



United States  
Department of  
Agriculture



Natural Resources  
Conservation  
Service

# Oregon Basin Outlook Report

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June 1, 2010



View of Three Sisters Mountains from the west

(photo courtesy of Melissa Webb)

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# General Outlook

June 1, 2010

## SUMMARY

Throughout the winter, mountain snowpacks failed to reach peak levels in most of Oregon's mountains. The Owyhee, Malheur and Harney basins achieved near average snowpack conditions this winter. Following a warmer and drier than normal winter, spring has been wet and cool throughout the state. Spring rains have partially offset the snowpack deficit, bringing some relief to Oregon water users through improved streamflow forecasts.

## SNOWPACK

Snow was still present at 23 SNOTEL sites in Oregon on June 1. Normally, only 11 Oregon SNOTEL sites have snow on the ground at this time of year. From the SNOTEL data, it appears that this year we are 2-3 weeks behind the normal melt out date at some sites.

The June snow conditions are a startling contrast to earlier this year. Through the middle of March, the snowpack had failed to reach normal levels and was beginning to melt out 2-3 weeks earlier than usual! The delayed snowmelt could benefit summer water supplies. However, a rapid melt out of the remaining snowpack could bring higher than desirable streamflows.

## PRECIPITATION

May was a wet month throughout the state. Every basin in the state, with the exception of the Klamath, posted well above average precipitation for the month. Record precipitation was measured for the month at North Fork and Mud Ridge SNOTEL sites in the Lower Columbia basin. Near record precipitation was recorded at Mt. Hood SNOTEL, also in the Lower Columbia basin, and at County Line SNOTEL in the Umatilla basin.

At Oregon SNOTEL sites, May precipitation normally accounts for 6 to 10 percent of the total annual precipitation. This year, May precipitation accounted for 10 to 20 percent of the precipitation that has fallen since the beginning of the water year. This is double the amount that May generally contributes to the water year total.

Since the beginning of the water year on October 1, precipitation in Oregon has ranged from 76 percent of average in the Klamath basin to 96 percent of average in the Burnt, Powder, Pine, Grande Ronde and Imnaha basins. May precipitation totals ranged from a low of 94 percent of average in the Klamath basin to a high of 180 percent of average in the Harney and the Umatilla, Walla Walla, Willow, Rock and Lower John Day basins. Since the beginning of the water year, precipitation across all of Oregon's basins has been 74 percent of average.

## RESERVOIRS

Overall there was a slight decrease in total water stored in irrigation reservoirs throughout the state compared with last month. As of June 1 and the beginning of the irrigation season, most of the reservoirs summarized in this document remain well below capacity. While May saw heavy precipitation in the form of rain, cooler temperatures caused a delay in snow melt in most basins. That coupled with the start of the spring irrigation season resulted in what can be seen as a relatively steady state of storage in the Oregon irrigation reservoirs.

June 1 storage at the 26 Oregon irrigation reservoirs analyzed in this publication was at 71 percent of average. A total of 1,841,100 acre feet of water were stored as of June 1, representing 57 percent of useable capacity. Last year at this time, these reservoirs stored 2,009,000 acre feet of water, or 62 percent of their useable capacity.

## STREAMFLOW

Recent water supply forecasts have changed significantly from those issued earlier in the season. The dramatic shift in weather patterns – from warm and dry in the winter to unseasonably wet and cold during the spring – explains this impressive shift in conditions for many areas of the state.

Streamflows rose throughout the state in May as spring rains combined with snowmelt. Despite the wet spring, many water users throughout the state may experience below average late summer streamflows. Water conservation will help to offset anticipated deficits.

<b>STREAM</b>	<b>PERIOD</b>	<b>PERCENT OF AVERAGE</b>
Owyhee Reservoir Inflow	June-September	74
Grande Ronde R at La Grande	June-September	72
Umatilla R at Pendleton	June-September	79
Deschutes R at Benham Falls	June-September	80
MF Willamette R bl NF	June-September	120
Rogue R at Raygold	June-September	86
Upper Klamath Lake Inflow	June-September	63
Silvies R nr Burns	June-September	90

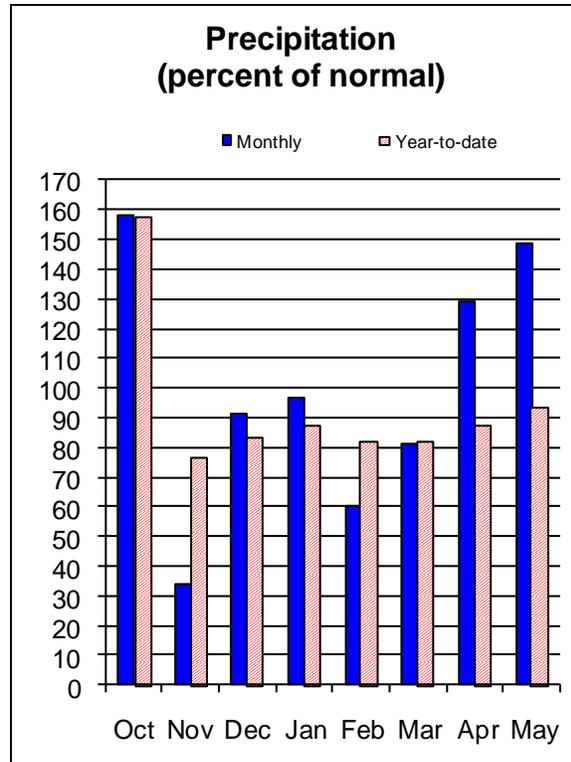
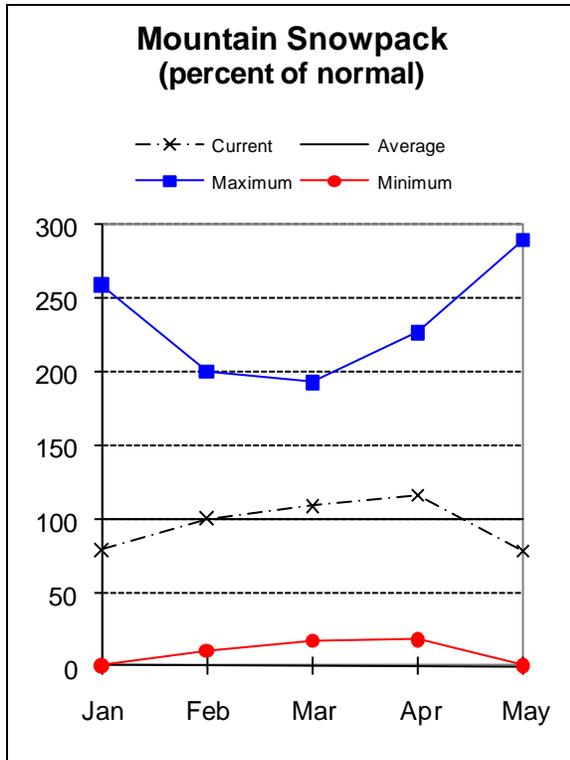
Some of these forecasts assume that normal weather conditions will occur from now to the end of the forecast period.

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

June 1, 2010



## Water Supply Outlook

Of the 10 SNOTEL sites in the basin, there was snow remaining only at the Jack Creek SNOTEL site on June 1. Normally, all SNOTEL sites within the basin have melted out by this time of year. The basin snowpack was near to slightly below average for the entire winter.

Only the months of October, April and May posted higher than average precipitation in the basin this water year. May precipitation in the Owyhee and Malheur basin was 149 percent of average. Since the beginning of water year 2010, basin wide precipitation has been 93 percent of average. The timing of the spring precipitation has helped to partially alleviate a weak winter snowpack.

Total reservoir storage in the Owyhee and Malheur has declined slightly since last month. June 1 storage at the four irrigation reservoirs reported on in the Owyhee and Malheur basins was 60 percent of average and 50 percent of capacity.

June through September streamflow forecasts range from 69 percent of average for the Malheur near Drewsey to 77 percent of average for the Owyhee River near Rome. Water users in the Owyhee and Malheur can expect streamflows that are greatly below average in the summer of 2010. Water conservation will be key to managing water supplies this summer.

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

Ontario - (541) 889-7637

Or visit: <http://www.wcc.nrcs.usda.gov/cgibin/bor.pl>

OWYHEE AND MALHEUR BASINS  
Streamflow Forecasts - June 1, 2010

Forecast Point	Forecast Period	<<==== Drier ===== Future Conditions ===== Wetter =====>>				30-Yr Avg.** (1000AF)						
		90% (1000AF)		70% (1000AF)			Chance Of Exceeding* 50% (1000AF) (% AVG.)		30% (1000AF)		10% (1000AF)	
Malheur R nr Drewsey	JUN-JUL	5.2	6.8	8.0	70	9.3	11.3	11.5				
	JUN-SEP	5.1	7.6	9.5	69	11.7	15.2	13.7				
NF Malheur R at Beulah	JUN-JUL	7.2	9.4	11.0	72	12.8	15.6	15.3				
	JUN-SEP	10.8	13.8	16.0	76	18.4	22	21				
Owyhee R blw Owyhee Dam (2)	JUN-JUL	2.5	22	59	72	96	149	82				
	JUN-SEP	4.0	38	83	74	128	193	112				
Owyhee R nr Rome	JUN-JUL	29	42	53	75	65	84	71				
	JUN-SEP	42	58	70	77	83	105	91				

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

OWYHEE AND MALHEUR BASINS  
Watershed Snowpack Analysis - June 1, 2010

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	44.3	37.3	46.9	Owyhee	7	114	
BULLY CREEK	30.0	21.8	14.1	23.4	Upper Malheur	3		
OWYHEE	715.0	355.2	394.2	614.6	Jordan Creek	2		
WARMSPRINGS	191.0	77.8	43.2	145.9	Bully Creek	0		
					Willow Creek	0		

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

\*\*The average is computed for the 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:

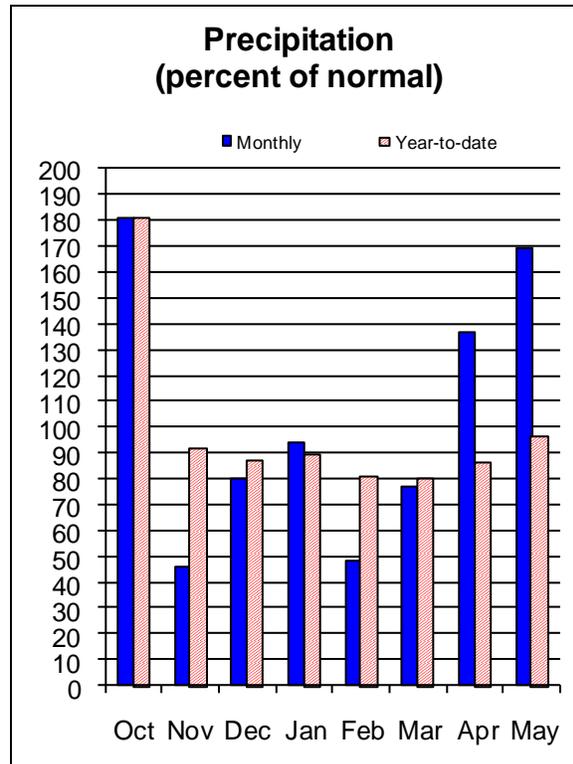
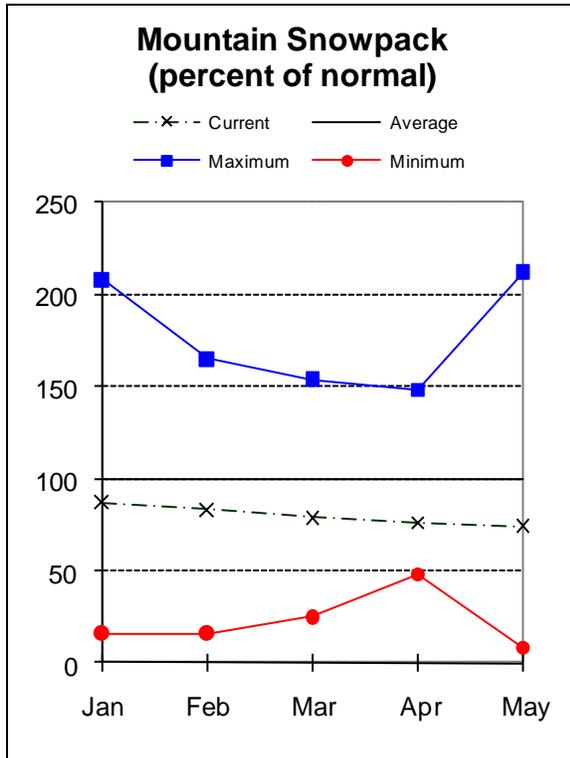
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Or visit: <http://www.wcc.nrcs.usda.gov/cgibin/bor.pl>



# Burnt, Powder, Grand Ronde, and Imnaha Basins

June 1, 2010



## Water Supply Outlook

There was snow remaining at 3 of the 15 SNOTEL sites in the basin on June 1. Normally, there is only snow at 2 of these sites on June 1. The basin snowpack was well below average for the entire winter.

County Line SNOTEL measured 4.4 inches of total precipitation for the month of May, which is only slightly less than the record of 4.7 inches, set in 2004. May precipitation in the Burnt, Powder, Pine, Grande Ronde and Imnaha basins was 169 percent of average. Since the beginning of water year 2010, basin wide precipitation has been 96 percent of average.

Reservoirs reported a slight increase in storage since the last report. June 1 storage at Philips Lake, Thief Valley and Unity reservoirs was 91 percent of average or 83 percent of capacity.

The timing of the spring precipitation helped to partially a weak winter snowpack. June through September streamflow forecasts range from 71 percent of average for the Burnt River near Hereford to 86 percent of average for Pine Creek near Oxbow. Water users in the basin can expect streamflows that are below normal in the summer of 2010. Water conservation measures will be key to managing limited water supplies.

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.wcc.nrcs.usda.gov/cgibin/bor.pl>

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BURNT, POWDER, PINE, GRANDE RONDE AND IMNAHA BASINS  
Streamflow Forecasts - June 1, 2010

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Forecast Point	Forecast Period	Future Conditions				Wetter		30-Yr Avg.** (1000AF)
		90% (1000AF)	70% (1000AF)	50% (1000AF)	Chance Of Exceeding* (% AVG.)	30% (1000AF)	10% (1000AF)	
Bear Ck nr Wallowa	JUN-SEP	22	26	29	83	32	36	35
Burnt R nr Hereford	JUN-JUL	1.7	2.8	3.6	71	4.6	6.2	5.1
	JUN-SEP	2.8	4.0	5.0	71	6.1	7.9	7.0
Catherine Ck nr Union	JUN-JUL	15.5	18.1	20	80	22	25	25
	JUN-SEP	18.2	21	23	79	25	28	29
Deer Ck nr Sumpter	JUN-JUL	1.4	2.1	2.6	68	3.2	4.2	3.8
Grande Ronde R at La Grande	JUN-JUL	11.7	18.5	24	67	30	41	36
	JUN-SEP	15.9	24	31	72	39	51	43
Grande Ronde R at Troy	JUN-JUL	240	330	370	79	410	500	470
	JUN-SEP	290	400	450	80	500	610	565
Imnaha R at Imnaha	JUN-JUL	69	83	92	78	101	115	118
	JUN-SEP	83	99	110	78	121	137	142
Lostine R nr Lostine	JUN-JUL	50	58	63	85	69	77	74
	JUN-SEP	55	63	69	83	75	85	83
Pine Ck nr Oxbow	JUN-JUL	34	41	46	84	51	58	55
	JUN-SEP	40	48	53	86	58	66	62
Powder R nr Sumpter	JUN-JUL	7.8	10.7	13.0	72	15.5	19.6	18.0
	JUN-SEP	8.3	11.2	13.5	72	16.0	20	18.8
Wolf Ck Reservoir Inflow (2)	JUN-JUL	0.3	0.7	1.2	63	1.8	2.8	1.9

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BURNT, POWDER, PINE, GRANDE RONDE AND IMNAHA BASINS Reservoir Storage (1000 AF) - End of May					BURNT, POWDER, PINE, GRANDE RONDE AND IMNAHA BASINS Watershed Snowpack Analysis - June 1, 2010			
Reservoir	Usable Capacity	*** Usable Storage This Year	Last Year	*** Avg	Watershed	Number of Data Sites	This Year as % of Last Yr	% of Average
PHILLIPS LAKE	73.5	57.6	68.4	65.3	Upper Grande Ronde	7	380	173
THIEF VALLEY	17.4	14.0	13.4	17.0	Wallowa	4	179	181
UNITY	25.2	24.2	23.7	23.1	Imnaha	3	149	159
WALLOWA LAKE		NO REPORT			Powder	7		
WOLF CREEK	10.4	11.1	11.1	9.8	Burnt	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.

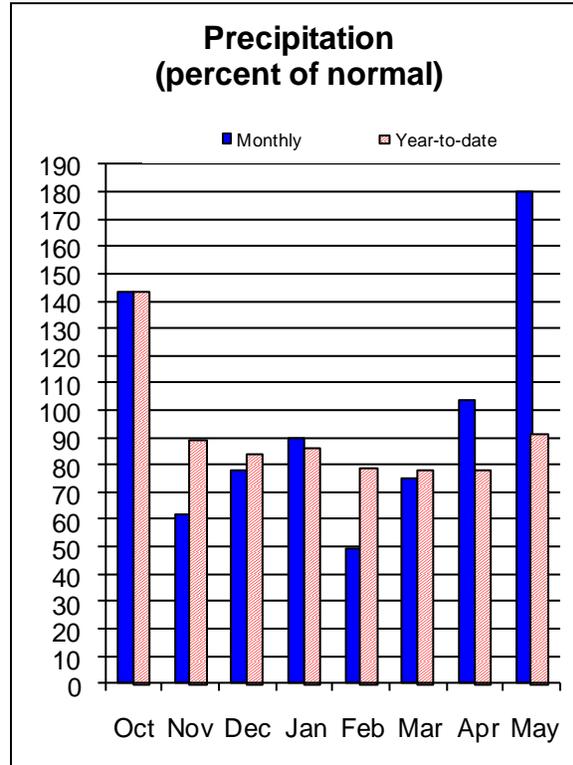
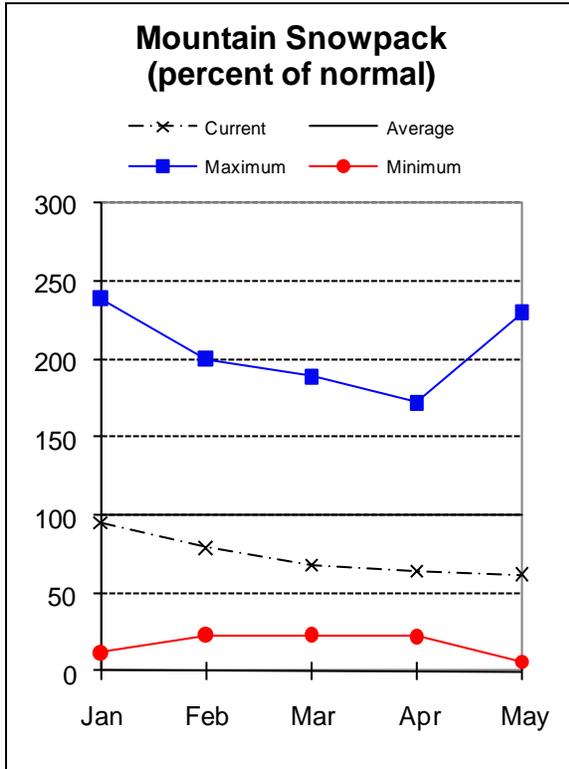
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# Umatilla, Walla Walla, Willow Rock, and Lower John Day Basins

June 1, 2010



## Water Supply Outlook

There was no snow remaining at any of the 7 SNOTEL sites in the basin on June 1. It is normal for these sites to be snow free on June 1. The basin snowpack was well below average for the entire winter.

May precipitation in the basin was 180 percent of average, the highest in the state. Since the beginning of water year 2010, basin wide precipitation has been 91 percent of average.

McKay reservoir storage showed a significant improvement during May runoff. It is now at 70 percent of capacity, up from 49 percent of capacity reported last month. June 1 storage at Cold Springs and McKay reservoirs was 77 percent of average or 63 percent of capacity.

The timing of the spring precipitation helped to partially alleviate a weak winter snowpack. June through September streamflow forecasts range from 79 percent of average to 109 percent of average. Many water users in the basin can expect below normal streamflow conditions for the summer of 2010. Water conservation measures will be key to managing limited water supplies.

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.wcc.nrcs.usda.gov/cgibin/bor.pl>

UMATILLA, WALLA WALLA, WILLOW, ROCK AND LOWER JOHN DAY BASINS  
Streamflow Forecasts - June 1, 2010

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>				30-Yr Avg.** (1000AF)				
		90% (1000AF)		70% (1000AF)			Chance Of Exceeding* 50% (1000AF) (% AVG.)		30% (1000AF) 10% (1000AF)	
Butter Ck nr Pine City	JUN-JUL	0.6	1.2	1.5	93	1.9	2.4	1.6		
	JUN-SEP	0.9	1.6	2.0	96	2.4	3.1	2.1		
McKay Ck nr Pilot Rock	JUN-SEP	0.5	2.3	3.5	109	4.7	6.5	3.2		
Rhea Ck nr Heppner	JUN-JUL	0.4	1.0	1.5	99	1.9	2.6	1.5		
Umatilla R ab Meacham Ck nr Gibbon	JUN-JUL	6.2	9.5	11.7	81	13.9	17.2	14.4		
	JUN-SEP	10.4	13.9	16.2	81	18.5	22	20		
Umatilla R at Pendleton	JUN-JUL	3.1	12.2	18.3	80	24	33	23		
	JUN-SEP	7.4	16.7	23	79	29	39	29		
SF Walla Walla R nr Milton-Freewater	JUN-JUL	10.4	13.4	15.4	80	17.4	20	19.2		
	JUN-SEP	19.5	23	26	79	29	32	33		
Willow Ck ab Willow Ck Lake nr Heppn	JUN-JUL	0.2	0.8	1.2	80	1.6	2.2	1.5		

UMATILLA, WALLA WALLA, WILLOW, ROCK AND LOWER JOHN DAY BASINS  
Reservoir Storage (1000 AF) - End of May

UMATILLA, WALLA WALLA, WILLOW, ROCK AND LOWER JOHN DAY BASINS  
Watershed Snowpack Analysis - June 1, 2010

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
COLD SPRINGS	50.0	26.0	25.2	39.2	Walla Walla	2		
MCKAY	73.8	51.9	65.6	62.0	Umatilla	5		
WILLOW CREEK	1.8	2.0	1.9	---	McKay Creek	3		

\* 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.

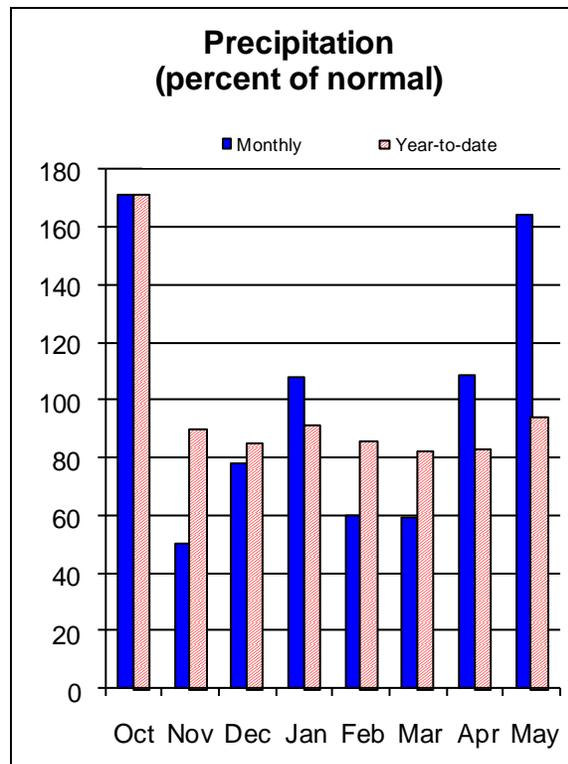
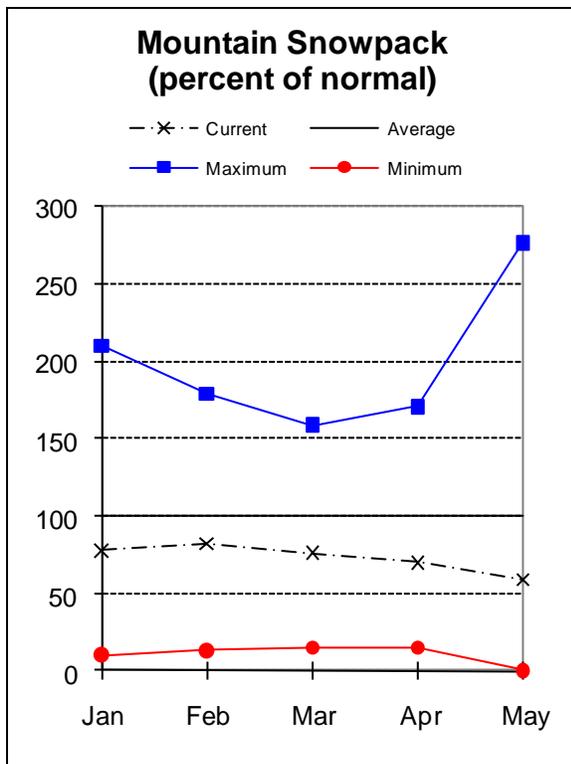
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
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For more information contact your local Natural Resources Conservation Service Office:  
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Or visit: <http://www.wcc.nrcs.usda.gov/cgibin/bor.pl>



# Upper John Day Basin

June 1, 2010



## Water Supply Outlook

There was no snow remaining at any of the 13 SNOTEL sites in the basin on June 1. It is normal for these sites to be snow free on June 1. The Upper John Day Basin snowpack was well below average for the entire winter.

May precipitation in the Upper John Day basin was 164 percent of average. Since the beginning of water year 2010, basin wide precipitation has been 94 percent of average.

The timing of the spring precipitation helped to alleviate a weak winter snowpack. June through September streamflow forecasts range from 62 percent of average for Mountain Creek near Mitchell to 82 percent of average for Strawberry Creek near Prairie City. Water users in the Upper John Day basin can expect well below normal streamflows for the summer of 2010. Water conservation measures will be key to managing limited water supplies.

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

Or visit: <http://www.wcc.nrcs.usda.gov/cgi-bin/bor.pl>

UPPER JOHN DAY BASIN  
Streamflow Forecasts - June 1, 2010

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>				30-Yr Avg.** (1000AF)						
		90% (1000AF)		70% (1000AF)			Chance Of Exceeding* 50% (1000AF) (% AVG.)		30% (1000AF)		10% (1000AF)	
Camas Ck nr Ukiah	JUN-JUL	0.2	2.3	3.8	72	5.3	7.4	5.3				
	JUN-SEP	0.7	2.9	4.4	73	5.9	8.1	6.0				
MF John Day R at Ritter	JUN-JUL	7.0	15.3	21	72	27	35	29				
	JUN-SEP	8.9	17.9	24	71	30	39	34				
NF John Day R at Monument	JUN-JUL	37	72	96	71	120	155	136				
	JUN-SEP	47	85	110	71	135	173	154				
Mountain Ck nr Mitchell	JUN-JUL	0.1	0.4	0.6	69	0.8	1.1	0.9				
	JUN-SEP	0.1	0.4	0.6	62	0.9	1.2	1.0				
Strawberry Ck nr Prairie City	JUN-JUL	2.1	3.1	3.8	84	4.5	5.5	4.5				
	JUN-SEP	2.5	3.6	4.3	82	5.0	6.1	5.2				

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

UPPER JOHN DAY BASIN  
Watershed Snowpack Analysis - June 1, 2010

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		
					John Day above Kimberly	5		100

\* 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.

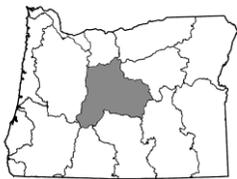
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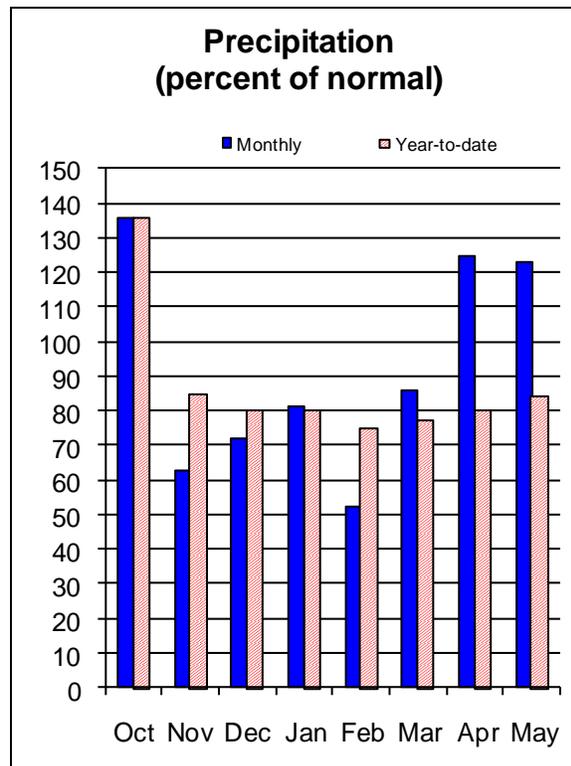
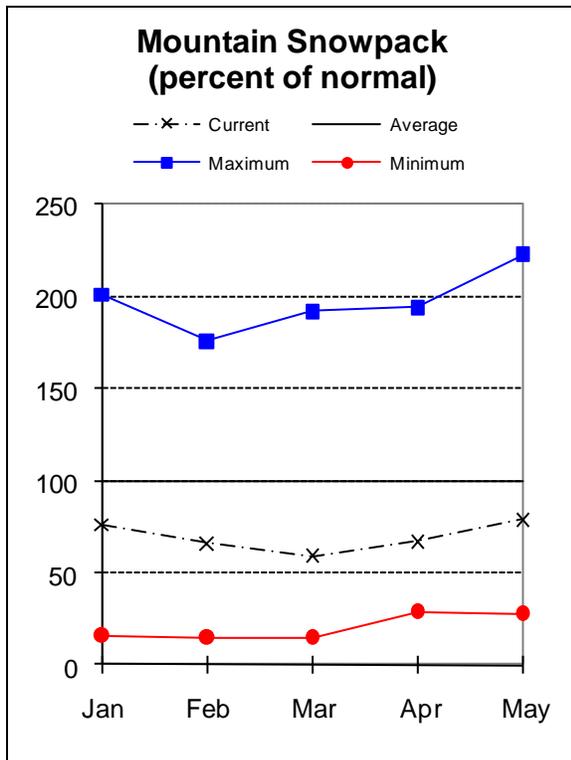
John Day - (541) 575-0135

Or visit: <http://www.wcc.nrcs.usda.gov/cgibin/bor.pl>



# Upper Deschutes and Crooked Basins

June 1, 2010



## Water Supply Outlook

There was snow remaining at 6 of the 14 SNOTEL sites in the basin on June 1. Normally, there is only snow at 4 of these sites on June 1. The Upper Deschutes and Crooked River snowpack was well below average for the entire winter.

May precipitation in the Upper Deschutes and Crooked River basin was 123 percent of average. Since the beginning of water year 2010, basin wide precipitation has been 84 percent of average.

A delayed snow melt and early season irrigation draws may have contributed to the significant decrease in storage observed at Wickiup reservoir. June 1 storage at the five irrigation reservoirs reported on in these basins was 102 percent of average or 84 percent of capacity.

The timing of the spring precipitation helped to alleviate a weak winter snowpack. June through September streamflow forecasts range from 50 percent of average for the Little Deschutes near La Pine to 93 percent of average for the inflow to Ochoco Reservoir. Water users in the basin can expect streamflows that are below average during the summer of 2010. Water conservation measures will be key to managing limited water supplies.

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

Or visit: <http://www.wcc.nrcs.usda.gov/cgibin/bor.pl>

UPPER DESCHUTES AND CROOKED BASINS  
Streamflow Forecasts - June 1, 2010

Forecast Point	Forecast Period	Future Conditions				Wetter		30-Yr Avg.** (1000AF)
		90% (1000AF)	70% (1000AF)	Chance Of Exceeding* 50% (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
Crane Prairie Reservoir Inflow (2)	JUN-JUL	14.6	18.4	21	62	24	27	34
	JUN-SEP	31	38	42	62	46	53	68
Crescent Ck nr Crescent (2)	JUN-JUL	0.6	2.8	4.3	54	5.8	8.0	8.0
	JUN-SEP	1.7	4.4	6.3	54	8.2	10.9	11.7
Deschutes R at Benham Falls nr Bend	JUN-JUL	121	134	142	80	150	163	177
	JUN-SEP	250	270	285	80	300	320	355
Deschutes R bl Snow Ck nr La Pine	JUN-JUL	6.1	9.7	12.1	62	14.5	18.1	19.5
	JUN-SEP	18.2	24	28	62	32	38	45
Little Deschutes R nr La Pine (2)	JUN-JUL	3.0	9.0	13.0	50	17.0	23	26
	JUN-SEP	5.6	12.7	17.5	50	22	29	35
Ochoco Reservoir Inflow (2)	JUN-JUL	0.3	1.2	2.7	93	4.8	7.0	2.9
	JUN-SEP	0.3	1.2	2.7	93	4.8	7.0	2.9
Prineville Reservoir Inflow (2)	JUN-JUL	1.0	2.5	6.9	75	11.3	17.8	9.2
	JUN-SEP	1.1	2.8	7.6	75	12.4	19.6	10.1
Whychus Ck nr Sisters	JUN-JUL	17.0	18.8	20	83	21	23	24
	JUN-SEP	26	28	30	83	32	34	36

For more information contact your local Natural Resources Conservation Service Office:  
Redmond (541) 923-4358  
Or visit: <http://www.wcc.nrcs.usda.gov/cgibin/bor.pl>

UPPER DESCHUTES AND CROOKED BASINS Reservoir Storage (1000 AF) - End of May					UPPER DESCHUTES AND CROOKED BASINS Watershed Snowpack Analysis - June 1, 2010			
Reservoir	Usable Capacity	*** Usable Storage This Year	Last Year	*** Avg	Watershed	Number of Data Sites	This Year as % of Last Yr	% of Average
CRANE PRAIRIE	55.3	43.9	47.6	42.5	Crooked	3		100
CRESCENT LAKE	86.9	69.7	73.9	58.9	Little Deschutes	4	170	162
OCHOCO	47.5	42.7	34.0	35.9	Deschutes above Wickiup R	4	162	123
PRINEVILLE	153.0	149.2	145.5	142.2	Tumalo and Squaw Creeks	2	83	107
WICKIUP	200.0	148.7	167.7	166.6				

\* 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.

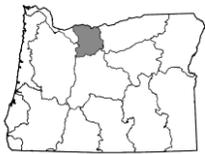
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(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:

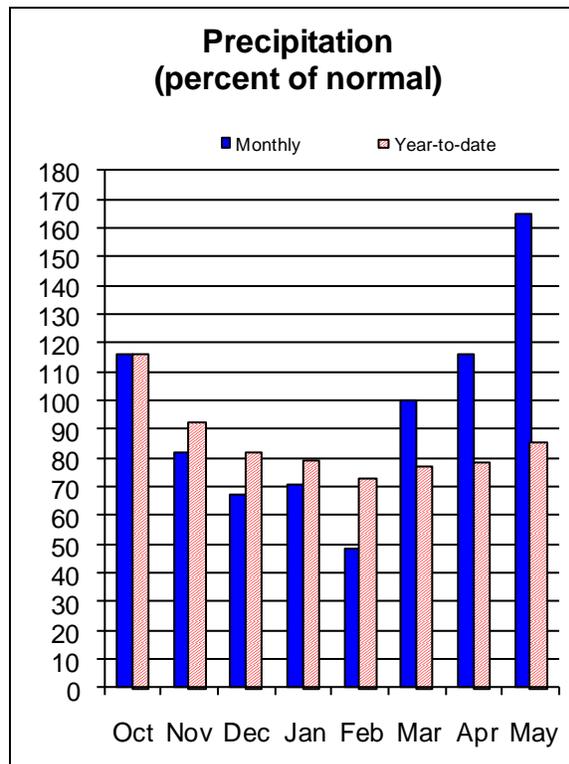
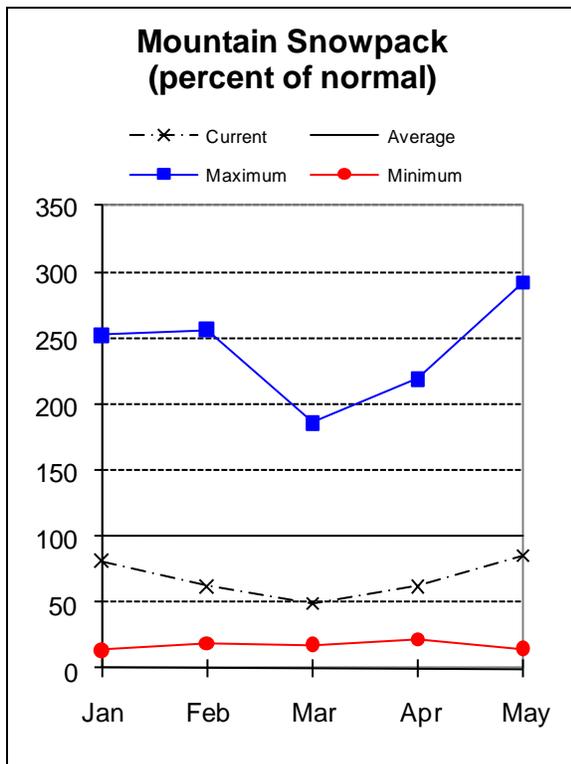
Redmond (541) 923-4358

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# Hood, Mile Creeks, and Lower Deschutes Basins

June 1, 2010



## Water Supply Outlook

There was snow remaining at 4 of the 8 SNOTEL sites in the basin on June 1. Normally, there is only snow at 2 of these sites on June 1. The basin snowpack was well below average for the entire winter.

May precipitation in the Hood, Mile Creeks and Lower Deschutes basin was 165 percent of average. Since the beginning of water year 2010, basin wide precipitation has been 85 percent of average. Record precipitation for the month of May was measured at North Fork and Mud Ridge SNOTEL sites. North Fork recorded 13.7 inches of precipitation in May 2010, compared to the previous record of 13.2 inches, set in 1999. Mud Ridge SNOTEL recorded 7.1 inches of precipitation in May 2010, compared to the previous record of 6.9 inches, set in 1998. Both sites have over 30 years of precipitation data.

The timing of the spring precipitation helped to partially alleviate a weak winter snowpack. The June through September streamflow forecast for the Hood at Tucker Bridge is 88 percent of average. Water users in the basin can expect reduced streamflows during the summer of 2010. Water conservation measures will be key to managing limited water supplies.

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

Or visit: <http://www.wcc.nrcs.usda.gov/cgibin/bor.pl>

HOOD, MILE CREEKS AND LOWER DESCHUTES BASINS  
Streamflow Forecasts - June 1, 2010

Forecast Point	Forecast Period	Future Conditions				Wetter		30-Yr Avg.** (1000AF)
		<<===== Drier =====>>		=====		=====		
		90% (1000AF)	70% (1000AF)	Chance Of Exceeding* 50% (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
Hood R At Tucker Bridge	JUN-JUL	58	66	72	88	78	86	82
	JUN-SEP	87	101	110	88	119	133	125

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

HOOD, MILE CREEKS AND LOWER DESCHUTES BASINS  
Watershed Snowpack Analysis - June 1, 2010

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	5.4	9.2	5.9	Hood River	5	101	140
					Mile Creeks	0		
					White River	4	79	107

\* 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:

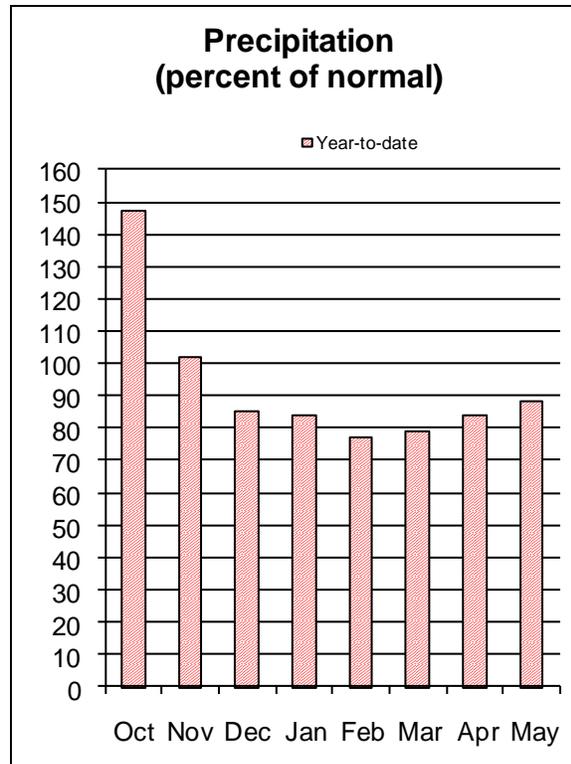
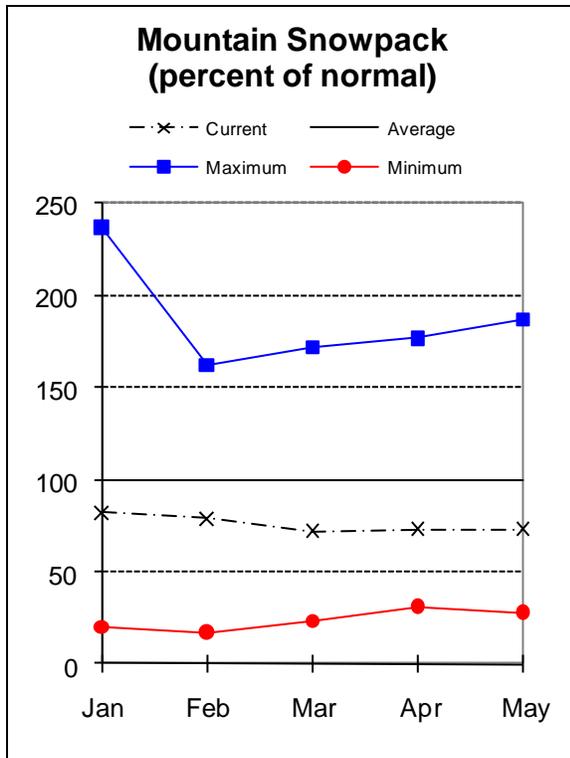
The Dalles (541) 296-6178

Or visit: <http://www.wcc.nrcs.usda.gov/cgibin/bor.pl>



# Lower Columbia Basin

June 1, 2010



## Water Supply Outlook

Since the beginning of water year 2010, total precipitation in the Columbia basin above The Dalles has been 88 percent of average. May precipitation in the Sandy basin was 176 percent of average.

There are 260 automated snow measurement sites within the Columbia basin that contribute to water supply forecasting. Of these 260 sites, exactly half (130) normally have snow remaining on June 1. This year, 141 of these sites had snow remaining June 1. Snow measurement sites north and south of the Canadian border were late in melting out this year.

Record precipitation for the month of May was recorded at North Fork and Mud Ridge SNOTEL sites. North Fork recorded 13.7 inches of precipitation in May 2010, compared to the previous record of 13.2 inches, set in 1999. Mud Ridge SNOTEL recorded 7.1 inches of precipitation in May 2010, compared to the previous record of 6.9 inches, set in 1998. Both sites have over 30 years of precipitation data.

The June through September streamflow forecast for the Columbia at The Dalles is 73 percent of average. For the Sandy near Marmot, the streamflow forecast for the same period is 106 percent of average, a significant increase over last month. Water users throughout the Columbia basin can expect a range of water availability this coming summer. Water conservation measures will be key to managing limited water supplies.

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

Or visit: <http://www.wcc.nrcs.usda.gov/cgibin/bor.pl>

LOWER COLUMBIA BASIN  
Streamflow Forecasts - June 1, 2010

Forecast Point	Forecast Period	Future Conditions				30-Yr Avg.** (1000AF)		
		<<===== Drier =====>>		Wetter =====>>				
		90% (1000AF)	70% (1000AF)	50% (1000AF)	30% (1000AF)		10% (1000AF)	
		Chance Of Exceeding*						
		(% AVG.)						
Columbia R at The Dalles (2)	JUN-JUL	26700	30000	32300	74	34600	37900	43800
	JUN-SEP	34600	39000	42000	73	45000	49400	57800
Sandy R nr Marmot	JUN-JUL	95	108	116	106	124	137	109
	JUN-SEP	140	157	169	106	181	198	159

LOWER COLUMBIA BASIN  
Reservoir Storage (1000 AF) - End of May

LOWER COLUMBIA BASIN  
Watershed Snowpack Analysis - June 1, 2010

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					Sandy	7	78	128

\* 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.

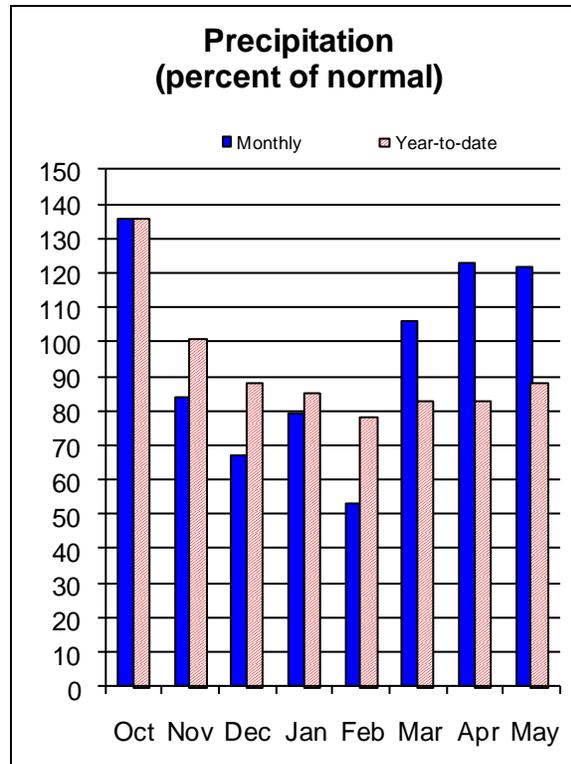
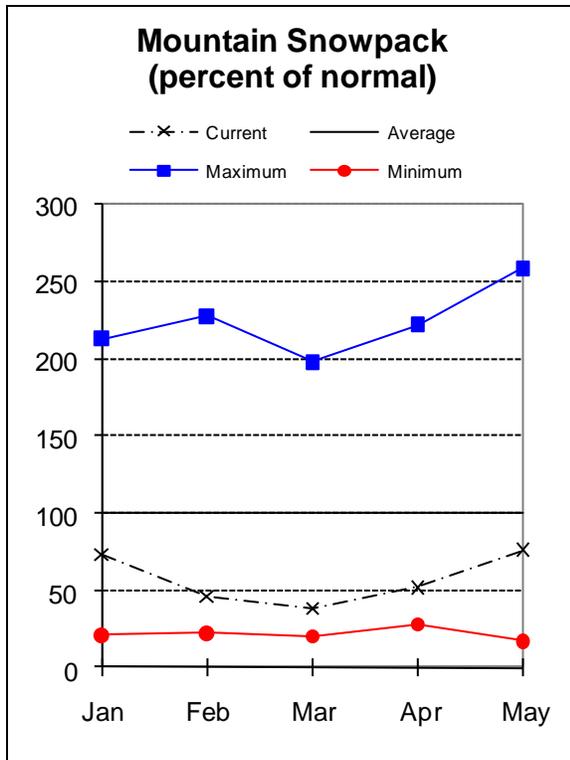
(2) - The value is natural volume - actual volume may be affected by upstream water management.

For more information contact your local Natural Resources Conservation Service Office:  
Oregon City - (503) 656-3499  
Or visit: <http://www.wcc.nrcs.usda.gov/cgibin/bor.pl>



# Willamette Basin

June 1, 2010



## Water Supply Outlook

There was snow remaining at 9 of the 20 SNOTEL sites in the basin on June 1. Normally, there is only snow at 4 of these sites on June 1. The basin snowpack was well below average for most of the winter.

May precipitation in the Willamette basin was 122 percent of average. Since the beginning of water year 2010, basin wide precipitation has been 88 percent of average

June 1 storage at Timothy Lake and Henry Hagg reservoirs remained relatively constant compared to the May Water Supply Outlook Report. June 1 storage at these reservoirs was at 101 percent of average or 100 percent of capacity.

The timing of the spring precipitation helped to alleviate a weak winter snowpack. Summer streamflow forecasts in the Willamette basin have improved significantly since last month. June through September streamflow forecasts range from 86 percent of average for the North Santiam at Mehama to 120 percent of average for the Middle Fork Willamette below North Fork. As a result of spring rains, most Willamette basin water users can expect near normal water supply conditions this coming summer.

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.wcc.nrcs.usda.gov/cgibin/bor.pl>

WILLAMETTE BASIN  
Streamflow Forecasts - June 1, 2010

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg.** (1000AF)
		<<==== Drier =====		Chance Of Exceeding*		==== Wetter =====>>		
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Blue Lake Inflow (1,2)	JUN-SEP	2.7	12.6	17.1	90	22	32	19.1
Clackamas R at Estacada	JUN-JUL	111	160	193	92	225	275	210
	JUN-SEP	205	260	295	93	330	385	318
Clackamas R ab Three Lynx (2)	JUN-JUL	98	126	145	92	164	192	158
	JUN-SEP	173	205	225	92	245	275	246
Cottage Grove Lake Inflow (1,2)	JUN-SEP	4.7	9.0	11.0	110	13.0	17.3	10.0
Cougar Lake Inflow (1,2)	JUN-SEP	60	76	83	93	90	106	89
Detroit Lake Inflow (1,2)	JUN-SEP	148	210	235	88	260	320	268
Dorena Lake Inflow (1,2)	JUN-SEP	6.9	26	35	113	44	63	31
Fall Creek Lake Inflow (1,2)	JUN-SEP	13.5	25	30	103	35	47	29
Foster Lake Inflow (1,2)	JUN-SEP	97	127	140	90	153	183	156
Green Peter Lake Inflow (1,2)	JUN-SEP	29	73	93	89	113	157	105
Little North Santiam R nr Mehama (1)	JUN-SEP	6.2	28	38	86	48	70	44
McKenzie R bl Trail Bridge (2)	JUN-JUL	87	97	104	90	111	121	115
	JUN-SEP	155	170	180	90	190	205	200
McKenzie R nr Vida (1,2)	JUN-SEP	540	620	655	112	690	770	584
Oak Grove fk above Power Intake	JUN-JUL	36	42	46	92	50	56	50
	JUN-SEP	64	74	80	92	86	96	87
North Santiam R at Mehama (1,2)	JUN-SEP	150	245	290	86	335	430	336
South Santiam R at Waterloo (2)	JUN-JUL	105	117	125	96	133	145	130
	JUN-SEP	135	150	161	95	172	187	169
Scoggins Ck nr Gaston (2)	JUN-JUL	0.8	1.5	2.0	115	2.5	3.2	1

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.wcc.nrcs.usda.gov/cgibin/bor.pl>

WILLAMETTE BASIN  
Streamflow Forecasts - June 1, 2010

Location	Period	0.6	12.7	21	122	29	41	17.2
Thomas Ck nr Scio	JUN-JUL	0.6	12.7	21	122	29	41	17.2
MF Willamette bl NF (1,2)	JUN-JUL	200	245	265	121	285	330	220
	JUN-SEP	305	360	385	120	410	465	320

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

WILLAMETTE BASIN  
Watershed Snowpack Analysis - June 1, 2010

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	76.8	78.4	78.2	Clackamas	4	33	196
COTTAGE GROVE	29.8	28.5	27.7	29.9	McKenzie	7	112	93
COUGAR	155.2	131.0	130.1	205.4	Row River	1		5
DETROIT	300.7	284.1	283.6	317.5	Santiam	6		34
DORENA	70.5	64.7	63.4	71.3	Middle Fork Willamette	7	160	132
FALL CREEK	115.5	108.1	107.0	107.0				
FERN RIDGE	109.6	93.7	94.1	95.9				
FOSTER	29.7	24.7	24.5	28.5				
GREEN PETER	268.2	239.1	242.1	306.6				
HILLS CREEK	200.2	193.2	193.8	232.5				
LOOKOUT POINT	337.0	210.2	322.9	307.7				
TIMOTHY LAKE		NO REPORT						
HENRY HAGG LAKE	53.0	53.3	53.3	52.4				

\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.  
 \*\* The average is computed for the 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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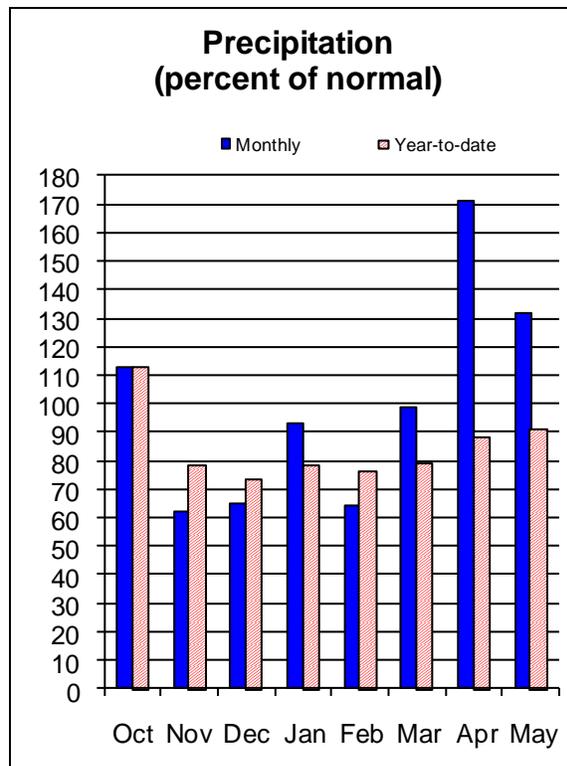
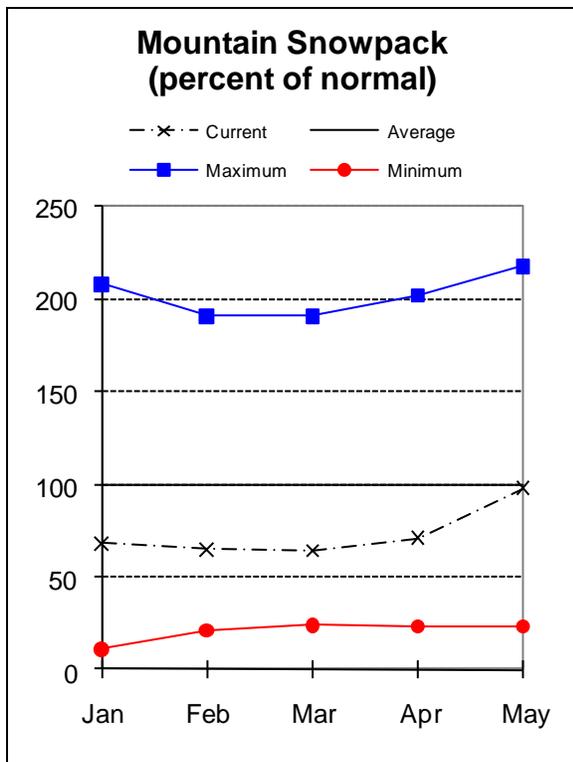
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# Rogue and Umpqua Basins

June 1, 2010



## Water Supply Outlook

There was snow remaining at 7 of the 12 SNOTEL sites in the basin on June 1. Normally, there is only snow at 4 of these sites on June 1. The basin snowpack was well below average for most of the winter.

May precipitation in the Rogue and Umpqua basin was 132 percent of average. Since the beginning of water year 2010, basin wide precipitation has been 91 percent of average.

June 1 storage at the five reservoirs reported on in these basins was at 98 percent of average or 84 percent of capacity

The timing of the spring precipitation has helped to alleviate a weak winter snowpack. June through September streamflow forecasts for the Rogue and Umpqua basin range from 86 percent of average for the Rogue at Raygold to 130 percent of average for the Illinois at Kerby. Due to the favorable effect of above average April and May precipitation, many water users in the Rogue and Umpqua basins can now expect near to above normal water supplies this 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.wcc.nrcs.usda.gov/cgibin/bor.pl>

ROGUE AND UMPQUA BASINS  
Streamflow Forecasts - June 1, 2010

Forecast Point	Forecast Period	Future Conditions				Wetter		30-Yr Avg.** (1000AF)
		90% (1000AF)	70% (1000AF)	50% (1000AF)	Chance Of Exceeding* (% AVG.)	30% (1000AF)	10% (1000AF)	
Applegate Lake Inflow (2)	JUN-JUL	15.8	24	29	97	34	42	30
	JUN-SEP	21	29	35	97	41	49	36
SF Big Butte Ck nr Butte Falls	JUN-JUL	8.0	10.1	11.5	97	12.9	15.0	11.9
	JUN-SEP	15.3	18.1	20	94	22	25	21
Cow Ck nr Azalea (2)	JUN-JUL	1.8	2.8	3.4	113	4.0	5.0	3.0
	JUN-SEP	2.0	3.6	4.7	112	5.8	7.4	4.2
Hyatt Prairie Reservoir Inflow (2)	JUN-JUL	0.1	0.2	0.5	102	0.8	1.3	0.5
Illinois R at Kerby	JUN-JUL	17.8	30	39	130	48	60	30
	JUN-SEP	26	39	48	130	57	70	37
NF Little Butte Ck nr Lakecreek (2)	JUN-JUL	12.6	15.3	17.1	98	18.9	22	17.4
	JUN-SEP	24	28	31	98	34	38	32
Rogue R at Raygold (2)	JUN-JUL	151	192	220	86	250	290	255
	JUN-SEP	285	330	360	86	390	435	420
Rogue R at Grants Pass (2)	JUN-JUL	147	187	215	90	245	285	240
	JUN-SEP	260	310	345	90	380	430	385
Sucker Ck bl Ltl Grayback Ck nr Holl	JUN-JUL	11.2	14.2	16.3	120	18.4	21	13.6
	JUN-SEP	15.4	18.7	21	118	23	27	17.8
North Umpqua R at Winchester	JUN-JUL	178	220	245	102	270	310	240
	JUN-SEP	295	335	365	101	395	435	360
South Umpqua R nr Brockway	JUN-JUL	44	65	79	115	93	114	69
	JUN-SEP	66	88	103	114	118	140	90
South Umpqua R at Tiller	JUN-JUL	23	36	45	110	54	67	41
	JUN-SEP	34	47	56	110	65	78	51

For more information contact your local Natural Resources Conservation Service Office:  
Roseburg - (541) 673-8316; Medford - (541) 776-4267  
Or visit: <http://www.wcc.nrcs.usda.gov/cgibin/bor.pl>

ROGUE AND UMPQUA BASINS Reservoir Storage (1000 AF) - End of May					ROGUE AND UMPQUA BASINS Watershed Snowpack Analysis - June 1, 2010			
Reservoir	Usable Capacity	*** Usable Storage This Year	Last Year	*** Avg	Watershed	Number of Data Sites	This Year as % of Last Yr	% of Average
APPLEGATE	75.2	62.0	61.9	66.8	Applegate	2	0	282
EMIGRANT LAKE	39.0	38.5	37.8	35.3	Bear Creek	1	0	282
FISH LAKE	8.0	5.3	7.2	6.6	Little Butte Creek	3	0	206
FOURMILE LAKE	16.1	10.9	16.6	12.5	Illinois	1		
HOWARD PRAIRIE	60.0	47.4	60.4	50.2	North Umpqua	3	134	150
HYATT PRAIRIE	16.1	14.2	15.7	13.5	Rogue River above Grants	10	262	155
LOST CREEK	315.0	179.4	180.9	305.3				

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

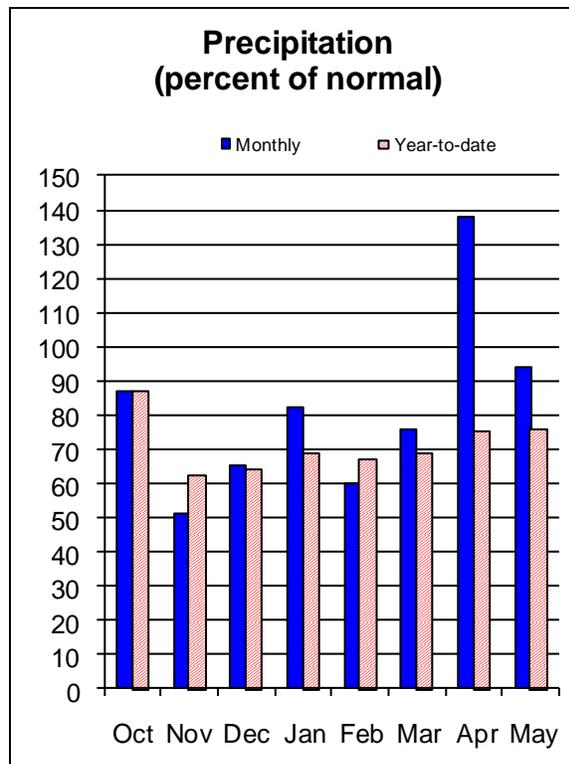
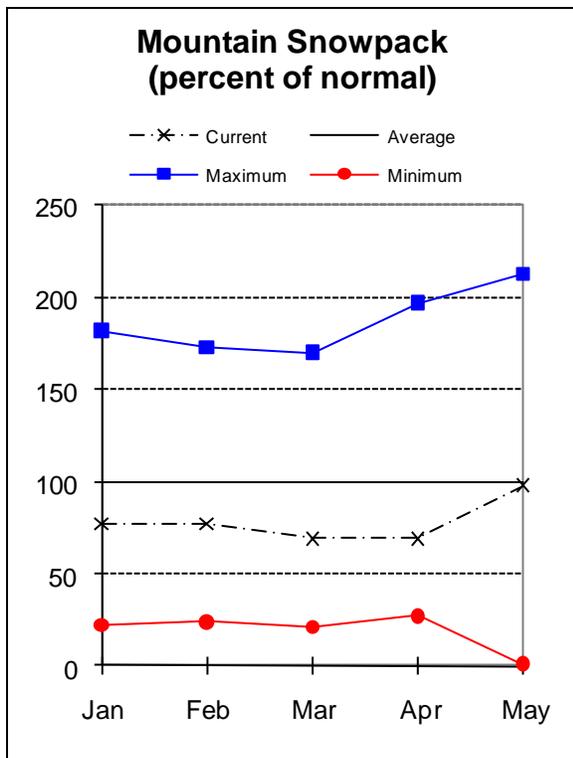
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 Or visit: <http://www.wcc.nrcs.usda.gov/cgibin/bor.pl>



# Klamath Basin

June 1, 2010



## Water Supply Outlook

There was snow remaining at 7 of the 16 snow measurement sites in the Klamath basin on June 1. Normally, there is only snow at 2 of these sites on June 1. The Klamath basin snowpack was well below average for the most of the winter.

The Klamath basin has been particularly dry throughout the water year. May precipitation in the Klamath basin was 94 percent of average, the lowest in the state. Since the beginning of water year 2010, basin wide precipitation has been 76 percent of average, also the lowest in the state.

June 1 storage at Upper Klamath Lake, Clear Lake (CA), and Gerber reservoirs was at 56 percent of average or 40 percent of capacity.

June through September streamflow forecasts range from 42 percent of average for the inflow to Gerber Reservoir to 68 percent of average for the Williamson River below Sprague River near Chiloquin. Elsewhere in the basin, the Upper Klamath Lake Inflow forecast for the June through September period is 63 percent of average. Water users in the Klamath basin face greatly below average water supplies this coming season. Water conservation measures will be key to managing limited water supplies.

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

Or visit: <http://www.wcc.nrcs.usda.gov/cgibin/bor.pl>

KLAMATH BASIN  
Streamflow Forecasts - June 1, 2010

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>				30-Yr Avg.** (1000AF)				
		90% (1000AF)		70% (1000AF)			Chance Of Exceeding* 50% (1000AF) (% AVG.)		30% (1000AF) 10% (1000AF)	
Clear Lake Inflow (2)	JUN-JUL	0.1	1.0	3.2	44	6.7	11.9	7.2		
	JUN-SEP	0.4	2.0	5.4	45	8.8	13.8	12.1		
Gerber Reservoir Inflow (2)	JUN-JUL	0.1	0.3	0.8	41	1.8	3.4	1.8		
	JUN-SEP	0.1	0.4	1.0	42	2.0	3.6	2.4		
Sprague R nr Chiloquin	JUN-JUL	17.4	28	35	63	42	53	56		
	JUN-SEP	31	43	52	63	61	73	82		
Upper Klamath Lake Inflow	JUN-JUL	22	54	69	63	84	116	110		
	JUN-SEP	55	103	125	63	147	195	198		
Williamson R bl Sprague R nr Chiloquin	JUN-JUL	44	56	65	66	74	86	98		
	JUN-SEP	81	98	110	68	122	139	162		

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

KLAMATH BASIN  
Watershed Snowpack Analysis - June 1, 2010

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	66.7	69.8	256.5	Lost	2		
GERBER	94.3	35.2	52.8	68.4	Sprague	5		217
UPPER KLAMATH LAKE	523.7	349.2	448.1	487.0	Upper Klamath Lake	7	247	149
					Williamson River	5	173	130

\* 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:

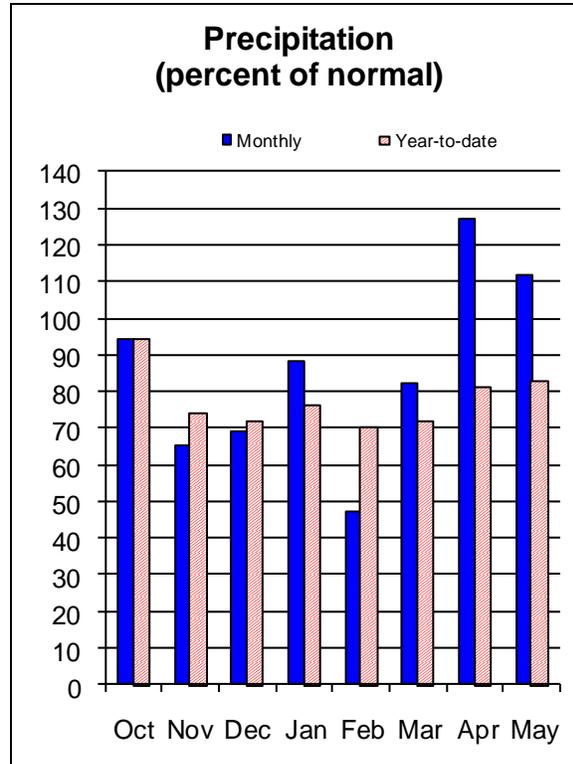
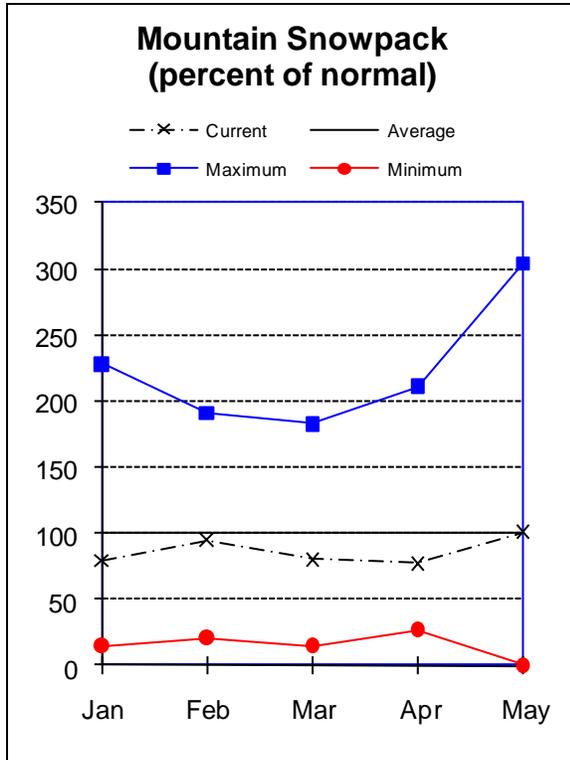
Klamath Falls - (541) 883-6932

Or visit: <http://www.wcc.nrcs.usda.gov/cgibin/bor.pl>



# Lake County and Goose Lake

## June 1, 2010



### Water Supply Outlook

There was snow remaining at 3 of the 9 SNOTEL sites in the basin on June 1. Normally, there is only snow at 1 of these sites on June 1. The Lake County and Goose Lake basin snowpack was below average for the most of the winter.

May precipitation in the Lake County and Goose Lake basin was 112 percent of average. Since the beginning of water year 2010, basin wide precipitation has been 83 percent of average.

June 1 storage at Cottonwood and Drews reservoirs was at 56 percent of average or 45 percent of capacity.

The timing of the spring precipitation helped to alleviate a weak winter snowpack. June through September streamflow forecasts range from 64 percent of average for Honey Creek near Plush to 78 percent of average for the Chewaucan near Paisley. Water users in the Lake County and Goose Lake basins can expect reduced streamflows during the summer of 2010. Water conservation measures will be key to managing limited water supplies.

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

Or visit: <http://www.wcc.nrcs.usda.gov/cgibin/bor.pl>

LAKE COUNTY AND GOOSE LAKE BASINS  
Streamflow Forecasts - June 1, 2010

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>				30-Yr Avg.** (1000AF)				
		90% (1000AF)		70% (1000AF)			Chance Of Exceeding* 50% (1000AF) (% AVG.)		30% (1000AF) 10% (1000AF)	
Chewaucan R nr Paisley	JUN-JUL	6.8	11.8	15.2	75	18.6	24	20		
	JUN-SEP	10.4	15.6	19.2	78	23	28	25		
Deep Ck ab Adel	JUN-JUL	5.4	8.9	11.3	72	13.7	17.2	15.7		
	JUN-SEP	6.8	10.5	13.0	73	15.5	19.2	17.8		
Honey Ck nr Plush	JUN-JUL	0.7	1.6	2.2	65	2.8	3.7	3.4		
	JUN-SEP	0.7	1.6	2.3	64	3.0	3.9	3.6		
Silver Ck nr Silver Lake (2)	JUN-JUL	0.0	0.2	0.6	67	1.2	2.0	0.9		
Twentymile Ck nr Adel	JUN-JUL	0.7	2.1	3.1	75	4.1	5.5	4.1		
	JUN-SEP	1.0	2.5	3.5	76	4.5	6.0	4.6		

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

LAKE COUNTY AND GOOSE LAKE BASINS  
Watershed Snowpack Analysis - June 1, 2010

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of Last Yr Average
		This Year	Last Year	Avg			
COTTONWOOD	8.7	7.3	7.8	6.8	Chewaucan River	3	217
DREWS	63.0	25.1	22.5	51.0	Deep Creek	0	
					Drew Creek	2	
					Honey Creek	0	
					Silver Creek (Lake Co.)	4	217
					Twentymile Creek	0	

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

\*\* The average is computed for the 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:

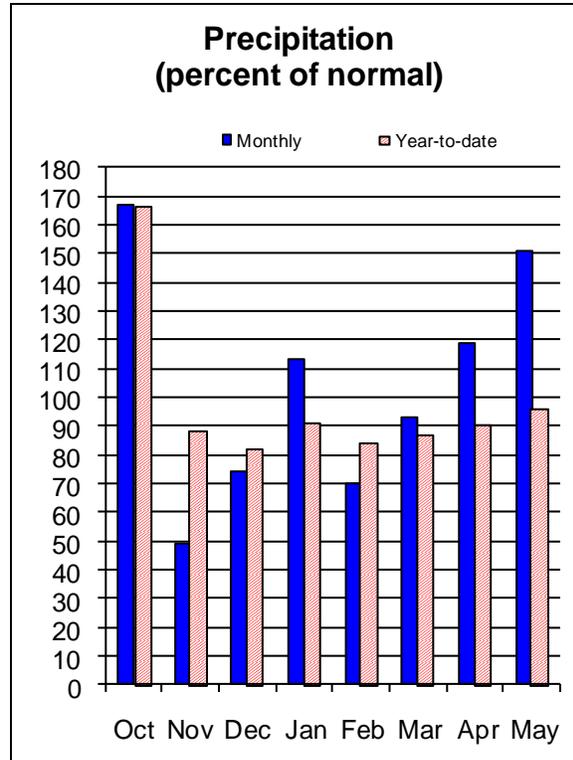
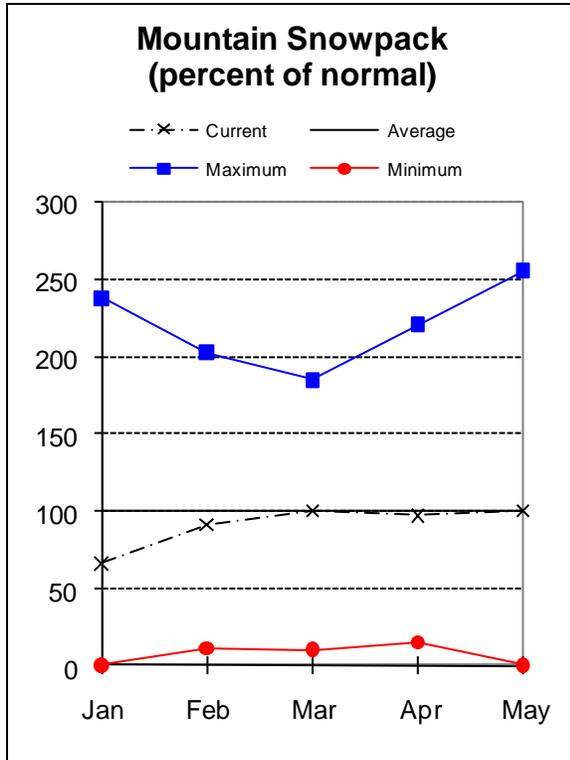
Lakeview - (541) 947-2202

Or visit: <http://www.wcc.nrcs.usda.gov/cgibin/bor.pl>



# Harney Basin

June 1, 2010



## Water Supply Outlook

There was snow remaining at 2 of the 9 SNOTEL sites in the basin on June 1. Normally, there is only snow at 1 of these sites on June 1. The Harney basin snowpack was near average for the most of the winter.

May precipitation in the Harney basin was 151 percent of average. Since the beginning of water year 2010, basin wide precipitation has been 96 percent of average, the highest in the state.

June through September streamflow forecasts range from 53 percent of average for Trout Creek near Denio to 90 percent of average for the Silvies River near Burns. Water users in the Harney basin can expect below to a range of streamflows during the summer of 2010. Water conservation measures will be key to managing limited water supplies.

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

Hines - (541) 573-6446

Or visit: <http://www.wcc.nrcs.usda.gov/cgibin/bor.pl>

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HARNEY BASIN  
Streamflow Forecasts - June 1, 2010

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Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>				30-Yr Avg.** (1000AF)						
		90% (1000AF)		70% (1000AF)			Chance Of Exceeding* 50% (1000AF) (% AVG.)		30% (1000AF)		10% (1000AF)	
Donner Und Blitzen R nr Frenchglen	JUN-JUL	16.7	21	24	96	27	31	25				
	JUN-SEP	22	27	30	97	33	38	31				
Silvies R nr Burns	JUN-SEP	2.5	9.6	14.4	90	19.2	26	16.0				
Trout Ck nr Denio	JUN-SEP	0.5	1.3	1.9	53	2.5	3.3	3.6				

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

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HARNEY BASIN  
Watershed Snowpack Analysis - June 1, 2010

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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
					Donner und Blitzen River	2		261
					Silver Creek (Harney Co.)	2		100
					Silvies River	5		100
					Trout Creek	2		230

\* 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.wcc.nrcs.usda.gov/cgibin/bor.pl>

# 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	Observed on Apr 28			<b>May 06</b>
Owyhee R nr Rome	1000 cfs	Observed on May 06			<b>May 18</b>
Owyhee R nr Rome	500 cfs	May 26	Jun 15	Jul 05	<b>Jun 02</b>

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	Aug 1 <sup>st</sup> Average Daily Flow (cfs)	95	275	455	<b>271</b>

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	Jun 02	Jun 06	Jun 19	<b>May 25</b>
Crane Prairie Inflow	Peak Flow (cfs)	147	270	395	<b>403</b>
Crane Prairie Inflow	Oct. 1 <sup>st</sup> Average Daily Flow (cfs)	139	174	210	<b>269</b>
Prineville Reservoir Inflow	113 cfs	Jun 01	Jun 17	Jul 03	<b>June 03</b>
Prineville Reservoir Inflow	75 cfs	Jun 10	Jun 26	Jul 12	<b>June 11</b>
Prineville Reservoir Inflow	50 cfs	Jun 14	Jul 03	Jul 23	<b>June 19</b>
Whychus Creek nr Sisters	100 cfs	Jul 08	Jul 30	Aug 21	<b>August 16</b>

\*For Crane Prairie date of peak forecast, no prediction is possible until April 1. Historic values are shown for reference prior to the April 1 report.

<b>ROGUE AND UMPQUA BASINS</b>					
<i>FORECAST POINT</i>	<i>FORECAST THRESHOLD</i>	<i>FORECAST VALUE ----- CHANCE OF EXCEEDING ----- -----</i>			<i>LONG-TERM AVERAGE VALUE</i>
		90%	50%	10%	
South Umpqua R nr Brockway *	90 cfs	Aug 02	Aug 14	Aug 27	<b>August 08</b>
South Umpqua R at Tiller	140 cfs	Jun 13	Jul 26	Aug 07	<b>July 11</b>
South Umpqua R at Tiller	90 cfs	Jul 28	Aug 15	Sep 01	<b>August 01</b>
South Umpqua R at Tiller	60 cfs	Aug 07	Aug 30	Sep 21	<b>August 28</b>

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

<b>LAKE COUNTY AND GOOSE LAKE BASINS</b>					
<i>FORECAST POINT</i>	<i>FORECAST THRESHOLD</i>	<i>FORECAST VALUE ----- CHANCE OF EXCEEDING ----- -----</i>			<i>LONG-TERM AVERAGE VALUE</i>
		90%	50%	10%	
Deep Ck at Adel	100 cfs	Jun 10	Jun 19	Jul 02	<b>June 17</b>
Honey Ck nr Plush*	100 cfs	*****			<b>May 16</b>
Honey Ck nr Plush	50 cfs	May 23	Jun 14	Jul 06	<b>June 04</b>
Twentymile Ck nr Adel	50 cfs	Jun 05	Jun 15	Jul 05	<b>May 30</b>
Twentymile Ck nr Adel	10 cfs	Jun 20	Jul 07	Jul 23	<b>July 07</b>

\* The forecast dates for the 100 cfs threshold crossing at Honey Ck are in the past. This location does not have real time streamflow data so it is impossible to determine whether this threshold crossing has already occurred or to make a more accurate prediction if it has not occurred.

<b>HARNEY BASIN</b>					
<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	Observed on May 05			<b>May 21</b>
Silvies R nr Burns	200 cfs	Jun 02	Jun 06	Jun 25	<b>June 02</b>
Silvies R nr Burns	100 cfs	Jun 06	Jun 18	Jul 06	<b>June 13</b>
Silvies R nr Burns	50 cfs	Jun 18	Jul 08	Jul 28	<b>July 03</b>
Donner Und Blitzen R nr Frenchglen	200 cfs	Jun 22	Jul 05	Jul 18	<b>June 20</b>
Donner Und Blitzen R nr Frenchglen	100 cfs	Jul 14	Jul 26	Aug 07	<b>July 09</b>

# Summary of Snow Course Data

## June 2010

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 71-00
<b>Oregon</b>						
ANEROID LAKE	SNOTEL 7400	6/01/10	---	23.4	16.3	15.5
ANNIE SPRING	SNOTEL 6010	6/01/10	73	34.6	11.9	22.8
ARBUCKLE MTN	SNOTEL 5770	6/01/10	0	.0	.0	.7
BEAVER RES.	SNOTEL 5150	6/01/10	0	.0	.0	.0
BIG RED MTN	SNOTEL 6050	6/01/10	42	23.4	.0	8.3
BIGELOW CAMP	SNOTEL 5130	6/01/10	0	.0	.0	.0
BILLIE CK DVD	SNOTEL 5280	6/01/10	0	1.0	.0	.0
BLAZED ALDER	SNOTEL 3650	6/01/10	13	5.5	17.0	5.0
BLUE MTN SPGS	SNOTEL 5870	6/01/10	0	.0	.0	.0
BOURNE	SNOTEL 5850	6/01/10	0	.0	.0	.1
BOWMAN SPRNGS	SNOTEL 4530	6/01/10	0	.0	.0	.0
CASCADE SUM.	SNOTEL 5100	6/01/10	26	12.3	.8	5.9
CHEMULT ALT	SNOTEL 4850	6/01/10	0	.0	.0	.0
CLACKAMAS LK.	SNOTEL 3400	6/01/10	---	.0	.0	.0
CLEAR LAKE	SNOTEL 3810	6/01/10	0	.0	.0	.3
COLD SPRINGS	SNOTEL 5940	6/01/10	21	9.9	.0	4.5
COUNTY LINE	SNOTEL 4830	6/01/10	0	.0	.0	.1
CRAZYMAN FLAT	SNOTEL 6180	6/01/10	0	.0	.0	.0
DALY LAKE	SNOTEL 3690	6/01/10	0	.0	.0	.5
DERR	SNOTEL 5850	6/01/10	0	.0	.0	.0
DIAMOND LAKE	SNOTEL 5280	6/01/10	0	.0	.0	.3
EILERTSON	SNOTEL 5510	6/01/10	0	.0	.0	.0
EMIGRANT SPGS	SNOTEL 3800	6/01/10	0	.0	.0	.0
FISH CREEK	SNOTEL 7660	6/01/10	67	31.7	.0	13.8
FISH LK.	SNOTEL 4660	6/01/10	0	.0	.0	.0
FOURMILE LAKE	SNOTEL 5970	6/01/10	22	11.8	.0	6.2
GERBER RES	SNOTEL 4890	6/01/10	0	.0	.0	.0
GOLD CENTER	SNOTEL 5410	6/01/10	0	.0	.0	.0
GREENPOINT	SNOTEL 3310	6/01/10	0	.0	.0	.0
HIGH RIDGE	SNOTEL 4920	6/01/10	0	.0	1.7	1.2
HOGG PASS	SNOTEL 4790	6/01/10	8	.2	.0	10.8
HOLLAND MDWS	SNOTEL 4930	6/01/10	2	.1	.0	2.1
IRISH-TAYLOR	SNOTEL 5540	6/01/10	68	27.8	23.9	26.1
JUMP OFF JOE	SNOTEL 3520	6/01/10	0	.0	.0	.2
KING MTN #2	SNOTEL 4340	6/01/10	0	.0	.0	.0
LAKE CK R.S.	SNOTEL 5240	6/01/10	0	.0	.0	.0
LITTLE MEADOW	SNOTEL 4020	6/01/10	6	5.0	.2	3.6
LUCKY STRIKE	SNOTEL 4970	6/01/10	0	.0	.0	.0
MADISON BUTTE	SNOTEL 5150	6/01/10	0	.0	.0	.0
MARION FORKS	SNOTEL 2590	6/01/10	0	.0	.0	.0
MCKENZIE	SNOTEL 4770	6/01/10	47	23.0	27.7	19.6
MILLER WOODS	SNOTEL 420	6/01/10	0	.0	.0	--
MOSS SPRINGS	SNOTEL 5760	6/01/10	21	9.5	.8	4.0
MT HOOD TEST	SNOTEL 5370	6/01/10	110	49.2	54.2	48.1
MT HOWARD	SNOTEL 7910	6/01/10	35	16.6	10.5	7.8
MUD RIDGE	SNOTEL 4070	6/01/10	11	4.7	14.3	1.8
NEW CRESCENT	SNOTEL 4910	6/01/10	0	.0	.0	.0
NORTH FK RES	SNOTEL 3060	6/01/10	0	.0	8.6	.5
OCHOCO MEADOW	SNOTEL 5430	6/01/10	0	.0	.0	.0
PARK H.Q. REV	6550	5/28/10	109	54.4	39.6	45.3
PEAVINE RIDGE	SNOTEL 3420	6/01/10	0	.0	.0	.3
QUARTZ MTN	SNOTEL 5720	6/01/10	0	.0	.0	.0
R.R. OVERPASS	SNOTEL 2680	6/01/10	0	.0	.0	.0
RED HILL	SNOTEL 4410	6/01/10	59	32.5	23.7	16.3
ROARING RIVER	SNOTEL 4950	6/01/10	13	7.0	.0	5.2
ROCK SPRINGS	SNOTEL 5290	6/01/10	0	.0	.0	.0
SADDLE MTN	SNOTEL 3110	6/01/10	0	.0	.0	.0
SALT CK FALLS	SNOTEL 4220	6/01/10	0	.0	.0	.5
SANTIAM JCT.	SNOTEL 3740	6/01/10	0	.0	.0	.0
SCHNEIDER MDW	SNOTEL 5400	6/01/10	0	.0	.0	1.9
SEINE CREEK	SNOTEL 2060	6/01/10	0	.0	.0	.0

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 71-00
<b>Oregon (continued)</b>						
SEVENMILE MARSH SNTL	5700	6/01/10	32	15.3	.0	6.5
SILVER CREEK SNOTEL	5740	6/01/10	0	.0	.0	.0
SILVIES SNOTEL	6990	6/01/10	17	9.0	.0	1.8
SNOW MTN SNOTEL	6220	6/01/10	0	.1	.0	.1
SF BULL RUN SNOTEL	2690	6/01/10	0	.0	.0	.0
STARR RIDGE SNOTEL	5250	6/01/10	0	.0	.0	.0
STRAWBERRY SNOTEL	5770	6/01/10	0	.0	.0	.0
SUMMER RIM SNOTEL	7080	6/01/10	0	2.6	.0	1.2
SUMMIT LAKE SNOTEL	5610	6/01/10	82	40.3	30.1	26.6
SUN PASS SNOTEL	5400	6/01/10	0	.0	.0	--
SWAN LAKE MTN SNOTEL	6830	6/01/10	12	5.0	.0	--
TAYLOR BUTTE SNOTEL	5030	6/01/10	0	.0	.0	.0
TAYLOR GREEN SNOTEL	5740	6/01/10	---	.0	.0	.1
THREE CK MEAD SNOTEL	5690	6/01/10	0	.0	.0	1.9
TIPTON SNOTEL	5150	6/01/10	0	.0	.0	.0
TOKETEE AIRSTRIP SN	3240	6/01/10	0	.0	.0	.0
WOLF CREEK SNOTEL	5630	6/01/10	0	.0	.0	.1
<b>California</b>						
ADIN MTN SNOTEL	6190	6/01/10	0	.0	.0	.7
CEDAR PASS SNOTEL	7030	6/01/10	8	.2	.0	2.7
CROWDER FLAT SNOTEL	5170	6/01/10	0	.0	.0	.0
DISMAL SWAMP SNOTEL	7360	6/01/10	48	21.5	.0	8.6
<b>Idaho</b>						
MUD FLAT SNOTEL	5730	6/01/10	0	.0	.0	.0
SOUTH MTN SNOTEL	6500	6/01/10	0	.0	.0	.0
<b>Nevada</b>						
BEAR CREEK SNOTEL	7800	6/01/10	36	13.0	.0	7.1
BIG BEND SNOTEL	6700	6/01/10	0	.0	.0	.1
BUCKSKIN,L SNOTEL	6700	6/01/10	0	.0	.0	.0
DISASTER PEAK SNOTEL	6500	6/01/10	0	.0	.0	.0
FAWN CREEK SNOTEL	7050	6/01/10	0	.0	.0	1.4
GRANITE PEAK SNOTEL	7800	6/01/10	21	8.1	.0	11.9
JACK CREEK,U SNOTEL	7280	6/01/10	17	4.9	.0	2.8
LAMANCE CREEK SNOTEL	6000	6/01/10	0	.0	.0	.0
LAUREL DRAW SNOTEL	6700	6/01/10	0	.0	.0	.0
SEVENTYSIX CK SNOTEL	7100	6/01/10	0	.0	.0	.0
TAYLOR CANYON SNOTEL	6200	6/01/10	0	.0	.0	.0

(d) denotes discontinued site.

# Basin Outlook Reports; How Forecasts Are Made

## And 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 snowcourses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences

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

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

# 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%		Chance Of Exceeding *		
		(1000AF)	(1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (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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