

# Washington Water Supply Outlook Report January 1, 2012



# 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

## January 2012

### General Outlook

The water year started off great with near to above average precipitation for both October and November. Healthy snow came early which helped most local ski areas open by or before the holidays but just when conditions were looking bright someone turned off the faucet. With one of the driest and warmest Decembers in recent history we really fell behind until the very last week of the month. Even then the North Cascades was the only region that experienced significant snowpack increases. Several rain-on-snow events actually caused snowpack loss at lower elevations. Short term forecasts indicate mostly dry conditions through mid month however national climate forecasters are sticking to their original La Nina forecast for cold and wet through March.

### Snowpack

The January 1 statewide SNOTEL readings were 85% but vary greatly across the state. So far we have received about 37% of our annual total snowfall. Normally we would have received 40-42% by this time of year. The Entiat River data near Wenatchee reported the lowest readings at 36% of average. Readings from the Cedar River reported the highest at 116% of average. Westside averages from SNOTEL, and January 1 snow surveys, included the North Puget Sound river basins with 95% of average, the Central Puget river basins with 94%, and the Lewis-Cowlitz basins with 72% of average. Snowpack along the east slopes of the Cascade Mountains included the Yakima area with 89% and the Wenatchee area with 66%. Snowpack in the Spokane River Basin was at 68% and the Walla Walla River Basin had 63% of average. Maximum snow cover in Washington was at Lyman Lake SNOTEL, with water content of 25.2 inches. The 30-year average for Lyman Lake on January 1 is 29.7 inches leaving the site at only 85% of average.

BASIN	PERCENT OF LAST YEAR	PERCENT OF AVERAGE
Spokane	73	68
Newman Lake	70	79
Pend Oreille	77	78
Okanogan	91	80
Methow	101	90
Conconully Lake	60	62
Wenatchee	99	80
Chelan	119	89
Upper Yakima	96	87
Lower Yakima	80	91
Ahtanum Creek	81	85
Walla Walla	51	63
Lower Snake	65	62
Cowlitz	72	79
Lewis	49	64
White	80	93
Green	82	82
Puyallup	92	97
Cedar	103	119
Snoqualmie	120	92
Skykomish	111	76
Skagit	100	98
Baker	104	N/A
Nooksack	104	92
Olympic Peninsula	49	86

## Precipitation

During the month of December, the National Weather Service and Natural Resources Conservation Service climate stations reported much below average precipitation totals throughout Washington river basins. The highest percent of average in the state was at Rainy Pass SNOTEL in the North Cascades which reported 77% of average for a total of 6.8 inches. The average for Rainy Pass is 8.85 inches for December. The wettest spot in the state was reported at June Lake SNOTEL with a December accumulation of 13.7 inches, only 48% of normal. Record low precipitation accumulation was set at 5 SNOTEL sites, with at least 10-years worth of data, in the state last month: Mount Crag; 3.6"/normally 10.10", Dungeness; 2.7"/5.8", Alpine Meadows; 10.6"/23.2", Elbow Lake; 9.9"/21.9" and Swift Creek; 11.2"/27.9".

RIVER BASIN	DECEMBER PERCENT OF AVERAGE	WATER YEAR PERCENT OF AVERAGE
Spokane .....	51 .....	74
Pend Oreille .....	49 .....	86
Upper Columbia .....	49 .....	83
Central Columbia .....	56 .....	82
Upper Yakima .....	60 .....	87
Lower Yakima .....	58 .....	83
Walla Walla .....	58 .....	67
Lower Snake .....	61 .....	80
Lower Columbia .....	49 .....	81
South Puget Sound .....	51 .....	85
Central Puget Sound .....	53 .....	86
North Puget Sound .....	53 .....	89
Olympic Peninsula .....	51 .....	89

## 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 527,000-acre feet, 132% of average for the Upper Reaches and 144,000-acre feet or 130% of average for Rimrock and Bumping Lakes. Storage at the Okanogan reservoirs was 116% of average for January 1. The power generation reservoirs included the following: Coeur d'Alene Lake, 51,000 acre feet, 46% of average and 21% of capacity; Chelan Lake, 310,000-acre feet, 78% of average and 46 of capacity; and the Skagit River reservoirs at 98% of average and 81% 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 .....	21 .....	46
Pend Oreille .....	41 .....	95
Upper Columbia .....	80 .....	116
Central Columbia .....	46 .....	78
Upper Yakima .....	63 .....	132
Lower Yakima .....	62 .....	130
Lower Snake .....	65 .....	91
North Puget Sound .....	81 .....	98

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## Streamflow

Forecasts vary from 62% of average for the Similkameen near Nighthawk to 98% of average for Thunder Creek near Newhalem. April-September forecasts for some Western Washington streams include the Cedar River near Cedar Falls, 91%; White River, 90%; and Skagit River, 90%. Some Eastern Washington streams include the Yakima River near Parker, 84%; Wenatchee River at Plain, 78%; and Spokane River near Post Falls, 83%. 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.

Due to an extremely dry month runoff was much below average throughout the state. The Methow River had the highest reported flows with only 86% of average. The Spokane at Spokane with 42% of average was the lowest in the state however that could be due to reservoir control. Other streamflows were the following percentage of average as reported by the River Forecast Center: the Cowlitz at Castle Rock, 57%; the Stehekin at Stehekin, 37%; the Columbia below Rock Island Dam, 70%; and the Cle Elum near Roslyn, 50%.

BASIN	PERCENT OF AVERAGE (50 PERCENT CHANCE OF EXCEEDENCE)
Spokane .....	66-84
Pend Oreille .....	71-85
Upper Columbia .....	62-92
Central Columbia .....	77-97
Upper Yakima .....	81-90
Lower Yakima .....	75-86
Walla Walla .....	82-84
Lower Snake .....	79-86
Lower Columbia .....	83-88
South Puget Sound .....	78-90
Central Puget Sound .....	76-96
North Puget Sound .....	86-98
Olympic Peninsula .....	84-85

STREAM	PERCENT OF AVERAGE DECEMBER STREAMFLOWS
Pend Oreille Below Box Canyon .....	70
Kettle at Laurier .....	50
Columbia at Birchbank .....	85
Spokane at Long Lake .....	42
Similkameen at Nighthawk .....	78
Okanogan at Tonasket .....	77
Methow at Pateros .....	86
Chelan at Chelan .....	46
Wenatchee at Pashastin .....	47
Cle Elum near Roslyn .....	50
Yakima at Parker .....	56
Naches at Naches .....	53
Grande Ronde at Troy .....	42
Snake below Lower Granite Dam .....	78
SF Walla Walla near Milton Freewater .....	52
Columbia River at The Dalles .....	75
Cowlitz below Mayfield Dam .....	61
Skagit at Concrete .....	65
Dungeness near Sequim .....	56

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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. Rain-on-snow events of late December also boosted levels to near saturation at some sites for several days which is good and bad in that it helps the profile but also means a reduction in snow water content by early melt.

BASIN	ESTIMATED PERCENT SATURATION
Spokane .....	57
Pend Oreille .....	52
Upper Columbia .....	29
Central Columbia .....	47
Upper Yakima .....	64
Lower Yakima .....	79
Walla Walla .....	67
Lower Snake .....	69
Lower Columbia .....	82
South Puget Sound .....	82
Central Puget Sound .....	N/A
North Puget Sound .....	88
Olympic Peninsula .....	39

BASIN SUMMARY OF  
SNOW COURSE DATA

JANUARY 2012

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
ALPINE MEADOWS SNTL	3500	1/01/12	34	14.7	13.9	20.1	MARTEN RIDGE SNOTEL	3520	1/01/12	60	23.6	22.8	--
ASHLEY DIVIDE	4820	12/28/11	8	1.9	5.2	3.4	MEADOWS CABIN	1900	12/26/11	0	.0	1.2	--
BADGER PASS SNOTEL	6900	1/01/12	56	15.4	12.3	15.2	MEADOWS PASS SNOTEL	3230	1/01/12	38	14.5	12.7	9.6
BARKER LAKES SNOTEL	8250	1/01/12	24	5.3	6.3	6.7	M F NOOKSACK SNOTEL	4970	1/01/12	52	25.5	20.7	26.1
BARNES CREEK CAN.	5320	12/31/11	28	6.7	9.3	10.9	MICA CREEK SNOTEL	4510	1/01/12	21	6.9	8.7	11.7
BASIN CREEK SNOTEL	7180	1/01/12	14	2.6	3.9	3.7	MISSION CREEK CAN.	5840	1/01/12	27	6.1	8.1	9.3
BEAVER CREEK TRAIL	2200	12/29/11	19	5.8	11.0	--	MONASHEE PASS CAN.	4500	12/31/11	19	4.3	--	6.6
BEAVER PASS	3680	12/31/11	47	11.8	16.5	--	MORSE LAKE SNOTEL	5410	1/01/12	73	22.4	25.9	23.4
BEAVER PASS SNOTEL	3630	1/01/12	---	20.5	18.4	18.8	MOSES MTN SNOTEL	5010	1/01/12	19	4.6	6.3	7.1
BLACK PINE SNOTEL	7100	1/01/12	23	4.7	5.6	5.2	MOSQUITO RDG SNOTEL	5200	1/01/12	49	13.6	15.6	15.5
BLACKWALL PILL CAN.	6370	1/01/12	48	12.8	16.4	15.4	MOUNT CRAG SNOTEL	3960	1/01/12	32	7.8	21.1	11.6
BLEWETT PASS#2SNOTEL	4240	1/01/12	24	6.3	8.1	8.2	MT. KOBAU CAN.	5500	12/31/11	22	4.9	--	5.4
BROWN TOP AM	6000	12/26/11	62	19.0	24.5	--	MOWICH SNOTEL	3160	1/01/12	1	.3	.4	.4
BUCKINGHORSE SNOTEL	4870	1/01/12	53	19.7	36.8	--	MOUNT GARDNER SNOTEL	2920	1/01/12	15	5.9	9.7	7.4
BUMPING LAKE (NEW)	3400	1/04/12	23	6.8	10.0	7.2	N.F. ELK CR SNOTEL	6250	1/01/12	21	4.7	6.3	5.1
BUMPING RIDGE SNOTEL	4610	1/01/12	41	11.4	13.2	12.1	NEVADA RIDGE SNOTEL	7020	1/01/12	31	6.7	7.6	6.8
BUNCHGRASS MDWSNOTEL	5000	1/01/12	40	10.0	10.3	12.6	NEW HOZOOBEN LAKE	2800	12/26/11	16	5.0	4.2	--
BURNT MOUNTAIN PILL	4170	1/01/12	23	7.1	6.4	5.7	NEZ PERCE CMP SNOTEL	5650	1/01/12	23	5.5	6.0	6.1
CALAMITY SNOTEL	2500	1/01/12	0	.0	3.4	--	NOISY BASIN SNOTEL	6040	1/01/12	36	9.0	28.1	19.8
CAYUSE PASS SNOTEL	5240	1/01/12	65	18.6	28.5	--	OLALLIE MDWS SNOTEL	4030	1/01/12	62	24.5	19.4	22.2
CHESSMAN RESERVOIR	6200	12/27/11	11	2.1	1.5	1.5	OPHIR PARK	7150	1/01/12	24	5.1	7.6	6.6
COMBINATION SNOTEL	5600	1/01/12	8	2.1	2.5	2.2	PARADISE SNOTEL	5130	1/01/12	57	24.4	29.0	32.8
COPPER BOTTOM SNOTEL	5200	1/01/12	11	3.3	5.6	5.3	PARK CK RIDGE SNOTEL	4600	1/01/12	68	19.9	16.7	22.5
CORRAL PASS SNOTEL	5800	1/01/12	50	14.3	14.8	15.8	PEPPER CREEK SNOTEL	2140	1/01/12	3	1.7	5.1	--
COUGAR MTN. SNOTEL	3200	1/01/12	17	5.1	7.8	8.5	PETERSON MDW SNOTEL	7200	1/01/12	21	4.2	4.2	4.4
COYOTE HILL	4200	12/29/11	10	2.4	4.6	4.3	PIGTAIL PEAK SNOTEL	5800	1/01/12	70	20.9	22.9	23.1
DALY CREEK SNOTEL	5780	1/01/12	19	5.0	5.1	4.9	PIKE CREEK SNOTEL	5930	1/01/12	25	5.3	8.7	12.0
DEVILS PARK	5900	12/28/11	90	23.6	20.1	--	PIPESTONE PASS	7200	12/30/11	7	1.3	2.1	2.2
DISCOVERY BASIN	7050	12/30/11	18	3.3	4.7	4.2	POPE RIDGE SNOTEL	3590	1/01/12	34	3.5	7.5	9.8
DIX HILL	6400	1/01/12	21	4.6	6.1	4.5	POTATO HILL SNOTEL	4510	1/01/12	41	10.4	15.7	12.4
DOMMERIE FLATS	2200	1/04/12	8	2.5	6.2	3.9	QUARTZ PEAK SNOTEL	4700	1/01/12	25	8.1	11.5	10.2
DUNGENESS SNOTEL	4010	1/01/12	6	2.6	9.3	3.5	RAGGED MOUNTAIN	4200	12/31/11	21	8.1	10.6	9.9
ELBOW LAKE SNOTEL	3200	1/01/12	32	12.6	14.7	15.4	RAGGED MTN SNOTEL	4210	1/01/12	22	7.5	11.7	--
EMERY CREEK SNOTEL	4350	1/01/12	14	4.3	7.7	7.0	RAINY PASS SNOTEL	4890	1/01/12	69	19.1	14.3	19.9
FARRON CAN.	4000	12/31/11	28	5.6	--	6.1	RAINY PASS	4780	12/28/11	52	14.4	12.7	--
FISH LAKE SNOTEL	3430	1/01/12	52	12.9	10.9	15.0	REX RIVER SNOTEL	3810	1/01/12	43	16.6	13.2	13.0
FLATTOP MTN SNOTEL	6300	1/01/12	67	16.8	19.0	21.4	ROCKER PEAK SNOTEL	8000	1/01/12	31	6.5	6.9	6.4
FOURTH OF JULY SUM	3200	12/30/11	7	2.2	3.9	3.7	SADDLE MTN SNOTEL	7900	1/01/12	46	9.3	12.7	11.7
FREEZEOUT CK. TRAIL	3500	12/31/11	30	7.6	6.6	--	SALMON MDWS SNOTEL	4460	1/01/12	11	3.3	5.5	5.3
FROHNER MDWS SNOTEL	6480	1/01/12	20	4.5	3.9	3.4	SASSE RIDGE SNOTEL	4340	1/01/12	57	14.1	12.0	14.7
GRAVE CRK SNOTEL	4300	1/01/12	20	4.9	7.2	7.7	SAVAGE PASS SNOTEL	6170	1/01/12	46	11.0	11.8	11.7
GRAYSTOKE LAKE CAN.	5500	12/30/11	19	5.5	--	--	SAWMILL RIDGE SNOTEL	4640	1/01/12	---	12.9	17.4	--
GREEN LAKE SNOTEL	5920	1/01/12	38	9.6	10.6	10.7	SENTINEL BT SNOTEL	4680	1/01/12	15	2.4	4.9	4.0
GROUSE CAMP SNOTEL	5390	1/01/12	29	6.9	9.1	9.6	SHEEP CANYON SNOTEL	3990	1/01/12	32	11.0	24.0	15.4
HAND CREEK SNOTEL	5030	1/01/12	17	3.9	6.4	5.9	SHERWIN SNOTEL	3200	1/01/12	---	2.7	5.2	5.1
HARTS PASS SNOTEL	6490	1/01/12	72	19.8	22.0	21.7	SKALKAHO SNOTEL	7260	1/01/12	42	9.3	9.9	10.3
HARTS PASS	6500	12/29/11	65	19.4	20.8	--	SKOOKUM CREEK SNOTEL	3310	1/01/12	30	12.8	7.9	10.8
HELL ROARING DIVIDE	5770	12/27/11	24	4.9	13.9	13.4	SOURDOUGH GUL SNOTEL	4000	1/01/12	1	.5	1.3	--
HIGH RIDGE SNOTEL	4920	1/01/12	29	6.9	16.8	10.4	SPENCER MDW SNOTEL	3400	1/01/12	20	7.6	16.9	12.5
HOLBROOK	4530	12/31/11	10	1.9	3.9	4.2	SPIRIT LAKE SNOTEL	3520	1/01/12	2	1.9	3.5	3.6
HOODOO BASIN SNOTEL	6050	1/01/12	66	16.4	17.5	19.3	SPRUCE SPGS SNOTEL	5700	1/01/12	16	4.2	5.1	7.4
HUCKLEBERRY SNOTEL	2250	1/01/12	1	.8	1.2	1.0	STAHL PEAK SNOTEL	6030	1/01/12	40	11.1	19.8	17.1
HUMBOLDT GLCH SNOTEL	4250	1/01/12	---	6.4	5.5	6.0	STAMPEDE PASS SNOTEL	3850	1/01/12	44	14.5	14.4	19.4
INDIAN ROCK SNOTEL	5360	1/01/12	27	10.0	21.8	--	STEVENS PASS SNOTEL	3950	1/01/12	63	15.1	12.9	19.1
ISINTOK LAKE CAN.	5100	12/29/11	13	2.4	2.3	3.4	STORM LAKE	7780	12/30/11	24	5.7	5.0	5.5
JUNE LAKE SNOTEL	3440	1/01/12	30	10.1	23.5	17.1	SUMMERLAND RES CAN.	4200	12/29/11	19	4.2	3.2	4.5
KELLOGG PEAK	5560	12/30/11	24	6.2	15.7	11.7	SUNSET SNOTEL	5540	1/01/12	---	7.6	8.9	13.6
KLESILKWA CAN.	3450	12/30/11	17	4.4	3.3	4.6	SURPRISE LKS SNOTEL	4290	1/01/12	43	13.4	24.6	20.3
KRAFT CREEK SNOTEL	4750	1/01/12	15	4.9	7.1	6.9	SWAMP CREEK SNOTEL	3930	1/01/12	41	10.5	6.6	9.6
LOLO PASS SNOTEL	5240	1/01/12	49	11.2	11.6	13.0	SWIFT CREEK SNOTEL	4440	1/01/12	44	17.9	32.4	24.0
LONE PINE SNOTEL	3930	1/01/12	27	10.8	22.7	16.2	TEN MILE LOWER	6600	12/27/11	18	3.5	3.1	3.0
LOOKOUT SNOTEL	5140	1/01/12	39	10.2	13.6	13.7	THUNDER BASIN SNOTEL	4320	1/01/12	46	14.4	12.7	15.7
LOST HORSE SNOTEL	5120	1/01/12	22	6.6	9.3	8.3	TINKHAM CREEK SNOTEL	2990	1/01/12	36	13.4	13.2	12.3
LOST LAKE SNOTEL	6110	1/01/12	57	16.0	20.4	27.1	TOUCHET SNOTEL	5530	1/01/12	26	8.8	13.7	14.7
LUBRECHT FOREST NO 3	5450	12/27/11	8	1.3	3.8	2.7	TROUGH #2 SNOTEL	5480	1/01/12	15	3.9	6.6	5.3
LUBRECHT FOREST NO 4	4650	12/27/11	3	.8	2.7	1.4	TRUMAN CREEK	4060	12/28/11	9	2.5	4.1	2.0
LUBRECHT FOREST NO 6	4040	12/27/11	10	1.7	3.3	1.6	TUNNEL AVENUE	2450	1/04/12	24	6.0	11.3	8.3
LUBRECHT HYDROPLOT	4200	12/27/11	12	1.9	3.7	2.5	TWELVEMILE SNOTEL	5600	1/01/12	30	7.9	6.1	7.5
LUBRECHT SNOTEL	4680	1/01/12	12	2.9	3.5	2.6	TWIN LAKES SNOTEL	6400	1/01/12	55	15.6	15.0	17.5
LYMAN LAKE SNOTEL	5980	1/01/12	91	25.2	22.6	29.7	TWIN SPIRIT DIVIDE	3480	12/31/11	7	3.2	3.6	6.6
LYNN LAKE	4000	1/01/12	30	10.0E	--	8.2	UPPER WHEELER SNOTEL	4330	1/01/12	11	3.0	6.0	5.9
LYNN LAKE SNOTEL	3900	1/01/12	29	10.0	7.7	--	WARM SPRINGS SNOTEL	7800	1/01/12	38	8.5	9.7	9.4
MARIAS PASS	5250	12/23/11	16	4.1	7.7	7.3	WATERHOLE SNOTEL	5010	1/01/12	42	14.6	20.8	14.0
							WEASEL DIVIDE	5450	1/04/12	43	11.7	13.7	15.2
							WELLS CREEK SNOTEL	4030	1/01/12	44	13.4	14.0	14.2
							WHITE PASS ES SNOTEL	4440	1/01/12	23	9.2	11.2	10.7



Natural Resources Conservation Service

Washington State  
Snow, Water and Climate Services

## Program Contacts

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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

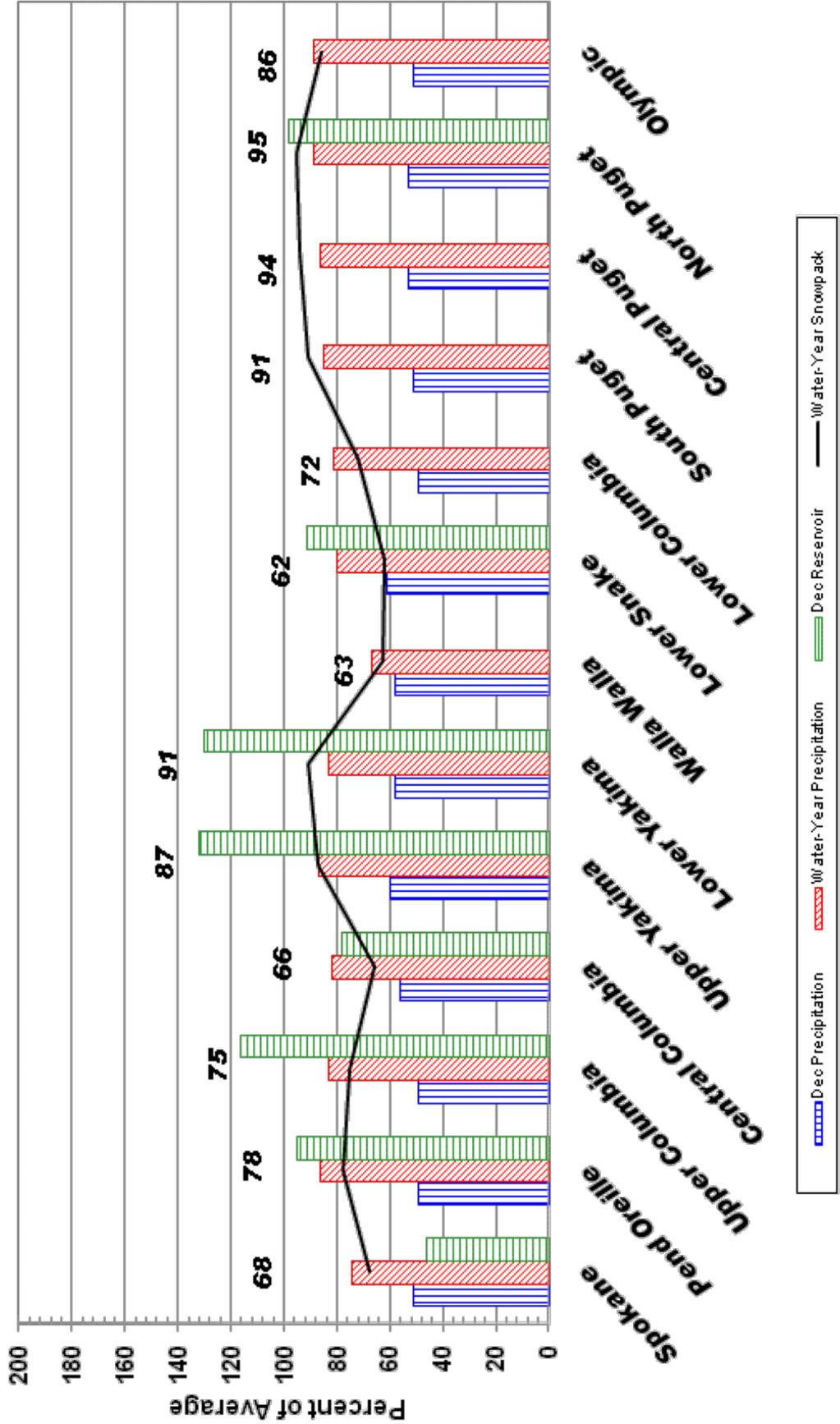
Washington:  
<http://www.wa.nrcs.usda.gov>

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



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

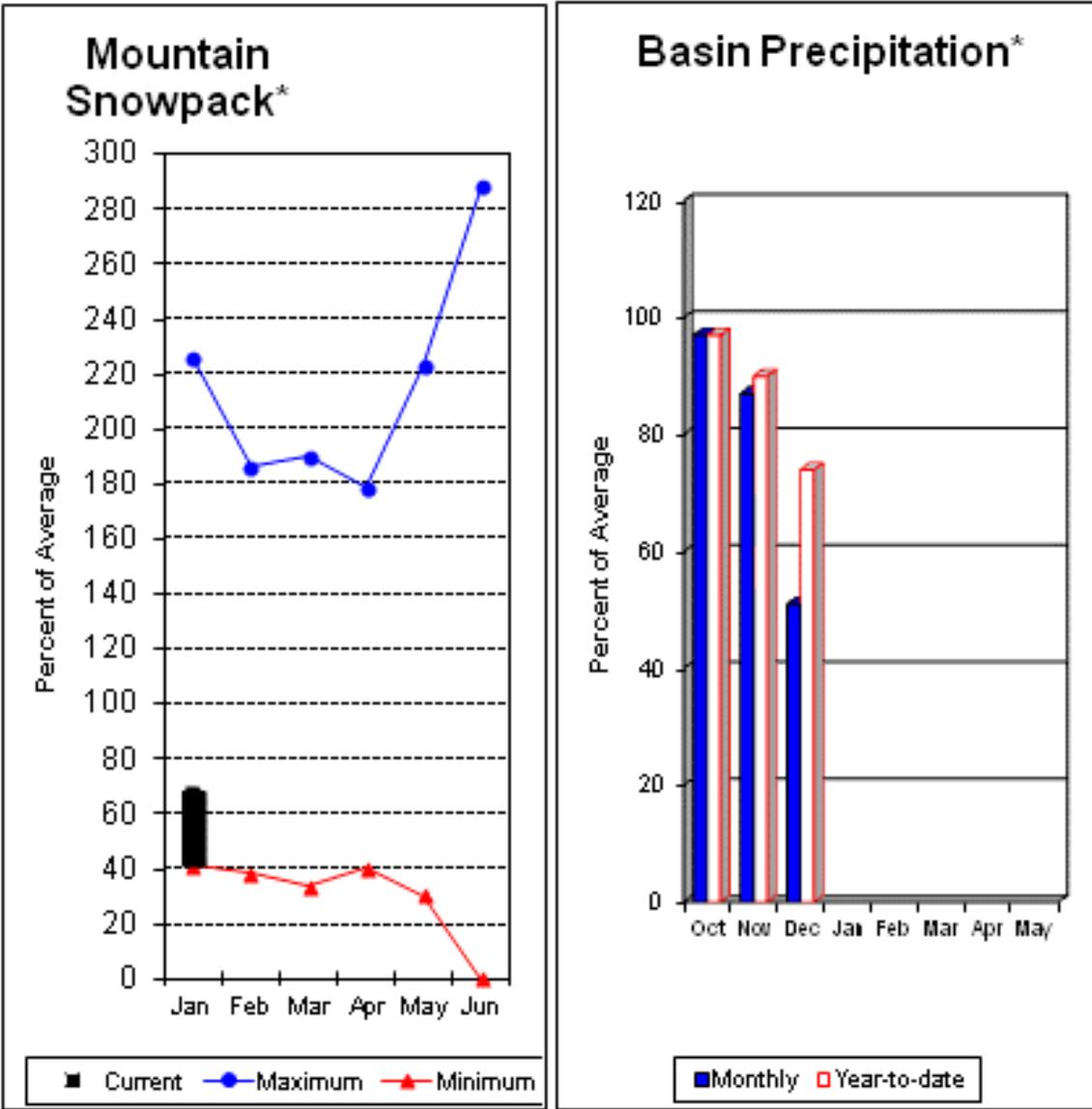
(Water Year = October 1, 2011 - Current Date)



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# Spokane River Basin



\*Based on selected stations

The January 1 forecasts for summer runoff within the Spokane River Basin are 83% of average near Post Falls and 84% at Long Lake. The Chamokane River near Long Lake forecasted to have 66% of average flows for the May-August period. The forecast is based on a basin snowpack that is 68% of average and precipitation that is 74% of average for the water year. Precipitation for December was below normal at 51% of average. Streamflow on the Spokane River at Long Lake was 46% of average for December. January 1 storage in Coeur d'Alene Lake was 51,000acre feet, 46% of average and 21% of capacity. Snowpack at Quartz Peak SNOTEL site was 79% of average with 8.1 inches of water content. Average temperatures in the Spokane basin were 1-3 degrees above normal for December and slightly above normal for the water year.

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

# Spokane River Basin

## Streamflow Forecasts - January 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.)				
Spokane R nr Post Falls (2)	APR-JUL	1210	1750	2120	83	2480	3020	2550
	APR-SEP	1280	1830	2200	83	2570	3120	2650
Spokane R at Long Lake (2)	APR-JUL	1370	1980	2390	84	2800	3410	2850
	APR-SEP	1530	2160	2590	84	3020	3650	3070
Chamokane Ck nr Long Lake	MAY-AUG	3.3	5.3	6.7	66	8.1	10.1	10.2

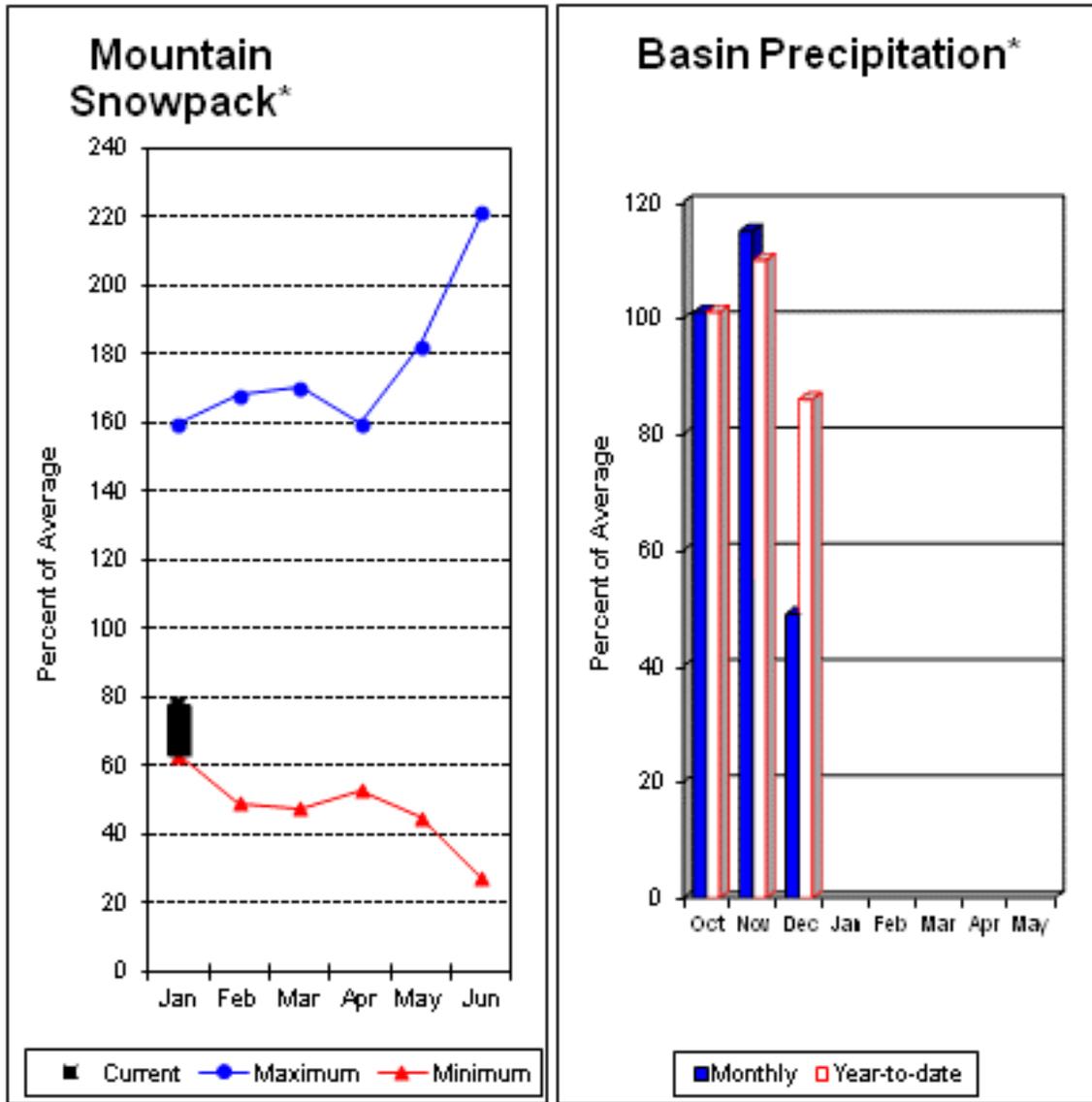
SPOKANE RIVER BASIN Reservoir Storage (1000 AF) - End of December					SPOKANE RIVER BASIN Watershed Snowpack Analysis - January 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
COEUR D'ALENE	238.5	50.9	134.2	110.1	SPOKANE RIVER	12	73	68
					NEWMAN LAKE	1	70	79

\* 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 71% and the Pen Orielle below Box Canyon is 85%. December streamflow was 70% of average on the Pend Oreille River and 85% on the Columbia Birchbank. January 1 snow cover was 78% of average in the Pend Oreille Basin River Basin. Bunchgrass Meadows SNOTEL site had 10 inches of snow water on the snow pillow. Normally Bunchgrass would have 12.6 inches on January 1. Precipitation during December was 49% of average, dropping the year-to-date precipitation to 86% of average. Reservoir storage in the basin, including Lake Pend Oreille and Priest Lake was 95% of normal. Average temperatures were slightly below normal for December and near normal for the water year.

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

# Pend Oreille River Basins

## Streamflow Forecasts - January 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)				
Pend Oreille Lake Inflow (2)	APR-JUL	7790	9480	10600	84	11800	13500	12700
	APR-SEP	8670	10400	11600	84	12800	14600	13900
Priest R nr Priest River (1,2)	APR-JUL	345	485	580	71	675	815	815
	APR-SEP	370	520	620	71	720	870	870
Pend Oreille R bl Box Canyon (2)	APR-JUL	8110	9830	11000	85	12200	13900	12900
	APR-SEP	8970	10800	12000	85	13200	15000	14100

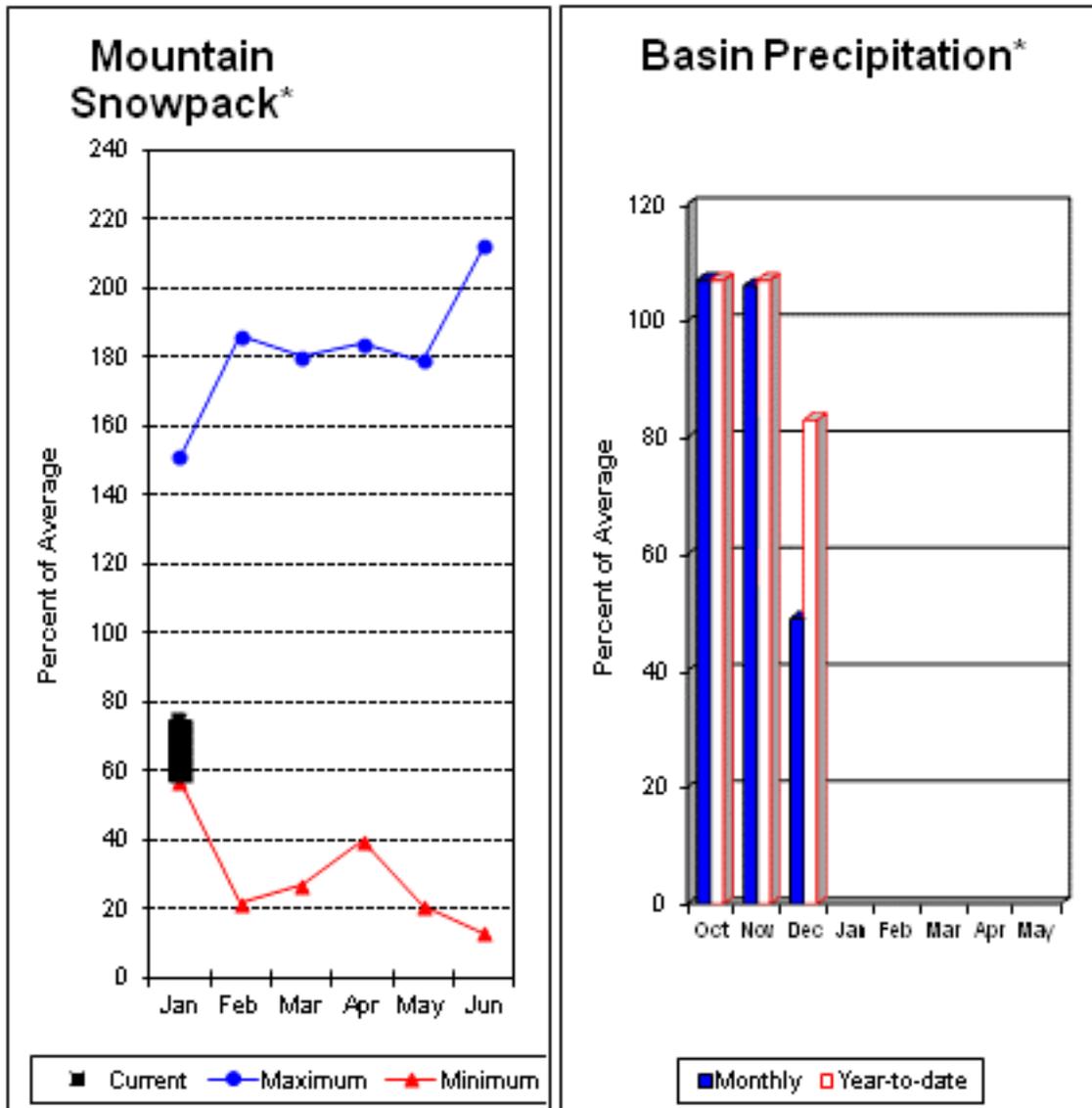
PEND OREILLE RIVER BASINS Reservoir Storage (1000 AF) - End of December					PEND OREILLE RIVER BASINS Watershed Snowpack Analysis - January 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
PEND OREILLE	1561.3	641.0	880.5	673.4	COLVILLE RIVER	0	0	0
PRIEST LAKE	119.3	53.2	53.6	55.7	PEND OREILLE RIVER	8	89	81
					KETTLE RIVER	1	49	60

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

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

- (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 90%, Similkameen River is 62%, Kettle River 85% and Methow River is 83%. January 1 snow cover on the Okanogan was 80% of average, Omak Creek was 65% and the Methow was 90%. December precipitation in the Upper Columbia was 49% of average, with precipitation for the water year at 83% of average. December streamflow for the Methow River was 86% of average, 77% for the Okanogan River and 78% for the Similkameen. Snow-water content at Salmon Meadows SNOTEL was 3.3 inches. Average for this site is 5.3 inches on January 1. Combined storage in the Conconully Reservoirs was 19,000-acre feet, which is 80% of capacity and 116% of the January 1 average. Temperatures were 2-3 degrees above normal for December and near average for the water year.

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

# Upper Columbia River Basins

## Streamflow Forecasts - January 1, 2012

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
Colville R at Kettle Falls	APR-JUL	10.0	54	84	66	114	158	128
	APR-SEP	12.0	60	93	66	126	174	141
Kettle R nr Laurier	APR-JUL	1070	1390	1600	86	1810	2130	1870
	APR-SEP	1120	1450	1680	85	1910	2240	1970
Columbia R at Birchbank (1,2)	APR-JUL	23300	29000	31600	91	34100	39800	34900
	APR-SEP	29700	36900	40100	92	43300	50500	43500
Columbia R at Grand Coulee (2)	APR-JUL	41700	44900	46400	86	47900	51100	53800
	APR-SEP	38400	50800	56500	88	62200	74700	64000
Similkameen R nr Nighthawk (1)	APR-JUL	400	710	850	63	990	1300	1350
	APR-SEP	420	755	905	62	1060	1390	1450
Okanogan R nr Tonasket (1)	APR-JUL	685	1200	1430	91	1660	2180	1580
	APR-SEP	740	1320	1590	90	1860	2440	1770
Okanogan R at Malott (1)	APR-JUL	700	1240	1480	91	1720	2260	1630
	APR-SEP	755	1360	1640	90	1920	2530	1830
Methow R nr Pateros	APR-SEP	520	695	815	83	935	1110	985
	APR-JUL	480	645	760	84	875	1040	910

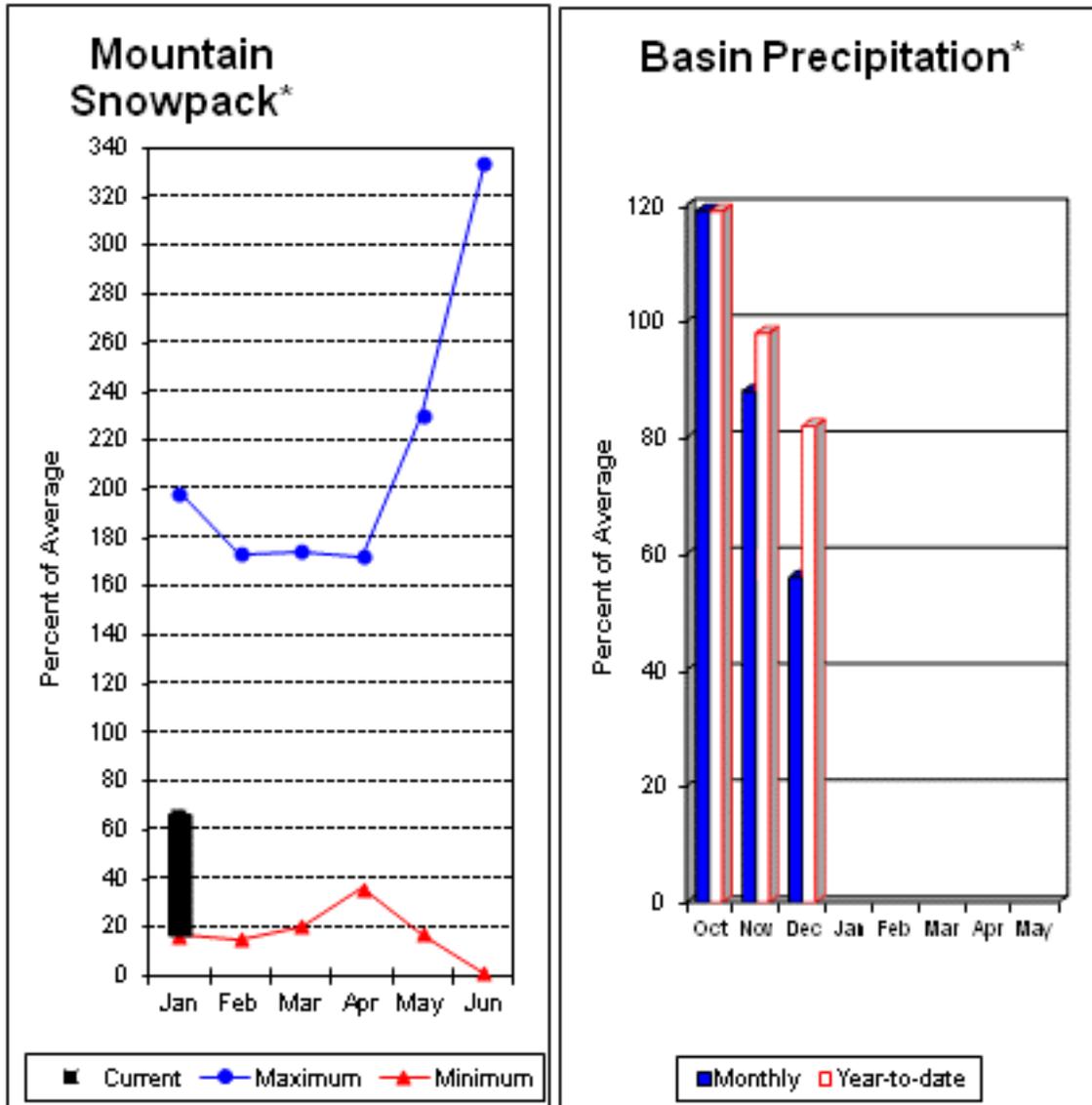
UPPER COLUMBIA RIVER BASINS Reservoir Storage (1000 AF) - End of December					UPPER COLUMBIA RIVER BASINS Watershed Snowpack Analysis - January 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
SALMON LAKE	10.5	8.4	8.6	8.5	OKANOGAN RIVER	2	90	86
CONCONULLY RESERVOIR	13.0	10.4	11.3	7.7	OMAK CREEK	1	73	65
					SANPOIL RIVER	0	0	0
					SIMILKAMEEN RIVER	0	0	0
					TOATS COULEE CREEK	0	0	0
					CONCONULLY LAKE	1	60	62
					METHOW RIVER	3	101	90

\* 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 December was 56% of average in the basin and 82% for the year-to-date. Runoff for Entiat River is forecast to be 69% of average for the summer. The January-September average forecast for Chelan River is 87%, Wenatchee River at Plain is 78%, Stehekin River is 97% and Icicle Creek is 77%. December average streamflows on the Chelan River were 46% and on the Wenatchee River 47%. January 1 snowpack in the Wenatchee River Basin was 80% of average; the Chelan, 89%; the Entiat, 36%; Stemilt Creek, 51% and Colockum Creek, 74%. Reservoir storage in Lake Chelan was 310,000-acre feet, 78% of January 1 average and 46% of capacity. Lyman Lake SNOTEL had the most snow water with 25.2 inches of water. This site would normally have 29.7 inches on January 1. Temperatures were slightly above normal for December and near normal for the water year.

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

# Central Columbia River Basins

## Streamflow Forecasts - January 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.)	
Stehekin R at Stehekin	APR-JUL	525	615	680	97	745	835	700
	APR-SEP	635	735	805	97	875	975	830
Chelan R at Chelan (2)	APR-JUL	710	830	910	87	990	1110	1050
	APR-SEP	800	945	1040	87	1140	1280	1190
Entiat R nr Ardenvoir	APR-JUL	93	127	150	70	173	205	215
	APR-SEP	104	140	165	69	190	225	240
Wenatchee R at Plain	APR-JUL	585	735	835	78	935	1080	1070
	APR-SEP	645	810	920	78	1030	1190	1180
Icicle Ck nr Leavenworth	APR-JUL	173	215	240	77	265	305	310
	APR-SEP	190	230	260	77	290	330	340
Wenatchee R at Peshastin	APR-JUL	825	1020	1160	78	1300	1500	1480
	APR-SEP	895	1120	1270	78	1420	1640	1630
Columbia R bl Rock Island Dam (2)	APR-JUL	37500	45500	50900	86	56300	64200	59000
	APR-SEP	46000	55400	61700	89	68100	77400	69500

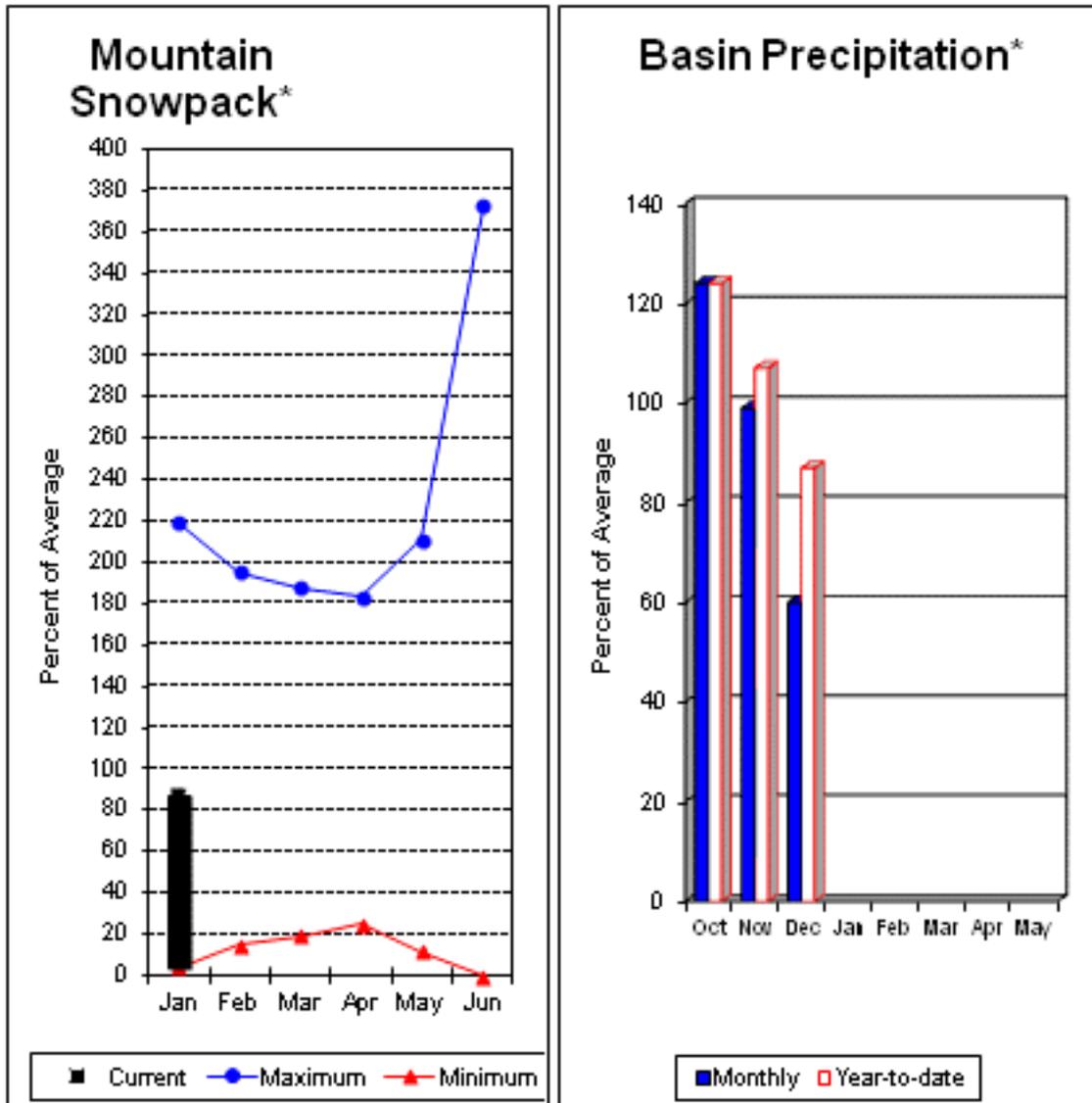
CENTRAL COLUMBIA RIVER BASINS Reservoir Storage (1000 AF) - End of December					CENTRAL COLUMBIA RIVER BASINS Watershed Snowpack Analysis - January 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
CHELAN LAKE	676.1	309.9	322.8	396.9	CHELAN LAKE BASIN	3	119	89
					ENTIAT RIVER	1	47	36
					WENATCHEE RIVER	6	99	80
					STEMILT CREEK	1	50	51
					COLOCKUM CREEK	1	59	74

\* 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

January 1 reservoir storage for the Upper Yakima reservoirs was 527,000-acre feet, 132% of average. Forecasts for the Yakima River at Cle Elum are 86% of average and the Teanaway River near Cle Elum is at 81%. Lake inflows are all forecasted to be slightly below this summer. December streamflows within the basin were Cle Elum River near Roslyn at 99%. January 1 snowpack was 87% based upon 8 snow course and SNOTEL readings within the Upper Yakima Basin. Precipitation was 60% of average for December and 87% 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 - January 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% (% AVG.)	50% (% AVG.)	
Keechelus Reservoir Inflow (2)	APR-JUL	72	95	110	91	125	148	121
	APR-SEP	81	104	120	90	136	159	133
Kachess Reservoir Inflow (2)	APR-JUL	63	84	99	89	114	135	111
	APR-SEP	71	92	106	88	120	141	120
Cle Elum Lake Inflow (2)	APR-JUL	260	325	370	90	415	480	410
	APR-SEP	285	355	400	89	445	515	450
Yakima R at Cle Elum (2)	APR-JUL	470	610	705	86	800	940	820
	APR-SEP	520	670	770	86	870	1020	900
Teanaway R bl Forks nr Cle Elum	APR-JUL	59	93	116	81	139	173	143
	APR-SEP	61	95	118	81	141	175	146

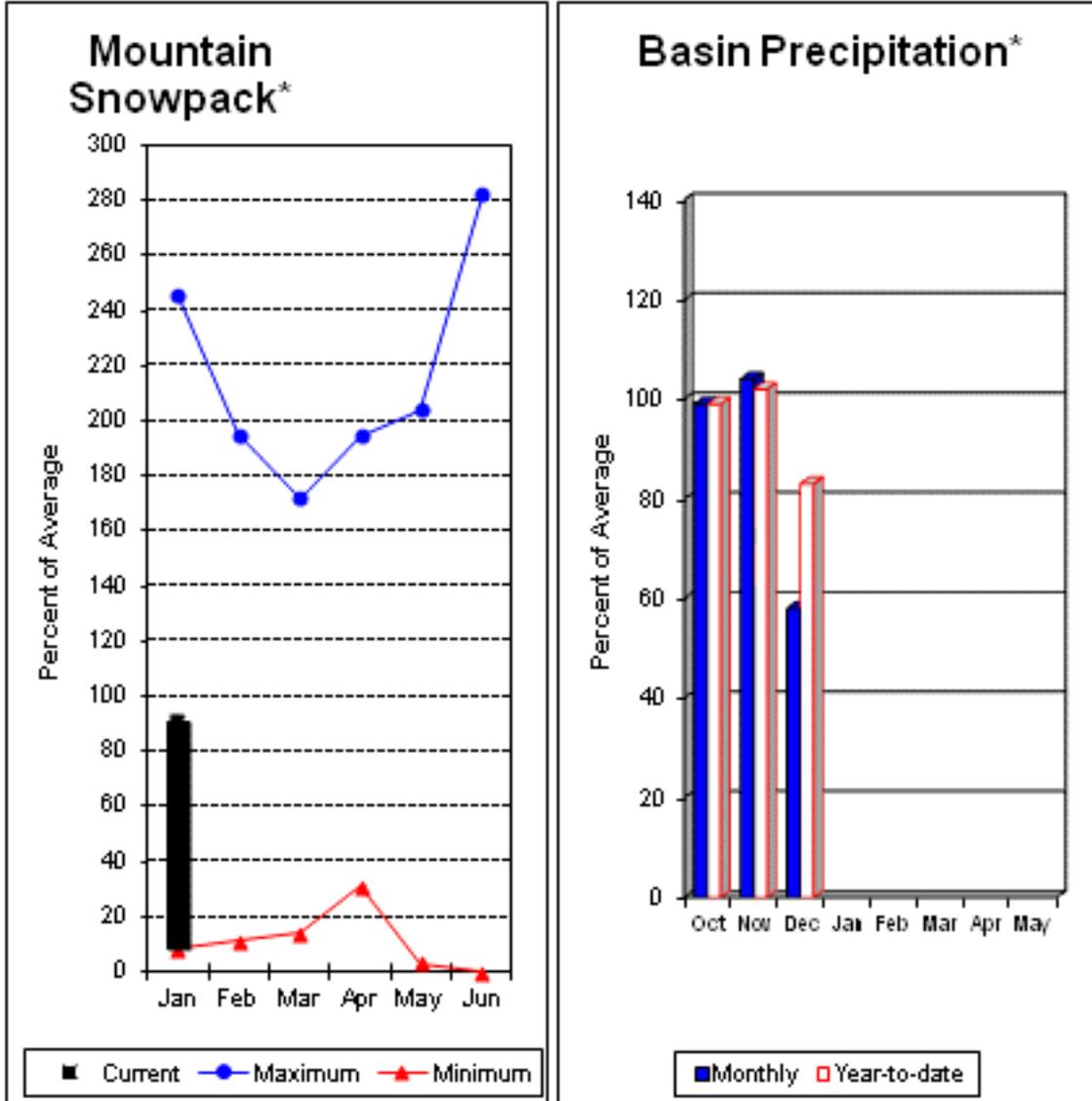
UPPER YAKIMA RIVER BASIN Reservoir Storage (1000 AF) - End of December					UPPER YAKIMA RIVER BASIN Watershed Snowpack Analysis - January 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
KEECHELUS	157.8	91.3	83.3	78.0	UPPER YAKIMA RIVER	8	96	87
KACHESS	239.0	146.8	150.9	125.5				
CLE ELUM	436.9	288.5	220.3	194.7				

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

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

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

## Lower Yakima River Basin



\*Based on selected stations

December average streamflows within the basin were: Yakima River near Parker, 56%; Naches River near Naches, 54%; and Yakima River at Kiona, 52%. January 1 reservoir storage for Bumping and Rimrock reservoirs was 144,000-acre feet, 130% of average. Forecast averages for Yakima River near Parker are 84%; American River near Nile, 86%; Ahtanum Creek, 75%; and Klickitat River near Glenwood, 83%. January 1 snowpack was 91% based upon 7 snow course and SNOTEL readings within the Lower Yakima Basin and Ahtanum Creek reported in at 85% of average. Precipitation was 58% of average for December and 83% year-to-date for water. Temperatures were near normal for December and for the water year. Volume forecasts for Yakima Basin are for natural flow. As such, they January 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 - January 1, 2012

Forecast Point	Forecast Period	Future Conditions					30-Yr Avg. (1000AF)	
		Drier		Wetter		Chance Of Exceeding * 50% (% AVG.)		
		90% (1000AF)	70% (1000AF)	30% (1000AF)	10% (1000AF)			
Bumping Lake Inflow (2)	APR-JUL APR-SEP	75 81	94 101	106 114	87 86	118 127	137 147	122 132
American R nr Nile	APR-JUL APR-SEP	68 72	84 90	95 102	88 86	106 114	122 132	108 118
Rimrock Lake Inflow (2)	APR-JUL APR-SEP	129 155	155 185	173 205	84 85	191 225	215 255	205 240
Naches R nr Naches (2)	APR-JUL APR-SEP	435 465	550 595	630 680	88 87	710 765	825 895	720 780
Ahtanum Ck at Union Gap	APR-JUL APR-SEP	7.8 8.4	16.8 17.7	23 24	77 75	29 30	38 40	30 32
Yakima R nr Parker (2)	APR-JUL APR-SEP	1000 1110	1300 1440	1510 1660	84 84	1720 1880	2020 2210	1800 1980
Klickitat R nr Glenwood	APR-JUL APR-SEP	68 96	89 119	104 135	83 83	119 151	140 174	126 163
Klickitat R nr Pitt	APR-JUL APR-SEP	280 345	345 425	390 475	85 86	435 525	500 605	460 550

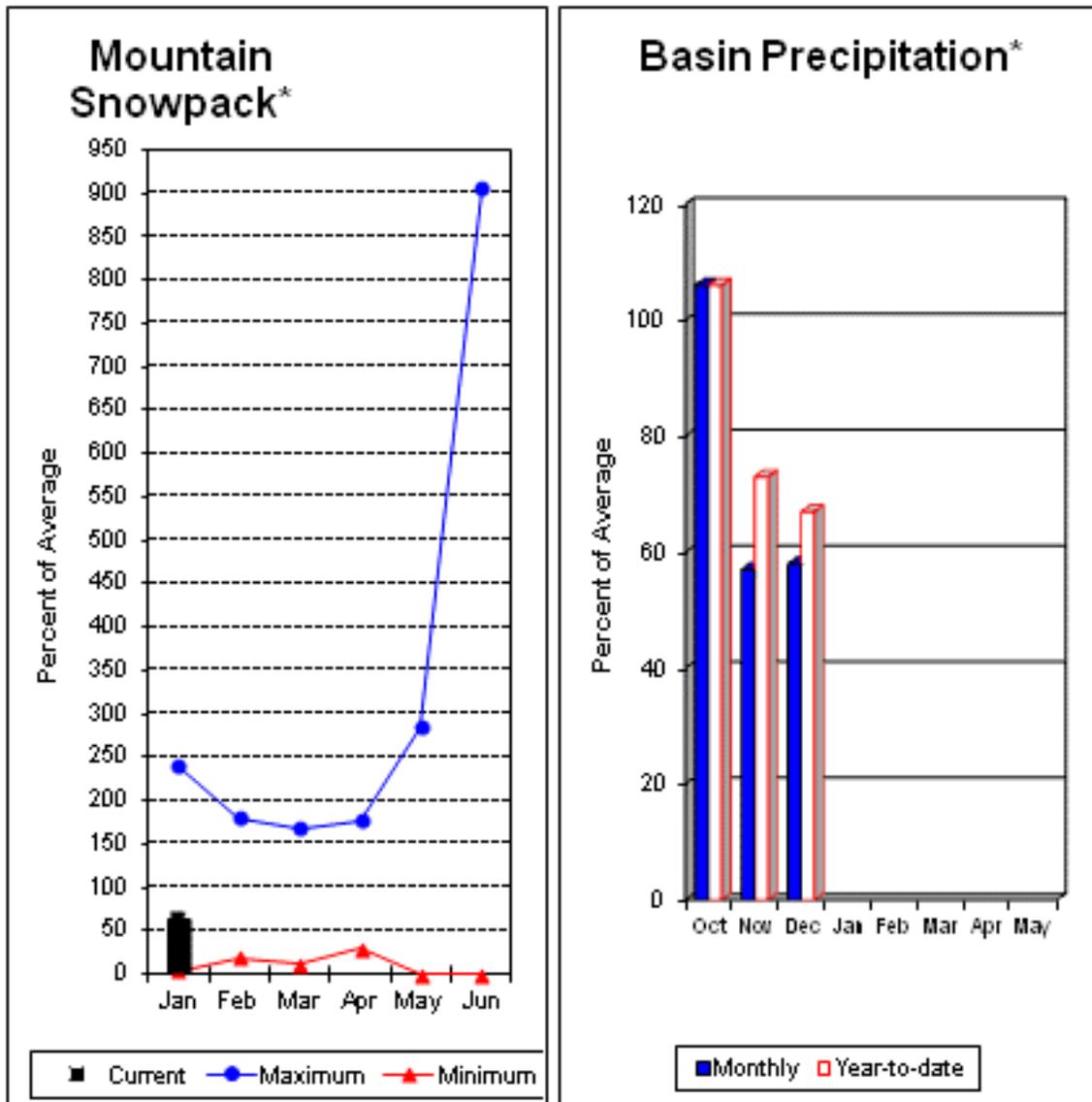
LOWER YAKIMA RIVER BASIN Reservoir Storage (1000 AF) - End of December					LOWER YAKIMA RIVER BASIN Watershed Snowpack Analysis - January 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
BUMPING LAKE	33.7	18.6	19.2	10.3	LOWER YAKIMA RIVER	7	80	91
RIMROCK	198.0	125.8	121.8	101.1	AHTANUM CREEK	2	81	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.

# Walla Walla River Basin



\*Based on selected stations

December precipitation was 58% of average, maintaining the year-to-date precipitation at 67% of average. Snowpack in the basin was 63% of average. Streamflow forecasts are 82% of average for Mill Creek and 84% for the SF Walla Walla near Milton-Freewater. December streamflow was 52% of average for the SF Walla Walla River. Average temperatures were slightly below normal for December and near normal for the water year.

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

# Walla Walla River Basin

## Streamflow Forecasts - January 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	57	65	70	86	75	83	81		
	APR-JUL	35	41	45	83	49	55	54		
	APR-SEP	45	51	56	84	61	67	67		
Mill Ck nr Walla Walla	APR-JUL	13.2	17.2	20	83	23	27	24		
	APR-SEP	15.8	20	23	82	26	30	28		

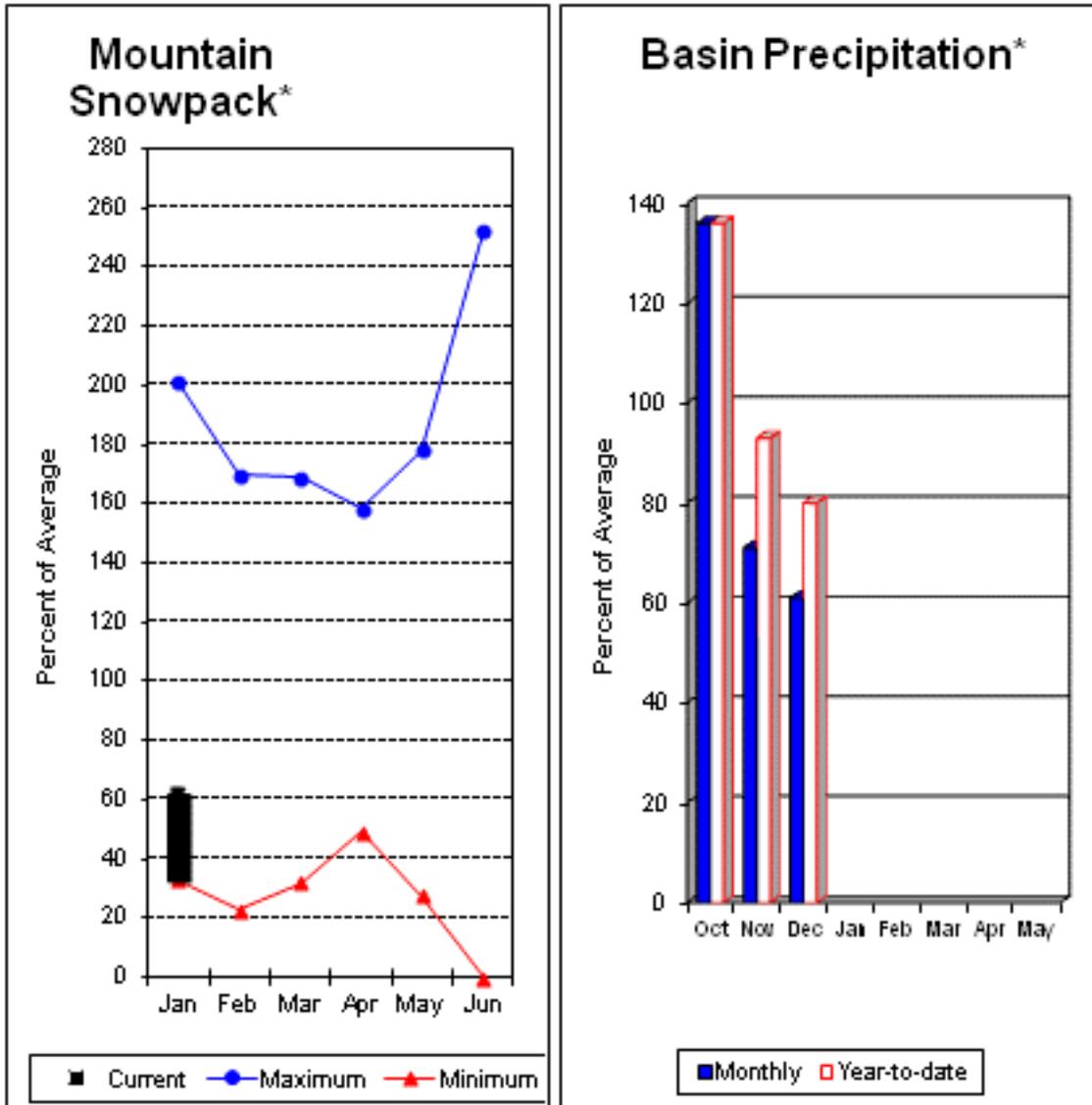
WALLA WALLA RIVER BASIN					WALLA WALLA RIVER BASIN			
Reservoir Storage (1000 AF) - End of December					Watershed Snowpack Analysis - January 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					WALLA WALLA RIVER	2	51	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 Snake River Basin



\*Based on selected stations

The April - September forecast is for 83% for Clearwater River at Spalding. The Snake and Grande Ronde rivers can expect summer flows to be about 81% and 79% of normal respectively. The forecast for Asotin Creek at Asotin predicts 86% of average flows for the April – July runoff period. December precipitation was 61% of average, bringing the year-to-date precipitation to 80% of average. January 1 snowpack readings averaged 62% of average. December streamflow was 78% of average for Snake River below Lower Granite Dam and 42% for Grande Ronde River near Troy. Dworshak Reservoir storage was 91% of average. Average temperatures were near normal for December and for the water year.

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

# Lower Snake River Basin

## Streamflow Forecasts - January 1, 2012

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)				
		90%		70%		50%			30%		10%	
		(1000AF)	(1000AF)	(1000AF)	(1000AF)	(1000AF)	(1000AF)		(1000AF)	(1000AF)	(1000AF)	(1000AF)
Grande Ronde R at Troy (1)	MAR-JUL	710	1080	1250	79	1420	1790	1580				
	APR-SEP	565	920	1080	79	1240	1590	1370				
Asotin Ck at Asotin	APR-JUL	11.7	23	30	86	37	48	35				
Clearwater R at Spalding (1,2)	APR-JUL	2410	4980	6150	83	7320	9890	7430				
	APR-SEP	2760	5330	6490	83	7660	10200	7850				
Snake R bl Lower Granite Dam (1,2)	APR-JUL	6250	13700	17100	79	20500	28000	21550				
	APR-SEP	7340	15700	19600	81	23400	31800	24140				

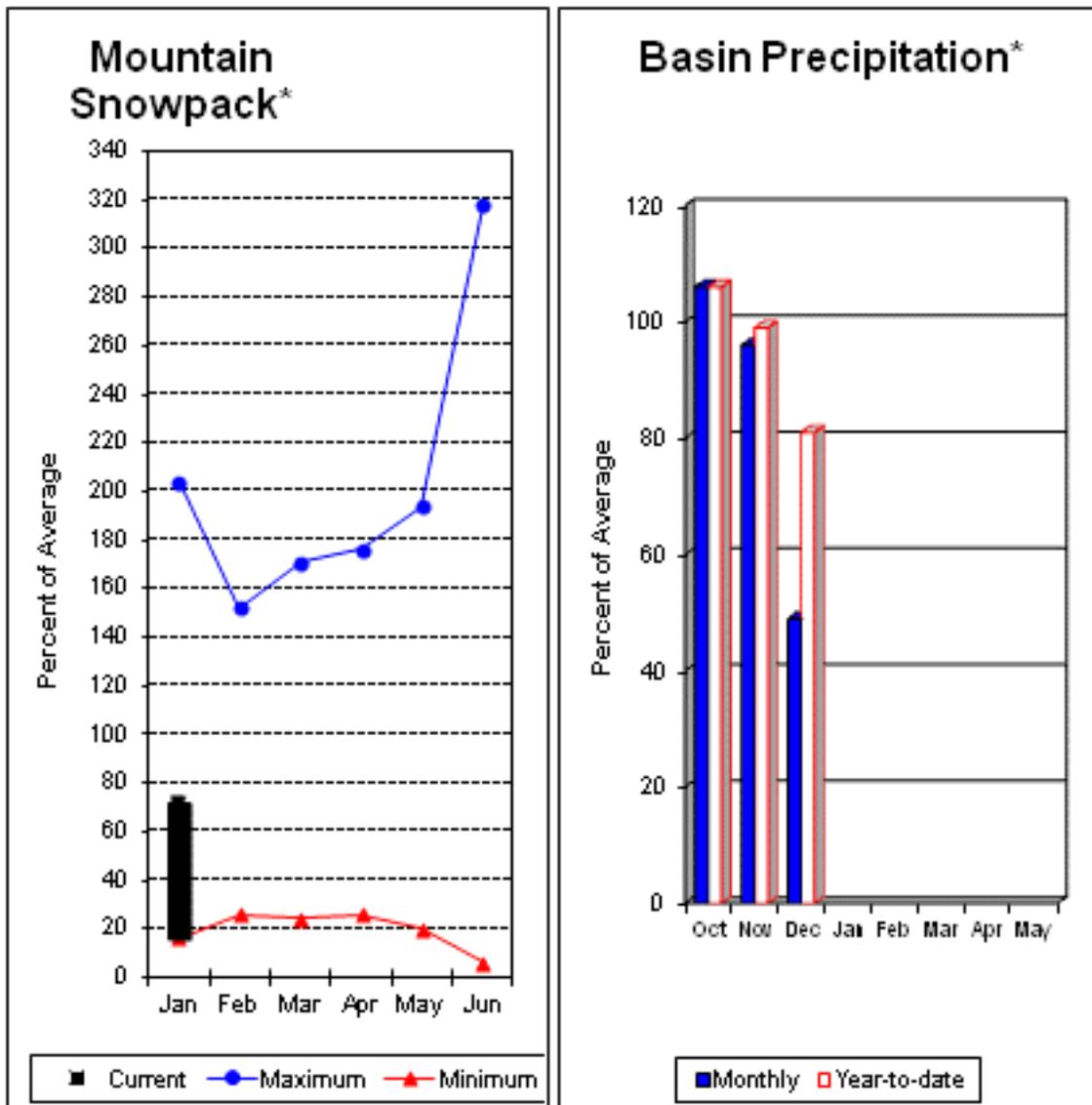
LOWER SNAKE RIVER BASIN Reservoir Storage (1000 AF) - End of December					LOWER SNAKE RIVER BASIN Watershed Snowpack Analysis - January 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
DWORSHAK	3468.0	2256.3	2333.8	2481.4	LOWER SNAKE, GRANDE RONDE	11	65	62

\* 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.

## 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, 85% of average. The Columbia at The Dalles is forecasted to have 88% of average flows this summer. December average streamflow for Cowlitz River was 61%. The Columbia River at The Dalles was 75% of average. December precipitation was 49% of average and the water-year average was 81%. January 1 snow cover for Cowlitz River was 79%, and Lewis River was 64% of average. Swift Creek SNOTEL set a new period of record low monthly precipitation accumulation of only 11.2 inches. Normally Swift would get 27.9 inches of precipitation in December. Temperatures were 1-3 degrees below normal during December and for the water year.

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

# Lower Columbia River Basins

## Streamflow Forecasts - January 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	52400	64100	72000	85	80000	91700	84600				
	APR-SEP	64200	77800	87100	88	96300	110000	98600				
Klickitat R nr Glenwood	APR-JUL	68	89	104	83	119	140	126				
	APR-SEP	96	119	135	83	151	174	163				
Klickitat R nr Pitt	APR-JUL	280	345	390	85	435	500	460				
	APR-SEP	345	425	475	86	525	605	550				
Lewis R at Ariel (2)	APR-JUL	590	765	885	86	1000	1180	1031				
	APR-SEP	690	875	1000	85	1120	1310	1176				
Cowlitz R bl Mayfield Dam (2)	APR-JUL	920	1220	1430	85	1640	1940	1689				
	APR-SEP	990	1370	1630	85	1890	2270	1922				
Cowlitz R at Castle Rock (2)	APR-JUL	1440	1740	1950	85	2160	2460	2295				
	APR-SEP	1670	2020	2250	85	2480	2830	2639				

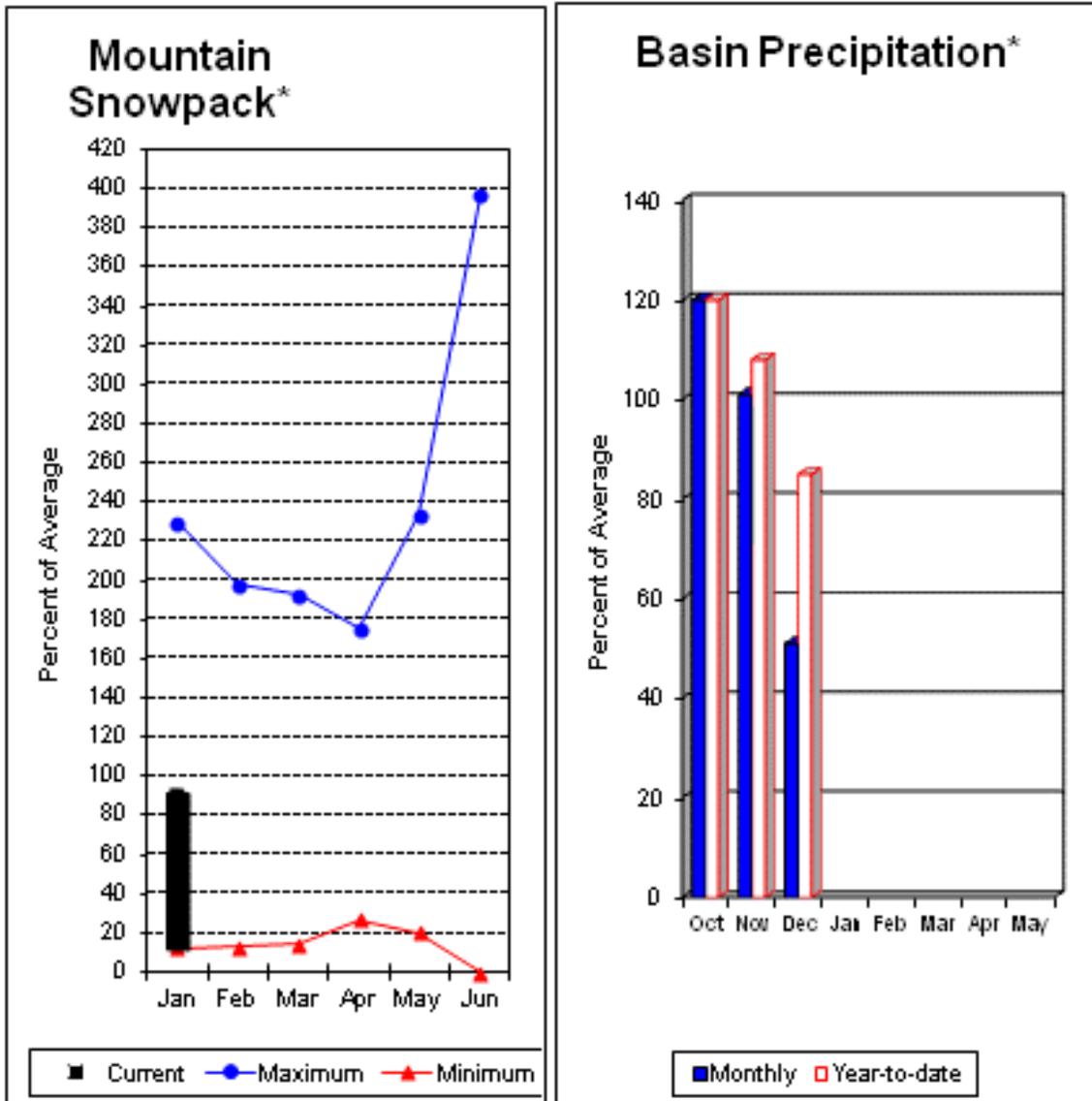
LOWER COLUMBIA RIVER BASINS Reservoir Storage (1000 AF) - End of December					LOWER COLUMBIA RIVER BASINS Watershed Snowpack Analysis - January 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
MOSSYROCK	0.0	1253.7	1263.9	---	LEWIS RIVER	5	49	64
SWIFT	0.0	709.9	702.4	---	COWLITZ RIVER	6	72	79
YALE	0.0	383.2	360.8	---				
MERWIN	0.0	396.5	414.5	---				

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# South Puget Sound River Basins



\*Based on selected stations

Summer runoff is forecast to be 78% of normal for the Green River below Howard Hanson Dam and 90% for the White River near Buckley. January 1 snowpack was 93% of average for the White River, 97% for Puyallup River and 82% in the Green River Basin. Water content on January 1 at Corral Pass SNOTEL, at an elevation of 6,000 feet, was 14.3 inches. This site has a January 1 average of 15.8 inches. December precipitation was 51% of average, bringing the water year-to-date to 85% of average for the basins. Average temperatures in the area were 1-2 degrees below normal for December and for the water-year.

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

# South Puget Sound River Basins

## Streamflow Forecasts - January 1, 2012

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		Drier		Wetter				
		90% (1000AF)	70% (1000AF)	50% (1000AF)	30% (1000AF)	10% (1000AF)	Chance Of Exceeding * (% AVG.)	
White R nr Buckley (1)	APR-JUL	280	360	395	90	430	510	440
	APR-SEP	350	440	480	90	520	610	534
Green R bl Howard Hanson Dam (1,2)	APR-JUL	105	165	192	78	220	280	245
	APR-SEP	123	183	210	78	235	295	268

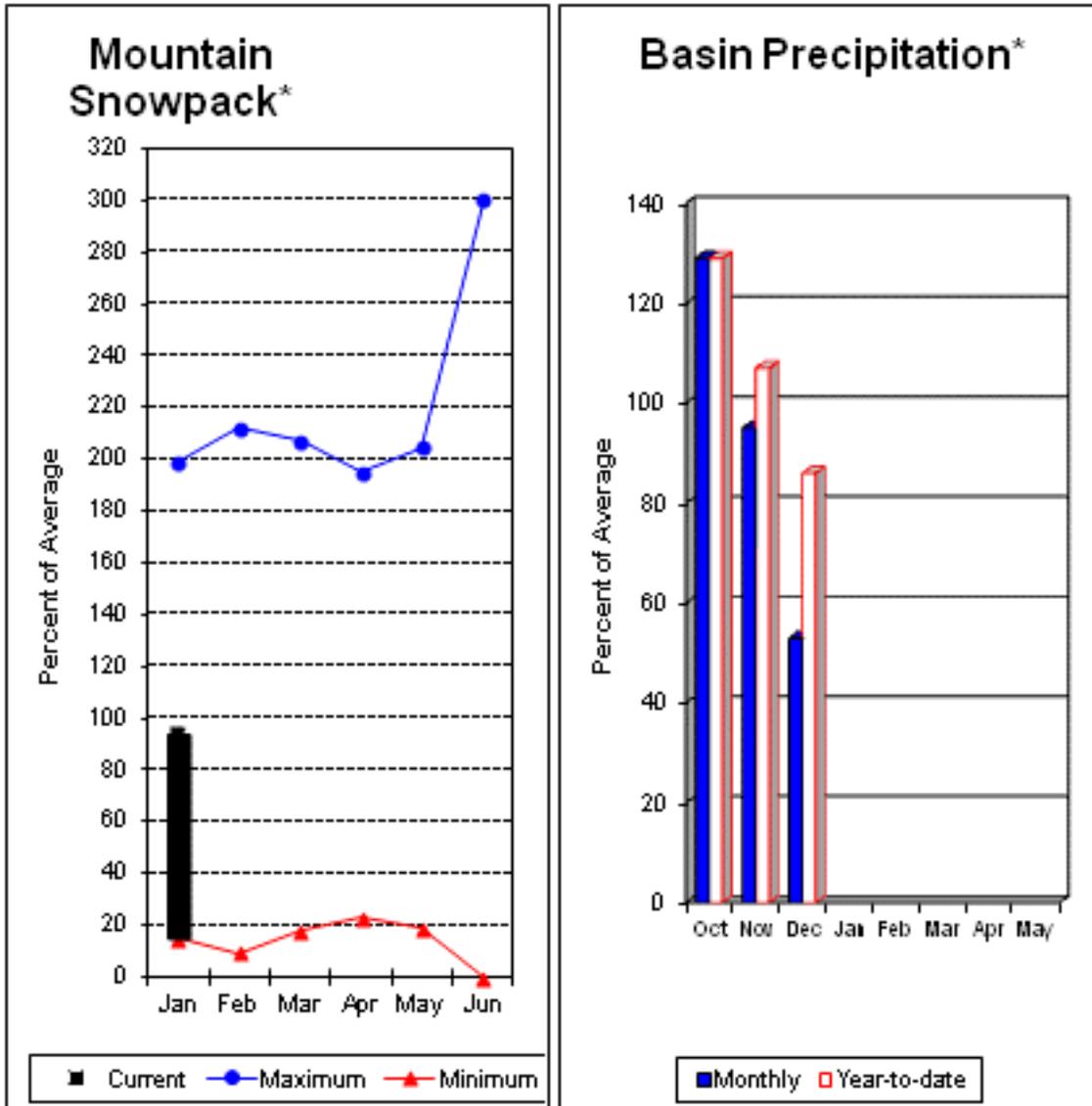
SOUTH PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of December					SOUTH PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - January 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					WHITE RIVER	3	80	93
					GREEN RIVER	3	82	82
					PUYALLUP RIVER	5	92	97

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# Central Puget Sound River Basins



\*Based on selected stations

Forecast for spring and summer flows are: 91% for Cedar River near Cedar Falls; 89% for Rex River; 76% for South Fork of the Tolt River; 96% for Taylor Creek near Selleck, and 86% for Cedar River at Cedar Falls. Basin-wide precipitation for December was 53% of average, bringing water-year-to-date to 86% of average. January 1 average snow cover in Cedar River Basin was 119%, Tolt River Basin was 89%, Snoqualmie River Basin was 92%, and Skykomish River Basin was 76%. Olallie Meadows SNOTEL site, at 3960 feet, had 24.5 inches of water content. Average January 1 water content is 22.2 inches at Olallie Meadows. Temperatures were near normal for December 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 - January 1, 2012

Forecast Point	Forecast Period	Future Conditions					30-Yr Avg. (1000AF)	
		Drier		Wetter		Chance Of Exceeding *		
		90% (1000AF)	70% (1000AF)	50% (1000AF)	30% (1000AF)			10% (1000AF)
				50% (% AVG.)				
Cedar R nr Cedar Falls	APR-JUL	42	57	67	92	77	92	73
	APR-SEP	48	63	73	91	83	98	80
Rex R nr Cedar Falls	APR-JUL	12.6	18.8	23	92	27	33	25
	APR-SEP	14.5	21	25	89	29	35	28
Cedar R At Cedar Falls	APR-JUL	25	48	64	87	80	103	74
	APR-SEP	25	48	63	86	78	101	73
Taylor Creek Near Selleck	APR-JUL	13.0	16.5	18.8	94	21	25	20
	APR-SEP	16.9	21	23	96	25	29	24
SF Tolt R nr Index	APR-JUL	6.5	9.2	11.1	76	13.0	15.7	14.7
	APR-SEP	8.0	10.9	12.8	76	14.7	17.6	16.9

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

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

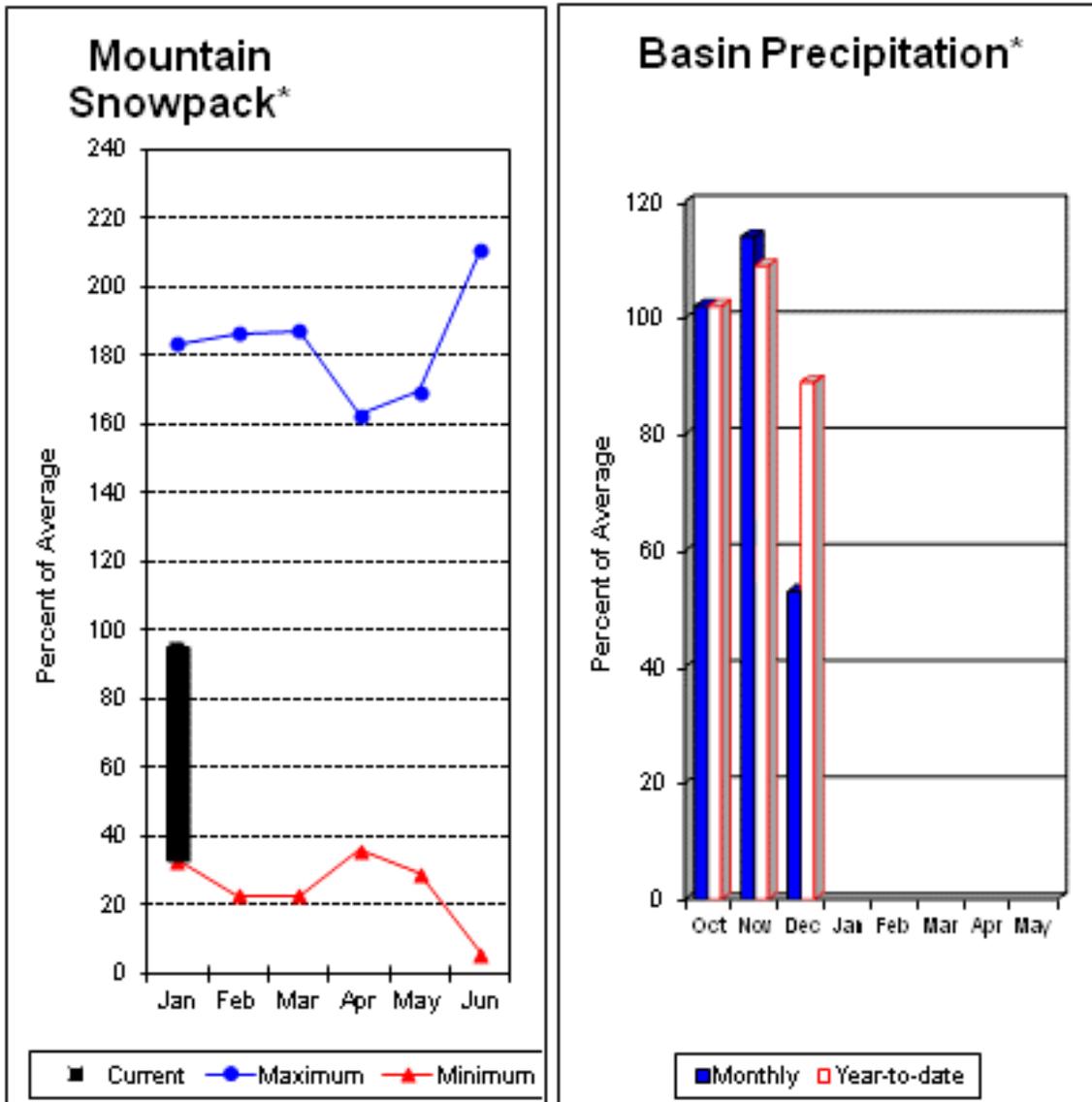
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					CEDAR RIVER	4	103	119
					TOLT RIVER	2	126	89
					SNOQUALMIE RIVER	4	120	92
					SKYKOMISH RIVER	2	111	76

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# North Puget Sound River Basins



\*Based on selected stations

Forecast for Skagit River streamflow at Newhalem is 90% of average for the spring and summer period. December streamflow in Skagit River was 65% of average. Other forecast points included Baker River at 86% and Thunder Creek at 98% of average. Basin-wide precipitation for December was 53% of average, bringing water-year-to-date to 89% of average. January 1 average snow cover in Skagit River Basin was 98% and Nooksack River Basin was 92% of average. Baker River Basin data was not available at this time. Rainy Pass SNOTEL, at 4,780 feet, had 19.1 inches of water content. Average January 1 water content is 19.9 inches at Rainy Pass. January 1 Skagit River reservoir storage was 98% of average and 81% of capacity. Average temperatures for December were slightly above normal for the basin and slightly below average for the water year.

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

# North Puget Sound River Basins

## Streamflow Forecasts - January 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)	
Thunder Ck Nr Newhalem	APR-JUL	196	215	230	98	245	265	234				
	APR-SEP	285	310	325	98	340	365	333				
Skagit R At Newhalem	APR-JUL	1370	1560	1690	91	1820	2010	1864				
	APR-SEP	1630	1850	2000	90	2150	2370	2217				
Baker R nr Concrete (2)	APR-JUL	535	640	710	86	780	885	828				
	APR-SEP	665	805	900	86	995	1130	1050				

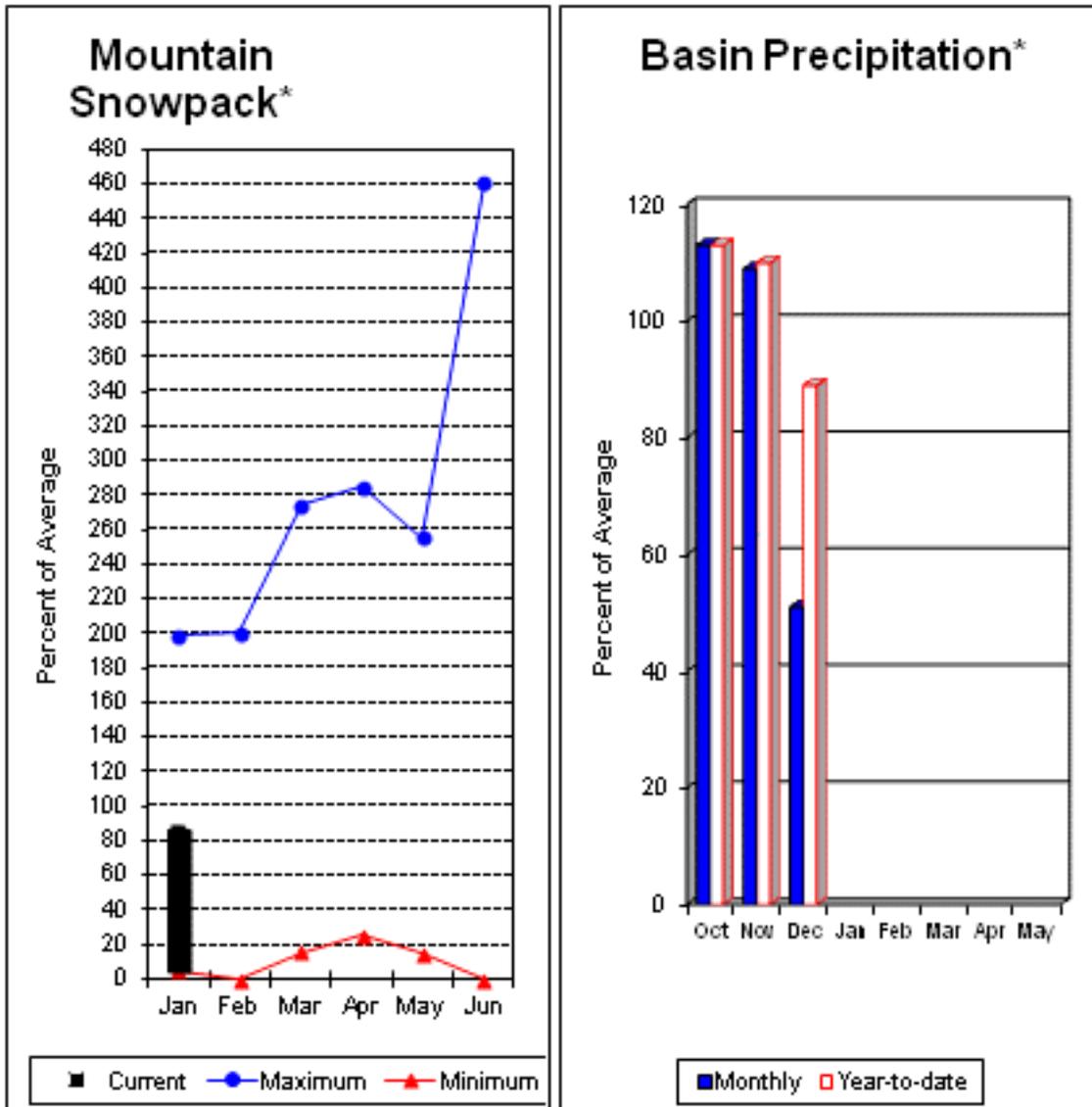
NORTH PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of December					NORTH PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - January 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
ROSS	1404.1	1118.5	1138.8	1142.1	SKAGIT RIVER	5	100	98
DIABLO RESERVOIR	90.6	85.7	85.7	85.3	BAKER RIVER	0	104	0
					NOOKSACK RIVER	3	104	92

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# Olympic Peninsula River Basins



\*Based on selected stations

Forecasted average runoff for streamflow for the Dungeness River is 85% and Elwha River is 84%. December runoff in the Dungeness River was 56% of normal. Big Quilcene and Wynoochee rivers should expect slightly below average runoff this summer. December precipitation was 51% of average. Precipitation has accumulated at 89% of average for the water year. December precipitation at Quillayute was 7.9 inches. The thirty-year average for December is 14.5 inches. Olympic Peninsula snowpack averaged 86% of normal on January 1. Temperatures were near average for December and for the water year.

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

# Olympic Peninsula River Basins

## Streamflow Forecasts - January 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)			
Dungeness R Nr Sequim	APR-JUL	78	94	105	85	116	132	124
	APR-SEP	96	116	129	85	142	162	152
Elwha R At Mcdonald Bridge	APR-JUL	265	320	355	85	390	445	419
	APR-SEP	315	380	420	84	460	525	503

OLYMPIC PENINSULA RIVER BASINS Reservoir Storage (1000 AF) - End of December					OLYMPIC PENINSULA RIVER BASINS Watershed Snowpack Analysis - January 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	3	49	86

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*Issued by*

**Dave White**  
**Chief**  
**Natural Resources Conservation Service**  
**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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Mount Vernon, WA 98273-2873



# Washington Water Supply Outlook Report

Natural Resources Conservation Service  
Spokane, WA

