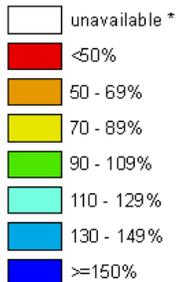


# Washington Water Supply Outlook Report March 1, 2012

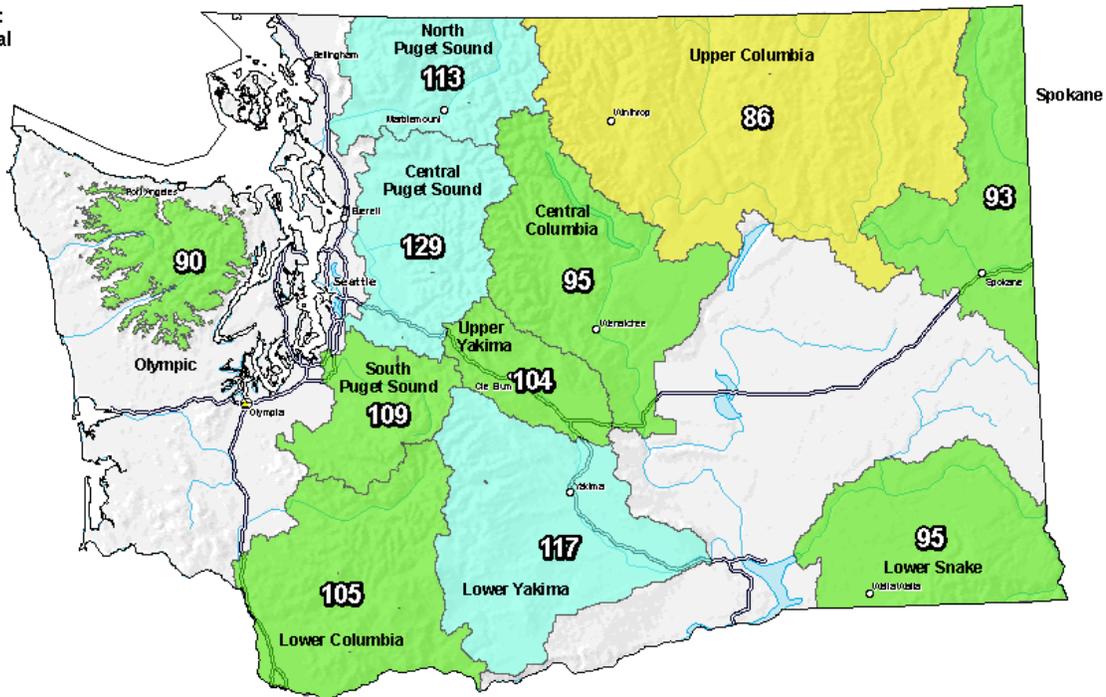
**Washington SNOTEL Current Snow Water Equivalent (SWE) % of Normal**

**Mar 07, 2012**

**Current Snow Water  
 Equivalent (SWE)  
 Basin-wide Percent  
 of 1971-2000 Normal**



\* Data unavailable at time of posting or measurement is not representative at this time of year



*Provisional Data  
 Subject to Revision*



The snow water equivalent percent of normal represents the current snowwater equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).



Prepared by the USDA/NRCS National Water and Climate Center  
 Portland, Oregon <http://www.wcc.nrcs.usda.gov/gis/>  
 Based on data from <http://www.wcc.nrcs.usda.gov/reports/>  
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# 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

March 2012

## General Outlook

Big snow fall at times throughout the month helped bolster what were below and near average snowpacks to near and above average in most areas of state except the Upper Columbia and Olympic Peninsula where notable decreases were experienced. Unfortunately big snow sometimes brings big tragedy and our thoughts go with those lost in the avalanches of last month. Total precipitation values and average temperatures were near normal for the month. As we get further through the season streamflow forecast confidence gets better thus we are seeing an increase in most all runoff forecasts over last month's predictions. Weather forecasters are still predicting cooler and wetter conditions for the next couple of months however confidence levels are low for any quantitative forecast more than a week out.

## Snowpack

The March 1 statewide SNOTEL readings were 109% but generally the east side is a little drier overall. So far we have received about 70-90% of our annual total snowfall. Normally we would be seeing about 85% with only a month or so left in the normal accumulation season. The Sanpoil River snow survey data near Nespelem reported the lowest readings at 58% of average. Snow surveys from the Cedar River reported the highest at 149% of average. Westside averages from SNOTEL, and March 1 snow surveys, included the North Puget Sound river basins with 111% of average, the Central Puget river basins with 128%, and the Lewis-Cowlitz basins with 110% of average. Snowpack along the east slopes of the Cascade Mountains included the Yakima area with 106% and the Wenatchee area with 90%. Snowpack in the Spokane River Basin was at 92% and the Walla Walla River Basin had 92% of average.

BASIN	PERCENT OF LAST YEAR	PERCENT OF AVERAGE
Spokane	98	92
Newman Lake	89	92
Pend Oreille	85	95
Okanogan	103	93
Methow	109	97
Conconully Lake	76	61
Wenatchee	128	96
Chelan	127	101
Upper Yakima	144	103
Lower Yakima	123	108
Ahtanum Creek	139	106
Walla Walla	104	92
Lower Snake	92	89
Cowlitz	115	116
Lewis	98	100
White	114	109
Green	176	106
Puyallup	129	115
Cedar	175	149
Snoqualmie	167	118
Skykomish	155	110
Skagit	124	110
Baker	127	109
Nooksack	128	114
Olympic Peninsula	88	95

## Precipitation

During the month of February, the National Weather Service and Natural Resources Conservation Service climate stations reported varied precipitation totals throughout Washington river basins. The highest percent of average in the state was at Skookum Creek SNOTEL in the Tolt River Basin which reported 179% of average for a total of 26.2 inches. The average for Skookum is 14.6 inches for February. Skookum Creek also happened to be the wettest spot in the state last month. The driest spot was at Winthrop with only 1.08 inches of total precipitation.

RIVER BASIN	FEBRUARY PERCENT OF AVERAGE	WATER YEAR PERCENT OF AVERAGE
Spokane .....	108 .....	87 .....
Pend Oreille .....	73 .....	85 .....
Upper Columbia .....	68 .....	81 .....
Central Columbia .....	103 .....	96 .....
Upper Yakima .....	116 .....	96 .....
Lower Yakima .....	114 .....	99 .....
Walla Walla .....	104 .....	87 .....
Lower Snake .....	102 .....	91 .....
Lower Columbia .....	107 .....	95 .....
South Puget Sound .....	109 .....	95 .....
Central Puget Sound .....	129 .....	98 .....
North Puget Sound .....	87 .....	97 .....
Olympic Peninsula .....	81 .....	95 .....

## Reservoir

Seasonal reservoir levels in Washington can 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 614,000-acre feet, 123% of average for the Upper Reaches and 175,000-acre feet or 127% of average for Rimrock and Bumping Lakes. Storage at the Okanogan reservoirs was 116% of average for March 1. The power generation reservoirs included the following: Coeur d'Alene Lake, 83,000 acre feet, 57% of average and 35% of capacity; Chelan Lake, 185,000-acre feet, 74% of average and 27% of capacity; and the Skagit River reservoirs at 94% of average and 57% 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 .....	35 .....	57 .....
Pend Oreille .....	37 .....	74 .....
Upper Columbia .....	84 .....	116 .....
Central Columbia .....	27 .....	74 .....
Upper Yakima .....	74 .....	123 .....
Lower Yakima .....	75 .....	127 .....
Lower Snake .....	68 .....	104 .....
North Puget Sound .....	57 .....	94 .....

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

## Streamflow

Forecasts vary from 73% of average for Kettle River near Laurier to 116% of average for Ahtanum Creek at Union Gap. April-September forecasts for some Western Washington streams include the Cedar River near Cedar Falls, 112%; White River, 106%; and Dungeness River, 95%. Some Eastern Washington streams include the Yakima River near Parker, 104%; Wenatchee River at Plain, 96%; and Spokane River near Post Falls, 103%. Volumetric forecasts are developed using current, historic and average snowpack, precipitation and streamflow data collected and coordinated by organizations cooperating with NRCS. Caution should be used when using early season forecasts for critical water resource management decisions.

Runoff for February was only one-half to three-quarters of normal in most streams, probably due to seasonably cool temperatures and just average or less precipitation. The Cowlitz River had the highest reported flows with 117% of average. The Kettle River with 22% of average was the lowest in the state however this gage could be influenced by ice. Other streamflows were the following percentage of average as reported by the River Forecast Center: the Snake below Ice Harbor Dam, 62%; the Lewis at Ariel, 29%; the Columbia below Rock Island Dam, 58%; and the Cle Elum near Roslyn, 74%.

BASIN	PERCENT OF AVERAGE (50 PERCENT CHANCE OF EXCEEDENCE)
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Spokane .....	85-108
Pend Oreille .....	80-96
Upper Columbia .....	73-113
Central Columbia .....	88-104
Upper Yakima .....	96-103
Lower Yakima .....	98-116
Walla Walla .....	88-96
Lower Snake .....	84-106
Lower Columbia .....	88-106
South Puget Sound .....	99-106
Central Puget Sound .....	104-114
North Puget Sound .....	87-102
Olympic Peninsula .....	94-95

STREAM	PERCENT OF AVERAGE FEBRUARY STREAMFLOWS
--------	--

Pend Oreille Below Box Canyon .....	52
Kettle at Laurier .....	22
Columbia at Birchbank .....	85
Spokane at Long Lake .....	42
Similkameen at Nighthawk .....	69
Okanogan at Tonasket .....	50
Methow at Pateros .....	52
Chelan at Chelan .....	62
Wenatchee at Pashastin .....	59
Cle Elum near Roslyn .....	74
Yakima at Parker .....	77
Naches at Naches .....	77
Grande Ronde at Troy .....	51
Snake below Lower Granite Dam .....	55
SF Walla Walla near Milton Freewater .....	81
Columbia River at The Dalles .....	67
Cowlitz below Mayfield Dam .....	108
Skagit at Concrete .....	72
Dungeness near Sequim .....	73

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## Soil Moisture

Current soil moisture data is available from a limited number of SNOTEL sites scattered throughout each basin. As the effort continues to install additional sensors and more years of data are acquired this information will become invaluable to the streamflow forecasting community. Moderate fall precipitation helped bolster soil moisture profiles in most locations of the state. Storms in early and mid-February helped preserve soil moisture levels to near level conditions from last month.

BASIN	ESTIMATED PERCENT SATURATION
Spokane .....	58
Pend Oreille .....	64
Upper Columbia .....	27
Central Columbia .....	53
Upper Yakima .....	62
Lower Yakima .....	78
Walla Walla .....	71
Lower Snake .....	71
Lower Columbia .....	82
South Puget Sound .....	81
Central Puget Sound .....	N/A
North Puget Sound .....	87
Olympic Peninsula .....	37

BASIN SUMMARY OF  
SNOW COURSE DATA

MARCH 2012

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00	GROUSE CAMP SNOW COURSE	SNOTEL ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
ABERDEEN LAKE CAN.	4000	3/01/12	25	5.7	--	5.7	HAMILTON HILL CAN.	4550	2/25/12	44	12.8	8.8	12.7
AHTANUM R.S.	3100	3/01/12	12	3.8	4.2	7.0	HAND CREEK SNOTEL	5030	3/01/12	40	9.2	12.4	9.9
ALPINE MEADOWS	3500	2/28/12	103	39.0e	22.0	33.8	HARTS PASS SNOTEL	6490	3/01/12	105	39.4	42.4	39.7
ALPINE MEADOWS SNTL	3500	3/01/12	110	42.9	30.3	36.5	HARTS PASS	6500	2/27/12	112	39.0	--	36.8
AMBROSE	6480	2/24/12	41	10.6E	12.6	10.5	HELL ROARING DIVIDE	5770	2/28/12	78	21.8E	28.5	25.8
ASHLEY DIVIDE	4820	2/28/12	23	5.0E	10.1	6.2	HERRIG JUNCTION	4850	2/28/12	79	21.2E	26.9	22.2
BADGER PASS SNOTEL	6900	3/01/12	83	29.9	30.4	29.7	HIGH RIDGE SNOTEL	4920	3/01/12	73	20.5	21.8	21.2
BAIRD #2	3220	2/28/12	32	6.4	8.4	--	HOODOO BASIN SNOTEL	6050	3/01/12	118	36.2	40.5	38.6
BAREE MIDWAY	4600	2/29/12	79	21.2E	34.4	28.7	HUCKLEBERRY SNOTEL	2250	3/01/12	14	4.0	3.4	1.8
BAREE TRAIL	3800	2/29/12	33	9.9E	12.3	8.2	HUMBOLDT GLCH SNOTEL	4250	3/01/12	--	14.5	13.6	11.7
BARKER LAKES SNOTEL	8250	3/01/12	40	9.2	11.2	11.1	HURRICANE	4500	3/01/12	55	13.6	13.8	15.6
BARNES CREEK CAN.	5320	2/27/12	61	15.8	--	17.3	INDIAN ROCK SNOTEL	5360	3/01/12	76	26.8	29.0	--
BASIN CREEK SNOTEL	7180	3/01/12	21	4.4	6.4	6.1	INTERGAARD	6450	2/24/12	24	5.9E	5.9	6.2
BASSOO PEAK	5150	3/05/12	32	8.0	11.2	9.0	IRENE'S CAMP	5530	2/27/12	33	7.8	7.6	--
BEAVER CREEK TRAIL	2200	2/28/12	50	17.0	15.3	13.0	ISINTOK LAKE CAN.	5100	2/29/12	28	6.7	6.1	6.5
BEAVER PASS	3680	2/28/12	80	28.6	22.1	24.9	JASPER PASS AM	5400	3/03/12	196	66.6	--	74.0
BEAVER PASS SNOTEL	3630	3/01/12	115	41.6	33.2	33.9	JUNE LAKE SNOTEL	3440	3/01/12	108	35.5	39.3	33.9
BLACK MOUNTAIN	7750	2/29/12	42	10.7E	10.3	11.4	KELLER RIDGE	3700	2/27/12	16	3.3	3.7	--
BLACK PINE SNOTEL	7100	3/01/12	41	10.6	11.8	10.1	KELLOGG PEAK	5560	3/01/12	63	17.2	23.0	25.8
BLACKWALL PILL CAN.	6370	3/01/12	96	33.9	29.7	30.0	KISHENEH	3890	2/28/12	30	6.7E	8.8	7.3
BLEWETT PASS#2SNOTEL	4240	3/01/12	46	16.3	9.5	15.7	KIT CARSON PASTURE	4950	2/23/12	25	6.8	6.9	8.2
BLUE LAKE	5900	2/28/12	66	18.4E	19.2	21.1	KLESILKWA CAN.	3450	2/28/12	38	10.4	--	10.5
BONAUPART SOUTH	4660	2/29/12	22	4.6	4.8	--	KRAFT CREEK SNOTEL	4750	3/01/12	51	14.4	15.3	13.6
BRENDA MINE CAN.	4450	2/28/12	40	8.9	9.4	11.3	LAMB BUTTE	2/28/12	46	15.0	11.5	--	
BROCKMERE CAN.	3000	2/26/12	31	7.5	7.0	7.6	LIGHTNING LAKE CAN.	3700	2/25/12	52	14.0	9.9	10.3
BROWN TOP AM	6000	2/27/12	159	55.6	50.4	53.4	LOGAN CREEK	4300	2/29/12	25	5.0E	8.1	6.2
BROWNS PASS	2/27/12	12	2.4	3.0	--	LOLO PASS SNOTEL	5240	3/01/12	86	26.1	27.2	26.8	
BRUSH CREEK TIMBER	5000	2/29/12	42	13.3E	15.1	7.5	LONE PINE SNOTEL	3930	3/01/12	100	30.9	36.3	31.7
BUCKINGHORE SNOTEL	4870	3/01/12	140	55.1	56.7	--	LOOKOUT SNOTEL	5140	3/01/12	83	24.0	26.0	27.2
BULL MOUNTAIN	6600	2/27/12	24	5.0E	5.4	5.1	LOST HORSE MTN CAN.	6300	3/01/12	30	7.4	--	8.0
BUMPING LAKE (NEW)	3400	2/29/12	51	16.2	--	16.9	LOST HORSE SNOTEL	5120	3/01/12	56	18.3	13.0	18.3
BUMPING RIDGE SNOTEL	4610	3/01/12	94	28.0	22.2	24.9	LOST LAKE SNOTEL	6110	3/01/12	136	42.2	48.7	50.7
BUNCHGRASS MDWSNOTEL	5000	3/01/12	80	21.8	20.1	24.4	LOST LAKE	4070	2/29/12	27	5.4	5.9	--
BURNT MOUNTAIN PTL	4170	3/01/12	65	19.6	10.0	13.4	LOUP LOUP CAMPGROUND	2/24/12	22	5.2	6.4	--	
BUTTERMILK BUTTE	5250	2/24/12	38	11.7	12.1	--	LOWER SANDS CREEK #2	3120	2/28/12	65	16.6	19.8	16.6
CALAMITY SNOTEL	2500	3/01/12	17	3.3	7.4	--	LUBRECHT FOREST NO 3	5450	2/27/12	23	5.4E	7.3	5.6
CAYUSE PASS SNOTEL	5240	3/01/12	166	52.8	51.0	--	LUBRECHT FOREST NO 4	4650	2/27/12	13	3.4E	3.5	2.7
CHAMOKANE 2	3520	2/29/12	31	8.0	5.6	--	LUBRECHT FOREST NO 6	4040	2/27/12	22	5.8E	6.2	3.2
CHESSMAN RESERVOIR	6200	2/24/12	22	4.4	4.8	3.1	LUBRECHT HYDRO PLOT	4200	2/28/12	21	6.2E	7.5	5.1
CHEWALAH #2	4930	2/27/12	56	15.8	14.0	--	LUBRECHT SNOTEL	4680	3/01/12	26	7.7	7.1	5.3
CHICKEN CREEK	4060	2/28/12	59	15.4E	15.8	14.4	LYMAN LAKE SNOTEL	5980	3/01/12	156	50.6	46.4	55.1
CHIWAUKUM G.S.	2500	2/27/12	35	10.0	8.0	10.8	LYNN LAKE	4000	3/01/12	74	25.2E	12.1	16.1
CITY CABIN	2390	2/27/12	39	14.8e	3.3	10.2	LYNN LAKE SNOTEL	3900	3/01/12	74	25.2	12.5	--
CLOUDY PASS AM	6500	2/28/12	108	36.7	32.3	39.4	MARIAS PASS	5250	2/28/12	53	15.0E	16.1	14.9
COLD CREEK STRIP	6020	2/27/12	28	6.7	6.1	--	MARTEN LAKE AM	3600	3/03/12	205	73.4	--	61.9
COLOCKUM PASS	5370	2/28/12	40	11.4	11.6	14.6	MARTEN RIDGE SNOTEL	3520	3/01/12	157	59.7	47.1	--
COMBINATION SNOTEL	5600	3/01/12	17	5.0	4.4	4.5	MAZAMA	2/24/12	33	9.6	7.4	--	
COPPER BOTTOM SNOTEL	5200	3/01/12	28	7.7	7.1	9.9	MEADOWS CABIN	1900	2/28/12	20	5.7	2.5	5.5
COPPER MOUNTAIN	7700	3/01/12	30	7.0E	8.0	8.9	MEADOWS PASS SNOTEL	3230	3/01/12	96	36.0	19.2	19.8
CORRAL PASS SNOTEL	5800	3/01/12	93	32.0	26.0	29.5	METEOR	2/23/12	14	3.5	3.1	--	
COTTONWOOD CREEK	6400	2/29/12	27	5.5E	5.2	6.0	M F NOOKSACK SNOTEL	4970	3/01/12	149	61.2	47.0	52.8
COUGAR MTN. SNOTEL	3200	3/01/12	51	17.3	9.7	17.1	MICA CREEK SNOTEL	4510	3/01/12	77	20.4	19.5	23.2
COX VALLEY	4500	2/24/12	83	29.1	30.0	31.7	MINERAL CREEK	4000	2/28/12	60	14.6	16.6	15.8
COYOTE HILL	4200	2/29/12	39	10.0E	11.3	9.1	MISSEZULA MTN CAN.	5080	3/01/12	32	8.3	7.9	8.4
DALY CREEK SNOTEL	5780	3/01/12	39	9.9	9.9	9.4	MISSION CREEK CAN.	5840	3/01/12	57	15.6	13.0	17.1
DEER PARK	5200	2/25/12	57	18.7	14.4	15.1	MISSION RIDGE	5000	2/27/12	44	12.0	11.5	15.2
DEVILS PARK	5900	2/27/12	130	43.9	38.1	37.9	MONASHEE PASS CAN.	4500	2/27/12	44	11.1	--	11.8
DISAUTEL PASS	2/24/12	13	3.1	3.2	--	MORSE LAKE SNOTEL	5410	3/01/12	136	49.5	41.0	47.0	
DISCOVERY BASIN	7050	2/28/12	34	8.3E	10.2	8.4	MOSES MOUNTAIN (2)	4800	2/29/12	35	9.1	8.0	17.5
DIX HILL	6400	2/26/12	43	11.6E	10.8	10.0	MOSES MTN SNOTEL	5010	3/01/12	37	9.4	10.1	13.4
DOCK BUTTE AM	3800	3/03/12	152	54.7	--	52.6	MOSES PEAK	6650	2/29/12	53	14.8	16.1	11.7
DOMMERIE FLATS	2200	2/27/12	21	8.4	5.3	7.2	MOSQUITO RDG SNOTEL	5200	3/01/12	104	32.3	33.1	31.1
DUNCAN RIDGE	5370	2/27/12	21	4.3	4.9	--	MOUTON RESERVOIR	6850	2/29/12	23	5.9E	9.8	6.2
DUNGENESS SNOTEL	4010	3/01/12	35	7.6	10.1	8.9	MOUNT BLUM AM	5800	3/03/12	150	51.0	--	54.1
EAST FORK R.S.	5400	2/29/12	26	5.6E	5.0	5.6	MOUNT CRAG SNOTEL	3960	3/01/12	90	18.0	34.1	26.8
EASY PASS AM	5200	3/03/12	144	78.0	--	65.1	MT. KOBAN CAN.	5500	2/27/12	28	6.5	8.5	10.2
EL DORADO MINE	7800	2/24/12	38	10.2E	11.4	15.8	MOUNT TOLMAN	2000	2/24/12	6	1.9	1.1	3.3
ELBOW LAKE SNOTEL	3200	3/01/12	113	38.7	25.0	32.5	MOWICH SNOTEL	3160	3/01/12	14	2.0	2.4	1.5
EMERY CREEK SNOTEL	4350	3/01/12	47	10.9	16.7	13.3	MOUNT GARDNER	3300	2/27/12	46	17.5e	7.8	13.0
ESPERON CK. UP CAN.	5050	2/27/12	48	11.2	10.9	14.6	MOUNT GARDNER SNOTEL	2920	3/01/12	53	17.6	11.9	14.1
FARRON CAN.	4000	2/27/12	37	7.8	9.8	11.3	MUTTON CREEK #1	5700	2/23/12	38	6.4	10.2	12.0
FATTY CREEK	5500	2/28/12	70	19.0E	24.9	20.4	N.P. ELK CR SNOTEL	6250	3/01/12	43	11.1	13.6	10.2
FISH CREEK	8000	2/29/12	26	7.0E	9.2	7.8	NEVADA RIDGE SNOTEL	7020	3/01/12	57	16.0	14.9	13.2
FISH LAKE	3370	2/28/12	100	33.0	23.4	29.9	NEW HOZOMEEN LAKE	2800	2/29/12	24	7.2E	2.2	10.3
FISH LAKE SNOTEL	3430	3/01/12	103	31.4	21.6	30.6	NEZ PERCE CMP SNOTEL	5650	3/01/12	47	12.1	12.1	12.7
FLATTOP MTN SNOTEL	6300	3/01/12	134	37.0	42.5	39.2	NEZ PERCE PASS	6570	2/23/12	65	15.2	15.4	15.7
FLEECER RIDGE	7500	2/27/12	36	8.0E	9.4	9.2	NOISY BASIN SNOTEL	6040	3/01/12	110	30.2	53.0	33.8
FOURTH OF JULY SUM	3200	3/01/12	42	10.8	6.8	8.2	NORTH FORK JOCKO	6330	2/28/12	114	33.8E	47.5	36.5
FREEZEOUT CK. TRAIL	3500	2/29/12	55	16.1	9.1	11.3	OLLALLIE MDWS SNOTEL	4030	3/01/12	140	55.2	36.3	48.9
FROHNER MDWS SNOTEL	6480	3/01/12	34	8.6	7.1	6.3	OPHIR PARK	7150	2/26/12	50	13.7	15.0	14.1
GOAT CREEK	3600	2/24/12	23	5.3	4.9	6.1	OYAMA LAKE CAN.	4100	2/29/12	27	4.6	3.5	6.2
GOLD MTN LOOKOUT	2/28/12	37	9.5										

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00	SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
PEPPER CREEK SNOTEL	2140	3/01/12	33	7.5	9.8	--	STAMPEDE PASS SNOTEL	3850	3/01/12	105	34.8	22.1	39.8
PETERSON MDW SNOTEL	7200	3/01/12	33	7.2	7.7	7.8	STEMPLE PASS	6600	2/27/12	41	10.3E	10.0	8.3
PETTIJOHN CREEK	4300	2/29/12	27	5.3	6.1	--	STEVENS PASS SNOTEL	3950	3/01/12	128	38.1	24.9	38.3
PIGTAIL PEAK SNOTEL	5800	3/01/12	168	58.6	41.7	44.6	STORM LAKE	7780	2/28/12	40	10.3E	11.2	10.2
PIKE CREEK SNOTEL	5930	3/01/12	43	11.3	14.9	22.8	STRYKER BASIN	6180	2/28/12	89	25.4E	33.6	26.9
PIPESTONE PASS	7200	3/01/12	15	2.9E	4.0	4.1	STUART MOUNTAIN	7400	2/28/12	84	28.8E	39.0	--
POPE RIDGE SNOTEL	3590	3/01/12	56	17.1	12.5	18.5	SUMMERLAND RES CAN.	4200	2/29/12	37	9.2	8.5	8.4
POSTILL LAKE CAN.	4200	2/28/12	32	7.3	6.7	7.3	SUMMIT G.S. #2	4600	2/24/12	35	6.7	7.8	8.1
POTATO HILL SNOTEL	4510	3/01/12	102	28.1	25.7	23.6	SUNSET SNOTEL	5540	3/01/12	---	19.5	24.1	26.0
QUARTZ PEAK SNOTEL	4700	3/01/12	75	21.0	19.9	19.5	SURPRISE LKS SNOTEL	4290	3/01/12	122	41.4	39.2	40.1
RAGGED MTN SNOTEL	4210	3/01/12	75	22.4	19.6	--	SWAMP CREEK SNOTEL	3930	3/01/12	82	23.8	16.9	17.2
RAGGED RIDGE	3330	2/23/12	16	4.2	4.8	7.8	SWIFT CREEK SNOTEL	4440	3/01/12	134	47.9	51.8	47.1
RAINY PASS SNOTEL	4890	3/01/12	112	38.7	29.5	38.2	TEN MILE LOWER	6600	2/23/12	35	7.8	7.5	5.9
RAINY PASS	4780	2/29/12	108	38.2	27.1	33.8	TEN MILE MIDDLE	6800	2/23/12	40	9.1	7.9	8.9
REX RIVER SNOTEL	3810	3/01/12	108	42.1	27.3	23.9	THUNDER BASIN SNOTEL	4320	3/01/12	96	29.2	24.2	29.7
ROCKER PEAK SNOTEL	8000	3/01/12	48	11.8	12.7	11.2	THOMPSON CREEK	2500	2/23/12	10	2.6	6.0	--
ROCKY CREEK AM	2100	3/03/12	90	34.2	--	26.5	THOMPSON RIDGE	4650	2/27/12	41	11.2	10.5	--
ROLAND SUMMIT	5120	2/28/12	96	31.4	29.2	29.2	TINKHAM CREEK SNOTEL	2990	3/01/12	96	32.4	22.3	26.7
ROUND TOP MTN	4020	2/23/12	38	10.2	12.2	--	TOATS COULEE	2850	2/27/12	10	2.0	2.9	3.4
RUSTY CREEK	4000	2/23/12	15	3.7	4.1	6.2	TOGO	3370	2/29/12	30	7.8	6.6	8.6
SADDLE MTN SNOTEL	7900	3/01/12	78	21.0	23.5	21.8	TOUCHET SNOTEL	5530	3/01/12	81	25.0	21.8	28.5
SALMON MDWS SNOTEL	4460	3/01/12	30	7.2	8.4	10.1	TRINKUS LAKE	6100	2/28/12	109	34.0E	41.8	36.4
SASSE RIDGE SNOTEL	4340	3/01/12	105	33.5	20.2	30.3	TROUGH #2 SNOTEL	5480	3/01/12	35	9.1	9.1	9.3
SATUS PASS	4030	2/27/12	25	8.0	8.7	9.6	TROUT CREEK CAN.	5650	2/29/12	37	9.0	7.5	6.7
SAVAGE PASS SNOTEL	6170	3/01/12	76	23.9	25.7	22.5	TRUMAN CREEK	4060	2/27/12	19	5.2E	7.3	4.4
SAWMILL RIDGE SNOTEL	4640	3/01/12	124	44.1	--	--	TUNNEL AVENUE	2450	2/29/12	54	18.1	15.6	18.6
SCHREIBERS MDW AM	3400	3/03/12	138	52.4	--	43.5	TV MOUNTAIN	6800	2/28/12	50	14.4E	20.2	15.0
SENTINEL BT SNOTEL	4680	3/01/12	36	6.5	7.9	8.4	TWELVEMILE SNOTEL	5600	3/01/12	60	18.9	14.6	16.0
SHEEP CANYON SNOTEL	3990	3/01/12	103	32.3	35.0	31.6	TWIN CREEKS	3580	2/28/12	37	10.0E	9.9	10.2
SHERWIN SNOTEL	3200	3/01/12	---	11.3	12.9	10.8	TWIN LAKES SNOTEL	6400	3/01/12	109	36.5	36.2	34.7
SILVER STAR MTN CAN.	5600	3/01/12	72	23.2	24.2	25.0	TWIN SPIRIT DIVIDE	3480	2/26/12	30	7.8	5.8	13.1
SKALKAHO SNOTEL	7260	3/01/12	72	20.0	21.7	20.2	UPPER HOLLAND LAKE	6200	2/28/12	81	22.6E	34.3	30.0
SKITWISH RIDGE	5110	2/28/12	89	27.8	27.2	27.2	UPPER WHEELER SNOTEL	4330	3/01/12	33	8.2	8.8	11.7
SKOOKUM CREEK SNOTEL	3310	3/01/12	100	38.1	15.0	18.9	VULCAN MTN	4660	2/24/12	37	8.1	8.3	--
SKOOKUM LAKES	4230	2/28/12	49	12.8	12.7	--	VULCAN ROAD	3840	2/24/12	31	6.4	6.2	--
SLIDE ROCK MOUNTAIN	7100	2/24/12	48	14.2E	13.2	12.6	WARM SPRINGS SNOTEL	7800	3/01/12	69	17.7	19.7	17.0
SOURDOUGH GUL SNOTEL	4000	3/01/12	3	.8	5.4	--	WATERHOLE SNOTEL	5010	3/01/12	100	35.3	37.1	30.0
SOUTH BALDY	4920	2/28/12	66	16.6	20.0	--	WEASEL DIVIDE	5450	2/28/12	94	27.9E	35.0	28.7
SPENCER MDW SNOTEL	3400	3/01/12	78	24.4	23.7	28.6	WELLS CREEK SNOTEL	4030	3/01/12	115	29.2	28.8	28.4
SPIRIT LAKE SNOTEL	3520	3/01/12	23	7.6	8.1	6.2	WHITE PASS ES SNOTEL	4440	3/01/12	72	26.0	17.2	21.8
SPOTTED BEAR MTN.	7000	2/28/12	44	12.2E	15.8	12.7	WHITE ROCKS MTN CAN.	7200	2/27/12	61	16.8	17.2	19.6
SPRUCE SPGS SNOTEL	5700	3/01/12	48	13.4	11.2	15.9							
STARVATION MOUNTAIN	6750	2/24/12	48	15.5	15.2	16.6							
STAHL PEAK SNOTEL	6030	3/01/12	105	27.6	37.2	29.9							



Natural Resources Conservation Service

Washington State  
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>

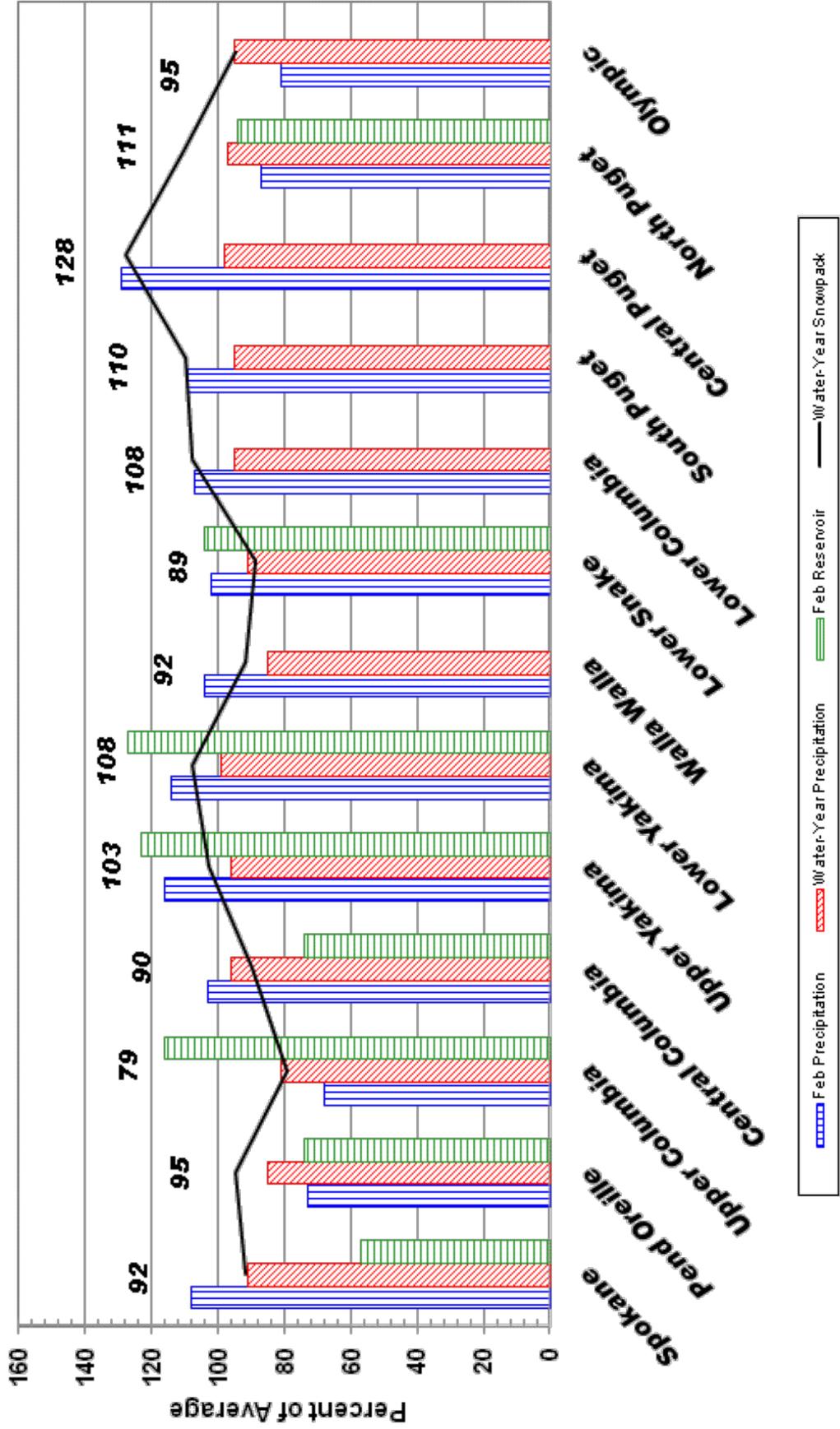
### USDA-NRCS Agency Homepages

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

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

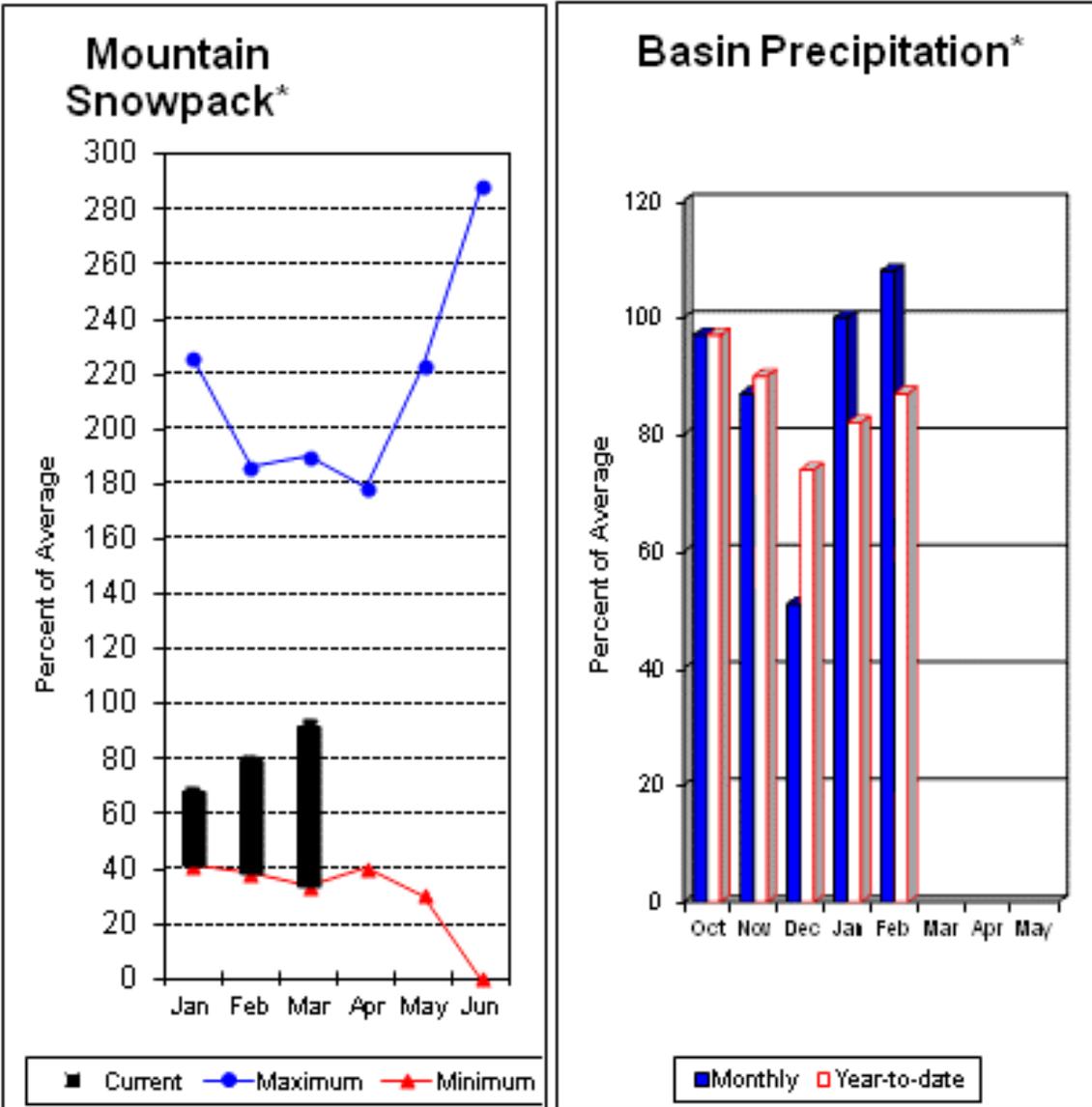
## March 1, 2012 - Snowpack, Precipitation and Reservoir Conditions at a Glance

(Water Year = October 1, 2011 - Current Date)



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# Spokane River Basin



\*Based on selected stations

The March 1 forecasts for summer runoff within the Spokane River Basin are 103% of average near Post Falls and 108% at Long Lake. The Chamokane River near Long Lake forecasted to have 85% of average flows for the May-August period. The forecast is based on a basin snowpack that is 92% of average and precipitation that is 87% of average for the water year. Precipitation for February was 108% of normal. Streamflow on the Spokane River at Long Lake was 42% of average for February. March 1 storage in Coeur d'Alene Lake was 83,000 acre feet, 57% of average and 35% of capacity. Snowpack at Quartz Peak SNOTEL site was 108% of average with 21 inches of water content. Average temperatures in the Spokane basin were 1 degree below normal for February and slightly above normal for the water year.

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

# Spokane River Basin

## Streamflow Forecasts - March 1, 2012

Forecast Point	Forecast Period	Future Conditions				Wetter		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	
Spokane R nr Post Falls (2)	APR-JUL	1920	2340	2620	103	2900	3320	2550
	APR-SEP	2010	2430	2720	103	3010	3430	2650
Spokane R at Long Lake (2)	APR-JUL	2320	2770	3080	108	3390	3840	2850
	APR-SEP	2540	3010	3320	108	3630	4100	3070
Chamokane Ck nr Long Lake	MAY-AUG	3.5	6.6	8.7	85	10.8	13.9	10.2

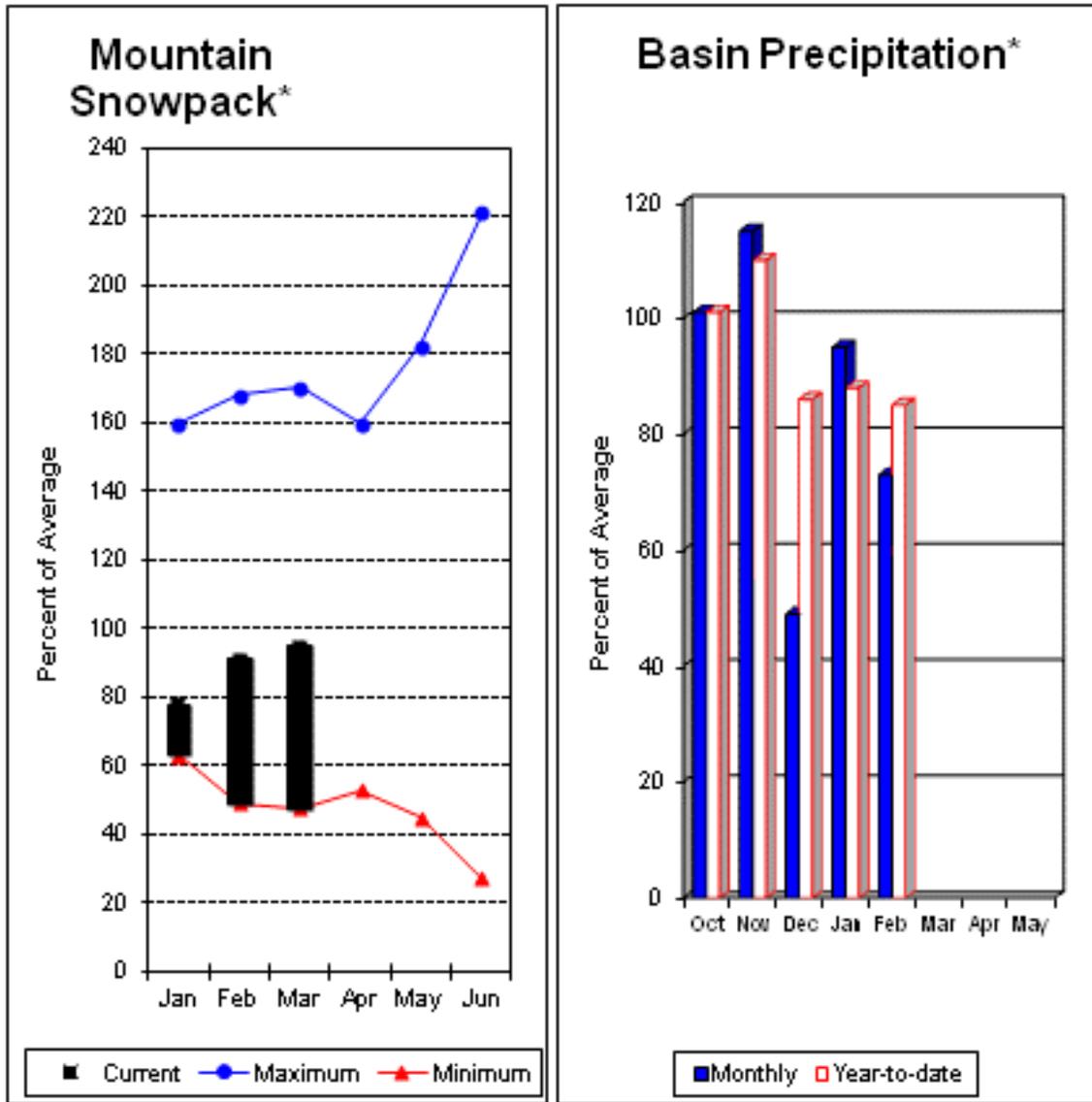
SPOKANE RIVER BASIN Reservoir Storage (1000 AF) - End of February					SPOKANE RIVER BASIN Watershed Snowpack Analysis - March 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
Coeur d'Alene	238.5	82.5	87.1	144.9	SPOKANE RIVER	16	98	92
					NEWMAN LAKE	2	89	92

\* 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 80% and the Pen Orielle below Box Canyon is 96%. February streamflow was 52% of average on the Pend Oreille River and 85% on the Columbia Birchbank. March 1 snow cover was 95% of average in the Pend Oreille Basin River Basin. Bunchgrass Meadows SNOTEL site had 21.8 inches of snow water on the snow pillow. Normally Bunchgrass would have 24.4 inches on March 1. Precipitation during February was 73% of average, bringing the year-to-date precipitation to 85% of average. Reservoir storage in the basin, including Lake Pend Oreille and Priest Lake was 74% of normal. Average temperatures were 1 degree below normal for February and near normal for the water year.

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

# Pend Oreille River Basins

## Streamflow Forecasts - March 1, 2012

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	10000	11300	12100	95	12900	14200	12700
	APR-SEP	11100	12400	13300	96	14200	15500	13900
Priest R nr Priest River (1,2)	APR-JUL	505	590	650	80	710	795	815
	APR-SEP	540	630	695	80	760	850	870
Pend Oreille R bl Box Canyon (2)	APR-JUL	10200	11500	12300	95	13100	14400	12900
	APR-SEP	11200	12600	13500	96	14400	15800	14100

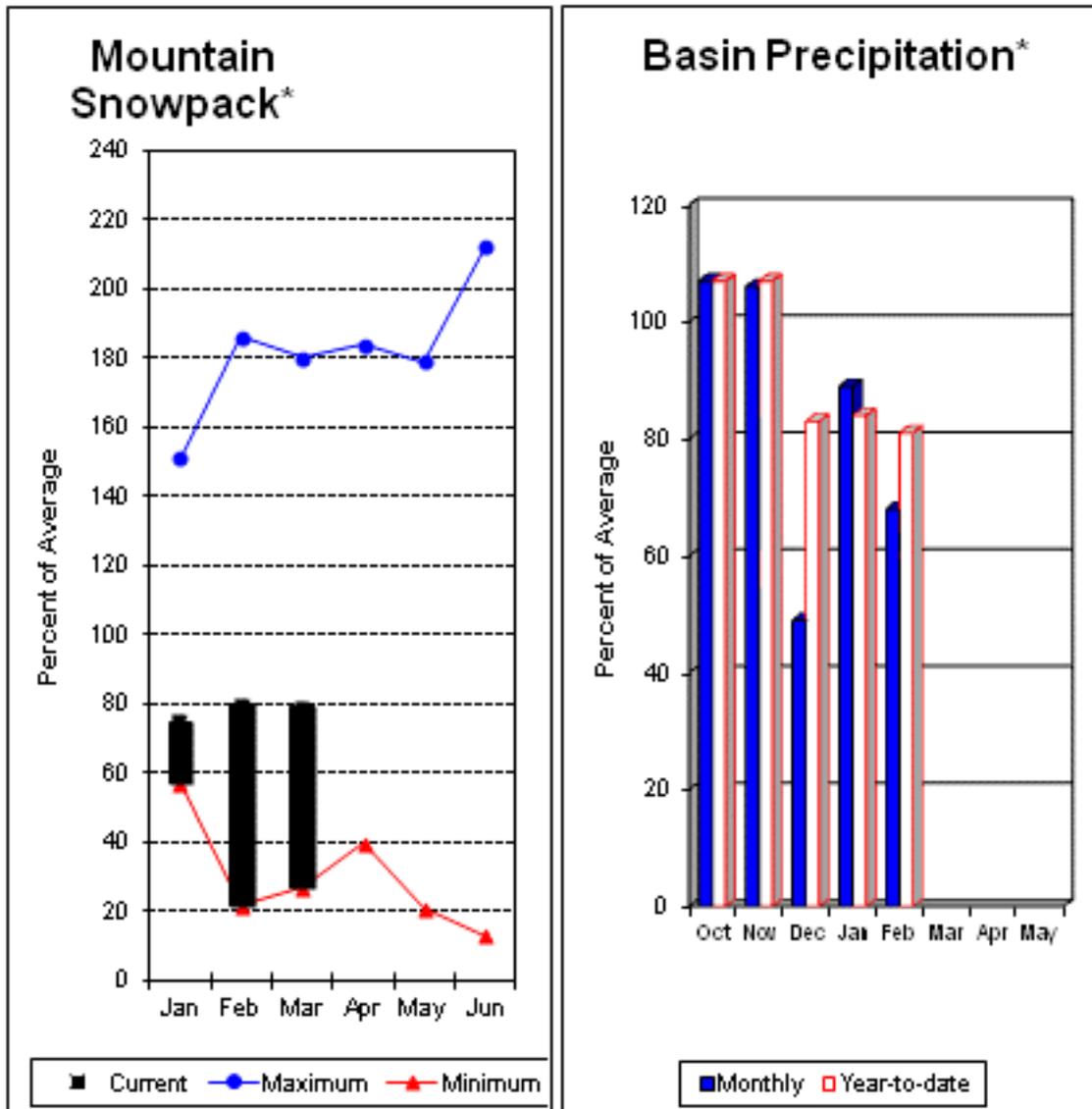
PEND OREILLE RIVER BASINS Reservoir Storage (1000 AF) - End of February					PEND OREILLE RIVER BASINS Watershed Snowpack Analysis - March 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
Pend Oreille	1561.3	562.1	835.9	778.8	COLVILLE RIVER	0	99	0
Priest Lake	119.3	56.0	48.9	56.8	PEND OREILLE RIVER	11	94	95
					KETTLE RIVER	6	91	84

\* 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 113%, Similkameen River is 110%, Kettle River 73% and Methow River is 89%. March 1 snow cover on the Okanogan was 93% of average, Omak Creek was 78% and the Methow was 97%. February precipitation in the Upper Columbia was 68% of average, with precipitation for the water year at 81% of average. February streamflow for the Methow River was 52% of average, 50% for the Okanogan River and 69% for the Similkameen. Snow-water content at Salmon Meadows SNOTEL was 7.2 inches. Average for this site is 10.1 inches on March 1. Combined storage in the Conconully Reservoirs was 20,000-acre feet, which is 84% of capacity and 116% of the March 1 average. Temperatures were slightly below normal for February and near average for the water year.

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

# Upper Columbia River Basins

## Streamflow Forecasts - March 1, 2012

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		Drier		Wetter				
		90% (1000AF)	70% (1000AF)	50% (1000AF) (% AVG.)	30% (1000AF)	10% (1000AF)	Chance Of Exceeding *	
Colville R at Kettle Falls	APR-JUL	35	72	97	76	122	159	128
	APR-SEP	39	79	107	76	135	175	141
Kettle R nr Laurier	APR-JUL	1010	1220	1370	73	1520	1730	1870
	APR-SEP	1040	1280	1440	73	1600	1840	1970
Columbia R at Birchbank (1,2)	APR-JUL	30000	33400	35000	100	36600	40000	34900
	APR-SEP	38900	43200	45200	104	47200	51500	43500
Columbia R at Grand Coulee (2)	APR-JUL	43900	49800	52500	98	55200	61100	53800
	APR-SEP	53900	61000	64200	100	67400	74400	64000
Similkameen R nr Nighthawk (1)	APR-JUL	1140	1370	1480	110	1590	1820	1350
	APR-SEP	1240	1480	1590	110	1700	1940	1450
Okanogan R nr Tonasket (1)	APR-JUL	1310	1640	1790	113	1940	2270	1580
	APR-SEP	1470	1840	2000	113	2160	2530	1770
Okanogan R at Malott (1)	APR-JUL	1360	1700	1850	114	2000	2340	1630
	APR-SEP	1510	1890	2060	113	2230	2610	1830
Methow R nr Pateros	APR-SEP	715	810	875	89	940	1040	985
	APR-JUL	660	755	815	90	875	970	910

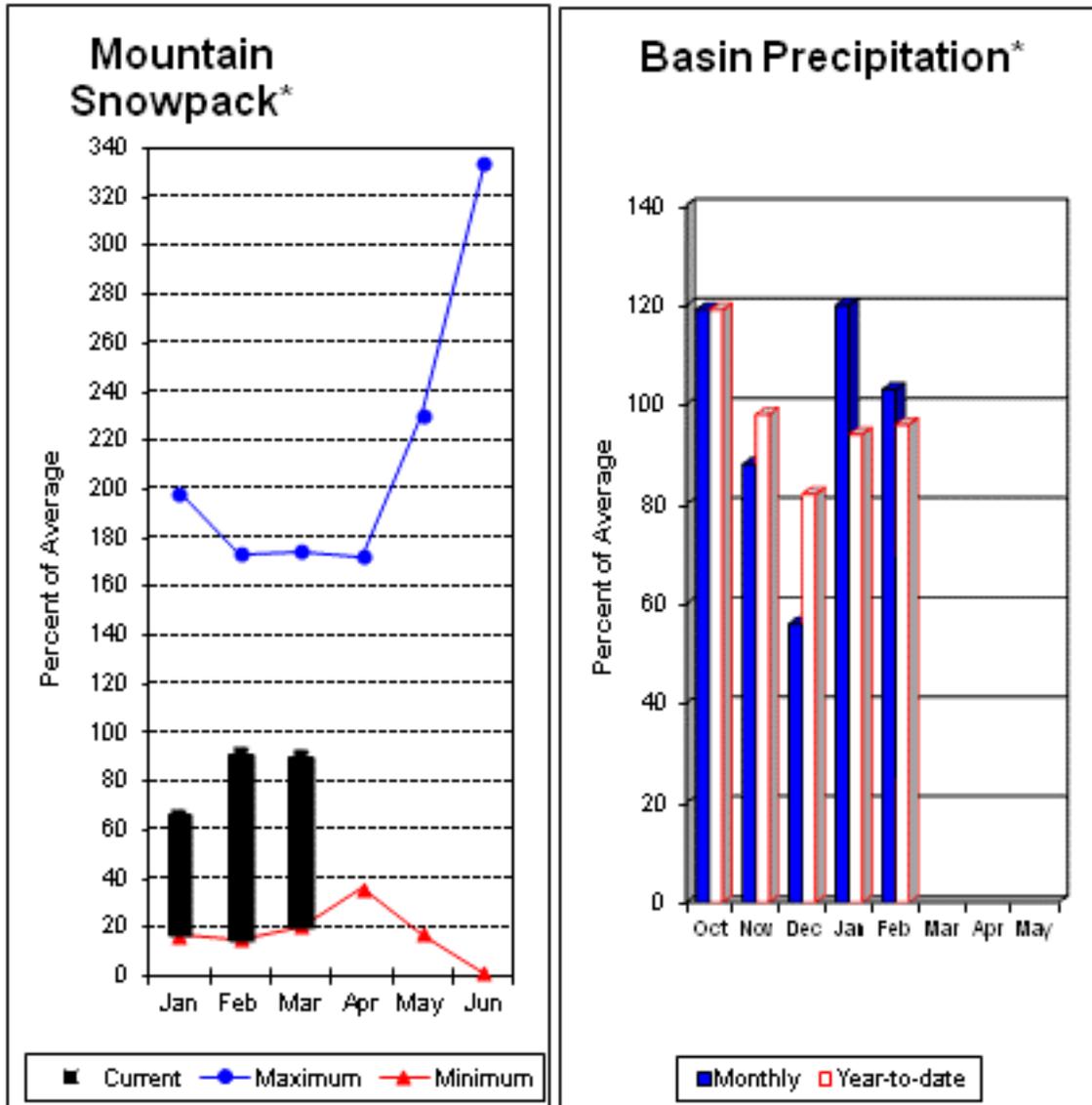
UPPER COLUMBIA RIVER BASINS Reservoir Storage (1000 AF) - End of February					UPPER COLUMBIA RIVER BASINS Watershed Snowpack Analysis - March 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
SALMON LAKE	10.5	8.3	8.6	8.4	OKANOGAN RIVER	19	103	93
CONCONULLY RESERVOIR	13.0	11.5	12.6	8.7	OMAK CREEK	3	96	78
					SANPOIL RIVER	1	109	58
					SIMILKAMEEN RIVER	5	117	105
					TOATS COULEE CREEK	1	97	59
					CONCONULLY LAKE	3	76	61
					METHOW RIVER	8	109	97

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

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

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

# Central Columbia River Basins



\*Based on selected stations

Precipitation during February was 103% of average in the basin and 96% for the year-to-date. Runoff for Entiat River is forecast to be 88% of average for the summer. The March-September average forecast for Chelan River is 97%, Wenatchee River at Plain is 96%, Stehekin River is 104% and Icicle Creek is 90%. February average streamflows on the Chelan River were 62% and on the Wenatchee River 59%. March 1 snowpack in the Wenatchee River Basin was 96% of average; the Chelan, 101%; the Entiat, 92%; Stemilt Creek, 75% and Colockum Creek, 86%. Reservoir storage in Lake Chelan was 185,000-acre feet, 74% of March 1 average and 27% of capacity. Lyman Lake SNOTEL had the most snow water with 50.63 inches of water. This site would normally have 55.1 inches on March 1. Temperatures were slightly below normal for February and near normal for the water year.

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

# Central Columbia River Basins

## Streamflow Forecasts - March 1, 2012

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		<<===== Drier =====>>		===== Wetter =====>>				
		90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	
Stehekin R at Stehekin	APR-JUL	610	680	730	104	780	850	700
	APR-SEP	735	810	860	104	910	985	830
Chelan R at Chelan (2)	APR-JUL	870	955	1010	96	1070	1150	1050
	APR-SEP	995	1090	1150	97	1210	1310	1190
Entiat R nr Ardenvoir	APR-JUL	158	178	191	89	205	225	215
	APR-SEP	177	196	210	88	225	245	240
Wenatchee R at Plain	APR-JUL	875	970	1030	96	1090	1180	1070
	APR-SEP	970	1060	1130	96	1200	1290	1180
Icicle Ck nr Leavenworth	APR-JUL	240	265	280	90	295	320	310
	APR-SEP	260	285	305	90	325	350	340
Wenatchee R at Peshastin	APR-JUL	1210	1340	1420	96	1500	1630	1480
	APR-SEP	1330	1460	1550	95	1640	1770	1630
Columbia R bl Rock Island Dam (2)	APR-JUL	49700	54400	57500	98	60600	65300	59000
	APR-SEP	60900	66300	70000	101	73700	79200	69500

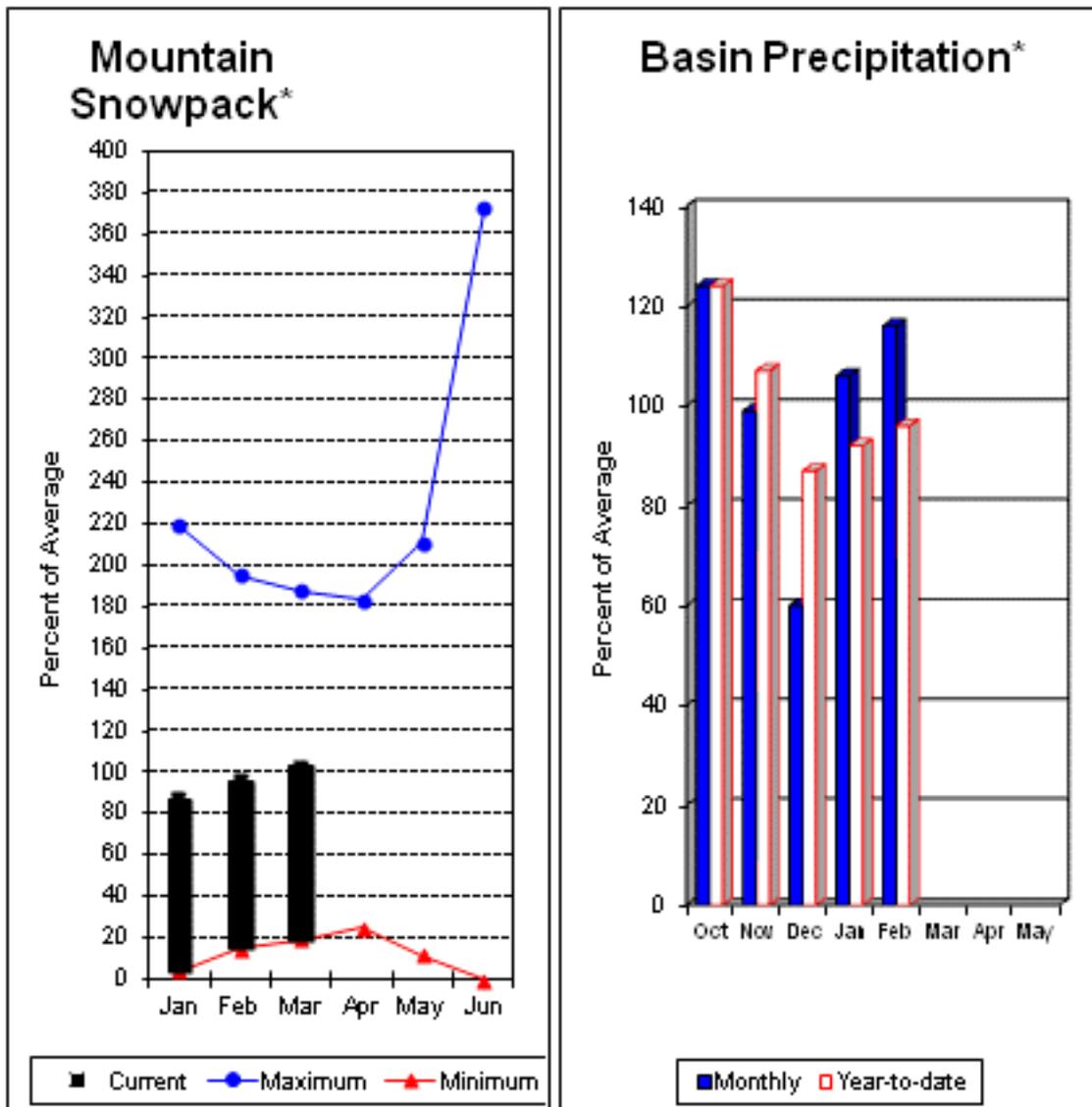
CENTRAL COLUMBIA RIVER BASINS Reservoir Storage (1000 AF) - End of February					CENTRAL COLUMBIA RIVER BASINS Watershed Snowpack Analysis - March 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
CHELAN LAKE	676.1	185.0	236.8	250.1	CHELAN LAKE BASIN	6	127	101
					ENTIAT RIVER	1	137	92
					WENATCHEE RIVER	9	128	96
					STEMILT CREEK	2	100	75
					COLOCKUM CREEK	2	99	86

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

The average is computed for the 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 Yakima River Basin



\*Based on selected stations

March 1 reservoir storage for the Upper Yakima reservoirs was 614,000-acre feet, 123% of average. Forecasts for the Yakima River at Cle Elum are 96% of average and the Teanaway River near Cle Elum is at 103%. Lake inflows are all forecasted to be near normal this summer. February streamflows within the basin were Cle Elum River near Roslyn at 74%. March 1 snowpack was 103% based upon 10 snow course and SNOTEL readings within the Upper Yakima Basin. Precipitation was 116% of average for February and 96% 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 - March 1, 2012

Forecast Point	Forecast Period	Future Conditions <<==== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)		
		90% (1000AF)		70% (1000AF)		Chance Of Exceeding * 50% (1000AF) (% AVG.)			30% (1000AF) 10% (1000AF)	
Keechelus Reservoir Inflow (2)	APR-JUL	95	112	124	103	136	153	121		
	APR-SEP	104	122	134	101	146	164	133		
Kachess Reservoir Inflow (2)	APR-JUL	88	102	112	101	122	136	111		
	APR-SEP	96	110	120	100	130	144	120		
Cle Elum Lake Inflow (2)	APR-JUL	350	385	410	100	435	470	410		
	APR-SEP	380	420	445	99	470	510	450		
Yakima R at Cle Elum (2)	APR-JUL	610	720	795	97	870	980	820		
	APR-SEP	660	780	865	96	950	1070	900		
Teanaway R bl Forks nr Cle Elum	APR-JUL	116	134	147	103	160	178	143		
	APR-SEP	119	137	150	103	163	181	146		

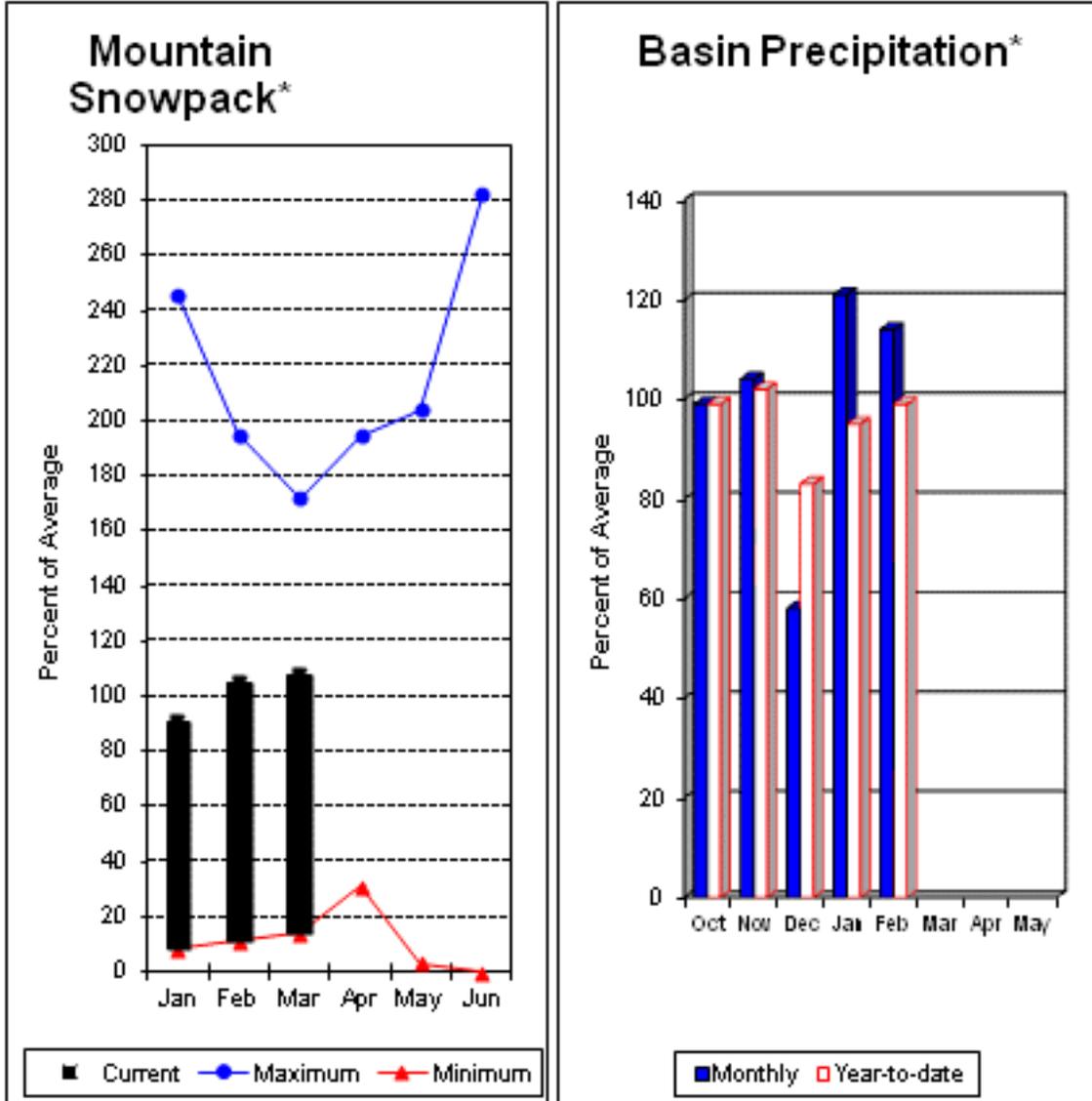
UPPER YAKIMA RIVER BASIN Reservoir Storage (1000 AF) - End of February					UPPER YAKIMA RIVER BASIN Watershed Snowpack Analysis - March 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
KEECHELUS	157.8	115.2	142.7	102.4	UPPER YAKIMA RIVER	10	144	103
KACHESS	239.0	172.7	211.5	154.7				
CLE ELUM	436.9	326.1	345.7	241.4				

\* 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.

## Lower Yakima River Basin



\*Based on selected stations

February average streamflows within the basin were: Yakima River near Parker, 77%; Naches River near Naches, 77%; and Yakima River at Kiona, 78%. March 1 reservoir storage for Bumping and Rimrock reservoirs was 175,000-acre feet, 127% of average. Forecast averages for Yakima River near Parker are 104%; American River near Nile, 98%; Ahtanum Creek, 116%; and Klickitat River near Glenwood, 103%. March 1 snowpack was 108% based upon 8 snow course and SNOTEL readings within the Lower Yakima Basin and Ahtanum Creek reported in at 106% of average. Precipitation was 114% of average for February and 99% year-to-date. Temperatures were slightly above normal for February and for the water year. Volume forecasts for Yakima Basin are for natural flow. As such, they March 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 - March 1, 2012

Forecast Point	Forecast Period	Future Conditions <<==== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)		
		90% (1000AF)		70% (1000AF)		50% (1000AF) (% AVG.)			30% (1000AF) 10% (1000AF)	
Bumping Lake Inflow (2)	APR-JUL	110	124	133	109	142	156	122		
	APR-SEP	117	131	145	110	151	165	132		
American R nr Nile	APR-JUL	87	99	107	99	115	127	108		
	APR-SEP	95	107	116	98	125	137	118		
Rimrock Lake Inflow (2)	APR-JUL	187	205	215	105	225	245	205		
	APR-SEP	225	240	255	106	270	285	240		
Naches R nr Naches (2)	APR-JUL	635	715	770	107	825	905	720		
	APR-SEP	690	775	830	106	895	980	780		
Ahtanum Ck at Union Gap	APR-JUL	25	31	35	117	39	45	30		
	APR-SEP	27	33	37	116	41	47	32		
Yakima R nr Parker (2)	APR-JUL	1530	1740	1880	104	2020	2230	1800		
	APR-SEP	1690	1900	2050	104	2200	2410	1980		
Klickitat R nr Glenwood	APR-JUL	106	120	130	103	140	154	126		
	APR-SEP	142	157	168	103	179	194	163		
Klickitat R nr Pitt	APR-JUL	400	445	480	104	515	560	460		
	APR-SEP	485	540	580	106	620	675	550		

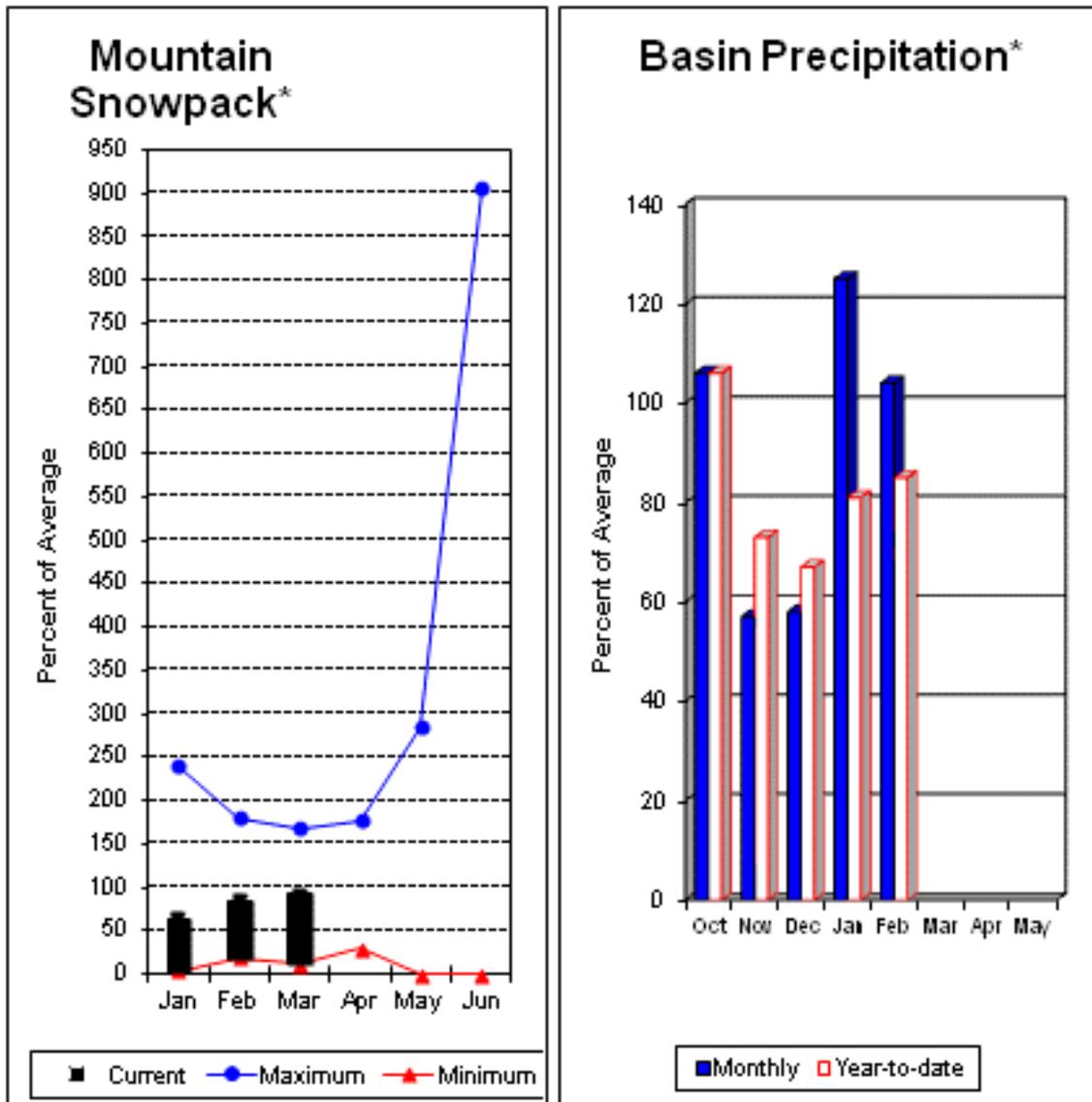
LOWER YAKIMA RIVER BASIN Reservoir Storage (1000 AF) - End of February					LOWER YAKIMA RIVER BASIN Watershed Snowpack Analysis - March 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
BUMPING LAKE	33.7	18.0	16.0	11.5	LOWER YAKIMA RIVER	8	123	108
RIMROCK	198.0	156.5	162.8	126.1	AHTANUM CREEK	3	139	106

\* 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

February precipitation was 104% of average, maintaining the year-to-date precipitation at 85% of average. Snowpack in the basin was 92% of average. Streamflow forecasts are 96% of average for Mill Creek and 88% for the SF Walla Walla near Milton-Freewater. February streamflow was 81% of average for the SF Walla Walla River. Average temperatures were 1-2 degrees below normal for February and 1-2 above for the water year.

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

# Walla Walla River Basin

## Streamflow Forecasts - March 1, 2012

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)		
		90%		70%		50%			30%	
		(1000AF)	(1000AF)	(1000AF)	(1000AF)	(1000AF)	(1000AF)		(1000AF)	(1000AF)
SF Walla Walla R nr Milton-Freewater	MAR-SEP	59	67	72	89	77	85	81		
	APR-JUL	37	43	47	87	51	57	54		
	APR-SEP	48	54	59	88	64	70	67		
Mill Ck nr Walla Walla	APR-JUL	16.1	20	23	96	26	30	24		
	APR-SEP	19.7	24	27	96	30	34	28		

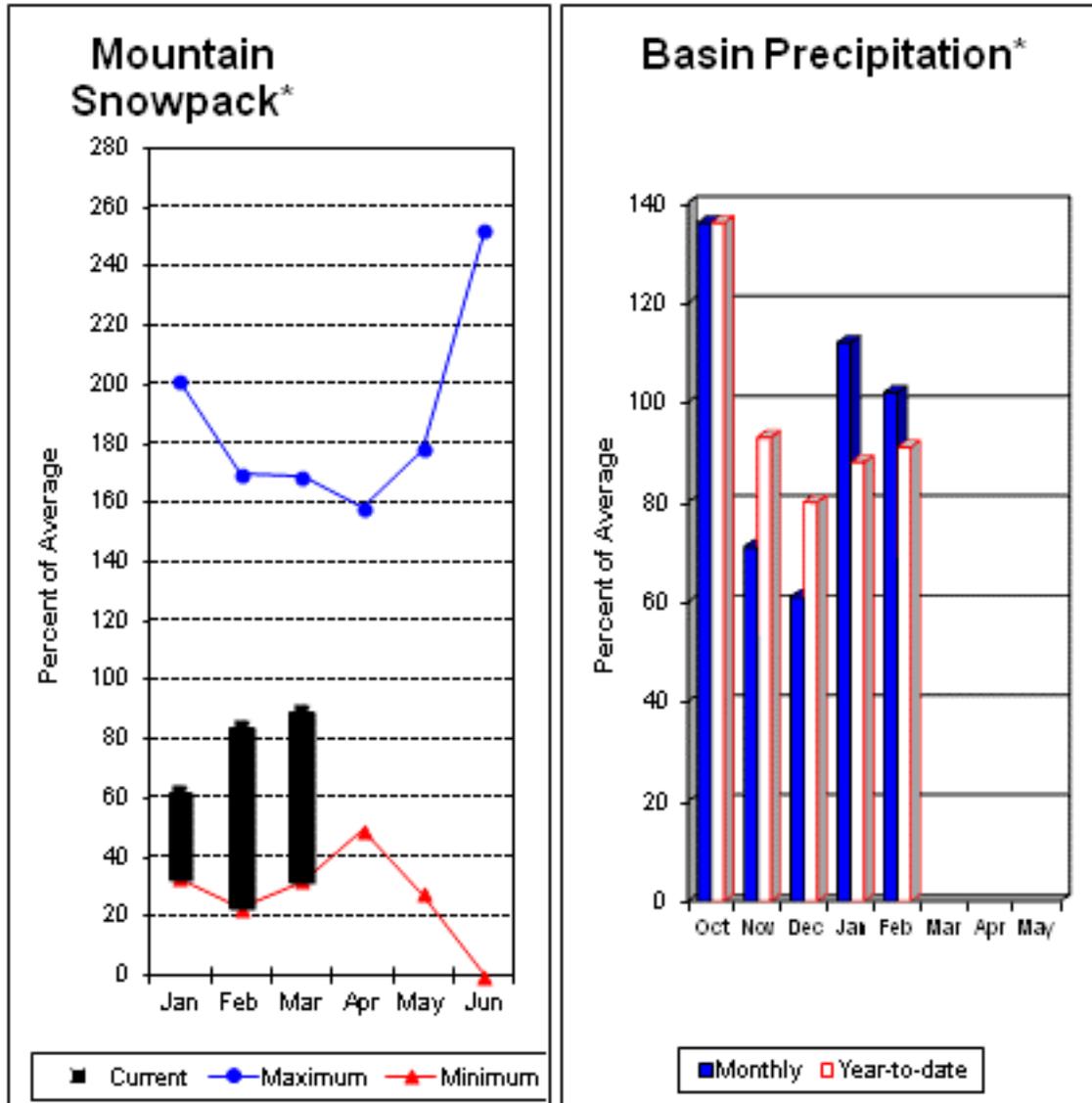
WALLA WALLA RIVER BASIN					WALLA WALLA RIVER BASIN			
Reservoir Storage (1000 AF) - End of February					Watershed Snowpack Analysis - March 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					WALLA WALLA RIVER	2	104	92

\* 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 102% for Clearwater River at Spalding. The Snake and Grande Ronde rivers can expect summer flows to be about 87% and 84% of normal respectively. The forecast for Asotin Creek at Asotin predicts 106% of average flows for the April – July runoff period. February precipitation was 102% of average, bringing the year-to-date precipitation to 91% of average. March 1 snowpack readings averaged 89% of average. February streamflow was 55% of average for Snake River below Lower Granite Dam and 51% for Grande Ronde River near Troy. Dworshak Reservoir storage was 104% of average. Average temperatures were near normal for February and for the water year.

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

# Lower Snake River Basin

## Streamflow Forecasts - March 1, 2012

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)				
Grande Ronde R at Troy (1)	MAR-JUL	905	1200	1330	84	1460	1760	1580
	APR-SEP	715	1010	1150	84	1290	1580	1370
Asotin Ck at Asotin	APR-JUL	22	31	37	106	43	52	35
Clearwater R at Spalding (1,2)	APR-JUL	5100	6750	7500	101	8250	9900	7430
	APR-SEP	5570	7220	7970	102	8720	10400	7850
Snake R bl Lower Granite Dam (1,2)	APR-JUL	11300	16300	18500	86	20800	25800	21550
	APR-SEP	12800	18400	20900	87	23500	29100	24140

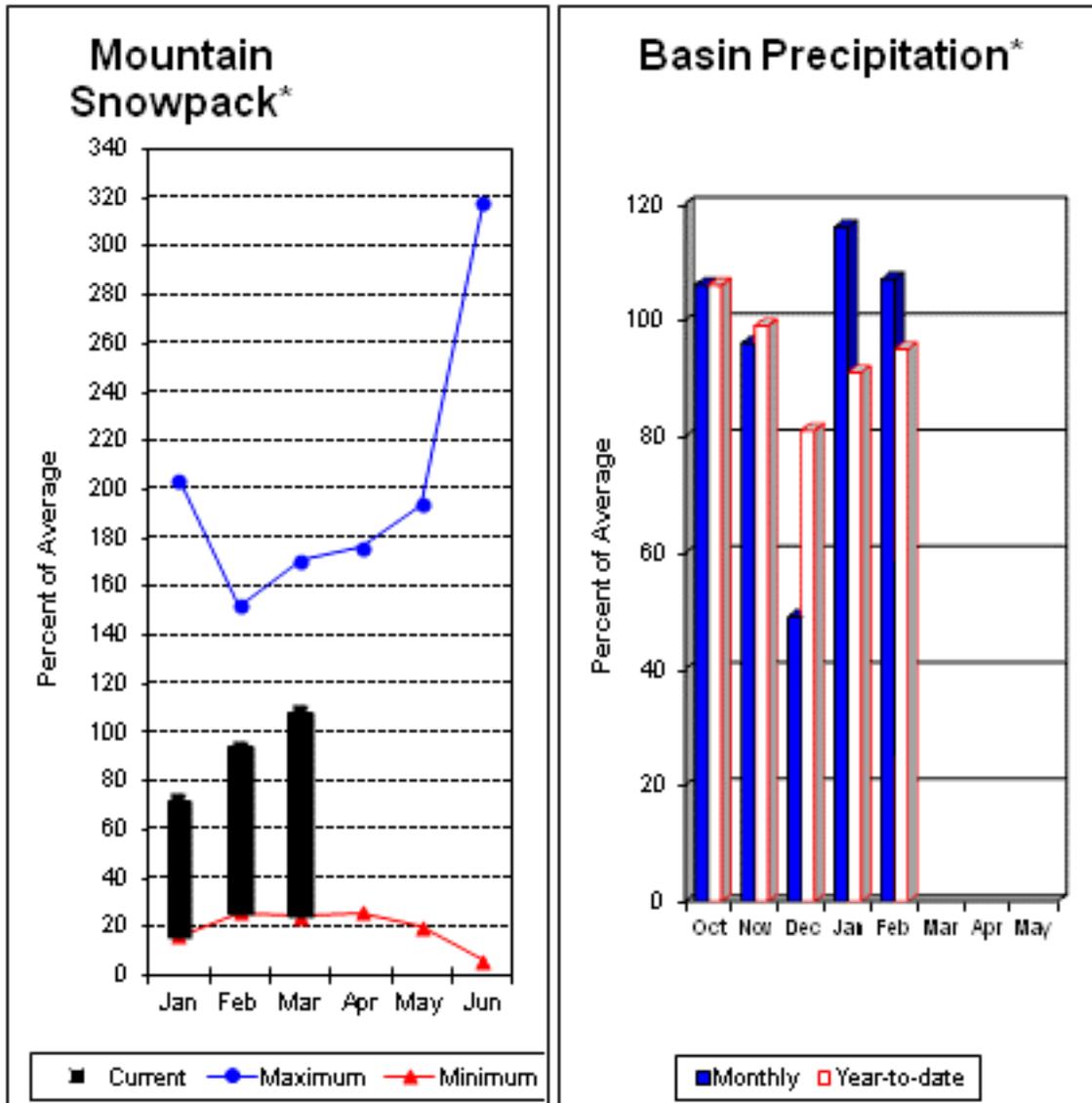
LOWER SNAKE RIVER BASIN Reservoir Storage (1000 AF) - End of February					LOWER SNAKE RIVER BASIN Watershed Snowpack Analysis - March 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
Dworshak	3468.0	2362.2	2043.4	2281.7	LOWER SNAKE, GRANDE RONDE	11	92	89

\* 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, 88% and Cowlitz River at Castle Rock, 98% of average. The Columbia at The Dalles is forecasted to have 96% of average flows this summer. February average streamflow for Cowlitz River was 108%. The Columbia River at The Dalles was 67% of average. February precipitation was 107% of average and the water-year average was 95%. June Lake SNOTEL had the highest rainfall total in the basin with 21 inches which is 91% of average. March 1 snow cover for Cowlitz River was 116%, and Lewis River was 100% of average. Temperatures were slightly below normal during February and near normal for the water year.

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

# Lower Columbia River Basins

## Streamflow Forecasts - March 1, 2012

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)	
Columbia R at The Dalles (2)	APR-JUL	67900	75000	79800	94	84600	91600	84600				
	APR-SEP	80800	89000	94600	96	100000	108000	98600				
Klickitat R nr Glenwood	APR-JUL	106	120	130	103	140	154	126				
	APR-SEP	142	157	168	103	179	194	163				
Klickitat R nr Pitt	APR-JUL	400	445	480	104	515	560	460				
	APR-SEP	485	540	580	106	620	675	550				
Lewis R at Ariel (2)	APR-JUL	640	805	920	89	1030	1200	1031				
	APR-SEP	745	920	1040	88	1160	1330	1176				
Cowlitz R bl Mayfield Dam (2)	APR-JUL	1210	1460	1630	97	1800	2050	1689				
	APR-SEP	1360	1660	1860	97	2060	2360	1922				
Cowlitz R at Castle Rock (2)	APR-JUL	1790	2070	2260	99	2450	2730	2295				
	APR-SEP	2080	2380	2590	98	2800	3100	2639				

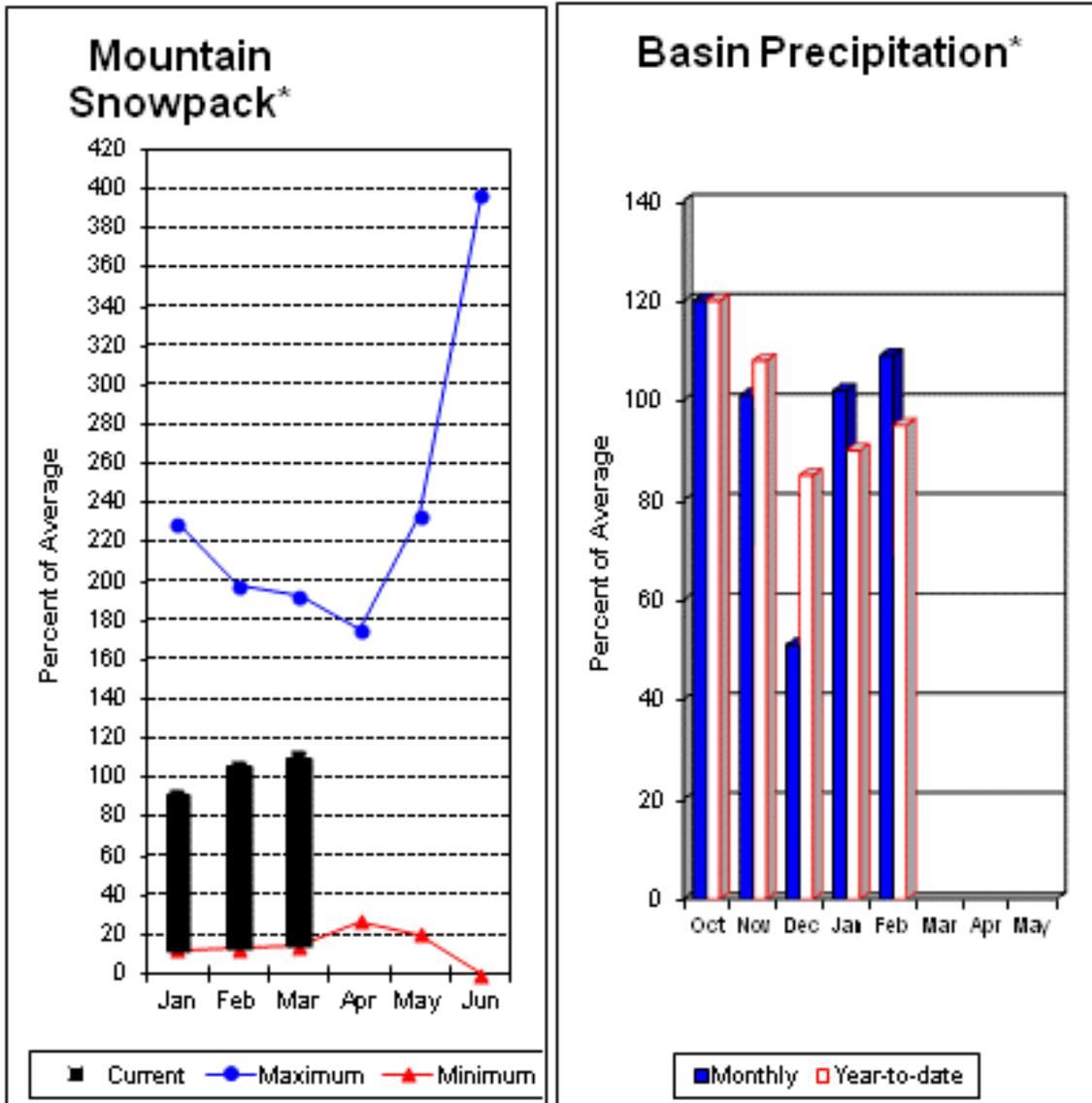
LOWER COLUMBIA RIVER BASINS Reservoir Storage (1000 AF) - End of February					LOWER COLUMBIA RIVER BASINS Watershed Snowpack Analysis - March 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
MOSSYROCK	0.0	1320.9	1243.2	---	LEWIS RIVER	5	98	100
SWIFT	0.0	596.0	700.1	---	COWLITZ RIVER	6	115	116
YALE	0.0	380.3	358.1	---				
MERWIN	0.0	237.5	417.9	---				

\* 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 99% of normal for the Green River below Howard Hanson Dam and 106% for the White River near Buckley. March 1 snowpack was 109% of average for the White River, 115% for Puyallup River and 106% in the Green River Basin. Water content on March 1 at Corral Pass SNOTEL, at an elevation of 6,000 feet, was 32 inches. This site has a March 1 average of 29.5 inches. February precipitation was 109% of average, bringing the water year-to-date to 95% of average for the basins. Average temperatures in the area were near normal for February and slightly below for the water-year.

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

# South Puget Sound River Basins

## Streamflow Forecasts - March 1, 2012

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 R nr Buckley (1)	APR-JUL APR-SEP	355 435	435 525	470 565	107 106	505 605	585 695	440 534
Green R bl Howard Hanson Dam (1,2)	APR-JUL APR-SEP	147 165	215 235	245 265	100 99	275 295	345 365	245 268

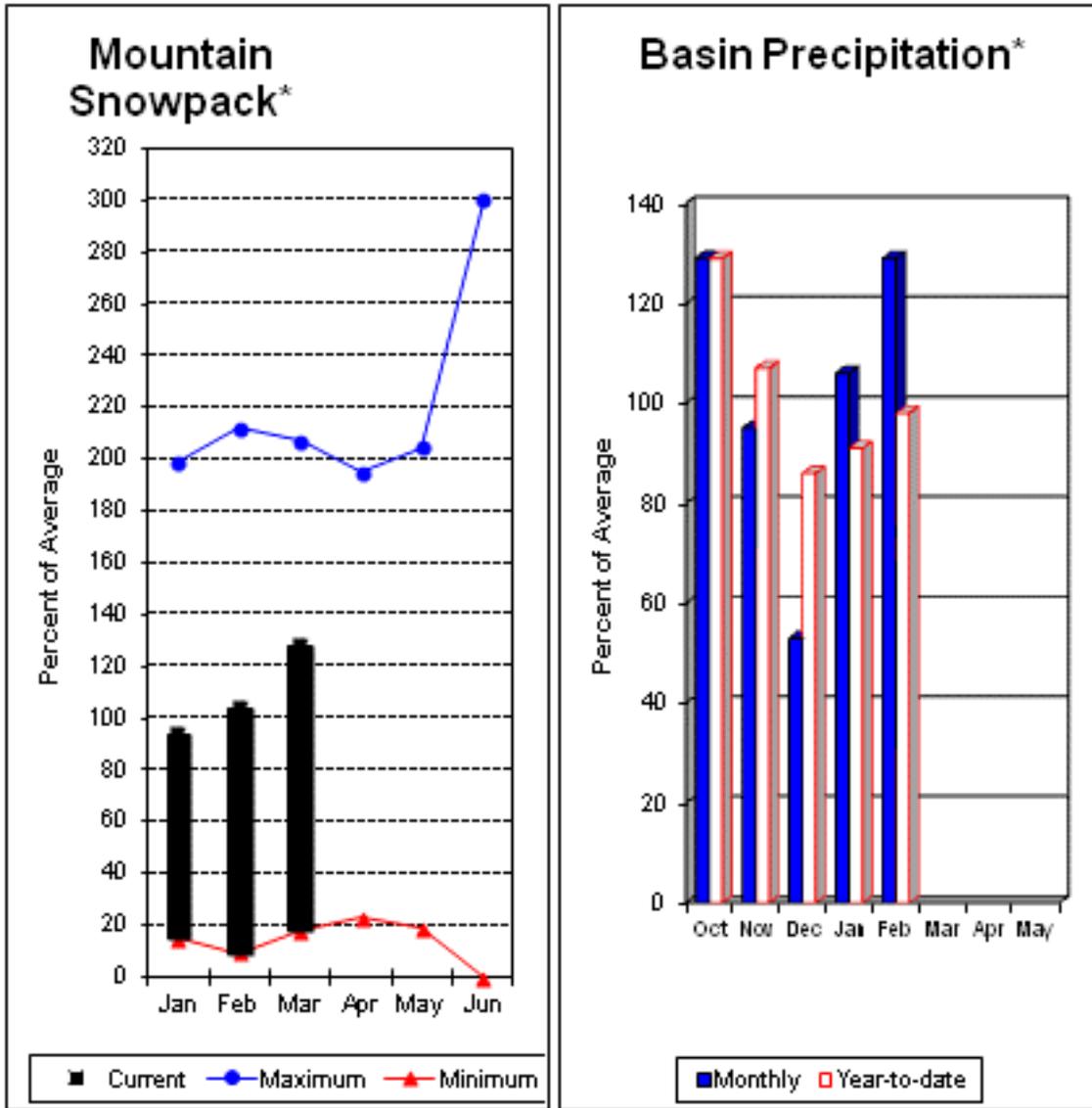
SOUTH PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of February					SOUTH PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - March 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					WHITE RIVER	3	114	109
					GREEN RIVER	3	176	106
					PUYALLUP RIVER	5	129	115

\* 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: 109% for Cedar River near Cedar Falls; 114% for Rex River; 108% for South Fork of the Tolt River; 104% for Taylor Creek near Selleck, and 112% for Cedar River at Cedar Falls. Basin-wide precipitation for February was 129% of average, bringing water-year-to-date to 98% of average. March 1 average snow cover in Cedar River Basin was 149%, Tolt River Basin was 135%, Snoqualmie River Basin was 118%, and Skykomish River Basin was 110%. Olallie Meadows SNOTEL site, at 3960 feet, had 55.2 inches of water content. Average March 1 water content is 48.9 inches at Olallie Meadows. Temperatures were near normal for February and 1 degree below for the water-year.

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

# Central Puget Sound River Basins

## Streamflow Forecasts - March 1, 2012

Forecast Point	Forecast Period	Future Conditions <<==== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)				
		90% (1000AF)		70% (1000AF)		Chance Of Exceeding * 50% (1000AF) (% AVG.)			30% (1000AF)		10% (1000AF)	
Cedar R nr Cedar Falls	APR-JUL	63	73	80	110	87	97	73				
	APR-SEP	69	80	87	109	94	105	80				
Rex R nr Cedar Falls	APR-JUL	21	26	29	116	32	37	25				
	APR-SEP	24	29	32	114	35	40	28				
Cedar R At Cedar Falls	APR-JUL	54	71	83	112	95	112	74				
	APR-SEP	56	71	82	112	93	108	73				
Taylor Creek Near Selleck	APR-JUL	16.0	19.0	21	105	23	26	20				
	APR-SEP	19.5	23	25	104	27	30	24				
SF Tolt R nr Index	APR-JUL	12.1	14.5	16.1	110	17.7	20	14.7				
	APR-SEP	13.8	16.5	18.3	108	20	23	16.9				

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

### CENTRAL PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - March 1, 2012

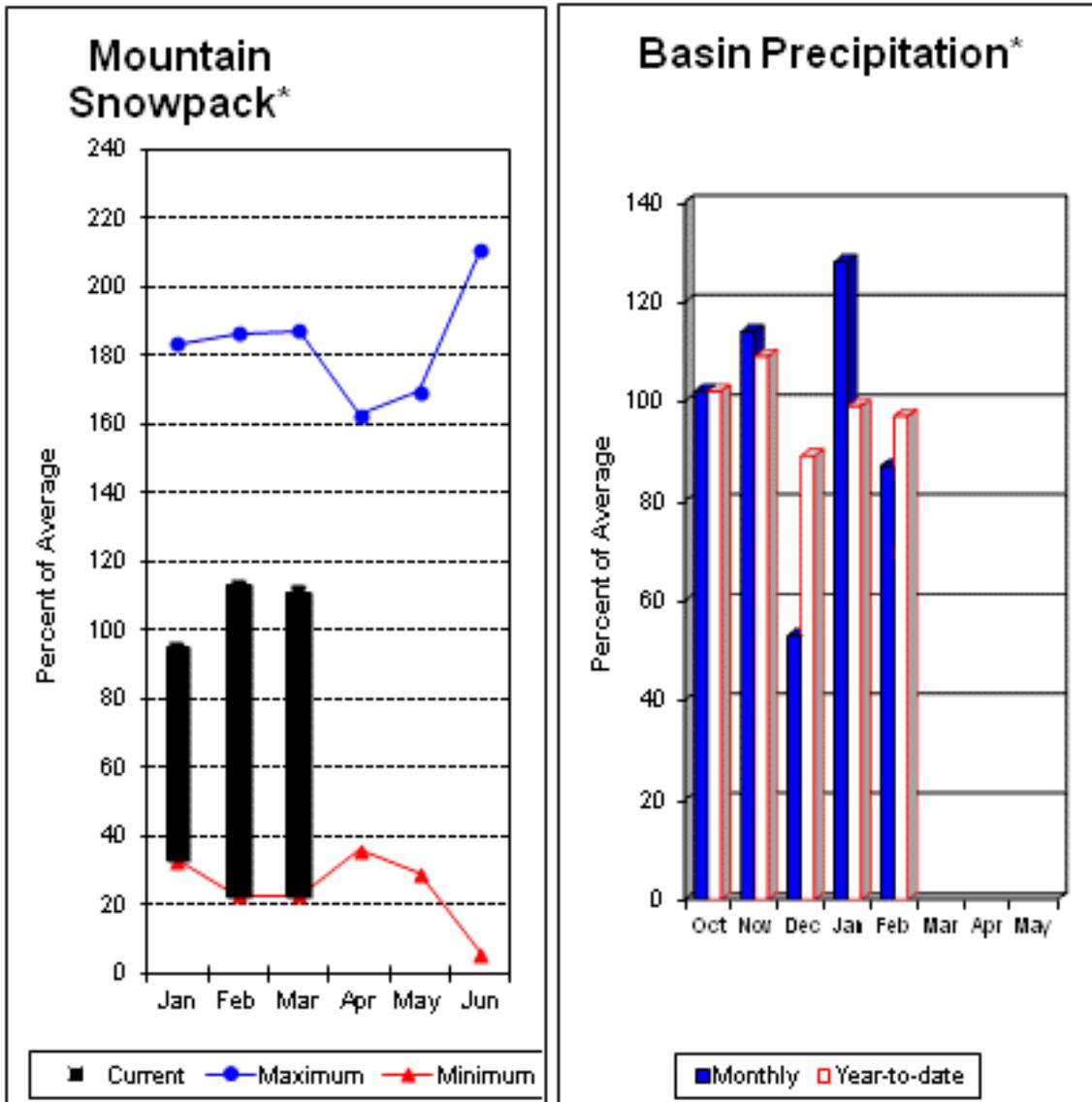
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					CEDAR RIVER	6	175	149
					TOLT RIVER	3	178	135
					SNOQUALMIE RIVER	5	167	118
					SKYKOMISH RIVER	3	155	110

\* 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.

# North Puget Sound River Basins



\*Based on selected stations

Forecast for Skagit River streamflow at Newhalem is 102% of average for the spring and summer period. February streamflow in Skagit River was 72% of average. Other forecast points included Baker River at 87% and Thunder Creek at 102% of average. Basin-wide precipitation for February was 87% of average, bringing water-year-to-date to 97% of average. March 1 average snow cover in Skagit River Basin was 110%, Nooksack River Basin was 114% and Baker River Basin was 109% of average. Rainy Pass SNOTEL, at 4,780 feet, had 38.7 inches of water content. Average March 1 water content is 33.8 inches at Rainy Pass. March 1 Skagit River reservoir storage was 94% of average and 57% of capacity. Average temperatures for February were slightly below normal for the basin and for the water year.

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

# North Puget Sound River Basins

## Streamflow Forecasts - March 1, 2012

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.)	
Thunder Ck Nr Newhalem	APR-JUL	205	225	240	103	255	275	234
	APR-SEP	300	325	340	102	355	380	333
Skagit R At Newhalem	APR-JUL	1660	1810	1910	103	2010	2160	1864
	APR-SEP	1970	2140	2250	102	2360	2530	2217
Baker R nr Concrete (2)	APR-JUL	575	670	735	89	800	895	828
	APR-SEP	700	830	915	87	1000	1130	1050

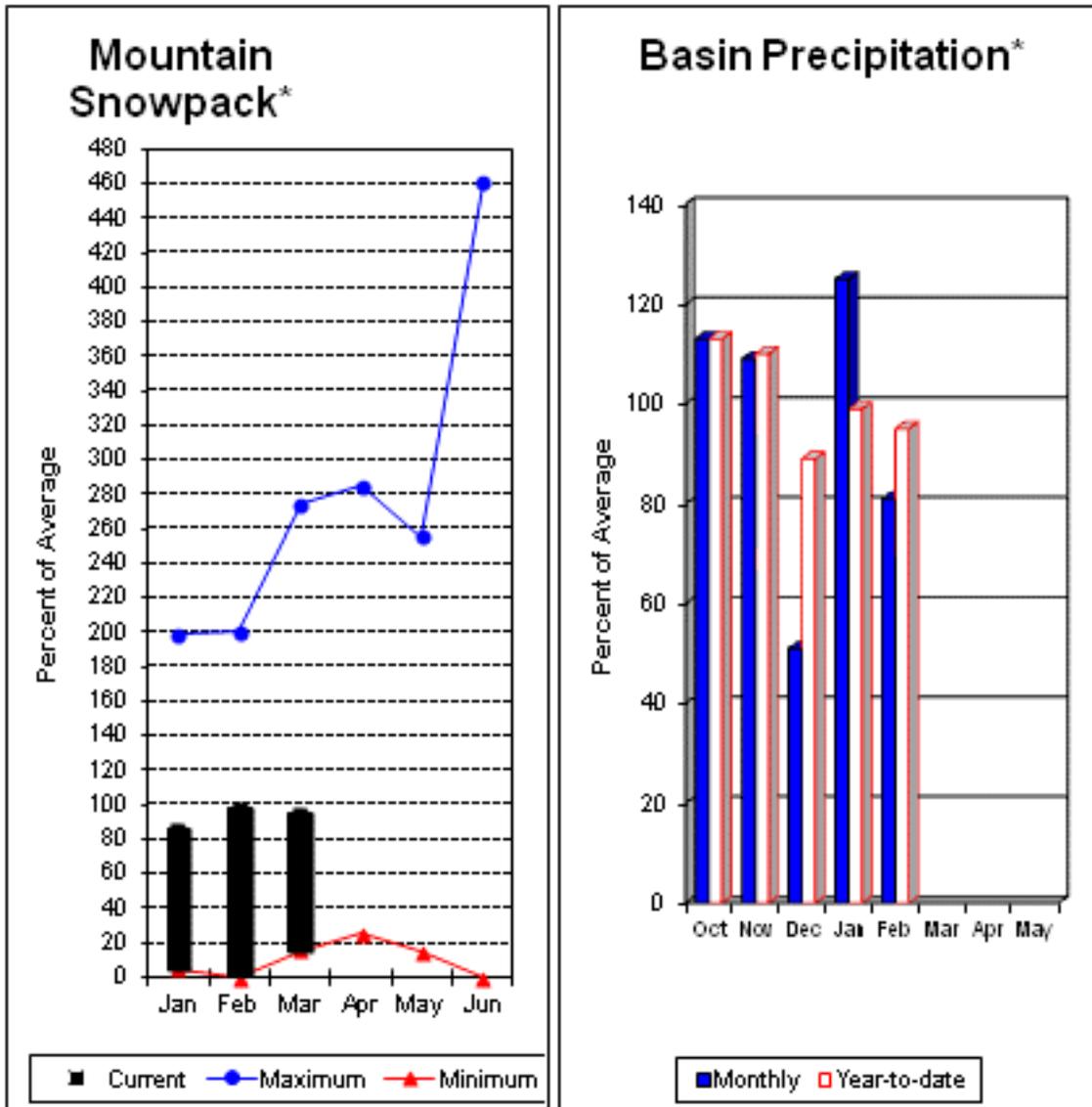
NORTH PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of February					NORTH PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - March 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
ROSS	1404.1	766.6	907.9	818.3	SKAGIT RIVER	16	124	110
DIABLO RESERVOIR	90.6	85.7	86.2	85.7	BAKER RIVER	7	127	109
					NOOKSACK RIVER	3	128	114

\* 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.

# Olympic Peninsula River Basins



\*Based on selected stations

Forecasted average runoff for streamflow for the Dungeness River is 95% and Elwha River is 94%. February runoff in the Dungeness River was 73% of normal. Big Quilcene and Wynoochee rivers should expect near average runoff this summer as well. February precipitation was 81% of average. Precipitation has accumulated at 95% of average for the water year. February precipitation at Quillayute was 11.4 inches. The thirty-year average for February is 12.35 inches. Olympic Peninsula snowpack averaged 95% of normal on March 1. Temperatures were near average for February and for the water year.

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

# Olympic Peninsula River Basins

## Streamflow Forecasts - March 1, 2012

Forecast Point	Forecast Period	Future Conditions <<==== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)				
		90% (1000AF)		70% (1000AF)		50% (1000AF) (% AVG.)			30% (1000AF)		10% (1000AF)	
		Chance Of Exceeding *										
Dungeness R Nnr Sequim	APR-JUL	97	110	119	96	128	141	124				
	APR-SEP	116	133	144	95	155	172	152				
Elwha R At Mcdonald Bridge	APR-JUL	330	370	400	96	430	470	419				
	APR-SEP	385	440	475	94	510	565	503				

OLYMPIC PENINSULA RIVER BASINS Reservoir Storage (1000 AF) - End of February					OLYMPIC PENINSULA RIVER BASINS Watershed Snowpack Analysis - March 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					OLYMPIC PENINSULA	6	88	95

\* 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.

*Issued by*

**Dave White**  
**Chief**  
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*Released by*

**Roylene Rides At The Door**  
**State Conservationist**  
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**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

