United States Department of Agriculture

NRCS Natural Resources Conservation Service

Washington
Water Supply Outlook Report
January 1, 2013

Grouse Camp SNOTEL
July 2012

Grouse Camp SNOTEL
September 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.

Washington
Water Supply Outlook

January 2013

General Outlook

Record breaking fall precipitation helped take the sting out of a record warm summer and horrendous fire season in Washington State. Warmer than average temperatures delayed the start of this season's snowpack accumulation but when it did start snowing record amounts piled up in the mountains on a daily basis. New 30-year normals for precipitation, snow water, snow depth, reservoir storage and streamflow have been calculated for the 1981-2010 period which has replaced the 1971-2000 averages. There are some major changes in both increases and decreases so be sure to watch the data closely. More information can be found on page 4 of this report. Climate forecasters are predicting a cool dry pattern for the short term but long term forecasts have much uncertainty this season due to unstable tendencies with climate indices.

Snowpack

The January 1 statewide SNOTEL readings were 148% but remain near too much above normal across the state. So far we have received about 60% of our annual total snowfall. Normally we would have received 40-42% by this time of year. The Lower Snake River data in SE Washington reported the lowest readings at 82% of average. Readings from the Olympic Peninsula reported the highest at 211% of normal. Westside medians from SNOTEL, and January 1 snow surveys, included the North Puget Sound river basins with 152% of normal, the Central and South Puget river basins with 145%, and the Lewis-Cowlitz basins with 154% of normal. Snowpack along the east slopes of the Cascade Mountains included the Yakima area with 132% and the Wenatchee area with 128%. Snowpack in the Spokane River Basin was at 91% and the Walla Walla River Basin had 90% of the long term median. Maximum snow cover in Washington was at Easy Pass SNOTEL, with water content of 48.4 inches. Easy Pass is only a few years old so a normal has yet to be established. However neighboring sites are running 150 – 170% of normal.

BASIN	PERCENT OF LAST YEAR	PERCENT OF AVERAGE
Spokane	118	91
Newman Lake	117	98
Pend Oreille	102	96
Okanogan	129	153
Methow	127	137
Conconully Lake	276	194
Central Columbia	128	124
Upper Yakima	118	121
Lower Yakima	155	150
Ahtanum Creek	184	184
Walla Walla	138	90
Lower Snake	120	82
Cowlitz	172	147
Lewis	246	162
White	161	146
Green	137	120
Puyallup	158	168
Cedar	104	137
Snoqualmie	137	138
Skykomish	165	134
Skagit	122	141
Nooksack	135	162
Olympic Peninsula	232	211

Precipitation

During the month of December, the National Weather Service and Natural Resources Conservation Service climate stations reported average too much above average precipitation totals throughout Washington river basins. The highest percent of average in the state was at Waterhole SNOTEL in the Olympics which reported 258% of average for a total of 20.1 inches. The average for Waterhole is 4.9 inches for December. The wettest spot in the state was reported at Swift Creek SNOTEL near Mt. St. Helens with a December accumulation of 35.9 inches or 140% of normal.

RIVER BASIN	DECEMBER PERCENT OF AVERAGE	WATER YEAR PERCENT OF AVERAGE
Spokane	107	118
Pend Oreille	138	139
Upper Columbia	152	144
Central Columbia	124	129
Upper Yakima	99	109
Lower Yakima	121	131
Walla Walla	117	125
Lower Snake	103	113
Lower Columbia	132	140
South Puget Sound	118	119
Central Puget Sound	106	111
North Puget Sound	110	124
Olympic Peninsula	174	154

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. For the most part water year 2012 ended with very good reservoir surplus and with above normal fall precipitation many reservoirs are still at above normal levels. In fact several had to be drawn down in anticipation for winter runoff and flood control storage. Reservoir storage in the Yakima Basin was 539,000-acre feet, 135% of average for the Upper Reaches and 136,000-acre feet or 122% of average for Rimrock and Bumping Lakes. Storage at the Okanogan reservoirs was 109% of average for January 1. The power generation reservoirs included the following: Coeur d'Alene Lake, 73,000 acre feet, 66% of average and 31% of capacity; Chelan Lake, 387,000-acre feet, 98% of average and 57 of capacity; and the Skagit River reservoirs at 99% of average and 81% of capacity. Recent climate impacts and management procedures may affect these numbers on a daily or weekly basis.

BASIN	PERCENT OF CAPACITY	CURRENT STORAGE AS PERCENT OF AVERAGE
Spokane	31	78
Pend Oreille	57	126
Upper Columbia	75	109
Central Columbia	57	94
Upper Yakima	65	156
Lower Yakima	59	131
Lower Snake	45	65
North Puget Sound	81	99

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

Streamflow

Forecasts vary from 96% of average for the S.F. Walla Walla near Milton-Freewater to 137% of average for S.F. Tolt River near Index. April-September forecasts for some Western Washington streams include the Cedar River near Cedar Falls, 113%; White River, 121%; and Skagit River, 114%. Some Eastern Washington streams include the Yakima River near Parker, 112%: Wenatchee River at Plain, 111%; and Spokane River near Post Falls, 102%. Volumetric forecasts are developed using current, historic and average snowpack, precipitation and streamflow data collected and coordinated by organizations cooperating with NRCS. Caution should be used when using early season forecasts for critical water resource management decisions.

After a very wet fall temperatures dropped in December thus bringing runoff to near normal conditions in all but a few basins. The Kettle River had the highest reported flows with 223% of average. The Similkameen with 85% of average was the lowest in the state. Other streamflows were the following percentage of average as reported by the River Forecast Center: the Cowlitz at Castle Rock, 137%; the Stehekin at Stehekin, 84%; the Columbia below Rock Island Dam, 150%; and the Priest River, 161%.

BASIN	PERCENT OF AVERAGE (50 PERCENT CHANCE OF EXCEEDENCE)
Spokane	102-122
Pend Oreille	110-121
Upper Columbia	101-132
Central Columbia	102-111
Upper Yakima	99-107
Lower Yakima	107-131
Walla Walla	96-100
Lower Snake	99-117
Lower Columbia	101-120
South Puget Sound	112-121
Central Puget Sound	104-137
North Puget Sound	103-114
Olympic Peninsula	111-119

STREAM	PERCENT OF AVERAGE DECEMBER STREAMFLOWS
Pend Oreille Below Box Canyon	159
Kettle at Laurier	223
Columbia at Birchbank	138
Spokane at Long Lake	150
Similkameen at Nighthawk	85
Okanogan at Tonasket	90
Methow at Pateros	124
Chelan at Chelan	110
Wenatchee at Pashastin	91
Cle Elum near Roslyn	95
Yakima at Parker	105
Naches at Naches	110
Grande Ronde at Troy	124
Snake below Lower Granite Dam	122
SF Walla Walla near Milton-Freewater, OR	112
Columbia River at The Dalles	134
Cowlitz below Mayfield Dam	120
Skagit at Concrete	87
Dungeness near Sequim	94

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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. Heavy fall precipitation helped bolster soil moisture profiles in most locations of the state after a record dry August and September. With a solid snowpack over most of the mountainous regions of the state these number should hold and will help provide maximum runoff come spring.

BASIN	ESTIMATED PERCENT SATURATION
Spokane	58
Pend Oreille	66
Upper Columbia	56
Central Columbia	59
Upper Yakima	63
Lower Yakima	69
Walla Walla	71
Lower Snake	71
Lower Columbia	72
South Puget Sound	74
Central Puget Sound	N/A
North Puget Sound	82
Olympic Peninsula	44

What is the upshot of changing 30-year normal periods?

The Snow Survey and Water Supply Forecasting (SSWSF) normal is a measure of central tendency for a data type (such as snow-water equivalent) at a site location, over a 30-year period. The 30-year interval was chosen in agreement with World Meteorological Organization (WMO) standards.

Depending on the data type, the central tendency measure available may be the median, the average or both. The SSWSF Program has chosen a default normal with the best representation of central tendency for a particular data type. The default normal appears in pre-determined reports.

A complete listing of all new normals and an explanation of how they were computed can be found at: http://www.wcc.nrcs.usda.gov/normals/30year_normals_landing.htm

B A S I N S U M M A R Y O F
S N O W C O U R S E D A T A

JANUARY 2012

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
ALPINE MEADOWS SNTL	3500	1/01/13	83	29.3	14.7	19.8
BADGER PASS SNOTEL	6900	1/01/13	52	13.0	15.4	12.5
BARKER LAKES SNOTEL	8250	1/01/13	27	6.8	5.3	5.9
BASIN CREEK SNOTEL	7180	1/01/13	14	2.7	2.6	3.6
BEAVER CREEK TRAIL	2200	12/30/12	46	9.1	5.8	4.2
BEAVER PASS	3680	12/28/12	84	17.4	11.8	10.5
BEAVER PASS SNOTEL	3630	1/01/13	88	27.5	20.5	15.5
BLACK PINE SNOTEL	7100	1/01/13	19	4.1	4.7	4.2
BLEWETT PASS#2SNOTEL	4240	1/01/13	27	8.5	6.3	6.6
BROWN TOP AM	6000	12/28/12	111	31.0	19.0	26.2
BUCKINGHORSE SNOTEL	4870	1/01/13	119	43.5	19.7	--
BUMPING LAKE (NEW)	3400	1/03/13	42	10.6	6.8	6.6
BUMPING RIDGE SNOTEL	4610	1/01/13	55	13.7	11.4	10.4
BUNCHGRASS MDWSNOTEL	5000	1/01/13	49	13.0	10.0	11.6
BURNT MOUNTAIN PIL	4170	1/01/13	44	11.1	7.1	4.5
CALAMITY SNOTEL	2500	1/01/13	17	5.1	.0	--
CAYUSE PASS SNOTEL	5240	1/01/13	116	35.2	18.6	--
COMBINATION SNOTEL	5600	1/01/13	9	1.9	2.1	2.0
COPPER BOTTOM SNOTEL	5200	1/01/13	11	2.4	3.3	--
CORRAL PASS SNOTEL	5800	1/01/13	63	18.4	14.3	14.8
COUGAR MTN. SNOTEL	3200	1/01/13	42	10.3	5.1	6.6
COYOTE HILL	4200	12/31/12	12	2.3	2.4	3.2
DALY CREEK SNOTEL	5780	1/01/13	19	4.6	5.0	4.5
DEVILS PARK	5900	12/28/12	65	19.6	23.6	--
DISCOVERY BASIN	7050	12/26/12	20	3.9	3.3	3.8
DIX HILL	6400	1/01/13	15	3.4	4.6	3.9
DOMMERIE FLATS	2200	12/28/12	22	3.9	2.5	4.1
DUNGENESS SNOTEL	4010	1/01/13	39	9.3	2.6	3.2
ELBOW LAKE SNOTEL	3200	1/01/13	74	21.4	12.6	13.9
EMERY CREEK SNOTEL	4350	1/01/13	---	6.3	4.3	5.9
FISH CREEK	8000	12/27/12	20	4.0	--	3.6
FISH LAKE	3370	12/27/12	57	16.8	--	12.0
FISH LAKE SNOTEL	3430	1/01/13	48	13.9	12.9	13.0
FLATTOP MTN SNOTEL	6300	1/01/13	85	22.6	16.8	18.5
FOURTH OF JULY SUM	3200	12/28/12	23	4.7	2.2	3.0
FREEZEOUT CK. TRAIL	3500	12/29/12	23	5.4	7.6	--
FROHNER MDWS SNOTEL	6480	1/01/13	14	3.5	4.5	3.1
GRAVE CRK SNOTEL	4300	1/01/13	21	5.2	4.9	6.6
GREEN LAKE SNOTEL	5920	1/01/13	63	16.4	9.6	9.4
GROUSE CAMP SNOTEL	5390	1/01/13	43	13.5	6.9	8.6
HAND CREEK SNOTEL	5030	1/01/13	17	4.1	3.9	4.2
HARTS PASS SNOTEL	6490	1/01/13	71	25.2	19.8	17.7
HARTS PASS	6500	12/28/12	84	24.4	19.4	--
HIGH RIDGE SNOTEL	4920	1/01/13	33	8.4	6.9	11.0
HOLBROOK	4530	1/01/13	12	2.1	1.9	3.2
HOODOO BASIN SNOTEL	6050	1/01/13	61	17.2	16.4	16.6
HUCKLEBERRY SNOTEL	2250	1/01/13	13	3.0	.8	.9
HUMBOLDT GLCH SNOTEL	4250	1/01/13	20	4.4	6.4	5.7
INDIAN ROCK SNOTEL	5360	1/01/13	67	21.0	10.0	--
JUNE LAKE SNOTEL	3440	1/01/13	102	29.8	10.1	16.6
KELLOGG PEAK	5560	12/28/12	30	8.1	6.2	11.8
KRAFT CREEK SNOTEL	4750	1/01/13	16	3.3	4.9	--
LOLO PASS SNOTEL	5240	1/01/13	35	8.6	11.2	11.0
LONE PINE SNOTEL	3930	1/01/13	96	31.5	10.8	15.3
LOOKOUT SNOTEL	5140	1/01/13	38	9.7	10.2	11.9
LOST HORSE SNOTEL	5120	1/01/13	48	13.4	6.6	6.8
LOST LAKE SNOTEL	6110	1/01/13	62	17.7	16.9	22.5
LUBRECHT FOREST NO 3	5450	12/27/12	8	1.3	1.3	2.2
LUBRECHT FOREST NO 4	4650	12/27/12	6	.8	.8	1.2
LUBRECHT FOREST NO 6	4040	12/27/12	8	1.2	1.7	1.3
LUBRECHT HYDROPLOT	4200	12/27/12	9	1.2	1.9	2.0
LUBRECHT SNOTEL	4680	1/01/13	7	1.6	2.9	2.4
LYMAN LAKE SNOTEL	5980	1/01/13	108	32.2	25.2	26.4
LYNN LAKE	4000	1/01/13	49	13.5	10.0	7.9
LYNN LAKE SNOTEL	3900	1/01/13	49	13.5	10.0	--
MARTEN RIDGE SNOTEL	3520	1/01/13	96	33.1	23.6	--
MEADOWS CABIN	1900	12/29/12	16	3.1	.0	--
MEADOWS PASS SNOTEL	3230	1/01/13	52	13.6	14.5	9.3
M F NOOKSACK SNOTEL	4970	1/01/13	82	26.9	25.5	16.6
MICA CREEK SNOTEL	4510	1/01/13	39	8.7	6.8	11.0
MORSE LAKE SNOTEL	5410	1/01/13	106	33.8	22.4	22.0
MOSES MTN SNOTEL	5010	1/01/13	48	14.4	4.6	6.3
MOSQUITO RDG SNOTEL	5200	1/01/13	59	16.4	13.5	13.0
MOULTON RESERVOIR	6850	12/27/12	12	2.4	--	2.8
MOUNT CRAG SNOTEL	3960	1/01/13	95	26.8	11.5	11.3
MOWICH SNOTEL	3160	1/01/13	22	4.8	.3	.0
MOUNT GARDNER SNOTEL	2920	1/01/13	37	8.6	5.9	6.3
N.F. ELK CR SNOTEL	6250	1/01/13	17	4.0	4.7	4.5
NEVADA RIDGE SNOTEL	7020	1/01/13	24	5.9	6.7	5.6
NEW HOZOMEEN LAKE	2800	12/28/12	22	5.4	5.0	--
NEZ PERCE CMP SNOTEL	5650	1/01/13	21	5.0	5.5	5.8
NOISY BASIN SNOTEL	6040	1/01/13	64	18.0	9.0	16.1
OLALLIE MDWS SNOTEL	4030	1/01/13	80	26.7	24.5	19.5
OPHIR PARK	7150	1/01/13	23	5.3	5.1	5.7
PARADISE SNOTEL	5130	1/01/13	105	34.9	24.4	29.0
PARK CK RIDGE SNOTEL	4600	1/01/13	86	25.8	19.9	19.2
PEPPER CREEK SNOTEL	2140	1/01/13	25	6.3	1.7	--
PETERSON MDW SNOTEL	7200	1/01/13	19	4.1	4.2	4.0
PIGTAIL PEAK SNOTEL	5800	1/01/13	83	24.4	20.9	21.0
PIKE CREEK SNOTEL	5930	1/01/13	23	4.6	5.3	9.7
POPE RIDGE SNOTEL	3590	1/01/13	41	10.6	8.7	8.8
POTATO HILL SNOTEL	4510	1/01/13	65	16.6	10.4	11.5
QUARTZ PEAK SNOTEL	4700	1/01/13	39	9.5	8.1	9.7
RAGGED MOUNTAIN	4200	12/30/12	45	13.8	8.1	9.8
RAGGED MTN SNOTEL	4210	1/01/13	39	10.3	7.5	12.5
RAINY PASS SNOTEL	4890	1/01/13	59	17.8	19.1	15.7
RAINY PASS	4780	12/30/12	69	20.0	14.4	--
REX RIVER SNOTEL	3810	1/01/13	59	17.7	16.6	12.9
ROCKER PEAK SNOTEL	8000	1/01/13	23	4.7	6.5	6.0
SADDLE MTN SNOTEL	7900	1/01/13	38	10.6	9.3	10.5
SALMON MDWS SNOTEL	4460	1/01/13	30	9.1	3.3	4.7
SASSE RIDGE SNOTEL	4340	1/01/13	58	16.3	14.1	11.7
SAVAGE PASS SNOTEL	6170	1/01/13	---	10.8	11.1	10.3
SAWMILL RIDGE SNOTEL	4640	1/01/13	61	19.7	12.9	--
SENTINEL BT SNOTEL	4680	1/01/13	26	6.0	2.4	3.7
SHEEP CANYON SNOTEL	3990	1/01/13	94	26.4	11.0	15.1
SHERWIN SNOTEL	3200	1/01/13	---	3.2	2.7	4.5
SKALKAHO SNOTEL	7260	1/01/13	35	9.3	9.3	8.7
SKOOKUM CREEK SNOTEL	3310	1/01/13	63	20.6	12.8	9.6
SOURDOUGH GUL SNOTEL	4000	1/01/13	6	1.1	.5	.6
SPENCER MDW SNOTEL	3400	1/01/13	67	18.8	7.6	12.4
SPIRIT LAKE SNOTEL	3520	1/01/13	29	15.7	1.9	3.1
SPOTTED BEAR MTN.	7000	1/01/13	---	5.1	--	5.3
SPRUCE SPGS SNOTEL	5700	1/01/13	19	3.9	4.2	7.1
STAHL PEAK SNOTEL	6030	1/01/13	51	13.6	11.1	15.1
STAMPEDE PASS SNOTEL	3850	1/01/13	54	14.6	14.5	17.4
STEVENS PASS SNOTEL	3950	1/01/13	73	20.0	15.1	17.0
STORM LAKE	7780	12/26/12	25	5.4	5.7	5.1
SUNSET SNOTEL	5540	1/01/13	26	7.0	7.6	7.5
SURPRISE LKS SNOTEL	4290	1/01/13	92	28.0	13.4	19.9
SWAMP CREEK SNOTEL	3930	1/01/13	32	8.9	10.5	5.8
SWIFT CREEK SNOTEL	4440	1/01/13	130	39.6	17.9	23.4
THUNDER BASIN SNOTEL	4320	1/01/13	58	17.9	14.4	14.2
TINKHAM CREEK SNOTEL	2990	1/01/13	48	12.5	13.4	9.8
TOUCHET SNOTEL	5530	1/01/13	44	13.2	8.8	12.9
TRINKUS LAKE	6100	1/01/13	---	19.1	--	16.9
TROUGH #2 SNOTEL	5480	1/01/13	31	7.6	3.9	5.2
TUNNEL AVENUE	2450	12/28/12	30	6.1	6.0	6.3
TWELVEMILE SNOTEL	5600	1/01/13	24	5.8	7.9	6.6
TWIN LAKES SNOTEL	6400	1/01/13	47	13.0	15.6	16.1
TWIN SPIRIT DIVIDE	3480	12/30/12	23	3.6	3.2	6.2
UPPER HOLLAND LAKE	6200	1/01/13	---	11.2	--	13.0
UPPER WHEELER SNOTEL	4330	1/01/13	26	6.3	3.0	5.0
WARM SPRINGS SNOTEL	7800	1/01/13	32	7.9	8.5	8.6
WATERHOLE SNOTEL	5010	1/01/13	92	30.5	14.6	17.0
WEASEL DIVIDE	5450	12/27/12	52	14.2	11.7	12.6
WELLS CREEK SNOTEL	4030	1/01/13	72	21.2	13.4	12.5
WHITE PASS ES SNOTEL	4440	1/01/13	47	12.2	9.2	9.0

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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

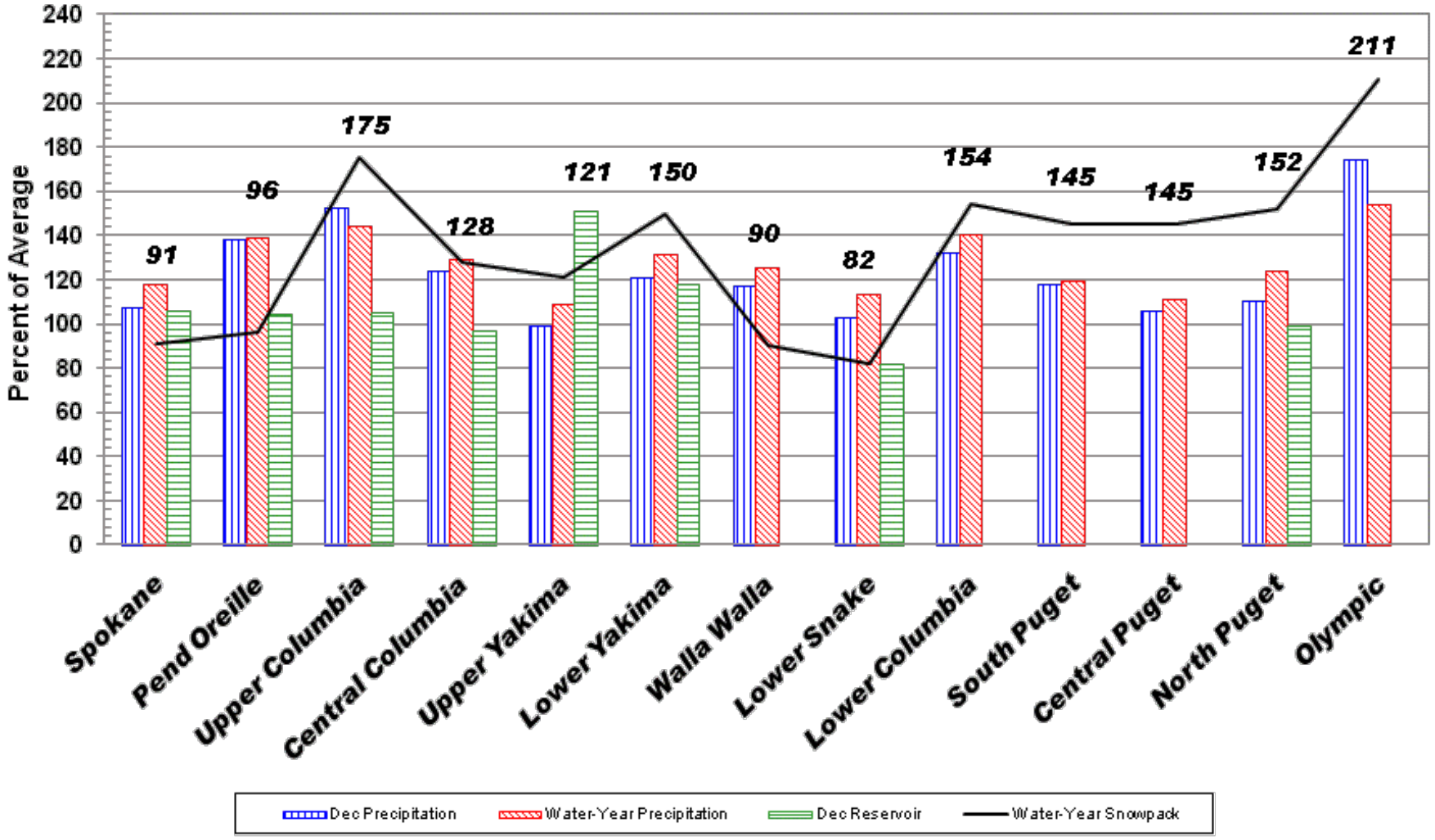
Washington:
http://www.wa.nrcs.usda.gov

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

NRCS Natural Resources Conservation Service

January 1, 2013 - Snowpack, Precipitation and Reservoir Conditions at a Glance

(Water Year = October 1, 2012 - Current Date)



Western Snow Conference

The Western Snow Conference is an annual tradition which started in 1932 as an international forum for individuals and organizations to share scientific, management and socio-political information on snow and runoff. The principal aim of the Western Snow Conference is to advance snow and hydrological sciences. The North Continental Area Committee is making plans for the 81st Annual Western Snow Conference in 2013.

Mark your calendar and start thinking about submitting a paper to attend the 2013 Western Snow Conference:

Dates: April 15-18, 2013
Location: Snow King Resort Jackson Hole, Wyoming http://www.snowking.com
Theme: "Wild Weather in the Wild West"

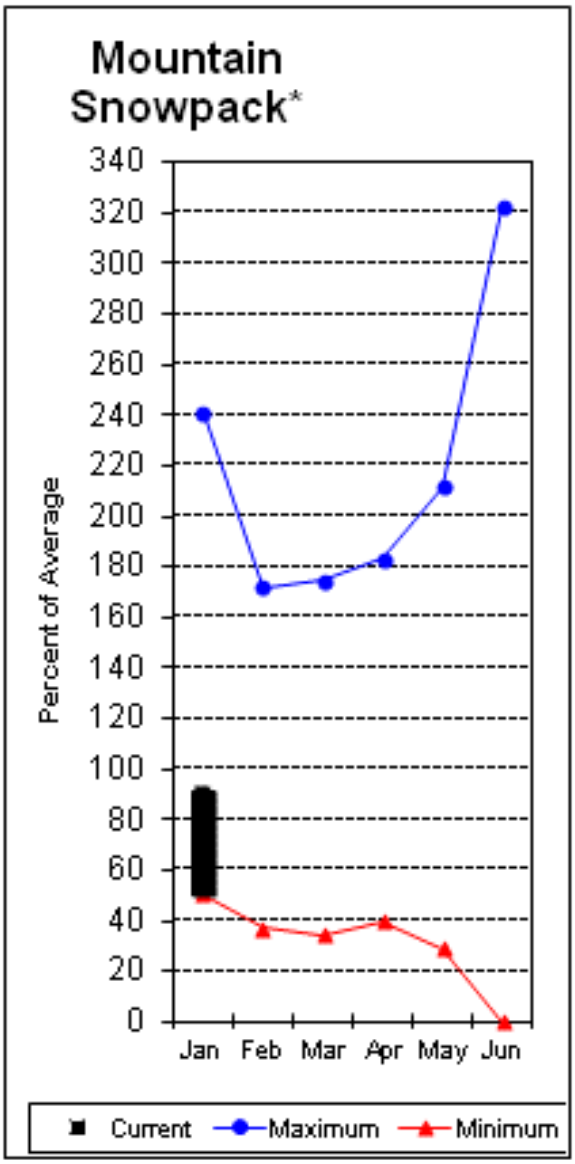
A short course and panel discussion is being planned for Monday April 15th titled "**New Strategies and Techniques in Long Range Streamflow Forecasting".** Many agencies use long range streamflow forecasts for hydropower planning, reservoir operation and marketing. This will provide a forum to discuss the current state of forecasting, the advancement of long range forecasting, additional needs of agencies, and more.

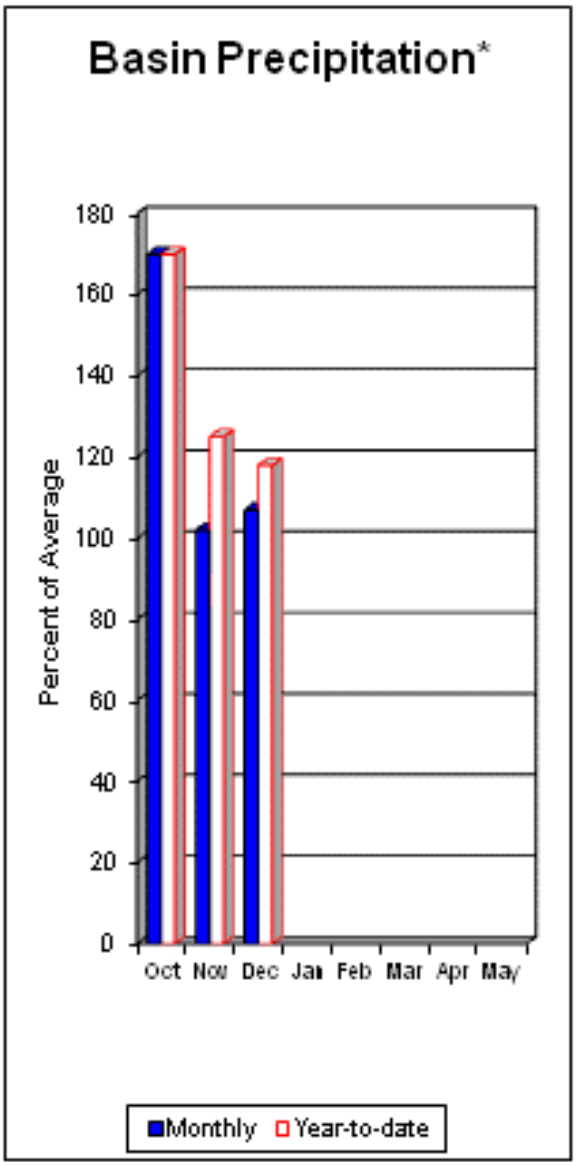
A Technical Tour is scheduled for Thursday, April 18th to discover how the local environment plays a critical role in the snowpack of the area. This will be an all day bus trip and a great opportunity to view the majestic landscape that so many have been studying and talking about.

Additional information about the conference and the Call for Papers will be posted on the WSC web page at http://www.westernsnowconference.org/

Also find Western Snow Conference on Facebook and Twitter.

Spokane River Basin





*Based on selected stations

The January 1 forecasts for summer runoff within the Spokane River Basin are 102% of average near Post Falls and 104% at Long Lake. The Chamokane River near Long Lake forecasted to have 122% of average flows for the May-August period. The forecast is based on a basin snowpack that is 91% of normal and precipitation that is 118% of average for the water year. Precipitation for December was above normal at 107% of average. Streamflow on the Spokane River at Long Lake was 150% of average for December. January 1 storage in Coeur d'Alene Lake was 73,000 acre feet, 78% of average and 31% of capacity. Snowpack at Quartz Peak SNOTEL site was 98% of average with 9.5 inches of water content. Average temperatures in the Spokane basin were 2-4 degrees above normal for December and slightly above normal for the water year.

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

Streamflow Forecasts - January 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Spokane R nr Post Falls (2)	APR-JUL	1526	2064	2430	102	2796	3334	2390
	APR-SEP	1611	2158	2530	102	2902	3449	2480
Spokane R at Long Lake (2)	APR-JUL	1697	2306	2720	104	3134	3743	2620
	APR-SEP	1893	2522	2950	104	3378	4007	2850
Chamokane Ck nr Long Lake	MAY-AUG	7.9	9.9	11.3	122	12.7	14.7	9.3

SPOKANE RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Coeur d'Alene	238.5	72.9	50.9	93.7

SPOKANE RIVER BASIN
Watershed Snowpack Analysis - January 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
SPOKANE RIVER	13	118	91
NEWMAN LAKE	1	117	98

* 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 1981-2010 base period.

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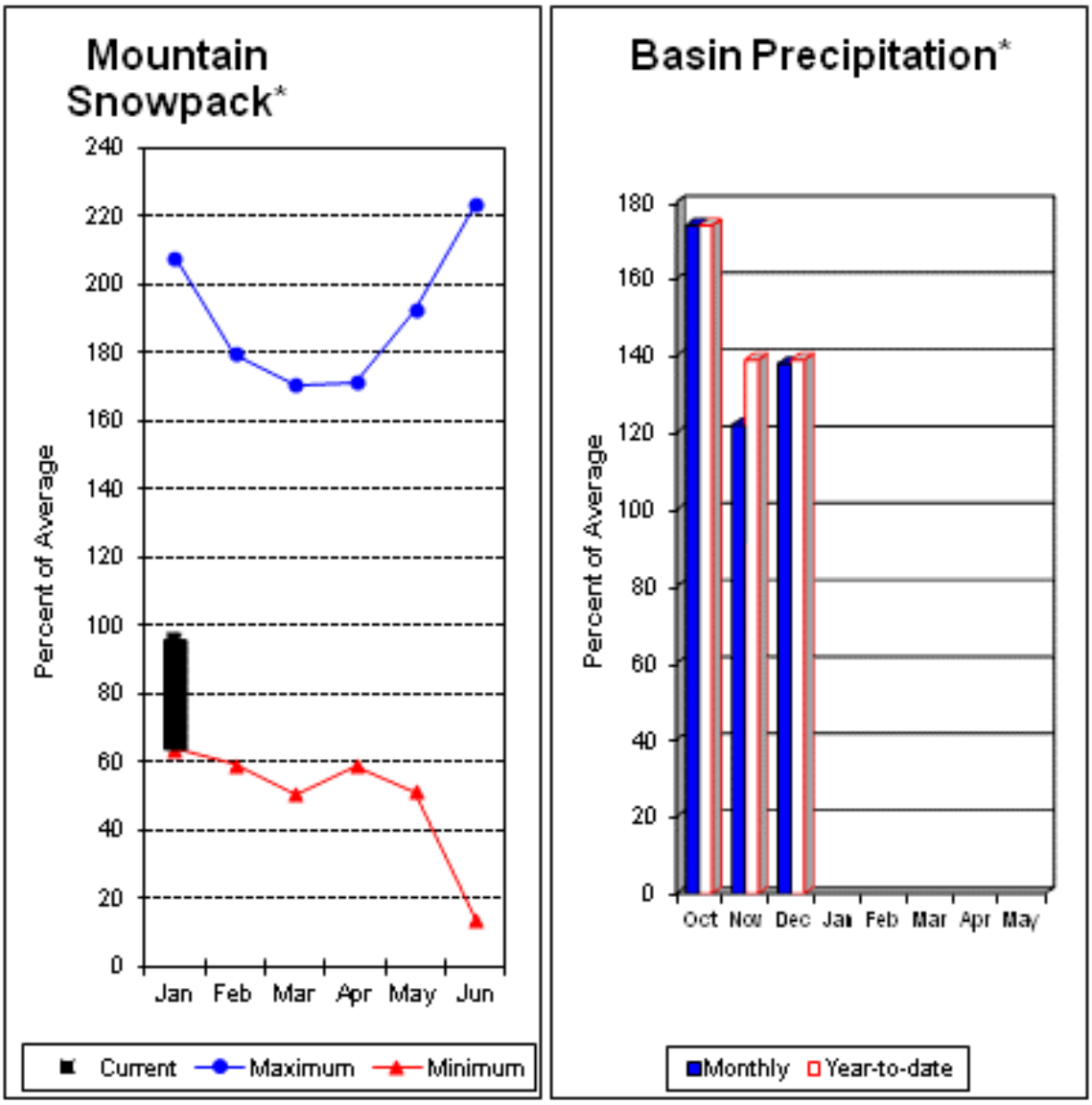
Pend Oreille River Basins



*Based on selected stations

The April – September average forecast for the Priest River near the town of Priest River is 121% and the Pend Orielle below Box Canyon is 110%. December streamflow was 159% of average on the Pend Oreille River and 138% on the Columbia Birchbank. January 1 snow cover was 96% of normal in the Pend Oreille Basin River Basin. Bunchgrass Meadows SNOTEL site had 13 inches of snow water on the snow pillow. Normally Bunchgrass would have 11.6 inches on January 1. Precipitation during December was 138% of average, keeping the year-to-date precipitation at 139% of average. Reservoir storage in the basin, including Lake Pend Oreille and Priest Lake was 126% of normal. Average temperatures were 4-6 degrees above normal for December and 3-4 degrees above normal for the water year.

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

Streamflow Forecasts - January 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Pend Oreille Lake Inflow (2)	APR-JUL	9963	11652	12800	109	13948	15637	11800
	APR-SEP	11146	12905	14100	110	15295	17054	12800
Priest R nr Priest River (1,2)	APR-JUL	710	850	945	121	1040	1180	780
	APR-SEP	750	900	1000	121	1100	1250	830
Pend Oreille R bl Box Canyon (2)	APR-JUL	10108	11830	13000	109	14170	15892	11900
	APR-SEP	11269	13074	14300	110	15526	17331	13000

PEND OREILLE RIVER BASINS
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Pend Oreille	1561.3	900.3	641.0	708.2
Priest Lake	119.3	64.1	53.2	56.5

PEND OREILLE RIVER BASINS
Watershed Snowpack Analysis - January 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
COLVILLE RIVER	0	0	0
PEND OREILLE RIVER	8	99	96
KETTLE RIVER	1	250	162

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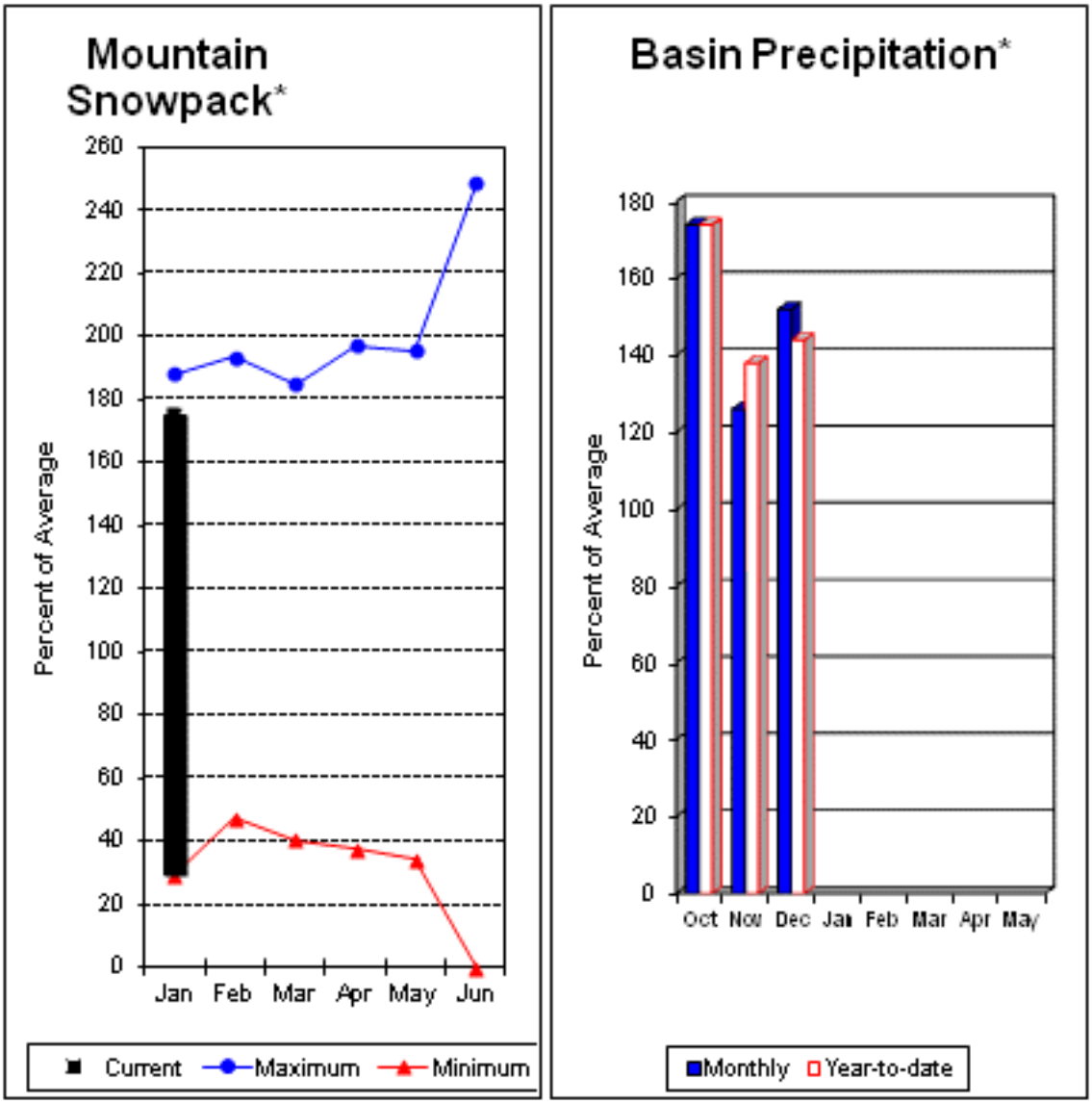
Upper Columbia River Basins



*Based on selected stations

Summer runoff average forecast for the Okanogan River is 106%, Similkameen River is 114%, Kettle River 108% and Methow River is 129%. January 1 snow cover on the Okanogan was 153% of normal, Omak Creek was 229% and the Methow was 137%. December precipitation in the Upper Columbia was 152% of average, with precipitation for the water year at 144% of average. December streamflow for the Methow River was 124% of average, 90% for the Okanogan River and 85% for the Similkameen. Snow-water content at Salmon Meadows SNOTEL was 9.1 inches. Average for this site is 4.7 inches on January 1. Combined storage in the Conconully Reservoirs was 18,000-acre feet, which is 75% of capacity and 109% of the January 1 average. Temperatures were 2 degrees above normal for December and for the water year.

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

Streamflow Forecasts - January 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Colville R at Kettle Falls	APR-JUL	60	104	134	113	164	208	119
	APR-SEP	67	115	148	113	181	229	131
Kettle R nr Laurier	APR-JUL	1850	2170	2380	132	2590	2910	1800
	APR-SEP	1930	2260	2490	132	2720	3050	1880
Similkameen R nr Nighthawk (1)	APR-JUL	920	1230	1370	114	1510	1820	1200
	APR-SEP	975	1310	1460	114	1610	1940	1280
Okanogan R nr Tonasket (1)	APR-JUL	755	1270	1500	101	1730	2250	1480
	APR-SEP	820	1400	1670	101	1940	2520	1650
Okanogan R at Malott (1)	APR-JUL	770	1310	1550	107	1790	2330	1450
	APR-SEP	835	1440	1720	106	2000	2610	1620
Methow R nr Pateros	APR-SEP	875	1050	1170	131	1290	1470	895
	APR-JUL	800	965	1080	129	1190	1360	835
Kettle R at Laurier (3)	APR-SEP	1520		2027	108		2734	1875

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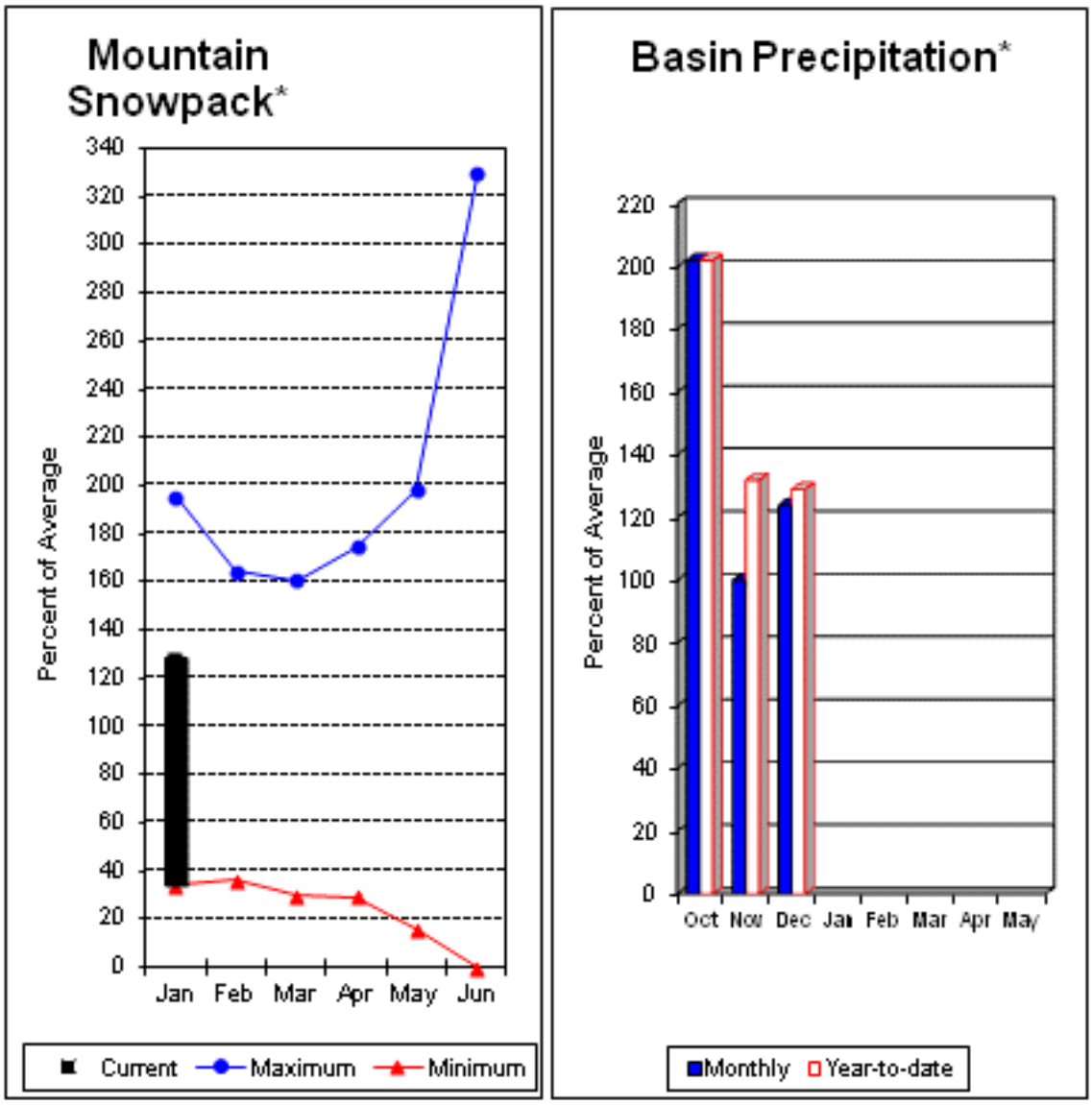
UPPER COLUMBIA RIVER BASINS
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
SALMON LAKE	10.5	8.5	8.4	---
CONCONULLY RESERVOIR	13.0	9.1	10.4	---

UPPER COLUMBIA RIVER BASINS
Watershed Snowpack Analysis - January 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Average
OKANOGAN RIVER	2	129	153
OMAK CREEK	1	313	229
SANPOIL RIVER	0	0	0
SIMILKAMEEN RIVER	0	0	0
TOATS COULEE CREEK	0	0	0
CONCONULLY LAKE	1	276	194
METHOW RIVER	3	127	137

Central Columbia River Basins



*Based on selected stations

Precipitation during December was 124% of average in the basin and 129% for the year-to-date. Runoff for Entiat River is forecast to be 109% of average for the summer. The April-September average forecast for Chelan River is 107%, Wenatchee River at Plain is 111%, Stehekin River is 108% and Icicle Creek is 102%. December average streamflows on the Chelan River were 110% and on the Wenatchee River 91%. January 1 snowpack in the Wenatchee River Basin was 124% of normal; the Chelan, 124%; the Entiat, 120%; Stemilt Creek, 126% and Colockum Creek, 146%. Reservoir storage in Lake Chelan was 387,000-acre feet, 94% of January 1 average and 57% of capacity. Lyman Lake SNOTEL had the most snow water with 32.2 inches of water. This site would normally have 26.4 inches on January 1. Temperatures were 2-4 degrees above normal for December and 2-3 degrees above normal for the water year.

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

Streamflow Forecasts - January 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Stehekin R at Stehekin	APR-JUL	570	660	725	107	790	880	680
	APR-SEP	680	780	850	108	920	1020	790
Chelan R at Chelan (2)	APR-JUL	860	980	1060	106	1140	1260	1000
	APR-SEP	960	1100	1200	107	1300	1440	1120
Entiat R nr Ardenvoir	APR-JUL	163	197	220	110	245	275	200
	APR-SEP	179	215	240	109	265	300	220
Wenatchee R at Plain	APR-JUL	850	1000	1100	111	1200	1350	990
	APR-SEP	925	1090	1200	111	1310	1470	1080
Icicle Ck nr Leavenworth	APR-JUL	215	255	280	102	305	345	275
	APR-SEP	235	275	305	102	335	375	300
Wenatchee R at Peshastin	APR-JUL	1160	1360	1500	110	1640	1840	1370
	APR-SEP	1260	1480	1630	109	1780	2000	1490

CENTRAL COLUMBIA RIVER BASINS
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
CHELAN LAKE	676.1	387.4	309.9	411.3

CENTRAL COLUMBIA RIVER BASINS
Watershed Snowpack Analysis - January 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
CHELAN LAKE BASIN	3	122	124
ENTIAT RIVER	1	122	120
WENATCHEE RIVER	7	133	124
STEMILT CREEK	1	210	126
COLOCKUM CREEK	1	195	146

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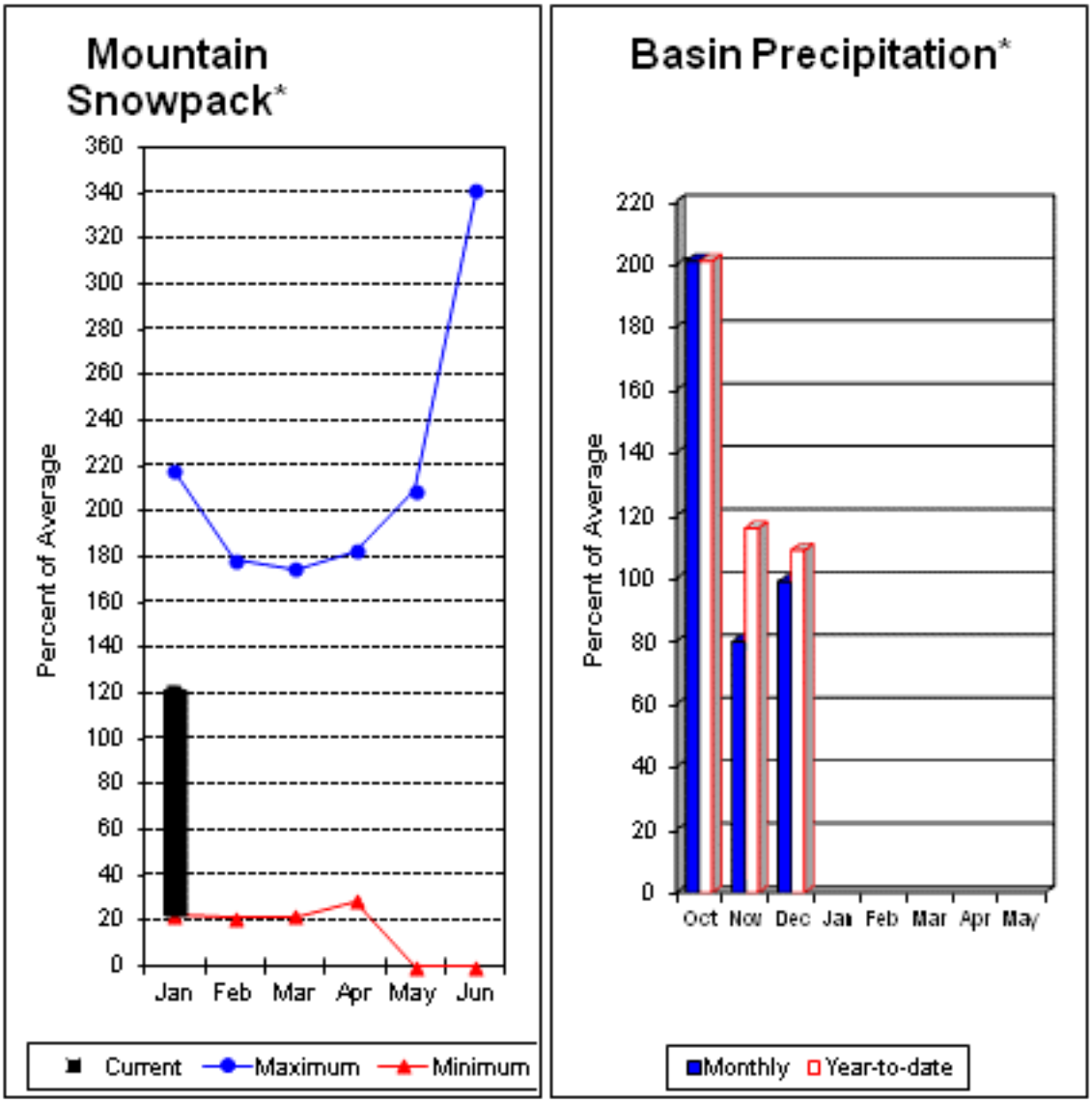
Upper Yakima River Basin



*Based on selected stations

January 1 reservoir storage for the Upper Yakima reservoirs was 539,000-acre feet, 156% of average. Forecasts for the Yakima River at Cle Elum are 101% of average and the Teanaway River near Cle Elum is at 107%. Lake inflows are all forecasted to be near average this summer. December streamflows within the basin were Cle Elum River near Roslyn at 95%. January 1 snowpack was 121% based upon 9 snow course and SNOTEL readings within the Upper Yakima Basin. Precipitation was 99% of average for December and 109% 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. A note worthy event was the loss of the Grouse Camp SNOTEL to the Table Mountain fire. The site was completely destroyed on September 19th. Snow Survey crews reinstalled the site as soon as fire officials would let us in, which wasn't until Late October.

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

Streamflow Forecasts - January 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Keechelus Reservoir Inflow (2)	APR-JUL	79	102	117	101	132	155	116
	APR-SEP	88	111	127	101	143	166	126
Kachess Reservoir Inflow (2)	APR-JUL	69	90	105	101	120	141	104
	APR-SEP	78	99	113	100	127	148	113
Cle Elum Lake Inflow (2)	APR-JUL	275	340	385	100	430	495	385
	APR-SEP	305	375	420	101	465	535	415
Yakima R at Cle Elum (2)	APR-JUL	515	655	750	99	845	985	755
	APR-SEP	570	720	820	99	920	1070	830
Teanaway R bl Forks nr Cle Elum	APR-JUL	83	117	140	108	163	197	130
	APR-SEP	85	119	142	107	165	199	133

UPPER YAKIMA RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
KEECHELUS	157.8	93.7	91.3	68.5
KACHESS	239.0	172.7	146.8	113.4
CLE ELUM	436.9	272.6	288.5	164.0

UPPER YAKIMA RIVER BASIN
Watershed Snowpack Analysis - January 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Average
UPPER YAKIMA RIVER	9	118	121

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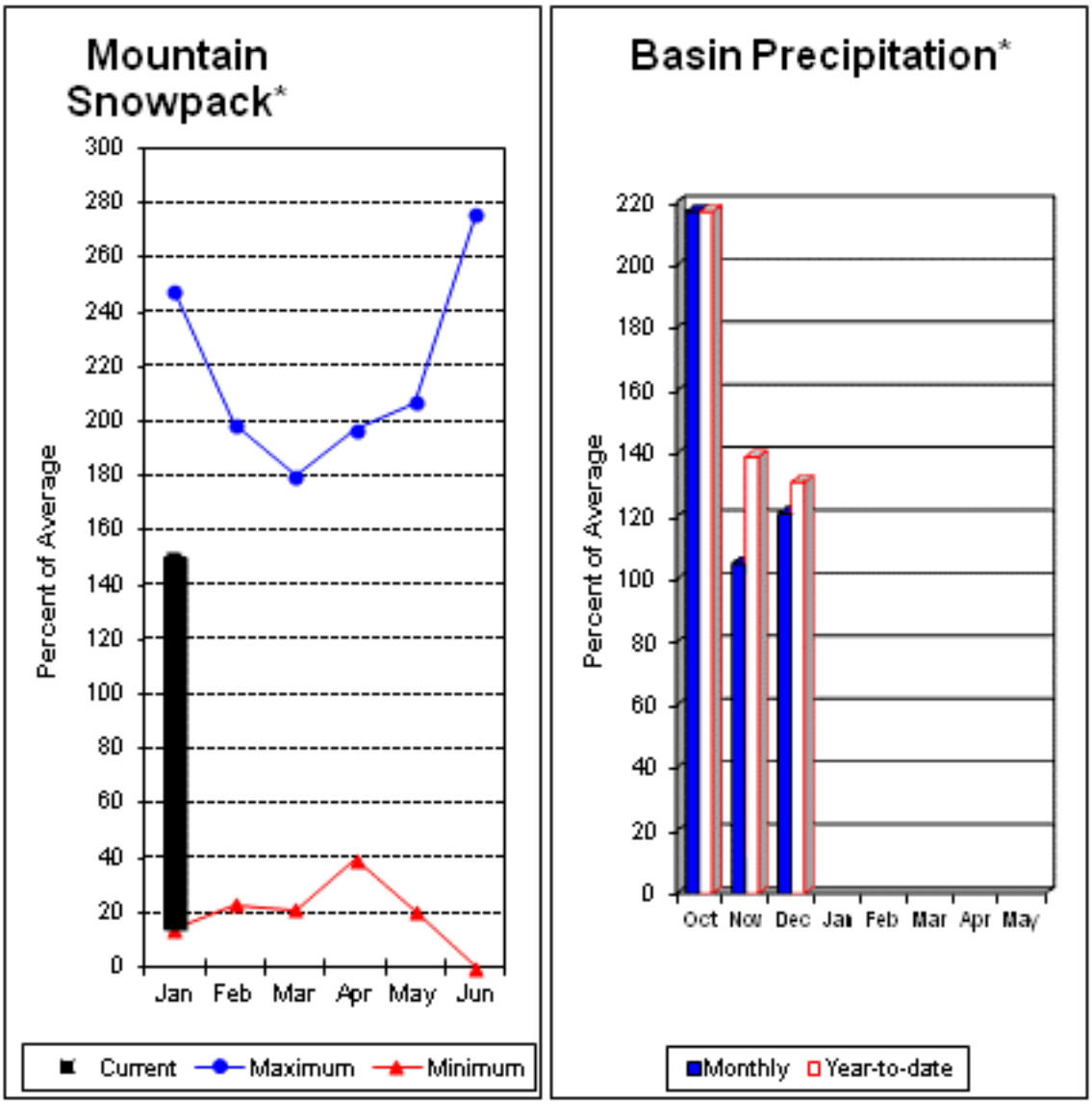
Lower Yakima River Basin



*Based on selected stations

December average streamflows within the basin were: Yakima River near Parker, 105%; Naches River near Naches, 110%; and Yakima River at Kiona, 105%. January 1 reservoir storage for Bumping and Rimrock reservoirs was 136,000-acre feet, 131% of average. Forecast averages for Yakima River near Parker are 112%; American River near Nile, 121%; Ahtanum Creek, 131%; and Klickitat River near Glenwood, 114%. January 1 snowpack was 150% based upon 7 snow course and SNOTEL readings within the Lower Yakima Basin and Ahtanum Creek reported in at 184% of normal. Precipitation was 121% of average for December and 131% year-to-date for water. Temperatures were 2-4 degrees above normal for December and for the water year. Volume forecasts for Yakima Basin are for natural flow. As such, they January differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow. In cooperation with the Yakima Indian Nation Snow

Survey crews installed a new SNOTEL site near the historic Satus Pass snow course. Satus Pass SNOTEL will serve well in forecasting efforts for both Satus Creek and the Klickitat River.

Streamflow Forecasts - January 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Bumping Lake Inflow (2)	APR-JUL	89	108	120	105	132	151	114
	APR-SEP	98	118	131	107	144	164	123
American R nr Nile	APR-JUL	95	111	122	120	133	149	102
	APR-SEP	103	121	133	121	145	163	110
Rimrock Lake Inflow (2)	APR-JUL	156	182	200	107	220	245	187
	APR-SEP	185	215	235	107	255	285	220
Naches R nr Naches (2)	APR-JUL	570	685	765	109	845	960	700
	APR-SEP	615	745	830	109	915	1040	760
Ahtanum Ck at Union Gap	APR-JUL	19.8	29	35	130	41	50	27
	APR-SEP	22	32	38	131	44	54	29
Yakima R nr Parker (2)	APR-JUL	1340	1640	1850	111	2060	2360	1660
	APR-SEP	1480	1810	2030	112	2250	2580	1820
Klickitat R nr Glenwood	APR-JUL	108	129	144	114	159	180	126
	APR-SEP	119	142	158	114	174	197	139
Klickitat R nr Pitt	APR-JUL	400	465	510	117	555	620	435
	APR-SEP	480	560	610	117	660	740	520

LOWER YAKIMA RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
BUMPING LAKE	33.7	14.4	18.6	11.5
RIMROCK	198.0	121.9	125.8	92.4

LOWER YAKIMA RIVER BASIN
Watershed Snowpack Analysis - January 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Average
LOWER YAKIMA RIVER	7	155	150
AHTANUM CREEK	2	184	184

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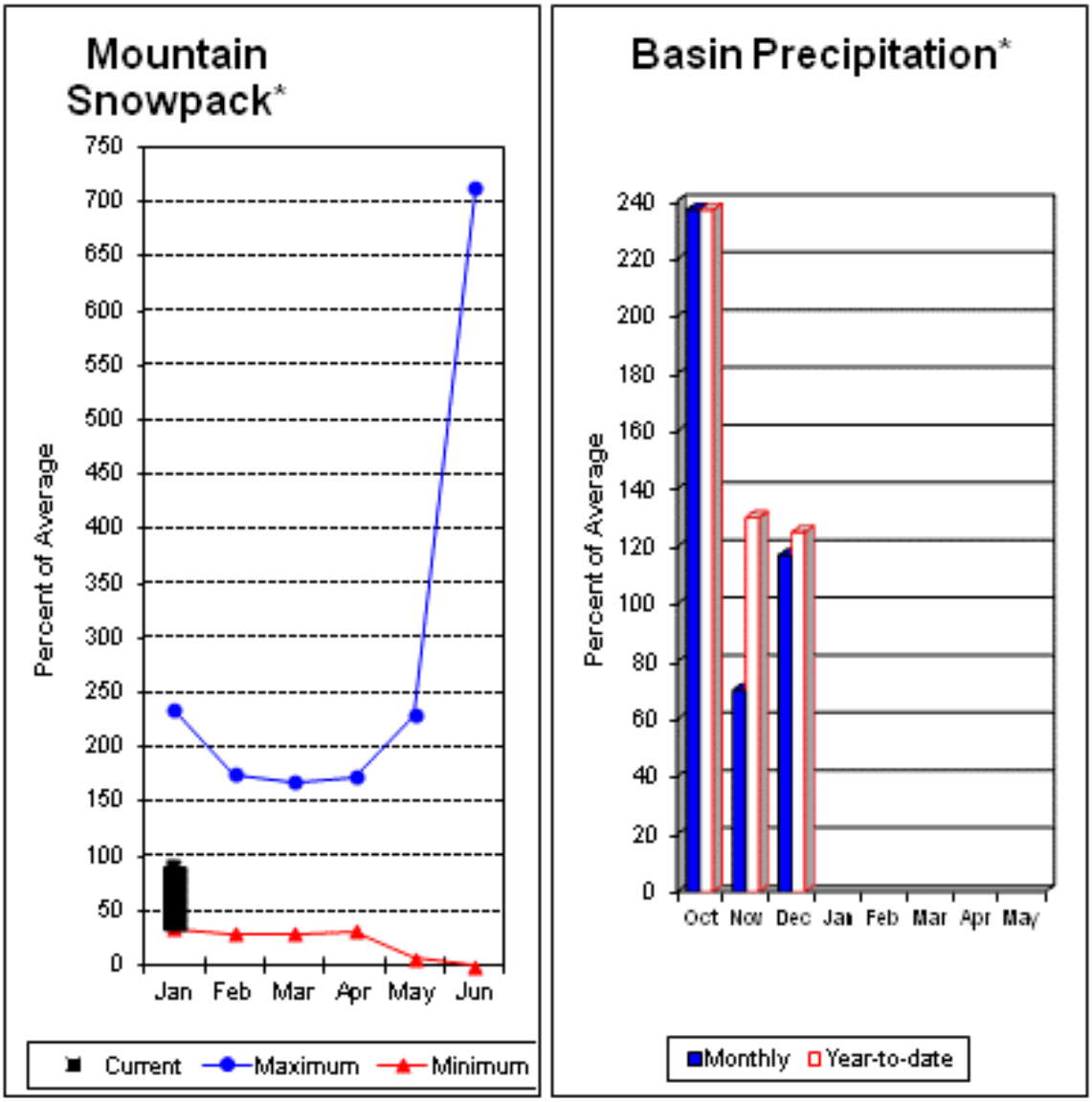
Walla Walla River Basin



*Based on selected stations

December precipitation was 117% of average, maintaining the year-to-date precipitation at 125% of average. Snowpack in the basin was 90% of normal. Streamflow forecasts are 100% of average for Mill Creek and 96% for the SF Walla Walla near Milton-Freewater. December streamflow was 112% of average for the SF Walla Walla River. Average temperatures were 2-4 degrees above normal for December and for the water year.

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

Streamflow Forecasts - January 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SF Walla Walla R nr Milton-Freewater	MAR-SEP	63	71	76	95	81	89	80
	APR-JUL	40	46	50	93	54	60	54
	APR-SEP	52	58	63	96	68	74	66
Mill Ck nr Walla Walla	APR-JUL	17.2	21	24	100	27	31	24
	APR-SEP	19.8	24	27	100	30	34	27

WALLA WALLA RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

WALLA WALLA RIVER BASIN
Watershed Snowpack Analysis - January 1, 2013

Watershed	Number of Data Sites	This Year as % of: Last Yr	Average
WALLA WALLA RIVER	2	138	90

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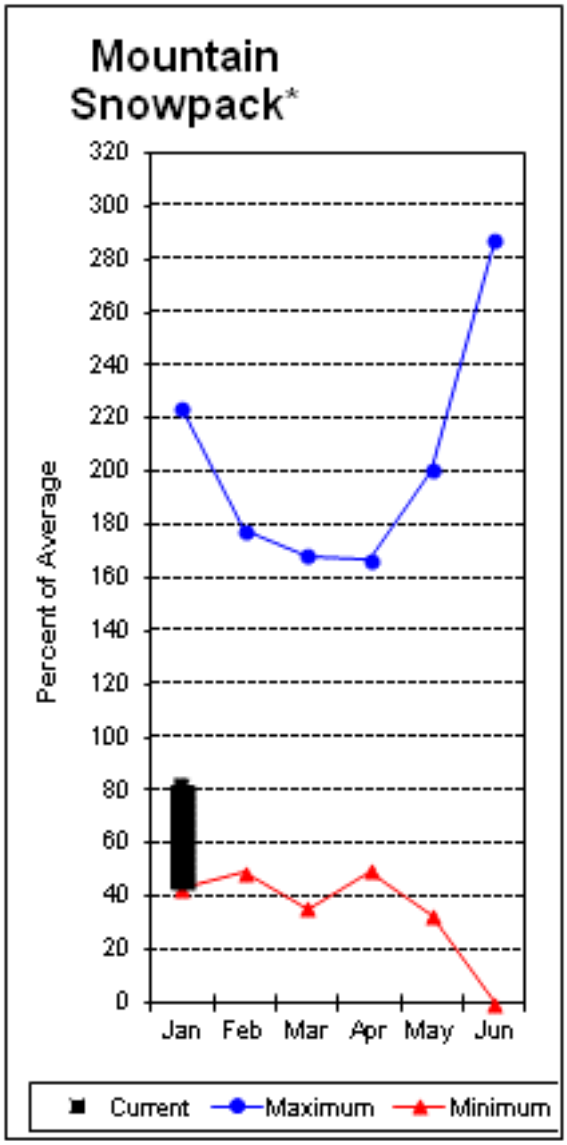
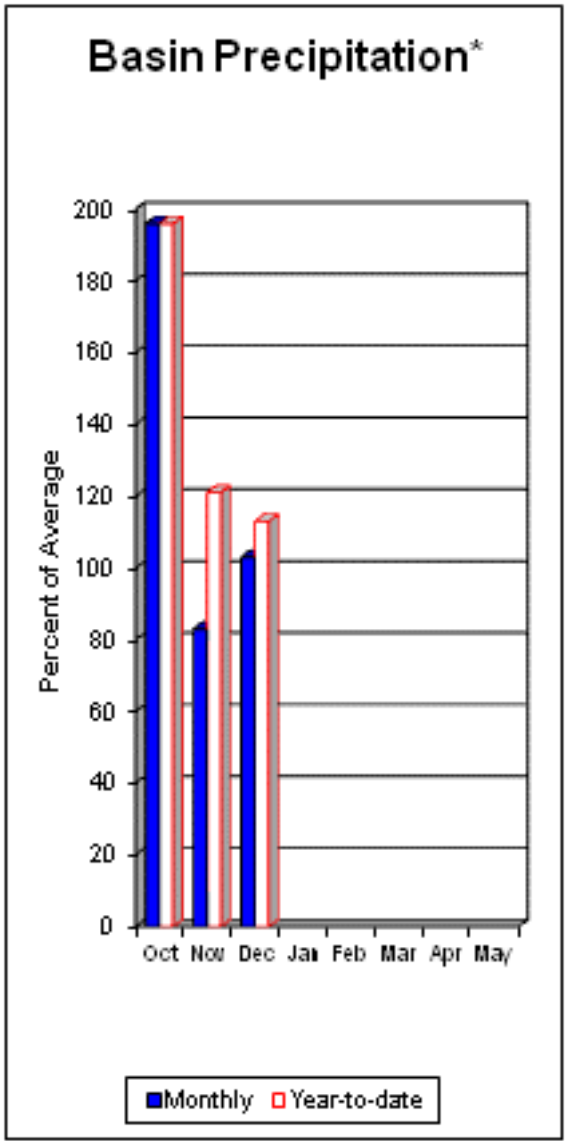
Lower Snake River Basin





*Based on selected stations

The Snake and Grande Ronde rivers can expect summer flows to be about 101% and 99% of normal respectively. The forecast for Asotin Creek at Asotin predicts 117% of average flows for the April – July runoff period. December precipitation was 103% of average, bringing the year-to-date precipitation to 113% of average. January 1 snowpack readings averaged 82% of normal. December streamflow was 122% of average for Snake River below Lower Granite Dam and 124% for Grande Ronde River near Troy. Dworshak Reservoir storage was 65% of average. Average temperatures were 3-4 degrees above normal for December and for the water year.

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

Streamflow Forecasts - January 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Grande Ronde R at Troy (1)	MAR-JUL	970	1340	1510	100	1680	2050	1510
	APR-SEP	785	1140	1300	99	1460	1810	1310
Asotin Ck at Asotin	APR-JUL	23	34	41	117	48	59	35
Snake R bl Lower Granite Dam (3)	APR-SEP	17279		22411	101		26953	22279

LOWER SNAKE RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Dworshak	3468.0	1565.4	2256.3	2403.0

LOWER SNAKE RIVER BASIN
Watershed Snowpack Analysis - January 1, 2013

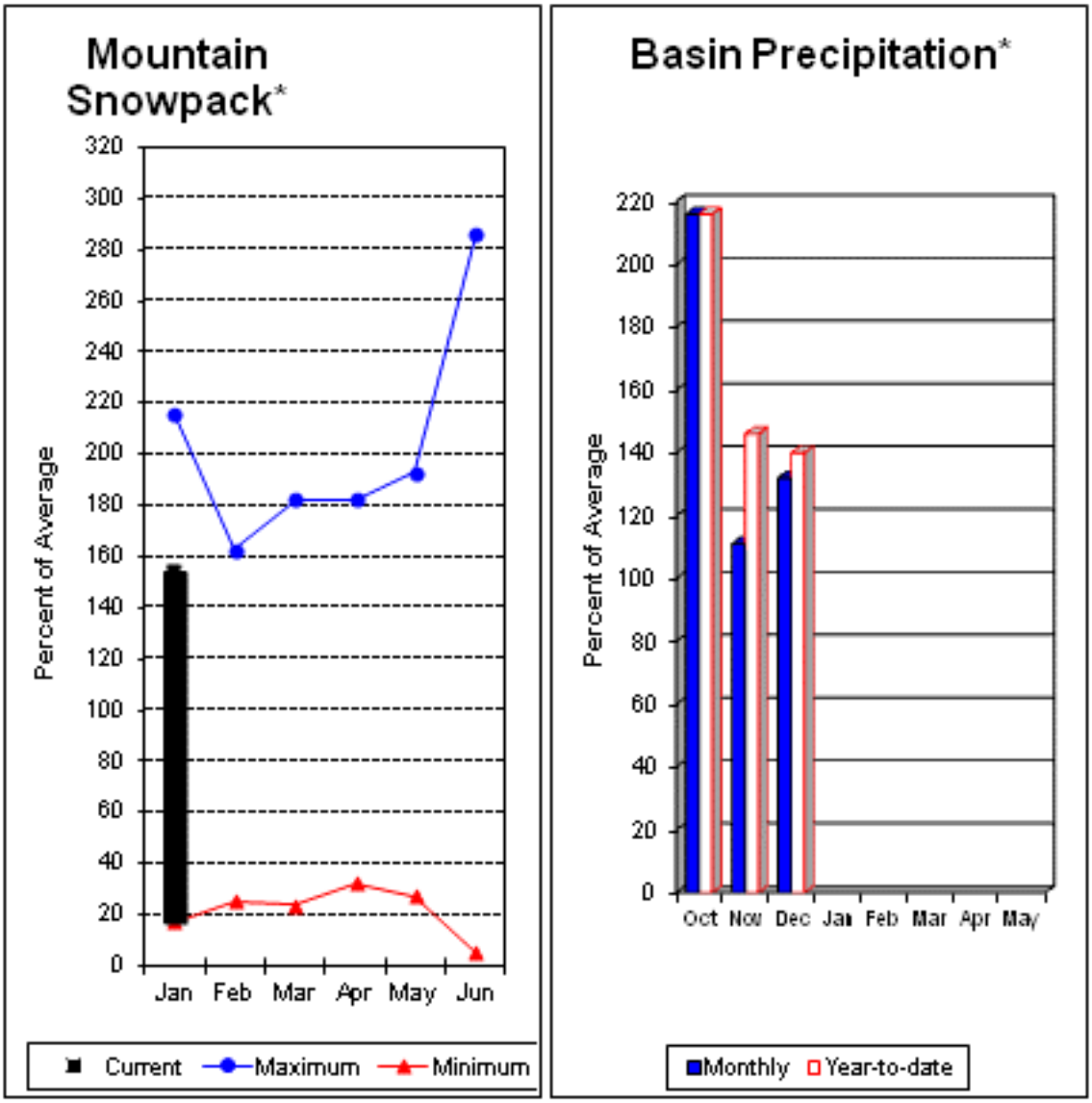
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
LOWER SNAKE, GRANDE RONDE	12	115	80

* 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 1981-2010 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.
(3) – As provided by Northwest River Forecast Center.

Lower Columbia River Basins



*Based on selected stations

Forecasts for April – September streamflows within the basin are Lewis River at Ariel, 117% and Cowlitz River at Castle Rock, 117% of average. The Columbia at The Dalles is forecasted to have 101% of average flows this summer according to the River Forecast Center. December average streamflow for Cowlitz River was 120%. The Columbia River at The Dalles was 134% of average. December precipitation was 132% of average and the water-year average was 140%. January 1 snow cover for Cowlitz River was 147%, and Lewis River was 162% of normal. Cayuse Pass SNOTEL reported the most snow in the basin with 35.2 inches of water and 116 inches of depth. Temperatures were near normal during December and for the water year.

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

Streamflow Forecasts - January 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Klickitat R nr Glenwood	APR-JUL	108	129	144	114	159	180	126
	APR-SEP	119	142	158	114	174	197	139
Klickitat R nr Pitt	APR-JUL	400	465	510	117	555	620	435
	APR-SEP	480	560	610	117	660	740	520
Lewis R at Ariel (2)	APR-JUL	785	960	1080	111	1200	1370	970
	APR-SEP	930	1120	1240	111	1360	1550	1120
Cowlitz R bl Mayfield Dam (2)	APR-JUL	1440	1740	1950	120	2160	2460	1620
	APR-SEP	1560	1940	2200	120	2460	2840	1840
Cowlitz R at Castle Rock (2)	APR-JUL	2060	2360	2570	115	2780	3080	2230
	APR-SEP	2360	2700	2940	117	3180	3520	2520
Columbia R at The Dalles (3)	APR-SEP	80810		93514	101		102558	92704

LOWER COLUMBIA RIVER BASINS
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MOSSYROCK	---	1212.0	1253.7	1203.0
SWIFT	---	689.0	728.6	634.1
YALE	0.0	383.1	388.1	---
MERWIN	---	404.4	390.4	400.1

LOWER COLUMBIA RIVER BASINS
Watershed Snowpack Analysis - January 1, 2013

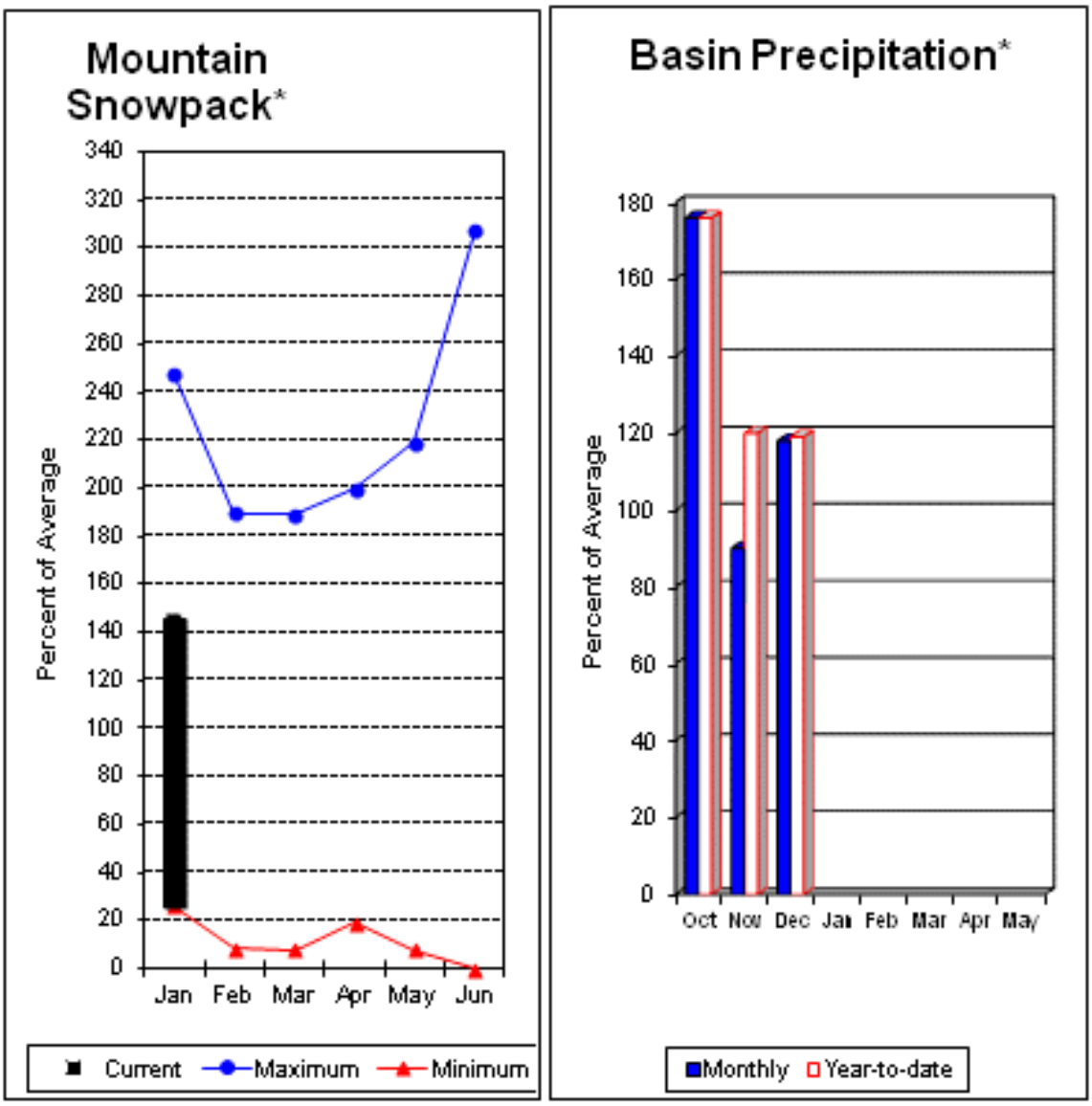
Watershed	Number of Data Sites	This Year as % of: Last Yr	Average
LEWIS RIVER	5	246	162
COWLITZ RIVER	6	172	147

* 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 1981-2010 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.
(3) – As provided by Northwest River Forecast Center.

South Puget Sound River Basins



*Based on selected stations

Summer runoff is forecast to be 112% of normal for the Green River below Howard Hanson Dam and 121% for the White River near Buckley. January 1 snowpack was 146% of average for the White River, 168% for Puyallup River and 120% in the Green River Basin. Water content on January 1 at Corral Pass SNOTEL, at an elevation of 6,000 feet, was 18.4 inches. This site has a January 1 average of 14.8 inches. December precipitation was 118% of average, bringing the water year-to-date to 119% of average for the basins. Average temperatures in the area were near normal for December and for the water-year.

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

Streamflow Forecasts - January 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
White R nr Buckley (1)	APR-JUL	410	490	525	122	560	640	430
	APR-SEP	495	585	625	121	665	755	515
Green R bl Howard Hanson Dam (1,2)	APR-JUL	178	240	265	113	290	350	235
	APR-SEP	205	265	290	112	315	375	260

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

SOUTH PUGET SOUND RIVER BASINS
Watershed Snowpack Analysis - January 1, 2013

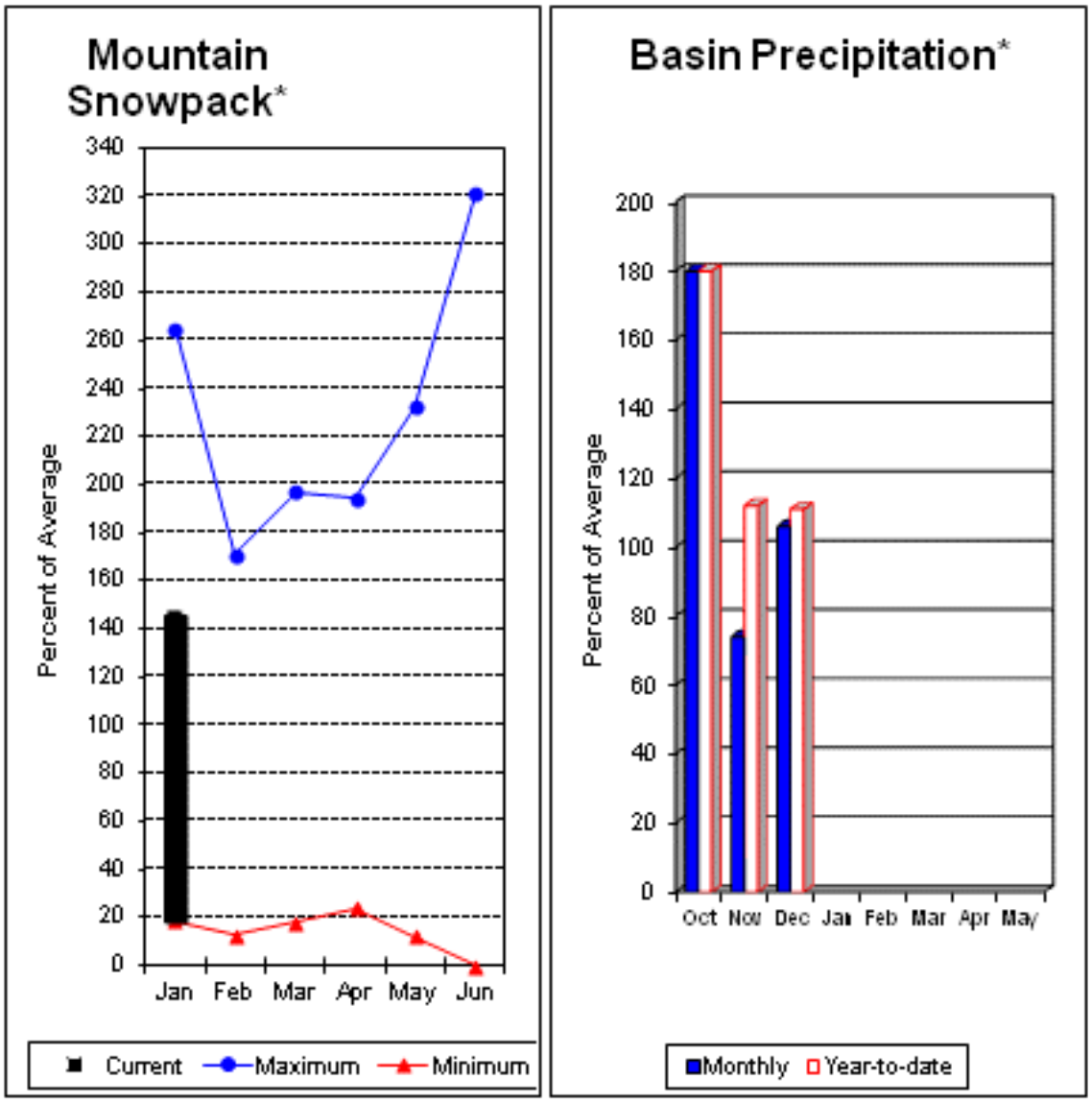
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
WHITE RIVER	3	161	146
GREEN RIVER	3	137	120
PUYALLUP RIVER	5	158	168

* 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 1981-2010 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: 113% for Cedar River near Cedar Falls; 115% for Rex River; 137% for South Fork of the Tolt River; and 104% for Taylor Creek near Selleck. Basin-wide precipitation for December was 106% of average, bringing water-year-to-date to 111% of average. January 1 median snow cover in Cedar River Basin was 137%, Tolt River Basin was 170%, Snoqualmie River Basin was 138%, and Skykomish River Basin was 134%. Olallie Meadows SNOTEL site, at 3960 feet, had 26.75 inches of water content. Average January 1 water content is 19.5 inches at Olallie Meadows. Temperatures were near normal for December and for the water-year.

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

Streamflow Forecasts - January 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Cedar R nr Cedar Falls	APR-JUL	54	69	79	113	89	104	70
	APR-SEP	61	76	86	113	96	111	76
Rex R nr Cedar Falls	APR-JUL	17.6	24	28	117	32	38	24
	APR-SEP	21	27	31	115	35	41	27
Taylor Creek Near Selleck	APR-JUL	15.2	18.7	21	105	23	27	20
	APR-SEP	18.9	23	25	104	27	31	24
SF Tolt R nr Index	APR-JUL	14.7	17.4	19.3	136	21	24	14.2
	APR-SEP	17.2	20	22	137	24	27	16.1

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

CENTRAL PUGET SOUND RIVER BASINS
Watershed Snowpack Analysis - January 1, 2013

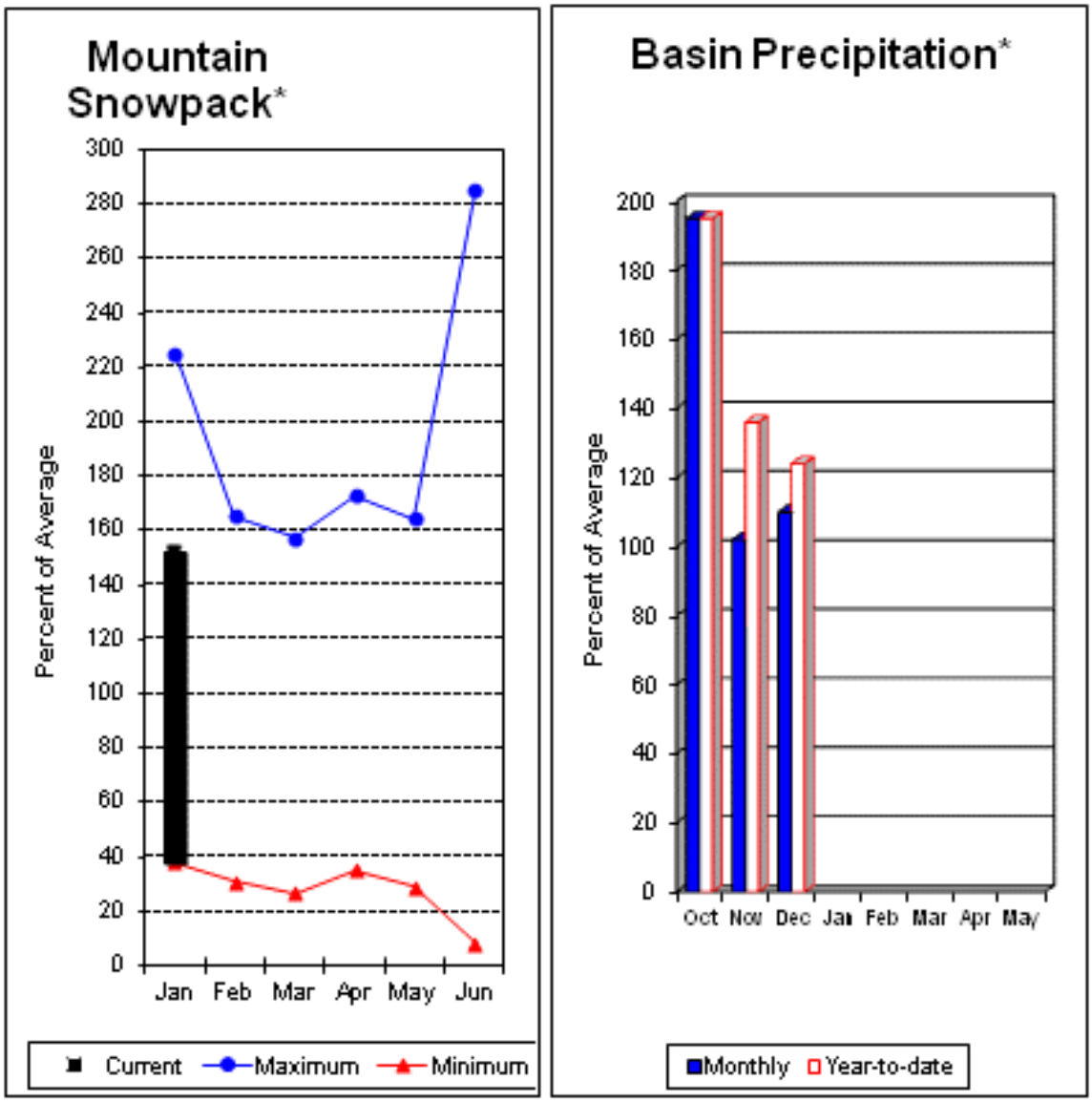
Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Average
CEDAR RIVER	4	104	137
TOLT RIVER	2	181	170
SNOQUALMIE RIVER	4	137	138
SKYKOMISH RIVER	2	165	134

* 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 1981-2010 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 114% of average for the spring and summer period. December streamflow in Skagit River was 87% of average. Other forecast points included Baker River at 105% and Thunder Creek at 103% of average. Basin-wide precipitation for December was 110% of average, bringing water-year-to-date to 124% of average. January 1 average snow cover in Skagit River Basin was 140% and Nooksack River Basin was 162% of normal. Baker River Basin data was not available at this time. The most snow measured in the basins and in the state was at Easy Pass SNOTEL with 48.4 inches of water content, almost 30% more than any other site in the basin. January 1 Skagit River reservoir storage was 99% of average and 80% of capacity. Average temperatures for were near normal for December and for the water year.

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

Streamflow Forecasts - January 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Thunder Ck Nr Newhalem	APR-JUL	210	230	245	104	260	280	235
	APR-SEP	300	325	340	103	355	380	330
Skagit R At Newhalem	APR-JUL	1650	1840	1970	117	2100	2290	1680
	APR-SEP	1950	2170	2320	114	2470	2690	2030
Baker R nr Concrete (2)	APR-JUL	635	740	810	104	880	985	780
	APR-SEP	795	935	1030	105	1120	1260	980

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
ROSS	1404.1	1123.8	1118.5	1135.0
DIABLO RESERVOIR	90.6	85.6	85.7	---

NORTH PUGET SOUND RIVER BASINS
Watershed Snowpack Analysis - January 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
SKAGIT RIVER	8	122	141
BAKER RIVER	0	140	0
NOOKSACK RIVER	3	135	162

* 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 1981-2010 base period.

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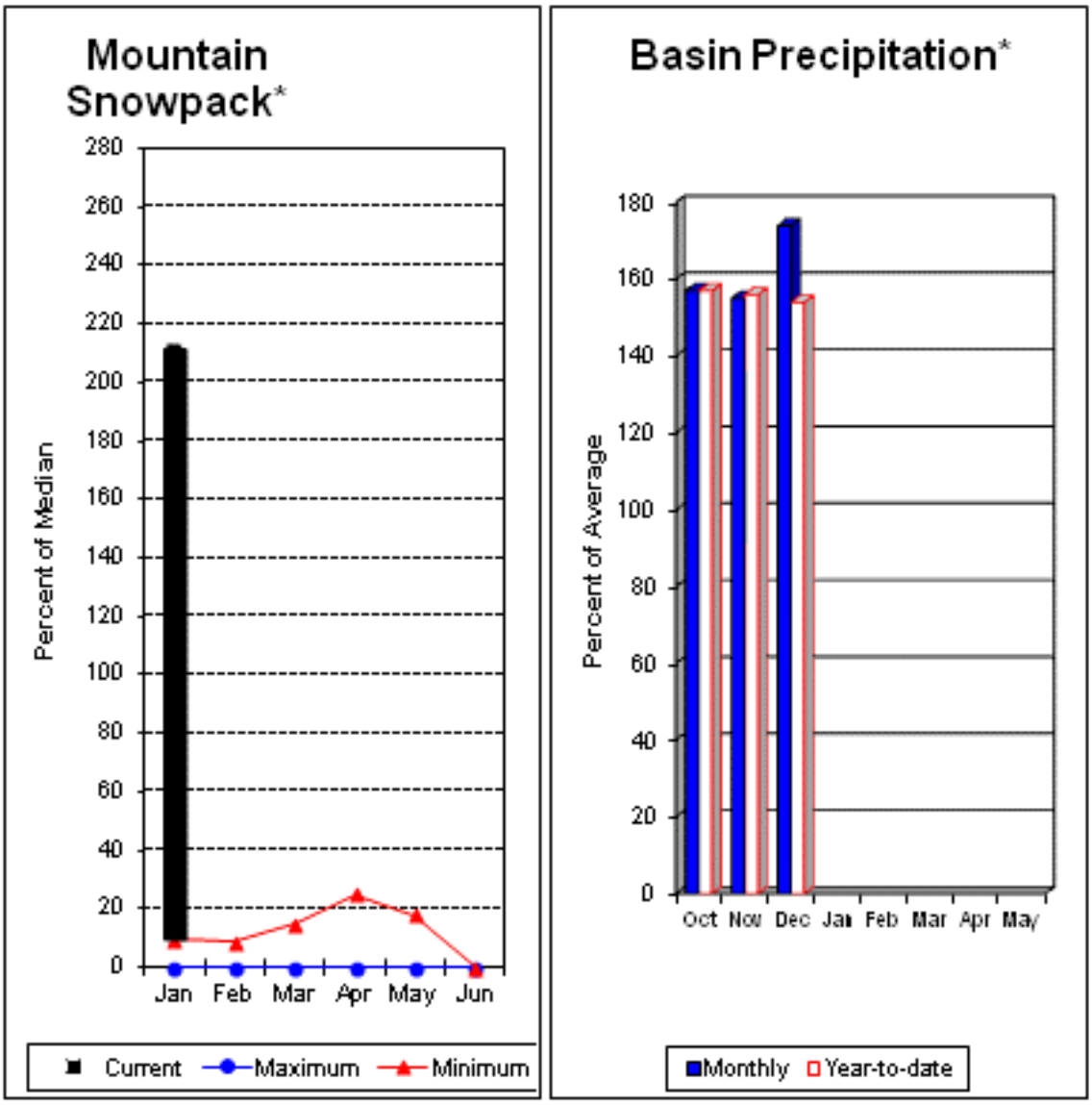
Olympic Peninsula River Basins



*Based on selected stations

Forecasted average runoff for streamflow for the Dungeness River is 111% and Elwha River is 119%. December runoff in the Dungeness River was 94% of normal. Big Quilcene and Wynoochee rivers should expect above average runoff this summer as well. December precipitation was 175% of average. Precipitation has accumulated at 154% of average for the water year. December precipitation at Quillayute was 17.53 inches. The 1981-2010 average for December is 14.5 inches. Olympic Peninsula snowpack averaged a whopping 211% of normal on January 1, the highest in the state. Temperatures were slightly below average for December and closer to normal for the water year.

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

Streamflow Forecasts - January 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Dungeness R Nr Sequim	APR-JUL	107	123	134	112	145	161	120
	APR-SEP	128	148	161	111	174	194	145
Elwha R At McDonald Bridge	APR-JUL	385	440	475	119	510	565	400
	APR-SEP	455	520	560	119	600	665	470

* 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 1981-2010 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
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

OLYMPIC PENINSULA RIVER BASINS
Watershed Snowpack Analysis - January 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
OLYMPIC PENINSULA	3	232	211

Issued by

Jason Weller
Acting 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 Energy
	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.**

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

United States Department of Agriculture

NRCS Natural Resources Conservation Service

Washington
Water Supply Outlook Report
February 1, 2013

1/28/2013 – January Inversion
Looking South from Deer Park Snow Course into Gray Wolf Creek Basin. : Picture by Olympic National Park snow survey team

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.

Washington
Water Supply Outlook

February 2013

General Outlook

Another month of extremes is what January amounted to. After near record dryness to record breaking temperatures (both high and low) Washington is still in pretty good shape for water-year snow and precipitation totals. A massive inversion brought mountain top temperatures in excess of 20 degrees above normal, breaking records for 4-5 day in a row. Thank goodness we had such a large surplus of snow to start the New Year since we lost 20-40 points last month, resulting in reduced forecasts for spring runoff as well. Climate forecasters are still having difficulties pinning down a long range forecast this season due to unstable tendencies with climate indices. Even the short term predictions seem to be a moving target from week to week and even day to day.

Snowpack

The February 1 statewide SNOTEL readings were 120% of normal down by 28 points from last month. Conditions degraded drastically during the 2-week dry spell but started to make a comeback with a few end of month storms. So far we have received about 80% of our annual total snowfall. Normally January would yield about 25-30% of the total winter snowpack however last month we were lucky to get 20%. The Spokane River data reported the lowest readings at 83% of normal. Readings from the Olympic Peninsula reported the highest at 155% of normal. Westside medians from SNOTEL, and February 1 snow surveys, included the North Puget Sound river basins with 116% of normal, the Central 125%, South Puget river basins with 138%, and the Lewis-Cowlitz basins with 128% of normal. Snowpack along the east slopes of the Cascade Mountains included the Yakima area with 100% and the Wenatchee area with 92%. Snowpack in the Snake River River Basin was at 84% and the Walla Walla River Basin had 92% of the long term median. Maximum snow cover in Washington was at Easy Pass SNOTEL, with water content of 69.5 inches or approximately 16 feet deep. Easy Pass is only a few years old so a normal has yet to be established however neighboring sites are still reporting at above normal levels.

BASIN	PERCENT OF LAST YEAR	PERCENT OF MEDIAN
Spokane	100	83
Newman Lake	152	97
Pend Oreille	90	89
Okanogan	133	124
Methow	109	127
Conconully Lake	182	169
Central Columbia	97	92
Upper Yakima	85	93
Lower Yakima	100	106
Ahtanum Creek	98	104
Walla Walla	96	92
Lower Snake	93	84
Cowlitz	119	128
Lewis	149	129
White	111	116
Green	108	161
Puyallup	119	136
Cedar	92	107
Snoqualmie	141	133
Skykomish	148	114
Skagit	88	115
Nooksack	106	118
Olympic Peninsula	146	155

Precipitation

During the month of January, the National Weather Service and Natural Resources Conservation Service climate stations reported dismal precipitation totals throughout Washington river basins, averaging only 42-79% of normal. The highest percent of average in the state was at Monroe which reported 129% of average for a total of 8.08 inches. The average for Monroe is 6.24 inches for January. The lowest percent of average was at Yakima Airport with only 9% of normal or .10 inches. The wettest spot in the state was reported at Skookum Creek SNOTEL in the Tolt River Basin with a January accumulation of 20.4inches or 95% of normal. February is already shaping up to be a dry month with below normal accumulations thus far and a sketchy forecast. Another month like January and we could see the state fall below average, negating the great start that we had.

RIVER BASIN	JANUARY PERCENT OF AVERAGE	WATER YEAR PERCENT OF AVERAGE
Spokane	70	107
Pend Oreille	60	122
Upper Columbia	48	129
Central Columbia	48	106
Upper Yakima	50	99
Lower Yakima	42	107
Walla Walla	69	111
Lower Snake	79	107
Lower Columbia	60	119
South Puget Sound	74	111
Central Puget Sound	73	102
North Puget Sound	71	106
Olympic Peninsula	57	107

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 549,000-acre feet, 136% of average for the Upper Reaches and 145,000-acre feet or 118% of average for Rimrock and Bumping Lakes. Storage at the Okanogan reservoirs was 91% of average for February 1. The power generation reservoirs included the following: Coeur d'Alene Lake, 66,000 acre feet, 69% of average and 28% of capacity; Chelan Lake, 274,000-acre feet, 80% of average and 40% of capacity; and the Skagit River reservoirs at 86% of average and 61% of capacity. Recent climate impacts and management procedures may affect these numbers on a daily or weekly basis.

BASIN	PERCENT OF CAPACITY	CURRENT STORAGE AS PERCENT OF AVERAGE
Spokane	28	69
Pend Oreille	57	119
Upper Columbia	75	91
Central Columbia	40	80
Upper Yakima	66	136
Lower Yakima	62	118
Lower Snake	72	108
North Puget Sound	61	86

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

Streamflow

Forecasts vary from 83% of average for the Spokane near Post Falls to 130% of average for S.F. Tolt River near Index. April-September forecasts for some Western Washington streams include the Cedar River near Cedar Falls, 105%; White River, 112%; and Skagit River, 103%. Some Eastern Washington streams include the Yakima River near Parker, 95%: Wenatchee River at Plain, 93%; and Kettle near Laurier, 128%. Volumetric forecasts are developed using current, historic and average snowpack, precipitation and streamflow data collected and coordinated by organizations cooperating with NRCS. Caution should be used when using early season forecasts for critical water resource management decisions.

With an extremely dry month coupled with below average temperatures runoff was for the most part much below average. The Kettle River and the Upper Columbia had the highest reported flows with 101% of average. The Cle Elum near Roslyn with 43% of average was the lowest in the state however this stream is regulated by the Lake Cle Elum dam. Other streamflows were the following percentage of average as reported by the River Forecast Center: the Cowlitz at Castle Rock, 75%; the Stehekin at Stehekin, 54%; the Columbia below Rock Island Dam, 101%; and the Priest River, 112%.

BASIN	PERCENT OF AVERAGE (50 PERCENT CHANCE OF EXCEEDENCE)
Spokane	83-125
Pend Oreille	102-115
Upper Columbia	95-128
Central Columbia	93-96
Upper Yakima	86-93
Lower Yakima	91-110
Walla Walla	96
Lower Snake	93-106
Lower Columbia	92-111
South Puget Sound	110-112
Central Puget Sound	105-130
North Puget Sound	99-104
Olympic Peninsula	111-117

STREAM	PERCENT OF AVERAGE JANUARY STREAMFLOWS
Pend Oreille Below Box Canyon	92
Kettle at Laurier	101
Columbia at Birchbank	101
Spokane at Long Lake	69
Similkameen at Nighthawk	62
Okanogan at Tonasket	65
Methow at Pateros	87
Chelan at Chelan	61
Wenatchee at Pashastin	52
Cle Elum near Roslyn	43
Yakima at Parker	52
Naches at Naches	53
Grande Ronde at Troy	61
Snake below Lower Granite Dam	66
SF Walla Walla near Milton-Freewater, OR	61
Columbia River at The Dalles	88
Cowlitz below Mayfield Dam	66
Skagit at Concrete	65
Dungeness near Sequim	60

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. Warm temperatures and rain-on-snow events of January pushed most soils moisture levels up a few percentage points. With a solid snowpack over most of the mountainous regions of the state these numbers should hold and will help provide maximum runoff come spring.

BASIN	ESTIMATED PERCENT SATURATION
Spokane	60
Pend Oreille	69
Upper Columbia	55
Central Columbia	59
Upper Yakima	64
Lower Yakima	74
Walla Walla	74
Lower Snake	74
Lower Columbia	77
South Puget Sound	76
Central Puget Sound	N/A
North Puget Sound	75
Olympic Peninsula	44

Western Snow Conference

The Western Snow Conference is an annual tradition which started in 1932 as an international forum for individuals and organizations to share scientific, management and socio-political information on snow and runoff. The principal aim of the Western Snow Conference is to advance snow and hydrological sciences. The North Continental Area Committee is making plans for the 81st Annual Western Snow Conference in 2013.

Mark your calendar and start thinking about submitting a paper to attend the 2013 Western Snow Conference:

Dates: April 15-18, 2013
Location: Snow King Resort Jackson Hole, Wyoming http://www.snowking.com
Theme: "Wild Weather in the Wild West"

A short course and panel discussion is being planned for Monday April 15th titled "**New Strategies and Techniques in Long Range Streamflow Forecasting".** Many agencies use long range streamflow forecasts for hydropower planning, reservoir operation and marketing. This will provide a forum to discuss the current state of forecasting, the advancement of long range forecasting, additional needs of agencies, and more.

A Technical Tour is scheduled for Thursday, April 18th to discover how the local environment plays a critical role in the snowpack of the area. This will be an all day bus trip and a great opportunity to view the majestic landscape that so many have been studying and talking about.

Additional information about the conference and the Call for Papers will be posted on the WSC web page at http://www.westernsnowconference.org/

Also find Western Snow Conference on Facebook and Twitter.

B A S I N S U M M A R Y O F
S N O W C O U R S E D A T A

FEBRUARY 2012

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
AHTANUM R.S.	3100	2/01/13	12	4.0	4.8	5.5
ALPINE MEADOWS	3500	2/01/13	117	40.0	19.8	--
ALPINE MEADOWS SNTL	3500	2/01/13	---	45.0	27.6	34.3
ASHLEY DIVIDE	4820	1/31/13	16	3.2	4.4	4.5
BADGER PASS SNOTEL	6900	2/01/13	71	19.7	24.6	19.5
BAIRD #2	3220	1/30/13	20	4.2	7.0	6.1
BARKER LAKES SNOTEL	8250	2/01/13	37	8.9	6.8	8.0
BASIN CREEK SNOTEL	7180	2/01/13	24	4.2	3.5	4.5
BEAVER CREEK TRAIL	2200	2/01/13	42	11.6	16.2	10.4
BEAVER PASS	3680	2/01/13	71	25.8	27.2	18.2
BEAVER PASS SNOTEL	3630	2/01/13	91	33.8	35.6	23.2
BLACK PINE SNOTEL	7100	2/01/13	31	6.2	8.3	6.2
BLEWETT PASS#2SNOTEL	4240	2/01/13	28	10.4	11.6	11.8
BONAUPART SOUTH	4660	2/01/13	25	5.9	3.2	--
BRENDA MINE CAN.	4450	1/29/13	31	7.7	8.6	8.9
BROWN TOP AM	6000	2/02/13	116	41.9	46.7	41.4
BROWNS PASS		1/31/13	20	5.6	2.0	--
BUCKINGHORSE SNOTEL	4870	2/01/13	120	46.7	41.5	--
BUMPING LAKE (NEW)	3400	1/31/13	43	12.2	13.9	12.8
BUMPING RIDGE SNOTEL	4610	2/01/13	60	17.8	20.7	17.8
BUNCHGRASS MDWSNOTEL	5000	2/01/13	55	16.5	15.8	18.0
BURNT MOUNTAIN PIL	4170	2/01/13	55	17.7	14.1	9.9
BUTTERMILK BUTTE	5250	1/31/13	37	12.2	9.4	--
CALAMITY SNOTEL	2500	2/01/13	14	5.7	1.7	--
CAYUSE PASS SNOTEL	5240	2/01/13	129	43.7	37.3	--
CHEWALAH #2	4930	1/28/13	45	12.8	11.8	--
CHICKEN CREEK	4060	1/29/13	37	8.9	8.2	10.8
CHIWAUKUM G.S.	2500	1/29/13	23	6.8	--	7.4
CITY CABIN	2390	2/01/13	33	12.3	13.9	--
COLD CREEK STRIP	6020	1/30/13	39	9.9	5.4	5.5
COMBINATION SNOTEL	5600	2/01/13	15	3.4	3.8	3.0
COPPER BOTTOM SNOTEL	5200	2/01/13	12	2.9	6.4	--
COPPER MOUNTAIN	7700	1/26/13	24	5.6	5.0	6.2
CORRAL PASS SNOTEL	5800	2/01/13	72	24.3	24.0	23.0
COUGAR MTN. SNOTEL	3200	2/01/13	53	17.5	13.5	13.3
COX VALLEY	4500	1/25/13	87	31.0	22.8	23.6
COYOTE HILL	4200	2/01/13	23	4.8	6.6	6.0
DALY CREEK SNOTEL	5780	2/01/13	30	7.0	7.8	6.6
DEER PARK	5200	1/28/13	57	20.1	14.8	10.6
DEVILS PARK	5900	2/01/13	77	27.6	37.2	28.2
DISAUTEL PASS		1/29/13	24	5.9	3.0	
DISCOVERY BASIN	7050	1/30/13	32	5.4	6.4	5.9
DIX HILL	6400	1/25/13	18	4.9	9.9	6.6
DOMMERIE FLATS	2200	1/31/13	14	4.5	7.6	6.1
DUNCAN RIDGE	5370	1/30/13	29	6.3	3.7	3.9
DUNGENESS SNOTEL	4010	2/01/13	33	11.8	6.5	4.6
ELBOW LAKE SNOTEL	3200	2/01/13	94	31.4	25.4	27.9
EMERY CREEK SNOTEL	4350	2/01/13	---	9.2	7.8	9.5
FARRON CAN.	4000	1/29/13	29	7.5	5.9	8.7
FISH CREEK	8000	1/31/13	31	6.1	4.6	5.5
FISH LAKE	3370	1/31/13	62	20.4	24.0	21.8
FISH LAKE SNOTEL	3430	2/01/13	53	18.1	22.4	22.0
FLATTOP MTN SNOTEL	6300	2/01/13	107	32.1	28.8	28.5
FOURTH OF JULY SUM	3200	1/31/13	26	7.2	5.6	7.5
FREEZEOUT CK. TRAIL	3500	2/03/13	28	8.6	12.0	7.9
FROHNER MDWS SNOTEL	6480	2/01/13	19	4.5	6.8	4.5
GOAT CREEK	3600	1/29/13	23	4.8	3.8	5.0
GOLD MTN LOOKOUT		1/30/13	39	11.5	7.1	--
GRAVE CRK SNOTEL	4300	2/01/13	39	9.4	9.9	10.9
GREEN LAKE SNOTEL	5920	2/01/13	57	18.8	18.2	14.9
GREYBACK RES CAN.	4700	1/29/13	32	7.6	6.1	6.3
GROUSE CAMP SNOTEL	5390	2/01/13	39	14.5	12.8	13.1
HAND CREEK SNOTEL	5030	2/01/13	26	5.9	6.8	7.7
HARTS PASS SNOTEL	6490	2/01/13	81	33.1	32.6	27.8
HARTS PASS	6500	2/02/13	87	33.6	31.8	26.4
HELL ROARING DIVIDE	5770	1/28/13	61	19.4	17.4	19.9
HERRIG JUNCTION	4850	1/29/13	54	14.3	13.2	17.6
HIGH RIDGE SNOTEL	4920	2/01/13	55	14.6	16.6	16.1
HOLBROOK	4530	1/30/13	20	3.5	5.5	6.0
HOODOO BASIN SNOTEL	6050	2/01/13	93	24.9	29.5	26.3
HUCKLEBERRY SNOTEL	2250	2/01/13	13	4.9	3.7	2.2
HUMBOLDT GLCH SNOTEL	4250	2/01/13	31	6.9	11.4	8.6
HURRICANE	4500	2/01/13	---	18.5	9.0	10.0
INDIAN ROCK SNOTEL	5360	2/01/13	57	23.2	22.5	--
IRENE'S CAMP	5530	1/30/13	35	8.2	7.2	6.8
ISINTOK LAKE CAN.	5100	1/29/13	25	4.2	4.3	5.2
JUNE LAKE SNOTEL	3440	2/01/13	102	40.2	23.4	26.9
KELLER RIDGE	3700	1/30/13	21	5.2	3.0	--
KELLOGG PEAK	5560	1/31/13	40	11.6	12.2	19.0
KRAFT CREEK SNOTEL	4750	2/01/13	30	6.8	9.4	--
LAMB BUTTE		1/29/13	42	14.8	12.1	--
LOLO PASS SNOTEL	5240	2/01/13	58	14.7	20.8	18.7
LONE PINE SNOTEL	3930	2/01/13	99	40.3	21.9	24.4
LOOKOUT SNOTEL	5140	2/01/13	61	14.9	19.0	19.4
LOST HORSE SNOTEL	5120	2/01/13	41	12.6	13.3	13.8
LOST LAKE SNOTEL	6110	2/01/13	90	26.8	30.1	35.3
LOST LAKE	4070	2/01/13	27	6.7	3.4	--

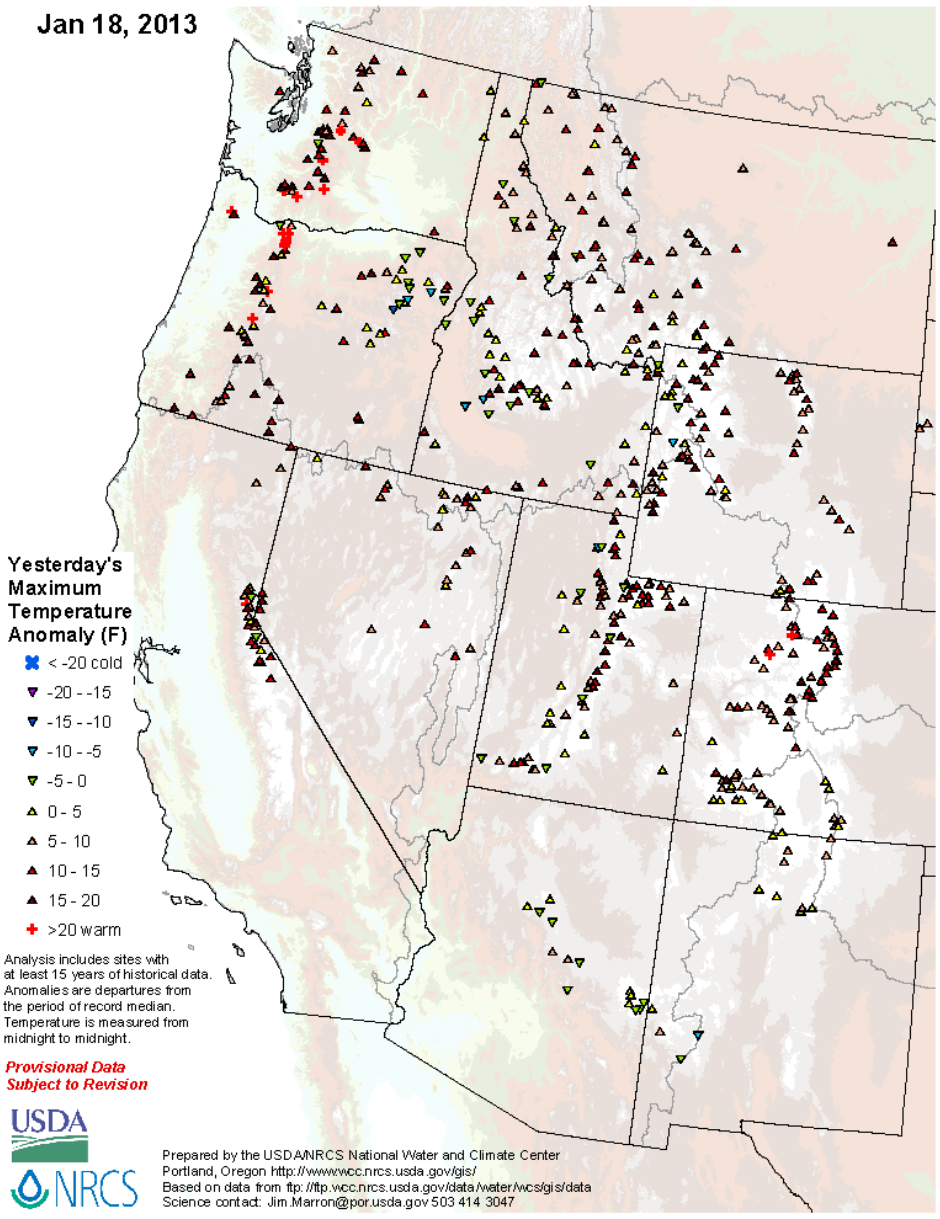
SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
LOUP LOUP CAMPGROUND		1/31/13	34	8.9	4.2	--
LUBRECHT FOREST NO 3	5450	1/31/13	14	2.5	4.2	3.2
LUBRECHT FOREST NO 4	4650	1/31/13	8	1.4	2.8	1.8
LUBRECHT FOREST NO 6	4040	1/31/13	13	2.6	5.0	2.0
LUBRECHT HYDROPLOT	4200	2/01/13	11	2.2	5.7	3.2
LUBRECHT SNOTEL	4680	2/01/13	12	3.0	6.5	3.8
LYMAN LAKE SNOTEL	5980	2/01/13	---	40.7	40.3	40.1
LYNN LAKE	4000	2/01/13	72	25.2	18.4	13.2
LYNN LAKE SNOTEL	3900	2/01/13	72	25.2	18.4	--
MARIAS PASS	5250	1/29/13	35	9.8	11.3	10.6
MARTEN RIDGE SNOTEL	3520	2/01/13	116	50.2	42.3	--
MAZAMA		1/29/13	26	6.6	9.6	--
MCCULLOCH CAN.	4200	1/31/13	28	6.1	4.6	4.9
MEADOWS CABIN	1900	2/01/13	23	7.4	5.1	3.6
MEADOWS PASS SNOTEL	3230	2/01/13	62	21.1	25.3	18.6
METEOR		1/28/13	20	4.8	3.5	--
M F NOOKSACK SNOTEL	4970	2/01/13	116	42.0	43.6	34.4
MICA CREEK SNOTEL	4510	2/01/13	53	13.8	14.7	16.8
MORSE LAKE SNOTEL	5410	2/01/13	109	40.2	37.3	34.5
MOSES MOUNTAIN (2)	4800	2/01/13	52	18.0	6.4	9.1
MOSES MTN SNOTEL	5010	2/01/13	49	17.2	7.2	9.0
MOSES PEAK	6650	2/01/13	70	27.5	10.1	11.8
MOSQUITO RDG SNOTEL	5200	2/01/13	71	21.9	24.4	25.1
MOULTON RESERVOIR	6850	1/30/13	34	4.9	3.8	4.2
MOUNT CRAG SNOTEL	3960	2/01/13	87	29.6	21.0	18.5
MT. KOBAU CAN.	5500	1/27/13	46	15.9	5.2	7.9
MOUNT TOLMAN	2000	1/29/13	11	2.0	1.2	3.1
MOWICH SNOTEL	3160	2/01/13	21	7.4	.5	.0
MOUNT GARDNER	3300	2/01/13	38	13.2	11.6	--
MOUNT GARDNER SNOTEL	2920	2/01/13	40	14.6	12.1	13.3
MUTTON CREEK #1	5700	1/28/13	47	15.6	9.4	8.4
N.F. ELK CR SNOTEL	6250	2/01/13	28	6.2	8.8	6.7
NEVADA RIDGE SNOTEL	7020	2/01/13	32	7.6	12.8	8.6
NEW HOZOMEEN LAKE	2800	2/03/13	22	7.6	--	7.2
NEZ PERCE CMP SNOTEL	5650	2/01/13	36	7.8	9.4	8.6
NOISY BASIN SNOTEL	6040	2/01/13	89	27.8	16.9	25.4
OLALLIE MDWS SNOTEL	4030	2/01/13	95	37.2	40.2	33.0
OPHIR PARK	7150	1/25/13	25	6.8	11.3	8.7
PARADISE SNOTEL	5130	2/01/13	137	53.6	44.9	46.1
PARK CK RIDGE SNOTEL	4600	2/01/13	96	35.5	35.2	31.6
PEPPER CREEK SNOTEL	2140	2/01/13	27	9.5	5.6	--
PETERSON MDW SNOTEL	7200	2/01/13	30	6.2	5.8	5.5
PETTIJOHN CREEK	4300	2/01/13	25	5.5	4.0	--
PIGTAIL PEAK SNOTEL	5800	2/01/13	94	32.0	40.3	33.2
PIKE CREEK SNOTEL	5930	2/01/13	30	5.3	8.7	16.0
PIPESTONE PASS	7200	1/26/13	14	2.8	2.2	2.4
POPE RIDGE SNOTEL	3590	2/01/13	45	12.7	15.0	13.6
POTATO HILL SNOTEL	4510	2/01/13	77	22.6	19.0	18.3
QUARTZ PEAK SNOTEL	4700	2/01/13	48	14.2	13.0	14.8
RAGGED MOUNTAIN	4200	2/02/13	51	18.4	10.8	15.8
RAGGED MTN SNOTEL	4210	2/01/13	47	15.2	13.8	17.1
RAGGED RIDGE	3330	1/31/13	26	6.2	2.4	6.9
RAINY PASS SNOTEL	4890	2/01/13	73	25.2	33.3	24.5
RAINY PASS	4780	2/02/13	76	24.4	29.9	--
REX RIVER SNOTEL	3810	2/01/13	69	27.3	29.8	23.7
ROCKER PEAK SNOTEL	8000	2/01/13	31	6.7	9.0	8.2
ROUND TOP MTN	4020	1/31/13	36	9.8	5.6	--
RUSTY CREEK	4000	1/28/13	25	6.7	2.9	4.2
SF THUNDER CK AM	2200	2/01/13	50	14.9	16.0	--
SADDLE MTN SNOTEL	7900	2/01/13	51	14.1	16.2	15.8
SALMON MDWS SNOTEL	4460	2/01/13	36	10.1	5.5	6.6
SASSE RIDGE SNOTEL	4340	2/01/13	63	20.3	23.5	22.5
SATUS PASS	4030	1/28/13	24	7.9	8.0	8.2
SAVAGE PASS SNOTEL	6170	2/01/13	---	15.6	18.9	16.5
SAWMILL RIDGE SNOTEL	4640	2/01/13	69	27.0	32.5	--
SENTINEL BT SNOTEL	4680	2/01/13	31	7.2	3.7	6.2
SHEEP CANYON SNOTEL	3990	2/01/13	106	37.7	22.0	23.0
SHERWIN SNOTEL	3200	2/01/13	---	6.0	8.4	7.7
SKALKAHO SNOTEL	7260	2/01/13	50	12.7	15.7	14.0
SKOOKUM CREEK SNOTEL	3310	2/01/13	85	34.6	23.6	20.3
SKOOKUM LAKES	4230	1/29/13	36	9.7	7.4	--
SOURDOUGH GUL SNOTEL	4000	2/01/13	4	1.7	1.5	.9
SOUTH BALDY	4920	1/29/13	49	14.6	11.3	--
SPENCER MDW SNOTEL	3400	2/01/13	68	24.6	17.2	21.4
SPIRIT LAKE SNOTEL	3520	2/01/13	26	17.4	4.8	4.2
SPOTTED BEAR MTN.	7000	1/31/13	28	7.0	9.4	8.7
SPRUCE SPGS SNOTEL	5700	2/01/13	34	7.2	9.6	11.9
STARVATION MOUNTAIN	6750	1/30/13	52	17.9	12.0	--
STAHL PEAK SNOTEL	6030	2/01/13	76	20.0	19.2	22.1
STEVENS PASS SNOTEL	3950	2/01/13	87	26.9	28.0	28.6
STORM LAKE	7780	1/30/13	36	7.0	7.8	7.4
STRYKER BASIN	6180	1/29/13	65	19.2	14.7	19.6
SUMMERLAND RES CAN.	4200	1/29/13	27	6.3	5.8	6.9

SUMMIT G.S. #2		4600	1/30/13	34	8.1	4.3	6.1
SUNSET	SNOTEL	5540	2/01/13	43	11.2	13.0	15.5
SURPRISE LKS	SNOTEL	4290	2/01/13	104	37.4	29.2	33.3
SWAMP CREEK	SNOTEL	3930	2/01/13	44	12.9	18.9	11.7

SNOW COURSE		ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
SWIFT CREEK	SNOTEL	4440	2/01/13	138	53.0	34.9	36.4
TEN MILE LOWER		6600	2/01/13	24	5.2	5.8	4.0
TEN MILE MIDDLE		6800	2/01/13	27	5.8	7.0	6.0
THUNDER BASIN	SNOTEL	4320	2/01/13	67	22.5	22.9	21.3
THUNDER BASIN		4200	2/01/13	50	14.9	16.4	13.6
THOMPSON CREEK		2500	1/31/13	21	4.7	1.9	4.2
TINKHAM CREEK	SNOTEL	2990	2/01/13	63	19.0	24.3	20.8
TOATS COULEE		2850	1/30/13	18	3.6	1.9	2.4
TOUCHET	SNOTEL	5530	2/01/13	55	18.8	18.1	20.4
TRINKUS LAKE		6100	2/02/13	85	25.7	23.7	25.2
TROUGH #2	SNOTEL	5480	2/01/13	27	7.6	7.1	8.0
TRUMAN CREEK		4060	1/31/13	11	3.2	4.4	2.9
TUNNEL AVENUE		2450	2/01/13	29	8.8	15.2	13.5

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
TWELVEMILE SNOTEL	5600	2/01/13	38	9.1	15.1	11.0
TWIN LAKES SNOTEL	6400	2/01/13	72	19.8	25.8	24.9
TWIN SPIRIT DIVIDE	3480	2/02/13	24	7.8	3.9	9.8
UPPER HOLLAND LAKE	6200	2/02/13	65	17.6	19.1	20.6
UPPER WHEELER SNOTEL	4330	2/01/13	23	6.8	6.3	9.2
VASEUX CREEK CAN.	4250	1/31/13	20	3.9	3.5	4.3
VULCAN MTN	4660	1/29/13	38	10.1	5.8	--
VULCAN ROAD	3840	1/29/13	27	6.1	4.0	--
WARM SPRINGS SNOTEL	7800	2/01/13	46	10.9	13.6	12.3
WATERHOLE SNOTEL	5010	2/01/13	90	36.8	26.8	28.0
WEASEL DIVIDE	5450	1/30/13	64	18.9	20.2	20.6
WEST SMAY CREEK	3600	2/04/13	60	22.2	22.4	--
WHITE PASS ES SNOTEL	4440	2/01/13	49	15.5	19.1	15.3

SNOTEL Yesterday's Maximum Temperature Anomaly (Degrees F)



Natural Resources Conservation Service

Washington State
Snow, Water and Climate Services

Program Contacts

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Helpful Internet Addresses

NRCS Snow Survey and Climate Services Homepages

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

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

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

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

USDA-NRCS Agency Homepages

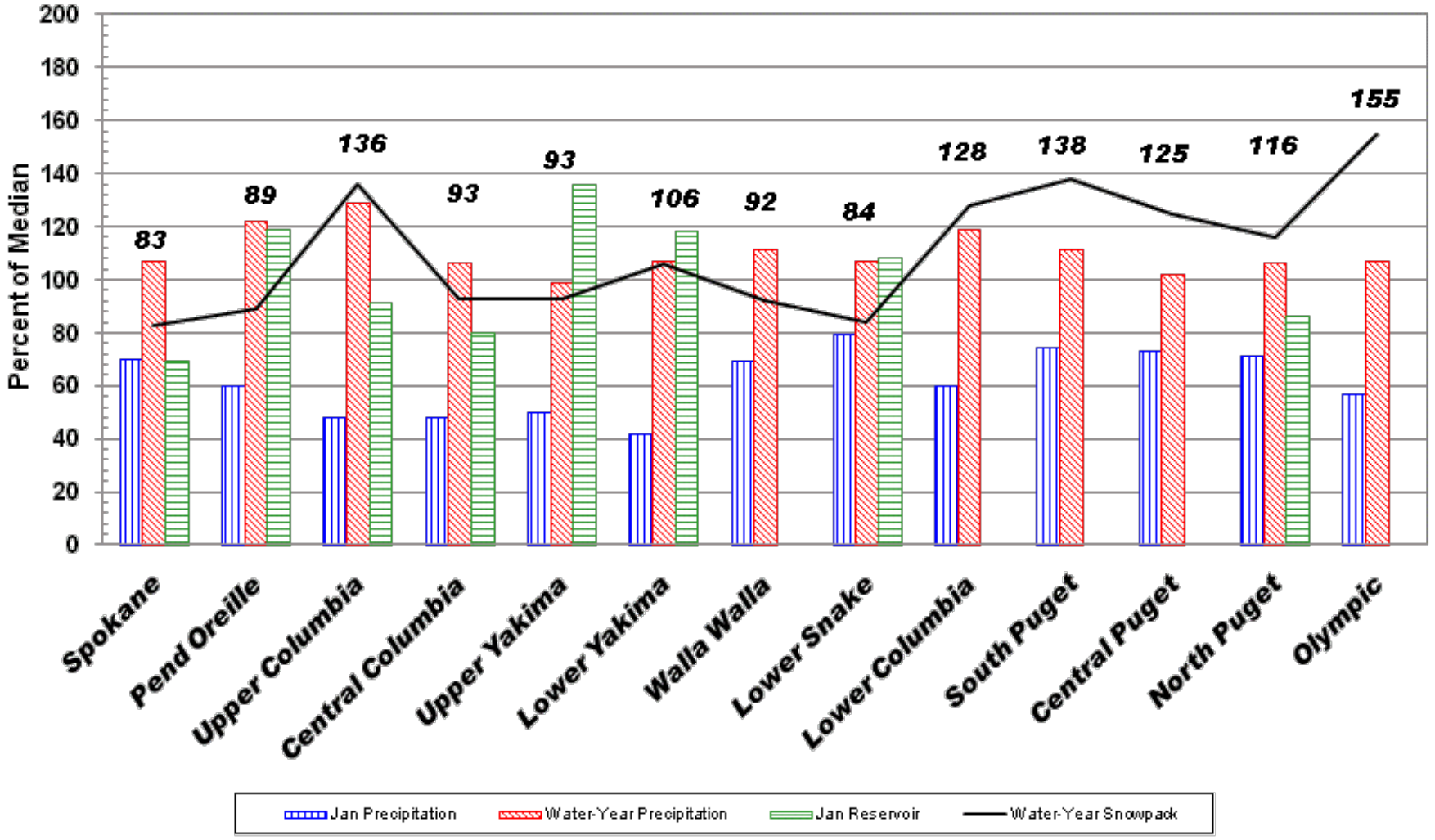
Washington:
http://www.wa.nrcs.usda.gov

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

NRCS Natural Resources Conservation Service

February 1, 2013 - Snowpack, Precipitation and Reservoir Conditions at a Glance

(Water Year = October 1, 2012 - Current Date)



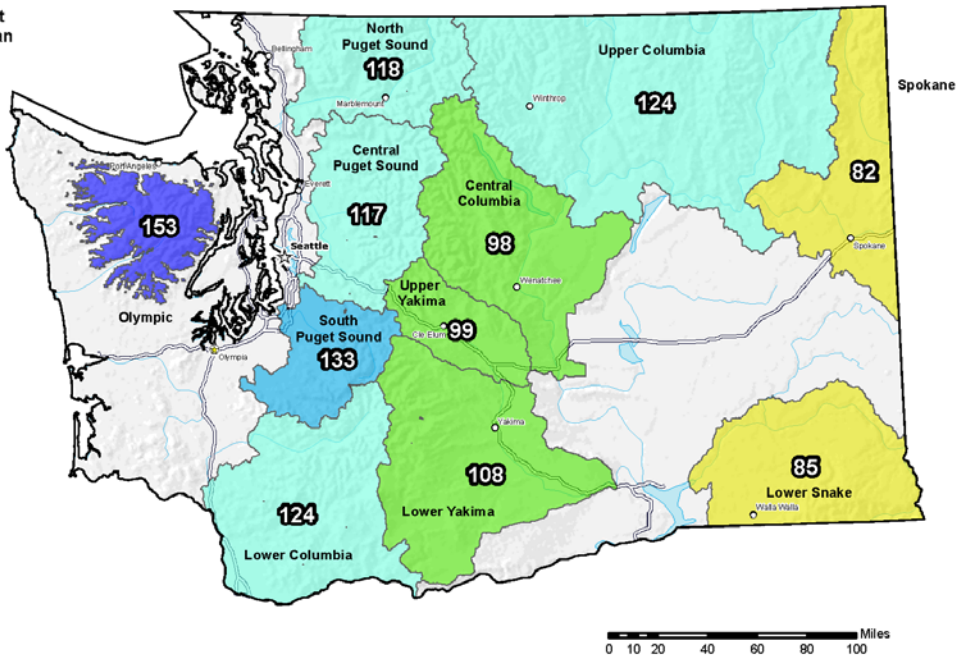
Washington SNOTEL Current Snow Water Equivalent (SWE) % of Normal

Feb 01, 2013

Current Snow Water Equivalent (SWE) Basin-wide Percent of 1981-2010 Median

- unavailable *
- <50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- >=150%

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



Provisional Data Subject to Revision

USDA NRCS

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

Prepared by the USDA/NRCS National Water and Climate Center
Portland, Oregon http://www.wcc.nrcs.usda.gov/gis/
Based on data from http://www.wcc.nrcs.usda.gov/reports/
Science contact: Jim.Marron@por.usda.gov 503 414 3047

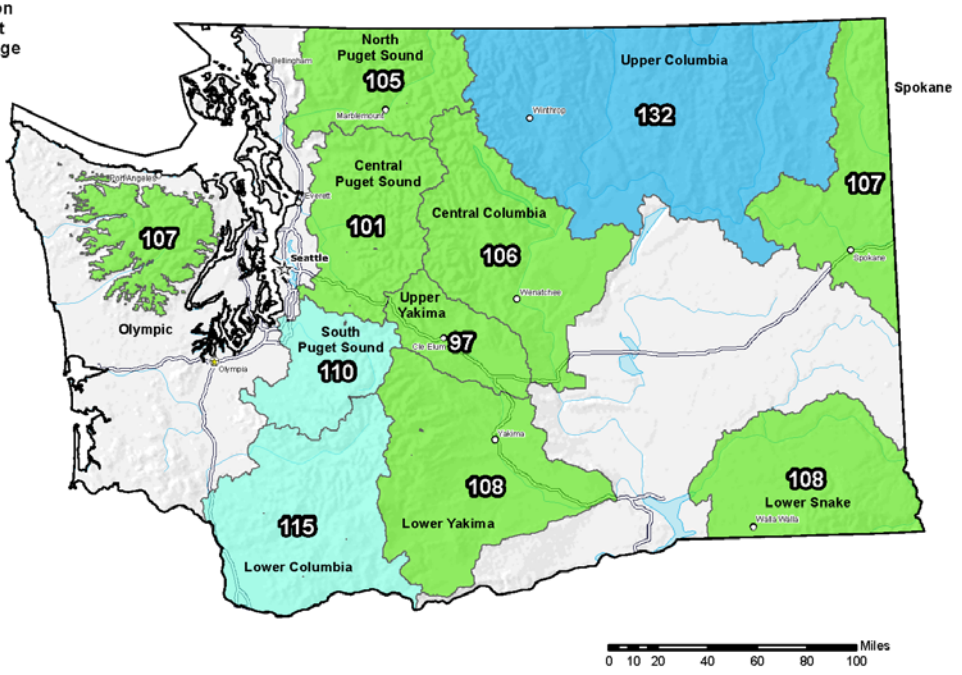
Washington SNOTEL Water Year (Oct 1) to Date Precipitation % of Normal

Feb 01, 2013

Water Year (Oct 1) to Date Precipitation Basin-wide Percent of 1981-2010 Average

- unavailable *
- <50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- >=150%

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



Provisional Data Subject to Revision

USDA NRCS

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

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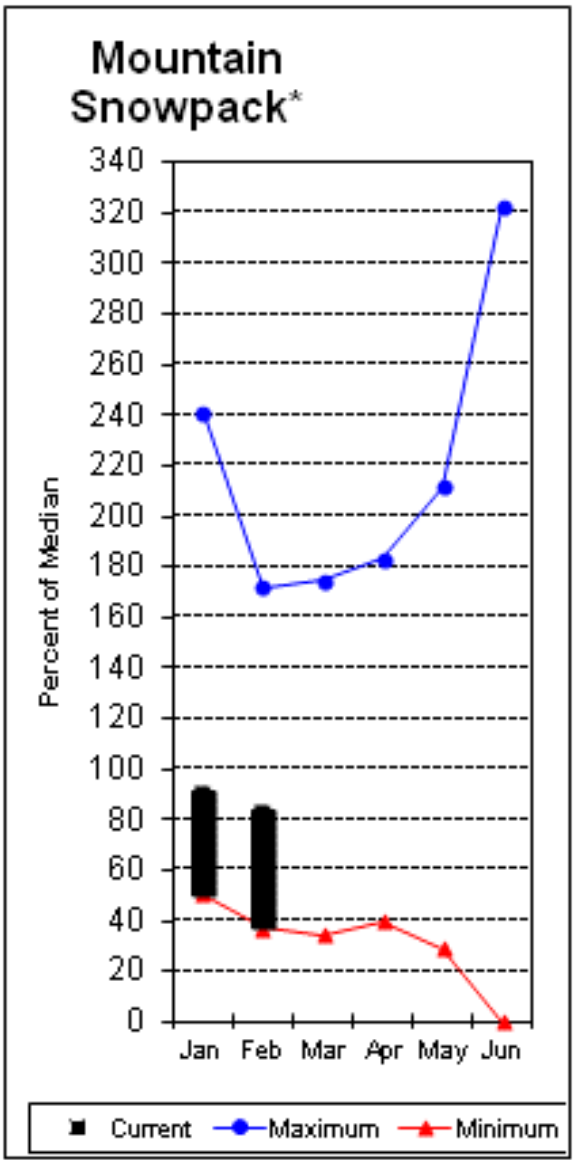
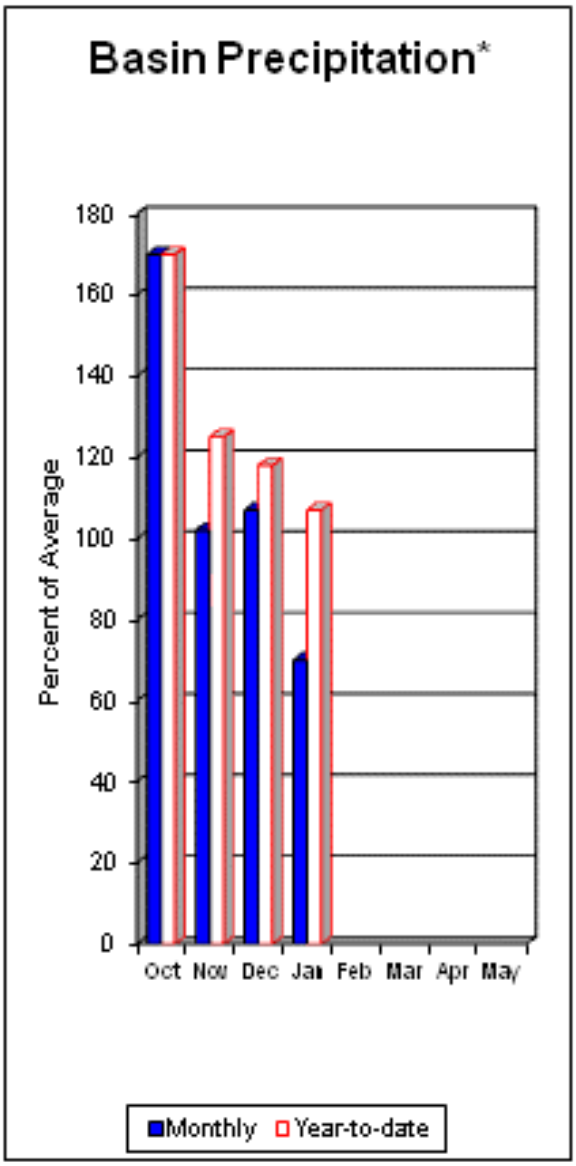
Spokane River Basin





*Based on selected stations

The February 1 forecasts for summer runoff within the Spokane River Basin are 83% of average near Post Falls and 86% at Long Lake. The Chamokane River near Long Lake forecasted to have 125% of average flows for the May-August period. The forecast is based on a basin snowpack that is 83% of normal and precipitation that is 107% of average for the water year. Precipitation for January was below normal at 70% of average. Streamflow on the Spokane River at Long Lake was 69% of average for January. February 1 storage in Coeur d'Alene Lake was 66,000 acre feet, 69% of average and 28% of capacity. Snowpack at Quartz Peak SNOTEL site was 96% of normal with 14.2 inches of water content. Average temperatures in the Spokane basin were 2-4 degrees below normal for January and slightly above normal for the water year.

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

Spokane River Basin

Streamflow Forecasts - February 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Spokane R nr Post Falls (2)	APR-JUL	1360	1730	1980	83	2230	2600	2390
	APR-SEP	1440	1810	2060	83	2310	2680	2480
Spokane R at Long Lake (2)	APR-JUL	1560	1960	2240	86	2520	2920	2620
	APR-SEP	1750	2160	2440	86	2720	3130	2850
Chamokane Ck nr Long Lake	MAY-AUG	5.9	9.3	11.6	125	13.9	17.3	9.3

SPOKANE RIVER BASIN Reservoir Storage (1000 AF) - End of January

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Coeur d'Alene	238.5	66.2	49.6	96.3

SPOKANE RIVER BASIN Watershed Snowpack Analysis - February 1, 2013

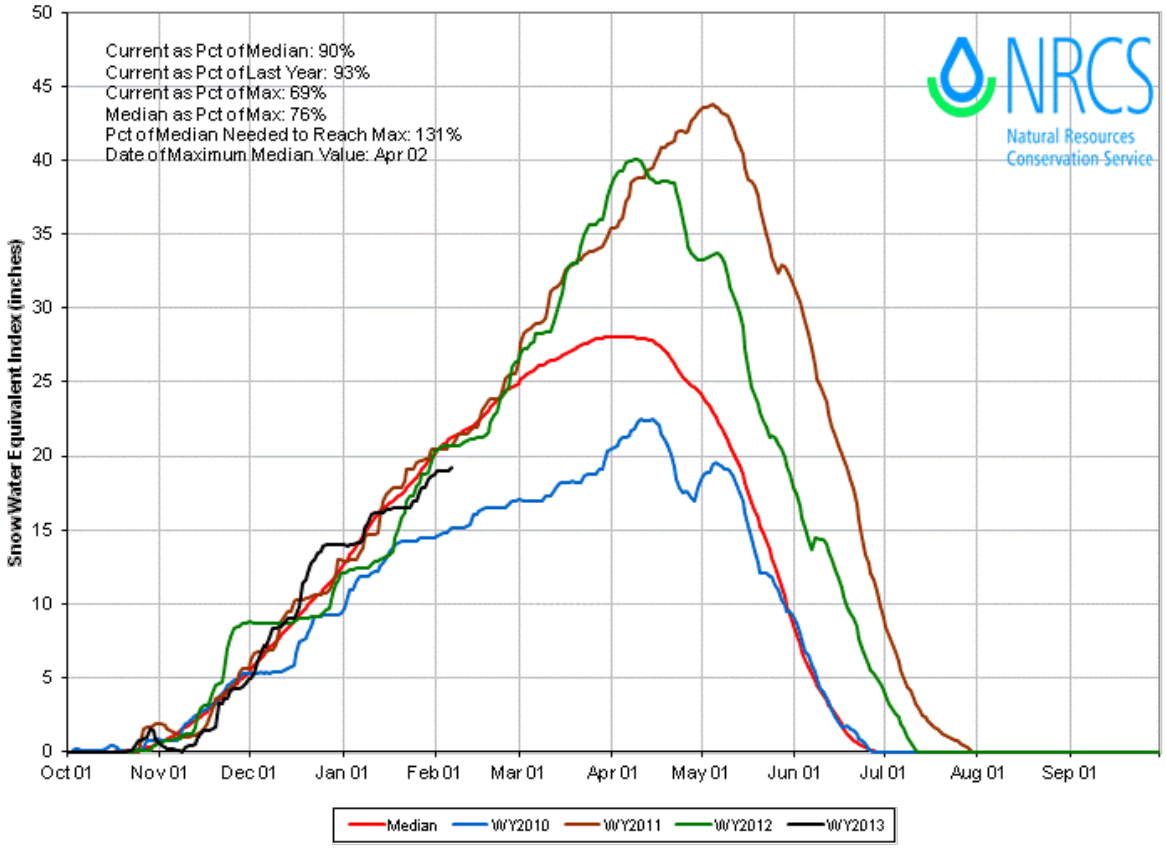
Watershed	Number of Data Sites	This Year as % of: Last Yr	Median
SPOKANE RIVER	14	100	83
NEWMAN LAKE	3	152	97

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

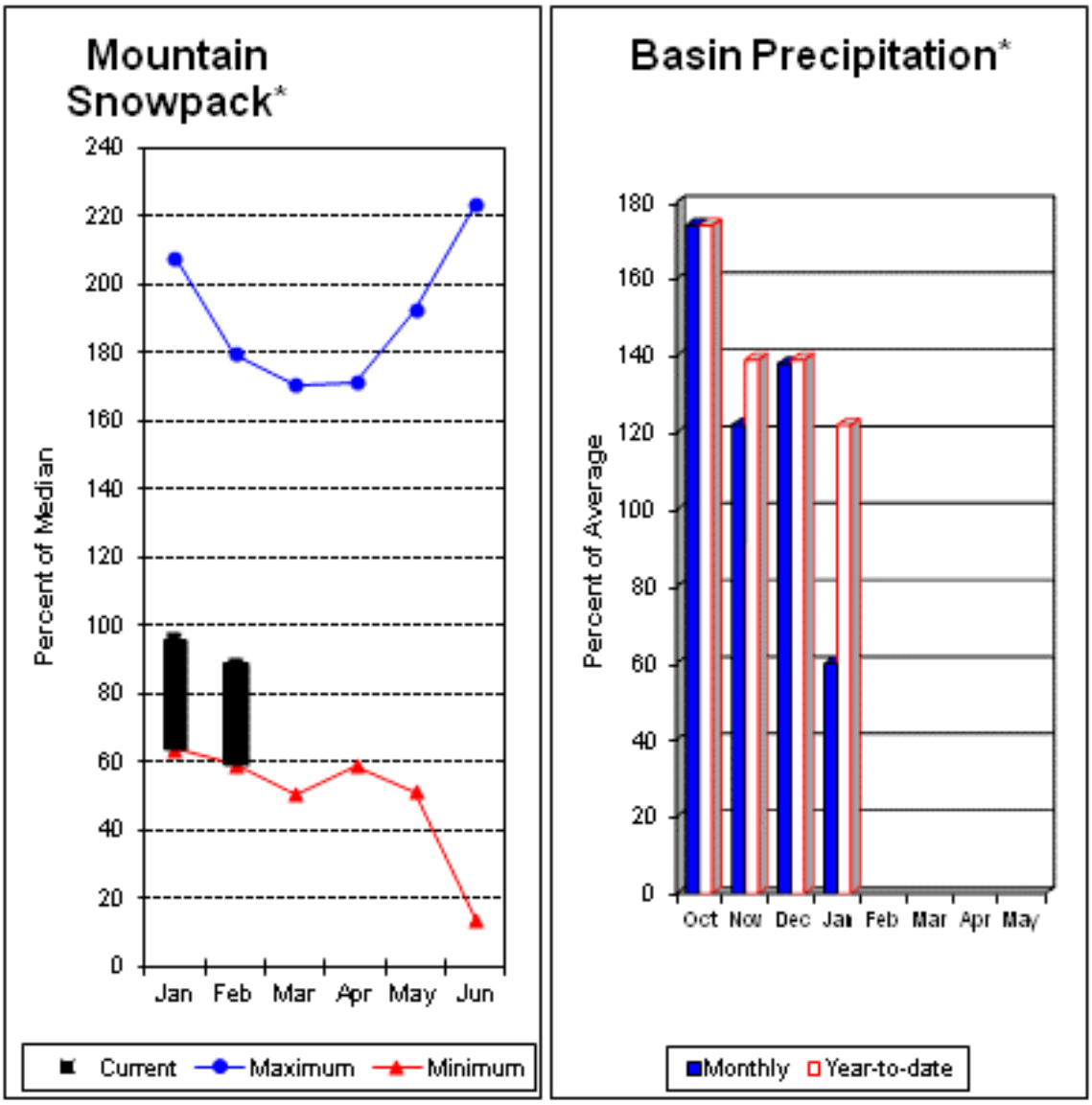
The average is computed for the 1981-2010 base period.

(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.

PREIST, COEUR D'ALENE, ST. JOE, SPOKANE, PALOUSE Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Feb 06, 2013



Pend Oreille River Basins



*Based on selected stations

The April – September average forecast for the Priest River near the town of Priest River is 115% and the Pend Orielle below Box Canyon is 102%. January streamflow was 92% of average on the Pend Oreille River and 101% on the Columbia Birchbank. February 1 snow cover was 89% of normal in the Pend Oreille Basin River Basin. Bunchgrass Meadows SNOTEL site had 16.5 inches of snow water on the snow pillow. Normally Bunchgrass would have 18 inches on February 1. Precipitation during January was 60% of average, keeping the year-to-date precipitation at 122% of average. Reservoir storage in the basin, including Lake Pend Oreille and Priest Lake was 119% of normal. Average temperatures were 4-6 degrees above normal for January and 1-2 degrees above normal for the water year.

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

Streamflow Forecasts - February 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Pend Oreille Lake Inflow (2)	APR-JUL	9823	11060	11900	101	12740	13977	11800
	APR-SEP	10910	12214	13100	102	13986	15290	12800
Priest R nr Priest River (1,2)	APR-JUL	735	833	900	115	967	1065	780
	APR-SEP	770	877	950	115	1023	1130	830
Pend Oreille R bl Box Canyon (2)	APR-JUL	9980	11200	12100	102	13000	14200	11900
	APR-SEP	11100	12400	13300	102	14200	15500	13000

PEND OREILLE RIVER BASINS
Reservoir Storage (1000 AF) - End of January

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Pend Oreille	1561.3	914.7	632.2	753.9
Priest Lake	119.3	50.4	55.5	56.7

PEND OREILLE RIVER BASINS
Watershed Snowpack Analysis - February 1, 2013

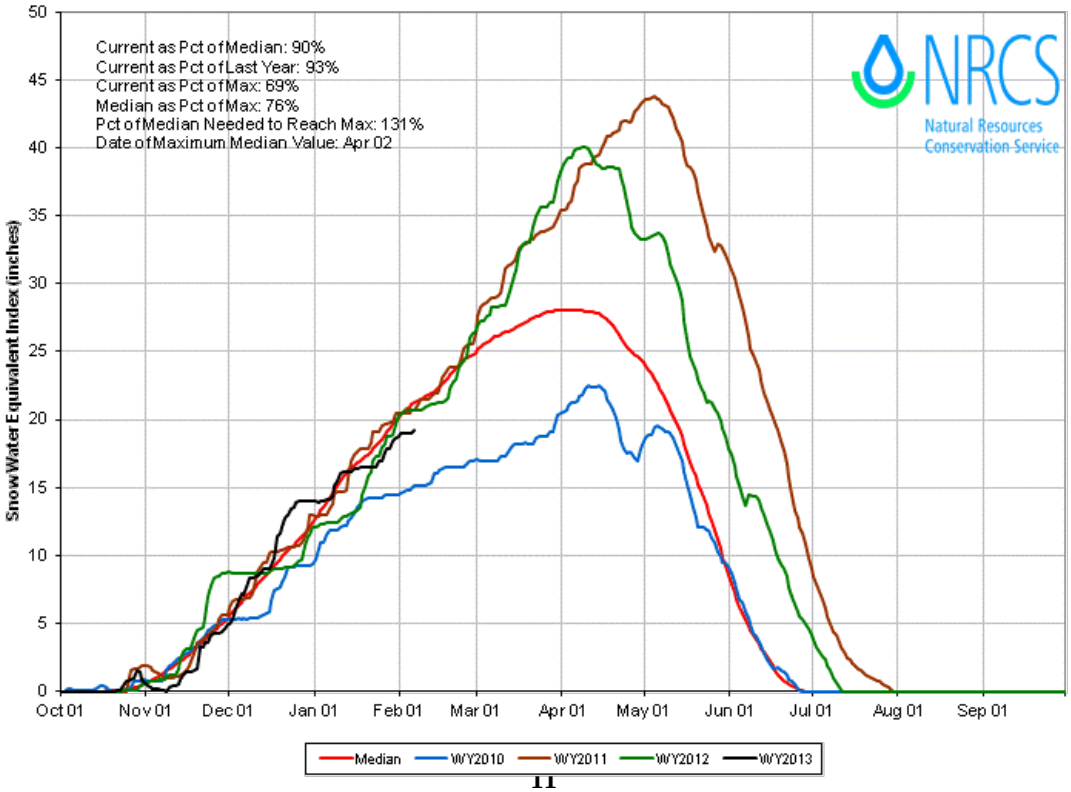
Watershed	Number of Data Sites	This Year as % of Last Yr	Median
COLVILLE RIVER	1	90	69
PEND OREILLE RIVER	9	90	82
KETTLE RIVER	4	159	106

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

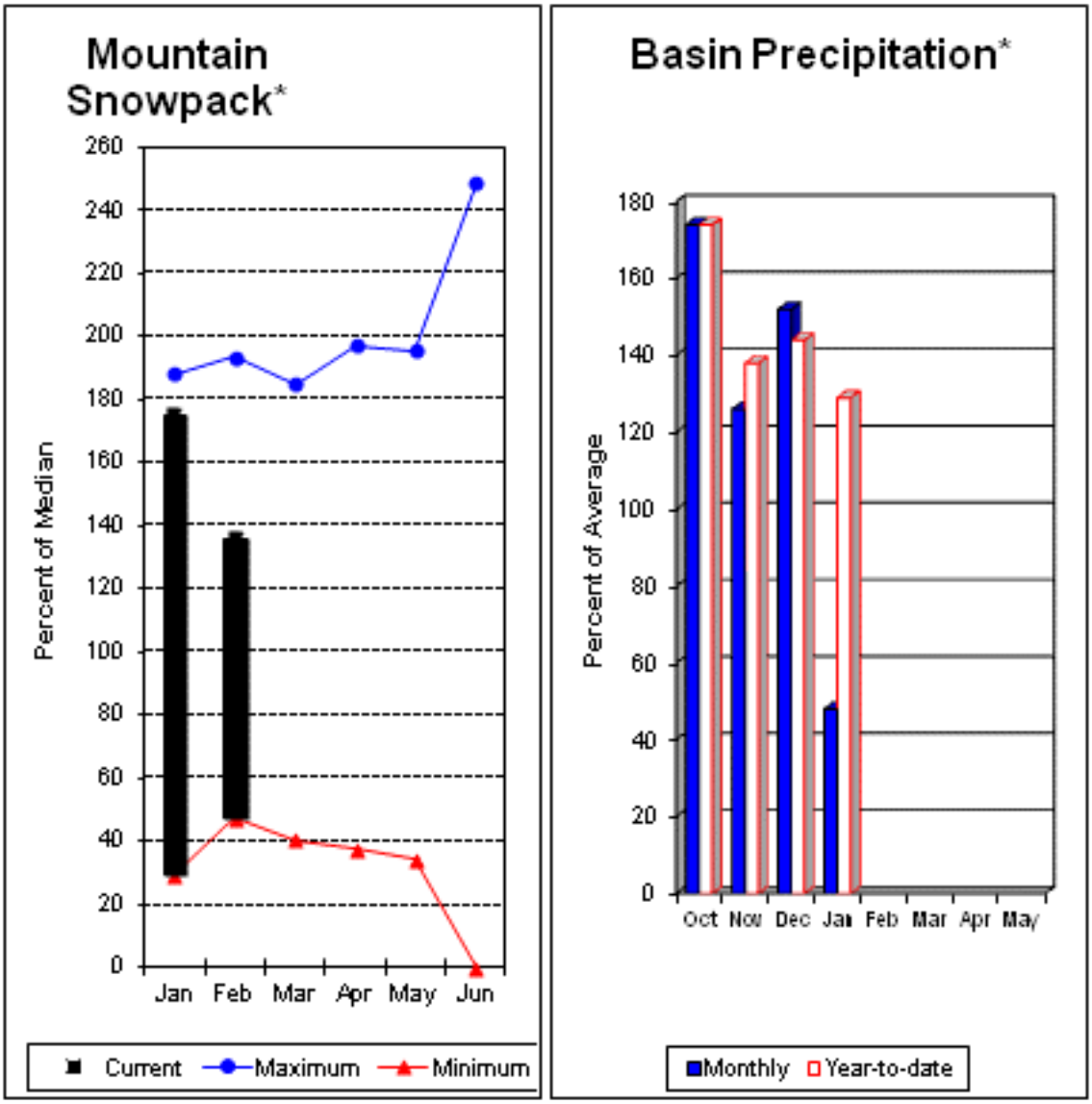
The average is computed for the 1981-2010 base period.

(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.

PREIST, COEUR D'ALENE, ST. JOE, SPOKANE, PALOUSE Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Feb 06, 2013



Upper Columbia River Basins



*Based on selected stations

Summer runoff average forecast for the Okanogan River is 104%, Similkameen River is 108%, Kettle River 128% and Methow River is 120%. February 1 snow cover on the Okanogan was 127% of normal, Omak Creek was 210% and the Methow was 127%. January precipitation in the Upper Columbia was 48% of average, with precipitation for the water year at 129% of average. January streamflow for the Methow River was 87% of average, 65% for the Okanogan River and 62% for the Similkameen. Snow-water content at Salmon Meadows SNOTEL was 10.1 inches. Median for this site is 6.6 inches on February 1. Combined storage in the Conconully Reservoirs was 18,000-acre feet, which is 75% of capacity and 91% of the February 1 average. Temperatures were 4-6 degrees below normal for January and slightly below for the water year.

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

Streamflow Forecasts - February 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== 90% (1000AF)	70% (1000AF)	Future Conditions 50% (1000AF)	50% (% AVG.)	======= Wetter =====>> 30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Colville R at Kettle Falls	APR-JUL	55	96	124	104	152	193	119
	APR-SEP	60	105	136	104	167	210	131
Kettle R nr Laurier	APR-JUL	1940	2160	2300	128	2440	2660	1800
	APR-SEP	2030	2250	2410	128	2570	2790	1880
Columbia R at Birchbank (1,2)	APR-JUL	25700	29700	31500	93	33300	37300	33840
	APR-SEP	32700	37600	39900	96	42200	47100	41750
Columbia R at Grand Coulee (2)	APR-JUL	36900	44100	47300	93	50600	57800	51015
	APR-SEP	44800	53300	57200	95	61100	69700	60110
Similkameen R nr Nighthawk (1)	APR-JUL	909	1164	1280	107	1396	1651	1200
	APR-SEP	1007	1263	1380	108	1497	1753	1280
Okanogan R nr Tonasket (1)	APR-JUL	907	1287	1460	99	1633	2013	1480
	APR-SEP	1027	1442	1630	99	1818	2233	1650
Okanogan R at Malott (1)	APR-JUL	925	1330	1510	104	1690	2100	1450
	APR-SEP	1040	1480	1680	104	1880	2320	1620
Methow R nr Pateros	APR-SEP	896	1000	1070	120	1140	1244	895
	APR-JUL	838	934	1000	120	1066	1162	835

UPPER COLUMBIA RIVER BASINS
Reservoir Storage (1000 AF) - End of January

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
SALMON LAKE	10.5	8.4	8.3	8.3
CONCONULLY RESERVOIR	13.0	9.2	11.0	11.0

UPPER COLUMBIA RIVER BASINS
Watershed Snowpack Analysis - February 1, 2013

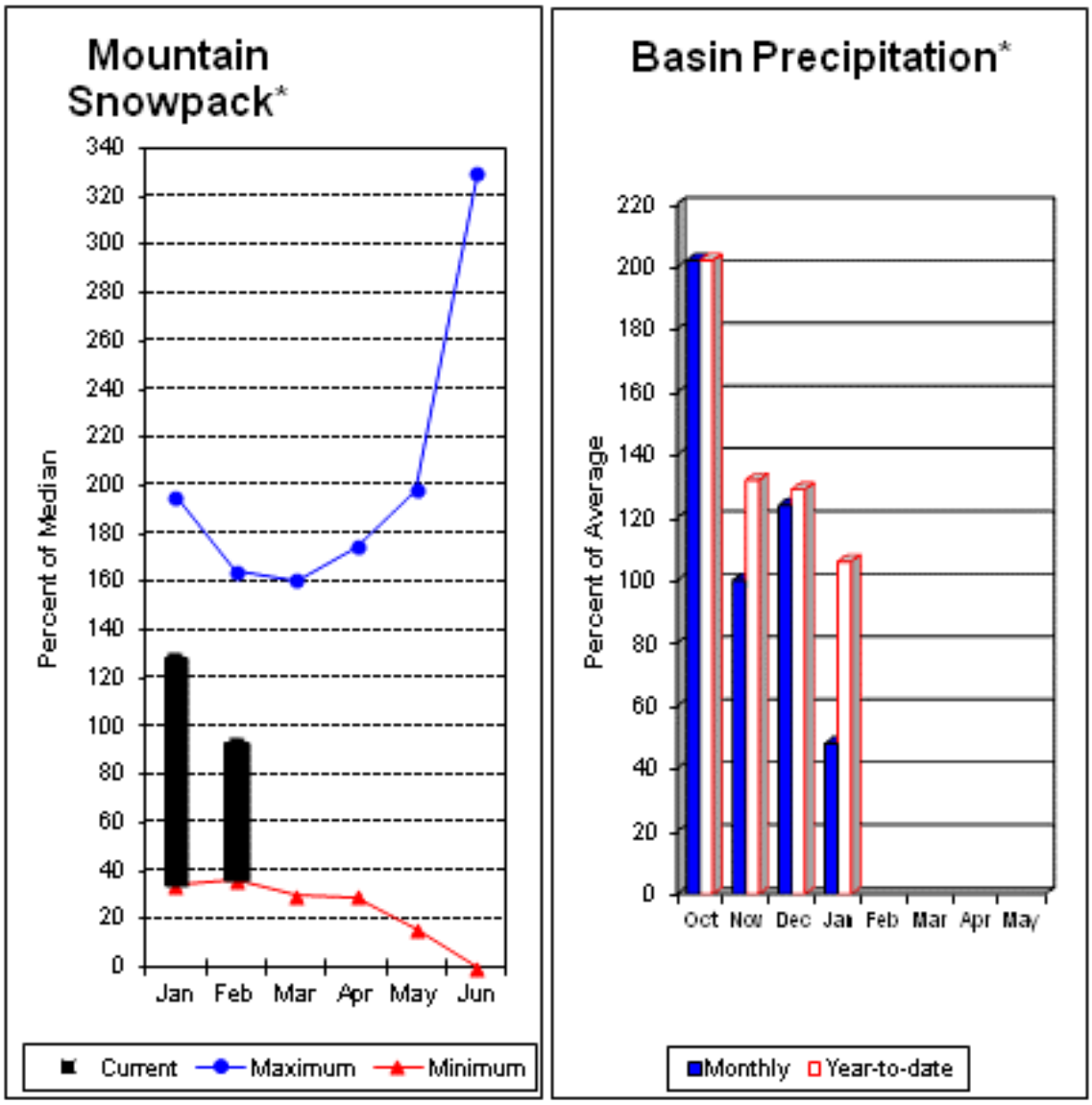
Watershed	Number of Data Sites	This Year as % of Last Yr	Median
OKANOGAN RIVER	12	125	127
OMAK CREEK	3	259	210
SANPOIL RIVER	1	159	65
SIMILKAMEEN RIVER	0	0	0
TOATS COULEE CREEK	4	154	151
CONCONULLY LAKE	3	182	169
METHOW RIVER	6	109	127

* 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 1981-2010 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 January was 48% of average in the basin and 106% for the year-to-date. Runoff for Entiat River is forecast to be 93% of average for the summer. The April-September average forecast for Chelan River is 96%, Wenatchee River at Plain is 93%, Stehekin River is 99% and Icicle Creek is 83%. January average streamflows on the Chelan River were 61% and on the Wenatchee River 52%. February 1 snowpack in the Wenatchee River Basin was 92% of normal; the Chelan, 111%; the Entiat, 93%; Stemilt Creek, 74% and Colockum Creek, 95%. Reservoir storage in Lake Chelan was 274,000-acre feet, 80% of February 1 average and 40% of capacity. Lyman Lake SNOTEL had the most snow water with 40.7 inches of water. This site would normally have 40.1 inches on February 1. Temperatures were 2-4 degrees below normal for January and near normal for the water year.

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

Streamflow Forecasts - February 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Stehekin R at Stehekin	APR-JUL	571	636	680	100	724	789	680
	APR-SEP	672	739	785	99	831	898	790
Chelan R at Chelan (2)	APR-JUL	849	915	960	96	1005	1071	1000
	APR-SEP	930	1014	1070	96	1126	1210	1120
Entiat R nr Ardenvoir	APR-JUL	157	175	187	94	199	215	200
	APR-SEP	172	192	205	93	220	240	220
Wenatchee R at Plain	APR-JUL	795	870	920	93	970	1050	990
	APR-SEP	850	940	1000	93	1060	1150	1080
Icicle Ck nr Leavenworth	APR-JUL	198	217	230	84	243	262	275
	APR-SEP	211	234	250	83	266	289	300
Wenatchee R at Peshastin	APR-JUL	1090	1190	1260	92	1330	1430	1370
	APR-SEP	1150	1270	1360	91	1450	1570	1490
Columbia R bl Rock Island Dam (2)	APR-JUL	43596	49195	53000	95	56805	62404	55770
	APR-SEP	50823	57418	61900	95	66382	72977	65200

CENTRAL COLUMBIA RIVER BASINS
Reservoir Storage (1000 AF) - End of January

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
CHELAN LAKE	676.1	273.6	272.6	343.1

CENTRAL COLUMBIA RIVER BASINS
Watershed Snowpack Analysis - February 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
CHELAN LAKE BASIN	4	100	111
ENTIAT RIVER	1	85	93
WENATCHEE RIVER	8	94	92
STEMILT CREEK	1	108	74
COLOCKUM CREEK	1	107	95

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

The average is computed for the 1981-2010 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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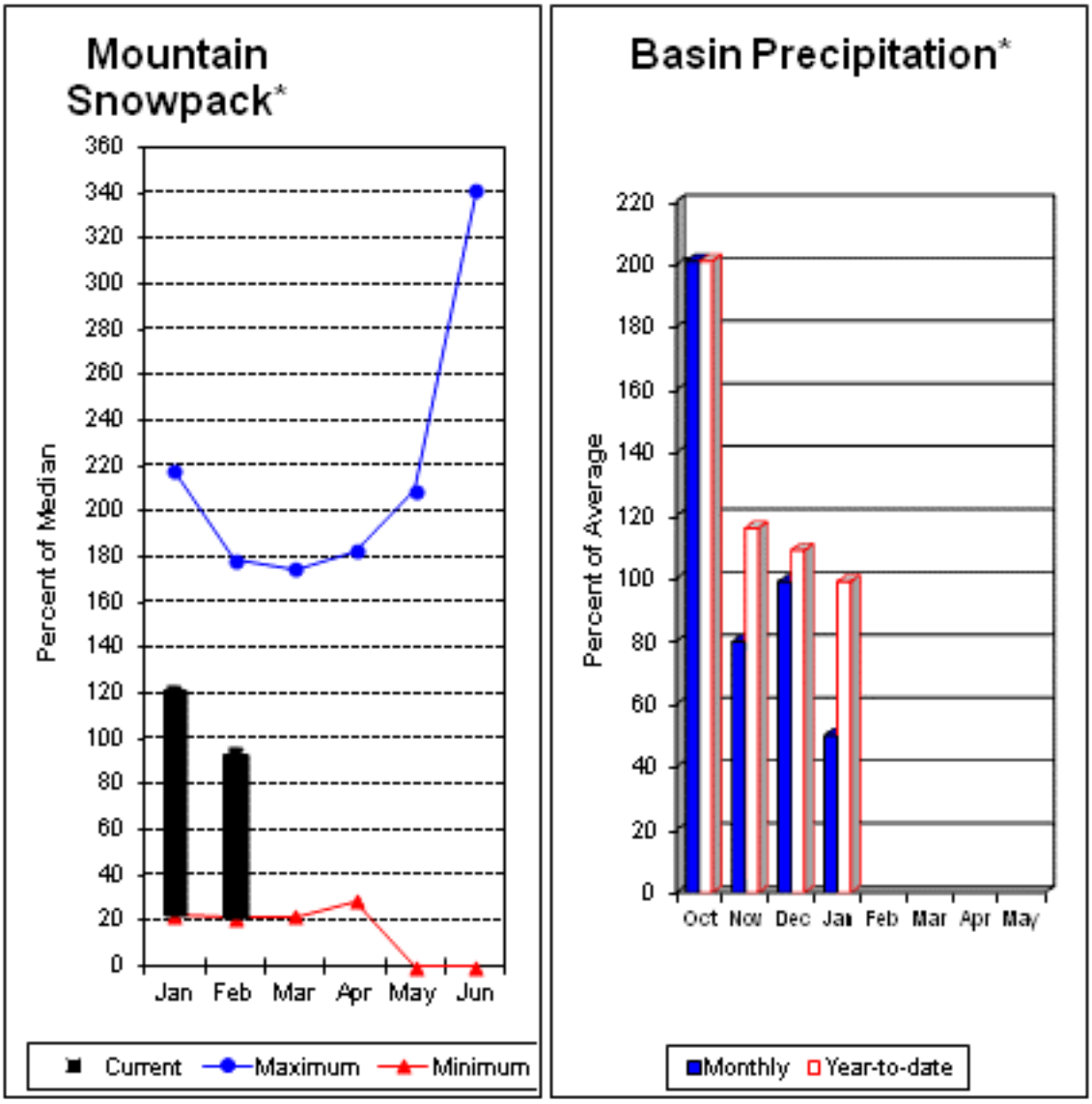
Upper Yakima River Basin



*Based on selected stations

February 1 reservoir storage for the Upper Yakima reservoirs was 549,000-acre feet, 136% of average. Forecasts for the Yakima River at Cle Elum are 91% of average and the Teanaway River near Cle Elum is at 86%. Lake inflows are all forecasted to be slightly below average this summer. January streamflows within the basin were Cle Elum River near Roslyn at 44%. February 1 snowpack was 93% based upon 8 snow course and SNOTEL readings within the Upper Yakima Basin. Precipitation was 50% of average for January and 99% 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 - February 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Keechelus Reservoir Inflow (2)	APR-JUL	74	94	107	92	120	140	116
	APR-SEP	83	103	117	93	131	151	126
Kachess Reservoir Inflow (2)	APR-JUL	69	85	96	92	107	123	104
	APR-SEP	76	92	103	91	114	130	113
Cle Elum Lake Inflow (2)	APR-JUL	280	325	355	92	385	430	385
	APR-SEP	300	350	385	93	420	470	415
Yakima R at Cle Elum (2)	APR-JUL	490	610	690	91	770	890	755
	APR-SEP	530	665	755	91	845	980	830
Teanaway R bl Forks nr Cle Elum	APR-JUL	72	95	111	85	127	150	130
	APR-SEP	75	98	114	86	130	153	133

UPPER YAKIMA RIVER BASIN
Reservoir Storage (1000 AF) - End of January

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
KEECHELUS	157.8	96.8	102.4	82.1
KACHESS	239.0	176.9	158.6	130.8
CLE ELUM	436.9	275.4	306.2	191.5

UPPER YAKIMA RIVER BASIN
Watershed Snowpack Analysis - February 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Median
UPPER YAKIMA RIVER	8	85	93

* 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 1981-2010 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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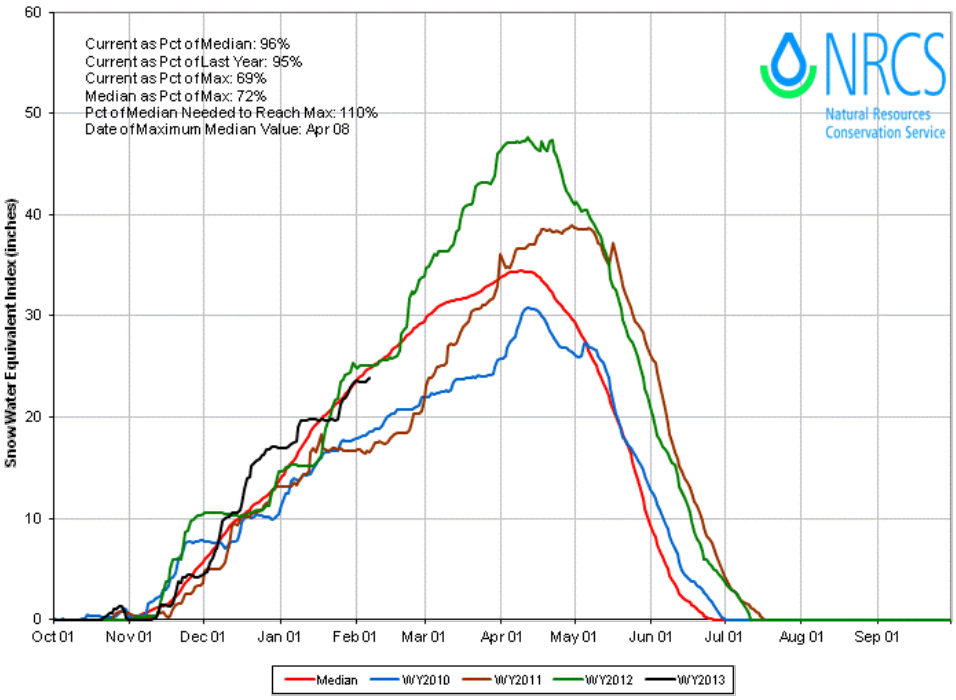
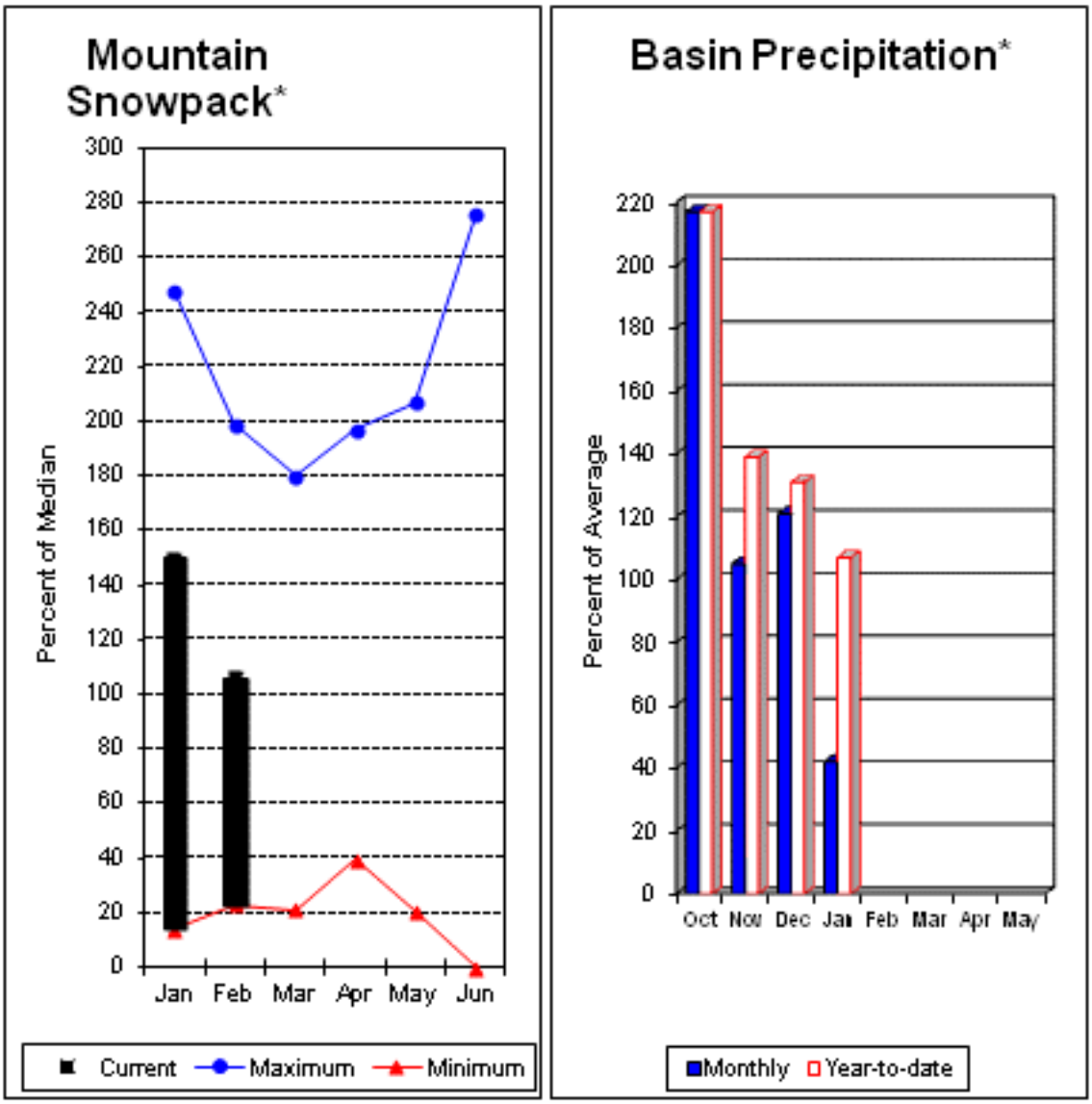
UPPER YAKIMA Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Feb 06, 2013



Lower Yakima River Basin



*Based on selected stations

January average streamflows within the basin were: Yakima River near Parker, 52%; Naches River near Naches, 53%; and Yakima River at Kiona, 67%. February 1 reservoir storage for Bumping and Rimrock reservoirs was 145,000-acre feet, 118% of average. Forecast averages for Yakima River near Parker are 95%; American River near Nile, 99%; Ahtanum Creek, 110%; and Klickitat River near Glenwood, 92%. February 1 snowpack was 106% based upon 8 snow course and SNOTEL readings within the Lower Yakima Basin and Ahtanum Creek reported in at 104% of normal. Precipitation was 42% of average for January and 107% year-to-date for water. Temperatures were 2-4 degrees below normal for January and near normal for the water year. Volume forecasts for Yakima Basin are for natural flow. As such, they February 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.

Streamflow Forecasts - February 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Bumping Lake Inflow (2)	APR-JUL	82	96	105	92	114	128	114
	APR-SEP	88	103	113	92	123	138	123
American R nr Nile	APR-JUL	81	93	101	99	109	121	102
	APR-SEP	86	100	109	99	118	132	110
Rimrock Lake Inflow (2)	APR-JUL	151	166	176	94	186	200	187
	APR-SEP	174	192	205	93	220	235	220
Naches R nr Naches (2)	APR-JUL	515	590	645	92	700	775	700
	APR-SEP	545	635	695	91	755	845	760
Ahtanum Ck at Union Gap	APR-JUL	20	26	30	111	34	40	27
	APR-SEP	22	28	32	110	36	42	29
Yakima R nr Parker (2)	APR-JUL	1250	1440	1570	95	1700	1890	1660
	APR-SEP	1370	1580	1720	95	1860	2070	1820
Klickitat R nr Glenwood	APR-JUL	94	107	116	92	125	138	126
	APR-SEP	102	118	128	92	138	154	139
Klickitat R nr Pitt	APR-JUL	345	395	425	98	455	505	435
	APR-SEP	420	475	515	99	555	610	520

LOWER YAKIMA RIVER BASIN
Reservoir Storage (1000 AF) - End of January

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
BUMPING LAKE	33.7	12.5	20.5	12.7
RIMROCK	198.0	132.2	142.1	109.6

LOWER YAKIMA RIVER BASIN
Watershed Snowpack Analysis - February 1, 2013

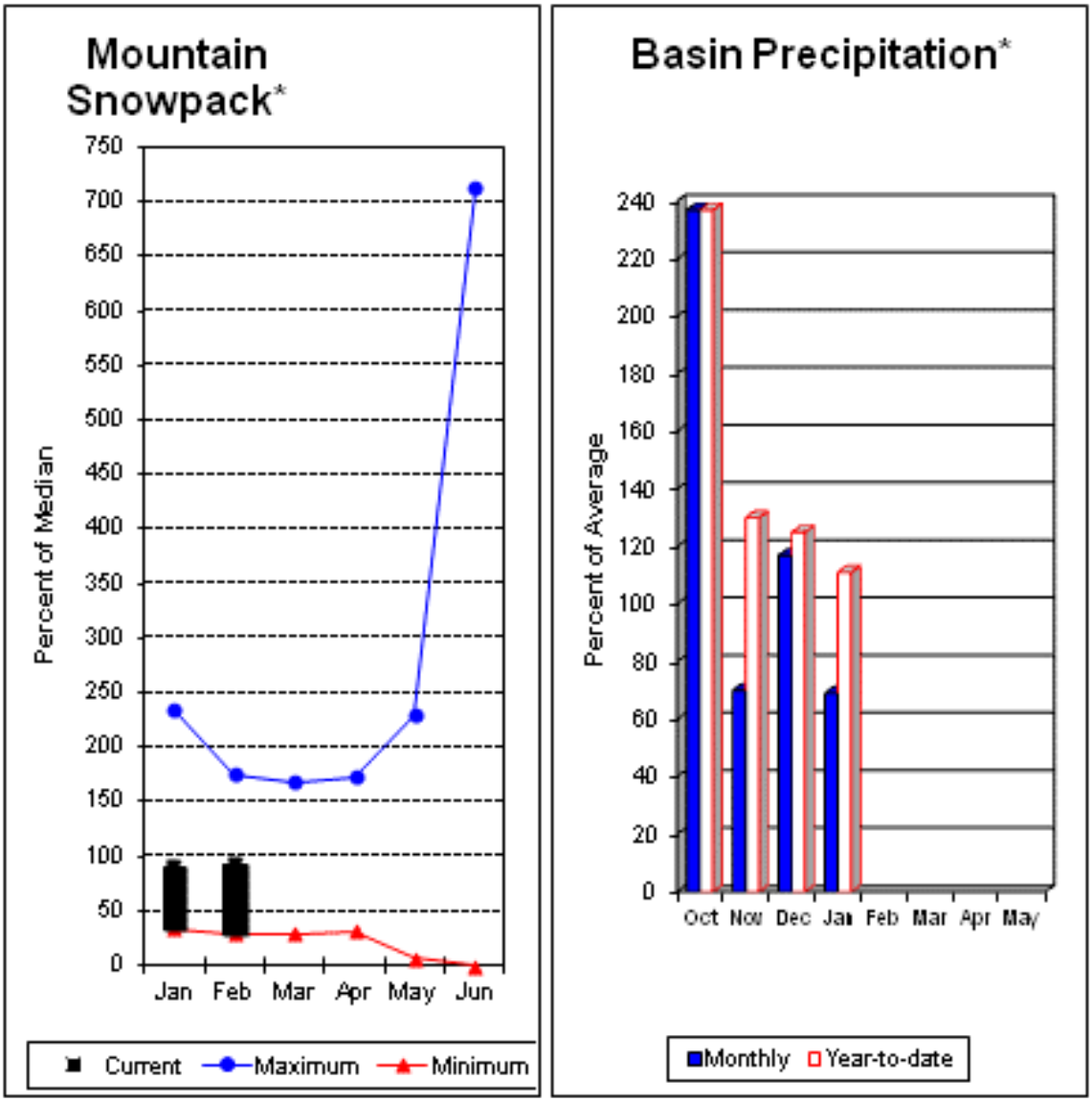
Watershed	Number of Data Sites	This Year as % of Last Yr	Median
LOWER YAKIMA RIVER	8	100	106
AHTANUM CREEK	3	98	104

* 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 1981-2010 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

January precipitation was 69% of average, maintaining the year-to-date precipitation at 111% of average. Snowpack in the basin was 92% of normal. Streamflow forecasts are 96% of average for both Mill Creek and for the SF Walla Walla near Milton-Freewater. January streamflow was 61% of average for the SF Walla Walla River. Average temperatures were 2-4 degrees below normal for January and 1-2 degrees above average for the water year.

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

Streamflow Forecasts - February 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SF Walla Walla R nr Milton-Freewater	MAR-SEP	62	70	76	95	82	90	80
	APR-JUL	39	46	50	93	54	61	54
	APR-SEP	51	58	63	96	68	75	66
Mill Ck nr Walla Walla	APR-JUL	16.8	21	23	96	26	29	24
	APR-SEP	19.4	23	26	96	29	33	27

* 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 1981-2010 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.

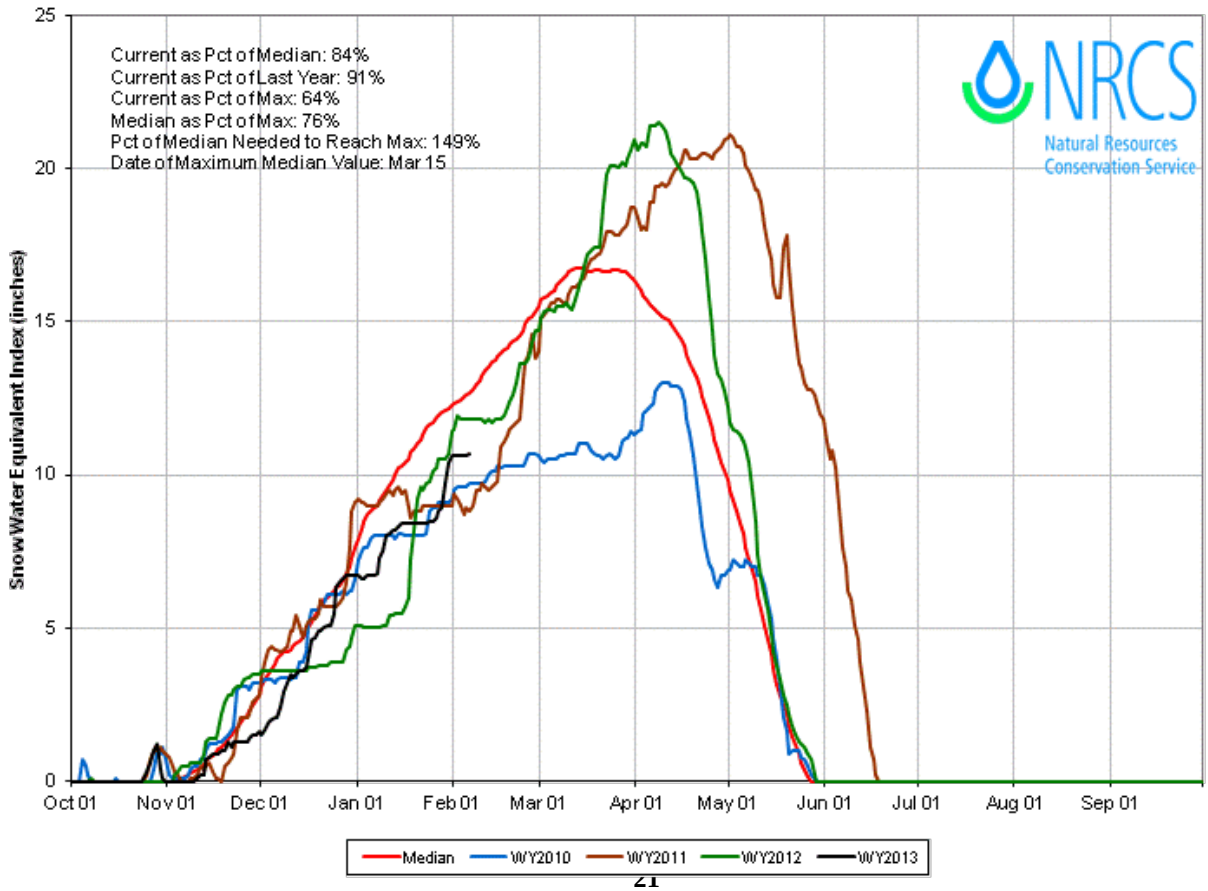
WALLA WALLA RIVER BASIN Reservoir Storage (1000 AF) - End of January

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

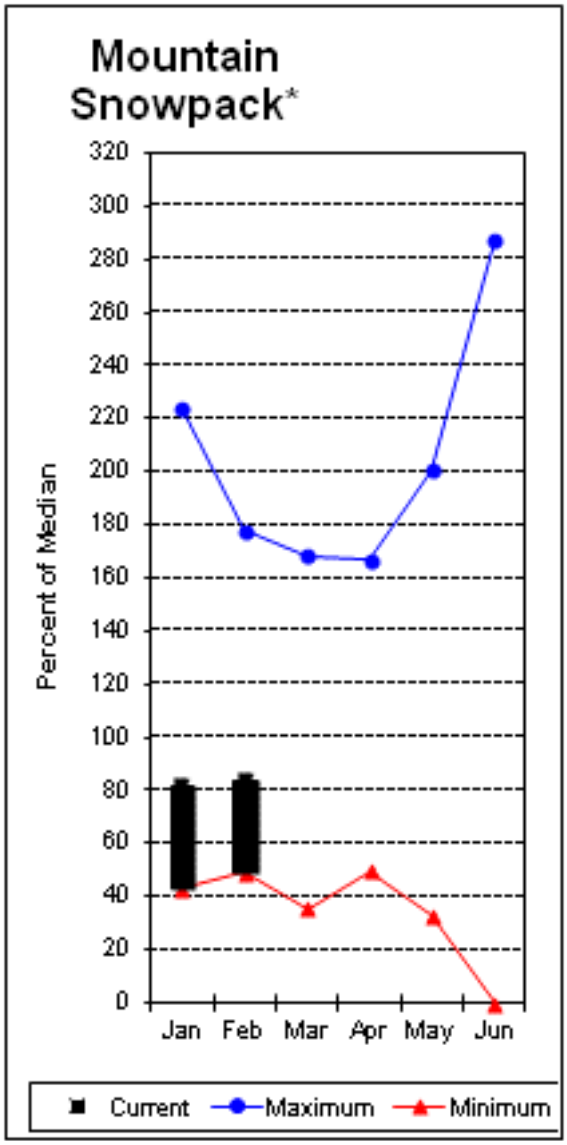
WALLA WALLA RIVER BASIN Watershed Snowpack Analysis - February 1, 2013

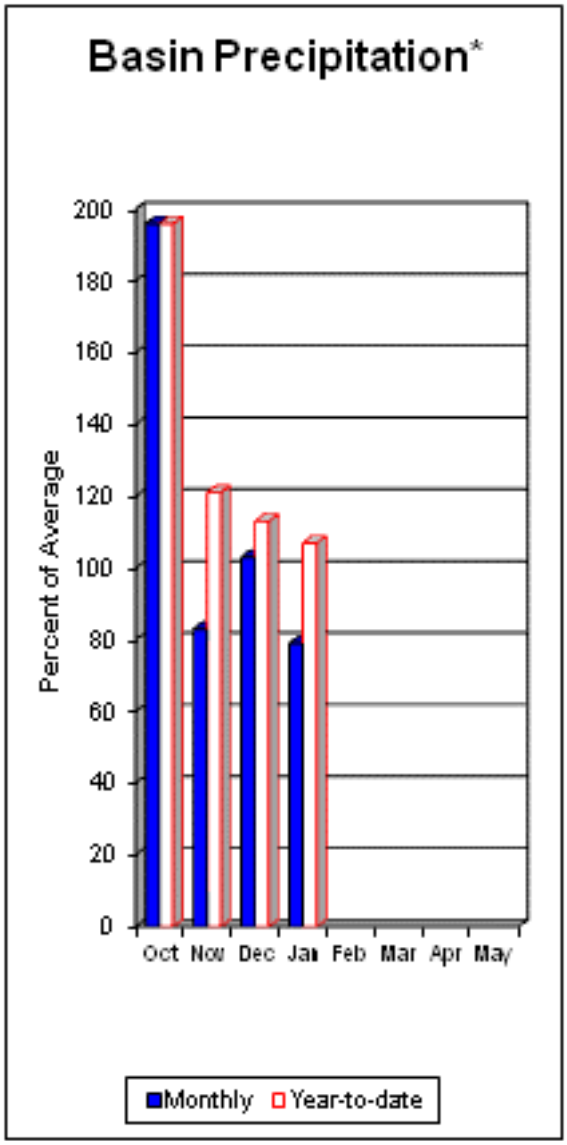
Watershed	Number of Data Sites	This Year as % of Last Yr	Median
WALLA WALLA RIVER	2	96	92

WALLA WALLA, TOUCHET Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Feb 06, 2013



Lower Snake River Basin





*Based on selected stations

The Snake and Grande Ronde rivers can expect summer flows to be about 93% and 100% of normal respectively. The forecast for Asotin Creek at Asotin predicts 106% of average flows for the April – July runoff period. January precipitation was 79% of average, bringing the year-to-date precipitation to 107% of average. February 1 snowpack readings averaged 84% of normal. January streamflow was 66% of average for Snake River below Lower Granite Dam and 61% for Grande Ronde River near Troy. Dworshak Reservoir storage was 108% of average. Average temperatures were 2-4 degrees below normal for January and 1-2 degrees above for the water year.

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

Streamflow Forecasts - February 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Grande Ronde R at Troy (1)	MAR-JUL	1100	1390	1520	101	1650	1940	1510
	APR-SEP	900	1180	1310	100	1440	1720	1310
Asotin Ck at Asotin	APR-JUL	22	31	37	106	43	52	35
Clearwater R at Spalding (1,2)	APR-JUL	3590	5640	6570	95	7500	9550	6890
	APR-SEP	4000	6050	6980	96	7910	9960	7270
Snake R bl Lower Granite Dam (1,2)	APR-JUL	8790	15200	18100	91	21000	27400	19850
	APR-SEP	10200	17400	20700	93	24000	31200	22280

LOWER SNAKE RIVER BASIN
Reservoir Storage (1000 AF) - End of January

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Dworshak	3468.0	2511.4	2288.9	2335.0

LOWER SNAKE RIVER BASIN
Watershed Snowpack Analysis - February 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
LOWER SNAKE, GRANDE RONDE	12	92	84

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

The average is computed for the 1981-2010 base period.

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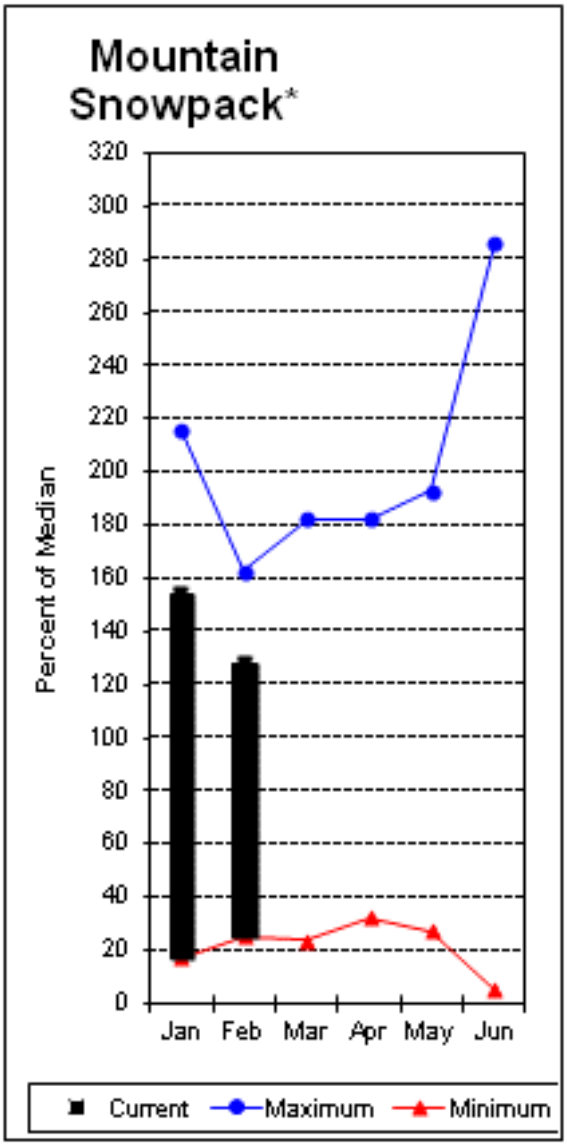
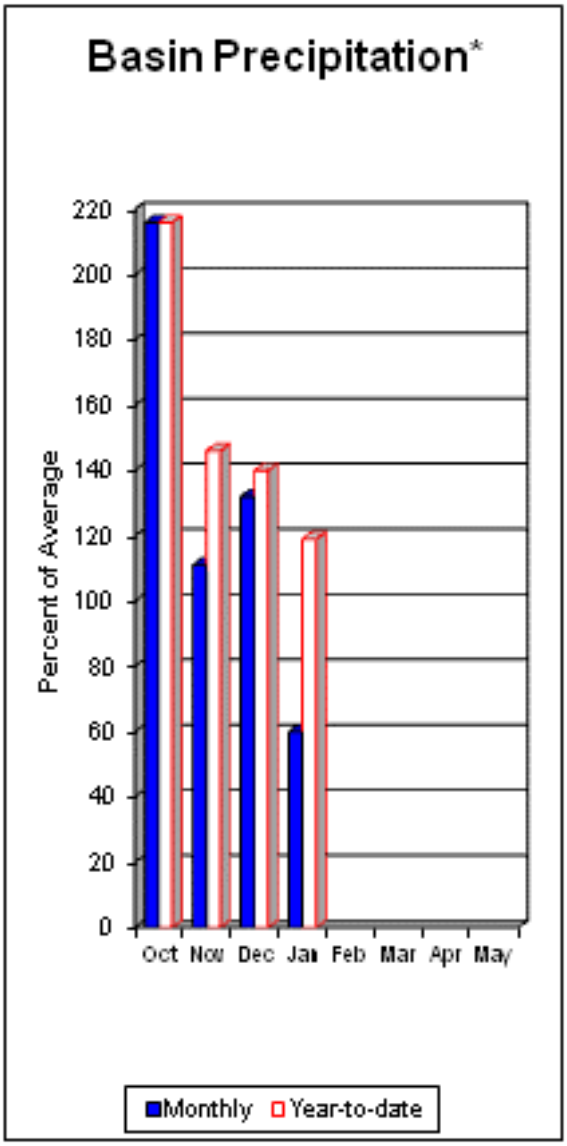
(2) - The value is natural volume - actual volume may be affected by upstream water management.

Lower Columbia River Basins





*Based on selected stations

Forecasts for April – September streamflows within the basin are Lewis River at Ariel, 106% and Cowlitz River at Castle Rock, 111% of average. The Columbia at The Dalles is forecasted to have 101% of average flows this summer according to the River Forecast Center. January average streamflow for Cowlitz River was 66%. The Columbia River at The Dalles was 88% of average. January precipitation was 60% of average and the water-year average was 119%. February 1 snow cover for Cowlitz River was 128%, and Lewis River was 129% of normal. Paradise SNOTEL reported the most snow in the basin with 53.6 inches of water and 137 inches of depth. Temperatures were 2-4 degrees above normal during January and near normal for the water year.

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

Lower Columbia River Basins

Streamflow Forecasts - February 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Columbia R at The Dalles (2)	APR-JUL	58000	66900	73000	0	79100	88000	0.0
	APR-SEP	69400	79800	86900	0	94000		0.0
Klickitat R nr Glenwood	APR-JUL	94	107	116	92	125	138	126
	APR-SEP	102	118	128	92	138	154	139
Klickitat R nr Pitt	APR-JUL	345	395	425	98	455	505	435
	APR-SEP	420	475	515	99	555	610	520
Lewis R at Ariel (2)	APR-JUL	751	923	1040	107	1157	1329	970
	APR-SEP	882	1065	1190	106	1315	1498	1120
Cowlitz R bl Mayfield Dam (2)	APR-JUL	1444	1644	1780	110	1916	2116	1620
	APR-SEP	1649	1882	2040	111	2198	2431	1840
Cowlitz R at Castle Rock (2)	APR-JUL	2014	2244	2400	108	2556	2786	2230
	APR-SEP	2521	2639	2720	108	2801	2919	2520

LOWER COLUMBIA RIVER BASINS
Reservoir Storage (1000 AF) - End of January

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MOSSYROCK	---	1123.7	1277.4	1206.0
SWIFT	---	594.5	661.6	624.9
YALE	0.0	352.3	394.0	---
MERWIN	---	400.1	412.3	400.4

LOWER COLUMBIA RIVER BASINS
Watershed Snowpack Analysis - February 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
LEWIS RIVER	5	149	129
COWLITZ RIVER	6	119	128

* 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 1981-2010 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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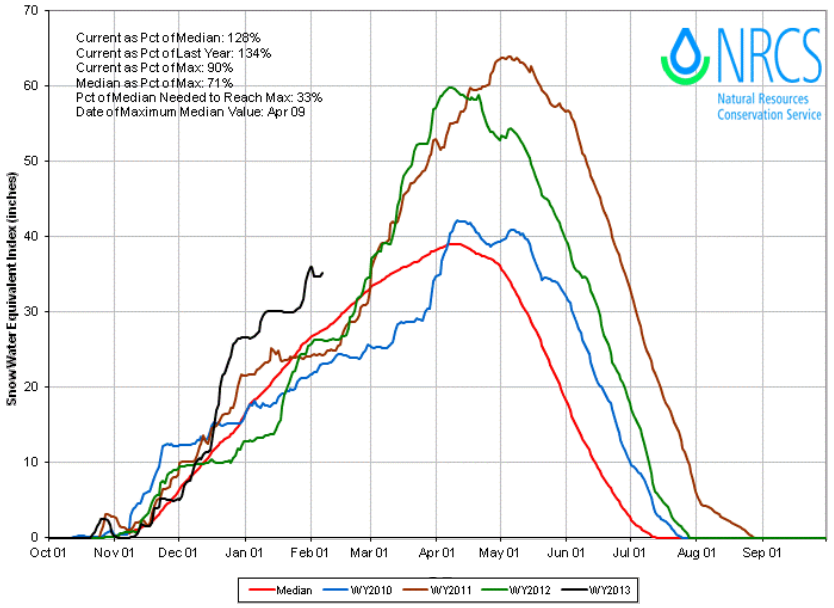
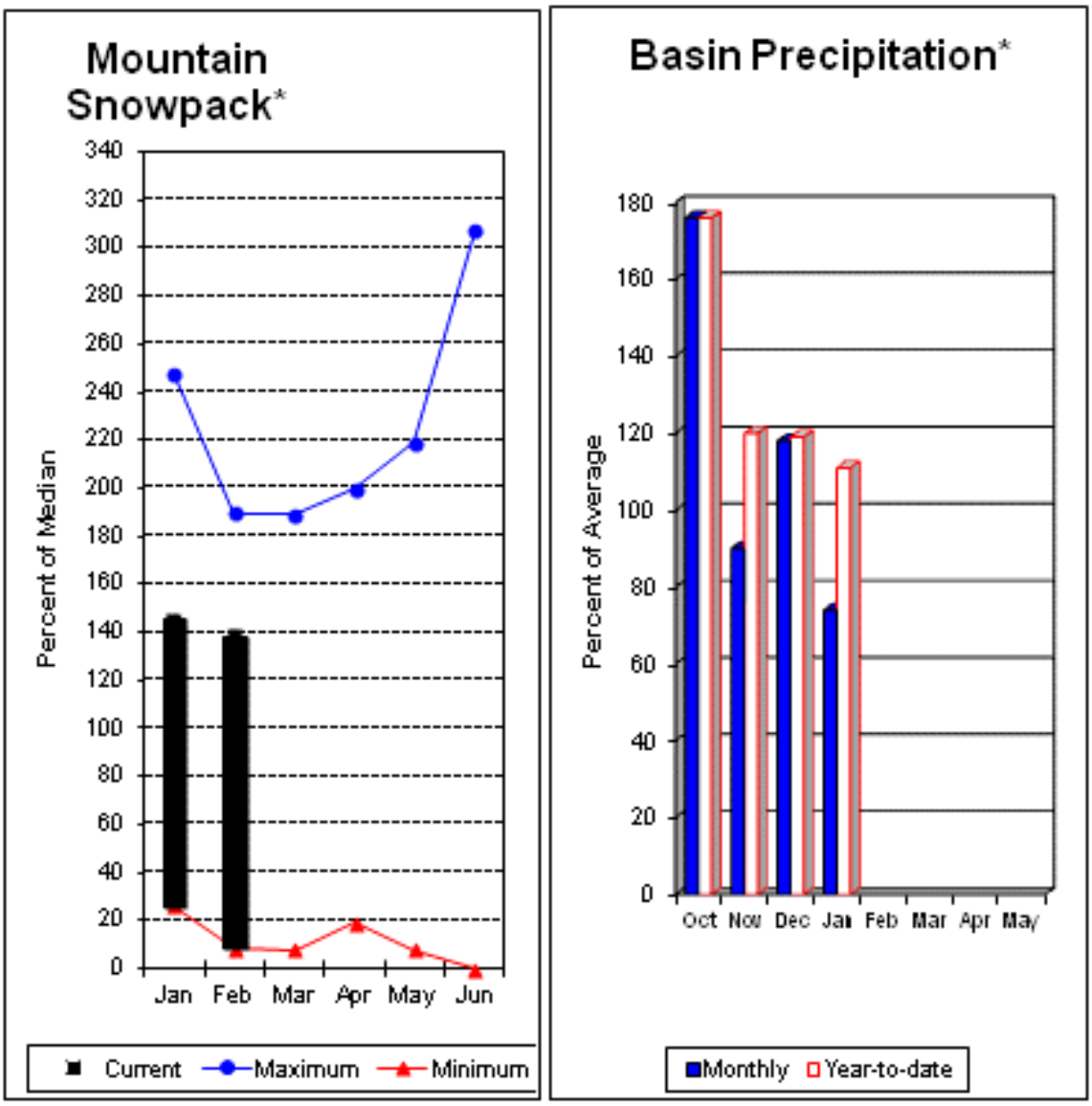
LEWIS, COWLITZ Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Feb 06, 2013



South Puget Sound River Basins



*Based on selected stations

Summer runoff is forecast to be 110% of normal for the Green River below Howard Hanson Dam and 112% for the White River near Buckley. February 1 snowpack was 116% of normal for the White River, 136% for Puyallup River and 161% in the Green River Basin. Water content on February 1 at Corral Pass SNOTEL, at an elevation of 6,000 feet, was 24.3 inches. This site has a February 1 median of 23 inches. January precipitation was 74% of average, bringing the water year-to-date to 111% of average for the basins. Average temperatures in the area were near 2-4 above normal for January and slightly below normal for the water-year.

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

Streamflow Forecasts - February 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
White R nr Buckley (1)	APR-JUL	370	445	480	112	515	590	430
	APR-SEP	445	535	575	112	615	705	515
Green R bl Howard Hanson Dam (1,2)	APR-JUL	164	230	260	111	290	355	235
	APR-SEP	188	255	285	110	315	380	260

SOUTH PUGET SOUND RIVER BASINS
Reservoir Storage (1000 AF) - End of January

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

SOUTH PUGET SOUND RIVER BASINS
Watershed Snowpack Analysis - February 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
WHITE RIVER	3	111	116
GREEN RIVER	2	108	161
PUYALLUP RIVER	5	119	136

* 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 1981-2010 base period.

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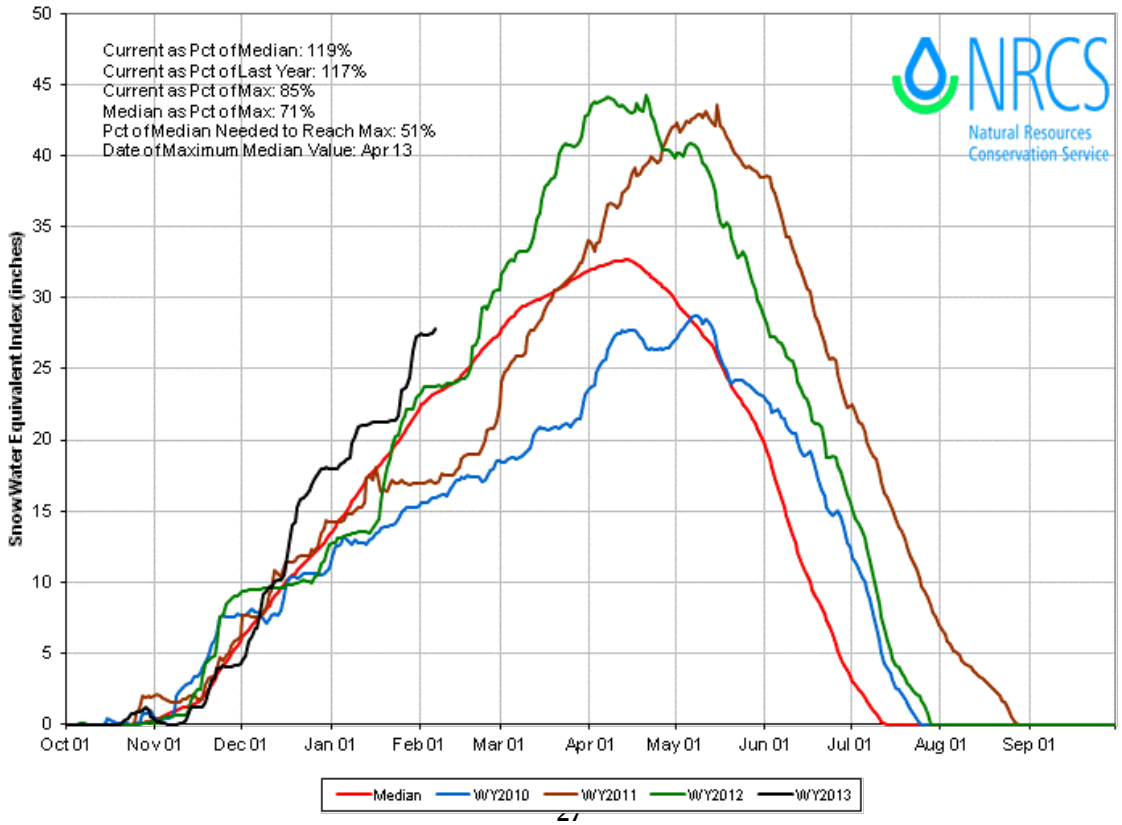
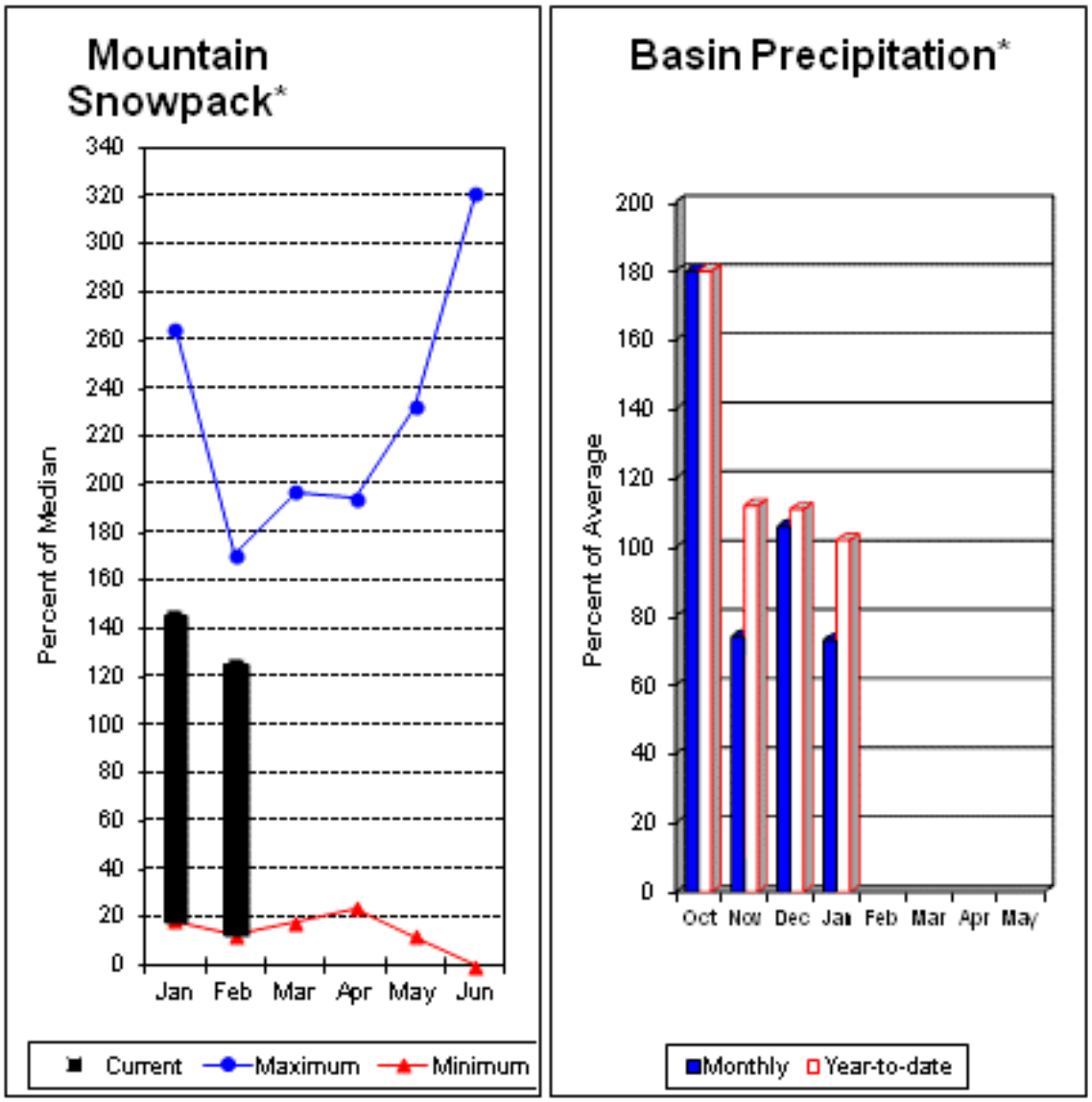
(2) - The value is natural volume - actual volume may be affected by upstream water management.

WHITE, GREEN, PUYALLUP Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Feb 06, 2013



Central Puget Sound River Basins



*Based on selected stations

Forecast for spring and summer flows are: 105% for Cedar River near Cedar Falls; 107% for Rex River; 130% for South Fork of the Tolt River; and 100% for Taylor Creek near Selleck. Basin-wide precipitation for January was 73% of average, bringing water-year-to-date to 102% of average. February 1 median snow cover in Cedar River Basin was 107%, Tolt River Basin was 146%, Snoqualmie River Basin was 133%, and Skykomish River Basin was 114%. Olallie Meadows SNOTEL site, at 3960 feet, had 37.2 inches of water content. February 1 median water content is 33 inches at Olallie Meadows. Temperatures were 2 degrees below normal for January and for the water-year.

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

Streamflow Forecasts - February 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Cedar R nr Cedar Falls	APR-JUL	55	66	73	104	80	91	70
	APR-SEP	61	72	80	105	88	99	76
Rex R nr Cedar Falls	APR-JUL	17.7	23	26	108	29	34	24
	APR-SEP	21	26	29	107	32	37	27
Taylor Creek Near Selleck	APR-JUL	14.8	17.9	20	100	22	25	20
	APR-SEP	18.4	22	24	100	26	30	24
SF Tolt R nr Index	APR-JUL	14.5	16.8	18.4	130	20	22	14.2
	APR-SEP	16.8	19.3	21	130	23	25	16.1

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

CENTRAL PUGET SOUND RIVER BASINS
Watershed Snowpack Analysis - February 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
CEDAR RIVER	4	92	107
TOLT RIVER	2	168	146
SNOQUALMIE RIVER	3	141	133
SKYKOMISH RIVER	2	148	114

* 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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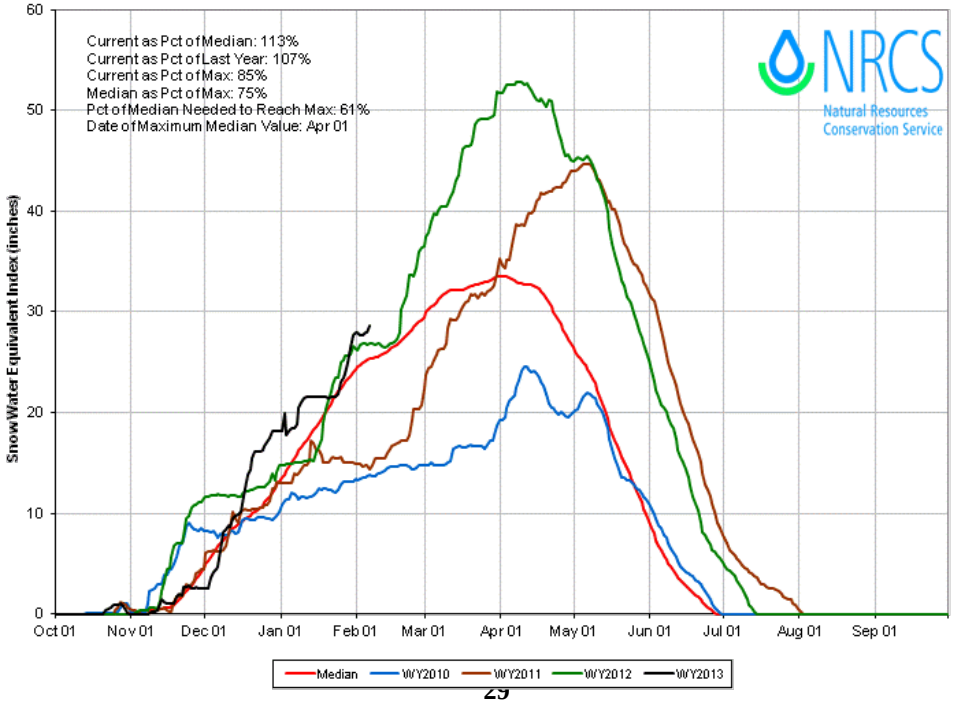
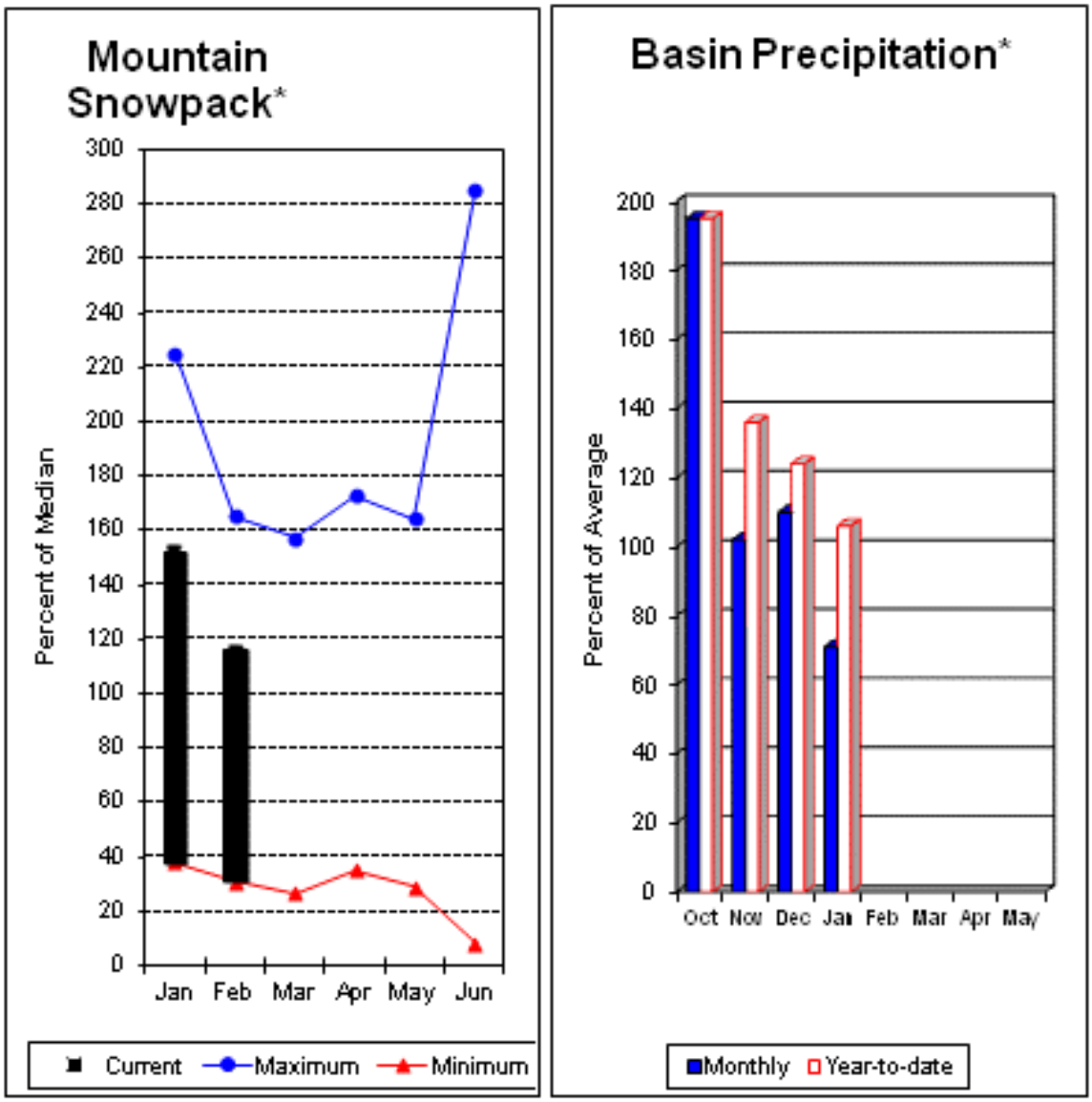
CEDAR, SNOQUALMIE, SKYKOMISH Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Feb 06, 2013



North Puget Sound River Basins



*Based on selected stations

Forecast for Skagit River streamflow at Newhalem is 103% of average for the spring and summer period. January streamflow in Skagit River was 65% of average. Other forecast points included Baker River at 104% and Thunder Creek at 99% of average. Basin-wide precipitation for January was 71% of average, bringing water-year-to-date to 106% of average. February 1 median snow cover in Skagit River Basin was 115% and Nooksack River Basin was 118% of normal. Baker River Basin data was not available at this time. The most snow measured in the basins and in the state was at Easy Pass SNOTEL with 69.8 inches of water content, almost 30% more than any other site in the area. February 1 Skagit River reservoir storage was 86% of average and 61% of capacity. Average temperatures for were 2 degrees below normal for January and for the water year.

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

Streamflow Forecasts - February 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Thunder Ck Nr Newhalem	APR-JUL	200	220	230	98	240	260	235
	APR-SEP	290	310	325	99	340	360	330
Skagit R At Newhalem	APR-JUL	1540	1680	1770	105	1860	2000	1680
	APR-SEP	1830	1990	2090	103	2190	2350	2030
Baker R nr Concrete (2)	APR-JUL	665	750	805	103	860	945	780
	APR-SEP	865	960	1020	104	1080	1170	980

NORTH PUGET SOUND RIVER BASINS
Reservoir Storage (1000 AF) - End of January

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
ROSS	1404.1	856.7	1003.9	996.3
DIABLO RESERVOIR	90.6	85.6	85.7	---

NORTH PUGET SOUND RIVER BASINS
Watershed Snowpack Analysis - February 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
SKAGIT RIVER	14	88	115
BAKER RIVER	0	112	0
NOOKSACK RIVER	2	106	118

* 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 1981-2010 base period.

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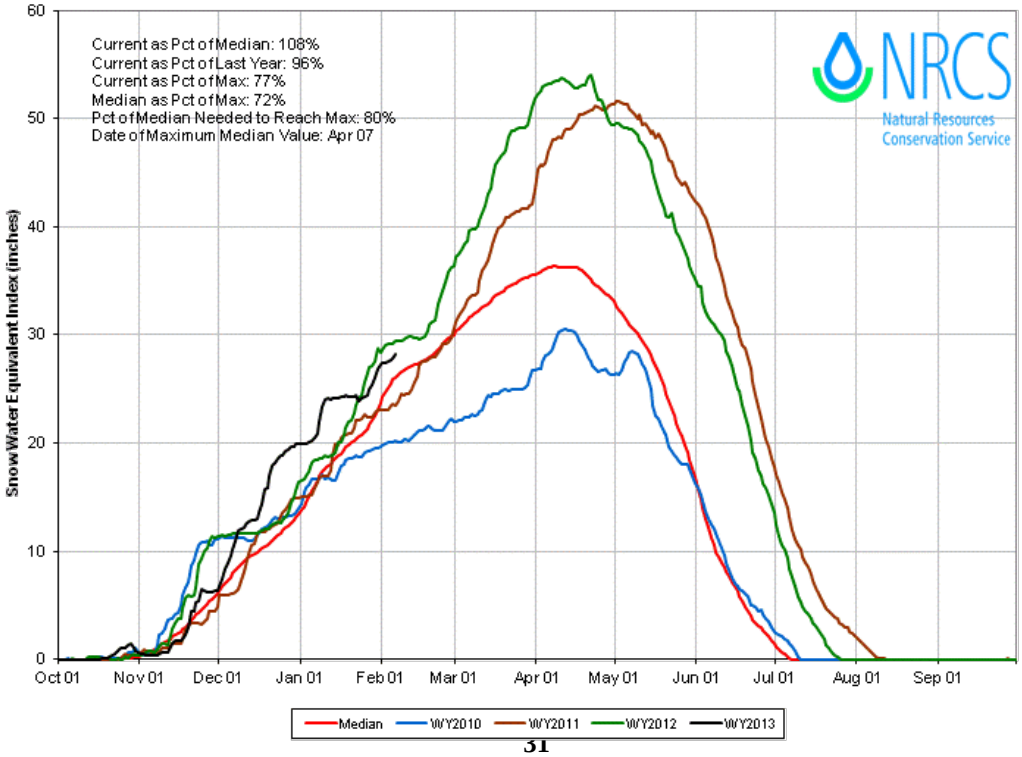
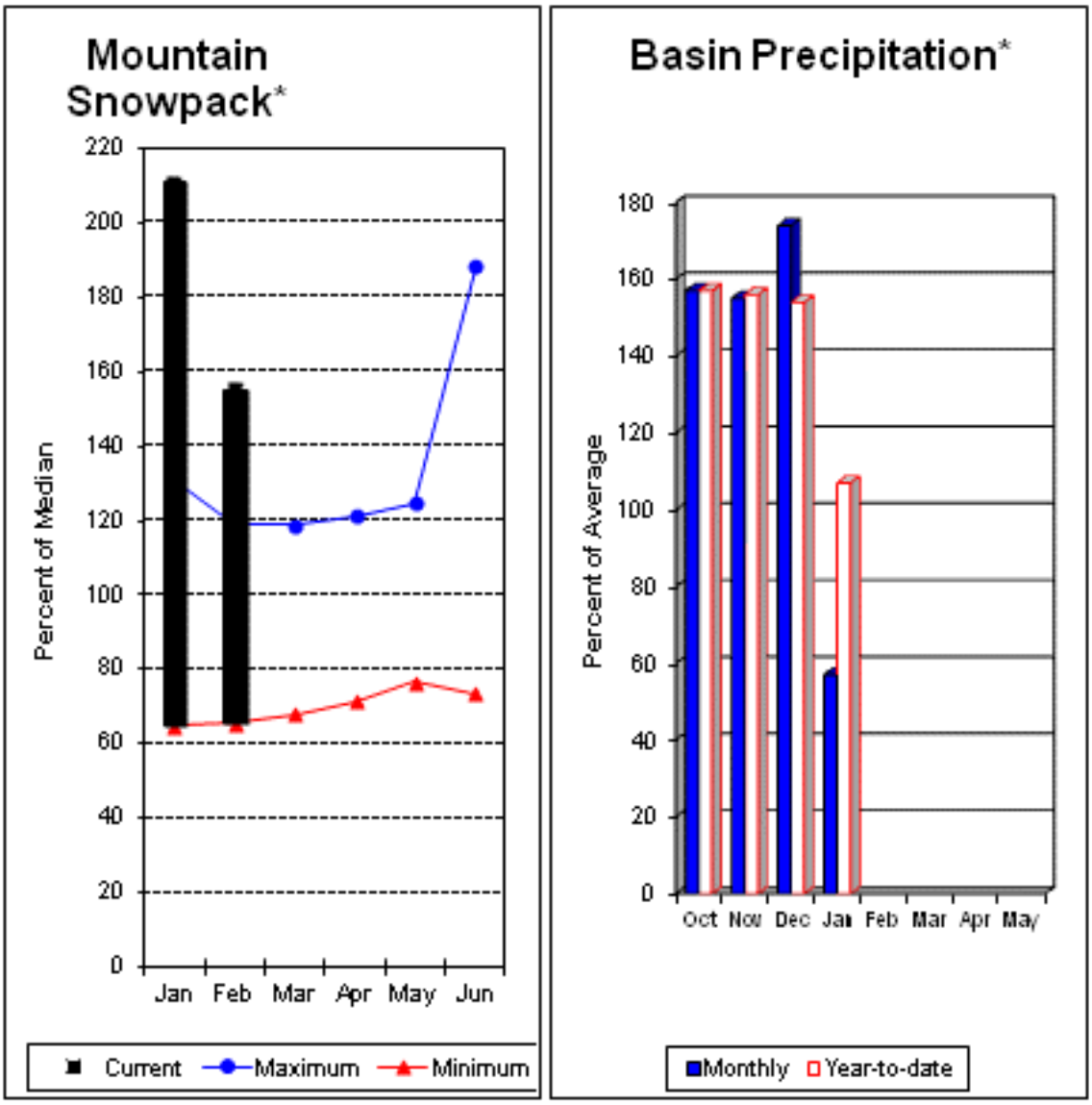
(2) - The value is natural volume - actual volume may be affected by upstream water management.

BAKER, SKAGIT, NOOKSACK Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Feb 06, 2013



Olympic Peninsula River Basins



*Based on selected stations

Forecasted average runoff for streamflow for the Dungeness River is 111% and Elwha River is 117%. January runoff in the Dungeness River was 60% of normal. Big Quilcene and Wynoochee rivers should expect above average runoff this summer as well. January precipitation was 57% of average. Precipitation has accumulated at 107% of average for the water year. January precipitation at Quillayute was 10.34 inches. The 1981-2010 average for January is 14.61 inches. Olympic Peninsula snowpack averaged a whopping 155% of normal on February 1, the highest in the state but still 55% lower than last month. Temperatures were 2 degrees below average for January and closer to normal for the water year.

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

Streamflow Forecasts - February 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Dungeness R Nr Sequim	APR-JUL	114	126	134	112	142	154	120
	APR-SEP	135	151	161	111	171	187	145
Elwha R At Mcdonald Bridge	APR-JUL	395	435	465	116	495	535	400
	APR-SEP	470	515	550	117	585	630	470

OLYMPIC PENINSULA RIVER BASINS
Reservoir Storage (1000 AF) - End of January

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

OLYMPIC PENINSULA RIVER BASINS
Watershed Snowpack Analysis - February 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
OLYMPIC PENINSULA	6	146	155

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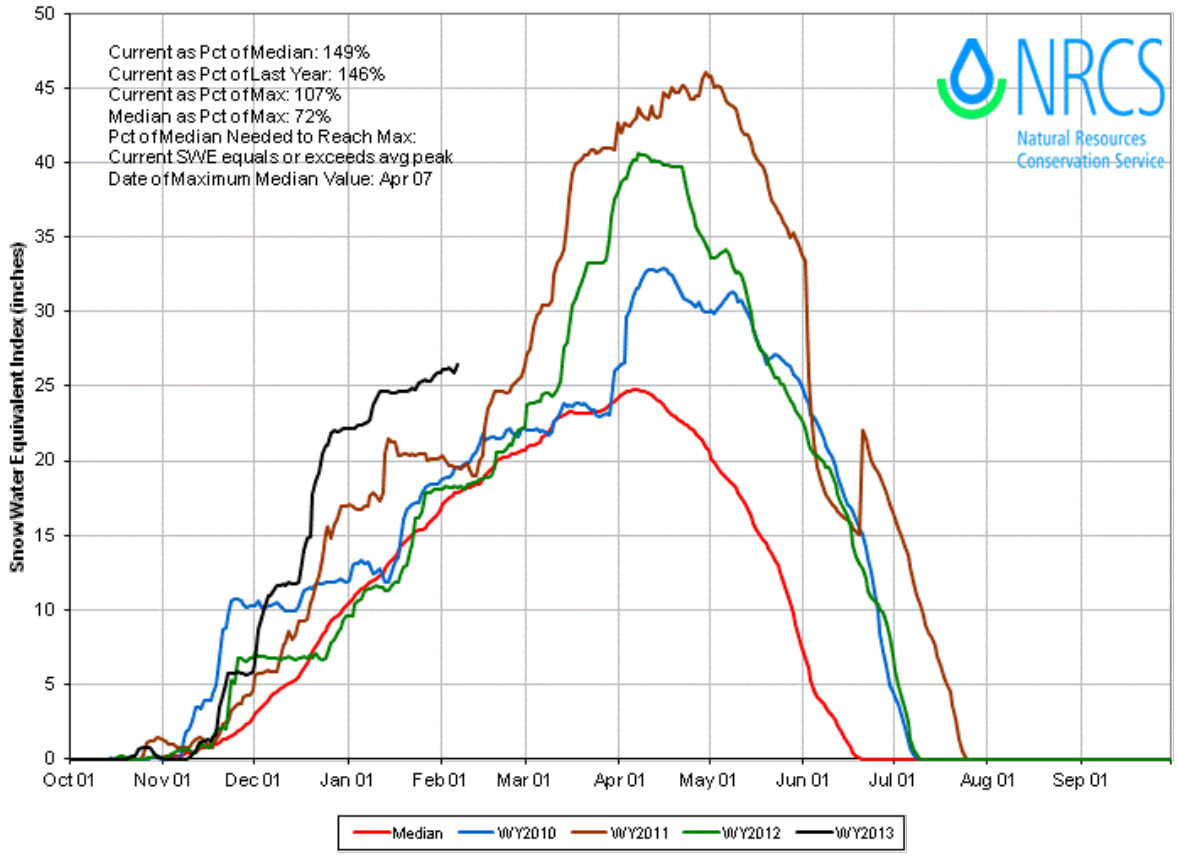
OLYMPIC Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Feb 06, 2013



Issued by

Jason Weller
Acting 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 Energy
	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.**

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

Washington Water Supply Outlook Report

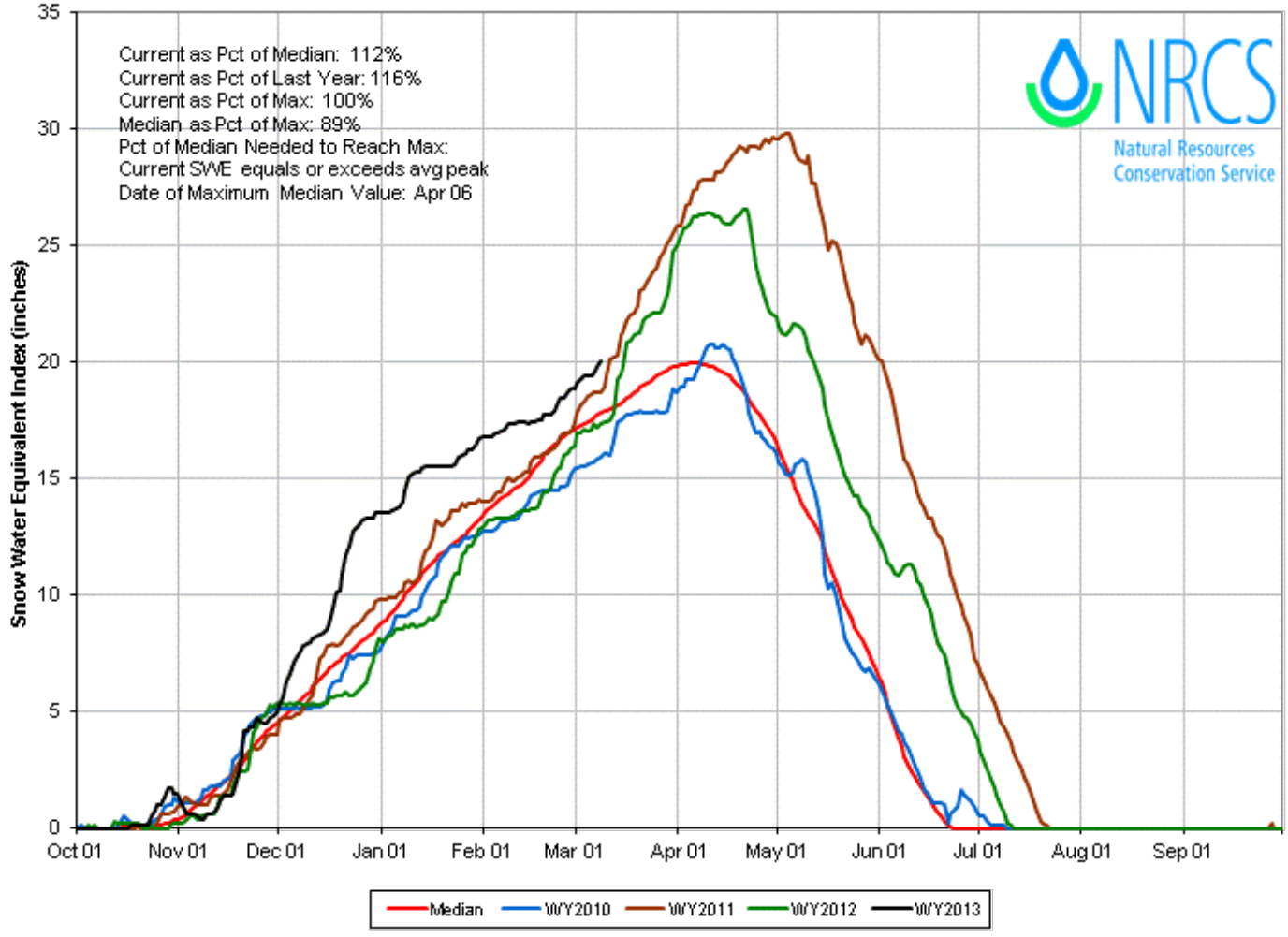
Natural Resources Conservation Service
Spokane, WA

United States Department of Agriculture

NRCS Natural Resources Conservation Service

Washington
Water Supply Outlook Report
March 1, 2013

COLUMBIA ABOVE METHOW Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Mar 08, 2013



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

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Natural Resources Conservation Service
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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.

Washington
Water Supply Outlook

March 2013

General Outlook

For the most part February proved to be a very dry month in Washington. Only a few stations received near or above average rainfall, mostly in the north and central Cascade Mountains and not until the very last days of the month. Last minute snow accumulation also helped rebound declining percentages however what snow did fall was not nearly what we normally receive in February. Average temperatures for the month varied from slightly below average on the west side to much above average on the east side. For the most part mountain temperatures remained near normal where the valleys were unseasonably warm. Weather forecasting continues to be a fickle matter this year with much uncertainty in long range predictions. However the Climate Prediction Center is suggesting that we will remain cooler than normal through the rapidly approaching spring with equal chances of above, below or near normal precipitation.

Snowpack

The March 1 statewide SNOTEL readings were 119%, basically the same as last month. Though we received more than a foot of snow in some locations during the last week of the month it only served to maintain the levels we started the month with. So far we have received about 85-90% of our annual total snowfall. The Lower Snake and Walla Walla basins reported the lowest readings at 86% of normal. Readings from the Central Puget Sound reported the highest at 144% of normal. Westside medians from SNOTEL, and March 1 snow surveys, included the North Puget Sound river basins with 116% of normal, the Olympics 143%, South Puget river basins with 124%, and the Lewis-Cowlitz basins with 128% of normal. Snowpack along the east slopes of the Cascade Mountains included the Yakima area with 94% and the Wenatchee area with 91%. Snowpack in the Spokane and Pend Oreille basin reported 87% and 91% of the long term median respectfully. Maximum snow cover in Washington was at Easy Pass SNOTEL, with water content of 85.6 inches or approximately 19 feet deep. Easy Pass is only a few years old so a normal has yet to be established.

BASIN	PERCENT OF LAST YEAR	PERCENT OF MEDIAN
Spokane	86	87
Newman Lake	113	97
Pend Oreille	84	91
Okanogan	115	112
Methow	99	112
Conconully Lake	190	123
Central Columbia	91	91
Upper Yakima	81	93
Lower Yakima	86	95
Ahtanum Creek	79	89
Walla Walla	91	86
Lower Snake	87	86
Cowlitz	102	129
Lewis	126	127
White	98	112
Green	96	123
Puyallup	109	136
Cedar	89	130
Snoqualmie	121	138
Skykomish	132	142
Skagit	83	105
Nooksack	104	128
Olympic Peninsula	126	143

Precipitation

During the month of February, the National Weather Service and Natural Resources Conservation Service climate stations reported below normal precipitation totals throughout Washington river basins with the exception of the northwest corner and the western Olympics. Though better than January water year averages continue to shrink. The highest percent of average in the state was at M.F. Nooksack SNOTEL which reported 151% of average for a total of 12.4 inches. The average for this site is 8.2 inches for February. The driest location was at Moxee, WA near Yakima which received no measurable precipitation for the month. The wettest spot in the state was reported at Alpine Meadows SNOTEL in the Tolt River Basin with a February accumulation of 16.4 inches or 122% of normal. So far March is starting out on better footing with near to above average precipitation most everywhere. The Yakima Valley, which was the driest area last month, earns high marks this month at over 200% of normal so far.

RIVER BASIN	FEBRUARY PERCENT OF AVERAGE	WATER YEAR PERCENT OF AVERAGE
Spokane	70	101
Pend Oreille	72	114
Upper Columbia	47	115
Central Columbia	60	99
Upper Yakima	89	95
Lower Yakima	65	100
Walla Walla	82	106
Lower Snake	72	101
Lower Columbia	74	112
South Puget Sound	86	106
Central Puget Sound	104	103
North Puget Sound	92	105
Olympic Peninsula	100	106

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 564,000-acre feet, 125% of average for the Upper Reaches and 151,000-acre feet or 110% of average for Rimrock and Bumping Lakes. Storage at the Okanogan reservoirs was 96% of average for March 1. The power generation reservoirs included the following: Coeur d'Alene Lake, 67,000 acre feet, 51% of average and 28% of capacity; Chelan Lake, 226,000-acre feet, 81% of average and 33% of capacity; and the Skagit River reservoirs at 78% of average and 46% of capacity. Recent climate impacts and management procedures may affect these numbers on a daily or weekly basis.

BASIN	PERCENT OF CAPACITY	CURRENT STORAGE AS PERCENT OF AVERAGE
Spokane	28	51
Pend Oreille	58	115
Upper Columbia	81	96
Central Columbia	33	81
Upper Yakima	68	125
Lower Yakima	65	110
Lower Snake	74	109
North Puget Sound	46	78

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

Streamflow

Forecasts vary from 81% of average for the Spokane near Post Falls to 130% of average for S.F. Tolt River near Index. April-September forecasts for some Western Washington streams include the Cedar River near Cedar Falls, 109%; White River, 109%; and Skagit River, 98%. Some Eastern Washington streams include the Yakima River near Parker, 90%: Wenatchee River at Plain, 89%; and Kettle near Laurier, 123%. Volumetric forecasts are developed using current, historic and average snowpack, precipitation and streamflow data collected and coordinated by organizations cooperating with NRCS.

With another dry month runoff was for the most part much below average. The Okanogan River had the highest reported flows with 110% of average. The Wenatchee at Peshastin with 59% of average had the least non-regulated runoff. Other streamflows were the following percentage of average as reported by the River Forecast Center: the Cowlitz at Castle Rock, 73%; the Columbia below Rock Island Dam, 94%; and the Priest River, 79%.

BASIN	PERCENT OF AVERAGE (50 PERCENT CHANCE OF EXCEEDENCE)
Spokane	81-100
Pend Oreille	98-100
Upper Columbia	84-123
Central Columbia	80-96
Upper Yakima	86-93
Lower Yakima	88-110
Walla Walla	96
Lower Snake	74-103
Lower Columbia	91-113
South Puget Sound	106-109
Central Puget Sound	104-130
North Puget Sound	98-104
Olympic Peninsula	108-112

STREAM	PERCENT OF AVERAGE FEBRUARY STREAMFLOWS
Pend Oreille Below Box Canyon	77
Kettle at Laurier	65
Columbia at Birchbank	95
Spokane at Long Lake	65
Similkameen at Nighthawk	74
Okanogan at Tonasket	110
Methow at Pateros	105
Chelan at Chelan	66
Wenatchee at Pashastin	59
Cle Elum near Roslyn	49
Yakima at Parker	54
Naches at Naches	46
Grande Ronde at Troy	61
Snake below Lower Granite Dam	68
SF Walla Walla near Milton-Freewater, OR	82
Columbia River at The Dalles	78
Cowlitz below Mayfield Dam	71
Skagit at Concrete	64
Dungeness near Sequim	83

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. Warm temperatures and rain-on-snow events of February pushed most soils moisture levels up a few percentage points. With a solid snowpack over most of the mountainous regions of the state these numbers should hold and will help provide maximum runoff come spring.

BASIN	ESTIMATED PERCENT SATURATION
Spokane	70
Pend Oreille	59
Upper Columbia	56
Central Columbia	56
Upper Yakima	66
Lower Yakima	76
Walla Walla	73
Lower Snake	73
Lower Columbia	77
South Puget Sound	77
Central Puget Sound	N/A
North Puget Sound	76
Olympic Peninsula	45

Western Snow Conference

The Western Snow Conference is an annual tradition which started in 1932 as an international forum for individuals and organizations to share scientific, management and socio-political information on snow and runoff. The principal aim of the Western Snow Conference is to advance snow and hydrological sciences. The North Continental Area Committee is making plans for the 81st Annual Western Snow Conference in 2013.

Mark your calendar and start thinking about submitting a paper to attend the 2013 Western Snow Conference:

Dates: April 15-18, 2013
Location: Snow King Resort Jackson Hole, Wyoming http://www.snowking.com
Theme: "Wild Weather in the Wild West"

A short course and panel discussion is being planned for Monday April 15th titled "**New Strategies and Techniques in Long Range Streamflow Forecasting".** Many agencies use long range streamflow forecasts for hydropower planning, reservoir operation and marketing. This will provide a forum to discuss the current state of forecasting, the advancement of long range forecasting, additional needs of agencies, and more.

A Technical Tour is scheduled for Thursday, April 18th to discover how the local environment plays a critical role in the snowpack of the area. This will be an all day bus trip and a great opportunity to view the majestic landscape that so many have been studying and talking about.

Additional information about the conference and the Call for Papers will be posted on the WSC web page at http://www.westernsnowconference.org/

Also find Western Snow Conference on Facebook and Twitter.

B A S I N S U M M A R Y O F
S N O W C O U R S E D A T A

MARCH 2012

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
ABERDEEN LAKE CAN.	4000	2/25/13	30	9.4	5.7	5.7
AHTANUM R.S.	3100	2/26/13	8	3.2	3.8	6.5
ALPINE MEADOWS	3500	2/26/13	138	51.0	32.9	31.5
ALPINE MEADOWS SNTL	3500	3/01/13	139	67.1	42.9	40.3
AMBROSE	6480	2/26/13	37	9.6	10.6	9.2
ASHLEY DIVIDE	4820	2/26/13	15	2.4	5.0	5.3
BADGER PASS SNOTEL	6900	3/01/13	84	26.3	29.9	23.7
BAIRD #2	3220	2/25/13	25	5.2	6.4	7.9
BAREE MIDWAY	4600	2/25/13	66	20.7	21.2	23.6
BAREE TRAIL	3800	2/25/13	25	6.8	9.9	7.8
BARKER LAKES SNOTEL	8250	3/01/13	38	10.3	9.2	10.3
BASIN CREEK SNOTEL	7180	3/01/13	24	5.0	4.4	5.5
BEAVER CREEK TRAIL	2200	3/03/13	37	12.9	17.0	11.2
BEAVER PASS	3680	3/03/13	85	32.0	28.6	22.6
BEAVER PASS SNOTEL	3630	3/01/13	108	39.6	41.6	27.8
BIG WHITE MTN CAN.	5510	3/01/13	58	17.0	--	16.8
BLACK MOUNTAIN	7750	2/28/13	39	9.1	10.7	11.0
BLACK PINE SNOTEL	7100	3/01/13	30	7.2	10.6	8.2
BLEWETT PASS#2SNOTEL	4240	3/01/13	35	12.2	16.3	14.7
BONAUPART SOUTH	4660	3/01/13	24	5.7	4.6	--
BRENDA MINE CAN.	4450	2/25/13	32	7.9	8.9	11.3
BROOKMERE CAN.	3000	2/28/13	22	6.8	7.5	7.6
BROWN TOP AM	6000	3/04/13	133	42.1	55.6	48.8
BROWNS PASS		2/27/13	19	4.9	2.4	--
BRUSH CREEK TIMBER	5000	2/27/13	32	10.0	13.3	6.3
BUCKINGHORSE SNOTEL	4870	3/01/13	146	59.4	55.1	--
BULL MOUNTAIN	6600	2/25/13	22	5.4	5.0	4.8
BUMPING LAKE (NEW)	3400	2/28/13	52	14.1	16.2	14.9
BUMPING RIDGE SNOTEL	4610	3/01/13	74	21.6	28.0	22.7
BUNCHGRASS MDWSNOTEL	5000	3/01/13	68	20.1	21.8	22.5
BURNT MOUNTAIN PIL	4170	3/01/13	60	21.6	19.6	15.1
BUTTERMILK BUTTE	5250	2/25/13	39	12.6	11.7	--
CALAMITY SNOTEL	2500	3/01/13	14	4.5	3.3	--
CARMI CAN.	4100	3/03/13	19	5.2	--	5.8
CAYUSE PASS SNOTEL	5240	3/01/13	153	53.6	52.8	--
CHAMOKANE 2	3520	2/28/13	25	7.8	8.0	--
CHESSMAN RESERVOIR	6200	2/28/13	19	4.9	4.4	2.8
CHEWALAH #2	4930	2/26/13	50	15.5	15.8	15.3
CHICKEN CREEK	4060	2/27/13	46	11.8	15.4	12.8
CHIWAUKUM G.S.	2500	2/27/13	19	5.0	10.0	9.0
CITY CABIN	2390	2/26/13	42	13.4	13.7	8.8
CLOUDY PASS AM	6500	3/04/13	92	34.0	36.7	33.5
COLD CREEK STRIP	6020	2/27/13	36	10.5	6.7	7.5
COLOCKUM PASS	5370	3/01/13	37	12.6	11.4	13.6
COMBINATION SNOTEL	5600	3/01/13	15	3.7	5.0	4.1
COPPER BOTTOM SNOTEL	5200	3/01/13	14	3.4	7.7	--
COPPER MOUNTAIN	7700	2/23/13	32	7.8	7.0	8.0
CORRAL PASS SNOTEL	5800	3/01/13	81	28.4	32.0	28.7
COTTONWOOD CREEK	6400	2/28/13	23	5.7	5.5	5.2
COUGAR MTN. SNOTEL	3200	3/01/13	56	23.0	17.3	15.2
COX VALLEY	4500	2/27/13	104	33.0	29.1	30.7
DALY CREEK SNOTEL	5780	3/01/13	32	8.2	9.9	8.4
DEER PARK	5200	2/26/13	59	22.7	18.7	11.7
DESERT MOUNTAIN	5600	3/05/13	41	12.0	12.2	10.8
DEVILS PARK	5900	2/28/13	91	31.1	43.9	35.2
DISAUTEL PASS		2/27/13	24	6.8	3.1	--
DISCOVERY BASIN	7050	3/01/13	26	6.8	8.3	7.4
DIX HILL	6400	2/24/13	25	6.6	11.6	8.2
DOMMERIE FLATS	2200	2/28/13	10	2.9	8.4	6.8
DUNCAN RIDGE	5370	2/27/13	27	7.0	4.3	5.4
DUNGENESS SNOTEL	4010	3/01/13	35	12.6	7.6	5.9
EL DORADO MINE	7800	2/23/13	28	7.2	10.2	12.9
ELBOW LAKE SNOTEL	3200	3/01/13	123	44.5	38.7	32.4
EMERY CREEK SNOTEL	4350	3/01/13	---	12.1	10.9	12.5
ENDERBY CAN.	5800	2/28/13	112	40.9	--	33.8
ESPERON CK. UP CAN.	5050	2/25/13	44	14.0	11.2	14.6
FATTY CREEK	5500	3/02/13	55	16.3	19.0	17.4
FISH CREEK	8000	2/28/13	31	10.6	7.0	7.0
FISH LAKE	3370	2/27/13	73	24.2	33.0	27.6
FISH LAKE SNOTEL	3430	3/01/13	75	24.3	31.4	26.7
FLATTOP MTN SNOTEL	6300	3/01/13	125	39.1	37.0	33.8
FLEECER RIDGE	7500	2/25/13	31	7.7	8.0	7.7
FOURTH OF JULY SUM	3200	2/28/13	32	9.0	10.8	8.5
FREEZEOUT CK. TRAIL	3500	3/04/13	31	9.7	16.1	10.4
FROHNER MDWS SNOTEL	6480	3/01/13	23	5.8	8.6	5.9
FROST MEADOWS	4630	3/01/13	47	15.8	--	15.6
GOAT CREEK	3600	2/25/13	24	5.5	5.3	5.9
GOLD MTN LOOKOUT		2/26/13	42	14.7	9.5	--
GRAVE CRK SNOTEL	4300	3/01/13	44	12.0	15.0	13.5
GREEN LAKE SNOTEL	5920	3/01/13	63	21.2	25.7	18.2
GROUSE CAMP SNOTEL	5390	3/01/13	43	16.1	18.4	17.4
HAMILTON HILL CAN.	4550	2/26/13	29	8.4	12.8	12.7
HAND CREEK SNOTEL	5030	3/01/13	29	7.0	9.2	9.5
HARTS PASS SNOTEL	6490	3/01/13	---	38.1	39.4	33.7
HARTS PASS	6500	3/02/13	92	36.2	39.0	32.6
HELL ROARING DIVIDE	5770	2/26/13	75	20.6	21.8	23.9
HERRIG JUNCTION	4850	2/27/13	60	15.7	21.2	21.2
HIGH RIDGE SNOTEL	4920	3/01/13	64	18.0	20.5	21.4
HOLBROOK	4530	3/01/13	21	5.2	--	7.6
HOODOO BASIN SNOTEL	6050	3/01/13	104	29.9	36.2	32.3
HUCKLEBERRY SNOTEL	2250	3/01/13	12	5.3	4.0	1.5
HUMBOLDT GLCH SNOTEL	4250	3/01/13	38	9.1	14.5	9.8
HURRICANE	4500	2/28/13	65	22.6	13.6	12.0
INDIAN ROCK SNOTEL	5360	3/01/13	63	26.1	26.8	--
IRENE'S CAMP	5530	2/27/13	34	8.4	7.8	7.9
JUNE LAKE SNOTEL	3440	3/01/13	118	50.9	35.5	36.3
KELLER RIDGE	3700	2/27/13	21	4.7	3.3	--
KELLOGG PEAK	5560	2/28/13	53	17.6	17.2	23.2
KISHENEHN	3890	2/27/13	26	6.5	6.7	7.2
KRAFT CREEK SNOTEL	4750	3/01/13	35	9.3	14.4	--
LAMB BUTTE		3/01/13	43	14.8	15.0	--
LIGHTNING LAKE CAN.	3700	2/26/13	38	9.7	14.0	10.3
LOGAN CREEK	4300	2/27/13	19	4.4	5.0	5.5
LOLO PASS SNOTEL	5240	3/01/13	66	18.5	26.1	22.9
LONE PINE SNOTEL	3930	3/01/13	114	47.9	30.9	28.1
LOOKOUT SNOTEL	5140	3/01/13	67	19.1	24.0	24.5
LOST HORSE MTN CAN.	6300	2/27/13	32	8.7	7.4	8.0
LOST HORSE SNOTEL	5120	3/01/13	45	13.3	18.3	17.5
LOST LAKE SNOTEL	6110	3/01/13	99	32.6	42.2	43.7
LOST LAKE	4070	3/01/13	26	6.7	5.4	--
LOUP LOUP CAMPGROUND		2/26/13	33	9.7	5.2	--
LUBRECHT FOREST NO 3	5450	2/27/13	14	2.9	5.4	4.4
LUBRECHT FOREST NO 4	4650	2/27/13	7	1.5	3.4	2.1
LUBRECHT FOREST NO 6	4040	2/28/13	13	2.8	5.8	2.7
LUBRECHT HYDROPLOT	4200	2/27/13	12	2.5	6.2	4.1
LUBRECHT SNOTEL	4680	3/01/13	12	3.3	7.7	4.7
LYMAN LAKE SNOTEL	5980	3/01/13	136	47.5	50.6	48.6
LYNN LAKE	4000	3/01/13	81	31.9	25.2	17.0
LYNN LAKE SNOTEL	3900	3/01/13	81	31.9	25.2	--
MARIAS PASS	5250	2/27/13	44	12.7	15.0	13.1
MARTEN RIDGE SNOTEL	3520	3/01/13	153	66.9	59.7	--
MAZAMA		2/26/13	22	6.1	9.6	--
MCCULLOCH CAN.	4200	2/28/13	29	7.1	--	6.2
MEADOWS CABIN	1900	3/03/13	18	5.9	5.7	3.4
MEADOWS PASS SNOTEL	3230	3/01/13	79	30.0	36.0	21.6
METEOR		2/25/13	20	4.9	3.5	--
M F NOOKSACK SNOTEL	4970	3/01/13	140	56.4	61.2	45.3
MICA CREEK SNOTEL	4510	3/01/13	58	17.4	20.4	19.8
MINERAL CREEK	4000	2/26/13	43	13.2	14.6	13.9
MISSEZULA MTN CAN.	5080	2/27/13	24	5.6	8.3	8.4
MISSION RIDGE	5000	2/27/13	40	14.4	12.0	14.7
MOSES MOUNTAIN (2)	4800	2/28/13	51	18.3	9.1	11.6
MOSES MTN SNOTEL	5010	3/01/13	50	18.2	9.4	13.0
MOSES PEAK	6650	2/28/13	70	27.3	14.8	17.6
MOSQUITO RDG SNOTEL	5200	3/01/13	80	26.3	32.3	29.8
MOULTON RESERVOIR	6850	2/28/13	25	6.6	5.9	6.0
MOUNT CRAG SNOTEL	3960	3/01/13	98	33.5	28.2	26.1
MT. KOBAU CAN.	5500	2/25/13	48	17.7	6.5	10.2
MOUNT TOLMAN	2000	2/26/13	9	2.0	1.9	2.4
MOWICH SNOTEL	3160	3/01/13	19	7.4	2.0	.7
MOUNT GARDNER	3300	2/26/13	52	16.8	--	12.9
MOUNT GARDNER SNOTEL	2920	3/01/13	51	18.2	17.6	14.5
MUTTON CREEK #1	5700	2/25/13	48	16.3	6.4	12.0
N.F. ELK CR SNOTEL	6250	3/01/13	28	7.0	11.1	8.9
NEVADA RIDGE SNOTEL	7020	3/01/13	38	9.7	16.0	10.9
NEW HOZOMEEN LAKE	2800	3/04/13	14	4.5	7.2	8.0
NEZ PERCE CMP SNOTEL	5650	3/01/13	40	10.0	12.1	10.8
NOISY BASIN SNOTEL	6040	3/01/13	103	34.0	30.2	31.5
OLALLIE MDWS SNOTEL	4030	3/01/13	126	51.1	55.2	42.4
OPHIR PARK	7150	2/24/13	32	8.4	13.7	11.2
OYAMA LAKE CAN.	4100	3/01/13	22	4.4	4.6	6.2
PARADISE SNOTEL	5130	3/01/13	156	70.6	64.5	55.5
PARK CK RIDGE SNOTEL	4600	3/01/13	110	41.1	45.5	38.7
PEPPER CREEK SNOTEL	2140	3/01/13	29	11.4	7.5	--
PETERSON MDW SNOTEL	7200	3/01/13	30	7.1	7.2	7.1
PETTIJOHN CREEK	4300	3/01/13	23	6.0	5.3	--
PIGTAIL PEAK SNOTEL	5800	3/01/13	114	40.9	58.6	41.9
PIKE CREEK SNOTEL	5930	3/01/13	31	7.5	11.3	19.6
PIPESTONE PASS	7200	2/23/13	20	3.6	2.9	3.2
POPE RIDGE SNOTEL	3590	3/01/13	50	14.3	18.5	16.2
POSTILL LAKE CAN.	4200	2/28/13	27	6.7	7.3	7.3
POTATO HILL SNOTEL	4510	3/01/13	87	27.3	28.1	20.8
QUARTZ PEAK SNOTEL	4700	3/01/13	58	17.6	21.0	19.5
RAGGED MTN SNOTEL	4210	3/01/13	57	19.1	22.4	21.4
RAGGED RIDGE	3330	2/27/13	29	7.8	4.2	7.9
RAINY PASS SNOTEL	4890	3/01/13	84	30.1	38.7	31.7
RAINY PASS	4780	3/02/13	81	28.5	38.2	--
REX RIVER SNOTEL	3810	3/01/13	91	38.6	42.1	28.3
ROCKER PEAK SNOTEL	8000	3/01/13	37	8.8	11.8	10.1
ROLAND SUMMIT	5120	3/01/13	82	26.7	31.4	27.0
ROUND TOP MTN	4020	2/27/13	44	12.3	10.2	--
RUSTY CREEK	4000	2/25/13	23	6.3	3.7	6.0
SADDLE MTN SNOTEL	7900	3/01/13	56	16.7	21.0	19.0
SALMON MDWS SNOTEL	4460	3/01/13	34	10.2	7.2	8.7

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
SASSE RIDGE SNOTEL	4340	3/01/13	82	26.1	33.5	27.3
SATUS PASS	4030	2/25/13	29	8.6	8.0	8.9
SAVAGE PASS SNOTEL	6170	3/01/13	---	18.6	23.9	20.5
SAWMILL RIDGE SNOTEL	4640	3/01/13	87	33.0	44.1	--
SENTINEL BT SNOTEL	4680	3/01/13	35	8.7	6.5	8.1
SHEEP CANYON SNOTEL	3990	3/01/13	119	45.1	32.3	29.4
SHERWIN SNOTEL	3200	3/01/13	---	7.9	11.3	9.1
SILVER STAR MTN CAN.	5600	3/01/13	79	29.7	23.2	25.0
SKALKAHO SNOTEL	7260	3/01/13	52	15.1	20.0	17.5
SKITWISH RIDGE	5110	3/01/13	76	25.8	27.8	25.0
SKOOKUM CREEK SNOTEL	3310	3/01/13	107	49.7	38.1	29.4
SKOOKUM LAKES	4230	2/28/13	38	11.5	12.8	--
SLIDE ROCK MOUNTAIN	7100	2/24/13	36	11.2	14.2	10.1
SOURDOUGH GUL SNOTEL	4000	3/01/13	5	2.5	.8	.2
SOUTH BALDY	4920	2/28/13	56	17.3	16.6	--
SPENCER MDW SNOTEL	3400	3/01/13	80	30.7	24.4	28.4
SPIRIT LAKE SNOTEL	3520	3/01/13	28	19.3	7.6	5.2
SPOTTED BEAR MTN.	7000	2/28/13	30	7.8	12.2	10.7
SPRUCE SPGS SNOTEL	5700	3/01/13	35	8.7	13.4	14.7
STARVATION MOUNTAIN	6750	2/28/13	53	18.0	15.5	14.3
STAHL PEAK SNOTEL	6030	3/01/13	86	25.2	27.6	27.5
STAMPEDE PASS SNOTEL	3850	3/01/13	91	28.5	34.8	35.4
STEMPLE PASS	6600	2/27/13	28	6.4	10.3	7.0
STEVENS PASS SNOTEL	3950	3/01/13	112	32.5	38.1	34.1
STORM LAKE	7780	3/01/13	35	9.4	10.3	9.5
STRYKER BASIN	6180	2/27/13	79	24.6	25.4	25.0
SUMMIT G.S. #2	4600	2/25/13	36	8.9	6.7	8.1
SUNSET SNOTEL	5540	3/01/13	54	15.0	19.5	19.1
SURPRISE LAKS SNOTEL	4290	3/01/13	112	44.4	41.4	39.7
SWAMP CREEK SNOTEL	3930	3/01/13	51	16.0	23.8	15.6
SWIFT CREEK SNOTEL	4440	3/01/13	158	66.2	47.9	48.0
TEN MILE LOWER	6600	2/25/13	28	6.8	7.8	5.4
TEN MILE MIDDLE	6800	2/25/13	31	7.2	9.1	7.5
THUNDER BASIN SNOTEL	4320	3/01/13	80	27.1	29.2	26.7
THOMPSON CREEK	2500	2/27/13	23	5.2	2.6	4.2
THOMPSON RIDGE	4650	2/25/13	35	10.9	11.2	--
TINKHAM CREEK SNOTEL	2990	3/01/13	74	25.9	32.4	23.8
TOATS COULEE	2850	2/27/13	17	4.0	2.0	3.1
TOGO	3370	2/27/13	27	7.6	7.8	7.8
TOUCHET SNOTEL	5530	3/01/13	65	23.4	25.0	26.5
TRINKUS LAKE	6100	3/02/13	97	33.6	34.0	32.4
TROUGH #2 SNOTEL	5480	3/01/13	28	7.9	9.1	8.6
TROUT CREEK CAN.	5650	2/25/13	27	7.8	9.0	6.7
TRUMAN CREEK	4060	2/27/13	13	2.9	5.2	4.0
TUNNEL AVENUE	2450	2/28/13	---	12.5	18.1	15.8
TWELVEMILE SNOTEL	5600	3/01/13	43	8.7	18.9	13.8
TWIN LAKES SNOTEL	6400	3/01/13	84	25.7	36.5	30.2
TWIN SPIRIT DIVIDE	3480	2/27/13	32	9.6	7.8	11.9
UPPER HOLLAND LAKE	6200	3/02/13	71	24.1	22.6	26.0
UPPER WHEELER SNOTEL	4330	3/01/13	25	7.3	8.2	11.1
VULCAN MTN	4660	2/25/13	40	10.9	8.1	--
VULCAN ROAD	3840	2/25/13	29	7.1	6.4	--
WARM SPRINGS SNOTEL	7800	3/01/13	46	13.0	17.7	14.8
WATERHOLE SNOTEL	5010	3/01/13	103	43.2	35.3	30.8
WEASEL DIVIDE	5450	2/28/13	78	21.7	27.9	26.2
WELLS CREEK SNOTEL	4030	3/01/13	103	33.6	29.2	27.1
WHITE PASS ES SNOTEL	4440	3/01/13	64	19.3	26.0	19.5
WHITE ROCKS MTN CAN.	7200	2/25/13	58	19.3	16.8	19.6

Natural Resources Conservation Service

Washington State
Snow, Water and Climate Services

Program Contacts

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Helpful Internet Addresses

NRCS Snow Survey and Climate Services Homepages

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

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

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

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

USDA-NRCS Agency Homepages

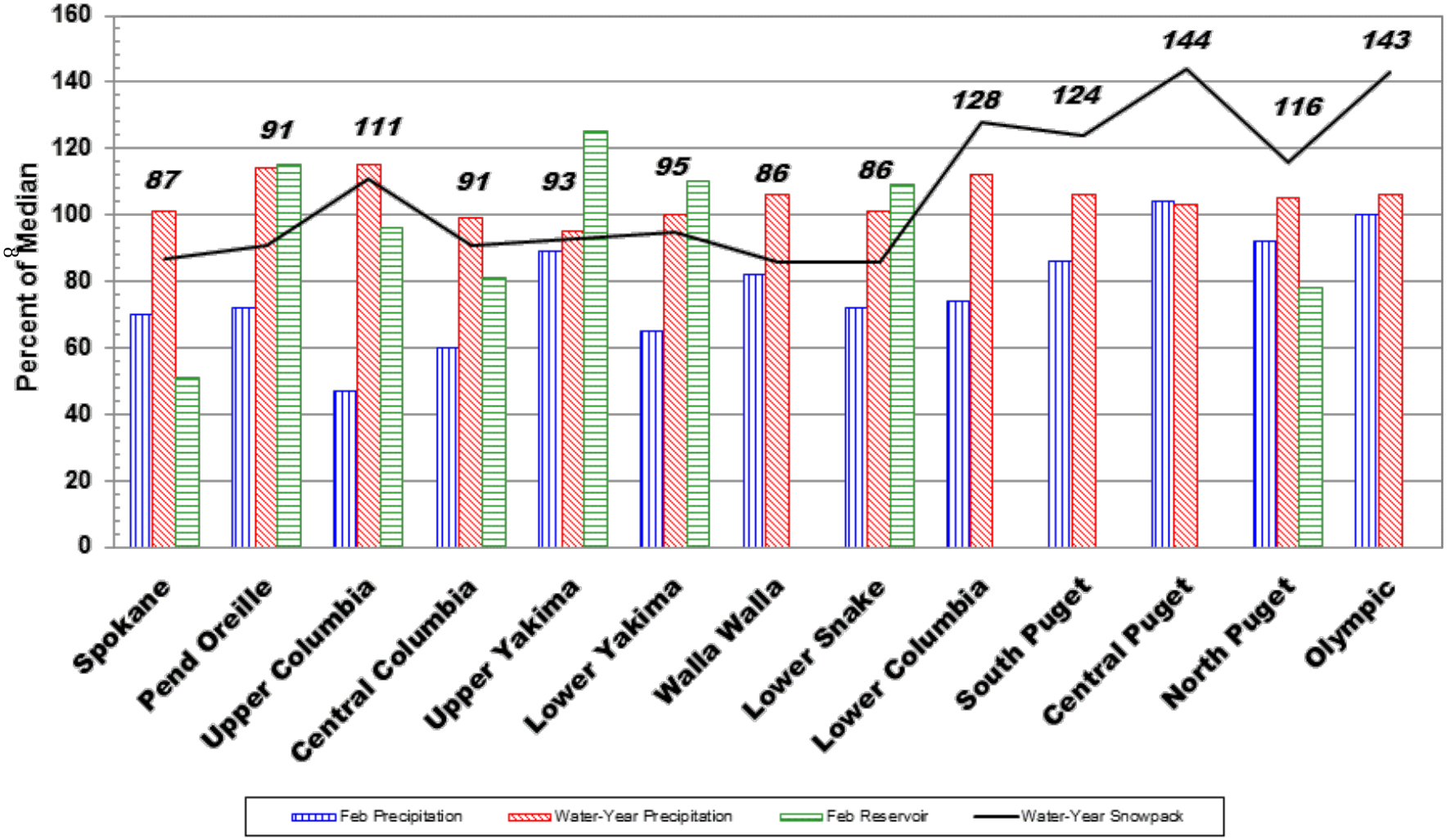
Washington:
http://www.wa.nrcs.usda.gov

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

NRCS Natural Resources Conservation Service

March 1, 2013 - Snowpack, Precipitation and Reservoir Conditions at a Glance

(Water Year = October 1, 2012 - Current Date)



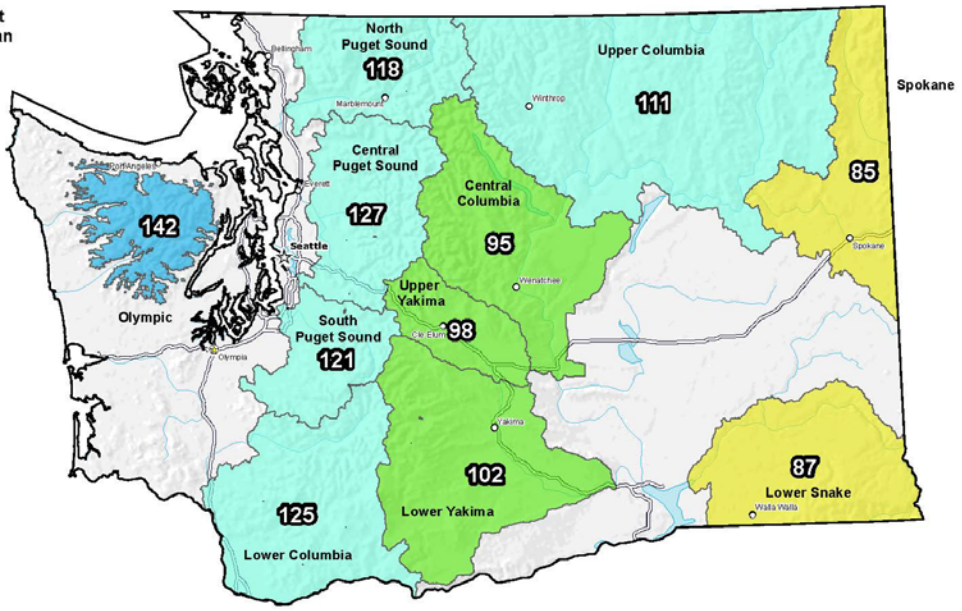
Washington SNOTEL Current Snow Water Equivalent (SWE) % of Normal

Mar 01, 2013

Current Snow Water Equivalent (SWE) Basin-wide Percent of 1981-2010 Median

- unavailable *
- <50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- >=150%

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



Provisional Data Subject to Revision

USDA NRCS

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

Prepared by the USDA/NRCS National Water and Climate Center
Portland, Oregon http://www.wcc.nrcs.usda.gov/gis/
Based on data from http://www.wcc.nrcs.usda.gov/reports/
Science contact: Jim.Marron@por.usda.gov 503 414 3047

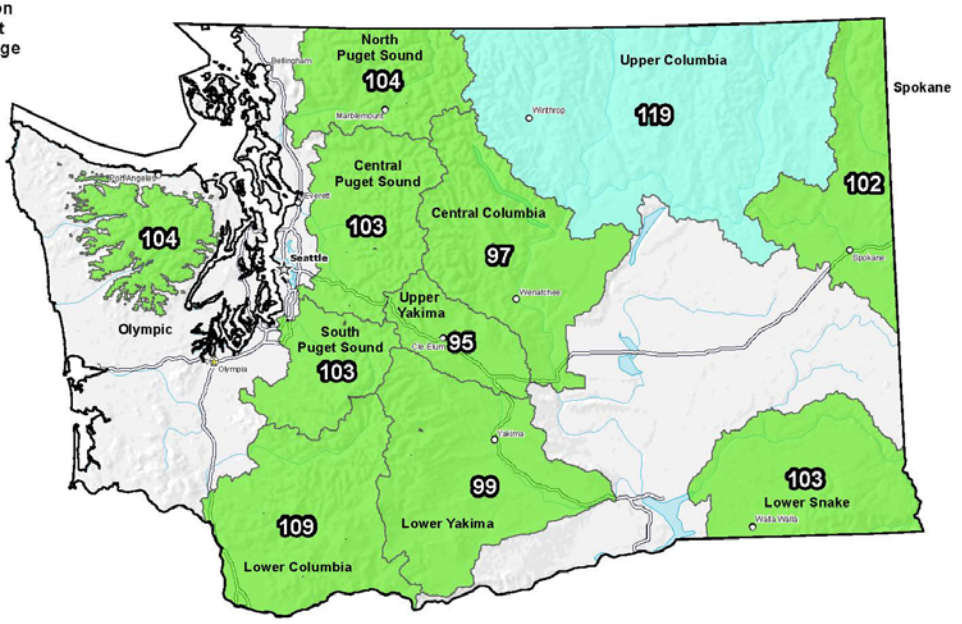
Washington SNOTEL Water Year (Oct 1) to Date Precipitation % of Normal

Mar 01, 2013

Water Year (Oct 1) to Date Precipitation Basin-wide Percent of 1981-2010 Average

- unavailable *
- <50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- >=150%

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



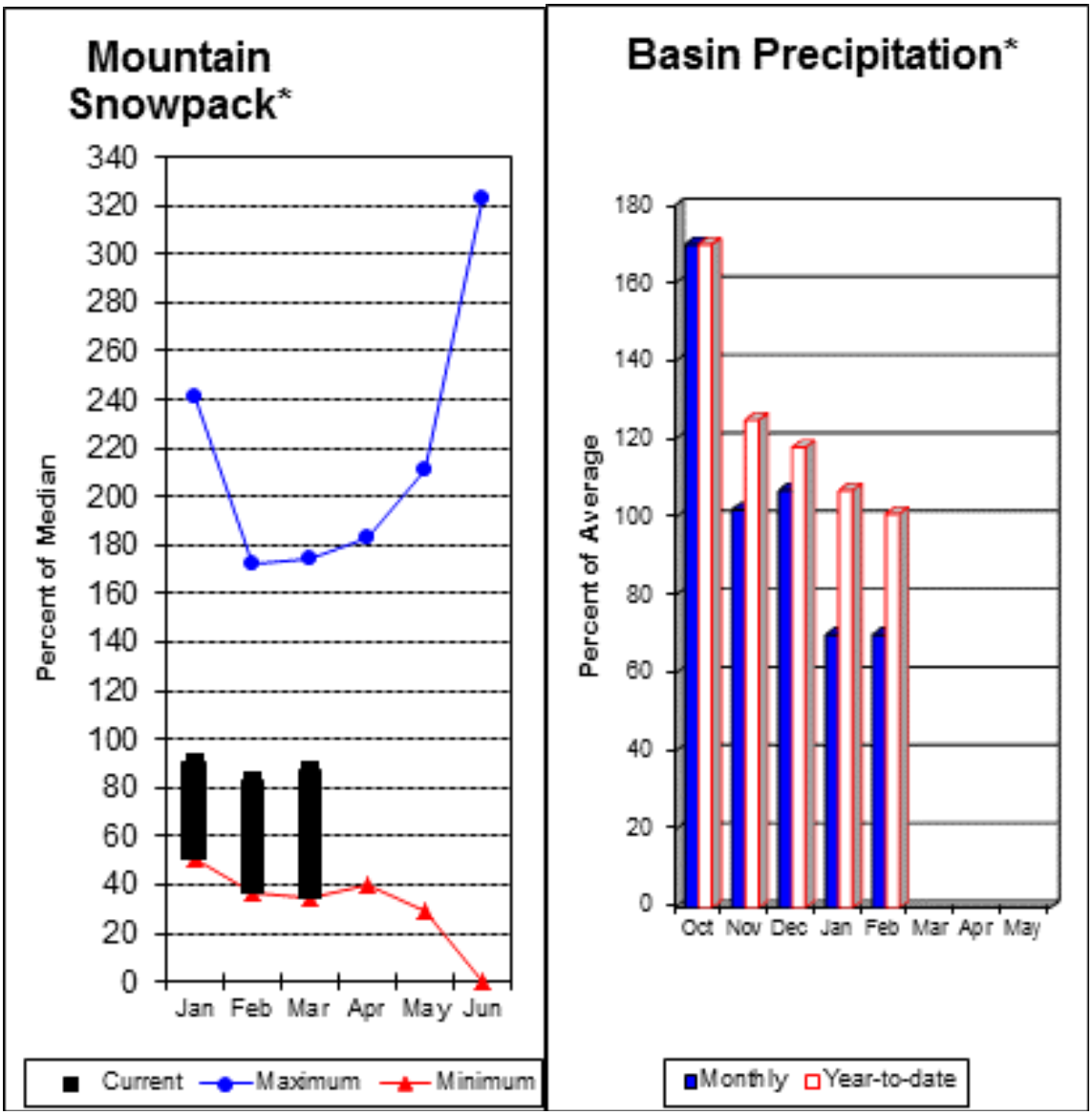
Provisional Data Subject to Revision

USDA NRCS

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

Prepared by the USDA/NRCS National Water and Climate Center
Portland, Oregon http://www.wcc.nrcs.usda.gov/gis/
Based on data from http://www.wcc.nrcs.usda.gov/reports/
Science contact: Jim.Marron@por.usda.gov 503 414 3047

Spokane River Basin



*Based on selected stations

The March 1 forecasts for summer runoff within the Spokane River Basin are 81% of average near Post Falls and 84% at Long Lake. The Chamokane River near Long Lake is forecasted to have normal flows for the May-August period. The forecast is based on a basin snowpack that is 87% of normal and precipitation that is 101% of average for the water year. Precipitation for February was below normal at 70% of average. Streamflow on the Spokane River at Long Lake was 65% of average for February. March 1 storage in Coeur d'Alene Lake was 67,000 acre feet, 51% of average and 28% of capacity. Snowpack at Quartz Peak SNOTEL site was 90% of normal with 17.6 inches of water content. Average temperatures in the Spokane basin were 2-4 degrees below normal for February and slightly above normal for the water year.

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

Streamflow Forecasts - March 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>>					
		Chance Of Exceeding *					
		90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Spokane R nr Post Falls (2)	APR-JUL	1240	1660	1940	81	2220	2640	2390
	APR-SEP	1300	1720	2010	81	2300	2720	2480
Spokane R at Long Lake (2)	APR-JUL	1440	1890	2200	84	2510	2960	2620
	APR-SEP	1610	2080	2390	84	2700	3170	2850
Chamokane Ck nr Long Lake	MAY-AUG	4.1	7.2	9.3	100	11.4	14.5	9.3

SPOKANE RIVER BASIN
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Coeur d'Alene	238.5	67.2	82.5	132.8

SPOKANE RIVER BASIN
Watershed Snowpack Analysis - March 1, 2013

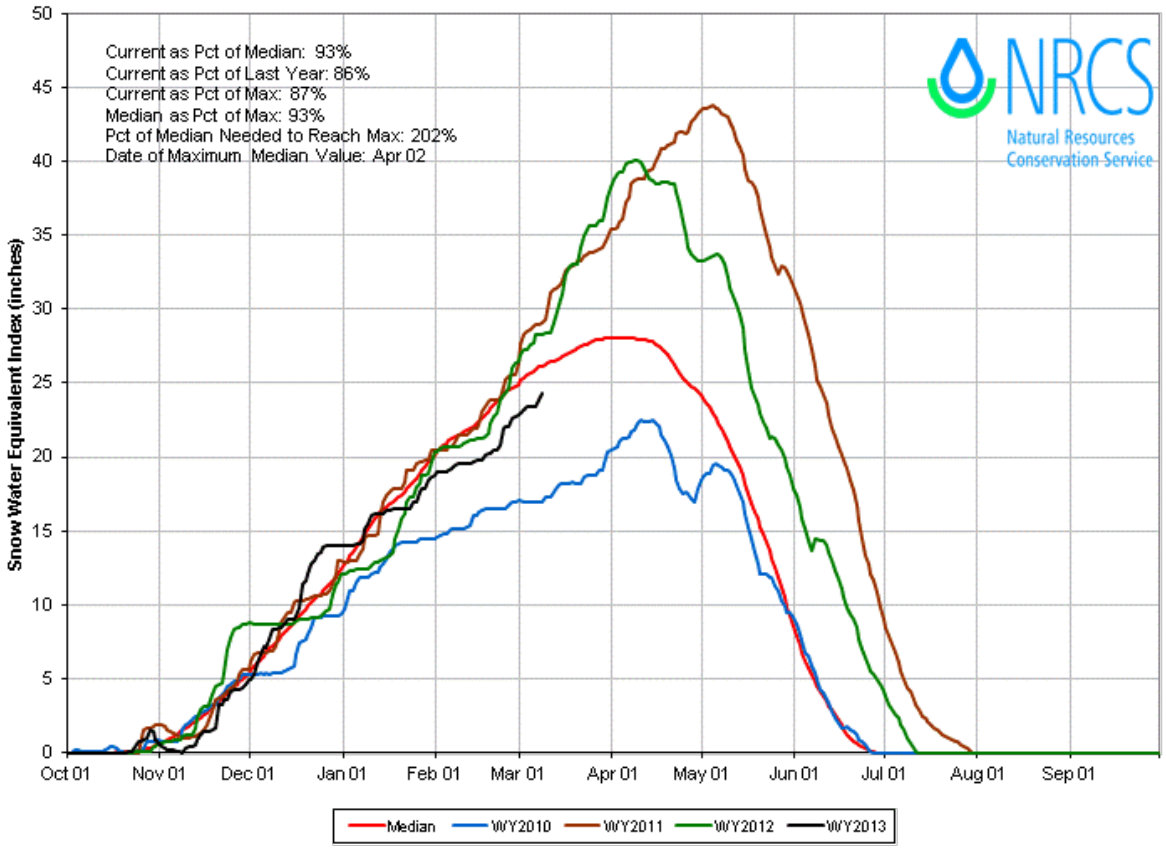
Watershed	Number of Data Sites	This Year as % of Last Yr	Median
SPOKANE RIVER	16	86	87
NEWMAN LAKE	3	113	97

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

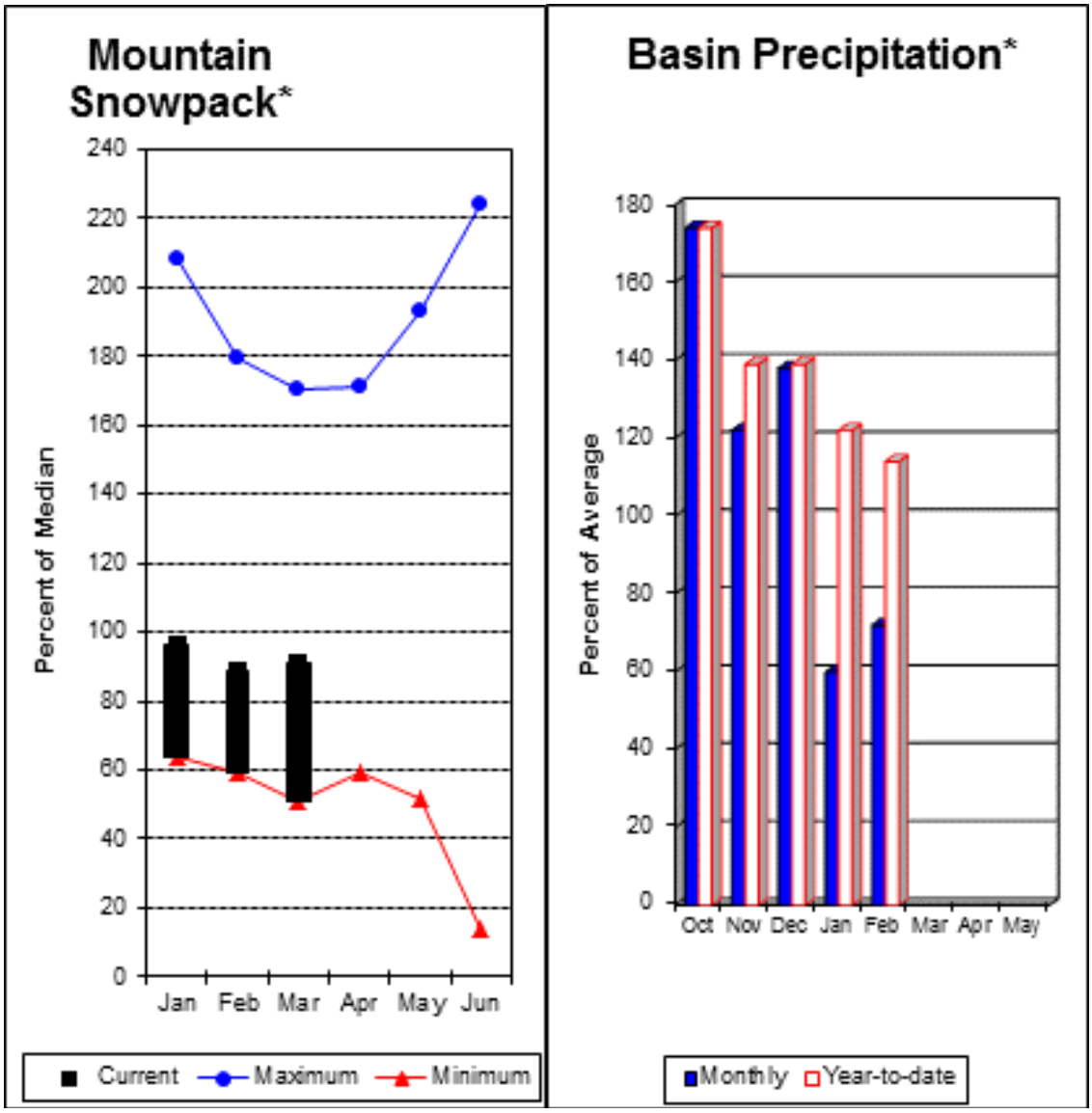
The average is computed for the 1981-2010 base period.

(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.

PREIST, COEUR D'ALENE, ST. JOE, SPOKANE, PALOUSE Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Mar 08, 2013



Pend Oreille River Basins



*Based on selected stations

The April – September average forecast for the Priest River near the town of Priest River is 100% and the Pend Orielle below Box Canyon is 99%. February streamflow was 77% of average on the Pend Oreille River and 95% on the Columbia Birchbank. March 1 snow cover was 91% of normal in the Pend Oreille Basin River Basin. Bunchgrass Meadows SNOTEL site had 20.1 inches of snow water on the snow pillow. Normally Bunchgrass would have 22.5 inches on March 1. Precipitation during February was 72% of average, keeping the year-to-date precipitation at 114% of average. Reservoir storage in the basin, including Lake Pend Oreille and Priest Lake was 115% of normal. Average temperatures were 2-3 degrees above normal for February and 1-2 degrees above normal for the water year.

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

Streamflow Forecasts - March 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Pend Oreille Lake Inflow (2)	APR-JUL	9550	10800	11600	98	12400	13700	11800
	APR-SEP	10400	11700	12600	98	13500	14800	12800
Priest R nr Priest River (1,2)	APR-JUL	640	725	785	101	845	930	780
	APR-SEP	675	765	830	100	895	985	830
Pend Oreille R bl Box Canyon (2)	APR-JUL	9720	11000	11800	99	12600	13900	11900
	APR-SEP	10500	11900	12800	99	13700	15100	13000

PEND OREILLE RIVER BASINS
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Pend Oreille	1561.3	930.0	562.1	792.6
Priest Lake	119.3	50.2	56.0	57.1

PEND OREILLE RIVER BASINS
Watershed Snowpack Analysis - March 1, 2013

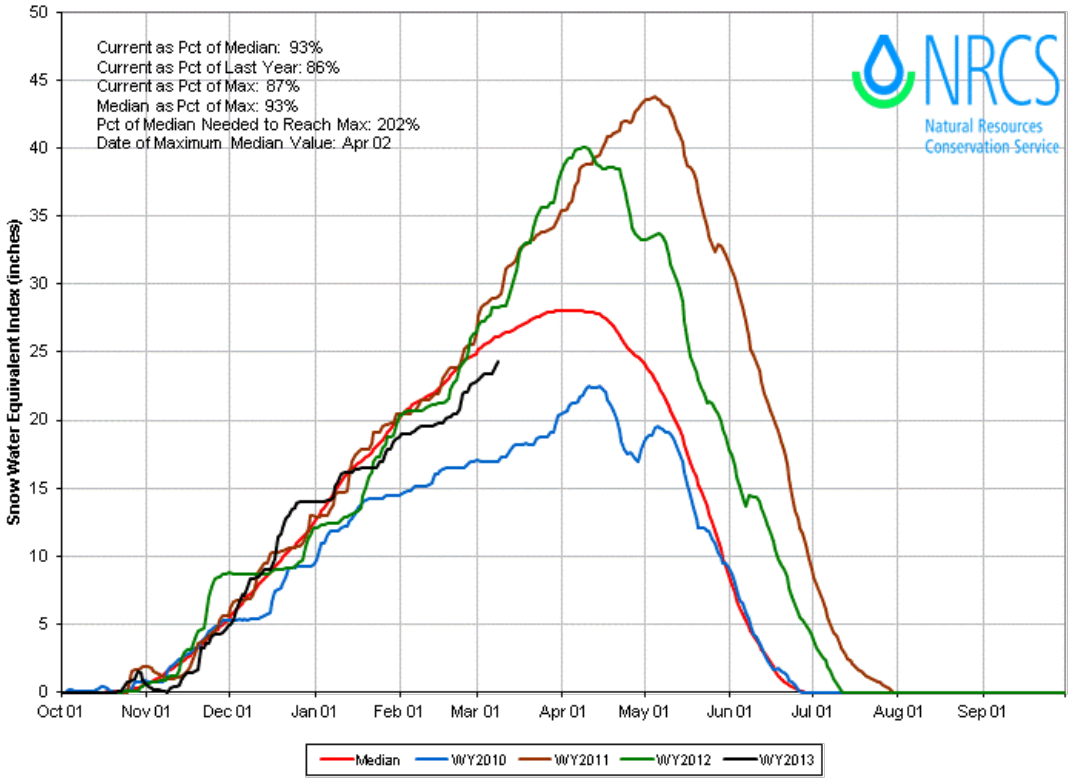
Watershed	Number of Data Sites	This Year as % of Last Yr	Median
COLVILLE RIVER	2	93	89
PEND OREILLE RIVER	11	83	86
KETTLE RIVER	5	125	101

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

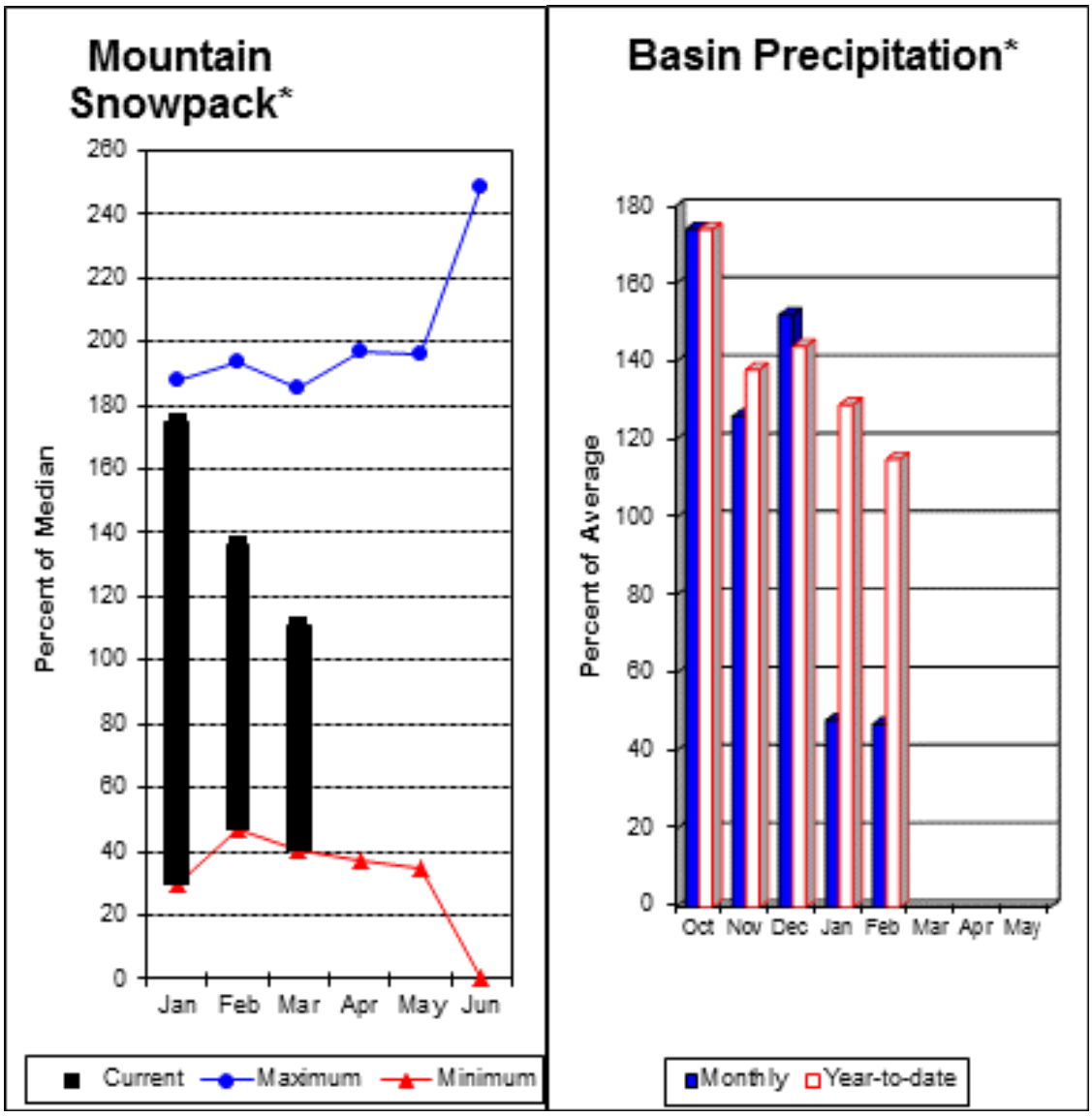
The average is computed for the 1981-2010 base period.

(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.

PREIST, COEUR D'ALENE, ST. JOE, SPOKANE, PALOUSE Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Mar 08, 2013



Upper Columbia River Basins



*Based on selected stations

Summer runoff average forecast for the Okanogan River is 97-100%, Similkameen River is 95%, Kettle River 123% and Methow River is 105%. March 1 snow cover on the Okanogan was 112% of normal, Omak Creek was 151% and the Methow was 112%. February precipitation in the Upper Columbia was 47% of average, with precipitation for the water year at 115% of average. February streamflow for the Methow River was 105% of average, 110% for the Okanogan River and 74% for the Similkameen. Snow-water content at Salmon Meadows SNOTEL was 10.2 inches. Median for this site is 8.7 inches on March 1. Combined storage in the Conconully Reservoirs was 19,000-acre feet, which is 81% of capacity and 96% of the March 1 average. Temperatures were near normal for February and for the water year.

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

Streamflow Forecasts - March 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Colville R at Kettle Falls	APR-JUL	45	82	107	90	132	169	119
	APR-SEP	50	90	118	90	146	186	131
Kettle R nr Laurier	APR-JUL	1840	2050	2200	122	2350	2560	1800
	APR-SEP	1910	2150	2310	123	2470	2710	1880
Columbia R at Birchbank (1,2)	APR-JUL	22500	26000	27600	82	29100	32600	33840
	APR-SEP	29200	33600	35500	85	37500	41800	41750
Columbia R at Grand Coulee (2)	APR-JUL	32900	38800	41500	81	44200	50100	51015
	APR-SEP	40200	47300	50500	84	53700	60800	60110
Similkameen R nr Nighthawk (1)	APR-JUL	785	1020	1130	94	1240	1470	1200
	APR-SEP	860	1100	1210	95	1320	1560	1280
Okanogan R nr Tonasket (1)	APR-JUL	965	1290	1440	97	1590	1920	1480
	APR-SEP	1070	1440	1600	97	1760	2130	1650
Okanogan R at Malott (1)	APR-JUL	955	1300	1450	100	1600	1940	1450
	APR-SEP	1070	1450	1620	100	1790	2170	1620
Methow R nr Pateros	APR-SEP	775	870	935	105	1000	1100	895
	APR-JUL	720	815	875	105	935	1030	835

UPPER COLUMBIA RIVER BASINS
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
SALMON LAKE	10.5	8.7	8.3	8.3
CONCONULLY RESERVOIR	13.0	10.4	11.5	11.5

UPPER COLUMBIA RIVER BASINS
Watershed Snowpack Analysis - March 1, 2013

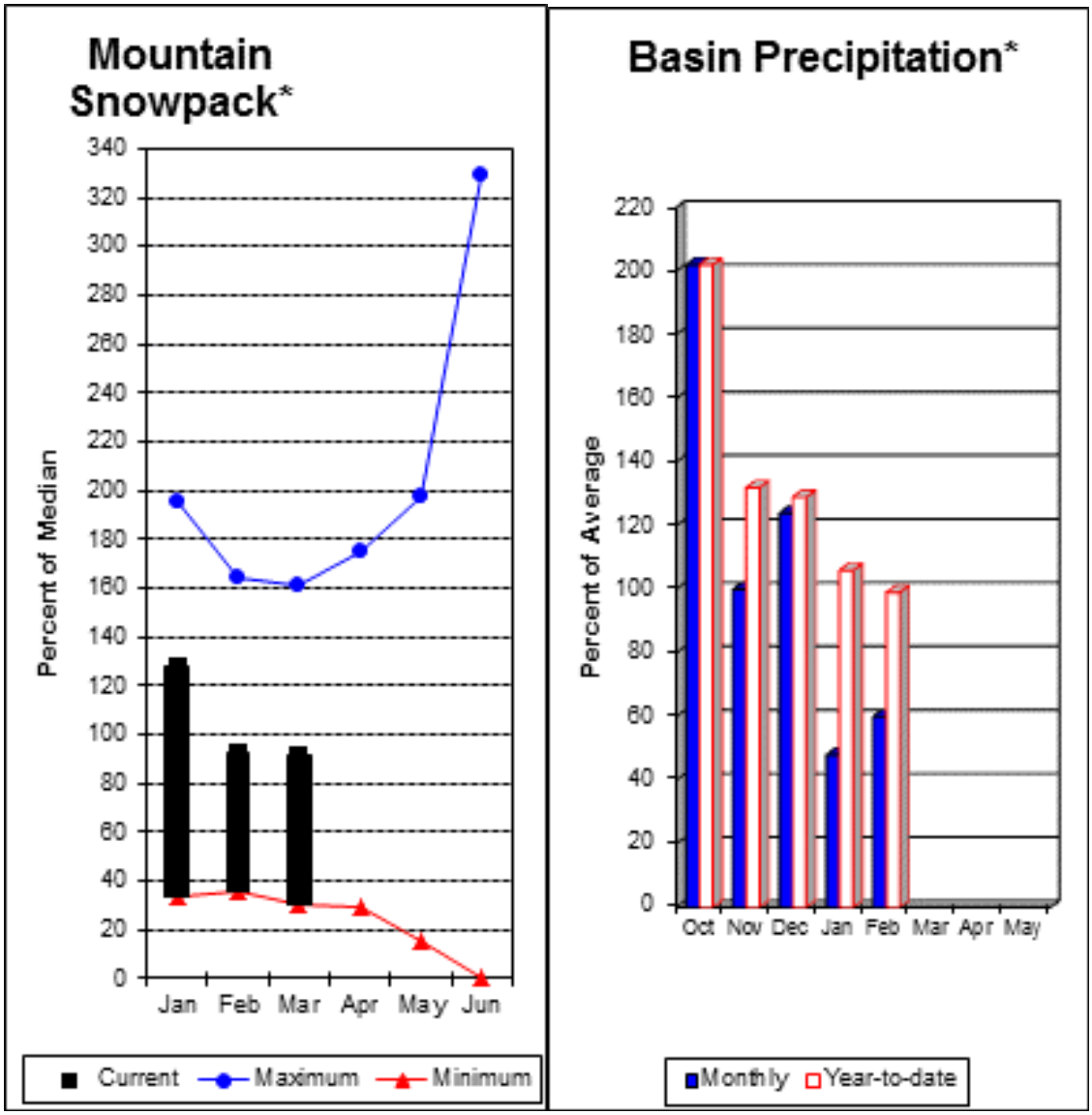
Watershed	Number of Data Sites	This Year as % of Last Yr	Median
OKANOGAN RIVER	17	115	112
OMAK CREEK	3	195	151
SANPOIL RIVER	1	145	83
SIMILKAMEEN RIVER	4	82	80
TOATS COULEE CREEK	4	144	125
CONCONULLY LAKE	3	190	123
METHOW RIVER	6	97	110

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

The average is computed for the 1981-2010 base period.

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

Central Columbia River Basins



*Based on selected stations

Precipitation during February was 60% of average in the basin and 99% for the year-to-date. Runoff for Entiat River is forecast to be 84% of average for the summer. The April-September average forecast for Chelan River is 90%, Wenatchee River at Plain is 89%, Stehekin River is 96% and Icicle Creek is 80%. February average streamflows on the Chelan River were 66% and on the Wenatchee River 59%. March 1 snowpack in the Wenatchee River Basin was 90% of normal; the Chelan, 100%; the Entiat, 88%; Stemilt Creek, 84% and Colockum Creek, 92%. Reservoir storage in Lake Chelan was 226,000-acre feet, 81% of March 1 average and 33% of capacity. Lyman Lake SNOTEL had the most snow water with 47.5 inches of water. This site would normally have 48.6 inches on March 1. Temperatures were 2-4 degrees above normal for February and near normal for the water year.

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

Streamflow Forecasts - March 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Stehekin R at Stehekin	APR-JUL	530	600	650	96	700	770	680
	APR-SEP	630	705	755	96	805	880	790
Chelan R at Chelan (2)	APR-JUL	770	855	910	91	965	1050	1000
	APR-SEP	855	945	1010	90	1070	1170	1120
Entiat R nr Ardenvoir	APR-JUL	134	154	167	84	180	200	200
	APR-SEP	152	171	185	84	199	220	220
Wenatchee R at Plain	APR-JUL	725	820	880	89	940	1030	990
	APR-SEP	805	900	965	89	1030	1130	1080
Icicle Ck nr Leavenworth	APR-JUL	178	205	220	80	235	260	275
	APR-SEP	194	220	240	80	260	285	300
Wenatchee R at Peshastin	APR-JUL	1010	1140	1220	89	1300	1430	1370
	APR-SEP	1100	1230	1320	89	1410	1540	1490
Columbia R bl Rock Island Dam (2)	APR-JUL	38100	42800	45900	82	49000	53700	55770
	APR-SEP	45800	51300	55000	84	58700	64100	65200

CENTRAL COLUMBIA RIVER BASINS
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
CHELAN LAKE	676.1	225.6	185.0	279.8

CENTRAL COLUMBIA RIVER BASINS
Watershed Snowpack Analysis - March 1, 2013

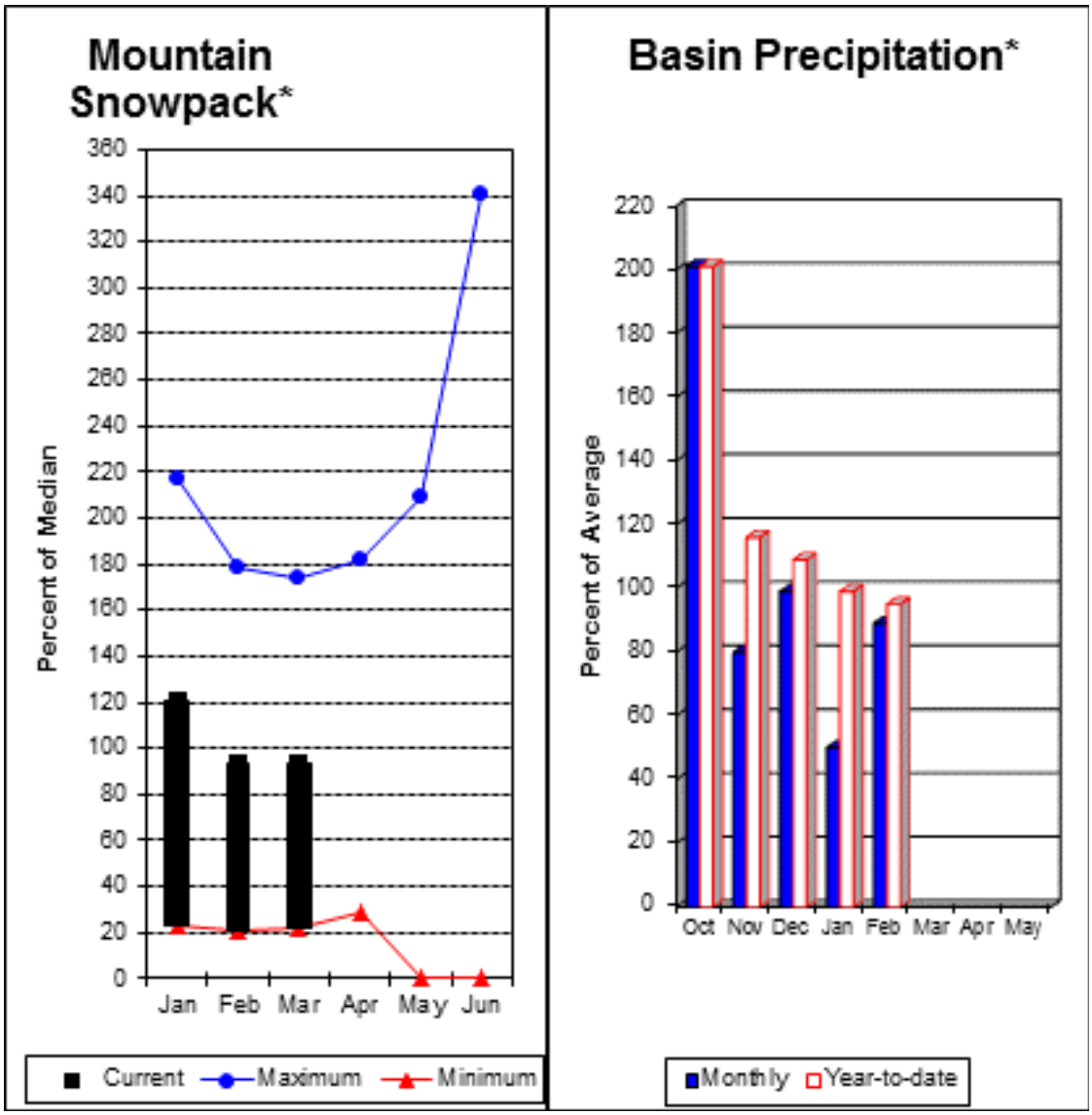
Watershed	Number of Data Sites	This Year as % of Last Yr	Median
CHELAN LAKE BASIN	3	85	100
ENTIAT RIVER	1	77	88
WENATCHEE RIVER	9	84	90
STEMILT CREEK	2	107	84
COLOCKUM CREEK	2	100	92

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

The average is computed for the 1981-2010 base period.

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

Upper Yakima River Basin



*Based on selected stations

March 1 reservoir storage for the Upper Yakima reservoirs was 564,000-acre feet, 125% of average. Forecasts for the Yakima River at Cle Elum are 90% of average and the Teanaway River near Cle Elum is at 86%. Lake inflows are all forecasted to be slightly below average this summer. February streamflows within the basin were Cle Elum River near Roslyn at 49%. March 1 snowpack was 93% based upon 11 snow course and SNOTEL readings within the Upper Yakima Basin. Precipitation was 89% of average for February and 95% 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.

Streamflow Forecasts - March 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Keechelus Reservoir Inflow (2)	APR-JUL	78	95	107	92	119	136	116
	APR-SEP	86	104	116	92	128	146	126
Kachess Reservoir Inflow (2)	APR-JUL	72	86	96	92	106	120	104
	APR-SEP	79	93	103	91	113	127	113
Cle Elum Lake Inflow (2)	APR-JUL	295	330	355	92	380	415	385
	APR-SEP	320	360	385	93	410	450	415
Yakima R at Cle Elum (2)	APR-JUL	500	610	685	91	760	870	755
	APR-SEP	545	665	750	90	835	955	830
Teanaway R bl Forks nr Cle Elum	APR-JUL	79	97	110	85	123	141	130
	APR-SEP	83	101	114	86	127	145	133

UPPER YAKIMA RIVER BASIN
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
KEECHELUS	157.8	101.6	115.2	92.3
KACHESS	239.0	182.6	172.7	143.6
CLE ELUM	436.9	279.8	326.1	214.4

UPPER YAKIMA RIVER BASIN
Watershed Snowpack Analysis - March 1, 2013

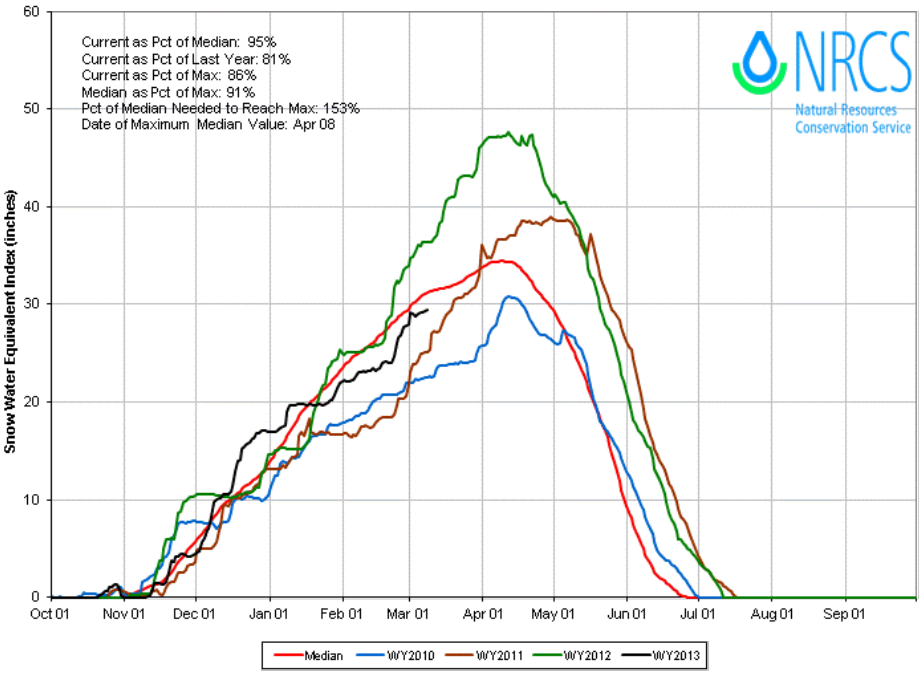
Watershed	Number of Data Sites	This Year as % of Last Yr	Median
UPPER YAKIMA RIVER	11	81	93

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

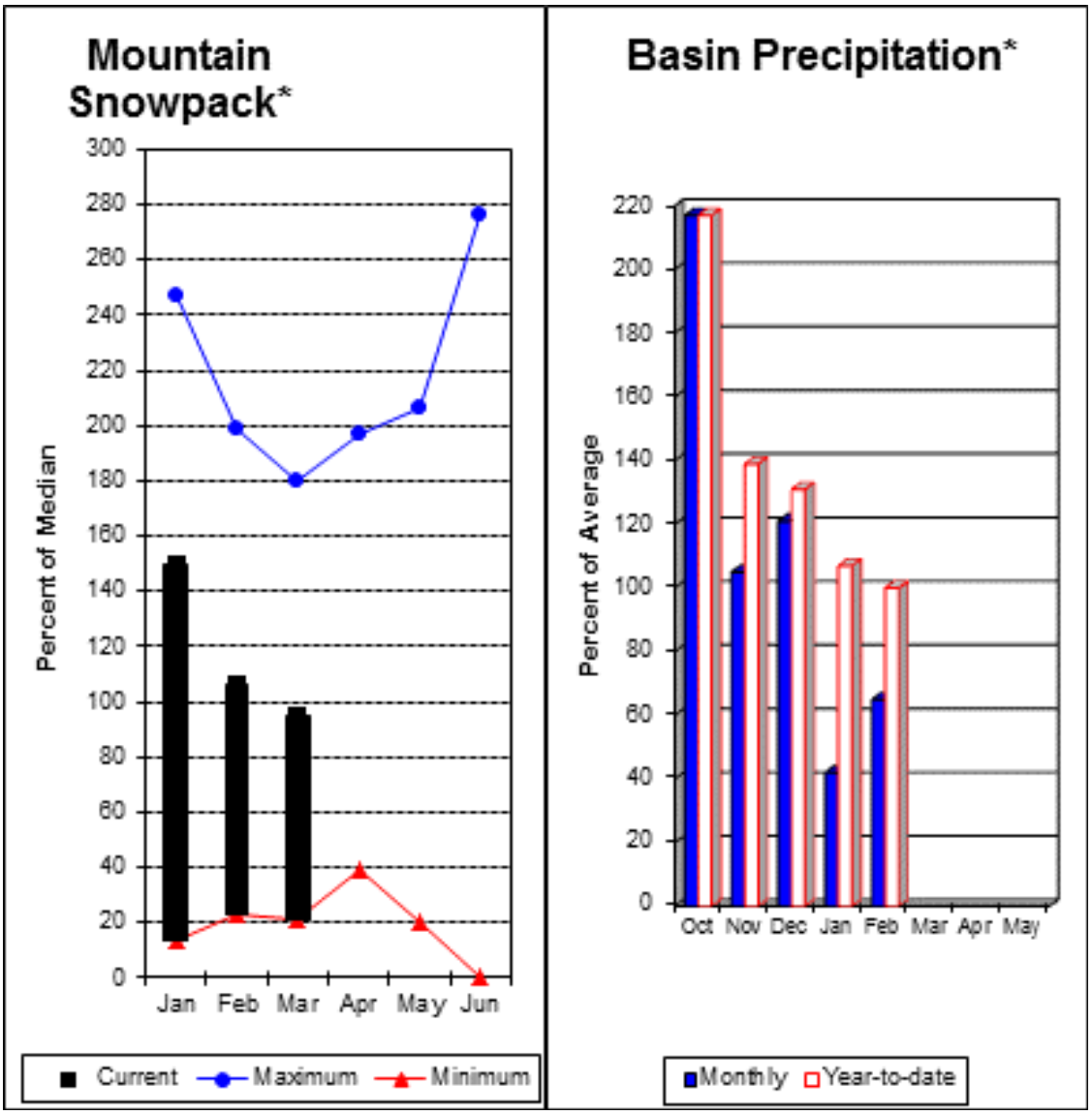
The average is computed for the 1981-2010 base period.

(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 Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Mar 08, 2013



Lower Yakima River Basin



*Based on selected stations

February average streamflows within the basin were: Yakima River near Parker, 54%; Naches River near Naches, 46%; and Yakima River at Kiona, 61%. March 1 reservoir storage for Bumping and Rimrock reservoirs was 151,000-acre feet, 110% of average. Forecast averages for Yakima River near Parker are 90%; American River near Nile, 94%; Ahtanum Creek, 110%; and Klickitat River near Glenwood, 91%. March 1 snowpack was 95% based upon 7 snow course and SNOTEL readings within the Lower Yakima Basin and Ahtanum Creek reported in at 89% of normal. Precipitation was 65% of average for February and 100% year-to-date for water. Temperatures were 2-4 degrees above normal for February and near normal for the water year. Volume forecasts for Yakima Basin are for natural flow. As such, they March differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

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

Streamflow Forecasts - March 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Bumping Lake Inflow (2)	APR-JUL	81	95	105	92	113	127	114
	APR-SEP	89	103	113	92	123	137	123
American R nr Nile	APR-JUL	76	88	96	94	104	116	102
	APR-SEP	82	94	103	94	112	124	110
Rimrock Lake Inflow (2)	APR-JUL	147	164	175	94	186	205	187
	APR-SEP	173	192	205	93	220	235	220
Naches R nr Naches (2)	APR-JUL	485	565	620	89	675	755	700
	APR-SEP	525	610	670	88	730	815	760
Ahtanum Ck at Union Gap	APR-JUL	20	26	30	111	34	40	27
	APR-SEP	22	28	32	110	36	42	29
Yakima R nr Parker (2)	APR-JUL	1140	1350	1490	90	1630	1840	1660
	APR-SEP	1270	1480	1630	90	1780	1990	1820
Klickitat R nr Glenwood	APR-JUL	91	105	115	91	125	139	126
	APR-SEP	101	116	127	91	138	153	139
Klickitat R nr Pitt	APR-JUL	345	390	425	98	460	505	435
	APR-SEP	420	475	515	99	555	610	520

LOWER YAKIMA RIVER BASIN
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
BUMPING LAKE	33.7	10.2	18.0	13.3
RIMROCK	198.0	140.3	156.5	123.3

LOWER YAKIMA RIVER BASIN
Watershed Snowpack Analysis - March 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
LOWER YAKIMA RIVER	7	86	95
AHTANUM CREEK	3	79	89

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

The average is computed for the 1981-2010 base period.

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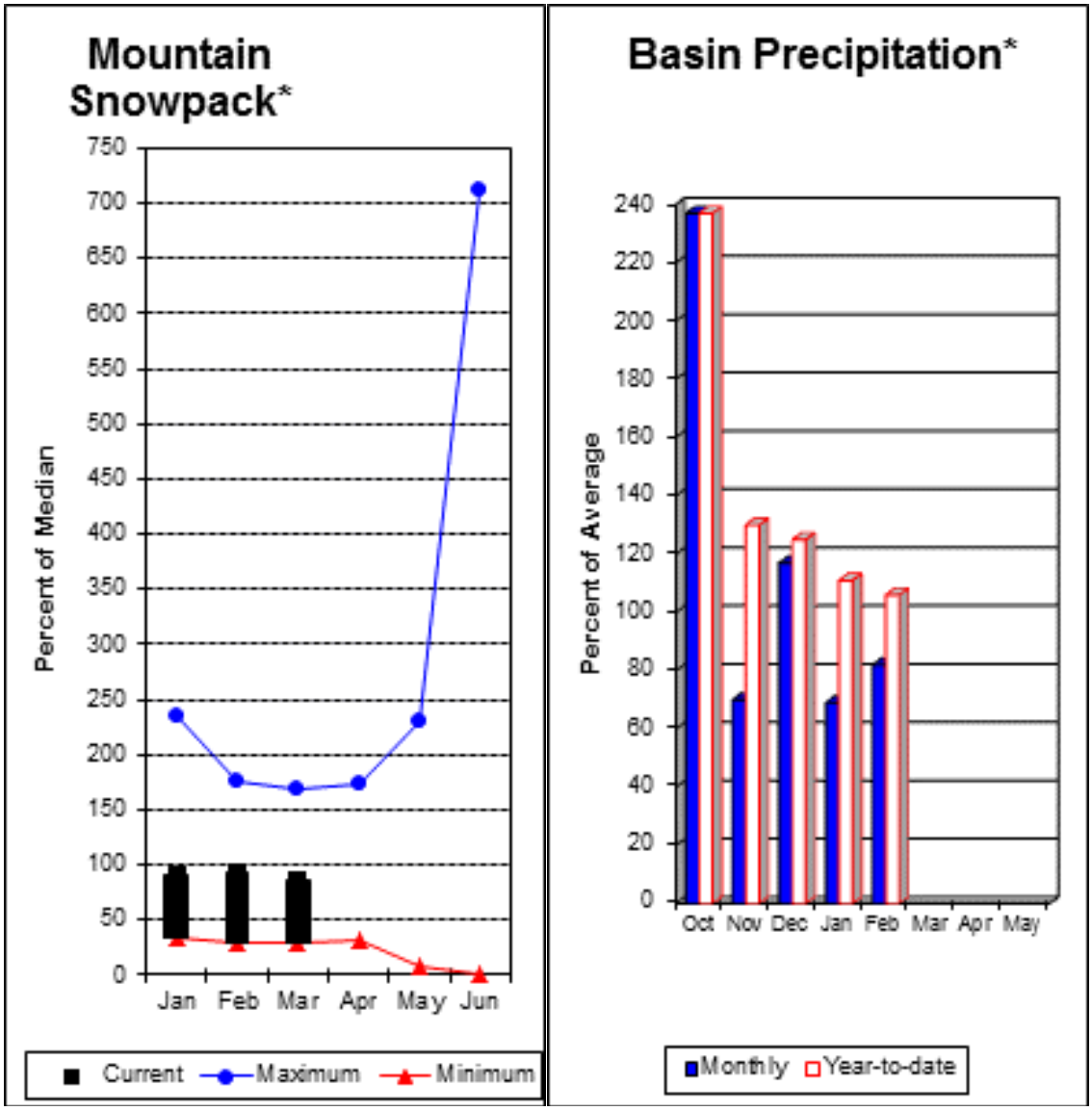
Walla Walla River Basin



*Based on selected stations

February precipitation was 82% of average, maintaining the year-to-date precipitation at 106% of average. Snowpack in the basin was 86% of normal. Streamflow forecasts are 96% of average for both Mill Creek and for the SF Walla Walla near Milton-Freewater. February streamflow was 82% of average for the SF Walla Walla River. Average temperatures were 1-3 degrees above normal for February and for the water year.

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

Streamflow Forecasts - March 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SF Walla Walla R nr Milton-Freewater	MAR-SEP	63	71	76	95	81	89	80
	APR-JUL	40	46	50	93	54	60	54
	APR-SEP	52	58	63	96	68	74	66
Mill Ck nr Walla Walla	APR-JUL	16.1	20	23	96	26	30	24
	APR-SEP	18.7	23	26	96	29	33	27

WALLA WALLA RIVER BASIN
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

WALLA WALLA RIVER BASIN
Watershed Snowpack Analysis - March 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
WALLA WALLA RIVER	2	91	86

* 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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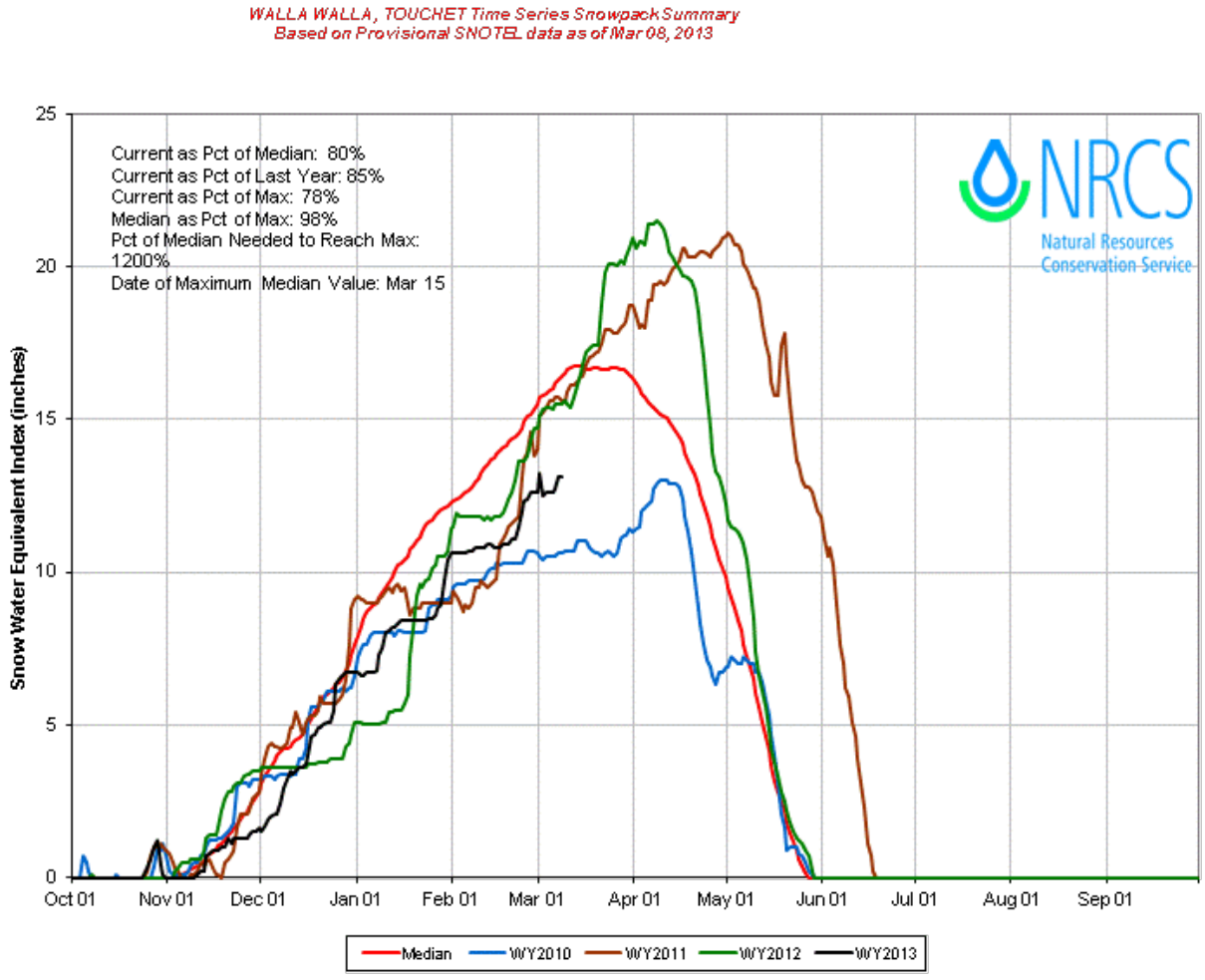
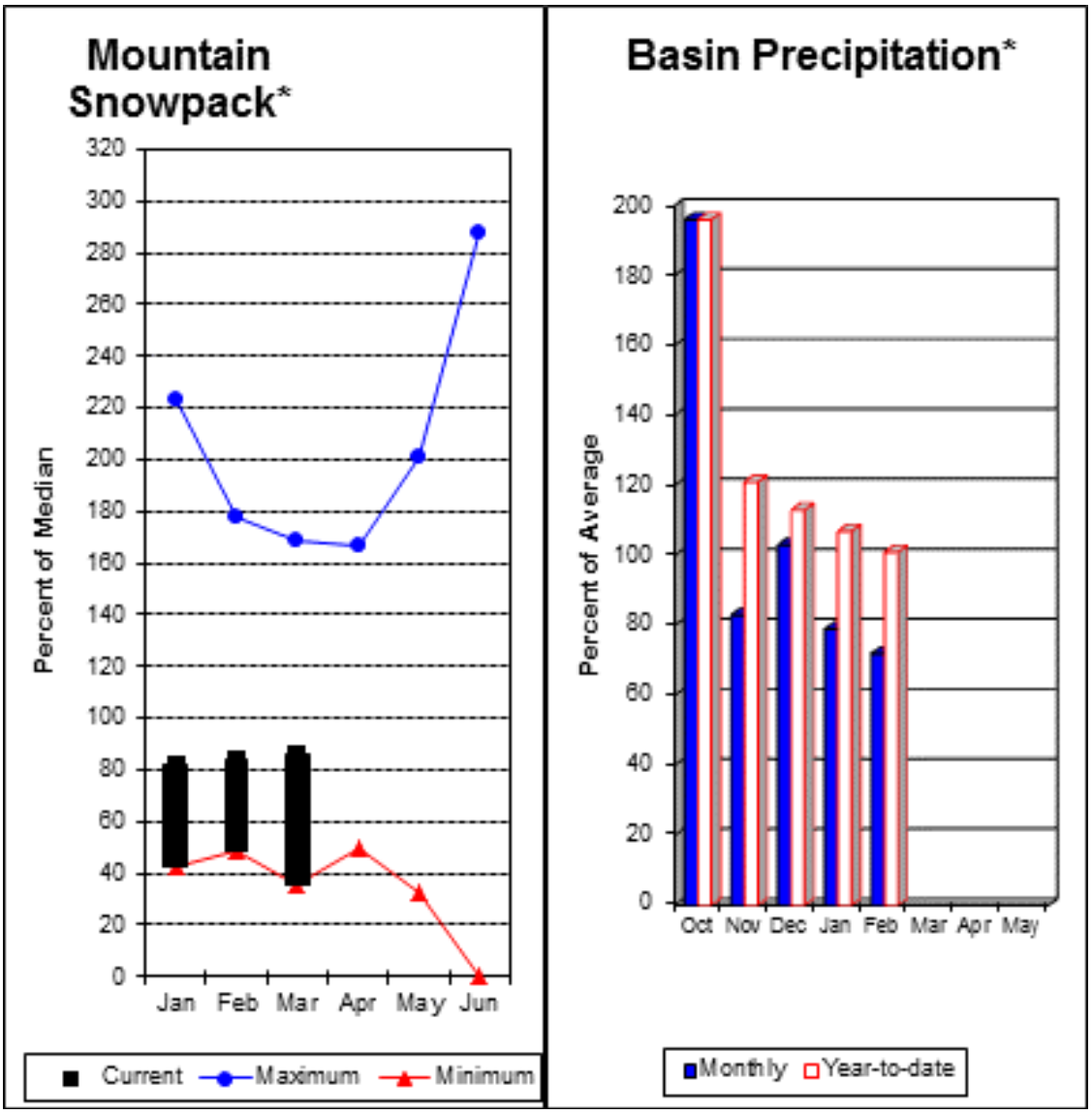


Lower Snake River Basin



*Based on selected stations

The Snake and Grande Ronde rivers can expect summer flows to be about 90% and 100% of normal respectively. The forecast for Asotin Creek at Asotin predicts 103% of average flows for the April – July runoff period. February precipitation was 72% of average, bringing the year-to-date precipitation to 101% of average. March 1 snowpack readings averaged 86% of normal. February streamflow was 68% of average for Snake River below Lower Granite Dam and 61% for Grande Ronde River near Troy. Dworshak Reservoir storage was 109% of average. Average temperatures were 1-3 degrees above normal for February and for the water year.

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

Streamflow Forecasts - March 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Grande Ronde R at Troy (1)	MAR-JUL	1090	1390	1520	101	1650	1950	1510
	APR-SEP	875	1170	1310	100	1450	1740	1310
Asotin Ck at Asotin	APR-JUL	21	30	36	103	42	51	35
Clearwater R at Spalding (1,2)	APR-JUL	4180	5570	6200	90	6830	8220	6890
	APR-SEP	4450	5890	6540	90	7190	8630	7270
Snake R bl Lower Granite Dam (1,2)	APR-JUL	6900	11900	14200	72	16400	21400	19850
	APR-SEP	8330	13900	16500	74	19100	24700	22280

LOWER SNAKE RIVER BASIN
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Dworshak	3468.0	2581.6	2362.2	2358.0

LOWER SNAKE RIVER BASIN
Watershed Snowpack Analysis - March 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
LOWER SNAKE, GRANDE RONDE	12	86	85

* 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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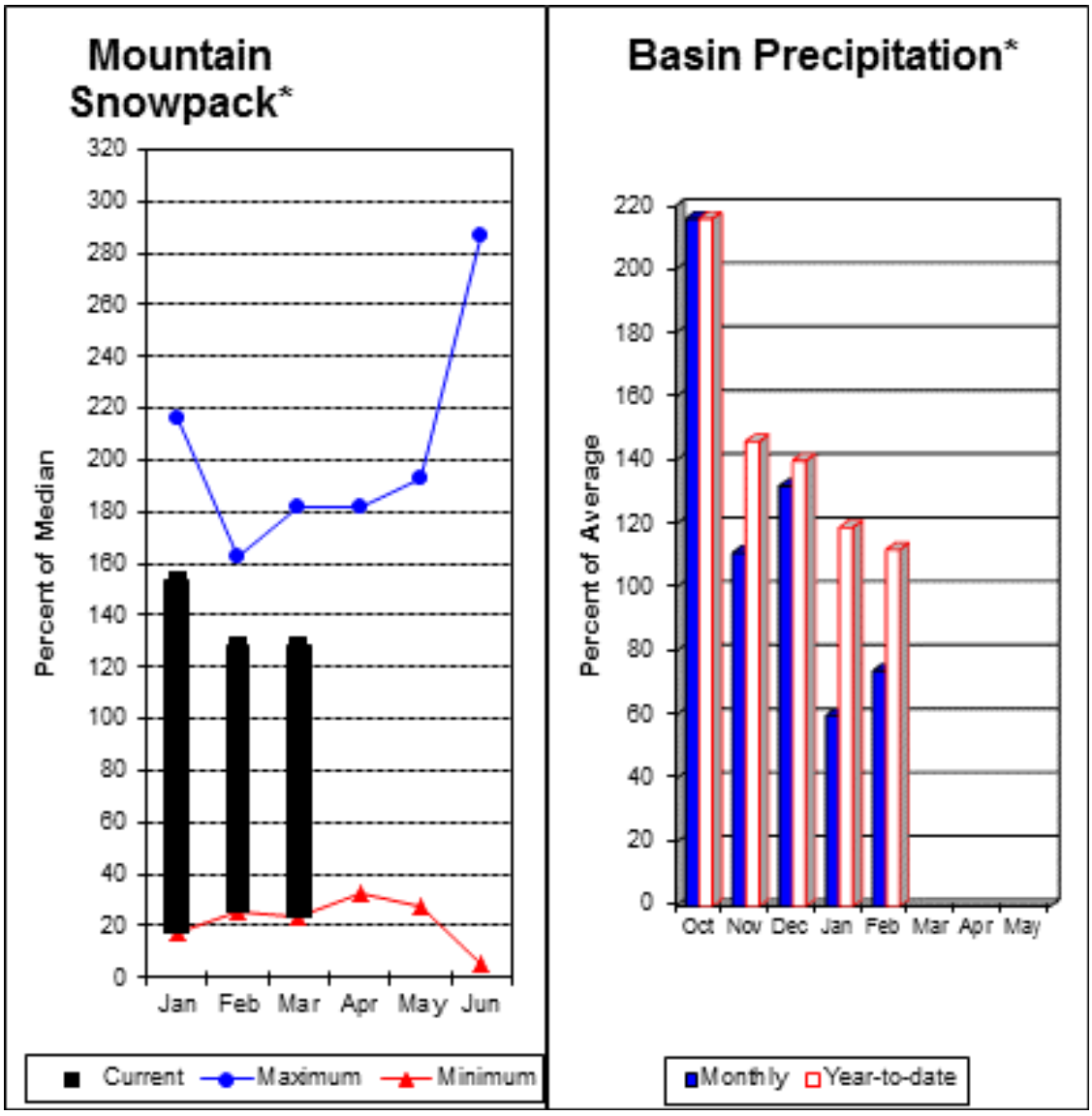
Lower Columbia River Basins



*Based on selected stations

Forecasts for April – September streamflows within the basin are Lewis River at Ariel, 105% and Cowlitz River at Castle Rock, 110% of average. The Columbia at The Dalles is forecasted to have 82% of average flows this summer according to the River Forecast Center. February average streamflow for Cowlitz River was 71%. The Columbia River at The Dalles was 78% of average. February precipitation was 74% of average and the water-year average was 112%. March 1 snow cover for Cowlitz River was 129%, and Lewis River was 127% of normal. Paradise SNOTEL reported the most snow in the basin with 70.6 inches of water and 156 inches of depth. Temperatures were 1-3 degrees above normal during February and near normal for the water year.

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

Streamflow Forecasts - March 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Columbia R at The Dalles (2)	APR-JUL	51700	58700	63500	80	68300	75300	79855
	APR-SEP	62900	71100	76700	83	82300	90500	92704
Klickitat R nr Glenwood	APR-JUL	91	105	115	91	125	139	126
	APR-SEP	101	116	127	91	138	153	139
Klickitat R nr Pitt	APR-JUL	345	390	425	98	460	505	435
	APR-SEP	420	475	515	99	555	610	520
Lewis R at Ariel (2)	APR-JUL	730	895	1010	104	1120	1290	970
	APR-SEP	875	1050	1170	105	1290	1460	1120
Cowlitz R bl Mayfield Dam (2)	APR-JUL	1410	1660	1830	113	2000	2250	1620
	APR-SEP	1580	1880	2080	113	2280	2580	1840
Cowlitz R at Castle Rock (2)	APR-JUL	1990	2270	2460	110	2650	2930	2230
	APR-SEP	2260	2560	2770	110	2980	3280	2520

LOWER COLUMBIA RIVER BASINS
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MOSSYROCK		NO REPORT		
SWIFT		NO REPORT		
YALE		NO REPORT		
MERWIN		NO REPORT		

LOWER COLUMBIA RIVER BASINS
Watershed Snowpack Analysis - March 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
LEWIS RIVER	5	126	127
COWLITZ RIVER	6	102	129

* 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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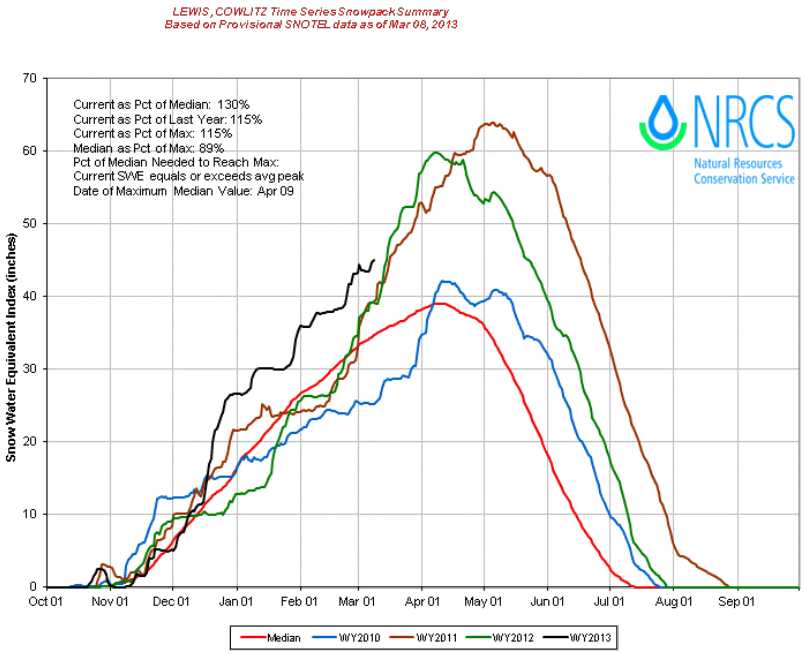
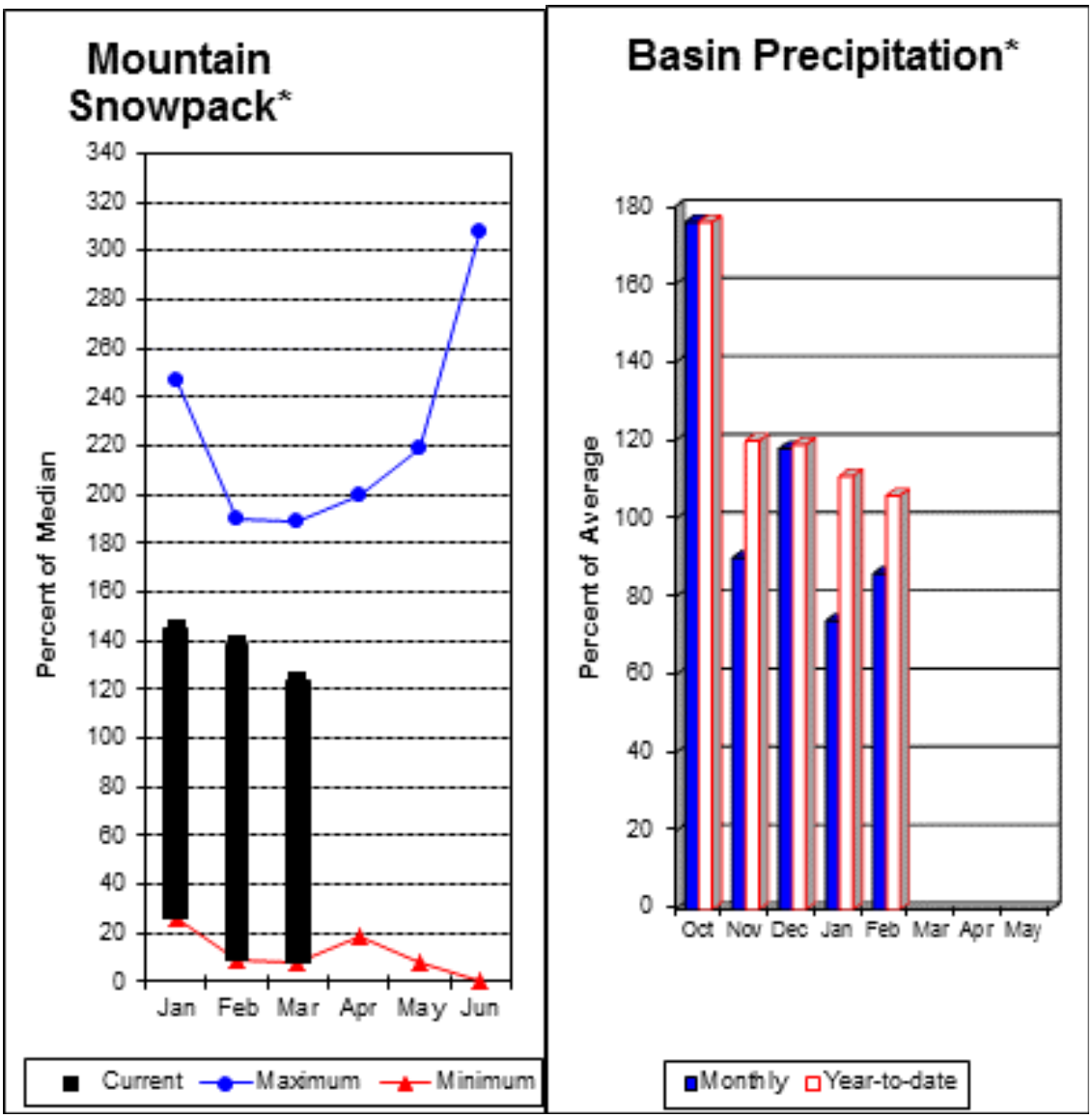


South Puget Sound River Basins



*Based on selected stations

Summer runoff is forecast to be 106% of normal for the Green River below Howard Hanson Dam and 109% for the White River near Buckley. March 1 snowpack was 112% of normal for the White River, 136% for Puyallup River and 123% in the Green River Basin. Water content on March 1 at Corral Pass SNOTEL, at an elevation of 6,000 feet, was 28.4 inches. This site has a March 1 median of 28.7 inches. February precipitation was 86% of average, bringing the water year-to-date to 106% of average for the basins. Average temperatures in the area were 1-3 above below for February and slightly below normal for the water-year.

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

Streamflow Forecasts - March 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
White R nr Buckley (1)	APR-JUL	355	435	470	109	505	585	430
	APR-SEP	430	520	560	109	600	690	515
Green R bl Howard Hanson Dam (1,2)	APR-JUL	152	220	250	106	280	350	235
	APR-SEP	175	245	275	106	305	375	260

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

SOUTH PUGET SOUND RIVER BASINS
Watershed Snowpack Analysis - March 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
WHITE RIVER	2	98	112
GREEN RIVER	3	96	123
PUYALLUP RIVER	4	109	136

* 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 1981-2010 base period.

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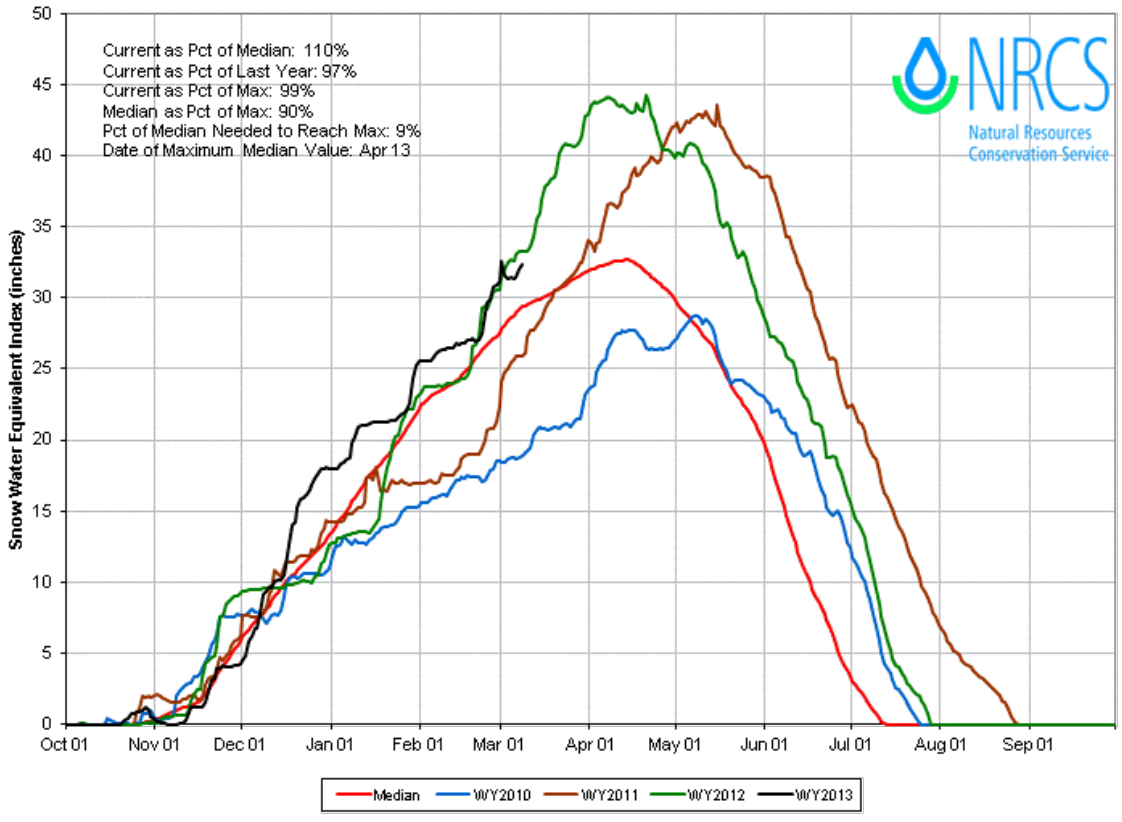
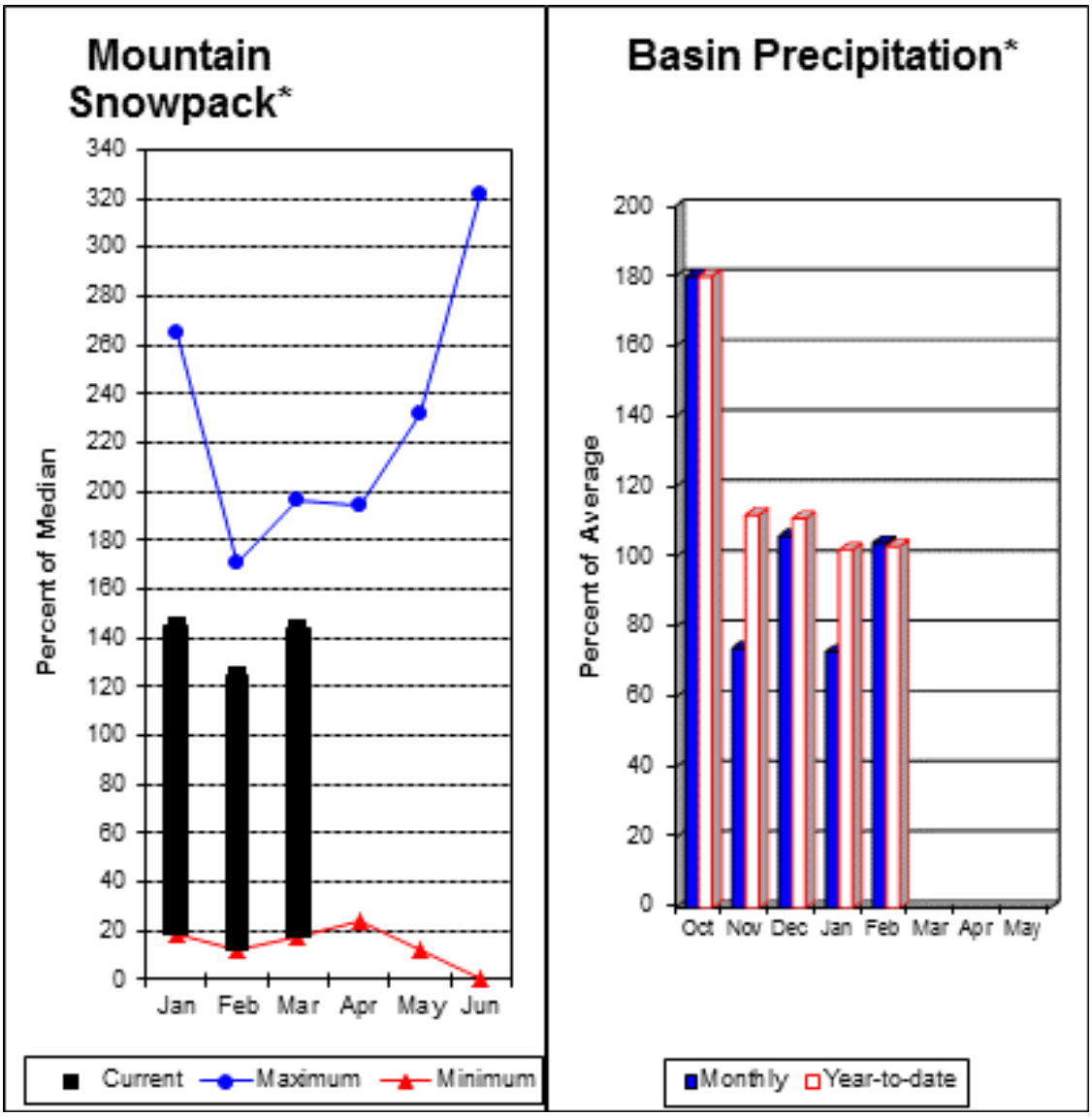
(2) - The value is natural volume - actual volume may be affected by upstream water management.

WHITE, GREEN, PUYALLUP Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Mar 08, 2013



Central Puget Sound River Basins



*Based on selected stations

Forecast for spring and summer flows are: 109% for Cedar River near Cedar Falls; 115% for Rex River; 130% for South Fork of the Tolt River; and 104% for Taylor Creek near Selleck. Basin-wide precipitation for February was 104% of average, bringing water-year-to-date to 103% of average. March 1 median snow cover in Cedar River Basin was 130%, Tolt River Basin was 166%, Snoqualmie River Basin was 138%, and Skykomish River Basin was 142%. Alpine Meadows SNOTEL site in the Tolt Basin, at 3500 feet, had 67.1 inches of water content. March 1 median water content is 40.3 inches at Alpine Meadows. Temperatures were 1-2 degrees below normal for February and for the water-year.

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

Streamflow Forecasts - March 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Cedar R nr Cedar Falls	APR-JUL	60	70	77	110	84	94	70
	APR-SEP	65	76	83	109	90	101	76
Rex R nr Cedar Falls	APR-JUL	19.9	25	28	117	31	36	24
	APR-SEP	23	28	31	115	34	39	27
Taylor Creek Near Selleck	APR-JUL	16.0	19.0	21	105	23	26	20
	APR-SEP	19.5	23	25	104	27	30	24
SF Tolt R nr Index	APR-JUL	15.2	17.6	19.2	135	21	23	14.2
	APR-SEP	16.5	19.2	21	130	23	25	16.1

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

CENTRAL PUGET SOUND RIVER BASINS
Watershed Snowpack Analysis - March 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
CEDAR RIVER	6	89	130
TOLT RIVER	3	147	166
SNOQUALMIE RIVER	5	121	138
SKYKOMISH RIVER	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.

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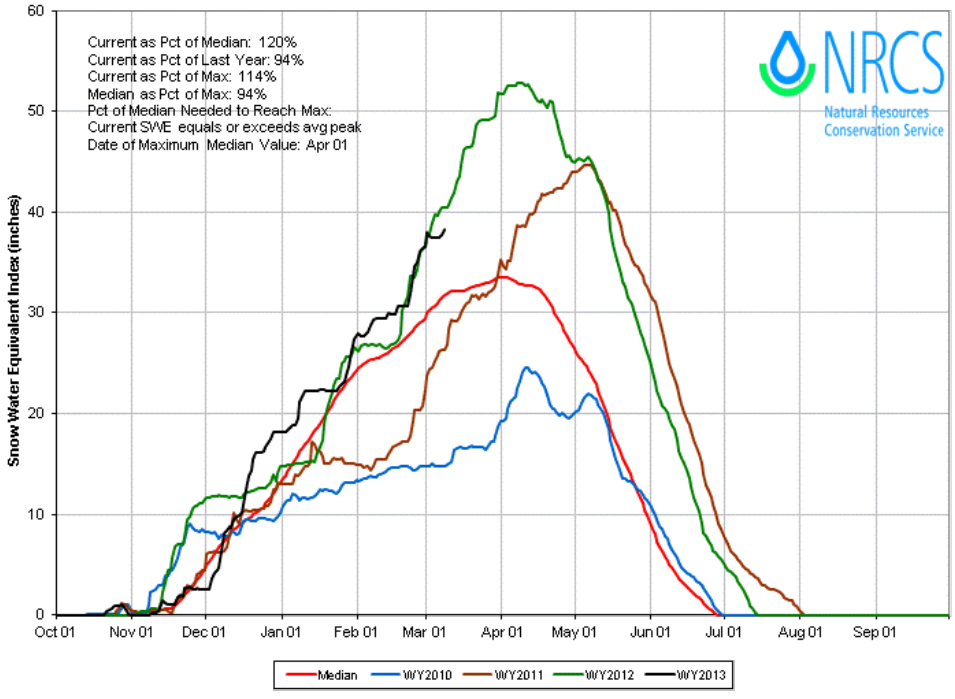
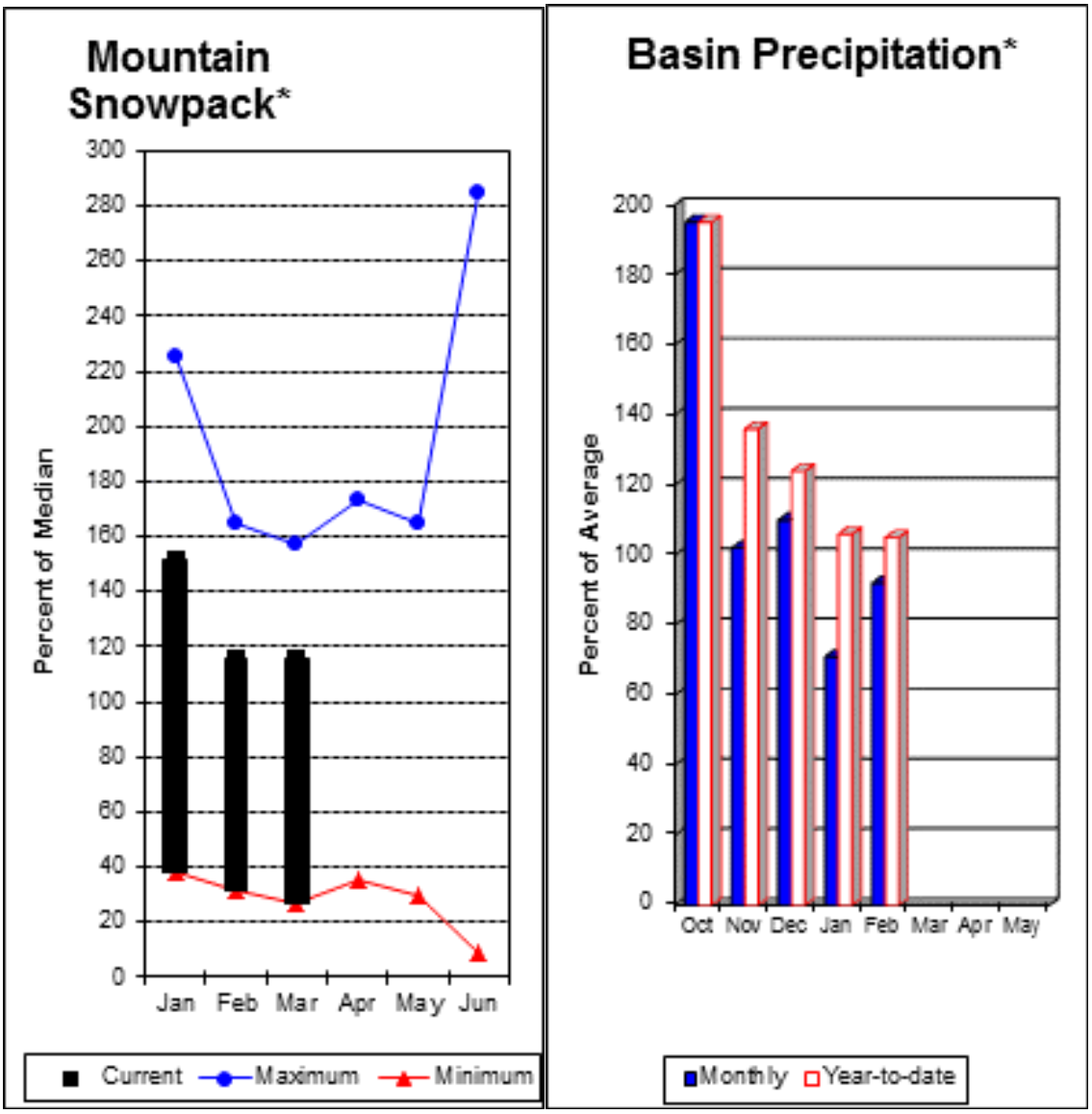
(2) - The value is natural volume - actual volume may be affected by upstream water management.

CEDAR, SNOQUALMIE, SKYKOMISH Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Mar 08, 2013



North Puget Sound River Basins



*Based on selected stations

Forecast for Skagit River streamflow at Newhalem is 98% of average for the spring and summer period. February streamflow in Skagit River was 64% of average. Other forecast points included Baker River at 104% and Thunder Creek at 99% of average. Basin-wide precipitation for February was 92% of average, bringing water-year-to-date to 105% of average. March 1 median snow cover in Skagit River Basin was 105% and Nooksack River Basin was 128% of normal. Baker River Basin data was not available at this time. The most snow measured in the basins and in the state was at Easy Pass SNOTEL with 85.6 inches of water content, almost 20% more than any other site in the area. March 1 Skagit River reservoir storage was 78% of average and 46% of capacity. Average temperatures for were 1-2 degrees below normal for February and for the water year.

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

Streamflow Forecasts - March 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Thunder Ck Nr Newhalem	APR-JUL	197	215	230	98	245	265	235
	APR-SEP	285	310	325	99	340	365	330
Skagit R At Newhalem	APR-JUL	1430	1580	1680	100	1780	1930	1680
	APR-SEP	1710	1880	1990	98	2100	2270	2030
Baker R nr Concrete (2)	APR-JUL	640	735	800	103	865	960	780
	APR-SEP	805	935	1020	104	1110	1240	980

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
ROSS	1404.1	646.5	766.6	832.4
DIABLO RESERVOIR	90.6	86.0	85.7	---

NORTH PUGET SOUND RIVER BASINS
Watershed Snowpack Analysis - March 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
SKAGIT RIVER	14	83	105
BAKER RIVER	0	112	0
NOOKSACK RIVER	2	101	130

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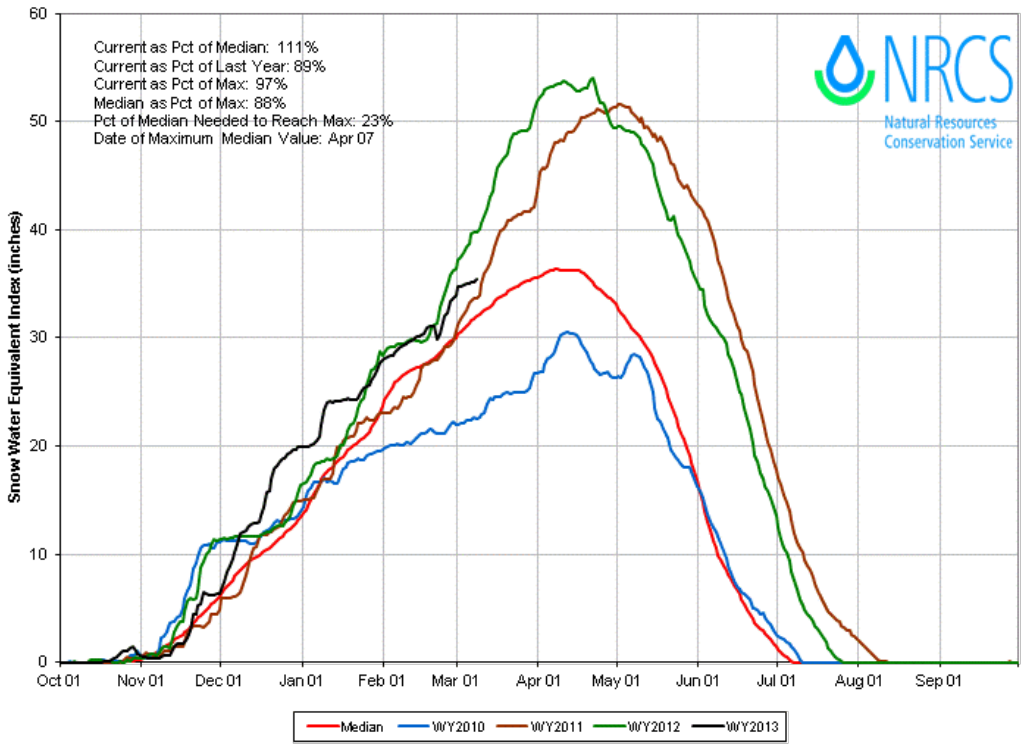
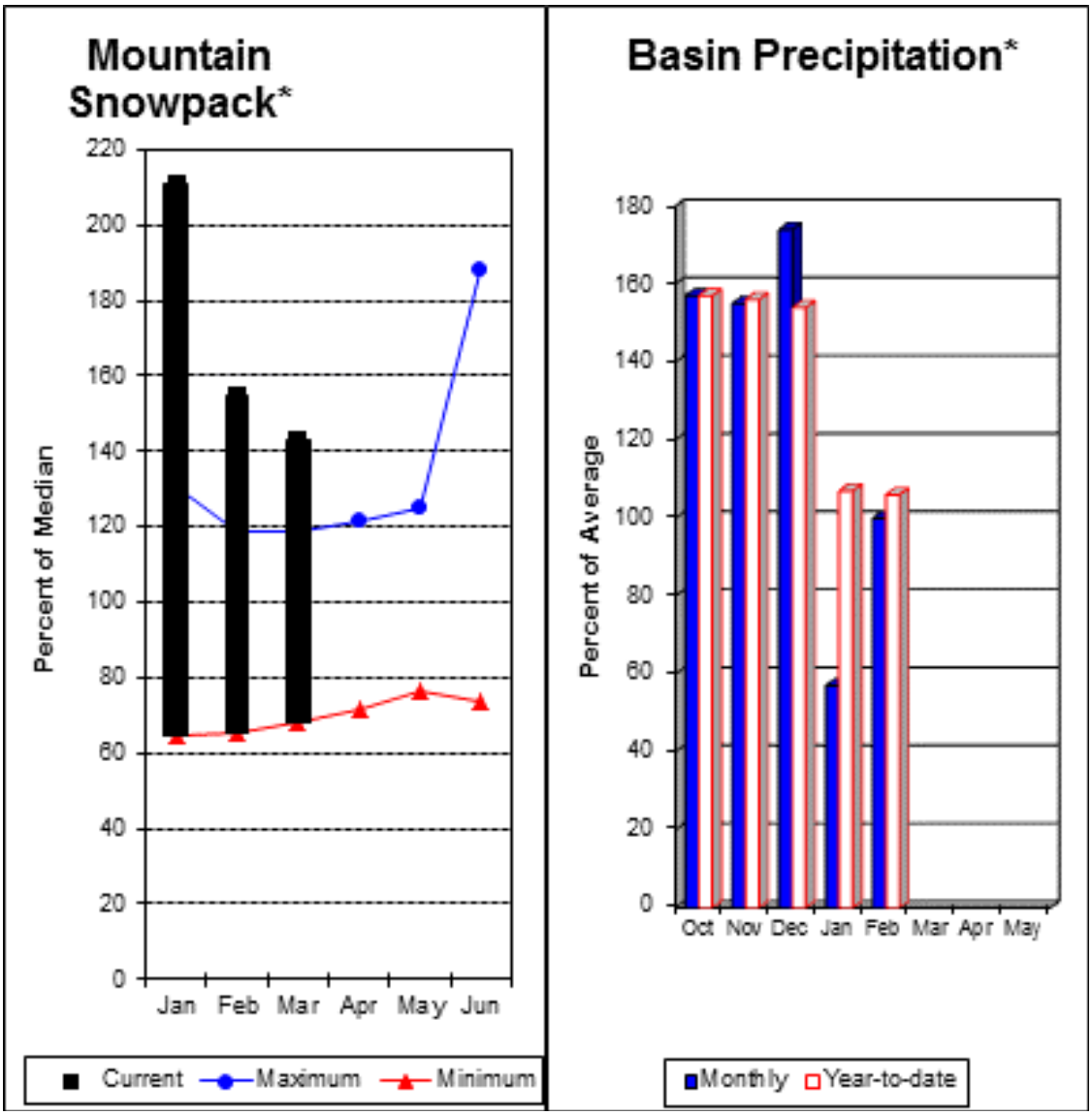
(2) - The value is natural volume - actual volume may be affected by upstream water management.

BAKER, SKAGIT, NOOKSACK Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Mar 08, 2013



Olympic Peninsula River Basins



*Based on selected stations

Forecasted average runoff for streamflow for the Dungeness River is 108% and Elwha River is 112%. February runoff in the Dungeness River was 83% of normal. Big Quilcene and Wynoochee rivers should expect above average runoff this summer as well. February precipitation was 100% of average. Precipitation has accumulated at 106% of average for the water year. February precipitation at Quillayute was 11.77 inches. The 1981-2010 average for February is 10.35 inches. Olympic Peninsula snowpack averaged 143% of normal on March 1. Temperatures were near average for February and slightly below normal for the water year.

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

Streamflow Forecasts - March 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Dungeness R Nr Sequim	APR-JUL	107	120	129	108	138	151	120
	APR-SEP	128	145	156	108	167	184	145
Elwha R At Mcdonald Bridge	APR-JUL	380	420	450	113	480	520	400
	APR-SEP	435	490	525	112	560	615	470

OLYMPIC PENINSULA RIVER BASINS
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

OLYMPIC PENINSULA RIVER BASINS
Watershed Snowpack Analysis - March 1, 2013

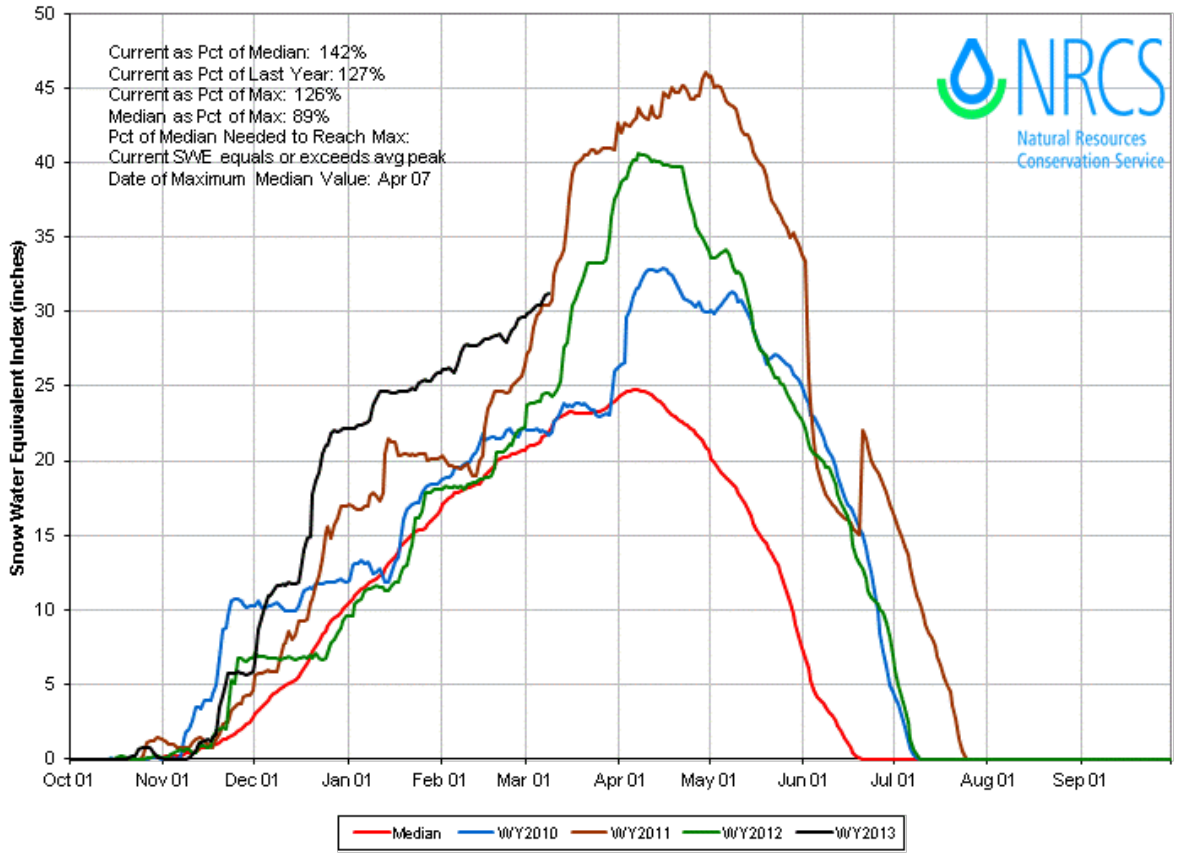
Watershed	Number of Data Sites	This Year as % of Last Yr	Median
OLYMPIC PENINSULA	6	126	143

* 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 1981-2010 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 Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Mar 08, 2013



Issued by

Jason Weller
Acting 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 Energy
	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.**

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

United States Department of Agriculture

NRCS Natural Resources Conservation Service

Washington
Water Supply Outlook Report
April 1, 2013

Rimed Old Snag on Naneum Ridge, Kittitas Co. WA Corey Bonsen, Yakima, WA, 2/25/2013

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

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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.

Washington
Water Supply Outlook

April 2013

General Outlook

Washington received normal mountain snowfall for much of March however come the final week of the month above normal temperatures dominated the region. Snow pack appears to have reached its' apex in most areas and has begun to melt and fill rivers and streams. The general rule is that April 1 usually marks the peak of snow accumulation however as with all averages we once again broke the rules with heavy mountain snowfall on April 7-8. Accumulations of up to 21 inches were reported in the south-central Cascade Range. Weather forecasts are calling for slightly below normal temperatures but equal chances of below, normal or above average precipitation over the next few months. The Climate Prediction Center has announced the continuation of Enso neutral conditions for the foreseeable future. Cooler temperatures will be good news for a slow sustainable melt cycle.

Snowpack

The April 1 statewide SNOTEL readings were 112%, down slightly from last month. Manual snow surveys found a very ripe snowpack this month with snow densities near to well above 40%, which is slightly ahead of normal. Snow typically begins the full melt phase at 47-50% density. The Lower Snake Basin reported the lowest readings at 81% of normal. Readings from the Central Puget Sound and Olympics reported the highest at 130% of normal. Westside medians from SNOTEL, and April 1 snow surveys, included the North Puget Sound river basins with 122% of normal, the Olympics 130%, South Puget river basins with 110%, and the Lewis-Cowlitz basins with 120% of normal. Snowpack along the east slopes of the Cascade Mountains included the Yakima area with 92% and the Wenatchee area with 88%. Snowpack in the Spokane and Pend Oreille basin reported 90% and 93% of the long term median respectfully. Maximum snow cover in Washington was at Easy Pass SNOTEL, with water content of 100 inches or approximately 20 feet deep. Easy Pass is only a few years old so a normal has yet to be established.

BASIN	PERCENT OF LAST YEAR	PERCENT OF MEDIAN
Spokane	65	90
Newman Lake	65	121
Pend Oreille	76	93
Okanogan	93	105
Methow	76	110
Conconully Lake	91	116
Central Columbia	69	88
Upper Yakima	64	89
Lower Yakima	68	94
Ahtanum Creek	58	88
Walla Walla	72	88
Lower Snake	66	81
Cowlitz	78	121
Lewis	81	120
White	75	101
Green	75	123
Puyallup	73	106
Cedar	68	130
Snoqualmie	90	131
Skykomish	96	131
Skagit	67	108
Baker	95	133
Nooksack	84	128
Olympic Peninsula	83	130

Precipitation

During the month of March, the National Weather Service and Natural Resources Conservation Service climate stations reported below normal precipitation in all river basins with the exception of the northwest corner and the western Olympics which reported slightly above normal. Another relatively dry month has caused water year averages to shrink further. The highest percent of average in the state was at Quillayute Airport which reported 148% of average for a total of 15.99 inches. The average for this site is 10.83 inches for March. The driest location was at Yakima Airport which received .77 inches which is still above normal. The wettest spot in the state was reported at Skookum Creek SNOTEL in the Tolt River Basin with a March accumulation of 19.2 inches or 127% of normal. April started dry and warm but soon switched gears to cool and rainy.

RIVER BASIN	MARCH PERCENT OF AVERAGE	WATER YEAR PERCENT OF AVERAGE
Spokane	85	99
Pend Oreille	92	111
Upper Columbia	64	107
Central Columbia	81	97
Upper Yakima	89	94
Lower Yakima	67	96
Walla Walla	78	102
Lower Snake	66	95
Lower Columbia	64	105
South Puget Sound	75	101
Central Puget Sound	106	104
North Puget Sound	111	106
Olympic Peninsula	90	105

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 624,000-acre feet, 122% of average for the Upper Reaches and 166,000-acre feet or 110% of average for Rimrock and Bumping Lakes. Storage at the Okanogan reservoirs was 96% of average for April 1. The power generation reservoirs included the following: Coeur d'Alene Lake, 138,000 acre feet, 83% of average and 58% of capacity; and the Skagit River reservoirs at 42% of average and 80% of capacity. Recent climate impacts and management procedures may affect these numbers on a daily or weekly basis.

BASIN	PERCENT OF CAPACITY	CURRENT STORAGE AS PERCENT OF AVERAGE
Spokane	58	83
Pend Oreille	57	113
Upper Columbia	79	92
Central Columbia	N/A	N/A
Upper Yakima	75	122
Lower Yakima	72	110
Lower Snake	81	116
North Puget Sound	42	80

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

Streamflow

Forecasts vary from 80% of average for streams in the Spokane and Central Columbia basins to 137% of average for S.F. Tolt River near Index. April-September forecasts for some Western Washington streams include the Cedar River near Cedar Falls, 109%; White River, 99%; and Skagit River, 98%. Some Eastern Washington streams include the Yakima River near Parker, 87%: Wenatchee River at Plain, 88%; and Kettle near Laurier, 109%. Volumetric forecasts are developed using current, historic and average snowpack, precipitation and streamflow data collected and coordinated by organizations cooperating with NRCS.

For the most part runoff was near normal as temperatures began to rise and snowmelt began to fill streams. The Skagit River had the highest reported flows with 115% of average. The Grand Ronde at Troy with 81% of average had the least non-regulated runoff. Other streamflows were the following percentage of average as reported by the River Forecast Center: the Cowlitz at Castle Rock, 90%; the Columbia below Rock Island Dam, 94%; the Priest River, 81% and the Dungeness River, 77%.

BASIN	PERCENT OF AVERAGE (50 PERCENT CHANCE OF EXCEEDENCE)
Spokane	80-91
Pend Oreille	93-99
Upper Columbia	82-109
Central Columbia	80-97
Upper Yakima	84-88
Lower Yakima	86-97
Walla Walla	91-93
Lower Snake	79-94
Lower Columbia	90-114
South Puget Sound	99-102
Central Puget Sound	100-137
North Puget Sound	97-98
Olympic Peninsula	108-112

STREAM	PERCENT OF AVERAGE MARCH STREAMFLOWS
Pend Oreille Below Box Canyon	77
Kettle at Laurier	65
Columbia at Birchbank	95
Spokane at Long Lake	65
Similkameen at Nighthawk	74
Okanogan at Tonasket	110
Methow at Pateros	105
Chelan at Chelan	66
Wenatchee at Pashastin	59
Cle Elum near Roslyn	49
Yakima at Parker	54
Naches at Naches	46
Grande Ronde at Troy	61
Snake below Lower Granite Dam	68
SF Walla Walla near Milton-Freewater, OR	82
Columbia River at The Dalles	78
Cowlitz below Mayfield Dam	71
Skagit at Concrete	64
Dungeness near Sequim	83

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. Warm temperatures and rain-on-snow events of March pushed most soils moisture levels up a few percentage points. With a solid snowpack over most of the mountainous regions of the state these numbers should hold and will help provide maximum runoff come spring.

BASIN	ESTIMATED PERCENT SATURATION
Spokane	70
Pend Oreille	79
Upper Columbia	73
Central Columbia	74
Upper Yakima	86
Lower Yakima	85
Walla Walla	80
Lower Snake	80
Lower Columbia	86
South Puget Sound	82
Central Puget Sound	N/A
North Puget Sound	91
Olympic Peninsula	45

Western Snow Conference

The Western Snow Conference is an annual tradition which started in 1932 as an international forum for individuals and organizations to share scientific, management and socio-political information on snow and runoff. The principal aim of the Western Snow Conference is to advance snow and hydrological sciences. The North Continental Area Committee is making plans for the 81st Annual Western Snow Conference in 2013.

Mark your calendar and start thinking about submitting a paper to attend the 2013 Western Snow Conference:

Dates: April 15-18, 2013
Location: Snow King Resort Jackson Hole, Wyoming http://www.snowking.com
Theme: "Wild Weather in the Wild West"

A short course and panel discussion is being planned for Monday April 15th titled "**New Strategies and Techniques in Long Range Streamflow Forecasting".** Many agencies use long range streamflow forecasts for hydropower planning, reservoir operation and marketing. This will provide a forum to discuss the current state of forecasting, the advancement of long range forecasting, additional needs of agencies, and more.

A Technical Tour is scheduled for Thursday, April 18th to discover how the local environment plays a critical role in the snowpack of the area. This will be an all day bus trip and a great opportunity to view the majestic landscape that so many have been studying and talking about.

Additional information about the conference and the Call for Papers will be posted on the WSC web page at http://www.westernsnowconference.org/

Also find Western Snow Conference on Facebook and Twitter.

B A S I N S U M M A R Y O F
S N O W C O U R S E D A T A

APRIL 2013

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
ABERDEEN LAKE CAN.	4000	3/26/13	18	5.7	6.0	5.6
AHTANUM R.S.	3100	3/26/13	0	.0	.0	2.8
ALPINE MEADOWS	3500	4/01/13	133	59.8	60.2	40.2
ALPINE MEADOWS SNTL	3500	4/01/13	135	73.7	67.4	51.0
AMBROSE	6480	3/24/13	41	9.9	14.2	10.4
ASHLEY DIVIDE	4820	3/25/13	12	2.8	6.6	4.4
BADGER PASS SNOTEL	6900	4/01/13	80	32.3	42.3	29.8
BAIRD #2	3220	3/28/13	17	5.6	6.4	6.8
BAREE CREEK	5500	3/26/13	93	36.7	42.7	34.9
BAREE MIDWAY	4600	3/26/13	70	25.5	36.0	27.8
BAREE TRAIL	3800	3/26/13	23	7.8	12.2	7.2
BARKER LAKES SNOTEL	8250	4/01/13	42	12.0	13.6	13.9
BARNES CREEK CAN.	5320	3/28/13	52	18.8	22.3	20.4
BASIN CREEK SNOTEL	7180	4/01/13	25	6.0	6.4	7.5
BASSOO PEAK	5150	3/28/13	20	6.6	10.5	7.8
BEAVER CREEK TRAIL	2200	3/31/13	34	12.8	25.2	9.2
BEAVER PASS	3680	3/29/13	86	37.0	42.2	26.0
BEAVER PASS SNOTEL	3630	4/01/13	101	44.6	60.4	32.8
BLACK MOUNTAIN	7750	3/22/13	43	11.3	15.5	14.1
BLACK PINE SNOTEL	7100	4/01/13	25	7.9	13.2	9.6
BLEWETT PASS#2SNOTEL	4240	4/01/13	11	6.0	19.5	13.9
BONAUPART SOUTH	4660	3/29/13	18	5.6	5.7	--
BRENDA MINE CAN.	4450	3/27/13	33	10.0	11.6	12.5
BROOKMERE CAN.	3000	3/31/13	18	5.7	8.8	7.9
BROWN TOP AM	6000	3/29/13	131	54.4	73.1	53.4
BROWNS PASS		3/27/13	4	1.5	2.1	--
BRUSH CREEK TIMBER	5000	3/28/13	30	10.0	15.7	6.1
BUCKINGHORSE SNOTEL	4870	4/01/13	137	64.5	84.3	--
BULL MOUNTAIN	6600	3/28/13	17	6.1	4.4	5.6
BUMPING LAKE (NEW)	3400	4/01/13	30	12.5	23.9	15.8
BUMPING RIDGE SNOTEL	4610	4/01/13	57	22.0	37.8	25.8
BUNCHGRASS MDWSNOTEL	5000	4/01/13	63	23.0	33.6	26.2
BURNT MOUNTAIN PIL	4170	4/01/13	55	21.7	28.9	16.3
BUTTE CREEK #2		3/27/13	23	7.4	7.9	--
BUTTERMILK BUTTE	5250	3/26/13	40	13.0	15.4	--
CALAMITY SNOTEL	2500	4/01/13	0	.0	3.9	--
CAYUSE PASS SNOTEL	5240	4/01/13	135	59.1	75.7	--
CHESSMAN RESERVOIR	6200	3/27/13	14	4.8	5.5	2.6
CHEWALAH #2	4930	3/25/13	46	15.9	20.5	16.3
CHICKEN CREEK	4060	3/28/13	42	16.4	18.6	13.8
CHIWAUKUM G.S.	2500	3/26/13	15	4.2	--	7.9
CITY CABIN	2390	4/01/13	17	8.5	21.0	8.5
COLD CREEK STRIP	6020	3/27/13	36	10.8	9.5	8.5
COLOCKUM PASS	5370	3/26/13	37	13.0	16.2	15.0
COMBINATION SNOTEL	5600	4/01/13	8	2.8	2.9	4.2
COPPER BOTTOM SNOTEL	5200	4/01/13	0	.0	5.5	--
COPPER MOUNTAIN	7700	3/25/13	33	7.0	8.7	9.9
CORRAL PASS SNOTEL	5800	4/01/13	78	31.9	44.0	33.7
COTTONWOOD CREEK	6400	3/22/13	23	6.1	8.0	7.3
COUGAR MTN. SNOTEL	3200	4/01/13	47	23.3	27.3	14.1
COX VALLEY	4500	3/28/13	99	42.4	51.1	36.0
DALY CREEK SNOTEL	5780	4/01/13	24	8.1	11.2	9.6
DEER PARK	5200	3/29/13	53	21.3	--	16.7
DESERT MOUNTAIN	5600	3/26/13	42	13.2	14.8	12.6
DEVILS PARK	5900	3/30/13	90	38.6	57.9	38.7
DISAUTEL PASS		3/26/13	16	5.1	5.8	--
DISCOVERY BASIN	7050	3/27/13	27	7.6	11.8	9.2
DIX HILL	6400	3/30/13	18	6.0	10.4	9.1
DOMMERIE FLATS	2200	4/01/13	0	.0	6.1	.0
DUNCAN RIDGE	5370	3/27/13	20	6.6	7.0	4.7
DUNGENESS SNOTEL	4010	4/01/13	25	11.8	15.6	5.4
EL DORADO MINE	7800	3/26/13	32	8.7	16.3	17.4
ELBOW LAKE SNOTEL	3200	4/01/13	---	48.0	57.7	36.9
EMERY CREEK SNOTEL	4350	4/01/13	---	13.3	14.6	13.7
ESPERON CK. MID CAN.	4250	3/31/13	37	13.6	11.6	14.6
ESPERON CK. UP CAN.	5050	3/31/13	46	16.3	15.1	17.1
FARRON CAN.	4000	3/28/13	31	10.2	12.2	12.5
FATTY CREEK	5500	3/27/13	64	21.1	26.8	21.2
FISH LAKE	3370	4/01/13	62	27.6	39.1	27.4
FISH LAKE SNOTEL	3430	4/01/13	63	25.9	41.1	29.8
FLATTOP MTN SNOTEL	6300	4/01/13	125	48.1	53.4	42.0
FLEECER RIDGE	7500	3/28/13	27	7.8	10.2	9.5
FOURTH OF JULY SUM	3200	3/29/13	9	3.4	10.6	3.4
FREEZEOUT CK. TRAIL	3500	3/29/13	28	11.3	21.9	9.6
FROHNER MDWS SNOTEL	6480	4/01/13	19	6.5	9.1	7.4
FROST MEADOWS	4630	3/29/13	44	17.0	24.4	16.5
GOAT CREEK	3600	3/27/13	17	4.9	6.4	2.8
GOLD MTN LOOKOUT		3/28/13	20	7.6	15.2	--
GRAVE CRK SNOTEL	4300	4/01/13	37	14.3	18.3	13.8
GREEN LAKE SNOTEL	5920	4/01/13	66	24.2	38.1	22.3
GREYBACK RES CAN.	4700	3/26/13	36	10.0	--	9.2
GRIFFIN CR DIVIDE	5150	3/28/13	22	6.3	9.7	8.4
GROUSE CAMP SNOTEL	5390	4/01/13	24	12.6	26.4	18.0
HAMILTON HILL CAN.	4550	3/30/13	25	8.5	14.4	14.0
HAND CREEK SNOTEL	5030	4/01/13	19	7.2	12.9	11.1
HARTS PASS SNOTEL	6490	4/01/13	83	43.8	52.7	41.2
HARTS PASS	6500	3/30/13	96	41.7	--	36.7
HELL ROARING DIVIDE	5770	3/26/13	72	26.1	29.8	25.8
HERRIG JUNCTION	4850	3/28/13	60	22.8	27.1	24.1
HIGH RIDGE SNOTEL	4920	4/01/13	49	19.2	24.9	20.7
HOLBROOK	4530	3/30/13	12	4.1	5.9	6.8
HOODOO BASIN SNOTEL	6050	4/01/13	105	36.6	48.6	38.9
HUCKLEBERRY SNOTEL	2250	4/01/13	0	.0	3.4	.0
HUMBOLDT GLCH SNOTEL	4250	4/01/13	30	9.5	18.4	9.1
HURRICANE	4500	3/26/13	59	23.1	--	15.0
INDIAN ROCK SNOTEL	5360	4/01/13	54	23.7	42.6	--
IRENE'S CAMP	5530	3/27/13	33	9.0	10.2	8.6
ISINTOK LAKE CAN.	5100	3/28/13	23	7.0	7.9	7.2
JUNE LAKE SNOTEL	3440	4/01/13	106	53.7	60.2	34.5
KELLER RIDGE	3700	3/27/13	10	3.8	4.7	--
KELLOGG PEAK	5560	3/29/13	47	18.3	25.7	24.7
KISHENEHN	3890	3/27/13	22	7.2	9.5	6.6
KLESILKWA CAN.	3450	3/27/13	35	12.0	--	11.5
KRAFT CREEK SNOTEL	4750	4/01/13	26	9.6	13.4	--
LAMB BUTTE		3/25/13	42	16.0	20.5	--
LIGHTNING LAKE CAN.	3700	3/29/13	33	11.0	17.5	12.0
LOGAN CREEK	4300	3/28/13	19	4.2	7.8	5.8
LOLO PASS SNOTEL	5240	4/01/13	58	21.9	31.8	27.1
LONE PINE SNOTEL	3930	4/01/13	97	49.3	57.2	35.2
LOOKOUT SNOTEL	5140	4/01/13	59	22.5	34.0	26.2
LOST HORSE MTN CAN.	6300	3/31/13	33	9.8	9.6	9.4
LOST HORSE SNOTEL	5120	4/01/13	36	14.4	27.9	18.6
LOST LAKE SNOTEL	6110	4/01/13	107	41.8	58.7	52.3
LOST LAKE	4070	3/29/13	20	6.1	6.4	--
LOUP LOUP CAMPGROUND		3/28/13	25	8.6	8.2	--
LOWER SANDS CREEK #2	3120	3/29/13	46	17.2	23.8	16.9
LUBRECHT FOREST NO 3	5450	3/29/13	8	2.3	4.8	4.6
LUBRECHT FOREST NO 4	4650	3/29/13	0	.0	.6	.4
LUBRECHT FOREST NO 6	4040	3/29/13	0	.0	1.1	.6
LUBRECHT HYDROPLOT	4200	3/29/13	0	.0	3.7	.6
LUBRECHT SNOTEL	4680	4/01/13	0	.0	4.0	1.6
LYMAN LAKE SNOTEL	5980	4/01/13	130	54.4	66.2	57.6
LYNN LAKE	4000	4/01/13	78	33.0	37.6	18.0
LYNN LAKE SNOTEL	3900	4/01/13	78	33.5	37.6	--
MARIAS PASS	5250	3/30/13	38	14.2	19.2	14.4
MARTEN RIDGE SNOTEL	3520	4/01/13	136	71.5	88.2	--
MAZAMA		3/28/13	6	2.6	9.6	--
MCCULLOCH CAN.	4200	3/28/13	21	6.6	7.4	6.1
MEADOWS CABIN	1900	3/31/13	0	.0	8.4	.6
MEADOWS PASS SNOTEL	3230	4/01/13	70	33.1	46.5	20.6
METEOR		3/28/13	0	.0	3.3	--
M F NOOKSACK SNOTEL	4970	4/01/13	140	70.3	84.8	59.1
MICA CREEK SNOTEL	4510	4/01/13	45	18.7	25.5	20.3
MINERAL CREEK	4000	4/01/13	29	11.0	15.4	15.4
MISSEZULA MTN CAN.	5080	3/31/13	25	6.6	9.7	9.5
MISSION RIDGE	5000	3/26/13	40	14.2	15.6	15.4
MONASHEE PASS CAN.	4500	3/28/13	35	11.6	--	13.5
MORSE LAKE SNOTEL	5410	4/01/13	108	55.2	70.8	52.3
MOSES MOUNTAIN (2)	4800	3/28/13	49	17.9	21.0	13.4
MOSES MTN SNOTEL	5010	4/01/13	46	19.9	18.5	14.6
MOSES PEAK	6650	3/28/13	75	30.3	29.3	20.1
MOSQUITO RDG SNOTEL	5200	4/01/13	77	32.4	47.8	31.6
MOUNT CRAG SNOTEL	3960	4/01/13	89	35.2	45.3	28.5
MT. KOBAU CAN.	5500	3/27/13	50	19.7	12.3	12.5
MOUNT TOLMAN	2000	3/29/13	0	.0	.0	.0
MOWICH SNOTEL	3160	4/01/13	0	.0	1.3	.0
MOUNT GARDNER	3300	4/01/13	35	15.8	24.7	9.5
MOUNT GARDNER SNOTEL	2920	4/01/13	41	16.6	24.5	12.9
MUTTON CREEK #1	5700	3/26/13	44	15.8	16.6	12.8
N.F. ELK CR SNOTEL	6250	4/01/13	28	8.3	14.2	10.6
NEVADA RIDGE SNOTEL	7020	4/01/13	40	12.3	20.3	13.9
NEW HOZOMEEN LAKE	2800	3/29/13	12	5.2E	16.7	7.0
NEZ PERCE CMP SNOTEL	5650	4/01/13	36	11.9	14.4	13.0
NOISY BASIN SNOTEL	6040	4/01/13	102	40.9	39.5	39.3
NORTH FORK JOCKO	6330	3/27/13	100	40.4	40.4	38.4
OLALLIE MDWS SNOTEL	4030	4/01/13	115	56.0	75.1	50.0
OPHIR PARK	7150	3/30/13	32	9.6	15.8	14.8
OYAMA LAKE CAN.	4100	3/28/13	19	5.4	6.8	6.7
PARADISE SNOTEL	5130	4/01/13	146	78.2	82.2	67.0
PARK CK RIDGE SNOTEL	4600	4/01/13	87	47.1	59.1	44.4
PEPPER CREEK SNOTEL	2140	4/01/13	12	5.5	9.9	--
PETERSON MDW SNOTEL	7200	4/01/13	32	8.5	10.2	9.6
PETTIJOHN CREEK	4300	3/29/13	16	5.4	6.1	--
PIGTAIL PEAK SNOTEL	5800	4/01/13	112	49.8	75.8	50.2
PIKE CREEK SNOTEL	5930	4/01/13	29	8.2	15.0	22.9
PIPESTONE PASS	7200	3/25/13	18	4.7	3.8	4.6
POPE RIDGE SNOTEL	3590	4/01/13	35	13.4	23.2	15.8
POTATO HILL SNOTEL	4510	4/01/13	78	30.1	43.6	24.9
QUARTZ PEAK SNOTEL	4700	4/01/13	41	16.0	28.0	18.9
RAGGED MTN SNOTEL	4210	4/01/13	43	17.9	29.8	20.7
RAGGED RIDGE	3330	3/26/13	11	4.4	6.9	1.0
RAINY PASS SNOTEL	4890	4/01/13	73	33.5	50.3	36.5
RAINY PASS	4780	3/30/13	71	31.2	51.1	--
REX RIVER SNOTEL	3810	4/01/13	92	43.3	58.0	34.7

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
ROCKER PEAK SNOTEL	8000	4/01/13	40	10.8	15.2	12.4
ROLAND SUMMIT	5120	3/28/13	77	30.0	42.7	31.0
ROUND TOP MTN	4020	3/26/13	30	11.6	17.0	--
RUSTY CREEK	4000	3/26/13	17	5.7	5.5	4.9
SADDLE MTN SNOTEL	7900	4/01/13	57	20.1	26.1	22.9
SALMON MDWS SNOTEL	4460	4/01/13	25	9.7	12.1	9.1
SASSE RIDGE SNOTEL	4340	4/01/13	67	28.1	43.1	31.4
SATUS PASS	4030	3/26/13	19	7.1	12.0	7.0
SAVAGE PASS SNOTEL	6170	4/01/13	---	23.3	30.6	24.4
SAWMILL RIDGE SNOTEL	4640	4/01/13	78	37.6	57.6	--
SENTINEL BT SNOTEL	4680	4/01/13	28	8.8	9.8	8.1
SHEEP CANYON SNOTEL	3990	4/01/13	105	46.1	55.6	33.9
SHERWIN SNOTEL	3200	4/01/13	---	3.7	10.4	6.6
SILVER STAR MTN CAN.	5600	3/29/13	81	33.9	29.1	29.9
SKALKAHO SNOTEL	7260	4/01/13	50	17.9	24.7	21.4
SKITWISH RIDGE	5110	3/29/13	68	27.8	39.6	28.6
SKOOKUM CREEK SNOTEL	3310	4/01/13	93	54.0	57.2	29.3
SKOOKUM LAKES	4230	3/28/13	30	10.9	17.6	--
SLIDE ROCK MOUNTAIN	7100	3/26/13	45	13.6	18.4	12.9
SOURDOUGH GUL SNOTEL	4000	4/01/13	0	.0	.0	.0
SOUTH BALDY	4920	3/28/13	45	15.7	25.0	--
SPENCER MDW SNOTEL	3400	4/01/13	69	31.6	43.0	29.4
SPIRIT LAKE SNOTEL	3520	4/01/13	---	15.6	17.8	1.2
SPOTTED BEAR MTN.	7000	4/02/13	24	8.8	15.0	12.2
SPRUCE SPGS SNOTEL	5700	4/01/13	24	9.0	20.3	13.8
STARVATION MOUNTAIN	6750	3/26/13	55	22.0	22.1	15.3
STAHL PEAK SNOTEL	6030	4/01/13	93	34.5	38.9	33.3
STAMPEDE PASS SNOTEL	3850	4/01/13	79	32.9	47.6	40.3
STEMPLE PASS	6600	3/28/13	31	8.1	12.7	8.3
STEVENS PASS SNOTEL	3950	4/01/13	96	34.9	48.1	37.0
STORM LAKE	7780	3/25/13	40	10.5	13.1	12.6
STRANGER MOUNTAIN	4230	3/25/13	28	11.0	14.7	10.5
STRYKER BASIN	6180	3/28/13	86	33.4	35.9	28.2
SUMMERLAND RES CAN.	4200	3/28/13	27	8.9	9.4	8.9
SUMMIT G.S. #2	4600	3/27/13	34	10.2	10.2	8.9
SUNSET SNOTEL	5540	4/01/13	47	17.9	27.2	21.4
SURPRISE LKS SNOTEL	4290	4/01/13	105	46.5	60.6	45.5
SWAMP CREEK SNOTEL	3930	4/01/13	34	15.4	30.7	17.4
SWIFT CREEK SNOTEL	4440	4/01/13	144	70.0	81.5	61.0
TEN MILE LOWER	6600	3/25/13	27	7.6	8.9	5.7
TEN MILE MIDDLE	6800	3/25/13	35	8.8	11.4	9.8
THUNDER BASIN SNOTEL	4320	4/01/13	65	28.9	39.6	29.7
THUNDER BASIN	4200	3/31/13	51	21.0	29.6	20.0
THOMPSON CREEK	2500	3/26/13	12	3.7	3.3	.0
THOMPSON RIDGE	4650	3/25/13	30	11.0	14.6	--
TINKHAM CREEK SNOTEL	2990	4/01/13	70	28.8	41.0	26.2
TOATS COULEE	2850	3/27/13	8	2.6	2.6	.1
TOUCHET SNOTEL	5530	4/01/13	55	25.4	37.3	30.1
TRINKUS LAKE	6100	4/01/13	---	39.4E	42.6	37.2
TROUGH #2 SNOTEL	5480	4/01/13	22	8.2	16.6	8.2
TROUT CREEK CAN.	5650	3/27/13	26	8.2	9.8	7.2
TRUMAN CREEK	4060	3/25/13	6	1.5	5.9	2.5
TUNNEL AVENUE	2450	4/02/13	26	10.3	21.7	16.4
TWELVEMILE SNOTEL	5600	4/01/13	28	9.2	21.5	14.5
TWIN LAKES SNOTEL	6400	4/01/13	74	31.5	43.0	35.4
UPPER HOLLAND LAKE	6200	3/27/13	83	30.3	30.5	29.6
UPPER WHEELER SNOTEL	4330	4/01/13	21	7.9	11.6	12.2
VASEUX CREEK CAN.	4250	3/27/13	16	4.1	--	6.2
VULCAN MTN	4660	3/27/13	38	11.5	11.4	--
VULCAN ROAD	3840	3/27/13	26	8.1	8.2	--
WARM SPRINGS SNOTEL	7800	4/01/13	53	16.0	23.6	19.0
WATERHOLE SNOTEL	5010	4/01/13	100	49.0	55.3	39.4
WEASEL DIVIDE	5450	3/28/13	84	27.5	37.9	29.0
WELLS CREEK SNOTEL	4030	4/01/13	94	41.9	49.0	29.0
WHITE PASS ES SNOTEL	4440	4/01/13	52	21.3	34.4	21.6
WHITE ROCKS MTN CAN.	7200	3/31/13	62	23.9	22.2	23.1

Natural Resources Conservation Service

Washington State
Snow, Water and Climate Services

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Helpful Internet Addresses

NRCS Snow Survey and Climate Services Homepages

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

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

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

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

USDA-NRCS Agency Homepages

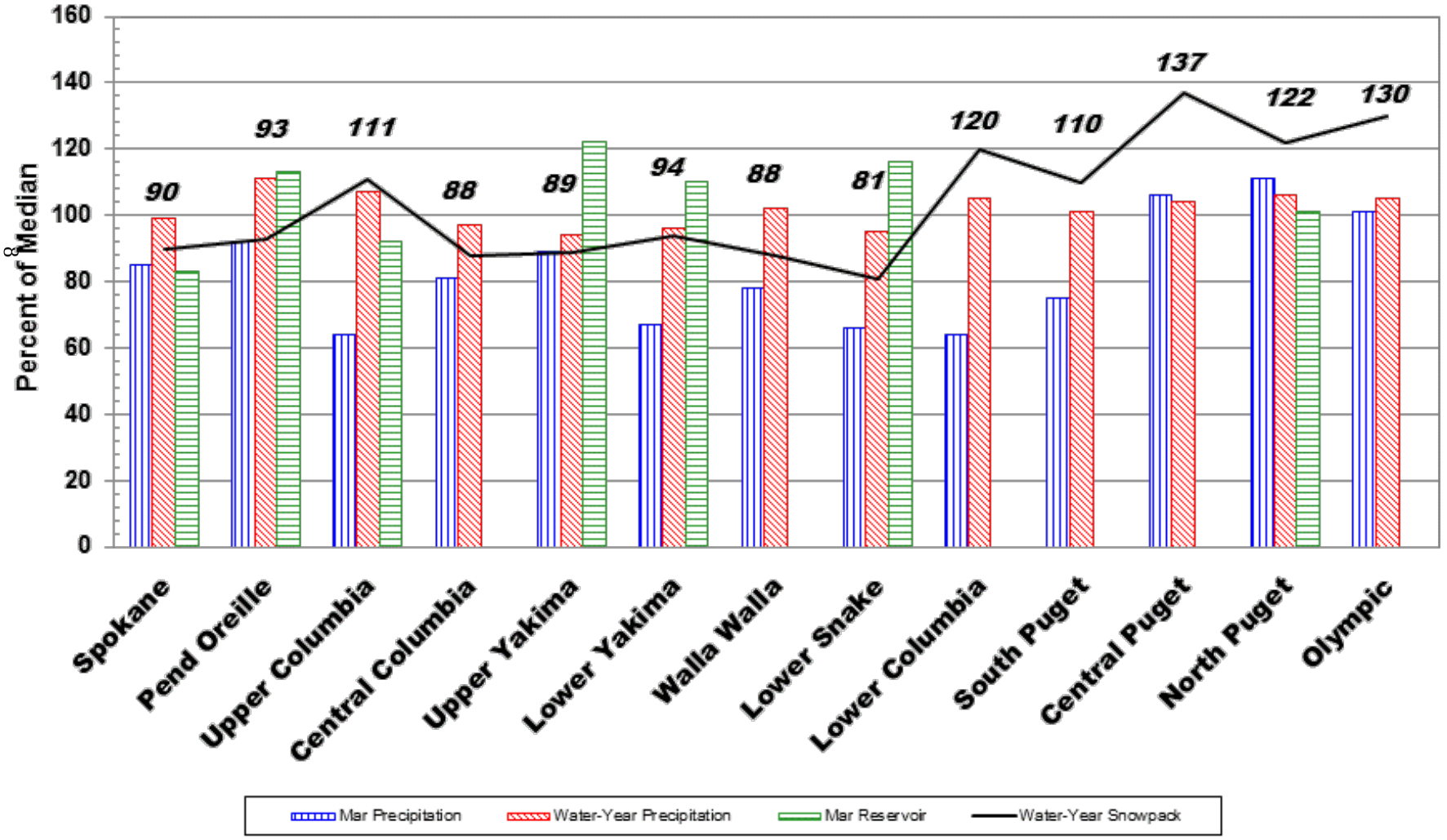
Washington:
http://www.wa.nrcs.usda.gov

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

NRCS Natural Resources Conservation Service

April 1, 2013 - Snowpack, Precipitation and Reservoir Conditions at a Glance

(Water Year = October 1, 2012 - Current Date)



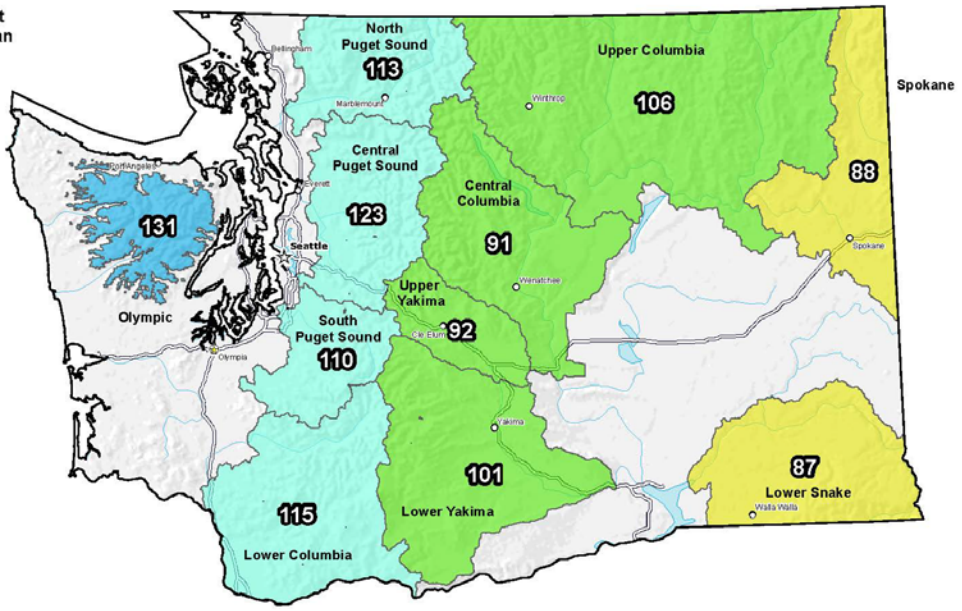
Washington SNOTEL Current Snow Water Equivalent (SWE) % of Normal

Apr 01, 2013

Current Snow Water Equivalent (SWE) Basin-wide Percent of 1981-2010 Median

- unavailable *
- <50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- >=150%

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



Provisional Data Subject to Revision

USDA NRCS

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

Prepared by the USDA/NRCS National Water and Climate Center
Portland, Oregon http://www.wcc.nrcs.usda.gov/gis/
Based on data from http://www.wcc.nrcs.usda.gov/reports/
Science contact: Jim.Marron@por.usda.gov 503 414 3047

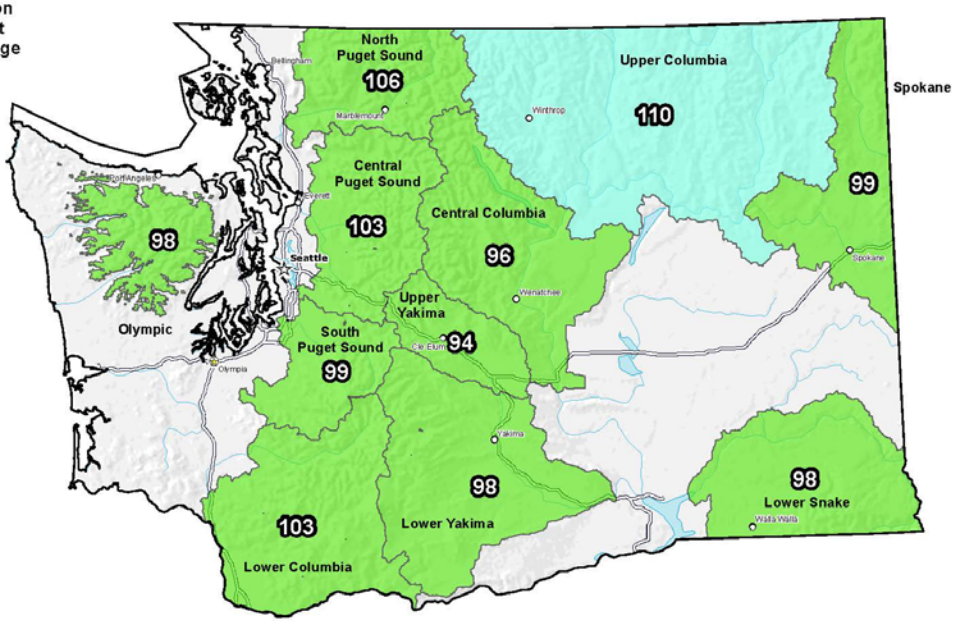
Washington SNOTEL Water Year (Oct 1) to Date Precipitation % of Normal

Apr 01, 2013

Water Year (Oct 1) to Date Precipitation Basin-wide Percent of 1981-2010 Average

- unavailable *
- <50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- >=150%

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



Provisional Data Subject to Revision

USDA NRCS

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

Prepared by the USDA/NRCS National Water and Climate Center
Portland, Oregon http://www.wcc.nrcs.usda.gov/gis/
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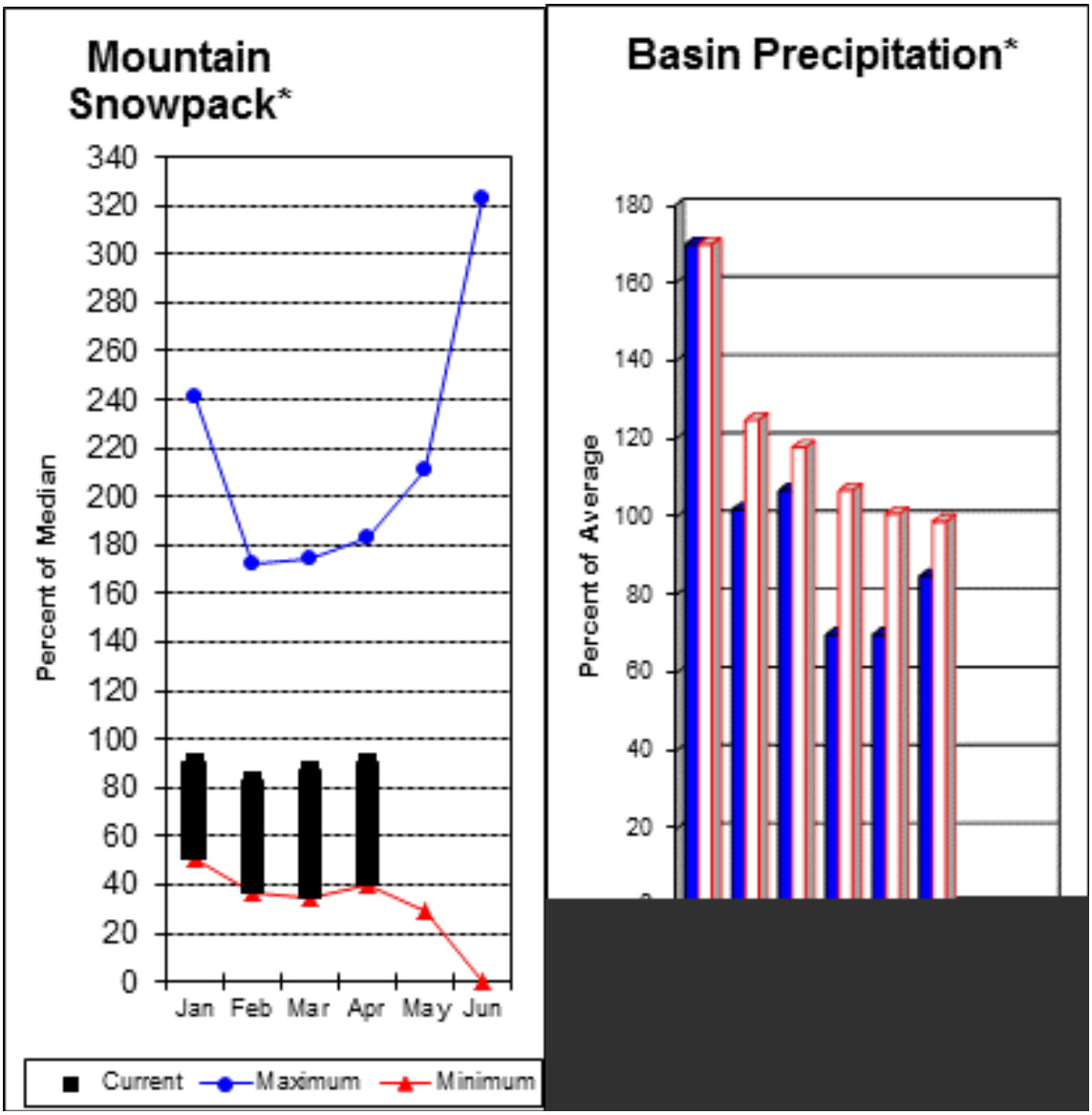
Spokane River Basin



*Based on selected stations

The April 1 forecasts for summer runoff within the Spokane River Basin are 80% of average near Post Falls and 81% at Long Lake. The Chamokane River near Long Lake forecast is 91% for the May-August period. The forecast is based on a basin snowpack that is 90% of normal and precipitation that is 92% of average for the water year. Precipitation for March was below normal at 85% of average. Streamflow on the Spokane River at Long Lake was 91% of average for March. April 1 storage in Coeur d'Alene Lake was 138,000 acre feet, 83% of average and 58% of capacity. Snowpack at Quartz Peak SNOTEL site was 85% of normal with 16 inches of water content. Average temperatures in the Spokane basin were near normal for March and 1-2 degrees above normal for the water year.

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

Streamflow Forecasts - April 1, 2013

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Spokane R nr Post Falls (2)	APR-JUL	1340	1670	1900	80	2130	2460	2390
	APR-SEP	1400	1750	1980	80	2210	2560	2480
Spokane R at Long Lake (2)	APR-JUL	1460	1820	2070	79	2320	2680	2620
	APR-SEP	1660	2040	2300	81	2560	2940	2850
Chamokane Ck nr Long Lake	MAY-AUG	4.8	7.0	8.5	91	10.0	12.2	9.3

SPOKANE RIVER BASIN
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Coeur d'Alene	238.5	138.1	302.7	165.5

SPOKANE RIVER BASIN
Watershed Snowpack Analysis - April 1, 2013

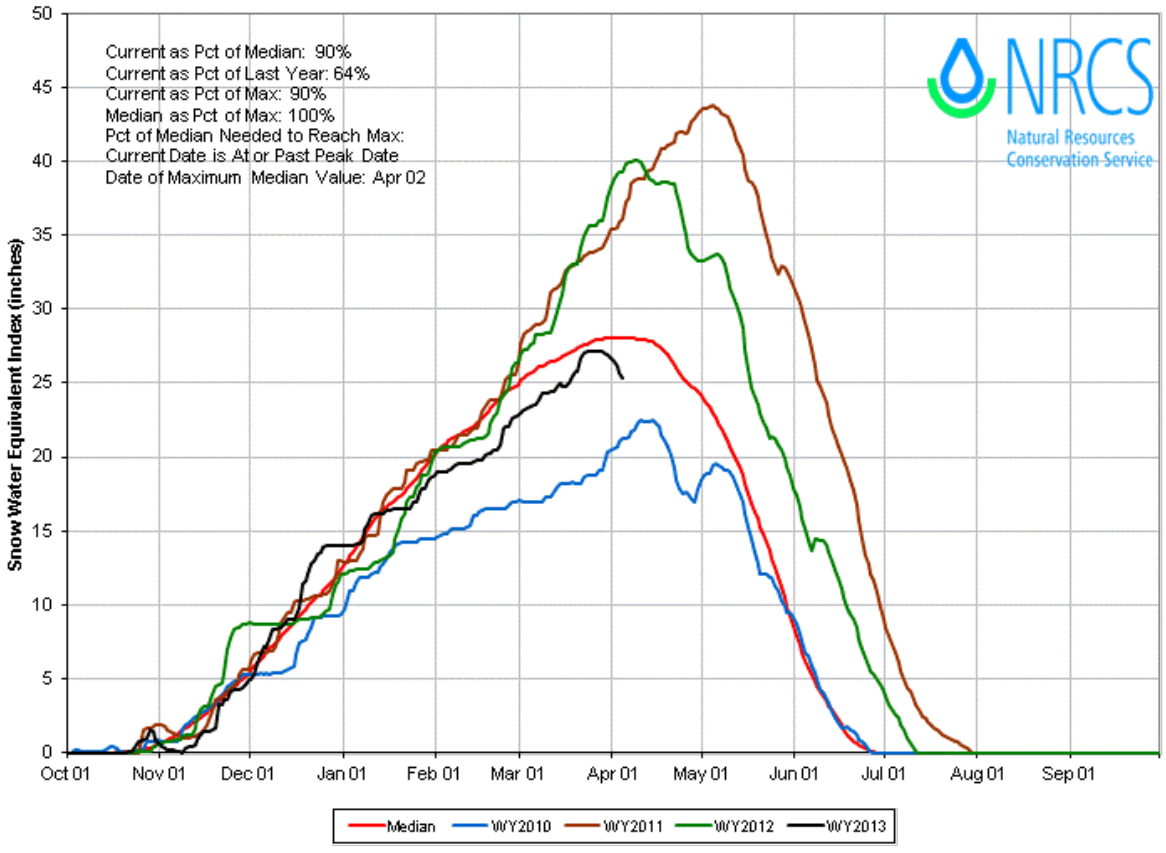
Watershed	Number of Data Sites	This Year as % of Last Yr	Median
SPOKANE RIVER	16	65	90
NEWMAN LAKE	3	65	121

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

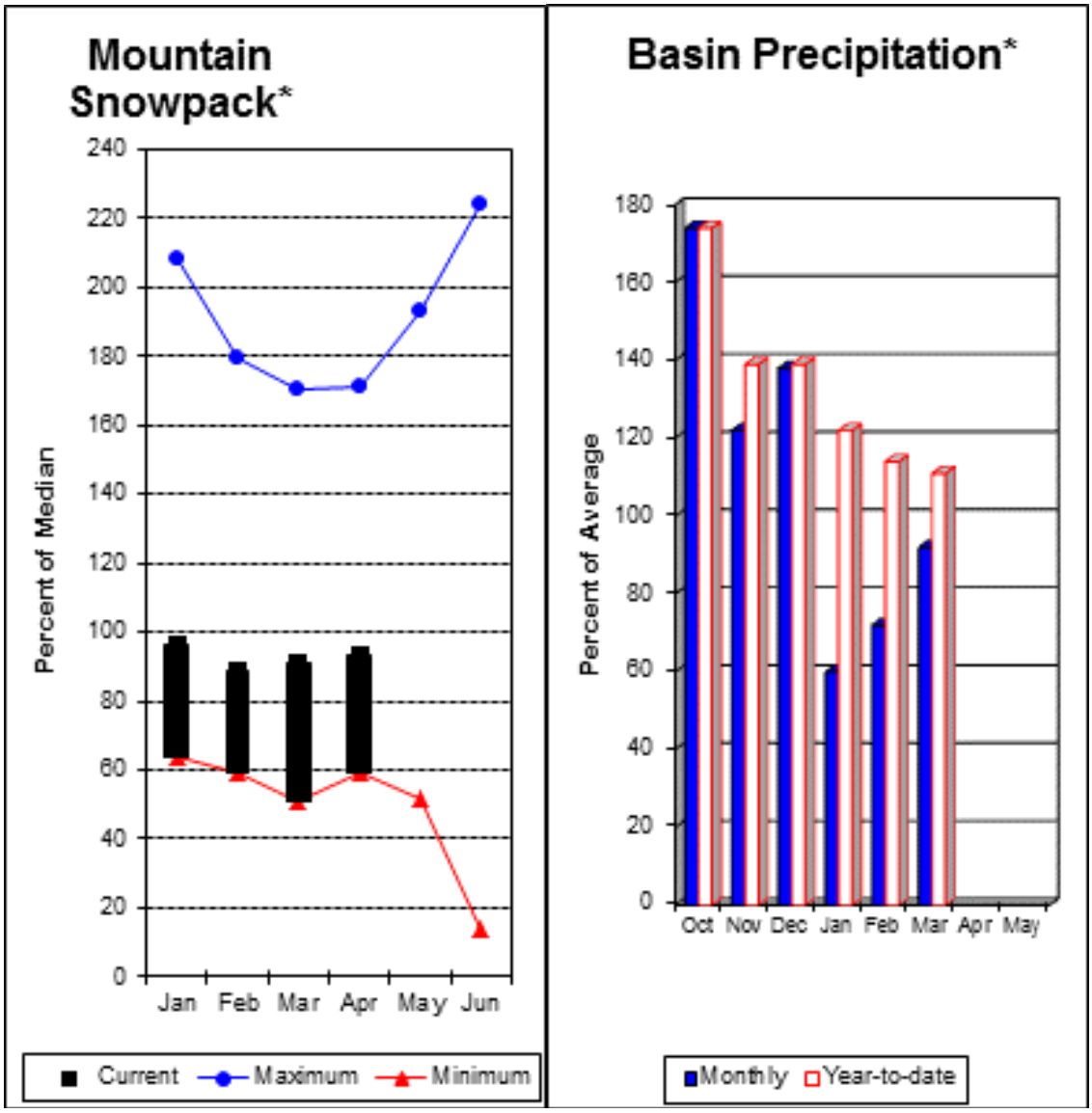
The average is computed for the 1981-2010 base period.

(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.

PREIST, COEUR D'ALENE, ST. JOE, SPOKANE, PALOUSE Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Apr 04, 2013



Pend Oreille River Basins



*Based on selected stations

The April – September average forecast for the Priest River near the town of Priest River is 93% and the Pend Orielle below Box Canyon is 98%. March streamflow was 91% of average on the Pend Oreille River and 118% on the Columbia Birchbank. April 1 snow cover was 93% of normal in the Pend Oreille Basin River Basin. Bunchgrass Meadows SNOTEL site had 23 inches of snow water on the snow pillow. Normally Bunchgrass would have 26.2 inches on April 1. Precipitation during March was 92% of average, keeping the year-to-date precipitation at 111% of average. Reservoir storage in the basin, including Lake Pend Oreille and Priest Lake was 113% of normal. Average temperatures were near normal for March and 1-2 degrees above normal for the water year.

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

Streamflow Forecasts - April 1, 2013

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Pend Oreille Lake Inflow (2)	APR-JUL	9860	10900	11600	98	12300	13300	11800
	APR-SEP	10600	11800	12600	98	13400	14600	12800
Priest R nr Priest River (1,2)	APR-JUL	605	680	730	94	780	855	780
	APR-SEP	635	720	775	93	830	915	830
Pend Oreille R bl Box Canyon (2)	APR-JUL	10000	11100	11800	99	12500	13600	11900
	APR-SEP	10800	12000	12800	99	13600	14800	13000

PEND OREILLE RIVER BASINS
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Pend Oreille	1561.3	888.0	711.4	773.0
Priest Lake	119.3	62.7	69.1	67.6

PEND OREILLE RIVER BASINS
Watershed Snowpack Analysis - April 1, 2013

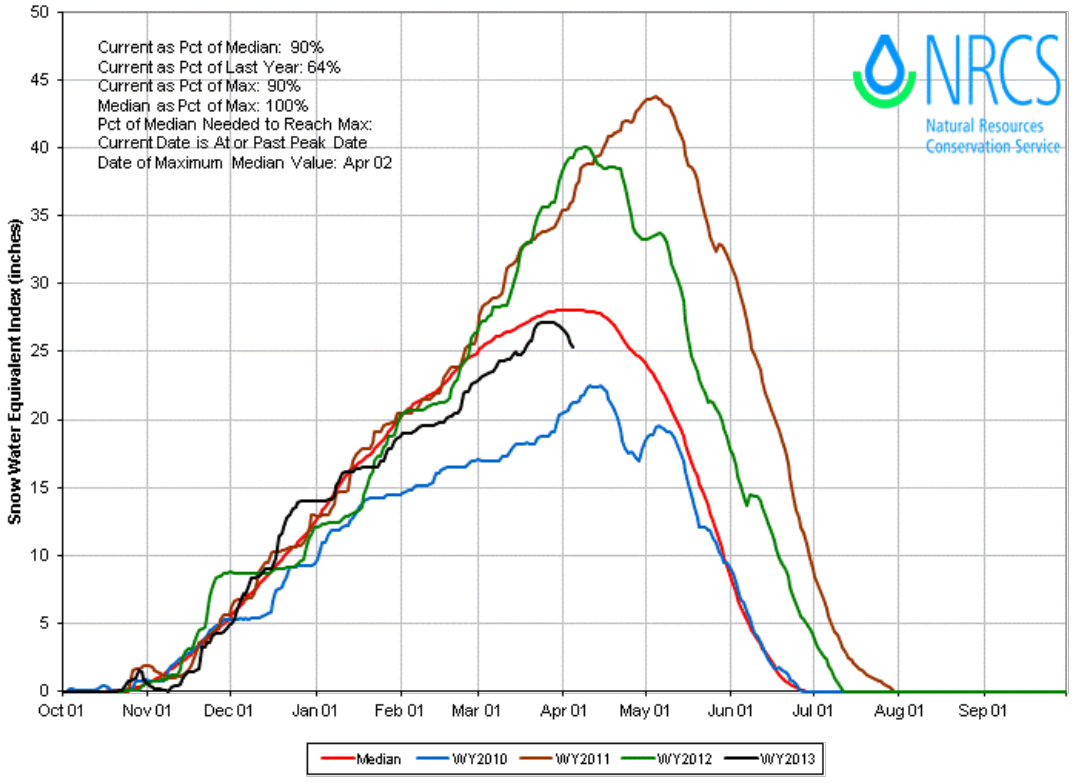
Watershed	Number of Data Sites	This Year as % of Last Yr	Median
COLVILLE RIVER	3	78	97
PEND OREILLE RIVER	12	70	92
KETTLE RIVER	6	90	97

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

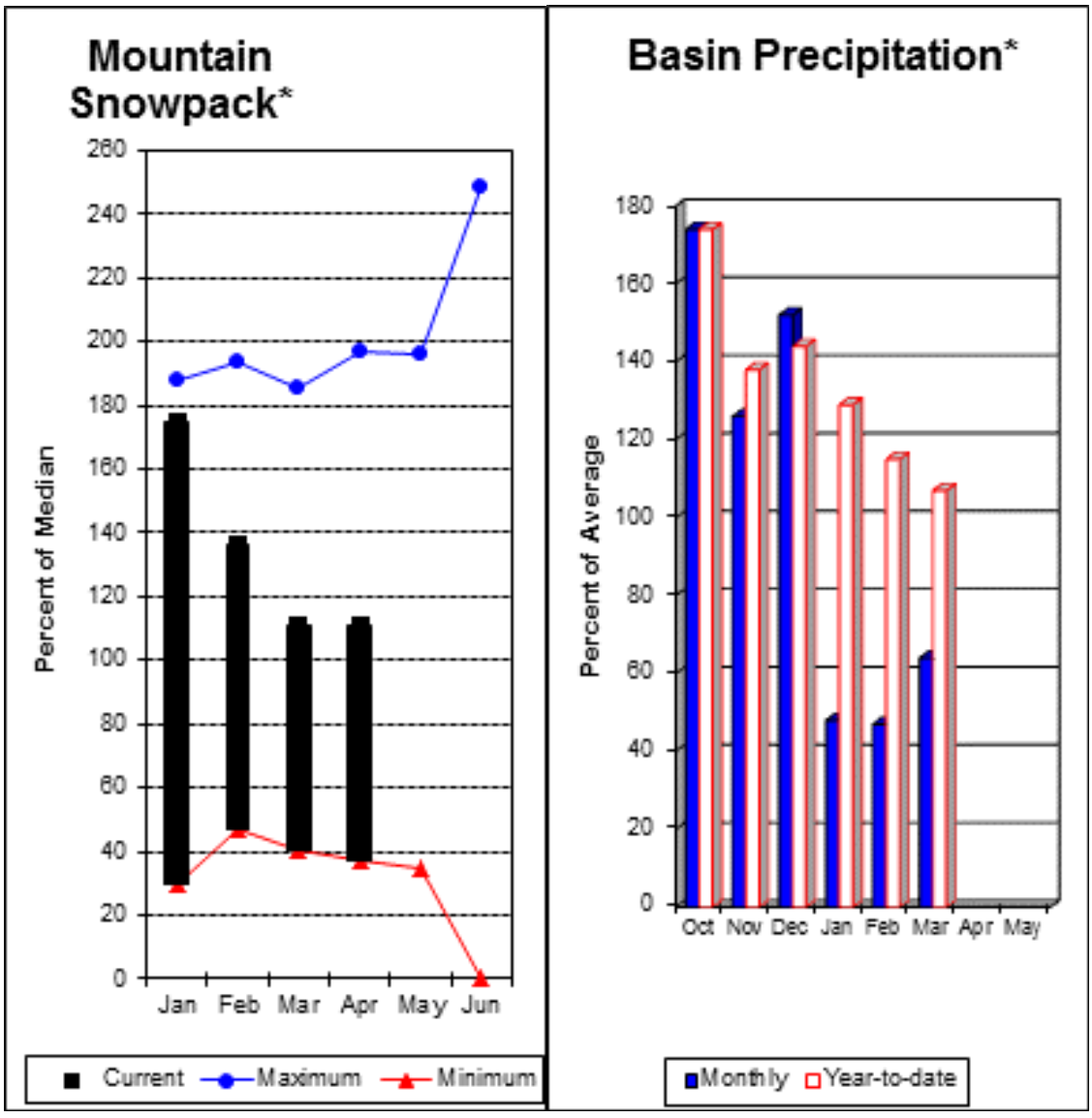
The average is computed for the 1981-2010 base period.

(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.

PREIST, COEUR D'ALENE, ST. JOE, SPOKANE, PALOUSE Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Apr 04, 2013



Upper Columbia River Basins



*Based on selected stations

Summer runoff average forecast for the Okanogan River is 100-105%, Similkameen River is 95%, Kettle River 109% and Methow River is 97%. April 1 snow cover on the Okanogan was 105% of normal, Omak Creek was 142% and the Methow was 110%. March precipitation in the Upper Columbia was 64% of average, with precipitation for the water year at 107% of average. March streamflow for the Methow River was 108% of average, 114% for the Okanogan River and 96% for the Similkameen. Snow-water content at Salmon Meadows SNOTEL was 9.7 inches. Median for this site is 9.1 inches on April 1. Combined storage in the Conconully Reservoirs was 19,000-acre feet, which is 81% of capacity and 92% of the April 1 average. Temperatures were near normal for March and for the water year.

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

Streamflow Forecasts - April 1, 2013

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Colville R at Kettle Falls	APR-JUL	37	73	98	82	123	159	119
	APR-SEP	41	81	108	82	135	175	131
Kettle R nr Laurier	APR-JUL	1630	1810	1940	108	2070	2250	1800
	APR-SEP	1700	1900	2040	109	2180	2380	1880
Columbia R at Birchbank (1,2)	APR-JUL	30000	32900	34200	101	35500	38400	33840
	APR-SEP	36700	40300	42000	101	43600	47200	41750
Columbia R at Grand Coulee (2)	APR-JUL	42300	47300	49500	97	51700	56700	51015
	APR-SEP	50000	55900	58600	98	61200	67100	60110
Similkameen R nr Nighthawk (1)	APR-JUL	880	1060	1140	95	1220	1400	1200
	APR-SEP	950	1140	1220	95	1300	1490	1280
Okanogan R nr Tonasket (1)	APR-JUL	1070	1350	1480	100	1610	1890	1480
	APR-SEP	1180	1500	1650	100	1800	2120	1650
Okanogan R at Malott (1)	APR-JUL	1120	1400	1530	106	1660	1940	1450
	APR-SEP	1230	1550	1700	105	1850	2170	1620
Methow R nr Pateros	APR-SEP	720	810	870	97	930	1020	895
	APR-JUL	670	755	810	97	865	950	835

UPPER COLUMBIA RIVER BASINS
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
SALMON LAKE		NO REPORT		
CONCONULLY RESERVOIR		NO REPORT		

UPPER COLUMBIA RIVER BASINS
Watershed Snowpack Analysis - April 1, 2013

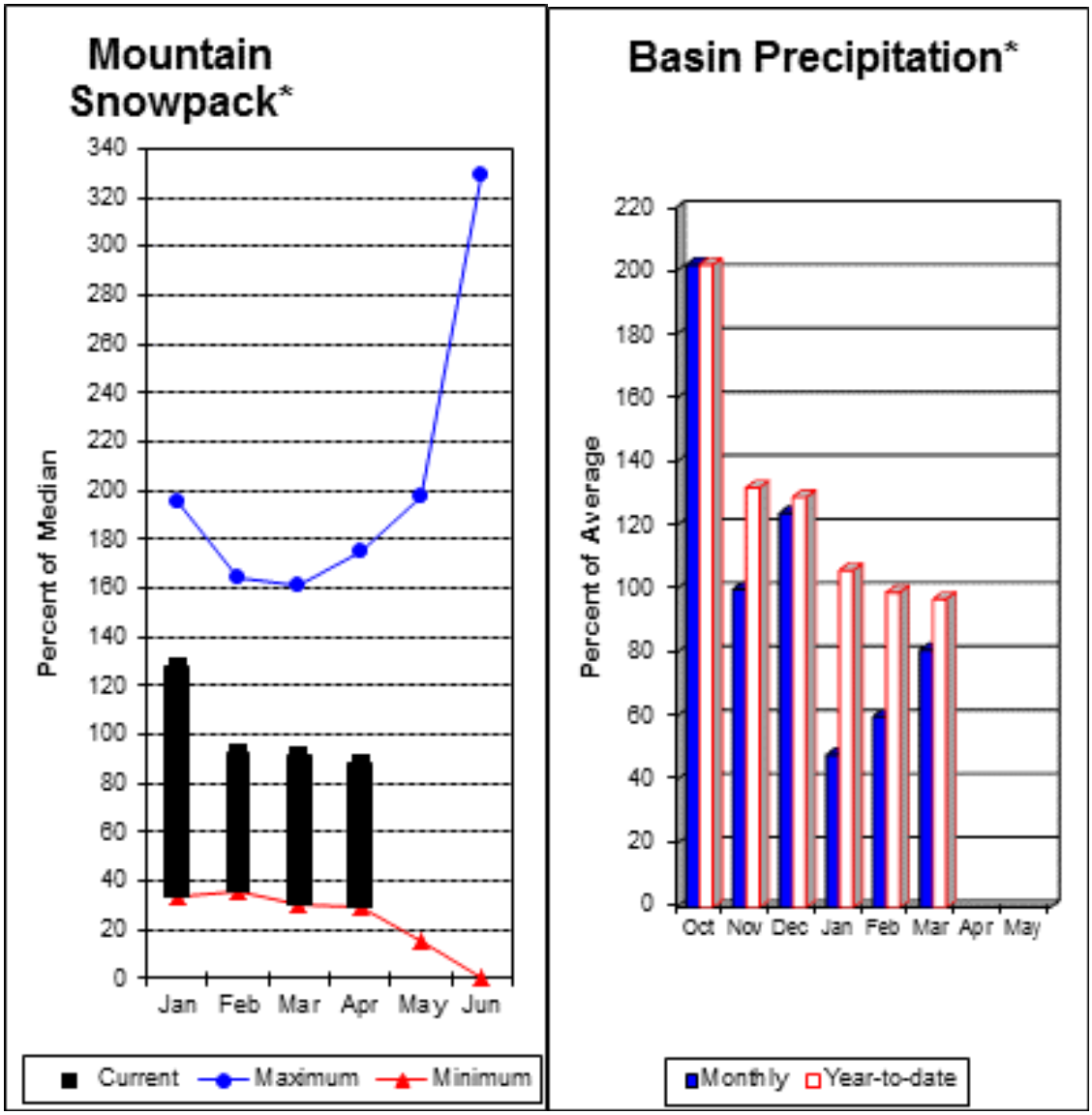
Watershed	Number of Data Sites	This Year as % of Last Yr	Median
OKANOGAN RIVER	21	93	105
OMAK CREEK	3	97	142
SANPOIL RIVER	1	49	0
SIMILKAMEEN RIVER	4	72	75
TOATS COULEE CREEK	4	99	132
CONCONULLY LAKE	3	91	116
METHOW RIVER	7	76	110

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

The average is computed for the 1981-2010 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 81% of average in the basin and 97% for the year-to-date. Runoff for Entiat River is forecast to be 80% of average for the summer. The April-September average forecast for Chelan River is 88%, Wenatchee River at Plain is 88%, Stehekin River is 94% and Icicle Creek is 80%. March average streamflows on the Chelan River were 95% and on the Wenatchee River 91%. April 1 snowpack in the Wenatchee River Basin was 88% of normal; the Chelan, 97%; the Entiat, 85%; Stemilt Creek, 80% and Colockum Creek, 91%. Reservoir storage in Lake Chelan was 226,000-acre feet, 81% of April 1 average and 33% of capacity. Lyman Lake SNOTEL had the most snow water with 54.4 inches of water. This site would normally have 57.6 inches on April 1. Temperatures were near normal for March and 1-2 degrees above normal for the water year.

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

Streamflow Forecasts - April 1, 2013

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Stehekin R at Stehekin	APR-JUL	535	600	640	94	680	745	680
	APR-SEP	640	700	740	94	780	840	790
Chelan R at Chelan (2)	APR-JUL	805	860	895	90	930	985	1000
	APR-SEP	900	955	990	88	1030	1080	1120
Entiat R nr Ardenvoir	APR-JUL	136	151	161	81	171	186	200
	APR-SEP	149	164	175	80	186	200	220
Wenatchee R at Plain	APR-JUL	760	825	870	88	915	980	990
	APR-SEP	825	895	945	88	995	1070	1080
Icicle Ck nr Leavenworth	APR-JUL	187	205	220	80	235	255	275
	APR-SEP	200	225	240	80	255	280	300
Wenatchee R at Peshastin	APR-JUL	1040	1130	1190	87	1250	1340	1370
	APR-SEP	1130	1220	1290	87	1360	1450	1490
Columbia R bl Rock Island Dam (2)	APR-JUL	46200	49900	52400	94	54900	58600	55770
	APR-SEP	55900	60300	63200	97	66100	70500	65200

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
CHELAN LAKE		NO REPORT		

CENTRAL COLUMBIA RIVER BASINS
Watershed Snowpack Analysis - April 1, 2013

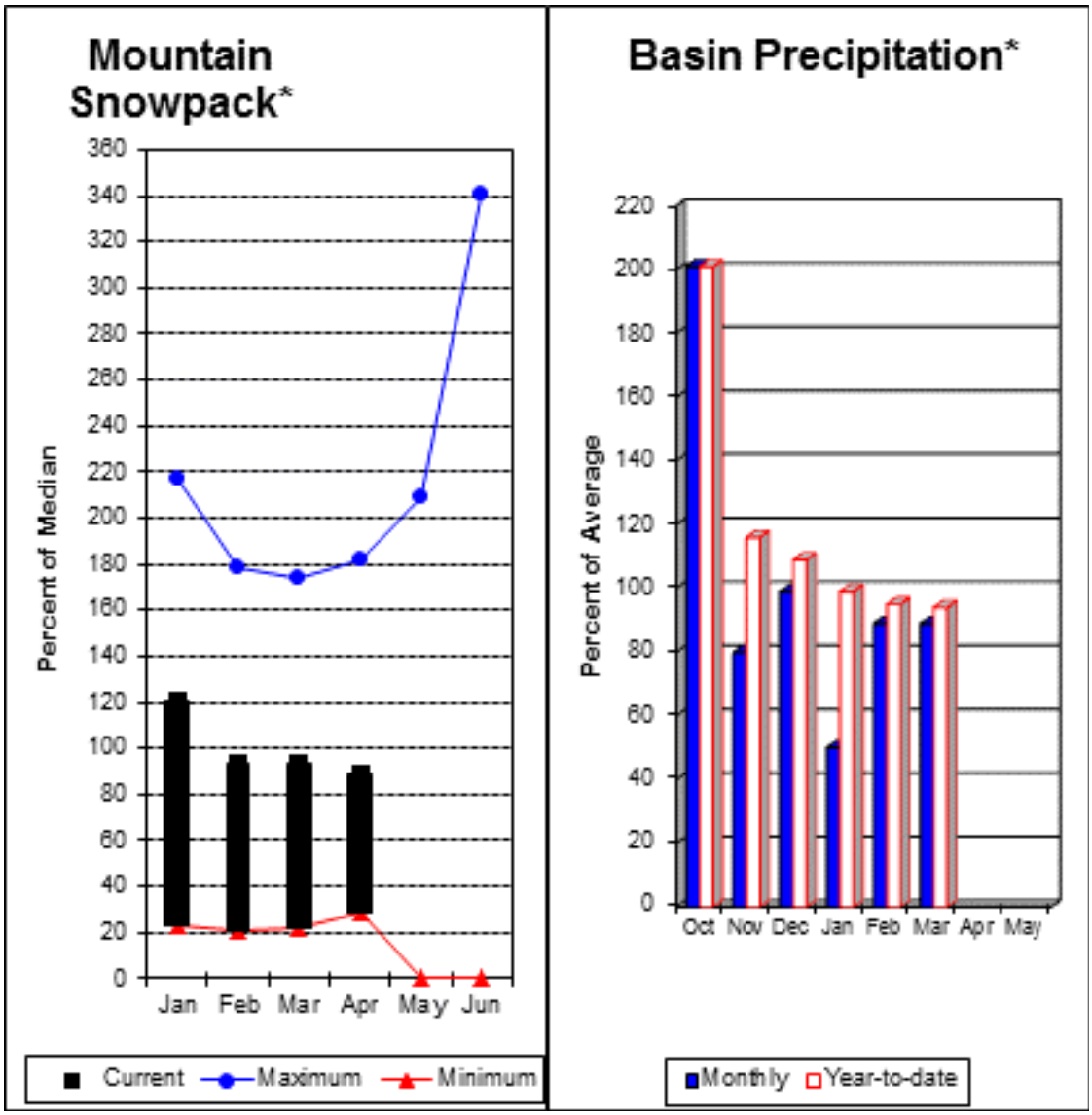
Watershed	Number of Data Sites	This Year as % of Last Yr	Median
CHELAN LAKE BASIN	3	73	97
ENTIAT RIVER	1	58	85
WENATCHEE RIVER	9	69	88
STEMILT CREEK	2	81	80
COLOCKUM CREEK	2	65	91

* 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 1981-2010 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 624,000-acre feet, 122% of average. Forecasts for the Yakima River at Cle Elum are 85% of average and the Teanaway River near Cle Elum is at 84%. Lake inflows are all forecasted to be slightly below average this summer. March streamflows within the basin were Cle Elum River near Roslyn at 101%. April 1 snowpack was 89% based upon 11 snow course and SNOTEL readings within the Upper Yakima Basin. Precipitation was 89% of average for March and 94% 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.

Streamflow Forecasts - April 1, 2013

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>>					
		Chance Of Exceeding *					
		90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Keechelus Reservoir Inflow (2)	APR-JUL	81	92	100	86	108	119	116
	APR-SEP	89	101	109	87	117	129	126
Kachess Reservoir Inflow (2)	APR-JUL	74	83	89	86	95	104	104
	APR-SEP	82	91	97	86	103	112	113
Cle Elum Lake Inflow (2)	APR-JUL	300	320	335	87	350	370	385
	APR-SEP	320	345	365	88	385	410	415
Yakima R at Cle Elum (2)	APR-JUL	525	595	645	85	695	765	755
	APR-SEP	560	645	705	85	765	850	830
Teanaway R bl Forks nr Cle Elum	APR-JUL	79	96	108	83	120	137	130
	APR-SEP	82	99	111	84	123	140	133

UPPER YAKIMA RIVER BASIN
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
KEECHELUS	157.8	117.4	118.4	106.3
KACHESS	239.0	198.5	181.9	159.8
CLE ELUM	436.9	308.4	338.3	246.3

UPPER YAKIMA RIVER BASIN
Watershed Snowpack Analysis - April 1, 2013

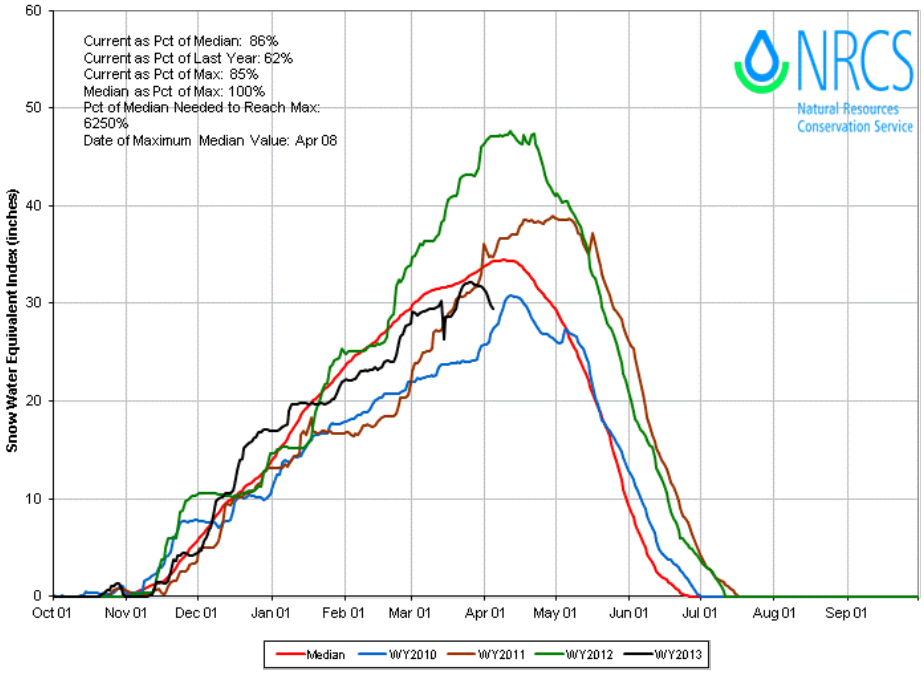
Watershed	Number of Data Sites	This Year as % of: Last Yr	Median
UPPER YAKIMA RIVER	11	64	89

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

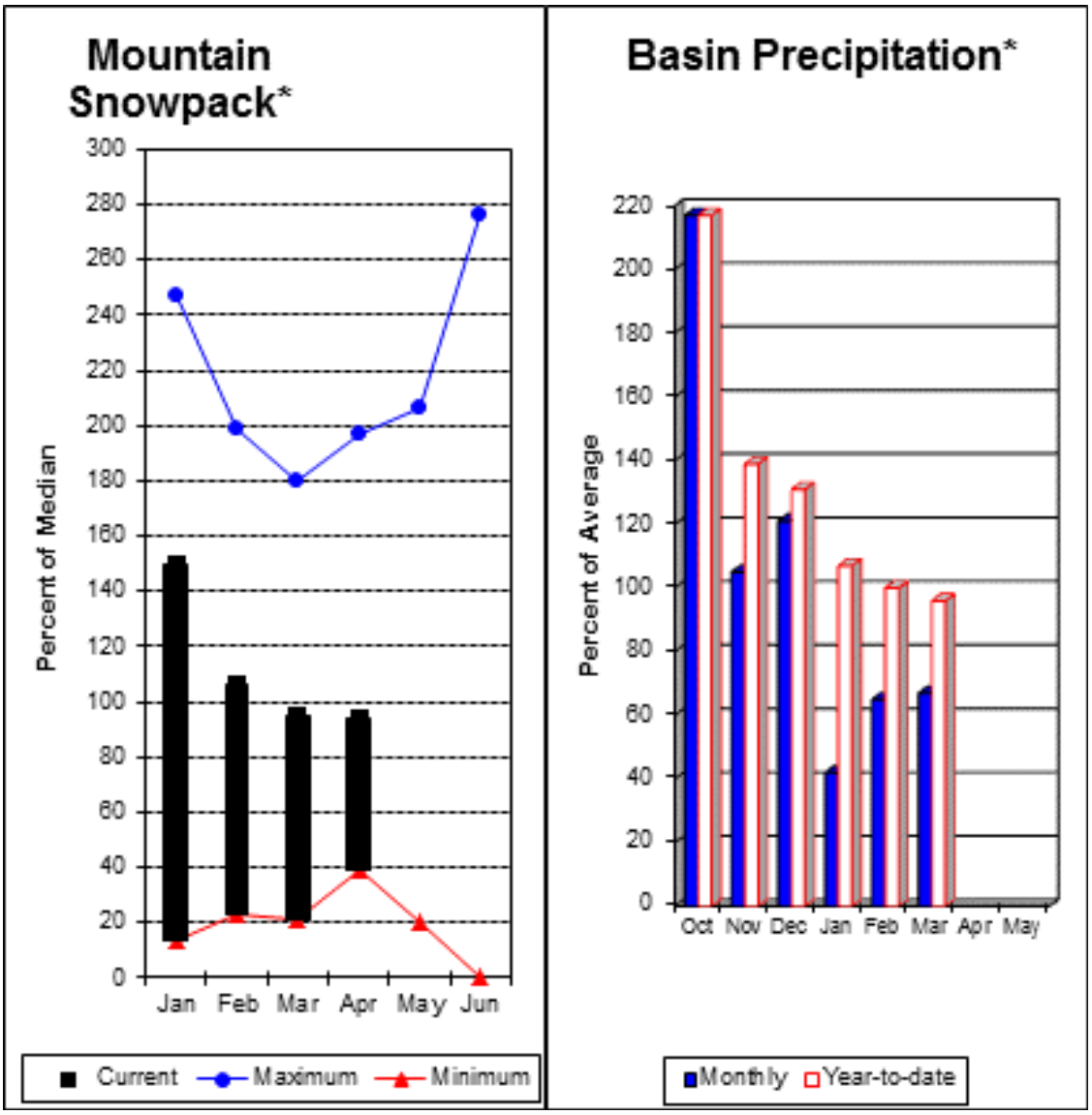
The average is computed for the 1981-2010 base period.

(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 Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Apr 04, 2013



Lower Yakima River Basin



*Based on selected stations

March average streamflows within the basin were: Yakima River near Parker, 88%; Naches River near Naches, 80%; and Yakima River at Kiona, 90%. April 1 reservoir storage for Bumping and Rimrock reservoirs was 166,000-acre feet, 110% of average. Forecast averages for Yakima River near Parker are 87%; American River near Nile, 90%; Ahtanum Creek, 93%; and Klickitat River near Glenwood, 90%. April 1 snowpack was 94% based upon 8 snow course and SNOTEL readings within the Lower Yakima Basin and Ahtanum Creek reported in at 88% of normal. Precipitation was 67% of average for March and 96% year-to-date for water. Temperatures were near normal for March and 1-2 degrees above normal 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.

Streamflow Forecasts - April 1, 2013

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Bumping Lake Inflow (2)	APR-JUL	83	94	101	89	108	119	114
	APR-SEP	90	101	109	89	117	128	123
American R nr Nile	APR-JUL	78	86	92	90	98	106	102
	APR-SEP	85	93	99	90	105	113	110
Rimrock Lake Inflow (2)	APR-JUL	148	161	170	91	179	192	187
	APR-SEP	175	190	200	91	210	225	220
Naches R nr Naches (2)	APR-JUL	510	565	605	86	645	700	700
	APR-SEP	550	615	655	86	695	760	760
Ahtanum Ck at Union Gap	APR-JUL	17.7	22	25	93	28	32	27
	APR-SEP	19.7	24	27	93	30	34	29
Yakima R nr Parker (2)	APR-JUL	1240	1370	1450	87	1530	1660	1660
	APR-SEP	1370	1500	1590	87	1680	1810	1820
Klickitat R nr Glenwood	APR-JUL	93	105	113	90	121	133	126
	APR-SEP	102	116	125	90	134	148	139
Klickitat R nr Pitt	APR-JUL	338	387	420	97	453	502	435
	APR-SEP	408	466	505	97	544	602	520

LOWER YAKIMA RIVER BASIN
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
BUMPING LAKE	33.7	11.5	14.5	14.6
RIMROCK	198.0	154.4	164.2	136.6

LOWER YAKIMA RIVER BASIN
Watershed Snowpack Analysis - April 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
LOWER YAKIMA RIVER	8	68	94
AHTANUM CREEK	3	58	88

* 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 1981-2010 base period.

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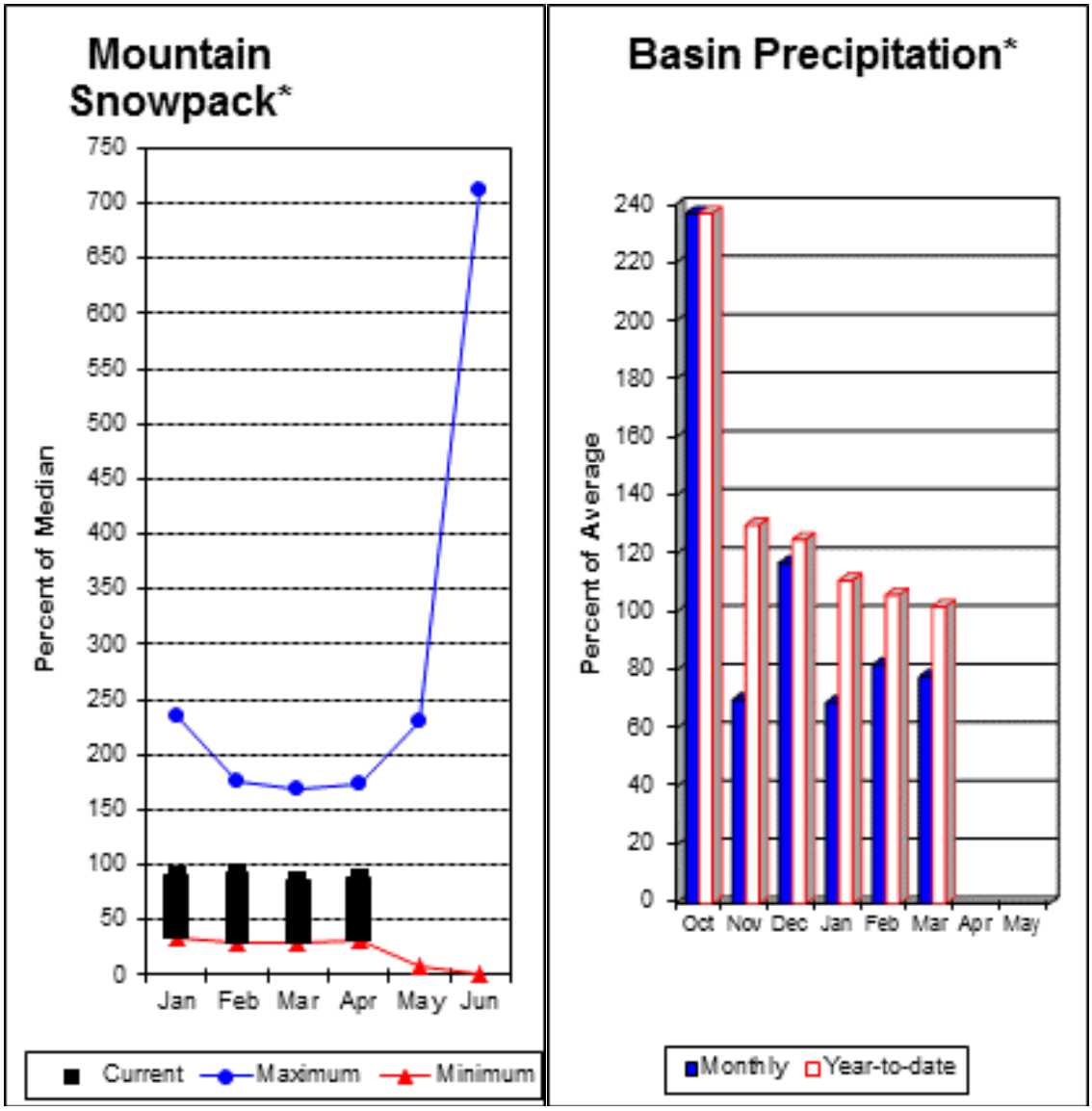
(2) - The value is natural volume - actual volume may be affected by upstream water management.

Walla Walla River Basin



*Based on selected stations

March precipitation was 78% of average, maintaining the year-to-date precipitation at 102% of average. Snowpack in the basin was 88% of normal. Streamflow forecasts are 93% of average for Mill Creek and 91% for the SF Walla Walla near Milton-Freewater. March streamflow was 162% of average for the SF Walla Walla River. Average temperatures were near normal for March and 1-2 degrees above for the water year.

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

Streamflow Forecasts - April 1, 2013

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SF Walla Walla R nr Milton-Freewater	APR-JUL	39	45	49	91	53	59	54
	APR-SEP	48	55	60	91	65	72	66
Mill Ck nr Walla Walla	APR-JUL	16.4	19.7	22	92	24	28	24
	APR-SEP	19.1	23	25	93	27	31	27

* 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 1981-2010 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.

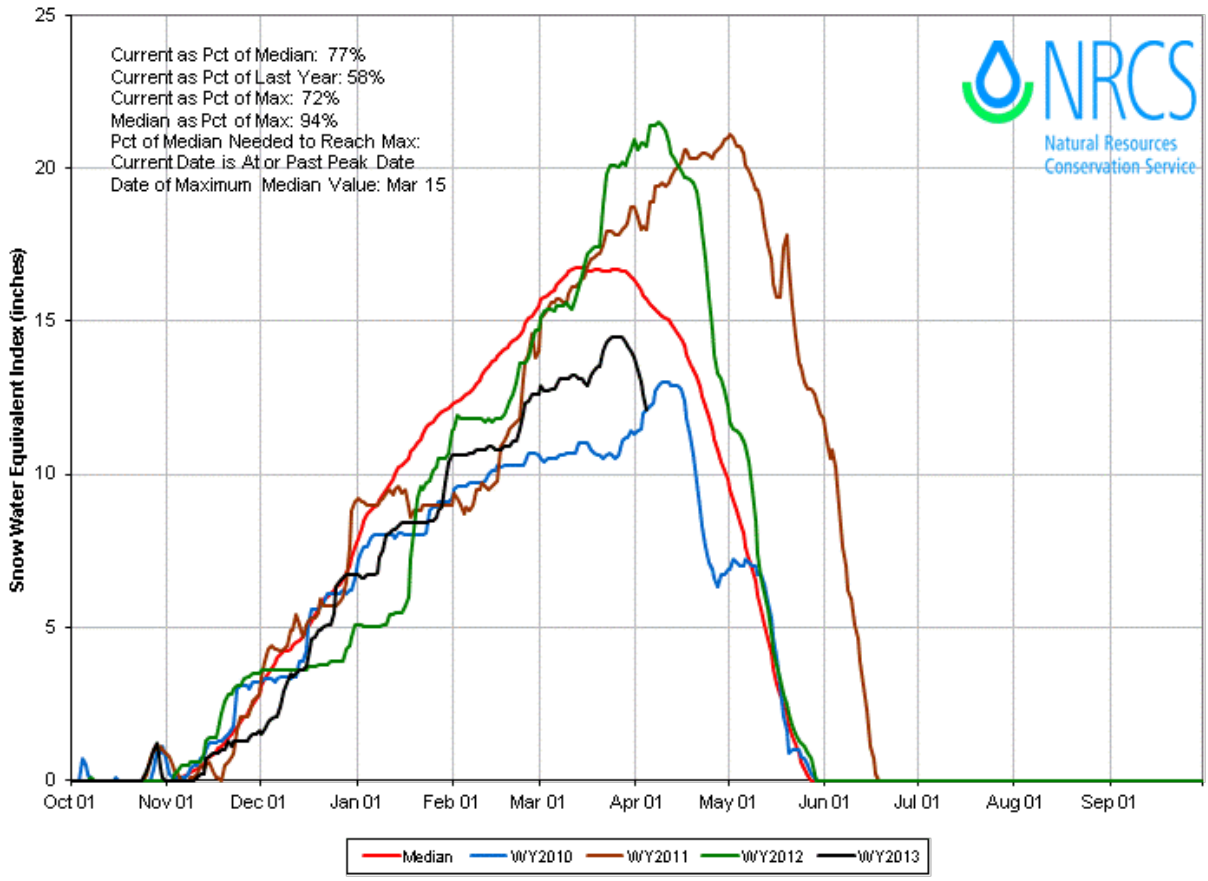
WALLA WALLA RIVER BASIN
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

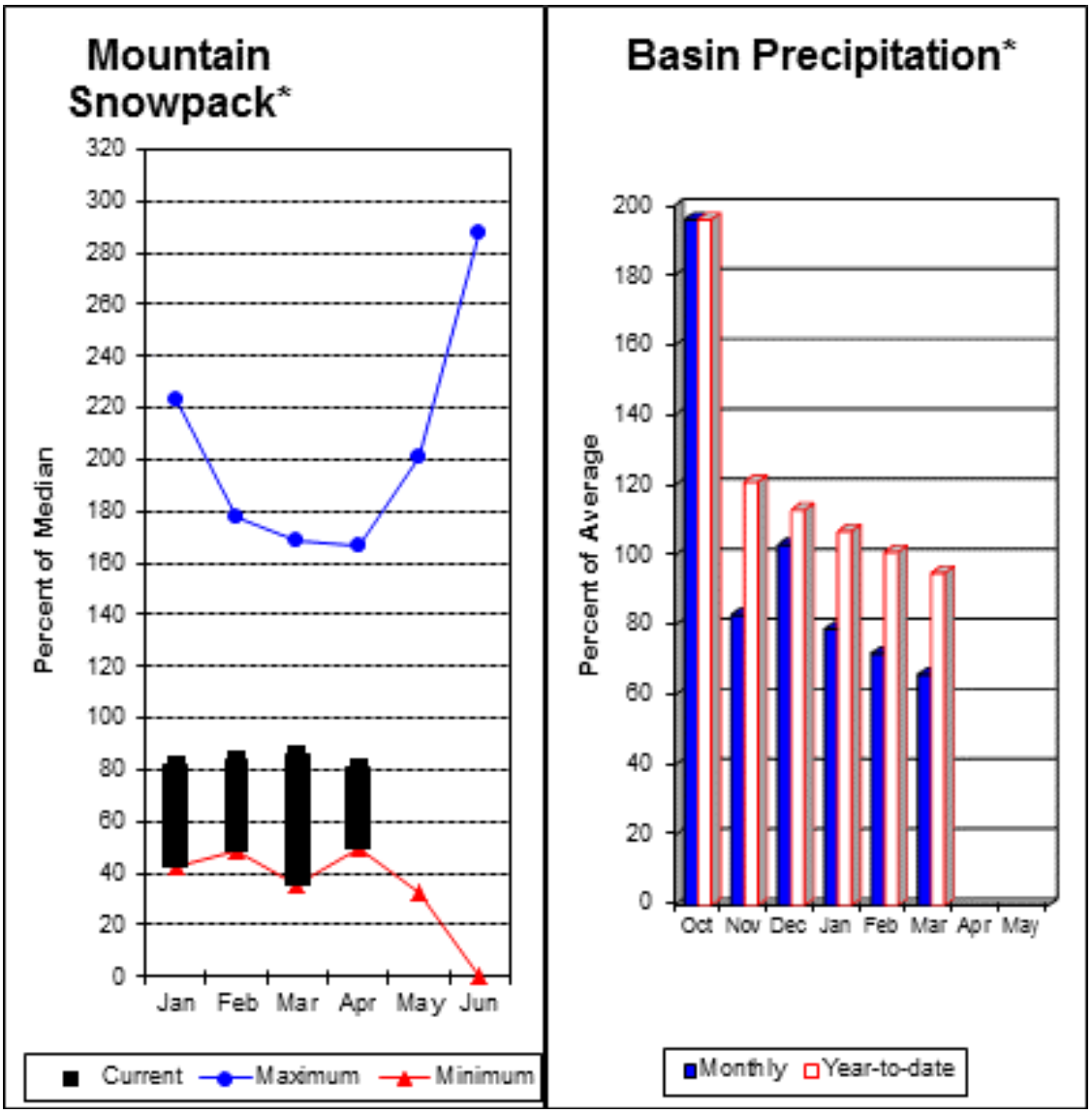
WALLA WALLA RIVER BASIN
Watershed Snowpack Analysis - April 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
WALLA WALLA RIVER	2	72	88

WALLA WALLA, TOUCHET Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Apr 04, 2013



Lower Snake River Basin



*Based on selected stations

The Snake and Grande Ronde rivers can expect summer flows to be about 79% and 90% of normal respectively. The forecast for Asotin Creek at Asotin predicts 91% of average flows for the April – July runoff period. March precipitation was 66% of average, bringing the year-to-date precipitation to 95% of average. April 1 snowpack readings averaged 81% of normal. March streamflow was 66% of average for Snake River below Lower Granite Dam and 81% for Grande Ronde River near Troy. Dworshak Reservoir storage was 116% of average. Average temperatures were near normal for March and 1-2 degrees above for the water year.

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

Streamflow Forecasts - April 1, 2013

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Grande Ronde R at Troy (1)	APR-SEP	785	1060	1180	90	1300	1580	1310
Asotin Ck at Asotin	APR-JUL	19.3	27	32	91	37	45	35
Clearwater R at Spalding (1,2)	APR-JUL	4780	5940	6460	94	6980	8140	6890
	APR-SEP	5080	6300	6850	94	7400	8620	7270
Snake R bl Lower Granite Dam (1,2)	APR-JUL	10400	13800	15300	77	16800	20200	19850
	APR-SEP	12100	15900	17700	79	19400	23200	22280

LOWER SNAKE RIVER BASIN
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Dworshak	3468.0	2807.5	2305.0	2417.0

LOWER SNAKE RIVER BASIN
Watershed Snowpack Analysis - April 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
LOWER SNAKE, GRANDE RONDE	12	67	80

* 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 1981-2010 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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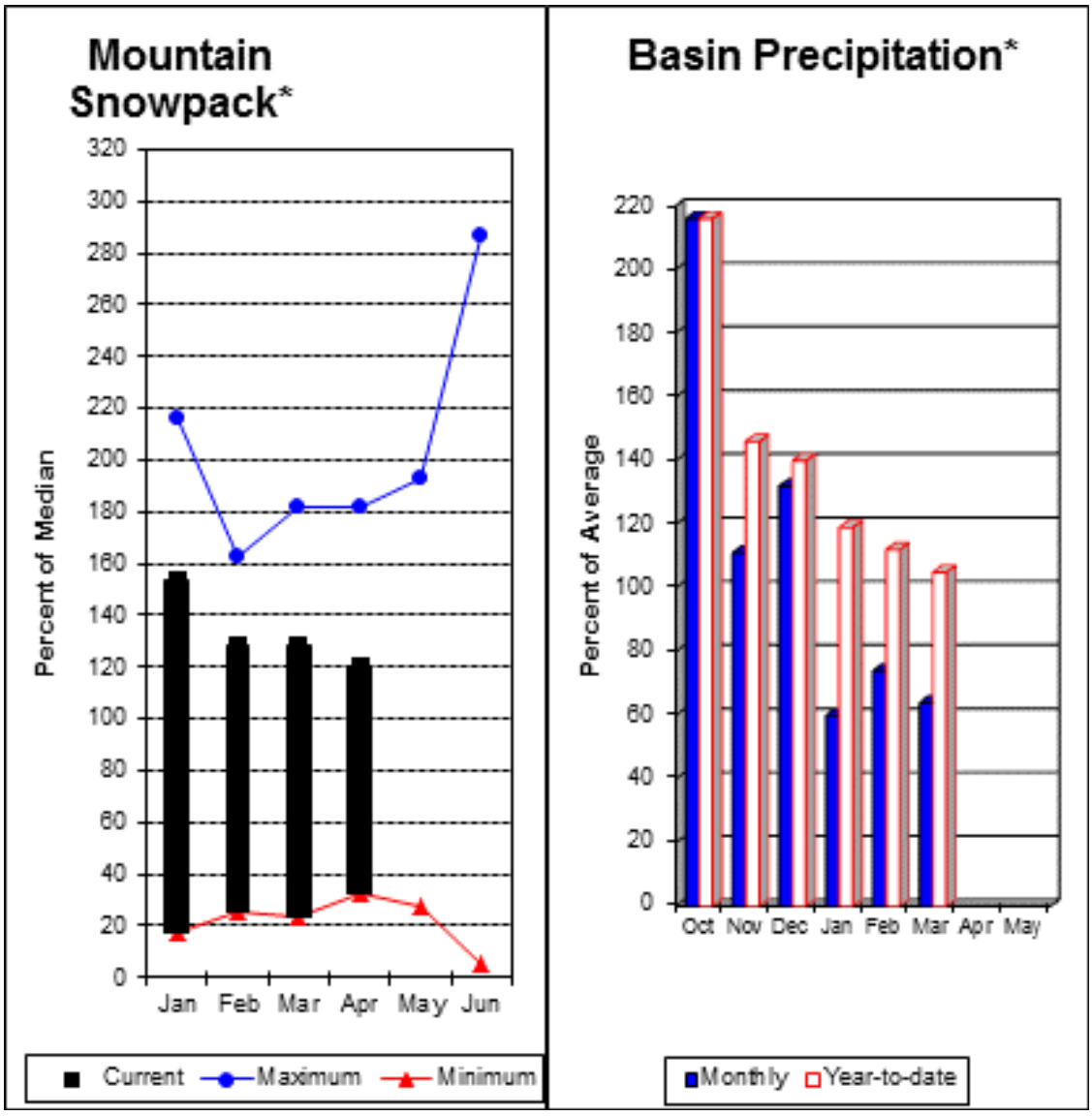
Lower Columbia River Basins



*Based on selected stations

Forecasts for April – September streamflows within the basin are Lewis River at Ariel, 99% and Cowlitz River at Castle Rock, 110% of average. The Columbia at The Dalles is forecasted to have 92% of average flows this summer according to the River Forecast Center. March average streamflow for Cowlitz River was 102%. The Columbia River at The Dalles was 85% of average. March precipitation was 64% of average and the water-year average was 105%. April 1 snow cover for Cowlitz River was 121%, and Lewis River was 120% of normal. Paradise SNOTEL reported the most snow in the basin with 78.2 inches of water and 146 inches of depth. Temperatures were slightly below normal during March and for the water year.

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

Streamflow Forecasts - April 1, 2013

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Columbia R at The Dalles (2)	APR-JUL	61500	66900	70600	88	74300	79700	79855
	APR-SEP	74100	80400	84800	92	89100	95400	92704
Klickitat R nr Glenwood	APR-JUL	93	105	113	90	121	133	126
	APR-SEP	102	116	125	90	134	148	139
Klickitat R nr Pitt	APR-JUL	338	387	420	97	453	502	435
	APR-SEP	408	466	505	97	544	602	520
Lewis R at Ariel (2)	APR-JUL	700	865	975	101	1090	1250	970
	APR-SEP	820	995	1110	99	1230	1400	1120
Cowlitz R bl Mayfield Dam (2)	APR-JUL	1410	1660	1830	113	2000	2250	1620
	APR-SEP	1600	1900	2100	114	2300	2600	1840
Cowlitz R at Castle Rock (2)	APR-JUL	1990	2270	2460	110	2650	2930	2230
	APR-SEP	2260	2560	2770	110	2980	3280	2520

LOWER COLUMBIA RIVER BASINS
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MOSSYROCK		NO REPORT		
SWIFT		NO REPORT		
YALE	0.0	186.5	353.2	---
MERWIN		NO REPORT		

LOWER COLUMBIA RIVER BASINS
Watershed Snowpack Analysis - April 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
LEWIS RIVER	5	81	120
COWLITZ RIVER	6	78	121

* 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 1981-2010 base period.

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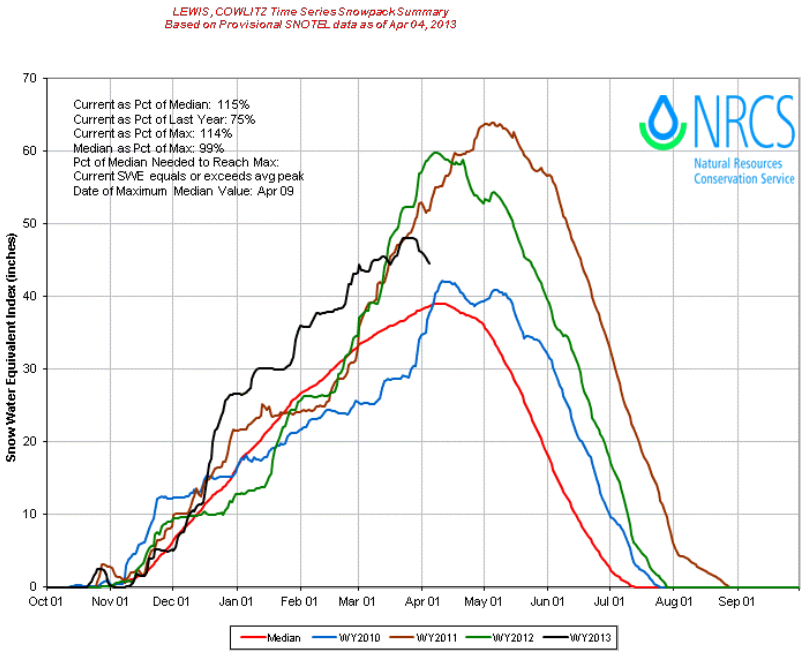
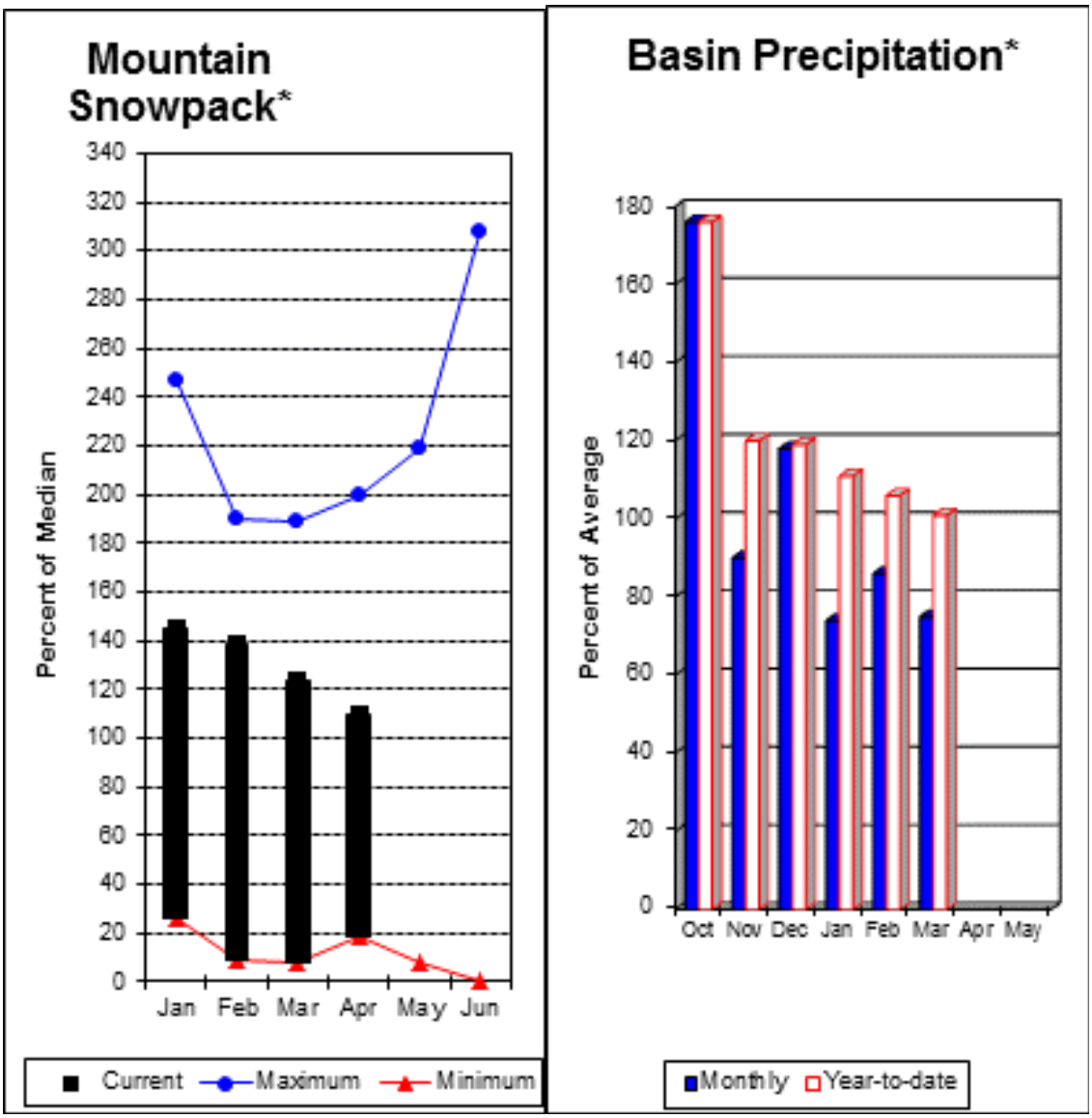


South Puget Sound River Basins



*Based on selected stations

Summer runoff is forecast to be 102% of normal for the Green River below Howard Hanson Dam and 99% for the White River near Buckley. April 1 snowpack was 101% of normal for the White River, 106% for Puyallup River and 123% in the Green River Basin. Water content on April 1 at Corral Pass SNOTEL, at an elevation of 6,000 feet, was 31.9 inches. This site has a April 1 median of 33.7 inches. March precipitation was 75% of average, bringing the water year-to-date to 101% of average for the basins. Average temperatures in the area were 1 degree below for March and 1-2 degrees below normal for the water-year.

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

Streamflow Forecasts - April 1, 2013

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
White R nr Buckley (1)	APR-JUL	320	390	425	99	460	530	430
	APR-SEP	385	470	510	99	550	635	515
Green R bl Howard Hanson Dam (1,2)	APR-JUL	169	220	240	102	260	310	235
	APR-SEP	189	240	265	102	290	340	260

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

SOUTH PUGET SOUND RIVER BASINS
Watershed Snowpack Analysis - April 1, 2013

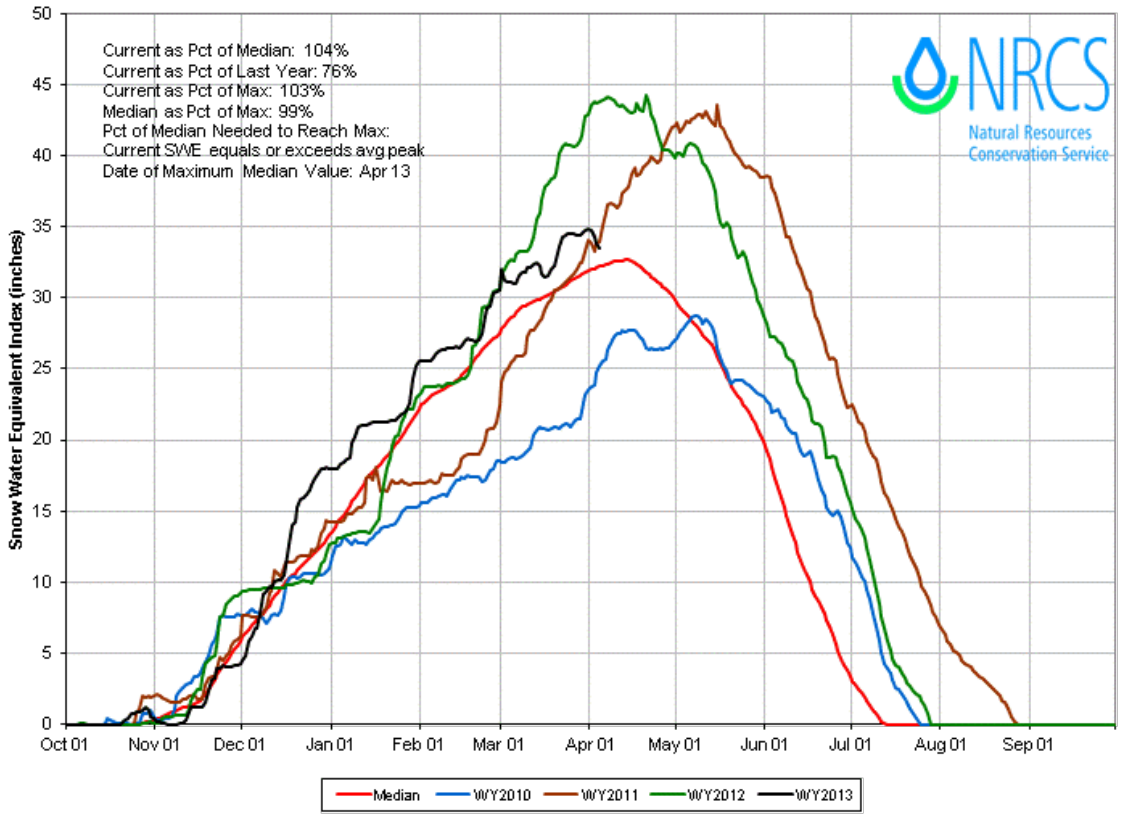
Watershed	Number of Data Sites	This Year as % of Last Yr	Median
WHITE RIVER	3	75	101
GREEN RIVER	3	75	123
PUYALLUP RIVER	5	73	106

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

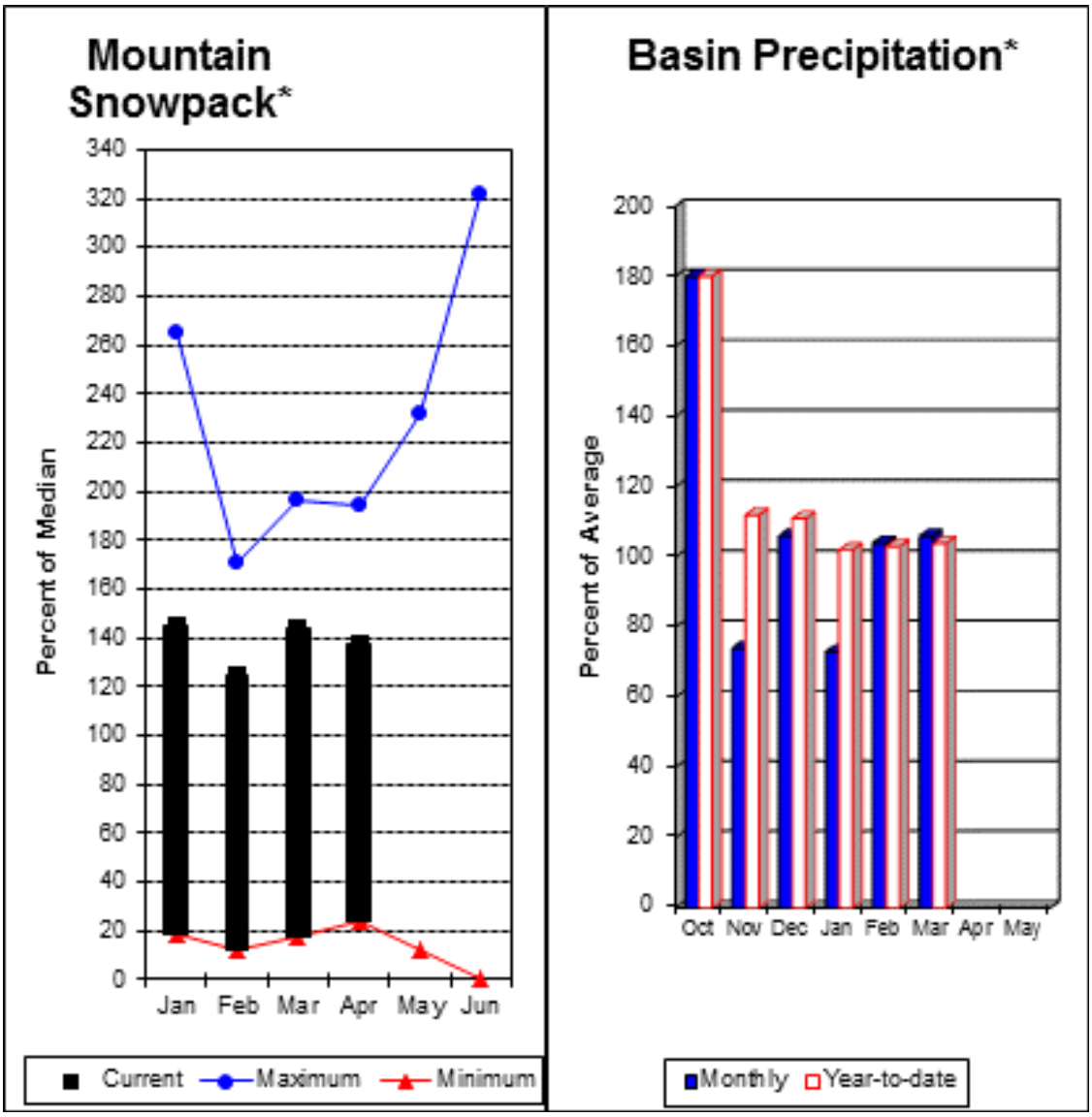
The average is computed for the 1981-2010 base period.

(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.

WHITE, GREEN, PUYALLUP Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Apr 04, 2013



Central Puget Sound River Basins



*Based on selected stations

Forecast for spring and summer flows are: 109% for Cedar River near Cedar Falls; 107% for Rex River; 137% for South Fork of the Tolt River; and 100% for Taylor Creek near Selleck. Basin-wide precipitation for March was 106% of average, bringing water-year-to-date to 104% of average. April 1 median snow cover in Cedar River Basin was 130%, Tolt River Basin was 156%, Snoqualmie River Basin was 131%, and Skykomish River Basin was 131%. Alpine Meadows SNOTEL site in the Tolt Basin, at 3500 feet, had 73.7 inches of water content. April 1 median water content is 51 inches at Alpine Meadows. Temperatures were 1 degree below normal for March and for the water-year.

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

Streamflow Forecasts - April 1, 2013

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Cedar R nr Cedar Falls	APR-JUL	62	70	76	109	82	90	70
	APR-SEP	68	77	83	109	89	98	76
Rex R nr Cedar Falls	APR-JUL	19.5	23	26	108	29	32	24
	APR-SEP	22	26	29	107	32	36	27
Taylor Creek Near Selleck	APR-JUL	15.8	18.3	20	100	22	24	20
	APR-SEP	19.3	22	24	100	26	29	24
SF Tolt R nr Index	APR-JUL	16.4	18.5	19.9	140	21	23	14.2
	APR-SEP	17.8	20	22	137	24	26	16.1

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

CENTRAL PUGET SOUND RIVER BASINS
Watershed Snowpack Analysis - April 1, 2013

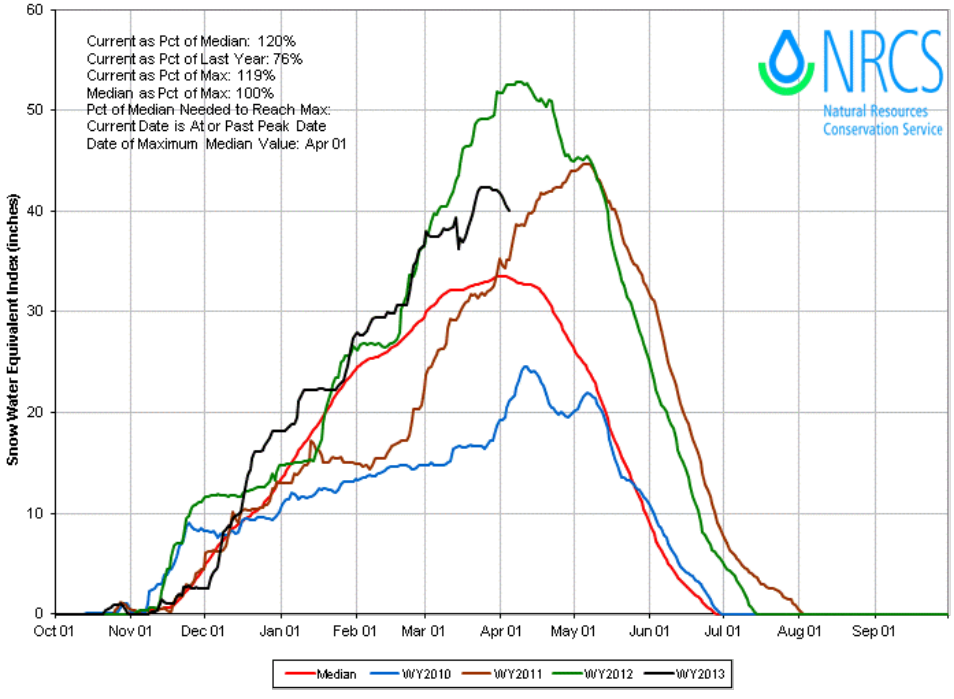
Watershed	Number of Data Sites	This Year as % of Last Yr	Median
CEDAR RIVER	6	68	130
TOLT RIVER	3	101	156
SNOQUALMIE RIVER	5	90	131
SKYKOMISH RIVER	3	96	131

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

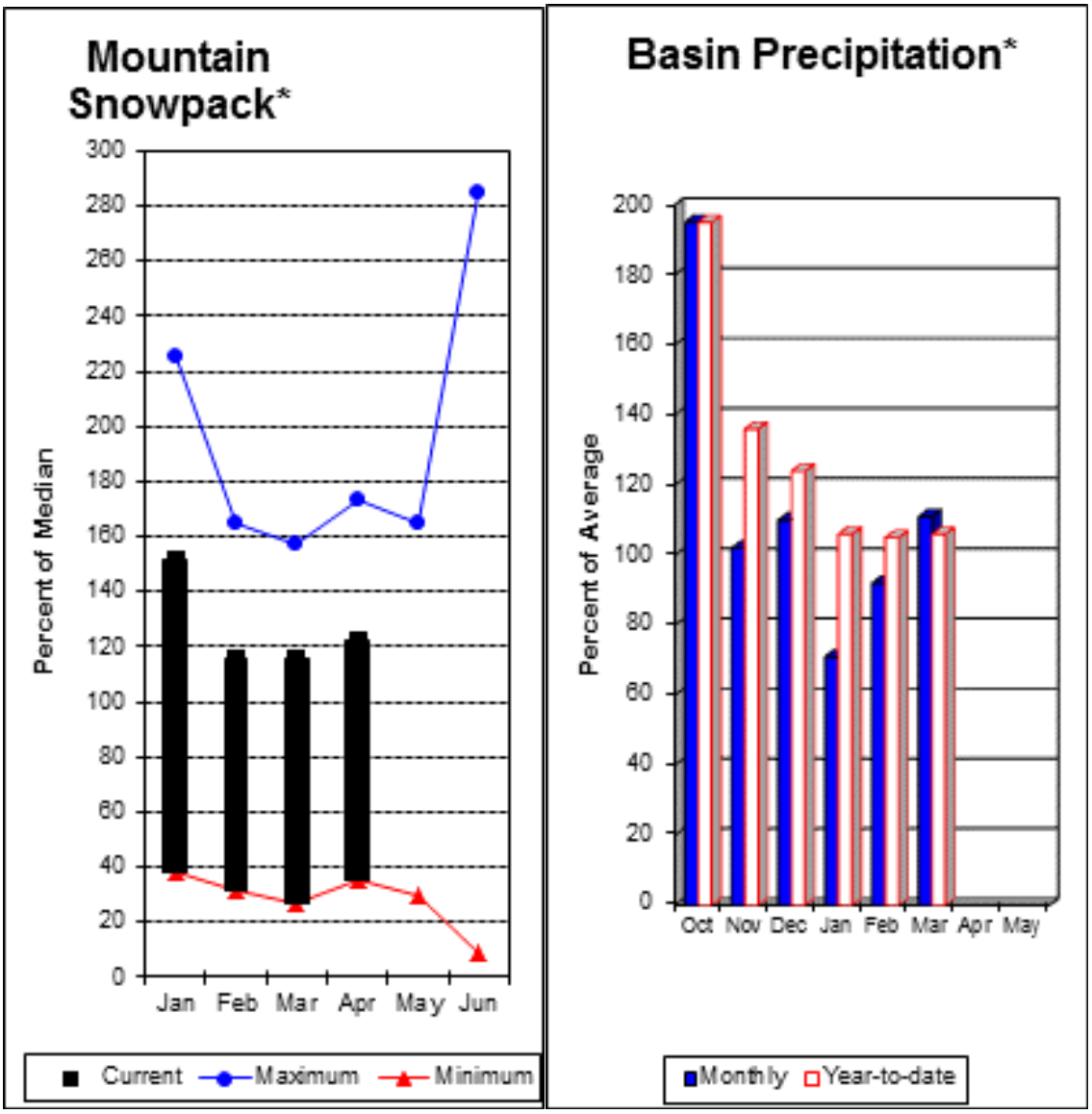
The average is computed for the 1981-2010 base period.

(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..

CEDAR, SNOQUALMIE, SKYKOMISH Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Apr 04, 2013



North Puget Sound River Basins



*Based on selected stations

Forecast for Skagit River streamflow at Newhalem is 98% of average for the spring and summer period. March streamflow in Skagit River was 115% of average. Other forecast points included Baker River at 97% and Thunder Creek at 97% of average. Basin-wide precipitation for March was 111% of average, bringing water-year-to-date to 106% of average. April 1 median snow cover in Skagit River Basin was 108% and Nooksack River Basin was 128% of normal. Baker River Basin data was 133% of the long term median. The most snow measured in the basins and in the state was at Easy Pass SNOTEL in the Baker River Basin with 100 inches of water content. April 1 Skagit River reservoir storage was 80% of average and 42% of capacity. Average temperatures were 1 degree below normal for March and for the water year.

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

Streamflow Forecasts - April 1, 2013

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Thunder Ck Nr Newhalem	APR-JUL	194	210	225	96	240	255	235
	APR-SEP	285	305	320	97	335	355	330
Skagit R At Newhalem	APR-JUL	1500	1610	1680	100	1750	1860	1680
	APR-SEP	1780	1910	1990	98	2070	2200	2030
Baker R nr Concrete (2)	APR-JUL	610	695	750	96	805	890	780
	APR-SEP	735	865	950	97	1040	1160	980

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
ROSS	1404.1	586.5	583.2	730.5
DIABLO RESERVOIR		NO REPORT		

NORTH PUGET SOUND RIVER BASINS
Watershed Snowpack Analysis - April 1, 2013

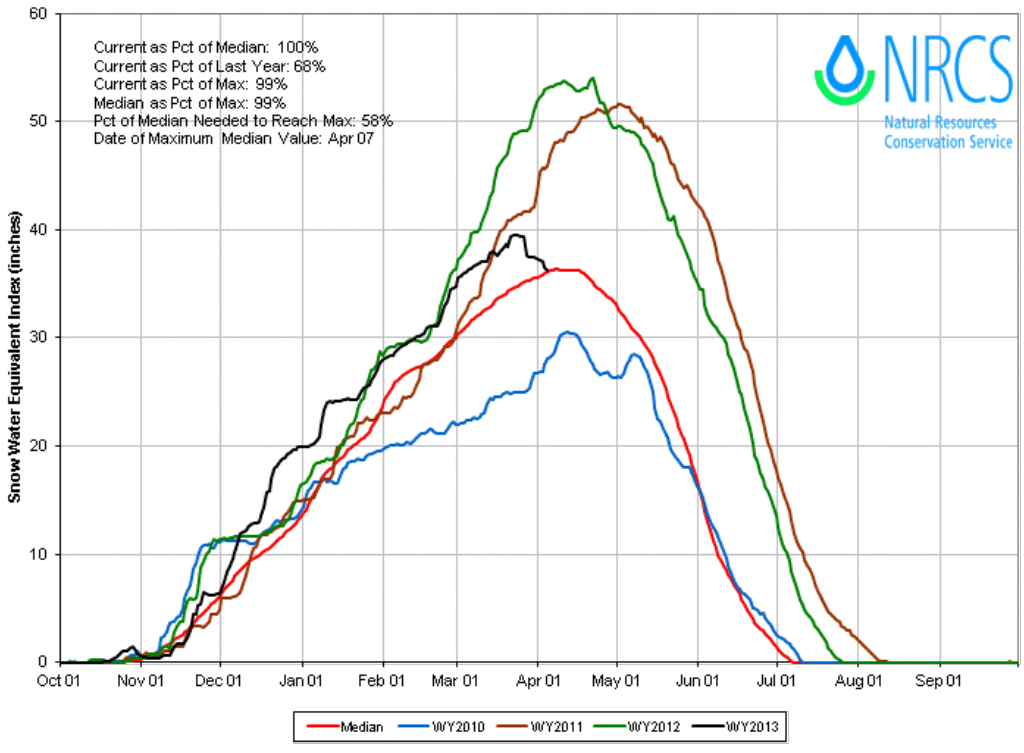
Watershed	Number of Data Sites	This Year as % of Last Yr	Median
SKAGIT RIVER	16	67	108
BAKER RIVER	0	81	0
NOOKSACK RIVER	3	84	128

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

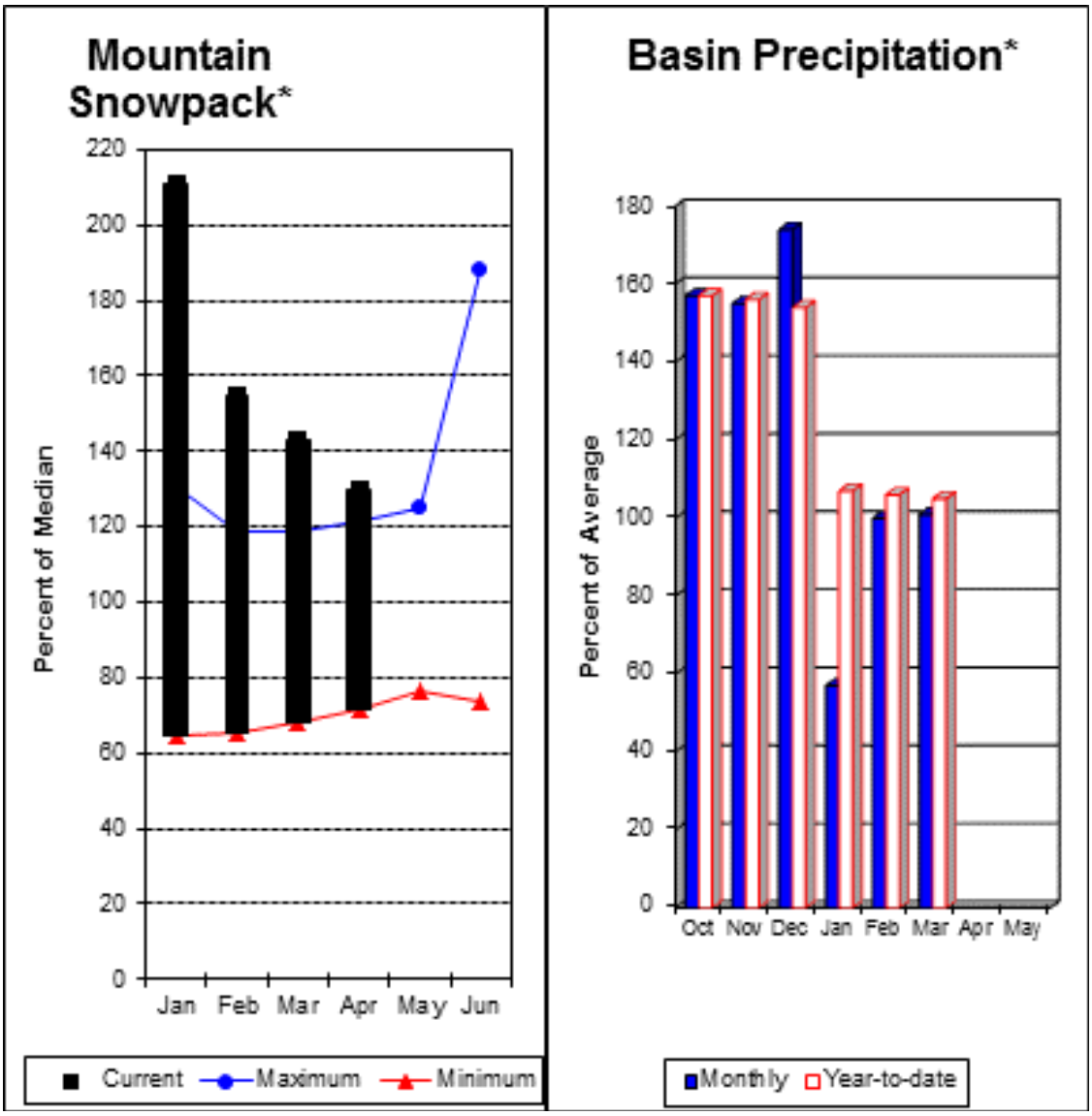
The average is computed for the 1981-2010 base period.

(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.

BAKER, SKAGIT, NOOKSACK Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Apr 04, 2013



Olympic Peninsula River Basins



*Based on selected stations

Forecasted average runoff for streamflow for the Dungeness River is 108% and Elwha River is 112%. March runoff in the Dungeness River was 77% of normal. Big Quilcene and Wynoochee rivers should expect above average runoff this summer as well. March precipitation was 90% of average. Precipitation has accumulated at 105% of average for the water year. March precipitation at Quillayute was 15.99 inches. The 1981-2010 average for March is 10.83 inches. Olympic Peninsula snowpack averaged 130% of normal on April 1. Temperatures were near average for March and slightly below normal for the water year.

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

Streamflow Forecasts - April 1, 2013

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Dungeness R Nr Sequim	APR-JUL	106	120	129	108	138	152	120
	APR-SEP	127	144	156	108	168	185	145
Elwha R At Mcdonald Bridge	APR-JUL	380	420	445	111	470	510	400
	APR-SEP	445	490	525	112	560	605	470

OLYMPIC PENINSULA RIVER BASINS
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

OLYMPIC PENINSULA RIVER BASINS
Watershed Snowpack Analysis - April 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
OLYMPIC PENINSULA	6	83	130

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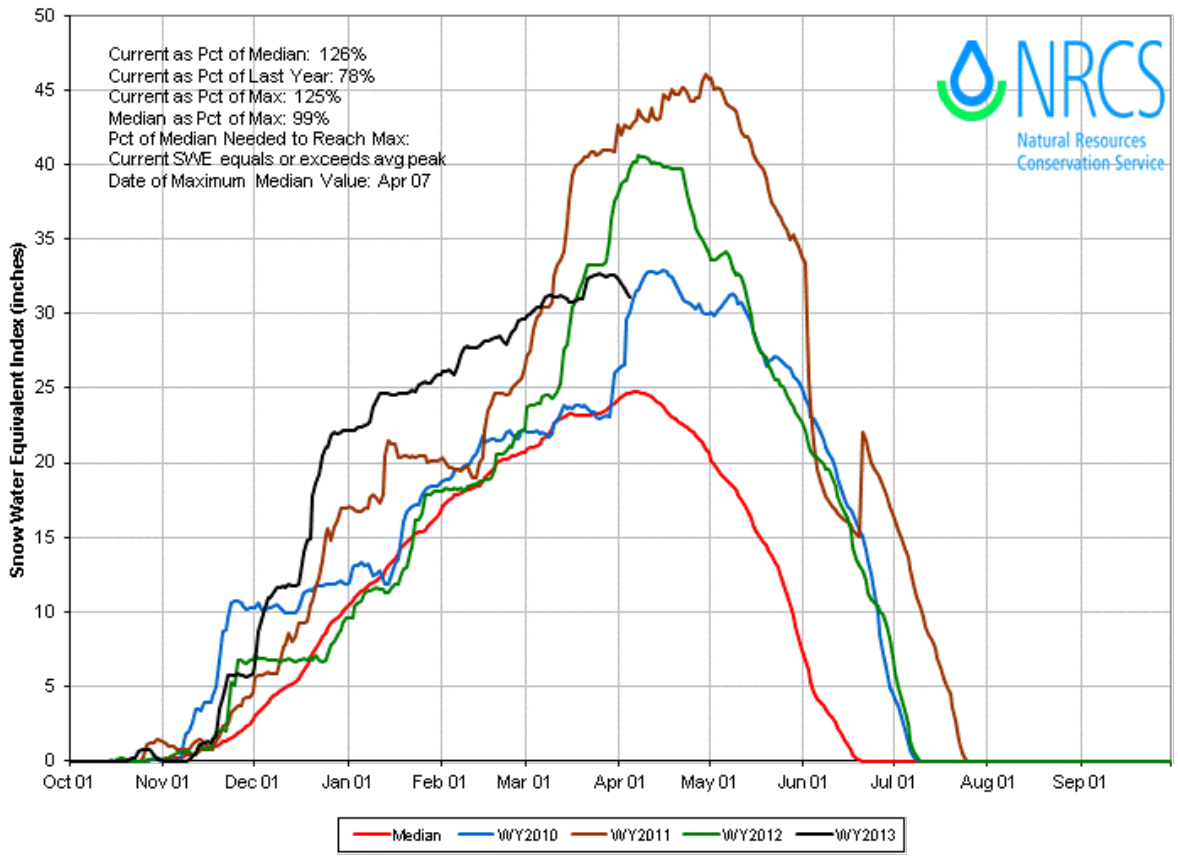
(2) - The value is natural volume - actual volume may be affected by upstream water management.

OLYMPIC Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Apr 04, 2013



Issued by

Jason Weller
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	Snow Survey Network Program – British Columbia Ministry of Environment
	River Forecast Center – British Columbia Ministry of Forests, Lands and Natural Resource Operations
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 Energy
	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.**

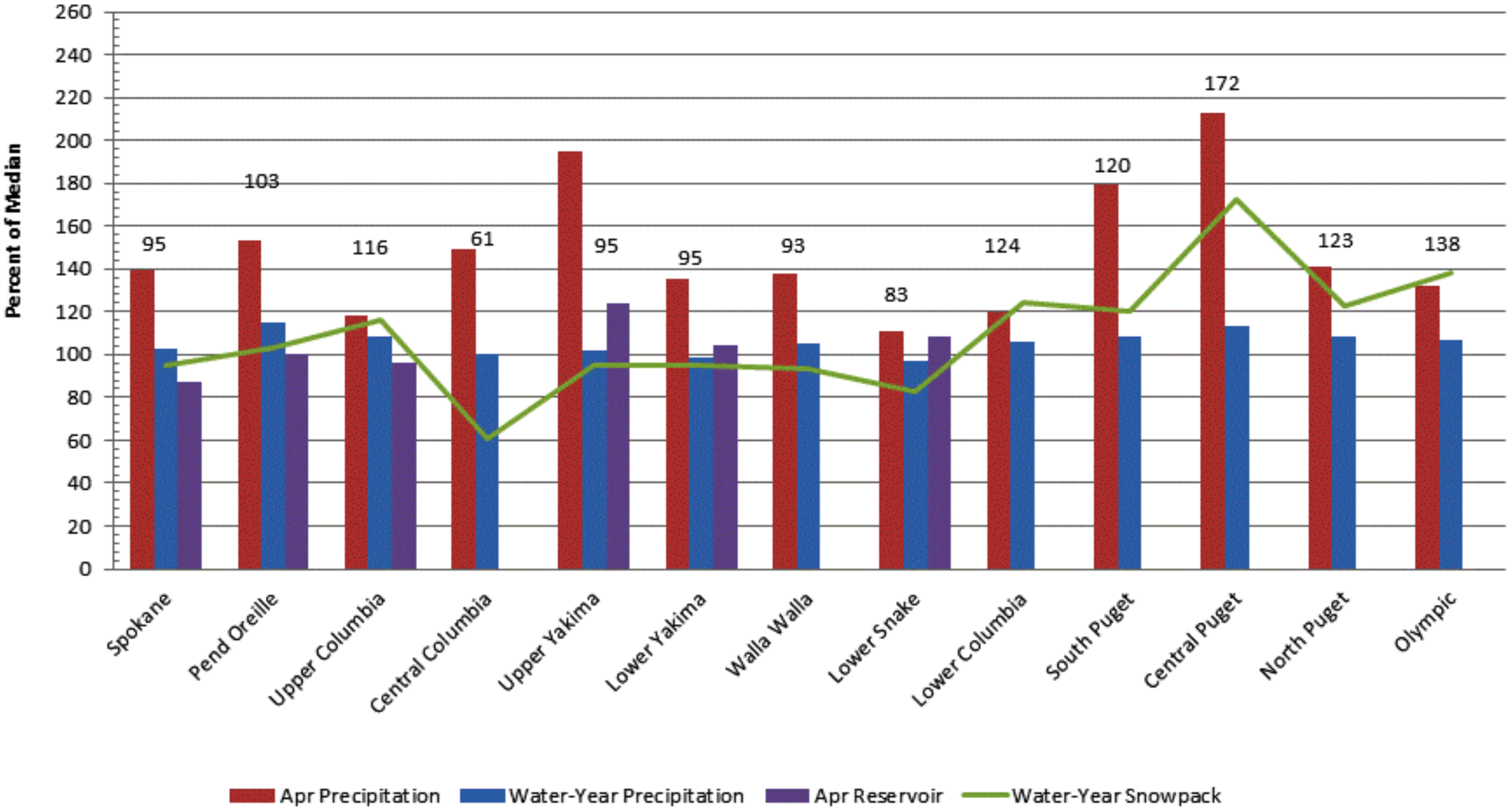
Washington Snow Survey Office
2021 E. College Way, Suite 214
Mount Vernon, WA 98273-2873

Washington Water Supply Outlook Report

Natural Resources Conservation Service
Spokane, WA

NRCS Natural Resources Conservation Service

May 1, 2013 - Snowpack, Precipitation and Reservoir Conditions at a Glance (Water Year = October 1, 2012 - Current Date)



United States Department of Agriculture

NRCS Natural Resources Conservation Service

Washington
Water Supply Outlook Report
June 1, 2013

Eastern Washington Sunrise

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

For more water supply and resource management information, contact:

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Spokane, WA 99201
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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.

Washington
Water Supply Outlook

June 2013

General Outlook

May started out with record high temperatures which threatened an early snow melt however midmonth temperatures dropped back to seasonally normal and the end of the month actually brought some light mountain snow and heavy rains in the south west and central parts of the state. With the recent return to warm temperatures we should see an increased melt rate of 1-2 inches per day as we race towards summer. NOAA- Climate Prediction Center forecasts show a high probability of above normal temperatures and below normal precipitation over the next month. Long temp forecasts indicate a chance of near normal temperatures but will remain drier than normal through the summer. Also included with this issue is the Annual North Cascades National Park Glacier Monitoring Report.

Snowpack

The June 1 statewide SNOTEL readings were 139% of normal. As snow begins to melt basin wide percent of normal can be somewhat misleading. Users should use caution and look closely at actual water content at individual sites for making proper water management decisions. In most cases the seeming increase in snowpack is simply a function of a delayed melt rate as compared to normal. Readings from the Olympic Peninsula reported the highest at 205% of normal. Westside medians from SNOTEL included the North Puget Sound river basins with 125% of normal, the Central Puget Sound 184%, South Puget river basins with 121%, and the Lewis-Cowlitz basins with 131% of normal. Snowpack along the east slopes of the Cascade Mountains included the Yakima area with 108% and the Wenatchee area with 108%. Snowpack in the combined Spokane and Pend Oreille basin reported 102% of the long term median. See map below

BASIN	PERCENT OF LAST YEAR	PERCENT OF MEDIAN
Spokane	49	97
Newman Lake	0	0
Pend Oreille	57	87
Okanogan	71	121
Methow	58	107
Conconully Lake	0	0
Central Columbia	60	108
Upper Yakima	51	119
Lower Yakima	48	88
Ahtanum Creek	6	20
Walla Walla	0	0
Lower Snake	61	77
Cowlitz	72	141
Lewis	62	248
White	66	104
Green	63	100
Puyallup	64	106
Cedar	54	
Snoqualmie	73	141
Skykomish	88	196
Skagit	56	109
Baker	N/A	N/A
Nooksack	78	127
Olympic Peninsula	62	205

Precipitation

During the month of May, the National Weather Service and Natural Resources Conservation Service climate stations reported varied amounts of rain depending on where you were standing. However for the most part we remain near to above average for the water year. The highest percent of average in the state was at Yakima Airport which reported 428% of average for a total of 2.48 inches. Maximum daily accumulation at Yakima was 0.95 inches on May 22. The average for this site is 0.58 inches for the month of May. The driest location was at Spokane Airport which received 0.80 inches which was 49% normal. The wettest spot in the state was reported at Swift Creek SNOTEL near Mt. St. Helens with a May accumulation of 11.2 inches, most of which came in the last 8 days of the month. See map below

RIVER BASIN	MAY PERCENT OF AVERAGE	WATER YEAR PERCENT OF AVERAGE
Spokane	60	99
Pend Oreille	93	113
Upper Columbia	95	107
Central Columbia	117	101
Upper Yakima	87	102
Lower Yakima	129	100
Walla Walla	68	102
Lower Snake	61	94
Lower Columbia	128	108
South Puget Sound	122	109
Central Puget Sound	85	111
North Puget Sound	108	108
Olympic Peninsula	141	109

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. Due to above normal snowpack and precipitation all reservoirs in Washington are in good shape. Reservoir storage in the Yakima Basin was 833,000-acre feet, 115% of average for the Upper Reaches and 232,000-acre feet or 108% of average for Rimrock and Bumping Lakes. Storage at the Okanogan reservoirs was 100% of average for June 1. The power generation reservoirs included the following: Coeur d'Alene Lake, 232,000 acre feet, 87% of average and 97% of capacity, Ross Lake, 703,000 acre feet, 67% of average and 50% of capacity. Recent climate impacts and management procedures may affect these numbers on a daily or weekly basis.

BASIN	PERCENT OF CAPACITY	CURRENT STORAGE AS PERCENT OF AVERAGE
Spokane	97	87
Pend Oreille	83	97
Upper Columbia	100	100
Central Columbia	N/A	N/A
Upper Yakima	100	115
Lower Yakima	100	108
Lower Snake	98	109
North Puget Sound	50	67

Streamflow

Streamflow forecasts vary from 67% of average for Bumping Lake Inflow to 160% of average for S.F. Tolt River near Index. June-September forecasts for some Western Washington streams include the Cedar River near Cedar Falls, 121%; White River, 105%; and Skagit River, 95%. Some Eastern Washington streams include the Yakima River near Parker, 84%: Wenatchee River at Plain, 96%; and Okanogan near Tonasket, 116%. Volumetric forecasts are developed using current, historic and average snowpack, precipitation and streamflow data collected and coordinated by organizations cooperating with NRCS.

Runoff conditions through May depicted both the dry start and wet finish of the month but mostly vary due to natural flow versus reservoir control. The Kettle River had the highest reported natural flows with 132% of average. The Grand Ronde at Troy with 61% of average had the least non-regulated runoff. Other streamflows were the following percentage of average as reported by the River Forecast Center: the Similkameen near Nighthawk, 98%; the Methow near Pateros, 84%; the Priest River, 152% and the Dungeness River, 77%.

BASIN	PERCENT OF AVERAGE (50 PERCENT CHANCE OF EXCEEDENCE)
Spokane	84-85
Pend Oreille	85-109
Upper Columbia	95-132
Central Columbia	82-96
Upper Yakima	88-90
Lower Yakima	67-94
Walla Walla	84-95
Lower Snake	72-97
Lower Columbia	85-110
South Puget Sound	102-105
Central Puget Sound	106-160
North Puget Sound	95-98
Olympic Peninsula	111-113

STREAM	PERCENT OF AVERAGE MAY STREAMFLOWS
Pend Oreille Below Box Canyon	91
Kettle at Laurier	132
Columbia at Birchbank	85
Spokane at Long Lake	74
Similkameen at Nighthawk	98
Okanogan at Tonasket	125
Methow at Pateros	84
Chelan at Chelan	68
Wenatchee at Pashastin	76
Cle Elum near Roslyn	75
Yakima at Parker	97
Naches at Naches	82
Grande Ronde at Troy	61
Snake below Lower Granite Dam	67
SF Walla Walla near Milton-Freewater, OR	70
Columbia River at The Dalles	90
Cowlitz below Mayfield Dam	114
Skagit at Concrete	72
Dungeness near Sequim	77

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. Warm temperatures and rain-on-snow events of May pushed most soils moisture levels up a few percentage points. With a solid snowpack over most of the mountainous regions of the state these numbers should hold and will help provide maximum runoff come spring.

BASIN	ESTIMATED PERCENT SATURATION
Spokane	69
Pend Oreille	58
Upper Columbia	69
Central Columbia	60
Upper Yakima	79
Lower Yakima	72
Walla Walla	77
Lower Snake	73
Lower Columbia	77
South Puget Sound	82
Central Puget Sound	N/A
North Puget Sound	91
Olympic Peninsula	48

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.

NORTH CASCADES GLACIER PAGE 2013

North Cascades National Park Glacier Monitoring Program

The National Park Service began monitoring glaciers in North Cascades National Park in 1993 and Mount Rainier glaciers in 2003 (see the Mount Rainier Glacier Page). Goals for this program and additional data can be found at North Cascades National Park home page at http://www.nps.gov/noca/naturescience/glacial-mass-balance1.htm or contact Jon_Riedel@nps.gov or Mike_Larrabee@nps.gov.

The four glaciers monitored are located at the headwaters of four watersheds, each with large hydroelectric dams (Figure 1). The glaciers represent a range in elevation from 8300 to 5600 feet, and a range in climatic conditions from maritime to continental. Methods include three visits annually to each glacier to measure winter accumulation and summer melt. Measurements are taken at a series of points down the centerline of the glacier (Table 1), and then integrated across the entire glacier surface to determine mass balance for the entire glacier. In 2012, positive net balances were recorded at all four index glaciers (Figure 2). This was partially attributed to a large winter snowpack that persisted late into the summer.

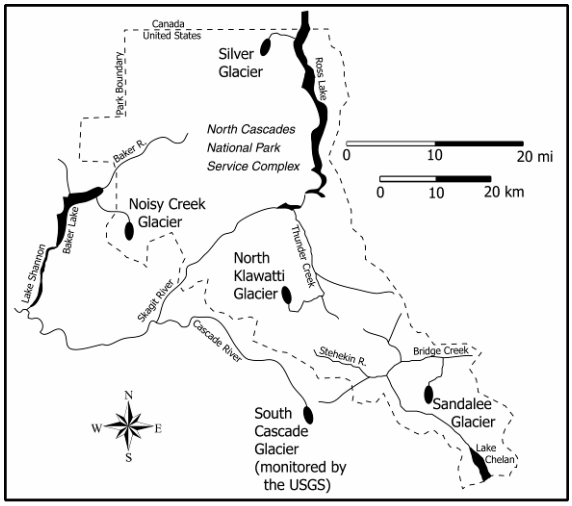

Figure 1. Glaciers monitored in North Cascades N.P.S. Complex.

Table 1 Glacier:	Elev. (feet)	Average Accumulation (inches W.E.)	2013 Accumulation (inches W.E.)	2013 Percent of Average
Noisy Creek Density = 0.46	**Entire Glacier**	**121**	**118**	**97**
	5932	133	122	92
	5925	138	143	103
	5814	122	115	94
	5709	113	111	98
	5591	115	110	96
Silver Density = 0.50	**Entire Glacier**	**87**	**89**	---
	8327	108	---	---
	7881	91	128	141
	7507	112	126	112
	7211	64	74	117
North Klawatti Density = 0.50	**Entire Glacier**	**114**	**114**	**100**
	7585	116	123	106
	7205	121	119	98
	6824	122	123	101
	6286	103	100	97
	5997	93	75	81
Sandalee Density = 0.44	**Entire Glacier**	**108**	**81**	---
	7395	109	104	96
	7146	118	92	78
	6778	109	108	99
	6549	133	---	---

Table 1. Table 1 presents this spring's provisional winter accumulation data, along with average values and percent of the 20-year average. The 2013 snow depths were measured on April 22nd and May 7th on the four glaciers. The provisional data show 2013 winter accumulation as largely near average. However, difficulty in probing the snowpack depth resulted in fewer measurements than normal. These data are tentative and will be revised after mid-summer visits. Snow densities are based on 2013 field measurements for Noisy and Silver glaciers and on historical field measurements for North Klawatti and Sandaee glaciers. The greater densities at Silver and North Klawatti glaciers are reflective snowpack consolidation that occurred between the two measurement periods. Densities are in fraction of water density. Snow density values will be checked against South Cascade Glacier and nearby SNOTEL values.

The 2012 estimates of glacial contribution to runoff for four watersheds are based on the mass balance measurements and GIS analyses to determine glacier area within 165 ft (50-meter) elevation bands (Table 2). Glaciers reduce the variation of flow in these watersheds by providing melt water from firn and ice during summer drought, in dry/warm years, and by storing water in excess snowpack during wet/cool years. Glacial contribution to stream flow in these watersheds varies by as much as 100% annually. Magnitude of glacial contribution to streamflow is large, but varies by the amount of glacial cover in each watershed. Thunder Creek is 13% glacierized; Baker River, 5%; Stehekin River, 3%; and Ross Lake, 0.9% (Post and others, 1971; Granshaw, 2002).

The glacierized area of a watershed primarily dictates the glacier contribution to runoff. However, the relative importance of glacial contribution to streamflow also generally increases from west to east. For example, glaciers annually contribute a higher percentage of meltwater to streamflow in the Stehekin watershed than in the Baker, despite the fact that the Baker is more highly glacierized. This is due to lower snowfall east of the hydrologic crest of the North Cascades.

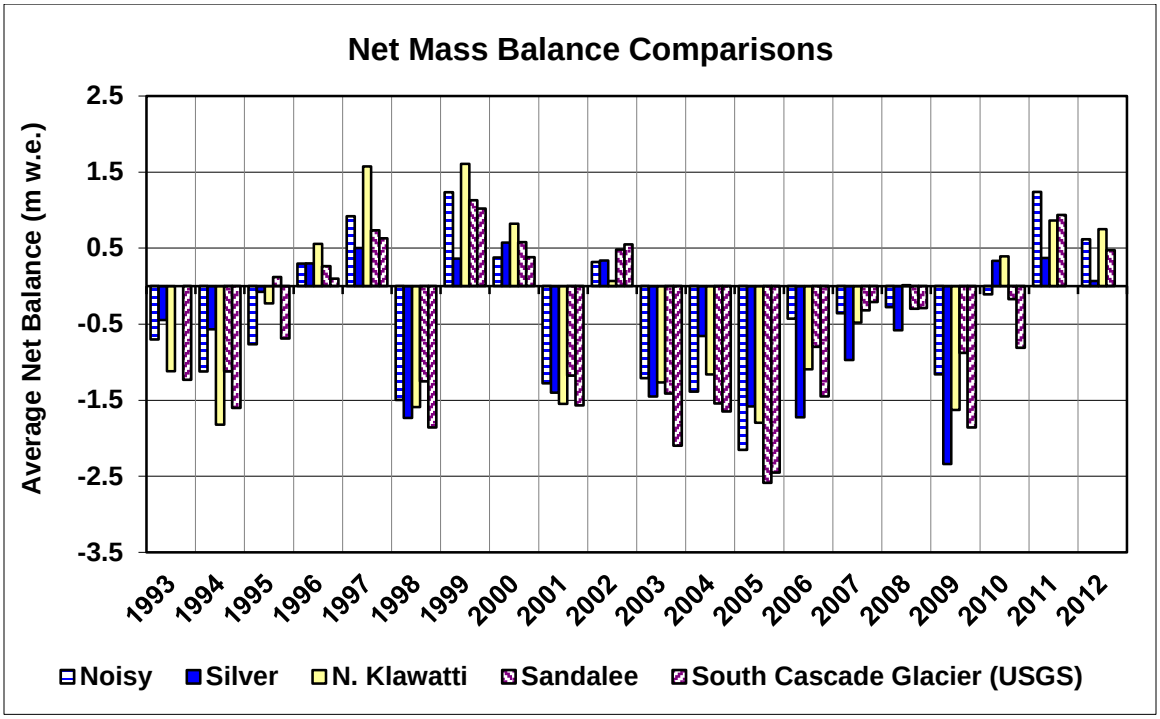

Figure 2. Net annual mass balance for the five glaciers monitored in the North Cascades.

Table 2 *Provisional Data*	May-September Runoff (thousands acre-feet)				Percent Glacial Runoff to Total Summer Runoff		
	2012	mean	min	max	2012	min	max
Noisy Creek Glacier	1.3	1.5	1.2	1.9			
Baker River Watershed	**113.3**	**112.2**	**76.0**	**138.3**	**10.4**	**8.6**	**22.7**
North Klawatti Glacier	3.8	4.0	2.8	5.1			
Thunder Creek Watershed	**94.0**	**95.5**	**65.3**	**117.2**	**26.7**	**20.7**	**46.1**
Sandalee Glacier	0.4	0.5	0.3	0.7			
Stehekin River Watershed	**68.8**	**71.0**	**51.6**	**88.1**	**7.5**	**5.6**	**22.1**
Silver Glacier	0.8	0.9	0.5	1.3			
Ross Lake Watershed	**62.9**	**62.7**	**43.0**	**78.2**	**3.4**	**2.5**	**13.0**

Table 2. Glacial contribution to summer stream flow (May 1 to Sept. 30) for four watersheds. Runoff units are thousands of acre-feet. Data from 1993-2012 except the Sandalee Glacier and Stehekin River Watershed (1995-2012).

B A S I N S U M M A R Y O F
S N O W C O U R S E D A T A

JUNE 2013

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
ALPINE MEADOWS SNTL	3500	6/01/13	83	54.5	53.9	30.7
BADGER PASS SNOTEL	6900	6/01/13	46	18.6	31.6	17.2
BARKER LAKES SNOTEL	8250	6/01/13	25	8.9	8.6	11.0
BASIN CREEK SNOTEL	7180	6/01/13	0	.0	.8	.3
BEAVER PASS SNOTEL	3630	6/01/13	44	24.8	41.3	21.4
BIG WHITE MTN CAN.	5510	6/02/13	12	5.0	10.9	--
BLACK PINE SNOTEL	7100	6/01/13	0	.0	.0	.0
BLACKWALL PILL CAN.	6370	5/30/13	38	19.6	32.5	--
BLEWETT PASS#2SNOTEL	4240	6/01/13	0	.0	.0	.0
BUCKINGHORSE SNOTEL	4870	6/01/13	77	41.4	60.8	--
BUMPING RIDGE SNOTEL	4610	6/01/13	0	.0	12.0	6.5
BUNCHGRASS MDWSNOTEL	5000	6/01/13	13	5.5	15.9	6.4
BURNT MOUNTAIN PIL	4170	6/01/13	0	1.0	5.5	.0
CALAMITY SNOTEL	2500	6/01/13	0	.0	.0	--
CAYUSE PASS SNOTEL	5240	6/01/13	82	38.9	60.8	--
CHICKEN CREEK	4060	5/30/13	0	.0	.0	.0
COMBINATION SNOTEL	5600	6/01/13	0	.0	.0	.0
COPPER BOTTOM SNOTEL	5200	6/01/13	0	.0	.0	--
CORRAL PASS SNOTEL	5800	6/01/13	62	29.8	36.5	26.0
COUGAR MTN. SNOTEL	3200	6/01/13	0	.0	.0	.0
COYOTE HILL	4200	5/31/13	0	.0	--	--
DALY CREEK SNOTEL	5780	6/01/13	0	.0	.0	.0
DUNGENESS SNOTEL	4010	6/01/13	0	.0	.0	.0
ELBOW LAKE SNOTEL	3200	6/01/13	12	6.0	--	.7
EMERY CREEK SNOTEL	4350	6/01/13	0	.0	.0	.0
ENDERBY CAN.	5800	6/03/13	75	39.5	--	--
ESPERON CK. MID CAN.	4250	5/26/13	0	.0	--	--
ESPERON CK. UP CAN.	5050	5/26/13	15	7.0	--	--
FISH LAKE SNOTEL	3430	6/01/13	0	.0	7.7	.0
FLATTOP MTN SNOTEL	6300	6/01/13	71	36.8	46.1	32.3
FROHNER MDWS SNOTEL	6480	6/01/13	0	.0	.0	.0
GRAVE CRK SNOTEL	4300	6/01/13	0	.0	.0	.0
GREEN LAKE SNOTEL	5920	6/01/13	4	.8	13.9	4.0
GROUSE CAMP SNOTEL	5390	6/01/13	0	.0	.0	.0
HAND CREEK SNOTEL	5030	6/01/13	0	.0	.0	.0
HARTS PASS SNOTEL	6490	6/01/13	53	31.8	44.5	24.6
HELL ROARING DIVIDE	5770	5/30/13	28	14.1	21.1	11.3
HERRIG JUNCTION	4850	5/30/13	0	.0	9.6	.3
HIGH RIDGE SNOTEL	4920	6/01/13	0	.0	.0	.0
HOODOO BASIN SNOTEL	6050	6/01/13	60	25.6	39.8	23.5
HUCKLEBERRY SNOTEL	2250	6/01/13	0	.0	.0	.0
HUMBOLDT GLCH SNOTEL	4250	6/01/13	0	.0	.0	.0
INDIAN ROCK SNOTEL	5360	6/01/13	0	.0	.0	--
JUNE LAKE SNOTEL	3440	6/01/13	37	23.0	35.3	.0
KRAFT CREEK SNOTEL	4750	6/01/13	0	.0	.0	--
LOLO PASS SNOTEL	5240	6/01/13	0	.0	.0	.0
LONE PINE SNOTEL	3930	6/01/13	45	28.2	39.3	13.7
LOOKOUT SNOTEL	5140	6/01/13	0	.0	3.2	.0
LOST HORSE SNOTEL	5120	6/01/13	0	.0	.0	.0
LOST LAKE SNOTEL	6110	6/01/13	55	27.2	43.9	31.9
LUBRECHT SNOTEL	4680	6/01/13	0	.0	.0	.0
LYMAN LAKE SNOTEL	5980	6/01/13	79	47.3	57.6	48.9
LYNN LAKE SNOTEL	3900	6/01/13	26	11.4	16.9	--
MARTEN RIDGE SNOTEL	3520	6/01/13	65	39.9	62.7	--
MEADOWS PASS SNOTEL	3230	6/01/13	4	2.4	8.7	.0
M F NOOKSACK SNOTEL	4970	6/01/13	108	65.4	84.0	51.6
MICA CREEK SNOTEL	4510	6/01/13	0	.0	.0	.0
MISSION CREEK CAN.	5840	5/30/13	27	14.2	13.8	--
MORRISSEY R SC CAN.	6100	5/30/13	---	3.1E	--	--
MORSE LAKE SNOTEL	5410	6/01/13	62	31.6	56.2	32.8
MOSES MTN SNOTEL	5010	6/01/13	0	.0	.0	.0
MOSQUITO RDG SNOTEL	5200	6/01/13	19	10.4	22.7	6.4
MOUNT CRAG SNOTEL	3960	6/01/13	24	10.3	26.2	4.1
MT. KOBAU CAN.	5500	5/31/13	15	7.3	3.2	--
N.F. ELK CR SNOTEL	6250	6/01/13	0	.0	.0	.0
NEVADA RIDGE SNOTEL	7020	6/01/13	0	.0	3.1	2.5
NEZ PERCE CMP SNOTEL	5650	6/01/13	0	.0	.0	.0
NOISY BASIN SNOTEL	6040	6/01/13	54	25.4	31.3	28.5
OLALLIE MDWS SNOTEL	4030	6/01/13	69	32.1	53.2	29.0
PARADISE SNOTEL	5130	6/01/13	112	79.0	75.8	61.9
PARK CK RIDGE SNOTEL	4600	6/01/13	0	1.6	28.3	4.6
PEPPER CREEK SNOTEL	2140	5/30/13	---	.0e	.0	--
PETERSON MDW SNOTEL	7200	6/01/13	0	.0	.0	1.3
PIGTAIL PEAK SNOTEL	5800	6/01/13	76	41.1	70.2	36.6
PIKE CREEK SNOTEL	5930	6/01/13	0	.0	.0	.0
POPE RIDGE SNOTEL	3590	6/01/13	0	.0	.0	.0
POTATO HILL SNOTEL	4510	6/01/13	---	6.5	16.7	.6
QUARTZ PEAK SNOTEL	4700	6/01/13	0	.0	.0	.0
RAGGED MTN SNOTEL	4210	6/01/13	0	.0	.0	.0
RAINY PASS SNOTEL	4890	6/01/13	24	14.4	35.1	18.7
REX RIVER SNOTEL	3810	6/01/13	23	13.8	23.5	.0
ROCKER PEAK SNOTEL	8000	6/01/13	16	5.0	9.0	10.6
SADDLE MTN SNOTEL	7900	6/01/13	14	6.5	12.4	13.3
SALMON MDWS SNOTEL	4460	5/30/13	---	.0e	.0	.0
SASSE RIDGE SNOTEL	4340	6/01/13	9	4.9	16.6	.0
SAVAGE PASS SNOTEL	6170	6/01/13	---	2.1	7.9	4.3
SAWMILL RIDGE SNOTEL	4640	6/01/13	0	1.9	23.8	--
SHEEP CANYON SNOTEL	3990	6/01/13	45	23.7	34.9	5.9
SHERWIN SNOTEL	3200	6/01/13	---	.0	.0	.0
SILVER STAR MTN CAN.	5600	5/30/13	44	23.2	20.2	--
SKALKAHO SNOTEL	7260	6/01/13	0	.0	7.5	9.5
SKOOKUM CREEK SNOTEL	3310	6/01/13	6	3.5	13.9	.0
SOURDOUGH GUL SNOTEL	4000	6/01/13	0	.0	.0	.0
SPENCER MDW SNOTEL	3400	6/01/13	0	.0	10.6	.0
SPIRIT LAKE SNOTEL	3520	6/01/13	0	.0	.0	.0
SPRUCE SPGS SNOTEL	5700	6/01/13	0	.0	.0	.0
STAHL PEAK SNOTEL	6030	6/01/13	49	24.1	36.3	25.8
STAMPEDE PASS SNOTEL	3850	6/01/13	27	14.1	22.5	14.1
STEVENS PASS SNOTEL	3950	6/01/13	23	11.6	21.1	3.0
STRYKER BASIN	6180	5/30/13	36	19.4	30.1	20.1
SUNSET SNOTEL	5540	6/01/13	0	.0	7.7	.3
SURPRISE LKS SNOTEL	4290	6/01/13	46	24.6	36.2	16.9
SWIFT CREEK SNOTEL	4440	6/01/13	86	47.2	70.1	40.8
THUNDER BASIN SNOTEL	4320	6/01/13	---	6.7	17.5	6.8
TINKHAM CREEK SNOTEL	2990	6/01/13	24	12.5	20.9	.0
TOUCHET SNOTEL	5530	6/01/13	0	.0	.0	.0
TROUGH #2 SNOTEL	5480	5/29/13	---	.0e	.0	.0
TWELVEMILE SNOTEL	5600	6/01/13	0	.0	.0	.0
TWIN LAKES SNOTEL	6400	6/01/13	16	8.4	24.5	16.5
UPPER WHEELER SNOTEL	4330	5/29/13	---	.0e	.0	.0
WARM SPRINGS SNOTEL	7800	6/01/13	25	11.3	20.6	17.0
WATERHOLE SNOTEL	5010	6/01/13	---	31.0	40.0	16.0
WELLS CREEK SNOTEL	4030	6/01/13	37	20.5	--	7.9
WHITE PASS ES SNOTEL	4440	5/31/13	---	.0e	11.1	1.4
WHITE ROCKS MTN CAN.	7200	5/26/13	21	10.1	8.6	--

Natural Resources Conservation Service

Washington State
Snow, Water and Climate Services

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Helpful Internet Addresses

NRCS Snow Survey and Climate Services Homepages

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

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

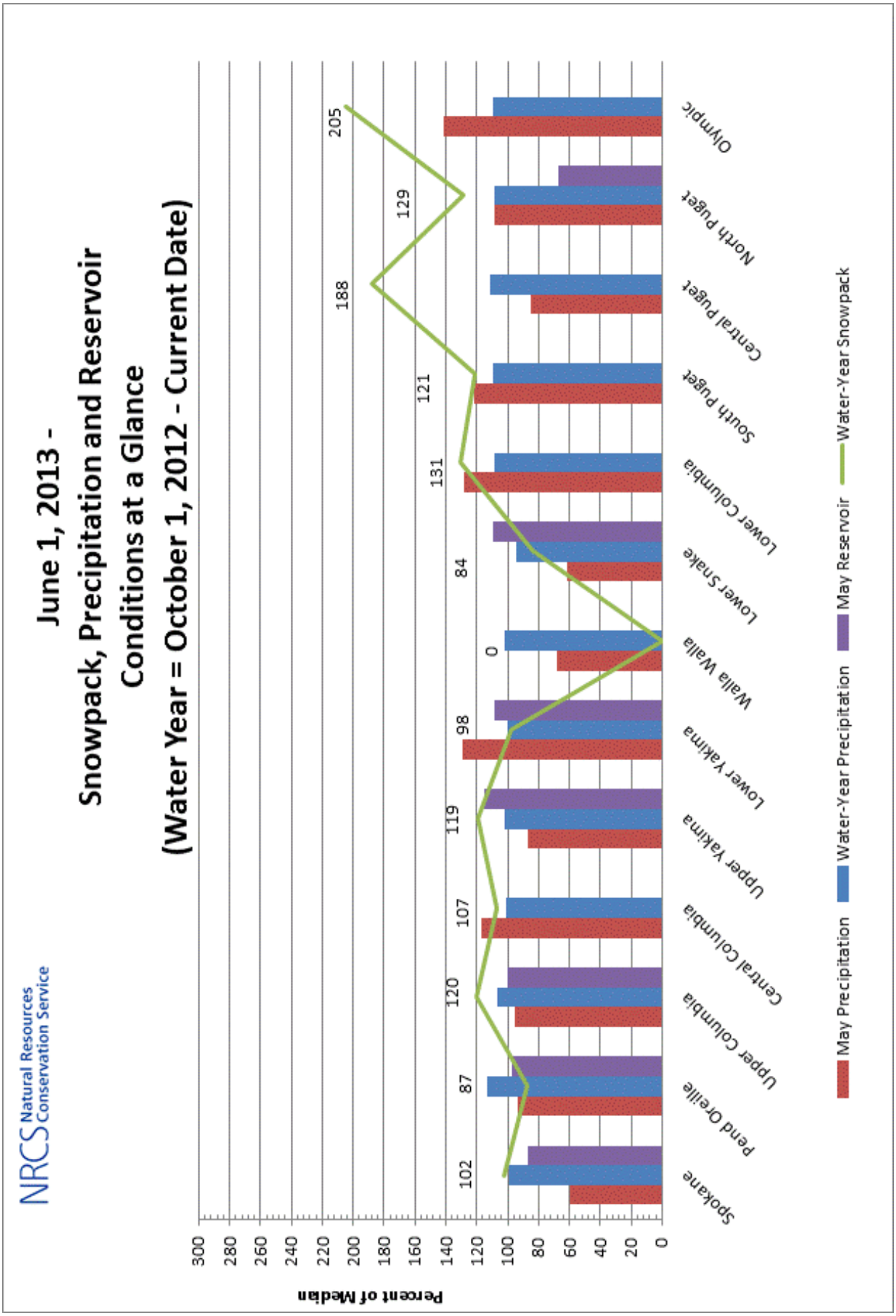
Idaho:
http://www.id.nrcs.usda.gov/snow

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

USDA-NRCS Agency Homepages

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

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



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

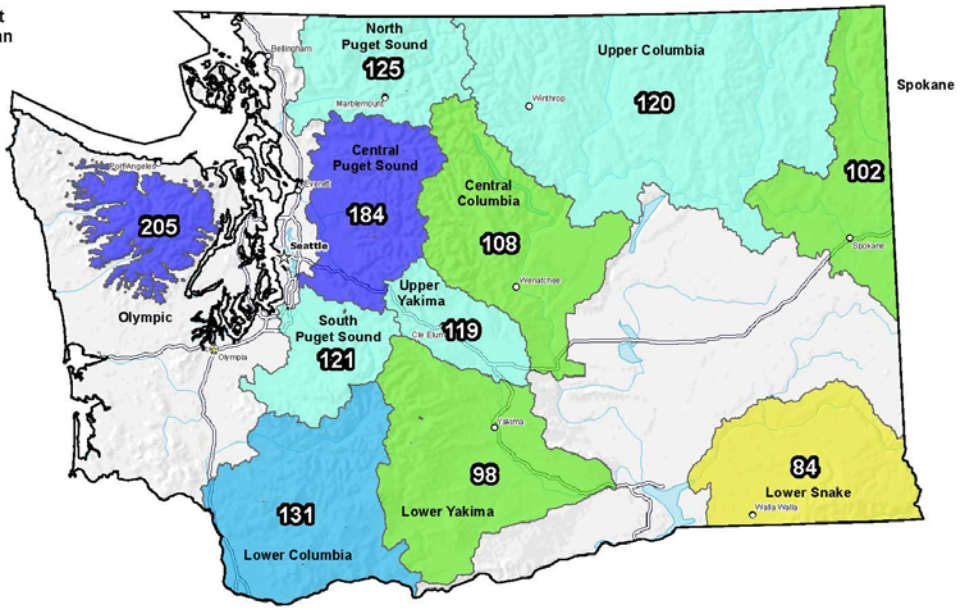
Washington SNOTEL Current Snow Water Equivalent (SWE) % of Normal

Jun 01, 2013

Current Snow Water Equivalent (SWE) Basin-wide Percent of 1981-2010 Median

- unavailable *
- <50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- >=150%

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



Provisional Data Subject to Revision

USDA NRCS

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

Prepared by the USDA/NRCS National Water and Climate Center
Portland, Oregon http://www.wcc.nrcs.usda.gov/gis/
Based on data from http://www.wcc.nrcs.usda.gov/reports/
Science contact: Jim.Marron@por.usda.gov 503 414 3047

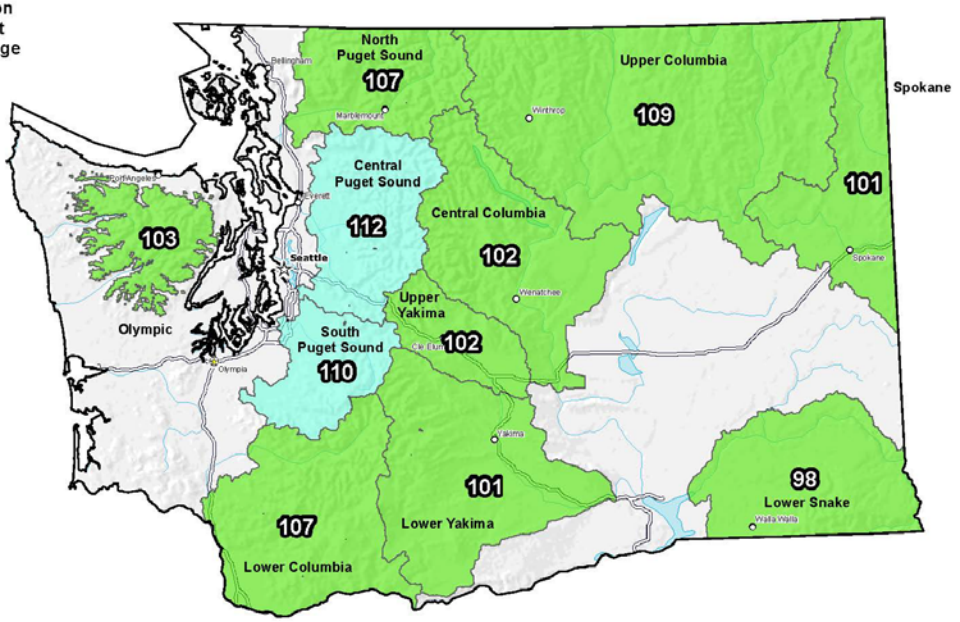
Washington SNOTEL Water Year (Oct 1) to Date Precipitation % of Normal

Jun 01, 2013

Water Year (Oct 1) to Date Precipitation Basin-wide Percent of 1981-2010 Average

- unavailable *
- <50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- >=150%

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



Provisional Data Subject to Revision

USDA NRCS

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

Prepared by the USDA/NRCS National Water and Climate Center
Portland, Oregon http://www.wcc.nrcs.usda.gov/gis/
Based on data from http://www.wcc.nrcs.usda.gov/reports/
Science contact: Jim.Marron@por.usda.gov 503 414 3047

* DATA CURRENT AS OF: 6/06/13 13:24:58

SPOKANE RIVER BASIN

Forecast Point	period	50% (KAF)	% of avg	max (KAF)	30% (KAF)	70% (KAF)	min (KAF)	30-yr avg
Spokane R nr Post Falls (2)	JUN-JUL	515	83	660	575	455	370	620
	JUN-SEP	595	84	790	675	515	400	705
Spokane R at Long Lake (2)	JUN-JUL	670	84	830	735	605	510	795
	JUN-SEP	875	85	1100	965	785	650	1030
Chamokane Ck nr Long Lake	JUN-AUG	5.10	88	6.70	5.80	4.40	3.50	5.80

PEND OREILLE RIVER BASINS

Forecast Point	period	50% (KAF)	% of avg	max (KAF)	30% (KAF)	70% (KAF)	min (KAF)	30-yr avg
Pend Oreille Lake Inflow (2)	JUN-JUL	4780	87	5760	5170	4390	3800	5480
	JUN-SEP	5560	85	6730	6030	5090	4390	6520
Priest R nr Priest River (1,2)	JUN-JUL	305	111	385	335	275	225	275
	JUN-SEP	355	109	450	395	315	260	325
Pend Oreille R bl Box Canyon (2)	JUN-JUL	4830	87	5820	5230	4430	3840	5540
	JUN-SEP	5610	85	6810	6090	5130	4410	6600

UPPER COLUMBIA RIVER BASINS

Forecast Point	period	50% (KAF)	% of avg	max (KAF)	30% (KAF)	70% (KAF)	min (KAF)	30-yr avg
Colville R at Kettle Falls	JUN-JUL	34.0	100	48.0	40.0	28.0	20.0	34.0
	JUN-SEP	46.0	100	63.0	53.0	39.0	29.0	46.0
Kettle R nr Laurier	JUN-JUL	960	132	1200	1060	865	720	730
	JUN-SEP	1070	132	1340	1180	960	800	810
Similkameen R nr Nighthawk (1)	JUN-JUL	750	123	910	800	700	590	610
	JUN-SEP	855	123	1070	920	790	640	695
Okanogan R nr Tonasket (1)	JUN-JUL	905	117	1190	995	815	620	775
	JUN-SEP	1100	116	1450	1210	990	750	945
Okanogan R at Malott (1)	JUN-JUL	935	123	1240	1030	840	630	760
	JUN-SEP	1140	123	1510	1250	1030	775	925
Methow R nr Pateros	JUN-SEP	460	95	550	495	425	370	485
	JUN-JUL	405	95	480	435	375	330	425

CENTRAL COLUMBIA RIVER BASINS

Forecast Point	period	50% (KAF)	% of avg	max (KAF)	30% (KAF)	70% (KAF)	min (KAF)	30-yr avg
Stehekin R at Stehekin	JUN-JUL	325	86	400	355	295	250	380
	JUN-SEP	420	86	495	450	390	345	490
Chelan R at Chelan (2)	JUN-JUL	440	82	500	465	415	380	540
	JUN-SEP	540	82	605	565	515	475	660
Entiat R nr Ardenvoir	JUN-JUL	92	81	108	99.0	85.0	76.0	113
	JUN-SEP	107	82	128	115	99.0	86.0	131
Wenatchee R at Plain	JUN-JUL	485	96	575	520	450	395	505

	JUN-SEP	570	96	670	610	530	470	595
Icicle Ck nr Leavenworth	JUN-JUL	121	87	151	133	109	91.0	139
	JUN-SEP	143	88	179	157	129	107	163
Wenatchee R at Peshastin	JUN-JUL	650	95	775	700	600	525	685
	JUN-SEP	765	94	910	825	705	620	810

UPPER YAKIMA RIVER BASIN

Forecast Point	period	50% (KAF)	% of avg	max (KAF)	30% (KAF)	70% (KAF)	min (KAF)	30-yr avg
Keechelus Reservoir Inflow (2)	JUN-JUL	37.0	88	47.0	41.0	33.0	27.0	42.0
	JUN-SEP	47.0	90	60.0	52.0	42.0	34.0	52.0
Kachess Reservoir Inflow (2)	JUN-JUL	33.0	92	39.0	36.0	30.0	27.0	36.0
	JUN-SEP	41.0	91	49.0	44.0	38.0	33.0	45.0
Cle Elum Lake Inflow (2)	JUN-JUL	153	90	200	173	133	104	170
	JUN-SEP	183	89	245	205	159	123	205
Yakima R at Cle Elum (2)	JUN-JUL	260	90	350	295	225	171	290
	JUN-SEP	325	89	440	370	280	210	365
Teanaway R bl Forks nr Cle Elum	JUN-JUL	26.0	87	43.0	33.0	19.0	8.60	30.0
	JUN-SEP	28.0	88	46.0	35.0	21.0	10.5	32.0

LOWER YAKIMA RIVER BASIN

Forecast Point	period	50% (KAF)	% of avg	max (KAF)	30% (KAF)	70% (KAF)	min (KAF)	30-yr avg
Bumping Lake Inflow (2)	JUN-JUL	34.0	65	46.0	39.0	29.0	22.0	52.0
	JUN-SEP	41.0	67	53.0	46.0	36.0	29.0	61.0
American R nr Nile	JUN-JUL	34.0	71	45.0	38.0	30.0	23.0	48.0
	JUN-SEP	40.0	71	53.0	45.0	35.0	27.0	56.0
Rimrock Lake Inflow (2)	JUN-JUL	70.0	77	86.0	77.0	63.0	54.0	91.0
	JUN-SEP	99	80	116	106	92.0	82.0	124
Naches R nr Naches (2)	JUN-JUL	192	67	255	215	167	129	285
	JUN-SEP	235	68	310	265	205	160	345
Ahtanum Ck at Union Gap	JUN-JUL	7.60	84	11.1	9.00	6.20	4.10	9.00
	JUN-SEP	9.6	85	13.4	11.1	8.10	5.80	11.3
Yakima R nr Parker (2)	JUN-JUL	505	83	630	555	455	380	610
	JUN-SEP	650	84	800	710	590	500	770
Klickitat R nr Glenwood	JUN-JUL	39.0	83	50.0	43.0	35.0	28.0	47.0
	JUN-SEP	51.0	85	64.0	56.0	46.0	38.0	60.0
Klickitat R nr Pitt	JUN-JUL	155	92	185	167	143	125	168
	JUN-SEP	240	94	285	255	225	197	255

WALLA WALLA RIVER BASIN

Forecast Point	period	50% (KAF)	% of avg	max (KAF)	30% (KAF)	70% (KAF)	min (KAF)	30-yr avg
SF Walla Walla R nr Milton-Freewate	JUN-JUL	14.8	81	19.8	16.8	12.8	9.8	18.2
	JUN-SEP	26.0	84	32.5	28.6	23.4	19.5	31.0
Mill Ck nr Walla Walla	JUN-JUL	5.60	90	7.75	6.47	4.73	3.45	6.20
	JUN-SEP	9.10	95	11.6	10.1	8.07	6.56	9.60

LOWER SNAKE RIVER BASIN

Forecast Point	period	50% (KAF)	% of avg	max (KAF)	30% (KAF)	70% (KAF)	min (KAF)	30-yr avg
Grande Ronde R at Troy (1)	JUN-JUL	365	85	515	410	320	215	430
	JUN-SEP	445	86	600	495	395	290	520
Asotin Ck at Asotin	JUN-JUL	5.5	50	9.2	7.00	4.00	1.70	11.0
Clearwater R at Spalding (1,2)	JUN-JUL	2200	84	3170	2500	1900	1230	2610
	JUN-SEP	2580	86	3680	2920	2240	1480	2990

LOWER COLUMBIA RIVER BASINS

Forecast Point	period	50% (KAF)	% of avg	max (KAF)	30% (KAF)	70% (KAF)	min (KAF)	30-yr avg
Columbia R at The Dalles (2)	JUN-JUL	32900	81	38500	35200	30600	27300	40700
	JUN-SEP	46300	87	53700	49300	43300	38900	53500
Klickitat R nr Glenwood	JUN-JUL	39.0	83	50.0	43.0	35.0	28.0	47.0
	JUN-SEP	51.0	85	64.0	56.0	46.0	38.0	60.0
Klickitat R nr Pitt	JUN-JUL	155	92	185	167	143	125	168
	JUN-SEP	240	94	285	255	225	197	255
Lewis R at Ariel (2)	JUN-JUL	330	107	400	360	300	260	310
	JUN-SEP	500	109	625	550	450	375	460
Cowlitz R bl Mayfield Dam (2)	JUN-JUL	710	108	885	780	640	535	655
	JUN-SEP	950	109	1150	1030	865	745	870
Cowlitz R at Castle Rock (2)	JUN-JUL	960	108	1120	1020	895	805	890
	JUN-SEP	1300	110	1470	1370	1230	1130	1180

SOUTH PUGET SOUND RIVER BASINS

Forecast Point	period	50% (KAF)	% of avg	max (KAF)	30% (KAF)	70% (KAF)	min (KAF)	30-yr avg
White R nr Buckley (1)	JUN-JUL	220	107	280	240	200	159	205
	JUN-SEP	310	105	390	335	285	230	295
Green R bl Howard Hanson Dam (1,2)	JUN-JUL	70.0	103	101	80.0	60.0	39.0	68.0
	JUN-SEP	93.0	102	132	105	81.0	54.0	91.0

CENTRAL PUGET SOUND RIVER BASINS

Forecast Point	period	50% (KAF)	% of avg	max (KAF)	30% (KAF)	70% (KAF)	min (KAF)	30-yr avg
Cedar R nr Cedar Falls	JUN-JUL	31.0	124	39.0	34.0	28.0	23.0	25.0
	JUN-SEP	37.0	119	47.0	41.0	33.0	27.0	31.0
Rex R nr Cedar Falls	JUN-JUL	8.50	116	11.4	9.7	7.30	5.60	7.30
	JUN-SEP	11.00	115	13.9	12.2	9.8	8.10	9.60
Taylor Creek Near Selleck	JUN-JUL	8.10	108	10.1	8.90	7.30	6.10	7.50
	JUN-SEP	11.8	106	14.6	12.9	10.7	9.00	11.1
SF Tolt R nr Index	JUN-JUL	9.00	164	11.1	9.8	8.20	6.90	5.50
	JUN-SEP	12.00	160	14.4	13.0	11.0	9.6	7.50

NORTH PUGET SOUND RIVER BASINS

Forecast Point	period	50% (KAF)	% of avg	max (KAF)	30% (KAF)	70% (KAF)	min (KAF)	30-yr avg
Thunder Ck Nr Newhalem	JUN-JUL	149	96	175	160	138	123	155
	JUN-SEP	240	96	275	255	225	205	250
Skagit R At Newhalem	JUN-JUL	885	98	1020	940	830	745	900
	JUN-SEP	1190	95	1370	1260	1120	1010	1250
Baker R nr Concrete (2)	JUN-JUL	415	99	530	460	370	300	420
	JUN-SEP	610	98	810	690	530	410	620

OLYMPIC PENINSULA RIVER BASINS

Forecast Point	period	50% (KAF)	% of avg	max (KAF)	30% (KAF)	70% (KAF)	min (KAF)	30-yr avg
Dungeness R Nr Sequim	JUN-JUL	74.0	109	89.0	80.0	68.0	59.0	68.0
	JUN-SEP	102.0	111	122	110	94.0	82.0	92.0
Elwha R At Mcdonald Bridge	JUN-JUL	230	112	260	245	215	198	205
	JUN-SEP	310	113	355	330	290	265	275

Max is 90 percentile and min is 10 percentile except with footnote 1 below.
Averages are for the 1971-2000 period.
All volumes are in KAF.

footnotes:
1) max is 95 percentile and min is 5 percentile
2) streamflow is adjusted for upstream storage

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

Canada	Snow Survey Network Program – British Columbia Ministry of Environment
	River Forecast Center – British Columbia Ministry of Forests, Lands and Natural Resource Operations
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
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	Pacific Power and Light Company
	Puget Sound Energy
	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
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Washington Water Supply Outlook Report

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Spokane, WA