



United States  
Department of  
Agriculture



Natural Resources  
Conservation  
Service

# Oregon Basin Outlook Report

April 1, 2012



*Photos courtesy of Tom Smith (Retired NRCS, Enterprise) and Mike Burton (NRCS, La Grande)*

The two pictures above were taken of Mirror Lake aerial marker, located in the heart of the Willamette Mountains. Each winter, surveyors fly over the marker and count the visible bars above the snow surface. This information is then converted to estimates of snow depth and water content at that location. The photo on the left is of Mirror Lake aerial marker in the summer. At 24 feet tall, this is the tallest aerial marker in Oregon. The photo on the right is from the April 2, 2012 survey of Mirror Lake, which had an estimated 208" (17.3 ft) of snow depth. The snowpack at Mirror Lake is currently 110% of average.

Another region in Oregon where aerial snow surveys are conducted is in the Owyhee basin. On April 3, all but 3 of the 19 aerial markers had bare ground in the Owyhee basin. These strikingly different survey results reflect the varied snowpack conditions throughout the state. Due to a very snowy March, the mountains of western and northern Oregon have near average to above average snowpacks currently. However, the southeastern basins of Oregon, such as the Owyhee basin, have snowpacks that are still well below normal for this time of year. Reservoir storage might serve as a buffer for water supplies this summer in the basins with low snow amounts.

# Contents

<b>General Outlook .....</b>	<b>1</b>
Owyhee and Malheur Basins .....	4
Burnt, Powder, Grande Ronde, and Imnaha Basins .....	6
Umatilla, Walla Walla, Willow Rock, and Lower John Day Basins.....	9
Upper John Day Basin.....	11
Upper Deschutes and Crooked Basins .....	13
Hood, Mile Creeks, and Lower Deschutes Basins .....	16
Lower Columbia Basin.....	18
Willamette Basin.....	20
Rogue and Umpqua Basins.....	25
Klamath Basin .....	28
Lake County and Goose Lake .....	30
Harney Basin.....	32
<b>Recession Flow Forecasts .....</b>	<b>34</b>
<b>Summary of Snow Course Data .....</b>	<b>36</b>
<b>Basin Outlook Reports: How Forecasts Are Made .....</b>	<b>40</b>
<b>Interpreting Water Supply Forecasts.....</b>	<b>41</b>

# General Outlook

April 1, 2012

## SUMMARY

It's no secret to inhabitants of the Pacific Northwest that March was a wet month. During the first half of March, below average temperatures allowed deep, powdery snow to accumulate across most of the state. Cooler temperatures combined with abundant precipitation caused an unusual amount of low-elevation snow to pile up on the west side of the Cascade Mountains. Cities such as Portland, Eugene, along with many coastal areas, received a rare blanket of March snow. Then, moisture-laden storms with warmer temperatures rolled in during the latter half of March. These storms originated in the tropics and generated significant rains throughout most of Oregon. Rains from this storm system washed away the majority of low-elevation snow that had accumulated earlier in the month. As a result, rivers rose quickly and inundated many agricultural fields.

While March precipitation was above average throughout Oregon, the snowpack ranges from above average in the western half of the state, to well below normal in the southeastern region of the state. Seasonal streamflow forecasts reflect these varied conditions. Average to above average stream volumes are expected in the western part of the state, while below average volumes are expected in the southeastern basins of the state.

The Climate Prediction Center is calling for continued cool and wet conditions throughout April. If realized, this trend could benefit eastern Oregon in particular, by preserving the limited snowpack and delaying spring snowmelt.

## SNOWPACK

The current state-wide snowpack conditions are a classic example of how mountains can create a drastic rain shadow effect. While eastern Oregon has a low snowpack, areas in the western Cascades and the Wallowa Mountains have a plethora of snow. Cool March temperatures brought low-elevation snow all the way to sea level. The heavy wet snow in the valleys caused widespread tree damage and power outages throughout western Oregon.

Even with a wetter than average March, snowpacks in eastern Oregon remain below average. As of April 1, the lowest snowpack in the state is 46 percent of average in the Owyhee and Malheur basins. Below average snowpacks also reside in Harney, Lake County, Goose Lake, the Umatilla, John Day and Klamath basins.

As of April 1, the Hood, Sandy and Lower Deschutes basins have the highest snowpack in the state at 132 percent of average. Snowpack levels at the mid-elevation sites on the west side of the Cascades are well above average, while the higher elevation sites are close to average or slightly above. This spread can be explained by cooler March temperatures which brought ample snow accumulation down to the lower elevations, as well as the lack of early season snow at the higher elevations.

## PRECIPITATION

It depends on who you talk to as to whether or not the abundant precipitation in March was a good thing. Flooded agricultural fields in western Oregon have delayed spring farming operations. Flooding rivers have caused damage and created challenging reservoir operations. Widespread tree damage due to valley snow that fell on soggy soils caused problems for landowners, power companies and transportation officials. However, kayakers and snow sports enthusiasts rejoiced at the abundance of March precipitation.

Almost every SNOTEL site in Oregon recorded above average March precipitation. In fact, 25 Oregon SNOTEL sites had their wettest March on record. Remarkably, several exceeded previous record highs by 4 to 6 inches. Soggy cities such as Portland and Roseburg also had record high March precipitation. For areas in eastern Oregon where snowpacks are still well below normal, the above average March precipitation increased soil moisture, which will likely deliver snowmelt efficiently into the streams and lakes.

## **RESERVOIRS**

Overall, irrigation reservoirs are in good shape throughout Oregon. The April 1 storage at 26 major Oregon reservoirs analyzed in this publication was 98 percent of average. As of April 1, water storage at these reservoirs totaled 2,419 thousand acre feet (kaf), representing 75 percent of useable capacity. Last year at this time these same reservoirs stored 2,424 kaf of water.

Reservoir operators were kept on their toes in western and central Oregon at the end of March, as a rain-on-snow event brought abundant streamflows down from the mountains. The water manager for Henry Hagg Lake reported that the March inflow was over 27,000 acre-feet, which is equivalent to half of the total capacity of the reservoir.

Above average reservoir storage might be the saving grace for eastern Oregon water users, given the current low snowpack conditions. Last year's ample snowpack combined with a cool and rainy spring season led to excellent carryover storage. For example, the Owyhee basin has the lowest snowpack in the state at 46 percent of average. However, the reservoir storage is 103 percent of average as of the end of March. Water users generally need 450,000 acre-feet to meet irrigation demands in this basin and currently Lake Owyhee has 624,400 acre-feet. Other areas with low snowpacks in eastern Oregon are storing near average to well above average amounts of water.

## **STREAMFLOW**

The rare low-elevation snow that fell in the Cascade Mountains during mid-March was washed away by unusually high amounts of rainfall at the end of the month. This flush of water drove some rivers over their banks, and caused many rivers to experience high peak flows. Rainy day kayakers seized the moment! March streamflow was 150 percent of normal or greater on some of the coastal rivers and areas with the highest precipitation, such as the Clackamas River.

The high desert rivers in the Owyhee and Malheur basins may have already seen the peaks in their hydrographs from snowmelt, as there is not much snow left in the higher country. Coastal rivers and eastern Oregon rivers could see another peak depending on spring rain.

The Owyhee River is expected to experience the lowest streamflows at 35 to 40 percent of average for the April through September period. The next lowest flows are expected to be 60 to 80 percent of average in the Lake County, Goose Lake, Klamath, as well as parts of Harney and Malheur basins. Summer streamflows for all other rivers in the state are expected to be near or slightly above average. The timing and magnitude of the streamflow peaks will depend on how the snow melts, how warm it gets and how much rain falls over the next few months.

A summary of streamflow forecasts for Oregon follows:

<b>STREAM</b>	<b>PERIOD</b>	<b>PERCENT OF AVERAGE</b>
Owyhee Reservoir Inflow	Apr-Sep	40
Grande Ronde R at La Grande	Apr-Sep	93
Umatilla R at Pendleton	Apr-Sep	92
Deschutes R at Benham Falls	Apr-Sep	105
MF Willamette R bl NF	Apr-Sep	108
Rogue R at Raygold	Apr-Sep	96
Upper Klamath Lake Inflow	Apr-Sep	78
Silvies R nr Burns	Apr-Sept	86

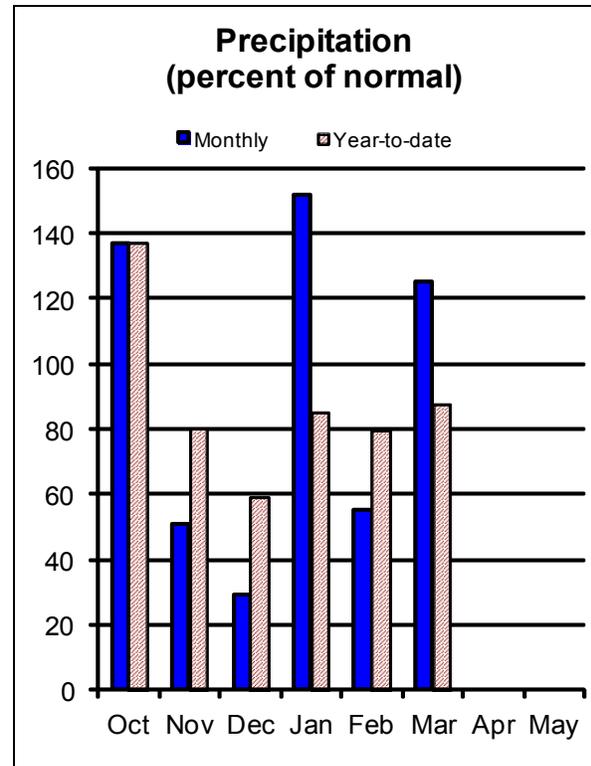
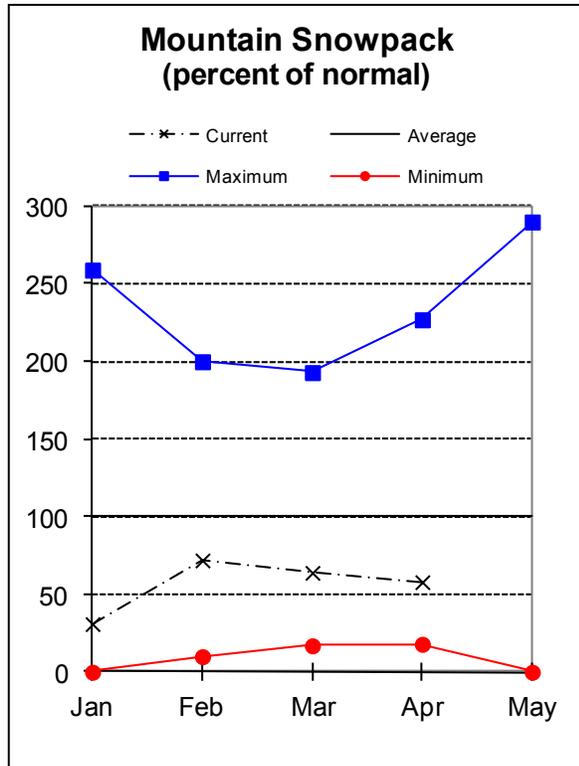
Some of these forecasts assume that normal weather conditions will occur from now to the end of the forecast period. The forecasts in this bulletin are a result of coordinated activity between the Natural Resources Conservation Service and the National Weather Service as an effort to provide the best possible service to water users.

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

April 1, 2012



## Water Supply Outlook

Southeastern Oregon was the only region that saw a decline in basin snowpack during March. The storms that were dropping snow on the rest of the state largely missed the Owyhee and Malheur basins. The basin snowpack decreased from 64 percent of average as of March 1 to 58 percent of average as of April 1, the lowest in the state. Many SNOTEL sites in the basin were recording about half of the snowpack that they were last year on April 1. All but three of the 19 aerial markers in the basin were devoid of snow during this month's survey.

Precipitation during March was 125 percent of average. While above average, this was the lowest monthly total in the state. Since October 1, the water year precipitation has been 87 percent of average.

Reservoir storage in the Owyhee and Malheur basins remains slightly above average, which may provide a buffer for the low streamflows that are anticipated for the coming summer. April 1 storage at the four irrigation reservoirs in the Owyhee and Malheur basins was 103 percent of average and at 83 percent of capacity.

Streamflow forecasts in the Owyhee and Malheur basins increased slightly from last month's report, but remain well below normal. The April through September streamflow forecasts in the basin range from 35 percent of average for the Owyhee River near Rome to 68 percent of average for the Malheur River near Drewsey. Water users in the basin can expect well below normal streamflows for the summer of 2012.

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

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

OWYHEE AND MALHEUR BASINS  
Streamflow Forecasts - April 1, 2012

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)	
Malheur R nr Drewsey	APR-JUL	25	39	50	68	62	83	74
	APR-SEP	27	41	52	68	64	85	76
NF Malheur R at Beulah (2)	APR-JUL	32	41	47	78	54	65	60
Owyhee R bl Owyhee Dam (2)	APR-JUL	73	115	148	37	186	250	400
	APR-SEP	93	137	172	40	210	275	430
Owyhee R nr Rome	APR-JUL	12.0	67	128	34	189	280	380
	APR-SEP	14.0	79	140	35	200	290	400

OWYHEE AND MALHEUR BASINS  
Reservoir Storage (1000 AF) - End of March

OWYHEE AND MALHEUR BASINS  
Watershed Snowpack Analysis - April 1, 2012

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
BEULAH RES	60.0	48.7	51.6	47.2	Owyhee	20	24	38
BULLY CREEK	30.0	20.5	20.6	24.1	Upper Malheur	8	40	71
OWYHEE	715.0	624.4	629.0	593.0	Jordan Creek	3	42	65
WARMSPRINGS	191.0	131.2	109.3	133.5	Bully Creek	3	0	0
					Willow Creek	4	23	67

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

The average is computed for the 1971-2000 base period.

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

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

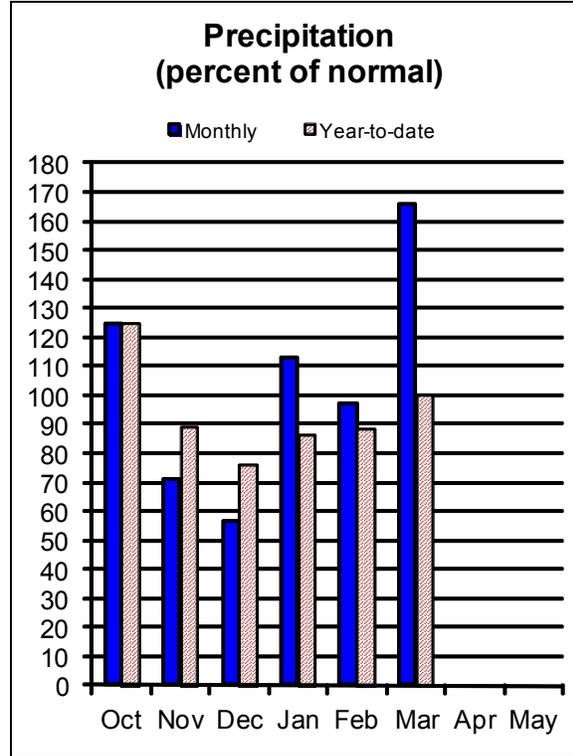
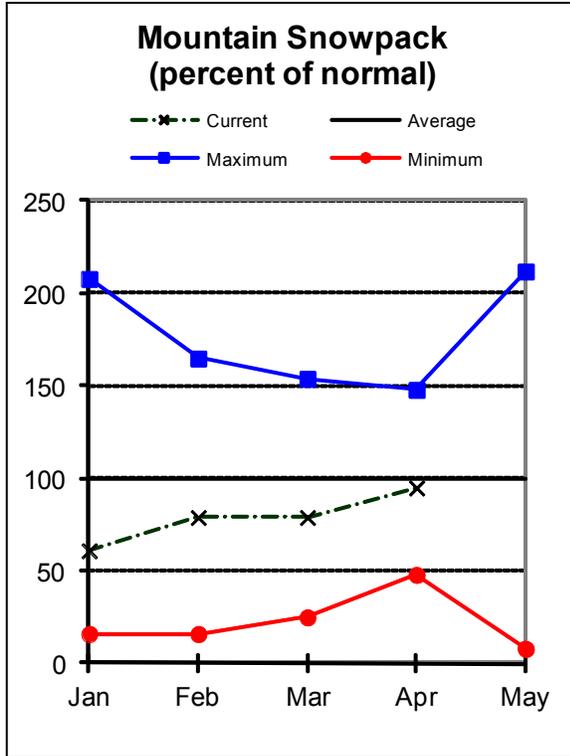
Ontario - (541) 889-7637

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



# Burnt, Powder, Grande Ronde, and Imnaha Basins

April 1, 2012



## Water Supply Outlook

It was a snowy March for the northeastern corner of Oregon. Two long term SNOTEL sites in the Wallowa Mountains set record highs for March precipitation. Both Aneroid Lake SNOTEL and Mt. Howard SNOTEL recorded over 11 inches of precipitation for the month, which broke their previous records by over an inch. As of April 1, the basin snowpack was at 95 percent of normal, up from only 79 percent of normal on March 1.

The Burnt, Powder, Pine, Grande Ronde and Imnaha basins received 166 percent of normal precipitation this month. Since the beginning of water year 2012, precipitation in the basins has been 100 percent of average.

April 1 storage at Phillips Lake, Thief Valley and Unity reservoirs was 91 percent of average and at 70 percent of capacity.

Streamflow forecasts in the Burnt, Powder, Pine, Grande Ronde, and Imnaha basins increased significantly from last month's report. The April through September streamflow forecasts range from 80 percent of average for the Burnt River near Hereford to 103 percent of average for the Imnaha River at Imnaha. Elsewhere in the basin, the Grande Ronde River at Troy is forecast to be 101 percent of average for the April through September period. Water users in the basin can expect below normal to near normal streamflows for the summer of 2012.

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

BURNT, POWDER, PINE, GRANDE RONDE AND IMNAHA BASINS  
Streamflow Forecasts - April 1, 2012

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>					30-Yr Avg. (1000AF)	
		90%		70%		Chance Of Exceeding * 50% (1000AF) (% AVG.)		
		(1000AF)	(1000AF)	(1000AF)	(1000AF)			
Bear Ck nr Wallowa	APR-SEP	55	62	66	102	70	77	65
Burnt R nr Hereford (2)	APR-SEP	19.5	26	31	80	36	42	39
Catherine Ck nr Union	APR-JUL	48	56	61	98	66	74	62
	APR-SEP	52	60	65	99	70	78	66
Deer Ck nr Sumpster	APR-JUL	7.0	9.8	11.7	76	13.6	16.4	15.4
Grande Ronde R at La Grande	APR-SEP	115	151	175	93	199	235	188
Grande Ronde R at Troy (1)	APR-SEP	985	1260	1380	101	1500	1780	1370
Imnaha R at Imnaha	APR-JUL	220	260	285	106	310	350	270
	APR-SEP	235	275	305	103	335	375	295
Lostine R nr Lostine	APR-JUL	98	106	111	99	116	124	112
	APR-SEP	104	113	119	98	125	134	121
Pine Ck nr Oxbow	APR-JUL	103	128	145	98	162	187	148
	APR-SEP	108	133	150	97	167	192	154
Powder R nr Sumpster	APR-JUL	34	42	48	83	54	62	58
	APR-SEP	34	43	49	83	55	64	59
Wolf Ck Reservoir Inflow (2)	APR-JUN	9.4	12.6	14.7	99	16.8	20	14.8

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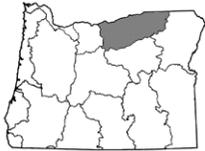
BURNT, POWDER, PINE, GRANDE RONDE AND IMNAHA BASINS Reservoir Storage (1000 AF) - End of March					BURNT, POWDER, PINE, GRANDE RONDE AND IMNAHA BASINS Watershed Snowpack Analysis - April 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg	Watershed	Number of Data Sites	This Year as % of Last Yr Average	
PHILLIPS LAKE	73.5	46.5	53.1	50.8	Upper Grande Ronde	9	78	97
THIEF VALLEY	17.4	13.7	14.2	17.9	Wallowa	4	95	100
UNITY	25.2	21.4	22.5	21.1	Imnaha	4	98	97
WALLOWA LAKE	37.5	19.2	16.9	19.6	Powder	11	76	90
WOLF CREEK	10.4	6.6	7.7	5.8	Burnt	5	46	76

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

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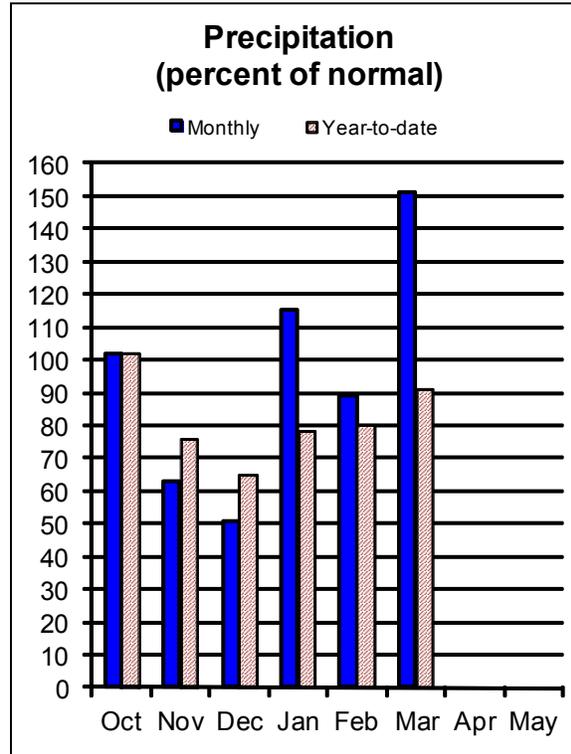
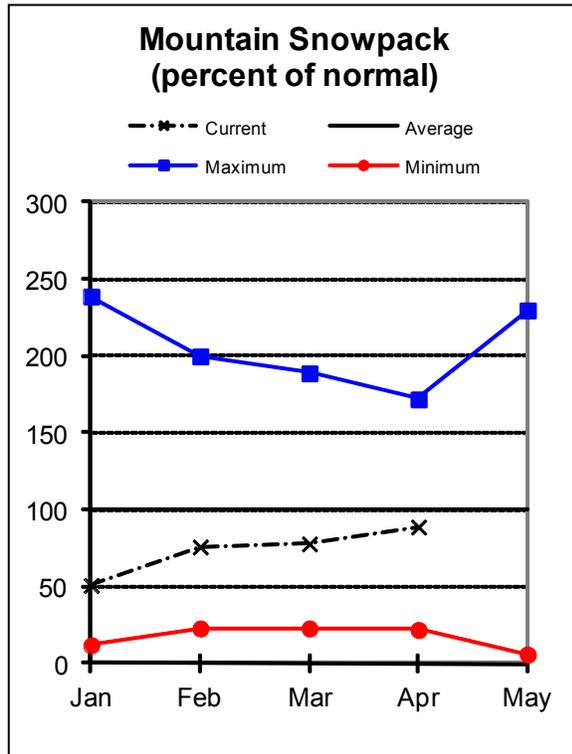
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# Umatilla, Walla Walla, Willow Rock, and Lower John Day Basins

April 1, 2012



## Water Supply Outlook

March was a wet and snowy month for the northern drainages of the Blue Mountains, which gave a boost to the water supply conditions in this region. As of April 1, the snowpack in the Umatilla, Walla Walla, Willow, Rock and Lower John Day Basins was 89 percent of average, which was an 11 percent increase from last month.

Precipitation for the month of March was 151 percent of average in the basin. This brought the precipitation since the beginning of water year 2012 up to 91 percent of average for the basin.

The April 1 storage at Cold Springs and MacKay reservoirs was 67 percent of average and at 55 percent of capacity. Last year at this time, reservoir storage was at 82 percent of capacity.

Streamflow forecasts in the Umatilla, Walla Walla, Willow, Rock and Lower John Day basins increased slightly from last month's report. The April through September streamflow forecasts range from 76 percent of average for Butter Creek near Pine City to 93 percent of average for the McKay Creek near Pilot Rock. Water users in the basin can expect below normal to near normal streamflows for the summer of 2012.

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

UMATILLA, WALLA WALLA, WILLOW, ROCK AND LOWER JOHN DAY BASINS  
Streamflow Forecasts - April 1, 2012

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Butter Ck nr Pine City	APR-JUL	3.4	5.7	7.3	78	8.9	11.2	9.4
	APR-SEP	3.7	6.1	7.7	76	9.3	11.7	10.2
McKay Ck nr Pilot Rock	APR-SEP	8.0	18.1	25	93	32	42	27
Rhea Ck nr Heppner	APR-JUL	1.1	3.7	5.5	90	7.3	10.0	6.1
Umatilla R ab Meacham Ck nr Gibbon	APR-JUL	46	59	68	93	77	90	73
	APR-SEP	51	64	73	92	82	95	79
Umatilla R at Pendleton	APR-JUL	88	118	138	93	158	188	149
	APR-SEP	92	122	143	92	164	194	155
SF Walla Walla R nr Milton-Freewater	APR-JUL	38	44	48	89	52	58	54
	APR-SEP	48	55	60	90	65	72	67
Willow Ck ab Willow Ck Lake nr Heppn	APR-JUL	1.4	3.7	5.3	72	6.9	9.2	7.4

UMATILLA, WALLA WALLA, WILLOW, ROCK AND LOWER JOHN DAY BASINS					UMATILLA, WALLA WALLA, WILLOW, ROCK AND LOWER JOHN DAY BASINS			
Reservoir Storage (1000 AF) - End of March					Watershed Snowpack Analysis - April 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
COLD SPRINGS	44.6	23.8	33.2	40.1	Walla Walla	4	109	111
MCKAY	73.8	41.2	63.5	56.6	Umatilla	7	77	90
WILLOW CREEK	1.8	6.0	2.2	---	McKay Creek	4	43	60

\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table. The average is computed for the 1971-2000 base period.

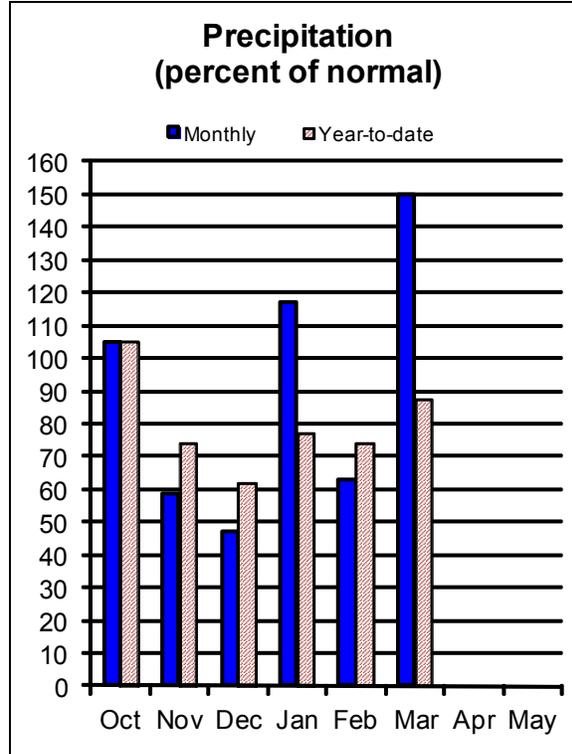
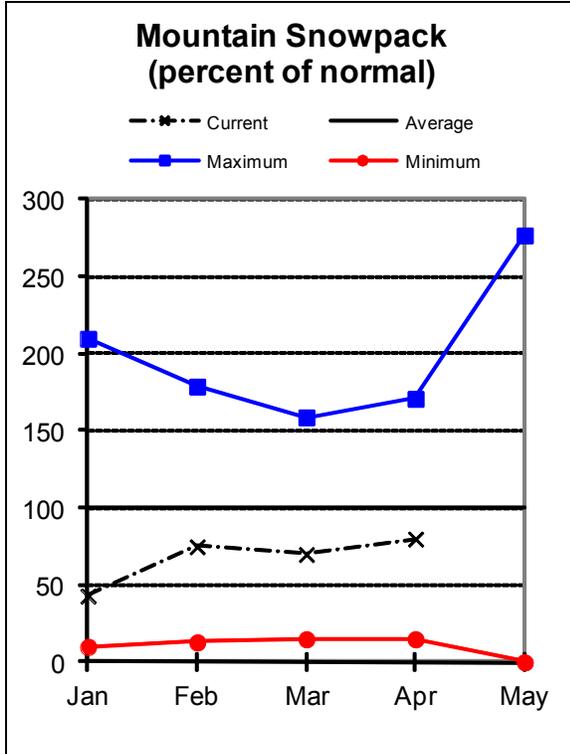
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Or visit: <http://www.or.nrcs.usda.gov/snow/watersupply/>



# Upper John Day Basin

April 1, 2012



## Water Supply Outlook

The Upper John Day basin saw only modest improvement to the water supply outlook during March, compared to the rest of the state. The basin snowpack increased slightly from last month to 80 percent of average as of April 1. Many SNOTEL sites in the basin were recording snow melt at the end of March, which likely signals that the peak snowpack has occurred, barring any unusual spring storms.

March precipitation was 150 percent of average in the Upper John Day basin. Since the beginning of water year 2012, precipitation in the basin has been 87 percent of average.

Streamflow forecasts in the Upper John Day basin increased from last month's report. The April through September streamflow forecasts range from 82 percent of average for Camas Creek near Ukiah to 99 percent of average for Strawberry Creek near Prairie City. Water users in the basin can expect below normal to near normal streamflows for the summer of 2012.

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

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

UPPER JOHN DAY BASIN  
Streamflow Forecasts - April 1, 2012

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)	
Camas Ck nr Ukiah	APR-JUL	17.8	25	30	81	35	42	37
	APR-SEP	18.7	26	31	82	36	43	38
MF John Day R at Ritter	APR-JUL	65	89	105	85	121	145	123
	APR-SEP	69	93	110	86	127	151	128
NF John Day R at Monument	APR-JUL	345	445	515	87	585	685	595
	APR-SEP	355	460	530	86	600	705	615
Mountain Ck nr Mitchell	APR-JUL	2.1	3.2	4.0	89	4.8	5.9	4.5
	APR-SEP	2.2	3.3	4.1	89	4.9	6.0	4.6
Strawberry Ck nr Prairie City	APR-JUL	4.5	6.0	7.0	99	8.0	9.5	7.1
	APR-SEP	5.1	6.6	7.7	99	8.8	10.3	7.8

UPPER JOHN DAY BASIN  
Reservoir Storage (1000 AF) - End of March

UPPER JOHN DAY BASIN  
Watershed Snowpack Analysis - April 1, 2012

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					North Fork John Day	7	64	73
					John Day above Kimberly	5	65	81

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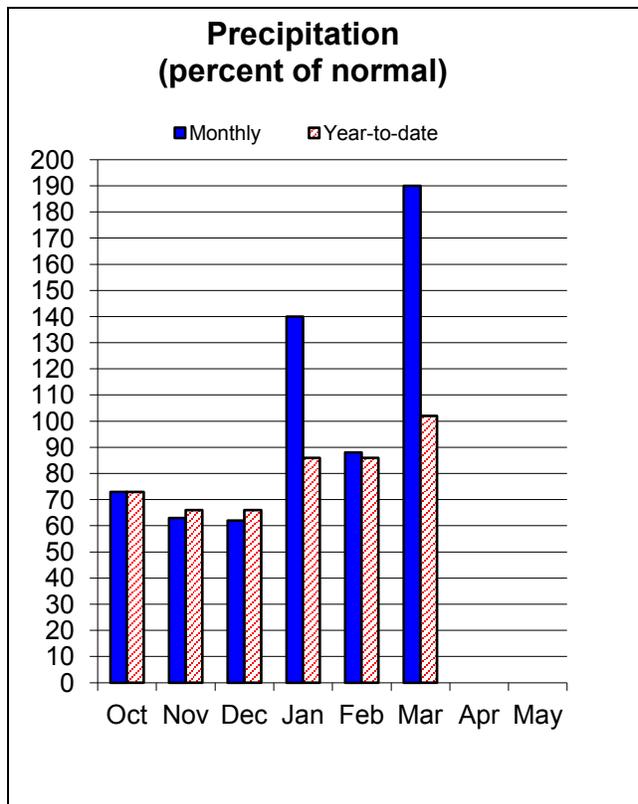
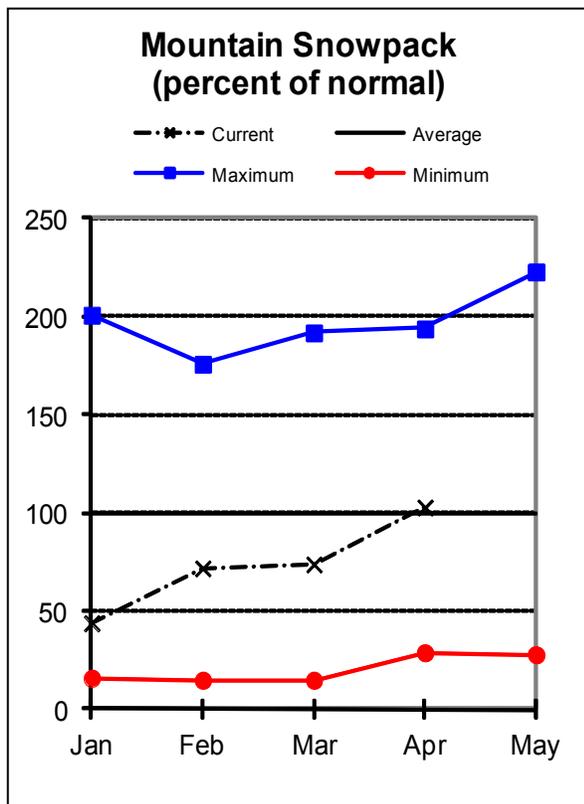
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Or visit: <http://www.or.nrcs.usda.gov/snow/watersupply/>



# Upper Deschutes and Crooked Basins

April 1, 2012



## Water Supply Outlook

A series of March storms brought significant snow to the Upper Deschutes and Crooked River basins. As of April 1, snowpack in the basin was 103 percent of normal. However, SNOTEL sites in the Crooked Basin did not pick up nearly as much snow and remain below average.

Many long-term weather stations in the basin recorded two to three times the normal amount of precipitation for March. Eight SNOTEL sites broke previous records for March precipitation, including New Crescent Lake SNOTEL which recorded 10 inches during March. This was 10 percent higher than the previous record set in March 1989. Basin-wide, March precipitation was 190 percent of average. Since the beginning of water year 2012, precipitation in the basin has been 102 percent of average.

The April 1 storage at five irrigation reservoirs in the basin was 113 percent of average and at 94 percent of capacity.

There is currently a large range in water supply conditions across the Upper Deschutes and Crooked River Basins. The April through September streamflow forecasts range from 68 percent of average for the Prineville Reservoir Inflow to 116 percent of average for the Little Deschutes River near La Pine. Users that depend on water supplies from the east side of the basin should expect well below normal streamflows, while users in the western part of the basin can expect near normal to above normal streamflows for the summer of 2012.

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

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

UPPER DESCHUTES AND CROOKED BASINS  
Streamflow Forecasts - April 1, 2012

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)	
Crane Prairie Reservoir Inflow (2)	APR-JUL	51	59	65	110	71	79	59
	APR-SEP	85	95	102	110	109	119	93
Crescent Ck nr Crescent (2)	APR-JUL	13.1	17.1	19.8	115	23	27	17.2
	APR-SEP	17.5	21	24	114	27	30	21
Deschutes R at Benham Falls nr Bend	APR-JUL	350	360	370	106	380	390	350
	APR-SEP	525	540	550	105	560	575	525
Deschutes R bl Snow Ck nr La Pine	APR-JUL	25	32	36	109	40	47	33
	APR-SEP	51	59	64	109	69	77	59
Little Deschutes R nr La Pine (2)	APR-JUL	70	78	83	117	88	96	71
	APR-SEP	79	87	93	116	99	107	80
Ochoco Reservoir Inflow (2)	APR-JUL	7.0	13.4	17.7	81	22	28	22
	APR-SEP	6.8	13.0	17.3	79	22	28	22
Prineville Reservoir Inflow (2)	APR-JUL	20	53	75	69	97	130	108
	APR-SEP	18.0	51	74	68	97	130	109
Whychus Ck nr Sisters	APR-JUL	34	36	38	106	40	42	36
	APR-SEP	46	49	51	104	53	56	49

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

UPPER DESCHUTES AND CROOKED BASINS  
Watershed Snowpack Analysis - April 1, 2012

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
CRANE PRAIRIE	55.3	52.0	47.4	43.9	Crooked	3	58	72
CRESCENT LAKE	86.9	82.7	73.0	53.5	Little Deschutes	4	76	108

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Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
OCHOCO	47.5	37.3	35.5	32.6	Deschutes above Wickiup R	4	75	106
PRINEVILLE	153.0	136.8	122.1	132.9	Tumalo and Squaw Creeks	5	93	110
WICKIUP	200.0	200.7	200.7	189.7				

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

The average is computed for the 1971-2000 base period.

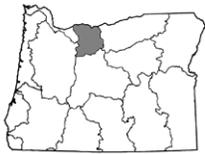
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

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

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

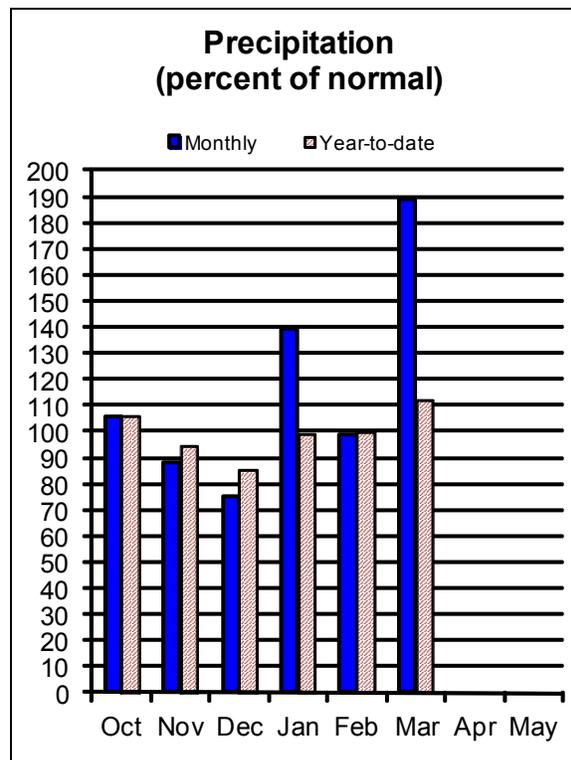
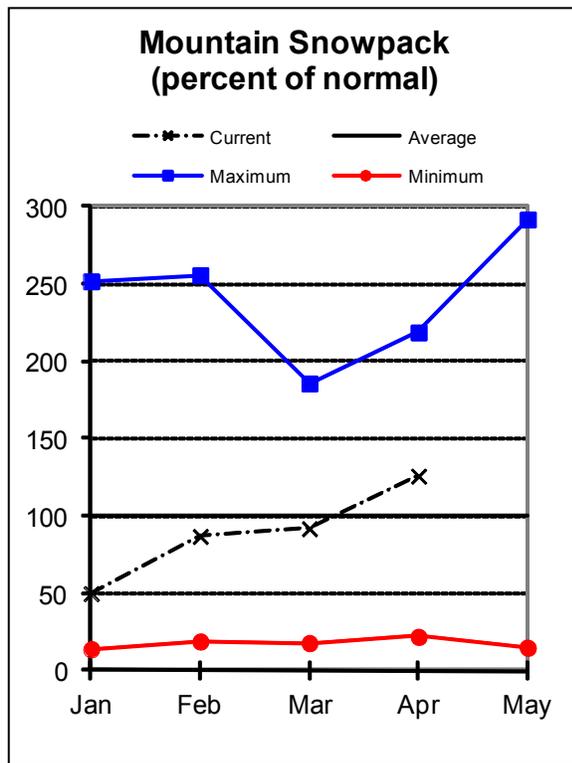
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Or visit: <http://www.or.nrcs.usda.gov/snow/watersupply/>



# Hood, Mile Creeks, and Lower Deschutes Basins

April 1, 2012



## Water Supply Outlook

After a slow start to winter, the snow has been piling up in the mountains of northwest Oregon since the end of February. March brought record-breaking precipitation to the Hood, Mile Creeks and Lower Deschutes basins, including significant snow accumulation in the mountains. As of April 1, the snowpack in the Hood, Mile Creeks and Lower Deschutes basins was 126 percent of average, the highest in the state.

Most long-term weather stations in the basin set records for March precipitation, including Clear Lake SNOTEL which recorded 10.6 inches of precipitation for the month. This was over 30 percent higher than the previous record. Precipitation for the month of March was 189 percent of average. Since the beginning of water year 2012, precipitation in the basin has been 112 percent of average, the highest in the state.

The April through September streamflow for Hood River at Tucker Bridge is forecast to be 116 percent of average. Water users in the Hood, Mile Creeks and Lower Deschutes basin can expect slightly above normal streamflows during the summer of 2012.

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

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

HOOD, MILE CREEKS AND LOWER DESCHUTES BASINS  
Streamflow Forecasts - April 1, 2012

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)	
WF Hood River nr Dee	APR-JUL	103	123	136	112	149	169	121
Hood R At Tucker Bridge	APR-JUL	220	245	265	116	285	310	228
	APR-SEP	265	295	315	116	335	365	271

HOOD, MILE CREEKS AND LOWER DESCHUTES BASINS  
Reservoir Storage (1000 AF) - End of March

HOOD, MILE CREEKS AND LOWER DESCHUTES BASINS  
Watershed Snowpack Analysis - April 1, 2012

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
CLEAR LAKE (WASCO)	11.9	6.8	5.2	4.5	Hood River	7	120	122
					Mile Creeks	2	149	117
					White River	7	138	118

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

The average is computed for the 1971-2000 base period.

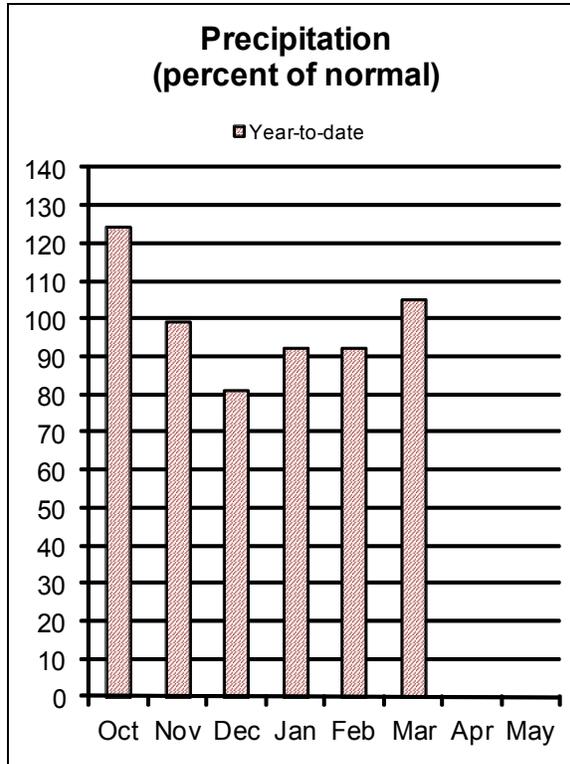
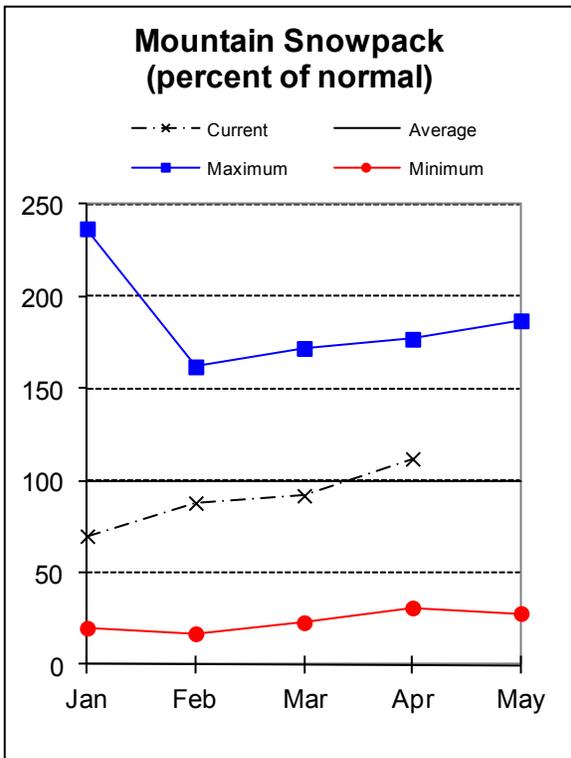
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.

For more information contact your local Natural Resources Conservation Service office:  
The Dalles (541) 296-6178  
Or visit: <http://www.or.nrcs.usda.gov/snow/watersupply/>



# Lower Columbia Basin

April 1, 2012



## Water Supply Outlook

On April 1, the snowpack in the Columbia River basin was 112 percent of average, as measured by 236 SNOTEL sites in the US portion of the basin. Precipitation in the US portion of the basin since October 1 has been 105 percent of average. Locally, precipitation since October 1 in the Sandy basin has been 114 percent of average.

Streamflow forecasts for the Oregon portion of the Lower Columbia River Basin have increased from last month's report. The Columbia River at The Dalles is forecast to be 111 percent of average for the April through September period, and the Sandy River near Marmot is forecast to be 109 percent of average for the same period.

For more information contact your local Natural Resources Conservation Service office:  
Oregon City - (503) 656-3499

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

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LOWER COLUMBIA BASIN  
Streamflow Forecasts - April 1, 2012

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Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)				
		90%		70%		50%			30%		10%	
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)		(1000AF)	(1000AF)		
Columbia R at The Dalles (2)	APR-JUL	82800	88200	91900	109	95600	101000	84600				
	APR-SEP	98500	105000	109000	111	113000	120000	98600				
Sandy R nr Marmot	APR-JUL	275	315	340	109	365	405	313				
	APR-SEP	330	370	395	109	420	460	363				

LOWER COLUMBIA BASIN Reservoir Storage (1000 AF) - End of March				LOWER COLUMBIA BASIN Watershed Snowpack Analysis - April 1, 2012				
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					Sandy	7	119	134

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

The average is computed for the 1971-2000 base period.

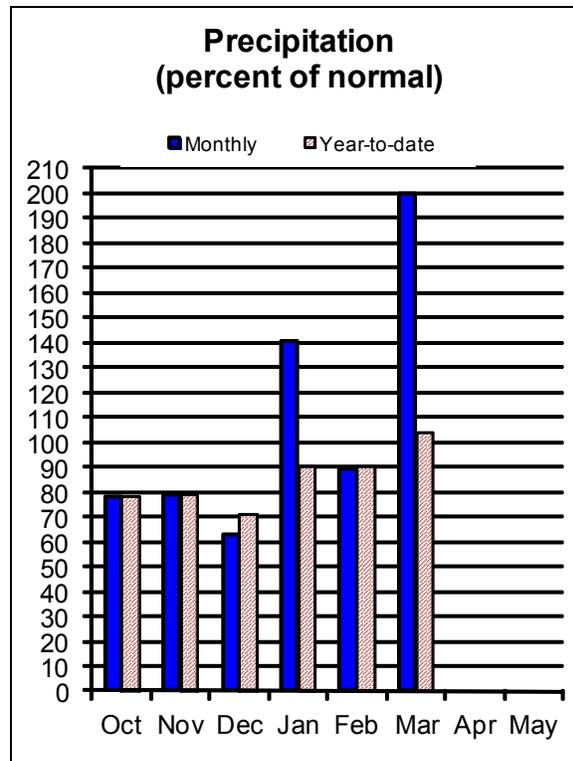
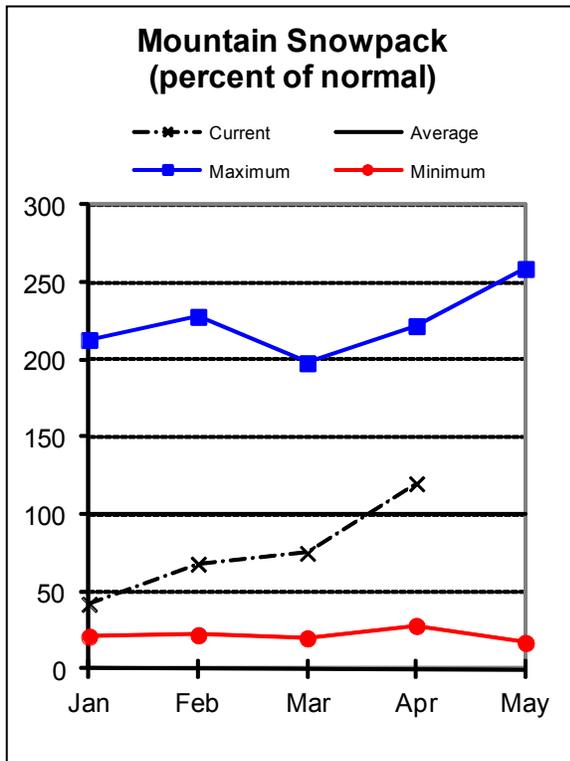
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.

For more information contact your local Natural Resources Conservation Service office:  
Oregon City - (503) 656-3499  
Or visit: <http://www.or.nrcs.usda.gov/snow/watersupply/>



# Willamette Basin

April 1, 2012



## Water Supply Outlook

March was a very wintry month in the Willamette basin. A series of storms brought significant snow accumulation to the Cascade and Coast Range mountains, as well as several inches to the valley floor in an unusual spring snow storm. A record-breaking seven inches of snow fell in Eugene on March 21. A warm rain-on-snow event late in the month inundated local rivers with snowmelt runoff. Several SNOTEL sites in the basin recorded 4 inches of precipitation within 24 hours on March 29-30. As of April 1, the Willamette basin snowpack was 120 percent of average, which was a remarkable 45 percentage gain from the March 1 report.

Many long-term weather stations in the basin set record highs for March precipitation, including Little Meadows SNOTEL which recorded 27.7 inches of precipitation, beating the existing record by over 6 inches. Across the basin, precipitation for March was 200 percent of average. This boosted the water year 2012 precipitation since October 1 to 104 percent of average.

The April 1 storage at Timothy Lake and Henry Hagg reservoirs was 104 percent of average and at 92 percent of capacity.

Summer streamflows in the Willamette basin are forecast to be near normal to above normal for the coming summer. The April through September streamflow forecasts for the Willamette basin range from 100 percent of average for Fall Creek Lake Inflow, to 118 percent of average for the Little North Santiam River near Mehama and Detroit Lake Inflow.

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

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

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

WILLAMETTE BASIN  
Streamflow Forecasts - April 1, 2012

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)		
		90%		70%		50%			30%	
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)		(1000AF)	(1000AF)
Blue Lake Inflow (1,2)	APR-JUN	53	77	88	109	99	123	81		
	APR-JUL	56	81	92	107	103	128	86		
	APR-SEP	58	82	93	108	104	128	86		
Clackamas R at Estacada	APR-JUL	615	695	750	117	805	885	640		
	APR-SEP	735	820	875	117	930	1020	748		
Clackamas R ab Three Lynx (2)	APR-JUL	470	525	560	118	595	650	474		
	APR-SEP	565	620	660	117	700	755	562		
Cottage Grove Lake Inflow (1,2)	APR-JUN	15.2	34	43	113	52	71	38		
	APR-JUL	19.4	37	45	111	53	71	41		
	APR-SEP	21	41	50	116	59	79	43		
Cougar Lake Inflow (1,2)	APR-JUN	155	189	205	111	220	255	184		
	APR-JUL	178	215	230	113	245	280	204		
	APR-SEP	205	240	255	111	270	305	230		
Detroit Lake Inflow (1,2)	APR-JUN	420	515	555	121	595	690	460		
	APR-JUL	485	585	630	119	675	775	528		
	APR-SEP	575	675	725	118	775	875	616		
Dorena Lake Inflow (1,2)	APR-JUN	70	124	148	117	172	225	127		
	APR-JUL	75	129	154	118	179	235	131		
	APR-SEP	81	135	159	116	183	235	137		
Fall Creek Lake Inflow (1,2)	APR-JUN	49	81	95	100	109	141	95		
	APR-JUL	57	91	106	100	121	155	106		
	APR-SEP	53	93	112	100	131	171	112		
Fern Ridge Lake Inflow (1,2)	APR-JUN	16.2	39	50	109	61	84	46		
	APR-JUL	15.0	39	50	102	61	85	49		
	APR-SEP	15.5	40	51	102	62	86	50		

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

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

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

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)				
		90%		70%		50%			30%		10%	
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)		(1000AF)	(1000AF)	(1000AF)	(1000AF)
Foster Lake Inflow (1,2)	APR-JUN	415	480	510	109	540	605	470				
	APR-JUL	430	500	530	108	560	630	490				
	APR-SEP	470	540	570	108	600	670	527				
Green Peter Lake Inflow (1,2)	APR-JUN	210	295	335	110	375	460	305				
	APR-JUL	225	315	355	109	395	485	327				
	APR-SEP	250	340	380	107	420	510	354				
Hills Creek Reservoir Inflow (1,2)	APR-JUN	187	250	275	112	300	365	245				
	APR-JUL	215	280	310	112	340	405	277				
	APR-SEP	260	325	355	111	385	450	320				
Little North Santiam R nr Mehama (1)	APR-JUL	97	139	158	119	177	220	133				
	APR-SEP	108	150	169	118	188	230	143				
Lookout Point Lake Inflow (1,2)	APR-JUN	480	645	720	113	795	960	640				
	APR-JUL	550	725	805	111	885	1060	726				
	APR-SEP	655	840	925	112	1010	1200	828				
MF Willamette R bl NF (1,2)	APR-JUN	440	590	660	110	730	880	600				
	APR-JUL	525	685	760	109	835	995	698				
	APR-SEP	525	755	860	108	965	1200	798				
McKenzie R bl Trail Bridge (2)	APR-JUL	255	280	295	111	310	335	266				
	APR-SEP	400	425	445	110	465	490	404				
McKenzie R nr Vida (1,2)	APR-JUN	695	835	900	108	965	1110	832				
	APR-JUL	850	1000	1070	110	1140	1290	977				
	APR-SEP	1060	1230	1300	108	1370	1540	1201				
Mohawk R nr Springfield	APR-JUL	58	72	81	103	90	104	79				
Oak Grove Fork Of Clackamas	APR-JUL	130	143	152	117	161	174	130				
	APR-SEP	168	183	194	116	205	220	167				
North Santiam R at Mehama (1,2)	APR-JUN	570	690	745	122	800	920	610				
	APR-JUL	675	800	860	118	920	1050	732				
	APR-SEP	770	905	965	116	1030	1160	834				

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

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Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)				
		90%		70%		50%			30%		10%	
		(1000AF)	(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)		(1000AF)	(1000AF)	(1000AF)	
South Santiam R at Waterloo (2)	APR-JUL	380	490	560	102	630	740	549				
	APR-SEP	415	520	590	101	660	765	587				
Scoggins Ck nr Gaston (2)	APR-JUL	4.5	9.3	12.6	98	15.9	21	12.9				
Thomas Ck nr Scio	APR-JUL	58	75	86	115	97	114	75				
Willamette R at Salem (1,2)	APR-JUL	3220	4310	4800	110	5290	6380	4347				
	APR-SEP	3820	4840	5300	110	5760	6780	4804				

WILLAMETTE BASIN Reservoir Storage (1000 AF) - End of March					WILLAMETTE BASIN Watershed Snowpack Analysis - April 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
BLUE RIVER	85.5	69.1	57.2	52.6	Clackamas	6	134	133
COTTAGE GROVE	29.8	20.7	16.3	18.5	McKenzie	8	99	111
COUGAR	155.2	145.4	75.1	150.5	Row River	1	96	100
DETROIT	300.7	390.4	166.9	222.0	Santiam	6	105	122
DORENA	70.5	52.4	41.9	45.3	Middle Fork Willamette	7	85	107
FALL CREEK	115.5	92.3	82.3	71.1				
FERN RIDGE	109.6	96.6	77.7	77.1				
FOSTER	29.7	39.3	7.1	12.4				
GREEN PETER	268.2	350.1	204.3	236.2				
HILLS CREEK	200.2	244.3	140.8	169.1				

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

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
LOOKOUT POINT	337.0	381.6	241.7	188.7				
TIMOTHY LAKE	61.7	54.1	52.3	51.6				
HENRY HAGG LAKE	53.0	51.0	51.3	49.8				

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

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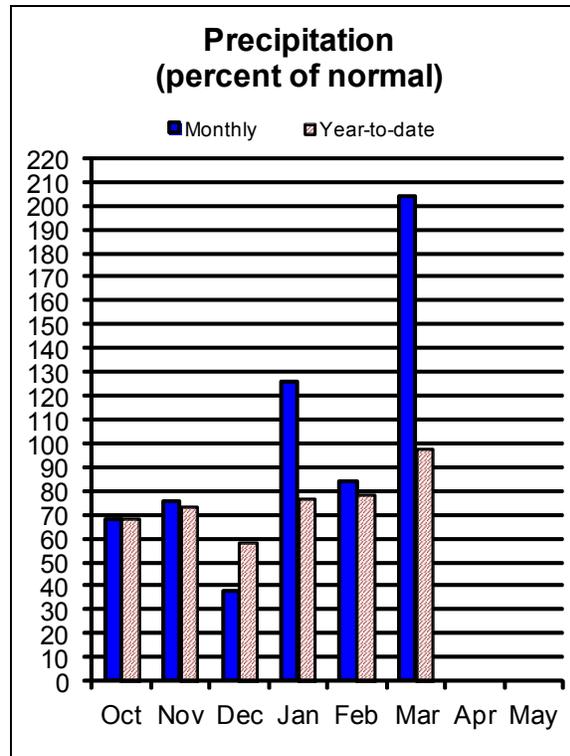
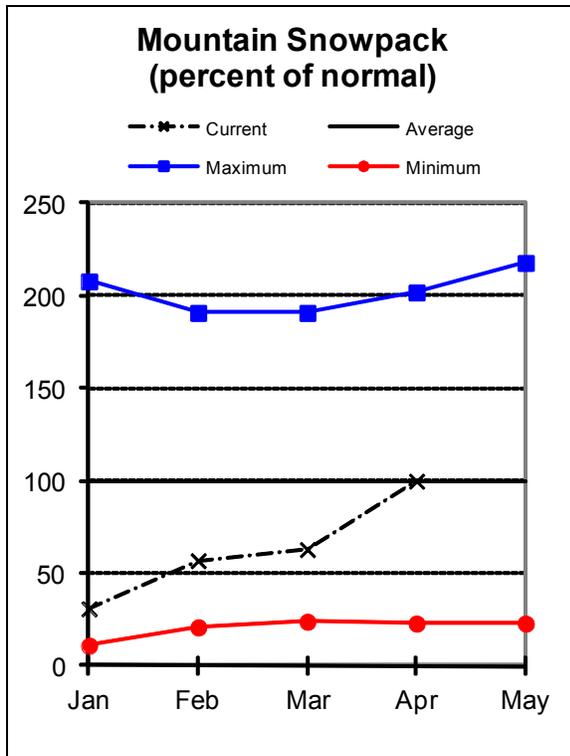
Eugene - (541) 465-6436; Portland - (503) 231-2270; Tangent - (541) 967-5925; Oregon City - (503) 656-3499; Hillsboro - (503) 648-3174; McMinnville - (503) 472-1474  
 Salem - (503) 399-5746; Dallas - (503) 623-5534

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



# Rogue and Umpqua Basins

April 1, 2012



## Water Supply Outlook

March was a very snowy month in the mountains of southwest Oregon. Totals for March precipitation were two to three times more than normal at many measurement sites. In fact, six long-term weather stations set records for March precipitation, including the Riddle weather station which has records dating back to 1899. Precipitation for March was 204 percent of average in the basin, which helped boost the water year 2012 precipitation since October to 97 percent of average.

As of April 1, the Rogue and Umpqua basin snowpack was 100 percent of average. This was a remarkable 37 percentage point increase from the March 1 report.

The April 1 storage at 5 irrigation reservoirs in the Rogue and Umpqua basins was 107 percent of average and at 82 percent of capacity.

Streamflow forecasts for the Rogue and Umpqua basins increased significantly from the March 1 report. The April through September streamflow forecasts range from 96 percent of average for the Rogue River at Raygold, to 116 percent of average for the South Umpqua River near Brockway. Elsewhere in the basin, the Applegate Lake Inflow is forecast to be 100 percent of average the same period. Water users in the basin can expect near normal to above normal streamflows for the coming summer.

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

ROGUE AND UMPQUA BASINS  
Streamflow Forecasts - April 1, 2012

Forecast Point	Forecast Period	<<==== Drier ===== Future Conditions ===== Wetter =====>>		Chance Of Exceeding *				30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Applegate Lake Inflow (2)	APR-JUL	82	100	113	101	126	144	112
	APR-SEP	87	106	119	100	132	151	119
SF Big Butte Ck nr Butte Falls	APR-JUL	23	30	34	100	38	45	34
	APR-SEP	31	38	43	99	48	55	44
Cow Ck nr Azalea (2)	APR-JUL	8.4	14.4	18.5	112	23	29	16.5
	APR-SEP	9.1	15.3	19.5	110	24	30	17.7
Hyatt Prairie Reservoir Inflow (2)	APR-JUL	3.1	4.5	5.5	115	6.5	7.9	4.8
Illinois R at Kerby	APR-JUL	81	142	184	103	225	285	179
	APR-SEP	87	148	190	102	230	295	186
NF Little Butte Ck nr Lakecreek (2)	APR-JUL	25	30	33	104	36	41	32
	APR-SEP	39	44	48	104	52	57	46
Lost Creek Lake Inflow (2)	APR-JUL	435	490	525	99	560	615	530
	APR-SEP	550	615	655	99	695	760	665
Rogue R at Raygold (2)	APR-JUL	490	610	690	95	770	890	730
	APR-SEP	640	765	850	96	935	1060	890
Rogue R at Grants Pass (2)	APR-JUL	515	650	745	101	840	975	740
	APR-SEP	645	795	895	101	995	1140	885
Sucker Ck bl Ltl Grayback Ck nr Holl	APR-JUL	30	45	55	106	65	80	52
	APR-SEP	34	49	59	105	69	84	56
North Umpqua R at Winchester	APR-JUL	625	765	860	108	955	1090	795
	APR-SEP	750	895	990	108	1090	1230	920
South Umpqua R nr Brockway	APR-JUL	260	385	465	116	545	670	400
	APR-SEP	280	400	485	116	570	690	420
South Umpqua R at Tiller	APR-JUL	137	186	220	114	255	305	193
	APR-SEP	146	196	230	112	265	315	205

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

ROGUE AND UMPQUA BASINS Reservoir Storage (1000 AF) - End of March					ROGUE AND UMPQUA BASINS Watershed Snowpack Analysis - April 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage This Year	*** Usable Storage Last Year	*** Avg	Watershed	Number of Data Sites	This Year as % of Last Yr	as % of Average
APPLEGATE	75.2	55.5	47.9	46.9	Applegate	5	68	89
EMIGRANT LAKE	39.0	35.6	35.7	34.4	Bear Creek	5	70	89
FISH LAKE	8.0	6.2	4.6	5.8	Little Butte Creek	6	81	104
FOURMILE LAKE	16.1	13.0	9.3	10.2	Illinois	2	65	127
HOWARD PRAIRIE	60.0	44.8	47.7	44.9	North Umpqua	9	70	110
HYATT PRAIRIE	16.1	15.1	15.4	12.3	Rogue River above Grants	21	72	99
LOST CREEK	315.0	284.8	127.3	263.2				

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

The average is computed for the 1971-2000 base period.

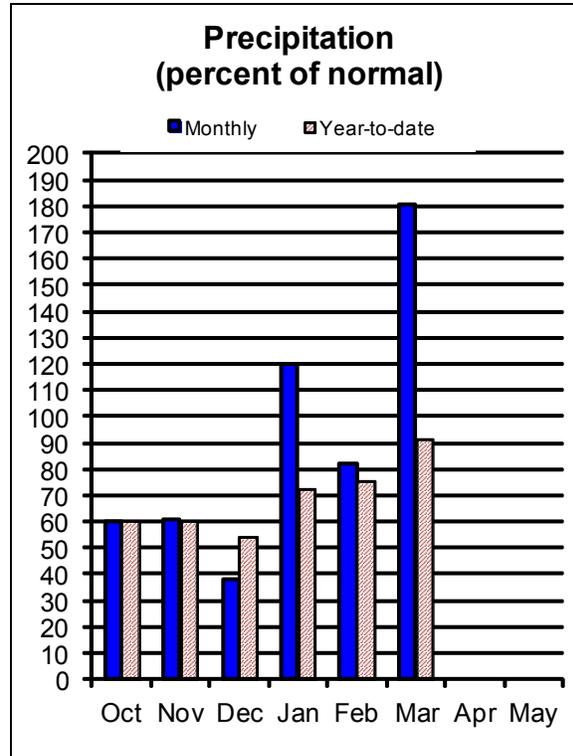
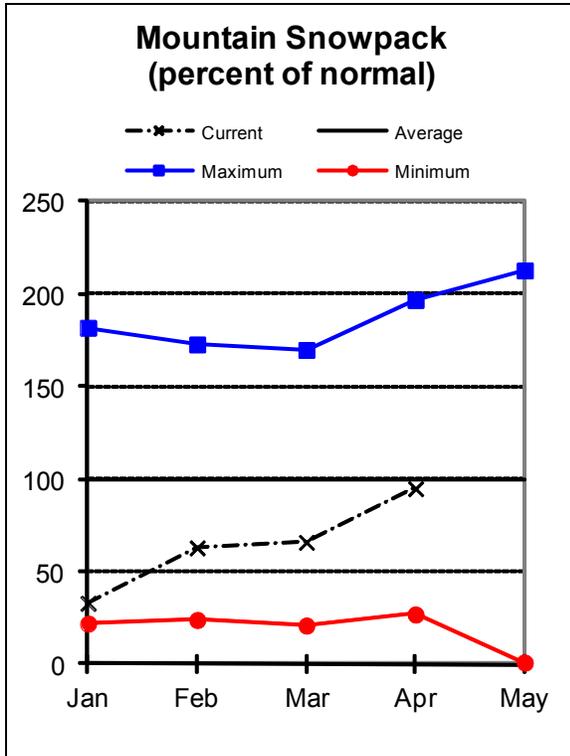
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.

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# Klamath Basin

April 1, 2012



## Water Supply Outlook

The Klamath basin snowpack made a remarkable turnaround in March from the dry conditions that have persisted throughout most of the winter. During March, the basin snowpack increased from 66 percent of average to 95 percent of average by April 1. However, there is a large variability in snowpack across the basin. The northern mountains and east Cascade drainages have snow ranging from average to well above average. In contrast, snow water content in the southern part of the basin and on the east side of the basin is 50 percent of average or less. Surveyors noted that the thick ice layer at the ground/snow interface was still present during some April 1 surveys in the basin. One surveyor team noted that the ice layer was about 3 inches thick on average at the Silver Burn snow course.

Precipitation for the month of March was 181 percent of average in the Klamath basin. Since the beginning of water year 2012, precipitation in the basin has been 91 percent of average.

The April 1 storage at Upper Klamath Lake, Clear Lake (CA) and Gerber reservoirs was 86 percent of average and at 59 percent of capacity.

The streamflow forecasts in the Klamath basin increased significantly since last month's report, but remain below normal. The April through September streamflow forecasts for the basin range from 67 percent of average for Gerber Reservoir Inflow to 81 percent of average for the Williamson River below Sprague. Water users in the basin can expect well below to below normal streamflows for the summer of 2012.

For more information contact your local Natural Resources Conservation Service office:  
Klamath Falls - (541) 883-6932

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

KLAMATH BASIN  
Streamflow Forecasts - April 1, 2012

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)	
Clear Lake Inflow (2)	APR-JUL	2.1	18.7	30	73	41	58	41
	APR-SEP	9.0	24	35	73	46	61	48
Gerber Res Inflow (2)	APR-JUL	0.7	6.1	11.0	65	15.9	23	16.9
	APR-SEP	0.7	7.2	12.0	67	16.8	24	17.8
Sprague R nr Chiloquin	APR-JUL	112	140	160	78	180	210	205
	APR-SEP	135	165	185	80	205	235	230
Upper Klamath Lk Inflow (1)	APR-JUL	230	300	330	78	360	430	425
	APR-SEP	295	365	400	78	435	505	515
Williamson R bl Sprague R nr Chiloquin	APR-JUL	200	235	255	80	275	310	320
	APR-SEP	250	285	310	81	335	370	385

KLAMATH BASIN  
Reservoir Storage (1000 AF) - End of March

KLAMATH BASIN  
Watershed Snowpack Analysis - April 1, 2012

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
CLEAR LAKE (CALIF)	513.3	124.1	129.1	248.9	Lost	3	61	56
GERBER	94.3	56.9	51.0	66.6	Sprague	9	63	93
UPPER KLAMATH LAKE	523.7	481.4	498.9	457.8	Upper Klamath Lake	7	75	92
					Williamson River	5	75	97

\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table. The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

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

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

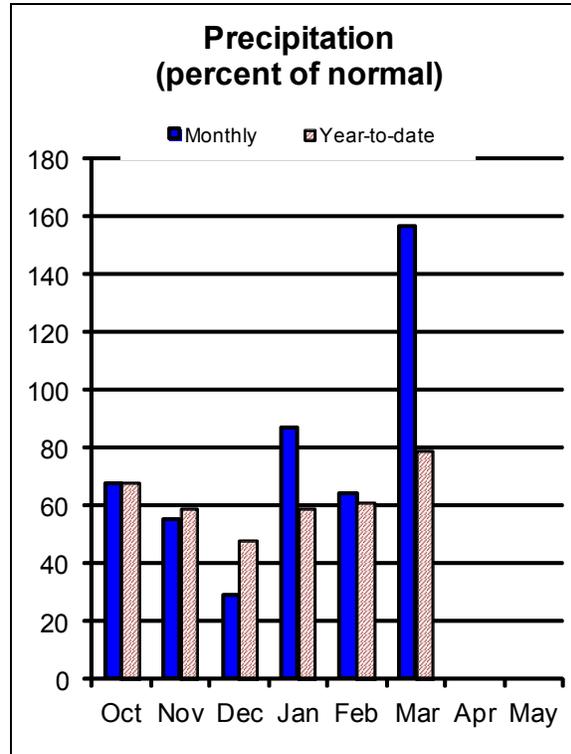
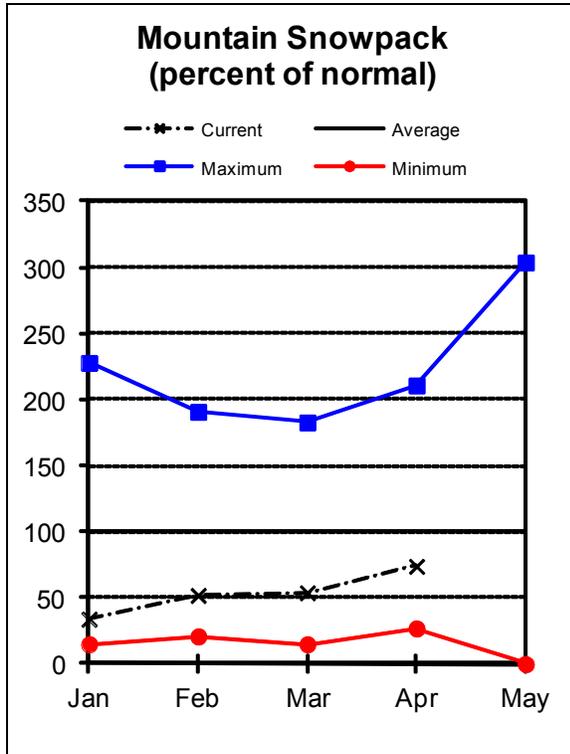
Klamath Falls - (541) 883-6932

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



# Lake County and Goose Lake

April 1, 2012



## Water Supply Outlook

A series of storms brought significant snowfall to the Lake County and Goose Lake basins during the latter half of March. The basin snowpack increased from half of normal, to 74 percent of average as of April 1. Last year at this time, snow measurement sites in the basin were recording about twice as much snow water content as compared to current values.

For the first time since May 2011, the Lake County and Goose Lake basins had a wetter than average month. March precipitation was 157 percent of average. The total precipitation since October 1 has been 79 percent of average, which is 18 percent higher than last month.

Reservoir storage in the Lake County and Goose Lake basins remains above average, which may provide some relief from low water supply conditions. April 1 storage at Cottonwood and Drews reservoirs was 104 percent of average and at 78 percent of capacity.

Summer streamflow forecasts in the Lake County and Goose Lake basins increased significantly since March 1. The April through September streamflow forecasts for the basin range from 57 percent of average for Deep Creek near Adel, to 95 percent of average for Silver Creek near Silver Lake. Water users in the basin can expect well below to near normal streamflows for the summer of 2012.

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

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

LAKE COUNTY AND GOOSE LAKE BASINS  
Streamflow Forecasts - April 1, 2012

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)	
Chewaucan R nr Paisley	APR-JUL	33	43	50	68	57	67	74
	APR-SEP	36	46	53	68	60	70	78
Deep Ck ab Adel	APR-JUL	21	31	38	57	45	55	67
	APR-SEP	21	32	39	57	46	57	69
Honey Ck nr Plush	APR-JUL	5.0	8.6	11.1	68	13.6	17.2	16.4
	APR-SEP	5.1	8.7	11.2	68	13.7	17.3	16.6
Silver Ck nr Silver Lake (2)	APR-JUL	6.4	8.7	10.2	95	11.7	14.0	10.7
	APR-SEP	6.3	8.8	10.6	95	12.4	14.9	11.2
Twentymile Ck nr Adel	APR-JUL	1.0	4.4	9.9	59	15.4	24	16.9
	APR-SEP	1.1	4.7	10.3	59	15.9	24	17.4

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

LAKE COUNTY AND GOOSE LAKE BASINS  
Watershed Snowpack Analysis - April 1, 2012

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
COTTONWOOD	8.7	5.4	9.3	5.7	Chewaucan River	6	58	79
DREWS	63.0	50.4	44.0	47.9	Deep Creek	3	42	60
					Drew Creek	4	44	66
					Honey Creek	3	57	77
					Silver Creek (Lake Co.)	5	70	107
					Twentymile Creek	5	44	56

\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table. The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

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

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

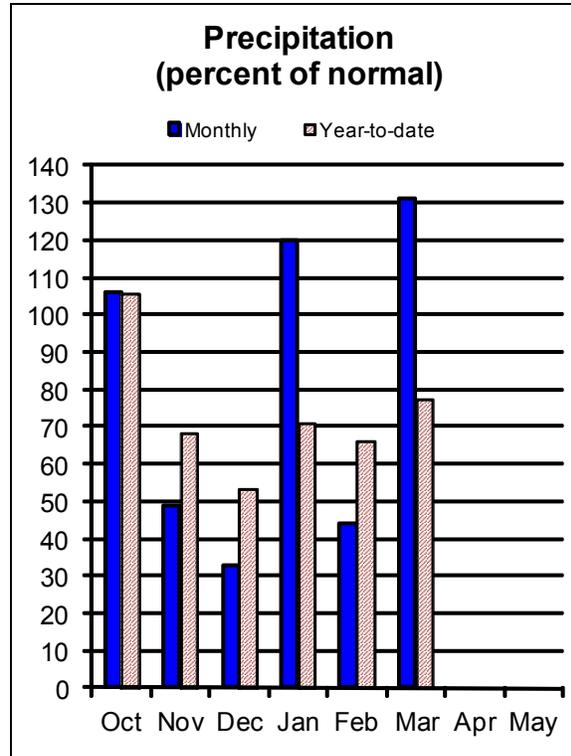
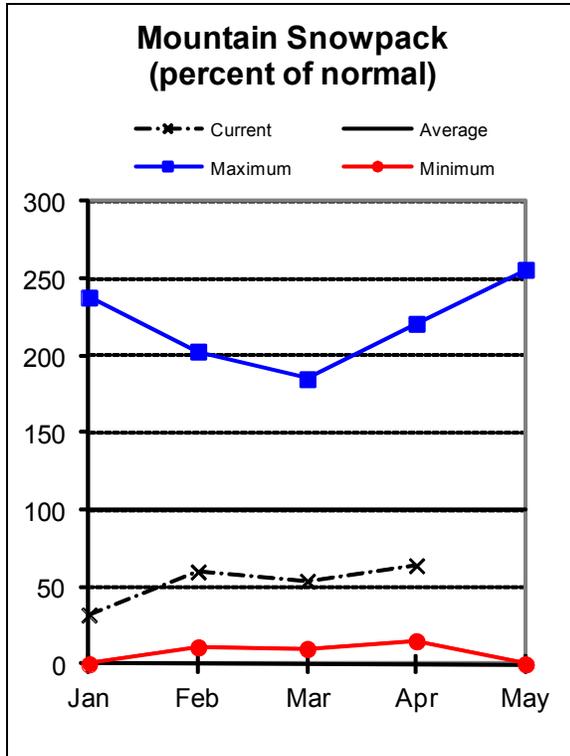
Lakeview - (541) 947-2202

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



# Harney Basin

April 1, 2012



## Water Supply Outlook

Snowpack in the Harney basin often peaks in March. This year, snow continued to fall through the end of March. This moisture helped to improve water supply conditions in the basin, but this region of Oregon remains significantly drier than the rest of the state.

The basin snowpack as of April 1 was 64 percent of average, which was a 10 percent boost from a month ago. Across the basin, snow measurement sites are recording about half of the snow water content that they were recording last year at this time.

March precipitation was 131 percent of average in the Harney Basin. Since the beginning of water year 2012, precipitation in the basin has been 77 percent of average, the lowest in the state.

Summer streamflow forecasts in the Harney basin increased significantly from last month's report, but remain below normal. The April through September streamflow forecasts in the basin range from 56 percent of average for Trout Creek near Denio to 86 percent of average for the Silvies River near Burns. Water users in the basin can expect well below to below normal streamflows for the summer of 2012.

For more information contact your local Natural Resources Conservation Service office:  
Hines - (541) 573-6446

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

HARNEY BASIN  
Streamflow Forecasts - April 1, 2012

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)		
		90%		70%		50%			30%	
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)		(1000AF)	(1000AF)
Donner Und Blitzen R nr Frenchglen	APR-JUL	23	37	46	72	55	69	64		
	APR-SEP	26	40	50	71	60	74	70		
Silvies R nr Burns	APR-JUL	38	64	82	85	100	126	96		
	APR-SEP	40	67	85	86	103	130	99		
Trout Ck nr Denio	APR-JUL	1.1	3.6	5.4	56	7.2	9.7	9.6		
	APR-SEP	1.4	4.0	5.8	56	7.6	10.2	10.3		

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

HARNEY BASIN  
Watershed Snowpack Analysis - April 1, 2012

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					Donner und Blitzen River	5	37	49
					Silver Creek (Harney Co.)	2	47	68
					Silvies River	6	53	77
					Trout Creek	5	32	47

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

The average is computed for the 1971-2000 base period.

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

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

Hines - (541) 573-6446

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

# Recession Flow Forecasts

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

The types of forecasts in the table below are:

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

<b>OWYHEE AND MALHEUR BASINS</b>					
<i>FORECAST POINT</i>	<i>FORECAST THRESHOLD</i>	<i>FORECAST VALUE</i> ----- <i>CHANCE OF EXCEEDING</i> ----- -----			<i>LONG-TERM AVERAGE VALUE</i>
		90%	50%	10%	
Owyhee R nr Rome	2000 cfs	Mar 04	Apr 10	May 17	<b>May 6</b>
Owyhee R nr Rome	1000 cfs	Mar 11	Apr 16	May 22	<b>May 18</b>
Owyhee R nr Rome	500 cfs	Mar 30	May 03	Jun 06	<b>Jun 2</b>

<b>UPPER JOHN DAY BASIN</b>					
<i>FORECAST POINT</i>	<i>FORECAST THRESHOLD</i>	<i>FORECAST VALUE</i> ----- <i>CHANCE OF EXCEEDING</i> ----- -----			<i>LONG-TERM AVERAGE VALUE</i>
		90%	50%	10%	
John Day R at Service Creek	Average Daily Flow on Aug. 1st	40	170	380	<b>271</b>

<b>UPPER DESCHUTES AND CROOKED BASINS</b>					
<i>FORECAST POINT</i>	<i>FORECAST THRESHOLD</i>	<i>FORECAST VALUE</i> ----- <i>CHANCE OF EXCEEDING</i> ----- -----			<i>LONG-TERM AVERAGE VALUE</i>
		90%	50%	10%	
Crane Prairie Inflow	Date of Peak	May 12*	May 28*	Jun 13*	<b>May 25</b>
Crane Prairie Inflow	Peak Flow	345	475	605	<b>403</b>
Crane Prairie Inflow	Average Daily Flow on Oct. 1st	270	305	340	<b>269</b>
Prineville Reservoir Inflow	113 cfs	May 04	May 25	Jun 15	<b>June 3</b>
Prineville Reservoir Inflow	75 cfs	May 10	May 31	Jun 21	<b>June 11</b>
Prineville Reservoir Inflow	50 cfs	May 16	Jun 08	Jul 01	<b>June 19</b>
Whychus Creek nr Sisters	100 cfs	Aug 07	Aug 30	Sep 21	<b>August 16</b>

**ROGUE AND UMPQUA BASINS**

FORECAST POINT	FORECAST THRESHOLD	FORECAST VALUE ----- CHANCE OF EXCEEDING ----- -----			LONG-TERM AVERAGE VALUE
		90%	50%	10%	
		South Umpqua R nr Brockway	90 cfs	Jul 28	
South Umpqua R at Tiller	140 cfs	Jun 27	Jul 17	Aug 07	<b>July 11</b>
South Umpqua R at Tiller	90 cfs	Jul 16	Aug 06	Aug 27	<b>August 1</b>
South Umpqua R at Tiller	60 cfs	Aug 12	Sep 07	Oct 01	<b>August 28</b>

**LAKE COUNTY AND GOOSE LAKE BASINS**

FORECAST POINT	FORECAST THRESHOLD	FORECAST VALUE ----- CHANCE OF EXCEEDING ----- -----			LONG-TERM AVERAGE VALUE
		90%	50%	10%	
		Deep Ck ab Adel	100 cfs	May 13	
Honey Ck nr Plush	100 cfs	Mar 28	Apr 28	May 29	<b>May 16</b>
Honey Ck nr Plush	50 cfs	Apr 13	May 10	Jun 06	<b>June 4</b>
Twentymile Ck nr Adel	50 cfs	Apr 01	Apr 29	May 27	<b>May 30</b>
Twentymile Ck nr Adel	10 cfs	May 30	Jun 19	Jul 09	<b>July 20</b>

**HARNEY BASIN**

FORECAST POINT	FORECAST THRESHOLD	FORECAST VALUE ----- CHANCE OF EXCEEDING ----- -----			LONG-TERM AVERAGE VALUE
		90%	50%	10%	
		Silvies R nr Burns	400 cfs	Apr 13	
	200 cfs	Apr 23	May 16	Jun 08	<b>June 2</b>
	100 cfs	May 06	May 30	June 23	<b>June 13</b>
	50 cfs	May 26	Jun 21	Jul 17	<b>July 3</b>
Donner Und Blitzen R nr Frenchglen	200 cfs	May 15	Jun 03	Jun 22	<b>June 20</b>
Donner Und Blitzen R nr Frenchglen	100 cfs	Jun 06	Jun 22	Jul 08	<b>July 9</b>

# Summary of Snow Course Data

## April 2012

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 71-00
<b>Oregon</b>						
ALTHOUSE #3	5000	4/02/12	49	14.0	23.2	12.8
ANEROID LAKE SNOTEL	7400	4/01/12	74	23.7	22.2	25.7
ANNIE SPRING SNOTEL	6010	4/01/12	117	36.9	50.1	42.8
ANTHONY LAKE (REV)	7130	3/30/12	79	27.5	27.7	--
ARBUCKLE MTN SNOTEL	5770	4/01/12	46	14.6	18.5	22.3
BALD MTN AM	6720	4/02/12	106	39.2	41.8	25.7
BALD PETER	5400	4/03/12	106	40.0	--	30.3
BARLEY CAMP AM	6900	4/02/12	24	9.1	24.7	16.3
BARNEY CREEK (NEW)	5840	4/03/12	22	6.9	11.6	--
BEAR FLAT MEADOW AM	5900	4/02/12	19	7.2	15.1	11.2
BEAR GRASS SNOTEL	4720	4/01/12	143	58.4	--	--
BEAVER CREEK #1	4250	4/03/12	51	17.4	--	14.1
BEAVER CREEK #2	4250	4/03/12	31	10.2	--	7.3
BEAVER DAM CREEK	5100	3/29/12	28	10.3	16.6	10.0
BEAVER RES. SNOTEL	5150	4/01/12	25	12.0	19.0	9.2
BIG RED MTN SNOTEL	6050	4/01/12	94	26.8	39.1	28.4
BIG SHEEP AM	6200	4/02/12	84	30.2	35.6	26.6
BIGELOW CAMP SNOTEL	5130	4/01/12	57	17.0	24.8	11.6
BILLIE CK DVD SNOTEL	5280	4/01/12	58	22.0	26.9	21.5
BLAZED ALDER SNOTEL	3650	4/01/12	104	41.2	35.1	32.1
BLUE MTN SPGS SNOTEL	5870	4/01/12	46	17.0	19.8	17.3
BOULDER CREEK AM	5690	4/03/12	0	.0	6.6	1.1
BOURNE SNOTEL	5850	4/01/12	36	13.3	18.2	17.9
BOWMAN SPRNGS SNOTEL	4530	4/01/12	15	5.3	10.9	8.6
BUCK PASTURE AM	5700	4/03/12	0	.0	5.5	1.2
BUCKSKIN LAKE AM	5200	4/03/12	0	.0	.0	.3
BULLY CREEK AM	5300	4/03/12	0	.0	3.9	.5
CALIBAN ALT	6500	3/28/12	94	26.4	38.6	30.9
CALL MEADOWS AM	5340	4/03/12	0	.0	5.8	2.1
CAMAS CREEK #3	5850	3/30/12	22	8.3	17.4	13.1
CASCADE SUM. SNOTEL	5100	4/01/12	92	34.6	45.6	31.3
CHEMULT ALT SNOTEL	4850	4/01/12	18	7.6	11.2	5.3
CLACKAMAS LK. SNOTEL	3400	4/01/12	41	16.1	11.0	11.3
CLEAR LAKE SNOTEL	3810	4/01/12	46	16.4	11.0	14.1
COLD SPRINGS SNOTEL	5940	4/01/12	79	29.0	39.5	28.2
COLVIN CREEK AM	6550	4/02/12	5	1.9	4.2	2.6
COUNTY LINE SNOTEL	4830	4/01/12	0	.6	1.7	2.2
COX FLAT AM	5750	4/02/12	3	1.0	7.1	4.3
CRAZYMAN FLAT SNOTEL	6180	4/01/12	53	16.8	21.9	15.7
DALY LAKE SNOTEL	3690	4/01/12	51	19.9	15.8	12.7
DEADHORSE GRADE	3700	3/30/12	21	8.2	7.0	9.0
DEADWOOD JUNCTION	4600	3/30/12	21	8.2	7.7	4.8
DERR SNOTEL	5850	4/01/12	37	12.8	18.6	16.4
DIAMOND LAKE SNOTEL	5280	4/01/12	49	18.1	24.5	14.8
DOG HOLLOW AM	4900	4/02/12	1	.3	.0	.1
DOOLEY MOUNTAIN	5430	4/03/12	18	6.4	12.8	7.1
EAST EAGLE	4400	4/03/12	54	18.0	22.9	23.7
EILERTSON SNOTEL	5510	4/01/12	18	6.3	15.4	9.6
ELDORADO PASS	4600	4/03/12	0	.0	4.3	.9
EMIGRANT SPGS SNOTEL	3800	4/01/12	0	.0	6.5	3.3
FINLEY CORRALS AM	6000	4/02/12	33	10.6	18.6	14.6
FISH CREEK SNOTEL	7660	4/01/12	68	19.8	40.8	30.5
FISH LK. SNOTEL	4660	4/01/12	39	13.3	14.4	8.4
FLAG PRAIRIE AM	4750	4/03/12	0	.0	5.5	2.0
FOURMILE LAKE SNOTEL	5970	4/01/12	80	26.2	30.8	30.7
GERBER RES SNOTEL	4890	4/01/12	0	.0	.0	.1
GOLD CENTER SNOTEL	5410	4/01/12	22	8.8	12.3	8.3
GOVT CORRALS AM	7450	4/03/12	27	10.2	22.8	--

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 71-00
<b>Oregon (continued)</b>						
GREENPOINT SNOTEL	3310	4/01/12	49	18.3	14.1	17.5
HART MOUNTAIN AM	6350	4/02/12	1	.3	.0	.9
HIGH PRAIRIE	6100	3/29/12	140	52.7	34.1	47.6
HIGH RIDGE SNOTEL	4920	4/01/12	72	24.9	27.4	23.1
HOGG PASS SNOTEL	4790	4/01/12	97	32.0	27.2	39.0
HOLLAND MDWS SNOTEL	4930	4/01/12	54	23.0	24.0	23.1
HOWARD PRAIRIE	4500	3/29/12	13	4.5	8.3	5.6
HUNGRY FLAT	4400	3/30/12	0	.0	.2	1.4
IRISH-TAYLOR SNOTEL	5540	4/01/12	110	37.3	37.6	36.6
JUMP OFF JOE SNOTEL	3520	4/01/12	43	15.0	18.3	10.3
KING MTN #1	4500	3/30/12	36	11.3	19.5	5.2
KING MTN #2 SNOTEL	4340	4/01/12	22	8.0	11.6	2.9
KING MTN #3	3650	3/30/12	0	.0	1.3	.6
KING MTN #4	3050	3/30/12	0	.0	--	.0
LAKE CK R.S. SNOTEL	5240	4/01/12	22	8.3	13.1	10.5
LITTLE ALPS	6200	3/30/12	44	13.4	13.5	13.2
LITTLE ANTONE (ALT)	5000	3/30/12	20	6.8	8.8	7.2
LITTLE MEADOW SNOTEL	4020	4/01/12	97	36.0	39.4	25.7
LOOKOUT BUTTE AM	5650	4/03/12	0	.0	.0	.1
LOUSE CANYON AM	6440	4/03/12	0	.0	11.8	5.1
LUCKY STRIKE SNOTEL	4970	4/01/12	19	7.5	13.5	9.3
MADISON BUTTE SNOTEL	5150	4/01/12	6	2.6	7.3	2.7
MARION FORKS SNOTEL	2590	4/01/12	43	17.3	7.8	10.2
MARY'S PEAK REV	3620	3/29/12	54	23.0	17.4	6.3
MCKENZIE SNOTEL	4770	4/01/12	118	50.3	50.8	42.9
MEACHAM	4300	4/03/12	12	4.0	7.8	6.6
MILKSHAKES SNOTEL	5580	4/01/12	117	46.1	--	--
MILL CREEK MDW	4400	3/29/12	38	13.4	10.4	9.1
MILLER WOODS SNOTEL	420	4/01/12	0	.0	.0	--
MIRROR LAKE AM	8200	4/02/12	208	74.9	--	68.0
MOSS SPRINGS SNOTEL	5760	4/01/12	64	23.7	30.0	26.0
MT ASHLAND SWBK.	6400	3/28/12	95	26.0	39.3	33.4
MT HOOD	5370	3/29/12	168	68.8	60.9	62.5
MT HOOD TEST SNOTEL	5370	4/01/12	176	65.9	51.6	59.1
MT HOWARD SNOTEL	7910	4/01/12	61	22.1	15.2	16.5
MUD RIDGE SNOTEL	4070	4/01/12	90	31.5	24.5	24.3
NEW CRESCENT SNOTEL	4910	4/01/12	37	8.4	16.9	8.4
NEW DUTCHMAN #3	6320	3/30/12	151	53.4	57.3	51.9
NORTH FK RES SNOTEL	3060	4/01/12	85	33.3	28.9	15.7
NORTH UMPQUA	4220	4/02/12	26	8.4	14.6	8.8
OCHOCO MEADOW SNOTEL	5430	4/01/12	21	8.2	14.1	8.7
OREGON CANYON AM	6950	4/03/12	0	.0	11.4	4.9
PARK H.Q. REV	6550	3/29/12	157	53.8	71.6	61.3
PATTON MEADOWS AM	6800	4/02/12	44	14.1	20.9	17.5
PEAVINE RIDGE SNOTEL	3420	4/01/12	49	20.1	16.2	13.0
PUEBLO SUMMIT AM	6800	4/03/12	0	.0	5.3	--
QUARTZ MTN SNOTEL	5720	4/01/12	0	.2	3.2	.4
RACING CREEK	4800	4/03/12	46	16.4	--	14.1
R.R. OVERPASS SNOTEL	2680	4/01/12	0	.0	.0	.1
RED BUTTE #1	4560	3/29/12	47	16.7	28.8	10.4
RED BUTTE #2	4000	3/29/12	7	2.0	7.3	5.0
RED BUTTE #3	3500	3/29/12	6	2.2	3.7	1.1
RED BUTTE #4	3000	3/29/12	0	.0	--	.3
RED HILL SNOTEL	4410	4/01/12	132	60.8	57.4	46.1
ROARING RIVER SNOTEL	4950	4/01/12	85	35.2	37.8	28.9
ROCK SPRINGS SNOTEL	5290	4/01/12	0	1.0	7.9	2.5
ROGGER MEADOWS AM	6500	4/02/12	19	7.2	16.2	11.3
SADDLE MTN SNOTEL	3110	4/01/12	17	6.8	6.8	--
SALT CK FALLS SNOTEL	4220	4/01/12	54	19.8	32.8	18.4
SANTIAM JCT. SNOTEL	3740	4/01/12	49	19.0	23.5	16.0
SCHNEIDER MDW SNOTEL	5400	4/01/12	70	29.3	34.6	29.6
SEINE CREEK SNOTEL	2060	4/01/12	0	.0	.0	1.3
SEVENMILE MARSH SNTL	5700	4/01/12	74	24.1	41.7	30.5

SNOW COURSE		ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 71-00
<b>Oregon (continued)</b>							
SHERMAN VALLEY	AM	6600	4/02/12	29	11.0	15.5	12.0
SILVER BURN		3720	3/29/12	25	9.5	19.2	8.2
SILVER CREEK	SNOTEL	5740	4/01/12	31	9.5	15.3	7.8
SILVIES	SNOTEL	6990	4/01/12	25	9.5	17.0	19.3
SISKIYOU SUMMIT REV		4630	3/28/12	35	10.2	10.4	3.3
SKI BOWL ROAD		6000	3/28/12	70	19.8	29.7	26.7
SMITH RIDGE	SNOTEL	3330	4/01/12	10	4.8	--	--
SNOW MTN	SNOTEL	6220	4/01/12	30	7.0	15.5	14.0
SF BULL RUN	SNOTEL	2690	4/01/12	27	10.9	9.4	2.1
STANDLEY AM		7400	4/02/12	91	33.7	34.3	33.3
STARR RIDGE	SNOTEL	5250	4/01/12	9	4.8	9.7	3.4
STRAWBERRY	SNOTEL	5770	4/01/12	1	2.1	8.4	4.1
SUMMER RIM	SNOTEL	7080	4/01/12	56	15.8	22.5	19.0
SUMMIT LAKE	SNOTEL	5610	4/01/12	115	39.1	44.1	38.1
SUN PASS	SNOTEL	5400	4/01/12	57	19.6	24.2	--
SWAN LAKE MTN	SNOTEL	6830	4/01/12	70	22.7	32.7	--
SYCAN FLAT	AM	5500	4/02/12	8	3.4	6.2	3.2
TANGENT		5400	3/30/12	74	26.8	23.0	19.6
TAYLOR BUTTE	SNOTEL	5030	4/01/12	15	6.4	8.7	2.8
TAYLOR GREEN	SNOTEL	5740	4/01/12	49	20.3	26.8	21.7
THREE CK MEAD	SNOTEL	5690	4/01/12	68	18.0	27.9	19.7
TIPTON	SNOTEL	5150	4/01/12	31	9.0	16.1	14.3
TOKETEE AIRSTRIP SN		3240	4/01/12	0	.0	.7	2.7
TOLLGATE		5070	4/03/12	88	33.8	32.8	26.8
TRAP CREEK		3800	4/02/12	31	10.8	16.3	7.3
TROUT CREEK	AM	7800	4/03/12	25	9.5	18.6	12.1
TV RIDGE AM		7000	4/02/12	43	15.5	14.0	20.2
V LAKE	AM	6600	4/03/12	0	.0	15.2	8.0
WEST EAGLE MEADOWS	AM	5500	4/02/12	84	33.6	33.6	28.1
WOLF CREEK	SNOTEL	5630	4/01/12	42	12.7	19.5	16.7
<b>California</b>							
ADIN MOUNTAIN		6350	4/02/12	17	6.2	19.8	12.5
ADIN MTN	SNOTEL	6190	4/01/12	19	6.8	18.7	13.2
BLUE LAKE RANCH		6800	3/29/12	7	2.2	13.1	10.4
CEDAR PASS		7100	3/28/12	25	7.4	20.5	17.6
CEDAR PASS	SNOTEL	7030	4/01/12	35	11.5	24.9	19.3
CROWDER FLAT	SNOTEL	5170	4/01/12	0	.3	4.9	2.4
DISMAL SWAMP	SNOTEL	7360	4/01/12	68	16.9	43.1	28.9
STATE LINE	AM	5750	4/02/12	9	3.4	4.2	3.4
<b>Idaho</b>							
BATTLE CREEK	AM	5720	4/03/12	0	.0	4.6	1.0
BULL BASIN	AM	5460	4/03/12	0	.0	.0	.3
MUD FLAT	SNOTEL	5730	4/01/12	0	.0	10.7	4.4
RED CANYON	AM	6650	4/03/12	0	.0	15.2	5.1
SOUTH MTN	SNOTEL	6500	4/01/12	32	12.3	22.3	19.2
SUCCOR CREEK	AM	6100	4/03/12	21	8.0	15.2	7.8
VAUGHT RANCH	AM	5830	4/03/12	0	.0	4.2	1.1
<b>Nevada</b>							
BALD MOUNTAIN	AM	6720	4/02/12	1	.3	.0	2.5
BEAR CREEK	SNOTEL	7800	4/01/12	38	13.6	25.9	21.6
BIG BEND	SNOTEL	6700	4/01/12	2	2.8	13.8	8.3
BUCKSKIN,L	SNOTEL	6700	4/01/12	22	6.1	17.6	8.5
COLUMBIA BASIN	AM	6650	4/01/12	0	.0	11.2	6.8
DISASTER PEAK	SNOTEL	6500	4/01/12	0	.0	9.1	7.4
FAWN CREEK	SNOTEL	7050	4/01/12	30	8.7	21.4	18.7
FRY CANYON		6700	3/27/12	8	3.2	10.0	5.7
GOLD CREEK		6600	3/27/12	0	.0	8.6	3.9
GRANITE PEAK	SNOTEL	7800	4/01/12	42	13.4	32.5	25.1
JACK CREEK, LOWER(d)		6800	3/28/12	0	.0	6.0	2.3
JACK CREEK, U	SNOTEL	7280	4/01/12	32	11.7	19.4	19.9
LAMANCE CREEK	SNOTEL	6000	4/01/12	0	.0	13.5	10.1
LAUREL DRAW	SNOTEL	6700	4/01/12	7	2.2	13.5	8.8
LITTLE BALLY MTN.	AM	6000	4/02/12	2	.7	.0	2.9
MERRIT MOUNTAIN	AM	7000	4/01/12	0	.0	11.8	5.8

SNOW COURSE		ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 71-00
<b>Nevada (continued)</b>							
MIDAS	(d)	7200	4/01/12	1	.4	8.6	1.7
QUINN RIDGE	AM	6300	4/03/12	0	.0	.0	.8
SEVENTYSIX CK	SNOTEL	7100	4/01/12	19	6.4	11.2	10.7
STAG MOUNTAIN	AM	7700	4/01/12	1	.4	8.6	5.7
TAYLOR CANYON	SNOTEL	6200	4/01/12	0	.0	5.3	2.9
TOE JAM	AM	7700	3/28/12	18	7.4	15.4	9.4
TREMEWAN RANCH		5700	3/27/12	0	.0	.0	.1

(d) denotes discontinued site.

# Basin Outlook Reports: How Forecasts Are Made

## Federal – State – Private Cooperative Snow Surveys

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

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

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

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

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

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

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

# 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 1971-2000. 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 below, there is a 50% chance that actual streamflow volume at the Boise River near Twin Springs will be less than 685 KAF between April 1 and July 31. There is also a 50% chance that actual streamflow volume will be greater than 685 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 610 KAF (from the 70 percent exceedance forecast). There is a 30% chance of receiving *less* than 610 KAF.

Alternatively, if users determine the risk of using the 70 percent exceedance forecast is too great, then they might plan on receiving 443 KAF (from the **90**

percent exceedance forecast). There is 10% chance of receiving less than 443 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 760 KAF (from the 30 percent exceedance forecast). There is a 30% chance of receiving *more* than 760 KAF.

Alternatively, if users determine the risk of using the 30 percent exceedance forecast is too great, then they might plan on receiving 927 KAF (from the 10 percent exceedance forecast). There is a 10% chance of receiving more than 927 KAF.

Users could also choose a volume in between any of these values to reflect their desired risk level.

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**OWYHEE AND MALHEUR BASINS**  
**Streamflow Forecasts - February 1, 2006**

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Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)				
		90%		70%		50% (Most Probable)			30%		10%	
		(1000AF)	(1000AF)	(1000AF)	(1000AF)	(1000AF)	(1000AF)		(1000AF)	(1000AF)	(1000AF)	(1000AF)
MALHEUR near Drewsey	FEB-JUL	148	184	210	165	238	282	127				
	APR-SEP	87	110	128	168	147	177	76				
NF MALHEUR at Beulah	FEB-JUL	108	127	141	157	156	178	90				
OWYHEE RESV INFLOW (2)	FEB-JUL	602	792	935	134	1090	1340	700				
	APR-SEP	341	473	575	134	687	869	430				

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

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Official Business



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

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