

# Washington Water Supply Outlook Report May 1, 2012



Photo by Corey Bonsen, NRCS Yakima, WA

Quartz Mountain, WA 3/28/11

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

---

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

Local Natural Resources Conservation Service Field Office

or

Scott Pattee  
Water Supply Specialist  
Natural Resources Conservation Service  
2021 E. College Way, Suite 214  
Mt. Vernon, WA 98273-2873  
(360) 428-7684

or

Larry Johnson  
State Conservation Engineer  
Natural Resources Conservation Service  
W 316 Boone Ave., Suite 450  
Spokane, WA 99201  
(509) 323-2955

---

## *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.

---

"The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer."

# Washington Water Supply Outlook

May 2012

## General Outlook

It wasn't snow water or precipitation accumulation but rather high temperatures breaking records last month. With daytime temperatures reaching nearly 70 degrees Fahrenheit and night time temperatures staying well above freezing at most all SNOTEL sites many new high temperature records were set. This factor, in conjunction with a couple of warm rain events, helped push most all basins over the top and into the melt cycle. Most snow surveys this month indicated snow pack densities in the 40-48% range which means that most sites are on the verge of a major thaw. Even though the first few days of May have been cold and wet, short term weather forecasts indicate a trend toward warming and drying with freezing levels rising above 10,000 feet. The 90-day long range and summer forecasts predict drier than normal conditions however temperature forecasts are still up in the air.

## Snowpack

The May 1 statewide SNOTEL readings were 140% of average, only slightly higher than last month. All basins have passed the normal peak accumulation period, generally April 1-15, and have entered the melt cycle. Current percentages should be used cautiously and should be accompanied by the actual water content of the snowpack as analysis using percentages this late in the season could cause bias in the outcome. The following percentages are provided as point information only. As temperatures warm the melt rate will increase, rapidly changing percentages on a daily basis. Numerous lower and mid elevation sites have already melted out and by the time this article is published even more will have melted. That's not to forget the higher elevation sites that still have over 20 feet of snow and won't melt out until late July or August, providing fresh runoff throughout the entire summer. Easy Pass SNOTEL has the highest swe ever recorded by a Washington SNOTEL site. On May 3, it recorded 124.6 inches of SWE, eclipsing the old record set by Paradise SNOTEL back on May 7, 1997 of 123.1 inches.

BASIN	PERCENT OF LAST YEAR	PERCENT OF AVERAGE
Spokane	62	107
Newman Lake	35	103
Pend Oreille	55	90
Okanogan	77	110
Methow	91	112
Conconully Lake	77	110
Wenatchee	88	109
Chelan	104	117
Upper Yakima	100	120
Lower Yakima	97	126
Ahtanum Creek	103	137
Walla Walla	61	94
Lower Snake	57	91
Cowlitz	88	135
Lewis	80	152
White	96	124
Green	94	138
Puyallup	101	140
Cedar	95	244
Snoqualmie	108	147
Skykomish	101	133
Skagit	97	130
Baker	93	150
Nooksack	105	151
Olympic Peninsula	83	146

## Precipitation

During the month of April, the National Weather Service and Natural Resources Conservation Service climate stations reported above average precipitation totals throughout most Washington river basins. The highest percent of average in the state was at Mill Creek Dam near Walla Walla which reported 230% of average for a total of 3.95 inches. The average for Mill Creek Dam is 1.79 inches for April. Swift Creek SNOTEL near Mt. St. Helens was the wettest spot in the state last month with 13.4 inches. Also note worthy was a one-day accumulation at Moses Mtn. SNOTEL near Omak which netted 1.6 inches, almost 10% of the total annual rainfall that this site normally receives.

RIVER BASIN	APRIL PERCENT OF AVERAGE	WATER YEAR PERCENT OF AVERAGE
Spokane .....	139 .....	108
Pend Oreille .....	148 .....	112
Upper Columbia .....	122 .....	101
Central Columbia .....	112 .....	107
Upper Yakima .....	92 .....	103
Lower Yakima .....	110 .....	114
Walla Walla .....	145 .....	108
Lower Snake .....	113 .....	105
Lower Columbia .....	108 .....	108
South Puget Sound .....	119 .....	107
Central Puget Sound .....	107 .....	106
North Puget Sound .....	119 .....	110
Olympic Peninsula .....	110 .....	113

## 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 737,000-acre feet, 119% of average for the Upper Reaches and 187,000-acre feet or 110% of average for Rimrock and Bumping Lakes. Storage at the Okanogan reservoirs was 115% of average for May 1. The power generation reservoirs included the following: Coeur d'Alene Lake, 489,000 acre feet, 196% of average and 205% of capacity; Chelan Lake, 273,000-acre feet, 103% of average and 40% of capacity; and the Skagit River reservoirs at 100% of average and 53% of capacity. Currently most reservoir operations are gearing up for an above average runoff from melting snow so downstream flows may be increasing beyond normal amounts. 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 .....	205 .....	196
Pend Oreille .....	31 .....	51
Upper Columbia .....	93 .....	115
Central Columbia .....	40 .....	103
Upper Yakima .....	88 .....	119
Lower Yakima .....	81 .....	110
Lower Snake .....	69 .....	94
North Puget Sound .....	53 .....	100

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



## 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 during the month actually didn't hurt the snowpack but did help increase soil moisture levels by as much as 10% in some basins, others stayed about the same as last month. With soil moisture level this high we should generally see slight increases to an already elevated forecast.

BASIN	ESTIMATED PERCENT SATURATION
Spokane	67
Pend Oreille	75
Upper Columbia	66
Central Columbia	68
Upper Yakima	67
Lower Yakima	83
Walla Walla	81
Lower Snake	81
Lower Columbia	85
South Puget Sound	85
Central Puget Sound	N/A
North Puget Sound	97
Olympic Peninsula	50

## Spring Recreation

As winter turns to spring so does the thought of snow recreation change to water recreation. As the ripening snow pack begins to melt and fill the rivers and streams to bank full we need to remember the power and unforgiving nature of ice cold snow melt water. Every year, whether fly fishing Spring Chinook, rafting the rapids or just cooling off during that first hot spell of the season, folks get caught in the extra swift currents of our mountain fed streams. Many times it's way too late by the time they realize that they had stepped too far into the current or can't catch their breath when submerged in the icy cold water and they are gone. The reminder is that it may be 80 or even 100 degrees outside but that water is still ice cold and until the majority of the mountain snow is gone and water levels subside it will remain that way. Keep you and yours safe by always wearing a life preserver when in or near cold and rapid water. Children and pets are especially susceptible since they really know no better.

## Western Snow Conference May 2012

The 80th annual Western Snow Conference is in Anchorage, Alaska. The conference is May 21-24 at the Millennium Alaska Hotel. The theme for this year's conference is "Bright lights and winter nights – working with extremes". There will be a Short Course on Monday covering "Remote Data Collection Communication Options". Much progress has been made from the original telegraph and line of site radio systems to the current use of satellite, cell and meteor burst technology. A combined panel of vendors, developers and end users will present lively discussions of four current communications options including meteor burst, GOES satellite, cell phone and Iridium satellite technology. Additional conference information is available at:  
<http://www.westernsnowconference.org/>

BASIN SUMMARY OF  
SNOW COURSE DATA

MAY 2012

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00	LUBRECHT FOREST NO 3	5450	4/30/12	0	.0	3.8	1.7
							LUBRECHT FOREST NO 4	4650	4/30/12	0	.0	.0	.1
							SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
ALPINE MEADOWS SNTL	3500	5/01/12	118	68.1	66.0	45.8							
ASHLEY DIVIDE	4820	4/26/12	0	.0	7.6	1.1							
BADGER PASS SNOTEL	6900	5/01/12	78	38.9	52.5	36.2	LUBRECHT FOREST NO 6	4040	4/30/12	0	.0	.0	.0
BAREE CREEK	5500	4/25/12	93	44.8	57.4	40.3	LUBRECHT HYDROPLOT	4200	4/30/12	0	.0	.0	.1
BAREE MIDWAY	4600	4/25/12	74	33.6	40.9	27.4	LUBRECHT SNOTEL	4680	5/01/12	0	.0	.0	.5
BAREE TRAIL	3800	4/25/12	3	1.2	10.8	1.3	LYMAN LAKE SNOTEL	5980	5/01/12	145	68.5	74.9	67.2
BARKER LAKES SNOTEL	8250	5/01/12	38	12.6	21.1	16.2	LYNN LAKE	4000	5/01/12	75	32.2E	--	14.5
BARNES CREEK CAN.	5320	4/28/12	48	19.0	26.0	19.7	LYNN LAKE SNOTEL	3900	5/01/12	75	32.2	34.6	--
BASIN CREEK SNOTEL	7180	5/01/12	13	4.3	12.3	10.0	MARIAS PASS	5250	4/25/12	32	14.1	26.9	12.5
BASSOO PEAK	5150	4/26/12	4	1.4	13.0	3.2	MARTEN RIDGE SNOTEL	3520	5/01/12	147	79.7	85.8	--
BEAVER CREEK TRAIL	2200	4/28/12	30	12.9	14.4	4.4	MEADOWS CABIN	1900	4/28/12	0	.0	.0	1.1
BEAVER PASS	3680	4/27/12	96	37.7	44.0	27.2	MEADOWS PASS SNOTEL	3230	5/01/12	73	35.3	35.2	10.8
BEAVER PASS SNOTEL	3630	5/01/12	117	58.8	54.6	35.5	M F NOOKSACK SNOTEL	4970	5/01/12	146	91.2	83.2	69.9
BIG WHITE MTN CAN.	5510	4/29/12	49	19.0	25.4	19.4	MICA CREEK SNOTEL	4510	5/01/12	41	19.2	30.3	15.3
BLACK MOUNTAIN	7750	4/27/12	43	15.3	22.3	16.9	MISSEZULA MTN CAN.	5080	4/27/12	20	7.0	--	5.5
BLACK PINE SNOTEL	7100	5/01/12	8	3.0	18.0	11.0	MISSION CREEK CAN.	5840	5/01/12	56	23.0	25.9	21.3
BLACKWALL PILL CAN.	6370	5/01/12	95	46.0	41.0	34.9	MONASHEE PASS CAN.	4500	4/28/12	31	12.0	17.0	11.4
BLEWETT PASS#2SNOTEL	4240	5/01/12	0	.7	8.4	5.0	MORSE LAKE SNOTEL	5410	5/01/12	134	70.3	65.0	57.0
BRENDA MINE CAN.	4450	4/27/12	25	9.0	--	9.3	MOSES MTN SNOTEL	5010	5/01/12	32	14.6	20.5	10.9
BROOKMERE CAN.	3000	4/29/12	14	5.0	8.6	4.0	MOSQUITO RDG SNOTEL	5200	5/01/12	87	44.0	55.9	32.2
BROWN TOP AM	6000	4/27/12	164	72.7	72.2	62.1	MOUNT CRAG SNOTEL	3960	5/01/12	94	39.5	48.7	27.8
BRUSH CREEK TIMBER	5000	4/25/12	9	5.4	18.6	3.6	MT. KOBAU CAN.	5500	4/29/12	33	11.0	17.2	12.8
BUCKINGHORSE SNOTEL	4870	5/01/12	158	76.5	95.0	--	MOWICH SNOTEL	3160	5/01/12	0	.0	.0	.0
BUMPING RIDGE SNOTEL	4610	5/01/12	77	30.0	36.4	27.5	MOUNT GARDNER SNOTEL	2920	5/01/12	29	13.2	20.0	4.8
BUNCHGRASS MDWSNOTEL	5000	5/01/12	75	31.7	36.6	28.6	N.F. ELK CR SNOTEL	6250	5/01/12	25	9.2	18.6	8.0
BURNT MOUNTAIN PIL	4170	5/01/12	57	22.4	27.1	5.6	NEVADA RIDGE SNOTEL	7020	5/01/12	34	15.9	25.0	14.4
CALAMITY SNOTEL	2500	5/01/12	0	.0	4.0	--	NEW HOZOMEEN LAKE	2800	4/27/12	12	5.9E	.0	3.9
CAYUSE PASS SNOTEL	5240	5/01/12	163	71.9	85.1	--	NEZ PERCE CMP SNOTEL	5650	5/01/12	19	8.5	16.0	10.8
CHESSMAN RESERVOIR	6200	4/26/12	0	.0	7.6	1.7	NEZ PERCE PASS	6570	4/25/12	22	10.6	23.4	14.2
CHICKEN CREEK	4060	4/26/12	24	10.1	20.9	5.4	NOISY BASIN SNOTEL	6040	5/01/12	96	39.9	76.6	43.8
COMBINATION SNOTEL	5600	5/01/12	0	.0	4.5	1.2	OLALLIE MDWS SNOTEL	4030	5/01/12	137	75.6	65.1	55.1
COPPER BOTTOM SNOTEL	5200	5/01/12	0	.0	4.8	4.5	OYAMA LAKE CAN.	4100	4/27/12	7	3.0	6.9	2.6
COPPER MOUNTAIN	7700	4/25/12	21	7.6	15.5	10.0	PARADISE SNOTEL	5130	5/01/12	161	81.4	95.8	74.8
CORRAL PASS SNOTEL	5800	5/01/12	101	44.5	44.3	35.3	PARK CK RIDGE SNOTEL	4600	5/01/12	108	55.0	52.3	39.8
COTTONWOOD CREEK	6400	4/27/12	2	.5	9.8	7.3	PEPPER CREEK SNOTEL	2140	5/01/12	0	.0	4.2	--
COUGAR MTN. SNOTEL	3200	5/01/12	25	19.1	24.4	11.0	PETERSON MDW SNOTEL	7200	5/01/12	21	6.7	15.3	11.0
COX VALLEY	4500	4/27/12	110	50.0	40.0	37.1	PIGTAIL PEAK SNOTEL	5800	5/01/12	160	78.2	64.9	56.5
COYOTE HILL	4200	4/27/12	0	.0	8.2	2.6	PIKE CREEK SNOTEL	5930	5/01/12	14	6.9	27.7	--
DALY CREEK SNOTEL	5780	5/01/12	0	.0	12.7	5.3	PIPESTONE PASS	7200	4/25/12	0	.0	9.2	4.8
DEER PARK	5200	5/01/12	57	24.7	30.9	15.2	POPE RIDGE SNOTEL	3590	5/01/12	22	9.3	14.5	7.0
DEVILS PARK	5900	4/27/12	121	53.1	54.3	44.7	POTATO HILL SNOTEL	4510	5/01/12	88	36.8	44.9	18.9
DISCOVERY BASIN	7050	4/28/12	22	7.8	16.6	9.4	QUARTZ PEAK SNOTEL	4700	5/01/12	39	15.3	34.2	14.9
DOMMERIE FLATS	2200	4/30/12	0	.0	.0	--	RAGGED MTN SNOTEL	4210	5/01/12	32	13.0	31.9	--
DUNGENESS SNOTEL	4010	5/01/12	22	7.7	22.7	.9	RAGGED RIDGE	3330	4/25/12	0	.0	2.1	--
ELBOW LAKE SNOTEL	3200	5/01/12	96	47.0	--	27.7	RAINY PASS SNOTEL	4890	5/01/12	102	51.5	48.7	43.2
EMERY CREEK SNOTEL	4350	5/01/12	8	3.8	22.2	7.4	RAINY PASS	4780	4/28/12	112	47.0	38.3	39.3
ESPERON CK. UP CAN.	5050	4/27/12	39	14.0	16.4	15.4	REX RIVER SNOTEL	3810	5/01/12	95	49.6	50.5	19.0
FARRON CAN.	4000	4/27/12	22	8.0	15.7	8.1	ROCKER PEAK SNOTEL	8000	5/01/12	44	15.5	23.0	16.6
FISH LAKE	3370	4/30/12	66	31.6	30.1	23.1	ROUND TOP MTN	4020	4/27/12	10	3.9	17.6	--
FISH LAKE SNOTEL	3430	5/01/12	71	31.7	31.3	28.8	SADDLE MTN SNOTEL	7900	5/01/12	54	21.7	35.5	26.5
FLATTOP MTN SNOTEL	6300	5/01/12	129	53.1	64.7	46.7	SALMON MDWS SNOTEL	4460	5/01/12	0	.6	9.6	3.9
FLEECER RIDGE	7500	4/27/12	10	2.4	13.6	8.7	SASSE RIDGE SNOTEL	4340	5/01/12	81	38.6	35.9	32.3
FOURTH OF JULY SUM	3200	5/01/12	0	.0	1.4	.3	SATUS PASS	4030	4/27/12	0	.0	8.2	--
FREEZEOUT CK. TRAIL	3500	4/29/12	40	15.4	12.3	6.4	SAVAGE PASS SNOTEL	6170	5/01/12	51	22.1	37.2	25.2
FROHNER MDWS SNOTEL	6480	5/01/12	0	.0	11.3	6.5	SAWMILL RIDGE SNOTEL	4640	5/01/12	102	51.5	56.1	--
FROST MEADOWS	4630	5/02/12	40	15.6	--	--	SENTINEL BT SNOTEL	4680	5/01/12	14	4.1	14.7	3.5
GRAVE CRK SNOTEL	4300	5/01/12	24	10.4	25.2	7.0	SHEEP CANYON SNOTEL	3990	5/01/12	106	50.4	64.8	32.0
GREEN LAKE SNOTEL	5920	5/01/12	77	31.5	29.6	24.6	SHERWIN SNOTEL	3200	5/01/12	---	.0	4.9	3.3
GRIFFIN CR DIVIDE	5150	4/26/12	0	.0	14.1	4.9	SKALKAHO SNOTEL	7260	5/01/12	50	20.5	32.6	25.4
GROUSE CAMP SNOTEL	5390	5/01/12	49	17.6	21.3	11.1	SKITWISH RIDGE	5110	4/27/12	65	31.8	56.4	25.8
HAMILTON HILL CAN.	4550	4/26/12	25	10.0	--	10.6	SKOOKUM CREEK SNOTEL	3310	5/01/12	76	45.4	44.3	14.6
HAND CREEK SNOTEL	5030	5/01/12	12	3.8	16.4	6.8	SOURDOUGH GUL SNOTEL	4000	5/01/12	0	.0	.0	--
HARTS PASS SNOTEL	6490	5/01/12	104	53.5	66.1	47.7	SPENCER MDW SNOTEL	3400	5/01/12	69	36.8	44.3	21.8
HARTS PASS	6500	4/27/12	115	47.4	58.0	44.4	SPIRIT LAKE SNOTEL	3520	5/01/12	0	.6	14.7	.6
HELL ROARING DIVIDE	5770	4/26/12	68	30.1	48.3	29.0	SPRUCE SPGS SNOTEL	5700	5/01/12	17	6.5	19.7	--
HERRIG JUNCTION	4850	4/28/12	56	25.6	35.8	22.9	STAHL PEAK SNOTEL	6030	5/01/12	102	41.9	59.3	37.1
HIGH RIDGE SNOTEL	4920	5/01/12	30	13.2	29.6	15.9	STAMPEDE PASS SNOTEL	3850	5/01/12	89	42.8	39.7	42.7
HOODOO BASIN SNOTEL	6050	5/01/12	110	46.2	59.2	45.7	STEMPLE PASS	6600	4/26/12	21	7.9	14.5	9.3
HUCKLEBERRY SNOTEL	2250	5/01/12	0	.0	.0	.0	STEVENS PASS SNOTEL	3950	5/01/12	103	40.0	40.8	35.2
HUMBOLDT GLCH SNOTEL	4250	5/01/12	---	8.1	17.7	5.5	STORM LAKE	7780	4/28/12	30	10.6	20.4	14.3
HURRICANE	4500	4/26/12	53	22.7	30.9	17.9	STRYKER BASIN	6180	4/28/12	83	35.7	47.7	32.6
INDIAN ROCK SNOTEL	5360	5/01/12	63	30.7	45.2	--	SUMMERLAND RES CAN.	4200	4/27/12	15	5.0	8.5	5.1
INTERGAARD	6450	4/29/12	0	.0	7.4	6.1	SUNSET SNOTEL	5540	5/01/12	---	21.1	38.7	28.7
ISINTOK LAKE CAN.	5100	4/26/12	17	6.0	8.1	5.4	SURPRISE LKS SNOTEL	4290	5/01/12	117	54.7	70.2	41.8
JUNE LAKE SNOTEL	3440	5/01/12	101	57.5	70.3	29.6	SWAMP CREEK SNOTEL	3930	5/01/12	43	18.3	24.6	4.6
KRAFT CREEK SNOTEL	4750	5/01/12	0	.0	14.8	5.2	SWIFT CREEK SNOTEL	4440	5/01/12	155	82.4	100.4	59.7
LIGHTNING LAKE CAN.	3700	4/26/12	43	17.0	--	9.9	TEN MILE LOWER	6600	4/26/12	0	.0	10.9	4.5
LOGAN CREEK	4300	4/25/12	2	.9	10.4	1.7	TEN MILE MIDDLE	6800	4/26/12	24	7.8	14.1	11.2
LOLO PASS SNOTEL	5240	5/01/12	44	21.7	37.4	24.5	THUNDER BASIN SNOTEL	4320	5/01/12	82	34.9	35.2	27.4
LONE PINE SNOTEL	3930	5/01/12	102	53.9	65.3	34.2	THUNDER BASIN	4200	4/28/12	66	24.1	24.9	21.2
LOOKOUT SNOTEL	5140	5/01/12	58	25.8	41.6	27.2	THOMPSON CREEK	2500	4/25/12	0	.0	1.5	--
LOST HORSE MTN CAN.	6300	4/27/12	33	9.0	--	9.7	TINKHAM CREEK SNOTEL	2990	5/01/12	79	35.3	34.4	20.0
LOST HORSE SNOTEL	5120	5/01/12	32	16.9	17.3	10.7	TOUCHET SNOTEL	5530	5/01/12	55	26.4	34.9	26.2
LOST LAKE SNOTEL	6110	5/01/12	132	57.1	75.8	59.7	TROUGH #2 SNOTEL	5480	5/01/12	22	8.3	13.9	4.3
LOWER SANDS CREEK #2	3120	4/27/12	49	22.0	26.9	15.8	TUNNEL AVENUE	2450	5/01/12	31	13.4	19.2	12.0

UPPER WHEELER	SNOTEL	4330	5/01/12	15	5.2	12.0	6.3
WATERHOLE	SNOTEL	5010	5/01/12	116	53.5	65.9	36.4
WELLS CREEK	SNOTEL	4030	5/01/12	107	50.4	52.1	26.9
WHITE PASS	ES SNOTEL	4440	5/01/12	61	28.4	23.4	21.4



Natural Resources Conservation Service

Washington State  
Snow, Water and Climate Services

**Program Contacts**

Roylene Rides At The Door  
State Conservationist  
Spokane State Office  
W. 316 Boone Ave., Suite 450  
Spokane, WA 99201-2348  
phone: 509-323-2961  
fax: 509-323-2979  
[roylene.rides-at-the-door@wa.usda.gov](mailto:roylene.rides-at-the-door@wa.usda.gov)

Jon Lea  
DCO Supervisor  
Oregon Data Collection Office  
101 SW Main St, Suite 1300  
Portland, OR 97204  
Phone: 503-414-3267  
Fax: 503-414-3277  
[jon.lea@or.usda.gov](mailto:jon.lea@or.usda.gov)

Scott Pattee  
Water Supply Specialist  
Washington Snow Survey Office  
2021 E. College Way, Suite 214  
Mount Vernon, WA 98273-2873  
phone: 360-428-7684  
fax: 360-424-6172  
[scott.pattee@wa.usda.gov](mailto:scott.pattee@wa.usda.gov)

Rashawn Tama  
Forecast Hydrologist  
National Water and Climate Center  
101 SW Main St., Suite 1600  
Portland, OR 97204-3224  
phone: 503-414-3010  
fax: 503-414-3101  
[rashawn.tama@por.usda.gov](mailto:rashawn.tama@por.usda.gov)

**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>

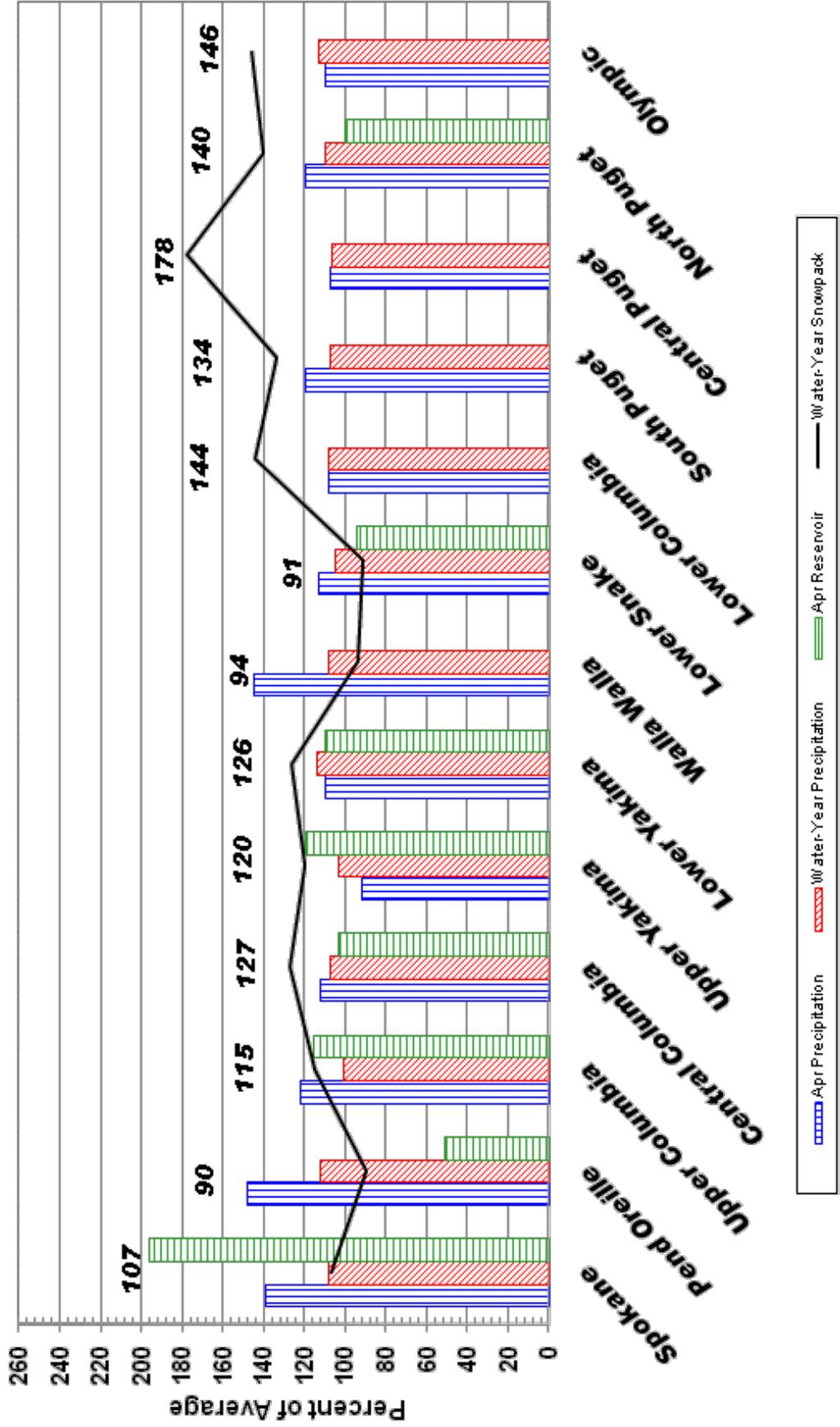
**USDA-NRCS Agency Homepages**

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

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

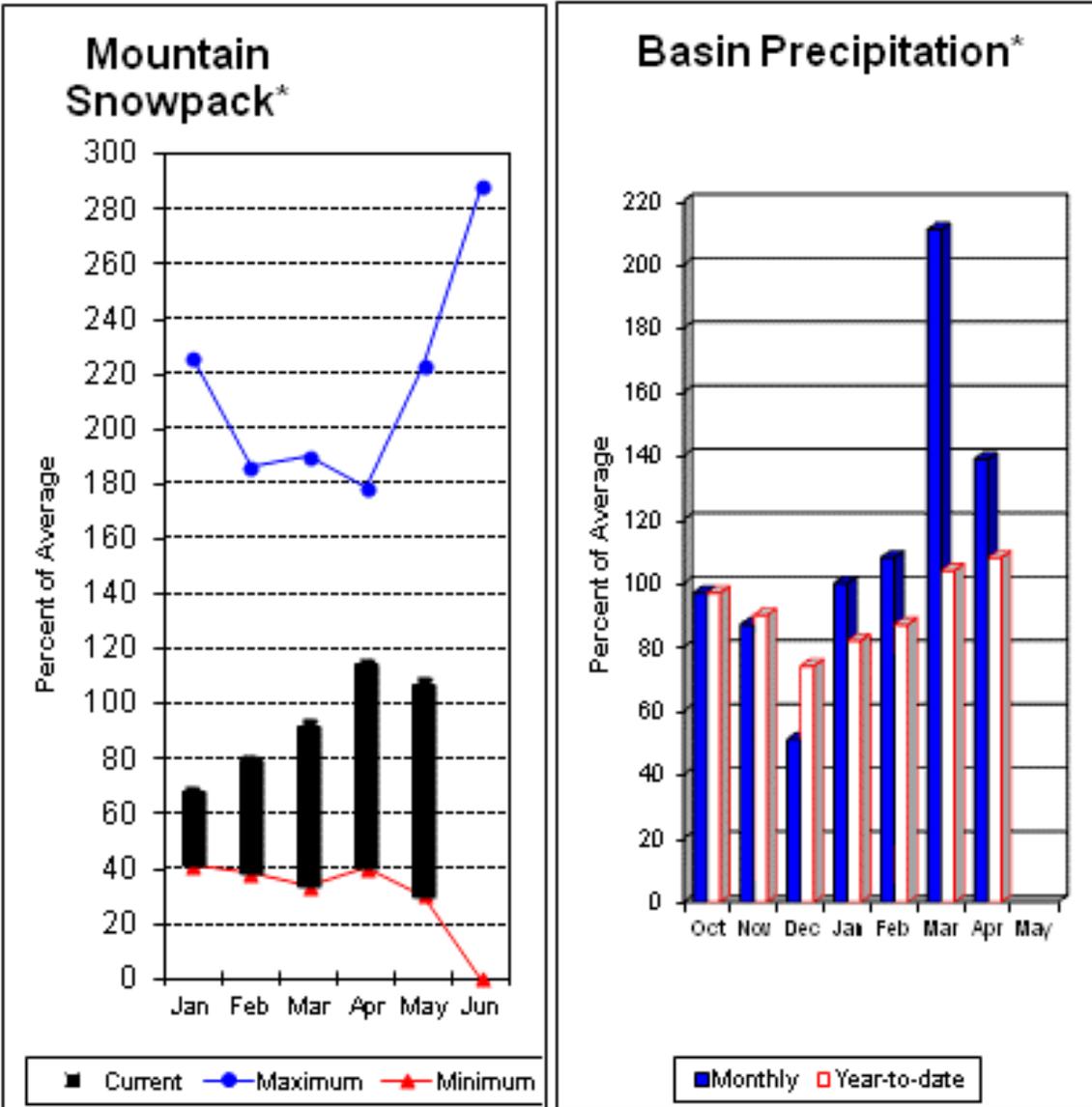
## May 1, 2012 - Snowpack, Precipitation and Reservoir Conditions at a Glance

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



PAGE INTENTIONALLY LEFT BLANK

# Spokane River Basin



\*Based on selected stations

The May 1 forecasts for summer runoff within the Spokane River Basin are 103% of average near Post Falls and 114% at Long Lake. The Chamokane River near Long Lake forecasted to have 119% of average flows for the May-August period. The forecast is based on a basin snowpack that is 107% of average and precipitation that is 108% of average for the water year. Precipitation for April was 139% of normal. Streamflow on the Spokane River at Long Lake was 184% of average for April. May 1 storage in Coeur d'Alene Lake was 489,000 acre feet, 196% of average and 205% of capacity. Snowpack at Quartz Peak SNOTEL site was 103% of average with 15.3 inches of water content. Average temperatures in the Spokane basin were 1-2 degrees above normal for April and for the water year.

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

# Spokane River Basin

## Streamflow Forecasts - May 1, 2012

Forecast Point	Forecast Period	Future Conditions				Wetter		30-Yr Avg. (1000AF)
		Drier		50%		30%	10%	
		90% (1000AF)	70% (1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
Spokane R nr Post Falls (2)	MAY-JUL	1260	1540	1720	103	1900	2180	1670
	MAY-SEP	1320	1620	1820	103	2020	2320	1770
Spokane R at Long Lake (2)	MAY-JUL	1630	1960	2180	114	2400	2730	1910
	MAY-SEP	1840	2180	2420	114	2660	3000	2130
Chamokane Ck nr Long Lake	MAY-AUG	7.5	10.2	12.1	119	14.0	16.7	10.2

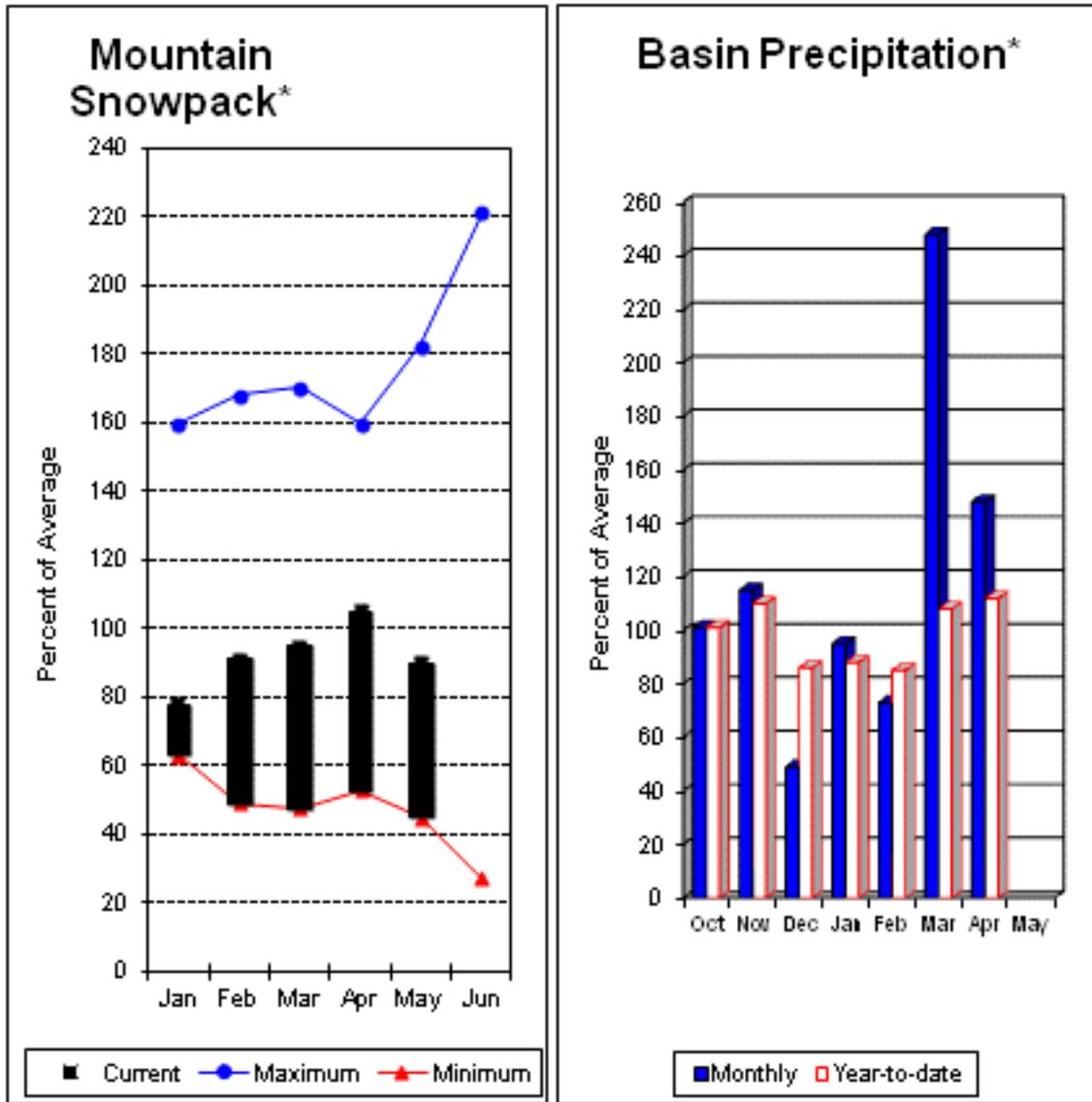
SPOKANE RIVER BASIN Reservoir Storage (1000 AF) - End of April					SPOKANE RIVER BASIN Watershed Snowpack Analysis - May 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
Coeur d'Alene		NO REPORT			SPOKANE RIVER	0	0	0
					NEWMAN LAKE	0	0	0

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

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

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

# Pend Oreille River Basins



\*Based on selected stations

The May – September average forecast for the Priest River near the town of Priest River is 105% and the Pend Oreille below Box Canyon is 109%. April streamflow was 167% of average on the Pend Oreille River and 132% on the Columbia Birchbank. May 1 snow cover was 90% of average in the Pend Oreille Basin River Basin. Bunchgrass Meadows SNOTEL site had 31.7 inches of snow water on the snow pillow. Normally Bunchgrass would have 28.6 inches on May 1. Precipitation during April was 148% of average, bringing the year-to-date precipitation to 112% of average. Reservoir storage in the basin, including Lake Pend Oreille and Priest Lake was 51% of normal. Average temperatures were 1-2 degrees above normal for April and for the water year.

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

# Pend Oreille River Basins

## Streamflow Forecasts - May 1, 2012

Forecast Point	Forecast Period	<<===== Drier =====>>		Future Conditions		===== Wetter =====>>		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (1000AF)	Chance Of Exceeding * (% AVG.)	30% (1000AF)	10% (1000AF)	
Pend Oreille Lake Inflow (2)	MAY-JUL	9950	10900	11600	109	12200	13200	10600
	MAY-SEP	11100	12200	12900	109	13700	14800	11800
Priest R nr Priest River (1,2)	MAY-JUL	540	605	650	106	695	760	615
	MAY-SEP	580	655	705	105	755	830	670
Pend Oreille R bl Box Canyon (2)	MAY-JUL	10100	11100	11700	109	12300	13300	10700
	MAY-SEP	11200	12300	13000	109	13700	14800	11900

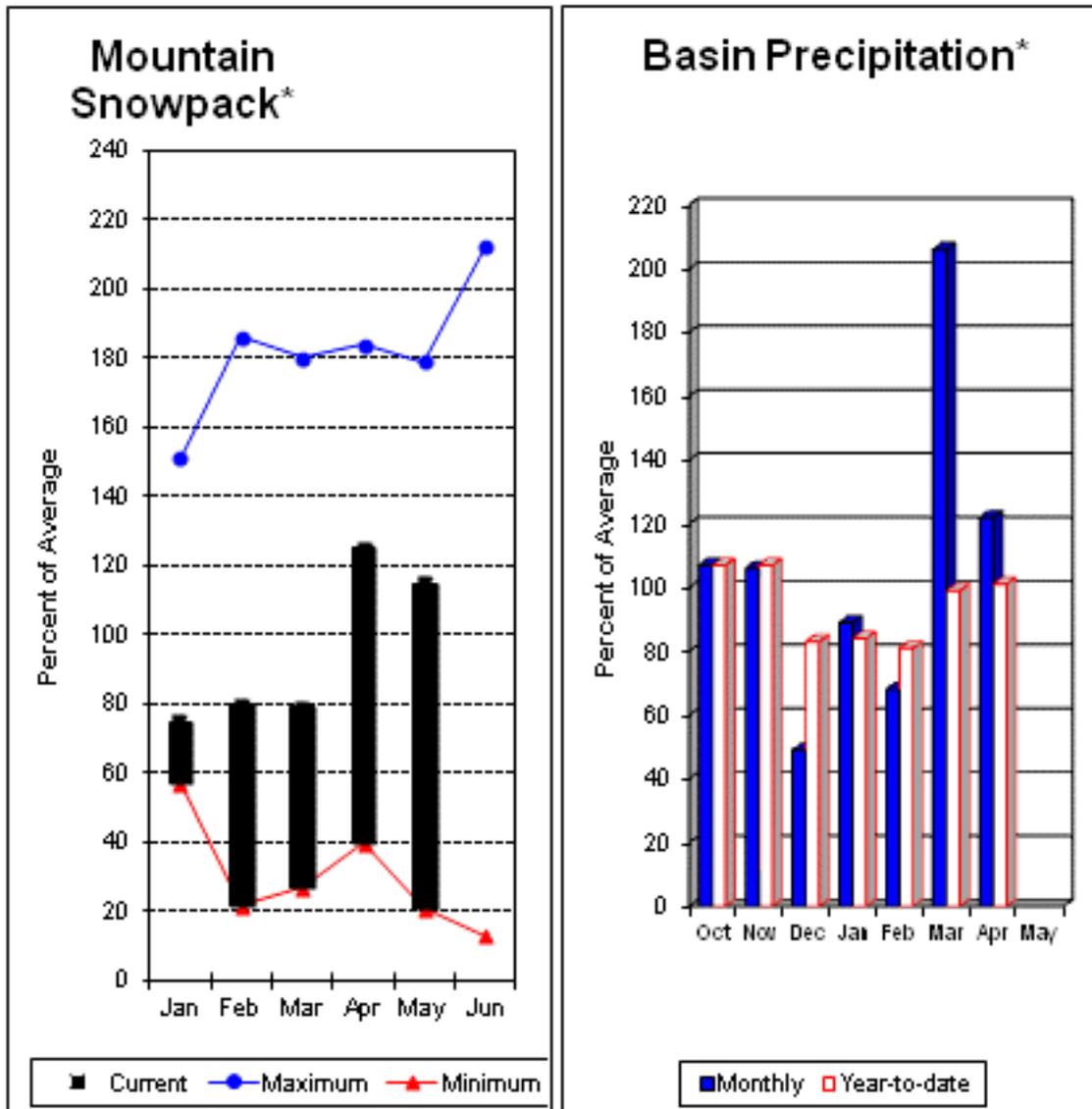
PEND OREILLE RIVER BASINS Reservoir Storage (1000 AF) - End of April					PEND OREILLE RIVER BASINS Watershed Snowpack Analysis - May 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
Pend Oreille		NO REPORT			COLVILLE RIVER	0	0	0
Priest Lake		NO REPORT			PEND OREILLE RIVER	0	0	0
					KETTLE RIVER	0	0	0

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

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

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

# Upper Columbia River Basins



\*Based on selected stations

Summer runoff average forecast for the Okanogan River is 118%, Similkameen River is 127%, Kettle River 102% and Methow River is 108%. May 1 snow cover on the Okanogan was 110% of average, Omak Creek was 134% and the Methow was 112%. April precipitation in the Upper Columbia was 122% of average, with precipitation for the water year at 101% of average. April streamflow for the Methow River was 133% of average, 112% for the Okanogan River and 134% for the Similkameen. Snow-water content at Moses Mountain SNOTEL was 14.6 inches. Average for this site is 10.9 inches on May 1. Combined storage in the Conconully Reservoirs was 22,000-acre feet, which is 93% of capacity and 115% of the May 1 average. Temperatures were near normal for April and slightly below average for the water year.

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

# Upper Columbia River Basins

## Streamflow Forecasts - May 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	MAY-JUL	55	78	94	119	110	133	79
	MAY-SEP	64	91	109	119	127	154	92
Kettle R nr Laurier	MAY-JUL	1320	1470	1580	103	1690	1840	1540
	MAY-SEP	1370	1550	1670	102	1790	1970	1640
Columbia R at Birchbank (1,2)	MAY-JUL	32800	36000	37500	119	39000	42200	31600
	MAY-SEP	42500	46400	48200	120	50000	53900	40200
Columbia R at Grand Coulee (2)	MAY-JUL	50900	53600	54800	118	56000	58700	46600
	MAY-SEP	63200	66100	67500	119	68800	71800	56700
Similkameen R nr Nighthawk (1)	MAY-JUL	1310	1480	1560	128	1640	1810	1220
	MAY-SEP	1410	1590	1680	127	1770	1950	1320
Okanogan R nr Tonasket (1)	MAY-JUL	1210	1520	1660	119	1800	2110	1400
	MAY-SEP	1380	1730	1890	119	2050	2400	1590
Okanogan R at Malott (1)	MAY-JUL	1240	1560	1710	118	1860	2180	1450
	MAY-SEP	1410	1770	1940	118	2110	2470	1640
Methow R nr Pateros	MAY-SEP	820	895	950	108	1000	1080	880
	MAY-JUL	750	825	875	108	925	1000	810

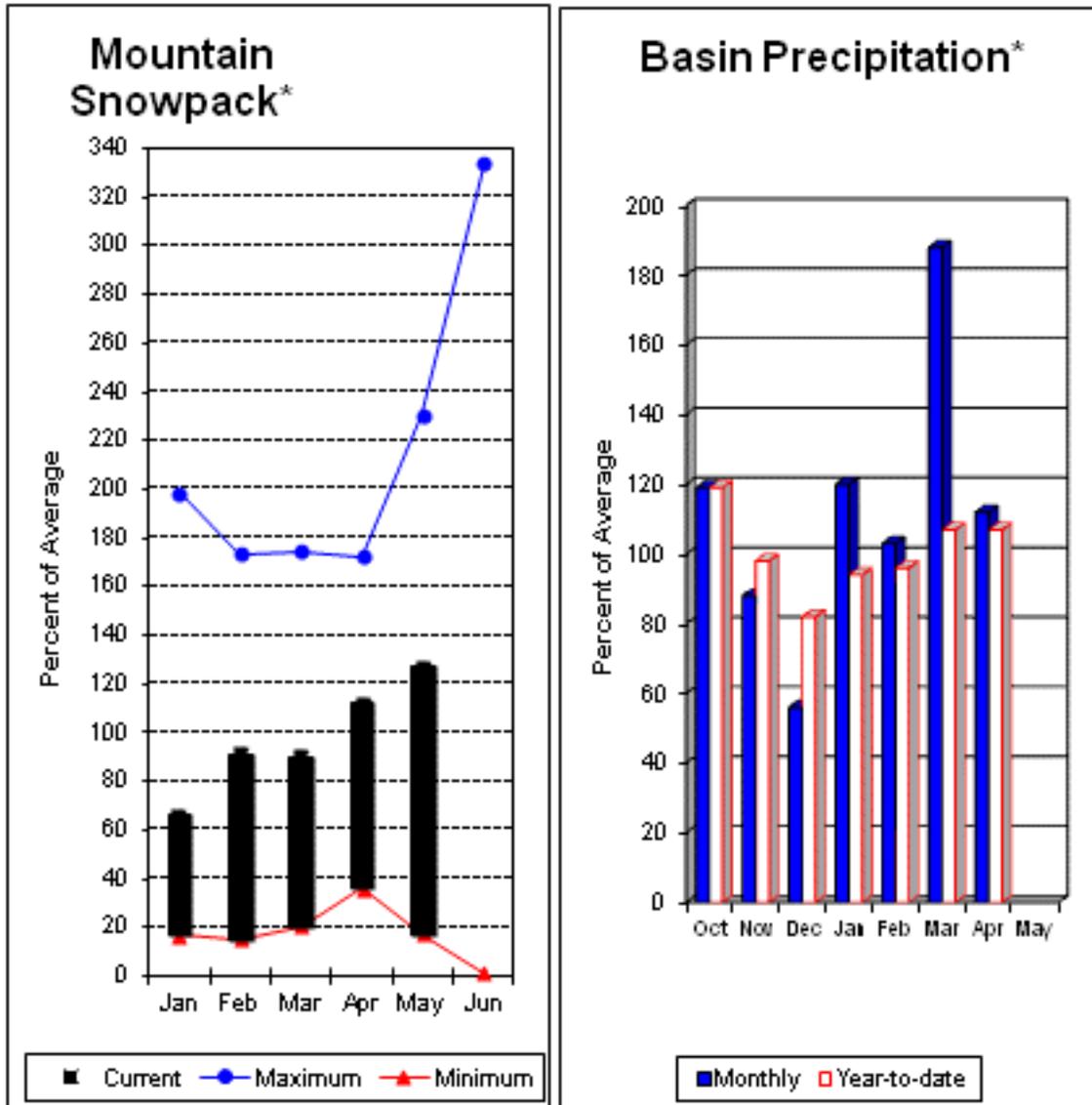
UPPER COLUMBIA RIVER BASINS Reservoir Storage (1000 AF) - End of April					UPPER COLUMBIA RIVER BASINS Watershed Snowpack Analysis - May 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
SALMON LAKE	10.5	8.9	9.0	8.9	OKANOGAN RIVER	13	77	110
CONCONULLY RESERVOIR	13.0	13.0	10.8	10.1	OMAK CREEK	1	71	134
					SANPOIL RIVER	0	0	0
					SIMILKAMEEN RIVER	5	103	119
					TOATS COULEE CREEK	0	0	0
					CONCONULLY LAKE	1	6	15
					METHOW RIVER	5	91	112

\* 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 April was 112% of average in the basin and 107% for the year-to-date. Runoff for Entiat River is forecast to be near average for the summer. The May-September average forecast for Chelan River is 109%, Wenatchee River at Plain is 108%, Stehekin River is 114% and Icicle Creek is 93%. April average streamflows on the Chelan River were 124% and on the Wenatchee River 103%. May 1 snowpack in the Wenatchee River Basin was 109% of average; the Chelan, 117%; the Entiat, 133%; Stemilt Creek, 83% and Colockum Creek, 193%. Reservoir storage in Lake Chelan was 273,000-acre feet, 103% of May 1 average and 40% of capacity. Lyman Lake SNOTEL had the most snow water with 68.5 inches of water. This site would normally have 67.2 inches on May 1. Temperatures were near normal for April and slightly below normal for the water year.

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

# Central Columbia River Basins

## Streamflow Forecasts - May 1, 2012

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		<<===== Drier =====>>		===== Wetter =====>>				
		90% (1000AF)	70% (1000AF)	50% (1000AF)	Chance Of Exceeding * (% AVG.)	30% (1000AF)	10% (1000AF)	
Stehekin R at Stehekin	MAY-JUL	600	665	710	115	755	820	620
	MAY-SEP	745	810	850	114	890	955	745
Chelan R at Chelan (2)	MAY-JUL	900	955	990	109	1030	1080	910
	MAY-SEP	1050	1100	1140	109	1180	1230	1050
Entiat R nr Ardenvoir	MAY-JUL	172	186	196	101	205	220	195
	MAY-SEP	190	205	215	100	225	240	215
Wenatchee R at Plain	MAY-JUL	880	940	985	109	1030	1090	905
	MAY-SEP	985	1050	1100	108	1150	1210	1020
Icicle Ck nr Leavenworth	MAY-JUL	215	240	255	94	270	295	270
	MAY-SEP	235	265	280	93	295	325	300
Wenatchee R at Peshastin	MAY-JUL	1190	1270	1330	106	1390	1470	1250
	MAY-SEP	1330	1420	1480	105	1540	1630	1410
Columbia R bl Rock Island Dam (2)	MAY-JUL	55600	58600	60600	119	62600	65600	51100
	MAY-SEP	67800	71400	73800	120	76200	79800	61600

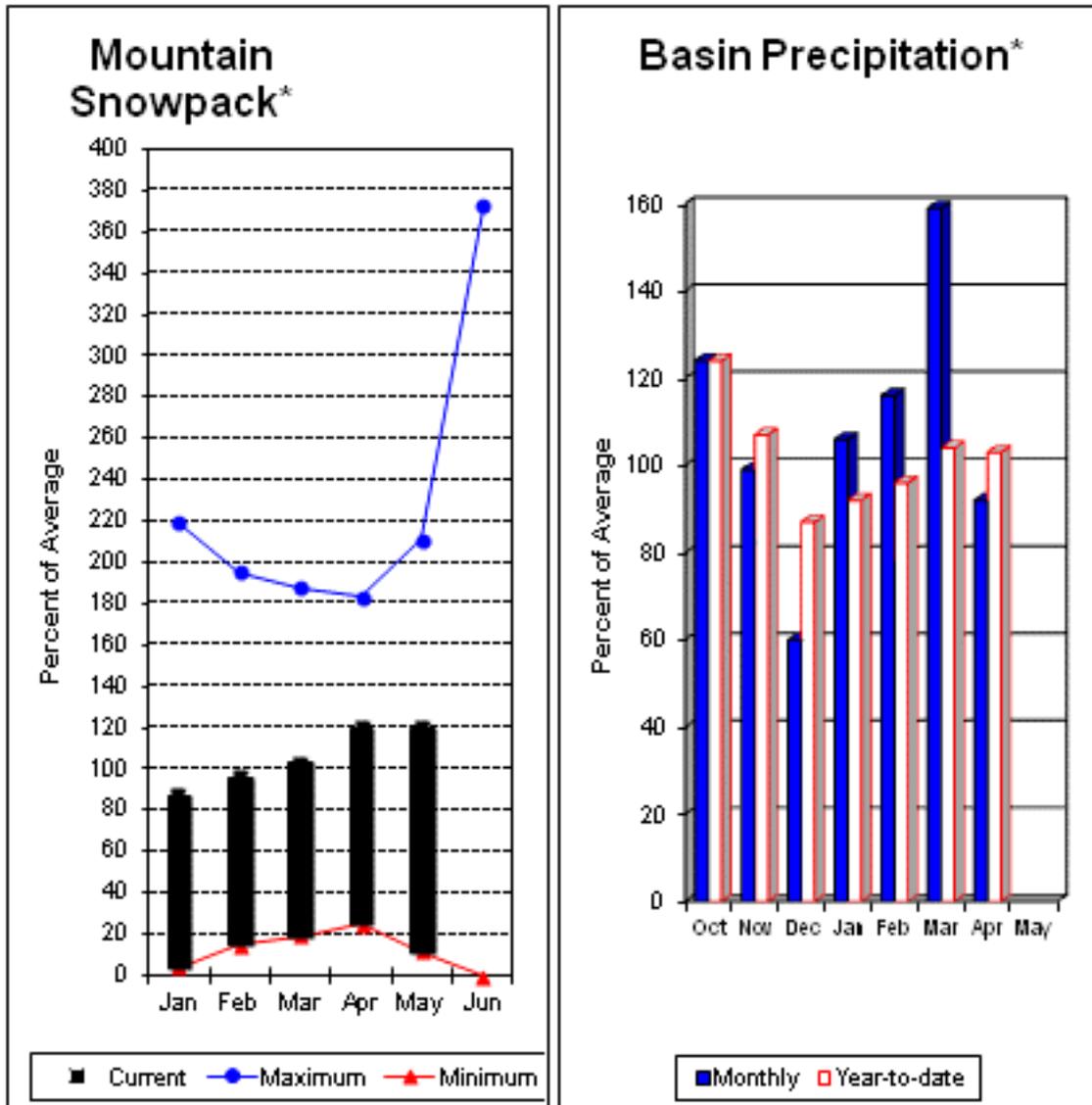
CENTRAL COLUMBIA RIVER BASINS Reservoir Storage (1000 AF) - End of April					CENTRAL COLUMBIA RIVER BASINS Watershed Snowpack Analysis - May 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
CHELAN LAKE		NO REPORT			CHELAN LAKE BASIN	0	0	0
					ENTIAT RIVER	0	0	0
					WENATCHEE RIVER	0	0	0
					STEMILT CREEK	0	0	0
					COLOCKUM CREEK	0	0	0

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

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

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

# Upper Yakima River Basin



\*Based on selected stations

May 1 reservoir storage for the Upper Yakima reservoirs was 737,000-acre feet, 119% of average. Forecasts for the Yakima River at Cle Elum are 105% of average and the Teanaway River near Cle Elum is at 117%. Lake inflows are all forecasted to be above normal this summer as well. April streamflows within the basin were Cle Elum River near Roslyn at 124%. May 1 snowpack was 120% based upon 8 snow course and SNOTEL readings within the Upper Yakima Basin. Precipitation was 92% of average for April and 103% 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 - May 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)			
Keechelus Reservoir Inflow (2)	MAY-JUL MAY-SEP	91 99	99 108	104 115	113 112	109 122	117 131	92 103
Kachess Reservoir Inflow (2)	MAY-JUL MAY-SEP	85 91	90 97	94 102	112 111	98 107	103 113	84 92
Cle Elum Lake Inflow (2)	MAY-JUL MAY-SEP	335 375	355 395	365 410	111 109	375 425	395 445	330 375
Yakima R at Cle Elum (2)	MAY-JUL MAY-SEP	605 650	645 710	675 750	106 105	705 790	745 850	635 715
Teanaway R bl Forks nr Cle Elum	MAY-JUL MAY-SEP	83 86	98 101	108 111	119 117	118 121	133 136	91 95

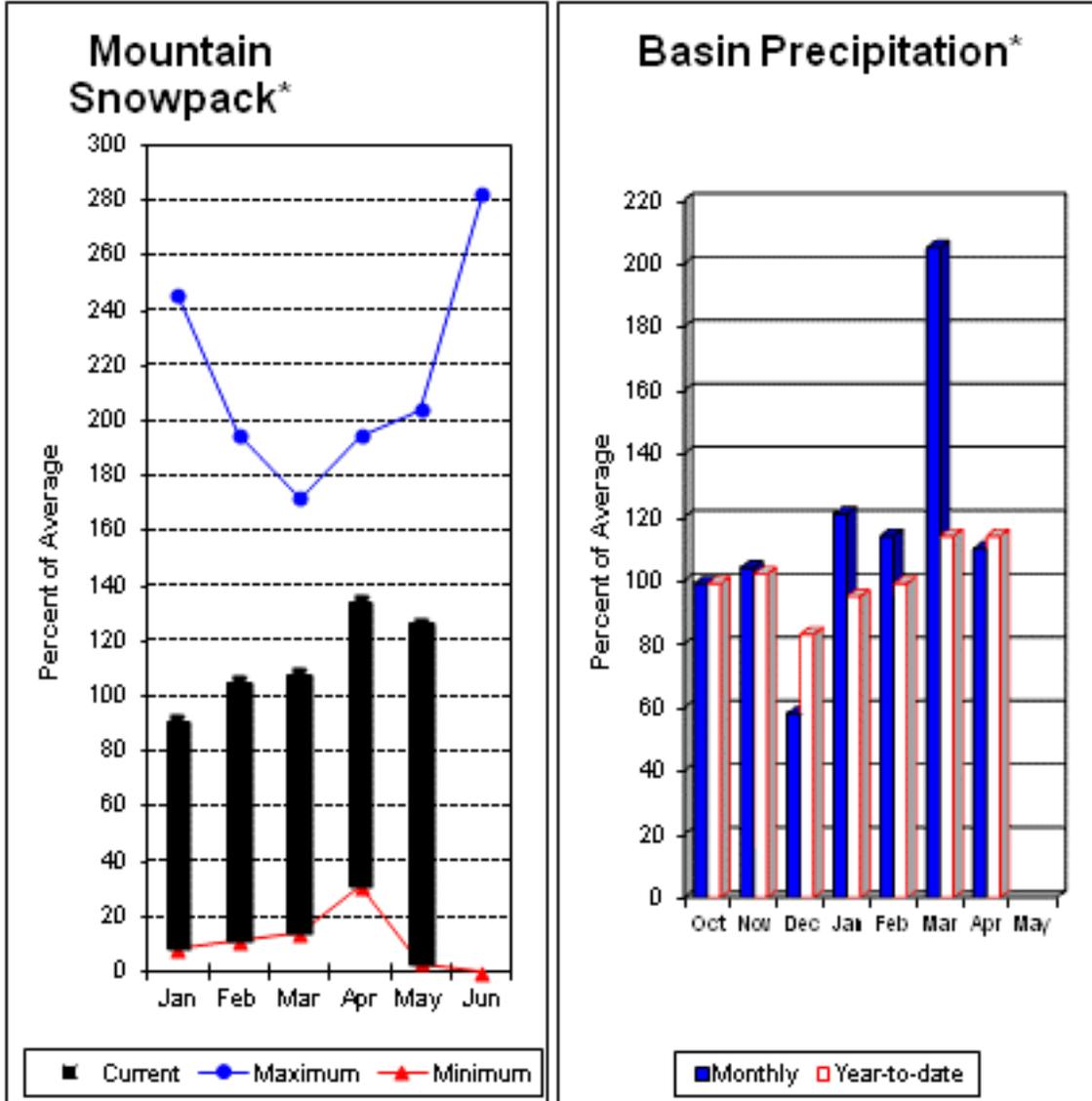
UPPER YAKIMA RIVER BASIN Reservoir Storage (1000 AF) - End of April					UPPER YAKIMA RIVER BASIN Watershed Snowpack Analysis - May 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
KEECHELUS		NO REPORT			UPPER YAKIMA RIVER	0	0	0
KACHESS		NO REPORT						
CLE ELUM		NO REPORT						

\* 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

April average streamflows within the basin were: Yakima River near Parker, 162%; Naches River near Naches, 178%; and Yakima River at Kiona, 159%. May 1 reservoir storage for Bumping and Rimrock reservoirs was 187,000-acre feet, 110% of average. Forecasted runoff for Yakima River near Parker is 117%; American River near Nile, 113%; Ahtanum Creek, 139%; and Klickitat River near Glenwood, 122%. May 1 snowpack was 126% based upon 6 snow course and SNOTEL readings within the Lower Yakima Basin and Ahtanum Creek reported in at 137% of average. Precipitation was 110% of average for April and 114% year-to-date. Temperatures were slightly above normal for April and slightly below for the water year. Volume forecasts for Yakima Basin are for natural flow. As such, they May differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

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

# Lower Yakima River Basin

## Streamflow Forecasts - May 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)
Bumping Lake Inflow (2)	MAY-JUL	98	111	120	117	129	142	103				
	MAY-SEP	108	122	131	116	140	154	113				
American R nr Nile	MAY-JUL	86	95	102	113	109	118	90				
	MAY-SEP	95	106	113	113	120	131	100				
Rimrock Lake Inflow (2)	MAY-JUL	168	182	191	114	200	215	168				
	MAY-SEP	205	220	230	112	240	255	205				
Naches R nr Naches (2)	MAY-JUL	575	640	685	120	730	795	570				
	MAY-SEP	630	705	755	120	805	880	630				
Ahtanum Ck at Union Gap	MAY-JUL	23	27	30	143	33	37	21				
	MAY-SEP	25	29	32	139	35	39	23				
Yakima R nr Parker (2)	MAY-JUL	1430	1530	1600	118	1670	1770	1360				
	MAY-SEP	1610	1720	1800	117	1880	1990	1540				
Klickitat R nr Glenwood	MAY-JUL	118	128	134	122	140	150	110				
	MAY-SEP	147	158	165	122	172	183	135				
Klickitat R nr Pitt	MAY-JUL	365	395	415	126	435	465	330				
	MAY-SEP	465	500	525	125	550	585	420				

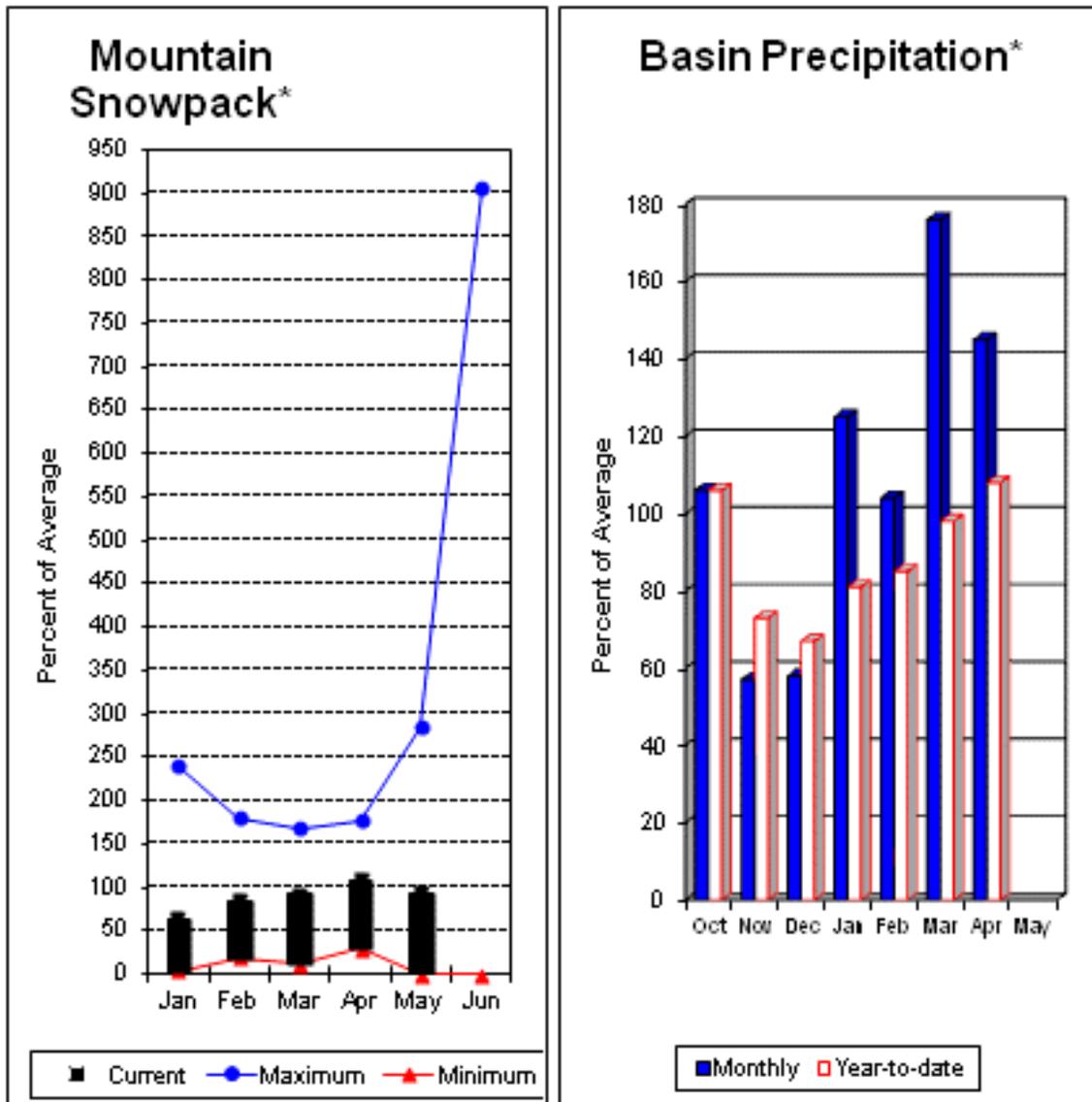
LOWER YAKIMA RIVER BASIN Reservoir Storage (1000 AF) - End of April					LOWER YAKIMA RIVER BASIN Watershed Snowpack Analysis - May 1, 2012				
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of		
		This Year	Last Year	Avg			Last Yr	Average	
BUMPING LAKE		NO REPORT			LOWER YAKIMA RIVER	0	0	0	
RIMROCK		NO REPORT			AHTANUM CREEK	0	0	0	

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

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

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

# Walla Walla River Basin



\*Based on selected stations

April precipitation was 145% of average, maintaining the year-to-date precipitation at 108% of average. Snowpack in the basin was 94% of average. Streamflow forecasts are 97% of average for Mill Creek and 94% for the SF Walla Walla near Milton-Freewater. April streamflow was 226% of average for the SF Walla Walla River. Average temperatures were 1-2 degrees above normal for April and near normal for the water year.

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

# Walla Walla River Basin

## Streamflow Forecasts - May 1, 2012

Forecast Point	Forecast Period	<<==== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)				
		90% (1000AF)		70% (1000AF)		50% (1000AF) (% AVG.)			30% (1000AF)		10% (1000AF)	
		Chance Of Exceeding *										
SF Walla Walla R nr Milton-Freewater	MAY-JUL	26	32	35	92	38	44	38				
	MAY-SEP	38	44	48	94	52	58	51				
Mill Ck nr Walla Walla	MAY-JUL	10.5	12.8	14.3	97	15.8	18.1	14.7				
	MAY-SEP	13.7	16.1	17.8	97	19.5	22	18.4				

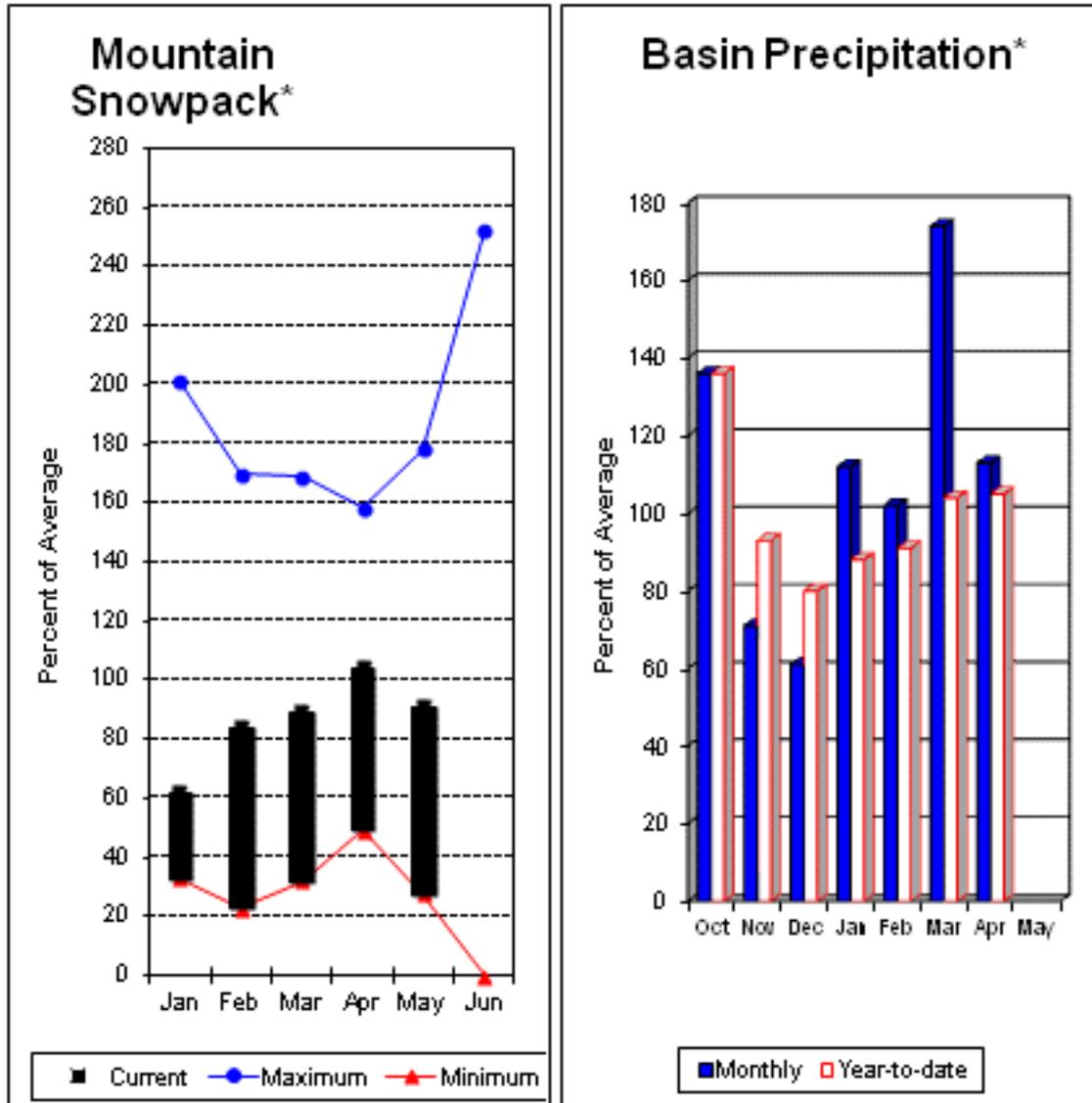
WALLA WALLA RIVER BASIN Reservoir Storage (1000 AF) - End of April					WALLA WALLA RIVER BASIN Watershed Snowpack Analysis - May 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					WALLA WALLA RIVER	0	0	0

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

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

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

# Lower Snake River Basin



\*Based on selected stations

The May - September forecast is for 102% for Clearwater River at Spalding. The Snake and Grande Ronde rivers can expect summer flows to be about 102% and 97% of normal respectively. The forecast for Asotin Creek at Asotin is 104% of average flows for the May – July runoff period. April precipitation was 113% of average, bringing the year-to-date precipitation to 105% of average. May 1 snowpack readings averaged 91% of average. April streamflow was 145% of average for Snake River below Lower Granite Dam and 138% for Grande Ronde River near Troy. Dworshak Reservoir storage was 94% of average. Average temperatures were 1-2 above below normal for April and for the water year.

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

# Lower Snake River Basin

## Streamflow Forecasts - May 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)	MAY-JUL	580	795	890	98	985	1200	910				
	MAY-SEP	665	880	980	97	1080	1290	1010				
Asotin Ck at Asotin	MAY-JUL	16.4	22	25	104	28	34	24				
Clearwater R at Spalding (1,2)	MAY-JUL	4690	5490	5850	101	6210	7010	5770				
	MAY-SEP	5060	5920	6310	102	6700	7560	6190				
Snake R bl Lower Granite Dam (1,2)	MAY-JUL	13300	15600	16600	99	17600	19900	16700				
	MAY-SEP	15700	18300	19500	101	20600	23300	19300				

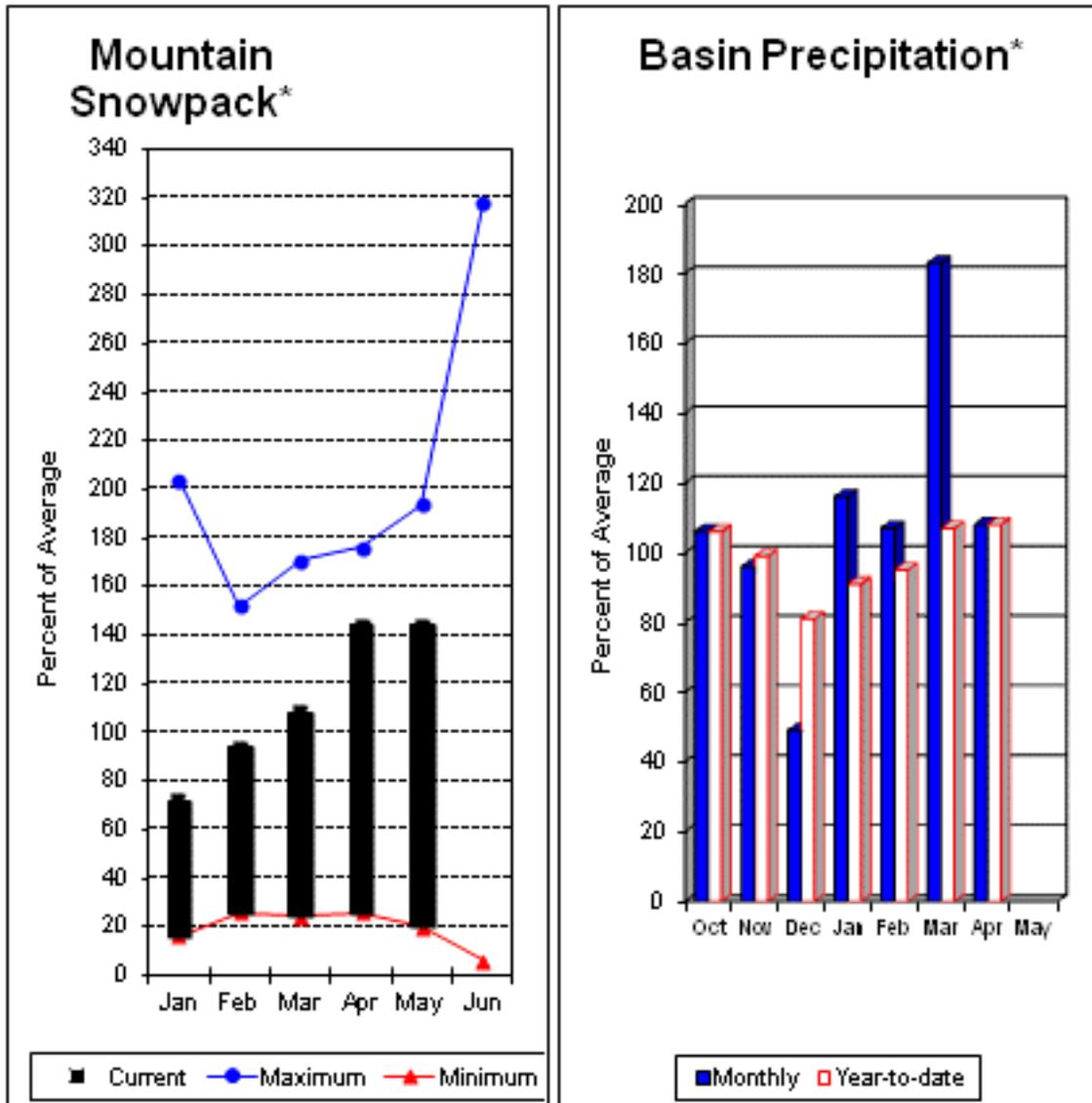
LOWER SNAKE RIVER BASIN Reservoir Storage (1000 AF) - End of April					LOWER SNAKE RIVER BASIN Watershed Snowpack Analysis - May 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
Dworshak	3468.0	2401.0	1502.8	2560.7	LOWER SNAKE, GRANDE RONDE	10	57	91

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

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

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

## Lower Columbia River Basins



\*Based on selected stations

Forecasts for May – September streamflows within the basin are Lewis River at Ariel, 116% and Cowlitz River at Castle Rock, 116% of average. The Columbia at The Dalles is forecasted to have 116% of average flows this summer. April average streamflow for Cowlitz River was 157%. The Columbia River at The Dalles was 150% of average. April precipitation was 108% of average and the water-year average was 108%. May 1 snow cover for Cowlitz River was 135%, and Lewis River was 152% of average. Temperatures were 1-2 degrees above normal during April and 1-2 degrees below normal for the water year.

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

# Lower Columbia River Basins

## Streamflow Forecasts - May 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)	MAY-JUL	73400	77600	80400	114	83200	87400	70500				
	MAY-SEP	89600	94600	98000	116	101000	106000	84500				
Klickitat R nr Glenwood	MAY-JUL	118	128	134	122	140	150	110				
	MAY-SEP	147	158	165	122	172	183	135				
Klickitat R nr Pitt	MAY-JUL	365	395	415	126	435	465	330				
	MAY-SEP	465	500	525	125	550	585	420				
Lewis R at Ariel (2)	MAY-JUL	640	725	785	118	845	930	667				
	MAY-SEP	780	875	940	116	1000	1100	812				
Cowlitz R bl Mayfield Dam (2)	MAY-JUL	1160	1330	1450	116	1570	1740	1247				
	MAY-SEP	1330	1560	1720	116	1880	2110	1478				
Cowlitz R at Castle Rock (2)	MAY-JUL	1560	1760	1890	116	2020	2220	1629				
	MAY-SEP	1920	2130	2280	116	2430	2640	1972				

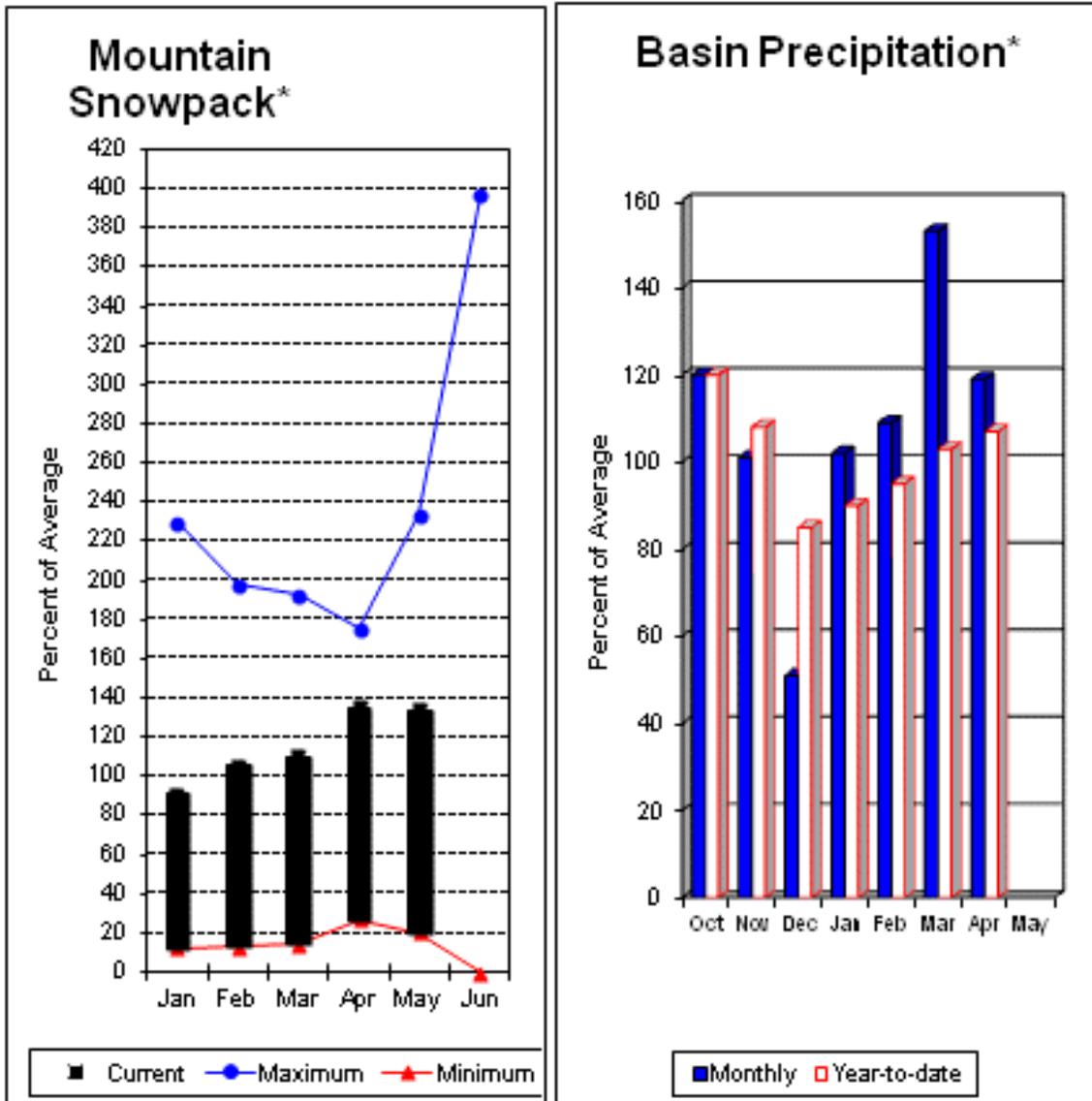
LOWER COLUMBIA RIVER BASINS Reservoir Storage (1000 AF) - End of April					LOWER COLUMBIA RIVER BASINS Watershed Snowpack Analysis - May 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
MOSSYROCK	0.0	1424.0	1310.0	---	LEWIS RIVER	5	80	152
SWIFT	0.0	747.7	723.4	---	COWLITZ RIVER	6	88	135
YALE	0.0	380.7	371.7	---				
MERWIN	0.0	408.5	395.3	---				

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

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

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (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 97% of normal for the Green River below Howard Hanson Dam and 110% for the White River near Buckley. May 1 snowpack was 124% of average for the White River, 140% for Puyallup River and 138% in the Green River Basin. Water content on May 1 at Corral Pass SNOTEL, at an elevation of 6,000 feet, was 44.5 inches. This site has a May 1 average of 35.3 inches. April precipitation was 119% of average, bringing the water year-to-date to 107% of average for the basins. Average temperatures in the area were 1-2 degrees above normal for April and 1-2 degrees below for the water-year.

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

# South Puget Sound River Basins

## Streamflow Forecasts - May 1, 2012

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		<<===== Drier =====>>		Chance Of Exceeding *		===== Wetter =====>>		
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
White R nr Buckley (1)	MAY-JUL	290	355	385	111	415	480	348
	MAY-SEP	370	450	485	110	520	600	442
Green R bl Howard Hanson Dam (1,2)	MAY-JUL	123	157	173	98	189	225	176
	MAY-SEP	137	177	195	97	215	255	202

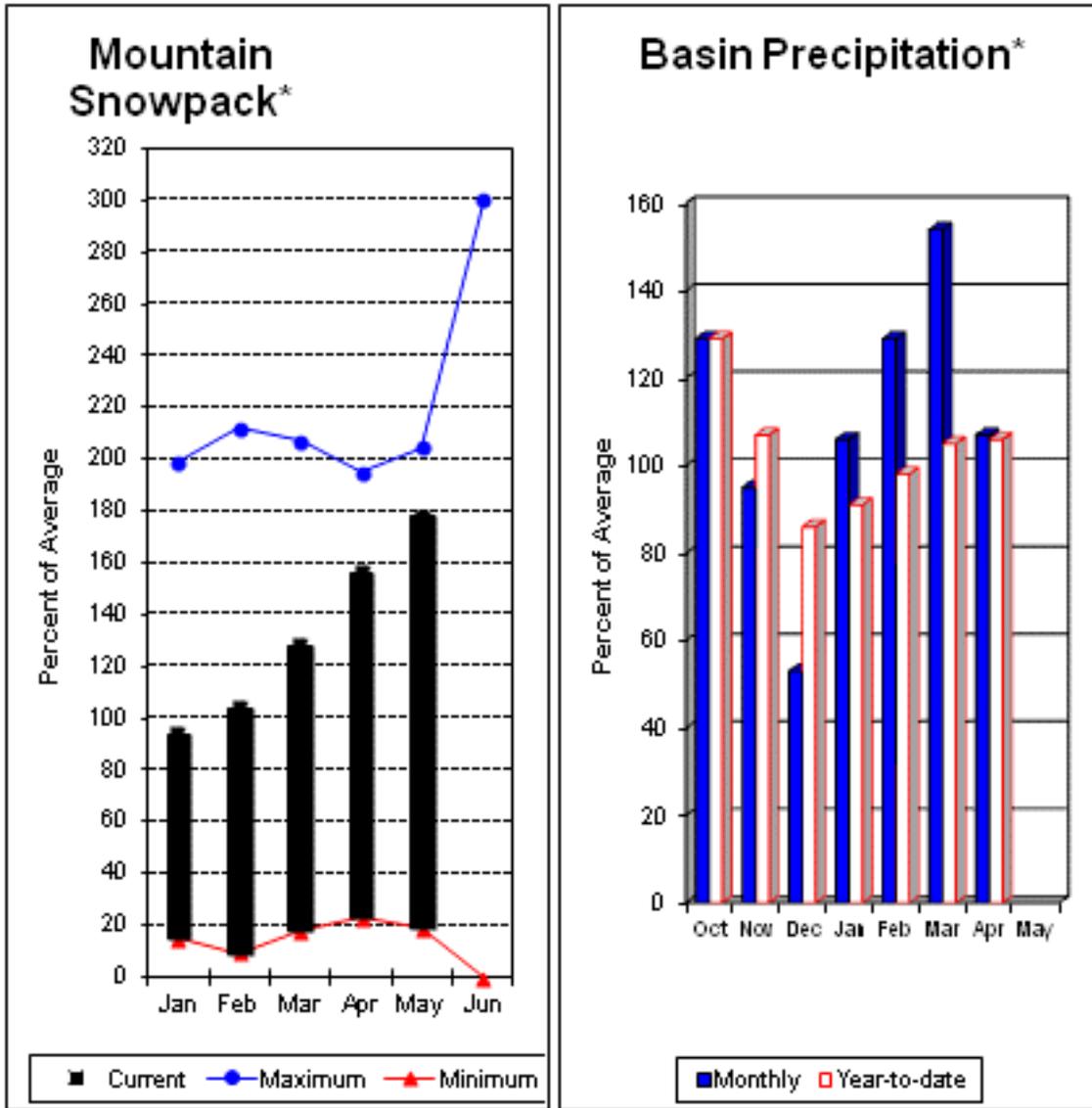
SOUTH PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of April					SOUTH PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - May 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					WHITE RIVER	3	96	124
					GREEN RIVER	3	94	138
					PUYALLUP RIVER	5	101	140

\* 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: 127% for Cedar River near Cedar Falls; 130% for Rex River; 125% for South Fork of the Tolt River; 118% for Taylor Creek near Selleck, and 137% for Cedar River at Cedar Falls. Basin-wide precipitation for April was 107% of average, bringing water-year-to-date to 106% of average. May 1 average snow cover in Cedar River Basin was 244%, Tolt River Basin was 188%, Snoqualmie River Basin was 147%, and Skykomish River Basin was 133%. Olallie Meadows SNOTEL site, at 3960 feet, had 75.6 inches of water content. Average May 1 water content is 55.1 inches at Olallie Meadows. Temperatures were near normal for April and 1-2 degrees below for the water-year.

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

# Central Puget Sound River Basins

## Streamflow Forecasts - May 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	MAY-JUL	57	63	67	129	71	77	52				
	MAY-SEP	63	70	75	127	80	87	59				
Rex R nr Cedar Falls	MAY-JUL	18.5	21	23	132	25	28	17.4				
	MAY-SEP	21	24	26	130	28	31	20				
Cedar R At Cedar Falls	MAY-JUL	50	59	65	138	71	80	47				
	MAY-SEP	46	56	63	137	70	80	46				
Taylor Creek Near Selleck	MAY-JUL	13.2	14.6	15.6	120	16.6	18.0	13.0				
	MAY-SEP	16.9	18.8	20	118	21	23	17.0				
SF Tolt R nr Index	MAY-JUL	10.6	12.6	14.0	127	15.4	17.4	11.0				
	MAY-SEP	12.0	14.7	16.5	125	18.3	21	13.2				

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

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

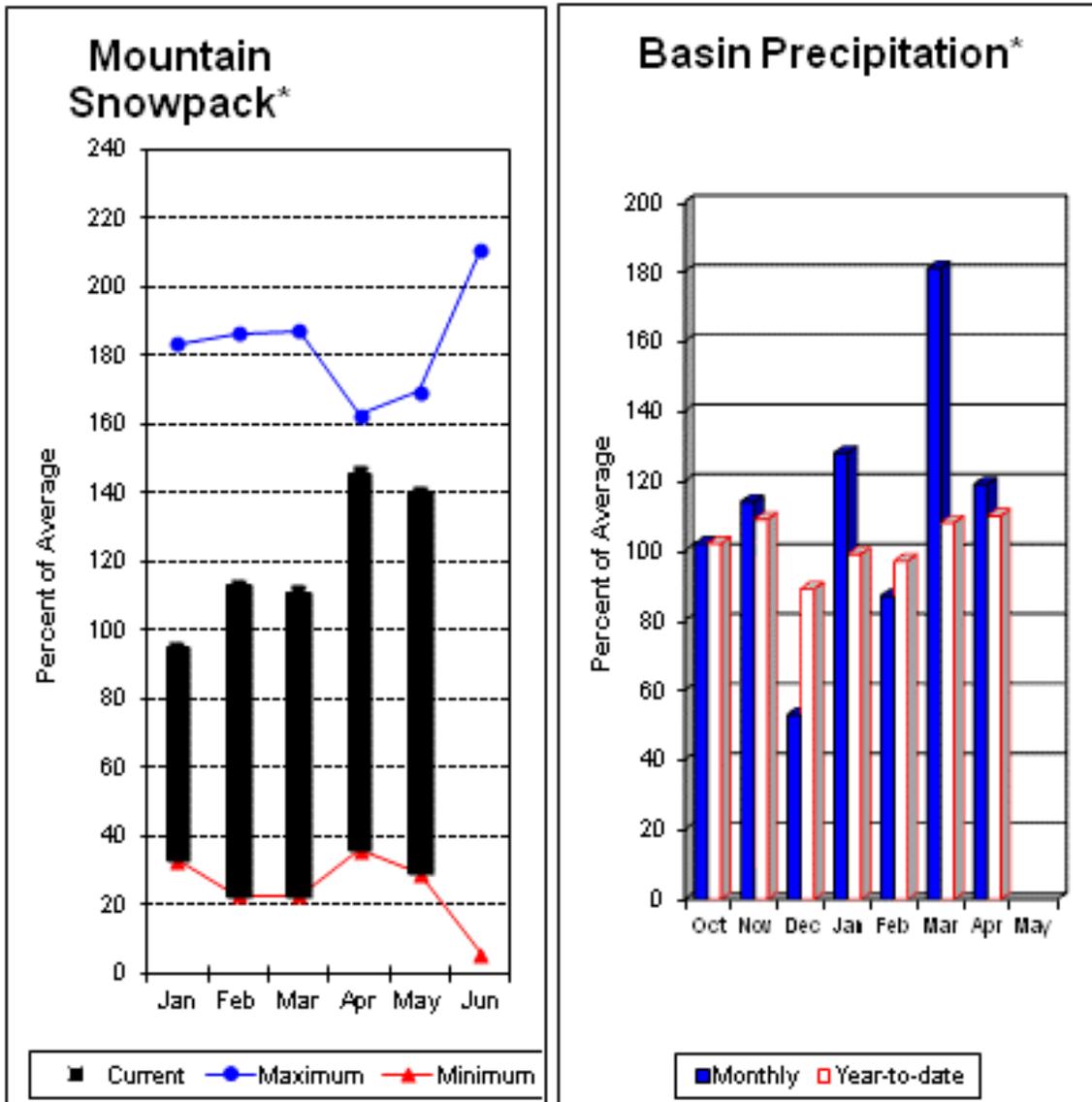
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					CEDAR RIVER	4	95	244
					TOLT RIVER	2	103	188
					SNOQUALMIE RIVER	4	108	147
					SKYKOMISH RIVER	2	101	133

\* 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 118% of average for the spring and summer period. April streamflow in Skagit River was 127% of average. Other forecast points included Baker River and Thunder Creek both at 107% of average. Basin-wide precipitation for April was 119% of average, bringing water-year-to-date to 110% of average. May 1 average snow cover in Skagit River Basin was 126%, Nooksack River Basin was 146% and Baker River Basin was estimated at 150% of average. Easy Pass SNOTEL has the highest swe ever recorded by a Washington SNOTEL site (maybe by any site in the network??). On May 3, it recorded 124.6 inches of SWE, eclipsing the old record set by Paradise SNOTEL back on May 7, 1997 of 123.1 inches SWE. May 1 Skagit River reservoir storage was 100% of average and 53% of capacity. Average temperatures for April were near normal for the basin and 1-2 degrees below for the water year.

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

# North Puget Sound River Basins

## Streamflow Forecasts - May 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	MAY-JUL	199	215	230	109	245	260	212
	MAY-SEP	295	315	330	107	345	365	310
Skagit R At Newhalem	MAY-JUL	1750	1850	1920	119	1990	2090	1611
	MAY-SEP	2110	2230	2310	118	2390	2510	1964
Baker R nr Concrete (2)	MAY-JUL	610	680	730	107	780	850	684
	MAY-SEP	770	885	965	107	1040	1160	906

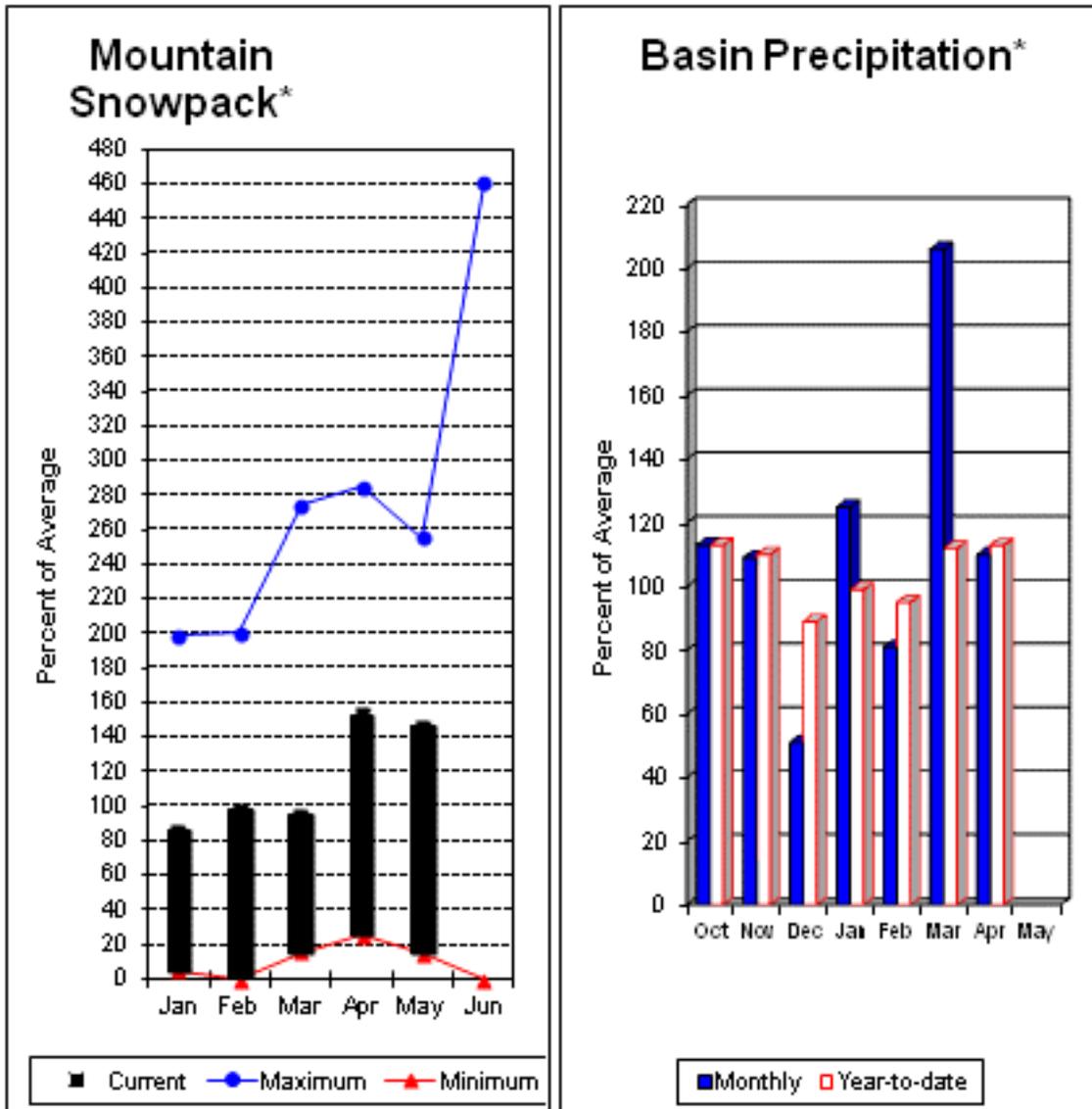
NORTH PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of April					NORTH PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - May 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
ROSS	1404.1	709.8	561.4	708.8	SKAGIT RIVER	16	97	130
DIABLO RESERVOIR	90.6	85.7	85.5	85.9	BAKER RIVER	0	93	0
					NOOKSACK RIVER	3	105	151

\* 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 114% and Elwha River is 119%. April runoff in the Dungeness River was 148% of normal. Big Quilcene and Wynoochee rivers should expect near to slightly above average runoff this summer as well. April precipitation was 110% of average. Precipitation has accumulated at 113% of average for the water year. April precipitation at Quillayute was 10.29 inches; the thirty-year average for April is 7.44 inches. Olympic Peninsula snowpack averaged 146% of normal on May 1. Temperatures were near average for April and 1-2 degrees below for the water year.

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

# Olympic Peninsula River Basins

## Streamflow Forecasts - May 1, 2012

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		Drier		Wetter		Wetter		
		90% (1000AF)	70% (1000AF)	50% (1000AF)	10% (1000AF)	30% (1000AF)	10% (1000AF)	
		Chance Of Exceeding *						
				50% (% AVG.)				
Dungeness R Nr Sequim	MAY-JUL	102	113	120	114	127	138	105
	MAY-SEP	129	142	151	114	160	173	132
Elwha R At Mcdonald Bridge	MAY-JUL	360	385	405	120	425	450	338
	MAY-SEP	445	480	505	119	530	565	423

OLYMPIC PENINSULA RIVER BASINS Reservoir Storage (1000 AF) - End of April					OLYMPIC PENINSULA RIVER BASINS Watershed Snowpack Analysis - May 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	83	146

\* 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**  
**Natural Resources Conservation Service**  
**U.S. Department of Agriculture**

*Released by*

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

---

## 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.



Washington Snow Survey Office  
2021 E. College Way, Suite 214  
Mount Vernon, WA 98273-2873



# Washington Water Supply Outlook Report

Natural Resources Conservation Service  
Spokane, WA

