

Washington Water Supply Outlook Report April 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

April 2012

General Outlook

Last month was another record breaker with a least two sites in the North Cascades setting new monthly snow water accumulation records. March storms dumped a ton of snow and increased basin averages by nearly 60% in some cases. For starting the year with a so-so snowpack we're rounding the final bases with a statewide grand slam. With almost 200% of normal total precipitation for the month it seemed like it would never quit raining. Again all areas of the state have caught up or exceeded normal precipitation averages for the water year. Weather forecasters are predicting a continuation of below average temperatures for April however exact precipitation forecasts are still up in the air. They are still looking at the possibility of a warm and dry summer, once we get through the next month or two.

Snowpack

The April 1 statewide SNOTEL readings were 137% of average, 28% higher than last month. No major basin in the state should be lacking for water this year. The Stemilt Creek basin is the only anomaly with 89% of average. Snow surveys from the Cedar River reported the highest at 177% of average followed closely by the Tolt with 165% and the Olympics with 153%. Westside averages from SNOTEL, and April 1 snow surveys, included the North Puget Sound river basins with 146% of average, the Central Puget river basins with 156%, and the Lewis-Cowlitz basins with 144% of average. Snowpack along the east slopes of the Cascade Mountains included the Yakima area with 127% and the Wenatchee area with 112%. Snowpack in the Spokane River Basin was at 114% and the Walla Walla River Basin had 108% of average.

BASIN	PERCENT OF LAST YEAR	PERCENT OF AVERAGE
Spokane	99	114
Newman Lake	108	138
Pend Oreille	88	105
Okanogan	99	109
Methow	101	117
Conconully Lake	82	112
Wenatchee	114	112
Chelan	111	114
Upper Yakima	129	120
Lower Yakima	119	134
Ahtanum Creek	132	142
Walla Walla	108	108
Lower Snake	96	104
Cowlitz	118	143
Lewis	105	144
White	114	130
Green	156	135
Puyallup	132	141
Cedar	166	177
Snoqualmie	146	144
Skykomish	138	137
Skagit	115	137
Baker	N/A	N/A
Nooksack	107	151
Olympic Peninsula	99	153

Precipitation

During the month of March, the National Weather Service and Natural Resources Conservation Service climate stations reported above average precipitation totals throughout Washington river basins. The highest percent of average in the state was at Trough SNOTEL near Wenatchee which reported 326% of average for a total of 7.6 inches. The average for Trough is 2.33 inches for March. Swift Creek SNOTEL near Mt. St. Helens was the wettest spot in the state last month with 33.1 inches, that's over 1 inch per day as another way to look at it.

RIVER BASIN	MARCH PERCENT OF AVERAGE	WATER YEAR PERCENT OF AVERAGE
Spokane	211	104
Pend Oreille	248	108
Upper Columbia	206	99
Central Columbia	188	107
Upper Yakima	159	104
Lower Yakima	205	114
Walla Walla	176	98
Lower Snake	174	104
Lower Columbia	183	107
South Puget Sound	153	103
Central Puget Sound	154	105
North Puget Sound	181	108
Olympic Peninsula	206	112

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 639,000-acre feet, 115% of average for the Upper Reaches and 179,000-acre feet or 118% of average for Rimrock and Bumping Lakes. Storage at the Okanogan reservoirs was 116% of average for April 1. The power generation reservoirs included the following: Coeur d'Alene Lake, 303,000 acre feet, 179% of average and 127% of capacity; Chelan Lake, 124,000-acre feet, 66% of average and 21% of capacity; and the Skagit River reservoirs at 86% of average and 45% 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	127	179
Pend Oreille	46	94
Upper Columbia	87	116
Central Columbia	21	66
Upper Yakima	77	115
Lower Yakima	77	118
Lower Snake	66	103
North Puget Sound	45	86

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

Streamflow

Forecasts vary from 90% of average for Kettle and S.F Walla Walla rivers to 138% of average for Ahtanum Creek and Cedar River. April-September forecasts for some Western Washington streams include the S.F. Tolt River near Index, 124%; White River, 113%; and Dungeness River, 114%. Some Eastern Washington streams include the Yakima River near Parker, 121%; Wenatchee River at Plain, 110%; and Spokane River near Post Falls, 119%. Volumetric forecasts are developed using current, historic and average snowpack, precipitation and streamflow data collected and coordinated by organizations cooperating with NRCS. April 1 forecasts are typically based on seasonal maximum or near maximum snowpack allowing for the best accuracy and correlation to historic runoff.

Runoff for March varied greatly throughout the state. The cause most likely being the difference in uncontrolled and reservoir controlled streams. The S.F. Walla Walla River had the highest reported flows with 179% of average. The Kettle River with 30% of average was the lowest in the state however this gage could be influenced by ice. Other streamflows were the following percentage of average as reported by the River Forecast Center: the Snake below Ice Harbor Dam, 106%; the Lewis at Ariel, 107%; the Columbia below Rock Island Dam, 95%; and the Bumping River near Nile, 74%.

BASIN	PERCENT OF AVERAGE (50 PERCENT CHANCE OF EXCEEDENCE)
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Spokane	102-119
Pend Oreille	102-107
Upper Columbia	90-116
Central Columbia	104-113
Upper Yakima	109-121
Lower Yakima	118-138
Walla Walla	90-104
Lower Snake	101-123
Lower Columbia	111-128
South Puget Sound	113-116
Central Puget Sound	117-138
North Puget Sound	106-117
Olympic Peninsula	114-117

STREAM	PERCENT OF AVERAGE MARCH STREAMFLOWS
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Pend Oreille Below Box Canyon	106
Kettle at Laurier	30
Columbia at Birchbank	93
Spokane at Long Lake	121
Similkameen at Nighthawk	70
Okanogan at Tonasket	53
Methow at Pateros	60
Chelan at Chelan	81
Wenatchee at Pashastin	62
Cle Elum near Roslyn	69
Yakima at Parker	78
Naches at Naches	77
Grande Ronde at Troy	105
Snake below Lower Granite Dam	95
SF Walla Walla near Milton Freewater	179
Columbia River at The Dalles	97
Cowlitz below Mayfield Dam	118
Skagit at Concrete	81
Dungeness near Sequim	90

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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 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	68
Pend Oreille	69
Upper Columbia	37
Central Columbia	54
Upper Yakima	61
Lower Yakima	79
Walla Walla	79
Lower Snake	79
Lower Columbia	81
South Puget Sound	81
Central Puget Sound	N/A
North Puget Sound	87
Olympic Peninsula	37

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

APRIL 2012

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00	GOLD MTN LOOKOUT GRAVE CRK SNOTEL SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
								4300	3/29/12	52	15.2	13.9	--
								4300	4/01/12	51	18.3	21.1	15.6
ABERDEEN LAKE CAN.	4000	4/02/12	23	6.0	--	5.6							
AHTANUM R.S.	3100	3/30/12	0	.0	4.8	5.3							
ALPINE MEADOWS	3500	4/02/12	146	60.3	44.1	42.3	GREEN LAKE SNOTEL	5920	4/01/12	120	38.1	25.6	23.0
ALPINE MEADOWS SNTL	3500	4/01/12	140	67.4	46.3	43.6	GRIFFIN CR DIVIDE	5150	3/29/12	34	9.7	14.1	10.3
AMBROSE	6480	3/28/12	11	14.2	16.5	12.4	GROUSE CAMP SNOTEL	5390	4/01/12	87	26.4	21.9	19.8
ASHLEY DIVIDE	4820	3/30/12	21	6.6	11.0	6.0	GUNSIGHT LAKE	6300	3/27/12	103	37.4	45.3	39.3
BADGER PASS SNOTEL	6900	4/01/12	100	42.3	37.7	35.3	HAMILTON HILL CAN.	4550	3/27/12	44	14.4	11.6	14.0
BAIRD #2	3220	3/30/12	23	6.4	8.4	--	HAND CREEK SNOTEL	5030	4/01/12	40	12.9	14.9	11.7
BAREE CREEK	5500	3/27/12	115	42.7	51.7	43.1	HARTS PASS SNOTEL	6490	4/01/12	132	52.7	57.3	46.3
BAREE MIDWAY	4600	3/27/12	102	36.0	35.2	33.0	HELL ROARING DIVIDE	5770	3/28/12	88	29.8	35.1	29.5
BAREE TRAIL	3800	3/27/12	36	12.2	14.3	7.7	HERRIG JUNCTION	4850	3/27/12	79	27.1	30.9	26.0
BARKER LAKES SNOTEL	8250	4/01/12	47	13.6	15.3	14.6	HIGH RIDGE SNOTEL	4920	4/01/12	72	24.9	27.4	23.1
BARNES CREEK CAN.	5320	4/01/12	---	22.3	20.7	20.4	HOODOO BASIN SNOTEL	6050	4/01/12	137	48.6	49.7	45.3
BASIN CREEK SNOTEL	7180	4/01/12	20	6.4	8.2	8.7	HUCKLEBERRY SNOTEL	2250	4/01/12	8	3.4	.2	.4
BASSOO PEAK	5150	3/29/12	33	10.5	14.3	9.7	HUMBOLDT GLCH SNOTEL	4250	4/01/12	---	18.4	15.8	11.2
BEAVER CREEK TRAIL	2200	3/31/12	66	25.3	18.3	11.7	INDIAN ROCK SNOTEL	5360	4/01/12	108	42.6	40.6	--
BEAVER PASS	3680	4/02/12	126	42.2	35.8	28.8	INTERGAARD	6450	3/24/12	26	7.8	8.1	7.7
BEAVER PASS SNOTEL	3630	4/01/12	156	60.4	50.3	38.6	IRENE'S CAMP	5530	3/26/12	40	10.2	12.8	--
BIG WHITE MTN CAN.	5510	3/31/12	60	18.8	20.0	20.0	ISINTOK LAKE CAN.	5100	3/30/12	30	7.9	6.7	7.2
BLACK MOUNTAIN	7750	3/28/12	49	15.5	16.2	14.6	JUNE LAKE SNOTEL	3440	4/01/12	134	60.2	60.1	35.7
BLACK PINE SNOTEL	7100	4/01/12	35	13.2	15.1	12.5	KELLER RIDGE	3700	3/28/12	16	4.7	2.8	--
BLACKWALL PILL CAN.	6370	4/01/12	120	44.7	37.2	35.1	KELLOGG PEAK	5560	3/29/12	70	25.7	34.4	29.2
BLEWETT PASS#2SNOTEL	4240	4/01/12	44	19.5	13.8	16.4	KISHENEHN	3890	3/28/12	27	9.5	10.5	6.8
BLUE LAKE	5900	3/27/12	65	23.2	26.8	23.7	KIT CARSON PASTURE	4950	3/27/12	19	6.6	5.8	8.1
BONAUPART SOUTH	4660	3/28/12	22	5.7	6.8	--	KRAFT CREEK SNOTEL	4750	4/01/12	33	13.4	16.3	14.1
BRENDA MINE CAN.	4450	3/29/12	38	11.6	--	12.5	LAMB BUTTE	3/30/12	64	20.5	17.0	--	
BROOKMERE CAN.	3000	3/30/12	34	8.8	16.5	7.9	LIGHTNING LAKE CAN.	3700	3/27/12	56	17.5	13.6	12.0
BROWN TOP AM	6000	3/30/12	215	73.1	86.4	60.8	LOGAN CREEK	4300	3/27/12	29	7.8	11.4	6.7
BROWNS PASS		3/28/12	7	2.1	6.1	--	LOLO PASS SNOTEL	5240	4/01/12	83	32.0	32.3	30.3
BRUSH CREEK TIMBER	5000	3/27/12	42	15.7	19.9	8.1	LONE PINE SNOTEL	3930	4/01/12	143	57.2	55.2	36.4
BUCKINGHORSE SNOTEL	4870	4/01/12	213	84.3	83.3	--	LOOKOUT SNOTEL	5140	4/01/12	92	34.0	33.4	31.8
BULL MOUNTAIN	6600	3/29/12	14	4.4	7.6	5.9	LOST HORSE MTN CAN.	6300	3/25/12	33	9.6	11.5	9.4
BUMPING LAKE (NEW)	3400	3/30/12	69	24.0	21.5	17.6	LOST HORSE SNOTEL	5120	4/01/12	84	27.9	19.7	18.3
BUMPING RIDGE SNOTEL	4610	4/01/12	118	37.8	32.6	28.6	LOST LAKE SNOTEL	6110	4/01/12	157	58.7	61.4	60.0
BUNCHGRASS MDWSNOTEL	5000	4/01/12	103	33.8	29.2	30.2	LOST LAKE	4070	3/28/12	26	6.4	7.9	--
BURNT MOUNTAIN PILL	4170	4/01/12	79	28.9	15.4	13.7	LOUP LOUP CAMPGROUND		3/30/12	31	8.2	11.8	--
BUTTE CREEK #2		3/27/12	30	7.8	9.1	--	LOWER SANDS CREEK #2	3120	4/02/12	63	23.8	23.6	18.9
BUTTERMILK BUTTE	5250	3/29/12	53	15.5	15.8	--	LUBBRECHT FOREST NO 3	5450	3/31/12	16	4.8	7.1	5.7
CALAMITY SNOTEL	2500	4/01/12	10	3.9	5.1	--	LUBBRECHT FOREST NO 4	4650	3/31/12	2	.6	2.5	1.3
CARMICAN CAN.	4100	3/30/12	18	5.3	5.2	5.6	LUBBRECHT FOREST NO 6	4040	3/31/12	4	1.1	4.9	1.6
CAYUSE PASS SNOTEL	5240	4/01/12	220	75.7	72.4	--	LUBBRECHT HYDROPLOT	4200	3/31/12	12	3.7	6.7	2.9
CEDAR GROVE	3760	3/30/12	40	13.0	13.4	11.4	LUBBRECHT SNOTEL	4680	4/01/12	11	4.0	6.8	3.6
CHAMOKANE 2	3520	3/29/12	28	9.8	4.3	--	LYMAN LAKE SNOTEL	5980	4/01/12	191	66.2	66.8	65.4
CHESSMAN RESERVOIR	6200	3/26/12	17	5.5	6.4	3.5	LYNN LAKE	4000	4/01/12	96	37.6E	--	20.4
CHEWALAH #2	4930	3/26/12	70	20.5	--	--	LYNN LAKE SNOTEL	3900	4/01/12	96	37.6	18.3	--
CHICKEN CREEK	4060	3/27/12	55	18.6	20.8	15.2	MARTEN RIDGE SNOTEL	3520	4/01/12	189	88.2	74.6	--
CITY CABIN	2390	4/02/12	44	21.0	6.8	11.1	MAZAMA		3/30/12	25	9.6	8.3	--
CLOUDY PASS AM	6500	3/30/12	155	54.0	55.8	50.1	MEADOWS CABIN	1900	4/01/12	22	8.4	1.8	4.0
COLD CREEK STRIP	6020	3/26/12	38	9.5	12.0	--	MEADOWS PASS SNOTEL	3230	4/01/12	104	46.5	29.6	23.9
COLOCKUM PASS	5370	4/03/12	60	16.2	19.1	16.3	METEOR		3/27/12	10	3.3	.0	--
COMBINATION SNOTEL	5600	4/01/12	8	2.9	6.0	4.9	MICA CREEK SNOTEL	4510	4/01/12	74	25.5	24.7	25.1
COPPER BOTTOM SNOTEL	5200	4/01/12	14	5.5	7.0	11.0	MINERAL CREEK	4000	3/29/12	40	15.4	21.2	17.4
COPPER MOUNTAIN	7700	3/27/12	31	8.7	14.0	11.2	MISSEZULA MTN CAN.	5080	3/25/12	33	9.7	9.2	9.5
CORRAL PASS SNOTEL	5800	4/01/12	128	44.0	36.9	34.9	MISSION CREEK CAN.	5840	4/01/12	70	21.6	20.0	20.0
COTTONWOOD CREEK	6400	3/28/12	27	8.0	8.0	8.3	MISSION RIDGE	5000	3/26/12	52	15.6E	19.2	17.4
COUGAR MTN. SNOTEL	3200	4/01/12	64	27.3	15.4	17.7	MORSE LAKE SNOTEL	5410	4/01/12	187	70.8	60.3	55.5
COX VALLEY	4500	3/30/12	154	50.9	49.3	38.7	MOSES MOUNTAIN (2)	4800	4/02/12	61	21.0	13.9	22.7
COYOTE HILL	4200	3/30/12	26	9.1	11.2	8.7	MOSES MTN SNOTEL	5010	4/01/12	61	18.5	16.8	15.9
DALY CREEK SNOTEL	5780	4/01/12	33	11.2	12.4	11.1	MOSES PEAK	6650	4/02/12	93	29.3	27.9	15.0
DESERT MOUNTAIN	5600	3/27/12	48	14.8	17.7	14.7	MOSQUITO RDG SNOTEL	5200	4/01/12	125	47.8	44.4	35.8
DEVILS PARK	5900	4/01/12	146	57.9	50.6	44.2	MOULTON RESERVOIR	6850	3/29/12	20	4.6	10.3	6.9
DISAULTY PASS		4/02/12	17	5.8	4.0	--	MOUNT CRAG SNOTEL	3960	4/01/12	145	52.2	47.6	30.8
DISCOVERY BASIN	7050	3/26/12	38	11.8	12.7	10.4	MT. KOBAN CAN.	5500	3/31/12	46	12.3	15.9	12.5
DIX HILL	6400	4/01/12	28	10.4	12.1	10.3	MOUNT TOLMAN	2000	3/27/12	0	.0	.0	--
DOMMERIE FLATS	2200	3/27/12	14	6.1	.0	3.8	MOWICH SNOTEL	3160	4/01/12	2	1.3	.0	.6
DUNCAN RIDGE	5370	3/26/12	27	7.0	9.0	--	MOUNT GARDNER	3300	4/02/12	63	25.0	15.0	12.5
DUNGENESS SNOTEL	4010	4/01/12	57	15.6	21.9	8.6	MOUNT GARDNER SNOTEL	2920	4/01/12	61	24.5	15.6	13.0
EAST FORK R.S.	5400	3/26/12	15	5.0	4.9	4.7	MUTTON CREEK #1	5700	3/29/12	63	16.6	19.2	13.9
EL DORADO MINE	7800	3/24/12	54	16.3	12.1	20.2	N.F. ELK CR SNOTEL	6250	4/01/12	45	14.2	15.9	12.4
ELBOW LAKE SNOTEL	3200	4/01/12	131	57.7	--	37.1	NEVADA RIDGE SNOTEL	7020	4/01/12	54	20.3	19.4	15.5
EMERY CREEK SNOTEL	4350	4/01/12	38	14.6	19.4	15.3	NEW HOZOMEN LAKE	2800	4/01/12	51	16.9	--	10.0
ESPERON CK. MID CAN.	4250	3/30/12	39	11.6	12.7	14.6	NEZ PERCE CMP SNOTEL	5650	4/01/12	42	14.4	15.0	14.7
ESPERON CK. UP CAN.	5050	3/30/12	50	15.1	14.8	17.1	NEZ PERCE PASS	6570	3/27/12	50	18.6	16.0	17.8
FATTY CREEK	5500	3/27/12	71	26.8	35.2	24.3	NOISY BASIN SNOTEL	6040	4/01/12	111	39.5	62.4	40.9
FISH CREEK	8000	3/29/12	30	7.9	10.7	9.9	NORTH FORK JOCKO	6330	3/27/12	106	40.4	52.4	42.3
FISH LAKE	3370	3/29/12	113	39.1	31.1	31.5	OLALLIE MDWS SNOTEL	4030	4/01/12	170	75.1	58.9	55.9
FISH LAKE SNOTEL	3430	4/01/12	103	41.1	30.8	34.5	OPHIR PARK	7150	4/01/12	36	15.8	18.2	16.7
FLATTOP MTN SNOTEL	6300	4/01/12	160	53.4	53.5	45.1	OYAMA LAKE CAN.	4100	3/30/12	28	6.8	6.4	6.7
FLEECER RIDGE	7500	3/29/12	35	10.2	12.3	10.9	PARADISE SNOTEL	5130	4/01/12	197	82.2	76.0	71.9
FOURTH OF JULY SUM	3200	3/29/12	30	10.6	7.9	5.7	PARK CK RIDGE SNOTEL	4600	4/01/12	150	59.1	48.2	47.6
FREEZEOUT CK. TRAIL</													

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
PIPESTONE PASS	7200	3/27/12	15	3.8	7.8	5.7
POPE RIDGE SNOTEL	3590	4/01/12	58	21.9	17.9	18.4
POSTILL LAKE CAN.	4200	3/29/12	35	9.5	8.0	8.8
POTATO HILL SNOTEL	4510	4/01/12	130	43.6	37.7	25.3
QUARTZ PEAK SNOTEL	4700	4/01/12	78	28.0	26.3	21.2
RAGGED MTN SNOTEL	4210	4/01/12	73	29.8	26.1	--
RAGGED RIDGE	3330	3/29/12	19	6.9	5.3	4.1
RAINY PASS SNOTEL	4890	4/01/12	130	50.3	44.0	44.0
RAINY PASS	4780	3/31/12	137	51.1	37.7	39.2
REX RIVER SNOTEL	3810	4/01/12	126	58.0	35.4	31.2
ROCKER PEAK SNOTEL	8000	4/01/12	49	15.2	16.4	14.3
ROLAND SUMMIT	5120	3/30/12	87	36.4	43.6	36.4
ROUND TOP MTN	4020	3/29/12	51	17.0	16.3	--
RUSTY CREEK	4000	3/29/12	19	5.5	8.8	5.5
SADDLE MTN SNOTEL	7900	4/01/12	75	26.1	29.4	25.8
SALMON MDWS SNOTEL	4460	4/01/12	39	12.1	13.7	11.1
SASSE RIDGE SNOTEL	4340	4/01/12	116	43.1	32.8	37.3
SATUS PASS	4030	3/29/12	34	12.0	14.9	--
SAVAGE PASS SNOTEL	6170	4/01/12	80	30.6	32.2	26.5
SAWMILL RIDGE SNOTEL	4640	4/01/12	142	57.6	--	--
SENTINEL BT SNOTEL	4680	4/01/12	39	9.8	11.9	9.0
SHEEP CANYON SNOTEL	3990	4/01/12	136	55.6	50.2	37.8
SHERWIN SNOTEL	3200	4/01/12	---	10.4	9.9	10.1
SILVER STAR MTN CAN.	5600	3/31/12	80	29.1	31.3	29.9
SKALKAHO SNOTEL	7260	4/01/12	71	24.7	26.7	24.3
SKITWISH RIDGE	5110	4/02/12	101	39.6	43.6	30.2
SKOOKUM CREEK SNOTEL	3310	4/01/12	113	57.2	28.2	26.3
SKOOKUM LAKES	4230	3/27/12	54	17.6	17.7	--
SLIDE ROCK MOUNTAIN	7100	3/25/12	54	18.4	15.2	15.5
SOURDOUGH GUL SNOTEL	4000	4/01/12	0	.0	.0	--
SOUTH BALDY	4920	3/27/12	76	25.0	28.0	--
SPENCER MDW SNOTEL	3400	4/01/12	103	43.0	36.9	30.8
SPIRIT LAKE SNOTEL	3520	4/01/12	---	18.2	11.4	3.9
SPOTTED BEAR MTN.	7000	3/27/12	42	15.0	19.3	14.1
SPRUCE SPGS SNOTEL	5700	4/01/12	54	20.2	15.7	19.7
STARVATION MOUNTAIN	6750	3/28/12	65	22.1	26.1	19.5
STAHL PEAK SNOTEL	6030	4/01/12	114	38.9	47.9	35.3
STAMPEDE PASS SNOTEL	3850	4/01/12	117	47.6	32.6	45.3
STEMPLE PASS	6600	3/27/12	45	12.7	12.7	10.2
STEVENS PASS SNOTEL	3950	4/01/12	147	48.1	37.0	42.6
STORM LAKE	7780	3/27/12	44	13.1	14.8	13.3
STRANGER MOUNTAIN	4230	3/26/12	48	14.7	12.0	12.2

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
STRYKER BASIN	6180	3/27/12	97	35.9	40.9	31.9
STUART MOUNTAIN	7400	3/27/12	87	32.0	--	--
SUMMERLAND RES CAN.	4200	4/01/12	34	9.4	12.0	8.9
SUMMIT G.S. #2	4600	3/27/12	39	10.2	12.5	8.4
SUNSET SNOTEL	5540	4/01/12	---	27.2	30.2	31.5
SURPRISE LKS SNOTEL	4290	4/01/12	158	60.6	57.4	46.1
SWAMP CREEK SNOTEL	3930	4/01/12	80	30.7	25.2	16.2
SWIFT CREEK SNOTEL	4440	4/01/12	190	81.5	80.1	56.1
TEN MILE LOWER	6600	3/27/12	28	8.9	8.6	7.0
TEN MILE MIDDLE	6800	3/27/12	40	11.4	11.0	11.4
THUNDER BASIN SNOTEL	4320	4/01/12	112	39.6	32.8	33.7
THUNDER BASIN	4200	4/01/12	92	29.6	22.7	21.9
THOMPSON CREEK	2500	3/29/12	12	3.3	3.2	--
THOMPSON RIDGE	4650	3/29/12	49	14.6	16.1	--
TINKHAM CREEK SNOTEL	2990	4/01/12	102	41.0	27.7	30.0
TOATS COULEE	2850	3/26/12	9	2.6	1.0	1.4
TOGO	3370	3/29/12	33	10.4	6.6	10.7
TOUCHET SNOTEL	5530	4/01/12	92	37.3	30.4	34.7
TRINKUS LAKE	6100	3/27/12	111	42.6	54.1	42.0
TROUGH #2 SNOTEL	5480	4/01/12	58	16.6	13.8	10.0
TROUT CREEK CAN.	5650	3/30/12	35	9.8	--	7.2
TRUMAN CREEK	4060	3/30/12	16	5.9	7.0	3.7
TUNNEL AVENUE	2450	3/28/12	57	21.7	19.8	19.2
TV MOUNTAIN	6800	3/27/12	53	17.1	23.1	18.3
TWELVEMILE SNOTEL	5600	4/01/12	50	21.5	17.7	17.5
TWIN CREEKS	3580	3/27/12	27	8.1	11.7	9.6
TWIN LAKES SNOTEL	6400	4/01/12	100	43.0	41.9	39.7
TWIN SPIRIT DIVIDE	3480	4/01/12	73	28.6	--	12.1
UPPER HOLLAND LAKE	6200	3/27/12	82	30.5	46.5	34.6
UPPER WHEELER SNOTEL	4330	4/01/12	42	11.6	13.2	13.1
VULCAN MTN	4660	3/27/12	40	11.4	12.7	--
VULCAN ROAD	3840	3/27/12	31	8.2	8.1	--
WARM SPRINGS SNOTEL	7800	4/01/12	72	23.6	25.3	21.2
WATERHOLE SNOTEL	5010	4/01/12	155	55.3	56.6	35.3
WEASEL DIVIDE	5450	3/29/12	102	37.9	40.5	32.9
WELLS CREEK SNOTEL	4030	4/01/12	134	49.0	45.7	33.6
WHITE PASS ES SNOTEL	4440	4/01/12	93	34.4	22.5	23.9
WHITE ROCKS MTN CAN.	7200	3/30/12	65	22.2	21.7	23.1



Natural Resources Conservation Service

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Snow, Water and Climate Services

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Helpful Internet Addresses

NRCS Snow Survey and Climate Services Homepages

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

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

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

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

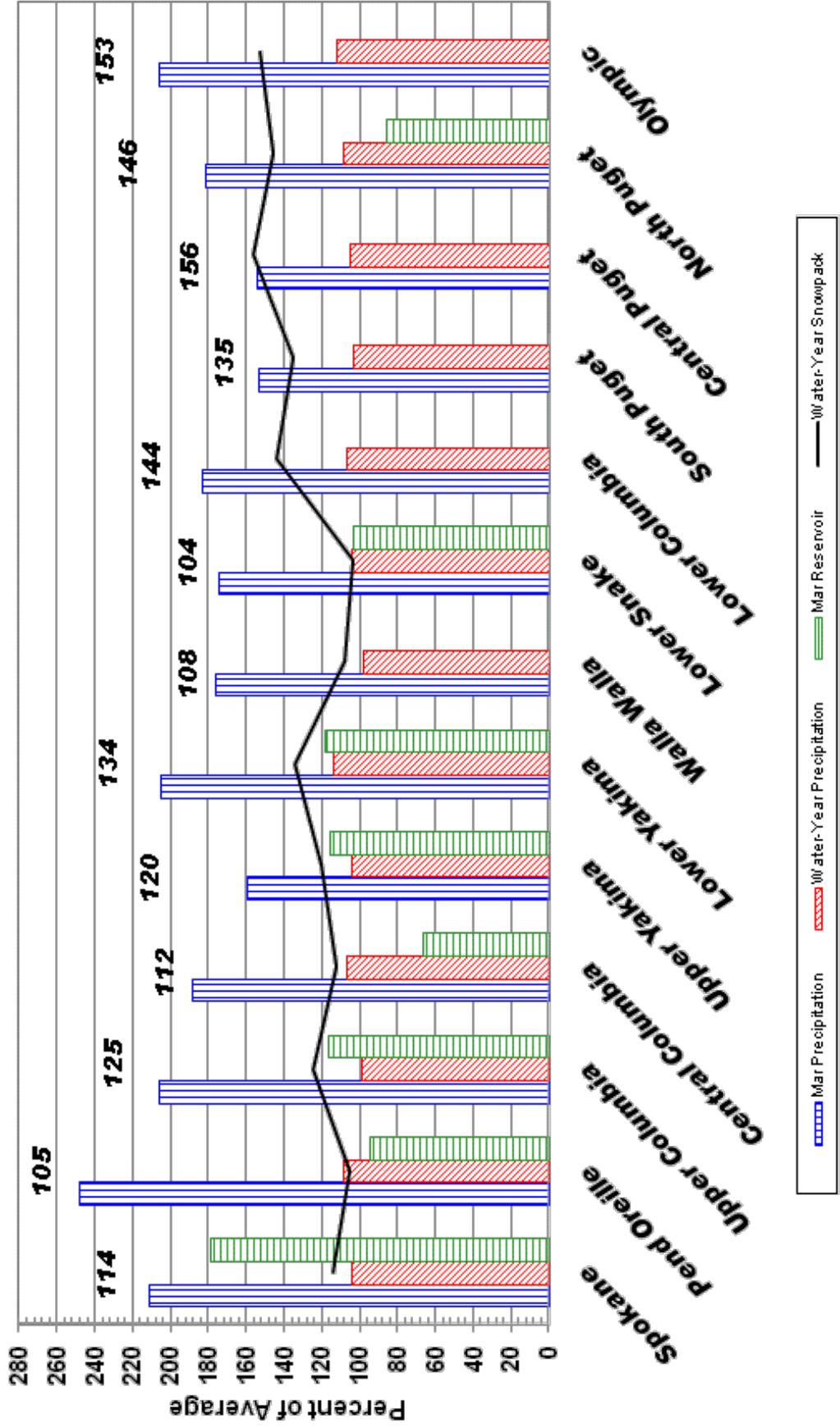
USDA-NRCS Agency Homepages

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

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

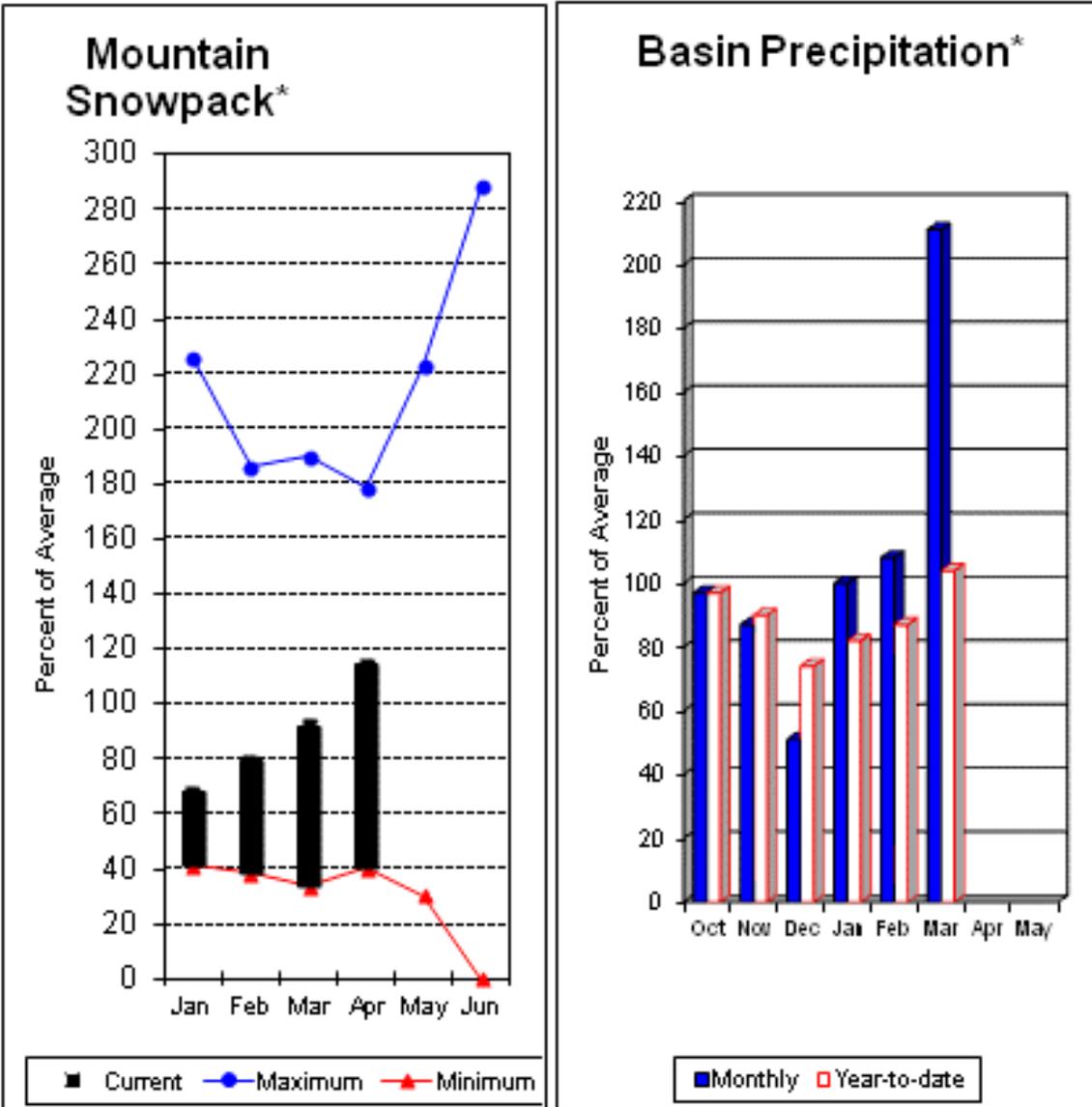
April 1, 2012 - Snowpack, Precipitation and Reservoir Conditions at a Glance

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



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Spokane River Basin



*Based on selected stations

The April 1 forecasts for summer runoff within the Spokane River Basin are 119% of average near Post Falls and at Long Lake. The Chamokane River near Long Lake forecasted to have 102% of average flows for the May-August period. The forecast is based on a basin snowpack that is 114% of average and precipitation that is 104% of average for the water year. Precipitation for March was 211% of normal. Streamflow on the Spokane River at Long Lake was 121% of average for March. April 1 storage in Coeur d'Alene Lake was 303,000 acre feet, 179% of average and 127% of capacity. Snowpack at Quartz Peak SNOTEL site was 132% of average with 28 inches of water content. Average temperatures in the Spokane basin were near normal for March and for the water year.

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

Spokane River Basin

Streamflow Forecasts - April 1, 2012

Forecast Point	Forecast Period	Future Conditions				Wetter		30-Yr Avg. (1000AF)
		<<===== Drier =====>>		Chance Of Exceeding *		30%	10%	
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	(1000AF)	(1000AF)	
Spokane R nr Post Falls (2)	APR-JUL	2480	2810	3040	119	3270	3600	2550
	APR-SEP	2570	2920	3150	119	3380	3730	2650
Spokane R at Long Lake (2)	APR-JUL	2780	3140	3390	119	3640	4000	2850
	APR-SEP	3010	3390	3650	119	3910	4290	3070
Chamokane Ck nr Long Lake	MAY-AUG	6.7	8.9	10.4	102	11.9	14.1	10.2

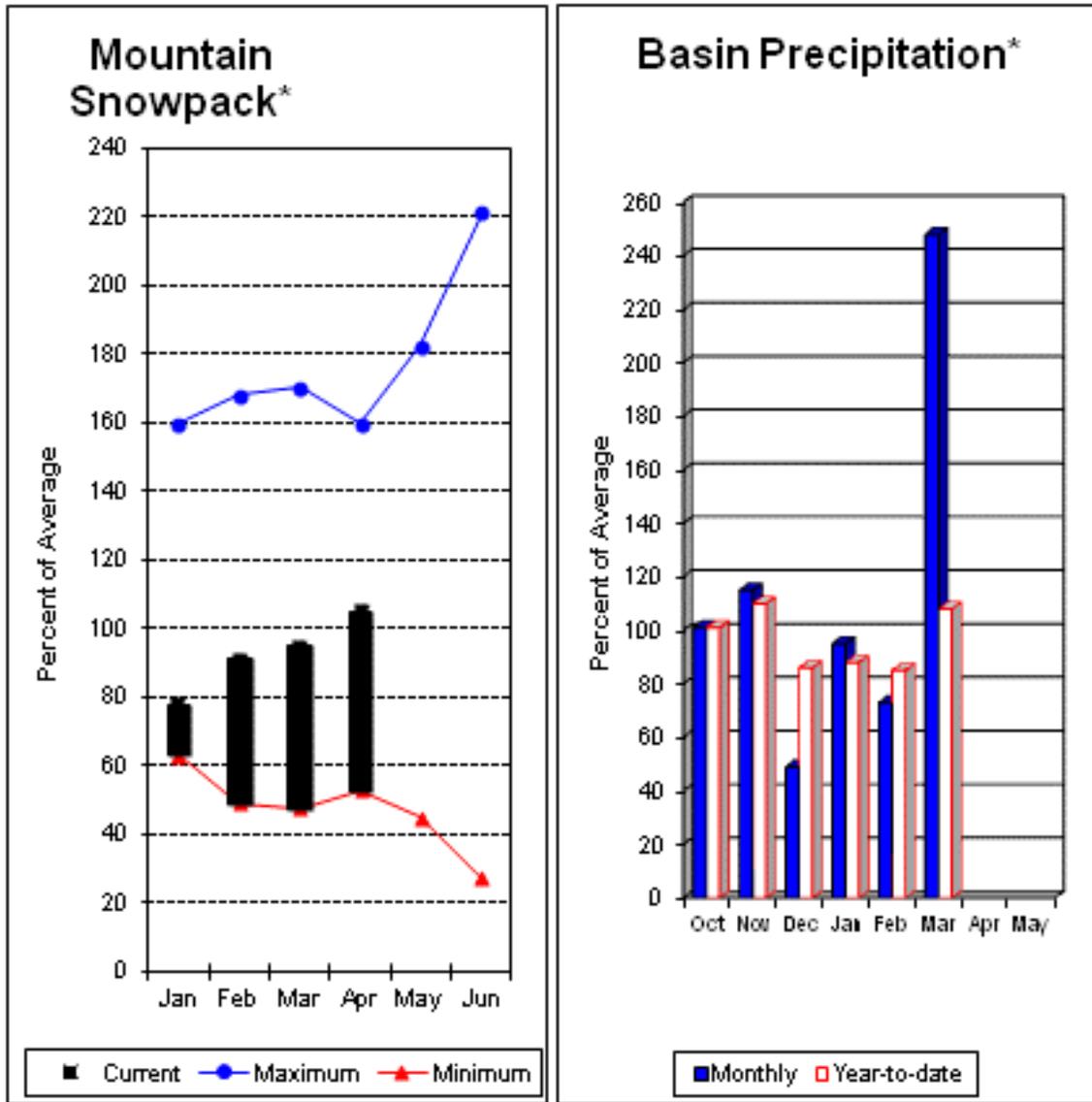
SPOKANE RIVER BASIN Reservoir Storage (1000 AF) - End of March					SPOKANE RIVER BASIN Watershed Snowpack Analysis - April 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
Coeur d'Alene	238.5	302.7	178.1	169.5	SPOKANE RIVER	17	99	114
					NEWMAN LAKE	2	108	138

* 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 102% and the Pen Orielle below Box Canyon is 106%. March streamflow was 106% of average on the Pend Oreille River and 93% on the Columbia Birchbank. April 1 snow cover was 105% of average in the Pend Oreille Basin River Basin. Bunchgrass Meadows SNOTEL site had 33.6 inches of snow water on the snow pillow. Normally Bunchgrass would have 30.2 inches on April 1. Precipitation during March was 248% of average, bringing the year-to-date precipitation to 108% of average. Reservoir storage in the basin, including Lake Pend Oreille and Priest Lake was 94% of normal. Average temperatures were near for March and for the water year.

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

Pend Oreille River Basins

Streamflow Forecasts - April 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)	APR-JUL	11700	12800	13500	106	14200	15200	12700
	APR-SEP	12900	14000	14800	107	15700	16800	13900
Priest R nr Priest River (1,2)	APR-JUL	705	780	830	102	880	955	815
	APR-SEP	745	830	885	102	940	1030	870
Pend Oreille R bl Box Canyon (2)	APR-JUL	11900	13000	13700	106	14400	15500	12900
	APR-SEP	12900	14100	14900	106	15700	16900	14100

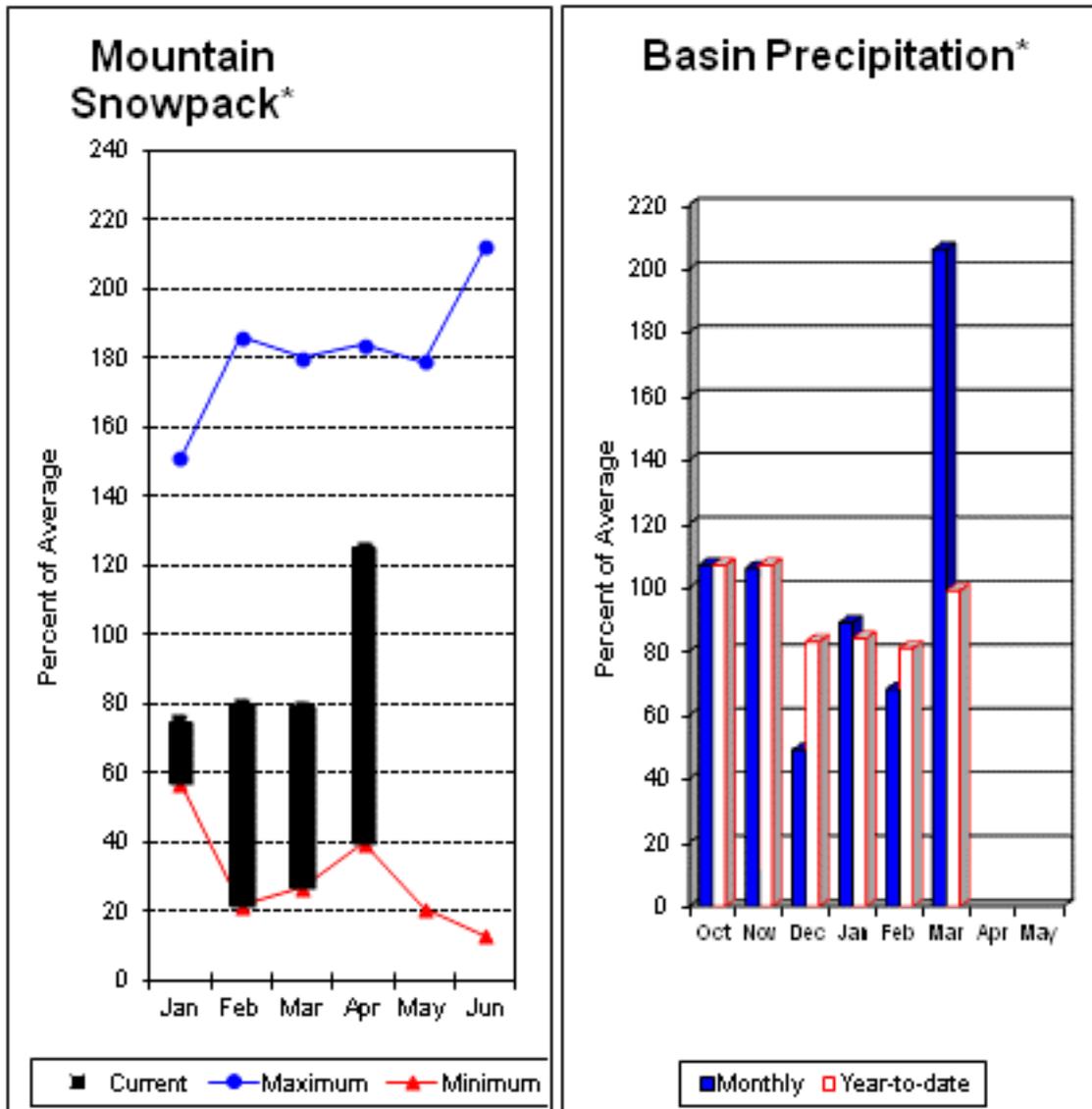
PEND OREILLE RIVER BASINS Reservoir Storage (1000 AF) - End of March					PEND OREILLE RIVER BASINS Watershed Snowpack Analysis - April 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
Pend Oreille	1561.3	711.4	818.1	763.6	COLVILLE RIVER	1	100	120
Priest Lake	119.3	69.1	54.1	65.5	PEND OREILLE RIVER	11	99	110
					KETTLE RIVER	7	92	107

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

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

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

Upper Columbia River Basins



*Based on selected stations

Summer runoff average forecast for the Okanogan River is 114%, Similkameen River is 116%, Kettle River 90% and Methow River is 112%. April 1 snow cover on the Okanogan was 109% of average, Omak Creek was 128% and the Methow was 117%. March precipitation in the Upper Columbia was 206% of average, with precipitation for the water year at 99% of average. March streamflow for the Methow River was 60% of average, 53% for the Okanogan River and 70% for the Similkameen. Snow-water content at Salmon Meadows SNOTEL was 12.1 inches. Average for this site is 11.1 inches on April 1. Combined storage in the Conconully Reservoirs was 20,000-acre feet, which is 87% of capacity and 116% of the April 1 average. Temperatures were slightly below normal for March and near average for the water year.

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

Upper Columbia River Basins

Streamflow Forecasts - April 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.)	50% (1000AF) (% AVG.)	
Colville R at Kettle Falls	APR-JUL	86	122	147	115	172	210	128
	APR-SEP	93	133	160	114	187	225	141
Kettle R nr Laurier	APR-JUL	1380	1560	1690	90	1820	2000	1870
	APR-SEP	1440	1640	1780	90	1920	2120	1970
Columbia R at Birchbank (1,2)	APR-JUL	34300	37200	38500	110	39800	42700	34900
	APR-SEP	44800	48400	50100	115	51700	55300	43500
Columbia R at Grand Coulee (2)	APR-JUL	52100	57000	59200	110	61500	66400	53800
	APR-SEP	63300	69200	71900	112	74500	80400	64000
Similkameen R nr Nighthawk (1)	APR-JUL	1310	1490	1570	116	1650	1830	1350
	APR-SEP	1410	1600	1680	116	1760	1950	1450
Okanogan R nr Tonasket (1)	APR-JUL	1390	1670	1800	114	1930	2210	1580
	APR-SEP	1540	1860	2010	114	2160	2480	1770
Okanogan R at Malott (1)	APR-JUL	1450	1730	1860	114	1990	2270	1630
	APR-SEP	1600	1920	2070	113	2220	2540	1830
Methow R nr Pateros	APR-SEP	950	1040	1100	112	1160	1250	985
	APR-JUL	880	965	1020	112	1080	1160	910

UPPER COLUMBIA RIVER BASINS Reservoir Storage (1000 AF) - End of March					UPPER COLUMBIA RIVER BASINS Watershed Snowpack Analysis - April 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	8.7	8.4	OKANOGAN RIVER	20	99	109
CONCONULLY RESERVOIR	13.0	12.0	11.5	9.2	OMAK CREEK	3	112	128
					SANPOIL RIVER	0	139	0
					SIMILKAMEEN RIVER	5	101	115
					TOATS COULEE CREEK	1	84	186
					CONCONULLY LAKE	3	82	112
					METHOW RIVER	7	101	117

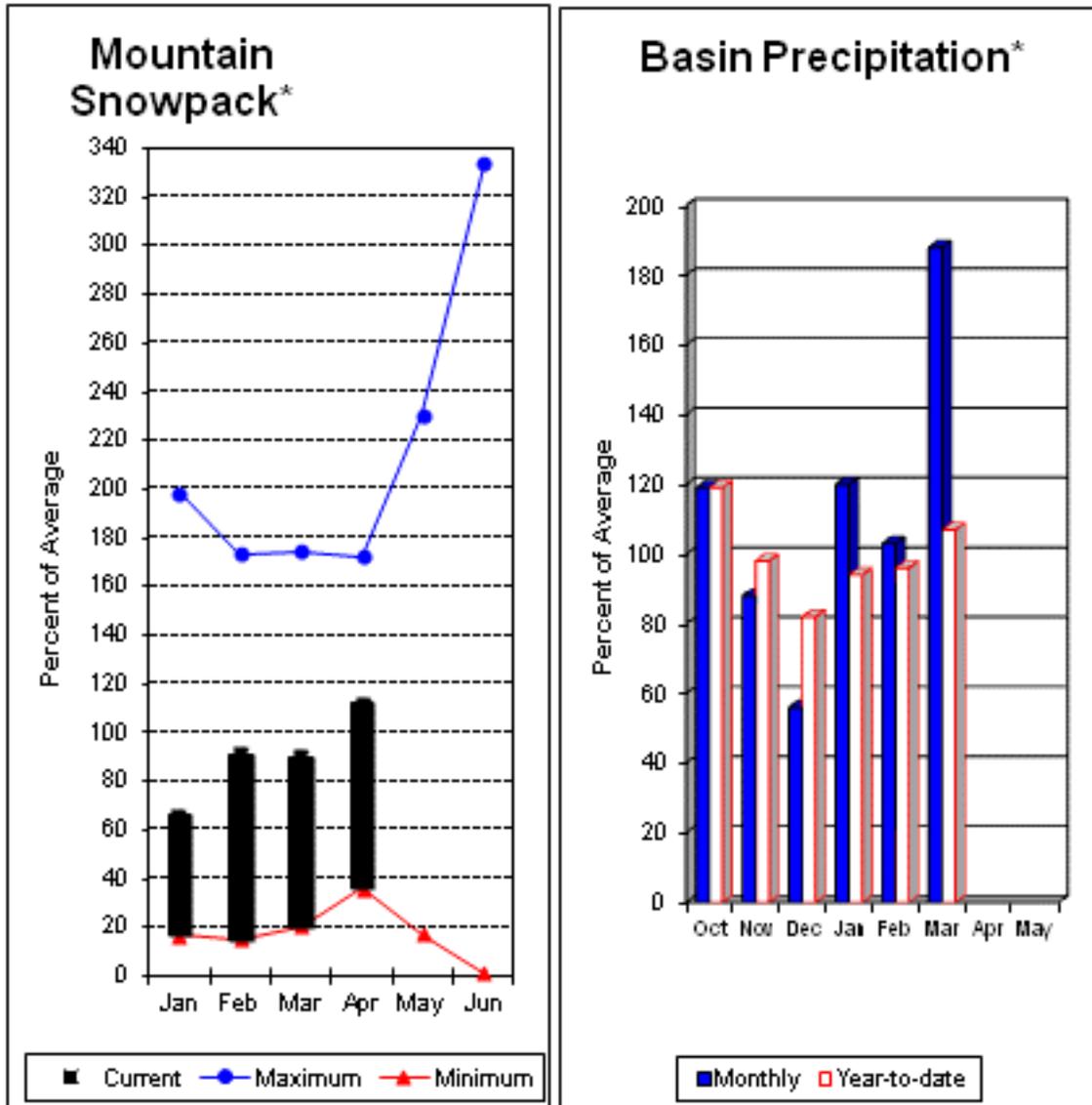
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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

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

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

Central Columbia River Basins



*Based on selected stations

Precipitation during March was 88% of average in the basin and 107% for the year-to-date. Runoff for Entiat River is forecast to be 104% of average for the summer. The April-September average forecast for Chelan River is 108%, Wenatchee River at Plain is 110%, Stehekin River is 112% and Icicle Creek is 102%. March average streamflows on the Chelan River were 81% and on the Wenatchee River 62%. April 1 snowpack in the Wenatchee River Basin was 112% of average; the Chelan, 114%; the Entiat, 119%; Stemilt Creek, 89% and Colockum Creek, 125%. Reservoir storage in Lake Chelan was 142,000-acre feet, 66% of April 1 average and 22% of capacity. Lyman Lake SNOTEL had the most snow water with 66.2 inches of water. This site would normally have 65.4 inches on April 1. Temperatures were slightly below normal for March and near normal for the water year.

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

Central Columbia River Basins

Streamflow Forecasts - April 1, 2012

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		<<===== Drier =====>>		===== Wetter =====>>				
		90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	
Stehekin R at Stehekin	APR-JUL	685	750	790	113	830	895	700
	APR-SEP	830	890	930	112	970	1030	830
Chelan R at Chelan (2)	APR-JUL	1040	1090	1130	108	1170	1220	1050
	APR-SEP	1190	1240	1280	108	1320	1370	1190
Entiat R nr Ardenvoir	APR-JUL	200	215	225	105	235	250	215
	APR-SEP	225	240	250	104	260	275	240
Wenatchee R at Plain	APR-JUL	1080	1140	1190	111	1240	1300	1070
	APR-SEP	1180	1250	1300	110	1350	1420	1180
Icicle Ck nr Leavenworth	APR-JUL	280	300	315	102	330	350	310
	APR-SEP	305	330	345	102	360	385	340
Wenatchee R at Peshastin	APR-JUL	1480	1570	1630	110	1690	1780	1480
	APR-SEP	1610	1710	1780	109	1840	1940	1630
Columbia R bl Rock Island Dam (2)	APR-JUL	58900	62600	65100	110	67600	71300	59000
	APR-SEP	71100	75400	78400	113	81300	85600	69500

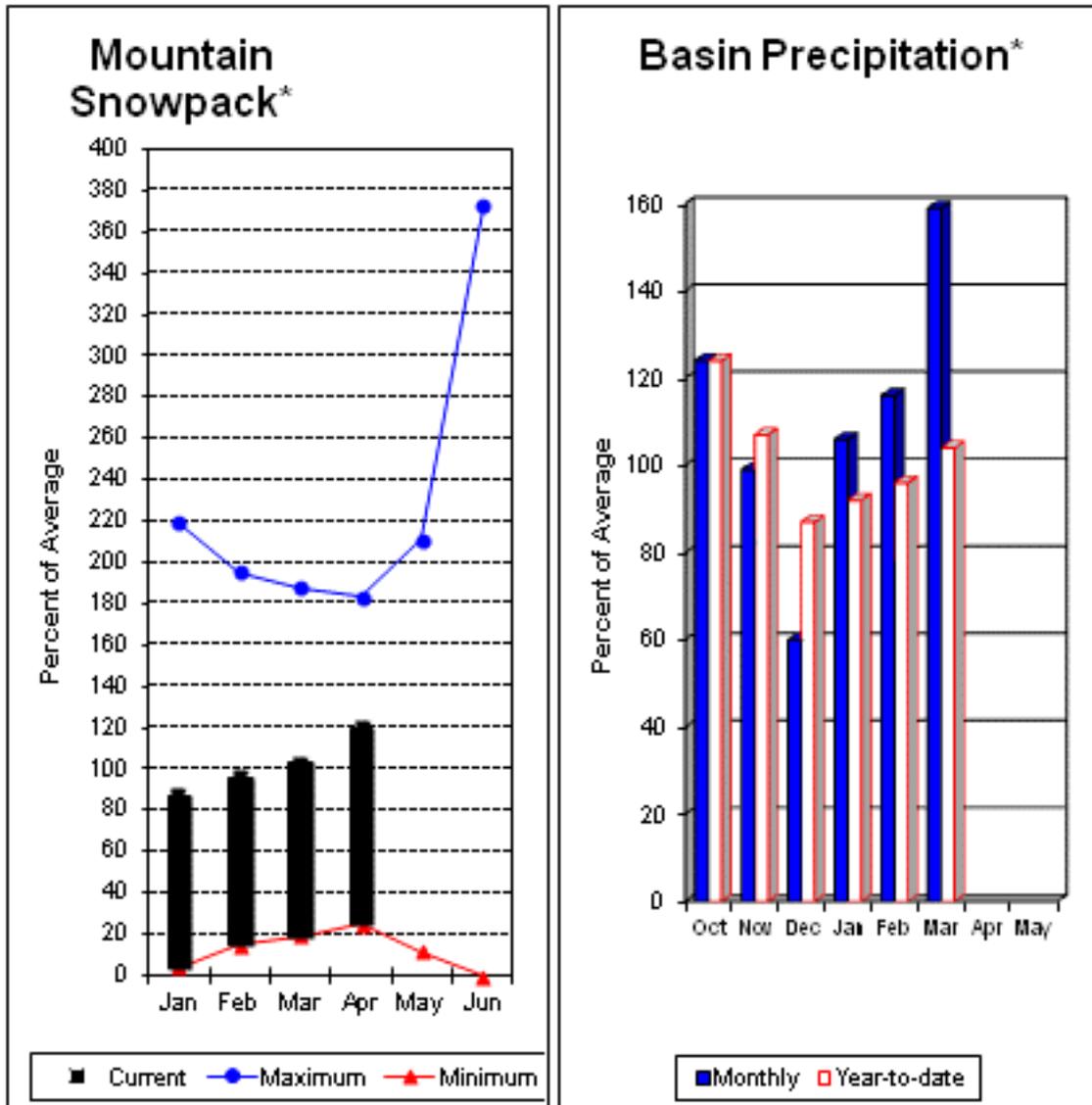
CENTRAL COLUMBIA RIVER BASINS Reservoir Storage (1000 AF) - End of March					CENTRAL COLUMBIA RIVER BASINS Watershed Snowpack Analysis - April 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
CHELAN LAKE	676.1	142.1	171.0	216.3	CHELAN LAKE BASIN	5	111	114
					ENTIAT RIVER	1	122	119
					WENATCHEE RIVER	8	114	112
					STEMILT CREEK	2	84	89
					COLOCKUM CREEK	2	100	125

* 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

April 1 reservoir storage for the Upper Yakima reservoirs was 639,000-acre feet, 115% of average. Forecasts for the Yakima River at Cle Elum are 109% of average and the Teanaway River near Cle Elum is at 121%. Lake inflows are all forecasted to be above normal this summer. March streamflows within the basin were Cle Elum River near Roslyn at 69%. April 1 snowpack was 120% based upon 10 snow course and SNOTEL readings within the Upper Yakima Basin. Precipitation was 159% of average for March and 104% year-to-date for water. Volume forecasts for the Yakima Basin are for natural flow. As such, they may differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

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

Upper Yakima River Basin

Streamflow Forecasts - April 1, 2012

Forecast Point	Forecast Period	Future Conditions <<==== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)				
		90% (1000AF)		70% (1000AF)		50% (1000AF) (% AVG.)			30% (1000AF)		10% (1000AF)	
		Chance Of Exceeding *		Chance Of Exceeding *		Chance Of Exceeding *			Chance Of Exceeding *		Chance Of Exceeding *	
Keechelus Reservoir Inflow (2)	APR-JUL	122	133	141	117	149	160	121				
	APR-SEP	135	147	155	117	163	175	133				
Kachess Reservoir Inflow (2)	APR-JUL	113	122	128	115	134	143	111				
	APR-SEP	123	132	138	115	144	153	120				
Cle Elum Lake Inflow (2)	APR-JUL	425	445	460	112	475	495	410				
	APR-SEP	455	480	500	111	520	545	450				
Yakima R at Cle Elum (2)	APR-JUL	780	850	900	110	950	1020	820				
	APR-SEP	835	920	980	109	1040	1130	900				
Teanaway R bl Forks nr Cle Elum	APR-JUL	144	161	173	121	185	200	143				
	APR-SEP	147	164	176	121	188	205	146				

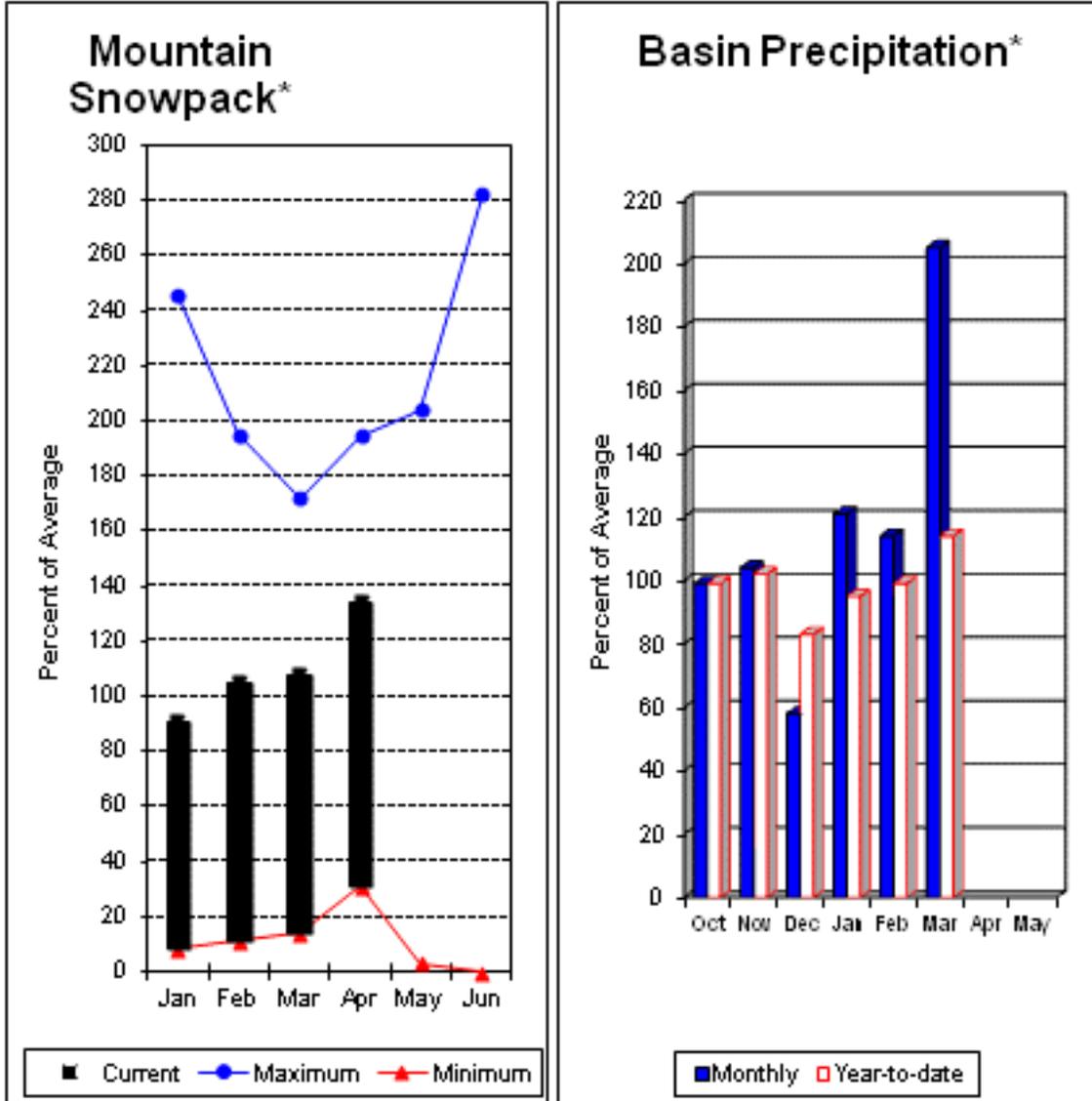
UPPER YAKIMA RIVER BASIN Reservoir Storage (1000 AF) - End of March					UPPER YAKIMA RIVER BASIN Watershed Snowpack Analysis - April 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
KEECHELUS	157.8	118.4	146.7	114.1	UPPER YAKIMA RIVER	10	129	120
KACHESS	239.0	181.9	226.7	169.4				
CLE ELUM	436.9	338.3	369.9	270.1				

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

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

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

Lower Yakima River Basin



*Based on selected stations

March average streamflows within the basin were: Yakima River near Parker, 78%; Naches River near Naches, 77%; and Yakima River at Kiona, 82%. April 1 reservoir storage for Bumping and Rimrock reservoirs was 179,000-acre feet, 118% of average. Forecast averages for Yakima River near Parker are 121%; American River near Nile, 118%; Ahtanum Creek, 138%; and Klickitat River near Glenwood, 135%. April 1 snowpack was 134% based upon 8 snow course and SNOTEL readings within the Lower Yakima Basin and Ahtanum Creek reported in at 142% of average. Precipitation was 205% of average for March and 114% year-to-date. Temperatures were slightly 1-5 degrees below normal for March and slightly below for the water year. Volume forecasts for Yakima Basin are for natural flow. As such, they April differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

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

Lower Yakima River Basin

Streamflow Forecasts - April 1, 2012

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		<<===== Drier =====>>		=====		>>===== Wetter =====>>		
		90% (1000AF)	70% (1000AF)	Chance Of Exceeding * 50% (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
Bumping Lake Inflow (2)	APR-JUL	130	141	148	121	155	166	122
	APR-SEP	141	152	160	121	168	179	132
American R nr Nile	APR-JUL	113	121	127	118	133	141	108
	APR-SEP	125	133	139	118	145	153	118
Rimrock Lake Inflow (2)	APR-JUL	225	235	245	120	255	265	205
	APR-SEP	260	275	285	119	295	310	240
Naches R nr Naches (2)	APR-JUL	815	870	910	126	950	1000	720
	APR-SEP	885	950	990	127	1030	1090	780
Ahtanum Ck at Union Gap	APR-JUL	34	38	41	137	44	48	30
	APR-SEP	37	41	44	138	47	51	32
Yakima R nr Parker (2)	APR-JUL	1970	2100	2180	121	2260	2390	1800
	APR-SEP	2180	2310	2400	121	2490	2620	1980
Klickitat R nr Glenwood	APR-JUL	151	163	171	136	179	191	126
	APR-SEP	197	210	220	135	230	245	163
Klickitat R nr Pitt	APR-JUL	510	555	590	128	625	670	460
	APR-SEP	610	665	705	128	745	800	550

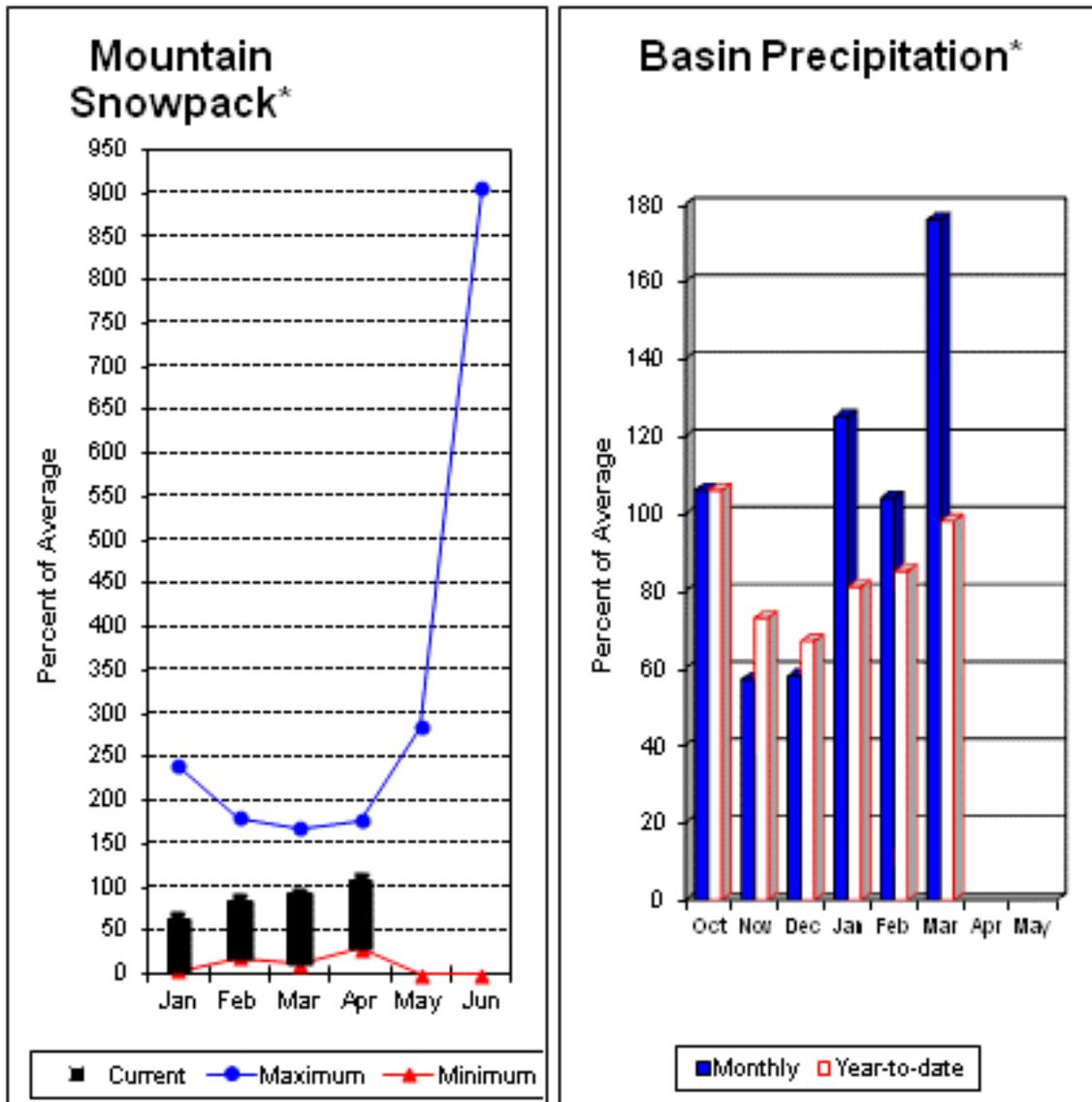
LOWER YAKIMA RIVER BASIN Reservoir Storage (1000 AF) - End of March					LOWER YAKIMA RIVER BASIN Watershed Snowpack Analysis - April 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
BUMPING LAKE	33.7	14.5	14.7	13.1	LOWER YAKIMA RIVER	8	119	134
RIMROCK	198.0	164.2	165.8	138.5	AHTANUM CREEK	3	132	142

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

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

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

Walla Walla River Basin



*Based on selected stations

March precipitation was 176% of average, maintaining the year-to-date precipitation at 98% of average. Snowpack in the basin was 108% of average. Streamflow forecasts are 104% of average for Mill Creek and 90% for the SF Walla Walla near Milton-Freewater. March streamflow was 179% of average for the SF Walla Walla River. Average temperatures were 1-2 degrees below normal for March and for the water year.

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

Walla Walla River Basin

Streamflow Forecasts - April 1, 2012

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		Drier		Wetter		Wetter		
		90% (1000AF)	70% (1000AF)	50% (1000AF)	30% (1000AF)	10% (1000AF)	Chance Of Exceeding * (% AVG.)	
SF Walla Walla R nr Milton-Freewater	APR-JUL	38	44	48	89	52	58	54
	APR-SEP	48	55	60	90	65	72	67
Mill Ck nr Walla Walla	APR-JUL	19.4	23	25	104	27	31	24
	APR-SEP	23	27	29	104	31	35	28

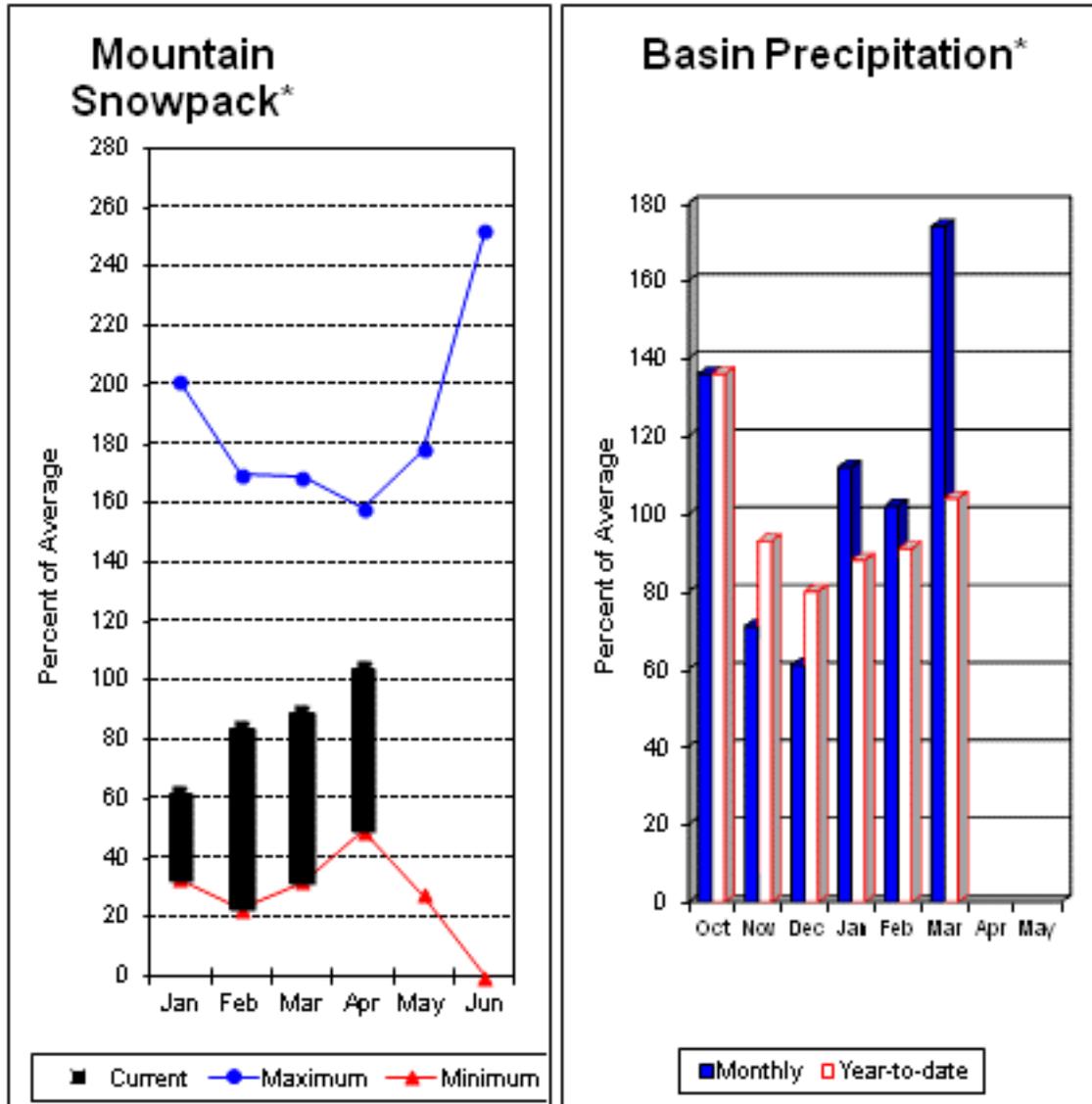
WALLA WALLA RIVER BASIN Reservoir Storage (1000 AF) - End of March					WALLA WALLA RIVER BASIN Watershed Snowpack Analysis - April 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					WALLA WALLA RIVER	2	108	108

* 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 117% for Clearwater River at Spalding. The Snake and Grande Ronde rivers can expect summer flows to be about 106% and 101% of normal respectively. The forecast for Asotin Creek at Asotin predicts 123% of average flows for the April – July runoff period. March precipitation was 174% of average, bringing the year-to-date precipitation to 104% of average. April 1 snowpack readings averaged 104% of average. March streamflow was 95% of average for Snake River below Lower Granite Dam and 105% for Grande Ronde River near Troy. Dworshak Reservoir storage was 103% of average. Average temperatures were 1-2 degrees below normal for March and for the water year.

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

Lower Snake River Basin

Streamflow Forecasts - April 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)	
Grande Ronde R at Troy (1)	APR-SEP	985	1260	1380	101	1500	1780	1370
Asotin Ck at Asotin	APR-JUL	30	38	43	123	48	56	35
Clearwater R at Spalding (1,2)	APR-JUL	8720	8770	8800	118	8830	8880	7430
	APR-SEP	9120	9170	9200	117	9230	9280	7850
Snake R bl Lower Granite Dam (1,2)	APR-JUL	17800	21200	22700	105	24300	27700	21550
	APR-SEP	20100	23900	25600	106	27300	31100	24140

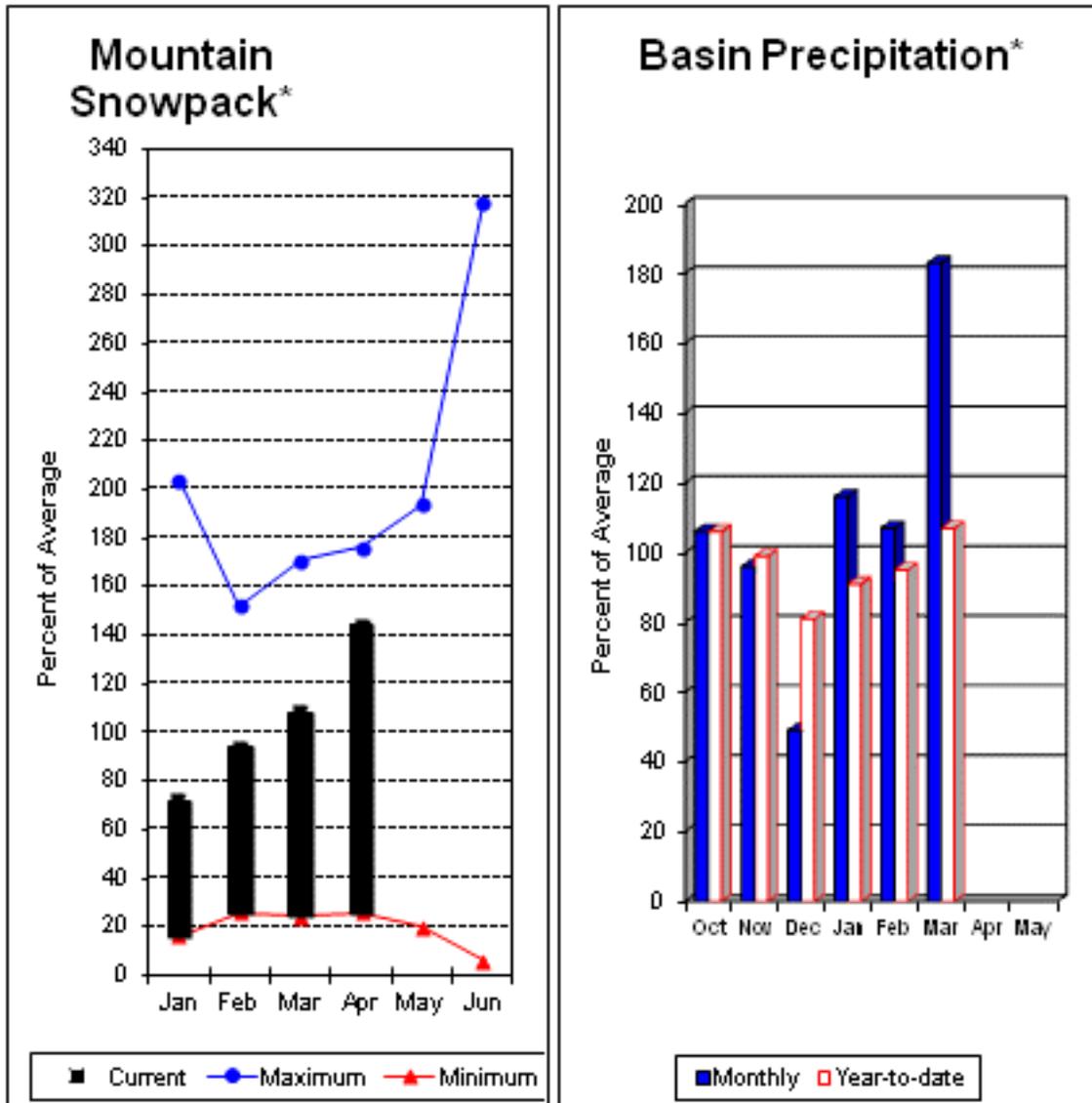
LOWER SNAKE RIVER BASIN Reservoir Storage (1000 AF) - End of March					LOWER SNAKE RIVER BASIN Watershed Snowpack Analysis - April 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
Dworshak	3468.0	2305.0	1619.2	2244.1	LOWER SNAKE, GRANDE RONDE	11	96	104

* 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, 112% and Cowlitz River at Castle Rock, 113% of average. The Columbia at The Dalles is forecasted to have 111% of average flows this summer. March average streamflow for Cowlitz River was 118%. The Columbia River at The Dalles was 97% of average. March precipitation was 183% of average and the water-year average was 107%. Swift Creek SNOTEL had the highest rainfall total in the basin with 33.1 inches. April 1 snow cover for Cowlitz River was 143%, and Lewis River was 144% of average. Temperatures were 3-4 degrees below normal during March 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 - April 1, 2012

Forecast Point	Forecast Period	Future Conditions <<==== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)		
		90% (1000AF)		70% (1000AF)		50% (1000AF) (% AVG.)			30% (1000AF) 10% (1000AF)	
		Chance Of Exceeding *								
Columbia R at The Dalles (2)	APR-JUL	82800	88200	91900	109	95600	101000	84600		
	APR-SEP	98500	105000	109000	111	113000	120000	98600		
Klickitat R nr Glenwood	APR-JUL	151	163	171	136	179	191	126		
	APR-SEP	197	210	220	135	230	245	163		
Klickitat R nr Pitt	APR-JUL	510	555	590	128	625	670	460		
	APR-SEP	610	665	705	128	745	800	550		
Lewis R at Ariel (2)	APR-JUL	875	1040	1150	112	1260	1430	1031		
	APR-SEP	1030	1200	1320	112	1440	1610	1176		
Cowlitz R bl Mayfield Dam (2)	APR-JUL	1520	1770	1940	115	2110	2360	1689		
	APR-SEP	1710	2010	2210	115	2410	2710	1922		
Cowlitz R at Castle Rock (2)	APR-JUL	2120	2400	2590	113	2780	3060	2295		
	APR-SEP	2480	2780	2990	113	3200	3500	2639		

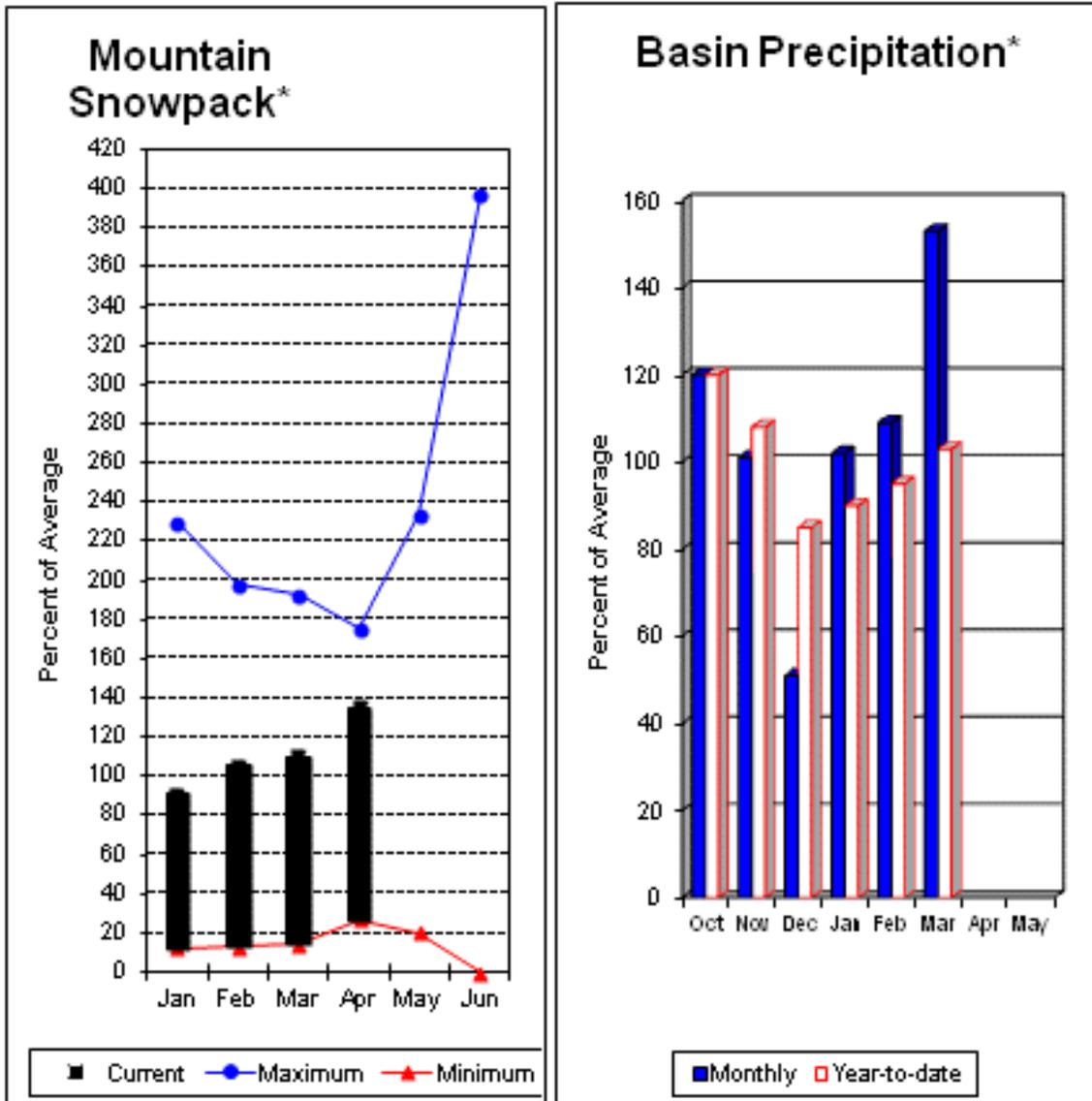
LOWER COLUMBIA RIVER BASINS Reservoir Storage (1000 AF) - End of March					LOWER COLUMBIA RIVER BASINS Watershed Snowpack Analysis - April 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
MOSSYROCK	0.0	1308.3	1333.2	---	LEWIS RIVER	5	105	144
SWIFT	0.0	511.2	715.9	---	COWLITZ RIVER	6	118	143
YALE	0.0	353.2	381.6	---				
MERWIN	0.0	409.0	384.9	---				

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

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

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

South Puget Sound River Basins



*Based on selected stations

Summer runoff is forecast to be 116% of normal for the Green River below Howard Hanson Dam and 113% for the White River near Buckley. April 1 snowpack was 130% of average for the White River, 141% for Puyallup River and 135% in the Green River Basin. Water content on April 1 at Corral Pass SNOTEL, at an elevation of 6,000 feet, was 44 inches. This site has an April 1 average of 34.9 inches. March precipitation was 153% of average, bringing the water year-to-date to 103% of average for the basins. Average temperatures in the area were 3-5 degrees below normal for March 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 - April 1, 2012

Forecast Point	Forecast Period	Future Conditions					30-Yr Avg. (1000AF)	
		Drier		Wetter		Chance Of Exceeding * 50% (1000AF) (% AVG.)		
		90% (1000AF)	70% (1000AF)	30% (1000AF)	10% (1000AF)			
White R nr Buckley (1)	APR-JUL APR-SEP	395 480	465 565	500 605	114 113	535 645	605 730	440 534
Green R bl Howard Hanson Dam (1,2)	APR-JUL APR-SEP	215 235	265 285	285 310	116 116	305 335	355 385	245 268

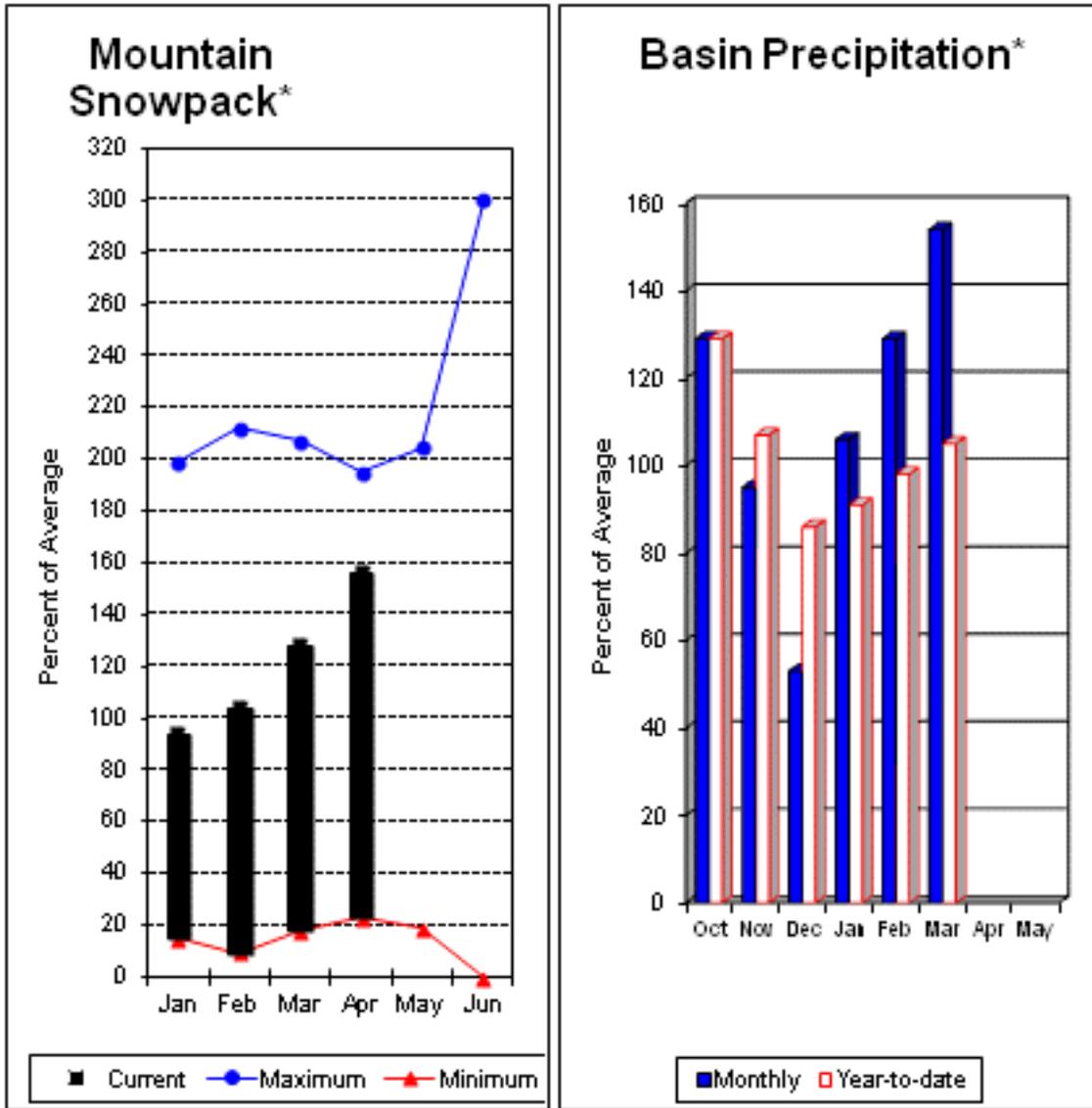
SOUTH PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of March					SOUTH PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - April 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					WHITE RIVER	3	114	130
					GREEN RIVER	3	156	135
					PUYALLUP RIVER	5	132	141

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

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

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Central Puget Sound River Basins



*Based on selected stations

Forecast for spring and summer flows are: 129% for Cedar River near Cedar Falls; 132% for Rex River; 124% for South Fork of the Tolt River; 117% for Taylor Creek near Selleck, and 138% for Cedar River at Cedar Falls. Basin-wide precipitation for March was 154% of average, bringing water-year-to-date to 105% of average. April 1 average snow cover in Cedar River Basin was 177%, Tolt River Basin was 165%, Snoqualmie River Basin was 144%, and Skykomish River Basin was 137%. Olallie Meadows SNOTEL site, at 3960 feet, had 75.1 inches of water content. Average April 1 water content is 55.9 inches at Olallie Meadows. Temperatures were 3-4 degrees below normal for March 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 - April 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)	
Cedar R nr Cedar Falls	APR-JUL	80	88	94	129	100	108	73				
	APR-SEP	88	97	103	129	109	118	80				
Rex R nr Cedar Falls	APR-JUL	27	30	33	132	36	39	25				
	APR-SEP	30	34	37	132	40	44	28				
Cedar R At Cedar Falls	APR-JUL	78	93	103	139	113	128	74				
	APR-SEP	77	91	101	138	111	125	73				
Taylor Creek Near Selleck	APR-JUL	19.8	22	24	120	26	28	20				
	APR-SEP	23	26	28	117	30	33	24				
SF Tolt R nr Index	APR-JUL	15.2	17.3	18.7	127	20	22	14.7				
	APR-SEP	16.8	19.3	21	124	23	25	16.9				

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

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

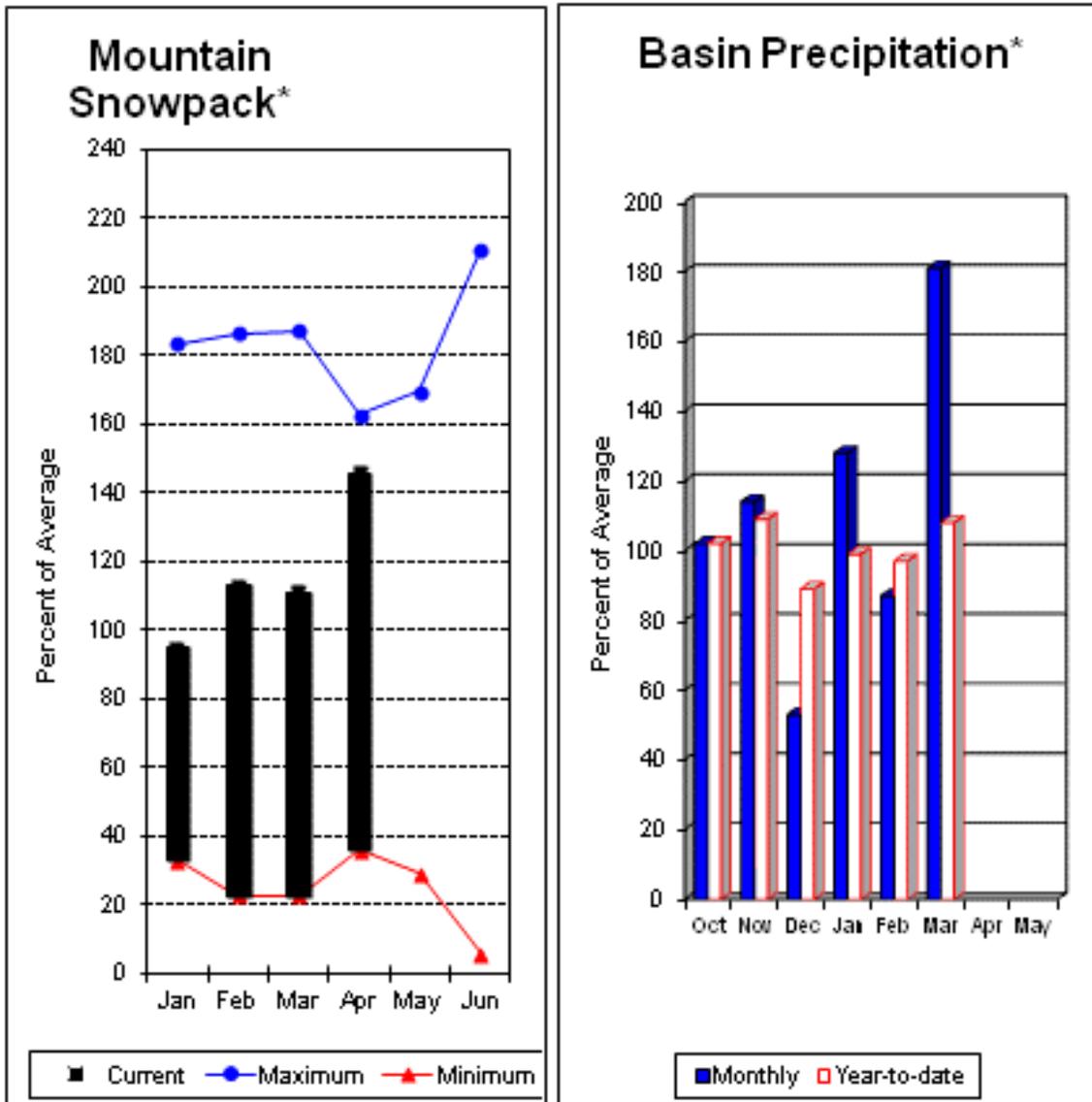
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					CEDAR RIVER	6	166	177
					TOLT RIVER	3	156	165
					SNOQUALMIE RIVER	5	146	144
					SKYKOMISH RIVER	3	138	137

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

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

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

North Puget Sound River Basins



*Based on selected stations

Forecast for Skagit River streamflow at Newhalem is 117% of average for the spring and summer period. March streamflow in Skagit River was 81% of average. Other forecast points included Baker River at 106% and Thunder Creek at 107% of average. Basin-wide precipitation for March was 181% of average, bringing water-year-to-date to 108% of average. April 1 average snow cover in Skagit River Basin was 137%, Nooksack River Basin was 151% and Baker River Basin was estimated at 150% of average. Rainy Pass SNOTEL, at 4,780 feet, had 50.3 inches of water content. Average April 1 water content is 39.2 inches at Rainy Pass. April 1 Skagit River reservoir storage was 86% of average and 45% of capacity. Average temperatures for March were 3-5 degrees below 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 - April 1, 2012

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		Drier		Wetter		Chance Of Exceeding *		
		90% (1000AF)	70% (1000AF)	30% (1000AF)	10% (1000AF)	50% (1000AF)	(% AVG.)	
Thunder Ck Nr Newhalem	APR-JUL	225	240	255	109	270	285	234
	APR-SEP	320	340	355	107	370	390	333
Skagit R At Newhalem	APR-JUL	2030	2140	2210	119	2280	2390	1864
	APR-SEP	2380	2510	2590	117	2670	2800	2217
Baker R nr Concrete (2)	APR-JUL	735	820	875	106	930	1020	828
	APR-SEP	895	1020	1110	106	1200	1320	1050

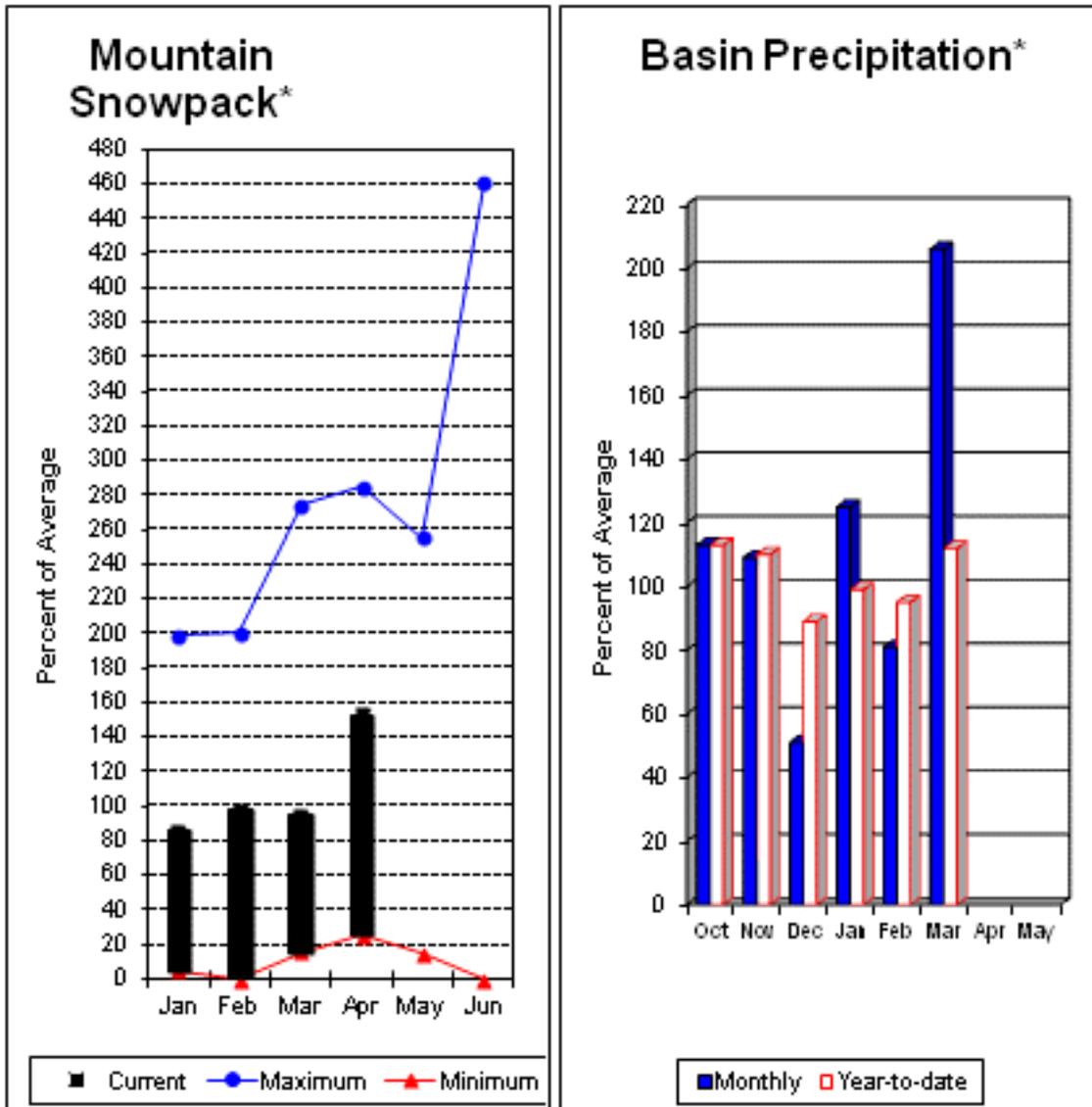
NORTH PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of March					NORTH PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - April 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
ROSS	1404.1	583.2	675.0	693.0	SKAGIT RIVER	15	115	137
DIABLO RESERVOIR	90.6	85.7	84.0	86.2	BAKER RIVER	0	118	0
					NOOKSACK RIVER	2	107	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.
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Olympic Peninsula River Basins



*Based on selected stations

Forecasted average runoff for streamflow for the Dungeness River is 114% and Elwha River is 117%. March runoff in the Dungeness River was 90% of normal. Big Quilcene and Wynoochee rivers should expect near to slightly above average runoff this summer as well. March precipitation was 206% of average. Precipitation has accumulated at 112% of average for the water year. March precipitation at Quillayute was 21 inches, almost double the thirty-year average for March of 10.98 inches. Olympic Peninsula snowpack averaged 153% of normal on April 1. Temperatures were 2-3 degrees below average for March 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 - April 1, 2012

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		<<===== Drier =====>>		50%		Wetter =====>>		
		90% (1000AF)	70% (1000AF)	Chance Of Exceeding (1000AF)	Exceeding * (% AVG.)	30% (1000AF)	10% (1000AF)	
Dungeness R Nnr Sequim	APR-JUL	119	133	142	115	151	165	124
	APR-SEP	144	161	173	114	185	200	152
Elwha R At Mcdonald Bridge	APR-JUL	430	470	495	118	520	560	419
	APR-SEP	510	555	590	117	625	670	503

OLYMPIC PENINSULA RIVER BASINS Reservoir Storage (1000 AF) - End of March					OLYMPIC PENINSULA RIVER BASINS Watershed Snowpack Analysis - April 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	4	99	153

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

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

Issued by

Dave White
Chief
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*:

Canada	Ministry of Sustainable Resources Snow Survey, River Forecast Centre, Victoria, British Columbia
State	Washington State Department of Ecology Washington State Department of Natural Resources
Federal	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
Local	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
Private	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

