

# Washington Water Supply Outlook Report April 1, 2010



# Water Supply Outlook Reports and Federal - State – Private Cooperative Snow Surveys

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## *How forecasts are made*

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when 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.

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# Washington Water Supply Outlook

April 2010

## General Outlook

Maybe a day late and a dollar short to really bail us out, but every little bit helps. Washington was on track for another miserably dry month until the very end when Mother Nature dealt us a pair of aces in the form of heavy mountain snow and valley precipitation. Until these storms rolled in there wasn't a single station that was on track to having normal precipitation. Though still slightly below average in most basins the total march precipitation turned out much better than anticipated. Winter sports enthusiasts' probably received the most benefit from the recent storms. Long term weather forecasts still indicate a high chance of above average temperatures over the next few months. However precipitation forecast models have low confidence for a prediction one way or the other. A pair of aces helped but what we really need is a royal flush.

## Snowpack

The April 1 statewide SNOTEL readings were 76% of average, up from a low of 69% late last month ago. By the time of this release we are at 84%. The Green River reported the lowest readings at 36% of average, up slightly from last month. Readings from the Olympic Peninsula reported the highest at 99% of average. Westside averages from SNOTEL, and April 1 snow surveys, included the North Puget Sound river basins with 69% of average, the Central Puget Sound river basins with 52%, and the Lewis-Cowlitz basins with 83% of average. Snowpack along the east slopes of the Cascade Mountains included the Yakima area with 75% and the Wenatchee area with 79%. Snowpack in the Spokane River Basin was at 50% and the Walla Walla River Basin had 65% of average. Maximum snow cover in Washington was at Easy Pass SNOTEL near Baker Lake, with water content of 85.8 inches. Brown Top is a new station which does not have an average developed.

BASIN	PERCENT OF LAST YEAR	PERCENT OF AVERAGE
Spokane	52	50
Newman Lake	36	61
Pend Oreille	63	61
Okanogan	112	81
Methow	114	75
Conconully Lake	179	98
Wenatchee	101	80
Chelan	103	74
Upper Yakima	74	63
Lower Yakima	98	87
Ahtanum Creek	95	91
Walla Walla	56	65
Lower Snake	60	63
Cowlitz	73	77
Lewis	83	89
White	92	72
Green	41	36
Puyallup	70	85
Cedar	23	37
Snoqualmie	44	57
Skykomish	48	61
Skagit	90	70
Baker	N/A	N/A
Nooksack	77	68
Olympic Peninsula	149	99

## Precipitation

During the month of March, the National Weather Service and Natural Resources Conservation Service climate stations mostly reported below average precipitation except in the Lower Columbia and Olympic Peninsula which received near to above average. The highest percent of average in the state was at Sequim which reported 149% of average for a total of 1.82 inches. The average for Sequim is 1.22 inches for March. The wettest spot in the state was reported at June Lake SNOTEL, near Mt. St. Helens, with a March accumulation of 20.7 inches. June Lake would normally see a little over 19 inches in March

RIVER BASIN	MARCH PERCENT OF AVERAGE	WATER YEAR PERCENT OF AVERAGE
Spokane .....	79 .....	68
Pend Oreille .....	93 .....	77
Upper Columbia .....	89 .....	84
Central Columbia .....	72 .....	79
Upper Yakima .....	71 .....	73
Lower Yakima .....	86 .....	84
Walla Walla .....	71 .....	77
Lower Snake .....	78 .....	73
Lower Columbia .....	105 .....	87
South Puget Sound .....	86 .....	77
Central Puget Sound .....	89 .....	82
North Puget Sound .....	88 .....	93
Olympic Peninsula .....	94 .....	130

## Reservoir

Seasonal reservoir levels in Washington vary greatly due to specific watershed management practices required in preparation for irrigation season, fisheries management, power generation, municipal demands and flood control. Reservoir storage in the Yakima Basin was 412,000-acre feet, 83% of average for the Upper Reaches and 13,000-acre feet or 82% of average for Rimrock and Bumping Lakes. Storage at the Okanogan reservoirs was 64% of average for April 1. The power generation reservoirs included the following: Coeur d'Alene Lake, 59,000 acre feet, 41% of average and 25% of capacity; Chelan Lake, 379,000-acre feet, 151% of average and 56% of capacity; and the Skagit River reservoirs at 115% of average and 70% of capacity. Recent climate impacts and management procedures may affect these numbers on a daily or weekly basis.

BASIN	PERCENT OF CAPACITY	CURRENT STORAGE AS PERCENT OF AVERAGE
Spokane .....	39 .....	55
Pend Oreille .....	36 .....	73
Upper Columbia .....	49 .....	65
Central Columbia .....	52 .....	162
Upper Yakima .....	55 .....	83
Lower Yakima .....	54 .....	82
Lower Snake .....	67 .....	103
Lower Columbia .....	N/A .....	N/A
North Puget Sound .....	64 .....	122

*For more information contact your local Natural Resources Conservation Service office.*

## Streamflow

Forecasts vary from 94% of average for the Elwha River to 43% of average for Spokane River. April-September forecasts for some Western Washington streams include the Cedar River near Cedar Falls, 60%; White River, 75%; and Skagit River, 79%. Some Eastern Washington streams include the Yakima River near Parker, 61%; Wenatchee River at Plain, 68%; and Spokane River near Post Falls, 43%. Volumetric forecasts are developed using current, historic and average snowpack, precipitation and streamflow data collected and coordinated by organizations cooperating with NRCS.

Eastside March streamflows were considerably below average due to lack of precipitation for most of the month. A few Westside had above average flows brought on by the storm at the end of the month. The Dungeness River near Sequim had the highest reported flows with 183% of average. The Kettle River with 33% of average was the lowest in the state. Other streamflows were the following percentage of average as reported by the River Forecast Center: the Cowlitz at Castle Rock, 110%; the Spokane at Spokane, 60%; the Columbia below Rock Island Dam, 43%; and the Cle Elum near Roslyn, 44%.

BASIN PERCENT OF AVERAGE  
( 50 PERCENT CHANCE OF EXCEEDENCE )

Spokane .....	43-70
Pend Oreille .....	58-72
Upper Columbia .....	63-82
Central Columbia .....	62-76
Upper Yakima .....	46-63
Lower Yakima .....	61-76
Walla Walla .....	71-72
Lower Snake .....	56-75
Lower Columbia .....	65-85
South Puget Sound .....	60-75
Central Puget Sound .....	58-72
North Puget Sound .....	77-86
Olympic Peninsula .....	90-94

STREAM PERCENT OF AVERAGE  
MARCH STREAMFLOWS

Pend Oreille Below Box Canyon .....	62
Kettle at Laurier .....	33
Columbia at Birchbank .....	57
Spokane at Long Lake .....	48
Similkameen at Nighthawk .....	37
Okanogan at Tonasket .....	39
Methow at Pateros .....	40
Chelan at Chelan .....	52
Wenatchee at Pashastin .....	49
Yakima at Cle Elum .....	45
Yakima near Parker .....	51
Naches near Naches .....	50
Grande Ronde at Troy .....	46
Snake below Lower Granite Dam .....	45
SF Walla Walla near Milton Freewater .....	85
Columbia River at The Dalles .....	50
Lewis at Ariel .....	176
Cowlitz below Mayfield Dam .....	56
Skagit at Concrete .....	61
Dungeness near Sequim .....	183

## Western Snow Conference

The 78th annual Western Snow Conference meeting will be held in conjunction with the Utah State University spring runoff conference at the USU Conference Center in Logan, Utah, April 19-22, 2010. There will be joint plenary sessions with breakout sessions designed by each respective conference. A short course on Monday titled 'Products, Tools and Resources for Water Management' will be an interesting morning discussion by government agencies of products available and afternoon discussion with water managers to discuss items to make current and future water management more efficient, productive and reduce risk. The WSC Thursday technical tour will include a tour of the Utah State Water Laboratory where they can divert the Logan River through the lab and do scale modeling, the Bear River Bay Migratory Bird Refuge, the Golden Spike and more. Additional information on conference and registration is available on the WSC web page at <http://www.westernsnowconference.org/>

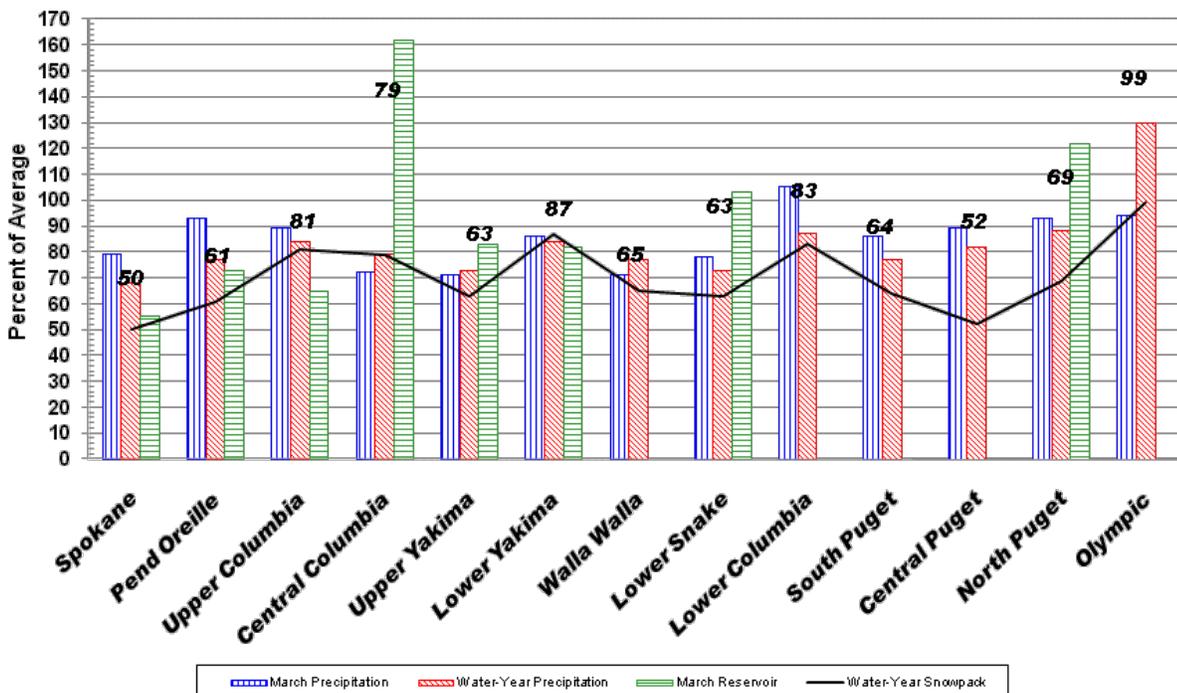


SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
NORTH FORK JOCKO	6330	3/25/10	76	28.4	41.0	42.3
OLALLIE MDWS SNOTEL	4030	4/01/10	100	44.0	51.2	55.9
OPHIR PARK	7150	3/28/10	32	10.8	17.4	16.7
PARADISE SNOTEL	5130	4/01/10	135	54.9	74.1	71.9
PARK CK RIDGE SNOTEL	4600	4/01/10	92	41.1	30.3	47.6
PEPPER CREEK SNOTEL	2140	4/01/10	0	.3	22.1	--
PETERSON MDW SNOTEL	7200	4/01/10	41	9.3	14.2	10.5
PIGTAIL PEAK SNOTEL	5800	4/01/10	118	41.3	61.6	53.2
PIKE CREEK SNOTEL	5930	4/01/10	26	8.9	19.7	27.5
PIPESTONE PASS	7200	3/26/10	16	4.3	4.2	5.7
POPE RIDGE SNOTEL	3590	4/01/10	40	13.6	13.5	18.4
POTATO HILL SNOTEL	4510	4/01/10	88	27.2	30.1	25.3
QUARTZ PEAK SNOTEL	4700	4/01/10	40	15.4	22.1	21.2
RAGGED MTN SNOTEL	4210	4/01/10	35	14.1	24.8	--
RAGGED RIDGE	3330	4/01/10	0	.0	13.0	4.1
RAINY PASS SNOTEL	4890	4/01/10	65	28.2	27.6	44.0
RAINY PASS	4780	4/02/10	71	25.6	28.3	39.2
REX RIVER SNOTEL	3810	4/01/10	48	19.1	46.6	31.2
ROCKER PEAK SNOTEL	8000	4/01/10	46	11.4	17.3	14.3
ROLAND SUMMIT	5120	4/01/10	44	16.4	30.9	36.4
ROUND TOP MTN	4020	4/01/10	18	5.8	16.8	--
RUSTY CREEK	4000	3/26/10	15	5.0	2.5	5.5
SADDLE MTN SNOTEL	7900	4/01/10	53	13.4	25.6	25.8
SAGE CREEK SADDLE	4080	4/01/10	---	12.0E	21.0	16.6
SALMON MDWS SNOTEL	4460	4/01/10	32	11.0	5.7	11.1
SASSE RIDGE SNOTEL	4340	4/01/10	77	26.5	23.8	37.3
SATUS PASS	4030	3/30/10	16	5.8	17.9	--
SAVAGE PASS SNOTEL	6170	4/01/10	57	15.6	26.7	26.5
SAWMILL RIDGE SNOTEL	4640	4/01/10	77	36.9	52.7	--
SENTINEL BT SNOTEL	4680	4/01/10	32	10.0	7.8	9.0
SHEEP CANYON SNOTEL	3990	4/01/10	75	24.7	45.9	37.8
SHERWIN SNOTEL	3200	4/01/10	---	.0	10.9	10.1
SILVER STAR MTN CAN.	5600	3/28/10	73	26.6	26.3	29.9
SKALKAHO SNOTEL	7260	4/01/10	50	12.8	22.4	24.3
SKITWISH RIDGE	5110	4/05/10	61	23.4	33.1	30.2
SKOOKUM CREEK SNOTEL	3310	4/01/10	23	5.2	58.5	26.3
SKOOKUM LAKES	4230	3/30/10	15	5.4	14.0	--
SLIDE ROCK MOUNTAIN	7100	3/27/10	30	7.2	15.5	15.5
SOURDOUGH GUL SNOTEL	4000	4/01/10	0	.0	5.0	--
SOUTH BALDY	4920	3/30/10	46	16.4	17.4	--
SPENCER MDW SNOTEL	3400	4/01/10	61	23.6	32.3	30.8
SPIRIT LAKE SNOTEL	3520	4/01/10	3	1.5	14.7	3.9
SPOTTED BEAR MTN.	7000	3/25/10	25	8.1	14.4	14.1
SPRUCE SPGS SNOTEL	5700	4/01/10	23	7.8	26.2	--
STARVATION MOUNTAIN	6750	3/24/10	48	15.0	13.5	19.5
STAHL PEAK SNOTEL	6030	4/01/10	92	29.8	30.7	35.3
STAMPEDE PASS SNOTEL	3850	4/01/10	56	21.0	41.2	45.3
STEMPLE PASS	6600	3/30/10	25	5.4	9.9	10.2
STEVENS PASS SNOTEL	3950	4/01/10	84	27.4	34.1	42.6
STORM LAKE	7780	3/30/10	45	11.1	16.1	13.3
STRANGER MOUNTAIN	4230	4/01/10	24	8.6	12.6	12.2
STRYKER BASIN	6180	3/22/10	71	24.1	28.3	31.9
SUMMERLAND RES CAN.	4200	3/26/10	24	6.6	6.5	8.9
SUMMIT G.S. #2	4600	3/29/10	32	9.2	9.6	8.4
SUNSET SNOTEL	5540	4/01/10	---	12.9	21.3	31.5
SURPRISE LKS SNOTEL	4290	4/01/10	111	43.3	44.8	46.1
SWAMP CREEK SNOTEL	3930	4/01/10	18	8.6	19.4	16.2
SWIFT CREEK SNOTEL	4440	4/01/10	162	67.3	51.6	56.1
TEN MILE LOWER	6600	3/31/10	25	5.4	6.8	7.0
TEN MILE MIDDLE	6800	3/31/10	39	9.2	10.0	11.4
THUNDER BASIN SNOTEL	4320	4/01/10	68	26.8	20.6	33.7
THUNDER BASIN	4200	4/01/10	49	16.7	16.3	21.9
THOMPSON CREEK	2500	4/01/10	0	.0	7.8	--
THOMPSON RIDGE	4650	3/24/10	33	9.9	7.8	--
TINKHAM CREEK SNOTEL	2990	4/01/10	34	13.0	29.3	30.0
TOATS COULEE	2850	3/30/10	0	.0	.9	1.4
TOUCHET SNOTEL	5530	4/01/10	55	21.5	35.0	34.7
TRINKUS LAKE	6100	3/25/10	88	33.4	38.4	42.0
TROUGH #2 SNOTEL	5480	4/01/10	45	15.7	8.1	10.0
TROUT CREEK CAN.	5650	3/25/10	24	8.0	3.5	7.2
TRUMAN CREEK	4060	3/30/10	2	.6	7.1	3.7
TUNNEL AVENUE	2450	3/31/10	19	7.6	21.6	19.2
TV MOUNTAIN	6800	3/25/10	38	10.5	15.5	18.3
TWELVEMILE SNOTEL	5600	4/01/10	28	10.3	22.1	17.5
TWIN CREEKS	3580	3/27/10	22	6.7	9.5	9.6
TWIN LAKES SNOTEL	6400	4/01/10	69	23.2	42.5	39.7
UPPER HOLLAND LAKE	6200	3/25/10	61	19.9	29.9	34.6
UPPER WHEELER SNOTEL	4330	4/01/10	35	11.8	11.3	13.1
VULCAN MTN	4660	3/29/10	34	11.6	11.3	--
VULCAN ROAD	3840	3/29/10	18	6.0	8.2	--
WARM SPRINGS SNOTEL	7800	4/01/10	67	17.4	27.6	21.2
WATERHOLE SNOTEL	5010	4/01/10	106	42.0	27.3	35.3
WEASEL DIVIDE	5450	3/30/10	64	21.1	27.1	32.9
WELLS CREEK SNOTEL	4030	4/01/10	77	27.4	26.9	33.6
WHITE PASS ES SNOTEL	4440	4/01/10	52	16.5	24.7	23.9
WHITE ROCKS MTN CAN.	7200	3/31/10	60	19.4	13.5	23.1



### April 1, 2010 - Snowpack, Precipitation and Reservoir Conditions at a Glance

(Water Year = October 1, 2009 - Current Date)





Natural Resources Conservation Service

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Snow, Water and Climate Services

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### Helpful Internet Addresses

#### NRCS Snow Survey and Climate Services Homepages

Washington:  
<http://www.wa.nrcs.usda.gov/snow>

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

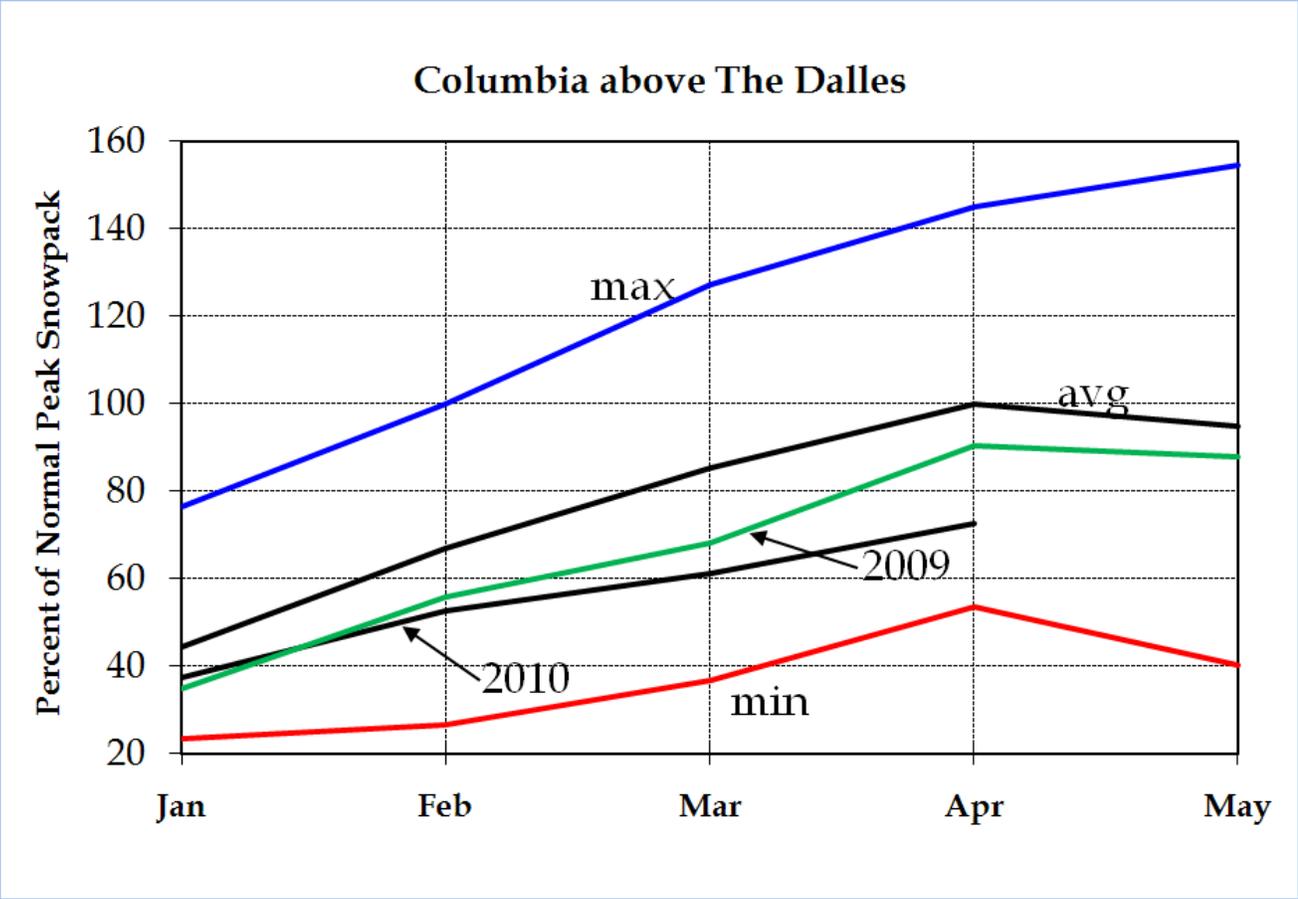
Idaho:  
<http://www.id.nrcs.usda.gov/snow>

National Water and Climate Center (NWCC):  
<http://www.wcc.nrcs.usda.gov>

#### USDA-NRCS Agency Homepages

Washington:  
<http://www.wa.nrcs.usda.gov>

NRCS National:  
<http://www.nrcs.usda.gov>



April 1, 2010

The Columbia Basin snowpack charts are produced using data collected at numerous automated, remote climate stations in British Columbia, Alberta, and the United States. The data are provisional, until they are officially released by the responsible data collection agency.

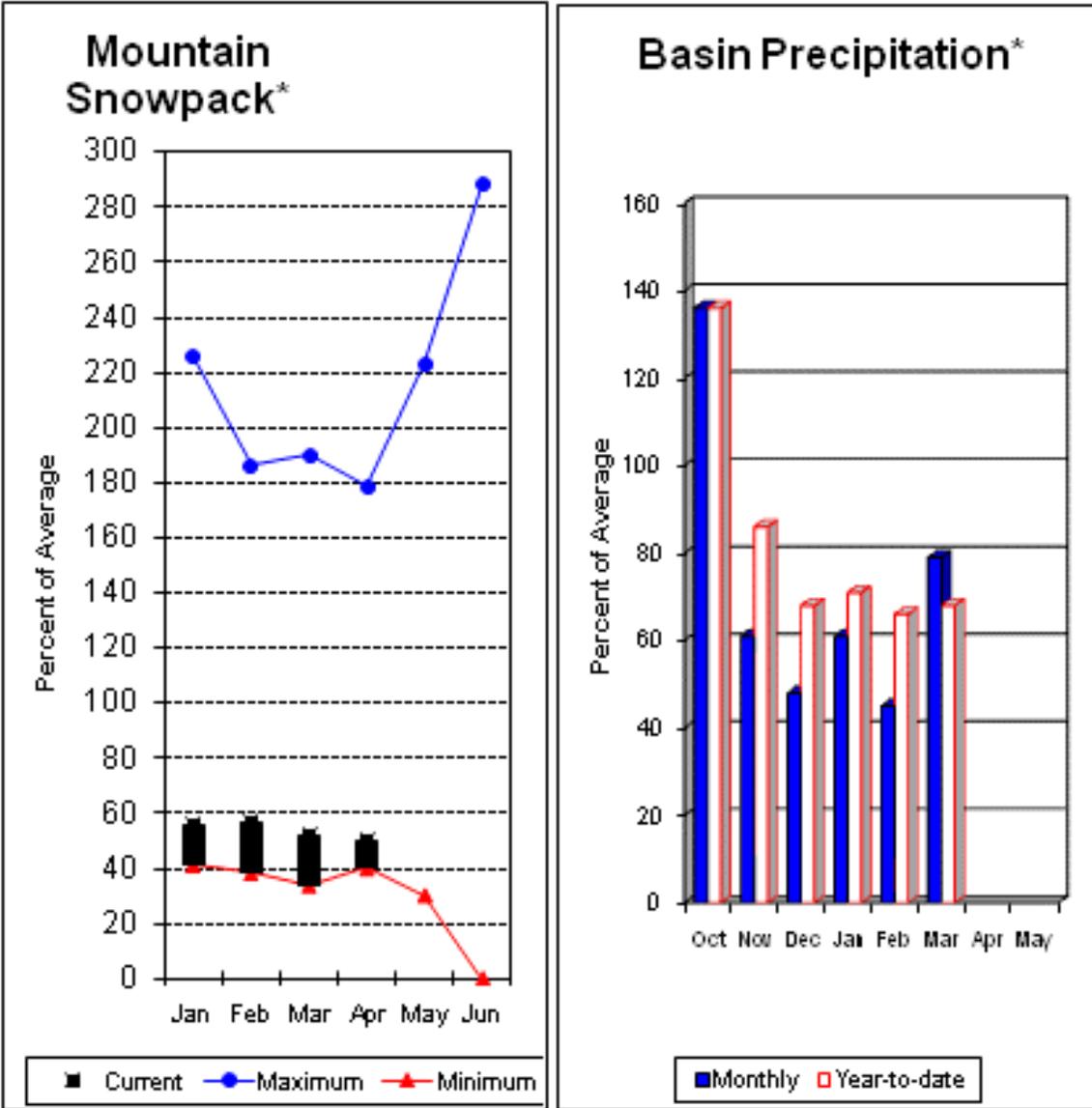
The combined Columbia Basin snowpack above The Dalles is currently at 73 percent of average, compared to 72 percent last month and 91 percent last year. There wasn't much change in the overall snowpack. There were small gains in the Kettle, Yakima, Boise, Salmon, Clearwater, and Deschutes snowpacks. These were nearly offset for small losses in the Canadian and John Day snowpacks. Elsewhere in the Columbia Basin, snowpacks remained the same. The combined basin snowpack is at 73 percent of the average peak accumulation. This compares to 91 percent last year. As a reference, the snowpack usually peaks around April 1.

The snowpack in the Columbia Basin above Castlegar, B.C. is at 81 percent of average. This compares to 82 percent last month and 86 percent last year. For the basin above Grand Coulee, the snowpack is at 76 percent of average, the same as last month and 89 percent last year. The Snake River snowpack above Ice Harbor is at 63 percent of average, compared to 60 percent last month and 96 percent last year.

In Summary, there has been a 12 percent decline in the combined Columbia Basin snowpack percentage since January. Climate predictions are mixed for the rest of the spring. The Columbia Basin still needs a significant improvement in the snowpack to get back to average this year. Hopefully, the current wet weather will continue.

*For more information contact your local Natural Resources Conservation Service office.*

# Spokane River Basin



\*Based on selected stations

The April 1 forecasts for summer runoff within the Spokane River Basin are 43% of average near Post Falls and 43% at Long Lake. The Chamokane River near Long Lake forecasted to have 70% of average flows for the May-August period. The forecast is based on a basin snowpack that is 50% of average and precipitation that is 68% of average for the water year. Precipitation for March was much below normal at 79% of average. Streamflow on the Spokane River at Long Lake was 48% of average for March. April 1 storage in Coeur d'Alene Lake was 93,000acre feet, 55% of average and 39% of capacity. Snowpack at Quartz Peak SNOTEL site was 73% of average with 15.4 inches of water content. Average temperatures in the Spokane basin were 1 degrees above for March and 2 degrees above normal for the water year



# Spokane River Basin

## Streamflow Forecasts - April 1, 2010

Forecast Point	Forecast Period	Future Conditions				30-Yr Avg. (1000AF)
		Drier		Wetter		
		90% (1000AF)	70% (1000AF)	50% (1000AF)	10% (1000AF)	
		Chance Of Exceeding *				
				50% (% AVG.)		
SPOKANE near Post Falls (2)	APR-JUL	530	865	1090	43	2550
	APR-SEP	555	895	1130	43	2650
SPOKANE at Long Lake (2)	APR-JUL	615	980	1230	43	2850
	APR-SEP	680	1060	1320	43	3070
CHAMOKANE CREEK near Long Lake	MAY-AUG	3.4	5.6	7.1	70	10.2

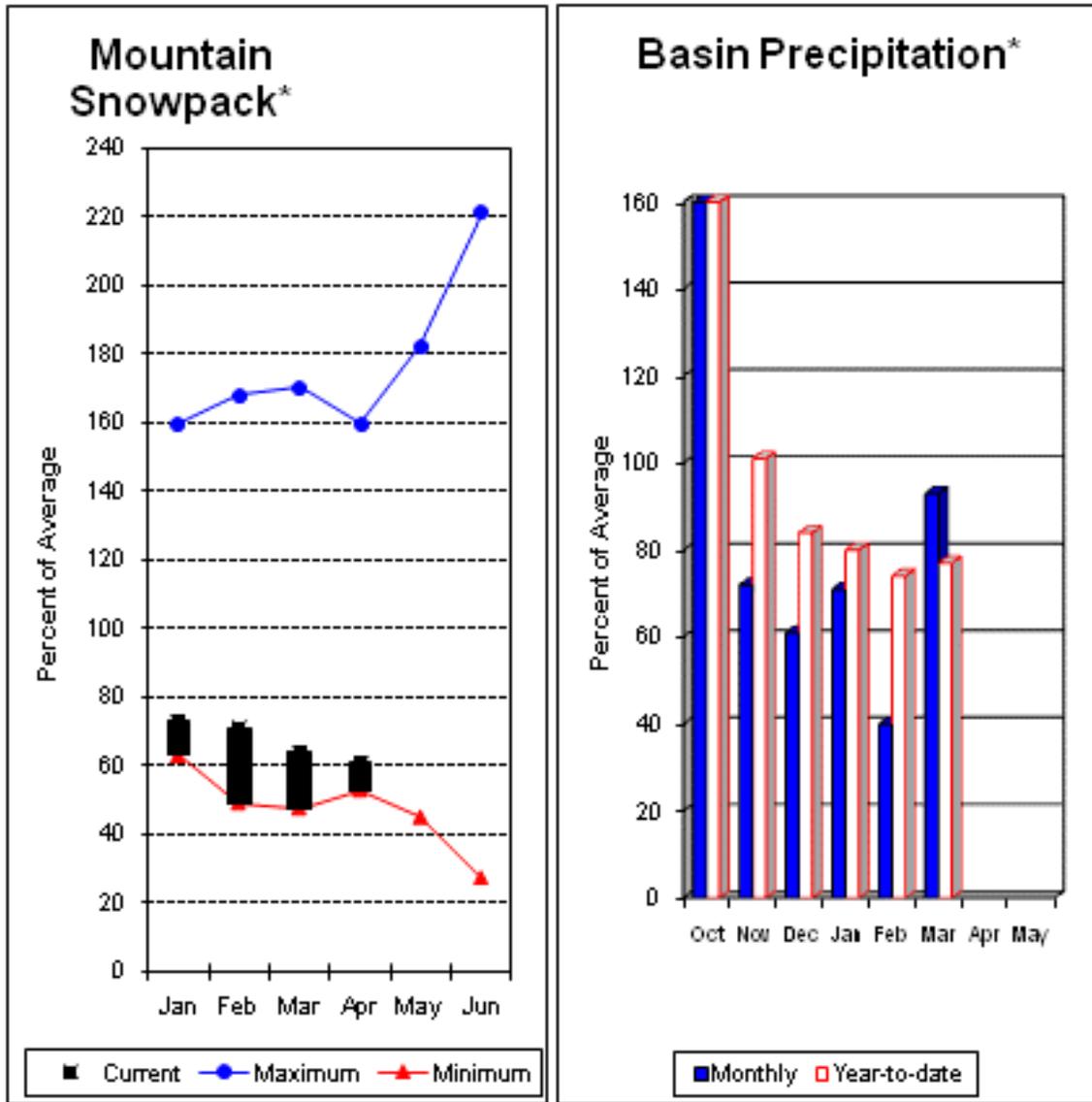
SPOKANE RIVER BASIN Reservoir Storage (1000 AF) - End of March					SPOKANE RIVER BASIN Watershed Snowpack Analysis - April 1, 2010			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
COEUR D'ALENE	238.5	93.3	145.5	169.5	SPOKANE RIVER	18	52	51
					NEWMAN LAKE	2	36	61

\* 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.

# Pend Oreille River Basins



\*Based on selected stations

The April – September average forecast for the Priest River near the town of Priest River is 72% and the Pen Orielle below Box Canyon is 59%. March streamflow was 62% of average on the Pend Oreille River and 57% on the Columbia Birchbank. April 1 snow cover was 61% of average in the Pend Oreille Basin River Basin. Bunchgrass Meadows SNOTEL site had 26.2 inches of snow water on the snow pillow. Normally Bunchgrass would have 30.2 inches on April 1. Precipitation during March was 93% of average, dropping the year-to-date precipitation to 77% of average. Reservoir storage in the basin, including Lake Pend Oreille and Priest Lake was 73% of normal. Average temperatures were 1 degree above normal for March and 2 degrees above for the water year.

*For more information contact your local Natural Resources Conservation Service office.*

# Pend Oreille River Basins

## Streamflow Forecasts - April 1, 2010

Forecast Point	Forecast Period	Future Conditions				30-Yr Avg. (1000AF)		
		Drier		Wetter				
		90% (1000AF)	70% (1000AF)	50% (1000AF)	10% (1000AF)			
		Chance Of Exceeding *						
				50% (% AVG.)				
PEND OREILLE Lake Inflow (2)	APR-JUL	5360	6560	7380	58	8200	9400	12700
	APR-SEP	5790	7140	8060	58	8980	10300	13900
PRIEST near Priest River (1,2)	APR-JUL	385	525	585	72	645	785	815
	APR-SEP	410	555	625	72	695	840	870
PEND OREILLE bl Box Canyon (2)	APR-JUL	5500	6760	7610	59	8460	9720	12900
	APR-SEP	6010	7380	8310	59	9240	10600	14100

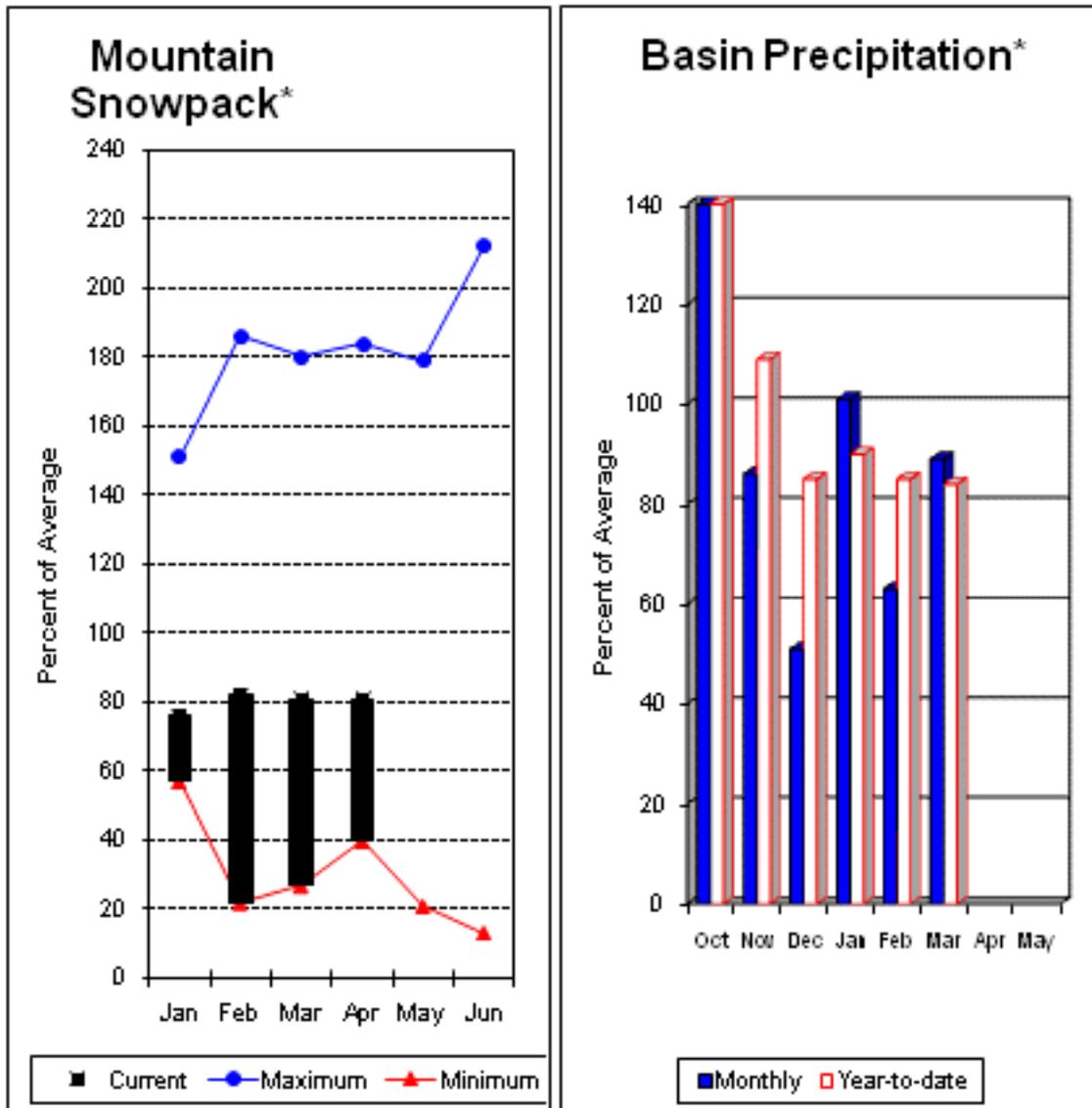
PEND OREILLE RIVER BASINS Reservoir Storage (1000 AF) - End of March					PEND OREILLE RIVER BASINS Watershed Snowpack Analysis - April 1, 2010			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
PEND OREILLE	1561.3	553.4	573.4	763.6	COLVILLE RIVER	1	75	70
PRIEST LAKE	119.3	49.5	51.3	65.5	PEND OREILLE RIVER	9	66	58
					KETTLE RIVER	3	89	101

\* 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.

# Upper Columbia River Basins



\*Based on selected stations

Summer runoff average forecast for the Okanogan River is 68%, Similkameen River is 64%, Kettle River 69% and Methow River is 66%. April 1 snow cover on the Okanogan was remained at 81% of average, Omak Creek was 80% and the Methow was 75%. March precipitation in the Upper Columbia was 89% of average, with precipitation for the water year at 84% of average. March streamflow for the Methow River was 40% of average, 39% for the Okanogan River and 37% for the Similkameen. Snow-water content at Salmon Meadows SNOTEL was 11 inches. Average for this site is 11.1 inches on April 1. Combined storage in the Conconully Reservoirs was 11,000-acre feet, which is 49% of capacity and 65% of the April 1 average. Temperatures were near normal for March and 2-3 degrees above for the water year.

*For more information contact your local Natural Resources Conservation Service office.*

# Upper Columbia River Basins

## Streamflow Forecasts - April 1, 2010

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		Drier		Wetter		Chance Of Exceeding *		
		90% (1000AF)	70% (1000AF)	30% (1000AF)	10% (1000AF)	50% (1000AF) (% AVG.)	50% (1000AF) (% AVG.)	
COLVILLE at Kettle Falls	APR-JUL	20	56	81	63	106	142	128
	APR-SEP	22	62	89	63	116	156	141
KETTLE near Laurier	APR-JUL	945	1150	1290	69	1430	1630	1870
	APR-SEP	975	1200	1360	69	1520	1750	1970
COLUMBIA at Birchbank (1,2)	APR-JUL	24400	27300	28600	82	29900	32800	34900
	APR-SEP	30200	33900	35600	82	37300	41000	43500
COLUMBIA at Grand Coulee Dm (1,2)	APR-JUL	34500	38200	39800	74	41400	45100	53800
	APR-SEP	39100	44900	47600	74	50300	56100	64000
Similkameen R nr Nighthawk (1)	APR-JUL	600	780	860	64	940	1120	1350
	APR-SEP	660	845	930	64	1010	1200	1450
Okanogan R nr Tonasket (1)	APR-JUL	660	940	1070	68	1200	1480	1580
	APR-SEP	730	1050	1200	68	1350	1670	1770
Okanogan R at Malott (1)	APR-JUL	690	970	1100	68	1230	1510	1630
	APR-SEP	760	1080	1230	67	1380	1700	1830
Methow R nr Pateros	APR-SEP	500	590	650	66	710	800	985
	APR-JUL	460	545	600	66	655	740	910

UPPER COLUMBIA RIVER BASINS Reservoir Storage (1000 AF) - End of March					UPPER COLUMBIA RIVER BASINS Watershed Snowpack Analysis - April 1, 2010			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
SALMON LAKE	10.5	6.0	6.7	8.4	OKANOGAN RIVER	5	113	76
CONCONULLY RESERVOIR	13.0	5.4	8.8	9.2	OMAK CREEK	2	119	80
					SANPOIL RIVER	0	0	0
					SIMILKAMEEN RIVER	0	0	0
					TOATS COULEE CREEK	1	117	0
					CONCONULLY LAKE	3	179	98
					METHOW RIVER	8	114	75

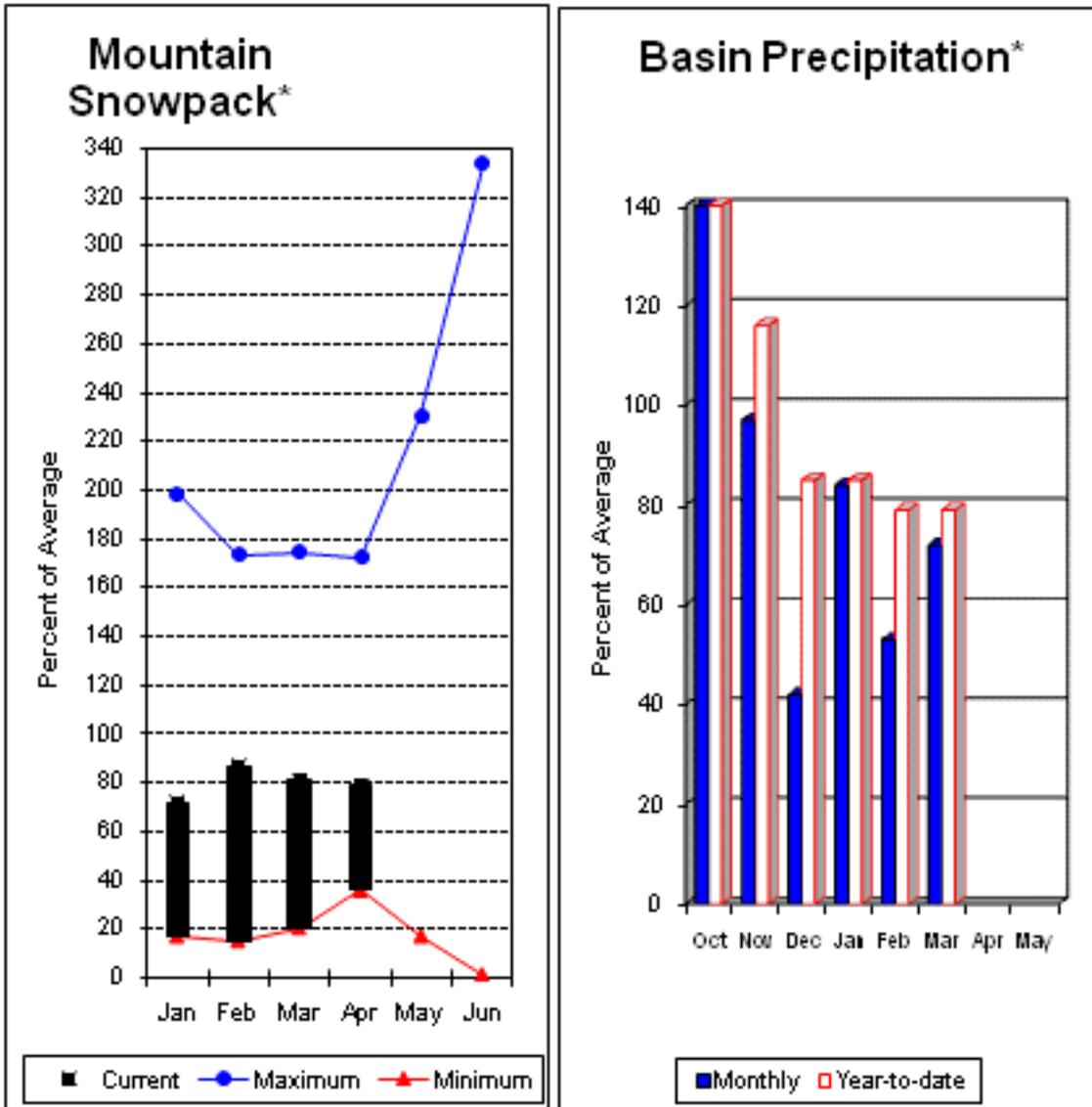
\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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.

# Central Columbia River Basins



\*Based on selected stations

Precipitation during March was 72% of average in the basin and 79% for the year-to-date. Runoff for Entiat River is forecast to be 72% of average for the summer. The April-September average forecast for Chelan River is 72%, Wenatchee River at Plain is 68%, Stehekin River is 76% and Icicle Creek is 62%. March average streamflows on the Chelan River were 52% and on the Wenatchee River 49%. April 1 snowpack in the Wenatchee River Basin was 80% of average; the Chelan, 74%; the Entiat, 74%; Stemilt Creek, 89%. Reservoir storage in Lake Chelan was 351,000-acre feet, 162% of April 1 average and 52% of capacity. Lyman Lake SNOTEL had the most snow water with 48.6 inches of water. This site would normally have 65.4 inches on April 1. Temperatures were 1 degree above normal for March and 2 degrees above for the water year.

*For more information contact your local Natural Resources Conservation Service office.*

# Central Columbia River Basins

## Streamflow Forecasts - April 1, 2010

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		<<===== Drier =====>>		=====		===== Wetter =====>>		
		90% (1000AF)	70% (1000AF)	Chance Of Exceeding * 50% (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
Stehekin R at Stehekin	APR-JUL	420	485	525	75	565	630	700
	APR-SEP	530	590	630	76	670	730	830
Chelan R at Chelan (2)	APR-JUL	665	720	755	72	790	845	1050
	APR-SEP	765	820	855	72	890	945	1190
Entiat R nr Ardenvoir	APR-JUL	130	145	155	72	165	180	215
	APR-SEP	147	162	173	72	184	199	240
Wenatchee R at Plain	APR-JUL	615	680	725	68	770	835	1070
	APR-SEP	680	750	800	68	850	920	1180
Icicle Ck nr Leavenworth	APR-JUL	157	177	190	61	205	225	310
	APR-SEP	172	195	210	62	225	250	340
Wenatchee R at Peshastin	APR-JUL	875	960	1020	69	1080	1170	1480
	APR-SEP	970	1060	1130	69	1200	1290	1630
Columbia R bl Rock Island Dam (2)	APR-JUL	38000	41700	44200	75	46700	50400	59000
	APR-SEP	44800	49200	52100	75	55000	59400	69500

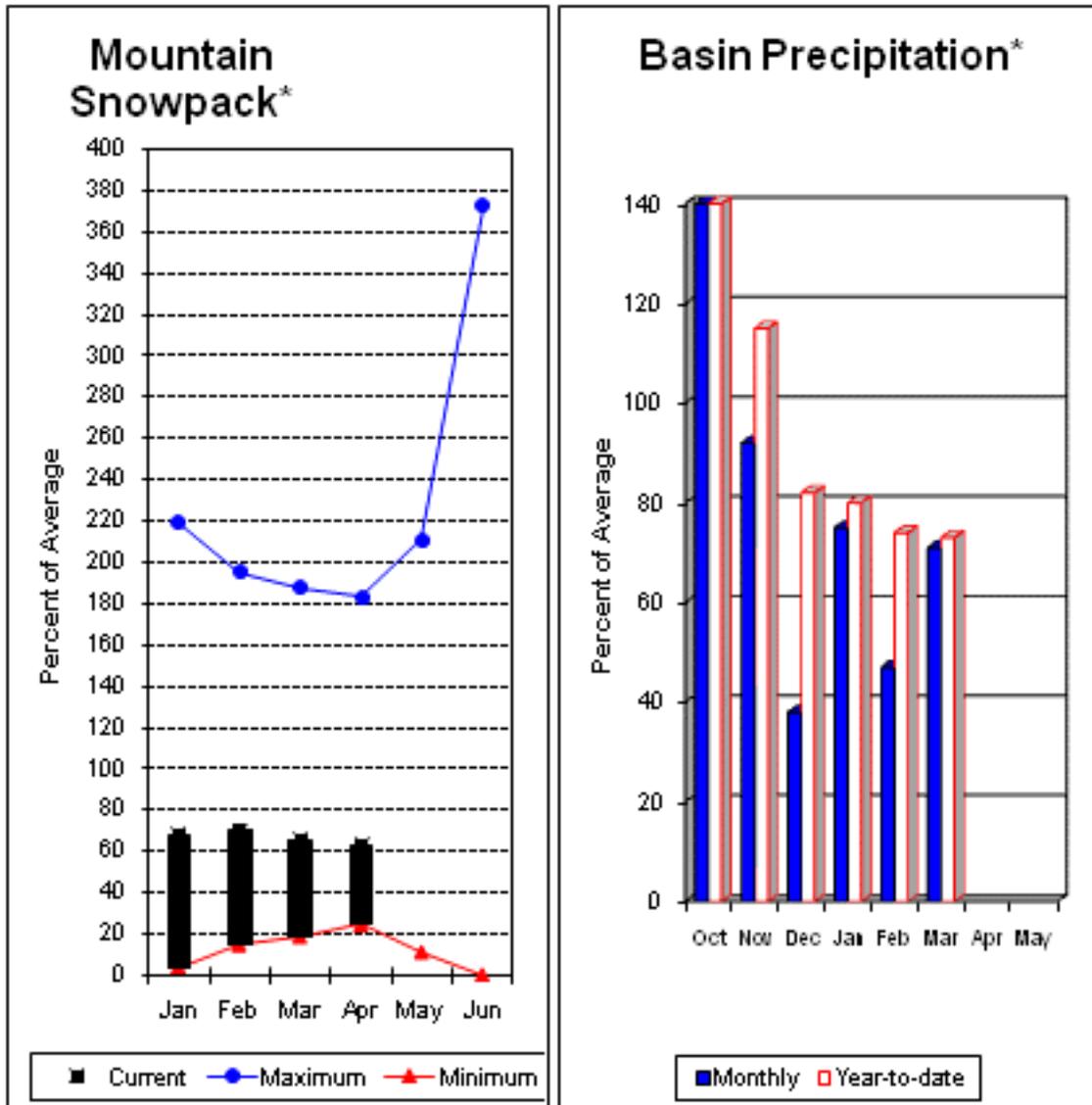
CENTRAL COLUMBIA RIVER BASINS Reservoir Storage (1000 AF) - End of March					CENTRAL COLUMBIA RIVER BASINS Watershed Snowpack Analysis - April 1, 2010			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
CHELAN LAKE	676.1	350.5	228.8	216.3	CHELAN LAKE BASIN	7	103	74
					ENTIAT RIVER	1	101	74
					WENATCHEE RIVER	9	101	80
					STEMILT CREEK	2	108	89
					COLOCKUM CREEK	1	194	157

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

# Upper Yakima River Basin



\*Based on selected stations

April 1 reservoir storage for the Upper Yakima reservoirs was 458,000-acre feet, 83% of average. Forecasts for the Yakima River at Cle Elum are 63% of average and the Teanaway River near Cle Elum is at 46%. Lake inflows are all forecasted to be considerably below normal this summer as well. March streamflows within the basin were Yakima at Cle Elum at 45% and Cle Elum River near Roslyn at 44%. April 1 snowpack was 63% based upon 10 snow course and SNOTEL readings within the Upper Yakima Basin. Precipitation was 71% of average for March and 73% year-to-date for water. Volume forecasts for the Yakima Basin are for natural flow. As such, they may differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

*For more information contact your local Natural Resources Conservation Service office.*

# Upper Yakima River Basin

## Streamflow Forecasts - April 1, 2010

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		<<===== Drier =====>>		===== Wetter =====>>				
		90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	
Keechelus Reservoir Inflow (2)	APR-JUL	56	67	75	62	83	94	121
	APR-SEP	63	75	83	62	91	103	133
Kachess Reservoir Inflow (2)	APR-JUL	54	63	69	62	75	84	111
	APR-SEP	59	68	74	62	80	89	120
Cle Elum Lake Inflow (2)	APR-JUL	220	240	255	62	270	290	410
	APR-SEP	235	260	280	62	300	325	450
Yakima R at Cle Elum (2)	APR-JUL	400	470	520	63	570	640	820
	APR-SEP	420	505	565	63	625	710	900
Teanaway R bl Forks nr Cle Elum	APR-JUL	37	54	66	46	78	95	143
	APR-SEP	38	55	67	46	79	96	146

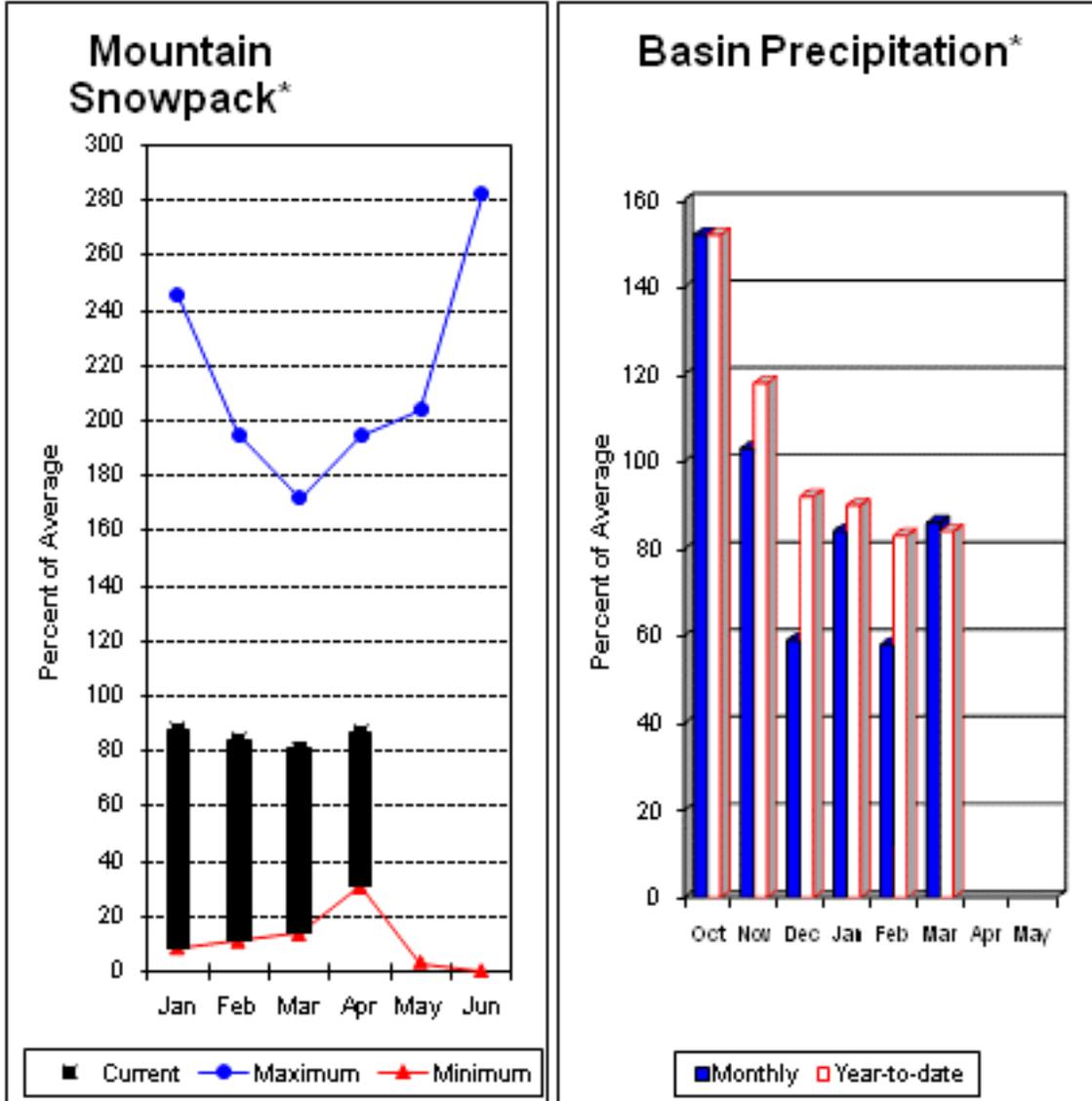
UPPER YAKIMA RIVER BASIN Reservoir Storage (1000 AF) - End of March					UPPER YAKIMA RIVER BASIN Watershed Snowpack Analysis - April 1, 2010			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
KEECHELUS	157.8	97.8	129.8	114.1	UPPER YAKIMA RIVER	9	74	63
KACHESS	239.0	163.4	215.5	169.4				
CLE ELUM	436.9	196.5	322.8	270.1				

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

The average is computed for the 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.

## Lower Yakima River Basin



\*Based on selected stations

March average streamflows within the basin were: Yakima River near Parker, 51%; Naches River near Naches, 50%; and Yakima River at Kiona, 57%. April 1 reservoir storage for Bumping and Rimrock reservoirs was 125,000-acre feet, 82% of average. Forecasted runoff for the Yakima River near Parker is 61%; American River near Nile, 76%; Ahtanum Creek, 63%; and Klickitat River near Glenwood, 66%. April 1 snowpack was 87% based upon 7 snow course and SNOTEL readings within the Lower Yakima Basin and Ahtanum Creek reported in at 91% of average. Precipitation was 86% of average for March and 84% year-to-date for water. Temperatures were 1 degree above normal for March and near normal for the water year. Volume forecasts for Yakima Basin are for natural flow. As such, they may differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

*For more information contact your local Natural Resources Conservation Service office.*

# Lower Yakima River Basin

## Streamflow Forecasts - April 1, 2010

Forecast Point	Forecast Period	Future Conditions					30-Yr Avg. (1000AF)	
		Drier		Wetter		Chance Of Exceeding * 50% (1000AF) (% AVG.)		
		90% (1000AF)	70% (1000AF)	30% (1000AF)	10% (1000AF)			
Bumping Lake Inflow (2)	APR-JUL APR-SEP	61 67	72 78	79 86	65 65	86 94	97 105	122 132
American R nr Nile	APR-JUL APR-SEP	68 76	76 84	82 90	76 76	88 96	96 104	108 118
Rimrock Lake Inflow (2)	APR-JUL APR-SEP	119 140	132 155	141 165	69 69	150 175	163 190	205 240
Naches R nr Naches (2)	APR-JUL APR-SEP	380 410	435 475	475 515	66 66	515 555	570 620	720 780
Ahtanum Ck at Union Gap	APR-JUL APR-SEP	11.7 12.7	16.1 17.0	19.0 20	63 63	22 23	26 27	30 32
Yakima R nr Parker (2)	APR-JUL APR-SEP	890 980	1020 1110	1100 1200	61 61	1180 1290	1310 1420	1800 1980
Klickitat R nr Glenwood	APR-JUL APR-SEP	63 85	75 99	83 108	66 66	91 117	103 131	126 163
Klickitat R nr Pitt	APR-JUL APR-SEP	255 305	300 360	335 400	73 73	370 440	415 495	460 550

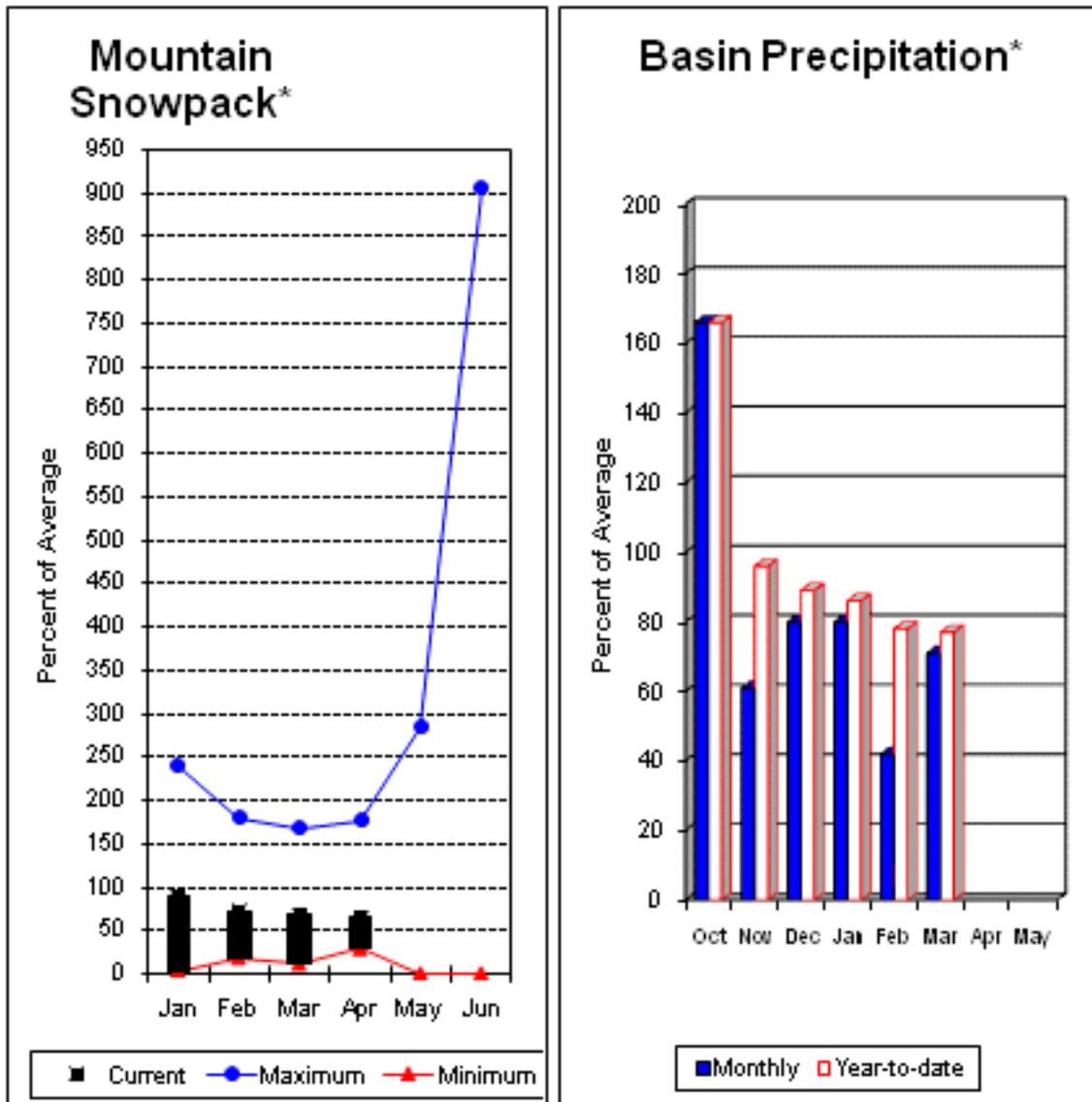
LOWER YAKIMA RIVER BASIN Reservoir Storage (1000 AF) - End of March					LOWER YAKIMA RIVER BASIN Watershed Snowpack Analysis - April 1, 2010			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
BUMPING LAKE	33.7	11.8	9.3	13.1	LOWER YAKIMA RIVER	8	94	84
RIMROCK	198.0	113.0	149.1	138.5	AHTANUM CREEK	3	95	91

\* 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.

# Walla Walla River Basin



\*Based on selected stations

March precipitation was 71% of average, maintaining the year-to-date precipitation at 77% of average. Snowpack in the basin was 65% of average. Streamflow forecasts are 71% of average for Mill Creek and 72% for the SF Walla Walla near Milton-Freewater. March streamflow was 85% of average for the SF Walla Walla River. Average temperatures were near normal for March and 1 degree above average for the water year.

*For more information contact your local Natural Resources Conservation Service office.*

# Walla Walla River Basin

## Streamflow Forecasts - April 1, 2010

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		Drier		Wetter		Wetter		
		90% (1000AF)	70% (1000AF)	50% (1000AF)	30% (1000AF)	10% (1000AF)	10% (1000AF)	
		Chance Of Exceeding *						
		(1000AF) (% AVG.)						
SF Walla Walla R nr Milton-Freewater	APR-JUL	29	35	39	72	43	49	54
	APR-SEP	36	43	48	72	53	60	67
Mill Ck nr Walla Walla	APR-JUL	11.4	14.7	17.0	71	19.3	23	24
	APR-SEP	14.1	17.6	20	71	22	26	28

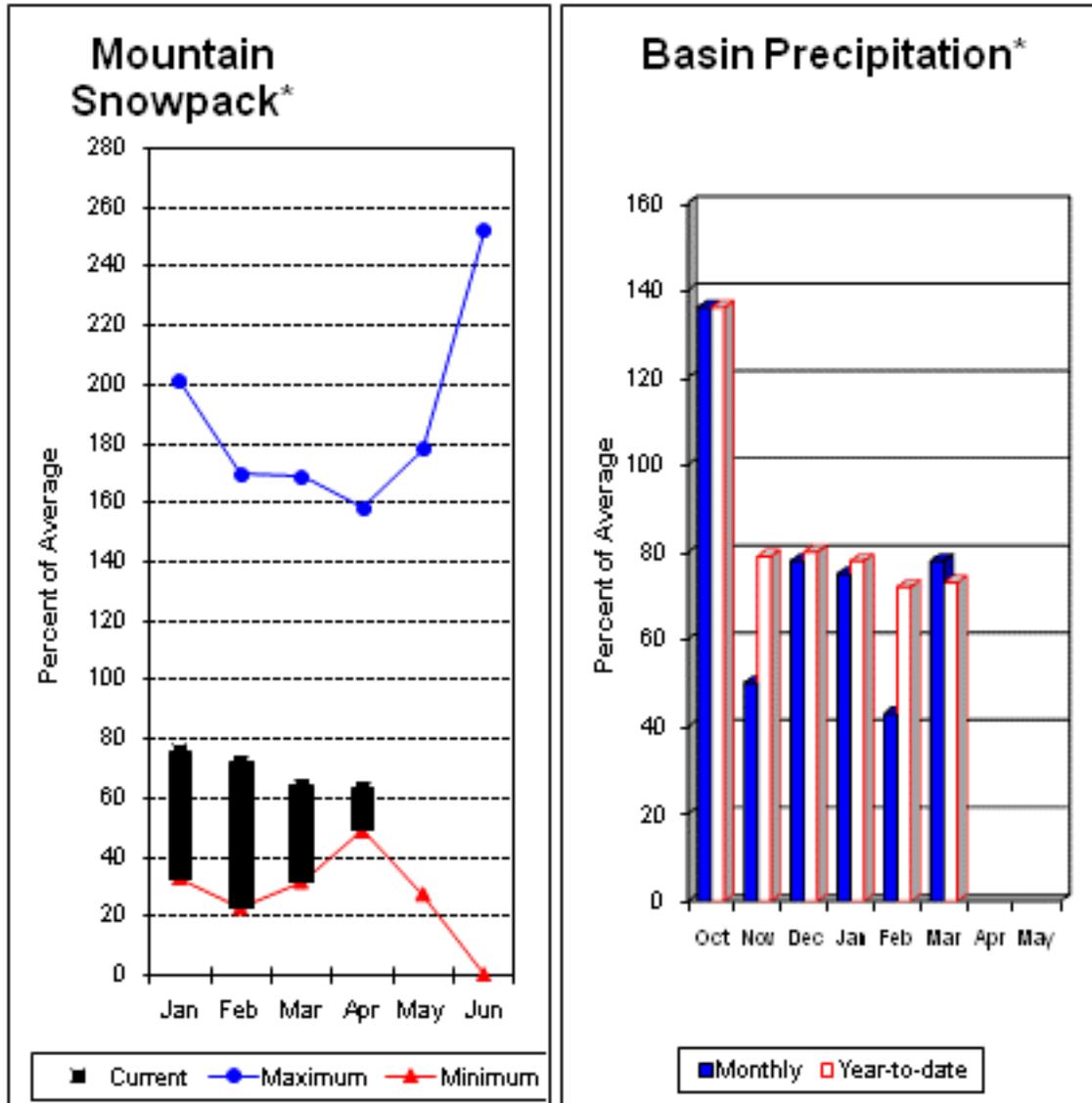
WALLA WALLA RIVER BASIN Reservoir Storage (1000 AF) - End of March					WALLA WALLA RIVER BASIN Watershed Snowpack Analysis - April 1, 2010			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					WALLA WALLA RIVER	2	56	65

\* 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.

# Lower Snake River Basin



\*Based on selected stations

The April - September forecast is for 57% for Clearwater River at Spalding. The Snake and Grande Ronde rivers can expect summer flows to be about 56% and 75% of normal respectively. April 1 storage for Dworshak reservoir was 103% of average. March precipitation was 78% of average, bringing the year-to-date precipitation to 73% of average. April 1 snowpack readings averaged 63% of normal. March streamflow was 45% of average for Snake River below Lower Granite Dam and 46% for Grande Ronde River near Troy. Average temperatures were near normal for March and 1 degree above normal for the water year.

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

# Lower Snake River Basin

## Streamflow Forecasts - April 1, 2010

Forecast Point	Forecast Period	Future Conditions				Wetter		30-Yr Avg. (1000AF)
		Drier		50%		30%	10%	
		90% (1000AF)	70% (1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
Grande Ronde R at Troy	APR-JUL	605	840	945	74	1050	1290	1270
	APR-SEP	660	915	1030	75	1150	1400	1370
CLEARWATER R at Spalding (1,2)	APR-JUL	2820	3810	4260	57	4710	5700	7430
	APR-SEP	2960	4010	4490	57	4970	6020	7850
SNAKE blw Lower Granite Dam (1,2)	APR-JUL	7080	10500	12000	56	13500	16900	21600
	APR-SEP	7870	11700	13400	56	15100	18900	24100

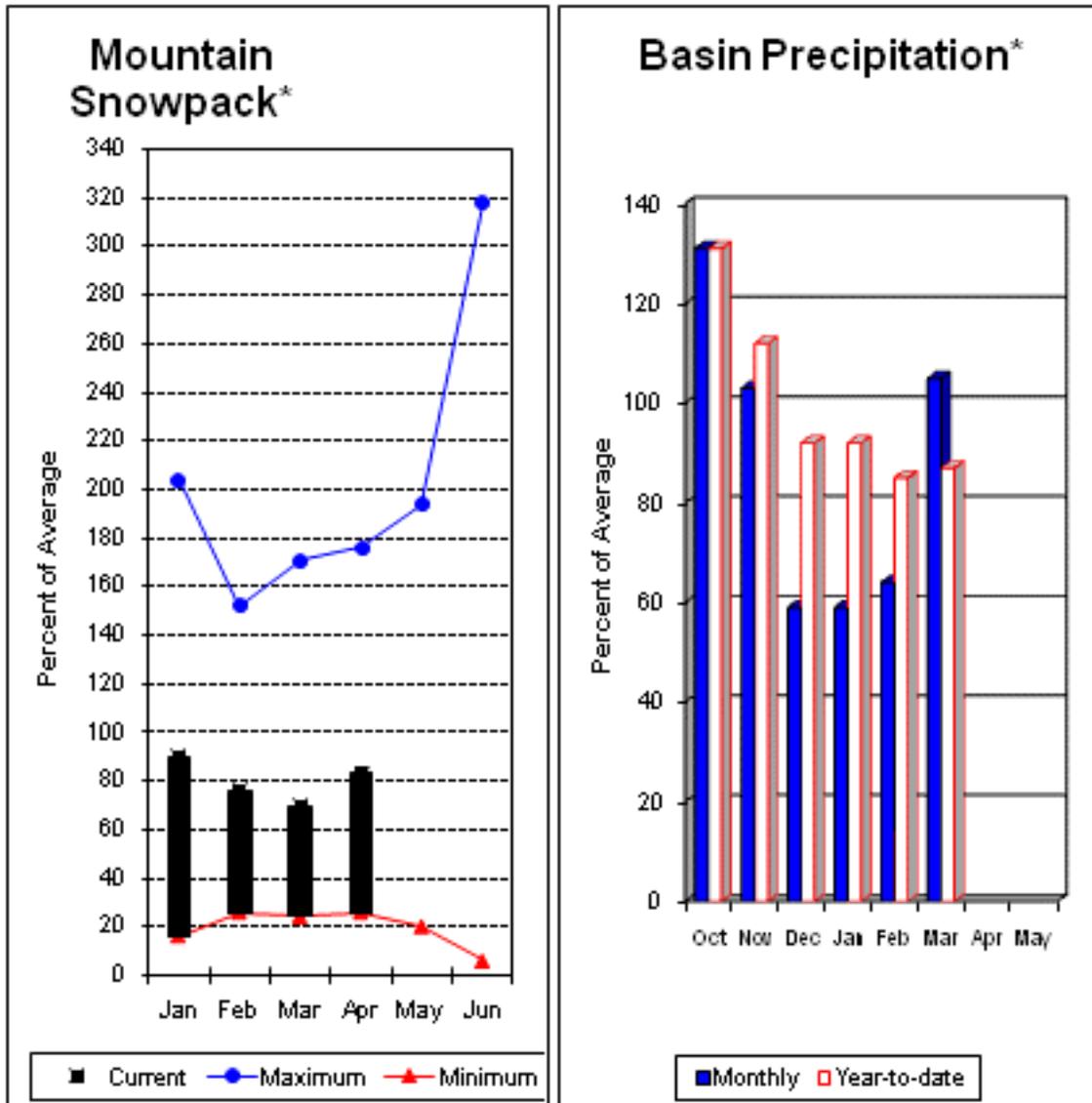
LOWER SNAKE RIVER BASIN Reservoir Storage (1000 AF) - End of March					LOWER SNAKE RIVER BASIN Watershed Snowpack Analysis - April 1, 2010			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
DWORSHAK	3468.0	2308.7	2514.0	2244.1	LOWER SNAKE, GRANDE RONDE	11	60	63

\* 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.

## Lower Columbia River Basins



\*Based on selected stations

Forecasts for April – September streamflows within the basin are Lewis River at Ariel, 85% and Cowlitz River at Castle Rock, 83% of average. The Columbia at The Dalles is forecasted to have 65% of average flows this summer. March average streamflow for Cowlitz River was 56% and 176% for Lewis River. The Columbia River at The Dalles was 50% of average. March precipitation was 105% of average and the water-year average was 87%. April 1 snow cover for Cowlitz River was 77%, and Lewis River was 89% of average. Average temperatures were near normal during March and 1 degree above normal for the water year.

*For more information contact your local Natural Resources Conservation Service office.*

# Lower Columbia River Basins

## Streamflow Forecasts - April 1, 2010

Forecast Point	Forecast Period	<<----- Drier ----->>		Future Conditions		----- Wetter ----->>		30-Yr Avg. (1000AF)
		90%	70%	Chance Of Exceeding *		30%	10%	
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
Columbia R at The Dalles (2)	APR-JUL	45900	51300	55000	65	58700	64100	84600
	APR-SEP	53800	60200	64500	65	68800	75200	98600
Klickitat R nr Glenwood	APR-JUL	63	75	83	66	91	103	126
	APR-SEP	85	99	108	66	117	131	163
Klickitat R nr Pitt	APR-JUL	255	300	335	73	370	415	460
	APR-SEP	305	360	400	73	440	495	550
Lewis R at Ariel (2)	APR-JUL	600	765	875	85	985	1150	1031
	APR-SEP	705	880	995	85	1110	1290	1176
Cowlitz R bl Mayfield Dam (2)	APR-JUL	960	1210	1380	82	1550	1800	1689
	APR-SEP	1080	1380	1580	82	1780	2080	1922
Cowlitz R at Castle Rock (2)	APR-JUL	1430	1710	1900	83	2090	2370	2295
	APR-SEP	1680	1980	2190	83	2400	2700	2639

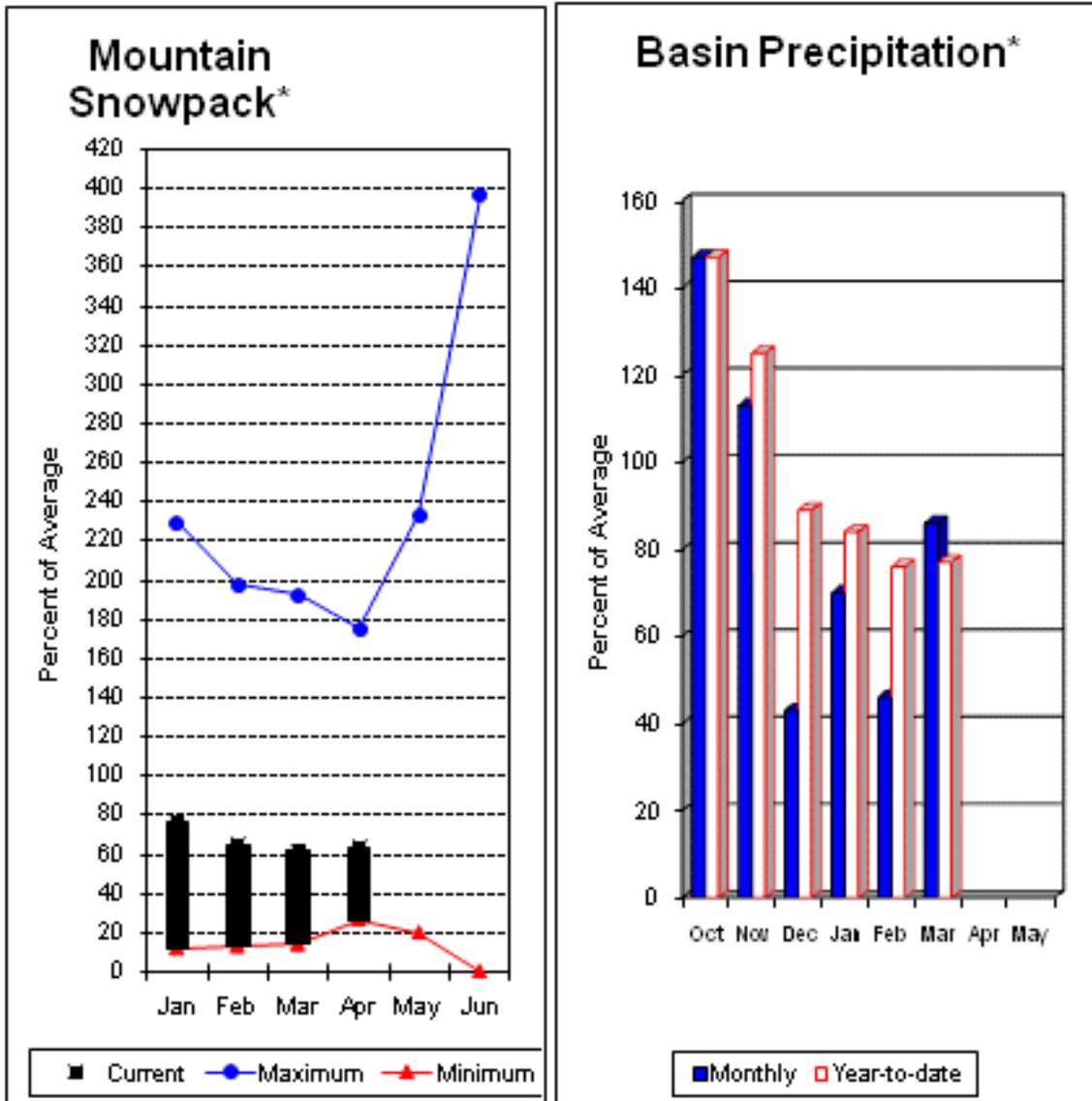
LOWER COLUMBIA RIVER BASINS Reservoir Storage (1000 AF) - End of March					LOWER COLUMBIA RIVER BASINS Watershed Snowpack Analysis - April 1, 2010			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
MOSSYROCK	0.0	1123.3	1203.4	---	LEWIS RIVER	5	83	89
SWIFT	0.0	729.2	670.2	---	COWLITZ RIVER	6	73	77
YALE	0.0	369.3	370.4	---				
MERWIN	0.0	408.2	401.9	---				

\* 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.

# South Puget Sound River Basins



\*Based on selected stations

Summer runoff is forecast to be 60% of normal for the Green River below Howard Hanson Dam and 75% for the White River near Buckley. April 1 snowpack was 72% of average for the White River, 85% for Puyallup River and 36% in the Green River Basin. Water content on April 1 at Corral Pass SNOTEL, at an elevation of 6,000 feet, was 25.4 inches. This site has an April 1 average of 34.9 inches. March precipitation was 86% of average, bringing the water year-to-date to 77% of average for the basins. Average temperatures in the area were 1 degree above normal for March and 2 degrees above normal for the water-year.

*For more information contact your local Natural Resources Conservation Service office.*

# South Puget Sound River Basins

## Streamflow Forecasts - April 1, 2010

Forecast Point	Forecast Period	Future Conditions					30-Yr Avg. (1000AF)	
		Drier		Wetter		Chance Of Exceeding * 50% (1000AF) (% AVG.)		
		90% (1000AF)	70% (1000AF)	30% (1000AF)	10% (1000AF)			
WHITE near Buckley (1,2)	APR-JUL	225	295	330	75	365	435	440
	APR-SEP	280	365	400	75	435	520	534
GREEN R below Howard Hansen (1,2)	APR-JUL	70	123	147	61	171	225	243
	APR-SEP	80	136	161	60	186	240	268

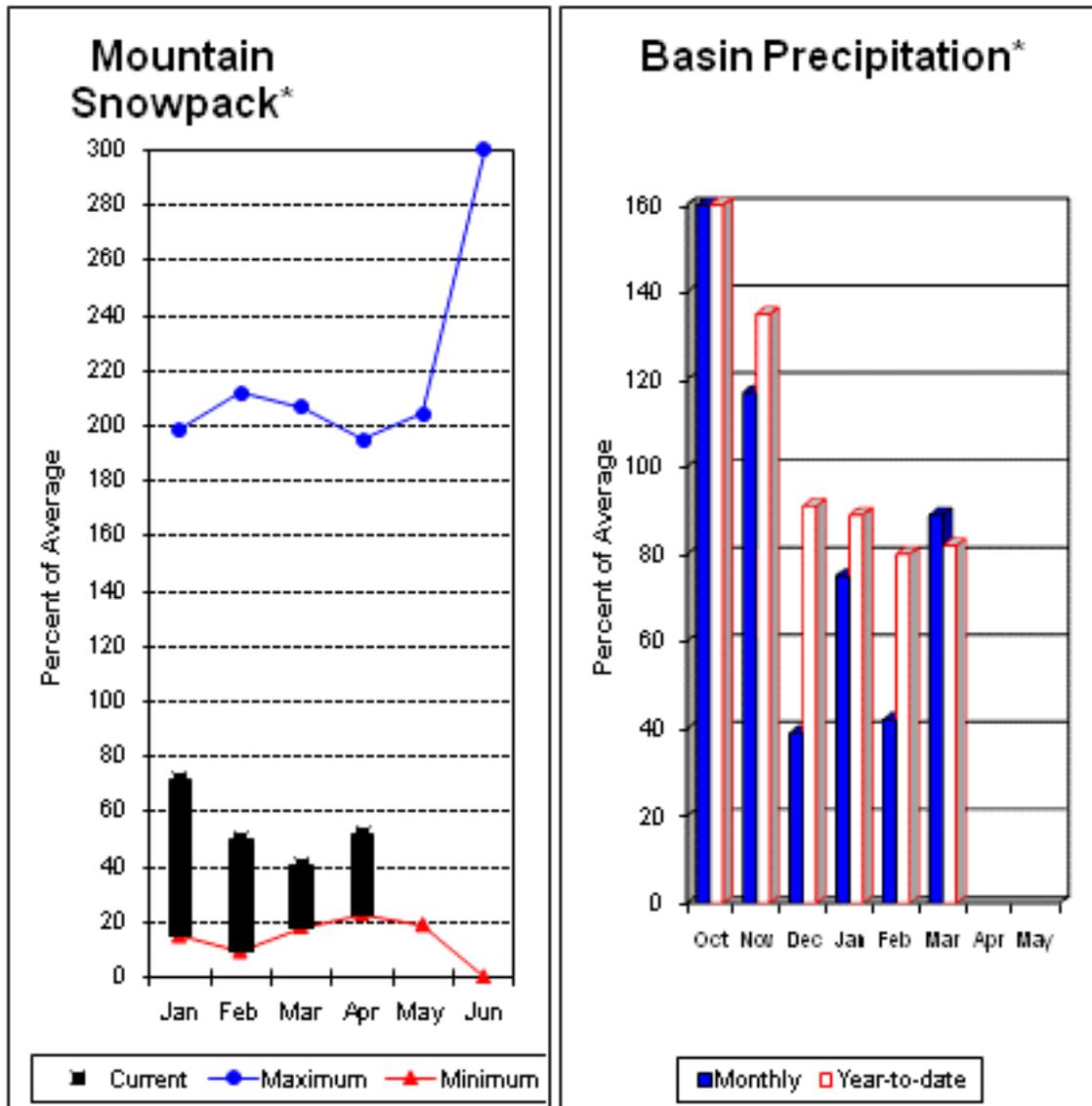
SOUTH PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of March					SOUTH PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - April 1, 2010			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					WHITE RIVER	3	100	89
					GREEN RIVER	3	41	36
					PUYALLUP RIVER	5	70	85

\* 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.

# Central Puget Sound River Basins



\*Based on selected stations

Forecast for spring and summer flows are: 60% for Cedar River near Cedar Falls; 58% for Rex River; 61% for South Fork of the Tolt River; and 55% for Cedar River at Cedar Falls. Basin-wide precipitation for March was 89% of average, bringing water-year-to-date to 82% of average. April 1 average snow cover in Cedar River Basin was 37%, Tolt River Basin was 51%, Snoqualmie River Basin was 57%, and Skykomish River Basin was 61%. Olallie Meadows SNOTEL site, at 3960 feet, had 44 inches of water content. Average April 1 water content is 55.9 inches at Olallie Meadows. Temperatures were 1 degree above normal for March and 2 degrees above for the water-year.

*For more information contact your local Natural Resources Conservation Service office.*

# Central Puget Sound River Basins

## Streamflow Forecasts - April 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 *						
		(1000AF) (% AVG.)						
CEDAR near Cedar Falls	APR-JUL	30	38	44	60	50	58	73
	APR-SEP	33	42	48	60	54	63	80
REX near Cedar Falls	APR-JUL	8.0	11.9	14.5	58	17.1	21	25
	APR-SEP	9.2	13.4	16.2	58	19.0	23	28
CEDAR RIVER at Cedar Falls	APR-JUL	15.7	31	41	55	51	66	74
	APR-SEP	12.3	29	40	55	51	68	73
TAYLOR CREEK nr Selleck	APR-JUL	9.7	12.5	14.4	71	16.3	19.1	20
	APR-SEP	12.2	15.2	17.3	72	19.4	22	24
SOUTH FORK TOLT near Index	APR-JUL	5.4	7.5	8.9	61	10.3	12.4	14.7
	APR-SEP	6.1	8.6	10.3	61	12.0	14.5	16.9

### CENTRAL PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of March

### CENTRAL PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - April 1, 2010

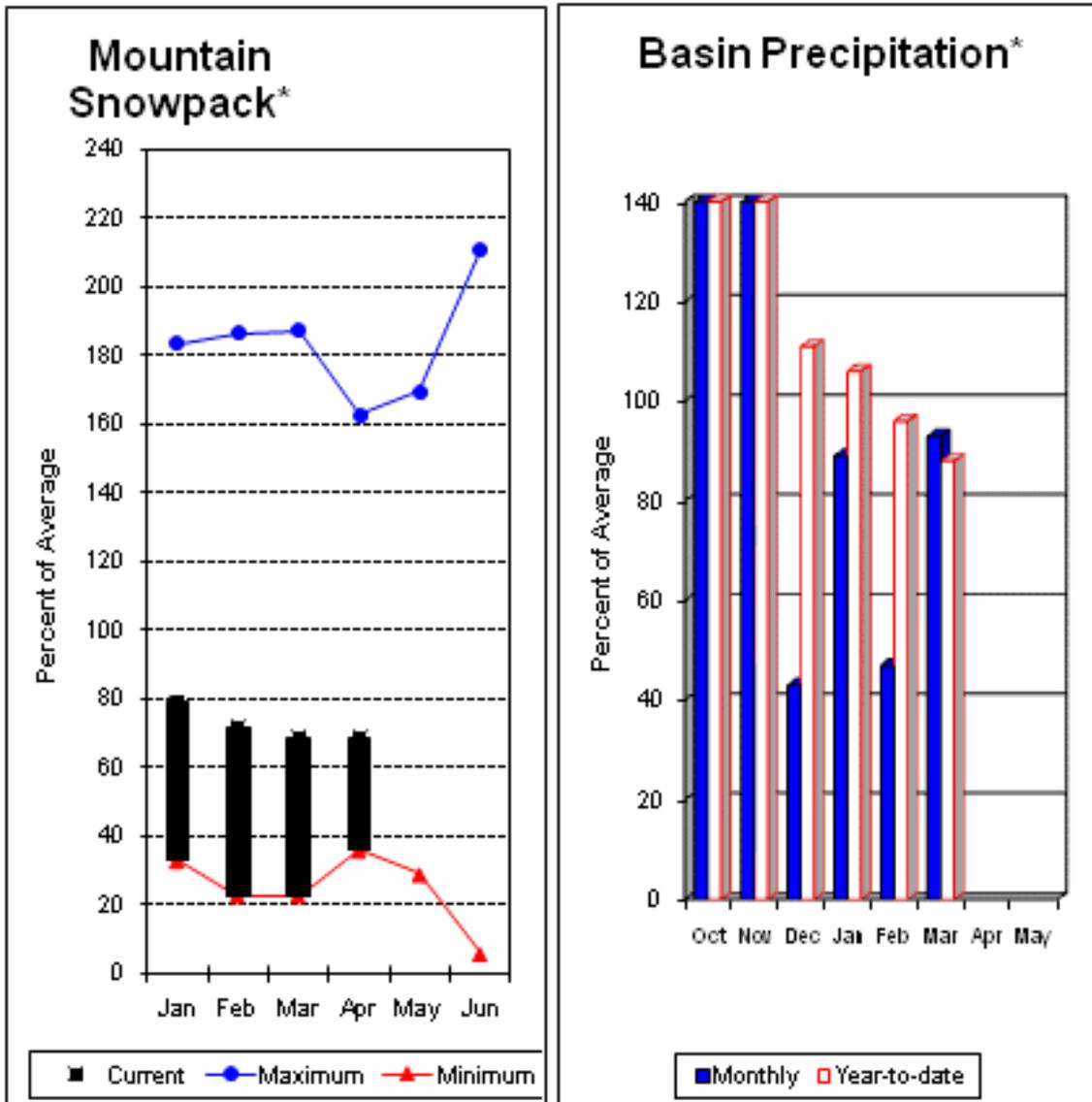
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					CEDAR RIVER	6	23	37
					TOLT RIVER	3	30	51
					SNOQUALMIE RIVER	5	44	57
					SKYKOMISH RIVER	3	48	61

\* 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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# North Puget Sound River Basins



\*Based on selected stations

Forecast for Skagit River streamflow at Newhalem is 79% of average for the spring and summer period. March streamflow in Skagit River was 61% of average. Other forecast points included Baker River at 77% and Thunder Creek at 86% of average. Basin-wide precipitation for March was 88% of average, bringing water-year-to-date to 93% of average. April 1 average snow cover in Skagit River Basin was 70%, Nooksack River Basin was 68% and Baker River Basin was not available at this time. Brown Top snow course, at 6000 feet, had 57.4 inches of water content. Average April 1 water content is 60.8 inches at Brown Top. April 1 Skagit River reservoir storage was 122% of average and 64% of capacity. Average temperatures for March were 2 degrees above normal for the basin and 2 degrees above average for the water year.

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

# North Puget Sound River Basins

## Streamflow Forecasts - April 1, 2010

Forecast Point	Forecast Period	Future Conditions				Wetter		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	
THUNDER CREEK near Newhalem	APR-JUL	167	186	199	85	210	230	234
	APR-SEP	250	270	285	86	300	320	333
SKAGIT at Newhalem (2)	APR-JUL	1270	1390	1470	79	1550	1670	1864
	APR-SEP	1570	1680	1760	79	1840	1950	2217
BAKER RIVER near Concrete	APR-JUL	500	585	640	77	695	780	828
	APR-SEP	595	725	810	77	895	1020	1050

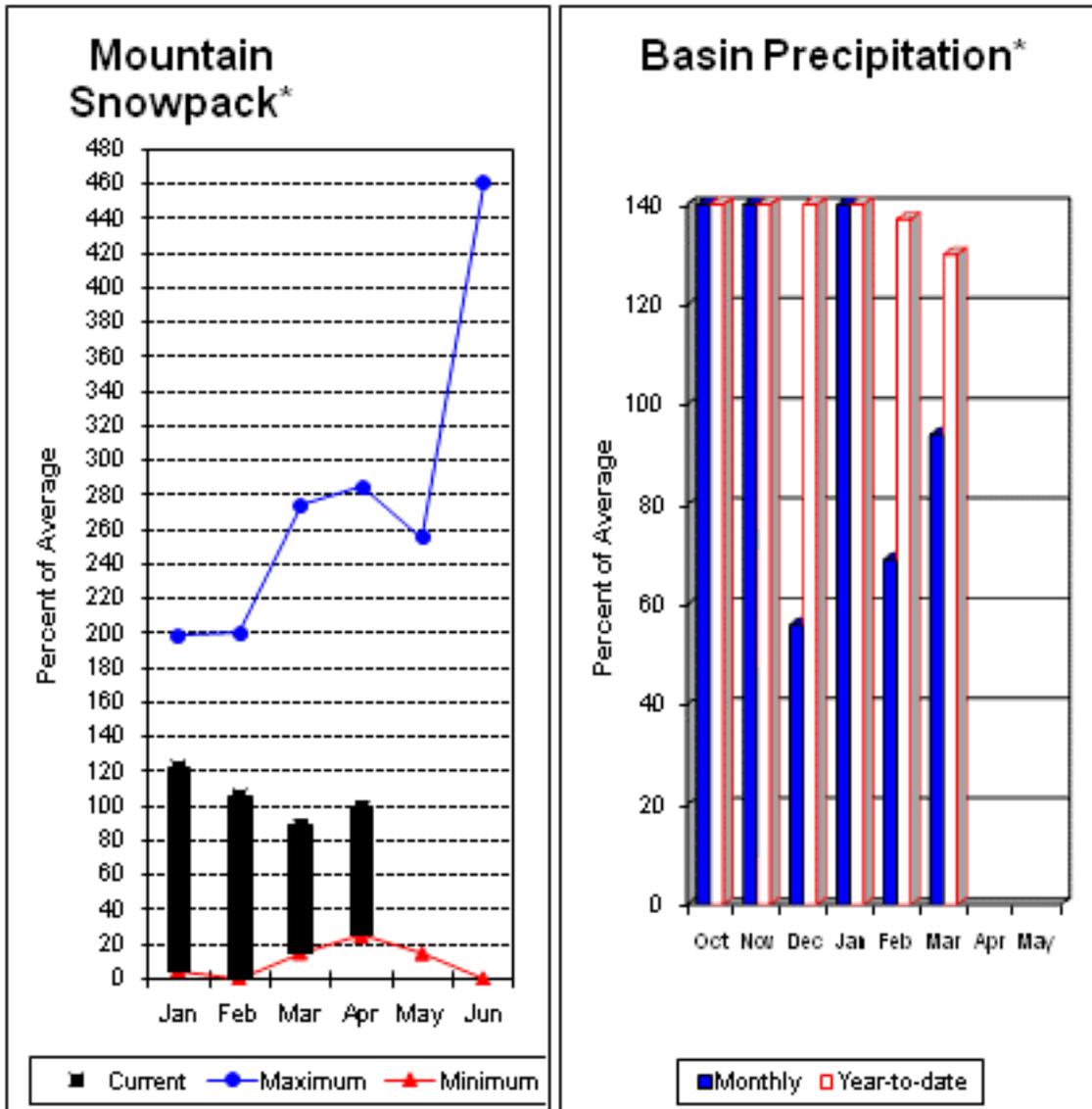
NORTH PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of March					NORTH PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - April 1, 2010			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
ROSS	1404.1	865.0	815.3	693.0	SKAGIT RIVER	15	90	70
DIABLO RESERVOIR	90.6	85.0	84.8	86.2	BAKER RIVER	0	71	0
					NOOKSACK RIVER	3	77	68

\* 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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# Olympic Peninsula River Basins



\*Based on selected stations

Forecasted average runoff for streamflow for the Dungeness River is 90% and Elwha River is 94%. March runoff in the Dungeness River was 183% of normal. The Wynoochee and Big Quilcene rivers should expect near average runoff this summer as well. March precipitation was 94% of average. Precipitation has accumulated at 130% of average for the water year. March precipitation at Quillayute was 9.79 inches. The thirty-year average for March is 10.98 inches. Olympic Peninsula snowpack averaged 99% of normal on April 1. Temperatures were 2 degrees above average for March and 2 degrees above for the water year.

*For more information contact your local Natural Resources Conservation Service office.*

# Olympic Peninsula River Basins

## Streamflow Forecasts - April 1, 2010

Forecast Point	Forecast Period	Future Conditions					30-Yr Avg. (1000AF)	
		<<===== Drier =====>>		===== Wetter =====>>				
		90% (1000AF)	70% (1000AF)	Chance Of Exceeding * 50% (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
DUNGENESS near Sequim	APR-JUL	88	102	111	90	120	134	124
	APR-SEP	107	125	137	90	149	167	152
ELWHA near Port Angeles	APR-JUL	330	370	395	94	420	460	419
	APR-SEP	395	445	475	94	505	555	503

OLYMPIC PENINSULA RIVER BASINS Reservoir Storage (1000 AF) - End of March					OLYMPIC PENINSULA RIVER BASINS Watershed Snowpack Analysis - April 1, 2010			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					OLYMPIC PENINSULA	5	149	99

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

*Issued by*

**Dave White**  
**Chief**  
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**U.S. Department of Agriculture**

*Released by*

**Roylene Rides At The Door**  
**State Conservationist**  
**Natural Resources Conservation Service**  
**Spokane, Washington**

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## The Following Organizations Cooperate with the Natural Resources Conservation Service in Snow Survey Work\*:

<b>Canada</b>	Ministry of Sustainable Resources Snow Survey, River Forecast Centre, Victoria, British Columbia
<b>State</b>	Washington State Department of Ecology Washington State Department of Natural Resources
<b>Federal</b>	Department of the Army Corps of Engineers U.S. Department of Agriculture Forest Service U.S. Department of Commerce NOAA, National Weather Service U.S. Department of Interior Bonneville Power Administration Bureau of Reclamation Geological Survey National Park Service Bureau of Indian Affairs Recourse Conservation & Development Councils
<b>Local</b>	City of Tacoma City of Seattle Chelan County P.U.D. Pacific Power and Light Company Puget Sound Power and Light Company Washington Water Power Company Snohomish County P.U.D. Colville Confederated Tribes Spokane County Yakama Indian Nation Whatcom County Pierce County Kalispel Tribe of Indians Spokane Indian Tribe Jamestown S'klallum Tribe
<b>Private</b>	Okanogan Irrigation District Wenatchee Heights Irrigation District Newman Lake Homeowners Association Whitestone Reclamation District

\*Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.



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# Washington Water Supply Outlook Report

Natural Resources Conservation Service  
Spokane, WA

