | 78% |
| Lower Grande Ronde Basin | 4 | 101% | 43% |
| Powder Basin | 11 | 125% | 73% |
| Upper Grande Ronde Basin | 8 | 112% | 68% |
| Wallowa Basin | 5 | 101% | 73% |

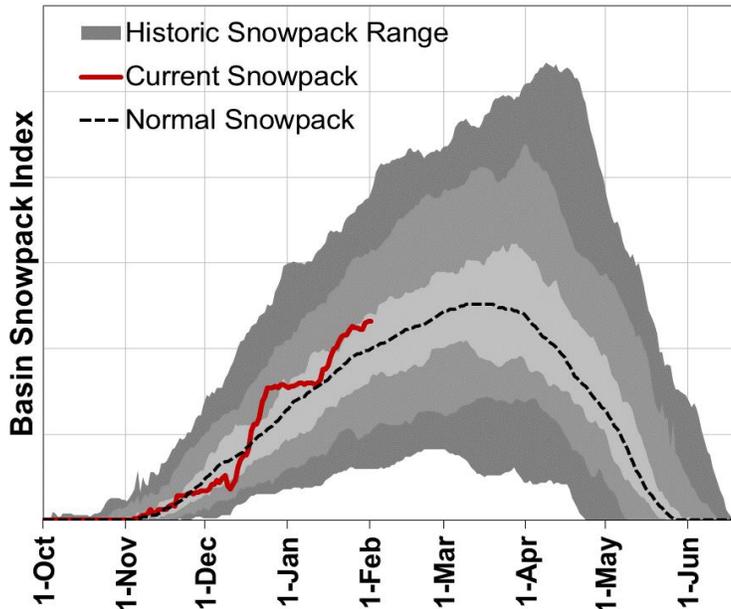
| Basin Snowpack Measurement Sites | Elevation (ft) | Date Measured | Depth (in) | Snow Water Equivalent (in) | | | |
|----------------------------------|----------------|---------------|------------|----------------------------|-------------|--------|-------------|
| | | | | Current SWE | Last Yr SWE | Median | % of Median |
| Mt. Howard SNOTEL | 7910 | 1-Feb | 33 | 8.5 | 9.7 | 10.2 | 83% |
| Aneroid Lake #2 SNOTEL | 7400 | 1-Feb | 48 | 13.9 | 10.2 | 14.4 | 97% |
| Anthony Lake (Rev) Snow Course | 7160 | 1-Feb | 57 | 18.2 | 14.7 | 15.9 | 114% |
| TV Ridge AM | 7050 | 1-Feb | 34 | 9.9 | 4.9 | 9.9 | 100% |
| Little Alps Snow Course | 6360 | 1-Feb | 37 | 9.1 | 5.2 | 7.8 | 117% |
| Big Sheep AM | 6230 | 1-Feb | 57 | 16.5 | 10.9 | 17.2 | 96% |
| Bear Saddle SNOTEL | 6180 | 1-Feb | 72 | 22.8 | 10.9 | 15.2 | 150% |
| Bourne SNOTEL | 5850 | 1-Feb | 49 | 13.8 | 7.8 | 11.1 | 124% |
| Barney Creek (New) Snow Course | 5830 | 1-Feb | 36 | 8.8 | 3.7 | | |
| Moss Springs SNOTEL | 5760 | 1-Feb | 58 | 17.0 | 12.8 | 16.2 | 105% |
| Taylor Green SNOTEL | 5740 | 1-Feb | 52 | 16.4 | 10.3 | 14.5 | 113% |
| Boulder Creek AM | 5710 | 1-Feb | 15 | 3.9 | | 2.9 | 134% |
| Spruce Springs SNOTEL | 5700 | 1-Feb | 35 | 9.5 | 4.1 | 11.9 | 80% |
| Wolf Creek SNOTEL | 5630 | 1-Feb | 46 | 11.6 | 6.5 | 11.6 | 100% |
| Milk Shakes SNOTEL | 5580 | 1-Feb | 92 | 28.7 | 14.3 | | |
| West Branch SNOTEL | 5560 | 1-Feb | 62 | 16.4 | 10.7 | 14.1 | 116% |
| Touchet SNOTEL | 5530 | 1-Feb | 71 | 23.0 | 9.3 | 20.4 | 113% |
| Eilertson Meadows SNOTEL | 5510 | 1-Feb | 38 | 10.0 | 4.1 | 7.9 | 127% |
| Dooley Mountain Snow Course | 5440 | 2-Feb | 35 | 9.0 | 3.2 | 6.6 | 136% |
| Gold Center SNOTEL | 5410 | 1-Feb | 42 | 11.1 | 5.7 | 7.3 | 152% |
| Schneider Meadows SNOTEL | 5400 | 1-Feb | 86 | 26.7 | 15.8 | 19.6 | 136% |
| Beaver Reservoir SNOTEL | 5150 | 1-Feb | 28 | 7.7 | 4.1 | 6.6 | 117% |
| Tipton SNOTEL | 5150 | 1-Feb | 48 | 13.9 | 6.3 | 8.5 | 164% |
| High Ridge SNOTEL | 4920 | 1-Feb | 62 | 21.6 | 10.5 | 16.1 | 134% |
| County Line SNOTEL | 4830 | 1-Feb | 11 | 3.2 | 0.0 | 3.9 | 82% |
| Eldorado Pass Snow Course | 4630 | 2-Feb | 25 | 4.6 | 1.5 | 2.8 | 164% |
| Little Antone (Alt.) Snow Course | 4560 | 1-Feb | 34 | 8.5 | 3.8 | 6.8 | 125% |
| Bowman Springs SNOTEL | 4530 | 1-Feb | 23 | 6.0 | 2.7 | 6.2 | 97% |
| East Eagle Snow Course | 4400 | 31-Jan | 69 | 21.0 | 12.4 | 14.6 | 144% |
| Sourdough Gulch SNOTEL | 4000 | 1-Feb | 3 | 1.0 | 0.2 | 0.9 | 111% |



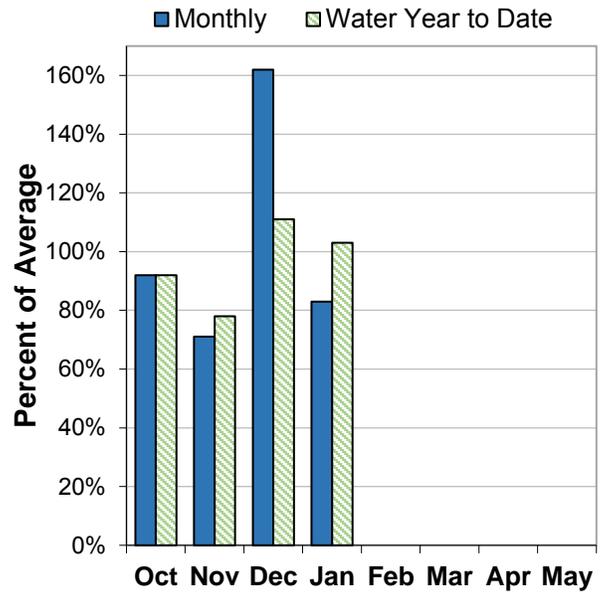
Umatilla, Walla Walla and Willow Basins

February 1, 2016

Mountain Snowpack



Basin Precipitation



Summary of Water Supply Conditions

SNOWPACK

As of February 1, the basin snowpack was 116% of normal. The snowpack in this basin has reached approximately 85% of its normal peak amount for the season.

PRECIPITATION

January precipitation was 83% of average. Precipitation since the beginning of the water year (October 1 - February 1) has been 103% of average.

RESERVOIR

Reservoir storage across the basin is currently well below average. As of February 1, storage at major reservoirs in the basin ranges from 69% of average at Cold Springs Reservoir to 75% of average at Mckay Reservoir.

STREAMFLOW FORECAST

As of February 1, summer streamflow forecasts in the basin range from 100% to 114% of average. Overall, forecasts decreased significantly from last month's report. If conditions remain similar, water supplies in the basin are likely to be near normal to above normal this summer.

Umatilla, Walla Walla And Willow Basins Summary for February 1, 2016

Forecast Exceedance Probabilities for Risk Assessment *

| Streamflow Forecasts February 1, 2016 | Forecast Period | ←-----Drier-----Future Conditions-----Wetter-----→ | | | | | | Average (KAF) |
|--|--------------------|--|--------------|--------------|-------|--------------|--------------|------------------|
| | | 90% (KAF) | 70% (KAF) | 50% (KAF) | % Avg | 30% (KAF) | 10% (KAF) | |
| SF Walla Walla R nr Milton-Freewater | MAR-SEP | 70 | 79 | 84 | 105% | 90 | 99 | 80 |
| | APR-JUL | 46 | 53 | 57 | 106% | 62 | 68 | 54 |
| | APR-SEP | 58 | 65 | 70 | 106% | 75 | 83 | 66 |
| Umatilla R ab Meacham Ck Gibbon | MAR-SEP | 93 | 108 | 118 | 111% | 128 | 143 | 106 |
| | APR-JUL | 61 | 73 | 82 | 111% | 90 | 103 | 74 |
| | APR-SEP | 66 | 79 | 87 | 109% | 96 | 109 | 80 |
| Umatilla R at Pendleton | MAR-SEP | 205 | 240 | 260 | 116% | 285 | 320 | 225 |
| | APR-JUL | 121 | 150 | 170 | 116% | 190 | 220 | 147 |
| | APR-SEP | 125 | 154 | 175 | 114% | 195 | 225 | 153 |
| McKay Ck nr Pilot Rock | APR-SEP | 12.7 | 24 | 31 | 100% | 39 | 50 | 31 |
| Butter Ck nr Pine City | MAR-JUL | 9.9 | 13.6 | 16.1 | 108% | 18.7 | 22 | 14.9 |
| | APR-SEP | 5.7 | 8.4 | 10.2 | 104% | 12.0 | 14.7 | 9.8 |
| Willow Ck ab Willow Lk nr Heppner | FEB-JUL | 7.2 | 10.5 | 12.8 | 108% | 15.1 | 18.5 | 11.8 |
| | APR-JUL | 3.1 | 5.5 | 7.2 | 103% | 8.9 | 11.3 | 7.0 |
| Rhea Ck nr Heppner | FEB-JUL | 8.8 | 12.6 | 15.2 | 112% | 17.7 | 21 | 13.6 |

* 90%, 70%, 50%, 30% & 10% exceedance probabilities are the chance that observed streamflow volume will exceed the forecasted volume

| Reservoir Storage | Current (KAF) | Last Year (KAF) | Average (KAF) | % of Average | Useable Capacity (KAF) |
|-------------------|------------------|--------------------|------------------|-----------------|------------------------------|
| Cold Springs | 9.0 | 15.4 | 13.1 | 69% | 38.6 |
| Mckay | 22.5 | 36.9 | 29.8 | 75% | 71.5 |
| Willow Creek | 3.0 | 4.3 | 4.2 | 72% | 9.8 |

| Snowpack Summary by Basin | Basin Snowpack % of Median | | |
|---------------------------|-------------------------------|------------|---------|
| | # of Sites | Current Yr | Last Yr |
| Umatilla Basin | 5 | 115% | 50% |
| Walla Walla Basin | 7 | 116% | 46% |

Umatilla, Walla Walla And Willow Basins Summary for February 1, 2016

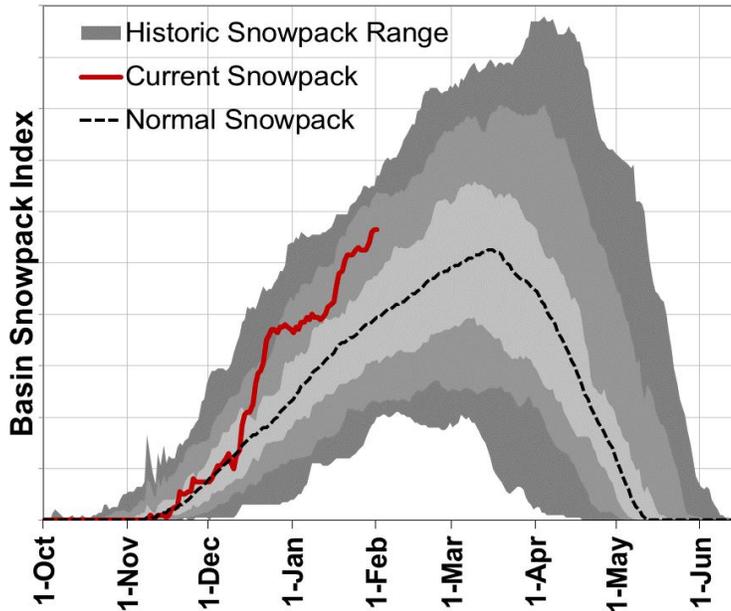
| Basin Snowpack Measurement Sites | Elevation (ft) | Date Measured | Depth (in) | Snow Water Equivalent (in) | | | |
|----------------------------------|----------------|---------------|------------|----------------------------|-------------|--------|-------------|
| | | | | Current SWE | Last Yr SWE | Median | % of Median |
| Arbuckle Mtn SNOTEL | 5770 | 1-Feb | 43 | 12.9 | 7.0 | 12.2 | 106% |
| Spruce Springs SNOTEL | 5700 | 1-Feb | 35 | 9.5 | 4.1 | 11.9 | 80% |
| Milk Shakes SNOTEL | 5580 | 1-Feb | 92 | 28.7 | 14.3 | | |
| Touchet SNOTEL | 5530 | 1-Feb | 71 | 23.0 | 9.3 | 20.4 | 113% |
| Madison Butte SNOTEL | 5150 | 1-Feb | 17 | 5.9 | 0.0 | 3.8 | 155% |
| Lucky Strike SNOTEL | 4970 | 1-Feb | 21 | 6.9 | 2.9 | 5.9 | 117% |
| High Ridge SNOTEL | 4920 | 1-Feb | 62 | 21.6 | 10.5 | 16.1 | 134% |
| Indian Ridge Snow Course | 4908 | 29-Jan | 65 | 23.6 | 8.5 | | |
| Bowman Springs SNOTEL | 4530 | 1-Feb | 23 | 6.0 | 2.7 | 6.2 | 97% |
| Emigrant Springs SNOTEL | 3800 | 1-Feb | 14 | 5.2 | 0.0 | 5.4 | 96% |



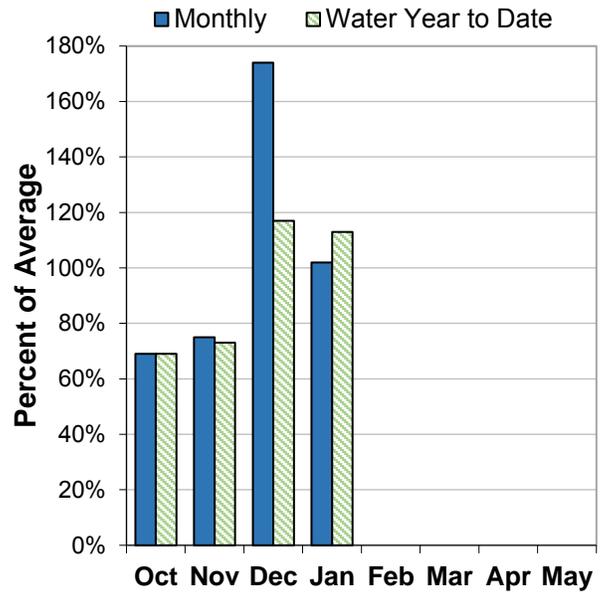
John Day Basin

February 1, 2016

Mountain Snowpack



Basin Precipitation



Summary of Water Supply Conditions

SNOWPACK

As of February 1, the basin snowpack was 141% of normal. The snowpack in this basin has already reached its normal peak amount for the season. Starr Ridge SNOTEL tied with the second highest February 1 snowpack since records began in 1981. The site had 9.4 inches of snow water content, 25 inches of snow depth and was 177% of normal.

PRECIPITATION

January precipitation was 102% of average. Precipitation since the beginning of the water year (October 1 - February 1) has been 113% of average.

STREAMFLOW FORECAST

As of February 1, summer streamflow forecasts in the basin range from 103% to 157% of average. If conditions remain similar, water supplies in the basin are likely to be near normal to well above normal this summer.

John Day Basin Summary for February 1, 2016

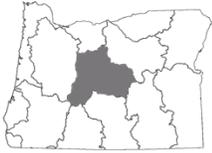
| Forecast Exceedance Probabilities for Risk Assessment * | | | | | | | | |
|--|----------------------------|--|----------------------|----------------------|--------------|----------------------|----------------------|--------------------------|
| Streamflow Forecasts February 1, 2016 | Forecast Period | ←-----Drier-----Future Conditions-----Wetter-----→ | | | | | | Average (KAF) |
| | | 90% (KAF) | 70% (KAF) | 50% (KAF) | % Avg | 30% (KAF) | 10% (KAF) | |
| Strawberry Ck nr Prairie City | MAR-JUL | 8.2 | 9.8 | 10.8 | 127% | 11.8 | 13.4 | 8.5 |
| | APR-SEP | 8.6 | 10.2 | 11.3 | 128% | 12.4 | 14.0 | 8.8 |
| Mountain Ck nr Mitchell | FEB-JUL | 7.9 | 10.1 | 11.6 | 166% | 13.0 | 15.2 | 7.0 |
| | APR-SEP | 5.0 | 6.6 | 7.7 | 157% | 8.8 | 10.5 | 4.9 |
| Camas Ck nr Ukiah | MAR-JUL | 36 | 45 | 51 | 104% | 58 | 67 | 49 |
| | APR-SEP | 21 | 30 | 36 | 103% | 42 | 51 | 35 |
| MF John Day R at Ritter | MAR-JUL | 130 | 161 | 182 | 117% | 205 | 235 | 156 |
| | APR-SEP | 99 | 127 | 145 | 115% | 164 | 191 | 126 |
| NF John Day R at Monument | MAR-JUL | 635 | 785 | 885 | 116% | 985 | 1140 | 765 |
| | APR-SEP | 470 | 595 | 680 | 113% | 765 | 890 | 600 |

* 90%, 70%, 50%, 30% & 10% exceedance probabilities are the chance that observed streamflow volume will exceed the forecasted volume

| Snowpack Summary by Basin | Basin Snowpack % of Median | | |
|----------------------------------|---------------------------------------|-------------------|----------------|
| | # of Sites | Current Yr | Last Yr |
| Lower John Day Basin | 6 | 157% | 34% |
| North Fork John Day Basin | 8 | 125% | 65% |
| Upper John Day Basin | 6 | 156% | 69% |

John Day Basin Summary for February 1, 2016

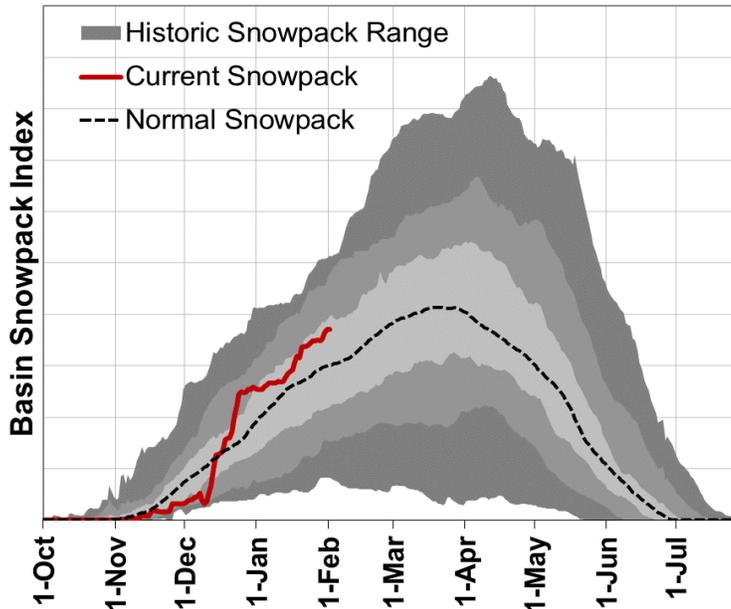
| Basin Snowpack Measurement Sites | Elevation (ft) | Date Measured | Depth (in) | Snow Water Equivalent (in) | | | |
|----------------------------------|----------------|---------------|------------|----------------------------|-------------|--------|-------------|
| | | | | Current SWE | Last Yr SWE | Median | % of Median |
| Anthony Lake (Rev) Snow Course | 7160 | 1-Feb | 57 | 18.2 | 14.7 | 15.9 | 114% |
| Little Alps Snow Course | 6360 | 1-Feb | 37 | 9.1 | 5.2 | 7.8 | 117% |
| Snow Mountain SNOTEL | 6230 | 1-Feb | 29 | 13.1 | 6.4 | 6.3 | 208% |
| Blue Mountain Spring SNOTEL | 5870 | 1-Feb | 53 | 14.8 | 8.0 | 11.2 | 132% |
| Derr Snow Course | 5860 | 1-Feb | 38 | 11.9 | 2.6 | 7.9 | 151% |
| Bourne SNOTEL | 5850 | 1-Feb | 49 | 13.8 | 7.8 | 11.1 | 124% |
| Derr. SNOTEL | 5850 | 1-Feb | 53 | 17.0 | 7.3 | 9.8 | 173% |
| Barney Creek (New) Snow Course | 5830 | 1-Feb | 36 | 8.8 | 3.7 | | |
| Arbuckle Mtn SNOTEL | 5770 | 1-Feb | 43 | 12.9 | 7.0 | 12.2 | 106% |
| Ochoco Meadows SNOTEL | 5430 | 1-Feb | 38 | 12.1 | 1.7 | 7.4 | 164% |
| Gold Center SNOTEL | 5410 | 1-Feb | 42 | 11.1 | 5.7 | 7.3 | 152% |
| Starr Ridge SNOTEL | 5250 | 1-Feb | 25 | 9.4 | 3.5 | 5.3 | 177% |
| Lake Creek R.S. SNOTEL | 5240 | 1-Feb | 39 | 11.5 | 6.4 | 9.4 | 122% |
| Ochoco Meadows Snow Course | 5190 | 28-Jan | 37 | 11.9 | 2.2 | 8.5 | 140% |
| Ochoco Meadows Snow Course | 5190 | 28-Jan | 37 | 11.9 | 2.2 | 8.5 | 140% |
| Madison Butte SNOTEL | 5150 | 1-Feb | 17 | 5.9 | 0.0 | 3.8 | 155% |
| Tipton SNOTEL | 5150 | 1-Feb | 48 | 13.9 | 6.3 | 8.5 | 164% |
| Lucky Strike SNOTEL | 4970 | 1-Feb | 21 | 6.9 | 2.9 | 5.9 | 117% |
| County Line SNOTEL | 4830 | 1-Feb | 11 | 3.2 | 0.0 | 3.9 | 82% |
| Marks Creek Snow Course | 4580 | 28-Jan | 16 | 5.4 | 0.0 | 3.4 | 159% |
| Little Antone (Alt.) Snow Course | 4560 | 1-Feb | 34 | 8.5 | 3.8 | 6.8 | 125% |



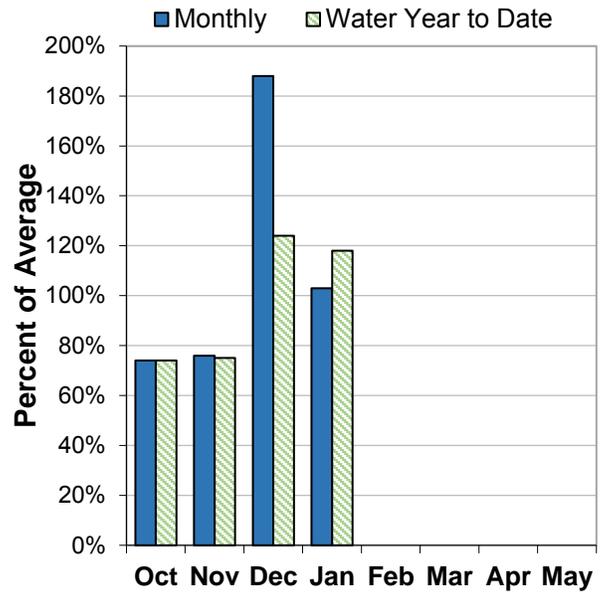
Upper Deschutes and Crooked Basins

February 1, 2016

Mountain Snowpack



Basin Precipitation



Summary of Water Supply Conditions

SNOWPACK

As of February 1, the basin snowpack was 121% of normal. The snowpack in this basin has reached approximately 80% of its normal peak amount for the season.

PRECIPITATION

January precipitation was 103% of average. Precipitation since the beginning of the water year (October 1 - February 1) has been 118% of average.

RESERVOIR

As of February 1, storage at major reservoirs in the basin ranges from 84% of average at Wickiup Reservoir to 115% of average at Crescent Lake.

STREAMFLOW FORECAST

As of February 1, summer streamflow forecasts in the basin range from 100% to 163% of average. Overall, forecasts increased slightly from last month's report. If conditions remain similar, water supplies in the basin are likely to be near normal to well above normal this summer.

Upper Deschutes And Crooked Basins Summary for February 1, 2016

| Forecast Exceedance Probabilities for Risk Assessment * | | | | | | | | |
|--|----------------------------|--|----------------------|----------------------|--------------|----------------------|----------------------|--------------------------|
| Streamflow Forecasts February 1, 2016 | Forecast Period | ←-----Drier-----Future Conditions-----Wetter-----→ | | | | | | Average (KAF) |
| | | 90% (KAF) | 70% (KAF) | 50% (KAF) | % Avg | 30% (KAF) | 10% (KAF) | |
| Deschutes R bl Snow Ck | FEB-JUL | 35 | 43 | 48 | 117% | 53 | 61 | 41 |
| | FEB-SEP | 60 | 70 | 76 | 121% | 82 | 92 | 63 |
| | APR-JUL | 27 | 32 | 36 | 120% | 40 | 45 | 30 |
| | APR-SEP | 51 | 59 | 64 | 123% | 69 | 77 | 52 |
| Crane Prairie Reservoir Inflow ² | FEB-JUL | 73 | 83 | 90 | 118% | 97 | 107 | 76 |
| | FEB-SEP | 104 | 117 | 126 | 118% | 135 | 148 | 107 |
| | APR-JUL | 56 | 63 | 68 | 121% | 73 | 80 | 56 |
| | APR-SEP | 85 | 96 | 104 | 118% | 112 | 123 | 88 |
| Crescent Lake Inflow ² | FEB-JUL | 13.9 | 21 | 25 | 128% | 29 | 36 | 19.6 |
| | FEB-SEP | 18.4 | 25 | 30 | 136% | 35 | 42 | 22 |
| | APR-JUL | 10.9 | 16.0 | 19.5 | 130% | 23 | 28 | 15.0 |
| | APR-SEP | 15.1 | 20 | 24 | 138% | 28 | 33 | 17.4 |
| Little Deschutes R nr La Pine | FEB-JUL | 98 | 119 | 133 | 149% | 147 | 168 | 89 |
| | FEB-SEP | 106 | 128 | 144 | 153% | 160 | 182 | 94 |
| | APR-JUL | 78 | 89 | 97 | 154% | 105 | 116 | 63 |
| | APR-SEP | 86 | 100 | 109 | 158% | 118 | 132 | 69 |
| Deschutes R at Benham Falls ² | FEB-JUL | 450 | 490 | 515 | 112% | 540 | 580 | 460 |
| | FEB-SEP | 615 | 665 | 695 | 111% | 725 | 775 | 625 |
| | APR-JUL | 330 | 350 | 365 | 114% | 380 | 400 | 320 |
| | APR-SEP | 490 | 525 | 545 | 112% | 565 | 600 | 485 |
| Wychus Ck nr Sisters | FEB-JUL | 37 | 41 | 44 | 102% | 47 | 51 | 43 |
| | FEB-SEP | 46 | 51 | 55 | 100% | 59 | 64 | 55 |
| | APR-JUL | 31 | 34 | 35 | 100% | 36 | 39 | 35 |
| | APR-SEP | 41 | 45 | 47 | 100% | 49 | 53 | 47 |
| Prineville Reservoir Inflow ² | FEB-JUL | 210 | 270 | 310 | 151% | 350 | 410 | 205 |
| | FEB-SEP | 210 | 275 | 315 | 154% | 355 | 420 | 205 |
| | APR-JUL | 106 | 141 | 165 | 162% | 189 | 225 | 102 |
| | APR-SEP | 105 | 141 | 166 | 163% | 191 | 225 | 102 |
| Ochoco Reservoir Inflow ² | FEB-JUL | 45 | 54 | 61 | 153% | 68 | 77 | 40 |
| | FEB-SEP | 44 | 54 | 61 | 153% | 68 | 78 | 40 |
| | APR-JUL | 22 | 28 | 32 | 152% | 36 | 42 | 21 |
| | APR-SEP | 21 | 27 | 31 | 155% | 35 | 41 | 20 |

* 90%, 70%, 50%, 30% & 10% exceedance probabilities are the chance that observed streamflow volume will exceed the forecasted volume

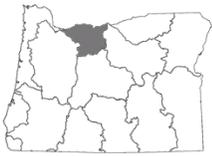
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Upper Deschutes And Crooked Basins Summary for February 1, 2016

| Reservoir Storage | Current | Last Year | Average | % of | Useable |
|-------------------|---------|-----------|---------|---------|----------------|
| | (KAF) | (KAF) | (KAF) | Average | Capacity (KAF) |
| Crane Prairie | 35.9 | 47.6 | 37.7 | 95% | 55.3 |
| Crescent Lake | 52.9 | 71.1 | 46.1 | 115% | 86.9 |
| Ochoco | 18.1 | 25.6 | 18.8 | 96% | 44.2 |
| Prineville | 73.5 | 95.5 | 86.8 | 85% | 148.6 |
| Wickiup | 135.1 | 171.4 | 161.7 | 84% | 200.0 |

| Snowpack Summary by Basin | Basin Snowpack % of Median | | |
|---------------------------|-------------------------------|------------|---------|
| | # of Sites | Current Yr | Last Yr |
| Little Deschutes Basin | 4 | 138% | 26% |
| Upper Crooked Basin | 5 | 158% | 37% |
| Upper Deschutes Basin | 12 | 112% | 28% |

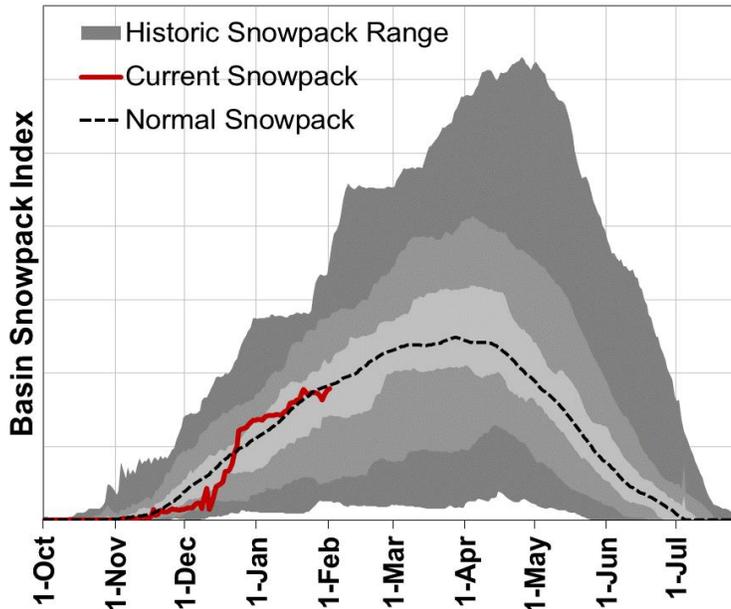
| Basin Snowpack Measurement Sites | Elevation (ft) | Date Measured | Depth (in) | Snow Water Equivalent (in) | | | |
|----------------------------------|----------------|---------------|------------|----------------------------|-------------|--------|-------------|
| | | | | Current SWE | Last Yr SWE | Median | % of Median |
| New Dutchman #3 Snow Course | 6320 | 2-Feb | 106 | 35.2 | 15.9 | 31.9 | 110% |
| Snow Mountain SNOTEL | 6230 | 1-Feb | 29 | 13.1 | 6.4 | 6.3 | 208% |
| Derr Snow Course | 5860 | 1-Feb | 38 | 11.9 | 2.6 | 7.9 | 151% |
| Derr. SNOTEL | 5850 | 1-Feb | 53 | 17.0 | 7.3 | 9.8 | 173% |
| Three Creeks Meadow SNOTEL | 5690 | 1-Feb | 40 | 13.1 | 4.2 | 12.4 | 106% |
| Summit Lake SNOTEL | 5610 | 1-Feb | 83 | 32.9 | 8.3 | 23.7 | 139% |
| Irish Taylor SNOTEL | 5540 | 1-Feb | 76 | 24.9 | 9.2 | 22.7 | 110% |
| Tangent Snow Course | 5470 | 2-Feb | 60 | 15.8 | 3.4 | 14.5 | 109% |
| Ochoco Meadows SNOTEL | 5430 | 1-Feb | 38 | 12.1 | 1.7 | 7.4 | 164% |
| Ochoco Meadows Snow Course | 5190 | 28-Jan | 37 | 11.9 | 2.2 | 8.5 | 140% |
| Cascade Summit SNOTEL | 5100 | 1-Feb | 77 | 24.9 | 7.0 | 20.4 | 122% |
| Roaring River SNOTEL | 4950 | 1-Feb | 57 | 20.0 | 1.9 | 18.6 | 108% |
| New Crescent Lake SNOTEL | 4910 | 1-Feb | 50 | 14.6 | 1.0 | 10.7 | 136% |
| Chemult Alternate SNOTEL | 4850 | 1-Feb | 45 | 13.8 | 0.1 | 7.6 | 182% |
| Hogg Pass SNOTEL | 4790 | 1-Feb | 51 | 16.5 | 0.0 | 13.9 | 119% |
| McKenzie SNOTEL | 4770 | 1-Feb | 67 | 25.1 | 7.3 | 29.8 | 84% |
| Marks Creek Snow Course | 4580 | 28-Jan | 16 | 5.4 | 0.0 | 3.4 | 159% |
| Hungry Flat Snow Course | 4400 | 2-Feb | 13 | 4.0 | 0.0 | 2.3 | 174% |
| Salt Creek Falls SNOTEL | 4220 | 1-Feb | 50 | 17.0 | 2.3 | 13.9 | 122% |
| Santiam Jct. SNOTEL | 3740 | 1-Feb | 37 | 12.9 | 0.0 | 13.5 | 96% |



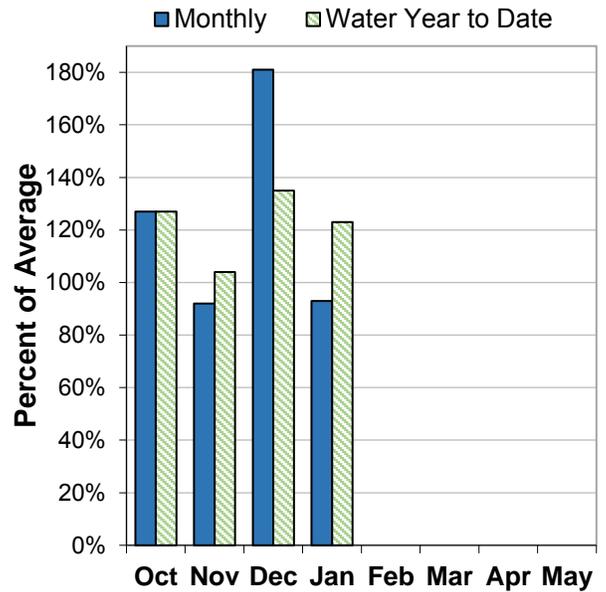
Hood, Sandy and Lower Deschutes Basins

February 1, 2016

Mountain Snowpack



Basin Precipitation



Summary of Water Supply Conditions

SNOWPACK

As of February 1, the basin snowpack was 98% of normal. The snowpack in this basin has reached approximately 70% of its normal peak amount for the season.

PRECIPITATION

January precipitation was 93% of average. Precipitation since the beginning of the water year (October 1 - February 1) has been 123% of average.

STREAMFLOW FORECAST

As of February 1, summer streamflow forecasts in the basin range from 99% to 108% of average. Overall, forecasts decreased slightly from last month's report. If conditions remain similar, water supplies in the basin are likely to be near normal to above normal this summer.

Hood, Sandy And Lower Deschutes Basins Summary for February 1, 2016

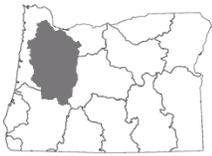
| Forecast Exceedance Probabilities for Risk Assessment * | | | | | | | | |
|---|--------------------|--|--------------|--------------|-------|--------------|--------------|------------------|
| Streamflow Forecasts February 1, 2016 | Forecast Period | ←-----Drier-----Future Conditions-----Wetter-----→ | | | | | | Average (KAF) |
| | | 90% (KAF) | 70% (KAF) | 50% (KAF) | % Avg | 30% (KAF) | 10% (KAF) | |
| WF Hood River nr Dee | APR-JUL | 93 | 115 | 130 | 108% | 145 | 168 | 120 |
| | APR-SEP | 100 | 123 | 139 | 100% | 154 | 177 | 139 |
| Hood R at Tucker Bridge | APR-JUL | 191 | 220 | 240 | 107% | 265 | 295 | 225 |
| | APR-SEP | 230 | 260 | 285 | 108% | 305 | 340 | 265 |
| Sandy R nr Marmot | APR-JUL | 235 | 280 | 305 | 98% | 335 | 380 | 310 |
| | APR-SEP | 280 | 325 | 355 | 99% | 385 | 430 | 360 |

* 90%, 70%, 50%, 30% & 10% exceedance probabilities are the chance that observed streamflow volume will exceed the forecasted volume

| Reservoir Storage | Current (KAF) | Last Year (KAF) | Average (KAF) | % of Average | Useable Capacity (KAF) |
|-------------------|------------------|--------------------|------------------|-----------------|------------------------------|
| Clear Lake | 1.5 | 4.6 | 3.0 | 49% | 13.1 |

| Snowpack Summary by Basin | Basin Snowpack % of Median | | |
|------------------------------|-------------------------------|------------|---------|
| | # of Sites | Current Yr | Last Yr |
| Lower Columbia - Sandy Basin | 7 | 94% | 15% |
| Lower Deschutes Basin | 5 | 94% | 25% |
| Middle Columbia - Hood Basin | 8 | 101% | 20% |

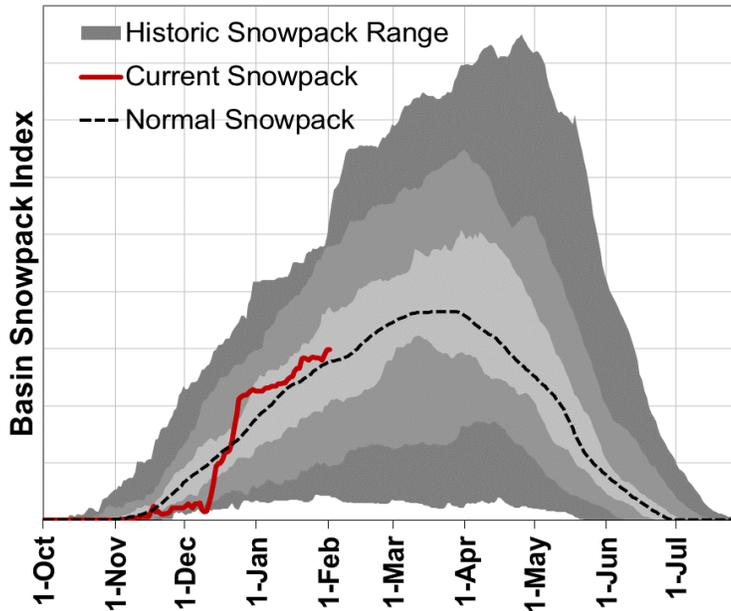
| Basin Snowpack Measurement Sites | Elevation (ft) | Date Measured | Depth (in) | Snow Water Equivalent (in) | | | |
|-------------------------------------|-------------------|------------------|---------------|----------------------------|----------------|--------|----------------|
| | | | | Current SWE | Last Yr SWE | Median | % of Median |
| High Prairie Snow Course | 6080 | 29-Jan | 83 | 29.8 | 9.4 | 29.7 | 100% |
| Mt Hood Test Site SNOTEL | 5370 | 1-Feb | 94 | 31.9 | 12.9 | 38.4 | 83% |
| Red Hill SNOTEL | 4410 | 1-Feb | 87 | 28.7 | 2.4 | 30.9 | 93% |
| Mill Creek Meadow Snow Course | 4400 | 29-Jan | 31 | 9.7 | 1.9 | 8.2 | 118% |
| Surprise Lakes SNOTEL | 4290 | 1-Feb | 99 | 39.1 | 10.8 | 33.3 | 117% |
| Mud Ridge SNOTEL | 4070 | 1-Feb | 50 | 18.7 | 3.8 | 18.5 | 101% |
| Clear Lake SNOTEL | 3810 | 1-Feb | 27 | 9.3 | 0.0 | 9.7 | 96% |
| Blazed Alder SNOTEL | 3650 | 1-Feb | 55 | 19.4 | 1.1 | 21.4 | 91% |
| Clackamas Lake SNOTEL | 3400 | 1-Feb | 28 | 9.0 | 0.0 | 9.2 | 98% |
| Greenpoint SNOTEL | 3310 | 1-Feb | 44 | 17.0 | 0.0 | 13.2 | 129% |
| North Fork SNOTEL | 3060 | 1-Feb | 39 | 14.8 | 0.0 | 13.2 | 112% |
| South Fork Bull Run SNOTEL | 2690 | 1-Feb | 7 | 2.0 | 0.0 | 1.3 | 154% |



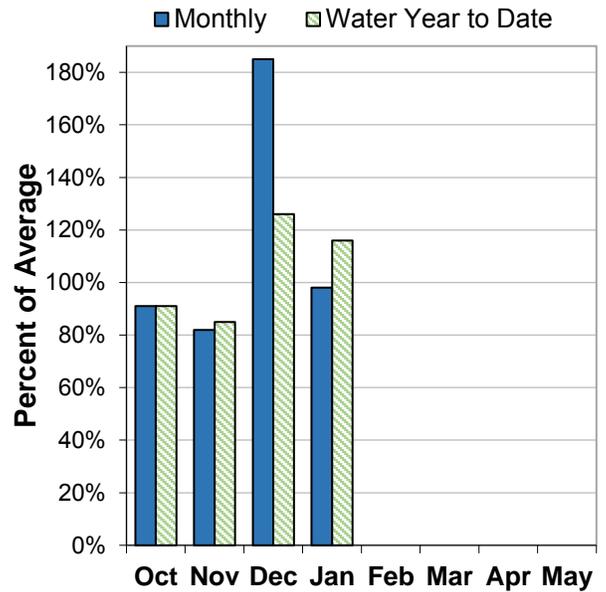
Willamette Basin

February 1, 2016

Mountain Snowpack



Basin Precipitation



Summary of Water Supply Conditions

SNOWPACK

As of February 1, the basin snowpack was 106% of normal. The snowpack in this basin has reached approximately 70% of its normal peak amount for the season.

PRECIPITATION

January precipitation was 98% of average. Precipitation since the beginning of the water year (October 1 - February 1) has been 116% of average.

RESERVOIR

As of February 1, storage at major reservoirs in the basin ranges from 58% of average at Fern Ridge Reservoir to 129% of average at Cottage Grove Reservoir.

STREAMFLOW FORECAST

As of February 1, summer streamflow forecasts in the basin range from 96% to 119% of average. Overall, forecasts decreased slightly from last month's report. If conditions remain similar, water supplies in the basin are likely to be near normal to above normal this summer.

Willamette Basin Summary for February 1, 2016

| Forecast Exceedance Probabilities for Risk Assessment * | | | | | | | | |
|--|----------------------------|--|----------------------|----------------------|--------------|----------------------|----------------------|--------------------------|
| Streamflow Forecasts February 1, 2016 | Forecast Period | ←-----Drier-----Future Conditions-----Wetter-----→ | | | | | | Average (KAF) |
| | | 90% (KAF) | 70% (KAF) | 50% (KAF) | % Avg | 30% (KAF) | 10% (KAF) | |
| Hills Creek Reservoir Inflow ^{1,2} | FEB-MAY | 285 | 400 | 455 | 120% | 510 | 625 | 380 |
| | APR-JUL | 205 | 290 | 330 | 120% | 365 | 450 | 275 |
| | APR-SEP | 245 | 335 | 375 | 119% | 415 | 505 | 315 |
| MF Willamette R bl NF nr Oakridge ^{1,2} | FEB-MAY | 720 | 1000 | 1130 | 119% | 1260 | 1540 | 950 |
| | APR-JUL | 535 | 735 | 830 | 119% | 920 | 1120 | 695 |
| | APR-SEP | 620 | 835 | 935 | 118% | 1030 | 1250 | 790 |
| Lookout Point Reservoir Inflow ^{1,2} | FEB-MAY | 765 | 1060 | 1190 | 119% | 1320 | 1620 | 1000 |
| | APR-JUL | 545 | 760 | 860 | 119% | 960 | 1180 | 725 |
| | APR-SEP | 645 | 865 | 970 | 118% | 1070 | 1290 | 825 |
| Fall Creek Reservoir Inflow ^{1,2} | FEB-MAY | 145 | 205 | 230 | 121% | 265 | 340 | 190 |
| | APR-JUL | 62 | 103 | 125 | 115% | 149 | 210 | 109 |
| | APR-SEP | 66 | 107 | 130 | 115% | 154 | 215 | 113 |
| Cottage Grove Lake Inflow ^{1,2} | FEB-MAY | 60 | 89 | 104 | 125% | 121 | 161 | 83 |
| | APR-JUL | 21 | 38 | 48 | 117% | 59 | 87 | 41 |
| | APR-SEP | 22 | 40 | 50 | 116% | 61 | 88 | 43 |
| Dorena Lake Inflow ^{1,2} | FEB-MAY | 177 | 260 | 305 | 124% | 350 | 465 | 245 |
| | APR-JUL | 77 | 130 | 159 | 117% | 191 | 270 | 136 |
| | APR-SEP | 80 | 134 | 164 | 118% | 196 | 280 | 139 |
| McKenzie R bl Trail Bridge | FEB-MAY | 235 | 270 | 295 | 104% | 320 | 365 | 285 |
| | APR-JUL | 215 | 245 | 265 | 102% | 290 | 320 | 260 |
| | APR-SEP | 290 | 325 | 350 | 101% | 380 | 420 | 345 |
| Cougar Lake Inflow ^{1,2} | FEB-MAY | 200 | 255 | 285 | 102% | 310 | 380 | 280 |
| | APR-JUL | 136 | 188 | 215 | 105% | 245 | 310 | 205 |
| | APR-SEP | 160 | 215 | 245 | 104% | 275 | 345 | 235 |
| Blue Lake Inflow ^{1,2} | FEB-MAY | 106 | 142 | 161 | 103% | 180 | 225 | 156 |
| | APR-JUL | 46 | 74 | 89 | 106% | 105 | 146 | 84 |
| | APR-SEP | 49 | 77 | 92 | 107% | 108 | 149 | 86 |
| McKenzie R nr Vida ¹ | FEB-MAY | 940 | 1180 | 1290 | 102% | 1410 | 1700 | 1260 |
| | APR-JUL | 695 | 900 | 1000 | 103% | 1110 | 1360 | 970 |
| | APR-SEP | 890 | 1120 | 1230 | 103% | 1340 | 1620 | 1190 |
| Detroit Lake Inflow ^{1,2} | FEB-MAY | 555 | 695 | 755 | 103% | 815 | 955 | 730 |
| | APR-JUL | 380 | 505 | 560 | 106% | 615 | 740 | 530 |
| | APR-SEP | 460 | 590 | 650 | 107% | 710 | 840 | 610 |
| Little North Santiam R nr Mehama ¹ | FEB-MAY | 165 | 210 | 235 | 107% | 255 | 305 | 220 |
| | APR-JUL | 85 | 123 | 140 | 105% | 157 | 195 | 133 |
| | APR-SEP | 92 | 131 | 148 | 105% | 166 | 205 | 141 |

Willamette Basin Summary for February 1, 2016

| Forecast Exceedance Probabilities for Risk Assessment * | | | | | | | | |
|--|----------------------------|--|----------------------|----------------------|--------------|----------------------|----------------------|--------------------------|
| Streamflow Forecasts February 1, 2016 | Forecast Period | ←-----Drier-----Future Conditions-----Wetter-----→ | | | | | | Average (KAF) |
| | | 90% (KAF) | 70% (KAF) | 50% (KAF) | % Avg | 30% (KAF) | 10% (KAF) | |
| North Santiam R at Mehama ¹ | FEB-MAY | 780 | 1020 | 1120 | 103% | 1230 | 1470 | 1090 |
| | APR-JUL | 540 | 695 | 765 | 103% | 835 | 990 | 740 |
| | APR-SEP | 635 | 795 | 870 | 104% | 940 | 1100 | 840 |
| Green Peter Lake Inflow ^{1,2} | FEB-MAY | 380 | 480 | 530 | 110% | 585 | 705 | 480 |
| | APR-JUL | 171 | 250 | 290 | 104% | 330 | 435 | 280 |
| | APR-SEP | 190 | 265 | 305 | 103% | 350 | 450 | 295 |
| Foster Lake Inflow ^{1,2} | FEB-MAY | 710 | 915 | 1010 | 110% | 1120 | 1370 | 915 |
| | APR-JUL | 325 | 475 | 550 | 104% | 630 | 830 | 530 |
| | APR-SEP | 355 | 505 | 580 | 103% | 660 | 855 | 565 |
| South Santiam R at Waterloo ² | FEB-MAY | 835 | 975 | 1080 | 109% | 1190 | 1350 | 990 |
| | APR-JUL | 395 | 500 | 580 | 105% | 665 | 805 | 555 |
| | APR-SEP | 425 | 530 | 610 | 103% | 695 | 830 | 590 |
| Willamette R at Salem ^{1,2} | FEB-MAY | 5750 | 7530 | 8420 | 112% | 9350 | 11600 | 7490 |
| | APR-JUL | 3040 | 4240 | 4850 | 113% | 5510 | 7090 | 4310 |
| | APR-SEP | 3410 | 4660 | 5280 | 112% | 5950 | 7560 | 4730 |
| Scoggins Reservoir Inflow ² | FEB-JUL | 37 | 48 | 55 | 138% | 63 | 74 | 40 |
| Oak Grove Fk ab Powerplant | APR-JUL | 100 | 116 | 127 | 110% | 138 | 154 | 115 |
| | APR-SEP | 131 | 150 | 163 | 105% | 177 | 196 | 155 |
| Clackamas R above Three Lynx | APR-JUL | 345 | 400 | 440 | 98% | 475 | 530 | 450 |
| | APR-SEP | 425 | 480 | 520 | 97% | 560 | 620 | 535 |
| Clackamas R at Estacada | APR-JUL | 460 | 545 | 600 | 96% | 655 | 740 | 625 |
| | APR-SEP | 555 | 640 | 700 | 96% | 755 | 845 | 730 |

* 90%, 70%, 50%, 30% & 10% exceedance probabilities are the chance that observed streamflow volume will exceed the forecasted volume

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

| Reservoir Storage | Current (KAF) | Last Year (KAF) | Average (KAF) | % of Average | Useable Capacity (KAF) |
|--------------------------|--------------------------|----------------------------|--------------------------|-------------------------|---------------------------------------|
| Blue River | 9.8 | 5.1 | 9.5 | 103% | 82.3 |
| Cottage Grove | 6.3 | 3.9 | 4.9 | 129% | 31.8 |
| Cougar | 37.7 | 42.2 | 55.3 | 68% | 174.9 |
| Detroit | 187.8 | 179.2 | 180.5 | 104% | 426.8 |
| Dorena | 13.9 | 11.2 | 11.7 | 119% | 72.1 |
| Fall Creek | 17.4 | 11.0 | 16.5 | 105% | 116.0 |
| Fern Ridge | 9.2 | 8.9 | 16.0 | 58% | 97.3 |
| Foster | 23.6 | 22.9 | 22.8 | 103% | 46.2 |
| Green Peter | 177.9 | 161.9 | 182.9 | 97% | 402.8 |
| Hills Creek | 98.0 | 91.2 | 105.8 | 93% | 279.2 |
| Lookout Point | 143.4 | 121.5 | 143.9 | 100% | 433.2 |
| Timothy Lake | 51.3 | 53.9 | 51.0 | 101% | 63.6 |
| Henry Hagg Lake | 39.4 | 38.1 | 38.0 | 104% | 53.3 |

Willamette Basin Summary for February 1, 2016

| Snowpack Summary by Basin | Basin Snowpack % of Median | | |
|------------------------------|-------------------------------|------------|---------|
| | # of Sites | Current Yr | Last Yr |
| Clackamas Basin | 11 | 98% | 16% |
| McKenzie Basin | 17 | 121% | 31% |
| Middle Fork Willamette Basin | 7 | 122% | 25% |
| North Santiam Basin | 4 | 100% | 0% |
| South Santiam Basin | 4 | 99% | 0% |

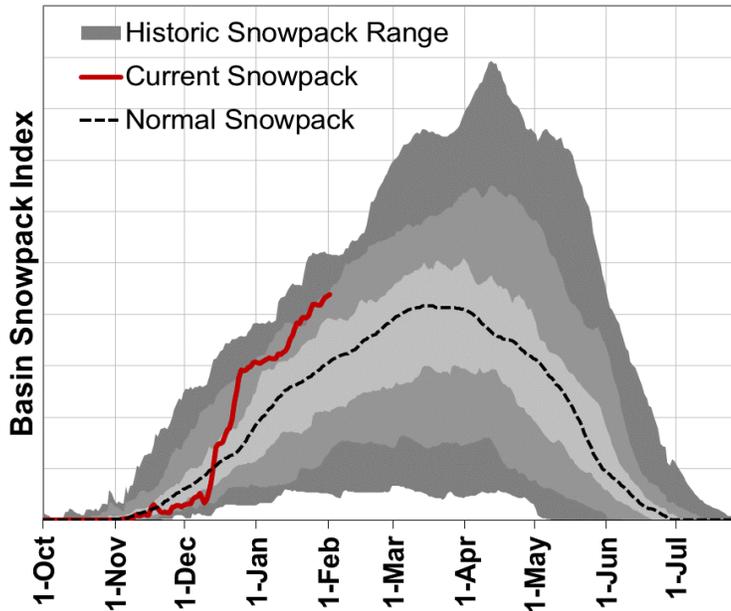
| Basin Snowpack Measurement Sites | Elevation (ft) | Date Measured | Depth (in) | Snow Water Equivalent (in) | | | |
|----------------------------------|-------------------|------------------|---------------|----------------------------|----------------|--------|----------------|
| | | | | Current SWE | Last Yr SWE | Median | % of Median |
| Summit Lake SNOTEL | 5610 | 1-Feb | 83 | 32.9 | 8.3 | 23.7 | 139% |
| Irish Taylor SNOTEL | 5540 | 1-Feb | 76 | 24.9 | 9.2 | 22.7 | 110% |
| Cascade Summit SNOTEL | 5100 | 1-Feb | 77 | 24.9 | 7.0 | 20.4 | 122% |
| Roaring River SNOTEL | 4950 | 1-Feb | 57 | 20.0 | 1.9 | 18.6 | 108% |
| Holland Meadows SNOTEL | 4930 | 1-Feb | 54 | 20.3 | 0.0 | 16.0 | 127% |
| McKenzie SNOTEL | 4770 | 1-Feb | 67 | 25.1 | 7.3 | 29.8 | 84% |
| Bear Grass SNOTEL | 4720 | 1-Feb | 81 | 32.3 | 3.3 | | |
| Salt Creek Falls SNOTEL | 4220 | 1-Feb | 50 | 17.0 | 2.3 | 13.9 | 122% |
| Mud Ridge SNOTEL | 4070 | 1-Feb | 50 | 18.7 | 3.8 | 18.5 | 101% |
| Little Meadows SNOTEL | 4020 | 1-Feb | 47 | 18.4 | 0.0 | 16.6 | 111% |
| Clear Lake SNOTEL | 3810 | 1-Feb | 27 | 9.3 | 0.0 | 9.7 | 96% |
| Santiam Jct. SNOTEL | 3740 | 1-Feb | 37 | 12.9 | 0.0 | 13.5 | 96% |
| Daly Lake SNOTEL | 3690 | 1-Feb | 26 | 8.3 | 0.0 | 10.0 | 83% |
| Marys Peak (Rev.) Snow Course | 3580 | 29-Jan | 0 | 0.0 | 0.0 | 1.2 | 0% |
| Jump Off Joe SNOTEL | 3520 | 1-Feb | 28 | 7.9 | 0.0 | 9.1 | 87% |
| Peavine Ridge SNOTEL | 3420 | 1-Feb | 25 | 9.0 | 0.0 | 10.3 | 87% |
| Clackamas Lake SNOTEL | 3400 | 1-Feb | 28 | 9.0 | 0.0 | 9.2 | 98% |
| Smith Ridge SNOTEL | 3270 | 1-Feb | 17 | 6.2 | 0.0 | | |
| Saddle Mountain SNOTEL | 3110 | 1-Feb | 2 | 0.5 | 0.0 | | |
| Railroad Overpass SNOTEL | 2680 | 1-Feb | 2 | 0.5 | 0.0 | 0.0 | |
| Marion Forks SNOTEL | 2590 | 1-Feb | 15 | 6.8 | 0.0 | 6.3 | 108% |
| Seine Creek SNOTEL | 2060 | 1-Feb | 0 | 0.0 | 0.0 | 0.2 | 0% |
| Miller Woods SNOTEL | 420 | 1-Feb | 1 | 0.0 | 0.0 | | |



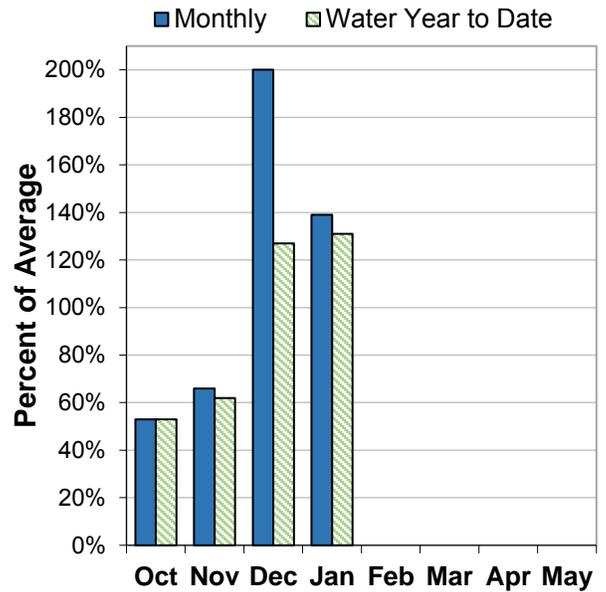
Rogue and Umpqua Basins

February 1, 2016

Mountain Snowpack



Basin Precipitation



Summary of Water Supply Conditions

SNOWPACK

As of February 1, the basin snowpack was 140% of normal. The snowpack in this basin has reached approximately 90% of its normal peak amount for the season. Billie Creek Divide SNOTEL site recorded the highest February 1 snowpack in its 37 years of record. The site has 28.5 inches of snow water content, 74 inches of depth and was 171% of normal. Last year, the site had record low snowpack on February 1 (2.4 inches of snow water) and was a mere 14% of normal.

PRECIPITATION

January precipitation was 139% of average. Precipitation since the beginning of the water year (October 1 - February 1) has been 131% of average.

RESERVOIR

As of February 1, storage at major reservoirs in the basin ranges from 31% of average at Hyatt Prairie Reservoir to 102% of average at Lost Creek Reservoir.

STREAMFLOW FORECAST

As of February 1, summer streamflow forecasts in the basin range from 116% to 132% of average. Overall, forecasts increased slightly from last month's report. If conditions remain similar, water supplies in the basin are likely to be above normal to well above normal this summer.

Rogue And Umpqua Basins Summary for February 1, 2016

| Forecast Exceedance Probabilities for Risk Assessment * | | | | | | | | |
|---|--------------------|--|--------------|--------------|-------|--------------|--------------|------------------|
| Streamflow Forecasts February 1, 2016 | Forecast Period | ←-----Drier-----Future Conditions-----Wetter-----→ | | | | | | Average (KAF) |
| | | 90% (KAF) | 70% (KAF) | 50% (KAF) | % Avg | 30% (KAF) | 10% (KAF) | |
| Hyatt Reservoir Inflow ² | APR-JUL | 1.50 | 3.3 | 4.5 | 125% | 5.7 | 7.4 | 3.6 |
| South Umpqua R at Tiller | APR-JUL | 156 | 205 | 240 | 124% | 275 | 325 | 193 |
| | APR-SEP | 165 | 215 | 250 | 125% | 285 | 340 | 200 |
| Cow Ck nr Azalea ² | FEB-JUL | 21 | 38 | 49 | 136% | 60 | 76 | 36 |
| | APR-JUL | 8.8 | 15.4 | 19.8 | 135% | 24 | 31 | 14.7 |
| | APR-SEP | 9.9 | 16.8 | 21 | 132% | 26 | 33 | 15.9 |
| South Umpqua R nr Brockway | APR-JUL | 295 | 420 | 505 | 129% | 585 | 710 | 390 |
| | APR-SEP | 315 | 440 | 525 | 128% | 610 | 735 | 410 |
| North Umpqua R at Winchester | APR-JUL | 645 | 795 | 895 | 115% | 1000 | 1150 | 775 |
| | APR-SEP | 765 | 920 | 1030 | 116% | 1130 | 1290 | 890 |
| Lost Creek Lk Inflow ² | FEB-JUL | 780 | 890 | 965 | 121% | 1040 | 1150 | 795 |
| | FEB-SEP | 900 | 1020 | 1110 | 121% | 1190 | 1310 | 920 |
| | APR-JUL | 500 | 575 | 625 | 120% | 675 | 750 | 520 |
| | APR-SEP | 625 | 710 | 770 | 119% | 830 | 915 | 645 |
| Rogue R at Raygold ² | APR-JUL | 595 | 745 | 840 | 124% | 940 | 1090 | 675 |
| | APR-SEP | 740 | 895 | 1000 | 124% | 1110 | 1260 | 805 |
| Rogue R at Grants Pass ² | APR-JUL | 635 | 800 | 915 | 126% | 1030 | 1190 | 725 |
| | APR-SEP | 760 | 940 | 1060 | 125% | 1190 | 1370 | 845 |
| Applegate Lake Inflow ² | FEB-JUL | 146 | 205 | 250 | 128% | 300 | 380 | 195 |
| | FEB-SEP | 164 | 225 | 270 | 135% | 310 | 370 | 200 |
| | APR-JUL | 81 | 115 | 142 | 130% | 171 | 220 | 109 |
| | APR-SEP | 100 | 130 | 151 | 131% | 172 | 205 | 115 |
| Sucker Ck bl Ltl Grayback Ck nr Holland | APR-JUL | 36 | 54 | 68 | 124% | 84 | 111 | 55 |
| | APR-SEP | 40 | 58 | 73 | 124% | 89 | 116 | 59 |
| Illinois R nr Kerby | APR-JUL | 130 | 195 | 240 | 128% | 280 | 345 | 188 |
| | APR-SEP | 136 | 200 | 245 | 127% | 290 | 355 | 193 |

* 90%, 70%, 50%, 30% & 10% exceedance probabilities are the chance that observed streamflow volume will exceed the forecasted volume
 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Rogue And Umpqua Basins Summary for February 1, 2016

| Reservoir Storage | Current | Last Year | Average | % of | Useable |
|-------------------|---------|-----------|---------|---------|----------|
| | (KAF) | (KAF) | (KAF) | Average | Capacity |
| Applegate | 10.3 | 10.4 | 10.8 | 95% | 75.2 |
| Emigrant Lake | 18.1 | 13.6 | 21.6 | 84% | 39.0 |
| Fish Lake | 2.8 | 3.7 | 4.8 | 58% | 7.9 |
| Fourmile Lake | 3.5 | 5.1 | 6.9 | 50% | 15.6 |
| Howard Prairie | 14.5 | 19.6 | 36.1 | 40% | 62.1 |
| Hyatt Prairie | 3.1 | 3.7 | 10.2 | 31% | 16.2 |
| Lost Creek | 165.5 | 172.5 | 161.8 | 102% | 315.0 |

| Snowpack Summary by Basin | Basin Snowpack % of Median | | |
|---------------------------|-------------------------------|------------|---------|
| | # of Sites | Current Yr | Last Yr |
| Applegate Basin | 5 | 129% | 9% |
| Middle Rogue Basin | 8 | 150% | 6% |
| North Umpqua Basin | 7 | 150% | 17% |
| South Umpqua Basin | 10 | 209% | 0% |
| Upper Rogue Basin | 11 | 135% | 19% |

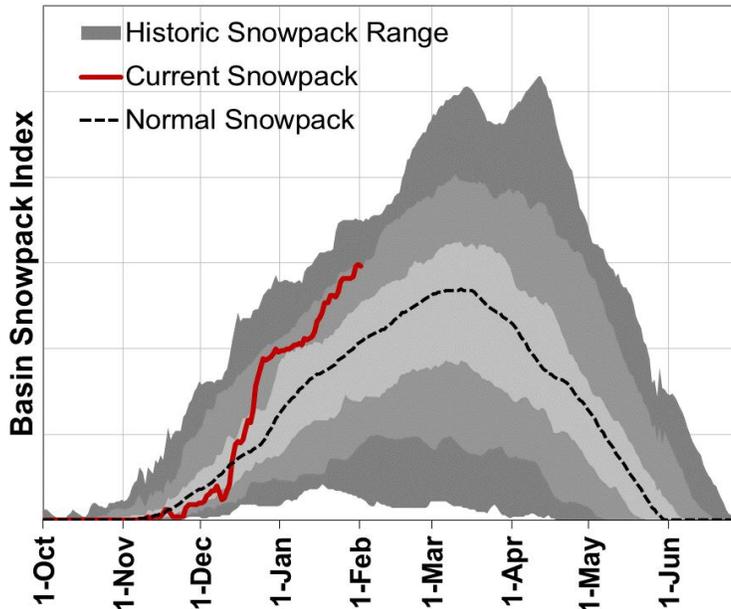
| Basin Snowpack Measurement Sites | Elevation (ft) | Date Measured | Depth (in) | Snow Water Equivalent (in) | | | |
|------------------------------------|-------------------|------------------|---------------|----------------------------|----------------|--------|----------------|
| | | | | Current SWE | Last Yr SWE | Median | % of Median |
| Park H.Q. Rev Snow Course | 6570 | 2-Feb | 137 | 49.8 | 16.4 | 36.9 | 135% |
| Caliban (Alt.) Snow Course | 6500 | 29-Jan | 74 | 24.0 | 2.8 | 20.2 | 119% |
| Mt. Ashland Switchback Snow Course | 6430 | 29-Jan | 72 | 23.8 | 1.3 | 21.2 | 112% |
| Ski Bowl Road Snow Course | 6070 | 29-Jan | 60 | 20.8 | 0.0 | 15.0 | 139% |
| Big Red Mountain SNOTEL | 6050 | 1-Feb | 68 | 23.6 | 3.3 | 17.6 | 134% |
| Annie Springs SNOTEL | 6010 | 1-Feb | 102 | 35.4 | 9.4 | 26.8 | 132% |
| Fourmile Lake SNOTEL | 5970 | 1-Feb | 88 | 27.5 | 4.7 | 21.2 | 130% |
| Cold Springs Camp SNOTEL | 5940 | 1-Feb | 70 | 26.7 | 1.2 | 22.5 | 119% |
| Sevenmile Marsh SNOTEL | 5700 | 1-Feb | 81 | 26.6 | 1.0 | 20.0 | 133% |
| Summit Lake SNOTEL | 5610 | 1-Feb | 83 | 32.9 | 8.3 | 23.7 | 139% |
| Billie Creek Divide SNOTEL | 5280 | 1-Feb | 74 | 28.5 | 2.4 | 16.7 | 171% |
| Diamond Lake SNOTEL | 5280 | 1-Feb | 43 | 18.3 | 0.0 | 12.2 | 150% |
| Bigelow Camp SNOTEL | 5130 | 1-Feb | 41 | 14.8 | 0.0 | 8.9 | 166% |
| Beaver Dam Creek Snow Course | 5120 | 1-Feb | 34 | 7.0 | 0.0 | 10.2 | 69% |
| King Mountain 1 Snow Course | 4760 | 28-Jan | 32 | 12.3 | 0.0 | 3.8 | 324% |
| Deadwood Junction Snow Course | 4660 | 1-Feb | 27 | 9.7 | 0.0 | 6.2 | 156% |
| Fish Lk. SNOTEL | 4660 | 1-Feb | 45 | 15.3 | 0.0 | 9.1 | 168% |
| Howard Prairie SNOTEL | 4580 | 1-Feb | 22 | 8.2 | 0.0 | | |
| Howard Prairie Snow Course | 4580 | 1-Feb | 16 | 5.9 | 0.0 | 5.9 | 100% |
| Siskiyou Summit Rev. Snow Course | 4560 | 29-Jan | 29 | 12.4 | 0.0 | 5.0 | 248% |
| Red Butte 1 Snow Course | 4460 | 29-Jan | 39 | 14.7 | 0.0 | 7.4 | 199% |
| King Mountain SNOTEL | 4340 | 1-Feb | 18 | 8.1 | 0.0 | 2.5 | 324% |
| Red Butte 2 Snow Course | 4050 | 29-Jan | 10 | 3.0 | 0.0 | 2.3 | 130% |
| Silver Burn Snow Course | 3680 | 1-Feb | 42 | 15.5 | 0.0 | 8.2 | 189% |
| King Mountain 3 Snow Course | 3680 | 28-Jan | 0 | 0.0 | 0.0 | 0.0 | |
| Red Butte 3 Snow Course | 3500 | 29-Jan | 2 | 0.5 | 0.0 | 0.4 | 125% |
| Toketee Airstrip SNOTEL | 3240 | 1-Feb | 9 | 4.5 | 0.0 | 3.4 | 132% |
| King Mountain 4 Snow Course | 3050 | 28-Jan | 0 | 0.0 | 0.0 | 0.0 | |
| Red Butte 4 Snow Course | 3000 | 29-Jan | 0 | 0.0 | 0.0 | 0.0 | |



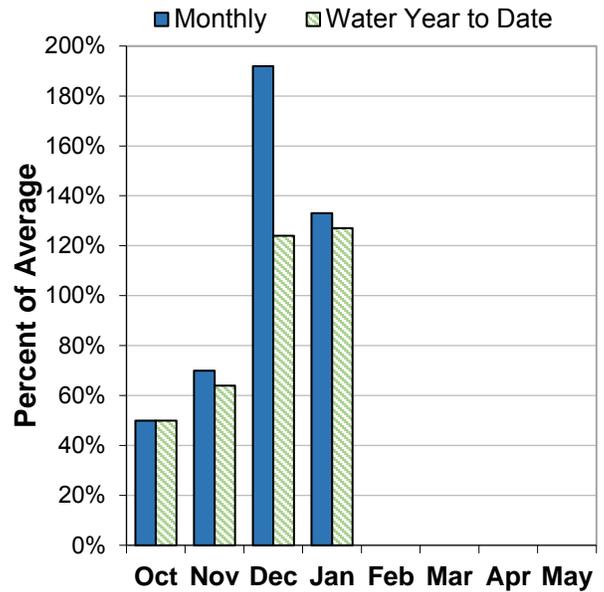
Klamath Basin

February 1, 2016

Mountain Snowpack



Basin Precipitation



Summary of Water Supply Conditions

SNOWPACK

As of February 1, the basin snowpack was 135% of normal. The snowpack in this basin has already reached its normal peak amount for the season. Billie Creek Divide SNOTEL site recorded the highest February 1 snowpack in its 37 years of record. The site has 28.5 inches of snow water content, 74 inches of depth and was 171% of normal. Last year, the site had record low snowpack on February 1 (2.4 inches of snow water) and was a mere 14% of normal.

PRECIPITATION

January precipitation was 133% of average. Precipitation since the beginning of the water year (October 1 - February 1) has been 127% of average.

RESERVOIR

As of February 1, storage at major reservoirs in the basin ranges from 20% of average at Clear Lake to 104% of average at Upper Klamath Lake.

STREAMFLOW FORECAST

As of February 1, summer streamflow forecasts in the basin range from 101% to 118% of average. If conditions remain similar, streamflows in the basin are likely to be near normal to above normal this summer.

Klamath Basin Summary for February 1, 2016

| Forecast Exceedance Probabilities for Risk Assessment * | | | | | | | | |
|--|----------------------------|--|----------------------|----------------------|--------------|----------------------|----------------------|--------------------------|
| Streamflow Forecasts February 1, 2016 | Forecast Period | ←-----Drier-----Future Conditions-----Wetter-----→ | | | | | | Average (KAF) |
| | | 90% (KAF) | 70% (KAF) | 50% (KAF) | % Avg | 30% (KAF) | 10% (KAF) | |
| Gerber Reservoir Inflow ² | FEB-JUL | 22 | 39 | 50 | 122% | 61 | 78 | 41 |
| | APR-SEP | 1.54 | 10.7 | 17.0 | 118% | 23 | 32 | 14.4 |
| Sprague R nr Chiloquin | FEB-JUL | 169 | 240 | 310 | 105% | 340 | 415 | 295 |
| | FEB-SEP | 205 | 285 | 335 | 105% | 385 | 465 | 320 |
| | MAR-SEP | 186 | 250 | 295 | 107% | 335 | 400 | 275 |
| | APR-SEP | 150 | 198 | 230 | 110% | 260 | 310 | 210 |
| Williamson bl Sprague nr Chiloquin | FEB-JUL | 310 | 400 | 480 | 101% | 525 | 615 | 475 |
| | FEB-SEP | 360 | 455 | 540 | 102% | 585 | 680 | 530 |
| | MAR-SEP | 320 | 400 | 455 | 99% | 510 | 590 | 460 |
| | APR-SEP | 265 | 325 | 370 | 104% | 410 | 475 | 355 |
| Upper Klamath Lake Inflow ^{1,2} | FEB-JUL | 390 | 590 | 705 | 98% | 765 | 965 | 720 |
| | FEB-SEP | 445 | 660 | 785 | 98% | 855 | 1070 | 800 |
| | MAR-SEP | 420 | 595 | 665 | 102% | 750 | 925 | 655 |
| | APR-SEP | 310 | 430 | 485 | 101% | 540 | 660 | 480 |

* 90%, 70%, 50%, 30% & 10% exceedance probabilities are the chance that observed streamflow volume will exceed the forecasted volume

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

| Reservoir Storage | Current (KAF) | Last Year (KAF) | Average (KAF) | % of Average | Useable Capacity (KAF) |
|--------------------------|--------------------------|----------------------------|--------------------------|-------------------------|---------------------------------------|
| Clear Lake | 39.3 | 35.9 | 199.0 | 20% | 513.3 |
| Gerber | 16.4 | 12.7 | 43.5 | 38% | 94.3 |
| Upper Klamath Lake | 331.8 | 331.0 | 319.0 | 104% | 523.7 |

| Snowpack Summary by Basin | Basin Snowpack % of Median | | |
|----------------------------------|---------------------------------------|-------------------|----------------|
| | # of Sites | Current Yr | Last Yr |
| Lost Basin | 5 | 143% | 0% |
| Sprague Basin | 6 | 142% | 22% |
| Upper Klamath Lake Basin | 8 | 133% | 21% |
| Williamson River Basin | 5 | 139% | 29% |

Klamath Basin Summary for February 1, 2016

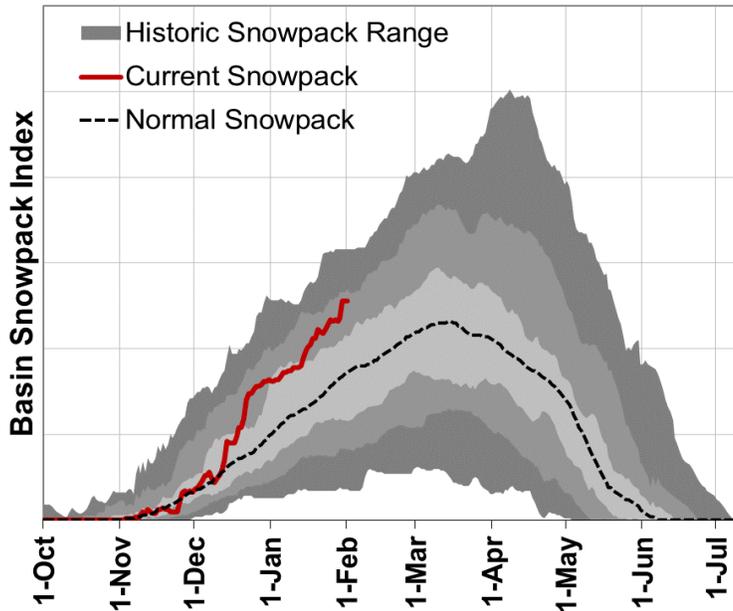
| Basin Snowpack Measurement Sites | Elevation (ft) | Date Measured | Depth (in) | Snow Water Equivalent (in) | | | |
|----------------------------------|----------------|---------------|------------|----------------------------|-------------|--------|-------------|
| | | | | Current SWE | Last Yr SWE | Median | % of Median |
| Summer Rim SNOTEL | 7080 | 1-Feb | 40 | 13.3 | 5.2 | 11.1 | 120% |
| Swan Lake Mtn SNOTEL | 6830 | 1-Feb | 70 | 24.2 | 7.5 | | |
| Park H.Q. Rev Snow Course | 6570 | 2-Feb | 137 | 49.8 | 16.4 | 36.9 | 135% |
| Colvin Creek AM | 6520 | 1-Feb | 18 | 6.3 | 0.0 | 2.5 | 252% |
| Crazyman Flat SNOTEL | 6180 | 1-Feb | 49 | 15.8 | 2.6 | 10.9 | 145% |
| Ski Bowl Road Snow Course | 6070 | 29-Jan | 60 | 20.8 | 0.0 | 15.0 | 139% |
| Annie Springs SNOTEL | 6010 | 1-Feb | 102 | 35.4 | 9.4 | 26.8 | 132% |
| Finley Corrals AM | 6000 | 1-Feb | 47 | 16.0 | | 9.8 | 163% |
| Fourmile Lake SNOTEL | 5970 | 1-Feb | 88 | 27.5 | 4.7 | 21.2 | 130% |
| Cold Springs Camp SNOTEL | 5940 | 1-Feb | 70 | 26.7 | 1.2 | 22.5 | 119% |
| Strawberry SNOTEL | 5770 | 1-Feb | 17 | 5.9 | 0.0 | 4.4 | 134% |
| Cox Flat AM | 5750 | 1-Feb | 23 | 7.8 | 0.0 | 5.4 | 144% |
| Silver Creek SNOTEL | 5740 | 1-Feb | 33 | 11.9 | 1.6 | 8.1 | 147% |
| Quartz Mountain SNOTEL | 5720 | 1-Feb | 13 | 4.6 | 0.0 | 1.5 | 307% |
| Sevenmile Marsh SNOTEL | 5700 | 1-Feb | 81 | 26.6 | 1.0 | 20.0 | 133% |
| State Line AM | 5690 | 1-Feb | 19 | 7.0 | 0.0 | 3.8 | 184% |
| State Line SNOTEL | 5680 | 1-Feb | 22 | 8.1 | 0.0 | | |
| Sycan Flat AM | 5580 | 1-Feb | 18 | 6.5 | | 4.0 | 163% |
| Sun Pass SNOTEL | 5400 | 1-Feb | 69 | 22.3 | 0.1 | | |
| Billie Creek Divide SNOTEL | 5280 | 1-Feb | 74 | 28.5 | 2.4 | 16.7 | 171% |
| Diamond Lake SNOTEL | 5280 | 1-Feb | 43 | 18.3 | 0.0 | 12.2 | 150% |
| Crowder Flat SNOTEL | 5170 | 1-Feb | 13 | 5.2 | 0.0 | 3.7 | 141% |
| Beaver Dam Creek Snow Course | 5120 | 1-Feb | 34 | 7.0 | 0.0 | 10.2 | 69% |
| Taylor Butte SNOTEL | 5030 | 1-Feb | 16 | 6.6 | 0.0 | 5.5 | 120% |
| Dog Hollow AM | 4920 | 1-Feb | 1 | 0.1 | 0.0 | 1.0 | 10% |
| Gerber Reservoir SNOTEL | 4890 | 1-Feb | 7 | 2.4 | 0.0 | 1.5 | 160% |
| Chemult Alternate SNOTEL | 4850 | 1-Feb | 45 | 13.8 | 0.1 | 7.6 | 182% |
| Deadwood Junction Snow Course | 4660 | 1-Feb | 27 | 9.7 | 0.0 | 6.2 | 156% |
| Fish Lk. SNOTEL | 4660 | 1-Feb | 45 | 15.3 | 0.0 | 9.1 | 168% |
| Howard Prairie SNOTEL | 4580 | 1-Feb | 22 | 8.2 | 0.0 | | |
| Howard Prairie Snow Course | 4580 | 1-Feb | 16 | 5.9 | 0.0 | 5.9 | 100% |
| Siskiyou Summit Rev. Snow Course | 4560 | 29-Jan | 29 | 12.4 | 0.0 | 5.0 | 248% |



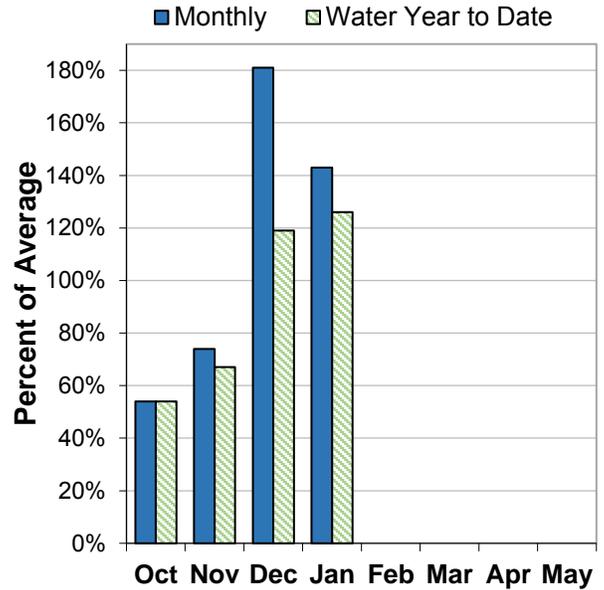
Lake County and Goose Lake Basins

February 1, 2016

Mountain Snowpack



Basin Precipitation



Summary of Water Supply Conditions

SNOWPACK

As of February 1, the basin snowpack was 146% of normal. The snowpack in this basin has already reached its normal peak amount for the season.

PRECIPITATION

January precipitation was 143% of average. Precipitation since the beginning of the water year (October 1 - February 1) has been 126% of average.

RESERVOIR

Reservoir storage across the basin is currently well below average. As of February 1, storage at major reservoirs in the basin ranges from 26% of average at Cottonwood Reservoir to 32% of average at Drews Reservoir.

STREAMFLOW FORECAST

As of February 1, summer streamflow forecasts in the basin range from 126% to 137% of average. Overall, forecasts increased significantly from last month's report. If conditions remain similar, streamflows in the basin are likely to be well above normal this summer.

Lake County And Goose Lake Basins Summary for February 1, 2016

| Forecast Exceedance Probabilities for Risk Assessment * | | | | | | | | |
|--|----------------------------|--|----------------------|----------------------|--------------|----------------------|----------------------|--------------------------|
| Streamflow Forecasts February 1, 2016 | Forecast Period | ←-----Drier-----Future Conditions-----Wetter-----→ | | | | | | Average (KAF) |
| | | 90% (KAF) | 70% (KAF) | 50% (KAF) | % Avg | 30% (KAF) | 10% (KAF) | |
| Twentymile Ck nr Adel | MAR-JUL | 13.2 | 27 | 36 | 133% | 45 | 59 | 27 |
| | APR-SEP | 5.3 | 15.2 | 22 | 126% | 29 | 39 | 17.4 |
| Deep Ck ab Adel | MAR-JUL | 70 | 89 | 102 | 129% | 115 | 134 | 79 |
| | APR-SEP | 55 | 71 | 82 | 126% | 93 | 109 | 65 |
| Honey Ck nr Plush | MAR-JUL | 13.0 | 20 | 25 | 146% | 30 | 37 | 17.1 |
| | APR-SEP | 9.0 | 15.1 | 19.3 | 137% | 23 | 30 | 14.1 |
| Chewaucan R nr Paisley | MAR-JUL | 85 | 103 | 115 | 137% | 127 | 145 | 84 |
| | APR-SEP | 75 | 90 | 101 | 135% | 112 | 127 | 75 |

* 90%, 70%, 50%, 30% & 10% exceedance probabilities are the chance that observed streamflow volume will exceed the forecasted volume

| Reservoir Storage | | | | | Useable Capacity |
|--------------------------|--------------------------|----------------------------|--------------------------|-------------------------|-----------------------------|
| | Current (KAF) | Last Year (KAF) | Average (KAF) | % of Average | (KAF) |
| Cottonwood | 1.0 | 2.6 | 3.9 | 26% | 9.3 |
| Drews | 9.2 | 8.5 | 28.4 | 32% | 63.5 |

| Snowpack Summary by Basin | Basin Snowpack % of Median | | |
|----------------------------------|---------------------------------------|-------------------|----------------|
| | # of Sites | Current Yr | Last Yr |
| Goose Lake Basin | 7 | 149% | 33% |
| Lake Abert Basin | 5 | 145% | 28% |
| Summer Lake Basin | 13 | 146% | 34% |
| Upper Pit Basin | 3 | 174% | 22% |

Lake County And Goose Lake Basins Summary for February 1, 2016

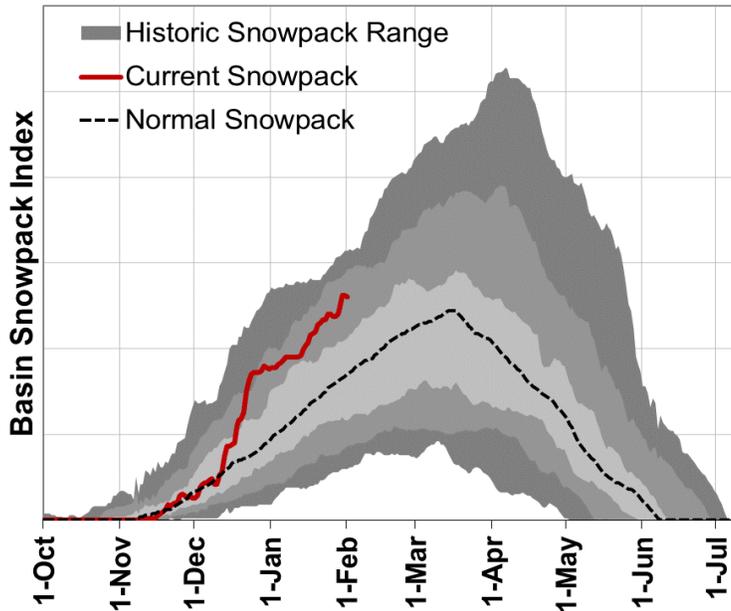
| Basin Snowpack Measurement Sites | Elevation (ft) | Date Measured | Depth (in) | Snow Water Equivalent (in) | | | |
|----------------------------------|----------------|---------------|------------|----------------------------|-------------|--------|-------------|
| | | | | Current SWE | Last Yr SWE | Median | % of Median |
| Dismal Swamp SNOTEL | 7360 | 1-Feb | 81 | 27.0 | 12.2 | 18.0 | 150% |
| Summer Rim SNOTEL | 7080 | 1-Feb | 40 | 13.3 | 5.2 | 11.1 | 120% |
| Cedar Pass Snow Course | 7050 | 28-Jan | 50 | 17.4 | 4.4 | 10.2 | 171% |
| Cedar Pass SNOTEL | 7030 | 1-Feb | 58 | 19.1 | 4.5 | 11.3 | 169% |
| Barley Camp AM | 6890 | 1-Feb | 48 | 15.4 | 4.4 | 10.0 | 154% |
| Blue Lake Ranch Snow Course | 6830 | 1-Feb | 38 | 11.6 | 0.8 | 6.3 | 184% |
| Patton Meadows AM | 6800 | 1-Feb | 47 | 15.5 | 4.0 | 10.2 | 152% |
| Sherman Valley AM | 6640 | 1-Feb | 33 | 11.2 | 2.3 | 8.0 | 140% |
| Bear Flat Meadow AM | 6580 | 1-Feb | 30 | 9.6 | | 7.4 | 130% |
| Colvin Creek AM | 6520 | 1-Feb | 18 | 6.3 | 0.0 | 2.5 | 252% |
| Hart Mountain AM | 6430 | 1-Feb | 7 | 2.4 | 0.0 | 1.4 | 171% |
| Rogger Meadow AM | 6360 | 1-Feb | 31 | 10.5 | 0.7 | 7.7 | 136% |
| Adin Mtn Snow Course | 6190 | 2-Feb | 49 | 15.4 | 0.6 | 8.8 | 175% |
| Adin Mtn SNOTEL | 6190 | 1-Feb | 47 | 16.8 | 0.7 | 8.6 | 195% |
| Crazyman Flat SNOTEL | 6180 | 1-Feb | 49 | 15.8 | 2.6 | 10.9 | 145% |
| Finley Corrals AM | 6000 | 1-Feb | 47 | 16.0 | | 9.8 | 163% |
| Camas Creek #3 Snow Course | 5860 | 2-Feb | 41 | 13.2 | 2.4 | 8.8 | 150% |
| Sheldon SCAN | 5860 | 1-Feb | 3 | 0.6 | 0.0 | 0.4 | 150% |
| Strawberry SNOTEL | 5770 | 1-Feb | 17 | 5.9 | 0.0 | 4.4 | 134% |
| Cox Flat AM | 5750 | 1-Feb | 23 | 7.8 | 0.0 | 5.4 | 144% |
| Silver Creek SNOTEL | 5740 | 1-Feb | 33 | 11.9 | 1.6 | 8.1 | 147% |
| State Line AM | 5690 | 1-Feb | 19 | 7.0 | 0.0 | 3.8 | 184% |
| State Line SNOTEL | 5680 | 1-Feb | 22 | 8.1 | 0.0 | | |
| Sycan Flat AM | 5580 | 1-Feb | 18 | 6.5 | | 4.0 | 163% |
| Crowder Flat SNOTEL | 5170 | 1-Feb | 13 | 5.2 | 0.0 | 3.7 | 141% |



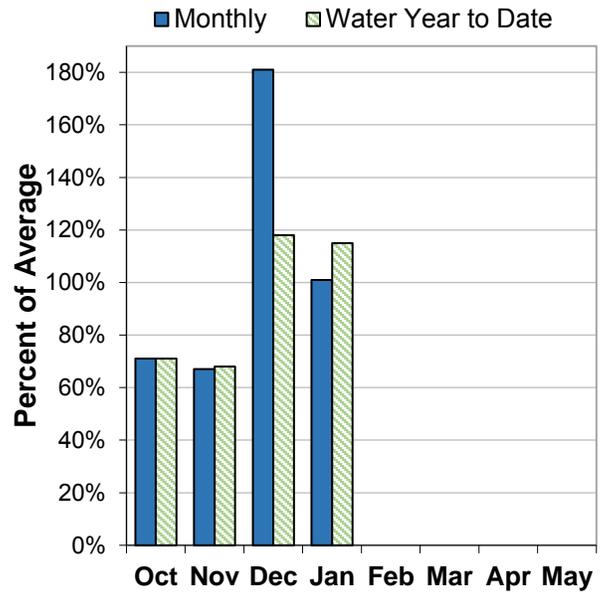
Harney Basin

February 1, 2016

Mountain Snowpack



Basin Precipitation



Summary of Water Supply Conditions

SNOWPACK

As of February 1, the basin snowpack was 149% of normal. The snowpack in this basin has already reached its normal peak amount for the season. Both Starr Ridge and Rock Springs SNOTEL sites reported the second highest February 1 snowpack since records began in 1981. Snowpack measurements at both sites were over 150% of normal.

PRECIPITATION

January precipitation was 101% of average. Precipitation since the beginning of the water year (October 1 - February 1) has been 115% of average.

STREAMFLOW FORECAST

As of February 1, summer streamflow forecasts in the basin range from 115% to 185% of average. Overall, forecasts increased significantly from last month's report. If conditions remain similar, water supplies in the basin are likely to be above normal to well above normal this summer.

Harney Basin Summary for February 1, 2016

| Forecast Exceedance Probabilities for Risk Assessment * | | | | | | | | |
|--|----------------------------|--|----------------------|----------------------|--------------|----------------------|----------------------|--------------------------|
| Streamflow Forecasts February 1, 2016 | Forecast Period | ←-----Drier-----Future Conditions-----Wetter-----→ | | | | | | Average (KAF) |
| | | 90% (KAF) | 70% (KAF) | 50% (KAF) | % Avg | 30% (KAF) | 10% (KAF) | |
| Silvies R nr Burns | MAR-JUL | 155 | 200 | 230 | 187% | 260 | 305 | 123 |
| | APR-SEP | 115 | 148 | 170 | 185% | 192 | 225 | 92 |
| Donner Und Blitzen R nr Frenchglen | MAR-JUL | 53 | 72 | 84 | 117% | 96 | 115 | 72 |
| | APR-SEP | 47 | 66 | 78 | 115% | 90 | 109 | 68 |
| Trout Ck nr Denio | MAR-JUL | 8.2 | 11.4 | 13.6 | 156% | 15.8 | 19.0 | 8.7 |
| | APR-SEP | 7.0 | 10.3 | 12.5 | 156% | 14.7 | 18.0 | 8.0 |

* 90%, 70%, 50%, 30% & 10% exceedance probabilities are the chance that observed streamflow volume will exceed the forecasted volume

| Snowpack Summary by Basin | Basin Snowpack % of Median | | |
|----------------------------------|---------------------------------------|-------------------|----------------|
| | # of Sites | Current Yr | Last Yr |
| Alvord Lake Basin | 6 | 152% | 80% |
| Donner und Blitzen River Basin | 3 | 157% | 79% |
| Silvies River Basin | 4 | 160% | 71% |
| Upper Quinn Basin | 6 | 136% | 54% |

| Basin Snowpack Measurement Sites | Elevation (ft) | Date Measured | Depth (in) | Snow Water Equivalent (in) | | | |
|---|---------------------------|--------------------------|-----------------------|-----------------------------------|------------------------|---------------|------------------------|
| | | | | Current SWE | Last Yr SWE | Median | % of Median |
| Granite Peak SNOTEL | 8543 | 1-Feb | 60 | 17.3 | 8.3 | 12.1 | 143% |
| Trout Creek AM | 7890 | 1-Feb | 31 | 9.0 | 7.6 | 8.2 | 110% |
| Fish Creek SNOTEL | 7660 | 1-Feb | 68 | 28.0 | 19.2 | 15.8 | 177% |
| Govt Corrals AM | 7400 | 1-Feb | 36 | 10.4 | 7.4 | 7.5 | 139% |
| Oregon Canyon AM | 7050 | 2-Feb | 17 | 4.6 | 0.0 | 4.0 | 115% |
| Silvies SNOTEL | 6990 | 1-Feb | 39 | 11.6 | 5.1 | 9.6 | 121% |
| Pueblo Summit AM | 6970 | 2-Feb | 16 | 4.3 | 0.0 | 1.8 | 239% |
| Buckskin Lower SNOTEL | 6915 | 1-Feb | 38 | 11.4 | 1.8 | 6.5 | 175% |
| V Lake AM | 6600 | 1-Feb | 29 | 8.4 | 0.0 | 5.2 | 162% |
| Louse Canyon AM | 6530 | 2-Feb | 29 | 8.1 | 0.0 | 4.2 | 193% |
| Disaster Peak SNOTEL | 6500 | 1-Feb | 29 | 8.7 | 1.0 | 5.6 | 155% |
| Hart Mountain AM | 6430 | 1-Feb | 7 | 2.4 | 0.0 | 1.4 | 171% |
| Quinn Ridge AM | 6270 | 2-Feb | 20 | 5.6 | 0.0 | 2.0 | 280% |
| Snow Mountain SNOTEL | 6230 | 1-Feb | 29 | 13.1 | 6.4 | 6.3 | 208% |
| Lamance Creek SNOTEL | 6000 | 1-Feb | 31 | 10.2 | 0.0 | 8.0 | 128% |
| Blue Mountain Spring SNOTEL | 5870 | 1-Feb | 53 | 14.8 | 8.0 | 11.2 | 132% |
| Sheldon SCAN | 5860 | 1-Feb | 3 | 0.6 | 0.0 | 0.4 | 150% |
| Call Meadows AM | 5380 | 1-Feb | 34 | 8.8 | | 3.6 | 244% |
| Rock Springs SNOTEL | 5290 | 1-Feb | 26 | 7.2 | 1.9 | 4.7 | 153% |
| Starr Ridge SNOTEL | 5250 | 1-Feb | 25 | 9.4 | 3.5 | 5.3 | 177% |
| Lake Creek R.S. SNOTEL | 5240 | 1-Feb | 39 | 11.5 | 6.4 | 9.4 | 122% |

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

| OWYHEE AND MALHEUR BASINS | | | | | |
|---------------------------|--------------------|--|--------|--------|----------------------------|
| FORECAST POINT | FORECAST THRESHOLD | FORECAST VALUE ----- CHANCE OF EXCEEDING ----- ----- | | | LONG-TERM AVERAGE VALUE |
| | | 90% | 50% | 10% | |
| Owyhee R nr Rome | 2000 cfs | Apr 7 | May 18 | Jun 28 | May 6 |
| Owyhee R nr Rome | 1000 cfs | Apr 21 | Jun 3 | Jul 16 | May 18 |
| Owyhee R nr Rome | 500 cfs | May 12 | Jun 22 | Aug 2 | Jun 2 |

| UPPER JOHN DAY BASIN | | | | | |
|-----------------------------|--------------------------------|--|-----|-----|----------------------------|
| FORECAST POINT | FORECAST THRESHOLD | FORECAST VALUE ----- CHANCE OF EXCEEDING ----- ----- | | | LONG-TERM AVERAGE VALUE |
| | | 90% | 50% | 10% | |
| John Day R at Service Creek | Average Daily Flow on Aug. 1st | 169 | 395 | 620 | 271 |

| UPPER DESCHUTES AND CROOKED BASINS | | | | | |
|------------------------------------|--------------------------------|--|--------|--------|----------------------------|
| FORECAST POINT | FORECAST THRESHOLD | FORECAST VALUE ----- CHANCE OF EXCEEDING ----- ----- | | | LONG-TERM AVERAGE VALUE |
| | | 90% | 50% | 10% | |
| Crane Prairie Inflow * | Date of Peak | May 9 | May 25 | Jun 10 | May 25 |
| Crane Prairie Inflow | Peak Flow | 325 | 480 | 630 | 403 |
| Crane Prairie Inflow | Average Daily Flow on Oct. 1st | 240 | 315 | 385 | 269 |
| Prineville Reservoir Inflow | 150 cfs | May 26 | Jun 19 | Jul 8 | May 30 |
| Prineville Reservoir Inflow | 80 cfs | Jun 1 | Jun 28 | Jul 23 | June 7 |
| Whychus Creek nr Sisters | 100 cfs | Aug 2 | Aug 27 | Sep 21 | August 16 |

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

| ROGUE AND UMPQUA BASINS | | | | | |
|--------------------------------|---------------------------|---|--------|--------|------------------------------------|
| <i>FORECAST POINT</i> | <i>FORECAST THRESHOLD</i> | <i>FORECAST VALUE ----- CHANCE OF EXCEEDING ----- -----</i> | | | <i>LONG-TERM AVERAGE VALUE</i> |
| | | 90% | 50% | 10% | |
| South Umpqua R nr Brockway * | 90 cfs | Aug 2 | Aug 22 | Sep 11 | August 8 |
| South Umpqua R at Tiller | 140 cfs | Jul 1 | Jul 23 | Aug 12 | July 11 |
| South Umpqua R at Tiller | 90 cfs | Jul 18 | Aug 12 | Sep 6 | August 1 |
| South Umpqua R at Tiller | 60 cfs | Aug 7 | Sep 6 | Oct 6 | August 28 |

*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.

| LAKE COUNTY AND GOOSE LAKE BASINS | | | | | |
|--|---------------------------|---|--------|--------|------------------------------------|
| <i>FORECAST POINT</i> | <i>FORECAST THRESHOLD</i> | <i>FORECAST VALUE ----- CHANCE OF EXCEEDING ----- -----</i> | | | <i>LONG-TERM AVERAGE VALUE</i> |
| | | 90% | 50% | 10% | |
| Deep Ck ab Adel | 100 cfs | Jun 9 | Jun 29 | Jul 18 | June 17 |
| Honey Ck nr Plush | 100 cfs | Apr 21 | May 26 | Jun 30 | May 16 |
| Honey Ck nr Plush | 50 cfs | May 11 | Jun 12 | Jul 14 | June 4 |
| Twentymile Ck nr Adel | 50 cfs | May 15 | Jun 14 | Jul 14 | May 30 |
| Twentymile Ck nr Adel | 10 cfs | Jun 25 | Jul 18 | Aug 12 | July 7 |

| HARNEY BASIN | | | | | |
|------------------------------------|---------------------------|---|--------|--------|------------------------------------|
| <i>FORECAST POINT</i> | <i>FORECAST THRESHOLD</i> | <i>FORECAST VALUE ----- CHANCE OF EXCEEDING ----- -----</i> | | | <i>LONG-TERM AVERAGE VALUE</i> |
| | | 90% | 50% | 10% | |
| Silvies R nr Burns | 400 cfs | Apr 29 | May 26 | Jun 22 | May 21 |
| Silvies R nr Burns | 200 cfs | May 17 | Jun 14 | Jul 12 | June 2 |
| Silvies R nr Burns | 100 cfs | Jun 4 | Jul 3 | Aug 2 | June 13 |
| Silvies R nr Burns | 50 cfs | Jun 23 | Jul 28 | Sep 1 | July 3 |
| Donner Und Blitzen R nr Frenchglen | 200 cfs | Jun 5 | Jun 27 | Jul 18 | June 20 |
| Donner Und Blitzen R nr Frenchglen | 100 cfs | Jun 28 | Jul 18 | Aug 7 | July 9 |

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) 414-3271
Web site: <http://www.nrcs.usda.gov/wps/portal/nrcs/main/or/snow/>

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 * ===== | | | | | | |
| | | 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 |

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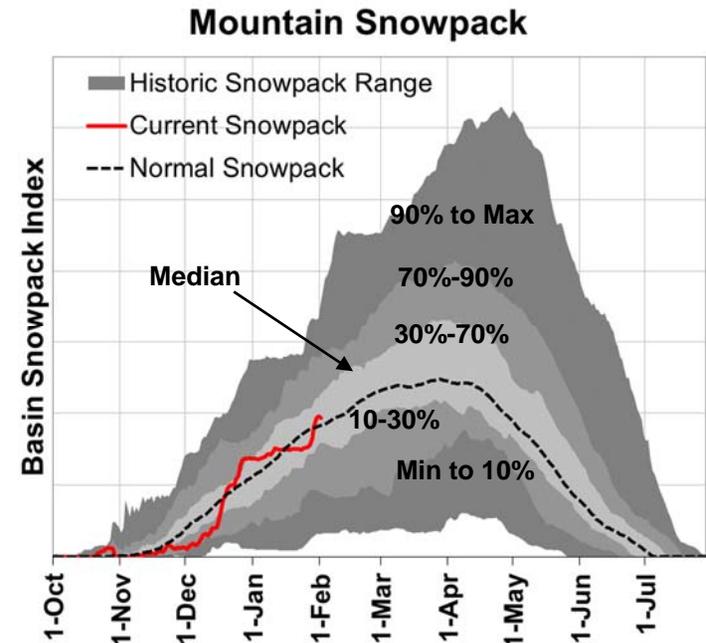
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

Interpreting Snowpack Plots

The basin snowpack plots display an index calculated using daily SNOTEL data for many sites in each basin. They show how the current year's snowpack data compares to historical 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 grey shaded areas represent different percentiles of the historical range of the snowpack index for each day. The dark grey shading indicates the extreme lows and highs in the SNOTEL record (minimum to the 10th percentile and the 90th percentile to maximum). The medium grey shading indicates the range from the 10th to 30th percentiles and the 70th to 90th percentiles. The light grey shading indicates the range between the 30th to 70th percentiles, while the median is the 50th percentile. A percentile is the value of the snowpack index below which the given percent of historical years fall. For instance, the 90th percentile line indicates that the snowpack index has been below this line for 90 percent 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).



Official Business



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

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IMPORTANT NOTICE

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oregon-snow-office@or.usda.gov or 503-414-3272